City of Malibu
Planning Department
23825 Stuart Ranch Road
Malibu, CA 90265-4861

INITIAL STUDY & MITIGATED NEGATIVE DECLARATION

Sea View Hotel Project
22729 and 22741 Pacific Coast Highway

1 INTRODUCTION

This *Initial Study and Mitigated Negative Declaration* (IS/MND) has been prepared in accordance with the *California Environmental Quality Act (CEQA) of 1970*, as amended, and the CEQA *Guidelines* as revised. *Section 15063(c)* of the CEQA *Guidelines* indicates that the purposes of an Initial Study are to:

1. Provide the Lead Agency (i.e., the City of Malibu) with information to use as the basis for deciding whether to prepare an Environmental Impact Report (EIR) or Negative Declaration;
2. Enable an applicant or Lead Agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a Negative Declaration;
3. Assist the preparation of an EIR, if one is required, by:
   - Focusing the EIR on the effects determined to be significant;
   - Identifying the effects determined not to be significant;
   - Explaining the reasons why potentially significant effects would not be significant; and
   - Identifying whether a program EIR, tiering, or another appropriate process can be used for analysis of the project's environmental effects.
4. Facilitate environmental assessment early in the design of a project.
5. Provide documentation of the factual basis for the finding in a Negative Declaration that a project will not have a significant effect on the environment;
6. Eliminate unnecessary EIRs; and
7. Determine whether a previously prepared EIR could be applicable to the project.



Sea View Hotel Project

Final Initial Study-Mitigated Negative Declaration

prepared by

City of Malibu
Planning Department
23825 Stuart Ranch Road
Malibu, California 90265
Contact: Lilly Rudolph, Contract Planner

prepared with the assistance of

Rincon Consultants, Inc.
250 East 1st Street, Suite 1400
Los Angeles, California 90012

May 2021

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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Initial Study

1. Project Title

Sea View Hotel Project

2. Lead Agency Name and Address

City of Malibu, Planning Department
23825 Stuart Ranch Road
Malibu, California 90265

3. Contact Person

Lilly Rudolph, Contract Planner
lrudolph@malibucity.org

4. Project Sponsor's Name and Address

Grey Granite, LLC; Las Tunas Beach, LLC; and Sea View Terrace, LLC
22741 Pacific Coast Highway, Suite 400
Malibu, California 90265

5. Project Location

The 51,667-square-foot (sf; 1.19-acre) project site is located north of Pacific Coast Highway in the City of Malibu, Los Angeles County, California. The project site is comprised of two adjacent parcels, Parcel A and Parcel B, located at 22729 Pacific Coast Highway (Assessor's Parcel Number [APN]: 4452-022-010) and 22741 Pacific Coast Highway (APN: 4452-022-017), respectively. Figure 1 shows the location of the project site in the region and Figure 2 shows the location of the project site in its neighborhood context.

6. General Plan Designation

The project site has a General Plan land use designation of Community Commercial (CC), which provides for community-serving uses. In addition, the project is within the City's Coastal Zone and Local Coastal Program. The project would include a General Plan Amendment to designate the project site as Commercial Visitor Serving 2 (CV-2), which permits hotel uses.

Figure 1 Regional Location



Imagery provided by Esri and its licensors © 2020.

Project Location

N



Figure 2 Project Location



Imagery provided by Microsoft Bing and its licensors © 2020.

7. Zoning

The project site is currently zoned Community Commercial (CC) on both parcels. Per the City of Malibu Municipal Code (MMC) Section 17.24.020, the CC zone is intended to provide the resident-serving needs of the community, including uses such as restaurants, banks, offices, and retail. The project would include a zone change to Commercial Visitor Serving 2 (CV-2), which permits hotel uses.

8. Regional Setting

The City of Malibu is a coastal city in Los Angeles County. It is located approximately 24 miles northwest of the City of Los Angeles and 17 miles northwest of the Los Angeles International Airport. Malibu is surrounded by the Santa Monica Mountains to the north, Topanga Canyon to the east, the Pacific Ocean to the south, and Ventura County and the Pacific Ocean to the west. Regional access to the project site is available from State Route 1 (SR-1; Pacific Coast Highway) or the Ventura Freeway (U.S. Highway 101) via South Westlake Boulevard and South Topanga Canyon Boulevard.

9. Site Characteristics

The project site is in a commercial area of the city, is currently developed with an operational office building and auto detailing company, and is surrounded by Pacific Coast Highway, other commercial buildings, single-family residential properties, and undeveloped hillsides. The project site contains two buildings and two small surface parking areas. Parcel A, the 18,283-sf parcel immediately adjacent to Pacific Coast Highway at 22729 Pacific Coast Highway, contains one single-story, 1,000-sf building and two canopies that formerly served as a gas station built in 1968 and closed in 2005, but are now in use as an automotive detailing business. In addition, Parcel A contains a retaining wall along its northern boundary.

North of Parcel A lies Parcel B, at 22741 Pacific Coast Highway, a 33,384-sf parcel that is accessed by a paved driveway along the western boundary of the project site. Parcel B contains a 15,392-sf ~~16,220-sf~~ (with a 9,500-sf parking level ~~12,889 sf of floor area~~) commercial/office building that was built in 2006. The building consists of three floors above a garage level containing 60 parking spaces, including a rooftop deck. Due to the project site's location on a hillside, Parcel B is up to 25 to 40 feet higher in elevation than Parcel A and the commercial/office building located on Parcel B was constructed in a stepped fashion, such that each level is located higher up and set back into the hillside. The height of the existing commercial/office building varies from 26.5 feet to 48 feet above the existing grade and the current floor area ratio for Parcel B is 38.7 percent. The building on Parcel B was approved by the City in 2006 as part of a resolution to a vesting claim.

Figure 3a through Figure 3h show the existing conditions on the project site and surrounding area.

Figure 3 Site Photographs



Figure 3a: View of the automotive detailing shop on Parcel A. Commercial building on Parcel B is visible in the upper right corner of the photograph.



Figure 3b: View of the commercial building on Parcel B from Parcel A.



Figure 3c: View of residential land uses to the north of the project site from Parcel B.



Figure 3d: Undeveloped hillside to the east of Parcel B.



Figure 3e: Commercial development to the east of Parcel A.



Figure 3f: View of Pacific Coast Highway and commercial development to the south of the project site from Parcel A.



Figure 3g: Commercial development to the west of Parcel A.



Figure 3h: Parcel B driveway and commercial development to the west of Parcel B. Residential uses at the top of the hillside can be seen in the background.

10. Description of Project

The proposed Sea View Hotel Project (herein referred to as "project") would replace the existing uses on the project site with a 39-guest room boutique hotel including a spa, restaurant, private decks, and a rooftop deck with a pool. On Parcel A, the existing structures would be demolished, and a 13,865-sf building (with 10,389-sf of floor area) would be constructed. Parcel A would contain a spa and back of house space in the basement level; 31 valet-parking spaces, hotel reception, and the Sea View Restaurant on the ground-floor level; nine guest rooms on the second floor; and eight guest rooms on the third floor, for a total of 17 guest rooms. Each guest room would also have a partially landscaped, private balcony of at least 14 feet by 24 feet. The building on Parcel A would be between 24 and 28 feet in height above the existing grade and, due to the site topography and stepped nature of the proposed building, no portion of the building would contain more than two stories except for the elevator shaft, which would provide access to all three levels of the building.

On Parcel B, the existing 15,392-sf ~~16,220-sf~~ commercial building would remain in place and would be converted to 22 guest rooms with private balconies. There would be ten guest rooms on the first floor and six guest rooms on each the second and third floors. The building on Parcel B would primarily undergo an interior remodel, and the previously approved floor areas would not increase. Changes to the exterior of the building would include creating 12 new exterior doors on the north side of the building, the extension of the existing elevator to the rooftop deck level in order to comply with Americans with Disabilities Act (ADA) regulations, and the replacement and extension of existing emergency stairs on the eastern side of the building per the requirements of the Los Angeles County Fire Department. A 953-sf covered area would be added. In addition, a pool, bar, and new landscaping would be added to the existing rooftop deck. On Parcel B, the existing 60 parking spaces on the ground level would remain in place.

The proposed new building would be constructed in accordance with the 2019 California Building Standards Code (California Code of Regulations [CCR] Title 24) requirements by including sustainability features such as water-efficient fixtures and landscaping, energy-efficient heating, ventilation, and air conditioning (HVAC) systems, roof overhangs to provide solar shading, and drip irrigation. Additionally, the remodeled building on Parcel B would be brought into compliance with 2019 Title 24. The project would also provide six electric vehicle (EV) charging stations available to hotel guests and the public, 15 bicycle parking spaces, and carpooling/rideshare opportunities for the project employees.

The proposed project also includes upgrades to the existing onsite wastewater treatment system (OWTS) that serves the commercial businesses currently operating on the site. The upgraded system would include a new 3,000-gallon grease interceptor, 3,000-gallon concrete pump tank with duplex screened pump vault, and two new disinfection units. The pump tank would pump wastewater from the new building on Parcel A to the existing 5,000-gallon concrete tank with HighStrengthFast 4.5 Treatment System (upgraded from the existing MicroFast 3.0 Treatment System). The system would discharge to three Norweco Bio-Kinetic Model BK 2000 Disinfection Unites, upgraded from one existing Norweco Bio-Kinetic Model BK 2000 Disinfection Unit. From there, the system would discharge to the existing 5,000-gallon dosing tank with duplex screened pump vault and onto two seepage pits capped 5 feet below-grade. The OWTS would be constructed in accordance with the Malibu Plumbing Code and Local Coastal Plan requirements.

In addition, as a project condition of approval, the project applicant would be required to pay a fair share contribution to fund the replacement of an existing 20-inch check valve and installation of 18-inch pipe spool within the manifold located near the Topanga Beach Pump Station on Topanga Canyon

Boulevard. A summary of the proposed project is provided in Table 1. Figure 4 shows the proposed site plan, and Figure 5 through Figure 8 show the proposed building elevations.

Table 1 Project Summary

Project Site	
Parcel A (APN: 4452-022-010)	18,283 sf
Parcel B (APN: 4452-022-017)	33,384 sf
Total	**51,667 sf**
Proposed Buildings (Floor Area)	
Parcel A	11,342 sf ~~10,389 sf~~ with 3,500 sf partially subterranean
Parcel B	15,392 sf ~~12,889 sf~~
Total	**26,743 sf ~~23,278 sf~~**
Total Site Floor Area Ratio	**0.52, or 51.8% ~~45.05%~~**
Building Heights[1]	
Parcel A	24 ft with a flat roof or 28 ft with a pitched roof, excluding safety railing and eave
Parcel B	49 ft ~~26.5 to 48 ft~~, excluding safety railing
Setbacks	
Parcel A	Front yard: 46.65 ft; Rear yard: 0 ft ~~48.6 ft~~; Side yard (west): 26.5 ft; Side yard (east): 12.0 ft
Parcel B[2]	Front yard: 0 ft ~~10 ft~~; Rear yard: 46 ft ~~51 ft~~; Side yard (west): 26.25 ft; Side yard (east): 0 ft
Hotel Guest Rooms, Amenities, and Parking	
Parcel A Guest Rooms	17
Parcel B Guest Rooms	22
Total Guest Rooms	**39**
Sea View Restaurant	1,914 sf
Spa	1,790 sf
Hotel Reception	204 sf
Hotel Back of House	1,686 sf
Parcel A Parking	31 spaces
Parcel B Parking	60 spaces
Total Parking	**91 spaces**
Landscaping and Open Space	
Landscape Area	11,500 sf ~~6,810 sf~~ (22~~37~~ percent of total site area)
Open Space ~~Rooftop Deck~~	22,808 sf ~~4,506 sf~~
~~Private Balconies~~	~~2,012 sf~~
Total Landscape and Open Space	**34,307 sf ~~6,518 sf~~**

sf: square feet; ft: foot

[1] Above the existing grade

[2] Existing building setbacks to remain

Figure 4 Proposed Site Plan

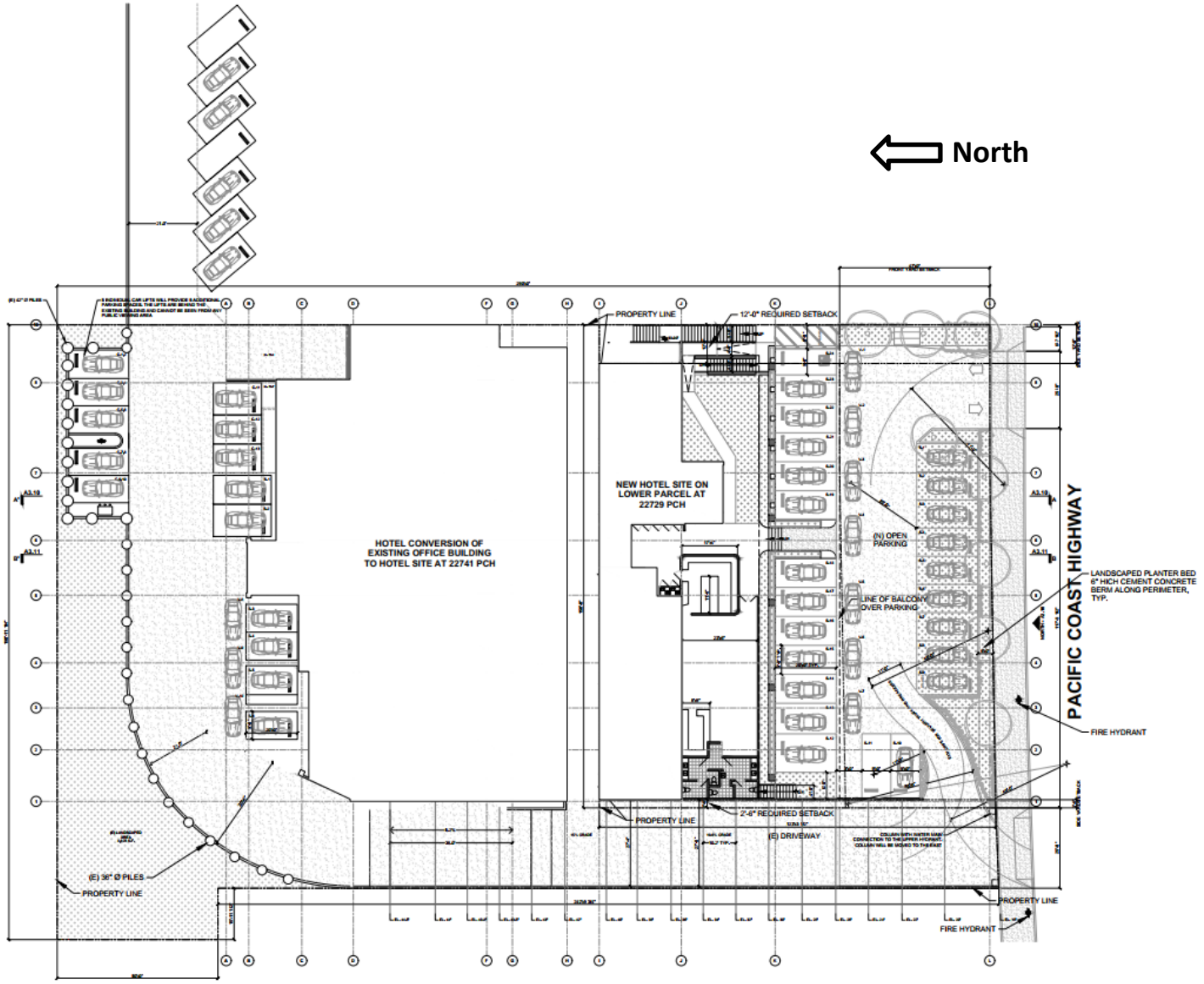


Figure 5 Parcel A North-South Elevations

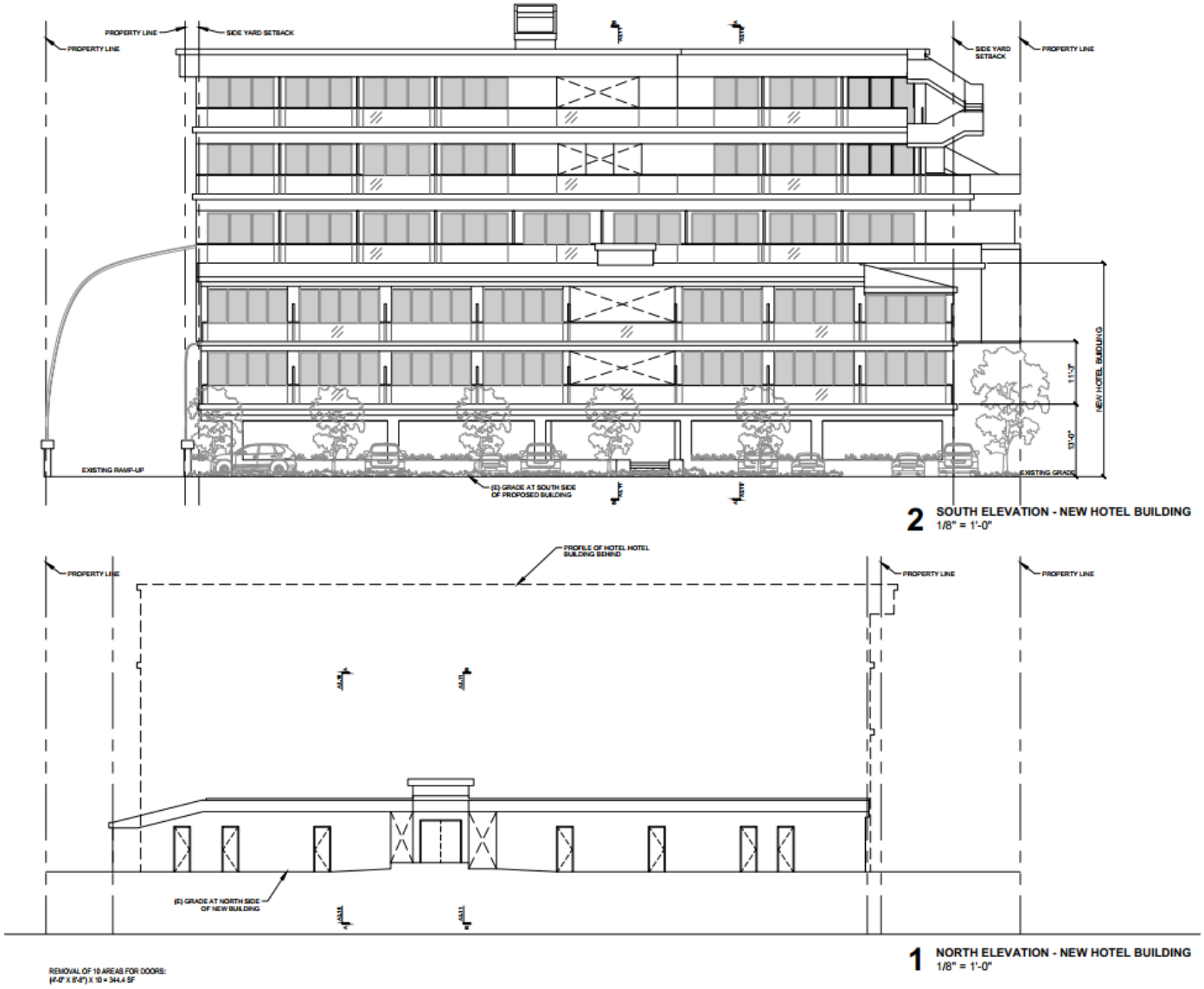
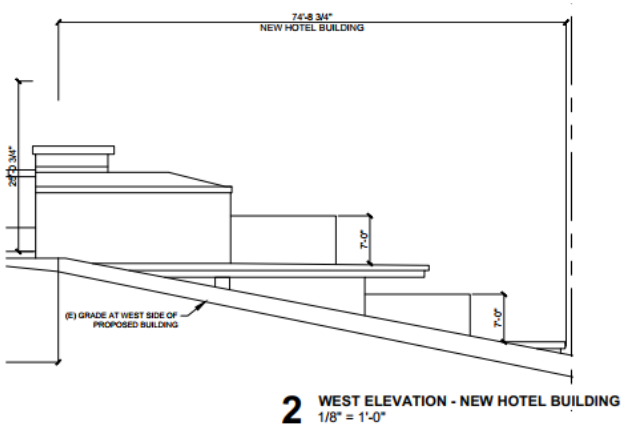


Figure 6 Parcel A East-West Elevations



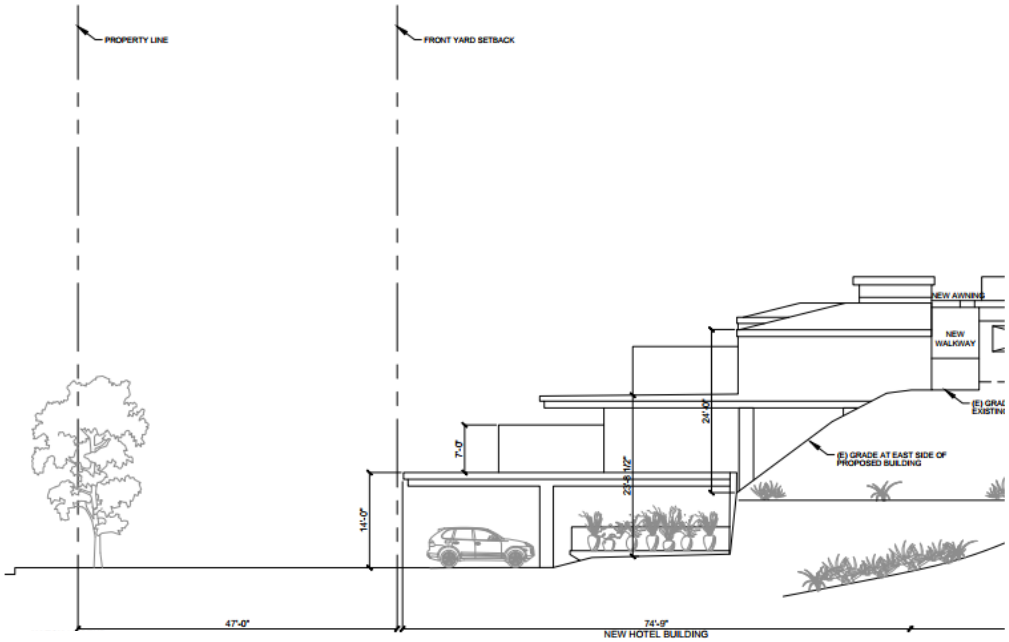


Figure 7 Parcel B North-South Elevations

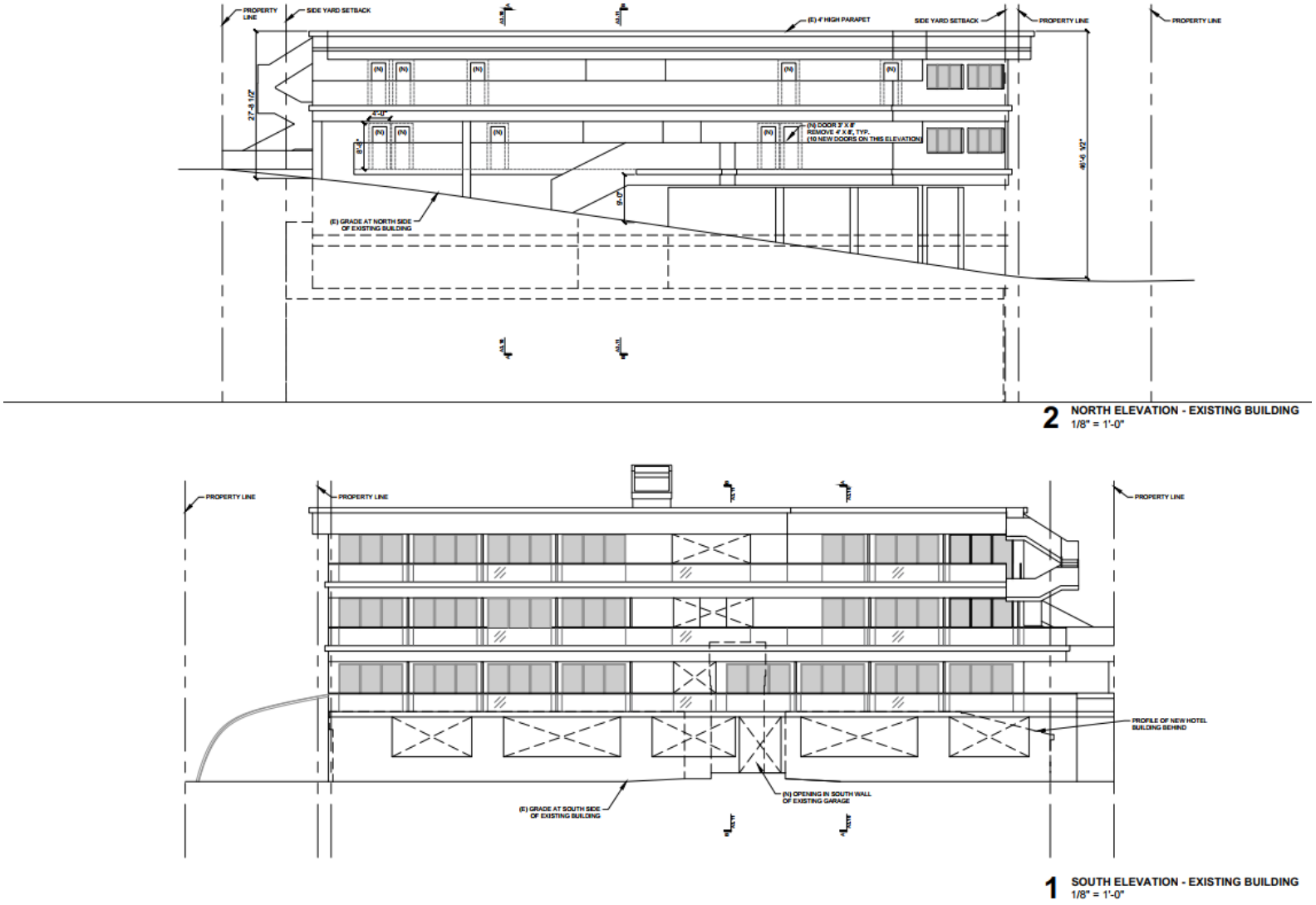
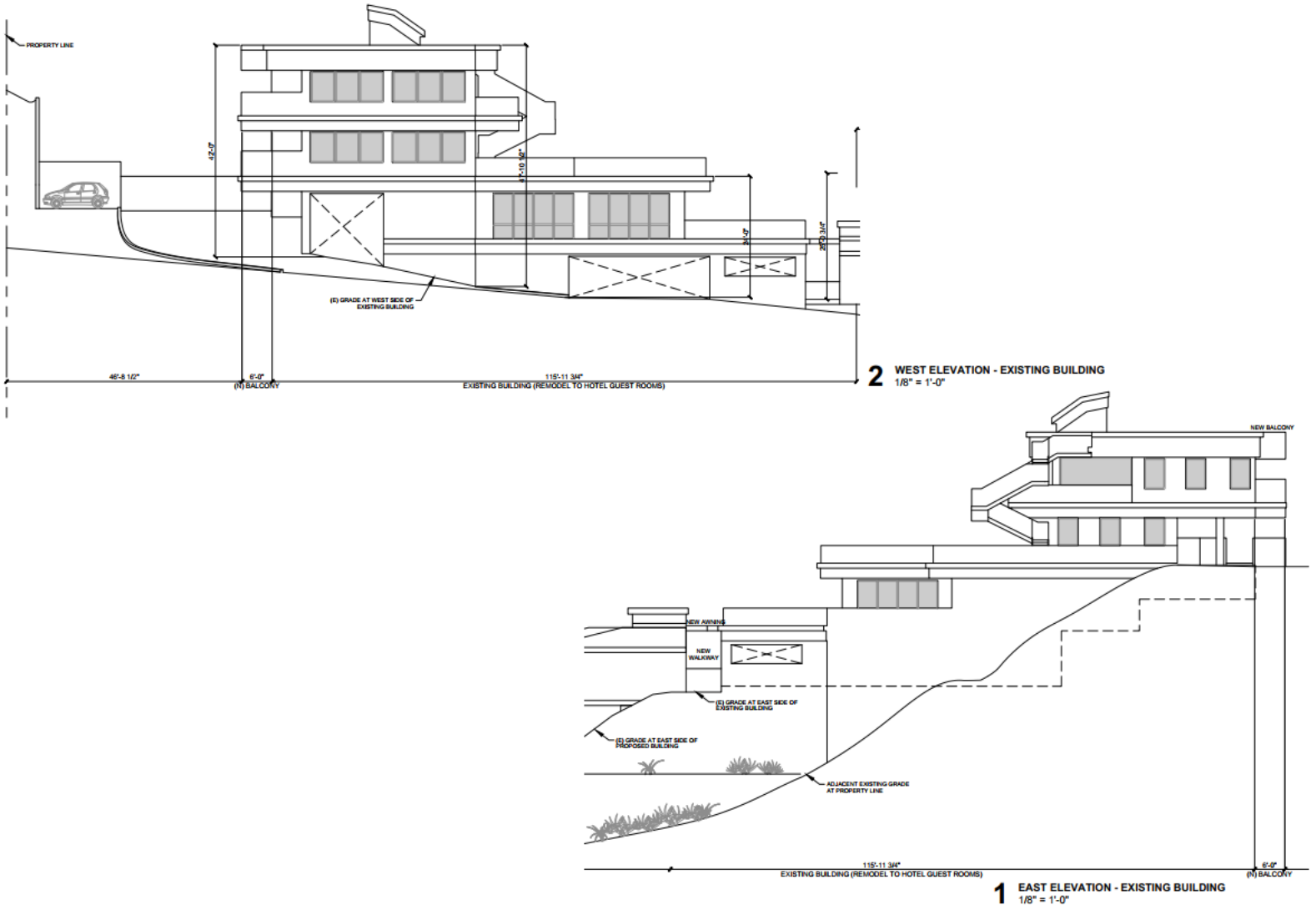


Figure 8 Parcel B East-West Elevations



Zoning Text Amendment

The project includes a Zoning Text Amendment (ZTA No. 20-001) to create the Sea View Hotel Overlay District, which includes development standards for increased floor area ratio (FAR), decreased landscape and open space area, reduced number of parking spaces, changes to parking location requirements, reduced compact parking space dimensions, increased building height, allowance of site of construction on steep slopes, and increased retaining wall heights. The proposed standards deviate from standard commercial development standards of Local Coastal Plan (LCP) Local Implementation Plan (LIP) Section 3.8, Commercial Development Standards, and the MMC and are proposed to accommodate the existing legal nonconforming building and retaining wall at 22741 Pacific Coast Highway and proposed improvements that exceed the standard requirements. A summary of the deviations between the proposed development standards and the standards of the LIP and MMC are summarized in Table 2 below.

Table 2 Comparison of Proposed and Existing Development Standards

Development Requirement	Allowed/Required	Proposed Sea View Hotel Overlay District
Setbacks		
Front yard	20% or 65 ft, whichever is less; 58.28 ft	46.25 ft
Side yard	17.5 ft	12 ft for new buildings. 0 ft for existing buildings. Fire Department-required access and exit stairs and vehicular access are exempt from side yard setback standards.
Parking		
Location	Not allowed in front yard setbacks	Allowed in front yard setbacks
Spaces	98	79 required; 91 proposed
Dimensions	Standard: 9 ft x 20 ft Compact: 8 ft x 16 ft, 6 in	
Floor Area Ratio and Building Heights		
Floor Area Ratio	0.15 or 15 percent of lot area	0.52 or 51.8 percent of lot area
Height	18 ft	24 ft 25 ft for flat roof; 28 for pitched roof; Eaves, decks, railings, emergency stairs, and elevators for ADA access are exempt
Landscaping and Open Space		
Landscaping	40 percent of lot area	22.25 22.19 percent of lot area
Open space	25 percent of lot area	40 35.65 percent of lot area, or 6,517.8 sf
Fencing/Walls and Signage		
Retaining walls	6 ft for one wall, or 12 ft for combination of walls with 3 ft separation	16 ft existing wall
Signage	48 sf monument sign including base 50 sf for total aggregate sign area	48 sf monument sign excluding base plus additional 87 sf wall sign and 16 sf address monument sign 151 sf for total aggregate sign area
Construction		
Site of Construction	<3:1 slope	<2.5:1 existing slope

ft: foot; sf: square foot

Construction

Project construction is estimated to begin in July 2021 and be completed in January 2023, for a total construction period of approximately 1.5 years. Construction phases would include demolition, site preparation, grading, excavation, building construction, architectural coating (painting), and paving of approximately 0.17 acre. Construction would occur in three phases:

- Phase 1 would occur between July 2021 and November 2021 and would involve demolition of the structures on Parcel A, construction of soldier pile retaining walls and French drains, excavation for the basement and construction of basement walls on Parcel A, construction of retaining walls for the elevator and stair shafts, installation of drainage systems, plumbing and electrical conduits, and construction of the project's OWTS upgrades.
- Phase 2 would occur between November 2021 and February 2022 and would include construction of the steel structure, steel decking, and concrete floors for the new building on Parcel A and reconfiguration of interior walls and doors in the existing building on Parcel B.
- Phase 3 would occur between February 2022 and January 2023 and would involve construction of the parking lot, interior walls in the building on Parcel A, installation of landscaping, roof deck pool construction, and room finishes.

All construction equipment would be staged on site, and construction would not require closing down any lanes on Pacific Coast Highway. Approximately 1,567 cubic yards (cy) of soil would be cut, of which 421 cy would be reused on the site and 1,342 cy would be exported. A total of 196 cy of soil would also be imported. Exported soil and construction debris would be taken to the Calabasas Landfill, located approximately 11.9 miles from the project site. Haul trucks are anticipated to have a standard 16 cy capacity and hauling would take place over 197 trips. Five haul trucks would arrive at the project site at 10:00 a.m. following the morning peak hour traffic, would be parked and loaded on site, and would travel to the landfill heading west on Pacific Coast Highway and north on Malibu Canyon Road. Hauling activities would cease at 3:30 p.m. prior to the afternoon peak hour traffic. Hauling would take place Monday through Friday.

Pursuant to MMC Section 8.24.050, construction activities would only occur Monday through Friday between the hours of 7:00 a.m. and 6:30 p.m. and Saturdays between 8:00 a.m. and 5:00 p.m. No construction would occur on holidays or Sundays.

Operation

The hotel lobby would operate 24 hours per day. The proposed Sea View Restaurant would be open to the public from 7:30 a.m. to 10:00 p.m. The spa would be open between 10:00 a.m. and 6:00 p.m. and would be reserved for guests of the hotel. The rooftop deck and pool would be open from 10:00 a.m. to 10:00 p.m. The hotel would require approximately 15 employees on the project site during operation with 11 full-time equivalent employees.

11. Required Approvals

The proposed project would require the following approvals:

- Initial Study (IS No. 21-001) for preparation of an initial study
- Mitigated Negative Declaration (MND No. 21-001) for adoption of a Mitigated Negative Declaration

- A General Plan Map Amendment (GPMA No. 17-002) to change the land use designation from Community Commercial (CC) to Commercial Visitor Serving (CV)
- A zone change (ZMA No. 17-002) from Community Commercial (CC) to Commercial Visitor Serving (CV-2)
- A Local Coastal Plan Amendment (LCPA No. 16-006) for the zone change from CC to CV-2
- A Zoning Text Amendment (ZTA No. 20-001) for creation of the Sea View Hotel Overlay District
- A Coastal Development Permit (CDP No. 17-086) for the hotel use
- A conditional use permit (CUP No. 21-001) for the hotel use and alcohol sales
- A lot merger (LM No. 20-002) to merge Parcel A and Parcel B
- A demolition permit (DP No. 20-19) for demolition of the structures on Lot A

12. Other Public Agencies Whose Approval is Required

The project would require an administrative permit from the California Department of Transportation (Caltrans) for the use of oversized vehicles to transport construction equipment on Pacific Coast Highway.

13. Tribal Consultation

The City has initiated the tribal consultation process, as required under Public Resources Code (PRC) Section 21080.3.1 and consistent with Assembly Bill (AB) 52 and Senate Bill (SB) 18. On October 27, 2020, the City mailed notification letters to 34 tribal contacts in an effort to identify any tribal cultural resources within the project site and/or its vicinity and to address any potential impacts to tribal cultural resources resulting from project-related development. The City requested a response within 30 days of receipt as specified by AB 52. The City received feedback from the Gabrieleño Band of Mission Indians—Kizh Nation requesting consultation. On December 2, the Gabrieleño Band of Mission Indians—Kizh Nation requested to defer the project to Pat Tumamait of the Chumash Tribe. However, the City has not heard from the Chumash Tribe. In addition, the Fernandeño Tataviam Band of Mission Indians requested formal consultation. A meeting between the City and the Fernandeño Tataviam Band of Mission Indians was held on December 1, 2020. The City and tribe agreed upon tribal cultural resources mitigation measures for the project, and consultation under AB 52 has been completed.

Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is "Potentially Significant" or "Potentially Significant Unless Mitigation Incorporated" as indicated by the checklist on the following pages.

☐	Aesthetics	☐	Agriculture and Forestry Resources	☐	Air Quality
☐	Biological Resources	■	Cultural Resources	☐	Energy
■	Geology/Soils	☐	Greenhouse Gas Emissions	■	Hazards and Hazardous Materials
☐	Hydrology/Water Quality	☐	Land Use/Planning	☐	Mineral Resources
☐	Noise	☐	Population/Housing	☐	Public Services
☐	Recreation	☐	Transportation	■	Tribal Cultural Resources
☐	Utilities/Service Systems	☐	Wildfire	☐	Mandatory Findings of Significance

Determination

Based on this initial evaluation:

☐ I find that the project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

■ I find that although the project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the project could have a significant effect on the environment, because all potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Adrian Fernandez	7/27/2021
Signature	Date
Adrian Fernandez	Assistant Planning Director
Printed Name	Title

Environmental Checklist

1 Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Except as provided in PRC Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	■	☐
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	■	☐
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	■	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	■	☐

For purposes of determining significance under the California Environmental Quality Act (CEQA), scenic resources are the visible natural and cultural features of the landscape that contribute to the public's enjoyment of the environment. A scenic vista is defined as a public viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Public views are those that are experienced from a publicly accessible vantage point, such as a roadway or public park.

The California Department of Transportation (Caltrans) manages the California State Scenic Highway Program, which designates state scenic highways. Scenic highways are highways located in areas of natural beauty. A scenic highway becomes officially designated when the local governing body applies to and is approved by Caltrans for scenic highway designation and adopts a Corridor Protection Program that preserves the scenic quality of the land that is visible from the highway right-of-way (Caltrans 2020a). Pacific Coast Highway has not been officially designated by Caltrans as a California State Scenic Highway, although it is eligible for designation (Caltrans 2020b).

Chapter 6 of the Malibu Local Coastal Program's (LCP) Local Implementation Plan (LIP) contains definitions, background information, and policies regarding scenic, visual, and hillside resource

protection within the coastal zone (City of Malibu 2002). The LCP provides the following definitions relevant to aesthetic resources (City of Malibu 2002):

- Public Viewing Area: a location along existing scenic public roads and trails or within public parklands or beaches where there are scenic views of the beach and ocean, coastline, mountains, ridgelines, canyons, and other unique natural features or areas.
- Scenic Area: places on, along, within, or visible from scenic public roads, trails, beaches, and parklands that offer scenic vistas of the beach and ocean, coastline, mountains, canyons, and other unique natural features or areas.
- Scenic Road: public roads within the City that traverse or provide views of areas with outstanding scenic qualities, that contain striking view of natural vegetation, geology, and other unique natural features, including the mountains, canyons, ridgelines, beach, and ocean.

In addition, Chapter 6 of the LCP specifies that Pacific Coast Highway, although not officially designated as a State Scenic Highway, shall nonetheless be protected as a scenic highway.

a. Would the project have a substantial adverse effect on a scenic vista?

As a coastal city, Malibu contains many scenic resources, including the ocean, coastal landforms, canyons, ridgelines, and other geologic features associated with the Santa Monica Mountains. According to the City's General Plan Conservation Element, there are 22 scenic resources within the City and surrounding areas identified in the Malibu Local Coastal Program (City of Malibu 2017). In addition, the Conservation Element identifies six scenic vista points within the City, the closest to the project site being Kellers Shelter Vista Point, located 4,800 feet southwest of the project site (City of Malibu 2017).

The proposed project involves construction of a new three-story building on Parcel A and internal remodeling to the existing building on Parcel B, as well as landscaping improvements throughout the site. The proposed new building would be designed in a similar style to the existing building to ensure a cohesive aesthetic across the project site. The proposed project would not increase the overall height of development on the project site, aside from the extension of the elevator shaft located in the existing building on Parcel B for ADA purposes.

The project site is located nearly one-mile northwest of Kellers Shelter Vista Point and is separated from the vista by existing development and Pacific Coast Highway. Due to the distance and location of the project site relative to Kellers Shelter Vista Point, the project site is not visible from this scenic vista. Therefore, the proposed project would have no impact to public views from this scenic vista point identified in the Conservation Element. Impacts to scenic vistas would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The California Scenic Highway System indicates that no existing or proposed state scenic highways are located in the vicinity of the project site (Caltrans 2020b). However, Pacific Coast Highway immediately adjacent to the project site is eligible for designation as a state scenic highway (Caltrans 2020b). According to the City LCP's LIP, Pacific Coast Highway shall be protected as a scenic highway. LCP LIP standards for development within the vicinity of Pacific Coast Highway that are applicable to the proposed project include the following (City of Malibu 2002):

- Any proposed landscaping shall be comprised primarily of native and drought tolerant plant species. Landscaping shall be designed and maintained to be subordinate to the character of the area, and not block ocean or mountain views at maturity. Any such improvements west of Malibu Canyon Road shall be required to maintain the rural character of that area.
- New commercial development that includes a parking lot visible from Pacific Coast Highway shall include landscaping and/or berming to screen the view, so long as such measures do not obscure or block views of the ocean.

The project site is fully developed with existing buildings and hardscaping associated with the automotive detailing business on Parcel A and the commercial building on Parcel B. According to the project's Phase I Archaeological Resources Study, there are no designated or eligible historic buildings located on the project site, nor does the site contain natural vegetation or natural landscape features such as rock outcroppings (see Appendix C). Therefore, the project site currently does not contain features such as historic buildings, trees, or rock outcroppings that would contribute to the scenic quality of the Pacific Coast Highway corridor.

The primary scenic views available from Pacific Coast Highway are of the Pacific Ocean and coastal mountains. Public views of scenic resources in the vicinity of the project site are limited to intermittent glimpses between existing structures located south of Pacific Coast Highway. The project site is located north of Pacific Coast Highway and would therefore not block public views of the Pacific Ocean and associated coastal landforms from Pacific Coast Highway. In addition, the project site is located at the bottom of a hillside, with undeveloped hillside located immediately north. Therefore, upon completion, the proposed project would not be anticipated to block any public or private views of the ocean from locations to the north of the project site. In addition, as discussed under *Impact a.* above, the project would not substantially block views of scenic vistas in the vicinity.

The project would update the landscaping and lighting along the Pacific Coast Highway frontage, which would require the removal or relocation of some ornamental landscaping on the site, but would not otherwise affect any rock outcroppings, historic buildings, or other scenic resources within a state scenic highway. Upon completion of the project, a 20-foot-wide landscape buffer would be added along the project site's Pacific Coast Highway frontage, which would include native and drought tolerant plants, grass, and specimen trees of 14 to 18 feet in height. The project's landscape buffer would be four times the standard 5-foot-wide landscaping required adjacent to Pacific Coast Highway and would align with the LCP LIP standards for landscaping adjacent to Pacific Coast Highway. Therefore, because the project is not located adjacent to a designated state scenic highway and would incorporate the recommendations of the LCP LIP, the project would not result in substantial damage to scenic resources in a state scenic highway. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The project is in an urban area of the City that is primarily developed with one- to three-story commercial and residential buildings. Public views of scenic resources are primarily available from Pacific Coast Highway, Latigo Canyon Road, other local roads, and public areas such as parks, beaches, and trails (City of Malibu 2017). The only identified scenic resource in the vicinity of the project site is the Pacific Ocean, located approximately 400 feet south of the project site, across Pacific Coast

Highway. However, the project would not affect public views of the ocean from Pacific Coast Highway, as it is located north of Pacific Coast Highway.

The project site is currently occupied by two existing buildings which include commercial and automotive detailing/former gas station uses, as well as associated surface parking lots and ancillary structures. Vegetation on the project site is limited to ornamental landscaping along the Pacific Coast Highway frontage, as well as minimal ornamental landscaping throughout the project site. The project involves the construction of a new three-story building and the internal remodel of one existing building, as well as landscaping and lighting improvements throughout the site, to establish a new boutique hotel with a spa and restaurant.

Implementation of the proposed project would not substantially change the exterior of the existing commercial building on Parcel B, and the proposed new building on Parcel A would be constructed in a similar design and aesthetic to create a unified development across the project site as shown in the photo simulation of the project in Figure 9. In addition, the proposed project would include new landscaping within the first 20 feet of the project site immediately adjacent to Pacific Coast Highway to provide screening and would add landscaping to the private decks and rooftop deck, which would improve public views of the project site. While development of the project would modify the appearance site relative to existing conditions, it is not anticipated to degrade the existing visual character or quality of the site. Rather, it would improve its surroundings as it would replace vacant, underutilized structures on the project site associated with the former gas station and increase the landscaping on the site, thereby enhancing visual quality of the site and contributing to an aesthetically enhanced project area.

Project entitlements include a General Plan Amendment, zone change and Zone Text Amendment, Conditional Use Permit, and Coastal Development Permit, which require discretionary review and approval of the project by the Planning Commission. City review would verify that the project would comply with goals and policies of the General Plan and LCP, including scenic quality. Although the project would not degrade the visual character of the site and surroundings, the review procedure provides the City with further assurances for aesthetic review and an opportunity to incorporate additional conditions to increase the aesthetic value of the project. The project would not conflict with the General Plan or LCP LIP regulations governing scenic quality and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

Figure 9 Photo Simulation of the Proposed Project



d. Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

The project is in an urban area of the City that is primarily developed with commercial/retail buildings. Existing lighting and glare sources in the project area consist of exterior lighting/glare associated with the on-site commercial structures, surrounding commercial/retail structures, and streetlighting on Pacific Coast Highway and associated vehicle lights. Development of the proposed project would include upgrading existing exterior lighting with improved outdoor on-site lighting for the hotel buildings, landscaping/street frontage lights, and safety-related lighting. New lighting proposed as part of the project would replace existing lighting on the project site and would not represent a substantial increase in daytime or nighttime lighting. Lighting would be shielded and aimed down to reduce intrusion onto adjacent properties and undeveloped hillside areas. For these reasons, the proposed project would not result in a substantial new source of light such that day or nighttime views in the area would be adversely affected. Rather, the proposed exterior lighting and building materials would be consistent with those of surrounding uses and would be an important aide to public safety.

In addition, the project design does not propose any new highly reflective materials that could potentially cause significant glare during the day, such as stainless-steel panels. The project would be reviewed for approval through the City's review process. This regulatory procedure provides the City with an additional layer of review for aesthetics, including light and glare, and an opportunity to incorporate additional conditions to improve the project's building materials and lighting plans. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	■
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	■
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)); timberland (as defined by PRC Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	■
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	■
a. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	■

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The project site is developed with a commercial building and auto detailing business and is located in an urban area of the City of Malibu. There are no existing agricultural operations on the project site or in its vicinity. The project site is designated by the City of Malibu's General Plan as Community Commercial (CC) and zoned Community Commercial (CC). The project site is not zoned for agricultural use and is not under a Williamson Act contract. The California Department of Conservation's (DOC) Important Farmland Finder map shows that the project site is not classified as Prime Farmland, Unique

Farmland, or Farmland of Statewide Importance (DOC 2020a). Therefore, the project would result in no impact with respect to agricultural zoning or other conversion of farmland to non-agricultural use.

NO IMPACT

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

As discussed under *Impact a*. of this section, the project site is developed with a commercial building and auto detailing business and is located within an urban area of the City. The project site does not contain forest land or timberland. In addition, neither the project site nor the surrounding area is zoned for forest land or timberland. Accordingly, the proposed project would not conflict with forest land or timberland zoning or result in the loss of forest land or conversion of forest land to non-forest use. No impact would occur.

NO IMPACT

e. Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

The proposed project would involve the remodel of an existing commercial building and construction of a new building to create a 39-guest room hotel in an urbanized area. The proposed project would not include the conversion of farmland to non-agricultural uses, forest land to non-forest uses, nor any other change in the existing environment that could result in such effects. No impact would occur.

NO IMPACT

3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	■
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	■	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	■	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	■

Air Quality Standards and Attainment

The project site is in the South Coast Air Basin (Basin), which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County. The Basin is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). As the local air quality management agency, the SCAQMD is required to monitor air pollutant levels to ensure that state and federal air quality standards are met and, if they are not met, to develop strategies to meet the standards.

Depending on whether the standards are met or exceeded, the Basin is classified as being in "attainment" or "nonattainment." Under state law, air districts are required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. The SCAQMD is in non-attainment for the federal standards for ozone and $PM_{2.5}$ (particulate matter up to 2.5 microns in size) and the state standards for ozone, PM_{10} (particulate matter up to 10 microns in size), and $PM_{2.5}$. The Los Angeles County portion of the Basin is also designated non-attainment for lead (SCAQMD 2016). The Basin is designated unclassifiable or in attainment for all other federal and state standards. The health effects associated with criteria pollutants for which the Basin is in non-attainment are described in Table 3.

Table 3 Health Effects Associated with Non-Attainment Criteria Pollutants

Pollutant	Adverse Effects
Ozone	(1) Short-term exposures: (a) pulmonary function decrements and localized lung edema in humans and animals and (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage.
Suspended particulate matter ($PM_{2.5}$ and PM_{10})	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma).[1]
Lead	(1) Short-term overexposures: lead poisoning can cause (a) anemia, (b) weakness, (c) kidney damage, and (d) brain damage; and (2) long-term exposures: long-term exposure to lead increases risk for (a) high blood pressure, (b) heart disease, (c) kidney failure, and (d) reduced fertility.

[1] More detailed discussion on the health effects associated with exposure to suspended particulate matter can be found in the following documents: United States Environmental Protection Agency (USEPA), Air Quality Criteria for Particulate Matter, October 2004.

Sources: USEPA 2020a, 2020b, and 2020c

Air Quality Management

Under state law, the SCAQMD is required to prepare a plan for air quality improvement for pollutants for which the District is in non-compliance. The SCAQMD administers the Air Quality Management Plan (AQMP) for the Basin, which is a comprehensive document outlining an air pollution control program for attaining all California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). The most recently adopted AQMP is the 2016 AQMP, which was adopted by the SCAQMD Governing Board on March 3, 2017. The 2016 AQMP represents a new approach, focusing on available, proven, and cost-effective alternatives to traditional strategies while seeking to further multiple goals in partnership with other entities promoting reductions in greenhouse gases (GHGs) and toxic risk as well as achieve efficiencies in energy use, transportation, and goods movement (SCAQMD 2017). The 2016 AQMP incorporates new scientific data and notable regulatory actions that have occurred since adoption of the 2012 AQMP, including the approval of the new federal 8-hour ozone standard of 0.070 parts per million (ppm) that was finalized in 2015.

The Final 2016 AQMP addresses several state and federal planning requirements and incorporates new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and meteorological air quality models. The Southern California Association of Governments' (SCAG) projections for socioeconomic data (e.g., population, housing, employment by industry) and transportation activities from the 2016 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS) are integrated into the 2016 AQMP. This Plan builds upon the approaches taken in the 2012 AQMP for the attainment of federal PM and ozone standards and highlights the significant amount of reductions to be achieved. It emphasizes the need for interagency planning to identify additional strategies to achieve reductions within the timeframes allowed under the federal Clean Air Act, especially in the area of mobile sources. The 2016 AQMP also includes a

discussion of emerging issues and opportunities, such as fugitive toxic particulate emissions, zero-emission mobile source control strategies, and the interacting dynamics among climate, energy, and air pollution. The AQMP also demonstrates strategies for attainment of the new federal 8-hour ozone standard and vehicle miles traveled (VMT) emissions offsets, pursuant to recent USEPA requirements (SCAQMD 2017).

Air Emission Thresholds

CEQA Guidelines Section 15064.7 provides that, when available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make determinations of significance. These thresholds are designed such that a project that would not exceed the adopted thresholds would not have an individually or cumulatively significant impact on the Basin's air quality. Therefore, a project that does not exceed these SCAQMD thresholds would result in a less than significant impact. This Initial Study conforms to the methodologies recommended in the SCAQMD's *CEQA Air Quality Handbook* (1993) and supplemental guidance provided by the SCAQMD, including recommended thresholds for emissions associated with both construction and operation of the project (SCAQMD 2019).

Table 4 presents the significance thresholds for construction and operational-related criteria air pollutant and precursor emissions being used for the purposes of this analysis. These represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. For the purposes of this analysis, the proposed project would result in a significant impact if construction or operational emissions would exceed any of the thresholds shown in Table 4.

Table 4 SCAQMD Regional Significance Thresholds

Construction Thresholds	Operational Thresholds
75 pounds per day of VOC[1]	55 pounds per day of VOC
100 pounds per day of NO_X	55 pounds per day of NO_X
550 pounds per day of CO	550 pounds per day of CO
150 pounds per day of SO_X	150 pounds per day of SO_X
150 pounds per day of PM_{10}	150 pounds per day of PM_{10}
55 pounds per day of $PM_{2.5}$	55 pounds per day of $PM_{2.5}$

VOC: volatile organic compound; NO_X: nitrogen oxides; CO: carbon monoxide; SO_X: sulfur oxides; PM_{10}: particulate matter measuring 10 microns in diameter or less; $PM_{2.5}$: particulate matter measuring 2.5 microns in diameter or less

[1] The California Air Resources Board (CARB) defines VOC and reactive organic gas (ROG) similarly as, "any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate," with the exception that VOC are compounds that participate in atmospheric photochemical reactions. For the purposes of this analysis, ROG and VOC are considered comparable in terms of mass emissions, and the term VOC is used in this analysis.

Source: SCAQMD 2019

Localized Significance Thresholds

In addition to the above regional thresholds, the SCAQMD has developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4), which was prepared to update the CEQA Air Quality Handbook (1993). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities and have been developed for NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into

consideration ambient concentrations in each source receptor area (SRA), distance to the sensitive receptor, and project size. LSTs have been developed for emissions generated in construction areas up to five acres in size. However, LSTs only apply to emissions in a fixed stationary location and are not applicable to mobile sources, such as cars on a roadway (SCAQMD 2008a). As such, LSTs are typically applied only to construction emissions because most operational emissions are associated with project-generated vehicle trips.

LSTs are provided for project sites of one acre, two acres, and five acres and for receptors at distances of 82 to 1,640 feet from the project disturbance boundary (SCAQMD 2009). The project site is in SRA 2 (Northwest Coastal Los Angeles County) and is 1.19 acres in size; therefore, the LSTs for a one-acre site are conservatively utilized in this analysis. Construction activity would occur as close as approximately 165 feet from the nearest sensitive receptors, which are single-family residences located north of the project site. Accordingly, LSTs for construction in SRA 2 on a one-acre site with a receptor 164 feet away are shown in Table 5.

Table 5 SCAQMD LSTs for Construction Emissions

Pollutant	Allowable Emissions from a 1-acre Site in SRA 2 for a Receptor 164 Feet Away
Gradual conversion of NO_X to NO_2	104
CO	833
PM_{10}	12
$PM_{2.5}$	4

SRA: source receptor area; NO_X: nitrogen oxides; NO_2: nitrogen dioxide; CO: carbon monoxide; PM_{10}: particulate matter measuring 10 microns in diameter or less; $PM_{2.5}$: particulate matter measuring 2.5 microns in diameter or less

Source: SCAQMD 2009

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding forecasts used in the development of the AQMP. The 2016 AQMP, the most recent AQMP adopted by the SCAQMD, incorporates local city general plans and the SCAG's 2016 RTP/SCS socioeconomic forecast projections of regional population, housing, and employment growth (SCAQMD 2017).

According to the California Department of Finance (DOF), the City of Malibu has an estimated population of 11,720 residents (DOF 2020). The 2016 RTP/SCS estimated that the City's population will increase to 14,100 by 2040, an increase of approximately 20 percent or 2,380 persons (SCAG 2016). The proposed project would involve the remodel of an existing commercial building and construction of a new building in order to create a 36-guest room hotel with a restaurant, spa, and rooftop deck. The proposed project would not directly increase the City's population because no new housing is proposed, and the purpose of this facility is to temporarily house visitors.

SCAG's 2016 RTP/SCS provides an employment growth forecast for Malibu, which is anticipated to accommodate 10,300 jobs by 2040 (SCAG 2016). Based on the latest SCAG Local Profile for Malibu, the City currently accommodates approximately 9,943 jobs (SCAG 2019). The proposed project would replace the existing commercial and automotive detailing uses on the project site with a hotel. Therefore, the proposed project would eliminate jobs associated with the current business operations but would also generate new employment within the City. According to the United States Green Building Council (USGBC), community retail land uses employ approximately one person per 383 sf.

The project site currently contains 13,889 sf of commercial/retail and, according to USGBC estimates, would employ approximately 37 people (USGBC 2008). Based on applicant-provided information, the hotel would employ approximately 15 people full-time. Therefore, the proposed project would be anticipated to reduce the number of employment opportunities on the project site and therefore would not conflict with the employment growth forecast utilized in the 2016 AQMP or indirectly generate population growth in Malibu through the provision of net new employment opportunities. As such, the project would be consistent with the underlying assumptions of the emissions forecasts contained in the 2016 AQMP and no impact would occur.

NO IMPACT

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

In accordance with CEQA Guidelines Section 15064(h)(3), the SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and state Clean Air Acts. If the project's mass regional emissions do not exceed the applicable SCAQMD thresholds, then the project's criteria pollutant emissions would not be cumulatively considerable.

As discussed under *Air Quality Standards and Attainment*, the Basin has been designated as a federal nonattainment area for O_3 and $PM_{2.5}$ and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The Los Angeles County portion of the Basin is also designated as a federal and state nonattainment area for lead. However, the proposed project does not include any stationary sources of lead emissions. Therefore, implementation of the project would not result in substantial emissions of lead and this pollutant is not discussed further in this analysis. The Basin is designated unclassifiable or in attainment for all other federal and state standards.

The following analysis evaluates air pollutant emissions generated by project construction and operation compared to the regional significance thresholds established by the SCAQMD in the *CEQA Air Quality Handbook* (1993) as well as the SCAQMD LSTs. Construction and operational air pollutant emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. In addition, because the proposed project would replace the existing commercial uses on the project site, operational air pollutant emissions from existing uses were calculated using CalEEMod to determine net operational emissions associated with the proposed project. CalEEMod modeling results are available in Appendix A of this document.

Construction Emissions

Project construction would primarily generate temporary criteria pollutant emissions from construction equipment operation on-site, construction worker vehicle trips to and from the site, and export of materials off-site. Construction input data for CalEEMod include, but are not limited to: (1) the anticipated start and finish dates of construction activity; (2) inventories of construction equipment to be used; (3) areas to be excavated and graded; and (4) volumes of materials to be exported from and imported to the project site. The analysis assessed maximum daily emissions from individual construction activities, including demolition, site preparation, grading, building construction, paving, and architectural coating. Construction phase length was based on applicant-provided information, and CalEEMod defaults were utilized for the construction equipment list. Grading, excavation, hauling, and site preparation would involve the greatest use of heavy equipment and generation of fugitive dust.

Table 6 summarizes the estimated maximum daily emissions of pollutants associated with construction of the proposed project. Emissions modeling accounts for compliance with SCAQMD Rule 403, which regulates fugitive dust emissions during the project's demolition, grading, and construction activities to minimize emissions of PM_{10} and $PM_{2.5}$, and SCAQMD Rule 1113, which regulates the volatile organic compound (VOC) content of architectural coatings to minimize emissions of ROGs during construction activities.

As shown in Table 6, VOC, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$ emissions would not exceed the SCAQMD regional thresholds or LSTs. Therefore, emissions from project construction would be adequately controlled by existing regulations, and the project would not result in substantial air pollutant emissions. Because air pollutant emissions generated by project construction would not exceed the SCAQMD's regional significance thresholds or LSTs, project construction would not contribute substantially to an existing or projected air quality violation for which the region is in nonattainment. Impacts from construction emissions would be less than significant.

Table 6 Construction Emissions

	Maximum Emissions (lbs/day)					
	VOC	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Construction Year 2021	2.1	19.8	15.0	<0.1	3.5	2.1
Construction Year 2022	2.8	13.0	13.3	<0.1	0.8	0.6
Construction Year 2023	2.0	1.3	1.9	<0.1	0.1	0.1
SCAQMD Regional Thresholds	75	100	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Maximum On-site Emissions	2.0	19.7	14.5	<0.1	3.4	2.0
SCAQMD Localized Significance Thresholds (LSTs)	N/A	104	883	N/A	12	4
Threshold Exceeded?	**N/A**	**No**	**No**	**N/A**	**No**	**No**

VOC: volatile organic compounds; NO_x: nitrogen oxides; NO_2: nitrogen dioxide; CO: carbon monoxide; PM_{10}: particulate matter measuring 10 microns in diameter or less; $PM_{2.5}$: particulate matter measuring 2.5 microns in diameter or less

Notes: See Appendix A for modeling results. Some numbers may not add up precisely due to rounding considerations. Maximum on-site emissions are the highest emissions that would occur on the project site from on-site sources, such as heavy construction equipment and architectural coatings, and excludes off-site emissions from sources such as construction worker vehicle trips and haul truck trips.

Operational Emissions

Development of the project would result in long-term air pollutant emissions from area sources, energy sources, and mobile sources over the course of operation. Area sources include use of consumer products, use of gas-powered landscaping equipment, and re-application of architectural coating (re-painting). Energy sources include natural gas for uses such as heating/air conditioning, appliances, lighting, and water heating. Mobile sources consist of vehicle trips (including employees, deliveries, and visitors). Vehicle trip rates for the existing and proposed land uses on the project site were based on the Transportation Assessment prepared for the project (see Appendix J).

Table 7 summarizes the estimated maximum daily emissions of pollutants associated with operation of the proposed project, accounting for emissions generated by operation of the existing uses on the project site. Most project-related operational emissions would result from vehicle trips to and from the site. However, the proposed project would result in reduced vehicle trips compared to existing uses, as further discussed in Section 17, *Transportation*, and as a consequence, operational emissions

of several criteria pollutants under the proposed project would be reduced compared to operation of the existing uses on the site. As shown in Table 7, total operational emissions and net operational emissions would not exceed the SCAQMD regional thresholds for criteria air pollutants; therefore, project operation would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. Impacts would be less than significant.

Table 7 Operational Emissions

	Maximum Daily Emissions (lbs/day)					
Emission Source	**VOC**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Area	0.6	<0.1	<0.1	0	<0.1	<0.1
Energy	<0.1	0.3	0.2	<0.1	<0.1	<0.1
Mobile[1]	0.4	1.9	4.9	<0.1	1.7	0.5
Total Project Emissions	**1.1**	**2.2**	**5.2**	**<0.1**	**1.7**	**0.5**
Existing Emissions (Commercial Uses)	0.9	2.3	5.5	<0.1	1.8	0.5
Net Project Emissions (Project – Existing)[2]	**0.2**	**(0.1)**	**(0.3)**	**<0.1**	**(0.1)**	**<0.1**
SCAQMD Regional Thresholds	55	55	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

VOC: volatile organic compounds; NO_x: nitrogen oxides; CO: carbon monoxide; SO_2: sulfur dioxide; PM_{10}: particulate matter measuring 10 microns in diameter or less; $PM_{2.5}$: particulate matter measuring 2.5 microns in diameter or less

[1] To account for the effects of the Part One Rule, CARB released off-model adjustment factors on November 20, 2019 to adjust criteria air pollutant emissions outputs from the EMFAC model. These off-model adjustment factors are applied by multiplying the emissions calculated for light- and medium-duty vehicles by the adjustment factor. With the incorporation of these adjustment factors, operational emissions generated by light-duty automobiles, light-duty trucks, and medium-duty trucks associated with project-related vehicle trips at the year 2025 would be approximately 0.2 percent greater for VOC, 0.7 percent greater for particulate matter, 0.2 percent greater for NO_x, and 0.7 percent greater for CO. These increases would have a negligible impact on overall operational emissions generated by the project and would not alter the significance of the project's operational emissions.

[2] Parentheses indicate negative values

Notes: See Appendix A for modeling results. Some numbers may not add up precisely due to rounding considerations.

LESS THAN SIGNIFICANT IMPACT

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Sensitive Receptors

The California Air Resources Board (CARB) and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65 years of age, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis (CARB 2005; OEHHA 2015). Accordingly, some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptors. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. The closest sensitive receptors include single-family residences located immediately north of the project site, the closest of which is approximately 165 feet from the project site.

Local Carbon Monoxide (CO) Hotspots

A carbon monoxide (CO) hotspot is a localized concentration of CO that is above a CO ambient air quality standard. Localized CO hotspots can occur at intersections with heavy peak hour traffic. Specifically, hotspots can be created at intersections where traffic levels are sufficiently high such that the local CO concentration exceeds the federal 1-hour standard of 35.0 ppm or the federal and state 8-hour standard of 9.0 ppm (CARB 2016).

A detailed CO analysis was conducted during the preparation of SCAQMD's 2003 AQMP. The locations selected for microscale modeling in the 2003 AQMP included high average daily traffic (ADT) intersections in the Basin, which were those expected to experience the highest CO concentrations. The highest CO concentration estimated was at the intersection of Wilshire Boulevard and Veteran Avenue on the west side of Los Angeles near Interstate 405. The concentration of CO at this intersection was 4.6 ppm, which is well below the state and federal standards. The Wilshire Boulevard/Veteran Avenue intersection has an annual average daily traffic (AADT) of approximately 100,000 vehicles per day (SCAQMD 2003).

According to the latest Caltrans traffic counts on Pacific Coast Highway, the primary roadway by which the project site is accessed, the AADT in the project vicinity is approximately 41,500 vehicles (Caltrans 2018).[1] The Transportation Assessment prepared for the proposed project determined that the project would reduce daily trips to the project site by 108 vehicle trips during weekdays and 63 trips on Saturdays compared to vehicle trips generated by the existing commercial businesses on the site (see Appendix J). Therefore, with the proposed project, AADT on the nearest segment of Pacific Coast Highway would be approximately 41,400 vehicles, which is much less than the 100,000-vehicle count on the Wilshire Boulevard/Veteran Avenue intersection, which experiences CO concentrations well below the NAAQS and CAAQS for CO. Furthermore, due to stricter vehicle emissions standards in newer cars and new technology that increases fuel economy, CO emission factors under future land use conditions would be lower than those under existing conditions. Because the proposed project would reduce vehicle trips and associated CO emissions, project-generated local mobile-source CO emissions would not result in or substantially contribute to concentrations that exceed the 1-hour or 8-hour CO standard. Therefore, no impact would occur.

Toxic Air Contaminants

Construction-related activities would result in short-term, project-generated emissions of diesel particulate matter (DPM) exhaust emissions from off-road, heavy-duty diesel equipment for site preparation grading, building construction, and other construction activities. DPM was identified as a toxic air contaminant (TAC) by CARB in 1998. The potential cancer risk from the inhalation of DPM (discussed in the following paragraphs) outweighs the potential non-cancer health impacts and is therefore the focus of this discussion (CARB 2017a).

Generation of DPM from construction projects typically occurs in a single area for a short period. Construction of the proposed project would occur over approximately 1.5 years. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer

[1] Traffic counts at the intersection of Cross Creek Road and Pacific Coast Highway, located approximately 4,800 feet north of the project site, indicate that AADT south of the intersection in 2018 was 41,500.

period of time. According to the OEHHA, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period (assumed to be the approximate time that a person spends in a household). OEHHA recommends this risk be bracketed with nine-year and 70-year exposure periods. Health risk assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015).

The maximum on-site $PM_{2.5}$ emissions, which are used to represent DPM emissions for this analysis,[2] would occur during site preparation activities. Maximum daily $PM_{2.5}$ emissions during site preparation would be approximately two pounds per day, which is well below the SCAQMD LST of four pounds per day that is designed to be protective of human health. While site preparation emissions represent the worst-case condition, such activities would only occur for about one month, which would be less than one percent of the typical health risk calculation periods of nine years, 30 years, and 70 years. $PM_{2.5}$ emissions would decrease for the remaining construction period because construction activities such as building construction and paving would require less construction equipment. Therefore, given the aforementioned, DPM generated by project construction is not expected to create conditions where the probability that the Maximally Exposed Individual would contract cancer is greater than ten in one million or to generate ground-level concentrations of non-carcinogenic TACs that exceed a Hazard Index greater than one for the Maximally Exposed Individual. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of the receiving location, each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and VOC emissions from architectural coatings. Such odors would disperse rapidly from the project site, generally occur at magnitudes that would not affect substantial numbers of people and would be limited to the temporary construction period. Furthermore, construction would be required to comply with SCAQMD Rule 402, which regulates nuisance odors. Impacts associated with odors during construction would be temporary and less than significant.

With respect to operation, the SCAQMD's *CEQA Air Quality Handbook* (1993) identifies land uses associated with odor complaints as agricultural uses, wastewater treatment plants, chemical and food processing plants, composting, refineries, landfills, dairies, and fiberglass molding. Hotels are not identified on this list. In addition, solid waste generated by the proposed on-site uses would be collected by a contracted waste hauler, ensuring that odors resulting from on-site waste would be managed and collected in a manner to prevent the proliferation of odors. Therefore, the proposed

[2] It can be conservatively assumed that DPM emissions would be equivalent to $PM_{2.5}$ because $PM_{2.5}$ emissions make up 92 percent of total diesel off-road equipment (e.g., construction equipment) PM emissions based on SCAQMD guidance (SCAQMD 2006).

project would not generate objectionable odors affecting a substantial number of people, and no impact would occur.

NO IMPACT

4 Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	■	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	■	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	■	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	■	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	■	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	■

a. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The project site is in an urban area and is currently developed with an existing commercial building and automotive detailing facility However, the site is adjacent to undeveloped hillside features to the north-northeast of the project site. The nearest United States Fish and Wildlife Service (USFWS) designated Critical Habitat, located approximately 0.7 mile to the west of the project site, along Malibu Creek, is habitat for the tidewater goby (*Eucyclogobius newberryi*), a federally listed as endangered fish species (USFWS 2020a). Project implementation would not affect Malibu Creek or modify wildlife habitats for this protected species within the City due to the distance from the project site to such habitat. The project site contains ornamental trees, shrubbery, and grasses. The project would be limited to previously disturbed areas within the project site and would not modify or affect the nearby undeveloped hillsides or suitable habitat for protected species, including designated critical habitat.

However, ornamental trees and buildings on the project site could potentially provide suitable nesting habitat for birds, including raptors, protected under the Migratory Bird Treaty Act (MBTA) and Sections 3503, 3503.5, and 3513 of the California Fish and Game Code (CFGC). Project construction activities could potentially affect protected birds either through direct contact with birds or their eggs, or through elevated noise levels on or adjacent to the project site. The City of Malibu completed a Biology Review for the proposed project and determined that the project was consistent with City goals and policies related to the protection of biological resources, with the condition that nesting bird surveys shall be completed prior to any construction that would take place during the bird nesting season (February 1 through September 15) and that any nests found be fenced off and appropriately protected from disturbance (see Appendix B). Compliance with this condition of approval would reduce the potential for significant impacts to nesting birds during project construction and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The entire project site is developed with a commercial building and automotive detailing business with associated paved parking lots. The project site is surrounded by roads, other commercial buildings, single-family residential properties, and undeveloped hillsides. Plant communities are considered sensitive biological resources if they have limited distributions, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. CDFW ranks sensitive communities as “threatened” or “very threatened” and keeps records of their occurrences in the California Natural Diversity Database (CNDDB). The project site is in a developed urban area and is not located within a vegetated or open space area. The only vegetation present on site is ornamental landscaping, consisting of a few shrubs and trees. These existing trees and shrubs do not constitute a sensitive natural community.

Additionally, no riparian habitat occurs on the project site (USFWS 2020b). The nearest mapped wetland feature is an intermittent stream located 230 feet east of the project site and is separated from the project site by existing commercial development (USFWS 2020b). The project site is also not within or immediately adjacent to any areas identified in the LCP LIP as ecologically sensitive habitat

(City of Malibu 2020a). The project would involve improvements to existing developed areas and would not involve any construction of the undeveloped areas to the north-northeast of the project site.

As further discussed in Section 10, *Hydrology and Water Quality*, the project would comply with all established regulations under the National Pollution Discharge Elimination System (NPDES) permitting program to control both construction and operation stormwater discharges. Furthermore, the project applicant would be required to comply with MMC Chapter 13.04, which specifies regulations for storm water management and discharge control within the City. Compliance with these regulations would limit potential water quality impacts of the project on any nearby riparian habitats. Therefore, the project would not result in a substantial adverse effect on riparian habitat or other sensitive natural community and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The project site is not located in a state or federally protected wetland area; the nearest mapped wetland feature is an intermittent stream located 230 feet east of the project site and is separated from the project site by existing commercial development (USFWS 2020b). Additionally, the project site is approximately 400 feet north of the Pacific Ocean. The entire project site is located on developed and previously disturbed land and the project would involve improvements to existing developed areas. As discussed further in Section 10, *Hydrology and Water Quality*, the project would comply with all NPDES and local stormwater discharge regulations during construction and operation and would implement best management practices (BMPs) to address stormwater flow from the project site. Compliance with these existing regulations would limit potential water quality impacts to nearby jurisdictional features. Therefore, the project would not result in a substantial adverse effect on state or federally protected wetlands, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Wildlife corridors are generally defined as connections between habitat areas that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as between foraging and denning areas, or they may be regional in nature, allowing movement across the landscape. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Examples of barriers or impediments to movement include housing and other urban development, roads, fencing, unsuitable habitat, or open areas with little vegetative cover.

The project site is located in a developed commercial area and surrounded by urbanized uses including commercial and residential development and Pacific Coast Highway, which is heavily traveled. North of the site exists an area of undeveloped hillside between the existing commercial building and private residences. This area may provide for localized movement of native wildlife species but is not expected to serve as a migratory wildlife corridor due to the high levels of human activity in both the nearby commercial buildings and private residences, and heavily traveled Pacific

Coast Highway. Furthermore, the project would involve improvements to existing developed areas and would not involve construction activities on the undeveloped hillside. Therefore, the project would not interfere with the movement of any native wildlife species. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

While the project site is located in the Coastal Zone, it is not located in or adjacent to any area designated by the LCP LIP as ecologically sensitive habitat (City of Malibu 2020a). Furthermore, the project would involve improvements to existing developed areas and would not result in impacts to natural habitat or ecologically sensitive areas. Chapter 5 of the LCP LIP contains the City's Native Tree Protection Ordinance. The Ordinance was introduced to recognize the importance of native oak, walnut, sycamore, alder, and toyon trees and provide protection and preservation of such trees. The Ordinance applies to protected trees listed above with at least one trunk measuring 6 inches or more in diameter or a combination of any two trunks measuring a total of 8 inches or more in diameter. Construction of the proposed project would result in the removal of existing ornamental landscaping (including trees and shrubs). However, none of the trees that would be removed are native trees protected under the Ordinance and the proposed project would include new landscaping and trees throughout the project site. Therefore, no conflict with local policies or ordinances protecting biological resources would occur. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The project is not located within any approved local, regional, or state Habitat Conservation Plan or Natural Community Conservation Plan (CDFW 2019). Furthermore, the City Biologist has reviewed the proposed project and determined that the project would not conflict with any City goals and policies related to the protection of biological resources (see Appendix B). Therefore, no impact would occur.

NO IMPACT

5 Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	■
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	■	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	■	☐

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (PRC Section 21084.1) and tribal cultural resources (PRC Section 21074[a][1][A]-[B]). Tribal cultural resources are discussed in Section 18, *Tribal Cultural Resources*, of this Initial Study.

A historical resource is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CEQA Guidelines Section 15064.5[a][1-3]).

A resource shall be considered historically significant if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, if it can be demonstrated that a project would cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b]).

PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;

2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

The assessment provided below is based on the results of the Phase I Archaeological Resources Assessment prepared for the proposed project (see Appendix C). The assessment included historical maps and aerial imagery review, California Historical Resource Information System (CHRIS) records search at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton, and a pedestrian field survey of the project site conducted in September 2020, archival research, a review of the National Register of Historic Places, CRHR, the California Historical Landmarks list, and the Archaeological Determination of Eligibility list, and preparation of a report. The full Phase I Archaeological Resources Assessment is available in Appendix C of this document.

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

According to the results of the CHRIS records search, 75 previously conducted cultural resource studies have been conducted within a one-mile radius of the project site. None of these previous studies included the project site and there have been no historic resources identified within the project boundaries. The project site contains two structures: the automotive detailing business/former gas station on Parcel A was constructed in 1968 and the commercial building on Parcel B was constructed in 2006. The Phase I Archaeological Resources Assessment indicates that neither of these structures would be eligible for listing as a historic resource. There is one recorded historic resource within a one-mile radius of the project site: the Adamson House, located approximately 3,500 feet west of the project site. Due to the distance between the project site and the Adamson House, as well as intervening development and structures, the project site is not visible from the Adamson House. Therefore, the proposed project would not affect the historic Adamson House property. Given that no historic resources exist on the project site or within its immediate vicinity, the proposed project would result in no impact to historical resources.

NO IMPACT

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

The Phase I Archaeological Resources Assessment identified a total of eight archaeological resources within a one-mile radius of the project site, none of which are located within the project site. The project site has been extensively graded and disturbed and if archaeological resources once existed within surficial soils on the site, it is likely that previous grading, construction, and modern use of the site have either removed or destroyed them. On Parcel A, excavations for elevator shaft shorings would extend to a maximum of 40 feet. No excavation or grading would occur on Parcel B. The Phase I Archaeological Resources Assessment indicates that the project site has low potential for cultural resources. While it is unlikely that previously undiscovered archaeological resources exist on the site, if such do exist onsite, grading and ground-disturbing activities during project construction could significantly impact such resources as excavations for shorings would extend beyond existing disturbance areas. Therefore, to avoid potential impacts to archaeological resources in the unlikely event that such resources are discovered during construction, Mitigation Measure CR-1 would be required. In addition, as discussed in Section 18, *Tribal Cultural Resources*, the project would implement Mitigation Measures TCR-1 through TCR-3 during construction to ensure that there would

be no significant impact to previously undiscovered tribal cultural resources that could be present on the project site.

Mitigation Measure

Implementation of Mitigation Measure CR-1 would reduce impacts to important archaeological resources, if any are discovered during project construction, to less than significant levels.

CR-1 Unanticipated Discovery of Archaeological Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) shall be contacted immediately by the construction manager to evaluate the find in consultation with the City's Planning Director. The Planning Director shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are determined to be prehistoric or Native American in origin. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for the NRHP and/or CRHR eligibility. If the discovery proves to be eligible for the NRHP and/or CRHR and cannot be avoided by the project, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts. Work shall not resume until authorized by the City and the qualified archaeologist.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project disturb any human remains, including those interred outside of formal cemeteries?

The project site is not part of a formal cemetery and is not known to have been used for disposal of historic or prehistoric human remains. There are no known human remains on the site. Therefore, human remains are not expected to be encountered during construction of the proposed project. In the unlikely event that human remains are encountered during project construction, State Health and Safety Code Section 7050.5 requires the project to halt until the County Coroner has made the necessary findings as to the origin and disposition of the remains pursuant to PRC Section 5097.98. Compliance with these regulations would ensure the proposed project would not result in significant impacts due to disturbance of human remains, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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6 Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	■	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	■

a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

The proposed project would use nonrenewable resources for construction and operation of the project. Natural resources that would be utilized by the project include petroleum-based fuels for vehicles and equipment, operational building energy usage, and operational water consumption. The anticipated use of these resources is detailed in the following subsections. As supported by the discussion below, the proposed project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction and operation.

Construction Energy Demand

During project construction, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, and vehicles used to deliver materials to the site. The project would require demolition, site preparation and grading, paving, building construction, architectural coating, and landscaping.

The total consumption of gasoline and diesel fuel during project construction was estimated using the assumptions and factors from the air pollutant and GHG emission modeling prepared in CalEEMod version 2016.3.2 (Appendix A). As shown in Table 8, construction equipment and hauling and vendor trips would consume approximately 34,670 gallons of diesel fuel over the project construction period. Of this total, construction equipment would consume an estimated 34,003 gallons of fuel and vendor and hauling trips would consume approximately 667 gallons of fuel. Construction worker trips would consume approximately 3,103 gallons of gasoline. These construction energy estimates are conservative because they assume that the construction equipment used in each phase of construction is operating every day of construction.

Table 8 Estimated Fuel Consumption during Construction

Source	Fuel Consumption (gallons)	
	Gasoline	Diesel
Construction Equipment & Hauling Trips	–	34,670
Construction Worker Vehicle Trips	3,103	–

See Appendix D for energy calculation sheets and Appendix A for CalEEMod Modeling Results.

Energy use during construction would be temporary in nature, and construction equipment used would be typical of similar-sized construction projects in the region. In addition, construction contractors would be required to comply with the provisions of California Code of Regulations Title 13 Sections 2449 and 2485, which prohibit diesel-fueled commercial motor vehicles and off-road diesel vehicles from idling for more than five minutes and would minimize unnecessary fuel consumption. Construction equipment would be subject to the USEPA Construction Equipment Fuel Efficiency Standard, which would also minimize inefficient, wasteful, or unnecessary fuel consumption. Furthermore, per applicable regulatory requirements such as 2019 California's Green Building Standards Code (CALGreen; California Code of Regulations, Title 24, Part 11), the project would comply with construction waste management practices to divert a minimum of 65 percent of construction and demolition debris. These practices would result in efficient use of energy necessary to construct the project. In the interest of cost-efficiency, construction contractors also would not utilize fuel in a manner that is wasteful or unnecessary. Therefore, the project would not involve the inefficient, wasteful, and unnecessary use of energy during construction, and construction-related impacts would be less than significant.

Operational Energy Demand

Operation of the project would contribute to area energy demand by consuming electricity, natural gas, and transportation fuels. Natural gas and electricity would be used for heating and cooling systems, lighting, appliances, water use, and overall operation of the project. Gasoline and diesel fuel consumption would be attributed to the trips generated by visitors, employees, and deliveries. Table 9 summarizes estimated operational energy consumption for the proposed project and the existing uses on the project site.

Table 9 Estimated Project Annual Operational Energy Consumption

Source	Energy Consumption[1]	
Proposed Uses		
Transportation Fuels[2]		
Gasoline	63,768 gallons	7,001 MMBtu
Diesel	16,449 gallons	2,097 MMBtu
Electricity	0.25 GWh	843 MMBtu
Natural Gas Usage	11,083 U.S. therms	1,030 MMBtu
Total Project Energy Consumption		**16,058 MMBtu**
Existing Uses		
Transportation Fuels[2]		
Gasoline	67,667 gallons	7,429 MMBtu
Diesel	17,454 gallons	2,225 MMBtu
Electricity	0.23 GWh	790 MMBtu
Natural Gas Usage	391 U.S. therms	36 MMBtu
Total Existing Energy Consumption		**15,870 MMBtu**
Net Energy Consumption (Proposed-Existing)[3]		
Transportation Fuels		
Gasoline	(3,899) gallons	(428) MMBtu
Diesel	(1,005) gallons	(128) MMBtu
Electricity	0.02 GWh	53 MMBtu
Natural Gas Usage	10,692 U.S. therms	994 MMBtu
Project Net Energy Consumption		**491 MMBtu**

MMBtu: million metric British thermal units; GWh: gigawatt hours

[1] Energy consumption is converted to MMBtu for each source.

[2] The estimated number of average daily trips associated with the project is used to determine the energy consumption associated with fuel use from operation of the project. According to CalEEMod calculations (see Appendix A), the project would result in approximately 743,688 annual VMT, whereas existing uses result in approximately 789,160 annual VMT.

[3] Parentheses indicate negative values.

See Appendix D for transportation energy calculation sheets and Appendix A for CalEEMod output results for electricity and natural gas usage.

As shown in Table 9, project operation would require approximately 63,768 gallons of gasoline and 16,449 gallons of diesel fuel for transportation fuels, 0.25 gigawatt hours (GWh) of electricity, and 11,083 U.S. therms of natural gas. Transportation of workers, customers, and deliveries would represent the greatest operational use of energy associated with the proposed project. Compared to existing uses, the proposed project would result in reduced transportation fuel use but would result in increased electricity and natural gas use. Hotels are generally a more electricity- and natural gas-intensive use compared to retail and office uses due to the cooking and heating demands of hotels, as well as the 24-hour usage of the hotel facilities by guests and employees. Overall, the proposed project would result in a net increase in energy use by 491 million metric British thermal units (MMBtu) compared to existing uses.

The project's new building would be required to comply with all standards set in California Building Code (CBC) Title 24, which would minimize the wasteful, inefficient, or unnecessary consumption of energy resources during operation. In addition, renovations of the existing building would include

upgrades to meet the 2019 Title 24 requirements. CALGreen requires implementation of energy efficient light fixtures and building materials into the design of new construction projects. Furthermore, the 2019 Building Energy Efficiency Standards (CBC Title 24, Part 6) requires newly constructed buildings and buildings with large remodels to meet energy performance standards set by the California Energy Commission (CEC). These standards are specifically crafted for new buildings to result in energy efficient performance so that the buildings do not result in wasteful, inefficient, or unnecessary consumption of energy. The standards are updated every three years and each iteration is more energy efficient than the previous standards. According to the CEC, nonresidential buildings built to the 2019 standards use about 30 percent less energy than those built to the 2016 standards due to energy efficiency measures, particularly lighting upgrades (CEC 2018). Furthermore, the project would continue to reduce its use of nonrenewable energy resources as the electricity generated by renewable resources provided by Southern California Edison (SCE) continues to increase to comply with state requirements through Senate Bill (SB) 100, which requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

To achieve compliance with Title 24, the project applicant would incorporate several energy efficient features into overall project design. Energy efficient design features include use of passive solar by including large windows with overhangs, energy-efficient appliances and lighting, water-efficient indoor fixtures throughout the project site, and drought tolerant landscaping. In addition, six parking spaces would be equipped with electric vehicle (EV) chargers, and the project would include 15 on-site bicycle parking spaces. The project site is also adjacent to a bus stop for Metro bus route 534, located in the vicinity of existing retail, restaurants, and attractions such as the beach and Malibu Pier, and is within 300 feet of a pedestrian crosswalk with beach access. These features would incentivize the use of public transit, active transportation, and fuel-efficient vehicles for accessing the project site.

Operation of the project would consume transportation fuels, natural gas, and electricity; however, the project would conform to the latest version of California's Green Building Standards Code and Building Energy Efficiency Standards, and would therefore not lead to wasteful, inefficient, or unnecessary consumption of energy resources. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The City of Malibu has not adopted any local energy conservation or climate action plans. However, the General Plan Conservation Element contains Conservation Goal 3, *Energy Conserved*, with the objective of increasing the use of innovative, energy efficient techniques and systems within the City. Goal 3 includes the following policies related to energy efficiency:

- **Policy 3.1.1.** The City shall educate the community regarding the importance of and techniques for energy conservation.
- **Policy 3.1.2.** The City shall encourage state-of-the-art energy efficiency standards for all new construction design.
- **Policy 3.1.3.** The City shall protect solar access.
- **Policy 3.1.4.** The City shall encourage uses of solar and other nonpolluting, renewable energy sources.

The energy efficiency policies contained in the Conservation Element are geared towards City government action, such as City outreach to local businesses and residents to encourage sustainable practices and the adoption of local guidance and policies to reduce energy consumption. Therefore, the Conservation Element policies related to energy conservation are limited in their application to the proposed project.

However, the project would align with Goal 3 of the Conservation Element by including sustainability features such as EnergyStar appliances, six EV-charging spaces, LED lighting, and roof overhangs to shield windows from the sun. The proposed new building would be constructed in accordance with the most recent Title 24 and CALGreen requirements, while the remodeled building would have older appliances, lighting, water fixtures, and mechanical, electrical, and plumbing systems upgraded as needed to reduce electricity and water consumption. The project's sustainability features and compliance with CALGreen would increase energy efficiency within the buildings, which would align with the City's energy conservation goals. Therefore, no impact would occur.

NO IMPACT

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7 Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	■	☐
2. Strong seismic ground shaking?	☐	☐	■	☐
3. Seismic-related ground failure, including liquefaction?	☐	■	☐	☐
4. Landslides?	☐	☐	■	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	■	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	■	☐
d. Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	■	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	■
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	■	☐	☐

A Geologic and Geotechnical Engineering Report (herein referred to as "Geotechnical Report") was prepared for the proposed project in February 2018 by GeoSoils Consultants, Inc. (GeoSoils; see Appendix E for the full report). In addition, an Onsite Wastewater Treatment System Design Report (herein referred to as "OWTS Design Report") was prepared by a registered environmental health specialist in February 2018 and reviewed by the City Environmental Health Administrator (see Appendix F for these documents). The City reviewed the Geotechnical Report and OWTS Design Report and requested follow-up information from GeoSoils. Responses to the follow up questions are contained in Appendix E. Upon review of all geotechnical documents for the proposed project, the City issued a Geotechnical Review Sheet for the project in June 2018 (see Appendix G). The information presented below is based on the findings of the Geotechnical Report and follow-up responses, Onsite Wastewater Treatment System Design Report, and Geotechnical Review Sheet.

a.1. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

The project site is not located within an Alquist-Priolo earthquake fault zone as delineated by the State Geologist (DOC 2020b). The project site is located in a seismically active region of southern California; however, there are no known faults on the project site and the nearest known active fault, the Solstice Fault located in the Malibu Coast fault zone, is approximately 4.5 miles west of the project site in Malibu (DOC 2020b). Furthermore, ground breakage has not been observed along the Malibu Coast Fault in recent times (Southern California Earthquake Data Center 2020). Because the site is within 500 feet of a mapped fault in the Malibu Coast Fault zone as defined in the California Geological Survey's Fault Evaluation report (FER-229), a site-specific evaluation of fault rupture hazard was performed, as required by the City of Malibu Geotechnical Guidelines (City of Malibu 2013). The Geotechnical Report indicates that the risk of ground rupture at the project site is low, but that the site could experience moderate to intense ground shaking during the event of an earthquake in the area. The project would comply with state of California standards for building design through the California Building Standards Code (California Code of Regulations, Title 24), which requires various measures of all construction in California to account for hazards from seismic shaking. The impact to people, buildings, or structures on the project site from fault rupture would be reduced by the required conformance with applicable building codes and accepted engineering practices. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.2. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

As described above, the project site lies south of a mapped fault in the Malibu Coast Fault zone, which has the potential to create substantial ground shaking if a seismic event occurred along that fault. Similarly, a strong seismic event on any other fault system in southern California has the potential to create considerable levels of ground shaking throughout the City. However, the project site is not subject to unusual levels of ground shaking and the project does not involve uses, such as mining or fracking, that are known to cause or exacerbate ground shaking.

To reduce geologic and seismic impacts, the City regulates development through the requirements of the California Building Code (CBC). The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress,

and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The earthquake design requirements of the CBC consider the occupancy category of the structure, site class, soil classifications, and various seismic coefficients. The CBC provides standards for various aspects of construction, including but not limited to excavation, grading, earthwork, construction, preparation of the site prior to fill placement, specification of fill materials, fill compaction and field testing, retaining wall design and construction, foundation design and construction, and seismic requirements. It includes provisions to address issues such as but not limited to construction on expansive soils and soil strength loss. In accordance with California law, project design and construction would be required to comply with provisions of the CBC. In addition, the project would be constructed in accordance with the recommendations contained in the Geotechnical Report, which includes provisions such as the installation of deepened concrete pile foundations embedded into bedrock and retaining wall construction, that would reduce the risks of geologic hazards at the project site. Because the project would comply with the CBC and Geotechnical Report recommendations and because the project would not exacerbate existing ground shaking hazards, impacts related to seismically induced ground shaking would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Liquefaction is a phenomenon in which saturated silty-to-cohesionless soil above the groundwater table are subject to a temporary loss of strength due to the buildup of excess pore pressure during cyclic stresses induced by an earthquake. These soils may acquire a high degree of mobility and lead to structurally damaging deformations. Liquefaction begins below the water table, but after liquefaction has developed, the groundwater table will rise and cause the overlying soil to mobilize. Liquefaction typically occurs in areas where groundwater is less than 30 feet from the surface and where the soils are composed of poorly consolidated fine- to medium-grained sand. In addition to the necessary soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to initiate liquefaction.

According to the California Geological Survey (CGS) Earthquake Zones of Required Investigation map, all or a portion the project site is located in a liquefaction hazard zone (DOC 2020b). Therefore, there is the potential for liquefaction or seismic settlement at the project site. According to the results of soil sampling at the project site, sandy marine deposits underlying the project site have a liquefaction potential that could result in a settlement of approximately 0.75-inch in the event of an earthquake. The Geotechnical Report includes recommendations for overexcavation of upper artificial fill and liquefiable soils to a maximum depth of 16 feet below grade and the construction of the proposed new building with a foundation system embedded into bedrock to mitigate risks of liquefaction. The Sea View Hotel would be constructed according to the recommendations of the Geotechnical Report and the requirements of the CBC, including Chapter 18, which specifies foundation requirements for sites with liquefiable or unstable soils. Furthermore, the City determined that the proposed project would be constructed in such a manner that geotechnical risks are minimized, and the project was approved by the City from a geotechnical perspective. Therefore, the project would not create or exacerbate liquefaction potential and impacts would be less than significant with mitigation.

Mitigation Measure

Implementation of Mitigation Measure GEO-1 would reduce impacts related to liquefiable soils to less than significant levels.

GEO-1 Compliance with Recommendations of the Geotechnical Report

The proposed project shall be constructed in accordance with the recommendations of the Geotechnical Report, including overexcavation and deepened concrete pile foundations embedded into bedrock to reduce geotechnical risks associated with the project site's liquefiable soils.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

a.4. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

According to the Geotechnical Report, the project site is not located in an area subject to landslides caused by earthquakes per the Seismic Hazard Zone Maps. Therefore, the risk of earthquake-induced landslides at the project site is low and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project result in substantial soil erosion or the loss of topsoil?

Ground-disturbing activities associated with project construction may result in the removal of some topsoil during construction and demolition of the existing structures on Parcel A. Standard construction BMPs would be implemented to avoid or minimize soil erosion associated with ground-disturbing activities. As discussed further in Section 10, *Hydrology and Water Quality*, implementation of erosion control measures required by MMC Chapter 13.04, Storm Water Management and Discharge Control, as well as adherence to requirements provided in the NPDES permit for construction activities would avoid or minimize potential impacts. Upon completion of construction activities, the site would be almost entirely paved, and any soils would be stabilized by landscaping, minimizing the potential for soil erosion. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

d. Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

As discussed under *Impact a.3.* of this section, the project site is underlain by unstable soils that are subject to liquefaction. In addition, the Geotechnical Report determined that soils underlying the project site could result in potential lateral displacement of approximately 3.6 inches, but that soils on the site have a low expansion index. Despite the potential for lateral spreading and liquefaction, the Geotechnical Report and City review concluded that the underlying soils and geotechnical conditions of the subject property are considered suitable for the proposed construction provided that the conclusions and recommendations of the Geotechnical Report are incorporated into the design criteria and project specifications. These recommendations include the installation of foundations embedded into bedrock and removal of all liquefiable soils and replacement with gravel or the installation of piles designed to resist lateral earth pressure. Therefore, with adherence to the

recommendations of the Geotechnical Report during project construction, impacts related to unstable and expansive soils would be less than significant.

LESS THAN SIGNIFICANT IMPACT

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The project site currently contains an OWTS that serves the existing businesses. The proposed project would include upgrading the existing OWTS. The upgraded system would include a new 3,000-gallon grease interceptor, 3,000-gallon concrete pump tank with duplex screened pump vault, and two new disinfection units. The pump tank would pump wastewater from the new building on Parcel A to the existing 5,000-gallon concrete tank with HighStrengthFast 4.5 Treatment System (upgraded from the existing MicroFast 3.0 Treatment System). The system would discharge to three Norweco Bio-Kinetic Model BK 2000 Disinfection Unites, upgraded from one existing Norweco Bio-Kinetic Model BK 2000 Disinfection Unit. From there, the system would discharge to the existing 5,000-gallon dosing tank with duplex screened pump vault and on to two seepage pits capped 5 feet below-grade.

According to the results of the Geotechnical Report, Onsite Wastewater Treatment Report, City Environmental Health Review, and City Geotechnical Review Sheet, the project site is capable of supporting the proposed wastewater disposal system, and the upgraded system would meet the minimum requirements of the City of Malibu Plumbing Code and Local Coastal Program. Therefore, no impact would occur.

NO IMPACT

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The paleontological sensitivities of the geologic units underlying the project site were evaluated to determine if the proposed project could result in significant impacts to paleontological resources. The analysis was based on the results of an online paleontological locality search and review of existing information in the scientific literature concerning known fossils within geologic units mapped within the project site. Fossil collections records from the Paleobiology Database and University of California Museum of Paleontology (UCMP) online database were reviewed for known fossil localities in Los Angeles County (Paleobiology Database 2020; UCMP 2020). Based on the available information contained within existing scientific literature and the UCMP database, paleontological sensitivities were assigned to the geologic units underlying the project site. The potential for impacts to scientifically important paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units. The Society of Vertebrate Paleontology (SVP) has developed a system for assessing paleontological sensitivity and describes sedimentary rock units as having high, low, undetermined, or no potential for containing scientifically significant nonrenewable paleontological resources (SVP 2010). This system is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present.

The project site is situated within the Transverse Ranges geomorphic province, one of 11 major provinces in the state (CGS 2002). These provinces are “naturally defined geologic regions that display a distinct landscape or landform” (CGS 2002). The Transverse Ranges extend approximately 275 miles from Point Arguello in Santa Barbara County, east to the San Bernardino Mountains (Norris and Webb

1990). As depicted in Figure 10, the geology of the project site is mapped as Miocene Monterey Formation (Tm) bedrock overlain by artificial fill (af) and beach sands (Dibblee et al. 1993). Miocene Monterey Formation, mapped throughout most of the project site, consists of pale buff to white fine-grained dolomitic deposits, dark brown to black siliceous laminations, and common fossils (Dibblee et al. 1993; Berndmeyer et al. 2012). The Monterey Formation is well exposed along coastal California from San Francisco south to Los Angeles. Numerous vertebrate localities have been documented from the Monterey Formation, which yielded specimens of large sea turtles, whale, dolphins, sea lions, shark bones and teeth, sea cows, desmostylians, fish, birds, and many other fauna (Behl 1999; Paleobiology Database 2020; UCMP 2020).

A review of the museum records maintained in the UCMP online collections database identified at least five vertebrate fossil localities (V3413, V3525, V6848, V36118, V69176) from Miocene Monterey Formation in unspecified locations throughout Los Angeles County. These vertebrate fossil localities yielded fossil specimens of toothed whale (Odontoceti), a hippopotamus-like mammal (*Desmostylus Hesperus*), and bird (*Palaeosula stocktoni*) (UCMP 2020).

In accordance with SVP guidelines, Miocene Monterey Formation, mapped throughout most of the project site, is assigned a high paleontological sensitivity because the geologic unit has proven to produce scientifically significant vertebrate fossils in Los Angeles County and throughout California. Artificial fill (af), mapped within the southeast portion of the project site, consists of recently compacted fill related to prior development within the project boundary and, as such, it has no paleontological sensitivity.

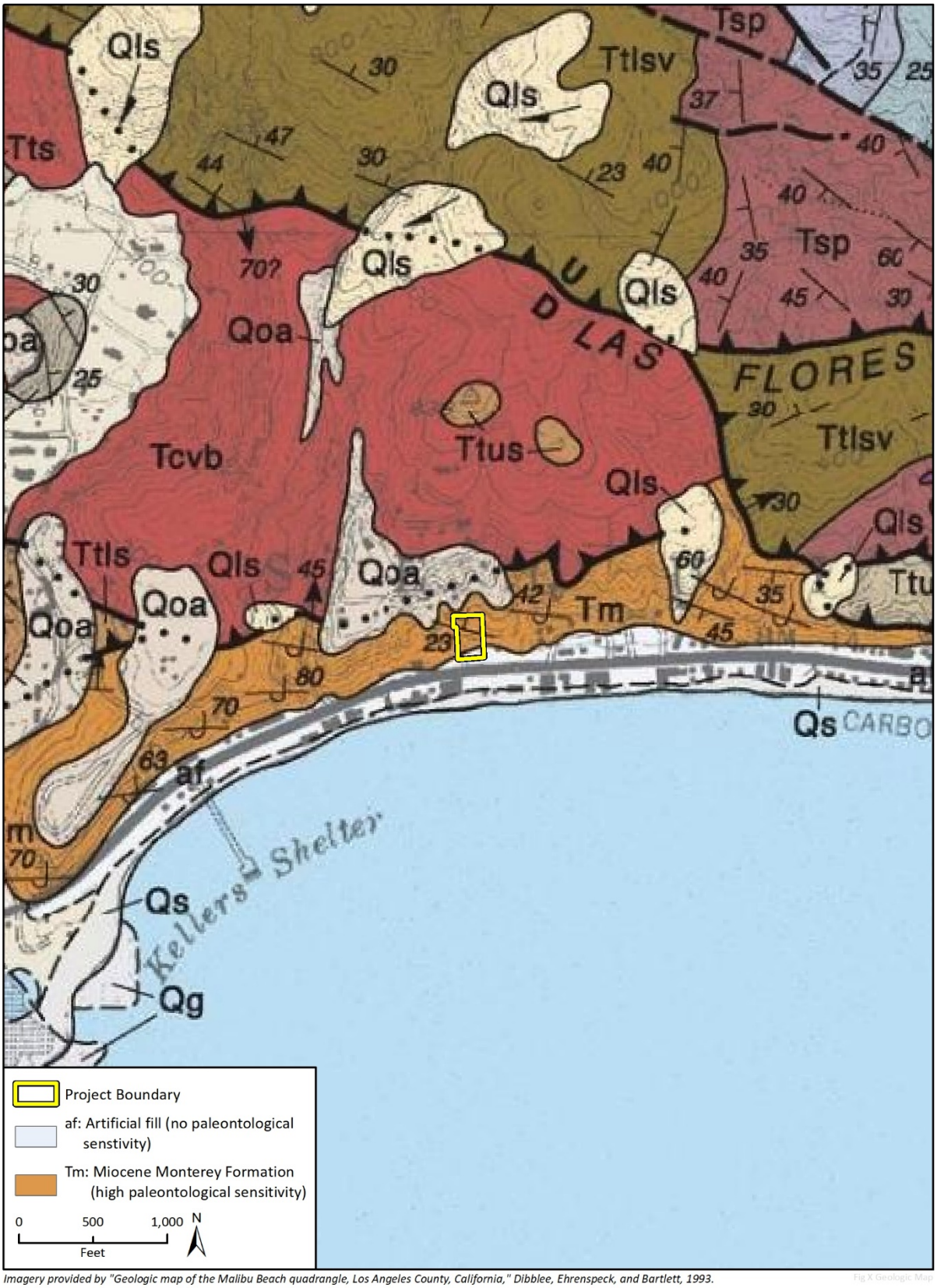
The project site is in an urban area and has been previously developed. However, project ground disturbance associated with the basement is proposed to reach depths of up to 40 feet below ground surface, which would likely extend below the boundary between previously disturbed and native (i.e., previously undisturbed) sediments within the project site. The location of the proposed basement is mapped entirely as Miocene Monterey Formation (Dibblee et al. 1993). Ground disturbance of native/intact sediments with a high paleontological sensitivity (i.e., Miocene Monterey Formation shown in Figure 10) would be expected from groundwork at this project site, and could result in impacts to paleontological resources. As such, construction activities may result in the destruction, damage, or loss of undiscovered paleontological resources. Potential impacts to paleontological resources would be considered significant under CEQA. Implementation of Mitigation Measure GEO-1 during project construction would reduce potential impacts related to paleontological resources to a less than significant level by providing for the recovery, identification, and curation of previously unrecovered fossils. Impacts would be less than significant with mitigation.

Mitigation Measure

GEO-1 Paleontological Resources Mitigation and Monitoring Program

Prior to the commencement of project construction, a Qualified Paleontologist (i.e., a paleontologist who meets the SVP [2010] standards as a Qualified Professional Paleontologist) shall be retained to design a Paleontological Resources Mitigation and Monitoring Program (PRMMP) for submission to the City prior to the issuance of grading permits. The PRMMP shall outline the procedures and protocol for conducting paleontological monitoring and mitigation. Monitoring shall be conducted during ground-disturbing activities (including, but not limited to site preparation, grading, excavation, and trenching) of intact (i.e., previously undisturbed) Miocene Monterey Formation by a qualified paleontological monitor (i.e., a paleontologist who meets the SVP [2010] standards as a

Figure 10 Surface Geology of the Project Site



Imagery provided by "Geologic map of the Malibu Beach quadrangle, Los Angeles County, California," Dibblee, Ehrenspeck, and Bartlett, 1993.

Paleontological Resource Monitor). The PRMMP shall address the following procedures and protocols:

- Timing and duration of monitoring
- Procedures for work stoppage and fossil collection
- The type and extent of data that shall be collected with any recovered fossils
- Identify an appropriate curatorial institution
- Identify the minimum qualifications for qualified paleontologists and paleontological monitors
- Identify the conditions under which modifications to the monitoring schedule can be implemented
- Details to be included in the final monitoring report.

Prior to issuance of a grading permit, copies of the PRMMP shall be submitted for review to the Department of Planning at the City of Malibu.

Full-time monitoring shall be conducted for all ground-disturbing activities associated with excavations for the basement, and all ground disturbance within project areas underlain by geologic units with high paleontological sensitivity (i.e., Miocene Monterey Formation). These project activities have a high potential of disturbing native (previously undisturbed) paleontologically-sensitive strata. If Miocene Monterey Formation (Tm) is not observed at the full depth of excavations associated with the basement, monitoring can be discontinued. Ground-disturbing activities that impact previously disturbed sediments (i.e., artificial fil) do not require paleontological monitoring.

The duration and timing of the monitoring shall be determined by the Qualified Paleontologist. If the Qualified Paleontologist determines that full-time or part-time monitoring is no longer warranted based on observed geology, he or she may recommend reducing monitoring to periodic spot-checking or may recommend that monitoring cease entirely. Monitoring shall be reinstated if any new ground disturbances of previously undisturbed areas are required, and reduction or suspension shall be reconsidered by the Qualified Paleontologist at that time.

If a paleontological resource is discovered, the monitor shall have the authority to temporarily divert construction equipment around the find until it is assessed for scientific significance and collected. Once salvaged, significant fossils shall be prepared to a curation-ready condition and curated in a scientific institution with a permanent paleontological collection (such as the Natural History Museum of Los Angeles County or UCMP). Curation fees are the responsibility of the project owner.

A final report shall be prepared describing the results of the paleontological monitoring efforts associated with the project. The report shall include a summary of the field and laboratory methods, an overview of the project geology and paleontology, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. The report shall be submitted to City. If the monitoring efforts produced fossils, a copy of the report shall also be submitted to the designated museum repository.

Implementation of Mitigation Measure GEO-1 would reduce potential impacts to paleontological resources to a less than significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	■	☐
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	■

Overview of Climate Change and Greenhouse Gases

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons and perfluorocarbons, and sulfur hexafluoride. Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, and CH_4 results from off-gassing associated with agricultural practices and landfills. Different types of GHGs have varying global warming potentials (GWPs), which are the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the GHG emissions, referred to as carbon dioxide equivalent (CO_2e), and is the amount of a GHG emitted multiplied by its GWP. CO_2 has a 100-year GWP of one. By contrast, CH_4 has a GWP of 28, meaning its global warming effect is 28 times greater than that of CO_2 on a molecule per molecule basis (Intergovernmental Panel on Climate Change [IPCC] 2014).[3]

The accumulation of GHGs in the atmosphere regulates Earth's temperature. Without the natural heat-trapping effect of GHGs, the Earth's surface would be about 33 degrees Celsius (°C) cooler (World Meteorological Organization 2020). However, emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of GHGs in the atmosphere beyond the level of naturally occurring concentrations.

[3] The IPCC's (2014a) *Fifth Assessment Report* determined that methane has a GWP of 28. However, modeling of GHG emissions was completed using the California Emissions Estimator Model version 2016.3.2, which uses a GWP of 25 for methane, consistent with the IPCC's (2007) *Fourth Assessment Report* and *California's 2017 Climate Change Scoping Plan* prepared by CARB.

Greenhouse Gas Emissions Inventory

Worldwide anthropogenic emissions of GHGs were approximately 46,000 million metric tons (MMT) of CO_2e in 2010. CO_2 emissions from fossil fuel combustion and industrial processes contributed about 65 percent of total emissions in 2010 (IPCC 2014).

Total United States GHG emissions were 6,676.6 MMT of CO_2e in 2018. Emissions increased by 2.9 percent from 2017 to 2018, and since 1990, total U.S. emissions have increased by an average annual rate of 0.13 percent for a total increase of 3.7 percent between 1990 and 2018. In 2018, the transportation and industrial end-use sectors accounted for 36 percent and 26 percent, respectively, of nationwide GHG emissions while the residential and commercial end-use sectors accounted for 20 percent and 17 percent of nationwide GHG emissions, respectively, with electricity emissions distributed among the various sectors (USEPA 2020d).

Based on the CARB's California Greenhouse Gas Inventory for 2000-2018, California produced 425 MMT of CO_2e in 2018. The major source of GHG emissions in California is the transportation sector, which comprises 39.9 percent of the state's total GHG emissions. The industrial sector is the second largest source, comprising 21 percent of the state's GHG emissions while electric power accounts for 14.8 percent (CARB 2020).

Regulatory Setting

California Regulations

The state of California considers GHG emissions and the impacts of climate change to be a serious threat to the public health, environment, economic well-being, and natural resources of California, and has taken an aggressive stance to mitigate its impact on climate change through the adoption of policies and legislation. CARB is responsible for the coordination and oversight of state and local air pollution control programs in the state. California has numerous regulations aimed at reducing the state's GHG emissions; some of the major initiatives are summarized below.

CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006 (ASSEMBLY BILL 32 AND SENATE BILL 32)

The "California Global Warming Solutions Act of 2006" (AB 32), outlines California's major legislative initiative for reducing GHG emissions. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main state strategies for reducing GHG emissions to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 target of 431 MMT of CO_2e, which was achieved in 2016. CARB approved the Scoping Plan on December 11, 2008, which included GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among others (CARB 2008). Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since the Scoping Plan's approval.

The CARB approved the 2013 Scoping Plan update in May 2014. The update defined the CARB's climate change priorities for the next five years, set the groundwork to reach post-2020 statewide goals, and highlighted California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the state's longer term GHG reduction strategies with other state policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use (CARB 2014).

On September 8, 2016, the governor signed Senate Bill (SB) 32 into law, extending the California Global Warming Solutions Act of 2006 by requiring the state to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, the CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, and implementation of recently adopted policies and legislation, such as SB 1383 (discussed later). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally-appropriate quantitative thresholds consistent with statewide per capita goals of six metric tons (MT) of CO_2e by 2030 and two MT of CO_2e by 2050 (CARB 2017b). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, sub-regional, or regional level), but not for specific individual projects because they include all emissions sectors in the state (CARB 2017b).

SENATE BILL 375

SB 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles for 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPO) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. SCAG was assigned targets of an 8 percent reduction in GHGs from transportation sources by 2020 and a 19 percent reduction in GHGs from transportation sources by 2035. In the SCAG region, SB 375 also provides the option for the coordinated development of subregional plans by the subregional councils of governments and the county transportation commissions to meet SB 375 requirements.

Regional Regulations

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS (SCAG)

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial counties, and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG coordinates with various air quality and transportation stakeholders in southern California to ensure compliance with the federal and state air quality requirements, including the Transportation Conformity Rule and other applicable federal, state, and air district laws and regulations. As the federally designated MPO for the six-county southern California region, SCAG is required by law to ensure that transportation activities conform to, and are supportive of, the goals of regional and state air quality plans to attain NAAQS. In addition, SCAG is a co-producer with the SCAQMD of the transportation strategy and transportation control measure sections of the AQMP for the Basin.

On September 3, 2020, SCAG's Regional Council formally adopted the 2020-2045 RTP/SCS (titled Connect SoCal). The 2020-2045 RTP/SCS builds upon the progress made through implementation of the 2016-2040 RTP/SCS and includes ten goals focused on promoting economic prosperity, improving mobility, protecting the environment, and supporting healthy/complete communities. The SCS implementation strategies include focusing growth near destinations and mobility options, promoting diverse housing choices, leveraging technology innovations, and supporting implementation of

sustainability policies. The SCS establishes a land use vision of center focused placemaking, concentrating growth in and near Priority Growth Areas, transferring of development rights, urban greening, creating greenbelts and community separators, and implementing regional advance mitigation (SCAG 2020).

Local Regulations

CITY OF MALIBU GENERAL PLAN

The Conservation Element of the General Plan includes sustainability goals for energy, water, and solid waste that relate to reducing GHG emissions. Goals contained in the Conservation Element that relate to GHG emissions include the following:

- **Objective 3.1:** Use of innovative, energy-efficient techniques and systems.
- **Objective 4.1:** Ten percent reduction in the amount of water for residential and commercial uses by 2001 and a three-day emergency water supply in all residential areas.
- **Objective 5.1:** Fifty percent reduction in the amount of solid waste generated by the community and disposed of in landfills by 2000.

Methodology

GHG emissions associated with the proposed project were calculated using CalEEMod version 2016.3.2 (see Appendix A for CalEEMod worksheets). The construction schedule was based on project information provided by the applicant and construction equipment was based on CalEEMod default assumptions. It is assumed that all construction equipment used would be diesel-powered. In accordance with SCAQMD guidance, construction emissions were amortized over a period of 30 years (the assumed life of the project) and amortized construction emissions were added to operational emissions so that construction GHG emissions can be addressed as part of operational GHG emissions (SCAQMD 2008b).

Operational emissions for the proposed uses and existing uses were modeled for year 2024, the anticipated opening year for the proposed project. CalEEMod calculates operational emissions of CO_2, CH_4, and N_2O associated with energy use, area sources, waste generation, water use and conveyance as well as CO_2 and CH_4 emissions associated with mobile sources. The default electricity consumption values in CalEEMod include the CEC-sponsored California Commercial End Use Survey and Residential Appliance Saturation Survey studies. CalEEMod currently incorporates California's 2016 Title 24 building energy efficiency standards; however, the proposed new building would be constructed in accordance with the 2019 Title 24 building energy requirements and the remodel of the existing building would bring the existing building into compliance with 2019 Title 24 building energy efficiency standards. According to the CEC, nonresidential buildings built to the 2019 standards will use about 30 percent less energy than those built to the 2016 standards due to energy efficiency measures, particularly lighting upgrades (CEC 2018). As a result, a 30 percent reduction was included in the model for the project's Title 24 energy use.

The project would be served by SCE. Therefore, SCE's energy intensity factors (i.e., the amount of CO_2, CH_4, and N_2O per kilowatt-hour) were used to calculate GHG emissions. The default SCE energy intensity factors included in CalEEMod are based on data from 2012. As of 2012, SCE procured 20.6 percent of its electricity from renewable sources (SCE 2012); however, per SB 100, the statewide RPS Program requires electricity providers to increase procurement from eligible renewable energy sources to 33 percent by 2020, 40 percent by 2024, and 60 percent by 2030. To account for the

continuing effects of the RPS, the energy intensity factors included in CalEEMod were reduced based on the percentage of renewables reported by SCE. Energy intensity factors that include this reduction are shown in Table 10.

Table 10 SCE Energy Intensity Factors

	2012 (lbs/MWh)	2024 (lbs/MWh)
Percent procurement	20.6	40[1]
Carbon dioxide (CO_2)	702.4	530.81
Methane (CH_4)	0.029	0.022
Nitrous oxide (N_2O)	0.006	0.005

[1] RPS goal established by SB 100

Source: SCE 2012

GHG emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for northern and southern California. A 20 percent reduction in indoor potable water use was incorporated in the model in accordance with CALGreen standards.

Mobile source emissions are generated by vehicle trips to and from the project site associated with operation of on-site development. The estimated trip generation rates used in CalEEMod were based on the Transportation Assessment prepared for the proposed project by Overland Traffic Consultants, Inc. CalEEMod calculates emissions of CO_2 and CH_4 generated by project-generated vehicle trips (i.e., mobile sources). However, CalEEMod does not calculate N_2O emissions from mobile sources; therefore, N_2O emissions were quantified separately using guidance from CARB (see Appendix A for calculations).

Because existing uses on the project site would be removed, existing operational emissions were subtracted from the proposed project's emissions to account for the net change in GHG emissions associated with the project. Existing emissions were calculated using CalEEMod defaults for the project opening year (2024)[4] and trip generation rates for the existing uses provided in the Transportation Assessment (see Appendix J).

Significance Thresholds

The majority of individual projects do not generate sufficient GHG emissions to create significant project-specific environmental effects. However, the environmental effects of a project's GHG emissions can contribute incrementally to cumulative environmental effects that are significant, contributing to climate change, even if an individual project's environmental effects are limited (CEQA Guidelines Section 15064[h][1]). The issue of a project's environmental effects and contribution towards climate change typically involves an analysis of whether or not a project's contribution towards climate change is cumulatively considerable. Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects

[4] CalEEMod requires the project opening year to take place after the completion of construction activities. Construction is anticipated to be finalized in January 2023. Therefore, an opening year of 2024 was selected.

of past projects, other current projects, and probable future projects (CEQA Guidelines Section 15064[h][1]).

Consistent with recent CEQA analyses published by the City, the SCAQMD-recommended bright line threshold is the most appropriate threshold to evaluate the significance of the project's GHG emissions (City of Malibu 2019a and 2020b). In guidance provided by the SCAQMD's GHG CEQA Significance Threshold Working Group in September 2010, SCAQMD considered a tiered approach to determine the significance of residential and commercial projects. The draft tiered approach is outlined in meeting minutes dated September 29, 2010 (SCAQMD 2010):

- **Tier 1.** If the project is exempt from further environmental analysis under existing statutory or categorical exemptions, there is a presumption of less than significant impacts with respect to climate change. If not, then the Tier 2 threshold should be considered.
- **Tier 2.** Consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing concept of consistency in CEQA Guidelines Section 15064(h)(3), 15125(d), or 15152(a). Under this Tier, if the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If there is not an adopted plan, then a Tier 3 approach would be appropriate.
- **Tier 3.** Establishes a screening significance threshold level to determine significance. The Working Group has provided a recommendation of 10,000 MT of CO_2e per year for industrial projects, 3,500 MT of CO_2e per year for residential projects, 1,400 MT of CO_2e per year for commercial projects, and 3,000 MT of CO_2e per year for mixed-use projects.
- **Tier 4.** Establishes a service population threshold to determine significance. The Working Group has provided a recommendation of 4.8 MT of CO_2e per year for land use projects.

The proposed project would not be statutory or categorically exempt; therefore, Tier 1 does not apply. In addition, the City does not have a local, qualified GHG reduction plan for the project to tier off, and Tier 2 would not apply. Therefore, Tier 3 is the most applicable SCAQMD-recommended threshold to utilize, and pursuant to CEQA Guidelines Section 15064, this threshold is considered appropriate by the City to evaluate GHG emission impacts for the project. The project would be a hotel project; as such, the applicable Tier 3 threshold would be the bright line threshold of 1,400 MT of CO_2e per year for commercial projects.

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Project construction is assumed to occur over a period of approximately 18 months, and the project is assumed to become operational in 2024. Based on CalEEMod modeling results, construction activities for the project would generate approximately 336 MT of CO_2e (Table 11). Amortized over a 30-year period (the assumed life of the project per SCAQMD guidance), project construction would generate about 11 MT of CO_2e per year.

Table 11 Estimated Construction GHG Emissions

Project Emissions (MT/yr CO_2e)	
2021	135.5
2022	196.3
2023	3.7
Total	**335.5**
Total Amortized over 30 Years	**11.2**

See Appendix A for CalEEMod worksheets.

Table 12 summarizes the project's combined construction and operational GHG emissions. Existing uses on the project site include commercial businesses, which would be demolished and/or replaced under the proposed project. Therefore, emissions generated by existing on-site uses were subtracted from those of the proposed project to obtain the overall net change in GHG emissions. Once construction activities are complete, the main sources of GHG emissions associated with the project would be energy consumption and mobile sources (i.e., vehicle trips). A breakdown of emissions by source type is available in the CalEEMod modeling worksheets in Appendix A of this Initial Study.

Table 12 Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions (MT of CO_2e)
Construction	11.2
Operation	
Area	<0.1
Energy	115.0
Solid Waste	10.7
Water	3.9
Mobile	
CO_2 and CH_4	301.7
N_2O	8.3
Project Annual Emissions	**450.8**
Existing Annual Emissions (Commercial Uses)	411.4
Net Project Annual Emissions (Project-Existing)	**39.4**
SCAQMD Brightline Threshold	1,400
Exceeds Threshold?	**No**

See Appendix A for CalEEMod worksheets.

As shown in Table 12, the proposed project would result in net increase in GHG emissions of approximately 39 MT of CO_2e per year, which would not exceed the SCAQMD threshold of 1,400 MT of CO_2e per year. The slight increase in GHG emissions compared to existing uses is due to increased energy demands associated with the more energy-intensive nature and 24-hour operation of hotels, as discussed in Section 6, *Energy*. Therefore, the proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As discussed under *Regulatory Setting*, several plans and policies have been adopted to reduce GHG emissions in the southern California region, including the state's 2017 Scoping Plan, SCAG's 2020-2045 RTP/SCS, and local policies contained in the City's General Plan. The proposed project's consistency with these plans is discussed in the following subsections. As discussed therein, the proposed project would not conflict with plans and policies aimed at reducing GHG emissions. No impact would occur.

2017 Scoping Plan

The principal state plan and policy is AB 32, the California Global Warming Solutions Act of 2006, and the follow up, SB 32. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020 and the goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. Pursuant to the SB 32 goal, the 2017 Scoping Plan was created to outline goals and measures for the state to achieve the reductions. The 2017 Scoping Plan's goals include reducing fossil fuel use and energy demand and maximizing recycling and diversion from landfills. The project would be consistent with these goals through project design, which includes complying with the latest Title 24 Green Building Code and Building Efficiency Energy Standards and installing energy-efficient LED lighting, water-efficient faucets and toilets, water efficient landscaping and irrigation, and EV charging stations. Therefore, the project would be consistent with the 2017 Scoping Plan.

SCAG 2020-2045 RTP/SCS

The SCAG's 2020-2045 RTP/SCS is forecast to help California reach its GHG reduction goals by reducing GHG emissions from passenger cars by 8 percent below 2005 levels by 2020 and 19 percent by 2035 in accordance with the most recent CARB targets adopted in March 2018. The 2020-2045 RTP/SCS includes ten goals with corresponding implementation strategies for focusing growth near destinations and mobility options, promoting diverse housing choices, leveraging technology innovations, and supporting implementation of sustainability policies. The project's consistency with the 2020-2045 RTP/SCS is discussed in Table 13. As shown therein, the proposed project would be consistent with the GHG emission reduction strategies contained in the 2020-2045 RTP/SCS.

Table 13 Project Consistency with Applicable SCAG 2020-2045 RTP/SCS Strategies

Reduction Strategy	Project Consistency
Focus Growth Near Destinations & Mobility Options. ▪ Emphasize land use patterns that facilitate multimodal access to work, educational and other destinations ▪ Focus on a regional jobs/housing balance to reduce commute times and distances and expand job opportunities near transit and along center-focused main streets ▪ Plan for growth near transit investments and support implementation of first/last mile strategies. ▪ Promote the redevelopment of underperforming retail developments and other outmoded nonresidential uses ▪ Prioritize infill and redevelopment of underutilized land to accommodate new growth, increase amenities and connectivity in existing neighborhoods ▪ Encourage design and transportation options that reduce the reliance on and number of solo car trips (this could include mixed uses or locating and orienting close to existing destinations) ▪ Identify ways to "right size" parking requirements and promote alternative parking strategies (e.g., shared parking or smart parking)	**Consistent.** The proposed project is an infill development that would replace underperforming commercial developments on the project site with a new hotel use in an urbanized area near many local Malibu attractions and businesses, such as the Malibu Pier. The proposed Sea View Hotel Overlay District would reduce parking requirements for hotels from 2 spaces per hotel room to 1.5 spaces per hotel room. Existing public transit facilities within the City are generally limited; however, the project site is located immediately adjacent to a bus stop for Metro bus route 534, which provides connections between Santa Monica and Malibu. The proposed project would also be within walking and biking distance of existing residential, commercial, and recreational uses and would provide bicycle parking options on the site. Therefore, the proposed project would focus growth near destinations, and public transit would be available within a short walk of the project site for visitors and employees to use.
Leverage Technology Innovations. ▪ Promote low emission technologies such as neighborhood electric vehicles, shared rides hailing, car sharing, bike sharing and scooters by providing supportive and safe infrastructure such as dedicated lanes, charging and parking/drop-off space ▪ Improve access to services through technology—such as telework and telemedicine as well as other incentives such as a "mobility wallet," an app-based system for storing transit and other multi-modal payments ▪ Identify ways to incorporate "micro-power grids" in communities, for example solar energy, hydrogen fuel cell power storage and power generation	**Consistent.** The project would include six EV charging stations and would ~~require~~ encourage employees to carpool or use public transit or ridesharing apps to access the project site due to limited space for employee parking. ~~Employee ridesharing or alternative transportation to the project site would be a condition of employment.~~
Support Implementation of Sustainability Policies. ▪ Pursue funding opportunities to support local sustainable development implementation projects that reduce GHG emissions ▪ Support statewide legislation that reduces barriers to new construction and that incentivizes development near transit corridors and stations ▪ Support local jurisdictions in the establishment of Enhanced Infrastructure Financing Districts (EIFDs), Community Revitalization and Investment Authorities (CRIAs), or other tax increment or value capture tools to finance sustainable infrastructure and development projects, including parks and open space ▪ Work with local jurisdictions/communities to identify opportunities and assess barriers to implement sustainability strategies ▪ Enhance partnerships with other planning organizations to promote resources and best practices in the SCAG region ▪ Continue to support long range planning efforts by local jurisdictions	**Consistent.** As discussed in Table 14 below, the project would be consistent with the sustainability policies contained in the City of Malibu General Plan and the latest Title 24 and CALGreen requirements. Therefore, the project would support implementation of applicable sustainability policies.

Reduction Strategy	Project Consistency
▪ Provide educational opportunities to local decision makers and staff on new tools, best practices and policies related to implementing the Sustainable Communities Strategy	
Promote a Green Region. ▪ Support development of local climate adaptation and hazard mitigation plans, as well as project implementation that improves community resiliency to climate change and natural hazards ▪ Support local policies for renewable energy production, reduction of urban heat islands and carbon sequestration ▪ Integrate local food production into the regional landscape ▪ Promote more resource efficient development focused on conservation, recycling and reclamation ▪ Preserve, enhance and restore regional wildlife connectivity ▪ Reduce consumption of resource areas, including agricultural land ▪ Identify ways to improve access to public park space	**Consistent.** The project is an infill development that would involve construction of hotel uses in an urbanized area and would therefore not interfere with regional wildlife connectivity or convert agricultural land (see Section 2, *Agriculture and Forestry Resources*, and Section 4, *Biological Resources*). The project would comply with applicable conservation policies such as the City's General Plan, Title 24, and CALGreen. Therefore, the project would support development of a green region.

Source: SCAG 2020

Malibu General Plan

The GHG objectives discussed in the City's General Plan Conservation Element that are applicable to the proposed project are summarized in Table 14. As shown therein, the project would be consistent with the GHG reduction goals and intent of the City's General Plan.

Table 14 Project Consistency with Applicable GHG-Reduction Objectives and Policies of the Malibu General Plan

General Plan GHG Policies and Action Items	Project Consistency
Objective 3.1. Use of innovative, energy-efficient techniques and systems.	**Consistent.** The project would include sustainability features such as EnergyStar appliances, LED fixtures, low-flow fixtures and landscape irrigation systems, and EV charging stations that would reduce resource consumption and GHG emissions.
Objective 4.1. Ten percent reduction in the amount of water for residential and commercial uses by 2001 and a three-day emergency water supply in all residential areas.	**Consistent.** The project would comply with the latest CALGreen requirements and would reduce water consumption through the inclusion of low-flow fixtures in hotel rooms and facilities, drought-tolerant landscaping, and a water-efficient landscape irrigation system.
Objective 5.1. Fifty percent reduction in the amount of solid waste generated by the community and disposed of in landfills by 2000.	**Consistent.** The project would include appropriate recycling bins throughout hotel rooms and facilities and would separate recycling from solid waste. Project construction would also be required to divert a minimum of 65 percent of construction waste pursuant to the City's Construction and Demolition Debris Recycling Program.

Source: City of Malibu 2017

NO IMPACT

9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	■	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	■	☐	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☐	☐	■
d. Be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	■	☐
e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	■
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	■	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	■	☐

The following analysis is based partly on information contained in a Supplemental Commission Agenda Report regarding the project site that was prepared by the City in 2010, as well as relevant agency databases including the State Water Resources Control Board (SWRCB), Department of Toxic Substances Control (DTSC), and USEPA. The full Supplemental Commission Agenda Report can be found in Appendix H of this document.

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Project construction would involve the temporary use of potentially hazardous materials such as vehicle fuels and fluids that could be released should an accidental leak or spill occur. However, standard construction BMPs for the use and handling of such materials would avoid or reduce the potential for such conditions to occur. Any use of potentially hazardous materials during construction of the project would comply with all local, state, and federal regulations regarding the handling of potentially hazardous materials, including Title 49 of the Code of Federal Regulations and Title 22, Division 4.5 of the California Code of Regulations. Risk of spills would cease after construction is completed.

Operation and maintenance of the proposed project would likely involve the use of common household materials such as cleaning and degreasing solvents, fertilizers, and pesticides. In addition, chemicals, such as chlorine, for the maintenance of the hotel pool would potentially be stored on site in minor quantities in a secured enclosure. These and other materials used in the regular maintenance of buildings and landscaping would also be utilized in the secondary activities associated with the hotel and restaurant uses. Use of these materials would be subject to compliance with existing regulations, standards, and guidelines established by the federal, state, and local agencies related to storage, use, and disposal of hazardous materials. The transport, use, and storage of hazardous materials during construction of the project would be subject to all applicable state and federal laws, such as the Hazardous Materials Transportation Act, Resource Conservation and Recovery Act, the California Hazardous Material Management Act, and the California Code of Regulations, Title 22. Other than small quantities of materials used in the maintenance of hotels, the proposed project would not involve the use or storage of substantial quantities of hazardous materials, nor would the project generate large quantities of hazardous waste. Therefore, the project would not create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

As described above, construction of the project would involve the use of potentially hazardous materials such as vehicle fuels and fluids that could be released should an accidental leak or spill occur. However, as further discussed in Section 10, *Hydrology and Water Quality*, the Stormwater Pollution Prevention Plan (SWPPP) for the proposed project would include standard construction BMPs for the use and handling of such materials to avoid or reduce the potential for such conditions to occur. Typical construction BMPs include secondary containment and special storage for hazardous materials used onsite, the use of drip pans under vehicles and equipment, and provisioning of spill kits and cleanup plans in the event of an accidental spill. The transport, use, and storage of hazardous materials during the construction of the project would be conducted in accordance with all applicable state and federal laws, such as the Hazardous Materials Transportation Act, Resource Conservation and Recovery Act, California Hazardous Material Management Act, and CCR Title 22.

In addition, Parcel A contains a 1,000-sf building constructed in 1968 that would be demolished. Based on the age of the structure on Parcel A, there is the possibility for asbestos-containing materials (ACMs) and lead-based paint (LBP) to occur within the building. Therefore, mitigation would be required to ensure that demolition activities on Parcel A would be conducted in accordance with applicable regulations regarding potentially hazardous building materials to avoid impacts to construction workers and the accidental release of ACMs and LBPs. In addition, Parcel A formerly contained a gas station. The Supplemental Commission Agenda Report indicates that the project site was subject to a leaking underground storage tank (LUST) case by SWRCB, which was closed in 1996. The underground storage tanks (USTs) associated with the gas station use were removed in May 2005, and that soil and groundwater sampling was completed during removal and the case was closed in 2005 by the SWRCB. According to the Supplemental Commission Agenda Report, the City's Environmental Assessment Consultant, Cotton, Shires and Associates, Inc. reviewed previous environmental documents and geotechnical reports prepared for the site and spoke with SWRCB staff, which led to the determination that any concerns regarding petroleum contamination have been addressed and that there is no evidence of gross petroleum fuel contaminants on the site associated with the historic gas station. Although encountering groundwater or soil contamination is not anticipated, it was recommended that conditions of approval for any proposed projects on the site include measures to address the potential for encountering petroleum contamination. Therefore, in accordance with the recommendations of the Supplemental Commission Agenda Report, the proposed project would require mitigation to address the potential for encountering contaminated soils during project construction. Adherence to regulatory requirements and mitigation measures would reduce potential impacts related to construction activities to a less than significant level.

Operation of the hotel and restaurants would not involve the use or storage of significant quantities of hazardous materials and any pool chemicals stored onsite would be kept in a locked, protective cabinet or closet. Therefore, project operations are not anticipated to create a significant hazard to the public or environment through the accidental release of hazardous materials. Impacts would be less than significant.

Mitigation Measures

With implementation of Mitigation Measures HAZ-1 and HAZ-2, project construction and operation would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials.

HAZ-1 Hazardous Building Materials

ASBESTOS

In the event that any suspect ACMs are discovered during demolition activities, the materials shall be sampled and analyzed for asbestos content prior to any disturbance. Prior to the issuance of the demolition permit, the applicant shall provide a letter from a qualified asbestos abatement consultant that no ACMs are present in the building. If ACMs are found to be present, all asbestos removal operations shall be performed by a California Occupational Safety and Health Administration (Cal/OSHA) Division of Occupational Safety and Health (DOSH)-registered and California-licensed asbestos contractor. All disturbances of ACMs, and/or abatement operations, shall be performed under the surveillance of a third-party Cal/OSHA Certified Asbestos Consultant. All disturbances of ACMs, and/or abatement operations, shall be performed in accordance with the Cal/OSHA requirements set forth in 8 CCR 1529. Asbestos abatement must also be performed in accordance with SCAQMD requirements set forth in Rule 1403 as well as all other applicable state and federal rules and regulations.

LEAD

Any suspect LBP shall be sampled prior to any renovations or demolition activities. Prior to the issuance of the demolition permit, the applicant shall provide a letter from a licensed LBP abatement contractor that no LBP is present in the building. If identified, LBP located within building scheduled for renovation or demolition, or noted to be damaged, shall be abated by a licensed LBP abatement contractor, and disposed of according to all state and local regulations.

All construction work shall be subject to 29 Code of Federal Regulations Part 1926.62 "Lead Exposure in Construction Interim Final Rule," which was adopted and incorporated into California's own standard Title 8 CCR Section 1532.1.

HAZ-2 Soil and Groundwater Contamination

During demolition and construction, the project engineer shall direct crews to monitor excavated soil and/or waters (surface water or groundwater) for stain, odor, or other indicators of impacted media. If, during demolition, construction, or any later phase, stained or odorous soil or waters (surface water or groundwater) are detected, the applicant shall provide the following to the City:

- Non-emergency notification that stained or odorous soil or water (surface water or groundwater) has been detected
- Plan to address the further assessment of the extent of impacted media
- Contingency plans to address the possible impacts to site works or the public
- Plan for legal profiling, transportation and disposal at an offsite location
- Notification of other agencies (e.g., Regional Water Quality Control Board [RWQCB], Los Angeles County Fire Department (LACoFD), Department of Toxic Substances Control, etc.)

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

The nearest school is the Colin McEwen High School, located approximately 0.9 mile west of the project site. As discussed above, the project would not regularly store or use significant quantities of hazardous materials, nor would it generate large quantities of hazardous waste. Therefore, the project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. There would be no impact.

NO IMPACT

d. Would the project be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The following databases and listings compiled pursuant to Government Code Section 65962.5 were checked in November 2020 for known hazardous materials contamination at the project site:

- **United States Environmental Protection Agency (USEPA)**
  - Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)/Superfund Enterprise Management System (SEMS)/Envirofacts database search
- **State Water Resources Control Board (SWRCB)**
  - GeoTracker search for leaking underground storage tanks (LUST) and other cleanup sites
- **Department of Toxic Substances Control (DTSC)**
  - EnviroStor database for hazardous waste facilities or known contamination sites
  - Cortese List of Hazardous Waste and Substances Sites

The project site is not located on or directly adjacent to any known hazardous or contaminated sites that are actively being monitored. The USEPA SEMS database search did not produce any results associated with the project site. A search of the EnviroStor database showed that the project site is not included in a list of DTSC sites and there are no contaminated sites within 0.5-mile radius of the project site (DTSC 2020a). The project site is also not included in the DTSC Cortese List (DTSC 2020b). The GeoTracker database indicates that the project site was subject to a LUST case that was closed in 1996, and a second LUST case in 2002 that was closed by the SWRCB in 2005 after removal of the USTs on site and sampling indicated that soil and groundwater contamination was not present (SWRCB 2020). As discussed under *Impact b.* above, the City determined that petroleum contamination on the project site is not anticipated, and project construction would be required to comply with mitigation in the event that contamination is discovered. As the proposed project is not located on or in the vicinity of any hazardous materials sites and the proposed project would not involve routine use of hazardous materials, no impact would occur due to the construction or operation of the proposed project. Therefore, impacts related to hazardous material sites near the proposed project would be less than significant.

LESS THAN SIGNIFICANT IMPACT

e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

The project site is not located within two miles of a public airport. The airport nearest to the project site is the Santa Monica Municipal Airport, located approximately 12 miles southeast of the project site. Furthermore, there are no private airstrips in the vicinity of the project site. Therefore, the project would not result in safety or noise hazards related to airports for people residing or working at the project site and its vicinity. No impact would occur.

NO IMPACT

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The project would not involve the development of structures that could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Construction activities have the potential to temporarily impact traffic and vehicle speeds on Pacific Coast Highway; however, these impacts would be temporary and access to these roadways would not be blocked by project construction. Furthermore, the applicant would coordinate with the City to ensure appropriate construction staging areas and adequate vehicular and pedestrian access on adjacent roadways.

Operation of the project would not require the development of additional streets or introduce new features that would interfere with or obstruct an adopted emergency response plan. In addition, implementation of the project is anticipated to reduce traffic to and from the project site, as discussed further in Section 17, *Transportation*, due to reduced daily trips associated with the proposed new land use. Pacific Coast Highway has sufficient capacity to provide access to and from the project site. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

The majority of land in Malibu is classified as being within a Very High Fire Hazard Severity Zone (VHFHSZ) by California Department of Forestry and Fire Protection (CalFIRE). As discussed in Section 20, *Wildfire*, the project site is within an urban area of the City but is adjacent to an undeveloped hillside located north/northeast of the project site. According to CalFIRE, the project site is located in Very High Fire Hazard Severity Zone (VHFHSZ) for wildland fires (CalFIRE 2020). Therefore, as with most areas in the City, the project site is subject to wildfire risks. However, the project would not exacerbate wildfire risks and would reduce risks to people or structures through conformance with the applicable fire safety codes and practices and by contributing to the cost of installing a new check valve on ~~Pacific Coast Highway~~ Topanga Canyon Boulevard that would increase water flows in the existing water main during emergency events. As further discussed in Section 20, *Wildfire,* the project would not result in increased wildfire risks at the site or lead to an unusual risk of loss injury or death involving wildland fires. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

10 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	■	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	■	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) Result in substantial erosion or siltation onsite or offsite;	☐	☐	■	☐
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite;	☐	☐	■	☐
(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	■	☐
(iv) Impede or redirect flood flows?	☐	☐	■	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	■	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	■	☐

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

The project site is entirely developed with existing paving and structures and is within an urbanized area of the City. Drainage is collected in existing paved parking areas, the site driveway, and at downspouts on existing structures. Stormwater is then directed to the City's existing stormwater system via curb gutters along Pacific Coast Highway. The proposed project would add new areas of landscaping throughout the project site, including landscaping the first 24 feet of Parcel A adjacent to Pacific Coast Highway, except for at access driveways, which would aid in retaining stormwater on the project site.

Implementation of the project would require disturbing portions of the project site, including excavation, grading, and construction activities. As stormwater flows over a construction site, it can pick up sediment, debris, and chemicals, and transport them to receiving water bodies. The nearest receiving water body is the Pacific Ocean located approximately 400 feet south of the project site. The proposed project would be required to comply with all established regulations under the NPDES permitting program to control construction stormwater discharges. Under the Construction General Permit, the project applicant would be required to eliminate or reduce non-stormwater discharges to waters of the nation, develop and implement a SWPPP for project construction activities, and perform inspections of the stormwater pollution prevention measures and control practices to ensure conformance with the SWPPP. The SWPPP would be subject to approval by the Los Angeles Regional Water Quality Control Board (LARWQCB). In addition, a Wet Weather Erosion and Sediment Control Plan would be submitted to the City's Public Works Department for approval that would regulate construction activities during the rainy season. BMPs to reduce potential construction impacts include measures such as the installation of silt fences to trap sediments, slope stabilization, and regular sweeping of construction sites to control dust. Furthermore, as discussed under Section 9, *Hazards and Hazardous Materials*, project construction would be required to implement mitigation in the unlikely event that soil or groundwater contamination is discovered during grading and excavation, which would prevent impacts to water quality from any potential contamination encountered.

Operation of the project would be required to would be required to comply with the provisions of the LCP LIP, including Section 17.3.2(B)(2), which requires storm drain improvements to mitigate runoff generated by property development. The applicant would be required to submit a Storm Water Management Plan (SWMP) developed in accordance with Section 17.3.2 of the LCP LIP and a Water Quality Management Plan (WQMP) developed in accordance with Section 17.3.3 of the LCP LIP to the Public Works Director. These plans would specify stormwater BMPs to be added to the project site, source control BMPs, drainage improvements, and maintenance plans for the site's BMPs. Project construction and operational stormwater management plans would undergo City review and approval to ensure that the project would not violate any water quality standards or degrade water quality.

The project site is entirely developed, and the proposed project would not substantially increase impermeable surface on the site. In addition, project construction and operation would comply with all applicable local and federal stormwater drainage requirements as specified above. Therefore, the proposed project would not be anticipated to increase existing stormwater flows off the site or otherwise affect water quality. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The City of Malibu is located above the Malibu Valley Groundwater Basin, which is a small alluvial basin located along the coast (City of Malibu 2015). The proposed project would not substantially increase impermeable surfaces on the project site and would therefore not reduce groundwater infiltration compared to existing conditions. Construction of the proposed new building on Parcel A would include excavation for a basement level of the building. Although not anticipated, if groundwater is encountered during construction of the basement level, dewater may be required and could result in the withdrawal of groundwater. Any dewatering activities would require a dewatering permit from LARWQCB in accordance with LARWQCB Order No. R4-2019-0052 to ensure that construction activities do not affect water quality or degrade the groundwater supply or sustainability.

As discussed in Section 7, *Geology and Soils*, project construction would include upgrading and expanding the existing OWTS. The upgraded OWTS would direct wastewater generated by the proposed hotel uses through a wastewater treatment system that culminates in a 5,000-gallon traffic-rated dosing tank with duplex screened pump which would release treated effluent to two seepage pits (see Appendix F). The OWTS Design Report and the City Environmental Health Review document indicate that the proposed OWTS would meet the requirements of the City of Malibu Plumbing Code and LCP and would therefore not result in impacts to groundwater quality. The proposed project's upgraded OWTS would increase groundwater recharge on the project site due to the increased wastewater generated by the proposed hotel uses. Therefore, the proposed project would result in less than significant impacts on groundwater supplies, water quality control plans, and sustainable groundwater management plans.

LESS THAN SIGNIFICANT IMPACT

c.(i) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation onsite or offsite?

c.(ii) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?

c.(iii) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The project site is located at the bottom of a hillside and elevation ranges such that Parcel B is 25 to 40 feet higher than Parcel A. The proposed project would include demolition, grading, excavation, and construction of a new building on Parcel A, which is relatively flat. Construction on Parcel B, located along the hillside, would be limited to remodeling the existing building on that parcel. Manufactured slopes on Parcel B that were created when the existing building was constructed would

not be affected by the proposed project. The project site does not contain any streams, rivers, or other natural drainage features. The project site is developed with commercial buildings and is almost entirely paved with impermeable surfaces.

As discussed under *Impact a.* of this section, the proposed project would comply with the NPDES General Construction Permit and City requirements for stormwater runoff and erosion control measures during project construction to ensure that project construction would not result in substantial erosion, offsite siltation, or polluted runoff. As previously discussed, upon implementation of the proposed project, drainage conditions and runoff on the project site would not be substantially altered compared to existing conditions. The proposed project would be required to implement an approved SWMP and WQMP during project operation to ensure that stormwater is appropriately retained onsite and that stormwater discharged into the City's stormwater drainage system meets the required water quality standards. At least one method specified in LCP LIP Section 17.3.2(B)(2) would be selected to mitigate runoff generated by property development, in accordance with the LCP LIP requirements. Therefore, the proposed project would not create runoff that would exceed the capacity of the storm drain system, would not provide a substantial additional source of polluted runoff, and would not result in substantial erosion. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c.(iv) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?

The project site is developed with existing commercial buildings and surface parking lots and is almost entirely paved with impermeable surfaces. The proposed project would include the remodel of an existing building on Parcel B to convert the commercial building to hotel rooms and the construction of a new hotel building on Parcel A. As discussed above, the proposed project would not alter drainage patterns on the site or lead to substantially altered runoff flows. In addition, the project site is not located within a flood zone (Federal Emergency Management Agency [FEMA] 2008). Any runoff from the site would be properly retained on site and/or conveyed into the existing drainage system along Pacific Coast Highway. The proposed project would not substantially change the site's drainage patterns and would not alter a stream, river, or other drainage course in a manner that would result in flooding or redirect flood flows. The proposed project would not increase runoff such that flooding would occur, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

The project site is not located near any dams, levees, or other inland bodies of water that could produce seiche impacts at the project site. The dam nearest to the project site is the Sepulveda Dam approximately 14 miles to the northeast; therefore, the project site is not at risk of flooding due to dam failure. The project site is located approximately 400 feet north of the Pacific Ocean. According to the FEMA Flood Insurance Rate Map (FIRM), the project site is not located in a 100-year flood zone (Map #06037C1541F) (FEMA 2008). In addition, while there is the potential for the City of Malibu to be impacted by tsunamis, according to the CGS, the project site is outside of the mapped tsunami zone for the City (CGS 2020b). In addition, as discussed under Section 9, *Hazards and Hazardous Materials*, operation of the proposed project would not involve the storage or use of significant

quantities of hazardous materials or waste. Therefore, there is minimal risk of release of pollutants due to project inundation and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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11 Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	■
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	■	☐

a. Would the project physically divide an established community?

The proposed project would involve the conversion of an existing commercial building to hotel use, the demolition of an automotive detailing business, and the construction of a new hotel building on the subject property. The project site is within a commercial area of the City, currently contains commercial uses, and is fully developed. The project would not include any new roads or infrastructure that have the potential to divide any established communities. No impact would occur.

NO IMPACT

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The proposed project would involve the demolition of an automotive detailing/former gas station building and construction of a new 9,982-sf, 17-room hotel building on Parcel A and a remodel of an existing commercial/retail building on Parcel B to create a 22-room hotel building. The project site is designated and zoned as Community Commercial (CC) and is within the City's Coastal Zone. The proposed project would require a General Plan Amendment to change the land use designation to Commercial Visitor Serving (CV) and a zone change to Commercial Visitor Serving (CV-2) to allow the use of the project site as a boutique hotel. In addition, the project would require a Coastal Development Permit and Local Coastal Plan Amendment due to its location within the Coastal Zone.

The project FAR would be 0.44. The proposed new building height would be 24 feet with a flat roof or 28 feet with a 25 percent sloping roof, whichever is lower, and would be constructed in a stepped fashion such that no section of the hotel would be more than two stories. The proposed new building height would comply with the height requirements specified in MMC Section 17.40.080(c). The height and floor area of the existing building on Parcel B, which is fully permitted by the City, would not be altered other than for the extension of the elevator shaft to provide ADA-compliant access to the rooftop level of the building. MMC Section 17.40.080 specifies that buildings in the CV-2 zone are limited to a FAR of 0.15 but City Council may approve additional gross square footage. The proposed FAR would exceed 0.15 and the additional square footage proposed by the project would require City Council review and approval. However, the majority of commercial buildings in Malibu, including the

existing building on the project site, are nonconforming as they were constructed prior to the adoption of the latest LIP and MMC requirements. Therefore, the proposed project is not atypical of the existing built environment of Malibu. In addition, as discussed in the environmental analysis throughout this Initial Study, the project, including the proposed additional square footage, would not result in significant impacts to the environment. Therefore, upon City Council review and approval, the proposed project would not conflict with the provisions of the LIP and MMC.

Pursuant to MMC Section 17.48.030, hotel uses require two parking spaces per guest room, one space for the average per-shift number of employees, one space for every 100 square feet of gross floor area used for consumption of food or beverages or public recreation areas, and one space for every five fixed seats or for every 35 square feet of assembly area where there are no fixed seats in meeting rooms or other assembly areas. The proposed Sea View Hotel Overlay District would reduce parking requirements from two parking spaces per guest room to 1.5 spaces per guest room, as it is unlikely that most guests would bring multiple vehicles for their stay. The proposed project would include 39 hotel rooms and 889-sf of restaurant serving area. There would be approximately 11 full-time equivalent employees on site per shift. With the implementation of the Sea View Hotel Overlay District parking requirements, the proposed project would require 59 parking spaces for the guest rooms, 11 spaces for employees, and 9 spaces for the hotel restaurant, for a total of 79 parking spaces. The project would provide 91 parking spaces, which is 7 fewer spaces than required by the MMC but 12 more than required by the proposed Overlay District. In addition, the applicant proposes to encourage employees and guests to carpool, take public transit, or utilize other ride-sharing options. The 91 parking spaces would therefore accommodate the parking requirements for the proposed hotel rooms and restaurant.

The proposed project would be generally consistent with the applicable goals and policies of the LCP Land Use Plan (LUP) regarding new commercial development, as well as public access and recreation, marine and land resources (including water quality), hazards and shoreline/bluff development, and scenic and visual resources. Additionally, during the review and approval process for the Coastal Development Permit for the proposed project, a detailed conformance analysis by the City would be required to determine the project's consistency with the standards contained in the LCP LIP, including zoning requirements such as setbacks, building heights, and landscaping. Findings would be made regarding conformance with the LUP and LIP to ensure adherence to local and regional policies and goals addressing environmental concerns.

While the proposed project would require amendments to the General Plan, LCP, and zoning text as well as a zone change for use of the project site as a boutique hotel, the proposed project would not result in significant environmental effects as discussed throughout this Initial Study. Upon City review and approval of the discretionary requests associated with the project (General Plan Map Amendment [GPMA No. 17-002], Zone Change [ZMA No. 17-002], Local Coastal Plan Amendment [LCPA No. 16-006], Zoning Text Amendment [ZTA No. 20-001], and Coastal Development Permit [CDP No. 17-086]), the proposed project would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigation environmental effects. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

12 Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	■
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	■

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b. Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

The project site and surrounding properties are located in a commercial area of the City. The California Surface Mining and Reclamation Act of 1975 (SMARA) was enacted to promote conservation and protection of significant mineral deposits. Sand and gravel resources are the only mineral resources which have been mapped in western Los Angeles County. According to the California Department of Conservation Mineral Land Classification Maps, the project site is located in an area with a Mineral Resource Zone (MRZ)3 designation, indicating that the area has undetermined mineral resource significance (DOC 1994). There are no known mineral resources on the project site or in the vicinity of the site and the surrounding commercial and residential land uses are not compatible with mineral extraction. Therefore, the project would result in no impact on the availability or recovery of mineral resources.

NO IMPACT

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13 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	■	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	■	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	■

Noise

The unit of measurement used to describe a noise level is the decibel (dB). However, the human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, a method called "A weighting" is used to adjust actual sound pressure levels so that they are consistent with the human hearing response, which is most sensitive to frequencies around 4,000 Hertz (Hz) and less sensitive to frequencies around and below 100 Hz, thus filtering out noise frequencies that are not audible to the human ear. A weighting approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the "A-weighted" levels of those sounds. Therefore, the A-weighted noise scale is used for measurements and standards involving the human perception of noise. In this analysis, all noise levels are A-weighted, and "dBA" is understood to identify the A-weighted decibel.

Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. A doubling of the energy of a noise source, such as a doubling of traffic volume, would increase the noise level by 3 dB; similarly, dividing the energy in half would result in a decrease of 3 dB (Crocker 2007).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not "sound twice as loud" as one source. It is widely accepted that the average healthy ear can barely perceive an increase (or

decrease) of up to 3 dBA in noise levels (i.e., twice [or half] the sound energy); that an increase (or decrease) of 5 dBA (8 times [or one eighth] the sound energy) is readily perceptible; and that an increase (or decrease) of 10 dBA (10.5 times [or approximately one tenth] the sound energy) sounds twice (or half) as loud (Crocker 2007).

Descriptors

The impact of noise is not a function of loudness alone. The time of day when noise occurs, and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this analysis are the one-hour equivalent noise level (L_{eq}) and the community noise equivalent level (CNEL).

- The L_{eq} is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period. Typically, L_{eq} is equivalent to a one-hour period, even when measured for shorter durations as the noise level of a 10- to 30-minute period would be the same as the hour if the noise source is relatively steady. L_{max} is the highest Root Mean Squared (RMS) sound pressure level within the sampling period, and L_{min} is the lowest RMS sound pressure level within the measuring period (Crocker 2007).
- The Day-Night Average Level (L_{dn} or DNL), which is a 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours to account for the added sensitivity of humans to noise during these hours (Caltrans 2013)
- The CNEL is a 24-hour equivalent sound level with an additional 5 dBA penalty to noise occurring during evening hours, between 7:00 p.m. and 10:00 p.m., and an additional 10 dBA penalty to noise occurring during the night, between 10:00 p.m. and 7:00 a.m., to account for the added sensitivity of humans to noise during these hours (Caltrans 2013). Quiet suburban areas typically have a CNEL in the range of 40 to 50 dBA, while areas near arterial streets are in the 50 to 70+ CNEL range.

Propagation

The way sound reduces with distance depends on factors such as the type of source (e.g., point or line), the travel path, site conditions, and obstructions. Sound levels from a point source (e.g., construction, industrial machinery, ventilation units) typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance. Sound from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013).

Sound from a small, localized source (approximating a “point” source) radiates uniformly outward as it travels away from the source in a spherical pattern, known as geometric spreading. The sound level decreases or drops off at a rate of 6 dBA for each doubling of distance.

Traffic noise is not a single, stationary point source of sound. Over a specified time interval, the movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point. The drop-off rate for a line source is 3 dBA for each doubling of distance.

Vibration

Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible. Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent structures. The number

of cycles per second of oscillation makes up the vibration frequency, described in terms of hertz (Hz). The vibration frequency of an object describes how rapidly it oscillates. The normal frequency range of most groundborne vibration that can be felt by the human body is from a low of less than 1 Hz up to a high of about 200 Hz (Crocker 2007).

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Groundborne noise may result in adverse effects, such as building damage, when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz). Vibration may also damage infrastructure when foundations or utilities, such as sewer and water pipes, physically connect the structure and the vibration source (FTA 2018). Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses.

Descriptors

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or RMS vibration velocity. Particle velocity is the velocity at which the ground moves. The PPV and RMS velocity are normally described in inches per second (in./sec.). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (Caltrans 2020c).

Response to Vibration

Vibration associated with construction of the project has the potential to be an annoyance to nearby land uses. Caltrans has developed limits for the assessment of vibrations from transportation and construction sources. The Caltrans vibration limits are reflective of standard practice for analyzing vibration impacts on structures. The Caltrans Transportation and Construction Vibration Guidance Manual (Caltrans 2020a) identifies impact criteria for buildings and additional impact criteria for humans from transient and continuous/frequent sources: Table 15 presents the impact criteria for buildings, and Table 16 presents the impact criteria for humans.

Table 15 Vibration Damage Potential

Building Type	Maximum PPV (in./sec.)
Historic sites and other critical locations	0.1
Historic and some old buildings	0.5
Older residential structures	0.5
New residential structures	1.0
Modern industrial/commercial buildings	2.0

PPV = peak particle velocity; in./sec. = inches per second

Source: Caltrans 2020c

Table 16 Vibration Annoyance Potential

Human Response	Maximum PPV (in/sec.)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Severe/Disturbing	2.00	0.70
Strongly perceptible	0.90	0.10
Distinctly perceptible	0.24	0.035
Barely perceptible	0.035	0.012

PPV: peak particle velocity; in./sec.: inches per second

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls (i.e., a loose steel ball that is dropped onto structures or rock to reduce them to a manageable size). Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: Caltrans 2020c

Propagation

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations diminish much more rapidly than low frequencies, so low frequencies tend to dominate the spectrum at large distances from the source. Variability in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances (Caltrans 2020c). When a building is exposed to vibration, a ground-to-foundation coupling loss (the loss that occurs when energy is transferred from one medium to another) will usually reduce the overall vibration level. However, under rare circumstances, the ground-to-foundation coupling may amplify the vibration level due to structural resonances of the floors and walls.

Sensitive Receivers

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Generally, a sensitive receiver is identified as a location where human populations (especially children, senior citizens, and sick persons) are present, and where there is a reasonable expectation of continuous human exposure to noise. Vibration-sensitive receivers, which are similar to noise-sensitive receivers, include residences and institutional uses, such as schools, churches, and hospitals. However, vibration-sensitive receivers also include buildings where vibrations may interfere with vibration-sensitive equipment that is affected by vibration levels that may be well below those associated with human annoyance (e.g., recording studies or medical facilities with sensitive equipment).

The project is in a commercial area with no sensitive receivers immediately adjacent. The nearest sensitive receivers to the site are single-family residences located approximately 165 feet to the north, when measuring from the northern project property line to the nearest edge of residential pool decks.

Regulatory Setting

Federal

FTA TRANSIT AND NOISE VIBRATION IMPACT ASSESSMENT MANUAL

The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction in their *Transit and Noise Vibration Impact Assessment Manual* (FTA 2018). For residential, commercial, and industrial uses, the daytime noise threshold is 80 dBA L_{eq}, 85 dBA L_{eq}, and 90 dBA L_{eq} for an 8-hour period, respectively.

State of California

CALIFORNIA BUILDING CODE (CCR TITLE 24, PART 2)

California adopted noise insulation standards for residential buildings (Title 24, Part 2, California Code of Regulations, section 1206, et. seq.). Title 24 establishes standards for interior room noise (attributable to outside noise sources). A project must be designed to limit intruding noise to an interior CNEL (or L_{dn}) of at least 45 dBA in any habitable room.

CITY OF MALIBU GENERAL PLAN NOISE ELEMENT

The goals and policies contained in the Malibu General Plan Noise Element focus on minimizing human exposure to excessive noise by evaluating noise exposure risks and incorporating appropriate implementation measures (City of Malibu 1995). In support of these goals, the General Plan contains a table of exterior noise compatibility standards for various land uses to determine potential noise exposure impacts. The highest level of exterior noise exposure regarded as "normally acceptable" for residential buildings is 60 dBA L_{dn}/CNEL and regarded as "conditionally acceptable" for residential buildings is 70 dBA L_{dn}/CNEL. The highest level of exterior noise exposure regarded as "normally acceptable" for hotel buildings is 65 dBA L_{dn}/CNEL and regarded as "conditionally acceptable" for hotel buildings is 70 dBA L_{dn}/CNEL.

Tables 6-4 and 6-5 of the City's General Plan Noise Element contain maximum allowable noise exposure from non-transportation and transportation sources, respectively. These tables are represented in Table 17 and Table 18, below.

Table 17 Maximum Exterior Noise Limits Non-Transportation Sources

Receiving Land Use Category	General Plan Land Use Districts	Time Period	Noise Level (dBA)	
			L_{eq}	L_{max}
Rural	All RR Zones and PRF, CR, AH, OS	7 a.m. to 7 p.m.	55	75
		7 p.m. to 10 p.m.	50	65
		10 p.m. to 7 a.m.	40	55
Other Residential	All SFR, MFR, and MFBF Zones	7 a.m. to 7 p.m.	55	75
		7 p.m. to 10 p.m.	50	65
		10 p.m. to 7 a.m.	45	60
Commercial, Institutional	CN, CC, CV, CG, and I Zones	7 a.m. to 7 p.m.	65	85
		7 p.m. to 7 a.m.	60	70

Notes: RR = Rural Residential; PRF = Private Recreational Facilities; CR = Commercial Recreation; AH = Agriculture-Horticulture; OS = Open Space; SFR = Single-Family Residential; MFR = Multifamily Residential; MFBF = Multifamily Beachfront; CN = Commercial Neighborhood; CC = Community Commercial; CV = Commercial Visitor; CG = Commercial General; and I = Institutional.

Source: Table 6-4 of the Malibu General Plan Noise Element, http://qcode.us/codes/malibu-general-plan/ accessed November 13, 2020.

Table 18 Maximum Allowable Noise Exposure Transportation Sources

Land Use	Outdoor Activity Areas[1] L_{dn}/CNEL, dBA	Interior Spaces	
		L_{dn}/CNEL, dBA	L_{eq} dBA[2]
Residential	50[3]	45	–
Transient housing	60[3]	45	–
Hospitals, long term in-patient medical treatment and care facilities	60[3]	45	–
Theaters, auditoria, music halls	60[3]	–	35
Churches and meeting halls	60[3]	–	40
Office buildings	60[3]	–	45
Schools, libraries and museums, childcare	60[3]	–	45
Playgrounds and neighborhood parks	70	–	–

[1] Where the location of outdoor activity area is unknown; the exterior noise level standard shall be applied to the property line of the receiving land use.

[2] As determined for a typical worst-case hour during periods of use.

[3] Where it is not possible to reduce noise in outdoor activity areas to 50 dBA L_{dn}/CNEL or less using practical applications of the best-available noise reduction measures, an exterior noise level of up to 65 dBA L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Source: Table 6-5 of the Malibu General Plan Noise Element, http://qcode.us/codes/malibu-general-plan/ accessed November 13, 2020.

CITY OF MALIBU NOISE ORDINANCE (MUNICIPAL CODE CHAPTER 8.24 NOISE)

The City of Malibu Noise Ordinance states under Section 8.24.050, Prohibited Acts:

> Notwithstanding any other provisions of this chapter, the following acts and the causing or permitting thereof, are declared to be in violation of this chapter:
>
> B. Radios, phonographs, etc. the using, operating or permitting to be played, used or operated between the hours of ten p.m. and seven a.m. of any radio, musical instrument, phonograph, television set, or instrument or device similar to those heretofore specifically mentioned for the production or reproduction of sound in volume sufficiently loud as to disturb the peace,

quiet or repose of persons of ordinary and normal sensitiveness who are in the immediate vicinity of such machine or device;

F. Loading and unloading: loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans or similar objects between the hours of ten (10) p.m. and seven a.m. in such a manner as to cause noise disturbance;

G. Construction: Operating or causing the operation of any tools, equipment, impact devices, derricks, or hoists used in construction, chilling, repair, alteration, demolition, or earthwork on weekdays between the hours of 7 p.m. and 7 a.m., before 8 a.m. or after 5 p.m. on Saturday, or at any time on Sundays or holidays, except as provided in Section 8.24.060(D).

L. Commercial establishments adjacent to residential property: sustained noise from the premises of any commercial establishment, including any outdoor area part of or under the control of the establishment, between the hours of ten p.m. and seven a.m. shall not be plainly audible at a distance of five feet of any residential dwelling unit;

Section 8.24.060, Exemptions, states which acts are exempt from the Noise Ordinance:

D. Construction—Special Circumstances. The provisions of Section 8.24.050 do not apply to any person who performs construction, repair, excavation or earthmoving work pursuant to the expressed written permission of the city manager to perform such work at times prohibited in Section 8.24.050. The applicant must submit to the city manager an application in writing, stating the reasons for the request and the facts upon which such reasons are based. The city manager may grant written permission for the construction if he or she finds that:

1. The work proposed to be done is in the public interest.
2. Hardship, injustice, or unreasonable delay would result from the interruption thereof during the hours and days specified in Section 8.24.050, or
3. The building or structure involved is devoted or intended to be devoted to a use immediately incident to public defense.

The City's Noise Ordinance (MMC Chapter 8.24.050) dictates the allowed working hours of construction activities as indicated in Table 19:

Table 19 Allowable Construction Hours

Days	Allowable Construction Hours
Monday-Friday	7:00 a.m. – 7:00 p.m.
Saturdays	8:00 a.m. – 5:00 p.m.
Sundays and Holidays	Not permitted

Existing Conditions

The primary offsite noise sources in the project area are motor vehicles (e.g., automobiles, buses, and trucks), particularly along Pacific Coast Highway. Motor vehicle noise is characterized by a high number of individual events, which often create sustained noise levels. Ambient noise levels would be expected to be highest during the daytime and rush hours unless congestion slows speeds substantially. Noise associated with existing commercial uses in the area also contribute to ambient noise, but to a lesser extent than motor vehicle noise. To determine ambient noise levels in the project site vicinity, three 15-minute noise measurements were conducted on October 28, 2020 and one 24-hour measurement was conducted on October 28 through 29, 2020 using an ANSI Type II

integrating sound level meter during (refer to Appendix I for noise measurement data). Results from the short-term and long-term noise measurements are shown in Table 20 and Table 21, respectively. Table 20 includes the measurement locations, distances to primary noise sources, and associated measured noise levels in dBA L_{eq}. Table 21 includes 24 hour and hourly L_{eq} noise levels. Table 22 shows the recorded traffic volumes from short-term noise measurement sites 1 and 3. Noise-sensitive land uses near the proposed hotel use are residential uses to the northwest, north, and northeast of the project site.

Table 20 Noise Monitoring Results – Short-Term

#	Measurement Location	Sample Times	dBA L_{eq}[1]	dBA L_{min}	dBA L_{max}	Primary Noise Source	Distance to Roadway Centerline (feet)[1]
1	Western portion of project site, adjacent to Pacific Coast Highway	12:18 PM to 12:33 PM	72	55	86	Traffic on Pacific Coast Highway	60
2	In front of existing 1st floor entrance – elevated position in relation to roadway	12:39 PM to 12:54 PM	66	54	81	Traffic on Pacific Coast Highway	165
3	South of closest sensitive receiver near northern project boundary	12:59 PM to 1:14 PM	61	52	68	Traffic on Pacific Coast Highway	300

[1] Distance to centerline of Pacific Coast Highway (Pacific Coast Highway)

See Appendix I for short term noise monitoring data.

Source: Rincon Consultants, field measurements on October 28, 2020, using ANSI Type II integrating sound level meter

Table 21 Noise Monitoring Results – Long-Term

Sample Time	dBA L_{eq}	Sample Time	dBA L_{eq}
LT1 – Western portion project site, adjacent to Pacific Coast Highway, October 28-29, 2020			
1:38 PM	75	1:38 AM	55
2:38 PM	76	2:38 AM	55
3:38 PM	73	3:38 AM	65
4:38 PM	74	4:38 AM	68
5:38 PM	74	5:38 AM	75
6:38 PM	75	6:38 AM	75
7:38 PM	72	7:38 AM	72
8:38 PM	73	8:38 AM	74
9:38 PM	72	9:38 AM	75
10:38 PM	69	10:38 AM	73
11:38 PM	65	11:38 AM	73
12:38 AM	60	12:38 PM	75
LT1 24-hour Noise Level			**73**

Note: Calculated L_{dn}/CNEL = 77 dBA

Source: Rincon Consultants, field measurements conducted on October 28 and 29, 2020, using ANSI Type II Integrating sound level meter. See Appendix I for long-term noise monitoring data.

Table 22 Sound Level Monitoring Traffic Counts

Measurement	Roadway	Traffic	Autos[1]	Medium Trucks[2]	Heavy Trucks[3]
#1	Pacific Coast Highway	15-minute count	550	27	11
		One-hour Equivalent	2,200	108	44
#3	Pacific Coast Highway	15-minute count	480	18	8
		One-hour Equivalent	1,920	72	32
Percent			**90%**	**1%**	**9%**

Note: Detailed sound level measurement data are included in Appendix I.

[1] Automobiles: all vehicles with two axles and four tires – primarily designed to carry nine or fewer people (passenger cars, vans) or cargo (vans, light trucks) – generally with gross vehicle weight less than 4,500 kilograms (9,900 pounds).

[2] Medium trucks: all cargo vehicles with two axles and six tires – generally with gross vehicle weight between 4,500 kilograms (9,900 pounds) and 12,000 kilograms (26,400 pounds).

[3] Heavy trucks: all cargo vehicles with three or more axles – generally with gross vehicle weight more than 12,000 kilograms (26,400 pounds).

The Santa Monica Municipal Airport, approximately 12 miles southeast of the project site (measured to the edge of the nearest runway), is a significant noise generator throughout Santa Monica. The project site is not within the Airport Influence Area Boundary or the airport's noise contours (Los Angeles County Airport Land Use Commission 2013).

Methodology

Construction Noise

Construction noise was estimated using the FHWA Roadway Construction Noise Model (RCNM) (FHWA 2006). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas. Using RCNM, construction noise levels were estimated at noise sensitive receivers near the project site. RCNM provides reference noise levels for standard construction equipment, with an attenuation of 6 dBA per doubling of distance for stationary equipment.

Variation in power imposes additional complexity in characterizing the noise source level from construction equipment. Power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation (FTA 2018). Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some have higher continuous noise levels than others, and some have high-impact noise levels.

Construction activity would result in temporary noise in the project area, exposing residential sensitive receivers to increased noise levels. The project would involve site preparation, demolition of existing Parcel A building, basement excavation, new building and pool deck construction, parking lot paving, remodeling of existing Parcel B building, and landscaping elements. Construction noise would typically be higher during the heavier periods of initial construction (i.e., demolition and excavation) and would be lower during later construction phases (i.e., interior remodeling/construction after the building shell is erected). Typical heavy construction equipment during project demolition and excavation could include bulldozers, excavators, and jackhammers. It is assumed that diesel engines would power all construction equipment. Construction equipment

would not all operate at the same time or location. In addition, construction equipment would not be in constant use during the eight-hour operating day.

Groundborne Vibration

Operation of the proposed project would not include any substantial vibration sources. Thus, construction activities would have the greatest potential to generate ground-borne vibration affecting nearby receivers, especially during grading and excavation of the project site. The greatest vibratory source during construction would be equipment similar to a dozer, such as an excavator. Neither blasting nor pile driving would be required for construction of the proposed project. Construction vibration estimates are based on vibration levels reported by Caltrans and the FTA (Caltrans 2020c; FTA 2018).

The highest levels of vibration generated by construction equipment would be produced by a large bulldozer. A large bulldozer would create approximately 0.089 in./sec. PPV at a distance of 25 feet, which would attenuate to 0.031 in./sec. PPV at 50 feet (Caltrans 2020c).

Operational Noise Sources

Noise sources associated with operation of the proposed project would consist of low speed on-site vehicular noise, rooftop pool deck speaker system, landscaping maintenance, general conversations, and mechanical equipment (e.g., heating, ventilation, and air conditioning [HVAC] units, transformers, exhaust fans, and emergency backup generators). Due to distances, partial shielding from existing on-site building, subterranean parking spaces and low noise levels associated with general site activities, on-site traffic, parking movements, and landscape maintenance, these sources would be not considered substantial and are not analyzed further.

HEATING AND COOLING EQUIPMENT

HVAC units used for cooling and heating the hotel rooms, restaurant, lobby, and other interior areas for daily use would generate noise. The HVAC unit used in this analysis is a 16.7-ton Carrier 38AUD25 split system condenser (see Appendix I for manufacturer's specifications). The manufacturer's noise data lists the unit as having a sound power level of 85 dBA. All HVAC units were assumed to be enclosed by four feet barriers and located on the rooftop of the existing building, and on the first and third floors of the new building. All HVAC units were modeled with the center of the noise source as being three feet above elevation, relative to its location.

ROOFTOP DECK LOUDSPEAKERS

The proposed rooftop pool deck would create a new noise source associated with the proposed boutique hotel. Rooftop deck loudspeaker noise was analyzed by Veneklasen Associates (VA) and this analysis is based on review of information provided in their Rooftop Noise Report (see Appendix I). VA employed a three-dimensional acoustical model using the topography and buildings of the surrounding area along with speakers spaced 10 feet apart along the pool deck.

Transportation Noise Sources

Analysis of impacts of the environment on a project is generally not required for CEQA compliance (*Ballona Wetlands Land Trust et al. v. City of Los Angeles*). Therefore, noise exposure to new noise-sensitive land uses from transportation noise sources has been analyzed for only informational purposes. The project would be subject to transportation noise levels from vehicles on Pacific Coast Highway. Traffic noise modeling was conducted based on traffic volumes from the supplemental

traffic analysis prepared by Overland Traffic Consultants, Inc. for this project (see Appendix J). The FHWA Highway Traffic Noise Prediction Model (FHWA RD 77-108) was used to calculate traffic noise levels along Pacific Coast Highway.

Pacific Coast Highway is a four-lane highway with a posted speed limit of 45 miles per hour (mph). The project's contribution to the existing traffic noise levels along area roadways was determined by comparing the predicted noise levels at a reference distance of 50 feet from the roadway centerline for baseline conditions with and without project-generated traffic. Trip generation is based on the project's traffic analysis, which determined the project would result in a decrease of 108 trips from the existing use during the peak hour. To determine the vehicle classification mix for modeling, Caltrans vehicle classification for Pacific Coast Highway were used (Caltrans 2018), with a mix of 94.6 percent automobiles, 4.3 percent medium trucks, and 1.1 percent heavy trucks. Exterior transportation noise levels were modeled at the future hotel building façades and exterior use areas, with the receivers placed at five feet above ground level.

Significance Thresholds

The following thresholds are based on City noise standards and Appendix H of the CEQA Guidelines. Noise impacts would be significant if:

- **Noise in Excess of Established Standards:** The project would result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
  - **Temporary:** Construction noise would be significant if:
    - Daytime construction noise exceeds an 80 dBA L_{eq} (8 hour) noise limit at the nearest residences or 85 dBA L_{eq} (8 hour) at the nearest commercial properties;
    - Nighttime construction noise exceeds a 70 dBA L_{eq} (8 hour) noise limit at the nearest residences or 85 dBA L_{eq} (8 hour) at the nearest commercial properties;
    - Daytime construction noise exceeds the City's non-transportation source maximum exterior noise limit for residential uses of 75 dBA L_{max};
    - Daytime construction noise exceeds the City's non-transportation source maximum exterior noise limit for commercial uses of 85 dBA L_{max}; or
    - Construction noise is generated outside of allowable construction hours as stated in Section 8.24.050 of the Malibu Municipal Code.
  - **Permanent:** Operational noise would be significant if:
    - Project stationary noise sources generate noise levels that exceed 55 dBA L_{eq} between the hours of 7:00 a.m. and 7:00 p.m., 50 dBA L_{eq} between the hours of 7:00 p.m. and 10:00 p.m., or 40 dBA L_{eq} between the hours of 10:00 p.m. and 7:00 a.m. at residential property limits;
    - Project stationary noise sources generate noise levels that exceed 65 dBA L_{eq} between the hours of 7:00 a.m. and 7:00 p.m. or 60 dBA L_{eq} between the hours of 7:00 p.m. and 7:00 a.m. at commercial property limits; or
    - For traffic-related noise, impacts would be significant if project-generated traffic would result in exposure of sensitive receivers to an unacceptable increase in noise levels. For purposes of this analysis, a significant impact would occur if project-related traffic increases the ambient noise environment of noise-sensitive locations by 3 dB or more

where the ambient noise level exceeds the City Noise Element land use compatibility standards (i.e., those with-project conditions that fall within the "normally unacceptable" or "clearly unacceptable" land use categories). In addition, a significant impact would also occur if project-related traffic increases the ambient noise environment of noise-sensitive locations by 5 dB or more regardless of the ambient noise level under with-project conditions.

- **Vibration:** The project would result in the generation of excessive ground-borne vibration or ground-borne noise levels.
  - This would occur if the project would subject vibration-sensitive land uses to construction-related ground-borne vibration that exceeds the distinctly perceptible vibration annoyance potential criteria for human receivers of 0.24 in./sec. PPV, or the residential structural damage criteria of 0.2 PPV in./sec.
- **Airport Noise:** For a project located in the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, if the project exposes people residing or working in the project area to excessive noise levels.
- **Land Use Compatibility:** The project's on-site uses would be subject to noise exceeding City Noise Element land use compatibility standards.
  - This would occur if exterior use areas of the project are subject to noise levels in excess of 60 dBA L_{dn}/CNEL, and interior areas of the project are subject to noise levels in excess of 45 dBA L_{dn}/CNEL.

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

The proposed project involves remodeling the interior of the existing building on Parcel B, demolishing structures on Parcel A, construction of a new three-story building with a basement level on Parcel A, surface parking, and landscaping. The immediate surrounding area, consisting of single-family residences and commercial uses, may be subject to both temporary construction noise and long-term operational noise. The primary on-site noise sources associated with operation of the proposed project would include noise from delivery trucks, trash hauling trucks, HVAC units, and amplified music at the rooftop pool deck. The following discussions address construction and operational noise associated with the project.

Construction Noise

Construction activity would result in temporary increases in ambient noise in the project area on an intermittent basis and, as such, would expose surrounding noise-sensitive receivers to increased noise. The nearest sensitive receivers to the site are single-family residences to the north, approximately 160 feet from the project's northern property line. Commercial uses are adjacent to the project site to the east and west.

While the City does not have specific noise level criteria for assessing construction impacts, the FTA has developed guidance for determining whether construction of a project would result in a substantial temporary increase in noise levels. Based on FTA guidance, a significant impact would occur if construction noise exceeds an 80 dBA L_{eq} (8-hour) noise limit during the day and an 85 dBA L_{eq} noise limit (8-hour) at the nearest residences and commercial uses, respectively (FTA 2018). For

this analysis, the FTA construction noise thresholds and the City's L_{max} non-transportation source thresholds are applied for determining if noise levels from construction would result in a substantial temporary increase in noise levels at local sensitive receivers.

Using RCNM, construction noise levels were estimated at noise-sensitive receivers near the project site. RCNM provides reference noise levels for standard construction equipment, with an attenuation of 6 dBA per doubling of distance for stationary equipment.

Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some have higher continuous noise levels than others, and some may have discontinuous high-impact noise levels. The maximum hourly L_{eq} of each phase is determined by combining the L_{eq} contributions from each piece of equipment used in that phase (FTA 2018). Project construction phases would include demolition, site preparation, grading, building construction, architectural coating, and paving of the project site. It is assumed that diesel engines would power all construction equipment. For assessment purposes, the loudest phases were used for this assessment (i.e., demolition, grading, and building construction), and were modeled under the conservative assumption that typical equipment, such as a dozer, an excavator, and a jackhammer, would be operating simultaneously.

Project construction would occur over three phases. Phase 1 would generate the highest noise levels during demolition, basement excavation, and elevator shaft, retaining wall and stairwell construction. The duration of this phase would be approximately five months. Phase 2 would involve steel structure, decking, and concrete floor construction. The duration of this phase would be approximately four months. Phase 3 would include build out the parking lot, roof deck pool, and landscaping, as well as interior finishes. The duration of this phase would be approximately 13 months with most construction activity taking place inside the buildings.

Construction equipment would be continuously moving across the site, coming near and then moving further away from individual receivers. Therefore, due to the dynamic nature of construction, noise levels are calculated at various distances from the center of on-site construction activity to the nearest receivers. The nearest receiver is approximately 280 feet to Parcel A demolition and construction. The Parcel B building would be remodeled with most of the work performed inside the existing building. The existing building on Parcel B would shield direct line-of-sight from the nearest residential receiver and Parcel A construction area.

Using the FHWA RCNM, construction noise was modeled at 280 feet from adjacent residences with a conservative -3 dBA offset to account for shielding provided by the building on Parcel B. Project construction noise was modeled at 50 feet from the adjacent commercial uses. Construction noise levels and distances to the nearest receivers for each construction phase are shown in Table 23. RCNM calculations are included in Appendix I.

Table 23 Construction Noise Levels at Receivers

Construction Equipment	Land Use	Distance to Receiver, Feet	Approximate Noise Level, dBA	
			L_{eq}	L_{max}
Phase 1 – Bulldozer, Excavator, Jackhammer	Residential	280	67[1]	67[1]
	Commercial	50	85	85
Phase 2 – Crane, Front End Loader, Concrete Mixer Truck	Residential	280	61[1]	63[1]
	Commercial	50	85	85
Phase 3 – Concrete Pump Truck, Man Lift, Paver	Residential	280	60[1]	63[1]
	Commercial	50	78	81

[1] Resulting Parcel A construction noise level accounting for a -3 dBA offset applied due to shielding effects from Parcel B building. Actual construction noise levels could be up to -5 dBA at noise sensitive receivers to the north of the project site due to the shielding.

L_{eq}: one-hour equivalent noise level; L_{eq}: instantaneous maximum noise level; dBA: A-weighted decibel

See Appendix I for RCNM results.

As shown in Table 23, noise levels during construction would result in 67 dBA L_{eq} at the nearest noise-sensitive receivers, consisting of single-family residences to the north. Therefore, construction noise levels would not exceed the daytime noise criterion of 80 dBA L_{eq} (FTA 2018). Construction noise maximum exterior noise level at residential uses would be up to 67 dBA L_{max}, which would not exceed the City's 75 dBA L_{max} daytime standard for non-transportation sources at residential uses. Maximum hourly and maximum construction noise levels at adjacent commercial uses resulted in 85 dBA L_{eq} and 85 dBA L_{max}, which would not exceed the FTA daytime noise criterion of 85 dBA L_{eq} and the City's 85 dBA L_{max} daytime standard for non-transportation sources at commercial uses. Furthermore, per MMC Section 8.24.050, construction activities are prohibited between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, and between the hours of 5:00 p.m. and 8:00 a.m. on weekends, Sundays, and federal holidays. As construction activities would not occur during these hours, construction noise levels would not exceed the nighttime noise criterion of 75 dBA L_{eq} (FTA 2018). However, the adjacent McDonald's drive-thru lane could experience speech interruption due to construction noise during orders at the speaker box. Therefore, construction noise levels could increase ambient noise levels in the vicinity of the speaker box, disrupting audibility of orders. Short-term construction noise impacts would be significant.

Land Use Compatibility

The predominant source of noise on and around the project site is vehicular traffic on Pacific Coast Highway. According to the City's noise compatibility guidelines, ambient noise levels up to 60 dBA L_{dn}/CNEL are normally acceptable for hotel uses while ambient noise levels up to 70 dBA L_{dn}/CNEL are conditionally acceptable. Based on Caltrans' AADT traffic volumes for Pacific Coast Highway and Traffic Noise Prediction Model calculations for the Existing plus Project traffic volume scenario, the project's southern façade facing Pacific Coast Highway would be exposed to an ambient noise level of approximately 67 dBA CNEL (Appendix I).

Generally, any large structure blocking the line-of-sight would provide at least a 5-dBA reduction in source noise levels at the receiver (FHWA 2011). Additionally, structures can substantially reduce

occupants' exposure to noise. The FHWA's guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows (FHWA 2011). Modern non-residential buildings are typically constructed with storm windows, double- or triple-glazed, which provide an exterior-to-interior noise level reduction of 25 dBA. Based on a noise exposure level of up to 67 dBA CNEL and a noise attenuation of at least 25 dBA, the interior noise level within the nearest hotel rooms facing Pacific Coast Highway (90 feet to the centerline) would be up to 42 dBA CNEL. Therefore, interior noise levels for the nearest hotel rooms with direct line-of-sight to Pacific Coast Highway would not exceed the City's interior noise standard of 45 dBA CNEL for hotel uses.

On-Site Operational Noise

HVAC Equipment

The rooftop-mounted HVAC unit used in this analysis is a 16.7-ton Carrier 38AUD25 split system condenser (see Appendix I for manufacturer's specifications). The manufacturer's noise data lists the unit as having a sound power level of 85 dBA. HVAC equipment serving the proposed hotel would be located near existing sensitive receivers, consisting of single-family residences to the north of the project parcels. HVAC units for the new building would be located at the third floor, above the entry to guest rooms and first floor, to the east of the reception area. HVAC units for the existing building would be located on the far northerly portion of the roof level; there are existing HVAC units in this area of the rooftop. All HVAC units would be enclosed by walls four feet in height. Sensitive single-family receivers would continue to be exposed to rooftop HVAC noise; however, the two HVAC areas for the new building would not expose these residences to additional HVAC noise due to shielding provided by the existing building on Parcel B.

According to the City's exterior noise standards for a residential zone, noise levels from non-transportation noise sources, project HVAC equipment, shall not exceed the respective daytime, evening, or nighttime residential noise level standards of 55 dBA L_{eq}, 50 dBA L_{eq}, and 40 dBA L_{eq}, respectively, as regulated by the City's General Plan Noise Element. Based on building heights of remodeled hotel buildings, HVAC equipment could be located as close as 190 feet from existing sensitive receivers. Conservatively assuming two HVAC units with a sound power level of 85 dBA per unit, an attenuation rate of approximately 6 dBA per doubling of distance from the source and -5 dBA reduction due to proposed wall enclosures, HVAC equipment would generate estimated noise levels up to 40 dBA L_{eq} at 190 feet. HVAC noise levels were also modeled at adjacent commercial properties ranged between 50 dBA and 54 dBA. Therefore, on-site HVAC equipment would not exceed the City's daytime noise level standard of 55 dBA L_{eq}, evening noise level standard of 50 dBA L_{eq}, or nighttime noise level standard of 40 dBA L_{eq} at residential uses and would not exceed the City's daytime 65 dBA L_{eq} and nighttime 60 dBA L_{eq} standards at commercial uses. Operational noise impacts associated with HVAC noise would be less than significant.

Delivery and Trash-Hauling Trucks

The project would require periodic delivery and trash-hauling services, which generate noise from medium-duty truck operations and idling engines. However, noise associated with delivery and trash-hauling trucks would be an intermittent noise source and are already a common occurrence in the project vicinity due to existing hotel, residential, and commercial uses that make up the developed area. Because delivery and trash trucks are already a common occurrence throughout the City, such services would not result in a substantial permanent increase in ambient noise levels without the

project. Operational noise impacts associated with delivery and trash-hauling trucks would be less than significant.

Rooftop Pool Deck Noise

Proposed rooftop deck loudspeaker noise was analyzed by VA and this analysis is based on review of information provided in the Rooftop Noise Report (VA 2020). There would be a rooftop deck on the existing building that would be accessible to hotel guests with a room key. This area would contain tables, umbrellas, trees, a small pool, and an open wet bar and grill, which would be portable and covered with umbrellas. Noise from conversation would be an intermittent and temporary noise source that would typically be limited to the daytime, where there would be greater activity and this type of noise source is more acceptable. Loudspeakers would be installed to provide relaxing background music for guests on the deck. Loud music associated with DJs, bands, or other types of loud musical performances would not be permitted. The loudspeakers would be installed along the underside of the proposed cantilevered barrier and face south toward the pool. The rooftop pool deck would operate from 10:00 a.m. to 10:00 p.m. daily.

A three-dimensional computer noise model was created of the project site. The model considers existing topography, buildings, proposed cantilevered barrier, and pool deck speaker array in modeling results. The speaker array was assumed to consist of speakers situated 10 feet apart and located in the corners of the proposed cantilevered barrier. Model calculations resulted in pool deck speaker array noise levels between 44 and 50 dBA at the nearest homes to the north of the project site, and between 50 and 54 dBA at the adjacent commercial properties, as shown in Figure 5 of the Rooftop Noise Report (see Appendix I).

Noise levels from rooftop pool deck loudspeakers would not exceed the nighttime noise level standard of 60 dBA L_{eq} at the adjacent commercial properties and would not exceed the evening noise level standard of 50 dBA L_{eq} at the nearest residential receivers. Although rooftop deck loudspeaker noise would not be permitted after 10:00 p.m., if noise were to occur after 10:00 p.m., it would exceed the nighttime noise level standard of 40 dBA L_{eq} at the nearest residential uses to the north of the project site. Therefore, operational noise impacts associated with rooftop pool deck loudspeakers could potentially be significant.

Off-Site Traffic Noise

Hotel development facilitated by the project would not generate new vehicle trips. The Trip Generation and Access Analysis for the proposed project determined that the hotel remodel would remove 108 daily trips from area roadways (Overland Traffic Consultants 2020). Therefore, the project would not generate an increase in traffic noise.[5] The project would not create a perceptible 3-dBA increase in traffic noise and traffic noise impacts would be less than significant.

Mitigation Measures

With implementation of Mitigation Measure NOI-1, noise levels at the McDonald's drive-thru lane would be lower than 85 dBA L_{max} and construction noise would not disrupt speech audibility of customers ordering at the speaker box. Noise levels with implementation of Mitigation Measure NOI-2, noise barrier and audio system limiter, are shown in Figure 4 of the Rooftop Noise Report (VA 2020); as shown in the figure, noise levels at the nearest residences from the rooftop deck

[5] A doubling of traffic is required for an audible 3 dB increase in traffic noise levels. However, the increase in traffic generated by the proposed project would be approximately 0.6 percent of the estimated AADT on Pacific Coast Highway.

loudspeaker would be 40 dBA L_{eq} or lower, and therefore, impacts would be less than significant with mitigation.

NOI-1 Construction Noise Reductions

The project applicant shall reduce construction noise levels at the adjacent McDonald's drive-thru lane so as not to disrupt speech audibility when customers are ordering at the speaker box through to the following measures:

- Temporary sound blankets shall be installed along the shared property line with McDonald's. The sound blankets shall have a minimum breaking and tear strength of 120 pounds and 30 pounds, respectively. The sound blankets shall have a minimum sound transmission classification of 27 and noise reduction coefficient of 0.70. The sound blankets shall be of sufficient length to extend from the top of the frame and drape on the ground or be sealed at the ground. The sound blankets shall have grommets along the top edge with exterior grade hooks, and loop fasteners along the vertical edges with overlapping seams, with a minimum overlap of 2 inches.
- A sign shall be provided at the yard entrance, or other conspicuous location, that includes a 24-hour telephone number for project information, and a procedure where a field engineer/construction manager shall respond to and investigate noise complaints and take corrective action, if necessary, in a timely manner. The sign shall have a minimum dimension of 48 inches wide by 24 inches high. The sign shall be placed 5 feet above ground level.
- If a noise complaint(s) is registered, the contractor shall retain a City-approved noise consultant to conduct noise measurements at the use(s) that registered the complaint. The noise measurements shall be conducted for a minimum of one hour and shall include one-minute intervals. The consultant shall prepare a letter report summarizing the measurements and potential measures to reduce noise levels to the maximum extent feasible. The letter report shall include all measurement and calculation data used in determining impacts and resolutions. The letter report shall be provided to code enforcement for determining adequacy and recommendations, as well potential revocation of the variance if measures are inadequate.

NOI-2 Rooftop Deck Loudspeaker Noise Abatement

The project applicant shall comply with the City's non-transportation noise at residential receiver noise level standard of 40 dBA L_{eq} during nighttime hours through measures such as, but not limited to:

- The proposed cantilevered barrier should be constructed of materials that have a minimum of 2 pounds per square foot and block direct line-of-sight from residential receivers.
- Speakers shall be installed in the corner of the proposed cantilevered barrier.
- The acoustical barrier shall have side walls that partially enclose the area it is covering. The side walls shall extend completely to the south edge on both sides of the cantilevered portion of the barrier. Side walls can be glass or transparent material of at least 2 pounds per square foot and solid without any openings.
- A limiter shall be installed on the rooftop deck audio system that shall not allow the audio system to exceed 65 dBA at the pool deck.
- After the speakers and barrier have been installed, the sound system shall be tuned to ensure that the sound levels do not increase above a set threshold using a limiter. The limiter shall set a hard cap on the sound levels output by the speakers to maintain the maximum-allowable sound

levels in the residential community. The exercise to set the limiter level shall be conducted with a qualified acoustical consultant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Operation of the proposed project would not include stationary sources of significant vibration, such as heavy equipment or press operations. Rather, construction activities would have the greatest potential to generate groundborne vibration affecting nearby receivers. Certain types of construction equipment can generate high levels of groundborne vibration. Construction of the proposed project could potentially utilize loaded trucks, jackhammers, and/or bulldozers during most construction phases and during the demolition phase.

Construction activities known to generate excessive ground-borne vibration, such as pile driving, would not be conducted by the project. The greatest anticipated source of vibration during general project construction activities would be from a dozer, which may be used within 25 feet of the nearest structures to the east and west when accounting for setbacks. A dozer would create approximately 0.089 in./sec. PPV at a distance of 25 feet (Caltrans 2020c), which is lower than what is considered a distinctly perceptible impact for humans of 0.24 in./sec. PPV, and the structural damage impact of 0.2 in./sec. PPV. The nearest residential uses that could be exposed to potential construction generated vibration are 280 feet, resulting in a vibration level of 0.002 in./sec. PPV. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The closest airport is the Santa Monica Municipal Airport, located approximately 12 miles southeast of the project site. The noise contours from this airport do not reach the project site (Los Angeles County Airport Land Use Commission 2013). Therefore, construction workers or users of the project site would not be exposed to substantial aircraft noise, and no impacts would occur.

NO IMPACT

14 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	■
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	■

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed project would involve the remodel of an existing commercial building and construction of a new building to create a boutique hotel. The project would not involve new residential development, as the purpose of the facility is to temporarily house visitors. Accordingly, the proposed project would not include housing and, therefore, would not directly contribute to population growth within the City. The proposed project would employ approximately 15 people. The SCAG 2020 RTP/SCS forecasts that the City will have 11,000 jobs by the year 2045, an increase of 1,100 from the number of jobs in the City in 2016 (SCAG 2020). The 15 new jobs generated by the proposed project would represent approximately 0.9 percent of the anticipated growth in employment within Malibu (SCAG 2020). Furthermore, the proposed project would replace existing commercial uses and employment on the project site, which employ an estimated 37 people (see the discussion in Section 3, *Air Quality*). Therefore, the project would be anticipated to result in reduced employment on the project site and would not cause a substantial direct or indirect increase in population or induce unplanned population growth. There would be no impact.

NO IMPACT

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Because no existing housing is located on the project site, the proposed project would not displace existing housing or people and would not necessitate the construction of replacement housing elsewhere. No impact would occur.

NO IMPACT

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15 Public Services

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a.	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
	1 Fire protection?	☐	☐	■	☐
	2 Police protection?	☐	☐	■	☐
	3 Schools?	☐	☐	☐	■
	4 Parks?	☐	☐	■	☐
	5 Other public facilities?	☐	☐	■	☐

a.1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Fire protection for the City is provided by the LACoFD. The nearest fire station to the project site is LACoFD Station No. 70 located at 3970 Carbon Canyon Road, approximately 1.2 miles (driving distance) east of the project site. The proposed project would replace existing commercial uses on the project site with a boutique hotel. On Parcel A, the existing structures would be demolished, and a new building would be constructed. On Parcel B, the existing commercial buildings would be converted into hotel guest rooms. As identified in Chapter 8.12 of the MMC, the City of Malibu has adopted the California Fire Code (2019 edition). The Fire Code contains regulations related to construction, maintenance and design of buildings and land uses. The project would be required to adhere to all Fire Code requirements.

Furthermore, as discussed in Section 14, *Population and Housing*, the project would not increase the population of the City, as it does not include new housing or substantial numbers of new employment opportunities. Therefore, the proposed project would not substantially affect community fire protection services and would not result in the need for construction of additional fire protection facilities. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.2. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The City of Malibu contracts with the County of Los Angeles Sheriff's Department (LASD) for law enforcement services. The Malibu/Los Hills Sheriff's Station, located at 27050 Agoura Road, approximately 11.2 miles (driving distance) north of the project site provides law enforcement services for the City of Malibu and surrounding jurisdictions. LASD has a total staffing of 18,000 employees (LASD 2020). As discussed in Section 14, *Population and Housing*, the project would not result in an increase in population or employment in the City, and therefore, would not cause substantially delayed response times or degraded service ratios or necessitate construction of new facilities. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

The Santa Monica-Malibu Unified School District (SMMUSD) provides facilities serving grade levels pre-kindergarten through high school (SMMUSD 2020). The proposed project would involve the remodel of an existing commercial building and construction of a new building to create a boutique hotel. The project would not involve new residential development, as the purpose of the facility is to temporarily house visitors. Likewise, the project would not generate substantial numbers of new employees within the City that could lead to unanticipated population growth. Therefore, the project would not result in a substantial number of additional students in the school district or the need for new or physically altered school facilities. There would be no impact.

LESS THAN SIGNIFICANT IMPACT

a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

Recreational amenities in the City of Malibu are managed by the Community Services Department (formerly known as Parks and Recreation). There are 1,869.9 acres of open space in the City, including regional, national, state, and local parks. Examples of parks within the City include the Charmlee Natural Area, which is managed by the City of Malibu. This is a 524-acre site with visitor/nature center and petting area with small animals (City of Malibu 2017). According to the California Department of Finance (DOF), there are an estimated 11,720 residents in the City of Malibu (DOF 2020). With the 1,869.9 acres of public open space located in the City, there are approximately 160 acres of parkland per 1,000 residents. Therefore, the City exceeds the desired standard of three acres of parkland per 1,000 residents as stated in the 1975 Quimby Act.

The proposed project would involve construction of a hotel to temporarily house visitors to the area and it is unlikely to generate new permanent residents. Furthermore, the City currently exceeds the desired standard of parkland acres per resident. An increase in hotel guests and hotel employees in

the area would not be anticipated to affect the ratio of acres of parkland per resident or necessitate the provision of new or physically altered parks in order to maintain acceptable service ratios. Thus, the project would not contribute to population growth that would result in adverse physical impacts to parks or require the provision of new parks. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.5. Would the project result in substantial adverse physical impacts associated with the provision of other new or physically altered public facilities, or the need for other new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The project would contribute incrementally toward impacts to City public services and facilities such as storm drain usage (discussed in Section 10, *Hydrology and Water Quality*), public parks, solid waste disposal (discussed in Section 19, *Utilities and Service Systems*), and water usage and wastewater disposal (discussed in more detail in Section 19, *Utilities and Service Systems*). The project's contribution would be offset through project-specific features described in the individual resource section analyses indicated in parenthesis above. As the project would not cause population growth within the City, there are no other public services or public facilities, such as libraries or hospitals, for which significant impacts are anticipated. Overall, impacts to other public facilities would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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16 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	■	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	■	☐

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

As discussed under Section 15, *Public Services*, recreational amenities in the City of Malibu include 1,869.9 acres of open space including regional and local parks, beach parks, and public open space used for recreation (Malibu 2017). In addition, the City meets the desired standard of three acres of parkland per 1,000 residents as stated in the 1975 Quimby Act.

As discussed above in Section 14, *Population and Housing*, and Section 15, *Public Services*, the project would not substantially increase the number of residents or employees in the area. Because residents can easily access open space and recreational opportunities within the City and because the project would not increase the number of permanent residents within the City, the project would not create unanticipated demand on City parks or cause substantial deterioration of existing parks such that new park facilities would be needed. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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17 Transportation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	■	☐
b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☐	■
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	☐	☐	■	☐
d. Result in inadequate emergency access?	☐	☐	■	☐

The project site is located north of Pacific Coast Highway. The project site is served by an existing driveway along the western border of the project site. Access to the project site is provided by Pacific Coast Highway via right-hand turn from the northbound lanes and an unsignalized left-turn median lane via the southbound lanes. A signalized crosswalk is located on Pacific Coast Highway approximately 240 feet east of the project site. In addition, a Metro bus stop for Line 534 is located immediately adjacent to the project site. There are no designated bicycle lanes or other bicycle facilities in the vicinity of the project site. A Transportation Assessment was completed for the proposed project in October 2020 (see Appendix J). The below analysis is based on the results of the Transportation Assessment.

a. Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Construction of the project would generate traffic for deliveries of equipment and materials to the project site and construction worker traffic. Construction-related vehicles would travel to, and access, the project site via Pacific Coast Highway. Construction worker trips were estimated based on default values provided by the CalEEMod (see Appendix A). The project would generate a maximum of 13 construction worker trips per day and would require a total of 197 hauling trips for soil and demolition debris. Construction vehicles and equipment would be staged on the project site.

Construction of the proposed project would not involve any vehicle or equipment staging on Pacific Coast Highway and would not require any lane closures on Pacific Coast Highway. Construction also would not require any temporary closures or alterations to the bus stop located adjacent to the project site, and Metro Bus Route 534 would be able to continue operating at this location. Construction worker and hauling traffic may result in increased traffic in the vicinity of the project

site; however, these impacts would be temporary and, as discussed above under *Description of Project*, hauling would be limited to off-peak hours to avoid creating congestion during periods of high traffic on Pacific Coast Highway. Therefore, construction would not conflict with any programs, plans, or ordinances addressing the circulation system.

The project would not substantially alter site access or the existing site driveway that serves Parcel B. Currently, vehicles on Parcel A cannot access Parcel B without entering Pacific Coast Highway to turn onto the site driveway. To avoid vehicles reentering Pacific Coast Highway from the lower level to access Parcel B, the site would be designed to provide an on-site access connection between Parcel A and Parcel B via the existing driveway. Other than this minor change on the project site, the proposed project would not alter Pacific Coast Highway, pedestrian facilities such as the existing pedestrian crosswalk on Pacific Coast Highway near the project site, or the existing transit stop located adjacent to the project site. In addition, during project operation, all loading activities would take place on the project site within a designated area of the front yard setback. The project would include 91 parking spaces, which would satisfy the City's parking standards, as discusses in Section 11, *Land Use and Planning*, and would not require any offsite parking or parallel parking on Pacific Coast Highway.

Furthermore, the Transportation Assessment prepared for the proposed project determined that the project would reduce (result in a net reduction of) current daily trips to the project site by 108 vehicle trips during weekdays and 63 trips on Saturdays compared to current vehicle trips generated by the existing commercial businesses on the site (see Appendix J). According to the City's Traffic Memorandum and Traffic Impact Analysis Guidelines, the following should be considered to determine whether a project would require a Traffic Impact Analysis for more detailed study of project transportation effects (City of Malibu 2019b):

- Does the project generate 5 to 29 new AM, Midday, or PM peak hour vehicle trips?
  - **No.** According to the Transportation Assessment, the project would result in a net reduction of vehicle trips during the AM, Midday, and PM peak hour compared to existing uses on the project site.
- Does the project generate 50 to 299 new daily vehicle trips?
  - **No.** According to the Transportation Assessment, the project would result in a net reduction of 108 daily vehicle trips on weekdays and a net reduction of 63 daily trips on Saturdays compared to existing uses on the project site.
- Does the project affect an intersection or a roadway segment?
  - **No.** The proposed project would result in reduced traffic on area roadways and would not create any significant project-related traffic or roadway changes that would affect any nearby intersection or roadway segments.
- Does the project affect public safety?
  - **No.** No project-related changes are proposed for the site access that would negatively affect public safety. Rather, the new internal vehicle connection between the lower and upper parcels would improve vehicle access and safety on the project site.
- Does the project change the off-site transportation systems or connections to it?
  - **No.** The proposed project would not alter Pacific Coast Highway during either construction or operation of the project. Minor changes to the site access driveway would be implemented so that vehicles entering the lower parking area where the hotel lobby would be located can access the upper parking area without reentering Pacific Coast Highway. This change would improve safety and vehicle flow in the project area.

Based on the above and the analysis contained in the Transportation Assessment, construction and operation the proposed project would not generate traffic that could affect the performance of the circulation system, nor would it conflict with any applicable programs, plans, ordinances, or policies addressing the circulation system. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)??

CEQA Guidelines Section 15064.3(b) identifies appropriate criteria for evaluating transportation impacts. It states that land use projects with vehicle miles traveled (VMT) exceeding an applicable threshold of significance may indicate a significant impact, and that projects that decrease VMT compared to existing conditions should be presumed to have a less than significant transportation impact. Section 15064.3(c) states that the requirement to use these criteria only applies on and after July 1, 2020. A deadline of July 1, 2020 was established for jurisdictions to adopt thresholds for evaluation of transportation impacts according to VMT. The City did not prepare revised traffic impact guidelines or separate VMT analysis guidelines by the July 1, 2020 deadline. However, CEQA Guidelines Section 15064.7(c) states the following:

> When adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency is supported by substantial evidence.

According to the California Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* (2018), land use projects such as the proposed project can be presumed to have a less than significant VMT impact if the project generates or attracts fewer than 110 trips per day. As discussed under *Impact a.* above, the Transportation Assessment determined that the proposed project would result in reduce daily vehicle trips compared to existing uses on the project site. Therefore, the project's vehicle trip generation would fall below OPR's suggested screening threshold of 110 daily trips. Because the proposed project's trip generation is below the OPR screening level threshold, the project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). There would be no impact.

NO IMPACT

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?

d. Would the project result in inadequate emergency access?

During construction of the project, oversized vehicles would be required for the transport of construction equipment to and from the project site. The project would obtain necessary permits and comply with all permit requirements from Caltrans for the safe transport of construction equipment. Furthermore, construction of the proposed project would not include any temporary lane closures on Pacific Coast Highway, nor would the project alter Pacific Coast Highway. In addition, the project would not substantially alter site access. Currently, Parcel A is accessed directly via a curb cutout on Pacific Coast Highway and Parcel B is accessed by a driveway that is located along the western edge of the project site. Parcel A and Parcel B do not currently have direct access to each other.

The proposed project would provide a connection from Parcel A to the existing driveway that serves Parcel B to avoid vehicles reentering Pacific Coast Highway from the lower level to access Parcel B.

This minor alteration would improve site access and vehicle safety by allowing vehicles to access parking areas on both parcels within the project site without needing to reenter Pacific Coast Highway. Upon implementation of the proposed changes, the project site would be accessible by the existing driveway along the western border of the project site and the existing curb cutout that currently serves Parcel A. Furthermore, the site plan and emergency access features would be subject to review and by the City and LACFD to ensure that conformance with emergency access requirements is maintained. According to the project's Transportation Assessment, changes to site access would improve the safety of the site's circulation. Therefore, the project would not substantially alter site access, result in inadequate emergency access, or introduce any design features or incompatible uses, such as sharp curves or dangerous intersections, that would substantially increase hazards at the site. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

18 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a PRC Section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or	☐	■	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	■	☐	☐

Senate Bill 18 of 2004

California Government Code Section 65352.3 (adopted pursuant to the requirements of SB 18) requires local governments to contact, refer plans to, and consult with tribal organizations prior to making a decision to adopt or amend a general or specific plan. The tribal organizations eligible to consult have traditional lands in a local government's jurisdiction, and are identified, upon request, by the Native American Heritage Commission (NAHC). As noted in the California Office of Planning and Research's Tribal Consultation Guidelines (2005), "The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places."

Assembly Bill 52 of 2014

California Assembly Bill 52 of 2014 (AB 52) went into effect in July 2015, expanding CEQA by defining a new resource category, "tribal cultural resources." AB 52 establishes that "a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3). PRC Section 21074

(a)(1)(A) and (B) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that are either:

- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

In recognition of California Native American tribal sovereignty and the unique relationship of California local governments and public agencies with California Native American tribal governments, and respecting the interests and roles of project proponents, it is the intent of AB 52 to accomplish the following:

1. Recognize that California Native American prehistoric, historic, archaeological, cultural, and sacred places are essential elements in tribal cultural traditions, heritages, and identities.
2. Establish a category of resources in CEQA called "tribal cultural resources" that considers the tribal cultural values in addition to the scientific and archaeological values when determining impacts and mitigation.
3. Establish examples of mitigation measures for tribal cultural resources that uphold the existing mitigation preference for historical and archaeological resources of preservation in place, if feasible.
4. Recognize that California Native American tribes may have expertise with regard to their tribal history and practices, which concern the tribal cultural resources with which they are traditionally and culturally affiliated. Because CEQA calls for a sufficient degree of analysis, tribal knowledge about the land and tribal cultural resources at issue should be included in environmental assessments for projects that may have a significant impact on those resources.
5. In recognition of their governmental status, establish a meaningful consultation process between California Native American tribal governments and lead agencies, respecting the interests and roles of all California Native American tribes and project proponents, and the level of required confidentiality concerning tribal cultural resources, at the earliest possible point in CEQA environmental review process, so that tribal cultural resources can be identified, and culturally appropriate mitigation and mitigation monitoring programs can be considered by the decision making body of the lead agency.
6. Recognize the unique history of California Native American tribes and uphold existing rights of all California Native American tribes to participate in, and contribute their knowledge to, the environmental review process pursuant to CEQA.
7. Ensure that local and tribal governments, public agencies, and project proponents have information available, early in the CEQA environmental review process, for purposes of identifying and addressing potential adverse impacts to tribal cultural resources and to reduce the potential for delay and conflicts in the environmental review process.
8. Enable California Native American tribes to manage and accept conveyances of, and act as caretakers of, tribal cultural resources.
9. Establish that a substantial adverse change to a tribal cultural resource has a significant effect on the environment.

AB 52 also establishes a formal consultation process for California tribes regarding tribal cultural resources. AB 52 requires that lead agencies "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k)?

The proposed project involves a General Plan Amendment and would therefore be subject to both SB 18 and AB 52. On October 27, 2020, the City mailed consultation letters to 34 tribal representatives and interested parties, including the Fernandeño Tataviam Band of Mission Indians, Los Angeles City/County Native American Indian Commission, Barbareño/Ventureño Band of Mission Indians, San Luis Obispo County Chumash Council, Coastal Band of the Chumash Nation, Santa Ynez Tribal Elders Council, Gabrieleño Band of Mission Indians—Kizh Nation, Torres Martinez Desert Cahuilla Indians, Gabrieleno/Tongva San Gabriel Band of Mission Indians, Gabrielino/Tongva Nation, Gabrielino Tongva Indians of California Tribal Council, Gabrielino-Tongva Tribe, San Fernando Band of Mission Indians, San Ynez Band of Mission Indians, Chumash Council of Bakersfield, and Northern Chumash Tribal Council. As of December 3, 2020, two responses have been received. A request for consultation was received from the Gabrieleño Band of Mission Indians—Kizh Nation. On December 2, 2020, the Gabrieleño Band of Mission Indians—Kizh Nation requested to defer to consultation to Pat Tumamait of the Chumash Tribe. The City has not heard from the Chumash Tribe as of December 3, 2020. In addition, on November 30, 2020, the City received a request from the Fernandeño Tataviam Band of Mission Indians for consultation and a request for grading/excavation plans, geotechnical reports, and any cultural resources assessments prepared for the project. The City provided these reports and the proposed mitigation measures to the Fernandeño Tataviam Band of Mission Indians on December 1, 2020. The Fernandeño Tataviam Band of Mission Indians provided feedback on the proposed mitigation measures, which has been incorporated into this Initial Study below. Consultation under AB 52 has been completed.

As discussed in Section 3, *Cultural Resources*, the project site is currently developed with commercial uses and is surrounded by commercial and residential uses, as well as undeveloped hillside areas. The site has been previously disturbed, graded, and is almost entirely paved. Due to this previous ground disturbance, there is low probability of encountering on-site tribal cultural resources during project construction. Given the developed nature of the site, excavation and grading activities required for project construction are not expected to uncover tribal cultural resources. However, it is possible that intact and previously undiscovered tribal cultural resources are present at subsurface levels and could be uncovered during ground-disturbing activities. In the event that previously unknown tribal cultural resources are found, significant effects may occur to that resource if the resource is disturbed, destroyed, or otherwise improperly treated. As such, Mitigation Measures TCR-1 and TCR-2 are required during ground disturbing activities to identify and protect any previously undiscovered tribal cultural resources on the project site.

TCR-1 Retain a Native American Monitor

The project applicant shall retain the services of a qualified Native American Monitor culturally and traditionally affiliated with the project area during construction-related ground disturbance activities. Ground disturbance is defined as activities that include, but are not limited to, pavement removal,

potholing or auguring, grubbing, weed abatement, boring, grading, excavation, drilling, and trenching, within the project area. The monitor(s) shall be present on-site during the construction phases that involve any ground disturbing activities. The Native American Monitor(s) shall complete monitoring logs on a daily basis that provide descriptions of the daily activities, including construction activities, locations, soil, and any cultural materials identified. The on-site monitoring shall end when the construction-related ground disturbance activities are completed, or when the monitor has indicated that the site has a low potential for archeological resources.

TCR-2 Unanticipated Discovery of Tribal Cultural Resources

In the event that a cultural resource of Native American origin is found during project-related ground disturbance, excavation and other construction activity in that area shall cease. If the City of Malibu, in consultation with local Native Americans culturally and traditionally affiliated with the project area and/or that have requested consultation under AB 52, determines that the resource is a tribal cultural resource and thus significant under CEQA, a mitigation plan shall be prepared and implemented in accordance with state guidelines and in consultation with Native American groups. The mitigation plan may include but would not be limited to avoidance, capping in place, excavation and removal of the resource, interpretive displays, sensitive area signage, or other mutually agreed upon means.

Implementation of Mitigation Measures TCR-1 and TCR-2 would reduce potential impacts to tribal cultural resources to a less than significant level.

TCR-3 Consultation with the Fernandeño Tataviam Band of Mission Indians

The Lead Agency shall, in good faith, consult with the Fernandeño Tataviam Band of Mission Indians on the disposition and treatment of any tribal cultural resources encountered during the project grading.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074 that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1?

There are no known tribal cultural resources at the project site. However, as described under *Impact a.* of this section, the potential for previously undiscovered tribal cultural resources to be uncovered during ground-disturbing activities, while unlikely, cannot be completely ruled out. If such resources are found and are determined to be significant under PRC Section 5024.1, the project could result in significant impacts to such resources if they are disturbed, destroyed, or otherwise improperly treated. Mitigation Measures TCR-1 and TCR-2 would ensure that any subterranean tribal cultural resources encountered during construction activities for the proposed project are properly handled and treated. With implementation of Mitigation Measures TCR-1 and TCR-2, impacts to tribal cultural resources would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

19 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	■	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	■
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	■
d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	■	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	■	☐

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Water

The project site is served by Los Angeles County Waterworks District 29 (LACWD No. 29). LACWD No. 29 provides potable water to approximately 22,300 people and sources nearly 100 percent of its supply from imported water from Metropolitan Water District of Southern California (MWD) (LACWD 2020). LACWD's 2015 Urban Water Management Plan (UWMP) reports total districtwide potable

water demand in 2015 at 8,428 acre-feet (AF). According to the UWMP, LACWD expects to meet projected demands through 2035 (LACWD 2017). Furthermore, the project received a conditional will-serve letter from LACWD No. 29, indicating that the district has sufficient supplies to serve the proposed uses, and will continue to serve the project site provided the applicable connection fees are paid, an approved backflow device is installed on the property, and that the project installs a 20-inch check valve assembly on the existing 20-inch diameter waterline and an 18-inch spool in the existing manifold on Topanga Canyon Boulevard (see Appendix K). The infrastructure upgrades on Topanga Canyon Boulevard would allow increased water flow to the water main on Pacific Coast Highway in the event of wildfire emergency and would improve fire safety in the area. LACWD No. 29 has sufficient supplies to serve the project site and, provided compliance with the provisions contained in the conditional will-serve letter, the project would not require the construction of new water supply facilities, or expansion of existing facilities. Impacts would be less than significant.

Wastewater

The project site currently contains an OWTS that serves the existing businesses. As discussed in Section 7, *Geology and Soils*, and Section 10, *Hydrology and Water Quality*, the proposed project includes upgrading the existing OWTS. The upgraded system would include a new 3,000-gallon grease interceptor, 3,000-gallon concrete pump tank with duplex screened pump vault, and two new disinfection units. The pump tank would pump wastewater from the new building on Parcel A to the existing 5,000-gallon concrete tank with HighStrengthFast 4.5 Treatment System (upgraded from the existing MicroFast 3.0 Treatment System). The system would discharge to three Norweco Bio-Kinetic Model BK 2000 Disinfection Unites, upgraded from one existing Norweco Bio-Kinetic Model BK 2000 Disinfection Unit. From there, the system would discharge to the existing 5,000-gallon dosing tank with duplex screened pump vault and on to two seepage pits capped 5-feet below-grade. The upgraded OWTS would have sufficient capacity to treat wastewater produced on the project site.

According to the results of the Geotechnical Report, Onsite Wastewater Treatment Report, and City Geotechnical Review Sheet, the project site is capable of supporting the proposed wastewater disposal system, and the upgraded system would meet the requirements of the City of Malibu Plumbing Code and LCP. As the project site already has an existing OWTS and upgrades would occur within the footprint of existing disturbed and developed areas on the site, impacts related to the OWTS upgrade would be less than significant.

Stormwater Drainage

The project site is developed and is nearly entirely paved. Stormwater is collected in existing paved parking areas, the site driveway, and at downspouts on existing structures and is then directed to the City's existing stormwater system via curb gutters along Pacific Coast Highway. While the proposed project would increase development intensity on the site, it would not substantially increase impermeable surface on the site or alter the existing drainage patterns, and the site would continue to direct stormwater to curb gutters along Pacific Coast Highway upon project implementation. The proposed project would involve demolition and remodeling activities and the construction of a new building to create a boutique hotel on the site. As discussed in Section 7, *Geology and Soils*, and Section 10, *Hydrology and Water Quality*, project construction would be required to implement BMPs to control erosion, siltation, and stormwater discharge to avoid temporary impacts to stormwater drainage and water quality during construction activities.

As discussed in Section 10, *Hydrology and Water Quality*, the project would comply with the provisions of the LIP, including Section 17.3.2(B)(2), which requires the selection of at least one

method to mitigate runoff generated by property development. The applicant would be required to submit a SWMP developed in accordance with Section 17.3.2 of the LIP and a WQMP developed in accordance with Section 17.3.3 of the LIP to the Public Works Director. These plans would specify stormwater BMPs to be added to the project site, source control BMPs, drainage improvements, and maintenance plans for the site's BMPs. Project construction and operational stormwater management plans would undergo City review and approval to ensure that the project would not create any impacts to the stormwater drainage system or water quality. With compliance with the applicable City regulations, the project would not create or contribute runoff water such that new or expanded stormwater drainage systems would be necessary, and impacts would be less than significant.

Electric Power, Natural Gas, Telecommunications

The project would not cause substantial unplanned population growth (see Section 14, *Population and Housing*), and would not result in wasteful or inefficient use or energy (see Section 6, *Energy*). Project operation would result in a net increase in electricity consumption on the project site by 0.02 GWh per year. The project's electricity demand would be served by SCE, which supplied 80,913 GWh of electricity to its service area in 2019 (CEC 2019a). The project's net electricity demand would represent less than 0.001 percent of electricity provided by SCE. Therefore, SCE would have sufficient supplies for the project. Estimated natural gas consumption for the project would be 0.011 MMthm per year, a net increase of 0.01 MMthm per year compared to existing uses on the site (see Appendix A). The project's natural gas demand would be served by the Sothern California Gas Company (SoCal Gas), which provided 5,425 MMthm per year in 2019 (CEC 2019b). The project's net natural gas consumption would represent less than 0.001 percent of natural gas provided by SoCal Gas; which would therefore have adequate supply to serve the project. Therefore, the project would not require the construction of new electric power or natural gas facilities. Likewise, the project site is an infill project served by existing telecommunications facilities within the City and would not require the expansion or construction of new telecommunications infrastructure.

LESS THAN SIGNIFICANT IMPACT

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

As discussed under *Impact a.* above, the project site is currently served by LACWD No. 29, which anticipates an increase in water supply and demand from 8,428 AF in 2015 to between 10,900 and 11,488 in 2035 depending on dry-year conditions (LACWD 2017). According to the UWMP, LACWD anticipates meeting water demand during normal, single-dry year, and multiple-dry year conditions through the year 2035. According to CalEEMod estimates, the proposed project would result in a net decrease of 1.2 million gallons per year in water use on the site compared to existing uses, primarily due to increase water efficiencies achieved by compliance with the latest CALGreen requirements (see Appendix A). Furthermore, LACWD provided a conditional will-serve letter for the proposed project, indicating that LACWD has adequate water supplies and infrastructure to serve the proposed new hotel use on the site (see Appendix K). As the proposed project would reduce water consumption compared to existing uses, the project would have no impact to water supply.

NO IMPACT

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

As discussed under *Impact a.* of this section, the project site does not connect to a municipal wastewater collection and treatment system. The project site is served by an existing OWTS, which would be upgraded under the proposed project. The upgraded system would have the capacity to handle wastewater generated by the proposed new hotel uses on the site and would meet the requirements of the City of Malibu Plumbing Code and Local Coastal Program. Therefore, there would be no impact to wastewater treatment providers.

NO IMPACT

d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Assembly Bill 341 (AB 341) set a statewide goal for a 75 percent reduction in waste disposal by the year 2020 and established mandatory recycling for commercial businesses. The City is required to comply with this law and report their progress towards achieving the 75 percent reduction goal to the Department of Resources Recycling and Recovery (CalRecycle). The City issues permits for waste hauling and currently permits 23 different haulers to operate within the City (City of Malibu 2020c). Waste generated in the City is hauled by permitted hauling companies to either the Simi Valley Landfill and Recycling Center or the Calabasas Landfill. These landfills are permitted to receive 9,250 and 3,500 tons of waste per day and have remaining capacities of 82,954,873 and 14,500,000 cubic yards, respectively (CalRecycle 2020a and 2020b).

Construction of the proposed project would generate solid waste, including construction debris. This construction debris would include wood, concrete, and plaster material from the existing former gas station building on the site. Construction debris would be removed and disposed of in a timely manner and in accordance with all applicable laws and regulations. Pursuant to the City's Construction and Demolition Debris Recycling Program, project construction would be required to divert a minimum of 65 percent of construction waste. Construction waste would be hauled to the Calabasas Landfill, located 11.9 roadway miles from the project site. The removal of demolished building materials and construction debris would only occur during the construction period and construction of the proposed project would not contribute to an exceedance of the permitted capacity of any local landfill.

According to the CalEEMod results (see Appendix A), operation of the proposed project would generate approximately 21.4 tons of solid waste per year or 0.06 ton per day. Existing uses on the project site are estimated to generate 18.1 tons of solid waste per year or 0.05 ton per day. Therefore, the proposed project would result in a net increase in solid waste generation of 3.3 tons per year or 0.009 ton per day. Of this 3.3-ton per year increase, assuming a 50 percent diversion rate per AB 939, an estimated 1.7 tons per year or 0.005 tons per day would go to one of the two local landfills. This would represent less than 0.001 percent of the daily permitted capacities of the two landfills, which have sufficient remaining capacity to serve the proposed project's estimated waste generation. In addition, the proposed project would comply with federal, state, and local statues and regulations related to solid waste, such as AB 939 and the City's recycling programs for residences. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

20 Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	■	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	■	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	■	☐
d. Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	■	☐

a. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

The project site is in a commercial area of the City of Malibu and is not within a state responsibility area (SRA). The nearest SRA is approximately 0.5 miles from the project site. Undeveloped hillside areas are located north the project site between the project site and developed residential areas. According to CalFIRE, the project site is located in Very High Fire Hazard Severity Zone (VHFHSZ) for wildland fires (CalFIRE 2020).

As discussed in Section 15, *Public Services*, the LACoFD would provide fire prevention, fire protection, and emergency response for the proposed project. The Fire Department would review site plans, site construction, and the proposed new structure prior to occupancy to ensure that required fire protection safety features, including building sprinklers and emergency access, are implemented. In addition, the proposed project would comply with applicable policies and ordinances for fire prevention, protection, and safety as required by the LACoFD, which include development with

modern materials and in accordance with current standards, inclusive of fire-resistant materials, and provision of fire alarms and detection systems, and automatic fire sprinklers. The hotel would also be required to clearly post evacuation routes and access points within the buildings to direct guests on emergency evacuations in the event of a fire. In addition, the project applicant would contribute to the cost of installing a new 20-inch diameter check valve near the intersection of Topanga Canyon Road and Pacific Coast Highway so that water from two existing water tanks on Topanga Canyon Road containing approximately four million gallons can be used to provide additional water flow to the water main along Pacific Coast Highway in the event of a fire. Therefore, the proposed project would help increase the fire department's capacity to fight future wildfires in the project vicinity.

During construction of the project, emergency access to the site would be maintained from Pacific Coast Highway and all construction and staging activities would occur within the site boundaries and would not substantially impede traffic on Pacific Coast Highway. In addition, the project would not involve the development of structures that could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The project site has an existing asphalt driveway that provides access from Pacific Coast Highway and the project does not propose any new roads or infrastructure that have the potential to interfere with or obstruct an adopted emergency response plan or impede fire or police access to the site. Project operation and maintenance would not introduce new activities that could impede or interfere with emergency plans, as operation and maintenance would not involve work along Pacific Coast Highway. Therefore, impacts related to emergency response plans and emergency evacuation plans during project operation would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

d. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The majority of land within the City of Malibu, including the project site, is classified as being in a VHFHSZ (CalFIRE 2020). The project site is located in a commercial area of the City and is adjacent to a wildland-urban interface on the north side of the project site. Heavy duty equipment used during project construction may produce sparks with the potential to ignite vegetation. However, PRC Section 4442 mandates the use of spark arrestors, which prevent the emission of flammable debris from exhaust, on earth-moving and portable construction equipment with internal combustion engines operating on any forest-covered, brush-covered, or grass-covered land. Furthermore, PRC Sections 4427 and 4431 specify standards for conducting construction activities on days when a burning permit is required, and PRC Section 4428 requires construction contractors to maintain fire suppression equipment during the highest fire danger period (April 1 to December 1) when operating on or near any forest-covered, brush-covered, or grass-covered land. Therefore, with compliance with applicable PRC provisions, project construction would not exacerbate wildfire risk.

The project would involve construction of a new building and remodeling an existing building to create a boutique hotel. Operation of the hotel would not involve activities known to cause or exacerbate wildfires, and the applicant would contribute to the cost of installing a new 20-inch diameter check

valve near the intersection of Topanga Canyon Road and Pacific Coast Highway so that water from two existing water tanks on Topanga Canyon Road containing approximately four million gallons can be used to provide additional water flow to the water main along Pacific Coast Highway in the event of a fire. Therefore, the proposed project would help increase the fire department's capacity to fight future wildfires in the project vicinity.

However, due to the project site's location within a VHFHSZ and on a hillside, hotel guests and employees could be exposed to pollutant concentrations and landslide risks in the event of a wildfire in the undeveloped hillsides located to the north of the project site. Risks to occupants during project operation would be mitigated through conformance with MMC Chapter 18.12, which adopts the 2019 California Fire Code and establishes provisions for fire safety related to construction, maintenance and design of buildings and land uses. The hotel would be required to install fire safety devices throughout the buildings, such as a fire suppression system and fire alarms, and would clearly post evacuation routes and information to guide guests and employees in the event of an emergency. In addition, the project site is easily accessible by the Fire Department, as LACoFD Station No. 70 is located approximately 1.2 miles (driving distance) east of the project site.

As with most areas in the City, the project site is subject to wildfire risks, including pollutants from smoke, landslides, and downstream flooding. However, the project would not exacerbate wildfire risks and would reduce risks to people or structures through conformance with the applicable fire safety codes and practices and through the applicant's contribution to a new check valve that would help increase fire flow in the water mains along Pacific Coast Highway. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The project site is in an urbanized area and is classified as a VHFHSZ. The project site is located approximately 0.5 mile from the nearest state responsibility area (CalFIRE 2020). The project site was previously developed and consists of existing commercial buildings and associated infrastructure. The project would be served by existing roads and utilities and would not require the installation or maintenance of associated infrastructure that may exacerbate fire risk. Therefore, the project would not require additional roads, fuel breaks, emergency water sources, power lines or other utilities that would exacerbate fire risk and cause temporary or ongoing impacts to the environment. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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21 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Does the project:				
a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	■	☐
b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	■	☐
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	■	☐

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

The project site is located within an urbanized area and is currently developed with commercial buildings, hardscaping, and ornamental landscaping. As discussed in Section 4, *Biological Resources*, the project site is not within or adjacent to a mapped environmentally sensitive habitat area (ESHA) per the City's LCP LUP. In addition, regional wildlife movement is restricted given the built-out nature of the project area, and no native resident or migratory fish or wildlife species, established native resident or migratory wildlife corridors, or native wildlife nursery sites exist on or immediately around the project site. However, the site currently contains trees and buildings which may provide nesting

habitat for birds. Therefore, Mitigation Measure BIO-1 would require a pre-construction nesting bird survey should construction occur during the breeding season to avoid potential impacts to on-site nesting birds. Furthermore, as discussed in Section 5, *Cultural Resources*, Section 7, *Geology and Soils*, and Section 18, *Tribal Cultural Resources*, the proposed project would have a less than significant impact on cultural resources, paleontological resources, and tribal cultural resources with implementation of Mitigation Measures CR-1, GEO-1, and TCR-1 through TCR-3 which require adherence to existing local, state, and federal regulations and specific monitoring procedures related to the discovery of any unanticipated cultural resources, paleontological resources, and tribal cultural resources during construction activity. Therefore, the proposed project would not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

There are two other hotel projects under review within the City of Malibu, the Malibu Inn Motel Project and Ryokan Motel Project, both in the vicinity of the project site. The Malibu Inn Motel, located at 22959 Pacific Coast Highway, approximately 0.4 roadway mile southwest of the project site, is currently undergoing environmental review. The Malibu Inn Motel Project includes the construction of a 7,693-sf motel above a new subterranean parking garage, a surface parking lot, and new retaining walls, landscaping, and an OWTS. A Draft Initial Study-Mitigated Negative Declaration has been published for the Malibu Inn Motel Project and the public review period closed on March 23, 2021. The Ryokan Motel Project is located at 22752 and 22762 Pacific Coast Highway, approximately 200 feet southwest of the project site, and is currently undergoing environmental review by the City. The Ryokan Motel Project would involve merging the development and uses at the two project addresses, resulting in a combined bed and breakfast facility. No physical changes or construction would occur as part of the Ryokan Motel Project.

As concluded in Sections 1 through 20, the project would have no impact, a less than significant impact, or a less than significant impact with mitigation incorporated with respect to all environmental issues considered in this document. Cumulative impacts of several resource areas have been addressed in the individual resource sections, including Air Quality and GHG Emissions~~, and Noise~~. As discussed in Section 3, *Air Quality*, construction and operational air pollutant emissions from the project would not exceed SCAQMD thresholds. Likewise, GHG emissions generated by the proposed project would not exceed the SCAQMD threshold and the project would not conflict with applicable sustainability plans established for the purpose of reducing GHG emissions. Because air quality and GHG emissions analyses are cumulative in nature, the project would not have a cumulatively considerable contribution to any cumulative air quality or GHG emissions impacts posed by other projects in the vicinity.

Section 13, *Noise*, concludes that ~~operational noise impacts associated with rooftop pool deck loudspeakers could potentially be significant at the nearest homes to the north of the project site. C~~construction noise levels would not exceed significant noise levels; ~~however, the adjacent~~

~~McDonald's drive-thru lane could experience speech interruption due to construction noise during orders at the speaker box. Therefore, construction noise levels could increase ambient noise levels in the vicinity of the speaker box, disrupting audibility of orders.~~ ~~C~~ construction noise generated by the project would remain below the FTA daytime threshold for an 8-hour period at the nearest noise-sensitive receptors, the single-family residences located 280 feet north of the project site. However, the adjacent McDonald's drive-thru lane could experience speech interruption due to construction noise during orders at the speaker box. In addition, operational noise impacts associated with rooftop pool deck loudspeakers could potentially be significant at the nearest homes to the north of the project site. Therefore, implementation of Mitigation Measures NOI-1 and NOI-2 would be required and would reduce potential noise impacts to less than significant levels.

Noise, by definition, is a localized phenomenon and is progressively reduced as the distance from the source increases; specifically, noise levels decrease by 6 decibels (dB) for every doubling of distance. Construction noise from nearby construction sites typically correspond closely to the noise levels generated by the single loudest noise source and do not combine to create significantly louder noise levels. Therefore, if construction of the proposed project and the Malibu Inn Motel Project was to occur concurrently, the construction noise at the nearest noise-sensitive receptors would be anticipated to remain below the Federal Transit Administration daytime threshold for an 8-hour period due to the nature of noise and the distance between the project site and the Malibu Inn Motel Project. Furthermore, project operation would result in reduced traffic volumes and traffic-related noise compared to existing uses. Therefore, project construction and operational noise would not result in cumulatively considerable contribution to cumulative noise impacts.

As discussed in Section 17, *Transportation*, construction of the project would be limited to the project site and would not impede traffic flow on Pacific Coast Highway. Additionally, the project would result in reduced vehicle trips to the project site compared to existing commercial uses on the site and would therefore not result in any significant impacts to area roadways and circulation. The project also would not affect the nearby Metro bus stop or pedestrian crosswalk on Pacific Coast Highway or otherwise interfere with pedestrian, bicycle, or public transit facilities. Therefore, the project would not have a cumulatively considerable contribution to transportation impacts in the area.

Other resource areas, such as agricultural and mineral resources, were determined to have no impact in comparison to existing conditions. As such, the project would not contribute to cumulative impacts related to these issues. Other issues (e.g., geology, hazards, and hazardous materials) are by their nature project specific and impacts at one location do not add to impacts at other locations or create additive impacts. As such, the project's contribution to cumulative impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

In general, impacts to human beings are associated with air quality, hazards and hazardous materials, and noise impacts. As detailed in the preceding sections, the project would not result, either directly or indirectly, in substantial adverse effects related to air quality or noise with implementation of Mitigation Measures NOI-1 and NOI-2. As discussed in Section 9, *Hazards and Hazardous Materials*, project construction would be conducted in compliance with all applicable federal, state, and local requirements, including requirements for any soil contamination encountered on site and demolition activities on structures that may contain ACMs or LBP. Compliance with the applicable regulatory

requirements and Mitigation Measures HAZ-1 and HAZ-2 would ensure that construction activities would not have substantial adverse effects on human beings or the environments. Project operation would not involve the routine use of extremely hazardous materials. Any pool chemicals stored onsite would be stored in small quantities and would be located in a locked enclosure that would contain any accidental leakages. Compliance with applicable rules and regulations during project construction and operation would reduce potential impacts on human beings related to hazardous materials, noise, and air quality to a less than significant level.

LESS THAN SIGNIFICANT IMPACT

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Appendix A

Air Quality and Greenhouse Gas Emissions Modeling Outputs

Sea View Hotel

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	39.00	Room	1.19	30,085.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	530.81	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted per 2024 RPS

Land Use - Per project plans

Construction Phase - Per applicant provided construction schedule

Trips and VMT - Haul route to Calabasas Landfill is 11.9 mi

Demolition - Gas station to be demolished

Grading -

Architectural Coating - Per SCAQMD Rule 1113

Vehicle Trips - Per project traffic study

Area Coating - Per SCAQMD Rule 1113

Energy Use - Title-24 energy use reduce by 30% per 2019 Title 24 requirements

Water And Wastewater - Indoor water use reduced by 20% per CALgreen

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403

Area Mitigation - Per SCAQMD Rule 1113

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	79.00
tblConstructionPhase	NumDays	200.00	77.00
tblConstructionPhase	NumDays	20.00	27.00
tblConstructionPhase	NumDays	4.00	78.00
tblConstructionPhase	NumDays	10.00	210.00
tblConstructionPhase	NumDays	2.00	26.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblEnergyUse	T24E	2.77	1.94
tblGrading	MaterialExported	0.00	1,342.00
tblGrading	MaterialImported	0.00	196.00
tblLandUse	LandUseSquareFeet	56,628.00	30,085.00
tblLandUse	LotAcreage	1.30	1.19
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	702.44	530.81
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblTripsAndVMT	HaulingTripLength	20.00	11.90
tblTripsAndVMT	HaulingTripLength	20.00	11.90
tblVehicleTrips	WD_TR	8.17	8.36
tblWater	IndoorWaterUseRate	989,304.03	791,443.22

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.0488	19.7672	14.9890	0.0256	5.8890	1.0421	6.6550	2.9774	0.9725	3.6822	0.0000	2,476.7148	2,476.7148	0.5986	0.0000	2,491.6789
2022	1.9816	12.9879	13.2862	0.0247	0.1773	0.5908	0.7681	0.0478	0.5706	0.6184	0.0000	2,275.3765	2,275.3765	0.4148	0.0000	2,284.3775
2023	1.9680	1.3097	1.9076	3.2800e-003	0.0335	0.0711	0.1046	8.8900e-003	0.0710	0.0799	0.0000	312.2860	312.2860	0.0176	0.0000	312.7251
Maximum	**2.0488**	**19.7672**	**14.9890**	**0.0256**	**5.8890**	**1.0421**	**6.6550**	**2.9774**	**0.9725**	**3.6822**	**0.0000**	**2,476.7148**	**2,476.7148**	**0.5986**	**0.0000**	**2,491.6789**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.0488	19.7672	14.9890	0.0256	2.6992	1.0421	3.4653	1.3529	0.9725	2.0576	0.0000	2,476.7148	2,476.7148	0.5986	0.0000	2,491.6789
2022	1.9816	12.9879	13.2862	0.0247	0.1773	0.5908	0.7681	0.0478	0.5706	0.6184	0.0000	2,275.3765	2,275.3765	0.4148	0.0000	2,284.3775
2023	1.9680	1.3097	1.9076	3.2800e-003	0.0335	0.0711	0.1046	8.8900e-003	0.0710	0.0799	0.0000	312.2860	312.2860	0.0176	0.0000	312.7251
Maximum	**2.0488**	**19.7672**	**14.9890**	**0.0256**	**2.6992**	**1.0421**	**3.4653**	**1.3529**	**0.9725**	**2.0576**	**0.0000**	**2,476.7148**	**2,476.7148**	**0.5986**	**0.0000**	**2,491.6789**

Sea View Hotel - South Coast AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**52.29**	**0.00**	**42.37**	**53.54**	**0.00**	**37.09**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6343	4.0000e-005	3.9800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.5400e-003	8.5400e-003	2.0000e-005		9.0900e-003
Energy	0.0304	0.2768	0.2325	1.6600e-003		0.0210	0.0210		0.0210	0.0210		332.1229	332.1229	6.3700e-003	6.0900e-003	334.0965
Mobile	0.4298	1.8912	4.9157	0.0195	1.6542	0.0135	1.6677	0.4425	0.0126	0.4551		1,986.0266	1,986.0266	0.0883		1,988.2339
Total	**1.0945**	**2.1680**	**5.1522**	**0.0211**	**1.6542**	**0.0346**	**1.6887**	**0.4425**	**0.0336**	**0.4762**		**2,318.1580**	**2,318.1580**	**0.0947**	**6.0900e-003**	**2,322.3395**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6343	4.0000e-005	3.9800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.5400e-003	8.5400e-003	2.0000e-005		9.0900e-003
Energy	0.0304	0.2768	0.2325	1.6600e-003		0.0210	0.0210		0.0210	0.0210		332.1229	332.1229	6.3700e-003	6.0900e-003	334.0965
Mobile	0.4298	1.8912	4.9157	0.0195	1.6542	0.0135	1.6677	0.4425	0.0126	0.4551		1,986.0266	1,986.0266	0.0883		1,988.2339
Total	**1.0945**	**2.1680**	**5.1522**	**0.0211**	**1.6542**	**0.0346**	**1.6887**	**0.4425**	**0.0336**	**0.4762**		**2,318.1580**	**2,318.1580**	**0.0947**	**6.0900e-003**	**2,322.3395**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2021	7/31/2021	6	27	
2	Site Preparation	Site Preparation	8/2/2021	8/31/2021	6	26	
3	Grading	Grading	9/1/2021	11/30/2021	6	78	
4	Building Construction	Building Construction	12/1/2021	2/28/2022	6	77	
5	Paving	Paving	3/1/2022	10/31/2022	6	210	
6	Architectural Coating	Architectural Coating	11/1/2022	1/31/2023	6	79	

Acres of Grading (Site Preparation Phase): 13

Acres of Grading (Grading Phase): 29.25

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 45,128; Non-Residential Outdoor: 15,043; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	5.00	14.70	6.90	11.90	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	192.00	14.70	6.90	11.90	LD_Mix	HDT_Mix	HHDT
Building Construction	7	13.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0365	0.0000	0.0365	5.5200e-003	0.0000	5.5200e-003			0.0000			0.0000
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715		2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**	**0.0365**	**1.0409**	**1.0774**	**5.5200e-003**	**0.9715**	**0.9770**		**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	9.2000e-004	0.0350	6.7000e-003	9.0000e-005	1.9300e-003	9.0000e-005	2.0200e-003	5.3000e-004	9.0000e-005	6.1000e-004		10.0353	10.0353	7.4000e-004		10.0539
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0549	0.0356	0.4897	1.4400e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		143.9624	143.9624	3.8700e-003		144.0592
Total	**0.0558**	**0.0706**	**0.4964**	**1.5300e-003**	**0.1472**	**1.1600e-003**	**0.1484**	**0.0391**	**1.0800e-003**	**0.0401**		**153.9977**	**153.9977**	**4.6100e-003**		**154.1131**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0164	0.0000	0.0164	2.4800e-003	0.0000	2.4800e-003			0.0000			0.0000
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715	0.0000	2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**	**0.0164**	**1.0409**	**1.0573**	**2.4800e-003**	**0.9715**	**0.9740**	**0.0000**	**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	9.2000e-004	0.0350	6.7000e-003	9.0000e-005	1.9300e-003	9.0000e-005	2.0200e-003	5.3000e-004	9.0000e-005	6.1000e-004		10.0353	10.0353	7.4000e-004		10.0539
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0549	0.0356	0.4897	1.4400e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		143.9624	143.9624	3.8700e-003		144.0592
Total	**0.0558**	**0.0706**	**0.4964**	**1.5300e-003**	**0.1472**	**1.1600e-003**	**0.1484**	**0.0391**	**1.0800e-003**	**0.0401**		**153.9977**	**153.9977**	**4.6100e-003**		**154.1131**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041		1,666.5174	1,666.5174	0.5390		1,679.9920
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**5.7996**	**0.7654**	**6.5650**	**2.9537**	**0.7041**	**3.6578**		**1,666.5174**	**1,666.5174**	**0.5390**		**1,679.9920**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0219	0.3014	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5923	88.5923	2.3800e-003		88.6518
Total	**0.0338**	**0.0219**	**0.3014**	**8.9000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**88.5923**	**88.5923**	**2.3800e-003**		**88.6518**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6098	0.0000	2.6098	1.3292	0.0000	1.3292			0.0000			0.0000
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041	0.0000	1,666.5174	1,666.5174	0.5390		1,679.9920
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**2.6098**	**0.7654**	**3.3752**	**1.3292**	**0.7041**	**2.0333**	**0.0000**	**1,666.5174**	**1,666.5174**	**0.5390**		**1,679.9920**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0219	0.3014	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5923	88.5923	2.3800e-003		88.6518
Total	**0.0338**	**0.0219**	**0.3014**	**8.9000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**88.5923**	**88.5923**	**2.3800e-003**		**88.6518**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9165	0.0000	4.9165	2.5260	0.0000	2.5260			0.0000			0.0000
Off-Road	1.2884	14.3307	6.3314	0.0141		0.6379	0.6379		0.5869	0.5869		1,365.0648	1,365.0648	0.4415		1,376.1020
Total	**1.2884**	**14.3307**	**6.3314**	**0.0141**	**4.9165**	**0.6379**	**5.5544**	**2.5260**	**0.5869**	**3.1128**		**1,365.0648**	**1,365.0648**	**0.4415**		**1,376.1020**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0122	0.4650	0.0890	1.2300e-003	0.0256	1.1800e-003	0.0268	7.0200e-003	1.1300e-003	8.1500e-003		133.3921	133.3921	9.8700e-003		133.6390
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0219	0.3014	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5923	88.5923	2.3800e-003		88.6518
Total	**0.0460**	**0.4869**	**0.3904**	**2.1200e-003**	**0.1150**	**1.8400e-003**	**0.1169**	**0.0307**	**1.7400e-003**	**0.0325**		**221.9844**	**221.9844**	**0.0123**		**222.2908**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2124	0.0000	2.2124	1.1367	0.0000	1.1367			0.0000			0.0000
Off-Road	1.2884	14.3307	6.3314	0.0141		0.6379	0.6379		0.5869	0.5869	0.0000	1,365.0648	1,365.0648	0.4415		1,376.1020
Total	**1.2884**	**14.3307**	**6.3314**	**0.0141**	**2.2124**	**0.6379**	**2.8503**	**1.1367**	**0.5869**	**1.7236**	**0.0000**	**1,365.0648**	**1,365.0648**	**0.4415**		**1,376.1020**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0122	0.4650	0.0890	1.2300e-003	0.0256	1.1800e-003	0.0268	7.0200e-003	1.1300e-003	8.1500e-003		133.3921	133.3921	9.8700e-003		133.6390
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0219	0.3014	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5923	88.5923	2.3800e-003		88.6518
Total	**0.0460**	**0.4869**	**0.3904**	**2.1200e-003**	**0.1150**	**1.8400e-003**	**0.1169**	**0.0307**	**1.7400e-003**	**0.0325**		**221.9844**	**221.9844**	**0.0123**		**222.2908**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0139	0.4769	0.1132	1.2800e-003	0.0320	9.6000e-004	0.0330	9.2100e-003	9.2000e-004	0.0101		136.2192	136.2192	8.2400e-003		136.4252
Worker	0.0549	0.0356	0.4897	1.4400e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		143.9624	143.9624	3.8700e-003		144.0592
Total	**0.0688**	**0.5125**	**0.6029**	**2.7200e-003**	**0.1773**	**2.0300e-003**	**0.1793**	**0.0478**	**1.9100e-003**	**0.0497**		**280.1817**	**280.1817**	**0.0121**		**280.4844**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0139	0.4769	0.1132	1.2800e-003	0.0320	9.6000e-004	0.0330	9.2100e-003	9.2000e-004	0.0101		136.2192	136.2192	8.2400e-003		136.4252
Worker	0.0549	0.0356	0.4897	1.4400e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		143.9624	143.9624	3.8700e-003		144.0592
Total	**0.0688**	**0.5125**	**0.6029**	**2.7200e-003**	**0.1773**	**2.0300e-003**	**0.1793**	**0.0478**	**1.9100e-003**	**0.0497**		**280.1817**	**280.1817**	**0.0121**		**280.4844**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0131	0.4527	0.1070	1.2600e-003	0.0320	8.3000e-004	0.0328	9.2100e-003	8.0000e-004	0.0100		135.0296	135.0296	7.9300e-003		135.2279
Worker	0.0515	0.0322	0.4529	1.3900e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395		138.8041	138.8041	3.5000e-003		138.8916
Total	**0.0645**	**0.4848**	**0.5598**	**2.6500e-003**	**0.1773**	**1.8700e-003**	**0.1792**	**0.0478**	**1.7600e-003**	**0.0495**		**273.8337**	**273.8337**	**0.0114**		**274.1195**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0131	0.4527	0.1070	1.2600e-003	0.0320	8.3000e-004	0.0328	9.2100e-003	8.0000e-004	0.0100		135.0296	135.0296	7.9300e-003		135.2279
Worker	0.0515	0.0322	0.4529	1.3900e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395		138.8041	138.8041	3.5000e-003		138.8916
Total	**0.0645**	**0.4848**	**0.5598**	**2.6500e-003**	**0.1773**	**1.8700e-003**	**0.1792**	**0.0478**	**1.7600e-003**	**0.0495**		**273.8337**	**273.8337**	**0.0114**		**274.1195**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6877	6.7738	8.8060	0.0135		0.3474	0.3474		0.3205	0.3205		1,297.3789	1,297.3789	0.4113		1,307.6608
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6877**	**6.7738**	**8.8060**	**0.0135**		**0.3474**	**0.3474**		**0.3205**	**0.3205**		**1,297.3789**	**1,297.3789**	**0.4113**		**1,307.6608**

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0515	0.0322	0.4529	1.3900e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395		138.8041	138.8041	3.5000e-003		138.8916
Total	**0.0515**	**0.0322**	**0.4529**	**1.3900e-003**	**0.1453**	**1.0400e-003**	**0.1464**	**0.0385**	**9.6000e-004**	**0.0395**		**138.8041**	**138.8041**	**3.5000e-003**		**138.8916**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6877	6.7738	8.8060	0.0135		0.3474	0.3474		0.3205	0.3205	0.0000	1,297.3789	1,297.3789	0.4113		1,307.6608
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6877**	**6.7738**	**8.8060**	**0.0135**		**0.3474**	**0.3474**		**0.3205**	**0.3205**	**0.0000**	**1,297.3789**	**1,297.3789**	**0.4113**		**1,307.6608**

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0515	0.0322	0.4529	1.3900e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395		138.8041	138.8041	3.5000e-003		138.8916
Total	**0.0515**	**0.0322**	**0.4529**	**1.3900e-003**	**0.1453**	**1.0400e-003**	**0.1464**	**0.0385**	**9.6000e-004**	**0.0395**		**138.8041**	**138.8041**	**3.5000e-003**		**138.8916**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.7651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**1.9697**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0119	7.4200e-003	0.1045	3.2000e-004	0.0335	2.4000e-004	0.0338	8.8900e-003	2.2000e-004	9.1100e-003		32.0317	32.0317	8.1000e-004		32.0519
Total	**0.0119**	**7.4200e-003**	**0.1045**	**3.2000e-004**	**0.0335**	**2.4000e-004**	**0.0338**	**8.8900e-003**	**2.2000e-004**	**9.1100e-003**		**32.0317**	**32.0317**	**8.1000e-004**		**32.0519**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.7651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**1.9697**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0119	7.4200e-003	0.1045	3.2000e-004	0.0335	2.4000e-004	0.0338	8.8900e-003	2.2000e-004	9.1100e-003		32.0317	32.0317	8.1000e-004		32.0519
Total	**0.0119**	**7.4200e-003**	**0.1045**	**3.2000e-004**	**0.0335**	**2.4000e-004**	**0.0338**	**8.8900e-003**	**2.2000e-004**	**9.1100e-003**		**32.0317**	**32.0317**	**8.1000e-004**		**32.0519**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.7651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**1.9568**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0112	6.7100e-003	0.0965	3.1000e-004	0.0335	2.3000e-004	0.0338	8.8900e-003	2.2000e-004	9.1100e-003		30.8379	30.8379	7.3000e-004		30.8561
Total	**0.0112**	**6.7100e-003**	**0.0965**	**3.1000e-004**	**0.0335**	**2.3000e-004**	**0.0338**	**8.8900e-003**	**2.2000e-004**	**9.1100e-003**		**30.8379**	**30.8379**	**7.3000e-004**		**30.8561**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.7651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**1.9568**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0112	6.7100e-003	0.0965	3.1000e-004	0.0335	2.3000e-004	0.0338	8.8900e-003	2.2000e-004	9.1100e-003		30.8379	30.8379	7.3000e-004		30.8561
Total	**0.0112**	**6.7100e-003**	**0.0965**	**3.1000e-004**	**0.0335**	**2.3000e-004**	**0.0338**	**8.8900e-003**	**2.2000e-004**	**9.1100e-003**		**30.8379**	**30.8379**	**7.3000e-004**		**30.8561**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4298	1.8912	4.9157	0.0195	1.6542	0.0135	1.6677	0.4425	0.0126	0.4551		1,986.0266	1,986.0266	0.0883		1,988.2339
Unmitigated	0.4298	1.8912	4.9157	0.0195	1.6542	0.0135	1.6677	0.4425	0.0126	0.4551		1,986.0266	1,986.0266	0.0883		1,988.2339

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hotel	326.04	319.41	232.05	743,688	743,688
Total	326.04	319.41	232.05	743,688	743,688

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hotel	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0304	0.2768	0.2325	1.6600e-003		0.0210	0.0210		0.0210	0.0210		332.1229	332.1229	6.3700e-003	6.0900e-003	334.0965
NaturalGas Unmitigated	0.0304	0.2768	0.2325	1.6600e-003		0.0210	0.0210		0.0210	0.0210		332.1229	332.1229	6.3700e-003	6.0900e-003	334.0965

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	2823.04	0.0304	0.2768	0.2325	1.6600e-003		0.0210	0.0210		0.0210	0.0210		332.1229	332.1229	6.3700e-003	6.0900e-003	334.0965
Total		**0.0304**	**0.2768**	**0.2325**	**1.6600e-003**		**0.0210**	**0.0210**		**0.0210**	**0.0210**		**332.1229**	**332.1229**	**6.3700e-003**	**6.0900e-003**	**334.0965**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	2.82304	0.0304	0.2768	0.2325	1.6600e-003		0.0210	0.0210		0.0210	0.0210		332.1229	332.1229	6.3700e-003	6.0900e-003	334.0965
Total		**0.0304**	**0.2768**	**0.2325**	**1.6600e-003**		**0.0210**	**0.0210**		**0.0210**	**0.0210**		**332.1229**	**332.1229**	**6.3700e-003**	**6.0900e-003**	**334.0965**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6343	4.0000e-005	3.9800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.5400e-003	8.5400e-003	2.0000e-005		9.0900e-003
Unmitigated	0.6343	4.0000e-005	3.9800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.5400e-003	8.5400e-003	2.0000e-005		9.0900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0382					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5957					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.7000e-004	4.0000e-005	3.9800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.5400e-003	8.5400e-003	2.0000e-005		9.0900e-003
Total	**0.6343**	**4.0000e-005**	**3.9800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.5400e-003**	**8.5400e-003**	**2.0000e-005**		**9.0900e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0382					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5957					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.7000e-004	4.0000e-005	3.9800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.5400e-003	8.5400e-003	2.0000e-005		9.0900e-003
Total	**0.6343**	**4.0000e-005**	**3.9800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.5400e-003**	**8.5400e-003**	**2.0000e-005**		**9.0900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sea View Hotel

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	39.00	Room	1.19	30,085.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	530.81	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted per 2024 RPS

Land Use - Per project plans

Construction Phase - Per applicant provided construction schedule

Trips and VMT - Haul route to Calabasas Landfill is 11.9 mi

Demolition - Gas station to be demolished

Grading -

Architectural Coating - Per SCAQMD Rule 1113

Vehicle Trips - Per project traffic study

Area Coating - Per SCAQMD Rule 1113

Energy Use - Title-24 energy use reduce by 30% per 2019 Title 24 requirements

Water And Wastewater - Indoor water use reduced by 20% per CALgreen

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403

Area Mitigation - Per SCAQMD Rule 1113

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	79.00
tblConstructionPhase	NumDays	200.00	77.00
tblConstructionPhase	NumDays	20.00	27.00
tblConstructionPhase	NumDays	4.00	78.00
tblConstructionPhase	NumDays	10.00	210.00
tblConstructionPhase	NumDays	2.00	26.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblEnergyUse	T24E	2.77	1.94
tblGrading	MaterialExported	0.00	1,342.00
tblGrading	MaterialImported	0.00	196.00
tblLandUse	LandUseSquareFeet	56,628.00	30,085.00
tblLandUse	LotAcreage	1.30	1.19
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	702.44	530.81
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblTripsAndVMT	HaulingTripLength	20.00	11.90
tblTripsAndVMT	HaulingTripLength	20.00	11.90
tblVehicleTrips	WD_TR	8.17	8.36
tblWater	IndoorWaterUseRate	989,304.03	791,443.22

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.0539	19.7706	14.9401	0.0256	5.8890	1.0421	6.6550	2.9774	0.9726	3.6822	0.0000	2,467.1050	2,467.1050	0.5984	0.0000	2,482.0636
2022	1.9827	12.9891	13.2524	0.0246	0.1773	0.5908	0.7681	0.0478	0.5706	0.6184	0.0000	2,262.4497	2,262.4497	0.4145	0.0000	2,271.4592
2023	1.9691	1.3103	1.8975	3.2600e-003	0.0335	0.0711	0.1046	8.8900e-003	0.0710	0.0799	0.0000	310.2869	310.2869	0.0175	0.0000	310.7248
Maximum	**2.0539**	**19.7706**	**14.9401**	**0.0256**	**5.8890**	**1.0421**	**6.6550**	**2.9774**	**0.9726**	**3.6822**	**0.0000**	**2,467.1050**	**2,467.1050**	**0.5984**	**0.0000**	**2,482.0636**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.0539	19.7706	14.9401	0.0256	2.6992	1.0421	3.4653	1.3529	0.9726	2.0576	0.0000	2,467.1050	2,467.1050	0.5984	0.0000	2,482.0636
2022	1.9827	12.9891	13.2524	0.0246	0.1773	0.5908	0.7681	0.0478	0.5706	0.6184	0.0000	2,262.4497	2,262.4497	0.4145	0.0000	2,271.4592
2023	1.9691	1.3103	1.8975	3.2600e-003	0.0335	0.0711	0.1046	8.8900e-003	0.0710	0.0799	0.0000	310.2869	310.2869	0.0175	0.0000	310.7248
Maximum	**2.0539**	**19.7706**	**14.9401**	**0.0256**	**2.6992**	**1.0421**	**3.4653**	**1.3529**	**0.9726**	**2.0576**	**0.0000**	**2,467.1050**	**2,467.1050**	**0.5984**	**0.0000**	**2,482.0636**

Sea View Hotel - South Coast AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**52.29**	**0.00**	**42.37**	**53.54**	**0.00**	**37.09**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6343	4.0000e-005	3.9800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.5400e-003	8.5400e-003	2.0000e-005		9.0900e-003
Energy	0.0304	0.2768	0.2325	1.6600e-003		0.0210	0.0210		0.0210	0.0210		332.1229	332.1229	6.3700e-003	6.0900e-003	334.0965
Mobile	0.4055	1.9130	4.6472	0.0184	1.6542	0.0136	1.6678	0.4425	0.0127	0.4552		1,879.7346	1,879.7346	0.0889		1,881.9573
Total	**1.0702**	**2.1898**	**4.8837**	**0.0201**	**1.6542**	**0.0347**	**1.6888**	**0.4425**	**0.0337**	**0.4762**		**2,211.8660**	**2,211.8660**	**0.0953**	**6.0900e-003**	**2,216.0629**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6343	4.0000e-005	3.9800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.5400e-003	8.5400e-003	2.0000e-005		9.0900e-003
Energy	0.0304	0.2768	0.2325	1.6600e-003		0.0210	0.0210		0.0210	0.0210		332.1229	332.1229	6.3700e-003	6.0900e-003	334.0965
Mobile	0.4055	1.9130	4.6472	0.0184	1.6542	0.0136	1.6678	0.4425	0.0127	0.4552		1,879.7346	1,879.7346	0.0889		1,881.9573
Total	**1.0702**	**2.1898**	**4.8837**	**0.0201**	**1.6542**	**0.0347**	**1.6888**	**0.4425**	**0.0337**	**0.4762**		**2,211.8660**	**2,211.8660**	**0.0953**	**6.0900e-003**	**2,216.0629**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2021	7/31/2021	6	27	
2	Site Preparation	Site Preparation	8/2/2021	8/31/2021	6	26	
3	Grading	Grading	9/1/2021	11/30/2021	6	78	
4	Building Construction	Building Construction	12/1/2021	2/28/2022	6	77	
5	Paving	Paving	3/1/2022	10/31/2022	6	210	
6	Architectural Coating	Architectural Coating	11/1/2022	1/31/2023	6	79	

Acres of Grading (Site Preparation Phase): 13

Acres of Grading (Grading Phase): 29.25

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 45,128; Non-Residential Outdoor: 15,043; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Sea View Hotel - South Coast AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	5.00	14.70	6.90	11.90	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	192.00	14.70	6.90	11.90	LD_Mix	HDT_Mix	HHDT
Building Construction	7	13.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0365	0.0000	0.0365	5.5200e-003	0.0000	5.5200e-003			0.0000			0.0000
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715		2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**	**0.0365**	**1.0409**	**1.0774**	**5.5200e-003**	**0.9715**	**0.9770**		**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	9.6000e-004	0.0350	7.4400e-003	9.0000e-005	1.9300e-003	9.0000e-005	2.0200e-003	5.3000e-004	9.0000e-005	6.2000e-004		9.7511	9.7511	7.9000e-004		9.7708
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0600	0.0390	0.4401	1.3500e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		134.6368	134.6368	3.6100e-003		134.7270
Total	**0.0609**	**0.0740**	**0.4475**	**1.4400e-003**	**0.1472**	**1.1600e-003**	**0.1484**	**0.0391**	**1.0800e-003**	**0.0401**		**144.3880**	**144.3880**	**4.4000e-003**		**144.4978**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0164	0.0000	0.0164	2.4800e-003	0.0000	2.4800e-003			0.0000			0.0000
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715	0.0000	2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**	**0.0164**	**1.0409**	**1.0573**	**2.4800e-003**	**0.9715**	**0.9740**	**0.0000**	**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	9.6000e-004	0.0350	7.4400e-003	9.0000e-005	1.9300e-003	9.0000e-005	2.0200e-003	5.3000e-004	9.0000e-005	6.2000e-004		9.7511	9.7511	7.9000e-004		9.7708
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0600	0.0390	0.4401	1.3500e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		134.6368	134.6368	3.6100e-003		134.7270
Total	**0.0609**	**0.0740**	**0.4475**	**1.4400e-003**	**0.1472**	**1.1600e-003**	**0.1484**	**0.0391**	**1.0800e-003**	**0.0401**		**144.3880**	**144.3880**	**4.4000e-003**		**144.4978**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041		1,666.5174	1,666.5174	0.5390		1,679.9920
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**5.7996**	**0.7654**	**6.5650**	**2.9537**	**0.7041**	**3.6578**		**1,666.5174**	**1,666.5174**	**0.5390**		**1,679.9920**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2708	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		82.8534	82.8534	2.2200e-003		82.9089
Total	**0.0369**	**0.0240**	**0.2708**	**8.3000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**82.8534**	**82.8534**	**2.2200e-003**		**82.9089**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6098	0.0000	2.6098	1.3292	0.0000	1.3292			0.0000			0.0000
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041	0.0000	1,666.5174	1,666.5174	0.5390		1,679.9920
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**2.6098**	**0.7654**	**3.3752**	**1.3292**	**0.7041**	**2.0333**	**0.0000**	**1,666.5174**	**1,666.5174**	**0.5390**		**1,679.9920**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2708	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		82.8534	82.8534	2.2200e-003		82.9089
Total	**0.0369**	**0.0240**	**0.2708**	**8.3000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**82.8534**	**82.8534**	**2.2200e-003**		**82.9089**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9165	0.0000	4.9165	2.5260	0.0000	2.5260			0.0000			0.0000
Off-Road	1.2884	14.3307	6.3314	0.0141		0.6379	0.6379		0.5869	0.5869		1,365.0648	1,365.0648	0.4415		1,376.1020
Total	**1.2884**	**14.3307**	**6.3314**	**0.0141**	**4.9165**	**0.6379**	**5.5544**	**2.5260**	**0.5869**	**3.1128**		**1,365.0648**	**1,365.0648**	**0.4415**		**1,376.1020**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0127	0.4658	0.0990	1.2000e-003	0.0256	1.2100e-003	0.0268	7.0200e-003	1.1600e-003	8.1800e-003		129.6151	129.6151	0.0105		129.8764
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2708	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		82.8534	82.8534	2.2200e-003		82.9089
Total	**0.0496**	**0.4898**	**0.3698**	**2.0300e-003**	**0.1150**	**1.8700e-003**	**0.1169**	**0.0307**	**1.7700e-003**	**0.0325**		**212.4685**	**212.4685**	**0.0127**		**212.7853**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2124	0.0000	2.2124	1.1367	0.0000	1.1367			0.0000			0.0000
Off-Road	1.2884	14.3307	6.3314	0.0141		0.6379	0.6379		0.5869	0.5869	0.0000	1,365.0648	1,365.0648	0.4415		1,376.1020
Total	**1.2884**	**14.3307**	**6.3314**	**0.0141**	**2.2124**	**0.6379**	**2.8503**	**1.1367**	**0.5869**	**1.7236**	**0.0000**	**1,365.0648**	**1,365.0648**	**0.4415**		**1,376.1020**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0127	0.4658	0.0990	1.2000e-003	0.0256	1.2100e-003	0.0268	7.0200e-003	1.1600e-003	8.1800e-003		129.6151	129.6151	0.0105		129.8764
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2708	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		82.8534	82.8534	2.2200e-003		82.9089
Total	**0.0496**	**0.4898**	**0.3698**	**2.0300e-003**	**0.1150**	**1.8700e-003**	**0.1169**	**0.0307**	**1.7700e-003**	**0.0325**		**212.4685**	**212.4685**	**0.0127**		**212.7853**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0147	0.4754	0.1266	1.2400e-003	0.0320	9.9000e-004	0.0330	9.2100e-003	9.5000e-004	0.0102		132.2751	132.2751	8.8500e-003		132.4964
Worker	0.0600	0.0390	0.4401	1.3500e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		134.6368	134.6368	3.6100e-003		134.7270
Total	**0.0746**	**0.5143**	**0.5667**	**2.5900e-003**	**0.1773**	**2.0600e-003**	**0.1794**	**0.0478**	**1.9400e-003**	**0.0497**		**266.9119**	**266.9119**	**0.0125**		**267.2234**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0147	0.4754	0.1266	1.2400e-003	0.0320	9.9000e-004	0.0330	9.2100e-003	9.5000e-004	0.0102		132.2751	132.2751	8.8500e-003		132.4964
Worker	0.0600	0.0390	0.4401	1.3500e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		134.6368	134.6368	3.6100e-003		134.7270
Total	**0.0746**	**0.5143**	**0.5667**	**2.5900e-003**	**0.1773**	**2.0600e-003**	**0.1794**	**0.0478**	**1.9400e-003**	**0.0497**		**266.9119**	**266.9119**	**0.0125**		**267.2234**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0137	0.4509	0.1198	1.2300e-003	0.0320	8.6000e-004	0.0329	9.2100e-003	8.2000e-004	0.0100		131.0971	131.0971	8.5100e-003		131.3100
Worker	0.0564	0.0352	0.4062	1.3000e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395		129.8098	129.8098	3.2600e-003		129.8912
Total	**0.0701**	**0.4860**	**0.5260**	**2.5300e-003**	**0.1773**	**1.9000e-003**	**0.1792**	**0.0478**	**1.7800e-003**	**0.0495**		**260.9069**	**260.9069**	**0.0118**		**261.2012**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0137	0.4509	0.1198	1.2300e-003	0.0320	8.6000e-004	0.0329	9.2100e-003	8.2000e-004	0.0100		131.0971	131.0971	8.5100e-003		131.3100
Worker	0.0564	0.0352	0.4062	1.3000e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395		129.8098	129.8098	3.2600e-003		129.8912
Total	**0.0701**	**0.4860**	**0.5260**	**2.5300e-003**	**0.1773**	**1.9000e-003**	**0.1792**	**0.0478**	**1.7800e-003**	**0.0495**		**260.9069**	**260.9069**	**0.0118**		**261.2012**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6877	6.7738	8.8060	0.0135		0.3474	0.3474		0.3205	0.3205		1,297.3789	1,297.3789	0.4113		1,307.6608
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6877**	**6.7738**	**8.8060**	**0.0135**		**0.3474**	**0.3474**		**0.3205**	**0.3205**		**1,297.3789**	**1,297.3789**	**0.4113**		**1,307.6608**

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0564	0.0352	0.4062	1.3000e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395		129.8098	129.8098	3.2600e-003		129.8912
Total	**0.0564**	**0.0352**	**0.4062**	**1.3000e-003**	**0.1453**	**1.0400e-003**	**0.1464**	**0.0385**	**9.6000e-004**	**0.0395**		**129.8098**	**129.8098**	**3.2600e-003**		**129.8912**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6877	6.7738	8.8060	0.0135		0.3474	0.3474		0.3205	0.3205	0.0000	1,297.3789	1,297.3789	0.4113		1,307.6608
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6877**	**6.7738**	**8.8060**	**0.0135**		**0.3474**	**0.3474**		**0.3205**	**0.3205**	**0.0000**	**1,297.3789**	**1,297.3789**	**0.4113**		**1,307.6608**

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0564	0.0352	0.4062	1.3000e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395		129.8098	129.8098	3.2600e-003		129.8912
Total	**0.0564**	**0.0352**	**0.4062**	**1.3000e-003**	**0.1453**	**1.0400e-003**	**0.1464**	**0.0385**	**9.6000e-004**	**0.0395**		**129.8098**	**129.8098**	**3.2600e-003**		**129.8912**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.7651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**1.9697**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0130	8.1200e-003	0.0937	3.0000e-004	0.0335	2.4000e-004	0.0338	8.8900e-003	2.2000e-004	9.1100e-003		29.9561	29.9561	7.5000e-004		29.9749
Total	**0.0130**	**8.1200e-003**	**0.0937**	**3.0000e-004**	**0.0335**	**2.4000e-004**	**0.0338**	**8.8900e-003**	**2.2000e-004**	**9.1100e-003**		**29.9561**	**29.9561**	**7.5000e-004**		**29.9749**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.7651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**1.9697**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0130	8.1200e-003	0.0937	3.0000e-004	0.0335	2.4000e-004	0.0338	8.8900e-003	2.2000e-004	9.1100e-003		29.9561	29.9561	7.5000e-004		29.9749
Total	**0.0130**	**8.1200e-003**	**0.0937**	**3.0000e-004**	**0.0335**	**2.4000e-004**	**0.0338**	**8.8900e-003**	**2.2000e-004**	**9.1100e-003**		**29.9561**	**29.9561**	**7.5000e-004**		**29.9749**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.7651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**1.9568**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0123	7.3400e-003	0.0864	2.9000e-004	0.0335	2.3000e-004	0.0338	8.8900e-003	2.2000e-004	9.1100e-003		28.8389	28.8389	6.8000e-004		28.8558
Total	**0.0123**	**7.3400e-003**	**0.0864**	**2.9000e-004**	**0.0335**	**2.3000e-004**	**0.0338**	**8.8900e-003**	**2.2000e-004**	**9.1100e-003**		**28.8389**	**28.8389**	**6.8000e-004**		**28.8558**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.7651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**1.9568**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0123	7.3400e-003	0.0864	2.9000e-004	0.0335	2.3000e-004	0.0338	8.8900e-003	2.2000e-004	9.1100e-003		28.8389	28.8389	6.8000e-004		28.8558
Total	**0.0123**	**7.3400e-003**	**0.0864**	**2.9000e-004**	**0.0335**	**2.3000e-004**	**0.0338**	**8.8900e-003**	**2.2000e-004**	**9.1100e-003**		**28.8389**	**28.8389**	**6.8000e-004**		**28.8558**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4055	1.9130	4.6472	0.0184	1.6542	0.0136	1.6678	0.4425	0.0127	0.4552		1,879.7346	1,879.7346	0.0889		1,881.9573
Unmitigated	0.4055	1.9130	4.6472	0.0184	1.6542	0.0136	1.6678	0.4425	0.0127	0.4552		1,879.7346	1,879.7346	0.0889		1,881.9573

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hotel	326.04	319.41	232.05	743,688	743,688
Total	326.04	319.41	232.05	743,688	743,688

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hotel	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0304	0.2768	0.2325	1.6600e-003		0.0210	0.0210		0.0210	0.0210		332.1229	332.1229	6.3700e-003	6.0900e-003	334.0965
NaturalGas Unmitigated	0.0304	0.2768	0.2325	1.6600e-003		0.0210	0.0210		0.0210	0.0210		332.1229	332.1229	6.3700e-003	6.0900e-003	334.0965

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	2823.04	0.0304	0.2768	0.2325	1.6600e-003		0.0210	0.0210		0.0210	0.0210		332.1229	332.1229	6.3700e-003	6.0900e-003	334.0965
Total		**0.0304**	**0.2768**	**0.2325**	**1.6600e-003**		**0.0210**	**0.0210**		**0.0210**	**0.0210**		**332.1229**	**332.1229**	**6.3700e-003**	**6.0900e-003**	**334.0965**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	2.82304	0.0304	0.2768	0.2325	1.6600e-003		0.0210	0.0210		0.0210	0.0210		332.1229	332.1229	6.3700e-003	6.0900e-003	334.0965
Total		**0.0304**	**0.2768**	**0.2325**	**1.6600e-003**		**0.0210**	**0.0210**		**0.0210**	**0.0210**		**332.1229**	**332.1229**	**6.3700e-003**	**6.0900e-003**	**334.0965**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6343	4.0000e-005	3.9800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.5400e-003	8.5400e-003	2.0000e-005		9.0900e-003
Unmitigated	0.6343	4.0000e-005	3.9800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.5400e-003	8.5400e-003	2.0000e-005		9.0900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0382					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5957					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.7000e-004	4.0000e-005	3.9800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.5400e-003	8.5400e-003	2.0000e-005		9.0900e-003
Total	**0.6343**	**4.0000e-005**	**3.9800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.5400e-003**	**8.5400e-003**	**2.0000e-005**		**9.0900e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0382					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5957					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.7000e-004	4.0000e-005	3.9800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.5400e-003	8.5400e-003	2.0000e-005		9.0900e-003
Total	**0.6343**	**4.0000e-005**	**3.9800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.5400e-003**	**8.5400e-003**	**2.0000e-005**		**9.0900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sea View Hotel

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	39.00	Room	1.19	30,085.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	530.81	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted per 2024 RPS

Land Use - Per project plans

Construction Phase - Per applicant provided construction schedule

Trips and VMT - Haul route to Calabasas Landfill is 11.9 mi

Demolition - Gas station to be demolished

Grading -

Architectural Coating - Per SCAQMD Rule 1113

Vehicle Trips - Per project traffic study

Area Coating - Per SCAQMD Rule 1113

Energy Use - Title-24 energy use reduce by 30% per 2019 Title 24 requirements

Water And Wastewater - Indoor water use reduced by 20% per CALgreen

Construction Off-road Equipment Mitigation - Per SCAQMD Rule 403

Area Mitigation - Per SCAQMD Rule 1113

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	79.00
tblConstructionPhase	NumDays	200.00	77.00
tblConstructionPhase	NumDays	20.00	27.00
tblConstructionPhase	NumDays	4.00	78.00
tblConstructionPhase	NumDays	10.00	210.00
tblConstructionPhase	NumDays	2.00	26.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblEnergyUse	T24E	2.77	1.94
tblGrading	MaterialExported	0.00	1,342.00
tblGrading	MaterialImported	0.00	196.00
tblLandUse	LandUseSquareFeet	56,628.00	30,085.00
tblLandUse	LotAcreage	1.30	1.19
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	702.44	530.81
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblTripsAndVMT	HaulingTripLength	20.00	11.90
tblTripsAndVMT	HaulingTripLength	20.00	11.90
tblVehicleTrips	WD_TR	8.17	8.36
tblWater	IndoorWaterUseRate	989,304.03	791,443.22

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1257	1.2632	0.7471	1.5400e-003	0.2775	0.0582	0.3357	0.1396	0.0542	0.1938	0.0000	134.6681	134.6681	0.0343	0.0000	135.5254
2022	0.1729	1.0775	1.3506	2.2600e-003	0.0202	0.0535	0.0737	5.3800e-003	0.0502	0.0556	0.0000	195.0705	195.0705	0.0481	0.0000	196.2734
2023	0.0256	0.0170	0.0247	4.0000e-005	4.3000e-004	9.2000e-004	1.3500e-003	1.1000e-004	9.2000e-004	1.0400e-003	0.0000	3.6652	3.6652	2.1000e-004	0.0000	3.6703
Maximum	**0.1729**	**1.2632**	**1.3506**	**2.2600e-003**	**0.2775**	**0.0582**	**0.3357**	**0.1396**	**0.0542**	**0.1938**	**0.0000**	**195.0705**	**195.0705**	**0.0481**	**0.0000**	**196.2734**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1257	1.2632	0.7471	1.5400e-003	0.1303	0.0582	0.1885	0.0643	0.0542	0.1185	0.0000	134.6679	134.6679	0.0343	0.0000	135.5253
2022	0.1729	1.0775	1.3506	2.2600e-003	0.0202	0.0535	0.0737	5.3800e-003	0.0502	0.0556	0.0000	195.0703	195.0703	0.0481	0.0000	196.2732
2023	0.0256	0.0170	0.0247	4.0000e-005	4.3000e-004	9.2000e-004	1.3500e-003	1.1000e-004	9.2000e-004	1.0400e-003	0.0000	3.6652	3.6652	2.1000e-004	0.0000	3.6703
Maximum	**0.1729**	**1.2632**	**1.3506**	**2.2600e-003**	**0.1303**	**0.0582**	**0.1885**	**0.0643**	**0.0542**	**0.1185**	**0.0000**	**195.0703**	**195.0703**	**0.0481**	**0.0000**	**196.2732**

Sea View Hotel - South Coast AQMD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**49.38**	**0.00**	**35.83**	**51.92**	**0.00**	**30.09**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2021**	**9-30-2021**	0.7422	0.7422
2	**10-1-2021**	**12-31-2021**	0.6355	0.6355
3	**1-1-2022**	**3-31-2022**	0.4722	0.4722
4	**4-1-2022**	**6-30-2022**	0.2943	0.2943
5	**7-1-2022**	**9-30-2022**	0.2975	0.2975
6	**10-1-2022**	**12-31-2022**	0.1892	0.1892
7	**1-1-2023**	**3-31-2023**	0.0436	0.0436
		Highest	0.7422	0.7422

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1157	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Energy	5.5600e-003	0.0505	0.0424	3.0000e-004		3.8400e-003	3.8400e-003		3.8400e-003	3.8400e-003	0.0000	114.4567	114.4567	3.5200e-003	1.5700e-003	115.0120
Mobile	0.0688	0.3381	0.8194	3.2500e-003	0.2826	2.3600e-003	0.2849	0.0757	2.1900e-003	0.0779	0.0000	301.3472	301.3472	0.0139	0.0000	301.6947
Waste						0.0000	0.0000		0.0000	0.0000	4.3339	0.0000	4.3339	0.2561	0.0000	10.7370
Water						0.0000	0.0000		0.0000	0.0000	0.2511	2.7753	3.0264	0.0259	6.4000e-004	3.8632
Total	**0.1901**	**0.3887**	**0.8624**	**3.5500e-003**	**0.2826**	**6.2000e-003**	**0.2888**	**0.0757**	**6.0300e-003**	**0.0817**	**4.5850**	**418.5802**	**423.1651**	**0.2994**	**2.2100e-003**	**431.3079**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1157	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Energy	5.5600e-003	0.0505	0.0424	3.0000e-004		3.8400e-003	3.8400e-003		3.8400e-003	3.8400e-003	0.0000	114.4567	114.4567	3.5200e-003	1.5700e-003	115.0120
Mobile	0.0688	0.3381	0.8194	3.2500e-003	0.2826	2.3600e-003	0.2849	0.0757	2.1900e-003	0.0779	0.0000	301.3472	301.3472	0.0139	0.0000	301.6947
Waste						0.0000	0.0000		0.0000	0.0000	4.3339	0.0000	4.3339	0.2561	0.0000	10.7370
Water						0.0000	0.0000		0.0000	0.0000	0.2511	2.7753	3.0264	0.0259	6.4000e-004	3.8632
Total	**0.1901**	**0.3887**	**0.8624**	**3.5500e-003**	**0.2826**	**6.2000e-003**	**0.2888**	**0.0757**	**6.0300e-003**	**0.0817**	**4.5850**	**418.5802**	**423.1651**	**0.2994**	**2.2100e-003**	**431.3079**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2021	7/31/2021	6	27	
2	Site Preparation	Site Preparation	8/2/2021	8/31/2021	6	26	
3	Grading	Grading	9/1/2021	11/30/2021	6	78	
4	Building Construction	Building Construction	12/1/2021	2/28/2022	6	77	
5	Paving	Paving	3/1/2022	10/31/2022	6	210	
6	Architectural Coating	Architectural Coating	11/1/2022	1/31/2023	6	79	

Acres of Grading (Site Preparation Phase): 13

Acres of Grading (Grading Phase): 29.25

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 45,128; Non-Residential Outdoor: 15,043; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Sea View Hotel - South Coast AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	5.00	14.70	6.90	11.90	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	192.00	14.70	6.90	11.90	LD_Mix	HDT_Mix	HHDT
Building Construction	7	13.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9000e-004	0.0000	4.9000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0269	0.2659	0.1957	3.3000e-004		0.0141	0.0141		0.0131	0.0131	0.0000	28.4463	28.4463	7.2700e-003	0.0000	28.6282
Total	**0.0269**	**0.2659**	**0.1957**	**3.3000e-004**	**4.9000e-004**	**0.0141**	**0.0145**	**7.0000e-005**	**0.0131**	**0.0132**	**0.0000**	**28.4463**	**28.4463**	**7.2700e-003**	**0.0000**	**28.6282**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	4.8000e-004	9.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1214	0.1214	1.0000e-005	0.0000	0.1217
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	5.4000e-004	6.1200e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.6772	1.6772	4.0000e-005	0.0000	1.6783
Total	**7.4000e-004**	**1.0200e-003**	**6.2100e-003**	**2.0000e-005**	**1.9600e-003**	**1.0000e-005**	**1.9700e-003**	**5.2000e-004**	**1.0000e-005**	**5.3000e-004**	**0.0000**	**1.7986**	**1.7986**	**5.0000e-005**	**0.0000**	**1.8000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.2000e-004	0.0000	2.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0269	0.2659	0.1957	3.3000e-004		0.0141	0.0141		0.0131	0.0131	0.0000	28.4463	28.4463	7.2700e-003	0.0000	28.6281
Total	**0.0269**	**0.2659**	**0.1957**	**3.3000e-004**	**2.2000e-004**	**0.0141**	**0.0143**	**3.0000e-005**	**0.0131**	**0.0131**	**0.0000**	**28.4463**	**28.4463**	**7.2700e-003**	**0.0000**	**28.6281**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	4.8000e-004	9.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1214	0.1214	1.0000e-005	0.0000	0.1217
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	5.4000e-004	6.1200e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.6772	1.6772	4.0000e-005	0.0000	1.6783
Total	**7.4000e-004**	**1.0200e-003**	**6.2100e-003**	**2.0000e-005**	**1.9600e-003**	**1.0000e-005**	**1.9700e-003**	**5.2000e-004**	**1.0000e-005**	**5.3000e-004**	**0.0000**	**1.7986**	**1.7986**	**5.0000e-005**	**0.0000**	**1.8000**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0754	0.0000	0.0754	0.0384	0.0000	0.0384	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0202	0.2265	0.0983	2.2000e-004		9.9500e-003	9.9500e-003		9.1500e-003	9.1500e-003	0.0000	19.6539	19.6539	6.3600e-003	0.0000	19.8128
Total	**0.0202**	**0.2265**	**0.0983**	**2.2000e-004**	**0.0754**	**9.9500e-003**	**0.0853**	**0.0384**	**9.1500e-003**	**0.0476**	**0.0000**	**19.6539**	**19.6539**	**6.3600e-003**	**0.0000**	**19.8128**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	3.2000e-004	3.6200e-003	1.0000e-005	1.1400e-003	1.0000e-005	1.1500e-003	3.0000e-004	1.0000e-005	3.1000e-004	0.0000	0.9939	0.9939	3.0000e-005	0.0000	0.9946
Total	**4.3000e-004**	**3.2000e-004**	**3.6200e-003**	**1.0000e-005**	**1.1400e-003**	**1.0000e-005**	**1.1500e-003**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**0.9939**	**0.9939**	**3.0000e-005**	**0.0000**	**0.9946**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0339	0.0000	0.0339	0.0173	0.0000	0.0173	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0202	0.2265	0.0983	2.2000e-004		9.9500e-003	9.9500e-003		9.1500e-003	9.1500e-003	0.0000	19.6539	19.6539	6.3600e-003	0.0000	19.8128
Total	**0.0202**	**0.2265**	**0.0983**	**2.2000e-004**	**0.0339**	**9.9500e-003**	**0.0439**	**0.0173**	**9.1500e-003**	**0.0264**	**0.0000**	**19.6539**	**19.6539**	**6.3600e-003**	**0.0000**	**19.8128**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	3.2000e-004	3.6200e-003	1.0000e-005	1.1400e-003	1.0000e-005	1.1500e-003	3.0000e-004	1.0000e-005	3.1000e-004	0.0000	0.9939	0.9939	3.0000e-005	0.0000	0.9946
Total	**4.3000e-004**	**3.2000e-004**	**3.6200e-003**	**1.0000e-005**	**1.1400e-003**	**1.0000e-005**	**1.1500e-003**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**0.9939**	**0.9939**	**3.0000e-005**	**0.0000**	**0.9946**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1917	0.0000	0.1917	0.0985	0.0000	0.0985	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0503	0.5589	0.2469	5.5000e-004		0.0249	0.0249		0.0229	0.0229	0.0000	48.2963	48.2963	0.0156	0.0000	48.6868
Total	**0.0503**	**0.5589**	**0.2469**	**5.5000e-004**	**0.1917**	**0.0249**	**0.2166**	**0.0985**	**0.0229**	**0.1214**	**0.0000**	**48.2963**	**48.2963**	**0.0156**	**0.0000**	**48.6868**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.9000e-004	0.0185	3.6400e-003	5.0000e-005	9.8000e-004	5.0000e-005	1.0300e-003	2.7000e-004	4.0000e-005	3.1000e-004	0.0000	4.6633	4.6633	3.6000e-004	0.0000	4.6723
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-003	9.6000e-004	0.0109	3.0000e-005	3.4200e-003	3.0000e-005	3.4500e-003	9.1000e-004	2.0000e-005	9.3000e-004	0.0000	2.9817	2.9817	8.0000e-005	0.0000	2.9837
Total	**1.7900e-003**	**0.0195**	**0.0145**	**8.0000e-005**	**4.4000e-003**	**8.0000e-005**	**4.4800e-003**	**1.1800e-003**	**6.0000e-005**	**1.2400e-003**	**0.0000**	**7.6450**	**7.6450**	**4.4000e-004**	**0.0000**	**7.6559**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0863	0.0000	0.0863	0.0443	0.0000	0.0443	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0503	0.5589	0.2469	5.5000e-004		0.0249	0.0249		0.0229	0.0229	0.0000	48.2962	48.2962	0.0156	0.0000	48.6867
Total	**0.0503**	**0.5589**	**0.2469**	**5.5000e-004**	**0.0863**	**0.0249**	**0.1112**	**0.0443**	**0.0229**	**0.0672**	**0.0000**	**48.2962**	**48.2962**	**0.0156**	**0.0000**	**48.6867**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.9000e-004	0.0185	3.6400e-003	5.0000e-005	9.8000e-004	5.0000e-005	1.0300e-003	2.7000e-004	4.0000e-005	3.1000e-004	0.0000	4.6633	4.6633	3.6000e-004	0.0000	4.6723
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-003	9.6000e-004	0.0109	3.0000e-005	3.4200e-003	3.0000e-005	3.4500e-003	9.1000e-004	2.0000e-005	9.3000e-004	0.0000	2.9817	2.9817	8.0000e-005	0.0000	2.9837
Total	**1.7900e-003**	**0.0195**	**0.0145**	**8.0000e-005**	**4.4000e-003**	**8.0000e-005**	**4.4800e-003**	**1.1800e-003**	**6.0000e-005**	**1.2400e-003**	**0.0000**	**7.6450**	**7.6450**	**4.4000e-004**	**0.0000**	**7.6559**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0245	0.1841	0.1741	3.0000e-004		9.2400e-003	9.2400e-003		8.9200e-003	8.9200e-003	0.0000	24.5089	24.5089	4.3800e-003	0.0000	24.6183
Total	**0.0245**	**0.1841**	**0.1741**	**3.0000e-004**		**9.2400e-003**	**9.2400e-003**		**8.9200e-003**	**8.9200e-003**	**0.0000**	**24.5089**	**24.5089**	**4.3800e-003**	**0.0000**	**24.6183**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9000e-004	6.5300e-003	1.6200e-003	2.0000e-005	4.3000e-004	1.0000e-005	4.4000e-004	1.2000e-004	1.0000e-005	1.4000e-004	0.0000	1.6480	1.6480	1.0000e-004	0.0000	1.6506
Worker	7.3000e-004	5.4000e-004	6.1200e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.6772	1.6772	4.0000e-005	0.0000	1.6783
Total	**9.2000e-004**	**7.0700e-003**	**7.7400e-003**	**4.0000e-005**	**2.3600e-003**	**2.0000e-005**	**2.3800e-003**	**6.3000e-004**	**2.0000e-005**	**6.6000e-004**	**0.0000**	**3.3252**	**3.3252**	**1.4000e-004**	**0.0000**	**3.3289**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0245	0.1841	0.1741	3.0000e-004		9.2400e-003	9.2400e-003		8.9200e-003	8.9200e-003	0.0000	24.5089	24.5089	4.3800e-003	0.0000	24.6183
Total	**0.0245**	**0.1841**	**0.1741**	**3.0000e-004**		**9.2400e-003**	**9.2400e-003**		**8.9200e-003**	**8.9200e-003**	**0.0000**	**24.5089**	**24.5089**	**4.3800e-003**	**0.0000**	**24.6183**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9000e-004	6.5300e-003	1.6200e-003	2.0000e-005	4.3000e-004	1.0000e-005	4.4000e-004	1.2000e-004	1.0000e-005	1.4000e-004	0.0000	1.6480	1.6480	1.0000e-004	0.0000	1.6506
Worker	7.3000e-004	5.4000e-004	6.1200e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.6772	1.6772	4.0000e-005	0.0000	1.6783
Total	**9.2000e-004**	**7.0700e-003**	**7.7400e-003**	**4.0000e-005**	**2.3600e-003**	**2.0000e-005**	**2.3800e-003**	**6.3000e-004**	**2.0000e-005**	**6.6000e-004**	**0.0000**	**3.3252**	**3.3252**	**1.4000e-004**	**0.0000**	**3.3289**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0412	0.3126	0.3182	5.5000e-004		0.0147	0.0147		0.0142	0.0142	0.0000	45.3942	45.3942	7.9100e-003	0.0000	45.5919
Total	**0.0412**	**0.3126**	**0.3182**	**5.5000e-004**		**0.0147**	**0.0147**		**0.0142**	**0.0142**	**0.0000**	**45.3942**	**45.3942**	**7.9100e-003**	**0.0000**	**45.5919**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3000e-004	0.0115	2.8300e-003	3.0000e-005	7.9000e-004	2.0000e-005	8.1000e-004	2.3000e-004	2.0000e-005	2.5000e-004	0.0000	3.0250	3.0250	1.9000e-004	0.0000	3.0296
Worker	1.2700e-003	9.0000e-004	0.0105	3.0000e-005	3.5700e-003	3.0000e-005	3.5900e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	2.9945	2.9945	8.0000e-005	0.0000	2.9964
Total	**1.6000e-003**	**0.0124**	**0.0133**	**6.0000e-005**	**4.3600e-003**	**5.0000e-005**	**4.4000e-003**	**1.1800e-003**	**4.0000e-005**	**1.2200e-003**	**0.0000**	**6.0195**	**6.0195**	**2.7000e-004**	**0.0000**	**6.0260**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0412	0.3126	0.3182	5.5000e-004		0.0147	0.0147		0.0142	0.0142	0.0000	45.3942	45.3942	7.9100e-003	0.0000	45.5918
Total	**0.0412**	**0.3126**	**0.3182**	**5.5000e-004**		**0.0147**	**0.0147**		**0.0142**	**0.0142**	**0.0000**	**45.3942**	**45.3942**	**7.9100e-003**	**0.0000**	**45.5918**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3000e-004	0.0115	2.8300e-003	3.0000e-005	7.9000e-004	2.0000e-005	8.1000e-004	2.3000e-004	2.0000e-005	2.5000e-004	0.0000	3.0250	3.0250	1.9000e-004	0.0000	3.0296
Worker	1.2700e-003	9.0000e-004	0.0105	3.0000e-005	3.5700e-003	3.0000e-005	3.5900e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	2.9945	2.9945	8.0000e-005	0.0000	2.9964
Total	**1.6000e-003**	**0.0124**	**0.0133**	**6.0000e-005**	**4.3600e-003**	**5.0000e-005**	**4.4000e-003**	**1.1800e-003**	**4.0000e-005**	**1.2200e-003**	**0.0000**	**6.0195**	**6.0195**	**2.7000e-004**	**0.0000**	**6.0260**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0722	0.7112	0.9246	1.4200e-003		0.0365	0.0365		0.0337	0.0337	0.0000	123.5810	123.5810	0.0392	0.0000	124.5605
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0722**	**0.7112**	**0.9246**	**1.4200e-003**		**0.0365**	**0.0365**		**0.0337**	**0.0337**	**0.0000**	**123.5810**	**123.5810**	**0.0392**	**0.0000**	**124.5605**

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3400e-003	3.8000e-003	0.0439	1.4000e-004	0.0150	1.1000e-004	0.0151	3.9800e-003	1.0000e-004	4.0800e-003	0.0000	12.5771	12.5771	3.2000e-004	0.0000	12.5850
Total	**5.3400e-003**	**3.8000e-003**	**0.0439**	**1.4000e-004**	**0.0150**	**1.1000e-004**	**0.0151**	**3.9800e-003**	**1.0000e-004**	**4.0800e-003**	**0.0000**	**12.5771**	**12.5771**	**3.2000e-004**	**0.0000**	**12.5850**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0722	0.7112	0.9246	1.4200e-003		0.0365	0.0365		0.0337	0.0337	0.0000	123.5809	123.5809	0.0392	0.0000	124.5603
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0722**	**0.7112**	**0.9246**	**1.4200e-003**		**0.0365**	**0.0365**		**0.0337**	**0.0337**	**0.0000**	**123.5809**	**123.5809**	**0.0392**	**0.0000**	**124.5603**

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3400e-003	3.8000e-003	0.0439	1.4000e-004	0.0150	1.1000e-004	0.0151	3.9800e-003	1.0000e-004	4.0800e-003	0.0000	12.5771	12.5771	3.2000e-004	0.0000	12.5850
Total	**5.3400e-003**	**3.8000e-003**	**0.0439**	**1.4000e-004**	**0.0150**	**1.1000e-004**	**0.0151**	**3.9800e-003**	**1.0000e-004**	**4.0800e-003**	**0.0000**	**12.5771**	**12.5771**	**3.2000e-004**	**0.0000**	**12.5850**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0468					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4200e-003	0.0373	0.0481	8.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	6.7661	6.7661	4.4000e-004	0.0000	6.7771
Total	**0.0522**	**0.0373**	**0.0481**	**8.0000e-005**		**2.1700e-003**	**2.1700e-003**		**2.1700e-003**	**2.1700e-003**	**0.0000**	**6.7661**	**6.7661**	**4.4000e-004**	**0.0000**	**6.7771**

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	2.2000e-004	2.5600e-003	1.0000e-005	8.7000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7325	0.7325	2.0000e-005	0.0000	0.7330
Total	**3.1000e-004**	**2.2000e-004**	**2.5600e-003**	**1.0000e-005**	**8.7000e-004**	**1.0000e-005**	**8.8000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7325**	**0.7325**	**2.0000e-005**	**0.0000**	**0.7330**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0468					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4200e-003	0.0373	0.0481	8.0000e-005		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003	0.0000	6.7661	6.7661	4.4000e-004	0.0000	6.7771
Total	**0.0522**	**0.0373**	**0.0481**	**8.0000e-005**		**2.1700e-003**	**2.1700e-003**		**2.1700e-003**	**2.1700e-003**	**0.0000**	**6.7661**	**6.7661**	**4.4000e-004**	**0.0000**	**6.7771**

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	2.2000e-004	2.5600e-003	1.0000e-005	8.7000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7325	0.7325	2.0000e-005	0.0000	0.7330
Total	**3.1000e-004**	**2.2000e-004**	**2.5600e-003**	**1.0000e-005**	**8.7000e-004**	**1.0000e-005**	**8.8000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7325**	**0.7325**	**2.0000e-005**	**0.0000**	**0.7330**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0230					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4900e-003	0.0169	0.0235	4.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	3.3192	3.3192	2.0000e-004	0.0000	3.3242
Total	**0.0254**	**0.0169**	**0.0235**	**4.0000e-005**		**9.2000e-004**	**9.2000e-004**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**3.3192**	**3.3192**	**2.0000e-004**	**0.0000**	**3.3242**

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.1600e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.3459	0.3459	1.0000e-005	0.0000	0.3462
Total	**1.4000e-004**	**1.0000e-004**	**1.1600e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**1.1000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3459**	**0.3459**	**1.0000e-005**	**0.0000**	**0.3462**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0230					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4900e-003	0.0169	0.0235	4.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	3.3192	3.3192	2.0000e-004	0.0000	3.3242
Total	**0.0254**	**0.0169**	**0.0235**	**4.0000e-005**		**9.2000e-004**	**9.2000e-004**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**3.3192**	**3.3192**	**2.0000e-004**	**0.0000**	**3.3242**

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.1600e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.3459	0.3459	1.0000e-005	0.0000	0.3462
Total	**1.4000e-004**	**1.0000e-004**	**1.1600e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**1.1000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3459**	**0.3459**	**1.0000e-005**	**0.0000**	**0.3462**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0688	0.3381	0.8194	3.2500e-003	0.2826	2.3600e-003	0.2849	0.0757	2.1900e-003	0.0779	0.0000	301.3472	301.3472	0.0139	0.0000	301.6947
Unmitigated	0.0688	0.3381	0.8194	3.2500e-003	0.2826	2.3600e-003	0.2849	0.0757	2.1900e-003	0.0779	0.0000	301.3472	301.3472	0.0139	0.0000	301.6947

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hotel	326.04	319.41	232.05	743,688	743,688
Total	326.04	319.41	232.05	743,688	743,688

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hotel	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	59.4700	59.4700	2.4600e-003	5.6000e-004	59.6986
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	59.4700	59.4700	2.4600e-003	5.6000e-004	59.6986
NaturalGas Mitigated	5.5600e-003	0.0505	0.0424	3.0000e-004		3.8400e-003	3.8400e-003		3.8400e-003	3.8400e-003	0.0000	54.9867	54.9867	1.0500e-003	1.0100e-003	55.3134
NaturalGas Unmitigated	5.5600e-003	0.0505	0.0424	3.0000e-004		3.8400e-003	3.8400e-003		3.8400e-003	3.8400e-003	0.0000	54.9867	54.9867	1.0500e-003	1.0100e-003	55.3134

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	1.03041e+006	5.5600e-003	0.0505	0.0424	3.0000e-004		3.8400e-003	3.8400e-003		3.8400e-003	3.8400e-003	0.0000	54.9867	54.9867	1.0500e-003	1.0100e-003	55.3134
Total		**5.5600e-003**	**0.0505**	**0.0424**	**3.0000e-004**		**3.8400e-003**	**3.8400e-003**		**3.8400e-003**	**3.8400e-003**	**0.0000**	**54.9867**	**54.9867**	**1.0500e-003**	**1.0100e-003**	**55.3134**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	1.03041e+006	5.5600e-003	0.0505	0.0424	3.0000e-004		3.8400e-003	3.8400e-003		3.8400e-003	3.8400e-003	0.0000	54.9867	54.9867	1.0500e-003	1.0100e-003	55.3134
Total		**5.5600e-003**	**0.0505**	**0.0424**	**3.0000e-004**		**3.8400e-003**	**3.8400e-003**		**3.8400e-003**	**3.8400e-003**	**0.0000**	**54.9867**	**54.9867**	**1.0500e-003**	**1.0100e-003**	**55.3134**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	246998	59.4700	2.4600e-003	5.6000e-004	59.6986
Total		**59.4700**	**2.4600e-003**	**5.6000e-004**	**59.6986**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	246998	59.4700	2.4600e-003	5.6000e-004	59.6986
Total		**59.4700**	**2.4600e-003**	**5.6000e-004**	**59.6986**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1157	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Unmitigated	0.1157	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.9700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1087					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Total	**0.1157**	**0.0000**	**5.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.7000e-004**	**9.7000e-004**	**0.0000**	**0.0000**	**1.0300e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.9700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1087					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Total	**0.1157**	**0.0000**	**5.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.7000e-004**	**9.7000e-004**	**0.0000**	**0.0000**	**1.0300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.0264	0.0259	6.4000e-004	3.8632
Unmitigated	3.0264	0.0259	6.4000e-004	3.8632

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	0.791443 / 0.109923	3.0264	0.0259	6.4000e-004	3.8632
Total		**3.0264**	**0.0259**	**6.4000e-004**	**3.8632**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	0.791443 / 0.109923	3.0264	0.0259	6.4000e-004	3.8632
Total		**3.0264**	**0.0259**	**6.4000e-004**	**3.8632**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.3339	0.2561	0.0000	10.7370
Unmitigated	4.3339	0.2561	0.0000	10.7370

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	21.35	4.3339	0.2561	0.0000	10.7370
Total		**4.3339**	**0.2561**	**0.0000**	**10.7370**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	21.35	4.3339	0.2561	0.0000	10.7370
Total		**4.3339**	**0.2561**	**0.0000**	**10.7370**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sea View Hotel Existing Uses

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	17.22	1000sqft	0.40	17,220.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - No construction-- model of operation of existing uses

Off-road Equipment -

Architectural Coating -

Vehicle Trips - Trip rate per traffic study

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - Per SCAQMD Rule 1113

Energy Use -

Area Mitigation - SCAQMD Rule 1113

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstructionPhase	NumDays	5.00	1.00
tblVehicleTrips	ST_TR	42.04	22.18
tblVehicleTrips	WD_TR	44.32	25.20

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2005	399.0735	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**399.0735**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2005	399.0735	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**399.0735**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3630	2.0000e-005	1.7600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.7700e-003	3.7700e-003	1.0000e-005		4.0100e-003
Energy	1.0700e-003	9.7600e-003	8.2000e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.7113	11.7113	2.2000e-004	2.1000e-004	11.7809
Mobile	0.5328	2.3151	5.4662	0.0211	1.7554	0.0148	1.7703	0.4696	0.0138	0.4834		2,153.7999	2,153.7999	0.0990		2,156.2755
Total	**0.8968**	**2.3248**	**5.4762**	**0.0212**	**1.7554**	**0.0156**	**1.7710**	**0.4696**	**0.0145**	**0.4842**		**2,165.5149**	**2,165.5149**	**0.0993**	**2.1000e-004**	**2,168.0603**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3630	2.0000e-005	1.7600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.7700e-003	3.7700e-003	1.0000e-005		4.0100e-003
Energy	1.0700e-003	9.7600e-003	8.2000e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.7113	11.7113	2.2000e-004	2.1000e-004	11.7809
Mobile	0.5328	2.3151	5.4662	0.0211	1.7554	0.0148	1.7703	0.4696	0.0138	0.4834		2,153.7999	2,153.7999	0.0990		2,156.2755
Total	**0.8968**	**2.3248**	**5.4762**	**0.0212**	**1.7554**	**0.0156**	**1.7710**	**0.4696**	**0.0145**	**0.4842**		**2,165.5149**	**2,165.5149**	**0.0993**	**2.1000e-004**	**2,168.0603**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No Construction	Architectural Coating	9/6/2005	9/6/2005	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 25,830; Non-Residential Outdoor: 8,610; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No Construction			0.00	0.00	14.70	6.90				

3.1 Mitigation Measures Construction

3.2 No Construction - 2005

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	399.0735					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**399.0735**					**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

3.2 No Construction - 2005

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	399.0735					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**399.0735**					**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5328	2.3151	5.4662	0.0211	1.7554	0.0148	1.7703	0.4696	0.0138	0.4834		2,153.7999	2,153.7999	0.0990		2,156.2755
Unmitigated	0.5328	2.3151	5.4662	0.0211	1.7554	0.0148	1.7703	0.4696	0.0138	0.4834		2,153.7999	2,153.7999	0.0990		2,156.2755

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Strip Mall	433.94	381.94	351.80	789,160	789,160
Total	433.94	381.94	351.80	789,160	789,160

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Strip Mall	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.0700e-003	9.7600e-003	8.2000e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.7113	11.7113	2.2000e-004	2.1000e-004	11.7809
NaturalGas Unmitigated	1.0700e-003	9.7600e-003	8.2000e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.7113	11.7113	2.2000e-004	2.1000e-004	11.7809

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Strip Mall	99.5458	1.0700e-003	9.7600e-003	8.2000e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.7113	11.7113	2.2000e-004	2.1000e-004	11.7809
Total		**1.0700e-003**	**9.7600e-003**	**8.2000e-003**	**6.0000e-005**		**7.4000e-004**	**7.4000e-004**		**7.4000e-004**	**7.4000e-004**		**11.7113**	**11.7113**	**2.2000e-004**	**2.1000e-004**	**11.7809**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Strip Mall	0.0995458	1.0700e-003	9.7600e-003	8.2000e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.7113	11.7113	2.2000e-004	2.1000e-004	11.7809
Total		**1.0700e-003**	**9.7600e-003**	**8.2000e-003**	**6.0000e-005**		**7.4000e-004**	**7.4000e-004**		**7.4000e-004**	**7.4000e-004**		**11.7113**	**11.7113**	**2.2000e-004**	**2.1000e-004**	**11.7809**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3630	2.0000e-005	1.7600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.7700e-003	3.7700e-003	1.0000e-005		4.0100e-003
Unmitigated	0.3630	2.0000e-005	1.7600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.7700e-003	3.7700e-003	1.0000e-005		4.0100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0219					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.7700e-003	3.7700e-003	1.0000e-005		4.0100e-003
Total	**0.3630**	**2.0000e-005**	**1.7600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.7700e-003**	**3.7700e-003**	**1.0000e-005**		**4.0100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0219					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.7700e-003	3.7700e-003	1.0000e-005		4.0100e-003
Total	**0.3630**	**2.0000e-005**	**1.7600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.7700e-003**	**3.7700e-003**	**1.0000e-005**		**4.0100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sea View Hotel Existing Uses

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	17.22	1000sqft	0.40	17,220.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - No construction-- model of operation of existing uses

Off-road Equipment -

Architectural Coating -

Vehicle Trips - Trip rate per traffic study

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - Per SCAQMD Rule 1113

Energy Use -

Area Mitigation - SCAQMD Rule 1113

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstructionPhase	NumDays	5.00	1.00
tblVehicleTrips	ST_TR	42.04	22.18
tblVehicleTrips	WD_TR	44.32	25.20

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2005	399.0735	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**399.0735**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2005	399.0735	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**399.0735**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3630	2.0000e-005	1.7600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.7700e-003	3.7700e-003	1.0000e-005		4.0100e-003
Energy	1.0700e-003	9.7600e-003	8.2000e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.7113	11.7113	2.2000e-004	2.1000e-004	11.7809
Mobile	0.5015	2.3320	5.2292	0.0199	1.7554	0.0149	1.7704	0.4696	0.0139	0.4835		2,036.4187	2,036.4187	0.1004		2,038.9281
Total	**0.8656**	**2.3418**	**5.2391**	**0.0200**	**1.7554**	**0.0157**	**1.7711**	**0.4696**	**0.0146**	**0.4843**		**2,048.1338**	**2,048.1338**	**0.1006**	**2.1000e-004**	**2,050.7129**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3630	2.0000e-005	1.7600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.7700e-003	3.7700e-003	1.0000e-005		4.0100e-003
Energy	1.0700e-003	9.7600e-003	8.2000e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.7113	11.7113	2.2000e-004	2.1000e-004	11.7809
Mobile	0.5015	2.3320	5.2292	0.0199	1.7554	0.0149	1.7704	0.4696	0.0139	0.4835		2,036.4187	2,036.4187	0.1004		2,038.9281
Total	**0.8656**	**2.3418**	**5.2391**	**0.0200**	**1.7554**	**0.0157**	**1.7711**	**0.4696**	**0.0146**	**0.4843**		**2,048.1338**	**2,048.1338**	**0.1006**	**2.1000e-004**	**2,050.7129**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No Construction	Architectural Coating	9/6/2005	9/6/2005	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 25,830; Non-Residential Outdoor: 8,610; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No Construction			0.00	0.00	14.70	6.90				

3.1 Mitigation Measures Construction

3.2 No Construction - 2005

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	399.0735					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**399.0735**					**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

3.2 No Construction - 2005

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	399.0735					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**399.0735**					**0.0000**	**0.0000**		**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5015	2.3320	5.2292	0.0199	1.7554	0.0149	1.7704	0.4696	0.0139	0.4835		2,036.4187	2,036.4187	0.1004		2,038.9281
Unmitigated	0.5015	2.3320	5.2292	0.0199	1.7554	0.0149	1.7704	0.4696	0.0139	0.4835		2,036.4187	2,036.4187	0.1004		2,038.9281

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Strip Mall	433.94	381.94	351.80	789,160	789,160
Total	433.94	381.94	351.80	789,160	789,160

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Strip Mall	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.0700e-003	9.7600e-003	8.2000e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.7113	11.7113	2.2000e-004	2.1000e-004	11.7809
NaturalGas Unmitigated	1.0700e-003	9.7600e-003	8.2000e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.7113	11.7113	2.2000e-004	2.1000e-004	11.7809

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Strip Mall	99.5458	1.0700e-003	9.7600e-003	8.2000e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.7113	11.7113	2.2000e-004	2.1000e-004	11.7809
Total		**1.0700e-003**	**9.7600e-003**	**8.2000e-003**	**6.0000e-005**		**7.4000e-004**	**7.4000e-004**		**7.4000e-004**	**7.4000e-004**		**11.7113**	**11.7113**	**2.2000e-004**	**2.1000e-004**	**11.7809**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Strip Mall	0.0995458	1.0700e-003	9.7600e-003	8.2000e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.7113	11.7113	2.2000e-004	2.1000e-004	11.7809
Total		**1.0700e-003**	**9.7600e-003**	**8.2000e-003**	**6.0000e-005**		**7.4000e-004**	**7.4000e-004**		**7.4000e-004**	**7.4000e-004**		**11.7113**	**11.7113**	**2.2000e-004**	**2.1000e-004**	**11.7809**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3630	2.0000e-005	1.7600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.7700e-003	3.7700e-003	1.0000e-005		4.0100e-003
Unmitigated	0.3630	2.0000e-005	1.7600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.7700e-003	3.7700e-003	1.0000e-005		4.0100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0219					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.7700e-003	3.7700e-003	1.0000e-005		4.0100e-003
Total	**0.3630**	**2.0000e-005**	**1.7600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.7700e-003**	**3.7700e-003**	**1.0000e-005**		**4.0100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0219					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.7700e-003	3.7700e-003	1.0000e-005		4.0100e-003
Total	**0.3630**	**2.0000e-005**	**1.7600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.7700e-003**	**3.7700e-003**	**1.0000e-005**		**4.0100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sea View Hotel Existing Uses

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	17.22	1000sqft	0.40	17,220.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	530.81	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted per 2024 RPS

Land Use -

Construction Phase - No construction-- model of operation of existing uses

Off-road Equipment -

Architectural Coating -

Vehicle Trips - Trip rate per traffic study

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - Per SCAQMD Rule 1113

Energy Use -

Area Mitigation - SCAQMD Rule 1113

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstructionPhase	NumDays	5.00	1.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	702.44	530.81
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblVehicleTrips	ST_TR	42.04	22.18
tblVehicleTrips	WD_TR	44.32	25.20

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2005	0.1995				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.1995**				**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2005	0.1995				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.1995**				**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
2	6-24-2005	9-23-2005	0.1425	0.1425
		Highest	0.1425	0.1425

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0662	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.3000e-004	4.3000e-004	0.0000	0.0000	4.6000e-004
Energy	2.0000e-004	1.7800e-003	1.5000e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	57.6623	57.6623	2.3500e-003	5.6000e-004	57.8880
Mobile	0.0849	0.4120	0.9192	3.5300e-003	0.2998	2.5800e-003	0.3024	0.0803	2.4000e-003	0.0827	0.0000	326.7484	326.7484	0.0157	0.0000	327.1396
Waste						0.0000	0.0000		0.0000	0.0000	3.6701	0.0000	3.6701	0.2169	0.0000	9.0925
Water						0.0000	0.0000		0.0000	0.0000	0.4047	6.0901	6.4948	0.0418	1.0400e-003	7.8497
Total	**0.1514**	**0.4138**	**0.9210**	**3.5400e-003**	**0.2998**	**2.7200e-003**	**0.3026**	**0.0803**	**2.5400e-003**	**0.0829**	**4.0748**	**390.5013**	**394.5760**	**0.2767**	**1.6000e-003**	**401.9702**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0662	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.3000e-004	4.3000e-004	0.0000	0.0000	4.6000e-004
Energy	2.0000e-004	1.7800e-003	1.5000e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	57.6623	57.6623	2.3500e-003	5.6000e-004	57.8880
Mobile	0.0849	0.4120	0.9192	3.5300e-003	0.2998	2.5800e-003	0.3024	0.0803	2.4000e-003	0.0827	0.0000	326.7484	326.7484	0.0157	0.0000	327.1396
Waste						0.0000	0.0000		0.0000	0.0000	3.6701	0.0000	3.6701	0.2169	0.0000	9.0925
Water						0.0000	0.0000		0.0000	0.0000	0.4047	6.0901	6.4948	0.0418	1.0400e-003	7.8497
Total	**0.1514**	**0.4138**	**0.9210**	**3.5400e-003**	**0.2998**	**2.7200e-003**	**0.3026**	**0.0803**	**2.5400e-003**	**0.0829**	**4.0748**	**390.5013**	**394.5760**	**0.2767**	**1.6000e-003**	**401.9702**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No Construction	Architectural Coating	9/6/2005	9/6/2005	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 25,830; Non-Residential Outdoor: 8,610; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No Construction			0.00	0.00	14.70	6.90				

3.1 Mitigation Measures Construction

3.2 No Construction - 2005

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1995					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1995**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 No Construction - 2005

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1995					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1995**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 No Construction - 2005

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0849	0.4120	0.9192	3.5300e-003	0.2998	2.5800e-003	0.3024	0.0803	2.4000e-003	0.0827	0.0000	326.7484	326.7484	0.0157	0.0000	327.1396
Unmitigated	0.0849	0.4120	0.9192	3.5300e-003	0.2998	2.5800e-003	0.3024	0.0803	2.4000e-003	0.0827	0.0000	326.7484	326.7484	0.0157	0.0000	327.1396

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Strip Mall	433.94	381.94	351.80	789,160	789,160
Total	433.94	381.94	351.80	789,160	789,160

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Strip Mall	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	55.7234	55.7234	2.3100e-003	5.2000e-004	55.9375
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	55.7234	55.7234	2.3100e-003	5.2000e-004	55.9375
NaturalGas Mitigated	2.0000e-004	1.7800e-003	1.5000e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	1.9389	1.9389	4.0000e-005	4.0000e-005	1.9505
NaturalGas Unmitigated	2.0000e-004	1.7800e-003	1.5000e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	1.9389	1.9389	4.0000e-005	4.0000e-005	1.9505

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Strip Mall	36334.2	2.0000e-004	1.7800e-003	1.5000e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	1.9389	1.9389	4.0000e-005	4.0000e-005	1.9505
Total		**2.0000e-004**	**1.7800e-003**	**1.5000e-003**	**1.0000e-005**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.9389**	**1.9389**	**4.0000e-005**	**4.0000e-005**	**1.9505**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Strip Mall	36334.2	2.0000e-004	1.7800e-003	1.5000e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	1.9389	1.9389	4.0000e-005	4.0000e-005	1.9505
Total		**2.0000e-004**	**1.7800e-003**	**1.5000e-003**	**1.0000e-005**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.9389**	**1.9389**	**4.0000e-005**	**4.0000e-005**	**1.9505**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Strip Mall	231437	55.7234	2.3100e-003	5.2000e-004	55.9375
Total		**55.7234**	**2.3100e-003**	**5.2000e-004**	**55.9375**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Strip Mall	231437	55.7234	2.3100e-003	5.2000e-004	55.9375
Total		**55.7234**	**2.3100e-003**	**5.2000e-004**	**55.9375**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0662	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.3000e-004	4.3000e-004	0.0000	0.0000	4.6000e-004
Unmitigated	0.0662	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.3000e-004	4.3000e-004	0.0000	0.0000	4.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.9900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0622					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.3000e-004	4.3000e-004	0.0000	0.0000	4.6000e-004
Total	**0.0662**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.3000e-004**	**4.3000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.9900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0622					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.3000e-004	4.3000e-004	0.0000	0.0000	4.6000e-004
Total	**0.0662**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.3000e-004**	**4.3000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.4948	0.0418	1.0400e-003	7.8497
Unmitigated	6.4948	0.0418	1.0400e-003	7.8497

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Strip Mall	1.27553 / 0.781776	6.4948	0.0418	1.0400e-003	7.8497
Total		**6.4948**	**0.0418**	**1.0400e-003**	**7.8497**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Strip Mall	1.27553 / 0.781776	6.4948	0.0418	1.0400e-003	7.8497
Total		**6.4948**	**0.0418**	**1.0400e-003**	**7.8497**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.6701	0.2169	0.0000	9.0925
Unmitigated	3.6701	0.2169	0.0000	9.0925

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Strip Mall	18.08	3.6701	0.2169	0.0000	9.0925
Total		**3.6701**	**0.2169**	**0.0000**	**9.0925**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Strip Mall	18.08	3.6701	0.2169	0.0000	9.0925
Total		**3.6701**	**0.2169**	**0.0000**	**9.0925**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

N2O Operational GHG Emission Mobile Calculations

Project Code & Title: Sea View Hotel Project (Proposed Use)

Vehicle Population Breakdown*	
11681238	Gasoline vehicles
547341	Diesel vehicles
95.5%	Gasoline vehicle %
4.5%	Diesel vehicle %

VMT per Vehicle Type	
743,688	Project VMT (CalEEMod output)
710401	Gasoline vehicle VMT
33287	Diesel vehicle VMT

Gasoline Vehicles	
95.5%	Gasoline vehicle %
0.3381	Tons per year mobile NOX emissions (annual output in CalEEMod)
0.32	Gasoline vehicle tons per year NOX emissions
0.0278	Tons per year N2O emissions for gasoline vehicles**
0.0252	Metric tons per year N2O emissions for gasoline vehicles

Diesel Vehicles	
1.60	grams N2O per gallon of fuel for diesel vehicles**
20.42	Diesel average miles per gallon*
0.07837	grams per mile N2O for diesel vehicles
2608.7	grams per year N2O for diesel vehicles
0.0026087	Metric tons per year N2O emissions for diesel vehicles

CO2e Emissions from N2O	
0.0279	Metric tons per year from gasoline + diesel vehicles
298	GWP of N2O***
8.3	**CO2e emissions per year from N2O emissions from gasoline + diesel vehicles**

Sources
***Vehicle population source:** EMFAC2017 (v1.0.2) Emissions Inventory Region Type: Air Basin Region: SOUTH COAST Calendar Year: 2024 Season: Annual Vehicle Classification: EMFAC2011 Categories ****Methodology source:** EMFAC2017 Volume III - Technical Documentation https://www.arb.ca.gov/msei/emfac2011-faq.htm *****GWP source:** Intergovernmental Panel on Climate Change (IPCC). 2007. AR4 Climate Change 2007: The Physical Science Basis. Contrbution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

N2O Operational GHG Emission Mobile Calculations

Project Code & Title: Sea View Hotel Project (Existing Uses)

Vehicle Population Breakdown*	
11681238	Gasoline vehicles
547341	Diesel vehicles
95.5%	Gasoline vehicle %
4.5%	Diesel vehicle %

VMT per Vehicle Type	
789,160	Project VMT (CalEEMod output)
753838	Gasoline vehicle VMT
35322	Diesel vehicle VMT

Gasoline Vehicles	
95.5%	Gasoline vehicle %
0.412	Tons per year mobile NOX emissions (annual output in CalEEMod)
0.39	Gasoline vehicle tons per year NOX emissions
0.0319	Tons per year N2O emissions for gasoline vehicles**
0.0290	Metric tons per year N2O emissions for gasoline vehicles

Diesel Vehicles	
1.60	grams N2O per gallon of fuel for diesel vehicles**
20.42	Diesel average miles per gallon*
0.07837	grams per mile N2O for diesel vehicles
2768.2	grams per year N2O for diesel vehicles
0.0027682	Metric tons per year N2O emissions for diesel vehicles

CO2e Emissions from N2O	
0.0317	Metric tons per year from gasoline + diesel vehicles
298	GWP of N2O***
9.5	**CO2e emissions per year from N2O emissions from gasoline + diesel vehicles**

Sources
***Vehicle population source:** EMFAC2017 (v1.0.2) Emissions Inventory Region Type: Air Basin Region: SOUTH COAST Calendar Year: 2024 Season: Annual Vehicle Classification: EMFAC2011 Categories ****Methodology source:** EMFAC2017 Volume III - Technical Documentation https://www.arb.ca.gov/msei/emfac2011-faq.htm *****GWP source:** Intergovernmental Panel on Climate Change (IPCC). 2007. AR4 Climate Change 2007: The Physical Science Basis. Contrbution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

Appendix B

City of Malibu Biology Review

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4804
(310) 456-2489 FAX (310) 456-7650

BIOLOGY REVIEW REFERRAL SHEET

TO: City of Malibu Contract Biological Staff **DATE:** 9/5/2017

FROM: City of Malibu Planning Department

PROJECT NUMBER:	CDP 17-086
JOB ADDRESS:	22729 PACIFIC COAST HWY
APPLICANT / CONTACT:	Norman Haynie, Blue Onyx Design and Engineerin
APPLICANT ADDRESS:	22741 Pacific Coast Highway #400 Malibu, CA 90265
APPLICANT PHONE #:	(310) 456-5515
APPLICANT FAX #:	(310) 456-9821
APPLICANT EMAIL:	norm@blueonyxdesign.com
PLANNER:	To Be Assigned
PROJECT DESCRIPTION:	New 36 room Boutique Hotel

TO: Malibu Planning Department and/or Applicant

FROM: City Contract Biologist DAVE CRAWFORD

_____ **The project review package is INCOMPLETE and; CANNOT proceed through Final Planning Review until corrections and conditions from Biological Review are incorporated into the proposed project design** (See Attached).

X **The project is APPROVED, consistent with City Goals & Policies associated with the protection of biological resources and CAN proceed through the Planning process.**

_____ **The project may have the potential to significantly impact the following resources, either individually or cumulatively: Sensitive Species or Habitat, Watersheds, and/or Shoreline Resources and therefore Requires Review by the Environmental Review Board (ERB).**

Signature 10/3/17 Date

Additional requirements/conditions may be imposed upon review of plan revision

Contact Information:

Dave Crawford, Contract Biologist, dcrawford@malibucity.org, (310) 456-2489, extension 277
Steven Hongola,, Contract Biologist, shongola@malibucity.org, (310) 456-2489, extension 301
Christopher Julian, Contract Biologist, cjulian@malibucity.org, (310) 456-2489, extension 301

City of Malibu

Biology • Planning Department
23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 317-1950 · www.malibucity.org

BIOLOGY REVIEW SHEET

PROJECT INFORMATION

Applicant: (name and email address)	Norman Haynie norm@blueonyxdesign.com	
Project Address:	**22729 Pacific Coast Highway** Malibu, CA 90265	
Planning Case No.:	CDP 17-086	
Project Description:	New 36-room boutique hotel	
Date of Review:	10/3/17	
Reviewer:	Dave Crawford	Signature:
Contact Information:	Phone: (310) 456-2489 ext. 307	Email: dcrawford@malibucity.org

SUBMITTAL INFORMATION

Site Plans:	9/5/17
Site Survey:	9/5/17
Grading Plans:	
OWTS Plan:	
Planting Plan	
Hydrozone/Water Budget Calculations	
Bio Assessment:	
Bio Inventory:	
Native Tree Survey:	
Native Tree Protection Plan	
Miscellaneous:	
Previous Reviews:	

REVIEW FINDINGS

Review Status:	☐	**INCOMPLETE**: Additional information and/or a response to the listed review comments is required.
	☐	**COMPLETE**: All required information has been received and a conformance review shall be completed within the next 30 days.
	☒	**APPROVED**: The project has been approved with regards to biological impacts.
	☐	**NOT APPROVED**: The proposed project does not conform to the requirements of the MMC and/or LCP.
Environmental Review Board (ERB):	☐	**ERB**: This project has the potential to impact ESHA and may require review by the Environmental Review Board pursuant to LIP Section 4.4.4

Recycled Paper

RECOMMENDATIONS:

1. The project is recommended for **APPROVAL** with the following conditions:

   A. No new landscaping is proposed with this project. Therefore, none is approved. Should the applicant intend to plant any new vegetation, a detailed landscape plan shall be submitted for review and approval prior to any planting.

   B. Grading/excavation/construction/vegetation removal scheduled between February 1 and September 15 will require nesting bird surveys in the on-site and immediately adjacent trees, by a qualified biologist, prior to initiation of such activities. Surveys shall be completed no more than 5 days from proposed initiation of site preparation activities. Should active nests be identified, a buffer area no less than 150 feet (300 feet for raptors) shall be fenced off until it is determined by a qualified biologist that the nest is no longer active. A report discussing the results of the surveys shall be turned in to the City within 2 business days of completion of surveys.

-o0o-

If you have any questions regarding the above requirements, please contact the City Biologist office at your earliest convenience.

cc: Planning Project file
Planning Department

Recycled Paper

Appendix C

Phase I Archaeological Resources Assessment

A Phase 1 Archaeological Study For
Proposed Improvements to
22729 PCH (APN#4452-022-010) & 22741 PCH (APN#4452-022-017)
City of Malibu, Los Angeles County, California 90265

Norman R. Haynie
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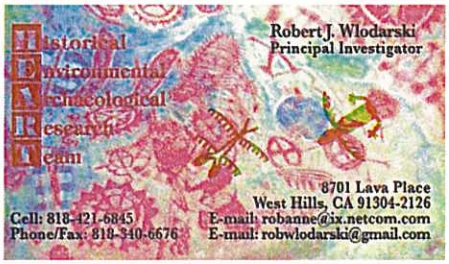
Received
09/09/2020
Planning Dept.



Prepared by

Robert J. Wlodarski

Robert J. Wlodarski
Principal Investigator
Historical, ***E***nvironmental, ***A***rchaeological, ***R***esearch, ***T***eam (H.E.A.R.T.)
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Certified as a California Historian by the California Committee for the Promotion of History (CCPH)
Meets National Park Service (NPS) standards & guidelines for Archaeology, History and Architectural History
Active member of the National Council on Public History (NCPH)
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September 2020

Summary of Findings

At the request of Norman R. Haynie of ***Blue Onyx Design***, Malibu California, a Phase 1 Archaeological Study was performed for an environmental document in support of proposed improvements to 22729 Pacific Coast Highway (PCH) (APN#4452-022-010) & 22741 PCH (APN#4452-022-017), City of Malibu, Los Angeles County, California. The intent of this document is to assist the client in achieving compliance with the California Environmental Quality Act (CEQA), the California Coastal Act (CCA), the Malibu Local Coastal Program Land Use Plan (MLCPLUP), and the City of Malibu Planning Guidelines. The scope of work consisted of:

1. Inspecting extant cultural resource data including historical maps and information pertaining to the project area.
2. Conducting an on-foot surface reconnaissance of the entire project area.
3. Preparing a report summarizing the results of the records search and field phases.

The developed parcels lie north of the Pacific Ocean, south of Calabasas, west of Santa Monica, and east of Oxnard, within the City of Malibu, Los Angeles County, California (Figure 1). The lots lie on the Malibu Beach, California 7.5-minute USGS topographic map (1981) within Township 1 South, Range 17 West within Rancho Topanga Malibu Sequit (Figure 2). The lots are bordered on the north by undeveloped land, 3947 Ridgemont Drive, and 3949 Ridgemont Drive, on the south by the Pacific Coast Highway (PCH), on the west by 22761 PCH, and on the east by 22725 (Figure 3). The parcels are accessed via the PCH on the south and contain a Shell Service Station (1960s) and a commercial building behind the gas station (1980s). The parcel at 22729 PCH (APN#4452-022-010) is the lower area fronting the PCH with two access points on the southern edge of the lot. The property is dominated by remnants of a former gas station including the former pumps and canopy, a paved parking and drive-through area, landscaping, and fencing. The entire property shows signs of prior man-made disturbances relating to the construction of the gas station and placement of the below-ground gas storage tanks. The parcel at 22741 PCH (APN#4452-022-017) is the upper graded and terraced area for a four-story commercial building with a paved access driveway on the western side of the lot trending north to underground and above-ground parking areas. Associated landscaping features, retaining walls, driveway and parking areas, walkways, stairs, and fencing, dominate the terrain. The entire lot shows signs of prior man-made disturbances related to construction or the building, parking areas, driveway, retaining walls and landscaping features. The subject properties been graded and terraced for the commercial building. A major retaining wall separates the two parcels. Utilities including gas, water, telephone, cable, and sewer connect to the PCH (Figure 4). Figure 5 illustrates the site plans for the parcels.

Soils belong to the ***Coastal Beaches*** series, which consist of stony or cobbly coastal beaches and related landward sand dunes. This land type has no agricultural value and is used primarily for recreation and residential or commercial construction. In some areas along the coast, bluffs rise abruptly from the water's edge and the beaches may be narrow or absent; and, ***Millsholm Series*** which are shallow, well-drained soils developed on moderately steep-to very-steep upland areas on sandstone and shale. The soils are thin, dark grayish-brown medium-textured, massive, neutral surface soils over brown moderately fine-textured, subangular blocky, neutral subsoils resting on shattered shale at 10-20 inches (25-51cm). Up to 15% shale or gravel fragments may be present. Textures are clay loam and containing up to 25% gravel or shale fragments. Millsholm rocky loam contains up to 10% rock outcroppings, while Millsholm loam may contain only 5% or less rock outcrops. Depth to rock averages 10-20 inches (25-51cm) (U.S. Department of Agriculture (1967).

Research utilizing extant cultural resource information from extant data bases indicated that no prehistoric or historic archaeological sites have been previously recorded within the project areas. Also, the following information applies to a one-mile radius surrounding the project area:

- Eight prehistoric archaeological sites are recorded (CA-LAN-264; -267; -471, -690, -1105; -1106; -1449 & -2247).
- The Chumash/Tongva village of Humaliwu (CA-LAN-264 – The Adamson House) lies to the southwest.
- CA-LAN-267 (the Sweetwater Mesa site), lies to the northwest, and was recorded by Chester King in 1961, as a large midden site containing choppers, hammers, scrapers, projectile points, metates, manos, and debitage. King considered the site to be 7000 years old and was one of the most significant heritage resources in Malibu.
- CA-LAn-387H is recorded about a ½-mile to the west along Palm Canyon Drive. It is considered the site of the Tapia Ranch. Artifacts noted in August 1969 included an 1856-nickel, adobe bricks, charred timbers, a shell button, metal objects, square nails, and stone foundations. The ranch operated from 1805 to the ca. 1830s before being abandoned.
- Seventy-five studies are noted: **Boxt** 1981; **Clewlow** 1981; **Demcak** 1996a,b; **Dillon** 1994, 1986a,b; **Greenwood & Foster** 1985, 1989; **Greenwood & Parker** 1985; **Jones & Stokes** 2009; **Kane, et al.** 1989; **King, C.** 1967, 1992, 1994, 1995, 1999, 2000a,b; **Leonard** 1973; **LSA** 1999; **McIntyre & Foster** 1981; **McKenna** 2001; **Padon** 1980; **Salls** 1990; **Singer** 1981a,b, 1988, 1989, 1999, 2000; **Singer, Atwood, & Gomes** 1993a,b,c; **South Bay Engineering** 1975; **Stickel** 1999; **Taylor**, 1994; **Whitley & Simon** 2002; & **Wlodarski**, 1988, 1993, 1995a,b, 2001a,b, 2002a,b, 2003a,b,c,d,e,f,g,h,i, 2004a,b, 2005a,b,c,d, 2007a,b,c, 2008, 2010, 2011a,b, 2015, 2016, 2017, 2018a,b, 2019a,b.

- Since the project areas had never undergone a systematic archaeological study, the City of Malibu Planning Department recommended that a Phase 1 archaeological study be completed prior to initiating any improvements.
- The **Adamson House** is listed on the National Register of Historic Places (NRHP) within the Malibu Lagoon State Park. Completed in 1929 by the Rindge's daughter, Rhoda Adamson, the Spanish-Moor revival residence features tile from the renowned Malibu Potteries and sits on a spectacular overlook of the Malibu Pier and Surfrider Beach.
- No California Register of Historic Resources exists (1992, with supplemental information to date).
- The **Adamson House** is listed as a California Historical Landmarks (1995, with supplements to date).
- No California Points of Historical Interest are noted (1992, with supplemental information to date).
- No State Historic Resources Commission issues are presented (1980-present - minutes from quarterly meeting).
- No listed properties in the Office of Historic Preservation Historic Property data file (02/03/2005) are noted.
- No Archaeological Determinations of Eligibility are noted (listed through 02/03/2005).

Additional historical data on file at the Geography Department Map Reference Center, California State University Northridge (CSUN), Bureau of Engineering -Los Angeles City Hall and UCLA Archives we consulted as follows:

- Township-Range Plat Survey Maps (1853-1897)
- Inspection of the Camulos (surveyed in 1893 and 1900-1901) 15-minute USGS topographic map series indicated that by 1921, the general area was largely undeveloped. Several unimproved roads and drainages were in existence. The Pacific Coast Highway appeared as major unimproved road. By 1943, U.S. Route 101, Serra Retreat, Keller's Shelter, Malibu Pier, the Adamson House, Malibu Lagoon, and numerous structures are shown near the project area.
- Map of Private Grants & Public Lands Adjacent to Los Angeles and San Diego (Day - 1869)
- Map of the County of Los Angeles, California (by Stevenson 1881 & Rowan 1888)
- 1912-2012 - Malibu Rails and Roads by Thomas W. Doyle and Ronald L. Rindge (2012)
- 1913 Map by G. C Fitzgerald Showing Sweetwater Mesa.
- 1920s-1970s Fairchild and Spence aerial photographs of the region.
- 1924 Map showing the Marblehead Land Company Holdings and Malibu Hueneme Railroad Line

A pedestrian survey was performed by the author, serving as Principal Investigator on September 3, 2020. The parcel was inspected for surface indications of cultural resources. All exposed terrain and fortuitous exposures such as rodent burrows and excavated or cleared areas were thoroughly inspected for signs of cultural resources. The following field observations were made:

- The parcels are bordered on the north by undeveloped land, 3947 Ridgemont Drive, and 3949 Ridgemont Drive, on the south by the Pacific Coast Highway (PCH), on the west by 22761 PCH, and on the east by 22725.
- The parcels are accessed via the PCH on the south and contain a Shell Service Station (1960s) and a commercial building behind the gas station (1980s).
- The parcel at 22729 PCH (APN#4452-022-010) is the lower area fronting the PCH with two access points on the southern edge of the lot. The lot contains remnants of a former gas station including the former pumps and canopy, a paved parking and drive-through area, landscaping, and fencing. The entire property shows signs of prior man-made disturbances relating to the construction of the gas station and placement of the below-ground gas storage tanks.
- The parcel at 22741 PCH (APN#4452-022-017) is the upper graded and terraced area for a four-story commercial building with a paved access driveway on the western side of the lot trending north to underground and above-ground parking areas. Associated landscaping features, retaining walls, driveway and parking areas, walkways, stairs, and fencing, dominate the terrain. The entire lot shows signs of prior man-made disturbances related to construction or the building, parking areas, driveway, retaining walls and landscaping features.
- The subject properties been graded and terraced for the commercial building.
- A major retaining wall separates the two parcels.
- Utilities including gas, water, telephone, cable, and sewer connect to the PCH.

The results of the Phase 1 archaeological study yielded no indications of prehistoric or historic archaeological resources within the either property. Plate 1 illustrates selected views of each parcel. Any proposed improvements within either parcel will have no adverse physical or visual impacts to cultural resources, and no archaeological conditions are placed on the lots based on the results of this study. The nature of a walkover can only confidently assess the potential for encountering surface cultural resource remains; therefore, customary caution is advised in developing within the project area. Should unanticipated cultural resource remains be encountered during land modification activities, work must cease, and the Planning Director contacted immediately to determine appropriate measures to mitigate adverse impacts to the discovered resources. Cultural resource remains may include artifacts, shell, bone, features, foundations, and trash pits.

According to the Code of Federal Regulations Title 36, Volume 3 (Revised July 1, 2001), if archaeological remains are exposed during ground construction, work within five meters of the radius of the find(s) must be halted and a qualified archaeologist must be retained to evaluate the finds. If human remains are encountered during excavations associated with this project, all work must halt, and the County Coroner must be notified (Section 7050.5 of the California Health and Safety Code). The coroner will determine whether the remains are of forensic interest. If the coroner, with the aid of the supervising archaeologist, determines that the remains are prehistoric, the coroner will contact the Native American Heritage Commission (NAHC). The NAHC will be responsible for designating the most likely descendant (MLD), who will be responsible for the ultimate disposition of the remains, as required by Section 5097.98 of the Public Resources Code. The MLD should make his/her recommendations within 48 hours of their notification by the NAHC. This recommendation may include A) the nondestructive removal and analysis of human remains, and items associated with Native American human remains; (B) preservation of Native American human remains and associated items in place; (C) relinquishment of Native American human remains and associated items to the descendants for treatment; or (D) other culturally appropriate treatment.

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I. Introduction

1.1 Purpose and Scope of the Project

At the request of Norman R. Haynie of ***Blue Onyx Design***, Malibu California, a Phase 1 Archaeological Study was performed for an environmental document in support of proposed improvements to 22729 PCH (APN#4452-022-010) & 22741 PCH (APN#4452-022-017), City of Malibu, Los Angeles County, California. The intent of this document is to assist the client in achieving compliance with the California Environmental Quality Act (CEQA), the California Coastal Act (CCA), the Malibu Local Coastal Program Land Use Plan (MLCPLUP), and the City of Malibu Planning Guidelines. The scope of work consisted of:

1. Inspecting extant cultural resource data including historical maps and information pertaining to the project area.
2. Conducting an on-foot surface reconnaissance of the project area.
3. Preparing a report summarizing the results of the records search and field phases.

1.2 Location and Description of the Project

The project area lies north of the Pacific Ocean, east of the Oxnard Plain, west of Santa Monica, and south of Hidden Hills, within the City of Malibu, County of Los Angeles, California (Figure 1).



Figure 1: Vicinity Map

The undeveloped parcel is depicted on the Malibu Beach, California 7.5-minute United State Geological Survey (USGS) topographic map (1995) within Township 1 South, Range 17 West in an unsectioned portion of Rancho Topanga Malibu Sequit (Figure 2).

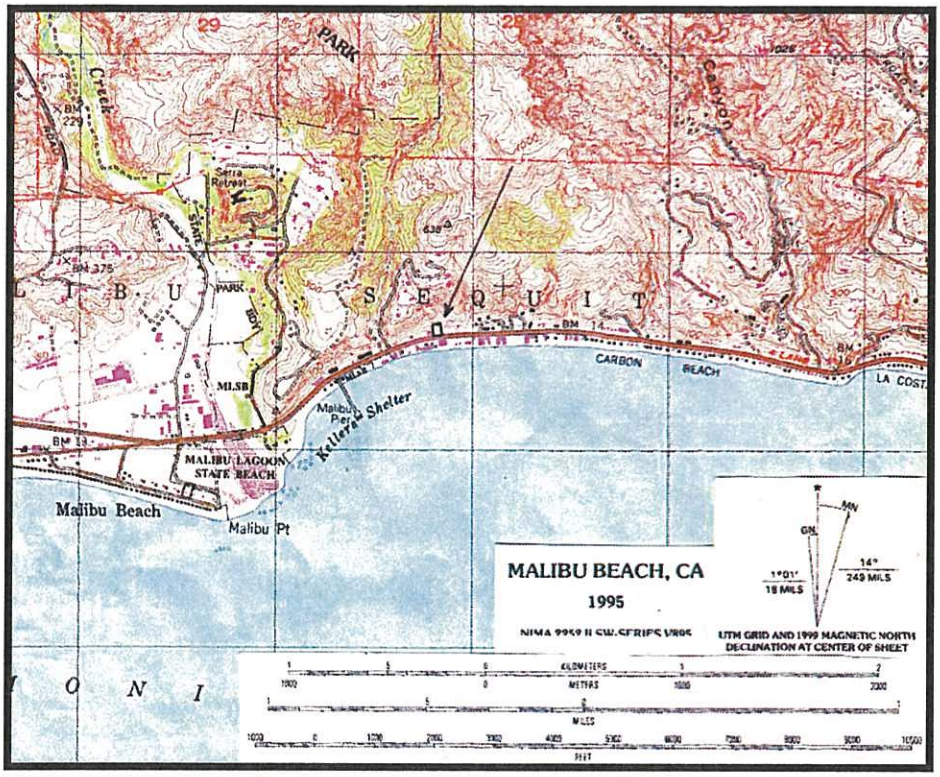


Figure 2: Location of the Survey

The properties are bordered on the north by undeveloped land, 3947 Ridgemont Drive, and 3949 Ridgemont Drive, on the south by the Pacific Coast Highway (PCH), on the west by 22761 PCH, and on the east by 22725 (Figure 3).

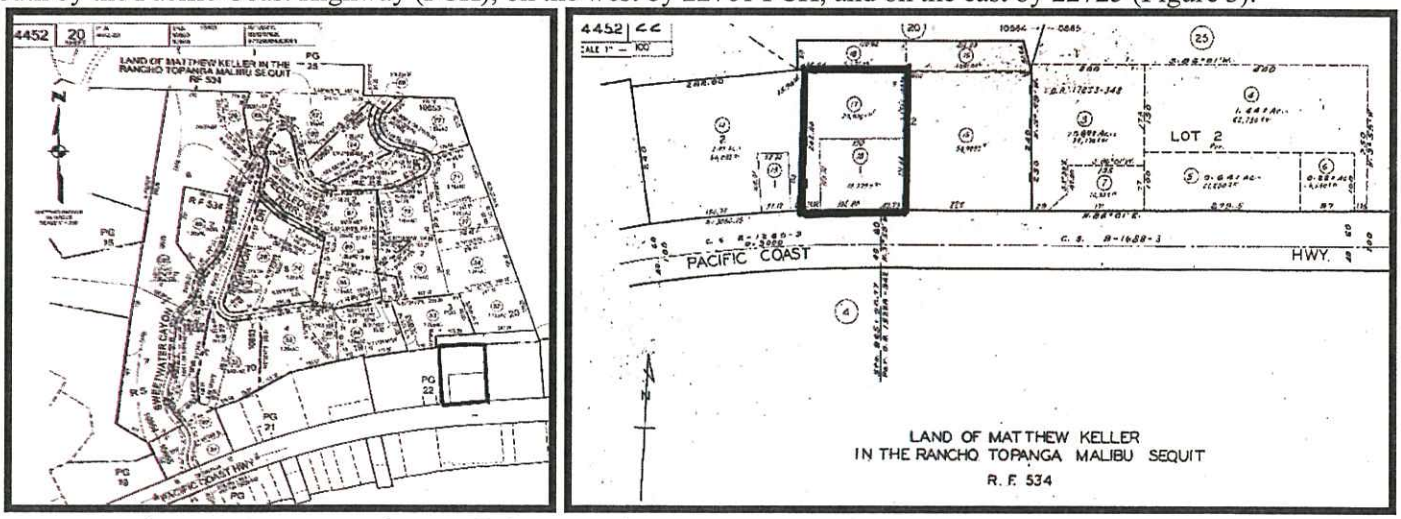


Figure 3: Location of the Project Area on the Assessor's Parcel Map

The parcels are accessed via the PCH on the south and contain a Shell Service Station (1960s) and a commercial building behind the gas station (1980s). The parcel at 22729 PCH (APN#4452-022-010) is the lower area fronting the PCH with two access points on the southern edge of the lot. The property is dominated by remnants of a former gas station including the former pumps and canopy, a paved parking and drive-through area, landscaping, and fencing. The entire property shows signs of prior man-made disturbances relating to the construction of the gas station and placement of the below-ground gas storage tanks. The parcel at 22741 PCH (APN#4452-022-017) is the upper graded and terraced area for a four-story commercial building with a paved access driveway on the western side of the lot trending north to underground and above-ground parking areas. Associated landscaping features, retaining walls, driveway and parking areas, walkways, stairs, and fencing, dominate the terrain. The entire lot shows signs of prior man-made disturbances related to construction or the building, parking areas, driveway, retaining walls and landscaping features. The subject property been graded and terraced for the commercial building. A major retaining wall separates the two parcels. Utilities including gas, water, telephone, cable, and sewer connect to the PCH (Figure 4).



Figure 4: Aerial View of the General Project Area Looking North

Figure 5 illustrates the site plans for the properties.

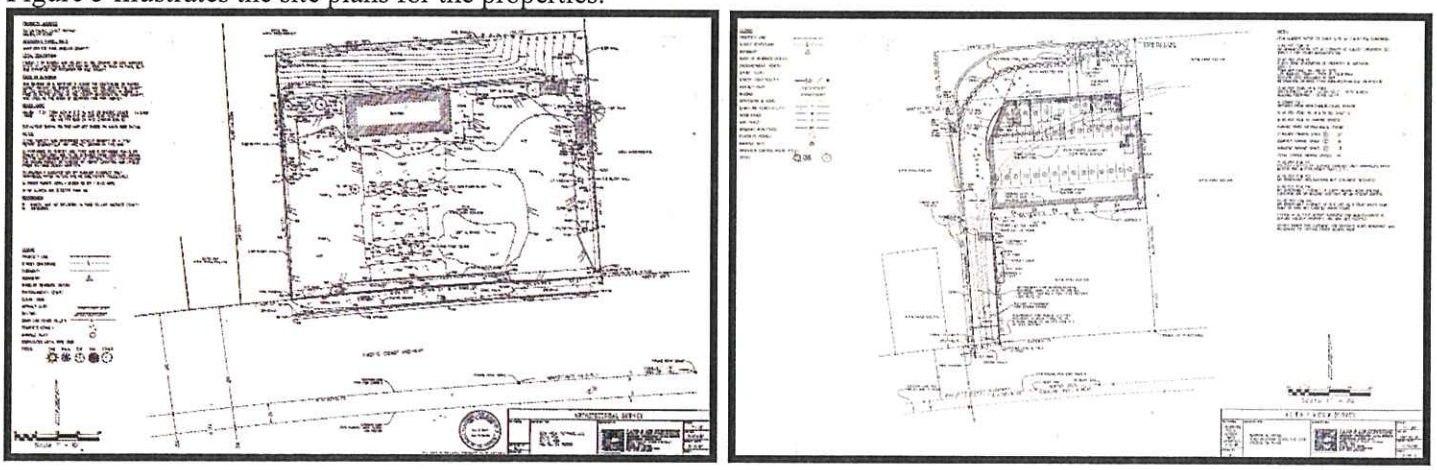


Figure 5: Site Plans for the Properties

II. Environmental Information

2.1 Geology

The parcel lies on the southern slope of the Santa Monica Mountains within the Transverse Range geologic province, which is composed of: Pleistocene Marine Deposits and Marine Terrace Deposits consisting of sand, silt and marl; Upper Miocene Marine Sedimentary Rocks, consisting of shale, sandstone, siltstone and conglomerate; and, Miocene Volcanic Rocks, consisting of agglomerate, breccias, tuffs, and volcanic sandstone (State of California 1969).

2.2 Soils

Soils on the parcel belong to the ***Coastal Beaches*** series, which consist of stony/cobbly coastal beaches and landward sand dunes. This land type has no agricultural value and is used primarily for recreation and residential or commercial construction. In some areas along the coast, bluffs rise abruptly from the water's edge and the beaches may be narrow or absent; and, ***Millsholm Series*** which are shallow, well-drained soils developed on moderately steep-to very-steep upland areas on sandstone and shale. The soils are thin, dark grayish-brown medium textured, massive, neutral surface soils over brown moderately fine-textured, subangular blocky, neutral subsoils resting on shattered shale at 10-20 inches (25-51cm). Up to 15% shale or gravel fragments may be present. Textures are clay loam and may contain up to 25% gravel or shale fragments. Millsholm rocky loam contains up to 10% rock outcroppings, while Millsholm loam may contain only 5% or less rock outcrops. Depth to rock averages 10-20 inches (25-51cm) (U.S. Department of Agriculture (1967).

2.3 Climate

The region, classified as Mediterranean warm, lies between the dry Mojave Desert and the humid Pacific Coast. It is characterized by warm, dry summers, and mild, moderately wet winters. Temperatures range from 100 degrees in July and August to the low 30s in January. Snowfall is rare, and rainfall occurs normally between November and April.

2.4 Flora and Wildlife

Vegetation in the region consists of oak, sycamore, alder, willow, California, black and coastal sage, buckwheat, yerba santa, sumac, chamise, yucca, and toyon. Wildlife consists of deer, quail, rabbit, rodents, lizards, snakes, and various bird species. Combined nearby marine life, the area provided an extensive resource base for the prehistoric inhabitants.

III. Cultural Overview

3.1 Prehistory/Protohistory

At Spanish Contact, the region was occupied by the Chumash, who lived in settlements along the California coast from Malibu Creek to the southeast, Estero Bay in the north, Tejon Pass, Lake Casitas and the Cuyama River inland, and the islands of San Miguel, Santa Rosa, and Santa Cruz. Chumash society became more complex over the last 9,000 years (Wallace, 1955, Warren, 1968) and King (1982) proposed sequences based on changes in ornaments, beads, and other artifacts. After A.D. 1000, changes in bead types suggest a complex economic system operating prior to the arrival of the Spanish. Following the 1542 Cabrillo voyage, many small Chumash settlements were abandoned and some of the largest historic towns were founded. This change in population distribution is attributed to growth in importance of trade centers and the development of more integrated political confederations. The Chumash economic system enabled them to make efficient use of diverse environments within their territory. Acorns and seeds were traded between the islands, mainland and interior populations who lacked marine resources traded with coastal populations for fish and other seafood. Most religious ceremonies had their roots in the Early Period when objects like those used historically were placed in mortuary associations or owned by religious leaders. References for the Chumash include: Carrico and Wlodarski (1983), Dillon & Boxt (1989), Grant (1978), Hudson et al. (1977), Hudson & Underhay (1978), Hudson (1979), Hudson & Blackburn (1979-87), C. King (1994, 2000), Kroeber (1925), Landberg (1965), Leonard (1971), Miller (1988), Gibson (1991), and Santa Barbara Museum of Natural History (1986, 1991).

3.2 Ethnographic Information

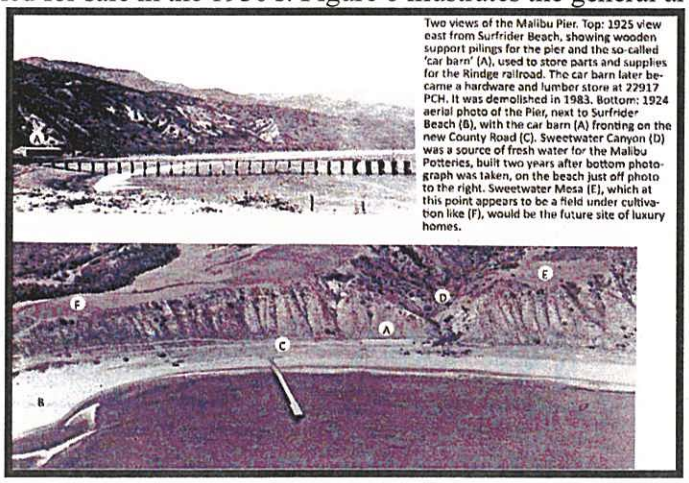
The Spanish viewed the Chumash as unique among California Indians due to their knowledge of the sea, canoe building expertise, ceremonial organization, their interest in acquiring and displaying possessions, willingness to work, and their extensive trade networks. According to C. King (1982) the protohistoric Chumash maintained the most complex bead money system documented in the world. Information from Schumacher & Bowers in 1877-1878, Rogers in the 1920s, Harrington in the 1930s, and Woodward & Van Valkenburgh in the late 1920s and 1930s, suggests that the Chumash were divided into political provinces, with each containing a capital where villages now exist. Based on C. King (1975), and Applegate (1974, 1975) the following placenames exist in the region:

Alqilko'wi	"white of the eye" - Village in Little Sycamore Canyon, west of Point Dume
Humaliwo	"[The surf] sounds loudly"? - Village at what is now Malibu
Lisiqishi	Village at Arroyo Sequit, west of Point Dume
Lohostohni	Village at Trancas Canyon, west of Point Dume
Muwu	"beach" - Village at what is now the mouth of Mugu Lagoon
Niko	"water?" - in Malibu, east of Point Dume
Seq'is	"beachworm" - now Arroyo Sequit
Shuwalahsho	"sycamore" - Village in Big Sycamore Canyon
Sumo	"abundance" - village at mouth of what is now Zuma Canyon

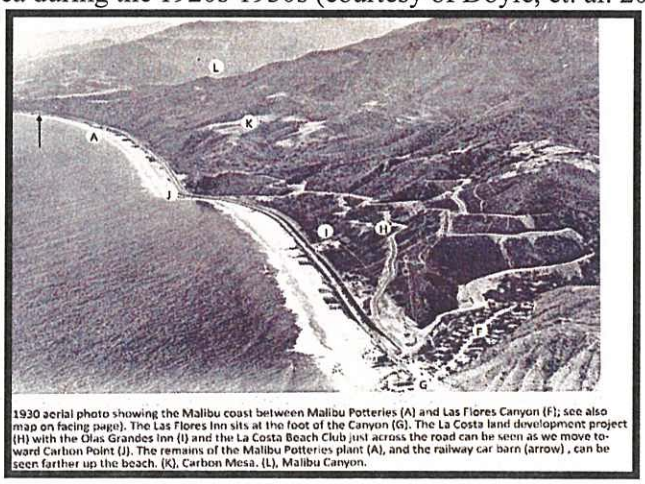
3.3 Historical Information

From the voyages of Cabrillo in 1542 and Vizcaino in 1602, to the land expeditions of Portola in 1769 and Anza from 1773-1776, there was little interference from white men in the Chumash region. The Spanish Period was followed by the Mission Period when 21 missions were established between 1769 and 1823. All the missions were located a day's ride from one another along the Camino Real which connected San Diego with Solano. Native Americans were slowly assimilated into the mission system through recruitment, and moved from their villages and the islands to help sustain the missions. During this period, many introduced diseases contributed to the decimation of Native Americans. After the decline of the mission system, large land grants became ranchos including Las Virgenes, El Conejo and Topanga Malibu-Sequit. During this time, land was primarily used for cattle grazing, agriculture, ranching.

The first European settlers in the Malibu area were Felipe Santiago Tapia and his family. Jose Bartolome, Tapia's eldest son received a permit to graze cattle on the future rancho lands, and in the late 1700s applied for formal possession of the land. Around 1802-1804, Tapia was granted most of the coastal land extending from the Ventura County line near Point Mugu, to Las Flores Canyon on the east as grazing area for his livestock. The only access at the time was by muleback or boat. The land passed from Tapia, to Bartolome, and then to his son Tiburcio, and was used for grazing and agriculture (Greene 1980). Eventually, Leon Victor Prudhomme obtained title from Tapia's widow in 1848 by marrying a daughter of Tiburcio Tapia. The rancho was eventually sold by Henry Keller to Frederick Hastings Rindge in 1891. As one of the last, intact, Spanish land grants, it served as the ideal country home for the Rindge family, who kept a tight watch on their private domain. Frederick's widow, Rhoda May Rindge, spent a hefty sum of money in court costs, to keep the Southern Pacific Railroad, the state, and homesteaders from encroaching on their land. After 17 years of litigation, the State of California was victorious, and constructed the Roosevelt Highway (now the PCH), which was opened to the public between Santa Monica and Oxnard in June 1929. The court costs forced May Rindge to begin leasing, and then selling property north of the mouth of Malibu Creek. Malibu Colony, a haven for the rich and famous, was subdivided and opened for sale in the 1930's. Figure 6 illustrates the general area during the 1920s-1930s (courtesy of Doyle, et. al. 2012)



Two views of the Malibu Pier. Top: 1925 view east from Surfrider Beach, showing wooden support pilings for the pier and the so-called 'car barn' (A), used to store parts and supplies for the Rindge railroad. The car barn later became a hardware and lumber store at 22917 PCH. It was demolished in 1983. Bottom: 1924 aerial photo of the Pier, next to Surfrider Beach (B), with the car barn (A) fronting on the new County Road (C). Sweetwater Canyon (D) was a source of fresh water for the Malibu Potteries, built two years after bottom photograph was taken, on the beach just off photo to the right. Sweetwater Mesa (E), which at this point appears to be a field under cultivation like (F), would be the future site of luxury homes.



1930 aerial photo showing the Malibu coast between Malibu Potteries (A) and Las Flores Canyon (F); see also map on facing page). The Las Flores Inn sits at the foot of the Canyon (G). The La Costa land development project (H) with the Olas Grandes Inn (I) and the La Costa Beach Club just across the road can be seen as we move toward Carbon Point (J). The remains of the Malibu Potteries plant (A), and the railway car barn (arrow), can be seen farther up the beach. (K), Carbon Mesa. (L), Malibu Canyon.

Figure 6: Early Views of General Area (1920s-1930s)

During this time, May's daughter, Rhoda Agatha, married Merritt Huntley Adamson, and they built a summer home on Vaquero Hill (in Malibu Lagoon State Park) and another in Serra Retreat. To provide tiles for the two homes, May Rindge brought in the finest craftsmen and established the Malibu Tile Works. Since the 1900s, Malibu has become one of the most desirable areas to own real estate in California. Land use in the region has been under the jurisdiction of the California Coastal Commission, which has limited development since the 1970s. Substantial portions of the region have been set aside as part of the Santa Monica Mountains National Recreation Area for the enjoyment of all.

IV. Background Research Synthesis

Research utilizing extant cultural resource information from several extant data bases, indicated that no prehistoric or historic archaeological sites or isolated features have been previously recorded within the project boundaries. Also, the following information applies to a one-mile radius surrounding the project area:

- Eight prehistoric archaeological sites are recorded (CA-LAN-264; -267; -471, -690, -1105; -1106; -1449 & -2247).
- The village of Humaliwu (CA-LAN-264) lies to the southwest.
- CA-LAN-267 (the Sweetwater Mesa Site), lies to the northwest, and was recorded by Chester King in 1961, as a large midden site containing choppers, hammers, flake scrapers, blades, projectile points, metates, manos, and debitage. According to King, the site dates to circa 7000 B.P., and is one of the most significant heritage resources in Malibu.
- CA-LAn-387H is recorded about a ½-mile to the west along Palm Canyon Drive. It is considered the site of the Tapia Ranch. Artifacts noted in August 1969 included an 1856-nickel, adobe bricks, charred timbers, a shell button, metal objects, square nails and stone foundations. The ranch operated from circa 1805 to the 1830s before being abandoned.
- Seventy-five studies are noted: **Boxt** 1981; **Clewlow** 1981; **Demcak** 1996a,b; **Dillon** 1994, 1986a,b; **Greenwood & Foster** 1985, 1989; **Greenwood & Parker** 1985; **Jones & Stokes** 2009; **Kane, et al**. 1989; **King, C.** 1967, 1992, 1994, 1995, 1999, 2000a,b; **Leonard** 1973; **LSA** 1999; **McIntyre & Foster** 1981; **McKenna** 2001; **Padon** 1980; **Salls** 1990; **Singer** 1981a,b, 1988, 1989, 1999, 2000; **Singer, Atwood, & Gomes** 1993a,b,c; **South Bay Engineering** 1975; **Stickel** 1999; **Taylor**, 1994; **Whitley & Simon** 2002; & **Wlodarski**, 1988, 1993, 1995a,b, 2001a,b, 2002a,b, 2003a,b,c,d,e,f,g,h,i, 2004a,b, 2005a,b,c,d, 2007a,b,c, 2008, 2010, 2011a,b, 2015, 2016, 2017, 2018a,b, 2019a,b.

- Since the project areas had never undergone a systematic archaeological study, the City of Malibu Planning Department recommended that a Phase 1 archaeological study be completed prior to initiating any improvements.
- The **Adamson House** is listed on the National Register of Historic Places (NRHP) within the Malibu Lagoon State Park. Completed in 1929 by the Rindge's daughter, Rhoda Adamson, the Spanish-Moor revival residence features tile from the renowned Malibu Potteries and sits on a spectacular overlook of the Malibu Pier and Surfrider Beach.
- No California Register of Historic Resources exists (1992, with supplemental information to date).
- The **Adamson House** is listed as a California Historical Landmarks (1995, with supplements to date).
- No California Points of Historical Interest are noted (1992, with supplemental information to date).
- No State Historic Resources Commission issues are presented (1980-present - minutes from quarterly meeting).
- No listed properties in the Office of Historic Preservation Historic Property data file (02/03/2005) are noted.
- No Archaeological Determinations of Eligibility are noted (listed through 02/03/2005).

Additional historical data on file at the Geography Department Map Reference Center, California State University Northridge (CSUN), Bureau of Engineering -Los Angeles City Hall and UCLA Archives we consulted as follows:

- Township-Range Plat Survey Maps (1853-1897)
- Inspection of the Camulos (surveyed in 1893 and 1900-1901) 15-minute USGS topographic map series indicated that by 1921, the general area was largely undeveloped. Several unimproved roads and drainages were in existence. The Pacific Coast Highway appeared as major unimproved road. By 1943, U.S. Route 101, Serra Retreat, Keller's Shelter, Malibu Pier, the Adamson House, Malibu Lagoon, and numerous structures are shown near the project area.
- Map of Private Grants & Public Lands Adjacent to Los Angeles and San Diego (Day - 1869)
- Map of the County of Los Angeles, California (by Stevenson 1881 & Rowan 1888)
- 1912-2012 - Malibu Rails and Roads by Thomas W. Doyle and Ronald L. Rindge (2012)
- 1913 Map by G. C Fitzgerald Showing Sweetwater Mesa.
- 1920s-1970s Fairchild and Spence aerial photographs of the region.
- 1923 Aerial view of the general area from the Spence Air Photo Collection.
- 1924 Map showing the Marblehead Land Company Holdings and Malibu Hueneme Railroad Line

V. Field Reconnaissance Program

5.1 Methodology

A pedestrian survey, which entails the inspection of all land surfaces that can reasonably be expected to contain cultural resources without major modification of the land surface, was performed for the lot on September 3, 2020.

5.2 Crew

The crew consisted of Principal Investigator, ***Robert Wlodarski*** who has a: BA in History and Anthropology and an MA in Anthropology from California State University Northridge (CSUN); 48 years of professional experience in California archaeology; over 1600 projects completed to date (400+ have been completed with the City of Malibu); certification in field archaeology and theoretical/archival research by the Register of Professional Archaeologists [RPA]; registration as a California historian by the California Committee for the Promotion of History [CCPH]; meets National Park Service standards & guidelines for Archaeology, Architectural History and Historic Preservation; and is a member of the National Council on Public History.

5.3 Results

All exposed surface terrain and fortuitous exposures such as rodent burrows, excavated areas, and/or landscaped or cleared areas were thoroughly inspected for cultural resource. The following field observations were made:

- The parcels are bordered on the north by undeveloped land, 3947 Ridgemont Drive, and 3949 Ridgemont Drive, on the south by the Pacific Coast Highway (PCH), on the west by 22761 PCH, and on the east by 22725.
- The parcels are accessed via the PCH on the south and contain a Shell Service Station (1960s) and a commercial building behind the gas station (1980s).
- The parcel at 22729 PCH (APN#4452-022-010) is the lower area fronting the PCH with two access points on the southern edge of the lot. The lot contains remnants of a former gas station including the former pumps and canopy, a paved parking and drive-through area, landscaping, and fencing. The entire property shows signs of prior man-made disturbances relating to the construction of the gas station and placement of the below-ground gas storage tanks.

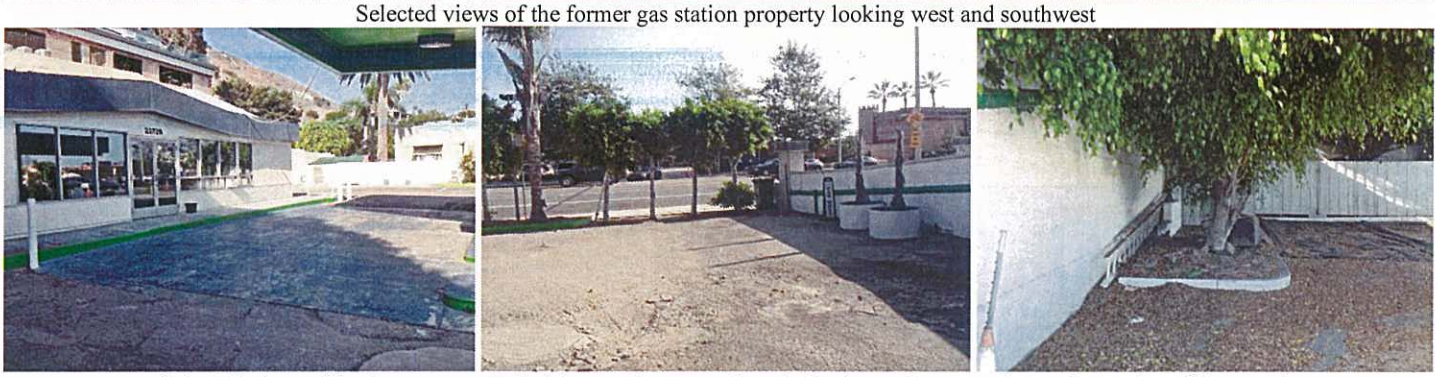
- The parcel at 22741 PCH (APN#4452-022-017) is the upper graded and terraced area containing a four-story commercial building with a paved access driveway on the western side of the lot trending north to underground and above-ground parking areas. Associated landscaping features, retaining walls, driveway and parking areas, walkways, stairs, and fencing, dominate the terrain. The entire lot shows signs of prior man-made disturbances related to construction or the building, parking areas, driveway, retaining walls and landscaping features.
- A major retaining wall separates the two parcels.
- Utilities including gas, water, telephone, cable, and sewer connect to the PCH.

The results of the Phase 1 archaeological study yielded no indications of prehistoric or historic archaeological resources within the boundaries of the subject property. Plate 1 illustrates selected views of the property.

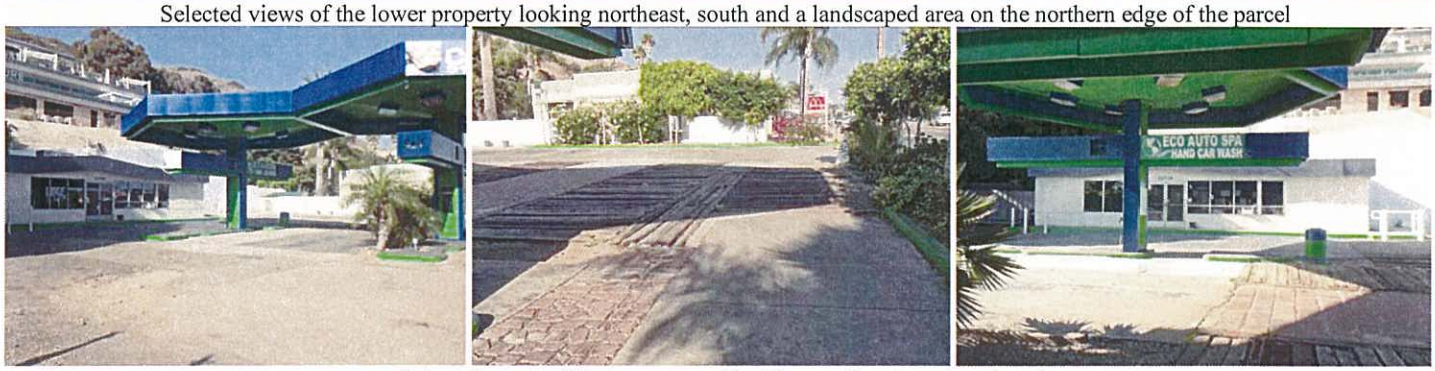
Plate 1: Selected Views of the Subject Property



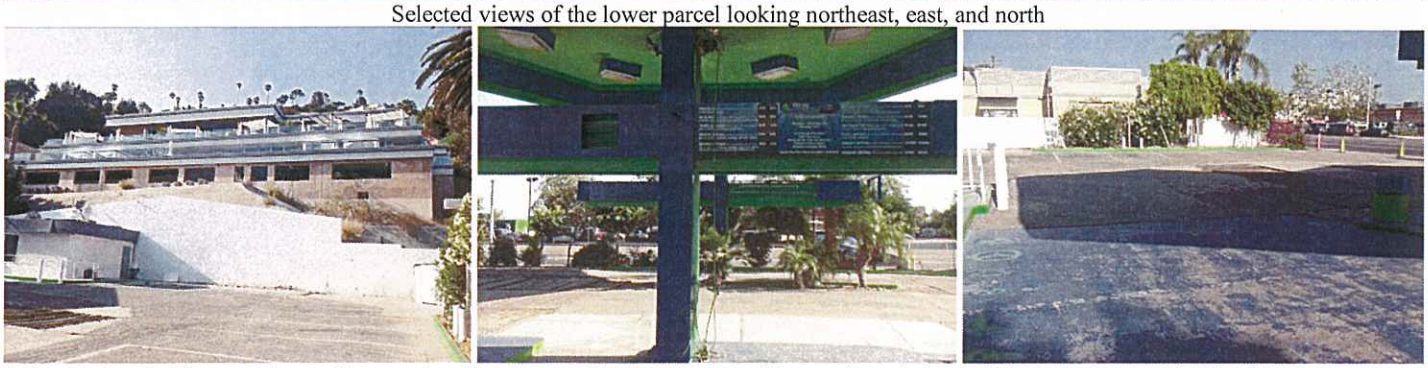
Selected views of the former gas station property looking west and southwest



Selected views of the lower property looking northeast, south and a landscaped area on the northern edge of the parcel



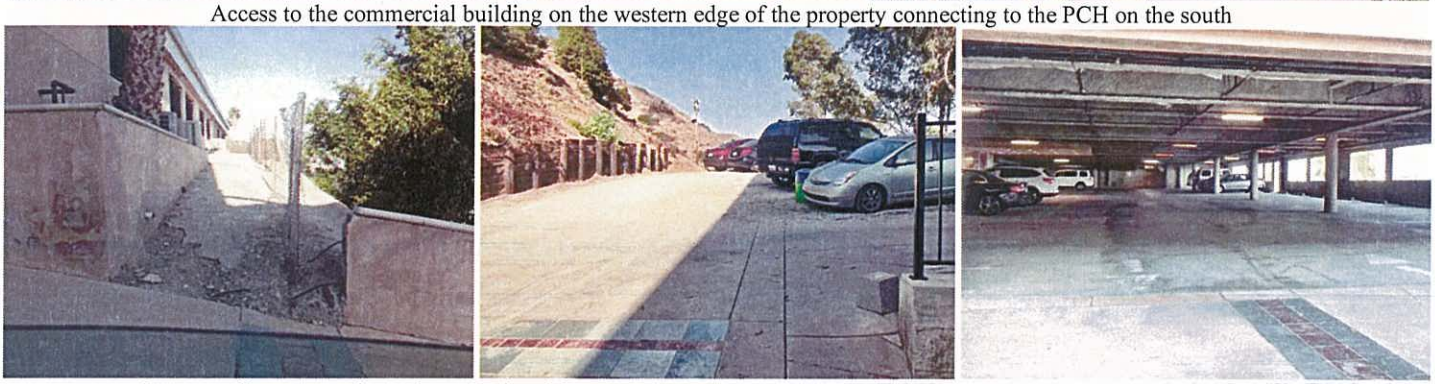
Selected views of the lower parcel looking northeast, east, and north



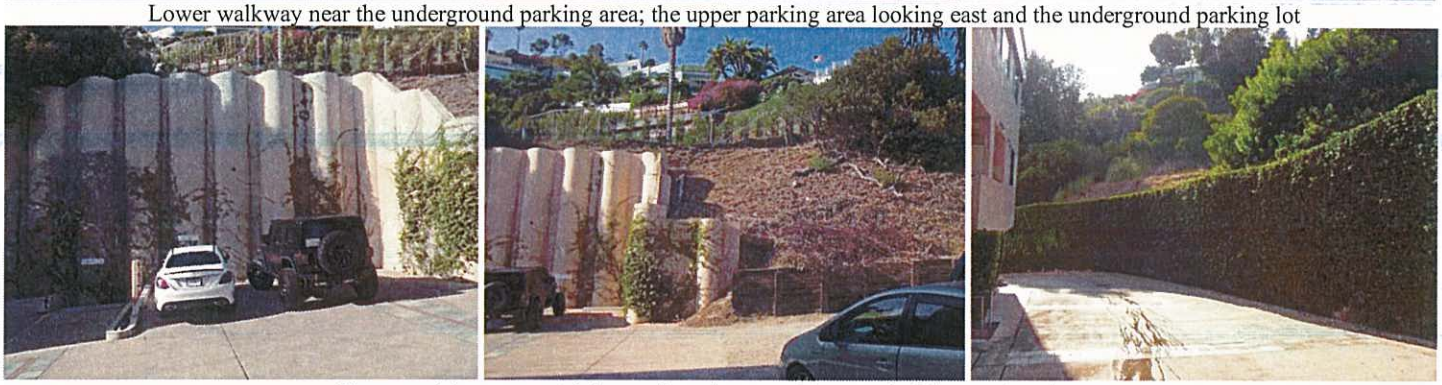
Selected views of the retaining wall separating the upper and lower parcels looking north, and views of the former gas station looking south and east



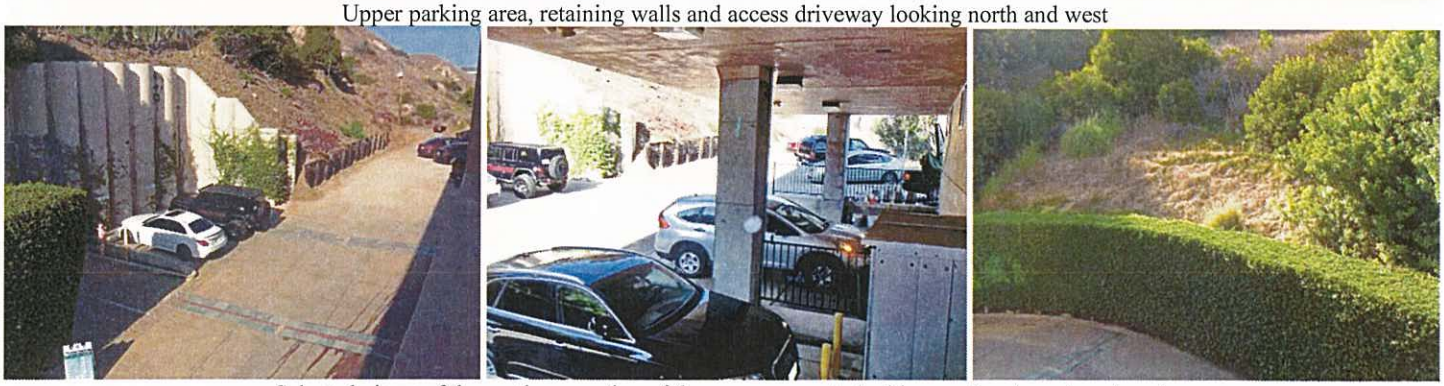
Access to the commercial building on the western edge of the property connecting to the PCH on the south



Lower walkway near the underground parking area; the upper parking area looking east and the underground parking lot



Upper parking area, retaining walls and access driveway looking north and west



Selected views of the northern portion of the upper property looking northeast, east, and north

5.4 Recommendations

Any proposed modifications to the project areas will have no adverse impact on known cultural resources. No additional archaeological conditions are placed on the project based on the results of this study. The nature of a walkover can only confidently assess the potential for encountering surface cultural resource remains; therefore, customary caution is advised in developing within the parcel. Should unanticipated cultural resource remains be encountered during land modification activities, work must cease, and the City of Malibu Planning Director contacted immediately to determine appropriate measures to mitigate adverse impacts to the discovered resources. Cultural resource remains may include artifacts, shell, bone, features, altered soils, foundations, and trash pits. Should human remains be discovered during project construction, all work must halt, and the County Coroner notified (Section 7050.5 of the California Health and Safety Code).

The coroner will determine if the remains are of forensic interest. If the coroner, with the aid of the lead archaeologist, determines that the remains are prehistoric, the coroner will contact the Native American Heritage Commission (NAHC). The NAHC will be responsible for designating the most likely descendant (MLD), who will be responsible for the ultimate disposition of the remains, as required by Section 5097.98 of the Public Resources Code. The MLD should make recommendations within 48 hours of notification by the NAHC. This recommendation may include A) the non-destructive removal and analysis of human remains, and items associated with Native American human remains; (B) preservation of Native American human remains and associated items in place; (C) relinquishment of Native American human remains and associated items to the descendants for treatment; or (D) other culturally appropriate treatment.

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2003b Archaeological Monitoring of CA-LAN-2247 for the Mariposa Land Company, City of Malibu, County of Los Angeles, California. Report on file at the SCCIC CSUF.

2003c A Phase 1 Archaeological Study for the Malibu Creek Stabilization Project, City of Malibu, Los Angeles County, California. Report on file, SCCIC-CSUF.

2003d Archaeological Monitoring for the Webb Way/PCH Drainage Improvements Project, City of Malibu, County of Los Angeles, California. Report on file SCCIC-CSUF.

2003e A Phase 1 Archaeological Study For 3311 Sweetwater Mesa Road (APN4452-016-003), City of Malibu, County of Los Angeles, California. Report on file, SCCIC-CSUF.

2003f Archaeological Monitoring for Proposed Geological Testing at 3311 Sweetwater Mesa Road (APN4452-016-003), CA-LAN-3125, City of Malibu, County of Los Angeles, California. Report on file, South Central Coastal Information Center, California State University Fullerton.

2003g An Extended Phase 1 Archaeological Study for CA-LAN-3125 Located at 3311 Sweetwater Mesa Road (APN4452-016-003), City of Malibu, County of Los Angeles, California. Report on file, South Central Coastal Information Center, California State University Fullerton.

2003h A Phase 1 Archaeological Study for Two Lots Within APN#4452-025-001 and #4452-025-002, West of Carbon Canyon, City of Malibu, Los Angeles County, California. Report (LA6893) on file, SCCIC-CSUF.

2003i A Phase 1 Archaeological Study for the "As Built" Existing Rock and vegetation Malibu Creek Bank Stabilization Project, City of Malibu, County of Los Angeles, California. Report on file, South Central Coastal Information Center, California State University Fullerton.

2004a A Phase 1 Archaeological Study for Proposed Improvements to 23344 Palm Canyon Drive, City of Malibu, Los Angeles County, California. Report on file, SCCIC-CSUF.

2004b A Phase 1 Archaeological Study as prepared for APN#4458-024-028, Harbor Vista Drive, City of Malibu, Los Angeles County, California. Report (L7611) on file SCCIC-CSUF.

Wlodarski, Robert J. (continued)

2005a A Phase 1 Archaeological Study for Proposed Improvements to 3270 Serra Road, City of Malibu, County of Los Angeles, California. Report on file SCCIC-CSUF.

2005b A Phase 1 Archaeological Study for 23864 Malibu Road, City of Malibu, Los Angeles County, California. . Report (LA7579) on file SCCIC-CSUF.

2005c A Phase 1 Archaeological Study for Proposed Improvements to 2860 Sweetwater Mesa Road (APN#4452- 025-021) Site 3 – VG Estates LLC, City of Malibu, County of Los Angeles, California. Report on file, South Central Coastal Information Center, California State University Fullerton.

2005d A Phase 1 Archaeological Study for 2930 Sweetwater Mesa Road (APN#4452- 025-023) Site 4 – VG Properties LLC, City of Malibu, County of Los Angeles, California. Report on file, SCCIC-CSUF.

2005e A Phase 1 Archaeological Study for Proposed Improvements (construction of a swimming pool) at 3464 Sweetwater Mesa Road (APN#4452-016-015) City of Malibu, County of Los Angeles, California. Report (LA7589) on file, South Central Coastal Information Center, California State University Fullerton.

2007a A Phase 1 Archaeological Study for Proposed Improvements to 23915 Malibu Road (APN#4458-018-004), City of Malibu, Los Angeles County, California. Report (LA7579) Report on file SCCIC-CSUF.

2007b A Phase 1 Archaeological Study for Proposed Improvements to 3415 Sweetwater Mesa Road, City of Malibu, County of Los Angeles, California. Report on file SCCIC-CSUF.

2007c A Phase 1 Archaeological Study for Proposed Improvements to 23681 Malibu Road, City of Malibu, Los Angeles County, California. Report on file, SCCIC CSUF.

2008 A Phase 1 Archaeological Study for proposed development at 3469 Cross Creek Road (APNs: 4458-023-003, 4458-023-004, and 4458-024-028), City of Malibu, Los Angeles County. Report on file SCCIC-CSUF.

2010 A Phase 1 Archaeological Study for the proposed Whole Foods Development Project, located on the Northwest corner of Civic Center Way and Cross Creek Road, City of Malibu, County of Los Angeles, California. Report on file SCCIC-CSUF.

2011a Final Archaeological Monitoring Report for the Malibu Legacy Park Project Final Environmental Impact Report, City of Malibu, County of Los Angeles, California. Report on file SCCIC-CSUF.

2011b A Phase 1 Archaeological Study for Nine Parcels as Part of the 2008-2014 Housing Element Update Plan (Parcel 1 - APN#4470-012-045: 6155 Trancas Canyon Road; Parcel 2 – APN#4470-012-046; Parcel 3 – APN#4470-012-002; Parcel 10 – APN#4467-013-022; Parcel 10a - APN#4467-012-005: 28401Pacific Coast Highway; Parcel 14 – APN#4458-021-003: 3542 Coast View Drive; Parcel 16 – APN#4458-021-005: 23833 Stuart Ranch Road; Parcel 17 – APN#4458-022-012: 238015tuart Ranch Road; and, Parcel 19 – APN#4458-022-019) City of Malibu, Los Angeles County, California. Report on file SCCIC-CSUF.

2015 A Phase 1 Archaeological Study for Proposed Improvements to 23401 Malibu Colony Road (APN#4452-010-012), City of Malibu, County of Los Angeles, California. Report on file SCCIC-CSUF.

2016 A Phase 1 Archaeological Study for Proposed Improvements to 3328 Serra Road (APN#4452-026-017), City of Malibu, Los Angeles County, California. Report on file at the City of Malibu Planning Department.

2017 A Phase 1 Archaeological Study for proposed improvements to 3751 Serra Road (APN#4452-012-011 - Saffron Case Residence), City of Malibu, Los Angeles County, California. Report on file at the City of Malibu Planning Department.

2018a A Phase 1 Archaeological Study for proposed improvements to 3700 La Paz Lane (APN#4458-022-025), City of Malibu, Los Angeles County, California. Report on file at the City of Malibu Planning Department.

2019b A Phase 1 Archaeological Study for proposed improvements to 3291 Sweetwater Mesa Road (APN#4452-025-027), City of Malibu, Los Angeles County, California. Report on file at the City of Malibu Planning Department.

2019a A Phase 1 Archaeological Study for proposed improvements to 3556 Sweetwater Mesa Road (APN#4452-017-008), City of Malibu, County of Los Angeles, California. Report on file at the City of Malibu Planning Department.

2019b A Phase 1 Archaeological Study for proposed improvements to 22729 PCH (APN#4452-022-010) & 22741 PCH (APN#4452-022-017), City of Malibu, Los Angeles County, California 90265. Report on file at the City of Malibu Planning Department.

Appendix D

Energy Use Calculations

Sea View Hotel Project Construction Energy Demand

Last Updated: 12/3/2020

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Rubber Tired Dozers	1	8	247	0.4	Demolition Phase	1,128.05
Tractors/Loaders/Backhoes	3	8	97	0.37	Demolition Phase	1,366.66
Concrete/Industrial Saws	1	8	81	0.73	Demolition Phase	750.54
Tractors/Loaders/Backhoes	1	8	97	0.37	Site Preparation Phase	438.68
Rubber Tired Dozers	1	7	247	0.4	Site Preparation Phase	950.49
Graders	1	8	187	0.41	Site Preparation Phase	842.96
Graders	1	6	187	0.41	Grading Phase	1,896.66
Rubber Tired Dozers	1	6	247	0.4	Grading Phase	2,444.12
Tractors/Loaders/Backhoes	1	7	97	0.37	Grading Phase	1,151.54
Cranes	1	6	231	0.29	Building Construction Phase	1,635.95
Forklifts	1	6	89	0.2	Building Construction Phase	483.25
Generator Sets	1	8	84	0.74	Building Construction Phase	2,250.12
Tractors/Loaders/Backhoes	1	6	97	0.37	Building Construction Phase	974.38
Welders	3	8	46	0.45	Building Construction Phase	2,247.94
Air Compressors	1	6	78	0.48	Architectural Coating Phase	1,042.86
Pavers	1	6	130	0.42	Paving Phase	3,636.49
Cement and Mortar Mixers	1	6	9	0.56	Paving Phase	373.18
Paving Equipment	1	8	132	0.36	Paving Phase	4,219.92
Rollers	1	7	80	0.38	Paving Phase	2,626.06
Tractors/Loaders/Backhoes	1	8	97	0.37	Paving Phase	3,543.20
					Total Fuel Used	**34,003.06**
						(Gallons)

Construction Phase	Days of Construction
Demolition Phase	27
Site Preparation Phase	26
Grading Phase	78
Building Construction Phase	77
Paving Phase	210
Architectural Coating Phase	79
Total Days	497

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Demolition Phase	24.4	13	14.7	211.46
Site Preparation Phase	24.4	8	14.7	125.31
Grading Phase	24.4	8	14.7	375.93
Building Construction Phase	24.4	13	14.7	603.06
Paving Phase	24.4	13	14.7	1644.71
Architectural Coating Phase	24.4	3	14.7	142.78
			Total	**3,103.27**

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Demolition Phase	7.5	5	11.9	7.93
Site Preparation Phase	7.5	0	11.9	0.00
Grading Phase	7.5	192	11.9	304.64
Building Construction Phase	7.5	0	11.9	0.00
Paving Phase	7.5	0	11.9	0.00
Architectural Coating Phase	7.5	0	11.9	0.00
			Total	**312.57**
VENDOR TRIPS				
Demolition Phase	7.5	0	6.9	0.00
Site Preparation Phase	7.5	0	6.9	0.00
Grading Phase	7.5	0	6.9	0.00
Building Construction Phase	7.5	5	6.9	354.20
Paving Phase	7.5	0	6.9	0.00
Architectural Coating Phase	7.5	0	6.9	0.00
			Total	**354.20**

Total Gasoline Consumption (gallons)	**3,103.27**
Total Diesel Consumption (gallons)	**34,669.83**

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2019. *National Transportation Statistics 2019* . Available at: https://www.bts.gov/topics/national-transportation-statistics.

Sea View Hotel Project Proposed Uses Transportation Energy Demand

Last Updated: 12/3/2020

Populate one of the following tables (Leave the other blank):

Annual VMT		OR	Daily Vehicle Trips	
Annual VMT:	743,688		Daily Vehicle Trips:	
			Average Trip Distance:	

Fleet Class	Fleet Mix
Light Duty Auto (LDA)	0.550809
Light Duty Truck 1 (LDT1)	0.042355
Light Duty Truck 2 (LDT2)	0.203399
Medium Duty Vehicle (MDV)	0.115606
Light Heavy Duty 1 (LHD1)	0.014562
Light Heavy Duty 2 (LHD2)	0.005806
Medium Heavy Duty (MHD)	0.021810
Heavy Heavy Duty (HHD)	0.035336
Other Bus (OBUS)	0.002134
Urban Bus (UBUS)	0.001736
Motorcycle (MCY)	0.004891
School Bus (SBUS)	0.000712
Motorhome (MH)	0.000845

Fuel Economy (MPG) [1]	
Passenger Vehicles	24.4
Light-Med Duty Trucks	17.9
Heavy Trucks/Other	7.5
Motorcycles	44

Fleet Mix

Vehicle Type	Percent	Fuel Type	Annual VMT: VMT	Vehicle Trips: VMT	Fuel Consumption (Gallons)
Passenger Vehicles	*55.08%*	*Gasoline*	409630	409630.04	33576.23
Light-Medium Duty Trucks	*36.14%*	*Gasoline*	268739	268739.10	30026.71
Heavy Trucks/Other	*8.29%*	*Diesel*	61682	61682.23	16448.59
Motorcycle	*0.49%*	*Gasoline*	3637	3637.38	165.34

Total Gasoline Consumption (gallons)	**63768.28**
Total Diesel Consumption (gallons)	**16448.59**

Sources:

[1] United States Department of Transportation, Bureau of Transportation Statistics. 2019. National Transportation Statistics 2019. Available at: https://www.bts.gov/topics/national-transportation-statistics.

Sea View Hotel Project Existing Uses Transportation Energy Demand

Last Updated: 12/3/2020

Populate one of the following tables (Leave the other blank):

Annual VMT		OR	Daily Vehicle Trips	
Annual VMT:	789,160		Daily Vehicle Trips:	
			Average Trip Distance:	

Fleet Class	Fleet Mix
Light Duty Auto (LDA)	0.550809
Light Duty Truck 1 (LDT1)	0.042355
Light Duty Truck 2 (LDT2)	0.203399
Medium Duty Vehicle (MDV)	0.115606
Light Heavy Duty 1 (LHD1)	0.014562
Light Heavy Duty 2 (LHD2)	0.005806
Medium Heavy Duty (MHD)	0.021810
Heavy Heavy Duty (HHD)	0.035336
Other Bus (OBUS)	0.002134
Urban Bus (UBUS)	0.001736
Motorcycle (MCY)	0.004891
School Bus (SBUS)	0.000712
Motorhome (MH)	0.000845

Fuel Economy (MPG) [1]	
Passenger Vehicles	24.4
Light-Med Duty Trucks	17.9
Heavy Trucks/Other	7.5
Motorcycles	44

Fleet Mix

Vehicle Type	Percent	Fuel Type	Annual VMT: VMT	Vehicle Trips: VMT	Fuel Consumption (Gallons)
Passenger Vehicles	*55.08%*	*Gasoline*	434676	434676.43	35629.22
Light-Medium Duty Trucks	*36.14%*	*Gasoline*	285171	285170.86	31862.67
Heavy Trucks/Other	*8.29%*	*Diesel*	65454	65453.72	17454.33
Motorcycle	*0.49%*	*Gasoline*	3860	3859.78	175.44

Total Gasoline Consumption (gallons)	**67667.33**
Total Diesel Consumption (gallons)	**17454.33**

Sources:

[1] United States Department of Transportation, Bureau of Transportation Statistics. 2019. National Transportation Statistics 2019. Available at: https://www.bts.gov/topics/national-transportation-statistics.

Appendix E

Geologic and Geotechnical Update Report and Follow-up Responses

GEOLOGIC AND GEOTECHNICAL UPDATE REPORT

Malibu Sea View Hotel
22729/22741 Pacific Coast Highway
Malibu, California

For

BLUE ONYX DESIGN

December 26, 2017 W.O. 7091

(Revised February 8, 2018)

GeoSoils Consultants Inc.

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GeoSoils Consultants Inc.
GEOTECHNICAL GEOLOGIC ENVIRONMENTAL

December 26, 2017
W.O. 7091
(Revised February 8, 2018)

BLUE ONYX DESIGN
22741 Pacific Coast Highway, Suite 400
Malibu, California 90265

Attention: Mr. Norm Haynie

Subject: Geologic and Geotechnical Engineering Update Report, Malibu Sea View Hotel, 22729/22741 Pacific Coast Highway, Malibu, California

Dear Mr. Haynie:

As requested, GeoSoils Consultants, Inc. (GSC) has prepared this geologic and geotechnical engineering update report for the subject site. The purpose of this report was to review the geologic and geotechnical engineering characteristics of the underlying earth materials in order to evaluate their suitability to receive the planned development.

As part of this update, GSC has reviewed previous reports for the site prepared by Stratum GC (see References) and performed a site reconnaissance. The previous recommendations remain applicable except where superseded herein.

The proposed developments are depicted on the Site Plan and Geologic Map, Plate 1 and on the Geologic Cross-Sections, Plate 2, based on the maps and cross-sections prepared by Stratum Geotechnical Consultants (see References).

This report has been prepared in accordance with generally accepted geotechnical engineering and geologic practices in the City of Malibu at the time it was prepared. This report is intended for exclusive use of Blue Onyx Design and their consultants, and is not transferable.

6634 Valjean Avenue, Van Nuys, California 91406 Phone: (818) 785-2158 Fax: (818) 785-1548

1.0 SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The subject site is located at 22729/22741 Pacific Coast Highway, in the City of Malibu, California. The lower parcel of the site, addressed as 22729 Pacific Coast Highway, is occupied by a gas station, which is currently not operational. The upper parcel, addressed as 22741 Pacific Coast Highway, is currently occupied by office buildings. A retaining wall separates the two properties along the northern edge of the lower parcel; it is approximately 8 foot high. A Site Location Map is presented in Figure 1 below.

The proposed development entitled "Malibu Sea View Hotel" is composed of two parts: The construction of a new hotel site on the lower property and a conversion of the existing office building on the upper property to an additional part of the proposed hotel.

The development on the lower parcel of the site consists of the construction of a three-story hotel and a basement. The proposed development is depicted on the Site Plan and Geologic Map, Plate 1 and the Geologic Cross-Sections, Plate 2.

2.0 PREVIOUS STUDIES

Previous studies were performed on the site by Stratum GC. Subsurface exploration was performed by drilling 8 hollow-stem borings to a maximum depth of 25 feet. The approximate locations of the borings are shown on Plate 1, Site Plan and Geologic Map. Borings logs are provided in Appendix A.

The borings and the associated laboratory testing were used as a reference to our analyses and recommendations.

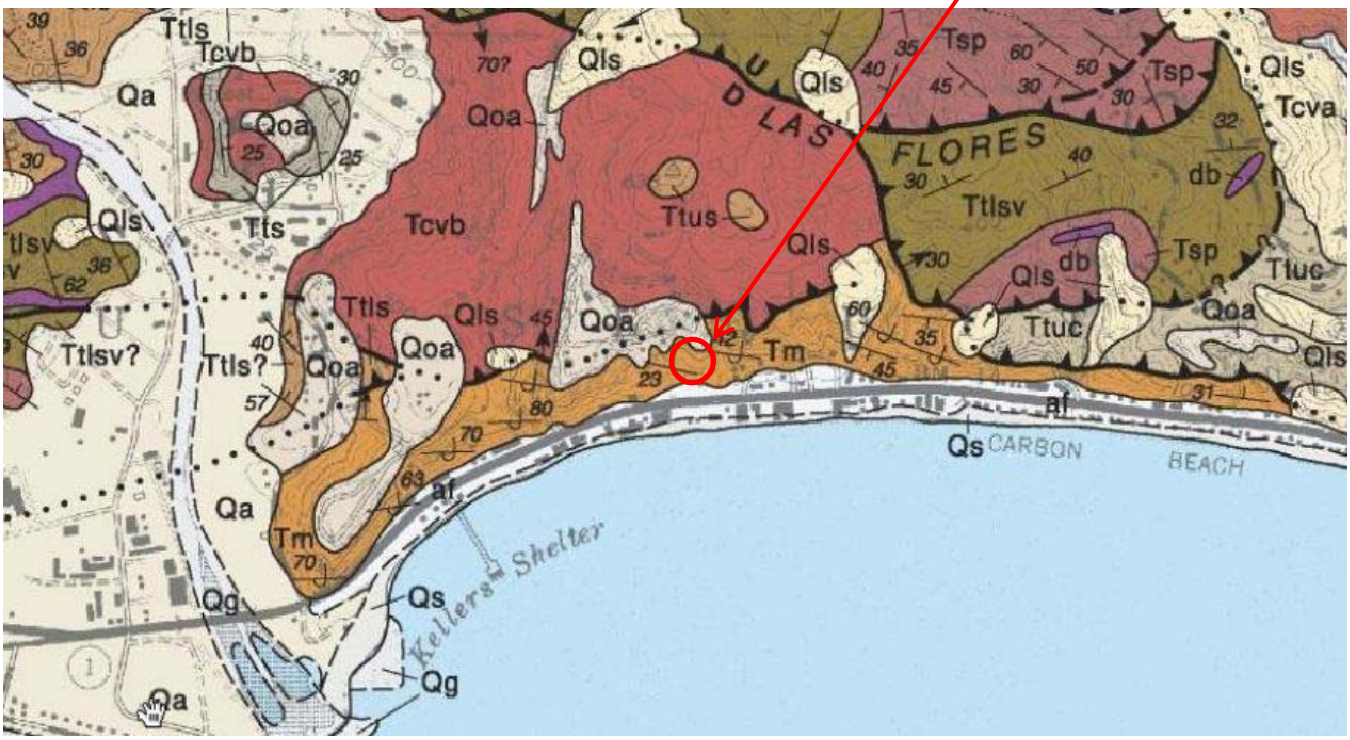
As part of the studies conducted by Stratum GC, a liquefiable sandy Marine Deposit layer was identified and the potential impact on the proposed development is discussed further in this report.

3.0 CHANGE OF CONSULTANTS

GSC has reviewed the referenced reports and accepts geotechnical responsibility for the subject site, provided that the recommendations presented herein are followed.



Reference: Google Earth.



Reference: Diblee, 1989, Geologic Map of the Malibu Beach Quadrangle.

Qoa

OLDER SURFICIAL SEDIMENTS

Tm / Tmcl / Tmss / Tmcg

MONTEREY FORMATION

af / Qs / Qg / Qa

SURFICIAL SEDIMENTS

GeoSoils Consultants Inc.
GEOTECHNICAL GEOLOGIC ENVIRONMENTAL
6634 Valjean Avenue, Van Nuys, CA 91406
(818) 785-215

SITE LOCATION MAP

22729/22741 PACIFIC COAST HIGHWAY,
MALIBU, CA 90265

W.O. 7091

Scale NTS

FIGURE 1

4.0 GEOLOGIC CONDITIONS

Geologic conditions of the subject property were determined through research of the referenced reports and the results were superimposed on the Site Plan and Geologic Map, Plate 1. The following sections present our findings concerning subsurface soil conditions and groundwater conditions.

4.1 Regional Geologic Setting

The subject property is located within the southern Transverse Ranges Geomorphic Provinces of California. The Transverse Ranges consist of generally east-west trending mountains and valleys, which are in contrast to the north-northwest regional trend elsewhere in the state. The structure of the Transverse Ranges is controlled by the effects of north-south compressive deformation (crustal shortening), which is attributed to the convergence between the big bend of the San Andreas Fault north of the San Gabriel Mountains and the motion of the Pacific Plate. The valleys and mountains of the Transverse Ranges are typically bounded by a series of east-west trending, generally north dipping reverse faults with left-lateral oblique movement. The Transverse Ranges are characterized by a very thick, nearly continuous sequence of Upper Cretaceous through Quaternary sedimentary rocks that have been deformed.

4.2 Local Geologic Setting

The property is located within the south-eastern corner of the Malibu Beach USGS 7.5-minute Quadrangle. Bedrock from the Monterey Formation underlies the site and the surficial materials. It strikes predominantly eastward and dips steeply towards the north.

4.3 Earth Units

We offer the following general description of the current on-site subsurface materials. The subsurface strata are depicted on the Geologic Cross-Sections, Plate 2.

Artificial Fill (af)

The fill that has been placed during grading on the lower parcel and on the sloping area of the site shall be considered as unsuitable for structural support. Its maximum thickness is anticipated to be approximately 15 feet. The fill is comprised of dark gray brown, clayey silty sand and contains rock fragments in abundance. It is moderately dense and moist.

Marine Deposits (Qm)

The marine deposits that underlie the fill on the lower portion of the site were derived from the deposit of littoral materials. It is comprised of coarse to medium sands underlain by gravels. The deposits are moderately dense and have variable moisture depending on the oceanic tide.

Colluvium (Qol)

The colluvium that underlies the fill on the upper portion of the site shall be considered as unsuitable for structural support. The colluvium is comprised of brown silty sand to silty clay and contains rock fragments in abundance.

Monterey Formation Bedrock (Tm)

Bedrock from the Monterey Formation underlies the subject site. It is comprised of brown, fine to medium-grained sandstone interbedded with brown to white diatomaceous siltstones and shales. Bedding is well defined and planar. These materials are moderately indurated and their moisture varies with seasons.

4.4 Surface and Subsurface Groundwater Conditions

Surface water on the site is limited to precipitation falling directly on the site and landscaping. Proposed design should provide for positive drainage on the lot.

At the time of the subsurface exploration performed by Stratum GC (November 2008), groundwater was encountered at an elevation of approximately 8 feet in the

borings. Based on historical high groundwater information for the Malibu Beach Quadrangle, the highest groundwater level encountered at the site is approximately 5 feet below existing grade.

We recommend a boring be excavated to verify groundwater level prior to construction of the basement.

5.0 FAULTING AND SEISMICITY

The project site is not within an Alquist-Priolo Earthquake Fault. However, there are faults in close enough proximity to the site to cause moderate to intense ground shaking during the lifetime of the proposed development.

Earthquake Characterization

Earthquakes are characterized by magnitude, which is a quantitative measure of the earthquake strength, based on strain energy released during a seismic event. The magnitude of an earthquake is constant for any given site and is independent of the site in question.

Earthquake Intensity

The intensity of an earthquake at a random site is not constant and is subject to variations. The intensity is an indirect measurement of ground motion at a particular site and is affected by the earthquake magnitude, the distance between the site and the hypocenter (the location on the fault at depth where the energy is released), and the geologic conditions between the site and the hypocenter. Intensity, which is often measured by the Mercalli scale, generally increases with increasing magnitude and decreases with increasing distance from the hypocenter. Topography may also affect the intensity of an earthquake from one site to another. Topographic effects such as steep sided ridges or slopes may result in a higher intensity than sites located in relatively flat-lying areas.

5.1 Seismic Design Criteria

The 2016 CBC (California Building Code) seismic coefficient criteria are provided here for structural design consideration.

Under the Earthquake Design Regulations of Chapter 16, Section 1613 of the CBC 2016, and based on the mapped values, the following coefficients and factors apply to the lateral-force design for the proposed development at the site.

2016 CBC SECTION 1613, EARTHQUAKE LOADS	
Description	**Value**
Site Class Definition	D
Mapped Spectral Response Acceleration Parameter, S_s (Table 1613.3.1 for 0.2 second)	2.281
Mapped Spectral Response Acceleration Parameter, S_1 (Table 1613.3.1 for 1.0 second)	0.823
Site Coefficient, F_a (Table 1613.3.3(1) short period)	1.0
Site Coefficient, F_v (Table 1613.3.3(2) 1-second period)	1.5
Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter S_{MS} (Eq. 16-37)	2.281
Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter S_{M1} (Eq. 16-38)	1.234
Design Spectral Response Acceleration Parameter, S_{DS} (Eq. 16-39)	1.521
Design Spectral Response Acceleration Parameter, S_{D1} (Eq. 16-40)	0.823
Notes: Longitude: -118.6705, Latitude: 34.0394 1. S_s, S_{MS}, and S_{DS} are spectral response accelerations for the period of 0.2 second. 2. S_1, S_{M1}, and S_{D1} are spectral response accelerations for the period of 1.0 second.	

Conformance to the above criteria for seismic excitation does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a maximum level earthquake occurs. The primary goal of seismic design is to protect life and not to avoid all damage, since such design may be economically prohibitive. Following a major earthquake, a building may be damaged beyond repair, yet not collapse.

5.2 Secondary Earthquake Effects

Ground shaking produced during an earthquake can result in a number of potentially damaging phenomena classified as secondary earthquake effects. These secondary effects include ground rupture, landslides, lurching, seiches and tsunamis, seismically-induced settlement, and liquefaction. Descriptions of each of these phenomena and how it could potentially affect the proposed site are described below:

5.2.1 Ground Rupture

Ground rupture occurs when movement on a fault breaks the ground surface and usually occurs along pre-existing fault traces where zones of weakness already exist. The State has established Earthquake Fault Zones for the purpose of mitigating the hazard of fault rupture by prohibiting the location of most human occupancy structures across the traces of active faults. Earthquake fault zones are regulatory zones that encompass surface traces of active faults with a potential for future surface fault rupture. The site is not located within a State established Earthquake Fault Zone and there are no know active faults within the limits of the property; therefore, the ground rupture hazard potential for the site is considered remote.

5.2.2 Landsliding

Earthquake-induced landsliding often occurs in areas where previous landslides have moved and in areas where the topographic, geologic, geotechnical and subsurface groundwater conditions are conducive to permanent ground displacements. The site is not located within a landslide area per the Seismic Hazard Zone Maps; therefore, earthquake-induced landslides are not considered to be a hazard to the proposed development.

5.2.3 Seiches and Tsunamis

A seiche is the resonant oscillation of a body of water, typically a lake or swimming pool caused by earthquake shaking (waves). The hazard exists where water can be splashed out of the body of water and impact nearby structures. No bodies of constant water are near the site, therefore, the hazards associated with seiches are considered low.

Tsunamis are seismic sea waves generated by undersea earthquakes or landslides. When the ocean floor is offset or tilted during an earthquake, a set of waves are generated similar to the concentric waves caused by an object

dropped in water. Tsunamis can have wavelengths of up to 120 miles and travel as fast as 500 miles per hour across hundreds of miles of deep Ocean. Upon reaching shallow coastal waters, the once two-foot high wave can become up to 50 feet in height causing great devastation to structures within reach. Tsunamis can generate seiches as well. Due to the proximity of the site relative to the Pacific Ocean, tsunamis are considered to be a potential hazard to the site.

5.2.4 Liquefaction

Liquefaction describes a phenomenon where cyclic stresses, which are produced by earthquake-induced ground motions, create excess pore pressures in cohesionless soils. As a result, the soils may acquire a high degree of mobility, which can lead to lateral spreading, consolidation and settlement of loose sediments, ground oscillation, flow failure, loss of bearing strength, ground fissuring, and sand boils, and other damaging deformations. This phenomenon occurs only below the water table, but after liquefaction has developed, it can propagate upward into overlying, non-saturated soil as excess pore water escapes.

Potential liquefaction has been addressed in the referenced reports. Standard Penetration Tests were performed by Stratum GC on surficial materials on-site and their potential of liquefaction has been determined based on methods of Tokimatsu and Seed (1987). The results show that the sandy Marine Deposits are subject to potential liquefaction.

5.2.5 Seismic Settlement Analysis

Seismically-induced settlement in unsaturated (dry) and saturated soils generally occur due to the dissipation of pore pressure. The potential for seismically-induced settlement is greatest in loose granular soils (i.e., sands, silty sands, sandy silts), whereas cohesive soils (i.e., clays and silts) are generally not prone

to settlement. It should be realized that granular soils are susceptible to settlement during a seismic event whether the soils liquefy or not.

The liquefaction analyses performed by Stratum GC showed that the potential liquefaction of the sandy Marine Deposits would result in a settlement of approximately 0.75-inch. Therefore, the proposed development should be founded in bedrock materials.

5.2.6 Lateral Spreading

Lateral spread phenomenon is described as the lateral movement of stiff, surficial, mostly intact blocks of sediment displaced down slope towards a free face along a shear zone that has formed within the liquefied sediment. The resulting ground deformation typically has extensional fissures at the head of the failure, shear deformations along the side margins, and compression or buckling of the soil at the toe. The extent of lateral displacement typically ranges from half inch to several feet. Two types of lateral spread can occur: lateral spread towards a free face (e.g., a drainage canal or embankment) and lateral spread down a gentle ground slope where a free face is absent. Factors such as earthquake magnitude, distance from the seismic energy source, thickness of the liquefiable layers, fines content and particle size of those sediments also correlate with ground displacement.

Lateral spreading has been addressed in the referenced reports. The calculations showed that the potential lateral displacement could reach approximately 3.6 inches, representing a lateral load expressed as an equivalent fluid pressure of 400 pcf for a depth equal to the thickness of the liquefiable sandy Marine Deposits.

6.0 EXPANSION POTENTIAL

According to the laboratory testing performed by Stratum Geotechnical Consultants, the fill materials on site were found to have a low expansion index. Testing of samples within the development area revealed results in the low range. Table 1 below summarizes the expansion index testing results.

TABLE 1
EXPANSION INDEX

Company	Boring	Sample Depth	Soil Description	Expansion Index
Stratum GC	B-1	1'	Fill	25
	B-2	5'		17
Robertson Geotechnical	BR-2 & BR-3	1' & 2'		15
	BR-3	10’		5

7.0 SOIL CORROSIVITY

Chemical testing was performed on the onsite materials as indicated in the referenced reports. The results and a description of these phenomena and mitigation measures are provided below.

Sulfates Content

Soluble sulfates react chemically with the hydrated lime and calcium aluminate of hardened cement to form calcium aluminate and calcium sulfo-aliminate. The effect is disintegration of the concrete. In addition to the potential detrimental effects of high concentrations of sulfate to certain admixtures of concrete, sulfates may catalyze reaction of certain clay minerals in soil columns which then undergo large, isolated volume changes which prove detrimental to some structures. Type V cement is normally used where sulfates are present.

The results indicate that the soluble sulfate content is up to 180 ppm within selected soil samples. Therefore, the soils will have a moderate impact on the cement used at the site as shown on Table 2 below.

TABLE 2
RECOMMENDATIONS FOR CONCRETE IN SULFATE ENVIRONMENTS

Sulfate Exposure	Soluble Sulfates in Soil (%)	Sulfates in Water (ppm)	Recommended Cement Type	Maximum Water/Cement Ratio	Minimum Cement Content (lbs)
Moderate	0.10 - 0.20	150 - 1,500	II	0.55	470
Severe	0.20 - 2.0	1,500 - 10,000	V	0.45	660
Very Severe	> 2.0	Over 10,000	V + Pozzolan	0.45	660

Soil Resistivity

It is stated in the referenced reports that the materials on-site are very corrosive to ferrous metal. However, the appropriate testing results have not been provided. Considering the very high corrosion potential estimated by Stratum GC, GSC recommends that a registered corrosion engineer be consulted.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on our research, and analyses, the proposed development is feasible from a geologic and geotechnical engineering perspective, provided the recommendations contained in one of the two options presented herein are incorporated into the final design and construction phase of proposed development. It should be noted that all structures should be founded on deepened foundations into bedrock, regardless of the option selected.

8.1 Option 1

Based on the subsurface material and the results of the engineering analyses we recommend removals be performed. The removals should extend a minimum of 5 feet beyond the proposed building footprint as depicted on Plate 2, Geologic Cross-Sections.

All non-certified fill and liquefiable sandy marine deposits should be removed. The liquefiable soils should be removed from the project site and the non-liquefiable rock

and gravel should be mixed with 3/4" gravel and compacted to bring the soil elevation up to the level of the structure.

Grading guidelines are provided in Appendix C of this report.

8.2 Option 2

As an alternative to the removals recommended in Section 8.1, the following recommendations should be added to the final piles design presented in Section 8.6:

1. All piles in contact with the liquefiable sandy Marine Deposits shall be designed to resist a down-drag force of 75 psf for all soil encountered above the depth of the bottom of the liquefiable sandy Marine Deposits layer.

2. All piles in contact with the liquefiable sandy Marine Deposits shall be designed to resist a lateral earth pressure by possible lateral spreading of the liquefying materials. The proposed piles shall be designed to resist a passive force expressed as an equivalent fluid pressure of 400 pcf for a depth equal to the thickness of the liquefiable sandy Marine Deposits layer.

8.3 Temporary Excavations

Temporary cuts may be made vertical up to five feet in height, thereafter; cuts should be laid back to a 1:1 or less. The recommended temporary excavation slopes do not preclude local raveling or sloughing. All applicable requirements of the California Construction and General Industry Safety Orders, the Occupational Safety and Health Act, and the Construction Safety Act should be met.

Where sloped embankments are used, the top of the slope should be barricaded to prevent equipment and heavy storage loads within five feet of the top of the slope. If the temporary construction embankments are to be maintained for long periods, berms should be constructed along the top of the slope to prevent runoff water from eroding the slope faces.

The soils exposed in the temporary back-cut slopes during excavation should be observed by our personnel so that modifications of the slopes can be made if variations in the soil conditions occur. On-site grading should not undermine support of existing offsite improvements.

In areas where removals are not possible due to existing structures or property lines, temporary shoring may be utilized following the recommendations provided below.

8.4 Temporary Shoring

Temporary shoring will be required for the construction of the basement. Excavations up to approximately 40 feet deep are required. Excavations will expose bedrock, colluvium and fill. In order to cut the excavation for construction of the retaining walls, it is recommended soldier piles be utilized. Shoring piles may be incorporated into the permanent wall condition and have a maximum retaining height of 40 feet. Design and construction recommendations for soldier piles are provided below.

8.5 Soldier Pile Design

Based upon soils encountered in the subsurface excavations, it is our opinion that temporary shoring system should be designed for an equivalent fluid pressure of 41.8 pcf. This value was obtained using the program Slide. The analyses details and output are provided in Appendix B.

Resistance to lateral loads can be assumed to be provided by passive earth pressures within bedrock and surficial materials. An allowable passive earth pressure of 350 pounds per square foot, per foot of depth into competent bedrock, and 200 pounds per square foot, per foot of depth into surficial materials may be used. The maximum allowable passive pressure should be limited to 3,500 pounds per square foot for bedrock and 2,000 pounds per square foot for surficial materials. The passive pressure may be increased by 100 percent for isolated piles.

Piles should be a minimum of 18 inches in diameter. Maximum width of pile spacing should be no more than eight feet on-center. Lagging is recommended.

Materials exposed in the face of any cut should be kept moist, but not saturated, to retard raveling and sloughing during construction. If soldier piles with timber lagging are used, the lagging should be pressure treated as the soldier piles and timber lagging will remain in place following construction. Care should be taken to fill all void spaces between the excavation face and lagging. Any materials used for backfill behind the excavation walls must be free-draining material. All lagging should be placed as soon as possible after the excavation is made.

Traffic and other surcharge loads should be considered in the design of the soldier pile system.

8.6 Deepened Foundation Recommendations

We recommend deepened foundations be utilized for the construction of the new hotel on the lower parcel of the site. We recommend the following engineering criteria be utilized.

Vertical Capacity

Foundation support may be derived by drilled cast-in-place, reinforced concrete piles designed for frictional resistance. All piles must extend a minimum of 10 feet into bedrock material.

The allowable skin friction value includes dead and live loads and may be increased by one third for short duration loading (wind forces, seismic forces…).

TABLE 3
CAST-IN-PLACE PILES

Soil Layer	Minimum Pile Diameter (in)	Allowable Skin Friction (psf)
Bedrock	24	700

Lateral Capacity

Lateral capacity may be derived from friction at the base of foundations and by passive earth pressure within the bedrock material. Lateral capacity values are provided in Table 4. The existing fill/colluvium may not be utilized for structural support.

For design of isolated piles, the allowable passive earth pressure may be increased by 100 percent. Piles that are spaced more than 2½ pile diameters on center may be considered isolated.

TABLE 4
CAST-IN-PLACE PILES, LATERAL CAPACITY

Soil Layer	Passive Earth Pressure EFP (pcf)	Maximum Earth Pressure (psf)	Allowable Coefficient of Friction
Bedrock	350	5,000	0.40

General Recommendations

1. Piles should be tied together in at least one horizontal direction with grade and/or tie beams, which can carry by tension or compression a minimum horizontal force equal to ten percent of the larger pile loading.

2. Prior to the placement of concrete, all loose material at the bottom of the pile excavation should be removed. If the pile excavation has had standing water for 12 hours or more, prior to concrete placement, the bottom should be re-drilled at least two more feet, and cleaned of all loose debris. Standing water should be pumped out prior to pouring concrete.

3. In lieu of removing standing water prior to placing concrete (i.e. pumping water), the concrete may be placed by the tremie method to displace collected water. The solid tremie tube shall be long enough to reach the bottom of the excavation. When concrete is being placed, the solid tremie tube must be kept full of concrete at all times, with the lower end immersed in

the concrete just deposited. The concrete shall at no time be placed through the water. When water over three inches in depth is present in drilled pile holes, a concrete mix with a strength pounds per square inch of 1,000 over the design p.s.i. shall be tremied from bottom up. An admixture that reduces the problem of segregation of paste/aggregates and dilution of paste shall be included.

Drilling Recommendations

3. All drilling should be observed by the Geotechnical Engineer or Engineering Geologist before placing steel or pouring concrete. The City Inspector should also observe the excavations.

4. The Geologist or Geotechnical Engineer should observe all excavations to verify that the foundations are founded to the required depth into the recommended bearing material.

5. It is the Contractor's responsibility to provide a safe working area during drilling operations. All excavations, if not poured immediately after excavation, shall be adequately covered.

Slab-on-Grade Recommendations

Soil material from foundations excavations should not be spread in the areas of slabs-on-grade unless it is compacted and tested. Subgrade soil beneath footings and slabs should be pre-moistened prior to placement of concrete.

Any proposed slabs should be designed for minimum 4-inch thickness, reinforced with No. 4 rebar at 16 inches on-center in both directions. All steel reinforcement should be placed mid-height in the slab. Moisture sensitive slabs should be underlain by six mil visqueen vapor barrier, sandwiched between two, two-inch layers of sand.

8.7 Retaining Walls Recommendations

We offer the following recommendations for the construction of the proposed retaining walls. All retaining walls shall be founded on piles following the recommendations presented above.

Wall Drainage

To preclude the build-up of hydrostatic pressure, we recommend that a four-inch-diameter perforated drainpipe be installed behind the heel of the wall and that a curtain drain be placed behind the entire wall. This curtain drain should consist of pea gravel, washed rock, or a mixture of these materials wrapped in approved filter material, extending outward at least one foot from the wall and extending from the footing drain upward to within about three feet of the ground surface. The backside of all subterranean walls should be waterproofed.

Backfill Soil

To allow the dissipation of potential hydrostatic pressure behind the retaining wall, we recommend that all retaining wall backfill placed behind the curtain drain should consist of clean, free-draining, granular material. On-site granular soils can be used for this purpose provided their moisture content is near optimum. In the latter case, a geotextile should be placed between the curtain drain and backfill to prevent fines infiltration into the drainage rock.

Backfill Compaction

To prevent the build-up of lateral soil pressures in excess of the recommended design pressures, over-compaction of the fill behind the wall should be avoided; however, a lesser degree of compaction may permit excessive post-construction settlements. Backfill above a 45-degree plane projected upward from the base should be placed in horizontal lifts not exceeding 8 inches in loose depth and

compacted by small, hand-operated compaction equipment. All backfill must be compacted to a minimum 90 percent relative compaction per ASTM-1556-07.

Grading and Capping

To retard the infiltration of surface water into the wall backfill soils, the backfill surface of exterior walls should be adequately sloped to drain away from the wall. We also recommend that the backfill surface directly behind the wall be capped with asphalt, concrete, or three feet of low-permeability soil.

Applied Loads

Overturning and sliding loads applied to retaining walls can be classified as active, at-rest, seismic surcharge, and hydrostatic pressures.

Yielding (cantilever) retaining walls should be designed to withstand an appropriate *active* lateral earth pressure, whereas non-yielding (restrained) walls should be designed to withstand an appropriate *at-rest* lateral earth pressure. These pressures act over the entire back of the wall and vary with the back-slope inclination.

The proposed retaining wall located at the rear portion of the lower parcel should be designed for an equivalent fluid pressure of 61.5 pcf. This value was obtained using the program Slide and it includes all static and seismic loading. The analyses details and output are provided in Appendix B.

For all other proposed retaining walls, we recommend using the active and at-rest pressures, given as equivalent fluid pressures, provided in Table 5.

TABLE 5
RETAINING WALLS, APPLIED LOADS

Back-Slope Gradient (H:V)	Active Equivalent Fluid Pressure (pcf)	At-Rest Equivalent Fluid Pressure (pcf)
Level	30	45
3:1	38	55
2:1	43	65

Seismic Pressures

The following seismic design criteria must be incorporated into the design of the retaining walls over 6 feet in retained height.

From NavFac: $\Delta P_{ae} = 3/8\gamma H^2 k_h$

H = Height of Wall

$k_h = 0.4\ S_{DS} = 0.608$

$\gamma = 120$ pcf

$\Delta P_{ae} = 3/8(120\text{ pcf})(0.608)H^2 = 27.4*H^2$ [lb/ft]

The combined static and seismic load can be expressed using Seed and Whitman's (1970) notation where P_a is the static load and ΔP_{ae} is the seismic load increment:

$$P_{ae} = P_a + \Delta P_{ae}\ [\text{lb/ft}]$$

This resultant force (static and seismic loading) acts 1/3H from the base (Lew et al. 2010).

Surcharge Pressures

Any anticipated, superimposed loading (i.e., upper retaining walls, traffic surcharge or other structures, etc.) within a 45-degree plane projected upward from the wall bottom, except retained earth, shall be considered as surcharge and provided for in the design. A vertical component equal to one-third of the horizontal force so obtained may be assumed at the plane of application of the force.

Hydrostatic Pressures

If groundwater is allowed to saturate the backfill soils, hydrostatic pressures will act against a retaining wall. However, if an adequate drainage system is included with each retaining wall, we do *not* expect that hydrostatic pressures will develop.

9.0 LIMITATIONS

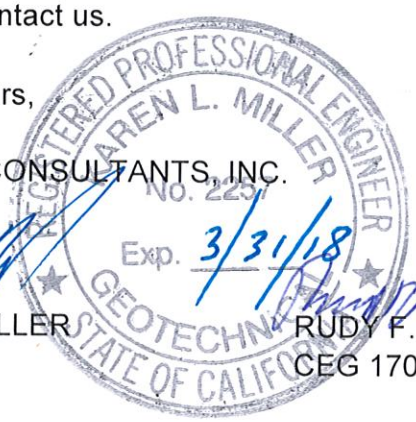
The findings and recommendation of this report were prepared in compliance with the current Grading and Building Code and in accordance with generally accepted professional geotechnical engineering principles and practices. We make no warranty, either expressed or implied.

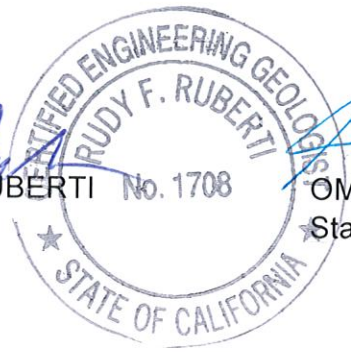
10.0 CLOSURE

We appreciate this opportunity to be of continued service to you. If you have any questions regarding the content of this report or any other aspects of the project, please do not hesitate to contact us.

Very truly yours,

GEOSOILS CONSULTANTS, INC.





KAREN L. MILLER
GE 2257

RUDY F. RUBERTI
CEG 1708

OMAR ATTIOUI
Staff Engineer

KLM.RFR.OA.W:G&G Upd Rpt (rev 2-8-18)

Encl.: References
Plate 1, Site Plan and Geologic Map
Plate 2, Geologic Cross-Sections
Appendix A, Stratum GC, Boring Logs
Appendix B, Slope Stability Analyses
Appendix C, Grading Guidelines

cc: (2) Addressee

MDN 19578A

December 26, 2017
W.O. 7091
(Revised February 8, 2018)

REFERENCES

1. Stratum Geotechnical Consultants dated March 29, 2013, "Geotechnical Investigation, Update Report for a Proposed Retail and Parking Structure at 22729 Pacific Coast Highway, Malibu, California"

2. Stratum Geotechnical Consultants dated August 4, 2014, "Supplemental Geotechnical Letter for a Proposed Retail and Parking Structure at 22729 Pacific Coast Highway, Malibu, California"

3. Stratum Geotechnical Consultants dated March 16, 2016, "Supplemental Geotechnical Letter for a Proposed Retail and Parking Structure at 22729 Pacific Coast Highway, Malibu, California"

4. Stratum Geotechnical Consultants dated May 16, 2016, "Supplemental Geotechnical Letter for a Proposed Retail and Parking Structure at 22729 Pacific Coast Highway, Malibu, California"

MALIBU SEA VIEW HOTEL

22741 AND 22729 PACIFIC COAST HWY. MALIBU CA 90265

PLANNING DEPARTMENT SUBMISSION

HOTEL CONVERTION OF EXISTING OFFICE BUILDING TO HOTEL SITE SUMMARY

EXISTING BUILDING
EXISTING ZONE: CC
PROPOSED ZONE: CV2
ASSESORS NO.: 4452-022-017

PROJECT SCOPE OF WORK: 21 ROOMS WITHIN EXISTING BUILDING WALLS

- 1ST LEVEL ABOVE GARAGE:	9 ROOMS AND BATHROOM	(ELEV. 58.30'	AREA: 6,529 SF)
- 2ND LEVEL ABOVE GARAGE:	6 ROOMS	(ELEV. 70.70'	AREA: 3,351 SF)
- 3RD LEVEL ABOVE GARAGE:	6 ROOMS	(ELEV. 82.70'	AREA: 3,326 SF)
- ROOFTOP DECK:	POOL, GRILL, WETBAR:	(ELEV. 96.20'	AREA: 4,506 SF)

FOUR EMPLOYEE RESTROOMS WITHIN EXISTING WALLS. TERRACE AND BALCONIES FOR EACH ROOM FROM EXISTING BUILDING. TWO NEW ACCESS AND EXIT BALCONIES ADDED TO THE REAR OF BUILDING

NEW HOTEL SITE ON LOWER PARCEL SUMMARY

EXISTING ZONE: CC
PROPOSED ZONE: CV2
ASSESSORS NO.: 4452-022-010

SITE AREA:	18,283 SF
REQUIRED LANDSCAPE AREA:	40% = 7,313 SF
PROVIDED LANDSCAPE AREA:	46% = 8,416.8 SF
REQUIRED OPEN SPACE AREA:	25% = 4,571 SF
PROVIDED OPEN SPACE AREA:	33.9% = 6,198 SF
REQUIRED TOTAL LANDSCAPE & OPEN SPACE AREA:	65% = 11,884 SF
PROVIDED TOTAL LANDSCAPE & OPEN SPACE AREA:	80% = 14,614.8 SF

NEW BUILDING TOTAL AREA:

- A SEA CAVE CAFE, FULL KITCHEN AND STORAGE (BASEMENT)=	3,130 SF - EXEMPT
- FIRST LEVEL RECEPTION, EL. 21.50' =	203.5 SF
- SECOND LEVEL, 8 ROOMS =	4,203.91 SF
- THIRD LEVEL, 7 ROOMS =	2,550.29 SF
TOTAL =	6,957.7 SF
TOTAL - NON-EXEMPT	6,957.7 SF
15% X SITE AREA	2,742 SF
AREA IN EXCESS OF 15% FAR	4,215.7 SF

PARKING SUMMARY

PARKING PROVIDED

A.	EXISTING OFFICE BUILDING (UPPER BUILDING)	
	1. STANDARD PARKING AT 22741 PCH	34
	2. COMPACT PARKING AT 22741 PCH	11
	3. VALET PARKING AT 22741 PCH	26
B.	NEW HOTEL BUILDING (PROPOSED LOWER PARCEL)	
	1. STANDARD PARKING AT 22741 PCH	23
	2. COMPACT PARKING AT 22741 PCH	0
	3. VALET PARKING AT 22741 PCH	6
C.	TOTALS	
	1. STANDARD PARKING	57
	2. COMPACT PARKING	11
	3. VALET PARKING	32
	TOTAL PARKING PROVIDED	**100 SPACES**

PARKING REQUIRED

A.	36 ROOMS X 2	72
B.	RESTAURANT SERVING AREA	9
C.	RECEPTION ROOM	1
D.	STAFF	4
	TOTAL PARKING REQUIRED	**86 SPACES**

INDEX COMPOSITE SITE PLAN

A1.00 SITE PLAN - COMBINED PROJECT SURVEY
A1.10 NEW HOTEL - NEW BUILDING - BASEMENT LEVEL
A1.11 NEW HOTEL - NEW BUILDING - FIRST LEVEL
A1.12 NEW HOTEL - NEW BUILDING - SECOND LEVEL
A1.13 NEW HOTEL - NEW BUILDING - THIRD LEVEL
A1.14 EXISTING BUILDING - FIRST LEVEL INTERNAL REMODEL - ALL EXTERIOR WALLS ARE PERMITTED AND EXISTING
A1.15 EXISTING BUILDING - SECOND LEVEL INTERNAL REMODEL - ALL EXTERIOR WALLS ARE PERMITTED AND EXISTING
A1.16 EXISTING BUILDING - THIRD LEVEL INTERNAL REMODEL - ALL EXTERIOR WALLS ARE PERMITTED AND EXISTING
A1.40 EXISTING BUILDING - ROOF TOP TERRACE LEVEL - ALL EXTERIOR WALLS ARE PERMITTED AND EXISTING
A2.10 ELEVATIONS
A2.11 ELEVATIONS
A3.10 SECTIONS A-A'
A3.11 SECTIONS B-B'

HATCH LEGEND

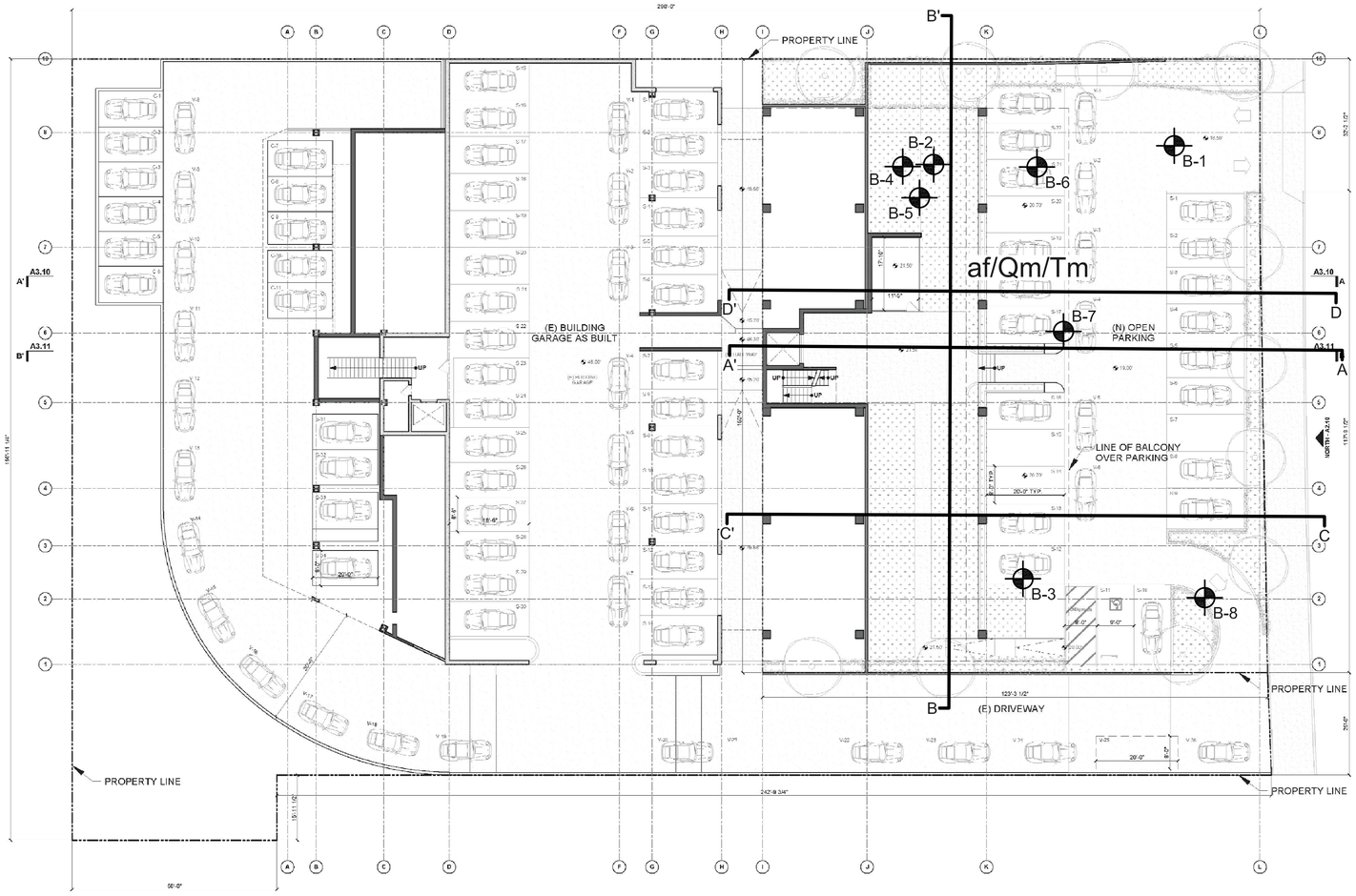
- EXISTING WALLS
- NEW WALLS
- LANDSCAPE AREA

EXPLANATION

af	ARTIFICIAL FILL
Qm	MARINE DEPOSITS
Tm	MODELO FORMATION
D — D'	LINE OF GEOLOGIC SECTION
B-8	APPROXIMATE LOCATION OF BORING

VICINITY MAP





1 SITE PLAN
1" = 20'

N

GSC GeoSoils Consultants Inc.
GEOTECHNICAL • GEOLOGIC • ENVIRONMENTAL
6634 Valjean Avenue
Van Nuys, CA 91406

SITE PLAN AND GEOLOGIC MAP
PACIFIC COAST HIGHWAY
MALIBU, CALIFORNIA
BLUE ONYX DESIGN, INC.

WORK ORDER	DATE	SCALE
7091	12/2017	1" = 20'

REVISED 2/18

PLATE 1

MDN 19578A

DMR CONSTRUCTION, INC.
16654 SOLEDAD CANYON RD. #505
CANYON COUNTRY, CA 91387

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Blue Onyx Design & Engineering, Inc.
22741 Pacific Coast Highway, Suite 400, Malibu CA 90265
310-456-5515

MALIBU SEA VIEW HOTEL
22741 / 22729 PCH
MALIBU, CA 90265

ISSUANCE:

DATE	DESCRIPTION	NO
03/04/17	SCHEMATIC DESIGN	
03/25/17	SCHEMATIC DESIGN	
04/04/17	SCHEMATIC DESIGN	
04/14/17	SCHEMATIC DESIGN	
08/17/17	PLANNING DEPT SUB	

PLANNING DEPT. SUBMISSION
NOT FOR CONSTRUCTION

SITE PLAN
COMBINED PROJECT

A1.00

8/25/2017 2:06 PM

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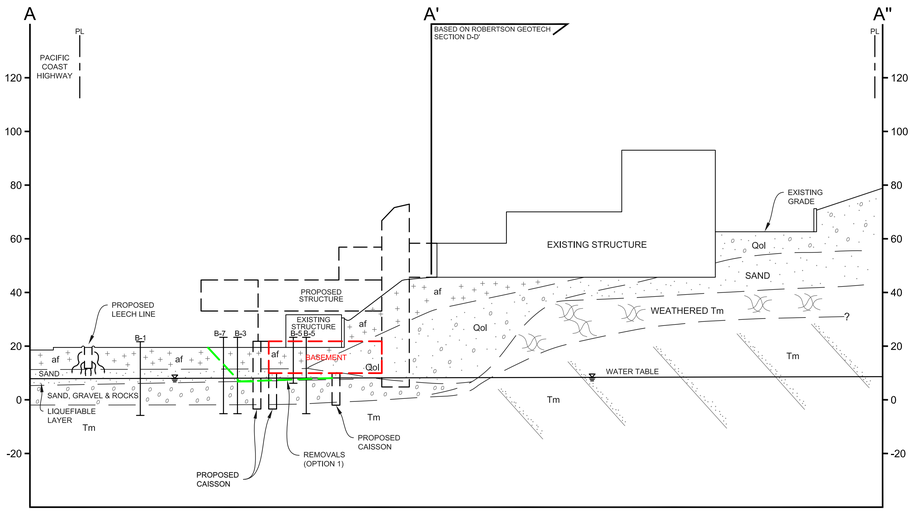

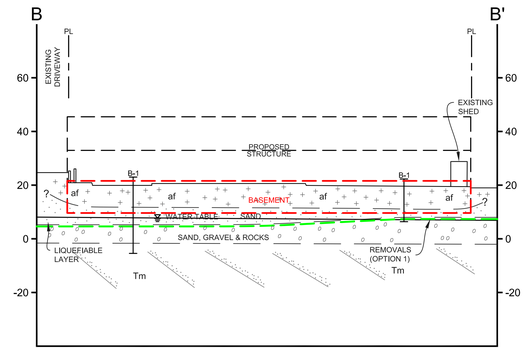

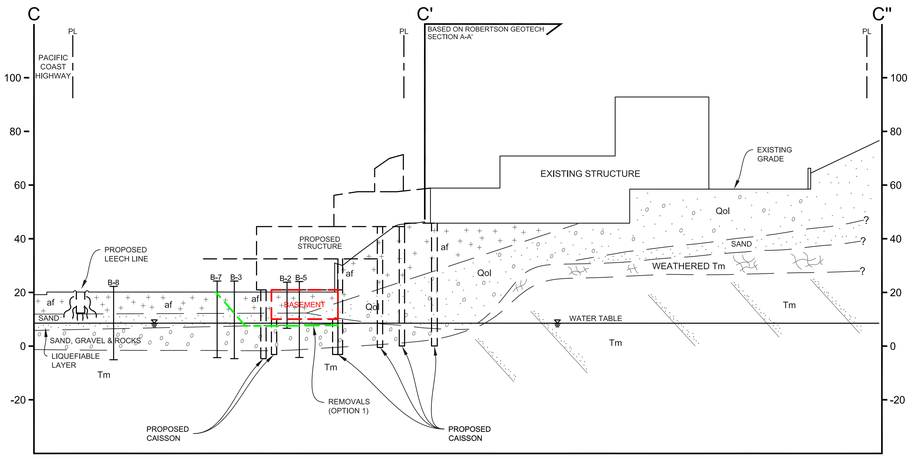

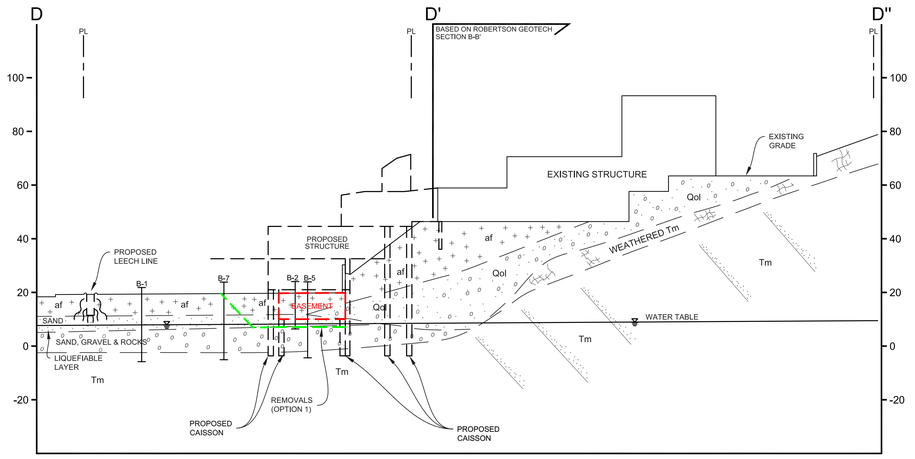

GSC GeoSoils Consultants Inc.
GEOTECHNICAL•ENGINEERING•GEOLOGY•ENVIRONMENTAL
6634 Valjean Avenue
Van Nuys, CA 91406

GEOLOGIC CROSS-SECTIONS
PACIFIC COAST HIGHWAY
MALIBU, CALIFORNIA
BLUE ONYX DESIGN, INC.

WORK ORDER	DATE	SCALE
7091	12/2017	1" = 20'

REVISED 2/18

MDN 19578A

PLATE 2

X:\2001 w.o\gsc-cad\7091\CURRENT\2-12-18\PLATE 2 GEO X-SEC 2-12-18.dwg, 2/12/2018 11:32:37 AM, Adobe PDF.pc3

December 26, 2017
W.O. 7091
(Revised February 8, 2018)

APPENDIX A

STRATUM GC, BORING LOGS

STRATUM GC
GEOTECHNICAL CONSULTANTS
24808 MULHOLLAND HIGHWAY, CALABASAS, CALIFORNIA 91302
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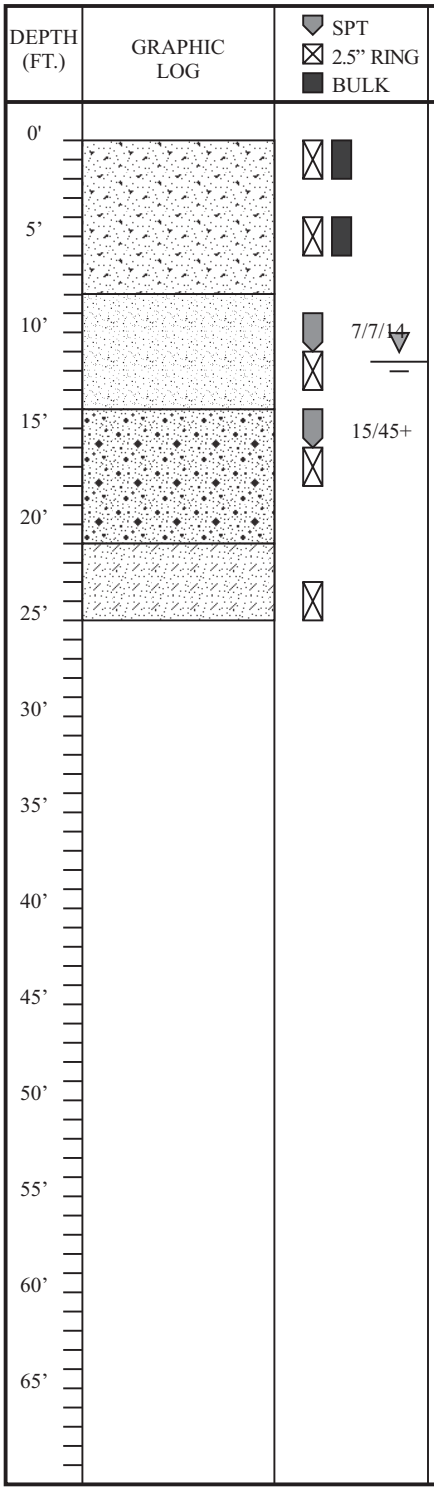
PLATE:	B-1
BORING ID:	B-1
PROJECT NO.:	07037
DATE:	10/8/07

EXPLORATORY BORING LOG



0' - 8': Fill; dark gray brown, clayey silty sand, moist, moderately dense, slight organic/petroleum odor

8' - 14': Littoral Sands; reddish brown to light yellow, coarse-grained sand, occasional cobbles (up to 2" in diameter), moist to wet, moderately dense to dense, becomes denser with depth, organic/petroleum odor

11' 6": Free Water

14' - 21': Littoral Gravel; yellow brown, cobbles with a sandy matrix, very abundant cobbles (greater than 4" in diameter), wet, moderately dense to dense, difficult drilling due to cobbles, organic/petroleum odor

21' - 25': Bedrock; Monterey Formation; intercalated, yellow brown, fine-grained, sandstones, and dark gray, siltstones, weathered, medium bedded, planar-bedding, moderately well indurated, organic/petroleum odor

Test Depth = 25'
Free Water at 11' 6"
Hollow-Stem Continuous-Auger Boring
Logged on 8/15/07
Refusal at 15' during first attempt.
Grade at elevation 18.7', bedrock surface at elevation -2.3'

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PLATE:	B-2
BORING ID:	B-2
PROJECT NO.:	07037
DATE:	10/8/07

EXPLORATORY BORING LOG

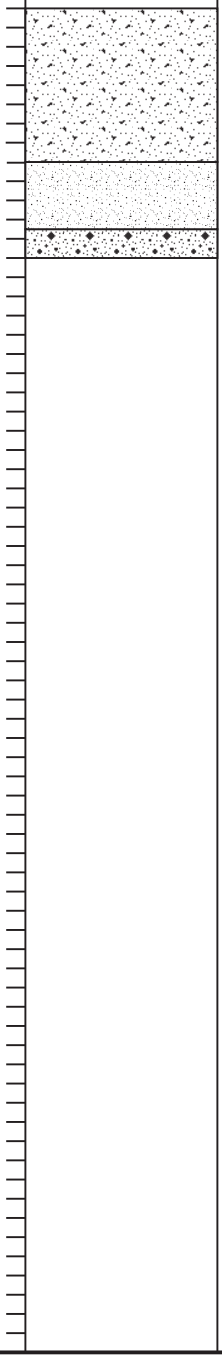
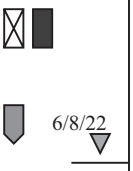
DEPTH (FT.)	GRAPHIC LOG	SPT / 2.5" RING / BULK	MATERIAL DESCRIPTION
0' – 65'		 6/8/22	0' - 8': Fill; dark gray brown, clayey silty sand, moist, moderately dense, slight organic/petroleum odor 8' - 11' 6": Littoral Sands; reddish brown to light yellow, coarse-grained sand, occasional cobbles (up to 2" in diameter), moist, moderately dense to dense, becomes denser with depth, organic/petroleum odor 11' 6" - 13': Littoral Gravel; yellow brown, cobbles with a sandy matrix, very abundant cobbles (greater than 4" in diameter), wet, moderately dense to dense, difficult drilling due to cobbles, organic/petroleum odor 12': Free Water Test Depth = 13' Free Water at 12' Hollow-Stem Continuous-Auger Boring Logged on 8/15/07 Refusal at 13' due to cobbles

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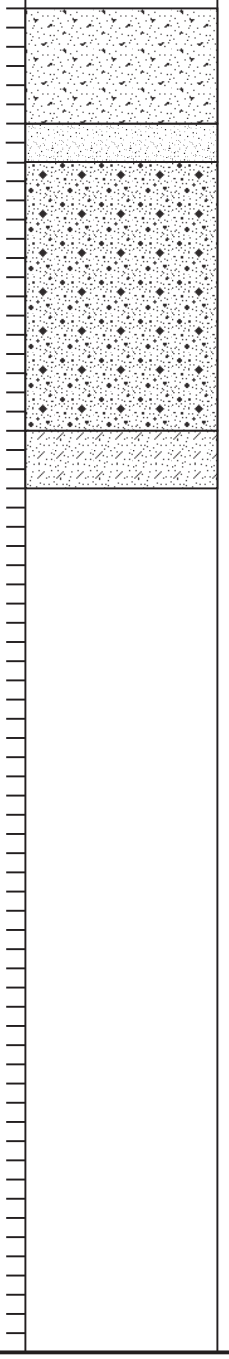
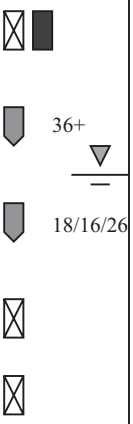
PLATE:	B-3
BORING ID:	B-3
PROJECT NO.:	07037
DATE:	10/8/07

EXPLORATORY BORING LOG

DEPTH (FT.)	GRAPHIC LOG	SPT / 2.5" RING / BULK	MATERIAL DESCRIPTION
0' – 65'			0' - 6': Fill; dark gray brown, clayey silty sand, moist, moderately dense, slight organic/petroleum odor 6' - 8': Littoral Sands; reddish brown to light yellow, coarse-grained sand, occasional cobbles (up to 2" in diameter), moist, moderately dense to dense, becomes denser with depth, organic/petroleum odor 8' - 22': Littoral Gravel; yellow brown, cobbles with a sandy matrix, very abundant cobbles (greater than 4" in diameter), wet, moderately dense to dense, difficult drilling due to cobbles, strong organic/petroleum odor, traces of oil/tar below 20' 12' 6": Free Water 22' - 25': Bedrock; Monterey Formation; intercalated, yellow brown, fine-grained, sandstones, and dark gray, siltstones, weathered, medium bedded, planar-bedding, moderately well indurated, very organic/petroleum odor

Test Depth = 25'
Free Water at 12' 6"
Hollow-Stem Continuous-Auger Boring
Logged on 8/15/07
Refusal at 12' and 13' during first two attempts.
Grade at elevation 19.4', bedrock surface at elevation -2.6'

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PLATE:	B-4
BORING ID:	B-4
PROJECT NO.:	07037
DATE:	11/7/08

EXPLORATORY BORING LOG

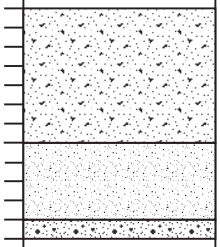
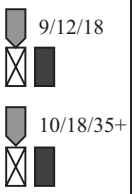
DEPTH (FT.)	GRAPHIC LOG	SPT / 2.5" RING / BULK	MATERIAL DESCRIPTION
0'			0' - 7': Fill; dark gray brown, clayey silty sand, moist, moderately dense, occasional rock fragments (up to 2" in diameter) 7' - 11': Littoral Sands; reddish brown to light yellow, coarse-grained sand, occasional cobbles (up to 2" in diameter), moist, moderately dense to dense, becomes denser with depth 11' - 12': Littoral Gravel; yellow brown, cobbles with a sandy matrix, very abundant cobbles (greater than 4" in diameter), wet, moderately dense to dense, difficult drilling due to cobbles Test Depth = 12' No Water. Hollow-Stem Continuous-Auger Boring Logged on 10/2/08 Refusal at 12' due to cobbles
5'			
10'			
15'			
20'			
25'			
30'			
35'			
40'			
45'			
50'			
55'			
60'			
65'			

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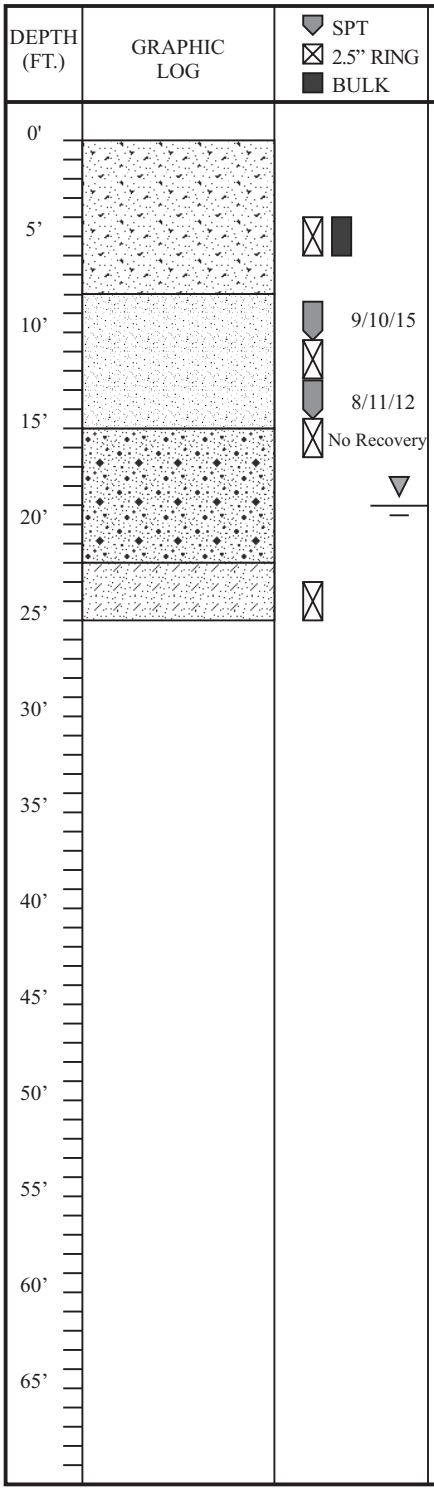
PLATE:	B-5
BORING ID:	B-5
PROJECT NO.:	07037
DATE:	11/7/08

EXPLORATORY BORING LOG



MATERIAL DESCRIPTION

0' - 8': Fill; dark gray brown, clayey silty sand, moist, moderately dense

8' - 15': Littoral Sands; reddish brown to light yellow, coarse-grained sand, occasional cobbles (up to 2" in diameter), moist to wet, moderately dense to dense, becomes denser with depth, organic/petroleum odor

15' - 22': Littoral Gravel; yellow brown, cobbles with a sandy matrix, very abundant cobbles (greater than 4" in diameter), moist to wet, moderately dense to dense, difficult drilling due to cobbles, organic/petroleum odor

19': Free Water

22' - 25': Bedrock; Monterey Formation; intercalated, dark yellow brown, fine-grained, sandstones, and dark gray to black, siltstones, weathered, medium bedded, planar-bedding, moderately well indurated

Test Depth = 25'
Free Water at 19'
Hollow-Stem Continuous-Auger Boring
Logged on 10/2/08
Refusal at 13' during first attempt.
Grade at elevation 20.0', bedrock surface at elevation -2.0'

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PLATE:	B-6
BORING ID:	B-6
PROJECT NO.:	07037
DATE:	11/7/08

EXPLORATORY BORING LOG

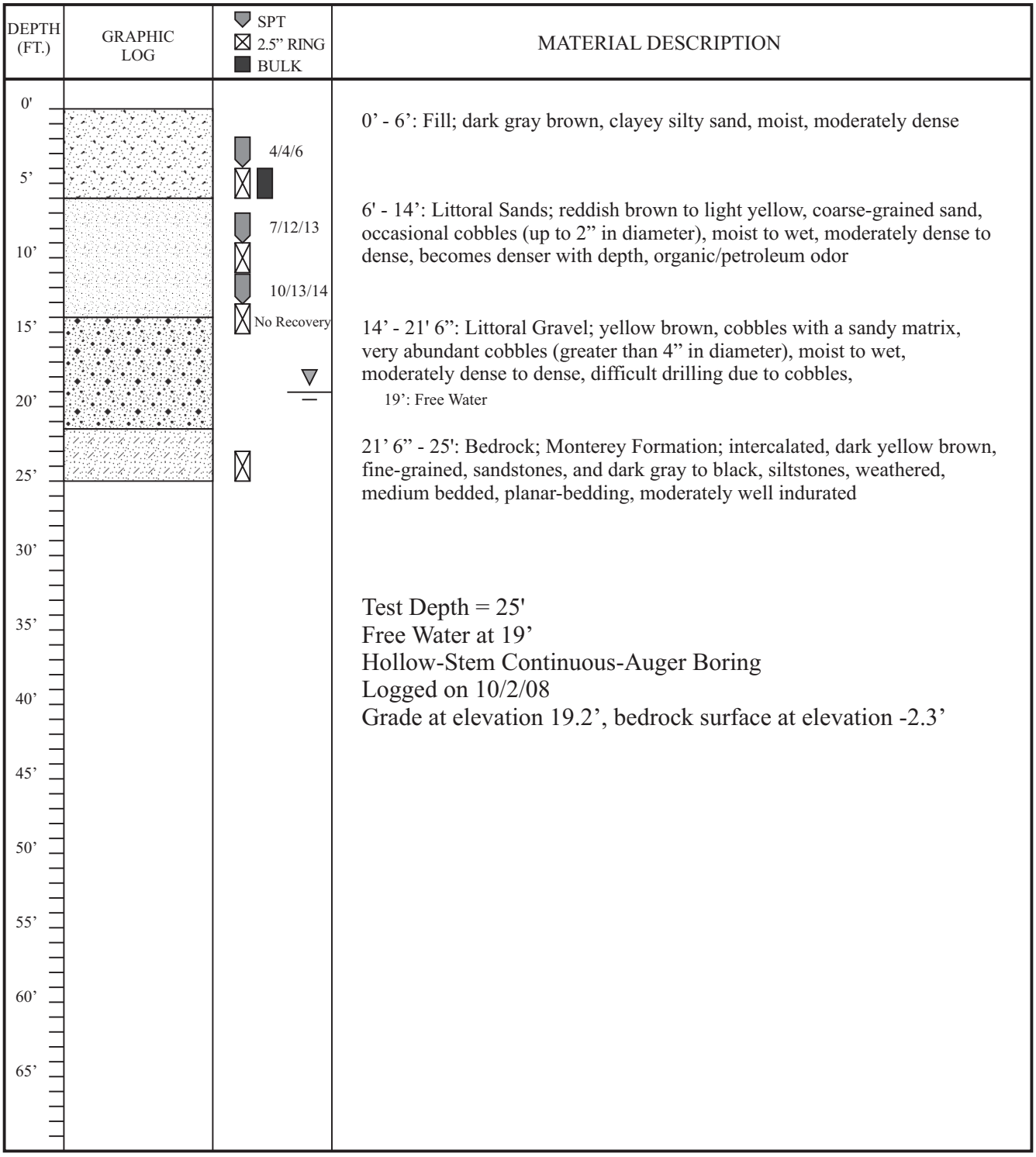

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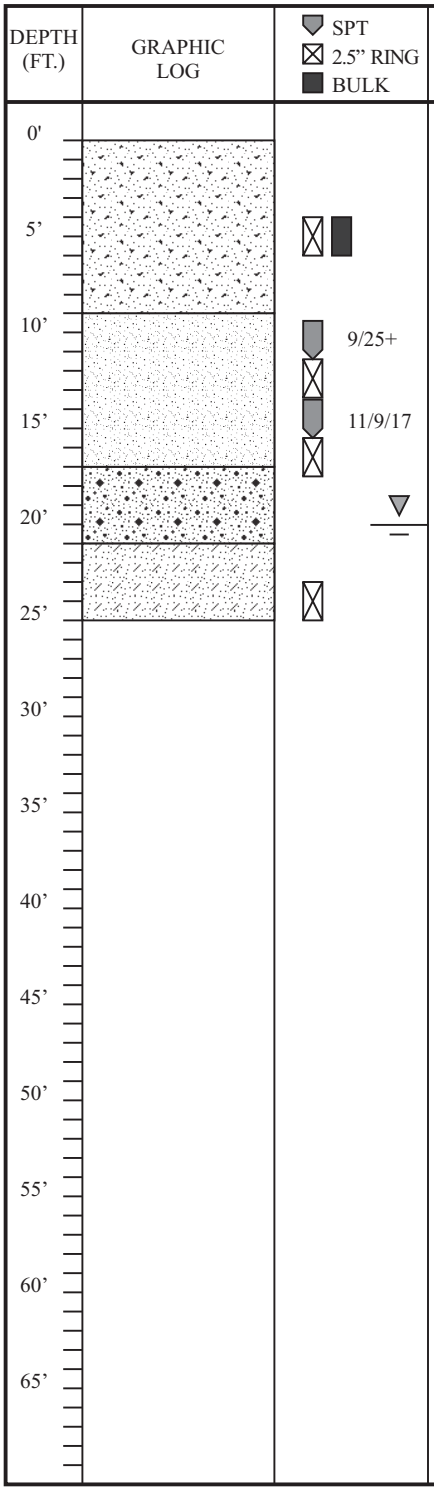
PLATE:	B-7
BORING ID:	B-7
PROJECT NO.:	07037
DATE:	11/7/08

EXPLORATORY BORING LOG



0' - 9': Fill; dark gray brown, clayey silty sand, moist, moderately dense

9' - 17': Littoral Sands; reddish brown to light yellow, coarse-grained sand, occasional cobbles (up to 2" in diameter), moist to wet, moderately dense to dense, becomes denser with depth, organic/petroleum odor

17' - 21': Littoral Gravel; yellow brown, cobbles with a sandy matrix, very abundant cobbles (greater than 4" in diameter), moist to wet, moderately dense to dense, difficult drilling due to cobbles, organic/petroleum odor

20': Free Water

21' - 25': Bedrock; Monterey Formation; intercalated, dark yellow brown, fine-grained, sandstones, and dark gray to black, siltstones, weathered, medium bedded, planar-bedding, moderately well indurated

Test Depth = 25'
Free Water at 20'
Hollow-Stem Continuous-Auger Boring
Logged on 10/2/08
Grade at elevation 18.5', bedrock surface at elevation -2.5'

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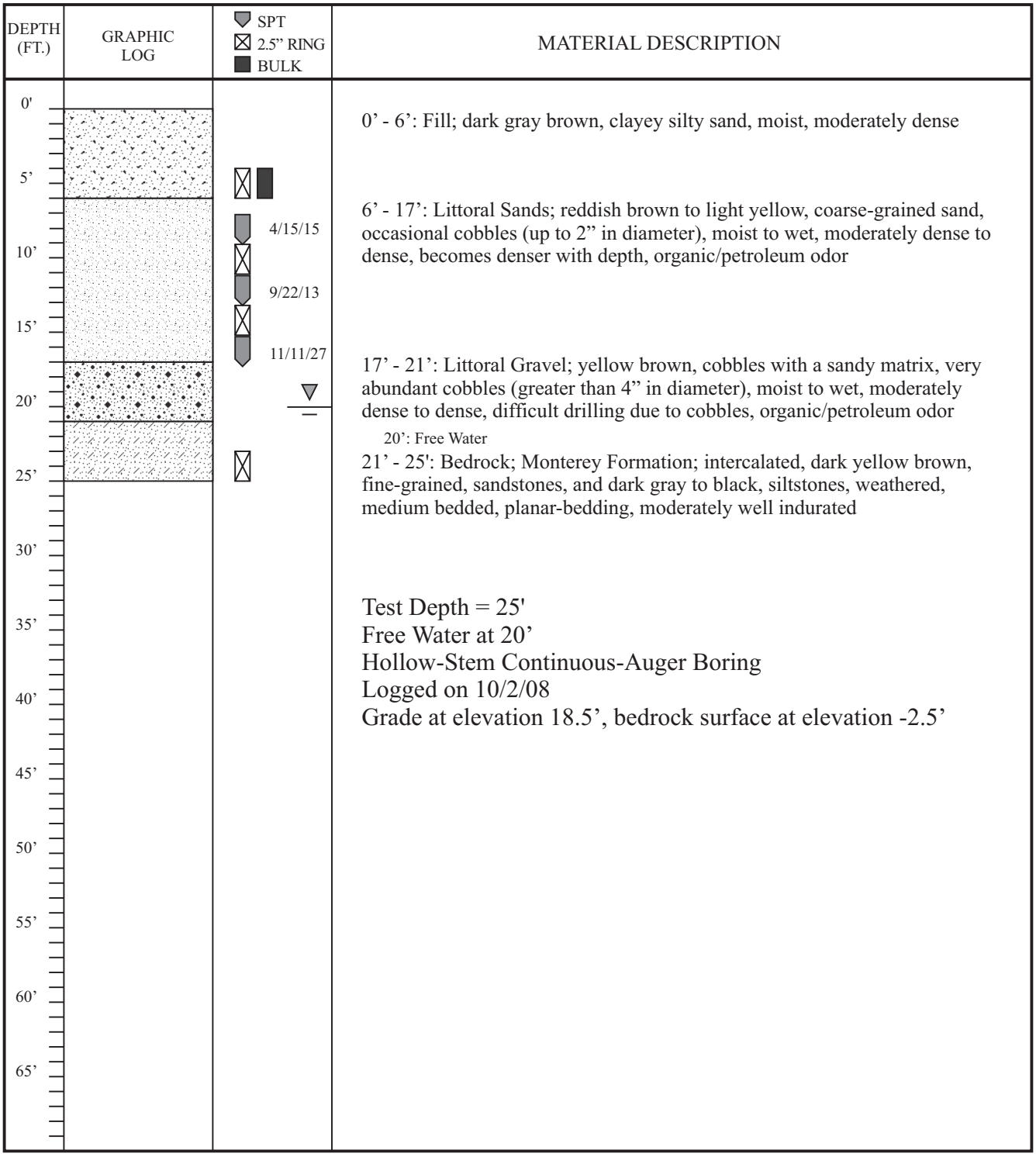
PLATE:	B-8
BORING ID:	B-8
PROJECT NO.:	07037
DATE:	11/7/08

EXPLORATORY BORING LOG



December 26, 2017
W.O. 7091
(Revised February 8, 2018)

APPENDIX B

SLOPE STABILITY ANALYSES

December 26, 2017
W.O. 7091
(Revised February 8, 2018)

APPENDIX B

SLOPE STABILITY ANALYSES

1.0 Introduction

SLIDE 7.0 is a fully integrated and comprehensive slope stability analysis program. Slide is a 2D slope stability program for evaluating the safety factor or probability of failure, of circular or non-circular failure surfaces in soil or rock slopes and can create complex models to be analyzed.

Slide 7.0 analyzes the stability of slip surfaces using vertical slice limit equilibrium methods (e.g. Bishop, Janbu, Spencer, etc). Individual slip surfaces can be analyzed, or search methods can be applied to locate the critical slip surface for a given slope. Deterministic (safety factor) or probabilistic (probability of failure) analyses can be examined.

2.0 General Information

If the reviewer wishes to obtain more information concerning slope stability analysis, the following publications may be consulted:

- The Stability of Slopes, by E.N. Bromhead, Surrey University Press, Chapman and Hall, NY, 374 pages, ISBN 0 412 01061 5 (1985).
- Rock Slope Engineering, by E. Hoek and J.W. Bray, Inst. of Mining and Metrallurgy, London, England, Third Edition, 358 pages, ISBN 0900488 573 (1981).
- Landslides: Analysis and Control, by R.L. Schuster and R.J. Krizek (editors), Special Report 176, Transportation Research Board, National Academy of Sciences, 234 pages, ISBN 0 309 02804 3 (1978).

Appendix B

3.0 Slide Features

The present version of Slide contains the following features:

- Critical surface search methods for circular or non-circular slip surfaces
- Analysis methods include Bishop, Janbu, Spencer
- Multiple materials
- Anisotropic, non-linear Mohr-Coulomb materials
- Probabilistic analysis – calculate probability of failure, reliability index (see below)
- Sensitivity Analysis
- Groundwater – piezo surfaces, Ru factors, pore pressure grids, finite element seepage analysis (see below), excess pore pressure (B-bar method)
- Finite element groundwater seepage for steady state or transient conditions
- Rapid drawdown analysis
- Tension crack (dry or water filled)
- External loading – line, distributed or seismic
- Support – soil nails, tiebacks, geotextiles, piles. Infinite strength (slip surface exclusion) zones
- Back analysis of required support force for a given safety factor
- Back analysis of material strength using sensitivity or probabilistic analysis
- View any or all surfaces generated by search
- Detailed analysis results can be plotted for individual slip surfaces

Appendix B

4.0 Input Data

Input data includes the following items:

- Unit weight, cohesion, friction angle of bedrock material, alluvium and fill
- Slope geometry, surcharge boundary loads and water surface elevations
- Water level conditions for full basin and rapid draw down conditions
- Pseudo-static earthquake loading

5.0 Output Information

Output information includes:

- All input data
- Factors of safety for the global minimum slip surface
- High quality plots that include the slope geometry and slip surfaces

6.0 Stability Analysis

GeoSoils Consultants, Inc. has performed slope stability analysis for the proposed development as depicted on Geologic Cross-Section A-A'.

Soil Parameters

The parameters used in the slope stability calculations can be found in Table B1 and are based on shear strengths included in the referenced reports.

TABLE B-1
SHEAR DATA SUMMARY

Soil Description	Reshear Values		Unit Weight (pcf)
	Cohesion (psf)	Friction Angle (°)	
Artificial Fill (af)	242.7	27.8	120
Colluvium (Qol)	150	31	120
Marine Deposits (Qm)	174.2	29.2	120
Bedrock (Tm)	300	28	120
Weathered Bedrock (Tm)	300	28	120

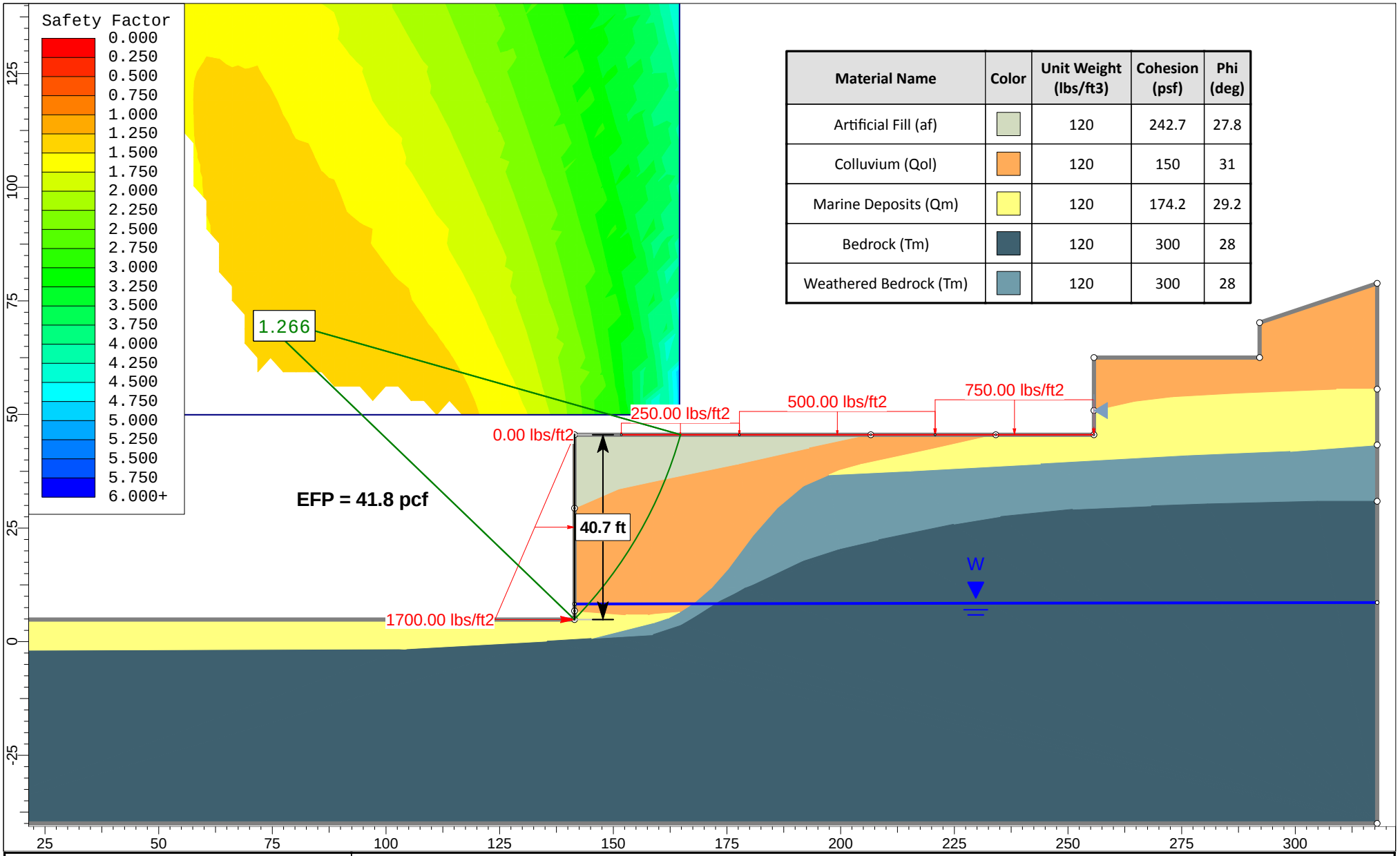
Appendix B

7.0 Results

The results of the stability analyses are shown in Table B-2. It should be noted that Spencer's method was utilized in the analysis which satisfies both force and moment equilibrium. A K_h value of 0.35 was used in the seismic analysis. All output diagrams and data are included herein.

TABLE B-2
STABILITY ANALYSES RESULTS

Cross-Section	Description	Retaining Height (ft)	EFP (pcf)	Lowest Factor of Safety	
				Static	Seismic
A-A'	Temporary Excavation	40.7	41.8	1.266	-
	Permanent Retaining Wall		61.5	1.901	1.012



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (deg)
Artificial Fill (af)		120	242.7	27.8
Colluvium (Qol)		120	150	31
Marine Deposits (Qm)		120	174.2	29.2
Bedrock (Tm)		120	300	28
Weathered Bedrock (Tm)		120	300	28

GeoSoils Consultants Inc.
GEOTECHNICAL GEOLOGIC ENVIRONMENTAL

SLIDEINTERPRET 7.029

Project	7091 - Blue Onyx Design			
Analysis Description	Section A-A' - Temporary Cut			
Drawn By	Omar Attioui	Scale	1:350	Company: GeoSoils Consultants, Inc.
Date	11/30/2017			File Name: Section A-A'.slmd

Slide Analysis Information

7091 - Blue Onyx Design

Project Summary

File Name:	Section A-A'.slmd - Section A-A' - Section A-A' - Temporary Cut
Slide Modeler Version:	7.029
Project Title:	7091 - Blue Onyx Design
Analysis:	Section A-A' - Temporary Cut
Author:	Omar Attioui
Company:	GeoSoils Consultants, Inc.
Date Created:	11/30/2017

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Failure Direction:	Right to Left
Data Output:	Standard
Maximum Material Properties:	20
Maximum Support Properties:	20

Analysis Options

Slices Type:	Vertical

Analysis Methods Used
Spencer

Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Circular
Search Method:	Grid Search
Radius Increment:	10
Composite Surfaces:	Disabled
Reverse Curvature:	Invalid Surfaces
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

4 Distributed Loads present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	250
Orientation:	Normal to boundary

Distributed Load 2	
Distribution:	Constant
Magnitude [psf]:	500
Orientation:	Normal to boundary

Distributed Load 3	
Distribution:	Constant
Magnitude [psf]:	750
Orientation:	Normal to boundary

Distributed Load 4	
Distribution:	Triangular
Magnitude 1 [psf]:	0
Magnitude 2 [psf]:	1700
Orientation:	Normal to boundary

Material Properties

Property	Artificial Fill (af)	Colluvium (Qol)	Marine Deposits (Qm)	Bedrock (Tm)	Weathered Bedrock (Tm)
Color					
Strength Type	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [lbs/ft3]	120	120	120	120	120
Cohesion [psf]	242.7	150	174.2	300	300
Friction Angle [deg]	27.8	31	29.2	28	28
Water Surface	Water Table	Water Table	Water Table	Water Table	Water Table
Hu Value	1	1	1	1	1

Global Minimums

Method: spencer

FS	1.265810
Center:	71.798, 71.946
Radius:	96.704
Left Slip Surface Endpoint:	141.463, 4.876
Right Slip Surface Endpoint:	164.822, 45.526
Left Slope Intercept:	141.463 45.526
Right Slope Intercept:	164.822 45.526
Resisting Moment:	4.73385e+006 lb-ft
Driving Moment:	3.73979e+006 lb-ft
Resisting Horizontal Force:	27117.4 lb
Driving Horizontal Force:	21423 lb
Total Slice Area:	565.156 ft2
Surface Horizontal Width:	23.3594 ft
Surface Average Height:	24.1939 ft

Valid / Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	13881
Number of Invalid Surfaces:	14730

Error Codes:

Error Code -103 reported for 540 surfaces
Error Code -106 reported for 463 surfaces
Error Code -107 reported for 389 surfaces
Error Code -108 reported for 4923 surfaces
Error Code -110 reported for 6286 surfaces
Error Code -111 reported for 2128 surfaces
Error Code -112 reported for 1 surface

Error Codes

The following errors were encountered during the computation:

-103 = Two surface / slope intersections, but one or more surface / nonslope external polygon intersections lie between them. This usually occurs when the slip surface extends past the bottom of the soil region, but may also occur on a benched slope model with two sets of Slope Limits.
-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-107 = Total driving moment or total driving force is negative. This will occur if the wrong failure direction is specified, or if high external or anchor loads are applied against the failure direction.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.26581

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [degrees]	Base Material	Base Cohesion [psf]	Base Friction Angle [degrees]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.414238	2009.89	46.265	Marine Deposits (Qm)	174.2	29.2	0	0	-523.314	199.828	-723.142	-523.314	-723.142
2	0.414238	1988.23	46.6212	Marine	174.2	29.2	1523.73	1928.75	3312.08	172.69	3139.39	4924.57	4751.88

				Deposits (Qm)									
3	0.414238	1966.31	46.9797	Marine Deposits (Qm)	174.2	29.2	1509.9	1911.25	3253.29	145.211	3108.08	4871.31	4726.1
4	0.414238	1944.1	47.3407	Marine Deposits (Qm)	174.2	29.2	1495.94	1893.58	3193.85	117.383	3076.46	4817.3	4699.91
5	0.494908	2293.18	47.7398	Colluvium (Qol)	150	31	1531.7	1938.84	3063.55	86.4166	2977.13	4749.22	4662.8
6	0.494908	2260.58	48.1777	Colluvium (Qol)	150	31	1513.57	1915.89	2991.16	52.2239	2938.93	4682.66	4630.44
7	0.494908	2227.48	48.6193	Colluvium (Qol)	150	31	1495.22	1892.67	2917.8	17.498	2900.3	4614.95	4597.46
8	0.469078	2080.2	49.0532	Colluvium (Qol)	150	31	1472.24	1863.58	2851.89	0	2851.89	4548.68	4548.68
9	0.469078	2049.53	49.4791	Colluvium (Qol)	150	31	1444.64	1828.64	2793.72	0	2793.72	4483.92	4483.92
10	0.469078	2018.4	49.9087	Colluvium (Qol)	150	31	1416.8	1793.4	2735.08	0	2735.08	4418.1	4418.1
11	0.469078	1986.8	50.3422	Colluvium (Qol)	150	31	1388.72	1757.86	2675.94	0	2675.94	4351.18	4351.18
12	0.469078	1954.69	50.7798	Colluvium (Qol)	150	31	1360.42	1722.03	2616.3	0	2616.3	4283.13	4283.13
13	0.469078	1922.09	51.2214	Colluvium (Qol)	150	31	1331.87	1685.89	2556.15	0	2556.15	4213.92	4213.92
14	0.469078	1888.96	51.6673	Colluvium (Qol)	150	31	1303.06	1649.43	2495.47	0	2495.47	4143.5	4143.5
15	0.469078	1855.29	52.1177	Colluvium (Qol)	150	31	1274.01	1612.66	2434.28	0	2434.28	4071.86	4071.86
16	0.469078	1821.07	52.5726	Colluvium (Qol)	150	31	1244.71	1575.57	2372.56	0	2372.56	3998.96	3998.96
17	0.469078	1786.28	53.0324	Colluvium (Qol)	150	31	1215.15	1538.15	2310.28	0	2310.28	3924.73	3924.73
18	0.469078	1750.9	53.497	Colluvium (Qol)	150	31	1185.33	1500.4	2247.45	0	2247.45	3849.16	3849.16
19	0.469078	1714.91	53.9669	Colluvium (Qol)	150	31	1155.24	1462.31	2184.05	0	2184.05	3772.16	3772.16
20	0.469078	1678.29	54.4421	Colluvium (Qol)	150	31	1124.87	1423.87	2120.08	0	2120.08	3693.72	3693.72
21	0.469078	1641.02	54.9228	Colluvium (Qol)	150	31	1094.22	1385.08	2055.53	0	2055.53	3613.77	3613.77
22	0.469078	1603.08	55.4094	Colluvium (Qol)	150	31	1063.3	1345.94	1990.36	0	1990.36	3532.25	3532.25
23	0.469078	1564.43	55.9021	Colluvium (Qol)	150	31	1085.84	1374.47	2037.86	0	2037.86	3641.77	3641.77
24	0.469078	1525.06	56.4011	Colluvium (Qol)	150	31	1072.52	1357.61	2009.8	0	2009.8	3624.14	3624.14
25	0.469078	1484.93	56.9067	Colluvium (Qol)	150	31	1040.19	1316.68	1941.68	0	1941.68	3537.73	3537.73
26	0.469078	1444.02	57.4192	Colluvium (Qol)	150	31	1007.54	1275.36	1872.9	0	1872.9	3449.52	3449.52
27	0.469078	1402.28	57.9391	Colluvium (Qol)	150	31	974.562	1233.61	1803.44	0	1803.44	3359.38	3359.38
28	0.469078	1359.69	58.4666	Colluvium (Qol)	150	31	941.255	1191.45	1733.26	0	1733.26	3267.24	3267.24
29	0.469078	1316.2	59.0021	Colluvium (Qol)	150	31	907.604	1148.85	1662.37	0	1662.37	3173	3173
30	0.469078	1271.77	59.5461	Colluvium (Qol)	150	31	873.605	1105.82	1590.75	0	1590.75	3076.57	3076.57
31	0.469078	1226.36	60.099	Colluvium (Qol)	150	31	839.249	1062.33	1518.37	0	1518.37	2977.81	2977.81
32	0.469078	1179.91	60.6614	Colluvium (Qol)	150	31	804.53	1018.38	1445.23	0	1445.23	2876.63	2876.63
33	0.469078	1132.37	61.2338	Colluvium (Qol)	150	31	769.438	973.962	1371.31	0	1371.31	2772.87	2772.87
34	0.469078	1083.69	61.8168	Colluvium (Qol)	150	31	733.965	929.06	1296.58	0	1296.58	2666.38	2666.38
35	0.469078	1033.78	62.411	Colluvium (Qol)	150	31	698.103	883.666	1221.02	0	1221.02	2557	2557

36	0.469078	982.587	63.0174	Colluvium (Qol)	150	31	661.843	837.768	1144.64	0	1144.64	2444.55	2444.55
37	0.469078	930.019	63.6366	Colluvium (Qol)	150	31	625.178	791.357	1067.4	0	1067.4	2328.84	2328.84
38	0.469078	875.986	64.2696	Colluvium (Qol)	150	31	588.098	744.42	989.279	0	989.279	2209.6	2209.6
39	0.469078	820.385	64.9175	Colluvium (Qol)	150	31	550.596	696.95	910.279	0	910.279	2086.61	2086.61
40	0.469078	763.101	65.5814	Colluvium (Qol)	150	31	512.664	648.935	830.367	0	830.367	1959.56	1959.56
41	0.469078	704	66.2628	Colluvium (Qol)	150	31	474.296	600.368	749.538	0	749.538	1828.11	1828.11
42	0.469078	642.931	66.9631	Colluvium (Qol)	150	31	435.486	551.243	667.781	0	667.781	1691.89	1691.89
43	0.469078	579.72	67.6842	Colluvium (Qol)	150	31	396.232	501.555	585.086	0	585.086	1550.44	1550.44
44	0.475847	521.084	68.4337	Artificial Fill (af)	242.7	27.8	375.488	475.297	441.16	0	441.16	1391.17	1391.17
45	0.475847	450.919	69.2144	Artificial Fill (af)	242.7	27.8	336.372	425.783	347.249	0	347.249	1233.42	1233.42
46	0.475847	377.751	70.0243	Artificial Fill (af)	242.7	27.8	296.673	375.532	251.939	0	251.939	1068.12	1068.12
47	0.475847	301.214	70.867	Artificial Fill (af)	242.7	27.8	256.389	324.54	155.223	0	155.223	894.254	894.254
48	0.475847	220.86	71.7472	Artificial Fill (af)	242.7	27.8	215.523	272.811	57.1109	0	57.1109	710.597	710.597
49	0.475847	136.126	72.6705	Artificial Fill (af)	242.7	27.8	174.093	220.369	-42.3546	0	-42.3546	515.583	515.583
50	0.475847	46.2931	73.6444	Artificial Fill (af)	242.7	27.8	132.087	167.197	-143.204	0	-143.204	306.877	306.877

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.26581

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [degrees]
1	141.463	4.87606	34538	0	0
2	141.877	5.30901	34764.5	-2230.83	-3.67162
3	142.291	5.74738	33944.6	-2178.22	-3.67163
4	142.706	6.19128	33126.8	-2125.74	-3.67162
5	143.12	6.64082	32311.5	-2073.42	-3.67162
6	143.615	7.18548	31401.9	-2015.06	-3.67164
7	144.11	7.73857	30497.6	-1957.03	-3.67163
8	144.605	8.30031	29599.6	-1899.4	-3.67162
9	145.074	8.84094	28749.3	-1844.84	-3.67163
10	145.543	9.38975	27894.6	-1789.99	-3.67162
11	146.012	9.94697	27036	-1734.9	-3.67164
12	146.481	10.5128	26174.1	-1679.59	-3.67163
13	146.95	11.0876	25309.4	-1624.1	-3.67163
14	147.419	11.6714	24442.5	-1568.47	-3.67162
15	147.888	12.2647	23574.1	-1512.75	-3.67164
16	148.357	12.8676	22704.8	-1456.96	-3.67162
17	148.826	13.4805	21835.2	-1401.16	-3.67162
18	149.295	14.1038	20966.2	-1345.4	-3.67163
19	149.765	14.7376	20098.4	-1289.71	-3.67162
20	150.234	15.3825	19232.6	-1234.15	-3.67162
21	150.703	16.0387	18369.7	-1178.78	-3.67162
22	151.172	16.7067	17510.6	-1123.65	-3.67162
23	151.641	17.3869	16656.2	-1068.82	-3.67161
24	152.11	18.0798	15754.2	-1010.94	-3.67161
25	152.579	18.7858	14838.9	-952.212	-3.67164
26	153.048	19.5056	13930	-893.885	-3.67162
27	153.517	20.2396	13028.5	-836.035	-3.67162
28	153.986	20.9885	12135.6	-778.74	-3.67163
29	154.455	21.753	11252.7	-722.084	-3.67163
30	154.924	22.5337	10381.1	-666.154	-3.67163
31	155.393	23.3315	9522.33	-611.047	-3.67163
32	155.863	24.1472	8677.96	-556.863	-3.67162
33	156.332	24.9818	7849.7	-503.714	-3.67163
34	156.801	25.8362	7039.4	-451.717	-3.67163
35	157.27	26.7117	6249.06	-401.001	-3.67163
36	157.739	27.6094	5480.86	-351.706	-3.67163
37	158.208	28.5307	4737.16	-303.983	-3.67163
38	158.677	29.4771	4020.55	-257.998	-3.67163
39	159.146	30.4505	3333.86	-213.933	-3.67162
40	159.615	31.4527	2680.22	-171.989	-3.67162
41	160.084	32.4858	2063.09	-132.388	-3.67162
42	160.553	33.5526	1486.33	-95.3775	-3.67162
43	161.022	34.6557	954.245	-61.2337	-3.67162
44	161.491	35.7985	471.699	-30.2688	-3.67162
45	161.967	37.0024	119.489	-7.66756	-3.67161
46	162.443	38.256	-155.558	9.98213	-3.67163
47	162.919	39.5651	-344.015	22.0754	-3.67163
48	163.395	40.9368	-434.757	27.8983	-3.67163
49	163.871	42.3796	-414.466	26.5962	-3.67162
50	164.347	43.9046	-266.924	17.1285	-3.67163
51	164.822	45.526	0	0	0

List Of Coordinates

Water Table

X	Y
141.463	8.29452
318	8.62014

Distributed Load

X	Y
177.738	45.526
151.762	45.526

Distributed Load

X	Y
220.783	45.526
206.636	45.526
177.738	45.526

Distributed Load

X	Y
255.693	45.526
234.115	45.526
220.783	45.526

Distributed Load

X	Y
141.463	45.526
141.463	29.3689
141.463	6.76795
141.463	4.859

External Boundary

X	Y
318	-40
318	30.908
318	43.2875
318	55.574
318	78.847
292.141	70.204
292.141	62.526
255.714	62.526
255.714	50.8836
255.714	45.526
234.115	45.526
206.636	45.526
141.463	45.526
141.463	29.3689
141.463	6.76795
141.463	4.859
0	4.859
0	-1.95699
0	-40

Material Boundary

X	Y
141.463	29.3689
151.2	33.591
159.411	35.367
177.521	39.123
193.097	42.616
206.636	45.526

Material Boundary

X	Y
141.463	6.76795
152.854	5.894
157.571	5.894
164.588	6.506
167.732	8.515
171.634	11.892
175.244	15.998
180.776	23.422
186.046	29.42
191.811	34.253
197.421	36.6956
199.701	37.688
204.447	38.999
219.499	42.23
234.115	45.526

Material Boundary

X	Y
0	-1.95699
104.195	-1.605
135.26	0.092
145.239	0.708022
150.536	1.035
158.633	1.507
164.87	3.577
173.308	9.001
178.915	11.753
191.703	17.858
199.695	20.426
208.185	22.392
224.955	25.877
235.018	27.527
251.133	29.152
268.165	29.886
280.665	30.305
304.851	30.908
318	30.908

Material Boundary

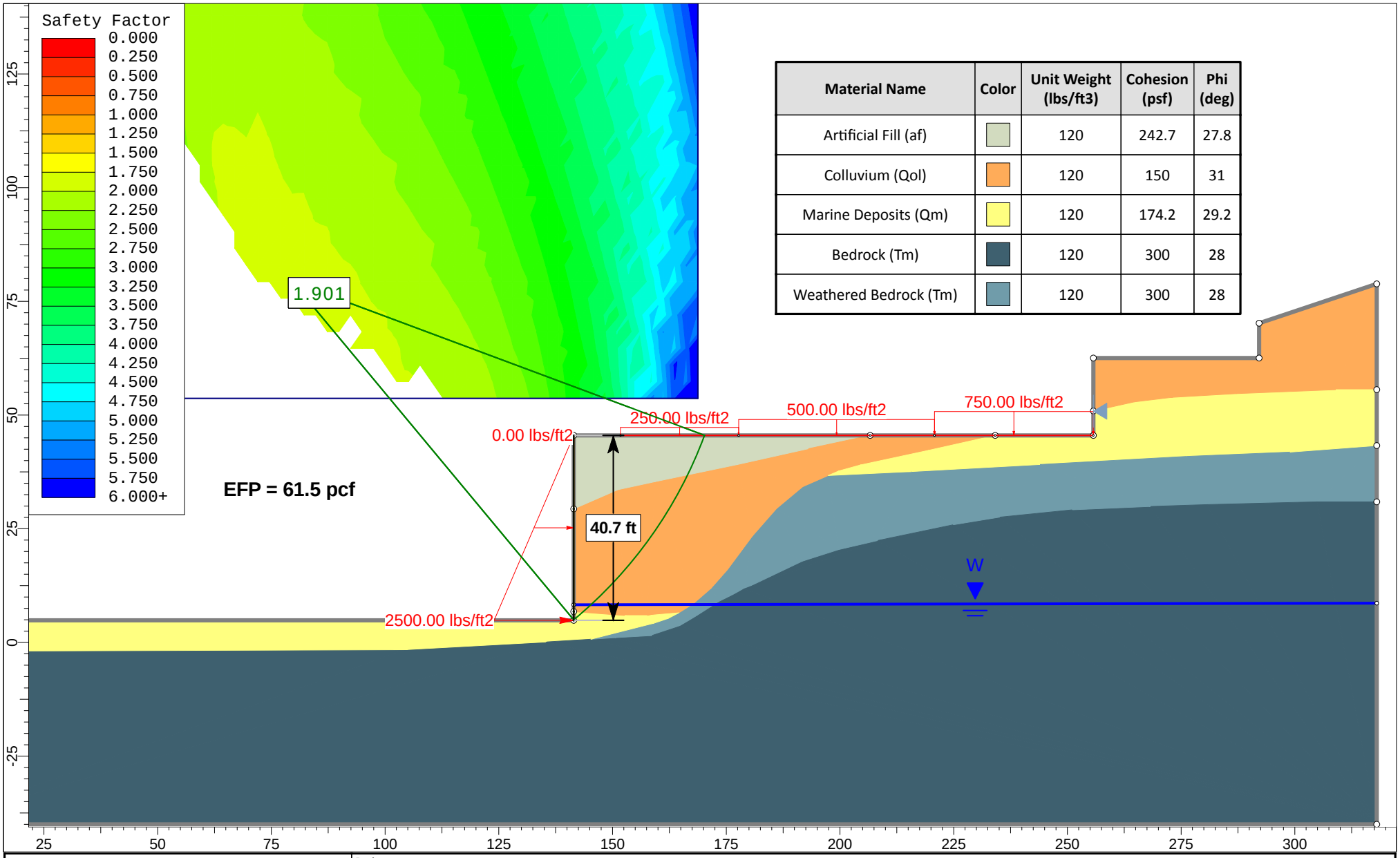
X	Y
145.239	0.708022
159.09	4.219
162.217	5.261
164.588	6.506

Material Boundary

X	Y
197.421	36.6956
215.725	37.572
244.05	39.118
276.22	40.915
298.938	41.85
318	43.2875

Material Boundary

X	Y
255.714	50.8836
264.644	52.889
272.894	53.892
287.096	54.701
309.126	55.574
318	55.574



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (deg)
Artificial Fill (af)		120	242.7	27.8
Colluvium (Qol)		120	150	31
Marine Deposits (Qm)		120	174.2	29.2
Bedrock (Tm)		120	300	28
Weathered Bedrock (Tm)		120	300	28

GeoSoils Consultants Inc.
GEOTECHNICAL GEOLOGIC ENVIRONMENTAL

SLIDEINTERPRET 7.029

Project	7091 - Blue Onyx Design			
Analysis Description	Section A-A' - Retaining Wall - Static			
Drawn By	Omar Attioui	Scale	1:350	Company: GeoSoils Consultants, Inc.
Date	11/30/2017			File Name: Section A-A'.slmd

Slide Analysis Information

7091 - Blue Onyx Design

Project Summary

File Name:	Section A-A'.slmd - Section A-A' - Section A-A' - Retaining Wall - Static
Slide Modeler Version:	7.029
Project Title:	7091 - Blue Onyx Design
Analysis:	Section A-A' - Retaining Wall - Static
Author:	Omar Attioui
Company:	GeoSoils Consultants, Inc.
Date Created:	11/30/2017

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Failure Direction:	Right to Left
Data Output:	Standard
Maximum Material Properties:	20
Maximum Support Properties:	20

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Circular
Search Method:	Grid Search
Radius Increment:	10
Composite Surfaces:	Disabled
Reverse Curvature:	Invalid Surfaces
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

4 Distributed Loads present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	250
Orientation:	Normal to boundary

Distributed Load 2	
Distribution:	Constant
Magnitude [psf]:	500
Orientation:	Normal to boundary

Distributed Load 3	
Distribution:	Constant
Magnitude [psf]:	750
Orientation:	Normal to boundary

Distributed Load 4	
Distribution:	Triangular
Magnitude 1 [psf]:	0
Magnitude 2 [psf]:	2500
Orientation:	Normal to boundary

Material Properties

Property	Artificial Fill (af)	Colluvium (Qol)	Marine Deposits (Qm)	Bedrock (Tm)	Weathered Bedrock (Tm)
Color					
Strength Type	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [lbs/ft3]	120	120	120	120	120
Cohesion [psf]	242.7	150	174.2	300	300
Friction Angle [deg]	27.8	31	29.2	28	28
Water Surface	Water Table	Water Table	Water Table	Water Table	Water Table
Hu Value	1	1	1	1	1

Global Minimums

Method: spencer

FS	1.900840
Center:	79.670, 79.312
Radius:	96.686
Left Slip Surface Endpoint:	141.463, 4.949
Right Slip Surface Endpoint:	170.261, 45.526
Left Slope Intercept:	141.463 45.526
Right Slope Intercept:	170.261 45.526
Resisting Moment:	6.28602e+006 lb-ft
Driving Moment:	3.30697e+006 lb-ft
Resisting Horizontal Force:	41130.5 lb
Driving Horizontal Force:	21638.1 lb
Total Slice Area:	692.574 ft2
Surface Horizontal Width:	28.7978 ft
Surface Average Height:	24.0496 ft

Valid / Invalid Surfaces

Method: spencer

Number of Valid Surfaces: 17677
Number of Invalid Surfaces: 10934

Error Codes:

Error Code -103 reported for 433 surfaces
Error Code -106 reported for 246 surfaces
Error Code -107 reported for 293 surfaces
Error Code -108 reported for 2118 surfaces
Error Code -110 reported for 6031 surfaces
Error Code -111 reported for 1813 surfaces

Error Codes

The following errors were encountered during the computation:

-103 = Two surface / slope intersections, but one or more surface / nonslope external polygon intersections lie between them. This usually occurs when the slip surface extends past the bottom of the soil region, but may also occur on a benched slope model with two sets of Slope Limits.
-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-107 = Total driving moment or total driving force is negative. This will occur if the wrong failure direction is specified, or if high external or anchor loads are applied against the failure direction.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = safety factor equation did not converge

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.90084

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [degrees]	Base Material	Base Cohesion [psf]	Base Friction Angle [degrees]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.651582	3151.33	39.9775	Marine Deposits (Qm)	174.2	29.2	1239.24	2355.59	4094.88	191.739	3903.15	5133.9	4942.16
2	0.651582	3108.23	40.4833	Marine Deposits (Qm)	174.2	29.2	1156.13	2197.61	3777.88	157.417	3620.46	4764.72	4607.3
3	0.651582	3064.35	40.9929	Marine Deposits (Qm)	174.2	29.2	1144.34	2175.21	3702.86	122.471	3580.39	4697.38	4574.9
4	0.6234	2890	41.4953	Colluvium (Qol)	150	31	1183.95	2250.5	3583.5	87.6721	3495.83	4630.8	4543.12

5	0.6234	2848.39	41.9904	Colluvium (Qol)	150	31	1171.53	2226.89	3509.56	53.0317	3456.53	4564.05	4511.02
6	0.6234	2806.04	42.4894	Colluvium (Qol)	150	31	1158.96	2203	3434.55	17.7802	3416.77	4496.15	4478.37
7	0.5741	2546.04	42.9724	Colluvium (Qol)	150	31	1142.67	2172.04	3365.24	0	3365.24	4429.77	4429.77
8	0.5741	2508.89	43.4392	Colluvium (Qol)	150	31	1122.66	2133.99	3301.92	0	3301.92	4365.02	4365.02
9	0.5741	2471.13	43.9096	Colluvium (Qol)	150	31	1102.43	2095.55	3237.94	0	3237.94	4299.19	4299.19
10	0.5741	2432.74	44.3837	Colluvium (Qol)	150	31	1082.01	2056.72	3173.31	0	3173.31	4232.29	4232.29
11	0.5741	2393.71	44.8617	Colluvium (Qol)	150	31	1061.36	2017.48	3108	0	3108	4164.25	4164.25
12	0.5741	2354.01	45.3437	Colluvium (Qol)	150	31	1040.5	1977.83	3042.01	0	3042.01	4095.07	4095.07
13	0.5741	2313.64	45.8298	Colluvium (Qol)	150	31	1019.42	1937.76	2975.34	0	2975.34	4024.73	4024.73
14	0.5741	2272.57	46.3203	Colluvium (Qol)	150	31	998.122	1897.27	2907.96	0	2907.96	3953.17	3953.17
15	0.5741	2230.8	46.8151	Colluvium (Qol)	150	31	976.6	1856.36	2839.86	0	2839.86	3880.38	3880.38
16	0.5741	2188.28	47.3146	Colluvium (Qol)	150	31	954.841	1815	2771.03	0	2771.03	3806.31	3806.31
17	0.5741	2145.02	47.8188	Colluvium (Qol)	150	31	932.851	1773.2	2701.46	0	2701.46	3730.93	3730.93
18	0.5741	2100.98	48.328	Colluvium (Qol)	150	31	952.737	1811	2764.37	0	2764.37	3834.75	3834.75
19	0.5741	2056.14	48.8423	Colluvium (Qol)	150	31	946.098	1798.38	2743.36	0	2743.36	3825.69	3825.69
20	0.5741	2010.47	49.362	Colluvium (Qol)	150	31	923.097	1754.66	2670.6	0	2670.6	3746.15	3746.15
21	0.5741	1963.96	49.8872	Colluvium (Qol)	150	31	899.839	1710.45	2597.02	0	2597.02	3665.13	3665.13
22	0.5741	1916.57	50.4182	Colluvium (Qol)	150	31	876.318	1665.74	2522.61	0	2522.61	3582.58	3582.58
23	0.5741	1868.26	50.9552	Colluvium (Qol)	150	31	852.528	1620.52	2447.37	0	2447.37	3498.47	3498.47
24	0.5741	1819.02	51.4985	Colluvium (Qol)	150	31	828.471	1574.79	2371.25	0	2371.25	3412.72	3412.72
25	0.5741	1768.81	52.0483	Colluvium (Qol)	150	31	804.134	1528.53	2294.25	0	2294.25	3325.29	3325.29
26	0.5741	1717.58	52.605	Colluvium (Qol)	150	31	779.508	1481.72	2216.35	0	2216.35	3236.09	3236.09
27	0.5741	1665.31	53.1689	Colluvium (Qol)	150	31	754.598	1434.37	2137.54	0	2137.54	3145.09	3145.09
28	0.5741	1611.94	53.7402	Colluvium (Qol)	150	31	729.388	1386.45	2057.79	0	2057.79	3052.2	3052.2
29	0.5741	1557.44	54.3195	Colluvium (Qol)	150	31	703.873	1337.95	1977.08	0	1977.08	2957.33	2957.33
30	0.5741	1501.76	54.907	Colluvium (Qol)	150	31	678.053	1288.87	1895.39	0	1895.39	2860.42	2860.42
31	0.5741	1444.83	55.5033	Colluvium (Qol)	150	31	651.912	1239.18	1812.69	0	1812.69	2761.35	2761.35
32	0.5741	1386.62	56.1087	Colluvium (Qol)	150	31	625.45	1188.88	1728.98	0	1728.98	2660.05	2660.05
33	0.5741	1327.05	56.7238	Colluvium (Qol)	150	31	598.653	1137.94	1644.21	0	1644.21	2556.4	2556.4
34	0.5741	1266.05	57.3491	Colluvium (Qol)	150	31	571.518	1086.37	1558.37	0	1558.37	2450.29	2450.29
35	0.5741	1203.56	57.9852	Colluvium (Qol)	150	31	544.037	1034.13	1471.44	0	1471.44	2341.58	2341.58
36	0.5741	1139.49	58.6329	Colluvium (Qol)	150	31	516.201	981.215	1383.38	0	1383.38	2230.14	2230.14
37	0.5741	1073.76	59.2928	Colluvium (Qol)	150	31	488.001	927.612	1294.17	0	1294.17	2115.82	2115.82
38	0.5741	1006.26	59.9658	Colluvium	150	31	459.43	873.303	1203.78	0	1203.78	1998.44	1998.44

				(Qol)									
39	0.5741	936.88	60.6527	Colluvium (Qol)	150	31	430.479	818.271	1112.19	0	1112.19	1877.81	1877.81
40	0.5741	865.506	61.3547	Colluvium (Qol)	150	31	401.139	762.502	1019.38	0	1019.38	1753.74	1753.74
41	0.5741	791.997	62.0727	Colluvium (Qol)	150	31	371.404	705.98	925.304	0	925.304	1625.96	1625.96
42	0.5741	716.198	62.8082	Colluvium (Qol)	150	31	341.266	648.692	829.966	0	829.966	1494.23	1494.23
43	0.5741	637.934	63.5625	Colluvium (Qol)	150	31	310.718	590.625	733.323	0	733.323	1358.23	1358.23
44	0.533014	519.92	64.3088	Artificial Fill (af)	242.7	27.8	296.194	563.018	607.536	0	607.536	1223.23	1223.23
45	0.533014	447.851	65.0475	Artificial Fill (af)	242.7	27.8	269.148	511.607	510.027	0	510.027	1088.47	1088.47
46	0.533014	373.274	65.8073	Artificial Fill (af)	242.7	27.8	241.698	459.43	411.064	0	411.064	949.049	949.049
47	0.533014	295.959	66.5901	Artificial Fill (af)	242.7	27.8	213.84	406.475	310.627	0	310.627	804.548	804.548
48	0.533014	215.638	67.3986	Artificial Fill (af)	242.7	27.8	185.568	352.735	208.7	0	208.7	654.468	654.468
49	0.533014	131.994	68.2355	Artificial Fill (af)	242.7	27.8	156.883	298.21	105.284	0	105.284	498.226	498.226
50	0.533014	44.6495	69.1042	Artificial Fill (af)	242.7	27.8	127.819	242.963	0.498159	0	0.498159	335.295	335.295

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.90084

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [degrees]
1	141.463	4.94922	50608.4	0	0
2	142.115	5.49553	49176.8	191.755	0.223412
3	142.766	6.05171	47827	186.492	0.223413
4	143.418	6.61798	46473.9	181.216	0.223413
5	144.041	7.16942	45234	176.381	0.223412
6	144.665	7.73055	43993.2	171.543	0.223413
7	145.288	8.30157	42752.6	166.706	0.223413
8	145.862	8.83642	41607.1	162.239	0.223413
9	146.436	9.38006	40454.9	157.746	0.223413
10	147.01	9.93271	39296.7	153.23	0.223413
11	147.584	10.4946	38133.3	148.693	0.223412
12	148.158	11.0659	36965.3	144.139	0.223413
13	148.733	11.647	35793.6	139.57	0.223412
14	149.307	12.2379	34619.1	134.99	0.223412
15	149.881	12.8391	33442.4	130.402	0.223412
16	150.455	13.4508	32264.5	125.809	0.223412
17	151.029	14.0733	31086.4	121.216	0.223414
18	151.603	14.7068	29909.1	116.625	0.223413
19	152.177	15.3518	28671.7	111.8	0.223413
20	152.751	16.0086	27411.7	106.887	0.223413
21	153.325	16.6775	26153.9	101.982	0.223413
22	153.899	17.359	24899.4	97.0903	0.223412
23	154.474	18.0534	23649.4	92.2164	0.223413
24	155.048	18.7612	22405.3	87.3653	0.223413
25	155.622	19.4829	21168.4	82.5421	0.223413
26	156.196	20.219	19940.1	77.7525	0.223412
27	156.77	20.97	18721.9	73.0025	0.223413
28	157.344	21.7366	17515.5	68.2983	0.223413
29	157.918	22.5193	16322.5	63.6466	0.223413
30	158.492	23.3188	15144.9	59.0546	0.223413
31	159.066	24.1359	13984.5	54.5298	0.223412
32	159.64	24.9713	12843.4	50.0804	0.223413
33	160.215	25.8259	11723.9	45.7152	0.223413
34	160.789	26.7007	10628.4	41.4435	0.223413
35	161.363	27.5966	9559.49	37.2754	0.223413
36	161.937	28.5149	8519.91	33.2218	0.223413
37	162.511	29.4566	7512.72	29.2944	0.223413
38	163.085	30.4232	6541.2	25.5062	0.223413
39	163.659	31.4162	5608.93	21.871	0.223413
40	164.233	32.4373	4719.83	18.4041	0.223413
41	164.807	33.4883	3878.18	15.1222	0.223412
42	165.381	34.5713	3088.71	12.0438	0.223412
43	165.956	35.6888	2356.68	9.1894	0.223412
44	166.53	36.8434	1687.9	6.58162	0.223412
45	167.063	37.9514	1172.24	4.57093	0.223413
46	167.596	39.0969	731.084	2.85072	0.223413
47	168.129	40.2833	371.892	1.45012	0.223413
48	168.662	41.5144	103.156	0.402235	0.223412
49	169.195	42.7948	-65.4054	-0.255036	0.223413
50	169.728	44.1299	-122.555	-0.477881	0.223413
51	170.261	45.526	0	0	0

List Of Coordinates

Water Table

X	Y
141.463	8.29452
318	8.62014

Distributed Load

X	Y
177.738	45.526
151.762	45.526

Distributed Load

X	Y
220.783	45.526
206.636	45.526
177.738	45.526

Distributed Load

X	Y
255.693	45.526
234.115	45.526
220.783	45.526

Distributed Load

X	Y
141.463	45.526
141.463	29.3689
141.463	6.76795
141.463	4.859

External Boundary

X	Y
318	-40
318	30.908
318	43.2875
318	55.574
318	78.847
292.141	70.204
292.141	62.526
255.714	62.526
255.714	50.8836
255.714	45.526
234.115	45.526
206.636	45.526
141.463	45.526
141.463	29.3689
141.463	6.76795
141.463	4.859
0	4.859
0	-1.95699
0	-40

Material Boundary

X	Y
141.463	29.3689
151.2	33.591
159.411	35.367
177.521	39.123
193.097	42.616
206.636	45.526

Material Boundary

X	Y
141.463	6.76795
152.854	5.894
157.571	5.894
164.588	6.506
167.732	8.515
171.634	11.892
175.244	15.998
180.776	23.422
186.046	29.42
191.811	34.253
197.421	36.6956
199.701	37.688
204.447	38.999
219.499	42.23
234.115	45.526

Material Boundary

X	Y
0	-1.95699
104.195	-1.605
135.26	0.092
145.239	0.708022
150.536	1.035
158.633	1.507
164.87	3.577
173.308	9.001
178.915	11.753
191.703	17.858
199.695	20.426
208.185	22.392
224.955	25.877
235.018	27.527
251.133	29.152
268.165	29.886
280.665	30.305
304.851	30.908
318	30.908

Material Boundary

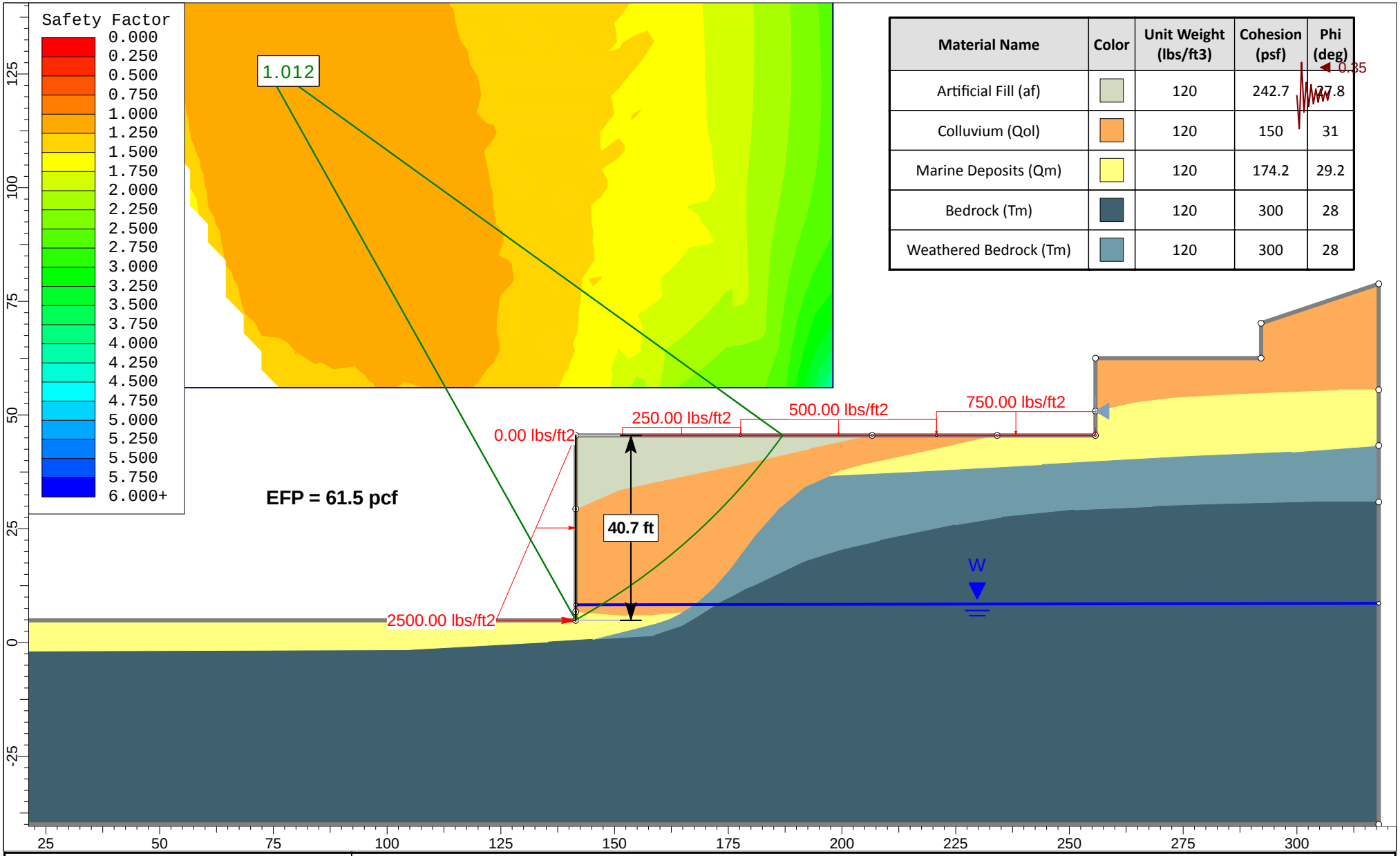
X	Y
145.239	0.708022
159.09	4.219
162.217	5.261
164.588	6.506

Material Boundary

X	Y
197.421	36.6956
215.725	37.572
244.05	39.118
276.22	40.915
298.938	41.85
318	43.2875

Material Boundary

X	Y
255.714	50.8836
264.644	52.889
272.894	53.892
287.096	54.701
309.126	55.574
318	55.574



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (deg)
Artificial Fill (af)		120	242.7	27.8
Colluvium (Qol)		120	150	31
Marine Deposits (Qm)		120	174.2	29.2
Bedrock (Tm)		120	300	28
Weathered Bedrock (Tm)		120	300	28

GeoSoils Consultants Inc.
GEOTECHNICAL GEOLOGIC ENVIRONMENTAL

SLIDEINTERPRET 7.029

Project	7091 - Blue Onyx Design		
Analysis Description	Section A-A' - Retaining Wall - Seismic		
Drawn By	Omar Attioui	Scale 1:350	Company GeoSoils Consultants, Inc.
Date	11/30/2017		File Name Section A-A'.slmd

Slide Analysis Information

7091 - Blue Onyx Design

Project Summary

File Name:	Section A-A'.slmd - Section A-A' - Section A-A' - Retaining Wall - Seismic
Slide Modeler Version:	7.029
Project Title:	7091 - Blue Onyx Design
Analysis:	Section A-A' - Retaining Wall - Seismic
Author:	Omar Attioui
Company:	GeoSoils Consultants, Inc.
Date Created:	11/30/2017

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Failure Direction:	Right to Left
Data Output:	Standard
Maximum Material Properties:	20
Maximum Support Properties:	20

Analysis Options

Slices Type:	Vertical

Analysis Methods Used
Spencer

Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Circular
Search Method:	Grid Search
Radius Increment:	10
Composite Surfaces:	Disabled
Reverse Curvature:	Invalid Surfaces
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

Seismic Load Coefficient (Horizontal): 0.35

4 Distributed Loads present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	250
Orientation:	Normal to boundary

Distributed Load 2	
Distribution:	Constant
Magnitude [psf]:	500
Orientation:	Normal to boundary

Distributed Load 3	
Distribution:	Constant
Magnitude [psf]:	750
Orientation:	Normal to boundary

Distributed Load 4	
Distribution:	Triangular
Magnitude 1 [psf]:	0
Magnitude 2 [psf]:	2500
Orientation:	Normal to boundary

Material Properties

Property	Artificial Fill (af)	Colluvium (Qol)	Marine Deposits (Qm)	Bedrock (Tm)	Weathered Bedrock (Tm)
Color					
Strength Type	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [lbs/ft3]	120	120	120	120	120
Cohesion [psf]	242.7	150	174.2	300	300
Friction Angle [deg]	27.8	31	29.2	28	28
Water Surface	Water Table	Water Table	Water Table	Water Table	Water Table
Hu Value	1	1	1	1	1

Global Minimums

Method: spencer

FS	1.012140
Center:	72.468, 128.094
Radius:	141.195
Left Slip Surface Endpoint:	141.463, 4.904
Right Slip Surface Endpoint:	187.005, 45.526
Left Slope Intercept:	141.463 45.526
Right Slope Intercept:	187.005 45.526
Resisting Moment:	1.08603e+007 lb-ft
Driving Moment:	1.073e+007 lb-ft
Resisting Horizontal Force:	61572.8 lb
Driving Horizontal Force:	60834.2 lb
Total Slice Area:	1061 ft2
Surface Horizontal Width:	45.5415 ft
Surface Average Height:	23.2975 ft

Valid / Invalid Surfaces

Method: spencer

Number of Valid Surfaces: 18536
Number of Invalid Surfaces: 10075

Error Codes:

Error Code -103 reported for 228 surfaces
Error Code -106 reported for 560 surfaces
Error Code -108 reported for 368 surfaces
Error Code -110 reported for 8477 surfaces
Error Code -111 reported for 411 surfaces
Error Code -112 reported for 31 surfaces

Error Codes

The following errors were encountered during the computation:

-103 = Two surface / slope intersections, but one or more surface / nonslope external polygon intersections lie between them. This usually occurs when the slip surface extends past the bottom of the soil region, but may also occur on a benched slope model with two sets of Slope Limits.
-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.01214

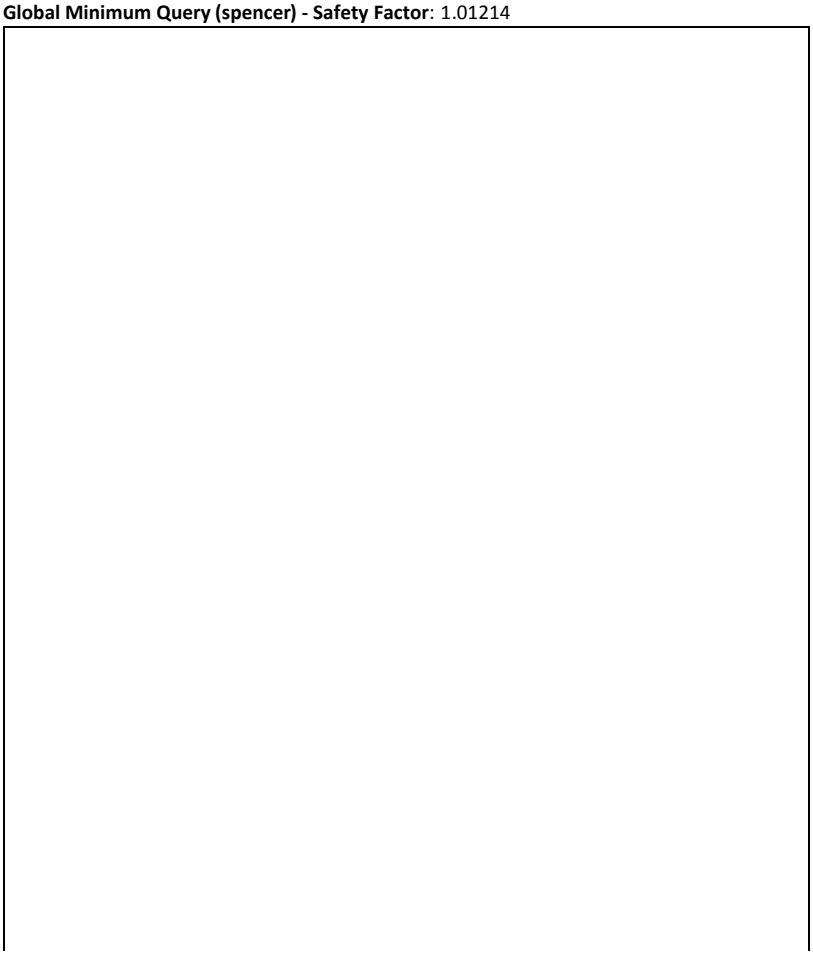
Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [degrees]	Base Material	Base Cohesion [psf]	Base Friction Angle [degrees]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.952639	4613.01	29.4739	Marine Deposits (Qm)	174.2	29.2	16244.7	16441.9	29302.5	194.83	29107.7	38483.5	38288.7
2	0.952639	4550.9	29.9189	Marine Deposits (Qm)	174.2	29.2	1609.23	1628.77	2763.69	161.037	2602.65	3689.74	3528.71
3	0.952639	4487.66	30.3659	Marine	174.2	29.2	1593.06	1612.4	2699.99	126.629	2573.36	3633.35	3506.73

				Deposits (Qm)									
4	0.963841	4474.9	30.8177	Colluvium (Qol)	150	31	1661.41	1681.58	2640.37	91.3857	2548.98	3631.46	3540.08
5	0.963841	4407.8	31.2742	Colluvium (Qol)	150	31	1643.94	1663.9	2574.84	55.2923	2519.55	3573.36	3518.07
6	0.963841	4339.47	31.7329	Colluvium (Qol)	150	31	1626.8	1646.55	2509.22	18.5412	2490.68	3515.25	3496.7
7	0.897447	3978.05	32.178	Colluvium (Qol)	150	31	1600.04	1619.46	2445.6	0	2445.6	3452.33	3452.33
8	0.897447	3916.73	32.6093	Colluvium (Qol)	150	31	1563.58	1582.56	2384.18	0	2384.18	3384.49	3384.49
9	0.897447	3854.38	33.0427	Colluvium (Qol)	150	31	1527.25	1545.79	2322.98	0	2322.98	3316.41	3316.41
10	0.897447	3790.98	33.4782	Colluvium (Qol)	150	31	1491.06	1509.16	2262.01	0	2262.01	3248.11	3248.11
11	0.897447	3726.53	33.9159	Colluvium (Qol)	150	31	1455	1472.66	2201.27	0	2201.27	3179.57	3179.57
12	0.897447	3661.01	34.3559	Colluvium (Qol)	150	31	1513.29	1531.66	2299.47	0	2299.47	3333.93	3333.93
13	0.897447	3594.39	34.7982	Colluvium (Qol)	150	31	1483.53	1501.54	2249.35	0	2249.35	3280.36	3280.36
14	0.897447	3526.66	35.2429	Colluvium (Qol)	150	31	1446.89	1464.46	2187.63	0	2187.63	3209.92	3209.92
15	0.897447	3457.8	35.6901	Colluvium (Qol)	150	31	1410.39	1427.51	2126.13	0	2126.13	3139.23	3139.23
16	0.897447	3387.8	36.1397	Colluvium (Qol)	150	31	1374.01	1390.69	2064.86	0	2064.86	3068.26	3068.26
17	0.897447	3316.63	36.592	Colluvium (Qol)	150	31	1337.77	1354.01	2003.81	0	2003.81	2997.03	2997.03
18	0.897447	3244.28	37.0469	Colluvium (Qol)	150	31	1301.65	1317.45	1942.97	0	1942.97	2925.51	2925.51
19	0.897447	3170.71	37.5046	Colluvium (Qol)	150	31	1265.66	1281.03	1882.36	0	1882.36	2853.7	2853.7
20	0.897447	3095.92	37.9651	Colluvium (Qol)	150	31	1229.81	1244.74	1821.96	0	1821.96	2781.59	2781.59
21	0.897447	3019.87	38.4285	Colluvium (Qol)	150	31	1194.08	1208.58	1761.77	0	1761.77	2709.16	2709.16
22	0.897447	2942.54	38.8949	Colluvium (Qol)	150	31	1158.48	1172.54	1701.79	0	1701.79	2636.4	2636.4
23	0.897447	2863.91	39.3644	Colluvium (Qol)	150	31	1123	1136.63	1642.03	0	1642.03	2563.3	2563.3
24	0.897447	2783.95	39.8371	Colluvium (Qol)	150	31	1087.64	1100.85	1582.47	0	1582.47	2489.85	2489.85
25	0.897447	2702.63	40.313	Colluvium (Qol)	150	31	1052.41	1065.18	1523.13	0	1523.13	2416.05	2416.05
26	0.897447	2619.93	40.7923	Colluvium (Qol)	150	31	1017.3	1029.65	1463.98	0	1463.98	2341.85	2341.85
27	0.897447	2535.81	41.2751	Colluvium (Qol)	150	31	982.309	994.234	1405.04	0	1405.04	2267.27	2267.27
28	0.897447	2450.25	41.7615	Colluvium (Qol)	150	31	947.439	958.941	1346.31	0	1346.31	2192.27	2192.27
29	0.897447	2363.2	42.2516	Colluvium (Qol)	150	31	912.689	923.769	1287.77	0	1287.77	2116.84	2116.84
30	0.897447	2274.64	42.7456	Colluvium (Qol)	150	31	878.056	888.716	1229.43	0	1229.43	2040.97	2040.97
31	0.897447	2184.53	43.2435	Colluvium (Qol)	150	31	843.54	853.781	1171.29	0	1171.29	1964.64	1964.64
32	0.897447	2092.82	43.7455	Colluvium (Qol)	150	31	809.142	818.965	1113.35	0	1113.35	1887.81	1887.81
33	0.897447	1999.49	44.2518	Colluvium (Qol)	150	31	774.858	784.265	1055.59	0	1055.59	1810.47	1810.47
34	0.897447	1904.49	44.7624	Colluvium (Qol)	150	31	740.688	749.68	998.036	0	998.036	1732.61	1732.61
35	0.897447	1807.77	45.2777	Colluvium (Qol)	150	31	706.631	715.21	940.67	0	940.67	1654.18	1654.18
36	0.897447	1709.28	45.7976	Colluvium (Qol)	150	31	672.687	680.853	883.489	0	883.489	1575.17	1575.17

37	0.897447	1608.98	46.3225	Colluvium (Qol)	150	31	638.853	646.609	826.497	0	826.497	1495.54	1495.54
38	0.897447	1506.82	46.8524	Colluvium (Qol)	150	31	605.13	612.476	769.687	0	769.687	1415.27	1415.27
39	0.897447	1402.73	47.3876	Colluvium (Qol)	150	31	571.516	578.454	713.067	0	713.067	1334.32	1334.32
40	0.897447	1296.67	47.9283	Colluvium (Qol)	150	31	538.009	544.54	656.625	0	656.625	1252.64	1252.64
41	0.897447	1188.56	48.4747	Colluvium (Qol)	150	31	577.351	584.36	722.896	0	722.896	1374.89	1374.89
42	0.897447	1078.35	49.0271	Colluvium (Qol)	150	31	544.118	550.724	666.917	0	666.917	1293.45	1293.45
43	0.897447	965.948	49.5856	Colluvium (Qol)	150	31	509.983	516.174	609.416	0	609.416	1208.34	1208.34
44	0.897447	851.296	50.1507	Colluvium (Qol)	150	31	475.947	481.725	552.083	0	552.083	1122.33	1122.33
45	0.897447	734.308	50.7225	Colluvium (Qol)	150	31	442.009	447.375	494.915	0	494.915	1035.38	1035.38
46	0.897447	614.897	51.3013	Colluvium (Qol)	150	31	408.167	413.122	437.909	0	437.909	947.409	947.409
47	0.973552	529.044	51.9128	Artificial Fill (af)	242.7	27.8	426.864	432.046	359.126	0	359.126	903.776	903.776
48	0.973552	382.216	52.5579	Artificial Fill (af)	242.7	27.8	393.264	398.038	294.624	0	294.624	808.21	808.21
49	0.973552	231.896	53.2127	Artificial Fill (af)	242.7	27.8	359.641	364.007	230.08	0	230.08	711.044	711.044
50	0.973552	77.9219	53.8776	Artificial Fill (af)	242.7	27.8	326.442	330.405	166.347	0	166.347	613.643	613.643

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.01214



Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [degrees]
1	141.463	4.90392	50721.5	0	0
2	142.416	5.44232	48740.8	32014.2	33.2979
3	143.368	5.99053	47159.4	30975.6	33.298
4	144.321	6.54868	45593	29946.7	33.298
5	145.285	7.12365	44103.3	28968.2	33.298
6	146.249	7.70908	42631	28001.2	33.298
7	147.212	8.30512	41178	27046.8	33.298
8	148.11	8.8698	39834.6	26164.5	33.298
9	149.007	9.44394	38492.2	25282.7	33.298
10	149.905	10.0277	37152	24402.4	33.298
11	150.802	10.6212	35815.2	23524.4	33.298
12	151.7	11.2246	34482.9	22649.3	33.298
13	152.597	11.8381	33143.2	21769.4	33.2981
14	153.495	12.4618	31808.1	20892.4	33.298
15	154.392	13.0959	30479.7	20019.9	33.298
16	155.289	13.7406	29159.3	19152.6	33.298
17	156.187	14.3959	27848.2	18291.4	33.2979
18	157.084	15.0622	26547.7	17437.3	33.2981
19	157.982	15.7397	25259.3	16591	33.298
20	158.879	16.4284	23984.2	15753.4	33.2979
21	159.777	17.1287	22723.8	14925.6	33.298
22	160.674	17.8407	21479.5	14108.3	33.298
23	161.572	18.5648	20252.8	13302.6	33.298
24	162.469	19.301	19045.1	12509.3	33.2979
25	163.366	20.0497	17857.9	11729.5	33.2979
26	164.264	20.8112	16692.7	10964.2	33.298
27	165.161	21.5856	15551.1	10214.4	33.298
28	166.059	22.3733	14434.6	9481.07	33.2981
29	166.956	23.1747	13344.9	8765.32	33.2981
30	167.854	23.9899	12283.6	8068.23	33.2981
31	168.751	24.8194	11252.5	7390.92	33.2979
32	169.649	25.6634	10253.1	6734.52	33.298
33	170.546	26.5224	9287.39	6100.21	33.298
34	171.444	27.3967	8357.13	5489.19	33.298
35	172.341	28.2867	7464.21	4902.69	33.298
36	173.238	29.1929	6610.57	4342	33.298
37	174.136	30.1157	5798.22	3808.42	33.2979
38	175.033	31.0556	5029.21	3303.32	33.298
39	175.931	32.013	4305.68	2828.09	33.298
40	176.828	32.9885	3629.85	2384.18	33.298
41	177.726	33.9828	3004	1973.11	33.298
42	178.623	34.9962	2371.33	1557.55	33.2979
43	179.521	36.0296	1791	1176.38	33.2981
44	180.418	37.0836	1266.38	831.79	33.2979
45	181.315	38.1588	800.131	525.547	33.298
46	182.213	39.2562	395.045	259.476	33.298
47	183.11	40.3764	54.0332	35.4905	33.298
48	184.084	41.6186	-163.405	-107.329	33.298
49	185.057	42.89	-290.516	-190.819	33.298
50	186.031	44.192	-322.579	-211.878	33.2979
51	187.005	45.526	0	0	0

List Of Coordinates

Water Table

X	Y
141.463	8.29452
318	8.62014

Distributed Load

X	Y
177.738	45.526
151.762	45.526

Distributed Load

X	Y
220.783	45.526
206.636	45.526
177.738	45.526

Distributed Load

X	Y
255.693	45.526
234.115	45.526
220.783	45.526

Distributed Load

X	Y
141.463	45.526
141.463	29.3689
141.463	6.76795
141.463	4.859

External Boundary

X	Y
318	-40
318	30.908
318	43.2875
318	55.574
318	78.847
292.141	70.204
292.141	62.526
255.714	62.526
255.714	50.8836
255.714	45.526
234.115	45.526
206.636	45.526
141.463	45.526
141.463	29.3689
141.463	6.76795
141.463	4.859
0	4.859
0	-1.95699
0	-40

Material Boundary

X	Y
141.463	29.3689
151.2	33.591
159.411	35.367
177.521	39.123
193.097	42.616
206.636	45.526

Material Boundary

X	Y
141.463	6.76795
152.854	5.894
157.571	5.894
164.588	6.506
167.732	8.515
171.634	11.892
175.244	15.998
180.776	23.422
186.046	29.42
191.811	34.253
197.421	36.6956
199.701	37.688
204.447	38.999
219.499	42.23
234.115	45.526

Material Boundary

X	Y
0	-1.95699
104.195	-1.605
135.26	0.092
145.239	0.708022
150.536	1.035
158.633	1.507
164.87	3.577
173.308	9.001
178.915	11.753
191.703	17.858
199.695	20.426
208.185	22.392
224.955	25.877
235.018	27.527
251.133	29.152
268.165	29.886
280.665	30.305
304.851	30.908
318	30.908

Material Boundary

X	Y
145.239	0.708022
159.09	4.219
162.217	5.261
164.588	6.506

Material Boundary

X	Y
197.421	36.6956
215.725	37.572
244.05	39.118
276.22	40.915
298.938	41.85
318	43.2875

Material Boundary

X	Y
255.714	50.8836
264.644	52.889
272.894	53.892
287.096	54.701
309.126	55.574
318	55.574

December 26, 2017
W.O. 7091
(Revised February 8, 2018)

APPENDIX C

GRADING GUIDELINES

December 26, 2017
W.O. 7091
(Revised February 8, 2018)

APPENDIX C

GRADING GUIDELINES

These specifications present the minimum requirements for grading operations performed under the control of GeoSoils Consultants, Inc.

No deviation from these specifications would be allowed, except where specifically superseded in the preliminary geology and geotechnical report, or in other written communication signed by the Geotechnical Engineer or Engineering Geologist.

1. General

A. The Geotechnical Engineer and Engineering Geologist are the Owner's or Builder's representative on the project. For the purpose of these specifications, supervision by the Geotechnical Engineer or Engineering Geologist includes that inspection performed by any person or persons employed by, and responsible to, the licensed Geotechnical Engineer or Engineering Geologist signing the Geotechnical report.

B. All clearing, site preparation or earthwork performed on the project should be conducted by the Contractor under the observation of the Geotechnical Engineer or Engineering Geologist.

C. It is the Contractor's responsibility to prepare the ground surface to receive the fills to the satisfaction of the Geotechnical Engineer or Engineering Geologist and to place, spread, mix, water, and compact the fill in accordance with the specifications of the Geotechnical Engineer or Engineering Geologist. The Contractor should also remove all material considered unsatisfactory by the Geotechnical Engineer or Engineering Geologist.

Appendix C

D. It is also the Contractor's responsibility to have suitable and sufficient compaction equipment on the jobsite to handle the amount of fill being placed. If necessary, excavation equipment would be shut down to permit completion of compaction. Sufficient watering apparatus would also be provided by the Contractor, with due consideration for the fill material, rate of placement and time of year.

E. A final report should be issued by the Geotechnical Engineer and Engineering Geologist attesting to the Contractor's conformance with these specifications.

F. At all times, safety would have precedence over production work. If an unsafe job condition is noted by a GeoSoils Consultants, Inc. representative, it would be brought to the attention of the Grading Contractor's foreman, the on-site developer's representative or both. Once this condition is noted, it should be corrected as soon as possible, or work related to the unsafe condition may be terminated.

2. Site Preparation

A. All vegetation and deleterious material, such as rubbish, should be disposed of off-site. This removal must be concluded prior to placing fill.

B. The upper 12 to 18 inches of the certified fill below the existing building shall be removed and compacted, or deeply scarified to the satisfaction of the soils engineer and recompacted.

C. All non-certified fill on the site should be removed and if deemed suitable by the geotechnical engineer, re-compacted in areas of proposed development.

D. After the ground surface to receive fill has been cleared, it should be scarified, disced or bladed by the Contractor until it is uniform and free from ruts, hollows, hummocks or other uneven features which may prevent uniform compaction.

Appendix C

The scarified ground surface should then be brought to approximately 120 percent of optimum moisture, mixed as required, and compacted as specified. If the scarified zone is greater than 12 inches in depth, the excess should be removed and placed in lifts restricted to 6 inches.

Prior to placing fill, the ground surface to receive fill should be inspected, tested and approved by the Geotechnical Engineer.

3. Compacted Fills

A. Material imported or excavated on the property may be utilized in the fill, provided such material has been determined to be suitable by the Geotechnical Engineer. Roots, tree branches and other deleterious matter missed during clearing should be removed from the fill as directed by the Geotechnical Engineer.

B. Rock fragments less than six inches in diameter may be utilized in the fill, provided:

1. They are not placed in concentrated pockets;
2. There is a sufficient percentage of fine-grained material to surround the rocks.
3. The distribution of the rocks is supervised by the Geotechnical Engineer.

C. Rocks greater than six inches in diameter should be taken off-site, or placed in accordance with the recommendations of the Geotechnical Engineer in fill areas designated as suitable for rock disposal.

D. Material that is spongy, subject to decay, or otherwise considered unsuitable should not be used in the compacted fill.

Appendix C

E. Representative samples of materials to be utilized as compacted fill should be analyzed in the laboratory by the Geotechnical Engineer to determine their physical properties. If any material other than that previously tested is encountered during grading, the appropriate analysis of this material should be conducted by the Geotechnical Engineer as soon as possible.

F. Material used in the compacting process should be evenly spread in thin lifts not to exceed six inches in thickness, watered, processed and compacted to obtain a uniformly dense layer. The fill should be placed and compacted on a horizontal plane, unless otherwise approved by the Geotechnical Engineer. This includes material placed for slope repairs, and utility trench backfills on slope areas.

G. Each layer should be compacted to at least a minimum of 90 percent of the maximum density in compliance with the testing method specified by the controlling governmental agency (in general, ASTM D-1557-12 would be used). If compaction to a lesser percentage is authorized by the controlling governmental agency because of a specific land use or expansive geotechnical conditions, the area to receive fill compacted to less than 90 percent should either be delineated on the grading plan or appropriate reference made to the area in the geotechnical report.

H. All fills must be placed at approximately 120 percent of optimum moisture. If excessive moisture in the fill results in failing tests or an unacceptable "pumping" condition, then the fill should be allowed to dry until the moisture content is within the necessary range to meet above compaction requirements, or should be removed or reworked until acceptable conditions are obtained.

Appendix C

I. If the moisture content or relative density varies from that required by the Geotechnical Engineer, the Contractor should rework the fill until it is in accordance with the requirements of the Geotechnical Engineer. If a compaction test indicates that the fill meets or exceeds the minimum required relative compaction but is below 120 percent of optimum, then the fill should be reworked until it meets the moisture content requirements.

J. All fill slopes should be planted or protected from erosion by methods specified in the geotechnical report, or required by the controlling governmental agency.

4. Grading Control

A. Inspection of the fill placement should be provided by the Geotechnical Engineer during the progress of grading.

B. In general, density tests should be made at on the finished pad area. In any event, an adequate number of field density tests should be made to verify that the required compaction is being achieved.

C. Density tests should also be made on the surface material to receive fill as required by the Geotechnical Engineer.

5. Construction Considerations

A. Erosion control measures, when necessary, should be provided by the Contractor during grading and prior to the completion and construction of permanent drainage controls.

B. Upon completion of grading and termination of inspections by the Geotechnical Engineer, no further filling or excavating, including that necessary for footings, foundations, large tree wells, retaining walls, or other features should be performed without the approval and observation of the Geotechnical Engineer or Engineering Geologist.

Appendix C

C. Care should be taken by the Contractor during final grading to preserve any berms, drainage terraces, interceptor swales, or other devices of a permanent nature on or adjacent to the property.

6. Utility Trenching and Backfill

Utility Trenching

Open excavations and excavations that are shored shall conform to all applicable Federal, State and local regulations.

Backfill Placement

Approved on-site or imported fill material shall be evenly placed, watered, processed, and compacted in controlled horizontal layers not exceeding eight inches in loose thickness, and each layer should be thoroughly compacted with approved equipment. All fill material should be moisture conditioned, as required to obtain at least optimum moisture, but not greater than 120 percent of optimum moisture content. The fill should be placed and compacted on a horizontal plane, unless otherwise recommended by the Geotechnical Engineer.

Backfill Compaction Criteria

Each layer of utility trench backfill shall be compacted to at least 90 percent of the maximum laboratory density determined by ASTM D-1557-12. The field density shall be determined by the ASTM D-1556-07 method or equivalent. Where moisture content of the fill or density testing yields compaction results less than 90 percent, additional compaction effort and/or moisture conditioning, as necessary, shall be performed until the compaction criteria is reached.

Appendix C

Exterior Trenches Adjacent to Footings

Exterior trenches, paralleling a footing and extending below a 1H: 1V plane projected from the outside bottom edge of the footing should be compacted to 90 percent of the laboratory standard. Sand backfill, unless it is similar to the in-place fill, should not be allowed in these trench backfill areas. Density testing, along with probing, should be accomplished to verify the desired results.

Pipe Bedding

We recommend that a minimum of six inches of bedding material should be placed in the bottom of the utility trench. All bedding materials shall extend at least four inches above the top of utilities which require protection during subsequent trench backfilling. All trenches shall be wide enough to allow for compaction around the haunches of the pipe or materials, such as pea gravel, or controlled density fill (CDF) shall be used below the spring line of the pipes to eliminate the need for mechanical compaction in this portion of the trenches.

RESPONSE TO THE CITY OF MALIBU GEOTECHNICAL REVIEW SHEET DATED MARCH 5, 2018,

Malibu Sea View Hotel,
22729/22741 Pacific Coast Highway,
Malibu, California

for

Blue Onyx Design

March 29, 2018 W.O. 7091

GeoSoils Consultants Inc.
GEOTECHNICAL GEOLOGIC ENVIRONMENTAL

March 29, 2018
W.O. 7091

BLUE ONYX DESIGN
22741 Pacific Coast Highway, Suite 400
Malibu, California 90265

Attention: Norm Haynie

Subject: Response to the City of Malibu Geotechnical Review Sheet dated March 5, 2018, Malibu Sea View Hotel, 22729/22741 Pacific Coast Highway, Malibu, California

Reference: GeoSoils Consultants, Inc. dated December 26, 2017, "Geologic and Geotechnical Update Report, Malibu Sea View Hotel, 22729/22741 Pacific Coast Highway, Malibu, California"

Dear Mr. Haynie:

As requested, GeoSoils Consultants, Inc. (GSC) has prepared this response to the City of Malibu Review Sheet dated March 5, 2018. The review letter addresses the above referenced report dated December 26, 2017, which is a geology and geotechnical engineering update report. The review comments are presented below, followed by our responses. A copy of the review letter is included in the back of this report.

CITY OF MALIBU REVIEW SHEET DATED MARCH 5, 2018

Comment 1

The project Geotechnical Consultant needs to provide a geologic map that utilizes the current grading or site plan as a base map and update the cross-sections to reflect the currently proposed development. Clearly depict the proposed improvements as well as the proposed OWTS components. Provide additional and/or revise recommendations to address the currently proposed development based on the plans, as necessary.

6634 Valjean Avenue, Van Nuys, California 91406 Phone: (818) 785-2158 Fax: (818) 785-1548

Response to Comment 1

Acknowledged. Updated geologic maps and geologic cross-sections are provided in Plates 2A and 2B.

The following section was provided by the Client relative to the OWTS. "*The wastewater treatment plan is attached as Appendix A and is shown on the plot plan. Please note that the collector conduit extends from west to east below the basement and entirely within the non-liquefiable fill gravel that took the place of the liquefiable soil. The 3,000 gallon new pump station is located in the access drive of the parcel at 22741. The conduit that carries effluent to the pump station, and the force main pushing the effluent up to treatment system including the grease trap will all have sensitive electronic sensors that will detect any horizontal or vertical movement of the referenced system that will immediately shut off the water meter providing water to the hotel, and shut off the power to the pump station so that no additional effluent can enter the system. The 3,000 gallon pump station is sufficient to hold the effluent that was in the four inch sewer line leading to the pump station and the three-inch force man carrying effluent up the sloping driveway to the treatment modules. Additionally, the conduits will have sections with "slip joints" which will help to prevent the conduits from breaking.*"

Comment 2

The Consultant should provide an updated section of liquefaction potential and related hazards at the site using current California Building Code (CBC) requirements for seismic parameters to be used in the liquefaction analyses (that is 2% probability of exceedance in 50 years). The results of the analyses/calculations and a tabulation of the location and vertical extent of liquefiable layers should be provided.

Response to Comment 2

Updated liquefaction analyses are provided in Appendix B of this response, in accordance with the methodology outlined in CGS Special Publication 117A. Based on the analysis utilizing two-thirds of the PGA_m and a 10% probability of exceedance in 50 years, the

Littoral Sands are subject to liquefaction, resulting in a potential total seismic settlement of 0.47-inch. An analysis utilizing the full value of PGA_m and a 2 percent probability of exceedance is also provided in Appendix A. The recommendations provided in our report remain applicable.

Comment 3

Gravelly and cobbly materials were commonly encountered in the underlying marine deposits. As such, the Consultant should discuss the reliability of the blow counts used to drive Standard Penetration Test (STP) samples. Alternative method of exploration should be considered to verify/update information regarding the extent of the potentially liquefiable materials underlying the site. Mitigation measures should be recommended, as necessary.

Response to Comment 3

Exploration of the soil strata consisted of 8 hollow-stem continuous-auger borings, in which, drilling through and sampling the Littoral Gravel was difficult due to the abundance of gravels and cobbles. Given the nature of this soil layer and as concluded in the previously approved report by Stratum Geotechnical Consultants dated March 29, 2013, it is our opinion that the Littoral Gravel is not subject to liquefaction. Moreover, SPT data was consistently high through all 8 borings and resulted in a factor of safety higher than the requirements in the liquefaction analyses. During grading, a geologist will be on site to confirm that the geologic conditions are consistent with the finds of the previous drilling.

Comment 4

The Consultant recommends on page 15 that, “Piles should be tied together in at least one horizontal direction with grade and/or tie beams, which can carry by tension or compression a minimum horizontal force equal to ten percent of the larger pile loading.” Please explain why piles could be tied in one direction and not the other.

Response to Comment 4

We recommend the piles be tied in at least one horizontal direction. However, the final design should be determined by the Structural Engineer. The major retaining walls are

soldier pile walls that extend in straight lines from east to west. The concrete beam will connect the top of the piles in an east-west direction to form a composite wall.

The basement floor will be supported by concrete piles that will extend a minimum of 15 feet into bedrock; these piles will form a grid and the tops of the piles will be tied together in both the east-west direction and north-south direction with grade beams which support the concrete floor. It is noted that the piles will be drilled through the ¾" granite gravel that will replace the liquefiable soils.

Comment 5

Please show all cross-section intersections on the cross-sections.

Response to Comment 5

Acknowledged. Updated Cross-Sections are provided in Plates 2A and 2B.

Comment 6

It does not appear that all the borings are projected onto the cross-sections in the correct locations. Please include the projection distances and directions of the borings that are shown on the cross-sections.

Response to Comment 6

Acknowledged. Updated Cross-Sections are provided in Plates 2A and 2B.

Comment 7

Please extend the cross-sections north on the Site Plan and Geologic Map, Plate 1, to match the section lengths on Plates 2A and 2B, Geologic Cross-Sections.

Response to Comment 7

Acknowledged. Updated Geologic Map and Cross-Sections are provided in Plates 2A and 2B. The sections are also shown on the Robertson Geotechnical, Inc. map dated October 1997 (Plate 3).

Comment 8

Please label the Marine Deposits (Qm) on the cross-sections. Are these deposits the sand, gravels, and rock?

Response to Comment 8

The marine deposits consist of Littoral Sand and Gravel, per the borings by Stratum Geotechnical Consultants, and are shown on the geologic map and cross-sections.

Comment 9

Please show the buried contacts between the Artificial Fill (Af), Colluvium (Col) and Marine Deposits under the site and existing building on the Site Plan and Geologic Map.

Response to Comment 9

Geologic contacts are shown on Plate 1.

Comment 10

For the option of overexcavation of unsuitable materials (Section 8.1, Option 1, Page 11), the Consultant recommends over-excavation of the upper artificial fill and liquefiable soils. The Consultant needs to provide more concise recommendations regarding the vertical extent of liquefiable soils and the anticipated depth of removals.

Response to Comment 10

We recommend over-excavation of the Artificial Fill and the Littoral Sands, labeled as Qm (Sands), as depicted on the Geologic Map (Plate 1) and the Geologic Cross-Sections (Plates 2A and 2B). The removals shall extend vertically to a maximum depth of approximately 16 feet below grade, and horizontally beyond the building footprint following a 1H:1V projection, as depicted on the Geologic Map (Plate 1) and the Geologic Cross-Sections (Plates 2A and 2B). A geologist will be on site during grading to confirm that all liquefiable soil will be removed.

Comment 11

The Consultant recommends that the part of the pile in contact with potentially liquefiable materials should be designed for downdrag and lateral spreading forces. Considering the impact of seismic settlement and lateral spreading due to liquefaction of underlying materials could reach the ground surface, the Consultant should evaluate the potential for downdrag and lateral spreading forces to develop on the part of piles in contact with materials above the liquefiable soils. Mitigation measures should be recommended, as necessary.

Response to Comment 11

It is our understanding that Option 1, i.e. removals of the liquefiable Littoral Sands, will be selected. The removals will extend at least three feet north of the northern retaining wall. Therefore, liquefaction-induced down-drag and lateral spreading are not considered to be hazards to the proposed development.

Comment 12

The Consultant indicates that approximately 40-feet deep excavations will be needed in the basement area and excavation side slopes may be cut at 1(h):1(v) gradient. Please provide recommendations to substantiate the excavation side slopes will maintain the required factors of safety, taking into consideration the sandy nature of the underlying materials and the anticipated groundwater conditions.

Response to Comment 12

The owner has decided to extend the soldier pile wall that will be constructed 3 feet north of the northerly basement wall around the entire basement area. This soldier pile wall will retain the soil and eliminate any possibility of a slope failure while the liquefiable soil is being removed and the ¾-inch gravel is being placed. Temporary shoring shall be utilized for the deep excavations per the design and construction recommendations presented in Sections 8.4 and 8.5 of the referenced report.

Comment 13

The Consultant should provide recommendations for site preparation and foundations design within the proposed appurtenant facilities associated with the development such as exterior retaining walls, exterior slab-on-grade, etc.

Response to Comment 13

In non-structural and hardscape areas, we recommend re-processing (removing and re-compacting) of the upper 3 feet of artificial fill as per the guidelines presented in Appendix C of the referenced report.

Any exterior retaining walls shall be designed as per the recommendations presented in Section 8.7 of the referenced report.

For exterior flatwork including items such as concrete sidewalks and outdoor courtyards exposed to foot traffic only, a minimum concrete flatwork section of 3-inch thick concrete over 4-inches of compacted untreated base material should be provided, as specified in the City of Los Angeles Standard Specifications and Standard Plan S-444-0. Construct control and construction joints in accordance with current Portland Cement Association Guidelines.

Comment 14

The Consultant should discuss possible outlets for backdrains behind the basement side walls. Additional recommendations should be provided, as necessary.

Response to Comment 14

All soldier pile retaining walls will have vertical French drain systems between each pile. The French drain system will be constructed as follows:

- An 18 by 18-inch slot will be cut vertically between adjacent piles from the top of the pile to two feet below the surface of the basement floor.

- 1-inch thick marine plywood slough wall will cover the distance between the piles and will cover the slot. The plywood will be held in place with redheads.

- The rebar required for a shotcrete wall between the piles will be drilled into the sides of the piles and epoxied in place.

- A 4-inch perforated pipe will be placed in the vertical slot with a 90 degree angle at the bottom where it will extend horizontally 18 inches southerly from the plywood backing.

- The area between the piles will be shotcreted; the shotcrete wall will be 8 to 12 inches thick.

- The 18 by 18-inch void will be filled with pea gravel and the bottoms of the four inch drain will be connected to a horizontal drain that will drain any water in the drain way from the buildings and retaining walls so there will be no hydrostatic pressure build up behind the soldier pile wall.

- The 10-inch thick basement walls will be constricted on grade beams supported by the soldier pile walls and the additional piles and grade beams between the soldier piles.

Comment 15

Cross-Sections A-A', C-C' and D-D' depict proposed leach lines adjacent to PCH. No new disposal areas are proposed for the OWTS, based on the reports by Lawrence Young. Please clarify.

Response to Comment 15

The leach lines were shown erroneously; the cross section will be changed.

Comment 16

A supporting geologic report for the OWTS needs to be submitted that addresses separation between the existing seepage pits and the highest anticipated groundwater levels under the site.

Response to Comment 16

The development on the upper parcel is 26 feet above the flat area on the lower parcel. No water was encountered in the area where the seepage pits are located and the geologic borings in this area were drilled down from elevation 52 to below elevation 0.

Comment 17

Please provide all responses to the referenced Environmental Health Review Sheet dated 2-12-18 to City geotechnical staff for review.

Response to Comment 17

Please see Response to Comment 1 and Appendix A.

Comment 18

The Project Geotechnical Consultant needs to discuss whether or not a fault rupture hazard investigation is required for the proposed development project in accordance with Section 5.3.1 of the City's 2013 Geotechnical Guidelines.

Response to Comment 18

The potential for ground rupture on the site was addressed in the previously approved report by Stratum Geotechnical Consultants dated March 29, 2013. Stratum concluded that there is no evidence of any topographic undulations, steps, lineation, or other features that could be indicative of recent faulting in the area of the site. In addition, the Geologic Cross-Sections included herein show essentially flat-lying bedrock contact across the site, and that the probable-Pleistocene age bedrock-erosional surface remains undisturbed and un-faulted. Therefore, it is our opinion that the risk of ground rupture due to faulting on the site is low and that no further studies are necessary.

Comment 19

The Project Geotechnical Consultant needs to provide a complete finding in accordance with Section 111 of the Malibu Building Code regarding the proposed hotel development and OWTS.

Response to Comment 19

It is our opinion that provided the recommendations contained in our referenced reports and pertinent codes are followed, the completed grading and proposed structures will be safe from the hazards of landslide, settlement, or slippage and that completed grading and proposed structures will not adversely affect the stability of property outside of the subject development.

We appreciate this opportunity to be of service to you. If you have any questions regarding the attached reports, or if we may be of further assistance to you, please do not hesitate to contact us.

Very truly yours,

GEOSOILS CONSULTANTS, INC.

CERTIFIED ENGINEERING GEOLOGIST RUDY F. RUBERTI 1708 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER KAREN L. MILLER 3/31/20 GEOTECHNICAL STATE OF CALIFORNIA

RUDY F. RUBERTI
CEG 1708

KAREN L. MILLER
GE 2257

OMAR ATTIOUI
Staff Engineer

RFR.KLM.OA.WRsp to Malibu Review dtd 3-5-18

Encl: City of Malibu Review Sheet dated March 5, 2018
Plate 1, Geologic Map
Plates 2A and 2B, Geologic Cross-Sections
Plate 3, Geologic Map by Robertson Geotechnical, Inc.
Appendix A, OWTS Report by Lawrence Young
Appendix B, Liquefaction Analyses

cc: (3) Addressee

MDN 19816

City of Malibu

23825 Stuart Ranch Road • Malibu, California 90265-4861
(310) 456-2489 • Fax (310) 317-1950 • www.malibucity.org

GEOTECHNICAL REVIEW SHEET

Project Information

Date: March 5, 2018		**Review Log #:**	4113
Site Address:	22729 and 22741 Pacific Coast Highway		
Lot/Tract/PM #:	n/a	**Planning #:**	CDP 17-086
Applicant/Contact:	Norm Haynie, norm@blueonyxdesign.com	**BPC/GPC #:**	
Contact Phone #:	310-456-5515 **Fax #:**	**Planner:**	Lilly Rudolph
Project Type:	New 36-room boutique hotel, grading, shoring, onsite wastewater treatment system (OWTS)		

Submittal Information

Consultant(s) / Report Date(s): *(Current submittal(s) in **Bold**.)*	GeoSoils Consultants, Inc. (Miller, GE 2257; Ruberti, CEG 1708): **12-26-17 (revised 2-8-18), 12-26-17** Lawrence Young (REHS # 3738): **1-29-18, 11-20-17, 11-15-17** Ref: Stratum Geotechnical Consultants: 3-25-16, 8-4-14, 3-29-13, 7-3-09, 11-7-08, 10-8-07 **Building plans prepared by DMP Construction, Inc. dated August 25, 2017.** **Grading plans prepared by LC Engineering Group, Inc. dated December 7, 2017.** **OWTS plan prepared by Lawrence Young dated January 29, 2018.**
Previous Reviews:	Geotechnical Review Referral Sheet dated 10-13-17: Environmental Health Review Sheet dated February 12, 2018

Review Findings

Coastal Development Permit Review

☐ The hotel development project is **APPROVED** from a geotechnical perspective.

☒ The hotel development project is **NOT APPROVED** from a geotechnical perspective. The listed 'Review Comments' shall be addressed prior to approval.

Building Plan-Check Stage Review

☒ Awaiting Building plan check submittal. Please respond to the listed 'Building Plan-Check Stage Review Comments' AND review and incorporate the attached 'Geotechnical Notes for Building Plan Check' into the plans.

☐ **APPROVED** from a geotechnical perspective. Please review the attached 'Geotechnical Notes for Building Plan Check' and incorporate into Building Plan-Check submittals.

☐ **NOT APPROVED** from a geotechnical perspective. The listed 'Building Plan-Check Stage Review Comments' shall be addressed prior to Building Plan-Check Stage approval.

Remarks

The geotechnical reports, percolation report for the OWTS, design reports for the OWTS, OWTS plan, Grading plans, and Building plans were reviewed by the City from a geotechnical perspective. Based on the submitted information, the project includes constructing a new 6,958 square foot three-level 15-room boutique hotel with a 3,130 square foot basement-level restaurant and storage area and the conversion of an existing 16,557 square foot office building and parking structure into a 21-room boutique hotel with a 4,506 square foot rooftop deck with a pool, grill, and wet bar. Also proposed are landscaping, open space, and parking. Grading consists of 1,080 yards of R & R; 290 yards of cut under structure; and 290 yards of export. The existing onsite wastewater treatment system (OWTS) serving the office building at 22741 PCH will be upgraded to serve both hotels. The total maximum wastewater discharge for the project is 4,110 gpd. The new OWTS will consist of a new 3,000-gallon grease trap and 3,000-gallon concrete pump tank and pump vault which will pump effluent from the new hotel at 22729 PCH to the existing 5,000-gallon concrete tank and treatment system located at 22741 PCH. This tank discharges to two 6' diameter x 17' BI seepage pits (SP-1 and SP-2) with 5' caps (there is 100% expansion available for effluent disposal). The two existing seepage pits were tested and had a combined percolation rate of 56,719 gpd. The effluent will be adequately disposed into the existing seepage pits per the City of Malibu Plumbing Code.

Review Comments:

1. The Project Geotechnical Consultant needs to provide a geologic map that utilizes the current grading or site plan as a base map and update the cross-sections to reflect the currently proposed development. Clearly depict the proposed improvements as well as the proposed OWTS components. Provide additional and/or revise recommendations to address the currently proposed development based on the plans, as necessary.

2. The Consultant should provide an updated section of liquefaction potential and related hazards at the site using current California Building Code (CBC) requirements for seismic parameters to be used in the liquefaction analyses (that is 2% probability of exceedance in 50 years). The results of the analyses/calculations and a tabulation of the location and vertical extent of liquefiable layers should be provided.

3. Gravelly and cobbly materials were commonly encountered in the underlying marine deposits. As such, the Consultant should discuss the reliability of the blow counts used to drive Standard Penetration Test (SPT) samples. Alternative method of exploration should be considered to verify/update information regarding the extent of the potentially liquefiable materials underlying the site. Mitigation measures should be recommended, as necessary.

4. The Consultant recommends on page 15 that, "*Piles should be tied together in at least one horizontal direction with grade and/or tie beams, which can carry by tension or compression a minimum horizontal force equal to ten percent of the larger pile loading.*" Please explain why piles could be tied in one direction and not the other.

5. Please show all cross-section intersections on the Cross-sections.

6. It does not appear that all the borings are projected onto the cross-sections in the correct locations. Please include the projection distances and directions of the borings that are shown on the cross-sections.

7. Please extend the cross-sections north on the Site Plan and Geologic Map, Plate 1, to match the section lengths on Plate 2, Geologic Cross-Sections.

8. Please label the Marine Deposits (Qm) on the cross-sections. Are these deposits the sand, gravels, and rock?

9. Please show the buried contacts between the Artificial Fill (Af), Colluvium (Col) and Marine Deposits (Qm) under the site and existing building on the Site Plan and Geologic Map.

10. For the option of overexcavtion of unsuitable materials (Section 8.1, Option 1, page 11), the Consultant recommends over-excavation of the upper artificial fill and liquefiable soils. The Consultant needs to provide more concise recommendations regarding the vertical extent of liquefiable soils and the anticipated depth of removals.

11. The Consultant recommends that the part of the piles in contact with potentially liquefiable materials should be designed for downdrag and lateral spreading forces. Considering that the impact of seismic settlement and lateral spreading due to liquefaction of underlying materials could reach the ground surface, the Consultant should evaluate the potential for downdrag and lateral spreading forces to develop on the part of piles in contact with materials above the liquefiable soils. Mitigation measures should be recommended, as necessary.

12. The Consultant indicates that approximately 40-foot deep excavations will be needed in the basement area and excavation side slopes may be cut at 1(h):1(v) gradient. Please provide calculations to substantiate that excavation side slopes will maintain the required factors of safety, taking into consideration the sandy nature of the underlying materials and the anticipated groundwater conditions.

13. The Consultant should provide recommendations for site preparation and foundation design within the proposed appurtenant facilities associated with the development such as exterior retaining walls, exterior slabs-on-grade, etc.

14. The Consultant should discuss possible outlets for backdrains behind the basement side walls. Additional recommendations should be provided, as necessary.

15. Cross-Sections A-A', C-C', and D-D' depict proposed leach lines adjacent to PCH. No new disposal areas are proposed for the OWTS, based on the reports by Lawrence Young. Please clarify.

16. A supporting geologic report for the OWTS needs to be submitted that addresses separation between the existing seepage pits and the highest anticipated groundwater levels under the site.

17. Please provide all responses to the referenced Environmental Health Review Sheet dated 2-12-18 to City geotechnical staff for review.

18. The Project Geotechnical Consultant needs to discuss whether or not a fault rupture hazard investigation is required for the proposed development project in accordance with Section 5.3.1 of the City's 2013 Geotechnical Guidelines.

19. The Project Geotechnical Consultant needs to provide a complete finding in accordance with Section 111 of the Malibu Building Code regarding the proposed hotel development and OWTS.

Building Plan-Check Stage Review Comments:

1. Please submit a fee of $957.00 to City geotechnical staff for building plan check review.

2. The recommended at-rest pressure for the design of retaining walls appears to be low. Using the limit equilibrium method to calculate the at-rest pressure behind retaining walls may not be appropriate because the retaining wall is not capable of deflecting to fully mobilize shear resistance. An appropriate method of analyses (example: Navy Manual) should be utilized.

3. The Consultant recommends on page 22 that, "*Any anticipated, superimposed loading (i.e., upper retaining walls, traffic surcharge or other structures, etc.) within a 45-degree plane projected upward from the wall bottom, except retained earth, shall be considered as surcharge and provided for in the*

design." But footings below a 1:1 plane behind the retaining walls could laterally surcharge the retaining wall. Using the 1:1 criterion for lateral surcharge is not acceptable, unless substantiated with analyses and references. A recognized method of analyses should be considered (e.g.: 1- Spangler & Handy {1982}, Soil Engineering, fourth Edition, Harper & Row, New York. 2- Navy Design Manual NAVFAC DM-7.2, Figure 18). Mitigation measures should be recommended, as necessary.

4. Please provide a set of shoring plans for review.

5. Please provide reduced setback letters from the OWTS, geotechnical, and structural consultants for any reduced setbacks between the OWTS components and foundations, as applicable.

6. The Project Geotechnical Consultant shall evaluate the lateral deflection and rotation of piles under applied lateral shear forces and bending moments when they become available. Maximum acceptable deformations should be reviewed and approved by the project structural engineer.

7. Section 7.4 of the City's geotechnical guidelines requires a minimum thickness of 10 mils for vapor barriers beneath slabs-on-grade. The Building plans shall reflect this requirement.

8. The following a note needs to be included into the grading and building plans. *'Prior to the placement of concrete slabs, the slab subgrade soils shall be pre-moistened to at least 120% of the optimum moisture content to the depth specified by the geotechnical engineer. The pre-moistened soils should be tested and verified to be by the geotechnical engineer within one day prior to the placement of the moisture barrier and sand.'*

9. Please include the following note on the plans: *"The Project Geotechnical Consultant shall prepare an as-built report documenting the installation of the pile foundation elements for review by City Geotechnical staff. The report shall include total depths of the piles, depth into the recommended bearing material, and a map depicting the locations of the piles."*

10. Please include the following note on the plans: *"The Project Geotechnical Consultant shall prepare an as-built report documenting the installation of the soldier pile foundation (shoring) elements for review by City Geotechnical staff. The report shall include total depths of the piles, depth into the recommended bearing material, and a map depicting the locations of the soldier piles."*

11. Two sets of final grading, shoring, retaining wall, and hotel plans (**APPROVED BY BUILDING AND SAFETY**) incorporating the Project Geotechnical Consultant's recommendations and items in this review sheet must be **reviewed and wet stamped and manually signed by the Project Engineering Geologist and Project Geotechnical Engineer**. City geotechnical staff will review the plans for conformance with the Project Geotechnical Consultants' recommendations and items in this review sheet over the counter at City Hall. **Appointments for final review and approval of the plans may be made by calling or emailing City Geotechnical staff.**

Please direct questions regarding this review sheet to City Geotechnical staff listed below.

Engineering Geology Review by: _____ *3/5/18*

Christopher Dean, C.E.G. #1751, Exp. 9-30-18 Date
Engineering Geology Reviewer
(310-456-2489, x306)
Email: cdean@malibucity.org

Geotechnical Engineering Review by: _____ *3/5/2018*

Ali Abdel-Haq, G.E. #2308, Exp. 12-31-19 Date
Geotechnical Engineering Reviewer (805-496-1222)
Email: ali@geodynamics-inc.com

This review sheet was prepared by representatives of Cotton, Shires and Associates, Inc. and GeoDynamics, Inc., contracted through Cotton, Shires and Associates, Inc., as an agent of the City of Malibu.

COTTON, SHIRES AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

GeoDynamics, Inc.
Applied Earth Sciences
Geotechnical Engineering & Engineering Geology Consultants

City of Malibu

– GEOTECHNICAL –

NOTES FOR BUILDING PLAN-CHECK

The following standard items should be incorporated into Building Plan-Check submittals, as appropriate:

1. One set of grading, retaining wall, and hotel plans, incorporating the Project Geotechnical Consultant's recommendations and items in this review sheet, must be submitted to City geotechnical staff for review. **Additional review comments may be raised at that time that may require a response.**
2. Show the name, address, and phone number of the Project Geotechnical Consultant(s) on the cover sheet of the Building and Grading Plans.
3. Include the following note on Grading and Foundation Plans: "*Subgrade soils shall be tested for Expansion Index prior to pouring footings or slabs; Foundation Plans shall be reviewed and revised by the Project Geotechnical Consultant, as appropriate.*"
4. Include the following note on the Foundation Plans: "*All foundation excavations must be observed and approved by the Project Geotechnical Consultant prior to placement of reinforcing steel.*"
5. The Foundation Plans for the proposed project shall clearly depict the embedment material and minimum depth of embedment for the foundations in accordance with the Project Geotechnical Consultant's recommendations.
6. Show the onsite wastewater treatment system on the Site Plan.
7. Please contact the Building and Safety Department regarding the submittal requirements for a grading and drainage plan review.
8. A comprehensive Site Drainage Plan, incorporating the Project Geotechnical Consultant's recommendations, shall be included in the Plans. Show all area drains, outlets, and non-erosive drainage devices on the Plans. Water shall not be allowed to flow uncontrolled over descending slopes.

Grading Plans (as Applicable)

1. Grading Plans shall clearly depict the limits and depths of overexcavation, as applicable.
2. Prior to final approval of the project, an as-built compaction report prepared by the Project Geotechnical Consultant must be submitted to the City for review. The report must include the results of all density tests as well as a map depicting the limits of fill, locations of all density tests, locations and elevations of all removal bottoms, locations and elevations of all keyways and back drains, and locations and elevations of all retaining wall backdrains and outlets. Geologic conditions exposed during grading must be depicted on an as-built geologic map. This comment must be included as a note on the grading plans.

Retaining Walls (As Applicable)

1. Show retaining wall backdrain and backfill design, as recommended by the Geotechnical Consultant, on the Plans.
2. Retaining walls separate from a residence require separate permits. Contact the Building and Safety Department for permit information. One set of retaining wall plans shall be submitted to the City for review by City geotechnical staff. Additional concerns may be raised at that time which may require a response by the Project Geotechnical Consultant and applicant.

City of Malibu

23825 Stuart Ranch Road
Malibu, California 90265
(310) 456-2489 Fax (310) 317-1950

GEOTECHNICAL REVIEW FIXED FEE FORM

PROJECT OWNER/APPLICANT: Norm Haynie

PROJECT ADDRESS: 22729 Pacific Coast Highway

GEOTECHNICAL LOG NO: 4113

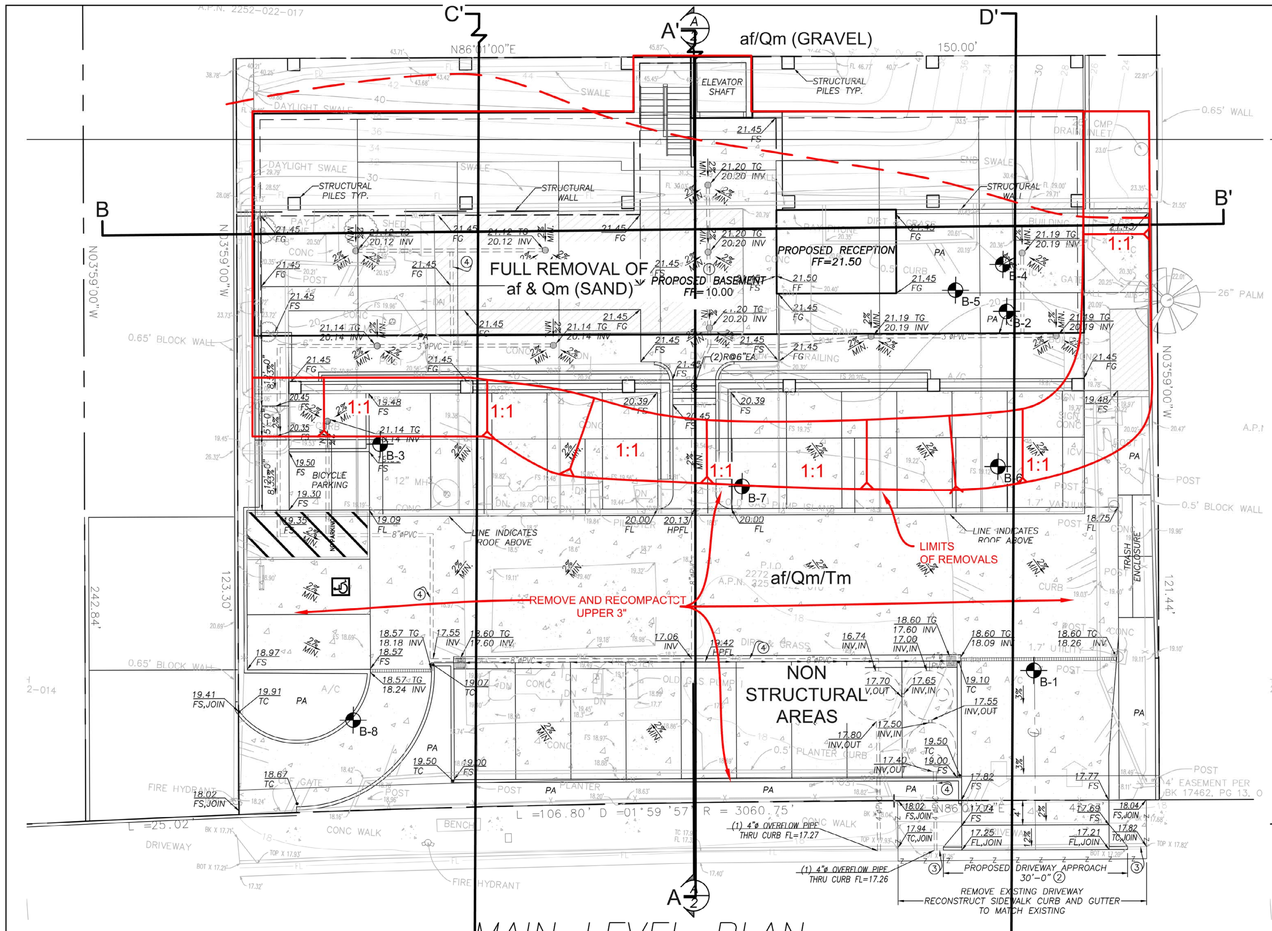
PLANNING NO: CDP 17-086

PLAN CHECK NO:

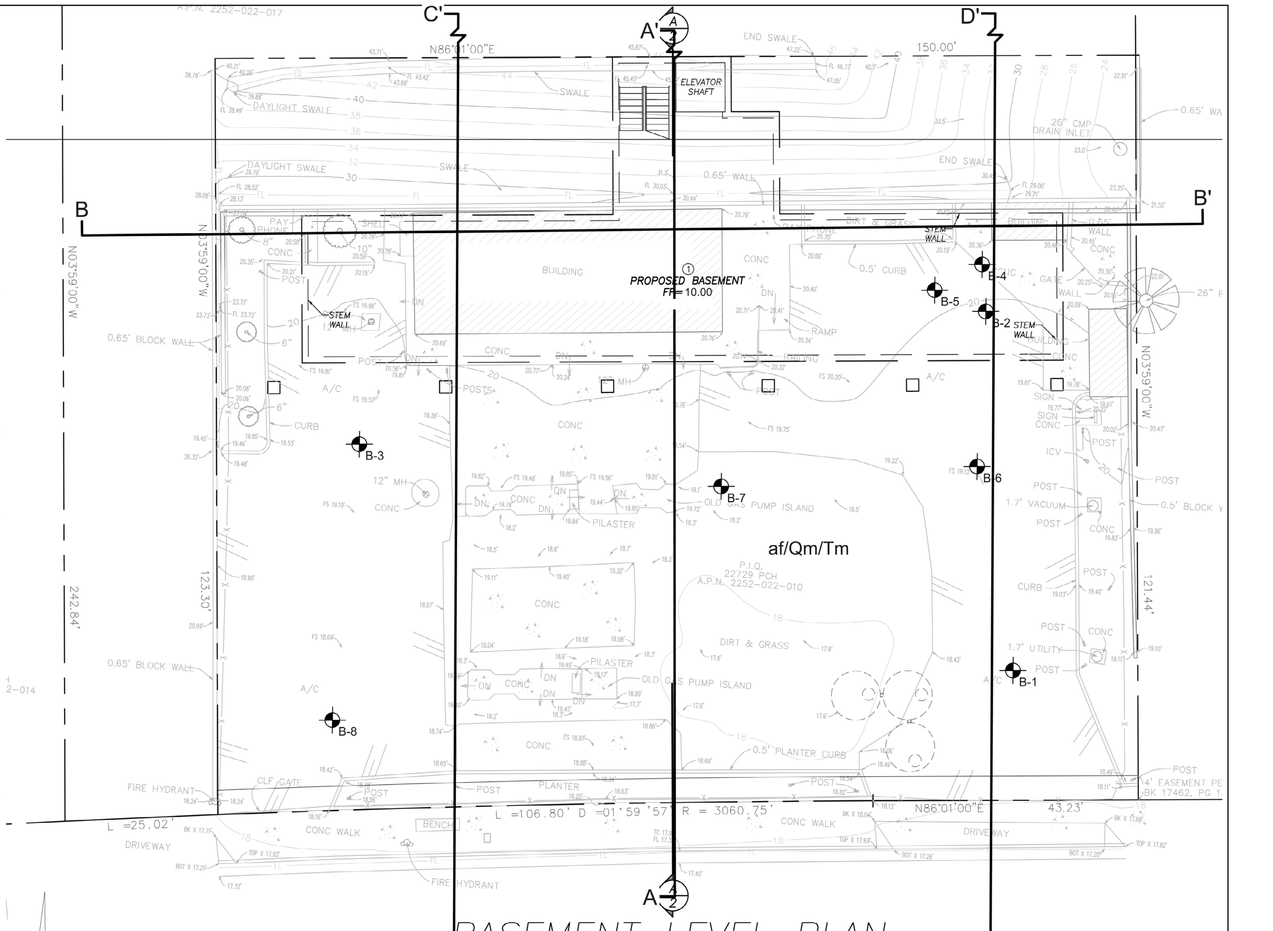
ITEM	STATUS	DATE	DEPOSIT	CHARGE	BALANCE	COMMENTS
FIXED FEE BY: Norm Haynie		9/5/2017	$4,375.00		$0.00	**Fixed Fee**
Initial Review, CDP 17-086	**Response Required**	3/5/2018		$0.00	$0.00	Items to address
Second review						
Additional Reviews: **Time & Material**						
Third review						
Fourth review						
Applicant Paid Balance Due						
Fifth review						
Applicant Paid Balance Due						
					$0.00	
REFUND DUE APPLICANT						REFUND # _____
BALANCE DUE CITY OF MALIBU						

NOTE:

The Fixed Fee incorporates the initial and one subsequent geotechnical review. Subsequent reviews will be performed in accordance with the City's time and materials rate of $207.00 per hour.



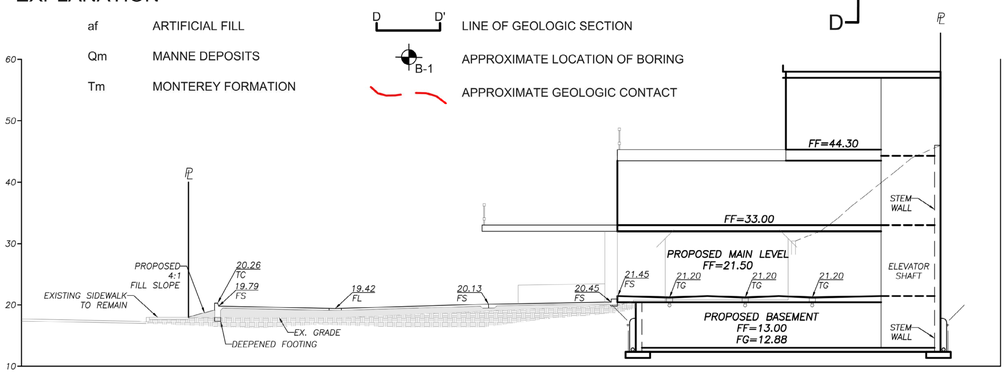
MAIN LEVEL PLAN



BASEMENT LEVEL PLAN

EXPLANATION

af	ARTIFICIAL FILL
Qm	MANNE DEPOSITS
Tm	MONTERREY FORMATION
D — D'	LINE OF GEOLOGIC SECTION
B-1	APPROXIMATE LOCATION OF BORING
	APPROXIMATE GEOLOGIC CONTACT



SECTION A

1"=10'

10 5 0 10 20

LEGEND

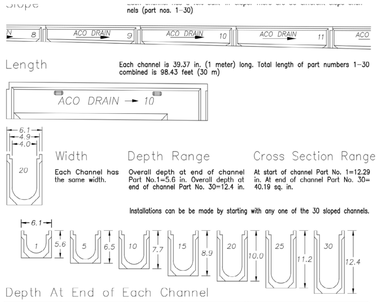
℄	CENTER LINE
CO	CLEANOUT
DG	DECOMPOSED GRANITE
℘	DAYLIGHT LINE
DN	DOWN
● DS	DOWNSPOUT
FF	FINISH FLOOR
FG	FINISH GRADE
FL	FLOW LINE
FS	FINISH SURFACE
HP	HIGH POINT
INV	INVERT
PA	PLANTER AREA
℗	PROPERTY LINE
NG	NATURAL GRADE
TC	TOP OF CURB
TD	TOP OF DECK
TG	TOP OF GRATE
TW	TOP OF WALL
UNO	UNLESS NOTED OTHERWISE
	RETAINING WALL PER SEPARATE PERMIT
	BLOCK WALL PER SEPARATE PERMIT
FS	CONTRACTOR TO VERIFY HARD SURFACE THICKNESS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS TO DETERMINE ROUGH GRADE ELEVATIONS:
	12" SQ. CATCH BASIN PER NDS PLASTIC PRODUCTS PART NO. 1200-1204. U.N.O.
	INDICATES 4"ø PERF. SUBDRAIN
(185.5 T.C.) (185.0 F.L.)	EXISTING SPOT ELEVATIONS
	LIMITS OF EARTH DISTURBANCE

NOTES

1. ALL RETAINING WALL TO BE CONSTRUCTED PER SEPARATE PLAN AND PERMIT.
2. OBTAIN A DEMOLITION PERMIT PRIOR TO GRADING OPERATIONS.
3. NO WORK IS ALLOWED WITH PUBLIC R/W WITHOUT AN ENCROACHMENT PERMIT.

CONSTRUCTION NOTES

1. STRUCTURAL FOUNDATION AND SLABS-ON-GRADE PER ARCHITECT/STRUCTURAL PLANS AND GEOTECHNICAL REPORT.
2. CONSTRUCT DRIVEWAY APPROACH PER SPPWC STANDARD PLAN 110-2 TYPE B.
3. CONSTRUCT 6" CURB AND 12" GUTTER PER SPPWC STANDARD PLAN 120-2 CASE A2-6.
4. CONSTRUCT SDR-35 PVC PIPE (SIZE AS SHOWN) AT 1% MINIMUM SLOPE (MIN. PIPE SIZE 4"ø)
5. INSTALL NDS 12" SQUARE CATCH BASIN. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND DETAIL C HEREON.
6. INSTALL ACO K200 8" TRENCH DRAIN WITH TRAFFIC RATED GRATE, LENGTH OF TRENCH AS SHOWN ON PLAN. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. FIT DRAIN WITH KRISTAR CATCH BASIN FILTER INSERT MODEL FG-TDDF8. PER DETAIL A HEREON.
7. CONSTRUCT CURB DRAIN PER SPPWC STANDARD PLAN 150-3.
8. INSTALL INFILTRATION SYSTEM PHOENIX PRECAST 6' O.D. 835 GALLON DRYWELL.
9. CONCRETE SWALE PER DETAIL 1 ON SHEET 1.
10. RETAINING WALL PER SEPARATE PLAN AND PERMIT.
11. SEPTIC SYSTEM PER SEPARATE PLAN AND PERMIT.
12. INSTALL NDS 8" AREA DRAIN. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND DETAIL B HEREON.
13. CONSTRUCT ACCESS RAMP.
14. CONSTRUCT WHEEL STOP.
15. CONSTRUCT BICYCLE PARKING PAD PER ARCHITECT'S PLAN.
16. CONSTRUCT HANDICAP PARKING STRIPING PER CALTRANS STANDARD PLAN A90A.
17. INSTALL CALTRANS ACCESSIBLE PARKING ONLY MINIMUM FINE $250 SIGN R99C.
18. CONSTRUCT TRASH ENCLOSURE PER ARCHITECT'S PLAN
19. EXISTING TO BE REMOVED PER A SEPARATE PERMIT.
20. INSTALL 1 ½" PRV WILKINS MODEL #500XLYSBR SET @ 75 PSI. SEE PLUMBING PLANS.
21. INSTALL 2" PRV WILKINS MODEL #500XLYSBR SET AT 75 PSI. SEE PLUMBING PLANS.
22. INSTALL 1 ½" BFP WILKINS MODEL #975XL2. SEE PLUMBING PLANS.
23. INSTALL 2" BFP WILKINS MODEL #975XL2. SEE PLUMBING PLANS.
24. INSTALL 1 ½" CW FOR IRRIGATION (OFF HOURS OPERATION). SEE PLUMBING PLANS.

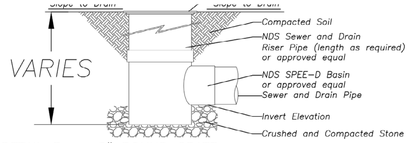


Depth At End of Each Channel

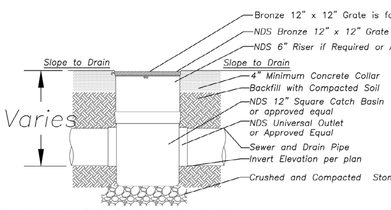
Part No.	Depth in.	Depth mm.	Part No.	Depth in.	Depth mm.	Part No.	Depth in.	Depth mm.
NW 100-1	5.6	141	NW 100-11	7.9	201	NW 200-21	10.3	261
NW 100-2	5.8	147	NW 100-12	8.1	207	NW 200-22	10.5	267
NW 100-3	6.0	153	NW 100-13	8.4	213	NW 200-23	10.7	273
NW 100-4	6.3	159	NW 100-14	8.6	219	NW 200-24	11.0	279
NW 100-5	6.6	165	NW 100-15	8.9	225	NW 200-25	11.2	285
NW 100-6	6.7	171	NW 100-16	9.1	231	NW 200-26	11.5	291
NW 100-7	7.0	177	NW 100-17	9.3	237	NW 200-27	11.7	297
NW 100-8	7.2	183	NW 100-18	9.6	243	NW 200-28	11.9	303
NW 100-9	7.4	189	NW 100-19	9.8	249	NW 200-29	12.2	309
NW 100-10	7.7	195	NW 100-20	10.0	255	NW 200-30	12.4	315

NOTE: Use traffic rated grate.

DETAIL A ACO TRENCH DRAIN
N.T.S.



DETAIL B 8" ROUND GRATE
N.T.S.



DETAIL C 12"X12" SQUARE GRATE
N.T.S.

GSC GeoSoils Consultants Inc.
6634 Valjean Avenue
Van Nuys, CA 91406

GEOLOGIC MAP
PACIFIC COAST HIGHWAY
MALIBU, CALIFORNIA
BLUE ONYX DESIGN, INC.

WORK ORDER	DATE	SCALE
7091	3/2018	1" = 10'

REVISED ____ PLATE 1

MDN 19816

#	REVISIONS	DATE

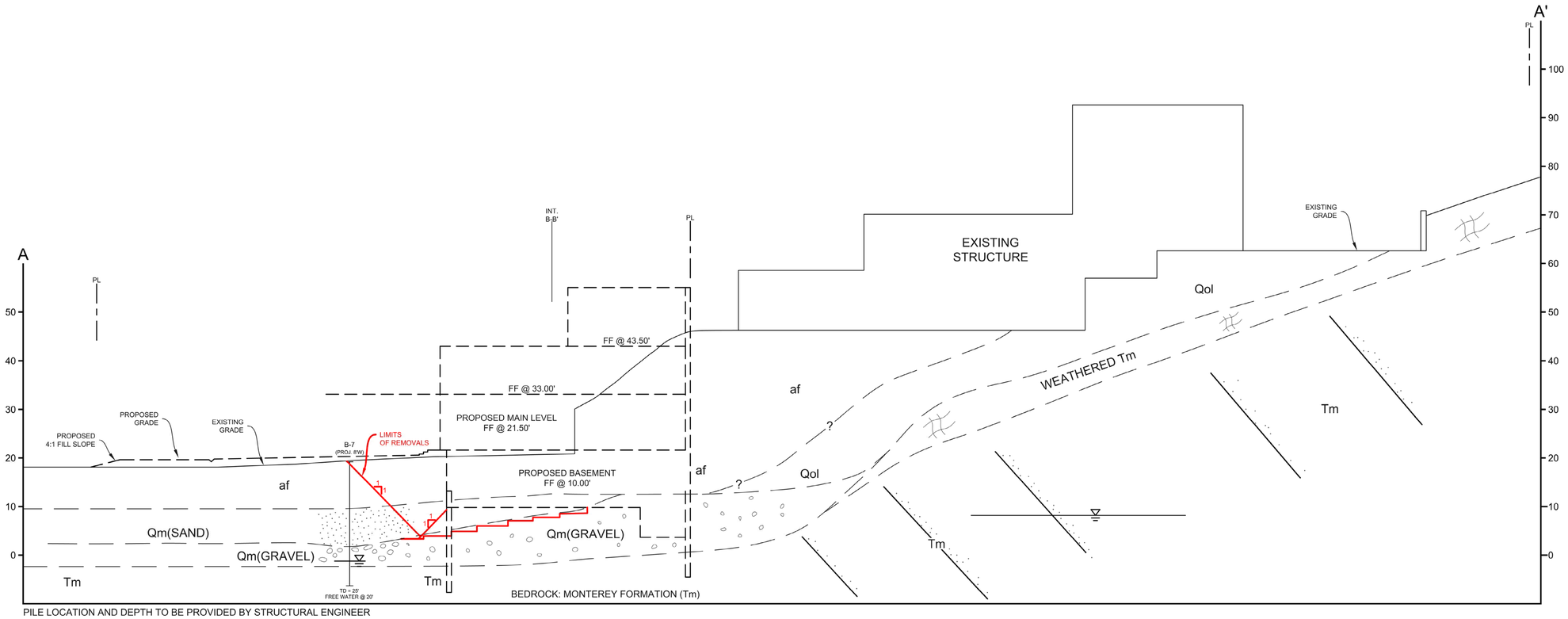
PREPARED BY:

52258
ENGINEER RCE DATE

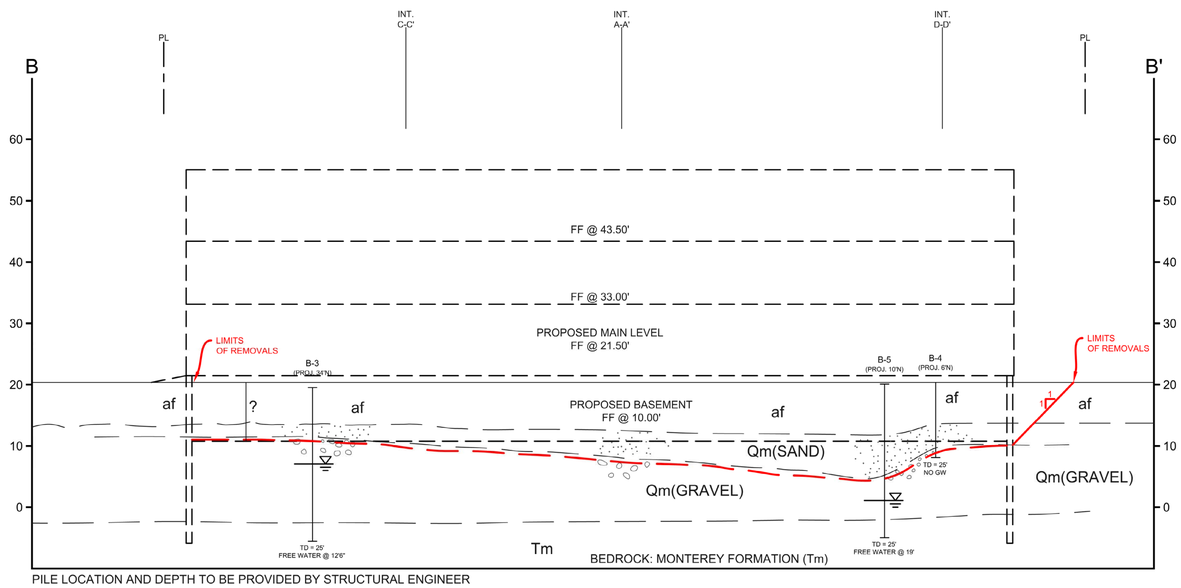
CITY OF MALIBU
GRADING PLAN
22729 PACIFIC COAST HWY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 2 OF 6
NS/	JF/	

X:\2001 w.o\gsc-cad\7091\CURRENT\3-24-18\PLATES 3-24-18.dwg, 4/18/2018 12:30:21 PM, Adobe PDF.pc3



PILE LOCATION AND DEPTH TO BE PROVIDED BY STRUCTURAL ENGINEER



PILE LOCATION AND DEPTH TO BE PROVIDED BY STRUCTURAL ENGINEER

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6634 Valjean Avenue
Van Nuys, CA 91406

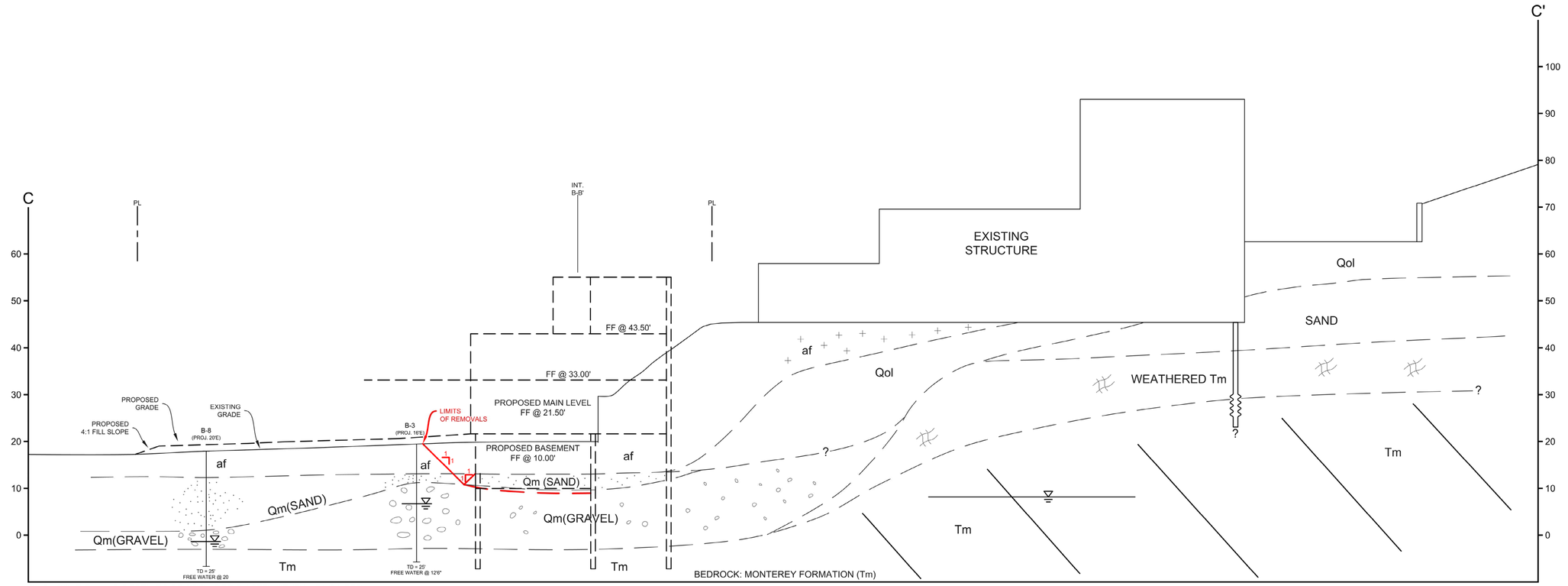
GEOLOGIC CROSS-SECTIONS
PACIFIC COAST HIGHWAY
MALIBU, CALIFORNIA
BLUE ONYX DESIGN, INC.

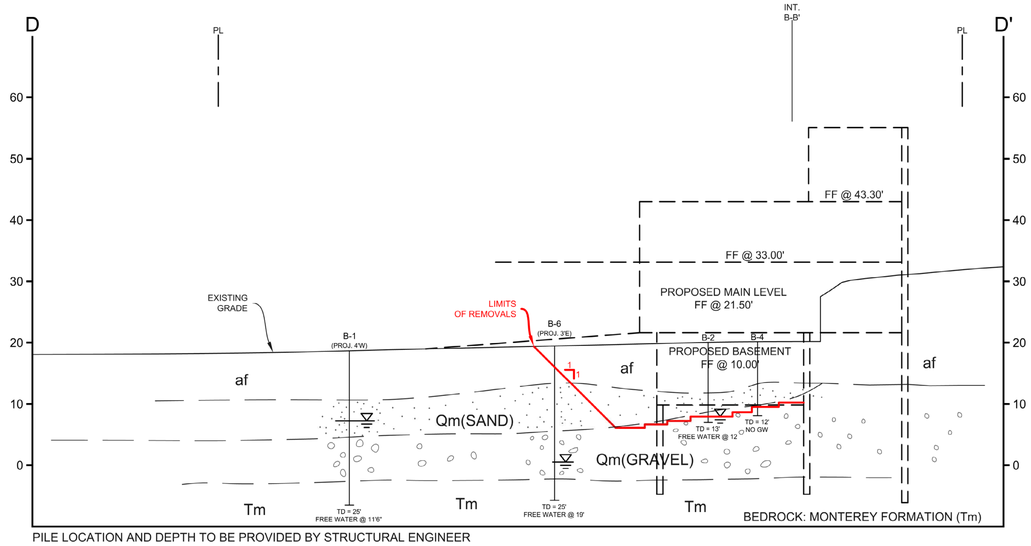
WORK ORDER	DATE	SCALE
7091	3/2018	1" = 10'

REVISED

MDN 19816

PLATE 2A





GSC GeoSoils Consultants Inc.
GEOTECHNICAL ▲ GEOLOGICAL ■ ENVIRONMENTAL
6634 Valjean Avenue
Van Nuys, CA 91406

GEOLOGIC CROSS-SECTIONS
PACIFIC COAST HIGHWAY
MALIBU, CALIFORNIA
BLUE ONYX DESIGN, INC.

WORK ORDER	DATE	SCALE
7091	3/2018	1" = 10'

REVISED

PLATE 2B

MDN 19816

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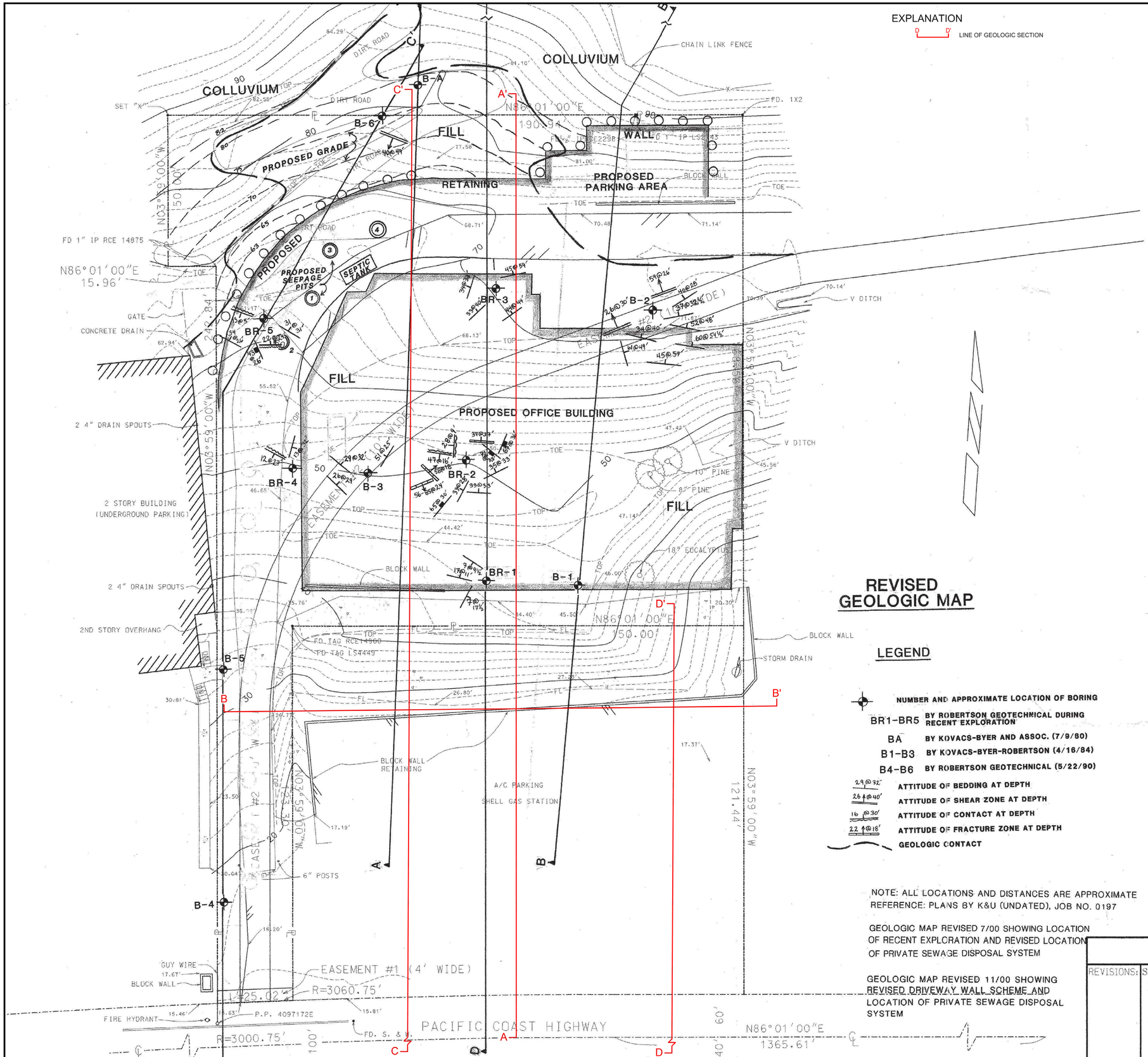

EXPLANATION

D — D' LINE OF GEOLOGIC SECTION

LEGEND:

STREET CENTERLINE (℄): ——— ℄ ———
ASPHALT (A/C):
CONCRETE (CONC.):
MANHOLE (M.H.):
STREET LIGHT (ST. LT.):
FIRE HYDRANT:
WATER METER:
TREE:
BUILDING:
PROPERTY LINE: ——— ℙ ———

LEGAL DESCRIPTION:

APᴿ 4452-22-17-18

BASIS OF BEARINGS:

THE BEARING OF N86°01'00"E ALONG THE CENTER LINE OF PACIFIC COAST HIGHWAY AS SHOWN ON PARCEL MAP NO. 387, WAS USED AS THE BASIS FOR THIS MAP.

BENCHMARK:

C7 5388 - CS MON 3FT N OF N CB PACIFIC COAST HWY IN CATCH BASIN. A862+00 18 FT E OF SE COR BLDG 22775 1.3MI W CARBON CYN @ ENT MALIBU FISHING PIER.
(MALIBU - 1980) ELEV. 14.98'

SITE ADRESS:

22751 PACIFIC COAST HIGHWAY
MALIBU, CA
90265

NOTES:

1) PERTAINING TO SURVEY AND TOPO MAP, IF RETAINING WALLS OR SIMILAR STRUCTURES ARE TO BE DESIGNED FROM CONTOURS SHOWN ON THIS MAP, GROUND ELEVATIONS AT CRITICAL POINTS CONTROLLING THE DESIGN SHOULD BE VERIFIED BY DIRECT LOCATION AND LEVELS PRIOR TO FINAL DESIGN ADOPTION.
2) STREET WIDTH NOT TO SCALE.
3) EXISTING DRILLED CAISSONS NOT LOCATED.

EASEMENTS:

EASEMENT #1: EASEMENT FOR PUBLIC UTILITIES
RECORDED IN BOOK 17462 PAGE 13, OF OFFICIAL RECORDS
RECORDED IN BOOK 18629 PAGE 98, OF OFFICIAL RECORDS

EASEMENT #2: EASEMENT FOR LOS ANGELES COUNTY WATERWORKS DISTRICT NO. 29.
RECORDED APRIL 14, 1978 AS INSTRUMENT NO. 78-396510, OFFICIAL RECORDS.

REVISED GEOLOGIC MAP

LEGEND

⌖	NUMBER AND APPROXIMATE LOCATION OF BORING
BR1-BR5	BY ROBERTSON GEOTECHNICAL DURING RECENT EXPLORATION
BA	BY KOVACS-BYER AND ASSOC. (7/9/80)
B1-B3	BY KOVACS-BYER-ROBERTSON (4/16/84)
B4-B6	BY ROBERTSON GEOTECHNICAL (5/22/90)
29@32	ATTITUDE OF BEDDING AT DEPTH
26@40	ATTITUDE OF SHEAR ZONE AT DEPTH
16@30	ATTITUDE OF CONTACT AT DEPTH
22@18	ATTITUDE OF FRACTURE ZONE AT DEPTH
	GEOLOGIC CONTACT

NOTE: ALL LOCATIONS AND DISTANCES ARE APPROXIMATE
REFERENCE: PLANS BY K&U (UNDATED), JOB NO. 0197

GEOLOGIC MAP REVISED 7/00 SHOWING LOCATION OF RECENT EXPLORATION AND REVISED LOCATION OF PRIVATE SEWAGE DISPOSAL SYSTEM

GEOLOGIC MAP REVISED 11/00 SHOWING REVISED DRIVEWAY WALL SCHEME AND LOCATION OF PRIVATE SEWAGE DISPOSAL SYSTEM

STATE OF CALIFORNIA — No. LS 6847 — Exp. 9/30/00 — REGISTERED LAND SURVEYOR — DAVID SANDSTROM

MAP SUBMITTED WITH REPORT
Dated 11/21/00 Job # 2441
Robertson Geotechnical, Inc.

16 0 16 32 48
Scale 1" = 16'

Robertson Geotechnical Inc.

REVISED GEOLOGIC MAP

MALIBU VISTA 2441MALA.629

ARCHITECTURAL SURVEY

REVISIONS:

SURVEYED FOR:
MALIBU VISTA PARTNERS
C/O 4454 VAN NUYS BLVD.
#205 A
SHERMAN OAKS, CA 91403

SURVEYED BY:
LAND & AIR SURVEYING
BOUNDARY - TOPOGRAPHIC - A.L.T.A. SURVEYS
SUBDIVISIONS - PARCEL MAPS
BUSINESS (310) 456-5515
FAX (310) 456-9021
PAGER (714) 725-8191

SCALE: 1" = 16'
JOB NO: MVPART-197
SURVEY DATE: OCT. 1997
SHEET: 1 OF 1

GSC GeoSoils Consultants Inc. 6634 Valjean Avenue Van Nuys, CA 91406

GEOLOGIC MAP
BY ROBERTSON GEOTECHNICAL INC.
PACIFIC COAST HIGHWAY
MALIBU, CALIFORNIA
BLUE ONYX DESIGN, INC.

WORK ORDER	DATE	SCALE
7091	3/2018	1" = 10'
REVISED	PLATE 3	

MDN 19816

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March 29, 2018
W.O. 7091

APPENDIX A

OWTS REPORT BY LAWRENCE YOUNG

MDN 19816

Lawrence Young

Registered Environmental Health Specialist *Cal. Reg. #3738*

P.O. Box 973, Malibu, California 90265 (818) 883-8585

Fax: (818) 598-0875

February 28, 2018

Norman R. Haynie
22741 Pacific Coast Hwy., Suite 400
Malibu, CA 90265

ONSITE WASTEWATER TREATMENT SYSTEM DESIGN REPORT

FOR

22729-41 PACIFIC COAST HWY., MALIBU, CA 90265

SITE:

Subject site is a ±18,375 square foot parcel (APN 4452-022-010), and a ±23,970 square foot parcel (APN 4452-022-017) on the north side of Pacific Coast Highway in the City of Malibu.

DEVELOPMENT:

The proposed development consists of a new 15 bed hotel unit (203 fixture units) with a 39 seat restaurant located on APN 4452-022-010 (22729 Pacific Coast Highway), and a new 21 bed hotel unit (279 fixture units) located on APN 4452-022-017 (22741 Pacific Coast Highway). The existing alternative onsite wastewater treatment system currently serving the office building (10,320 square feet, 74 fixture units) located on 22741 Pacific Coast Highway will be upgraded to serve the hotel complex to be known collectively as the Malibu Sea View Hotel.

FLOW RATE:

For the two hotel units, the maximum wastewater flow rate was calculated at 60 gallons per bed per day per the City of Malibu Plumbing Code for a total of 900 gallons per day for the 15 bed hotel unit located at 22729 Pacific Coast Highway, and 1260 gallons per day for the 21 bed hotel unit located at 22741 Pacific Coast Highway, for a combined total of 2160 gallons per day. There is also a restaurant proposed for 22729 Pacific Coast Highway, which will have 39 seats at 50 gallons per seat for a total of 1950 gallons per day per the City of Malibu Plumbing Code. Therefore, the total maximum projected wastewater discharge for the entire project will be 4110 gallons per day.

ONSITE WASTEWATER TREATMENT SYSTEM:

The upgraded alternative onsite wastewater treatment system will consist of a new 3000 gallon traffic-rated grease interceptor, and a new 3000 gallon traffic-rated concrete pump tank with duplex screened pump vault. The pump tank will pump the sewage effluent from the 15 bed hotel unit, and 39 seat restaurant located at 22729 Pacific Coast Highway to the existing 5000 gallon traffic-rated concrete tank with HighStrengthFast 4.5 Treatment System (upgraded from the existing MicroFast 3.0 Treatment System) located at 22741 Pacific Coast Highway. This treatment system will discharge to three Norweco Bio-Kinetic Model BK 2000 Disinfection Units (upgraded from the existing single Norweco Bio-Kinetic BK 2000 Disinfection Unit), which will discharge to an existing 5000 gallon traffic-rated dosing tank with duplex screened pump vault, which will discharge to two seepage pits (SP3 and SP4) 6 feet in diameter, 17 feet deep below the inlet, and capped 5 feet below grade. Two existing seepage pits (SP1 and SP2), which have never been used, are designated as the future seepage pits.

The HighStrengthFAST 4.5 Treatment System with the three Norweco Bio-Kinetic BK 2000 Disinfection Units is capable of processing 4500 gallons of wastewater per day. Therefore, the 4110 gallons per day projected total maximum wastewater flow rate will be adequately treated to the tertiary requirements of the City of Malibu Plumbing Code prior to discharge.

Calculating the subsurface sewage effluent disposal requirements of the two hotel units based on the fixture unit counts, i.e. 203 fixture units for the hotel unit located at 22729 Pacific Coast Highway, and 279 fixture units for the hotel unit located at 22741 Pacific Coast Highway, yields a total subsurface sewage effluent disposal requirement of 39,150 gallons per day. Adding the restaurant, i.e. 1950 gallon maximum daily flow rate times 3 equals 5850 gallons, yields a combined total subsurface sewage effluent disposal requirement of 45,000 gallons per day. The two existing seepage pits percolation tested (SP1 and SP2) had a combined percolation rate of 56,719 gallon per day. Therefore, the total combined projected daily sewage effluent generated will be adequately disposed per the requirements of the City of Malibu Plumbing Code.

DECLARATION OF COMPLIANCE:

In my professional opinion, the onsite wastewater treatment system design submitted meets the minimum requirements of the City of Malibu Plumbing Code, and the City of Malibu Local Coastal Program. The onsite wastewater treatment system design submitted does not include an evaluation of any geological, or other potential problems, which may require an alternative method of onsite wastewater treatment, and disposal.

If you have any questions, or comments, or need further information regarding this onsite wastewater treatment, and disposal system description, then please contact me at your earliest convenience.

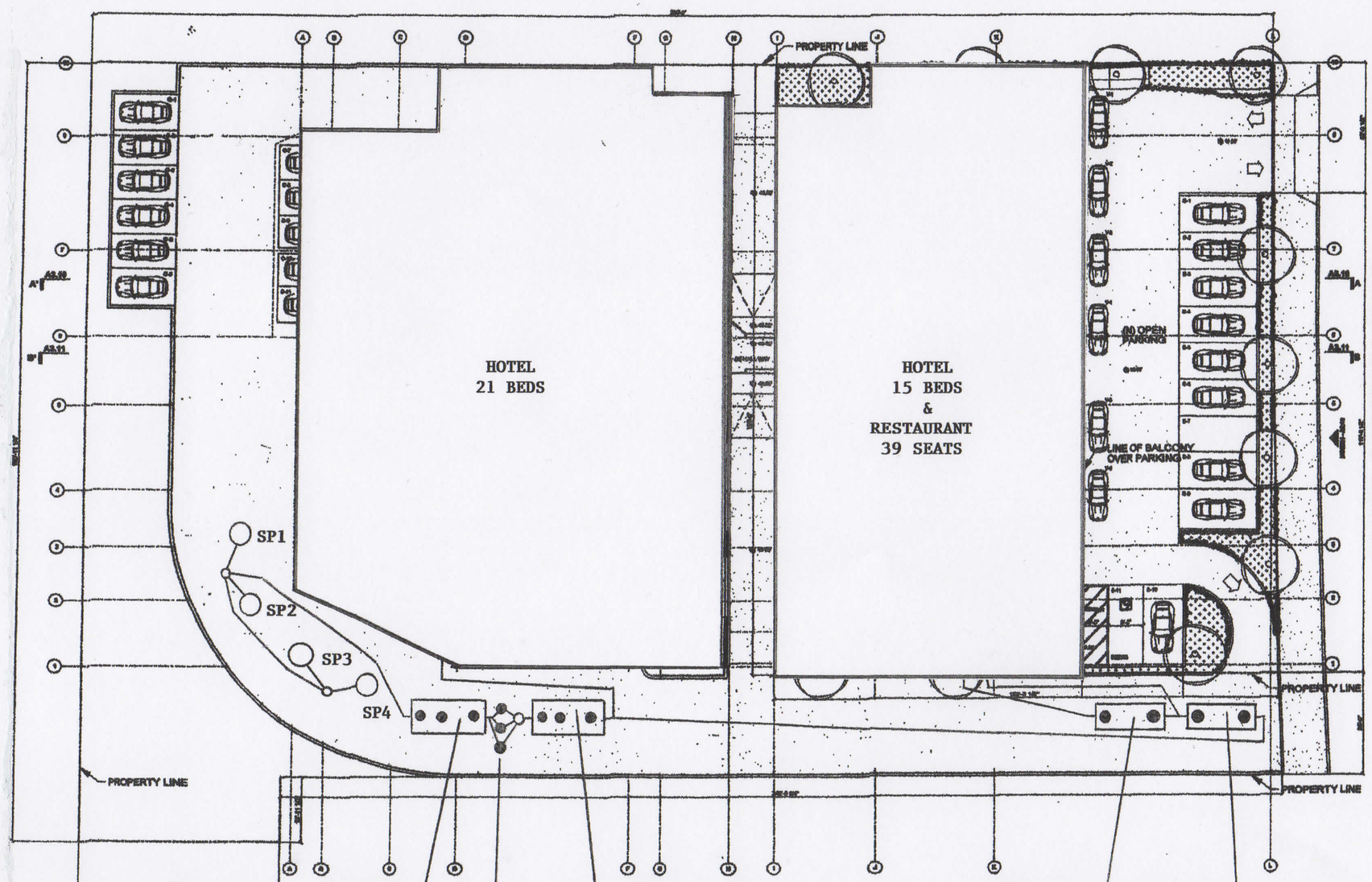


Sincerely,

L Young

Lawrence Young

MALIBU SEA VIEW HOTEL
22729-41 PACIFIC COAST HWY.
MALIBU, CA 90265



○ 4 - 6' X 17' BI
w/5' Cap (E)
SP1 & SP2 = Futures
SP3 & SP4 = Active

ENVIRONMENTAL HEALTH SPECIALIST
LAWRENCE YOUNG
REG. NO. 5738
L Young
STATE OF CALIFORNIA

FEB 28 2018

1" = 30'

March 29, 2018
W.O. 7091

APPENDIX B

LIQUEFACTION ANALYSES

MDN 19816

APPENDIX B

LIQUEFACTION ANALYSES

Liquefaction describes a phenomenon where cyclic stresses, which are produced by earthquake-induced ground motions, create excess pore pressures in predominately cohesionless soils. As a result, the soils may acquire a high degree of mobility, which can lead to lateral spreading, consolidation, and settlement of loose sediments, ground oscillation, flow failure, loss of bearing strength, ground fissuring, sand boils, and other damaging deformations.

This phenomenon occurs only below the water table, but after liquefaction has developed, it can propagate upward into overlying, non-saturated soil.

Research has shown that saturated, loose sands with silt content less than about 25 percent are most susceptible to liquefaction, whereas other soil types are generally considered to have a low susceptibility.

Seismically-included settlement in unsaturated (dry) and saturated soils generally occur due to the dissipation of pore pressure in a liquefiable soil layer. The controlling factors affecting settlement in saturated sands consist of the pore pressure drainage path, magnitude and duration of the seismic event, cyclic stresses, maximum shear strains, and the recorded normalized SPT blow-counts, $(N1)_{60}$, of the soils.

The potential for seismically-induced settlement is greatest in loose granular soils (i.e., sands and silty sands), whereas cohesive soils (i.e., clays and silts) are generally not prone to settlement. It should be noted that granular soils are susceptible to settlement during a seismic event whether the soils liquefy or not.

Appendix B

Procedure

The method of liquefaction assessment in this report is based on the "simplified procedure" originally developed by Seed and Idriss (1971, 1982), with subsequent refinements by Seed et al. (1983), Seed and De Alba (1986), and Seed and Harder (1990). As generally defined by CGS Special Publication 117A: Guidelines for Analyzing and Mitigating Liquefaction Hazards in California, the procedure compares the cyclic resistance ratio (CRR) with the earthquake induced cyclic stress ratio (CSR) at that depth from a specified design earthquake. The CRR is the ratio required to induce liquefaction for a cohesionless soil stratum at a given depth and is essentially the capacity of the soil to resist liquefaction. The CSR is defined generally as the seismic demand placed on a soil layer or the peak ground surface acceleration and an associated earthquake moment magnitude.

Values of CRR were established that were empirically correlated using extensive databases for sites that did or did not liquefy during previous earthquakes, values of (N1)60 could be correlated with the liquefied soil zones. The 1997 version of the baseline chart defines values of CRR as a function of (N1)60 for a moment magnitude 7.5 earthquake, CSR, and the percent fines. The factor of safety against liquefaction is obtained by calculating the ratio of CRR and CSR. The potential for seismically-induced settlement occurs when the factor of safety is less than 1.0. The methodology used in estimating probable seismically-induced settlement in unsaturated and saturated soil deposits from SPT data is based on the procedures suggested by CGS Special Publication 117A and Tokimatsu and Seed (1987) with a magnitude scaling factor. The settlement analysis considers very thin layers for the soil deposit and calculates the settlement for each layer. The total settlement is the sum of these settlements in both dry (soil above the groundwater table) and saturated soils at their respective depths.

Appendix B

The CRR curves are based on clean sands, necessitating fines content correction to accurately assess liquefaction potential. Fines content correction for SPT data is generated using formulas developed by Idriss and Seed (1997). For specific depths where gradation tests were performed, the value of percent fines (passing the #200 sieve) obtained from laboratory testing was used in the analysis.

Analyses Parameters

The assessment of liquefaction potential provided in this report maintains current code requirements and generally accepted practice. The analyses have been formed using a 2 and 10 percent probability of exceedance in 50 years for earthquake magnitudes, which was obtained from the USGS Unified Hazard Tool. The analyses utilize respectively full value and two-thirds of the PGA_m, which was obtained from the USGS Seismic Design Maps website. Table B-1 shows a summary of the parameters used in the analyses.

TABLE B-1
LIQUEFACTION ANALYSES PARAMETERS

Earthquake Mean Magnitude (2% Probability of Exceedance in 50 years)	6.76
Earthquake Mean Magnitude (10% Probability of Exceedance in 50 years)	6.6
Mapped Mean Peak Ground Acceleration PGA_M (g)	0.947
Historical High Groundwater Table (ft)	5
Energy Ratio Correction Factor C_E	1.00
Borehole Diameter Correction Factor C_B	1.05
Sampling Method Correction Factor C_S	1.20

Site exploration for the assessment of liquefaction potential consisted of Borings B-1 through B-8. At the time of the exploration, groundwater levels were relatively consistent across the site and were encountered at depths of approximately 13 to 19 feet below existing grades. However, the historical high groundwater table is approximately 5 feet below the existing grade.

Appendix B

Analyses Results

Based on the results of this investigation, evaluated from blow count data and laboratory testing of the borings, the potential for liquefaction does exist within the area of study.

The liquefaction settlement analyses were performed to a maximum depth of 25 feet below the existing ground surface and are presented in Table B-2. Differential settlement was taken as 2/3 of the maximum total settlement. The development will be founded in bedrock; therefore, we do not anticipate any static settlement. The results of the analyses using the LiquefyPro software are given below and output diagrams are provided at the end of this appendix.

TABLE B-2
LIQUEFACTION ANALYSES RESULTS – 2% PROB. OF EXCEEDANCE IN 50 YEARS

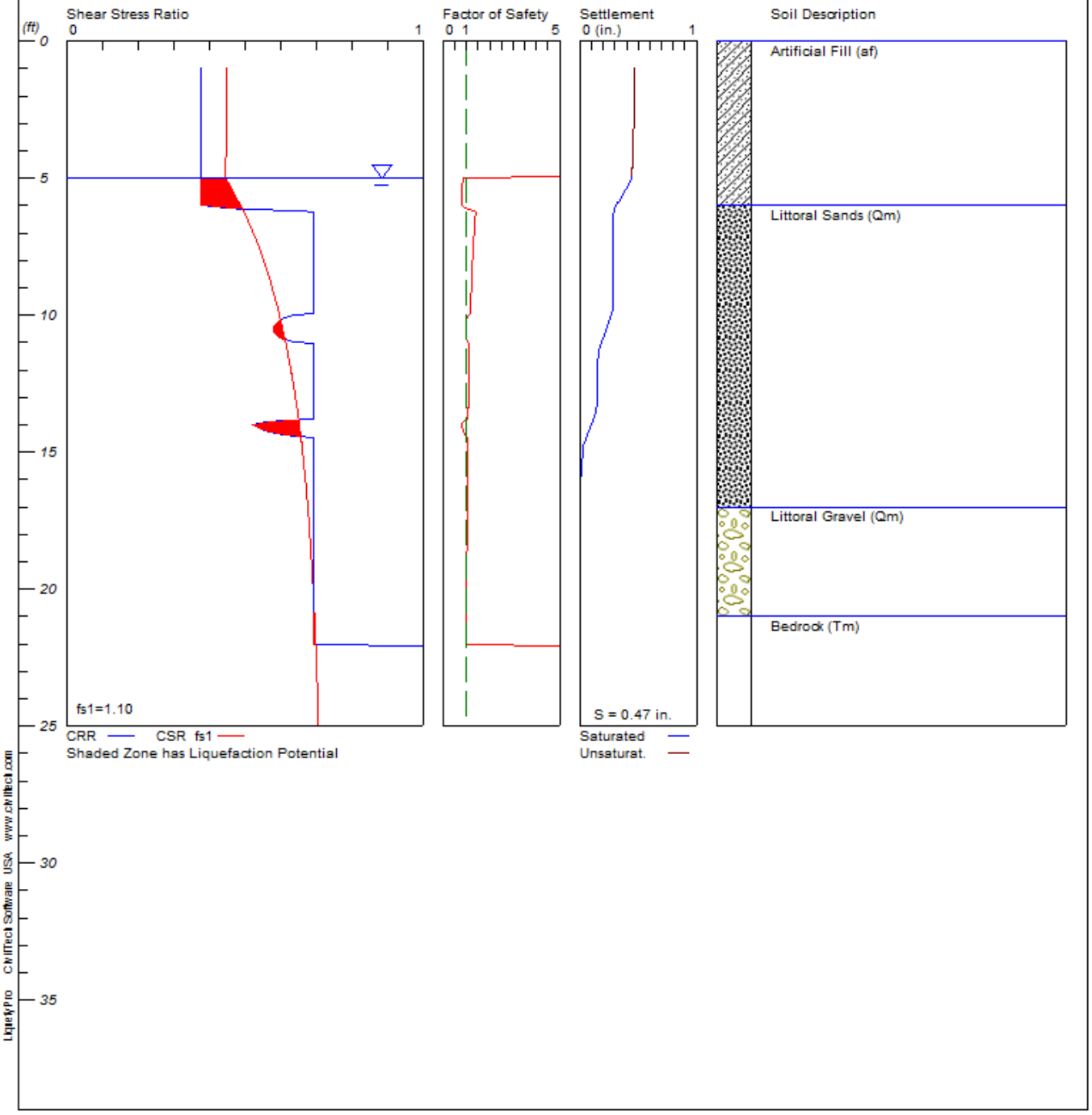
Analysis Criteria	Static Settlement (in)	Seismic Settlement (in)	Total Settlement (in)	Differential Settlement (in)
$2/3PGA_m$	0	0.47	0.47	0.31
Full PGA_m		0.81	0.81	0.54

LIQUEFACTION ANALYSIS

7091

Hole No.=B-6 Water Depth=5 ft

Magnitude=6.6
Acceleration=0.631g



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LIQUEFACTION ANALYSIS CALCULATION DETAILS
Copyright by CivilTech Software
www.civiltech.com

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Font: Courier New, Regular, Size 8 is recommended for this report.
Licensed to , 3/26/2018 9:32:18 AM

Input File Name: \\GSC-FILE\Folderredirections\omar\Documents\Staff Engineering Documents\2-13-17 To Now\7091\Review Letter 3-5-18\Liquefaction\Reduced PGA, 10% Exceedance.liq
Title: 7091
Subtitle: Malibu Sea View Hotel

Input Data:
Surface Elev.=
Hole No.=B-6
Depth of Hole=25.00 ft
Water Table during Earthquake= 5.00 ft
Water Table during In-Situ Testing= 19.00 ft
Max. Acceleration=0.63 g
Earthquake Magnitude=6.60
No-Liquefiable Soils: CL, OL are Non-Liq. Soil
1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1
7. Borehole Diameter, Cb= 1.05
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1.1
Plot one CSR curve (fs1=User)
10. Average two input data between two Depths: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	Gamma pcf	Fines %
1.00	10.00	116.00	45.00
2.00	10.00	116.00	45.00
3.00	10.00	116.00	45.00
4.00	10.00	116.00	45.00
5.00	10.00	116.00	45.00
6.00	10.00	116.00	45.00
7.00	25.00	125.00	5.00
8.00	25.00	125.00	5.00
9.00	25.00	125.00	5.00
10.00	21.00	125.00	5.00
11.00	21.00	125.00	10.00
12.00	27.00	125.00	10.00
13.00	27.00	125.00	10.00
14.00	23.00	129.00	10.00
15.00	26.00	129.00	10.00
16.00	26.00	129.00	10.00
17.00	38.00	131.00	4.00
18.00	38.00	131.00	4.00
19.00	38.00	131.00	4.00
20.00	38.00	131.00	4.00
21.00	38.00	131.00	4.00
22.00	38.00	131.00	NoLiq
23.00	38.00	131.00	NoLiq
24.00	38.00	131.00	NoLiq
25.00	38.00	131.00	NoLiq

Output Results:
Calculation segment, dz=0.050 ft
User defined Print Interval, dp=0.05 ft

Peak Ground Acceleration (PGA), a_max = 0.63g

CSR Calculation:

Depth ft	gamma pcf	sigma atm	gamma' pcf	sigma' atm	rd	mZ g	a(z) g	CSR	x fs1	=CSRfs
1.00	116.00	0.055	116.00	0.055	1.00	0.000	0.631	0.41	1.10	0.45
1.05	116.00	0.058	116.00	0.058	1.00	0.000	0.631	0.41	1.10	0.45
1.10	116.00	0.060	116.00	0.060	1.00	0.000	0.631	0.41	1.10	0.45
1.15	116.00	0.063	116.00	0.063	1.00	0.000	0.631	0.41	1.10	0.45
1.20	116.00	0.066	116.00	0.066	1.00	0.000	0.631	0.41	1.10	0.45
1.25	116.00	0.069	116.00	0.069	1.00	0.000	0.631	0.41	1.10	0.45
1.30	116.00	0.071	116.00	0.071	1.00	0.000	0.631	0.41	1.10	0.45
1.35	116.00	0.074	116.00	0.074	1.00	0.000	0.631	0.41	1.10	0.45
1.40	116.00	0.077	116.00	0.077	1.00	0.000	0.631	0.41	1.10	0.45
1.45	116.00	0.079	116.00	0.079	1.00	0.000	0.631	0.41	1.10	0.45
1.50	116.00	0.082	116.00	0.082	1.00	0.000	0.631	0.41	1.10	0.45
1.55	116.00	0.085	116.00	0.085	1.00	0.000	0.631	0.41	1.10	0.45
1.60	116.00	0.088	116.00	0.088	1.00	0.000	0.631	0.41	1.10	0.45
1.65	116.00	0.090	116.00	0.090	1.00	0.000	0.631	0.41	1.10	0.45
1.70	116.00	0.093	116.00	0.093	1.00	0.000	0.631	0.41	1.10	0.45
1.75	116.00	0.096	116.00	0.096	1.00	0.000	0.631	0.41	1.10	0.45
1.80	116.00	0.099	116.00	0.099	1.00	0.000	0.631	0.41	1.10	0.45
1.85	116.00	0.101	116.00	0.101	1.00	0.000	0.631	0.41	1.10	0.45
1.90	116.00	0.104	116.00	0.104	1.00	0.000	0.631	0.41	1.10	0.45
1.95	116.00	0.107	116.00	0.107	1.00	0.000	0.631	0.41	1.10	0.45
2.00	116.00	0.110	116.00	0.110	1.00	0.000	0.631	0.41	1.10	0.45
2.05	116.00	0.112	116.00	0.112	1.00	0.000	0.631	0.41	1.10	0.45
2.10	116.00	0.115	116.00	0.115	1.00	0.000	0.631	0.41	1.10	0.45
2.15	116.00	0.118	116.00	0.118	0.99	0.000	0.631	0.41	1.10	0.45
2.20	116.00	0.121	116.00	0.121	0.99	0.000	0.631	0.41	1.10	0.45
2.25	116.00	0.123	116.00	0.123	0.99	0.000	0.631	0.41	1.10	0.45
2.30	116.00	0.126	116.00	0.126	0.99	0.000	0.631	0.41	1.10	0.45
2.35	116.00	0.129	116.00	0.129	0.99	0.000	0.631	0.41	1.10	0.45
2.40	116.00	0.132	116.00	0.132	0.99	0.000	0.631	0.41	1.10	0.45
2.45	116.00	0.134	116.00	0.134	0.99	0.000	0.631	0.41	1.10	0.45
2.50	116.00	0.137	116.00	0.137	0.99	0.000	0.631	0.41	1.10	0.45
2.55	116.00	0.140	116.00	0.140	0.99	0.000	0.631	0.41	1.10	0.45
2.60	116.00	0.143	116.00	0.143	0.99	0.000	0.631	0.41	1.10	0.45
2.65	116.00	0.145	116.00	0.145	0.99	0.000	0.631	0.41	1.10	0.45
2.70	116.00	0.148	116.00	0.148	0.99	0.000	0.631	0.41	1.10	0.45
2.75	116.00	0.151	116.00	0.151	0.99	0.000	0.631	0.41	1.10	0.45
2.80	116.00	0.153	116.00	0.153	0.99	0.000	0.631	0.41	1.10	0.45
2.85	116.00	0.156	116.00	0.156	0.99	0.000	0.631	0.41	1.10	0.45
2.90	116.00	0.159	116.00	0.159	0.99	0.000	0.631	0.41	1.10	0.45
2.95	116.00	0.162	116.00	0.162	0.99	0.000	0.631	0.41	1.10	0.45
3.00	116.00	0.164	116.00	0.164	0.99	0.000	0.631	0.41	1.10	0.45
3.05	116.00	0.167	116.00	0.167	0.99	0.000	0.631	0.41	1.10	0.45
3.10	116.00	0.170	116.00	0.170	0.99	0.000	0.631	0.41	1.10	0.45
3.15	116.00	0.173	116.00	0.173	0.99	0.000	0.631	0.41	1.10	0.45
3.20	116.00	0.175	116.00	0.175	0.99	0.000	0.631	0.41	1.10	0.45
3.25	116.00	0.178	116.00	0.178	0.99	0.000	0.631	0.41	1.10	0.45
3.30	116.00	0.181	116.00	0.181	0.99	0.000	0.631	0.41	1.10	0.45
3.35	116.00	0.184	116.00	0.184	0.99	0.000	0.631	0.41	1.10	0.45
3.40	116.00	0.186	116.00	0.186	0.99	0.000	0.631	0.41	1.10	0.45
3.45	116.00	0.189	116.00	0.189	0.99	0.000	0.631	0.41	1.10	0.45
3.50	116.00	0.192	116.00	0.192	0.99	0.000	0.631	0.41	1.10	0.45
3.55	116.00	0.195	116.00	0.195	0.99	0.000	0.631	0.41	1.10	0.45
3.60	116.00	0.197	116.00	0.197	0.99	0.000	0.631	0.41	1.10	0.45
3.65	116.00	0.200	116.00	0.200	0.99	0.000	0.631	0.41	1.10	0.45
3.70	116.00	0.203	116.00	0.203	0.99	0.000	0.631	0.41	1.10	0.45
3.75	116.00	0.206	116.00	0.206	0.99	0.000	0.631	0.41	1.10	0.45
3.80	116.00	0.208	116.00	0.208	0.99	0.000	0.631	0.41	1.10	0.45
3.85	116.00	0.211	116.00	0.211	0.99	0.000	0.631	0.41	1.10	0.45
3.90	116.00	0.214	116.00	0.214	0.99	0.000	0.631	0.41	1.10	0.45
3.95	116.00	0.217	116.00	0.217	0.99	0.000	0.631	0.41	1.10	0.45
4.00	116.00	0.219	116.00	0.219	0.99	0.000	0.631	0.41	1.10	0.45
4.05	116.00	0.222	116.00	0.222	0.99	0.000	0.631	0.41	1.10	0.45
4.10	116.00	0.225	116.00	0.225	0.99	0.000	0.631	0.41	1.10	0.45
4.15	116.00	0.227	116.00	0.227	0.99	0.000	0.631	0.41	1.10	0.45
4.20	116.00	0.230	116.00	0.230	0.99	0.000	0.631	0.41	1.10	0.45
4.25	116.00	0.233	116.00	0.233	0.99	0.000	0.631	0.41	1.10	0.45
4.30	116.00	0.236	116.00	0.236	0.99	0.000	0.631	0.41	1.10	0.45

4.35	116.00	0.238	116.00	0.238	0.99	0.000	0.631	0.41	1.10	0.45
4.40	116.00	0.241	116.00	0.241	0.99	0.000	0.631	0.41	1.10	0.45
4.45	116.00	0.244	116.00	0.244	0.99	0.000	0.631	0.41	1.10	0.45
4.50	116.00	0.247	116.00	0.247	0.99	0.000	0.631	0.41	1.10	0.45
4.55	116.00	0.249	116.00	0.249	0.99	0.000	0.631	0.41	1.10	0.45
4.60	116.00	0.252	116.00	0.252	0.99	0.000	0.631	0.41	1.10	0.45
4.65	116.00	0.255	116.00	0.255	0.99	0.000	0.631	0.41	1.10	0.45
4.70	116.00	0.258	116.00	0.258	0.99	0.000	0.631	0.41	1.10	0.45
4.75	116.00	0.260	116.00	0.260	0.99	0.000	0.631	0.41	1.10	0.45
4.80	116.00	0.263	116.00	0.263	0.99	0.000	0.631	0.41	1.10	0.45
4.85	116.00	0.266	116.00	0.266	0.99	0.000	0.631	0.41	1.10	0.45
4.90	116.00	0.269	116.00	0.269	0.99	0.000	0.631	0.41	1.10	0.45
4.95	116.00	0.271	116.00	0.271	0.99	0.000	0.631	0.41	1.10	0.45
5.00	116.00	0.274	53.60	0.274	0.99	0.000	0.631	0.41	1.10	0.45
5.05	116.00	0.277	53.60	0.275	0.99	0.000	0.631	0.41	1.10	0.45
5.10	116.00	0.280	53.60	0.277	0.99	0.000	0.631	0.41	1.10	0.45
5.15	116.00	0.282	53.60	0.278	0.99	0.000	0.631	0.41	1.10	0.45
5.20	116.00	0.285	53.60	0.279	0.99	0.000	0.631	0.41	1.10	0.46
5.25	116.00	0.288	53.60	0.280	0.99	0.000	0.631	0.42	1.10	0.46
5.30	116.00	0.291	53.60	0.282	0.99	0.000	0.631	0.42	1.10	0.46
5.35	116.00	0.293	53.60	0.283	0.99	0.000	0.631	0.42	1.10	0.46
5.40	116.00	0.296	53.60	0.284	0.99	0.000	0.631	0.42	1.10	0.46
5.45	116.00	0.299	53.60	0.285	0.99	0.000	0.631	0.42	1.10	0.47
5.50	116.00	0.301	53.60	0.287	0.99	0.000	0.631	0.43	1.10	0.47
5.55	116.00	0.304	53.60	0.288	0.99	0.000	0.631	0.43	1.10	0.47
5.60	116.00	0.307	53.60	0.289	0.99	0.000	0.631	0.43	1.10	0.47
5.65	116.00	0.310	53.60	0.291	0.99	0.000	0.631	0.43	1.10	0.47
5.70	116.00	0.312	53.60	0.292	0.99	0.000	0.631	0.43	1.10	0.48
5.75	116.00	0.315	53.60	0.293	0.99	0.000	0.631	0.44	1.10	0.48
5.80	116.00	0.318	53.60	0.294	0.99	0.000	0.631	0.44	1.10	0.48
5.85	116.00	0.321	53.60	0.296	0.99	0.000	0.631	0.44	1.10	0.48
5.90	116.00	0.323	53.60	0.297	0.99	0.000	0.631	0.44	1.10	0.48
5.95	116.00	0.326	53.60	0.298	0.99	0.000	0.631	0.44	1.10	0.49
6.00	116.00	0.329	53.60	0.299	0.99	0.000	0.631	0.44	1.10	0.49
6.05	116.45	0.332	54.05	0.301	0.99	0.000	0.631	0.45	1.10	0.49
6.10	116.90	0.334	54.50	0.302	0.99	0.000	0.631	0.45	1.10	0.49
6.15	117.35	0.337	54.95	0.303	0.99	0.000	0.631	0.45	1.10	0.49
6.20	117.80	0.340	55.40	0.305	0.99	0.000	0.631	0.45	1.10	0.50
6.25	118.25	0.343	55.85	0.306	0.99	0.000	0.631	0.45	1.10	0.50
6.30	118.70	0.345	56.30	0.307	0.99	0.000	0.631	0.45	1.10	0.50
6.35	119.15	0.348	56.75	0.308	0.99	0.000	0.631	0.46	1.10	0.50
6.40	119.60	0.351	57.20	0.310	0.99	0.000	0.631	0.46	1.10	0.50
6.45	120.05	0.354	57.65	0.311	0.98	0.000	0.631	0.46	1.10	0.51
6.50	120.50	0.357	58.10	0.313	0.98	0.000	0.631	0.46	1.10	0.51
6.55	120.95	0.360	58.55	0.314	0.98	0.000	0.631	0.46	1.10	0.51
6.60	121.40	0.362	59.00	0.315	0.98	0.000	0.631	0.46	1.10	0.51
6.65	121.85	0.365	59.45	0.317	0.98	0.000	0.631	0.47	1.10	0.51
6.70	122.30	0.368	59.90	0.318	0.98	0.000	0.631	0.47	1.10	0.51
6.75	122.75	0.371	60.35	0.320	0.98	0.000	0.631	0.47	1.10	0.52
6.80	123.20	0.374	60.80	0.321	0.98	0.000	0.631	0.47	1.10	0.52
6.85	123.65	0.377	61.25	0.322	0.98	0.000	0.631	0.47	1.10	0.52
6.90	124.10	0.380	61.70	0.324	0.98	0.000	0.631	0.47	1.10	0.52
6.95	124.55	0.383	62.15	0.325	0.98	0.000	0.631	0.47	1.10	0.52
7.00	125.00	0.386	62.60	0.327	0.98	0.000	0.631	0.48	1.10	0.52
7.05	125.00	0.389	62.60	0.328	0.98	0.000	0.631	0.48	1.10	0.53
7.10	125.00	0.392	62.60	0.330	0.98	0.000	0.631	0.48	1.10	0.53
7.15	125.00	0.395	62.60	0.331	0.98	0.000	0.631	0.48	1.10	0.53
7.20	125.00	0.398	62.60	0.333	0.98	0.000	0.631	0.48	1.10	0.53
7.25	125.00	0.400	62.60	0.334	0.98	0.000	0.631	0.48	1.10	0.53
7.30	125.00	0.403	62.60	0.336	0.98	0.000	0.631	0.48	1.10	0.53
7.35	125.00	0.406	62.60	0.337	0.98	0.000	0.631	0.49	1.10	0.53
7.40	125.00	0.409	62.60	0.339	0.98	0.000	0.631	0.49	1.10	0.54
7.45	125.00	0.412	62.60	0.340	0.98	0.000	0.631	0.49	1.10	0.54
7.50	125.00	0.415	62.60	0.342	0.98	0.000	0.631	0.49	1.10	0.54
7.55	125.00	0.418	62.60	0.343	0.98	0.000	0.631	0.49	1.10	0.54
7.60	125.00	0.421	62.60	0.345	0.98	0.000	0.631	0.49	1.10	0.54
7.65	125.00	0.424	62.60	0.346	0.98	0.000	0.631	0.49	1.10	0.54
7.70	125.00	0.427	62.60	0.347	0.98	0.000	0.631	0.50	1.10	0.54
7.75	125.00	0.430	62.60	0.349	0.98	0.000	0.631	0.50	1.10	0.55
7.80	125.00	0.433	62.60	0.350	0.98	0.000	0.631	0.50	1.10	0.55
7.85	125.00	0.436	62.60	0.352	0.98	0.000	0.631	0.50	1.10	0.55
7.90	125.00	0.439	62.60	0.353	0.98	0.000	0.631	0.50	1.10	0.55
7.95	125.00	0.442	62.60	0.355	0.98	0.000	0.631	0.50	1.10	0.55

8.00	125.00	0.445	62.60	0.356	0.98	0.000	0.631	0.50	1.10	0.55
8.05	125.00	0.448	62.60	0.358	0.98	0.000	0.631	0.50	1.10	0.55
8.10	125.00	0.451	62.60	0.359	0.98	0.000	0.631	0.50	1.10	0.56
8.15	125.00	0.454	62.60	0.361	0.98	0.000	0.631	0.51	1.10	0.56
8.20	125.00	0.457	62.60	0.362	0.98	0.000	0.631	0.51	1.10	0.56
8.25	125.00	0.460	62.60	0.364	0.98	0.000	0.631	0.51	1.10	0.56
8.30	125.00	0.463	62.60	0.365	0.98	0.000	0.631	0.51	1.10	0.56
8.35	125.00	0.465	62.60	0.367	0.98	0.000	0.631	0.51	1.10	0.56
8.40	125.00	0.468	62.60	0.368	0.98	0.000	0.631	0.51	1.10	0.56
8.45	125.00	0.471	62.60	0.370	0.98	0.000	0.631	0.51	1.10	0.56
8.50	125.00	0.474	62.60	0.371	0.98	0.000	0.631	0.51	1.10	0.57
8.55	125.00	0.477	62.60	0.373	0.98	0.000	0.631	0.51	1.10	0.57
8.60	125.00	0.480	62.60	0.374	0.98	0.000	0.631	0.52	1.10	0.57
8.65	125.00	0.483	62.60	0.376	0.98	0.000	0.631	0.52	1.10	0.57
8.70	125.00	0.486	62.60	0.377	0.98	0.000	0.631	0.52	1.10	0.57
8.75	125.00	0.489	62.60	0.379	0.98	0.000	0.631	0.52	1.10	0.57
8.80	125.00	0.492	62.60	0.380	0.98	0.000	0.631	0.52	1.10	0.57
8.85	125.00	0.495	62.60	0.381	0.98	0.000	0.631	0.52	1.10	0.57
8.90	125.00	0.498	62.60	0.383	0.98	0.000	0.631	0.52	1.10	0.57
8.95	125.00	0.501	62.60	0.384	0.98	0.000	0.631	0.52	1.10	0.58
9.00	125.00	0.504	62.60	0.386	0.98	0.000	0.631	0.52	1.10	0.58
9.05	125.00	0.507	62.60	0.387	0.98	0.000	0.631	0.53	1.10	0.58
9.10	125.00	0.510	62.60	0.389	0.98	0.000	0.631	0.53	1.10	0.58
9.15	125.00	0.513	62.60	0.390	0.98	0.000	0.631	0.53	1.10	0.58
9.20	125.00	0.516	62.60	0.392	0.98	0.000	0.631	0.53	1.10	0.58
9.25	125.00	0.519	62.60	0.393	0.98	0.000	0.631	0.53	1.10	0.58
9.30	125.00	0.522	62.60	0.395	0.98	0.000	0.631	0.53	1.10	0.58
9.35	125.00	0.525	62.60	0.396	0.98	0.000	0.631	0.53	1.10	0.58
9.40	125.00	0.527	62.60	0.398	0.98	0.000	0.631	0.53	1.10	0.59
9.45	125.00	0.530	62.60	0.399	0.98	0.000	0.631	0.53	1.10	0.59
9.50	125.00	0.533	62.60	0.401	0.98	0.000	0.631	0.53	1.10	0.59
9.55	125.00	0.536	62.60	0.402	0.98	0.000	0.631	0.53	1.10	0.59
9.60	125.00	0.539	62.60	0.404	0.98	0.000	0.631	0.54	1.10	0.59
9.65	125.00	0.542	62.60	0.405	0.98	0.000	0.631	0.54	1.10	0.59
9.70	125.00	0.545	62.60	0.407	0.98	0.000	0.631	0.54	1.10	0.59
9.75	125.00	0.548	62.60	0.408	0.98	0.000	0.631	0.54	1.10	0.59
9.80	125.00	0.551	62.60	0.410	0.98	0.000	0.631	0.54	1.10	0.59
9.85	125.00	0.554	62.60	0.411	0.98	0.000	0.631	0.54	1.10	0.59
9.90	125.00	0.557	62.60	0.413	0.98	0.000	0.631	0.54	1.10	0.60
9.95	125.00	0.560	62.60	0.414	0.98	0.000	0.631	0.54	1.10	0.60
10.00	125.00	0.563	62.60	0.415	0.98	0.000	0.631	0.54	1.10	0.60
10.05	125.00	0.566	62.60	0.417	0.98	0.000	0.631	0.54	1.10	0.60
10.10	125.00	0.569	62.60	0.418	0.98	0.000	0.631	0.54	1.10	0.60
10.15	125.00	0.572	62.60	0.420	0.98	0.000	0.631	0.55	1.10	0.60
10.20	125.00	0.575	62.60	0.421	0.98	0.000	0.631	0.55	1.10	0.60
10.25	125.00	0.578	62.60	0.423	0.98	0.000	0.631	0.55	1.10	0.60
10.30	125.00	0.581	62.60	0.424	0.98	0.000	0.631	0.55	1.10	0.60
10.35	125.00	0.584	62.60	0.426	0.98	0.000	0.631	0.55	1.10	0.60
10.40	125.00	0.587	62.60	0.427	0.98	0.000	0.631	0.55	1.10	0.60
10.45	125.00	0.590	62.60	0.429	0.98	0.000	0.631	0.55	1.10	0.61
10.50	125.00	0.592	62.60	0.430	0.98	0.000	0.631	0.55	1.10	0.61
10.55	125.00	0.595	62.60	0.432	0.98	0.000	0.631	0.55	1.10	0.61
10.60	125.00	0.598	62.60	0.433	0.98	0.000	0.631	0.55	1.10	0.61
10.65	125.00	0.601	62.60	0.435	0.98	0.000	0.631	0.55	1.10	0.61
10.70	125.00	0.604	62.60	0.436	0.98	0.000	0.631	0.55	1.10	0.61
10.75	125.00	0.607	62.60	0.438	0.97	0.000	0.631	0.55	1.10	0.61
10.80	125.00	0.610	62.60	0.439	0.97	0.000	0.631	0.56	1.10	0.61
10.85	125.00	0.613	62.60	0.441	0.97	0.000	0.631	0.56	1.10	0.61
10.90	125.00	0.616	62.60	0.442	0.97	0.000	0.631	0.56	1.10	0.61
10.95	125.00	0.619	62.60	0.444	0.97	0.000	0.631	0.56	1.10	0.61
11.00	125.00	0.622	62.60	0.445	0.97	0.000	0.631	0.56	1.10	0.61
11.05	125.00	0.625	62.60	0.447	0.97	0.000	0.631	0.56	1.10	0.62
11.10	125.00	0.628	62.60	0.448	0.97	0.000	0.631	0.56	1.10	0.62
11.15	125.00	0.631	62.60	0.450	0.97	0.000	0.631	0.56	1.10	0.62
11.20	125.00	0.634	62.60	0.451	0.97	0.000	0.631	0.56	1.10	0.62
11.25	125.00	0.637	62.60	0.452	0.97	0.000	0.631	0.56	1.10	0.62
11.30	125.00	0.640	62.60	0.454	0.97	0.000	0.631	0.56	1.10	0.62
11.35	125.00	0.643	62.60	0.455	0.97	0.000	0.631	0.56	1.10	0.62
11.40	125.00	0.646	62.60	0.457	0.97	0.000	0.631	0.56	1.10	0.62
11.45	125.00	0.649	62.60	0.458	0.97	0.000	0.631	0.56	1.10	0.62
11.50	125.00	0.652	62.60	0.460	0.97	0.000	0.631	0.57	1.10	0.62
11.55	125.00	0.654	62.60	0.461	0.97	0.000	0.631	0.57	1.10	0.62
11.60	125.00	0.657	62.60	0.463	0.97	0.000	0.631	0.57	1.10	0.62

11.65	125.00	0.660	62.60	0.464	0.97	0.000	0.631	0.57	1.10	0.62
11.70	125.00	0.663	62.60	0.466	0.97	0.000	0.631	0.57	1.10	0.62
11.75	125.00	0.666	62.60	0.467	0.97	0.000	0.631	0.57	1.10	0.63
11.80	125.00	0.669	62.60	0.469	0.97	0.000	0.631	0.57	1.10	0.63
11.85	125.00	0.672	62.60	0.470	0.97	0.000	0.631	0.57	1.10	0.63
11.90	125.00	0.675	62.60	0.472	0.97	0.000	0.631	0.57	1.10	0.63
11.95	125.00	0.678	62.60	0.473	0.97	0.000	0.631	0.57	1.10	0.63
12.00	125.00	0.681	62.60	0.475	0.97	0.000	0.631	0.57	1.10	0.63
12.05	125.00	0.684	62.60	0.476	0.97	0.000	0.631	0.57	1.10	0.63
12.10	125.00	0.687	62.60	0.478	0.97	0.000	0.631	0.57	1.10	0.63
12.15	125.00	0.690	62.60	0.479	0.97	0.000	0.631	0.57	1.10	0.63
12.20	125.00	0.693	62.60	0.481	0.97	0.000	0.631	0.57	1.10	0.63
12.25	125.00	0.696	62.60	0.482	0.97	0.000	0.631	0.58	1.10	0.63
12.30	125.00	0.699	62.60	0.484	0.97	0.000	0.631	0.58	1.10	0.63
12.35	125.00	0.702	62.60	0.485	0.97	0.000	0.631	0.58	1.10	0.63
12.40	125.00	0.705	62.60	0.486	0.97	0.000	0.631	0.58	1.10	0.63
12.45	125.00	0.708	62.60	0.488	0.97	0.000	0.631	0.58	1.10	0.64
12.50	125.00	0.711	62.60	0.489	0.97	0.000	0.631	0.58	1.10	0.64
12.55	125.00	0.714	62.60	0.491	0.97	0.000	0.631	0.58	1.10	0.64
12.60	125.00	0.717	62.60	0.492	0.97	0.000	0.631	0.58	1.10	0.64
12.65	125.00	0.719	62.60	0.494	0.97	0.000	0.631	0.58	1.10	0.64
12.70	125.00	0.722	62.60	0.495	0.97	0.000	0.631	0.58	1.10	0.64
12.75	125.00	0.725	62.60	0.497	0.97	0.000	0.631	0.58	1.10	0.64
12.80	125.00	0.728	62.60	0.498	0.97	0.000	0.631	0.58	1.10	0.64
12.85	125.00	0.731	62.60	0.500	0.97	0.000	0.631	0.58	1.10	0.64
12.90	125.00	0.734	62.60	0.501	0.97	0.000	0.631	0.58	1.10	0.64
12.95	125.00	0.737	62.60	0.503	0.97	0.000	0.631	0.58	1.10	0.64
13.00	125.00	0.740	62.60	0.504	0.97	0.000	0.631	0.58	1.10	0.64
13.05	125.20	0.743	62.80	0.506	0.97	0.000	0.631	0.58	1.10	0.64
13.10	125.40	0.746	63.00	0.507	0.97	0.000	0.631	0.58	1.10	0.64
13.15	125.60	0.749	63.20	0.509	0.97	0.000	0.631	0.59	1.10	0.64
13.20	125.80	0.752	63.40	0.510	0.97	0.000	0.631	0.59	1.10	0.64
13.25	126.00	0.755	63.60	0.512	0.97	0.000	0.631	0.59	1.10	0.65
13.30	126.20	0.758	63.80	0.513	0.97	0.000	0.631	0.59	1.10	0.65
13.35	126.40	0.761	64.00	0.515	0.97	0.000	0.631	0.59	1.10	0.65
13.40	126.60	0.764	64.20	0.516	0.97	0.000	0.631	0.59	1.10	0.65
13.45	126.80	0.767	64.40	0.518	0.97	0.000	0.631	0.59	1.10	0.65
13.50	127.00	0.770	64.60	0.519	0.97	0.000	0.631	0.59	1.10	0.65
13.55	127.20	0.773	64.80	0.521	0.97	0.000	0.631	0.59	1.10	0.65
13.60	127.40	0.776	65.00	0.522	0.97	0.000	0.631	0.59	1.10	0.65
13.65	127.60	0.779	65.20	0.524	0.97	0.000	0.631	0.59	1.10	0.65
13.70	127.80	0.782	65.40	0.525	0.97	0.000	0.631	0.59	1.10	0.65
13.75	128.00	0.785	65.60	0.527	0.97	0.000	0.631	0.59	1.10	0.65
13.80	128.20	0.788	65.80	0.528	0.97	0.000	0.631	0.59	1.10	0.65
13.85	128.40	0.791	66.00	0.530	0.97	0.000	0.631	0.59	1.10	0.65
13.90	128.60	0.794	66.20	0.532	0.97	0.000	0.631	0.59	1.10	0.65
13.95	128.80	0.797	66.40	0.533	0.97	0.000	0.631	0.59	1.10	0.65
14.00	129.00	0.800	66.60	0.535	0.97	0.000	0.631	0.59	1.10	0.65
14.05	129.00	0.803	66.60	0.536	0.97	0.000	0.631	0.59	1.10	0.65
14.10	129.00	0.806	66.60	0.538	0.97	0.000	0.631	0.59	1.10	0.65
14.15	129.00	0.809	66.60	0.539	0.97	0.000	0.631	0.59	1.10	0.65
14.20	129.00	0.812	66.60	0.541	0.97	0.000	0.631	0.60	1.10	0.65
14.25	129.00	0.815	66.60	0.543	0.97	0.000	0.631	0.60	1.10	0.66
14.30	129.00	0.818	66.60	0.544	0.97	0.000	0.631	0.60	1.10	0.66
14.35	129.00	0.821	66.60	0.546	0.97	0.000	0.631	0.60	1.10	0.66
14.40	129.00	0.824	66.60	0.547	0.97	0.000	0.631	0.60	1.10	0.66
14.45	129.00	0.828	66.60	0.549	0.97	0.000	0.631	0.60	1.10	0.66
14.50	129.00	0.831	66.60	0.550	0.97	0.000	0.631	0.60	1.10	0.66
14.55	129.00	0.834	66.60	0.552	0.97	0.000	0.631	0.60	1.10	0.66
14.60	129.00	0.837	66.60	0.554	0.97	0.000	0.631	0.60	1.10	0.66
14.65	129.00	0.840	66.60	0.555	0.97	0.000	0.631	0.60	1.10	0.66
14.70	129.00	0.843	66.60	0.557	0.97	0.000	0.631	0.60	1.10	0.66
14.75	129.00	0.846	66.60	0.558	0.97	0.000	0.631	0.60	1.10	0.66
14.80	129.00	0.849	66.60	0.560	0.97	0.000	0.631	0.60	1.10	0.66
14.85	129.00	0.852	66.60	0.561	0.97	0.000	0.631	0.60	1.10	0.66
14.90	129.00	0.855	66.60	0.563	0.97	0.000	0.631	0.60	1.10	0.66
14.95	129.00	0.858	66.60	0.565	0.97	0.000	0.631	0.60	1.10	0.66
15.00	129.00	0.861	66.60	0.566	0.97	0.000	0.631	0.60	1.10	0.66
15.05	129.00	0.864	66.60	0.568	0.96	0.000	0.631	0.60	1.10	0.66
15.10	129.00	0.867	66.60	0.569	0.96	0.000	0.631	0.60	1.10	0.66
15.15	129.00	0.870	66.60	0.571	0.96	0.000	0.631	0.60	1.10	0.66
15.20	129.00	0.873	66.60	0.572	0.96	0.000	0.631	0.60	1.10	0.66
15.25	129.00	0.876	66.60	0.574	0.96	0.000	0.631	0.60	1.10	0.66

15.30	129.00	0.879	66.60	0.576	0.96	0.000	0.631	0.60	1.10	0.66
15.35	129.00	0.882	66.60	0.577	0.96	0.000	0.631	0.60	1.10	0.67
15.40	129.00	0.885	66.60	0.579	0.96	0.000	0.631	0.60	1.10	0.67
15.45	129.00	0.888	66.60	0.580	0.96	0.000	0.631	0.61	1.10	0.67
15.50	129.00	0.892	66.60	0.582	0.96	0.000	0.631	0.61	1.10	0.67
15.55	129.00	0.895	66.60	0.583	0.96	0.000	0.631	0.61	1.10	0.67
15.60	129.00	0.898	66.60	0.585	0.96	0.000	0.631	0.61	1.10	0.67
15.65	129.00	0.901	66.60	0.587	0.96	0.000	0.631	0.61	1.10	0.67
15.70	129.00	0.904	66.60	0.588	0.96	0.000	0.631	0.61	1.10	0.67
15.75	129.00	0.907	66.60	0.590	0.96	0.000	0.631	0.61	1.10	0.67
15.80	129.00	0.910	66.60	0.591	0.96	0.000	0.631	0.61	1.10	0.67
15.85	129.00	0.913	66.60	0.593	0.96	0.000	0.631	0.61	1.10	0.67
15.90	129.00	0.916	66.60	0.595	0.96	0.000	0.631	0.61	1.10	0.67
15.95	129.00	0.919	66.60	0.596	0.96	0.000	0.631	0.61	1.10	0.67
16.00	129.00	0.922	66.60	0.598	0.96	0.000	0.631	0.61	1.10	0.67
16.05	129.10	0.925	66.70	0.599	0.96	0.000	0.631	0.61	1.10	0.67
16.10	129.20	0.928	66.80	0.601	0.96	0.000	0.631	0.61	1.10	0.67
16.15	129.30	0.931	66.90	0.602	0.96	0.000	0.631	0.61	1.10	0.67
16.20	129.40	0.934	67.00	0.604	0.96	0.000	0.631	0.61	1.10	0.67
16.25	129.50	0.937	67.10	0.606	0.96	0.000	0.631	0.61	1.10	0.67
16.30	129.60	0.940	67.20	0.607	0.96	0.000	0.631	0.61	1.10	0.67
16.35	129.70	0.943	67.30	0.609	0.96	0.000	0.631	0.61	1.10	0.67
16.40	129.80	0.946	67.40	0.610	0.96	0.000	0.631	0.61	1.10	0.67
16.45	129.90	0.950	67.50	0.612	0.96	0.000	0.631	0.61	1.10	0.67
16.50	130.00	0.953	67.60	0.614	0.96	0.000	0.631	0.61	1.10	0.67
16.55	130.10	0.956	67.70	0.615	0.96	0.000	0.631	0.61	1.10	0.67
16.60	130.20	0.959	67.80	0.617	0.96	0.000	0.631	0.61	1.10	0.67
16.65	130.30	0.962	67.90	0.618	0.96	0.000	0.631	0.61	1.10	0.67
16.70	130.40	0.965	68.00	0.620	0.96	0.000	0.631	0.61	1.10	0.67
16.75	130.50	0.968	68.10	0.622	0.96	0.000	0.631	0.61	1.10	0.68
16.80	130.60	0.971	68.20	0.623	0.96	0.000	0.631	0.61	1.10	0.68
16.85	130.70	0.974	68.30	0.625	0.96	0.000	0.631	0.61	1.10	0.68
16.90	130.80	0.977	68.40	0.626	0.96	0.000	0.631	0.61	1.10	0.68
16.95	130.90	0.980	68.50	0.628	0.96	0.000	0.631	0.61	1.10	0.68
17.00	131.00	0.983	68.60	0.630	0.96	0.000	0.631	0.62	1.10	0.68
17.05	131.00	0.987	68.60	0.631	0.96	0.000	0.631	0.62	1.10	0.68
17.10	131.00	0.990	68.60	0.633	0.96	0.000	0.631	0.62	1.10	0.68
17.15	131.00	0.993	68.60	0.634	0.96	0.000	0.631	0.62	1.10	0.68
17.20	131.00	0.996	68.60	0.636	0.96	0.000	0.631	0.62	1.10	0.68
17.25	131.00	0.999	68.60	0.638	0.96	0.000	0.631	0.62	1.10	0.68
17.30	131.00	1.002	68.60	0.639	0.96	0.000	0.631	0.62	1.10	0.68
17.35	131.00	1.005	68.60	0.641	0.96	0.000	0.631	0.62	1.10	0.68
17.40	131.00	1.008	68.60	0.643	0.96	0.000	0.631	0.62	1.10	0.68
17.45	131.00	1.011	68.60	0.644	0.96	0.000	0.631	0.62	1.10	0.68
17.50	131.00	1.014	68.60	0.646	0.96	0.000	0.631	0.62	1.10	0.68
17.55	131.00	1.017	68.60	0.647	0.96	0.000	0.631	0.62	1.10	0.68
17.60	131.00	1.021	68.60	0.649	0.96	0.000	0.631	0.62	1.10	0.68
17.65	131.00	1.024	68.60	0.651	0.96	0.000	0.631	0.62	1.10	0.68
17.70	131.00	1.027	68.60	0.652	0.96	0.000	0.631	0.62	1.10	0.68
17.75	131.00	1.030	68.60	0.654	0.96	0.000	0.631	0.62	1.10	0.68
17.80	131.00	1.033	68.60	0.656	0.96	0.000	0.631	0.62	1.10	0.68
17.85	131.00	1.036	68.60	0.657	0.96	0.000	0.631	0.62	1.10	0.68
17.90	131.00	1.039	68.60	0.659	0.96	0.000	0.631	0.62	1.10	0.68
17.95	131.00	1.042	68.60	0.660	0.96	0.000	0.631	0.62	1.10	0.68
18.00	131.00	1.045	68.60	0.662	0.96	0.000	0.631	0.62	1.10	0.68
18.05	131.00	1.048	68.60	0.664	0.96	0.000	0.631	0.62	1.10	0.68
18.10	131.00	1.052	68.60	0.665	0.96	0.000	0.631	0.62	1.10	0.68
18.15	131.00	1.055	68.60	0.667	0.96	0.000	0.631	0.62	1.10	0.68
18.20	131.00	1.058	68.60	0.668	0.96	0.000	0.631	0.62	1.10	0.68
18.25	131.00	1.061	68.60	0.670	0.96	0.000	0.631	0.62	1.10	0.68
18.30	131.00	1.064	68.60	0.672	0.96	0.000	0.631	0.62	1.10	0.68
18.35	131.00	1.067	68.60	0.673	0.96	0.000	0.631	0.62	1.10	0.68
18.40	131.00	1.070	68.60	0.675	0.96	0.000	0.631	0.62	1.10	0.68
18.45	131.00	1.073	68.60	0.677	0.96	0.000	0.631	0.62	1.10	0.68
18.50	131.00	1.076	68.60	0.678	0.96	0.000	0.631	0.62	1.10	0.69
18.55	131.00	1.079	68.60	0.680	0.96	0.000	0.631	0.62	1.10	0.69
18.60	131.00	1.082	68.60	0.681	0.96	0.000	0.631	0.62	1.10	0.69
18.65	131.00	1.086	68.60	0.683	0.96	0.000	0.631	0.62	1.10	0.69
18.70	131.00	1.089	68.60	0.685	0.96	0.000	0.631	0.62	1.10	0.69
18.75	131.00	1.092	68.60	0.686	0.96	0.000	0.631	0.62	1.10	0.69
18.80	131.00	1.095	68.60	0.688	0.96	0.000	0.631	0.62	1.10	0.69
18.85	131.00	1.098	68.60	0.690	0.96	0.000	0.631	0.62	1.10	0.69
18.90	131.00	1.101	68.60	0.691	0.96	0.000	0.631	0.62	1.10	0.69

18.95	131.00	1.104	68.60	0.693	0.96	0.000	0.631	0.62	1.10	0.69
19.00	131.00	1.107	68.60	0.694	0.96	0.000	0.631	0.63	1.10	0.69
19.05	131.00	1.110	68.60	0.696	0.96	0.000	0.631	0.63	1.10	0.69
19.10	131.00	1.113	68.60	0.698	0.96	0.000	0.631	0.63	1.10	0.69
19.15	131.00	1.117	68.60	0.699	0.96	0.000	0.631	0.63	1.10	0.69
19.20	131.00	1.120	68.60	0.701	0.96	0.000	0.631	0.63	1.10	0.69
19.25	131.00	1.123	68.60	0.703	0.96	0.000	0.631	0.63	1.10	0.69
19.30	131.00	1.126	68.60	0.704	0.96	0.000	0.631	0.63	1.10	0.69
19.35	131.00	1.129	68.60	0.706	0.95	0.000	0.631	0.63	1.10	0.69
19.40	131.00	1.132	68.60	0.707	0.95	0.000	0.631	0.63	1.10	0.69
19.45	131.00	1.135	68.60	0.709	0.95	0.000	0.631	0.63	1.10	0.69
19.50	131.00	1.138	68.60	0.711	0.95	0.000	0.631	0.63	1.10	0.69
19.55	131.00	1.141	68.60	0.712	0.95	0.000	0.631	0.63	1.10	0.69
19.60	131.00	1.144	68.60	0.714	0.95	0.000	0.631	0.63	1.10	0.69
19.65	131.00	1.147	68.60	0.715	0.95	0.000	0.631	0.63	1.10	0.69
19.70	131.00	1.151	68.60	0.717	0.95	0.000	0.631	0.63	1.10	0.69
19.75	131.00	1.154	68.60	0.719	0.95	0.000	0.631	0.63	1.10	0.69
19.80	131.00	1.157	68.60	0.720	0.95	0.000	0.631	0.63	1.10	0.69
19.85	131.00	1.160	68.60	0.722	0.95	0.000	0.631	0.63	1.10	0.69
19.90	131.00	1.163	68.60	0.724	0.95	0.000	0.631	0.63	1.10	0.69
19.95	131.00	1.166	68.60	0.725	0.95	0.000	0.631	0.63	1.10	0.69
20.00	131.00	1.169	68.60	0.727	0.95	0.000	0.631	0.63	1.10	0.69
20.05	131.00	1.172	68.60	0.728	0.95	0.000	0.631	0.63	1.10	0.69
20.10	131.00	1.175	68.60	0.730	0.95	0.000	0.631	0.63	1.10	0.69
20.15	131.00	1.178	68.60	0.732	0.95	0.000	0.631	0.63	1.10	0.69
20.20	131.00	1.182	68.60	0.733	0.95	0.000	0.631	0.63	1.10	0.69
20.25	131.00	1.185	68.60	0.735	0.95	0.000	0.631	0.63	1.10	0.69
20.30	131.00	1.188	68.60	0.737	0.95	0.000	0.631	0.63	1.10	0.69
20.35	131.00	1.191	68.60	0.738	0.95	0.000	0.631	0.63	1.10	0.69
20.40	131.00	1.194	68.60	0.740	0.95	0.000	0.631	0.63	1.10	0.69
20.45	131.00	1.197	68.60	0.741	0.95	0.000	0.631	0.63	1.10	0.69
20.50	131.00	1.200	68.60	0.743	0.95	0.000	0.631	0.63	1.10	0.69
20.55	131.00	1.203	68.60	0.745	0.95	0.000	0.631	0.63	1.10	0.69
20.60	131.00	1.206	68.60	0.746	0.95	0.000	0.631	0.63	1.10	0.69
20.65	131.00	1.209	68.60	0.748	0.95	0.000	0.631	0.63	1.10	0.69
20.70	131.00	1.212	68.60	0.750	0.95	0.000	0.631	0.63	1.10	0.69
20.75	131.00	1.216	68.60	0.751	0.95	0.000	0.631	0.63	1.10	0.69
20.80	131.00	1.219	68.60	0.753	0.95	0.000	0.631	0.63	1.10	0.69
20.85	131.00	1.222	68.60	0.754	0.95	0.000	0.631	0.63	1.10	0.70
20.90	131.00	1.225	68.60	0.756	0.95	0.000	0.631	0.63	1.10	0.70
20.95	131.00	1.228	68.60	0.758	0.95	0.000	0.631	0.63	1.10	0.70
21.00	131.00	1.231	68.60	0.759	0.95	0.000	0.631	0.63	1.10	0.70
21.05	131.00	1.234	68.60	0.761	0.95	0.000	0.631	0.63	1.10	0.70
21.10	131.00	1.237	68.60	0.762	0.95	0.000	0.631	0.63	1.10	0.70
21.15	131.00	1.240	68.60	0.764	0.95	0.000	0.631	0.63	1.10	0.70
21.20	131.00	1.243	68.60	0.766	0.95	0.000	0.631	0.63	1.10	0.70
21.25	131.00	1.247	68.60	0.767	0.95	0.000	0.631	0.63	1.10	0.70
21.30	131.00	1.250	68.60	0.769	0.95	0.000	0.631	0.63	1.10	0.70
21.35	131.00	1.253	68.60	0.771	0.95	0.000	0.631	0.63	1.10	0.70
21.40	131.00	1.256	68.60	0.772	0.95	0.000	0.631	0.63	1.10	0.70
21.45	131.00	1.259	68.60	0.774	0.95	0.000	0.631	0.63	1.10	0.70
21.50	131.00	1.262	68.60	0.775	0.95	0.000	0.631	0.63	1.10	0.70
21.55	131.00	1.265	68.60	0.777	0.95	0.000	0.631	0.63	1.10	0.70
21.60	131.00	1.268	68.60	0.779	0.95	0.000	0.631	0.63	1.10	0.70
21.65	131.00	1.271	68.60	0.780	0.95	0.000	0.631	0.63	1.10	0.70
21.70	131.00	1.274	68.60	0.782	0.95	0.000	0.631	0.63	1.10	0.70
21.75	131.00	1.277	68.60	0.784	0.95	0.000	0.631	0.63	1.10	0.70
21.80	131.00	1.281	68.60	0.785	0.95	0.000	0.631	0.63	1.10	0.70
21.85	131.00	1.284	68.60	0.787	0.95	0.000	0.631	0.64	1.10	0.70
21.90	131.00	1.287	68.60	0.788	0.95	0.000	0.631	0.64	1.10	0.70
21.95	131.00	1.290	68.60	0.790	0.95	0.000	0.631	0.64	1.10	0.70
22.00	131.00	1.293	68.60	0.792	0.95	0.000	0.631	0.64	1.10	0.70
22.05	131.00	1.296	68.60	0.793	0.95	0.000	0.631	0.64	1.10	0.70
22.10	131.00	1.299	68.60	0.795	0.95	0.000	0.631	0.64	1.10	0.70
22.15	131.00	1.302	68.60	0.797	0.95	0.000	0.631	0.64	1.10	0.70
22.20	131.00	1.305	68.60	0.798	0.95	0.000	0.631	0.64	1.10	0.70
22.25	131.00	1.308	68.60	0.800	0.95	0.000	0.631	0.64	1.10	0.70
22.30	131.00	1.312	68.60	0.801	0.95	0.000	0.631	0.64	1.10	0.70
22.35	131.00	1.315	68.60	0.803	0.95	0.000	0.631	0.64	1.10	0.70
22.40	131.00	1.318	68.60	0.805	0.95	0.000	0.631	0.64	1.10	0.70
22.45	131.00	1.321	68.60	0.806	0.95	0.000	0.631	0.64	1.10	0.70
22.50	131.00	1.324	68.60	0.808	0.95	0.000	0.631	0.64	1.10	0.70
22.55	131.00	1.327	68.60	0.809	0.95	0.000	0.631	0.64	1.10	0.70

22.60	131.00	1.330	68.60	0.811	0.95	0.000	0.631	0.64	1.10	0.70
22.65	131.00	1.333	68.60	0.813	0.95	0.000	0.631	0.64	1.10	0.70
22.70	131.00	1.336	68.60	0.814	0.95	0.000	0.631	0.64	1.10	0.70
22.75	131.00	1.339	68.60	0.816	0.95	0.000	0.631	0.64	1.10	0.70
22.80	131.00	1.342	68.60	0.818	0.95	0.000	0.631	0.64	1.10	0.70
22.85	131.00	1.346	68.60	0.819	0.95	0.000	0.631	0.64	1.10	0.70
22.90	131.00	1.349	68.60	0.821	0.95	0.000	0.631	0.64	1.10	0.70
22.95	131.00	1.352	68.60	0.822	0.95	0.000	0.631	0.64	1.10	0.70
23.00	131.00	1.355	68.60	0.824	0.95	0.000	0.631	0.64	1.10	0.70
23.05	131.00	1.358	68.60	0.826	0.95	0.000	0.631	0.64	1.10	0.70
23.10	131.00	1.361	68.60	0.827	0.95	0.000	0.631	0.64	1.10	0.70
23.15	131.00	1.364	68.60	0.829	0.95	0.000	0.631	0.64	1.10	0.70
23.20	131.00	1.367	68.60	0.831	0.95	0.000	0.631	0.64	1.10	0.70
23.25	131.00	1.370	68.60	0.832	0.95	0.000	0.631	0.64	1.10	0.70
23.30	131.00	1.373	68.60	0.834	0.95	0.000	0.631	0.64	1.10	0.70
23.35	131.00	1.377	68.60	0.835	0.95	0.000	0.631	0.64	1.10	0.70
23.40	131.00	1.380	68.60	0.837	0.95	0.000	0.631	0.64	1.10	0.70
23.45	131.00	1.383	68.60	0.839	0.95	0.000	0.631	0.64	1.10	0.70
23.50	131.00	1.386	68.60	0.840	0.95	0.000	0.631	0.64	1.10	0.70
23.55	131.00	1.389	68.60	0.842	0.95	0.000	0.631	0.64	1.10	0.70
23.60	131.00	1.392	68.60	0.844	0.94	0.000	0.631	0.64	1.10	0.70
23.65	131.00	1.395	68.60	0.845	0.94	0.000	0.631	0.64	1.10	0.70
23.70	131.00	1.398	68.60	0.847	0.94	0.000	0.631	0.64	1.10	0.70
23.75	131.00	1.401	68.60	0.848	0.94	0.000	0.631	0.64	1.10	0.70
23.80	131.00	1.404	68.60	0.850	0.94	0.000	0.631	0.64	1.10	0.70
23.85	131.00	1.407	68.60	0.852	0.94	0.000	0.631	0.64	1.10	0.70
23.90	131.00	1.411	68.60	0.853	0.94	0.000	0.631	0.64	1.10	0.70
23.95	131.00	1.414	68.60	0.855	0.94	0.000	0.631	0.64	1.10	0.70
24.00	131.00	1.417	68.60	0.856	0.94	0.000	0.631	0.64	1.10	0.70
24.05	131.00	1.420	68.60	0.858	0.94	0.000	0.631	0.64	1.10	0.70
24.10	131.00	1.423	68.60	0.860	0.94	0.000	0.631	0.64	1.10	0.70
24.15	131.00	1.426	68.60	0.861	0.94	0.000	0.631	0.64	1.10	0.70
24.20	131.00	1.429	68.60	0.863	0.94	0.000	0.631	0.64	1.10	0.70
24.25	131.00	1.432	68.60	0.865	0.94	0.000	0.631	0.64	1.10	0.71
24.30	131.00	1.435	68.60	0.866	0.94	0.000	0.631	0.64	1.10	0.71
24.35	131.00	1.438	68.60	0.868	0.94	0.000	0.631	0.64	1.10	0.71
24.40	131.00	1.442	68.60	0.869	0.94	0.000	0.631	0.64	1.10	0.71
24.45	131.00	1.445	68.60	0.871	0.94	0.000	0.631	0.64	1.10	0.71
24.50	131.00	1.448	68.60	0.873	0.94	0.000	0.631	0.64	1.10	0.71
24.55	131.00	1.451	68.60	0.874	0.94	0.000	0.631	0.64	1.10	0.71
24.60	131.00	1.454	68.60	0.876	0.94	0.000	0.631	0.64	1.10	0.71
24.65	131.00	1.457	68.60	0.878	0.94	0.000	0.631	0.64	1.10	0.71
24.70	131.00	1.460	68.60	0.879	0.94	0.000	0.631	0.64	1.10	0.71
24.75	131.00	1.463	68.60	0.881	0.94	0.000	0.631	0.64	1.10	0.71
24.80	131.00	1.466	68.60	0.882	0.94	0.000	0.631	0.64	1.10	0.71
24.85	131.00	1.469	68.60	0.884	0.94	0.000	0.631	0.64	1.10	0.71
24.90	131.00	1.472	68.60	0.886	0.94	0.000	0.631	0.64	1.10	0.71
24.95	131.00	1.476	68.60	0.887	0.94	0.000	0.631	0.64	1.10	0.71
25.00	131.00	1.479	68.60	0.889	0.94	0.000	0.631	0.64	1.10	0.71

CSR is based on water table at 5.00 during earthquake

CRR Calculation from SPT or BPT data:

Depth ft	SPT	Cebs	Cr	sigma' atm	Cn	(N1)60	Fines %	d(N1)60	(N1)60f	CRR7.5
1.00	10.00	1.26	0.75	0.055	1.70	16.07	45.00	8.21	24.28	0.27
1.05	10.00	1.26	0.75	0.058	1.70	16.07	45.00	8.21	24.28	0.27
1.10	10.00	1.26	0.75	0.060	1.70	16.07	45.00	8.21	24.28	0.27
1.15	10.00	1.26	0.75	0.063	1.70	16.07	45.00	8.21	24.28	0.27
1.20	10.00	1.26	0.75	0.066	1.70	16.07	45.00	8.21	24.28	0.27
1.25	10.00	1.26	0.75	0.069	1.70	16.07	45.00	8.21	24.28	0.27
1.30	10.00	1.26	0.75	0.071	1.70	16.07	45.00	8.21	24.28	0.27
1.35	10.00	1.26	0.75	0.074	1.70	16.07	45.00	8.21	24.28	0.27
1.40	10.00	1.26	0.75	0.077	1.70	16.07	45.00	8.21	24.28	0.27
1.45	10.00	1.26	0.75	0.079	1.70	16.07	45.00	8.21	24.28	0.27
1.50	10.00	1.26	0.75	0.082	1.70	16.07	45.00	8.21	24.28	0.27
1.55	10.00	1.26	0.75	0.085	1.70	16.07	45.00	8.21	24.28	0.27
1.60	10.00	1.26	0.75	0.088	1.70	16.07	45.00	8.21	24.28	0.27
1.65	10.00	1.26	0.75	0.090	1.70	16.07	45.00	8.21	24.28	0.27
1.70	10.00	1.26	0.75	0.093	1.70	16.07	45.00	8.21	24.28	0.27
1.75	10.00	1.26	0.75	0.096	1.70	16.07	45.00	8.21	24.28	0.27
1.80	10.00	1.26	0.75	0.099	1.70	16.07	45.00	8.21	24.28	0.27

1.85	10.00	1.26	0.75	0.101	1.70	16.07	45.00	8.21	24.28	0.27
1.90	10.00	1.26	0.75	0.104	1.70	16.07	45.00	8.21	24.28	0.27
1.95	10.00	1.26	0.75	0.107	1.70	16.07	45.00	8.21	24.28	0.27
2.00	10.00	1.26	0.75	0.110	1.70	16.07	45.00	8.21	24.28	0.27
2.05	10.00	1.26	0.75	0.112	1.70	16.07	45.00	8.21	24.28	0.27
2.10	10.00	1.26	0.75	0.115	1.70	16.07	45.00	8.21	24.28	0.27
2.15	10.00	1.26	0.75	0.118	1.70	16.07	45.00	8.21	24.28	0.27
2.20	10.00	1.26	0.75	0.121	1.70	16.07	45.00	8.21	24.28	0.27
2.25	10.00	1.26	0.75	0.123	1.70	16.07	45.00	8.21	24.28	0.27
2.30	10.00	1.26	0.75	0.126	1.70	16.07	45.00	8.21	24.28	0.27
2.35	10.00	1.26	0.75	0.129	1.70	16.07	45.00	8.21	24.28	0.27
2.40	10.00	1.26	0.75	0.132	1.70	16.07	45.00	8.21	24.28	0.27
2.45	10.00	1.26	0.75	0.134	1.70	16.07	45.00	8.21	24.28	0.27
2.50	10.00	1.26	0.75	0.137	1.70	16.07	45.00	8.21	24.28	0.27
2.55	10.00	1.26	0.75	0.140	1.70	16.07	45.00	8.21	24.28	0.27
2.60	10.00	1.26	0.75	0.143	1.70	16.07	45.00	8.21	24.28	0.27
2.65	10.00	1.26	0.75	0.145	1.70	16.07	45.00	8.21	24.28	0.27
2.70	10.00	1.26	0.75	0.148	1.70	16.07	45.00	8.21	24.28	0.27
2.75	10.00	1.26	0.75	0.151	1.70	16.07	45.00	8.21	24.28	0.27
2.80	10.00	1.26	0.75	0.153	1.70	16.07	45.00	8.21	24.28	0.27
2.85	10.00	1.26	0.75	0.156	1.70	16.07	45.00	8.21	24.28	0.27
2.90	10.00	1.26	0.75	0.159	1.70	16.07	45.00	8.21	24.28	0.27
2.95	10.00	1.26	0.75	0.162	1.70	16.07	45.00	8.21	24.28	0.27
3.00	10.00	1.26	0.75	0.164	1.70	16.07	45.00	8.21	24.28	0.27
3.05	10.00	1.26	0.75	0.167	1.70	16.07	45.00	8.21	24.28	0.27
3.10	10.00	1.26	0.75	0.170	1.70	16.07	45.00	8.21	24.28	0.27
3.15	10.00	1.26	0.75	0.173	1.70	16.07	45.00	8.21	24.28	0.27
3.20	10.00	1.26	0.75	0.175	1.70	16.07	45.00	8.21	24.28	0.27
3.25	10.00	1.26	0.75	0.178	1.70	16.07	45.00	8.21	24.28	0.27
3.30	10.00	1.26	0.75	0.181	1.70	16.07	45.00	8.21	24.28	0.27
3.35	10.00	1.26	0.75	0.184	1.70	16.07	45.00	8.21	24.28	0.27
3.40	10.00	1.26	0.75	0.186	1.70	16.07	45.00	8.21	24.28	0.27
3.45	10.00	1.26	0.75	0.189	1.70	16.07	45.00	8.21	24.28	0.27
3.50	10.00	1.26	0.75	0.192	1.70	16.07	45.00	8.21	24.28	0.27
3.55	10.00	1.26	0.75	0.195	1.70	16.07	45.00	8.21	24.28	0.27
3.60	10.00	1.26	0.75	0.197	1.70	16.07	45.00	8.21	24.28	0.27
3.65	10.00	1.26	0.75	0.200	1.70	16.07	45.00	8.21	24.28	0.27
3.70	10.00	1.26	0.75	0.203	1.70	16.07	45.00	8.21	24.28	0.27
3.75	10.00	1.26	0.75	0.206	1.70	16.07	45.00	8.21	24.28	0.27
3.80	10.00	1.26	0.75	0.208	1.70	16.07	45.00	8.21	24.28	0.27
3.85	10.00	1.26	0.75	0.211	1.70	16.07	45.00	8.21	24.28	0.27
3.90	10.00	1.26	0.75	0.214	1.70	16.07	45.00	8.21	24.28	0.27
3.95	10.00	1.26	0.75	0.217	1.70	16.07	45.00	8.21	24.28	0.27
4.00	10.00	1.26	0.75	0.219	1.70	16.07	45.00	8.21	24.28	0.27
4.05	10.00	1.26	0.75	0.222	1.70	16.07	45.00	8.21	24.28	0.27
4.10	10.00	1.26	0.75	0.225	1.70	16.07	45.00	8.21	24.28	0.27
4.15	10.00	1.26	0.75	0.227	1.70	16.07	45.00	8.21	24.28	0.27
4.20	10.00	1.26	0.75	0.230	1.70	16.07	45.00	8.21	24.28	0.27
4.25	10.00	1.26	0.75	0.233	1.70	16.07	45.00	8.21	24.28	0.27
4.30	10.00	1.26	0.75	0.236	1.70	16.07	45.00	8.21	24.28	0.27
4.35	10.00	1.26	0.75	0.238	1.70	16.07	45.00	8.21	24.28	0.27
4.40	10.00	1.26	0.75	0.241	1.70	16.07	45.00	8.21	24.28	0.27
4.45	10.00	1.26	0.75	0.244	1.70	16.07	45.00	8.21	24.28	0.27
4.50	10.00	1.26	0.75	0.247	1.70	16.07	45.00	8.21	24.28	0.27
4.55	10.00	1.26	0.75	0.249	1.70	16.07	45.00	8.21	24.28	0.27
4.60	10.00	1.26	0.75	0.252	1.70	16.07	45.00	8.21	24.28	0.27
4.65	10.00	1.26	0.75	0.255	1.70	16.07	45.00	8.21	24.28	0.27
4.70	10.00	1.26	0.75	0.258	1.70	16.07	45.00	8.21	24.28	0.27
4.75	10.00	1.26	0.75	0.260	1.70	16.07	45.00	8.21	24.28	0.27
4.80	10.00	1.26	0.75	0.263	1.70	16.07	45.00	8.21	24.28	0.27
4.85	10.00	1.26	0.75	0.266	1.70	16.07	45.00	8.21	24.28	0.27
4.90	10.00	1.26	0.75	0.269	1.70	16.07	45.00	8.21	24.28	0.27
4.95	10.00	1.26	0.75	0.271	1.70	16.07	45.00	8.21	24.28	0.27
5.00	10.00	1.26	0.75	0.274	1.70	16.07	45.00	8.21	24.28	0.27
5.05	10.00	1.26	0.75	0.277	1.70	16.07	45.00	8.21	24.28	0.27
5.10	10.00	1.26	0.75	0.280	1.70	16.07	45.00	8.21	24.28	0.27
5.15	10.00	1.26	0.75	0.282	1.70	16.07	45.00	8.21	24.28	0.27
5.20	10.00	1.26	0.75	0.285	1.70	16.07	45.00	8.21	24.28	0.27
5.25	10.00	1.26	0.75	0.288	1.70	16.07	45.00	8.21	24.28	0.27
5.30	10.00	1.26	0.75	0.291	1.70	16.07	45.00	8.21	24.28	0.27
5.35	10.00	1.26	0.75	0.293	1.70	16.07	45.00	8.21	24.28	0.27
5.40	10.00	1.26	0.75	0.296	1.70	16.07	45.00	8.21	24.28	0.27
5.45	10.00	1.26	0.75	0.299	1.70	16.07	45.00	8.21	24.28	0.27

5.50	10.00	1.26	0.75	0.301	1.70	16.07	45.00	8.21	24.28	0.27
5.55	10.00	1.26	0.75	0.304	1.70	16.07	45.00	8.21	24.28	0.27
5.60	10.00	1.26	0.75	0.307	1.70	16.07	45.00	8.21	24.28	0.27
5.65	10.00	1.26	0.75	0.310	1.70	16.07	45.00	8.21	24.28	0.27
5.70	10.00	1.26	0.75	0.312	1.70	16.07	45.00	8.21	24.28	0.27
5.75	10.00	1.26	0.75	0.315	1.70	16.07	45.00	8.21	24.28	0.27
5.80	10.00	1.26	0.75	0.318	1.70	16.07	45.00	8.21	24.28	0.27
5.85	10.00	1.26	0.75	0.321	1.70	16.07	45.00	8.21	24.28	0.27
5.90	10.00	1.26	0.75	0.323	1.70	16.07	45.00	8.21	24.28	0.27
5.95	10.00	1.26	0.75	0.326	1.70	16.07	45.00	8.21	24.28	0.27
6.00	10.00	1.26	0.75	0.329	1.70	16.07	45.00	8.21	24.28	0.27
6.05	10.75	1.26	0.75	0.332	1.70	17.27	43.00	8.45	25.72	0.29
6.10	11.50	1.26	0.75	0.334	1.70	18.47	41.00	8.69	27.17	0.32
6.15	12.25	1.26	0.75	0.337	1.70	19.68	39.00	8.94	28.62	0.36
6.20	13.00	1.26	0.75	0.340	1.70	20.88	37.00	9.18	30.06	0.47
6.25	13.75	1.26	0.75	0.343	1.70	22.09	35.00	9.33	31.42	0.50
6.30	14.50	1.26	0.75	0.345	1.70	23.29	33.00	9.06	32.36	0.50
6.35	15.25	1.26	0.75	0.348	1.69	24.42	31.00	8.74	33.16	0.50
6.40	16.00	1.26	0.75	0.351	1.69	25.52	29.00	8.37	33.88	0.50
6.45	16.75	1.26	0.75	0.354	1.68	26.61	27.00	7.95	34.55	0.50
6.50	17.50	1.26	0.75	0.357	1.67	27.69	25.00	7.47	35.16	0.50
6.55	18.25	1.26	0.75	0.360	1.67	28.76	23.00	6.94	35.70	0.50
6.60	19.00	1.26	0.75	0.362	1.66	29.82	21.00	6.35	36.17	0.50
6.65	19.75	1.26	0.75	0.365	1.65	30.88	19.00	5.68	36.56	0.50
6.70	20.50	1.26	0.75	0.368	1.65	31.92	17.00	4.93	36.86	0.50
6.75	21.25	1.26	0.75	0.371	1.64	32.96	15.00	4.08	37.05	0.50
6.80	22.00	1.26	0.75	0.374	1.64	33.99	13.00	3.14	37.14	0.50
6.85	22.75	1.26	0.75	0.377	1.63	35.02	11.00	2.14	37.15	0.50
6.90	23.50	1.26	0.75	0.380	1.62	36.03	9.00	1.17	37.20	0.50
6.95	24.25	1.26	0.75	0.383	1.62	37.04	7.00	0.44	37.48	0.50
7.00	25.00	1.26	0.75	0.386	1.61	38.04	5.00	0.00	38.04	0.50
7.05	25.00	1.26	0.75	0.389	1.60	37.89	5.00	0.00	37.89	0.50
7.10	25.00	1.26	0.75	0.392	1.60	37.75	5.00	0.00	37.75	0.50
7.15	25.00	1.26	0.75	0.395	1.59	37.61	5.00	0.00	37.61	0.50
7.20	25.00	1.26	0.75	0.398	1.59	37.47	5.00	0.00	37.47	0.50
7.25	25.00	1.26	0.75	0.400	1.58	37.33	5.00	0.00	37.33	0.50
7.30	25.00	1.26	0.75	0.403	1.57	37.19	5.00	0.00	37.19	0.50
7.35	25.00	1.26	0.75	0.406	1.57	37.06	5.00	0.00	37.06	0.50
7.40	25.00	1.26	0.75	0.409	1.56	36.93	5.00	0.00	36.93	0.50
7.45	25.00	1.26	0.75	0.412	1.56	36.79	5.00	0.00	36.79	0.50
7.50	25.00	1.26	0.75	0.415	1.55	36.66	5.00	0.00	36.66	0.50
7.55	25.00	1.26	0.75	0.418	1.55	36.53	5.00	0.00	36.53	0.50
7.60	25.00	1.26	0.75	0.421	1.54	36.40	5.00	0.00	36.40	0.50
7.65	25.00	1.26	0.75	0.424	1.54	36.28	5.00	0.00	36.28	0.50
7.70	25.00	1.26	0.75	0.427	1.53	36.15	5.00	0.00	36.15	0.50
7.75	25.00	1.26	0.75	0.430	1.52	36.03	5.00	0.00	36.03	0.50
7.80	25.00	1.26	0.75	0.433	1.52	35.90	5.00	0.00	35.90	0.50
7.85	25.00	1.26	0.75	0.436	1.51	35.78	5.00	0.00	35.78	0.50
7.90	25.00	1.26	0.75	0.439	1.51	35.66	5.00	0.00	35.66	0.50
7.95	25.00	1.26	0.75	0.442	1.50	35.54	5.00	0.00	35.54	0.50
8.00	25.00	1.26	0.75	0.445	1.50	35.42	5.00	0.00	35.42	0.50
8.05	25.00	1.26	0.75	0.448	1.49	35.31	5.00	0.00	35.31	0.50
8.10	25.00	1.26	0.75	0.451	1.49	35.19	5.00	0.00	35.19	0.50
8.15	25.00	1.26	0.75	0.454	1.48	35.08	5.00	0.00	35.08	0.50
8.20	25.00	1.26	0.75	0.457	1.48	34.96	5.00	0.00	34.96	0.50
8.25	25.00	1.26	0.85	0.460	1.48	39.50	5.00	0.00	39.50	0.50
8.30	25.00	1.26	0.85	0.463	1.47	39.37	5.00	0.00	39.37	0.50
8.35	25.00	1.26	0.85	0.465	1.47	39.24	5.00	0.00	39.24	0.50
8.40	25.00	1.26	0.85	0.468	1.46	39.12	5.00	0.00	39.12	0.50
8.45	25.00	1.26	0.85	0.471	1.46	39.00	5.00	0.00	39.00	0.50
8.50	25.00	1.26	0.85	0.474	1.45	38.88	5.00	0.00	38.88	0.50
8.55	25.00	1.26	0.85	0.477	1.45	38.76	5.00	0.00	38.76	0.50
8.60	25.00	1.26	0.85	0.480	1.44	38.64	5.00	0.00	38.64	0.50
8.65	25.00	1.26	0.85	0.483	1.44	38.52	5.00	0.00	38.52	0.50
8.70	25.00	1.26	0.85	0.486	1.43	38.40	5.00	0.00	38.40	0.50
8.75	25.00	1.26	0.85	0.489	1.43	38.29	5.00	0.00	38.29	0.50
8.80	25.00	1.26	0.85	0.492	1.43	38.17	5.00	0.00	38.17	0.50
8.85	25.00	1.26	0.85	0.495	1.42	38.06	5.00	0.00	38.06	0.50
8.90	25.00	1.26	0.85	0.498	1.42	37.94	5.00	0.00	37.94	0.50
8.95	25.00	1.26	0.85	0.501	1.41	37.83	5.00	0.00	37.83	0.50
9.00	25.00	1.26	0.85	0.504	1.41	37.72	5.00	0.00	37.72	0.50
9.05	24.80	1.26	0.85	0.507	1.40	37.31	5.00	0.00	37.31	0.50
9.10	24.60	1.26	0.85	0.510	1.40	36.90	5.00	0.00	36.90	0.50

9.15	24.40	1.26	0.85	0.513	1.40	36.50	5.00	0.00	36.50	0.50
9.20	24.20	1.26	0.85	0.516	1.39	36.09	5.00	0.00	36.09	0.50
9.25	24.00	1.26	0.85	0.519	1.39	35.69	5.00	0.00	35.69	0.50
9.30	23.80	1.26	0.85	0.522	1.38	35.29	5.00	0.00	35.29	0.50
9.35	23.60	1.26	0.85	0.525	1.38	34.90	5.00	0.00	34.90	0.50
9.40	23.40	1.26	0.85	0.527	1.38	34.51	5.00	0.00	34.51	0.50
9.45	23.20	1.26	0.85	0.530	1.37	34.12	5.00	0.00	34.12	0.50
9.50	23.00	1.26	0.85	0.533	1.37	33.73	5.00	0.00	33.73	0.50
9.55	22.80	1.26	0.85	0.536	1.37	33.34	5.00	0.00	33.34	0.50
9.60	22.60	1.26	0.85	0.539	1.36	32.96	5.00	0.00	32.96	0.50
9.65	22.40	1.26	0.85	0.542	1.36	32.58	5.00	0.00	32.58	0.50
9.70	22.20	1.26	0.85	0.545	1.35	32.20	5.00	0.00	32.20	0.50
9.75	22.00	1.26	0.85	0.548	1.35	31.82	5.00	0.00	31.82	0.50
9.80	21.80	1.26	0.85	0.551	1.35	31.45	5.00	0.00	31.45	0.50
9.85	21.60	1.26	0.85	0.554	1.34	31.08	5.00	0.00	31.08	0.50
9.90	21.40	1.26	0.85	0.557	1.34	30.71	5.00	0.00	30.71	0.50
9.95	21.20	1.26	0.85	0.560	1.34	30.34	5.00	0.00	30.34	0.50
10.00	21.00	1.26	0.85	0.563	1.33	29.98	5.00	0.04	30.01	0.46
10.05	21.00	1.26	0.85	0.566	1.33	29.90	5.25	0.07	29.96	0.45
10.10	21.00	1.26	0.85	0.569	1.33	29.82	5.50	0.10	29.92	0.44
10.15	21.00	1.26	0.85	0.572	1.32	29.74	5.75	0.13	29.87	0.44
10.20	21.00	1.26	0.85	0.575	1.32	29.67	6.00	0.17	29.84	0.43
10.25	21.00	1.26	0.85	0.578	1.32	29.59	6.25	0.21	29.80	0.43
10.30	21.00	1.26	0.85	0.581	1.31	29.52	6.50	0.26	29.77	0.42
10.35	21.00	1.26	0.85	0.584	1.31	29.44	6.75	0.31	29.75	0.42
10.40	21.00	1.26	0.85	0.587	1.31	29.37	7.00	0.37	29.74	0.42
10.45	21.00	1.26	0.85	0.590	1.30	29.29	7.25	0.44	29.73	0.42
10.50	21.00	1.26	0.85	0.592	1.30	29.22	7.50	0.51	29.73	0.42
10.55	21.00	1.26	0.85	0.595	1.30	29.15	7.75	0.58	29.73	0.42
10.60	21.00	1.26	0.85	0.598	1.29	29.08	8.00	0.67	29.74	0.42
10.65	21.00	1.26	0.85	0.601	1.29	29.00	8.25	0.75	29.76	0.42
10.70	21.00	1.26	0.85	0.604	1.29	28.93	8.50	0.85	29.78	0.42
10.75	21.00	1.26	0.85	0.607	1.28	28.86	8.75	0.94	29.81	0.43
10.80	21.00	1.26	0.85	0.610	1.28	28.79	9.00	1.05	29.84	0.43
10.85	21.00	1.26	0.85	0.613	1.28	28.72	9.25	1.15	29.87	0.44
10.90	21.00	1.26	0.85	0.616	1.27	28.65	9.50	1.26	29.91	0.44
10.95	21.00	1.26	0.85	0.619	1.27	28.59	9.75	1.37	29.96	0.45
11.00	21.00	1.26	0.85	0.622	1.27	28.52	10.00	1.49	30.00	0.46
11.05	21.30	1.26	0.85	0.625	1.26	28.86	10.00	1.49	30.35	0.50
11.10	21.60	1.26	0.85	0.628	1.26	29.19	10.00	1.50	30.69	0.50
11.15	21.90	1.26	0.85	0.631	1.26	29.53	10.00	1.51	31.04	0.50
11.20	22.20	1.26	0.85	0.634	1.26	29.87	10.00	1.52	31.38	0.50
11.25	22.50	1.26	0.85	0.637	1.25	30.20	10.00	1.52	31.72	0.50
11.30	22.80	1.26	0.85	0.640	1.25	30.53	10.00	1.53	32.06	0.50
11.35	23.10	1.26	0.85	0.643	1.25	30.86	10.00	1.54	32.40	0.50
11.40	23.40	1.26	0.85	0.646	1.24	31.19	10.00	1.54	32.73	0.50
11.45	23.70	1.26	0.85	0.649	1.24	31.52	10.00	1.55	33.07	0.50
11.50	24.00	1.26	0.85	0.652	1.24	31.84	10.00	1.56	33.40	0.50
11.55	24.30	1.26	0.85	0.654	1.24	32.17	10.00	1.56	33.73	0.50
11.60	24.60	1.26	0.85	0.657	1.23	32.49	10.00	1.57	34.07	0.50
11.65	24.90	1.26	0.85	0.660	1.23	32.82	10.00	1.58	34.40	0.50
11.70	25.20	1.26	0.85	0.663	1.23	33.14	10.00	1.59	34.72	0.50
11.75	25.50	1.26	0.85	0.666	1.23	33.46	10.00	1.59	35.05	0.50
11.80	25.80	1.26	0.85	0.669	1.22	33.78	10.00	1.60	35.38	0.50
11.85	26.10	1.26	0.85	0.672	1.22	34.09	10.00	1.61	35.70	0.50
11.90	26.40	1.26	0.85	0.675	1.22	34.41	10.00	1.61	36.02	0.50
11.95	26.70	1.26	0.85	0.678	1.21	34.73	10.00	1.62	36.35	0.50
12.00	27.00	1.26	0.85	0.681	1.21	35.04	10.00	1.63	36.67	0.50
12.05	27.00	1.26	0.85	0.684	1.21	34.96	10.00	1.63	36.59	0.50
12.10	27.00	1.26	0.85	0.687	1.21	34.89	10.00	1.62	36.51	0.50
12.15	27.00	1.26	0.85	0.690	1.20	34.81	10.00	1.62	36.44	0.50
12.20	27.00	1.26	0.85	0.693	1.20	34.74	10.00	1.62	36.36	0.50
12.25	27.00	1.26	0.85	0.696	1.20	34.67	10.00	1.62	36.28	0.50
12.30	27.00	1.26	0.85	0.699	1.20	34.59	10.00	1.62	36.21	0.50
12.35	27.00	1.26	0.85	0.702	1.19	34.52	10.00	1.62	36.14	0.50
12.40	27.00	1.26	0.85	0.705	1.19	34.45	10.00	1.61	36.06	0.50
12.45	27.00	1.26	0.85	0.708	1.19	34.38	10.00	1.61	35.99	0.50
12.50	27.00	1.26	0.85	0.711	1.19	34.30	10.00	1.61	35.91	0.50
12.55	27.00	1.26	0.85	0.714	1.18	34.23	10.00	1.61	35.84	0.50
12.60	27.00	1.26	0.85	0.717	1.18	34.16	10.00	1.61	35.77	0.50
12.65	27.00	1.26	0.85	0.719	1.18	34.09	10.00	1.61	35.70	0.50
12.70	27.00	1.26	0.85	0.722	1.18	34.02	10.00	1.61	35.63	0.50
12.75	27.00	1.26	0.85	0.725	1.17	33.95	10.00	1.60	35.56	0.50

12.80	27.00	1.26	0.85	0.728	1.17	33.88	10.00	1.60	35.49	0.50
12.85	27.00	1.26	0.85	0.731	1.17	33.82	10.00	1.60	35.42	0.50
12.90	27.00	1.26	0.85	0.734	1.17	33.75	10.00	1.60	35.35	0.50
12.95	27.00	1.26	0.85	0.737	1.16	33.68	10.00	1.60	35.28	0.50
13.00	27.00	1.26	0.85	0.740	1.16	33.61	10.00	1.60	35.21	0.50
13.05	26.80	1.26	0.85	0.743	1.16	33.30	10.00	1.59	34.89	0.50
13.10	26.60	1.26	0.85	0.746	1.16	32.98	10.00	1.58	34.57	0.50
13.15	26.40	1.26	0.85	0.749	1.16	32.67	10.00	1.58	34.25	0.50
13.20	26.20	1.26	0.85	0.752	1.15	32.36	10.00	1.57	33.93	0.50
13.25	26.00	1.26	0.85	0.755	1.15	32.05	10.00	1.56	33.61	0.50
13.30	25.80	1.26	0.85	0.758	1.15	31.74	10.00	1.56	33.29	0.50
13.35	25.60	1.26	0.85	0.761	1.15	31.43	10.00	1.55	32.98	0.50
13.40	25.40	1.26	0.85	0.764	1.14	31.12	10.00	1.54	32.67	0.50
13.45	25.20	1.26	0.85	0.767	1.14	30.82	10.00	1.54	32.36	0.50
13.50	25.00	1.26	0.85	0.770	1.14	30.52	10.00	1.53	32.04	0.50
13.55	24.80	1.26	0.85	0.773	1.14	30.21	10.00	1.52	31.73	0.50
13.60	24.60	1.26	0.85	0.776	1.14	29.91	10.00	1.52	31.43	0.50
13.65	24.40	1.26	0.85	0.779	1.13	29.61	10.00	1.51	31.12	0.50
13.70	24.20	1.26	0.85	0.782	1.13	29.31	10.00	1.50	30.81	0.50
13.75	24.00	1.26	0.85	0.785	1.13	29.01	10.00	1.50	30.51	0.50
13.80	23.80	1.26	0.85	0.788	1.13	28.72	10.00	1.49	30.21	0.50
13.85	23.60	1.26	0.85	0.791	1.12	28.42	10.00	1.48	29.90	0.44
13.90	23.40	1.26	0.85	0.794	1.12	28.12	10.00	1.48	29.60	0.41
13.95	23.20	1.26	0.85	0.797	1.12	27.83	10.00	1.47	29.30	0.39
14.00	23.00	1.26	0.85	0.800	1.12	27.54	10.00	1.46	29.00	0.38
14.05	23.15	1.26	0.85	0.803	1.12	27.67	10.00	1.47	29.13	0.38
14.10	23.30	1.26	0.85	0.806	1.11	27.79	10.00	1.47	29.26	0.39
14.15	23.45	1.26	0.85	0.809	1.11	27.92	10.00	1.47	29.39	0.39
14.20	23.60	1.26	0.85	0.812	1.11	28.04	10.00	1.48	29.52	0.40
14.25	23.75	1.26	0.85	0.815	1.11	28.17	10.00	1.48	29.65	0.41
14.30	23.90	1.26	0.85	0.818	1.11	28.29	10.00	1.48	29.78	0.42
14.35	24.05	1.26	0.85	0.821	1.10	28.42	10.00	1.48	29.90	0.44
14.40	24.20	1.26	0.85	0.824	1.10	28.54	10.00	1.49	30.03	0.47
14.45	24.35	1.26	0.85	0.828	1.10	28.67	10.00	1.49	30.16	0.50
14.50	24.50	1.26	0.85	0.831	1.10	28.79	10.00	1.49	30.28	0.50
14.55	24.65	1.26	0.85	0.834	1.10	28.91	10.00	1.49	30.41	0.50
14.60	24.80	1.26	0.85	0.837	1.09	29.04	10.00	1.50	30.54	0.50
14.65	24.95	1.26	0.85	0.840	1.09	29.16	10.00	1.50	30.66	0.50
14.70	25.10	1.26	0.85	0.843	1.09	29.28	10.00	1.50	30.79	0.50
14.75	25.25	1.26	0.85	0.846	1.09	29.40	10.00	1.51	30.91	0.50
14.80	25.40	1.26	0.95	0.849	1.09	33.00	10.00	1.58	34.58	0.50
14.85	25.55	1.26	0.95	0.852	1.08	33.14	10.00	1.59	34.72	0.50
14.90	25.70	1.26	0.95	0.855	1.08	33.27	10.00	1.59	34.86	0.50
14.95	25.85	1.26	0.95	0.858	1.08	33.40	10.00	1.59	35.00	0.50
15.00	26.00	1.26	0.95	0.861	1.08	33.54	10.00	1.59	35.13	0.50
15.05	26.00	1.26	0.95	0.864	1.08	33.48	10.00	1.59	35.07	0.50
15.10	26.00	1.26	0.95	0.867	1.07	33.42	10.00	1.59	35.01	0.50
15.15	26.00	1.26	0.95	0.870	1.07	33.36	10.00	1.59	34.95	0.50
15.20	26.00	1.26	0.95	0.873	1.07	33.30	10.00	1.59	34.89	0.50
15.25	26.00	1.26	0.95	0.876	1.07	33.25	10.00	1.59	34.83	0.50
15.30	26.00	1.26	0.95	0.879	1.07	33.19	10.00	1.59	34.78	0.50
15.35	26.00	1.26	0.95	0.882	1.06	33.13	10.00	1.59	34.72	0.50
15.40	26.00	1.26	0.95	0.885	1.06	33.07	10.00	1.58	34.66	0.50
15.45	26.00	1.26	0.95	0.888	1.06	33.02	10.00	1.58	34.60	0.50
15.50	26.00	1.26	0.95	0.892	1.06	32.96	10.00	1.58	34.54	0.50
15.55	26.00	1.26	0.95	0.895	1.06	32.90	10.00	1.58	34.49	0.50
15.60	26.00	1.26	0.95	0.898	1.06	32.85	10.00	1.58	34.43	0.50
15.65	26.00	1.26	0.95	0.901	1.05	32.79	10.00	1.58	34.37	0.50
15.70	26.00	1.26	0.95	0.904	1.05	32.74	10.00	1.58	34.31	0.50
15.75	26.00	1.26	0.95	0.907	1.05	32.68	10.00	1.58	34.26	0.50
15.80	26.00	1.26	0.95	0.910	1.05	32.63	10.00	1.57	34.20	0.50
15.85	26.00	1.26	0.95	0.913	1.05	32.57	10.00	1.57	34.15	0.50
15.90	26.00	1.26	0.95	0.916	1.04	32.52	10.00	1.57	34.09	0.50
15.95	26.00	1.26	0.95	0.919	1.04	32.47	10.00	1.57	34.04	0.50
16.00	26.00	1.26	0.95	0.922	1.04	32.41	10.00	1.57	33.98	0.50
16.05	26.60	1.26	0.95	0.925	1.04	33.11	9.70	1.44	34.55	0.50
16.10	27.20	1.26	0.95	0.928	1.04	33.80	9.40	1.31	35.11	0.50
16.15	27.80	1.26	0.95	0.931	1.04	34.49	9.10	1.19	35.67	0.50
16.20	28.40	1.26	0.95	0.934	1.03	35.17	8.80	1.07	36.24	0.50
16.25	29.00	1.26	0.95	0.937	1.03	35.86	8.50	0.95	36.81	0.50
16.30	29.60	1.26	0.95	0.940	1.03	36.54	8.20	0.84	37.38	0.50
16.35	30.20	1.26	0.95	0.943	1.03	37.22	7.90	0.73	37.95	0.50
16.40	30.80	1.26	0.95	0.946	1.03	37.90	7.60	0.63	38.53	0.50

16.45	31.40	1.26	0.95	0.950	1.03	38.57	7.30	0.54	39.11	0.50
16.50	32.00	1.26	0.95	0.953	1.02	39.25	7.00	0.45	39.70	0.50
16.55	32.60	1.26	0.95	0.956	1.02	39.92	6.70	0.38	40.29	0.50
16.60	33.20	1.26	0.95	0.959	1.02	40.59	6.40	0.31	40.89	0.50
16.65	33.80	1.26	0.95	0.962	1.02	41.25	6.10	0.24	41.50	0.50
16.70	34.40	1.26	0.95	0.965	1.02	41.92	5.80	0.19	42.11	0.50
16.75	35.00	1.26	0.95	0.968	1.02	42.58	5.50	0.13	42.72	0.50
16.80	35.60	1.26	0.95	0.971	1.01	43.24	5.20	0.09	43.33	0.50
16.85	36.20	1.26	0.95	0.974	1.01	43.90	4.90	0.00	43.90	0.50
16.90	36.80	1.26	0.95	0.977	1.01	44.56	4.60	0.00	44.56	0.50
16.95	37.40	1.26	0.95	0.980	1.01	45.21	4.30	0.00	45.21	0.50
17.00	38.00	1.26	0.95	0.983	1.01	45.87	4.00	0.00	45.87	0.50
17.05	38.00	1.26	0.95	0.987	1.01	45.80	4.00	0.00	45.80	0.50
17.10	38.00	1.26	0.95	0.990	1.01	45.72	4.00	0.00	45.72	0.50
17.15	38.00	1.26	0.95	0.993	1.00	45.65	4.00	0.00	45.65	0.50
17.20	38.00	1.26	0.95	0.996	1.00	45.58	4.00	0.00	45.58	0.50
17.25	38.00	1.26	0.95	0.999	1.00	45.51	4.00	0.00	45.51	0.50
17.30	38.00	1.26	0.95	1.002	1.00	45.44	4.00	0.00	45.44	0.50
17.35	38.00	1.26	0.95	1.005	1.00	45.37	4.00	0.00	45.37	0.50
17.40	38.00	1.26	0.95	1.008	1.00	45.30	4.00	0.00	45.30	0.50
17.45	38.00	1.26	0.95	1.011	0.99	45.23	4.00	0.00	45.23	0.50
17.50	38.00	1.26	0.95	1.014	0.99	45.16	4.00	0.00	45.16	0.50
17.55	38.00	1.26	0.95	1.017	0.99	45.09	4.00	0.00	45.09	0.50
17.60	38.00	1.26	0.95	1.021	0.99	45.03	4.00	0.00	45.03	0.50
17.65	38.00	1.26	0.95	1.024	0.99	44.96	4.00	0.00	44.96	0.50
17.70	38.00	1.26	0.95	1.027	0.99	44.89	4.00	0.00	44.89	0.50
17.75	38.00	1.26	0.95	1.030	0.99	44.82	4.00	0.00	44.82	0.50
17.80	38.00	1.26	0.95	1.033	0.98	44.75	4.00	0.00	44.75	0.50
17.85	38.00	1.26	0.95	1.036	0.98	44.69	4.00	0.00	44.69	0.50
17.90	38.00	1.26	0.95	1.039	0.98	44.62	4.00	0.00	44.62	0.50
17.95	38.00	1.26	0.95	1.042	0.98	44.55	4.00	0.00	44.55	0.50
18.00	38.00	1.26	0.95	1.045	0.98	44.49	4.00	0.00	44.49	0.50
18.05	38.00	1.26	0.95	1.048	0.98	44.42	4.00	0.00	44.42	0.50
18.10	38.00	1.26	0.95	1.052	0.98	44.36	4.00	0.00	44.36	0.50
18.15	38.00	1.26	0.95	1.055	0.97	44.29	4.00	0.00	44.29	0.50
18.20	38.00	1.26	0.95	1.058	0.97	44.23	4.00	0.00	44.23	0.50
18.25	38.00	1.26	0.95	1.061	0.97	44.16	4.00	0.00	44.16	0.50
18.30	38.00	1.26	0.95	1.064	0.97	44.10	4.00	0.00	44.10	0.50
18.35	38.00	1.26	0.95	1.067	0.97	44.03	4.00	0.00	44.03	0.50
18.40	38.00	1.26	0.95	1.070	0.97	43.97	4.00	0.00	43.97	0.50
18.45	38.00	1.26	0.95	1.073	0.97	43.91	4.00	0.00	43.91	0.50
18.50	38.00	1.26	0.95	1.076	0.96	43.84	4.00	0.00	43.84	0.50
18.55	38.00	1.26	0.95	1.079	0.96	43.78	4.00	0.00	43.78	0.50
18.60	38.00	1.26	0.95	1.082	0.96	43.72	4.00	0.00	43.72	0.50
18.65	38.00	1.26	0.95	1.086	0.96	43.66	4.00	0.00	43.66	0.50
18.70	38.00	1.26	0.95	1.089	0.96	43.59	4.00	0.00	43.59	0.50
18.75	38.00	1.26	0.95	1.092	0.96	43.53	4.00	0.00	43.53	0.50
18.80	38.00	1.26	0.95	1.095	0.96	43.47	4.00	0.00	43.47	0.50
18.85	38.00	1.26	0.95	1.098	0.95	43.41	4.00	0.00	43.41	0.50
18.90	38.00	1.26	0.95	1.101	0.95	43.35	4.00	0.00	43.35	0.50
18.95	38.00	1.26	0.95	1.104	0.95	43.29	4.00	0.00	43.29	0.50
19.00	38.00	1.26	0.95	1.107	0.95	43.23	4.00	0.00	43.23	0.50
19.05	38.00	1.26	0.95	1.110	0.95	43.17	4.00	0.00	43.17	0.50
19.10	38.00	1.26	0.95	1.112	0.95	43.14	4.00	0.00	43.14	0.50
19.15	38.00	1.26	0.95	1.114	0.95	43.10	4.00	0.00	43.10	0.50
19.20	38.00	1.26	0.95	1.115	0.95	43.07	4.00	0.00	43.07	0.50
19.25	38.00	1.26	0.95	1.117	0.95	43.04	4.00	0.00	43.04	0.50
19.30	38.00	1.26	0.95	1.118	0.95	43.01	4.00	0.00	43.01	0.50
19.35	38.00	1.26	0.95	1.120	0.94	42.98	4.00	0.00	42.98	0.50
19.40	38.00	1.26	0.95	1.122	0.94	42.95	4.00	0.00	42.95	0.50
19.45	38.00	1.26	0.95	1.123	0.94	42.92	4.00	0.00	42.92	0.50
19.50	38.00	1.26	0.95	1.125	0.94	42.89	4.00	0.00	42.89	0.50
19.55	38.00	1.26	0.95	1.127	0.94	42.86	4.00	0.00	42.86	0.50
19.60	38.00	1.26	0.95	1.128	0.94	42.82	4.00	0.00	42.82	0.50
19.65	38.00	1.26	0.95	1.130	0.94	42.79	4.00	0.00	42.79	0.50
19.70	38.00	1.26	0.95	1.131	0.94	42.76	4.00	0.00	42.76	0.50
19.75	38.00	1.26	0.95	1.133	0.94	42.73	4.00	0.00	42.73	0.50
19.80	38.00	1.26	0.95	1.135	0.94	42.70	4.00	0.00	42.70	0.50
19.85	38.00	1.26	0.95	1.136	0.94	42.67	4.00	0.00	42.67	0.50
19.90	38.00	1.26	0.95	1.138	0.94	42.64	4.00	0.00	42.64	0.50
19.95	38.00	1.26	0.95	1.140	0.94	42.61	4.00	0.00	42.61	0.50
20.00	38.00	1.26	0.95	1.141	0.94	42.58	4.00	0.00	42.58	0.50
20.05	38.00	1.26	0.95	1.143	0.94	42.55	4.00	0.00	42.55	0.50

20.10	38.00	1.26	0.95	1.144	0.93	42.52	4.00	0.00	42.52	0.50
20.15	38.00	1.26	0.95	1.146	0.93	42.49	4.00	0.00	42.49	0.50
20.20	38.00	1.26	0.95	1.148	0.93	42.46	4.00	0.00	42.46	0.50
20.25	38.00	1.26	0.95	1.149	0.93	42.43	4.00	0.00	42.43	0.50
20.30	38.00	1.26	0.95	1.151	0.93	42.40	4.00	0.00	42.40	0.50
20.35	38.00	1.26	0.95	1.152	0.93	42.37	4.00	0.00	42.37	0.50
20.40	38.00	1.26	0.95	1.154	0.93	42.34	4.00	0.00	42.34	0.50
20.45	38.00	1.26	0.95	1.156	0.93	42.31	4.00	0.00	42.31	0.50
20.50	38.00	1.26	0.95	1.157	0.93	42.28	4.00	0.00	42.28	0.50
20.55	38.00	1.26	0.95	1.159	0.93	42.25	4.00	0.00	42.25	0.50
20.60	38.00	1.26	0.95	1.161	0.93	42.22	4.00	0.00	42.22	0.50
20.65	38.00	1.26	0.95	1.162	0.93	42.19	4.00	0.00	42.19	0.50
20.70	38.00	1.26	0.95	1.164	0.93	42.16	4.00	0.00	42.16	0.50
20.75	38.00	1.26	0.95	1.165	0.93	42.13	4.00	0.00	42.13	0.50
20.80	38.00	1.26	0.95	1.167	0.93	42.10	4.00	0.00	42.10	0.50
20.85	38.00	1.26	0.95	1.169	0.93	42.08	4.00	0.00	42.08	0.50
20.90	38.00	1.26	0.95	1.170	0.92	42.05	4.00	0.00	42.05	0.50
20.95	38.00	1.26	0.95	1.172	0.92	42.02	4.00	0.00	42.02	0.50
21.00	38.00	1.26	0.95	1.174	0.92	41.99	4.00	0.00	41.99	0.50
21.05	38.00	1.26	0.95	1.175	0.92	41.96	8.85	1.20	43.16	0.50
21.10	38.00	1.26	0.95	1.177	0.92	41.93	13.70	3.82	45.75	0.50
21.15	38.00	1.26	0.95	1.178	0.92	41.90	18.55	6.27	48.17	0.50
21.20	38.00	1.26	0.95	1.180	0.92	41.87	23.40	8.43	50.30	0.50
21.25	38.00	1.26	0.95	1.182	0.92	41.84	28.25	10.44	52.29	0.50
21.30	38.00	1.26	0.95	1.183	0.92	41.82	33.10	12.43	54.25	0.50
21.35	38.00	1.26	0.95	1.185	0.92	41.79	37.95	13.36	55.14	0.50
21.40	38.00	1.26	0.95	1.187	0.92	41.76	42.80	13.35	55.11	0.50
21.45	38.00	1.26	0.95	1.188	0.92	41.73	47.65	13.35	55.08	0.50
21.50	38.00	1.26	0.95	1.190	0.92	41.70	52.50	13.34	55.04	0.50
21.55	38.00	1.26	0.95	1.191	0.92	41.67	57.35	13.33	55.01	0.50
21.60	38.00	1.26	0.95	1.193	0.92	41.64	62.20	13.33	54.97	0.50
21.65	38.00	1.26	0.95	1.195	0.91	41.62	67.05	13.32	54.94	0.50
21.70	38.00	1.26	0.95	1.196	0.91	41.59	71.90	13.32	54.91	0.50
21.75	38.00	1.26	0.95	1.198	0.91	41.56	76.75	13.31	54.87	0.50
21.80	38.00	1.26	0.95	1.199	0.91	41.53	81.60	13.31	54.84	0.50
21.85	38.00	1.26	0.95	1.201	0.91	41.50	86.45	13.30	54.80	0.50
21.90	38.00	1.26	0.95	1.203	0.91	41.48	91.30	13.30	54.77	0.50
21.95	38.00	1.26	0.95	1.204	0.91	41.45	96.15	13.29	54.74	0.50
22.00	38.00	1.26	0.95	1.206	0.91	41.42	NoLiq	13.28	54.70	0.50
22.05	38.00	1.26	0.95	1.208	0.91	41.39	NoLiq	13.28	54.67	0.50
22.10	38.00	1.26	0.95	1.209	0.91	41.36	NoLiq	13.27	54.64	0.50
22.15	38.00	1.26	0.95	1.211	0.91	41.34	NoLiq	13.27	54.60	0.50
22.20	38.00	1.26	0.95	1.212	0.91	41.31	NoLiq	13.26	54.57	0.50
22.25	38.00	1.26	0.95	1.214	0.91	41.28	NoLiq	13.26	54.54	0.50
22.30	38.00	1.26	0.95	1.216	0.91	41.25	NoLiq	13.25	54.50	0.50
22.35	38.00	1.26	0.95	1.217	0.91	41.23	NoLiq	13.25	54.47	0.50
22.40	38.00	1.26	0.95	1.219	0.91	41.20	NoLiq	13.24	54.44	0.50
22.45	38.00	1.26	0.95	1.221	0.91	41.17	NoLiq	13.23	54.41	0.50
22.50	38.00	1.26	0.95	1.222	0.90	41.14	NoLiq	13.23	54.37	0.50
22.55	38.00	1.26	0.95	1.224	0.90	41.12	NoLiq	13.22	54.34	0.50
22.60	38.00	1.26	0.95	1.225	0.90	41.09	NoLiq	13.22	54.31	0.50
22.65	38.00	1.26	0.95	1.227	0.90	41.06	NoLiq	13.21	54.28	0.50
22.70	38.00	1.26	0.95	1.229	0.90	41.04	NoLiq	13.21	54.24	0.50
22.75	38.00	1.26	0.95	1.230	0.90	41.01	NoLiq	13.20	54.21	0.50
22.80	38.00	1.26	0.95	1.232	0.90	40.98	NoLiq	13.20	54.18	0.50
22.85	38.00	1.26	0.95	1.234	0.90	40.95	NoLiq	13.19	54.15	0.50
22.90	38.00	1.26	0.95	1.235	0.90	40.93	NoLiq	13.19	54.11	0.50
22.95	38.00	1.26	0.95	1.237	0.90	40.90	NoLiq	13.18	54.08	0.50
23.00	38.00	1.26	0.95	1.238	0.90	40.87	NoLiq	13.17	54.05	0.50
23.05	38.00	1.26	0.95	1.240	0.90	40.85	NoLiq	13.17	54.02	0.50
23.10	38.00	1.26	0.95	1.242	0.90	40.82	NoLiq	13.16	53.99	0.50
23.15	38.00	1.26	0.95	1.243	0.90	40.79	NoLiq	13.16	53.95	0.50
23.20	38.00	1.26	0.95	1.245	0.90	40.77	NoLiq	13.15	53.92	0.50
23.25	38.00	1.26	0.95	1.246	0.90	40.74	NoLiq	13.15	53.89	0.50
23.30	38.00	1.26	0.95	1.248	0.90	40.71	NoLiq	13.14	53.86	0.50
23.35	38.00	1.26	0.95	1.250	0.89	40.69	NoLiq	13.14	53.83	0.50
23.40	38.00	1.26	0.95	1.251	0.89	40.66	NoLiq	13.13	53.79	0.50
23.45	38.00	1.26	0.95	1.253	0.89	40.64	NoLiq	13.13	53.76	0.50
23.50	38.00	1.26	0.95	1.255	0.89	40.61	NoLiq	13.12	53.73	0.50
23.55	38.00	1.26	0.95	1.256	0.89	40.58	NoLiq	13.12	53.70	0.50
23.60	38.00	1.26	0.95	1.258	0.89	40.56	NoLiq	13.11	53.67	0.50
23.65	38.00	1.26	0.95	1.259	0.89	40.53	NoLiq	13.11	53.64	0.50
23.70	38.00	1.26	0.95	1.261	0.89	40.50	NoLiq	13.10	53.61	0.50

23.75	38.00	1.26	0.95	1.263	0.89	40.48	NoLiq	13.10	53.57	0.50
23.80	38.00	1.26	0.95	1.264	0.89	40.45	NoLiq	13.09	53.54	0.50
23.85	38.00	1.26	0.95	1.266	0.89	40.43	NoLiq	13.09	53.51	0.50
23.90	38.00	1.26	0.95	1.268	0.89	40.40	NoLiq	13.08	53.48	0.50
23.95	38.00	1.26	0.95	1.269	0.89	40.38	NoLiq	13.08	53.45	0.50
24.00	38.00	1.26	0.95	1.271	0.89	40.35	NoLiq	13.07	53.42	0.50
24.05	38.00	1.26	0.95	1.272	0.89	40.32	NoLiq	13.06	53.39	0.50
24.10	38.00	1.26	0.95	1.274	0.89	40.30	NoLiq	13.06	53.36	0.50
24.15	38.00	1.26	0.95	1.276	0.89	40.27	NoLiq	13.05	53.33	0.50
24.20	38.00	1.26	0.95	1.277	0.88	40.25	NoLiq	13.05	53.30	0.50
24.25	38.00	1.26	0.95	1.279	0.88	40.22	NoLiq	13.04	53.27	0.50
24.30	38.00	1.26	0.95	1.281	0.88	40.20	NoLiq	13.04	53.24	0.50
24.35	38.00	1.26	0.95	1.282	0.88	40.17	NoLiq	13.03	53.20	0.50
24.40	38.00	1.26	0.95	1.284	0.88	40.15	NoLiq	13.03	53.17	0.50
24.45	38.00	1.26	0.95	1.285	0.88	40.12	NoLiq	13.02	53.14	0.50
24.50	38.00	1.26	0.95	1.287	0.88	40.09	NoLiq	13.02	53.11	0.50
24.55	38.00	1.26	0.95	1.289	0.88	40.07	NoLiq	13.01	53.08	0.50
24.60	38.00	1.26	0.95	1.290	0.88	40.04	NoLiq	13.01	53.05	0.50
24.65	38.00	1.26	0.95	1.292	0.88	40.02	NoLiq	13.00	53.02	0.50
24.70	38.00	1.26	0.95	1.293	0.88	39.99	NoLiq	13.00	52.99	0.50
24.75	38.00	1.26	0.95	1.295	0.88	39.97	NoLiq	12.99	52.96	0.50
24.80	38.00	1.26	0.95	1.297	0.88	39.94	NoLiq	12.99	52.93	0.50
24.85	38.00	1.26	0.95	1.298	0.88	39.92	NoLiq	12.98	52.90	0.50
24.90	38.00	1.26	0.95	1.300	0.88	39.89	NoLiq	12.98	52.87	0.50
24.95	38.00	1.26	0.95	1.302	0.88	39.87	NoLiq	12.97	52.84	0.50
25.00	38.00	1.26	0.95	1.303	0.88	39.84	NoLiq	12.97	52.81	0.50

CRR is based on water table at 19.00 during In-Situ Testing

Factor of Safety, - Earthquake Magnitude= 6.60:

Depth ft	sigC' atm	CRR7.5	x Ksig	=CRRv	x MSF	=CRRm	CSRfs	F.S.=CRRm/CSRfs
1.00	0.04	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.05	0.04	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.10	0.04	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.15	0.04	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.20	0.04	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.25	0.04	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.30	0.05	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.35	0.05	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.40	0.05	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.45	0.05	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.50	0.05	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.55	0.06	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.60	0.06	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.65	0.06	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.70	0.06	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.75	0.06	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.80	0.06	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.85	0.07	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.90	0.07	0.27	1.00	0.27	1.39	0.38	0.45	5.00
1.95	0.07	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.00	0.07	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.05	0.07	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.10	0.07	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.15	0.08	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.20	0.08	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.25	0.08	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.30	0.08	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.35	0.08	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.40	0.09	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.45	0.09	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.50	0.09	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.55	0.09	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.60	0.09	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.65	0.09	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.70	0.10	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.75	0.10	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.80	0.10	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.85	0.10	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.90	0.10	0.27	1.00	0.27	1.39	0.38	0.45	5.00
2.95	0.11	0.27	1.00	0.27	1.39	0.38	0.45	5.00

3.00	0.11	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.05	0.11	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.10	0.11	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.15	0.11	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.20	0.11	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.25	0.12	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.30	0.12	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.35	0.12	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.40	0.12	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.45	0.12	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.50	0.12	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.55	0.13	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.60	0.13	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.65	0.13	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.70	0.13	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.75	0.13	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.80	0.14	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.85	0.14	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.90	0.14	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
3.95	0.14	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.00	0.14	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.05	0.14	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.10	0.15	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.15	0.15	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.20	0.15	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.25	0.15	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.30	0.15	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.35	0.15	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.40	0.16	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.45	0.16	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.50	0.16	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.55	0.16	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.60	0.16	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.65	0.17	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.70	0.17	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.75	0.17	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.80	0.17	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.85	0.17	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.90	0.17	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
4.95	0.18	0.27	1.00	0.27	1.39	0.38	0.45	5.00	
5.00	0.18	0.27	1.00	0.27	1.39	0.38	0.45	0.84	*
5.05	0.18	0.27	1.00	0.27	1.39	0.38	0.45	0.84	*
5.10	0.18	0.27	1.00	0.27	1.39	0.38	0.45	0.84	*
5.15	0.18	0.27	1.00	0.27	1.39	0.38	0.45	0.83	*
5.20	0.19	0.27	1.00	0.27	1.39	0.38	0.46	0.83	*
5.25	0.19	0.27	1.00	0.27	1.39	0.38	0.46	0.82	*
5.30	0.19	0.27	1.00	0.27	1.39	0.38	0.46	0.82	*
5.35	0.19	0.27	1.00	0.27	1.39	0.38	0.46	0.81	*
5.40	0.19	0.27	1.00	0.27	1.39	0.38	0.46	0.81	*
5.45	0.19	0.27	1.00	0.27	1.39	0.38	0.47	0.81	*
5.50	0.20	0.27	1.00	0.27	1.39	0.38	0.47	0.80	*
5.55	0.20	0.27	1.00	0.27	1.39	0.38	0.47	0.80	*
5.60	0.20	0.27	1.00	0.27	1.39	0.38	0.47	0.80	*
5.65	0.20	0.27	1.00	0.27	1.39	0.38	0.47	0.79	*
5.70	0.20	0.27	1.00	0.27	1.39	0.38	0.48	0.79	*
5.75	0.20	0.27	1.00	0.27	1.39	0.38	0.48	0.79	*
5.80	0.21	0.27	1.00	0.27	1.39	0.38	0.48	0.78	*
5.85	0.21	0.27	1.00	0.27	1.39	0.38	0.48	0.78	*
5.90	0.21	0.27	1.00	0.27	1.39	0.38	0.48	0.78	*
5.95	0.21	0.27	1.00	0.27	1.39	0.38	0.49	0.77	*
6.00	0.21	0.27	1.00	0.27	1.39	0.38	0.49	0.77	*
6.05	0.22	0.29	1.00	0.29	1.39	0.41	0.49	0.83	*
6.10	0.22	0.32	1.00	0.32	1.39	0.45	0.49	0.91	*
6.15	0.22	0.36	1.00	0.36	1.39	0.50	0.49	1.01	
6.20	0.22	0.47	1.00	0.47	1.39	0.66	0.50	1.33	
6.25	0.22	0.50	1.00	0.50	1.39	0.69	0.50	1.39	
6.30	0.22	0.50	1.00	0.50	1.39	0.69	0.50	1.39	
6.35	0.23	0.50	1.00	0.50	1.39	0.69	0.50	1.38	
6.40	0.23	0.50	1.00	0.50	1.39	0.69	0.50	1.38	
6.45	0.23	0.50	1.00	0.50	1.39	0.69	0.51	1.37	
6.50	0.23	0.50	1.00	0.50	1.39	0.69	0.51	1.37	
6.55	0.23	0.50	1.00	0.50	1.39	0.69	0.51	1.36	
6.60	0.24	0.50	1.00	0.50	1.39	0.69	0.51	1.36	

6.65	0.24	0.50	1.00	0.50	1.39	0.69	0.51	1.35
6.70	0.24	0.50	1.00	0.50	1.39	0.69	0.51	1.35
6.75	0.24	0.50	1.00	0.50	1.39	0.69	0.52	1.34
6.80	0.24	0.50	1.00	0.50	1.39	0.69	0.52	1.34
6.85	0.25	0.50	1.00	0.50	1.39	0.69	0.52	1.34
6.90	0.25	0.50	1.00	0.50	1.39	0.69	0.52	1.33
6.95	0.25	0.50	1.00	0.50	1.39	0.69	0.52	1.33
7.00	0.25	0.50	1.00	0.50	1.39	0.69	0.52	1.32
7.05	0.25	0.50	1.00	0.50	1.39	0.69	0.53	1.32
7.10	0.25	0.50	1.00	0.50	1.39	0.69	0.53	1.32
7.15	0.26	0.50	1.00	0.50	1.39	0.69	0.53	1.31
7.20	0.26	0.50	1.00	0.50	1.39	0.69	0.53	1.31
7.25	0.26	0.50	1.00	0.50	1.39	0.69	0.53	1.30
7.30	0.26	0.50	1.00	0.50	1.39	0.69	0.53	1.30
7.35	0.26	0.50	1.00	0.50	1.39	0.69	0.53	1.30
7.40	0.27	0.50	1.00	0.50	1.39	0.69	0.54	1.29
7.45	0.27	0.50	1.00	0.50	1.39	0.69	0.54	1.29
7.50	0.27	0.50	1.00	0.50	1.39	0.69	0.54	1.29
7.55	0.27	0.50	1.00	0.50	1.39	0.69	0.54	1.28
7.60	0.27	0.50	1.00	0.50	1.39	0.69	0.54	1.28
7.65	0.28	0.50	1.00	0.50	1.39	0.69	0.54	1.28
7.70	0.28	0.50	1.00	0.50	1.39	0.69	0.54	1.27
7.75	0.28	0.50	1.00	0.50	1.39	0.69	0.55	1.27
7.80	0.28	0.50	1.00	0.50	1.39	0.69	0.55	1.27
7.85	0.28	0.50	1.00	0.50	1.39	0.69	0.55	1.26
7.90	0.29	0.50	1.00	0.50	1.39	0.69	0.55	1.26
7.95	0.29	0.50	1.00	0.50	1.39	0.69	0.55	1.26
8.00	0.29	0.50	1.00	0.50	1.39	0.69	0.55	1.25
8.05	0.29	0.50	1.00	0.50	1.39	0.69	0.55	1.25
8.10	0.29	0.50	1.00	0.50	1.39	0.69	0.56	1.25
8.15	0.29	0.50	1.00	0.50	1.39	0.69	0.56	1.25
8.20	0.30	0.50	1.00	0.50	1.39	0.69	0.56	1.24
8.25	0.30	0.50	1.00	0.50	1.39	0.69	0.56	1.24
8.30	0.30	0.50	1.00	0.50	1.39	0.69	0.56	1.24
8.35	0.30	0.50	1.00	0.50	1.39	0.69	0.56	1.23
8.40	0.30	0.50	1.00	0.50	1.39	0.69	0.56	1.23
8.45	0.31	0.50	1.00	0.50	1.39	0.69	0.56	1.23
8.50	0.31	0.50	1.00	0.50	1.39	0.69	0.57	1.23
8.55	0.31	0.50	1.00	0.50	1.39	0.69	0.57	1.22
8.60	0.31	0.50	1.00	0.50	1.39	0.69	0.57	1.22
8.65	0.31	0.50	1.00	0.50	1.39	0.69	0.57	1.22
8.70	0.32	0.50	1.00	0.50	1.39	0.69	0.57	1.22
8.75	0.32	0.50	1.00	0.50	1.39	0.69	0.57	1.21
8.80	0.32	0.50	1.00	0.50	1.39	0.69	0.57	1.21
8.85	0.32	0.50	1.00	0.50	1.39	0.69	0.57	1.21
8.90	0.32	0.50	1.00	0.50	1.39	0.69	0.57	1.21
8.95	0.33	0.50	1.00	0.50	1.39	0.69	0.58	1.20
9.00	0.33	0.50	1.00	0.50	1.39	0.69	0.58	1.20
9.05	0.33	0.50	1.00	0.50	1.39	0.69	0.58	1.20
9.10	0.33	0.50	1.00	0.50	1.39	0.69	0.58	1.20
9.15	0.33	0.50	1.00	0.50	1.39	0.69	0.58	1.20
9.20	0.34	0.50	1.00	0.50	1.39	0.69	0.58	1.19
9.25	0.34	0.50	1.00	0.50	1.39	0.69	0.58	1.19
9.30	0.34	0.50	1.00	0.50	1.39	0.69	0.58	1.19
9.35	0.34	0.50	1.00	0.50	1.39	0.69	0.58	1.19
9.40	0.34	0.50	1.00	0.50	1.39	0.69	0.59	1.18
9.45	0.34	0.50	1.00	0.50	1.39	0.69	0.59	1.18
9.50	0.35	0.50	1.00	0.50	1.39	0.69	0.59	1.18
9.55	0.35	0.50	1.00	0.50	1.39	0.69	0.59	1.18
9.60	0.35	0.50	1.00	0.50	1.39	0.69	0.59	1.18
9.65	0.35	0.50	1.00	0.50	1.39	0.69	0.59	1.17
9.70	0.35	0.50	1.00	0.50	1.39	0.69	0.59	1.17
9.75	0.36	0.50	1.00	0.50	1.39	0.69	0.59	1.17
9.80	0.36	0.50	1.00	0.50	1.39	0.69	0.59	1.17
9.85	0.36	0.50	1.00	0.50	1.39	0.69	0.59	1.17
9.90	0.36	0.50	1.00	0.50	1.39	0.69	0.60	1.17
9.95	0.36	0.50	1.00	0.50	1.39	0.69	0.60	1.16
10.00	0.37	0.46	1.00	0.46	1.39	0.64	0.60	1.07
10.05	0.37	0.45	1.00	0.45	1.39	0.63	0.60	1.05
10.10	0.37	0.44	1.00	0.44	1.39	0.61	0.60	1.03
10.15	0.37	0.44	1.00	0.44	1.39	0.60	0.60	1.01
10.20	0.37	0.43	1.00	0.43	1.39	0.60	0.60	0.99 *
10.25	0.38	0.43	1.00	0.43	1.39	0.59	0.60	0.98 *

10.30	0.38	0.42	1.00	0.42	1.39	0.59	0.60	0.97 *
10.35	0.38	0.42	1.00	0.42	1.39	0.58	0.60	0.97 *
10.40	0.38	0.42	1.00	0.42	1.39	0.58	0.60	0.96 *
10.45	0.38	0.42	1.00	0.42	1.39	0.58	0.61	0.96 *
10.50	0.39	0.42	1.00	0.42	1.39	0.58	0.61	0.96 *
10.55	0.39	0.42	1.00	0.42	1.39	0.58	0.61	0.96 *
10.60	0.39	0.42	1.00	0.42	1.39	0.58	0.61	0.96 *
10.65	0.39	0.42	1.00	0.42	1.39	0.58	0.61	0.96 *
10.70	0.39	0.42	1.00	0.42	1.39	0.59	0.61	0.96 *
10.75	0.39	0.43	1.00	0.43	1.39	0.59	0.61	0.97 *
10.80	0.40	0.43	1.00	0.43	1.39	0.60	0.61	0.98 *
10.85	0.40	0.44	1.00	0.44	1.39	0.60	0.61	0.99 *
10.90	0.40	0.44	1.00	0.44	1.39	0.61	0.61	1.00
10.95	0.40	0.45	1.00	0.45	1.39	0.62	0.61	1.02
11.00	0.40	0.46	1.00	0.46	1.39	0.64	0.61	1.04
11.05	0.41	0.50	1.00	0.50	1.39	0.69	0.62	1.13
11.10	0.41	0.50	1.00	0.50	1.39	0.69	0.62	1.13
11.15	0.41	0.50	1.00	0.50	1.39	0.69	0.62	1.12
11.20	0.41	0.50	1.00	0.50	1.39	0.69	0.62	1.12
11.25	0.41	0.50	1.00	0.50	1.39	0.69	0.62	1.12
11.30	0.42	0.50	1.00	0.50	1.39	0.69	0.62	1.12
11.35	0.42	0.50	1.00	0.50	1.39	0.69	0.62	1.12
11.40	0.42	0.50	1.00	0.50	1.39	0.69	0.62	1.12
11.45	0.42	0.50	1.00	0.50	1.39	0.69	0.62	1.12
11.50	0.42	0.50	1.00	0.50	1.39	0.69	0.62	1.11
11.55	0.43	0.50	1.00	0.50	1.39	0.69	0.62	1.11
11.60	0.43	0.50	1.00	0.50	1.39	0.69	0.62	1.11
11.65	0.43	0.50	1.00	0.50	1.39	0.69	0.62	1.11
11.70	0.43	0.50	1.00	0.50	1.39	0.69	0.62	1.11
11.75	0.43	0.50	1.00	0.50	1.39	0.69	0.63	1.11
11.80	0.44	0.50	1.00	0.50	1.39	0.69	0.63	1.11
11.85	0.44	0.50	1.00	0.50	1.39	0.69	0.63	1.11
11.90	0.44	0.50	1.00	0.50	1.39	0.69	0.63	1.10
11.95	0.44	0.50	1.00	0.50	1.39	0.69	0.63	1.10
12.00	0.44	0.50	1.00	0.50	1.39	0.69	0.63	1.10
12.05	0.44	0.50	1.00	0.50	1.39	0.69	0.63	1.10
12.10	0.45	0.50	1.00	0.50	1.39	0.69	0.63	1.10
12.15	0.45	0.50	1.00	0.50	1.39	0.69	0.63	1.10
12.20	0.45	0.50	1.00	0.50	1.39	0.69	0.63	1.10
12.25	0.45	0.50	1.00	0.50	1.39	0.69	0.63	1.10
12.30	0.45	0.50	1.00	0.50	1.39	0.69	0.63	1.09
12.35	0.46	0.50	1.00	0.50	1.39	0.69	0.63	1.09
12.40	0.46	0.50	1.00	0.50	1.39	0.69	0.63	1.09
12.45	0.46	0.50	1.00	0.50	1.39	0.69	0.64	1.09
12.50	0.46	0.50	1.00	0.50	1.39	0.69	0.64	1.09
12.55	0.46	0.50	1.00	0.50	1.39	0.69	0.64	1.09
12.60	0.47	0.50	1.00	0.50	1.39	0.69	0.64	1.09
12.65	0.47	0.50	1.00	0.50	1.39	0.69	0.64	1.09
12.70	0.47	0.50	1.00	0.50	1.39	0.69	0.64	1.09
12.75	0.47	0.50	1.00	0.50	1.39	0.69	0.64	1.08
12.80	0.47	0.50	1.00	0.50	1.39	0.69	0.64	1.08
12.85	0.48	0.50	1.00	0.50	1.39	0.69	0.64	1.08
12.90	0.48	0.50	1.00	0.50	1.39	0.69	0.64	1.08
12.95	0.48	0.50	1.00	0.50	1.39	0.69	0.64	1.08
13.00	0.48	0.50	1.00	0.50	1.39	0.69	0.64	1.08
13.05	0.48	0.50	1.00	0.50	1.39	0.69	0.64	1.08
13.10	0.48	0.50	1.00	0.50	1.39	0.69	0.64	1.08
13.15	0.49	0.50	1.00	0.50	1.39	0.69	0.64	1.08
13.20	0.49	0.50	1.00	0.50	1.39	0.69	0.64	1.08
13.25	0.49	0.50	1.00	0.50	1.39	0.69	0.65	1.07
13.30	0.49	0.50	1.00	0.50	1.39	0.69	0.65	1.07
13.35	0.49	0.50	1.00	0.50	1.39	0.69	0.65	1.07
13.40	0.50	0.50	1.00	0.50	1.39	0.69	0.65	1.07
13.45	0.50	0.50	1.00	0.50	1.39	0.69	0.65	1.07
13.50	0.50	0.50	1.00	0.50	1.39	0.69	0.65	1.07
13.55	0.50	0.50	1.00	0.50	1.39	0.69	0.65	1.07
13.60	0.50	0.50	1.00	0.50	1.39	0.69	0.65	1.07
13.65	0.51	0.50	1.00	0.50	1.39	0.69	0.65	1.07
13.70	0.51	0.50	1.00	0.50	1.39	0.69	0.65	1.07
13.75	0.51	0.50	1.00	0.50	1.39	0.69	0.65	1.07
13.80	0.51	0.50	1.00	0.50	1.39	0.69	0.65	1.06
13.85	0.51	0.44	1.00	0.44	1.39	0.61	0.65	0.94 *
13.90	0.52	0.41	1.00	0.41	1.39	0.57	0.65	0.87 *

13.95	0.52	0.39	1.00	0.39	1.39	0.54	0.65	0.83 *
14.00	0.52	0.38	1.00	0.38	1.39	0.52	0.65	0.80 *
14.05	0.52	0.38	1.00	0.38	1.39	0.53	0.65	0.81 *
14.10	0.52	0.39	1.00	0.39	1.39	0.54	0.65	0.82 *
14.15	0.53	0.39	1.00	0.39	1.39	0.55	0.65	0.83 *
14.20	0.53	0.40	1.00	0.40	1.39	0.56	0.65	0.85 *
14.25	0.53	0.41	1.00	0.41	1.39	0.57	0.66	0.87 *
14.30	0.53	0.42	1.00	0.42	1.39	0.59	0.66	0.90 *
14.35	0.53	0.44	1.00	0.44	1.39	0.61	0.66	0.93 *
14.40	0.54	0.47	1.00	0.47	1.39	0.65	0.66	0.98 *
14.45	0.54	0.50	1.00	0.50	1.39	0.69	0.66	1.05
14.50	0.54	0.50	1.00	0.50	1.39	0.69	0.66	1.05
14.55	0.54	0.50	1.00	0.50	1.39	0.69	0.66	1.05
14.60	0.54	0.50	1.00	0.50	1.39	0.69	0.66	1.05
14.65	0.55	0.50	1.00	0.50	1.39	0.69	0.66	1.05
14.70	0.55	0.50	1.00	0.50	1.39	0.69	0.66	1.05
14.75	0.55	0.50	1.00	0.50	1.39	0.69	0.66	1.05
14.80	0.55	0.50	1.00	0.50	1.39	0.69	0.66	1.05
14.85	0.55	0.50	1.00	0.50	1.39	0.69	0.66	1.05
14.90	0.56	0.50	1.00	0.50	1.39	0.69	0.66	1.05
14.95	0.56	0.50	1.00	0.50	1.39	0.69	0.66	1.05
15.00	0.56	0.50	1.00	0.50	1.39	0.69	0.66	1.05
15.05	0.56	0.50	1.00	0.50	1.39	0.69	0.66	1.05
15.10	0.56	0.50	1.00	0.50	1.39	0.69	0.66	1.05
15.15	0.57	0.50	1.00	0.50	1.39	0.69	0.66	1.05
15.20	0.57	0.50	1.00	0.50	1.39	0.69	0.66	1.04
15.25	0.57	0.50	1.00	0.50	1.39	0.69	0.66	1.04
15.30	0.57	0.50	1.00	0.50	1.39	0.69	0.66	1.04
15.35	0.57	0.50	1.00	0.50	1.39	0.69	0.67	1.04
15.40	0.58	0.50	1.00	0.50	1.39	0.69	0.67	1.04
15.45	0.58	0.50	1.00	0.50	1.39	0.69	0.67	1.04
15.50	0.58	0.50	1.00	0.50	1.39	0.69	0.67	1.04
15.55	0.58	0.50	1.00	0.50	1.39	0.69	0.67	1.04
15.60	0.58	0.50	1.00	0.50	1.39	0.69	0.67	1.04
15.65	0.59	0.50	1.00	0.50	1.39	0.69	0.67	1.04
15.70	0.59	0.50	1.00	0.50	1.39	0.69	0.67	1.04
15.75	0.59	0.50	1.00	0.50	1.39	0.69	0.67	1.04
15.80	0.59	0.50	1.00	0.50	1.39	0.69	0.67	1.04
15.85	0.59	0.50	1.00	0.50	1.39	0.69	0.67	1.04
15.90	0.60	0.50	1.00	0.50	1.39	0.69	0.67	1.04
15.95	0.60	0.50	1.00	0.50	1.39	0.69	0.67	1.04
16.00	0.60	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.05	0.60	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.10	0.60	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.15	0.61	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.20	0.61	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.25	0.61	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.30	0.61	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.35	0.61	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.40	0.62	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.45	0.62	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.50	0.62	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.55	0.62	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.60	0.62	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.65	0.63	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.70	0.63	0.50	1.00	0.50	1.39	0.69	0.67	1.03
16.75	0.63	0.50	1.00	0.50	1.39	0.69	0.68	1.03
16.80	0.63	0.50	1.00	0.50	1.39	0.69	0.68	1.03
16.85	0.63	0.50	1.00	0.50	1.39	0.69	0.68	1.03
16.90	0.64	0.50	1.00	0.50	1.39	0.69	0.68	1.03
16.95	0.64	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.00	0.64	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.05	0.64	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.10	0.64	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.15	0.65	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.20	0.65	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.25	0.65	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.30	0.65	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.35	0.65	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.40	0.66	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.45	0.66	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.50	0.66	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.55	0.66	0.50	1.00	0.50	1.39	0.69	0.68	1.02

17.60	0.66	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.65	0.67	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.70	0.67	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.75	0.67	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.80	0.67	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.85	0.67	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.90	0.68	0.50	1.00	0.50	1.39	0.69	0.68	1.02
17.95	0.68	0.50	1.00	0.50	1.39	0.69	0.68	1.02
18.00	0.68	0.50	1.00	0.50	1.39	0.69	0.68	1.02
18.05	0.68	0.50	1.00	0.50	1.39	0.69	0.68	1.02
18.10	0.68	0.50	1.00	0.50	1.39	0.69	0.68	1.02
18.15	0.69	0.50	1.00	0.50	1.39	0.69	0.68	1.01
18.20	0.69	0.50	1.00	0.50	1.39	0.69	0.68	1.01
18.25	0.69	0.50	1.00	0.50	1.39	0.69	0.68	1.01
18.30	0.69	0.50	1.00	0.50	1.39	0.69	0.68	1.01
18.35	0.69	0.50	1.00	0.50	1.39	0.69	0.68	1.01
18.40	0.70	0.50	1.00	0.50	1.39	0.69	0.68	1.01
18.45	0.70	0.50	1.00	0.50	1.39	0.69	0.68	1.01
18.50	0.70	0.50	1.00	0.50	1.39	0.69	0.69	1.01
18.55	0.70	0.50	1.00	0.50	1.39	0.69	0.69	1.01
18.60	0.70	0.50	1.00	0.50	1.39	0.69	0.69	1.01
18.65	0.71	0.50	1.00	0.50	1.39	0.69	0.69	1.01
18.70	0.71	0.50	1.00	0.50	1.39	0.69	0.69	1.01
18.75	0.71	0.50	1.00	0.50	1.39	0.69	0.69	1.01
18.80	0.71	0.50	1.00	0.50	1.39	0.69	0.69	1.01
18.85	0.71	0.50	1.00	0.50	1.39	0.69	0.69	1.01
18.90	0.72	0.50	1.00	0.50	1.39	0.69	0.69	1.01
18.95	0.72	0.50	1.00	0.50	1.39	0.69	0.69	1.01
19.00	0.72	0.50	1.00	0.50	1.39	0.69	0.69	1.01
19.05	0.72	0.50	1.00	0.50	1.39	0.69	0.69	1.01
19.10	0.72	0.50	1.00	0.50	1.39	0.69	0.69	1.01
19.15	0.72	0.50	1.00	0.50	1.39	0.69	0.69	1.01
19.20	0.72	0.50	1.00	0.50	1.39	0.69	0.69	1.01
19.25	0.73	0.50	1.00	0.50	1.39	0.69	0.69	1.01
19.30	0.73	0.50	1.00	0.50	1.39	0.69	0.69	1.01
19.35	0.73	0.50	1.00	0.50	1.39	0.69	0.69	1.01
19.40	0.73	0.50	1.00	0.50	1.39	0.69	0.69	1.01
19.45	0.73	0.50	1.00	0.50	1.39	0.69	0.69	1.01
19.50	0.73	0.50	1.00	0.50	1.39	0.69	0.69	1.01
19.55	0.73	0.50	1.00	0.50	1.39	0.69	0.69	1.00
19.60	0.73	0.50	1.00	0.50	1.39	0.69	0.69	1.00
19.65	0.73	0.50	1.00	0.50	1.39	0.69	0.69	1.00
19.70	0.74	0.50	1.00	0.50	1.39	0.69	0.69	1.00
19.75	0.74	0.50	1.00	0.50	1.39	0.69	0.69	1.00
19.80	0.74	0.50	1.00	0.50	1.39	0.69	0.69	1.00
19.85	0.74	0.50	1.00	0.50	1.39	0.69	0.69	1.00
19.90	0.74	0.50	1.00	0.50	1.39	0.69	0.69	1.00
19.95	0.74	0.50	1.00	0.50	1.39	0.69	0.69	1.00
20.00	0.74	0.50	1.00	0.50	1.39	0.69	0.69	1.00
20.05	0.74	0.50	1.00	0.50	1.39	0.69	0.69	1.00
20.10	0.74	0.50	1.00	0.50	1.39	0.69	0.69	1.00
20.15	0.74	0.50	1.00	0.50	1.39	0.69	0.69	1.00
20.20	0.75	0.50	1.00	0.50	1.39	0.69	0.69	1.00
20.25	0.75	0.50	1.00	0.50	1.39	0.69	0.69	1.00
20.30	0.75	0.50	1.00	0.50	1.39	0.69	0.69	1.00
20.35	0.75	0.50	1.00	0.50	1.39	0.69	0.69	1.00
20.40	0.75	0.50	1.00	0.50	1.39	0.69	0.69	1.00 *
20.45	0.75	0.50	1.00	0.50	1.39	0.69	0.69	1.00 *
20.50	0.75	0.50	1.00	0.50	1.39	0.69	0.69	1.00 *
20.55	0.75	0.50	1.00	0.50	1.39	0.69	0.69	1.00 *
20.60	0.75	0.50	1.00	0.50	1.39	0.69	0.69	1.00 *
20.65	0.76	0.50	1.00	0.50	1.39	0.69	0.69	1.00 *
20.70	0.76	0.50	1.00	0.50	1.39	0.69	0.69	1.00 *
20.75	0.76	0.50	1.00	0.50	1.39	0.69	0.69	1.00 *
20.80	0.76	0.50	1.00	0.50	1.39	0.69	0.69	1.00 *
20.85	0.76	0.50	1.00	0.50	1.39	0.69	0.70	1.00 *
20.90	0.76	0.50	1.00	0.50	1.39	0.69	0.70	1.00 *
20.95	0.76	0.50	1.00	0.50	1.39	0.69	0.70	1.00 *
21.00	0.76	0.50	1.00	0.50	1.39	0.69	0.70	1.00 *
21.05	0.76	0.50	1.00	0.50	1.39	0.69	0.70	1.00 *
21.10	0.76	0.50	1.00	0.50	1.39	0.69	0.70	1.00 *
21.15	0.77	0.50	1.00	0.50	1.39	0.69	0.70	1.00 *
21.20	0.77	0.50	1.00	0.50	1.39	0.69	0.70	1.00 *

21.25	0.77	0.50	1.00	0.50	1.39	0.69	0.70	1.00 *
21.30	0.77	0.50	1.00	0.50	1.39	0.69	0.70	1.00 *
21.35	0.77	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
21.40	0.77	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
21.45	0.77	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
21.50	0.77	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
21.55	0.77	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
21.60	0.78	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
21.65	0.78	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
21.70	0.78	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
21.75	0.78	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
21.80	0.78	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
21.85	0.78	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
21.90	0.78	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
21.95	0.78	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
22.00	0.78	0.50	1.00	0.50	1.39	0.69	0.70	0.99 *
22.05	0.78	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.10	0.79	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.15	0.79	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.20	0.79	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.25	0.79	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.30	0.79	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.35	0.79	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.40	0.79	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.45	0.79	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.50	0.79	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.55	0.80	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.60	0.80	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.65	0.80	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.70	0.80	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.75	0.80	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.80	0.80	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.85	0.80	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.90	0.80	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
22.95	0.80	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.00	0.80	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.05	0.81	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.10	0.81	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.15	0.81	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.20	0.81	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.25	0.81	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.30	0.81	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.35	0.81	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.40	0.81	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.45	0.81	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.50	0.82	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.55	0.82	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.60	0.82	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.65	0.82	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.70	0.82	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.75	0.82	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.80	0.82	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.85	0.82	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.90	0.82	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
23.95	0.82	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
24.00	0.83	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
24.05	0.83	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
24.10	0.83	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
24.15	0.83	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
24.20	0.83	0.50	1.00	0.50	1.39	2.00	0.70	5.00 ^
24.25	0.83	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.30	0.83	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.35	0.83	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.40	0.83	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.45	0.84	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.50	0.84	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.55	0.84	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.60	0.84	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.65	0.84	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.70	0.84	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.75	0.84	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.80	0.84	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.85	0.84	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^

24.90	0.84	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
24.95	0.85	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^
25.00	0.85	0.50	1.00	0.50	1.39	2.00	0.71	5.00 ^

* F.S.<1: Liquefaction Potential Zone. (If above water table: F.S.=5)
^ No-liquefiable Soils or above Water Table.
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:

Depth ft	Ic	qc/N60	qc1 atm	(N1)60	Fines %	d(N1)60	(N1)60s
1.00	-	-	-	24.28	45.00	0.00	24.28
1.05	-	-	-	24.28	45.00	0.00	24.28
1.10	-	-	-	24.28	45.00	0.00	24.28
1.15	-	-	-	24.28	45.00	0.00	24.28
1.20	-	-	-	24.28	45.00	0.00	24.28
1.25	-	-	-	24.28	45.00	0.00	24.28
1.30	-	-	-	24.28	45.00	0.00	24.28
1.35	-	-	-	24.28	45.00	0.00	24.28
1.40	-	-	-	24.28	45.00	0.00	24.28
1.45	-	-	-	24.28	45.00	0.00	24.28
1.50	-	-	-	24.28	45.00	0.00	24.28
1.55	-	-	-	24.28	45.00	0.00	24.28
1.60	-	-	-	24.28	45.00	0.00	24.28
1.65	-	-	-	24.28	45.00	0.00	24.28
1.70	-	-	-	24.28	45.00	0.00	24.28
1.75	-	-	-	24.28	45.00	0.00	24.28
1.80	-	-	-	24.28	45.00	0.00	24.28
1.85	-	-	-	24.28	45.00	0.00	24.28
1.90	-	-	-	24.28	45.00	0.00	24.28
1.95	-	-	-	24.28	45.00	0.00	24.28
2.00	-	-	-	24.28	45.00	0.00	24.28
2.05	-	-	-	24.28	45.00	0.00	24.28
2.10	-	-	-	24.28	45.00	0.00	24.28
2.15	-	-	-	24.28	45.00	0.00	24.28
2.20	-	-	-	24.28	45.00	0.00	24.28
2.25	-	-	-	24.28	45.00	0.00	24.28
2.30	-	-	-	24.28	45.00	0.00	24.28
2.35	-	-	-	24.28	45.00	0.00	24.28
2.40	-	-	-	24.28	45.00	0.00	24.28
2.45	-	-	-	24.28	45.00	0.00	24.28
2.50	-	-	-	24.28	45.00	0.00	24.28
2.55	-	-	-	24.28	45.00	0.00	24.28
2.60	-	-	-	24.28	45.00	0.00	24.28
2.65	-	-	-	24.28	45.00	0.00	24.28
2.70	-	-	-	24.28	45.00	0.00	24.28
2.75	-	-	-	24.28	45.00	0.00	24.28
2.80	-	-	-	24.28	45.00	0.00	24.28
2.85	-	-	-	24.28	45.00	0.00	24.28
2.90	-	-	-	24.28	45.00	0.00	24.28
2.95	-	-	-	24.28	45.00	0.00	24.28
3.00	-	-	-	24.28	45.00	0.00	24.28
3.05	-	-	-	24.28	45.00	0.00	24.28
3.10	-	-	-	24.28	45.00	0.00	24.28
3.15	-	-	-	24.28	45.00	0.00	24.28
3.20	-	-	-	24.28	45.00	0.00	24.28
3.25	-	-	-	24.28	45.00	0.00	24.28
3.30	-	-	-	24.28	45.00	0.00	24.28
3.35	-	-	-	24.28	45.00	0.00	24.28
3.40	-	-	-	24.28	45.00	0.00	24.28
3.45	-	-	-	24.28	45.00	0.00	24.28
3.50	-	-	-	24.28	45.00	0.00	24.28
3.55	-	-	-	24.28	45.00	0.00	24.28
3.60	-	-	-	24.28	45.00	0.00	24.28
3.65	-	-	-	24.28	45.00	0.00	24.28
3.70	-	-	-	24.28	45.00	0.00	24.28
3.75	-	-	-	24.28	45.00	0.00	24.28
3.80	-	-	-	24.28	45.00	0.00	24.28
3.85	-	-	-	24.28	45.00	0.00	24.28
3.90	-	-	-	24.28	45.00	0.00	24.28

3.95	-	-	-	24.28	45.00	0.00	24.28
4.00	-	-	-	24.28	45.00	0.00	24.28
4.05	-	-	-	24.28	45.00	0.00	24.28
4.10	-	-	-	24.28	45.00	0.00	24.28
4.15	-	-	-	24.28	45.00	0.00	24.28
4.20	-	-	-	24.28	45.00	0.00	24.28
4.25	-	-	-	24.28	45.00	0.00	24.28
4.30	-	-	-	24.28	45.00	0.00	24.28
4.35	-	-	-	24.28	45.00	0.00	24.28
4.40	-	-	-	24.28	45.00	0.00	24.28
4.45	-	-	-	24.28	45.00	0.00	24.28
4.50	-	-	-	24.28	45.00	0.00	24.28
4.55	-	-	-	24.28	45.00	0.00	24.28
4.60	-	-	-	24.28	45.00	0.00	24.28
4.65	-	-	-	24.28	45.00	0.00	24.28
4.70	-	-	-	24.28	45.00	0.00	24.28
4.75	-	-	-	24.28	45.00	0.00	24.28
4.80	-	-	-	24.28	45.00	0.00	24.28
4.85	-	-	-	24.28	45.00	0.00	24.28
4.90	-	-	-	24.28	45.00	0.00	24.28
4.95	-	-	-	24.28	45.00	0.00	24.28
5.00	-	-	-	24.28	45.00	0.00	24.28
5.05	-	-	-	24.28	45.00	0.00	24.28
5.10	-	-	-	24.28	45.00	0.00	24.28
5.15	-	-	-	24.28	45.00	0.00	24.28
5.20	-	-	-	24.28	45.00	0.00	24.28
5.25	-	-	-	24.28	45.00	0.00	24.28
5.30	-	-	-	24.28	45.00	0.00	24.28
5.35	-	-	-	24.28	45.00	0.00	24.28
5.40	-	-	-	24.28	45.00	0.00	24.28
5.45	-	-	-	24.28	45.00	0.00	24.28
5.50	-	-	-	24.28	45.00	0.00	24.28
5.55	-	-	-	24.28	45.00	0.00	24.28
5.60	-	-	-	24.28	45.00	0.00	24.28
5.65	-	-	-	24.28	45.00	0.00	24.28
5.70	-	-	-	24.28	45.00	0.00	24.28
5.75	-	-	-	24.28	45.00	0.00	24.28
5.80	-	-	-	24.28	45.00	0.00	24.28
5.85	-	-	-	24.28	45.00	0.00	24.28
5.90	-	-	-	24.28	45.00	0.00	24.28
5.95	-	-	-	24.28	45.00	0.00	24.28
6.00	-	-	-	24.28	45.00	0.00	24.28
6.05	-	-	-	25.72	43.00	0.00	25.72
6.10	-	-	-	27.17	41.00	0.00	27.17
6.15	-	-	-	28.62	39.00	0.00	28.62
6.20	-	-	-	30.06	37.00	0.00	30.06
6.25	-	-	-	31.42	35.00	0.00	31.42
6.30	-	-	-	32.36	33.00	0.00	32.36
6.35	-	-	-	33.16	31.00	0.00	33.16
6.40	-	-	-	33.88	29.00	0.00	33.88
6.45	-	-	-	34.55	27.00	0.00	34.55
6.50	-	-	-	35.16	25.00	0.00	35.16
6.55	-	-	-	35.70	23.00	0.00	35.70
6.60	-	-	-	36.17	21.00	0.00	36.17
6.65	-	-	-	36.56	19.00	0.00	36.56
6.70	-	-	-	36.86	17.00	0.00	36.86
6.75	-	-	-	37.05	15.00	0.00	37.05
6.80	-	-	-	37.14	13.00	0.00	37.14
6.85	-	-	-	37.15	11.00	0.00	37.15
6.90	-	-	-	37.20	9.00	0.00	37.20
6.95	-	-	-	37.48	7.00	0.00	37.48
7.00	-	-	-	38.04	5.00	0.00	38.04
7.05	-	-	-	37.89	5.00	0.00	37.89
7.10	-	-	-	37.75	5.00	0.00	37.75
7.15	-	-	-	37.61	5.00	0.00	37.61
7.20	-	-	-	37.47	5.00	0.00	37.47
7.25	-	-	-	37.33	5.00	0.00	37.33
7.30	-	-	-	37.19	5.00	0.00	37.19
7.35	-	-	-	37.06	5.00	0.00	37.06
7.40	-	-	-	36.93	5.00	0.00	36.93
7.45	-	-	-	36.79	5.00	0.00	36.79
7.50	-	-	-	36.66	5.00	0.00	36.66
7.55	-	-	-	36.53	5.00	0.00	36.53

7.60	-	-	-	36.40	5.00	0.00	36.40
7.65	-	-	-	36.28	5.00	0.00	36.28
7.70	-	-	-	36.15	5.00	0.00	36.15
7.75	-	-	-	36.03	5.00	0.00	36.03
7.80	-	-	-	35.90	5.00	0.00	35.90
7.85	-	-	-	35.78	5.00	0.00	35.78
7.90	-	-	-	35.66	5.00	0.00	35.66
7.95	-	-	-	35.54	5.00	0.00	35.54
8.00	-	-	-	35.42	5.00	0.00	35.42
8.05	-	-	-	35.31	5.00	0.00	35.31
8.10	-	-	-	35.19	5.00	0.00	35.19
8.15	-	-	-	35.08	5.00	0.00	35.08
8.20	-	-	-	34.96	5.00	0.00	34.96
8.25	-	-	-	39.50	5.00	0.00	39.50
8.30	-	-	-	39.37	5.00	0.00	39.37
8.35	-	-	-	39.24	5.00	0.00	39.24
8.40	-	-	-	39.12	5.00	0.00	39.12
8.45	-	-	-	39.00	5.00	0.00	39.00
8.50	-	-	-	38.88	5.00	0.00	38.88
8.55	-	-	-	38.76	5.00	0.00	38.76
8.60	-	-	-	38.64	5.00	0.00	38.64
8.65	-	-	-	38.52	5.00	0.00	38.52
8.70	-	-	-	38.40	5.00	0.00	38.40
8.75	-	-	-	38.29	5.00	0.00	38.29
8.80	-	-	-	38.17	5.00	0.00	38.17
8.85	-	-	-	38.06	5.00	0.00	38.06
8.90	-	-	-	37.94	5.00	0.00	37.94
8.95	-	-	-	37.83	5.00	0.00	37.83
9.00	-	-	-	37.72	5.00	0.00	37.72
9.05	-	-	-	37.31	5.00	0.00	37.31
9.10	-	-	-	36.90	5.00	0.00	36.90
9.15	-	-	-	36.50	5.00	0.00	36.50
9.20	-	-	-	36.09	5.00	0.00	36.09
9.25	-	-	-	35.69	5.00	0.00	35.69
9.30	-	-	-	35.29	5.00	0.00	35.29
9.35	-	-	-	34.90	5.00	0.00	34.90
9.40	-	-	-	34.51	5.00	0.00	34.51
9.45	-	-	-	34.12	5.00	0.00	34.12
9.50	-	-	-	33.73	5.00	0.00	33.73
9.55	-	-	-	33.34	5.00	0.00	33.34
9.60	-	-	-	32.96	5.00	0.00	32.96
9.65	-	-	-	32.58	5.00	0.00	32.58
9.70	-	-	-	32.20	5.00	0.00	32.20
9.75	-	-	-	31.82	5.00	0.00	31.82
9.80	-	-	-	31.45	5.00	0.00	31.45
9.85	-	-	-	31.08	5.00	0.00	31.08
9.90	-	-	-	30.71	5.00	0.00	30.71
9.95	-	-	-	30.34	5.00	0.00	30.34
10.00	-	-	-	30.01	5.00	0.00	30.01
10.05	-	-	-	29.96	5.25	0.00	29.96
10.10	-	-	-	29.92	5.50	0.00	29.92
10.15	-	-	-	29.87	5.75	0.00	29.87
10.20	-	-	-	29.84	6.00	0.00	29.84
10.25	-	-	-	29.80	6.25	0.00	29.80
10.30	-	-	-	29.77	6.50	0.00	29.77
10.35	-	-	-	29.75	6.75	0.00	29.75
10.40	-	-	-	29.74	7.00	0.00	29.74
10.45	-	-	-	29.73	7.25	0.00	29.73
10.50	-	-	-	29.73	7.50	0.00	29.73
10.55	-	-	-	29.73	7.75	0.00	29.73
10.60	-	-	-	29.74	8.00	0.00	29.74
10.65	-	-	-	29.76	8.25	0.00	29.76
10.70	-	-	-	29.78	8.50	0.00	29.78
10.75	-	-	-	29.81	8.75	0.00	29.81
10.80	-	-	-	29.84	9.00	0.00	29.84
10.85	-	-	-	29.87	9.25	0.00	29.87
10.90	-	-	-	29.91	9.50	0.00	29.91
10.95	-	-	-	29.96	9.75	0.00	29.96
11.00	-	-	-	30.00	10.00	0.00	30.00
11.05	-	-	-	30.35	10.00	0.00	30.35
11.10	-	-	-	30.69	10.00	0.00	30.69
11.15	-	-	-	31.04	10.00	0.00	31.04
11.20	-	-	-	31.38	10.00	0.00	31.38

11.25	-	-	-	31.72	10.00	0.00	31.72
11.30	-	-	-	32.06	10.00	0.00	32.06
11.35	-	-	-	32.40	10.00	0.00	32.40
11.40	-	-	-	32.73	10.00	0.00	32.73
11.45	-	-	-	33.07	10.00	0.00	33.07
11.50	-	-	-	33.40	10.00	0.00	33.40
11.55	-	-	-	33.73	10.00	0.00	33.73
11.60	-	-	-	34.07	10.00	0.00	34.07
11.65	-	-	-	34.40	10.00	0.00	34.40
11.70	-	-	-	34.72	10.00	0.00	34.72
11.75	-	-	-	35.05	10.00	0.00	35.05
11.80	-	-	-	35.38	10.00	0.00	35.38
11.85	-	-	-	35.70	10.00	0.00	35.70
11.90	-	-	-	36.02	10.00	0.00	36.02
11.95	-	-	-	36.35	10.00	0.00	36.35
12.00	-	-	-	36.67	10.00	0.00	36.67
12.05	-	-	-	36.59	10.00	0.00	36.59
12.10	-	-	-	36.51	10.00	0.00	36.51
12.15	-	-	-	36.44	10.00	0.00	36.44
12.20	-	-	-	36.36	10.00	0.00	36.36
12.25	-	-	-	36.28	10.00	0.00	36.28
12.30	-	-	-	36.21	10.00	0.00	36.21
12.35	-	-	-	36.14	10.00	0.00	36.14
12.40	-	-	-	36.06	10.00	0.00	36.06
12.45	-	-	-	35.99	10.00	0.00	35.99
12.50	-	-	-	35.91	10.00	0.00	35.91
12.55	-	-	-	35.84	10.00	0.00	35.84
12.60	-	-	-	35.77	10.00	0.00	35.77
12.65	-	-	-	35.70	10.00	0.00	35.70
12.70	-	-	-	35.63	10.00	0.00	35.63
12.75	-	-	-	35.56	10.00	0.00	35.56
12.80	-	-	-	35.49	10.00	0.00	35.49
12.85	-	-	-	35.42	10.00	0.00	35.42
12.90	-	-	-	35.35	10.00	0.00	35.35
12.95	-	-	-	35.28	10.00	0.00	35.28
13.00	-	-	-	35.21	10.00	0.00	35.21
13.05	-	-	-	34.89	10.00	0.00	34.89
13.10	-	-	-	34.57	10.00	0.00	34.57
13.15	-	-	-	34.25	10.00	0.00	34.25
13.20	-	-	-	33.93	10.00	0.00	33.93
13.25	-	-	-	33.61	10.00	0.00	33.61
13.30	-	-	-	33.29	10.00	0.00	33.29
13.35	-	-	-	32.98	10.00	0.00	32.98
13.40	-	-	-	32.67	10.00	0.00	32.67
13.45	-	-	-	32.36	10.00	0.00	32.36
13.50	-	-	-	32.04	10.00	0.00	32.04
13.55	-	-	-	31.73	10.00	0.00	31.73
13.60	-	-	-	31.43	10.00	0.00	31.43
13.65	-	-	-	31.12	10.00	0.00	31.12
13.70	-	-	-	30.81	10.00	0.00	30.81
13.75	-	-	-	30.51	10.00	0.00	30.51
13.80	-	-	-	30.21	10.00	0.00	30.21
13.85	-	-	-	29.90	10.00	0.00	29.90
13.90	-	-	-	29.60	10.00	0.00	29.60
13.95	-	-	-	29.30	10.00	0.00	29.30
14.00	-	-	-	29.00	10.00	0.00	29.00
14.05	-	-	-	29.13	10.00	0.00	29.13
14.10	-	-	-	29.26	10.00	0.00	29.26
14.15	-	-	-	29.39	10.00	0.00	29.39
14.20	-	-	-	29.52	10.00	0.00	29.52
14.25	-	-	-	29.65	10.00	0.00	29.65
14.30	-	-	-	29.78	10.00	0.00	29.78
14.35	-	-	-	29.90	10.00	0.00	29.90
14.40	-	-	-	30.03	10.00	0.00	30.03
14.45	-	-	-	30.16	10.00	0.00	30.16
14.50	-	-	-	30.28	10.00	0.00	30.28
14.55	-	-	-	30.41	10.00	0.00	30.41
14.60	-	-	-	30.54	10.00	0.00	30.54
14.65	-	-	-	30.66	10.00	0.00	30.66
14.70	-	-	-	30.79	10.00	0.00	30.79
14.75	-	-	-	30.91	10.00	0.00	30.91
14.80	-	-	-	34.58	10.00	0.00	34.58
14.85	-	-	-	34.72	10.00	0.00	34.72

14.90	-	-	-	34.86	10.00	0.00	34.86
14.95	-	-	-	35.00	10.00	0.00	35.00
15.00	-	-	-	35.13	10.00	0.00	35.13
15.05	-	-	-	35.07	10.00	0.00	35.07
15.10	-	-	-	35.01	10.00	0.00	35.01
15.15	-	-	-	34.95	10.00	0.00	34.95
15.20	-	-	-	34.89	10.00	0.00	34.89
15.25	-	-	-	34.83	10.00	0.00	34.83
15.30	-	-	-	34.78	10.00	0.00	34.78
15.35	-	-	-	34.72	10.00	0.00	34.72
15.40	-	-	-	34.66	10.00	0.00	34.66
15.45	-	-	-	34.60	10.00	0.00	34.60
15.50	-	-	-	34.54	10.00	0.00	34.54
15.55	-	-	-	34.49	10.00	0.00	34.49
15.60	-	-	-	34.43	10.00	0.00	34.43
15.65	-	-	-	34.37	10.00	0.00	34.37
15.70	-	-	-	34.31	10.00	0.00	34.31
15.75	-	-	-	34.26	10.00	0.00	34.26
15.80	-	-	-	34.20	10.00	0.00	34.20
15.85	-	-	-	34.15	10.00	0.00	34.15
15.90	-	-	-	34.09	10.00	0.00	34.09
15.95	-	-	-	34.04	10.00	0.00	34.04
16.00	-	-	-	33.98	10.00	0.00	33.98
16.05	-	-	-	34.55	9.70	0.00	34.55
16.10	-	-	-	35.11	9.40	0.00	35.11
16.15	-	-	-	35.67	9.10	0.00	35.67
16.20	-	-	-	36.24	8.80	0.00	36.24
16.25	-	-	-	36.81	8.50	0.00	36.81
16.30	-	-	-	37.38	8.20	0.00	37.38
16.35	-	-	-	37.95	7.90	0.00	37.95
16.40	-	-	-	38.53	7.60	0.00	38.53
16.45	-	-	-	39.11	7.30	0.00	39.11
16.50	-	-	-	39.70	7.00	0.00	39.70
16.55	-	-	-	40.29	6.70	0.00	40.29
16.60	-	-	-	40.89	6.40	0.00	40.89
16.65	-	-	-	41.50	6.10	0.00	41.50
16.70	-	-	-	42.11	5.80	0.00	42.11
16.75	-	-	-	42.72	5.50	0.00	42.72
16.80	-	-	-	43.33	5.20	0.00	43.33
16.85	-	-	-	43.90	4.90	0.00	43.90
16.90	-	-	-	44.56	4.60	0.00	44.56
16.95	-	-	-	45.21	4.30	0.00	45.21
17.00	-	-	-	45.87	4.00	0.00	45.87
17.05	-	-	-	45.80	4.00	0.00	45.80
17.10	-	-	-	45.72	4.00	0.00	45.72
17.15	-	-	-	45.65	4.00	0.00	45.65
17.20	-	-	-	45.58	4.00	0.00	45.58
17.25	-	-	-	45.51	4.00	0.00	45.51
17.30	-	-	-	45.44	4.00	0.00	45.44
17.35	-	-	-	45.37	4.00	0.00	45.37
17.40	-	-	-	45.30	4.00	0.00	45.30
17.45	-	-	-	45.23	4.00	0.00	45.23
17.50	-	-	-	45.16	4.00	0.00	45.16
17.55	-	-	-	45.09	4.00	0.00	45.09
17.60	-	-	-	45.03	4.00	0.00	45.03
17.65	-	-	-	44.96	4.00	0.00	44.96
17.70	-	-	-	44.89	4.00	0.00	44.89
17.75	-	-	-	44.82	4.00	0.00	44.82
17.80	-	-	-	44.75	4.00	0.00	44.75
17.85	-	-	-	44.69	4.00	0.00	44.69
17.90	-	-	-	44.62	4.00	0.00	44.62
17.95	-	-	-	44.55	4.00	0.00	44.55
18.00	-	-	-	44.49	4.00	0.00	44.49
18.05	-	-	-	44.42	4.00	0.00	44.42
18.10	-	-	-	44.36	4.00	0.00	44.36
18.15	-	-	-	44.29	4.00	0.00	44.29
18.20	-	-	-	44.23	4.00	0.00	44.23
18.25	-	-	-	44.16	4.00	0.00	44.16
18.30	-	-	-	44.10	4.00	0.00	44.10
18.35	-	-	-	44.03	4.00	0.00	44.03
18.40	-	-	-	43.97	4.00	0.00	43.97
18.45	-	-	-	43.91	4.00	0.00	43.91
18.50	-	-	-	43.84	4.00	0.00	43.84

18.55	-	-	-	43.78	4.00	0.00	43.78
18.60	-	-	-	43.72	4.00	0.00	43.72
18.65	-	-	-	43.66	4.00	0.00	43.66
18.70	-	-	-	43.59	4.00	0.00	43.59
18.75	-	-	-	43.53	4.00	0.00	43.53
18.80	-	-	-	43.47	4.00	0.00	43.47
18.85	-	-	-	43.41	4.00	0.00	43.41
18.90	-	-	-	43.35	4.00	0.00	43.35
18.95	-	-	-	43.29	4.00	0.00	43.29
19.00	-	-	-	43.23	4.00	0.00	43.23
19.05	-	-	-	43.17	4.00	0.00	43.17
19.10	-	-	-	43.14	4.00	0.00	43.14
19.15	-	-	-	43.10	4.00	0.00	43.10
19.20	-	-	-	43.07	4.00	0.00	43.07
19.25	-	-	-	43.04	4.00	0.00	43.04
19.30	-	-	-	43.01	4.00	0.00	43.01
19.35	-	-	-	42.98	4.00	0.00	42.98
19.40	-	-	-	42.95	4.00	0.00	42.95
19.45	-	-	-	42.92	4.00	0.00	42.92
19.50	-	-	-	42.89	4.00	0.00	42.89
19.55	-	-	-	42.86	4.00	0.00	42.86
19.60	-	-	-	42.82	4.00	0.00	42.82
19.65	-	-	-	42.79	4.00	0.00	42.79
19.70	-	-	-	42.76	4.00	0.00	42.76
19.75	-	-	-	42.73	4.00	0.00	42.73
19.80	-	-	-	42.70	4.00	0.00	42.70
19.85	-	-	-	42.67	4.00	0.00	42.67
19.90	-	-	-	42.64	4.00	0.00	42.64
19.95	-	-	-	42.61	4.00	0.00	42.61
20.00	-	-	-	42.58	4.00	0.00	42.58
20.05	-	-	-	42.55	4.00	0.00	42.55
20.10	-	-	-	42.52	4.00	0.00	42.52
20.15	-	-	-	42.49	4.00	0.00	42.49
20.20	-	-	-	42.46	4.00	0.00	42.46
20.25	-	-	-	42.43	4.00	0.00	42.43
20.30	-	-	-	42.40	4.00	0.00	42.40
20.35	-	-	-	42.37	4.00	0.00	42.37
20.40	-	-	-	42.34	4.00	0.00	42.34
20.45	-	-	-	42.31	4.00	0.00	42.31
20.50	-	-	-	42.28	4.00	0.00	42.28
20.55	-	-	-	42.25	4.00	0.00	42.25
20.60	-	-	-	42.22	4.00	0.00	42.22
20.65	-	-	-	42.19	4.00	0.00	42.19
20.70	-	-	-	42.16	4.00	0.00	42.16
20.75	-	-	-	42.13	4.00	0.00	42.13
20.80	-	-	-	42.10	4.00	0.00	42.10
20.85	-	-	-	42.08	4.00	0.00	42.08
20.90	-	-	-	42.05	4.00	0.00	42.05
20.95	-	-	-	42.02	4.00	0.00	42.02
21.00	-	-	-	41.99	4.00	0.00	41.99
21.05	-	-	-	43.16	8.85	0.00	43.16
21.10	-	-	-	45.75	13.70	0.00	45.75
21.15	-	-	-	48.17	18.55	0.00	48.17
21.20	-	-	-	50.30	23.40	0.00	50.30
21.25	-	-	-	52.29	28.25	0.00	52.29
21.30	-	-	-	54.25	33.10	0.00	54.25
21.35	-	-	-	55.14	37.95	0.00	55.14
21.40	-	-	-	55.11	42.80	0.00	55.11
21.45	-	-	-	55.08	47.65	0.00	55.08
21.50	-	-	-	55.04	52.50	0.00	55.04
21.55	-	-	-	55.01	57.35	0.00	55.01
21.60	-	-	-	54.97	62.20	0.00	54.97
21.65	-	-	-	54.94	67.05	0.00	54.94
21.70	-	-	-	54.91	71.90	0.00	54.91
21.75	-	-	-	54.87	76.75	0.00	54.87
21.80	-	-	-	54.84	81.60	0.00	54.84
21.85	-	-	-	54.80	86.45	0.00	54.80
21.90	-	-	-	54.77	91.30	0.00	54.77
21.95	-	-	-	54.74	96.15	0.00	54.74
22.00	-	-	-	54.70	NoLiq	0.00	54.70
22.05	-	-	-	54.67	NoLiq	0.00	54.67
22.10	-	-	-	54.64	NoLiq	0.00	54.64
22.15	-	-	-	54.60	NoLiq	0.00	54.60

22.20	-	-	-	54.57	NoLiq	0.00	54.57
22.25	-	-	-	54.54	NoLiq	0.00	54.54
22.30	-	-	-	54.50	NoLiq	0.00	54.50
22.35	-	-	-	54.47	NoLiq	0.00	54.47
22.40	-	-	-	54.44	NoLiq	0.00	54.44
22.45	-	-	-	54.41	NoLiq	0.00	54.41
22.50	-	-	-	54.37	NoLiq	0.00	54.37
22.55	-	-	-	54.34	NoLiq	0.00	54.34
22.60	-	-	-	54.31	NoLiq	0.00	54.31
22.65	-	-	-	54.28	NoLiq	0.00	54.28
22.70	-	-	-	54.24	NoLiq	0.00	54.24
22.75	-	-	-	54.21	NoLiq	0.00	54.21
22.80	-	-	-	54.18	NoLiq	0.00	54.18
22.85	-	-	-	54.15	NoLiq	0.00	54.15
22.90	-	-	-	54.11	NoLiq	0.00	54.11
22.95	-	-	-	54.08	NoLiq	0.00	54.08
23.00	-	-	-	54.05	NoLiq	0.00	54.05
23.05	-	-	-	54.02	NoLiq	0.00	54.02
23.10	-	-	-	53.99	NoLiq	0.00	53.99
23.15	-	-	-	53.95	NoLiq	0.00	53.95
23.20	-	-	-	53.92	NoLiq	0.00	53.92
23.25	-	-	-	53.89	NoLiq	0.00	53.89
23.30	-	-	-	53.86	NoLiq	0.00	53.86
23.35	-	-	-	53.83	NoLiq	0.00	53.83
23.40	-	-	-	53.79	NoLiq	0.00	53.79
23.45	-	-	-	53.76	NoLiq	0.00	53.76
23.50	-	-	-	53.73	NoLiq	0.00	53.73
23.55	-	-	-	53.70	NoLiq	0.00	53.70
23.60	-	-	-	53.67	NoLiq	0.00	53.67
23.65	-	-	-	53.64	NoLiq	0.00	53.64
23.70	-	-	-	53.61	NoLiq	0.00	53.61
23.75	-	-	-	53.57	NoLiq	0.00	53.57
23.80	-	-	-	53.54	NoLiq	0.00	53.54
23.85	-	-	-	53.51	NoLiq	0.00	53.51
23.90	-	-	-	53.48	NoLiq	0.00	53.48
23.95	-	-	-	53.45	NoLiq	0.00	53.45
24.00	-	-	-	53.42	NoLiq	0.00	53.42
24.05	-	-	-	53.39	NoLiq	0.00	53.39
24.10	-	-	-	53.36	NoLiq	0.00	53.36
24.15	-	-	-	53.33	NoLiq	0.00	53.33
24.20	-	-	-	53.30	NoLiq	0.00	53.30
24.25	-	-	-	53.27	NoLiq	0.00	53.27
24.30	-	-	-	53.24	NoLiq	0.00	53.24
24.35	-	-	-	53.20	NoLiq	0.00	53.20
24.40	-	-	-	53.17	NoLiq	0.00	53.17
24.45	-	-	-	53.14	NoLiq	0.00	53.14
24.50	-	-	-	53.11	NoLiq	0.00	53.11
24.55	-	-	-	53.08	NoLiq	0.00	53.08
24.60	-	-	-	53.05	NoLiq	0.00	53.05
24.65	-	-	-	53.02	NoLiq	0.00	53.02
24.70	-	-	-	52.99	NoLiq	0.00	52.99
24.75	-	-	-	52.96	NoLiq	0.00	52.96
24.80	-	-	-	52.93	NoLiq	0.00	52.93
24.85	-	-	-	52.90	NoLiq	0.00	52.90
24.90	-	-	-	52.87	NoLiq	0.00	52.87
24.95	-	-	-	52.84	NoLiq	0.00	52.84
25.00	-	-	-	52.81	NoLiq	0.00	52.81

(N1)60s has been fines corrected in liquefaction analysis, therefore d(N1)60=0.
Fines=NoLiq means the soils are not liquefiable.

Settlement of Saturated Sands:
Settlement Analysis Method: Tokimatsu, M-correction

Depth ft	CSRsf	/ MSF*	=CSRm	F.S.	Fines %	(N1)60s	Dr %	ec %	dsz in.	dsp in.	S in.
24.95	0.71	1.39	0.51	5.00	NoLiq	52.84	100.00	0.000	0.0E0	0.000	0.000
24.90	0.71	1.39	0.51	5.00	NoLiq	52.87	100.00	0.000	0.0E0	0.000	0.000
24.85	0.71	1.39	0.51	5.00	NoLiq	52.90	100.00	0.000	0.0E0	0.000	0.000
24.80	0.71	1.39	0.51	5.00	NoLiq	52.93	100.00	0.000	0.0E0	0.000	0.000
24.75	0.71	1.39	0.51	5.00	NoLiq	52.96	100.00	0.000	0.0E0	0.000	0.000
24.70	0.71	1.39	0.51	5.00	NoLiq	52.99	100.00	0.000	0.0E0	0.000	0.000

24.65	0.71	1.39	0.51	5.00	NoLiq	53.02	100.00	0.000	0.0E0	0.000	0.000
24.60	0.71	1.39	0.51	5.00	NoLiq	53.05	100.00	0.000	0.0E0	0.000	0.000
24.55	0.71	1.39	0.51	5.00	NoLiq	53.08	100.00	0.000	0.0E0	0.000	0.000
24.50	0.71	1.39	0.51	5.00	NoLiq	53.11	100.00	0.000	0.0E0	0.000	0.000
24.45	0.71	1.39	0.51	5.00	NoLiq	53.14	100.00	0.000	0.0E0	0.000	0.000
24.40	0.71	1.39	0.51	5.00	NoLiq	53.17	100.00	0.000	0.0E0	0.000	0.000
24.35	0.71	1.39	0.51	5.00	NoLiq	53.20	100.00	0.000	0.0E0	0.000	0.000
24.30	0.71	1.39	0.51	5.00	NoLiq	53.24	100.00	0.000	0.0E0	0.000	0.000
24.25	0.71	1.39	0.51	5.00	NoLiq	53.27	100.00	0.000	0.0E0	0.000	0.000
24.20	0.70	1.39	0.51	5.00	NoLiq	53.30	100.00	0.000	0.0E0	0.000	0.000
24.15	0.70	1.39	0.51	5.00	NoLiq	53.33	100.00	0.000	0.0E0	0.000	0.000
24.10	0.70	1.39	0.51	5.00	NoLiq	53.36	100.00	0.000	0.0E0	0.000	0.000
24.05	0.70	1.39	0.51	5.00	NoLiq	53.39	100.00	0.000	0.0E0	0.000	0.000
24.00	0.70	1.39	0.51	5.00	NoLiq	53.42	100.00	0.000	0.0E0	0.000	0.000
23.95	0.70	1.39	0.51	5.00	NoLiq	53.45	100.00	0.000	0.0E0	0.000	0.000
23.90	0.70	1.39	0.51	5.00	NoLiq	53.48	100.00	0.000	0.0E0	0.000	0.000
23.85	0.70	1.39	0.51	5.00	NoLiq	53.51	100.00	0.000	0.0E0	0.000	0.000
23.80	0.70	1.39	0.51	5.00	NoLiq	53.54	100.00	0.000	0.0E0	0.000	0.000
23.75	0.70	1.39	0.51	5.00	NoLiq	53.57	100.00	0.000	0.0E0	0.000	0.000
23.70	0.70	1.39	0.51	5.00	NoLiq	53.61	100.00	0.000	0.0E0	0.000	0.000
23.65	0.70	1.39	0.51	5.00	NoLiq	53.64	100.00	0.000	0.0E0	0.000	0.000
23.60	0.70	1.39	0.51	5.00	NoLiq	53.67	100.00	0.000	0.0E0	0.000	0.000
23.55	0.70	1.39	0.51	5.00	NoLiq	53.70	100.00	0.000	0.0E0	0.000	0.000
23.50	0.70	1.39	0.51	5.00	NoLiq	53.73	100.00	0.000	0.0E0	0.000	0.000
23.45	0.70	1.39	0.51	5.00	NoLiq	53.76	100.00	0.000	0.0E0	0.000	0.000
23.40	0.70	1.39	0.51	5.00	NoLiq	53.79	100.00	0.000	0.0E0	0.000	0.000
23.35	0.70	1.39	0.51	5.00	NoLiq	53.83	100.00	0.000	0.0E0	0.000	0.000
23.30	0.70	1.39	0.51	5.00	NoLiq	53.86	100.00	0.000	0.0E0	0.000	0.000
23.25	0.70	1.39	0.51	5.00	NoLiq	53.89	100.00	0.000	0.0E0	0.000	0.000
23.20	0.70	1.39	0.51	5.00	NoLiq	53.92	100.00	0.000	0.0E0	0.000	0.000
23.15	0.70	1.39	0.51	5.00	NoLiq	53.95	100.00	0.000	0.0E0	0.000	0.000
23.10	0.70	1.39	0.51	5.00	NoLiq	53.99	100.00	0.000	0.0E0	0.000	0.000
23.05	0.70	1.39	0.51	5.00	NoLiq	54.02	100.00	0.000	0.0E0	0.000	0.000
23.00	0.70	1.39	0.51	5.00	NoLiq	54.05	100.00	0.000	0.0E0	0.000	0.000
22.95	0.70	1.39	0.51	5.00	NoLiq	54.08	100.00	0.000	0.0E0	0.000	0.000
22.90	0.70	1.39	0.51	5.00	NoLiq	54.11	100.00	0.000	0.0E0	0.000	0.000
22.85	0.70	1.39	0.51	5.00	NoLiq	54.15	100.00	0.000	0.0E0	0.000	0.000
22.80	0.70	1.39	0.51	5.00	NoLiq	54.18	100.00	0.000	0.0E0	0.000	0.000
22.75	0.70	1.39	0.51	5.00	NoLiq	54.21	100.00	0.000	0.0E0	0.000	0.000
22.70	0.70	1.39	0.51	5.00	NoLiq	54.24	100.00	0.000	0.0E0	0.000	0.000
22.65	0.70	1.39	0.51	5.00	NoLiq	54.28	100.00	0.000	0.0E0	0.000	0.000
22.60	0.70	1.39	0.51	5.00	NoLiq	54.31	100.00	0.000	0.0E0	0.000	0.000
22.55	0.70	1.39	0.51	5.00	NoLiq	54.34	100.00	0.000	0.0E0	0.000	0.000
22.50	0.70	1.39	0.51	5.00	NoLiq	54.37	100.00	0.000	0.0E0	0.000	0.000
22.45	0.70	1.39	0.51	5.00	NoLiq	54.41	100.00	0.000	0.0E0	0.000	0.000
22.40	0.70	1.39	0.51	5.00	NoLiq	54.44	100.00	0.000	0.0E0	0.000	0.000
22.35	0.70	1.39	0.50	5.00	NoLiq	54.47	100.00	0.000	0.0E0	0.000	0.000
22.30	0.70	1.39	0.50	5.00	NoLiq	54.50	100.00	0.000	0.0E0	0.000	0.000
22.25	0.70	1.39	0.50	5.00	NoLiq	54.54	100.00	0.000	0.0E0	0.000	0.000
22.20	0.70	1.39	0.50	5.00	NoLiq	54.57	100.00	0.000	0.0E0	0.000	0.000
22.15	0.70	1.39	0.50	5.00	NoLiq	54.60	100.00	0.000	0.0E0	0.000	0.000
22.10	0.70	1.39	0.50	5.00	NoLiq	54.64	100.00	0.000	0.0E0	0.000	0.000
22.05	0.70	1.39	0.50	5.00	NoLiq	54.67	100.00	0.000	0.0E0	0.000	0.000
22.00	0.70	1.39	0.50	0.99	NoLiq	54.70	100.00	0.000	0.0E0	0.000	0.000
21.95	0.70	1.39	0.50	0.99	96.15	54.74	100.00	0.000	0.0E0	0.000	0.000
21.90	0.70	1.39	0.50	0.99	91.30	54.77	100.00	0.000	0.0E0	0.000	0.000
21.85	0.70	1.39	0.50	0.99	86.45	54.80	100.00	0.000	0.0E0	0.000	0.000
21.80	0.70	1.39	0.50	0.99	81.60	54.84	100.00	0.000	0.0E0	0.000	0.000
21.75	0.70	1.39	0.50	0.99	76.75	54.87	100.00	0.000	0.0E0	0.000	0.000
21.70	0.70	1.39	0.50	0.99	71.90	54.91	100.00	0.000	0.0E0	0.000	0.000
21.65	0.70	1.39	0.50	0.99	67.05	54.94	100.00	0.000	0.0E0	0.000	0.000
21.60	0.70	1.39	0.50	0.99	62.20	54.97	100.00	0.000	0.0E0	0.000	0.000
21.55	0.70	1.39	0.50	0.99	57.35	55.01	100.00	0.000	0.0E0	0.000	0.000
21.50	0.70	1.39	0.50	0.99	52.50	55.04	100.00	0.000	0.0E0	0.000	0.000
21.45	0.70	1.39	0.50	0.99	47.65	55.08	100.00	0.000	0.0E0	0.000	0.000
21.40	0.70	1.39	0.50	0.99	42.80	55.11	100.00	0.000	0.0E0	0.000	0.000
21.35	0.70	1.39	0.50	0.99	37.95	55.14	100.00	0.000	0.0E0	0.000	0.000
21.30	0.70	1.39	0.50	1.00	33.10	54.25	100.00	0.000	0.0E0	0.000	0.000
21.25	0.70	1.39	0.50	1.00	28.25	52.29	100.00	0.000	0.0E0	0.000	0.000
21.20	0.70	1.39	0.50	1.00	23.40	50.30	100.00	0.000	0.0E0	0.000	0.000
21.15	0.70	1.39	0.50	1.00	18.55	48.17	100.00	0.000	0.0E0	0.000	0.000
21.10	0.70	1.39	0.50	1.00	13.70	45.75	100.00	0.000	0.0E0	0.000	0.000
21.05	0.70	1.39	0.50	1.00	8.85	43.16	100.00	0.000	0.0E0	0.000	0.000

21.00	0.70	1.39	0.50	1.00	4.00	41.99	100.00	0.000	0.0E0	0.000	0.000
20.95	0.70	1.39	0.50	1.00	4.00	42.02	100.00	0.000	0.0E0	0.000	0.000
20.90	0.70	1.39	0.50	1.00	4.00	42.05	100.00	0.000	0.0E0	0.000	0.000
20.85	0.70	1.39	0.50	1.00	4.00	42.08	100.00	0.000	0.0E0	0.000	0.000
20.80	0.69	1.39	0.50	1.00	4.00	42.10	100.00	0.000	0.0E0	0.000	0.000
20.75	0.69	1.39	0.50	1.00	4.00	42.13	100.00	0.000	0.0E0	0.000	0.000
20.70	0.69	1.39	0.50	1.00	4.00	42.16	100.00	0.000	0.0E0	0.000	0.000
20.65	0.69	1.39	0.50	1.00	4.00	42.19	100.00	0.000	0.0E0	0.000	0.000
20.60	0.69	1.39	0.50	1.00	4.00	42.22	100.00	0.000	0.0E0	0.000	0.000
20.55	0.69	1.39	0.50	1.00	4.00	42.25	100.00	0.000	0.0E0	0.000	0.000
20.50	0.69	1.39	0.50	1.00	4.00	42.28	100.00	0.000	0.0E0	0.000	0.000
20.45	0.69	1.39	0.50	1.00	4.00	42.31	100.00	0.000	0.0E0	0.000	0.000
20.40	0.69	1.39	0.50	1.00	4.00	42.34	100.00	0.000	0.0E0	0.000	0.000
20.35	0.69	1.39	0.50	1.00	4.00	42.37	100.00	0.000	0.0E0	0.000	0.000
20.30	0.69	1.39	0.50	1.00	4.00	42.40	100.00	0.000	0.0E0	0.000	0.000
20.25	0.69	1.39	0.50	1.00	4.00	42.43	100.00	0.000	0.0E0	0.000	0.000
20.20	0.69	1.39	0.50	1.00	4.00	42.46	100.00	0.000	0.0E0	0.000	0.000
20.15	0.69	1.39	0.50	1.00	4.00	42.49	100.00	0.000	0.0E0	0.000	0.000
20.10	0.69	1.39	0.50	1.00	4.00	42.52	100.00	0.000	0.0E0	0.000	0.000
20.05	0.69	1.39	0.50	1.00	4.00	42.55	100.00	0.000	0.0E0	0.000	0.000
20.00	0.69	1.39	0.50	1.00	4.00	42.58	100.00	0.000	0.0E0	0.000	0.000
19.95	0.69	1.39	0.50	1.00	4.00	42.61	100.00	0.000	0.0E0	0.000	0.000
19.90	0.69	1.39	0.50	1.00	4.00	42.64	100.00	0.000	0.0E0	0.000	0.000
19.85	0.69	1.39	0.50	1.00	4.00	42.67	100.00	0.000	0.0E0	0.000	0.000
19.80	0.69	1.39	0.50	1.00	4.00	42.70	100.00	0.000	0.0E0	0.000	0.000
19.75	0.69	1.39	0.50	1.00	4.00	42.73	100.00	0.000	0.0E0	0.000	0.000
19.70	0.69	1.39	0.50	1.00	4.00	42.76	100.00	0.000	0.0E0	0.000	0.000
19.65	0.69	1.39	0.50	1.00	4.00	42.79	100.00	0.000	0.0E0	0.000	0.000
19.60	0.69	1.39	0.50	1.00	4.00	42.82	100.00	0.000	0.0E0	0.000	0.000
19.55	0.69	1.39	0.50	1.00	4.00	42.86	100.00	0.000	0.0E0	0.000	0.000
19.50	0.69	1.39	0.50	1.01	4.00	42.89	100.00	0.000	0.0E0	0.000	0.000
19.45	0.69	1.39	0.50	1.01	4.00	42.92	100.00	0.000	0.0E0	0.000	0.000
19.40	0.69	1.39	0.50	1.01	4.00	42.95	100.00	0.000	0.0E0	0.000	0.000
19.35	0.69	1.39	0.50	1.01	4.00	42.98	100.00	0.000	0.0E0	0.000	0.000
19.30	0.69	1.39	0.50	1.01	4.00	43.01	100.00	0.000	0.0E0	0.000	0.000
19.25	0.69	1.39	0.50	1.01	4.00	43.04	100.00	0.000	0.0E0	0.000	0.000
19.20	0.69	1.39	0.50	1.01	4.00	43.07	100.00	0.000	0.0E0	0.000	0.000
19.15	0.69	1.39	0.50	1.01	4.00	43.10	100.00	0.000	0.0E0	0.000	0.000
19.10	0.69	1.39	0.50	1.01	4.00	43.14	100.00	0.000	0.0E0	0.000	0.000
19.05	0.69	1.39	0.50	1.01	4.00	43.17	100.00	0.000	0.0E0	0.000	0.000
19.00	0.69	1.39	0.50	1.01	4.00	43.23	100.00	0.000	0.0E0	0.000	0.000
18.95	0.69	1.39	0.50	1.01	4.00	43.29	100.00	0.000	0.0E0	0.000	0.000
18.90	0.69	1.39	0.50	1.01	4.00	43.35	100.00	0.000	0.0E0	0.000	0.000
18.85	0.69	1.39	0.50	1.01	4.00	43.41	100.00	0.000	0.0E0	0.000	0.000
18.80	0.69	1.39	0.50	1.01	4.00	43.47	100.00	0.000	0.0E0	0.000	0.000
18.75	0.69	1.39	0.49	1.01	4.00	43.53	100.00	0.000	0.0E0	0.000	0.000
18.70	0.69	1.39	0.49	1.01	4.00	43.59	100.00	0.000	0.0E0	0.000	0.000
18.65	0.69	1.39	0.49	1.01	4.00	43.66	100.00	0.000	0.0E0	0.000	0.000
18.60	0.69	1.39	0.49	1.01	4.00	43.72	100.00	0.000	0.0E0	0.000	0.000
18.55	0.69	1.39	0.49	1.01	4.00	43.78	100.00	0.000	0.0E0	0.000	0.000
18.50	0.69	1.39	0.49	1.01	4.00	43.84	100.00	0.000	0.0E0	0.000	0.000
18.45	0.68	1.39	0.49	1.01	4.00	43.91	100.00	0.000	0.0E0	0.000	0.000
18.40	0.68	1.39	0.49	1.01	4.00	43.97	100.00	0.000	0.0E0	0.000	0.000
18.35	0.68	1.39	0.49	1.01	4.00	44.03	100.00	0.000	0.0E0	0.000	0.000
18.30	0.68	1.39	0.49	1.01	4.00	44.10	100.00	0.000	0.0E0	0.000	0.000
18.25	0.68	1.39	0.49	1.01	4.00	44.16	100.00	0.000	0.0E0	0.000	0.000
18.20	0.68	1.39	0.49	1.01	4.00	44.23	100.00	0.000	0.0E0	0.000	0.000
18.15	0.68	1.39	0.49	1.01	4.00	44.29	100.00	0.000	0.0E0	0.000	0.000
18.10	0.68	1.39	0.49	1.02	4.00	44.36	100.00	0.000	0.0E0	0.000	0.000
18.05	0.68	1.39	0.49	1.02	4.00	44.42	100.00	0.000	0.0E0	0.000	0.000
18.00	0.68	1.39	0.49	1.02	4.00	44.49	100.00	0.000	0.0E0	0.000	0.000
17.95	0.68	1.39	0.49	1.02	4.00	44.55	100.00	0.000	0.0E0	0.000	0.000
17.90	0.68	1.39	0.49	1.02	4.00	44.62	100.00	0.000	0.0E0	0.000	0.000
17.85	0.68	1.39	0.49	1.02	4.00	44.69	100.00	0.000	0.0E0	0.000	0.000
17.80	0.68	1.39	0.49	1.02	4.00	44.75	100.00	0.000	0.0E0	0.000	0.000
17.75	0.68	1.39	0.49	1.02	4.00	44.82	100.00	0.000	0.0E0	0.000	0.000
17.70	0.68	1.39	0.49	1.02	4.00	44.89	100.00	0.000	0.0E0	0.000	0.000
17.65	0.68	1.39	0.49	1.02	4.00	44.96	100.00	0.000	0.0E0	0.000	0.000
17.60	0.68	1.39	0.49	1.02	4.00	45.03	100.00	0.000	0.0E0	0.000	0.000
17.55	0.68	1.39	0.49	1.02	4.00	45.09	100.00	0.000	0.0E0	0.000	0.000
17.50	0.68	1.39	0.49	1.02	4.00	45.16	100.00	0.000	0.0E0	0.000	0.000
17.45	0.68	1.39	0.49	1.02	4.00	45.23	100.00	0.000	0.0E0	0.000	0.000
17.40	0.68	1.39	0.49	1.02	4.00	45.30	100.00	0.000	0.0E0	0.000	0.000

17.35	0.68	1.39	0.49	1.02	4.00	45.37	100.00	0.000	0.0E0	0.000	0.000
17.30	0.68	1.39	0.49	1.02	4.00	45.44	100.00	0.000	0.0E0	0.000	0.000
17.25	0.68	1.39	0.49	1.02	4.00	45.51	100.00	0.000	0.0E0	0.000	0.000
17.20	0.68	1.39	0.49	1.02	4.00	45.58	100.00	0.000	0.0E0	0.000	0.000
17.15	0.68	1.39	0.49	1.02	4.00	45.65	100.00	0.000	0.0E0	0.000	0.000
17.10	0.68	1.39	0.49	1.02	4.00	45.72	100.00	0.000	0.0E0	0.000	0.000
17.05	0.68	1.39	0.49	1.02	4.00	45.80	100.00	0.000	0.0E0	0.000	0.000
17.00	0.68	1.39	0.49	1.02	4.00	45.87	100.00	0.000	0.0E0	0.000	0.000
16.95	0.68	1.39	0.49	1.02	4.30	45.21	100.00	0.000	0.0E0	0.000	0.000
16.90	0.68	1.39	0.49	1.03	4.60	44.56	100.00	0.000	0.0E0	0.000	0.000
16.85	0.68	1.39	0.49	1.03	4.90	43.90	100.00	0.000	0.0E0	0.000	0.000
16.80	0.68	1.39	0.49	1.03	5.20	43.33	100.00	0.000	0.0E0	0.000	0.000
16.75	0.68	1.39	0.49	1.03	5.50	42.72	100.00	0.000	0.0E0	0.000	0.000
16.70	0.67	1.39	0.49	1.03	5.80	42.11	100.00	0.000	0.0E0	0.000	0.000
16.65	0.67	1.39	0.49	1.03	6.10	41.50	100.00	0.000	0.0E0	0.000	0.000
16.60	0.67	1.39	0.49	1.03	6.40	40.89	100.00	0.000	0.0E0	0.000	0.000
16.55	0.67	1.39	0.49	1.03	6.70	40.29	100.00	0.000	0.0E0	0.000	0.000
16.50	0.67	1.39	0.49	1.03	7.00	39.70	100.00	0.000	0.0E0	0.000	0.000
16.45	0.67	1.39	0.49	1.03	7.30	39.11	100.00	0.000	0.0E0	0.000	0.000
16.40	0.67	1.39	0.49	1.03	7.60	38.53	100.00	0.000	0.0E0	0.000	0.000
16.35	0.67	1.39	0.49	1.03	7.90	37.95	100.00	0.000	0.0E0	0.000	0.000
16.30	0.67	1.39	0.48	1.03	8.20	37.38	100.00	0.000	0.0E0	0.000	0.000
16.25	0.67	1.39	0.48	1.03	8.50	36.81	100.00	0.000	0.0E0	0.000	0.000
16.20	0.67	1.39	0.48	1.03	8.80	36.24	100.00	0.000	0.0E0	0.000	0.000
16.15	0.67	1.39	0.48	1.03	9.10	35.67	100.00	0.118	7.1E-4	0.001	0.001
16.10	0.67	1.39	0.48	1.03	9.40	35.11	100.00	0.137	8.2E-4	0.001	0.002
16.05	0.67	1.39	0.48	1.03	9.70	34.55	100.00	0.157	9.4E-4	0.001	0.002
16.00	0.67	1.39	0.48	1.03	10.00	33.98	99.84	0.177	1.1E-3	0.001	0.004
15.95	0.67	1.39	0.48	1.04	10.00	34.04	99.99	0.175	1.0E-3	0.001	0.005
15.90	0.67	1.39	0.48	1.04	10.00	34.09	100.00	0.173	1.0E-3	0.001	0.006
15.85	0.67	1.39	0.48	1.04	10.00	34.15	100.00	0.171	1.0E-3	0.001	0.007
15.80	0.67	1.39	0.48	1.04	10.00	34.20	100.00	0.169	1.0E-3	0.001	0.008
15.75	0.67	1.39	0.48	1.04	10.00	34.26	100.00	0.166	1.0E-3	0.001	0.009
15.70	0.67	1.39	0.48	1.04	10.00	34.31	100.00	0.164	9.9E-4	0.001	0.010
15.65	0.67	1.39	0.48	1.04	10.00	34.37	100.00	0.162	9.7E-4	0.001	0.011
15.60	0.67	1.39	0.48	1.04	10.00	34.43	100.00	0.160	9.6E-4	0.001	0.012
15.55	0.67	1.39	0.48	1.04	10.00	34.49	100.00	0.158	9.5E-4	0.001	0.013
15.50	0.67	1.39	0.48	1.04	10.00	34.54	100.00	0.155	9.3E-4	0.001	0.013
15.45	0.67	1.39	0.48	1.04	10.00	34.60	100.00	0.153	9.2E-4	0.001	0.014
15.40	0.67	1.39	0.48	1.04	10.00	34.66	100.00	0.151	9.0E-4	0.001	0.015
15.35	0.67	1.39	0.48	1.04	10.00	34.72	100.00	0.149	8.9E-4	0.001	0.016
15.30	0.66	1.39	0.48	1.04	10.00	34.78	100.00	0.146	8.8E-4	0.001	0.017
15.25	0.66	1.39	0.48	1.04	10.00	34.83	100.00	0.144	8.6E-4	0.001	0.018
15.20	0.66	1.39	0.48	1.04	10.00	34.89	100.00	0.141	8.5E-4	0.001	0.019
15.15	0.66	1.39	0.48	1.05	10.00	34.95	100.00	0.139	8.3E-4	0.001	0.020
15.10	0.66	1.39	0.48	1.05	10.00	35.01	100.00	0.137	8.2E-4	0.001	0.020
15.05	0.66	1.39	0.48	1.05	10.00	35.07	100.00	0.134	8.1E-4	0.001	0.021
15.00	0.66	1.39	0.48	1.05	10.00	35.13	100.00	0.132	7.9E-4	0.001	0.022
14.95	0.66	1.39	0.48	1.05	10.00	35.00	100.00	0.137	8.2E-4	0.001	0.023
14.90	0.66	1.39	0.48	1.05	10.00	34.86	100.00	0.141	8.5E-4	0.001	0.024
14.85	0.66	1.39	0.48	1.05	10.00	34.72	100.00	0.146	8.8E-4	0.001	0.025
14.80	0.66	1.39	0.48	1.05	10.00	34.58	100.00	0.151	9.1E-4	0.001	0.025
14.75	0.66	1.39	0.48	1.05	10.00	30.91	92.15	0.622	3.7E-3	0.004	0.029
14.70	0.66	1.39	0.48	1.05	10.00	30.79	91.86	0.637	3.8E-3	0.004	0.033
14.65	0.66	1.39	0.48	1.05	10.00	30.66	91.57	0.652	3.9E-3	0.004	0.037
14.60	0.66	1.39	0.47	1.05	10.00	30.54	91.28	0.667	4.0E-3	0.004	0.041
14.55	0.66	1.39	0.47	1.05	10.00	30.41	90.99	0.682	4.1E-3	0.004	0.045
14.50	0.66	1.39	0.47	1.05	10.00	30.28	90.70	0.698	4.2E-3	0.004	0.049
14.45	0.66	1.39	0.47	1.05	10.00	30.16	90.41	0.713	4.3E-3	0.004	0.053
14.40	0.66	1.39	0.47	0.98	10.00	30.03	90.13	0.728	4.4E-3	0.004	0.058
14.35	0.66	1.39	0.47	0.93	10.00	29.90	89.84	0.744	4.5E-3	0.004	0.062
14.30	0.66	1.39	0.47	0.90	10.00	29.78	89.55	0.759	4.6E-3	0.005	0.067
14.25	0.66	1.39	0.47	0.87	10.00	29.65	89.27	0.774	4.6E-3	0.005	0.072
14.20	0.65	1.39	0.47	0.85	10.00	29.52	88.98	0.790	4.7E-3	0.005	0.076
14.15	0.65	1.39	0.47	0.83	10.00	29.39	88.70	0.806	4.8E-3	0.005	0.081
14.10	0.65	1.39	0.47	0.82	10.00	29.26	88.42	0.821	4.9E-3	0.005	0.086
14.05	0.65	1.39	0.47	0.81	10.00	29.13	88.13	0.837	5.0E-3	0.005	0.091
14.00	0.65	1.39	0.47	0.80	10.00	29.00	87.85	0.853	5.1E-3	0.005	0.096
13.95	0.65	1.39	0.47	0.83	10.00	29.30	88.50	0.815	4.9E-3	0.005	0.101
13.90	0.65	1.39	0.47	0.87	10.00	29.60	89.17	0.778	4.7E-3	0.005	0.106
13.85	0.65	1.39	0.47	0.94	10.00	29.90	89.84	0.741	4.4E-3	0.004	0.110
13.80	0.65	1.39	0.47	1.06	10.00	30.21	90.52	0.703	4.2E-3	0.004	0.114
13.75	0.65	1.39	0.47	1.07	10.00	30.51	91.22	0.665	4.0E-3	0.004	0.118

13.70	0.65	1.39	0.47	1.07	10.00	30.81	91.92	0.627	3.8E-3	0.004	0.122
13.65	0.65	1.39	0.47	1.07	10.00	31.12	92.64	0.589	3.5E-3	0.004	0.126
13.60	0.65	1.39	0.47	1.07	10.00	31.43	93.37	0.550	3.3E-3	0.003	0.129
13.55	0.65	1.39	0.47	1.07	10.00	31.73	94.12	0.512	3.1E-3	0.003	0.132
13.50	0.65	1.39	0.47	1.07	10.00	32.04	94.87	0.449	2.7E-3	0.003	0.135
13.45	0.65	1.39	0.47	1.07	10.00	32.36	95.64	0.376	2.3E-3	0.002	0.137
13.40	0.65	1.39	0.47	1.07	10.00	32.67	96.42	0.302	1.8E-3	0.002	0.139
13.35	0.65	1.39	0.47	1.07	10.00	32.98	97.22	0.227	1.4E-3	0.001	0.140
13.30	0.65	1.39	0.47	1.07	10.00	33.29	98.03	0.192	1.2E-3	0.001	0.141
13.25	0.65	1.39	0.47	1.07	10.00	33.61	98.86	0.180	1.1E-3	0.001	0.142
13.20	0.64	1.39	0.46	1.08	10.00	33.93	99.70	0.167	1.0E-3	0.001	0.143
13.15	0.64	1.39	0.46	1.08	10.00	34.25	100.00	0.155	9.3E-4	0.001	0.144
13.10	0.64	1.39	0.46	1.08	10.00	34.57	100.00	0.142	8.5E-4	0.001	0.145
13.05	0.64	1.39	0.46	1.08	10.00	34.89	100.00	0.129	7.8E-4	0.001	0.146
13.00	0.64	1.39	0.46	1.08	10.00	35.21	100.00	0.116	7.0E-4	0.001	0.147
12.95	0.64	1.39	0.46	1.08	10.00	35.28	100.00	0.113	6.8E-4	0.001	0.147
12.90	0.64	1.39	0.46	1.08	10.00	35.35	100.00	0.110	6.6E-4	0.001	0.148
12.85	0.64	1.39	0.46	1.08	10.00	35.42	100.00	0.107	6.4E-4	0.001	0.149
12.80	0.64	1.39	0.46	1.08	10.00	35.49	100.00	0.104	6.2E-4	0.001	0.149
12.75	0.64	1.39	0.46	1.08	10.00	35.56	100.00	0.101	6.0E-4	0.001	0.150
12.70	0.64	1.39	0.46	1.09	10.00	35.63	100.00	0.000	0.0E0	0.000	0.150
12.65	0.64	1.39	0.46	1.09	10.00	35.70	100.00	0.000	0.0E0	0.000	0.150
12.60	0.64	1.39	0.46	1.09	10.00	35.77	100.00	0.000	0.0E0	0.000	0.150
12.55	0.64	1.39	0.46	1.09	10.00	35.84	100.00	0.000	0.0E0	0.000	0.150
12.50	0.64	1.39	0.46	1.09	10.00	35.91	100.00	0.000	0.0E0	0.000	0.150
12.45	0.64	1.39	0.46	1.09	10.00	35.99	100.00	0.000	0.0E0	0.000	0.150
12.40	0.63	1.39	0.46	1.09	10.00	36.06	100.00	0.000	0.0E0	0.000	0.150
12.35	0.63	1.39	0.46	1.09	10.00	36.14	100.00	0.000	0.0E0	0.000	0.150
12.30	0.63	1.39	0.46	1.09	10.00	36.21	100.00	0.000	0.0E0	0.000	0.150
12.25	0.63	1.39	0.46	1.10	10.00	36.28	100.00	0.000	0.0E0	0.000	0.150
12.20	0.63	1.39	0.46	1.10	10.00	36.36	100.00	0.000	0.0E0	0.000	0.150
12.15	0.63	1.39	0.46	1.10	10.00	36.44	100.00	0.000	0.0E0	0.000	0.150
12.10	0.63	1.39	0.45	1.10	10.00	36.51	100.00	0.000	0.0E0	0.000	0.150
12.05	0.63	1.39	0.45	1.10	10.00	36.59	100.00	0.000	0.0E0	0.000	0.150
12.00	0.63	1.39	0.45	1.10	10.00	36.67	100.00	0.000	0.0E0	0.000	0.150
11.95	0.63	1.39	0.45	1.10	10.00	36.35	100.00	0.000	0.0E0	0.000	0.150
11.90	0.63	1.39	0.45	1.10	10.00	36.02	100.00	0.000	0.0E0	0.000	0.150
11.85	0.63	1.39	0.45	1.11	10.00	35.70	100.00	0.000	0.0E0	0.000	0.150
11.80	0.63	1.39	0.45	1.11	10.00	35.38	100.00	0.000	0.0E0	0.000	0.150
11.75	0.63	1.39	0.45	1.11	10.00	35.05	100.00	0.111	6.6E-4	0.001	0.151
11.70	0.62	1.39	0.45	1.11	10.00	34.72	100.00	0.123	7.4E-4	0.001	0.151
11.65	0.62	1.39	0.45	1.11	10.00	34.40	100.00	0.136	8.2E-4	0.001	0.152
11.60	0.62	1.39	0.45	1.11	10.00	34.07	100.00	0.149	8.9E-4	0.001	0.153
11.55	0.62	1.39	0.45	1.11	10.00	33.73	99.18	0.162	9.7E-4	0.001	0.154
11.50	0.62	1.39	0.45	1.11	10.00	33.40	98.31	0.175	1.0E-3	0.001	0.155
11.45	0.62	1.39	0.45	1.12	10.00	33.07	97.45	0.188	1.1E-3	0.001	0.156
11.40	0.62	1.39	0.45	1.12	10.00	32.73	96.59	0.207	1.2E-3	0.001	0.157
11.35	0.62	1.39	0.45	1.12	10.00	32.40	95.75	0.290	1.7E-3	0.002	0.159
11.30	0.62	1.39	0.45	1.12	10.00	32.06	94.91	0.373	2.2E-3	0.002	0.161
11.25	0.62	1.39	0.45	1.12	10.00	31.72	94.08	0.458	2.7E-3	0.003	0.164
11.20	0.62	1.39	0.45	1.12	10.00	31.38	93.26	0.521	3.1E-3	0.003	0.167
11.15	0.62	1.39	0.44	1.12	10.00	31.04	92.45	0.564	3.4E-3	0.003	0.171
11.10	0.62	1.39	0.44	1.13	10.00	30.69	91.65	0.607	3.6E-3	0.004	0.174
11.05	0.62	1.39	0.44	1.13	10.00	30.35	90.85	0.650	3.9E-3	0.004	0.178
11.00	0.61	1.39	0.44	1.04	10.00	30.00	90.07	0.694	4.2E-3	0.004	0.182
10.95	0.61	1.39	0.44	1.02	9.75	29.96	89.96	0.699	4.2E-3	0.004	0.186
10.90	0.61	1.39	0.44	1.00	9.50	29.91	89.86	0.703	4.2E-3	0.004	0.191
10.85	0.61	1.39	0.44	0.99	9.25	29.87	89.77	0.707	4.2E-3	0.004	0.195
10.80	0.61	1.39	0.44	0.98	9.00	29.84	89.69	0.711	4.3E-3	0.004	0.199
10.75	0.61	1.39	0.44	0.97	8.75	29.81	89.62	0.714	4.3E-3	0.004	0.203
10.70	0.61	1.39	0.44	0.96	8.50	29.78	89.56	0.717	4.3E-3	0.004	0.208
10.65	0.61	1.39	0.44	0.96	8.25	29.76	89.51	0.718	4.3E-3	0.004	0.212
10.60	0.61	1.39	0.44	0.96	8.00	29.74	89.47	0.719	4.3E-3	0.004	0.216
10.55	0.61	1.39	0.44	0.96	7.75	29.73	89.45	0.720	4.3E-3	0.004	0.221
10.50	0.61	1.39	0.44	0.96	7.50	29.73	89.44	0.719	4.3E-3	0.004	0.225
10.45	0.61	1.39	0.44	0.96	7.25	29.73	89.45	0.718	4.3E-3	0.004	0.229
10.40	0.60	1.39	0.44	0.96	7.00	29.74	89.47	0.715	4.3E-3	0.004	0.234
10.35	0.60	1.39	0.44	0.97	6.75	29.75	89.50	0.712	4.3E-3	0.004	0.238
10.30	0.60	1.39	0.43	0.97	6.50	29.77	89.55	0.708	4.2E-3	0.004	0.242
10.25	0.60	1.39	0.43	0.98	6.25	29.80	89.61	0.703	4.2E-3	0.004	0.246
10.20	0.60	1.39	0.43	0.99	6.00	29.84	89.69	0.697	4.2E-3	0.004	0.251
10.15	0.60	1.39	0.43	1.01	5.75	29.87	89.77	0.691	4.1E-3	0.004	0.255
10.10	0.60	1.39	0.43	1.03	5.50	29.92	89.87	0.683	4.1E-3	0.004	0.259

10.05	0.60	1.39	0.43	1.05	5.25	29.96	89.98	0.676	4.1E-3	0.004	0.263
10.00	0.60	1.39	0.43	1.07	5.00	30.01	90.09	0.668	4.0E-3	0.004	0.267
9.95	0.60	1.39	0.43	1.16	5.00	30.34	90.83	0.622	3.7E-3	0.004	0.271
9.90	0.60	1.39	0.43	1.17	5.00	30.71	91.68	0.571	3.4E-3	0.003	0.274
9.85	0.59	1.39	0.43	1.17	5.00	31.08	92.55	0.520	3.1E-3	0.003	0.277
9.80	0.59	1.39	0.43	1.17	5.00	31.45	93.43	0.434	2.6E-3	0.003	0.280
9.75	0.59	1.39	0.43	1.17	5.00	31.82	94.33	0.327	2.0E-3	0.002	0.282
9.70	0.59	1.39	0.43	1.17	5.00	32.20	95.26	0.218	1.3E-3	0.001	0.283
9.65	0.59	1.39	0.43	1.17	5.00	32.58	96.20	0.186	1.1E-3	0.001	0.284
9.60	0.59	1.39	0.42	1.18	5.00	32.96	97.17	0.169	1.0E-3	0.001	0.285
9.55	0.59	1.39	0.42	1.18	5.00	33.34	98.15	0.151	9.1E-4	0.001	0.286
9.50	0.59	1.39	0.42	1.18	5.00	33.73	99.17	0.134	8.0E-4	0.001	0.287
9.45	0.59	1.39	0.42	1.18	5.00	34.12	100.00	0.116	7.0E-4	0.001	0.288
9.40	0.59	1.39	0.42	1.18	5.00	34.51	100.00	0.000	0.0E0	0.000	0.288
9.35	0.58	1.39	0.42	1.19	5.00	34.90	100.00	0.000	0.0E0	0.000	0.288
9.30	0.58	1.39	0.42	1.19	5.00	35.29	100.00	0.000	0.0E0	0.000	0.288
9.25	0.58	1.39	0.42	1.19	5.00	35.69	100.00	0.000	0.0E0	0.000	0.288
9.20	0.58	1.39	0.42	1.19	5.00	36.09	100.00	0.000	0.0E0	0.000	0.288
9.15	0.58	1.39	0.42	1.20	5.00	36.50	100.00	0.000	0.0E0	0.000	0.288
9.10	0.58	1.39	0.42	1.20	5.00	36.90	100.00	0.000	0.0E0	0.000	0.288
9.05	0.58	1.39	0.42	1.20	5.00	37.31	100.00	0.000	0.0E0	0.000	0.288
9.00	0.58	1.39	0.42	1.20	5.00	37.72	100.00	0.000	0.0E0	0.000	0.288
8.95	0.58	1.39	0.42	1.20	5.00	37.83	100.00	0.000	0.0E0	0.000	0.288
8.90	0.57	1.39	0.41	1.21	5.00	37.94	100.00	0.000	0.0E0	0.000	0.288
8.85	0.57	1.39	0.41	1.21	5.00	38.06	100.00	0.000	0.0E0	0.000	0.288
8.80	0.57	1.39	0.41	1.21	5.00	38.17	100.00	0.000	0.0E0	0.000	0.288
8.75	0.57	1.39	0.41	1.21	5.00	38.29	100.00	0.000	0.0E0	0.000	0.288
8.70	0.57	1.39	0.41	1.22	5.00	38.40	100.00	0.000	0.0E0	0.000	0.288
8.65	0.57	1.39	0.41	1.22	5.00	38.52	100.00	0.000	0.0E0	0.000	0.288
8.60	0.57	1.39	0.41	1.22	5.00	38.64	100.00	0.000	0.0E0	0.000	0.288
8.55	0.57	1.39	0.41	1.22	5.00	38.76	100.00	0.000	0.0E0	0.000	0.288
8.50	0.57	1.39	0.41	1.23	5.00	38.88	100.00	0.000	0.0E0	0.000	0.288
8.45	0.56	1.39	0.41	1.23	5.00	39.00	100.00	0.000	0.0E0	0.000	0.288
8.40	0.56	1.39	0.41	1.23	5.00	39.12	100.00	0.000	0.0E0	0.000	0.288
8.35	0.56	1.39	0.40	1.23	5.00	39.24	100.00	0.000	0.0E0	0.000	0.288
8.30	0.56	1.39	0.40	1.24	5.00	39.37	100.00	0.000	0.0E0	0.000	0.288
8.25	0.56	1.39	0.40	1.24	5.00	39.50	100.00	0.000	0.0E0	0.000	0.288
8.20	0.56	1.39	0.40	1.24	5.00	34.96	100.00	0.000	0.0E0	0.000	0.288
8.15	0.56	1.39	0.40	1.25	5.00	35.08	100.00	0.000	0.0E0	0.000	0.288
8.10	0.56	1.39	0.40	1.25	5.00	35.19	100.00	0.000	0.0E0	0.000	0.288
8.05	0.55	1.39	0.40	1.25	5.00	35.31	100.00	0.000	0.0E0	0.000	0.288
8.00	0.55	1.39	0.40	1.25	5.00	35.42	100.00	0.000	0.0E0	0.000	0.288
7.95	0.55	1.39	0.40	1.26	5.00	35.54	100.00	0.000	0.0E0	0.000	0.288
7.90	0.55	1.39	0.40	1.26	5.00	35.66	100.00	0.000	0.0E0	0.000	0.288
7.85	0.55	1.39	0.40	1.26	5.00	35.78	100.00	0.000	0.0E0	0.000	0.288
7.80	0.55	1.39	0.39	1.27	5.00	35.90	100.00	0.000	0.0E0	0.000	0.288
7.75	0.55	1.39	0.39	1.27	5.00	36.03	100.00	0.000	0.0E0	0.000	0.288
7.70	0.54	1.39	0.39	1.27	5.00	36.15	100.00	0.000	0.0E0	0.000	0.288
7.65	0.54	1.39	0.39	1.28	5.00	36.28	100.00	0.000	0.0E0	0.000	0.288
7.60	0.54	1.39	0.39	1.28	5.00	36.40	100.00	0.000	0.0E0	0.000	0.288
7.55	0.54	1.39	0.39	1.28	5.00	36.53	100.00	0.000	0.0E0	0.000	0.288
7.50	0.54	1.39	0.39	1.29	5.00	36.66	100.00	0.000	0.0E0	0.000	0.288
7.45	0.54	1.39	0.39	1.29	5.00	36.79	100.00	0.000	0.0E0	0.000	0.288
7.40	0.54	1.39	0.39	1.29	5.00	36.93	100.00	0.000	0.0E0	0.000	0.288
7.35	0.53	1.39	0.39	1.30	5.00	37.06	100.00	0.000	0.0E0	0.000	0.288
7.30	0.53	1.39	0.38	1.30	5.00	37.19	100.00	0.000	0.0E0	0.000	0.288
7.25	0.53	1.39	0.38	1.30	5.00	37.33	100.00	0.000	0.0E0	0.000	0.288
7.20	0.53	1.39	0.38	1.31	5.00	37.47	100.00	0.000	0.0E0	0.000	0.288
7.15	0.53	1.39	0.38	1.31	5.00	37.61	100.00	0.000	0.0E0	0.000	0.288
7.10	0.53	1.39	0.38	1.32	5.00	37.75	100.00	0.000	0.0E0	0.000	0.288
7.05	0.53	1.39	0.38	1.32	5.00	37.89	100.00	0.000	0.0E0	0.000	0.288
7.00	0.52	1.39	0.38	1.32	5.00	38.04	100.00	0.000	0.0E0	0.000	0.288
6.95	0.52	1.39	0.38	1.33	7.00	37.48	100.00	0.000	0.0E0	0.000	0.288
6.90	0.52	1.39	0.38	1.33	9.00	37.20	100.00	0.000	0.0E0	0.000	0.288
6.85	0.52	1.39	0.37	1.34	11.00	37.15	100.00	0.000	0.0E0	0.000	0.288
6.80	0.52	1.39	0.37	1.34	13.00	37.14	100.00	0.000	0.0E0	0.000	0.288
6.75	0.52	1.39	0.37	1.34	15.00	37.05	100.00	0.000	0.0E0	0.000	0.288
6.70	0.51	1.39	0.37	1.35	17.00	36.86	100.00	0.000	0.0E0	0.000	0.288
6.65	0.51	1.39	0.37	1.35	19.00	36.56	100.00	0.000	0.0E0	0.000	0.288
6.60	0.51	1.39	0.37	1.36	21.00	36.17	100.00	0.000	0.0E0	0.000	0.288
6.55	0.51	1.39	0.37	1.36	23.00	35.70	100.00	0.000	0.0E0	0.000	0.288
6.50	0.51	1.39	0.37	1.37	25.00	35.16	100.00	0.000	0.0E0	0.000	0.288
6.45	0.51	1.39	0.36	1.37	27.00	34.55	100.00	0.000	0.0E0	0.000	0.288

6.40	0.50	1.39	0.36	1.38	29.00	33.88	99.58	0.000	0.0E0	0.000	0.288
6.35	0.50	1.39	0.36	1.38	31.00	33.16	97.68	0.000	0.0E0	0.000	0.288
6.30	0.50	1.39	0.36	1.39	33.00	32.36	95.65	0.000	0.0E0	0.000	0.288
6.25	0.50	1.39	0.36	1.39	35.00	31.42	93.36	0.132	7.9E-4	0.001	0.288
6.20	0.50	1.39	0.36	1.33	37.00	30.06	90.20	0.188	1.1E-3	0.001	0.289
6.15	0.49	1.39	0.36	1.01	39.00	28.62	87.01	0.537	3.2E-3	0.003	0.293
6.10	0.49	1.39	0.36	0.91	41.00	27.17	84.00	0.826	5.0E-3	0.005	0.298
6.05	0.49	1.39	0.35	0.83	43.00	25.72	81.12	1.043	6.3E-3	0.006	0.304
6.00	0.49	1.39	0.35	0.77	45.00	24.28	78.35	1.148	6.9E-3	0.007	0.311
5.95	0.49	1.39	0.35	0.77	45.00	24.28	78.35	1.145	6.9E-3	0.007	0.318
5.90	0.48	1.39	0.35	0.78	45.00	24.28	78.35	1.143	6.9E-3	0.007	0.325
5.85	0.48	1.39	0.35	0.78	45.00	24.28	78.35	1.140	6.8E-3	0.007	0.331
5.80	0.48	1.39	0.35	0.78	45.00	24.28	78.35	1.138	6.8E-3	0.007	0.338
5.75	0.48	1.39	0.35	0.79	45.00	24.28	78.35	1.135	6.8E-3	0.007	0.345
5.70	0.48	1.39	0.34	0.79	45.00	24.28	78.35	1.133	6.8E-3	0.007	0.352
5.65	0.47	1.39	0.34	0.79	45.00	24.28	78.35	1.130	6.8E-3	0.007	0.359
5.60	0.47	1.39	0.34	0.80	45.00	24.28	78.35	1.127	6.8E-3	0.007	0.365
5.55	0.47	1.39	0.34	0.80	45.00	24.28	78.35	1.124	6.7E-3	0.007	0.372
5.50	0.47	1.39	0.34	0.80	45.00	24.28	78.35	1.121	6.7E-3	0.007	0.379
5.45	0.47	1.39	0.34	0.81	45.00	24.28	78.35	1.118	6.7E-3	0.007	0.386
5.40	0.46	1.39	0.33	0.81	45.00	24.28	78.35	1.114	6.7E-3	0.007	0.392
5.35	0.46	1.39	0.33	0.81	45.00	24.28	78.35	1.111	6.7E-3	0.007	0.399
5.30	0.46	1.39	0.33	0.82	45.00	24.28	78.35	1.107	6.6E-3	0.007	0.406
5.25	0.46	1.39	0.33	0.82	45.00	24.28	78.35	1.103	6.6E-3	0.007	0.412
5.20	0.46	1.39	0.33	0.83	45.00	24.28	78.35	1.100	6.6E-3	0.007	0.419
5.15	0.45	1.39	0.33	0.83	45.00	24.28	78.35	1.096	6.6E-3	0.007	0.425
5.10	0.45	1.39	0.32	0.84	45.00	24.28	78.35	1.091	6.5E-3	0.007	0.432
5.05	0.45	1.39	0.32	0.84	45.00	24.28	78.35	1.087	6.5E-3	0.007	0.438
5.00	0.45	1.39	0.32	0.84	45.00	24.28	78.35	1.083	6.5E-3	0.006	0.445

Settlement of Saturated Sands=0.445 in.
qc1 and (N1)60 is after fines correction in liquefaction analysis
dsz is per each segment, dz=0.05 ft
dsp is per each print interval, dp=0.05 ft
S is cumulated settlement at this depth

Settlement of Unsaturated Sands:

Depth	sigma'	sigC'	(N1)60s	CSRsf	Gmax	g*Ge/Gm	g_eff	ec7.5	Cec	ec	dsz	dsp	S
ft	atm	atm			atm			%		%	in.	in.	in.
4.95	0.27	0.18	24.28	0.45	543.25	2.2E-4	0.0480	0.0367	0.81	0.0296	3.55E-4	0.000	0.000
4.90	0.27	0.17	24.28	0.45	540.50	2.2E-4	0.0474	0.0363	0.81	0.0292	3.51E-4	0.000	0.001
4.85	0.27	0.17	24.28	0.45	537.74	2.2E-4	0.0468	0.0358	0.81	0.0288	3.46E-4	0.000	0.001
4.80	0.26	0.17	24.28	0.45	534.96	2.2E-4	0.0462	0.0353	0.81	0.0285	3.42E-4	0.000	0.001
4.75	0.26	0.17	24.28	0.45	532.16	2.2E-4	0.0456	0.0349	0.81	0.0281	3.37E-4	0.000	0.002
4.70	0.26	0.17	24.28	0.45	529.35	2.2E-4	0.0451	0.0345	0.81	0.0278	3.33E-4	0.000	0.002
4.65	0.25	0.17	24.28	0.45	526.53	2.2E-4	0.0445	0.0341	0.81	0.0275	3.29E-4	0.000	0.002
4.60	0.25	0.16	24.28	0.45	523.69	2.1E-4	0.0440	0.0337	0.81	0.0271	3.26E-4	0.000	0.003
4.55	0.25	0.16	24.28	0.45	520.84	2.1E-4	0.0435	0.0333	0.81	0.0268	3.22E-4	0.000	0.003
4.50	0.25	0.16	24.28	0.45	517.97	2.1E-4	0.0430	0.0329	0.81	0.0265	3.18E-4	0.000	0.003
4.45	0.24	0.16	24.28	0.45	515.08	2.1E-4	0.0426	0.0325	0.81	0.0262	3.15E-4	0.000	0.004
4.40	0.24	0.16	24.28	0.45	512.18	2.1E-4	0.0421	0.0322	0.81	0.0260	3.11E-4	0.000	0.004
4.35	0.24	0.15	24.28	0.45	509.26	2.1E-4	0.0417	0.0319	0.81	0.0257	3.08E-4	0.000	0.004
4.30	0.24	0.15	24.28	0.45	506.33	2.1E-4	0.0412	0.0315	0.81	0.0254	3.05E-4	0.000	0.005
4.25	0.23	0.15	24.28	0.45	503.38	2.1E-4	0.0408	0.0312	0.81	0.0252	3.02E-4		

0.000	0.005											
	4.20	0.23	0.15	24.28	0.45	500.41	2.1E-4	0.1024	0.0783	0.81	0.0631	7.57E-4
0.001	0.006											
	4.15	0.23	0.15	24.28	0.45	497.42	2.0E-4	0.0967	0.0740	0.81	0.0596	7.15E-4
0.001	0.006											
	4.10	0.22	0.15	24.28	0.45	494.41	2.0E-4	0.0915	0.0700	0.81	0.0564	6.77E-4
0.001	0.007											
	4.05	0.22	0.14	24.28	0.45	491.39	2.0E-4	0.0867	0.0663	0.81	0.0534	6.41E-4
0.001	0.008											
	4.00	0.22	0.14	24.28	0.45	488.35	2.0E-4	0.0823	0.0629	0.81	0.0507	6.09E-4
0.001	0.008											
	3.95	0.22	0.14	24.28	0.45	485.28	2.0E-4	0.0783	0.0598	0.81	0.0482	5.79E-4
0.001	0.009											
	3.90	0.21	0.14	24.28	0.45	482.20	2.0E-4	0.0745	0.0570	0.81	0.0459	5.51E-4
0.001	0.009											
	3.85	0.21	0.14	24.28	0.45	479.10	2.0E-4	0.0711	0.0543	0.81	0.0438	5.26E-4
0.001	0.010											
	3.80	0.21	0.14	24.28	0.45	475.98	2.0E-4	0.0679	0.0519	0.81	0.0418	5.02E-4
0.001	0.010											
	3.75	0.21	0.13	24.28	0.45	472.84	1.9E-4	0.0521	0.0398	0.81	0.0321	3.85E-4
0.000	0.011											
	3.70	0.20	0.13	24.28	0.45	469.68	1.9E-4	0.0511	0.0391	0.81	0.0315	3.78E-4
0.000	0.011											
	3.65	0.20	0.13	24.28	0.45	466.49	1.9E-4	0.0502	0.0384	0.81	0.0309	3.71E-4
0.000	0.012											
	3.60	0.20	0.13	24.28	0.45	463.29	1.9E-4	0.0493	0.0377	0.81	0.0304	3.65E-4
0.000	0.012											
	3.55	0.19	0.13	24.28	0.45	460.06	1.9E-4	0.0484	0.0370	0.81	0.0298	3.58E-4
0.000	0.012											
	3.50	0.19	0.12	24.28	0.45	456.81	1.9E-4	0.0475	0.0364	0.81	0.0293	3.52E-4
0.000	0.013											
	3.45	0.19	0.12	24.28	0.45	453.53	1.9E-4	0.0467	0.0357	0.81	0.0288	3.45E-4
0.000	0.013											
	3.40	0.19	0.12	24.28	0.45	450.23	1.9E-4	0.0458	0.0350	0.81	0.0282	3.39E-4
0.000	0.013											
	3.35	0.18	0.12	24.28	0.45	446.91	1.8E-4	0.0450	0.0344	0.81	0.0277	3.33E-4
0.000	0.014											
	3.30	0.18	0.12	24.28	0.45	443.56	1.8E-4	0.0442	0.0338	0.81	0.0272	3.27E-4
0.000	0.014											
	3.25	0.18	0.12	24.28	0.45	440.19	1.8E-4	0.0433	0.0331	0.81	0.0267	3.21E-4
0.000	0.014											
	3.20	0.18	0.11	24.28	0.45	436.79	1.8E-4	0.0425	0.0325	0.81	0.0262	3.15E-4
0.000	0.015											
	3.15	0.17	0.11	24.28	0.45	433.36	1.8E-4	0.0418	0.0319	0.81	0.0257	3.09E-4
0.000	0.015											
	3.10	0.17	0.11	24.28	0.45	429.91	1.8E-4	0.0410	0.0313	0.81	0.0253	3.03E-4
0.000	0.015											
	3.05	0.17	0.11	24.28	0.45	426.43	1.8E-4	0.0402	0.0308	0.81	0.0248	2.97E-4
0.000	0.016											
	3.00	0.16	0.11	24.28	0.45	422.92	1.7E-4	0.0395	0.0302	0.81	0.0243	2.92E-4
0.000	0.016											
	2.95	0.16	0.11	24.28	0.45	419.38	1.7E-4	0.0387	0.0296	0.81	0.0239	2.86E-4
0.000	0.016											
	2.90	0.16	0.10	24.28	0.45	415.81	1.7E-4	0.0380	0.0291	0.81	0.0234	2.81E-4
0.000	0.016											
	2.85	0.16	0.10	24.28	0.45	412.21	1.7E-4	0.0373	0.0285	0.81	0.0230	2.76E-4
0.000	0.017											
	2.80	0.15	0.10	24.28	0.45	408.58	1.7E-4	0.0366	0.0280	0.81	0.0225	2.71E-4
0.000	0.017											
	2.75	0.15	0.10	24.28	0.45	404.92	1.7E-4	0.0359	0.0274	0.81	0.0221	2.65E-4
0.000	0.017											
	2.70	0.15	0.10	24.28	0.45	401.22	1.7E-4	0.0352	0.0269	0.81	0.0217	2.60E-4
0.000	0.017											
	2.65	0.15	0.09	24.28	0.45	397.49	1.6E-4	0.0346	0.0264	0.81	0.0213	2.56E-4
0.000	0.018											
	2.60	0.14	0.09	24.28	0.45	393.72	1.6E-4	0.0339	0.0259	0.81	0.0209	2.51E-4
0.000	0.018											
	2.55	0.14	0.09	24.28	0.45	389.91	1.6E-4	0.0333	0.0254	0.81	0.0205	2.46E-4
0.000	0.018											
	2.50	0.14	0.09	24.28	0.45	386.07	1.6E-4	0.0326	0.0250	0.81	0.0201	2.41E-4
0.000	0.018											
	2.45	0.13	0.09	24.28	0.45	382.19	1.6E-4	0.0320	0.0245	0.81	0.0197	2.37E-4
0.000	0.019											

	2.40	0.13	0.09	24.28	0.45	378.27	1.6E-4	0.0314	0.0240	0.81	0.0194	2.32E-4
0.000	0.019											
	2.35	0.13	0.08	24.28	0.45	374.31	1.5E-4	0.0308	0.0236	0.81	0.0190	2.28E-4
0.000	0.019											
	2.30	0.13	0.08	24.28	0.45	370.31	1.5E-4	0.0303	0.0231	0.81	0.0186	2.24E-4
0.000	0.019											
	2.25	0.12	0.08	24.28	0.45	366.26	1.5E-4	0.0297	0.0227	0.81	0.0183	2.20E-4
0.000	0.020											
	2.20	0.12	0.08	24.28	0.45	362.17	1.5E-4	0.0291	0.0223	0.81	0.0180	2.16E-4
0.000	0.020											
	2.15	0.12	0.08	24.28	0.45	358.03	1.5E-4	0.0286	0.0219	0.81	0.0176	2.12E-4
0.000	0.020											
	2.10	0.12	0.07	24.28	0.45	353.84	1.5E-4	0.0281	0.0215	0.81	0.0173	2.08E-4
0.000	0.020											
	2.05	0.11	0.07	24.28	0.45	349.60	1.4E-4	0.0276	0.0211	0.81	0.0170	2.04E-4
0.000	0.020											
	2.00	0.11	0.07	24.28	0.45	345.31	1.4E-4	0.0271	0.0207	0.81	0.0167	2.00E-4
0.000	0.021											
	1.95	0.11	0.07	24.28	0.45	340.97	1.4E-4	0.0266	0.0203	0.81	0.0164	1.97E-4
0.000	0.021											
	1.90	0.10	0.07	24.28	0.45	336.57	1.4E-4	0.0261	0.0200	0.81	0.0161	1.93E-4
0.000	0.021											
	1.85	0.10	0.07	24.28	0.45	332.11	1.4E-4	0.0257	0.0196	0.81	0.0158	1.90E-4
0.000	0.021											
	1.80	0.10	0.06	24.28	0.45	327.59	1.4E-4	0.0252	0.0193	0.81	0.0155	1.86E-4
0.000	0.021											
	1.75	0.10	0.06	24.28	0.45	323.01	1.3E-4	0.0248	0.0190	0.81	0.0153	1.83E-4
0.000	0.022											
	1.70	0.09	0.06	24.28	0.45	318.36	1.3E-4	0.0244	0.0186	0.81	0.0150	1.80E-4
0.000	0.022											
	1.65	0.09	0.06	24.28	0.45	313.65	1.3E-4	0.0240	0.0183	0.81	0.0148	1.77E-4
0.000	0.022											
	1.60	0.09	0.06	24.28	0.45	308.86	1.3E-4	0.0236	0.0180	0.81	0.0145	1.75E-4
0.000	0.022											
	1.55	0.08	0.06	24.28	0.45	303.99	1.3E-4	0.0232	0.0178	0.81	0.0143	1.72E-4
0.000	0.022											
	1.50	0.08	0.05	24.28	0.45	299.05	1.2E-4	0.0229	0.0175	0.81	0.0141	1.69E-4
0.000	0.022											
	1.45	0.08	0.05	24.28	0.45	294.02	1.2E-4	0.0226	0.0173	0.81	0.0139	1.67E-4
0.000	0.023											
	1.40	0.08	0.05	24.28	0.45	288.91	1.2E-4	0.0256	0.0196	0.81	0.0158	1.89E-4
0.000	0.023											
	1.35	0.07	0.05	24.28	0.45	283.70	1.2E-4	0.0251	0.0192	0.81	0.0155	1.85E-4
0.000	0.023											
	1.30	0.07	0.05	24.28	0.45	278.40	1.2E-4	0.0245	0.0187	0.81	0.0151	1.81E-4
0.000	0.023											
	1.25	0.07	0.04	24.28	0.45	272.99	1.1E-4	0.0239	0.0183	0.81	0.0147	1.77E-4
0.000	0.023											
	1.20	0.07	0.04	24.28	0.45	267.48	1.1E-4	0.0232	0.0178	0.81	0.0143	1.72E-4
0.000	0.024											
	1.15	0.06	0.04	24.28	0.45	261.85	1.1E-4	0.0225	0.0172	0.81	0.0139	1.67E-4
0.000	0.024											
	1.10	0.06	0.04	24.28	0.45	256.09	1.1E-4	0.0218	0.0167	0.81	0.0134	1.61E-4
0.000	0.024											
	1.05	0.06	0.04	24.28	0.45	250.20	1.0E-4	0.0211	0.0161	0.81	0.0130	1.56E-4
0.000	0.024											
	1.00	0.05	0.04	24.28	0.45	244.17	1.0E-4	0.0203	0.0155	0.81	0.0125	1.50E-4
0.000	0.024											

Settlement of Unsaturated Sands=0.024 in.
dsz is per each segment, dz=0.05 ft
dsp is per each print interval, dp=0.05 ft
S is cumulated settlement at this depth

Total Settlement of Saturated and Unsaturated Sands=0.469 in.
Differential Settlement=0.235 to 0.310 in.

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

---

1 atm (atmosphere) = 1.0581 tsf(1 tsf = 1 ton/ft2 = 2 kip/ft2)

1 atm (atmosphere) = 101.325 kPa(1 kPa = 1 kN/m2 = 0.001 Mpa)

SPT	Field data from Standard Penetration Test (SPT)
BPT	Field data from Becker Penetration Test (BPT)
qc	Field data from Cone Penetration Test (CPT) [atm (tsf)]
fs	Friction from CPT testing [atm (tsf)]
Rf	Ratio of fs/qc (%)
gamma	Total unit weight of soil
gamma'	Effective unit weight of soil
Fines	Fines content [%]
D50	Mean grain size
Dr	Relative Density
sigma	Total vertical stress [atm]
sigma'	Effective vertical stress [atm]
sigC'	Effective confining pressure [atm]
rd	Acceleration reduction coefficient by Seed
a_max.	Peak Ground Acceleration (PGA) in ground surface
mZ	Linear acceleration reduction coefficient X depth
a_min.	Minimum acceleration under linear reduction, mZ
CRRv	CRR after overburden stress correction, CRRv=CRR7.5 * Ksig
CRR7.5	Cyclic resistance ratio (M=7.5)
Ksig	Overburden stress correction factor for CRR7.5
CRRm	After magnitude scaling correction CRRm=CRRv * MSF
MSF	Magnitude scaling factor from M=7.5 to user input M
CSR	Cyclic stress ratio induced by earthquake
CSRfs	CSRfs=CSR*fs1 (Default fs1=1)
fs1	First CSR curve in graphic defined in #9 of Advanced page
fs2	2nd CSR curve in graphic defined in #9 of Advanced page
F.S.	Calculated factor of safety against liquefaction F.S.=CRRm/CSRsf
Cebs	Energy Ratio, Borehole Dia., and Sampling Method Corrections
Cr	Rod Length Corrections
Cn	Overburden Pressure Correction
(N1)60	SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
d(N1)60	Fines correction of SPT
(N1)60f	(N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
Cq	Overburden stress correction factor
qc1	CPT after Overburden stress correction
dqc1	Fines correction of CPT
qc1f	CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
qc1n	CPT after normalization in Robertson's method
Kc	Fine correction factor in Robertson's Method
qc1f	CPT after Fines correction in Robertson's Method
Ic	Soil type index in Suzuki's and Robertson's Methods
(N1)60s	(N1)60 after settlement fines corrections
CSRm	After magnitude scaling correction for Settlement calculation CSRm=CSRsf / MSF*
CSRfs	Cyclic stress ratio induced by earthquake with user inputed fs
MSF*	Scaling factor from CSR, MSF*=MSF, based on Item 2 of Page C.
MSF	Magnitude scaling factor from M=7.5 to user input M
ec	Volumetric strain for saturated sands
dz	Calculation segment, dz=0.050 ft
dsz	Settlement in each segment, dz
dp	User defined print interval
dsp	Settlement in each print interval, dp
Gmax	Shear Modulus at low strain
g_eff	gamma_eff, Effective shear Strain
g*Ge/Gm	gamma_eff * G_eff/G_max, Strain-modulus ratio
ec7.5	Volumetric Strain for magnitude=7.5
Cec	Magnitude correction factor for any magnitude
ec	Volumetric strain for unsaturated sands, ec=Cec * ec7.5
NoLiq	No-Liquefy Soils

References:

1. NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.

SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for

Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

2. RECENT ADVANCES IN SOIL LIQUEFACTION ENGINEERING AND SEISMIC SITE RESPONSE EVALUATION, Paper No. SPL-2, PROCEEDINGS: Fourth

International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, CA, March 2001.

3. RECENT ADVANCES IN SOIL LIQUEFACTION ENGINEERING: A UNIFIED AND CONSISTENT FRAMEWORK,

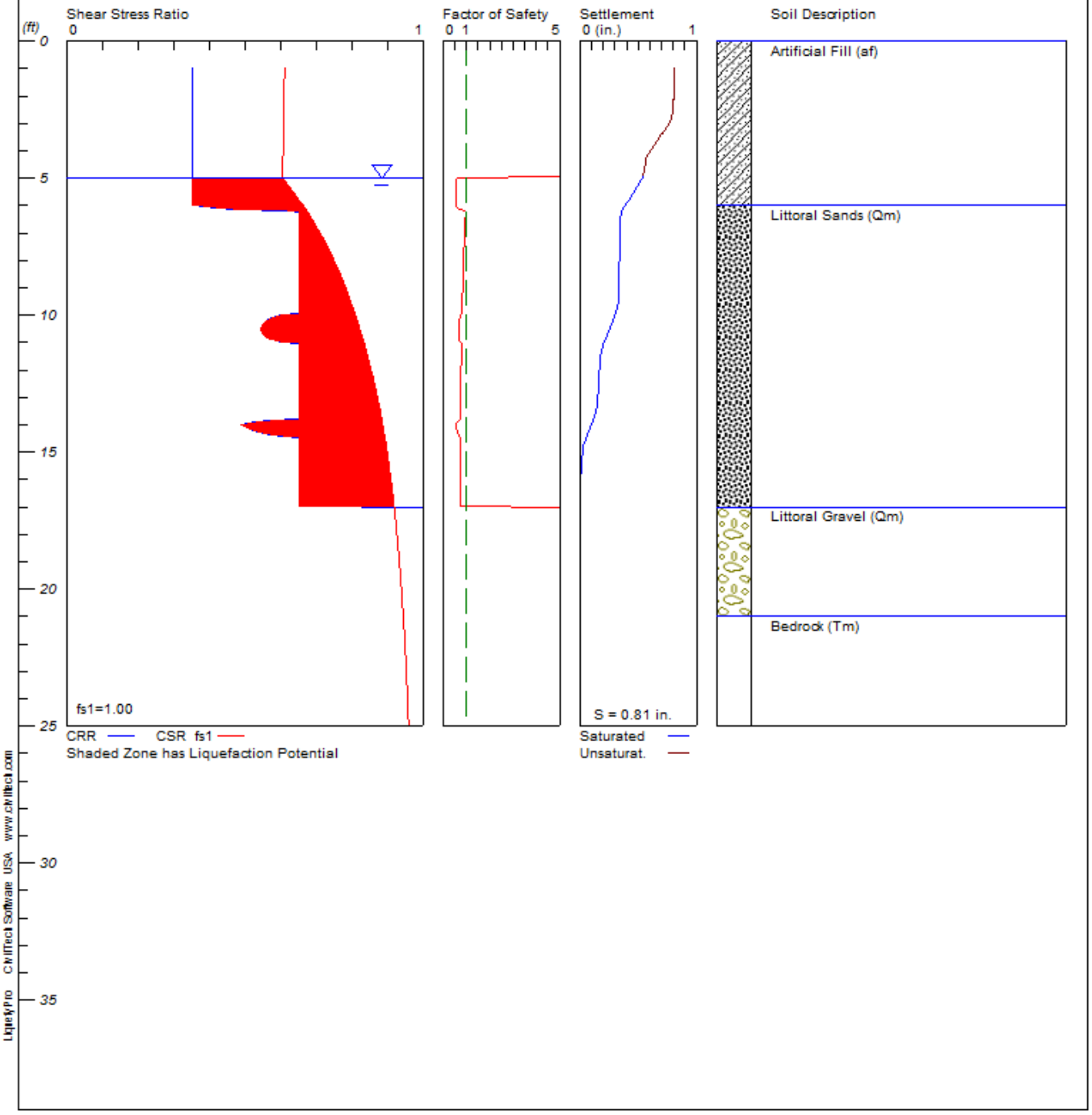
Earthquake Engineering Research Center,
Report No. EERC 2003-06 by R.B Seed and etc. April 2003.

LIQUEFACTION ANALYSIS

7091

Hole No.=B-6 Water Depth=5 ft

Magnitude=6.76
Acceleration=0.943g



GeoSoils Consultants, Inc. **Malibu Sea View Hotel** **Plate A-1**

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LIQUEFACTION ANALYSIS CALCULATION DETAILS
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Input File Name: \\GSC-FILE\Folderredirections\omar\Documents\Staff Engineering Documents\2-13-17 To Now\7091\Review Letter 3-5-18\Liquefaction\Full PGA, 2% Exceedance.liq
Title: 7091
Subtitle: Malibu Sea View Hotel

Input Data:
Surface Elev.=
Hole No.=B-6
Depth of Hole=25.00 ft
Water Table during Earthquake= 5.00 ft
Water Table during In-Situ Testing= 19.00 ft
Max. Acceleration=0.94 g
Earthquake Magnitude=6.76
No-Liquefiable Soils: CL, OL are Non-Liq. Soil
1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1
7. Borehole Diameter, Cb= 1.05
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1
Plot one CSR curve (fs1=User)
10. Average two input data between two Depths: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	Gamma pcf	Fines %
1.00	10.00	116.00	45.00
2.00	10.00	116.00	45.00
3.00	10.00	116.00	45.00
4.00	10.00	116.00	45.00
5.00	10.00	116.00	45.00
6.00	10.00	116.00	45.00
7.00	25.00	125.00	5.00
8.00	25.00	125.00	5.00
9.00	25.00	125.00	5.00
10.00	21.00	125.00	5.00
11.00	21.00	125.00	10.00
12.00	27.00	125.00	10.00
13.00	27.00	125.00	10.00
14.00	23.00	129.00	10.00
15.00	26.00	129.00	10.00
16.00	26.00	129.00	10.00
17.00	38.00	131.00	NoLiq
18.00	38.00	131.00	NoLiq
19.00	38.00	131.00	NoLiq
20.00	38.00	131.00	NoLiq
21.00	38.00	131.00	NoLiq
22.00	38.00	131.00	NoLiq
23.00	38.00	131.00	NoLiq
24.00	38.00	131.00	NoLiq
25.00	38.00	131.00	NoLiq

Output Results:
Calculation segment, dz=0.050 ft
User defined Print Interval, dp=0.05 ft

Peak Ground Acceleration (PGA), a_max = 0.94g

CSR Calculation:

Depth ft	gamma pcf	sigma atm	gamma' pcf	sigma' atm	rd	mZ g	a(z) g	CSR	x fs1	=CSRfs
1.00	116.00	0.055	116.00	0.055	1.00	0.000	0.943	0.61	1.00	0.61
1.05	116.00	0.058	116.00	0.058	1.00	0.000	0.943	0.61	1.00	0.61
1.10	116.00	0.060	116.00	0.060	1.00	0.000	0.943	0.61	1.00	0.61
1.15	116.00	0.063	116.00	0.063	1.00	0.000	0.943	0.61	1.00	0.61
1.20	116.00	0.066	116.00	0.066	1.00	0.000	0.943	0.61	1.00	0.61
1.25	116.00	0.069	116.00	0.069	1.00	0.000	0.943	0.61	1.00	0.61
1.30	116.00	0.071	116.00	0.071	1.00	0.000	0.943	0.61	1.00	0.61
1.35	116.00	0.074	116.00	0.074	1.00	0.000	0.943	0.61	1.00	0.61
1.40	116.00	0.077	116.00	0.077	1.00	0.000	0.943	0.61	1.00	0.61
1.45	116.00	0.079	116.00	0.079	1.00	0.000	0.943	0.61	1.00	0.61
1.50	116.00	0.082	116.00	0.082	1.00	0.000	0.943	0.61	1.00	0.61
1.55	116.00	0.085	116.00	0.085	1.00	0.000	0.943	0.61	1.00	0.61
1.60	116.00	0.088	116.00	0.088	1.00	0.000	0.943	0.61	1.00	0.61
1.65	116.00	0.090	116.00	0.090	1.00	0.000	0.943	0.61	1.00	0.61
1.70	116.00	0.093	116.00	0.093	1.00	0.000	0.943	0.61	1.00	0.61
1.75	116.00	0.096	116.00	0.096	1.00	0.000	0.943	0.61	1.00	0.61
1.80	116.00	0.099	116.00	0.099	1.00	0.000	0.943	0.61	1.00	0.61
1.85	116.00	0.101	116.00	0.101	1.00	0.000	0.943	0.61	1.00	0.61
1.90	116.00	0.104	116.00	0.104	1.00	0.000	0.943	0.61	1.00	0.61
1.95	116.00	0.107	116.00	0.107	1.00	0.000	0.943	0.61	1.00	0.61
2.00	116.00	0.110	116.00	0.110	1.00	0.000	0.943	0.61	1.00	0.61
2.05	116.00	0.112	116.00	0.112	1.00	0.000	0.943	0.61	1.00	0.61
2.10	116.00	0.115	116.00	0.115	1.00	0.000	0.943	0.61	1.00	0.61
2.15	116.00	0.118	116.00	0.118	0.99	0.000	0.943	0.61	1.00	0.61
2.20	116.00	0.121	116.00	0.121	0.99	0.000	0.943	0.61	1.00	0.61
2.25	116.00	0.123	116.00	0.123	0.99	0.000	0.943	0.61	1.00	0.61
2.30	116.00	0.126	116.00	0.126	0.99	0.000	0.943	0.61	1.00	0.61
2.35	116.00	0.129	116.00	0.129	0.99	0.000	0.943	0.61	1.00	0.61
2.40	116.00	0.132	116.00	0.132	0.99	0.000	0.943	0.61	1.00	0.61
2.45	116.00	0.134	116.00	0.134	0.99	0.000	0.943	0.61	1.00	0.61
2.50	116.00	0.137	116.00	0.137	0.99	0.000	0.943	0.61	1.00	0.61
2.55	116.00	0.140	116.00	0.140	0.99	0.000	0.943	0.61	1.00	0.61
2.60	116.00	0.143	116.00	0.143	0.99	0.000	0.943	0.61	1.00	0.61
2.65	116.00	0.145	116.00	0.145	0.99	0.000	0.943	0.61	1.00	0.61
2.70	116.00	0.148	116.00	0.148	0.99	0.000	0.943	0.61	1.00	0.61
2.75	116.00	0.151	116.00	0.151	0.99	0.000	0.943	0.61	1.00	0.61
2.80	116.00	0.153	116.00	0.153	0.99	0.000	0.943	0.61	1.00	0.61
2.85	116.00	0.156	116.00	0.156	0.99	0.000	0.943	0.61	1.00	0.61
2.90	116.00	0.159	116.00	0.159	0.99	0.000	0.943	0.61	1.00	0.61
2.95	116.00	0.162	116.00	0.162	0.99	0.000	0.943	0.61	1.00	0.61
3.00	116.00	0.164	116.00	0.164	0.99	0.000	0.943	0.61	1.00	0.61
3.05	116.00	0.167	116.00	0.167	0.99	0.000	0.943	0.61	1.00	0.61
3.10	116.00	0.170	116.00	0.170	0.99	0.000	0.943	0.61	1.00	0.61
3.15	116.00	0.173	116.00	0.173	0.99	0.000	0.943	0.61	1.00	0.61
3.20	116.00	0.175	116.00	0.175	0.99	0.000	0.943	0.61	1.00	0.61
3.25	116.00	0.178	116.00	0.178	0.99	0.000	0.943	0.61	1.00	0.61
3.30	116.00	0.181	116.00	0.181	0.99	0.000	0.943	0.61	1.00	0.61
3.35	116.00	0.184	116.00	0.184	0.99	0.000	0.943	0.61	1.00	0.61
3.40	116.00	0.186	116.00	0.186	0.99	0.000	0.943	0.61	1.00	0.61
3.45	116.00	0.189	116.00	0.189	0.99	0.000	0.943	0.61	1.00	0.61
3.50	116.00	0.192	116.00	0.192	0.99	0.000	0.943	0.61	1.00	0.61
3.55	116.00	0.195	116.00	0.195	0.99	0.000	0.943	0.61	1.00	0.61
3.60	116.00	0.197	116.00	0.197	0.99	0.000	0.943	0.61	1.00	0.61
3.65	116.00	0.200	116.00	0.200	0.99	0.000	0.943	0.61	1.00	0.61
3.70	116.00	0.203	116.00	0.203	0.99	0.000	0.943	0.61	1.00	0.61
3.75	116.00	0.206	116.00	0.206	0.99	0.000	0.943	0.61	1.00	0.61
3.80	116.00	0.208	116.00	0.208	0.99	0.000	0.943	0.61	1.00	0.61
3.85	116.00	0.211	116.00	0.211	0.99	0.000	0.943	0.61	1.00	0.61
3.90	116.00	0.214	116.00	0.214	0.99	0.000	0.943	0.61	1.00	0.61
3.95	116.00	0.217	116.00	0.217	0.99	0.000	0.943	0.61	1.00	0.61
4.00	116.00	0.219	116.00	0.219	0.99	0.000	0.943	0.61	1.00	0.61
4.05	116.00	0.222	116.00	0.222	0.99	0.000	0.943	0.61	1.00	0.61
4.10	116.00	0.225	116.00	0.225	0.99	0.000	0.943	0.61	1.00	0.61
4.15	116.00	0.227	116.00	0.227	0.99	0.000	0.943	0.61	1.00	0.61
4.20	116.00	0.230	116.00	0.230	0.99	0.000	0.943	0.61	1.00	0.61
4.25	116.00	0.233	116.00	0.233	0.99	0.000	0.943	0.61	1.00	0.61
4.30	116.00	0.236	116.00	0.236	0.99	0.000	0.943	0.61	1.00	0.61

4.35	116.00	0.238	116.00	0.238	0.99	0.000	0.943	0.61	1.00	0.61
4.40	116.00	0.241	116.00	0.241	0.99	0.000	0.943	0.61	1.00	0.61
4.45	116.00	0.244	116.00	0.244	0.99	0.000	0.943	0.61	1.00	0.61
4.50	116.00	0.247	116.00	0.247	0.99	0.000	0.943	0.61	1.00	0.61
4.55	116.00	0.249	116.00	0.249	0.99	0.000	0.943	0.61	1.00	0.61
4.60	116.00	0.252	116.00	0.252	0.99	0.000	0.943	0.61	1.00	0.61
4.65	116.00	0.255	116.00	0.255	0.99	0.000	0.943	0.61	1.00	0.61
4.70	116.00	0.258	116.00	0.258	0.99	0.000	0.943	0.61	1.00	0.61
4.75	116.00	0.260	116.00	0.260	0.99	0.000	0.943	0.61	1.00	0.61
4.80	116.00	0.263	116.00	0.263	0.99	0.000	0.943	0.61	1.00	0.61
4.85	116.00	0.266	116.00	0.266	0.99	0.000	0.943	0.61	1.00	0.61
4.90	116.00	0.269	116.00	0.269	0.99	0.000	0.943	0.61	1.00	0.61
4.95	116.00	0.271	116.00	0.271	0.99	0.000	0.943	0.61	1.00	0.61
5.00	116.00	0.274	53.60	0.274	0.99	0.000	0.943	0.61	1.00	0.61
5.05	116.00	0.277	53.60	0.275	0.99	0.000	0.943	0.61	1.00	0.61
5.10	116.00	0.280	53.60	0.277	0.99	0.000	0.943	0.61	1.00	0.61
5.15	116.00	0.282	53.60	0.278	0.99	0.000	0.943	0.62	1.00	0.62
5.20	116.00	0.285	53.60	0.279	0.99	0.000	0.943	0.62	1.00	0.62
5.25	116.00	0.288	53.60	0.280	0.99	0.000	0.943	0.62	1.00	0.62
5.30	116.00	0.291	53.60	0.282	0.99	0.000	0.943	0.62	1.00	0.62
5.35	116.00	0.293	53.60	0.283	0.99	0.000	0.943	0.63	1.00	0.63
5.40	116.00	0.296	53.60	0.284	0.99	0.000	0.943	0.63	1.00	0.63
5.45	116.00	0.299	53.60	0.285	0.99	0.000	0.943	0.63	1.00	0.63
5.50	116.00	0.301	53.60	0.287	0.99	0.000	0.943	0.64	1.00	0.64
5.55	116.00	0.304	53.60	0.288	0.99	0.000	0.943	0.64	1.00	0.64
5.60	116.00	0.307	53.60	0.289	0.99	0.000	0.943	0.64	1.00	0.64
5.65	116.00	0.310	53.60	0.291	0.99	0.000	0.943	0.64	1.00	0.64
5.70	116.00	0.312	53.60	0.292	0.99	0.000	0.943	0.65	1.00	0.65
5.75	116.00	0.315	53.60	0.293	0.99	0.000	0.943	0.65	1.00	0.65
5.80	116.00	0.318	53.60	0.294	0.99	0.000	0.943	0.65	1.00	0.65
5.85	116.00	0.321	53.60	0.296	0.99	0.000	0.943	0.66	1.00	0.66
5.90	116.00	0.323	53.60	0.297	0.99	0.000	0.943	0.66	1.00	0.66
5.95	116.00	0.326	53.60	0.298	0.99	0.000	0.943	0.66	1.00	0.66
6.00	116.00	0.329	53.60	0.299	0.99	0.000	0.943	0.66	1.00	0.66
6.05	116.45	0.332	54.05	0.301	0.99	0.000	0.943	0.67	1.00	0.67
6.10	116.90	0.334	54.50	0.302	0.99	0.000	0.943	0.67	1.00	0.67
6.15	117.35	0.337	54.95	0.303	0.99	0.000	0.943	0.67	1.00	0.67
6.20	117.80	0.340	55.40	0.305	0.99	0.000	0.943	0.67	1.00	0.67
6.25	118.25	0.343	55.85	0.306	0.99	0.000	0.943	0.68	1.00	0.68
6.30	118.70	0.345	56.30	0.307	0.99	0.000	0.943	0.68	1.00	0.68
6.35	119.15	0.348	56.75	0.308	0.99	0.000	0.943	0.68	1.00	0.68
6.40	119.60	0.351	57.20	0.310	0.99	0.000	0.943	0.68	1.00	0.68
6.45	120.05	0.354	57.65	0.311	0.98	0.000	0.943	0.69	1.00	0.69
6.50	120.50	0.357	58.10	0.313	0.98	0.000	0.943	0.69	1.00	0.69
6.55	120.95	0.360	58.55	0.314	0.98	0.000	0.943	0.69	1.00	0.69
6.60	121.40	0.362	59.00	0.315	0.98	0.000	0.943	0.69	1.00	0.69
6.65	121.85	0.365	59.45	0.317	0.98	0.000	0.943	0.70	1.00	0.70
6.70	122.30	0.368	59.90	0.318	0.98	0.000	0.943	0.70	1.00	0.70
6.75	122.75	0.371	60.35	0.320	0.98	0.000	0.943	0.70	1.00	0.70
6.80	123.20	0.374	60.80	0.321	0.98	0.000	0.943	0.70	1.00	0.70
6.85	123.65	0.377	61.25	0.322	0.98	0.000	0.943	0.71	1.00	0.71
6.90	124.10	0.380	61.70	0.324	0.98	0.000	0.943	0.71	1.00	0.71
6.95	124.55	0.383	62.15	0.325	0.98	0.000	0.943	0.71	1.00	0.71
7.00	125.00	0.386	62.60	0.327	0.98	0.000	0.943	0.71	1.00	0.71
7.05	125.00	0.389	62.60	0.328	0.98	0.000	0.943	0.71	1.00	0.71
7.10	125.00	0.392	62.60	0.330	0.98	0.000	0.943	0.72	1.00	0.72
7.15	125.00	0.395	62.60	0.331	0.98	0.000	0.943	0.72	1.00	0.72
7.20	125.00	0.398	62.60	0.333	0.98	0.000	0.943	0.72	1.00	0.72
7.25	125.00	0.400	62.60	0.334	0.98	0.000	0.943	0.72	1.00	0.72
7.30	125.00	0.403	62.60	0.336	0.98	0.000	0.943	0.72	1.00	0.72
7.35	125.00	0.406	62.60	0.337	0.98	0.000	0.943	0.73	1.00	0.73
7.40	125.00	0.409	62.60	0.339	0.98	0.000	0.943	0.73	1.00	0.73
7.45	125.00	0.412	62.60	0.340	0.98	0.000	0.943	0.73	1.00	0.73
7.50	125.00	0.415	62.60	0.342	0.98	0.000	0.943	0.73	1.00	0.73
7.55	125.00	0.418	62.60	0.343	0.98	0.000	0.943	0.73	1.00	0.73
7.60	125.00	0.421	62.60	0.345	0.98	0.000	0.943	0.74	1.00	0.74
7.65	125.00	0.424	62.60	0.346	0.98	0.000	0.943	0.74	1.00	0.74
7.70	125.00	0.427	62.60	0.347	0.98	0.000	0.943	0.74	1.00	0.74
7.75	125.00	0.430	62.60	0.349	0.98	0.000	0.943	0.74	1.00	0.74
7.80	125.00	0.433	62.60	0.350	0.98	0.000	0.943	0.74	1.00	0.74
7.85	125.00	0.436	62.60	0.352	0.98	0.000	0.943	0.75	1.00	0.75
7.90	125.00	0.439	62.60	0.353	0.98	0.000	0.943	0.75	1.00	0.75
7.95	125.00	0.442	62.60	0.355	0.98	0.000	0.943	0.75	1.00	0.75

8.00	125.00	0.445	62.60	0.356	0.98	0.000	0.943	0.75	1.00	0.75
8.05	125.00	0.448	62.60	0.358	0.98	0.000	0.943	0.75	1.00	0.75
8.10	125.00	0.451	62.60	0.359	0.98	0.000	0.943	0.75	1.00	0.75
8.15	125.00	0.454	62.60	0.361	0.98	0.000	0.943	0.76	1.00	0.76
8.20	125.00	0.457	62.60	0.362	0.98	0.000	0.943	0.76	1.00	0.76
8.25	125.00	0.460	62.60	0.364	0.98	0.000	0.943	0.76	1.00	0.76
8.30	125.00	0.463	62.60	0.365	0.98	0.000	0.943	0.76	1.00	0.76
8.35	125.00	0.465	62.60	0.367	0.98	0.000	0.943	0.76	1.00	0.76
8.40	125.00	0.468	62.60	0.368	0.98	0.000	0.943	0.76	1.00	0.76
8.45	125.00	0.471	62.60	0.370	0.98	0.000	0.943	0.77	1.00	0.77
8.50	125.00	0.474	62.60	0.371	0.98	0.000	0.943	0.77	1.00	0.77
8.55	125.00	0.477	62.60	0.373	0.98	0.000	0.943	0.77	1.00	0.77
8.60	125.00	0.480	62.60	0.374	0.98	0.000	0.943	0.77	1.00	0.77
8.65	125.00	0.483	62.60	0.376	0.98	0.000	0.943	0.77	1.00	0.77
8.70	125.00	0.486	62.60	0.377	0.98	0.000	0.943	0.77	1.00	0.77
8.75	125.00	0.489	62.60	0.379	0.98	0.000	0.943	0.78	1.00	0.78
8.80	125.00	0.492	62.60	0.380	0.98	0.000	0.943	0.78	1.00	0.78
8.85	125.00	0.495	62.60	0.381	0.98	0.000	0.943	0.78	1.00	0.78
8.90	125.00	0.498	62.60	0.383	0.98	0.000	0.943	0.78	1.00	0.78
8.95	125.00	0.501	62.60	0.384	0.98	0.000	0.943	0.78	1.00	0.78
9.00	125.00	0.504	62.60	0.386	0.98	0.000	0.943	0.78	1.00	0.78
9.05	125.00	0.507	62.60	0.387	0.98	0.000	0.943	0.78	1.00	0.78
9.10	125.00	0.510	62.60	0.389	0.98	0.000	0.943	0.79	1.00	0.79
9.15	125.00	0.513	62.60	0.390	0.98	0.000	0.943	0.79	1.00	0.79
9.20	125.00	0.516	62.60	0.392	0.98	0.000	0.943	0.79	1.00	0.79
9.25	125.00	0.519	62.60	0.393	0.98	0.000	0.943	0.79	1.00	0.79
9.30	125.00	0.522	62.60	0.395	0.98	0.000	0.943	0.79	1.00	0.79
9.35	125.00	0.525	62.60	0.396	0.98	0.000	0.943	0.79	1.00	0.79
9.40	125.00	0.527	62.60	0.398	0.98	0.000	0.943	0.80	1.00	0.80
9.45	125.00	0.530	62.60	0.399	0.98	0.000	0.943	0.80	1.00	0.80
9.50	125.00	0.533	62.60	0.401	0.98	0.000	0.943	0.80	1.00	0.80
9.55	125.00	0.536	62.60	0.402	0.98	0.000	0.943	0.80	1.00	0.80
9.60	125.00	0.539	62.60	0.404	0.98	0.000	0.943	0.80	1.00	0.80
9.65	125.00	0.542	62.60	0.405	0.98	0.000	0.943	0.80	1.00	0.80
9.70	125.00	0.545	62.60	0.407	0.98	0.000	0.943	0.80	1.00	0.80
9.75	125.00	0.548	62.60	0.408	0.98	0.000	0.943	0.80	1.00	0.80
9.80	125.00	0.551	62.60	0.410	0.98	0.000	0.943	0.81	1.00	0.81
9.85	125.00	0.554	62.60	0.411	0.98	0.000	0.943	0.81	1.00	0.81
9.90	125.00	0.557	62.60	0.413	0.98	0.000	0.943	0.81	1.00	0.81
9.95	125.00	0.560	62.60	0.414	0.98	0.000	0.943	0.81	1.00	0.81
10.00	125.00	0.563	62.60	0.415	0.98	0.000	0.943	0.81	1.00	0.81
10.05	125.00	0.566	62.60	0.417	0.98	0.000	0.943	0.81	1.00	0.81
10.10	125.00	0.569	62.60	0.418	0.98	0.000	0.943	0.81	1.00	0.81
10.15	125.00	0.572	62.60	0.420	0.98	0.000	0.943	0.81	1.00	0.81
10.20	125.00	0.575	62.60	0.421	0.98	0.000	0.943	0.82	1.00	0.82
10.25	125.00	0.578	62.60	0.423	0.98	0.000	0.943	0.82	1.00	0.82
10.30	125.00	0.581	62.60	0.424	0.98	0.000	0.943	0.82	1.00	0.82
10.35	125.00	0.584	62.60	0.426	0.98	0.000	0.943	0.82	1.00	0.82
10.40	125.00	0.587	62.60	0.427	0.98	0.000	0.943	0.82	1.00	0.82
10.45	125.00	0.590	62.60	0.429	0.98	0.000	0.943	0.82	1.00	0.82
10.50	125.00	0.592	62.60	0.430	0.98	0.000	0.943	0.82	1.00	0.82
10.55	125.00	0.595	62.60	0.432	0.98	0.000	0.943	0.82	1.00	0.82
10.60	125.00	0.598	62.60	0.433	0.98	0.000	0.943	0.83	1.00	0.83
10.65	125.00	0.601	62.60	0.435	0.98	0.000	0.943	0.83	1.00	0.83
10.70	125.00	0.604	62.60	0.436	0.98	0.000	0.943	0.83	1.00	0.83
10.75	125.00	0.607	62.60	0.438	0.97	0.000	0.943	0.83	1.00	0.83
10.80	125.00	0.610	62.60	0.439	0.97	0.000	0.943	0.83	1.00	0.83
10.85	125.00	0.613	62.60	0.441	0.97	0.000	0.943	0.83	1.00	0.83
10.90	125.00	0.616	62.60	0.442	0.97	0.000	0.943	0.83	1.00	0.83
10.95	125.00	0.619	62.60	0.444	0.97	0.000	0.943	0.83	1.00	0.83
11.00	125.00	0.622	62.60	0.445	0.97	0.000	0.943	0.83	1.00	0.83
11.05	125.00	0.625	62.60	0.447	0.97	0.000	0.943	0.84	1.00	0.84
11.10	125.00	0.628	62.60	0.448	0.97	0.000	0.943	0.84	1.00	0.84
11.15	125.00	0.631	62.60	0.450	0.97	0.000	0.943	0.84	1.00	0.84
11.20	125.00	0.634	62.60	0.451	0.97	0.000	0.943	0.84	1.00	0.84
11.25	125.00	0.637	62.60	0.452	0.97	0.000	0.943	0.84	1.00	0.84
11.30	125.00	0.640	62.60	0.454	0.97	0.000	0.943	0.84	1.00	0.84
11.35	125.00	0.643	62.60	0.455	0.97	0.000	0.943	0.84	1.00	0.84
11.40	125.00	0.646	62.60	0.457	0.97	0.000	0.943	0.84	1.00	0.84
11.45	125.00	0.649	62.60	0.458	0.97	0.000	0.943	0.84	1.00	0.84
11.50	125.00	0.652	62.60	0.460	0.97	0.000	0.943	0.85	1.00	0.85
11.55	125.00	0.654	62.60	0.461	0.97	0.000	0.943	0.85	1.00	0.85
11.60	125.00	0.657	62.60	0.463	0.97	0.000	0.943	0.85	1.00	0.85

11.65	125.00	0.660	62.60	0.464	0.97	0.000	0.943	0.85	1.00	0.85
11.70	125.00	0.663	62.60	0.466	0.97	0.000	0.943	0.85	1.00	0.85
11.75	125.00	0.666	62.60	0.467	0.97	0.000	0.943	0.85	1.00	0.85
11.80	125.00	0.669	62.60	0.469	0.97	0.000	0.943	0.85	1.00	0.85
11.85	125.00	0.672	62.60	0.470	0.97	0.000	0.943	0.85	1.00	0.85
11.90	125.00	0.675	62.60	0.472	0.97	0.000	0.943	0.85	1.00	0.85
11.95	125.00	0.678	62.60	0.473	0.97	0.000	0.943	0.85	1.00	0.85
12.00	125.00	0.681	62.60	0.475	0.97	0.000	0.943	0.85	1.00	0.85
12.05	125.00	0.684	62.60	0.476	0.97	0.000	0.943	0.86	1.00	0.86
12.10	125.00	0.687	62.60	0.478	0.97	0.000	0.943	0.86	1.00	0.86
12.15	125.00	0.690	62.60	0.479	0.97	0.000	0.943	0.86	1.00	0.86
12.20	125.00	0.693	62.60	0.481	0.97	0.000	0.943	0.86	1.00	0.86
12.25	125.00	0.696	62.60	0.482	0.97	0.000	0.943	0.86	1.00	0.86
12.30	125.00	0.699	62.60	0.484	0.97	0.000	0.943	0.86	1.00	0.86
12.35	125.00	0.702	62.60	0.485	0.97	0.000	0.943	0.86	1.00	0.86
12.40	125.00	0.705	62.60	0.486	0.97	0.000	0.943	0.86	1.00	0.86
12.45	125.00	0.708	62.60	0.488	0.97	0.000	0.943	0.86	1.00	0.86
12.50	125.00	0.711	62.60	0.489	0.97	0.000	0.943	0.86	1.00	0.86
12.55	125.00	0.714	62.60	0.491	0.97	0.000	0.943	0.86	1.00	0.86
12.60	125.00	0.717	62.60	0.492	0.97	0.000	0.943	0.87	1.00	0.87
12.65	125.00	0.719	62.60	0.494	0.97	0.000	0.943	0.87	1.00	0.87
12.70	125.00	0.722	62.60	0.495	0.97	0.000	0.943	0.87	1.00	0.87
12.75	125.00	0.725	62.60	0.497	0.97	0.000	0.943	0.87	1.00	0.87
12.80	125.00	0.728	62.60	0.498	0.97	0.000	0.943	0.87	1.00	0.87
12.85	125.00	0.731	62.60	0.500	0.97	0.000	0.943	0.87	1.00	0.87
12.90	125.00	0.734	62.60	0.501	0.97	0.000	0.943	0.87	1.00	0.87
12.95	125.00	0.737	62.60	0.503	0.97	0.000	0.943	0.87	1.00	0.87
13.00	125.00	0.740	62.60	0.504	0.97	0.000	0.943	0.87	1.00	0.87
13.05	125.20	0.743	62.80	0.506	0.97	0.000	0.943	0.87	1.00	0.87
13.10	125.40	0.746	63.00	0.507	0.97	0.000	0.943	0.87	1.00	0.87
13.15	125.60	0.749	63.20	0.509	0.97	0.000	0.943	0.87	1.00	0.87
13.20	125.80	0.752	63.40	0.510	0.97	0.000	0.943	0.88	1.00	0.88
13.25	126.00	0.755	63.60	0.512	0.97	0.000	0.943	0.88	1.00	0.88
13.30	126.20	0.758	63.80	0.513	0.97	0.000	0.943	0.88	1.00	0.88
13.35	126.40	0.761	64.00	0.515	0.97	0.000	0.943	0.88	1.00	0.88
13.40	126.60	0.764	64.20	0.516	0.97	0.000	0.943	0.88	1.00	0.88
13.45	126.80	0.767	64.40	0.518	0.97	0.000	0.943	0.88	1.00	0.88
13.50	127.00	0.770	64.60	0.519	0.97	0.000	0.943	0.88	1.00	0.88
13.55	127.20	0.773	64.80	0.521	0.97	0.000	0.943	0.88	1.00	0.88
13.60	127.40	0.776	65.00	0.522	0.97	0.000	0.943	0.88	1.00	0.88
13.65	127.60	0.779	65.20	0.524	0.97	0.000	0.943	0.88	1.00	0.88
13.70	127.80	0.782	65.40	0.525	0.97	0.000	0.943	0.88	1.00	0.88
13.75	128.00	0.785	65.60	0.527	0.97	0.000	0.943	0.88	1.00	0.88
13.80	128.20	0.788	65.80	0.528	0.97	0.000	0.943	0.88	1.00	0.88
13.85	128.40	0.791	66.00	0.530	0.97	0.000	0.943	0.89	1.00	0.89
13.90	128.60	0.794	66.20	0.532	0.97	0.000	0.943	0.89	1.00	0.89
13.95	128.80	0.797	66.40	0.533	0.97	0.000	0.943	0.89	1.00	0.89
14.00	129.00	0.800	66.60	0.535	0.97	0.000	0.943	0.89	1.00	0.89
14.05	129.00	0.803	66.60	0.536	0.97	0.000	0.943	0.89	1.00	0.89
14.10	129.00	0.806	66.60	0.538	0.97	0.000	0.943	0.89	1.00	0.89
14.15	129.00	0.809	66.60	0.539	0.97	0.000	0.943	0.89	1.00	0.89
14.20	129.00	0.812	66.60	0.541	0.97	0.000	0.943	0.89	1.00	0.89
14.25	129.00	0.815	66.60	0.543	0.97	0.000	0.943	0.89	1.00	0.89
14.30	129.00	0.818	66.60	0.544	0.97	0.000	0.943	0.89	1.00	0.89
14.35	129.00	0.821	66.60	0.546	0.97	0.000	0.943	0.89	1.00	0.89
14.40	129.00	0.824	66.60	0.547	0.97	0.000	0.943	0.89	1.00	0.89
14.45	129.00	0.828	66.60	0.549	0.97	0.000	0.943	0.89	1.00	0.89
14.50	129.00	0.831	66.60	0.550	0.97	0.000	0.943	0.89	1.00	0.89
14.55	129.00	0.834	66.60	0.552	0.97	0.000	0.943	0.89	1.00	0.89
14.60	129.00	0.837	66.60	0.554	0.97	0.000	0.943	0.89	1.00	0.89
14.65	129.00	0.840	66.60	0.555	0.97	0.000	0.943	0.90	1.00	0.90
14.70	129.00	0.843	66.60	0.557	0.97	0.000	0.943	0.90	1.00	0.90
14.75	129.00	0.846	66.60	0.558	0.97	0.000	0.943	0.90	1.00	0.90
14.80	129.00	0.849	66.60	0.560	0.97	0.000	0.943	0.90	1.00	0.90
14.85	129.00	0.852	66.60	0.561	0.97	0.000	0.943	0.90	1.00	0.90
14.90	129.00	0.855	66.60	0.563	0.97	0.000	0.943	0.90	1.00	0.90
14.95	129.00	0.858	66.60	0.565	0.97	0.000	0.943	0.90	1.00	0.90
15.00	129.00	0.861	66.60	0.566	0.97	0.000	0.943	0.90	1.00	0.90
15.05	129.00	0.864	66.60	0.568	0.96	0.000	0.943	0.90	1.00	0.90
15.10	129.00	0.867	66.60	0.569	0.96	0.000	0.943	0.90	1.00	0.90
15.15	129.00	0.870	66.60	0.571	0.96	0.000	0.943	0.90	1.00	0.90
15.20	129.00	0.873	66.60	0.572	0.96	0.000	0.943	0.90	1.00	0.90
15.25	129.00	0.876	66.60	0.574	0.96	0.000	0.943	0.90	1.00	0.90

15.30	129.00	0.879	66.60	0.576	0.96	0.000	0.943	0.90	1.00	0.90
15.35	129.00	0.882	66.60	0.577	0.96	0.000	0.943	0.90	1.00	0.90
15.40	129.00	0.885	66.60	0.579	0.96	0.000	0.943	0.90	1.00	0.90
15.45	129.00	0.888	66.60	0.580	0.96	0.000	0.943	0.90	1.00	0.90
15.50	129.00	0.892	66.60	0.582	0.96	0.000	0.943	0.91	1.00	0.91
15.55	129.00	0.895	66.60	0.583	0.96	0.000	0.943	0.91	1.00	0.91
15.60	129.00	0.898	66.60	0.585	0.96	0.000	0.943	0.91	1.00	0.91
15.65	129.00	0.901	66.60	0.587	0.96	0.000	0.943	0.91	1.00	0.91
15.70	129.00	0.904	66.60	0.588	0.96	0.000	0.943	0.91	1.00	0.91
15.75	129.00	0.907	66.60	0.590	0.96	0.000	0.943	0.91	1.00	0.91
15.80	129.00	0.910	66.60	0.591	0.96	0.000	0.943	0.91	1.00	0.91
15.85	129.00	0.913	66.60	0.593	0.96	0.000	0.943	0.91	1.00	0.91
15.90	129.00	0.916	66.60	0.595	0.96	0.000	0.943	0.91	1.00	0.91
15.95	129.00	0.919	66.60	0.596	0.96	0.000	0.943	0.91	1.00	0.91
16.00	129.00	0.922	66.60	0.598	0.96	0.000	0.943	0.91	1.00	0.91
16.05	129.10	0.925	66.70	0.599	0.96	0.000	0.943	0.91	1.00	0.91
16.10	129.20	0.928	66.80	0.601	0.96	0.000	0.943	0.91	1.00	0.91
16.15	129.30	0.931	66.90	0.602	0.96	0.000	0.943	0.91	1.00	0.91
16.20	129.40	0.934	67.00	0.604	0.96	0.000	0.943	0.91	1.00	0.91
16.25	129.50	0.937	67.10	0.606	0.96	0.000	0.943	0.91	1.00	0.91
16.30	129.60	0.940	67.20	0.607	0.96	0.000	0.943	0.91	1.00	0.91
16.35	129.70	0.943	67.30	0.609	0.96	0.000	0.943	0.91	1.00	0.91
16.40	129.80	0.946	67.40	0.610	0.96	0.000	0.943	0.91	1.00	0.91
16.45	129.90	0.950	67.50	0.612	0.96	0.000	0.943	0.91	1.00	0.91
16.50	130.00	0.953	67.60	0.614	0.96	0.000	0.943	0.92	1.00	0.92
16.55	130.10	0.956	67.70	0.615	0.96	0.000	0.943	0.92	1.00	0.92
16.60	130.20	0.959	67.80	0.617	0.96	0.000	0.943	0.92	1.00	0.92
16.65	130.30	0.962	67.90	0.618	0.96	0.000	0.943	0.92	1.00	0.92
16.70	130.40	0.965	68.00	0.620	0.96	0.000	0.943	0.92	1.00	0.92
16.75	130.50	0.968	68.10	0.622	0.96	0.000	0.943	0.92	1.00	0.92
16.80	130.60	0.971	68.20	0.623	0.96	0.000	0.943	0.92	1.00	0.92
16.85	130.70	0.974	68.30	0.625	0.96	0.000	0.943	0.92	1.00	0.92
16.90	130.80	0.977	68.40	0.626	0.96	0.000	0.943	0.92	1.00	0.92
16.95	130.90	0.980	68.50	0.628	0.96	0.000	0.943	0.92	1.00	0.92
17.00	131.00	0.983	68.60	0.630	0.96	0.000	0.943	0.92	1.00	0.92
17.05	131.00	0.987	68.60	0.631	0.96	0.000	0.943	0.92	1.00	0.92
17.10	131.00	0.990	68.60	0.633	0.96	0.000	0.943	0.92	1.00	0.92
17.15	131.00	0.993	68.60	0.634	0.96	0.000	0.943	0.92	1.00	0.92
17.20	131.00	0.996	68.60	0.636	0.96	0.000	0.943	0.92	1.00	0.92
17.25	131.00	0.999	68.60	0.638	0.96	0.000	0.943	0.92	1.00	0.92
17.30	131.00	1.002	68.60	0.639	0.96	0.000	0.943	0.92	1.00	0.92
17.35	131.00	1.005	68.60	0.641	0.96	0.000	0.943	0.92	1.00	0.92
17.40	131.00	1.008	68.60	0.643	0.96	0.000	0.943	0.92	1.00	0.92
17.45	131.00	1.011	68.60	0.644	0.96	0.000	0.943	0.92	1.00	0.92
17.50	131.00	1.014	68.60	0.646	0.96	0.000	0.943	0.92	1.00	0.92
17.55	131.00	1.017	68.60	0.647	0.96	0.000	0.943	0.92	1.00	0.92
17.60	131.00	1.021	68.60	0.649	0.96	0.000	0.943	0.92	1.00	0.92
17.65	131.00	1.024	68.60	0.651	0.96	0.000	0.943	0.92	1.00	0.92
17.70	131.00	1.027	68.60	0.652	0.96	0.000	0.943	0.93	1.00	0.93
17.75	131.00	1.030	68.60	0.654	0.96	0.000	0.943	0.93	1.00	0.93
17.80	131.00	1.033	68.60	0.656	0.96	0.000	0.943	0.93	1.00	0.93
17.85	131.00	1.036	68.60	0.657	0.96	0.000	0.943	0.93	1.00	0.93
17.90	131.00	1.039	68.60	0.659	0.96	0.000	0.943	0.93	1.00	0.93
17.95	131.00	1.042	68.60	0.660	0.96	0.000	0.943	0.93	1.00	0.93
18.00	131.00	1.045	68.60	0.662	0.96	0.000	0.943	0.93	1.00	0.93
18.05	131.00	1.048	68.60	0.664	0.96	0.000	0.943	0.93	1.00	0.93
18.10	131.00	1.052	68.60	0.665	0.96	0.000	0.943	0.93	1.00	0.93
18.15	131.00	1.055	68.60	0.667	0.96	0.000	0.943	0.93	1.00	0.93
18.20	131.00	1.058	68.60	0.668	0.96	0.000	0.943	0.93	1.00	0.93
18.25	131.00	1.061	68.60	0.670	0.96	0.000	0.943	0.93	1.00	0.93
18.30	131.00	1.064	68.60	0.672	0.96	0.000	0.943	0.93	1.00	0.93
18.35	131.00	1.067	68.60	0.673	0.96	0.000	0.943	0.93	1.00	0.93
18.40	131.00	1.070	68.60	0.675	0.96	0.000	0.943	0.93	1.00	0.93
18.45	131.00	1.073	68.60	0.677	0.96	0.000	0.943	0.93	1.00	0.93
18.50	131.00	1.076	68.60	0.678	0.96	0.000	0.943	0.93	1.00	0.93
18.55	131.00	1.079	68.60	0.680	0.96	0.000	0.943	0.93	1.00	0.93
18.60	131.00	1.082	68.60	0.681	0.96	0.000	0.943	0.93	1.00	0.93
18.65	131.00	1.086	68.60	0.683	0.96	0.000	0.943	0.93	1.00	0.93
18.70	131.00	1.089	68.60	0.685	0.96	0.000	0.943	0.93	1.00	0.93
18.75	131.00	1.092	68.60	0.686	0.96	0.000	0.943	0.93	1.00	0.93
18.80	131.00	1.095	68.60	0.688	0.96	0.000	0.943	0.93	1.00	0.93
18.85	131.00	1.098	68.60	0.690	0.96	0.000	0.943	0.93	1.00	0.93
18.90	131.00	1.101	68.60	0.691	0.96	0.000	0.943	0.93	1.00	0.93

18.95	131.00	1.104	68.60	0.693	0.96	0.000	0.943	0.93	1.00	0.93
19.00	131.00	1.107	68.60	0.694	0.96	0.000	0.943	0.93	1.00	0.93
19.05	131.00	1.110	68.60	0.696	0.96	0.000	0.943	0.93	1.00	0.93
19.10	131.00	1.113	68.60	0.698	0.96	0.000	0.943	0.93	1.00	0.93
19.15	131.00	1.117	68.60	0.699	0.96	0.000	0.943	0.93	1.00	0.93
19.20	131.00	1.120	68.60	0.701	0.96	0.000	0.943	0.94	1.00	0.94
19.25	131.00	1.123	68.60	0.703	0.96	0.000	0.943	0.94	1.00	0.94
19.30	131.00	1.126	68.60	0.704	0.96	0.000	0.943	0.94	1.00	0.94
19.35	131.00	1.129	68.60	0.706	0.95	0.000	0.943	0.94	1.00	0.94
19.40	131.00	1.132	68.60	0.707	0.95	0.000	0.943	0.94	1.00	0.94
19.45	131.00	1.135	68.60	0.709	0.95	0.000	0.943	0.94	1.00	0.94
19.50	131.00	1.138	68.60	0.711	0.95	0.000	0.943	0.94	1.00	0.94
19.55	131.00	1.141	68.60	0.712	0.95	0.000	0.943	0.94	1.00	0.94
19.60	131.00	1.144	68.60	0.714	0.95	0.000	0.943	0.94	1.00	0.94
19.65	131.00	1.147	68.60	0.715	0.95	0.000	0.943	0.94	1.00	0.94
19.70	131.00	1.151	68.60	0.717	0.95	0.000	0.943	0.94	1.00	0.94
19.75	131.00	1.154	68.60	0.719	0.95	0.000	0.943	0.94	1.00	0.94
19.80	131.00	1.157	68.60	0.720	0.95	0.000	0.943	0.94	1.00	0.94
19.85	131.00	1.160	68.60	0.722	0.95	0.000	0.943	0.94	1.00	0.94
19.90	131.00	1.163	68.60	0.724	0.95	0.000	0.943	0.94	1.00	0.94
19.95	131.00	1.166	68.60	0.725	0.95	0.000	0.943	0.94	1.00	0.94
20.00	131.00	1.169	68.60	0.727	0.95	0.000	0.943	0.94	1.00	0.94
20.05	131.00	1.172	68.60	0.728	0.95	0.000	0.943	0.94	1.00	0.94
20.10	131.00	1.175	68.60	0.730	0.95	0.000	0.943	0.94	1.00	0.94
20.15	131.00	1.178	68.60	0.732	0.95	0.000	0.943	0.94	1.00	0.94
20.20	131.00	1.182	68.60	0.733	0.95	0.000	0.943	0.94	1.00	0.94
20.25	131.00	1.185	68.60	0.735	0.95	0.000	0.943	0.94	1.00	0.94
20.30	131.00	1.188	68.60	0.737	0.95	0.000	0.943	0.94	1.00	0.94
20.35	131.00	1.191	68.60	0.738	0.95	0.000	0.943	0.94	1.00	0.94
20.40	131.00	1.194	68.60	0.740	0.95	0.000	0.943	0.94	1.00	0.94
20.45	131.00	1.197	68.60	0.741	0.95	0.000	0.943	0.94	1.00	0.94
20.50	131.00	1.200	68.60	0.743	0.95	0.000	0.943	0.94	1.00	0.94
20.55	131.00	1.203	68.60	0.745	0.95	0.000	0.943	0.94	1.00	0.94
20.60	131.00	1.206	68.60	0.746	0.95	0.000	0.943	0.94	1.00	0.94
20.65	131.00	1.209	68.60	0.748	0.95	0.000	0.943	0.94	1.00	0.94
20.70	131.00	1.212	68.60	0.750	0.95	0.000	0.943	0.94	1.00	0.94
20.75	131.00	1.216	68.60	0.751	0.95	0.000	0.943	0.94	1.00	0.94
20.80	131.00	1.219	68.60	0.753	0.95	0.000	0.943	0.94	1.00	0.94
20.85	131.00	1.222	68.60	0.754	0.95	0.000	0.943	0.94	1.00	0.94
20.90	131.00	1.225	68.60	0.756	0.95	0.000	0.943	0.94	1.00	0.94
20.95	131.00	1.228	68.60	0.758	0.95	0.000	0.943	0.94	1.00	0.94
21.00	131.00	1.231	68.60	0.759	0.95	0.000	0.943	0.95	1.00	0.95
21.05	131.00	1.234	68.60	0.761	0.95	0.000	0.943	0.95	1.00	0.95
21.10	131.00	1.237	68.60	0.762	0.95	0.000	0.943	0.95	1.00	0.95
21.15	131.00	1.240	68.60	0.764	0.95	0.000	0.943	0.95	1.00	0.95
21.20	131.00	1.243	68.60	0.766	0.95	0.000	0.943	0.95	1.00	0.95
21.25	131.00	1.247	68.60	0.767	0.95	0.000	0.943	0.95	1.00	0.95
21.30	131.00	1.250	68.60	0.769	0.95	0.000	0.943	0.95	1.00	0.95
21.35	131.00	1.253	68.60	0.771	0.95	0.000	0.943	0.95	1.00	0.95
21.40	131.00	1.256	68.60	0.772	0.95	0.000	0.943	0.95	1.00	0.95
21.45	131.00	1.259	68.60	0.774	0.95	0.000	0.943	0.95	1.00	0.95
21.50	131.00	1.262	68.60	0.775	0.95	0.000	0.943	0.95	1.00	0.95
21.55	131.00	1.265	68.60	0.777	0.95	0.000	0.943	0.95	1.00	0.95
21.60	131.00	1.268	68.60	0.779	0.95	0.000	0.943	0.95	1.00	0.95
21.65	131.00	1.271	68.60	0.780	0.95	0.000	0.943	0.95	1.00	0.95
21.70	131.00	1.274	68.60	0.782	0.95	0.000	0.943	0.95	1.00	0.95
21.75	131.00	1.277	68.60	0.784	0.95	0.000	0.943	0.95	1.00	0.95
21.80	131.00	1.281	68.60	0.785	0.95	0.000	0.943	0.95	1.00	0.95
21.85	131.00	1.284	68.60	0.787	0.95	0.000	0.943	0.95	1.00	0.95
21.90	131.00	1.287	68.60	0.788	0.95	0.000	0.943	0.95	1.00	0.95
21.95	131.00	1.290	68.60	0.790	0.95	0.000	0.943	0.95	1.00	0.95
22.00	131.00	1.293	68.60	0.792	0.95	0.000	0.943	0.95	1.00	0.95
22.05	131.00	1.296	68.60	0.793	0.95	0.000	0.943	0.95	1.00	0.95
22.10	131.00	1.299	68.60	0.795	0.95	0.000	0.943	0.95	1.00	0.95
22.15	131.00	1.302	68.60	0.797	0.95	0.000	0.943	0.95	1.00	0.95
22.20	131.00	1.305	68.60	0.798	0.95	0.000	0.943	0.95	1.00	0.95
22.25	131.00	1.308	68.60	0.800	0.95	0.000	0.943	0.95	1.00	0.95
22.30	131.00	1.312	68.60	0.801	0.95	0.000	0.943	0.95	1.00	0.95
22.35	131.00	1.315	68.60	0.803	0.95	0.000	0.943	0.95	1.00	0.95
22.40	131.00	1.318	68.60	0.805	0.95	0.000	0.943	0.95	1.00	0.95
22.45	131.00	1.321	68.60	0.806	0.95	0.000	0.943	0.95	1.00	0.95
22.50	131.00	1.324	68.60	0.808	0.95	0.000	0.943	0.95	1.00	0.95
22.55	131.00	1.327	68.60	0.809	0.95	0.000	0.943	0.95	1.00	0.95

22.60	131.00	1.330	68.60	0.811	0.95	0.000	0.943	0.95	1.00	0.95
22.65	131.00	1.333	68.60	0.813	0.95	0.000	0.943	0.95	1.00	0.95
22.70	131.00	1.336	68.60	0.814	0.95	0.000	0.943	0.95	1.00	0.95
22.75	131.00	1.339	68.60	0.816	0.95	0.000	0.943	0.95	1.00	0.95
22.80	131.00	1.342	68.60	0.818	0.95	0.000	0.943	0.95	1.00	0.95
22.85	131.00	1.346	68.60	0.819	0.95	0.000	0.943	0.95	1.00	0.95
22.90	131.00	1.349	68.60	0.821	0.95	0.000	0.943	0.95	1.00	0.95
22.95	131.00	1.352	68.60	0.822	0.95	0.000	0.943	0.95	1.00	0.95
23.00	131.00	1.355	68.60	0.824	0.95	0.000	0.943	0.95	1.00	0.95
23.05	131.00	1.358	68.60	0.826	0.95	0.000	0.943	0.95	1.00	0.95
23.10	131.00	1.361	68.60	0.827	0.95	0.000	0.943	0.95	1.00	0.95
23.15	131.00	1.364	68.60	0.829	0.95	0.000	0.943	0.95	1.00	0.95
23.20	131.00	1.367	68.60	0.831	0.95	0.000	0.943	0.95	1.00	0.95
23.25	131.00	1.370	68.60	0.832	0.95	0.000	0.943	0.95	1.00	0.95
23.30	131.00	1.373	68.60	0.834	0.95	0.000	0.943	0.95	1.00	0.95
23.35	131.00	1.377	68.60	0.835	0.95	0.000	0.943	0.95	1.00	0.95
23.40	131.00	1.380	68.60	0.837	0.95	0.000	0.943	0.96	1.00	0.96
23.45	131.00	1.383	68.60	0.839	0.95	0.000	0.943	0.96	1.00	0.96
23.50	131.00	1.386	68.60	0.840	0.95	0.000	0.943	0.96	1.00	0.96
23.55	131.00	1.389	68.60	0.842	0.95	0.000	0.943	0.96	1.00	0.96
23.60	131.00	1.392	68.60	0.844	0.94	0.000	0.943	0.96	1.00	0.96
23.65	131.00	1.395	68.60	0.845	0.94	0.000	0.943	0.96	1.00	0.96
23.70	131.00	1.398	68.60	0.847	0.94	0.000	0.943	0.96	1.00	0.96
23.75	131.00	1.401	68.60	0.848	0.94	0.000	0.943	0.96	1.00	0.96
23.80	131.00	1.404	68.60	0.850	0.94	0.000	0.943	0.96	1.00	0.96
23.85	131.00	1.407	68.60	0.852	0.94	0.000	0.943	0.96	1.00	0.96
23.90	131.00	1.411	68.60	0.853	0.94	0.000	0.943	0.96	1.00	0.96
23.95	131.00	1.414	68.60	0.855	0.94	0.000	0.943	0.96	1.00	0.96
24.00	131.00	1.417	68.60	0.856	0.94	0.000	0.943	0.96	1.00	0.96
24.05	131.00	1.420	68.60	0.858	0.94	0.000	0.943	0.96	1.00	0.96
24.10	131.00	1.423	68.60	0.860	0.94	0.000	0.943	0.96	1.00	0.96
24.15	131.00	1.426	68.60	0.861	0.94	0.000	0.943	0.96	1.00	0.96
24.20	131.00	1.429	68.60	0.863	0.94	0.000	0.943	0.96	1.00	0.96
24.25	131.00	1.432	68.60	0.865	0.94	0.000	0.943	0.96	1.00	0.96
24.30	131.00	1.435	68.60	0.866	0.94	0.000	0.943	0.96	1.00	0.96
24.35	131.00	1.438	68.60	0.868	0.94	0.000	0.943	0.96	1.00	0.96
24.40	131.00	1.442	68.60	0.869	0.94	0.000	0.943	0.96	1.00	0.96
24.45	131.00	1.445	68.60	0.871	0.94	0.000	0.943	0.96	1.00	0.96
24.50	131.00	1.448	68.60	0.873	0.94	0.000	0.943	0.96	1.00	0.96
24.55	131.00	1.451	68.60	0.874	0.94	0.000	0.943	0.96	1.00	0.96
24.60	131.00	1.454	68.60	0.876	0.94	0.000	0.943	0.96	1.00	0.96
24.65	131.00	1.457	68.60	0.878	0.94	0.000	0.943	0.96	1.00	0.96
24.70	131.00	1.460	68.60	0.879	0.94	0.000	0.943	0.96	1.00	0.96
24.75	131.00	1.463	68.60	0.881	0.94	0.000	0.943	0.96	1.00	0.96
24.80	131.00	1.466	68.60	0.882	0.94	0.000	0.943	0.96	1.00	0.96
24.85	131.00	1.469	68.60	0.884	0.94	0.000	0.943	0.96	1.00	0.96
24.90	131.00	1.472	68.60	0.886	0.94	0.000	0.943	0.96	1.00	0.96
24.95	131.00	1.476	68.60	0.887	0.94	0.000	0.943	0.96	1.00	0.96
25.00	131.00	1.479	68.60	0.889	0.94	0.000	0.943	0.96	1.00	0.96

CSR is based on water table at 5.00 during earthquake

CRR Calculation from SPT or BPT data:

Depth ft	SPT	Cebs	Cr	sigma' atm	Cn	(N1)60	Fines %	d(N1)60	(N1)60f	CRR7.5
1.00	10.00	1.26	0.75	0.055	1.70	16.07	45.00	8.21	24.28	0.27
1.05	10.00	1.26	0.75	0.058	1.70	16.07	45.00	8.21	24.28	0.27
1.10	10.00	1.26	0.75	0.060	1.70	16.07	45.00	8.21	24.28	0.27
1.15	10.00	1.26	0.75	0.063	1.70	16.07	45.00	8.21	24.28	0.27
1.20	10.00	1.26	0.75	0.066	1.70	16.07	45.00	8.21	24.28	0.27
1.25	10.00	1.26	0.75	0.069	1.70	16.07	45.00	8.21	24.28	0.27
1.30	10.00	1.26	0.75	0.071	1.70	16.07	45.00	8.21	24.28	0.27
1.35	10.00	1.26	0.75	0.074	1.70	16.07	45.00	8.21	24.28	0.27
1.40	10.00	1.26	0.75	0.077	1.70	16.07	45.00	8.21	24.28	0.27
1.45	10.00	1.26	0.75	0.079	1.70	16.07	45.00	8.21	24.28	0.27
1.50	10.00	1.26	0.75	0.082	1.70	16.07	45.00	8.21	24.28	0.27
1.55	10.00	1.26	0.75	0.085	1.70	16.07	45.00	8.21	24.28	0.27
1.60	10.00	1.26	0.75	0.088	1.70	16.07	45.00	8.21	24.28	0.27
1.65	10.00	1.26	0.75	0.090	1.70	16.07	45.00	8.21	24.28	0.27
1.70	10.00	1.26	0.75	0.093	1.70	16.07	45.00	8.21	24.28	0.27
1.75	10.00	1.26	0.75	0.096	1.70	16.07	45.00	8.21	24.28	0.27
1.80	10.00	1.26	0.75	0.099	1.70	16.07	45.00	8.21	24.28	0.27

1.85	10.00	1.26	0.75	0.101	1.70	16.07	45.00	8.21	24.28	0.27
1.90	10.00	1.26	0.75	0.104	1.70	16.07	45.00	8.21	24.28	0.27
1.95	10.00	1.26	0.75	0.107	1.70	16.07	45.00	8.21	24.28	0.27
2.00	10.00	1.26	0.75	0.110	1.70	16.07	45.00	8.21	24.28	0.27
2.05	10.00	1.26	0.75	0.112	1.70	16.07	45.00	8.21	24.28	0.27
2.10	10.00	1.26	0.75	0.115	1.70	16.07	45.00	8.21	24.28	0.27
2.15	10.00	1.26	0.75	0.118	1.70	16.07	45.00	8.21	24.28	0.27
2.20	10.00	1.26	0.75	0.121	1.70	16.07	45.00	8.21	24.28	0.27
2.25	10.00	1.26	0.75	0.123	1.70	16.07	45.00	8.21	24.28	0.27
2.30	10.00	1.26	0.75	0.126	1.70	16.07	45.00	8.21	24.28	0.27
2.35	10.00	1.26	0.75	0.129	1.70	16.07	45.00	8.21	24.28	0.27
2.40	10.00	1.26	0.75	0.132	1.70	16.07	45.00	8.21	24.28	0.27
2.45	10.00	1.26	0.75	0.134	1.70	16.07	45.00	8.21	24.28	0.27
2.50	10.00	1.26	0.75	0.137	1.70	16.07	45.00	8.21	24.28	0.27
2.55	10.00	1.26	0.75	0.140	1.70	16.07	45.00	8.21	24.28	0.27
2.60	10.00	1.26	0.75	0.143	1.70	16.07	45.00	8.21	24.28	0.27
2.65	10.00	1.26	0.75	0.145	1.70	16.07	45.00	8.21	24.28	0.27
2.70	10.00	1.26	0.75	0.148	1.70	16.07	45.00	8.21	24.28	0.27
2.75	10.00	1.26	0.75	0.151	1.70	16.07	45.00	8.21	24.28	0.27
2.80	10.00	1.26	0.75	0.153	1.70	16.07	45.00	8.21	24.28	0.27
2.85	10.00	1.26	0.75	0.156	1.70	16.07	45.00	8.21	24.28	0.27
2.90	10.00	1.26	0.75	0.159	1.70	16.07	45.00	8.21	24.28	0.27
2.95	10.00	1.26	0.75	0.162	1.70	16.07	45.00	8.21	24.28	0.27
3.00	10.00	1.26	0.75	0.164	1.70	16.07	45.00	8.21	24.28	0.27
3.05	10.00	1.26	0.75	0.167	1.70	16.07	45.00	8.21	24.28	0.27
3.10	10.00	1.26	0.75	0.170	1.70	16.07	45.00	8.21	24.28	0.27
3.15	10.00	1.26	0.75	0.173	1.70	16.07	45.00	8.21	24.28	0.27
3.20	10.00	1.26	0.75	0.175	1.70	16.07	45.00	8.21	24.28	0.27
3.25	10.00	1.26	0.75	0.178	1.70	16.07	45.00	8.21	24.28	0.27
3.30	10.00	1.26	0.75	0.181	1.70	16.07	45.00	8.21	24.28	0.27
3.35	10.00	1.26	0.75	0.184	1.70	16.07	45.00	8.21	24.28	0.27
3.40	10.00	1.26	0.75	0.186	1.70	16.07	45.00	8.21	24.28	0.27
3.45	10.00	1.26	0.75	0.189	1.70	16.07	45.00	8.21	24.28	0.27
3.50	10.00	1.26	0.75	0.192	1.70	16.07	45.00	8.21	24.28	0.27
3.55	10.00	1.26	0.75	0.195	1.70	16.07	45.00	8.21	24.28	0.27
3.60	10.00	1.26	0.75	0.197	1.70	16.07	45.00	8.21	24.28	0.27
3.65	10.00	1.26	0.75	0.200	1.70	16.07	45.00	8.21	24.28	0.27
3.70	10.00	1.26	0.75	0.203	1.70	16.07	45.00	8.21	24.28	0.27
3.75	10.00	1.26	0.75	0.206	1.70	16.07	45.00	8.21	24.28	0.27
3.80	10.00	1.26	0.75	0.208	1.70	16.07	45.00	8.21	24.28	0.27
3.85	10.00	1.26	0.75	0.211	1.70	16.07	45.00	8.21	24.28	0.27
3.90	10.00	1.26	0.75	0.214	1.70	16.07	45.00	8.21	24.28	0.27
3.95	10.00	1.26	0.75	0.217	1.70	16.07	45.00	8.21	24.28	0.27
4.00	10.00	1.26	0.75	0.219	1.70	16.07	45.00	8.21	24.28	0.27
4.05	10.00	1.26	0.75	0.222	1.70	16.07	45.00	8.21	24.28	0.27
4.10	10.00	1.26	0.75	0.225	1.70	16.07	45.00	8.21	24.28	0.27
4.15	10.00	1.26	0.75	0.227	1.70	16.07	45.00	8.21	24.28	0.27
4.20	10.00	1.26	0.75	0.230	1.70	16.07	45.00	8.21	24.28	0.27
4.25	10.00	1.26	0.75	0.233	1.70	16.07	45.00	8.21	24.28	0.27
4.30	10.00	1.26	0.75	0.236	1.70	16.07	45.00	8.21	24.28	0.27
4.35	10.00	1.26	0.75	0.238	1.70	16.07	45.00	8.21	24.28	0.27
4.40	10.00	1.26	0.75	0.241	1.70	16.07	45.00	8.21	24.28	0.27
4.45	10.00	1.26	0.75	0.244	1.70	16.07	45.00	8.21	24.28	0.27
4.50	10.00	1.26	0.75	0.247	1.70	16.07	45.00	8.21	24.28	0.27
4.55	10.00	1.26	0.75	0.249	1.70	16.07	45.00	8.21	24.28	0.27
4.60	10.00	1.26	0.75	0.252	1.70	16.07	45.00	8.21	24.28	0.27
4.65	10.00	1.26	0.75	0.255	1.70	16.07	45.00	8.21	24.28	0.27
4.70	10.00	1.26	0.75	0.258	1.70	16.07	45.00	8.21	24.28	0.27
4.75	10.00	1.26	0.75	0.260	1.70	16.07	45.00	8.21	24.28	0.27
4.80	10.00	1.26	0.75	0.263	1.70	16.07	45.00	8.21	24.28	0.27
4.85	10.00	1.26	0.75	0.266	1.70	16.07	45.00	8.21	24.28	0.27
4.90	10.00	1.26	0.75	0.269	1.70	16.07	45.00	8.21	24.28	0.27
4.95	10.00	1.26	0.75	0.271	1.70	16.07	45.00	8.21	24.28	0.27
5.00	10.00	1.26	0.75	0.274	1.70	16.07	45.00	8.21	24.28	0.27
5.05	10.00	1.26	0.75	0.277	1.70	16.07	45.00	8.21	24.28	0.27
5.10	10.00	1.26	0.75	0.280	1.70	16.07	45.00	8.21	24.28	0.27
5.15	10.00	1.26	0.75	0.282	1.70	16.07	45.00	8.21	24.28	0.27
5.20	10.00	1.26	0.75	0.285	1.70	16.07	45.00	8.21	24.28	0.27
5.25	10.00	1.26	0.75	0.288	1.70	16.07	45.00	8.21	24.28	0.27
5.30	10.00	1.26	0.75	0.291	1.70	16.07	45.00	8.21	24.28	0.27
5.35	10.00	1.26	0.75	0.293	1.70	16.07	45.00	8.21	24.28	0.27
5.40	10.00	1.26	0.75	0.296	1.70	16.07	45.00	8.21	24.28	0.27
5.45	10.00	1.26	0.75	0.299	1.70	16.07	45.00	8.21	24.28	0.27

5.50	10.00	1.26	0.75	0.301	1.70	16.07	45.00	8.21	24.28	0.27
5.55	10.00	1.26	0.75	0.304	1.70	16.07	45.00	8.21	24.28	0.27
5.60	10.00	1.26	0.75	0.307	1.70	16.07	45.00	8.21	24.28	0.27
5.65	10.00	1.26	0.75	0.310	1.70	16.07	45.00	8.21	24.28	0.27
5.70	10.00	1.26	0.75	0.312	1.70	16.07	45.00	8.21	24.28	0.27
5.75	10.00	1.26	0.75	0.315	1.70	16.07	45.00	8.21	24.28	0.27
5.80	10.00	1.26	0.75	0.318	1.70	16.07	45.00	8.21	24.28	0.27
5.85	10.00	1.26	0.75	0.321	1.70	16.07	45.00	8.21	24.28	0.27
5.90	10.00	1.26	0.75	0.323	1.70	16.07	45.00	8.21	24.28	0.27
5.95	10.00	1.26	0.75	0.326	1.70	16.07	45.00	8.21	24.28	0.27
6.00	10.00	1.26	0.75	0.329	1.70	16.07	45.00	8.21	24.28	0.27
6.05	10.75	1.26	0.75	0.332	1.70	17.27	43.00	8.45	25.72	0.29
6.10	11.50	1.26	0.75	0.334	1.70	18.47	41.00	8.69	27.17	0.32
6.15	12.25	1.26	0.75	0.337	1.70	19.68	39.00	8.94	28.62	0.36
6.20	13.00	1.26	0.75	0.340	1.70	20.88	37.00	9.18	30.06	0.47
6.25	13.75	1.26	0.75	0.343	1.70	22.09	35.00	9.33	31.42	0.50
6.30	14.50	1.26	0.75	0.345	1.70	23.29	33.00	9.06	32.36	0.50
6.35	15.25	1.26	0.75	0.348	1.69	24.42	31.00	8.74	33.16	0.50
6.40	16.00	1.26	0.75	0.351	1.69	25.52	29.00	8.37	33.88	0.50
6.45	16.75	1.26	0.75	0.354	1.68	26.61	27.00	7.95	34.55	0.50
6.50	17.50	1.26	0.75	0.357	1.67	27.69	25.00	7.47	35.16	0.50
6.55	18.25	1.26	0.75	0.360	1.67	28.76	23.00	6.94	35.70	0.50
6.60	19.00	1.26	0.75	0.362	1.66	29.82	21.00	6.35	36.17	0.50
6.65	19.75	1.26	0.75	0.365	1.65	30.88	19.00	5.68	36.56	0.50
6.70	20.50	1.26	0.75	0.368	1.65	31.92	17.00	4.93	36.86	0.50
6.75	21.25	1.26	0.75	0.371	1.64	32.96	15.00	4.08	37.05	0.50
6.80	22.00	1.26	0.75	0.374	1.64	33.99	13.00	3.14	37.14	0.50
6.85	22.75	1.26	0.75	0.377	1.63	35.02	11.00	2.14	37.15	0.50
6.90	23.50	1.26	0.75	0.380	1.62	36.03	9.00	1.17	37.20	0.50
6.95	24.25	1.26	0.75	0.383	1.62	37.04	7.00	0.44	37.48	0.50
7.00	25.00	1.26	0.75	0.386	1.61	38.04	5.00	0.00	38.04	0.50
7.05	25.00	1.26	0.75	0.389	1.60	37.89	5.00	0.00	37.89	0.50
7.10	25.00	1.26	0.75	0.392	1.60	37.75	5.00	0.00	37.75	0.50
7.15	25.00	1.26	0.75	0.395	1.59	37.61	5.00	0.00	37.61	0.50
7.20	25.00	1.26	0.75	0.398	1.59	37.47	5.00	0.00	37.47	0.50
7.25	25.00	1.26	0.75	0.400	1.58	37.33	5.00	0.00	37.33	0.50
7.30	25.00	1.26	0.75	0.403	1.57	37.19	5.00	0.00	37.19	0.50
7.35	25.00	1.26	0.75	0.406	1.57	37.06	5.00	0.00	37.06	0.50
7.40	25.00	1.26	0.75	0.409	1.56	36.93	5.00	0.00	36.93	0.50
7.45	25.00	1.26	0.75	0.412	1.56	36.79	5.00	0.00	36.79	0.50
7.50	25.00	1.26	0.75	0.415	1.55	36.66	5.00	0.00	36.66	0.50
7.55	25.00	1.26	0.75	0.418	1.55	36.53	5.00	0.00	36.53	0.50
7.60	25.00	1.26	0.75	0.421	1.54	36.40	5.00	0.00	36.40	0.50
7.65	25.00	1.26	0.75	0.424	1.54	36.28	5.00	0.00	36.28	0.50
7.70	25.00	1.26	0.75	0.427	1.53	36.15	5.00	0.00	36.15	0.50
7.75	25.00	1.26	0.75	0.430	1.52	36.03	5.00	0.00	36.03	0.50
7.80	25.00	1.26	0.75	0.433	1.52	35.90	5.00	0.00	35.90	0.50
7.85	25.00	1.26	0.75	0.436	1.51	35.78	5.00	0.00	35.78	0.50
7.90	25.00	1.26	0.75	0.439	1.51	35.66	5.00	0.00	35.66	0.50
7.95	25.00	1.26	0.75	0.442	1.50	35.54	5.00	0.00	35.54	0.50
8.00	25.00	1.26	0.75	0.445	1.50	35.42	5.00	0.00	35.42	0.50
8.05	25.00	1.26	0.75	0.448	1.49	35.31	5.00	0.00	35.31	0.50
8.10	25.00	1.26	0.75	0.451	1.49	35.19	5.00	0.00	35.19	0.50
8.15	25.00	1.26	0.75	0.454	1.48	35.08	5.00	0.00	35.08	0.50
8.20	25.00	1.26	0.75	0.457	1.48	34.96	5.00	0.00	34.96	0.50
8.25	25.00	1.26	0.85	0.460	1.48	39.50	5.00	0.00	39.50	0.50
8.30	25.00	1.26	0.85	0.463	1.47	39.37	5.00	0.00	39.37	0.50
8.35	25.00	1.26	0.85	0.465	1.47	39.24	5.00	0.00	39.24	0.50
8.40	25.00	1.26	0.85	0.468	1.46	39.12	5.00	0.00	39.12	0.50
8.45	25.00	1.26	0.85	0.471	1.46	39.00	5.00	0.00	39.00	0.50
8.50	25.00	1.26	0.85	0.474	1.45	38.88	5.00	0.00	38.88	0.50
8.55	25.00	1.26	0.85	0.477	1.45	38.76	5.00	0.00	38.76	0.50
8.60	25.00	1.26	0.85	0.480	1.44	38.64	5.00	0.00	38.64	0.50
8.65	25.00	1.26	0.85	0.483	1.44	38.52	5.00	0.00	38.52	0.50
8.70	25.00	1.26	0.85	0.486	1.43	38.40	5.00	0.00	38.40	0.50
8.75	25.00	1.26	0.85	0.489	1.43	38.29	5.00	0.00	38.29	0.50
8.80	25.00	1.26	0.85	0.492	1.43	38.17	5.00	0.00	38.17	0.50
8.85	25.00	1.26	0.85	0.495	1.42	38.06	5.00	0.00	38.06	0.50
8.90	25.00	1.26	0.85	0.498	1.42	37.94	5.00	0.00	37.94	0.50
8.95	25.00	1.26	0.85	0.501	1.41	37.83	5.00	0.00	37.83	0.50
9.00	25.00	1.26	0.85	0.504	1.41	37.72	5.00	0.00	37.72	0.50
9.05	24.80	1.26	0.85	0.507	1.40	37.31	5.00	0.00	37.31	0.50
9.10	24.60	1.26	0.85	0.510	1.40	36.90	5.00	0.00	36.90	0.50

9.15	24.40	1.26	0.85	0.513	1.40	36.50	5.00	0.00	36.50	0.50
9.20	24.20	1.26	0.85	0.516	1.39	36.09	5.00	0.00	36.09	0.50
9.25	24.00	1.26	0.85	0.519	1.39	35.69	5.00	0.00	35.69	0.50
9.30	23.80	1.26	0.85	0.522	1.38	35.29	5.00	0.00	35.29	0.50
9.35	23.60	1.26	0.85	0.525	1.38	34.90	5.00	0.00	34.90	0.50
9.40	23.40	1.26	0.85	0.527	1.38	34.51	5.00	0.00	34.51	0.50
9.45	23.20	1.26	0.85	0.530	1.37	34.12	5.00	0.00	34.12	0.50
9.50	23.00	1.26	0.85	0.533	1.37	33.73	5.00	0.00	33.73	0.50
9.55	22.80	1.26	0.85	0.536	1.37	33.34	5.00	0.00	33.34	0.50
9.60	22.60	1.26	0.85	0.539	1.36	32.96	5.00	0.00	32.96	0.50
9.65	22.40	1.26	0.85	0.542	1.36	32.58	5.00	0.00	32.58	0.50
9.70	22.20	1.26	0.85	0.545	1.35	32.20	5.00	0.00	32.20	0.50
9.75	22.00	1.26	0.85	0.548	1.35	31.82	5.00	0.00	31.82	0.50
9.80	21.80	1.26	0.85	0.551	1.35	31.45	5.00	0.00	31.45	0.50
9.85	21.60	1.26	0.85	0.554	1.34	31.08	5.00	0.00	31.08	0.50
9.90	21.40	1.26	0.85	0.557	1.34	30.71	5.00	0.00	30.71	0.50
9.95	21.20	1.26	0.85	0.560	1.34	30.34	5.00	0.00	30.34	0.50
10.00	21.00	1.26	0.85	0.563	1.33	29.98	5.00	0.04	30.01	0.46
10.05	21.00	1.26	0.85	0.566	1.33	29.90	5.25	0.07	29.96	0.45
10.10	21.00	1.26	0.85	0.569	1.33	29.82	5.50	0.10	29.92	0.44
10.15	21.00	1.26	0.85	0.572	1.32	29.74	5.75	0.13	29.87	0.44
10.20	21.00	1.26	0.85	0.575	1.32	29.67	6.00	0.17	29.84	0.43
10.25	21.00	1.26	0.85	0.578	1.32	29.59	6.25	0.21	29.80	0.43
10.30	21.00	1.26	0.85	0.581	1.31	29.52	6.50	0.26	29.77	0.42
10.35	21.00	1.26	0.85	0.584	1.31	29.44	6.75	0.31	29.75	0.42
10.40	21.00	1.26	0.85	0.587	1.31	29.37	7.00	0.37	29.74	0.42
10.45	21.00	1.26	0.85	0.590	1.30	29.29	7.25	0.44	29.73	0.42
10.50	21.00	1.26	0.85	0.592	1.30	29.22	7.50	0.51	29.73	0.42
10.55	21.00	1.26	0.85	0.595	1.30	29.15	7.75	0.58	29.73	0.42
10.60	21.00	1.26	0.85	0.598	1.29	29.08	8.00	0.67	29.74	0.42
10.65	21.00	1.26	0.85	0.601	1.29	29.00	8.25	0.75	29.76	0.42
10.70	21.00	1.26	0.85	0.604	1.29	28.93	8.50	0.85	29.78	0.42
10.75	21.00	1.26	0.85	0.607	1.28	28.86	8.75	0.94	29.81	0.43
10.80	21.00	1.26	0.85	0.610	1.28	28.79	9.00	1.05	29.84	0.43
10.85	21.00	1.26	0.85	0.613	1.28	28.72	9.25	1.15	29.87	0.44
10.90	21.00	1.26	0.85	0.616	1.27	28.65	9.50	1.26	29.91	0.44
10.95	21.00	1.26	0.85	0.619	1.27	28.59	9.75	1.37	29.96	0.45
11.00	21.00	1.26	0.85	0.622	1.27	28.52	10.00	1.49	30.00	0.46
11.05	21.30	1.26	0.85	0.625	1.26	28.86	10.00	1.49	30.35	0.50
11.10	21.60	1.26	0.85	0.628	1.26	29.19	10.00	1.50	30.69	0.50
11.15	21.90	1.26	0.85	0.631	1.26	29.53	10.00	1.51	31.04	0.50
11.20	22.20	1.26	0.85	0.634	1.26	29.87	10.00	1.52	31.38	0.50
11.25	22.50	1.26	0.85	0.637	1.25	30.20	10.00	1.52	31.72	0.50
11.30	22.80	1.26	0.85	0.640	1.25	30.53	10.00	1.53	32.06	0.50
11.35	23.10	1.26	0.85	0.643	1.25	30.86	10.00	1.54	32.40	0.50
11.40	23.40	1.26	0.85	0.646	1.24	31.19	10.00	1.54	32.73	0.50
11.45	23.70	1.26	0.85	0.649	1.24	31.52	10.00	1.55	33.07	0.50
11.50	24.00	1.26	0.85	0.652	1.24	31.84	10.00	1.56	33.40	0.50
11.55	24.30	1.26	0.85	0.654	1.24	32.17	10.00	1.56	33.73	0.50
11.60	24.60	1.26	0.85	0.657	1.23	32.49	10.00	1.57	34.07	0.50
11.65	24.90	1.26	0.85	0.660	1.23	32.82	10.00	1.58	34.40	0.50
11.70	25.20	1.26	0.85	0.663	1.23	33.14	10.00	1.59	34.72	0.50
11.75	25.50	1.26	0.85	0.666	1.23	33.46	10.00	1.59	35.05	0.50
11.80	25.80	1.26	0.85	0.669	1.22	33.78	10.00	1.60	35.38	0.50
11.85	26.10	1.26	0.85	0.672	1.22	34.09	10.00	1.61	35.70	0.50
11.90	26.40	1.26	0.85	0.675	1.22	34.41	10.00	1.61	36.02	0.50
11.95	26.70	1.26	0.85	0.678	1.21	34.73	10.00	1.62	36.35	0.50
12.00	27.00	1.26	0.85	0.681	1.21	35.04	10.00	1.63	36.67	0.50
12.05	27.00	1.26	0.85	0.684	1.21	34.96	10.00	1.63	36.59	0.50
12.10	27.00	1.26	0.85	0.687	1.21	34.89	10.00	1.62	36.51	0.50
12.15	27.00	1.26	0.85	0.690	1.20	34.81	10.00	1.62	36.44	0.50
12.20	27.00	1.26	0.85	0.693	1.20	34.74	10.00	1.62	36.36	0.50
12.25	27.00	1.26	0.85	0.696	1.20	34.67	10.00	1.62	36.28	0.50
12.30	27.00	1.26	0.85	0.699	1.20	34.59	10.00	1.62	36.21	0.50
12.35	27.00	1.26	0.85	0.702	1.19	34.52	10.00	1.62	36.14	0.50
12.40	27.00	1.26	0.85	0.705	1.19	34.45	10.00	1.61	36.06	0.50
12.45	27.00	1.26	0.85	0.708	1.19	34.38	10.00	1.61	35.99	0.50
12.50	27.00	1.26	0.85	0.711	1.19	34.30	10.00	1.61	35.91	0.50
12.55	27.00	1.26	0.85	0.714	1.18	34.23	10.00	1.61	35.84	0.50
12.60	27.00	1.26	0.85	0.717	1.18	34.16	10.00	1.61	35.77	0.50
12.65	27.00	1.26	0.85	0.719	1.18	34.09	10.00	1.61	35.70	0.50
12.70	27.00	1.26	0.85	0.722	1.18	34.02	10.00	1.61	35.63	0.50
12.75	27.00	1.26	0.85	0.725	1.17	33.95	10.00	1.60	35.56	0.50

12.80	27.00	1.26	0.85	0.728	1.17	33.88	10.00	1.60	35.49	0.50
12.85	27.00	1.26	0.85	0.731	1.17	33.82	10.00	1.60	35.42	0.50
12.90	27.00	1.26	0.85	0.734	1.17	33.75	10.00	1.60	35.35	0.50
12.95	27.00	1.26	0.85	0.737	1.16	33.68	10.00	1.60	35.28	0.50
13.00	27.00	1.26	0.85	0.740	1.16	33.61	10.00	1.60	35.21	0.50
13.05	26.80	1.26	0.85	0.743	1.16	33.30	10.00	1.59	34.89	0.50
13.10	26.60	1.26	0.85	0.746	1.16	32.98	10.00	1.58	34.57	0.50
13.15	26.40	1.26	0.85	0.749	1.16	32.67	10.00	1.58	34.25	0.50
13.20	26.20	1.26	0.85	0.752	1.15	32.36	10.00	1.57	33.93	0.50
13.25	26.00	1.26	0.85	0.755	1.15	32.05	10.00	1.56	33.61	0.50
13.30	25.80	1.26	0.85	0.758	1.15	31.74	10.00	1.56	33.29	0.50
13.35	25.60	1.26	0.85	0.761	1.15	31.43	10.00	1.55	32.98	0.50
13.40	25.40	1.26	0.85	0.764	1.14	31.12	10.00	1.54	32.67	0.50
13.45	25.20	1.26	0.85	0.767	1.14	30.82	10.00	1.54	32.36	0.50
13.50	25.00	1.26	0.85	0.770	1.14	30.52	10.00	1.53	32.04	0.50
13.55	24.80	1.26	0.85	0.773	1.14	30.21	10.00	1.52	31.73	0.50
13.60	24.60	1.26	0.85	0.776	1.14	29.91	10.00	1.52	31.43	0.50
13.65	24.40	1.26	0.85	0.779	1.13	29.61	10.00	1.51	31.12	0.50
13.70	24.20	1.26	0.85	0.782	1.13	29.31	10.00	1.50	30.81	0.50
13.75	24.00	1.26	0.85	0.785	1.13	29.01	10.00	1.50	30.51	0.50
13.80	23.80	1.26	0.85	0.788	1.13	28.72	10.00	1.49	30.21	0.50
13.85	23.60	1.26	0.85	0.791	1.12	28.42	10.00	1.48	29.90	0.44
13.90	23.40	1.26	0.85	0.794	1.12	28.12	10.00	1.48	29.60	0.41
13.95	23.20	1.26	0.85	0.797	1.12	27.83	10.00	1.47	29.30	0.39
14.00	23.00	1.26	0.85	0.800	1.12	27.54	10.00	1.46	29.00	0.38
14.05	23.15	1.26	0.85	0.803	1.12	27.67	10.00	1.47	29.13	0.38
14.10	23.30	1.26	0.85	0.806	1.11	27.79	10.00	1.47	29.26	0.39
14.15	23.45	1.26	0.85	0.809	1.11	27.92	10.00	1.47	29.39	0.39
14.20	23.60	1.26	0.85	0.812	1.11	28.04	10.00	1.48	29.52	0.40
14.25	23.75	1.26	0.85	0.815	1.11	28.17	10.00	1.48	29.65	0.41
14.30	23.90	1.26	0.85	0.818	1.11	28.29	10.00	1.48	29.78	0.42
14.35	24.05	1.26	0.85	0.821	1.10	28.42	10.00	1.48	29.90	0.44
14.40	24.20	1.26	0.85	0.824	1.10	28.54	10.00	1.49	30.03	0.47
14.45	24.35	1.26	0.85	0.828	1.10	28.67	10.00	1.49	30.16	0.50
14.50	24.50	1.26	0.85	0.831	1.10	28.79	10.00	1.49	30.28	0.50
14.55	24.65	1.26	0.85	0.834	1.10	28.91	10.00	1.49	30.41	0.50
14.60	24.80	1.26	0.85	0.837	1.09	29.04	10.00	1.50	30.54	0.50
14.65	24.95	1.26	0.85	0.840	1.09	29.16	10.00	1.50	30.66	0.50
14.70	25.10	1.26	0.85	0.843	1.09	29.28	10.00	1.50	30.79	0.50
14.75	25.25	1.26	0.85	0.846	1.09	29.40	10.00	1.51	30.91	0.50
14.80	25.40	1.26	0.95	0.849	1.09	33.00	10.00	1.58	34.58	0.50
14.85	25.55	1.26	0.95	0.852	1.08	33.14	10.00	1.59	34.72	0.50
14.90	25.70	1.26	0.95	0.855	1.08	33.27	10.00	1.59	34.86	0.50
14.95	25.85	1.26	0.95	0.858	1.08	33.40	10.00	1.59	35.00	0.50
15.00	26.00	1.26	0.95	0.861	1.08	33.54	10.00	1.59	35.13	0.50
15.05	26.00	1.26	0.95	0.864	1.08	33.48	10.00	1.59	35.07	0.50
15.10	26.00	1.26	0.95	0.867	1.07	33.42	10.00	1.59	35.01	0.50
15.15	26.00	1.26	0.95	0.870	1.07	33.36	10.00	1.59	34.95	0.50
15.20	26.00	1.26	0.95	0.873	1.07	33.30	10.00	1.59	34.89	0.50
15.25	26.00	1.26	0.95	0.876	1.07	33.25	10.00	1.59	34.83	0.50
15.30	26.00	1.26	0.95	0.879	1.07	33.19	10.00	1.59	34.78	0.50
15.35	26.00	1.26	0.95	0.882	1.06	33.13	10.00	1.59	34.72	0.50
15.40	26.00	1.26	0.95	0.885	1.06	33.07	10.00	1.58	34.66	0.50
15.45	26.00	1.26	0.95	0.888	1.06	33.02	10.00	1.58	34.60	0.50
15.50	26.00	1.26	0.95	0.892	1.06	32.96	10.00	1.58	34.54	0.50
15.55	26.00	1.26	0.95	0.895	1.06	32.90	10.00	1.58	34.49	0.50
15.60	26.00	1.26	0.95	0.898	1.06	32.85	10.00	1.58	34.43	0.50
15.65	26.00	1.26	0.95	0.901	1.05	32.79	10.00	1.58	34.37	0.50
15.70	26.00	1.26	0.95	0.904	1.05	32.74	10.00	1.58	34.31	0.50
15.75	26.00	1.26	0.95	0.907	1.05	32.68	10.00	1.58	34.26	0.50
15.80	26.00	1.26	0.95	0.910	1.05	32.63	10.00	1.57	34.20	0.50
15.85	26.00	1.26	0.95	0.913	1.05	32.57	10.00	1.57	34.15	0.50
15.90	26.00	1.26	0.95	0.916	1.04	32.52	10.00	1.57	34.09	0.50
15.95	26.00	1.26	0.95	0.919	1.04	32.47	10.00	1.57	34.04	0.50
16.00	26.00	1.26	0.95	0.922	1.04	32.41	10.00	1.57	33.98	0.50
16.05	26.60	1.26	0.95	0.925	1.04	33.11	14.55	3.88	36.98	0.50
16.10	27.20	1.26	0.95	0.928	1.04	33.80	19.10	5.94	39.73	0.50
16.15	27.80	1.26	0.95	0.931	1.04	34.49	23.65	7.76	42.25	0.50
16.20	28.40	1.26	0.95	0.934	1.03	35.17	28.20	9.49	44.67	0.50
16.25	29.00	1.26	0.95	0.937	1.03	35.86	32.75	11.23	47.09	0.50
16.30	29.60	1.26	0.95	0.940	1.03	36.54	37.30	12.31	48.85	0.50
16.35	30.20	1.26	0.95	0.943	1.03	37.22	41.85	12.44	49.66	0.50
16.40	30.80	1.26	0.95	0.946	1.03	37.90	46.40	12.58	50.48	0.50

16.45	31.40	1.26	0.95	0.950	1.03	38.57	50.95	12.71	51.29	0.50
16.50	32.00	1.26	0.95	0.953	1.02	39.25	55.50	12.85	52.09	0.50
16.55	32.60	1.26	0.95	0.956	1.02	39.92	60.05	12.98	52.90	0.50
16.60	33.20	1.26	0.95	0.959	1.02	40.59	64.60	13.12	53.70	0.50
16.65	33.80	1.26	0.95	0.962	1.02	41.25	69.15	13.25	54.50	0.50
16.70	34.40	1.26	0.95	0.965	1.02	41.92	73.70	13.38	55.30	0.50
16.75	35.00	1.26	0.95	0.968	1.02	42.58	78.25	13.52	56.10	0.50
16.80	35.60	1.26	0.95	0.971	1.01	43.24	82.80	13.65	56.89	0.50
16.85	36.20	1.26	0.95	0.974	1.01	43.90	87.35	13.78	57.68	0.50
16.90	36.80	1.26	0.95	0.977	1.01	44.56	91.90	13.91	58.47	0.50
16.95	37.40	1.26	0.95	0.980	1.01	45.21	96.45	14.04	59.26	0.50
17.00	38.00	1.26	0.95	0.983	1.01	45.87	NoLiq	14.17	60.04	0.50
17.05	38.00	1.26	0.95	0.987	1.01	45.80	NoLiq	14.16	59.95	0.50
17.10	38.00	1.26	0.95	0.990	1.01	45.72	NoLiq	14.14	59.87	0.50
17.15	38.00	1.26	0.95	0.993	1.00	45.65	NoLiq	14.13	59.78	0.50
17.20	38.00	1.26	0.95	0.996	1.00	45.58	NoLiq	14.12	59.70	0.50
17.25	38.00	1.26	0.95	0.999	1.00	45.51	NoLiq	14.10	59.61	0.50
17.30	38.00	1.26	0.95	1.002	1.00	45.44	NoLiq	14.09	59.53	0.50
17.35	38.00	1.26	0.95	1.005	1.00	45.37	NoLiq	14.07	59.44	0.50
17.40	38.00	1.26	0.95	1.008	1.00	45.30	NoLiq	14.06	59.36	0.50
17.45	38.00	1.26	0.95	1.011	0.99	45.23	NoLiq	14.05	59.28	0.50
17.50	38.00	1.26	0.95	1.014	0.99	45.16	NoLiq	14.03	59.19	0.50
17.55	38.00	1.26	0.95	1.017	0.99	45.09	NoLiq	14.02	59.11	0.50
17.60	38.00	1.26	0.95	1.021	0.99	45.03	NoLiq	14.01	59.03	0.50
17.65	38.00	1.26	0.95	1.024	0.99	44.96	NoLiq	13.99	58.95	0.50
17.70	38.00	1.26	0.95	1.027	0.99	44.89	NoLiq	13.98	58.87	0.50
17.75	38.00	1.26	0.95	1.030	0.99	44.82	NoLiq	13.96	58.79	0.50
17.80	38.00	1.26	0.95	1.033	0.98	44.75	NoLiq	13.95	58.71	0.50
17.85	38.00	1.26	0.95	1.036	0.98	44.69	NoLiq	13.94	58.63	0.50
17.90	38.00	1.26	0.95	1.039	0.98	44.62	NoLiq	13.92	58.55	0.50
17.95	38.00	1.26	0.95	1.042	0.98	44.55	NoLiq	13.91	58.47	0.50
18.00	38.00	1.26	0.95	1.045	0.98	44.49	NoLiq	13.90	58.39	0.50
18.05	38.00	1.26	0.95	1.048	0.98	44.42	NoLiq	13.88	58.31	0.50
18.10	38.00	1.26	0.95	1.052	0.98	44.36	NoLiq	13.87	58.23	0.50
18.15	38.00	1.26	0.95	1.055	0.97	44.29	NoLiq	13.86	58.15	0.50
18.20	38.00	1.26	0.95	1.058	0.97	44.23	NoLiq	13.85	58.07	0.50
18.25	38.00	1.26	0.95	1.061	0.97	44.16	NoLiq	13.83	58.00	0.50
18.30	38.00	1.26	0.95	1.064	0.97	44.10	NoLiq	13.82	57.92	0.50
18.35	38.00	1.26	0.95	1.067	0.97	44.03	NoLiq	13.81	57.84	0.50
18.40	38.00	1.26	0.95	1.070	0.97	43.97	NoLiq	13.79	57.77	0.50
18.45	38.00	1.26	0.95	1.073	0.97	43.91	NoLiq	13.78	57.69	0.50
18.50	38.00	1.26	0.95	1.076	0.96	43.84	NoLiq	13.77	57.61	0.50
18.55	38.00	1.26	0.95	1.079	0.96	43.78	NoLiq	13.76	57.54	0.50
18.60	38.00	1.26	0.95	1.082	0.96	43.72	NoLiq	13.74	57.46	0.50
18.65	38.00	1.26	0.95	1.086	0.96	43.66	NoLiq	13.73	57.39	0.50
18.70	38.00	1.26	0.95	1.089	0.96	43.59	NoLiq	13.72	57.31	0.50
18.75	38.00	1.26	0.95	1.092	0.96	43.53	NoLiq	13.71	57.24	0.50
18.80	38.00	1.26	0.95	1.095	0.96	43.47	NoLiq	13.69	57.17	0.50
18.85	38.00	1.26	0.95	1.098	0.95	43.41	NoLiq	13.68	57.09	0.50
18.90	38.00	1.26	0.95	1.101	0.95	43.35	NoLiq	13.67	57.02	0.50
18.95	38.00	1.26	0.95	1.104	0.95	43.29	NoLiq	13.66	56.95	0.50
19.00	38.00	1.26	0.95	1.107	0.95	43.23	NoLiq	13.65	56.87	0.50
19.05	38.00	1.26	0.95	1.110	0.95	43.17	NoLiq	13.63	56.80	0.50
19.10	38.00	1.26	0.95	1.112	0.95	43.14	NoLiq	13.63	56.76	0.50
19.15	38.00	1.26	0.95	1.114	0.95	43.10	NoLiq	13.62	56.72	0.50
19.20	38.00	1.26	0.95	1.115	0.95	43.07	NoLiq	13.61	56.69	0.50
19.25	38.00	1.26	0.95	1.117	0.95	43.04	NoLiq	13.61	56.65	0.50
19.30	38.00	1.26	0.95	1.118	0.95	43.01	NoLiq	13.60	56.61	0.50
19.35	38.00	1.26	0.95	1.120	0.94	42.98	NoLiq	13.60	56.58	0.50
19.40	38.00	1.26	0.95	1.122	0.94	42.95	NoLiq	13.59	56.54	0.50
19.45	38.00	1.26	0.95	1.123	0.94	42.92	NoLiq	13.58	56.50	0.50
19.50	38.00	1.26	0.95	1.125	0.94	42.89	NoLiq	13.58	56.46	0.50
19.55	38.00	1.26	0.95	1.127	0.94	42.86	NoLiq	13.57	56.43	0.50
19.60	38.00	1.26	0.95	1.128	0.94	42.82	NoLiq	13.56	56.39	0.50
19.65	38.00	1.26	0.95	1.130	0.94	42.79	NoLiq	13.56	56.35	0.50
19.70	38.00	1.26	0.95	1.131	0.94	42.76	NoLiq	13.55	56.32	0.50
19.75	38.00	1.26	0.95	1.133	0.94	42.73	NoLiq	13.55	56.28	0.50
19.80	38.00	1.26	0.95	1.135	0.94	42.70	NoLiq	13.54	56.24	0.50
19.85	38.00	1.26	0.95	1.136	0.94	42.67	NoLiq	13.53	56.21	0.50
19.90	38.00	1.26	0.95	1.138	0.94	42.64	NoLiq	13.53	56.17	0.50
19.95	38.00	1.26	0.95	1.140	0.94	42.61	NoLiq	13.52	56.13	0.50
20.00	38.00	1.26	0.95	1.141	0.94	42.58	NoLiq	13.52	56.10	0.50
20.05	38.00	1.26	0.95	1.143	0.94	42.55	NoLiq	13.51	56.06	0.50

20.10	38.00	1.26	0.95	1.144	0.93	42.52	NoLiq	13.50	56.02	0.50
20.15	38.00	1.26	0.95	1.146	0.93	42.49	NoLiq	13.50	55.99	0.50
20.20	38.00	1.26	0.95	1.148	0.93	42.46	NoLiq	13.49	55.95	0.50
20.25	38.00	1.26	0.95	1.149	0.93	42.43	NoLiq	13.49	55.92	0.50
20.30	38.00	1.26	0.95	1.151	0.93	42.40	NoLiq	13.48	55.88	0.50
20.35	38.00	1.26	0.95	1.152	0.93	42.37	NoLiq	13.47	55.84	0.50
20.40	38.00	1.26	0.95	1.154	0.93	42.34	NoLiq	13.47	55.81	0.50
20.45	38.00	1.26	0.95	1.156	0.93	42.31	NoLiq	13.46	55.77	0.50
20.50	38.00	1.26	0.95	1.157	0.93	42.28	NoLiq	13.46	55.74	0.50
20.55	38.00	1.26	0.95	1.159	0.93	42.25	NoLiq	13.45	55.70	0.50
20.60	38.00	1.26	0.95	1.161	0.93	42.22	NoLiq	13.44	55.67	0.50
20.65	38.00	1.26	0.95	1.162	0.93	42.19	NoLiq	13.44	55.63	0.50
20.70	38.00	1.26	0.95	1.164	0.93	42.16	NoLiq	13.43	55.60	0.50
20.75	38.00	1.26	0.95	1.165	0.93	42.13	NoLiq	13.43	55.56	0.50
20.80	38.00	1.26	0.95	1.167	0.93	42.10	NoLiq	13.42	55.53	0.50
20.85	38.00	1.26	0.95	1.169	0.93	42.08	NoLiq	13.42	55.49	0.50
20.90	38.00	1.26	0.95	1.170	0.92	42.05	NoLiq	13.41	55.46	0.50
20.95	38.00	1.26	0.95	1.172	0.92	42.02	NoLiq	13.40	55.42	0.50
21.00	38.00	1.26	0.95	1.174	0.92	41.99	NoLiq	13.40	55.39	0.50
21.05	38.00	1.26	0.95	1.175	0.92	41.96	NoLiq	13.39	55.35	0.50
21.10	38.00	1.26	0.95	1.177	0.92	41.93	NoLiq	13.39	55.32	0.50
21.15	38.00	1.26	0.95	1.178	0.92	41.90	NoLiq	13.38	55.28	0.50
21.20	38.00	1.26	0.95	1.180	0.92	41.87	NoLiq	13.37	55.25	0.50
21.25	38.00	1.26	0.95	1.182	0.92	41.84	NoLiq	13.37	55.21	0.50
21.30	38.00	1.26	0.95	1.183	0.92	41.82	NoLiq	13.36	55.18	0.50
21.35	38.00	1.26	0.95	1.185	0.92	41.79	NoLiq	13.36	55.14	0.50
21.40	38.00	1.26	0.95	1.187	0.92	41.76	NoLiq	13.35	55.11	0.50
21.45	38.00	1.26	0.95	1.188	0.92	41.73	NoLiq	13.35	55.08	0.50
21.50	38.00	1.26	0.95	1.190	0.92	41.70	NoLiq	13.34	55.04	0.50
21.55	38.00	1.26	0.95	1.191	0.92	41.67	NoLiq	13.33	55.01	0.50
21.60	38.00	1.26	0.95	1.193	0.92	41.64	NoLiq	13.33	54.97	0.50
21.65	38.00	1.26	0.95	1.195	0.91	41.62	NoLiq	13.32	54.94	0.50
21.70	38.00	1.26	0.95	1.196	0.91	41.59	NoLiq	13.32	54.91	0.50
21.75	38.00	1.26	0.95	1.198	0.91	41.56	NoLiq	13.31	54.87	0.50
21.80	38.00	1.26	0.95	1.199	0.91	41.53	NoLiq	13.31	54.84	0.50
21.85	38.00	1.26	0.95	1.201	0.91	41.50	NoLiq	13.30	54.80	0.50
21.90	38.00	1.26	0.95	1.203	0.91	41.48	NoLiq	13.30	54.77	0.50
21.95	38.00	1.26	0.95	1.204	0.91	41.45	NoLiq	13.29	54.74	0.50
22.00	38.00	1.26	0.95	1.206	0.91	41.42	NoLiq	13.28	54.70	0.50
22.05	38.00	1.26	0.95	1.208	0.91	41.39	NoLiq	13.28	54.67	0.50
22.10	38.00	1.26	0.95	1.209	0.91	41.36	NoLiq	13.27	54.64	0.50
22.15	38.00	1.26	0.95	1.211	0.91	41.34	NoLiq	13.27	54.60	0.50
22.20	38.00	1.26	0.95	1.212	0.91	41.31	NoLiq	13.26	54.57	0.50
22.25	38.00	1.26	0.95	1.214	0.91	41.28	NoLiq	13.26	54.54	0.50
22.30	38.00	1.26	0.95	1.216	0.91	41.25	NoLiq	13.25	54.50	0.50
22.35	38.00	1.26	0.95	1.217	0.91	41.23	NoLiq	13.25	54.47	0.50
22.40	38.00	1.26	0.95	1.219	0.91	41.20	NoLiq	13.24	54.44	0.50
22.45	38.00	1.26	0.95	1.221	0.91	41.17	NoLiq	13.23	54.41	0.50
22.50	38.00	1.26	0.95	1.222	0.90	41.14	NoLiq	13.23	54.37	0.50
22.55	38.00	1.26	0.95	1.224	0.90	41.12	NoLiq	13.22	54.34	0.50
22.60	38.00	1.26	0.95	1.225	0.90	41.09	NoLiq	13.22	54.31	0.50
22.65	38.00	1.26	0.95	1.227	0.90	41.06	NoLiq	13.21	54.28	0.50
22.70	38.00	1.26	0.95	1.229	0.90	41.04	NoLiq	13.21	54.24	0.50
22.75	38.00	1.26	0.95	1.230	0.90	41.01	NoLiq	13.20	54.21	0.50
22.80	38.00	1.26	0.95	1.232	0.90	40.98	NoLiq	13.20	54.18	0.50
22.85	38.00	1.26	0.95	1.234	0.90	40.95	NoLiq	13.19	54.15	0.50
22.90	38.00	1.26	0.95	1.235	0.90	40.93	NoLiq	13.19	54.11	0.50
22.95	38.00	1.26	0.95	1.237	0.90	40.90	NoLiq	13.18	54.08	0.50
23.00	38.00	1.26	0.95	1.238	0.90	40.87	NoLiq	13.17	54.05	0.50
23.05	38.00	1.26	0.95	1.240	0.90	40.85	NoLiq	13.17	54.02	0.50
23.10	38.00	1.26	0.95	1.242	0.90	40.82	NoLiq	13.16	53.99	0.50
23.15	38.00	1.26	0.95	1.243	0.90	40.79	NoLiq	13.16	53.95	0.50
23.20	38.00	1.26	0.95	1.245	0.90	40.77	NoLiq	13.15	53.92	0.50
23.25	38.00	1.26	0.95	1.246	0.90	40.74	NoLiq	13.15	53.89	0.50
23.30	38.00	1.26	0.95	1.248	0.90	40.71	NoLiq	13.14	53.86	0.50
23.35	38.00	1.26	0.95	1.250	0.89	40.69	NoLiq	13.14	53.83	0.50
23.40	38.00	1.26	0.95	1.251	0.89	40.66	NoLiq	13.13	53.79	0.50
23.45	38.00	1.26	0.95	1.253	0.89	40.64	NoLiq	13.13	53.76	0.50
23.50	38.00	1.26	0.95	1.255	0.89	40.61	NoLiq	13.12	53.73	0.50
23.55	38.00	1.26	0.95	1.256	0.89	40.58	NoLiq	13.12	53.70	0.50
23.60	38.00	1.26	0.95	1.258	0.89	40.56	NoLiq	13.11	53.67	0.50
23.65	38.00	1.26	0.95	1.259	0.89	40.53	NoLiq	13.11	53.64	0.50
23.70	38.00	1.26	0.95	1.261	0.89	40.50	NoLiq	13.10	53.61	0.50

23.75	38.00	1.26	0.95	1.263	0.89	40.48	NoLiq	13.10	53.57	0.50
23.80	38.00	1.26	0.95	1.264	0.89	40.45	NoLiq	13.09	53.54	0.50
23.85	38.00	1.26	0.95	1.266	0.89	40.43	NoLiq	13.09	53.51	0.50
23.90	38.00	1.26	0.95	1.268	0.89	40.40	NoLiq	13.08	53.48	0.50
23.95	38.00	1.26	0.95	1.269	0.89	40.38	NoLiq	13.08	53.45	0.50
24.00	38.00	1.26	0.95	1.271	0.89	40.35	NoLiq	13.07	53.42	0.50
24.05	38.00	1.26	0.95	1.272	0.89	40.32	NoLiq	13.06	53.39	0.50
24.10	38.00	1.26	0.95	1.274	0.89	40.30	NoLiq	13.06	53.36	0.50
24.15	38.00	1.26	0.95	1.276	0.89	40.27	NoLiq	13.05	53.33	0.50
24.20	38.00	1.26	0.95	1.277	0.88	40.25	NoLiq	13.05	53.30	0.50
24.25	38.00	1.26	0.95	1.279	0.88	40.22	NoLiq	13.04	53.27	0.50
24.30	38.00	1.26	0.95	1.281	0.88	40.20	NoLiq	13.04	53.24	0.50
24.35	38.00	1.26	0.95	1.282	0.88	40.17	NoLiq	13.03	53.20	0.50
24.40	38.00	1.26	0.95	1.284	0.88	40.15	NoLiq	13.03	53.17	0.50
24.45	38.00	1.26	0.95	1.285	0.88	40.12	NoLiq	13.02	53.14	0.50
24.50	38.00	1.26	0.95	1.287	0.88	40.09	NoLiq	13.02	53.11	0.50
24.55	38.00	1.26	0.95	1.289	0.88	40.07	NoLiq	13.01	53.08	0.50
24.60	38.00	1.26	0.95	1.290	0.88	40.04	NoLiq	13.01	53.05	0.50
24.65	38.00	1.26	0.95	1.292	0.88	40.02	NoLiq	13.00	53.02	0.50
24.70	38.00	1.26	0.95	1.293	0.88	39.99	NoLiq	13.00	52.99	0.50
24.75	38.00	1.26	0.95	1.295	0.88	39.97	NoLiq	12.99	52.96	0.50
24.80	38.00	1.26	0.95	1.297	0.88	39.94	NoLiq	12.99	52.93	0.50
24.85	38.00	1.26	0.95	1.298	0.88	39.92	NoLiq	12.98	52.90	0.50
24.90	38.00	1.26	0.95	1.300	0.88	39.89	NoLiq	12.98	52.87	0.50
24.95	38.00	1.26	0.95	1.302	0.88	39.87	NoLiq	12.97	52.84	0.50
25.00	38.00	1.26	0.95	1.303	0.88	39.84	NoLiq	12.97	52.81	0.50

CRR is based on water table at 19.00 during In-Situ Testing

Factor of Safety, - Earthquake Magnitude= 6.76:

Depth ft	sigC' atm	CRR7.5	x Ksig	=CRRv	x MSF	=CRRm	CSRfs	F.S.=CRRm/CSRfs
1.00	0.04	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.05	0.04	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.10	0.04	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.15	0.04	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.20	0.04	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.25	0.04	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.30	0.05	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.35	0.05	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.40	0.05	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.45	0.05	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.50	0.05	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.55	0.06	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.60	0.06	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.65	0.06	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.70	0.06	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.75	0.06	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.80	0.06	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.85	0.07	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.90	0.07	0.27	1.00	0.27	1.30	0.35	0.61	5.00
1.95	0.07	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.00	0.07	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.05	0.07	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.10	0.07	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.15	0.08	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.20	0.08	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.25	0.08	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.30	0.08	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.35	0.08	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.40	0.09	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.45	0.09	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.50	0.09	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.55	0.09	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.60	0.09	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.65	0.09	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.70	0.10	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.75	0.10	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.80	0.10	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.85	0.10	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.90	0.10	0.27	1.00	0.27	1.30	0.35	0.61	5.00
2.95	0.11	0.27	1.00	0.27	1.30	0.35	0.61	5.00

3.00	0.11	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.05	0.11	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.10	0.11	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.15	0.11	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.20	0.11	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.25	0.12	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.30	0.12	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.35	0.12	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.40	0.12	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.45	0.12	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.50	0.12	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.55	0.13	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.60	0.13	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.65	0.13	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.70	0.13	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.75	0.13	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.80	0.14	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.85	0.14	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.90	0.14	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
3.95	0.14	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.00	0.14	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.05	0.14	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.10	0.15	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.15	0.15	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.20	0.15	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.25	0.15	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.30	0.15	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.35	0.15	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.40	0.16	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.45	0.16	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.50	0.16	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.55	0.16	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.60	0.16	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.65	0.17	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.70	0.17	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.75	0.17	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.80	0.17	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.85	0.17	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.90	0.17	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
4.95	0.18	0.27	1.00	0.27	1.30	0.35	0.61	5.00	
5.00	0.18	0.27	1.00	0.27	1.30	0.35	0.61	0.58	*
5.05	0.18	0.27	1.00	0.27	1.30	0.35	0.61	0.58	*
5.10	0.18	0.27	1.00	0.27	1.30	0.35	0.61	0.58	*
5.15	0.18	0.27	1.00	0.27	1.30	0.35	0.62	0.58	*
5.20	0.19	0.27	1.00	0.27	1.30	0.35	0.62	0.57	*
5.25	0.19	0.27	1.00	0.27	1.30	0.35	0.62	0.57	*
5.30	0.19	0.27	1.00	0.27	1.30	0.35	0.62	0.57	*
5.35	0.19	0.27	1.00	0.27	1.30	0.35	0.63	0.56	*
5.40	0.19	0.27	1.00	0.27	1.30	0.35	0.63	0.56	*
5.45	0.19	0.27	1.00	0.27	1.30	0.35	0.63	0.56	*
5.50	0.20	0.27	1.00	0.27	1.30	0.35	0.64	0.56	*
5.55	0.20	0.27	1.00	0.27	1.30	0.35	0.64	0.55	*
5.60	0.20	0.27	1.00	0.27	1.30	0.35	0.64	0.55	*
5.65	0.20	0.27	1.00	0.27	1.30	0.35	0.64	0.55	*
5.70	0.20	0.27	1.00	0.27	1.30	0.35	0.65	0.55	*
5.75	0.20	0.27	1.00	0.27	1.30	0.35	0.65	0.54	*
5.80	0.21	0.27	1.00	0.27	1.30	0.35	0.65	0.54	*
5.85	0.21	0.27	1.00	0.27	1.30	0.35	0.66	0.54	*
5.90	0.21	0.27	1.00	0.27	1.30	0.35	0.66	0.54	*
5.95	0.21	0.27	1.00	0.27	1.30	0.35	0.66	0.54	*
6.00	0.21	0.27	1.00	0.27	1.30	0.35	0.66	0.53	*
6.05	0.22	0.29	1.00	0.29	1.30	0.38	0.67	0.58	*
6.10	0.22	0.32	1.00	0.32	1.30	0.42	0.67	0.63	*
6.15	0.22	0.36	1.00	0.36	1.30	0.47	0.67	0.70	*
6.20	0.22	0.47	1.00	0.47	1.30	0.62	0.67	0.92	*
6.25	0.22	0.50	1.00	0.50	1.30	0.65	0.68	0.96	*
6.30	0.22	0.50	1.00	0.50	1.30	0.65	0.68	0.96	*
6.35	0.23	0.50	1.00	0.50	1.30	0.65	0.68	0.96	*
6.40	0.23	0.50	1.00	0.50	1.30	0.65	0.68	0.95	*
6.45	0.23	0.50	1.00	0.50	1.30	0.65	0.69	0.95	*
6.50	0.23	0.50	1.00	0.50	1.30	0.65	0.69	0.95	*
6.55	0.23	0.50	1.00	0.50	1.30	0.65	0.69	0.94	*
6.60	0.24	0.50	1.00	0.50	1.30	0.65	0.69	0.94	*

6.65	0.24	0.50	1.00	0.50	1.30	0.65	0.70	0.94 *
6.70	0.24	0.50	1.00	0.50	1.30	0.65	0.70	0.93 *
6.75	0.24	0.50	1.00	0.50	1.30	0.65	0.70	0.93 *
6.80	0.24	0.50	1.00	0.50	1.30	0.65	0.70	0.93 *
6.85	0.25	0.50	1.00	0.50	1.30	0.65	0.71	0.92 *
6.90	0.25	0.50	1.00	0.50	1.30	0.65	0.71	0.92 *
6.95	0.25	0.50	1.00	0.50	1.30	0.65	0.71	0.92 *
7.00	0.25	0.50	1.00	0.50	1.30	0.65	0.71	0.92 *
7.05	0.25	0.50	1.00	0.50	1.30	0.65	0.71	0.91 *
7.10	0.25	0.50	1.00	0.50	1.30	0.65	0.72	0.91 *
7.15	0.26	0.50	1.00	0.50	1.30	0.65	0.72	0.91 *
7.20	0.26	0.50	1.00	0.50	1.30	0.65	0.72	0.91 *
7.25	0.26	0.50	1.00	0.50	1.30	0.65	0.72	0.90 *
7.30	0.26	0.50	1.00	0.50	1.30	0.65	0.72	0.90 *
7.35	0.26	0.50	1.00	0.50	1.30	0.65	0.73	0.90 *
7.40	0.27	0.50	1.00	0.50	1.30	0.65	0.73	0.90 *
7.45	0.27	0.50	1.00	0.50	1.30	0.65	0.73	0.89 *
7.50	0.27	0.50	1.00	0.50	1.30	0.65	0.73	0.89 *
7.55	0.27	0.50	1.00	0.50	1.30	0.65	0.73	0.89 *
7.60	0.27	0.50	1.00	0.50	1.30	0.65	0.74	0.89 *
7.65	0.28	0.50	1.00	0.50	1.30	0.65	0.74	0.88 *
7.70	0.28	0.50	1.00	0.50	1.30	0.65	0.74	0.88 *
7.75	0.28	0.50	1.00	0.50	1.30	0.65	0.74	0.88 *
7.80	0.28	0.50	1.00	0.50	1.30	0.65	0.74	0.88 *
7.85	0.28	0.50	1.00	0.50	1.30	0.65	0.75	0.87 *
7.90	0.29	0.50	1.00	0.50	1.30	0.65	0.75	0.87 *
7.95	0.29	0.50	1.00	0.50	1.30	0.65	0.75	0.87 *
8.00	0.29	0.50	1.00	0.50	1.30	0.65	0.75	0.87 *
8.05	0.29	0.50	1.00	0.50	1.30	0.65	0.75	0.87 *
8.10	0.29	0.50	1.00	0.50	1.30	0.65	0.75	0.86 *
8.15	0.29	0.50	1.00	0.50	1.30	0.65	0.76	0.86 *
8.20	0.30	0.50	1.00	0.50	1.30	0.65	0.76	0.86 *
8.25	0.30	0.50	1.00	0.50	1.30	0.65	0.76	0.86 *
8.30	0.30	0.50	1.00	0.50	1.30	0.65	0.76	0.86 *
8.35	0.30	0.50	1.00	0.50	1.30	0.65	0.76	0.85 *
8.40	0.30	0.50	1.00	0.50	1.30	0.65	0.76	0.85 *
8.45	0.31	0.50	1.00	0.50	1.30	0.65	0.77	0.85 *
8.50	0.31	0.50	1.00	0.50	1.30	0.65	0.77	0.85 *
8.55	0.31	0.50	1.00	0.50	1.30	0.65	0.77	0.85 *
8.60	0.31	0.50	1.00	0.50	1.30	0.65	0.77	0.85 *
8.65	0.31	0.50	1.00	0.50	1.30	0.65	0.77	0.84 *
8.70	0.32	0.50	1.00	0.50	1.30	0.65	0.77	0.84 *
8.75	0.32	0.50	1.00	0.50	1.30	0.65	0.78	0.84 *
8.80	0.32	0.50	1.00	0.50	1.30	0.65	0.78	0.84 *
8.85	0.32	0.50	1.00	0.50	1.30	0.65	0.78	0.84 *
8.90	0.32	0.50	1.00	0.50	1.30	0.65	0.78	0.84 *
8.95	0.33	0.50	1.00	0.50	1.30	0.65	0.78	0.83 *
9.00	0.33	0.50	1.00	0.50	1.30	0.65	0.78	0.83 *
9.05	0.33	0.50	1.00	0.50	1.30	0.65	0.78	0.83 *
9.10	0.33	0.50	1.00	0.50	1.30	0.65	0.79	0.83 *
9.15	0.33	0.50	1.00	0.50	1.30	0.65	0.79	0.83 *
9.20	0.34	0.50	1.00	0.50	1.30	0.65	0.79	0.83 *
9.25	0.34	0.50	1.00	0.50	1.30	0.65	0.79	0.82 *
9.30	0.34	0.50	1.00	0.50	1.30	0.65	0.79	0.82 *
9.35	0.34	0.50	1.00	0.50	1.30	0.65	0.79	0.82 *
9.40	0.34	0.50	1.00	0.50	1.30	0.65	0.80	0.82 *
9.45	0.34	0.50	1.00	0.50	1.30	0.65	0.80	0.82 *
9.50	0.35	0.50	1.00	0.50	1.30	0.65	0.80	0.82 *
9.55	0.35	0.50	1.00	0.50	1.30	0.65	0.80	0.82 *
9.60	0.35	0.50	1.00	0.50	1.30	0.65	0.80	0.81 *
9.65	0.35	0.50	1.00	0.50	1.30	0.65	0.80	0.81 *
9.70	0.35	0.50	1.00	0.50	1.30	0.65	0.80	0.81 *
9.75	0.36	0.50	1.00	0.50	1.30	0.65	0.80	0.81 *
9.80	0.36	0.50	1.00	0.50	1.30	0.65	0.81	0.81 *
9.85	0.36	0.50	1.00	0.50	1.30	0.65	0.81	0.81 *
9.90	0.36	0.50	1.00	0.50	1.30	0.65	0.81	0.81 *
9.95	0.36	0.50	1.00	0.50	1.30	0.65	0.81	0.81 *
10.00	0.37	0.46	1.00	0.46	1.30	0.60	0.81	0.74 *
10.05	0.37	0.45	1.00	0.45	1.30	0.59	0.81	0.72 *
10.10	0.37	0.44	1.00	0.44	1.30	0.58	0.81	0.71 *
10.15	0.37	0.44	1.00	0.44	1.30	0.57	0.81	0.70 *
10.20	0.37	0.43	1.00	0.43	1.30	0.56	0.82	0.69 *
10.25	0.38	0.43	1.00	0.43	1.30	0.56	0.82	0.68 *

10.30	0.38	0.42	1.00	0.42	1.30	0.55	0.82	0.67 *
10.35	0.38	0.42	1.00	0.42	1.30	0.55	0.82	0.67 *
10.40	0.38	0.42	1.00	0.42	1.30	0.55	0.82	0.67 *
10.45	0.38	0.42	1.00	0.42	1.30	0.55	0.82	0.66 *
10.50	0.39	0.42	1.00	0.42	1.30	0.55	0.82	0.66 *
10.55	0.39	0.42	1.00	0.42	1.30	0.55	0.82	0.66 *
10.60	0.39	0.42	1.00	0.42	1.30	0.55	0.83	0.66 *
10.65	0.39	0.42	1.00	0.42	1.30	0.55	0.83	0.67 *
10.70	0.39	0.42	1.00	0.42	1.30	0.55	0.83	0.67 *
10.75	0.39	0.43	1.00	0.43	1.30	0.56	0.83	0.67 *
10.80	0.40	0.43	1.00	0.43	1.30	0.56	0.83	0.68 *
10.85	0.40	0.44	1.00	0.44	1.30	0.57	0.83	0.68 *
10.90	0.40	0.44	1.00	0.44	1.30	0.58	0.83	0.69 *
10.95	0.40	0.45	1.00	0.45	1.30	0.59	0.83	0.70 *
11.00	0.40	0.46	1.00	0.46	1.30	0.60	0.83	0.72 *
11.05	0.41	0.50	1.00	0.50	1.30	0.65	0.84	0.78 *
11.10	0.41	0.50	1.00	0.50	1.30	0.65	0.84	0.78 *
11.15	0.41	0.50	1.00	0.50	1.30	0.65	0.84	0.78 *
11.20	0.41	0.50	1.00	0.50	1.30	0.65	0.84	0.78 *
11.25	0.41	0.50	1.00	0.50	1.30	0.65	0.84	0.78 *
11.30	0.42	0.50	1.00	0.50	1.30	0.65	0.84	0.78 *
11.35	0.42	0.50	1.00	0.50	1.30	0.65	0.84	0.77 *
11.40	0.42	0.50	1.00	0.50	1.30	0.65	0.84	0.77 *
11.45	0.42	0.50	1.00	0.50	1.30	0.65	0.84	0.77 *
11.50	0.42	0.50	1.00	0.50	1.30	0.65	0.85	0.77 *
11.55	0.43	0.50	1.00	0.50	1.30	0.65	0.85	0.77 *
11.60	0.43	0.50	1.00	0.50	1.30	0.65	0.85	0.77 *
11.65	0.43	0.50	1.00	0.50	1.30	0.65	0.85	0.77 *
11.70	0.43	0.50	1.00	0.50	1.30	0.65	0.85	0.77 *
11.75	0.43	0.50	1.00	0.50	1.30	0.65	0.85	0.77 *
11.80	0.44	0.50	1.00	0.50	1.30	0.65	0.85	0.77 *
11.85	0.44	0.50	1.00	0.50	1.30	0.65	0.85	0.77 *
11.90	0.44	0.50	1.00	0.50	1.30	0.65	0.85	0.76 *
11.95	0.44	0.50	1.00	0.50	1.30	0.65	0.85	0.76 *
12.00	0.44	0.50	1.00	0.50	1.30	0.65	0.85	0.76 *
12.05	0.44	0.50	1.00	0.50	1.30	0.65	0.86	0.76 *
12.10	0.45	0.50	1.00	0.50	1.30	0.65	0.86	0.76 *
12.15	0.45	0.50	1.00	0.50	1.30	0.65	0.86	0.76 *
12.20	0.45	0.50	1.00	0.50	1.30	0.65	0.86	0.76 *
12.25	0.45	0.50	1.00	0.50	1.30	0.65	0.86	0.76 *
12.30	0.45	0.50	1.00	0.50	1.30	0.65	0.86	0.76 *
12.35	0.46	0.50	1.00	0.50	1.30	0.65	0.86	0.76 *
12.40	0.46	0.50	1.00	0.50	1.30	0.65	0.86	0.76 *
12.45	0.46	0.50	1.00	0.50	1.30	0.65	0.86	0.76 *
12.50	0.46	0.50	1.00	0.50	1.30	0.65	0.86	0.75 *
12.55	0.46	0.50	1.00	0.50	1.30	0.65	0.86	0.75 *
12.60	0.47	0.50	1.00	0.50	1.30	0.65	0.87	0.75 *
12.65	0.47	0.50	1.00	0.50	1.30	0.65	0.87	0.75 *
12.70	0.47	0.50	1.00	0.50	1.30	0.65	0.87	0.75 *
12.75	0.47	0.50	1.00	0.50	1.30	0.65	0.87	0.75 *
12.80	0.47	0.50	1.00	0.50	1.30	0.65	0.87	0.75 *
12.85	0.48	0.50	1.00	0.50	1.30	0.65	0.87	0.75 *
12.90	0.48	0.50	1.00	0.50	1.30	0.65	0.87	0.75 *
12.95	0.48	0.50	1.00	0.50	1.30	0.65	0.87	0.75 *
13.00	0.48	0.50	1.00	0.50	1.30	0.65	0.87	0.75 *
13.05	0.48	0.50	1.00	0.50	1.30	0.65	0.87	0.75 *
13.10	0.48	0.50	1.00	0.50	1.30	0.65	0.87	0.75 *
13.15	0.49	0.50	1.00	0.50	1.30	0.65	0.87	0.75 *
13.20	0.49	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.25	0.49	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.30	0.49	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.35	0.49	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.40	0.50	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.45	0.50	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.50	0.50	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.55	0.50	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.60	0.50	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.65	0.51	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.70	0.51	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.75	0.51	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.80	0.51	0.50	1.00	0.50	1.30	0.65	0.88	0.74 *
13.85	0.51	0.44	1.00	0.44	1.30	0.57	0.89	0.65 *
13.90	0.52	0.41	1.00	0.41	1.30	0.53	0.89	0.60 *

13.95	0.52	0.39	1.00	0.39	1.30	0.51	0.89	0.57 *
14.00	0.52	0.38	1.00	0.38	1.30	0.49	0.89	0.55 *
14.05	0.52	0.38	1.00	0.38	1.30	0.50	0.89	0.56 *
14.10	0.52	0.39	1.00	0.39	1.30	0.50	0.89	0.57 *
14.15	0.53	0.39	1.00	0.39	1.30	0.51	0.89	0.58 *
14.20	0.53	0.40	1.00	0.40	1.30	0.52	0.89	0.59 *
14.25	0.53	0.41	1.00	0.41	1.30	0.54	0.89	0.60 *
14.30	0.53	0.42	1.00	0.42	1.30	0.55	0.89	0.62 *
14.35	0.53	0.44	1.00	0.44	1.30	0.57	0.89	0.64 *
14.40	0.54	0.47	1.00	0.47	1.30	0.61	0.89	0.68 *
14.45	0.54	0.50	1.00	0.50	1.30	0.65	0.89	0.73 *
14.50	0.54	0.50	1.00	0.50	1.30	0.65	0.89	0.73 *
14.55	0.54	0.50	1.00	0.50	1.30	0.65	0.89	0.73 *
14.60	0.54	0.50	1.00	0.50	1.30	0.65	0.89	0.73 *
14.65	0.55	0.50	1.00	0.50	1.30	0.65	0.90	0.73 *
14.70	0.55	0.50	1.00	0.50	1.30	0.65	0.90	0.73 *
14.75	0.55	0.50	1.00	0.50	1.30	0.65	0.90	0.73 *
14.80	0.55	0.50	1.00	0.50	1.30	0.65	0.90	0.73 *
14.85	0.55	0.50	1.00	0.50	1.30	0.65	0.90	0.73 *
14.90	0.56	0.50	1.00	0.50	1.30	0.65	0.90	0.73 *
14.95	0.56	0.50	1.00	0.50	1.30	0.65	0.90	0.73 *
15.00	0.56	0.50	1.00	0.50	1.30	0.65	0.90	0.72 *
15.05	0.56	0.50	1.00	0.50	1.30	0.65	0.90	0.72 *
15.10	0.56	0.50	1.00	0.50	1.30	0.65	0.90	0.72 *
15.15	0.57	0.50	1.00	0.50	1.30	0.65	0.90	0.72 *
15.20	0.57	0.50	1.00	0.50	1.30	0.65	0.90	0.72 *
15.25	0.57	0.50	1.00	0.50	1.30	0.65	0.90	0.72 *
15.30	0.57	0.50	1.00	0.50	1.30	0.65	0.90	0.72 *
15.35	0.57	0.50	1.00	0.50	1.30	0.65	0.90	0.72 *
15.40	0.58	0.50	1.00	0.50	1.30	0.65	0.90	0.72 *
15.45	0.58	0.50	1.00	0.50	1.30	0.65	0.90	0.72 *
15.50	0.58	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
15.55	0.58	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
15.60	0.58	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
15.65	0.59	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
15.70	0.59	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
15.75	0.59	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
15.80	0.59	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
15.85	0.59	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
15.90	0.60	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
15.95	0.60	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
16.00	0.60	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
16.05	0.60	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
16.10	0.60	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
16.15	0.61	0.50	1.00	0.50	1.30	0.65	0.91	0.72 *
16.20	0.61	0.50	1.00	0.50	1.30	0.65	0.91	0.71 *
16.25	0.61	0.50	1.00	0.50	1.30	0.65	0.91	0.71 *
16.30	0.61	0.50	1.00	0.50	1.30	0.65	0.91	0.71 *
16.35	0.61	0.50	1.00	0.50	1.30	0.65	0.91	0.71 *
16.40	0.62	0.50	1.00	0.50	1.30	0.65	0.91	0.71 *
16.45	0.62	0.50	1.00	0.50	1.30	0.65	0.91	0.71 *
16.50	0.62	0.50	1.00	0.50	1.30	0.65	0.92	0.71 *
16.55	0.62	0.50	1.00	0.50	1.30	0.65	0.92	0.71 *
16.60	0.62	0.50	1.00	0.50	1.30	0.65	0.92	0.71 *
16.65	0.63	0.50	1.00	0.50	1.30	0.65	0.92	0.71 *
16.70	0.63	0.50	1.00	0.50	1.30	0.65	0.92	0.71 *
16.75	0.63	0.50	1.00	0.50	1.30	0.65	0.92	0.71 *
16.80	0.63	0.50	1.00	0.50	1.30	0.65	0.92	0.71 *
16.85	0.63	0.50	1.00	0.50	1.30	0.65	0.92	0.71 *
16.90	0.64	0.50	1.00	0.50	1.30	0.65	0.92	0.71 *
16.95	0.64	0.50	1.00	0.50	1.30	0.65	0.92	0.71 *
17.00	0.64	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.05	0.64	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.10	0.64	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.15	0.65	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.20	0.65	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.25	0.65	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.30	0.65	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.35	0.65	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.40	0.66	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.45	0.66	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.50	0.66	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.55	0.66	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^

17.60	0.66	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.65	0.67	0.50	1.00	0.50	1.30	2.00	0.92	5.00 ^
17.70	0.67	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
17.75	0.67	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
17.80	0.67	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
17.85	0.67	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
17.90	0.68	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
17.95	0.68	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.00	0.68	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.05	0.68	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.10	0.68	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.15	0.69	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.20	0.69	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.25	0.69	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.30	0.69	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.35	0.69	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.40	0.70	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.45	0.70	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.50	0.70	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.55	0.70	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.60	0.70	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.65	0.71	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.70	0.71	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.75	0.71	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.80	0.71	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.85	0.71	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.90	0.72	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
18.95	0.72	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
19.00	0.72	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
19.05	0.72	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
19.10	0.72	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
19.15	0.72	0.50	1.00	0.50	1.30	2.00	0.93	5.00 ^
19.20	0.72	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.25	0.73	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.30	0.73	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.35	0.73	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.40	0.73	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.45	0.73	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.50	0.73	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.55	0.73	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.60	0.73	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.65	0.73	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.70	0.74	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.75	0.74	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.80	0.74	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.85	0.74	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.90	0.74	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
19.95	0.74	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.00	0.74	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.05	0.74	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.10	0.74	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.15	0.74	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.20	0.75	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.25	0.75	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.30	0.75	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.35	0.75	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.40	0.75	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.45	0.75	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.50	0.75	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.55	0.75	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.60	0.75	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.65	0.76	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.70	0.76	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.75	0.76	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.80	0.76	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.85	0.76	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.90	0.76	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
20.95	0.76	0.50	1.00	0.50	1.30	2.00	0.94	5.00 ^
21.00	0.76	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.05	0.76	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.10	0.76	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.15	0.77	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.20	0.77	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^

21.25	0.77	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.30	0.77	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.35	0.77	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.40	0.77	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.45	0.77	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.50	0.77	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.55	0.77	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.60	0.78	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.65	0.78	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.70	0.78	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.75	0.78	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.80	0.78	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.85	0.78	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.90	0.78	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
21.95	0.78	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.00	0.78	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.05	0.78	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.10	0.79	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.15	0.79	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.20	0.79	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.25	0.79	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.30	0.79	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.35	0.79	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.40	0.79	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.45	0.79	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.50	0.79	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.55	0.80	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.60	0.80	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.65	0.80	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.70	0.80	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.75	0.80	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.80	0.80	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.85	0.80	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.90	0.80	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
22.95	0.80	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
23.00	0.80	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
23.05	0.81	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
23.10	0.81	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
23.15	0.81	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
23.20	0.81	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
23.25	0.81	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
23.30	0.81	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
23.35	0.81	0.50	1.00	0.50	1.30	2.00	0.95	5.00 ^
23.40	0.81	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
23.45	0.81	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
23.50	0.82	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
23.55	0.82	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
23.60	0.82	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
23.65	0.82	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
23.70	0.82	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
23.75	0.82	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
23.80	0.82	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
23.85	0.82	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
23.90	0.82	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
23.95	0.82	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.00	0.83	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.05	0.83	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.10	0.83	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.15	0.83	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.20	0.83	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.25	0.83	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.30	0.83	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.35	0.83	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.40	0.83	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.45	0.84	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.50	0.84	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.55	0.84	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.60	0.84	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.65	0.84	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.70	0.84	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.75	0.84	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.80	0.84	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.85	0.84	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^

24.90	0.84	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
24.95	0.85	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^
25.00	0.85	0.50	1.00	0.50	1.30	2.00	0.96	5.00 ^

* F.S.<1: Liquefaction Potential Zone. (If above water table: F.S.=5)
^ No-liquefiable Soils or above Water Table.
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:

Depth ft	Ic	qc/N60	qc1 atm	(N1)60	Fines %	d(N1)60	(N1)60s
1.00	-	-	-	24.28	45.00	0.00	24.28
1.05	-	-	-	24.28	45.00	0.00	24.28
1.10	-	-	-	24.28	45.00	0.00	24.28
1.15	-	-	-	24.28	45.00	0.00	24.28
1.20	-	-	-	24.28	45.00	0.00	24.28
1.25	-	-	-	24.28	45.00	0.00	24.28
1.30	-	-	-	24.28	45.00	0.00	24.28
1.35	-	-	-	24.28	45.00	0.00	24.28
1.40	-	-	-	24.28	45.00	0.00	24.28
1.45	-	-	-	24.28	45.00	0.00	24.28
1.50	-	-	-	24.28	45.00	0.00	24.28
1.55	-	-	-	24.28	45.00	0.00	24.28
1.60	-	-	-	24.28	45.00	0.00	24.28
1.65	-	-	-	24.28	45.00	0.00	24.28
1.70	-	-	-	24.28	45.00	0.00	24.28
1.75	-	-	-	24.28	45.00	0.00	24.28
1.80	-	-	-	24.28	45.00	0.00	24.28
1.85	-	-	-	24.28	45.00	0.00	24.28
1.90	-	-	-	24.28	45.00	0.00	24.28
1.95	-	-	-	24.28	45.00	0.00	24.28
2.00	-	-	-	24.28	45.00	0.00	24.28
2.05	-	-	-	24.28	45.00	0.00	24.28
2.10	-	-	-	24.28	45.00	0.00	24.28
2.15	-	-	-	24.28	45.00	0.00	24.28
2.20	-	-	-	24.28	45.00	0.00	24.28
2.25	-	-	-	24.28	45.00	0.00	24.28
2.30	-	-	-	24.28	45.00	0.00	24.28
2.35	-	-	-	24.28	45.00	0.00	24.28
2.40	-	-	-	24.28	45.00	0.00	24.28
2.45	-	-	-	24.28	45.00	0.00	24.28
2.50	-	-	-	24.28	45.00	0.00	24.28
2.55	-	-	-	24.28	45.00	0.00	24.28
2.60	-	-	-	24.28	45.00	0.00	24.28
2.65	-	-	-	24.28	45.00	0.00	24.28
2.70	-	-	-	24.28	45.00	0.00	24.28
2.75	-	-	-	24.28	45.00	0.00	24.28
2.80	-	-	-	24.28	45.00	0.00	24.28
2.85	-	-	-	24.28	45.00	0.00	24.28
2.90	-	-	-	24.28	45.00	0.00	24.28
2.95	-	-	-	24.28	45.00	0.00	24.28
3.00	-	-	-	24.28	45.00	0.00	24.28
3.05	-	-	-	24.28	45.00	0.00	24.28
3.10	-	-	-	24.28	45.00	0.00	24.28
3.15	-	-	-	24.28	45.00	0.00	24.28
3.20	-	-	-	24.28	45.00	0.00	24.28
3.25	-	-	-	24.28	45.00	0.00	24.28
3.30	-	-	-	24.28	45.00	0.00	24.28
3.35	-	-	-	24.28	45.00	0.00	24.28
3.40	-	-	-	24.28	45.00	0.00	24.28
3.45	-	-	-	24.28	45.00	0.00	24.28
3.50	-	-	-	24.28	45.00	0.00	24.28
3.55	-	-	-	24.28	45.00	0.00	24.28
3.60	-	-	-	24.28	45.00	0.00	24.28
3.65	-	-	-	24.28	45.00	0.00	24.28
3.70	-	-	-	24.28	45.00	0.00	24.28
3.75	-	-	-	24.28	45.00	0.00	24.28
3.80	-	-	-	24.28	45.00	0.00	24.28
3.85	-	-	-	24.28	45.00	0.00	24.28
3.90	-	-	-	24.28	45.00	0.00	24.28

3.95	-	-	-	24.28	45.00	0.00	24.28
4.00	-	-	-	24.28	45.00	0.00	24.28
4.05	-	-	-	24.28	45.00	0.00	24.28
4.10	-	-	-	24.28	45.00	0.00	24.28
4.15	-	-	-	24.28	45.00	0.00	24.28
4.20	-	-	-	24.28	45.00	0.00	24.28
4.25	-	-	-	24.28	45.00	0.00	24.28
4.30	-	-	-	24.28	45.00	0.00	24.28
4.35	-	-	-	24.28	45.00	0.00	24.28
4.40	-	-	-	24.28	45.00	0.00	24.28
4.45	-	-	-	24.28	45.00	0.00	24.28
4.50	-	-	-	24.28	45.00	0.00	24.28
4.55	-	-	-	24.28	45.00	0.00	24.28
4.60	-	-	-	24.28	45.00	0.00	24.28
4.65	-	-	-	24.28	45.00	0.00	24.28
4.70	-	-	-	24.28	45.00	0.00	24.28
4.75	-	-	-	24.28	45.00	0.00	24.28
4.80	-	-	-	24.28	45.00	0.00	24.28
4.85	-	-	-	24.28	45.00	0.00	24.28
4.90	-	-	-	24.28	45.00	0.00	24.28
4.95	-	-	-	24.28	45.00	0.00	24.28
5.00	-	-	-	24.28	45.00	0.00	24.28
5.05	-	-	-	24.28	45.00	0.00	24.28
5.10	-	-	-	24.28	45.00	0.00	24.28
5.15	-	-	-	24.28	45.00	0.00	24.28
5.20	-	-	-	24.28	45.00	0.00	24.28
5.25	-	-	-	24.28	45.00	0.00	24.28
5.30	-	-	-	24.28	45.00	0.00	24.28
5.35	-	-	-	24.28	45.00	0.00	24.28
5.40	-	-	-	24.28	45.00	0.00	24.28
5.45	-	-	-	24.28	45.00	0.00	24.28
5.50	-	-	-	24.28	45.00	0.00	24.28
5.55	-	-	-	24.28	45.00	0.00	24.28
5.60	-	-	-	24.28	45.00	0.00	24.28
5.65	-	-	-	24.28	45.00	0.00	24.28
5.70	-	-	-	24.28	45.00	0.00	24.28
5.75	-	-	-	24.28	45.00	0.00	24.28
5.80	-	-	-	24.28	45.00	0.00	24.28
5.85	-	-	-	24.28	45.00	0.00	24.28
5.90	-	-	-	24.28	45.00	0.00	24.28
5.95	-	-	-	24.28	45.00	0.00	24.28
6.00	-	-	-	24.28	45.00	0.00	24.28
6.05	-	-	-	25.72	43.00	0.00	25.72
6.10	-	-	-	27.17	41.00	0.00	27.17
6.15	-	-	-	28.62	39.00	0.00	28.62
6.20	-	-	-	30.06	37.00	0.00	30.06
6.25	-	-	-	31.42	35.00	0.00	31.42
6.30	-	-	-	32.36	33.00	0.00	32.36
6.35	-	-	-	33.16	31.00	0.00	33.16
6.40	-	-	-	33.88	29.00	0.00	33.88
6.45	-	-	-	34.55	27.00	0.00	34.55
6.50	-	-	-	35.16	25.00	0.00	35.16
6.55	-	-	-	35.70	23.00	0.00	35.70
6.60	-	-	-	36.17	21.00	0.00	36.17
6.65	-	-	-	36.56	19.00	0.00	36.56
6.70	-	-	-	36.86	17.00	0.00	36.86
6.75	-	-	-	37.05	15.00	0.00	37.05
6.80	-	-	-	37.14	13.00	0.00	37.14
6.85	-	-	-	37.15	11.00	0.00	37.15
6.90	-	-	-	37.20	9.00	0.00	37.20
6.95	-	-	-	37.48	7.00	0.00	37.48
7.00	-	-	-	38.04	5.00	0.00	38.04
7.05	-	-	-	37.89	5.00	0.00	37.89
7.10	-	-	-	37.75	5.00	0.00	37.75
7.15	-	-	-	37.61	5.00	0.00	37.61
7.20	-	-	-	37.47	5.00	0.00	37.47
7.25	-	-	-	37.33	5.00	0.00	37.33
7.30	-	-	-	37.19	5.00	0.00	37.19
7.35	-	-	-	37.06	5.00	0.00	37.06
7.40	-	-	-	36.93	5.00	0.00	36.93
7.45	-	-	-	36.79	5.00	0.00	36.79
7.50	-	-	-	36.66	5.00	0.00	36.66
7.55	-	-	-	36.53	5.00	0.00	36.53

7.60	-	-	-	36.40	5.00	0.00	36.40
7.65	-	-	-	36.28	5.00	0.00	36.28
7.70	-	-	-	36.15	5.00	0.00	36.15
7.75	-	-	-	36.03	5.00	0.00	36.03
7.80	-	-	-	35.90	5.00	0.00	35.90
7.85	-	-	-	35.78	5.00	0.00	35.78
7.90	-	-	-	35.66	5.00	0.00	35.66
7.95	-	-	-	35.54	5.00	0.00	35.54
8.00	-	-	-	35.42	5.00	0.00	35.42
8.05	-	-	-	35.31	5.00	0.00	35.31
8.10	-	-	-	35.19	5.00	0.00	35.19
8.15	-	-	-	35.08	5.00	0.00	35.08
8.20	-	-	-	34.96	5.00	0.00	34.96
8.25	-	-	-	39.50	5.00	0.00	39.50
8.30	-	-	-	39.37	5.00	0.00	39.37
8.35	-	-	-	39.24	5.00	0.00	39.24
8.40	-	-	-	39.12	5.00	0.00	39.12
8.45	-	-	-	39.00	5.00	0.00	39.00
8.50	-	-	-	38.88	5.00	0.00	38.88
8.55	-	-	-	38.76	5.00	0.00	38.76
8.60	-	-	-	38.64	5.00	0.00	38.64
8.65	-	-	-	38.52	5.00	0.00	38.52
8.70	-	-	-	38.40	5.00	0.00	38.40
8.75	-	-	-	38.29	5.00	0.00	38.29
8.80	-	-	-	38.17	5.00	0.00	38.17
8.85	-	-	-	38.06	5.00	0.00	38.06
8.90	-	-	-	37.94	5.00	0.00	37.94
8.95	-	-	-	37.83	5.00	0.00	37.83
9.00	-	-	-	37.72	5.00	0.00	37.72
9.05	-	-	-	37.31	5.00	0.00	37.31
9.10	-	-	-	36.90	5.00	0.00	36.90
9.15	-	-	-	36.50	5.00	0.00	36.50
9.20	-	-	-	36.09	5.00	0.00	36.09
9.25	-	-	-	35.69	5.00	0.00	35.69
9.30	-	-	-	35.29	5.00	0.00	35.29
9.35	-	-	-	34.90	5.00	0.00	34.90
9.40	-	-	-	34.51	5.00	0.00	34.51
9.45	-	-	-	34.12	5.00	0.00	34.12
9.50	-	-	-	33.73	5.00	0.00	33.73
9.55	-	-	-	33.34	5.00	0.00	33.34
9.60	-	-	-	32.96	5.00	0.00	32.96
9.65	-	-	-	32.58	5.00	0.00	32.58
9.70	-	-	-	32.20	5.00	0.00	32.20
9.75	-	-	-	31.82	5.00	0.00	31.82
9.80	-	-	-	31.45	5.00	0.00	31.45
9.85	-	-	-	31.08	5.00	0.00	31.08
9.90	-	-	-	30.71	5.00	0.00	30.71
9.95	-	-	-	30.34	5.00	0.00	30.34
10.00	-	-	-	30.01	5.00	0.00	30.01
10.05	-	-	-	29.96	5.25	0.00	29.96
10.10	-	-	-	29.92	5.50	0.00	29.92
10.15	-	-	-	29.87	5.75	0.00	29.87
10.20	-	-	-	29.84	6.00	0.00	29.84
10.25	-	-	-	29.80	6.25	0.00	29.80
10.30	-	-	-	29.77	6.50	0.00	29.77
10.35	-	-	-	29.75	6.75	0.00	29.75
10.40	-	-	-	29.74	7.00	0.00	29.74
10.45	-	-	-	29.73	7.25	0.00	29.73
10.50	-	-	-	29.73	7.50	0.00	29.73
10.55	-	-	-	29.73	7.75	0.00	29.73
10.60	-	-	-	29.74	8.00	0.00	29.74
10.65	-	-	-	29.76	8.25	0.00	29.76
10.70	-	-	-	29.78	8.50	0.00	29.78
10.75	-	-	-	29.81	8.75	0.00	29.81
10.80	-	-	-	29.84	9.00	0.00	29.84
10.85	-	-	-	29.87	9.25	0.00	29.87
10.90	-	-	-	29.91	9.50	0.00	29.91
10.95	-	-	-	29.96	9.75	0.00	29.96
11.00	-	-	-	30.00	10.00	0.00	30.00
11.05	-	-	-	30.35	10.00	0.00	30.35
11.10	-	-	-	30.69	10.00	0.00	30.69
11.15	-	-	-	31.04	10.00	0.00	31.04
11.20	-	-	-	31.38	10.00	0.00	31.38

11.25	-	-	-	31.72	10.00	0.00	31.72
11.30	-	-	-	32.06	10.00	0.00	32.06
11.35	-	-	-	32.40	10.00	0.00	32.40
11.40	-	-	-	32.73	10.00	0.00	32.73
11.45	-	-	-	33.07	10.00	0.00	33.07
11.50	-	-	-	33.40	10.00	0.00	33.40
11.55	-	-	-	33.73	10.00	0.00	33.73
11.60	-	-	-	34.07	10.00	0.00	34.07
11.65	-	-	-	34.40	10.00	0.00	34.40
11.70	-	-	-	34.72	10.00	0.00	34.72
11.75	-	-	-	35.05	10.00	0.00	35.05
11.80	-	-	-	35.38	10.00	0.00	35.38
11.85	-	-	-	35.70	10.00	0.00	35.70
11.90	-	-	-	36.02	10.00	0.00	36.02
11.95	-	-	-	36.35	10.00	0.00	36.35
12.00	-	-	-	36.67	10.00	0.00	36.67
12.05	-	-	-	36.59	10.00	0.00	36.59
12.10	-	-	-	36.51	10.00	0.00	36.51
12.15	-	-	-	36.44	10.00	0.00	36.44
12.20	-	-	-	36.36	10.00	0.00	36.36
12.25	-	-	-	36.28	10.00	0.00	36.28
12.30	-	-	-	36.21	10.00	0.00	36.21
12.35	-	-	-	36.14	10.00	0.00	36.14
12.40	-	-	-	36.06	10.00	0.00	36.06
12.45	-	-	-	35.99	10.00	0.00	35.99
12.50	-	-	-	35.91	10.00	0.00	35.91
12.55	-	-	-	35.84	10.00	0.00	35.84
12.60	-	-	-	35.77	10.00	0.00	35.77
12.65	-	-	-	35.70	10.00	0.00	35.70
12.70	-	-	-	35.63	10.00	0.00	35.63
12.75	-	-	-	35.56	10.00	0.00	35.56
12.80	-	-	-	35.49	10.00	0.00	35.49
12.85	-	-	-	35.42	10.00	0.00	35.42
12.90	-	-	-	35.35	10.00	0.00	35.35
12.95	-	-	-	35.28	10.00	0.00	35.28
13.00	-	-	-	35.21	10.00	0.00	35.21
13.05	-	-	-	34.89	10.00	0.00	34.89
13.10	-	-	-	34.57	10.00	0.00	34.57
13.15	-	-	-	34.25	10.00	0.00	34.25
13.20	-	-	-	33.93	10.00	0.00	33.93
13.25	-	-	-	33.61	10.00	0.00	33.61
13.30	-	-	-	33.29	10.00	0.00	33.29
13.35	-	-	-	32.98	10.00	0.00	32.98
13.40	-	-	-	32.67	10.00	0.00	32.67
13.45	-	-	-	32.36	10.00	0.00	32.36
13.50	-	-	-	32.04	10.00	0.00	32.04
13.55	-	-	-	31.73	10.00	0.00	31.73
13.60	-	-	-	31.43	10.00	0.00	31.43
13.65	-	-	-	31.12	10.00	0.00	31.12
13.70	-	-	-	30.81	10.00	0.00	30.81
13.75	-	-	-	30.51	10.00	0.00	30.51
13.80	-	-	-	30.21	10.00	0.00	30.21
13.85	-	-	-	29.90	10.00	0.00	29.90
13.90	-	-	-	29.60	10.00	0.00	29.60
13.95	-	-	-	29.30	10.00	0.00	29.30
14.00	-	-	-	29.00	10.00	0.00	29.00
14.05	-	-	-	29.13	10.00	0.00	29.13
14.10	-	-	-	29.26	10.00	0.00	29.26
14.15	-	-	-	29.39	10.00	0.00	29.39
14.20	-	-	-	29.52	10.00	0.00	29.52
14.25	-	-	-	29.65	10.00	0.00	29.65
14.30	-	-	-	29.78	10.00	0.00	29.78
14.35	-	-	-	29.90	10.00	0.00	29.90
14.40	-	-	-	30.03	10.00	0.00	30.03
14.45	-	-	-	30.16	10.00	0.00	30.16
14.50	-	-	-	30.28	10.00	0.00	30.28
14.55	-	-	-	30.41	10.00	0.00	30.41
14.60	-	-	-	30.54	10.00	0.00	30.54
14.65	-	-	-	30.66	10.00	0.00	30.66
14.70	-	-	-	30.79	10.00	0.00	30.79
14.75	-	-	-	30.91	10.00	0.00	30.91
14.80	-	-	-	34.58	10.00	0.00	34.58
14.85	-	-	-	34.72	10.00	0.00	34.72

14.90	-	-	-	34.86	10.00	0.00	34.86
14.95	-	-	-	35.00	10.00	0.00	35.00
15.00	-	-	-	35.13	10.00	0.00	35.13
15.05	-	-	-	35.07	10.00	0.00	35.07
15.10	-	-	-	35.01	10.00	0.00	35.01
15.15	-	-	-	34.95	10.00	0.00	34.95
15.20	-	-	-	34.89	10.00	0.00	34.89
15.25	-	-	-	34.83	10.00	0.00	34.83
15.30	-	-	-	34.78	10.00	0.00	34.78
15.35	-	-	-	34.72	10.00	0.00	34.72
15.40	-	-	-	34.66	10.00	0.00	34.66
15.45	-	-	-	34.60	10.00	0.00	34.60
15.50	-	-	-	34.54	10.00	0.00	34.54
15.55	-	-	-	34.49	10.00	0.00	34.49
15.60	-	-	-	34.43	10.00	0.00	34.43
15.65	-	-	-	34.37	10.00	0.00	34.37
15.70	-	-	-	34.31	10.00	0.00	34.31
15.75	-	-	-	34.26	10.00	0.00	34.26
15.80	-	-	-	34.20	10.00	0.00	34.20
15.85	-	-	-	34.15	10.00	0.00	34.15
15.90	-	-	-	34.09	10.00	0.00	34.09
15.95	-	-	-	34.04	10.00	0.00	34.04
16.00	-	-	-	33.98	10.00	0.00	33.98
16.05	-	-	-	36.98	14.55	0.00	36.98
16.10	-	-	-	39.73	19.10	0.00	39.73
16.15	-	-	-	42.25	23.65	0.00	42.25
16.20	-	-	-	44.67	28.20	0.00	44.67
16.25	-	-	-	47.09	32.75	0.00	47.09
16.30	-	-	-	48.85	37.30	0.00	48.85
16.35	-	-	-	49.66	41.85	0.00	49.66
16.40	-	-	-	50.48	46.40	0.00	50.48
16.45	-	-	-	51.29	50.95	0.00	51.29
16.50	-	-	-	52.09	55.50	0.00	52.09
16.55	-	-	-	52.90	60.05	0.00	52.90
16.60	-	-	-	53.70	64.60	0.00	53.70
16.65	-	-	-	54.50	69.15	0.00	54.50
16.70	-	-	-	55.30	73.70	0.00	55.30
16.75	-	-	-	56.10	78.25	0.00	56.10
16.80	-	-	-	56.89	82.80	0.00	56.89
16.85	-	-	-	57.68	87.35	0.00	57.68
16.90	-	-	-	58.47	91.90	0.00	58.47
16.95	-	-	-	59.26	96.45	0.00	59.26
17.00	-	-	-	60.04	NoLiq	0.00	60.04
17.05	-	-	-	59.95	NoLiq	0.00	59.95
17.10	-	-	-	59.87	NoLiq	0.00	59.87
17.15	-	-	-	59.78	NoLiq	0.00	59.78
17.20	-	-	-	59.70	NoLiq	0.00	59.70
17.25	-	-	-	59.61	NoLiq	0.00	59.61
17.30	-	-	-	59.53	NoLiq	0.00	59.53
17.35	-	-	-	59.44	NoLiq	0.00	59.44
17.40	-	-	-	59.36	NoLiq	0.00	59.36
17.45	-	-	-	59.28	NoLiq	0.00	59.28
17.50	-	-	-	59.19	NoLiq	0.00	59.19
17.55	-	-	-	59.11	NoLiq	0.00	59.11
17.60	-	-	-	59.03	NoLiq	0.00	59.03
17.65	-	-	-	58.95	NoLiq	0.00	58.95
17.70	-	-	-	58.87	NoLiq	0.00	58.87
17.75	-	-	-	58.79	NoLiq	0.00	58.79
17.80	-	-	-	58.71	NoLiq	0.00	58.71
17.85	-	-	-	58.63	NoLiq	0.00	58.63
17.90	-	-	-	58.55	NoLiq	0.00	58.55
17.95	-	-	-	58.47	NoLiq	0.00	58.47
18.00	-	-	-	58.39	NoLiq	0.00	58.39
18.05	-	-	-	58.31	NoLiq	0.00	58.31
18.10	-	-	-	58.23	NoLiq	0.00	58.23
18.15	-	-	-	58.15	NoLiq	0.00	58.15
18.20	-	-	-	58.07	NoLiq	0.00	58.07
18.25	-	-	-	58.00	NoLiq	0.00	58.00
18.30	-	-	-	57.92	NoLiq	0.00	57.92
18.35	-	-	-	57.84	NoLiq	0.00	57.84
18.40	-	-	-	57.77	NoLiq	0.00	57.77
18.45	-	-	-	57.69	NoLiq	0.00	57.69
18.50	-	-	-	57.61	NoLiq	0.00	57.61

18.55	-	-	-	57.54	NoLiq	0.00	57.54
18.60	-	-	-	57.46	NoLiq	0.00	57.46
18.65	-	-	-	57.39	NoLiq	0.00	57.39
18.70	-	-	-	57.31	NoLiq	0.00	57.31
18.75	-	-	-	57.24	NoLiq	0.00	57.24
18.80	-	-	-	57.17	NoLiq	0.00	57.17
18.85	-	-	-	57.09	NoLiq	0.00	57.09
18.90	-	-	-	57.02	NoLiq	0.00	57.02
18.95	-	-	-	56.95	NoLiq	0.00	56.95
19.00	-	-	-	56.87	NoLiq	0.00	56.87
19.05	-	-	-	56.80	NoLiq	0.00	56.80
19.10	-	-	-	56.76	NoLiq	0.00	56.76
19.15	-	-	-	56.72	NoLiq	0.00	56.72
19.20	-	-	-	56.69	NoLiq	0.00	56.69
19.25	-	-	-	56.65	NoLiq	0.00	56.65
19.30	-	-	-	56.61	NoLiq	0.00	56.61
19.35	-	-	-	56.58	NoLiq	0.00	56.58
19.40	-	-	-	56.54	NoLiq	0.00	56.54
19.45	-	-	-	56.50	NoLiq	0.00	56.50
19.50	-	-	-	56.46	NoLiq	0.00	56.46
19.55	-	-	-	56.43	NoLiq	0.00	56.43
19.60	-	-	-	56.39	NoLiq	0.00	56.39
19.65	-	-	-	56.35	NoLiq	0.00	56.35
19.70	-	-	-	56.32	NoLiq	0.00	56.32
19.75	-	-	-	56.28	NoLiq	0.00	56.28
19.80	-	-	-	56.24	NoLiq	0.00	56.24
19.85	-	-	-	56.21	NoLiq	0.00	56.21
19.90	-	-	-	56.17	NoLiq	0.00	56.17
19.95	-	-	-	56.13	NoLiq	0.00	56.13
20.00	-	-	-	56.10	NoLiq	0.00	56.10
20.05	-	-	-	56.06	NoLiq	0.00	56.06
20.10	-	-	-	56.02	NoLiq	0.00	56.02
20.15	-	-	-	55.99	NoLiq	0.00	55.99
20.20	-	-	-	55.95	NoLiq	0.00	55.95
20.25	-	-	-	55.92	NoLiq	0.00	55.92
20.30	-	-	-	55.88	NoLiq	0.00	55.88
20.35	-	-	-	55.84	NoLiq	0.00	55.84
20.40	-	-	-	55.81	NoLiq	0.00	55.81
20.45	-	-	-	55.77	NoLiq	0.00	55.77
20.50	-	-	-	55.74	NoLiq	0.00	55.74
20.55	-	-	-	55.70	NoLiq	0.00	55.70
20.60	-	-	-	55.67	NoLiq	0.00	55.67
20.65	-	-	-	55.63	NoLiq	0.00	55.63
20.70	-	-	-	55.60	NoLiq	0.00	55.60
20.75	-	-	-	55.56	NoLiq	0.00	55.56
20.80	-	-	-	55.53	NoLiq	0.00	55.53
20.85	-	-	-	55.49	NoLiq	0.00	55.49
20.90	-	-	-	55.46	NoLiq	0.00	55.46
20.95	-	-	-	55.42	NoLiq	0.00	55.42
21.00	-	-	-	55.39	NoLiq	0.00	55.39
21.05	-	-	-	55.35	NoLiq	0.00	55.35
21.10	-	-	-	55.32	NoLiq	0.00	55.32
21.15	-	-	-	55.28	NoLiq	0.00	55.28
21.20	-	-	-	55.25	NoLiq	0.00	55.25
21.25	-	-	-	55.21	NoLiq	0.00	55.21
21.30	-	-	-	55.18	NoLiq	0.00	55.18
21.35	-	-	-	55.14	NoLiq	0.00	55.14
21.40	-	-	-	55.11	NoLiq	0.00	55.11
21.45	-	-	-	55.08	NoLiq	0.00	55.08
21.50	-	-	-	55.04	NoLiq	0.00	55.04
21.55	-	-	-	55.01	NoLiq	0.00	55.01
21.60	-	-	-	54.97	NoLiq	0.00	54.97
21.65	-	-	-	54.94	NoLiq	0.00	54.94
21.70	-	-	-	54.91	NoLiq	0.00	54.91
21.75	-	-	-	54.87	NoLiq	0.00	54.87
21.80	-	-	-	54.84	NoLiq	0.00	54.84
21.85	-	-	-	54.80	NoLiq	0.00	54.80
21.90	-	-	-	54.77	NoLiq	0.00	54.77
21.95	-	-	-	54.74	NoLiq	0.00	54.74
22.00	-	-	-	54.70	NoLiq	0.00	54.70
22.05	-	-	-	54.67	NoLiq	0.00	54.67
22.10	-	-	-	54.64	NoLiq	0.00	54.64
22.15	-	-	-	54.60	NoLiq	0.00	54.60

22.20	-	-	-	54.57	NoLiq	0.00	54.57
22.25	-	-	-	54.54	NoLiq	0.00	54.54
22.30	-	-	-	54.50	NoLiq	0.00	54.50
22.35	-	-	-	54.47	NoLiq	0.00	54.47
22.40	-	-	-	54.44	NoLiq	0.00	54.44
22.45	-	-	-	54.41	NoLiq	0.00	54.41
22.50	-	-	-	54.37	NoLiq	0.00	54.37
22.55	-	-	-	54.34	NoLiq	0.00	54.34
22.60	-	-	-	54.31	NoLiq	0.00	54.31
22.65	-	-	-	54.28	NoLiq	0.00	54.28
22.70	-	-	-	54.24	NoLiq	0.00	54.24
22.75	-	-	-	54.21	NoLiq	0.00	54.21
22.80	-	-	-	54.18	NoLiq	0.00	54.18
22.85	-	-	-	54.15	NoLiq	0.00	54.15
22.90	-	-	-	54.11	NoLiq	0.00	54.11
22.95	-	-	-	54.08	NoLiq	0.00	54.08
23.00	-	-	-	54.05	NoLiq	0.00	54.05
23.05	-	-	-	54.02	NoLiq	0.00	54.02
23.10	-	-	-	53.99	NoLiq	0.00	53.99
23.15	-	-	-	53.95	NoLiq	0.00	53.95
23.20	-	-	-	53.92	NoLiq	0.00	53.92
23.25	-	-	-	53.89	NoLiq	0.00	53.89
23.30	-	-	-	53.86	NoLiq	0.00	53.86
23.35	-	-	-	53.83	NoLiq	0.00	53.83
23.40	-	-	-	53.79	NoLiq	0.00	53.79
23.45	-	-	-	53.76	NoLiq	0.00	53.76
23.50	-	-	-	53.73	NoLiq	0.00	53.73
23.55	-	-	-	53.70	NoLiq	0.00	53.70
23.60	-	-	-	53.67	NoLiq	0.00	53.67
23.65	-	-	-	53.64	NoLiq	0.00	53.64
23.70	-	-	-	53.61	NoLiq	0.00	53.61
23.75	-	-	-	53.57	NoLiq	0.00	53.57
23.80	-	-	-	53.54	NoLiq	0.00	53.54
23.85	-	-	-	53.51	NoLiq	0.00	53.51
23.90	-	-	-	53.48	NoLiq	0.00	53.48
23.95	-	-	-	53.45	NoLiq	0.00	53.45
24.00	-	-	-	53.42	NoLiq	0.00	53.42
24.05	-	-	-	53.39	NoLiq	0.00	53.39
24.10	-	-	-	53.36	NoLiq	0.00	53.36
24.15	-	-	-	53.33	NoLiq	0.00	53.33
24.20	-	-	-	53.30	NoLiq	0.00	53.30
24.25	-	-	-	53.27	NoLiq	0.00	53.27
24.30	-	-	-	53.24	NoLiq	0.00	53.24
24.35	-	-	-	53.20	NoLiq	0.00	53.20
24.40	-	-	-	53.17	NoLiq	0.00	53.17
24.45	-	-	-	53.14	NoLiq	0.00	53.14
24.50	-	-	-	53.11	NoLiq	0.00	53.11
24.55	-	-	-	53.08	NoLiq	0.00	53.08
24.60	-	-	-	53.05	NoLiq	0.00	53.05
24.65	-	-	-	53.02	NoLiq	0.00	53.02
24.70	-	-	-	52.99	NoLiq	0.00	52.99
24.75	-	-	-	52.96	NoLiq	0.00	52.96
24.80	-	-	-	52.93	NoLiq	0.00	52.93
24.85	-	-	-	52.90	NoLiq	0.00	52.90
24.90	-	-	-	52.87	NoLiq	0.00	52.87
24.95	-	-	-	52.84	NoLiq	0.00	52.84
25.00	-	-	-	52.81	NoLiq	0.00	52.81

(N1)60s has been fines corrected in liquefaction analysis, therefore d(N1)60=0.
Fines=NoLiq means the soils are not liquefiable.

Settlement of Saturated Sands:
Settlement Analysis Method: Tokimatsu, M-correction

Depth ft	CSRsf	/ MSF*	=CSRm	F.S.	Fines %	(N1)60s	Dr %	ec %	dsz in.	dsp in.	S in.
24.95	0.96	1.30	0.74	5.00	NoLiq	52.84	100.00	0.000	0.0E0	0.000	0.000
24.90	0.96	1.30	0.74	5.00	NoLiq	52.87	100.00	0.000	0.0E0	0.000	0.000
24.85	0.96	1.30	0.74	5.00	NoLiq	52.90	100.00	0.000	0.0E0	0.000	0.000
24.80	0.96	1.30	0.74	5.00	NoLiq	52.93	100.00	0.000	0.0E0	0.000	0.000
24.75	0.96	1.30	0.74	5.00	NoLiq	52.96	100.00	0.000	0.0E0	0.000	0.000
24.70	0.96	1.30	0.74	5.00	NoLiq	52.99	100.00	0.000	0.0E0	0.000	0.000

24.65	0.96	1.30	0.74	5.00	NoLiq	53.02	100.00	0.000	0.0E0	0.000	0.000
24.60	0.96	1.30	0.74	5.00	NoLiq	53.05	100.00	0.000	0.0E0	0.000	0.000
24.55	0.96	1.30	0.74	5.00	NoLiq	53.08	100.00	0.000	0.0E0	0.000	0.000
24.50	0.96	1.30	0.74	5.00	NoLiq	53.11	100.00	0.000	0.0E0	0.000	0.000
24.45	0.96	1.30	0.73	5.00	NoLiq	53.14	100.00	0.000	0.0E0	0.000	0.000
24.40	0.96	1.30	0.73	5.00	NoLiq	53.17	100.00	0.000	0.0E0	0.000	0.000
24.35	0.96	1.30	0.73	5.00	NoLiq	53.20	100.00	0.000	0.0E0	0.000	0.000
24.30	0.96	1.30	0.73	5.00	NoLiq	53.24	100.00	0.000	0.0E0	0.000	0.000
24.25	0.96	1.30	0.73	5.00	NoLiq	53.27	100.00	0.000	0.0E0	0.000	0.000
24.20	0.96	1.30	0.73	5.00	NoLiq	53.30	100.00	0.000	0.0E0	0.000	0.000
24.15	0.96	1.30	0.73	5.00	NoLiq	53.33	100.00	0.000	0.0E0	0.000	0.000
24.10	0.96	1.30	0.73	5.00	NoLiq	53.36	100.00	0.000	0.0E0	0.000	0.000
24.05	0.96	1.30	0.73	5.00	NoLiq	53.39	100.00	0.000	0.0E0	0.000	0.000
24.00	0.96	1.30	0.73	5.00	NoLiq	53.42	100.00	0.000	0.0E0	0.000	0.000
23.95	0.96	1.30	0.73	5.00	NoLiq	53.45	100.00	0.000	0.0E0	0.000	0.000
23.90	0.96	1.30	0.73	5.00	NoLiq	53.48	100.00	0.000	0.0E0	0.000	0.000
23.85	0.96	1.30	0.73	5.00	NoLiq	53.51	100.00	0.000	0.0E0	0.000	0.000
23.80	0.96	1.30	0.73	5.00	NoLiq	53.54	100.00	0.000	0.0E0	0.000	0.000
23.75	0.96	1.30	0.73	5.00	NoLiq	53.57	100.00	0.000	0.0E0	0.000	0.000
23.70	0.96	1.30	0.73	5.00	NoLiq	53.61	100.00	0.000	0.0E0	0.000	0.000
23.65	0.96	1.30	0.73	5.00	NoLiq	53.64	100.00	0.000	0.0E0	0.000	0.000
23.60	0.96	1.30	0.73	5.00	NoLiq	53.67	100.00	0.000	0.0E0	0.000	0.000
23.55	0.96	1.30	0.73	5.00	NoLiq	53.70	100.00	0.000	0.0E0	0.000	0.000
23.50	0.96	1.30	0.73	5.00	NoLiq	53.73	100.00	0.000	0.0E0	0.000	0.000
23.45	0.96	1.30	0.73	5.00	NoLiq	53.76	100.00	0.000	0.0E0	0.000	0.000
23.40	0.96	1.30	0.73	5.00	NoLiq	53.79	100.00	0.000	0.0E0	0.000	0.000
23.35	0.95	1.30	0.73	5.00	NoLiq	53.83	100.00	0.000	0.0E0	0.000	0.000
23.30	0.95	1.30	0.73	5.00	NoLiq	53.86	100.00	0.000	0.0E0	0.000	0.000
23.25	0.95	1.30	0.73	5.00	NoLiq	53.89	100.00	0.000	0.0E0	0.000	0.000
23.20	0.95	1.30	0.73	5.00	NoLiq	53.92	100.00	0.000	0.0E0	0.000	0.000
23.15	0.95	1.30	0.73	5.00	NoLiq	53.95	100.00	0.000	0.0E0	0.000	0.000
23.10	0.95	1.30	0.73	5.00	NoLiq	53.99	100.00	0.000	0.0E0	0.000	0.000
23.05	0.95	1.30	0.73	5.00	NoLiq	54.02	100.00	0.000	0.0E0	0.000	0.000
23.00	0.95	1.30	0.73	5.00	NoLiq	54.05	100.00	0.000	0.0E0	0.000	0.000
22.95	0.95	1.30	0.73	5.00	NoLiq	54.08	100.00	0.000	0.0E0	0.000	0.000
22.90	0.95	1.30	0.73	5.00	NoLiq	54.11	100.00	0.000	0.0E0	0.000	0.000
22.85	0.95	1.30	0.73	5.00	NoLiq	54.15	100.00	0.000	0.0E0	0.000	0.000
22.80	0.95	1.30	0.73	5.00	NoLiq	54.18	100.00	0.000	0.0E0	0.000	0.000
22.75	0.95	1.30	0.73	5.00	NoLiq	54.21	100.00	0.000	0.0E0	0.000	0.000
22.70	0.95	1.30	0.73	5.00	NoLiq	54.24	100.00	0.000	0.0E0	0.000	0.000
22.65	0.95	1.30	0.73	5.00	NoLiq	54.28	100.00	0.000	0.0E0	0.000	0.000
22.60	0.95	1.30	0.73	5.00	NoLiq	54.31	100.00	0.000	0.0E0	0.000	0.000
22.55	0.95	1.30	0.73	5.00	NoLiq	54.34	100.00	0.000	0.0E0	0.000	0.000
22.50	0.95	1.30	0.73	5.00	NoLiq	54.37	100.00	0.000	0.0E0	0.000	0.000
22.45	0.95	1.30	0.73	5.00	NoLiq	54.41	100.00	0.000	0.0E0	0.000	0.000
22.40	0.95	1.30	0.73	5.00	NoLiq	54.44	100.00	0.000	0.0E0	0.000	0.000
22.35	0.95	1.30	0.73	5.00	NoLiq	54.47	100.00	0.000	0.0E0	0.000	0.000
22.30	0.95	1.30	0.73	5.00	NoLiq	54.50	100.00	0.000	0.0E0	0.000	0.000
22.25	0.95	1.30	0.73	5.00	NoLiq	54.54	100.00	0.000	0.0E0	0.000	0.000
22.20	0.95	1.30	0.73	5.00	NoLiq	54.57	100.00	0.000	0.0E0	0.000	0.000
22.15	0.95	1.30	0.73	5.00	NoLiq	54.60	100.00	0.000	0.0E0	0.000	0.000
22.10	0.95	1.30	0.73	5.00	NoLiq	54.64	100.00	0.000	0.0E0	0.000	0.000
22.05	0.95	1.30	0.73	5.00	NoLiq	54.67	100.00	0.000	0.0E0	0.000	0.000
22.00	0.95	1.30	0.73	5.00	NoLiq	54.70	100.00	0.000	0.0E0	0.000	0.000
21.95	0.95	1.30	0.73	5.00	NoLiq	54.74	100.00	0.000	0.0E0	0.000	0.000
21.90	0.95	1.30	0.73	5.00	NoLiq	54.77	100.00	0.000	0.0E0	0.000	0.000
21.85	0.95	1.30	0.73	5.00	NoLiq	54.80	100.00	0.000	0.0E0	0.000	0.000
21.80	0.95	1.30	0.73	5.00	NoLiq	54.84	100.00	0.000	0.0E0	0.000	0.000
21.75	0.95	1.30	0.73	5.00	NoLiq	54.87	100.00	0.000	0.0E0	0.000	0.000
21.70	0.95	1.30	0.73	5.00	NoLiq	54.91	100.00	0.000	0.0E0	0.000	0.000
21.65	0.95	1.30	0.73	5.00	NoLiq	54.94	100.00	0.000	0.0E0	0.000	0.000
21.60	0.95	1.30	0.73	5.00	NoLiq	54.97	100.00	0.000	0.0E0	0.000	0.000
21.55	0.95	1.30	0.73	5.00	NoLiq	55.01	100.00	0.000	0.0E0	0.000	0.000
21.50	0.95	1.30	0.73	5.00	NoLiq	55.04	100.00	0.000	0.0E0	0.000	0.000
21.45	0.95	1.30	0.73	5.00	NoLiq	55.08	100.00	0.000	0.0E0	0.000	0.000
21.40	0.95	1.30	0.73	5.00	NoLiq	55.11	100.00	0.000	0.0E0	0.000	0.000
21.35	0.95	1.30	0.73	5.00	NoLiq	55.14	100.00	0.000	0.0E0	0.000	0.000
21.30	0.95	1.30	0.73	5.00	NoLiq	55.18	100.00	0.000	0.0E0	0.000	0.000
21.25	0.95	1.30	0.73	5.00	NoLiq	55.21	100.00	0.000	0.0E0	0.000	0.000
21.20	0.95	1.30	0.73	5.00	NoLiq	55.25	100.00	0.000	0.0E0	0.000	0.000
21.15	0.95	1.30	0.73	5.00	NoLiq	55.28	100.00	0.000	0.0E0	0.000	0.000
21.10	0.95	1.30	0.73	5.00	NoLiq	55.32	100.00	0.000	0.0E0	0.000	0.000
21.05	0.95	1.30	0.72	5.00	NoLiq	55.35	100.00	0.000	0.0E0	0.000	0.000

21.00	0.95	1.30	0.72	5.00	NoLiq	55.39	100.00	0.000	0.0E0	0.000	0.000
20.95	0.94	1.30	0.72	5.00	NoLiq	55.42	100.00	0.000	0.0E0	0.000	0.000
20.90	0.94	1.30	0.72	5.00	NoLiq	55.46	100.00	0.000	0.0E0	0.000	0.000
20.85	0.94	1.30	0.72	5.00	NoLiq	55.49	100.00	0.000	0.0E0	0.000	0.000
20.80	0.94	1.30	0.72	5.00	NoLiq	55.53	100.00	0.000	0.0E0	0.000	0.000
20.75	0.94	1.30	0.72	5.00	NoLiq	55.56	100.00	0.000	0.0E0	0.000	0.000
20.70	0.94	1.30	0.72	5.00	NoLiq	55.60	100.00	0.000	0.0E0	0.000	0.000
20.65	0.94	1.30	0.72	5.00	NoLiq	55.63	100.00	0.000	0.0E0	0.000	0.000
20.60	0.94	1.30	0.72	5.00	NoLiq	55.67	100.00	0.000	0.0E0	0.000	0.000
20.55	0.94	1.30	0.72	5.00	NoLiq	55.70	100.00	0.000	0.0E0	0.000	0.000
20.50	0.94	1.30	0.72	5.00	NoLiq	55.74	100.00	0.000	0.0E0	0.000	0.000
20.45	0.94	1.30	0.72	5.00	NoLiq	55.77	100.00	0.000	0.0E0	0.000	0.000
20.40	0.94	1.30	0.72	5.00	NoLiq	55.81	100.00	0.000	0.0E0	0.000	0.000
20.35	0.94	1.30	0.72	5.00	NoLiq	55.84	100.00	0.000	0.0E0	0.000	0.000
20.30	0.94	1.30	0.72	5.00	NoLiq	55.88	100.00	0.000	0.0E0	0.000	0.000
20.25	0.94	1.30	0.72	5.00	NoLiq	55.92	100.00	0.000	0.0E0	0.000	0.000
20.20	0.94	1.30	0.72	5.00	NoLiq	55.95	100.00	0.000	0.0E0	0.000	0.000
20.15	0.94	1.30	0.72	5.00	NoLiq	55.99	100.00	0.000	0.0E0	0.000	0.000
20.10	0.94	1.30	0.72	5.00	NoLiq	56.02	100.00	0.000	0.0E0	0.000	0.000
20.05	0.94	1.30	0.72	5.00	NoLiq	56.06	100.00	0.000	0.0E0	0.000	0.000
20.00	0.94	1.30	0.72	5.00	NoLiq	56.10	100.00	0.000	0.0E0	0.000	0.000
19.95	0.94	1.30	0.72	5.00	NoLiq	56.13	100.00	0.000	0.0E0	0.000	0.000
19.90	0.94	1.30	0.72	5.00	NoLiq	56.17	100.00	0.000	0.0E0	0.000	0.000
19.85	0.94	1.30	0.72	5.00	NoLiq	56.21	100.00	0.000	0.0E0	0.000	0.000
19.80	0.94	1.30	0.72	5.00	NoLiq	56.24	100.00	0.000	0.0E0	0.000	0.000
19.75	0.94	1.30	0.72	5.00	NoLiq	56.28	100.00	0.000	0.0E0	0.000	0.000
19.70	0.94	1.30	0.72	5.00	NoLiq	56.32	100.00	0.000	0.0E0	0.000	0.000
19.65	0.94	1.30	0.72	5.00	NoLiq	56.35	100.00	0.000	0.0E0	0.000	0.000
19.60	0.94	1.30	0.72	5.00	NoLiq	56.39	100.00	0.000	0.0E0	0.000	0.000
19.55	0.94	1.30	0.72	5.00	NoLiq	56.43	100.00	0.000	0.0E0	0.000	0.000
19.50	0.94	1.30	0.72	5.00	NoLiq	56.46	100.00	0.000	0.0E0	0.000	0.000
19.45	0.94	1.30	0.72	5.00	NoLiq	56.50	100.00	0.000	0.0E0	0.000	0.000
19.40	0.94	1.30	0.72	5.00	NoLiq	56.54	100.00	0.000	0.0E0	0.000	0.000
19.35	0.94	1.30	0.72	5.00	NoLiq	56.58	100.00	0.000	0.0E0	0.000	0.000
19.30	0.94	1.30	0.72	5.00	NoLiq	56.61	100.00	0.000	0.0E0	0.000	0.000
19.25	0.94	1.30	0.72	5.00	NoLiq	56.65	100.00	0.000	0.0E0	0.000	0.000
19.20	0.94	1.30	0.72	5.00	NoLiq	56.69	100.00	0.000	0.0E0	0.000	0.000
19.15	0.93	1.30	0.72	5.00	NoLiq	56.72	100.00	0.000	0.0E0	0.000	0.000
19.10	0.93	1.30	0.72	5.00	NoLiq	56.76	100.00	0.000	0.0E0	0.000	0.000
19.05	0.93	1.30	0.72	5.00	NoLiq	56.80	100.00	0.000	0.0E0	0.000	0.000
19.00	0.93	1.30	0.72	5.00	NoLiq	56.87	100.00	0.000	0.0E0	0.000	0.000
18.95	0.93	1.30	0.72	5.00	NoLiq	56.95	100.00	0.000	0.0E0	0.000	0.000
18.90	0.93	1.30	0.72	5.00	NoLiq	57.02	100.00	0.000	0.0E0	0.000	0.000
18.85	0.93	1.30	0.72	5.00	NoLiq	57.09	100.00	0.000	0.0E0	0.000	0.000
18.80	0.93	1.30	0.72	5.00	NoLiq	57.17	100.00	0.000	0.0E0	0.000	0.000
18.75	0.93	1.30	0.71	5.00	NoLiq	57.24	100.00	0.000	0.0E0	0.000	0.000
18.70	0.93	1.30	0.71	5.00	NoLiq	57.31	100.00	0.000	0.0E0	0.000	0.000
18.65	0.93	1.30	0.71	5.00	NoLiq	57.39	100.00	0.000	0.0E0	0.000	0.000
18.60	0.93	1.30	0.71	5.00	NoLiq	57.46	100.00	0.000	0.0E0	0.000	0.000
18.55	0.93	1.30	0.71	5.00	NoLiq	57.54	100.00	0.000	0.0E0	0.000	0.000
18.50	0.93	1.30	0.71	5.00	NoLiq	57.61	100.00	0.000	0.0E0	0.000	0.000
18.45	0.93	1.30	0.71	5.00	NoLiq	57.69	100.00	0.000	0.0E0	0.000	0.000
18.40	0.93	1.30	0.71	5.00	NoLiq	57.77	100.00	0.000	0.0E0	0.000	0.000
18.35	0.93	1.30	0.71	5.00	NoLiq	57.84	100.00	0.000	0.0E0	0.000	0.000
18.30	0.93	1.30	0.71	5.00	NoLiq	57.92	100.00	0.000	0.0E0	0.000	0.000
18.25	0.93	1.30	0.71	5.00	NoLiq	58.00	100.00	0.000	0.0E0	0.000	0.000
18.20	0.93	1.30	0.71	5.00	NoLiq	58.07	100.00	0.000	0.0E0	0.000	0.000
18.15	0.93	1.30	0.71	5.00	NoLiq	58.15	100.00	0.000	0.0E0	0.000	0.000
18.10	0.93	1.30	0.71	5.00	NoLiq	58.23	100.00	0.000	0.0E0	0.000	0.000
18.05	0.93	1.30	0.71	5.00	NoLiq	58.31	100.00	0.000	0.0E0	0.000	0.000
18.00	0.93	1.30	0.71	5.00	NoLiq	58.39	100.00	0.000	0.0E0	0.000	0.000
17.95	0.93	1.30	0.71	5.00	NoLiq	58.47	100.00	0.000	0.0E0	0.000	0.000
17.90	0.93	1.30	0.71	5.00	NoLiq	58.55	100.00	0.000	0.0E0	0.000	0.000
17.85	0.93	1.30	0.71	5.00	NoLiq	58.63	100.00	0.000	0.0E0	0.000	0.000
17.80	0.93	1.30	0.71	5.00	NoLiq	58.71	100.00	0.000	0.0E0	0.000	0.000
17.75	0.93	1.30	0.71	5.00	NoLiq	58.79	100.00	0.000	0.0E0	0.000	0.000
17.70	0.93	1.30	0.71	5.00	NoLiq	58.87	100.00	0.000	0.0E0	0.000	0.000
17.65	0.92	1.30	0.71	5.00	NoLiq	58.95	100.00	0.000	0.0E0	0.000	0.000
17.60	0.92	1.30	0.71	5.00	NoLiq	59.03	100.00	0.000	0.0E0	0.000	0.000
17.55	0.92	1.30	0.71	5.00	NoLiq	59.11	100.00	0.000	0.0E0	0.000	0.000
17.50	0.92	1.30	0.71	5.00	NoLiq	59.19	100.00	0.000	0.0E0	0.000	0.000
17.45	0.92	1.30	0.71	5.00	NoLiq	59.28	100.00	0.000	0.0E0	0.000	0.000
17.40	0.92	1.30	0.71	5.00	NoLiq	59.36	100.00	0.000	0.0E0	0.000	0.000

17.35	0.92	1.30	0.71	5.00	NoLiq	59.44	100.00	0.000	0.0E0	0.000	0.000
17.30	0.92	1.30	0.71	5.00	NoLiq	59.53	100.00	0.000	0.0E0	0.000	0.000
17.25	0.92	1.30	0.71	5.00	NoLiq	59.61	100.00	0.000	0.0E0	0.000	0.000
17.20	0.92	1.30	0.71	5.00	NoLiq	59.70	100.00	0.000	0.0E0	0.000	0.000
17.15	0.92	1.30	0.71	5.00	NoLiq	59.78	100.00	0.000	0.0E0	0.000	0.000
17.10	0.92	1.30	0.71	5.00	NoLiq	59.87	100.00	0.000	0.0E0	0.000	0.000
17.05	0.92	1.30	0.71	5.00	NoLiq	59.95	100.00	0.000	0.0E0	0.000	0.000
17.00	0.92	1.30	0.71	5.00	NoLiq	60.04	100.00	0.000	0.0E0	0.000	0.000
16.95	0.92	1.30	0.70	0.71	96.45	59.26	100.00	0.000	0.0E0	0.000	0.000
16.90	0.92	1.30	0.70	0.71	91.90	58.47	100.00	0.000	0.0E0	0.000	0.000
16.85	0.92	1.30	0.70	0.71	87.35	57.68	100.00	0.000	0.0E0	0.000	0.000
16.80	0.92	1.30	0.70	0.71	82.80	56.89	100.00	0.000	0.0E0	0.000	0.000
16.75	0.92	1.30	0.70	0.71	78.25	56.10	100.00	0.000	0.0E0	0.000	0.000
16.70	0.92	1.30	0.70	0.71	73.70	55.30	100.00	0.000	0.0E0	0.000	0.000
16.65	0.92	1.30	0.70	0.71	69.15	54.50	100.00	0.000	0.0E0	0.000	0.000
16.60	0.92	1.30	0.70	0.71	64.60	53.70	100.00	0.000	0.0E0	0.000	0.000
16.55	0.92	1.30	0.70	0.71	60.05	52.90	100.00	0.000	0.0E0	0.000	0.000
16.50	0.92	1.30	0.70	0.71	55.50	52.09	100.00	0.000	0.0E0	0.000	0.000
16.45	0.91	1.30	0.70	0.71	50.95	51.29	100.00	0.000	0.0E0	0.000	0.000
16.40	0.91	1.30	0.70	0.71	46.40	50.48	100.00	0.000	0.0E0	0.000	0.000
16.35	0.91	1.30	0.70	0.71	41.85	49.66	100.00	0.000	0.0E0	0.000	0.000
16.30	0.91	1.30	0.70	0.71	37.30	48.85	100.00	0.000	0.0E0	0.000	0.000
16.25	0.91	1.30	0.70	0.71	32.75	47.09	100.00	0.000	0.0E0	0.000	0.000
16.20	0.91	1.30	0.70	0.71	28.20	44.67	100.00	0.000	0.0E0	0.000	0.000
16.15	0.91	1.30	0.70	0.72	23.65	42.25	100.00	0.000	0.0E0	0.000	0.000
16.10	0.91	1.30	0.70	0.72	19.10	39.73	100.00	0.000	0.0E0	0.000	0.000
16.05	0.91	1.30	0.70	0.72	14.55	36.98	100.00	0.000	0.0E0	0.000	0.000
16.00	0.91	1.30	0.70	0.72	10.00	33.98	99.85	0.184	1.1E-3	0.001	0.001
15.95	0.91	1.30	0.70	0.72	10.00	34.04	99.99	0.183	1.1E-3	0.001	0.002
15.90	0.91	1.30	0.70	0.72	10.00	34.09	100.00	0.181	1.1E-3	0.001	0.003
15.85	0.91	1.30	0.70	0.72	10.00	34.15	100.00	0.179	1.1E-3	0.001	0.004
15.80	0.91	1.30	0.70	0.72	10.00	34.20	100.00	0.177	1.1E-3	0.001	0.005
15.75	0.91	1.30	0.70	0.72	10.00	34.26	100.00	0.176	1.1E-3	0.001	0.006
15.70	0.91	1.30	0.70	0.72	10.00	34.31	100.00	0.174	1.0E-3	0.001	0.008
15.65	0.91	1.30	0.70	0.72	10.00	34.37	100.00	0.172	1.0E-3	0.001	0.009
15.60	0.91	1.30	0.69	0.72	10.00	34.43	100.00	0.170	1.0E-3	0.001	0.010
15.55	0.91	1.30	0.69	0.72	10.00	34.49	100.00	0.168	1.0E-3	0.001	0.011
15.50	0.91	1.30	0.69	0.72	10.00	34.54	100.00	0.166	1.0E-3	0.001	0.012
15.45	0.90	1.30	0.69	0.72	10.00	34.60	100.00	0.165	9.9E-4	0.001	0.013
15.40	0.90	1.30	0.69	0.72	10.00	34.66	100.00	0.163	9.8E-4	0.001	0.014
15.35	0.90	1.30	0.69	0.72	10.00	34.72	100.00	0.161	9.6E-4	0.001	0.015
15.30	0.90	1.30	0.69	0.72	10.00	34.78	100.00	0.159	9.5E-4	0.001	0.015
15.25	0.90	1.30	0.69	0.72	10.00	34.83	100.00	0.157	9.4E-4	0.001	0.016
15.20	0.90	1.30	0.69	0.72	10.00	34.89	100.00	0.155	9.3E-4	0.001	0.017
15.15	0.90	1.30	0.69	0.72	10.00	34.95	100.00	0.153	9.2E-4	0.001	0.018
15.10	0.90	1.30	0.69	0.72	10.00	35.01	100.00	0.151	9.1E-4	0.001	0.019
15.05	0.90	1.30	0.69	0.72	10.00	35.07	100.00	0.149	9.0E-4	0.001	0.020
15.00	0.90	1.30	0.69	0.72	10.00	35.13	100.00	0.147	8.8E-4	0.001	0.021
14.95	0.90	1.30	0.69	0.73	10.00	35.00	100.00	0.152	9.1E-4	0.001	0.022
14.90	0.90	1.30	0.69	0.73	10.00	34.86	100.00	0.156	9.4E-4	0.001	0.023
14.85	0.90	1.30	0.69	0.73	10.00	34.72	100.00	0.161	9.6E-4	0.001	0.024
14.80	0.90	1.30	0.69	0.73	10.00	34.58	100.00	0.165	9.9E-4	0.001	0.025
14.75	0.90	1.30	0.69	0.73	10.00	30.91	92.15	0.634	3.8E-3	0.004	0.029
14.70	0.90	1.30	0.69	0.73	10.00	30.79	91.86	0.649	3.9E-3	0.004	0.032
14.65	0.90	1.30	0.69	0.73	10.00	30.66	91.57	0.665	4.0E-3	0.004	0.036
14.60	0.89	1.30	0.69	0.73	10.00	30.54	91.28	0.681	4.1E-3	0.004	0.041
14.55	0.89	1.30	0.69	0.73	10.00	30.41	90.99	0.697	4.2E-3	0.004	0.045
14.50	0.89	1.30	0.69	0.73	10.00	30.28	90.70	0.713	4.3E-3	0.004	0.049
14.45	0.89	1.30	0.68	0.73	10.00	30.16	90.41	0.729	4.4E-3	0.004	0.053
14.40	0.89	1.30	0.68	0.68	10.00	30.03	90.13	0.746	4.5E-3	0.004	0.058
14.35	0.89	1.30	0.68	0.64	10.00	29.90	89.84	0.762	4.6E-3	0.005	0.062
14.30	0.89	1.30	0.68	0.62	10.00	29.78	89.55	0.778	4.7E-3	0.005	0.067
14.25	0.89	1.30	0.68	0.60	10.00	29.65	89.27	0.794	4.8E-3	0.005	0.072
14.20	0.89	1.30	0.68	0.59	10.00	29.52	88.98	0.811	4.9E-3	0.005	0.077
14.15	0.89	1.30	0.68	0.58	10.00	29.39	88.70	0.827	5.0E-3	0.005	0.082
14.10	0.89	1.30	0.68	0.57	10.00	29.26	88.42	0.843	5.1E-3	0.005	0.087
14.05	0.89	1.30	0.68	0.56	10.00	29.13	88.13	0.860	5.2E-3	0.005	0.092
14.00	0.89	1.30	0.68	0.55	10.00	29.00	87.85	0.876	5.3E-3	0.005	0.097
13.95	0.89	1.30	0.68	0.57	10.00	29.30	88.50	0.838	5.0E-3	0.005	0.102
13.90	0.89	1.30	0.68	0.60	10.00	29.60	89.17	0.800	4.8E-3	0.005	0.107
13.85	0.89	1.30	0.68	0.65	10.00	29.90	89.84	0.762	4.6E-3	0.005	0.112
13.80	0.88	1.30	0.68	0.74	10.00	30.21	90.52	0.723	4.3E-3	0.004	0.116
13.75	0.88	1.30	0.68	0.74	10.00	30.51	91.22	0.685	4.1E-3	0.004	0.120

13.70	0.88	1.30	0.68	0.74	10.00	30.81	91.92	0.646	3.9E-3	0.004	0.124
13.65	0.88	1.30	0.68	0.74	10.00	31.12	92.64	0.607	3.6E-3	0.004	0.128
13.60	0.88	1.30	0.68	0.74	10.00	31.43	93.37	0.568	3.4E-3	0.003	0.131
13.55	0.88	1.30	0.68	0.74	10.00	31.73	94.12	0.528	3.2E-3	0.003	0.134
13.50	0.88	1.30	0.67	0.74	10.00	32.04	94.87	0.483	2.9E-3	0.003	0.137
13.45	0.88	1.30	0.67	0.74	10.00	32.36	95.64	0.423	2.5E-3	0.003	0.140
13.40	0.88	1.30	0.67	0.74	10.00	32.67	96.42	0.362	2.2E-3	0.002	0.142
13.35	0.88	1.30	0.67	0.74	10.00	32.98	97.22	0.301	1.8E-3	0.002	0.143
13.30	0.88	1.30	0.67	0.74	10.00	33.29	98.03	0.240	1.4E-3	0.001	0.145
13.25	0.88	1.30	0.67	0.74	10.00	33.61	98.86	0.196	1.2E-3	0.001	0.146
13.20	0.88	1.30	0.67	0.74	10.00	33.93	99.70	0.186	1.1E-3	0.001	0.147
13.15	0.87	1.30	0.67	0.75	10.00	34.25	100.00	0.176	1.1E-3	0.001	0.148
13.10	0.87	1.30	0.67	0.75	10.00	34.57	100.00	0.166	9.9E-4	0.001	0.149
13.05	0.87	1.30	0.67	0.75	10.00	34.89	100.00	0.155	9.3E-4	0.001	0.150
13.00	0.87	1.30	0.67	0.75	10.00	35.21	100.00	0.145	8.7E-4	0.001	0.151
12.95	0.87	1.30	0.67	0.75	10.00	35.28	100.00	0.143	8.6E-4	0.001	0.152
12.90	0.87	1.30	0.67	0.75	10.00	35.35	100.00	0.140	8.4E-4	0.001	0.153
12.85	0.87	1.30	0.67	0.75	10.00	35.42	100.00	0.138	8.3E-4	0.001	0.154
12.80	0.87	1.30	0.67	0.75	10.00	35.49	100.00	0.136	8.2E-4	0.001	0.154
12.75	0.87	1.30	0.67	0.75	10.00	35.56	100.00	0.134	8.0E-4	0.001	0.155
12.70	0.87	1.30	0.67	0.75	10.00	35.63	100.00	0.131	7.9E-4	0.001	0.156
12.65	0.87	1.30	0.66	0.75	10.00	35.70	100.00	0.129	7.7E-4	0.001	0.157
12.60	0.87	1.30	0.66	0.75	10.00	35.77	100.00	0.127	7.6E-4	0.001	0.158
12.55	0.86	1.30	0.66	0.75	10.00	35.84	100.00	0.124	7.5E-4	0.001	0.158
12.50	0.86	1.30	0.66	0.75	10.00	35.91	100.00	0.122	7.3E-4	0.001	0.159
12.45	0.86	1.30	0.66	0.76	10.00	35.99	100.00	0.120	7.2E-4	0.001	0.160
12.40	0.86	1.30	0.66	0.76	10.00	36.06	100.00	0.117	7.0E-4	0.001	0.160
12.35	0.86	1.30	0.66	0.76	10.00	36.14	100.00	0.115	6.9E-4	0.001	0.161
12.30	0.86	1.30	0.66	0.76	10.00	36.21	100.00	0.113	6.8E-4	0.001	0.162
12.25	0.86	1.30	0.66	0.76	10.00	36.28	100.00	0.110	6.6E-4	0.001	0.162
12.20	0.86	1.30	0.66	0.76	10.00	36.36	100.00	0.108	6.5E-4	0.001	0.163
12.15	0.86	1.30	0.66	0.76	10.00	36.44	100.00	0.105	6.3E-4	0.001	0.164
12.10	0.86	1.30	0.66	0.76	10.00	36.51	100.00	0.103	6.2E-4	0.001	0.164
12.05	0.86	1.30	0.66	0.76	10.00	36.59	100.00	0.100	6.0E-4	0.001	0.165
12.00	0.85	1.30	0.66	0.76	10.00	36.67	100.00	0.000	0.0E0	0.000	0.165
11.95	0.85	1.30	0.65	0.76	10.00	36.35	100.00	0.108	6.5E-4	0.001	0.166
11.90	0.85	1.30	0.65	0.76	10.00	36.02	100.00	0.119	7.1E-4	0.001	0.166
11.85	0.85	1.30	0.65	0.77	10.00	35.70	100.00	0.129	7.7E-4	0.001	0.167
11.80	0.85	1.30	0.65	0.77	10.00	35.38	100.00	0.139	8.4E-4	0.001	0.168
11.75	0.85	1.30	0.65	0.77	10.00	35.05	100.00	0.150	9.0E-4	0.001	0.169
11.70	0.85	1.30	0.65	0.77	10.00	34.72	100.00	0.161	9.6E-4	0.001	0.170
11.65	0.85	1.30	0.65	0.77	10.00	34.40	100.00	0.171	1.0E-3	0.001	0.171
11.60	0.85	1.30	0.65	0.77	10.00	34.07	100.00	0.182	1.1E-3	0.001	0.172
11.55	0.85	1.30	0.65	0.77	10.00	33.73	99.18	0.192	1.2E-3	0.001	0.173
11.50	0.85	1.30	0.65	0.77	10.00	33.40	98.31	0.219	1.3E-3	0.001	0.174
11.45	0.84	1.30	0.65	0.77	10.00	33.07	97.45	0.284	1.7E-3	0.002	0.176
11.40	0.84	1.30	0.65	0.77	10.00	32.73	96.59	0.349	2.1E-3	0.002	0.178
11.35	0.84	1.30	0.65	0.77	10.00	32.40	95.75	0.414	2.5E-3	0.002	0.181
11.30	0.84	1.30	0.64	0.78	10.00	32.06	94.91	0.480	2.9E-3	0.003	0.184
11.25	0.84	1.30	0.64	0.78	10.00	31.72	94.08	0.530	3.2E-3	0.003	0.187
11.20	0.84	1.30	0.64	0.78	10.00	31.38	93.26	0.574	3.4E-3	0.003	0.190
11.15	0.84	1.30	0.64	0.78	10.00	31.04	92.45	0.617	3.7E-3	0.004	0.194
11.10	0.84	1.30	0.64	0.78	10.00	30.69	91.65	0.661	4.0E-3	0.004	0.198
11.05	0.84	1.30	0.64	0.78	10.00	30.35	90.85	0.705	4.2E-3	0.004	0.202
11.00	0.83	1.30	0.64	0.72	10.00	30.00	90.07	0.749	4.5E-3	0.004	0.207
10.95	0.83	1.30	0.64	0.70	9.75	29.96	89.96	0.755	4.5E-3	0.005	0.211
10.90	0.83	1.30	0.64	0.69	9.50	29.91	89.86	0.760	4.6E-3	0.005	0.216
10.85	0.83	1.30	0.64	0.68	9.25	29.87	89.77	0.765	4.6E-3	0.005	0.220
10.80	0.83	1.30	0.64	0.68	9.00	29.84	89.69	0.770	4.6E-3	0.005	0.225
10.75	0.83	1.30	0.64	0.67	8.75	29.81	89.62	0.774	4.6E-3	0.005	0.230
10.70	0.83	1.30	0.63	0.67	8.50	29.78	89.56	0.778	4.7E-3	0.005	0.234
10.65	0.83	1.30	0.63	0.67	8.25	29.76	89.51	0.780	4.7E-3	0.005	0.239
10.60	0.83	1.30	0.63	0.66	8.00	29.74	89.47	0.782	4.7E-3	0.005	0.244
10.55	0.82	1.30	0.63	0.66	7.75	29.73	89.45	0.784	4.7E-3	0.005	0.248
10.50	0.82	1.30	0.63	0.66	7.50	29.73	89.44	0.784	4.7E-3	0.005	0.253
10.45	0.82	1.30	0.63	0.66	7.25	29.73	89.45	0.784	4.7E-3	0.005	0.258
10.40	0.82	1.30	0.63	0.67	7.00	29.74	89.47	0.783	4.7E-3	0.005	0.262
10.35	0.82	1.30	0.63	0.67	6.75	29.75	89.50	0.781	4.7E-3	0.005	0.267
10.30	0.82	1.30	0.63	0.67	6.50	29.77	89.55	0.778	4.7E-3	0.005	0.272
10.25	0.82	1.30	0.63	0.68	6.25	29.80	89.61	0.775	4.6E-3	0.005	0.276
10.20	0.82	1.30	0.63	0.69	6.00	29.84	89.69	0.770	4.6E-3	0.005	0.281
10.15	0.81	1.30	0.62	0.70	5.75	29.87	89.77	0.765	4.6E-3	0.005	0.286
10.10	0.81	1.30	0.62	0.71	5.50	29.92	89.87	0.760	4.6E-3	0.005	0.290

10.05	0.81	1.30	0.62	0.72	5.25	29.96	89.98	0.754	4.5E-3	0.005	0.295
10.00	0.81	1.30	0.62	0.74	5.00	30.01	90.09	0.748	4.5E-3	0.004	0.299
9.95	0.81	1.30	0.62	0.81	5.00	30.34	90.83	0.706	4.2E-3	0.004	0.303
9.90	0.81	1.30	0.62	0.81	5.00	30.71	91.68	0.659	4.0E-3	0.004	0.307
9.85	0.81	1.30	0.62	0.81	5.00	31.08	92.55	0.612	3.7E-3	0.004	0.311
9.80	0.81	1.30	0.62	0.81	5.00	31.45	93.43	0.565	3.4E-3	0.003	0.314
9.75	0.80	1.30	0.62	0.81	5.00	31.82	94.33	0.517	3.1E-3	0.003	0.318
9.70	0.80	1.30	0.62	0.81	5.00	32.20	95.26	0.453	2.7E-3	0.003	0.320
9.65	0.80	1.30	0.61	0.81	5.00	32.58	96.20	0.379	2.3E-3	0.002	0.323
9.60	0.80	1.30	0.61	0.81	5.00	32.96	97.17	0.305	1.8E-3	0.002	0.324
9.55	0.80	1.30	0.61	0.82	5.00	33.34	98.15	0.231	1.4E-3	0.001	0.326
9.50	0.80	1.30	0.61	0.82	5.00	33.73	99.17	0.193	1.2E-3	0.001	0.327
9.45	0.80	1.30	0.61	0.82	5.00	34.12	100.00	0.180	1.1E-3	0.001	0.328
9.40	0.80	1.30	0.61	0.82	5.00	34.51	100.00	0.168	1.0E-3	0.001	0.329
9.35	0.79	1.30	0.61	0.82	5.00	34.90	100.00	0.155	9.3E-4	0.001	0.330
9.30	0.79	1.30	0.61	0.82	5.00	35.29	100.00	0.142	8.5E-4	0.001	0.331
9.25	0.79	1.30	0.61	0.82	5.00	35.69	100.00	0.129	7.8E-4	0.001	0.332
9.20	0.79	1.30	0.61	0.83	5.00	36.09	100.00	0.116	7.0E-4	0.001	0.332
9.15	0.79	1.30	0.60	0.83	5.00	36.50	100.00	0.103	6.2E-4	0.001	0.333
9.10	0.79	1.30	0.60	0.83	5.00	36.90	100.00	0.000	0.0E0	0.000	0.333
9.05	0.78	1.30	0.60	0.83	5.00	37.31	100.00	0.000	0.0E0	0.000	0.333
9.00	0.78	1.30	0.60	0.83	5.00	37.72	100.00	0.000	0.0E0	0.000	0.333
8.95	0.78	1.30	0.60	0.83	5.00	37.83	100.00	0.000	0.0E0	0.000	0.333
8.90	0.78	1.30	0.60	0.84	5.00	37.94	100.00	0.000	0.0E0	0.000	0.333
8.85	0.78	1.30	0.60	0.84	5.00	38.06	100.00	0.000	0.0E0	0.000	0.333
8.80	0.78	1.30	0.60	0.84	5.00	38.17	100.00	0.000	0.0E0	0.000	0.333
8.75	0.78	1.30	0.59	0.84	5.00	38.29	100.00	0.000	0.0E0	0.000	0.333
8.70	0.77	1.30	0.59	0.84	5.00	38.40	100.00	0.000	0.0E0	0.000	0.333
8.65	0.77	1.30	0.59	0.84	5.00	38.52	100.00	0.000	0.0E0	0.000	0.333
8.60	0.77	1.30	0.59	0.85	5.00	38.64	100.00	0.000	0.0E0	0.000	0.333
8.55	0.77	1.30	0.59	0.85	5.00	38.76	100.00	0.000	0.0E0	0.000	0.333
8.50	0.77	1.30	0.59	0.85	5.00	38.88	100.00	0.000	0.0E0	0.000	0.333
8.45	0.77	1.30	0.59	0.85	5.00	39.00	100.00	0.000	0.0E0	0.000	0.333
8.40	0.76	1.30	0.59	0.85	5.00	39.12	100.00	0.000	0.0E0	0.000	0.333
8.35	0.76	1.30	0.58	0.85	5.00	39.24	100.00	0.000	0.0E0	0.000	0.333
8.30	0.76	1.30	0.58	0.86	5.00	39.37	100.00	0.000	0.0E0	0.000	0.333
8.25	0.76	1.30	0.58	0.86	5.00	39.50	100.00	0.000	0.0E0	0.000	0.333
8.20	0.76	1.30	0.58	0.86	5.00	34.96	100.00	0.153	9.2E-4	0.001	0.334
8.15	0.76	1.30	0.58	0.86	5.00	35.08	100.00	0.149	9.0E-4	0.001	0.335
8.10	0.75	1.30	0.58	0.86	5.00	35.19	100.00	0.145	8.7E-4	0.001	0.336
8.05	0.75	1.30	0.58	0.87	5.00	35.31	100.00	0.142	8.5E-4	0.001	0.336
8.00	0.75	1.30	0.58	0.87	5.00	35.42	100.00	0.138	8.3E-4	0.001	0.337
7.95	0.75	1.30	0.57	0.87	5.00	35.54	100.00	0.134	8.0E-4	0.001	0.338
7.90	0.75	1.30	0.57	0.87	5.00	35.66	100.00	0.130	7.8E-4	0.001	0.339
7.85	0.75	1.30	0.57	0.87	5.00	35.78	100.00	0.126	7.6E-4	0.001	0.340
7.80	0.74	1.30	0.57	0.88	5.00	35.90	100.00	0.122	7.3E-4	0.001	0.340
7.75	0.74	1.30	0.57	0.88	5.00	36.03	100.00	0.118	7.1E-4	0.001	0.341
7.70	0.74	1.30	0.57	0.88	5.00	36.15	100.00	0.114	6.9E-4	0.001	0.342
7.65	0.74	1.30	0.57	0.88	5.00	36.28	100.00	0.110	6.6E-4	0.001	0.342
7.60	0.74	1.30	0.56	0.89	5.00	36.40	100.00	0.106	6.4E-4	0.001	0.343
7.55	0.73	1.30	0.56	0.89	5.00	36.53	100.00	0.102	6.1E-4	0.001	0.344
7.50	0.73	1.30	0.56	0.89	5.00	36.66	100.00	0.000	0.0E0	0.000	0.344
7.45	0.73	1.30	0.56	0.89	5.00	36.79	100.00	0.000	0.0E0	0.000	0.344
7.40	0.73	1.30	0.56	0.90	5.00	36.93	100.00	0.000	0.0E0	0.000	0.344
7.35	0.73	1.30	0.56	0.90	5.00	37.06	100.00	0.000	0.0E0	0.000	0.344
7.30	0.72	1.30	0.56	0.90	5.00	37.19	100.00	0.000	0.0E0	0.000	0.344
7.25	0.72	1.30	0.55	0.90	5.00	37.33	100.00	0.000	0.0E0	0.000	0.344
7.20	0.72	1.30	0.55	0.91	5.00	37.47	100.00	0.000	0.0E0	0.000	0.344
7.15	0.72	1.30	0.55	0.91	5.00	37.61	100.00	0.000	0.0E0	0.000	0.344
7.10	0.72	1.30	0.55	0.91	5.00	37.75	100.00	0.000	0.0E0	0.000	0.344
7.05	0.71	1.30	0.55	0.91	5.00	37.89	100.00	0.000	0.0E0	0.000	0.344
7.00	0.71	1.30	0.55	0.92	5.00	38.04	100.00	0.000	0.0E0	0.000	0.344
6.95	0.71	1.30	0.54	0.92	7.00	37.48	100.00	0.000	0.0E0	0.000	0.344
6.90	0.71	1.30	0.54	0.92	9.00	37.20	100.00	0.000	0.0E0	0.000	0.344
6.85	0.71	1.30	0.54	0.92	11.00	37.15	100.00	0.000	0.0E0	0.000	0.344
6.80	0.70	1.30	0.54	0.93	13.00	37.14	100.00	0.000	0.0E0	0.000	0.344
6.75	0.70	1.30	0.54	0.93	15.00	37.05	100.00	0.000	0.0E0	0.000	0.344
6.70	0.70	1.30	0.54	0.93	17.00	36.86	100.00	0.000	0.0E0	0.000	0.344
6.65	0.70	1.30	0.53	0.94	19.00	36.56	100.00	0.101	6.1E-4	0.001	0.344
6.60	0.69	1.30	0.53	0.94	21.00	36.17	100.00	0.114	6.8E-4	0.001	0.345
6.55	0.69	1.30	0.53	0.94	23.00	35.70	100.00	0.129	7.7E-4	0.001	0.346
6.50	0.69	1.30	0.53	0.95	25.00	35.16	100.00	0.146	8.8E-4	0.001	0.347
6.45	0.69	1.30	0.53	0.95	27.00	34.55	100.00	0.166	1.0E-3	0.001	0.348

6.40	0.68	1.30	0.52	0.95	29.00	33.88	99.58	0.188	1.1E-3	0.001	0.349
6.35	0.68	1.30	0.52	0.96	31.00	33.16	97.68	0.266	1.6E-3	0.002	0.350
6.30	0.68	1.30	0.52	0.96	33.00	32.36	95.65	0.422	2.5E-3	0.003	0.353
6.25	0.68	1.30	0.52	0.96	35.00	31.42	93.36	0.568	3.4E-3	0.003	0.356
6.20	0.67	1.30	0.52	0.92	37.00	30.06	90.20	0.742	4.4E-3	0.004	0.361
6.15	0.67	1.30	0.52	0.70	39.00	28.62	87.01	0.926	5.6E-3	0.006	0.366
6.10	0.67	1.30	0.51	0.63	41.00	27.17	84.00	1.054	6.3E-3	0.006	0.373
6.05	0.67	1.30	0.51	0.58	43.00	25.72	81.12	1.144	6.9E-3	0.007	0.379
6.00	0.66	1.30	0.51	0.53	45.00	24.28	78.35	1.235	7.4E-3	0.007	0.387
5.95	0.66	1.30	0.51	0.54	45.00	24.28	78.35	1.235	7.4E-3	0.007	0.394
5.90	0.66	1.30	0.50	0.54	45.00	24.28	78.35	1.235	7.4E-3	0.007	0.402
5.85	0.66	1.30	0.50	0.54	45.00	24.28	78.35	1.235	7.4E-3	0.007	0.409
5.80	0.65	1.30	0.50	0.54	45.00	24.28	78.35	1.235	7.4E-3	0.007	0.416
5.75	0.65	1.30	0.50	0.54	45.00	24.28	78.35	1.234	7.4E-3	0.007	0.424
5.70	0.65	1.30	0.50	0.55	45.00	24.28	78.35	1.233	7.4E-3	0.007	0.431
5.65	0.64	1.30	0.49	0.55	45.00	24.28	78.35	1.233	7.4E-3	0.007	0.439
5.60	0.64	1.30	0.49	0.55	45.00	24.28	78.35	1.232	7.4E-3	0.007	0.446
5.55	0.64	1.30	0.49	0.55	45.00	24.28	78.35	1.231	7.4E-3	0.007	0.453
5.50	0.64	1.30	0.49	0.56	45.00	24.28	78.35	1.230	7.4E-3	0.007	0.461
5.45	0.63	1.30	0.49	0.56	45.00	24.28	78.35	1.230	7.4E-3	0.007	0.468
5.40	0.63	1.30	0.48	0.56	45.00	24.28	78.35	1.229	7.4E-3	0.007	0.476
5.35	0.63	1.30	0.48	0.56	45.00	24.28	78.35	1.228	7.4E-3	0.007	0.483
5.30	0.62	1.30	0.48	0.57	45.00	24.28	78.35	1.228	7.4E-3	0.007	0.490
5.25	0.62	1.30	0.48	0.57	45.00	24.28	78.35	1.227	7.4E-3	0.007	0.498
5.20	0.62	1.30	0.47	0.57	45.00	24.28	78.35	1.226	7.4E-3	0.007	0.505
5.15	0.62	1.30	0.47	0.58	45.00	24.28	78.35	1.226	7.4E-3	0.007	0.512
5.10	0.61	1.30	0.47	0.58	45.00	24.28	78.35	1.225	7.4E-3	0.007	0.520
5.05	0.61	1.30	0.47	0.58	45.00	24.28	78.35	1.224	7.3E-3	0.007	0.527
5.00	0.61	1.30	0.46	0.58	45.00	24.28	78.35	1.224	7.3E-3	0.007	0.534

Settlement of Saturated Sands=0.534 in.
qc1 and (N1)60 is after fines correction in liquefaction analysis
dsz is per each segment, dz=0.05 ft
dsp is per each print interval, dp=0.05 ft
S is cumulated settlement at this depth

Settlement of Unsaturated Sands:

Depth	sigma'	sigC'	(N1)60s	CSRsf	Gmax	g*Ge/Gm	g_eff	ec7.5	Cec	ec	dsz	dsp	S
ft	atm	atm			atm			%		%	in.	in.	in.
4.95	0.27	0.18	24.28	0.61	543.25	3.0E-4	0.3949	0.3020	0.86	0.2589	3.11E-3	0.003	0.003
4.90	0.27	0.17	24.28	0.61	540.50	3.0E-4	0.3705	0.2833	0.86	0.2429	2.91E-3	0.003	0.006
4.85	0.27	0.17	24.28	0.61	537.74	3.0E-4	0.3479	0.2660	0.86	0.2280	2.74E-3	0.003	0.009
4.80	0.26	0.17	24.28	0.61	534.96	3.0E-4	0.3268	0.2499	0.86	0.2142	2.57E-3	0.003	0.011
4.75	0.26	0.17	24.28	0.61	532.16	3.0E-4	0.3072	0.2349	0.86	0.2014	2.42E-3	0.002	0.014
4.70	0.26	0.17	24.28	0.61	529.35	3.0E-4	0.2891	0.2210	0.86	0.1895	2.27E-3	0.002	0.016
4.65	0.25	0.17	24.28	0.61	526.53	2.9E-4	0.2721	0.2081	0.86	0.1784	2.14E-3	0.002	0.018
4.60	0.25	0.16	24.28	0.61	523.69	2.9E-4	0.2564	0.1961	0.86	0.1681	2.02E-3	0.002	0.020
4.55	0.25	0.16	24.28	0.61	520.84	2.9E-4	0.2418	0.1849	0.86	0.1585	1.90E-3	0.002	0.022
4.50	0.25	0.16	24.28	0.61	517.97	2.9E-4	0.2281	0.1744	0.86	0.1495	1.79E-3	0.002	0.024
4.45	0.24	0.16	24.28	0.61	515.08	2.9E-4	0.2154	0.1647	0.86	0.1412	1.69E-3	0.002	0.026
4.40	0.24	0.16	24.28	0.61	512.18	2.9E-4	0.2035	0.1556	0.86	0.1334	1.60E-3	0.002	0.027
4.35	0.24	0.15	24.28	0.61	509.26	2.8E-4	0.1925	0.1472	0.86	0.1262	1.51E-3	0.002	0.029
4.30	0.24	0.15	24.28	0.61	506.33	2.8E-4	0.1822	0.1393	0.86	0.1194	1.43E-3	0.001	0.030
4.25	0.23	0.15	24.28	0.61	503.38	2.8E-4	0.1726	0.1319	0.86	0.1131	1.36E-3		

0.001	0.031											
	4.20	0.23	0.15	24.28	0.61	500.41	2.8E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.039											
	4.15	0.23	0.15	24.28	0.61	497.42	2.8E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.047											
	4.10	0.22	0.15	24.28	0.61	494.41	2.8E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.055											
	4.05	0.22	0.14	24.28	0.61	491.39	2.7E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.063											
	4.00	0.22	0.14	24.28	0.61	488.35	2.7E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.071											
	3.95	0.22	0.14	24.28	0.61	485.28	2.7E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.079											
	3.90	0.21	0.14	24.28	0.61	482.20	2.7E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.087											
	3.85	0.21	0.14	24.28	0.61	479.10	2.7E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.094											
	3.80	0.21	0.14	24.28	0.61	475.98	2.7E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.102											
	3.75	0.21	0.13	24.28	0.61	472.84	2.6E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.110											
	3.70	0.20	0.13	24.28	0.61	469.68	2.6E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.118											
	3.65	0.20	0.13	24.28	0.61	466.49	2.6E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.126											
	3.60	0.20	0.13	24.28	0.61	463.29	2.6E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.134											
	3.55	0.19	0.13	24.28	0.61	460.06	2.6E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.142											
	3.50	0.19	0.12	24.28	0.61	456.81	2.6E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.149											
	3.45	0.19	0.12	24.28	0.61	453.53	2.5E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.157											
	3.40	0.19	0.12	24.28	0.61	450.23	2.5E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.165											
	3.35	0.18	0.12	24.28	0.61	446.91	2.5E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.173											
	3.30	0.18	0.12	24.28	0.61	443.56	2.5E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.181											
	3.25	0.18	0.12	24.28	0.61	440.19	2.5E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.189											
	3.20	0.18	0.11	24.28	0.61	436.79	2.4E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.197											
	3.15	0.17	0.11	24.28	0.61	433.36	2.4E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.205											
	3.10	0.17	0.11	24.28	0.61	429.91	2.4E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.212											
	3.05	0.17	0.11	24.28	0.61	426.43	2.4E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.220											
	3.00	0.16	0.11	24.28	0.61	422.92	2.4E-4	1.0000	0.7646	0.86	0.6555	7.87E-3
0.008	0.228											
	2.95	0.16	0.11	24.28	0.61	419.38	2.3E-4	0.8300	0.6347	0.86	0.5441	6.53E-3
0.007	0.235											
	2.90	0.16	0.10	24.28	0.61	415.81	2.3E-4	0.6868	0.5252	0.86	0.4502	5.40E-3
0.005	0.240											
	2.85	0.16	0.10	24.28	0.61	412.21	2.3E-4	0.5717	0.4372	0.86	0.3748	4.50E-3
0.004	0.245											
	2.80	0.15	0.10	24.28	0.61	408.58	2.3E-4	0.4788	0.3661	0.86	0.3139	3.77E-3
0.004	0.248											
	2.75	0.15	0.10	24.28	0.61	404.92	2.3E-4	0.4034	0.3085	0.86	0.2645	3.17E-3
0.003	0.252											
	2.70	0.15	0.10	24.28	0.61	401.22	2.2E-4	0.3420	0.2615	0.86	0.2242	2.69E-3
0.003	0.254											
	2.65	0.15	0.09	24.28	0.61	397.49	2.2E-4	0.2916	0.2230	0.86	0.1912	2.29E-3
0.002	0.256											
	2.60	0.14	0.09	24.28	0.61	393.72	2.2E-4	0.2502	0.1913	0.86	0.1640	1.97E-3
0.002	0.258											
	2.55	0.14	0.09	24.28	0.61	389.91	2.2E-4	0.2160	0.1652	0.86	0.1416	1.70E-3
0.002	0.260											
	2.50	0.14	0.09	24.28	0.61	386.07	2.2E-4	0.1876	0.1434	0.86	0.1230	1.48E-3
0.001	0.262											
	2.45	0.13	0.09	24.28	0.61	382.19	2.1E-4	0.1639	0.1253	0.86	0.1074	1.29E-3
0.001	0.263											

	2.40	0.13	0.09	24.28	0.61	378.27	2.1E-4	0.1440	0.1101	0.86	0.0944	1.13E-3
0.001	0.264											
	2.35	0.13	0.08	24.28	0.61	374.31	2.1E-4	0.1273	0.0974	0.86	0.0835	1.00E-3
0.001	0.265											
	2.30	0.13	0.08	24.28	0.61	370.31	2.1E-4	0.1133	0.0866	0.86	0.0743	8.91E-4
0.001	0.266											
	2.25	0.12	0.08	24.28	0.61	366.26	2.1E-4	0.1014	0.0775	0.86	0.0664	7.97E-4
0.001	0.267											
	2.20	0.12	0.08	24.28	0.61	362.17	2.0E-4	0.0912	0.0697	0.86	0.0598	7.18E-4
0.001	0.267											
	2.15	0.12	0.08	24.28	0.61	358.03	2.0E-4	0.0826	0.0631	0.86	0.0541	6.50E-4
0.001	0.268											
	2.10	0.12	0.07	24.28	0.61	353.84	2.0E-4	0.0752	0.0575	0.86	0.0493	5.91E-4
0.001	0.269											
	2.05	0.11	0.07	24.28	0.61	349.60	2.0E-4	0.0688	0.0526	0.86	0.0451	5.42E-4
0.001	0.269											
	2.00	0.11	0.07	24.28	0.61	345.31	1.9E-4	0.0515	0.0394	0.86	0.0338	4.05E-4
0.000	0.270											
	1.95	0.11	0.07	24.28	0.61	340.97	1.9E-4	0.0498	0.0381	0.86	0.0327	3.92E-4
0.000	0.270											
	1.90	0.10	0.07	24.28	0.61	336.57	1.9E-4	0.0481	0.0368	0.86	0.0316	3.79E-4
0.000	0.270											
	1.85	0.10	0.07	24.28	0.61	332.11	1.9E-4	0.0465	0.0356	0.86	0.0305	3.66E-4
0.000	0.271											
	1.80	0.10	0.06	24.28	0.61	327.59	1.8E-4	0.0449	0.0344	0.86	0.0295	3.53E-4
0.000	0.271											
	1.75	0.10	0.06	24.28	0.61	323.01	1.8E-4	0.0434	0.0332	0.86	0.0284	3.41E-4
0.000	0.271											
	1.70	0.09	0.06	24.28	0.61	318.36	1.8E-4	0.0419	0.0320	0.86	0.0275	3.30E-4
0.000	0.272											
	1.65	0.09	0.06	24.28	0.61	313.65	1.8E-4	0.0405	0.0309	0.86	0.0265	3.18E-4
0.000	0.272											
	1.60	0.09	0.06	24.28	0.61	308.86	1.7E-4	0.0391	0.0299	0.86	0.0256	3.07E-4
0.000	0.272											
	1.55	0.08	0.06	24.28	0.61	303.99	1.7E-4	0.0377	0.0288	0.86	0.0247	2.97E-4
0.000	0.273											
	1.50	0.08	0.05	24.28	0.61	299.05	1.7E-4	0.0364	0.0278	0.86	0.0239	2.86E-4
0.000	0.273											
	1.45	0.08	0.05	24.28	0.61	294.02	1.7E-4	0.0351	0.0269	0.86	0.0230	2.76E-4
0.000	0.273											
	1.40	0.08	0.05	24.28	0.61	288.91	1.6E-4	0.0339	0.0259	0.86	0.0222	2.67E-4
0.000	0.274											
	1.35	0.07	0.05	24.28	0.61	283.70	1.6E-4	0.0327	0.0250	0.86	0.0214	2.57E-4
0.000	0.274											
	1.30	0.07	0.05	24.28	0.61	278.40	1.6E-4	0.0316	0.0241	0.86	0.0207	2.48E-4
0.000	0.274											
	1.25	0.07	0.04	24.28	0.61	272.99	1.5E-4	0.0305	0.0233	0.86	0.0200	2.40E-4
0.000	0.274											
	1.20	0.07	0.04	24.28	0.61	267.48	1.5E-4	0.0294	0.0225	0.86	0.0193	2.31E-4
0.000	0.275											
	1.15	0.06	0.04	24.28	0.61	261.85	1.5E-4	0.0284	0.0217	0.86	0.0186	2.24E-4
0.000	0.275											
	1.10	0.06	0.04	24.28	0.61	256.09	1.4E-4	0.0275	0.0210	0.86	0.0180	2.16E-4
0.000	0.275											
	1.05	0.06	0.04	24.28	0.61	250.20	1.4E-4	0.0265	0.0203	0.86	0.0174	2.09E-4
0.000	0.275											
	1.00	0.05	0.04	24.28	0.61	244.17	1.4E-4	0.0257	0.0196	0.86	0.0168	2.02E-4
0.000	0.275											

Settlement of Unsaturated Sands=0.275 in.
dsz is per each segment, dz=0.05 ft
dsp is per each print interval, dp=0.05 ft
S is cumulated settlement at this depth

Total Settlement of Saturated and Unsaturated Sands=0.810 in.
Differential Settlement=0.405 to 0.534 in.

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

---

1 atm (atmosphere) = 1.0581 tsf(1 tsf = 1 ton/ft2 = 2 kip/ft2)

1 atm (atmosphere) = 101.325 kPa(1 kPa = 1 kN/m2 = 0.001 Mpa)

SPT	Field data from Standard Penetration Test (SPT)
BPT	Field data from Becker Penetration Test (BPT)
qc	Field data from Cone Penetration Test (CPT) [atm (tsf)]
fs	Friction from CPT testing [atm (tsf)]
Rf	Ratio of fs/qc (%)
gamma	Total unit weight of soil
gamma'	Effective unit weight of soil
Fines	Fines content [%]
D50	Mean grain size
Dr	Relative Density
sigma	Total vertical stress [atm]
sigma'	Effective vertical stress [atm]
sigC'	Effective confining pressure [atm]
rd	Acceleration reduction coefficient by Seed
a_max.	Peak Ground Acceleration (PGA) in ground surface
mZ	Linear acceleration reduction coefficient X depth
a_min.	Minimum acceleration under linear reduction, mZ
CRRv	CRR after overburden stress correction, CRRv=CRR7.5 * Ksig
CRR7.5	Cyclic resistance ratio (M=7.5)
Ksig	Overburden stress correction factor for CRR7.5
CRRm	After magnitude scaling correction CRRm=CRRv * MSF
MSF	Magnitude scaling factor from M=7.5 to user input M
CSR	Cyclic stress ratio induced by earthquake
CSRfs	CSRfs=CSR*fs1 (Default fs1=1)
fs1	First CSR curve in graphic defined in #9 of Advanced page
fs2	2nd CSR curve in graphic defined in #9 of Advanced page
F.S.	Calculated factor of safety against liquefaction F.S.=CRRm/CSRsf
Cebs	Energy Ratio, Borehole Dia., and Sampling Method Corrections
Cr	Rod Length Corrections
Cn	Overburden Pressure Correction
(N1)60	SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
d(N1)60	Fines correction of SPT
(N1)60f	(N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
Cq	Overburden stress correction factor
qc1	CPT after Overburden stress correction
dqc1	Fines correction of CPT
qc1f	CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
qc1n	CPT after normalization in Robertson's method
Kc	Fine correction factor in Robertson's Method
qc1f	CPT after Fines correction in Robertson's Method
Ic	Soil type index in Suzuki's and Robertson's Methods
(N1)60s	(N1)60 after settlement fines corrections
CSRm	After magnitude scaling correction for Settlement calculation CSRm=CSRsf / MSF*
CSRfs	Cyclic stress ratio induced by earthquake with user inputed fs
MSF*	Scaling factor from CSR, MSF*=MSF, based on Item 2 of Page C.
MSF	Magnitude scaling factor from M=7.5 to user input M
ec	Volumetric strain for saturated sands
dz	Calculation segment, dz=0.050 ft
dsz	Settlement in each segment, dz
dp	User defined print interval
dsp	Settlement in each print interval, dp
Gmax	Shear Modulus at low strain
g_eff	gamma_eff, Effective shear Strain
g*Ge/Gm	gamma_eff * G_eff/G_max, Strain-modulus ratio
ec7.5	Volumetric Strain for magnitude=7.5
Cec	Magnitude correction factor for any magnitude
ec	Volumetric strain for unsaturated sands, ec=Cec * ec7.5
NoLiq	No-Liquefy Soils

References:

1. NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.

SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for

Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

2. RECENT ADVANCES IN SOIL LIQUEFACTION ENGINEERING AND SEISMIC SITE RESPONSE EVALUATION, Paper No. SPL-2, PROCEEDINGS: Fourth

International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, CA, March 2001.

3. RECENT ADVANCES IN SOIL LIQUEFACTION ENGINEERING: A UNIFIED AND CONSISTENT FRAMEWORK,

Earthquake Engineering Research Center,
Report No. EERC 2003-06 by R.B Seed and etc. April 2003.

GeoSoils Consultants Inc.
GEOTECHNICAL GEOLOGIC ENVIRONMENTAL

May 21, 2018
W.O. 7091

BLUE ONYX DESIGN
22741 Pacific Coast Highway, Suite 400
Malibu, California 90265

Attention: Norm Haynie

Subject: Response to the City of Malibu Geotechnical Review Sheet dated May 9, 2018, Malibu Sea View Hotel, 22729/22741 Pacific Coast Highway, Malibu, California

Dear Mr. Haynie:

As requested, GeoSoils Consultants, Inc. (GSC) has prepared this response to the City of Malibu Review Sheet dated May 9, 2018. The review letter addresses the reference report dated March 29, 2018, which is a response to the previous City review sheet. The review comments are presented below, followed by our responses. A copy of the review letter is included in the back of this report.

CITY OF MALIBU REVIEW SHEET DATED MAY 9, 2018

Comment 1

Installing soldier piles to support approximately 40-45 feet of temporary excavations may require tiebacks to anchor/support the soldier piles. "With that being the case, the Consultant needs to discuss the construction feasibility of installing tiebacks with due consideration to existing improvements and structures that could be affected from this operation.

MDN 19926

Response to Comment 1

With the exception of the elevator shaft shown on Section A-A' of the referenced response report, the temporary excavations will be limited to approximately 29 feet. In the area of the shaft, the structural engineer will use multiple piles to support the excavation, both parallel and perpendicular to the temporary excavation. It is the structural engineer's responsibility to design the proposed piles per the design recommendations in the referenced reports. If the structural engineer determines that tie backs are necessary to meet the design criteria, then additional recommendations will be provided.

The subject property is under the same ownership as the adjacent property to the north; therefore, approval for tie backs, if necessary, can be granted. If tie backs are determined to be necessary, then the location of any existing off-site piles used to support the structure to the north will be determined to avoid conflict with the new tie back anchors. In addition, the structural engineer shall determine if (and avoid if necessary) any negative impact from tie backs with the existing piles to support off-site structures.

Comment 2

In appurtenant facility areas where limited removal is recommended, uncertified fill may remain underneath these improvements. Hence, the consultant should outline the risk and the need for more regular maintenance of these facilities due to the potential for differential settlement of the underlying fill.

Response to Comment 2

The existing fill on the site, which is described as moderately dense on the boring logs, appears to have performed adequately for the existing gas station and other improvements, with no observed evidence of substantial settlement. However, there may be an increased risk for long term maintenance of the parking lot with less than complete removal and recompaction of the existing fill. This may include pavement and hardscape cracks, which may require periodic maintenance. However, complete removals of the fill will create other

issues, such as the need to support temporary excavations near existing structures and property lines. Per the recommendations in the referenced reports, the upper three feet of existing fill shall be removed and recompacted. If soft soil zones are observed during construction, then deeper removals may be made to further reduce the potential for long term maintenance.

Building Plan-Check State Review comments will be addressed at a later stage in the project.

We appreciate this opportunity to be of service to you. If you have any questions regarding the attached reports, or if we may be of further assistance to you, please do not hesitate to contact us.

Very truly yours,

GEOSOILS CONSULTANTS, INC.

RUDY F. RUBERTI
CEG 1708

KAREN L. MILLER
GE 2257

OMAR ATTIOUI
Staff Engineer

RFR.KLM.OA:W:Rsp to Malibu Review dtd May 9, 2018

Encl: References
City of Malibu Review Sheet dated May 9, 2018

cc: (3) Addressee

MDN 19926

REFERENCES

1. GeoSoils Consultants, Inc. dated March 29, 2018, “Response to the City of Malibu Geotechnical Review Sheet dated March 5, 2018, Malibu Sea View Hotel, 22729/22741 Pacific Coast Highway, Malibu, California”

2. GeoSoils Consultants, Inc. dated December 26, 2017, “Geologic and Geotechnical Update Report, Malibu Sea View Hotel, 22729/22741 Pacific Coast Highway, Malibu, California”

City of Malibu

23825 Stuart Ranch Road • Malibu, California 90265-4861
(310) 456-2489 • Fax (310) 317-1950 • www.malibucity.org

GEOTECHNICAL REVIEW SHEET

Project Information

Date: May 9, 2018		**Review Log #:**	**4113**
Site Address:	22729 and 22741 Pacific Coast Highway		
Lot/Tract/PM #:	n/a	**Planning #:**	**CDP 17-086**
Applicant/Contact:	Norm Haynie, norm@blueonyxdesign.com	**BPC/GPC #:**	
Contact Phone #:	310-456-5515 **Fax #:**	**Planner:**	**Lilly Rudolph**
Project Type:	New 36-room boutique hotel, grading-liquefaction mitigation, shoring, onsite wastewater treatment system (OWTS)		

Submittal Information

Consultant(s) / Report Date(s): *(Current submittal(s) in **Bold**.)*	GeoSoils Consultants, Inc. (Miller, GE 2257; Ruberti, CEG 1708): **3-29-18**, 12-26-17 (revised 2-8-18), 12-26-17 Lawrence Young (REHS # 3738): **2-28-18**, 1-29-18, 11-20-17, 11-15-17 Ref: Stratum Geotechnical Consultants: 3-25-16, 8-4-14, 3-29-13, 7-3-09, 11-7-08, 10-8-07 Building plans prepared by DMP Construction, Inc. dated August 25, 2017. Grading plans prepared by LC Engineering Group, Inc. dated December 7, 2017. **OWTS plans prepared by Lawrence Young dated February 28, 2018**, January 29, 2018.
Previous Reviews:	3-5-18, Geotechnical Review Referral Sheet dated 10-13-17: Ref: Environmental Health Review Sheet dated March 29, 2018, Environmental Health Review Sheet dated February 12, 2018

Review Findings

Coastal Development Permit Review

☐ The hotel development project is **APPROVED** from a geotechnical perspective.

☒ The hotel development project is **NOT APPROVED** from a geotechnical perspective. The listed 'Review Comments' shall be addressed prior to approval.

Building Plan-Check Stage Review

☒ Awaiting Building plan check submittal. Please respond to the listed 'Building Plan-Check Stage Review Comments' AND review and incorporate the attached 'Geotechnical Notes for Building Plan Check' into the plans.

☐ **APPROVED** from a geotechnical perspective. Please review the attached 'Geotechnical Notes for Building Plan Check' and incorporate into Building Plan-Check submittals.

☐ **NOT APPROVED** from a geotechnical perspective. The listed 'Building Plan-Check Stage Review Comments' shall be addressed prior to Building Plan-Check Stage approval.

Remarks

The response geotechnical report and OWTS updated design report and plan were reviewed by the City from a geotechnical perspective. The project includes constructing a new 6,958 square foot three-level 15-room boutique hotel with a 3,130 square foot basement-level restaurant and storage area and the conversion of an existing 16,557 square foot office building and parking structure into a 21-room boutique hotel with a 4,506 square foot rooftop deck with a pool, grill, and wet bar. Also proposed are landscaping, open space, and parking. Grading consists of 1,080 yards of R & R; 290 yards of cut under structure; and 290 yards of export. The existing onsite wastewater treatment system (OWTS) serving the office building at 22741 PCH will be upgraded to serve both hotels. The total maximum wastewater discharge for the project is 4,110 gpd. The new OWTS will consist of a new 3,000-gallon grease trap and 3,000-gallon concrete pump tank and pump vault which will pump effluent from the new hotel at 22729 PCH to the existing 5,000-gallon concrete tank and treatment system located at 22741 PCH. This tank discharges to two 6' diameter x 17' BI seepage pits (SP-1 and SP-2) with 5' caps (there is 100% expansion available for effluent disposal). The two existing seepage pits were tested and had a combined percolation rate of 56,719 gpd. The effluent will be adequately disposed into the existing seepage pits per the City of Malibu Plumbing Code.

Review Comments:

1. Installing soldier piles to support approximately 40-45 feet of temporary excavations may require tiebacks to anchor/support the soldier piles. With that being the case, the Consultant needs to discuss the construction feasibility of installing tiebacks with due consideration to existing improvements and structures that could be affected from this operation.

2. In appurtenant facility areas where limited removal is recommended, uncertified fill may remain underneath these improvements. Hence, the Consultant should outline the risk and the need for more regular maintenance of these facilities due to the potential for differential settlement of the underlying fill.

Building Plan-Check Stage Review Comments:

1. Please submit a fee of $957.00 to City geotechnical staff for building plan check review.
2. The recommended at-rest pressure for the design of retaining walls appears to be low. Using the limit equilibrium method to calculate the at-rest pressure behind retaining walls may not be appropriate because the retaining wall is not capable of deflecting to fully mobilize shear resistance. An appropriate method of analyses (example: Navy Manual) should be utilized.

3. The Consultant recommends on page 22 that," Any *anticipated, superimposed loading (i.e., upper retaining walls, traffic surcharge or other structures, etc.) within a 45-degree plane projected upward from the wall bottom, except retained earth, shall be considered as surcharge and provided for in the design.*" But footings below a 1:1 plane behind the retaining walls could laterally surcharge the retaining wall. Using the 1:1 criterion for lateral surcharge is not acceptable, unless substantiated with analyses and references. A recognized method of analyses should be considered (e.g.: 1- Spangler & Handy {1982}, Soil Engineering, fourth Edition, Harper & Row, New York. 2- Navy Design Manual NAVFAC DM-7.2, Figure 18). Mitigation measures should be recommended, as necessary.

4. The Cross-Sections show variable removals underneath the basement that will result in differential fill thicknesses. Please evaluate the potential for adverse impact (example: differential settlement) on slabs-on-grade and other ancillary improvements (if any) due to differential fill thickness. Mitigation measures should be recommended as necessary.

5. Please discuss the potential for uplift forces on low grade improvements due to relatively shallow historical depth to groundwater and to FEMA anticipated flood elevation at the site. Mitigation measures should be recommended, as necessary.

6. Please provide details and sections of the proposed vertical subdrain and redheads supported plywood. Please indicate possible outlets for backdrains behind the basement side walls as previously requested in Comment #14 of the March 5, 2018 review letter. The outlet of the drainage pipe should be indicated on the geotechnical map and grading plan.

7. Please provide a set of shoring plans for review.

8. Please provide reduced setback letters from the OWTS, geotechnical, and structural consultants for any reduced setbacks between the OWTS components and foundations, as applicable.

9. The Project Geotechnical Consultant shall evaluate the lateral deflection and rotation of piles under applied lateral shear forces and bending moments when they become available. Maximum acceptable deformations should be reviewed and approved by the project structural engineer.

10. Section 7.4 of the City's geotechnical guidelines requires a minimum thickness of 10 mils for vapor barriers beneath slabs-on-grade. The Building plans shall reflect this requirement.

11. The following a note needs to be included into the grading and building plans. *'Prior to the placement of concrete slabs, the slab subgrade soils shall be pre-moistened to at least 120% of the optimum moisture content to the depth specified by the geotechnical engineer. The pre-moistened soils should be tested and verified to be by the geotechnical engineer within one day prior to the placement of the moisture barrier and sand.'*

12. Please include the following note on the plans: *"The Project Geotechnical Consultant shall prepare an as-built report documenting the installation of the pile foundation elements for review by City Geotechnical staff. The report shall include total depths of the piles, depth into the recommended bearing material, and a map depicting the locations of the piles."*

13. Please include the following note on the plans: *"The Project Geotechnical Consultant shall prepare an as-built report documenting the installation of the soldier pile foundation (shoring) elements for review by City Geotechnical staff. The report shall include total depths of the piles, depth into the recommended bearing material, and a map depicting the locations of the soldier piles."*

14. Two sets of final grading, shoring, retaining wall, and hotel plans (**APPROVED BY BUILDING AND SAFETY**) incorporating the Project Geotechnical Consultant's recommendations and items in this review sheet must be **reviewed and wet stamped and manually signed by the Project Engineering Geologist and Project Geotechnical Engineer**. City geotechnical staff will review the plans for conformance with the Project Geotechnical Consultants' recommendations and items in this review sheet over the counter at City Hall. **Appointments for final review and approval of the plans may be made by calling or emailing City Geotechnical staff.**

Please direct questions regarding this review sheet to City Geotechnical staff listed below.

Engineering Geology Review by: _____ *5/9/18*

Christopher Dean, C.E.G. #1751, Exp. 9-30-18 Date
Engineering Geology Reviewer
(310-456-2489, x306)
Email: cdean@malibucity.org

Geotechnical Engineering Review by: _____ *5/9/2018*

Ali Abdel-Haq, G.E. #2308, Exp. 12-31-19 Date
Geotechnical Engineering Reviewer (805-496-1222)
Email: ali@geodynamics-inc.com

This review sheet was prepared by representatives of Cotton, Shires and Associates, Inc. and GeoDynamics, Inc., contracted through Cotton, Shires and Associates, Inc., as an agent of the City of Malibu.

COTTON, SHIRES AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

GeoDynamics, Inc.
Applied Earth Sciences
Geotechnical Engineering & Engineering Geology Consultants

City of Malibu

– GEOTECHNICAL –

NOTES FOR BUILDING PLAN-CHECK

The following standard items should be incorporated into Building Plan-Check submittals, as appropriate:

1. One set of grading, retaining wall, and hotel plans, incorporating the Project Geotechnical Consultant's recommendations and items in this review sheet, must be submitted to City geotechnical staff for review. **Additional review comments may be raised at that time that may require a response.**
2. Show the name, address, and phone number of the Project Geotechnical Consultant(s) on the cover sheet of the Building and Grading Plans.
3. Include the following note on Grading and Foundation Plans: "*Subgrade soils shall be tested for Expansion Index prior to pouring footings or slabs; Foundation Plans shall be reviewed and revised by the Project Geotechnical Consultant, as appropriate.*"
4. Include the following note on the Foundation Plans: "*All foundation excavations must be observed and approved by the Project Geotechnical Consultant prior to placement of reinforcing steel.*"
5. The Foundation Plans for the proposed project shall clearly depict the embedment material and minimum depth of embedment for the foundations in accordance with the Project Geotechnical Consultant's recommendations.
6. Show the onsite wastewater treatment system on the Site Plan.
7. Please contact the Building and Safety Department regarding the submittal requirements for a grading and drainage plan review.
8. A comprehensive Site Drainage Plan, incorporating the Project Geotechnical Consultant's recommendations, shall be included in the Plans. Show all area drains, outlets, and non-erosive drainage devices on the Plans. Water shall not be allowed to flow uncontrolled over descending slopes.

Grading Plans (as Applicable)

1. Grading Plans shall clearly depict the limits and depths of overexcavation, as applicable.
2. Prior to final approval of the project, an as-built compaction report prepared by the Project Geotechnical Consultant must be submitted to the City for review. The report must include the results of all density tests as well as a map depicting the limits of fill, locations of all density tests, locations and elevations of all removal bottoms, locations and elevations of all keyways and back drains, and locations and elevations of all retaining wall backdrains and outlets. Geologic conditions exposed during grading must be depicted on an as-built geologic map. This comment must be included as a note on the grading plans.

Retaining Walls (As Applicable)

1. Show retaining wall backdrain and backfill design, as recommended by the Geotechnical Consultant, on the Plans.
2. Retaining walls separate from a residence require separate permits. Contact the Building and Safety Department for permit information. One set of retaining wall plans shall be submitted to the City for review by City geotechnical staff. Additional concerns may be raised at that time which may require a response by the Project Geotechnical Consultant and applicant.

City of Malibu

23825 Stuart Ranch Road
Malibu, California 90265
(310) 456-2489 Fax (310) 317-1950

GEOTECHNICAL REVIEW FIXED FEE FORM

PROJECT OWNER/APPLICANT: Norm Haynie

PROJECT ADDRESS: 22729 Pacific Coast Highway

GEOTECHNICAL LOG NO: 4113

PLANNING NO: CDP 17-086

PLAN CHECK NO:

ITEM	STATUS	DATE	DEPOSIT	CHARGE	BALANCE	COMMENTS
FIXED FEE BY: Norm Haynie		9/5/2017	$4,375.00		$0.00	**Fixed Fee**
Initial Review, CDP 17-086	**Response Required**	3/5/2018		$0.00	$0.00	Items to address
Second review, CDP 17-086	**Response Required**	5/9/2018		$0.00	$0.00	Items to address
Additional Reviews: Time & Material						
Third review						
Fourth review						
Applicant Paid Balance Due						
Fifth review						
Applicant Paid Balance Due						
					$0.00	
REFUND DUE APPLICANT						REFUND # _____
BALANCE DUE CITY OF MALIBU						

NOTE:

The Fixed Fee incorporates the initial and one subsequent geotechnical review. Subsequent reviews will be performed in accordance with the City's time and materials rate of $207.00 per hour.

Appendix F

Onsite Wastewater Treatment System Design Report and City of Malibu Environmental Health Review

Lawrence Young

Registered Environmental Health Specialist *Cal. Reg. #3738*

P.O. Box 973, Malibu, California 90265 (818) 883-8585

Fax: (818) 598-0875

February 28, 2018

Norman R. Haynie
22741 Pacific Coast Hwy., Suite 400
Malibu, CA 90265

ONSITE WASTEWATER TREATMENT SYSTEM DESIGN REPORT

FOR

22729-41 PACIFIC COAST HWY., MALIBU, CA 90265

SITE:

Subject site is a ±18,375 square foot parcel (APN 4452-022-010), and a ±23,970 square foot parcel (APN 4452-022-017) on the north side of Pacific Coast Highway in the City of Malibu.

DEVELOPMENT:

The proposed development consists of a new 15 bed hotel unit (203 fixture units) with a 39 seat restaurant located on APN 4452-022-010 (22729 Pacific Coast Highway), and a new 21 bed hotel unit (279 fixture units) located on APN 4452-022-017 (22741 Pacific Coast Highway). The existing alternative onsite wastewater treatment system currently serving the office building (10,320 square feet, 74 fixture units) located on 22741 Pacific Coast Highway will be upgraded to serve the hotel complex to be known collectively as the Malibu Sea View Hotel.

FLOW RATE:

For the two hotel units, the maximum wastewater flow rate was calculated at 60 gallons per bed per day per the City of Malibu Plumbing Code for a total of 900 gallons per day for the 15 bed hotel unit located at 22729 Pacific Coast Highway, and 1260 gallons per day for the 21 bed hotel unit located at 22741 Pacific Coast Highway, for a combined total of 2160 gallons per day. There is also a restaurant proposed for 22729 Pacific Coast Highway, which will have 39 seats at 50 gallons per seat for a total of 1950 gallons per day per the City of Malibu Plumbing Code. Therefore, the total maximum projected wastewater discharge for the entire project will be 4110 gallons per day.

ONSITE WASTEWATER TREATMENT SYSTEM:

The upgraded alternative onsite wastewater treatment system will consist of a new 3000 gallon traffic-rated grease interceptor, and a new 3000 gallon traffic-rated concrete pump tank with duplex screened pump vault. The pump tank will pump the sewage effluent from the 15 bed hotel unit, and 39 seat restaurant located at 22729 Pacific Coast Highway to the existing 5000 gallon traffic-rated concrete tank with HighStrengthFast 4.5 Treatment System (upgraded from the existing MicroFast 3.0 Treatment System) located at 22741 Pacific Coast Highway. This treatment system will discharge to three Norweco Bio-Kinetic Model BK 2000 Disinfection Units (upgraded from the existing single Norweco Bio-Kinetic BK 2000 Disinfection Unit), which will discharge to an existing 5000 gallon traffic-rated dosing tank with duplex screened pump vault, which will discharge to two seepage pits (SP3 and SP4) 6 feet in diameter, 17 feet deep below the inlet, and capped 5 feet below grade. Two existing seepage pits (SP1 and SP2), which have never been used, are designated as the future seepage pits.

The HighStrengthFAST 4.5 Treatment System with the three Norweco Bio-Kinetic BK 2000 Disinfection Units is capable of processing 4500 gallons of wastewater per day. Therefore, the 4110 gallons per day projected total maximum wastewater flow rate will be adequately treated to the tertiary requirements of the City of Malibu Plumbing Code prior to discharge.

Calculating the subsurface sewage effluent disposal requirements of the two hotel units based on the fixture unit counts, i.e. 203 fixture units for the hotel unit located at 22729 Pacific Coast Highway, and 279 fixture units for the hotel unit located at 22741 Pacific Coast Highway, yields a total subsurface sewage effluent disposal requirement of 39,150 gallons per day. Adding the restaurant, i.e. 1950 gallon maximum daily flow rate times 3 equals 5850 gallons, yields a combined total subsurface sewage effluent disposal requirement of 45,000 gallons per day. The two existing seepage pits percolation tested (SP1 and SP2) had a combined percolation rate of 56,719 gallon per day. Therefore, the total combined projected daily sewage effluent generated will be adequately disposed per the requirements of the City of Malibu Plumbing Code.

DECLARATION OF COMPLIANCE:

In my professional opinion, the onsite wastewater treatment system design submitted meets the minimum requirements of the City of Malibu Plumbing Code, and the City of Malibu Local Coastal Program. The onsite wastewater treatment system design submitted does not include an evaluation of any geological, or other potential problems, which may require an alternative method of onsite wastewater treatment, and disposal.

If you have any questions, or comments, or need further information regarding this onsite wastewater treatment, and disposal system description, then please contact me at your earliest convenience.

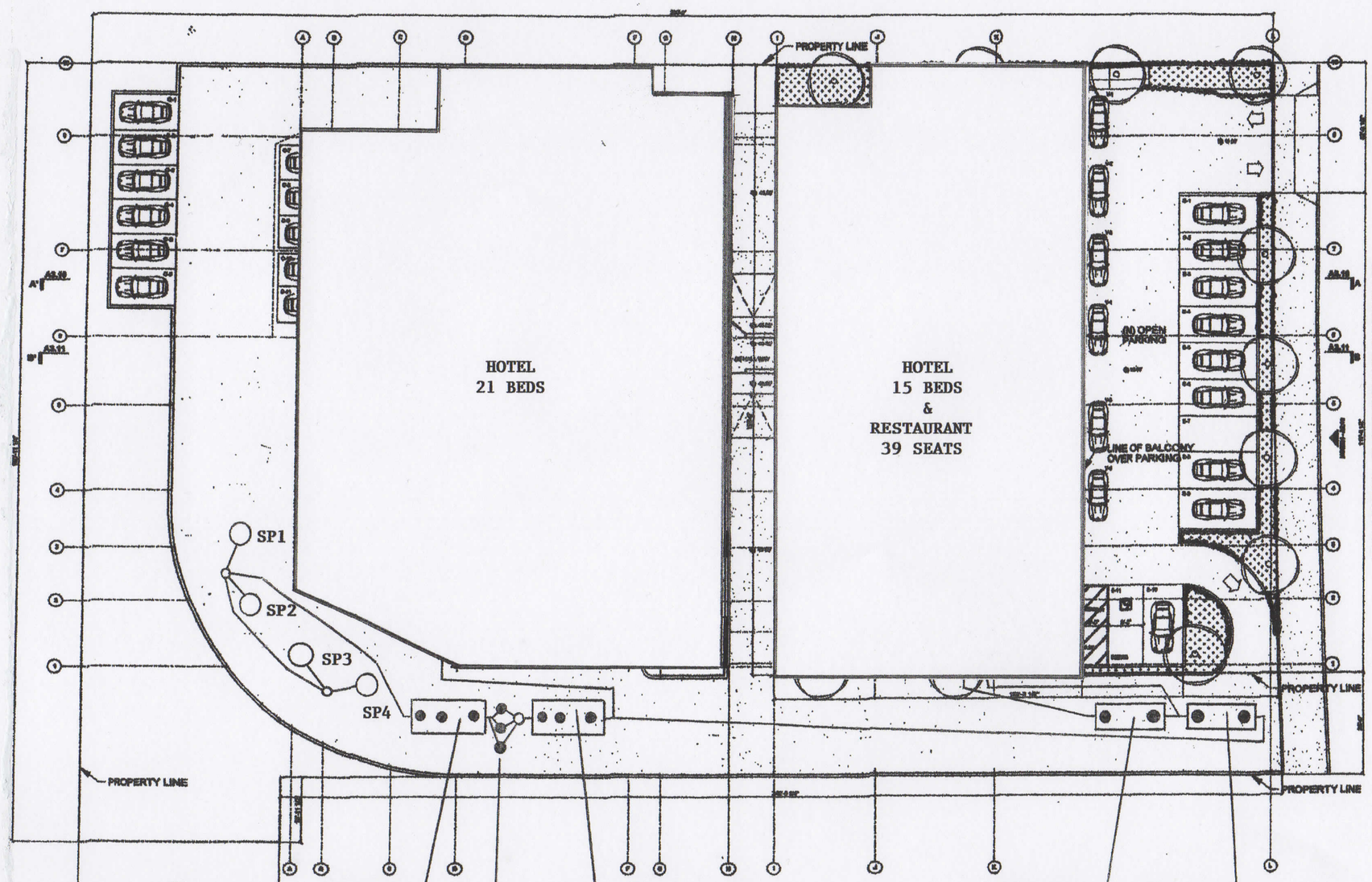


Sincerely,

L Young

Lawrence Young

MALIBU SEA VIEW HOTEL
22729-41 PACIFIC COAST HWY.
MALIBU, CA 90265



○ 4 - 6' X 17' BI
w/5' Cap (E)
SP1 & SP2 = Futures
SP3 & SP4 = Active

ENVIRONMENTAL HEALTH SPECIALIST
LAWRENCE YOUNG
REG. NO. 5738
L Young
STATE OF CALIFORNIA

FEB 28 2018

1" = 30'

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4861
(310) 456-2489 FAX (310) 317-1950 www.malibucity.org

ENVIRONMENTAL HEALTH REVIEW
REFERRAL SHEET

3/1/2018

TO: City of Malibu Environmental Health Administrator **DATE:** ~~9/5/2017~~

FROM: City of Malibu Planning Department

PROJECT NUMBER:	CDP 17-086
JOB ADDRESS:	22729 PACIFIC COAST HWY
APPLICANT / CONTACT:	Norman Haynie, Blue Onyx Design and Engineerin
APPLICANT ADDRESS:	22741 Pacific Coast Highway #400 Malibu, CA 90265
APPLICANT PHONE #:	(310) 456-5515
APPLICANT FAX #:	(310) 456-9821
APPLICANT EMAIL:	norm@blueonyxdesign.com
PROJECT DESCRIPTION:	New 36-Room Boutique Hotel

TO: Malibu Planning Department and/or Applicant

FROM: City of Malibu Environmental Health Reviewer

✓ **Conformance Review Complete** for project submittals reviewed with respect to the City of Malibu Local Coastal Plan/Local Implementation Plan (LCP/LIP) and Malibu Plumbing Code (MPC). The Conditions of Planning conformance review and plan check review comments listed on the attached review sheet(s) (or else handwritten below) shall be addressed prior to plan check approval.

_____ **Conformance Review Incomplete** for the City of Malibu LCP/LIP and MPC. The Planning stage review comments listed on the City of Malibu Environmental Health review sheet(s) shall be addressed prior to conformance review completion.

OWTS Plot Plan: ☐ NOT REQUIRED

☑ REQUIRED (attached hereto) ☐ REQUIRED (not attached)

Melinda Talent — **Signature**

3-29-18 — **Date**

The applicant must submit to the City of Malibu Environmental Health Specialist to determine whether or not an onsite wastewater treatment system (OWTS) Plot Plan approval is required.

The Environmental Health Specialist may be contacted Tuesday and Thursday from 8:00 am to 11:00 am, or by calling (310) 456-2489, extension 364.

City of Malibu

Environmental Health • Environmental Sustainability Department
23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 317-1950 · www.malibucity.org

ENVIRONMENTAL HEALTH REVIEW SHEET

PROJECT INFORMATION

Applicant : (name and email address)	Norman Haynie norm@blueonyxdesign.com		
Project Address:	**22729-41 Pacific Coast Highway** Malibu, California 90265		
Planning Case No.:	CDP 17-086		
Project Description:	New 15 room hotel with restaurant and 21 room hotel		
Date of Review:	March 29, 2018		
Reviewer:	Melinda Talent	Signature:	Melinda Talent
Contact Information:	Phone: (310) 456-2489 ext. 364	Email:	mtalent@malibucity.org

SUBMITTAL INFORMATION

Architectural Plans:	Architectural plans by DMR Construction, Inc. dated 8-25-17
Grading Plans:	
OWTS Plot Plan:	Plot plan by Lawrence Young dated 11-15-17, revision dated 1-29-18, 2-28-18
OWTS Report:	OWTS design report by Lawrence Young dated 11-20-17, revision dated 1-29-18, 2-28-18. Percolation report by Lawrence Young dated 11-15-17.
Geology Report:	
Miscellaneous:	Review comments from Tetra Tech dated 12-26-17 and 3-29-18
Previous Reviews:	9-14-17, 1-3-18, 1-30-18, 2-12-18

REVIEW FINDINGS

Planning Stage:	☒	**CONFORMANCE REVIEW COMPLETE** for the City of Malibu Local Coastal Program/Local Implementation Plan (LIP) and Malibu Plumbing Code (MPC). The listed conditions of Planning stage conformance review and plan check review comments shall be addressed prior to plan check approval.
	☐	**CONFORMANCE REVIEW INCOMPLETE** for the City of Malibu LIP and MPC. The listed Planning stage review comments shall be addressed prior to conformance review completion.
OWTS Plot Plan:	☐	**NOT REQUIRED**
	☒	**REQUIRED (attached hereto)** ☐ **REQUIRED (not attached)**

Based upon the project description and submittal information noted above, a **conformance review** was completed for a new alternative onsite wastewater treatment system (OWTS) proposed to serve the onsite wastewater treatment and disposal needs of the subject property. The proposed OWTS meets the minimum requirements of the City of Malibu Plumbing Code, i.e. Title 28 of the Los Angeles County Code, incorporating the California Plumbing Code, 2016 Edition with City of Malibu local amendments (Malibu Municipal Code Section 15.12; hereinafter MPC), and the City of Malibu Local Coastal Program/Local Implementation Plan (LIP). Please distribute this review sheet to all of the project consultants and, prior to final approval, provide a coordinated submittal addressing all conditions for final approval and plan check items.

The conditional conformance findings hereby transmitted complete the Planning stage Environmental Health review of the subject development project. In order to obtain Environmental Health final approval of the project OWTS Plot Plan and associated construction drawings (during Building Safety plan check), all conditions and plan check items listed below must be addressed through submittals to the Environmental Health office.

Conditions of Planning Conformance Review for Building Plan Check Approval

1) **Final OWTS Plot Plan:** A final plot plan shall be submitted showing an onsite wastewater treatment system (OWTS) design meeting the minimum requirements of the MPC, and the LCP/LIP, including necessary construction details, the proposed drainage plan for the developed property, the proposed landscape plan for the developed property, and the proposed stormwater detention/dispersal plan. The OWTS Plot Plan shall show essential features of the OWTS, existing improvements, and proposed/new improvements. The plot must fit on an 11" x 17" sheet leaving a 5" left margin clear to provide space for a City-applied legend. If the plan scale is such that more space is needed to clearly show construction details and/or all necessary setbacks, larger sheets may also be provided (up to a maximum size of 18" x 22" for review by Environmental Health).

2) **Final OWTS Design Report, Plans, and System Specifications:** A final OWTS design report and construction drawings with system specifications (four sets) shall be submitted to describe the OWTS design basis and all components proposed for use in the construction of the OWTS. All plans and reports must be signed by the California-registered Civil Engineer, Registered Environmental Health Specialist, or Professional Geologist who is responsible for the design, and is a registered practitioner with the City of Malibu. The final OWTS design report and construction drawings shall be submitted with the designer's signature, professional registration number, and stamp (if applicable).

   The final OWTS design submittal shall contain the following information (in addition to the items listed above).

   a. Required treatment capacity for wastewater treatment and disinfection systems. The treatment capacity shall be specified in terms of flow rate, gallons per day (gpd), and shall be supported by calculations relating the treatment capacity to the number of bedroom equivalents, plumbing fixture schedule, and the subsurface effluent dispersal system acceptance rate. The drainage fixture unit count must be clearly identified in association with the design treatment capacity, even if the design is based on the number of bedrooms. Average and peak rates of hydraulic loading to the treatment system shall be specified in the final design.

   b. Sewage and effluent pump design calculations (as applicable).

   c. Description of proposed wastewater treatment and/or disinfection system equipment. State the proposed type of treatment system(s) (e.g., aerobic treatment, textile filter, ultraviolet disinfection, etc.); major components, manufacturers, and model numbers for "package" systems; and the design basis for engineered systems.

   d. Specifications, supporting geology information, and percolation test results for the subsurface effluent dispersal portion of the onsite wastewater disposal system. This must include the proposed type of effluent dispersal system (drainfield, trench, seepage pit, subsurface drip, etc.) as well as the system's geometric dimensions and basic construction features.

Supporting calculations shall be presented that relate the results of soils analysis or percolation/infiltration tests to the projected subsurface effluent acceptance rate, including any unit conversions or safety factors. Average and peak rates of hydraulic loading to the effluent dispersal system shall be specified in the final design. The projected subsurface effluent acceptance rate shall be reported in units of total gallons per day (gpd) and gallons per square foot per day (gpsf). Specifications for the subsurface effluent dispersal system shall be shown to accommodate the design hydraulic loading rate (i.e., average and peak OWTS effluent flow, reported in units of gpd). The subsurface effluent dispersal system design must take into account the number of bedrooms, fixture units, and building occupancy characteristics.

e. All OWTS design drawings shall be submitted with the wet signature and typed name of the OWTS designer. If the plan scale is such that more space than is available on the 11" x 17" plot plan is needed to clearly show construction details, larger sheets may also be provided (up to a maximum size of 18" x 22" for review by Environmental Health). [Note: For OWTS final designs, full-size plans for are also required for review by Building & Safety and Planning.]

3) **Building Plans:** All project architectural plans and grading/drainage plans shall be submitted for Environmental Health review and approval. These plans must be approved by the Building Safety Division prior to receiving Environmental Health final approval.

4) **Traffic-Rated Slab Plan(s):** All project traffic rated slab plans shall be submitted for Environmental Health review and approval. These plans must be approved by the Building Safety Division prior to receiving Environmental Health final approval.

5) **Notice of Decision:** The final onsite wastewater treatment system plans shall include the Conditions of Approval sections of the Notice of Decision (NOD) from the Planning Department.

6) **Proof of Ownership:** Proof of ownership of subject property shall be submitted.

7) **Operations & Maintenance Manual:** An operations and maintenance manual specified by the OWTS designer shall be submitted. This shall be the same operations and maintenance manual proposed for later submission to the owner and/or operator of the proposed alternative onsite wastewater disposal system.

8) **Maintenance Contract:** A maintenance contract executed between the owner of subject property and an entity qualified in the opinion of the City of Malibu to maintain the proposed alternative onsite wastewater disposal system after construction shall be submitted. ***Please note only original "wet signature" documents are acceptable***.

9) **OWTS Covenant:** A covenant running with the land shall be executed between the City of Malibu and the holder of the fee simple absolute as to subject real property and recorded with the City of Malibu Recorder's Office. Said covenant shall serve as constructive notice to any future purchaser for value that the onsite wastewater treatment system serving subject property is an alternative method of sewage disposal pursuant to the City of Malibu Uniform Plumbing Code. Said covenant shall be provided by the City of Malibu Environmental Health Administrator. ***Please submit a certified copy issued by the City of Malibu Recorder***.

10) **Project Geologist/Geotechnical Consultant Approval:** Project Geologist/Geotechnical Consultant final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

11) **City of Malibu Planning Approval:** City of Malibu Planning Department final approval of the OWTS plan shall be obtained.

12) **Conditional Use Permit:** A conditional use permit (CUP) shall be obtained from the City of Malibu Planning Department to hold the two properties as one and allow for the onsite wastewater treatment system at 22741 Pacific Coast Hwy. to service the effluent disposal for 22729 Pacific Coast Hwy. The CUP shall be submitted to the Environmental Health Administrator for review.

13) **Environmental Health Final Review Fee:** A final fee in accordance with the adopted fee schedule at the time of final approval shall be paid to the City of Malibu for Environmental Health review of the OWTS design and system specifications.

14) **Operating Permit Application and Fee:** In accordance with M.M.C. Chapter 15.14, an application shall be made to the Environmental Health office for an OWTS operating permit. An operating permit fee in accordance with the adopted fee schedule at the time of final approval shall be submitted with the application.

15) **Waste Discharge Requirements:** Submit wastewater plans, and all necessary supporting forms and reports, to the Los Angeles Regional Water Quality Control Board (RWQCB), 320 W. 4th St., Los Angeles, CA 90013, (213) 576-6600, to assure compliance with the California Water Quality Control Plan, Los Angeles Region (Basin Plan). RWQCB Waste Discharge Requirements shall be obtained and submitted to the City of Malibu Environmental Health Administrator.

-o0o-

If you have any questions regarding the above requirements, please contact the Environmental Health office at your earliest convenience.

cc: Environmental Health file
Planning Department

Recycled Paper

MALIBU SEA VIEW HOTEL
22729-41 PACIFIC COAST HWY
MALIBU, CA 90265

CDP 17-086

22729 PCH HOTEL:	15 Guest Rooms (N)
RESTAURANT:	39 Seats (N)
22741 PCH HOTEL:	21 Guest Rooms (N)
GREASE TRAP:	3,000 Gallon (N)
PUMP TANK:	3,000 Gallon (N)
TREATMENT TANK:	5,000 Gallon Tank (E) with 4.5 High Strength FAST unit (N)
DOSING TANK:	5,000 Gallon tank (N)
DISINFECTION:	3 - Norweco Bio-Kinetic BK 2000 disinfection units (N)
ACTIVE:	2 – 6 x 17' BI w/5' cap (SP-3) (SP-4) (E)
FUTURE:	2 – 6 x 17' BI w/5' cap (SP-1) (SP-2) (E)
PERC RATE:	39,150 gpd total
DESIGNER:	Larry Young (REHS 3738)
REFERENCE:	Lawrence Young OWTS Design Report dated 1-29-18, revised 2-28-18

NOTES:

1. This conformance review is for a new 15 unit hotel with 39 seat restaurant, 21 unit hotel and renovated onsite wastewater treatment system (OWTS). The renovated OWTS shown conforms to the requirements of the City of Malibu Plumbing Code (MPC) and the Local Coastal Plan (LCP).

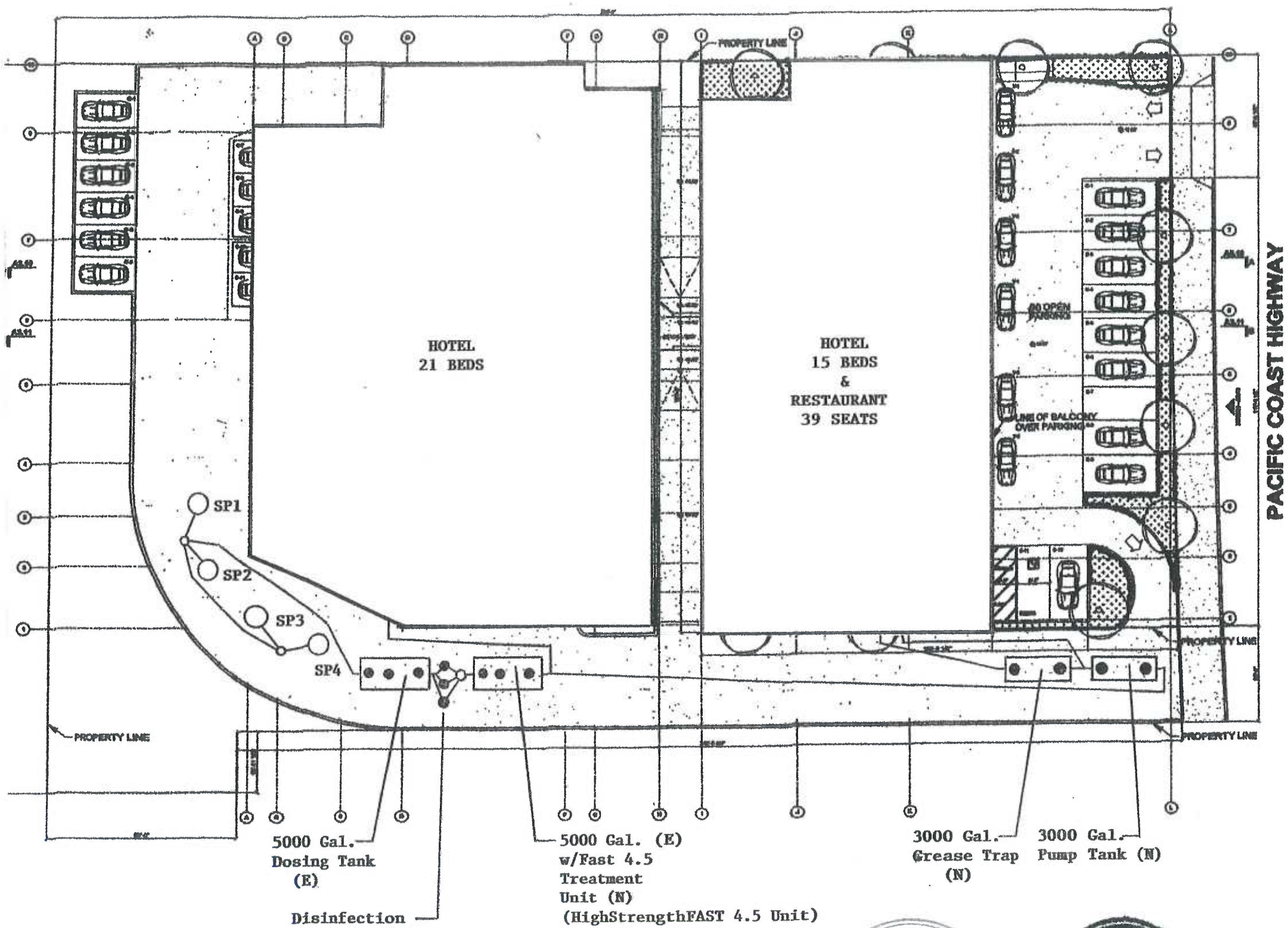
2. This conformance review relates only to the minimum requirements of the MPC, and the LCP, and does not include an evaluation of any geological or other potential problems, which may require an alternative method of wastewater treatment.

3. This conformance review is valid for one year, or until MPC, and/or LCP, and/or Administrative Policy changes render it noncomplying.

CONDITION OF APPROVAL:

1. A conditional use permit and a covenant to hold the two properties as one (22729 Pacific Coast Hwy. and 22741 Pacific Coast Hwy) must be obtained from the Planning Department and submitted to the Environmental Health Administrator.

CITY OF MALIBU
ENVIRONMENTAL SUSTAINABILITY DEPT
ENVIRONMENTAL HEALTH
CONFORMANCE REVIEW
MAR 29 2018
SIGNATURE Melinda Talent
THIS IS NOT AN APPROVAL. FINAL APPROVAL IS REQUIRED PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMITS.



ENVIRONMENTAL HEALTH SPECIALIST
LAWRENCE YOUNG
REG. NO. 3738
L Young
STATE OF CALIFORNIA

1" = 30'

FEB 28 2018

Appendix G

City of Malibu Geotechnical Review Sheet

City of Malibu

23825 Stuart Ranch Road • Malibu, California 90265-4861
(310) 456-2489 • Fax (310) 317-1950 • www.malibucity.org

GEOTECHNICAL REVIEW SHEET

Project Information

Date: June 5, 2018		**Review Log #:**	**4113**
Site Address:	22729 and 22741 Pacific Coast Highway		
Lot/Tract/PM #:	n/a	**Planning #:**	**CDP 17-086**
Applicant/Contact:	Norm Haynie, norm@blueonyxdesign.com	**BPC/GPC #:**	
Contact Phone #:	310-456-5515 **Fax #:**	**Planner:**	**Lilly Rudolph**
Project Type:	New 36-room boutique hotel, grading-liquefaction mitigation, shoring, onsite wastewater treatment system (OWTS)		

Submittal Information

Consultant(s) / Report Date(s): *(Current submittal(s) in **Bold**.)*	GeoSoils Consultants, Inc. (Miller, GE 2257; Ruberti, CEG 1708): **5-21-18,** 3-29-18, 12-26-17 (revised 2-8-18), 12-26-17 Lawrence Young (REHS # 3738): 2-28-18, 1-29-18, 11-20-17, 11-15-17 Ref: Stratum Geotechnical Consultants: 3-25-16, 8-4-14, 3-29-13, 7-3-09, 11-7-08, 10-8-07 Building plans prepared by DMP Construction, Inc. dated August 25, 2017. Grading plans prepared by LC Engineering Group, Inc. dated December 7, 2017. OWTS plans prepared by Lawrence Young dated February 28, 2018, January 29, 2018.
Previous Reviews:	5-9-18, 3-5-18, Geotechnical Review Referral Sheet dated 10-13-17: Ref: Environmental Health Review Sheet dated March 29, 2018, Environmental Health Review Sheet dated February 12, 2018

Review Findings

Coastal Development Permit Review

☒ The hotel development project is **APPROVED** from a geotechnical perspective.

☐ The hotel development project is **NOT APPROVED** from a geotechnical perspective. The listed 'Review Comments' shall be addressed prior to approval.

Building Plan-Check Stage Review

☒ Awaiting Building plan check submittal. Please respond to the listed 'Building Plan-Check Stage Review Comments' AND review and incorporate the attached 'Geotechnical Notes for Building Plan Check' into the plans.

☐ **APPROVED** from a geotechnical perspective. Please review the attached 'Geotechnical Notes for Building Plan Check' and incorporate into Building Plan-Check submittals.

☐ **NOT APPROVED** from a geotechnical perspective. The listed 'Building Plan-Check Stage Review Comments' shall be addressed prior to Building Plan-Check Stage approval.

Remarks

The response geotechnical report was reviewed by the City from a geotechnical perspective. The project includes constructing a new 6,958 square foot three-level 15-room boutique hotel with a 3,130 square foot basement-level restaurant and storage area and the conversion of an existing 16,557 square foot office building and parking structure into a 21-room boutique hotel with a 4,506 square foot rooftop deck with a pool, grill, and wet bar. Also proposed are landscaping, open space, and parking. Grading consists of 1,080 yards of R & R; 290 yards of cut under structure; and 290 yards of export. The existing onsite wastewater treatment system (OWTS) serving the office building at 22741 PCH will be upgraded to serve both hotels. The total maximum wastewater discharge for the project is 4,110 gpd. The new OWTS will consist of a new 3,000-gallon grease trap and 3,000-gallon concrete pump tank and pump vault which will pump effluent from the new hotel at 22729 PCH to the existing 5,000-gallon concrete tank and treatment system located at 22741 PCH. This tank discharges to two 6' diameter x 17' BI seepage pits (SP-1 and SP-2) with 5' caps (there is 100% expansion available for effluent disposal). The two existing seepage pits were tested and had a combined percolation rate of 56,719 gpd. The effluent will be adequately disposed into the existing seepage pits per the City of Malibu Plumbing Code.

Building Plan-Check Stage Review Comments:

1. Please submit a fee of $957.00 to City geotechnical staff for building plan check review.
2. The recommended at-rest pressure for the design of retaining walls appears to be low. Using the limit equilibrium method to calculate the at-rest pressure behind retaining walls may not be appropriate because the retaining wall is not capable of deflecting to fully mobilize shear resistance. An appropriate method of analyses (example: Navy Manual) should be utilized.
3. The Consultant recommends on page 22 that, "*Any anticipated, superimposed loading (i.e., upper retaining walls, traffic surcharge or other structures, etc.) within a 45-degree plane projected upward from the wall bottom, except retained earth, shall be considered as surcharge and provided for in the design.*" But footings below a 1:1 plane behind the retaining walls could laterally surcharge the retaining wall. Using the 1:1 criterion for lateral surcharge is not acceptable, unless substantiated with analyses and references. A recognized method of analyses should be considered (e.g.: 1- Spangler & Handy {1982}, Soil Engineering, fourth Edition, Harper & Row, New York. 2- Navy Design Manual NAVFAC DM-7.2, Figure 18). Mitigation measures should be recommended, as necessary.
4. The Cross-Sections show variable removals underneath the basement that will result in differential fill thicknesses. Please evaluate the potential for adverse impact (example: differential settlement) on slabs-on-grade and other ancillary improvements (if any) due to differential fill thickness. Mitigation measures should be recommended as necessary.
5. Please discuss the potential for uplift forces on low grade improvements due to relatively shallow historical depth to groundwater and to FEMA anticipated flood elevation at the site. Mitigation measures should be recommended, as necessary.
6. Please provide details and sections of the proposed vertical subdrain and redheads supported plywood. Please indicate possible outlets for backdrains behind the basement side walls as previously requested in Comment #14 of the March 5, 2018 review letter. The outlet of the drainage pipe should be indicated on the geotechnical map and grading plan.
7. Please provide a set of shoring plans for review.
8. Please provide reduced setback letters from the OWTS, geotechnical, and structural consultants for any reduced setbacks between the OWTS components and foundations, as applicable.

9. The Project Geotechnical Consultant shall evaluate the lateral deflection and rotation of piles under applied lateral shear forces and bending moments when they become available. Maximum acceptable deformations should be reviewed and approved by the project structural engineer.

10. Section 7.4 of the City's geotechnical guidelines requires a minimum thickness of 10 mils for vapor barriers beneath slabs-on-grade. The Building plans shall reflect this requirement.

11. The following a note needs to be included into the grading and building plans. *'Prior to the placement of concrete slabs, the slab subgrade soils shall be pre-moistened to at least 120% of the optimum moisture content to the depth specified by the geotechnical engineer. The pre-moistened soils should be tested and verified to be by the geotechnical engineer within one day prior to the placement of the moisture barrier and sand.'*

12. Please include the following note on the plans: *"The Project Geotechnical Consultant shall prepare an as-built report documenting the installation of the pile foundation elements for review by City Geotechnical staff. The report shall include total depths of the piles, depth into the recommended bearing material, and a map depicting the locations of the piles."*

13. Please include the following note on the plans: *"The Project Geotechnical Consultant shall prepare an as-built report documenting the installation of the soldier pile foundation (shoring) elements for review by City Geotechnical staff. The report shall include total depths of the piles, depth into the recommended bearing material, and a map depicting the locations of the soldier piles."*

14. Two sets of final grading, shoring, retaining wall, and hotel plans (**APPROVED BY BUILDING AND SAFETY**) incorporating the Project Geotechnical Consultant's recommendations and items in this review sheet must be **reviewed and wet stamped and manually signed by the Project Engineering Geologist and Project Geotechnical Engineer**. City geotechnical staff will review the plans for conformance with the Project Geotechnical Consultants' recommendations and items in this review sheet over the counter at City Hall. **Appointments for final review and approval of the plans may be made by calling or emailing City Geotechnical staff.**

Please direct questions regarding this review sheet to City Geotechnical staff listed below.

Engineering Geology Review by: _____ *6/5/18*

Christopher Dean, C.E.G. #1751, Exp. 9-30-18 Date
Engineering Geology Reviewer
(310-456-2489, x306)
Email: cdean@malibucity.org

Geotechnical Engineering Review by: _____ *6/5/2018*

Ali Abdel-Haq, G.E. #2308, Exp. 12-31-19 Date
Geotechnical Engineering Reviewer (805-496-1222)
Email: ali@geodynamics-inc.com

This review sheet was prepared by representatives of Cotton, Shires and Associates, Inc. and GeoDynamics, Inc., contracted through Cotton, Shires and Associates, Inc., as an agent of the City of Malibu.

COTTON, SHIRES AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

GeoDynamics, Inc.
Applied Earth Sciences
Geotechnical Engineering & Engineering Geology Consultants

City of Malibu

– GEOTECHNICAL –

NOTES FOR BUILDING PLAN-CHECK

The following standard items should be incorporated into Building Plan-Check submittals, as appropriate:

1. One set of grading, retaining wall, and hotel plans, incorporating the Project Geotechnical Consultant's recommendations and items in this review sheet, must be submitted to City geotechnical staff for review. **Additional review comments may be raised at that time that may require a response.**
2. Show the name, address, and phone number of the Project Geotechnical Consultant(s) on the cover sheet of the Building and Grading Plans.
3. Include the following note on Grading and Foundation Plans: "*Subgrade soils shall be tested for Expansion Index prior to pouring footings or slabs; Foundation Plans shall be reviewed and revised by the Project Geotechnical Consultant, as appropriate.*"
4. Include the following note on the Foundation Plans: "*All foundation excavations must be observed and approved by the Project Geotechnical Consultant prior to placement of reinforcing steel.*"
5. The Foundation Plans for the proposed project shall clearly depict the embedment material and minimum depth of embedment for the foundations in accordance with the Project Geotechnical Consultant's recommendations.
6. Show the onsite wastewater treatment system on the Site Plan.
7. Please contact the Building and Safety Department regarding the submittal requirements for a grading and drainage plan review.
8. A comprehensive Site Drainage Plan, incorporating the Project Geotechnical Consultant's recommendations, shall be included in the Plans. Show all area drains, outlets, and non-erosive drainage devices on the Plans. Water shall not be allowed to flow uncontrolled over descending slopes.

Grading Plans (as Applicable)

1. Grading Plans shall clearly depict the limits and depths of overexcavation, as applicable.
2. Prior to final approval of the project, an as-built compaction report prepared by the Project Geotechnical Consultant must be submitted to the City for review. The report must include the results of all density tests as well as a map depicting the limits of fill, locations of all density tests, locations and elevations of all removal bottoms, locations and elevations of all keyways and back drains, and locations and elevations of all retaining wall backdrains and outlets. Geologic conditions exposed during grading must be depicted on an as-built geologic map. This comment must be included as a note on the grading plans.

Retaining Walls (As Applicable)

1. Show retaining wall backdrain and backfill design, as recommended by the Geotechnical Consultant, on the Plans.
2. Retaining walls separate from a residence require separate permits. Contact the Building and Safety Department for permit information. One set of retaining wall plans shall be submitted to the City for review by City geotechnical staff. Additional concerns may be raised at that time which may require a response by the Project Geotechnical Consultant and applicant.

City of Malibu

23825 Stuart Ranch Road
Malibu, California 90265
(310) 456-2489 Fax (310) 317-1950

GEOTECHNICAL REVIEW FIXED FEE FORM

PROJECT OWNER/APPLICANT: Norm Haynie

PROJECT ADDRESS: 22729 Pacific Coast Highway

GEOTECHNICAL LOG NO: 4113

PLANNING NO: CDP 17-086

PLAN CHECK NO:

ITEM	STATUS	DATE	DEPOSIT	CHARGE	BALANCE	COMMENTS
FIXED FEE BY: Norm Haynie		9/5/2017	$4,375.00		$0.00	**Fixed Fee**
Initial Review, CDP 17-086	**Response Required**	3/5/2018		$0.00	$0.00	Items to address
Second review, CDP 17-086	**Response Required**	5/9/2018		$0.00	$0.00	Items to address
Additional Reviews: Time & Material						
Supplemental T & M Deposit		5/22/2018	$1,242.00	$0.00	$1,242.00	Check # 4095
Third Review, CDP 17-086	**Approved**	6/5/2018		$828.00	$414.00	Planning Only
Applicant Paid Balance Due						
Fifth review						
Applicant Paid Balance Due						
					$0.00	
REFUND DUE APPLICANT						REFUND # _____
BALANCE DUE CITY OF MALIBU						

NOTE:

The Fixed Fee incorporates the initial and one subsequent geotechnical review. Subsequent reviews will be performed in accordance with the City's time and materials rate of $207.00 per hour.

Appendix H

Supplemental Commission Agenda Report

Planning Commission
Meeting
06-01-10
Item
5.A.

Supplemental Commission Agenda Report

To: Chair and Members of the Planning Commission

Prepared by: Ha Ly, Associate Planner

Reviewed by: Joyce Parker-Bozylinski, AICP, Planning Manager

Approved by: Victor Peterson, Community Development Director

Date prepared: May 25, 2010 Meeting date: June 1, 2010

Subject: Coastal Development Permit No. 08-055, Site Plan Review No. 10-012, Variance Nos. 10-005 and 10-006, Conditional Use Permit No. 10-003, and Demolition Permit No. 08-014 – An application for the demolition of existing remnant structures associated with an abandoned gas station, construction of a new, 2,499 square foot commercial office building with a rooftop parking lot, a vehicular ramp connecting the rooftop parking to an existing parking lot located directly north of the subject property, the installation of an alternative onsite wastewater treatment system, hardscape, landscaping, and grading; including a site plan review for construction in excess of 18 feet in height, variances for construction on slopes in excess of 2½ to 1 and reduction of the required rear yard setback, and a conditional use permit to allow for the construction of over 500 square feet of commercial development (Continued from May 18, 2010)

Application Filing Date:	July 8, 2008
Applicant:	Mike Barsocchini, Barsocchini & Associates
Owner:	WFS Seastar Company, LLC
Location:	22729 Pacific Coast Highway, within the appealable coastal zone
APN:	4452-022-010
Zoning:	Community Commercial (CC)

RECOMMENDED ACTION: Adopt Planning Commission Resolution No. 10-43 (Attachment 1) approving Coastal Development Permit (CDP) No. 08-055, Site Plan Review (SPR) No. 10-012, Variance (VAR) Nos. 10-005 and 10-006, Conditional Use Permit (CUP) No. 10-003 and Demolition Permit No. 08-014, approving an application

for the demolition of existing remnant structures associated with an abandoned gas station, construction of a new, 2,499 square foot commercial office building with a rooftop parking lot, a vehicular ramp connecting the rooftop parking to an existing parking lot located directly north of the subject property, the installation of an alternative onsite wastewater treatment system, hardscape, landscaping, and grading; including a site plan review for construction in excess of 18 feet, variances for construction on slopes in excess of 2½ to 1 and reduction of the required rear yard setback, demolition permit for the demolition of remnant structures, and a conditional use permit to allow for the construction of over 500 square feet of commercial development, in the Community Commercial (CC) zoning district at 22729 Pacific Coast Highway.

DISCUSSION: The project site is currently an abandoned gas station with two remnant gasoline pumping station canopies and a convenience store structure. The project site is also occupied by a portable hand carwash and detailing operation permitted under CUP No. 08-017 approved on December 18, 2008. As a condition of approval, CUP No. 08-017 will become null and void once building permits are issued for the construction of the proposed commercial office building.

Due to the previous use of the property, the project was referred to City's consultant, Cotton, Shire and Associates, for environmental assessment. On December 8, 2009, Cotton, Shire and Associates issued a determination letter confirming that the applicant has adequately addressed the environment concerns. Several conditions of approval were recommended by the City's consultant and are further discussed in Section I of this agenda report.

In March 2010, story poles were installed to demonstrate the height, bulk, and location of the proposed development. The applicant also submitted a request to remove the story poles immediately after documentation by City staff due to potential impact to the existing car wash operation. Pursuant to the City's Story Pole Policy, story poles are required to remain onsite until all appeal periods expire. The story poles may be removed immediately after documentation if determined to be a public safety risk or at the discretion of the Planning Manager.

The Planning Manager determined that the story poles could be removed after extensive documentation by City staff due to potential impacts to the existing carwash business operated onsite. However, the applicant was informed that if any issue arises regarding scenic or visual impacts in the future, the story poles would have to be reinstalled. The applicant agreed to this requirement.

Surrounding Land Uses and Setting

Residential development is located on the ocean side of PCH to the south and along Beckledge Terrace and Ridgemont Drive to the north. Commercial development

surrounds the project site on the parcels located directly to the west, south, and east. An aerial photograph is included as Attachment 2.

Table 1 provides a summary of the surrounding properties.

Direction	Address	Land Use
North	22741 Pacific Coast Highway	Commercial offices
South	22716 Pacific Coast Highway	Pierview Restaurant - not in operation
East	22725 Pacific Coast Highway	McDonald's restaurant
West	22751 Pacific Coast Highway 22761 Pacific Coast Highway	KFC restaurant Commercial offices

The project site is currently an abandoned gas station with two remnant gasoline pumping station canopies and a convenience store structure. The site is fenced with chain-link fencing and has been a site of frequent graffiti. Access is provided via a curb cut on Pacific Coast Highway (PCH). The entire site is paved with the exception of an area which accommodates several trees. A large area located near the rear property line is occupied by manufactured slopes.

The project site is located within the appealable jurisdiction of the coastal zone as depicted on the Local Coastal Program (LCP) Post-Certification Permit and Appeal Jurisdiction Map. According to the LCP Environmentally Sensitive Habitat Area (ESHA) Overlay Map, ESHA is not located on or near the project site. According to the City Trails Master Plan and LCP Parklands Map, no trails exist near or adjacent to the project site.

Table 2 provides a summary of the lot dimensions and lot area of the subject parcel.

Table 2 – Property Data	
Lot Depth	121 feet, 7 inches
Lot Width	150 feet
Gross / Net Lot Size	18,283 square feet (.42 acres)

Project Description

The proposed project consists of:

Demolition of:

a. Two remnant gasoline pumping station canopies;
b. A convenience store structure; and
c. Removal of the existing onsite wastewater treatment system.

Construction of:

a. 2,499 square foot, one-story, commercial office building with rooftop parking; 24 feet maximum for areas with flat roofs and 28 feet maximum for areas with pitched roof;
b. 25 parking spaces (including 3 parking spaces reserved for 22741 PCH), consisting of rooftop parking and on grade parking;
c. 24 foot wide, rooftop connector ramp (1 percent slope) from the subject property to 22741 PCH;
d. 1,370 total cubic yards of exempt grading;
e. Landscaping (40 percent);
f. Open space (25 percent)
g. Hardscape; and
h. Alternative onsite wastewater treatment system (AOWTS)

The project includes a floor area ratio (F.A.R.) equal to .14 (.1367). A F.A.R. of .15 is permitted in the CC zone. The building is proposed with stucco finish in an earth tone and a copper green patina finish roof.

The project includes the following discretionary requests:

SPR No. 10-012 – for the construction over 18 feet in height. The proposed structure is 24 feet maximum for areas with a flat roof and 28 feet maximum for areas with a pitched roof. The required findings can be made and are discussed in this report.

VAR No. 10-005 – for the construction on slopes in excess of 2½ to 1. The proposed structure is located on 1½ to 1 manufactured slopes. The required findings can be made and are discussed in this report.

VAR No. 10-006 – for the reduction of the required rear yard setback. Pursuant to LIP Section 3.8(A)(2), the required rear yard setback is 15 percent of the lot depth or 15 feet, whichever is greater. The majority of the building is set approximately 15 feet from the rear property line, with the exception of a stairway that is eight feet from the property line and the rooftop ramp with zero setback. The required findings for the variance can be made and are discussed in this report.

CUP No. 10-003 – for the construction of over 500 square feet of commercial space. Pursuant to Malibu Municipal Code (M.M.C.) 17.22.040, any permitted use involving new construction or expansion over 500 square feet, is a conditionally permitted use with the CC zone. The required findings for the CUP can be made and are discussed in this report.

DP 10-025 – for the demolition of remnants of previously existing development, including a convenience store, pump station canopies, and hardscape.

The project proposes 4,571 square feet of open space and 7,313 square feet of landscaping. Approximately 9,220 square feet of open space and landscaping are provided on grade, with the reminder 2,664 square feet located on the rooftop parking area as depicted on the Sheet A-02 of the project plans, included as Attachment 3.

Chronology of Project

On July 8, 2008, an application for CDP No. 08-055 and associated request was submitted to the City for review. The application was routed to the City Geologist, City Biologist, City Environmental Health Administrator, City Public Works Department, City Environmental Assessment consultant, and the Los Angeles County Fire Department (LACFD) for M.M.C. and LCP conformance review (Attachment 4).

On October 21, 2008, a courtesy notice of the proposed project was mailed to all property owners and occupants within a 500 foot radius of the subject property.

On September 29, 2009, revised plans were submitted to the City for review. The revised plans showed the elimination of a subterranean garage that was included in the initial submittal.

On January 6, 2010, revised plans were submitted to the City for review. The revised plans reflect a project similar to the proposed project but included a variance for reduction of landscaping requirements.

On March 3, 2010, story poles were placed on the subject property to illustrate the location, height, and bulk of the proposed project. A story pole certification prepared by a licensed surveyor has been submitted.

On March 11, 2010, staff conducted a site visit and documented the story poles with an extensive amount of photographs (Attachment 7). On March 12, 2010, the story poles were permitted to be removed at the discretion of the Planning Manager, due to the impact on a hand car wash onsite.

On April 13, 2010, a Notice of Application sign for the subject application was posted on the project site.

On April 15, 2010 the project was deemed complete.

On April, 22, 2010, a Notice of Public Hearing was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500 foot radius of the subject property.

On May 7, 2010, the applicant submitted revised plans which reflect the current project proposal. The revised project eliminated the need for a variance for the reduction of

required landscaping.

On May 18, 2010, the Planning Commission continued the item to the June 1, 2010 Regular Planning Commission meeting at the applicant's request.

Local Coastal Program

The LCP consists of a Land Use Plan (LUP) and an LIP. The LUP contains programs and policies to implement the Coastal Act in Malibu. The purpose of the LIP is to carry out the policies of the LUP. The LIP contains specific policies and regulations to which every project requiring a CDP must adhere.

There are 13 sections within the LIP that potentially require findings to be made, depending on the nature and location of the proposed project. Of these 13, three are for conformance review only and require no specific findings. These three sections, which include Zoning, Grading and Archaeological/Cultural Resources, are discussed under the Conformance Analysis section below.

There are 10 remaining sections that potentially require specific findings to be made. These findings are found in the following LIP sections: 1) General Coastal Development Permit Findings, including VAR and SPR findings; 2) Environmentally Sensitive Habitat Area; 3) Native Tree Protection; 4) Scenic, Visual, and Hillside Protection; 5) Transfer of Development Credits; 6) Hazards; 7) Shoreline and Bluff Development; 8) Public Access; 9) Land Division; and 10) Onsite Wastewater Treatment Systems. Of these 10, for the reasons discussed below, only three, General Coastal Development Permit including VAR and SPR findings; Scenic, Visual, and Hillside Protection; and Hazards; apply and warrant further discussion.

The findings required by M.M.C. Section 17.66.080 for CUP No. 10-003 are discussed in Section N of this agenda report. The demolition permit findings required by M.M.C. Section 17.70.060 are included in Section O of this document.

Conformance Analysis

As shown in Table 3, the proposed project complies with LIP Chapter 3 regarding commercial development standards. The project, with the inclusion of two variances and a site plan review, has been determined to be consistent with all applicable LCP codes, standards, goals, and policies.

The project proposes to place approximately 2,664 square feet of open space and landscaping on the rooftop in order to comply with required 65 percent of open space and landscaping pursuant to LIP Section 3.8(A)(5)(b). While there are very few projects within the City that have been approved (prior to Cityhood and/or by California Coastal Commission) with rooftop open space and landscaping to satisfy this provision, there is nothing in the LIP that would prohibit this approach. More recent commercial projects have been approved with a variance for the reduction of either landscaping or open

space. The proposed project does not include a variance for the reduction of landscaping or open space; however, it proposes to place approximately 22 percent of the required open space and landscaping on the rooftop.

The proposed project would not be able to provide the required 11,884 square feet of landscaping and open space on grade unless proposed on grade parking is eliminated. Eliminating on grade parking in front of the commercial office would negatively impact the viability of the project because visitors driving on Pacific Coast Highway (PCH) would have to slow to a pace in which they can read signage that would direct them to proceed to an adjacent driveway for 22741 PCH, an existing commercial office located north of the project site. In addition, the applicant has indicated that subterranean parking is not possible due to the high water table in the area. As designed, the proposed project would not be able to comply with LIP Section 3.8(A)(5)(b) without placing a portion of the required open space or landscaping on the rooftop or without a variance request.

Zoning (LIP Chapter 3)

Table 3 – Zoning Conformance (Commercial)			
Development Requirement	**Required/Allowed**	**Proposed**	**Comments**
SETBACKS			
Front Yard (20%)	24.32 feet minimum	57.16 feet	Complies
Rear Yard (15%)	*18.23 feet minimum*	*0 feet*	*VAR No. 10-006*
Side Yard (10% min.)	15 feet minimum	15 feet	Complies
Side Yard (15% min.)	22.5 feet minimum	22.5 feet	Complies
PROJECTION INTO YARDS	6 feet maximum into required yard	6 feet maximum into required (side) yard setback	Complies
PARKING REQUIREMENTS, IF USED AS			
General office, other business, technical service, administrative, or professional offices (1 space per 250 sq. ft. gross floor area)	10 off-street parking spaces minimum; 8 standard and 2 compact	22 off-street parking spaces; 18 standard, 3 compact, and 1 van-accessible	Complies
Dental and medical offices or other similar uses (1 space per 150 sq. ft. gross floor area)	17 off-street parking spaces; 14 standard and 3 compact	22 off-street parking spaces; 18 standard, 3 compact, and 1 van-accessible	Complies
General retail stores, except as otherwise provided in LIP Section	12 off-street parking spaces minimum; 10	22 off-street parking spaces; 18 standard, 3 compact, and 1 van-	Complies

3.12 (1 space per 225 sq. ft. gross floor area)	standard and 2 compact	accessible	
ADA Accessible (1-25 parking spaces must provide 1 van-accessible space)	1 van-accessible space	1 van-accessible space	Complies
Turning Radius	25 feet	25 feet	Complies
OPEN SPACE REQUIREMENT (25 %)	4,570.75 square feet minimum	4,571 square feet	Complies
LANDSCAPING REQUIREMENT (40 %)	7,313 square feet minimum	7,313 square feet	Complies
FLOOR AREA RATIO (.15)	.15 F.A.R. or 2,742.45 square feet maximum	.14 F.A.R. (.1367) or 2,499 square feet	Complies
HEIGHT	24 feet (flat) 28 feet (pitched)	24 feet (flat) 28 feet (pitched)	Complies
STRUCTURES ON SLOPES	*3 to 1 and less*	*Greater than 3 to 1 but less than 1 to 1*	VAR No. 10-005
FENCES/WALLS			
Retaining Walls	6 feet maximum	6 feet maximum	Complies
Front Yard Planters	42 inches solid, up to 6 feet visually permeable	42 inches solid, up to 6 feet visually permeable	Complies

The project proposes 2,499 square feet, which is 13.67 percent of the gross lot area and is below the permitted .15 F.A.R. The proposed structure is 24 feet maximum for areas with a flat roof and 28 feet maximum for areas with a pitched roof.

The parking areas and onsite circulation have been designed to allow easy and safe ingress and egress and provides the required 25 foot turn out radius pursuant to LIP Section 3.12.5(D)(1). The proposed project would maintain vehicular access to the parking spaces proposed at the front of the building via a curb cut on PCH. Additionally, landscaping with a minimum of 5 foot in width is proposed along the front property line to screen on-grade parking from view from PCH as required by LIP Section 3.12.5. The project proposes 13 parking spaces on grade, consisting of 10 standard spaces, two compact spaces, and one ADA van loading accessible space. The proposed project does not require a loading space because the proposed commercial office is less than 3,000 square feet.

As shown on Sheet A5 of the project plans, access to the rooftop parking lot is provided offsite, via an existing 24 foot wide driveway which serves 22741 PCH, a 10,320 square foot commercial office building located directly north of the project site. The driveway leads to the lower level parking area of 22741 PCH. The office building at 22741 PCH requires 42 parking spaces, three of which will be displaced by the construction of the

connector ramp. The project proposes 12 parking spaces on the rooftop, three of which will be reserved for operations at 22741 PCH. The project has been conditioned to require the submittal of a recorded easement that (1) provides for shared use of the existing access driveway; (2) permits the construction of the connector ramp across property lines; and (3) provides for the shared parking arrangement; prior to issuance of building permits.

Parking requirements are dependent on the use of the proposed structure. If the proposed structure is used for general office, 10 parking spaces are required. If the proposed structure is used for medical offices, 17 parking spaces are required. If the proposed structure is used for general retail (certain retail uses subject to approval of a CUP and more specific parking requirements), 12 parking spaces are required. The project includes 22 parking spaces, which comply with both uses. According to the California Building Code (CBC 2007 TAB 11B-6), one ADA van accessible parking space is required. The proposed project complies with this provision by providing one ADA van-accessible space on the ground level adjacent to an elevator.

Grading (LIP Chapter 8)

Pursuant to LIP Section 8.3, removal and recompaction, understructure and safety grading are considered exempt grading. The maximum quantity of non-exempt grading for commercially-zoned parcels is limited to 1,000 cubic yards per acre (total cut and fill). The project includes 1,370 total cubic yards of grading, all of which is exempt grading. The project includes 290 cubic yards of earth material proposed to be exported offsite. The project is consistent with the LCP's grading provisions.

Table 4 – LCP Grading Conformance

	Exempt**			Non-Exempt	Remedial	Total
	*R&R**	*Understructure*	*Safety****			
Cut	540	290	0	0	0	830
Fill	540	0	0	0	0	540
Total	1,080	290	0	0	0	0
Import	0	0	0	0	0	0
Export	0	290	0	0	0	290

Archaeological/Cultural Resources (LIP Chapter 11)

The Malibu City Cultural Resources Map indicates that the subject parcel has a low potential to contain archaeological or related resources; therefore, no additional archaeological study is required at this time. However, condition of approval pertaining to the protection of cultural resources have been including in Planning Commission Resolution No. 10-43. Should any potentially important cultural resources be found in the course of geologic testing or during construction, work shall immediately cease until

a qualified archaeologist can provide an evaluation of the nature and significance of the resources and until the Planning Manager can review this information.

LCP Findings

The proposed project has been reviewed for conformance with the LCP by Planning Division staff, City Biologist, City Environmental Health Administrator, City Geologist, City Public Works Department and the LACFD (Attachment 4). Staff has determined that, subject to the proposed conditions of approval, the project conforms to the LCP. The required findings are made below.

A. General Coastal Development Permit (LIP Chapter 13)

Pursuant to LIP Section 13.9, the following four findings need to be made for all CDPs.

Finding A1. That the project as described in the application and accompanying materials, as modified by any conditions of approval, conforms with the certified City of Malibu Local Coastal Program.

The proposed project has been reviewed for conformance with the LCP by the Planning Division, City Environmental Health Administrator, City Geologist, City Public Works Department, City Biologist, and the LACFD. The proposed project, as conditioned, conforms to the LCP in that it meets all commercial development standards as demonstrated by Table 3.

Finding A2. The project is located between the first public road and the sea. The project conforms to the public access and recreation policies of Chapter 3 of the Coastal Act of 1976 (commencing with Sections 30200 of the Public Resources Code).

The project site is not located between the first public road and the sea. The project conforms to the public access and recreation policies of Chapter 3 of the Coastal Act of 1976 (commencing with Section 30200 of the Public Resources Code).

Finding A3. The project is the least environmentally damaging alternative.

Pursuant to the California Environmentally Quality Act (CEQA), this project is listed among the classes of projects that have been determined not to have a significant adverse effect on the environment and is categorically exempt from CEQA. The proposed project allows for demolition of remnant structures at an abandoned gas station and the construction of a new 2,499 square foot commercial office building, which is a permitted use within the CC zoning classification of the subject property. The project will not result in potentially significant impacts on the physical environment.

Three alternatives were considered to determine which was the least environmentally damaging.

1. No Project – The no project alternative would avoid any change to the project site, and hence, any change to visual resources. The project site is zoned CC which allows commercial development. The no project alternative would not accomplish any of the project objectives; and therefore, is not viable. Furthermore, the existing abandoned gas station would remain as visual blight.

2. Remodel/Addition of Existing Structures – Existing onsite development could be remodeled, however, the existing convenience store and the pump station would not serve the purpose of a new commercial office building. It is not anticipated that a remodel and addition would offer any environmental advantages over the proposed project as the proposed project will not result in significant impacts on the environment.

3. Proposed Project – The project consists of the demolition of remnant structures associated with an abandoned gas station and the construction of a new 2,499 square foot commercial office building. The proposed project conforms to all commercial development criteria with the inclusion of the VAR and SPR requests, as demonstrated by Table 3. The project includes a new AOWTS to serve the new commercial office building, which will provide secondary and tertiary treatment. The proposed project also provides adequate parking spaces pursuant to LIP Section 3.12 and a safe ingress and egress circulation plan for vehicles.

The selected location has been reviewed and conditionally approved by the City Environmental Health Administrator, City Biologist, City Geologist, City Public Works Department, and the LACFD, and meets the City's commercial development policies. Therefore, the project, as proposed, is the least damaging alternative.

Finding A4. If the project is located in or adjacent to an environmentally sensitive habitat area pursuant to Chapter 4 of the Malibu LIP (ESHA Overlay), that the project conforms with the recommendations of the Environmental Review Board, or if it does not conform with the recommendations, findings explaining why it is not feasible to take the recommended action.

The subject parcel is not located in ESHA, an ESHA buffer zone or adjacent to any streams as designated in the LCP and does not require review by the ERB.

B. Site Plan Review for Construction in Excess of 18 Feet in Height (LIP Section 13.27.5)

LIP Section 13.27.5(A) requires that the City make four findings in the consideration and approval of a site plan review for construction in excess of the City's base 18 feet in

height up to a maximum of 28 feet with a pitched roof. Two additional findings are required pursuant to M.M.C. Section 17.62.050.

The applicant has proposed to construct a new, single-story, commercial office building that is 24 feet maximum for areas with a flat roof and 28 maximum for areas with a pitched roof. Pedestrian access to the rooftop parking is provided by a proposed elevator and stairway, both of which projects above the roof. However, due to the topography of the site; both the elevator and the stairway are under the permitted 28 foot pitched roof maximum height. The proposed roof-top parking lot is shielded from view by the 28 foot tall pitched roof parapet that acts as a screen. Based on the evidence in the record, the findings in support of SPR No. 10-012 are made as follows:

Finding B1. The project is consistent with policies and provisions of the Malibu LCP.

As discussed in Finding A1, the project has been reviewed for all relevant policies and provisions of the LCP. Based on submitted plans, reports, visual impact analysis, and detailed site investigation, it has been determined that the project is consistent with all policies and provisions of the LCP.

Finding B2. The project does not adversely affect neighborhood character.

As discussed in the City's General Plan, Land Use Element, "the stretch of PCH just west of Carbon Canyon Road through the Civic Center represents the commercial core/strip of the City." The proposed project is located within this area. The project site is surrounded by two fast food restaurants and two commercial buildings. Residential development is located within the project vicinity; however, it is located to the south across PCH and north at a higher elevation. Story poles were placed on the site in March 2010 to demonstrate the size, mass, and bulk of the proposed project. Story pole photographs are included as Attachment 7. The story poles demonstrated that the project is compatible with the commercial nature of the surrounding development. Therefore, the project does not adversely affect neighborhood character.

Finding B3. The project provides maximum feasible protection to significant public views as required by Chapter 6 of the Malibu LIP.

The California Department of Transportation (Caltrans) has officially designated PCH in the City of Malibu as an "eligible scenic highway." LIP Chapter 6 (Scenic, Visual and Hillside Resources) governs those CDP applications concerning any parcel of land that is located along, within, provide views to or is visible from any scenic area, scenic road or public viewing area. LIP Chapter 6 contains specific design standards for new development in scenic areas and the proposed project has been designed to adhere to this criteria.

In particular, LIP Section 6.5(H)(1) states that the PCH corridor "shall be protected as a scenic highway and significant viewshed by requiring that development conform to the following standards:

a) *Landscaping improvements, including plantings, may be permitted along PCH. Any proposed landscaping shall be comprised of primarily drought tolerant plant species. Landscaping shall be designed and maintained to be subordinate to the character of the area, and not block ocean or mountain views at maturity.*

   While some vegetation may be removed as necessary for construction, replacement would occur resulting in more landscaping than in the pre-project condition. The proposed landscaping will not block ocean or mountain views at maturity due to the proposed placement and location of the landscaping. Additionally, conditions of approval regarding maximum height of landscaping have been included in the resolution to restrict landscaping along the front property line to be no more than 42 inches tall and to restrict landscaping from exceeding the roofline.

b) *New commercial development that includes a parking lot visible from PCH shall include landscaping and/or berming to screen the view, so long as measures do not obscure or block views of the ocean.*

   In accordance with the LIP Section 6.5(H)(1)(B), the rooftop parking lot, which would be visible from PCH, is proposed to be screened from view by a sloping roof eave. The proposed parking area located on the ground floor in front of the commercial office is screened from view by proposed planters and landscaping (not to exceed 42 inches) located along the front property line.

c) *Any telecommunications facilities approved along PCH shall place support facilities underground, where feasible. New transmission lines shall be sited and designed to be located underground, except where it would present or contribute to geological hazards. Existing transmission lines should be relocated underground when they are replaced or when funding for undergrounding is available.*

   The project has been conditioned to underground any new facilities along PCH and underground transmission line should they be replaced or when funding is available.

In this area of PCH, the scenic resources are the ocean to the south, and the mountains to the north of the site which are located at a higher elevation than the project site and blocked from view by existing development. The project site is located on the north side

of PCH, and thus, would not interfere with any views of the ocean from PCH. The proposed development is not anticipated to impede significant public views due to existing development located directly north of the proposed project site. The proposed project is not visible from the Malibu Pier.

The project also includes a variance to site the structure adjacent to the rear property line. The proposed siting would allow development to be sited away from PCH and closer to existing commercial development in the rear. When viewing the project area from PCH, the proposed development does not block any visually impressive views or scenic vistas of the Santa Monica Mountains or Pacific Ocean.

The project would add additional vegetation to the site along the perimeter of the project site, adding a beneficial scenic element to the development. A condition of approval will be added that requires all vegetation to be situated on the property so as not to significantly obstruct the primary view from private property at any given time (given consideration of its future growth). Additionally, in accordance with LIP Section 6.5, "standard conditions" of approval are required to ensure that the proposed design and materials of the development will avoid impact to scenic resources to the extent feasible. With implementation of standard conditions of approval, the project would have less than significant impacts to scenic vistas and provides the maximum feasible protection to significant public views as required by LIP Chapter 6.

Finding B4. The proposed project complies with all applicable requirements of state and local law.

The proposed project will comply with all applicable requirements of State and local law and is conditioned to comply with any relevant approvals, permits and licenses from the City of Malibu and other related agencies, such as the Regional Water Quality Control Board (RWQCB), and the LACFD.

Finding B5. The project is consistent with the City's general plan and local coastal program.

As discussed in Finding A1, the proposed project is consistent with the LCP in that the proposed project is located in an area that has been identified for commercial use. As discussed in Finding B2, the proposed project is located within a strip of commercial properties intended for commercial use and the project is consistent with land use designated for this area in the General Plan. The proposed project is consistent with the LCP in that it conforms to the commercial land use designation.

Finding B6. The portion of the project that is in excess of 18 feet in height does not obstruct visually impressive scenes of the Pacific Ocean, off-shore islands, Santa Monica Mountains, canyons, valleys, or ravines from the main viewing area of any affected principal residence as defined in M.M.C. Section 17.40.040(A)(17).

Based on the visual impact analysis (aerial photographs, site visits and story poles), it has been determined that the proposed development does not impact the primary view of neighboring residential properties. The proposed project is located at a lower elevation than the residential properties located north of the property on a hill. Primary views of residential properties located across PCH are oriented south, away from the project site and toward the Pacific Ocean. Story poles were placed on the site to demonstrate the maximum height of the proposed structures and to assess the visual impact of the proposed development on public and private views. Courtesy notices of application were sent to properties within a 500 foot radius of the subject property. No comments from the public were received regarding primary views.

C. Variance for Construction on Slopes Greater Than 2½ to 1 - (LIP Section 13.26)

The applicant is requesting a variance to LIP Section 13.27.1(A)(4) which allows for construction on slopes greater than 3 to 1 but less than 2½ to 1 with a SPR. The proposed project includes construction on 1½ to 1 slopes. Pursuant to LIP Section 13.26.5, the Planning Commission may approve and/or modify an application for a variance in whole or in part, with or without conditions, provided that it makes ten findings of fact. Based on the evidence in the record, the findings in support of VAR No. 10-005 are made as follows.

Finding C1. There are special circumstances or exceptional characteristics applicable to the subject property, including size, shape, topography, location, or surroundings such that strict application of the zoning ordinance deprives such property of privileges enjoyed by other property in the vicinity and under the identical zoning classification.

The rear portion of the project site is dominated by manufactured slopes that were created when the commercial property at 22741 PCH (directly north of the project site) was constructed. Currently[1], the City does not differentiate between slopes created by natural processes and those previously manufactured in accordance with recommendations of a geotechnical engineer and permitted by a regulatory agency. All slopes, regardless if they are natural or manufactured, are subject to the same development requirements.

Granting of such variance would allow the proposed commercial office building to be sited on manufactured slopes that were created previously during construction. The proposed building pad location is set back from PCH and would result in less significant impacts to scenic visual resources than if the structure was to be located near the front property line. There are special circumstances applicable to the subject property that

[1] On August 10, 2009, City Council adopted Ordinance No. 339, approving a Zoning Text Amendment (ZTA) and a Local Coastal Program Amendment (LCPA) which modified the language in the M.M.C. and LCP to differentiate between "natural" slopes and "manufactured" slopes. However, Ordinance No. 339 is not effective until the LCPA is certified by the California Coastal Commission (CCC). Staff is preparing the LCPA for submittal to CCC for certification.

strict application of the zoning ordinance deprives the subject property of privileges enjoyed by other properties in the vicinity and under the same zoning designation.

Finding C2. The granting of such variance will not be detrimental to the public interest, safety, health or welfare, and will not be detrimental or injurious to the property or improvements in the same vicinity and zone(s) in which the property is located.

The project will meet all applicable building and engineering safety codes and will not be detrimental to the public's interest, safety, health or welfare. Only a portion of the proposed structure will be located on manufactured slopes; the remaining portion of the proposed structure will be located on slopes 3 to 1 or flatter. The project will not be detrimental to other properties or improvements in the same vicinity and zone.

The proposed project has been reviewed and approved by the City Biologist, City Environmental Health Administrator, City Geologist, City Public Works Department, and the LACFD. The project, as proposed or conditioned, was found to be consistent with applicable City goals and policies.

Finding C3. The granting of the variance will not constitute a special privilege to the applicant or property owner.

As discussed in Finding C1, granting the variance will not constitute a special privilege to the applicant or property owner because there are special circumstances on the project site that strict application of the zoning ordinance would deprive the property to be developed similarly to other properties within the vicinity and under the same zoning designation.

Finding C4. The granting of such variance will not be contrary to or in conflict with the general purposes and intent of this Chapter, nor to the goals, objectives and policies of the LCP.

The granting of the variance is not contrary to or in conflict with the general purposes or intent of the zoning provisions nor contrary to or in conflict with the goals, objectives and policies of the LCP. As discussed in Finding C1, granting the requested variance will allow the subject property to be developed in a way that allows for construction of a new commercial office building.

Finding C5. For variances to environmentally sensitive habitat area buffer standards or other environmentally sensitive habitat area protection standards, that there is no other feasible alternative for siting the structure and that the development does not exceed the limits on allowable development area set forth in Section 4.7 of the Malibu LIP.

The proposed variance does not propose the reduction of ESHA protection standards. Therefore, this finding is not applicable.

Finding C6. For variances to stringline standards, that the project provides maximum feasible protection to public access as required by Chapter 2 of the Malibu LIP.

The proposed variance is not associated with stringline standards. Therefore, this finding is not applicable.

Finding C7. The variance request is consistent with the purpose and intent of the zone(s) in which the site is located. A variance shall not be granted for a use or activity which is not otherwise expressly authorized by the zone regulation governing the parcel of property.

The requested variance is for relief from a specific development standard and does not authorize a use or activity not otherwise permitted in the CC zoning district. The requested variance is for the development of a commercial office building, which is an allowed use in the CC zoning district.

Finding C8. The subject site is physically suitable for the proposed variance.

Granting of the variance will allow construction of a new commercial office building on the project site. The proposed project, including building pad location, has been reviewed and approved by the City Biologist, City Environmental Health Administrator, City Geologist, City Public Works Department, and the LACFD as being physically suitable for the proposed variance. Additionally, the project will be required to satisfy all Building and Safety standards in the Building Plan Check process.

Finding C9. The variance complies with all requirements of state and local law.

The proposed project will comply with all applicable requirements of State and local law and is conditioned to comply with any relevant approvals, permits and licenses from the City of Malibu and other related agencies, such as the RWQCB and the LACFD.

Finding C10. A variance shall not be granted that would allow reduction or elimination of public parking for access to the beach, public trails or parklands.

The proposed project does not include any reduction or elimination of public parking for access to the beach, public trails or parklands.

D. Variance for Reduction of the Required Rear Yard Setback - (LIP Section 13.26)

The majority of the proposed structure is located 14.6 feet from the rear property line (a 20 percent reduction of the required rear yard setback that may be permitted with a minor modification pursuant to LIP Section 13.26); however, a portion of the project (connector ramp and stairway from the ground floor to the rooftop parking level) are

located beyond what is permitted with a minor modification. Therefore, a variance is requested.

Pursuant to LIP Section 13.26.5, the Planning Commission may approve and/or modify an application for a variance in whole or in part, with or without conditions, provided that it makes ten findings of fact. The applicant is requesting a variance to LIP Section 3.8(2)(B) which requires a rear yard setback of 18.23 feet. The project proposes a zero setback in order to construct a rooftop ramp across property line to connect the proposed rooftop parking area to the lower level of an existing parking area of a commercial office building located north of the project site at 22741 PCH. The project has been conditioned so that construction of the connector ramp shall not commence until evidence of a recorded easement allowing the ramp to cross property lines has been submitted to staff. Based on the evidence in the record, the findings in support of VAR No. 10-007 are made as follows:

Finding D1. There are special circumstances or exceptional characteristics applicable to the subject property, including size, shape, topography, location, or surroundings such that strict application of the zoning ordinance deprives such property of privileges enjoyed by other property in the vicinity and under the identical zoning classification.

Pursuant to LIP Section 3.3, newly created parcels in the CC zone should have a minimum lot size of five acres or 217,800 square feet and a minimum lot depth of 500 feet. The project site is .42 acres in size or 18,283 square feet and has a lot depth of 121 feet, 7 inches, which is substantially smaller than what a parcel in the CC zone was intended to be. The project proposes a 2,499 square foot commercial building which is less than the maximum .15 F.A.R. permitted on the property. Of the 18,282 square feet, 2,499 square feet is proposed for the commercial office building, 5,836 square feet is proposed to be landscaping, 3,384 square feet is proposed to be open space, and the remainder 6,563 square feet is proposed for parking spaces, vehicular access, and a trash enclosure.

Due to the relatively small size and narrow lot depth of the parcel, the project would not be able to meet the required 65 percent of open space and landscaping without utilizing the rooftop parking area unless on grade parking is eliminated. Eliminating on-grade parking in front of the commercial office would negatively impact the viability of the proposed commercial office. Without parking located in front of the proposed commercial office, visitors traveling on PCH would have to slow a pace that would allow them to read signage directing them to park on the rooftop via an existing driveway serving 22741 PCH. The project proposes 13 on grade parking spaces; hence eliminating the need for visitors to slow to a pace on PCH that may poise a public safety hazard.

Furthermore, the proposed commercial office could be located as close as 24 feet, 7 inches from PCH, which would result in the proposed project having a significant visual

impact on the scenic highway. Granting of the variance would allow the proposed structure to be set back from PCH and allow on-grade parking for safe and easy ingress and egress.

Finding D2. The granting of such variance will not be detrimental to the public interest, safety, health or welfare, and will not be detrimental or injurious to the property or improvements in the same vicinity and zone(s) in which the property is located.

The project will meet all applicable building and engineering safety codes and will not be detrimental to the public's interest, safety, health or welfare. Granting of such variance would allow the proposed structure is set back from PCH and abuts an existing commercial office building near the rear property line, minimizing impacts to scenic, visual resources when viewed from PCH. Granting of the variance would also allow the proposed parking area on grade to provide sufficient turn out radius for safe vehicular maneuvering.

The proposed project has been reviewed and approved by the City Biologist, City Environmental Health Administrator, City Geologist, City Public Works Department and the LACFD. The project, as proposed or conditioned, was found to be consistent with applicable City goals and policies.

Finding D3. The granting of the variance will not constitute a special privilege to the applicant or property owner.

Granting of the variance will not constitute a special privilege to the applicant or property owner because the granting of this variance will allow the proposed commercial office building to be located away from PCH which would minimize impact on scenic resources. Granting of the variance will also allow safe maneuvering of vehicles in the proposed parking lot. The proposed project utilizes the entire site to comply with landscaping, open space, and parking standards; therefore granting of the variance will not constitute a special privilege.

Finding D4. The granting of such variance will not be contrary to or in conflict with the general purposes and intent of this Chapter, nor to the goals, objectives and policies of the LCP.

The granting of the variance is not contrary to or in conflict with the general purposes or intent of the zoning provisions, nor contrary to or in conflict with the goals, objectives and policies of the LCP. As discussed in Finding D1, granting the requested variance will allow the proposed project to be set away from PCH, a designated scenic highway and allow safe maneuvering of vehicles.

Finding D5. For variances to environmentally sensitive habitat area buffer standards or other environmentally sensitive habitat area protection standards, that there is no other

feasible alternative for siting the structure and that the development does not exceed the limits on allowable development area set forth in Section 4.7 of the Malibu LIP.

The proposed variance does not pertain to ESHA buffer standards; therefore, this finding is not applicable.

Finding D6. For variances to stringline standards, that the project provides maximum feasible protection to public access as required by Chapter 2 of the Malibu LIP.

The proposed variance is not associated with stringline standards. Therefore, this finding is not applicable.

Finding D7. The variance request is consistent with the purpose and intent of the zone(s) in which the site is located. A variance shall not be granted for a use or activity which is not otherwise expressly authorized by the zone regulation governing the parcel of property.

The requested variance is for relief from a specific development standard and does not authorize a use or activity not otherwise permitted in the CC zoning district. The proposed project is for the construction of a new commercial office building which is an allowed use in the CC zoning district.

Finding D8. The subject site is physically suitable for the proposed variance.

The project has been conditioned so that construction of the connector ramp shall not commence until evidence of a recorded easement allowing the ramp to cross property lines and shared access to the rooftop parking lot has been submitted to staff. The proposed project, including project location, has been reviewed and approved by the City Biologist, City Environmental Health Administrator, City Geologist, City Public Works Department and the LACFD as being physically suitable for the proposed variance. Additionally, the project will be required to satisfy all Building and Safety standards in the Building Plan Check process. The subject site is physically suitable for the proposed variance.

Finding D9. The variance complies with all requirements of state and local law.

As discussed in Finding C9, the project, including the variance request, complies with all requirements of state and local law.

Finding D10. A variance shall not be granted that would allow reduction or elimination of public parking for access to the beach, public trails or parklands.

The proposed project does not include any reduction or elimination of public parking for access to the beach, public trails or parklands.

E. Environmentally Sensitive Habitat Area Overlay (LIP Chapter 4)

The project site does not contain ESHA; therefore, the findings in LIP Chapter 4 are not applicable.

F. Native Tree Protection (LIP Chapter 5)

No native trees are proposed to be removed as part of the project scope of work. Therefore, the findings in LIP Chapter 5 are not applicable.

G. Scenic, Visual and Hillside Resource Protection Chapter (LIP Chapter 6)

The Scenic, Visual, and Hillside Resource Protection Chapter governs those CDP applications concerning any parcel of land that is located along, within, provide views to or is visible from any scenic area, scenic road or public viewing area. Story poles were placed on the site in March 2010. Based on site visits, aerial photographs, and review of the visual analysis in the record, it has been determined that the subject site is visible from PCH, a designated scenic highway.

However, the proposed development is not anticipated to impact significant public views because it is located on the inland side of PCH. Public scenic views of the ocean are oriented to the south, away from the proposed project. The proposed project will not block scenic impressive views of Santa Monica Mountains as existing commercial development surrounds the project site. Nonetheless, LIP Chapter 6 applies and the five findings set forth in LIP Section 6.4 are made as follows.

Finding G1. The project, as proposed, will have no significant adverse scenic or visual impacts due to project design, location on the site or other reasons.

Story poles were placed on the site to aid in the completion of a visual analysis of public view impacts. The proposed commercial office building is set back from PCH and located near the rear property line, in close proximity to an existing commercial office building at a higher elevation. Due to the existing commercial office building located directly north of the project site, the proposed project will not impact scenic views of the Santa Monica Mountains to the north. Scenic views of ocean are oriented to the south of PCH and the project site is located north of PCH. The project, as proposed, will not have significant adverse scenic or visual impacts due to the project design and location on the site.

Finding G2. The project, as conditioned, will not have significant adverse scenic or visual impacts due to required project modifications, landscaping or other conditions.

As discussed in Finding G1, the project, as conditioned, will not have significant adverse scenic or visual impacts due to the location of proposed structure in relations to existing

development. Conditions of approval have been included in Planning Commission Resolution No. 10-43 to require building material and colors to be compatible with the surrounding environment and restrictions on lighting. The project also proposes approximately 4,163 square feet of new landscaping onsite to minimize adverse scenic or visual impacts when viewed from PCH.

Finding G3. The project, as proposed or as conditioned, is the least environmentally damaging alternative.

As discussed in Finding A3, the proposed development is the least environmentally damaging alternative.

Finding G4. There are no feasible alternatives to development that would avoid or substantially lessen any significant adverse impacts on scenic and visual resources.

As previously discussed in Findings A3 and G3, the project, as proposed and conditioned, is the most feasible design to avoid adverse significant impacts on scenic or visual resources. The proposed project is sited away from PCH and located within other commercially developed properties.

Finding G5. Development in a specific location on the site may have adverse scenic and visual impacts but will eliminate, minimize or otherwise contribute to conformance to sensitive resource protection policies contained in the certified LCP.

The project, as proposed, does not have the potential to significantly degrade the quality of the environment, nor does it have impacts which are individually limited but cumulatively considerable, because the nature of the development will remain consistent with the LCP. The project's use is consistent with its LCP zoning.

H. Transfer of Development Credit (LIP Chapter 7)

Pursuant to LIP Section 7.2, the transfer of development credits only applies to land divisions and/or new multi-family development in specified zoning districts. The proposed CDP does not involve a land division or multi-family development. Therefore, LIP Chapter 7 does not apply.

I. Hazards (LIP Chapter 9)

Pursuant to LIP Section 9.3, written findings of fact, analysis and conclusions addressing geologic, flood, and fire hazards, structural integrity or other potential hazard must be included in support of all approvals, denials or conditional approvals of development located on a site or in an area where it is determined that the proposed project causes the potential to create adverse impacts upon site stability or structural integrity.

The applicant submitted a series of geologic reports with subsequent supplemental and addendum reports, all of which have been reviewed by the City Geologist for the hazards listed in LIP Section 9.2(A)(1-7). In addition, the project has been routed to the City's Environmental Assessment consultant for review. Staff's analysis also included review of the City of Malibu General Plan and review of the hazards designation in the City of Malibu's Geographic Information System (GIS).

The vast amount of geologic information obtained on the subject property has been reviewed in its entirety by the City Geologist whose professional opinions are based on the sum of this data. The City Geologist reviewed the project and associated technical submittals and approved the project in concept, subject to conditions. All recommendations of the consulting Certified Engineering Geologist or Geotechnical Engineer and/or the City Geologist shall be incorporated into all final design and construction including foundations, grading, sewage disposal, and drainage. Final plans shall be reviewed and approved by the City Geologist prior to the issuance of a grading permit

Faulting

According to the Geotechnical Investigation Report prepared by Stratum Geotechnical Consultants on October 8, 2007, "no active faults have been mapped traversing through the building site. However, the entire Southern California is, seismically active with numerous faults capable of causing ground shaking at the site." As indicated in the City of Malibu General Plan, Safety and Health Element, "there are numerous faults surrounding and traversing the Malibu area including the Malibu Coast Fault, the Santa Monica Fault, the Los Flores Reverse Fault and the Anacapa Fault." Each of these faults "may generate strong ground shaking impacting the Malibu area". Alleviation of ground-shaking effects is provided through enforcement of structural and nonstructural seismic design provisions defined in the Uniform Building Code. Application of these design provisions to the proposed project would minimize potential effects of ground shaking to a level considered less than significant.

Liquefaction

The Malibu General Plan, Safety and Health Element, states that "liquefaction and subsidence is a process by which water-saturated sediment suddenly loses strength, which commonly accompanies strong ground motions caused by earthquakes." During an extended period of ground shaking or dynamic loading, porewater pressures increase and the ground is temporarily altered from a solid to a liquid state. Liquefaction is most likely to occur in unconsolidated, sandy sediments, which are water-saturated within less than 50 feet of the ground surface. Few areas of significant liquefaction susceptibility exist in the City of Malibu. These few areas are located along the beaches and in the flood plains of the major streams, such as Malibu Creek. A liquefaction analysis was performed, which concluded that post-liquefaction settlement is estimate to be less than 3 inches. The foundation design will mitigate the effects of liquefaction.

Landslide

The potential for landslides is virtually non-existent due to the relatively flat topography of the project area. Landslides are not identified as a site concern in the geotechnical reports completed for the subject property.

Flood

According to the Flood Insurance Rate (FIRM) Map Panel No. 1541F, the project site is not located within the 100 year FEMA flood zone.

Fire Hazard

The entire city limits of Malibu are located within the fire hazard zone. The City is served by the LACFD, as well as the California Department of Forestry, if needed. In the event of major fires, the County has mutual aid agreements with cities and counties throughout the state so that additional personnel and firefighting equipment can augment the LACFD. As such, the proposed project as conditioned will not be subject to nor increase the instability of the site or structural integrity involving wild fire hazards.

Nonetheless, conditions of approval have been included in Planning Commission Resolution No. 10-43 which require that the property owner indemnify and hold harmless the City, its officers, agents, and employees against any and all claims, demands, damages, costs, and expenses of liability arising out of the acquisition, design, construction, operation, maintenance, existence, or failure of the permitted project in an area where an extraordinary potential for damage or destruction from development on a beach and wildfire exists as an inherent risk to life and property.

Petroleum Contamination

The project was referred to the City's Environmental Assessment consultant, Cotton, Shires and Associates. In May 2005, the California Regional Water Quality Control Board (RWQCB) confirmed that the underground storage tanks have been removed. The following documents, including reports prepared by Wayne Perry Inc, the project Environmental Remediation and Construction consultant, were routed to the City's Environmental Assessment consultant for review:

- Evaluation of Closure Conditions, 22729 PCH, Malibu, Wayne Perry, Inc., August 6, 2009;
- Site Assessment Report, 22729 PCH, Sea View Terrace Property, Wayne Perry Inc., August 20, 2009;
- Underground Storage Tank Removal and Soil Sampling Report, Former Shell Service Station, 22729 PCH, Wayne Perry, Inc., July 9, 2002;
- Underground Storage Tank (UST) Program – Case Closure Letter, California Regional Water Quality Control Board, May 23, 2005 (Attachment 5); and
- Geotechnical reports prepared by Stratum Geotechnical Consultants, October 2007 and November 2007.

According to a Memorandum prepared by Cotton, Shire and Associates on December 8, 2009 (Attachment 6), based on the listed reports and follow-up conversations with the project consultant, the project has "adequately addressed" any concerns regarding petroleum contamination. Additionally, the project consultant concluded "that there is no gross petroleum fuel contaminants on the site that are associated with historic gasoline station operations" in response to the City Environmental Assessment consultant request for clarification. The City Environmental Assessment consultant recommended the following conditions to be included as conditions of approval:

1. During demolition and construction, the project engineer shall direct crews to monitor excavated soil and/or waters (surface water or groundwater) for stain, odor or other indicators of impacted media;
2. If, during demolition, construction or any later phase, stained or odorous soil or waters (surface water or groundwater) are detected, the applicant shall provide the following to the City:
   a. Non-emergency notification that stained or odorous soil or water (surface water or groundwater) has been detected;
   b. Plan to address the further assessment of the extent of impacted media;
   c. Contingency plans to address the possible impacts to site works or the public;
   d. Plan for legal profiling, transportation and disposal at an offsite location; and
   e. Notification of other agencies (e.g. RWQCB, LACFD, Department of Toxic Substance Control, etc.).

The project will incorporate all recommendations contained in the above cited geotechnical reports on file with the City and conditions required by the City Geologist, City Environmental Assessment consultant and the LACFD. As such, the proposed project will not increase instability of the site or structural integrity from geologic, flood or any other hazards. Final plans shall be reviewed and approved by the City Geologist prior to the issuance of a building permit.

Based on the evidence in the record, the findings of fact are made as follows:

Finding I1. The project, as proposed will neither be subject to nor increase instability of the site or structural integrity from geologic, flood, or fire hazards due to project design, location on the site or other reasons.

The project will incorporate all recommendations contained in the geotechnical reports prepared by Stratum Geotechnical Consultant, Wayne Perry Environmental Remediation and Construction consultant, City Environmental Assessment consultant, and the City Geologist. As such, the proposed project will neither be subject to nor increase instability of the site or structural integrity from geologic, flood, fire or any other hazards.

Project was never constructed, so this never took place.

Finding I2. The project, as conditioned, will not have significant adverse impacts on site stability or structural integrity from geologic, flood or fire hazards due to required project modifications, landscaping or other conditions.

The proposed project will comply with all applicable requirements of State and local law and is conditioned to comply with any relevant approvals, permits and licenses from the City of Malibu and other related agencies, such as the RWQCB and LACFD.

Finding I3. The project, as proposed or as conditioned, is the least environmentally damaging alternative.

As discussed in Finding A3, the proposed project is the least environmentally damaging alternative.

Finding I4. There are no alternatives to development that would avoid or substantially lessen impacts on site stability or structural integrity.

The project site is subject to seismic activity and liquefaction, however, with the recommended engineering techniques, the appropriate factors of safety can be met. Additionally, conditions of approval have been incorporated in Planning Commission Resolution No. 10-43 to ensure petroleum contamination of the project site does not exist. There are no alternatives that would avoid or substantially lessen impacts on site stability or structural integrity.

Finding I5. Development in a specific location on the site may have adverse impacts but will eliminate, minimize or otherwise contribute to conformance to sensitive resource protection policies contained in the certified Malibu LCP.

As stated in Findings I1 and I4, the proposed project as designed and conditioned, will have no significant adverse impacts on site stability, structural integrity or sensitive resources. Therefore, no adverse impacts are anticipated to result from hazards or conflict with sensitive resource protection policies contained in the LCP.

J. Shoreline and Bluff Development (LIP Chapter 10)

The project is not located on a shoreline or bluff. Therefore, the findings from LIP Section 10.3 are not applicable.

K. Public Access (LIP Chapter 12)

The project is not located between the first public road and the ocean, near any trails, or other designated recreation area; therefore, the findings in LIP Chapter 12 are not applicable.

L. Land Division (LIP Chapter 15)

This project does not involve a division of land as defined in LIP Section 15.1; therefore, this section does not apply.

M. Onsite Wastewater Treatment System (LIP Chapter 18)

LIP Chapter 18 addresses OWTS. LIP Section 18.7 includes specific siting, design and performance requirements. The project includes an AOWTS to replace an existing OWTS, which has been reviewed by the City Environmental Health Administrator and found to meet the minimum requirements of the Malibu Plumbing Code, the M.M.C. and the LCP. The subject system will meet all applicable requirements and operating permits will be required. The project will include a 2000 gallon Jensen primary tank, a 1,500 gallon Septitech gallon processor tank, an ultra violet disinfection system, and two leach fields. The new AOWTS will provide the proposed development with secondary and tertiary treatment.

An operation and maintenance contract and recorded covenant covering such must be in compliance with City of Malibu Environmental Health requirements. Conditions of approval have been included in Planning Commission Resolution No. 10-43 which require continued operation, maintenance and monitoring of onsite facilities.

M.M.C. Findings

N. Conditional Use Permit to Allow for the New Construction of 500 square feet or more to a New Commercial Use (M.M.C. Section 17.66.080)

The applicant has requested a CUP for the construction of over 500 square feet of commercial space. Pursuant to M.M.C. Section 17.66.080, the Planning Commission may approve, deny and/or modify an application for a CUP in whole or in part, with or without conditions, provided that it makes all of the following findings of fact. Based on the evidence within the record, the findings of fact for CUP No. 10-003 are made as follows:

Finding N1. The proposed use is one that is conditionally permitted within the subject zone and complies with the intent of all of the applicable provisions of Title 17 of the Malibu Municipal Code.

Pursuant to M.M.C. Section 17.22.040, any permitted use involving new construction or expansion over 500 square feet, is a conditionally permitted use with the CC zone. The project has been conditioned to comply with all applicable provisions of the M.M.C.

Finding N2. The proposed use would not impair the integrity and character of the zoning district in which it is located.

As discussed in Finding N1, the proposed office building square footage is conditionally permitted within the CC zoning designation. The proposed use will be within "the stretch of PCH just west of Carbon Canyon Road through the Civic Center" identified in the City's General Plan, Land Use Element, as the "commercial core/strip of the City." The proposed project would not impair the integrity and character of the zoning district in which it is located. The proposed commercial office building complies with the maximum F.A.R. allowed onsite.

Finding N3. The subject site is physically suitable for the type of land use being proposed.

The proposed project has been reviewed by the appropriate City agencies and the LACFD. As conditioned, the subject site is physically suitable for the proposed use and the project has been determined to be in conformance with the applicable development standards for the parcel.

Finding N4. The proposed use is compatible with the land uses presently on the subject property and in the surrounding neighborhood.

The land uses presently on the project site include an abandoned gas station and a hand carwash operation. The carwash operation will be removed prior to construction of the proposed commercial office building. Surrounding development includes fast food restaurants, commercial offices, a hotel and other commercial operations. The proposed use is compatible with the land uses presently on the subject property and in the surrounding neighborhood.

Finding N5. The proposed use would be compatible with existing and future land uses within the zoning district and the general area in which the proposed use is to be located.

As discussed in Findings N2 and N4, the proposed use would be compatible with existing and future land uses within the zoning district.

Finding N6. There would be adequate provisions for water, sanitation, and public utilities and services to ensure that the proposed use would not be detrimental to public health and safety and the project does not affect solar access or adversely impact existing public and private views, as defined by the staff.

The applicant has submitted a Will Serve Letter from the Los Angeles County Waterworks District 29 which has confirmed water will be provided to the subject property. The project also includes the installation of a new AOWTS to serve the proposed commercial office building. Additionally, because the proposed structure is set back from PCH and located at a lower elevation than residential properties constructed on the hillside in the north, it is not anticipated that the project will not impact solar

access. As described in Section B of this report, the structure will not negatively impact or public and private views.

Finding N7. There would be adequate provisions for public access to serve the subject proposal.

Adequate provisions for public access to serve the site are included in the project proposal. Access to the proposed office building is provided via a curb cut on PCH and through a connector ramp which connects the proposed structure to an existing commercial office building at 22741 PCH. Additionally, the project includes two ADA accessible parking spaces onsite.

Finding N8. The proposed use is consistent with the goals, objectives, policies, and general land uses of the General Plan.

As discussed in Finding O2, the proposed use is consistent with the goals, objectives, policies, and general land uses of the General Plan.

Finding N9. The proposed project complies with all applicable requirements of state and local law.

As discussed in Findings C9, D9, and E9, the proposed project will comply with all applicable requirements of State and local law.

Finding N10. The proposed use would not be detrimental to the public interest, health, safety, convenience or welfare.

As discussed in Findings C2, D2, and E2, the proposed project would not be detrimental to the public interest, health, safety, convenience or welfare.

Finding N11. If the project is located in an area determined by the City to be at risk from earth movement, flooding or liquefaction, there is clear and compelling evidence that the proposed development is not at risk from these hazards.

As discussed in detail in Section I of this agenda report, there is evidence that the proposed development is not at risk from earth movement, flooding or liquefaction.

O. Demolition Permit (M.M.C. Section 17.70.060)

M.M.C. Section 17.70.060 requires that a demolition permit be issued for projects that result in the demolition of any building or structure. The project proposes the demolition of an existing single-family residence and detached garage. The findings for DP No. 08-014 are made as follows.

Finding O1. The demolition permit is conditioned to assure that it will be conducted in a manner that will not create significant adverse environmental impacts.

Conditions of approval included in Planning Commission Resolution No. 10-43 will ensure that the project will not create significant adverse environmental impacts.

Finding O2. A development plan has been approved or the requirement waived by the City.

A CDP application is being processed concurrently with DP No. 08-014. Therefore, approval of the DP is subject to the approval of CDP No. 08-055.

ENVIRONMENTAL REVIEW:

CEQA Evaluation

Pursuant to the authority and criteria contained in CEQA, the Planning Division has analyzed the proposal as described above. The Planning Division has found this project listed among the classes of projects determined to have less than significant adverse effect on the environment and therefore, exempt from the provisions of CEQA. Accordingly, a CATEGORICAL EXEMPTION will be prepared pursuant to CEQA Guidelines 15301(l)(3) – Existing Facilities and 15303(c) – New Construction or Conversion of Small Structures. The Planning Division further determined none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines Section 15300.2).

Environmental Review Board

The project was not required to be reviewed by the ERB because the subject parcel is not located in ESHA, an ESHA buffer zone or adjacent to any streams as designated in the LCP.

CORRESPONDENCE: To date, staff has received two items of written correspondence regarding the subject application, a letter from the California Department of Transportation (Caltrans) and a letter from a Planning Commissioner requesting clarification after reviewing the agenda report prepared for the May 18, 2010 meeting (Attachment 8). Staff also spoke to an interested member of the public on the phone who wanted to know whether the project could be restricted to eliminate compact parking spaces and be conditioned to provide only standard parking spaces. Staff explained that the project provides adequate parking spaces without including any compact parking spaces.

The letter from the Caltrans conveyed several issues, including requiring the applicant to (1) obtain an encroachment permit from Caltrans prior to commencement of any work in

the State right-of-way, (2) submit a construction management plan, (3) obtain a Caltrans Transportation Permit should any oversized vehicle be required during construction, and (4) provide for stormwater run-off prevention. These issues have all been included as conditions of approval in Section 5 of the Planning Commission Resolution No. 10-43.

The electronic mail from Commission Mazza included the following questions. Staff response is provided immediately following each question.

1. *Rear yard setback. LIP 3.8.A.2.c states "Rear yard setback SHALL be at least 15 feet whichever is greater" Other provisions of that chapter allow variances but I cannot find a provision for variance on the rear yard setback for commercial.*

Staff response: A variance may be requested for relief from a specific development standard. LIP Section 13.26 states that "the purpose of this section is to provide a mechasim for applicants to make an application for a coastal development permit variance from standards or requirements of the Malibu LIP and to provide specific findings for approval or denial or variances."

2. *F.A.R. calculation states that the structure is 2499 sq ft which does not seem to jive with other calculations.*
   A. The roof structure (not counting the ramp) is approximately 112 1/2 ft by 65 ft or 7312 sq ft which is approximately three times the size of the building. This does not count an additional 6 ft overhang around the whole roof structure. Is it a parking structure or an office building? It appears that about half of the property is under roof or ramp.
   B. There is an interior hallway between what appears to be two structures with the same roof structure that was not counted in the TDSF. The City Council, when considering the appeal on 24903 PCH (office building) determined that such an interior hallway MUST be considered in the TDSF and sent the project back for redesign.
   C. It appears that none of the overhangs were counted in TDSF

Staff response: Staff calculated the proposed F.A.R. using the definition provided in LIP Section 2.1, which is defined as "the formula for determining permitted building area as a percentage of lot area; obtained by dividing the above-ground gross floor area of a building or buildings located on a lot or parcel of land by the total area of such lot or parcel of land." Subsequently, staff referred to the definition of "gross floor area" in LIP Section 2.1 which is "the sum of the gross horizontal areas of the several floors of a building measured from the interior face of exterior walls, or from the centerline of a wall separating two buildings, but not including interior parking spaces, loading space for motor vehicles, vehicular maneuvering areas, or any space where the floor-to-ceiling height is less than six feet."

A. Although the roof structure of the proposed building spans a greater area than the commercial office building located below the roof structure, it does not meet the definition of F.A.R. provided in LIP Section 2.1. Additionally, the roof and overhangs provide three functional objectives: 1) it provides solar shading for the proposed commercial office building; 2) it provides additional roof-top parking; and 3) the sloping eaves shields the roof-top parking from view.

B. TDSF does not apply to commercial properties. Commercial properties are restricted to a maximum .15 F.A.R. The breezeway (gallery) does not meet the definition of F.A.R. Staff reviewed the video recording of the October 11, 2004 City Council meeting in which the Council heard an appeal of a commercial building with large overhangs and a covered breezeway. One of the points that the appellant made was that the breezeway and overhangs should be included into the F.A.R. due to massing. Staff at that time also determined that the definition of F.A.R. does not require unenclosed or covered areas, such as the breezeway and the overhangs to be included.

   The breezeway considered at the Council hearing was approximately 161 square feet, had an enclosed second floor above it, and had two openings, one at the front and one at the back for ingress and egress. The proposed gallery is approximately 667 square feet, does not have an enclosed story above it, and also has two openings, one at the front and one at the back for ingress and egress.

   Prior to a motion being made, a Council member asked if the applicant would be willing to include the breezeway into the F.A.R. to appease the appellant. The applicant stated that he would be willing to include the breezeway into F.A.R. and he would agreed with a condition of approval requiring him to do so. A Council member then asked the appellant whether his concerns were addressed since the applicant has agreed include to the breezeway into F.A.R. The appellant indicated he also wanted the overhangs to be included in the F.A.R. A motion was made and passed by Council which ultimately included a condition of approval to include the breezeway into F.A.R. since the applicant agreed to it, but not did require overhangs to be included.

C. TDSF does not apply to commercial properties; commercial properties are restricted to a maximum .15 F.A.R. The definition of F.A.R. provided in Section 2.1 does not require unenclosed or covered areas, such as the proposed gallery or overhangs to be included into F.A.R.

3. *Open Space. LIP section 3.8.A.5.b "Open space (includes courtyards, patios, natural open space and additional landscaping. Parking lots, BUILDINGS, EXTERIOR HALLWAYS and stairways shall not qualify as open space." Although the interior hallway described as "Central Gallery" on page 71 of the staff report must be*

counted in TDSF some could call it an exterior hallway. It is included in the calculation of "open space" which is not allowed in either case.

Staff response: The gallery includes benches and planters to accommodate people who use this area as open space. The gallery is not enclosed and does not meet the definition of F.A.R. provided in LIP Section 2.1; therefore, is not included into the F.A.R. calculation.

4. *The staff report states that the project could not be built unless roof top parking is allowed yet the parking requirement is 10 spaces and there are 13 parking spaces provided on grade.*

Staff response: As designed, the required 10 spaces may be provided entirely on grade only because landscaping and open space are proposed to be located on the rooftop. If landscaping and open space are required to be on grade, the area required to satisfy the 65 percent landscaping and open space requirement would eliminate a large portion of the area currently proposed for parking. The alternatives for the subject project include a subterranean parking lot so that the existing on grade parking area can be dedicated to open space and landscaping, a complete redesign to a two-story commercial office building, or for Planning Commission to grant a variance. The applicant has indicated that subterranean parking is not "geotechincally advisable" due to the high water table and that a two-story structure would not be ideal for visitor-serving uses, including retail.

5. *Open space is provided on the roof structure. The City Council determined in the case of La Paz's first application that roof top open space is not allowed. La Paz was redesigned to have underground parking for this reason. I believe Stephanie Edmondson was the planner on that version of La Paz and also the PCH office building and she can verify this. It makes sense that the roof cannot be open space. See #4 Buildings cannot be open space.*

Staff response: Staff acknowledges that very few projects within the City have been approved with rooftop landscaping and open space. More recent commercial projects that have difficulty satisfying open and landscaping have been approved with a variance. The alternatives for the subject project include a subterranean parking lot so that the existing on grade parking area can be dedicated to open space and landscaping, a complete redesign to a two-story commercial office, or for Planning Commission to grant a variance. The applicant has indicated that subterranean parking is not "geotechincally advisable" due to the high water table and that a two-story structure would not be ideal for visitor-serving uses, including retail.

6. *Finding C requires a finding that without the variance the city would "deprive the subject property of privileges enjoyed by other properties..." Most of the commercial properties in the area are two stories and can easily qualify. Directly across the street the Windsail and Pier View were not granted this finding, when permitted.*

Staff response: Commercial properties in this area vary in sizes and in height. There are commercial developments that are single-story, two-stories, and some that are more than two-stories. However, most commercial properties that are in this area have been developed prior to Cityhood under County standards and are existing non-confirming in one way or another. Some existing commercial developments have greater F.A.R. than currently permitted, fewer parking spaces than currently required, exceed height restrictions, less landscaping or open space than currently required, and/or reduced setbacks. Nonetheless, every development project is unique. For example, Windsail and Pierview included two variances, one variance for parking in the front yard setback and one variance for the reduction of landscaping and both restaurants were able to utilize a joint parking agreement.

7. *How will the height requirements be determined? The staff report proposes landscaping on the roof and although the roof is flat the structure has "sloping roof eves" which are a substantial distance from the structure.*

Staff response: Any area that is 3:12 or steeper is considered a pitched roof and any area flatter than 3:12 is considered a flat roof. The maximum height proposed for areas with a pitched roof is 28 feet in height. The maximum height proposed for areas with a flat roof is 24 feet in height. The project includes a site plan review for construction over 18 feet in height (refer to Section B for required findings).

On May 17, 2010, staff met with Commissioner Mazza to review the plans and discuss the issues in his electronic letter. Commissioner Stack was also present at the meeting. Another issue that came up during staff's meeting with Commissioners was the issue of how to calculate landscaping if Planning Commission is willing to consider landscaping on the rooftop as an approach to satisfy the 40 percent landscaping requirement. There are two methods of calculating landscaping on the rooftop. Landscaping may be calculated by the area in which it occupies in a planter box or landscaping may be calculated by the area in which foliage provides coverage. For example, a tree truck may fit in a 4 x 4 planter box; however, the branches of the tree may extend out of the planter box and cover a larger area. As discussed previously in this agenda report, very few projects within the City have been approved with rooftop landscaping and open space; therefore staff cannot provide any examples of how landscaping on rooftops in other projects were calculated. A condition of approval may be added to the project once a determination has been made by the Planning Commission.

PUBLIC NOTICE: Staff published a Public Hearing Notice in a newspaper of general circulation within the City of Malibu on April 22, 2010, and mailed the notice to all property owners and occupants within a 500 foot radius of the subject property (Attachment 9).

SUMMARY: The required findings can be made that the project complies with the LCP. Further, the Planning Division's findings of fact are supported by substantial evidence in

the record. Based on the analysis contained in this report, staff recommends approval of this project subject to the conditions of approval contained in Section 5 (Conditions of Approval) of Planning Commission Resolution No. 10-43. The project has been reviewed and conditionally approved for conformance with the LCP and M.M.C. by staff and appropriate City and County agencies.

ATTACHMENTS:

1. Planning Commission Resolution No. 10-43
2. Aerial Photo
3. Project Plans
4. Department Review Sheets
5. Case Closure Letter; California Regional Water Quality Control Board - May 23, 2005
6. Memorandum; Cotton, Shire and Associates - December 8, 2009
7. Story Pole Photographs
8. Correspondence
9. Public Hearing Notice / Mailer

All referenced reports not included in the attachments can be viewed in their entirety in the project file located at Malibu City Hall.

CITY OF MALIBU PLANNING COMMISSION
RESOLUTION NO. 10-43

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MALIBU, APPROVING COASTAL DEVELOPMENT PERMIT NO. 08-055, SITE PLAN REVIEW NO. 10-012, VARIANCE NOS. 10-005 AND 10-006, CONDITIONAL USE PERMIT NO. 10-003, AND DEMOLITION PERMIT NO. 08-014, FOR THE DEMOLITION OF EXISTING REMNANT STRUCTURES ASSOCIATED WITH AN ABANDONED GAS STATION, CONSTRUCTION OF A NEW, 2,499 SQUARE FOOT COMMERCIAL STRUCTURE WITH A ROOT-TOP PARKING LOT, A VEHICULAR RAMP CONNECTING THE ROOFTOP PARKING TO AN EXISTING PARKING LOT LOCATED DIRECTLY NORTH OF THE SUBJECT PROPERTY, THE INSTALLATION OF AN ALTERNATIVE ONSITE WASTEWATER TREATMENT SYSTEM, HARDSCAPE, LANDSCAPING AND GRADING; INCLUDING A SITE PLAN REVIEW FOR CONSTRUCTION IN EXCESS OF 18 FEET, VARIANCES FOR CONSTRUCTION ON SLOPES IN EXCESS OF 2½ TO 1 AND REDUCTION OF THE REQUIRED REAR YARD SETBACK, A CONDITIONAL USE PERMIT TO ALLOW FOR THE CONSTRUCTION OF OVER 500 SQUARE FEET OF COMMERCIAL DEVELOPMENT, AND A DEMOLITION PERMIT FOR THE DEMOLITION OF EXISTING REMNANT STRUCTURES, IN THE COMMUNITY COMMERCIAL ZONING DISTRICT, LOCATED AT 22729 PACIFIC COAST HIGHWAY (WFS SEASTAR COMPANY, LLC)

THE PLANNING COMMISSION OF THE CITY OF MALIBU DOES HEREBY FIND, ORDER AND RESOLVE AS FOLLOWS:

Section 1. Recitals.

A. On July 8, 2008, an application for Coastal Development Permit (CDP) No. 08-055, Site Plan Review (SPR) No. 10-012, Variance (VAR) Nos. 10-005, 10-006, and 10-007, Conditional Use Permit (CUP) No. 10-003 and Demolition Permit No. 08-014 was submitted to the City for review. The application was routed to the City Geologist, City Biologist, City Environmental Health Administrator, City Public Works Department, City Environmental Assessment consultant, and the Los Angeles County Fire Department (LACFD) for Malibu Municipal Code (M.M.C.) and Local Coastal Program (LCP) conformance review.

B. On October 21, 2008, a courtesy notice of the proposed project was mailed to all property owners and occupants within a 500 foot radius of the subject property.

C. On September 29, 2009, revised plans were submitted to the City for review. The revised plans show the elimination of a subterranean garage that was included in the initial submittal.

D. On January 6, 2010, revised plans were submitted to the City for review. The revised plans reflect a project similar to the proposed project but included a variance for reduction of landscaping requirements.

E. On March 3, 2010, story poles were placed on the subject property to illustrate the location, height, and bulk of the proposed project. A story pole certification prepared by a licensed surveyor has been submitted.

F. On March 11, 2010, a site visit was conducted to document the story poles with an extensive amount of photographs. On March 12, 2010, the story poles were permitted to be removed at the discretion of the Planning Manager, due to the impact on a hand car wash onsite.

G. On April 13, 2010, a Notice of Application sign for the subject application was posted on the project site.

H. On April 15, 2010 the project was deemed complete.

I. On April, 22, 2010, a Notice of Public Hearing was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500 foot radius of the subject property.

J. On May 7, 2010, the applicant submitted revised plans which reflect the current project proposal. The revised project eliminated the need for a variance for the reduction of required landscaping.

K. On May 18, 2010, the Planning Commission continued the item to the June 1, 2010 Regular Planning Commission meeting at the applicant's request.

L. On June 1, 2010, the Planning Commission held a duly noticed public hearing on the subject applications, reviewed and considered the staff report, reviewed and considered written reports, public testimony and other information in the record.

Section 2. Environmental Review Findings.

Pursuant to the authority and criteria contained in California Environmental Quality Act (CEQA), the Planning Commission has analyzed the proposal as described above. The Planning Commission has found this project listed among the classes of projects determined to have less than significant adverse effect on the environment and therefore, exempt from the provisions of CEQA. Accordingly, a CATEGORICAL EXEMPTION will be prepared pursuant to CEQA Guidelines 15301(l)(3) – Existing Facilities and 15303(c) – New Construction or Conversion of Small Structures. The Planning Commission further determined none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines Section 15300.2).

Section 3. Local Coastal Program and Malibu Municipal Code Findings.

A. General Coastal Development Permit (LIP Chapter 13)

Pursuant to LIP Section 13.9, the following four findings need to be made for all CDPs.

Finding A1. That the project as described in the application and accompanying materials, as modified by any conditions of approval, conforms with the certified City of Malibu Local Coastal

Program.

The proposed project has been reviewed for conformance with the LCP by the Planning Division, City Environmental Health Administrator, City Geologist, City Public Works Department, City Biologist, and the LACFD. The proposed project, as conditioned, conforms to the LCP in that it meets all commercial development standards.

Finding A2. The project is located between the first public road and the sea. The project conforms to the public access and recreation policies of Chapter 3 of the Coastal Act of 1976 (commencing with Sections 30200 of the Public Resources Code).

The project site is not located between the first public road and the sea. The project conforms to the public access and recreation policies of Chapter 3 of the Coastal Act of 1976 (commencing with Section 30200 of the Public Resources Code).

Finding A3. The project is the least environmentally damaging alternative.

Pursuant to the California Environmentally Quality Act (CEQA), this project is listed among the classes of projects that have been determined not to have a significant adverse effect on the environment and is categorically exempt from CEQA. The proposed project allows for demolition of remnant structures at an abandoned gas station and the construction of a new 2,499 square foot commercial office building, which is a permitted use within the CC zoning classification of the subject property. The project will not result in potentially significant impacts on the physical environment.

Three alternatives were considered to determine which was the least environmentally damaging.

1. No Project – The no project alternative would avoid any change to the project site, and hence, any change to visual resources. The project site is zoned CC which allows commercial development. The no project alternative would not accomplish any of the project objectives; and therefore, is not viable. Furthermore, the existing abandoned gas station would remain as visual blight.

2. Remodel/Addition of Existing Structures – Existing onsite development could be remodeled, however, the existing convenience store and the pump station would not serve the purpose of a new commercial office building. It is not anticipated that a remodel and addition would offer any environmental advantages over the proposed project as the proposed project will not result in significant impacts on the environment.

3. Proposed Project – The project consists of the demolition of remnant structures associated with an abandoned gas station and the construction of a new 2,499 square foot commercial office building. The proposed project conforms to all commercial development criteria with the inclusion of the VAR and SPR requests. The project includes a new AOWTS to serve the new commercial office building, which will provide secondary and tertiary treatment. The proposed project also provides adequate parking spaces pursuant to LIP Section 3.12 and a safe ingress and egress circulation plan for vehicles.

The selected location has been reviewed and conditionally approved by the City Environmental Health Administrator, City Biologist, City Geologist, City Public Works Department, and the LACFD, and meets the City's commercial development policies. Therefore, the project, as proposed, is the least damaging alternative.

Finding A4. If the project is located in or adjacent to an environmentally sensitive habitat area pursuant to Chapter 4 of the Malibu LIP (ESHA Overlay), that the project conforms with the recommendations of the Environmental Review Board, or if it does not conform with the recommendations, findings explaining why it is not feasible to take the recommended action.

The subject parcel is not located in ESHA, an ESHA buffer zone or adjacent to any streams as designated in the LCP and does not require review by the ERB.

B. Site Plan Review for Construction in Excess of 18 Feet in Height (LIP Section 13.27.5)

LIP Section 13.27.5(A) requires that the City make four findings in the consideration and approval of a site plan review for construction in excess of the City's base 18 feet in height up to a maximum of 28 feet with a pitched roof. Two additional findings are required pursuant to M.M.C. Section 17.62.050.

The applicant has proposed to construct a new, single-story, commercial office building that is 24 feet maximum for areas with a flat roof and 28 maximum for areas with a pitched roof. Pedestrian access to the rooftop parking is provided by a proposed elevator and stairway, both of which projects above the roof. However, due to the topography of the site; both the elevator and the stairway are under the permitted 28 foot pitched roof maximum height. The proposed roof-top parking lot is shielded from view by the 28 foot tall pitched roof parapet that acts as a screen. Based on the evidence in the record, the findings in support of SPR No. 10-012 are made as follows:

Finding B1. The project is consistent with policies and provisions of the Malibu LCP.

As discussed in Finding A1, the project has been reviewed for all relevant policies and provisions of the LCP. Based on submitted plans, reports, visual impact analysis, and detailed site investigation, it has been determined that the project is consistent with all policies and provisions of the LCP.

Finding B2. The project does not adversely affect neighborhood character.

As discussed in the City's General Plan, Land Use Element, "the stretch of PCH just west of Carbon Canyon Road through the Civic Center represents the commercial core/strip of the City." The proposed project is located within this area. The project site is surrounded by two fast food restaurants and two commercial buildings. Residential development is located within the project vicinity; however, it is located to the south across PCH and north at a higher elevation. Story poles were placed on the site in March 2010 to demonstrate the size, mass, and bulk of the proposed project. The story poles demonstrated that the project is compatible with the commercial nature of the surrounding development. Therefore, the project does not adversely affect neighborhood character.

Finding B3. The project provides maximum feasible protection to significant public views as required by Chapter 6 of the Malibu LIP.

The California Department of Transportation (Caltrans) has officially designated PCH in the City of Malibu as an "eligible scenic highway." LIP Chapter 6 (Scenic, Visual and Hillside Resources) governs those CDP applications concerning any parcel of land that is located along, within, provide views to or is visible from any scenic area, scenic road or public viewing area. LIP Chapter 6 contains specific design standards for new development in scenic areas and the proposed project has been designed to adhere to this criteria.

In particular, LIP Section 6.5(H)(1) states that the PCH corridor "shall be protected as a scenic highway and significant viewshed by requiring that development conform to the following standards:

a) *Landscaping improvements, including plantings, may be permitted along PCH. Any proposed landscaping shall be comprised of primarily drought tolerant plant species. Landscaping shall be designed and maintained to be subordinate to the character of the area, and not block ocean or mountain views at maturity.*

   While some vegetation may be removed as necessary for construction, replacement would occur resulting in more landscaping than in the pre-project condition. The proposed landscaping will not block ocean or mountain views at maturity due to the proposed placement and location of the landscaping. Additionally, conditions of approval regarding maximum height of landscaping have been included in the resolution to restrict landscaping along the front property line to be no more than 42 inches tall and to restrict landscaping from exceeding the roofline.

b) *New commercial development that includes a parking lot visible from PCH shall include landscaping and/or berming to screen the view, so long as measures do not obscure or block views of the ocean.*

   In accordance with the LIP Section 6.5(H)(1)(B), the rooftop parking lot, which would be visible from PCH, is proposed to be screened from view by a sloping roof eave. The proposed parking area located on the ground floor in front of the commercial office is screened from view by proposed planters and landscaping (not to exceed 42 inches) located along the front property line.

c) *Any telecommunications facilities approved along PCH shall place support facilities underground, where feasible. New transmission lines shall be sited and designed to be located underground, except where it would present or contribute to geological hazards. Existing transmission lines should be relocated underground when they are replaced or when funding for undergrounding is available.*

   The project has been conditioned to underground any new facilities along PCH and underground transmission line should they be replaced or when funding is available.

In this area of PCH, the scenic resources are the ocean to the south, and the mountains to the north of the site which are located at a higher elevation than the project site and blocked from view by

existing development. The project site is located on the north side of PCH, and thus, would not interfere with any views of the ocean from PCH. The proposed development is not anticipated to impede significant public views due to existing development located directly north of the proposed project site. The proposed project is not visible from the Malibu Pier.

The project also includes a variance to site the structure adjacent to the rear property line. The proposed siting would allow development to be sited away from PCH and closer to existing commercial development in the rear. When viewing the project area from PCH, the proposed development does not block any visually impressive views or scenic vistas of the Santa Monica Mountains or Pacific Ocean.

The project would add additional vegetation to the site along the perimeter of the project site, adding a beneficial scenic element to the development. A condition of approval will be added that requires all vegetation to be situated on the property so as not to significantly obstruct the primary view from private property at any given time (given consideration of its future growth). Additionally, in accordance with LIP Section 6.5, "standard conditions" of approval are required to ensure that the proposed design and materials of the development will avoid impact to scenic resources to the extent feasible. With implementation of standard conditions of approval, the project would have less than significant impacts to scenic vistas and provides the maximum feasible protection to significant public views as required by LIP Chapter 6.

Finding B4. The proposed project complies with all applicable requirements of state and local law.

The proposed project will comply with all applicable requirements of State and local law and is conditioned to comply with any relevant approvals, permits and licenses from the City of Malibu and other related agencies, such as the Regional Water Quality Control Board (RWQCB), and the LACFD.

Finding B5. The project is consistent with the City's general plan and local coastal program.

As discussed in Finding A1, the proposed project is consistent with the LCP in that the proposed project is located in an area that has been identified for commercial use. As discussed in Finding B2, the proposed project is located within a strip of commercial properties intended for commercial use and the project is consistent with land use designated for this area in the General Plan. The proposed project is consistent with the LCP in that it conforms to the commercial land use designation.

Finding B6. The portion of the project that is in excess of 18 feet in height does not obstruct visually impressive scenes of the Pacific Ocean, off-shore islands, Santa Monica Mountains, canyons, valleys, or ravines from the main viewing area of any affected principal residence as defined in M.M.C. Section 17.40.040(A)(17).

Based on the visual impact analysis (aerial photographs, site visits and story poles), it has been determined that the proposed development does not impact the primary view of neighboring residential properties. The proposed project is located at a lower elevation than the residential properties located north of the property on a hill. Primary views of residential properties located across PCH are oriented south, away from the project site and toward the Pacific Ocean. Story poles were placed on the site to demonstrate the maximum height of the proposed structures and to assess

the visual impact of the proposed development on public and private views. Courtesy notices of application were sent to properties within a 500 foot radius of the subject property. No comments from the public were received regarding primary views.

C. Variance for Construction on Slopes Greater Than 2½ to 1 - (LIP Section 13.26)

The applicant is requesting a variance to LIP Section 13.27.1(A)(4) which allows for construction on slopes greater than 3 to 1 but less than 2½ to 1 with a SPR. The proposed project includes construction on 1½ to 1 slopes. Pursuant to LIP Section 13.26.5, the Planning Commission may approve and/or modify an application for a variance in whole or in part, with or without conditions, provided that it makes ten findings of fact. Based on the evidence in the record, the findings in support of VAR No. 10-005 are made as follows.

Finding C1. There are special circumstances or exceptional characteristics applicable to the subject property, including size, shape, topography, location, or surroundings such that strict application of the zoning ordinance deprives such property of privileges enjoyed by other property in the vicinity and under the identical zoning classification.

The rear portion of the project site is dominated by manufactured slopes that were created when the commercial property at 22741 PCH (directly north of the project site) was constructed. Currently1, the City does not differentiate between slopes created by natural processes and those previously manufactured in accordance with recommendations of a geotechnical engineer and permitted by a regulatory agency. All slopes, regardless if they are natural or manufactured, are subject to the same development requirements.

Granting of such variance would allow the proposed commercial office building to be sited on manufactured slopes that were created previously during construction. The proposed building pad location is set back from PCH and would result in less significant impacts to scenic visual resources than if the structure was to be located near the front property line. There are special circumstances applicable to the subject property that strict application of the zoning ordinance deprives the subject property of privileges enjoyed by other properties in the vicinity and under the same zoning designation.

Finding C2. The granting of such variance will not be detrimental to the public interest, safety, health or welfare, and will not be detrimental or injurious to the property or improvements in the same vicinity and zone(s) in which the property is located.

The project will meet all applicable building and engineering safety codes and will not be detrimental to the public's interest, safety, health or welfare. Only a portion of the proposed structure will be located on manufactured slopes; the remaining portion of the proposed structure will be located on slopes 3 to 1 or flatter. The project will not be detrimental to other properties or improvements in the same vicinity and zone.

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1 On August 10, 2009, City Council adopted Ordinance No. 339, approving a Zoning Text Amendment (ZTA) and a Local Coastal Program Amendment (LCPA) which modified the language in the M.M.C. and LCP to differentiate between "natural" slopes and "manufactured" slopes. However, Ordinance No. 339 is not effective until the LCPA is certified by the California Coastal Commission (CCC). Staff is preparing the LCPA for submittal to CCC for certification.

The proposed project has been reviewed and approved by the City Biologist, City Environmental Health Administrator, City Geologist, City Public Works Department, and the LACFD. The project, as proposed or conditioned, was found to be consistent with applicable City goals and policies.

Finding C3. The granting of the variance will not constitute a special privilege to the applicant or property owner.

As discussed in Finding C1, granting the variance will not constitute a special privilege to the applicant or property owner because there are special circumstances on the project site that strict application of the zoning ordinance would deprive the property to be developed similarly to other properties within the vicinity and under the same zoning designation.

Finding C4. The granting of such variance will not be contrary to or in conflict with the general purposes and intent of this Chapter, nor to the goals, objectives and policies of the LCP.

The granting of the variance is not contrary to or in conflict with the general purposes or intent of the zoning provisions nor contrary to or in conflict with the goals, objectives and policies of the LCP. As discussed in Finding C1, granting the requested variance will allow the subject property to be developed in a way that allows for construction of a new commercial office building.

Finding C5. For variances to environmentally sensitive habitat area buffer standards or other environmentally sensitive habitat area protection standards, that there is no other feasible alternative for siting the structure and that the development does not exceed the limits on allowable development area set forth in Section 4.7 of the Malibu LIP.

The proposed variance does not propose the reduction of ESHA protection standards. Therefore, this finding is not applicable.

Finding C6. For variances to stringline standards, that the project provides maximum feasible protection to public access as required by Chapter 2 of the Malibu LIP.

The proposed variance is not associated with stringline standards. Therefore, this finding is not applicable.

Finding C7. The variance request is consistent with the purpose and intent of the zone(s) in which the site is located. A variance shall not be granted for a use or activity which is not otherwise expressly authorized by the zone regulation governing the parcel of property.

The requested variance is for relief from a specific development standard and does not authorize a use or activity not otherwise permitted in the CC zoning district. The requested variance is for the development of a commercial office building, which is an allowed use in the CC zoning district.

Finding C8. The subject site is physically suitable for the proposed variance.

Granting of the variance will allow construction of a new commercial office building on the project site. The proposed project, including building pad location, has been reviewed and approved by the City Biologist, City Environmental Health Administrator, City Geologist, City Public Works

Department, and the LACFD as being physically suitable for the proposed variance. Additionally, the project will be required to satisfy all Building and Safety standards in the Building Plan Check process.

Finding C9. The variance complies with all requirements of state and local law.

The proposed project will comply with all applicable requirements of State and local law and is conditioned to comply with any relevant approvals, permits and licenses from the City of Malibu and other related agencies, such as the RWQCB and the LACFD.

Finding C10. A variance shall not be granted that would allow reduction or elimination of public parking for access to the beach, public trails or parklands.

The proposed project does not include any reduction or elimination of public parking for access to the beach, public trails or parklands.

D. Variance for Reduction of the Required Rear Yard Setback - (LIP Section 13.26)

The majority of the proposed structure is located 14.6 feet from the rear property line (a 20 percent reduction of the required rear yard setback that may be permitted with a minor modification pursuant to LIP Section 13.26); however, a portion of the project (connector ramp and stairway from the ground floor to the rooftop parking level) are located beyond what is permitted with a minor modification. Therefore, a variance is requested.

Pursuant to LIP Section 13.26.5, the Planning Commission may approve and/or modify an application for a variance in whole or in part, with or without conditions, provided that it makes ten findings of fact. The applicant is requesting a variance to LIP Section 3.8(2)(B) which requires a rear yard setback of 18.23 feet. The project proposes a zero setback in order to construct a rooftop ramp across property line to connect the proposed rooftop parking area to the lower level of an existing parking area of a commercial office building located north of the project site at 22741 PCH. The project has been conditioned so that construction of the connector ramp shall not commence until evidence of a recorded easement allowing the ramp to cross property lines has been submitted. Based on the evidence in the record, the findings in support of VAR No. 10-007 are made as follows:

Finding D1. There are special circumstances or exceptional characteristics applicable to the subject property, including size, shape, topography, location, or surroundings such that strict application of the zoning ordinance deprives such property of privileges enjoyed by other property in the vicinity and under the identical zoning classification.

Pursuant to LIP Section 3.3, newly created parcels in the CC zone should have a minimum lot size of five acres or 217,800 square feet and a minimum lot depth of 500 feet. The project site is .42 acres in size or 18,283 square feet and has a lot depth of 121 feet, 7 inches, which is substantially smaller than what a parcel in the CC zone was intended to be. The project proposes a 2,499 square foot commercial building which is less than the maximum .15 F.A.R. permitted on the property. Of the 18,282 square feet, 2,499 square feet is proposed for the commercial office building, 5,836 square feet is proposed to be landscaping, 3,384 square feet is proposed to be open space, and the remainder 6,563 square feet is proposed for parking spaces, vehicular access, and a trash enclosure.

Due to the relatively small size and narrow lot depth of the parcel, the project would not be able to meet the required 65 percent of open space and landscaping without utilizing the rooftop parking area unless on grade parking is eliminated. Eliminating on-grade parking in front of the commercial office would negatively impact the viability of the proposed commercial office. Without parking located in front of the proposed commercial office, visitors traveling on PCH would have to slow a pace that would allow them to read signage directing them to park on the rooftop via an existing driveway serving 22741 PCH. The project proposes 13 on grade parking spaces; hence eliminating the need for visitors to slow to a pace on PCH that may poise a public safety hazard.

Furthermore, the proposed commercial office could be located as close as 24 feet, 7 inches from PCH, which would result in the proposed project having a significant visual impact on the scenic highway. Granting of the variance would allow the proposed structure to be set back from PCH and allow on-grade parking for safe and easy ingress and egress.

Finding D2. The granting of such variance will not be detrimental to the public interest, safety, health or welfare, and will not be detrimental or injurious to the property or improvements in the same vicinity and zone(s) in which the property is located.

The project will meet all applicable building and engineering safety codes and will not be detrimental to the public's interest, safety, health or welfare. Granting of such variance would allow the proposed structure is set back from PCH and abuts an existing commercial office building near the rear property line, minimizing impacts to scenic, visual resources when viewed from PCH. Granting of the variance would also allow the proposed parking area on grade to provide sufficient turn out radius for safe vehicular maneuvering.

The proposed project has been reviewed and approved by the City Biologist, City Environmental Health Administrator, City Geologist, City Public Works Department and the LACFD. The project, as proposed or conditioned, was found to be consistent with applicable City goals and policies.

Finding D3. The granting of the variance will not constitute a special privilege to the applicant or property owner.

Granting of the variance will not constitute a special privilege to the applicant or property owner because the granting of this variance will allow the proposed commercial office building to be located away from PCH which would minimize impact on scenic resources. Granting of the variance will also allow safe maneuvering of vehicles in the proposed parking lot. The proposed project utilizes the entire site to comply with landscaping, open space, and parking standards; therefore granting of the variance will not constitute a special privilege.

Finding D4. The granting of such variance will not be contrary to or in conflict with the general purposes and intent of this Chapter, nor to the goals, objectives and policies of the LCP.

The granting of the variance is not contrary to or in conflict with the general purposes or intent of the zoning provisions, nor contrary to or in conflict with the goals, objectives and policies of the LCP. As discussed in Finding D1, granting the requested variance will allow the proposed project to be set away from PCH, a designated scenic highway and allow safe maneuvering of vehicles.

Finding D5. For variances to environmentally sensitive habitat area buffer standards or other environmentally sensitive habitat area protection standards, that there is no other feasible alternative for siting the structure and that the development does not exceed the limits on allowable development area set forth in Section 4.7 of the Malibu LIP.

The proposed variance does not pertain to ESHA buffer standards; therefore, this finding is not applicable.

Finding D6. For variances to stringline standards, that the project provides maximum feasible protection to public access as required by Chapter 2 of the Malibu LIP.

The proposed variance is not associated with stringline standards. Therefore, this finding is not applicable.

Finding D7. The variance request is consistent with the purpose and intent of the zone(s) in which the site is located. A variance shall not be granted for a use or activity which is not otherwise expressly authorized by the zone regulation governing the parcel of property.

The requested variance is for relief from a specific development standard and does not authorize a use or activity not otherwise permitted in the CC zoning district. The proposed project is for the construction of a new commercial office building which is an allowed use in the CC zoning district.

Finding D8. The subject site is physically suitable for the proposed variance.

The project has been conditioned so that construction of the connector ramp shall not commence until evidence of a recorded easement allowing the ramp to cross property lines and shared access to the rooftop parking lot has been submitted. The proposed project, including project location, has been reviewed and approved by the City Biologist, City Environmental Health Administrator, City Geologist, City Public Works Department and the LACFD as being physically suitable for the proposed variance. Additionally, the project will be required to satisfy all Building and Safety standards in the Building Plan Check process. The subject site is physically suitable for the proposed variance.

Finding D9. The variance complies with all requirements of state and local law.

As discussed in Finding C9, the project, including the variance request, complies with all requirements of state and local law.

Finding D10. A variance shall not be granted that would allow reduction or elimination of public parking for access to the beach, public trails or parklands.

The proposed project does not include any reduction or elimination of public parking for access to the beach, public trails or parklands.

E. Environmentally Sensitive Habitat Area Overlay (LIP Chapter 4)

The project site does not contain ESHA; therefore, the findings in LIP Chapter 4 are not applicable.

F. Native Tree Protection (LIP Chapter 5)

No native trees are proposed to be removed as part of the project scope of work. Therefore, the findings in LIP Chapter 5 are not applicable.

G. Scenic, Visual and Hillside Resource Protection Chapter (LIP Chapter 6)

The Scenic, Visual, and Hillside Resource Protection Chapter governs those CDP applications concerning any parcel of land that is located along, within, provide views to or is visible from any scenic area, scenic road or public viewing area. Story poles were placed on the site in March 2010. Based on site visits, aerial photographs, and review of the visual analysis in the record, it has been determined that the subject site is visible from PCH, a designated scenic highway.

However, the proposed development is not anticipated to impact significant public views because it is located on the inland side of PCH. Public scenic views of the ocean are oriented to the south, away from the proposed project. The proposed project will not block scenic impressive views of Santa Monica Mountains as existing commercial development surrounds the project site. Nonetheless, LIP Chapter 6 applies and the five findings set forth in LIP Section 6.4 are made as follows.

Finding G1. The project, as proposed, will have no significant adverse scenic or visual impacts due to project design, location on the site or other reasons.

Story poles were placed on the site to aid in the completion of a visual analysis of public view impacts. The proposed commercial office building is set back from PCH and located near the rear property line, in close proximity to an existing commercial office building at a higher elevation. Due to the existing commercial office building located directly north of the project site, the proposed project will not impact scenic views of the Santa Monica Mountains to the north. Scenic views of ocean are oriented to the south of PCH and the project site is located north of PCH. The project, as proposed, will not have significant adverse scenic or visual impacts due to the project design and location on the site.

Finding G2. The project, as conditioned, will not have significant adverse scenic or visual impacts due to required project modifications, landscaping or other conditions.

As discussed in Finding G1, the project, as conditioned, will not have significant adverse scenic or visual impacts due to the location of proposed structure in relations to existing development. Conditions of approval have been included in this resolution to require building material and colors to be compatible with the surrounding environment and restrictions on lighting. The project also proposes approximately 4,163 square feet of new landscaping onsite to minimize adverse scenic or visual impacts when viewed from PCH.

Finding G3. The project, as proposed or as conditioned, is the least environmentally damaging alternative.

As discussed in Finding A3, the proposed development is the least environmentally damaging alternative.

Finding G4. There are no feasible alternatives to development that would avoid or substantially lessen any significant adverse impacts on scenic and visual resources.

As previously discussed in Findings A3 and G3, the project, as proposed and conditioned, is the most feasible design to avoid adverse significant impacts on scenic or visual resources. The proposed project is sited away from PCH and located within other commercially developed properties.

Finding G5. Development in a specific location on the site may have adverse scenic and visual impacts but will eliminate, minimize or otherwise contribute to conformance to sensitive resource protection policies contained in the certified LCP.

The project, as proposed, does not have the potential to significantly degrade the quality of the environment, nor does it have impacts which are individually limited but cumulatively considerable, because the nature of the development will remain consistent with the LCP. The project's use is consistent with its LCP zoning.

H. Transfer of Development Credit (LIP Chapter 7)

Pursuant to LIP Section 7.2, the transfer of development credits only applies to land divisions and/or new multi-family development in specified zoning districts. The proposed CDP does not involve a land division or multi-family development. Therefore, LIP Chapter 7 does not apply.

I. Hazards (LIP Chapter 9)

Pursuant to LIP Section 9.3, written findings of fact, analysis and conclusions addressing geologic, flood, and fire hazards, structural integrity or other potential hazard must be included in support of all approvals, denials or conditional approvals of development located on a site or in an area where it is determined that the proposed project causes the potential to create adverse impacts upon site stability or structural integrity.

The applicant submitted a series of geologic reports with subsequent supplemental and addendum reports, all of which have been reviewed by the City Geologist for the hazards listed in LIP Section 9.2(A)(1-7). In addition, the project has been routed to the City's Environmental Assessment consultant for review. Analysis also included review of the City of Malibu General Plan and review of the hazards designation in the City of Malibu's Geographic Information System (GIS).

The vast amount of geologic information obtained on the subject property has been reviewed in its entirety by the City Geologist whose professional opinions are based on the sum of this data. The City Geologist reviewed the project and associated technical submittals and approved the project in concept, subject to conditions. All recommendations of the consulting Certified Engineering Geologist or Geotechnical Engineer and/or the City Geologist shall be incorporated into all final design and construction including foundations, grading, sewage disposal, and drainage. Final plans shall be reviewed and approved by the City Geologist prior to the issuance of a grading permit

Faulting

According to the Geotechnical Investigation Report prepared by Stratum Geotechnical Consultants on October 8, 2007, "no active faults have been mapped traversing through the building site.

However, the entire Southern California is, seismically active with numerous faults capable of causing ground shaking at the site." As indicated in the City of Malibu General Plan, Safety and Health Element, "there are numerous faults surrounding and traversing the Malibu area including the Malibu Coast Fault, the Santa Monica Fault, the Los Flores Reverse Fault and the Anacapa Fault." Each of these faults "may generate strong ground shaking impacting the Malibu area". Alleviation of ground-shaking effects is provided through enforcement of structural and nonstructural seismic design provisions defined in the Uniform Building Code. Application of these design provisions to the proposed project would minimize potential effects of ground shaking to a level considered less than significant.

Liquefaction

The Malibu General Plan, Safety and Health Element, states that "liquefaction and subsidence is a process by which water-saturated sediment suddenly loses strength, which commonly accompanies strong ground motions caused by earthquakes." During an extended period of ground shaking or dynamic loading, porewater pressures increase and the ground is temporarily altered from a solid to a liquid state. Liquefaction is most likely to occur in unconsolidated, sandy sediments, which are water-saturated within less than 50 feet of the ground surface. Few areas of significant liquefaction susceptibility exist in the City of Malibu. These few areas are located along the beaches and in the flood plains of the major streams, such as Malibu Creek. A liquefaction analysis was performed, which concluded that post-liquefaction settlement is estimate to be less than 3 inches. The foundation design will mitigate the effects of liquefaction.

Landslide

The potential for landslides is virtually non-existent due to the relatively flat topography of the project area. Landslides are not identified as a site concern in the geotechnical reports completed for the subject property.

Flood

According to the Flood Insurance Rate (FIRM) Map Panel No. 1541F, the project site is not located within the 100 year FEMA flood zone.

Fire Hazard

The entire city limits of Malibu are located within the fire hazard zone. The City is served by the LACFD, as well as the California Department of Forestry, if needed. In the event of major fires, the County has mutual aid agreements with cities and counties throughout the state so that additional personnel and firefighting equipment can augment the LACFD. As such, the proposed project as conditioned will not be subject to nor increase the instability of the site or structural integrity involving wild fire hazards.

Nonetheless, conditions of approval have been included in this resolution which require that the property owner indemnify and hold harmless the City, its officers, agents, and employees against any and all claims, demands, damages, costs, and expenses of liability arising out of the acquisition, design, construction, operation, maintenance, existence, or failure of the permitted project in an area where an extraordinary potential for damage or destruction from development on a beach and wildfire exists as an inherent risk to life and property.

Petroleum Contamination

The project was referred to the City's Environmental Assessment consultant, Cotton, Shires and Associates. In May 2005, the California Regional Water Quality Control Board (RWQCB) confirmed that the underground storage tanks have been removed. The following documents, including reports prepared by Wayne Perry Inc, the project Environmental Remediation and Construction consultant, were routed to the City's Environmental Assessment consultant for review:

- Evaluation of Closure Conditions, 22729 PCH, Malibu, Wayne Perry, Inc., August 6, 2009;
- Site Assessment Report, 22729 PCH, Sea View Terrace Property, Wayne Perry Inc., August 20, 2009;
- Underground Storage Tank Removal and Soil Sampling Report, Former Shell Service Station, 22729 PCH, Wayne Perry, Inc., July 9, 2002;
- Underground Storage Tank (UST) Program – Case Closure Letter, California Regional Water Quality Control Board, May 23, 2005; and
- Geotechnical reports prepared by Stratum Geotechnical Consultants, October 2007 and November 2007.

According to a Memorandum prepared by Cotton, Shire and Associates on December 8, 2009, based on the listed reports and follow-up conversations with the project consultant, the project has "adequately addressed" any concerns regarding petroleum contamination. Additionally, the project consultant concluded "that there is no gross petroleum fuel contaminants on the site that are associated with historic gasoline station operations" in response to the City Environmental Assessment consultant request for clarification. The City Environmental Assessment consultant recommended the following conditions to be included as conditions of approval:

1. During demolition and construction, the project engineer shall direct crews to monitor excavated soil and/or waters (surface water or groundwater) for stain, odor or other indicators of impacted media;
2. If, during demolition, construction or any later phase, stained or odorous soil or waters (surface water or groundwater) are detected, the applicant shall provide the following to the City:
   a. Non-emergency notification that stained or odorous soil or water (surface water or groundwater) has been detected;
   b. Plan to address the further assessment of the extent of impacted media;
   c. Contingency plans to address the possible impacts to site works or the public;
   d. Plan for legal profiling, transportation and disposal at an offsite location; and
   e. Notification of other agencies (e.g. RWQCB, LACFD, Department of Toxic Substance Control, etc.).

The project will incorporate all recommendations contained in the above cited geotechnical reports on file with the City and conditions required by the City Geologist, City Environmental Assessment consultant and the LACFD. As such, the proposed project will not increase instability of the site or structural integrity from geologic, flood or any other hazards. Final plans shall be reviewed and approved by the City Geologist prior to the issuance of a building permit.

Based on the evidence in the record, the findings of fact are made as follows:

Finding I1. The project, as proposed will neither be subject to nor increase instability of the site or structural integrity from geologic, flood, or fire hazards due to project design, location on the site or other reasons.

The project will incorporate all recommendations contained in the geotechnical reports prepared by Stratum Geotechnical Consultant, Wayne Perry Environmental Remediation and Construction consultant, City Environmental Assessment consultant, and the City Geologist. As such, the proposed project will neither be subject to nor increase instability of the site or structural integrity from geologic, flood, fire or any other hazards.

Finding I2. The project, as conditioned, will not have significant adverse impacts on site stability or structural integrity from geologic, flood or fire hazards due to required project modifications, landscaping or other conditions.

The proposed project will comply with all applicable requirements of State and local law and is conditioned to comply with any relevant approvals, permits and licenses from the City of Malibu and other related agencies, such as the RWQCB and LACFD.

Finding I3. The project, as proposed or as conditioned, is the least environmentally damaging alternative.

As discussed in Finding A3, the proposed project is the least environmentally damaging alternative.

Finding I4. There are no alternatives to development that would avoid or substantially lessen impacts on site stability or structural integrity.

The project site is subject to seismic activity and liquefaction, however, with the recommended engineering techniques, the appropriate factors of safety can be met. Additionally, conditions of approval have been incorporated in this resolution to ensure petroleum contamination of the project site does not exist. There are no alternatives that would avoid or substantially lessen impacts on site stability or structural integrity.

Finding I5. Development in a specific location on the site may have adverse impacts but will eliminate, minimize or otherwise contribute to conformance to sensitive resource protection policies contained in the certified Malibu LCP.

As stated in Findings I1 and I4, the proposed project as designed and conditioned, will have no significant adverse impacts on site stability, structural integrity or sensitive resources. Therefore, no adverse impacts are anticipated to result from hazards or conflict with sensitive resource protection policies contained in the LCP.

J. Shoreline and Bluff Development (LIP Chapter 10)

The project is not located on a shoreline or bluff. Therefore, the findings from LIP Section 10.3 are not applicable.

K. Public Access (LIP Chapter 12)

The project is not located between the first public road and the ocean, near any trails, or other designated recreation area; therefore, the findings in LIP Chapter 12 are not applicable.

L. Land Division (LIP Chapter 15)

This project does not involve a division of land as defined in LIP Section 15.1; therefore, this section does not apply.

M. Onsite Wastewater Treatment System (LIP Chapter 18)

LIP Chapter 18 addresses OWTS. LIP Section 18.7 includes specific siting, design and performance requirements. The project includes an AOWTS to replace an existing OWTS, which has been reviewed by the City Environmental Health Administrator and found to meet the minimum requirements of the Malibu Plumbing Code, the M.M.C. and the LCP. The subject system will meet all applicable requirements and operating permits will be required. The project will include a 2000 gallon Jensen primary tank, a 1,500 gallon Septitech gallon processor tank, an ultra violet disinfection system, and two leach fields. The new AOWTS will provide the proposed development with secondary and tertiary treatment.

An operation and maintenance contract and recorded covenant covering such must be in compliance with City of Malibu Environmental Health requirements. Conditions of approval have been included in this resolution which requires continued operation, maintenance and monitoring of onsite facilities.

M.M.C. Findings

N. Conditional Use Permit to Allow for the New Construction of 500 square feet or more to a New Commercial Use (M.M.C. Section 17.66.080)

The applicant has requested a CUP for the construction of over 500 square feet of commercial space. Pursuant to M.M.C. Section 17.66.080, the Planning Commission may approve, deny and/or modify an application for a CUP in whole or in part, with or without conditions, provided that it makes all of the following findings of fact. Based on the evidence within the record, the findings of fact for CUP No. 10-003 are made as follows:

Finding N1. The proposed use is one that is conditionally permitted within the subject zone and complies with the intent of all of the applicable provisions of Title 17 of the Malibu Municipal Code.

Pursuant to M.M.C. Section 17.22.040, any permitted use involving new construction or expansion over 500 square feet, is a conditionally permitted use with the CC zone. The project has been conditioned to comply with all applicable provisions of the M.M.C.

Finding N2. The proposed use would not impair the integrity and character of the zoning district in which it is located.

As discussed in Finding N1, the proposed office building square footage is conditionally permitted

within the CC zoning designation. The proposed use will be within "the stretch of PCH just west of Carbon Canyon Road through the Civic Center" identified in the City's General Plan, Land Use Element, as the "commercial core/strip of the City." The proposed project would not impair the integrity and character of the zoning district in which it is located. The proposed commercial office building complies with the maximum F.A.R. allowed onsite.

Finding N3. The subject site is physically suitable for the type of land use being proposed.

The proposed project has been reviewed by the appropriate City agencies and the LACFD. As conditioned, the subject site is physically suitable for the proposed use and the project has been determined to be in conformance with the applicable development standards for the parcel.

Finding N4. The proposed use is compatible with the land uses presently on the subject property and in the surrounding neighborhood.

The land uses presently on the project site include an abandoned gas station and a hand carwash operation. The carwash operation will be removed prior to construction of the proposed commercial office building. Surrounding development includes fast food restaurants, commercial offices, a hotel and other commercial operations. The proposed use is compatible with the land uses presently on the subject property and in the surrounding neighborhood.

Finding N5. The proposed use would be compatible with existing and future land uses within the zoning district and the general area in which the proposed use is to be located.

As discussed in Findings N2 and N4, the proposed use would be compatible with existing and future land uses within the zoning district.

Finding N6. There would be adequate provisions for water, sanitation, and public utilities and services to ensure that the proposed use would not be detrimental to public health and safety and the project does not affect solar access or adversely impact existing public and private views, as defined by the staff.

The applicant has submitted a Will Serve Letter from the Los Angeles County Waterworks District 29 which has confirmed water will be provided to the subject property. The project also includes the installation of a new AOWTS to serve the proposed commercial office building. Additionally, because the proposed structure is set back from PCH and located at a lower elevation than residential properties constructed on the hillside in the north, it is not anticipated that the project will not impact solar access. As described in Section B of this resolution, the structure will not negatively impact or public and private views.

Finding N7. There would be adequate provisions for public access to serve the subject proposal.

Adequate provisions for public access to serve the site are included in the project proposal. Access to the proposed office building is provided via a curb cut on PCH and through a connector ramp which connects the proposed structure to an existing commercial office building at 22741 PCH. Additionally, the project includes two ADA accessible parking spaces onsite.

Finding N8. The proposed use is consistent with the goals, objectives, policies, and general land uses of the General Plan.

As discussed in Finding O2, the proposed use is consistent with the goals, objectives, policies, and general land uses of the General Plan.

Finding N9. The proposed project complies with all applicable requirements of state and local law.

As discussed in Findings C9, D9, and E9, the proposed project will comply with all applicable requirements of State and local law.

Finding N10. The proposed use would not be detrimental to the public interest, health, safety, convenience or welfare.

As discussed in Findings C2, D2, and E2, the proposed project would not be detrimental to the public interest, health, safety, convenience or welfare.

Finding N11. If the project is located in an area determined by the City to be at risk from earth movement, flooding or liquefaction, there is clear and compelling evidence that the proposed development is not at risk from these hazards.

As discussed in detail in Section I of this resolution, there is evidence that the proposed development is not at risk from earth movement, flooding or liquefaction.

O. Demolition Permit (M.M.C. Section 17.70.060)

M.M.C. Section 17.70.060 requires that a demolition permit be issued for projects that result in the demolition of any building or structure. The project proposes the demolition of an existing single-family residence and detached garage. The findings for DP No. 08-014 are made as follows.

Finding O1. The demolition permit is conditioned to assure that it will be conducted in a manner that will not create significant adverse environmental impacts.

Conditions of approval included in this resolution will ensure that the project will not create significant adverse environmental impacts.

Finding O2. A development plan has been approved or the requirement waived by the City.

A CDP application is being processed concurrently with DP No. 08-014. Therefore, approval of the DP is subject to the approval of CDP No. 08-055.

Section 4. Planning Commission Action.

Based on the foregoing findings and evidence contained within the record, the Planning Commission hereby approves Coastal Development Permit No. 08-055, Site Plan Review No. 10-012, Variance Nos. 10-005, 10-006, and 10-007, Conditional Use Permit No. 10-003 and Demolition Permit No. 08-014, subject to the conditions listed in the following section.

Section 5. Conditions of Approval

1. The applicants and property owners, and their successors in interest, shall indemnify and defend the City of Malibu and its officers, employees and agents from and against all liability and costs relating to the City's actions concerning this project, including (without limitation) any award of litigation expenses in favor of any person or entity who seeks to challenge the validity of any of the City's actions or decisions in connection with this project. The City shall have the right to choose its counsel and property owners shall reimburse the City's expenses incurred in its defense of any lawsuit challenging the City's actions concerning this project.

2. Approval of this application is to allow for the project described herein. The scope of work approved includes:

   Demolition of:

   a. Two remnant gasoline pumping station canopies;
   b. A convenience store structure; and
   c. Removal of the existing onsite wastewater treatment system.

   Construction of:

   a. 2,499 square foot, one-story, commercial office building with rooftop parking; 24 feet maximum for areas with flat roofs and 28 feet maximum for areas with pitched roof;
   b. 25 parking spaces (including 3 parking spaces reserved for 22741 PCH), consisting of rooftop parking and on grade parking;
   c. 24 foot wide, rooftop connector ramp (1 percent slope) from the subject property to 22741 PCH;
   d. 1,370 total cubic yards of exempt grading;
   e. Landscaping (40 percent);
   f. Open space (25 percent)
   g. Hardscape; and
   h. Alternative onsite wastewater treatment system (AOWTS)

   Subsequent submittals for this project shall be in substantial compliance with plans on-file with the Planning Division, dated **May 7, 2010**. In the event the project plans conflict with any condition of approval, the condition shall take precedence.

3. Pursuant to LIP Section 13.18.2, this permit and rights conferred in this approval shall not be effective until the property owner signs and returns the Acceptance of Conditions Affidavit accepting the conditions set forth herein. The applicant shall file this form with the Planning Division within 10 days of this decision and prior to issuance of any development permits.

4. The applicant shall submit three (3) complete sets of plans to the Planning Division for consistency review and approval prior to the issuance of any building or development permits.

5. This resolution, signed Affidavit and all referral sheets attached to the agenda report for this project shall be copied in their entirety and placed directly onto a separate plan sheet behind the cover sheet of the development plans submitted to the City of Malibu Environmental and Building Safety Division for plan check, and the City of Malibu Public Works/Engineering Services Department for an encroachment permit (as applicable).

6. The coastal development permit shall be null and void if the project has not commenced within two (2) years after issuance of the permit. Extension of the permit may be granted by the approving authority for due cause. Extensions shall be requested in writing by the applicant or authorized agent prior to expiration of the two-year period and shall set forth the reasons for the request.

7. Any questions of intent or interpretation of any condition of approval will be resolved by the Planning Manager upon written request of such interpretation.

8. All structures shall conform to requirements of the City of Malibu Environmental and Building Safety Division, City Geologist, City Environmental Health Administrator, City Biologist, City Coastal Engineer, City Public Works Department, Los Angeles County Water District No. 29 and the Los Angeles County Fire Department, as applicable. Notwithstanding this review, all required permits shall be secured.

9. Minor changes to the approved plans or the conditions of approval may be approved by the Planning Manager, provided such changes achieve substantially the same results and the project is still in compliance with the Municipal Code and the Local Coastal Program. Revised plans reflecting the minor changes and additional fees shall be required.

10. Pursuant to LIP Section 13.20, development pursuant to an approved CDP shall not commence until the CDP is effective. The CDP is not effective until all appeals, including those to the California Coastal Commission, have been exhausted. In the event that the California Coastal Commission denies the permit or issues the permit on appeal, the coastal development permit approved by the City is void.

Cultural Resources

11. In the event that potentially important cultural resources are found in the course of geologic testing or during construction, work shall immediately cease until a qualified archaeologist can provide an evaluation of the nature and significance of the resources and until the Planning Manager can review this information. Thereafter, the procedures contained in LIP Chapter 11 and those in M.M.C. Section 17.54.040(D)(4)(b) shall be followed.

12. If human bone is discovered during geologic testing or during construction, work shall immediately cease and the procedures described in Section 7050.5 of the California Health and Safety Code shall be followed. Section 7050.5 requires notification of the coroner. If the coroner determines that the remains are those of a Native American, the applicant shall notify the Native American Heritage Commission by phone within 24 hours. Following notification of the Native American Heritage Commission, the procedures described in Section 5097.94 and Section 5097.98 of the California Public Resources Code shall be followed.

Building Plan Check

Demolition/Solid Waste

13. Prior to demolition activities, the applicant shall receive Planning Division approval for compliance with conditions of approval.

14. The applicant/property owner shall contract with a City approved hauler to facilitate the recycling of all recoverable/recyclable material. Recoverable material shall include but shall not be limited to: asphalt, dirt and earthen material, lumber, concrete, glass, metals, and drywall.

15. Prior to the issuance of a building/demolition permit, a Waste Reduction and Recycling Plan (WRRP) shall be submitted to the Public Works Department for review and approval. The WRRP shall indicate means and measures for a minimum of 50 percent diversion goal.

16. Upon plan check approval of demolition plans, the applicant shall secure a demolition permit from the City. The applicant shall comply with all conditions related to demolition imposed by the Deputy Building Official.

17. No demolition permit shall be issued until building permits are approved for issuance. Demolition of the existing structure and initiation of reconstruction must take place within a six month period. Dust control measures must be in place if construction does not commence within 30 days.

18. The project developer shall utilize licensed subcontractors and ensure that all asbestos-containing materials and lead-based paints encountered during demolition activities are removed, transported, and disposed of in full compliance with all applicable federal, state and local regulations.

19. Any building or demolition permits issued for work commenced or completed without the benefit of required permits are subject to appropriate "Investigation Fees" as required in the Building Code.

20. Upon completion of demolition activities, the applicant shall request a final inspection by the Building Division.

Geology

21. All recommendations of the consulting certified engineering geologist or geotechnical engineer and/or the City Geologist shall be incorporated into all final design and construction including foundations, grading, sewage disposal, and drainage. Final plans shall be reviewed and approved by the City Geologist prior to the issuance of a grading permit.

22. Final plans approved by the City Geologist shall be in substantial conformance with the approved coastal development permit relative to construction, grading, sewage disposal and drainage. Any substantial changes may require amendment of the coastal development permit or a new coastal development permit.

Onsite Wastewater Treatment System

23. Prior to the issuance of a building permit the applicant shall demonstrate, to the satisfaction of the Building Official, compliance with the City of Malibu's Onsite Wastewater Treatment regulations including provisions of LIP Section 18.9 related to continued operation, maintenance and monitoring of onsite facilities.

24. Prior to final Environmental Health approval, a final alternative onsite wastewater treatment system (AOWTS) plot plan shall be submitted showing an AOWTS design meeting the minimum requirements of the Malibu Plumbing Code and the LCP, including necessary construction details, the proposed drainage plan for the developed property and the proposed landscape plan for the developed property. The AOWTS plot plan shall show essential features of the AOWTS and must fit onto an 11 inch by 17 inch sheet leaving a five inch margin clear to provide space for a City applied legend. If the scale of the plans is such that more space is needed to clearly show construction details and/or all necessary setbacks, larger sheets may also be provided (up to a maximum size of 18 inches by 22 inches).

25. A final design and system specifications shall be submitted as to all components (i.e. alarm system, pumps, timers, flow equalization devices, backflow devices, etc.) proposed for use in the construction of the proposed AOWTS. For all AOWTS, final design drawings and calculations must be signed by a California registered civil engineer, a registered environmental health specialist or a professional geologist who is responsible for the design. The final AOWTS design drawings shall be submitted to the City Environmental Health Administrator with the designer's wet signature, professional registration number and stamp (if applicable).

26. Final approval of the AOWTS design from TetraTech RTW, a consultant to the City of Malibu that provides contract wastewater engineering review, must be obtained prior to City Environmental Health approval.

27. The final design report shall contain the following information (in addition to the items listed above).
    a. Required treatment capacity for wastewater treatment and disinfection systems. The treatment capacity shall be specified in terms of flow rate, gallons per day, and shall be supported by calculations relating the treatment capacity to the number of bedroom equivalents, plumbing fixture equivalents, and/or the subsurface effluent dispersal system acceptance rate. The fixture unit count must be clearly identified in association with the design treatment capacity, even if the design is based on the number of bedrooms. Average and peak rates of hydraulic loading to the treatment system shall be specified in the final design;
    b. Description of proposed wastewater treatment and/or disinfection system equipment. State the proposed type of treatment system(s) (e.g., aerobic treatment, textile filter ultraviolet disinfection, etc.); major components, manufacturers, and model numbers for "package" systems; and conceptual design for custom engineered systems;
    c. Specifications, supporting geology information, and percolation test results for the subsurface effluent dispersal portion of the onsite wastewater disposal system. This must include the proposed type of effluent dispersal system (drainfield, trench, seepage pit subsurface drip, etc.) as well as the system's geometric dimensions and

basic construction features. Supporting calculations shall be presented that relate the results of soils analysis or percolation/infiltration tests to the projected subsurface effluent acceptance rate, including any unit conversions or safety factors. Average and peak rates of hydraulic loading to the effluent dispersal system shall be specified in the final design. The projected subsurface effluent acceptance rate shall be reported in units of total gallons per day and gallons per square foot per day. Specifications for the subsurface effluent dispersal system shall be shown to accommodate the design hydraulic loading rate (i.e., average and peak OWTS effluent flow, reported in units of gallons per day). The subsurface effluent dispersal system design must take into account the number of bedrooms, fixture units and building occupancy characteristics; and

d. All final design drawings shall be submitted with the wet signature and typed name of the OWTS designer. If the scale of the plan is such that more space is needed to clearly show construction details, larger sheets may also be provided (up to a maximum size of 18 inch by 22 inch, for review by Environmental Health). Note: For AOWTS final designs, full-size plans are required for review by Building Safety and/or Planning.

28. Any proposed reduction in setbacks from the OWTS to buildings or structures (i.e. setbacks less than those shown in MPC Table K-1) must be supported by a letter from a Structural Engineer and a letter from a Soils Engineer (i.e. a Geotechnical Engineer or Civil Engineer practicing the in area of soils engineering). Both engineers must certify unequivocally that the proposed reduction in setbacks from the treatment tank and effluent disposal area will not adversely affect the structural integrity of the OWTS, and will not adversely affect the structural integrity of the buildings or structures for which the MPC Table K-1 setback is reduced. Construction drawings submitted for plan check must show OWTS components in relation to those structures from which the setback is reduced.

29. The following note shall be added to the plan drawings included with the OWTS final design: "Prior to commencing work to abandon, remove, or replace the existing Onsite Wastewater Treatment System (OWTS) components, an 'OWTS Abandonment Permit' shall be obtained from the City of Malibu. All work performed in the OWTS abandonment, removal or replacement area shall be performed in strict accordance with all applicable federal, state, and local environmental and occupational safety and health regulatory requirements. The obtainment of any such required permits or approvals for this scope of work shall be the responsibility of the applicant and their agents."

30. Final plans shall clearly show the locations of all existing OWTS components (serving pre-existing development) to be abandoned and provide procedures for the OWTS' proper abandonment in conformance with the MPC.

31. A covenant running with the land shall be executed by the property owner and recorded with the Los Angeles County Recorder's Office. Said covenant shall serve as constructive notice to any successors in interest that: 1) the private sewage disposal system serving the development on the property does not have a 100 percent expansion effluent dispersal area (i.e., replacement disposal field(s) or seepage pit(s)), and 2) if the primary effluent dispersal area fails to drain adequately, the City of Malibu may require remedial measures including,

but not limited to, limitations on water use enforced through operating permit and/or repairs, upgrades or modifications to the private sewage disposal system. The recorded covenant shall state and acknowledge that future maintenance and/or repair of the private sewage disposal system may necessitate interruption in the use of the private sewage disposal system and, therefore, any building(s) served by the private sewage disposal system may become non-habitable during any required future maintenance and/or repair. Said covenant shall be in a form acceptable to the City Attorney and approved by the Environmental and Building Safety Division.

32. Proof of ownership of subject property shall be submitted to the City Environmental Health Administrator.

33. An operations and maintenance manual specified by the AOWTS designer shall be submitted to the City Environmental Health Administrator. This shall be the same operations and maintenance manual proposed for later submission to the owner and/or operator of the proposed AOWTS.

34. Prior to final Environmental Health approval, a maintenance contract executed between the owner of the subject property and an entity qualified in the opinion of the City of Malibu to maintain the proposed AOWTS after construction shall be submitted. Only original wet signature documents are acceptable and shall be submitted to the City Environmental Health Administrator.

35. Prior to final Environmental Health approval, a covenant which runs with the land shall be executed between the City of Malibu and the holder of the fee simple absolute as to subject real property and recorded with the Los Angeles County Recorder's Office. Said covenant shall serve as constructive, notice to any future purchaser for value that the OWTS serving subject property is an alternative method of onsite wastewater disposal pursuant to the City of Malibu Uniform Plumbing Code, Appendix K, Section 10). Said covenant shall be provided by the City of Malibu Environmental Health Administrator and shall be submitted to the City of Malibu with proof of recordation with the Los Angeles County Recorder.

36. The City Geologist and Geotechnical Engineer's final approval shall be submitted to the City Environmental Health Administrator.

37. The City Biologist's final approval shall be submitted to the City Environmental Health Administrator. The City Biologist shall review the AOWTS design to determine any impact on Environmentally Sensitive Habitat Area if applicable.

38. Los Angeles County construction permit records on file at the City of Malibu indicate the historical construction of a grease trap as a part of the private sewage disposal system at the subject property. It is unclear as to whether this grease trap was intended to serve oil/water clarifier, such as could have been used in processing wastewater for an automobile service station. However, no such clarifier has been located on the property. Final Environmental Health approval can be issued only with a condition that if, during construction, a clarifier is discovered, then a permit to abandon the device will be obtained from the California of Malibu Environmental Health Building safety Division.

Environmental Assessment

39. During demolition and construction, the project engineer shall direct crews to monitor excavated soil and/or waters (surface water or groundwater) for stain odor or other indicators of impacted media.

40. If, during demolition, construction or any later phase, stained or odorous soil or waters (surface water or groundwater) are detected, the applicant shall provide the following to the City:
    a. Non-emergency notification that stained or odorous soil or water (surface water or groundwater) has been detected;
    b. Plan to address the further assessment of the extent of impacted media;
    c. Contingency plans to address the possible impacts to site works or the public;
    d. Plan for legal profiling, transportation and disposal at an offsite location; and
    e. Notification of other agencies (e.g. RWQCB, LACFD, Department of Toxic Substance Control, etc.).

Grading/Drainage/Hydrology

41. The project shall not include any non-exempt grading.

42. The Total Grading Yardage Verification Certificate (dated September 29, 2009) shall be copied onto the coversheet of the Grading Plan. No alternative formats or substitute may be accepted.

43. A Grading and Drainage Plan containing the following information shall be approved, and submitted to the Public Works Department, prior to the issuance of grading permits for the project:
    a. Public Works Department general notes;
    b. The existing and proposed square footage of impervious coverage on the property shall be shown on the grading plan (including separate areas for buildings, driveways, walkways, parking, and decks);
    c. The limits of land to be disturbed during project development shall be delineated and a total area shall be shown on this plan. Areas disturbed by grading equipment beyond the limits of grading, areas disturbed for the installation of the septic system, and areas disturbed for the installation of the detention system shall be included within the area delineated;
    d. The grading limits shall include the temporary cuts made for retaining walls, buttresses and over excavations for fill slopes; and
    e. Private storm drain systems shall be shown on this plan. Systems greater than 12 inch in diameter shall also have a plan and profile for the system included with this plan.

44. A Wet Weather Erosion and Sediment Control Plan is required, and shall be submitted to the Public Works Department prior to the issuance of grading permits if grading or construction activity is anticipated to occur during the rainy season. The following elements shall be included in this plan:
    a. Locations where concentrated runoff will occur;

b. Plans for the stabilization of disturbed areas of the property, landscaping and hardscape, along with the proposed schedule for the installation of protective measures;
c. Location and sizing criteria for silt basins, sandbag barriers and silt fencing; and
d. Stabilized construction entrance and a monitoring program for the sweeping of material tracked offsite.

45. A Storm Water Pollution Prevention Plan (SWPPP) shall be submitted for review and approval by the Public Works Department prior to issuance of building permits. This plan shall include:
a. Dust Control Plan for the management of fugitive dust during extended periods without rain;
b. Designated areas for the storage of construction materials that do not disrupt drainage patterns or subject the material to erosion by site runoff;
c. Designated areas for the construction portable toilets that separates them from storm water runoff and limits the potential for upset; and
d. Designated areas for disposal and recycling facilities for solid waste separated from the site drainage system to prevent the discharge of runoff through the waste.

46. Storm drainage improvements are required to mitigate increased runoff generated by property development. The applicant shall have the choice of one method specified within LIP Section 17.4.2(B)(2).

47. Earthmoving during the rainy season (extending from November 1 to March 31) shall be prohibited for development that includes grading on slopes greater than 4 to 1. Approved grading operations shall not be undertaken unless there is sufficient time to complete grading operations before the rainy season. If grading operations are not completed before the rainy season begins, grading shall be halted and temporary erosion control measures shall be put into place to minimize erosion until grading resumes after March 31, unless the Planning Manager or Deputy Building Official determines that completion of grading would be more protective of resources.

48. Grading during the rainy season may be permitted to remediate hazardous geologic conditions that endanger public health and safety.

49. Exported soil from a site shall be taken to the County Landfill or to a site with an active grading permit and the ability to accept the material in compliance with LIP Section 8.3.

50. All cut and fill slopes shall be stabilized with landscaping at the completion of final grading.

51. A Storm Water Management Plan (SWMP) shall be submitted for review and approval of the Public Works Director. The SWMP shall be prepared in accordance with the LIP Section 17.3.2 and all other applicable ordinances and regulations.

52. A Water Quality Management Plan (WQMP) shall be submitted for review and approval of the Public Works Director. The WQMP shall be prepared in accordance with the LIP Section 17.3.3 and all other applicable ordinances and regulations. The WQMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage on the site. The following

elements shall be included within the WQMP:

a. Site Design Best Management Practices (BMPs);
b. Source Control BMPs;
c. Treatment Control BMPs;
d. Drainage improvements;
e. Methods for onsite percolation, site re-vegetation and an analysis for off-site project impacts;
f. Measures to treat and infiltrate runoff from impervious areas;
g. A plan for the maintenance and monitoring of the proposed treatment BMPs for the expected life of the structure;
h. A copy of the WQMP shall be filed against the property to provide constructive notice to future property owners of their obligation to maintain the water quality measures installed during construction prior to the issuance of grading or building permits; and
i. The WQMP shall be submitted to the Building and Safety Public Counter and the fee applicable at the time of submittal for review of the WQMP shall be paid prior to the start of the technical review. Once the plan is approved and stamped by the Public Works Department, the original signed and notarized document shall be recorded with the County Recorder. A certified copy of the WQMP shall be submitted prior to the Public Works Department approval of building plans for the project.

Water Quality/ Water Service

53. Prior to the issuance of a building permit, the applicant shall submit an updated Will Serve letter from Los Angeles County Waterworks District No. 29 indicating the ability of the property to receive adequate water service.

Construction / Framing

54. A construction staging plan shall be reviewed and approved by the Planning Manager prior to plan check submittal.

55. Construction hours shall be limited to Monday through Friday from 7:00 a.m. to 7:00 p.m. and Saturdays from 8:00 a.m. to 5:00 p.m. No construction activities shall be permitted on Sundays or City-designated holidays.

56. Construction management techniques, including minimizing the amount of equipment used simultaneously and increasing the distance between emission sources, shall be employed as feasible and appropriate. All trucks leaving the construction site shall adhere to the California Vehicle Code. In addition, construction vehicles shall be covered when necessary; and their tires will be rinsed off prior to leaving the property.

57. All new development, including construction, grading, and landscaping shall be designed to incorporate drainage and erosion control measures prepared by a licensed engineer that incorporate structural and non-structural Best Management Practices (BMPs) to control the volume, velocity and pollutant load of storm water runoff in compliance with all requirements contained in LIP Chapter 17, including:

a. Construction shall be phased to the extent feasible and practical to limit the amount of

disturbed areas present at a given time.

b. Grading activities shall be planned during the southern California dry season (April through October).
c. During construction, contractors shall be required to utilize sandbags and berms to control runoff during on-site watering and periods of rain in order to minimize surface water contamination.
d. Filter fences designed to intercept and detain sediment while decreasing the velocity of runoff shall be employed within the project site.

58. When framing is complete, a site survey shall be prepared by a licensed civil engineer or architect that states the finished ground level elevation and the highest roof member elevation. Prior to the commencement of further construction activities, said document shall be submitted to the assigned Building Inspector and Planning Division for review and sign off on framing.

Colors and Materials

59. New development in scenic areas visible from scenic roads or public viewing areas shall incorporate colors and exterior materials that are compatible with the surrounding landscape.

a. Acceptable colors shall be limited to colors compatible with the surrounding environment (earth tones) including shades of green, brown and gray, with no white or light shades and no bright tones.
b. The use of highly reflective materials shall be prohibited except for solar energy panels or cells, which shall be placed to minimize significant adverse impacts to public views to the maximum extent feasible.
c. All windows shall be comprised of non-glare glass.

60. All driveways (including the connector ramp) shall be a neutral color that blends with the surrounding landforms and vegetation. The color shall be reviewed and approved by the Planning Manager and clearly indicated on all grading, improvement and/or building plans.

61. Retaining walls shall incorporate veneers, texturing and/or colors that blend with the surrounding earth materials or landscape. The color and material of all retaining walls shall be reviewed and approved by the Planning Manager and clearly indicated on all grading, improvement and/or building plans.

Lighting

62. Exterior lighting shall be minimized and restricted to low intensity features, shielded, and concealed so that no light source is directly visible from public viewing areas. Permitted lighting shall conform to the following standards:

a. Lighting for walkways shall be limited to fixtures that do not exceed two feet in height that are directed downward, and use bulbs that do not exceed 60 watts or the equivalent;
b. Security lighting controlled by motion detectors may be attached to the residence

provided it is directed downward and is limited to 60 watts or the equivalent;

c. Driveway lighting shall be limited to the minimum lighting necessary for safe vehicular use. The lighting shall be limited to 60 watts or the equivalent;
d. Lights at entrances as required by the Building Code shall be permitted provided that such lighting does not exceed 60 watts or the equivalent;
e. Site perimeter lighting shall be prohibited;
f. Outdoor decorative lighting for aesthetic purposes is prohibited; and
e. Night lighting for sports courts or other private recreational facilities in scenic areas designated for residential use shall be prohibited.

63. No permanently installed lighting shall blink, flash, or be of usually high intensity or brightness. Lighting levels on any nearby property from artificial light sources on the subject property(ies) shall not produce an illumination level greater than one foot candle.

64. Lighting, where provided to illuminate a parking area, shall be hooded and so arranged and controlled so as not to cause a nuisance either to highway traffic or to adjacent properties.

Biology/Landscaping

65. Invasive plant species, as determined by the City of Malibu, are prohibited.

66. Vegetation shall be situated on the property so as not to significantly obstruct the primary view from private property at any given time (given consideration of its future growth).

67. The use of building materials treated with toxic compounds such as copper arsenate is prohibited.

68. All street frontage trees and shrubs shall include only species native to the Santa Monica Mountains.

69. The applicant shall submit a new, revised, landscaping plan, prepared in compliance with the Malibu Landscape Water Conservation Ordinance to the City Biologist for review and approval.

70. The applicant shall submit a new, revised, landscaping plan, in compliance with the required 40 percent landscaping and additional landscaping to be considered as open space.

Fuel Modification

71. The project shall receive Los Angeles County Fire Department approval of a Final Fuel Modification Plan prior to the issuance of final building permits.

Fencing and Walls

72. The height of fences, walls and front yard planters shall comply with LIP Section 3.5.3(A). No retaining wall shall exceed six feet in height or 12 feet in height for a combination of two

or more walls.

Site Specific Conditions

73. Conditional Use Permit No. 08-017, for the operation of a hand carwash at the subject location, shall become null and void once grading or building permits are issued for the construction of the proposed commercial structure.

74. The applicant shall submit a recorded easement that (1) provides for shared use of the existing access driveway; (2) permits the construction of the connector ramp across property lines; and (3) provides for the shared parking arrangement; prior to issuance of building permits to Planning staff.

75. Existing transmission lines shall be relocated underground when they are replaced or when funding for undergrounding is available.

76. Tire stops shall be provided within all parking areas.

77. All parking areas shall be surfaced with asphaltic or cement concrete paving which is at least three inches thick or permeable paving on comparable load-carrying capacity and durability.

78. All plantings shall be permanently and regularly maintained free of debris and in conformity with the accepted practices for landscape maintenance.

79. Required landscaping shall be irrigated with greywater, where feasible.

80. All commercial developments shall be designed to control the runoff of pollutants from structures, parking and loading docks. The following measures shall be implemented to minimize the impacts of commercial developments on water quality:

    a. Properly designed parking lots (5,000 square feet of impervious surface or 25 parking spaces.):
        i. Minimize impervious surfacing for parking area;
        ii. Infiltrate runoff before it reaches a storm drain system;
        iii. Treat to remove oil and petroleum hydrocarbons at parking lots that are heavily used; and
        iv. Ensure adequate operation and maintenance of treatment systems particularly sludge and oil removal and system fouling and plugging prevention control.

    b. Trash Storage Areas
        i. Trash container areas must have drainage from adjoining roofs and pavement diverted around the area; and
        ii. Trash container areas must be covered, screened or walled to prevent off-site transport of trash.

California Department of Transportation (Caltrans)

81. Encroachment permits from the California Department of Transportation (Caltrans) shall be obtained prior to any construction on Caltrans public right-of way, as applicable.

82. A Caltrans Transportation permit shall be obtained prior to any transportation of heavy construction equipment and / or materials which requires the use of oversized-transport vehicles on State highways (such as Pacific Coast Highway).

83. The applicant must obtain all applicable permits from Caltrans for the transportation of construction equipment, including large size truck trips.

84. A truck / traffic construction management plan shall be submitted to the City Planning Department for review and approval during Building Plan Check and prior to issuance of grading or building permit.

Prior to Occupancy

85. Prior to issuing a Certificate of Occupancy, the City Biologist shall inspect the project site and determine that all planning conditions to protect natural resources are in compliance with the approved plans.

86. Prior to the issuance of the Certificate of Occupancy, the applicant shall provide the City Public Works Department with a Final Waste Reduction and Recycling Report. This report shall designate all materials that were land filled and recycled, broken down into material types. The final report shall be approved by the City Public Works Department.

87. The applicant shall request a final planning inspection prior to final inspection by the City of Malibu Environmental and Building Safety Division. A Certificate of Occupancy shall not be issued until the Planning Division has determined that the project complies with this coastal development permit. A temporary Certificate of Occupancy may be granted at the discretion of the Planning Manager, provided adequate security has been deposited with the City to ensure compliance should the final work not be completed in accordance with this permit.

Deed Restrictions

88. The property owner is required to execute and record a deed restriction which shall indemnify and hold harmless the City, its officers, agents, and employees against any and all claims, demands, damages, costs and expenses of liability arising out of the acquisition, design, construction, operation, maintenance, existence or failure of the permitted project in an area where an extraordinary potential for damage or destruction from wildfire exists as an inherent risk to life and property. The property owner shall provide a copy of the recorded document to Planning Division staff prior to final planning approval.

89. The property owner is required to acknowledge, by recordation of a deed restriction, that the project is subject to the conditions included in this Resolution. The applicant shall be required to record the executed Planning Commission Resolution with the Los Angeles

County Recorders' Office within 10 days of the Notice of Final Action.

Fixed Conditions

90. This coastal development permit shall run with the land and bind all future owners of the property.

91. Violation of any of the conditions of this approval may be cause for revocation of this permit and termination of all rights granted there under.

Section 5. Certification.

The Planning Commission shall certify the adoption of this resolution.

PASSED, APPROVED AND ADOPTED this 1st day of June 2010.

JOHN MAZZA, Planning Commission Vice Chair

ATTEST:

JESSICA BLAIR, Recording Secretary

I CERTIFY THAT THE FOREGOING RESOLUTION NO. 10-43 was passed and adopted by the Planning Commission of the City of Malibu at the special meeting thereof held on the 1st day of June 2010, by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____

JESSICA BLAIR, Recording Secretary

Aerial Photograph – 22729 Pacific Coast Highway

RECEIVED May 7, 2010

SEA VIEW TERRACE, LLC

22729 PACIFIC COAST HIGHWAY, MALIBU CA 90265

CONSULTANTS

Architect:
Barsocchini and Associates
3502 Coast View Drive
Malibu, CA 90265
phone (310) 456-3625
fax (310) 456-7175
Principal Architect: Mike Barsocchini

Survey:
Land And Air Surveying
2741 Pacific Coast Highway, Suite # 400A
Malibu, CA 90265
phone (818) 879-9879
fax (818) 706-3040
Surveyor: Mark Sandstrom

Geology and Soil:
Stratum Geotechnical Consultants
Calabasas, CA 91302
phone (818) 222-8568
RGE,CEG: Rory Robinson

Septic System:
EPD Consultants, Inc.
411 N. Harbor Blvd, Ste 304,
San Pedro, CA 90731
phone (310) 241-8565
fax (310) 241-8566
P.E.: Kevin Poffenbarger

Grading and Drainage:
Robert Newlon
3550 Las Flores Canyon
Malibu, CA 90265
phone (310) 456-8750
fax (310) 456-9009
Engineer: Robert Newlon

Structural :
To be determined

Mechanical:
To be determined

Landscape and
Fuel Modification Plan:
To be determined

NOTE:
Deffered submittal documents shall be submitted to the architect- or engineer - of ... review them and forward ... ng official with a notation ... een reviewed and have ... in general conformance ... the building or structure. ... ems should not been ... ir design and submittal ... been reviewed and ... the building official"

Attachment 3

DESCRIPTION OF WORK:

THE PROPOSED PROJECT IS FOR THE DEMOLITION OF ALL EXISTING STRUCTURES REMAINING AT AN ABANDONED SERVICE STATION AND THE CONSTRUCTION OF NEW 2,499 SQ. FT. COMMERCIAL DEVELOPMENT INCLUDING HARDSCAPE, DRIVEWAY, LANDSCAPING AND AN ALTERNATIVE WASTEWATER TREATMENT SYSTEM.
THE NEW COMMERCIAL BUILDING WOULD HAVE ONE STORY ABOVE NATURAL GRADE AND A ROOFTOP PARKING AREA TO BE CONNECTED THRU A RAMP TO THE ADJACENT PROPERTY'S DRIVEWAY.
THE PROPOSED PROJECT PLANS TO REMOVE THE EXISTING CONCRETE MANTLE OVER THE ASCENDING SLOPE ON THE NORTH SIDE OF THE PROPERTY AND REPLACE IT WITH LANDSCAPE.
THE MAXIMUM HEIGHT OF THE PROPOSED BUILDING IS 28' ABOVE FINISH FIRST FLOOR OR FINISH GRADE WHICHEVER RESULT LOWER.
A MINOR MODIFICATION IS REQUEST FOR REDUCTION OF 20% OF THE REQUIRED REAR YARD SETBACK.
A VARIANCE IS REQUEST TO REDUCE THE REQUIRED 40 % OF THE LOT AREA DEDICATED TO LANDSCAPE FROM THE REQUIRED 7,313 S.F. TO THE PROPOSED 4,183 S.F.

PROJECT INFORMATIONS

Project address: 22729 Pacific Coast Highway, Malibu CA 90265
PROPERTY OWNER: Donald & Min CHAE
mail address: c/o Barsocchini and Associates
3502 Coast View Drive, Malibu CA 90265

A.P.N. 4452-022-010
Lot area: 18,283 S.F (0.42 Acres)
Fire zone: ..... VHFHSZ
Construction type:.. IA / VA
Zone:..... Community Commercial (CC)
Num of stories:..... 1
Occupancy:..... B-U
Use:..... Commercial/Office
Required sprinklers: ... Yes
Regulation Code: 2007 CBC/ 2008 LACo with Local Amendment

SPR requested for hight up to 28'
CUP for areas over 500 Sq.ft.

SETBACK CALCULATIONS

Lot depth 121'-7"
Lot width 150'

Required Setbacks
Front Yard min 20% of lot depth or 65' whichever is less. Min. 24'-4"
Rear Yard min 15% of lot depth. Min. 18'-3".
Single side yard min 10% of lot width. Min 15'
Side Yard cumulative min 25% of lot width. Min. (15' + 22'-6") = 37'-6"

Proposed Setbacks
Front yard 32'
West side yard 15'
East side yard 22'-8"

Rear yard building 14'-7"
Rear yard ramp 0"
"Variance requested for Setback reduction of 0%;
the proposed ramp connects the roof parking to the northady property and would allow the access and parking to a second ADA compliant parking space. The first ADA parking space is located at the PCH level.

F.A.R AREA CALCULATIONS (LCP)

Maximum square footage allowable:
(Floor Area Ratio) F.A.R. 0.15 or 15% of lot area
Lot area: 18,283 Sq. Ft.
Allowed Max. 15% of 18,283 Sq. Ft. = 2,742 Sq. Ft.

Proposed Development area: Net First floor area 2,499 Sq. Ft.

LANDSCAPE AREA

Minimum required Landscape area 40% of Lot Area = Min. 7,313 Sq.Ft.

Proposed Landscape: 7,313 Sq.Ft.

OPEN AREA

Minimum required Open Space: 25 % of Lot Area = Min 4,571 Sq.Ft.

Proposed Open areas : 4,571 Sq.Ft.

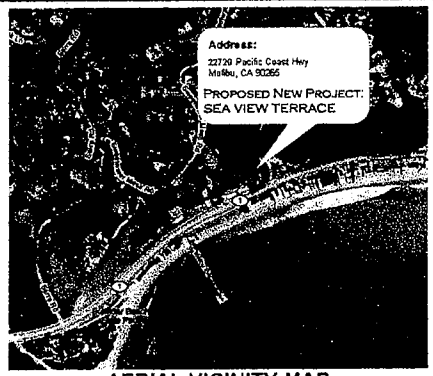
PARKING SPACES

Minimum parking space required:
1 space for every 250 sq.ft. of proposed TDSF = Min. 11 standard
of which 1 Accessible to person with disabilities (CBC 2007 TAB 11B-6):

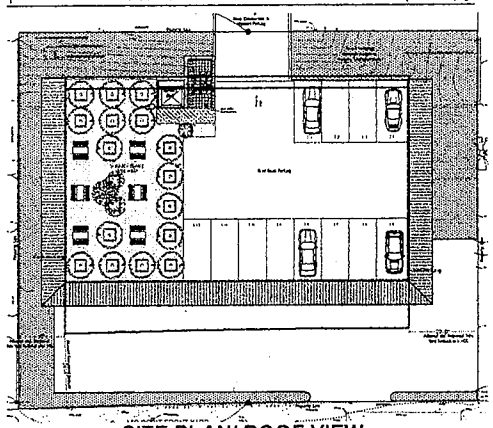
Proposed Parking spaces:
Ground Floor:
Standard (min. 9'x20') 11 +
of wich 1 Accessible (9'x 20'-18')
Compact (min. 8'x18') 2 +
Roof top Deck Level:
Standerd (min. 9'x20') 12 =
GRAN TOTAL parking spaces 25

IMPERMEABLE AREA: 12,999 S.F.
PERMEABLE AREA: 5,284 S.F.
Note: Impermeable/Permeable area limits is not applicable to this project

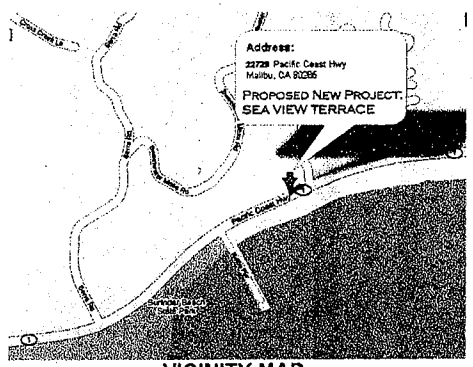
SHEET INDEX	
A-01	COVER SHEET
A-02	Exhibit: F.A.R., Open Space and Landscaping
A-03	SURVEY WITH FOOTPRINT PROJECT
A-04	SITE PLAN
A-05	CONNECTIVITY TO (E) BUSINESS CENTER
A-06	SEPTIC SYSTEM LOCATION
A-07	FIRST FLOOR PLAN
A-08	ROOF DECK - PARKING
A-09	ELEVATIONS SOUTH & EAST
A-10	ELEVATIONS WEST & NORTH
A-11	SECTIONS A-A, B-B
A-12	SECTIONS C-C, D-D
A-13	SECTION E-E



1 AERIAL VICINITY MAP 1" = 1'-0"



3 SITE PLAN/ ROOF VIEW 1/16" = 1'-0"



2 VICINITY MAP 1" = 1'-0"

REVISIONS

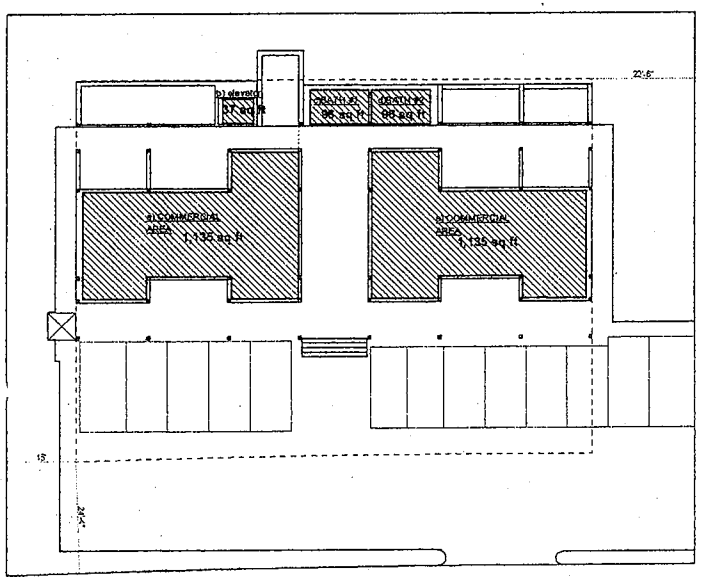
SEA VIEW TERRACE, LLC
22729 Pacific Coast Highway
MALIBU, CA 90265

BARSOCCHINI & ASSOCIATES, INC.
ARCHITECTS
MICHAEL E. BARSOCCHINI, A.I.A. - (310) 456-3625
3502 COAST VIEW DRIVE - MALIBU, CA 90265

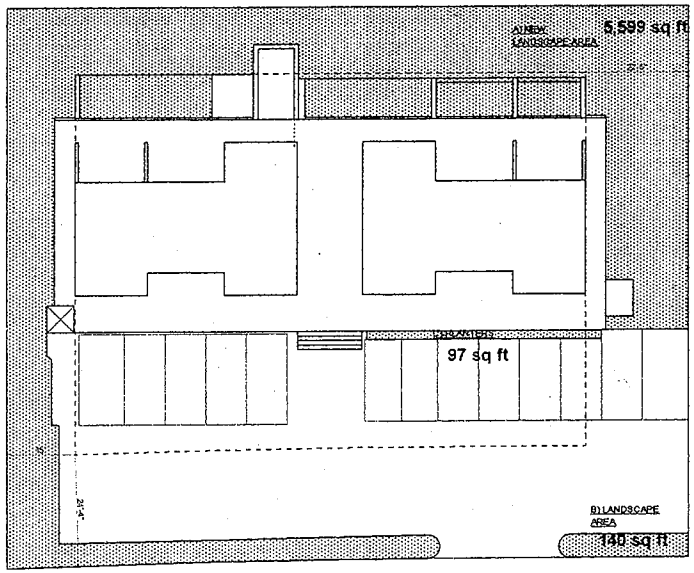
COVER SHEET

DATE Apr 9, 2009
SCALE AS SHOWN
DRAWN BY A.MATTIOLI
JOB NO. 1104.12
SHEET NO. A-01
OF 17 SHEETS

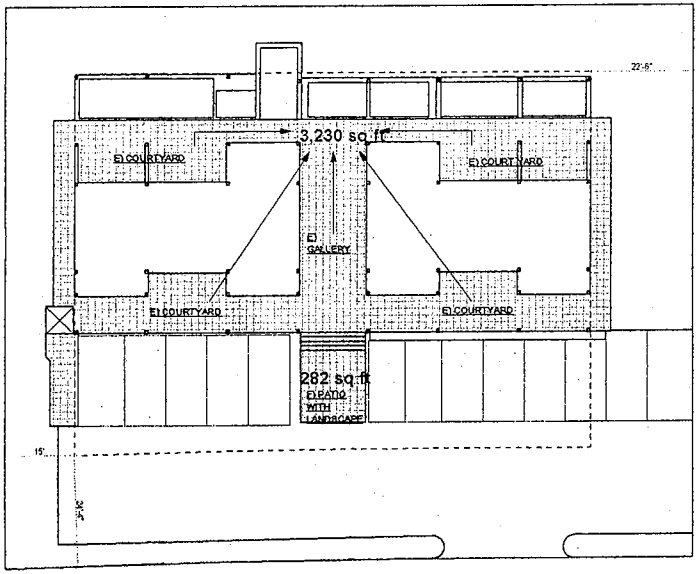
Thursday, May 06, 2010



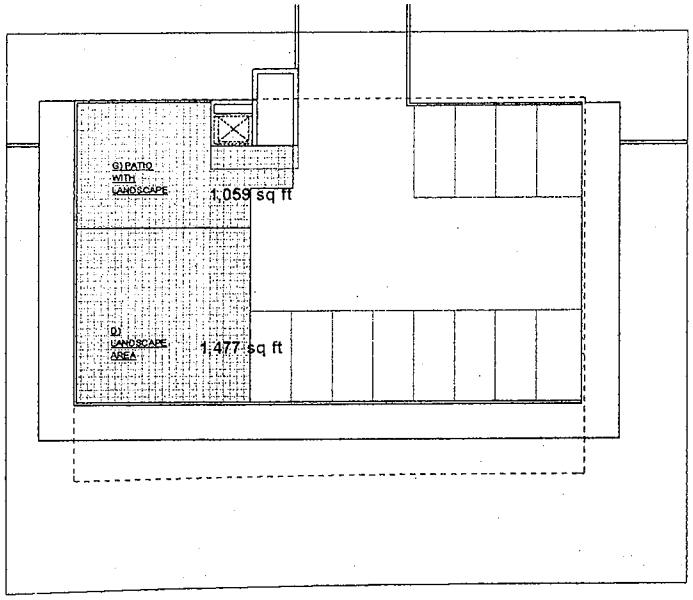
1 F.A.R. EXHIBIT REQUIRED MAX 15% LOT AREA = MAX. 2,742 SQ.FT.



2 LANDSCAPE AREA REQUIRED MIN 40% LOT AREA = MIN. 7,313 SQ.FT.



3 OPEN SPACE EXHIBIT REQUIRED MIN 25% LOT AREA = MIN. 4,571 SQ.FT.
Includes Courtyards, Patios, Natural open spaces and additional Landscaping



4 OPEN SPACE EXHIBIT ROOF TOP DECK

AREA CALCULATION

1) Max **Allowable** Total Development Square Foot area ..... **2,742** s.f.
Proposed TDSF:
a)Commercial Lease spaces ..... 2,270 s.f. +
b)Elevator shaft ..... 37 s.f. +
c)Bathroom #1..... 96 s.f. +
d)Bathroom #2..... 96 s.f. =
Total **Proposed** TDSF **2,499** s.f.

2) **Required** Landscape area Min **7,313** s.f.
Proposed Landscape area:
A) Landscape..... 5,599s.f. +
B) Landscape..... 140 s.f. +
C) Planters..... 97 s.f. +
D) Roof Deck Landscape.. 1,477 s.f. =
Total **Proposed** Landscape area **7,313** s.f.

3) **Required** Open space area Min. **4,571** s.f.
Proposed Open space area:
E) Courtyards, patios..... 3,230 s.f. +
F) Patio with landscape..... 282s.f. +
G) Additional Landscape, including planters 1,059 s.f. =
Total **Proposed** Open space area **4,571** s.f.

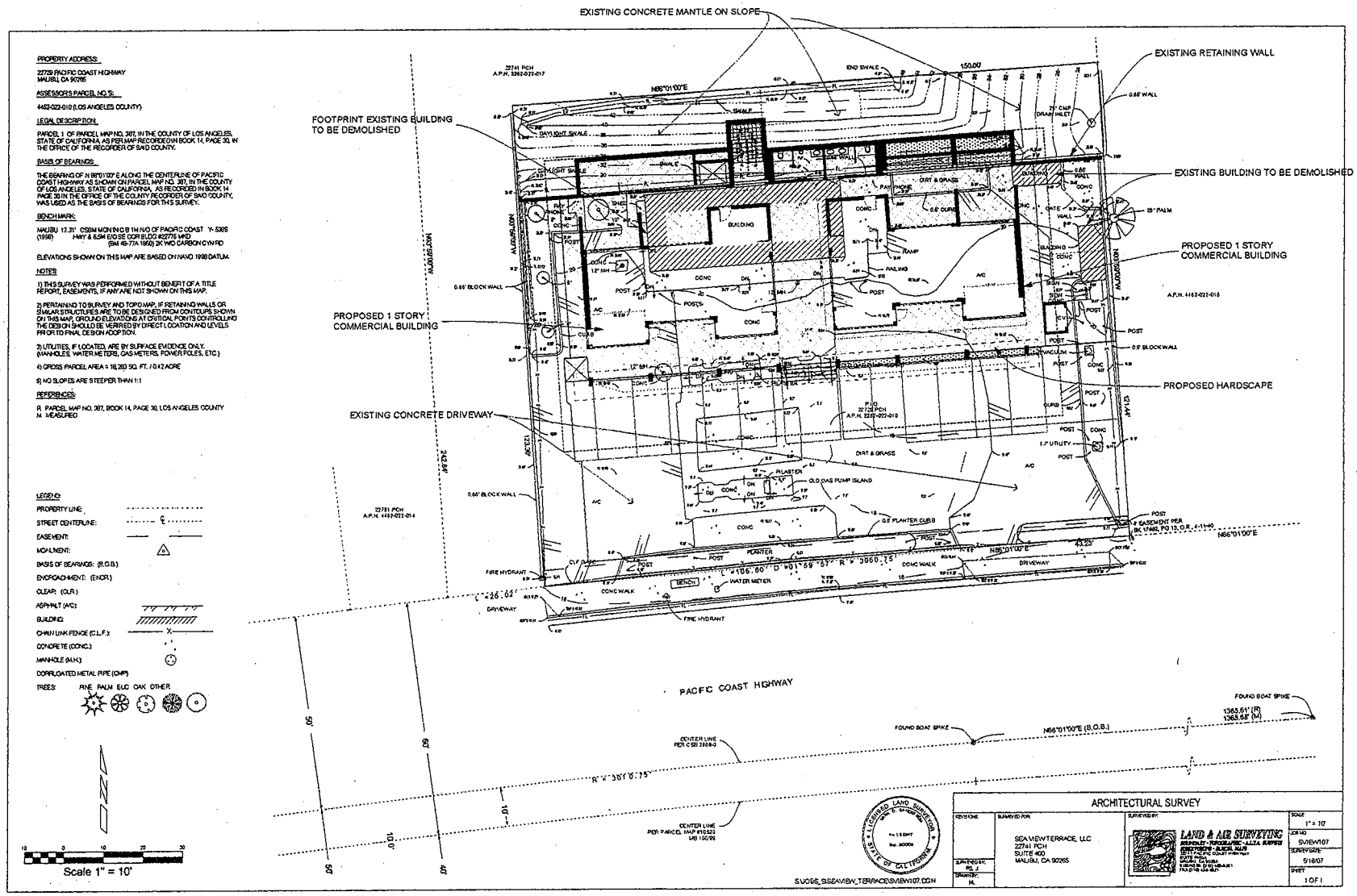
Note: no variance requested for this project.

BARSOCCHINI & ASSOCIATES, INC.
ARCHITECTS
MICHAEL E. BARSOCCHINI, A.I.A. · (310) 456-3625
3502 COAST VIEW DRIVE · MALIBU, CA. 90265

SEA VIEW TERRACE, LLC
22729 Pacific Coast Highway
MALIBU, CA 90265

Exhibit: F.A.R., Open Space and Landscaping

DATE Apr 9, 2009
SCALE AS SHOWN
DRAWN BY A. MATTIOLI
JOB NO. 1106.12
SHEET 2
A-02
OF 17 SHEETS



1 OVERLAY OF PROPOSED PROJECT TO SURVEY
SCALE: 1" = 10'

BARSOCCHINI & ASSOCIATES, INC.
ARCHITECTS
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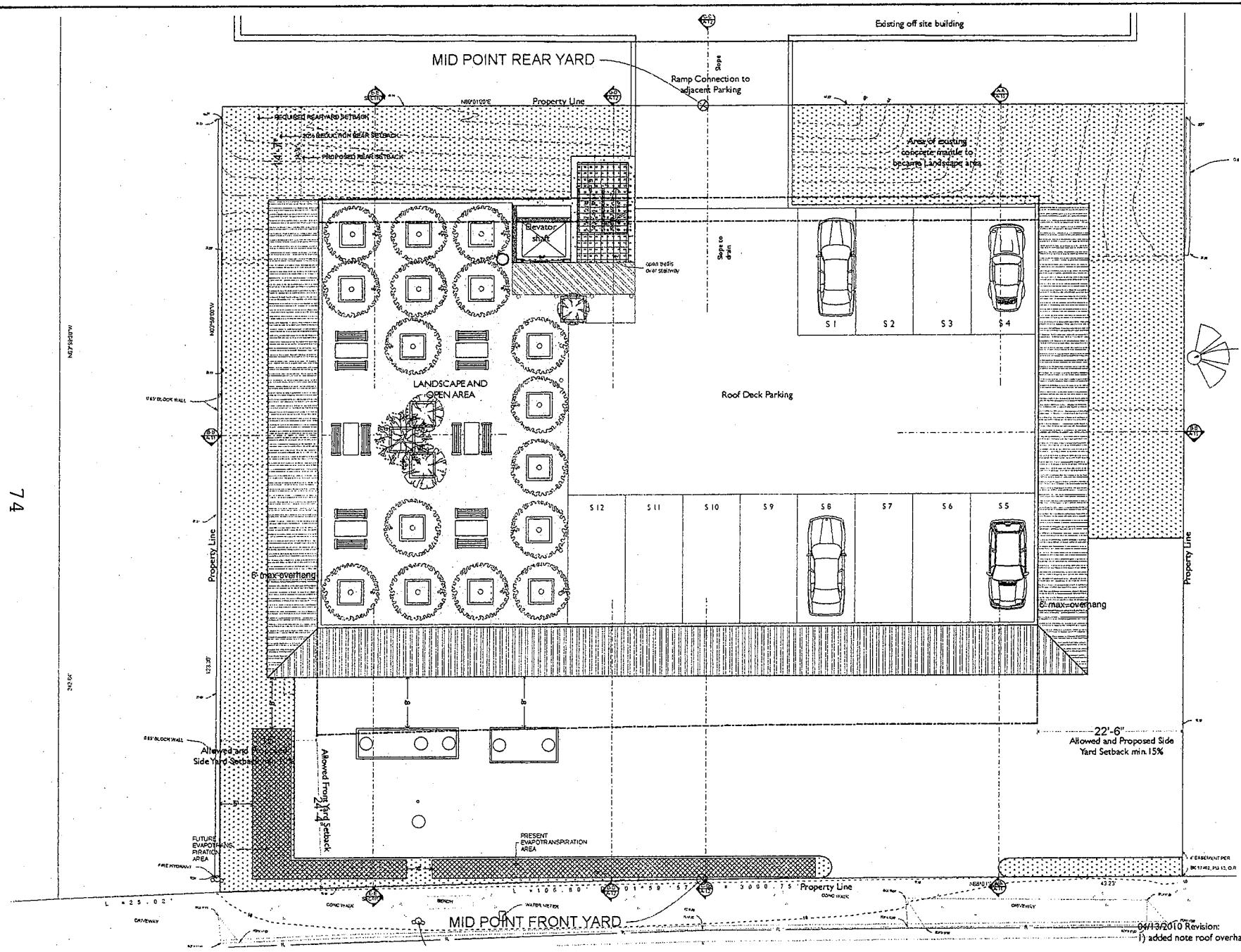
3502 COAST VIEW DRIVE · MALIBU, CA 90265

SEA VIEW TERRACE, LLC
22729 Pacific Coast Highway
MALIBU, CA 90265

SURVEY WITH FOOTPRINT PROJECT

DATE Apr 9, 2009
SCALE AS SHOWN
DRAWN BY A MATTIOLI
JOB NO. 110412
SHEET 3
A-03
OF 17 SHEETS



1 SITE PLAN OVERVIEW
SCALE: 3/16" = 1'-0"

74

REVISIONS

SEA VIEW TERRACE, LLC
22729 Pacific Coast Highway
MALIBU, CA 90265

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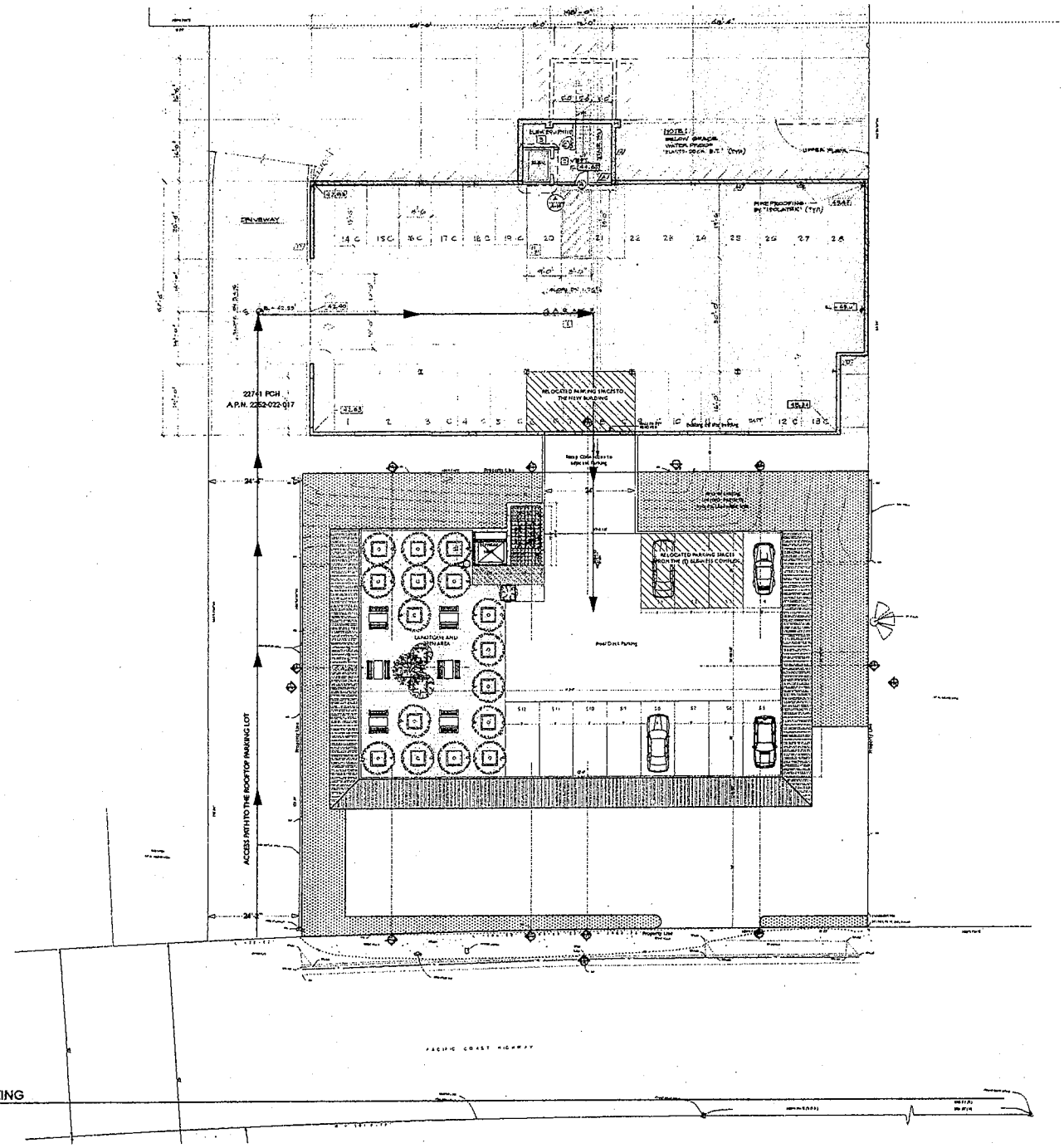
3502 COAST VIEW DRIVE · MALIBU, CA 90265

SITE PLAN

DATE Apr 9, 2009
SCALE AS SHOWN
DRAWN BY A.MATTOLI
JOB NO. 110412
SHEET # A-04
OF 17 SHEETS

22729PCH.MAL

SEA VIEW TERRACE.pln Thursday, May 06, 2010



2. ROOF DECK PARKING

SCALE: 1/32" = 1'-0"

REVISIONS	BY
Aug 8, 2008 C.D.P. 1st Subst.	CS/ MB
Aug 2008 Oceanfarm COP	AJA MB
Apr 11, 2009 2nd C.D.P. Subst.	AJA MB
Jan 06, 2010 1st C.D.P. Subst.	AJA MB
Apr 13, 2010 - Rev. 4th C.D.P. Subst.	AJA MB
May 06, 2010 - Rev. 5th C.D.P. Subst.	AJA MB

SEA VIEW TERRACE, LLC
22729 Pacific Coast Highway
MALIBU, CA 90265

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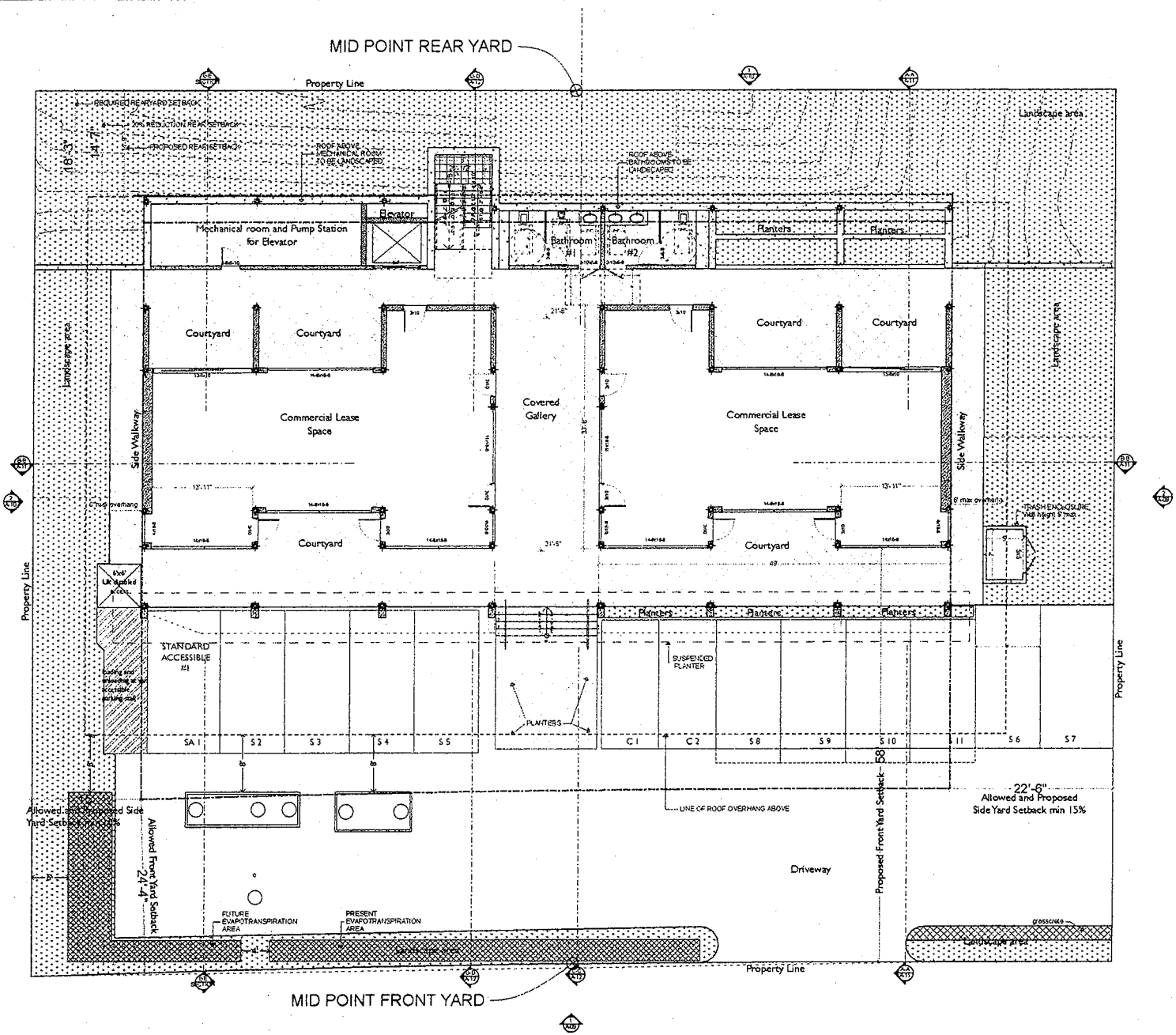
MICHAEL E. BARSOCCHINI, A.I.A. · (310) 456-3625
3502 COAST VIEW DRIVE · MALIBU, CA 90265

CONNECTIVITY TO
(E) BUSINESS CENTER

DATE Apr 8, 2009
SCALE AS SHOWN
DRAWN BY A. MATTIOLI
JOB NO. 110412
SHEET 5
A-05
OF 17 SHEETS

22729 PCH, Malibu

SEA VIEW TERRACE.pln Thursday, May 06, 2010



1 FIRST FLOOR
SCALE: 3/16" = 1'-0"

76

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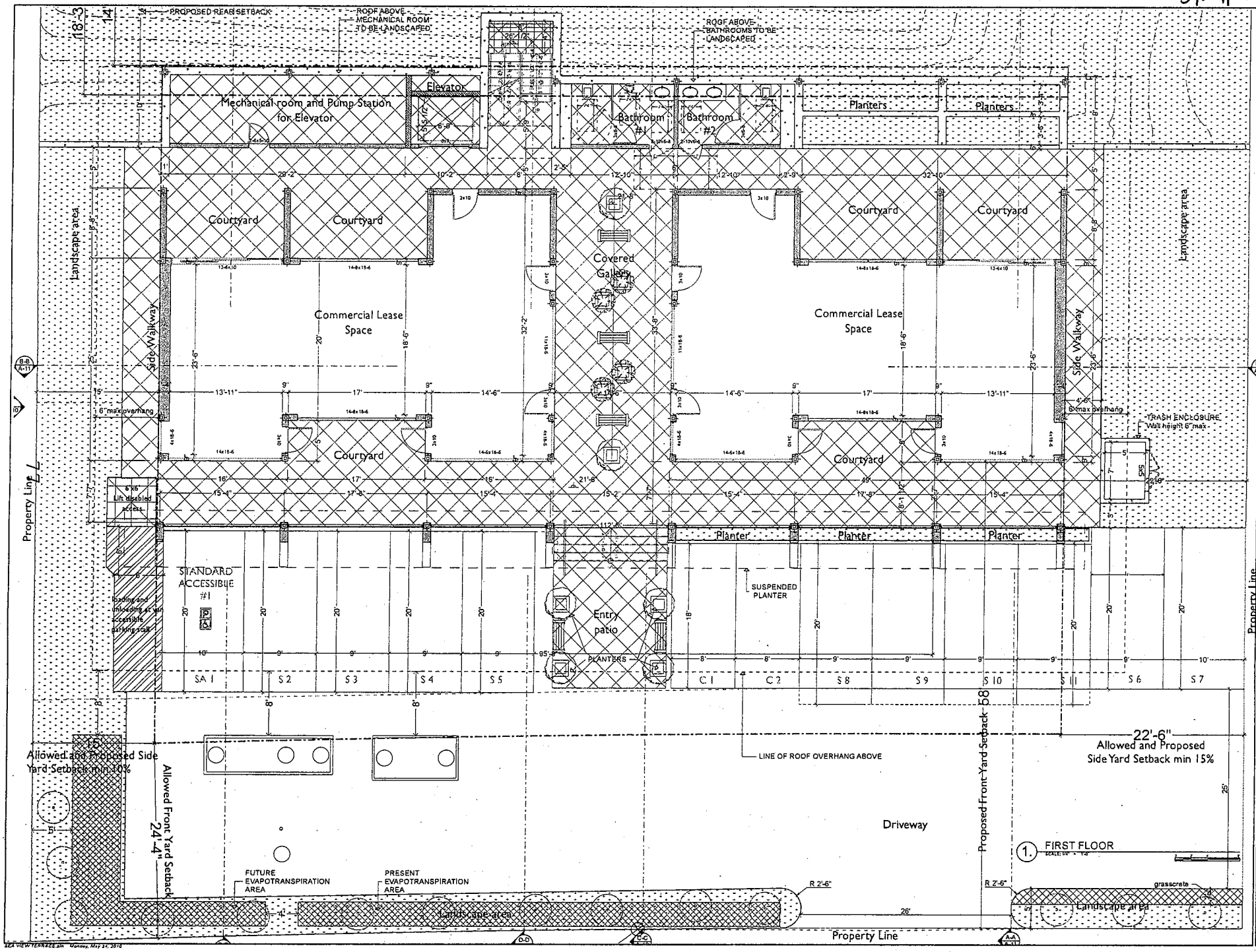
3502 COAST VIEW DRIVE · MALIBU, CA 90265

SEPTIC SYSTEM LOCATION

DATE Apr 9, 2009
SCALE AS SHOWN
DRAWN BY A.MATTIOLI
JOB NO. 110412
SHEET # A-06
OF 17 SHEETS

RECEIVED
5/24/10



REVISIONS | BY

SEA VIEW TERRACE, LLC
22729 Pacific Coast Highway
MALIBU, CA 90265

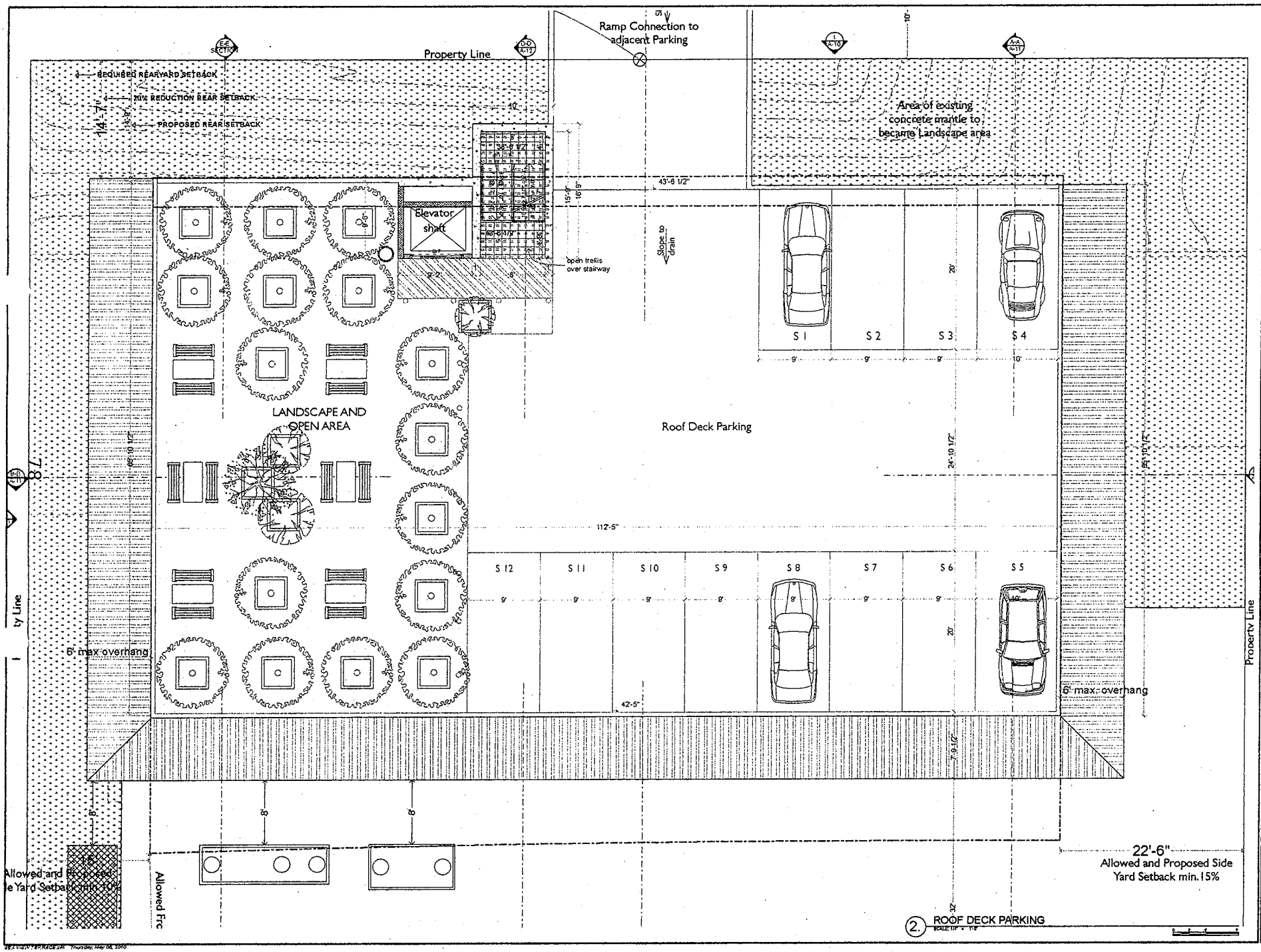
BARSOCCHINI & ASSOCIATES, INC.
ARCHITECTS
MICHAEL E. BARSOCCHINI, A.I.A. · (310) 456-3625
3502 COAST VIEW DRIVE · MALIBU, CA 90265

FIRST FLOOR PLAN

DATE Apr 9, 2009
SCALE AS SHOWN
DRAWN BY A.MATTIOLI
JOB NO. 1104112
SHEET # A-07
OF 17 SHEETS

2728 PCH, Malibu

SEA VIEW TERRACE.dwn Monday, May 24, 2010



2. ROOF DECK PARKING
SCALE: 1/8" = 1'-0"

REVISIONS

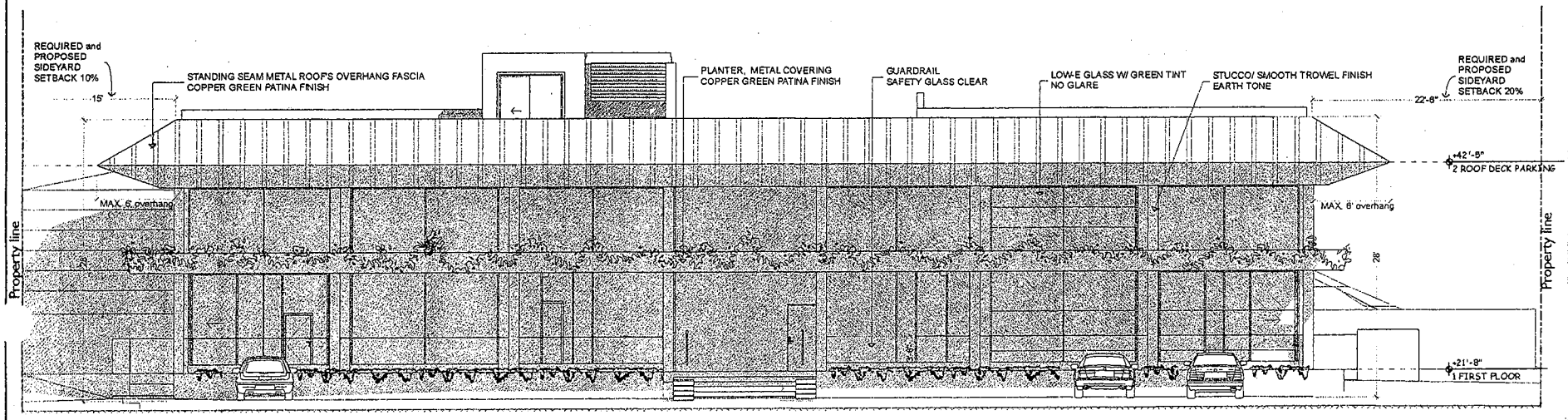
SEA VIEW TERRACE, LLC
22729 Pacific Coast Highway
MALIBU, CA 90265

BARSOCCHINI & ASSOCIATES, INC.
ARCHITECTS
MICHAEL E. BARSOCCHINI, A.I.A. · (310) 456-3625
3502 COAST VIEW DRIVE · MALIBU, CA 90265

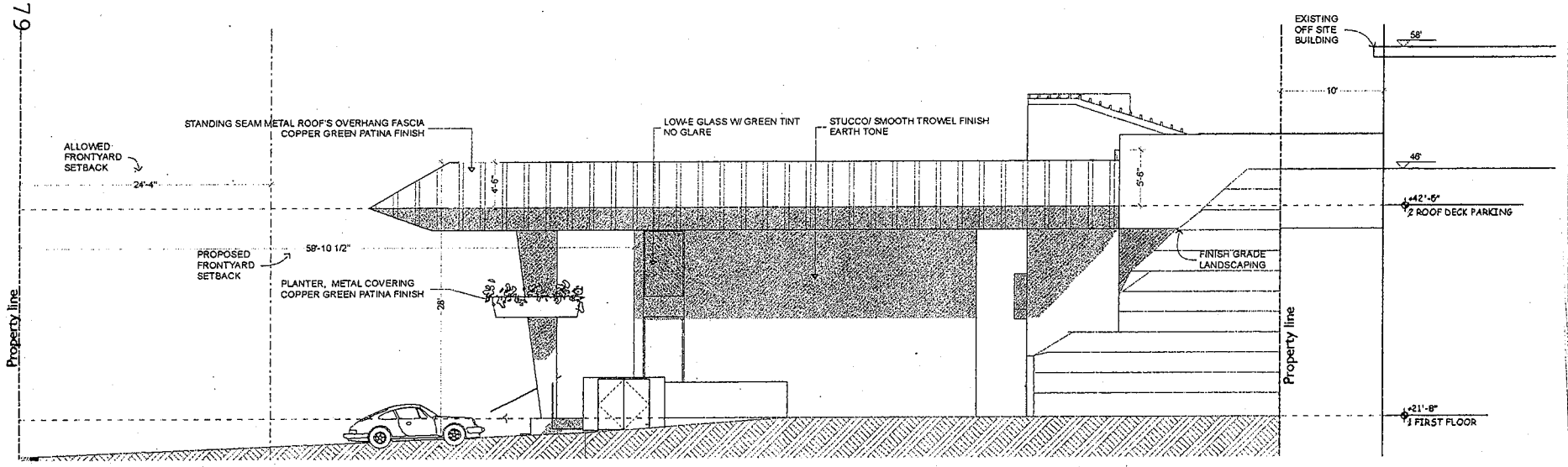
ROOF DECK-PARKING

DATE Apr 9, 2009
SCALE AS SHOWN
DRAWN BY A. MATTIOLI
JOB NO. 11012

SHEET # A-08
OF 17 SHEETS



1 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



2 EAST ELEVATION
SCALE: 1/4" = 1'-0"

REVISIONS

SEA VIEW TERRACE, LLC
22729 Pacific Coast Highway
MALIBU, CA 90265

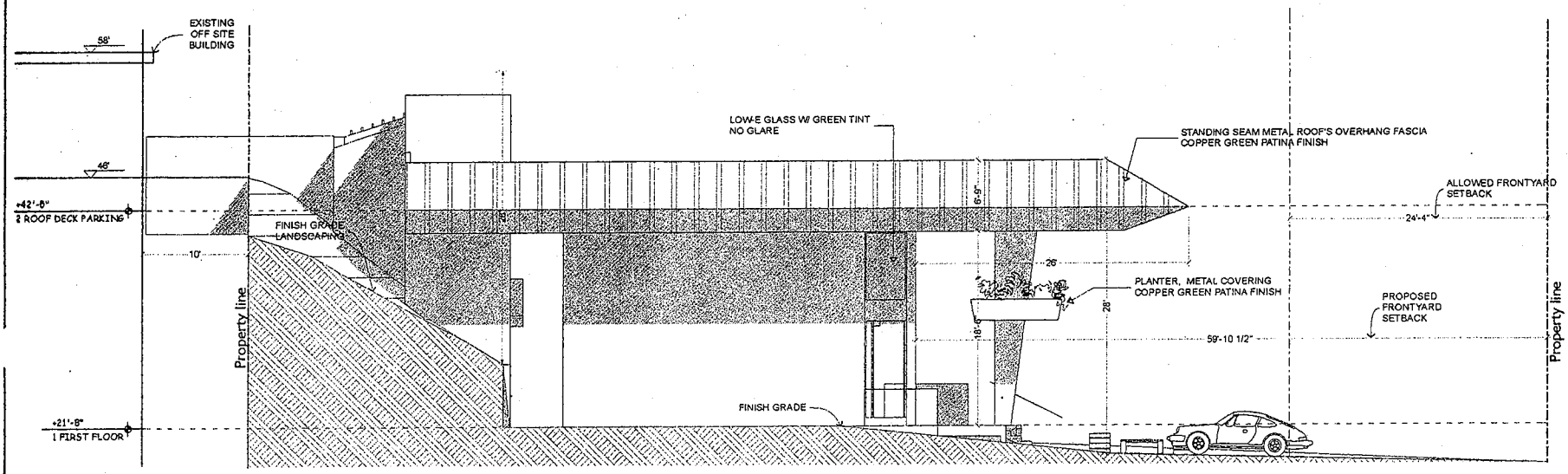
BARSOCCHINI & ASSOCIATES, INC.
ARCHITECTS
MICHAEL E. BARSOCCHINI, A.I.A. · (310) 456-3625
3502 COAST VIEW DRIVE · MALIBU, CA 90265

ELEVATIONS SOUTH & EAST

DATE Apr 9, 2009
SCALE AS SHOWN
DRAWN BY A.MATTOU
JOB NO. 110412

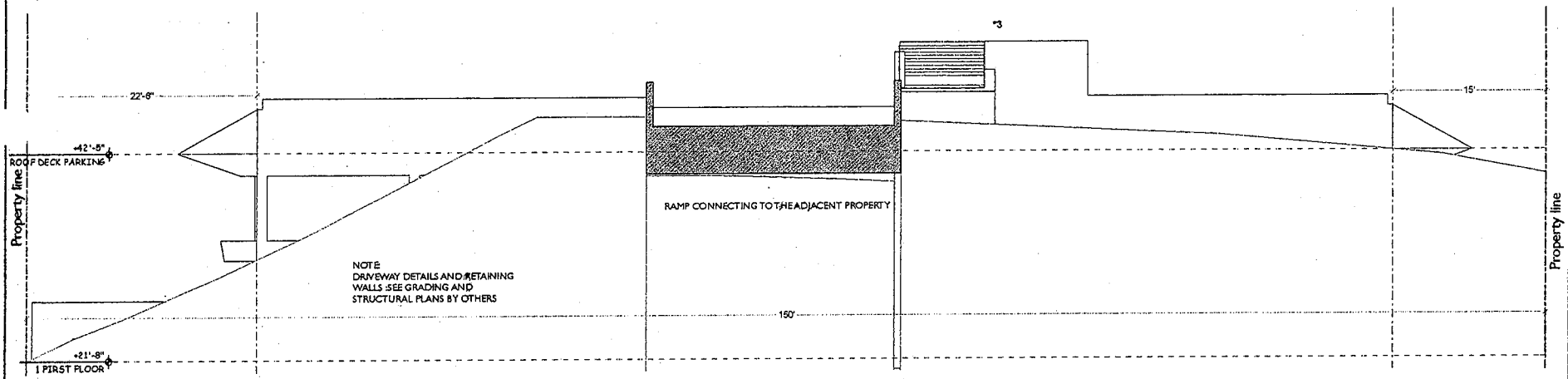
SHEET 9
A-09
OF 17 SHEETS

22729PCH.DWG



2 WEST ELEVATION
SCALE: 1/4" = 1'-0"

08



1 NORTH ELEVATION
SCALE: 1/4" = 1'-0"

04/13/2010 Revision:
1) added note roof overhang max 6'

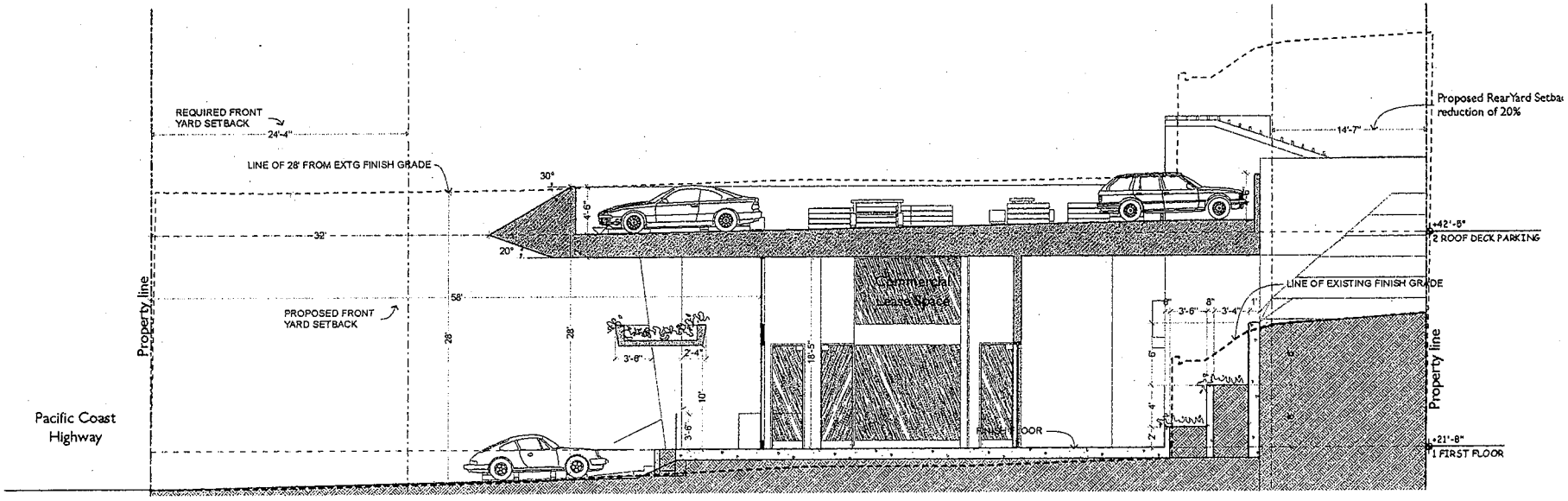
REVISIONS

SEA VIEW TERRACE, LLC
22729 Pacific Coast Highway
MALIBU, CA 90265

BARSOCCHINI & ASSOCIATES, INC.
ARCHITECTS
MICHAEL E. BARSOCCHINI, A.I.A. - (310) 456-3625
3502 COAST VIEW DRIVE - MALIBU, CA 90265

ELEVATIONS WEST & NORTH

DATE Apr 9, 2009
SCALE AS SHOWN
DRAWN BY A.MATTIOLI
JOB NO. 110412
SHEET NO A-10
OF 17 SHEETS



1 A-A SECTION
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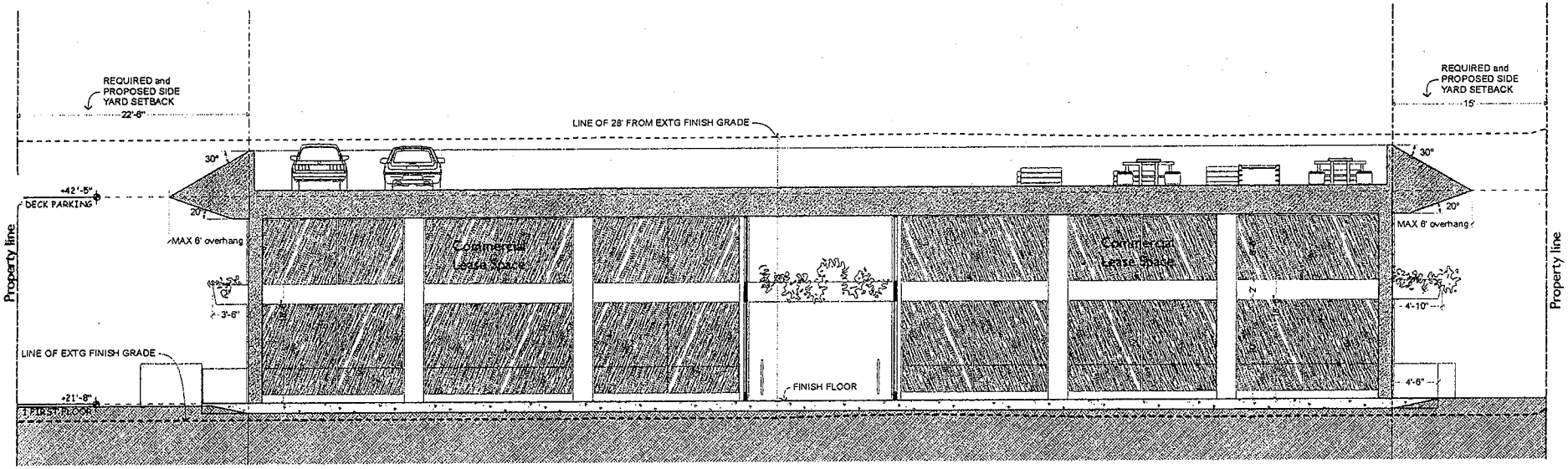


2 B-B SECTION
SCALE: 1/4" = 1'-0"

81

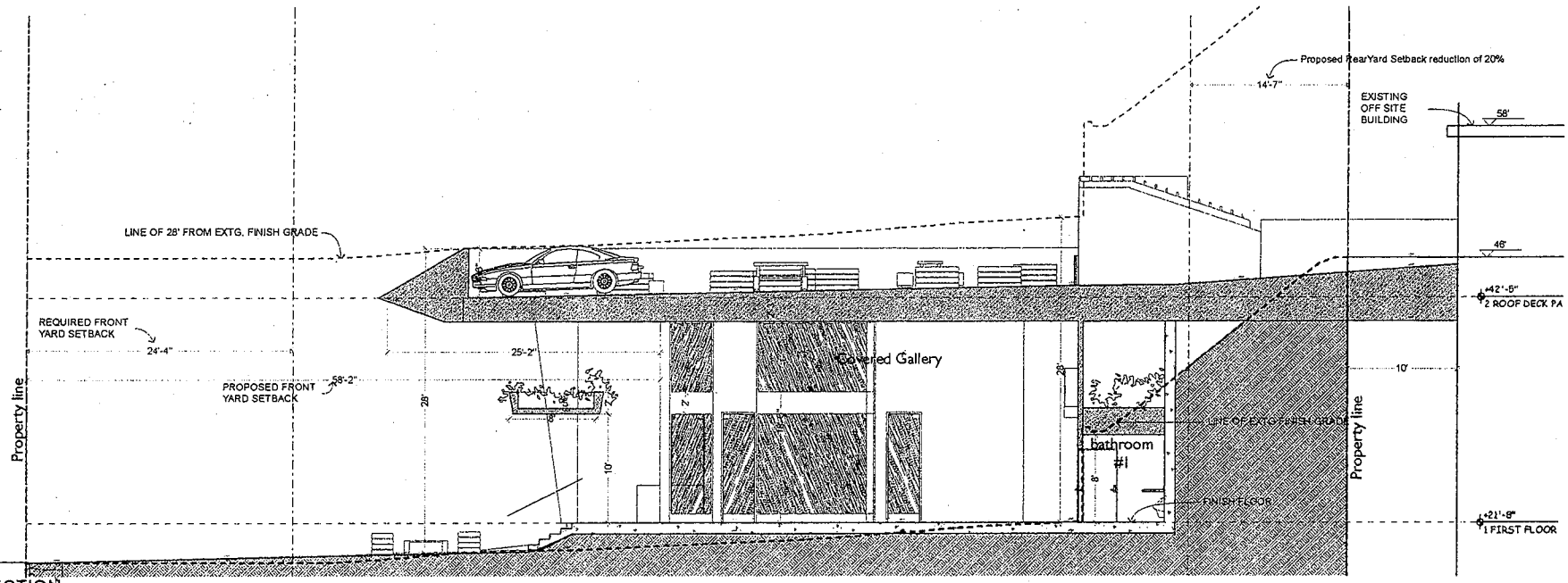
REVISIONS

SEA VIEW TERRACE, LLC
22729 Pacific Coast Highway
MALIBU, CA 90265

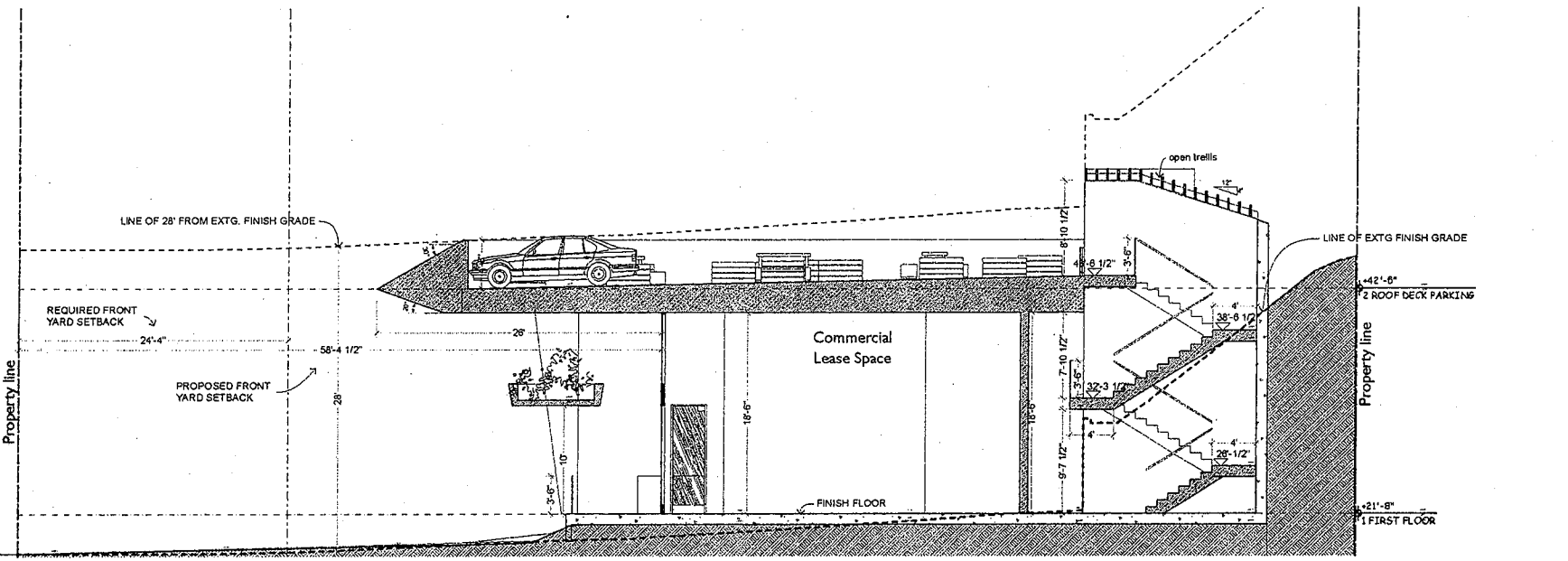
BARSOCCHINI & ASSOCIATES, INC.
ARCHITECTS
MICHAEL E. BARSOCCHINI, A.I.A. - (310) 456-3625
3502 COAST VIEW DRIVE - MALIBU, CA 90265

SECTIONS A-A, B-B

DATE Apr 9, 2009
SCALE AS SHOWN
DRAWN BY A. MATTIOLI
JOB NO. 110412
SHEET 11
A-11
OF 17 SHEETS



1 C-C SECTION
SCALE: 1/4" = 1'-0"



2 D-D SECTION
SCALE: 1/4" = 1'-0"

REVISIONS

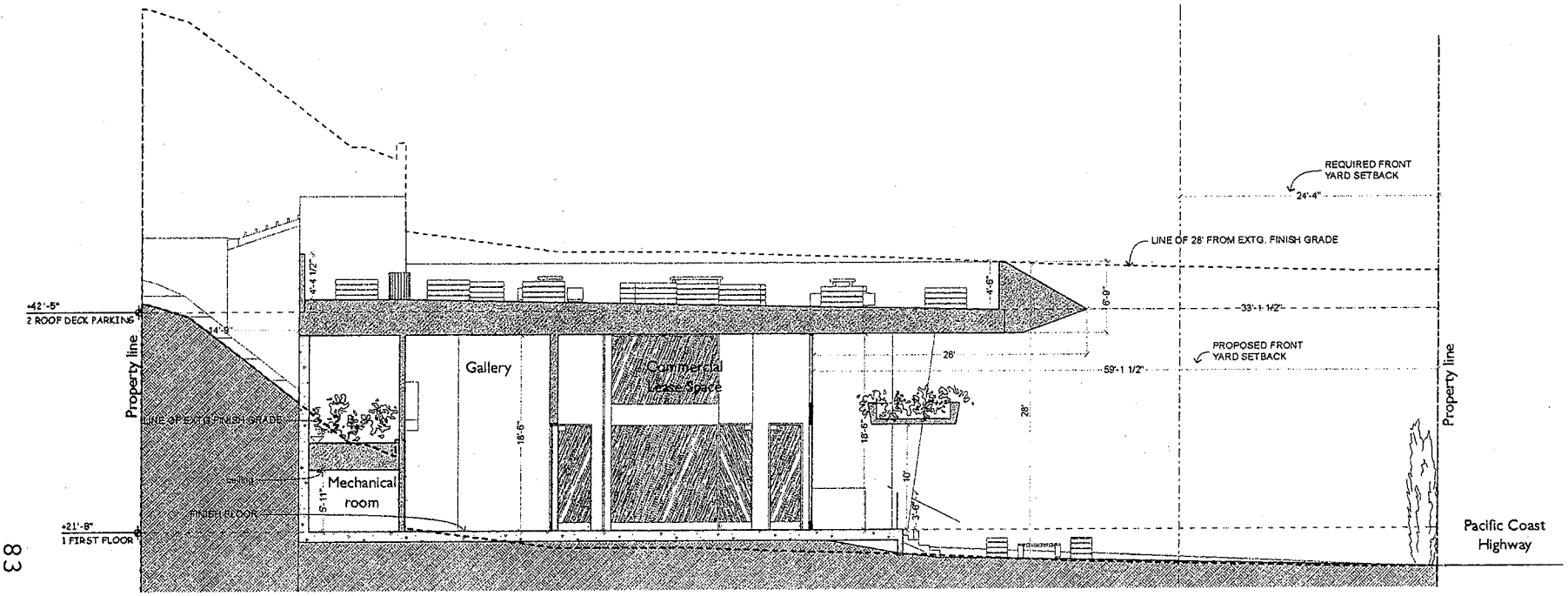
SEA VIEW TERRACE, LLC
22729 Pacific Coast Highway
MALIBU, CA 90265

BARSOCCHINI & ASSOCIATES, INC.
ARCHITECTS
MICHAEL E. BARSOCCHINI, A.I.A. · (310) 456-3625
3502 COAST VIEW DRIVE · MALIBU, CA 90265

SECTIONS C-C, D-D

DATE Apr 8, 2013
SCALE AS SHOWN
DRAWN BY AMATTIOLI
JOB NO 1104121

SHEET 12
A-12
OF 17 SHEETS



1 E-E SECTION
SCALE: 1/4" = 1'-0"

01/06/2010 Revision:
4) drop ceiling to 5'-11" to be used as mechanical/storage room

REVISIONS	BY
1 Aug 6, 2009 C.D.P. 1st Subst.	CB
2 Aug 2009 Geo Jobsite CDP	AJ
3 Apr 28, 2009 2nd C.D.P. Subst.	AJ
4 Jan 06, 2010 1st C.D.P. Subst.	AJ
5 Apr 13, 2010 - Rev 1st C.D.P. Subst.	AJ
6 May 06, 2010 - Rev 1st C.D.P. Subst.	AJ

SEA VIEW TERRACE, LLC
22729 Pacific Coast Highway
MALIBU, CA 90265

BARSOCCHINI & ASSOCIATES, INC.
ARCHITECTS
MICHAEL E. BARSOCCHINI, A.I.A. · (310) 456-3625
3502 COAST VIEW DRIVE · MALIBU, CA 90265

SECTION E-E

DATE Apr 9, 2009
SCALE AS SHOWN
DRAWN BY A.MATTIOLI
JOB NO. 110412
SHEET 13
A-13
OF 17 SHEETS

City of Malibu

23815 Stuart Ranch Rd., Malibu, California CA 90265-4804
(310) 456-2489 FAX (310) 456-7650

RECEIVED
DEC 01 2009
PLANNING DIV.

FIRE DEPARTMENT REVIEW
REFERRAL SHEET

TO: Los Angeles County Fire Department DATE: 7/8/2008

FROM: City of Malibu Planning Department

PROJECT NUMBER:	DP 08-014, CDP 08-055
JOB ADDRESS:	22729 PACIFIC COAST HWY
APPLICANT / CONTACT:	
APPLICANT ADDRESS:	3502 Coast View Drive Malibu, CA 90265
APPLICANT PHONE #:	(310)456-3625
APPLICANT FAX #:	(310) 456-7175
PROJECT DESCRIPTION:	N Comm Building, Demo Exist Gas Station

TO: Malibu Planning Department and/or Applicant

FROM: Fire Prevention Engineering Assistant

X The project DOES require Fire Department Plan Check and Developer Fee

____ The project DOES NOT require Fire Department Plan Check.

X The project shall provide a ~~20~~ 25-26 (HB) foot wide Access Driveway and Safety Vehicle Turn-around.

X The project requires Interior Fire Sprinklers.

X The project requires ~~1000~~ TBD gallons per minute Fire Flow at 20 pounds per square inch for a 2 hour duration.

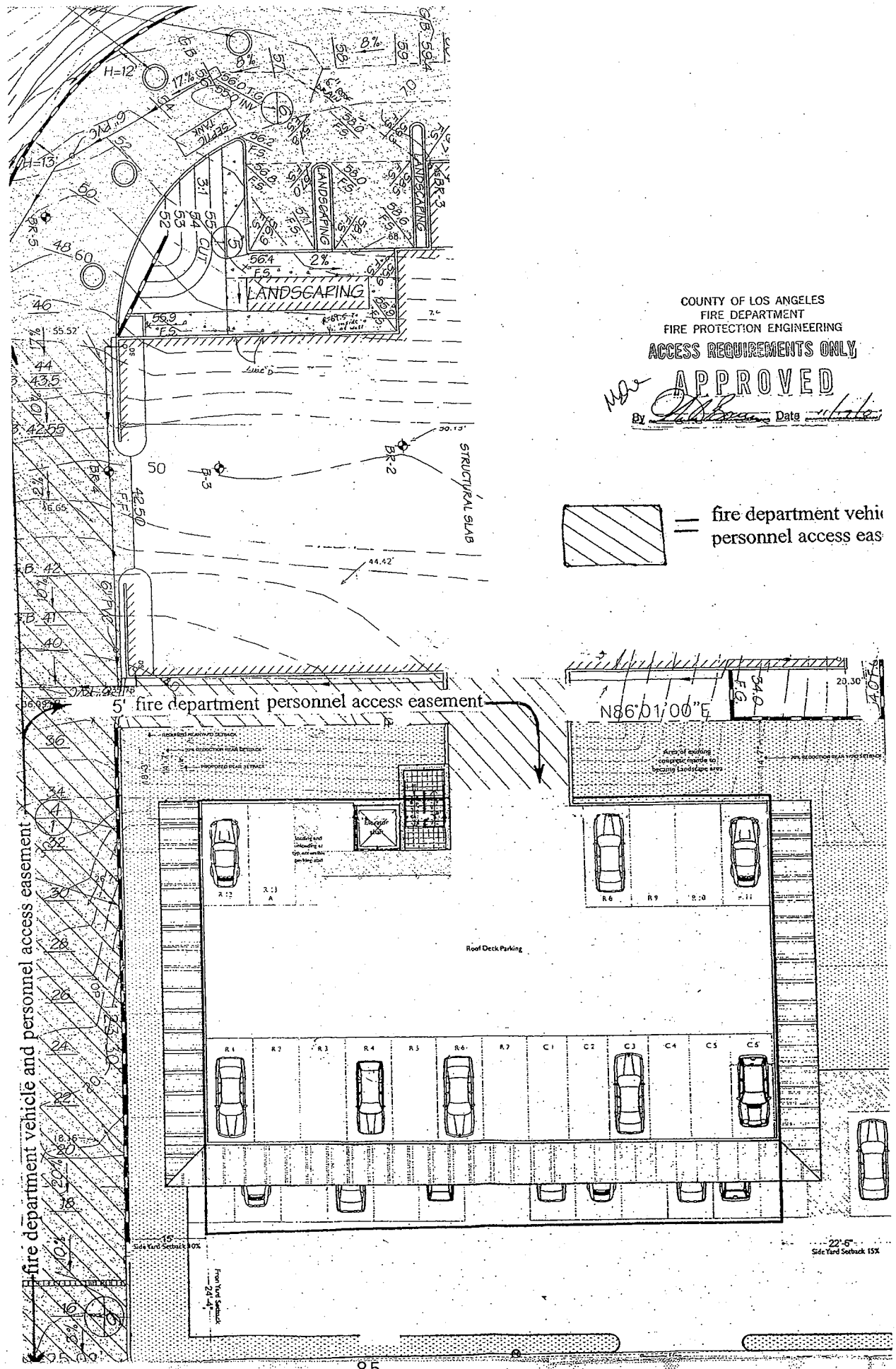
X Fire Department approval of a Final Fuel Modification Plan is required prior to City building permit issuance.

SIGNATURE

11/19/09
DATE

Additional requirements/conditions may be imposed upon review of plan revisions.
The Fire Prevention Engineering Assistant may be contacted by phone at 818-880-0341 or at the Fire Department Counter: Monday - Thursday between 8:00 AM and 12:00 noon
26600 Agoura Road, Suite 110, Calabasas, CA 91302

Attachment 4


COUNTY OF LOS ANGELES
FIRE DEPARTMENT
FIRE PROTECTION ENGINEERING
ACCESS REQUIREMENTS ONLY
APPROVED
By
Date
= fire department vehi
personnel access eas
5' fire department personnel access easement
fire department vehicle and personnel access easement
LANDSCAPING
STRUCTURAL SLAB
N86°01'00"E
Roof Deck Parking
22'-5"
Side Yard Setback 15%
15'
Side Yard Setback 10%
Front Yard Setback
24'-4"

HL

City of Malibu

23815 Stuart Ranch Rd., Malibu, California CA 90265-4861
(310) 456-2489 FAX (310) 456-7650

PUBLIC WORKS REVIEW
REFERRAL SHEET

TO: Public Works Department DATE: ~~7/8/2008~~ 9/29/09

FROM: Planning Division

PROJECT NUMBER: DP 08-014, CDP 08-055

JOB ADDRESS: 22729 PACIFIC COAST HWY

APPLICANT / CONTACT:

APPLICANT ADDRESS: 3502 Coast View Drive
Malibu, CA 90265

APPLICANT PHONE #: (310)456-3625

APPLICANT FAX #: (310) 456-7175

PROJECT DESCRIPTION: N Comm Building, Demo Exist Gas Station REVISED

To: Malibu Planning Division

From: Public Works Department

____ The following items described on the attached memorandum shall be addressed and resubmitted.

X The project was reviewed and found to be in conformance with the City's Public Works and LCP policies and CAN proceed through the Planning process. Subject to conditions dated 7/22/08

SIGNATURE

11/3/09
DATE

HL

City of Malibu

23815 Stuart Ranch Rd., Malibu, California CA 90265-4861
(310) 456-2489 FAX (310) 456-7650

PUBLIC WORKS REVIEW
REFERRAL SHEET

TO: Public Works Department DATE: 7/8/2008

FROM: Planning Division

PROJECT NUMBER:	DP 08-014, CDP 08-055
JOB ADDRESS:	22729 PACIFIC COAST HWY
APPLICANT / CONTACT:	Mike Barsocchini, Barsocchini & Assoc.
APPLICANT ADDRESS:	3502 Coast View Drive Malibu, CA 90265
APPLICANT PHONE #:	(310)456-3625
APPLICANT FAX #:	(310) 456-7175
PROJECT DESCRIPTION:	N Comm Building, Demo Exist Gas Station

To: Malibu Planning Division

From: Public Works Department

____ The following items described on the attached memorandum shall be addressed and resubmitted.

X The project was reviewed and found to be in conformance with the City's Public Works and LCP policies and CAN proceed through the Planning process. Subject to Conditions.

SIGNATURE

7/29/08
DATE

City of Malibu
MEMORANDUM

To: Planning Division

From: Public Works Department
Elroy Kiepke, Plan Reviewer

Date: July 29, 2008

Re: Proposed Conditions of Approval for 22729 Pacific Coast Highway, CDP 08-055, DP 08--14

The Public Works Department has reviewed the plans submitted for the above referenced project. Based on this review sufficient information has been submitted to confirm that conformance with the Malibu Local Coastal Plan and the City's Municipal Code can be attained. Prior to the issuance of building and grading permits, the applicant shall comply with the following conditions.

- This project proposes grading on slopes equal to or greater than 25%. Grading permits shall not be issued between November 1 and March 31 each year (LCP 264). Projects approved for grading permit shall not receive grading permits unless the project can be rough graded before November 1.

- This project proposes to construct improvements within the Public Street right-of-way. The applicant shall obtain encroachment permits from the California Department of Transportation prior to the commencement of any work within the State right-of-way.

- Exported soil from a site shall be taken to the County Landfill or to a site with an active grading permit and the ability to accept the material in compliance with section 8.3.

- A Grading and Drainage plan shall be approved containing the following information prior to the Issuance of grading permits for the project.
    - Public Works Department General Notes
    - Slopes created for development shall not exceed 3 (hor) to 1 (vert).
    - The existing and proposed square footage of impervious coverage on the property shall be shown on the grading plan (including separate areas for buildings, driveways, walkways, parking, tennis courts and pool decks).
    - The limits of land to be disturbed during project development shall be delineated on the Grading plan and a total area shall be shown on the plan. Areas disturbed by grading equipment beyond the limits of grading, Areas disturb for the installation of the septic system, and areas disturbed for the installation of the detention system shall be included within the area delineated.

Recycled Paper

- The grading limits shall include the temporary cuts made for retaining walls, buttresses, and over excavations for fill slopes and shall be shown on the grading plan.
- Private storm drain systems shall be shown on the Grading plan. Systems greater than 12-inch diameter shall also have a plan and profile for the system included with the grading plan.

- A Wet Weather Erosion and Sediment control plan is required for this project (construction activity is anticipated to occur during the rainy season). The following elements shall be included:
  - Locations where concentrated runoff will occur.
  - Plans for the stabilization of disturbed areas of the property, landscaping and hardscape, along with the proposed schedule for the installation of protective measures.
  - Location and sizing criteria for silt basins, sandbag barriers, and silt fencing.
  - Stabilized construction entrance and a monitoring program for the sweeping of material tracked off site.

- A Storm Water Pollution Prevention Plan shall be provided prior to the issuance of the Grading permits for the project. This plan shall include:
  - Dust Control Plan for the management of fugitive dust during extended periods without rain.
  - Designated areas for the storage of construction materials that do not disrupt drainage patterns or subject the material to erosion by site runoff.
  - Designated area for the construction portable toilets that separates them from storm water runoff and limits the potential for upset.
  - Designated areas for disposal and recycling facilities for solid waste separated from the site drainage system to prevent the discharge of runoff through the waste.

- Storm drainage improvements are required to mitigate increased runoff generated by property development. The applicant shall have the choice of one method specified within section 17.4.2.B.2. The plan appears top show drainage from the north side of the building being directed around the detention system. Submit justification for this proposal at the time the grading and drainage plans are submitted for review and approval.

- A Water Quality Mitigation Plan (WQMP) is required for this project. This document is also commonly known as a Standard Urban Storm water Management Plan (SUSMP).The WQMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage of the site. The following elements shall be included within the WQMP:
  - Site Design Best Management Practices (BMP's) Page 283-4 LCP
  - Source Control BMP's Page 284 LCP
  - Treatment Control BMP's Page 294-5 LCP
  - Drainage Improvements
  - Methods for on-site percolation, site re-vegetation and an analysis for off-site project impacts.
  - Measures to treat and infiltrate runoff from impervious areas.

- A plan for the maintenance and monitoring of the proposed treatment BMP's for the expected life of the structure.
- A copy of the WQMP shall be filed against the property to provide constructive notice to future property owners of their obligation to maintain the water quality measures installed during construction prior to the issuance of grading or building permits.
- The WQMP (SUSMP) shall be submitted to the Building and Safety Public Counter and the fee applicable at time of submittal for the review of the WQMP shall be paid prior to the start of the technical review. Once the plan is approved and stamped by the Public Works Department, the original singed and notarized document shall be recorded with the County Recorder. A certified copy of the WQMP shall be submitted prior to the Public Works Department approval of the Building plans for the project.

- Geology and Geotechnical reports shall be submitted with all applications for plan review to the Public Works Department. Approval by Geology and Geotechnical Engineering shall be provided prior to the issuance of any permit for the project. The Developers Consulting Engineer shall sign the final plans prior to the issuance of permits.

COMMERCIAL DEVELOPMENT

All commercial developments shall be designed to control the runoff of pollutants from structures, parking and loading docks. The following measures shall be implemented to minimize the impacts of commercial developments on water quality

- Properly designed Parking lots (5,000 square feet of impervious surface or 25 parking spaces.)
  - Minimize impervious surfacing for parking area.
  - Infiltrate runoff before it reaches a storm drain system.
  - Treat to remove oil and petroleum hydrocarbons at parking lots that are heavily used.
  - Ensure adequate operation and maintenance of treatment systems particularly sludge and oil removal and system fouling and plugging prevention control.

- TRASH STORAGE AREAS
  - Trash container areas must have drainage from adjoining roofs and pavement diverted around the area.
  - Trash container areas must be screened or walled to prevent off-site transport of trash.

WASTE MANAGEMENT FOR CONSTRUCTION SITES

The City of Malibu is required by AB 939 to reduce the flow of wastes to the landfills of Los Angeles and Ventura Counties by 50%. The following projects shall comply with the following conditions:

1. All new construction (residential and nonresidential)
2. Demolition (non-residential and apartment houses with 3 or more units)

3. Addition/Alteration with construction valuation of $50,000 or more.

- The applicant/property owner shall contract with a City approved hauler to facilitate the recycling of all recoverable/recyclable material. Recoverable material shall include but shall not be limited to: Asphalt, dirt and earthen material, lumber, concrete, glass, metals, and drywall. Prior to the issuance of a building/demolition permit, a Waste reduction and Recycling Plan (WRRP) shall be submitted to the Public Works Department for review and approval. The WRRP shall indicate means and measures for a minimum of 50% diversion Goal.

- Prior to the issuance of the Certificate of Occupancy, the applicant shall provide the Public Works Department with a Final WRRP. The Final WRRP shall designate all material that were land filled or recycled, broken down by material types. The Public Works Department shall approve the final WRRP.

PUBLIC WORKS DEPARTMENT GENERAL NOTES

1. All work within public streets or public easements shown on these plans shall be constructed in accordance with the current Edition of the Standard Specifications for Public Works Construction (SSPWC) "Green Book."

2. Contractors shall comply with all applicable Division of Industrial Regulations (Cal-OSHA) safety standards. If requested by the Inspector, the Contractor shall provide proof of a permit from said division.

3. Contractor shall call the Public Works Inspector at (310) 456-2489, ext. 235 for Pre-Construction Meeting prior to the commencement of any construction or grading operations. Contractor shall notify the City Public Works Inspector 48 hours prior to commencing any construction and 24 hours in advance of specific inspection needs during the course of the work.

4. Storage of any construction materials, construction trailer, and/or parking and any work within the City public right of way shall require a City Encroachment Permit. Call the Public Works Inspector at (310) 456-2489, ext. 235 to apply for a permit.

5. Storage of any construction materials, construction trailer, and/or parking and any work within the Caltrans public right of way shall require a Caltrans Encroachment Permit. Submit a copy of the Caltrans Encroachment Permit to the Public Works Department.

6. All work shall be performed during City working hours and in compliance with these plans.

7. Contractor shall verify all conditions and dimensions and shall report any discrepancies to the Engineer prior to the commencement of any work.

8. Contractor shall locate, protect, and save any and all survey monuments that will be or may be damaged or destroyed by their operations. Once found, the Contractor

shall then notify both the developer's supervising Civil Engineer and the Public Works Inspector. The supervising Civil Engineer shall reset all said monuments per the requirements of the Professional Land Surveyor's Act.

9. The Contractor shall be responsible for protecting all public and private property insofar as it may be affected by these operations.

10. Existing traffic signs are not to be removed without prior notification and approval of the City Engineer. As a minimum, construction work zone traffic signs and striping shall be furnished, installed, and maintained in accordance with the "Work Area Traffic Control Handbook" (the "WATCH Manual"), published by BNI Building News, Inc. The City may require a Traffic Control Plan, prepared by the developer.

11. Dust control shall be maintained at all times.

12. Erosion Control Plans shall be provided for all projects. Grading and clearing is prohibited from November 1 to March 31 for all developments within or adjacent to ESHA and/or including grading on slopes greater than 4:1.

13. All underground utilities and service laterals shall be installed prior to construction of curbs, gutters, sidewalks, and paving unless otherwise permitted by the City Engineer.

14. The Developer shall comply with NPDES requirements. The Storm Water Pollution Prevention Plan (SWPPP) shall be available at the construction site at all times and shall be kept updated.

15. All recommendations made by the Geotechnical/Soils Engineer (and Engineering Geologist, where employed), and contained in the reports referenced hereon, as approved or conditioned by the City, shall be considered a part of the Grading Plan.

16. All storm drain pipe within the public right-of-way and easements shall be reinforced concrete pipe (RCP).

17. Terrace drains, interceptor drains, and down drains shall be constructed of 3" P.C.C. reinforced with 6"x6" x #10 W.W.M. and shall be either semicircular or triangular cross section. Concrete color shall be "Omaha Tan" or approved equivalent.

18. Grading Quantities:
Cut _____ cu.yd. Fill _____ cu.yd.
Export ____ cu.yd. Import ____ cu.yd.

19. Total Disturbed Area _____ acres
(including grading, clearing, and landscaping area)
Total Existing Impervious Surface Area _____ sq. ft.
Total Proposed Impervious Surface Area _____ sq. ft.
Flood Zone on FIRM: _____ Base Flood Elevation: ____ ft.

20. All slopes on private property adjoining streets, drainage channels, or other public facilities shall be graded not steeper than 2:1 for cut and fill unless specifically approved by the City Engineer on recommendation of the project's geotechnical/soils consultant.

21. All catch basins and drainage inlets shall be stenciled with the City of Malibu storm drain logo.

City of Malibu

001681

23555 Civic Center Way, Malibu, California CA 90265-4861
(310) 456-2489 FAX (310) 456-3356

ENVIRONMENTAL HEALTH REVIEW
REFERRAL SHEET

TO: City of Malibu Environmental Health Administrato DATE: 7/8/2008 9/29/09

FROM: City of Malibu Planning Department

PROJECT NUMBER: DP 08-014, CDP 08-055

JOB ADDRESS: 22729 PACIFIC COAST HWY

APPLICANT / CONTACT:

APPLICANT ADDRESS: 3502 Coast View Drive
Malibu, CA 90265

APPLICANT PHONE #: (310)456-3625

APPLICANT FAX #: (310) 456-7175

PROJECT DESCRIPTION: N Comm Building, Demo Exist Gas Station REVISED

❸ New Construction ❸ Remodel ❸ Fire Damage

TO: Malibu Planning Department and/or Applicant

FROM: Andrew Sheldon, City Environmental Health Administrator

___ An Onsite Wastewater Treatment System (OWTS) Plot Plan approval IS NOT REQUIRED for the project.

✓ An OWTS Plot Plan approval IS REQUIRED for the project. DO NOT grant your approval until an approved Plot Plan is received. No change to Conformance review letter and OWTS plot plan dated 8-28-2009 (same condition of approval apply)

A Sheldon
SIGNATURE

11-24-2009
DATE

The applicant must submit to the City of Malibu Environmental Health Specialist to determine whether or not a Private Sewage Disposal System Plot Plan approval is required.

Andrew Sheldon, Environmental Health Administrator, may be contacted at the City Hall Annex counter Monday through Thursday from 8:00 am to 10:00 am, or by calling (310) 456-2489 x364

Rev: 09/21/06 (gs)

City of Malibu

Environmental Health · Environmental and Building Safety Division
23815 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 456-3356 · www.ci.malibu.ca.us

August 28, 2009

Mike Barsocchini
Barsocchini & Associates
3502 Coast View Drive
Malibu, California 90265

Subject: **22729 Pacific Coast Highway, Malibu, California 90265; Environmental Health Conformance Review for a New Commercial Building (CDP 08-088)**

Dear Mr. Barsocchini:

On August 28, 2009, a **Conformance Review** was completed for the alternative onsite wastewater treatment system (AOWTS) proposed to serve the onsite wastewater treatment needs of subject property. The proposed OWTS meets the minimum requirements of the City of Malibu Plumbing Code, i.e. Title 28 of the Los Angeles County Code, incorporating the California Plumbing Code, 2007 Edition, and the City of Malibu Ordinance No. 318 Amendments (MPC), and the City of Malibu Local Coastal Plan/Local Implementation Plan (LCP/LIP). The following items shall be submitted prior to final approval:

1) **Final AOWTS Plot Plan:** A final plot plan shall be submitted showing an AOWTS design meeting the minimum requirements of the MPC, and the LCP/LIP, including necessary construction details, the proposed drainage plan for the developed property, and the proposed landscape plan for the developed property. The AOWTS Plot Plan shall show essential features of the AOWTS and must fit on an 11" x 17" sheet leaving a 5" left margin clear to provide space for a City-applied legend. If the plan scale is such that more space is needed to clearly show construction details and/or all necessary setbacks, larger sheets may also be provided (up to a maximum size of 18" x 22" for review by Environmental Health).

2) **AOWTS Design Report and System Specifications:** A final design report, plan drawings, and system specifications shall be submitted as to the AOWTS design basis and all components (i.e. alarm system, pumps, timers, flow equalization devices, backflow devices, etc.) proposed for use in the construction of the proposed AOWTS. Final design drawings and calculations must be signed by a California-registered Civil Engineer who is responsible for the design. The final AOWTS design report and drawings shall be submitted with the designer's wet signature, professional registration number, and stamp.

TetraTech RTW, a consultant to the City of Malibu who provides contract wastewater engineering review services, has provided an In Concept approval of the AOWTS design subject to several conditions of approval (see attached letter). Final approval of the AOWTS design by the City's contract wastewater engineering review must be obtained prior to Environmental Health final approval.

3) **Grease Trap Removal**: Los Angeles County construction permit records on file at the City of Malibu indicate the historical construction of a grease trap as part of the private sewage disposal system at the subject property. It is unclear as to whether this grease trap was intended to serve as an oil/water clarifier, such as could have been used in processing wastewater for an automobile service station. However, no such clarifier has been located on the property. Final Environmental Health approval can be issued only with the condition that if, during construction, a clarifier is discovered, then a permit to abandon the device will be obtained from the City of Malibu Environmental and Building Safety Division.

4) **Proof of Ownership:** Proof of ownership of subject property shall be submitted.

5) **Operation & Maintenance Manual:** An operations and maintenance manual specified by the AOWTS designer shall be submitted. This shall be the same operations and maintenance manual proposed for later submission to the owner and/or operator of the proposed alternative onsite wastewater disposal system. The AOWTS designer shall include recommended minimum operator qualifications in the operation and maintenance manual.

6) **Maintenance Contract:** A maintenance contract executed between the owner of subject property and an entity qualified in the opinion of the City of Malibu to maintain the proposed alternative onsite wastewater disposal system after construction shall be submitted. ***Please note only original "wet signature" documents are acceptable***.

7) **Covenant:** A covenant running with the land shall be executed between the City of Malibu and the holder of the fee simple absolute as to subject real property and recorded with the Los Angeles County Recorder's Office. Said covenant shall serve as constructive notice to any future purchaser for value that the onsite wastewater treatment system serving subject property is an alternative method of onsite wastewater disposal pursuant to the City of Malibu Uniform Plumbing Code, Appendix K, Section 1(i). Said covenant shall be provided by the City of Malibu Environmental Health Specialist. ***Please submit a certified copy issued by the Los Angeles County Recorder***.

8) **City of Malibu Geologist/Geotechnical Approval:** City of Malibu Geologist and Geotechnical Engineer final approval shall be submitted.

9) **City of Malibu Hydrogeology Approval:** Approval of the project by the City of Malibu Hydrogeology reviewer shall be submitted.

10) **City of Malibu Biologist Approval:** City of Malibu Biologist final approval shall be submitted. The City of Malibu Biologist shall review the AOWTS design to determine any impact on any Environmentally Sensitive Habitat Area.

11) **Coastal Development Permit:** Contact the City of Malibu Department of Environmental and Community Development, Planning Division, and obtain a Coastal Development for subject project.

12) **Environmental Health Final Fee:** TetraTech RTW is providing contract wastewater engineering review services on a time-and-materials basis This contract reviewer's estimated fees for plan check review are $4000 each. Environmental Health staff has spent 6 hours to date on this project and anticipates spending at least 4 more hours (the hourly Environmental Health review fee is $148). Deposits of $950 (for Environmental Health review) and $4000 (for RTW review) already have been paid. Final payment of all outstanding AOWTS review fees shall be paid to the City of Malibu for final review of the AOWTS design and system specifications.

13) **Operating Permit Application and Fee:** In accordance with Section 103.5.2.1 of the MPC, an application shall be made to the Environmental and Building Safety Division for an OWTS operating permit. An operating permit fee of **$600** shall be submitted with the application.

-o0o-

If you have any questions regarding the above requirements, please contact the undersigned at your earliest convenience.

Sincerely,

City of Malibu

A Sheldon

Andrew Sheldon
Environmental Health Administrator

cc: Environmental Health main file
Environmental Health reference file
Planning Division

TETRA TECH

RECEIVED
MAR 10 2009
PLANNING DEPT.

Andrew Sheldon, Ph.D., REHS
Environmental Health Administrator
City of Malibu
23815 Stuart Ranch Road
Malibu, California 90265

April 7, 2009
JO-9741-SC-C
SL# 36923

Reference: 22729 Pacific Coast Highway
Alternative Onsite Wastewater System
Preliminary Engineering Report
On Behalf of Norman R. Haynie
Submitted by EPD Consultants, Inc., dated March 1, 2008

Dear Andrew:

EPD Consultants' treatment system for the referenced project includes an onsite wastewater treatment plant for a proposed commercial office space. The building site was previously used as a gas station. The following table lists the predicted wastewater flows and waste concentrations following the primary septic tank for this project.

	Average Flow	Peak Flow
Flow Rate (gpd)	330	560
BOD (mg/L)	200	200
TSS (mg/L)	200	200
FOG (mg/L)	15	15
TKN (mg/L)	80	80
pH	7-8	7-8

The proposed treatment plant will include a 2000-gallon primary septic tank, a 1500-gallon SeptiTech system, an 8 gpm UV disinfection system, and two leach fields, each providing 360 square feet of surface area (one primary, one standby).

The septic tank provides 3.6 days hydraulic detention time at peak design flow and 6 days hydraulic detention time at average flow. This tank size exceeds the recommended 1.5 x $Q_{Peak\ Daily\ Flow}$ based on MPC Table K-2.

Tetra Tech, Inc.
1576 Sherman Street, Suite 100, Denver, CO 80203
Tel 303.825.5999 Fax 303.825.0642 www.tetratech.com

TETRA TECH

The SeptiTech system is sized to treat peak flows of up to 1350-gpd and a maximum Biochemical Oxygen Demand (BOD) of 2.25-lbs per day. The treatment process is a fixed film trickling filter for BOD, TSS, and nitrogen removal. The proposed influent to the system will contain about 0.9-lbs per day of BOD. The SeptiTech system is designed to reduce nitrogen by 63%, resulting in an estimated effluent nitrogen concentration of 50 mg/L. The SeptiTech System's nitrogen removal efficiency was verified by the U.S. Environmental Protection Agency, as published in Report 02/04/WQPC-SWP.

The UV disinfection system is designed to handle an average flow of 5-gpm and peak flow of 8 gpm. The UV disinfection system will be integrated into the SeptiTech controls and will operate on batch mode whenever the 5-gpm effluent pump is running. The UV system will include manual quartz cleaning to minimize fouling on the sleeve surface. Disinfected effluent will be pumped to the leach field in a batch mode, controlled by floats in the second compartment of the SeptiTech treatment unit. The leaching bed sizing conforms to the Uniform Plumbing Code.

Tetra Tech RTW has reviewed the referenced documents and recommends planning stage approval for the treatment system. The proposed Onsite Wastewater Treatment System (OWTS) for the planned commercial space appears to be sized appropriately for the estimated flow and strength of the wastewater to the system.

The Final Approval Submittal should include: system specifications for all components (i.e. alarm systems, pumps, timers); Operations and Maintenance Manual; maintenance contract; proof of ownership; Geologist/Geotechnical approval; and a covenant running with the land executed between the City of Malibu and the holder of the fee simple absolute as to the subject real property and recorded with the Los Angeles County Recorder's Office. The covenant serves as constructive notice to any future purchaser for value that the onsite wastewater disposal system serving the property is an alternative/demonstration method of wastewater disposal under the City of Malibu Uniform Plumbing Code, Appendix I, Section 1(i).

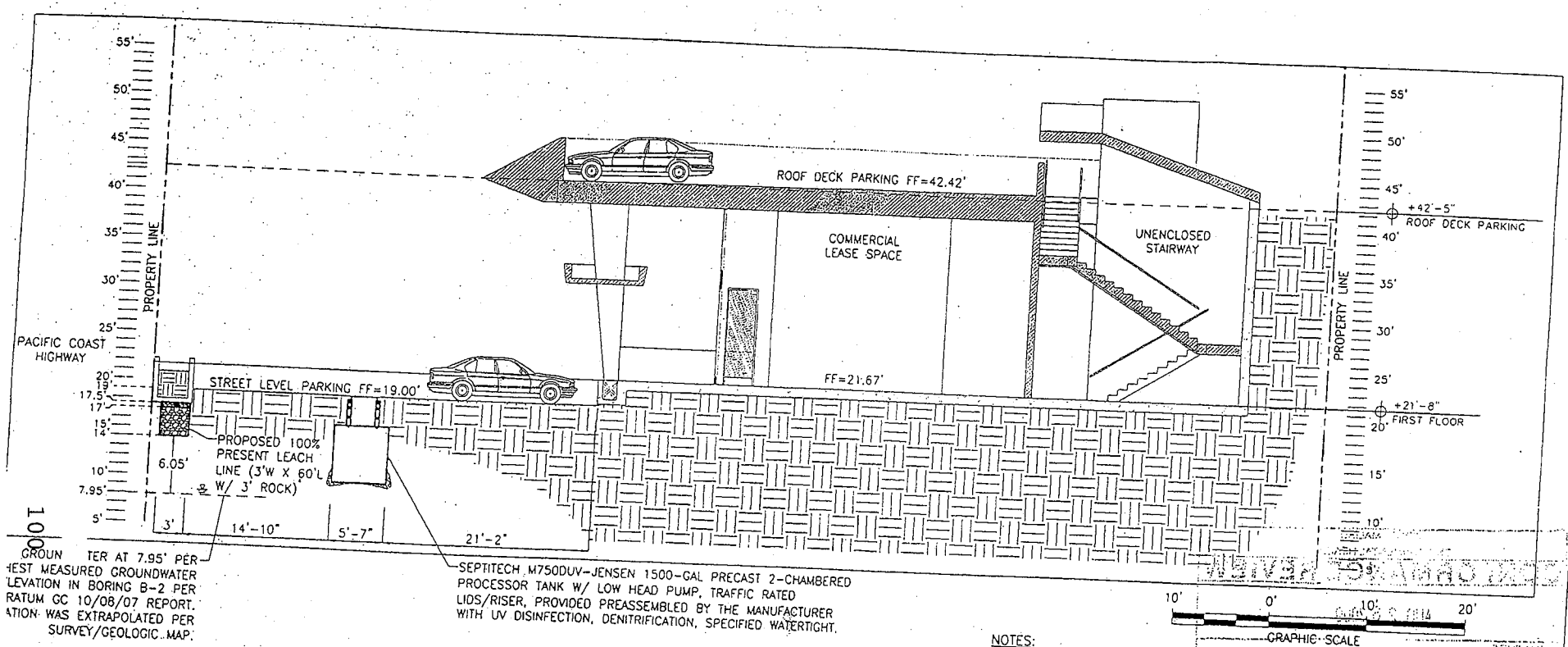
Please contact me with questions or comments. My direct telephone number is 720.931.9317, and my e-mail address is Sherri.Jones@tetratech.com.

Sincerely,

Sherri D. Jones

Sherri D. Jones, P.E.
Senior Project Manager

SDJ/sdj



GROUNDWATER AT 7.95' PER HIGHEST MEASURED GROUNDWATER ELEVATION IN BORING B-2 PER DATUM GC 10/08/07 REPORT. ELEVATION WAS EXTRAPOLATED PER SURVEY/GEOLOGIC MAP.

SEPTITECH M750DUV-JENSEN 1500-GAL PRECAST 2-CHAMBERED PROCESSOR TANK W/ LOW HEAD PUMP, TRAFFIC RATED LIDS/RISER, PROVIDED PREASSEMBLED BY THE MANUFACTURER WITH UV DISINFECTION, DENITRIFICATION, SPECIFIED WATERTIGHT.

NOTES:

(A) THESE PLANS ACCURATE FOR ONSITE WASTEWATER TREATMENT SYSTEM ONLY.

(B) CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS OF PROJECT FINAL FULL SIZE PLANS & SPECIFICATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE FINAL FULL SIZE PLANS & SPECIFICATIONS FROM THE SYSTEM ENGINEER PRIOR TO PROCEEDING WITH WORK.

(C) NO TREES ARE TO BE WITHIN 10-FT OF LEACH LINES.

(D) ELEVATIONS STATED IN NAVD88.

PRELIMINARY - NOT FOR CONSTRUCTION

consultants
wastewater systems & solutions

HARBOR BLVD., STE. 304
COSTA MESA, CA 92627
(714) 241-6565
(714) 241-6566

REGISTERED PROFESSIONAL ENGINEER
KEVIN L. POFFENBARGER
EXP. 06-30-10
No. 69089
CIVIL
STATE OF CALIFORNIA

▽ NO.	REVISIONS:	DATE:	BY:
1	CHG TO M750DUV	03/08	KP
2	NEW ARCHITECTURAL SITE PLAN	06/09	CJB

ADDRESS:

22729 PACIFIC COAST HIGHWAY
MALIBU, CALIFORNIA 90265

SHEET TITLE:
CROSS SECTION A-A'

PROJECT:
ONSITE WASTEWATER SYSTEM

DATE	SCALE	DRAWN BY
01/02/08	AS SHOWN	KLP

PROJECT NO.
G153

DRAWING NO.
W0.02

SHEET 2 OF 2 SHEETS

MALIBU, CA 90265 (CDP 08-055)

COMMERCIAL:	2742 sq ft / 17 FU (N)
REFERENCE:	EPD Consultants: Onsite wastewater treatment system design reports dated 3-1-2008 and 6-30-2009 and preliminary plans dated 1-2-2008 (Rev. 2, 6-2009)
WASTEWATER FLOW:	560 gpd (peak); 330 gpd (average)
DESIGNER:	Kevin Poffenbarger, RCE 69089

NOTES:

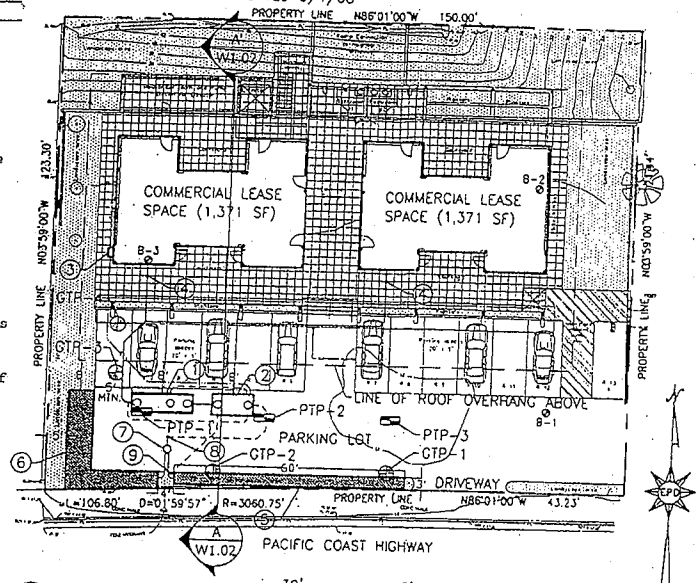
1. This conformance review is for a new commercial building (2742 sq ft). A new alternative onsite wastewater treatment system shall be installed. The new alternative onsite wastewater treatment system must conform to the City of Malibu Plumbing Code (MPC), and the Local Coastal Plan (LCP).
2. Conditions to be satisfied prior to final approval are described in the Environmental Health conformance review letter dated 8-28-2009.
3. This review relates only to the minimum requirements of the MPC and the LCP, and does not include an evaluation of any geological, or other potential problems, which may require an alternative method of wastewater treatment.
4. This review is valid for one year, or until MPC, and/or LCP, and/or Administrative Policy changes render it noncomplying.

101

CITY OF MALIBU
ENVIRONMENTAL HEALTH
CONFORMANCE REVIEW
AUG 28 2009
SIGNATURE
THIS IS NOT AN APPROVAL.
FINAL APPROVAL IS REQUIRED
PRIOR TO THE ISSUANCE OF
ANY CONSTRUCTION PERMITS

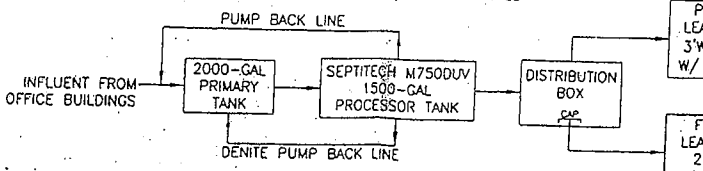
KEY:

- PROPERTY LINE
- PROPOSED ELECTRICAL LINES
- PROPOSED PIPES (GRAVITY)
- PROPOSED PIPES (PRESSURE)
- GTP-X APPROX. LOCATION OF GEOLOGIC TEST PIT PER STRATUM GC REPORT DATED 11/28/07
- PTP-X APPROX. LOCATION OF PERCOLATION TEST PIT PER EPD REPORT DATED 3/1/08
- B-X APPROX. LOCATION OF BORING PER STRATUM GC REPORT DATED 3/1/08



1 SEPTIC SITE PLAN
Scale: 1"=30'

30' 0' 30' 60'
GRAPHIC SCALE



KEYNOTES:

1. 2000-GALLON JENSEN PRE-CAST 2-CHAMBERED PRIMARY TANK, W/ TRAFFIC RATED LIDS/RISER, WATERTIGHT.
2. SEPTITECH M750DUV-JENSEN 1500-GAL PRECAST 2-CHAMBERED PROCESSOR TANK W/ LOW HEAD PUMP, TRAFFIC RATED LIDS/RISER, PROVIDED PREASSEMBLED BY THE MANUFACTURER WITH UV DISINFECTION, DENITRIFICATION, SPECIFIED WATERTIGHT.
3. SEPTITECH TELEMETRY CONTROL PANEL. REQUIRES SHARED PHONE LINE AND POWER TO PANEL.
4. GRAVITY CLEANOUT TO GRADE (COTG).
5. PROPOSED 100% PRESENT LEACH LINE 3'W X 60'L W/ 3' ROCK.
6. PROPOSED 100% FUTURE LEACH BED AREA = 250 SF W/ 3' ROCK, INFILTRATION AREA = 450 SF W/ 2' EXTRA ROCK. INSTALL W/ PRESENT & CAP IN D-BOX FOR FUTURE USE.
7. DISTRIBUTION BOX.
8. PRESSURE TO GRAVITY CLEANOUT.
9. AIR INTAKE INTAKE.

SYSTEM TABLUATIONS:

TOTAL PROPOSED RETAIL AREA = 2742 SF (BARSOCCHINI & ASSOCIATES, PLANS DATED JUNE 15, 2009)
TOTAL DRAINAGE FIXTURE UNIT VALUES (DFU) = 17 DFU (BARSOCCHINI & ASSOCIATES, PLANS DATED JUNE 15, 2009)

MIN. SEPTIC TANK = 1000 GAL

MIN. LEACH LINE PER MPC	= 36 LF, 3'W W/ 3' ROCK
DESIGN LEACH LINE	= 60 LF, 3'W W/ 3' ROCK
DESIGN LEACH BED AREA	= 250 SF W/ 3' ROCK
LEACH BED INFILTRATION AREA	= 450 SF W/ 2' EXTRA ROCK
MIN. LEACH BED INFILTRATION AREA PER MPC	= 375 SF

PEAK DESIGN DAILY FLOWRATE: 560 GPD
AVERAGE DESIGN DAILY FLOWRATE: 330 GPD
(PER EPD CONSULTANTS, INC. REPORT DATED MAR 1, 2008)
WASTE STRENGTH OF SEPTIC TANK EFFLUENT: 200mg/L OR LESS

NOTES:

(A) THESE PLANS ACCURATE FOR ONSITE WASTEWATER TREATMENT SYSTEM ONLY.
(B) CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS OF PROJECT FINAL FULL SIZE PLANS & SPECIFICATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE FINAL FULL SIZE PLANS & SPECIFICATIONS FROM THE SYSTEM ENGINEER PRIOR TO PROCEEDING WITH WORK.

PRELIMINARY - NOT FOR CONSTRUCTION

consultants
wastewater systems & solutions
HARBOR BLVD., STE 301
EDRO, CA 90731
(310) 241-6565
(310) 241-6566

REGISTERED PROFESSIONAL ENGINEER
KEVIN L. POFFENBARGER
Exp. 06-30-10
No. 69089
STATE OF CALIFORNIA

▽ NO.	REVISIONS:	DATE:	BY:
1	CHG TO M750DUV	03/08	KP
2	NEW ARCHITECTURAL SITE PLAN	06/09	CJB

ADDRESS:
22729 PACIFIC COAST HIGHWAY
MALIBU, CALIFORNIA 90265

SHEET TITLE: SEPTIC SITE PLAN
PROJECT: ONSITE WASTEWATER SYSTEM

DATE	SCALE	DRAWN BY
01/02/08	AS_SHOWN	KLP

PROJECT NO. G153
DRAWING NO. W0.01
SHEET 1 OF 2 SHEETS

PLANNING REVIEW

City of Malibu

23815 Stuart Ranch Road • Malibu, California 90265-4861
(310) 456-2489 • Fax (310) 456-7650 • www.ci.malibu.ca.us

HYDROGEOLOGIC REVIEW SHEET

Project Information

Date:	September 8, 2009	**Review Log #:**	2986
Site Address:	22729 Pacific Coast Highway		
Lot/Tract/PM #:	n/a	**Planning #:**	CDP 08-055
Applicant/Contact:	Mike Barsocchini, barsokini@aol.com Norm Haynie, norm@blueonyxdesign.com	**BPC/GPC #:**	
Contact Phone #:	310-456-3625 **Fax #:** 310-456-7175	**Planner:**	Ha Ly
Project Type:	Demolish existing gas station, new commercial building		

Submittal Information

Consultant(s) / Report Date(s): *(Current submittal(s) in Bold.)*	EPD Consultants, Inc. (Poffenbarger, RCE 69089): **6-30-09**, 3-1-08 Stratum Geotechnical Consultants (Robinson, RGE 2491; CEG 1902): 7-3-09, 11-7-08, 10-8-07
Previous Reviews:	4-6-09, 12-8-08, 7-24-08, Geology Review Referral Sheet dated 7-11-08

Review Findings

Coastal Development Permit Review for OWTS

☒ **APPROVED** from a geotechnical perspective.

☐ **NOT APPROVED** from a geotechnical perspective. The listed 'Review Comments' shall be addressed prior to approval.

Building Plan-Check Stage

☒ Awaiting Building plan check submittal. Please respond to the listed 'Building Plan-Check Stage Review Comments' AND review and incorporate the attached 'Geotechnical Notes for Building Plan Check' into the plans.

☐ **APPROVED** from a geotechnical perspective. Please review the attached 'Geotechnical Notes for Building Plan Check' and incorporate into Building Plan-Check submittals.

☐ **NOT APPROVED** from a geotechnical perspective. The listed 'Building Plan-Check Stage Review Comments' shall be addressed prior to Building Plan-Check Stage approval.

Remarks regarding the Hydrogeologic Review

The project comprises demolishing the remains of an existing gas station and associated improvements and constructing a new 2,750 square foot one-story commercial building, with a 546 square foot basement area and subterranean parking, and roof parking. Site and retaining walls will be constructed, as well as landscaping. Grading will consist of 3,290 yards of cut and export. A new onsite wastewater treatment system (OWTS) will be installed on the property.

The referenced response report regarding the alternative onsite wastewater system at 22729 PCH was reviewed by the City Hydrogeologic Reviewer. The OWTS proposed consists of a conventional leach field (current and

Guidelines for geotechnical reports (dated February 2002) are available on the City of Malibu web site: http://www.ci.malibu.ca.us/index.cfm?fuseaction=nav&navid=30.

Fugro Project #: 3399.001

future) with linear configurations of about 3 by 60 feet at the southwest corner of the approximately 18,453 square foot property.

City hydrogeologic staff did not review the reports regarding the results of the percolation test data; but for the beach sand deposits underlying the site, the rates seem reasonable. They are fairly permeable soils with a high acceptance rate for wastewater application and acceptance.

Cumulative impacts analysis is presented in Section 1.4 of the report. They relate groundwater mounding and wastewater loading to water quality, particularly nitrogen loading to groundwater.

The City of Malibu Building and Safety Department implemented the policy of requiring geotechnical consultants to submit electronic geotechnical reports (on CD Rom) for review beginning January 1, 2006. Geotechnical responses shall conform to this policy, which can be viewed on the City's website: http://www.malibu-ca.gov/index.cfm?fuseaction=detail&navid=82&cid=7247.

Hydrogeologic Review Remarks:

Relative to groundwater mounding , the Consultant described in their report dated March 1, 2009 (Section 1.2.1) that groundwater occurs at a depth of 11.5 feet bgs based on a boring excavated in October, 2007. The depth to groundwater is depicted on Plate 2 of the report at +8.5 feet NAV. The base (invert) of the proposed leach field is shown on this same plate at an elevation of +13.5 feet. Thus, a 5 foot separation (vadose zone) was assumed. The mounding analysis in the March 1, 2009 report simply stated that, given the rapid percolation rate (assimilative capacity) of the soils, groundwater mounding will not result in more than a 50% reduction in the minimum depth to seasonably (sic) high groundwater. The reviewer generally agreed with this, given the relatively low average daily wastewater loading rate of 330 gpd. No opinion, however, was provided as to what the seasonally high(er) groundwater level might be, or the affect of tidal variations at the site. No analytical loading analysis or worksheet was provided, such as a simplified Hantush approach. A brief analysis to support the conclusions reached was requested.

In the supplemental report dated June 30, 2009, the issue of potential mounding was addressed using the method described by Poeter. Input values for the analytical solution were provided and the results were summarized on Table 5 using assumed seasonal high groundwater level data. The approach is considered appropriate and the conclusions reached demonstrated that the required 5-foot separation would be met.

Relative to cumulative groundwater quality impacts, in both the March 1, and June 30, 2009 reports, the simplified mass balance analytical approach described by Hantzsche (1992) is used. The approach is considered appropriate, and the conclusions reached acceptable (supported by the worksheet provided in Attachment 6). The supplemental report dated June 30, 2009 acknowledged that some of the input values for the mass balance analytical solution could be different; the predicted wastewater loading nitrate-nitrogen value of 9 mg/l is considered reasonably correct.

Building Plan Check Review Comments:

1. Two sets of OWTS plans (**APPROVED BY BUILDING AND SAFETY**) incorporating the Project Geotechnical Consultant's recommendations and items in this review sheet must be **reviewed and wet stamped and manually signed by the Project Engineering Geologist and Project Geotechnical Engineer**. City geotechnical staff will review the plans for conformance with the Project Geotechnical Consultants' recommendations and items in this review sheet over the counter at City Hall on Mondays through Thursdays between 8 AM and 10 AM.

Please direct questions regarding this review sheet to City Geotechnical staff listed below.

Hydrogeologic Review by:

David Gardner, C. H G. # 122, Exp. 5-31-11
Hydrogeologic Reviewer (805-289-3826)

September 8, 2009
Date

Reviewed by:

9/8/09

This review sheet was prepared by City Geotechnical Staff contracted with Fugro as an agent of the City of Malibu.

FUGRO WEST, INC.
4820 McGrath Street, Suite 100
Ventura, California 93003-7778
(805) 650-7000 (*Ventura office*)
(310) 456-2489, x306 (*City of Malibu*)

City of Malibu

23815 Stuart Ranch Road • Malibu, California 90265-4861
(310) 456-2489 • Fax (310) 456-7650 • www.ci.malibu.ca.us

PLANNING REVIEW

GEOTECHNICAL REVIEW SHEET

Project Information

Date:	December 8, 2008	**Review Log #:**	2986
Site Address:	22729 Pacific Coast Highway		
Lot/Tract/PM #:	n/a	**Planning #:**	CDP 08-055
Applicant/Contact:	Mike Barsocchini, barsokini@aol.com	**BPC/GPC #:**	
Contact Phone #:	310-456-3625 **Fax #:** 310-456-7175	**Planner:**	Ha Ly
Project Type:	Demolish existing gas station, new commercial building		

Submittal Information

Consultant(s) / Report Date(s):	Stratum Geotechnical Consultants (Robinson, RGE 2491; CEG 1902): 11-7-08, 10-8-07
(Current submittal(s) in Bold.)	
Previous Reviews:	7-24-08; Geology Review Referral Sheet dated 7-11-08

Review Findings

Coastal Development Permit Review

☒ APPROVED from a geotechnical perspective.

☐ NOT APPROVED from a geotechnical perspective. The listed 'Review Comments' shall be addressed prior to approval.

Building Plan-Check Stage

☒ Awaiting Building plan check submittal. Please respond to the listed 'Building Plan-Check Stage Review Comments' AND review and incorporate the attached 'Geotechnical Notes for Building Plan Check' into the plans.

☐ APPROVED from a geotechnical perspective. Please review the attached 'Geotechnical Notes for Building Plan Check' and incorporate into Building Plan-Check submittals.

☐ NOT APPROVED from a geotechnical perspective. The listed 'Building Plan-Check Stage Review Comments' shall be addressed prior to Building Plan-Check Stage approval.

Remarks

The response report was reviewed by the City from a geotechnical perspective. Based upon the submitted information and a site reconnaissance, the project comprises demolishing the remains of an existing gas station and associated improvements and constructing a new 2,750 square foot one-story commercial building, with a 546 square foot basement area and subterranean parking, and roof parking. Site and retaining walls will be constructed, as well as landscaping. Grading will consist of 3,290 yards of cut and export. A new onsite wastewater treatment system (OWTS) will be installed on the property.

The City of Malibu Building and Safety Department implemented the policy of requiring geotechnical consultants to submit electronic geotechnical reports (on CD Rom) for review beginning January 1, 2006. Geotechnical responses shall conform to this policy, which can be viewed on the City's website: http://www.malibu-ca.gov/index.cfm?fuseaction=detail&navid=82&cid=7247.

Guidelines for geotechnical reports (dated February 2002) are available on the City of Malibu web site: http://www.ci.malibu.ca.us/index.cfm?fuseaction=nav&navid=30.

Fugro Project #: 3399.001

Building Plan-Check Stage Review Comments:

1. The Project Geotechnical Consultant recommends that an environmental consulting firm be retained to evaluate any risks regarding petroleum contamination from the existing gas station. The results of the study need to be submitted to the city for review.
2. Please provide calculations for the recommended negative skin friction.
3. The calculations for passive resistance show an equivalent fluid unit weight of 561 pcf, with 500 pcf being recommended as an ultimate value for design, and a one-third increase for short-term loading. The City's geotechnical guidelines require a safety factor of two when the lateral resistance is increased for short-duration loadings. Please revise the recommendations to be consistent with the City's geotechnical guidelines.
4. The report recommends CBC Site Class B for CBC seismic design. Site Class B is for rock with a shear wave velocity between 2500 and 5000 fps. A classification of B is not consistent with the site-condition classification based on correlations between geologic units and the average S-wave velocity (V_s) in the upper 30 meters developed by the California Geologic Survey and published in the SCEC Phase III report (Wills and others, 2000). The Project Geotechnical Consultant needs to substantiate the recommendation of Site Class, or alternatively per 2007 CBC Section 1613.5.2, "*when soil properties are not known in sufficient detail to determine the Site Class, Site Class D shall be used,*" if Site Class B or C cannot be substantiated with site data.
5. In responding to Comment 10 of the previous review, the Project Geotechnical Consultant provides recommendations for basement or subterranean wall heights greater than 12 feet. The 2007 CBC, with respect to basement walls does not provide any wall heights limits (such as 12 feet) for which lateral pressures need to be considered. The reference to 12 feet in the CBC is for cantilever (free-standing) walls. The recommendations need to be revised to be consistent with the current CBC.
6. Please include the recommendation to excavate a boring to verify the groundwater level prior to construction of the basement as a note on the plans. Show the boring location on the plans.
7. Please depict limits and depths of over-excavation and structural fill to be placed on the grading plan, and cross sectional view of the proposed building area. Cut and fill yardages are to be indicated on the cover sheet of the plans.
8. Please include on the grading plans a note stating where all excavated materials from the subterranean parking and retaining wall excavations will be sent (an approved landfill).
9. Two sets of grading, retaining wall, and commercial building plans (**APPROVED BY BUILDING AND SAFETY**) incorporating the Project Geotechnical Consultant's recommendations and items in this review sheet must be **reviewed and wet stamped and manually signed by the Project Engineering Geologist and Project Geotechnical Engineer**. City geotechnical staff will review the plans for conformance with the Project Geotechnical Consultants' recommendations and items in this review sheet over the counter at City Hall on Mondays through Thursdays between 8 AM and 10 AM.

Please direct questions regarding this review sheet to City Geotechnical staff listed below.

Engineering Geology Review by: _____ 12/8/08

Christopher Dean, C.E.G. #1751, Exp. 9-30-10 Date
Engineering Geology Reviewer (x306)

Geotechnical Engineering Review by: _____ 12-08-08

Leland M. Kraft, Jr., G.E. # 484, Exp. 6-30-10 Date
Geotechnical Engineering Reviewer (805-444-1943)

This review sheet was prepared by City Geotechnical Staff contracted with Fugro as an agent of the City of Malibu.

FUGRO WEST, INC.
4820 McGrath Street, Suite 100
Ventura, California 93003-7778
(805) 650-7000 (*Ventura office*)
(310) 456-2489, x306 (*City of Malibu*)

City of Malibu

– GEOTECHNICAL –

NOTES FOR BUILDING PLAN-CHECK

The following standard items should be incorporated into Building Plan-Check submittals, as appropriate:

1. One set of grading, retaining wall, and commercial building plans, incorporating the Geotechnical Consultant's recommendations and items in this review sheet, must be submitted to City geotechnical staff for review. **Additional review comments may be raised at that time that may require a response.**
2. Show the name, address, and phone number of the Geotechnical Consultant(s) on the cover sheet of the Building Plans.
3. Include the following note on Grading and Foundation Plans: "*Subgrade soils shall be tested for Expansion Index prior to pouring footings or slabs; Foundation Plans shall be reviewed and revised by the Geotechnical Consultant, as appropriate.*"
4. Include the following note on the Foundation Plans: "*All foundation excavations must be observed and approved by the Geotechnical Consultant prior to placement of reinforcing steel.*"
5. The Foundation Plans for the proposed project shall clearly depict the embedment material and minimum depth of embedment for the foundations in accordance with the Geotechnical Consultant's recommendations.
6. Show the onsite wastewater treatment system on the Site Plan.
7. Please contact the Building and Safety Department regarding the submittal requirements for a grading and drainage plan review.
8. A comprehensive Site Drainage Plan, incorporating the Geotechnical Consultant's recommendations, shall be included in the Plans. Show all area drains, outlets, and non-erosive drainage devices on the Plans. Water shall not be allowed to flow uncontrolled over descending slopes.

Grading Plans (as Applicable)

1. Grading Plans shall clearly depict the limits and depths of overexcavation, as applicable.
2. Prior to final approval of the project, an as-built compaction report prepared by the Project Geotechnical Consultant must be submitted to the City for review. The report must include the results of all density tests as well as a map depicting the limits of fill, locations of all density tests, locations and elevations of all removal bottoms, locations and elevations of all keyways and back drains, and locations and elevations of all retaining wall backdrains and outlets. Geologic conditions exposed during grading must be depicted on an as-built geologic map. This comment must be included as a note on the grading plans.

Retaining Walls (As Applicable)

1. Show retaining wall backdrain and backfill design, as recommended by the Geotechnical Consultant, on the Plans.
2. Retaining walls separate from a residence require separate permits. Contact the Building and Safety Department for permit information. One set of retaining wall plans shall be submitted to the City for review by City geotechnical staff. Additional concerns may be raised at that time which may require a response by the Project Geotechnical Consultant and applicant.

Guidelines for geotechnical reports (dated February 2002) are available on the City of Malibu web site: http://www.ci.malibu.ca.us/index.cfm?fuseaction=nav&navid=30.

Fugro Project #: 3399.001

FILE HL

City of Malibu

23815 Stuart Ranch Rd., Malibu, California CA 90265-4804
(310) 456-2489 FAX (310) 317-1950

BIOLOGY REVIEW
REFERRAL SHEET

TO: City of Malibu City Biologist DATE: 7/8/2008 9/29/09

FROM: City of Malibu Planning Department

PROJECT NUMBER: DP 08-014, CDP 08-055

JOB ADDRESS: 22729 PACIFIC COAST HWY

APPLICANT / CONTACT:

APPLICANT ADDRESS: 3502 Coast View Drive
Malibu, CA 90265

APPLICANT PHONE #: (310)456-3625

APPLICANT FAX #: (310) 456-7175

PLANNER: Ha Ly

PROJECT DESCRIPTION: N Comm Building, Demo Exist Gas Station

TO: Malibu Planning Division and/or Applicant

FROM: Dave Crawford, City Biologist

____ The project review package is INCOMPLETE and; CANNOT proceed through Final Planning Review until corrections and conditions from Biological Review are incorporated into the proposed project design (See Attached).

X The project is APPROVED, consistent with City Goals & Policies associated with the protection of biological resources and CAN proceed through the Planning process.

____ The project may have the potential to significantly impact the following resources, either individually or cumulatively: Sensitive Species or Habitat, Watersheds, and/or Shoreline Resources and therefore Requires Review by the Environmental Review Board (ERB).

SIGNATURE DATE 11/5/09

Additional requirements/conditions may be imposed upon review of plan revisions.
Dave Crawford City Biologist, may be contacted Monday and Thursday between 8:00 am and 12:30 pm at the City Hall Annex counter, by leaving an e-mail at dcrawford@ci.malibu.ca.us, or by leaving a detailed voice message at (310) 456-2489, extension 277

Rev 091019

City of Malibu

23815 Stuart Ranch Road, Malibu, California 90265
(310) 456-2489 Fax (310) 456-7650

Planning Department

BIOLOGICAL REVIEW

Site Address: 22729 Pacific Coast Highway
Applicant/Phone: Mike Barsocchini/(310)456-3625
Project Type: N Comm Building, Demo Exist Gas Station
Project Number: CDP 08-055
Project Planner: Ha Ly

RECOMMENDATIONS:

1. The project is **APPROVED** with the following conditions:

   A. Invasive plant species, as determined by the City of Malibu, are prohibited.

   B. Vegetation shall be situated on the property so as not to significantly obstruct the primary view from private property at any given time (given consideration of its future growth).

   C. The landscape plan shall prohibit the use of building materials treated with toxic compounds such as creosote or copper arsenate.

   D. All street frontage trees and shrubs shall include only species native to the Santa Monica Mountains.

2. **PRIOR TO ISSUING A CERTIFICATE OF OCCUPANCY**, the City Biologist shall inspect the project site and determine that all planning conditions to protect natural resources are in compliance with the approved plans.

Reviewed By: _____ Date: 11/5/09
Dave Crawford, City Biologist

310-456-2489 ext.277 (City of Malibu); e-mail dcrawford@ci.malibu.ca.us
Available at Planning Counter Mondays and Thursdays 8:30 a.m. to 12:30 p.m.

California Regional Water Quality Control Board

Los Angeles Region

Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

Alan C. Lloyd, Ph.D.
Agency Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Arnold Schwarzenegger
Governor

May 23, 2005

Mr. Edward Paden
Shell Oil Products US
20945 South Wilmington Avenue
Carson, CA 90810

UNDERGROUND STORAGE TANKS (UST) PROGRAM – CASE CLOSURE
FORMER SHELL SERVICE STATION
22729 PACIFIC COAST HIGHWAY, MALIBU (CASE ID NO. I-02982A)

Dear Mr. Paden:

This letter confirms the completion of a site investigation and corrective action for the underground storage tank(s) formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank(s) are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground tank(s) site is in compliance with the requirements of subdivision (a) and (b) of section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

This notice is issued pursuant to subdivision (g) of section 25296.10 of the Health and Safety Code.

If you have groundwater monitoring wells or vapor extraction wells at the subject property, you must comply with the following:

1. All wells must be located and properly destroyed.

2. Well abandonment permits must be obtained from the Los Angeles County Department of Health Services, Water Well Permits, and all other necessary permits must be obtained from the appropriate agencies prior to the start of work.

3. You must submit a report on the destruction of the wells to this office by **August 30, 2005**. This report must include, at a minimum, a site map, a description of the well destruction process, and copies of all signed permits.

SC0059

MEMORANDUM

TO: Ha Ly, Associate Planner, City of Malibu

FROM: Michael B. Phipps, PG, CEG, Principal Geologist
Gregory R. Millikan, PG, Consulting Geologist

DATE: December 8, 2009

SUBJECT: Review of Site Environmental/Hazardous Materials Issues, Proposed Demolition of Former Shell Station at 22729 Pacific Coast Highway and Construction of a New Commercial Building Including Rooftop Parking; (CDP 08-055, DP 08-014)

****

This memorandum is a follow-up to our Memorandum to the City of Malibu dated 5/21/09 (attached) and is intended to document the environmental/hazardous materials peer review of additional information submitted in August through October 2009 for the subject project.

In response to the comments in the 5/21/09 memorandum prepared by CSA, the applicant submitted the following documents which were forwarded to CSA by the City:

- Wayne Perry, Inc., August 6, 2009; Evaluation of Closure Conditions, 22729 Pacific Coast Highway, Malibu, California.
- Wayne Perry, Inc., August 20, 2009; Site Assessment Report, Sea View Terrace Property, 22729 Pacific Coast Highway (At Sweetwater Canyon), Malibu, California.

These documents were received by CSA at the end of August 2009 and were reviewed in early September 2009. On September 14, 2009 a conference call was held between the undersigned reviewers and Mr. Eric Floyd of Wayne Perry, Inc. (WPI), during which we posed eight questions to WPI. WPI indicated they would respond to the questions in writing. On September 17, 2009 WPI responded with an email (attached) that included additional analytical testing of soil and groundwater samples but no specific responses to the eight questions posed. CSA reviewed this information and prepared an email on

September 30, 2009 (attached) which reiterated the eight questions and requested clarification on these items in writing. WPI responded with an email on October 1, 2009 (attached) which included written responses to all of the questions.

On October 6, 2009 we received and reviewed a revised set of plans for the subject "Sea View Terrace" project. CSA understands that the proposed project consists of demolition of all existing structures at the former service station, and construction of a new commercial building. The revised plans have eliminated the previously proposed subterranean parking. The proposed project will require excavations into the subsurface (i.e., drilled borings) for a proposed pile foundation system.

The additional site assessment performed by WPI (August 20, 2009) included four geoprobe borings to a depth of 10 feet and laboratory testing of soil and groundwater samples for various analytes including TPH-G, benzene, MTBE, TBA, DIPE, ETBE and TAME. These compounds were not detected at the indicated reporting limit in any of the soil or groundwater samples. Additional analytical testing for Volatile Organic Compounds (WPI September 17, 2009 email) also returned results of non-detect at the indicated reporting limits for those compounds. The consultant concluded that they have confirmed "...that there is not gross petroleum fuel contaminants on the site that are associated with historic gasoline station operations." (WPI Email 10/1/09)

Based upon our review of the additional information submitted, the comments presented through this review process have been adequately addressed. We suggest that in preparation of the environmental document for this project, the City incorporates the following item as a mitigation/monitoring measure:

Due to the previously documented presence of impacted soil and groundwater, the Regional Water Quality Control Board (RWQCB) opened a case at the Site. The lateral and vertical extent of impacted media was assessed to the satisfaction of RWQCB. Significantly impacted material was excavated and removed from the Site to a legal point of disposal, and after an additional period of groundwater monitoring, case closure was issued by the RWQCB.

Relict impacted soil and groundwater is known to be present at the Site, however given the currently available data, this material does not appear to pose a significant threat to the proposed development. During demolition and construction, the project engineer shall direct crews to monitor excavated soil and/or waters (surface water or groundwater) for stain odor or other indicators of impacted media.

If, during demolition, construction or any later phase, stained or odorous soils or waters (surface water or groundwater) are detected, the applicant shall provide the following to the City:

- *Non-emergency notification that stained or odorous soil or water (surface water or groundwater) has been detected;*
- *Plan to address the further assessment of the extent of the impacted media;*
- *Contingency plans to address the possible impacts to site workers or the public;*

- *Plan for the legal profiling, transportation, and disposal at an offsite location; and*
- *Notification of other agencies (e.g. RWQCB, Malibu Fire Department, DTSC, etc.).*

This peer review has been performed to provide technical advice to assist the City with their discretionary permit decisions. Our services have been limited to review of the documents previously identified, and a visual review of the property. Our opinions and conclusions are made in accordance with generally accepted principals and practices of the environmental site assessment and geotechnical professions. This warranty is in lieu of all other warranties, either expressed or implied.

Please do not hesitate to contact us if there are any questions regarding this memorandum.

Respectfully Submitted,

COTTON, SHIRES AND ASSOCIATES, INC.

Michael B. Phipps
Principal Engineering Geologist
PG 5748, CEG 1832

Gregory R. Millikan
Consulting Geologist
PG 4708

Attachments:

CSA Memorandum to City of Malibu, May 21, 2009
WPI Email September 17, 2009
CSA Email September 30, 2009
WPI Email October 1, 2009

COTTON, SHIRES AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

SC0059

MEMORANDUM

TO: Ha Ly, Associate Planner, City of Malibu

FROM: Michael B. Phipps, PG, CEG, Principal Geologist
Gregory R. Millikan, PG, Consulting Geologist

DATE: May 21, 2009

SUBJECT: Review of Site Environmental/Hazardous Materials Issues, Proposed Demolition of Former Shell Station at 22729 Pacific Coast Highway and Construction of a New Commercial Building Including Rooftop and Subterranean Parking; (CDP 08-055, DP 08-014)

****

In accordance with your request and authorization, Cotton Shires and Associates, Inc. (CSA) has reviewed the following documents that were submitted pursuant to the referenced planning case numbers for the former Shell Station at 22729 Pacific Coast Highway:

- Wayne Perry, Inc., July 9, 2002; Underground Storage Tank Removal and Soil Sampling Report, Former Shell Service Station, 22729 Pacific Coast Highway (at Sweetwater Canyon Road), Malibu, California, WPI Project No. 01.748.

- California Regional Water Quality Control Board, Los Angeles Region, May 23, 2005; Underground Storage Tanks (UST) Program—Case Closure, Former Shell Service Station, 22729 Pacific Coast Highway, Malibu (Case ID No. I-02972A)

- Letter from Norman R. Haynie to City of Malibu, Attn: Ha Ly, Planning Department; April 29, 2009; RE: 22729 Pacific Coast Highway.

In addition, we downloaded from LibertyNet the following geotechnical documents prepared for the site, as reference information:

Northern California Office
330 Village Lane
Los Gatos, CA 95030-7218
(408) 354-5542 • Fax (408) 354-1852

Central California Office
6417 Dogtown Road
San Andreas, CA 95249-9640
(209) 736-4252 • Fax (209) 736-1212

Southern California Office
651 Via Vista
Newbury Park, CA 91320
(805) 807-9001 • Fax (805) 376-0356

www.cottonshires.com

- Stratum Geotechnical Consultants, October 8, 2007; Geotechnical Report for a Proposed Multi-Level Parking Structure at 22729 Pacific Coast Highway, Malibu, California 90265, 122 p.

- Stratum Geotechnical Consultants, November 7, 2007; Supplemental Letter for a Proposed Commercial Building and Parking Structure at 22729 Pacific Coast Highway, 101 p.

CSA understands that the proposed project consists of demolition of all existing structures at the former service station, and construction of a new commercial building with both rooftop and subterranean parking. Based on recent discussions with you, we understand that revised plans that do not propose subterranean parking may be submitted by the applicant shortly.

Based upon our initial review of the above-referenced documents, we emailed comments to you on April 24, 2009 (attached). In summary we requested that the applicant provide any other environmental assessments that were prepared for the site, or assessments that pertain to either of the LARWQCB cases (1996, 2005). Those comments were as follows:

"As a follow up to our conversation yesterday, notwithstanding the case closures issued by the LARWQCB in 1996 and 2005, we are very concerned about the potential *lateral extent* of contamination at the site. With the exception of a single monitoring well installed west of the canopy (covering the former pump islands), all of the remediation of soil, and subsequent testing and monitoring, was confined to the immediate area of the USTs...so there was a much greater emphasis on vertical extent characterization than lateral, and apparently no groundwater monitoring wells located downgradient of the former USTs. Then consider that the project geotechnical consultant drilled 8 borings on the site (three in 2007, five in 2008), *outside of* the area of the former UST's and outside the three former monitoring wells. The presence of strong organic/petroleum odor described in nearly all of the geotechnical borings (7 out of 8), and in all of the earth materials within those borings (fill, littoral sands, littoral gravels, and underlying bedrock) is a big red flag.

Because there is no readily available (i.e., Geotracker site) information related to the first case (which was closed in 1996), and limited information related to the 2nd case, we recommend that before this review proceeds any further, the applicant provide ALL of their comprehensive documentation (i.e., site assessment reports & monitoring) for both cases, and any other environmental site assessments that have been performed on the site. Basically, the presence of petroleum odors in the geotechnical borings will need to be explained, and further site assessment may be required."

The applicant responded with the above-referenced letter dated April 29, 2009 (attached). In the letter, the applicant appears to imply that we are questioning the LARWQCB's determination for "case closure" and further opines that we have no authority to do so.

CSA wants to be clear that additional information has come to light (the geotechnical borings excavated in 2007) suggesting the presence of petroleum-contaminated earth materials outside the remediated and monitored area of the former USTs. The project geotechnical consultant (Stratum, 2007, pg 11) stated the following: *"The subject site was previously utilized as a gas station. However, a discussion of issues pertaining to petroleum*

contamination as well as the status of the environmental closure of the site is beyond the scope of this report. We recommend that an Environmental Consulting Firm be engaged to evaluate any risks or hazards."

The "petroleum hydrocarbon odors" identified in the geotechnical boring logs are, to date, undefined as to source, concentration, etc. While we consider it possible that the odors may be unrelated to anthropogenic sources and may be natural seeps from the bedrock, this hypothesis is currently untested and seems less likely given the identification of the odors in all of the various earth materials sampled by the geotechnical consultant including onsite artificial fill.

CSA contacted Mr. Yue Rong of LARWQCB for clarification of the limitations of the "case closure" (LARWQCB May 23, 2005 letter attached). In a phone conversation on May 20, 2009, Mr. Rong indicated that he was familiar with the site and noted that the case closure was for contamination identified during the assessment of the former UST area ONLY. Additional "contamination" found elsewhere at the site in any subsequent assessment (geotechnical, environmental, etc.) is not "covered" by the closure letter.

Mr. Rong noted that if the future land use includes any change in land use, the closure letter would need to be revisited and that a risk assessment be performed under the oversight of DTSC, the County, or the LARWQCB. The current case closure for the site is ONLY appropriate to address the LARWQCB's concerns about groundwater and not necessarily about future exposure to workers or other site users. The risk assessment would need supporting data in order to calculate future risk. If assessment of the newly identified contamination is inadequate to support a quantitative risk assessment, additional assessment may be necessary to provide the data. Mr. Rong also requested that the consultant submit the reports to the RWQCB. We noted that we are the City reviewers and do not have the right to submit material which could open a case. This should be done by the applicant, owner or owner's consultant. Mr. Rong suggested that a conference call between the applicant and the RWQCB could help explain the limitations of the case closure to the applicant.

At a minimum the following needs to be addressed in order for the City to have adequate information to prepare its Initial Study and make environmental findings pursuant to CEQA:

1. The applicant's environmental consultant should assess the impact of residual petroleum hydrocarbons (if any) on human health and the environment, considering the proposed development activities and potential risks to future occupants. The consultant should recommend appropriate mitigation measures (e.g., soil spoils management, exposure controls), as necessary.

2. A demolition-level asbestos and lead-containing paint survey is required for all structures that are slated for demolition.

This peer review has been performed to provide technical advice to assist the City with their discretionary permit decisions. Our services have been limited to review of the documents previously identified, and a visual review of the property. Our opinions and conclusions are made in accordance with generally accepted principals and practices of the environmental site assessment and geotechnical professions. This warranty is in lieu of all other warranties, either expressed or implied.

Please do not hesitate to contact us if there are any questions regarding this memorandum.

Respectfully Submitted,

COTTON, SHIRES AND ASSOCIATES, INC.

Michael B. Phipps
Principal Engineering Geologist
PG 5748, CEG 1832

Gregory R. Millikan
Consulting Geologist
PG 4708

Attachments:

Email from Michael Phipps to Ha Ly, City of Malibu, dated April 24, 2009
Letter from Norman R. Haynie to City of Malibu dated April 29, 2009
LARWQCB Case Closure Letter dated May 23, 2005

From: Mike Phipps [mailto:mphipps@cottonshires.com]
Sent: Friday, April 24, 2009 1:29 PM
To: 'Ha Ly'
Cc: 'grmillikan@verizon.net'; 'asheldon@ci.malibu.ca.us'
Subject: RE: 22729 PCH - Gas Station

Ha,

As a follow up to our conversation yesterday, notwithstanding the case closures issued by the LARWQCB in 1996 and 2005, we are very concerned about the potential *lateral extent* of contamination at the site. With the exception of a single monitoring well installed west of the canopy (covering the former pump islands), all of the remediation of soil, and subsequent testing and monitoring, was confined to the immediate area of the USTs...so there was a much greater emphasis on vertical extent characterization than lateral, and apparently no groundwater monitoring wells located downgradient of the former USTs. Then consider that the project geotechnical consultant drilled 8 borings on the site (three in 2007, five in 2008), *outside of* the area of the former UST's and outside the three former monitoring wells. The presence of strong organic/petroleum odor described in nearly all of the geotechnical borings (7 out of 8), and in all of the earth materials within those borings (fill, littoral sands, littoral gravels, and underlying bedrock) is a big red flag. Because there is no readily available (i.e., Geotracker site) information related to the first case (which was closed in 1996), and limited information related to the 2nd case, we recommend that before this review proceeds any further, the applicant provide ALL of their comprehensive documentation (i.e., site assessment reports & monitoring) for both cases, and any other environmental site assessments that have been performed on the site. Basically, the presence of petroleum odors in the geotechnical borings will need to be explained, and further site assessment may be required.

Sincerely,

Michael B. Phipps, PG, CEG
Principal Engineering Geologist
Cotton, Shires and Associates, Inc.
mobile: (805) 807-9001
email: mphipps@cottonshires.com

NORMAN R. HAYNIE
22741 PACIFIC COAST HIGHWAY. STE. 400
MALIBU CA 90265
310-456-5515

April 29, 2009

City of Malibu
Attn: Ha Ly, Planning Department
23815 Stuart Ranch Road
Malibu CA 90265

RE: 22729 Pacific Coast Highway, Malibu

Dear Ms. Ly:

I have reviewed Mike Phipps' memo to you with respect to the former Shell Gas Station site at 22729 Pacific Coast Highway.

Before I agreed to purchase this site I was advised that all agencies authorized and entitled in the State of California to approve the site as satisfying the legal criteria for being properly remediated had approved the site after Shell performed extensive testing and monitoring. All of the work performed by Shell was monitored by State inspectors and the required testing was performed. After extensive work the site was approved by the State agencies as satisfying the State's criteria for being properly remediated.

I contacted Mr. Edward Paden, Environmental Engineer for Shell Oil Products, and he informed me that in the City of Malibu the Regional Water Quality Control Board is the only agency that has the authority to make the determination if the remediation was completed properly and to approve the site as "not being a threat to public health and the environment." This determination was made with respect to the subject site by the only agency that has the authority to do so and the case is "closed".

The City has accepted the authority of the Regional Water Quality Control Board to make the above referenced determination and Shell and Shell's successors in interest have relied on this fact; it does not seem proper or legal for Malibu to question the determination now.

Sincerely yours,

Norman R. Haynie
Project and Owner's Representative

NRH/cek

Please contact Dr. Weixing Tong at (213) 576-6715 or e-mail him at wtong@wtaterboards.ca.gov if you have any questions regarding this matter.

Sincerely,

ORIGINAL SIGNED BY

Jonathan S. Bishop
Executive Officer

Cc: Ms. Nancy Mastumoto, Water Replenishment District of Southern California
Mr. Tim Smith, Los Angeles County Department of Public Works
Mr. Zareh & Melina Issakhanian (459 W. Broadway, Glendale, CA 91204)
Ms. Cristi Farrell, Wayne Perry, Inc.

From: Eric Floyd [mailto:EFloyd@wpinc.com]
Sent: Thursday, September 17, 2009 5:40 PM
To: mphipps@cottonshires.com
Cc: norm@blueonyxdesign.com
Subject: EPA Method 8260B Full San Results for Sea View Terrace Site

Hi Mike,

Thank you for taking the initiative to contact me regarding the Sea View Terrace project. As we discussed, I contacted the laboratory, and was able to get the EPA Method 8260B full scan results for the soil and groundwater samples collected on July 21, 2009. Although the holding time was exceeded, the laboratory did meet the detection limit specified for all analytes by the Method. As you can see, none of the analytes included in the 8260B analyses (i.e., the volatile organic compounds) were detected in either soil or groundwater samples.

I also spoke to Mr. Haynie regarding the revised plans for the structure that removed the underground parking. Mr. Haynie told me that the revised plans were submitted to the City of Malibu several weeks ago. Not only has the underground parking been removed, but the building itself is located on piers (driven pilings) and the floor is approximately 1-foot above ground surface. With the exception of minor landscape areas, the remainder of the site is paved for parking.

Considering the site history, these analytical results (as well as those provided previously) and the planned structure, I don't believe that there is a health risk concern for occupants of an office building on this site.

WAYNE PERRY, INCORPORATED

Eric D. Floyd
Principal Geologist
California Professional Geologist 7520

Office: (714) 826-0352, Ext. 3321
Fax: (714) 523-7880
Cell: (714) 720-9796

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 5035/8260B (VOCs) ---

Client Name: Wayne Perry Inc.
Project Manager: Eric Floyd
Project Name: 09-272A
Sample Matrix: Soil

Date Sampled: 07/21/09
Date Prepared: 09/15/09
Batch Number: VOC90915
Date Analyzed: 09/16/09

C&E LAB ID	90721C-1	90721C-2	90721C-3	90721C-4	90721C-5
SAMPLE ID	SB-1-d2	SB-1-d5	SB-1-d10	SB-2-d2	SB-2-d5
DF	1	1	1	1	1

Unit Reported: µg/kg

COMPOUND	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Acetone	ND	5	ND	5	ND	5	ND	5	ND	5
Benzene	ND	1	ND	1	ND	1	ND	1	ND	1
Bromodichloromethane	ND	2	ND	2	ND	2	ND	2	ND	2
Bromoform	ND	5	ND	5	ND	5	ND	5	ND	5
Bromomethane	ND	2	ND	2	ND	2	ND	2	ND	2
2-Butanone (MEK)	ND	2	ND	2	ND	2	ND	2	ND	2
Carbon Disulfide	ND	2	ND	2	ND	2	ND	2	ND	2
Carbon Tetrachloride	ND	2	ND	2	ND	2	ND	2	ND	2
Chlorobenzene	ND	2	ND	2	ND	2	ND	2	ND	2
Chloroethane	ND	2	ND	2	ND	2	ND	2	ND	2
Chloroform	ND	2	ND	2	ND	2	ND	2	ND	2
Chloromethane	ND	5	ND	5	ND	5	ND	5	ND	5
Cyclohexane	ND	2	ND	2	ND	2	ND	2	ND	2
Dibromochloromethane	ND	5	ND	5	ND	5	ND	5	ND	5
1,2-Dibromo-3-Chloropropane	ND	2	ND	2	ND	2	ND	2	ND	2
1,2-Dibromoethane	ND	2	ND	2	ND	2	ND	2	ND	2
1,2-Dichlorobenzene	ND	2	ND	2	ND	2	ND	2	ND	2
1,3-Dichlorobenzene	ND	2	ND	2	ND	2	ND	2	ND	2
1,4-Dichlorobenzene	ND	2	ND	2	ND	2	ND	2	ND	2
Dichlorodifluoromethane	ND	5	ND	5	ND	5	ND	5	ND	5
1,1-Dichloroethane	ND	2	ND	2	ND	2	ND	2	ND	2
1,2-Dichloroethane	ND	2	ND	2	ND	2	ND	2	ND	2
1,1-Dichloroethene	ND	2	ND	2	ND	2	ND	2	ND	2
cis-1,2-Dichloroethene	ND	2	ND	2	ND	2	ND	2	ND	2
trans-1,2-Dichloroethene	ND	2	ND	2	ND	2	ND	2	ND	2
1,2-Dichloropropane	ND	2	ND	2	ND	2	ND	2	ND	2

To be continued on page 2

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 5035/8260B (VOCs) ---

Client Name: Wayne Perry Inc.
Project Manager: Eric Floyd
Project Name: 09-272A
Sample Matrix: Soil

Date Sampled: 07/21/09
Date Prepared: 09/15/09
Batch Number: VOC90915
Date Analyzed: 09/16/09

C&E LAB ID	90721C-1	90721C-2	90721C-3	90721C-4	90721C-5
SAMPLE ID	SB-1-d2	SB-1-d5	SB-1-d10	SB-2-d2	SB-2-d5
DF	1	1	1	1	1

Unit Reported: µg/kg

COMPOUND	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
trans-1,3-Dichloropropene	ND	2	ND	2	ND	2	ND	2	ND	2
cis-1,3-Dichloropropene	ND	2	ND	2	ND	2	ND	2	ND	2
Ethylbenzene	ND	1	ND	1	ND	1	ND	1	ND	1
2-Hexanone	ND	2	ND	2	ND	2	ND	2	ND	2
Methyl Acetate	ND	2	ND	2	ND	2	ND	2	ND	2
Methylcyclohexane	ND	2	ND	2	ND	2	ND	2	ND	2
Methylene Chloride	ND	2	ND	2	ND	2	ND	2	ND	2
4-Methyl-2-Pentanone	ND	2	ND	2	ND	2	ND	2	ND	2
Styrene	ND	2	ND	2	ND	2	ND	2	ND	2
Isopropylbenzene	ND	2	ND	2	ND	2	ND	2	ND	2
4-Isopropyltoluene	ND	2	ND	2	ND	2	ND	2	ND	2
1,1,2,2-Tetrachloroethane	ND	2	ND	2	ND	2	ND	2	ND	2
Tetrachloroethene	ND	2	ND	2	ND	2	ND	2	ND	2
Toluene	ND	1	ND	1	ND	1	ND	1	ND	1
1,2,4-Trichlorobenzene	ND	2	ND	2	ND	2	ND	2	ND	2
1,1,1-Trichloroethane	ND	2	ND	2	ND	2	ND	2	ND	2
1,1,2-Trichloroethane	ND	2	ND	2	ND	2	ND	2	ND	2
Trichloroethene	ND	2	ND	2	ND	2	ND	2	ND	2
Trichlorofluoromethane	ND	2	ND	2	ND	2	ND	2	ND	2
1,1,2-Trichlorotrifluoroethane	ND	2	ND	2	ND	2	ND	2	ND	2
Vinyl Chloride	ND	5	ND	5	ND	5	ND	5	ND	5
Total Xylenes	ND	1	ND	1	ND	1	ND	1	ND	1

Surrogate Compounds	% Surrogate Recovery (70-130)				
Dibromofluoromethane	107	112	103	108	106
1,2-Dichloroethane-d4	117	114	119	118	118
Toluene-D8	98	98	99	99	98
4-Bromofluorobenzene	98	99	100	101	98

ND = Not detected at the indicated reporting limit; DF = Dilution Factor; RL = Reporting limit.
MI = Matrix Interference; unquantifiable due to coeluting organics in sample.

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 5035/8260B (VOCs) ---

Client Name: Wayne Perry Inc.
Project Manager: Eric Floyd
Project Name: 09-272A
Sample Matrix: Soil

Date Sampled: 07/21/09
Date Prepared: 09/15/09
Batch Number: VQC90915
Date Analyzed: 09/16/09

C&E LAB ID	90721C-6	90721C-7	90721C-8	90721C-9	90721C-10
SAMPLE ID	SB-2-d10	SB-3-d2	SB-3-d5	SB-3-d10	SB-4-d2
DF	1	1	1	1	1

Unit Reported: µg/kg

COMPOUND	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Acetone	ND	5	ND	5	ND	5	ND	5	ND	5
Benzene	ND	1	ND	1	ND	1	ND	1	ND	1
Bromodichloromethane	ND	2	ND	2	ND	2	ND	2	ND	2
Bromoform	ND	5	ND	5	ND	5	ND	5	ND	5
Bromomethane	ND	2	ND	2	ND	2	ND	2	ND	2
2-Butanone (MEK)	ND	2	ND	2	ND	2	ND	2	ND	2
Carbon Disulfide	ND	2	ND	2	ND	2	ND	2	ND	2
Carbon Tetrachloride	ND	2	ND	2	ND	2	ND	2	ND	2
Chlorobenzene	ND	2	ND	2	ND	2	ND	2	ND	2
Chloroethane	ND	2	ND	2	ND	2	ND	2	ND	2
Chloroform	ND	2	ND	2	ND	2	ND	2	ND	2
Chloromethane	ND	5	ND	5	ND	5	ND	5	ND	5
Cyclohexane	ND	2	ND	2	ND	2	ND	2	ND	2
Dibromochloromethane	ND	5	ND	5	ND	5	ND	5	ND	5
1,2-Dibromo-3-Chloropropane	ND	2	ND	2	ND	2	ND	2	ND	2
1,2-Dibromoethane	ND	2	ND	2	ND	2	ND	2	ND	2
1,2-Dichlorobenzene	ND	2	ND	2	ND	2	ND	2	ND	2
1,3-Dichlorobenzene	ND	2	ND	2	ND	2	ND	2	ND	2
1,4-Dichlorobenzene	ND	2	ND	2	ND	2	ND	2	ND	2
Dichlorodifluoromethane	ND	5	ND	5	ND	5	ND	5	ND	5
1,1-Dichloroethane	ND	2	ND	2	ND	2	ND	2	ND	2
1,2-Dichloroethane	ND	2	ND	2	ND	2	ND	2	ND	2
1,1-Dichloroethene	ND	2	ND	2	ND	2	ND	2	ND	2
cis-1,2-Dichloroethene	ND	2	ND	2	ND	2	ND	2	ND	2
trans-1,2-Dichloroethene	ND	2	ND	2	ND	2	ND	2	ND	2
1,2-Dichloropropane	ND	2	ND	2	ND	2	ND	2	ND	2

To be continued on page 2

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 5035/8260B (VOCs) ---

Client Name: Wayne Perry Inc.
Project Manager: Eric Floyd
Project Name: 09-272A
Sample Matrix: Soil

Date Sampled: 07/21/09
Date Prepared: 09/15/09
Batch Number: VOC90915
Date Analyzed: 09/16/09

C&E LAB ID	90721C-6	90721C-7	90721C-8	90721C-9	90721C-10
SAMPLE ID	SB-2-d10	SB-3-d2	SB-3-d5	SB-3-d10	SB-4-d2
DF	1	1	1	1	1

Unit Reported: µg/kg

COMPOUND	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
trans-1,3-Dichloropropene	ND	2	ND	2	ND	2	ND	2	ND	2
cis-1,3-Dichloropropene	ND	2	ND	2	ND	2	ND	2	ND	2
Ethylbenzene	ND	1	ND	1	ND	1	ND	1	ND	1
2-Hexanone	ND	2	ND	2	ND	2	ND	2	ND	2
Methyl Acetate	ND	2	ND	2	ND	2	ND	2	ND	2
Methylcyclohexane	ND	2	ND	2	ND	2	ND	2	ND	2
Methylene Chloride	ND	2	ND	2	ND	2	ND	2	ND	2
4-Methyl-2-Pentanone	ND	2	ND	2	ND	2	ND	2	ND	2
Styrene	ND	2	ND	2	ND	2	ND	2	ND	2
Isopropylbenzene	ND	2	ND	2	ND	2	ND	2	ND	2
4-Isopropyltoluene	ND	2	ND	2	ND	2	ND	2	ND	2
1,1,2,2-Tetrachloroethane	ND	2	ND	2	ND	2	ND	2	ND	2
Tetrachloroethene	ND	2	ND	2	ND	2	ND	2	ND	2
Toluene	ND	1	ND	1	ND	1	ND	1	ND	1
1,2,4-Trichlorobenzene	ND	2	ND	2	ND	2	ND	2	ND	2
1,1,1-Trichloroethane	ND	2	ND	2	ND	2	ND	2	ND	2
1,1,2-Trichloroethane	ND	2	ND	2	ND	2	ND	2	ND	2
Trichloroethene	ND	2	ND	2	ND	2	ND	2	ND	2
Trichlorofluoromethane	ND	2	ND	2	ND	2	ND	2	ND	2
1,1,2-Trichlorotrifluoroethane	ND	2	ND	2	ND	2	ND	2	ND	2
Vinyl Chloride	ND	5	ND	5	ND	5	ND	5	ND	5
Total Xylenes	ND	1	ND	1	ND	1	ND	1	ND	1

Surrogate Compounds	% Surrogate Recovery (70-130)				
Dibromofluoromethane	106	108	109	115	109
1,2-Dichloroethane-d4	97	107	125	122	121
Toluene-D8	98	98	100	99	100
4-Bromofluorobenzene	100	98	99	96	100

ND = Not detected at the indicated reporting limit; DF = Dilution Factor; RL = Reporting limit.
MI = Matrix Interference; unquantifiable due to coeluting organics in sample.

14148 E. Firestone Blvd., Santa Fe Springs, CA 90670 Tel: 562 921-8123, Fax: 562 921-7974

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 5035/8260B (VOCs) ---

Client Name: Wayne Perry Inc.
Project Manager: Eric Floyd
Project Name: 09-272A
Sample Matrix: Soil

Date Sampled: 07/21/09
Date Prepared: 09/15/09
Batch Number: VOC90915
Date Analyzed: 09/16/09

C&E LAB ID	90721C-11	90721C-12			
SAMPLE ID	SB-4-d5	SB-4-d10			
DF	1	1			

Unit Reported: µg/kg

COMPOUND	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Acetone	ND	5	ND	5						
Benzene	ND	1	ND	1						
Bromodichloromethane	ND	2	ND	2						
Bromoform	ND	5	ND	5						
Bromomethane	ND	2	ND	2						
2-Butanone (MEK)	ND	2	ND	2						
Carbon Disulfide	ND	2	ND	2						
Carbon Tetrachloride	ND	2	ND	2						
Chlorobenzene	ND	2	ND	2						
Chloroethane	ND	2	ND	2						
Chloroform	ND	2	ND	2						
Chloromethane	ND	5	ND	5						
Cyclohexane	ND	2	ND	2						
Dibromochloromethane	ND	5	ND	5						
1,2-Dibromo-3-Chloropropane	ND	2	ND	2						
1,2-Dibromoethane	ND	2	ND	2						
1,2-Dichlorobenzene	ND	2	ND	2						
1,3-Dichlorobenzene	ND	2	ND	2						
1,4-Dichlorobenzene	ND	2	ND	2						
Dichlorodifluoromethane	ND	5	ND	5						
1,1-Dichloroethane	ND	2	ND	2						
1,2-Dichloroethane	ND	2	ND	2						
1,1-Dichloroethene	ND	2	ND	2						
cis-1,2-Dichloroethene	ND	2	ND	2						
trans-1,2-Dichloroethene	ND	2	ND	2						
1,2-Dichloropropane	ND	2	ND	2						

To be continued on page 2

14148 E. Firestone Blvd., Santa Fe Springs, CA 90670 · Tel: 562 921-8123, Fax: 562 921-7974

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 5035/8260B (VOCs) ---

Client Name:	Wayne Perry Inc.	Date Sampled:	07/21/09
Project Manager:	Eric Floyd	Date Prepared:	09/15/09
Project Name:	09-272A	Batch Number:	VOC90915
Sample Matrix:	Soil	Date Analyzed:	09/16/09

C&E LAB ID	90721C-11	90721C-12			
SAMPLE ID	SB-4-d5	SB-4-d10			
DF	1	1			

Unit Reported: µg/kg

COMPOUND	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
trans-1,3-Dichloropropene	ND	2	ND	2						
cis-1,3-Dichloropropene	ND	2	ND	2						
Ethylbenzene	ND	1	ND	1						
2-Hexanone	ND	2	ND	2						
Methyl Acetate	ND	2	ND	2						
Methylcyclohexane	ND	2	ND	2						
Methylene Chloride	ND	2	ND	2						
4-Methyl-2-Pentanone	ND	2	ND	2						
Styrene	ND	2	ND	2						
Isopropylbenzene	ND	2	ND	2						
4-Isopropyltoluene	ND	2	ND	2						
1,1,2,2-Tetrachloroethane	ND	2	ND	2						
Tetrachloroethene	ND	2	ND	2						
Toluene	ND	1	ND	1						
1,2,4-Trichlorobenzene	ND	2	ND	2						
1,1,1-Trichloroethane	ND	2	ND	2						
1,1,2-Trichloroethane	ND	2	ND	2						
Trichloroethene	ND	2	ND	2						
Trichlorofluoromethane	ND	2	ND	2						
1,1,2-Trichlorotrifluoroethane	ND	2	ND	2						
Vinyl Chloride	ND	5	ND	5						
Total Xylenes	ND	1	ND	1						

Surrogate Compounds	% Surrogate Recovery (70-130)				
Dibromofluoromethane	114	109			
1,2-Dichloroethane-d4	108	121			
Toluene-D8	97	99			
4-Bromofluorobenzene	98	97			

ND = Not detected at the indicated reporting limit; DF = Dilution Factor; RL = Reporting limit.

MI = Matrix Interference; unquantifiable due to coeluting organics in sample.

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 8260B (VOCs) ---

Client Name: Wayne Perry Inc.
Project Manager: Eric Floyd
Project Name: 09-272A
Sample Matrix: Water

Date Sampled: 07/21/09
Date Prepared: 09/15/09
Batch Number: VOC90915
Date Analyzed: 09/16/09

C&E LAB ID	90721C-13	90721C-14			
SAMPLE ID	SB-3-d10	SB-4-d10			
DF	1	1			

Unit Reported: µg/L

COMPOUND	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Acetone	ND	2.0	ND	2.0						
Benzene	ND	0.5	ND	0.5						
Bromodichloromethane	ND	1.0	ND	1.0						
Bromoform	ND	1.0	ND	1.0						
Bromomethane	ND	1.0	ND	1.0						
2-Butanone (MEK)	ND	2.0	ND	2.0						
Carbon Disulfide	ND	1.0	ND	1.0						
Carbon Tetrachloride	ND	0.5	ND	0.5						
Chlorobenzene	ND	0.5	ND	0.5						
Chloroethane	ND	1.0	ND	1.0						
Chloroform	ND	1.0	ND	1.0						
Chloromethane	ND	1.0	ND	1.0						
Cyclohexane	ND	0.5	ND	0.5						
Dibromochloromethane	ND	1.0	ND	1.0						
1,2-Dibromo-3-Chloropropane	ND	1.0	ND	1.0						
1,2-Dibromoethane	ND	1.0	ND	1.0						
1,2-Dichlorobenzene	ND	0.5	ND	0.5						
1,3-Dichlorobenzene	ND	0.5	ND	0.5						
1,4-Dichlorobenzene	ND	0.5	ND	0.5						
Dichlorodifluoromethane	ND	1.0	ND	1.0						
1,1-Dichloroethane	ND	0.5	ND	0.5						
1,2-Dichloroethane	ND	0.5	ND	0.5						
1,1-Dichloroethene	ND	0.5	ND	0.5						
cis-1,2-Dichloroethene	ND	0.5	ND	0.5						
trans-1,2-Dichloroethene	ND	0.5	ND	0.5						
1,2-Dichloropropane	ND	0.5	ND	0.5						

To be continued on page 2

14148 E. Firestone Blvd., Santa Fe Springs, CA 90670 Tel: 562 921-8123, Fax: 562 921-7974

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 8260B (VOCs) ---

Client Name: Wayne Perry Inc.
Project Manager: Eric Floyd
Project Name: 09-272A
Sample Matrix: Water

Date Sampled: 07/21/09
Date Prepared: 09/15/09
Batch Number: VOC90915
Date Analyzed: 09/16/09

C&E LAB ID	90721C-13	90721C-14			
SAMPLE ID	SB-3-d10	SB-4-d10			
DF	1	1			

Unit Reported: µg/L

COMPOUND	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
trans-1,3-Dichloropropene	ND	0.5	ND	0.5						
cis-1,3-Dichloropropene	ND	0.5	ND	0.5						
Ethylbenzene	ND	0.5	ND	0.5						
2-Hexanone	ND	0.5	ND	0.5						
Methyl Acetate	ND	0.5	ND	0.5						
Methylcyclohexane	ND	0.5	ND	0.5						
Methylene Chloride	ND	0.5	ND	0.5						
4-Methyl-2-Pentanone	ND	0.5	ND	0.5						
Styrene	ND	0.5	ND	0.5						
Isopropylbenzene	ND	0.5	ND	0.5						
4-Isopropyltoluene	ND	0.5	ND	0.5						
1,1,2,2-Tetrachloroethane	ND	0.5	ND	0.5						
Tetrachloroethene	ND	0.5	ND	0.5						
Toluene	ND	0.5	ND	0.5						
1,2,4-Trichlorobenzene	ND	0.5	ND	0.5						
1,1,1-Trichloroethane	ND	0.5	ND	0.5						
1,1,2-Trichloroethane	ND	0.5	ND	0.5						
Trichloroethene	ND	0.5	ND	0.5						
Trichlorofluoromethane	ND	0.5	ND	0.5						
1,1,2-Trichlorotrifluoroethane	ND	0.5	ND	0.5						
Vinyl Chloride	ND	0.5	ND	0.5						
Total Xylenes	ND	0.5	ND	0.5						

Surrogate Compounds	% Surrogate Recovery (70-130)				
Dibromofluoromethane	88	108			
1,2-Dichloroethane-d4	99	114			
Toluene-D8	101	99			
4-Bromofluorobenzene	103	102			

ND = Not detected at the indicated reporting limit; DF = Dilution Factor; RL = Reporting limit.
MI = Matrix Interference; unquantifiable due to coeluting organics in sample.

14148 E. Firestone Blvd., Santa Fe Springs, CA 90670 Tel: 562 921-8123, Fax: 562 921-7974

From: Mike Phipps [mailto:mphipps@cottonshires.com]
Sent: Wednesday, September 30, 2009 4:44 PM
To: 'EFloyd@wpinc.com'
Cc: 'Ha Ly'; 'Gregory Millikan'
Subject: RE: EPA Method 8260B Full San Results for Sea View Terrace Site

Eric,

We acknowledge receipt of your email of 9/17/09 and wish to document that this was preceded by a conference call on 9/14/09 between you, Mike Phipps and Greg Millikan to discuss our concerns based upon review of your workplan & report ("Evaluation of Closure Conditions, 22729 Pacific Coast Highway...", Wayne Perry, Inc., 8/6/09 and "Site Assessment Report, Sea View Terrace Property, 22729 Pacific Coast Highway...", Wayne Perry, Inc, 8/20/09). As discussed on the conference call, our intent with the call was to express our concerns and give you the opportunity to submit additional information to respond to those concerns, to hopefully avoid a process of review letters and response letters, which can take up a lot of time. On the call, we communicated approximately eight items of concern and you indicated that you would address those with a follow up response (email or letter). We further noted that some of the concerns were minor (e.g., errors on boring logs) and that our biggest concern was identifying the source of petroleum odors described by the project geotechnical consultant in their exploration borings of 2007 & 2008, and whether this potentially presents any human health hazard to future construction workers on the site and long-term occupants. For the record, we discussed the following comments, or asked the following questions, on the call:

1. Why was the workplan (contained within WPI's August 6, 2009 document) submitted after the geoprobe borings had already been completed (July 24, 2009)?
2. We asked for clarification as to why the log of geoprobe boring SB-4 contains no mention of groundwater or depth to first saturation, yet a groundwater sample was reportedly taken and tested from the bottom of this boring.
3. If the source of the petroleum odors is not gasoline, then what is it? We stated on the call that the information presented thus far tells us what it *isn't*, but not what it *is*. You indicated you would see if the lab could do additional analysis on the soil and groundwater samples, recognizing that the sample hold times would be exceeded. Specifically, we discussed and all agreed that looking at TPH (carbon chain) would be helpful in more fully assessing the source of petroleum odors logged in the geotechnical borings. Your email below only presents information regarding VOC's (Method 8260B).
4. We asked for a specific explanation on how friction and heat generated by the geotechnical borings could release volatiles from residual contaminants in the soil, particularly below the water table, recognizing that your geoprobe analytical samples came back non-detect.
5. Why were the recent geoprobe borings limited in depth to 10 feet below ground surface? We noted that petroleum odors ranging from "slight" to "strong" were described in seven of the eight geotechnical borings, which extended up to 25 feet below ground surface. In some cases, the "strong" descriptor was used in the deeper portion of the borings.
6. Why was no there no mention of petroleum odor (i.e., present or absent) in the geoprobe boring logs which were drilled immediately adjacent to some of the geotechnical borings where odors were clearly described on the logs?
7. What is the source of "traces of oil/tar" described in the geotechnical boring B-3 at a depth of 20 feet below ground surface? We inquired on the call if there was possibly a waste oil tank at the site (now or in the past). You indicated you would review a previous Phase I ESA that had been done for the site to see if a waste oil tank was described. No information has been provided in this regard.
8. Is subterranean parking still part of the proposed development plan? Your understanding was that the plan had been revised to eliminate subterranean parking. As of today we understand that revised plans were just submitted to the City by Mr. Haynie. We will revisit this question upon receipt of the plans which are en route from the City.

Based on our review of your 9/17/09 email, it seems you have only partially addressed item No. 3. We await clarification from you on the remaining items except as noted. Please prepare your response via letter-report or email, and if you wish to discuss any of this further we would be happy to have another conference call.

Sincerely,

Michael B. Phipps, PG 5748, CEG 1832
Principal Engineering Geologist

Gregory R. Millikan, PG 4708
Consulting Geologist

COTTON, SHIRES AND ASSOCIATES, INC.
3201 Corte Malpaso, #301
Camarillo, California 93012-8074
Phone: 805.484.5500
Fax: 805.484.5530
Cell: 805.807.9001
email: mphipps@cottonshires.com
web: www.cottonshires.com

From: Eric Floyd [mailto:EFloyd@wpinc.com]
Sent: Thursday, October 01, 2009 4:49 PM
To: Mike Phipps
Cc: Norm Haynie
Subject: RE: EPA Method 8260B Full San Results for Sea View Terrace Site

Mike & Greg,

My responses to your questions are provided below.

1. Why was the workplan (contained within WPI's August 6, 2009 document) submitted after the Geoprobe borings had already been completed (July 24, 2009)?

The document you refer to was not a "workplan". It was not submitted for anyone's review or approval. It was a communication to the City of Malibu of planned activities by Mr. Haynie to resolve questions you had raised about the site. Unfortunately, the letter was held up in the review process, and not mailed until after the site work was completed.

2. We asked for clarification as to why the log of Geoprobe boring SB-4 contains no mention of groundwater or depth to first saturation, yet a groundwater sample was reportedly taken and tested from the bottom of this boring.

At the 10 foot depth, soil in SB-4 is reported as "moist". The drill rod was kept in the borehole, groundwater subsequently entered, and a groundwater sample was collected. It was deemed inappropriate to describe the soils as "saturated", even thought it was possible to obtain a groundwater sample at that location.

3. If the source of the petroleum odors is not gasoline, then what is it? We stated on the call that the information presented thus far tells us what it *isn't*, but not what it *is*. You indicated you would see if the lab could do additional analysis on the soil and groundwater samples, recognizing that the sample hold times would be exceeded. Specifically, we discussed and all agreed that looking at TPH (carbon chain) would be helpful in more fully assessing the source of petroleum odors logged in the geotechnical borings. Your email below only presents information regarding VOC's (Method 8260B).

It is very unlikely that we will be able to identify what "it" is, and that is not the purpose of the work we have performed. What we have confirmed is that there is not gross petroleum fuel contaminants on the site that are associated with historic gasoline station operations. Beyond that, there is nothing unique about this property that would create conditions any different than those found on adjacent properties. Short and probably mid range carbon chain compounds would have shown up in the VOC analyses. The longer chain compounds are associated with heavy oils, but no staining associated with such oil was observed. In the interest of resolving this issue, I will try to get a carbon chain analysis run on the 10-foot sample from each of the borings.

4. We asked for a specific explanation on how friction and heat generated by the geotechnical borings could release volatiles from residual contaminants in the soil, particularly below the water table, recognizing that your Geoprobe analytical samples came back non-detect.

The frictional heat generated by a turning auger can raise the temperature of drill cuttings. The heat can cause moisture in the drill cuttings to enter the vapor phase. Sometimes these vapor emissions have an odor that may or may not be caused by a contaminant. It has been my personal experience to encounter odorous soils in the field, but subsequent laboratory analysis does not detect contaminants.

5. Why were the recent Geoprobe borings limited in depth to 10 feet below ground surface? We noted that petroleum odors ranging from "slight" to "strong" were described in seven of the eight

geotechnical borings, which extended up to 25 feet below ground surface. In some cases, the "strong" descriptor was used in the deeper portion of the borings.

Any wide spread contaminant introduced from the surface would manifest itself in the shallow groundwater underlying the site. It is extremely unlikely that petroleum contaminants (which in liquid phase have a density of less than 1, and hence would float on groundwater) could exist at depths below groundwater and fail to be detected in groundwater samples.

6. Why was no there no mention of petroleum odor (i.e., present or absent) in the Geoprobe boring logs which were drilled immediately adjacent to some of the geotechnical borings where odors were clearly described on the logs?

There was no mention of petroleum odors because none were detected. Nor were any stained soil noted that would be indicative of contaminants (petroleum fuels or otherwise).

7. What is the source of "traces of oil/tar" described in the geotechnical boring B-3 at a depth of 20 feet below ground surface? We inquired on the call if there was possibly a waste oil tank at the site (now or in the past). You indicated you would review a previous Phase I ESA that had been done for the site to see if a waste oil tank was described. No information has been provided in this regard.

I have reviewed the Phase I (dated December 15, 2001) that was prepared by Wayne Perry, Inc. for this site. According to this report, the first developed use of the Site was the gasoline station. There is no record of there ever having been a waste oil tank at the station. Boring B-3 was located on the northwestern portion of the property, away from the former UST pit and product dispenser locations. In my experience (and to the best of my knowledge) there are no activities associated with the former service station construction, operations or demolition that would have resulted in the presence of oil/tar at this depth and location. Since the service station is the first developed use of the property, I don't think that previous site activities produced the oil/tar. I can only conclude that if it is present in the subsurface, it is naturally occurring.

8. Is subterranean parking still part of the proposed development plan? Your understanding was that the plan had been revised to eliminate subterranean parking. As of today we understand that revised plans were just submitted to the City by Mr. Haynie. We will revisit this question upon receipt of the plans which are en route from the City.

It is my understanding (from Mr. Haynie) that subterranean parking has been removed from the proposed development plan. I have seen the revised plans, and there was no subterranean parking associated with the planed structure. All parking would be on paved areas on the front and side portions of the property.

I hope this information is helpful.

WAYNE PERRY, INCORPORATED

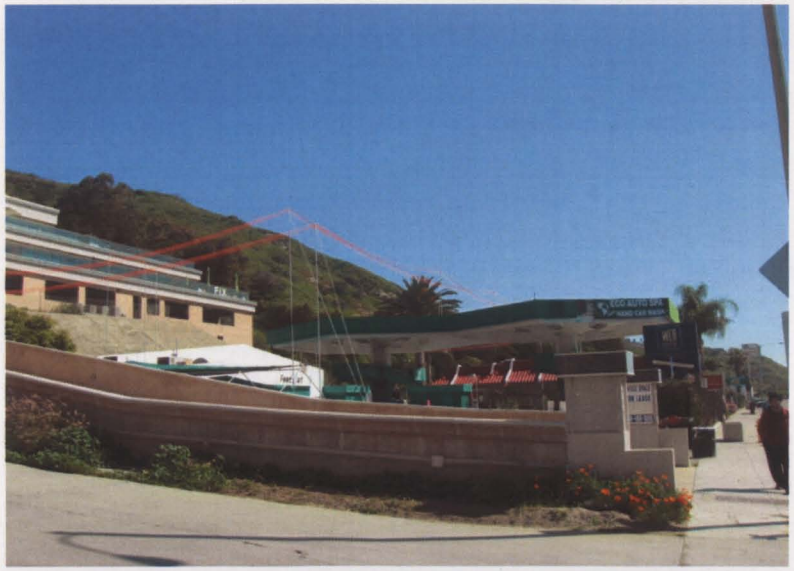
Eric D. Floyd
Principal Geologist
California Professional Geologist 7520

Office: (714) 826-0352, Ext. 3321
Fax: (714) 523-7880
Cell: (714) 720-9796

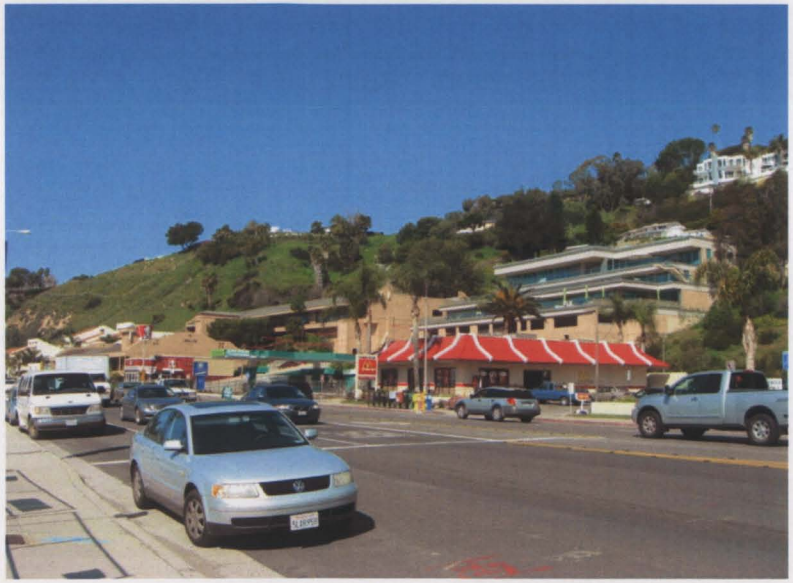
CONFIDENTIALITY NOTICE

This email (and any attachments) contains information from Eric D. Floyd, and is intended solely for the use of the named recipient(s). Any dissemination of this email by anyone other than an intended recipient is strictly prohibited. If you believe you have received this email in error, notify the sender immediately and permanently delete the email, any attachments, and all copies thereof from any drives or storage media, and destroy any print outs of the email or attachments.

Taken from Western Elevation









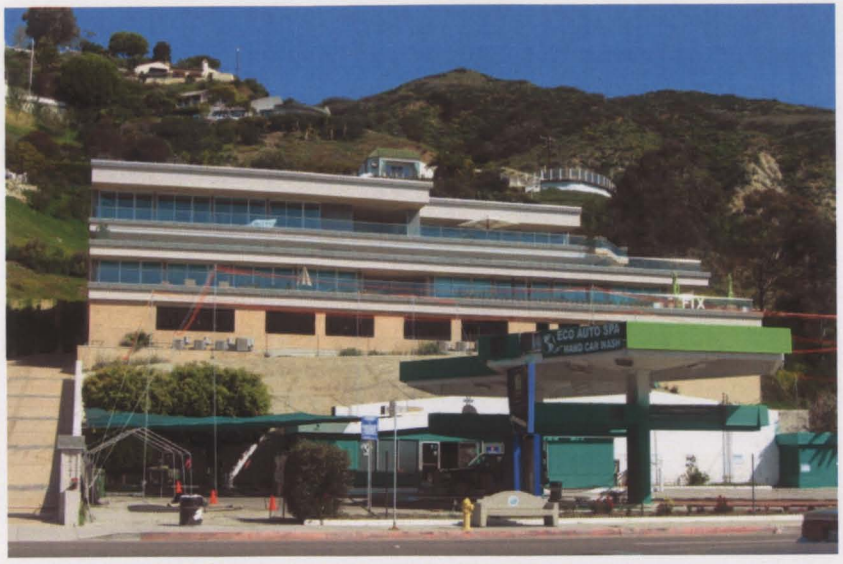
Taken from Eastern Elevation

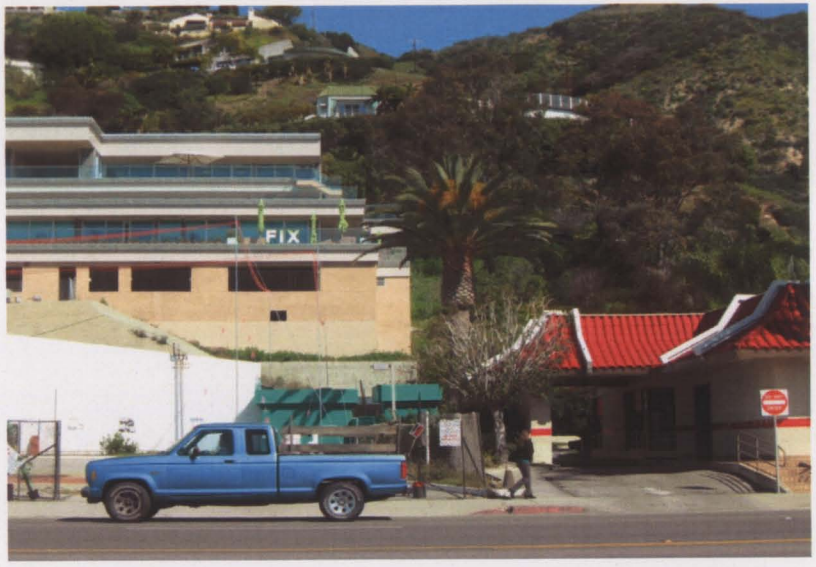
Attachment 7

Story Pole Photographs



Taken from parking level of 22741 PCH





Taken from across the Highway

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, REGIONAL PLANNING
IGR/CEQA BRANCH
100 MAIN STREET, MS # 16
LOS ANGELES, CA 90012-3606
PHONE: (213) 897-6696
FAX: (213) 897-1337

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PLANNING DIV.

Flex your power!
Be energy efficient!

IGR/CEQA No. 081048AL, PN
CDP No. 08-055/DP No. 08-014
Commercial Building
Vic. LA-01 / PM 46.37

FILE

October 30, 2008

Ms. Ha Ly, Associate Planner
Planning Division
City of Malibu
23815 Stuart Ranch Road
Malibu, CA 90265

Dear Ms. Ly:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. The proposed project is to demolish existing abandoned service station and to construct a new commercial structure, including rooftop and subterranean parking spaces.

We would like to remind you that any work to be performed within the State Right-of-way will need an Encroachment Permit from the California Department of Transportation.

Storm water run-off is a sensitive issue for Los Angeles and Ventura counties. Please be mindful that projects need to be designed to discharge clean run-off water.

Any transportation of heavy construction equipment and/or materials which requires the use of oversized-transport vehicles on State highways will require a Caltrans transportation permit. We recommend that large size truck trips be limited to off-peak commute periods. In addition, a truck/traffic construction management plan is needed for this project. Thank you for the opportunity to have reviewed this project.

If you have any questions, please feel free to contact me at (213) 897-6696 or Alan Lin the project coordinator at (213) 897-8391 and refer to IGR/CEQA No. 081048AL.

Sincerely,

Elmer Alvarez

ELMER ALVAREZ
IGR/CEQA Branch Chief

cc: Scott Morgan, State Clearinghouse

Attachment 8

NOTICE OF PUBLIC HEARING
CITY OF MALIBU
PLANNING COMMISSION

The Malibu Planning Commission will hold a public hearing on **Tuesday, May 18, 2010, at 6:30 p.m. in the Council Chambers, Malibu City Hall**, 23815 Stuart Ranch Road, Malibu, CA, for the project identified below.

COASTAL DEVELOPMENT PERMIT NO. 08-055, SITE PLAN REVIEW NO. 10-012, VARIANCE NOS. 10-005 AND 10-006, AND 10-007, CONDITIONAL USE PERMIT NO. 10-003 AND DEMOLITION PERMIT NO 08-014 – An application for the demolition of existing remnant structures on an abandoned gas station, construction of a new, 2,499 square foot commercial structure with a rooftop parking lot, a vehicular ramp connecting the rooftop parking to an existing parking lot located directly north of the subject property, the installation of an alternative onsite wastewater treatment system, various hardscape, landscaping and grading. The application includes a site plan review for construction in excess of 18 feet and three variances for: 1) construction on slopes in excess of 2½ to 1; 2) reduction of the landscaping requirements; and 3) reduction of the required rear yard setback. The application also includes a conditional use permit to allow for the construction over 500 square feet of commercial development.

APPLICATION FILING DATE:	July 8, 2008
APPLICANT:	Mike Barsocchini, Barsocchini & Associates
PROPERTY OWNER:	WFS Seastar Company, LLC
LOCATION:	22729 Pacific Coast Highway, located within the appealable coastal zone
APN:	4452-022-010
ZONING:	Community Commercial (CC)
CITY PLANNER:	Ha Ly, Associate Planner (310) 456-2489, extension 250

Pursuant to the authority and criteria contained in CEQA, the Planning Division has analyzed the proposal as described above. The Planning Division has found this project listed among the classes of projects determined to have less than significant adverse effect on the environment and therefore, exempt from the provisions of CEQA. Accordingly, a CATEGORICAL EXEMPTION will be prepared pursuant to CEQA Guidelines 15301(l)(3) – Existing Facilities and 15303(c) – New Construction or Conversion of Small Structures. The Planning Division further determined none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines Section 15300.2).

A written staff report will be available at or before the hearing. Following an oral staff report at the beginning of the hearing, the applicant may be given up to 15 minutes to make a presentation. Any amount of that time may be saved for rebuttal. All other persons wishing to address the Commission will be provided up to three minutes to address the Commission. These time limits may be changed at the discretion of the Commission. At the conclusion of the testimony, the Commission will deliberate and its decision will be memorialized in a written resolution.

Copies of all related documents are available for review at City Hall during regular business hours. Written comments may be presented to the Planning Commission at any time prior to the close of the public hearing.

LOCAL APPEAL - Pursuant to Local Coastal Program Local Implementation Plan Section 13.20.1 (Local Appeals), a decision of the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within ten days following the date of action for which the appeal is made and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.ci.malibu.ca.us or in person at City Hall, or by calling (310) 456-2489, extension 374.

COASTAL COMMISSION APPEAL – An aggrieved person may appeal the Planning Commission's decision to the Coastal Commission within 10 working days of the issuance of the City's Notice of Final Action. Appeal forms may be found online at www.coastal.ca.gov or in person at the Coastal Commission South Central Coast District office located at 89 South California Street in Ventura, or by calling 805-585-1800. Such an appeal must be filed with the Coastal Commission, not the City.

IF YOU CHALLENGE THE CITY'S ACTION IN COURT, YOU MAY BE LIMITED TO RAISING ONLY THOSE ISSUES YOU OR SOMEONE ELSE RAISED AT THE PUBLIC HEARING DESCRIBED IN THIS NOTICE, OR IN WRITTEN CORRESPONDENCE DELIVERED TO THE CITY, AT OR PRIOR TO THE PUBLIC HEARING.

If there are any questions regarding this notice, please contact Ha Ly, Associate Planner, at (310) 456-2489, extension 250.

Joyce Parker-Bozylinski

JOYCE PARKER-BOZYLINSKI, AICP
Planning Manager

Publish Date: April 22, 2010

Notice Continued...

A written staff report will be available at or before the hearing. Following an oral staff report at the beginning of the hearing, the applicant may be given up to 15 minutes to make a presentation. Any amount of that time may be saved for rebuttal. All other persons wishing to address the Commission will be provided up to three minutes to address the Commission. These time limits may be changed at the discretion of the Commission. At the conclusion of the testimony, the Commission will deliberate and its decision will be memorialized in a written resolution.

The Planning Division further determined none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines Section 15300.2).

LOCAL APPEAL - Pursuant to Local Coastal Program Local Implementation Plan Section 13.20.1 (Local Appeals), a decision of the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within ten days following the date of action for which the appeal is made and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.ci.malibu.ca.us or in person at City Hall, or by calling (310) 456-2489, extension 374.

COASTAL COMMISSION APPEAL – An aggrieved person may appeal the Planning Commission's decision to the Coastal Commission within 10 working days of the issuance of the City's Notice of Final Action. Appeal forms may be found online at www.coastal.ca.gov or in person at the Coastal Commission South Central Coast District office located at 89 South California Street in Ventura, or by calling 805-585-1800. Such an appeal must be filed with the Coastal Commission, not the City.

IF YOU CHALLENGE THE CITY'S ACTION IN COURT, YOU MAY BE LIMITED TO RAISING ONLY THOSE ISSUES YOU OR SOMEONE ELSE RAISED AT THE PUBLIC HEARING DESCRIBED IN THIS NOTICE, OR IN WRITTEN CORRESPONDENCE DELIVERED TO THE CITY, AT OR PRIOR TO THE PUBLIC HEARING.

If there are any questions regarding this notice, please contact Ha Ly, Associate Planner, at (310) 456-2489, extension 250, or at hly@ci.malibu.ca.us.

Date: April 22, 2010

By: Joyce Parker-Bozylinski, AICP, Planning Manager

Notice of Public Hearing

City of Malibu Planning Division
23815 Stuart Ranch Road
Malibu, CA 90265

Planning Division

City of Malibu
23815 Stuart Ranch Road
Malibu, CA 90265
(310) 456-2489 Fax (310) 456-7650

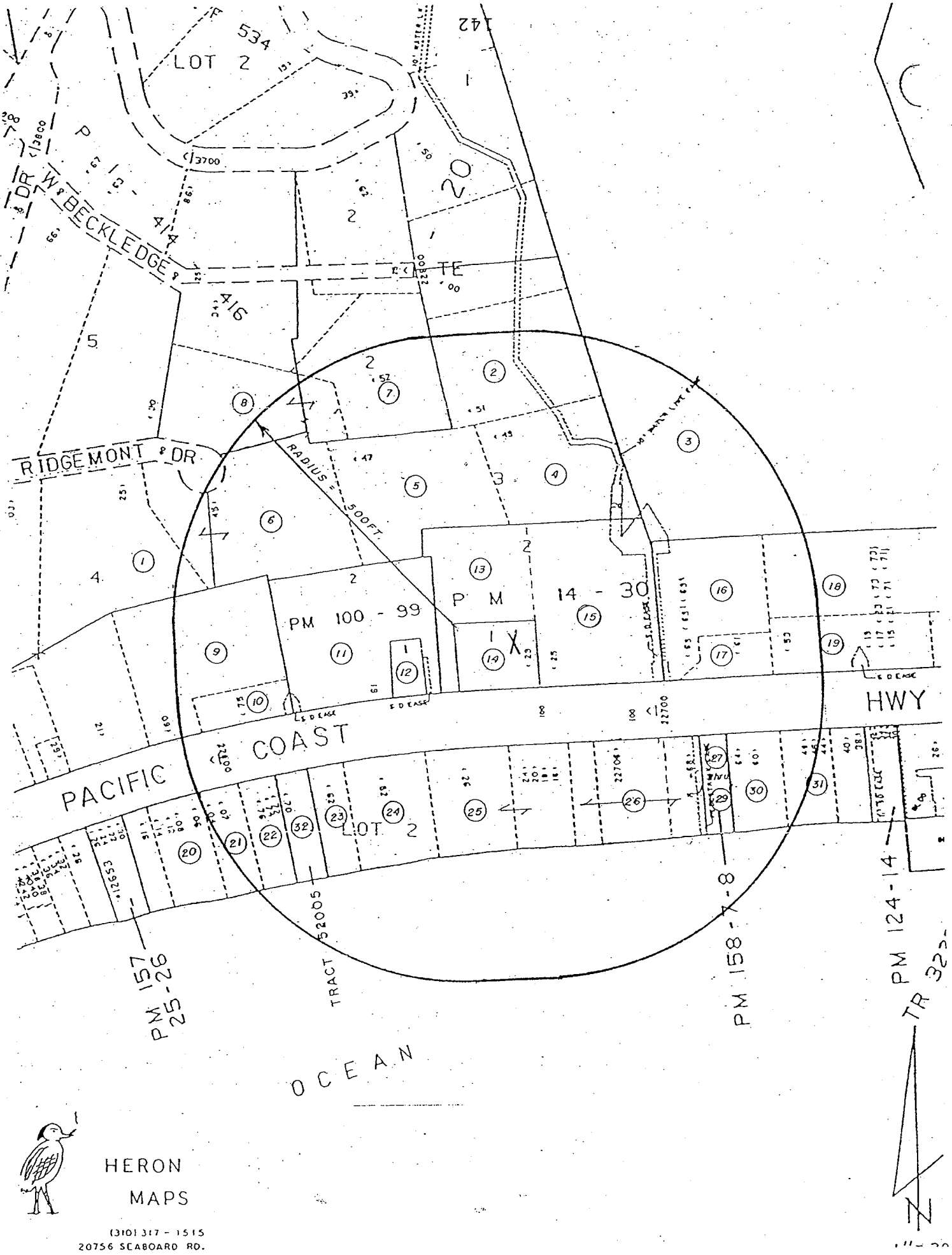
NOTICE OF PUBLIC HEARING

The Malibu Planning Commission will hold a public hearing on Tuesday, May 18, 2010, at 6:30 p.m. in the Council Chambers, Malibu City Hall, 23815 Stuart Ranch Road, Malibu, CA, for the project identified below.

COASTAL DEVELOPMENT PERMIT NO. 08-055, SITE PLAN REVIEW NO. 10-012, VARIANCE NOS. 10-005 AND 10-006, AND 10-007, CONDITIONAL USE PERMIT NO. 10-003 AND DEMOLITION PERMIT NO 08-014 – An application for the demolition of existing remnant structures on an abandoned gas station, construction of a new, 2,499 square foot commercial structure with a rooftop parking lot, a vehicular ramp connecting the rooftop parking to an existing parking lot located directly north of the subject property, the installation of an alternative onsite wastewater treatment system, various hardscape, landscaping and grading. The application includes a site plan review for construction in excess of 18 feet and three variances for: 1) construction on slopes in excess of 2½ to 1; 2) reduction of the landscaping requirements; and 3) reduction of the required rear yard setback. The application also includes a conditional use permit to allow for the construction over 500 square feet of commercial development.

APPLICATION FILING DATE:	July 8, 2008
APPLICANT:	Mike Barsocchini, Barsocchini & Associates
PROPERTY OWNER:	WFS Seastar Company, LLC
LOCATION:	22729 Pacific Coast Highway, located within the appealable coastal zone
APN:	4452-022-010
ZONING:	RuraCommunity Commercial (CC)
CITY PLANNER:	Ha Ly, Associate Planner (310) 456-2489, ext. 250 hly@ci.malibu.ca.us

Pursuant to the authority and criteria contained in CEQA, the Planning Division has analyzed the proposal as described above. The Planning Division has found this project listed among the classes of projects determined to have less than significant adverse effect on the environment and therefore, exempt from the provisions of CEQA. Accordingly, a CATEGORICAL EXEMPTION will be prepared pursuant to CEQA Guidelines 15301(l)(3) – Existing Facilities and 15303 (c) – New Construction or Conversion of Small Structures.



HERON MAPS

(310) 317 - 1515
20756 SEABOARD RD.

Appendix I

Noise and Vibration Calculations

Rincon Consultants, Inc.
Environmental Scientists Planners Engineers
www.rinconconsultants.com

Ambient Noise Survey Data Sheet

Instructions: Document noise measurement locations with a photo of the site, including the noise meter. Additionally, take notes on general and secondary noise sources, including the instantaneous noise level if possible. As a reminder, A/C weighting should be set to "A", and response time should typically be set to "slow." For additional information, please review the *Noise Measurement Protocols* in the case or on Jive.

Project Name: Sea View Hotel **Job Number:** #20-10797

Date: 10/28/2020 **Operator Name:** Jorge Mendieta

Measurement #1

Location: ST1 **Begin time:** 12:18pm **Finish time:** 12:33pm

Measurement No.: 001 **Wind (mph):** 0-5 mph **Direction:** SSW

Cloud Cover Class: Overcast (>80%) Light (20-80%) Sunny (<20%)

Calibration (dB): Start: 93.8 End: 93.9

Primary Noise Sources: Vehicular traffic (PCH) **Distance:**

Secondary Noise Sources: N/A

Notes: moderate to heavy traffic flow along PCH (very busy)

Traffic Count: Passenger Cars: 550

Medium Trucks (2 axles, 6 tires): |||| |||| |||| |||| || Heavy Trucks (3+ axles): |||| |||| |

Instantaneous Noise Sources/Levels (e.g., airplane, bus airbrake, etc.): bus airbrake

L_{eq}: 70.0 **SEL:** 99.5 L_{max}: 85.9 L_{min}: 55.0 **PK:**

L(05): **L(10):** **L(50):** **L(90):** **L(95):**

Response: Slow Fast Peak Impulse

Measurement #2

Location: ST2 **Begin time:** 12:39pm **Finish time:** 12:54pm

Measurement No.: 002 **Wind (mph):** 0-5 mph **Direction:** SSW

Cloud Cover Class: Overcast (>80%) Light (20-80%) Sunny (<20%)

Calibration (dB): Start: 93.9 End:

Primary Noise Sources: Vehicular Traffic (PCH) **Distance:**

Secondary Noise Sources: N/A

Notes: moderate to heavy traffic flow along PCH (very busy)
HVAC/on site equipment was not audible/measurable during this measurement

Traffic Count: Passenger Cars: N/A

Medium Trucks (2 axles, 6 tires): N/A Heavy Trucks (3+ axles): N/A

Instantaneous Noise Sources/Levels (e.g., airplane, bus airbrake, etc.):

L_{eq}: 65.9 **SEL:** 95.4 L_{max}: 81.3 L_{min}: 53.8 **PK:**

L(05): **L(10):** **L(50):** **L(90):** **L(95):**

Response: Slow Fast Peak Impulse

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Environmental Scientists Planners Engineers
www.rinconconsultants.com

Ambient Noise Survey Data Sheet

Instructions: Document noise measurement locations with a photo of the site, including the noise meter. Additionally, take notes on general and secondary noise sources, including the instantaneous noise level if possible. As a reminder, A/C weighting should be set to "A", and response time should typically be set to "slow." For additional information, please review the *Noise Measurement Protocols* in the case or on Jive.

Project Name: Sea View Hotel **Job Number:** #20-10297

Date: 10/28/2020 **Operator Name:** Jorge Mendieta

Measurement #1

Location: ST3 **Begin time:** 12:59pm **Finish time:** 1:14pm

Measurement No.: 003 **Wind (mph):** 0-5 mph **Direction:** SSW

Cloud Cover Class: Overcast (>80%) Light (20-80%) Sunny (<20%)

Calibration (dB): Start: 93.8 End: 93.2

Primary Noise Sources: Vehicular traffic (PCH) **Distance:**

Secondary Noise Sources: N/A

Notes: moderate to heavy traffic flow (PCH)

Traffic Count: Passenger Cars: 480

Medium Trucks (2 axles, 6 tires): ~~||||~~ ~~||||~~ ~~||||~~ || Heavy Trucks (3+ axles): |||| |||

Instantaneous Noise Sources/Levels (e.g., airplane, bus airbrake, etc.):

L_{eq}: 60.6 **SEL:** 90.1 L_{max}: 68.4 L_{min}: 52.1 **PK:**

L(05): **L(10):** **L(50):** **L(90):** **L(95):**

Response: Slow Fast Peak Impulse

Measurement #2

Location: **Begin time:** **Finish time:**

Measurement No.: **Wind (mph):** **Direction:**

Cloud Cover Class: Overcast (>80%) Light (20-80%) Sunny (<20%)

Calibration (dB): Start: End:

Primary Noise Sources: **Distance:**

Secondary Noise Sources:

Notes:

Traffic Count: Passenger Cars:

Medium Trucks (2 axles, 6 tires): Heavy Trucks (3+ axles):

Instantaneous Noise Sources/Levels (e.g., airplane, bus airbrake, etc.):

L_{eq}: **SEL:** L_{max}: L_{min}: **PK:**

L(05): **L(10):** **L(50):** **L(90):** **L(95):**

Response: Slow Fast Peak Impulse

- Freq Weight : A
- Time Weight : SLOW
- Level Range : 40-100
- Max dB : 103.5 - 2020/10/28 16:56:24
- Level Range : 40-100
- SEL : 122.3
- Leq : 73.0
-

No.s	Date Time	(dB)
1	2020/10/28 13:38:05	74.4
2	2020/10/28 13:42:05	76.7
3	2020/10/28 13:46:05	69.1
4	2020/10/28 13:50:05	73.6
5	2020/10/28 13:54:05	79.3
6	2020/10/28 13:58:05	68.7
7	2020/10/28 14:02:05	76.9
8	2020/10/28 14:06:05	69.7
9	2020/10/28 14:10:05	80.9
10	2020/10/28 14:14:05	75.0
11	2020/10/28 14:18:05	58.8
12	2020/10/28 14:22:05	70.3
13	2020/10/28 14:26:05	77.0
14	2020/10/28 14:30:05	69.2
15	2020/10/28 14:34:05	74.0
16	2020/10/28 14:38:05	73.4
17	2020/10/28 14:42:05	60.6
18	2020/10/28 14:46:05	74.3
19	2020/10/28 14:50:05	78.2
20	2020/10/28 14:54:05	78.5
21	2020/10/28 14:58:05	74.1
22	2020/10/28 15:02:05	75.7
23	2020/10/28 15:06:05	68.1
24	2020/10/28 15:10:05	77.8
25	2020/10/28 15:14:05	78.3
26	2020/10/28 15:18:05	72.7
27	2020/10/28 15:22:05	77.0
28	2020/10/28 15:26:05	75.6
29	2020/10/28 15:30:05	53.3
30	2020/10/28 15:34:05	76.5
31	2020/10/28 15:38:05	73.3
32	2020/10/28 15:42:05	71.8
33	2020/10/28 15:46:05	73.6
34	2020/10/28 15:50:05	73.1
35	2020/10/28 15:54:05	65.8
36	2020/10/28 15:58:05	74.1
37	2020/10/28 16:02:05	69.8
38	2020/10/28 16:06:05	74.5
39	2020/10/28 16:10:05	73.4
40	2020/10/28 16:14:05	76.1
41	2020/10/28 16:18:05	64.3
42	2020/10/28 16:22:05	77.3
43	2020/10/28 16:26:05	74.8
44	2020/10/28 16:30:05	61.2
45	2020/10/28 16:34:05	74.8
46	2020/10/28 16:38:05	68.8
47	2020/10/28 16:42:05	65.4
48	2020/10/28 16:46:05	76.1
49	2020/10/28 16:50:05	72.0
50	2020/10/28 16:54:05	66.8
51	2020/10/28 16:58:05	74.2
52	2020/10/28 17:02:05	61.2
53	2020/10/28 17:06:05	71.9
54	2020/10/28 17:10:05	71.3
55	2020/10/28 17:14:05	78.7
56	2020/10/28 17:18:05	76.7
57	2020/10/28 17:22:05	78.1
58	2020/10/28 17:26:05	75.2
59	2020/10/28 17:30:05	67.7
60	2020/10/28 17:34:05	63.5
61	2020/10/28 17:38:05	72.9
62	2020/10/28 17:42:05	71.5
63	2020/10/28 17:46:05	74.3
64	2020/10/28 17:50:05	72.5
65	2020/10/28 17:54:05	75.0
66	2020/10/28 17:58:05	76.1
67	2020/10/28 18:02:05	77.3
68	2020/10/28 18:06:05	77.5
69	2020/10/28 18:10:05	74.2
70	2020/10/28 18:14:05	71.9
71	2020/10/28 18:18:05	53.2
72	2020/10/28 18:22:05	65.2
73	2020/10/28 18:26:05	75.1
74	2020/10/28 18:30:05	70.8
75	2020/10/28 18:34:05	74.0
76	2020/10/28 18:38:05	71.2
77	2020/10/28 18:42:05	68.6
78	2020/10/28 18:46:05	72.1
79	2020/10/28 18:50:05	62.1
80	2020/10/28 18:54:05	78.2
81	2020/10/28 18:58:05	75.0
82	2020/10/28 19:02:05	74.6
83	2020/10/28 19:06:05	77.5
84	2020/10/28 19:10:05	76.1
85	2020/10/28 19:14:05	76.1

86	2020/10/28	19:18:05	71.4
87	2020/10/28	19:22:05	71.1
88	2020/10/28	19:26:05	78.0
89	2020/10/28	19:30:05	75.3
90	2020/10/28	19:34:05	69.4
91	2020/10/28	19:38:05	74.5
92	2020/10/28	19:42:05	73.2
93	2020/10/28	19:46:05	78.5
94	2020/10/28	19:50:05	61.5
95	2020/10/28	19:54:05	67.7
96	2020/10/28	19:58:05	64.8
97	2020/10/28	20:02:05	74.3
98	2020/10/28	20:06:05	64.9
99	2020/10/28	20:10:05	64.5
100	2020/10/28	20:14:05	72.3
101	2020/10/28	20:18:05	59.9
102	2020/10/28	20:22:05	63.1
103	2020/10/28	20:26:05	69.1
104	2020/10/28	20:30:05	69.8
105	2020/10/28	20:34:05	73.7
106	2020/10/28	20:38:05	78.1
107	2020/10/28	20:42:05	63.9
108	2020/10/28	20:46:05	72.6
109	2020/10/28	20:50:05	73.4
110	2020/10/28	20:54:05	54.4
111	2020/10/28	20:58:05	73.1
112	2020/10/28	21:02:05	59.2
113	2020/10/28	21:06:05	64.0
114	2020/10/28	21:10:05	67.5
115	2020/10/28	21:14:05	74.3
116	2020/10/28	21:18:05	77.2
117	2020/10/28	21:22:05	58.6
118	2020/10/28	21:26:05	76.5
119	2020/10/28	21:30:05	74.0
120	2020/10/28	21:34:05	56.1
121	2020/10/28	21:38:05	72.9
122	2020/10/28	21:42:05	69.8
123	2020/10/28	21:46:05	67.8
124	2020/10/28	21:50:05	60.0
125	2020/10/28	21:54:05	55.7
126	2020/10/28	21:58:05	72.1
127	2020/10/28	22:02:05	73.4
128	2020/10/28	22:06:05	71.6
129	2020/10/28	22:10:05	72.2
130	2020/10/28	22:14:05	74.1
131	2020/10/28	22:18:05	72.3
132	2020/10/28	22:22:05	71.6
133	2020/10/28	22:26:05	73.0
134	2020/10/28	22:30:05	73.1
135	2020/10/28	22:34:05	71.8
136	2020/10/28	22:38:05	72.1
137	2020/10/28	22:42:05	73.5
138	2020/10/28	22:46:05	72.9
139	2020/10/28	22:50:05	71.7
140	2020/10/28	22:54:05	71.6
141	2020/10/28	22:58:05	56.1
142	2020/10/28	23:02:05	59.4
143	2020/10/28	23:06:05	61.4
144	2020/10/28	23:10:05	57.4
145	2020/10/28	23:14:05	62.0
146	2020/10/28	23:18:05	50.6
147	2020/10/28	23:22:05	73.6
148	2020/10/28	23:26:05	65.4
149	2020/10/28	23:30:05	63.2
150	2020/10/28	23:34:05	54.6
151	2020/10/28	23:38:05	60.5
152	2020/10/28	23:42:05	55.2
153	2020/10/28	23:46:05	59.0
154	2020/10/28	23:50:05	63.3
155	2020/10/28	23:54:05	52.8
156	2020/10/28	23:58:05	62.2
157	2020/10/29	00:02:05	58.7
158	2020/10/29	00:06:05	54.9
159	2020/10/29	00:10:05	53.0
160	2020/10/29	00:14:05	64.9
161	2020/10/29	00:18:05	55.7
162	2020/10/29	00:22:05	66.3
163	2020/10/29	00:26:05	68.8
164	2020/10/29	00:30:05	72.5
165	2020/10/29	00:34:05	66.2
166	2020/10/29	00:38:05	56.5
167	2020/10/29	00:42:05	53.2
168	2020/10/29	00:46:05	59.2
169	2020/10/29	00:50:05	51.1
170	2020/10/29	00:54:05	56.9
171	2020/10/29	00:58:05	54.2
172	2020/10/29	01:02:05	50.8
173	2020/10/29	01:06:05	54.4
174	2020/10/29	01:10:05	69.2
175	2020/10/29	01:14:05	64.7
176	2020/10/29	01:18:05	50.3
177	2020/10/29	01:22:05	52.2
178	2020/10/29	01:26:05	56.7
179	2020/10/29	01:30:05	50.6
180	2020/10/29	01:34:05	62.3
181	2020/10/29	01:38:05	61.2
182	2020/10/29	01:42:05	52.9
183	2020/10/29	01:46:05	51.5
184	2020/10/29	01:50:05	51.4

185	2020/10/29	01:54:05	52.1
186	2020/10/29	01:58:05	53.3
187	2020/10/29	02:02:05	50.7
188	2020/10/29	02:06:05	61.1
189	2020/10/29	02:10:05	52.2
190	2020/10/29	02:14:05	54.2
191	2020/10/29	02:18:05	51.2
192	2020/10/29	02:22:05	55.6
193	2020/10/29	02:26:05	54.7
194	2020/10/29	02:30:05	50.6
195	2020/10/29	02:34:05	51.1
196	2020/10/29	02:38:05	61.1
197	2020/10/29	02:42:05	59.2
198	2020/10/29	02:46:05	52.7
199	2020/10/29	02:50:05	53.3
200	2020/10/29	02:54:05	50.5
201	2020/10/29	02:58:05	53.0
202	2020/10/29	03:02:05	54.7
203	2020/10/29	03:06:05	50.6
204	2020/10/29	03:10:05	52.0
205	2020/10/29	03:14:05	51.1
206	2020/10/29	03:18:05	53.9
207	2020/10/29	03:22:05	51.8
208	2020/10/29	03:26:05	50.7
209	2020/10/29	03:30:05	50.6
210	2020/10/29	03:34:05	50.1
211	2020/10/29	03:38:05	51.2
212	2020/10/29	03:42:05	50.2
213	2020/10/29	03:46:05	52.7
214	2020/10/29	03:50:05	54.9
215	2020/10/29	03:54:05	51.5
216	2020/10/29	03:58:05	52.8
217	2020/10/29	04:02:05	53.5
218	2020/10/29	04:06:05	74.5
219	2020/10/29	04:10:05	72.4
220	2020/10/29	04:14:05	54.0
221	2020/10/29	04:18:05	56.4
222	2020/10/29	04:22:05	50.9
223	2020/10/29	04:26:05	54.1
224	2020/10/29	04:30:05	60.3
225	2020/10/29	04:34:05	50.7
226	2020/10/29	04:38:05	52.1
227	2020/10/29	04:42:05	60.2
228	2020/10/29	04:46:05	64.9
229	2020/10/29	04:50:05	53.5
230	2020/10/29	04:54:05	55.1
231	2020/10/29	04:58:05	58.7
232	2020/10/29	05:02:05	60.5
233	2020/10/29	05:06:05	67.5
234	2020/10/29	05:10:05	69.7
235	2020/10/29	05:14:05	76.9
236	2020/10/29	05:18:05	56.3
237	2020/10/29	05:22:05	69.3
238	2020/10/29	05:26:05	68.7
239	2020/10/29	05:30:05	69.8
240	2020/10/29	05:34:05	67.9
241	2020/10/29	05:38:05	64.8
242	2020/10/29	05:42:05	74.6
243	2020/10/29	05:46:05	75.8
244	2020/10/29	05:50:05	74.0
245	2020/10/29	05:54:05	72.4
246	2020/10/29	05:58:05	64.3
247	2020/10/29	06:02:05	74.5
248	2020/10/29	06:06:05	73.5
249	2020/10/29	06:10:05	73.9
250	2020/10/29	06:14:05	75.4
251	2020/10/29	06:18:05	79.2
252	2020/10/29	06:22:05	76.0
253	2020/10/29	06:26:05	79.2
254	2020/10/29	06:30:05	58.8
255	2020/10/29	06:34:05	70.0
256	2020/10/29	06:38:05	72.1
257	2020/10/29	06:42:05	78.8
258	2020/10/29	06:46:05	77.2
259	2020/10/29	06:50:05	66.9
260	2020/10/29	06:54:05	72.3
261	2020/10/29	06:58:05	79.9
262	2020/10/29	07:02:05	67.4
263	2020/10/29	07:06:05	65.9
264	2020/10/29	07:10:05	80.2
265	2020/10/29	07:14:05	62.5
266	2020/10/29	07:18:05	58.2
267	2020/10/29	07:22:05	61.3
268	2020/10/29	07:26:05	80.3
269	2020/10/29	07:30:05	64.0
270	2020/10/29	07:34:05	73.2
271	2020/10/29	07:38:05	75.8
272	2020/10/29	07:42:05	57.4
273	2020/10/29	07:46:05	66.9
274	2020/10/29	07:50:05	73.0
275	2020/10/29	07:54:05	66.1
276	2020/10/29	07:58:05	72.7
277	2020/10/29	08:02:05	76.3
278	2020/10/29	08:06:05	68.2
279	2020/10/29	08:10:05	71.3
280	2020/10/29	08:14:05	74.6
281	2020/10/29	08:18:05	72.3
282	2020/10/29	08:22:05	72.7
283	2020/10/29	08:26:05	61.4

284	2020/10/29	08:30:05	66.9
285	2020/10/29	08:34:05	76.7
286	2020/10/29	08:38:05	60.5
287	2020/10/29	08:42:05	72.8
288	2020/10/29	08:46:05	74.4
289	2020/10/29	08:50:05	72.1
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294	2020/10/29	09:10:05	76.8
295	2020/10/29	09:14:05	75.9
296	2020/10/29	09:18:05	73.0
297	2020/10/29	09:22:05	68.6
298	2020/10/29	09:26:05	77.2
299	2020/10/29	09:30:05	72.0
300	2020/10/29	09:34:05	74.3
301	2020/10/29	09:38:05	72.1
302	2020/10/29	09:42:05	55.0
303	2020/10/29	09:46:05	77.4
304	2020/10/29	09:50:05	77.4
305	2020/10/29	09:54:05	69.8
306	2020/10/29	09:58:05	72.1
307	2020/10/29	10:02:05	76.8
308	2020/10/29	10:06:05	71.9
309	2020/10/29	10:10:05	75.4
310	2020/10/29	10:14:05	75.3
311	2020/10/29	10:18:05	77.1
312	2020/10/29	10:22:05	69.6
313	2020/10/29	10:26:05	78.3
314	2020/10/29	10:30:05	77.3
315	2020/10/29	10:34:05	70.7
316	2020/10/29	10:38:05	67.6
317	2020/10/29	10:42:05	74.1
318	2020/10/29	10:46:05	77.4
319	2020/10/29	10:50:05	73.9
320	2020/10/29	10:54:05	66.8
321	2020/10/29	10:58:05	67.9
322	2020/10/29	11:02:05	57.8
323	2020/10/29	11:06:05	71.0
324	2020/10/29	11:10:05	68.6
325	2020/10/29	11:14:05	74.7
326	2020/10/29	11:18:05	64.1
327	2020/10/29	11:22:05	74.3
328	2020/10/29	11:26:05	72.6
329	2020/10/29	11:30:05	78.9
330	2020/10/29	11:34:05	72.1
331	2020/10/29	11:38:05	79.0
332	2020/10/29	11:42:05	59.3
333	2020/10/29	11:46:05	71.7
334	2020/10/29	11:50:05	72.5
335	2020/10/29	11:54:05	72.8
336	2020/10/29	11:58:05	76.0
337	2020/10/29	12:02:05	74.8
338	2020/10/29	12:06:05	62.3
339	2020/10/29	12:10:05	75.0
340	2020/10/29	12:14:05	71.3
341	2020/10/29	12:18:05	66.0
342	2020/10/29	12:22:05	70.6
343	2020/10/29	12:26:05	73.6
344	2020/10/29	12:30:05	71.6
345	2020/10/29	12:34:05	65.1
346	2020/10/29	12:38:05	75.9
347	2020/10/29	12:42:05	79.7
348	2020/10/29	12:46:05	70.3
349	2020/10/29	12:50:05	72.7
350	2020/10/29	12:54:05	72.0
351	2020/10/29	12:58:05	75.4
352	2020/10/29	13:02:05	62.9
353	2020/10/29	13:06:05	67.3
354	2020/10/29	13:10:05	75.1
355	2020/10/29	13:14:05	76.5
356	2020/10/29	13:18:05	55.4
357	2020/10/29	13:22:05	78.5
358	2020/10/29	13:26:05	52.3
359	2020/10/29	13:30:05	74.5
360	2020/10/29	13:34:05	77.5

- Freq Weight : A
- Time Weight : SLOW
- Level Range : 40-100
- Max dB : 85.9 - 2020/10/28 12:31:37
- Level Range : 40-100
- SEL : 99.5
- Leq : 70.0
-

No.s	Date Time	(dB)
1	2020/10/28 12:18:44	67.9
2	2020/10/28 12:18:47	66.3
3	2020/10/28 12:18:50	71.0
4	2020/10/28 12:18:53	72.0
5	2020/10/28 12:18:56	77.6
6	2020/10/28 12:18:59	71.9
7	2020/10/28 12:19:02	69.2
8	2020/10/28 12:19:05	68.4
9	2020/10/28 12:19:08	68.6
10	2020/10/28 12:19:11	75.0
11	2020/10/28 12:19:14	72.6
12	2020/10/28 12:19:17	70.2
13	2020/10/28 12:19:20	71.8
14	2020/10/28 12:19:23	76.6
15	2020/10/28 12:19:26	80.6
16	2020/10/28 12:19:29	72.6
17	2020/10/28 12:19:32	69.0
18	2020/10/28 12:19:35	67.3
19	2020/10/28 12:19:38	67.0
20	2020/10/28 12:19:41	66.1
21	2020/10/28 12:19:44	64.8
22	2020/10/28 12:19:47	63.7
23	2020/10/28 12:19:50	60.4
24	2020/10/28 12:19:53	60.2
25	2020/10/28 12:19:56	60.4
26	2020/10/28 12:19:59	70.9
27	2020/10/28 12:20:02	63.8
28	2020/10/28 12:20:05	60.7
29	2020/10/28 12:20:08	60.7
30	2020/10/28 12:20:11	60.9
31	2020/10/28 12:20:14	63.1
32	2020/10/28 12:20:17	65.9
33	2020/10/28 12:20:20	67.2
34	2020/10/28 12:20:23	70.5
35	2020/10/28 12:20:26	71.3
36	2020/10/28 12:20:29	68.4
37	2020/10/28 12:20:32	66.4
38	2020/10/28 12:20:35	66.5
39	2020/10/28 12:20:38	69.4
40	2020/10/28 12:20:41	70.9
41	2020/10/28 12:20:44	69.0
42	2020/10/28 12:20:47	73.3
43	2020/10/28 12:20:50	74.1
44	2020/10/28 12:20:53	72.4
45	2020/10/28 12:20:56	73.8
46	2020/10/28 12:20:59	70.4
47	2020/10/28 12:21:02	67.8
48	2020/10/28 12:21:05	74.4
49	2020/10/28 12:21:08	74.6
50	2020/10/28 12:21:11	72.6
51	2020/10/28 12:21:14	71.9
52	2020/10/28 12:21:17	72.8
53	2020/10/28 12:21:20	74.1
54	2020/10/28 12:21:23	72.2
55	2020/10/28 12:21:26	70.1
56	2020/10/28 12:21:29	71.8
57	2020/10/28 12:21:32	72.0
58	2020/10/28 12:21:35	72.3
59	2020/10/28 12:21:38	70.9
60	2020/10/28 12:21:41	71.2
61	2020/10/28 12:21:44	80.8
62	2020/10/28 12:21:47	73.4
63	2020/10/28 12:21:50	69.9
64	2020/10/28 12:21:53	75.6
65	2020/10/28 12:21:56	77.4
66	2020/10/28 12:21:59	69.6
67	2020/10/28 12:22:02	64.0
68	2020/10/28 12:22:05	61.2
69	2020/10/28 12:22:08	68.8
70	2020/10/28 12:22:11	62.4
71	2020/10/28 12:22:14	61.5
72	2020/10/28 12:22:17	63.2
73	2020/10/28 12:22:20	68.3
74	2020/10/28 12:22:23	70.6
75	2020/10/28 12:22:26	73.1
76	2020/10/28 12:22:29	74.3
77	2020/10/28 12:22:32	72.3
78	2020/10/28 12:22:35	72.1
79	2020/10/28 12:22:38	68.8
80	2020/10/28 12:22:41	66.9
81	2020/10/28 12:22:44	66.0
82	2020/10/28 12:22:47	64.4
83	2020/10/28 12:22:50	63.2
84	2020/10/28 12:22:53	63.2
85	2020/10/28 12:22:56	65.0

86	2020/10/28	12:22:59	66.2
87	2020/10/28	12:23:02	66.7
88	2020/10/28	12:23:05	70.4
89	2020/10/28	12:23:08	71.7
90	2020/10/28	12:23:11	72.6
91	2020/10/28	12:23:14	72.2
92	2020/10/28	12:23:17	67.9
93	2020/10/28	12:23:20	69.1
94	2020/10/28	12:23:23	70.0
95	2020/10/28	12:23:26	75.2
96	2020/10/28	12:23:29	73.9
97	2020/10/28	12:23:32	68.0
98	2020/10/28	12:23:35	65.5
99	2020/10/28	12:23:38	69.6
100	2020/10/28	12:23:41	71.9
101	2020/10/28	12:23:44	74.5
102	2020/10/28	12:23:47	73.2
103	2020/10/28	12:23:50	70.7
104	2020/10/28	12:23:53	68.3
105	2020/10/28	12:23:56	70.2
106	2020/10/28	12:23:59	68.4
107	2020/10/28	12:24:02	68.3
108	2020/10/28	12:24:05	70.3
109	2020/10/28	12:24:08	70.5
110	2020/10/28	12:24:11	72.3
111	2020/10/28	12:24:14	67.7
112	2020/10/28	12:24:17	66.8
113	2020/10/28	12:24:20	65.0
114	2020/10/28	12:24:23	69.0
115	2020/10/28	12:24:26	69.2
116	2020/10/28	12:24:29	73.5
117	2020/10/28	12:24:32	71.6
118	2020/10/28	12:24:35	72.2
119	2020/10/28	12:24:38	72.3
120	2020/10/28	12:24:41	71.3
121	2020/10/28	12:24:44	67.8
122	2020/10/28	12:24:47	64.4
123	2020/10/28	12:24:50	61.1
124	2020/10/28	12:24:53	60.7
125	2020/10/28	12:24:56	61.0
126	2020/10/28	12:24:59	60.7
127	2020/10/28	12:25:02	60.4
128	2020/10/28	12:25:05	60.9
129	2020/10/28	12:25:08	62.1
130	2020/10/28	12:25:11	61.8
131	2020/10/28	12:25:14	61.6
132	2020/10/28	12:25:17	64.3
133	2020/10/28	12:25:20	66.8
134	2020/10/28	12:25:23	70.6
135	2020/10/28	12:25:26	70.5
136	2020/10/28	12:25:29	69.6
137	2020/10/28	12:25:32	71.7
138	2020/10/28	12:25:35	70.7
139	2020/10/28	12:25:38	72.8
140	2020/10/28	12:25:41	73.2
141	2020/10/28	12:25:44	72.9
142	2020/10/28	12:25:47	72.4
143	2020/10/28	12:25:50	72.8
144	2020/10/28	12:25:53	71.7
145	2020/10/28	12:25:56	69.2
146	2020/10/28	12:25:59	69.3
147	2020/10/28	12:26:02	68.0
148	2020/10/28	12:26:05	66.4
149	2020/10/28	12:26:08	64.2
150	2020/10/28	12:26:11	64.4
151	2020/10/28	12:26:14	63.0
152	2020/10/28	12:26:17	65.1
153	2020/10/28	12:26:20	66.6
154	2020/10/28	12:26:23	63.4
155	2020/10/28	12:26:26	62.0
156	2020/10/28	12:26:29	63.1
157	2020/10/28	12:26:32	64.6
158	2020/10/28	12:26:35	62.7
159	2020/10/28	12:26:38	66.2
160	2020/10/28	12:26:41	65.6
161	2020/10/28	12:26:44	61.8
162	2020/10/28	12:26:47	61.9
163	2020/10/28	12:26:50	65.0
164	2020/10/28	12:26:53	72.7
165	2020/10/28	12:26:56	79.0
166	2020/10/28	12:26:59	72.5
167	2020/10/28	12:27:02	70.6
168	2020/10/28	12:27:05	71.3
169	2020/10/28	12:27:08	71.8
170	2020/10/28	12:27:11	72.4
171	2020/10/28	12:27:14	73.4
172	2020/10/28	12:27:17	79.6
173	2020/10/28	12:27:20	78.8
174	2020/10/28	12:27:23	73.3
175	2020/10/28	12:27:26	76.1
176	2020/10/28	12:27:29	77.9
177	2020/10/28	12:27:32	72.9
178	2020/10/28	12:27:35	72.1
179	2020/10/28	12:27:38	71.0
180	2020/10/28	12:27:41	67.5
181	2020/10/28	12:27:44	64.2
182	2020/10/28	12:27:47	62.5
183	2020/10/28	12:27:50	62.6
184	2020/10/28	12:27:53	62.7

185	2020/10/28	12:27:56	62.6
186	2020/10/28	12:27:59	65.2
187	2020/10/28	12:28:02	63.9
188	2020/10/28	12:28:05	63.4
189	2020/10/28	12:28:08	63.5
190	2020/10/28	12:28:11	64.4
191	2020/10/28	12:28:14	68.0
192	2020/10/28	12:28:17	64.1
193	2020/10/28	12:28:20	63.3
194	2020/10/28	12:28:23	65.2
195	2020/10/28	12:28:26	70.0
196	2020/10/28	12:28:29	67.0
197	2020/10/28	12:28:32	69.8
198	2020/10/28	12:28:35	66.0
199	2020/10/28	12:28:38	64.5
200	2020/10/28	12:28:41	63.6
201	2020/10/28	12:28:44	67.1
202	2020/10/28	12:28:47	78.6
203	2020/10/28	12:28:50	70.2
204	2020/10/28	12:28:53	63.4
205	2020/10/28	12:28:56	60.5
206	2020/10/28	12:28:59	59.6
207	2020/10/28	12:29:02	60.8
208	2020/10/28	12:29:05	63.3
209	2020/10/28	12:29:08	63.8
210	2020/10/28	12:29:11	67.3
211	2020/10/28	12:29:14	69.3
212	2020/10/28	12:29:17	70.6
213	2020/10/28	12:29:20	70.3
214	2020/10/28	12:29:23	69.1
215	2020/10/28	12:29:26	69.2
216	2020/10/28	12:29:29	68.6
217	2020/10/28	12:29:32	69.9
218	2020/10/28	12:29:35	70.0
219	2020/10/28	12:29:38	70.3
220	2020/10/28	12:29:41	71.7
221	2020/10/28	12:29:44	70.9
222	2020/10/28	12:29:47	69.0
223	2020/10/28	12:29:50	69.3
224	2020/10/28	12:29:53	74.0
225	2020/10/28	12:29:56	75.2
226	2020/10/28	12:29:59	75.7
227	2020/10/28	12:30:02	72.2
228	2020/10/28	12:30:05	75.2
229	2020/10/28	12:30:08	71.8
230	2020/10/28	12:30:11	69.4
231	2020/10/28	12:30:14	70.7
232	2020/10/28	12:30:17	72.8
233	2020/10/28	12:30:20	72.5
234	2020/10/28	12:30:23	72.9
235	2020/10/28	12:30:26	70.8
236	2020/10/28	12:30:29	73.8
237	2020/10/28	12:30:32	78.1
238	2020/10/28	12:30:35	73.1
239	2020/10/28	12:30:38	78.1
240	2020/10/28	12:30:41	73.4
241	2020/10/28	12:30:44	70.7
242	2020/10/28	12:30:47	66.7
243	2020/10/28	12:30:50	62.8
244	2020/10/28	12:30:53	64.9
245	2020/10/28	12:30:56	64.1
246	2020/10/28	12:30:59	60.5
247	2020/10/28	12:31:02	59.4
248	2020/10/28	12:31:05	58.0
249	2020/10/28	12:31:08	55.5
250	2020/10/28	12:31:11	55.6
251	2020/10/28	12:31:14	59.2
252	2020/10/28	12:31:17	59.9
253	2020/10/28	12:31:20	67.3
254	2020/10/28	12:31:23	75.3
255	2020/10/28	12:31:26	74.0
256	2020/10/28	12:31:29	72.3
257	2020/10/28	12:31:32	81.7
258	2020/10/28	12:31:35	85.4
259	2020/10/28	12:31:38	78.5
260	2020/10/28	12:31:41	76.1
261	2020/10/28	12:31:44	75.1
262	2020/10/28	12:31:47	72.1
263	2020/10/28	12:31:50	72.7
264	2020/10/28	12:31:53	72.6
265	2020/10/28	12:31:56	72.1
266	2020/10/28	12:31:59	68.3
267	2020/10/28	12:32:02	70.0
268	2020/10/28	12:32:05	70.2
269	2020/10/28	12:32:08	69.6
270	2020/10/28	12:32:11	69.6
271	2020/10/28	12:32:14	68.1
272	2020/10/28	12:32:17	70.5
273	2020/10/28	12:32:20	71.8
274	2020/10/28	12:32:23	72.9
275	2020/10/28	12:32:26	73.1
276	2020/10/28	12:32:29	73.1
277	2020/10/28	12:32:32	71.3
278	2020/10/28	12:32:35	72.8
279	2020/10/28	12:32:38	70.7
280	2020/10/28	12:32:41	73.3
281	2020/10/28	12:32:44	72.0
282	2020/10/28	12:32:47	72.9
283	2020/10/28	12:32:50	72.9

284	2020/10/28	12:32:53	66.8
285	2020/10/28	12:32:56	68.8
286	2020/10/28	12:32:59	68.6
287	2020/10/28	12:33:02	70.0
288	2020/10/28	12:33:05	67.9
289	2020/10/28	12:33:08	68.9
290	2020/10/28	12:33:11	67.2
291	2020/10/28	12:33:14	69.4
292	2020/10/28	12:33:17	73.2
293	2020/10/28	12:33:20	72.6
294	2020/10/28	12:33:23	72.6
295	2020/10/28	12:33:26	68.2
296	2020/10/28	12:33:29	65.4
297	2020/10/28	12:33:32	70.6
298	2020/10/28	12:33:35	66.1
299	2020/10/28	12:33:38	68.6
300	2020/10/28	12:33:41	69.5

- Freq Weight : A
- Time Weight : SLOW
- Level Range : 40-100
- Max dB : 81.3 - 2020/10/28 12:48:03
- Level Range : 40-100
- SEL : 95.4
- Leq : 65.9
-

No.s	Date Time	(dB)
1	2020/10/28 12:39:09	67.1
2	2020/10/28 12:39:12	68.4
3	2020/10/28 12:39:15	68.4
4	2020/10/28 12:39:18	67.8
5	2020/10/28 12:39:21	68.4
6	2020/10/28 12:39:24	66.8
7	2020/10/28 12:39:27	65.1
8	2020/10/28 12:39:30	65.1
9	2020/10/28 12:39:33	65.6
10	2020/10/28 12:39:36	66.8
11	2020/10/28 12:39:39	67.7
12	2020/10/28 12:39:42	67.5
13	2020/10/28 12:39:45	67.4
14	2020/10/28 12:39:48	67.2
15	2020/10/28 12:39:51	65.7
16	2020/10/28 12:39:54	61.7
17	2020/10/28 12:39:57	59.9
18	2020/10/28 12:40:00	60.5
19	2020/10/28 12:40:03	59.6
20	2020/10/28 12:40:06	62.8
21	2020/10/28 12:40:09	63.2
22	2020/10/28 12:40:12	65.6
23	2020/10/28 12:40:15	64.8
24	2020/10/28 12:40:18	68.8
25	2020/10/28 12:40:21	68.5
26	2020/10/28 12:40:24	64.9
27	2020/10/28 12:40:27	63.0
28	2020/10/28 12:40:30	62.7
29	2020/10/28 12:40:33	63.8
30	2020/10/28 12:40:36	66.3
31	2020/10/28 12:40:39	65.7
32	2020/10/28 12:40:42	67.6
33	2020/10/28 12:40:45	64.8
34	2020/10/28 12:40:48	66.2
35	2020/10/28 12:40:51	64.2
36	2020/10/28 12:40:54	60.0
37	2020/10/28 12:40:57	57.3
38	2020/10/28 12:41:00	54.3
39	2020/10/28 12:41:03	55.2
40	2020/10/28 12:41:06	55.1
41	2020/10/28 12:41:09	56.0
42	2020/10/28 12:41:12	56.3
43	2020/10/28 12:41:15	54.8
44	2020/10/28 12:41:18	53.9
45	2020/10/28 12:41:21	55.9
46	2020/10/28 12:41:24	61.0
47	2020/10/28 12:41:27	64.7
48	2020/10/28 12:41:30	61.8
49	2020/10/28 12:41:33	62.4
50	2020/10/28 12:41:36	64.9
51	2020/10/28 12:41:39	66.4
52	2020/10/28 12:41:42	68.1
53	2020/10/28 12:41:45	68.5
54	2020/10/28 12:41:48	65.9
55	2020/10/28 12:41:51	65.1
56	2020/10/28 12:41:54	69.9
57	2020/10/28 12:41:57	70.2
58	2020/10/28 12:42:00	69.2
59	2020/10/28 12:42:03	63.9
60	2020/10/28 12:42:06	63.2
61	2020/10/28 12:42:09	65.1
62	2020/10/28 12:42:12	65.1
63	2020/10/28 12:42:15	65.3
64	2020/10/28 12:42:18	64.7
65	2020/10/28 12:42:21	63.4
66	2020/10/28 12:42:24	62.6
67	2020/10/28 12:42:27	60.8
68	2020/10/28 12:42:30	60.1
69	2020/10/28 12:42:33	62.4
70	2020/10/28 12:42:36	64.4
71	2020/10/28 12:42:39	66.0
72	2020/10/28 12:42:42	71.9
73	2020/10/28 12:42:45	72.0
74	2020/10/28 12:42:48	66.5
75	2020/10/28 12:42:51	63.6
76	2020/10/28 12:42:54	63.6
77	2020/10/28 12:42:57	64.4
78	2020/10/28 12:43:00	67.1
79	2020/10/28 12:43:03	66.5
80	2020/10/28 12:43:06	64.4
81	2020/10/28 12:43:09	64.4
82	2020/10/28 12:43:12	62.9
83	2020/10/28 12:43:15	63.0
84	2020/10/28 12:43:18	62.0
85	2020/10/28 12:43:21	59.1

86	2020/10/28	12:43:24	60.7
87	2020/10/28	12:43:27	60.8
88	2020/10/28	12:43:30	62.5
89	2020/10/28	12:43:33	63.9
90	2020/10/28	12:43:36	65.0
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92	2020/10/28	12:43:42	70.8
93	2020/10/28	12:43:45	66.1
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95	2020/10/28	12:43:51	61.1
96	2020/10/28	12:43:54	64.2
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104	2020/10/28	12:44:18	63.6
105	2020/10/28	12:44:21	63.1
106	2020/10/28	12:44:24	60.4
107	2020/10/28	12:44:27	58.4
108	2020/10/28	12:44:30	57.1
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110	2020/10/28	12:44:36	55.9
111	2020/10/28	12:44:39	57.0
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113	2020/10/28	12:44:45	59.0
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115	2020/10/28	12:44:51	62.9
116	2020/10/28	12:44:54	67.2
117	2020/10/28	12:44:57	65.1
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122	2020/10/28	12:45:12	66.0
123	2020/10/28	12:45:15	66.5
124	2020/10/28	12:45:18	66.0
125	2020/10/28	12:45:21	65.5
126	2020/10/28	12:45:24	64.4
127	2020/10/28	12:45:27	64.4
128	2020/10/28	12:45:30	66.7
129	2020/10/28	12:45:33	64.7
130	2020/10/28	12:45:36	65.7
131	2020/10/28	12:45:39	65.7
132	2020/10/28	12:45:42	66.3
133	2020/10/28	12:45:45	67.7
134	2020/10/28	12:45:48	68.5
135	2020/10/28	12:45:51	65.9
136	2020/10/28	12:45:54	63.8
137	2020/10/28	12:45:57	60.0
138	2020/10/28	12:46:00	60.1
139	2020/10/28	12:46:03	58.8
140	2020/10/28	12:46:06	57.6
141	2020/10/28	12:46:09	55.9
142	2020/10/28	12:46:12	60.2
143	2020/10/28	12:46:15	64.3
144	2020/10/28	12:46:18	65.3
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150	2020/10/28	12:46:36	65.1
151	2020/10/28	12:46:39	65.2
152	2020/10/28	12:46:42	62.5
153	2020/10/28	12:46:45	64.9
154	2020/10/28	12:46:48	67.0
155	2020/10/28	12:46:51	66.1
156	2020/10/28	12:46:54	63.0
157	2020/10/28	12:46:57	61.8
158	2020/10/28	12:47:00	65.5
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162	2020/10/28	12:47:12	66.1
163	2020/10/28	12:47:15	68.0
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165	2020/10/28	12:47:21	66.1
166	2020/10/28	12:47:24	65.7
167	2020/10/28	12:47:27	65.5
168	2020/10/28	12:47:30	66.1
169	2020/10/28	12:47:33	65.4
170	2020/10/28	12:47:36	62.2
171	2020/10/28	12:47:39	62.1
172	2020/10/28	12:47:42	62.0
173	2020/10/28	12:47:45	63.8
174	2020/10/28	12:47:48	63.6
175	2020/10/28	12:47:51	60.3
176	2020/10/28	12:47:54	59.1
177	2020/10/28	12:47:57	66.6
178	2020/10/28	12:48:00	73.9
179	2020/10/28	12:48:03	78.5
180	2020/10/28	12:48:06	71.3
181	2020/10/28	12:48:09	66.4
182	2020/10/28	12:48:12	63.9
183	2020/10/28	12:48:15	63.5
184	2020/10/28	12:48:18	64.1

185	2020/10/28	12:48:21	62.5
186	2020/10/28	12:48:24	59.8
187	2020/10/28	12:48:27	61.0
188	2020/10/28	12:48:30	61.0
189	2020/10/28	12:48:33	63.1
190	2020/10/28	12:48:36	63.8
191	2020/10/28	12:48:39	66.8
192	2020/10/28	12:48:42	68.3
193	2020/10/28	12:48:45	63.1
194	2020/10/28	12:48:48	61.8
195	2020/10/28	12:48:51	58.0
196	2020/10/28	12:48:54	63.0
197	2020/10/28	12:48:57	67.6
198	2020/10/28	12:49:00	64.3
199	2020/10/28	12:49:03	64.1
200	2020/10/28	12:49:06	71.3
201	2020/10/28	12:49:09	70.6
202	2020/10/28	12:49:12	67.1
203	2020/10/28	12:49:15	67.1
204	2020/10/28	12:49:18	67.8
205	2020/10/28	12:49:21	68.4
206	2020/10/28	12:49:24	67.0
207	2020/10/28	12:49:27	67.3
208	2020/10/28	12:49:30	65.8
209	2020/10/28	12:49:33	66.7
210	2020/10/28	12:49:36	66.3
211	2020/10/28	12:49:39	64.5
212	2020/10/28	12:49:42	64.5
213	2020/10/28	12:49:45	62.6
214	2020/10/28	12:49:48	59.8
215	2020/10/28	12:49:51	58.4
216	2020/10/28	12:49:54	61.3
217	2020/10/28	12:49:57	64.1
218	2020/10/28	12:50:00	64.6
219	2020/10/28	12:50:03	67.2
220	2020/10/28	12:50:06	67.1
221	2020/10/28	12:50:09	69.0
222	2020/10/28	12:50:12	69.9
223	2020/10/28	12:50:15	65.2
224	2020/10/28	12:50:18	62.7
225	2020/10/28	12:50:21	65.4
226	2020/10/28	12:50:24	68.4
227	2020/10/28	12:50:27	61.8
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229	2020/10/28	12:50:33	60.0
230	2020/10/28	12:50:36	63.8
231	2020/10/28	12:50:39	62.7
232	2020/10/28	12:50:42	60.9
233	2020/10/28	12:50:45	60.2
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236	2020/10/28	12:50:54	65.8
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241	2020/10/28	12:51:09	70.9
242	2020/10/28	12:51:12	74.0
243	2020/10/28	12:51:15	68.7
244	2020/10/28	12:51:18	65.3
245	2020/10/28	12:51:21	66.2
246	2020/10/28	12:51:24	64.4
247	2020/10/28	12:51:27	62.8
248	2020/10/28	12:51:30	65.2
249	2020/10/28	12:51:33	67.8
250	2020/10/28	12:51:36	67.4
251	2020/10/28	12:51:39	67.6
252	2020/10/28	12:51:42	66.9
253	2020/10/28	12:51:45	66.6
254	2020/10/28	12:51:48	67.5
255	2020/10/28	12:51:51	66.9
256	2020/10/28	12:51:54	66.6
257	2020/10/28	12:51:57	67.7
258	2020/10/28	12:52:00	62.6
259	2020/10/28	12:52:03	61.2
260	2020/10/28	12:52:06	60.7
261	2020/10/28	12:52:09	60.0
262	2020/10/28	12:52:12	57.4
263	2020/10/28	12:52:15	58.3
264	2020/10/28	12:52:18	59.1
265	2020/10/28	12:52:21	57.3
266	2020/10/28	12:52:24	55.6
267	2020/10/28	12:52:27	55.9
268	2020/10/28	12:52:30	54.6
269	2020/10/28	12:52:33	54.1
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275	2020/10/28	12:52:51	65.9
276	2020/10/28	12:52:54	66.3
277	2020/10/28	12:52:57	67.5
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279	2020/10/28	12:53:03	65.4
280	2020/10/28	12:53:06	65.3
281	2020/10/28	12:53:09	69.6
282	2020/10/28	12:53:12	70.7
283	2020/10/28	12:53:15	72.0

284	2020/10/28	12:53:18	68.1
285	2020/10/28	12:53:21	65.6
286	2020/10/28	12:53:24	63.4
287	2020/10/28	12:53:27	62.7
288	2020/10/28	12:53:30	62.0
289	2020/10/28	12:53:33	64.9
290	2020/10/28	12:53:36	64.7
291	2020/10/28	12:53:39	61.5
292	2020/10/28	12:53:42	58.3
293	2020/10/28	12:53:45	55.9
294	2020/10/28	12:53:48	59.2
295	2020/10/28	12:53:51	59.3
296	2020/10/28	12:53:54	59.5
297	2020/10/28	12:53:57	64.2
298	2020/10/28	12:54:00	68.2
299	2020/10/28	12:54:03	68.5
300	2020/10/28	12:54:06	68.8

- Freq Weight : A
- Time Weight : SLOW
- Level Range : 40-100
- Max dB : 68.4 - 2020/10/28 13:12:12
- Level Range : 40-100
- SEL : 90.1
- Leq : 60.6
-

No.s	Date Time	(dB)
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2	2020/10/28 12:59:22	59.0
3	2020/10/28 12:59:25	57.2
4	2020/10/28 12:59:28	57.2
5	2020/10/28 12:59:31	60.7
6	2020/10/28 12:59:34	58.2
7	2020/10/28 12:59:37	55.7
8	2020/10/28 12:59:40	57.8
9	2020/10/28 12:59:43	56.5
10	2020/10/28 12:59:46	56.1
11	2020/10/28 12:59:49	58.9
12	2020/10/28 12:59:52	62.3
13	2020/10/28 12:59:55	62.3
14	2020/10/28 12:59:58	63.2
15	2020/10/28 13:00:01	63.1
16	2020/10/28 13:00:04	63.2
17	2020/10/28 13:00:07	63.1
18	2020/10/28 13:00:10	61.9
19	2020/10/28 13:00:13	62.3
20	2020/10/28 13:00:16	61.9
21	2020/10/28 13:00:19	62.7
22	2020/10/28 13:00:22	62.8
23	2020/10/28 13:00:25	62.7
24	2020/10/28 13:00:28	63.3
25	2020/10/28 13:00:31	63.5
26	2020/10/28 13:00:34	60.4
27	2020/10/28 13:00:37	57.8
28	2020/10/28 13:00:40	56.9
29	2020/10/28 13:00:43	55.3
30	2020/10/28 13:00:46	54.5
31	2020/10/28 13:00:49	53.7
32	2020/10/28 13:00:52	54.6
33	2020/10/28 13:00:55	53.3
34	2020/10/28 13:00:58	52.2
35	2020/10/28 13:01:01	55.5
36	2020/10/28 13:01:04	56.2
37	2020/10/28 13:01:07	60.2
38	2020/10/28 13:01:10	56.3
39	2020/10/28 13:01:13	56.4
40	2020/10/28 13:01:16	58.3
41	2020/10/28 13:01:19	61.5
42	2020/10/28 13:01:22	61.5
43	2020/10/28 13:01:25	61.2
44	2020/10/28 13:01:28	59.2
45	2020/10/28 13:01:31	59.5
46	2020/10/28 13:01:34	60.1
47	2020/10/28 13:01:37	60.5
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51	2020/10/28 13:01:49	63.0
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53	2020/10/28 13:01:55	62.2
54	2020/10/28 13:01:58	62.1
55	2020/10/28 13:02:01	63.5
56	2020/10/28 13:02:04	62.3
57	2020/10/28 13:02:07	61.7
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59	2020/10/28 13:02:13	58.9
60	2020/10/28 13:02:16	58.0
61	2020/10/28 13:02:19	54.7
62	2020/10/28 13:02:22	53.4
63	2020/10/28 13:02:25	56.6
64	2020/10/28 13:02:28	55.6
65	2020/10/28 13:02:31	55.5
66	2020/10/28 13:02:34	55.4
67	2020/10/28 13:02:37	55.5
68	2020/10/28 13:02:40	55.1
69	2020/10/28 13:02:43	56.2
70	2020/10/28 13:02:46	62.7
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72	2020/10/28 13:02:52	64.4
73	2020/10/28 13:02:55	65.8
74	2020/10/28 13:02:58	62.7
75	2020/10/28 13:03:01	62.6
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79	2020/10/28 13:03:13	60.1
80	2020/10/28 13:03:16	59.4
81	2020/10/28 13:03:19	59.7
82	2020/10/28 13:03:22	59.0
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84	2020/10/28 13:03:28	56.3
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89	2020/10/28	13:03:43	64.4
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103	2020/10/28	13:04:25	66.3
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129	2020/10/28	13:05:43	55.4
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131	2020/10/28	13:05:49	56.5
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134	2020/10/28	13:05:58	59.2
135	2020/10/28	13:06:01	59.1
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200	2020/10/28	13:09:16	59.1
201	2020/10/28	13:09:19	58.0
202	2020/10/28	13:09:22	59.0
203	2020/10/28	13:09:25	59.8
204	2020/10/28	13:09:28	61.1
205	2020/10/28	13:09:31	60.1
206	2020/10/28	13:09:34	58.1
207	2020/10/28	13:09:37	58.9
208	2020/10/28	13:09:40	58.5
209	2020/10/28	13:09:43	57.8
210	2020/10/28	13:09:46	57.1
211	2020/10/28	13:09:49	59.1
212	2020/10/28	13:09:52	57.0
213	2020/10/28	13:09:55	54.3
214	2020/10/28	13:09:58	52.4
215	2020/10/28	13:10:01	54.4
216	2020/10/28	13:10:04	57.2
217	2020/10/28	13:10:07	57.6
218	2020/10/28	13:10:10	59.6
219	2020/10/28	13:10:13	61.1
220	2020/10/28	13:10:16	61.9
221	2020/10/28	13:10:19	60.7
222	2020/10/28	13:10:22	60.1
223	2020/10/28	13:10:25	59.1
224	2020/10/28	13:10:28	58.6
225	2020/10/28	13:10:31	61.3
226	2020/10/28	13:10:34	59.4
227	2020/10/28	13:10:37	56.5
228	2020/10/28	13:10:40	57.6
229	2020/10/28	13:10:43	62.1
230	2020/10/28	13:10:46	67.5
231	2020/10/28	13:10:49	65.0
232	2020/10/28	13:10:52	61.3
233	2020/10/28	13:10:55	60.1
234	2020/10/28	13:10:58	58.9
235	2020/10/28	13:11:01	59.3
236	2020/10/28	13:11:04	60.4
237	2020/10/28	13:11:07	61.4
238	2020/10/28	13:11:10	60.6
239	2020/10/28	13:11:13	57.5
240	2020/10/28	13:11:16	54.4
241	2020/10/28	13:11:19	53.6
242	2020/10/28	13:11:22	53.4
243	2020/10/28	13:11:25	52.5
244	2020/10/28	13:11:28	53.5
245	2020/10/28	13:11:31	55.1
246	2020/10/28	13:11:34	53.5
247	2020/10/28	13:11:37	57.4
248	2020/10/28	13:11:40	56.0
249	2020/10/28	13:11:43	58.9
250	2020/10/28	13:11:46	58.7
251	2020/10/28	13:11:49	60.1
252	2020/10/28	13:11:52	60.9
253	2020/10/28	13:11:55	61.9
254	2020/10/28	13:11:58	62.3
255	2020/10/28	13:12:01	65.9
256	2020/10/28	13:12:04	66.9
257	2020/10/28	13:12:07	65.6
258	2020/10/28	13:12:10	68.3
259	2020/10/28	13:12:13	64.8
260	2020/10/28	13:12:16	61.2
261	2020/10/28	13:12:19	58.7
262	2020/10/28	13:12:22	58.7
263	2020/10/28	13:12:25	56.7
264	2020/10/28	13:12:28	56.5
265	2020/10/28	13:12:31	58.1
266	2020/10/28	13:12:34	57.4
267	2020/10/28	13:12:37	58.4
268	2020/10/28	13:12:40	57.3
269	2020/10/28	13:12:43	54.5
270	2020/10/28	13:12:46	55.0
271	2020/10/28	13:12:49	57.8
272	2020/10/28	13:12:52	58.2
273	2020/10/28	13:12:55	61.0
274	2020/10/28	13:12:58	63.8
275	2020/10/28	13:13:01	63.8
276	2020/10/28	13:13:04	63.3
277	2020/10/28	13:13:07	63.6
278	2020/10/28	13:13:10	59.6
279	2020/10/28	13:13:13	59.4
280	2020/10/28	13:13:16	56.7
281	2020/10/28	13:13:19	56.9
282	2020/10/28	13:13:22	56.4
283	2020/10/28	13:13:25	58.5

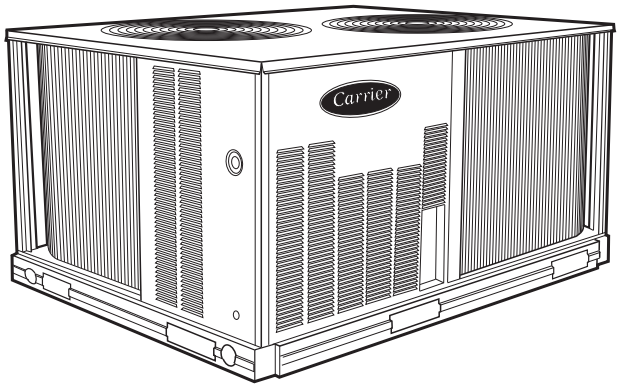
284	2020/10/28	13:13:28	62.6
285	2020/10/28	13:13:31	59.0
286	2020/10/28	13:13:34	62.3
287	2020/10/28	13:13:37	63.6
288	2020/10/28	13:13:40	62.9
289	2020/10/28	13:13:43	61.2
290	2020/10/28	13:13:46	62.0
291	2020/10/28	13:13:49	63.4
292	2020/10/28	13:13:52	63.6
293	2020/10/28	13:13:55	62.1
294	2020/10/28	13:13:58	62.7
295	2020/10/28	13:14:01	63.1
296	2020/10/28	13:14:04	60.6
297	2020/10/28	13:14:07	57.6
298	2020/10/28	13:14:10	60.4
299	2020/10/28	13:14:13	57.6
300	2020/10/28	13:14:16	56.3

38AUZ/D 50 Hz
Commercial Split Systems
Air Conditioning Condensing Units
18.3 kW to 59.2 kW

Carrier
turn to the experts

Product Data

Gemini



C09227

38AUZ07-08 shown

Certified to ISO 9001

Carrier's air-cooled air conditioning split systems:

- provide a logical solution for commercial needs
- have a rugged, dependable construction
- are available in single and circuit scroll compressor capacity control
- have cooling capability up to 52°C (125°F) ambient and down to 2°C (35°F) ambient standard

FEATURES/BENEFITS

These dependable outdoor air cooled condensing units match Carrier's indoor-air handlers to meet a wide selection of cooling solutions.

Constructed for long life

The 38AUZ single circuit and 38AUD dual circuit, scroll compressor models are designed and built to last. The high efficient designed outdoor coil construction allows for a more efficient design in a smaller cabinet size that utilizes an overall reduction in refrigerant charge. Where conditions require, special coil coating coil protection option is available. Cabinets are constructed of prepainted galvanized steel, delivering unparalleled protection from the environment. Inside and outside surfaces are protected to ensure long life, good looks, and reliable operation. Safety controls are used for enhanced system protection and reliability.

Each unit utilizes the Comfort Alert diagnostic and troubleshoot control system. This protects the units operation and provides valuable diagnostic information when required.

Factory-installed options (FIOPs)

Certified and pre-engineered factory-installed options (FIOPs) allow units to be installed in less time, thereby reducing installed cost. FIOPs include:

- low ambient controls which provide cooling operation down to -29°C (-20°F) ambient temperatures
- non-fused disconnect
- special coil coating coil protection
- louvered hail guard

FEATURES AND BENEFITS (cont.)

Efficient operation

These air cooled condensing units will provide EER's up to 12.6 (tested in accordance with ASHRAE 90.1 standards).

This high efficiency will help reduce overall operating cost and energy consumption.

Controls for performance dependability

The 38AU condensing units offer operating controls and components designed for performance dependability. The high efficiency hermetic scroll compressor is engineered for long life and durability. The compressors include vibration isolation for quiet operation. The high-pressure switch protects the entire refrigeration system from abnormally high operating pressures. A low-pressure switch protects the system from loss of charge. These units also include anti-short-cycling protection, which helps to protect the units against compressor failure.

All units include a crankcase heater to eliminate liquid slugging at start-up. Each unit comes standard with the Comfort Alert™ control system. This provides:

- System Go LED indicator
- Fault LED indicator
- Compressor fault LED indicator
- Phase loss protection
- Phase reversal protection
- Safety pressure indicator
- Anti-short cycle protection

Innovative Carrier 40RU packaged air handlers are custom matched to 38AUZ/D condensing units

Information on matching 40RU DX packaged air handler follows for convenience. See separate product data for more details. The 40RU Series has excellent fan performance, efficient direct-expansion (DX) coils, a unique combination of indoor-air quality features, and is easy to install. Its versatility and state-of-the-art features help to ensure economical performance of the split system both now and in the future.

Indoor-air quality (IAQ) features

The unique combination of IAQ features in the 40RU Series air handlers help to ensure that only clean, fresh, conditioned air is delivered to the occupied space.

Direct-expansion (DX) 4 row cooling coils prevent the build-up of humidity in the room, even during part-load conditions.

Standard 2-in. (51mm) disposable filters remove dust and airborne particles from the occupied space for cleaner air.

The pitched, non-corroding drain pan can be adjusted for a right-hand or left-hand connection to suit many applications and provide positive drainage and prevent standing condensate.

The accessory economizer can provide ventilation air to improve indoor-air quality by using demand control ventilation. When used in conjunction with Carrier Comfort System and CO_2 sensors, the economizer admits fresh outdoor air to replace stale, recirculated indoor air.

Economy

The 40RU Series packaged air handlers provide reduced installation expense and energy-efficient performance.

Quick installation is ensured by the multipoise design. Units can be installed in either the horizontal or vertical configuration without modifications. Fan motors and contactors are pre-wired and thermostatic expansion valves (TXVs) are factory-installed on all 40RU models.

High efficiency, precision-balanced fans minimize air turbulence, surging, and unbalanced operation, cutting operation expenses.

The economizer accessory precisely controls the blend of outdoor air and room air to achieve comfort levels. When the outside air enthalpy is suitable, outside air dampers can fully open to provide "free" cooling without energizing mechanical cooling.

Rugged dependability

The 40RU series units are made to last. The die-formed galvanized steel panels ensure structural integrity under all operating conditions. Galvanized steel fan housings are securely mounted to a die-formed galvanized steel fan deck.

Rugged pillow-block bearings (40RU14) are securely fastened to the solid steel fan shaft with split collets and clamp locking devices. Smaller unit sizes have spider-type bearings.

Coil flexibility

Model 40RU direct- expansion coils have galvanized steel casings; inlet and outlet connections are on the same end. The coils are designed for use with Puron (R-410A) refrigerant and have $^3/_8$-in. diameter copper tubes mechanically bonded to aluminum sine-wave fins. The coils include matched, factory-installed thermostatic expansion valves (TXVs) with matching distributor nozzles and offers a removable power element and extended connections.

Easier installation and service

The multipoise design and component layout ensures quick unit installation and operation. Units can be converted from horizontal to vertical operation by simply repositioning the unit. Drain pan connections are duplicated on both sides of the unit. The filters, motor, drive, TXVs, and coil connections are all easily accessed by removing a single side panel.

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3	8	A	U	Z	A	0	7	A	0	A	9	–	0	A	0	A	0

Model Type
Commercial Air Cooled Cond. Unit
Puron® R–410A Refrigerant

Type of Coil
D = Dual Circuit
Z = Single Circuit

Refrigerant Options
A = Standard
B = Low Ambient Controls

Nominal Tonnage
07 = 18.3 kW (5.2 Tons)
08 = 23.2 kW (6.6 Tons)
12 = 29.1 kW (8.3 Tons)
14 = 35.2 kW (10.0 Tons)
16 = 45.8 kW (13.0 Tons)
25 = 59.2 kW (16.8 Tons)

Factory Assigned
A = Default

Factory Assigned
0 = Default

Coil Options (Condenser)
With Round Tube/Plate Fin Design
All models except 14 size (12.5 Ton)
A = Al/Cu Standard
B = Pre Coat Al/Cu
C = E–Coat Al/Cu
E = Cu/Cu
M = Al/Cu Standard with louvered hail guard
N = Pre Coat Al/Cu with louvered hail guard
P = E–Coat Al/Cu with louvered hail guard
R = Cu/Cu – Louvered hail guard
Coil Options (Condenser)
With All Aluminum – NOVATION Design (07–16 sizes)
G = Al/Al Standard
K = E–Coat Al/Al
T = Al/Al with louvered hail guard
W = E–Coat Al/Al with louvered hail guard

Voltage
9 = 400–3–50

Design Rev
– = Factory Assigned

Base Unit Controls
0 = Standard Electro–Mechanical Controls

Factory Assigned
A = Default

Service Options
0 = None

Electrical Options
A = None
C = Non–Fused Disconnect

Brand / Packaging
0 = Standard
1 = LTL

AHRI CAPACITY RATINGS

UNIT	COOLING STAGES	NOM. CAPACITY (TONS)	NET COOLING CAPACITY (MBH)	TOTAL POWER (kW)	EER
38AUZ07/40RU07	1	5	62.7	5.1	12.2
38AUZ08/40RU08	1	6.3	79.3	6.9	11.5
38AUD12/40RU12	2	8.3	103.0	8.2	12.6
38AUD14/40RU14	2	10.4	125.0	10.9	11.5
38AUD16/40RU16	2	12.5	162.0	13.5	12.0
38AUD25/40RU25	2	16.7	202.2	16.6	12.2

LEGEND

AHRI – Air Conditioning, Heating and Refrigeration Institute
ASHRAE – American Society of Heating, Refrigerating and Air Conditioning, Inc.
EER – Energy Efficiency Ratio
IEER – Integrated Energy Efficiency Ratio

NOTES

1. Rated in accordance with AHRI Standard 340/360, as appropriate.
2. Ratings are based on:
   Cooling Standard: 27°C (80°F) db, 19°C (67°F) wb indoor air temp and 35°C (95°F) db outdoor air temp.
3. All units comply with ASHRAE 90.1 Energy Standard for minimum EER and IEER requirements.

SOUND POWER LEVELS, dB

UNIT	COOLING STAGES	OUTDOOR SOUND (dB)								
		A–WEIGHTED	63	125	250	500	1000	2000	4000	8000
NOVATION – All Aluminum Coil Design										
38AUZ07	1	82	78.7	91.2	84.4	79.7	76.9	73.5	71.9	67.5
38AUZ08	1	81	81.7	89.7	82.6	77.6	74.4	70.3	68.0	64.2
38AUD12	2	78	79.2	81.1	78.4	75.0	72.9	68.2	66.4	68.2
38AUD14	2	79	76.2	78.6	78.1	75.1	75.2	71.4	67.9	65.1
38AUD16	2	80	90.3	81.8	78.0	76.7	75.2	70.5	66.4	61.9
RTPF – Round Tube/Plate Fin Coil Design										
38AUZ07	1	83	81.7	88.2	84.0	79.7	78.1	74.0	71.4	68.0
38AUZ08	1	83	81.7	88.2	84.0	79.7	78.1	74.0	71.4	68.0
38AUD12	2	80	76.0	79.9	79.8	77.4	75.6	69.8	67.8	66.4
38AUD16	2	83	86.7	81.2	78.9	80.4	78.0	74.2	70.2	65.0
38AUD25	2	85	91.0	85.0	80.0	86.0	79.0	73.0	68.0	63.0

NOTE: Outdoor sound data is measure in accordance with AHRI standard 270–2008.
LEGEND:
dB = Decibel

PHYSICAL DATA

SINGLE CIRCUIT MODELS with RTPF – Round Tube/Plate Fin Coil Design		
	38AUZ07	**38AUZ08**
Refrigeration System		
# Circuits / # Comp. / Type	1 / 1 / Scroll	1 / 1 / Scroll
R–410a shipping charge A/B (lbs, 50 Hz)	11	13
System charge w/ fan coil* (50 Hz)	14	17
Metering device	TXV	TXV
High–press. Trip / Reset (psig)	630 / 505	630 / 505
Low–press. Trip / Reset (psig)	54 / 117	54 / 117
Cond. Coil		
Material	Al/Cu	Al/Cu
Coil type	RTPF	RTPF
Rows / FPI	2 / 17	2 / 17
Total face area (ft2)	17.5	17.5
Cond. fan / motor		
Qty / Motor drive type	2 / direct	2 / direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100
Fan diameter (in)	22	22
Nominal Airflow (cfm)	6000	6000
Watts (total)	610	610
Piping Connections		
Qty / Suction (in. ODS)	1 / 1 1/8	1 / 1 1/8
Qty / Liquid (in. ODS)	1 / 3/8	1 / 1/2

SINGLE CIRCUIT MODELS with NOVATION – All Aluminum coil Design		
	38AUZ07	**38AUZ08**
Refrigeration System		
# Circuits / # Comp. / Type	1 / 1 / Scroll	1 / 1 / Scroll
R–410a shipping charge A/B (lbs)	4.4	4.9
System charge w/ fan coil	8.4	10.2
System charge w/ fan coil (50hz)	9.0	12.3
Metering device	TXV	TXV
High–press. Trip / Reset (psig)	630 / 505	630 / 505
Low–press. Trip / Reset (psig)	54 / 117	54 / 117
Cond. Coil		
Material	Al	Al
Coil type	microchannel	microchannel
Rows / FPI	1 / 17	1 / 17
total face area (ft2)	17.5	20.5
Cond. fan / motor		
Qty / Motor drive type	2 / direct	2 / direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100
Fan diameter (in)	22	22
Nominal Airflow (cfm)	6,000	6,000
Watts (total)	610	610

RTPF – Round tube /plate fin design

* Approximate system charge with about 25 ft piping of sizes indicated with matched 40RU.

PHYSICAL DATA (CONT)

DUAL CIRCUIT MODELS with RTPF – Round Tube/Plate Fin Coil Design			
	38AUD12	**38AUD16**	**38AUD25**
Refrigeration System			
# Circuits / # Comp. / Type	2 / 2 / Scroll	2 / 2 / Scroll	2 / 2 / Scroll
R–410a shipping charge A/B (lbs, 50 Hz)	8.0 / 8.0	16.0 / 16.0	14.0 / 14.0
System charge w/ fan coil* (50 Hz)	11.0 / 10.0	22.0 / 22.0	19.0 / 19.0
Metering device	TXV	TXV	TXV
High–press. Trip / Reset (psig)	630 / 505	630 / 505	630 / 505
Low–press. Trip / Reset (psig)	54 / 117	54 / 117	54 / 117
Compressor			
Model	ZP51 (2)	ZP83 (2)	ZP103 (2)
Oil Charge A/B (oz)	42 / 42	60 / 60	110 / 110
Speed rpm 50 Hz	2900	2900	2900
Cond. Coil			
Material	Al/Cu	Al/Cu	Al/Cu
Coil type	RTPF	RTPF	RTPF
Rows / FPI	2 / 17	2 / 17	2 / 17
Total face area (ft2)	25.1	23.5 x 2	25.0 x 2
Cond. fan / motor			
Qty / Motor drive type	2 / direct	3 / direct	4 / direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100	1/4 / 1100
Fan diameter (in)	22	22	22
Nominal Airflow (cfm)	6000	9000	12000
Watts (total)	610	970	1150
Piping Connections			
Qty / Suction (in. ODS)	2 / 1 1/8	2 / 1 3/8	2 / 1 3/8
Qty / Liquid (in. ODS)	2 / 3/8	2 / 1/2	2 / 1/2

DUAL CIRCUIT MODELS with NOVATION – All Aluminum coil Design			
	38AUD12	**38AUD14**	**38AUD16**
Refrigeration System			
# Circuits / # Comp. / Type	2/2/Scroll	2/2/Scroll	2/2/Scroll
R–410a shipping charge A/B (lbs)	3.0 /3.1	3.7/3.9	6.1/6.1
System charge w/ fan coil	7.4 / 7.4	10.8 / 10.8	12.0/12.0
System charge w/ fan coil (50hz)	7.5 / 7.5	11.2 / 11.2	14.0 /14.0
Metering device	TXV	TXV	TXV
High–press. Trip / Reset (psig)	630 / 505	630 / 505	630 / 505
Low–press. Trip / Reset (psig)	54 / 117	54 / 117	54 / 117
Cond. Coil			
Material	Al	Al	Al
Coil type	microchannel	microchannel	microchannel
Rows / FPI	1 / 17	1 / 17	1 / 17
total face area (ft2)	25.0	31.8	25.0 x 2
Cond. fan / motor			
Qty / Motor drive type	2 / direct	2 / direct	3 / direct
Motor HP / RPM	1/4 / 1100	1/4 / 1100	1/4 / 1100
Fan diameter (in)	22	22	22
Nominal Airflow (cfm)	6,000	6,000	10,000
Watts (total)	610	610	970

RTPF – Round tube /plate fin design

* Approximate system charge with about 25 ft piping of sizes indicated with matched 40RU.

DIMENSIONS

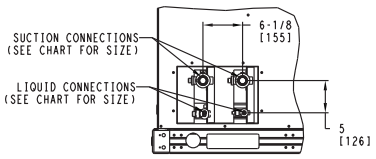
UNIT	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	X	Y	Z	H
38AUZ-07 (MCHX)	149	328	58	128	31	68	28	62	32	70	21 [533.4]	19 [482.6]	13 [330.2]	42-3/8 [1076.0]
38AUZ-08 (MCHX)	160	353	63	138	33	72	29	65	35	78	19 [482.6]	23 [584.2]	13 [330.2]	42-3/8 [1076.0]
38AUD-12 (MCHX)	226	499	88	193	50	111	38	72	56	123	20 [508.0]	23 [584.2]	15 [381.0]	50-3/8 [1279.2]
38AUD-14 (MCHX)	229	505	86	190	40	88	34	76	68	151	20 [508.0]	24 [609.6]	15 [381.0]	50-3/8 [1279.2]
38AUZ-07 (RTPF)	176	389	64	141	44	96	28	62	41	91	18 [457.2]	24 [609.6]	21 [533.4]	42-3/8 [1076.0]
38AUZ-08 (RTPF)	177	391	64	142	44	96	28	62	41	91	18 [457.2]	24 [609.6]	21 [533.4]	42-3/8 [1076.0]
38AUD-12 (RTPF)	234	516	84	185	53	117	38	83	59	131	19 [482.6]	23 [584.2]	24 [609.6]	50-3/8 [1279.2]

CG CENTER OF GRAVITY

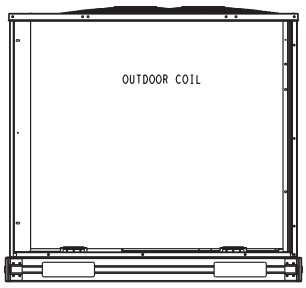
DIRECTION OF AIR FLOW

DIMENSIONS IN [ ] ARE IN MM

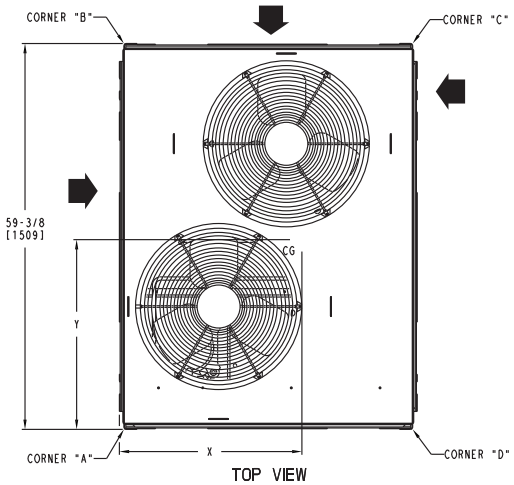
SERVICE VALVE CONNECTIONS		
UNIT	SUCTION	LIQUID
38AUZ07	1-1/8 [28.6]	3/8 [9.5]
38AUZ08	1-1/8 [28.6]	1/2 [12.7]
38AUD12	1-1/8 [28.6]	3/8 [9.5]
38AUD14	1-3/8 [34.9]	1/2 [12.7]



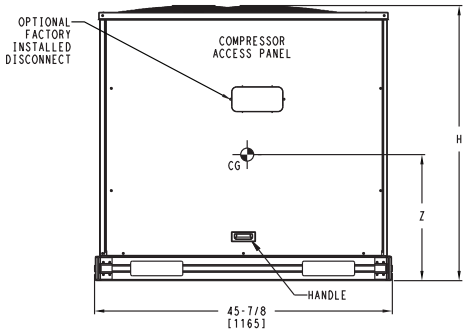
RIGHT SIDE VIEW
(FOR 38AUD SYSTEMS)



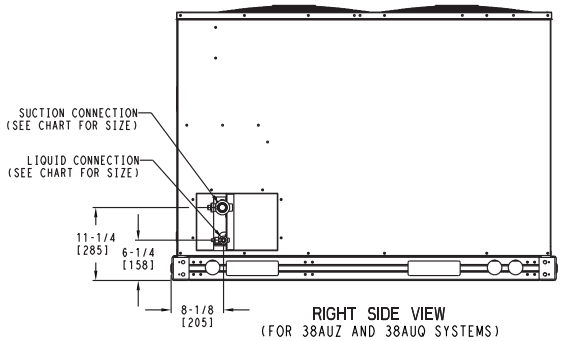
PLAN VIEW



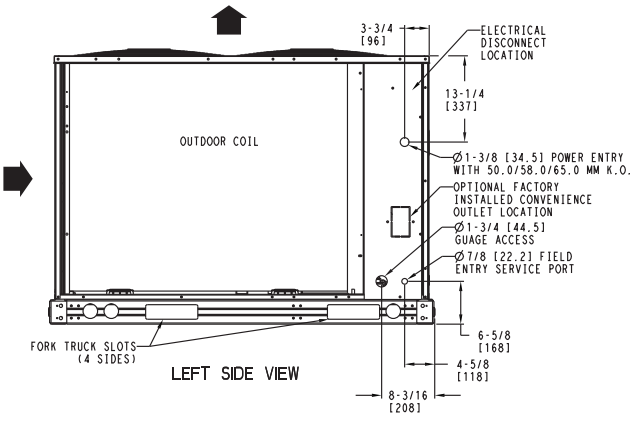
TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW
(FOR 38AUZ AND 38AUQ SYSTEMS)



LEFT SIDE VIEW

NOTES:

1. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
   A. BOTTOM TO COMBUSTIBLE SURFACES: 0 INCHES.
   B. OUTDOOR COIL, FOR PROPER AIR FLOW: 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL.
   C. OVERHEAD: 60 INCHES, TO ASSURE PROPER OUTDOOR FAN OPERATION.
   D. BETWEEN UNITS: CONTROL BOX SIDE, 42 INCHES PER NEC.
   E. BETWEEN UNIT AND UNGROUNDED SURFACES: CONTROL BOX SIDE, 36 INCHES PER NEC.
   F. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES: CONTROL BOX SIDE, 42 INCHES PER NEC.
2. WITH EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTE 1B, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
3. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B OR C ROOF COVERING MATERIAL.

C10590

DIMENSIONS (cont.)

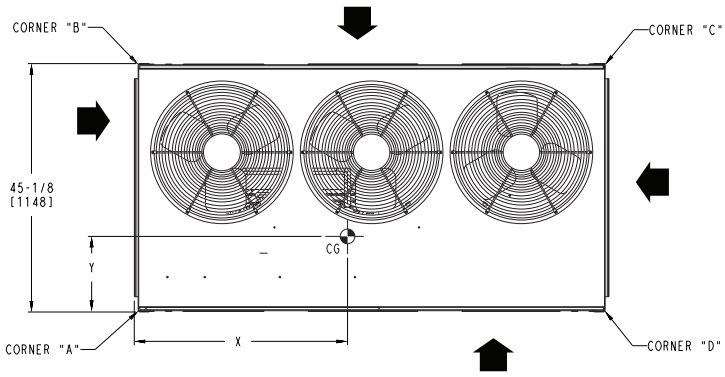
UNIT	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	X	Y	Z	H
38AUD16 (MCHX)	288	633	100	220	61	134	61.5	135	65.5	144	38 [965.2]	19 [482.6]	15 [381]	50-3/8 [1279.2]
38AUD16 (RTPF)	332	731	107	237	78	172	61	135	84	186	38 [965.2]	19 [482.6]	17 [431.8]	50-3/8 [1279.2]

CG CENTER OF GRAVITY

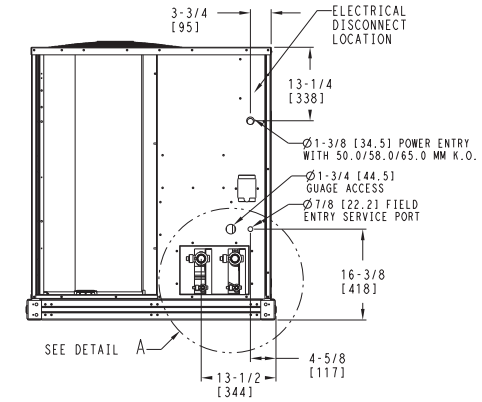
DIRECTION OF AIR FLOW

DIMENSIONS IN [ ] ARE IN MM

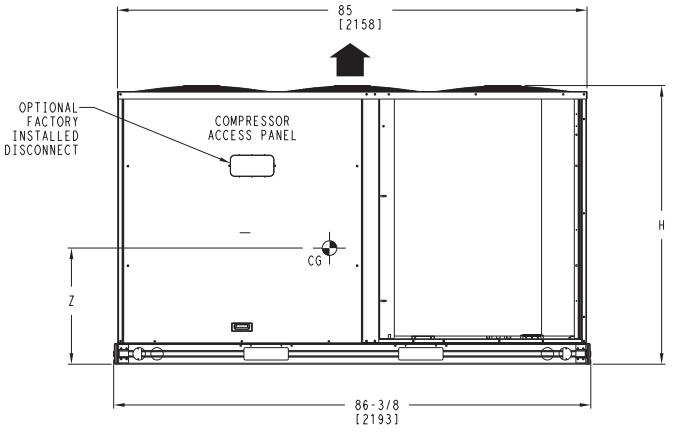
SERVICE VALVE CONNECTIONS			QTY
UNIT	SUCTION	LIQUID	
38AUD16	1-3/8 [34.9]	1/2 [12.7]	2 EA



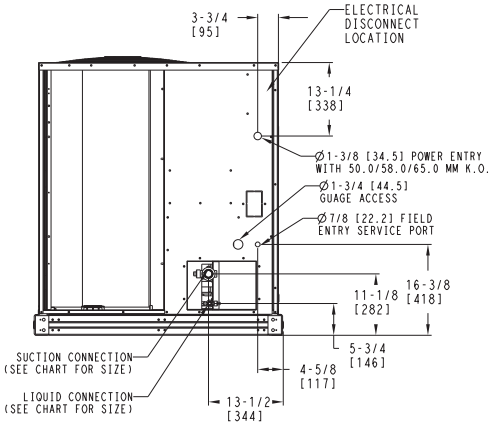
TOP VIEW



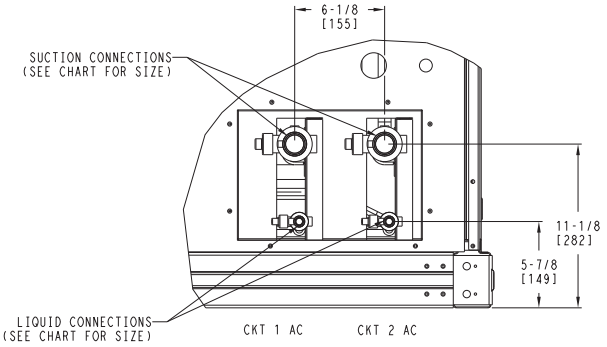
LEFT SIDE VIEW FOR 38AUD SYSTEMS



FRONT VIEW



LEFT SIDE VIEW



DETAIL A
(NOTE POSITION OF CKT 1)

NOTES:
1. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
   A. BOTTOM TO COMBUSTIBLE SURFACES: 0 INCHES.
   B. OUTDOOR COIL, FOR PROPER AIR FLOW: 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL.
   C. OVERHEAD: 60 INCHES, TO ASSURE PROPER OUTDOOR FAN OPERATION.
   D. BETWEEN UNITS: CONTROL BOX SIDE, 42 INCHES PER NEC.
   E. BETWEEN UNIT AND UNGROUNDED SURFACES: CONTROL BOX SIDE, 36 INCHES PER NEC.
   F. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES: CONTROL BOX SIDE, 42 INCHES PER NEC.
2. WITH EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTE 1B, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
3. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B OR C ROOF COVERING MATERIAL.

C10591

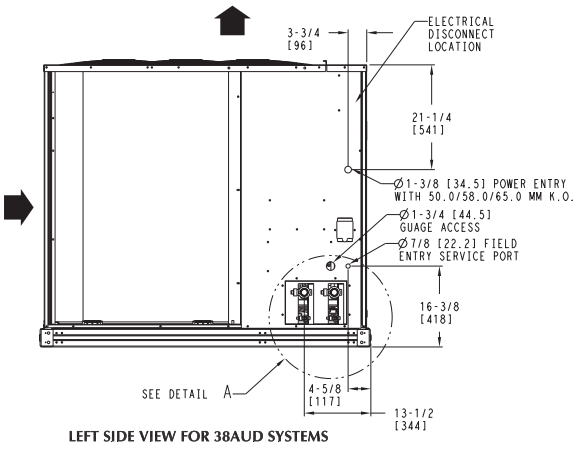
DIMENSIONS (cont.)

UNIT	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	X	Y	Z	H
38AUD25 (RTPF)	444	978	163	360	85	188	67	147	128	283	38 [965.2]	23 [584.2]	17 [431.8]	50-3/8 [1279.2]

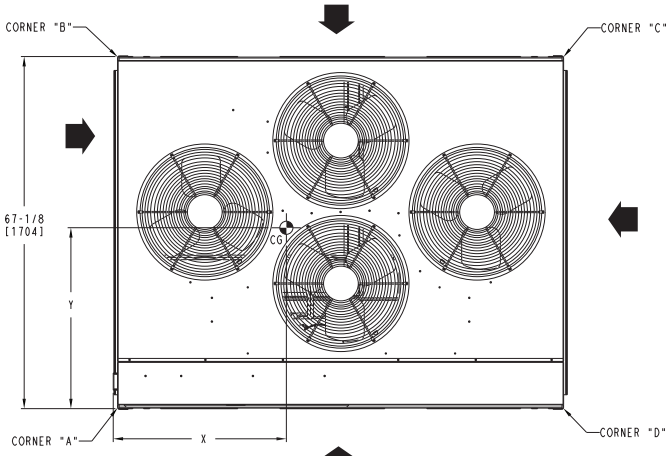
CG CENTER OF GRAVITY

DIRECTION OF AIR FLOW

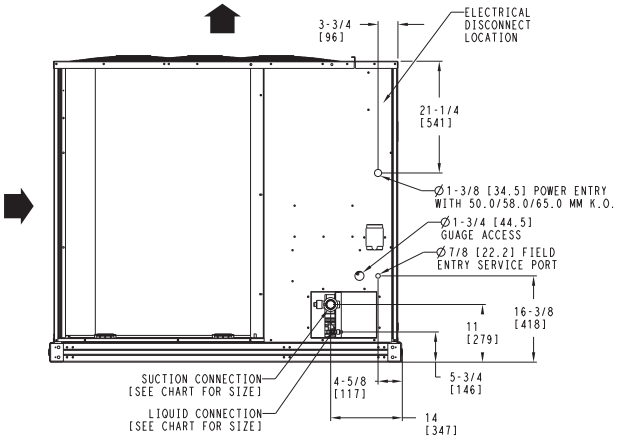
DIMENSIONS IN [ ] ARE IN MM



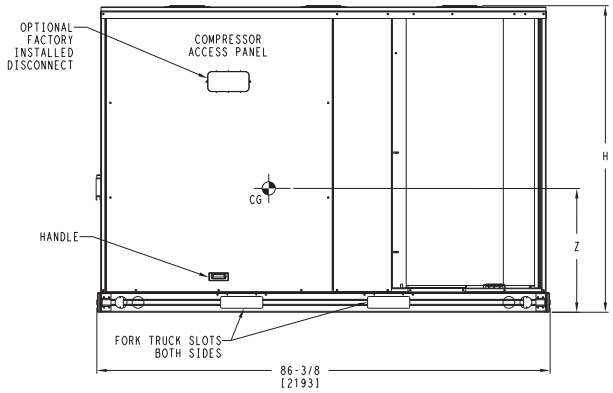
LEFT SIDE VIEW FOR 38AUD SYSTEMS



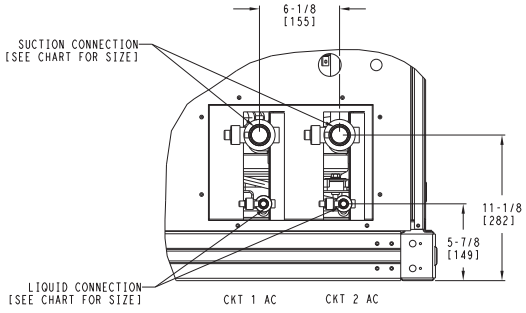
TOP VIEW



LEFT SIDE VIEW



FRONT VIEW



DETAIL A
(NOTE POSITION OF CKT 1)

NOTES:
1. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
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3. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B OR C ROOF COVERING MATERIAL.

SERVICE VALVE CONNECTIONS			QTY
UNIT	SUCTION	LIQUID	
38AUD25	1-3/8 [34.9]	1/2 [12.7]	2 EA

C10592

OPTIONS AND ACCESSORIES

38AUZ/D OPTIONS AND ACCESSORIES

ITEM	OPTION*	ACCESSORY†
Disconnect Switch (non-fused)	X	
Special–coated Coil Protection	X	
Low Ambient Temperature MotorMaster I® Control	X	X
Wired Condenser Coil Grille (Novation 07–14 models only)		X
Louvered Hail Guard	X	X
Programmable Thermostats		X

* Factory-installed option.

† Field-installed accessory.

38AUZ/38AUD factory-installed options

E-coated aluminum-fin coils have a flexible and durable epoxy coating uniformly applied to all coil surfaces. Unlike brittle phenolic dip and bake coatings, E-coating provides superior protection with unmatched flexibility, edge coverage, metal adhesion, thermal performance, and most importantly, corrosion resistance.

E-coated coils provide this protection since all coil surfaces are completely encapsulated from environmental contamination. This coating is especially suitable in industrial environments.

Pre-coated coils (RTPF coils only) provide protection in mild coastal environments.

–29°C (–20°F) low-ambient temperature kit option (MotorMaster I®) controls outdoor-fan motor operation to maintain the correct head pressure at low outdoor ambient temperatures.

Louvered hail guard package protects coils against damage from flying debris and hail.

Non-fused disconnect switch is used to remove power locally at the condensing unit. This switch also includes a power lockout capability to protect the service person. This lockout switch saves the service person time and effort because there is no need to access a distant disconnect switch while servicing the unit.

NOTE: Non-fused disconnect switch cannot be used when unit MOCP electrical rating exceeds 80 amps.

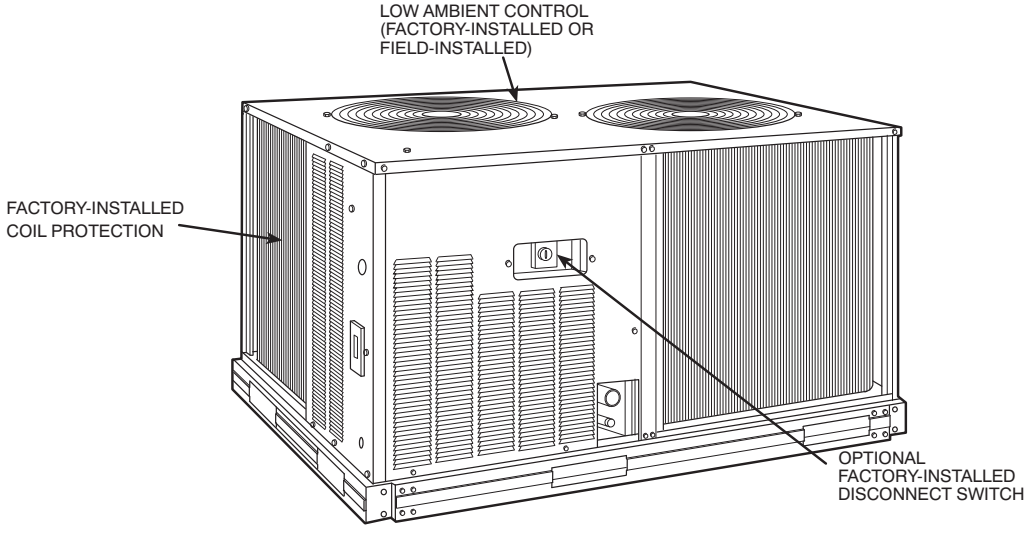
38AUZ/D field-installed accessories

–29°C (–20°F) low-ambient temperature kit accessory (MotorMaster I®) controls outdoor-fan motor operation to maintain the correct head pressure at low outdoor ambient temperatures.

Louvered hail guard package protects coils against damage from flying debris and hail.

Condenser coil grille package protects condensing unit coil from impact by large objects and vandalism.

Carrier's line of thermostats provide both programmable and non-programmable capability with the new **Debonair®** line of commercial programmable thermostats. The **Commercial Electronic** thermostats provide 7-day programmable capability for economical applications.



C10609

OPTIONS AND ACCESSORIES (cont.)

40RU OPTIONS AND ACCESSORIES

ITEM	OPTION*	ACCESSORY†
Alternate Fan Motors	X	
Alternate Drives	X	
CO_2 Sensors		X
Condensate Drain Trap		X
Discharge Plenum		X
Economizer		X
Electric Heat		X
Hot Water Heating Coils		X
Overhead Suspension Package		X
Prepainted Units	X	
Return Air Grille		X
Steam Heating Coil		X
Subbase		X

* Factory-installed option.

† Field-installed accessory.

40RU factory-installed options

Alternate fan motors and drives are available to provide the widest possible range of performance.

Units constructed of prepainted steel are available from the factory for applications that require painted units. Unit color is American Sterling Gray.

40RU field-installed accessories

Two-row hot water coils have $^5/_8$-in. diameter copper tubes mechanically bonded to aluminum plate fins. Coils have non-ferrous headers.

One-row steam coil has 1-in. OD copper tube and aluminum fins. The Inner Distributing Tube (IDT) design provides uniform temperatures across the coil face. The IDT steam coils are especially suited to applications where sub-freezing air enters the unit.

Electric resistance heat coils have an open-wire design and are mounted in a rigid frame. Safety cutouts for high temperature conditions are standard.

Economizer (enthalpy controlled) provides ventilation air and provides "free" cooling if the outside ambient temperature and humidity are suitable. The economizer can also be used in conjunction with Carrier Comfort System thermostats and CO_2 sensors to help meet indoor air quality requirements. The economizer can be used in both vertical and horizontal positions.

Discharge plenum directs the air discharge into the occupied space; integral horizontal and vertical louvers enable redirection of airflow. This accessory is available unpainted or painted.

Return-air grille provides a protective barrier over the return-air opening and gives a finished appearance to units installed in the occupied space. This accessory is available unpainted or painted.

Subbase provides a stable, raised platform and room for condensate drain connection for floor-mounted units. This accessory is available unpainted or painted.

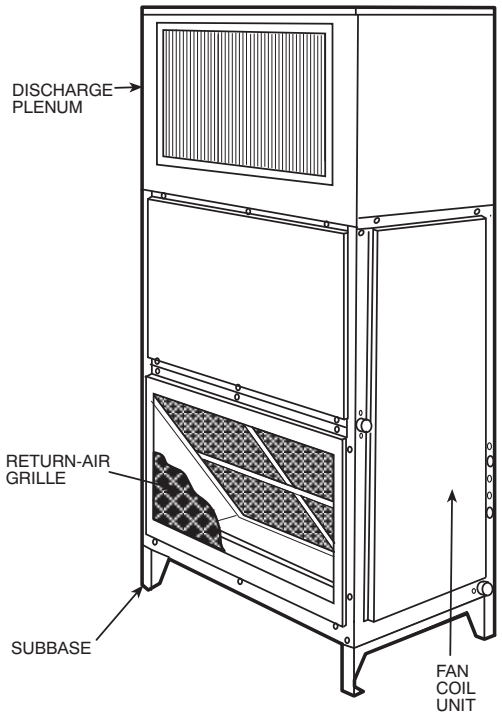
Overhead suspension package includes necessary brackets to support units in horizontal installations.

CO_2 sensors can be used in conjunction with the economizer accessory to help meet indoor air quality requirements. The sensor signals the economizer to open when the CO_2 level in the space exceeds the setpoint. A Carrier Comfort System programmable thermostat can also be used to override the sensor if the outside-air temperature is too high or too low.

Condensate drain trap includes an overflow shutoff switch that can be wired to turn off the unit if the trap becomes plugged. The kit also includes a wire harness that can be connected to an alarm if desired. The transparent trap is designed for easy service and maintenance.

OPTIONS AND ACCESSORIES (cont.)

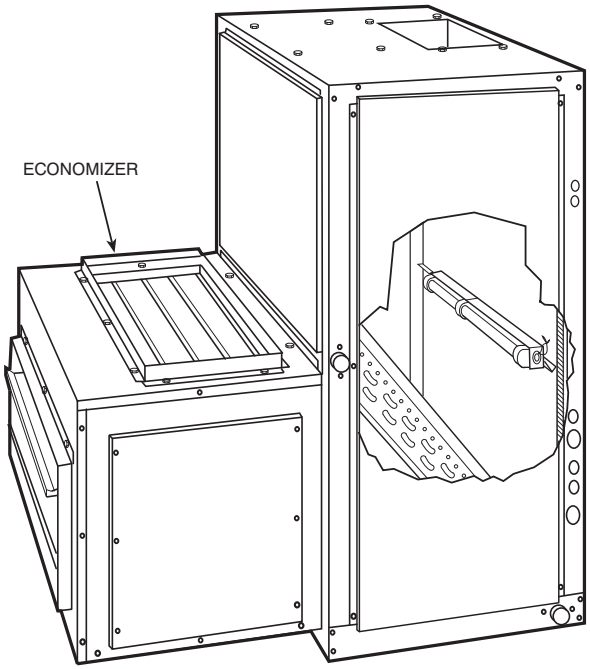
40RU WITH DISCHARGE PLENUM RETURN-AIR GRILLE AND SUBBASE



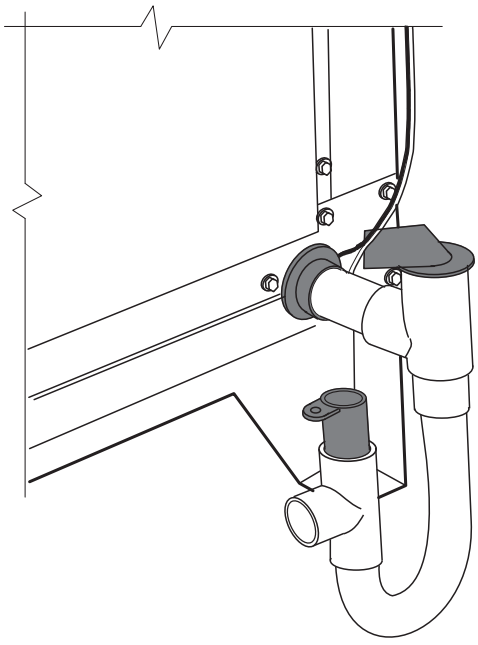
40RU WITH HOT WATER OR STEAM COIL



40RU WITH ECONOMIZER

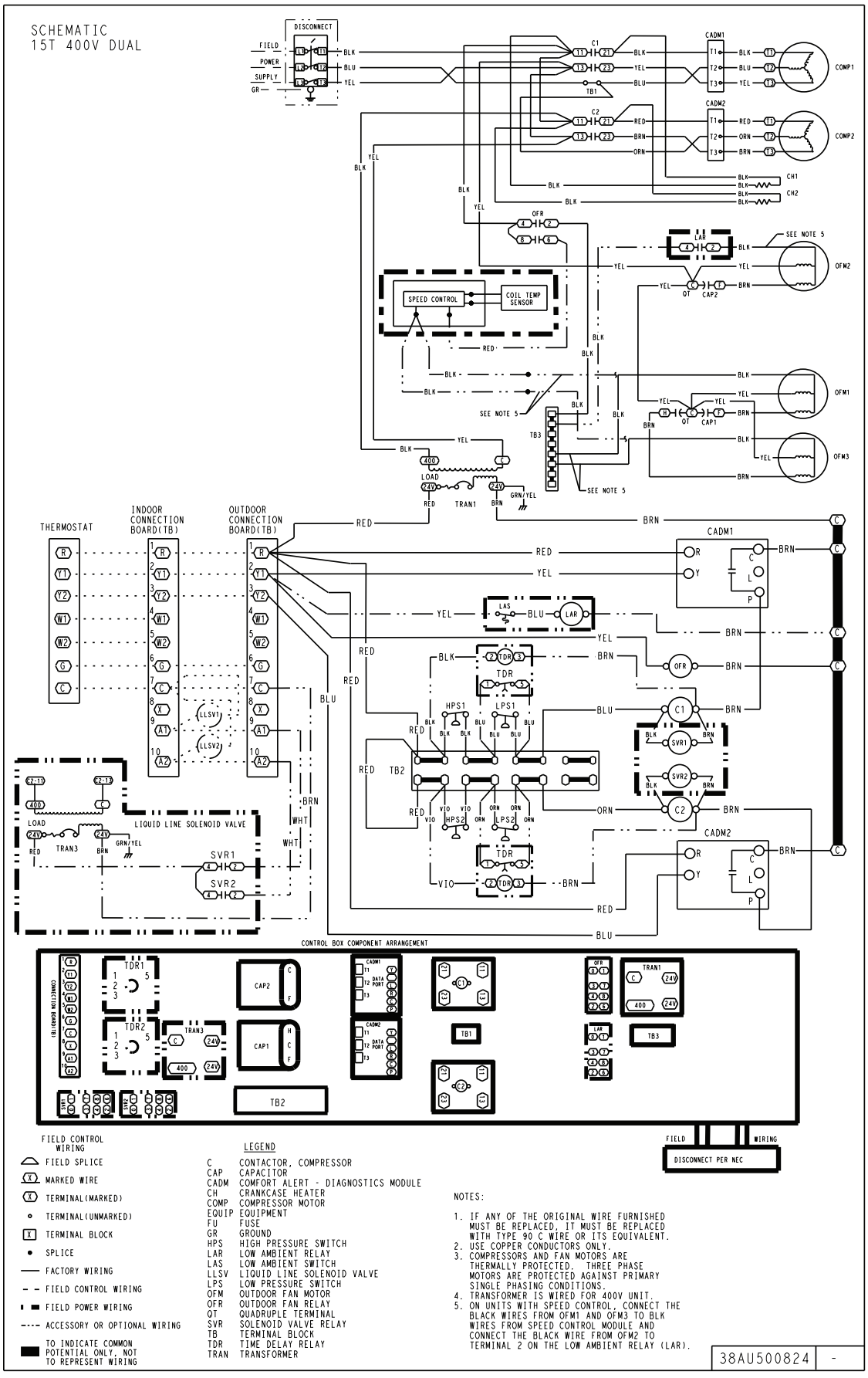


40RU WITH CONDENSATE TRAP



C10610

TYPICAL WIRING SCHEMATIC



C10593

Typical 38AUD16 Dual Circuit

PERFORMANCE DATA

38AUZ07 50 Hz **CONDENSER ONLY RATINGS** **SI**

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	11.9	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.4	38.1	44.2	49.5	54.5	59.6
-4	TC	13.2	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.9	38.7	44.2	49.5	54.3	60.0
-1	TC	14.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.5	39.3	44.8	50.0	54.9	61.9
2	TC	16.0	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.1	39.8	45.4	50.9	56.1	61.6
4	TC	17.4	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.7	40.4	45.9	51.5	56.9	62.2
7	TC	18.9	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.2	41.0	46.5	52.0	57.4	62.5
10	TC	20.3	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.8	41.6	47.1	52.5	57.9	63.3

38AUZ07 50 Hz **CONDENSER ONLY RATINGS** **ENGLISH**

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	40.7	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	95.7	100.6	111.5	121.1	130.1	139.3
25	TC	45.2	43.8	41.0	38.0	34.5	31.3
	kW	3.6	3.8	4.4	5.0	5.7	6.4
	SDT	96.7	101.6	111.6	121.1	129.8	140.1
30	TC	49.8	48.4	45.5	42.2	38.6	36.0
	kW	3.5	3.8	4.4	5.0	5.7	6.6
	SDT	97.8	102.7	112.6	122.1	130.8	143.5
35	TC	54.6	53.2	50.2	47.0	43.2	40.0
	kW	3.5	3.7	4.3	5.0	5.8	6.6
	SDT	98.8	103.7	113.7	123.6	132.9	142.9
40	TC	59.5	58.0	54.9	51.6	48.1	44.3
	kW	3.4	3.7	4.3	5.0	5.7	6.6
	SDT	99.8	104.7	114.7	124.6	134.5	143.9
45	TC	64.4	62.9	59.7	56.4	52.8	48.6
	kW	3.3	3.6	4.2	4.9	5.7	6.5
	SDT	100.8	105.8	115.7	125.6	135.4	144.4
50	TC	69.3	67.8	64.6	61.2	57.6	53.6
	kW	3.2	3.5	4.2	4.9	5.6	6.5
	SDT	101.9	106.8	116.7	126.5	136.3	145.9

LEGEND:
kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

38AUZ08 50 Hz CONDENSER ONLY RATINGS SI

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	15.3	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	34.5	37.2	42.7	48.2	53.5	59.1
-4	TC	16.9	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.0	37.7	43.2	48.7	53.5	58.9
-1	TC	18.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.6	38.3	43.7	49.2	54.6	59.5
2	TC	20.3	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.1	38.8	44.3	49.7	55.1	60.5
4	TC	22.1	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.7	39.4	44.8	50.2	55.6	60.9
7	TC	23.8	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.3	40.0	45.4	50.7	56.1	61.4
10	TC	25.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.0	40.6	46.0	51.3	56.6	61.8

38AUZ08 50 Hz CONDENSER ONLY RATINGS ENGLISH

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	52.2	50.6	47.2	43.7	39.9	36.3
	kW	4.1	4.4	5.2	6.0	6.8	7.8
	SDT	94.1	99.0	108.9	118.8	128.2	138.4
25	TC	57.7	55.9	52.3	48.6	44.0	40.1
	kW	4.1	4.5	5.2	6.0	6.9	7.9
	SDT	95.0	99.9	109.8	119.7	128.3	138.1
30	TC	63.4	61.5	57.7	53.8	49.6	44.7
	kW	4.2	4.5	5.3	6.1	7.0	8.0
	SDT	96.0	100.9	110.7	120.6	130.3	139.1
35	TC	69.3	67.3	63.3	59.2	54.9	50.4
	kW	4.2	4.6	5.3	6.2	7.1	8.0
	SDT	97.0	101.9	111.7	121.5	131.3	140.9
40	TC	75.2	73.3	69.2	64.9	60.4	55.6
	kW	4.3	4.6	5.4	6.2	7.1	8.1
	SDT	98.1	102.9	112.7	122.4	132.1	141.7
45	TC	81.3	79.3	75.2	70.7	66.0	61.0
	kW	4.3	4.6	5.4	6.2	7.2	8.2
	SDT	99.2	104.0	113.7	123.3	132.9	142.5
50	TC	87.4	85.4	81.1	76.6	71.7	66.5
	kW	4.3	4.7	5.5	6.3	7.2	8.2
	SDT	100.3	105.1	114.7	124.3	133.8	143.3

LEGEND:

kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUD12 Total Unit 50 Hz CONDENSER ONLY RATINGS SI

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	19.5	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.5	38.0	43.1	48.2	53.2	58.2
-4	TC	21.5	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.2	38.7	43.8	48.8	53.8	58.7
-1	TC	23.7	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.9	39.5	44.5	49.5	54.4	59.2
2	TC	26.0	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.7	40.2	45.2	50.1	55.0	59.8
4	TC	28.4	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.5	40.9	45.9	50.8	55.6	60.3
7	TC	30.9	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	39.2	41.7	46.6	51.5	56.2	60.9
10	TC	33.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	40.1	42.5	47.3	52.2	56.9	61.4

38AUD12 Total Unit 50 Hz CONDENSER ONLY RATINGS ENGLISH

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	66.5	64.3	59.8	55.1	50.0	44.7
	kW	5.2	5.6	6.4	7.3	8.2	9.1
	SDT	95.9	100.5	109.6	118.8	127.8	136.7
25	TC	73.4	71.0	66.1	61.0	55.7	50.0
	kW	5.2	5.6	6.5	7.4	8.3	9.2
	SDT	97.2	101.7	110.8	119.9	128.9	137.7
30	TC	80.8	78.2	72.9	67.3	61.6	55.5
	kW	5.3	5.7	6.6	7.5	8.4	9.3
	SDT	98.5	103.0	112.1	121.1	129.9	138.6
35	TC	88.6	85.8	80.0	74.0	67.9	61.4
	kW	5.4	5.8	6.6	7.5	8.5	9.4
	SDT	99.8	104.3	113.3	122.3	131.1	139.6
40	TC	96.8	93.8	87.5	81.2	74.5	67.4
	kW	5.5	5.9	6.7	7.6	8.6	9.5
	SDT	101.2	105.7	114.6	123.4	132.2	140.6
45	TC	105.6	102.2	95.4	88.5	81.2	73.6
	kW	5.6	5.9	6.8	7.7	8.7	9.6
	SDT	102.6	107.0	115.9	124.6	133.2	141.6
50	TC	114.7	111.0	103.6	96.0	88.0	79.6
	kW	5.6	6.0	6.9	7.8	8.7	9.7
	SDT	104.1	108.4	117.2	125.9	134.3	142.6

LEGEND:

kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUD12 Circuit A 50 Hz CONDENSER ONLY RATINGS SI

SST (°C)		Air Temperature entering Condenser (° C)					
		27	29	35	41	46	52
-7	TC	9.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.4	37.9	43.0	48.1	53.1	58.0
-4	TC	10.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.1	38.6	43.7	48.7	53.7	58.6
-1	TC	11.7	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.8	39.3	44.3	49.3	54.3	59.1
2	TC	12.8	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.5	40.0	45.0	50.0	54.9	59.6
4	TC	14.0	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.3	40.8	45.7	50.6	55.5	60.1
7	TC	15.2	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	39.1	41.5	46.4	51.3	56.0	60.7
10	TC	16.5	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	39.9	42.3	47.1	52.0	56.6	61.2

38AUD12 Circuit A 50 Hz CONDENSER ONLY RATINGS ENGLISH

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	32.9	31.8	29.6	27.2	24.7	22.1
	kW	2.6	2.8	3.2	3.6	4.1	4.5
	SDT	95.7	100.3	109.4	118.6	127.6	136.4
25	TC	36.3	35.1	32.6	30.1	27.4	24.6
	kW	2.6	2.8	3.2	3.7	4.1	4.6
	SDT	96.9	101.5	110.6	119.7	128.6	137.4
30	TC	39.9	38.6	35.9	33.2	30.3	27.3
	kW	2.6	2.8	3.3	3.7	4.2	4.7
	SDT	98.3	102.8	111.8	120.8	129.7	138.3
35	TC	43.7	42.2	39.4	36.4	33.3	30.1
	kW	2.7	2.9	3.3	3.8	4.2	4.7
	SDT	99.6	104.1	113.0	122.0	130.7	139.3
40	TC	47.6	46.1	43.0	39.8	36.5	32.9
	kW	2.7	2.9	3.3	3.8	4.3	4.8
	SDT	101.0	105.4	114.3	123.1	131.8	140.3
45	TC	51.8	50.1	46.8	43.3	39.6	35.9
	kW	2.8	3.0	3.4	3.8	4.3	4.8
	SDT	102.3	106.7	115.5	124.3	132.9	141.3
50	TC	56.2	54.3	50.6	46.8	42.8	38.6
	kW	2.8	3.0	3.4	3.9	4.3	4.8
	SDT	103.8	108.1	116.8	125.5	133.9	142.1

LEGEND:
kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUD12 Circuit B 50 Hz CONDENSER ONLY RATINGS SI

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	9.8	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.6	38.2	43.3	48.3	53.3	58.3
-4	TC	10.9	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.3	38.9	43.9	49.0	53.9	58.8
-1	TC	12.0	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.1	39.6	44.6	49.6	54.6	59.4
2	TC	13.2	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.8	40.3	45.3	50.3	55.2	60.0
4	TC	14.4	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.6	41.1	46.0	51.0	55.8	60.5
7	TC	15.7	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	39.4	41.8	46.8	51.6	56.4	61.1
10	TC	17.1	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	40.2	42.7	47.5	52.3	57.1	61.7

38AUD12 Circuit B 50 Hz CONDENSER ONLY RATINGS ENGLISH

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	33.6	32.5	30.2	27.8	25.3	22.7
	kW	2.6	2.8	3.2	3.7	4.1	4.5
	SDT	96.1	100.7	109.9	119.0	128.0	136.9
25	TC	37.1	35.9	33.5	30.9	28.2	25.4
	kW	2.6	2.8	3.2	3.7	4.2	4.6
	SDT	97.4	101.9	111.1	120.2	129.1	137.9
30	TC	40.9	39.6	37.0	34.2	31.3	28.2
	kW	2.7	2.9	3.3	3.7	4.2	4.7
	SDT	98.7	103.3	112.3	121.3	130.2	138.9
35	TC	44.9	43.5	40.6	37.6	34.6	31.3
	kW	2.7	2.9	3.3	3.8	4.3	4.7
	SDT	100.1	104.6	113.6	122.6	131.4	139.9
40	TC	49.2	47.7	44.5	41.4	38.0	34.5
	kW	2.7	2.9	3.4	3.8	4.3	4.8
	SDT	101.5	106.0	114.9	123.7	132.5	141.0
45	TC	53.7	52.1	48.7	45.2	41.6	37.8
	kW	2.8	3.0	3.4	3.9	4.3	4.8
	SDT	102.9	107.3	116.2	125.0	133.6	142.0
50	TC	58.5	56.7	53.0	49.2	45.2	41.1
	kW	2.8	3.0	3.5	3.9	4.4	4.9
	SDT	104.4	108.8	117.6	126.2	134.7	143.0

LEGEND:
kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUD14 Total Unit 50 Hz CONDENSER ONLY RATINGS SI

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	24.5	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.5	39.0	44.0	48.9	53.7	58.4
-4	TC	27.0	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.4	39.8	44.8	49.6	54.4	59.1
-1	TC	29.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.2	40.7	45.6	50.4	55.1	59.7
2	TC	32.3	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	39.1	41.5	46.4	51.2	55.9	60.4
4	TC	35.1	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	40.0	42.4	47.2	52.0	56.6	61.1
7	TC	38.0	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	40.9	43.3	48.1	52.8	57.4	61.7
10	TC	40.8	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	41.9	44.3	48.9	53.6	58.1	62.4

38AUD14 Total Unit 50 Hz CONDENSER ONLY RATINGS ENGLISH

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	83.7	80.8	74.6	68.0	61.0	53.9
	kW	7.0	7.5	8.4	9.3	10.2	11.0
	SDT	97.8	102.2	111.2	120.0	128.7	137.2
25	TC	92.1	89.0	82.3	75.4	67.9	60.3
	kW	7.1	7.6	8.5	9.5	10.4	11.3
	SDT	99.3	103.7	112.6	121.4	129.9	138.3
30	TC	101.0	97.5	90.5	83.0	75.3	66.8
	kW	7.3	7.7	8.7	9.7	10.6	11.6
	SDT	100.8	105.2	114.0	122.7	131.3	139.5
35	TC	110.2	106.5	98.9	91.0	82.4	73.5
	kW	7.4	7.9	8.8	9.8	10.8	11.8
	SDT	102.4	106.8	115.5	124.2	132.6	140.8
40	TC	119.8	115.7	107.6	98.9	89.8	80.1
	kW	7.6	8.0	9.0	10.0	11.0	12.1
	SDT	104.0	108.3	117.0	125.6	133.9	141.9
45	TC	129.6	125.1	116.1	106.8	97.1	86.6
	kW	7.7	8.2	9.2	10.2	11.2	12.3
	SDT	105.7	110.0	118.5	127.0	135.2	143.1
50	TC	139.3	134.6	124.7	114.8	104.1	93.1
	kW	7.9	8.4	9.3	10.4	11.4	12.5
	SDT	107.4	111.7	120.1	128.5	136.5	144.4

LEGEND:
kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUD14 Circuit A 50 Hz CONDENSER ONLY RATINGS SI

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	12.3	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.3	38.8	43.7	48.7	53.5	58.2
-4	TC	13.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.1	39.6	44.5	49.4	54.2	58.9
-1	TC	14.9	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.9	40.4	45.3	50.1	54.9	59.5
2	TC	16.2	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.8	41.2	46.1	50.9	55.6	60.2
4	TC	17.7	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	39.7	42.1	46.9	51.7	56.4	60.9
7	TC	19.1	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	40.6	43.0	47.8	52.5	57.1	61.5
10	TC	20.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	41.6	43.9	48.6	53.3	57.8	62.2

38AUD14 Circuit A 50 Hz CONDENSER ONLY RATINGS ENGLISH

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	42.0	40.5	37.4	34.2	30.7	27.1
	kW	3.5	3.8	4.2	4.7	5.1	5.5
	SDT	97.3	101.8	110.7	119.6	128.3	136.8
25	TC	46.2	44.7	41.4	37.9	34.2	30.3
	kW	3.6	3.8	4.3	4.8	5.2	5.7
	SDT	98.8	103.2	112.1	120.9	129.5	138.0
30	TC	50.7	49.0	45.5	41.7	37.9	33.7
	kW	3.7	3.9	4.4	4.9	5.3	5.8
	SDT	100.3	104.7	113.6	122.3	130.8	139.1
35	TC	55.4	53.5	49.7	45.8	41.5	37.0
	kW	3.7	4.0	4.4	4.9	5.4	5.9
	SDT	101.8	106.2	115.0	123.7	132.1	140.4
40	TC	60.2	58.2	54.1	49.8	45.2	40.4
	kW	3.8	4.0	4.5	5.0	5.6	6.1
	SDT	103.5	107.8	116.5	125.1	133.4	141.5
45	TC	65.2	62.9	58.4	53.8	48.9	43.7
	kW	3.9	4.1	4.6	5.1	5.6	6.2
	SDT	105.1	109.4	118.0	126.5	134.8	142.7
50	TC	70.2	67.8	62.8	57.9	52.5	47.0
	kW	4.0	4.2	4.7	5.2	5.7	6.3
	SDT	106.8	111.1	119.5	127.9	136.0	143.9

LEGEND:
kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUD14 Circuit B 50 Hz CONDENSER ONLY RATINGS SI

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	12.2	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.8	39.3	44.2	49.1	53.9	58.6
-4	TC	13.4	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.6	40.1	45.0	49.9	54.6	59.3
-1	TC	14.7	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.5	41.0	45.9	50.7	55.4	60.0
2	TC	16.1	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	39.4	41.8	46.7	51.5	56.1	60.7
4	TC	17.5	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	40.3	42.7	47.5	52.3	56.9	61.3
7	TC	18.9	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	41.3	43.6	48.4	53.1	57.6	62.0
10	TC	20.3	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	42.2	44.6	49.2	53.9	58.4	62.7

38AUD14 Circuit B 50 Hz CONDENSER ONLY RATINGS ENGLISH

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	41.7	40.2	37.1	33.8	30.3	26.8
	kW	3.5	3.7	4.2	4.6	5.1	5.5
	SDT	98.2	102.7	111.6	120.4	129.1	137.6
25	TC	45.9	44.3	41.0	37.5	33.8	29.9
	kW	3.5	3.8	4.2	4.7	5.2	5.6
	SDT	99.7	104.2	113.1	121.8	130.3	138.7
30	TC	50.2	48.5	45.0	41.3	37.4	33.2
	kW	3.6	3.8	4.3	4.8	5.3	5.8
	SDT	101.3	105.7	114.5	123.2	131.7	139.9
35	TC	54.8	53.0	49.2	45.2	40.9	36.5
	kW	3.7	3.9	4.4	4.9	5.4	5.9
	SDT	102.9	107.3	116.0	124.6	133.0	141.2
40	TC	59.6	57.5	53.5	49.1	44.6	39.7
	kW	3.8	4.0	4.5	5.0	5.5	6.0
	SDT	104.6	108.9	117.6	126.1	134.4	142.4
45	TC	64.4	62.1	57.6	53.0	48.1	42.9
	kW	3.8	4.1	4.5	5.1	5.6	6.1
	SDT	106.3	110.5	119.1	127.5	135.7	143.6
50	TC	69.2	66.8	61.9	56.9	51.6	46.2
	kW	3.9	4.1	4.6	5.1	5.7	6.2
	SDT	108.0	112.3	120.6	129.0	137.0	144.8

LEGEND:
kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUD16 Total Unit 50 Hz CONDENSER ONLY RATINGS SI

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	31.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.4	38.0	43.2	48.3	53.4	58.4
-4	TC	34.8	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.2	38.7	43.8	48.9	53.9	58.9
-1	TC	38.3	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.9	39.5	44.5	49.5	54.5	59.4
2	TC	41.9	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.7	40.2	45.2	50.2	55.1	59.9
4	TC	45.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.5	41.0	45.9	50.9	55.7	60.5
7	TC	49.7	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	39.3	41.8	46.7	51.6	56.4	61.0
10	TC	53.9	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	40.2	42.6	47.5	52.3	57.0	61.6

38AUD16 Total Unit 50 Hz CONDENSER ONLY RATINGS ENGLISH

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	107.8	104.6	97.9	90.9	83.7	76.1
	kW	8.4	8.9	10.0	11.2	12.5	13.9
	SDT	95.8	100.4	109.7	118.9	128.1	137.1
25	TC	118.8	115.3	107.9	100.4	92.4	84.1
	kW	8.6	9.1	10.2	11.4	12.7	14.1
	SDT	97.1	101.7	110.9	120.0	129.1	138.0
30	TC	130.5	126.6	118.6	110.3	101.6	92.7
	kW	8.7	9.2	10.3	11.6	12.9	14.3
	SDT	98.4	103.0	112.1	121.2	130.1	138.9
35	TC	142.8	138.5	129.7	120.8	111.5	101.6
	kW	8.9	9.4	10.5	11.7	13.0	14.4
	SDT	99.8	104.3	113.4	122.4	131.2	139.9
40	TC	155.8	151.0	141.6	132.0	121.7	110.7
	kW	9.1	9.6	10.7	11.9	13.2	14.6
	SDT	101.3	105.7	114.7	123.6	132.3	140.8
45	TC	169.5	164.3	154.0	143.4	132.0	120.1
	kW	9.3	9.8	10.9	12.1	13.4	14.8
	SDT	102.7	107.2	116.0	124.8	133.5	141.9
50	TC	183.9	178.2	166.8	154.9	142.6	129.5
	kW	9.5	10.0	11.1	12.3	13.6	15.0
	SDT	104.3	108.7	117.4	126.1	134.6	142.9

LEGEND:
kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUD16 Circuit A 50 Hz CONDENSER ONLY RATINGS SI

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	15.8	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.9	38.5	43.6	48.7	53.8	58.8
-4	TC	17.4	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.6	39.2	44.3	49.4	54.3	59.3
-1	TC	19.1	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.4	39.9	45.0	50.0	54.9	59.8
2	TC	20.8	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.2	40.7	45.7	50.7	55.6	60.3
4	TC	22.7	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	39.0	41.5	46.4	51.4	56.2	60.9
7	TC	24.7	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	39.9	42.3	47.2	52.1	56.8	61.5
10	TC	26.8	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	40.7	43.1	48.0	52.8	57.5	62.1

38AUD16 Circuit A 50 Hz CONDENSER ONLY RATINGS ENGLISH

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	53.8	52.2	48.8	45.3	41.7	37.9
	kW	4.2	4.5	5.1	5.7	6.3	7.0
	SDT	96.6	101.2	110.5	119.7	128.8	137.8
25	TC	59.3	57.5	53.8	50.0	46.0	41.9
	kW	4.3	4.6	5.1	5.7	6.4	7.1
	SDT	97.9	102.5	111.7	120.8	129.8	138.7
30	TC	65.1	63.1	59.0	54.9	50.6	46.1
	kW	4.4	4.7	5.2	5.8	6.5	7.2
	SDT	99.3	103.9	112.9	122.0	130.9	139.6
35	TC	71.1	68.9	64.5	60.1	55.4	50.5
	kW	4.5	4.8	5.3	5.9	6.6	7.3
	SDT	100.7	105.2	114.2	123.2	132.0	140.6
40	TC	77.5	75.1	70.4	65.6	60.5	55.0
	kW	4.6	4.9	5.4	6.0	6.7	7.4
	SDT	102.2	106.7	115.6	124.5	133.2	141.6
45	TC	84.3	81.7	76.6	71.3	65.6	59.6
	kW	4.7	5.0	5.5	6.1	6.8	7.5
	SDT	103.7	108.1	117.0	125.7	134.3	142.7
50	TC	91.4	88.6	82.9	76.9	70.8	64.3
	kW	4.8	5.1	5.6	6.2	6.9	7.6
	SDT	105.3	109.7	118.4	127.0	135.5	143.7

LEGEND:

kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUD16 Circuit B 50 Hz CONDENSER ONLY RATINGS SI

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	15.8	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.0	37.6	42.7	47.9	53.0	58.0
-4	TC	17.5	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.7	38.3	43.4	48.5	53.5	58.5
-1	TC	19.2	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.4	39.0	44.0	49.1	54.1	59.0
2	TC	21.0	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.2	39.7	44.7	49.7	54.7	59.5
4	TC	22.9	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.0	40.4	45.4	50.4	55.3	60.0
7	TC	25.0	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.8	41.2	46.2	51.1	55.9	60.6
10	TC	27.1	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	39.6	42.0	46.9	51.8	56.5	61.2

38AUD16 Circuit B 50 Hz CONDENSER ONLY RATINGS ENGLISH

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	54.0	52.4	49.1	45.6	42.0	38.2
	kW	4.2	4.4	5.0	5.6	6.2	6.9
	SDT	95.0	99.7	108.9	118.2	127.3	136.3
25	TC	59.6	57.8	54.2	50.4	46.4	42.3
	kW	4.2	4.5	5.0	5.6	6.3	7.0
	SDT	96.2	100.9	110.1	119.2	128.3	137.2
30	TC	65.5	63.5	59.5	55.4	51.1	46.6
	kW	4.3	4.6	5.1	5.7	6.4	7.1
	SDT	97.6	102.1	111.3	120.4	129.3	138.1
35	TC	71.7	69.5	65.2	60.7	56.0	51.1
	kW	4.4	4.7	5.2	5.8	6.5	7.2
	SDT	98.9	103.4	112.5	121.5	130.4	139.1
40	TC	78.2	75.9	71.2	66.3	61.2	55.7
	kW	4.5	4.8	5.3	5.9	6.5	7.2
	SDT	100.3	104.8	113.8	122.7	131.5	140.0
45	TC	85.2	82.6	77.4	72.1	66.4	60.4
	kW	4.6	4.9	5.4	6.0	6.6	7.3
	SDT	101.8	106.2	115.1	123.9	132.6	141.1
50	TC	92.4	89.6	83.9	77.9	71.8	65.2
	kW	4.7	5.0	5.5	6.1	6.7	7.4
	SDT	103.3	107.6	116.5	125.2	133.8	142.1

LEGEND:
kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUD25 Total Unit **CONDENSER ONLY RATINGS** **SI**

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	38.7	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	33.8	36.4	41.6	46.7	51.9	57.0
-4	TC	42.8	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	34.5	37.1	42.2	47.4	52.5	57.5
-1	TC	47.2	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.2	37.8	42.9	48.0	53.1	58.1
2	TC	52.0	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.0	38.6	43.6	48.7	53.7	58.6
4	TC	57.1	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.9	39.4	44.4	49.4	54.4	59.2
7	TC	62.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.8	40.3	45.2	50.2	55.1	59.8
10	TC	68.4	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.8	41.2	46.1	51.0	55.8	60.5

38AUD25 Total Unit **CONDENSER ONLY RATINGS** **ENGLISH**

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	131.9	128.0	119.8	111.1	101.6	91.4
	kW	10.0	10.6	12.0	13.5	15.2	17.2
	SDT	92.8	97.5	106.9	116.1	125.4	134.6
25	TC	145.9	141.7	132.9	123.5	113.3	102.3
	kW	10.2	10.8	12.1	13.6	15.4	17.3
	SDT	94.1	98.7	108.0	117.3	126.4	135.5
30	TC	161.1	156.5	146.9	136.7	125.6	113.7
	kW	10.4	11.0	12.3	13.8	15.5	17.5
	SDT	95.4	100.0	109.2	118.4	127.5	136.5
35	TC	177.3	172.3	161.9	150.7	138.7	125.7
	kW	10.6	11.2	12.5	14.0	15.7	17.6
	SDT	96.9	101.4	110.5	119.6	128.7	137.6
40	TC	194.8	189.3	177.9	165.7	152.5	138.4
	kW	10.8	11.4	12.7	14.2	15.9	17.8
	SDT	98.4	102.9	111.9	120.9	129.8	138.6
45	TC	213.5	207.4	194.9	181.5	167.1	151.7
	kW	11.1	11.7	13.0	14.5	16.1	18.0
	SDT	100.0	104.5	113.4	122.3	131.1	139.7
50	TC	233.4	226.7	213.0	198.2	182.5	165.6
	kW	11.4	12.0	13.3	14.7	16.4	18.2
	SDT	101.8	106.2	115.0	123.7	132.4	140.9

LEGEND:
kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUD25 Circuit A 50 Hz CONDENSER ONLY RATINGS SI

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	19.3	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	33.6	36.2	41.4	46.6	51.7	56.8
-4	TC	21.4	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	34.3	36.8	42.0	47.2	52.3	57.3
-1	TC	23.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.0	37.5	42.7	47.8	52.9	57.9
2	TC	26.0	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.8	38.3	43.4	48.5	53.5	58.4
4	TC	28.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.6	39.1	44.1	49.2	54.1	59.0
7	TC	31.3	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.5	40.0	44.9	49.9	54.8	59.6
10	TC	34.3	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.4	40.9	45.8	50.7	55.5	60.3

38AUD25 Circuit A 50 Hz CONDENSER ONLY RATINGS ENGLISH

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	66.0	64.0	60.0	55.6	50.9	45.8
	kW	5.0	5.3	5.9	6.7	7.6	8.5
	SDT	92.4	97.1	106.5	115.8	125.1	134.3
25	TC	73.0	70.9	66.5	61.8	56.7	51.2
	kW	5.1	5.4	6.0	6.8	7.6	8.6
	SDT	93.7	98.3	107.6	116.9	126.1	135.2
30	TC	80.6	78.3	73.5	68.4	62.9	57.0
	kW	5.2	5.5	6.1	6.9	7.7	8.7
	SDT	95.0	99.6	108.8	118.0	127.1	136.2
35	TC	88.8	86.2	81.1	75.5	69.5	63.0
	kW	5.3	5.6	6.2	7.0	7.8	8.8
	SDT	96.4	100.9	110.1	119.2	128.3	137.2
40	TC	97.5	94.8	89.1	83.0	76.4	69.4
	kW	5.4	5.7	6.3	7.1	7.9	8.9
	SDT	97.9	102.4	111.4	120.5	129.4	138.2
45	TC	106.9	103.9	97.6	91.0	83.8	76.0
	kW	5.5	5.8	6.5	7.2	8.0	9.0
	SDT	99.5	104.0	112.9	121.8	130.6	139.3
50	TC	116.9	113.6	106.7	99.4	91.5	83.0
	kW	5.7	6.0	6.6	7.3	8.1	9.1
	SDT	101.2	105.6	114.4	123.2	131.9	140.5

LEGEND:
kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUD25 Circuit B 50 Hz CONDENSER ONLY RATINGS SI

SST (°C)		Air Temperature entering Condenser (°C)					
		27	29	35	41	46	52
-7	TC	19.3	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	34.0	36.6	41.8	46.9	52.1	57.2
-4	TC	21.4	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	34.7	37.3	42.4	47.6	52.7	57.7
-1	TC	23.6	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	35.5	38.0	43.1	48.2	53.3	58.3
2	TC	26.0	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	36.3	38.8	43.9	48.9	53.9	58.8
4	TC	28.5	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	37.2	39.7	44.7	49.7	54.6	59.4
7	TC	31.2	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	38.1	40.6	45.5	50.4	55.3	60.1
10	TC	34.1	39.4	37.0	34.2	30.9	27.2
	kW	3.6	3.9	4.4	5.0	5.7	6.3
	SDT	39.1	41.5	46.4	51.2	56.0	60.7

38AUD25 Circuit B 50 Hz CONDENSER ONLY RATINGS ENGLISH

SST (°F)		Air Temperature entering Condenser (°F)					
		80	85	95	105	115	125
20	TC	65.9	63.9	59.9	55.5	50.7	45.6
	kW	5.0	5.3	6.0	6.8	7.6	8.6
	SDT	93.3	97.9	107.2	116.5	125.8	134.9
25	TC	72.9	70.8	66.4	61.7	56.6	51.0
	kW	5.1	5.4	6.1	6.8	7.7	8.7
	SDT	94.5	99.2	108.4	117.6	126.8	135.9
30	TC	80.5	78.2	73.4	68.2	62.7	56.7
	kW	5.2	5.5	6.2	6.9	7.8	8.8
	SDT	95.9	100.5	109.6	118.8	127.9	136.9
35	TC	88.6	86.0	80.8	75.2	69.2	62.7
	kW	5.3	5.6	6.3	7.0	7.9	8.9
	SDT	97.4	101.9	111.0	120.1	129.0	137.9
40	TC	97.3	94.5	88.8	82.7	76.1	69.0
	kW	5.4	5.7	6.4	7.1	8.0	8.9
	SDT	98.9	103.4	112.4	121.4	130.3	139.0
45	TC	106.6	103.5	97.2	90.5	83.3	75.6
	kW	5.6	5.9	6.5	7.3	8.1	9.0
	SDT	100.6	105.0	113.9	122.8	131.5	140.1
50	TC	116.5	113.1	106.2	98.8	91.0	82.5
	kW	5.7	6.0	6.7	7.4	8.2	9.2
	SDT	102.4	106.8	115.5	124.2	132.9	141.3

LEGEND:
kW – Compressor Power
SDT – Saturated Discharge Temperature at Compressor
SST – Saturated Suction Temperature
TC – Gross Cooling Capacity (1000 Btuh)

PERFORMANCE DATA (cont.)

38AUZ07 - 40RUA07 **COMBINATION RATINGS** **SI**

				Ambient Temperature														
				29.4			35.0			40.6			46.1			51.7		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4
850 L/S	EAT (wb)	14.4	THC	17.2	17.2	19.3	16.6	16.6	18.8	16.0	16.0	18.1	15.4	15.4	17.4	14.5	14.5	16.4
			SHC	15.0	17.2	19.3	14.5	16.6	18.8	14.0	16.0	18.1	13.5	15.4	17.4	12.7	14.5	16.4
			kW		3.6			4.3			4.9			5.7			6.5	
		16.7	THC	17.5	17.5	19.2	16.9	16.9	18.8	16.2	16.2	18.4	15.5	15.5	17.9	14.6	14.6	17.1
			SHC	13.8	16.5	19.2	13.5	16.2	18.8	13.2	15.8	18.4	12.8	15.4	17.9	12.2	14.6	17.1
			kW		3.6			4.2			4.9			5.7			6.5	
		19.4	THC	18.9	18.9	18.9	18.3	18.3	18.3	17.5	17.5	17.5	16.7	16.7	16.7	15.8	15.8	15.8
			SHC	11.2	13.9	16.6	10.9	13.6	16.3	10.6	13.3	16.0	10.3	13.0	15.7	9.9	12.6	15.3
			kW		3.6			4.2			4.9		5.7				6.5	
		22.2	THC	20.6	20.6	20.6	19.9	19.9	19.9	19.1	19.1	19.1	18.3	18.3	18.3	17.3	17.3	17.3
			SHC	8.4	11.2	13.9	8.2	10.9	13.6	7.9	10.6	13.3	7.6	10.3	13.0	7.2	9.9	12.7
			kW		3.5			4.1			4.8			5.6			6.5	
		24.4	THC	–	22.0	22.0	–	21.3	21.3	–	20.5	20.5	–	19.6	19.6	–	–	–
			SHC	–	9.0	11.8	–	8.7	11.5	–	8.4	11.2	–	8.1	10.9	–	–	–
			kW		3.5			4.1			4.8			5.6			–	
991 L/S	EAT (wb)	14.4	THC	17.9	17.9	20.2	17.4	17.4	19.5	16.7	16.7	18.8	16.1	16.1	18.1	15.3	15.3	17.3
			SHC	15.6	17.9	20.2	15.2	17.4	19.5	14.6	16.7	18.8	14.0	16.1	18.1	13.4	15.3	17.3
			kW		3.6			4.2			4.9			5.7			6.5	
		16.7	THC	18.0	18.0	20.6	17.4	17.4	20.3	16.7	16.7	19.6	16.1	16.1	18.8	15.3	15.3	17.9
			SHC	14.7	17.7	20.6	14.4	17.4	20.3	13.9	16.7	19.6	13.4	16.1	18.8	12.7	15.3	17.9
			kW		3.6			4.2			4.9			5.7			6.5	
		19.4	THC	19.3	19.3	19.3	18.6	18.6	18.6	17.8	17.8	17.8	17.0	17.0	17.1	16.1	16.1	16.7
			SHC	11.8	14.9	18.0	11.5	14.6	17.7	11.3	14.3	17.4	10.9	14.0	17.1	10.6	13.6	16.7
			kW		3.6			4.2			4.9			5.6			6.5	
		22.2	THC	21.0	21.0	21.0	20.3	20.3	20.3	19.5	19.5	19.5	18.6	18.6	18.6	17.6	17.6	17.6
			SHC	8.7	11.8	14.9	8.4	11.5	14.6	8.2	11.3	14.3	7.9	10.9	14.0	7.5	10.6	13.7
			kW		3.5			4.1			4.8			5.6			6.4	
		24.4	THC	–	22.4	22.4	–	21.7	21.7	–	20.8	20.8	–	–	–	–	–	–
			SHC	–	9.3	12.5	–	9.1	12.3	–	8.8	12.0	–	–	–	–	–	–
			kW		3.4			4.1			4.8			–			–	
1133 L/S	EAT (wb)	14.4	THC	18.5	18.5	20.8	17.9	17.9	20.2	17.3	17.3	19.5	16.6	16.6	18.7	15.8	15.8	17.8
			SHC	16.1	18.5	20.8	15.7	17.9	20.2	15.1	17.3	19.5	14.5	16.6	18.7	13.8	15.8	17.8
			kW		3.6			4.2			4.9			5.7			6.5	
		16.7	THC	18.5	18.5	21.7	17.9	17.9	21.0	17.3	17.3	20.2	16.6	16.6	19.4	15.8	15.8	18.5
			SHC	15.4	18.5	21.7	14.9	17.9	21.0	14.4	17.3	20.2	13.8	16.6	19.4	13.2	15.8	18.5
			kW		3.6			4.2			4.9			5.7			6.5	
		19.4	THC	19.6	19.6	19.6	18.9	18.9	19.0	18.1	18.1	18.7	17.3	17.3	18.3	16.3	16.3	17.9
			SHC	12.4	15.9	19.3	12.1	15.6	19.0	11.8	15.3	18.7	11.5	14.9	18.3	11.1	14.5	17.9
			kW		3.5			4.2			4.9			5.6			6.5	
		22.2	THC	21.2	21.2	21.2	20.5	20.5	20.5	19.7	19.7	19.7	18.8	18.8	18.8	17.8	17.8	17.8
			SHC	8.9	12.4	15.9	8.7	12.1	15.6	8.4	11.8	15.3	8.1	11.5	14.9	7.7	11.2	14.6
			kW		3.5			4.1			4.8			5.6			6.4	
		24.4	THC	–	22.7	22.7	–	21.9	21.9	–	21.1	21.1	–	–	–	–	–	–
			SHC	–	9.6	13.2	–	9.4	12.9	–	9.1	12.6	–	–	–	–	–	–
			kW		3.4			4.1			4.8			–			–	
1274 L/S	EAT (wb)	14.4	THC	19.0	19.0	21.4	18.4	18.4	20.7	17.7	17.7	20.0	17.0	17.0	19.2	16.2	16.2	18.3
			SHC	16.6	19.0	21.4	16.0	18.4	20.7	15.5	17.7	20.0	14.9	17.0	19.2	14.2	16.2	18.3
			kW	3.6			4.2			4.9			5.6			6.5		
		16.7	THC	19.0	19.0	22.2	18.4	18.4	21.5	17.7	17.7	20.8	17.0	17.0	19.9	16.2	16.2	19.0
			SHC	15.8	19.0	22.2	15.3	18.4	21.5	14.7	17.7	20.8	14.1	17.0	19.9	13.5	16.2	19.0
			kW	3.6			4.2			4.9			5.6			6.5		
		19.4	THC	19.8	19.8	20.5	19.1	19.1	20.2	18.3	18.3	19.9	17.5	17.5	19.5	16.5	16.5	19.1
			SHC	13.0	16.8	20.5	12.7	16.5	20.2	12.4	16.1	19.9	12.0	15.8	19.5	11.6	15.4	19.1
			kW	3.5			4.2			4.8			5.6			6.5		
		22.2	THC	21.5	21.5	21.5	20.8	20.8	20.8	19.9	19.9	19.9	19.0	19.0	19.0	–	–	–
			SHC	9.2	13.0	16.8	8.9	12.7	16.5	8.6	12.4	16.2	8.3	12.1	15.9	–	–	–
			kW	3.5			4.1			4.8			5.6			–		
		24.4	THC	–	22.9	22.9	–	22.2	22.2	–	21.3	21.3	–	–	–	–	–	–
			SHC	–	9.9	13.8	–	9.7	13.5	–	9.4	13.2	–	–	–	–	–	–
			kW		3.4			4.1			4.8			–			–	
1416 L/S	EAT (wb)	14.4	THC	19.4	19.4	21.9	18.8	18.8	21.2	18.1	18.1	20.4	17.4	17.4	19.6	16.6	16.6	18.6
			SHC	16.9	19.4	21.9	16.4	18.8	21.2	15.8	18.1	20.4	15.2	17.4	19.6	14.4	16.6	18.6
			kW		3.5			4.2			4.9			5.6			6.5	
		16.7	THC	19.4	19.4	22.7	18.8	18.8	22.0	18.1	18.1	21.2	17.4	17.4	20.3	16.6	16.6	19.4
			SHC	16.1	19.4	22.7	15.6	18.8	22.0	15.1	18.1	21.2	14.4	17.4	20.3	13.7	16.6	19.4
			kW		3.5			4.2		4.8			5.6			6.5		
		19.4	THC	20.0	20.0	21.7	19.3	19.3	21.4	18.5	18.5	21.0	17.6	17.6	20.6	16.7	16.7	20.1
			SHC	13.5	17.6	21.7	13.2	17.3	21.4	12.9	17.0	21.0	12.5	16.6	20.6	12.1	16.1	20.1
			kW		3.5			4.1		4.8			5.6				6.5	
		22.2	THC	21.7	21.7	21.7	20.9	20.9	20.9	20.1	20.1	20.1	19.1	19.1	19.1	–	–	–
			SHC	9.4	13.5	17.6	9.1	13.2	17.4	8.8	12.9	17.1	8.5	12.6	16.7	–	–	–
			kW		3.5			4.1			4.8			5.6			–	
		24.4	THC	–	23.1	23.1	–	22.3	22.3	–	21.4	21.4	–	–	–	–	–	–
			SHC	–	10.2	14.4	–	9.9	14.1	–	9.6	13.8	–	–	–	–	–	–
			kW		3.4			4.1			4.8			–			–	

LEGEND:

– = Do not operate
EAT(wb) = Entering air temp (wet bulb)
SHC = Sensible heat capacity (Gross)
EAT(db) = Entering air temp (dry bulb)
L/s = Liters per second
kW = Compressor kilowatts
THC = Total heat capacity (Gross)
Cfm = Cubic feet per minute (supply air)

				Ambient Temperature														
				85.0			95.0			105.0			115.0			125.0		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0
1800 cfm	EAT (wb)	58.0	THC	58.6	58.6	66.0	56.8	56.8	64.0	54.7	54.7	61.7	52.6	52.6	59.3	49.6	49.6	55.9
			SHC	51.1	58.6	66.0	49.6	56.8	64.0	47.8	54.7	61.7	45.9	52.6	59.3	43.3	49.6	55.9
			kW		3.6			4.3			4.9			5.7			6.5	
		62.0	THC	59.7	59.7	65.4	57.5	57.5	64.2	55.2	55.2	62.8	52.8	52.8	61.2	49.9	49.9	58.4
			SHC	47.2	56.3	65.4	46.2	55.2	64.2	44.9	53.9	62.8	43.6	52.4	61.2	41.5	49.9	58.4
			kW		3.6			4.2			4.9			5.7			6.5	
		67.0	THC	64.6	64.6	64.6	62.3	62.3	62.3	59.7	59.7	59.7	57.0	57.0	57.0	54.0	54.0	54.0
			SHC	38.2	47.4	56.6	37.2	46.4	55.6	36.2	45.4	54.6	35.1	44.3	53.4	33.8	43.0	52.2
			kW		3.6			4.2			4.9			5.7			6.5	
		72.0	THC	70.3	70.3	70.3	67.9	67.9	67.9	65.3	65.3	65.3	62.3	62.3	62.3	59.1	59.1	59.1
			SHC	28.8	38.1	47.4	27.9	37.2	46.5	27.0	36.2	45.5	25.9	35.1	44.4	24.7	33.9	43.2
			kW		3.5			4.1			4.8			5.6			6.5	
		76.0	THC	–	75.1	75.1	–	72.7	72.7	–	69.9	69.9	–	66.8	66.8	–	–	–
			SHC	–	30.6	40.2	–	29.8	39.3	–	28.8	38.3	–	27.7	37.2	–	–	–
			kW		3.5			4.1			4.8			5.6			–	
2100 cfm	EAT (wb)	58.0	THC	61.1	61.1	68.8	59.2	59.2	66.7	57.1	57.1	64.3	54.8	54.8	61.8	52.3	52.3	58.9
			SHC	53.3	61.1	68.8	51.7	59.2	66.7	49.8	57.1	64.3	47.9	54.8	61.8	45.6	52.3	58.9
			kW		3.6			4.2			4.9			5.7			6.5	
		62.0	THC	61.5	61.5	70.4	59.2	59.2	69.2	57.1	57.1	66.8	54.9	54.9	64.2	52.3	52.3	61.2
			SHC	50.3	60.3	70.4	49.2	59.2	69.2	47.4	57.1	66.8	45.6	54.9	64.2	43.5	52.3	61.2
			kW		3.6			4.2			4.9			5.7			6.5	
		67.0	THC	65.8	65.8	65.8	63.4	63.4	63.4	60.9	60.9	60.9	58.0	58.0	58.2	54.9	54.9	56.9
			SHC	40.4	50.9	61.4	39.4	49.9	60.4	38.4	48.9	59.3	37.2	47.7	58.2	36.0	46.4	56.9
			kW		3.6			4.2			4.9			5.6			6.5	
		72.0	THC	71.6	71.6	71.6	69.1	69.1	69.1	66.4	66.4	66.4	63.4	63.4	63.4	60.1	60.1	60.1
			SHC	29.7	40.3	50.9	28.8	39.4	49.9	27.9	38.4	48.9	26.8	37.3	47.8	25.6	36.1	46.6
			kW		3.5			4.1			4.8			5.6			6.4	
		76.0	THC	–	76.4	76.4	–	73.9	73.9	–	71.0	71.0	–	–	–	–	–	–
			SHC	–	31.8	42.6	–	30.9	41.8	–	29.9	40.8	–	–	–	–	–	–
			kW		3.4			4.1			4.8			–			–	
2400 cfm	EAT (wb)	58.0	THC	63.1	63.1	71.1	61.1	61.1	68.9	58.9	58.9	66.4	56.6	56.6	63.8	54.0	54.0	60.9
			SHC	55.1	63.1	71.1	53.4	61.1	68.9	51.5	58.9	66.4	49.4	56.6	63.8	47.1	54.0	60.9
			kW		3.6			4.2			4.9			5.7			6.5	
		62.0	THC	63.2	63.2	73.9	61.2	61.2	71.5	59.0	59.0	68.9	56.6	56.6	66.2	54.0	54.0	63.2
			SHC	52.5	63.2	73.9	50.8	61.2	71.5	49.0	59.0	68.9	47.0	56.6	66.2	44.9	54.0	63.2
			kW		3.6			4.2			4.9			5.7			6.5	
		67.0	THC	66.8	66.8	66.8	64.4	64.4	64.9	61.8	61.8	63.8	58.9	58.9	62.5	55.7	55.7	61.1
			SHC	42.4	54.2	65.9	41.4	53.2	64.9	40.4	52.1	63.8	39.2	50.9	62.5	37.9	49.5	61.1
			kW		3.5			4.2			4.9			5.6			6.5	
		72.0	THC	72.5	72.5	72.5	70.1	70.1	70.1	67.3	67.3	67.3	64.2	64.2	64.2	60.7	60.7	60.7
			SHC	30.5	42.3	54.1	29.7	41.4	53.2	28.7	40.4	52.2	27.6	39.3	51.0	26.4	38.1	49.7
			kW		3.5		4.1			4.8				5.6			6.4	
		76.0	THC	–	77.4	77.4	–	74.8	74.8	–	71.9	71.9	–	–	–	–	–	–
			SHC	–	32.8	44.9	–	32.0	44.0	–	31.0	43.0	–	–	–	–	–	–
			kW		3.4			4.1			4.8			–			–	
2700 cfm	EAT (wb)	58.0	THC	64.8	64.8	73.0	62.7	62.7	70.7	60.5	60.5	68.2	58.0	58.0	65.4	55.4	55.4	62.4
			SHC	56.6	64.8	73.0	54.7	62.7	70.7	52.8	60.5	68.2	50.7	58.0	65.4	48.3	55.4	62.4
			kW		3.6			4.2			4.9			5.6			6.5	
		62.0	THC	64.8	64.8	75.8	62.7	62.7	73.4	60.5	60.5	70.8	58.1	58.1	67.9	55.4	55.4	64.8
			SHC	53.9	64.8	75.8	52.1	62.7	73.4	50.3	60.5	70.8	48.2	58.1	67.9	46.0	55.4	64.8
			kW		3.6			4.2			4.9			5.6			6.5	
		67.0	THC	67.6	67.6	70.1	65.1	65.1	69.0	62.5	62.5	67.9	59.6	59.6	66.6	56.4	56.4	65.1
			SHC	44.3	57.2	70.1	43.3	56.2	69.0	42.3	55.1	67.9	41.1	53.8	66.6	39.7	52.4	65.1
			kW		3.5			4.2			4.8			5.6			6.5	
		72.0	THC	73.3	73.3	73.3	70.8	70.8	70.8	67.9	67.9	67.9	64.8	64.8	64.8	–	–	–
			SHC	31.3	44.3	57.2	30.4	43.3	56.3	29.4	42.3	55.2	28.3	41.2	54.1	–	–	–
			kW		3.5			4.1			4.8			5.6			–	
		76.0	THC	–	78.2	78.2	–	75.6	75.6	–	72.6	72.6	–	–	–	–	–	–
			SHC	–	33.9	47.1	–	33.0	46.2	–	32.0	45.2	–	–	–	–	–	–
			kW		3.4			4.1			4.8			–			–	
3000 cfm	EAT (wb)	58.0	THC	66.2	66.2	74.6	64.1	64.1	72.2	61.8	61.8	69.6	59.3	59.3	66.8	56.5	56.5	63.6
			SHC	57.8	66.2	74.6	55.9	64.1	72.2	53.9	61.8	69.6	51.8	59.3	66.8	49.3	56.5	63.6
			kW		3.5			4.2			4.9			5.6			6.5	
		62.0	THC	66.2	66.2	77.4	64.1	64.1	75.0	61.8	61.8	72.3	59.3	59.3	69.4	56.5	56.5	66.1
			SHC	55.0	66.2	77.4	53.3	64.1	75.0	51.4	61.8	72.3	49.3	59.3	69.4	46.9	56.5	66.1
			kW		3.5			4.2			4.8			5.6			6.5	
		67.0	THC	68.2	68.2	74.0	65.8	65.8	72.9	63.1	63.1	71.7	60.2	60.2	70.3	57.0	57.0	68.5
			SHC	46.1	60.1	74.0	45.1	59.0	72.9	44.0	57.9	71.7	42.7	56.5	70.3	41.3	54.9	68.5
			kW		3.5			4.1			4.8			5.6			6.5	
		72.0	THC	73.9	73.9	73.9	71.3	71.3	71.3	68.5	68.5	68.5	65.3	65.3	65.3	–	–	–
			SHC	32.0	46.1	60.2	31.1	45.2	59.2	30.1	44.1	58.2	29.0	43.0	57.0	–	–	–
			kW		3.5			4.1			4.8			5.6			–	
		76.0	THC	–	78.9	78.9	–	76.2	76.2	–	73.1	73.1	–	–	–	–	–	–
			SHC	–	34.8	49.2	–	33.9	48.2	–	32.9	47.2	–	–	–	–	–	–
			kW		3.4			4.1			4.8			–			–	

LEGEND:

– = Do not operate
EAT(wb) = Entering air temp (wet bulb)
SHC = Sensible heat capacity (Gross)
EAT(db) = Entering air temp (dry bulb)
L/s = Liters per second
kW = Compressor kilowatts
THC = Total heat capacity (Gross)
Cfm = Cubic feet per minute (supply air)

PERFORMANCE DATA (cont.)

38AUZ08 - 40RUA08 **COMBINATION RATINGS** **SI**

				Ambient Temperature														
				29.4			35.0			40.6			46.1			51.7		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4
1062 L/S	EAT (wb)	14.4	THC	21.9	21.9	24.6	21.2	21.2	23.9	20.4	20.4	23.0	19.5	19.5	22.0	18.6	18.6	21.0
			SHC	19.1	21.9	24.6	18.5	21.2	23.9	17.8	20.4	23.0	17.1	19.5	22.0	16.2	18.6	21.0
			Kw		4.6			5.4			6.2			7.2			8.2	
		16.7	THC	22.5	22.5	24.3	21.6	21.6	23.9	20.7	20.7	23.3	19.6	19.6	22.7	18.6	18.6	21.7
			SHC	17.6	21.0	24.3	17.2	20.5	23.9	16.7	20.0	23.3	16.1	19.4	22.7	15.4	18.6	21.7
			kW		4.6			5.4			6.3			7.2			8.2	
		19.4	THC	24.4	24.4	24.4	23.5	23.5	23.5	22.4	22.4	22.4	21.3	21.3	21.3	20.0	20.0	20.0
			SHC	14.3	17.7	21.1	13.9	17.3	20.7	13.5	16.9	20.3	13.0	16.4	19.8	12.5	15.9	19.3
			kW		4.7			5.5			6.3			7.2			8.2	
		22.2	THC	26.5	26.5	26.5	25.5	25.5	25.5	24.4	24.4	24.4	23.2	23.2	23.2	–	–	–
			SHC	10.8	14.3	17.7	10.5	13.9	17.3	10.1	13.5	16.9	9.6	13.0	16.4	–	–	–
			kW		4.8			5.5			6.4			7.3			–	
		24.4	THC	–	28.3	28.3	–	27.3	27.3	–	26.1	26.1	–	24.8	24.8	–	–	–
			SHC	–	11.5	15.0	–	11.1	14.6	–	10.7	14.2	–	10.3	13.8	–	–	–
			kW		4.8			5.6			6.4			7.4			–	
1239 L/S	EAT (wb)	14.4	THC	22.9	22.9	25.8	22.1	22.1	24.9	21.3	21.3	24.0	20.4	20.4	22.9	19.4	19.4	21.8
			SHC	20.0	22.9	25.8	19.3	22.1	24.9	18.6	21.3	24.0	17.8	20.4	22.9	16.9	19.4	21.8
			kW		4.6			5.4			6.3			7.2			8.2	
		16.7	THC	23.1	23.1	26.4	22.2	22.2	25.9	21.3	21.3	24.9	20.4	20.4	23.9	19.4	19.4	22.7
			SHC	18.9	22.7	26.4	18.4	22.2	25.9	17.7	21.3	24.9	16.9	20.4	23.9	16.1	19.4	22.7
			kW		4.7			5.4			6.3			7.2			8.2	
		19.4	THC	24.9	24.9	24.9	23.9	23.9	23.9	22.9	22.9	22.9	21.7	21.7	21.7	20.4	20.4	21.1
			SHC	15.2	19.1	23.0	14.8	18.7	22.6	14.3	18.2	22.1	13.9	17.8	21.6	13.4	17.2	21.1
			kW		4.7			5.5			6.3			7.2			8.2	
		22.2	THC	27.1	27.1	27.1	26.0	26.0	26.0	24.9	24.9	24.9	23.6	23.6	23.6	22.2	22.2	22.2
			SHC	11.2	15.1	19.1	10.8	14.7	18.6	10.4	14.3	18.2	10.0	13.9	17.8	9.5	13.4	17.3
			kW		4.8			5.5			6.4			7.3			8.3	
		24.4	THC	–	28.9	28.9	–	27.8	27.8	–	26.6	26.6	–	–	–	–	–	–
			SHC	–	11.9	16.0	–	11.6	15.6	–	11.2	15.2						
			kW		4.8			5.6			6.5			–			–	
1416 L/S	EAT (wb)	14.4	THC	23.7	23.7	26.7	22.9	22.9	25.8	22.0	22.0	24.8	21.1	21.1	23.7	20.0	20.0	22.5
			SHC	20.7	23.7	26.7	20.0	22.9	25.8	19.2	22.0	24.8	18.4	21.1	23.7	17.5	20.0	22.5
			kW		4.7			5.4			6.3			7.2			8.2	
		16.7	THC	23.7	23.7	27.8	22.9	22.9	26.8	22.0	22.0	25.8	21.1	21.1	24.6	20.0	20.0	23.4
			SHC	19.7	23.7	27.8	19.1	22.9	26.8	18.3	22.0	25.8	17.5	21.1	24.6	16.6	20.0	23.4
			kW		4.7			5.4			6.3			7.2			8.2	
		19.4	THC	25.3	25.3	25.3	24.3	24.3	24.4	23.2	23.2	23.9	22.0	22.0	23.4	20.7	20.7	22.8
			SHC	16.0	20.4	24.8	15.6	20.0	24.4	15.2	19.5	23.9	14.7	19.0	23.4	14.1	18.5	22.8
			kW		4.7			5.5			6.3			7.3			8.3	
		22.2	THC	27.4	27.4	27.4	26.4	26.4	26.4	25.2	25.2	25.2	23.9	23.9	23.9	22.5	22.5	22.5
			SHC	11.5	15.9	20.3	11.1	15.6	20.0	10.7	15.1	19.5	10.3	14.7	19.1	9.8	14.2	18.6
			kW		4.8			5.6			6.4			7.3			8.3	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
1593 L/S	EAT (wb)	14.4	THC	24.4	24.4	27.5	23.5	23.5	26.5	22.6	22.6	25.5	21.6	21.6	24.4	20.5	20.5	23.1
			SHC	21.3	24.4	27.5	20.5	23.5	26.5	19.8	22.6	25.5	18.9	21.6	24.4	17.9	20.5	23.1
			kW		4.7			5.5			6.3			7.2			8.2	
		16.7	THC	24.4	24.4	28.5	23.6	23.6	27.5	22.6	22.6	26.5	21.6	21.6	25.3	20.5	20.5	24.0
			SHC	20.3	24.4	28.5	19.6	23.6	27.5	18.8	22.6	26.5	18.0	21.6	25.3	17.1	20.5	24.0
			kW		4.7			5.5			6.3			7.2			8.2	
		19.4	THC	25.6	25.6	26.5	24.6	24.6	26.0	23.5	23.5	25.5	22.2	22.2	25.0	21.0	21.0	24.4
			SHC	16.8	21.6	26.5	16.3	21.2	26.0	15.9	20.7	25.5	15.4	20.2	25.0	14.8	19.6	24.4
			kW		4.7			5.5			6.3			7.3			8.3	
		22.2	THC	27.7	27.7	27.7	26.7	26.7	26.7	25.5	25.5	25.5	24.2	24.2	24.2	–	–	–
			SHC	11.8	16.7	21.6	11.5	16.4	21.2	11.0	15.9	20.8	10.6	15.5	20.3	–	–	–
			kW		4.8			5.6			6.4			7.3			–	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
1770 L/S	EAT (wb)	14.4	THC	24.9	24.9	28.1	24.1	24.1	27.1	23.1	23.1	26.1	22.1	22.1	24.9	21.0	21.0	23.6
			SHC	21.8	24.9	28.1	21.0	24.1	27.1	20.2	23.1	26.1	19.3	22.1	24.9	18.3	21.0	23.6
			kW		4.7			5.5			6.3			7.3			8.3	
		16.7	THC	24.9	24.9	29.2	24.1	24.1	28.2	23.2	23.2	27.1	22.1	22.1	25.8	21.0	21.0	24.5
			SHC	20.7	24.9	29.2	20.0	24.1	28.2	19.2	23.2	27.1	18.3	22.1	25.8	17.4	21.0	24.5
			kW		4.7			5.5			6.3			7.3			8.3	
		19.4	THC	25.8	25.8	28.1	24.8	24.8	27.6	23.7	23.7	27.1	22.5	22.5	26.5	21.2	21.2	25.7
			SHC	17.5	22.8	28.1	17.1	22.3	27.6	16.6	21.8	27.1	16.1	21.2	26.5	15.4	20.6	25.7
			kW		4.7			5.5			6.3			7.3			8.3	
		22.2	THC	28.0	28.0	28.0	26.9	26.9	26.9	25.7	25.7	25.7	24.4	24.4	24.4	–	–	–
			SHC	12.1	17.5	22.9	11.8	17.1	22.5	11.3	16.7	22.0	10.9	16.2	21.6	–	–	–
			kW		4.8			5.6			6.4			7.3			–	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	

LEGEND:

– = Do not operate
EAT(wb) = Entering air temp (wet bulb)
SHC = Sensible heat capacity (Gross)
EAT(db) = Entering air temp (dry bulb)
L/s = Liters per second
kW = Compressor kilowatts
THC = Total heat capacity (Gross)
Cfm = Cubic feet per minute (supply air)

PERFORMANCE DATA (cont.)

38AUZ08 - 40RUA08 **COMBINATION RATINGS** **ENGLISH**

				Ambient Temperature														
				85.0			95.0			105.0			115.0			125.0		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0
2250 cfm	EAT (wb)	58.0	THC	74.7	74.7	84.1	72.2	72.2	81.4	69.6	69.6	78.4	66.6	66.6	75.1	63.4	63.4	71.5
			SHC	65.2	74.7	84.1	63.1	72.2	81.4	60.7	69.6	78.4	58.2	66.6	75.1	55.4	63.4	71.5
			kW		4.6			5.4			6.2			7.2			8.2	
		62.0	THC	76.7	76.7	83.0	73.7	73.7	81.4	70.5	70.5	79.6	67.0	67.0	77.3	63.5	63.5	74.2
			SHC	60.2	71.6	83.0	58.7	70.0	81.4	57.1	68.3	79.6	55.1	66.2	77.3	52.7	63.5	74.2
			kW		4.6			5.4			6.3			7.2			8.2	
		67.0	THC	83.3	83.3	83.3	80.1	80.1	80.1	76.5	76.5	76.5	72.6	72.6	72.6	68.4	68.4	68.4
			SHC	48.8	60.4	72.0	47.5	59.0	70.6	46.0	57.6	69.1	44.5	56.0	67.5	42.8	54.3	65.8
			kW		4.7			5.5			6.3			7.2			8.2	
		72.0	THC	90.5	90.5	90.5	87.1	87.1	87.1	83.3	83.3	83.3	79.2	79.2	79.2	–	–	–
			SHC	37.0	48.7	60.3	35.8	47.4	59.0	34.4	46.0	57.6	32.8	44.4	56.0	–	–	–
			kW		4.8		5.5			6.4				7.3			–	
		76.0	THC	–	96.5	96.5	–	93.0	93.0	–	89.1	89.1	–	84.7	84.7	–	–	–
			SHC	–	39.2	51.2	–	37.9	49.9	–	36.6	48.5	–	35.1	47.0	–	–	–
			kW		4.8		5.6			6.4				7.4			–	
2625 cfm	EAT (wb)	58.0	THC	78.1	78.1	88.0	75.5	75.5	85.1	72.7	72.7	81.9	69.5	69.5	78.3	66.1	66.1	74.5
			SHC	68.2	78.1	88.0	65.9	75.5	85.1	63.4	72.7	81.9	60.7	69.5	78.3	57.7	66.1	74.5
			kW		4.6		5.4			6.3				7.2			8.2	
		62.0	THC	78.8	78.8	90.1	75.7	75.7	88.5	72.7	72.7	85.0	69.6	69.6	81.4	66.2	66.2	77.4
			SHC	64.4	77.3	90.1	62.9	75.7	88.5	60.4	72.7	85.0	57.8	69.6	81.4	54.9	66.2	77.4
			kW		4.7		5.4			6.3				7.2			8.2	
		67.0	THC	85.1	85.1	85.1	81.7	81.7	81.7	78.0	78.0	78.0	74.0	74.0	74.0	69.7	69.7	72.0
			SHC	51.8	65.1	78.4	50.4	63.7	77.0	48.9	62.2	75.5	47.3	60.6	73.8	45.6	58.8	72.0
			kW		4.7			5.5			6.3			7.2			8.2	
		72.0	THC	92.3	92.3	92.3	88.7	88.7	88.7	84.9	84.9	84.9	80.6	80.6	80.6	75.9	75.9	75.9
			SHC	38.2	51.6	65.0	36.9	50.3	63.6	35.5	48.9	62.2	34.0	47.3	60.6	32.4	45.6	58.9
			kW		4.8			5.5			6.4			7.3			8.3	
		76.0	THC	–	98.5	98.5	–	94.7	94.7	–	90.7	90.7	–	–	–	–	–	–
			SHC	–	40.7	54.5	–	39.5	53.1	–	38.1	51.7	–	–	–	–	–	–
			kW		4.8			5.6			6.5			–			–	
3000 cfm	EAT (wb)	58.0	THC	80.9	80.9	91.2	78.2	78.2	88.1	75.2	75.2	84.7	71.9	71.9	81.0	68.3	68.3	76.9
			SHC	70.6	80.9	91.2	68.2	78.2	88.1	65.6	75.2	84.7	62.8	71.9	81.0	59.6	68.3	76.9
			kW		4.7			5.4			6.3			7.2			8.2	
		62.0	THC	81.0	81.0	94.7	78.3	78.3	91.6	75.2	75.2	88.0	71.9	71.9	84.1	68.3	68.3	79.9
			SHC	67.3	81.0	94.7	65.0	78.3	91.6	62.5	75.2	88.0	59.7	71.9	84.1	56.8	68.3	79.9
			kW		4.7			5.4			6.3			7.2			8.2	
		67.0	THC	86.3	86.3	86.3	82.9	82.9	83.1	79.2	79.2	81.5	75.1	75.1	79.7	70.7	70.7	77.8
			SHC	54.5	69.5	84.5	53.2	68.1	83.1	51.7	66.6	81.5	50.0	64.9	79.7	48.2	63.0	77.8
			kW		4.7			5.5			6.3			7.3			8.3	
		72.0	THC	93.6	93.6	93.6	90.0	90.0	90.0	86.0	86.0	86.0	81.6	81.6	81.6	76.9	76.9	76.9
			SHC	39.3	54.4	69.4	38.0	53.1	68.1	36.6	51.6	66.7	35.1	50.1	65.1	33.4	48.4	63.4
			kW		4.8			5.6			6.4			7.3			8.3	
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–		–				–			–	
3375 cfm	EAT (wb)	58.0	THC	83.1	83.1	93.7	80.3	80.3	90.5	77.2	77.2	87.0	73.8	73.8	83.1	70.0	70.0	78.9
			SHC	72.6	83.1	93.7	70.1	80.3	90.5	67.4	77.2	87.0	64.4	73.8	83.1	61.1	70.0	78.9
			kW		4.7			5.5			6.3			7.2			8.2	
		62.0	THC	83.2	83.2	97.3	80.4	80.4	94.0	77.2	77.2	90.3	73.8	73.8	86.3	70.1	70.1	81.9
			SHC	69.1	83.2	97.3	66.8	80.4	94.0	64.2	77.2	90.3	61.3	73.8	86.3	58.2	70.1	81.9
			kW		4.7			5.5			6.3			7.2			8.2	
		67.0	THC	87.4	87.4	90.3	83.9	83.9	88.8	80.1	80.1	87.1	75.9	75.9	85.3	71.5	71.5	83.1
			SHC	57.2	73.7	90.3	55.7	72.3	88.8	54.2	70.7	87.1	52.5	68.9	85.3	50.6	66.9	83.1
			kW		4.7			5.5			6.3			7.3			8.3	
		72.0	THC	94.6	94.6	94.6	91.0	91.0	91.0	86.9	86.9	86.9	82.5	82.5	82.5	–	–	–
			SHC	40.4	57.1	73.8	39.1	55.8	72.4	37.7	54.3	71.0	36.1	52.8	69.4	–	–	–
			kW		4.8			5.6			6.4			7.3			–	
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
3750 cfm	EAT (wb)	58.0	THC	85.1	85.1	95.8	82.1	82.1	92.5	78.9	78.9	88.9	75.4	75.4	84.9	71.5	71.5	80.6
			SHC	74.3	85.1	95.8	71.7	82.1	92.5	68.9	78.9	88.9	65.8	75.4	84.9	62.4	71.5	80.6
			kW		4.7			5.5			6.3			7.3			8.3	
		62.0	THC	85.1	85.1	99.5	82.2	82.2	96.1	79.0	79.0	92.3	75.4	75.4	88.2	71.5	71.5	83.6
			SHC	70.7	85.1	99.5	68.3	82.2	96.1	65.6	79.0	92.3	62.6	75.4	88.2	59.4	71.5	83.6
			kW		4.7			5.5			6.3			7.3			8.3	
		67.0	THC	88.2	88.2	95.8	84.7	84.7	94.2	80.9	80.9	92.4	76.7	76.7	90.3	72.2	72.2	87.8
			SHC	59.6	77.7	95.8	58.2	76.2	94.2	56.6	74.5	92.4	54.8	72.5	90.3	52.7	70.3	87.8
			kW		4.7			5.5			6.3			7.3			8.3	
		72.0	THC	95.5	95.5	95.5	91.7	91.7	91.7	87.6	87.6	87.6	83.1	83.1	83.1	–	–	–
			SHC	41.4	59.7	78.0	40.1	58.4	76.6	38.7	56.9	75.2	37.1	55.3	73.6	–	–	–
			kW		4.8			5.6			6.4			7.3			–	
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	

LEGEND:

– = Do not operate
EAT(wb) = Entering air temp (wet bulb)
SHC = Sensible heat capacity (Gross)
EAT(db) = Entering air temp (dry bulb)
L/s = Liters per second
kW = Compressor kilowatts
THC = Total heat capacity (Gross)
Cfm = Cubic feet per minute (supply air)

PERFORMANCE DATA (cont.)

38AUD12 - 40RUA12 **COMBINATION RATINGS** **SI**

				Ambient Temperature														
				29.4			35.0			40.6			46.1			51.7		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4
1416 L/S	EAT (wb)	14.4	THC	28.2	28.2	31.8	27.2	27.2	30.7	26.1	26.1	29.4	24.9	24.9	28.1	23.5	23.5	26.5
			SHC	24.6	28.2	31.8	23.8	27.2	30.7	22.8	26.1	29.4	21.7	24.9	28.1	20.5	23.5	26.5
			kW		5.9			6.8			7.9			9.0			10.2	
		16.7	THC	28.7	28.7	31.9	27.5	27.5	31.2	26.2	26.2	30.4	24.9	24.9	29.2	23.6	23.6	27.5
			SHC	22.9	27.4	31.9	22.3	26.8	31.2	21.7	26.1	30.4	20.7	24.9	29.2	19.6	23.6	27.5
			kW		5.9			6.8			7.9			9.0			10.2	
		19.4	THC	31.2	31.2	31.2	29.9	29.9	29.9	28.5	28.5	28.5	26.9	26.9	26.9	25.1	25.1	25.1
			SHC	18.6	23.1	27.6	18.0	22.5	27.1	17.4	22.0	26.5	16.8	21.3	25.8	16.1	20.6	25.1
			kW		6.0			6.9			7.9			9.0			10.2	
		22.2	THC	33.8	33.8	33.8	32.5	32.5	32.5	31.0	31.0	31.0	29.3	29.3	29.3	–	–	–
			SHC	13.9	18.5	23.0	13.4	18.0	22.5	12.9	17.4	22.0	12.3	16.8	21.4	–	–	–
			kW		6.0		7.0				8.0			9.1			10.3	
		24.4	THC	–	36.1	36.1	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	14.7	19.3	–	–	–	–	–	–	–	–	–	–	–	–
			kW		6.1			–			–			–			–	
1652 L/S	EAT (wb)	14.4	THC	29.5	29.5	33.2	28.4	28.4	32.0	27.3	27.3	30.7	26.0	26.0	29.3	24.6	24.6	27.7
			SHC	25.7	29.5	33.2	24.8	28.4	32.0	23.8	27.3	30.7	22.7	26.0	29.3	21.4	24.6	27.7
			kW		5.9			6.9			7.9			9.0			10.2	
		16.7	THC	29.6	29.6	34.3	28.5	28.5	33.3	27.3	27.3	31.9	26.0	26.0	30.4	24.6	24.6	28.7
			SHC	24.4	29.3	34.3	23.6	28.5	33.3	22.7	27.3	31.9	21.6	26.0	30.4	20.4	24.6	28.7
			kW		5.9			6.9			7.9			9.0			10.2	
		19.4	THC	31.8	31.8	31.8	30.5	30.5	30.5	29.0	29.0	29.0	27.4	27.4	28.3	25.6	25.6	27.5
			SHC	19.7	24.9	30.1	19.1	24.4	29.6	18.6	23.8	29.0	17.9	23.1	28.3	17.2	22.4	27.5
			kW		6.0			6.9			7.9			9.1			10.2	
		22.2	THC	34.5	34.5	34.5	33.1	33.1	33.1	31.5	31.5	31.5	29.8	29.8	29.8	28.0	28.0	28.0
			SHC	14.4	19.6	24.9	13.9	19.1	24.4	13.3	18.6	23.8	12.7	17.9	23.2	12.0	17.3	22.5
			kW		6.1			7.0			8.0			9.1			10.3	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
1888 L/S	EAT (wb)	14.4	THC	30.5	30.5	34.3	29.4	29.4	33.1	28.2	28.2	31.7	26.8	26.8	30.2	25.3	25.3	28.5
			SHC	26.6	30.5	34.3	25.7	29.4	33.1	24.6	28.2	31.7	23.4	26.8	30.2	22.1	25.3	28.5
			kW		5.9			6.9			7.9			9.0			10.2	
		16.7	THC	30.5	30.5	35.7	29.4	29.4	34.4	28.2	28.2	33.0	26.8	26.8	31.4	25.4	25.4	29.7
			SHC	25.4	30.5	35.7	24.4	29.4	34.4	23.4	28.2	33.0	22.3	26.8	31.4	21.1	25.4	29.7
			kW		5.9			6.9			7.9			9.0			10.2	
		19.4	THC	32.3	32.3	32.5	30.9	30.9	31.9	29.4	29.4	31.3	27.8	27.8	30.6	26.0	26.0	29.8
			SHC	20.8	26.6	32.5	20.2	26.1	31.9	19.6	25.5	31.3	19.0	24.8	30.6	18.2	24.0	29.8
			kW		6.0			6.9			8.0			9.1			10.2	
		22.2	THC	34.9	34.9	34.9	33.5	33.5	33.5	31.9	31.9	31.9	30.2	30.2	30.2	–	–	–
			SHC	14.8	20.7	26.6	14.3	20.2	26.1	13.7	19.6	25.6	13.2	19.1	24.9	–	–	–
			kW		6.1			7.0			8.0			9.1			–	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
2124 L/S	EAT (wb)	14.4	THC	31.3	31.3	35.3	30.2	30.2	34.0	28.9	28.9	32.6	27.5	27.5	31.0	26.0	26.0	29.3
			SHC	27.3	31.3	35.3	26.3	30.2	34.0	25.3	28.9	32.6	24.0	27.5	31.0	22.7	26.0	29.3
			kW		6.0			6.9			7.9			9.1			10.2	
		16.7	THC	31.4	31.4	36.7	30.2	30.2	35.3	29.0	29.0	33.9	27.5	27.5	32.2	26.0	26.0	30.4
			SHC	26.1	31.4	36.7	25.1	30.2	35.3	24.0	29.0	33.9	22.9	27.5	32.2	21.6	26.0	30.4
			kW		6.0			6.9			7.9			9.1			10.2	
		19.4	THC	32.6	32.6	34.8	31.2	31.2	34.2	29.7	29.7	33.5	28.1	28.1	32.7	26.3	26.3	31.7
			SHC	21.8	28.3	34.8	21.2	27.7	34.2	20.6	27.1	33.5	19.9	26.3	32.7	19.1	25.4	31.7
			kW		6.0			6.9			8.0			9.1			10.2	
		22.2	THC	35.3	35.3	35.3	33.8	33.8	33.8	32.2	32.2	32.2	–	–	–	–	–	–
			SHC	15.2	21.8	28.3	14.7	21.2	27.8	14.2	20.7	27.3	–	–	–	–	–	–
			kW		6.1			7.0			8.0			–			–	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
2360 L/S	EAT (wb)	14.4	THC	32.0	32.0	36.1	30.9	30.9	34.8	29.5	29.5	33.3	28.1	28.1	31.7	26.5	26.5	29.9
			SHC	28.0	32.0	36.1	26.9	30.9	34.8	25.8	29.5	33.3	24.6	28.1	31.7	23.2	26.5	29.9
			kW		6.0			6.9			8.0			9.1			10.2	
		16.7	THC	32.0	32.0	37.5	30.9	30.9	36.1	29.6	29.6	34.6	28.1	28.1	32.9	26.6	26.6	31.0
			SHC	26.6	32.0	37.5	25.6	30.9	36.1	24.6	29.6	34.6	23.4	28.1	32.9	22.0	26.6	31.0
			kW		6.0			6.9			8.0			9.1			10.2	
		19.4	THC	32.9	32.9	36.9	31.6	31.6	36.2	30.0	30.0	35.5	28.4	28.4	34.5	26.6	26.6	33.3
			SHC	22.7	29.8	36.9	22.2	29.2	36.2	21.5	28.5	35.5	20.8	27.6	34.5	19.8	26.6	33.3
			kW		6.0			7.0			8.0			9.1			10.2	
		22.2	THC	35.6	35.6	35.6	34.1	34.1	34.1	–	–	–	–	–	–	–	–	–
			SHC	15.6	22.8	30.0	15.1	22.3	29.5	–	–	–	–	–	–	–	–	–
			kW		6.1			7.0			–			–			–	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	

LEGEND:

– = Do not operate
EAT(wb) = Entering air temp (wet bulb)
SHC = Sensible heat capacity (Gross)
EAT(db) = Entering air temp (dry bulb)
L/s = Liters per second
kW = Compressor kilowatts
THC = Total heat capacity (Gross)
Cfm = Cubic feet per minute (supply air)

PERFORMANCE DATA (cont.)

38AUD12 - 40RUA12 **COMBINATION RATINGS** **ENGLISH**

				Ambient Temperature															
				85.0			95.0			105.0			115.0			125.0			
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)			
				75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	
3000 cfm	EAT (wb)	58.0	THC	96.3	96.3	108.5	92.9	92.9	104.6	89.1	89.1	100.4	85.0	85.0	95.8	80.3	80.3	90.5	
			SHC	84.1	96.3	108.5	81.1	92.9	104.6	77.8	89.1	100.4	74.2	85.0	95.8	70.1	80.3	90.5	
			kW		5.9			6.8			7.9			9.0			10.2		
		62.0	THC	98.0	98.0	108.7	94.0	94.0	106.4	89.5	89.5	103.8	85.1	85.1	99.5	80.4	80.4	94.0	
			SHC	78.3	93.5	108.7	76.2	91.3	106.4	73.9	88.9	103.8	70.7	85.1	99.5	66.8	80.4	94.0	
			kW		5.9		6.8			7.9			9.0				10.2		
		67.0	THC	106.4	106.4	106.4	102.0	102.0	102.0	97.1	97.1	97.1	91.7	91.7	91.7	85.8	85.8	85.8	
			SHC	63.3	78.7	94.2	61.5	76.9	92.4	59.5	74.9	90.4	57.3	72.8	88.2	54.9	70.3	85.8	
			kW		6.0		6.9			7.9			9.0				10.2		
		72.0	THC	115.4	115.4	115.4	110.8	110.8	110.8	105.8	105.8	105.8	100.1	100.1	100.1	93.8	93.8	93.8	
			SHC	47.4	63.0	78.6	45.7	61.3	76.8	43.9	59.4	75.0	41.8	57.4	72.9	39.6	55.1	70.6	
			kW		6.0			7.0			8.0			9.1			10.3		
		76.0	THC	–	123.2	123.2	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	50.2	66.0	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		6.1			–			–			–			–		
3500 cfm	EAT (wb)	58.0	THC	100.6	100.6	113.4	97.0	97.0	109.3	93.0	93.0	104.8	88.6	88.6	99.9	83.8	83.8	94.4	
			SHC	87.8	100.6	113.4	84.7	97.0	109.3	81.2	93.0	104.8	77.4	88.6	99.9	73.1	83.8	94.4	
			kW		5.9			6.9			7.9			9.0			10.2		
		62.0	THC	100.9	100.9	117.0	97.1	97.1	113.5	93.1	93.1	108.9	88.7	88.7	103.7	83.8	83.8	98.0	
			SHC	83.2	100.1	117.0	80.6	97.1	113.5	77.3	93.1	108.9	73.7	88.7	103.7	69.6	83.8	98.0	
			kW		5.9			6.9			7.9			9.0			10.2		
		67.0	THC	108.5	108.5	108.5	104.0	104.0	104.0	98.9	98.9	98.9	93.4	93.4	96.5	87.3	87.3	94.0	
			SHC	67.2	85.0	102.8	65.3	83.1	100.9	63.3	81.1	98.8	61.1	78.8	96.5	58.7	76.3	94.0	
			kW		6.0			6.9			7.9			9.1			10.2		
		72.0	THC	117.6	117.6	117.6	112.8	112.8	112.8	107.6	107.6	107.6	101.8	101.8	101.8	95.4	95.4	95.4	
			SHC	49.0	66.9	84.8	47.3	65.2	83.1	45.4	63.3	81.2	43.4	61.2	79.1	41.1	59.0	76.8	
			kW		6.1			7.0			8.0			9.1			10.3		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		
4000 cfm	EAT (wb)	58.0	THC	104.0	104.0	117.2	100.3	100.3	113.0	96.1	96.1	108.3	91.5	91.5	103.1	86.4	86.4	97.4	
			SHC	90.8	104.0	117.2	87.6	100.3	113.0	83.9	96.1	108.3	79.9	91.5	103.1	75.5	86.4	97.4	
			kW		5.9			6.9			7.9			9.0			10.2		
		62.0	THC	104.1	104.1	121.8	100.4	100.4	117.4	96.2	96.2	112.5	91.6	91.6	107.1	86.5	86.5	101.2	
			SHC	86.5	104.1	121.8	83.4	100.4	117.4	79.9	96.2	112.5	76.1	91.6	107.1	71.9	86.5	101.2	
			kW		5.9			6.9			7.9			9.0			10.2		
		67.0	THC	110.1	110.1	110.9	105.5	105.5	109.0	100.3	100.3	106.8	94.7	94.7	104.4	88.6	88.6	101.6	
			SHC	70.8	90.9	110.9	69.0	89.0	109.0	66.9	86.9	106.8	64.7	84.5	104.4	62.1	81.9	101.6	
			kW		6.0			6.9			8.0			9.1			10.2		
		72.0	THC	119.2	119.2	119.2	114.3	114.3	114.3	109.0	109.0	109.0	103.1	103.1	103.1	–	–	–	
			SHC	50.5	70.7	90.8	48.8	68.9	89.1	46.9	67.0	87.2	44.9	65.0	85.1	–	–	–	
			kW		6.1			7.0			8.0			9.1			–		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		
4500 cfm	EAT (wb)	58.0	THC	106.9	106.9	120.5	103.0	103.0	116.0	98.7	98.7	111.2	93.9	93.9	105.8	88.6	88.6	99.9	
			SHC	93.3	106.9	120.5	89.9	103.0	116.0	86.2	98.7	111.2	82.0	93.9	105.8	77.4	88.6	99.9	
			kW		6.0			6.9			7.9			9.1			10.2		
		62.0	THC	107.0	107.0	125.1	103.1	103.1	120.5	98.8	98.8	115.5	94.0	94.0	109.9	88.7	88.7	103.7	
			SHC	88.9	107.0	125.1	85.6	103.1	120.5	82.0	98.8	115.5	78.1	94.0	109.9	73.7	88.7	103.7	
			kW		6.0			6.9			7.9			9.1			10.2		
		67.0	THC	111.3	111.3	118.6	106.6	106.6	116.6	101.5	101.5	114.3	95.8	95.8	111.6	89.6	89.6	108.3	
			SHC	74.3	96.5	118.6	72.4	94.5	116.6	70.3	92.3	114.3	67.9	89.7	111.6	65.2	86.7	108.3	
			kW		6.0			6.9			8.0			9.1			10.2		
		72.0	THC	120.5	120.5	120.5	115.4	115.4	115.4	110.0	110.0	110.0	–	–	–	–	–	–	
			SHC	51.9	74.3	96.7	50.2	72.5	94.9	48.3	70.7	93.0	–	–	–	–	–	–	
			kW		6.1			7.0			8.0			–			–		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		
5000 cfm	EAT (wb)	58.0	THC	109.3	109.3	123.1	105.3	105.3	118.6	100.8	100.8	113.6	95.9	95.9	108.1	90.5	90.5	102.0	
			SHC	95.4	109.3	123.1	91.9	105.3	118.6	88.0	100.8	113.6	83.8	95.9	108.1	79.0	90.5	102.0	
			kW		6.0			6.9			8.0			9.1			10.2		
		62.0	THC	109.3	109.3	127.8	105.3	105.3	123.2	100.9	100.9	118.0	96.0	96.0	112.2	90.6	90.6	105.9	
			SHC	90.8	109.3	127.8	87.5	105.3	123.2	83.8	100.9	118.0	79.7	96.0	112.2	75.2	90.6	105.9	
			kW		6.0			6.9			8.0			9.1			10.2		
		67.0	THC	112.4	112.4	125.8	107.7	107.7	123.6	102.5	102.5	121.0	96.8	96.8	117.8	90.7	90.7	113.7	
			SHC	77.6	101.7	125.8	75.6	99.6	123.6	73.4	97.2	121.0	70.8	94.3	117.8	67.7	90.7	113.7	
			kW		6.0			7.0			8.0			9.1			10.2		
		72.0	THC	121.5	121.5	121.5	116.4	116.4	116.4	–	–	–	–	–	–	–	–	–	
			SHC	53.3	77.9	102.4	51.5	76.1	100.6	–	–	–	–	–	–	–	–	–	
			kW		6.1			7.0			–			–			–		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		

LEGEND:

– = Do not operate
EAT(wb) = Entering air temp (wet bulb)
SHC = Sensible heat capacity (Gross)
EAT(db) = Entering air temp (dry bulb)
L/s = Liters per second
kW = Compressor kilowatts
THC = Total heat capacity (Gross)
Cfm = Cubic feet per minute (supply air)

PERFORMANCE DATA (cont.)

38AUD14 - 40RUA14 **COMBINATION RATINGS** **SI**

				Ambient Temperature														
				29.4			35.0			40.6			46.1			51.7		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4
1699 L/S	EAT (wb)	14.4	THC	34.2	34.2	38.5	33.0	33.0	37.2	31.7	31.7	35.7	30.2	30.2	34.0	28.5	28.5	32.1
			SHC	29.8	34.2	38.5	28.8	33.0	37.2	27.6	31.7	35.7	26.3	30.2	34.0	24.9	28.5	32.1
			kW		8.1			9.2			10.4			11.6			12.9	
		16.7	THC	34.8	34.8	38.3	33.4	33.4	37.5	31.9	31.9	36.6	30.2	30.2	35.3	28.5	28.5	33.3
			SHC	27.6	33.0	38.3	26.9	32.2	37.5	26.1	31.4	36.6	25.1	30.2	35.3	23.7	28.5	33.3
			kW		8.1			9.2			10.4			11.6			12.9	
		19.4	THC	37.5	37.5	37.5	36.0	36.0	36.0	34.3	34.3	34.3	32.4	32.4	32.4	30.3	30.3	30.3
			SHC	22.2	27.7	33.1	21.6	27.0	32.4	20.9	26.3	31.7	20.2	25.6	31.0	19.3	24.7	30.1
			kW		8.3			9.4			10.6			11.8			13.1	
		22.2	THC	40.7	40.7	40.7	38.8	38.8	38.8	37.0	37.0	37.0	35.1	35.1	35.1	32.9	32.9	32.9
			SHC	16.7	22.2	27.6	16.0	21.5	26.9	15.4	20.8	26.2	14.7	20.1	25.5	13.9	19.3	24.7
			kW		8.5			9.6			10.7			12.0			13.3	
		24.4	THC	–	43.6	43.6	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	17.7	23.3	–	–	–	–	–	–	–	–	–	–	–	–
			kW		8.7			–			–			–			–	
1982 L/S	EAT (wb)	14.4	THC	35.6	35.6	40.1	34.3	34.3	38.7	32.9	32.9	37.1	31.4	31.4	35.3	29.6	29.6	33.3
			SHC	31.1	35.6	40.1	30.0	34.3	38.7	28.8	32.9	37.1	27.4	31.4	35.3	25.8	29.6	33.3
			kW		8.2			9.3			10.5			11.7			13.0	
		16.7	THC	35.7	35.7	41.6	34.4	34.4	40.2	33.0	33.0	38.5	31.4	31.4	36.7	29.6	29.6	34.6
			SHC	29.5	35.6	41.6	28.5	34.4	40.2	27.4	33.0	38.5	26.1	31.4	36.7	24.6	29.6	34.6
			kW		8.2			9.3			10.5			11.7			13.0	
		19.4	THC	38.2	38.2	38.2	36.6	36.6	36.6	34.9	34.9	34.9	33.0	33.0	33.9	30.8	30.8	33.0
			SHC	23.6	29.8	36.1	22.9	29.2	35.4	22.3	28.5	34.7	21.5	27.7	33.9	20.6	26.8	33.0
			kW		8.4			9.4			10.6			11.8			13.1	
		22.2	THC	41.5	41.5	41.5	39.5	39.5	39.5	37.6	37.6	37.6	35.6	35.6	35.6	33.3	33.3	33.3
			SHC	17.3	23.5	29.8	16.6	22.8	29.1	15.9	22.2	28.4	15.2	21.4	27.7	14.4	20.6	26.9
			kW		8.6			9.6			10.8			12.0			13.3	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
2265 L/S	EAT (wb)	14.4	THC	36.7	36.7	41.4	35.4	35.4	39.9	33.9	33.9	38.2	32.3	32.3	36.4	30.5	30.5	34.3
			SHC	32.1	36.7	41.4	30.9	35.4	39.9	29.6	33.9	38.2	28.2	32.3	36.4	26.6	30.5	34.3
			kW		8.3			9.4			10.5			11.8			13.1	
		16.7	THC	36.8	36.8	43.0	35.4	35.4	41.4	34.0	34.0	39.7	32.3	32.3	37.8	30.5	30.5	35.6
			SHC	30.5	36.8	43.0	29.4	35.4	41.4	28.2	34.0	39.7	26.8	32.3	37.8	25.3	30.5	35.6
			kW		8.3			9.4			10.5			11.8			13.1	
		19.4	THC	38.7	38.7	39.0	37.1	37.1	38.2	35.3	35.3	37.5	33.4	33.4	36.7	31.2	31.2	35.7
			SHC	24.9	31.9	39.0	24.2	31.2	38.2	23.5	30.5	37.5	22.7	29.7	36.7	21.8	28.8	35.7
			kW		8.4			9.5			10.6			11.9			13.1	
		22.2	THC	42.1	42.1	42.1	39.9	39.9	39.9	38.0	38.0	38.0	36.0	36.0	36.0	–	–	–
			SHC	17.8	24.9	32.0	17.1	24.1	31.2	16.4	23.4	30.5	15.7	22.7	29.8	–	–	–
			kW															
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
2549 L/S	EAT (wb)	14.4	THC	37.7	37.7	42.4	36.3	36.3	40.9	34.8	34.8	39.2	33.1	33.1	37.3	31.2	31.2	35.1
			SHC	32.9	37.7	42.4	31.7	36.3	40.9	30.4	34.8	39.2	28.9	33.1	37.3	27.2	31.2	35.1
			kW		8.3			9.4			10.6			11.9			13.1	
		16.7	THC	37.7	37.7	44.1	36.3	36.3	42.4	34.8	34.8	40.7	33.1	33.1	38.7	31.2	31.2	36.5
			SHC	31.3	37.7	44.1	30.2	36.3	42.4	28.9	34.8	40.7	27.5	33.1	38.7	25.9	31.2	36.5
			kW		8.3			9.4			10.6			11.9			13.1	
		19.4	THC	39.2	39.2	41.6	37.5	37.5	40.9	35.7	35.7	40.1	33.7	33.7	39.2	31.5	31.5	38.0
			SHC	26.1	33.9	41.6	25.4	33.1	40.9	24.7	32.4	40.1	23.9	31.5	39.2	22.9	30.5	38.0
			kW		8.4			9.5			10.7			11.9			13.2	
		22.2	THC	42.6	42.6	42.6	40.3	40.3	40.3	38.4	38.4	38.4	–	–	–	–	–	–
			SHC	18.3	26.2	34.0	17.5	25.4	33.2	16.9	24.7	32.6	–	–	–	–	–	–
			kW		8.7			9.7		10.8				–			–	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
2832 L/S	EAT (wb)	14.4	THC	38.5	38.5	43.3	37.0	37.0	41.7	35.5	35.5	40.0	33.7	33.7	38.0	31.8	31.8	35.8
			SHC	33.6	38.5	43.3	32.3	37.0	41.7	31.0	35.5	40.0	29.5	33.7	38.0	27.8	31.8	35.8
			kW		8.4			9.5			10.7			11.9			13.2	
		16.7	THC	38.5	38.5	45.0	37.0	37.0	43.3	35.5	35.5	41.5	33.8	33.8	39.5	31.8	31.8	37.2
			SHC	32.0	38.5	45.0	30.8	37.0	43.3	29.5	35.5	41.5	28.0	33.8	39.5	26.4	31.8	37.2
			kW	8.4			9.5			10.7			11.9				13.2	
		19.4	THC	39.6	39.6	44.2	37.8	37.8	43.4	36.0	36.0	42.5	34.0	34.0	41.4	31.8	31.8	39.9
			SHC	27.3	35.7	44.2	26.5	35.0	43.4	25.8	34.1	42.5	24.9	33.1	41.4	23.8	31.8	39.9
			kW		8.5			9.5			10.7			11.9			13.2	
		22.2	THC	43.0	43.0	43.0	40.7	40.7	40.7	–	–	–	–	–	–	–	–	–
			SHC	18.8	27.4	36.0	18.0	26.6	35.3	–	–	–	–	–	–	–	–	–
			kW	8.7				9.7			–			–			–	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	

LEGEND:

– = Do not operate
EAT(wb) = Entering air temp (wet bulb)
SHC = Sensible heat capacity (Gross)
EAT(db) = Entering air temp (dry bulb)
L/s = Liters per second
kW = Compressor kilowatts
THC = Total heat capacity (Gross)
Cfm = Cubic feet per minute (supply air)

PERFORMANCE DATA (cont.)

38AUD14 - 40RUA14 **COMBINATION RATINGS** **ENGLISH**

				Ambient Temperature															
				85.0			95.0			105.0			115.0			125.0			
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)			
				75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	
3600 cfm	EAT (wb)	58.0	THC	116.6	116.6	131.3	112.5	112.5	126.8	108.0	108.0	121.7	102.9	102.9	115.9	97.1	97.1	109.4	
			SHC	101.8	116.6	131.3	98.2	112.5	126.8	94.3	108.0	121.7	89.8	102.9	115.9	84.8	97.1	109.4	
			kW		8.1			9.2			10.4			11.6			12.9		
		62.0	THC	118.8	118.8	130.6	114.0	114.0	128.0	108.7	108.7	124.9	103.0	103.0	120.4	97.2	97.2	113.7	
			SHC	94.3	112.5	130.6	91.9	110.0	128.0	89.1	107.0	124.9	85.5	103.0	120.4	80.7	97.2	113.7	
			kW		8.1			9.2			10.4			11.6			12.9		
		67.0	THC	128.0	128.0	128.0	122.8	122.8	122.8	117.1	117.1	117.1	110.6	110.6	110.6	103.4	103.4	103.4	
			SHC	75.9	94.4	112.8	73.8	92.2	110.7	71.4	89.9	108.3	68.9	87.3	105.7	66.0	84.4	102.8	
			kW		8.3			9.4			10.6			11.8			13.1		
		72.0	THC	138.8	138.8	138.8	132.5	132.5	132.5	126.4	126.4	126.4	119.7	119.7	119.7	112.1	112.1	112.1	
			SHC	57.0	75.6	94.1	54.6	73.2	91.8	52.4	71.0	89.5	50.0	68.5	87.1	47.3	65.8	84.3	
			kW		8.5			9.6			10.7			12.0			13.3		
		76.0	THC	–	148.6	148.6	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	60.5	79.4	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		8.7			–			–			–			–		
4200 cfm	EAT (wb)	58.0	THC	121.4	121.4	136.8	117.1	117.1	131.9	112.3	112.3	126.6	107.0	107.0	120.6	100.9	100.9	113.7	
			SHC	106.0	121.4	136.8	102.2	117.1	131.9	98.1	112.3	126.6	93.4	107.0	120.6	88.1	100.9	113.7	
			kW		8.2			9.3			10.5			11.7			13.0		
		62.0	THC	121.8	121.8	141.8	117.3	117.3	137.1	112.5	112.5	131.5	107.1	107.1	125.2	101.0	101.0	118.1	
			SHC	100.8	121.3	141.8	97.4	117.3	137.1	93.4	112.5	131.5	88.9	107.1	125.2	83.9	101.0	118.1	
			kW		8.2			9.3			10.5			11.7			13.0		
		67.0	THC	130.4	130.4	130.4	124.9	124.9	124.9	119.1	119.1	119.1	112.5	112.5	115.8	105.0	105.0	112.6	
			SHC	80.5	101.8	123.1	78.3	99.6	120.8	76.0	97.2	118.5	73.4	94.6	115.8	70.4	91.5	112.6	
			kW		8.4			9.4			10.6			11.8			13.1		
		72.0	THC	141.6	141.6	141.6	134.7	134.7	134.7	128.4	128.4	128.4	121.5	121.5	121.5	113.7	113.7	113.7	
			SHC	59.0	80.3	101.7	56.5	77.8	99.2	54.2	75.6	97.0	51.8	73.1	94.5	49.0	70.4	91.7	
			kW		8.6			9.6			10.8			12.0			13.3		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		
4800 cfm	EAT (wb)	58.0	THC	125.3	125.3	141.2	120.8	120.8	136.1	115.8	115.8	130.5	110.2	110.2	124.2	103.9	103.9	117.1	
			SHC	109.4	125.3	141.2	105.4	120.8	136.1	101.1	115.8	130.5	96.3	110.2	124.2	90.7	103.9	117.1	
			kW		8.3			9.4			10.5			11.8			13.1		
		62.0	THC	125.5	125.5	146.7	120.9	120.9	141.3	115.9	115.9	135.6	110.3	110.3	129.0	104.0	104.0	121.6	
			SHC	104.2	125.4	146.7	100.4	120.9	141.3	96.3	115.9	135.6	91.6	110.3	129.0	86.4	104.0	121.6	
			kW		8.3			9.4			10.5			11.8			13.1		
		67.0	THC	132.2	132.2	132.9	126.5	126.5	130.5	120.6	120.6	128.0	113.9	113.9	125.1	106.4	106.4	121.7	
			SHC	84.9	108.9	132.9	82.6	106.6	130.5	80.2	104.1	128.0	77.5	101.3	125.1	74.5	98.1	121.7	
			kW		8.4			9.5			10.6			11.9			13.1		
		72.0	THC	143.8	143.8	143.8	136.3	136.3	136.3	129.8	129.8	129.8	122.8	122.8	122.8	–	–	–	
			SHC	60.8	84.9	109.1	58.2	82.3	106.4	55.9	80.0	104.1	53.5	77.6	101.7	–	–	–	
			kW		8.6			9.7			10.8			12.1			–		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		
5400 cfm	EAT (wb)	58.0	THC	128.5	128.5	144.8	123.8	123.8	139.5	118.7	118.7	133.8	112.9	112.9	127.2	106.4	106.4	119.9	
			SHC	112.2	128.5	144.8	108.1	123.8	139.5	103.6	118.7	133.8	98.6	112.9	127.2	92.9	106.4	119.9	
			kW		8.3			9.4			10.6			11.9			13.1		
		62.0	THC	128.6	128.6	150.4	123.9	123.9	144.8	118.8	118.8	138.9	113.0	113.0	132.1	106.4	106.4	124.5	
			SHC	106.8	128.6	150.4	102.9	123.9	144.8	98.7	118.8	138.9	93.8	113.0	132.1	88.4	106.4	124.5	
			kW		8.3			9.4			10.6			11.9			13.1		
		67.0	THC	133.7	133.7	142.1	127.8	127.8	139.5	121.8	121.8	136.9	115.0	115.0	133.7	107.5	107.5	129.8	
			SHC	89.1	115.6	142.1	86.7	113.1	139.5	84.2	110.6	136.9	81.4	107.6	133.7	78.1	103.9	129.8	
			kW		8.4			9.5			10.7			11.9			13.2		
		72.0	THC	145.3	145.3	145.3	137.6	137.6	137.6	130.9	130.9	130.9	–	–	–	–	–	–	
			SHC	62.5	89.3	116.1	59.8	86.6	113.4	57.5	84.3	111.1	–	–	–	–	–	–	
			kW		8.7			9.7			10.8			–			–		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		
6000 cfm	EAT (wb)	58.0	THC	131.2	131.2	147.9	126.3	126.3	142.3	121.0	121.0	136.4	115.1	115.1	129.7	108.4	108.4	122.2	
			SHC	114.6	131.2	147.9	110.3	126.3	142.3	105.7	121.0	136.4	100.5	115.1	129.7	94.7	108.4	122.2	
			kW		8.4			9.5			10.7			11.9			13.2		
		62.0	THC	131.3	131.3	153.6	126.4	126.4	147.8	121.1	121.1	141.6	115.2	115.2	134.7	108.5	108.5	126.8	
			SHC	109.1	131.3	153.6	105.0	126.4	147.8	100.6	121.1	141.6	95.7	115.2	134.7	90.1	108.5	126.8	
			kW		8.4			9.5			10.7			11.9			13.2		
		67.0	THC	135.0	135.0	150.8	128.9	128.9	148.0	122.8	122.8	145.0	116.1	116.1	141.3	108.6	108.6	136.2	
			SHC	93.0	121.9	150.8	90.5	119.3	148.0	87.9	116.5	145.0	84.8	113.0	141.3	81.1	108.6	136.2	
			kW		8.5			9.5			10.7			11.9			13.2		
		72.0	THC	146.6	146.6	146.6	138.8	138.8	138.8	–	–	–	–	–	–	–	–	–	
			SHC	64.2	93.6	123.0	61.5	90.9	120.3	–	–	–	–	–	–	–	–	–	
			kW		8.7			9.7			–			–			–		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		

LEGEND:

– = Do not operate
EAT(wb) = Entering air temp (wet bulb)
SHC = Sensible heat capacity (Gross)
EAT(db) = Entering air temp (dry bulb)
L/s = Liters per second
kW = Compressor kilowatts
THC = Total heat capacity (Gross)
Cfm = Cubic feet per minute (supply air)

PERFORMANCE DATA (cont.)

38AUD16 - 40RUA16 **COMBINATION RATINGS** **SI**

				Ambient Temperature														
				29.4			35.0			40.6			46.1			51.7		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4
2124 L/S	EAT (wb)	14.4	THC	44.1	44.1	49.7	42.6	42.6	48.0	40.9	40.9	46.1	39.2	39.2	44.2	37.3	37.3	42.0
			SHC	38.5	44.1	49.7	37.2	42.6	48.0	35.8	40.9	46.1	34.2	39.2	44.2	32.5	37.3	42.0
			kW		9.7			10.9			12.3			13.8			15.4	
		16.7	THC	45.3	45.3	49.0	43.4	43.4	48.0	41.4	41.4	46.9	39.4	39.4	45.4	37.3	37.3	43.6
			SHC	35.5	42.3	49.0	34.6	41.3	48.0	33.6	40.3	46.9	32.4	38.9	45.4	31.0	37.3	43.6
			kW		9.7			10.9			12.3			13.8			15.4	
		19.4	THC	49.2	49.2	49.2	47.1	47.1	47.1	44.9	44.9	44.9	42.6	42.6	42.6	40.0	40.0	40.0
			SHC	28.8	35.6	42.5	28.0	34.8	41.6	27.1	33.9	40.7	26.1	32.9	39.7	25.1	31.9	38.7
			kW		9.9			11.1			12.4			13.9			15.5	
		22.2	THC	53.3	53.3	53.3	51.1	51.1	51.1	48.8	48.8	48.8	46.2	46.2	46.2	43.5	43.5	43.5
			SHC	21.8	28.7	35.5	21.0	27.9	34.7	20.1	27.0	33.9	19.2	26.1	32.9	18.2	25.1	31.9
			kW		10.1			11.3			12.6			14.1			15.6	
		24.4	THC	–	56.7	56.7	–	54.5	54.5	–	52.0	52.0	–	–	–	–	–	–
			SHC	–	23.0	30.0	–	22.2	29.2	–	21.4	28.3	–	–	–	–	–	–
			kW		10.3			11.5			12.8			–			–	
2478 L/S	EAT (wb)	14.4	THC	46.1	46.1	52.0	44.5	44.5	50.1	42.8	42.8	48.2	40.9	40.9	46.0	38.8	38.8	43.7
			SHC	40.3	46.1	52.0	38.9	44.5	50.1	37.3	42.8	48.2	35.7	40.9	46.0	33.9	38.8	43.7
			kW		9.8			11.0			12.4			13.8			15.4	
		16.7	THC	46.5	46.5	53.3	44.7	44.7	51.7	42.8	42.8	50.0	40.9	40.9	47.8	38.8	38.8	45.4
			SHC	38.0	45.6	53.3	36.8	44.3	51.7	35.6	42.8	50.0	34.0	40.9	47.8	32.2	38.8	45.4
			kW		9.8			11.0			12.4			13.8			15.4	
		19.4	THC	50.2	50.2	50.2	48.1	48.1	48.1	45.8	45.8	45.8	43.3	43.3	43.5	40.7	40.7	42.4
			SHC	30.6	38.4	46.3	29.7	37.5	45.4	28.8	36.6	44.5	27.8	35.6	43.5	26.8	34.6	42.4
			kW		10.0			11.2			12.5			13.9			15.5	
		22.2	THC	54.3	54.3	54.3	52.1	52.1	52.1	49.6	49.6	49.6	47.0	47.0	47.0	44.2	44.2	44.2
			SHC	22.5	30.4	38.3	21.7	29.6	37.5	20.8	28.7	36.6	19.9	27.8	35.6	18.9	26.8	34.6
			kW		10.2			11.4			12.7			14.1			15.7	
		24.4	THC	–	57.8	57.8	–	55.4	55.4	–	–	–	–	–	–	–	–	–
			SHC	–	23.9	31.9	–	23.1	31.1	–	–	–	–	–	–	–	–	–
			kW		10.4			11.6			–			–			–	
2832 L/S	EAT (wb)	14.4	THC	47.8	47.8	53.8	46.1	46.1	51.9	44.2	44.2	49.8	42.2	42.2	47.6	40.0	40.0	45.1
			SHC	41.7	47.8	53.8	40.2	46.1	51.9	38.6	44.2	49.8	36.8	42.2	47.6	34.9	40.0	45.1
			kW		9.9			11.1			12.4			13.9			15.5	
		16.7	THC	47.8	47.8	55.9	46.1	46.1	53.9	44.3	44.3	51.7	42.2	42.2	49.4	40.0	40.0	46.8
			SHC	39.7	47.8	55.9	38.3	46.1	53.9	36.8	44.3	51.7	35.1	42.2	49.4	33.3	40.0	46.8
			kW		9.9			11.1			12.4			13.9			15.5	
		19.4	THC	50.9	50.9	50.9	48.8	48.8	49.0	46.4	46.4	48.1	43.9	43.9	47.0	41.2	41.2	45.8
			SHC	32.2	41.1	49.9	31.3	40.2	49.0	30.4	39.2	48.1	29.4	38.2	47.0	28.3	37.1	45.8
			kW		10.0			11.2			12.5			14.0			15.5	
		22.2	THC	55.1	55.1	55.1	52.8	52.8	52.8	50.3	50.3	50.3	47.6	47.6	47.6	44.7	44.7	44.7
			SHC	23.2	32.1	41.0	22.3	31.2	40.2	21.5	30.4	39.2	20.5	29.4	38.3	19.5	28.4	37.3
			kW		10.2			11.4			12.7			14.2			15.7	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
3186 L/S	EAT (wb)	14.4	THC	49.1	49.1	55.4	47.3	47.3	53.3	45.4	45.4	51.1	43.3	43.3	48.8	41.0	41.0	46.2
			SHC	42.9	49.1	55.4	41.3	47.3	53.3	39.6	45.4	51.1	37.8	43.3	48.8	35.8	41.0	46.2
			kW		9.9			11.1			12.5			13.9			15.5	
		16.7	THC	49.2	49.2	57.5	47.4	47.4	55.4	45.4	45.4	53.1	43.3	43.3	50.6	41.0	41.0	47.9
			SHC	40.8	49.2	57.5	39.3	47.4	55.4	37.7	45.4	53.1	36.0	43.3	50.6	34.1	41.0	47.9
			kW		9.9			11.1			12.5			13.9			15.5	
		19.4	THC	51.5	51.5	53.4	49.3	49.3	52.5	47.0	47.0	51.4	44.4	44.4	50.3	41.7	41.7	49.0
			SHC	33.8	43.6	53.4	32.9	42.7	52.5	31.9	41.7	51.4	30.9	40.6	50.3	29.7	39.4	49.0
			kW		10.0			11.2			12.6			14.0			15.6	
		22.2	THC	55.7	55.7	55.7	53.3	53.3	53.3	50.8	50.8	50.8	48.0	48.0	48.0	45.0	45.0	45.0
			SHC	23.8	33.7	43.6	23.0	32.9	42.7	22.1	32.0	41.9	21.1	31.0	40.9	20.1	30.0	39.8
			kW		10.3			11.4			12.8			14.2			15.7	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
3540 L/S	EAT (wb)	14.4	THC	50.2	50.2	56.6	48.4	48.4	54.5	46.4	46.4	52.3	44.2	44.2	49.8	41.8	41.8	47.1
			SHC	43.9	50.2	56.6	42.2	48.4	54.5	40.5	46.4	52.3	38.6	44.2	49.8	36.5	41.8	47.1
			kW		10.0			11.2			12.5			14.0			15.6	
		16.7	THC	50.3	50.3	58.8	48.4	48.4	56.6	46.4	46.4	54.2	44.2	44.2	51.7	41.8	41.8	48.9
			SHC	41.8	50.3	58.8	40.2	48.4	56.6	38.5	46.4	54.2	36.7	44.2	51.7	34.8	41.8	48.9
			kW		10.0			11.2			12.5			14.0			15.6	
		19.4	THC	52.0	52.0	56.7	49.8	49.8	55.7	47.4	47.4	54.5	44.8	44.8	53.3	42.1	42.1	51.7
			SHC	35.3	46.0	56.7	34.3	45.0	55.7	33.3	43.9	54.5	32.2	42.7	53.3	30.9	41.3	51.7
			kW		10.1			11.3			12.6			14.0			15.6	
		22.2	THC	56.1	56.1	56.1	53.7	53.7	53.7	51.2	51.2	51.2	–	–	–	–	–	–
			SHC	24.4	35.3	46.1	23.6	34.4	45.3	22.7	33.5	44.4	–	–	–	–	–	–
			kW		10.3			11.5			12.8			14.2			–	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	

LEGEND:

– = Do not operate
EAT(wb) = Entering air temp (wet bulb)
SHC = Sensible heat capacity (Gross)
EAT(db) = Entering air temp (dry bulb)
L/s = Liters per second
kW = Compressor kilowatts
THC = Total heat capacity (Gross)
Cfm = Cubic feet per minute (supply air)

PERFORMANCE DATA (cont.)

38AUD16 - 40RUA16 **COMBINATION RATINGS** **ENGLISH**

				Ambient Temperature															
				85.0			95.0			105.0			115.0			125.0			
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)			
				75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	
4500 cfm	EAT (wb)	58.0	THC	150.4	150.4	169.5	145.3	145.3	163.7	139.7	139.7	157.4	133.7	133.7	150.7	127.1	127.1	143.2	
			SHC	131.3	150.4	169.5	126.8	145.3	163.7	122.0	139.7	157.4	116.7	133.7	150.7	111.0	127.1	143.2	
			kW		9.7			10.9			12.3			13.8			15.4		
		62.0	THC	154.4	154.4	167.2	148.0	148.0	163.8	141.4	141.4	160.1	134.4	134.4	155.0	127.2	127.2	148.8	
			SHC	121.2	144.2	167.2	118.0	140.9	163.8	114.7	137.4	160.1	110.5	132.8	155.0	105.7	127.2	148.8	
			kW		9.7			10.9			12.3			13.8			15.4		
		67.0	THC	167.7	167.7	167.7	160.7	160.7	160.7	153.3	153.3	153.3	145.2	145.2	145.2	136.6	136.6	136.6	
			SHC	98.3	121.6	144.9	95.4	118.7	142.0	92.4	115.7	138.9	89.1	112.4	135.6	85.6	108.9	132.1	
			kW		9.9			11.1			12.4			13.9			15.5		
		72.0	THC	181.8	181.8	181.8	174.4	174.4	174.4	166.5	166.5	166.5	157.8	157.8	157.8	148.5	148.5	148.5	
			SHC	74.4	97.8	121.2	71.7	95.1	118.5	68.7	92.1	115.5	65.5	88.9	112.3	62.1	85.5	108.8	
			kW		10.1			11.3			12.6			14.1			15.6		
		76.0	THC	–	193.5	193.5	–	185.8	185.8	–	177.4	177.4	–	–	–	–	–	–	
			SHC	–	78.4	102.4	–	75.8	99.7	–	72.9	96.7	–	–	–	–	–	–	
			kW		10.3			11.5			12.8			–			–		
5250 cfm	EAT (wb)	58.0	THC	157.4	157.4	177.4	151.8	151.8	171.1	145.9	145.9	164.4	139.4	139.4	157.1	132.3	132.3	149.1	
			SHC	137.4	157.4	177.4	132.6	151.8	171.1	127.4	145.9	164.4	121.7	139.4	157.1	115.5	132.3	149.1	
			kW		9.8			11.0			12.4			13.8			15.4		
		62.0	THC	158.7	158.7	181.7	152.4	152.4	176.5	146.0	146.0	170.7	139.5	139.5	163.1	132.4	132.4	154.9	
			SHC	129.7	155.7	181.7	125.7	151.1	176.5	121.3	146.0	170.7	115.9	139.5	163.1	110.0	132.4	154.9	
			kW		9.8			11.0			12.4			13.8			15.4		
		67.0	THC	171.2	171.2	171.2	164.0	164.0	164.0	156.2	156.2	156.2	147.9	147.9	148.3	139.0	139.0	144.6	
			SHC	104.3	131.1	157.9	101.3	128.1	154.9	98.2	125.0	151.8	94.9	121.6	148.3	91.3	118.0	144.6	
			kW		10.0			11.2			12.5			13.9			15.5		
		72.0	THC	185.3	185.3	185.3	177.6	177.6	177.6	169.4	169.4	169.4	160.5	160.5	160.5	150.7	150.7	150.7	
			SHC	76.8	103.7	130.7	74.0	100.9	127.9	71.0	98.0	124.9	67.9	94.7	121.6	64.4	91.3	118.1	
			kW		10.2			11.4			12.7			14.1			15.7		
		76.0	THC	–	197.1	197.1	–	189.1	189.1	–	–	–	–	–	–	–	–	–	
			SHC	–	81.5	109.0	–	78.8	106.2	–	–	–	–	–	–	–	–	–	
			kW		10.4			11.6			–			–			–		
6000 cfm	EAT (wb)	58.0	THC	163.0	163.0	183.7	157.2	157.2	177.1	150.8	150.8	170.0	144.0	144.0	162.3	136.5	136.5	153.8	
			SHC	142.4	163.0	183.7	137.2	157.2	177.1	131.7	150.8	170.0	125.7	144.0	162.3	119.2	136.5	153.8	
			kW		9.9			11.1			12.4			13.9			15.5		
		62.0	THC	163.2	163.2	190.8	157.3	157.3	183.9	151.0	151.0	176.5	144.1	144.1	168.5	136.6	136.6	159.7	
			SHC	135.6	163.2	190.8	130.6	157.3	183.9	125.4	151.0	176.5	119.7	144.1	168.5	113.5	136.6	159.7	
			kW		9.9			11.1			12.4			13.9			15.5		
		67.0	THC	173.8	173.8	173.8	166.4	166.4	167.3	158.4	158.4	164.0	149.9	149.9	160.3	140.7	140.7	156.4	
			SHC	109.9	140.1	170.3	106.9	137.1	167.3	103.7	133.8	164.0	100.3	130.3	160.3	96.6	126.5	156.4	
			kW		10.0			11.2			12.5			14.0			15.5		
		72.0	THC	187.9	187.9	187.9	180.0	180.0	180.0	171.6	171.6	171.6	162.4	162.4	162.4	152.5	152.5	152.5	
			SHC	79.0	109.4	139.8	76.2	106.6	137.0	73.2	103.6	133.9	70.0	100.3	130.7	66.6	96.9	127.2	
			kW		10.2			11.4			12.7			14.2			15.7		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		
6750 cfm	EAT (wb)	58.0	THC	167.6	167.6	188.9	161.5	161.5	182.0	154.9	154.9	174.5	147.7	147.7	166.4	139.8	139.8	157.6	
			SHC	146.3	167.6	188.9	141.0	161.5	182.0	135.2	154.9	174.5	128.9	147.7	166.4	122.1	139.8	157.6	
			kW		9.9			11.1			12.5			13.9			15.5		
		62.0	THC	167.7	167.7	196.1	161.6	161.6	188.9	155.0	155.0	181.2	147.8	147.8	172.8	139.9	139.9	163.6	
			SHC	139.3	167.7	196.1	134.2	161.6	188.9	128.7	155.0	181.2	122.7	147.8	172.8	116.2	139.9	163.6	
			kW		9.9			11.1			12.5			13.9			15.5		
		67.0	THC	175.8	175.8	182.2	168.3	168.3	179.0	160.2	160.2	175.5	151.5	151.5	171.6	142.3	142.3	167.1	
			SHC	115.2	148.7	182.2	112.2	145.6	179.0	108.9	142.2	175.5	105.4	138.5	171.6	101.5	134.3	167.1	
			kW		10.0			11.2			12.6			14.0			15.6		
		72.0	THC	189.9	189.9	189.9	181.9	181.9	181.9	173.2	173.2	173.2	163.9	163.9	163.9	153.7	153.7	153.7	
			SHC	81.2	114.9	148.7	78.4	112.1	145.8	75.3	109.1	142.8	72.1	105.8	139.5	68.6	102.3	135.9	
			kW		10.3			11.4			12.8			14.2			15.7		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		
7500 cfm	EAT (wb)	58.0	THC	171.4	171.4	193.2	165.1	165.1	186.0	158.2	158.2	178.3	150.8	150.8	169.9	142.7	142.7	160.7	
			SHC	149.7	171.4	193.2	144.1	165.1	186.0	138.1	158.2	178.3	131.6	150.8	169.9	124.6	142.7	160.7	
			kW		10.0			11.2			12.5			14.0			15.6		
		62.0	THC	171.5	171.5	200.6	165.2	165.2	193.1	158.3	158.3	185.1	150.9	150.9	176.4	142.7	142.7	166.9	
			SHC	142.5	171.5	200.6	137.2	165.2	193.1	131.5	158.3	185.1	125.3	150.9	176.4	118.6	142.7	166.9	
			kW		10.0			11.2			12.5			14.0			15.6		
		67.0	THC	177.5	177.5	193.4	169.8	169.8	190.0	161.7	161.7	186.1	153.0	153.0	181.7	143.7	143.7	176.3	
			SHC	120.3	156.8	193.4	117.1	153.5	190.0	113.7	149.9	186.1	110.0	145.8	181.7	105.6	140.9	176.3	
			kW		10.1			11.3			12.6			14.0			15.6		
		72.0	THC	191.5	191.5	191.5	183.3	183.3	183.3	174.6	174.6	174.6	165.0	165.0	165.0	–	–	–	
			SHC	83.2	120.3	157.3	80.4	117.4	154.5	77.4	114.4	151.4	74.1	111.1	148.1	–	–	–	
			kW		10.3			11.5			12.8			14.2			–		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		

LEGEND:

– = Do not operate
EAT(wb) = Entering air temp (wet bulb)
SHC = Sensible heat capacity (Gross)
EAT(db) = Entering air temp (dry bulb)
L/s = Liters per second
kW = Compressor kilowatts
THC = Total heat capacity (Gross)
Cfm = Cubic feet per minute (supply air)

PERFORMANCE DATA (cont.)

38AUD25 - 40RUA25 **COMBINATION RATINGS** **SI**

				Ambient Temperature													
				29.4			35.0			40.6			46.1			51.7	
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)	
				23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4	23.9	26.7	29.4
2832 L/S	EAT (wb)	14.4	THC	58.3	58.3	65.7	56.2	56.2	63.3	54.0	54.0	60.8	51.5	51.5	58.0	48.7	48.7	54.9
			SHC	50.9	58.3	65.7	49.1	56.2	63.3	47.1	54.0	60.8	44.9	51.5	58.0	42.5	48.7	54.9
			kW	11.6			13.0			14.5			16.3			18.3		
		16.7	THC	59.8	59.8	64.9	57.3	57.3	63.6	54.5	54.5	62.0	51.7	51.7	59.8	48.7	48.7	57.0
			SHC	47.0	56.0	64.9	45.8	54.7	63.6	44.4	53.2	62.0	42.6	51.2	59.8	40.5	48.7	57.0
			kW	11.7			13.0			14.6			16.3			18.3		
		19.4	THC	65.4	65.4	65.4	62.5	62.5	62.5	59.4	59.4	59.4	56.0	56.0	56.0	52.3	52.3	52.3
			SHC	38.3	47.4	56.4	37.1	46.2	55.2	35.8	44.9	53.9	34.5	43.5	52.5	33.0	42.0	51.0
			kW		11.9			13.3			14.6			16.6			18.5	
		22.2	THC	71.6	71.6	71.6	68.4	68.4	68.4	65.0	65.0	65.0	61.3	61.3	61.3	57.2	57.2	57.2
			SHC	29.3	38.4	47.5	28.1	37.2	46.3	26.8	35.9	45.0	25.4	34.5	43.6	24.0	33.0	42.1
			kW		12.3			13.6			15.1			16.9		18.8		
		24.4	THC	–	76.8	76.8	–	73.4	73.4	–	69.7	69.7	–	–	–	–	–	–
			SHC	–	31.1	40.6	–	29.9	39.3	–	28.6	38.0	–	–	–	–	–	–
			kW		12.6			13.9			15.4			–			–	
3304 L/S	EAT (wb)	14.4	THC	61.1	61.1	68.8	58.9	58.9	66.4	56.4	56.4	63.6	53.7	53.7	60.6	50.7	50.7	57.2
			SHC	53.3	61.1	68.8	51.4	58.9	66.4	49.3	56.4	63.6	46.9	53.7	60.6	44.3	50.7	57.2
			kW		11.7			13.1			14.7			16.5		18.4		
		16.7	THC	61.7	61.7	70.5	59.1	59.1	68.5	56.5	56.5	66.0	53.8	53.8	62.9	50.8	50.8	59.4
			SHC	50.4	60.4	70.5	48.8	58.6	68.5	46.9	56.5	66.0	44.7	53.8	62.9	42.2	50.8	59.4
			kW		11.8			13.1			14.7			16.5			18.4	
		19.4	THC	67.0	67.0	67.0	64.0	64.0	64.0	60.7	60.7	60.7	57.2	57.2	57.5	53.3	53.3	55.9
			SHC	40.7	51.1	61.5	39.5	49.9	60.3	38.2	48.5	58.9	36.7	47.1	57.5	35.2	45.5	55.9
			kW		12.0			13.4			14.9			16.6			18.6	
		22.2	THC	73.2	73.2	73.2	69.9	69.9	69.9	66.3	66.3	66.3	62.4	62.4	62.4	58.2	58.2	58.2
			SHC	30.3	40.8	51.3	29.1	39.5	50.0	27.8	38.2	48.7	26.4	36.8	47.2	24.9	35.3	45.7
			kW		12.4			13.7			15.2			16.9			18.8	
		24.4	THC	–	78.5	78.5	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	32.4	43.2	–	–	–	–	–	–	–	–	–	–	–	–
			kW		12.7			–			–			–			–	
3776 L/S	EAT (wb)	14.4	THC	63.4	63.4	71.5	61.0	61.0	68.8	58.4	58.4	65.8	55.5	55.5	62.6	52.4	52.4	59.0
			SHC	55.4	63.4	71.5	53.3	61.0	68.8	51.0	58.4	65.8	48.5	55.5	62.6	45.7	52.4	59.0
			kW		11.9			13.2			14.8			16.6			18.5	
		16.7	THC	63.5	63.5	74.2	61.1	61.1	71.4	58.5	58.5	68.4	55.6	55.6	65.0	52.4	52.4	61.3
			SHC	52.7	63.5	74.2	50.7	61.1	71.4	48.6	58.5	68.4	46.2	55.6	65.0	43.6	52.4	61.3
			kW		11.9			13.2			14.8			16.6			18.5	
		19.4	THC	68.1	68.1	68.1	65.0	65.0	65.1	61.6	61.6	63.7	58.0	58.0	62.1	54.0	54.0	60.4
			SHC	42.9	54.7	66.4	41.7	53.4	65.1	40.3	52.0	63.7	38.8	50.5	62.1	37.3	48.8	60.4
			kW		12.1			13.4			15.0			16.7			18.6	
		22.2	THC	74.5	74.5	74.5	71.0	71.0	71.0	67.3	67.3	67.3	63.3	63.3	63.3	59.0	59.0	59.0
			SHC	31.2	43.1	54.8	30.0	41.8	53.6	28.7	40.4	52.2	27.3	39.0	50.7	25.8	37.5	49.2
			kW		12.4			13.8			15.3			17.0			18.9	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
4248 L/S	EAT (wb)	14.4	THC	65.4	65.4	73.7	62.8	62.8	70.8	60.1	60.1	67.7	57.1	57.1	64.3	53.8	53.8	60.6
			SHC	57.1	65.4	73.7	54.9	62.8	70.8	52.5	60.1	67.7	49.8	57.1	64.3	46.9	53.8	60.6
			kW		12.0			13.3			14.9			16.6			18.6	
		16.7	THC	65.4	65.4	76.5	62.9	62.9	73.5	60.1	60.1	70.3	57.1	57.1	66.8	53.8	53.8	62.9
			SHC	54.3	65.4	76.5	52.2	62.9	73.5	49.9	60.1	70.3	47.5	57.1	66.8	44.7	53.8	62.9
			kW		12.0			13.3			14.9			16.6			18.6	
		19.4	THC	69.1	69.1	71.0	65.9	65.9	69.7	62.4	62.4	68.1	58.7	58.7	66.4	54.7	54.7	64.5
			SHC	45.1	58.1	71.0	43.8	56.7	69.7	42.4	55.2	68.1	40.8	53.6	66.4	39.1	51.8	64.5
			kW		12.2			13.5			15.0			16.7			18.7	
		22.2	THC	75.5	75.5	75.5	72.0	72.0	72.0	68.1	68.1	68.1	64.0	64.0	64.0	–	–	–
			SHC	32.1	45.2	58.3	30.9	43.9	57.0	29.5	42.6	55.6	28.1	41.1	54.1	–	–	–
			kW		12.5			13.8			15.3			17.0			–	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	
4719 L/S	EAT (wb)	14.4	THC	67.0	67.0	75.5	64.4	64.4	72.6	61.5	61.5	69.3	58.4	58.4	65.8	54.9	54.9	61.8
			SHC	58.5	67.0	75.5	56.2	64.4	72.6	53.7	61.5	69.3	51.0	58.4	65.8	47.9	54.9	61.8
			kW		12.1			13.4			15.0			16.7			18.7	
		16.7	THC	67.1	67.1	78.4	64.4	64.4	75.4	61.5	61.5	72.0	58.4	58.4	68.3	54.9	54.9	64.2
			SHC	55.7	67.1	78.4	53.5	64.4	75.4	51.1	61.5	72.0	48.5	58.4	68.3	45.6	54.9	64.2
			kW		12.1			13.4			15.0			16.7			18.7	
		19.4	THC	69.9	69.9	75.4	66.6	66.6	74.0	63.1	63.1	72.3	59.3	59.3	70.4	55.3	55.3	67.9
			SHC	47.1	61.3	75.4	45.7	59.8	74.0	44.3	58.3	72.3	42.6	56.5	70.4	40.7	54.3	67.9
			kW		12.2			13.5			15.1			16.8			18.7	
		22.2	THC	76.3	76.3	76.3	72.7	72.7	72.7	68.7	68.7	68.7	–	–	–	–	–	–
			SHC	33.0	47.3	61.7	31.7	46.0	60.3	30.3	44.6	58.9	–	–	–	–	–	–
			kW		12.6			13.9			15.4			–			–	
		24.4	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			kW		–			–			–			–			–	

LEGEND:

– = Do not operate
EAT(wb) = Entering air temp (wet bulb)
SHC = Sensible heat capacity (Gross)
EAT(db) = Entering air temp (dry bulb)
L/s = Liters per second
kW = Compressor kilowatts
THC = Total heat capacity (Gross)
Cfm = Cubic feet per minute (supply air)

PERFORMANCE DATA (cont.)

38AUD25 - 40RUA25 **COMBINATION RATINGS** **ENGLISH**

				Ambient Temperature															
				85.0			95.0			105.0			115.0			125.0			
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)			
				75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	75.0	80.0	85.0	
6000 cfm	EAT (wb)	58.0	THC	198.8	198.8	224.1	191.8	191.8	216.1	184.1	184.1	207.4	175.6	175.6	197.9	166.1	166.1	187.2	
			SHC	173.6	198.8	224.1	167.5	191.8	216.1	160.7	184.1	207.4	153.3	175.6	197.9	145.1	166.1	187.2	
			kW		11.6			13.0			14.5			16.3			18.3		
		62.0	THC	204.2	204.2	221.5	195.5	195.5	216.9	186.1	186.1	211.6	176.5	176.5	204.0	166.3	166.3	194.5	
			SHC	160.5	191.0	221.5	156.2	186.5	216.9	151.4	181.5	211.6	145.3	174.7	204.0	138.1	166.3	194.5	
			kW		11.7			13.0			14.6			16.3			18.3		
		67.0	THC	223.1	223.1	223.1	213.4	213.4	213.4	202.7	202.7	202.7	191.2	191.2	191.2	178.5	178.5	178.5	
			SHC	130.8	161.7	192.6	126.7	157.6	188.4	122.3	153.2	184.0	117.6	148.4	179.2	112.5	143.3	174.1	
			kW		11.9			13.3			14.6			16.6			18.5		
		72.0	THC	244.3	244.3	244.3	233.5	233.5	233.5	221.8	221.8	221.8	209.1	209.1	209.1	195.3	195.3	195.3	
			SHC	99.9	131.0	162.2	95.9	126.9	158.0	91.5	122.5	153.6	86.8	117.8	148.8	81.8	112.7	143.7	
			kW		12.3			13.6			15.1			16.9			18.8		
		76.0	THC	–	262.2	262.2	–	250.5	250.5	–	237.8	237.8	–	–	–	–	–	–	
			SHC	–	106.2	138.4	–	102.1	134.2	–	97.7	129.6	–	–	–	–	–	–	
			kW		12.6			13.9			15.4			–			–		
7000 cfm	EAT (wb)	58.0	THC	208.5	208.5	234.9	200.9	200.9	226.4	192.5	192.5	216.9	183.3	183.3	206.6	173.1	173.1	195.1	
			SHC	182.0	208.5	234.9	175.4	200.9	226.4	168.1	192.5	216.9	160.1	183.3	206.6	151.1	173.1	195.1	
			kW		11.7			13.1			14.7			16.5		18.4			
		62.0	THC	210.4	210.4	240.6	201.7	201.7	233.7	192.7	192.7	225.3	183.5	183.5	214.6	173.3	173.3	202.6	
			SHC	171.9	206.2	240.6	166.4	200.1	233.7	160.0	192.7	225.3	152.4	183.5	214.6	143.9	173.3	202.6	
			kW		11.8			13.1			14.7			16.5			18.4		
		67.0	THC	228.5	228.5	228.5	218.2	218.2	218.2	207.0	207.0	207.0	195.0	195.0	196.1	181.9	181.9	190.6	
			SHC	138.9	174.4	210.0	134.7	170.2	205.7	130.2	165.6	201.1	125.3	160.7	196.1	120.0	155.3	190.6	
			kW		12.0			13.4			14.9			16.6			18.6		
		72.0	THC	249.9	249.9	249.9	238.6	238.6	238.6	226.3	226.3	226.3	213.0	213.0	213.0	198.6	198.6	198.6	
			SHC	103.4	139.1	174.9	99.2	134.9	170.6	94.8	130.4	166.1	90.0	125.6	161.2	84.9	120.4	155.9	
			kW		12.4			13.7			15.2			16.9			18.8		
		76.0	THC	–	268.0	268.0	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	110.5	147.3	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		12.7			–			–			–			–		
8000 cfm	EAT (wb)	58.0	THC	216.4	216.4	243.8	208.2	208.2	234.7	199.3	199.3	224.6	189.5	189.5	213.6	178.7	178.7	201.4	
			SHC	188.9	216.4	243.8	181.8	208.2	234.7	174.0	199.3	224.6	165.5	189.5	213.6	156.0	178.7	201.4	
			kW		11.9			13.2			14.8			16.6			18.5		
		62.0	THC	216.6	216.6	253.3	208.4	208.4	243.7	199.5	199.5	233.3	189.7	189.7	221.8	178.8	178.8	209.1	
			SHC	179.9	216.6	253.3	173.1	208.4	243.7	165.7	199.5	233.3	157.6	189.7	221.8	148.6	178.8	209.1	
			kW		11.9			13.2			14.8			16.6			18.5		
		67.0	THC	232.5	232.5	232.5	221.8	221.8	222.2	210.3	210.3	217.3	197.9	197.9	212.0	184.4	184.4	206.0	
			SHC	146.5	186.6	226.6	142.2	182.2	222.2	137.6	177.4	217.3	132.5	172.2	212.0	127.1	166.5	206.0	
			kW		12.1			13.4			15.0			16.7			18.6		
		72.0	THC	254.2	254.2	254.2	242.4	242.4	242.4	229.7	229.7	229.7	216.0	216.0	216.0	201.2	201.2	201.2	
			SHC	106.6	146.9	187.1	102.4	142.6	182.8	97.9	138.0	178.1	93.0	133.1	173.1	87.9	127.8	167.7	
			kW		12.4			13.8			15.3			17.0			18.9		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		
9000 cfm	EAT (wb)	58.0	THC	223.0	223.0	251.3	214.4	214.4	241.6	205.0	205.0	231.0	194.7	194.7	219.4	183.4	183.4	206.6	
			SHC	194.7	223.0	251.3	187.2	214.4	241.6	179.0	205.0	231.0	170.0	194.7	219.4	160.1	183.4	206.6	
			kW		12.0			13.3			14.9			16.6			18.6		
		62.0	THC	223.2	223.2	261.0	214.6	214.6	250.9	205.2	205.2	239.9	194.9	194.9	227.9	183.5	183.5	214.5	
			SHC	185.4	223.2	261.0	178.2	214.6	250.9	170.4	205.2	239.9	161.9	194.9	227.9	152.4	183.5	214.5	
			kW		12.0			13.3			14.9			16.6			18.6		
		67.0	THC	235.8	235.8	242.4	224.8	224.8	237.7	213.0	213.0	232.5	200.3	200.3	226.7	186.6	186.6	220.0	
			SHC	153.8	198.1	242.4	149.3	193.5	237.7	144.5	188.5	232.5	139.3	183.0	226.7	133.4	176.7	220.0	
			kW		12.2			13.5			15.0			16.7			18.7		
		72.0	THC	257.6	257.6	257.6	245.5	245.5	245.5	232.4	232.4	232.4	218.4	218.4	218.4	–	–	–	
			SHC	109.6	154.3	198.9	105.4	149.9	194.5	100.8	145.2	189.7	95.9	140.2	184.6	–	–	–	
			kW		12.5			13.8			15.3			17.0			–		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		
10,000 cfm	EAT (wb)	58.0	THC	228.7	228.7	257.7	219.7	219.7	247.6	209.8	209.8	236.5	199.1	199.1	224.4	187.3	187.3	211.0	
			SHC	199.7	228.7	257.7	191.8	219.7	247.6	183.2	209.8	236.5	173.9	199.1	224.4	163.5	187.3	211.0	
			kW		12.1			13.4			15.0			16.7			18.7		
		62.0	THC	228.8	228.8	267.6	219.8	219.8	257.1	210.0	210.0	245.5	199.2	199.2	233.0	187.4	187.4	219.1	
			SHC	190.1	228.8	267.6	182.6	219.8	257.1	174.4	210.0	245.5	165.5	199.2	233.0	155.7	187.4	219.1	
			kW		12.1			13.4			15.0			16.7			18.7		
		67.0	THC	238.5	238.5	257.4	227.3	227.3	252.4	215.2	215.2	246.7	202.4	202.4	240.1	188.7	188.7	231.8	
			SHC	160.6	209.0	257.4	156.0	204.2	252.4	151.0	198.8	246.7	145.4	192.7	240.1	138.9	185.3	231.8	
			kW		12.2			13.5			15.1			16.8			18.7		
		72.0	THC	260.3	260.3	260.3	247.9	247.9	247.9	234.5	234.5	234.5	–	–	–	–	–	–	
			SHC	112.5	161.4	210.4	108.2	157.0	205.9	103.5	152.3	201.0	–	–	–	–	–	–	
			kW		12.6			13.9			15.4			–			–		
		76.0	THC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			SHC	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
			kW		–			–			–			–			–		

LEGEND:

– = Do not operate
EAT(wb) = Entering air temp (wet bulb)
SHC = Sensible heat capacity (Gross)
EAT(db) = Entering air temp (dry bulb)
L/s = Liters per second
kW = Compressor kilowatts
THC = Total heat capacity (Gross)
Cfm = Cubic feet per minute (supply air)

ELECTRICAL DATA

38AUZ07 COOLING 50 Hz

38AUZ07							WITHOUT PWRD C.O.		WITH PWRD C.O.	
V–Ph–Hz	VOLTAGE RANGE		COMP 1		OFM (ea)		MCA	Fuse	MCA	Fuse
	MIN	MAX	RLA	LRA	WATTS	FLA				
400–3–50	380	420	9.7	64	270	0.7	13.5	20	15.9	25

38AUZ08 COOLING 50 Hz

38AUZ08							WITHOUT PWRD C.O.		WITH PWRD C.O.	
V–Ph–Hz	VOLTAGE RANGE		COMP 1		OFM (ea)					
	MIN	MAX	RLA	LRA	WATTS	FLA	MCA	Fuse	MCA	Fuse
400–3–50	380	420	12.2	101	270	0.7	16.7	25	19.0	30

38AUD12 COOLING 50 Hz

38AUD12									WITHOUT PWRD C.O.		WITH PWRD C.O.	
V–Ph–Hz	VOLTAGE RANGE		COMP 1		COMP 2		OFM (ea)					
	MIN	MAX	RLA	LRA	RLA	LRA	WATTS	FLA	MCA	Fuse	MCA	Fuse
400–3–50	380	420	7.8	51.5	7.8	51.5	270	0.7	19.0	25	21.3	30

38AUD14 COOLING 50 Hz

38AUD14									WITHOUT PWRD C.O.		WITH PWRD C.O.	
V–Ph–Hz	VOLTAGE RANGE		COMP 1		COMP 2		OFM (ea)					
	MIN	MAX	RLA	LRA	RLA	LRA	WATTS	FLA	MCA	Fuse	MCA	Fuse
400–3–50	380	420	10.6	74	10.6	74	270	0.7	25.3	30	27.6	30

38AUD16 COOLING 50 Hz

38AUD16									POWER SUPPLY		DISCONNECT SIZE	
V–Ph–Hz	VOLTAGE RANGE		COMP 1		COMP 2		OFM					
	Min	Max	RLA	LRA	RLA	LRA	Qty	FLA (ea)	MCA	MOCP	FLA	LRA
400–3–50	360	440	12.2	101	12.2	101	3	0.7	29.6	40	30	208

38AUD25 COOLING 50 Hz

38AUD24									POWER SUPPLY		DISCONNECT SIZE	
V–Ph–Hz	VOLTAGE RANGE		COMP 1		COMP 2		OFM					
	Min	Max	RLA	LRA	RLA	LRA	Qty	FLA (ea)	MCA	MOCP	FLA	LRA
400–3–50	360	440	16.7	111	16.7	111	4	0.7	40.4	50	42	230

APPLICATION DATA

Operating limits

Maximum outdoor temperature . . . . . 125°F

Minimum return-air temperature (40RUA) . . . . . 55°F

Maximum return-air temperature (40RUA) . . . . . 95°F

Range of acceptable saturation suction temperature . . . . . 20 to 50°F

Maximum discharge temperature . . . . . 275°F

Minimum discharge superheat . . . . . 60°F

NOTES:

1. Select air handler at no less than 300 cfm/ton (nominal condensing unit capacity).
2. Total combined draw of the field-supplied liquid line solenoid valve and air handler fan contactor must not exceed 22 va. If the specified va must be exceeded, use a remote relay to control the load.

MINIMUM OUTDOOR-AIR OPERATING TEMPERATURE

UNIT 38AU	MINIMUM OUTDOOR TEMP (°F)	
	Std	With MotorMaster I® Control†
Z07	35	–20
Z08	35	
D12	35	
D14	35	
D16	35	
D25	35	

† Wind baffles (field-supplied and field-installed) are recommended for all units with MotorMaster I® control. Refer to Low Ambient Temperature Control Installation Instructions for additional information.

Refrigerant piping

IMPORTANT: Do not bury refrigerant piping underground.

It is recommended that the refrigerant piping for all commercial split systems include a liquid line solenoid valve, a liquid line filter drier and a sight glass.

For refrigerant lines longer than 75 lineal ft, a liquid line solenoid valve installed at the **indoor** unit and a suction accumulator are required. Refer to the Refrigerant Specialties Part Numbers table.

REFRIGERANT SPECIALTIES PART NUMBERS

LIQUID LINE SIZE (in.)	LIQUID LINE SOLENOID VALVE (LLSV)	LLSV COIL	SIGHT GLASS
$^3/_8$	EF680033	EF680037	KM680008
$^1/_2$	EF680035	EF680037	KM680004
$^5/_8$	EF680036	EF680037	KM680005

NOTE: 38AUD units require TWO sets of parts.

38AUZ 07-08 PIPING RECOMMENDATIONS (SINGLE-CIRCUIT UNIT)

R–410A	Equivalent Length									
	meter	0–12		12–23		23–34		34–46		46–57	
	feet	0–38		38–75		75–113		113–150		150–188	
Model	Linear Length										
	meter	0–7.5		7.5–15		15–23		23–30		30–38	
	feet	0–25		25–50		50–75		75–100		100–125	
38AUZ*07	Liquid Line	3/8		3/8	1/2	3/8	1/2	3/8	1/2	3/8	1/2
	Max Lift										
	SI (m)										
	Novation	7.5		15		16	23	9	29	10	34
	RTPF	7.5		15		19	23	12	30	11	38
	EN (ft)										
	Novation	25		50		53	75	34	97	33	112
	RTPF	25		50		63	75	42	100	38	125
	Suction Line	7/8	7/8	7/8		7/8		7/8		1–1/8	
	Charge										
	SI (kg)										
	Novation	3.8		4.4		4.9	5.9	5.4	6.8	6.1	7.9
	RTPF	6.4		7.0		7.4	8.5	7.9	9.3	8.7	10.4
	EN (lbs)										
	Novation	8.4		9.8		10.8	13.1	11.8	14.9	13.5	17.4
	RTPF	14.0		15.4		16.4	18.7	17.4	20.5	19.1	23.0
38AUZ*08	Liquid Line	1/2		1/2	5/8	1/2	5/8	1/2	5/8	1/2	5/8
	Max Lift										
	SI (m)										
	Novation	7.5		9	11	7	10	DNU	10	10	16
	RTPF	7.5		15	NR	23	NR	27	30	18	38
	EN (ft)										
	Novation	25		30	38	24	36	DNU	35	33	53
	RTPF	25		50	NR	75	NR	89	100	62	125
	Suction Line	7/8		7/8		1–1/8		1–1/8		1–1/8	
	Charge										
	SI (kg)										
	Novation	5.5		6.3	7.2	7.4	8.6	DNU	9.9	9.1	11.2
	RTPF	8.6		9.4	NR	10.4	NR	11.3	13.0	12.2	14.3
	EN (lbs)										
	Novation	12.2		13.9	15.8	16.2	19.0	DNU	21.9	20.0	24.8
	RTPF	19.0		20.7	NR	23.0	NR	24.9	28.7	26.8	31.6

Legend:

Equivalent Length – Equivalent tubing length, including effects of refrigeration specialties devices

Linear Length – Linear tubing length, feet

Liquid Line – Tubing size, inches OD.

Max Lift – Maximum liquid lift (indoor unit ABOVE outdoor unit only), at maximum permitted liquid line pressure drop
- Linear Length Less than 30 m (100 ft): Minimum 1.1° C (2.0° F) subcooling entering TXV
- Linear Length Greater than 30 m (100 ft): Minimum 0.3° C (0.5° F) subcooling entering TXV

Suction Line – Tube size, inches OD

Charge – Charge Quantity, lbs. Calculated for both liquid line sizes (where applicable), but only with larger suction line size (where applicable)

DNU – Do Not Use (pressure drop exceeds available subcooling in this model)

NR – Not Recommended (use smaller liquid tube size)

SI – Metric units of measure

EN – English units of measure (I–P)

NOTE: For applications with equivalent length greater than 57 m (188 ft) and/or linear length greater than 38 m (125 ft), contact your local Carrier representative.

38AUD 12-14 PIPING RECOMMENDATIONS (TWO-CIRCUIT UNIT)

NOTE: 38AUD requires TWO sets of refrigeration piping

R–410A	Equivalent Length									
	meter	**0–12**	**12–23**		**23–34**		**34–46**		**46–57**	
	feet	**0–38**	**38–75**		**75–113**		**113–150**		**150–188**	
Model	Linear Length									
	meter	0–7.5	7.5–15		15–23		23–30		30–38	
	feet	0–25	25–50		50–75		75–100		100–125	
38AUD*12	Liquid Line	3/8	3/8		3/8	1/2	3/8	1/2	3/8	1/2
	Max Lift									
	SI (m)									
	Novation	7.5	15		15	23	10	24	13	29
	RTPF	7.5	15		15	23	10	27	11	32
	EN (ft)									
	Novation	25	50		50	75	36	79	44	96
	RTPF	25	50		50	75	36	89	39	106
	Suction Line	7/8	7/8		7/8		7/8		1–1/8	
	Charge									
	SI (kg)									
	Novation	3.3	3.8		4.2	5.3	4.7	6.1	5.1	6.9
	RTPF	4.9	5.4		5.8	6.9	6.3	7.7	6.8	8.6
	EN (lbs)									
	Novation	7.3	8.3		9.3	11.6	10.3	13.4	11.3	15.2
	RTPF	10.9	11.9		12.9	15.2	13.9	17.0	14.9	18.8
38AUD*14	Liquid Line	3/8	1/2	5/8	1/2	5/8	1/2	5/8	1/2	5/8
	Max Lift									
	SI (m)									
	Novation	7.5	13	15	12	14	11	14	17	20
	EN (ft)									
	Novation	25	45	50	42	49	39	48	56	68
	Suction Line	7/8	7/8		7/8		1–1/8		1–1/8	
	Charge									
	SI (kg)									
	Novation	4.6	5.8	6.6	6.6	7.8	7.6	10.7	9.4	12.0
	EN (lbs)									
	Novation	10.1	12.7	14.6	14.5	17.3	16.8	23.5	20.7	26.4

Legend:

Equivalent Length – Equivalent tubing length, including effects of refrigeration specialties devices

Linear Length – Linear tubing length, feet

Liquid Line – Tubing size, inches OD.

Max Lift – Maximum liquid lift (indoor unit ABOVE outdoor unit only), at maximum permitted liquid line pressure drop
- Linear Length Less than 30 m (100 ft): Minimum 1.1° C (2.0° F) subcooling entering TXV
- Linear Length Greater than 30 m (100 ft): Minimum 0.3° C (0.5° F) subcooling entering TXV

Suction Line – Tube size, inches OD

Charge – Charge Quantity, lbs. Calculated for both liquid line sizes (where applicable), but only with larger suction line size (where applicable)

DNU – Do Not Use (pressure drop exceeds available subcooling in this model)

NR – Not Recommended (use smaller liquid tube size)

SI – Metric units of measure

EN – English units of measure (I–P)

NOTE: For applications with equivalent length greater than 57 m (188 ft) and/or linear length greater than 38 m (125 ft), contact your local Carrier representative.

38AUD 16-25 PIPING RECOMMENDATIONS (TWO-CIRCUIT UNIT)

NOTE: 38AUD requires TWO sets of refrigeration piping

R–410A	Equivalent Length									
	meter	**0–12**		**12–23**		**23–34**		**34–46**		**46–57**	
	feet	**0–38**		**38–75**		**75–113**		**113–150**		**150–188**	
Model	Linear Length										
	meter	0–7.5		7.5–15		15–23		23–30		30–38	
	feet	0–25		25–50		50–75		75–100		100–125	
38AUD*16	Liquid Line	3/8	1/2	3/8	1/2	3/8	1/2	3/8	1/2	1/2	
	Max Lift										
	SI (m)										
	Novation	7.5	NR	15	NR	21	23	13	30	38	
	RTPF	DNU	7.5	DNU	15	DNU	23	DNU	30	36	
	EN (ft)										
	Novation	25	NR	50	NR	71	75	43	100	125	
	RTPF	DNU	25	DNU	50	DNU	75	DNU	100	119	
	Suction Line	7/8		1–1/8		1–1/8		1–1/8		1–1/8	
	Charge										
	SI (kg)										
	Novation	5.8	NR	6.3	NR	7.0	8.0	7.5	8.9	9.8	
	RTPF	DNU	9.8	DNU	10.7	DNU	11.6	DNU	12.4	13.3	
	EN (lbs)										
	Novation	12.9	NR	13.9	NR	15.4	17.7	16.5	19.6	21.6	
	RTPF	DNU	21.7	DNU	23.6	DNU	25.5	DNU	27.4	29.3	
38AUD*25	Liquid Line	1/2		1/2		1/2		1/2	5/8	1/2	5/8
	Max Lift										
	SI (m)										
	RTPF	7.5		15		23		20	27	23	32
	EN (ft)										
	RTPF	25		50		75		67	91	76	107
	Suction Line	7/8		1–1/8		1–1/8		1–1/8		1–1/8	
	Charge										
	SI (kg)										
	RTPF	9.4		10.3		11.2		12.1	13.8	13.0	15.1
	EN (lbs)										
	RTPF	20.7		22.8		24.7		26.6	30.4	28.6	33.3

Legend:

Equivalent Length – Equivalent tubing length, including effects of refrigeration specialties devices

Linear Length – Linear tubing length, feet

Liquid Line – Tubing size, inches OD.

Max Lift – Maximum liquid lift (indoor unit ABOVE outdoor unit only), at maximum permitted liquid line pressure drop
- Linear Length Less than 30 m (100 ft): Minimum 1.1° C (2.0° F) subcooling entering TXV
- Linear Length Greater than 30 m (100 ft): Minimum 0.3° C (0.5° F) subcooling entering TXV

Suction Line – Tube size, inches OD

Charge – Charge Quantity, lbs. Calculated for both liquid line sizes (where applicable), but only with larger suction line size (where applicable)

DNU – Do Not Use (pressure drop exceeds available subcooling in this model)

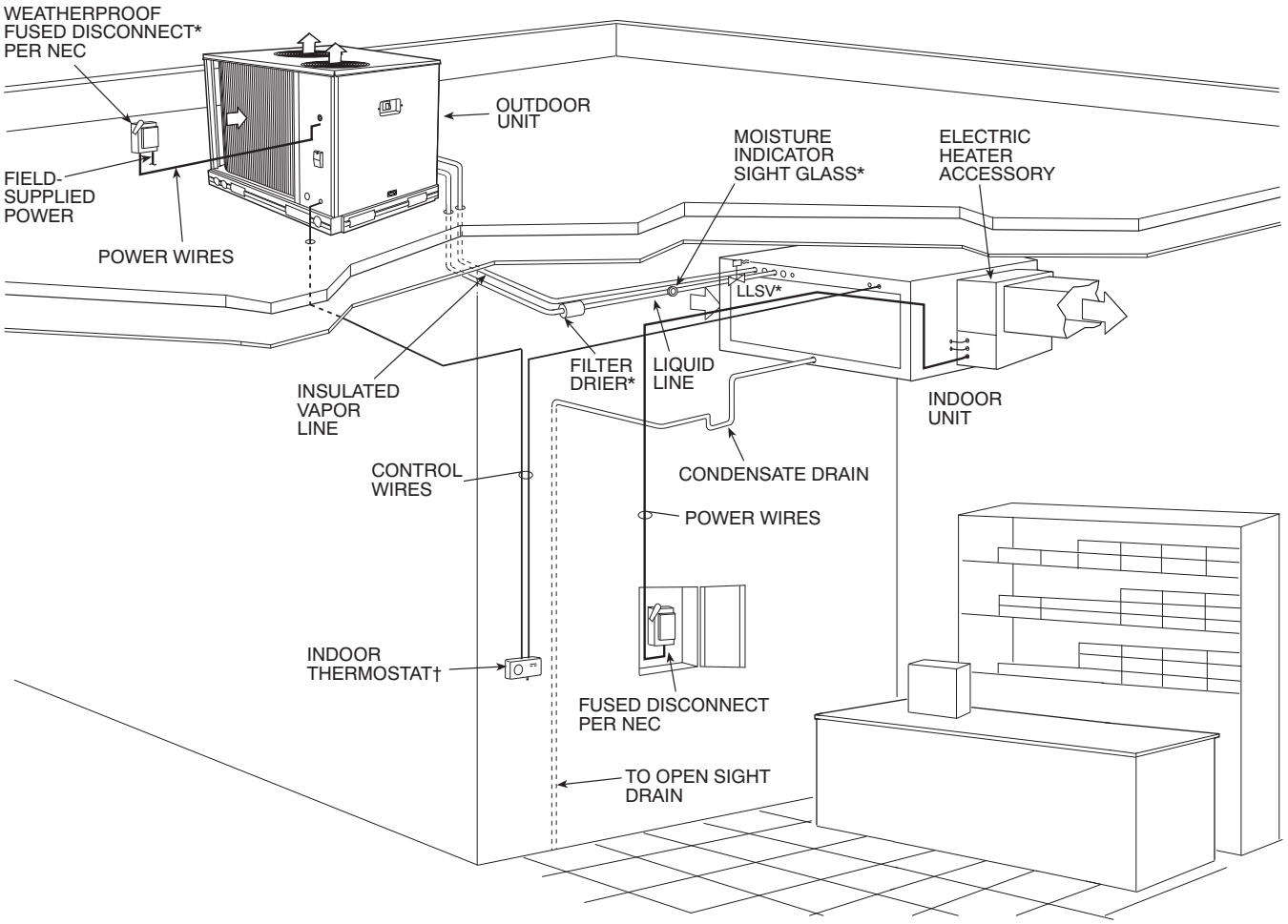
NR – Not Recommended (use smaller liquid tube size)

SI – Metric units of measure

EN – English units of measure (I–P)

NOTE: For applications with equivalent length greater than 57 m (188 ft) and/or linear length greater than 38 m (125 ft), contact your local Carrier representative.

TYPICAL PIPING AND WIRING



C09054

LEGEND:

NEC – National Electrical Code

TXV – Thermostatic Expansion Valve

* Field–supplied

† Double riser may be required. Consult condensing unit product data catalog for details.

NOTES:

1. All piping must follow standard refrigerant piping techniques. Refer to Carrier System Design Manual for details.
2. All wiring must comply with the applicable local and national codes.
3. Wiring and piping shown are general points-of-connection guides only and are not intended for, or to include all details for, a specific installation.
4. Liquid line solenoid valve (solenoid drop control) is recommended to prevent refrigerant migration to the compressor.
5. Internal factory-supplied TXVs not shown.

GUIDE SPECIFICATIONS

Commercial Air-Cooled Condensing Units

HVAC Guide Specifications

Size Range: 18.3 kW to 59.2 kW

Carrier Model Numbers: **38AUZ, Single Circuit (07 - 08 Models) 38AUD, Dual Circuit (12, 14, 16, 25 Models)**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Outdoor-mounted, air-cooled condensing unit suitable for on-the-ground or rooftop installation. Unit shall consist of a hermetic scroll air-conditioning compressor(s) assembly, an air-cooled coil, propeller-type condenser fans, and a control box. Unit shall discharge supply air upward as shown on contract drawings. Unit shall be used in a refrigeration circuit matched with a packaged air-handling unit.

1.02 QUALITY ASSURANCE

A. Unit shall be rated in accordance with AHRI Standard 340/360.

B. Unit construction shall comply with ANSI/ASHRAE 15 safety code latest revision and comply with NEC.

C. Unit shall be constructed in accordance with UL 1995 standard and shall carry the UL and UL, Canada label.

D. Unit cabinet shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).

E. Air-cooled condenser coils for hermetic scroll compressor units 38AUZ and 38AUD shall be leak tested at 150 psig, and pressure tested at 650 psig.

F. Unit shall be manufactured in a facility registered to ISO 9001:2008 manufacturing quality standard.

1.03 DELIVERY, STORAGE, AND HANDLING

Unit shall be shipped as single package only, and shall be stored and handled according to unit manufacturer's recommendations.

1.04 WARRANTY (FOR INCLUSION BY SPECIFYING ENGINEER.)

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory-assembled, single piece, air-cooled condensing unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, compressor, holding charge, and special features required prior to field start-up.

B. Unit Cabinet:

1. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a prepainted baked enamel finish.
2. A heavy-gauge roll-formed perimeter base rail with forklift slots and lifting holes shall be provided to facilitate rigging.

C. Condenser Fans:

1. Condenser fans shall be direct driven, propeller type, discharging air vertically upward.
2. Fan blades shall be balanced.
3. Condenser fan discharge openings shall be equipped with PVC-coated steel wire safety guards.
4. Condenser fan and motor shaft shall be corrosion resistant.

D. Compressor:

1. Compressor shall be of the hermetic scroll type .
2. Compressor shall be mounted on rubber grommets.
3. Compressors shall include overload protection.
4. Compressors shall be equipped with a crankcase heater.
5. Compressor shall be equipped with internal high pressure and high temperature protection.

E. Condenser Coils:

1. Standard Aluminum fin - Copper Tube Coils:

a. Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.

b. Evaporator coils shall be leak tested to 150 psig, pressure tested to 450 psig, and qualified to UL 1995 burst test at 1775 psig.

c. Condenser coils shall be leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 1995 burst test at 1980 psig.

2. Optional Copper-fin evaporator and condenser coils:

a. Shall be constructed of copper fins mechanically bonded to copper tubes and copper tube sheets.

b. Galvanized steel tube sheets shall not be acceptable.

c. A polymer strip shall prevent coil assembly from contacting the sheet metal coil pan to minimize potential for galvanic corrosion between coil and pan.

3. Optional E-coated aluminum-fin evaporator and condenser coils:

a. Shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins.

b. Coating process shall ensure complete coil encapsulation of tubes, fins and headers.

c. Color shall be high gloss black with gloss per ASTM D523-89.

d. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges.

e. Superior hardness characteristics of 2H per ASTM D3363-92A and cross-hatch adhesion of 4B-5B per ASTM D3359-93.

f. Impact resistance shall be up to 160 in.-lb (ASTM D2794-93).

g. Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92).

h. Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90.

4. Standard All Aluminum Novation Coils:

a. Standard condenser coils shall have all aluminum Novation Heat Exchanger Technology design consisting of aluminum multi port flat tube design and aluminum fin. Coils shall be a furnace brazed design and contain epoxy lined shrink wrap on all aluminum to copper connections.

b. Condenser coils shall be leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 1995 burst test at 1980 psig.

5. Optional E-coated aluminum-fin, aluminum tube condenser coils:

a. Shall have a flexible epoxy polymer coating uniformly applied to all coil external surface areas without material bridging between fins or louvers.

b. Coating process shall ensure complete coil encapsulation, including all exposed fin edges.

c. E-coat thickness of 0.8 to 1.2 mil with top coat having a uniform dry film thickness from 1.0 to 2.0 mil on all external coil surface areas, including fin edges, shall be provided.

d. Shall have superior hardness characteristics of 2H per ASTM D3363-00 and cross-hatch adhesion of 4B-5B per ASTM D3359-02.

e. Shall have superior impact resistance with no cracking, chipping or peeling per NSF/ANSI 51-2002 Method 10.2.

F. Refrigeration Components:

Refrigeration circuit components shall include liquid line service valve, suction line service valve, a full charge of compressor oil, and a partial holding charge of refrigerant.

G. Controls and Safeties:

1. Minimum control functions shall include:

f. Control wire terminal blocks.

g. Compressor lockout on auto-reset safety until reset from thermostat.

h. Each unit shall utilize the Comfort Alert™ Diagnostic Board that provides:

(1.) System Pressure Trip fault code indication

(2.) Short Cycling fault code indication

(3.) Locked Rotor fault code indication

(4.) Open Circuit fault code indication

(5.) Reverse Phase 3 fault code indication

(6.) Welded Contactor fault code indication

(7.) Low Voltage fault code indication

(8.) Anti-short cycle protection

(9.) Phase reversal protection

2. Minimum safety devices which are equipped with automatic reset (after resetting first at thermostat), shall include:
   a. High discharge pressure cutout.
   b. Low pressure cutout.

H. Operating Characteristics:
1. The capacity of the condensing unit shall meet or exceed _____ Btuh at a suction temperature of _____°C/F. The power consumption at full load shall not exceed _____ kW.
2. The combination of the condensing unit and the evaporator or fan coil unit shall have a total net cooling capacity of _____ Btuh or greater at conditions of _____ cfm entering-air temperature at the evaporator at _____°C/F wet bulb and _____°C/F dry bulb, and air entering the condensing unit at _____°C/F.
3. The system shall have an EER of _____ Btuh/Watt or greater at standard AHRI conditions.
4. Standard unit shall be capable to operate up to 52°C (125°F) and down to 4°C (40°F)

I. Electrical Requirements:
1. Nominal unit electrical characteristics shall be _____ v, 3-ph, 50 Hz. The unit shall be capable of satisfactory operation within voltage limits of ____ v to _____ v.
2. Unit electrical power shall be single-point connection.
3. Unit control circuit shall contain a 24-v transformer for unit control.

J. Special Features:
1. Low-Ambient Temperature Control:
   A low-ambient temperature control shall be available as a factory-installed option or as a field-installed accessory. This low-ambient control shall regulate speed of the condenser-fan motors in response to the saturated condensing temperature of the unit. The control shall maintain correct condensing pressure at outdoor temperatures down to –29°C (-20°F).
2. Unit-Mounted, Non-Fused Disconnect Switch:
   Switch shall be factory-installed and internally mounted. NEC and UL-approved non-fused switch shall provide unit power shutoff. Switch shall be accessible from outside the unit and shall provide power off lockout capability. Non-fused disconnect cannot be used when unit MOCP electrical rating exceeds 80 amps.
3. Thermostat Controls:
   a. Programmable multi-stage thermostat shall have 7-day clock, holiday scheduling, large backlit display, remote sensor capability, and Title 24 compliance.
   b. Commercial Electronic Thermostat shall have 7-day time clock, auto-changeover, multi-stage capability, and large LCD (liquid crystal display) temperature display.
4. Louvered hail Guard Package:
   Louvered hail guard package shall protect coils against damage from hail and other flying debris.
5. Condenser Coil Grille (Novation 07-14 models only):
   Grille shall add decorative appearance to unit and protect condenser coil from large objects and vandalism.

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Veneklasen Associates
Consultants in Acoustics | Noise | Vibration | AV | IT

June 12, 2020

Blue Onyx Design
22741 Pacific Coast Highway, Suite 400
Malibu CA 90265

Received
09/09/2020
Planning Dept.

Attention: Norman R. Haynie

Subject: **Malibu Sea View Hotel**
Malibu, California
Rooftop Noise Report
VA Project No. 7614-001

Dear Norman:

Veneklasen Associates, Inc. (VA) has completed our review of the Malibu Sea View Hotel in Malibu, California as it pertains to noise to the neighboring environment. This report evaluates the existing noise conditions at the site and analyzes the proposed speaker and barrier arrangement at the future rooftop pool deck for compliance with local noise ordinances. Sound measurements performed at the site and computer modeling have been used to arrive at the potential solutions proposed herein. This report represents the results of our findings.

1.0 INTRODUCTION

This noise study was conducted to determine the impact of the rooftop deck's speaker system on the properties and homes surrounding the future Malibu Sea View Hotel, notably on the residences to the north on the hill above the hotel. VA understands from client correspondence and from drawings that loudspeakers will be installed on the rooftop along with a cantilevered barrier to reduce noise propagation to the environment. The speakers are meant to provide background music and will not be used for other "high-energy" uses for DJ's, live bands, etc., per correspondence with the client. VA's scope of work included calculating the noise levels to the surrounding environment using the proposed speaker and barrier layouts and determining the method(s) required, if any, to further reduce the sound levels to meet the applicable code requirements of the City of Malibu.

The project consists of the conversion of an existing office building and car wash into 3-level, 36-room hotel with a rooftop deck, bar, a café, and 90 parking spaces. The site is immediately bounded by a McDonald's to the west, commercial spaces to the east, residences to the north, and CA-1 Pacific Coast Highway to the south.

2.0 NOISE CRITERIA

The City of Malibu uses municipal code language that speaks in terms of general noise audibility. A sound is typically considered "audible" if it is within 10 dBA of a background or ambient noise level; i.e. if the steady-state ambient noise level at a site is 50 dBA, then it is reasonable to assume that sounds at or above 40 dBA will be audible at the site. This interpretation of audibility is used throughout this report when referencing audible sound levels.

Within Chapter 6.0 of the Malibu General Plan, noise levels are referenced in terms of Equivalent Level (Leq), the Minimum Level (Lmin), and Maximum Level (Lmax).

> *Leq is a single-number noise descriptor that represents the average sound level in an environment where the actual noise level varies with time, Lmin and Lmax are the lowest and highest noise level that occurred during that time.*

2.1 Allowable Exterior Noise Levels

Section 8.24.040 of the Malibu Municipal Code states that "No person shall make, or cause or suffer, or permit to be made upon any premises owned, occupied or controlled by such person, any unnecessary noises, sounds or vibrations which are physically annoying to reasonable persons of ordinary sensitivity." No quantitative sound level is provided as an allowable maximum to meet this criterion in the Code.

Further, Section 8.24.050, subsection L, goes on to state for commercial establishments adjacent to residential properties: "sustained noise from the premises of any commercial establishment, including any outdoor area part of or under the control of the establishment, between the hours of ten p.m. and seven a.m. shall not be plainly audible at a distance of five feet of any residential dwelling unit."

Alternatively, the Malibu General Plan provides maximum exterior noise limits for non-transportation noise sources, reproduced partially in Table 1.

Table 1 – Summary of Malibu General Plan Allowable Noise Levels

Receiving Land Use Category	Time Period	Noise Level, dBA	
		L_{eq}	L_{max}
Non-Rural Residential	7:00 a.m. to 7:00 p.m.	55	75
	7:00 p.m. to 10:00 p.m.	50	65
	10:00 p.m. to 7:00 a.m.	45	60
Commercial, Institutional	7:00 a.m. to 7:00 p.m.	65	85
	7:00 p.m. to 7:00 a.m.	60	70

For the purposes of this study, VA assumes that if the calculated sound level due to hotel activity is audible at a nearby residence, then it is potentially objectionable with respect to the Code, since this is more stringent than the limits provided by the General Plan.

3.0 EXISTING CONDITIONS

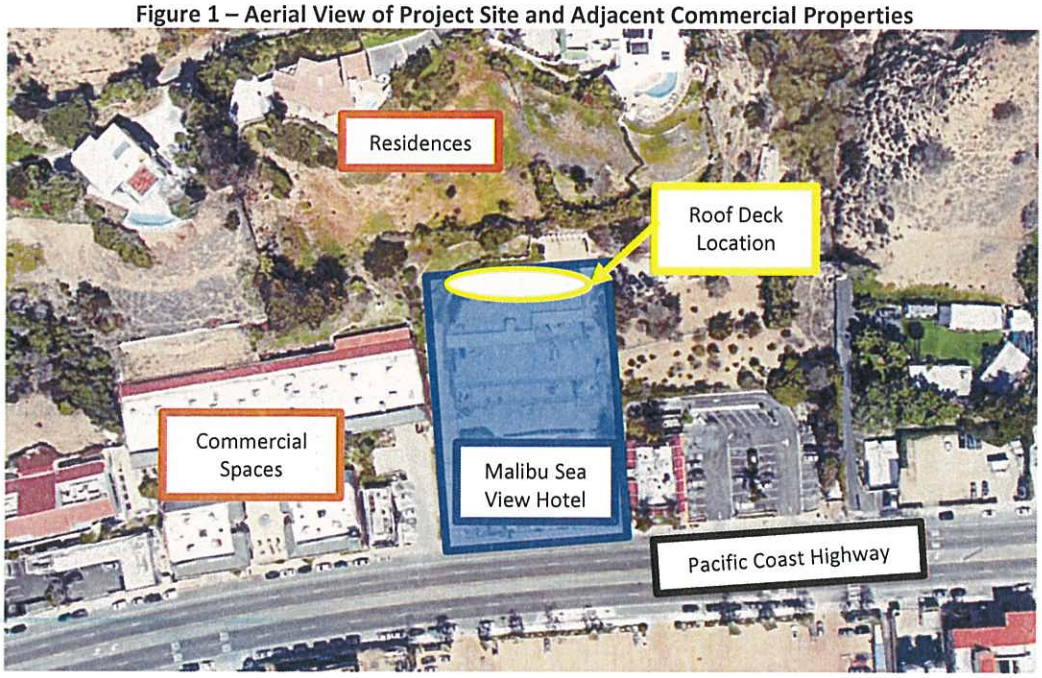
VA made ambient noise measurements at various locations around the future hotel with a Brüel & Kjær 2270 class 1 sound level meter at nearby, potentially affected areas. These measurements were used to compare the calculated sound levels to audibility thresholds after noise models were built. As stated in Section 2.1 of this report, future noise levels due to hotel activity will need to be at least 10 dBA lower than the measured ambient sound levels to be considered inaudible for a person of reasonable sensitivity. To design to the most conservative target sound level, the measurements were conducted at night to capture lower ambient sound levels than what occurs during the daytime. Table 2 summarizes the measured levels; see the Appendix for a complete summary of measured levels at each location.

Table 2 – Summary of Measured Sound Levels Around Malibu Sea View Hotel

Location	Leq, dBA
North Neighborhood	50

Based on the above noise levels, the sound levels due to rooftop noise at the future hotel should not be higher than 40 dBA at the nearest residential property to satisfy the noise ordinance.

Figure 1 – Aerial View of Project Site and Adjacent Commercial Properties



4.0 ANALYZING FUTURE CONDITIONS

4.1 Future Rooftop Activity and Speaker Setup

Through correspondence with the client, VA understands that the future rooftop deck will include a pool with a barrier along the north (back) wall between the deck and the homes above. Loudspeakers will be installed along the underside of the cantilevered barrier and face south toward the pool. The intent is to provide relaxing background music for guests on the deck and not to create a "party" atmosphere with loud music via DJ's, bands, or other types of loud musical performances.

The client has provided a conceptual cross-section of the proposed barrier as well as a proposed location, shown in Figures 2 and 3 below. Drawings have not yet been provided showing the anticipated speaker layout along the inside of the barrier. For the purposes of this analysis, VA has assumed that the speakers will be spaced so that the sound levels are even across the pool area and that there are no "hot spots" where sound levels are noticeably louder than in other areas. VA has determined that this will entail a speaker spacing of about 10 feet. Note that this is approximate and subject to change as the project progresses. Speaker spacing that is nominally longer or shorter is not likely to affect the future noise levels significantly, so long as they are installed in the corner of the cantilevered barrier. There must be an array of speakers installed under the barrier cantilever to adequately minimize sound levels to the environment; installing only a few speakers across the whole deck will necessitate turning them up louder to cover the deck area, which will lead to increased sound transmission into the surrounding area.

Figure 2 – Cross-Section of Planned Acoustical Barrier

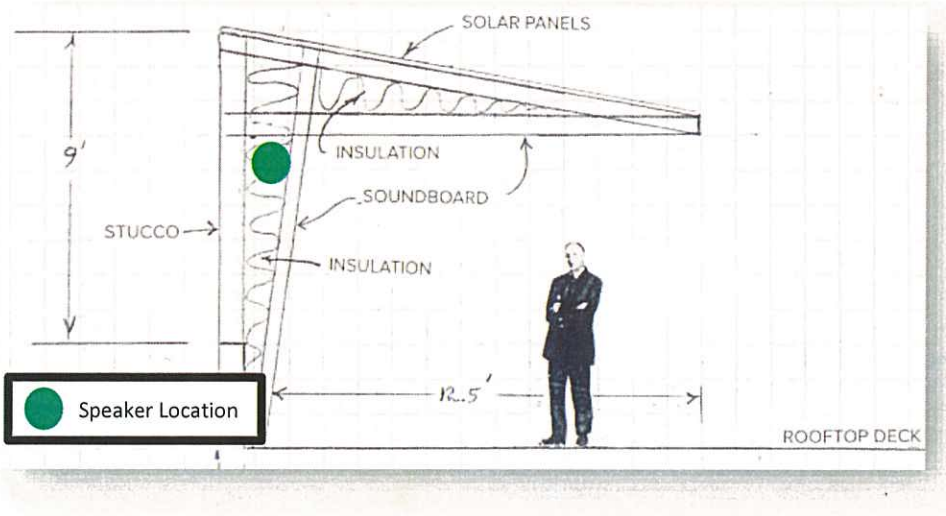
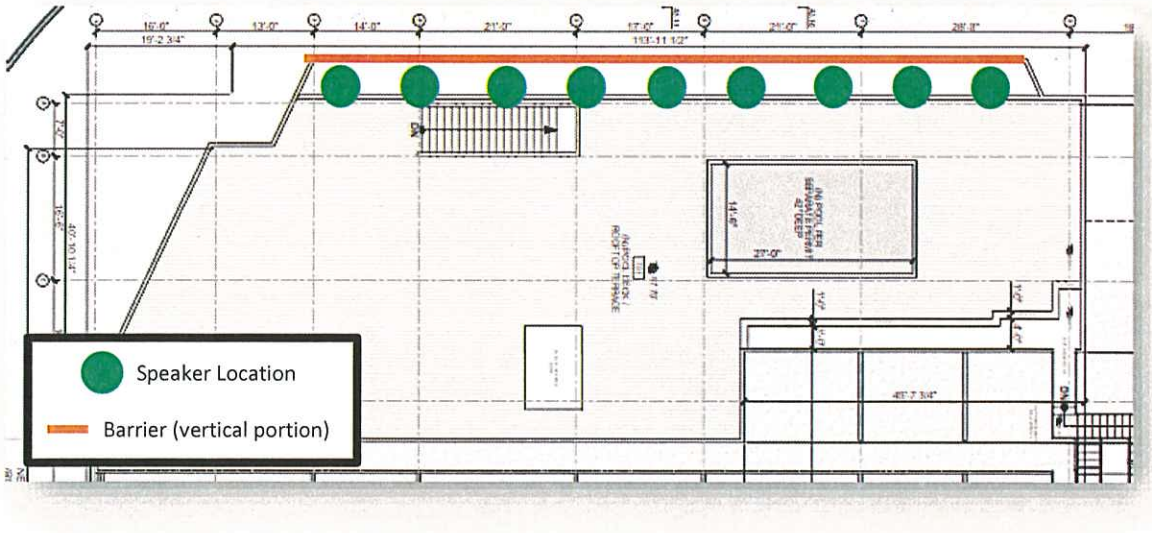


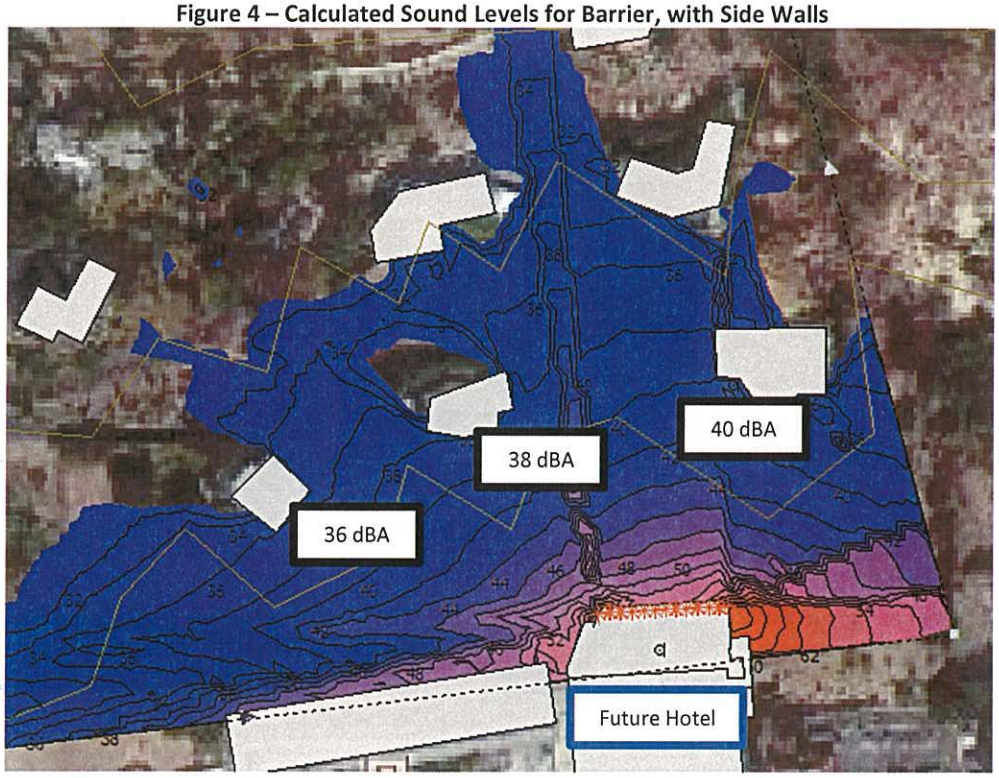
Figure 3 – Proposed Distributed Speaker Layout on Trellis



4.2 Acoustical Model

VA created an acoustical model using the topography and buildings of the surrounding area along with the proposed sound wall construction and loudspeaker distribution as described above. Based on the acoustical modeling, VA found that the proposed acoustical barrier construction is acceptable, so long as the following caveats are observed. (See Figure 4 below for a noise contour of the calculated sound levels.)

Figure 4 – Calculated Sound Levels for Barrier, with Side Walls

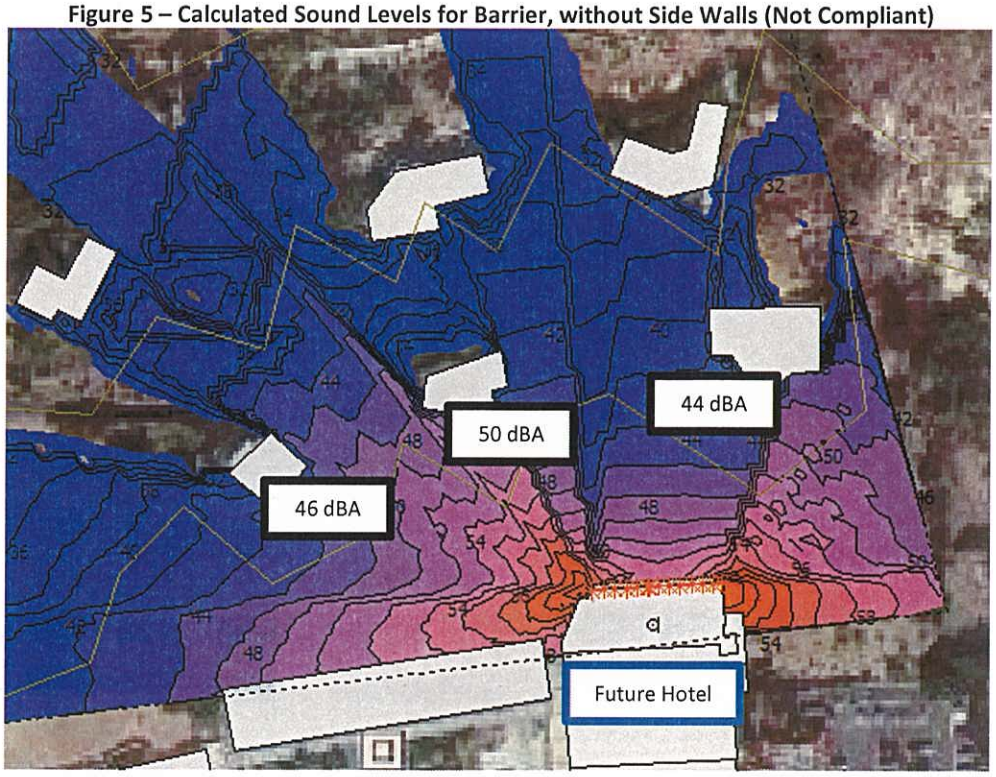


For the barrier to be effective, side walls must be added to the proposed barrier to reduce the amount of sound transmission around the sides of the barrier. These can be glass or some other transparent material to maintain the views out the side of the deck area, so long as the material is at least 2 pounds per square foot and solid without any openings. The side walls must extend all the way to the southernmost edge of the cantilevered overhang of the proposed barrier. The rest of the barrier, including the cantilevered overhang, must also be a minimum of 2 pounds per square foot to be effective.

Figure 5 below shows the calculated sound levels in the surrounding community using the proposed barrier without side walls. As the calculations show, the side walls are critical for sufficiently lowering sound levels to the nearby residences: Without side walls, sound levels are between 44 and 50 dBA at the nearest homes, which is very likely to be audible given the measured ambient noise environment. With side walls, the levels are reduced to 36 to 40 dBA, which are at least 10 dBA lower than the existing ambient environment and therefore inaudible.

Additionally, the sound level at the rooftop deck should be no higher than 65 dBA for the noise to remain in compliance with the noise ordinance. This was the highest level that VA used in the acoustical model that allowed for sound levels in the community to be 40 dBA or lower, which is the established threshold of audibility for this study. If sound levels are above 65 at the area shown on the rooftop deck, then there is a likelihood that the sound will be audible at the nearest residences and therefore out of compliance with the ordinance.

Figure 5 – Calculated Sound Levels for Barrier, without Side Walls (Not Compliant)



4.3 Controlling Sound Levels at the Source

For the sound levels to be effectively controlled in the surrounding community, it is essential that the speaker output levels are controlled at the generation of the music itself. As noted above, the analysis shows that the proposed barrier is acceptable so long as it has side walls and that the sound level at the roof deck is 65 dBA. To ensure that the sound levels do not exceed this, a limiter must be installed on the roof deck audio system that sets a hard limit on the output of the speakers.

It should be noted that while the calculations show that a level of 65 dBA on the pool deck will satisfy the noise ordinance in the community, the actual controlling factor for compliance is audibility in the community. It is possible that for compliance to be achieved, the sound level at the roof may be occasionally slightly higher or lower than 65 dBA. Therefore, when the maximum speaker levels are being set on the limiter, a person must be in the residential area to confirm that the sound is not audible.

To properly set the limiter, an exercise must be conducted that involves the hotel owner/operator and the residents from the surrounding community, as well as a VA associate. This is an exercise that VA typically performs for similar projects: A person will be at the audio control rack adjusting the limiter settings while VA and the other interested parties are at the nearest residences determining whether sound from the roof deck is audible. The limiter is then set at the highest level that allows for inaudibility at the nearby homes. Once the limiter is set, it will not be possible for someone to turn up the volume on the audio system without also adjusting the limiter. Because of this, the limiter should *never* be adjusted, but if it needs to be, then only one or two hotel staff members should have the access/capability to do so to ensure that not everyone can adjust it as they see fit.

5.0 SUMMARY

After visiting Malibu Sea View Hotel and constructing an acoustical model to potential future conditions, VA concludes the following:

- Based on site noise measurements of the surrounding area, to meet the intent of the Malibu Municipal Code, sound from the future rooftop deck should not exceed 40 dBA at the residences north of the hotel. This is 10 dBA below the existing ambient noise level in that area, which is the threshold of audibility.
- The client has proposed a cantilevered barrier on the rooftop deck, under which the loudspeakers for the deck would be installed. Acoustical modeling has shown that this will be acceptable, so long as the following conditions are met:
    - The speakers must be installed in the corner of the barrier, and as many speakers as can be facilitated to maintain an even sound level over the deck should be installed. The speakers should be directional and be aimed south toward the rest of the hotel and roof deck.
    - The sound level should be no higher than 65 dBA near the center of the roof deck. Higher sound levels at the roof deck may raise the sound levels in the nearby community and cause the hotel to be out of compliance with municipal code.
    - The acoustical barrier must have side walls that partially enclose the area it is covering. The side walls must extend completely to the south edge on both sides of the cantilevered portion of the barrier. This is critical for reducing the rooftop sound to acceptable levels in the nearby residential community. The side walls can be glass or some other transparent material to maintain sightlines out the side of the hotel.
- After the speakers and barrier have been installed, the sound system should be tuned to ensure that the sound levels do not increase above a set threshold using a limiter. The limiter will set a hard "cap" on the sound levels output by the speakers to maintain the maximum-allowable sound levels in the residential community. The exercise to set the limiter level will be conducted with hotel management and the residents from the nearby homes.

Please do not hesitate to contact the undersigned with any further questions or comments.

Sincerely,
Veneklasen Associates, Inc.

Matt Rashoff
Associate

APPENDIX – NOISE MEASUREMENT SUMMARIES

Table 3 – Measurement Summary at North Residential Neighborhood

Time	Leq, dBA
10:36:10 PM	46
10:36:15 PM	50
10:36:20 PM	48
10:36:25 PM	49
10:36:30 PM	52
10:36:35 PM	51
10:36:40 PM	50
10:36:45 PM	53
10:36:50 PM	51
10:36:55 PM	50
10:37:00 PM	52
10:37:05 PM	49
10:37:10 PM	49
10:37:15 PM	53
10:37:20 PM	51
10:37:25 PM	53
10:37:30 PM	54
10:37:35 PM	48
10:37:40 PM	48
10:37:45 PM	47
10:37:50 PM	45
10:37:55 PM	48
10:38:00 PM	47
10:38:05 PM	46
10:38:10 PM	49

Table 4 – Measurement Summary at CA-1 Pacific Coast Highway

Time	Leq, dBA
10:50:35 PM	67
10:50:40 PM	59
10:50:45 PM	71
10:50:50 PM	71
10:50:55 PM	73
10:51:00 PM	67
10:51:05 PM	64
10:51:10 PM	71
10:51:15 PM	59
10:51:20 PM	58
10:51:25 PM	65
10:51:30 PM	71
10:51:35 PM	59
10:51:40 PM	61
10:51:45 PM	72

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/20/2020
Case Description: Excavator

Receptor at 50 feet

		Baselines (dBA)		
Description	**Land Use**	**Daytime**	**Evening**	**Night**
50 feet	Residential	65	60	55

			Equipment			
Description	**Impact Device**	**Usage(%)**	**Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Excavator	No	40	85	80.7	50	0

			Results			
	Calculated (dBA)		Noise Limits (dBA)		Noise Limit Exceedance (dBA)	
			Day		Day	
Equipment	***Lmax**	**Leq**	**Lmax**	**Leq**	**Lmax**	**Leq**
Excavator	80.7	76.7	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/20/2020
Case Description: Excavator

Receptor at 100 feet

		Baselines (dBA)		
Description	**Land Use**	**Daytime**	**Evening**	**Night**
100 feet	Residential	65	60	55

			Equipment			
Description	**Impact Device**	**Usage(%)**	**Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Excavator	No	40	85	80.7	100	0

			Results			
	Calculated (dBA)		Noise Limits (dBA)		Noise Limit Exceedance (dBA)	
			Day		Day	
Equipment	***Lmax**	**Leq**	**Lmax**	**Leq**	**Lmax**	**Leq**
Excavator	74.7	70.7	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/20/2020
Case Description: Phase 1

---- Receptor #1 ----

		Baselines (dBA)		
Description	**Land Use**	**Daytime**	**Evening**	**Night**
Recievers to the North	Residential	55	50	45

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	**Device**	**Usage(%)**	**(dBA)**	**(dBA)**	**(feet)**	**(dBA)**
Dozer	No	40	85	81.7	280	3
Excavator	No	40	85	80.7	280	3
Jackhammer	Yes	20	85	88.9	280	3

		Results					
		Calculated (dBA)		Noise Limits (dBA)		Noise Limit Exceedance (dBA)	
				Day		Day	
Equipment		***Lmax**	**Leq**	**Lmax**	**Leq**	**Lmax**	**Leq**
Dozer		67	63	75	90	None	None
Excavator		67	63	75	90	None	None
Jackhammer		67	60	75	90	None	None
	Total	67	67	75	90	None	None

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/20/2020
Case Description: Phase 1

---- Receptor #2 ----

		Baselines (dBA)		
Description	**Land Use**	**Daytime**	**Evening**	**Night**
Adjacent Commercial	Commercial	70	65	60

			Equipment			
Description	**Impact Device**	**Usage(%)**	**Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Dozer	No	40	85	81.7	50	0
Excavator	No	40	85	80.7	50	0
Jackhammer	Yes	20	85	88.9	50	0

			Results			
	Calculated (dBA)		Noise Limits (dBA)		Noise Limit Exceedance (dBA)	
			Day		Day	
Equipment	***Lmax**	**Leq**	**Lmax**	**Leq**	**Lmax**	**Leq**
Dozer	85	81	85	90	None	None
Excavator	85	81	85	90	None	None
Jackhammer	85	78	85	90	None	None
Total	85	85	85	90	None	None

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/20/2020
Case Description: Phase 2

---- Receptor #1 ----

		Baselines (dBA)		
Description	**Land Use**	**Daytime**	**Evening**	**Night**
Recievers to the North	Residential	55	50	45

			Equipment			
	Impact		**Spec Lmax**	**Actual Lmax**	**Receptor Distance**	**Estimated Shielding**
Description	**Device**	**Usage(%)**	**(dBA)**	**(dBA)**	**(feet)**	**(dBA)**
Crane	No	16	85	80.6	280	3
Concrete Mixer Truck	No	40	85	78.8	280	3
Front End Loader	No	40	85	79.1	280	3

			Results			
	Calculated (dBA)		**Noise Limits (dBA)**		**Noise Limit Exceedance (dBA)**	
			Day		**Day**	
Equipment	***Lmax**	**Leq**	**Lmax**	**Leq**	**Lmax**	**Leq**
Crane	63	55	75	90	None	None
Concrete Mixer Truck	61	57	75	90	None	None
Front End Loader	61	57	75	90	None	None
Total	63	61	75	90	None	None

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/20/2020
Case Description: Phase 2

---- Receptor #2 ----

		Baselines (dBA)		
Description	**Land Use**	**Daytime**	**Evening**	**Night**
Adjacent Commercial	Commercial	70	65	60

			Equipment			
Description	**Impact Device**	**Usage(%)**	**Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Crane	No	16	85	80.6	50	0
Concrete Mixer Truck	No	40	85	78.8	50	0
Front End Loader	No	40	85	79.1	50	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)		Noise Limit Exceedance (dBA)	
				Day		Day	
Equipment		***Lmax**	**Leq**	**Lmax**	**Leq**	**Lmax**	**Leq**
Crane		85	81	85	90	None	None
Concrete Mixer Truck		85	81	85	90	None	None
Front End Loader		85	78	85	90	None	None
	Total	85	85	85	90	None	None

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/20/2020
Case Description: Phase 3

---- Receptor #1 ----

		Baselines (dBA)		
Description	**Land Use**	**Daytime**	**Evening**	**Night**
Recievers to the North	Residential	55	50	45

			Equipment			
	Impact		**Spec Lmax**	**Actual Lmax**	**Receptor Distance**	**Estimated Shielding**
Description	**Device**	**Usage(%)**	**(dBA)**	**(dBA)**	**(feet)**	**(dBA)**
Concrete Pump Truck	No	20	82	81.4	280	3
Man Lift	No	20	85	74.7	280	3
Paver	No	50	85	77.2	280	3

			Results			
	Calculated (dBA)		**Noise Limits (dBA)**		**Noise Limit Exceedance (dBA)**	
			Day		**Day**	
Equipment	***Lmax**	**Leq**	**Lmax**	**Leq**	**Lmax**	**Leq**
Concrete Pump Truck	63	56	75	90	None	None
Man Lift	57	50	75	90	None	None
Paver	59	56	75	90	None	None
Total	63	60	75	90	None	None

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/20/2020
Case Description: Phase 3

---- Receptor #2 ----

		Baselines (dBA)		
Description	**Land Use**	**Daytime**	**Evening**	**Night**
Adjacent Commercial	Commercial	70	65	60

			Equipment			
Description	**Impact Device**	**Usage(%)**	**Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Concrete Pump Truck	No	20	82	81.4	50	0
Man Lift	No	20	85	74.7	50	0
Paver	No	50	85	77.2	50	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)		Noise Limit Exceedance (dBA)	
				Day		Day	
Equipment		***Lmax**	**Leq**	**Lmax**	**Leq**	**Lmax**	**Leq**
Concrete Pump Truck		81	74	85	90	None	None
Man Lift		75	68	85	90	None	None
Paver		77	74	85	90	None	None
	Total	81	78	85	90	None	None

*Calculated Lmax is the Loudest value.

Appendix ___

Rincon FHWA Traffic Noise Model

rincon

Model Input

Project Name :	Sea View Hotel		
Project Number :	20-10297		
Modeling Condition :	Existing Plus Project		
Ground Type :	Hard	**Peak ratio to ADT:**	
Metric (L_{eq}, L_{dn}, CNEL) :	Ldn	**Traffic Desc. (Peak or ADT) :**	ADT

Segment Number	Roadway	Segment		Traffic Volume	Speed (mph)	Distance to Centerline	Vehicle Cassification Mix (%)					24-Hour Traffic Distribution (%)			K-Factor
		From	To				Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Day	Evening	Night	
1	SR-1	Topanga Canyon	Decker Canyon	12,192	45	50	94.6	0	0	4.3	1.1	77		23	
2	SR-1	Topanga Canyon	Decker Canyon	12,192	45	90	94.6	0	0	4.3	1.1	77		23	
3	SR-1	Topanga Canyon	Decker Canyon	12,192	45	100	94.6	0	0	4.3	1.1	77		23	

rincon

Model Results

Project Number :	Sea View Hotel
Modeling Condition :	20-10297
Ground Type :	Existing Plus Project
Metric (Leq, Ldn, CNEL) :	Ldn

Segment Number	Roadway	Segment		Noise Levels (dB) Ldn					
		From	To	Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Total
1	SR-1	Topanga Canyon	Decker Canyon	67.8	0.0	0.0	61.1	59.8	69
2	SR-1	Topanga Canyon	Decker Canyon	65.3	0.0	0.0	58.5	57.2	67
3	SR-1	Topanga Canyon	Decker Canyon	64.8	0.0	0.0	58.1	56.8	66

Distance to Traffic Noise Contours (feet)				
70 dB	65 dB	60 dB	55 dB	50 dB
42	131	415	1,313	4,152
42	131	415	1,313	4,152
42	131	415	1,313	4,152

Appendix J

Transportation Assessment

Overland Traffic Consultants
952 Manhattan Beach Boulevard,
Suite #100
Manhattan Beach, CA 90266
Phone (661) 799 - 8423
E-mail: otc@overlandtraffic.com

Overland Traffic Consultants, Inc.

October 20, 2020

Mr. Norman R. Haynie
Sea View Terrace
22741 Pacific Coast Highway, Suite 400
Malibu, CA 90265

RE: Supplemental Transportation Assessment for Proposed Malibu Sea View Hotel (22729 & 22741 Pacific Coast Highway, Malibu CA)

Dear Mr. Haynie,

Overland Traffic Consultants (OTC) has prepared this supplemental transportation assessment for the development of a proposed 39 - room boutique hotel project (Malibu Sea View Hotel) to be located at 22729 & 22741 Pacific Coast Highway in the City of Malibu (Project). An aerial photo of Project's location is shown on Figure 1.

The focus of this review is to evaluate the Project pursuant to the updated California Environmental Quality Act (CEQA) criteria for analyzing transportation impacts for the preparation of the Project's Initial Study. An Initial Study is a preliminary analysis used to determine if the Project may have a significant effect upon the environment.

To address the Project's potential transportation impacts, this evaluation considers both the State of California SB 743 CEQA criteria and the City of Malibu's Traffic Memorandum and Traffic Impact Analysis Guidelines, Revised December 2019.

Malibu Sea View Hotel

The proposed hotel project consists of the reuse, removal, and modification of the existing commercial building(s) located at 22729 - 41 Pacific Coast Highway.

The existing uses at 22741 Pacific Coast Highway to be removed include medical office (2,185 s.f.), a hair salon (1,781 s.f.), a health spa (1,439 s.f.), specialty gym (757 s.f.), general office (6,068 s.f.), wellness and lifestyle club and an auto detailing / hand wash business.



FIGURE 1

1/2017

AERIAL PHOTO OF PROJECT LOCATION

Overland Traffic Consultants, Inc.
24325 Main Street #202, Santa Clarita, CA 91321
(661) 799 - 8423, otc@overlandtraffic.com

The proposed Malibu Sea View Hotel will provide 39 rooms, a reception / registration office, ancillary spa, and small restaurant.

The City of Malibu has previously approved additional retail floor area (2,742 s.f.) on the lower parcel in place of the auto detailing / hand wash business. However, this approved retail will only be constructed if the Malibu Sea View Hotel project is not constructed.

Hotel Parking and Vehicle Access

The hotel will provide 74 marked parking spaces with the 17 valet spaces by parking in the driveway aisles for a total of 91 parking spaces located in 3 on - site parking areas. All on-site parking will be valet parked by a professional valet service.

No changes are proposed to the existing driveways leading to the upper and lower parking levels. To avoid vehicles re - entering Pacific Coast Highway from the lower lever, the site has been designed to provide an on - site access connection between the lower and upper parking levels. This internal connection will permit vehicles entering the lower parking area where the hotel registration is located and access the upper parking level without re - entering Pacific Coast Highway.

Left – turn site access to and from Pacific Coast Highway is provided by an existing median left - turn lane. A signalized crosswalk is located on Pacific Coast Highway approximately 240 feet to the east of the project site for pedestrians to safely access the public beach and the businesses on the ocean side. Lastly, a Metro bus stop for Line 534 is located on Pacific Coast Highway adjacent to the proposed Project site.

Hotel Project Traffic Generation

Traffic generated by the proposed hotel and the existing commercial uses has been estimated using traffic generation rates based on use and size in addition to information provided by the applicant.

The main source of the traffic rates per use are based on studies developed by the Institute of Transportation Engineers (ITE) and published in the Trip Generation Handbook

10th Edition. This publication of traffic data is the industry standard for estimating the traffic generation for common commercial development projects.

This ITE database is constantly updated as indicated by the release of the 10th Edition. Updates are released as businesses ideas are newly formed and emerge. The existing commercial site has two unique businesses: the Eco Auto Spa auto detailing / car wash business and the Rafi Lounge wellness and lifestyle club. For these uses, traffic has been estimated from the activity levels provided by the applicant.

Table 1 shows the ITE daily and peak hour traffic used to estimate the traffic volume for the Initial Study environmental review.

Table 1
Traffic Generation Rates
(Weekday and Saturday)

			Weekday						Saturday			
		Daily	AM Peak Hour			PM Peak Hour			Daily	Mid-day Peak Hour		
Code	Description	Traffic	In	Out	Total	In	Out	Total	Traffic	In	Out	Total
310	Boutique Hotel per room	8.36	0.28	0.19	0.47	0.31	0.29	0.60	8.19	0.40	0.32	0.72
820	Retail (per 1,000 s.f.)	37.75	0.58	0.36	0.94	1.83	1.98	3.81	46.12	2.34	2.16	4.50
918	Spa/Salon (per 1,000 square feet) *	21.14	1.00	0.21	1.21	0.25	1.20	1.45	52.06	1.83	3.25	5.08
492	Fitness Club (per 1,000 square feet)	32.93	0.67	0.64	1.31	1.97	1.48	3.45	20.87	1.56	1.63	3.19
720	Medical Offices (per 1,000 square feet)	34.80	2.17	0.61	2.78	0.97	2.49	3.46	8.57	1.77	1.33	3.10
710	General Office (per 1,000 square feet)	9.74	1.00	0.16	1.16	0.18	0.97	1.15	2.21	0.29	0.24	0.53

* Spa weekday & Saturday trip rate adjusted based on ratio of retail and salon peak hour trip rates.

Daily traffic consists of both inbound and outbound trips.

AM Peak Hour is typically defined as the peak consecutive hour during the 6-9 AM peak period.

PM Peak Hour is typically defined as the peak consecutive hour during the 4-7 PM peak period.

Saturday Mid-day Peak Hour is typically defined as the peak hour during the 11 AM - 3 PM peak period.

Table 2 shows the estimated weekday and Saturday traffic volume for the existing and proposed Project. As shown in Table 2, it is estimated that the Malibu Sea View Hotel Project would decrease daily site generated traffic by 108 weekday vehicle trips with 44 fewer morning peak hour trips and 42 fewer afternoon peak hour trips. Saturday traffic would decrease by 63 daily trips and decrease by 8 mid – day peak hour trips.

Table 2
Estimated Net Project Traffic Generation

			Weekday						Saturday			
		Daily	AM Peak Hour			PM Peak Hour			Daily	Mid-day Peak Hour		
Proposed Hotel	Size	Traffic	In	Out	Total	In	Out	Total	Traffic	In	Out	Total
Boutique Hotel per room	39	326	11	7	18	12	11	23	319	16	12	28
Existing Tenants												
Spa/Salon (per 1,000 square feet)	3,220	68	3	1	4	1	4	5	168	6	10	16
Fitness Club (per 1,000 square feet)	757	25	1	0	1	1	1	2	16	1	1	2
Medical Offices (per 1,000 square feet)	2,185	76	5	1	6	2	5	7	19	4	3	7
General Office (per 1,000 square feet)	6,068	59	6	1	7	1	6	7	13	2	1	3
Wellness and Lifestyle Club *	N/A	160	20	20	40	20	20	40	120	2	2	4
Auto Detailing and Hand Wash **	N/A	46	2	2	4	2	2	4	46	2	2	4
Existing Tenants Total		434	37	25	62	27	38	65	382	17	19	36
Net Hotel Project		-108	-26	-18	-44	-15	-27	-42	-63	-1	-7	-8

* Wellness and Lifestyles Club estimates based on Yoga and Tai Chi class and special events attendance.
** Auto detailing and hand wash based on employees (3) and cars serviced per day (20).

Project Traffic Comparison with Existing Uses and Approved Retail (No Hotel Project)

If the Hotel Project is not constructed, the approved retail will replace the auto spa on the lower parcel. Table 3 below provides the traffic volume comparison which shows the approved retail will add more traffic than generated by the Auto Spa being removed thereby increasing site generated traffic.

Table 3
Traffic Comparison of Malibu Sea View Hotel Project and Alternative No Hotel Project

			Weekday						Saturday			
		Daily	AM Peak Hour			PM Peak Hour			Daily	Mid-day Peak Hour		
With Approved Retail	Size	Traffic	In	Out	Total	In	Out	Total	Traffic	In	Out	Total
Existing Tenant Total Less Auto Spa		388	35	23	58	25	36	61	336	15	17	32
Approved Retail (22729 PCH)	2,742 s.f.	104	2	1	3	5	5	10	126	6	6	12
Site Total With Approved Retail		492	37	24	61	30	41	71	462	21	23	44

			Weekday						Saturday			
Comparison of Proposed Hotel vs		Daily	AM Peak Hour			PM Peak Hour			Daily	Mid-day Peak Hour		
Existing Tenants + Approved Retail		Traffic	In	Out	Total	In	Out	Total	Traffic	In	Out	Total
Boutique Hotel Trips		326	11	7	18	12	11	23	319	16	12	28
Site Total With Approved Retail		492	37	24	61	30	41	71	462	21	23	44
Net Change in Trips with Approved Retail		-166	-26	-17	-43	-18	-30	-48	-143	-5	-11	-16
Net Project Percent Change in Trips		-34%	-70%	-71%	-70%	-59%	-73%	-68%	-31%	-24%	-48%	-37%

CEQA (SB 743) Evaluation

A 2013 law, State of California Senate Bill 743 (SB 743) effective July 2020, required the state to find a new way to measure the environmental impacts of traffic. As a result of SB 743, new CEQA guidelines for evaluating transportation impacts for land use projects no longer focus on measuring automobile delay and congestion levels of service (LOS). Instead, SB 743 directed lead agencies to revise transportation assessment guidelines to include a transportation performance metric that promotes: the reduction of greenhouse gas emissions, the development of multimodal networks, and access to diverse land uses.

The California Office of Planning and Research (OPR) led the work to design and implement the changes called for by SB 743. OPR also provides a Technical Advisory Report as a resource for the public to use at their discretion to interpret SB 743.

The new criteria for assessing a land development project's transportation impact is the vehicles miles traveled (VMT) performance metric. VMT refers to the amount and distance of automobile travel attributable to a project.

The City of Malibu has not established VMT analysis procedures at this time; therefore, the Project's VMT impact has been assessed based on guidance from the OPR's Technical Advisory. The Technical Advisory provides the following screening criteria for certain land development projects that may be presumed to result in a less than significant VMT impact.

OPR's Project VMT Screening Recommendations

OPR presumes that certain types of projects will either reduce VMT or any additional VMT they produce would be "less than significant" and as such they are exempt from having to produce a transportation analysis. Many agencies use "screening thresholds" to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study.

To assist agencies with screening land development projects for VMT, OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA [1]report provides the following recommended thresholds of significance to evaluate a project's VMT impact:

- Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.
- Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact.

Project's VMT Analysis

Table 2 shows that removing the existing commercial uses and constructing the proposed Malibu Sea View Hotel would decrease the traffic generated by the site and fall below the 110 daily trip threshold recommended by the OPR criterion listed above. No substantial evidence indicates that Malibu Sea View Hotel Project would generate a potentially significant level of VMT.

City of Malibu Traffic Memorandum and Traffic Impact Analysis Guidelines (Dec 2019)

The City has not yet adopted the VMT methodology for the new transportation performance metrics identified by SB 743. However, level of service will continue to play a significant role in assessing the transportation performance and compliance with the City's General Plan and may be required in addition to analysis required by SB743.

Therefore, pursuant to the City of Malibu Guidelines, development projects that have the potential to affect or substantially affect the City of Malibu's current transportation system may be required to prepare either a Traffic Memorandum (TM) for smaller projects or a Traffic Impact Analysis (TIA) for larger projects as determined by the City's Public Works Department (City).

The City's criterion provided in the guidelines document as listed below are considered by the Public Works Department when making the determination for conducting further analysis.

1. Does the project generate 5 to 29 new AM, Midday, or PM peak-hour vehicle trips?

Response: No - The Malibu Sea View Hotel Project's peak – hour traffic estimates are below the peak hour threshold.

2. Does the project generate 50 to 299 new daily vehicle trips?

Response: No - The existing commercial uses currently at the site generate more traffic than the proposed Malibu Sea View Hotel Project.

3. Does the project affect an intersection or a roadway segment?

Response: No – The Malibu Sea View Hotel Project generates less traffic and does not create any significant project-related traffic changes that would affect any nearby intersection or roadway segments.

4. Does the project affect public safety?

Response: No project-related changes are proposed for the site access that would negatively affect public safety. In fact, the new internal vehicle connection between the lower and upper parcels would improve vehicle access for the Malibu Sea View Hotel.

5. Does the project change the off-site transportation system or connections to it?

Response: No changes are proposed for the site access that would negatively affect public safety.

[1] Technical Advisory on Evaluating Transportation Impacts in CEQA, State of California Governor's office of Planning and Research, December 2018.

Conclusions

This supplemental analysis has been conducted to identify and evaluate the potential impacts of the proposed Project based on the VMT methodology set forth in the OPR's Technical Advisory Report and the City of Malibu Traffic Memorandum and Traffic Impact Analysis Guidelines.

According to the screening criteria in the OPR Technical Advisory Report, the proposed Malibu Sea View Hotel Project satisfies the screening criteria for small redevelopment projects and can be presumed to result in a less than significant VMT impact.

An evaluation of the City of Malibu Traffic Impact Guides criterion for further analysis shows that the Malibu Sea View Hotel Project's trip generation and site plan review shows that no significant access, safety, or circulation impacts would be created by the approval of the Malibu Sea View Hotel Project.

No further Project transportation analysis would be warranted following the OPR and City of Malibu guidance criterion set forth in this evaluation.

Please call me if you have questions.

Sincerely,

Jerry T. Overland

Jerry T. Overland

Appendix K

Los Angeles County Waterworks District 29 Conditional Will-Serve Letter

LOS ANGELES COUNTY WATERWORKS DISTRICTS *

P. O. Box 1460
Alhambra, CA 91802
Telephone: (626) 300-3306

260 East Avenue K-8
Lancaster, CA 93535
Telephone: (661) 942-1157

23533 Civic Center Way
Malibu, CA 90265
Telephone: (310) 317-1389

TO:

☐ Los Angeles County
Department of Public Health
Environmental Health:
Drinking Water / Land Use Program
5050 Commerce Drive
Baldwin Park, CA 91706-1423

☐ Los Angeles County
Department of Public Works
Building & Safety Division

☐ Los Angeles County
Fire Department

☐ City of Lancaster
Building Department
44933 N. Fern Ave.
Lancaster, CA 93534

☒ City of Malibu
Building Department
23815 W. Stuart Ranch Rd.
Malibu, CA 90265

☐ City of Palmdale
Building Department
38300 N. Sierra Hwy.
Palmdale, CA 93550

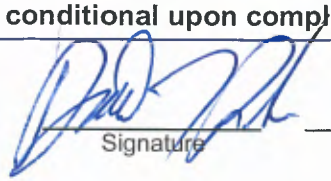
RE: **22729 & 22741 PACIFIC COAST HWY** (Address) **MALIBU** (City) **90265** (Zip Code)

APN # 4452-022-010, 015, 017

Los Angeles County Waterworks District No. 29

***CONDITIONALLY Will serve* water to the above *single lot* property subject to the following conditions:**

☐	Annexation of the property into Los Angeles County Waterworks District is required. **Water service to this property will not be issued until the annexation is completed.**
☒	The appropriate fees must be paid to the District and other related water agencies.
☒	The appropriate service connection fees have been paid to Waterworks Districts for the existing 1.5" service connection.
☒	The property has an existing 1.5" water meter.
☐	The appropriate connection fees have been paid to Waterworks Districts for the proposed service.
☒	Water system improvements will be required to be installed by the developer subject to the requirements set by the Fire Department and the District, ***including the installation of one 20" check valve assembly on the existing 20" waterline and an 18" spool in the existing manifold, within the Caltrans right-of-way of Topanga Canyon Blvd as part of Spec 29-840 (PC)***
☒	Water meter serving the property must be installed in accordance with Waterworks' District standards.
☒	Public water system and sewage disposal system must be in compliance with Health Department separation requirements.
☒	A portion of the existing fronting water main may be required to be replaced or upgraded if the water service tap cannot be made or if damage occurs to the water main.
☒	Property may experience low water pressure and / or shortage in high demand periods.
☐	The District **CAN NOT** serve water to this property at this time.
☒	Must comply with and satisfy Caltrans requirements in order to obtain Water Service.
☒	A USC approved backflow device is required for this property and is to be installed and maintained by the property owner.
☒	**This CONDITIONAL Will Serve Letter is for a building conversion and new hotel and it is conditional upon completion of Spec 29-840 (PC).**

By:  (Signature)

Dave Rydman (Print Name) — Senior Civil Engineer

(310) 456-6621 x238 (Phone Number)

9/23/19 (Date)

**** THIS WILL SERVE LETTER WILL EXPIRE ONE YEAR AFTER THE DATE OF ISSUANCE.***

Rev. 06/09

Rincon Consultants, Inc.

250 East 1st Street, Suite 1400
Los Angeles, California 90012

213 788 4842 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

May 13, 2021
Project No: 20-10297

Richard Mollica, Planning Director
City of Malibu, Planning Department
23825 Stuart Ranch Road
Malibu, California 90265
Via email: rmollica@malibucity.org

Subject: Sea View Hotel Project, Response to Comments on the Draft Initial Study-Mitigated Negative Declaration, 22729 and 22741 Pacific Coast Highway, Malibu, California 90265

Dear Mr. Mollica:

This letter includes comments received during public circulation of the Draft Initial Study-Mitigated Negative Declaration (IS-MND) prepared for the Sea View Hotel Project (project).

The Draft IS-MND was circulated for a 36-day public review period that began on February 4, 2021 and ended on March 11, 2021. The City received seven comment letters on the Draft IS-MND. The comment letters are included herein, along with responses to the environmental concerns raised by the commenters. The commenters and the page number on which responses to each commenter's letter appears are listed below.

Letter No.	Commenter	Page No.
1	Miya Edmonson, California Department of Transportation District 7	2
2	Shine Ling, Los Angeles County Metropolitan Transportation Authority	3
3	Nima Parsa, Los Angeles County Waterworks District 29	6
4	Charlotte M. Frieze	7
5	Ninon Tantet, Bill and Marian Cook Foundation & Arizona Asset Management, Inc.	8
6	Terry Lucoff	10
7	Lynn Saunders Guilburt	12

The comment letters are numbered sequentially, and each separate issue raised by the commenter has been assigned a number. The responses to each comment identify first the number of the comment letter, and then the number assigned to each issue (Response 1.1, for example, indicates that the response is for the first issue raised in Comment Letter 1). Comment letters are attached in numerical order at the end of this document.

Where a comment resulted in a change to the Draft IS-MND text, a notation is made in the response indicating that the text is revised. Changes in text are signified by strikeout font (~~strikeout font~~) where text was removed and by underlined font (underlined font) where text was added. These changes in text are noted in the Final IS-MND. The comment letters and responses follow.

Letter 1

COMMENTER: Miya Edmonson, California Department of Transportation District 7

DATE: March 11, 2021

Response 1.1

The commenter states that vehicle miles traveled (VMT) impacts would be less than significant because the project would result in a net overall decrease in VMT. The commenter also provides two resources for additional transportation demand management strategies.

The commenter's consensus with the VMT findings of the IS-MND and the additional resources provided are noted and will be provided to City decisionmakers for their consideration.

Response 1.2

The commenter states that they appreciate the discussion of potential construction impacts to Pacific Coast Highway and reiterates that any work completed on or near the Caltrans right-of-way may require an encroachment permit.

The project will comply with any encroachment permit requirements deemed necessary by Caltrans as a standard condition of approval. This comment will be provided to City decisionmakers for their consideration.

Letter 2

COMMENTER: Shine Ling, AICP, Los Angeles County Metropolitan Transportation Authority (Metro)

DATE: March 4, 2021

Response 2.1

The commenter states Metro's commitment to supporting transit-supportive developments. The commenter indicates that the IS-MND should include a discussion of topics regarding potential impacts to Metro bus facilities and services, and provides the Metro Adjacent Development Handbook for the City and applicant's reference.

This comment and the Metro Adjacent Development Handbook will be shared with City decisionmakers for their consideration. The commenter's concerns related to the environmental impacts of the proposed project to Metro bus facilities and services are addressed in Responses 2.2 through 2.10.

Response 2.2

The commenter notes that there is a Metro Bus Stop directly south of the project site on Pacific Coast Highway and states that the IS-MND should analyze potential impacts to the condition of the bus stop, including construction and operational impacts.

As discussed in Response a. under Section 17, *Transportation*, within the Environmental Checklist of the IS-MND, during project construction, the existing condition and location of the Metro Bus Stop adjacent to the project site would be maintained. Throughout construction and upon completion of the proposed project, the existing Metro Bus Stop would remain in the same location and condition as it currently exists. Accordingly, impacts to bus stop condition would be less than significant and would not require mitigation. No changes to the IS-MND are necessary in response to this comment.

Response 2.3

The commenter states that project driveways should be designed and configured to avoid potential conflicts with on-street transit services and pedestrian traffic to the greatest degree possible.

As discussed in Responses a., c., and d. under Section 17, *Transportation*, the project site is currently served by two driveways, one located to the east of the Metro Bus Stop that serves Parcel A and one located to the west of the bus stop that serves Parcel B. The proposed project would maintain these two access points but would improve the safety of site circulation by adding a connection between the two driveways. As stated on pages 115-116 of the IS-MND:

> The proposed project would provide a connection from Parcel A to the existing driveway that serves Parcel B to avoid vehicles reentering Pacific Coast Highway from the lower level to access Parcel B. This minor alteration would improve site access and vehicle safety by allowing vehicles to access parking areas on both parcels within the project site without needing to reenter Pacific Coast Highway.

This feature would help reduce unnecessary traffic on project driveways and potential conflicts with Metro transit services and pedestrian traffic to the extent feasible. Accordingly, impacts related to

project driveways would be less than significant and would not require mitigation. No changes to the IS-MND are necessary in response to this comment.

Response 2.4

The commenter encourages the installation of enhancements and other amenities at the adjacent Metro Bus Stop that improve safety and comfort for transit riders and states that the City should consider requesting installation of amenities as part of the project.

This comment does not remark on the adequacy of the environmental analysis and is beyond the purview of the proposed project. Nonetheless, this comment will be shared with City decisionmakers for their consideration.

Response 2.5

The commenter states that the project applicant should coordinate with Metro Bus Operations Control Special Events Coordinator and Metro's Stops and Zones Department no later than 30 days before the start of project construction.

This comment is noted. Coordination with Metro by the project applicant has been included as a condition of approval for the project.

Response 2.6

The commenter recommends that the project applicant review the Transit Supportive Planning Toolkit due to the project site's proximity to Metro Bus Line 534 to help reduce VMT.

As discussed in Section 11, *Land Use and Planning*, the proposed Sea View Hotel Overlay District would include reduced parking requirements and employees would be encouraged to carpool to the site due to the limited on-site parking. The project would also provide 15 new bicycle parking spaces. These are strategies contained within the Transit Supportive Planning Toolkit. Therefore, the project has been designed to encourage transit and alternative transportation use. No changes to the IS-MND are necessary in response to this comment.

Response 2.7

The commenter indicates support for developing commercial properties near transit stops and encourages the City and project applicant to orient pedestrian pathways towards the bus stop.

The Sea View Hotel reception and restaurant would be located on the ground floor of Parcel A and would be directly accessible to pedestrians, including those using the adjacent Metro Bus Stop. No changes to the IS-MND are necessary in response to this comment.

Response 2.8

The commenter states that the City should consider requiring the installation of short-term and long-term bicycle parking to facilitate convenient site access for people riding bicycles.

The proposed project would include 15 new bicycle parking spaces. Bicycle parking would be available for employees and visitors and would facilitate convenient site access for people riding bicycles. No changes to the IS-MND are necessary in response to this comment.

Response 2.9

The commenter states that they encourage the reduction or removal of minimum parking requirements and other strategies to reduce automobile-orientation and travel demand.

As discussed in Section 11, *Land Use and Planning*, the proposed Sea View Hotel Overlay District would include reduced parking requirements and employees would be encouraged to carpool to the site due to the limited on-site parking. These project characteristics would reduce travel demand. No changes to the IS-MND are necessary in response to this comment.

Response 2.10

The commenter informs the project applicant of Metro's employer transit pass programs that offer group rates that businesses can offer employees to incentivize public transit use.

See Responses 2.6 and 2.9. This comment will be shared with the project applicant and City decisionmakers for their consideration. No changes to the IS-MND are necessary in response to this comment.

Letter 3

COMMENTER: Nima Parsa, Los Angeles County Public Works

DATE: February 22, 2021 and March 9, 2021

Response 3.1

The commenter asks whether the check valve replacement that is required for the project and its potential environmental impacts will be included in the IS-MND.

The Draft IS-MND discusses the check valve replacement in Section 9, *Hazards and Hazardous* Materials, Section 19, *Utilities and Service Systems*, and Section 20, *Wildfire.* In addition, the *Project Description* section of the IS-MND has been revised to note that the check valve replacement is required as a project condition of approval. Discussion of the check valve replacement is not required within the project's CEQA analysis. No other changes to the IS-MND are required in response to this comment.

Response 3.2

The commenter states that the project applicant is required to replace an existing 20-inch check valve and install an 18-inch pipe spool within the manifold located near the Topanga Beach Pump Station pursuant to the Conditional Will Serve Letter provided by Los Angeles County Waterworks District. The commenter indicates that the City should be aware of this requirement when considering approval of the project.

See Response 3.1. The City and project applicant are aware of these requirements and they will be included as part of the conditions of approval for the project.

Letter 4

COMMENTER: Charlotte M. Frieze

DATE: March 14, 2021

Response 4.1

The commenter requests to be added to the project's mailing list.

The commenter has been added to the mailing list and will receive future notices regarding this project.

Letter 5

COMMENTER: Ninon Tantet, Bill and Marian Cook Foundation & Arizona Asset Management, Inc.

DATE: March 13, 2021

Response 5.1

The commenter states that Pacific Coast Highway in the project area is already impacted by traffic and that congestion has increased in recent years. The commenter asks how the City will deal with additional traffic caused by the proposed project and expresses safety concerns regarding vehicles exiting the project site onto Pacific Coast Highway.

As described on page 114 of the Draft IS-MND, the proposed hotel would generate 108 fewer daily vehicle trips on weekdays and 63 fewer trips on Saturdays compared to existing commercial uses on the project site. Therefore, the proposed project would not contribute to additional congestion or traffic on Pacific Coast Highway. In addition, the project site is currently served by two disconnected entrances, one for the lower portion of the project site (Parcel A) and one for the upper portion (Parcel B). As discussed on pages 115 and 116 of the IS-MND:

> The proposed project would provide a connection from Parcel A to the existing driveway that serves Parcel B to avoid vehicles reentering Pacific Coast Highway from the lower level to access Parcel B. This minor alteration would improve site access and vehicle safety by allowing vehicles to access parking areas on both parcels within the project site without needing to reenter Pacific Coast Highway.

Therefore, the project would not create new safety hazards related to vehicle ingress and egress on Pacific Coast Highway and rather would improve conditions on the project site compared to the existing site access. No changes to the IS-MND are necessary in response to this comment.

Response 5.2

The commenter states that number of vehicles in the area and associated noise, air pollution, and traffic safety issues are problematic, and that additional development should not take place until these issues are addressed. The commenter expresses an opinion that any new hotels should be located near Topanga Canyon Boulevard, Malibu Canyon Road, or Kanan Road.

As discussed in Response 5.1 above, the proposed project would result in reduced daily vehicle trips compared to existing commercial uses on the project site, which in turn would incrementally reduce traffic, noise, and air pollution in the area. As discussed on pages 102 and 103 of the Draft IS-MND, the project would not generate an increase in traffic noise and other noise associated with the project, such as HVAC equipment and the proposed rooftop pool, would not create a significant noise impact to nearby neighbors. Furthermore, air quality modeling completed for the proposed project and described in Section 3, *Air Quality*, of the Draft IS-MND indicates that neither construction nor operation of the proposed project would result in significant impacts related to air pollution. Therefore, no changes to the IS-MND are necessary in response to this comment. However, this comment will be shared with City decisionmakers for their consideration.

Response 5.3

The commenter expresses concern that the project would have impacts to soils due to the septic system.

As described on page 57 of the Draft IS-MND, the project site currently contains a septic system, which would be upgraded with a new 3,000-gallon grease interceptor, 3,000-gallon concrete pump tank with duplex screened pump vault, and two new disinfection units. The proposed septic system upgrades have been extensively reviewed by a Certified Engineering Geologist, Registered Professional Engineer, Registered Environmental Health Specialist, and the City's Environmental Health Administrator and City geotechnical staff. As stated in the Draft IS-MND:

> According to the results of the Geotechnical Report, Onsite Wastewater Treatment Report, City Environmental Health Review, and City Geotechnical Review Sheet, the project site is capable of supporting the proposed wastewater disposal system, and the upgraded system would meet the minimum requirements of the City of Malibu Plumbing Code and Local Coastal Program.

As described in this response and in the Draft IS-MND, the project would not result in impacts to soils related to the septic system. No changes to the IS-MND are necessary in response to this comment.

Response 5.4

The commenter suggests that a better use of the site would be a multi-story parking lot. The commenter expresses an opinion that the City should add metered parking on Pacific Coast Highway, limit the number of vehicles allowed in the area at any one time, or require all shopping centers to add metered parking.

This comment does not remark on the adequacy of the environmental analysis and is beyond the purview of the proposed project. This comment will be shared with City decisionmakers for their consideration.

Response 5.5

The commenter states that hotels and shopping centers in the City are creating traffic, pollution, and dangerous conditions. The commenter expresses an opinion that the City should add more police, traffic cameras, and a stop light at Puerco Canyon Road and should be more concerned about the safety and needs of residents.

As described in Responses 5.1 and 5.2, above, the proposed project would result in reduce daily vehicle trips compared to existing uses on the project site, which would incrementally decrease traffic and traffic-related pollution and safety issues in the area. In addition, the project would modify the existing site access to improve safety and circulation on the project site. No changes to the IS-MND are required in response to this comment. This comment will be shared with City decisionmakers for their consideration.

Letter 6

COMMENTER: Terry Lucoff

DATE: March 9, 2021

Response 6.1

The commenter expresses concern regarding traffic safety on Pacific Coast Highway in the project area, and how additional hotels in the area could impact traffic safety.

As described on page 114 of the Draft IS-MND, the proposed hotel would generate 108 fewer daily vehicle trips on weekdays and 63 fewer trips on Saturdays compared to existing commercial uses on the project site. Therefore, the proposed project would not contribute to additional congestion or traffic on Pacific Coast Highway that could contribute to accidents. In addition, the project site is currently served by two disconnected entrances, one for the lower portion of the project site (Parcel A) and one for the upper portion (Parcel B). As discussed on pages 115 and 116 of the IS-MND:

> The proposed project would provide a connection from Parcel A to the existing driveway that serves Parcel B to avoid vehicles reentering Pacific Coast Highway from the lower level to access Parcel B. This minor alteration would improve site access and vehicle safety by allowing vehicles to access parking areas on both parcels within the project site without needing to reenter Pacific Coast Highway.

Therefore, the project would not create new safety hazards related to vehicle ingress and egress on Pacific Coast Highway and rather would improve conditions on the project site compared to the existing site access. No changes to the IS-MND are necessary in response to this comment.

Response 6.2

The commenter inquires about the City's plans to evacuate Malibu residents using Pacific Coast Highway in light of the issues encountered during fires in 2018.

As described in Response f. of Section 9, *Hazards and Hazardous Materials*, of the Draft IS-MND, the proposed project would not include new features that would interfere with or obstruct emergency response and evacuation. In addition, implementation of the project is anticipated to reduce traffic to and from the project site due to reduced daily trips associated with the proposed new land use. Furthermore, as stated on page 126 of the Draft IS-MND:

> The hotel would also be required to clearly post evacuation routes and access points within the buildings to direct guests on emergency evacuations in the event of a fire. In addition, the project applicant would contribute to the cost of installing a new 20-inch diameter check valve near the intersection of Topanga Canyon Road and Pacific Coast Highway so that water from two existing water tanks on Topanga Canyon Road containing approximately four million gallons can be used to provide additional water flow to the water main along Pacific Coast Highway in the event of a fire. Therefore, the proposed project would help increase the fire department's capacity to fight future wildfires in the project vicinity.

Therefore, the proposed project would not create significant impacts related to wildfire evacuation and no changes to the IS-MND are required in response to this comment.

Response 6.3

The commenter expresses concern over traffic and congestion on Pacific Coast Highway in the project area.

As described on page 114 of the Draft IS-MND, the proposed hotel would generate 108 fewer daily vehicle trips on weekdays and 63 fewer trips on Saturdays compared to existing commercial uses on the project site. Therefore, the proposed project would not contribute to additional congestion or traffic on Pacific Coast Highway. No changes to the IS-MND are required in response to this comment.

Response 6.4

The commenter expresses opposition to the proposed project and requests that the City not approve it.

This comment does not remark on the adequacy of the environmental analysis and is beyond the purview of the proposed project. Nonetheless, this comment will be shared with City decisionmakers for their consideration.

Letter 7

COMMENTER: Lynn Saunders Guilburt

DATE: March 19, 2021

Response 7.1

The commenter requests to be added to the project's mailing list.

The commenter has been added to the mailing list and will receive future notices regarding this project.

Minor clarifying edits to the Draft IS-MND have been made in response to the comments received, as applicable. However, none of these edits alter the conclusions of the impact analysis or require recirculation of the IS-MND. If you have questions or would like additional information, please contact us at your convenience.

Sincerely,
Rincon Consultants, Inc.

Melissa Whittemore
Senior Supervising Planner

Deanna Hansen
Principal in Charge

Attachments

Public Comment Letters 1 through 7

Attachment

Public Comment Letters

DEPARTMENT OF TRANSPORTATION
DISTRICT 7 – Office of Regional Planning
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 897-0475
FAX (213) 897-1337
TTY 711
www.dot.ca.gov

Letter 1

Making Conservation a California Way of Life.

March 11, 2021

Lilly Rudolph
City of Malibu
Planning Department
23815 Stuart Ranch Road
Malibu, CA 90265

RE: Sea View Hotel – Mitigated Negative Declaration (MND)
SCH # 2021020208
GTS # 07-LA-2021-03496
Vic. LA-1/PM: 46.164

Dear Lilly Rudolph:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced MND. The project would involve the remodeling of an existing 13,000 square foot office building with a 9,500 square foot parking garage, and the construction of a 9,800 square foot addition as well as 3,500 square feet of subterranean space on an adjacent parcel. This would result in a new 39-room hotel that would include an onsite guest restaurant and amenities, a rooftop deck and pool, surface parking lot, grading, retaining walls, landscaping, and a new onsite wastewater treatment system. The City of Malibu is the Lead Agency under the California Environmental Quality Act (CEQA).

The project is located adjacent to State Route 1, which is also known as the Pacific Coast Highway (PCH). From reviewing the MND, Caltrans has the following comments. This project will result in a less than significant Vehicle Miles Traveled (VMT) impact, because according to the 2018 *Technical Advisory on Evaluating Transportation Impacts in CEQA* by the California Governor's Office of Planning and Research, "Where a project replaces existing VMT-generating land uses, if the replacement leads to a net overall decrease in VMT, the project would lead to a less-than-significant transportation impact." Therefore, the following information is included for your consideration. 1.1

The mission of Caltrans is to provide a safe and reliable transportation network that serves all people and respects the environment. Furthermore, Caltrans encourages Lead Agencies to implement Transportation Demand Management (TDM) strategies that reduce VMT and Greenhouse Gas (GHG) emissions. Thus, Caltrans supports the TDM strategies this project has incorporated, such as including bicycle parking spaces. For additional TDM strategies that the City of Malibu may want to consider integrating into this project in order to further reduce VMT, please refer to:

- The 2010 *Quantifying Greenhouse Gas Mitigation Measures* report by the California Air Pollution Control Officers Association (CAPCOA), available at http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf, or
- *Integrating Demand Management into the Transportation Planning Process: A Desk Reference* (Chapter 8) by the Federal Highway Administration (FHWA), available at https://ops.fhwa.dot.gov/publications/fhwahop12035/index.htm.

Regarding construction activities, the MND states “During construction of the project, oversized vehicles would be required for the transport of construction equipment to and from the project site. The project would obtain necessary permits and comply with all permit requirements from Caltrans for the safe transport of construction equipment.” Caltrans appreciates this statement, as well as the following: “…hauling would be limited to off-peak hours to avoid creating congestion during periods of high traffic on Pacific Coast Highway.”

1.2

Finally, any work completed on or near Caltrans’ right of way might require an encroachment permit, however, the final determination on this will be made by Caltrans’ Office of Permits. For more information on encroachment permits, see: https://dot.ca.gov/programs/traffic-operations/ep.

If you have any questions about these comments, please contact Emily Gibson, the project coordinator, at Emily.Gibson@dot.ca.gov, and refer to GTS # 07-LA-2021-03496.

Sincerely,

Miya Edmonson

MIYA EDMONSON
IGR/CEQA Branch Chief
cc: Scott Morgan, State Clearinghouse

Letter 2

Los Angeles County
Metropolitan Transportation Authority

One Gateway Plaza
Los Angeles, CA 90012-2952

213.922.2000 Tel
metro.net

March 4, 2021

Lilly Rudolph
City of Malibu
Planning Department
23825 Stuart Ranch Road
Malibu, CA 90265
Sent by Email: lrudolph@malibucity.org

RE: 22729 and 22741 Pacific Coast Highway
Notice of Intent to Adopt a Mitigated Negative Declaration (MND)

Dear Ms. Rudolph:

Thank you for coordinating with the Los Angeles County Metropolitan Transportation Authority (Metro) regarding the proposed Sea View Hotel (Project) located at 22729 and 22741 Pacific Coast Highway in the City of Malibu (City). Metro is committed to working with local municipalities, developers, and other stakeholders across Los Angeles County on transit-supportive developments to grow ridership, reduce driving, and promote walkable neighborhoods. Transit Oriented Communities (TOCs) are places (such as corridors or neighborhoods) that, by their design, allow people to drive less and access transit more. TOCs maximize equitable access to a multi-modal transit network as a key organizing principle of land use planning and holistic community development.

Per Metro's area of statutory responsibility pursuant to sections 15082(b) and 15086(a) of the Guidelines for Implementation of the California Environmental Quality Act (CEQA: Cal. Code of Regulations, Title 14, Ch. 3), the purpose of this letter is to provide the City with specific detail on the scope and content of environmental information that should be included in the Mitigated Negative Declaration (MND) for the Project. In particular, this letter outlines topics regarding the Project's potential impacts on the Metro bus facilities and services which should be analyzed in the MND, and provides recommendations for mitigation measures as appropriate. Effects of a project on transit systems and infrastructure are within the scope of transportation impacts to be evaluated under CEQA.[1] 2.1

In addition to the specific comments outlined below, Metro is providing the City and Norman Haynie (Applicant) with the Metro Adjacent Development Handbook (attached), which provides an overview of common concerns for development adjacent to Metro right-of-way (ROW) and transit facilities, available at www.metro.net/projects/devreview/.

Project Description
The Project includes the remodel of an existing 13,000 square foot office building with 9,500 square foot parking garage and construction of a 9,800 square foot addition and 3,500 square feet of subterranean space.

[1] See CEQA Guidelines section 15064.3(a); Governor's Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts In CEQA, December 2018, p. 19.

Recommendations for MND Scope and Content

Bus Service Adjacency

1. Service: Metro Bus Line 534 operates on Pacific Coast Highway, adjacent to the Project. One Metro Bus stop is directly south of the Project at Pacific Coast Highway.

2. Impact Analysis: The MND should analyze potential effects on Metro Bus service and identify mitigation measures as appropriate. Potential impacts may include impacts to transportation services, stops, and temporary or permanent bus service rerouting. Specific types of impacts and recommended mitigation measures to address them include, without limitation, the following:

    a. Bus Stop Condition: The MND should identify all bus stops on all streets adjacent to the Project site. During construction, the Applicant may either maintain the stop in its current condition and location, or temporarily relocate the stop consistent with the needs of Metro Bus operations. Temporary or permanent modifications to any bus stop as part of the Project, including any surrounding sidewalk area, must be Americans with Disabilities Act (ADA)-compliant and allow passengers with disabilities a clear path of travel between the bus stop and the Project. Once the Project is completed, the Applicant must ensure any existing Metro bus stop affected by the Project is returned to its pre-Project location and condition, unless otherwise directed by Metro. 2.2

    b. Driveways: Driveways accessing parking and loading at the Project site should be located away from transit stop, and be designed and configured to avoid potential conflicts with on-street transit services and pedestrian traffic to the greatest degree possible. Vehicular driveways should not be located in or directly adjacent to areas that are likely to be used as waiting areas for transit. 2.3

    c. Bus Stop Enhancements: Metro encourages the installation of enhancements and other amenities that improve safety and comfort for transit riders. These include benches, bus shelters, wayfinding signage, enhanced crosswalks and ADA-compliant ramps, pedestrian lighting, and shade trees in paths of travel to bus stops. The City should consider requesting the installation of such amenities as part of the Project. 2.4

    d. Bus Operations Coordination: The Applicant shall coordinate with Metro Bus Operations Control Special Events Coordinator at 213-922-4632 and Metro's Stops and Zones Department at 213-922-5190 not later than 30 days before the start of Project construction. 2.5

Transit Supportive Planning: Recommendations and Resources

Considering the Project's proximity to Metro Bus Line 534, Metro would like to identify the potential synergies associated with transit-oriented development:

1. Transit Supportive Planning Toolkit: Metro strongly recommends that the Applicant review the Transit Supportive Planning Toolkit which identifies 10 elements of transit-supportive places and, applied collectively, has been shown to reduce vehicle miles traveled by establishing community-scaled density, diverse land use mix, combination of affordable housing, and infrastructure projects for pedestrians, bicyclists, and people of all ages and abilities. This resource is available at https://www.metro.net/projects/tod-toolkit. 2.6

2. Land Use: Metro supports development of commercial properties near transit stops and understands that increasing development near stops represents a mutually beneficial opportunity to increase ridership and enhance transportation options for the users of developments. Metro encourages the City and Applicant to be mindful of the Project's proximity to Metro's bus stop, including orienting pedestrian pathways towards the bus stop. 2.7

3. Transit Connections and Access: Metro strongly encourages the Applicant to install Project features that help facilitate safe and convenient connections for pedestrians, people riding bicycles, and transit users to/from the Project site and nearby destinations. The City should consider requiring the installation of such features as part of the conditions of approval for the Project, including:

    a. Bicycle Use and Micromobility Devices: The provision of adequate short-term bicycle parking, such as ground-level bicycle racks, and secure, access-controlled, enclosed long-term bicycle parking for residents, employees, and guests. Bicycle parking facilities should be designed with best practices in mind, including highly visible siting, effective surveillance, ease to locate, and equipment installation with preferred spacing dimensions, so bicycle parking can be safely and conveniently accessed. Similar provisions for micro-mobility devices are also encouraged. 2.8

4. Parking: Metro encourages the incorporation of transit-oriented, pedestrian-oriented parking provision strategies such as the reduction or removal of minimum parking requirements and the exploration of shared parking opportunities. These strategies could be pursued to reduce automobile-orientation in design and travel demand. 2.9

5. Transit Pass Programs: Metro would like to inform the Applicant of Metro's employer transit pass programs, including the Annual Transit Access Pass (A-TAP), the Employer Pass Program (E-Pass), and Small Employer Pass (SEP) Program. These programs offer efficiencies and group rates that businesses can offer employees as an incentive to utilize public transit. The A-TAP can also be used for residential projects. For more information on these programs, please visit the programs' website at https://www.metro.net/riding/eapp/. 2.10

If you have any questions regarding this letter, please contact me by phone at 213-922-2671, by email at DevReview@metro.net, or by mail at the following address:

Metro Development Review
One Gateway Plaza
MS 99-22-1
Los Angeles, CA 90012-2952

Sincerely,

Shine Ling, AICP
Manager, Transit Oriented Communities

cc: Grey Granite, LLC, 22741 Pacific Coast Highway, Suite 400 Malibu, California 90265

Attachments and links:

- Adjacent Development Handbook: https://www.metro.net/projects/devreview/

Letter 3

RE: Project at 22729 and 22741 PCH - Mitigated Neg Dec

Nima Parsa <nparsa@dpw.lacounty.gov>
Tue 3/9/2021 2:17 PM

To: Lilly Rudolph <lrudolph@malibucity.org>
Cc: Aracely Jaramillo <AJaramillo@dpw.lacounty.gov>; David Rydman <DRYDMAN@dpw.lacounty.gov>

Good afternoon Lilly,

Thanks for much for confirming this. Would it be possible to have the check valve replacement addressed in the MND so the applicable environmental impacts are evaluated? The owner needs it replaced in order to increase available fire flow to the new development to meet current Fire Dept standards. The construction itself will not require a lot of linear feet of trenching but will require very deep excavation at the site. Please let me know how this can be addressed in the MND and if you need further information.

3.1

Thanks,

Nima Parsa
Principal Civil Engineering Assistant
Los Angeles County Public Works

From: Lilly Rudolph <lrudolph@malibucity.org>
Sent: Monday, February 22, 2021 1:37 PM
To: Nima Parsa <nparsa@dpw.lacounty.gov>
Cc: Aracely Jaramillo <AJaramillo@dpw.lacounty.gov>; David Rydman <DRYDMAN@dpw.lacounty.gov>
Subject: RE: Project at 22729 and 22741 PCH - Mitigated Neg Dec

CAUTION: External Email. Proceed Responsibly.

Yes, Nima. Yes, the conditions are on the City's radar. Is your email below intended to be a comment to be publish and addressed in the final MND?

Thank you,
Lilly

Lilly Rudolph, AICP
Contract Planner
City of Malibu
23825 Stuart Ranch Road
Malibu CA 90265
lrudolph@malibucity.org
805-947-4828

From: Nima Parsa [mailto:nparsa@dpw.lacounty.gov]
Sent: Monday, February 22, 2021 10:24 AM

Project at 22729 and 22741 PCH - Mitigated Neg Dec

Nima Parsa <nparsa@dpw.lacounty.gov>

Mon 2/22/2021 10:24 AM

To: Lilly Rudolph <lrudolph@malibucity.org>
Cc: Aracely Jaramillo <AJaramillo@dpw.lacounty.gov>; David Rydman <DRYDMAN@dpw.lacounty.gov>

1 attachments (64 KB)

22729 & 22741 PCH_CWSL Issued 9.23.19.pdf;

Good morning Lilly,

We received the notice of intent to adopt the mitigated negative declaration for the subject Norman Haynie project and I just wanted to provide some information on what water system improvements are being required by the Waterworks Districts in order to meet Fire Department's fire flow requirements. In order to fulfill Fire Dept's requirements, Mr. Haynie has been conditioned to replace an existing 20" check valve and install an 18" pipe spool within the manifold located near our Topanga Beach Pump Station located north of PCH along Topanga Canyon Blvd. The conditions are part of Specification 29-840 (PC) and we issued a Conditional Will Serve Letter in 2019 indicating these requirements (see attached). Just wanted to make sure the conditions of this development are on the City's radar when considering the adoption and these water system improvements must be completed before the owner can obtain an approved building permit. Please let me know if you have any questions or concerns.

3.2

Thanks,

Nima Parsa
Principal Civil Engineering Assistant
Los Angeles County Public Works
(626) 320-0016 (Cell)

Letter 4

Aaron Gribben

Subject: FW: Proposed New Hotels

From: CMFrieze
Sent: Sunday, March 14, 2021 9:17 AM
To: Patricia Salazar <psalazar@malibucity.org>
Subject: Proposed New Hotels

Please add me to the
mailing list.

Thank you,

Charlotte

Charlotte M Frieze
[redacted]

Sent from my iPhone

4.1

Letter 5

Aaron Gribben

Subject: FW: Malibu Inn and Seaview Hotel on PCH

From: [redacted]
Sent: Saturday, March 13, 2021 8:08 AM
To: malibu planning <mplanning@malibucity.org>
Subject: Malibu Inn and Seaview Hotel on PCH

Good morning,

I think this is a horrible mistake on the City's part to allow these hotels. This part of PCH is already horribly impacted by traffic. At times, it is a 2 hour wait to drive from Sunset to Kanan. I grew up in the area, and we have recently purchased a home on Cavalleri. And in all the years of living in the area, traffic has just gets worse and worse and worse!! If you choose to move forward with these plans, HOW ARE YOU DEALING WITH THE ADDITIONAL TRAFFIC? How does someone exit the hotel and not get hit!? 5.1

Until you can control the number of vehicles in this area, the noise and car pollution it creates, the road rage, and multiple accidents, this area SHOULD NOT be developed any further. If you want more hotels, then they should be near an egress point off of PCH - at Topanga Cyn Blvd, or Malibu Canyon or Kanan. Putting more and more in the Carbon Beach area is a nightmare! Let alone the further impact of to the existing soils for septic systems! 5.2 5.3

I am saddened that the City is looking to just generate revenue off of bed-tax, and are not looking to protect the City's residents. Instead of a hotel, put in a multi-story parking lot where the city could generate much needed parking revenue, or add metered parking on PCH, or limit the number of vehicles allowed in the area at any one time, or ask all the shopping centers to add metered parking! 5.4

As it sits now, the City is strangling the inhabitants with more and more unwanted hotels and "shopping" centers, creating more traffic and pollution, and doing NOTHING to mitigate the danger. Add more police, add traffic cameras for speeding, add a stop light at Puerco canyon so ANOTHER PERSON DOESN'T DIE...for Goodness sakes, the City is responsible to the residents, first and foremost, not the developers. 5.5

Regards,

Ninon Tantet
The Bill and Marian Cook Foundation &
Arizona Asset Management, Inc.
[redacted]

Letter 6

Patricia Salazar

Subject: FW: hotels on the pch

From: [redacted]
Date: March 9, 2021 at 12:52:11 PM PST
To: Karen Farrer <kfarrer@malibucity.org>, Mikke Pierson <mpierson@malibucity.org>, Bruce Silverstein <bsilverstein@malibucity.org>, Steve Uhring <suhring@malibucity.org>, Kathleen Stecko <kstecko@malibucity.org>
Cc: res02igz@verizon.net, Jeffrey D Jennings <jdjenningslaw@gmail.com>, Patricia Salazar <psalazar@malibucity.org>, Richard Mollica <rmollica@malibucity.org>, Fred Roberts [redacted]
Subject: hotels on the pch
Reply-To: [redacted]

the number one job of the city counsel is safety

now 2 new hotels are proposed for the pch. people on sell phones not knowing malibu looking to turn in and out on the pch. the pch in the carbon beach area has an already high number of accidents and now you want to consider approving 2 new hotels 6.1

in case of fire. most fires come over the mountains from the valley on santa ana winds how are you proposing to evacuate malibu residents down the pacific coast highway. the citys failure was quite evident in the last fire on November 2018. 6.2

the city has done nothing to mitigate the traffic and several new buildings have already been approved in the civic center commercial area adding to congestion on the highway. 6.3

For the sake of safety please do not approve either of the proposed hotels 6.4

BEST REGARDS
TERRY LUCOFF

Letter 7

Aaron Gribben

Subject: FW: Updates

From: LSGLA[redacted]
Sent: Friday, March 19, 2021 11:12 PM
To: Kathleen Stecko <kstecko@malibucity.org>
Subject: Updates

Good evening,

May I request to be added to notifications regarding all commercial development in Malibu; Cross Creek Ranch, Sea View Hotel, Malibu Inn Motel, et al. 7.1

Best regards,

Lynn Saunders Guilburt

The contents of this email is confidential and intended for the recipient specified in the message only. It is strictly forbidden to share any part of this message with any third party. If you are not the intended recipient, you are hereby notified that you have received this communication in error and that any review, disclosure, dissemination, distribution or copying of it or its contents is strictly prohibited. If you received this message, please reply to this message and follow with its deletion, so that we can ensure such a mistake does not occur in the future.