May 9, 2025

Manuel Baeza, Principal Planner
City of Oceanside
Planning Division
300 North Coast Highway Oceanside, CA
92054

Dear Mr. Baeza:

Birdseye Planning Group (BPG) has evaluated the 401 Mission project ("proposed project" or "project") proposed for construction on a 2.72-acre lot at the southwest corner of Mission Avenue and South Coast Highway in the City of Oceanside. The proposed 401 Mission is a new, mixed-use development project located on the south side of Mission Avenue southwest of the Mission Avenue/South Coast Highway intersection. The project site is adjacent to and northeast of the Oceanside Transit Center located at 235 South Tremont Street.

The new building would consist of 332 residential units and approximately 18,682 square feet of ground-floor commercial space. The proposed contemporary, seven-story podium building emphasizes connectivity within the existing downtown area. The podium building would be topped with 5 levels of residential units reaching a height of 75 feet. The project would provide a mix of modern, open concept floor plans comprising 15 studio units at +/-564 square feet, 165 one-bedroom units at +/-710 square feet, 113 two-bedroom units at 1100 square feet and 39 three-bedroom units at 1,340 square feet.

Vehicular access to a new parking structure will be via Seagaze Drive, which will have two ingress and egress locations. The parking structure will have three levels which includes one subterranean, one on-grade and one above-grade, and a total of 591 parking spaces consistent with the City of Oceanside parking requirements for Transit Oriented Developments. The design incorporates features such as solar panels, and energy-efficient appliances.

This letter evaluates the proposed project for consistency with the Class 32 Urban Infill Exemption criteria identified in Section 15532 of the CEQA Guidelines and based on our technical analyses, the project meets all of the criteria for the categorical exemption under the CEQA Guidelines Section 15332, described herein. Substantial evidence regarding this determination is provided herein and in the other project materials.

Categorical Exemptions

Article 19 of the CEQA Guidelines includes a list of classes of projects which have been determined not to have a significant effect on the environment and which shall; therefore, be exempt from the provisions of CEQA. Such projects are categorically exempt from the requirement for the preparation of environmental documents provided they meet the following exceptions as defined in Section 15300.2 of the CEQA Guidelines. These exceptions apply to different categorical exemptions:

- **Location.** Classes 3, 4, 5, 6, and 11 exceptions are qualified by consideration of where the project is to be located – a project that is ordinarily insignificant in its impact on the environment may, in a particularly sensitive environment, be significant. Therefore, these classes are considered to apply all instances, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

- **Cumulative Impact.** All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.

- **Significant Effect.** A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.

- **Scenic Highways.** A categorical exemption shall not be used for a project which may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway. This does not apply to improvements which are required as mitigation by an adopted negative declaration or certified EIR.

- **Hazardous Waste Sites.** A categorical exemption shall not be used for a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.

- **Historical Resources.** A categorical exemption shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource.

Class 32 Urban Infill Categorical Exemption

Article 19 of the CEQA Guidelines includes categories of projects which, based on the location and scope of the proposed action, would not have a significant environmental effect. Individual projects that meet specific criteria associated with one or more exemption, can be categorically exempt from CEQA compliance requirements. If so, then no further CEQA documentation is required as part of the discretionary review process.

Class 32 exemptions are intended to promote infill development within urbanized areas and are applicable primarily to in-fill projects that are consistent with local general plan and zoning requirements. The Class 32 exemption does not apply to projects which would result in significant effects to sensitive biological habitat, traffic, noise, air quality, or water quality. Specific to a Class 32 Urban Infill exemption, Section 15332 of the CEQA Guidelines identifies the following criteria that must be met for a project to qualify for a Class 32 categorical exemption:

- The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.
- The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.
- The project site has no value as habitat for endangered, rare or threatened species.
- Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.
- The site can be adequately served by all required utilities and public services.

Proposed Project Analysis

To evaluate whether the below findings can be made for the proposed project, the following technical studies were prepared:

- Air Quality;
- Noise;
- Local Transportation Study and Vehicle Miles Traveled Analysis;
- Geotechnical Report;
- Hydrology/Water Quality; and
- Phase I Environmental Site Assessment

Categorical Exemption Analysis

This memorandum first analyzes whether an exception to the use of a categorical exemption applies. As the following demonstrates that none of the applicable exceptions apply, the memorandum goes on to analyze each of the Class 32 exemption criteria.

Location. Classes 3, 4, 5, 6, and 11 are qualified by consideration of where the project is to be located – a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant. Therefore, these classes are considered to apply all instances, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies. (14 CCR § 15300.2(a).)

Because the project is relying on Class 32 exemption, these exceptions do not apply.

Cumulative Impact. All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant. (14 CCR § 15300.2(b).)

Based on the technical reports and studies prepared for the project, the project would have no potential significant adverse effects under CEQA. A total of seven cumulative projects were evaluated in the Local Transportation Study (Linscott, Law and Greenspan, Inc., (November 2024). These are summarized as follows:

- Alta Oceanside Mixed Use Project with 309 multi-family units and approximately 5,422 square feet of commercial/retail space generally located on the southwest corner of North Coast Highway and Costa Pacifica Way;

- Belvedere Hotel and Residence with 124 room hotel, 90 live/work lofts, and approximately 8,357 mixed retail/office space located at 901 Mission Avenue (southwest corner of Mission Avenue and Horne Street);

- 712 Seagaze Drive Mixed Use with 115 apartments and a 64 room hotel;

- Sunsets Mixed-Use with 78 apartments and 1,658 square feet of commercial;

- Ocean Kamp with 126,000 square feet of commercial/retail, a 300-room hotel and 700 multi-family aparments;

- El Corazon Phases 1-3 with 300 dwelling units, 158,000 square feet of retail, 6,000 seat arena and 3,500 squafe foot aquatic center; and

- North River Farms with 689 dwelling units, 25,000 square feet of retail, 5,000 square foot restaurant space and 100 room hotel.

The cumulative projects are each residential with a mixed-use retail component and like the proposed porject, are located on urban infill sites within Oceanside's downtown area and proximal to the project site. These projects are all subject to the same regulatory review requirements and design standards specified by the City of Oceanside to avoid or minimize environmental effects. Should any of the cumulative projects have a potentially significant or adverse environmental impact, the impacts would be mitigated as appropriate to reduce potential impacts to less than significant, or otherwise addressed during the CEQA review process.

According to the Air Quality Assessment (Urban Crossroads, Inc., June 2023) the proposed project would have a less than significant direct and/or cumulative impacts associated with air quality and greenhouse gas emissions. According to the Exterior Noise and Exterior Façade Acoustical Analysis (Veneklasen, Inc.,May 2023) and CEQA Noise Report (Veneklasen, Inc., February 2025), temporary construction noise and long-term operational impacts would be less than significant with implementation of project design features and standard measures identified in the reports. Based on the Exterior Noise and Exterior Façade Analysis (Veneklasen, May 2023), interior noise levels would meet applicable standards within all units. As stated in the Local Transporation Study (Linscott, Law and Greenspan, Inc., November 2024), the proposed project would screen out of the need for a full VMT evalulation; and thus, would have a less than significant direct and cumulative transportation impact. Other direct environmental effects of the project addressed herein related to aesthetics as the impact pertains to scenic highways, hazards and hazardous waste, biological resources, historic resources, hydrology/water quality, land use (i.e., zoning and General Plan consistency) and public services/utilities would also be less than significant per applicable CEQA thresholds; and thus, would not cause or contribute to cumulative impacts. The cumulative projects are all urban, in-fill developments that conform to the applicable zoning and General Plan land use designations. Thus, the proposed project would not result in a cumulative impact consistent with **14 CCR § 15300.2(b).**

Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances. (14 CCR § 15300.2(c).)

The project site is located in a developed urban area. The site does not contain, nor is it located proximal to any unusual or environmentally sensitive areas that could be adversely affected by the proposed project. As stated, the proposed project would have no significant or adverse environmental effects to noise, air quality, greenhouse gas or traffic and is consistent with the General Plan and zoning designation for the site. The site does not contain any usual features or natural resources. Therefore, there is no reasonable possibility that the proposed project will have a significant effect on the environment due to unusual circumstances.

Scenic Highways. A categorical exemption shall not be used for a project which may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway. This does not apply to improvements which are required as mitigation by an adopted negative declaration or certified EIR. (14 CCR § 15300.2(d).

The project site is located at the southwest corner of Mission Avenue and South Coast Highway and has a

Downtown Subdistrict 1 zoning designation. The site is also located within the Oceanside Coastal Zone. The surrounding area is developed with existing residential and commercial uses. The surrounding streets are all local and none are designated scenic. According to the California Department of Transportation's State Scenic Highway Program, there are no state scenic highways in the vicinity of the project site. The closest scenic highway is Route 52 near Santo Road in the city of San Diego, approximately 29 miles to the southeast. Accordingly, the project will not damage scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway.

Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code. (14 CCR § 15300.2(e).)

The project site is developed and is not within a designated hazardous site. The project site is not located on the California Department of Toxic Substances Control's Hazardous Waste and Substances Site List-Site Cleanup (Cortese List), nor is it listed on the EnviroStor database. Further, the project site is not on the following lists maintained by the State Water Board: Leaking Underground Storage Tank Sites, Solid Waste Disposal Sites, or Active Cease and Desist Orders and Cleanup and Abatement Orders. The project site is also not identified on the list of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by the Department of Toxic Substances Control. Per the Phase I Environmental Site Assessment for the property (OGI Environmental, Inc., June 2022), there are no Recognized Environmental Conditions associated with the site. Further, the Phase I concludes no additional environmental review addressing hazards or hazardous materials is warranted. Thus, the project is not located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.

Historical Resources. A categorical exemption shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource. (14 CCR § 15300.2(f).)

The project site is developed with an existing commercial center constructed in 1999. Neither the project site nor any of the existing buildings on the project site are listed or deemed eligible for listing on the National Register of Historic Places, California Register of Historical Resources, or City of Oceanside's Historical Resources Inventory conducted in 1992 and has not been identified as a historic resource in any survey. Thus, the project will not cause a substantial adverse change in the significance of a historical resource.

Class 32 Exemption: In-Fill Development Analysis

The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations. (14 CCR § 15332(a).)

The project site has a General Plan designation of Downtown and Zoning designation of Downtown Subdistrict 1. The purpose of this zoning designation is to provide sites for office development, interspersed with residential stand-alone and/or mixed-use development, in response to market demands. The mixed-use development regulations are intended to provide a commercial/retail and office complex offering a wide variety of goods and services to both the community at large and to tourists and visitors. Residential uses are encouraged where appropriate as part of mixed-use development projects. The project would provide 332 residential units and 19,420 square feet of commercial space in a mixed-use development. The General Plan Land Use Map designation for the subject property is Downtown (D). The proposed project is consistent with this land use designation and the policies of the City's General Plan as follows:

A. Land Use Element
Goal 1.12 Land Use Compatibility

Objective: To minimize conflicts with adjacent or related uses.

Policy B: The use of land shall not create negative visual impacts to surrounding land uses.

The project site is located adjacent to the Oceanside Transit Center and is within the Oceanside TOD. The vertical mixed-use building is consistent with the pattern of redevelopment in the downtown area. Consistent with smart growth principles, the current trend of redevelopment in downtown Oceanside is to construct high density vertically-oriented mixed-use development to accommodate the City's regional fair share of housing growth, support commercial establishments, enhance walkability, and support transit service. The proposed project is designed using a modern style of architecture with quality materials consistent with the other buildings in the surrounding downtown area.

The project site is located in a highly urbanized area consisting of commercial and civic land uses. The proposed project, as designed and sited, would be consistent with the surrounding built environment and enhance the area by activating the streetscape with square feet of commercial space facing Mission Avenue.

Goal 1. 16: Housing
Objective: To ensure that decent, safe and sanitary housing is available to all current and future residents of the community at a cost that is within the reach of the diverse economic segments of Oceanside.

Policy A: The City shall strive to maintain a reasonable balance between rental and ownership housing opportunities, between senior and family housing and encourage a variety of individual choices of tenure, type and location of housing throughout Oceanside.

The proposed project, which includes 332 units, would add to the variety of existing multi-family unit housing types available within the area. The Regional Housing Needs Assessment (RHNA) for the Sixth Housing Element Cycle (2021-2029) estimates that the City of Oceanside will have a demand for 5,443 new dwelling units, including 718 low-income units, over the next eight years. By contributing 332 total units, including 34 reserved for low-income households, to the City's existing housing stock, the proposed project would help meet the City's projected housing demand.

Policy C. The City shall ensure housing is developed in areas of the City with adequate access to employment opportunities, community facilities and public services:

The project is consistent with the City's General Plan Housing objective. The project would be developed on an infill site in downtown Oceanside proximal to commercial areas that provide employment opportunities, public facilities including the City of Oceanside Library (located 0.16 miles to the north), and other amenities and public services including schools (Oceanside High School is located 0.3 miles to the northeast), fire/police and parks (the Pacific Ocean and beaches are located 0.3 miles to the southwest). The project includes affordable housing pursuant to Density Bonus law as well as market rate housing consistent the General Plan goal of providing house within reach of the City's diverse economic segments.

Policy E: The City shall protect, encourage, and where feasible, provide housing opportunities for persons of low and moderate income.

The proposed project is requesting density bonus by reserving 10 percent of the total number of units (34 units) for low-income tenants. By providing affordable units, the project would offer housing opportunities in an area otherwise unattainable for lower income households.

The project would be consistent with the General Plan and zoning designation and designed in accordance with applicable General Plan policies summarized above and zoning regulations; and thus, meets this criterion.

The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses. (14 CCR § 15332(b).)

The project site is entirely within the City of Oceanside. The site is approximately 121,532 square feet (2.79 acre), which is less than five acres in size. The project site is substantially surrounded by urban uses. Commercial development surrounds the site along Mission Avenue (north), South Coast Highway (east) and Seagaze Drive (south). A commercial center abuts the site to the west. A church and the Oceanside Transit Center are located adjacent to and southwest of the site across Seagaze Drive. As the Public Resources Code (PRC) defines qualified urban use as "any residential, commercial, public institutional, transit or transportation passenger facility, or retail use, or any combination of those uses," the project site is substantially surrounded by urban uses. (PRC § 21072.)

The project site has no value as habitat for endangered, rare or threatened species. (14 CCR § 15332(c).)

The entire site is developed with an existing commercia/retail center constructed in 1999. The only vegetation observed were ornamental plants located in planter landscaped areas. These will be removed to accommodate the development. The project site has no value as habitat for endangered, rare or threatened species.

Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality. (14 CCR § 15332(d).)

The project would not result in any significant impacts related to traffic, noise, air quality or water quality. An Exterior Noise and Exterior Façade Acoustical Analysis prepared by Veneklansen, May, 2023 analyzed the project with reference to the exterior and interior noise levels post-construction. That study demonstrates that with implementation of design recommendations, interior noise levels would meet City of Oceanside standards within all units. A CEQA Noise Report prepared by Veneklasen (February 2025), determined that temporary construction noise and long-term operational noise would meet applicable standards with implementation of project design features and standard measures.Noise levels would not exceed allowable noise thresholds or otherwise trigger a potentially significant noise impact. Thus, the project would not result in any significant effects related to noise.

A VMT screening analysis included as part of the Local Transportation Study prepared by Linscott, Law and Greenspan, Inc., (November 2024) states that because the project site is within a TOD area and consistent with the General Plan, the project screens out of a VMT Analysis. No VMT analysis is required. The proposed project would have no adverse affect to pedestrian, bicycle or transit infrastructure or service; and thus, would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. The project would utilize the existing street system, which the LTS demonstrates is adequate to serve the project without additional transportation improvements. The site entrance/exits are designed consistent with City of Oceanside standards; thus, the project would not substantially increase hazards due to a geometric design feature. Further, vehicles accessing the site would be common passenger and delivery vehicles. Thus, the project would not introduce equipment or incompatible uses to the local street system. Finally, the project would not adversely impact emergency access by providing inadequate site access or otherwise impacting

use of local streets by emergency vehicles. Therefore, the project would not result in any significant effects relating to transportation/traffic.

An Air Quality and study prepared by Urban Crossroads, Inc., (June 2023), analyzed the project with reference to the applicable CEQA air quality thresholds of significance. That report demonstrates that the project would comply with local regulatory measures, and that neither construction nor operation of the project would result in any significant effects relating to air quality.

The on-site stormwater capture, conveyance and treatment system incorporated into the project design in accordance with applicable law and the project specific SWPPP would ensure that all stormwater leaving the site would meet or exceed state water quality standards. Because the site is developed, the project would not substantially increase the amount of impervious area on the site. The project would not pump groundwater nor is the site over an aquifer recharge area. Runoff would be captured and conveyed into a total of five biofiltration basins. Of the total, three would be located on the northern frontage and plaza area and two would be located on the buildings south perimeter (Stormwater Quality Management Plan, X Engineering and Design, Inc.). The water would be treated and conveyed into existing municipal storm drains on Mission Avenue and Seagaze Drive.

There are no drainages on the site; thus, none would be affected by the project nor would the project impede flood flows. The project would be required to implement stormwater Best Management Practices during construction to minimize erosion and/or off-site impacts associated with stormwater runoff. As stated, post-construction ruoff would be captured and conveyed to biofiltration basins. The system is designed to accomoate 100 percent of all post-construction runoff.The project site is not located within a dam inundation area nor are there large open water bodies proximal to the site that would pose a potential seiche impact. The project site is not located within the San Diego County Tsunami Hazard Area as depicted in the California Department of Conservation tsunami map. https://www.conservation.ca.gov/cgs/tsunami/maps/san-diego. Thus, the project would not result in any significant effects relating to water quality.

The site can be adequately served by all required utilities and public services. (14 CCR § 15332(e).)
The project site would connect to existing utilities located within street corridors surrounding the site. According to the City of Oceanside 2020 Urban Water Management Plan (June 2021), the City's water supply reliability analysis shows that with implementation of additional planned supplies and conservation measures, supplies will meet demands under all hydrologic scenarios, including the normal year, single dry year, and five consecutive dry years from 2025-2045. The project is consistent with General Plan and zoning designations; thus, water demand associated with the project has been factored into the demand calculations upon which the City determined that adequate supplies exist. Adequate water supplies would be available to serve the project. Further, as a project consistent with General Plan and zoning designations and the City's determination of the sufficiency of the wastewater treatment system to serve demand, adequate treatment capacity exists within the City's wastewater treatment system. With the payment of connection fees and development impact fees to cover fair share impacts to public services (i.e., fire, law enforcement, parks and schools), the project would be adequately served by all required utilities and public services.

Though the project will result in additional people using utilities and public services at this location, the project is consistent with long term City land use plans and policies, as identified in the Oceanside General Plan. The record reflects that applicable utilities and public services have capacity to serve the demand associated with the site and the project can be adequately served by all required utilities and public services.

CONCLUSION

A project qualifies for a Class 32 CE if it is developed on an infill site and meets the conditions described in CEQA. The five (5) conditions which the project must meet to qualify for the Class 32 Categorical Exemption are as follows: (a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with the applicable zoning designation and regulations; (b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses; (c) The project site has no value as habitat for endangered, rare or threatened species; (d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality; and (e) The site can be adequately served by all required utilities and public services As demonstrated in this report and the project record, the project meets all 5 criteria for reliance on a Class 32 exemption. Further, none of the exceptions to the use of a categorical exemption, as defined in Article 19 of the CEQA Guidelines described above, apply.

Therefore, the project would meet the criterion associated with the Class 32 Urban Infill exemption. If you have any questions regarding this analysis, please feel free to contact me at 760-712-2199 or via e-mail at ryan@birdseyeplanninggroup.com

Regards,



Ryan Birdseye
Principal

Veneklasen Associates
Consultants in Acoustics | Noise | Vibration | AV | IT

May 16, 2023

Architects Orange
321 West Chapman Avenue
Orange, California 92866

Attention: Tobin Symmank, NCARB | Principle

Subject: **401 Mission Avenue Mixed-Use**
Oceanside, California
Exterior Noise and Exterior Façade Acoustical Analysis
Veneklasen Project No. 8342-001

Dear Tobin:

Veneklasen Associates, Inc. (Veneklasen) has completed the review of the 401 Mission Avenue Mixed-Use project located in Oceanside, California. This report predicts the exterior noise level at the site using measurements and computer modeling. Using this information, interior noise levels were calculated based on the exterior noise exposure and the construction types proposed. From this, the exterior façade design was determined. This report discusses the results of the analysis.

1.0 INTRODUCTION

This study was conducted to determine the impact of the exterior noise sources on the 401 Mission Avenue mixed-use project in Oceanside, California. Veneklasen's scope of work included calculating the exterior noise levels impacting the site and determining the method, if any, required to reduce the interior and exterior sound levels to meet the applicable code requirements of the State of California and the City of Oceanside.

The project consists of a 5-level mixed-use development with parking below grade, ground-level retail, and ground-level occupancy and amenities. The project is bounded by Mission Avenue to the northwest, County Highway S21 to the northeast, Seagaze Drive to the southeast, and N. Cleveland Street to the southwest.

2.0 NOISE CRITERIA

CNEL (Community Noise Equivalent Level) is the 24-hour equivalent (average) sound pressure level in which the evening (7 pm–10 pm) and nighttime (10 pm – 7 am) noise is weighted by adding 5 and 10 dB, respectively, to the hourly level. Since this is a 24-hour metric, short-duration noise events (truck pass-bys, buses, trains, etc.) are not as prominent in the analysis.

Leq (equivalent continuous sound level) is defined as the steady sound pressure level which, over a given period of time, has the same total energy as the actual fluctuating noise.

All reported noise levels are A-weighted.

2.1 Interior Noise Levels – Residential

The State of California Building Code (Title 24, Part 2, Section 1206 "Sound Transmission") and the City of Oceanside Noise Element state that interior CNEL for residential land uses are not to exceed 45 dB in any habitable room.

If the windows must be closed to meet an interior CNEL of 45 dB, then a mechanical ventilating system or other means of natural ventilation may be required.

Although not a regulatory requirement, Veneklasen suggests that the maximum noise level from short-duration noise events during the night not exceed 55 dB. This criterion is based on sleep disturbance research and experience with similar projects.

2.2 CALGreen – Non-Residential

The California Green Building Standards Code (CALGreen Section 5.507.4.2) stipulates that for buildings exposed to a noise level of 65 dB or more when measured as a 1-hour Equivalent Sound Level (Leq), the building façade, including walls, windows, and roofs, shall provide enough sound insulation so that the interior sound level from exterior sources does not exceed 50 dB during any hour of operation. This applies to non-residential spaces such as retail space, leasing, and amenities.

3.0 EXTERIOR NOISE ENVIRONMENT

3.1 Noise Measurements

Traffic on Mission Avenue and County Highway S21 was the primary source of noise affecting the site. The traffic on site was heavily influenced by motor noise from cars, motorcycles, and heavy truck pass-bys. Noise levels from the nearby train and bus stations were also present to a less significant degree than other noise sources.

Veneklasen visited the site on Thursday, April 20, 2023 and placed meters on the roof of existing buildings to capture the hourly sound levels on the site for a four-day period. On April 24, Veneklasen also completed short-term noise measurements to capture the effect of the nearby buses and trains. Table 1 and Figure 1 show the location and summary of the noise measurements.

Table 1 – Measured Sound Levels

Location	Measured Overall Level (dB)	CNEL (dB)	Nighttime Event (dB)	Loudest Daytime Hour (dB)	Measured Bus Event Level (dB)	Measured Train Event Level (dB)
L1	67	71	82	73	---	76
L2	71	74	84	75	---	---
S1	60	---	---	---	69	---
S2	60	---	---	---	---	75
S3	63	---	---	---	---	82

Figure 1 – Aerial View of Project Site Showing Measurement Locations – Near Site



3.2 Computer Modeling

Veneklasen utilized the SoftNoise Predictor-LimA modeling program to verify and predict vehicular and train noise levels at various locations around the project site. The primary purpose of the computer model was to determine how the noise environment will change due to traffic and site changes.

Traffic counts for local streets were obtained from the Oceanside Department of Transportation[1].

3.3 Oceanside Transit Center

The Oceanside Transit Center station hosts Sprinter, Amtrak, and Metrolink trains that run along the southwest side of the project site. In addition, buses run along the southern side of the site, entering from and exiting onto Seagaze Drive. The schedule indicates that Sprinter regional hybrid rail trains run every 30 minutes from 4 AM to 9 PM. Amtrak Surfliner trains run approximately on the hour for most hours of the day between 5 AM and 9 PM. Metrolink trains arrive and depart from Oceanside Transit Center station approximately 4-5 times per day.

In addition, unscheduled freight train traffic also occurs. A Federal Railroad Administration Crossing Inventory for the Mission Avenue grade crossing indicates that a 24-hour Quiet Zone is in effect. Thus, train horns should only sound under emergency conditions. Overall, noise associated with train traffic is not anticipated to be as significant a contributor to noise at the project location as vehicular traffic.

[1] https://navigatela.lacity.org/navigatela/

Lastly, Oceanside Transit Center is accompanied by the Oceanside bus station, which serves multiple bus lines from approximately 5:30 in the morning to 11:30 at night. Veneklasen did not observe significant noise coming from the buses at the site.

The measured sound level of the noise events at S2 was approximately 75 dB. Due to significant shielding from similarly tall buildings in the area, the noise generated by buses and departing/arriving trains does not significantly exceed the noise levels generated by traffic noise from the four bordering streets.

3.4 Overall Exterior Exposure

Based on the computer model and measurements, Veneklasen calculated the noise level at different locations across the project site. To simplify the presentation of the exterior noise levels, Veneklasen has separated the site into locations based on the sound exposure and required mitigation. The predicted sound levels at each zone, shown in Figures 2 and 3, are listed in Table 2 below. It should be noted that while Zones A and B experience similar CNEL values, Zone B is limited in surface area and window area exposed to the road, which reduces its glazing STC requirements.

CALGreen is based on the loudest hourly noise level. Veneklasen utilized a statistical methodology to determine this level from the measurements[2].

Table 2 – Exterior Noise Levels

Location	Exterior CNEL (dB)	Event Level (dB)	Exterior Loudest Daytime Hour (dB)
Zone A/D	74	80	75
Zone B/E	74	80	75
Zone C/F	61 – 73	78	73
Remaining Units	≤ 60	< 75	< 65 – 72

[2] LoVerde, John; Dong, Wayland; Rawlings, Samantha. “Noise Prediction of Traffic on Freeways and Arterials from Measured Data.” Noise-Con 2014. Fort Lauderdale, Florida.

Figure 2 - Noise Zones, Level P2-P3

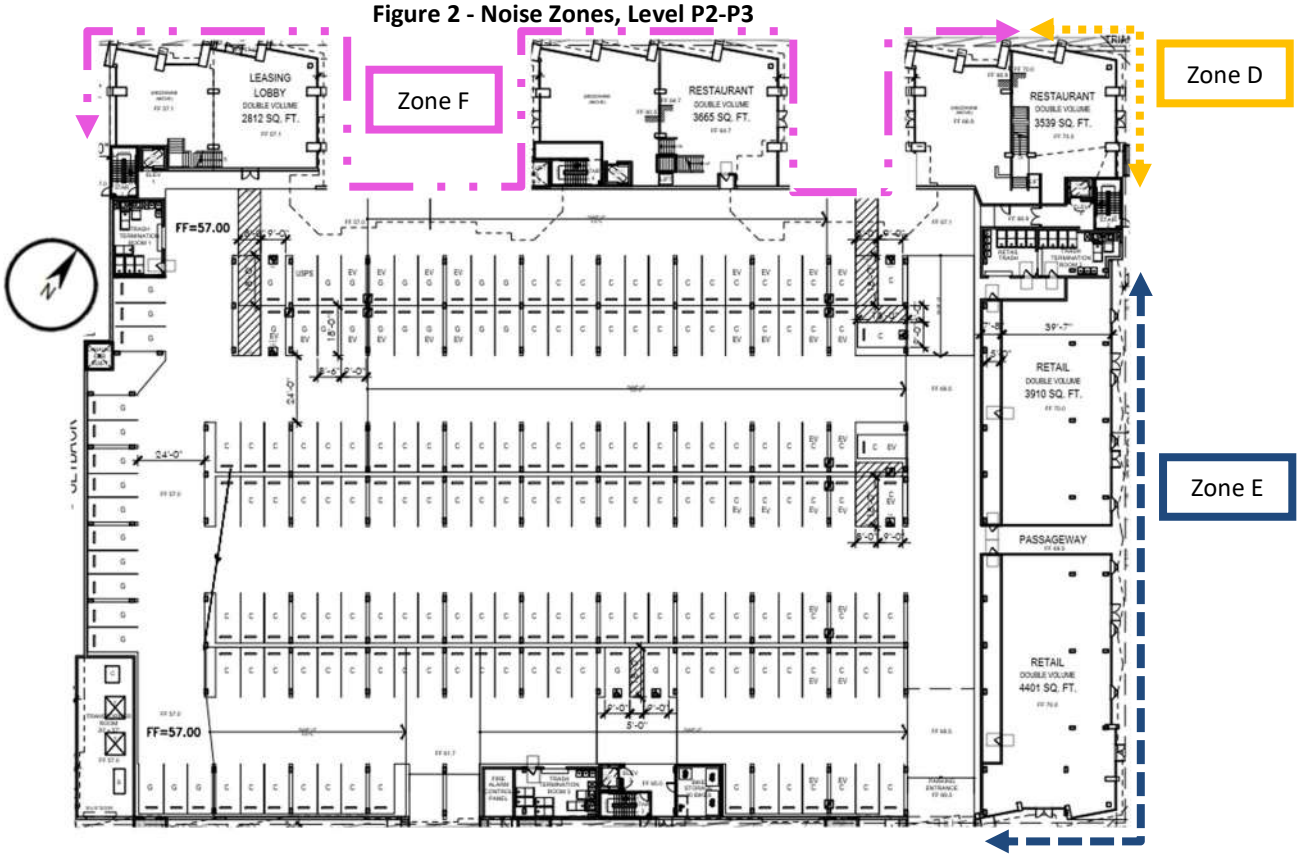
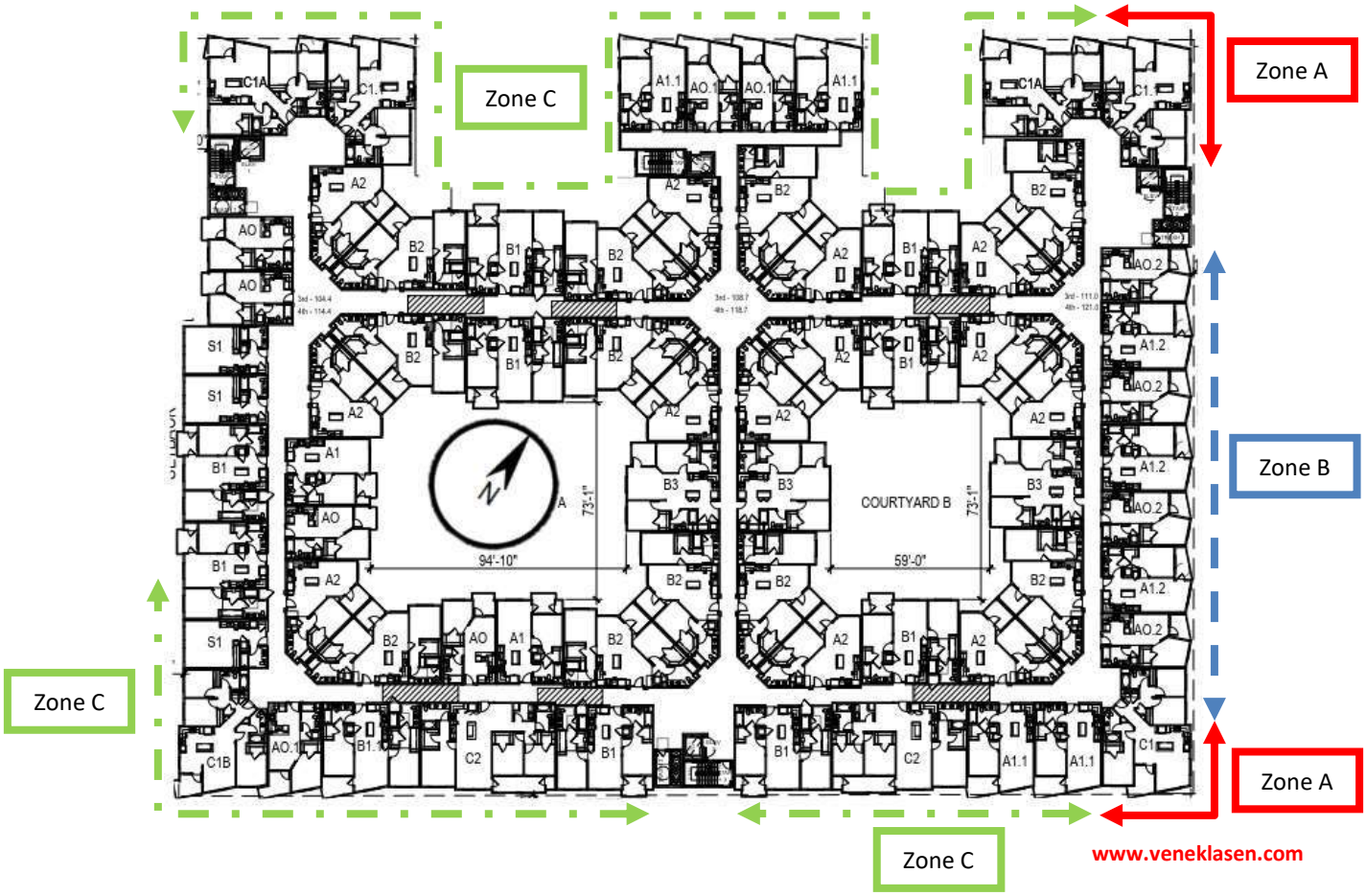


Figure 3 – Noise Zones, Floors 1-5



4.0 INTERIOR NOISE CALCULATION

4.1 Exterior Façade Construction

Calculations were based on the plans dated March 14, 2023. The plans do not indicate any exterior wall assembly. For the purposes of calculations, it is anticipated hat the exterior wall will consist of 3-coat stucco over sheathing on wood studs with a single layer of gypsum board on the interior and batt insulation in the cavity.

Veneklasen utilized the glazing ratings (glass, frame, and seals) shown in Appendix I.

4.2 Interior Average Noise Level (CNEL) – Residential

Veneklasen calculated the interior level within the residential units given the measured noise environment and the exterior façade construction described above. Table 3 shows the predicted interior CNEL based on the windows and doors with STC ratings as shown and glazing construction as described in Appendix I. Note that the STC ratings indicated in the table do not completely specify the building element performance, as the building element must also meet the octave band transmission loss across the frequency spectrum as specified in Appendix I. As mentioned above, the CNEL values for zones A and B are similar due to their positions but require different glazing due to less wall and window surface area exposed to noise sources in Zone B.

Table 3 – Calculated Interior CNEL

Location	Exterior CNEL (dB)	Window/ Door Rating[3]	Interior CNEL (dB)
Zone A	74	STC 37	45
Zone B	74	STC 33	< 45
Zone C	60-71	STC 30	< 45
Remaining Units	≤ 60	No STC requirement. STC 30 recommended.	

Where the noise level does not exceed 60, sound-rated assemblies are not required. However, Veneklasen recommends specifying a window with a minimum rating of STC 30 to maintain a consistent level of acoustical quality.

4.3 Interior Short-duration Noise Event – Veneklasen Recommended Glazing (Optional)

In a similar manner Veneklasen calculated the interior noise levels from the single-event noise sources such as motorcycles, buses, and heavy truck pass-bys. As described in Section 2.1, Veneklasen's recommended interior nighttime noise level criterion is 55 dB. Table 4 shows Veneklasen's recommended mitigation to reduce the interior noise levels due to nighttime short-duration noise events.

Table 4 – Calculated Interior Short-Duration Event Noise Levels

Location	Exterior Nighttime Event Level (dB)	Glazing Rating	Interior Event Level (dB)
Zone A	80	STC 40	≤ 55
Zone B	80	STC 35	≤ 55
Zone C	78	STC 33	≤ 53

[3] STC rating does not fully specify the building element performance. Refer to Appendix I.

4.4 Mechanical Ventilation – Residential

Because the windows and doors must be kept closed to meet the noise requirements, mechanical or other means of ventilation is required for units in Zones A, B, and C. The ventilation system shall not compromise the sound insulation capability of the exterior façade assembly.

4.5 CALGreen – Non-Residential

In a similar manner, Veneklasen calculated the noise level within non-residential spaces. CALGreen is based on the loudest hourly Leq. Veneklasen utilized a statistical methodology to determine this level from the measurements[4]. The results are shown in Table 5 below.

Table 5 – Calculated Interior Average Noise Levels at Non-Residential Areas

Location	Exterior Loudest Daytime Hour (dB)	Minimum Glazing	Interior Loudest Daytime Hour (dB)
Zone D	75	STC 41	< 50
Zone E	75	STC 41	< 50
Zone F	73	STC 35	< 50

5.0 SUMMARY

The following summarizes the acoustical items required to satisfy the noise criteria as described in this report.

Residential

- Exterior wall assembly is acceptable as described in Section 4.1.
- The roof assembly was included in the analysis and is not a significant path of sound and can remain as designed.
- Windows and glass doors as shown in Table 3 with Transmission Loss values and STC ratings defined in Appendix I are required. Appendix I shall be the acoustical specification for all exterior windows and doors.
- Optional: In order to meet Veneklasen's criterion for short-duration noise events, windows and glass doors with minimum STC ratings as shown in Table 4 are recommended. This is not required by code but will increase occupant comfort.
- Residential mechanical ventilation, or other means of natural ventilation, is required for units in Zones A, B, and C.

Non-Residential

- At retail, amenity, and other non-residential spaces, windows and glass doors as shown in Table 5 with Transmission Loss values and STC ratings defined in Appendix I are required to meet the CALGreen interior noise criterion.

Various noise mitigation methods may be utilized to satisfy the noise criteria described in this report. Alteration of mitigation methods that deviate from requirements should be reviewed by the acoustical consultant.

[4] LoVerde, John; Dong, Wayland; Rawlings, Samantha. "Noise Prediction of Traffic on Freeways and Arterials from Measured Data." Noise-Con 2014. Fort Lauderdale, Florida.

If you have any questions or comments regarding this report, please do not hesitate to contact the undersigned.

Sincerely,
Veneklasen Associates, Inc.



Amy Ziffer
Associate



Matt Bridgeman
Associate

APPENDIX I – GLAZING REQUIREMENTS

In order to meet the predicted interior noise levels described in Section 4.0, the glazing shall meet the following requirements:

Table 6 – Acoustical Glazing Requirements: Minimum Octave Band Transmission Loss and STC Rating

Nominal Thickness	Minimum Transmission Loss Octave Band Center Frequency (Hz)						Min. STC Rating
	125	250	500	1000	2000	4000	
1” dual	21	18	27	34	37	32	**30**
1” dual	22	21	30	36	37	36	**33**
1” dual	25	24	29	40	40	40	**35**
1” dual	24	27	35	39	40	42	**37**
1-3/8” dual	24	28	37	40	42	45	**40**
Storm (triple glazed)	25	33	36	42	44	50	**41**

The transmission loss values in the table above can likely be met with the following glazing assemblies:

1. Up to STC 35: nominal 1” insulated glazing unit
2. STC 37: nominal 1” laminated insulated glazing unit
3. STC 40: nominal 1-3/8” laminated insulated glazing unit
4. STC 41: nominal 1” insulated glazing unit with 4” airspace and storm window

An assembly’s frame and seals may limit the performance of the overall system. Therefore, the window and door systems selected for the project shall not be selected on the basis of the STC rating of the glass alone, but on the entire assembly including frame and seals. Additionally, the assemblies given above are provided as a basis of design, but regardless of construction, the octave band Transmission Loss (TL) and STC value of the system selected must meet the minimum values in Table 6 above.

Independent laboratory acoustical test reports should be submitted for review by the design team to ensure compliance with glazing acoustical performance requirements. Laboratories shall be accredited by the Department of Commerce National Voluntary Laboratory Accreditation Program (NVLAP). Labs shall be pre-approved by Veneklasen Associates. Tests shall be required to be performed in North America. Lab tests and lab reports shall be in compliance with ASTM standard E90 and be no more than 10 years old from the date of submission for this project.

If test reports are not available for a proposed assembly, the assembly, including frame, seals and hardware, shall be tested at an independent pre-approved NVLAP-accredited laboratory to demonstrate compliance with the requirements of this report. Veneklasen shall be invited to witness acoustical testing completed and reserves the right to exclude test reports from laboratories that are not pre-approved by Veneklasen.

ANALYSIS OF
PROJECT NOISE IMPACTS

401 MISSION AVENUE MIXED-USE
CEQA NOISE REPORT

February 6, 2025

By

Veneklasen Associates, Inc.
1711 16th Street
Santa Monica, CA 90404

Contents

1.0 INTRODUCTION 1
1.1 Project Description 1
1.2 Characteristics of Noise 1
1.3 Characteristics of Vibration 4

2.0 REGULATORY FRAMEWORK 5
2.1 Applicable State Regulations 5
2.1.1 Noise Standards 5
2.1.2 California Green Building Code 5
2.1.3 California Building Code 6
2.1.4 Vibration Standards 6
2.2 The City of Oceanside Noise Element of the General Plan 6
2.3 The City of Oceanside-Code of Ordinances 7
2.4 Project Requirements Summary 7

3.0 ENVIRONMENTAL IMPACTS and significance 8
3.1 Significance Thresholds 8
3.2 Impact 1. Noise Levels in Excess of Standards 8
3.2.1 Methodology 9
3.2.2 Existing Ambient Measured Noise Levels 9
3.2.3 Future On-site Noise Levels 10
3.2.4 Noise/Vibration Sensitive Receptors 11
3.2.5 Future Off-site Operational Noise Levels 12
3.2.6 Future Off-site Construction Noise Levels 13
3.3 Impact 2. Excessive Ground-borne Vibration 16
3.4 Impact 3. Airport Noise Exposure 16

4.0 SUMMARY CONCLUSION 17
4.1 Summary of Significance of Impacts 17
4.2 Summary of Noise/Vibration Design Features 18

ANALYSIS OF PROJECT NOISE IMPACTS

1.0 INTRODUCTION

This report evaluates potential noise impacts associated with construction and operation of the 401 Mission Avenue Mixed-Use Project in Oceanside, California.

1.1 Project Description

The proposed project consists of a 7-level mixed-use development with 5-level podium building with 332 residential units including 15 units of studios, 165 units of 1-bead room, 113 units of 2-bedroom and 39 units of 3-bedroom and below grade parking, ground-level retail and restaurant, and ground-level occupancy and amenities. The amenities include Leasing, lobby, mail/parcel, indoor amenities such as fitness, coworker area a pool. The provided number of total parking stalls is 595. There are 19,420 square feet of commercial spaces and 7,149 square feet of open plazas provided for use of public. The project is bounded by Mission Avenue to the northwest, County Highway S21 (North Coast Hwy) to the northeast, Seagaze Drive to the southeast, and North Cleveland Street to the southwest.

1.2 Characteristics of Noise

Noise is usually defined as unwanted sound and can be an undesirable by-product of society's normal day-to-day activities. Sound becomes unwanted when it interferes with normal activities, causes actual physical harm, or has an adverse effect on health.

People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness." However, the sound pressure magnitude can be objectively measured and quantified using a logarithmic ratio of pressures which yields the level of sound, utilizing the measurement scale of decibels (dB). The decibel is generally adjusted to the A-weighted level (dBA) which de-emphasizes very low frequencies to better approximate the human ear's range of sensitivity. In practice, the noise level of a sound source is measured using a sound level meter that includes an electronic filter corresponding to the A-weighting curve. Table A.1 in Appendix A of this report defines the decibel along with other technical terms used in this analysis.

Even though the A-weighted scale accounts for the relative loudness perceived by the human ear and, therefore, is commonly used to quantify individual events or general community sound levels, the degree of annoyance or other response effects also depends on several other perceptibility factors, including:

- Ambient (background) sound level
- Magnitude of the event sound level relative to the background noise
- Spectral (frequency) composition (e.g., presence of tones)
- Duration of the sound event

- Number of event occurrences, repetitiveness, and intermittency
- Time of day the event occurs.

In determining the daily level of environmental noise, it is important to account for the difference in human responses to daytime and nighttime noises. At night, exterior background noise levels are generally lower than daytime levels. However, most household noise also decreases at night, and exterior noise may become increasingly noticeable. Further, most people sleep at night and have greater sensitivity to noise intrusion. To account for human sensitivity to nighttime noise levels, a 24-hour descriptor, the Community Noise Equivalent Level (CNEL) has been developed. The CNEL divides the 24-hour day into a daytime period of 7:00 a.m. to 7:00 p.m., an evening period from 7:00 p.m. to 10:00 p.m., and a nighttime period of 10:00 p.m. to 7:00 a.m. In determining the CNEL, noise levels occurring during the evening period are increased by 5 dB, while noise levels occurring during the nighttime period are increased by 10 dB to account for the greater sensitivity during the evening and nighttime periods.

The effects of noise on people fall into three general categories:

- Subjective effects of annoyance and nuisance
- Interference with activities such as speech, sleep and learning
- Physiological effects such as hearing loss

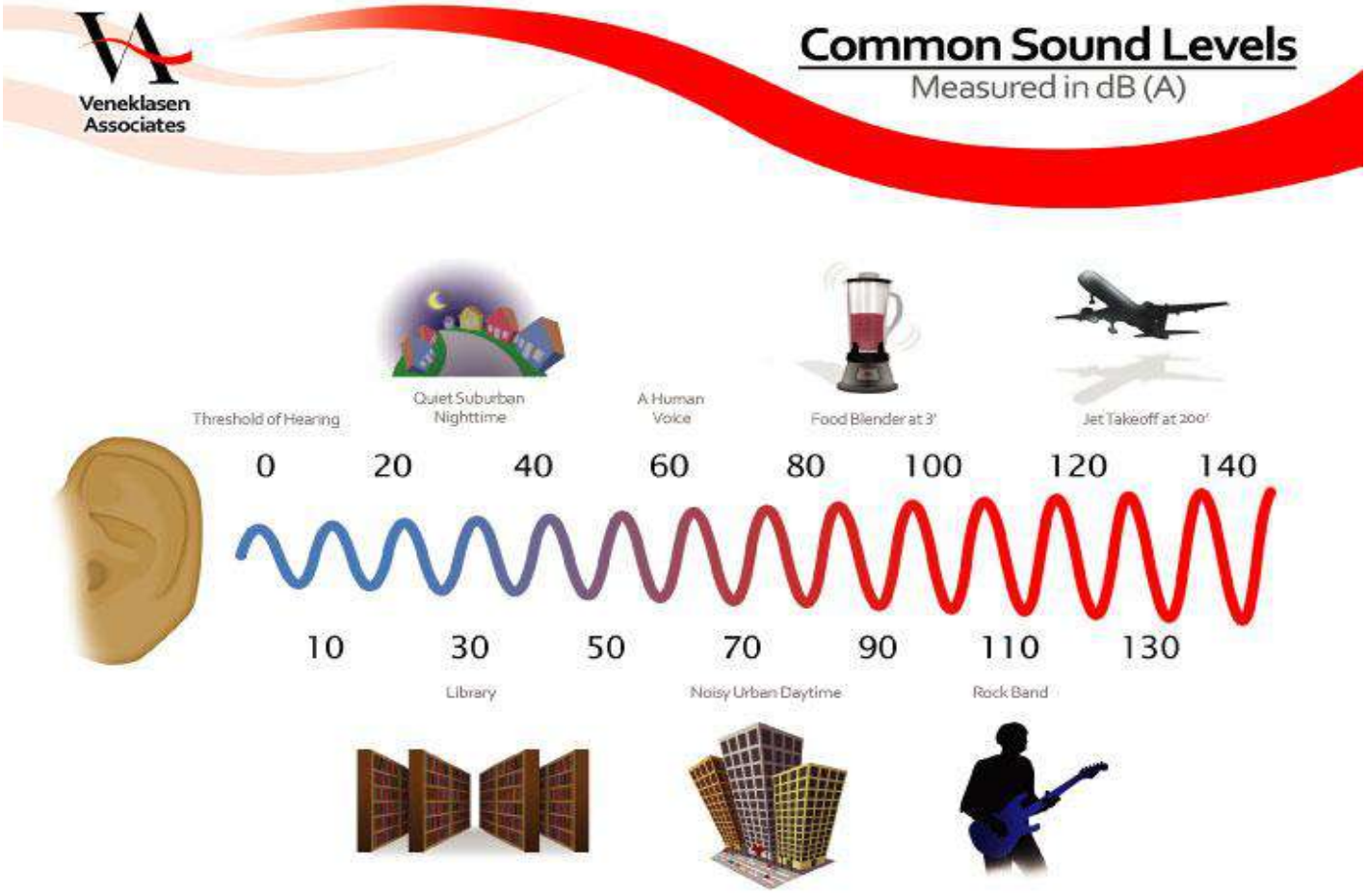
In most cases, the levels associated with environmental noise produce effects only in the first two categories. However, workers in industrial plants may experience noise effects in the last category. There is no completely effective way to measure the subjective effects of noise or the corresponding reactions of annoyance, because of the wide variation in individual thresholds of annoyance and degrees to which people become acclimated to noise. Thus, an important way of determining a person's subjective reaction to a new noise source is by comparison to the existing environment to which they are accustomed (the “ambient environment”). In general, the more the level of a noise event exceeds the prevailing ambient noise level, the less acceptable the noise source will be to those exposed to it.

With regard to increases in A-weighted noise levels, the following relationships are applicable to this analysis:

- Except in carefully controlled laboratory experiments, a 1 dB change cannot be perceived.
- Outside of a laboratory, a 3 dBA change will be generally perceivable by most people.
- A change in level of at least 5 dBA is considered a noticeable change by most people.
- A 10 dBA change will result in the perception of doubling or halving the loudness of the noise.

Common noise levels associated with various activities are shown on Figure 1, Common Noise Levels.

Figure 1 - Common Noise Levels



Noise sources are either "point sources", such as stationary equipment or individual motor vehicles, or "line sources", such as a roadway with a large number of mobile point sources (motor vehicles). Sound generated by a stationary point source typically diminishes (attenuates) at a rate of 6 dBA for each doubling of distance from the source to the receptor at acoustically "hard" sites, and at a rate of 7.5 dBA at acoustically "soft" sites.[1] For example, a 60 dBA noise level measured at 50 feet from a point source at an acoustically hard site would be 54 dBA at 100 feet from the source and it would be 48 dBA at 200 feet from the source. Sound generated by a line source typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling of distance from the source to the receptor for hard and soft sites, respectively.[2] Man-made or natural barriers can also attenuate sound levels. The minimum attenuation of exterior to interior noise provided by typical structures is provided in Table 1, Outside to Inside Noise Attenuation.

1 U.S. Department of Transportation, Federal Highway Administration, *Highway Noise Fundamentals*, (Springfield, Virginia: U.S. Department of Transportation, Federal Highway Administration, September 1980), p. 97. A "hard" or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt, concrete, and very hard packed soils. An acoustically "soft" or absorptive site is characteristic of normal earth and most ground with vegetation.

2 U.S. Department of Transportation, Federal Highway Administration, *Highway Noise Fundamentals*, (Springfield, Virginia: U.S. Department of Transportation, Federal Highway Administration, September 1980), p. 97.

Table 1 - Outside to Inside Noise Attenuation (dBA)

Building Type	Open Windows	Closed Windows[1]
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Convalescent Homes	17	25
Offices	17	25
Theaters	20	30
Hotels/Motels	17	25

Source: Transportation Research Board, National Research Council, Highway Noise: A Design Guide for Highway Engineers*, National Cooperative Highway Research Program Report 117.*

[1] *As shown, structures with closed windows can attenuate exterior noise by a minimum of 25 to 30 dBA.*

1.3 Characteristics of Vibration

Vibration is minute variation in pressure through structures and the earth, whereas, noise is minute variation in pressure through air. Some vibration effects can be caused by noise; e.g., the rattling of windows from truck pass-bys. This phenomenon is related to the coupling of the acoustic energy at frequencies that are close to the resonant frequency of the material being vibrated. Ground-borne vibration attenuates rapidly as distance from the source of the vibration increases. Vibration amplitude can be measured as peak particle velocity (PPV), the maximum instantaneous peak amplitude in inches per second, or root-mean-square (RMS) velocity in inches per second or as vibration level in decibels (VdB) referenced to 1 micro-inch per second. The ratio between the PPV and the maximum RMS amplitude is termed the "crest factor." According to the Federal Transit Administration (FTA), the PPV level for construction equipment is typically 1.7 to 6 times greater than the RMS vibration level. The FTA uses a crest factor of 4 for the conversion of PPV levels to RMS vibration levels. For the purposes of ground-borne vibration analysis of impacts to existing structures, vibration velocity is described in terms of PPV. For the analysis of the human response to vibration, VdB is utilized.

The vibration velocity threshold of perception for humans is approximately 65 VdB, and a vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people[3]. Most perceptible indoor vibration is caused by sources within buildings such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. Common ground-induced vibrations related to roadway traffic and construction activities pose no threat to buildings or structures. If a roadway is smooth, the ground-borne vibration from traffic is barely perceptible. The range of interest is from approximately 50 VdB, which is typically the background vibration velocity, to 94 VdB. This 94 VdB vibration level corresponds to 0.2 PPV, which is the general threshold where minor damage can occur in non-engineered timber and masonry buildings.

[3] – U.S. Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, (Washington, DC: U.S. Department of Transportation, Federal Transit Administration, May 2006), p. 7-8.

2.0 REGULATORY FRAMEWORK

Many government agencies have established noise regulations and policies to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise and ground-borne vibration. The regulations and policies that are relevant to project construction and operational noise are discussed below.

2.1 Applicable State Regulations

2.1.1 Noise Standards

1. The State of California has adopted noise compatibility guidelines for general land use planning. The types of land uses addressed by the State standards and the acceptable noise categories for each land use are included in the State of California General Plan Guidelines, which is published and updated by the Governor's Office of Planning and Research. The level of acceptability of the noise environment is dependent upon the activity associated with the particular land use. According to the State, an exterior noise environment up to 65 CNEL is "normally acceptable" for single and multi-family residential uses, up to 75 CNEL is "conditionally acceptable" with special noise insulation requirements, while 75 CNEL and above is identified as "clearly unacceptable" noise levels for residential and hotel uses, respectively. The maximum allowable interior noise level for residential structures is 45 CNEL.

2. The California Environmental Quality Act (CEQA) Guidelines establishes guidelines for the evaluation of significant impacts of environmental noise attributable to a proposed project. The guidelines ask whether the project would result in:

    - Would the project generate 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?

    - Would the project generate excessive ground borne vibration or ground born noise levels?

    - 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?

2.1.2 California Green Building Code

Section 5.507.4.2 of the 2019 California Green Building Code (CALGreen) stipulates that for buildings exposed to a noise level of 65 dB or more when measured as a 1-hour Equivalent Sound Level (Leq), the building façade, including walls, windows, and roofs, shall provide enough sound insulation so that the interior sound level from exterior

sources does not exceed 50 dBA during any hour of operation. This applies to non-residential occupancies only. For renovation projects, the requirement only applies to the portion of the project within the scope of the renovation.

2.1.3 California Building Code

Section 1206.4 Allowable Interior Noise Levels of California Building Code 2022, the interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either the day-night average sound level (Ldn) or the community noise equivalent level (CNEL) consistent with noise element of the local general plan.

2.1.4 Vibration Standards

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive ground borne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive ground borne vibration occurs. Caltrans issued the Transportation- and Construction-Induced Vibration Guidance Manual in 2004. The manual provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. This manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are established for continuous (construction-related) and transient (transportation-related) sources of vibration, which found that the human response becomes distinctly perceptible at 0.25 inch per second PPV for transient sources and 0.04 inch per second PPV for continuous sources.

2.2 The City of Oceanside Noise Element of the General Plan

The Noise Element of the General Plan establishes maximum noise levels for construction noise sources. The City's goal is to minimize the impact of construction noise on people through noise reduction and suppression techniques, and through appropriate operational limitations.

The City of Oceanside Noise Element includes the following suggested controls for construction noise sources:

1. It should be unlawful for any person within any residential zone or 500' therefrom to operate any pile driver, power shovel, pneumatic, power hoist, or other construction equipment between 8:00 p.m. and 7:00 a.m. generating an ambient noise level of 50 dBA at any property line, unless an emergency exists.

2. It should be unlawful for any person to operate any construction equipment at a level in excess of 85 dBA at 100 feet from the source.

3. It should be unlawful for any person to engage in construction activities between 6:00 p.m. and 7:00 a.m. when such activities exceed the ambient noise level by 5 dBA. A special permit may be granted by the Director of Public Works if extenuating circumstances exist.

2.3 The City of Oceanside-Code of Ordinances

According to the City of Oceanside Code of Ordinances, Chapter 38 Noise Control, Section 38.12 General Sound level limits: It shall be unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level, at any point on or beyond the boundaries of the property in the applicable base district zone on which the sound is produced the applicable limits set forth below. Table 2 shows the sound level limits based on the district zones.

Table 2 - Sound Level Limits (Decibel)

Base District Zone	7:00 a.m. to 9:59 p.m.	10:00 p.m. to 6:59 a.m.
(1) Residential Districts:		
RE (Residential Estate)	50	45
RS (Single-Family)	50	45
RM (Medium Density)	50	45
RH (High Density)	55	50
RT (Residential Tourist)	55	50
(2)C (Commercial)	65	60
(3) I (Industrial)	70	65
(4) D (Downtown)	65	55
(5) A (Agricultural)	50	45
(6) OS (Open Space)	50	45

2.4 Project Requirements Summary

The above requirements for the project are summarized in Table 3:

Table 3 - Project Requirements

Activity	Standard
Exterior Noise at Single-Family Residences	60 CNEL
Exterior Noise at Multi-Family Residences	65 CNEL
Interior Noise in Residences	45 CNEL
Operational Noise (Stationary Equipment) C-Commercial	65 dBA Leq (1hr) 7:00 a.m. to 10:00 p.m. 60 dBA Leq (1hr) 10:00 p.m. to 7:00 a.m. 5 dBA above ambient noise level at property line.

Activity	Standard
Operational Noise (Stationary Equipment) D-Downtown	65 dBA Leq (1hr) 7:00 a.m. to 10:00 p.m. 55 dBA Leq (1hr) 10:00 p.m. to 7:00 a.m. 5 dBA above ambient noise level at property line.
Operational Noise (Traffic)	CNEL increase of 3 dBA above ambient noise levels at noise sensitive receptors.
Construction Noise (Instantaneous)	85 dBA at 100 feet from source.
Ground-borne Vibration	0.04 PPV for frequent events. 0.25 PPV for occasional events.

3.0 ENVIRONMENTAL IMPACTS AND SIGNIFICANCE

3.1 Significance Thresholds

The following summary of significance thresholds are used in this report to evaluate the significance of the project noise impacts:

- 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?
    - A substantial permanent increase in operational noise would occur if traffic from the Project would result in an increase of 3 dBA or more above ambient noise level, stationary equipment would result in an increase of 5 dBA or more above ambient noise levels at property lines, or exceed 65 dBA during daytime hours and 60 dBA at night for Zone C Commercial and exceed 65 dBA during daytime hours and 55 dBA at night for Zone D Downtown.
    - Construction noise would be considered significant if it would take place outside of the daytime hours set forth in Table 2, or exceed the instantaneous noise limit of 85 dBA at 100 feet from the source.
- Would the Project result in generation of excessive ground borne vibration or ground borne noise levels?
- For a project located within the vicinity of a private airstrip or an airport land use plan, would the Project expose people residing or working in the project area to excessive noise levels?

3.2 Impact 1. Noise Levels in Excess of Standards

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?

3.2.1 Methodology

Analysis of the existing and future noise environments presented in this section is based on technical reports, noise monitoring, and noise prediction modeling. This impact section is separated into the analysis subsections of Existing Ambient Measured Noise Levels, Future On-site Noise Levels, Noise/Vibration Sensitive Receptors, Future Off-site Operational Noise Levels, and Future Off-site Construction Noise Levels. Noise modeling procedures involved the calculation of the existing and future ambient noise environment. Future operational noise levels were calculated for rooftop equipment sources and vehicular noise levels along individual roadway segments.

3.2.2 Existing Ambient Measured Noise Levels

The proposed project site is bounded by Mission Avenue to the northwest, County Highway S21 (North Coast Hwy) to the northeast, Seagaze Drive to the southeast, and North Cleveland Street to the southwest. The land uses surrounding the project are mainly multi-family residential, commercial, and retail. Traffic from Mission Avenue and North Coast Hwy were the primary sources of noise in the general area of the site. Noise levels from the nearby train and bus stations were also present to a less significant degree than other noise sources.

To establish existing ambient noise levels in areas surrounding the project site, a field monitoring study was conducted. Measurements were performed in and around the project site for documenting the ambient conditions. Bruel & Kjaer Model 2250 Sound Level Meters, which satisfy the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation, were used for this purpose. Vehicular traffic is the predominant noise source around the project site. Measurements were performed at several locations as shown on Figure 2. The measurements occurred at these locations from April 20 to April 24, 2023. Noise readings were measured over 1-second intervals with “A” frequency fast time weighting. The weather conditions were normal, and no anomalies were present during the survey periods.

Table 4 - Existing Ambient Monitored Noise Levels**,** provides the noise level data associated with each monitoring period for each location. As shown, noise levels ranged from 60 dBA to 71 dBA. The highest noise levels measured at L1 and L2 locations were attributed to high volumes of automobiles and heavy truck traffic. Based on the measured ambient noise levels, ambient noise levels can be estimated and modeled at various locations in the vicinity of the project site.

Figure 2 – 401 Mission Avenue Project Site and Noise Monitoring Locations



Table 4 - Existing Ambient Monitored Noise Levels

Position	Primary Noise Source	Time	Noise Level (dBA Leq)
Pos 1 (L1)	Mission Avenue	2:00pm – 3:00pm	67
Pos 2 (L2)	N. Coast Hwy (S21)	8:00am – 9:00am	71
Pos 3 (S1)	Transit Center Busses	5:25pm – 5:40pm	60
Pos 4 (S2)	Transit Center Trains	4:15pm – 4:30pm	63

Notes: Noise measurements taken from April 20, 2023 to April 24, 2023.
Source: Veneklasen Associates Inc., 2023.

3.2.3 Future On-site Noise Levels

Based on the measurements and computer model, the northeastern property line facing North Coast Hwy may experience noise levels up to CNEL 75, the northwestern property line facing Mission Avenue may experience noise levels up to CNEL 73, and southern portions of the project toward Seagaze Drive and North Cleveland Street would experience noise levels ranging from 65 to 72 CNEL. From Table 1, interior noise levels may exceed CNEL 45 unless

sound-rated windows and other exterior façade assemblies are included in the project design. The project design should therefore incorporate noise attenuation features such as sound-rated windows into the design. Exterior common areas should be located so they are shielded from surrounding streets. The specific requirements will depend upon the details of the project plans.

Noise/Vibration Design Feature 1 (NVDF-1). Provide the required glazing and building materials such that the exterior and interior noise level requirements are satisfied on-site. Refer to the Exterior Noise and Exterior Façade Acoustical Analysis completed by Veneklasen, dated May 16, 2023, which satisfies the NVDF-1 design goal.

3.2.4 Noise/Vibration Sensitive Receptors

An existing 5-story multi-family residential building is located at the southwest property line of the project, as close as 12 feet from the proposed project setback. The adjacent residential building façade represents the nearest noise/vibration sensitive receptors (NVSRs) to the project site. Other receptors near the project include commercial and retail uses that are located across roadways in all directions, 60 to 78 feet from the proposed project site. Table 5 provides details of the NVSRs, and Figure 3 shows the locations of nearest NVSRs to the project site.

Figure 3 – 401 Mission Avenue Project Site and Noise/Vibration Sensitive Receptors



Table 5 – Noise Vibration Sensitive Receptors (NVSR)

Receptor Group for Analysis	Cardinal Direction from Project Site	Type of Receptor	Distance from Project Site property line (ft)
NVSR-1	Southwest	Residential	12
NVSR-2	Northwest	Retail/Commercial	75
NVSR-3	Northeast	Retail/Commercial	80
NVSR-4	Southeast	Retail/Commercial	60

3.2.5 Future Off-site Operational Noise Levels

Noise levels from project operations were predicted at adjacent property lines using calculations and a computer model. Operational noise sources for the project include rooftop mechanical equipment and future (buildout plus project) traffic trips.

Rooftop Mechanical Equipment Noise. The project will include mechanical equipment, including split-system outdoor condensing units on the rooftop. Based on published sound power data for units of typical residential size, the noise level will be less than 50 dBA at a distance of 30 feet from the equipment.

Noise/Vibration Design Feature 2 (NVDF-2). Locate condensing units a minimum of 30 feet from the nearest residential property. Once specific rooftop mechanical equipment is selected, provide octave-band sound power data to an acoustical consultant in order to confirm compliance with the 5 dBA over ambient noise levels and the 55 dBA nighttime noise limits at adjacent residences to the southwest.

This impact is anticipated to be less than significant with NVDF-2.

Existing and Future Traffic Noise. The contribution of project-generated traffic to future noise levels in the vicinity was calculated and compared to significance criteria. This was accomplished using the Federal Highway Administration Highway Noise Prediction Model (TNM Version 2.5). This model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site conditions. The off-site traffic noise is analyzed on an increase in CNEL basis to determine the project's impact.

Pending approval, a traffic study dated September 13, 2022 was completed by Linscott Law and Greenspan Engineers. Data used in the noise modeling analysis included traffic volumes for roadway segments surrounding the project site under the following scenarios: Existing, Total Cumulative, Proposed Project, Net Project, Near-Term, and Buildout. Based on the changes in traffic volumes due to project trips in future scenarios, noise levels (currently 65 CNEL to 75 CNEL) are expected to increase by less than 3 dB.

The impact due to project traffic is anticipated to be less than significant.

3.2.6 Future Off-site Construction Noise Levels

Project Construction Noise Modelling. Construction activities from individual pieces of equipment proposed with the project were calculated to generate temporary instantaneous noise levels up to 81 dBA at a distance of 100 feet. Noise levels from multiple sources of equipment specified for each construction phase were modeled and assessed at 100 feet from the nearest construction activities. Noise modeling was conducted using calculation methods from industry standard construction noise guidance manuals, including the FTA Noise Guidance Manual and the FHWA Construction Noise Handbook. Table 6 shows sound levels for each piece of equipment at a reference distance of 50 feet, as well as the percentage of typical usage. Construction noise from multiple sources occurring simultaneously were calculated to be up to 84 dBA at 100 feet, and would not exceed the instantaneous noise limit of 85 dBA at 100 feet.

Table 6 – Reference Sound Pressure Levels at 50 feet for Construction Equipment Analyzed

Equipment	Sound Level (dBA) at 50 feet	Typical Usage
Air Compressor	80	100%
Roller	85	50%
Front-end Loader	80	40%
Concrete Mixer Truck	85	40%
Concrete/Industrial Saw	90	20%
Crane	85	16%
Paver	88	50%
Pumps	81	50%
Backhoe	82	40%
Dozer	85	40%
Excavator/Grader	85	40%
Generator	82	50%
Tractor	84	40%
Welder/Torch	74	40%

Table 7 shows noise levels from multiple sources of construction equipment operating simultaneously, for each construction phase, and compares predicted noise levels to the 85 dBA at 100 feet criterion. All noise sources were modeled at 5 feet above grade elevation. If the construction equipment proposed for the project varies substantially from the equipment categorized in Table 6, this report must be reissued, and project noise attenuation features may need to be re-evaluated.

Table 7 – Comparison of Multiple Construction Noise Sources Operating Simultaneously

Project Phase: Activity	Equipment	Single-Source Noise Level (dBA at 100 ft)	Multi-Source Simultaneous Noise Level (dBA at 100 ft)	Noise Criterion (dBA at 100 ft)
Phase 1: Demolition	Concrete Saw	77	84	85
	Dozer	75		
	Backhoe (3)	77		
	Tractor	76		
	Loader	74		
Phase 2: Site Preparation	Grader	75	82	85
	Tractor (3)	81		
Phase 3: Grading	Grader	75	80	85
	Dozer	75		
	Mobile Crane	71		
	Front End Loader (2)	73		
Phase 4: Building Construction	Generator	73	83	85
	Backhoe	72		
	Welder / Torch (3)	69		
	Vibratory Concrete Mixer	67		
	Paver	79		
	Tractor	76		
	Loader	74		
Phase 5: Paving	Paver	79	82	85
	Roller	72		
	Tractor	76		
	Loader	74		
	Backhoe	72		
Phase 6: Architectural Coating	Air Compressor (2)	77	77	85

The following project design features are identified as sound attenuation factors for construction noise exposure at adjacent properties.

Noise/Vibration Design Feature 3 (NVDF-3):

Miscellaneous Noise Control Logistics and Best Practices

1. Construction Hours - All construction activity will be limited to the working hours of 7:00 a.m. – 6:00 p.m.
2. Construction Schedule - Notifying the neighborhood of the construction activities and construction schedule (including estimated dates of various construction phases) at least one week and no more than three weeks prior to the start of construction.
3. Noise Disturbance Coordinator – A person will be designated who would respond to neighborhood complaints about construction noise by determining the cause of the noise complaints and require implementation of reasonable measures to correct the problem. The telephone number for the disturbance coordinator will be conspicuously posted at the construction site.
4. Location of Construction Activity - Excavators and rollers will not work simultaneously within 40 feet of the same property line. Whenever possible, construction activity generating relatively high levels of noise should occur as far away from noise-sensitive receptors as possible. Stationary and portable construction equipment will be located at positions where the noise impact to nearby noise/vibration-sensitive receptors (NVSR) is minimal. At times where the equipment cannot be positioned at a minimal noise impacting location, noise attenuation devices could be implemented (e.g., temporary noise barriers, noise blankets) at ground level near the location of the noise source. The temporary barriers provide noise reduction if the noise barrier interrupts the line-of-sight between the noise source and receiver and if the barrier is constructed in a manner that eliminates any cracks or gaps.
5. Ordering of Construction Activity Best Practices - Whenever possible, construction activity generating relatively high levels of noise and vibration will not occur at the same time and should be spaced as far apart in time as possible from one another. In general, the loudest activities should be reserved for the middle of the day (noon). If activities must occur simultaneously, they should be performed as far away from one-another as possible within the construction zone.
6. Construction Equipment Inactivity - Construction equipment will not remain idling and inactive for relatively long periods during construction hours. All such equipment will be turned off until use is required.
7. Attenuation Devices - Electrically powered or gas/diesel-driven construction equipment may utilize sound mufflers at the exhaust and/or acoustical skirts, screens to shield the engine. These attenuating devices may be acquired at the time of leasing, rental, or purchase of equipment from the rental agency and/or manufacturer.
8. Internal Combustion Engines - Equip internal combustion engine-driven equipment with original factory (or equivalent) intake and exhaust mufflers which are maintained in good condition. Unnecessary idling of internal combustion engines will be strictly prohibited.

9. Public Announcement Systems - The use of amplified public announcement systems, speakers, and similar equipment—except for a bull horn during emergency circumstances—will not be utilized at the project.
10. Radios and Alarms - Radios, music playback equipment, musical instruments, or automobile or truck alarms will not be utilized such that they are audible beyond the boundaries of the construction zone.
11. Delivery and Storage of Materials and Equipment - All deliveries of material and equipment will occur during the hours of 7:00 a.m. to 6:00 p.m. and will not occur on weekends. The queuing of construction vehicles outside the site before 7:00 a.m. or after 6:00 p.m. should be avoided whenever possible.
12. Vehicle Horns - Except as otherwise required by law, all vehicle horns will remain silent, except in the case of an emergency.

The above impact is less than significant with NVDF-1, NVDF-2, and NVDF-3.

3.3 Impact 2. Excessive Ground-borne Vibration

Would the project result in exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?

Construction of the project would generate vibration levels exceeding the vibration threshold of 0.25 in/sec PPV for transient sources assessed at buildings of conventional construction located within 25 feet of the project site. Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment such as bulldozers. The nearest receptors are multi-family apartments/condominiums to the southwest, located as near as 12 feet to the southwest boundary of the project. A large bulldozer would create a vibration level of 0.089 in/s PPV at 25 feet. Based on propagation rates, the vibration level at the nearest off-site receptor (12 feet away) would be 0.268 in/sec PPV.

Noise/Vibration Design Feature 4 (NVDF-4). Heavy vibration-generating construction equipment, such as bulldozers, will not operate within 25 feet of adjacent buildings. If other heavy vibration-generating equipment is needed within 25 feet of adjacent buildings, trenching along the property line may be warranted prior to operation of equipment.

This impact would be less than significant with NVDF-4.

3.4 Impact 3. Airport Noise Exposure

For a project located within the vicinity of a private airstrip or an airport land use plan, would the Project expose people residing or working in the project area to excessive noise levels?

The project is not within two miles of a public airport or public use airport. The project site is over two miles from the Oceanside Municipal Airport and south of the flight path west of the runways. Therefore, there is no noise impact.

4.0 SUMMARY CONCLUSION

4.1 Summary of Significance of Impacts

CEQA Noise Impact Question		No Impact	Less Than Significant	Less Than Significant with Mitigation	Potentially Significant
1	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?		X		
2	Would the Project result in generation of excessive ground borne vibration or ground borne noise levels?		X		
3	For a project located within the vicinity of a private airstrip or an airport land use plan, would the Project expose people residing or working in the project area to excessive noise levels?	X			

4.2 Summary of Noise/Vibration Design Features

NVDF-1. Glazing and building materials will be provided such that the exterior and interior noise level requirements are satisfied on-site. Refer to the Exterior Noise and Exterior Façade Acoustical Analysis completed by Veneklasen, dated May 16, 2023.

NVDF-2. Condensing units will be located a minimum of 30 feet from the nearest residential property. Once specific rooftop mechanical equipment is selected, octave-band sound power data will be provided to an acoustical consultant in order to confirm compliance with the 50 dBA nighttime noise limit at adjacent residences to the southwest.

NVDF-3. The proposed project will include best management practices in order to control and manage noise levels generated by construction activities on-site, limiting the noise exposure at adjacent sensitive receptors off-site.

- All construction activity will be limited to the working hours of 7:00 a.m. to 6:00 p.m.
- Heavy construction equipment locations and/or routing will avoid southwest residential receptor areas to the maximum extent feasible.
- The project will adhere to equipment noise control logistics and best practices.

NVDF-4. Heavy vibration-generating construction equipment, such as bulldozers, will not operate within 25 feet of adjacent buildings. If other heavy vibration-generating equipment is needed within 25 feet of adjacent buildings, trenching along the property line may be warranted prior to operation of equipment.

We trust this meets the project's needs. If you have any questions, please do not hesitate to call.

Sincerely,
Veneklasen Associates, Inc.



Jordan Roberts
Senior Associate

APPENDIX A

Table A.1 – Definitions of Noise-Related Terms

Term	Definition
Decibel, dB	A unit describing the amplitude of sound equivalent to 20 times the logarithm, to the base 10, of the ratio of the pressure of the sound to the reference pressure of 20 μPa.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured in an A-weighting filter network. The A-weighting de-emphasizes the very low frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are in the A-weighted scale.
L_0 (L_{max}), L_2, L_8, L_{25}, L_{50}	The A-weighted noise levels that are exceeded 0 percent (maximum noise level), 2 percent, 8 percent, 25 percent, and 50 percent of the time during the measurement period.
Equivalent Noise Level, Leq	The average A-weighted noise level during the stated measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 P.M. to 10:00 P.M., and after addition of 10 decibels to noise levels in the night between 10:00 P.M. and 7:00 A.M.
Day-Night Noise Level, DNL, Ldn	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 P.M. and 7:00 A.M.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Impulsive Noise	Sound of short duration. Typically associated with an abrupt onset and rapid decay (i.e., gun-shots, etc.).
Pure Tones	A sound wave, residing over a small range of frequencies, which has a sinusoidal behavior over time.
VdB	Unit of measurement used by FHWA to describe ground-borne vibration. Equivalent to 20 times the logarithm, to the base 10, of the ratio of the root mean square ground-borne velocity to the reference of reference of $1x10^{-6}$ in/sec.

MEMORANDUM

URBAN | CROSSROADS

DATE: June 13, 2023
TO: Ernie Rivas, JH Real Estate Partners, Inc.
FROM: Haseeb Qureshi
Ali Dadabhoy
Shannon Wong
JOB NO: 15490-02 AQ Assessment

401 MISSION AVE AIR QUALITY ASSESSMENT

Ernie Rivas,

Urban Crossroads, Inc. is pleased to provide the following Air Quality Assessment for the 401 Mission Ave (**Project**), which is located at 401 Mission Avenue in the City of Oceanside.

PROJECT OVERVIEW

It is our understanding that the Project is to consist of a mixed-use seven story building including 8,311 square feet (sf) of retail use, 11,109 sf of restaurant use, and a combination of studio, one-, two-, and three-bedroom apartments totaling 332 units on a 2.72-acre site (see Exhibit 1). The existing site is currently occupied by a Regal Theater, retail, and restaurant space totaling approximately 79,805 sf. The Project site is anticipated to have an opening year of 2026.

SUMMARY OF FINDINGS

Results of the assessment indicate that the Project would result in a less than significant with respect to air quality.

EXHIBIT 1: SITE PLAN



PROJECT AIR QUALITY IMPACTS

AIR QUALITY SETTING

SAN DIEGO AIR BASIN (SDAB)

The project site is located in the San Diego Air Basin (SDAB). The climate of the SDAB is dominated by a semi-permanent high pressure cell located over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. The high pressure cell also creates two types of temperature inversions that may act to degrade local air quality.

Regional Climate

The regional climate has a substantial influence on air quality in the SDAB. In addition, the temperature, wind, humidity, precipitation, and amount of sunshine influence the air quality.

The annual average temperatures throughout the SDAB vary from the middle 40s to high 90s degrees Fahrenheit (°F). The average annual precipitation is 10 inches, falling primarily from November to April. Winter median temperatures average about 55°F, and summer median temperatures average about 70°F. The average humidity is about 64% in the winter and about 82% in the summer (1).

Subsidence inversions occur during the warmer months as descending air associated with the Pacific high pressure cell comes into contact with cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce ozone, commonly known as smog.

The climate of the coastal southern California, including the County of San Diego, is determined largely by high pressure that is almost always present off the west coast of North America. High-pressure systems are characterized by an upper layer of dry air that warms as it descends. This warm, dry air acts as a lid, restricting cool air located near the surface creating an inversion of typical temperature conditions.

During the summer and fall, emissions generated in the region combine with abundant sunshine under the influences of topography and an inversion to create conditions that are conducive to the formation of photochemical pollutants, such as ozone, and secondary particulates, such as sulfates and nitrates. As a result, air quality in the SDAB is often the poorest during the warmer summer and fall months.

Wind Patterns and Project Location

Prevailing westerly winds are sometimes interrupted by regional “Santa Ana” winds, which are strong, dry offshore winds. These winds occur when the Great Basin (Nevada-Utah area) experiences high pressure buildup, which pushes pollutant-filled air into the west and into the Pacific Ocean. Once these Santa Ana winds begin to weaken, the pollutant-filled air is pushed

back onshore into the SDAB. It is during these events that produces some of the worst air quality measurements recorded in the SDAB.

The distinctive climate of the project area and the SDAB is determined by its terrain and geographical location. The Basin is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

Criteria Pollutants

Both the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants representing safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. The six criteria pollutants are ozone (O_3) (precursor emissions include NO_X and reactive organic gases (ROG), CO, particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. The SDAB is designated as a nonattainment area for the federal 8-hour O_3 standards and is also a nonattainment area for the state standards for O_3, PM_{10}, and $PM_{2.5}$.

REGULATORY BACKGROUND

FEDERAL REGULATIONS

The EPA is responsible for setting and enforcing the national ambient air quality standards (NAAQS) for O_3, CO, NO_X, SO_2, PM_{10}, and lead (Pb) (3). The EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance (4). The CAA also mandates that each state submit and implement state implementation plans (SIPs) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions) (5) (6). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and Pb. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and NO_X. NO_X is a collective term that includes all forms of NO_X which are emitted as byproducts of the combustion process.

CALIFORNIA REGULATIONS

CARB

The CARB, which became part of the California EPA (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. AB 2595 mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the California ambient air quality standards (CAAQS) for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for SO_4, visibility, hydrogen sulfide (H_2S), and vinyl chloride (C_2H_3Cl). However, at this time, H_2S and C_2H_3Cl are not measured at any monitoring stations in the SCAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS (7) (8).

Local air quality management districts, such as the SDAPCD, regulate air emissions from stationary sources such as commercial and industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Serious non-attainment areas are required to prepare Air Quality Management Plans (AQMP) that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;
- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a 5% or more annual reduction in emissions or 15% or more in a period of three years for ROGs, NO_X, CO and PM_{10}. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than 5% per year under certain circumstances.

SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The San Diego County Regional Air Quality Strategy (RAQS) was initially adopted in 1991 and is updated on a triennial basis. The RAQS was updated in 1995, 1998, 2001, 2004 and most recently in 2009. The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for 1-hour O_3. The RAQS does not address the state air quality standards for PM10 or PM2.5. The SDAPCD has also developed the air basin's input to the SIP, which is required under the Federal Clean Air Act for areas that are out of attainment of air quality standards. The SIP includes the SDAPCD's plans and control measures for attaining the O_3 NAAQS. The SIP is also updated on a triennial basis. For the 8-hour O_3, standard, the SDAPCD submitted their 8-hour Ozone Attainment Plan 2007 in May of 2007; calling for more reductions in VOC and NO_X emissions. The SDAPCD has also developed the air basin's input to the SIP, which is required under the Federal Clean Air Act for areas that are out of attainment of air quality standards. The SIP includes the APCD's plans and control measures for attaining the O_3 NAAQS.

The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County in order to project future emissions and then determine from the results strategies that may be necessary for the reduction of emissions through regulatory controls. The ARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County as part of the development of the County's General Plan. As such, projects that propose development that is consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose a development that is less dense than that associated with the general plan, the project would likewise be consistent with the RAQS. If a project, however, proposes a development that is denser than that assumed in the general plan, and SANDAG's growth projections, the project may be in conflict with the RAQS and SIP, and could therefore result in a significant impact on air quality.

The SIP relies on the same information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The SIP also includes rules and regulations that have been adopted by the SDAPCD to control emissions from stationary sources. These SIP-approved rules may be used as a guideline to determine whether a project's emissions would have the potential to conflict with the SIP and subsequently hinder attainment of the NAAQS for O_3.

The proposed project may be subject to the following SDAPCD rules (including, but not limited to):

- Rule 50—Visible Emissions: establishes limits to the opacity of emissions within the SDAPCD. The proposed facility is subject to Rule 50 (d) (1) and (6) and should not exceed the visible emission limitation.
- Rule 51—Nuisance: prohibits emissions which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or which endanger the comfort, repose, health, or safety of any such persons or the public; or which cause injury or damage to business or property.

- Rule 52—Particulate Matter: establishes limits to the discharge of any particulate matter from non-stationary sources.
- Rule 54—Dust and Fumes: establishes limits to the amount of dust or fume discharge into the atmosphere in any one hour.
- Rule 55— Fugitive Dust Control: sets restrictions on visible fugitive dust from construction and demolition projects.
- Rule 67—Architectural Coatings: establishes limits to the VOC content applied within the SDAPCD (SDAPCD 2009b).

Standards of Significance

The criteria used to determine the significance of potential Project-related air quality impacts are taken from the California Environmental Quality Act Guidelines (CEQA Guidelines) (14 CCR §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to air quality if it would (9):

- **Threshold 1**: Conflict with or obstruct implementation of the applicable air quality plan.
- **Threshold 2**: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.
- **Threshold 3**: Expose sensitive receptors to substantial pollutant concentrations.
- **Threshold 4**: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The SDAPCD has adopted emissions levels in their New Source Review (Rule 20.2 and Rule 20.3) below which are used as significance thresholds for a project to evaluate whether the Project could cause or contribute to a violation of an ambient air quality standard. Projects that are below these significance thresholds would not require further air quality analysis. Because the SDAPCD has not established a threshold for VOCs under Rule 20.2 and Rule 20.3, the South Coast Air Quality Management District's threshold, which generally has stricter emissions thresholds than the SDAPCD, was used to evaluate significance of VOC impacts.

AIR QUALITY REGIONAL EMISSIONS THRESHOLDS

The SDAPCD has developed regional significance thresholds for criteria pollutants, as summarized at Table 1. The SDAPCD's CEQA Air Quality Significance Thresholds (April 2019) indicate that any projects in the San Diego Air Basin (SDAB) with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

TABLE 1: MAXIMUM DAILY REGIONAL EMISSIONS THRESHOLDS

Pollutant	Construction/Operations
NO_x	250 lbs/day
VOCs[a]	75 lbs/day
PM_{10}	100 lbs/day
$PM_{2.5}$	55 lbs/day
SO_x[b]	250 lbs/day
CO	550 lbs/day
Lead	3.2 lbs/day

[a] Threshold for VOCs is based on threshold of VOS from the South Coast Air Quality Management District—Coachella Valley.
[b] San Diego Air basin has been in attainment of SO_x standard due to sulfur-free natural gas for electricity generation and lack of heavy industrial/manufacturing uses in the region.

PROJECT IMPACT ANALYSIS

AIR QUALITY IMPACTS – CONSISTENCY WITH THRESHOLD NO. 1

The Project would have a significant adverse effect on air quality if the following would occur as a result of a Project-related component:

- ***Would the Project conflict with or obstruct implementation of the applicable air quality plan?***

The RAQS are based in part by growth projections compiled by SANDAG, as well as air pollutant emissions models prepared by CARB. The growth projections prepared by SANDAG are based on the land use plans developed by the County and other cities within the SDAB within their respective general plans. Projects that propose general plan amendments or changes of zone may increase the intensity of use of a property, thereby potentially resulting in increased stationary area source emissions and/or increased mobile source emissions due to higher traffic volumes, when compared to the assumptions used in the RAQS. In this case, a conflict with the RAQS and SIP would occur. If however, a project does not exceed the growth projections in the applicable local general plan, then the project is considered to be consistent with the RAQS and SIP.

The prevailing document for the proposed Project site is the City of Oceanside General Plan. The proposed Project is located within an area designated as Downtown by the City of Oceanside General Plan. The Project site is designated D-1 allowing commercial uses. The Project is located within the Downtown Districts which limits heights to 35 or 45 feet or four stories, however a density bonus waiver is proposed to allow the project to exceed height limits. The Project proposes to consist of a mixed-use five story building including 8,311 square feet (sf) of retail use, 11,109 sf of restaurant use, and a combination of studio, one-, two-, and three-bedroom apartments totaling 332 units on a 2.72-acre. The land uses and development intensity proposed by the Project would be consistent with the City of Oceanside General Plan and would

therefore, not exceed the regional growth projections compiled by SANDAG. As such, no conflict with the RAQS would occur. Impacts would be less than significant, and no mitigation measures are required.

MITIGATION MEASURES AND DESIGN CONSIDERATIONS

No mitigation measures and design considerations are recommended.

CONCLUSIONS

As discussed in previously the land uses and development intensity proposed by the Project would be consistent with the City of Oceanside General Plan and would not exceed the regional growth projections compiled by SANDAG. As such, no conflict with the RAQS would occur. Impacts would be less than significant and no mitigation measures are required.

AIR QUALITY IMPACTS – CONSISTENCY WITH THRESHOLD NO. 2

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

Land uses such as the Project affect air quality through construction-source and operational-source emissions.

In May 2022, the California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including SDAPCD, released the latest version of the CalEEMod Version 2022.1. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (11). Accordingly, the latest version of CalEEMod has been used for this Project to determine construction and operational air quality emissions.

CONSTRUCTION ACTIVITIES

Construction activities associated with the Project would result in emissions of VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$. Construction related emissions are expected from the following construction activities:

- Demolition
- Site Preparation
- Grading (Import/Export)
- Building Construction
- Paving
- Architectural Coating

DEMOLITION ACTIVITIES

The Project site is currently developed with existing structures and asphalt that will be demolished, resulting in approximately 79,805 square feet of demolished material.

GRADING ACTIVITIES

Dust is typically a major concern during grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions". Fugitive dust emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). CalEEMod was utilized to calculate fugitive dust emissions resulting from this phase of activity. The Project would require 30,350 cubic yards of soil export. The CalEEMod default trip length of 20-miles will be used to analyze the emissions associated with export activities.

ON-ROAD TRIPS

Construction generates on-road vehicle emissions from vehicle usage for workers, vendors, and haul trucks commuting to and from the site. Worker and hauling trips are based on CalEEMod defaults. It should be noted that for vendor trips, specifically, CalEEMod only assigns vendor trips to the Building Construction phase. Vendor trips would likely occur during all phases of construction. As such, the CalEEMod defaults for vendor trips have been adjusted based on a ratio of the total vendor trips to the number of days of each subphase of activity.

CONSTRUCTION DURATION

For purposes of analysis, construction of Project is expected to commence in January 2025 and would last through March 2026, as shown on Table 2. The construction schedule utilized in the analysis represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent[1]. The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per CEQA Guidelines (12).

CONSTRUCTION EQUIPMENT

As shown on Table 3, CalEEMod default parameters for equipment have been used. Consistent with industry standards and typical construction practices, each piece of equipment will operate up to a total of eight (8) hours per day, or more than two-thirds of the period during which construction activities are allowed pursuant to the code.

[1] As shown in the CalEEMod User's Guide Version 2022, Section 4.3 "Off-Road Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

TABLE 2: CONSTRUCTION DURATION

Phase Name	Start Date	End Date	Days
Demolition	1/1/2025	1/29/2025	20
Site Preparation	1/30/2025	2/3/2025	3
Grading	2/4/2025	3/3/2025	6
Building Construction	3/4/2025	1/5/2026	220
Paving	1/6/2026	1/19/2026	10
Architectural Coating	1/20/2026	3/16/2026	10

TABLE 3: CONSTRUCTION EQUIPMENT

Activity	Equipment	Amount	Hours Per Day
	Concrete/Industrial Saws	1	8
Demolition	Rubber Tired Dozers	1	8
	Tractors/Loaders/Backhoes	3	8
	Crawler Tractors	1	8
Site Preparation	Graders	1	8
	Crawler Tractors	1	8
	Crawler Tractors	2	8
Grading	Graders	1	8
	Rubber Tired Dozers	1	8
	Cranes	1	8
	Forklifts	2	8
Building Construction	Generator Sets	1	8
	Tractors/Loaders/Backhoes	1	8
	Welders	3	8
	Cement and Mortar Mixers	1	8
	Pavers	1	8
Paving	Paving Equipment	1	8
	Rollers	2	8
	Tractors/Loaders/Backhoes	1	8
Architectural Coating	Air Compressors	1	8

REGIONAL CONSTRUCTION EMISSIONS SUMMARY

The estimated maximum daily construction emissions are summarized on Table 4, and as shown, the Project construction-source emissions would not exceed SDAPCD regional thresholds. Thus, the Project would result in a less than significant impact associated with construction activities and no mitigation measures are required. Detailed construction model outputs are presented in Attachment A.

TABLE 4: REGIONAL CONSTRUCTION EMISSIONS SUMMARY

Source	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
2025	2.76	14.71	29.84	0.04	3.88	1.24
Winter						
2025	2.73	35.80	27.88	0.11	6.92	3.02
2026	66.56	14.18	26.89	0.04	3.83	1.20
Maximum Daily Emissions	**66.56**	**35.80**	**29.84**	**0.11**	**6.92**	**3.02**
SDAPCD Regional Threshold	75	250	550	250	100	55
Threshold Exceeded?	NO	NO	NO	NO	NO	NO

[1] PM_{10} and $PM_{2.5}$ source emissions reflect 3x daily watering per SDAPCD Rule 55 for fugitive dust.

[2] VOC source emissions reflect SDAPCD Rule 67 for Architectural Coatings.

REGIONAL OPERATIONAL EMISSIONS

Operational activities associated with the Project would result in emissions of VOCs, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Operational related emissions are expected from the following primary sources: area source emissions, energy source emissions, and mobile source emissions.

The Project related operational air quality impacts derive primarily from vehicle trips generated by the Project. Trip characteristics available from the *401 Mission Ave Local Transportation Study* were utilized in this analysis (13).

The estimated operation-source emissions from the Project are summarized on Table 5. Detailed operation model outputs are presented in Attachment A. As shown on Table 5, operational-source emissions would not exceed the applicable SDAPCD regional thresholds for emissions of any criteria pollutant. As such, a less than significant impact will occur and no mitigation measures are required.

TABLE 5: TOTAL PROJECT REGIONAL OPERATIONAL EMISSIONS

Source	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
Mobile Source	15.45	11.15	116.05	0.28	9.78	1.89
Area Source	13.63	5.23	32.15	0.03	0.42	0.43
Energy Source	0.05	0.94	0.54	0.01	0.07	0.07
Total Maximum Daily Emissions	**29.13**	**17.32**	**148.75**	**0.32**	**10.28**	**2.39**
SDAPCD Regional Threshold	75	250	550	250	100	55
Threshold Exceeded?	NO	NO	NO	NO	NO	NO
Winter						
Mobile Source	15.12	12.24	109.10	0.27	9.78	1.89
Area Source	10.12	4.96	2.11	0.03	0.40	0.40
Energy Source	0.05	0.94	0.54	0.01	0.07	0.07
Total Maximum Daily Emissions	**25.29**	**18.14**	**111.75**	**0.31**	**10.25**	**2.36**
SDAPCD Regional Threshold	75	250	550	250	100	55
Threshold Exceeded?	NO	NO	NO	NO	NO	NO

EXISTING BUILDING OPERATIONAL EMISSIONS

The site is occupied by existing uses, which are approximately 79,805 square feet combined. The estimated operation-source emissions from the existing building are summarized on Table 6. Detailed operation model outputs for the existing use are presented in Attachment B.

The Project related operational air quality impacts derive primarily from vehicle trips generated by the Project. Trip characteristics available from the *401 Mission Ave Local Transportation Study* were utilized in this analysis (13).

TABLE 6: EXISTING BUILDING REGIONAL OPERATIONAL EMISSIONS

Source	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
Mobile Source	15.08	8.05	77.53	0.15	4.66	0.92
Area Source	2.98	0.03	3.47	0.00	0.00	0.01
Energy Source	0.01	0.09	0.08	0.00	0.01	0.01
Total Maximum Daily Emissions	**18.06**	**8.17**	**81.08**	**0.15**	**4.67**	**0.93**
SDAPCD Regional Threshold	75	250	550	250	100	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Winter						
Mobile Source	14.60	8.88	77.19	0.14	4.66	0.92
Area Source	2.41	0.00	0.00	0.00	0.00	0.00
Energy Source	0.01	0.09	0.08	0.00	0.01	0.01
Total Maximum Daily Emissions	**17.01**	**8.97**	**77.27**	**0.14**	**4.67**	**0.93**
SDAPCD Regional Threshold	75	250	550	250	100	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

PROJECT NET NEW OPERATIONAL EMISSIONS – COMPARISON TO EXISTING BUILDING

As shown in Table 7, the proposed Project is anticipated to generate less emissions per day for pollutants of VOC, NO_X, CO, and $PM_{2.5}$ as compared to emissions generated by the existing buildings and operational-source emissions would not exceed the applicable SDAPCD regional thresholds. As such, a less than significant impact will occur and no mitigation measures are required

TABLE 7: PROJECT NET NEW REGIONAL OPERATIONAL EMISSIONS

Source	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
Proposed Project	29.13	17.32	148.75	0.32	10.28	2.39
Existing Building	18.06	8.17	81.08	0.15	4.67	0.93
Net Emissions (Proposed – Existing)	**11.07**	**9.15**	**67.67**	**0.17**	**5.61**	**1.46**
SDAPCD Regional Threshold	75	250	550	250	100	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Winter						
Proposed Project	25.29	18.14	111.75	0.31	10.25	2.36
Existing Building	17.01	8.97	77.27	0.14	4.67	0.93
Net Emissions (Proposed – Existing)	**8.28**	**9.16**	**34.48**	**0.17**	**5.59**	**1.44**
SDAPCD Regional Threshold	75	250	550	250	100	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

MITIGATION MEASURES AND DESIGN CONSIDERATIONS

No mitigation measures and design considerations are recommended.

CONCLUSIONS

The Project-related construction and operational emissions summary was shown previously on Table 7. Based on the estimated emissions associated with project operations, the Project will not exceed the applicable County SLTs. As such, a less than significant impact would occur, and no mitigation measures are required.

AIR QUALITY IMPACTS – CONSISTENCY WITH THRESHOLD NO. 3

- ***Would the Project expose sensitive receptors to substantial pollutant concentrations?***

The potential impact of the project on sensitive receptors has also been considered. Sensitive receptors can include uses such as long-term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, childcare centers, and athletic facilities are also considered to be sensitive receptors. In evaluating impacts to sensitive receptors, the two primary emissions of concern are diesel particulate matter and CO.

CO "HOT SPOT" ANALYSIS

Project intersection, LOS, and peak hour volume data were obtained from the report, *401 Mission Ave Local Transportation Study* (Linscott, Law & Greenspan, Engineers) 2023 (13). As shown in the traffic study, the Project will not result in any intersections with a LOS E or worse nor will it result in intersection peak-hour approach trips exceeding 3,000. Therefore, a less than significant impact would occur for all intersections evaluated. Consequently, sensitive receptors would not be significantly affected by CO emissions generated by Project-related traffic.

MITIGATION MEASURES AND DESIGN CONSIDERATIONS

No mitigation measures and design considerations are recommended.

CONCLUSIONS

The project would not expose sensitive receptors to substantial pollutant concentrations. As such, a less than significant impact would occur, and no mitigation measures are required.

AIR QUALITY IMPACTS – CONSISTENCY WITH THRESHOLD NO. 4

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

The potential for the Project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations

- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The Project does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the proposed Project may result from construction equipment exhaust and the application of asphalt and architectural coatings during construction activities and the temporary storage of typical solid waste (refuse) associated with the proposed Project's (long-term operational) uses. Standard construction requirements would minimize odor impacts from construction. The construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction and is thus considered less than significant. It is expected that Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the solid waste regulations. The proposed Project would also be required to comply with SDAPCD Rule 51 to prevent occurrences of public nuisances. Therefore, odors associated with the proposed Project construction and operations would be less than significant and no mitigation is required (14).

MITIGATION MEASURES AND DESIGN CONSIDERATIONS

No mitigation measures and design considerations are recommended.

CONCLUSIONS

Based on the aforementioned analysis and criterion, the proposed project is not expected to result in a significant odor impact. As such, a less than significant impact is expected.

CONCLUSION

Results of the assessment indicate that the Project is not anticipated to result in a significant impact during construction or operational activities associated with air quality.

REFERENCES

1. **City-Data.** Oceanside California. [Online] https://www.city-data.com/city/Oceanside-California.html.
2. **United States Environmental Protection Agency.** National Ambient Air Quality Standards (NAAQS). [Online] 1990. https://www.epa.gov/environmental-topics/air-topics.
3. **Environmental Protection Agency.** Air Pollution and the Clean Air Act. [Online] http://www.epa.gov/air/caa/.
4. **1990 Clean Air Act Amendment Summary: Title I. [Online] https://www.epa.gov/clean-air-act-overview/1990-clean-air-act-amendment-summary-title-i.**
5. **United States Environmental Protection Agency. 1990 Clean Air Act Amendment Summary: Title II. [Online] https://www.epa.gov/clean-air-act-overview/1990-clean-air-act-amendment-summary-title-ii.**
6. **Air Resources Board. California Ambient Air Quality Standards (CAAQS). [Online] 2009. [Cited: April 16, 2018.] http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm.**
7. **Environmental Protection Agency. National Ambient Air Quality Standards (NAAQS). [Online] 1990. https://www.epa.gov/environmental-topics/air-topics.**
8. **State of California. *2020 CEQA California Environmental Quality Act.* 2020.**
9. **City of Oceanside Geenral Plan Update. City of Oceanside. [Online] 2022. https://www.dropbox.com/s/c4bl7tygz81wp8m/Oceanside%20Background%20Report%202%20Land%20Use%20and%20Community%20Resources.pdf?dl=0.**
10. **California Air Pollution Control Officers Association (CAPCOA). California Emissions Estimator Model (CalEEMod). [Online] May 2022. www.caleemod.com.**
11. **State of California. *2020 CEQA California Environmental Quality Act.* 2020.**
12. **Linscott, Law & Greenspan, Engineers. *401 Mission Local Transportation Study.* 2023.**
13. **San Diego Air Pollution Control District. RULE 55. Nuisance. [Online] https://www.sdapcd.org/content/dam/sdapcd/documents/rules/current-rules/Rule-51.pdf.**
14. **Ralph Propper, Patrick Wong, Son Bui, Jeff Austin, William Vance, Alvaro Alvarado, Bart Croes, and Dongmin Luo. Ambient and Emission Trends of Toxic Air Contaminants in California. *American Chemical Society: Environmental Science & Technology.* 2015.**

ATTACHMENT A
CALEEMOD PROPOSED PROJECT EMISSIONS MODEL OUTPUTS

15490 - 401 Mission Ave (Proposed) Construction & Operations Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

3.3. Site Preparation (2025) - Unmitigated

3.5. Grading (2025) - Unmitigated

3.7. Building Construction (2025) - Unmitigated

3.9. Building Construction (2026) - Unmitigated

3.11. Paving (2026) - Unmitigated

3.13. Architectural Coating (2026) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.2. Unmitigated

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	15490 - 401 Mission Ave (Proposed) Construction & Operations
Construction Start Date	1/1/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.90
Precipitation (days)	20.6
Location	401 Mission Ave, Oceanside, CA 92054, USA
County	San Diego
City	Oceanside
Air District	San Diego County APCD
Air Basin	San Diego
TAZ	6231
EDFZ	12
Electric Utility	San Diego Gas & Electric
Gas Utility	San Diego Gas & Electric
App Version	2022.1.1.13

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Apartments Mid Rise	332	Dwelling Unit	1.66	405,698	25,297	—	926	—
Strip Mall	8.31	1000sqft	0.03	8,311	0.00	—	—	—
High Turnover (Sit Down Restaurant)	11.1	1000sqft	0.05	11,109	0.00	—	—	—
Enclosed Parking with Elevator	239	1000sqft	0.98	238,500	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.23	2.76	14.7	29.8	0.04	0.45	3.43	3.88	0.42	0.82	1.24	—	7,546	7,546	0.33	0.41	17.4	7,693
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.36	66.6	35.8	27.9	0.11	1.19	5.73	6.92	1.11	1.91	3.02	—	16,369	16,369	0.86	2.17	0.78	17,038
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.20	7.35	11.9	19.0	0.03	0.37	2.59	2.96	0.34	0.63	0.98	—	5,626	5,626	0.27	0.40	5.34	5,756
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.40	1.34	2.17	3.46	0.01	0.07	0.47	0.54	0.06	0.12	0.18	—	931	931	0.04	0.07	0.88	953

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.23	2.76	14.7	29.8	0.04	0.45	3.43	3.88	0.42	0.82	1.24	—	7,546	7,546	0.33	0.41	17.4	7,693
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.36	2.73	35.8	27.9	0.11	1.19	5.73	6.92	1.11	1.91	3.02	—	16,369	16,369	0.86	2.17	0.78	17,038
2026	2.97	66.6	14.2	26.9	0.04	0.40	3.43	3.83	0.37	0.82	1.20	—	7,265	7,265	0.33	0.42	0.41	7,398
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.20	1.83	11.9	19.0	0.03	0.37	2.59	2.96	0.34	0.63	0.98	—	5,626	5,626	0.27	0.40	5.34	5,756
2026	0.10	7.35	0.45	0.96	< 0.005	0.01	0.10	0.11	0.01	0.02	0.04	—	196	196	0.01	0.01	0.18	198
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.40	0.33	2.17	3.46	0.01	0.07	0.47	0.54	0.06	0.12	0.18	—	931	931	0.04	0.07	0.88	953
2026	0.02	1.34	0.08	0.18	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	32.4	32.4	< 0.005	< 0.005	0.03	32.9

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	21.3	29.1	17.3	149	0.32	0.71	9.56	10.3	0.71	1.69	2.39	238	36,548	36,786	25.7	1.19	105	37,888
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	17.2	25.3	18.1	112	0.31	0.69	9.56	10.3	0.68	1.69	2.36	238	35,174	35,413	25.7	1.26	11.3	36,442
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.6	25.1	11.9	104	0.22	0.34	7.33	7.68	0.34	1.29	1.63	238	24,221	24,459	25.4	1.02	40.7	25,439
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.03	4.57	2.18	19.0	0.04	0.06	1.34	1.40	0.06	0.24	0.30	39.4	4,010	4,050	4.20	0.17	6.74	4,212

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	16.9	15.5	11.1	116	0.28	0.22	9.56	9.78	0.20	1.69	1.89	—	28,676	28,676	1.31	1.08	96.3	29,125
Area	4.34	13.6	5.23	32.2	0.03	0.42	—	0.42	0.43	—	0.43	0.00	6,388	6,388	0.12	0.01	—	6,395
Energy	0.11	0.05	0.94	0.54	0.01	0.07	—	0.07	0.07	—	0.07	—	1,471	1,471	0.33	0.03	—	1,488
Water	—	—	—	—	—	—	—	—	—	—	—	30.0	13.5	43.5	3.09	0.07	—	143
Waste	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	728
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.84	8.84
Total	21.3	29.1	17.3	149	0.32	0.71	9.56	10.3	0.71	1.69	2.39	238	36,548	36,786	25.7	1.19	105	37,888
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	16.6	15.1	12.2	109	0.27	0.22	9.56	9.78	0.20	1.69	1.89	—	27,399	27,399	1.39	1.14	2.50	27,776
Area	0.58	10.1	4.96	2.11	0.03	0.40	—	0.40	0.40	—	0.40	0.00	6,291	6,291	0.12	0.01	—	6,298
Energy	0.11	0.05	0.94	0.54	0.01	0.07	—	0.07	0.07	—	0.07	—	1,471	1,471	0.33	0.03	—	1,488
Water	—	—	—	—	—	—	—	—	—	—	—	30.0	13.5	43.5	3.09	0.07	—	143
Waste	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	728

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.84	8.84
Total	17.2	25.3	18.1	112	0.31	0.69	9.56	10.3	0.68	1.69	2.36	238	35,174	35,413	25.7	1.26	11.3	36,442
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	14.5	13.4	9.75	88.0	0.21	0.17	7.33	7.50	0.16	1.29	1.45	—	21,276	21,276	1.14	0.91	31.9	21,609
Area	1.98	11.6	1.25	15.3	0.01	0.10	—	0.10	0.10	—	0.10	0.00	1,461	1,461	0.03	< 0.005	—	1,463
Energy	0.11	0.05	0.94	0.54	0.01	0.07	—	0.07	0.07	—	0.07	—	1,471	1,471	0.33	0.03	—	1,488
Water	—	—	—	—	—	—	—	—	—	—	—	30.0	13.5	43.5	3.09	0.07	—	143
Waste	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	728
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.84	8.84
Total	16.6	25.1	11.9	104	0.22	0.34	7.33	7.68	0.34	1.29	1.63	238	24,221	24,459	25.4	1.02	40.7	25,439
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.65	2.44	1.78	16.1	0.04	0.03	1.34	1.37	0.03	0.24	0.26	—	3,522	3,522	0.19	0.15	5.28	3,578
Area	0.36	2.12	0.23	2.79	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	242	242	< 0.005	< 0.005	—	242
Energy	0.02	0.01	0.17	0.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	243	243	0.05	< 0.005	—	246
Water	—	—	—	—	—	—	—	—	—	—	—	4.97	2.23	7.20	0.51	0.01	—	23.6
Waste	—	—	—	—	—	—	—	—	—	—	—	34.5	0.00	34.5	3.45	0.00	—	121
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.46	1.46
Total	3.03	4.57	2.18	19.0	0.04	0.06	1.34	1.40	0.06	0.24	0.30	39.4	4,010	4,050	4.20	0.17	6.74	4,212

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.75	1.47	13.9	15.1	0.02	0.57	—	0.57	0.52	—	0.52	—	2,494	2,494	0.10	0.02	—	2,502
Demolition	—	—	—	—	—	—	3.89	3.89	—	0.59	0.59	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.76	0.83	< 0.005	0.03	—	0.03	0.03	—	0.03	—	137	137	0.01	< 0.005	—	137
Demolition	—	—	—	—	—	—	0.21	0.21	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.14	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	22.6	22.6	< 0.005	< 0.005	—	22.7
Demolition	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.05	0.05	0.04	0.51	0.00	0.00	0.11	0.11	0.00	0.02	0.02	—	112	112	0.01	< 0.005	0.01	113
Vendor	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	0.00
Hauling	0.25	0.07	4.48	1.63	0.02	0.06	0.85	0.91	0.06	0.23	0.29	—	3,299	3,299	0.18	0.52	0.19	3,459
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.19	6.19	< 0.005	< 0.005	0.01	6.28
Vendor	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	0.00
Hauling	0.01	< 0.005	0.25	0.09	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	181	181	0.01	0.03	0.17	190
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.04
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.9	29.9	< 0.005	< 0.005	0.03	31.4

3.3. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.43	1.20	11.0	11.2	0.03	0.48	—	0.48	0.44	—	0.44	—	2,753	2,753	0.11	0.02	—	2,763
Dust From Material Movement	—	—	—	—	—	—	0.55	0.55	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.6	22.6	< 0.005	< 0.005	—	22.7
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.75	3.75	< 0.005	< 0.005	—	3.76
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	67.2	67.2	< 0.005	< 0.005	0.01	68.1
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.57
Vendor	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	0.00

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	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	0.00
Hauling	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	0.00

3.5. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.27	1.91	17.3	16.1	0.02	0.94	—	0.94	0.86	—	0.86	—	2,644	2,644	0.11	0.02	—	2,653
Dust From Material Movement	—	—	—	—	—	—	2.13	2.13	—	0.92	0.92	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.95	0.88	< 0.005	0.05	—	0.05	0.05	—	0.05	—	145	145	0.01	< 0.005	—	145
Dust From Material Movement	—	—	—	—	—	—	0.12	0.12	—	0.05	0.05	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.41	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	89.6	89.6	< 0.005	< 0.005	0.01	90.8
Vendor	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	0.00
Hauling	1.05	0.28	18.5	6.75	0.09	0.25	3.52	3.77	0.25	0.96	1.21	—	13,635	13,635	0.75	2.15	0.77	14,294
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.95	4.95	< 0.005	< 0.005	0.01	5.03
Vendor	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	0.00
Hauling	0.06	0.02	1.01	0.37	< 0.005	0.01	0.19	0.20	0.01	0.05	0.07	—	747	747	0.04	0.12	0.70	784
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.83
Vendor	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	0.00
Hauling	0.01	< 0.005	0.19	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	124	124	0.01	0.02	0.12	130

3.7. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.54	1.28	11.1	12.6	0.02	0.42	—	0.42	0.39	—	0.39	—	2,312	2,312	0.09	0.02	—	2,320
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.54	1.28	11.1	12.6	0.02	0.42	—	0.42	0.39	—	0.39	—	2,312	2,312	0.09	0.02	—	2,320
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	6.56	7.47	0.01	0.25	—	0.25	0.23	—	0.23	—	1,371	1,371	0.06	0.01	—	1,376
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.20	1.36	< 0.005	0.05	—	0.05	0.04	—	0.04	—	227	227	0.01	< 0.005	—	228
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.52	1.40	1.06	16.0	0.00	0.00	2.93	2.93	0.00	0.69	0.69	—	3,288	3,288	0.15	0.11	12.3	3,338
Vendor	0.17	0.08	2.59	1.20	0.01	0.03	0.50	0.52	0.03	0.14	0.16	—	1,946	1,946	0.09	0.28	5.05	2,035
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.50	1.37	1.18	14.1	0.00	0.00	2.93	2.93	0.00	0.69	0.69	—	3,105	3,105	0.17	0.12	0.32	3,146
Vendor	0.16	0.08	2.69	1.24	0.01	0.03	0.50	0.52	0.03	0.14	0.16	—	1,947	1,947	0.09	0.28	0.13	2,032
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.88	0.81	0.70	8.46	0.00	0.00	1.71	1.71	0.00	0.40	0.40	—	1,857	1,857	0.09	0.07	3.16	1,885
Vendor	0.10	0.05	1.58	0.72	0.01	0.02	0.29	0.31	0.02	0.08	0.10	—	1,154	1,154	0.05	0.16	1.30	1,205
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.15	0.13	1.54	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	308	308	0.02	0.01	0.52	312
Vendor	0.02	0.01	0.29	0.13	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	—	191	191	0.01	0.03	0.21	200
Hauling	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	0.00

3.9. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.47	1.22	10.5	12.5	0.02	0.38	—	0.38	0.35	—	0.35	—	2,312	2,312	0.09	0.02	—	2,320
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.6	22.6	< 0.005	< 0.005	—	22.7
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.74	3.74	< 0.005	< 0.005	—	3.76
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.36	1.24	1.08	13.2	0.00	0.00	2.93	2.93	0.00	0.69	0.69	—	3,042	3,042	0.16	0.12	0.29	3,083
Vendor	0.15	0.06	2.56	1.18	0.01	0.03	0.50	0.52	0.03	0.14	0.16	—	1,911	1,911	0.07	0.28	0.12	1,995
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	30.0	30.0	< 0.005	< 0.005	0.05	30.5
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	18.7	18.7	< 0.005	< 0.005	0.02	19.5
Hauling	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.97	4.97	< 0.005	< 0.005	0.01	5.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.10	3.10	< 0.005	< 0.005	< 0.005	3.23
Hauling	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	0.00

3.11. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.67	5.88	8.19	0.01	0.25	—	0.25	0.23	—	0.23	—	1,244	1,244	0.05	0.01	—	1,248
Paving	—	0.26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	34.1	34.1	< 0.005	< 0.005	—	34.2
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.64	5.64	< 0.005	< 0.005	—	5.66
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.57	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	132	132	0.01	0.01	0.01	133
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.64	3.64	< 0.005	< 0.005	0.01	3.69
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.61
Vendor	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	0.00
Hauling	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	0.00

3.13. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.14	1.51	< 0.005	0.03	—	0.03	0.03	—	0.03	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	66.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.13	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.5	19.5	< 0.005	< 0.005	—	19.6
Architectural Coatings	—	7.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.23	3.23	< 0.005	< 0.005	—	3.24
Architectural Coatings	—	1.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.25	0.22	2.64	0.00	0.00	0.59	0.59	0.00	0.14	0.14	—	608	608	0.03	0.02	0.06	617

Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	67.3	67.3	< 0.005	< 0.005	0.11	68.3
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	11.3
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	8.19	7.49	5.53	57.7	0.14	0.11	4.79	4.90	0.10	0.84	0.95	—	14,349	14,349	0.64	0.53	48.2	14,573
Strip Mall	1.55	1.42	1.01	10.5	0.03	0.02	0.86	0.88	0.02	0.15	0.17	—	2,587	2,587	0.12	0.10	8.68	2,628
High Turnover (Sit Down Restaurant)	7.12	6.54	4.61	47.9	0.12	0.09	3.91	4.00	0.08	0.69	0.77	—	11,739	11,739	0.54	0.45	39.4	11,925

Enclosed Parking with Elevator	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	0.00
Total	16.9	15.5	11.1	116	0.28	0.22	9.56	9.78	0.20	1.69	1.89	—	28,676	28,676	1.31	1.08	96.3	29,125
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	8.05	7.34	6.07	54.1	0.13	0.11	4.79	4.90	0.10	0.84	0.95	—	13,709	13,709	0.68	0.57	1.25	13,897
Strip Mall	1.52	1.39	1.11	9.90	0.02	0.02	0.86	0.88	0.02	0.15	0.17	—	2,472	2,472	0.13	0.10	0.23	2,506
High Turnover (Sit Down Restaurant)	6.99	6.40	5.06	45.1	0.11	0.09	3.91	4.00	0.08	0.69	0.77	—	11,217	11,217	0.58	0.47	1.02	11,373
Enclosed Parking with Elevator	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	0.00
Total	16.6	15.1	12.2	109	0.27	0.22	9.56	9.78	0.20	1.69	1.89	—	27,399	27,399	1.39	1.14	2.50	27,776
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	1.35	1.23	1.02	9.20	0.02	0.02	0.82	0.83	0.02	0.14	0.16	—	2,131	2,131	0.10	0.09	3.21	2,163
Strip Mall	0.23	0.21	0.17	1.50	< 0.005	< 0.005	0.13	0.13	< 0.005	0.02	0.03	—	342	342	0.02	0.01	0.51	347
High Turnover (Sit Down Restaurant)	1.07	1.00	0.59	5.37	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,049	1,049	0.07	0.05	1.55	1,067
Enclosed Parking with Elevator	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	0.00
Total	2.65	2.44	1.78	16.1	0.04	0.03	1.34	1.37	0.03	0.24	0.26	—	3,522	3,522	0.19	0.15	5.28	3,578

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	139	139	0.10	0.01	—	145
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	9.05	9.05	0.01	< 0.005	—	9.46
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	48.9	48.9	0.04	< 0.005	—	51.1
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	—	109	109	0.08	0.01	—	114
Total	—	—	—	—	—	—	—	—	—	—	—	—	306	306	0.22	0.03	—	320
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	139	139	0.10	0.01	—	145
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	9.05	9.05	0.01	< 0.005	—	9.46
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	48.9	48.9	0.04	< 0.005	—	51.1

Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	—	109	109	0.08	0.01	—	114
Total	—	—	—	—	—	—	—	—	—	—	—	—	306	306	0.22	0.03	—	320
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	23.0	23.0	0.02	< 0.005	—	24.1
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	1.50	1.50	< 0.005	< 0.005	—	1.57
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	8.10	8.10	0.01	< 0.005	—	8.46
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	—	18.0	18.0	0.01	< 0.005	—	18.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	50.6	50.6	0.04	< 0.005	—	52.9

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.07	0.03	0.59	0.25	< 0.005	0.05	—	0.05	0.05	—	0.05	—	753	753	0.07	< 0.005	—	755
Strip Mall	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.5	11.5	< 0.005	< 0.005	—	11.6

High Turnover (Sit Down Restaurant)	0.04	0.02	0.34	0.28	< 0.005	0.03	—	0.03	0.03	—	0.03	—	400	400	0.04	< 0.005	—	401
Enclosed Parking with Elevator	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
Total	0.11	0.05	0.94	0.54	0.01	0.07	—	0.07	0.07	—	0.07	—	1,165	1,165	0.10	< 0.005	—	1,168
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.07	0.03	0.59	0.25	< 0.005	0.05	—	0.05	0.05	—	0.05	—	753	753	0.07	< 0.005	—	755
Strip Mall	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.5	11.5	< 0.005	< 0.005	—	11.6
High Turnover (Sit Down Restaurant)	0.04	0.02	0.34	0.28	< 0.005	0.03	—	0.03	0.03	—	0.03	—	400	400	0.04	< 0.005	—	401
Enclosed Parking with Elevator	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
Total	0.11	0.05	0.94	0.54	0.01	0.07	—	0.07	0.07	—	0.07	—	1,165	1,165	0.10	< 0.005	—	1,168
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.01	0.01	0.11	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	—	125	125	0.01	< 0.005	—	125
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.91	1.91	< 0.005	< 0.005	—	1.91
High Turnover (Sit Down Restaurant)	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	66.3	66.3	0.01	< 0.005	—	66.4

Enclosed Parking with Elevator	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
Total	0.02	0.01	0.17	0.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	193	193	0.02	< 0.005	—	193

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.58	0.29	4.96	2.11	0.03	0.40	—	0.40	0.40	—	0.40	0.00	6,291	6,291	0.12	0.01	—	6,298
Consumer Products	—	9.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	3.76	3.51	0.28	30.0	< 0.005	0.02	—	0.02	0.03	—	0.03	—	96.5	96.5	< 0.005	< 0.005	—	96.8
Total	4.34	13.6	5.23	32.2	0.03	0.42	—	0.42	0.43	—	0.43	0.00	6,388	6,388	0.12	0.01	—	6,395
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.58	0.29	4.96	2.11	0.03	0.40	—	0.40	0.40	—	0.40	0.00	6,291	6,291	0.12	0.01	—	6,298
Consumer Products	—	9.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	—	0.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.58	10.1	4.96	2.11	0.03	0.40	—	0.40	0.40	—	0.40	0.00	6,291	6,291	0.12	0.01	—	6,298
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.02	0.01	0.20	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	234	234	< 0.005	< 0.005	—	234
Consumer Products	—	1.66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.34	0.32	0.02	2.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.88	7.88	< 0.005	< 0.005	—	7.91
Total	0.36	2.12	0.23	2.79	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	242	242	< 0.005	< 0.005	—	242

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	22.4	10.1	32.5	2.30	0.06	—	106
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.18	0.52	1.70	0.12	< 0.005	—	5.60

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	6.46	2.84	9.30	0.66	0.02	—	30.7
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.0	13.5	43.5	3.09	0.07	—	143
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	22.4	10.1	32.5	2.30	0.06	—	106
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.18	0.52	1.70	0.12	< 0.005	—	5.60
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	6.46	2.84	9.30	0.66	0.02	—	30.7
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.0	13.5	43.5	3.09	0.07	—	143
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	3.70	1.67	5.37	0.38	0.01	—	17.6
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.20	0.09	0.28	0.02	< 0.005	—	0.93
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	1.07	0.47	1.54	0.11	< 0.005	—	5.08

Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.97	2.23	7.20	0.51	0.01	—	23.6

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	132	0.00	132	13.2	0.00	—	463
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	4.70	0.00	4.70	0.47	0.00	—	16.5
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	71.2	0.00	71.2	7.12	0.00	—	249
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	728
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	132	0.00	132	13.2	0.00	—	463

Strip Mall	—	—	—	—	—	—	—	—	—	—	—	4.70	0.00	4.70	0.47	0.00	—	16.5
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	71.2	0.00	71.2	7.12	0.00	—	249
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	728
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	21.9	0.00	21.9	2.19	0.00	—	76.6
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.78	0.00	0.78	0.08	0.00	—	2.72
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	11.8	0.00	11.8	1.18	0.00	—	41.3
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	34.5	0.00	34.5	3.45	0.00	—	121

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.23	6.23
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.84	8.84
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.23	6.23
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.84	8.84
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.03	1.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.46	1.46

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2025	1/29/2025	5.00	20.0	—
Site Preparation	Site Preparation	1/30/2025	2/3/2025	5.00	3.00	—
Grading	Grading	2/4/2025	3/3/2025	5.00	20.0	—
Building Construction	Building Construction	3/4/2025	1/5/2026	5.00	220	—
Paving	Paving	1/6/2026	1/19/2026	5.00	10.0	—
Architectural Coating	Architectural Coating	1/20/2026	3/16/2026	5.00	40.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Site Preparation	Crawler Tractors	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29

Building Construction	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	12.0	LDA,LDT1,LDT2
Demolition	Vendor	—	7.63	HHDT,MHDT
Demolition	Hauling	45.9	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	12.0	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.63	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT

Grading	—	—	—	—
Grading	Worker	10.0	12.0	LDA,LDT1,LDT2
Grading	Vendor	—	7.63	HHDT,MHDT
Grading	Hauling	190	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	347	12.0	LDA,LDT1,LDT2
Building Construction	Vendor	77.8	7.63	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	12.0	LDA,LDT1,LDT2
Paving	Vendor	—	7.63	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	69.3	12.0	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	7.63	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	821,538	273,846	31,047	9,923	2,556

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	79,805	—
Site Preparation	—	—	6.00	0.00	—
Grading	—	30,350	40.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.98

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Mid Rise	—	0%
Strip Mall	0.00	0%
High Turnover (Sit Down Restaurant)	0.00	0%
Enclosed Parking with Elevator	0.98	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	540	0.03	< 0.005
2026	0.00	45.1	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	1,813	1,517	1,252	616,979	17,388	14,554	12,006	5,918,147
Strip Mall	302	349	170	105,813	2,706	3,130	1,521	948,013
High Turnover (Sit Down Restaurant)	1,617	1,360	1,585	575,108	5,666	12,182	14,197	2,852,673
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	299
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	33

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
821538.45	273,846	31,047	9,923	2,556

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	1,125,769	45.1	0.0330	0.0040	2,350,041
Strip Mall	73,258	45.1	0.0330	0.0040	35,965
High Turnover (Sit Down Restaurant)	395,733	45.1	0.0330	0.0040	1,248,716
Enclosed Parking with Elevator	880,406	45.1	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	11,664,181	462,052
Strip Mall	615,617	0.00

High Turnover (Sit Down Restaurant)	3,371,956	0.00
Enclosed Parking with Elevator	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	245	—
Strip Mall	8.73	—
High Turnover (Sit Down Restaurant)	132	—
Enclosed Parking with Elevator	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	User Defined	750	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	User Defined	750	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	User Defined	150	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	User Defined	150	< 0.005	7.50	7.50	20.0
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	User Defined	150	0.00	0.60	0.00	1.00

High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	User Defined	750	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	User Defined	150	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	7.71	annual days of extreme heat
Extreme Precipitation	2.95	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	21.9	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	29.9
AQ-PM	49.8
AQ-DPM	90.7
Drinking Water	54.3
Lead Risk Housing	49.8
Pesticides	0.00
Toxic Releases	15.6
Traffic	72.5
Effect Indicators	—
CleanUp Sites	42.6
Groundwater	70.3
Haz Waste Facilities/Generators	7.35
Impaired Water Bodies	83.0
Solid Waste	35.7

Sensitive Population	—
Asthma	31.1
Cardio-vascular	49.3
Low Birth Weights	15.0
Socioeconomic Factor Indicators	—
Education	52.3
Housing	50.3
Linguistic	44.4
Poverty	68.6
Unemployment	70.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	38.58591043
Employed	52.13653279
Median HI	29.38534582
Education	—
Bachelor's or higher	59.05299628
High school enrollment	0.115488259
Preschool enrollment	95.7141024
Transportation	—
Auto Access	17.29757475
Active commuting	80.14885153
Social	—
2-parent households	0.731425638

Voting	47.61965867
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	80.05902733
Supermarket access	87.25779546
Tree canopy	10.61208777
Housing	—
Homeownership	10.18863082
Housing habitability	56.62774285
Low-inc homeowner severe housing cost burden	79.66123444
Low-inc renter severe housing cost burden	80.16168356
Uncrowded housing	60.05389452
Health Outcomes	—
Insured adults	54.27948159
Arthritis	20.2
Asthma ER Admissions	38.3
High Blood Pressure	40.5
Cancer (excluding skin)	36.4
Asthma	23.6
Coronary Heart Disease	19.3
Chronic Obstructive Pulmonary Disease	12.3
Diagnosed Diabetes	34.4
Life Expectancy at Birth	26.1
Cognitively Disabled	21.0
Physically Disabled	21.0
Heart Attack ER Admissions	36.2

Mental Health Not Good	28.5
Chronic Kidney Disease	27.1
Obesity	39.2
Pedestrian Injuries	98.6
Physical Health Not Good	32.6
Stroke	22.5
Health Risk Behaviors	—
Binge Drinking	32.5
Current Smoker	28.0
No Leisure Time for Physical Activity	38.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	79.9
Children	56.6
Elderly	27.8
English Speaking	67.4
Foreign-born	16.0
Outdoor Workers	33.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	9.9
Traffic Density	92.4
Traffic Access	71.0
Other Indices	—
Hardship	44.7
Other Decision Support	—
2016 Voting	55.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	51.0
Healthy Places Index Score for Project Location (b)	14.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	taken from site plan
Construction: Construction Phases	Data provided by client. Building Construction, Paving, and Architectural Coating overlap to present a conservative analysis.
Construction: Off-Road Equipment	T/L/Bs replaced with Crawler Tractor to accurately calculate disturbance for Site Preparation and Grading phases. Standard 8 hours work days.
Construction: Trips and VMT	Vendor Trips adjusted based on CalEEMod defaults for Building Construction and number of days for Demolition, Site Preparation, Grading, and Building Construction.
Operations: Vehicle Data	Trip characteristics based on information provided in traffic analysis

Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Further, R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively. Beginning 1 January 2025, all new air conditioning equipment may not use refrigerants with a GWP of 750 or greater.
Operations: Hearths	No Woodstoves

ATTACHMENT B
CALEEMOD EXISTING EMISSIONS MODEL OUTPUTS

15490 - 401 Mission Avenue (Existing) Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.2. Unmitigated

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	15490 - 401 Mission Avenue (Existing)
Operational Year	2023
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.90
Precipitation (days)	20.6
Location	401 Mission Ave, Oceanside, CA 92054, USA
County	San Diego
City	Oceanside
Air District	San Diego County APCD
Air Basin	San Diego
TAZ	6231
EDFZ	12
Electric Utility	San Diego Gas & Electric
Gas Utility	San Diego Gas & Electric
App Version	2022.1.1.13

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Regional Shopping Center	79.8	1000sqft	1.83	79,805	0.00	—	—	—

Other Asphalt Surfaces	89.0	Acre	89.0	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.6	18.1	8.17	81.1	0.15	0.14	4.53	4.67	0.13	0.80	0.93	45.2	16,028	16,073	5.60	0.71	60.9	16,485
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.6	17.0	8.97	77.3	0.14	0.13	4.53	4.67	0.13	0.80	0.93	45.2	15,366	15,411	5.70	0.76	1.73	15,781
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.1	13.7	6.55	58.0	0.10	0.10	3.24	3.34	0.10	0.57	0.67	45.2	11,442	11,487	5.40	0.55	18.9	11,806
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.20	2.51	1.19	10.6	0.02	0.02	0.59	0.61	0.02	0.10	0.12	7.48	1,894	1,902	0.89	0.09	3.13	1,955

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	16.0	15.1	8.05	77.5	0.15	0.13	4.53	4.66	0.12	0.80	0.92	—	14,863	14,863	1.01	0.70	60.7	15,158
Area	0.62	2.98	0.03	3.47	< 0.005	< 0.005	—	< 0.005	0.01	—	0.01	—	14.3	14.3	< 0.005	< 0.005	—	14.3
Energy	0.01	0.01	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	1,151	1,151	0.07	0.01	—	1,155
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	45.2	0.00	45.2	4.51	0.00	—	158
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15
Total	16.6	18.1	8.17	81.1	0.15	0.14	4.53	4.67	0.13	0.80	0.93	45.2	16,028	16,073	5.60	0.71	60.9	16,485
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	15.6	14.6	8.88	77.2	0.14	0.13	4.53	4.66	0.12	0.80	0.92	—	14,215	14,215	1.12	0.75	1.57	14,468
Area	—	2.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	0.01	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	1,151	1,151	0.07	0.01	—	1,155
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	45.2	0.00	45.2	4.51	0.00	—	158
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15
Total	15.6	17.0	8.97	77.3	0.14	0.13	4.53	4.67	0.13	0.80	0.93	45.2	15,366	15,411	5.70	0.76	1.73	15,781
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	11.8	11.0	6.44	56.2	0.10	0.09	3.24	3.34	0.09	0.57	0.66	—	10,284	10,284	0.82	0.55	18.8	10,486
Area	0.30	2.69	0.01	1.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.04	7.04	< 0.005	< 0.005	—	7.06
Energy	0.01	0.01	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	1,151	1,151	0.07	0.01	—	1,155
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	45.2	0.00	45.2	4.51	0.00	—	158
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15
Total	12.1	13.7	6.55	58.0	0.10	0.10	3.24	3.34	0.10	0.57	0.67	45.2	11,442	11,487	5.40	0.55	18.9	11,806

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.14	2.02	1.17	10.3	0.02	0.02	0.59	0.61	0.02	0.10	0.12	—	1,703	1,703	0.14	0.09	3.11	1,736
Area	0.06	0.49	< 0.005	0.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.17	1.17	< 0.005	< 0.005	—	1.17
Energy	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	191	191	0.01	< 0.005	—	191
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	7.48	0.00	7.48	0.75	0.00	—	26.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	2.20	2.51	1.19	10.6	0.02	0.02	0.59	0.61	0.02	0.10	0.12	7.48	1,894	1,902	0.89	0.09	3.13	1,955

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	16.0	15.1	8.05	77.5	0.15	0.13	4.53	4.66	0.12	0.80	0.92	—	14,863	14,863	1.01	0.70	60.7	15,158
Other Asphalt Surfaces	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	0.00
Total	16.0	15.1	8.05	77.5	0.15	0.13	4.53	4.66	0.12	0.80	0.92	—	14,863	14,863	1.01	0.70	60.7	15,158
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Regional Shopping Center	15.6	14.6	8.88	77.2	0.14	0.13	4.53	4.66	0.12	0.80	0.92	—	14,215	14,215	1.12	0.75	1.57	14,468
Other Asphalt Surfaces	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	0.00
Total	15.6	14.6	8.88	77.2	0.14	0.13	4.53	4.66	0.12	0.80	0.92	—	14,215	14,215	1.12	0.75	1.57	14,468
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	2.14	2.02	1.17	10.3	0.02	0.02	0.59	0.61	0.02	0.10	0.12	—	1,703	1,703	0.14	0.09	3.11	1,736
Other Asphalt Surfaces	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	0.00
Total	2.14	2.02	1.17	10.3	0.02	0.02	0.59	0.61	0.02	0.10	0.12	—	1,703	1,703	0.14	0.09	3.11	1,736

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	1,040	1,040	0.06	0.01	—	1,044
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,040	1,040	0.06	0.01	—	1,044

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	1,040	1,040	0.06	0.01	—	1,044
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,040	1,040	0.06	0.01	—	1,044
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	172	172	0.01	< 0.005	—	173
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	172	172	0.01	< 0.005	—	173

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	0.01	0.01	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	111	111	0.01	< 0.005	—	111
Other Asphalt Surfaces	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
Total	0.01	0.01	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	111	111	0.01	< 0.005	—	111

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	0.01	0.01	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	111	111	0.01	< 0.005	—	111
Other Asphalt Surfaces	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
Total	0.01	0.01	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	111	111	0.01	< 0.005	—	111
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.3	18.3	< 0.005	< 0.005	—	18.4
Other Asphalt Surfaces	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
Total	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.3	18.3	< 0.005	< 0.005	—	18.4

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	2.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landsca Equipment	0.62	0.57	0.03	3.47	< 0.005	< 0.005	—	< 0.005	0.01	—	0.01	—	14.3	14.3	< 0.005	< 0.005	—	14.3
Total	0.62	2.98	0.03	3.47	< 0.005	< 0.005	—	< 0.005	0.01	—	0.01	—	14.3	14.3	< 0.005	< 0.005	—	14.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consum er Products	—	2.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coatings	—	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	2.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consum er Products	—	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coatings	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landsca pe Equipme nt	0.06	0.05	< 0.005	0.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.17	1.17	< 0.005	< 0.005	—	1.17
Total	0.06	0.49	< 0.005	0.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.17	1.17	< 0.005	< 0.005	—	1.17

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	45.2	0.00	45.2	4.51	0.00	—	158

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	45.2	0.00	45.2	4.51	0.00	—	158
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	45.2	0.00	45.2	4.51	0.00	—	158
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	45.2	0.00	45.2	4.51	0.00	—	158
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	7.48	0.00	7.48	0.75	0.00	—	26.2
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.48	0.00	7.48	0.75	0.00	—	26.2

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Regional Shopping Center	2,924	3,681	1,684	1,042,063	11,676	16,432	7,518	4,292,788
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	119,708	39,903	232,610

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Regional Shopping Center	703,446	540	0.0330	0.0040	345,349
Other Asphalt Surfaces	0.00	540	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Regional Shopping Center	83.8	—
Other Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Regional Shopping Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Regional Shopping Center	Stand-alone retail refrigerators and freezers	User Defined	150	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit

Temperature and Extreme Heat	7.71	annual days of extreme heat
Extreme Precipitation	2.95	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	21.9	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	29.9
AQ-PM	49.8
AQ-DPM	90.7
Drinking Water	54.3
Lead Risk Housing	49.8

Pesticides	0.00
Toxic Releases	15.6
Traffic	72.5
Effect Indicators	—
CleanUp Sites	42.6
Groundwater	70.3
Haz Waste Facilities/Generators	7.35
Impaired Water Bodies	83.0
Solid Waste	35.7
Sensitive Population	—
Asthma	31.1
Cardio-vascular	49.3
Low Birth Weights	15.0
Socioeconomic Factor Indicators	—
Education	52.3
Housing	50.3
Linguistic	44.4
Poverty	68.6
Unemployment	70.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	38.58591043
Employed	52.13653279
Median HI	29.38534582

Education	—
Bachelor's or higher	59.05299628
High school enrollment	0.115488259
Preschool enrollment	95.7141024
Transportation	—
Auto Access	17.29757475
Active commuting	80.14885153
Social	—
2-parent households	0.731425638
Voting	47.61965867
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	80.05902733
Supermarket access	87.25779546
Tree canopy	10.61208777
Housing	—
Homeownership	10.18863082
Housing habitability	56.62774285
Low-inc homeowner severe housing cost burden	79.66123444
Low-inc renter severe housing cost burden	80.16168356
Uncrowded housing	60.05389452
Health Outcomes	—
Insured adults	54.27948159
Arthritis	20.2
Asthma ER Admissions	38.3
High Blood Pressure	40.5

Cancer (excluding skin)	36.4
Asthma	23.6
Coronary Heart Disease	19.3
Chronic Obstructive Pulmonary Disease	12.3
Diagnosed Diabetes	34.4
Life Expectancy at Birth	26.1
Cognitively Disabled	21.0
Physically Disabled	21.0
Heart Attack ER Admissions	36.2
Mental Health Not Good	28.5
Chronic Kidney Disease	27.1
Obesity	39.2
Pedestrian Injuries	98.6
Physical Health Not Good	32.6
Stroke	22.5
Health Risk Behaviors	—
Binge Drinking	32.5
Current Smoker	28.0
No Leisure Time for Physical Activity	38.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	79.9
Children	56.6
Elderly	27.8
English Speaking	67.4
Foreign-born	16.0
Outdoor Workers	33.3

Climate Change Adaptive Capacity	—
Impervious Surface Cover	9.9
Traffic Density	92.4
Traffic Access	71.0
Other Indices	—
Hardship	44.7
Other Decision Support	—
2016 Voting	55.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	51.0
Healthy Places Index Score for Project Location (b)	14.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Further, R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively.
Operations: Vehicle Data	Trip characteristics based on information provided in the Traffic Analysis

LINSCOTT LAW & GREENSPAN engineers

LOCAL TRANSPORTATION STUDY

401 MISSION AVENUE

Oceanside, California
November 27, 2024

LLG Ref. 3-22-3618

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following Local Transportation Study (LTS) to determine and evaluate the potential impacts to the local roadway system due to the proposed 401 Mission Avenue project, consistent with the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, July 2020. This City document provides guidance for the preparation of a Local Transportation Study (LTS) to identify any off-site infrastructure improvements in the project vicinity that may be triggered with the development of the project as well as to analyze site access and circulation and evaluate the local multi-model network available to serve to project.

PROJECT DESCRIPTION

The Project proposes 332 apartment units and 19,420 SF of commercial uses (7,461 SF of retail and 11,830 SF of restaurant space assumed) in a new 5-story building. Vehicular access to the site is proposed via two driveways on Seagaze Drive.

The site is currently developed with approximately 79,805 SF of specialty retail and theater uses. The Project proposes to demolish the existing uses. After accounting for the existing retail to be removed, ***the Project is calculated to generate 941 net daily trips with 212 trips during the AM peak hour (52 inbound/ 159 outbound trips) and 67 trips during PM peak hour (82 inbound/ 0 outbound trips).*** The project trip generation is summarized in *Table A*.

The LTS includes an analysis of the following intersections and street segments:

INTERSECTIONS

1. N. Coast Highway / Civic Center Drive
2. N. Coast Highway / Pier View Way
3. N. Pacific Street / Mission Avenue
4. N. Cleveland Street / Mission Avenue
5. S. Tremont Street / Mission Avenue
6. N. Coast Highway / Mission Avenue
7. S. Ditmar Street / Mission Avenue
8. S. Horne Street / Mission Avenue
9. N. Cleveland Street / Seagaze Drive
10. S. Tremont Street / Seagaze Drive
11. S. Coast Highway / Seagaze Drive
12. S. Ditmar Street / Seagaze Drive
13. S. Horne Street / Seagaze Drive
14. Nevada Street / Mission Avenue
15. Nevada Street / Seagaze Drive
16. Seagaze Drive / Clementine Street

TABLE A
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate [a]	Volume	% of ADT	In:Out Split	Volume In	Volume Out	Volume Total	% of ADT	In:Out Split	Volume In	Volume Out	Volume Total
Proposed													
Apartments	332 DU	6 /DU[b]	1,992	8%	20 : 80	32	127	159	9%	70 : 30	125	54	179
Retail	7,461 SF	40 /KSF[c]	298	3%	60 : 40	5	4	9	9%	50 : 50	14	14	28
Restaurant	11,830 SF	160 /KSF[d]	1,893	8%	50 : 50	76	75	151	8%	60 : 40	91	60	151
Subtotal			**4,183**			**113**	**206**	**319**			**230**	**127**	**258**
Spli Mode[f]													
Transit	Daily	5%	(209)			(6)	(11)	(16)			(12)	(7)	(18)
Total Trip Reduction			(209)			**(6)**	**(11)**	**(16)**			**(12)**	**(7)**	**(18)**
Proposed Project Total Trips			**3,974**			**107**	**195**	**303**			**218**	**120**	**339**
Existing (to be demolished)													
Specialty Retail	79,805 SF	40 /KSF[e]	3,192	3%	60 : 40	58	38	96	9%	50 : 50	144	143	287
Subtotal			**3,192**			**58**	**38**	**96**			**144**	**143**	**287**
Split Mode[f]													
Transit	Daily	5%	(160)			(3)	(2)	(5)			(8)	(8)	(15)
Total Trip Reduction			**(287)**			**(3)**	**(2)**	**(5)**			**(8)**	**(8)**	**(15)**
Exiting Site Total Trips			**3,032**			**55**	**36**	**91**			**136**	**135**	**272**
Net Trips			***941***			***52***	***159***	***212***			***82***	***(15)***	***67***

Footnotes:

a. Rates are based on SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

b. Based on apartment rate of 6/DU.

c. Based on specialty retail/strip commercial rate of 40/KSF.

d. Based on sit-down,high turnover rate of 160/KSF.

e. To be conservative, a general retail/restaurant/cinema rate of 40/KSF was used given the amount of vehicular traffic generated in the downtown area compared to a more suburban area.

f. Percentage obtained from SANDAG's *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

STREET SEGMENTS

N Coast Hwy

Civic Center Drive to Pier View Way
Pier View Way to Mission Avenue
Mission Avenue to Seagaze Drive

Mission Avenue

Cleveland Street to N. Tremont Street
N. Tremont Street to N. Coast Hwy
N. Coast Hwy to S. Ditmar Street

Seagaze Drive

Cleveland Street to N. Tremont Street
S. Tremont Street to N. Coast Highway
N. Coast Highway to S. Freeman Street
S. Nevada Street to Clementine Street

ANALYSIS SCENARIOS

The above intersections and segments were analyzed in the following scenarios:

- Existing Conditions
- Existing Conditions + Project
- Existing Conditions + Near-Term Cumulative Projects
- Existing Conditions + Near-Term Cumulative Projects + Project
- Buildout Conditions (2050)
- Buildout Conditions + Project

ANALYSIS

EXISTING

The Mission Avenue / S Horne Street intersection was calculated to currently operate at LOS E during the PM Peak hour. All study area segments are calculated to operate at a level consistent with City guidelines.

EXISTING + PROJECT

In the existing condition, with the addition of Project traffic, the following intersections are calculated to operate at LOS E or worse.

- Intersection #8. Mission Avenue / S. Horne Street – LOS E during PM peak hour

Consistent with the accepted City methodology, as the Project adds less than 2 seconds of delay at intersection #8, the Project does not cause this intersection to operate at a level inconsistent with City standards.

In the existing condition and with the addition of the Project, all study area segments are calculated to operate at LOS D or better except the following segments.

- Segment #3. N. Coast Highway between Mission Avenue and Seagaze Drive – LOS E

However, for the following reasons, the operations along this portion of N. Coast Highway is considered consistent with the City General Plan standards and improvements are not required.

- N. Coast highway is built to its General Plan Circulation Element classification.
- The intersections on either end of the segment operate at LOS D or better during the peak hours.
- A peak hour arterial analysis shows that the N. Coast Highway study segment will operate at an average LOS D or better during both the AM and PM peak hours.

NEAR-TERM CUMULATIVE PROJECTS

In the Near-Term, the following intersections are calculated to operate at LOS E or worse.

- Intersection #6. Mission Avenue / N. Coast Highway – LOS E during PM peak hour
- Intersection #8. Mission Avenue / S. Horne Street – LOS F during PM peak hour
- Intersection #10. Seagaze Drive / S Tremont Street – LOS E during PM peak hour
- Intersection #14. Nevada Street / Mission Avenue – LOS F during the PM peak hour

In the Near-Term, all study area segments are calculated to operate at LOS D or better except the following segments.

- Segment #3. N. Coast Hwy: Mission Avenue to Seagaze Drive – LOS F
- Segment #6. Mission Avenue: N. Coast Highway to Ditmar Street – LOS E

NEAR-TERM CUMULATIVE PROJECTS + PROJECT

With the addition of Project traffic, the following intersections are calculated to operate at LOS E or worse.

- Intersection #6. Mission Avenue / N. Coast Highway – LOS E during PM peak hour
- Intersection #8. Mission Avenue / S. Horne Street – LOS F during PM peak hour
- Intersection #10. Seagaze Drive / S Tremont Street – LOS F during PM peak hour
- Intersection #14. Nevada Street / Mission Avenue – LOS F during the AM/PM peak hours

Consistent with the accepted City methodology, as the Project adds less than 2 seconds of delay at intersection #6 and intersections #8, the Project does not cause this intersection to operate at a level

inconsistent with City standards. Improvements to address the operational deficiencies at intersections #10 and #14 are discussed in Section 11.0.

With the addition of Project traffic, the following segments are calculated to operate at LOS E or worse.

- Segment #3. N. Coast Hwy: Mission Avenue to Seagaze Drive – LOS E
- Segment #6. Mission Avenue: N. Coast Highway to Ditmar Street – LOS E

Consistent with the accepted City methodology, as the Project increases the V/C by less than 0.02 at Segment #6, the Project does not cause this segment to operate at a level inconsistent with City standards.

Improvements to address the operational deficiencies at Segment #3 are discussed in Section 11.0.

BUILDOUT

In the Buildout (Year 2050), the following intersections are calculated to operate at LOS E or worse.

- Intersection #6. Mission Avenue / N. Coast Highway – LOS E during PM peak hour
- Intersection #8. Mission Avenue / S. Horne Street – LOS F during PM peak hour
- Intersection #10. Seagaze Drive / S Tremont Street – LOS F during PM peak hour

All study area segments are calculated to operate at LOS D or better except the following segments.

- Segment #1. N. Coast Hwy: Civic Center Drive to Pier View Way – LOS F
- Segment #2. N Coast Hwy: Pier View Way to Mission Avenue – LOS F
- Segment #3. N. Coast Hwy: Mission Avenue to Seagaze Drive – LOS F
- Segment #6. Mission Avenue: N. Coast Highway to Ditmar Street – LOS F

BUILDOUT + PROJECT

With the addition of Project traffic, the following intersections are calculated to operate at LOS E or worse.

- Intersection #6. Mission Avenue / N. Coast Highway – LOS E during PM peak hour
- Intersection #8. Mission Avenue / S. Horne Street – LOS F during PM peak hour
- Intersection #10. Seagaze Drive / S Tremont Street – LOS E during AM peak hour and LOS F during PM peak hour

Consistent with the accepted City methodology, as the Project adds less than 2 seconds of delay at intersection #6 and intersection #8, the Project does not cause this intersection to operate at a level

inconsistent with City standards. Improvements to address the operational deficiencies at intersection #10 is discussed in Section 11.0.

With the addition of Project traffic, the following segments are calculated to operate at LOS E or worse.

- Segment #1. N. Coast Hwy: Civic Center Drive to Pier View Way – LOS F
- Segment #2. N Coast Hwy: Pier View Way to Mission Avenue – LOS F
- Segment #3. N. Coast Hwy: Mission Avenue to Seagaze Drive – LOS F
- Segment #6. Mission Avenue: N. Coast Highway to Ditmar Street – LOS F
- Segment # 8. Seagaze Drive: S Tremont Street to N Coast Highway – LOS E

Consistent with the accepted City methodology, as the Project increases the V/C by less than 0.02 at Segment #1, Segment #2, and Segment #6, the Project does not cause these segments to operate at a level inconsistent with City standards. Improvements to address the operational deficiencies at Segment #3 and Segment #8 are discussed in Section 11.0.

CONCLUSION

The following improvements are recommended to address the operational deficiencies identified at the two intersections listed below under Near-term and Buildout conditions.

- *Seagaze Drive / S Tremont Street:*

  Near-term Condition - It is recommended that the Project install an all-way stop as a Project feature.

  Buildout Condition - It is recommended that the Project contribute a fair share towards the future signalization of this intersection. Based on the City of Oceanside's fair share formula (Fair Share % = Project Volumes divided by (Buildout + Project Volumes minus Existing Volumes)), the Project's fair share towards the potential improvement is 40.1%.

- *Nevada Street / Mission Avenue:*

  Near-Term Condition - It is recommended that the Project contribute a fair share towards the future signalization of this intersection. Based on the City of Oceanside's fair share formula (Fair Share % = Project Volumes divided by (Near-Term + Project minus Existing Volumes)), the Project's fair share towards the potential improvement is 4.32%.

  The fair share calculations are included in *Appendix I*.

The following improvements are recommended to address the operational deficiencies identified at two segments listed below Near-term and Buildout conditions.

- *N. Coast Hwy between Mission Avenue and Seagaze Drive (Near-term and Buildout conditions)*

  A lane would need to be added to this section of N. Coast Highway in order to mitigate the impact. This would require the widening of the roadway by approximately 12 feet.

Currently, the curb-to-curb width of this section of N. Coast Highway is 56 feet, with a 6-foot landscaped area featuring trees and an 8-foot sidewalk on each side, within an 80-foot right-of-way. There is not sufficient right-of-way to widen N. Coast Highway and the presence of buildings built along N. Coast Highway makes this widening infeasible. It should be noted that if the full trip credit for the theater (which will be demolished) was taken, no deficiency would occur at this segment.

- *Seagaze Drive between Tremont Street and N. Coast Highway (Buildout conditions)*

  The improvements listed above at the intersection of Seagaze Drive / S Tremont Street / Project Driveway will also address the operation deficiency identified at the segment of Seagaze Drive between S Tremont Street and N Coast Highway under Buildout conditions.

The Project is consistent with the City's adopted General Plan and is located in a Transit Priority Area. Therefore, a Transportation VMT Analysis is not required and the VMT impact is considered not significant.

TABLE OF CONTENTS

SECTION		PAGE
1.0	**Introduction**	**1**
2.0	**Project Description**	**2**
3.0	**Local Transportation Assessment Methodology & Thresholds**	**6**
3.1	Study Area	6
3.2	Analysis Scenarios	7
3.3	Analysis Methodology	7
3.3.1	Intersections	8
3.3.2	Street Segments	9
3.4	Thresholds for the Determination of the Need for Roadway Improvements	9
4.0	**Existing Conditions**	**11**
4.1	Existing Street Network	11
4.2	Existing Traffic Volumes	12
4.3	Site Access	12
4.4	Pedestrian, Transit and Bicycle Mobility	12
4.4.1	Bicycle Access	12
4.4.2	Pedestrian Access	13
4.4.3	Transit Access	13
5.0	**Analysis of Existing Conditions**	**18**
5.1	Peak Hour Intersection Analysis	18
5.2	Daily Street Segment Operations	18
6.0	**Cumulative Projects**	**21**
6.1	Summary of Cumulative Projects	21
7.0	**Trip Generation/Distribution/Assignment**	**24**
7.1	Trip Generation	24
7.1.1	Trip Credit/Existing Use to be Removed	24
7.2	Trip Distribution and Assignment	24
8.0	**Analysis of Existing + Project Conditions**	**33**
8.1	Peak Hour Intersection Analysis	33
8.2	Daily Street Segment Operations	35
9.0	**Analysis of Near-Term Conditions**	**37**
9.1	Near-Term Traffic Volumes	37

9.2 Near-Term without Project Conditions 37
9.2.1 Peak Hour Intersection Analysis 37
9.2.2 Daily Street Segment Operations 37
9.3 Near-Term + Project Conditions 37
9.3.1 Peak Hour Intersection Analysis 37
9.3.2 Daily Street Segment Operations 38

10.0 Analysis of Buildout Conditions 44
10.1 Buildout Traffic Volumes 44
10.2 Buildout without Project Conditions 44
10.2.1 Peak Hour Intersection Analysis 44
10.2.2 Daily Street Segment Operations 44
10.3 Buildout + Project Conditions 45
10.3.1 Peak Hour Intersection Analysis 45
10.3.2 Daily Street Segment Operations 45

11.0 Consistency Analysis and Recommended Improvements 51

APPENDICES

APPENDIX

A. List of Existing Site Uses
B. Signal Timing Plans
C. City of Oceanside Roadway Classification Table
D. Intersection and Segment Count Sheets
E. Peak Hour Intersection Analysis Worksheets – Existing Conditions
F. Arterial Analysis Worksheets
G. Peak Hour Intersection Analysis Worksheets – Near-Term
H. Peak Hour Intersection Analysis Worksheets – Buildout
I. Fair Share Calculation
J. Signal Warrant

LIST OF FIGURES

SECTION—FIGURE #		PAGE
Figure 2–1	Vicinity Map	3
Figure 2–2	Project Area Map	4
Figure 2–3	Conceptual Site Plan	5
Figure 4–1	Existing Conditions Diagram	15
Figure 4–2	Existing Traffic Volumes	16
Figure 4–3	Bicycle Mobility Map	17
Figure 6–1	Total Cumulative Traffic Volumes	23
Figure 7–1	Proposed Project Traffic Distribution	27
Figure 7–2	Proposed Project Traffic Volume	28
Figure 7–3	Existing Site Traffic Distribution	29
Figure 7–4	Existing Site Traffic Volumes	30
Figure 7–5	Net Project Traffic Volumes	31
Figure 7–6	Existing with Project Traffic Volumes	32
Figure 9–1	Near-Term Traffic Volumes	42
Figure 9–2	Near-Term + Project Traffic Volumes	43
Figure 10–1	Buildout Traffic Volumes	49
Figure 10–2	Buildout + Project Traffic Volumes	50

LIST OF TABLES

SECTION—TABLE #	PAGE
Table A Project Trip Generation	ii
Table 3–1 HCM Level of Service Description for Signalized Intersections	8
Table 3–2 HCM Level of Service Description for Unsignalized Intersections	9
Table 3–3 City of Oceanside Determination of the Need for Roadway Improvements	10
Table 5–1 Weekday Existing Intersection Operations	19
Table 5–2 Existing Street Segment Operations	20
Table 6–1 Cumulative Projects	21
Table 7-1 Project Trip Generation	26
Table 8–1 Existing + Project Intersection Operations	34
Table 8-2 Existing with Project Street Segment Operations	36
Table 9–1 Near-Term Intersection Operations	39
Table 9-2 Near-Term Street Segment Operations	41
Table 10–1 Buildout Intersection Operations	46
Table 10-2 Buildout Street Segment Operations	48
Table 11–1 Post Improvement Intersection Analysis	53

LOCAL TRANSPORTATION STUDY

401 MISSION AVENUE

Oceanside, California
November 27, 2024

1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has prepared this Local Transportation Study (LTS) to assess the potential impacts associated with the 401 Mission Avenue Project (Project) in the City of Oceanside. The Project site is located on the southwest corner of the Mission Avenue / N. Coast Highway intersection in the City of Oceanside. The Project consists of the demolition of 79,800 SF of existing retail/entertainment to construct 332 apartments and 19,420 SF of commercial uses (7,461 SF of retail, and 11,830 SF of restaurant space assumed). This report addresses the potential transportation impacts from the proposed Project.

The following sections are included in this report:

- Project Description
- Local Transportation Assessment Methodology & Thresholds
- Existing Conditions Description
- Analysis of Existing Conditions
- Cumulative Projects
- Project Trip Generation/Distribution/Assignment
- Analysis of Existing + Project Conditions
- Analysis of Near-Term Conditions
- Analysis of Buildout Conditions
- Conclusions

2.0 PROJECT DESCRIPTION

The Project site is located at the southwest corner of the Mission Avenue / N. Coast Highway intersection in the City of Oceanside. The Project is a proposed mixed-use development comprised of five stories of residential apartments and retail over three stories of structured parking garages. The Project is located within walking distance (approximately 150 feet) from the Oceanside Transit Center.

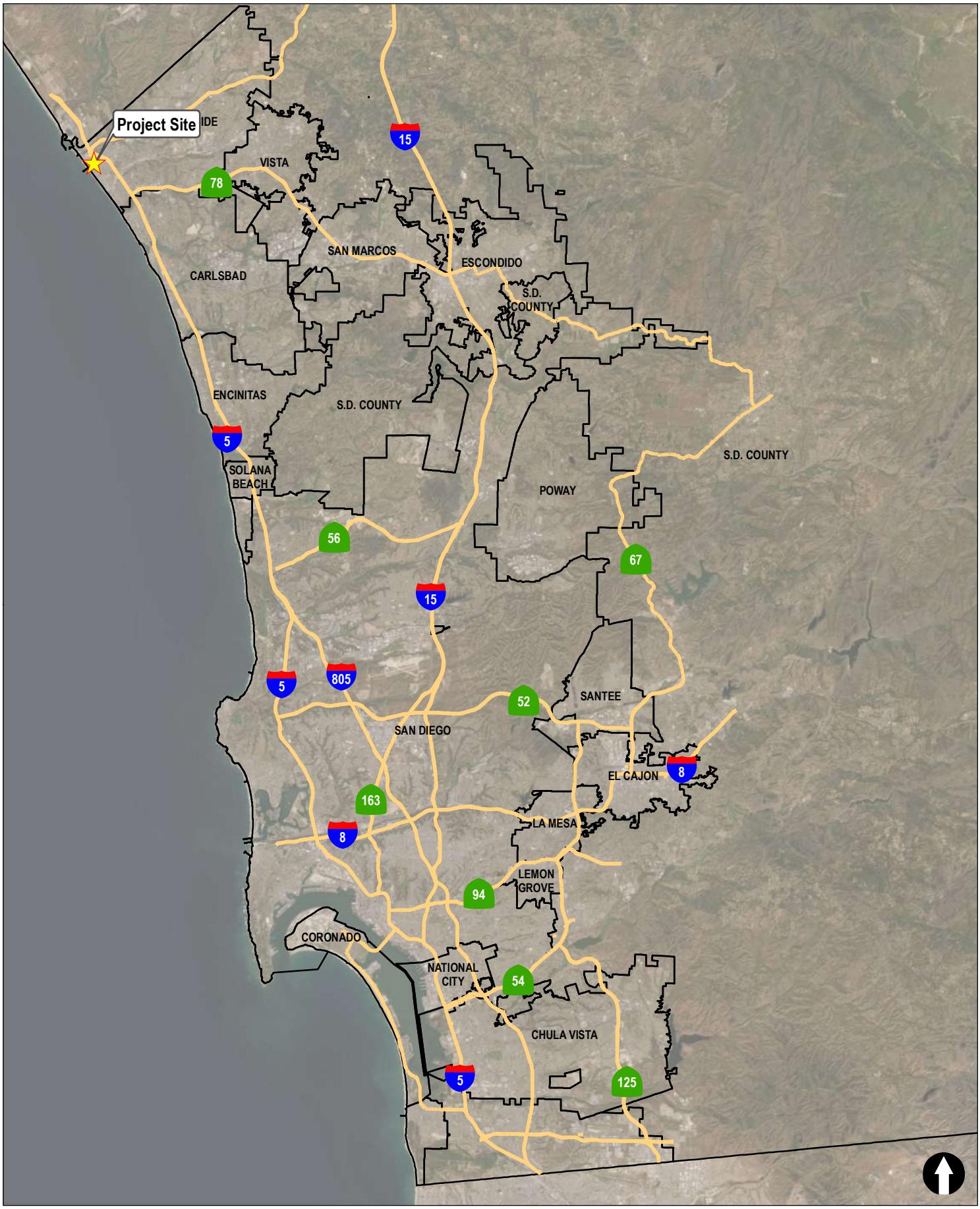
The Project proposes a mix of commercial and residential units. The proposed project is to be developed with 19,420 SF of commercial uses, which would include an assumed 7,461 SF of retail and 11,830 SF of restaurant; and 332 apartment units which would include 15 studio units, 165 1-bedroom units, 113 2-bedroom units and 39 3-bedroom units. The site is currently developed with approximately 79,800 sf of various commercial/entertainment uses which will be demolished. A list of existing site uses is provided as ***Appendix A***.

Vehicular access to the parking garage is proposed via two driveways on Seagaze Drive. The project driveways are described as follows:

- Project Driveway 1 – First driveway is proposed on Seagaze Drive forming the fourth (north) leg of the unsignalized Tremont Street / Seagaze Drive intersection. This will be a full access driveway and will initially be Stop controlled along Tremont Street / Project Driveway.

- Project Driveway 2 – Second driveway is proposed on Seagaze Drive between Tremont Street and N Coast Highway. This driveway is proposed as right-in / right-out.

Figure 2–1 depicts the Project's Vicinity Map and ***Figure 2-2*** depicts a more detailed Project Area Map. ***Figure 2–3*** depicts the Project's conceptual site plan.



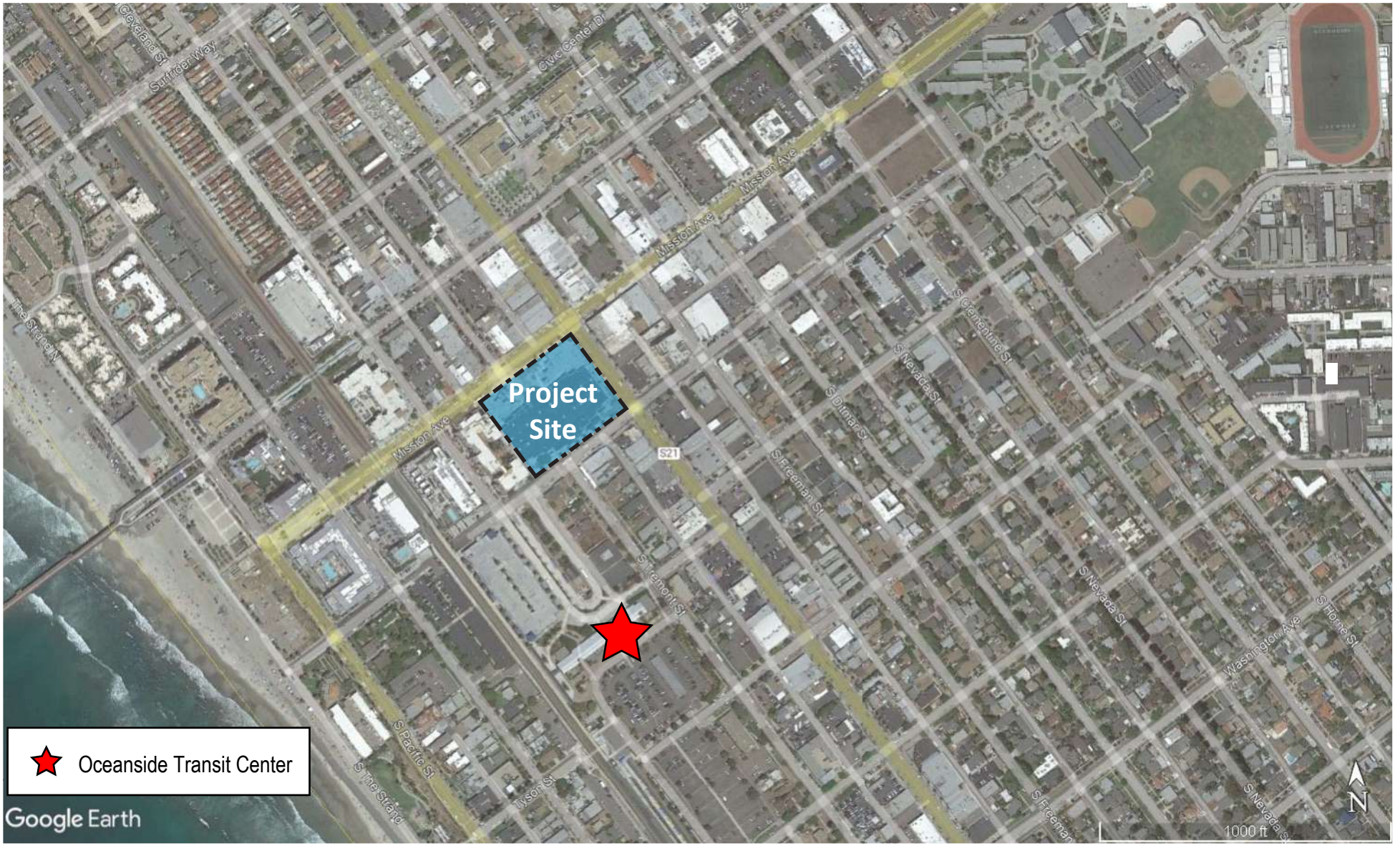
LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 8/30/2022
Time: 12:53 PM

Figure 2-1

Vicinity Map

401 Mission Avenue Project



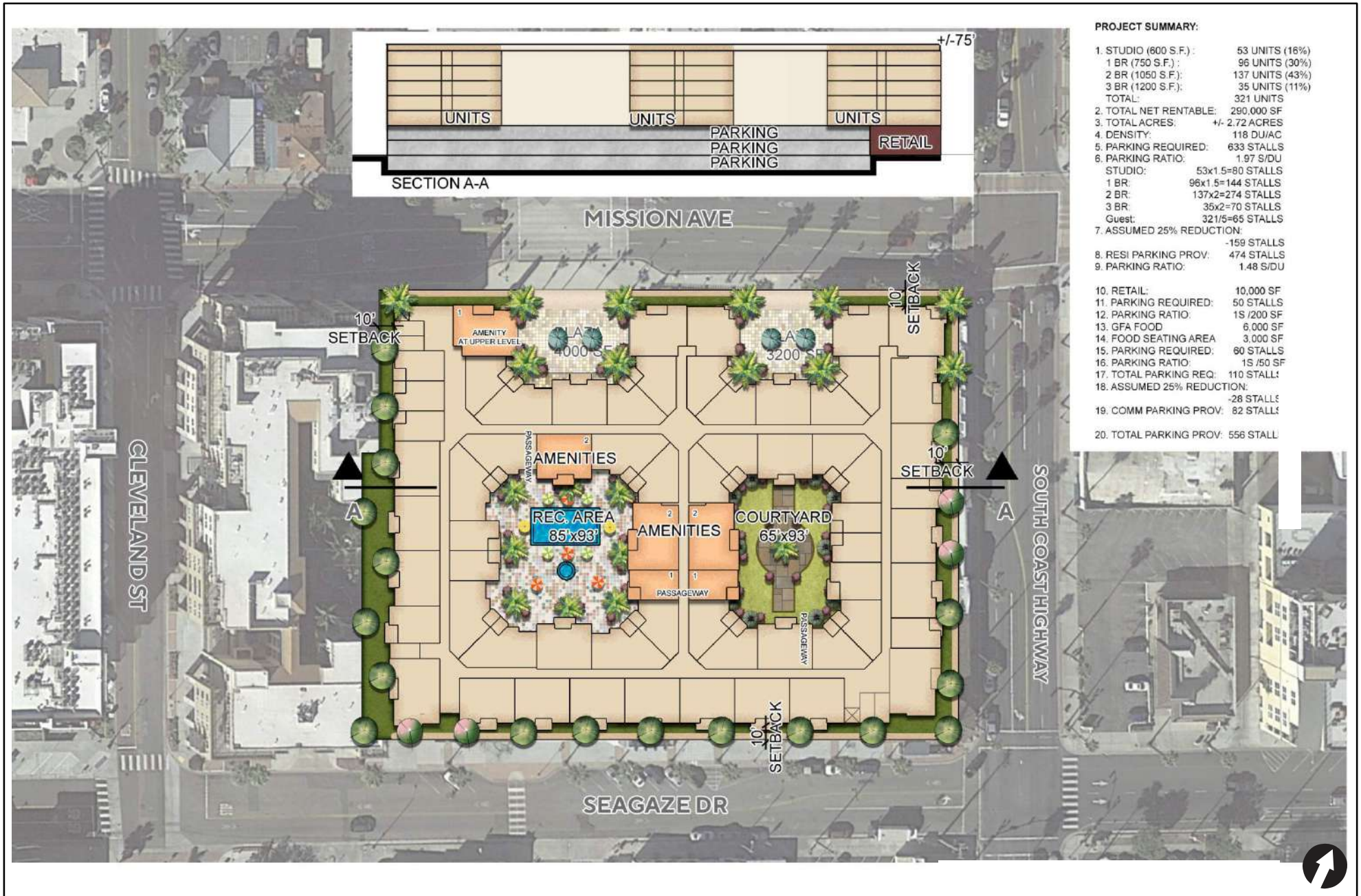
LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/24

Figure 2-2

Project Area Map

401 Mission Avenue Project



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 08/26/22

Figure 2-3

Conceptual Site Plan

401 Mission Avenue Project

3.0 LOCAL TRANSPORTATION ASSESSMENT METHODOLOGY & THRESHOLDS

A Project-Specific Local Transportation Study was prepared to analyze automobile delay and LOS. The LOS analysis was conducted to identify Project impacts on the roadway operations in the Project study area and to recommend Project improvements to address noted deficiencies; however, the CEQA impact significance determination for the proposed Project is based only on VMT and not on LOS.

The proposed Project generates over 1,000 ADT (see *Section 8.1*) and is consistent with the City's adopted General Plan. Therefore, a Local Transportation Study (LTS) was prepared consistent with the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*.

3.1 Study Area

The following study area was developed based on the anticipated assignment of Project traffic and locations which will carry the most Project traffic and is per City of Oceanside staff coordination and scoping meetings. The study area meets and exceeds the trip-based criteria from the City's Guidelines, which state that:

- All signalized intersections and project driveways shall be analyzed if the project will add 50 or more new peak hour trips in either direction.
- All unsignalized intersections and project driveways shall be analyzed if the project will add 50 or more new peak hour trips in either direction.
- All freeway ramp intersections and signalized ramp meters shall be analyzed if the project all 20 or more new peak hour trips in either direction.

INTERSECTIONS

1. N. Coast Highway / Civic Center Drive
2. N. Coast Highway / Pier View Way
3. N. Pacific Street / Mission Avenue
4. N. Cleveland Street / Mission Avenue
5. S. Tremont Street / Mission Avenue
6. N. Coast Highway / Mission Avenue
7. S. Ditmar Street / Mission Avenue
8. S. Horne Street / Mission Avenue
9. N. Cleveland Street / Seagaze Drive
10. S. Tremont Street / Seagaze Drive
11. S. Coast Highway / Seagaze Drive
12. S. Ditmar Street / Seagaze Drive
13. S. Horne Street / Seagaze Drive
14. Nevada Street / Mission Avenue
15. Nevada Street / Seagaze Drive
16. Seagaze Drive / Clementine Street

STREET SEGMENTS

N Coast Hwy

Civic Center Drive to Pier View Way

Pier View Way to Mission Avenue

Mission Avenue to Seagaze Drive

Mission Avenue

Cleveland Street to N. Tremont Street

N. Tremont Street to N. Coast Hwy

N. Coast Hwy to S. Ditmar Street**Seagaze Drive**

Cleveland Street to N. Tremont Street

N. Tremont Street to N. Coast Hwy

N. Coast Highway to S. Freeman Street

S. Nevada Street to Clementine Street

3.2 Analysis Scenarios

This study includes analysis of the following scenarios:

- Existing Conditions
- Existing Conditions + Project
- Existing Conditions + Near-Term Cumulative Projects
- Existing Conditions + Near-Term Cumulative Projects + Project
- Buildout Conditions (2050)
- Buildout Conditions + Project

3.3 Analysis Methodology

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of Service provides an index to the operational qualities of a roadway segment or an intersection. Level of Service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of Service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

3.3.1 *Intersections*

Intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 18 of the *Highway Capacity Manual (HCM) 6th Edition,* with the assistance of the *Synchro* (version 11) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS). ***Table 3–1*** and ***Table 3-2*** summarize the relationship between control delay per vehicle and LOS for signalized and unsignalized intersections, respectively. Signal Timing Plans are included as ***Appendix B.***

TABLE 3–1
HCM LEVEL OF SERVICE DESCRIPTION FOR SIGNALIZED INTERSECTIONS

LOS	Description of Traffic Conditions	Control Delay (sec/veh)
A	Insignificant delays: no approach phase is fully utilized and no vehicle waits longer than one red indication	0 – 10
B	Minimal delays: an occasional approach phase is fully utilized. Drivers begin to feel restricted.	> 10 – 25
C	Acceptable delays: major approach phase may become fully utilized. Most drivers feel somewhat restricted.	> 25 – 35
D	Tolerable delays: Drivers may wait through more than one red indication. Queues may develop but dissipate rapidly without excessive delays.	> 35 – 55
E	Significant delays: Volumes approaching capacity. Vehicles may wait through several cycles and long vehicle queues form upstream.	> 55 – 80
F	Excessive delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80

General Notes:

1. *Source: Highway Capacity Manual, Transportation Research Board, 2010.*
2. Sec/veh– Seconds per vehicle

TABLE 3–2
HCM LEVEL OF SERVICE DESCRIPTION FOR UNSIGNALIZED INTERSECTIONS

LOS	Description of Traffic Conditions	Control Delay (sec/veh)
A	No delay for stop-controlled approaches	0 – 10
B	Operations with minor delay	> 10 – 15
C	Operations with moderate delays	> 15 – 25
D	Operations with some delays	> 25 – 35
E	Operations with high delays and long queues	> 35 – 50
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers	> 50

General Notes:

1. *Source: Highway Capacity Manual, Transportation Research Board, 7th Edition.*
2. Sec/veh– Seconds per vehicle

3.3.2 *Street Segments*

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the City of Oceanside's *Circulation Element Roadway Classification LOS & Capacity* table (Table 12 in the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment,* August 2020. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The roadway classification table is attached in ***Appendix C***.

3.4 Thresholds for the Determination of the Need for Roadway Improvements

Based on information contained in the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, ***Table 3-3*** indicates when a project's impact on the roadway system is considered to justify the need for roadway improvements. If a project's traffic impact causes the values in *Table 3-3* to be exceeded, roadway improvements should be considered as follows on a case-by-case basis:

- Improvements should be consistent with the General Plan
- Improvements for transit, bike and pedestrian facilities should be given priority in Transit Priority Areas or Smart Growth Opportunity Areas as identified by SANDAG.
- Projects in Transit Priority Areas or Smart Growth Opportunity Areas as identified by SANDAG, that are consistent with the General Plan at the time of project application, should not be denied due to the inability to provide roadway improvements (i.e., existing right of way is constrained, etc.)

TABLE 3–3
CITY OF OCEANSIDE
DETERMINATION OF THE NEED FOR ROADWAY IMPROVEMENTS

Level of Service with Project	Allowable Change Due to Project Impact	
	Roadway Segments	Intersections
	V/C	Delay (sec.)
E & F	0.02	2.0

4.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the proposed Project requires an understanding of the existing transportation system within the project area. ***Figure 4–1*** shows an existing conditions diagram, including intersections and lane configurations.

4.1 Existing Street Network

The following is a description of the existing street network in the study area. The roadway classifications are based on field observations and a review of the Oceanside Circulation Element.

COAST HIGHWAY is classified as a Secondary Collector between SR76 and the southern City limits on the *City of Oceanside Circulation Element*. It is a currently built as a four-lane undivided roadway between SR76 and the southern City limits. Sidewalks are provided on both sides of the roadway. There are no designated bike lanes and on-street parking is permitted. The posted speed limit is 25 mph.

MISSION AVENUE is classified as a Secondary Collector between Pacific Street and Horne Street on the *City of Oceanside Circulation Element*. Mission Avenue is currently constructed as a 4-lane, two-way divided roadway east of Clementine Street. It transitions to a 2-lane, one-way roadway between Clementine Street and N. Coast Highway, then transitions back to a 4-lane, two-way divided roadway west of N. Coast Highway. The posted speed limit ranges from 25 mph to 35 mph. On-street parking is permitted, and class Iii bicycle routes are provided along the north side of the street within the study area.

SEAGAZE DRIVE is an unclassified roadway on the *City of Oceanside Circulation Element*. It is currently constructed as a 2-lane undivided roadway between Pacific Street and Coast Highway and two-lane, one-way undivided roadway between Coast Highway and Clementine Street. There are Class III bike routes from Cleveland Street to N Coast Highway on both sides of the street, and Class II bike lanes east of N Coast Highway along the south side of the street. On-street parking and sidewalks are provided on both sides of the roadway. The assumed speed limit is 25 mph.

PIER VIEW WAY is an unclassified roadway on the *City of Oceanside Circulation Element*. It is currently constructed as a 2-lane undivided roadway between Horne Street and Cleveland Street. On-street parking and sidewalks are provided on both sides of the roadway. The assumed speed limit is 25 mph.

CLEVELAND STREET is an unclassified roadway on the *City of Oceanside Circulation Element*. It is currently constructed as a 2-lane undivided roadway between Horne Street and Cleveland Street. There are Class III bike routes from Naptune Way to Seagaze Drive on both sides of the street. On-street parking and sidewalks are provided on both sides of the roadway. The assumed speed limit is 25 mph.

HORNE DRIVE is classified as a Collector Road between Wisconsin Avenue and Civic Center Drive on the *City of Oceanside Circulation Element*. It is currently constructed as a 2-lane undivided roadway. The assumed speed limit is 25 mph. On-street parking and sidewalks are provided on both sides of the roadway.

4.2 Existing Traffic Volumes

Daily segment counts and peak hour (7:00-9:00 AM and 4:00-6:00 PM) intersection turning movement counts were conducted on July 28, 2022 within the Project study area. While school was not in session at the time, counts are generally higher in the summer this close to the beach.

Figure 4–2 shows the Existing Traffic Volumes. ***Appendix D*** contains the manual count sheets.

4.3 Site Access

Vehicular access to the parking garage is proposed via two driveways on Seagaze Drive. The project driveways are described as follows:

- Project Driveway 1 – This driveway is proposed on Seagaze Drive forming the fourth (north) leg of the unsignalized Tremont Street / Seagaze Drive intersection. This will be a full access driveway with Stop sign controlled along Tremont Street / Project Driveway. ***Table 11–1*** and ***Table 12.2*** shows the results of a peak hour intersection analysis assuming a four-leg intersection with project. These table shows LOS D or better operations at this intersection in both the AM and PM peak hours.

- Project Driveway 2 – This driveway is proposed on Seagaze Drive between Tremont Street and N Coast Highway. This driveway is proposed as right-in / right-out only.

4.4 Pedestrian, Transit and Bicycle Mobility

4.4.1 *Bicycle Access*

EXISTING BICYCLE MOBILITY

There is currently a Class II bike lane on Seagaze Drive and a Class III bike route on Mission Avenue and Cleveland Street in the vicinity of the Project, consistent with the *Oceanside General Plan Circulation Element*, September 2012. The Class II bike lane on Seagaze Drive extends from S. Coast Highway to N. Clementine Street.

PLANNED BICYCLE MOBILITY

A planned Class II bike lane along N Coast Highway is outlined in the Oceanside Coast Highway Corridor Study, adopted in April 2019. This study proposes modifications including lane conversions, Complete Streets improvements, intersection roundabouts, and increased parking and bicycle facilities. The key elements of the Complete Streets improvements include a continuous Class II striped bicycle lane from Harbor Drive to the southern city limit, 10 mid-block crosswalks to facilitate safe and convenient pedestrian crossings of the Coast Highway corridor. ***Figure 4-3*** displays the

existing bicycle network and planned route outlined in the City documentation. The Project does not cause the bicycle network to operate at a level inconsistent with City standards and the bicycle mobility improvements are not necessary.

4.4.2 *Pedestrian Access*

The pedestrian assessment involves the documentation of pedestrian walkways in the designated area, including identifying any potential issues like blocked paths or absent sidewalks. This assessment covers a distance of up to half a mile from the Project's access points, reaching the nearest intersection with a classified roadway or connecting with a Class I path.

N. Coast Highway, spanning from Civil Center Drive to Michigan Avenue (half a mile from the Project site) features continuous sidewalks on both sides of the street, and there were no notable sidewalk obstructions in this segment.

Mission Avenue, spanning from N. Pacific Street to N Horne Street provides continuous sidewalks on both sides of the street, and there were no notable sidewalk obstructions in this segment.

Seagaze Drive, spanning from S. Cleveland Street to N Horne Street (nearest intersection with a classified roadway) provides continuous sidewalks on both sides of the street, and there were no notable sidewalk obstructions in this segment.

The Project will maintain connected sidewalks along its frontage adjacent to public streets. The pedestrian walkways from the Project's access points to the nearest intersection with a classified roadway do not exhibit any identified issues such as path obstructions or missing sidewalks within the study area. As a result, the Project will not cause pedestrian infrastructure to be, nor is the existing pedestrian infrastructure within the applicable study area, inconsistent with the LTS Guidelines and pedestrian improvements are not necessary.

4.4.3 *Transit Access*

The Project is located near Oceanside Transportation Center, within a walking distance of 150 feet from the Project driveway. Oceanside Transportation Center is a major railway interchange serving both intercity and suburban/commuter services. The station is used by Amtrak on the route of its Pacific Surfliner service between San Diego and San Luis Obispo. It is also a terminus for two different regional transit operators – Metrolink, the commuter rail operator for the Los Angeles area, has two of its services, the Metrolink Orange County Line and Inland Empire-Orange County Line, that terminate at the Oceanside Transportation Center, while the North County Transit District (NCTD), the operator for most of the public transport in North San Diego County, has its COASTER and SPRINTER services also terminating at the Oceanside Transportation Center. The Oceanside Transportation Center is also served by Greyhound Lines, numerous BREEZE buses, and is also the terminal for RTA's Bus Route 202 to Temecula and Murrieta.

NCTD Bus routes 101, 302, 303, 313 and 318 operates from Oceanside Transportation Center. A summary of these bus routes is provided below.

Route 101 travels from the Oceanside Transit Center to the UTC Transit Center and travels along Coast Highway within the study area. This route provides 30-minute headways during weekday hours.

Route 302 travels from the Oceanside Transit Center to the Vista Transit Center and travels along Coast Highway within the study area. This route provides 30-minute headways during weekday hours.

Route 303 travels from the Oceanside Transit Center to the Vista Transit Center and travels along Mission Avenue within the study area. This route provides 15-minute headways during weekday hours.

Route 313 travels from the Oceanside Transit Center to the San Luis Rey Transit Center. Route 313 serves the following major corridors: Mission Avenue, Division Street, Mesa Drive, and Rancho Del Oro. Route 313 has a weekday frequency of 15 minutes.

Route 318 travels from the Oceanside Transit Center to the Vista Transit Center. There are 52 stops along this route. It operates on the weekdays from approximately 5 AM to 7 PM. On Saturdays, it operates from approximately 6 AM to 7 PM. Services are at 45-minute frequencies.

Sprinter

The sprinter operates east / west between the Oceanside Transit Center and the Escondido Transit Center on all weekdays, except holidays. Monday-Thursday services are at 30-minute frequency from approximately 4 AM to 9:30 PM. Friday service is at 30-minute frequency with extended hours from approximately 4 AM to 12:30 AM. The nearest trolley stop is located at Oceanside Transit Center, south of Seagaze Drive, within a walking distance of 150 feet from the Project Driveway.

Coaster

The Coaster runs from the Oceanside Transit Center to the Santa Fe Depot (San Diego) via Coast Highway from 5:03 AM through 5:41 PM Monday through Friday traveling southbound. The COASTER runs from 6:15 AM to 7:13 PM Monday through Friday traveling northbound. The weekend schedule starts at 8:20 AM and runs through 5:21 PM traveling southbound and starts at 9:35 AM and runs through 7:10 PM traveling northbound. Weekday schedules include 1-hour headways. Weekend schedules include 3-hour headways.



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/2024
Time: 11:05 AM

Figure 4-1

Existing Conditions Diagram

401 Mission Avenue Project



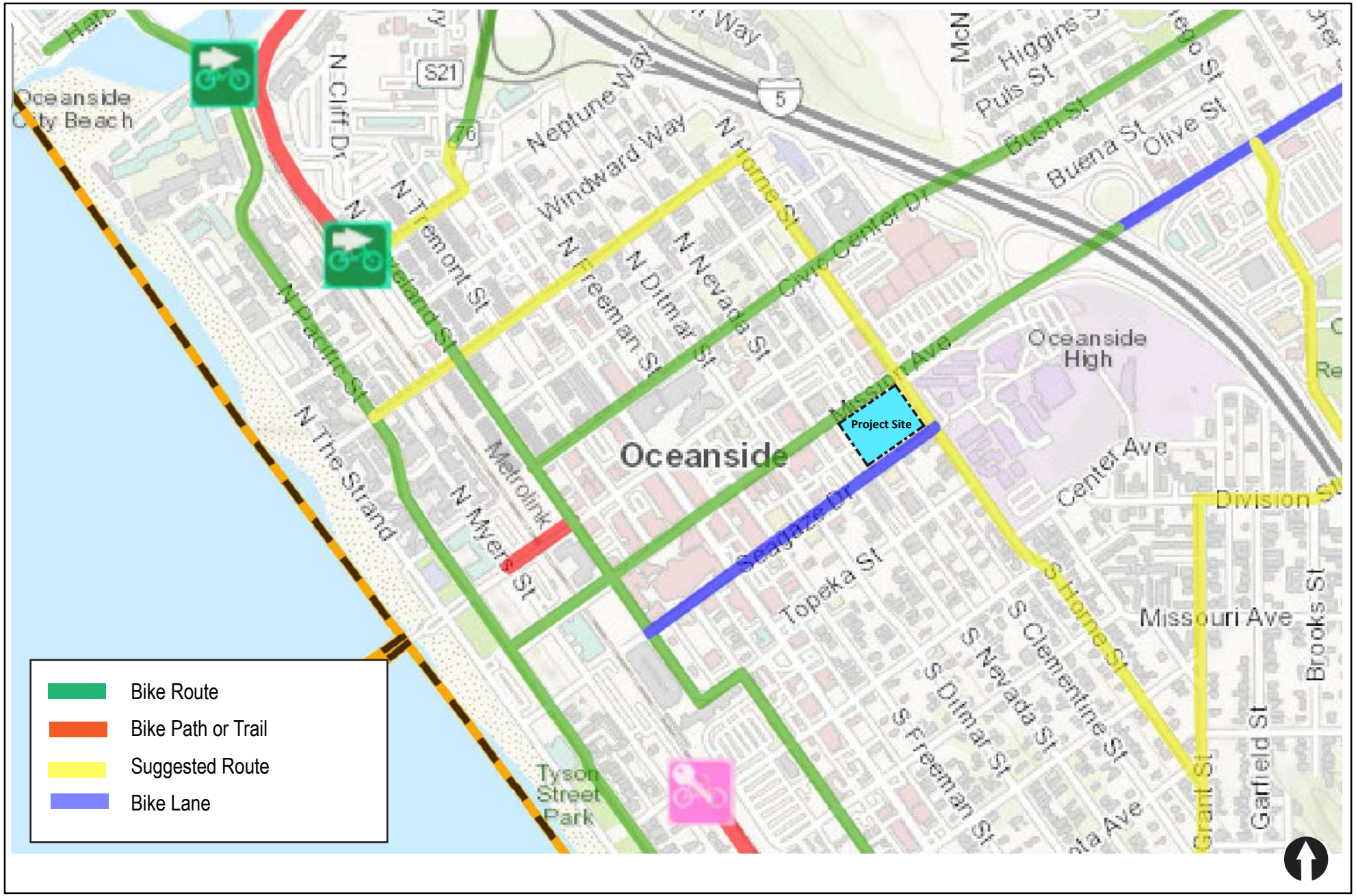
LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/2024
Time: 11:04 AM

Figure 4-2

Existing Traffic Volumes

401 Mission Avenue Project



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 04/26/24

Figure 4-3

Bicycle Mobility Map

401 Mission Avenue Project

5.0 ANALYSIS OF EXISTING CONDITIONS

5.1 Peak Hour Intersection Analysis

Table 5–1 summarizes the Existing peak hour intersection operations. As shown in *Table 5-1*, the study area intersections are calculated to currently operate acceptably at LOS D or better during the AM and PM peak hour except for the following:

- Intersection #8. Mission Avenue / S. Horne Street – LOS E during PM peak hour

Appendix E contains the Existing intersection analysis worksheets.

5.2 Daily Street Segment Operations

Table 5–2 summarizes the Existing, street segment operations under along the study area roadways. As shown in *Table 5-2*, the study area street segments are calculated to currently operate acceptably at LOS D or better.

TABLE 5–1
WEEKDAY EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay [a]	LOS [b]
1. N. Coast Hwy / Civic Center Drive	Signal	AM PM	6.7 10.8	A B
2. N. Coast Hwy / Pier View Way	Signal	AM PM	8.6 5.5	A A
3. Mission Ave / N. Pacific Street	AWSC	AM PM	8.6 10.8	A B
4. Mission Ave / N. Cleveland Street	Signal	AM PM	12.5 16.5	B B
5. Mission Ave / N. Tremont Street	AWSC	AM PM	8.1 11.2	A B
6. Mission Ave / N. Coast Hwy	Signal	AM PM	18.9 27.8	B C
7. Mission Ave / S. Ditmar Street	Signal	AM PM	11.4 11.5	B B
8. Mission Ave / S. Horne Street	Signal	AM PM	23.4 76.8	C E
9. Seagaze Drive / N. Cleveland Street	AWSC	AM PM	7.5 8.9	A A
10. Seagaze Drive / N. Tremont Street	MWSC	AM PM	10.3 16.4	B C
11. Seagaze Drive / N. Coast Hwy	Signal	AM PM	11.6 15.3	B B
12. Seagaze Drive / S. Ditmar Street	AWSC	AM PM	8.0 8.9	A A
13. Seagaze Drive / S. Horne Street	AWSC	AM PM	8.9 10.6	A B
14. Nevada Street / Mission Avenue	MSSC	AM PM	14.2 13.7	B B
15. Nevada Street / Seagaze Dr	MSSC	AM PM	11.5 12.6	B B
16. Seagaze Dr / Clementine Street	AWSC	AM PM	8.7 9.5	A A

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. MSSC = Minor Street Stop-Controlled intersection. Minor street left-turn delay reported.
d. AWCS = All Way Stop-Controlled intersection. Average delay reported.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 5–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Jurisdiction	Functional Capacity	Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
N. Coast Hwy						
Civic Center Dr to Pier View Wy	Oceanside	4-Lane Secondary Collector	25,000	16,425	C	0.657
Pier View Wy to Mission Ave	Oceanside	4-Lane Secondary Collector	25,000	16,710	C	0.668
Mission Avenue to Seagaze Dr	Oceanside	4-Lane Secondary Collector	25,000	21,430	D	0.857
Mission Avenue						
Cleveland Street to Tremont St	Oceanside	4-Lane Secondary Collector	25,000	13,420	C	0.537
Tremont St to N. Coast Hwy	Oceanside	4-Lane Secondary Collector	25,000	15,030	C	0.601
N. Coast Hwy to S. Ditmar St	Oceanside	2-Lane Collector	15,000	11,315	D	0.754
Seagaze Drive						
Cleveland Street to Tremont St	Oceanside	2-Lane Collector	15,000	6,910	B	0.461
Tremont St to N. Coast Hwy	Oceanside	2-Lane Collector	15,000	7,230	C	0.482
N. Coast Hwy to S. Freeman St	Oceanside	2-Lane Collector	15,000	5,500	B	0.367
S. Nevada St to S. Clementine St	Oceanside	2-Lane Collector	15,000	5,555	B	0.370

Footnotes:

a. Capacity at which the roadway currently functions and based on City of Oceanside Roadway Classification Tables.
b. Average Daily Traffic Volumes.
c. Level of Service
d. Volume to Capacity ratio.

6.0 CUMULATIVE PROJECTS

6.1 Summary of Cumulative Projects

Cumulative projects are other projects in the study area that will add traffic to the local circulation system in the near future. Based on information from City of Oceanside staff, the following projects, presented in ***Table 6-1***, were identified for inclusion in the near-term cumulative analysis.

Figure 6–1 shows the Cumulative Projects only traffic volumes on the existing street network.

TABLE 6–1
CUMULATIVE PROJECTS

Project Name	Type of Development	Project Size	ADT
1. Alta Oceanside Mixed Use Project	Multi-Family Residential Commercial / Retail	309 DU 5,422 SF	2,504
2. Belvedere Hotel and Residence	Hotel Live/Work Lofts Retail / Office Space	124 Rooms 90 Lofts 8,357 SF	2,294
3. Coast Highway Starbucks	Coffee Shop	1,068 SF	611
4. City Mark Mixed-Use Developments Block 5	Multi-Family Residential Commercial / Retail	43 DU 1,576 SF	407
5. City Mark Mixed-Use Developments Block 20	Multi-Family Residential Commercial / Retail	39 DU 17,742 SF	1,022
6. Lot 23 Mixed-Use Project	Commercial / Retail Office Multi-Family Residential	9,400 SF 525 SF 52 DU	803
7. Marriot Residence Inn	Hotel Expansion	37 Rooms	370
8. Pier View Way Mixed-Use	Multi-Family Residential Commercial / Retail	12 DU 2,000 SF	152
9. Sunsets Mixed-Use	Multi-Family Residential Commercial / Retail	180 DU 5 KSF	1,270
10. Breeze Luxury Apartments	Multi-Family Residential	146 DU	876
11. 1602 S. Coast Highway	Multi-Family Residential Commercial / Retail	54 DU 3.244 KSF	390
12. 901 Pierview Way	Multi-Family Residential Commercial / Retail	64 DU 2.474 KSF	594
13. Modera Naptune	Multi-Family Residential Hotel Commercial / Retail	360 DU 62 Rooms 5 KSF	1,966
14. Oceanside Transit Center Redevelopment	Transit Center Hotel	547 DU 85 KSF 170 Rooms	6,086

TABLE 6–1
CUMULATIVE PROJECTS

Project Name	Type of Development	Project Size	ADT
	Multi-Family Residential Commercial / Retail		
15. 810 Mission Avenue	Multi-Family Residential Office	206 DU 2.2 KSF	680
16. 1011 S. Tremont St. Condos	Multi-Family Residential	20 DU	160
17. S. Myers Street	Multi-Family Residential	6 DU	48
18. 920 South Cleveland Condos	Multi-Family Residential	3 DU	24
19. 1105 S. Cleveland Street	Multi-Family Residential	14 DU	112
20. 802 S Pacific Street Mixed-Use	Hotel Multi-Family Residential Commercial / Retail	10 DU 3 Rooms 1 KSF	198
21. Hardin Residence	Single-Family Residential	1 DU	0
22. 146 S. Myers Condominiums	Multi-Family Residential	4 DU	32
23. 119 South Ditmar Duplex	Single-Family Residential	1 DU	10
24. Fire Station 1	Fire Station	30 KSF	30
25. 702 N Freeman Mixed-use	Multi-Family Residential	5 DU	30
26. 701-713 N. Freeman Apartments	Multi-Family Residential	24 DU	144
27. Weidner Duplex	Single-Family Residential	1 DU	10
28. 624 N. Clementine St	Single-Family Residential	1 DU	10



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/2024
Time: 11:04 AM

Figure 6-1

Total Cumulative Traffic Volumes

401 Mission Avenue Project

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

7.1 Trip Generation

Trip generation rates were obtained from the (Not So) *Brief guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) by SANDAG. The "Residential, Apartment" (6 ADT / DU)" were used for the apartments, and the "Specialty Retail" (40 ADT /KSF)" trip rates were used for the local serving retail to estimate the Project trip generation.

The site is currently developed with approximately 79,805 SF of specialty retail and theater uses. The trip generation of this existing land use was tabulated using the published SANDAG rates for "Specialty Retail". To be conservative, the SANDAG theater trip generation rate was not used due to downtown nature of this particular theater.

7.1.1 *Trip Credit/Existing Use to be Removed*

The proposed project is a mixed-Use development with easy access to transit. The Oceanside transit center is within a 5-minute walking distance (150 ft) from the project site. Given the proximity of project to transit center, project trips were adjusted to reflect the characteristics of transit users. The transit trip credit rates were obtained from the SANDAG's *Brief guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002). Based on the guide, 5% of this were assumed to arrive via transit.

The site is currently developed with approximately 79,800 sf of various commercial/entertainment uses which will be demolished. A list of existing site uses is provided as ***Appendix A***.

After accounting for the existing retail to be removed and the trip credit, the net Project traffic generation is calculated to be 941 ADT, with 212 AM peak hour and 67 PM peak hour trips. ***Table 7–1*** summarizes the trip generation for the Project.

7.2 Trip Distribution and Assignment

Project traffic was distributed to the street system based on existing traffic patterns in the area, the Project's proximity to freeways and arterials, locations of retail, places of employment, schools, and other shopping opportunities, and the presence of one-way streets in the study area. The trip distribution was developed in consultation with City staff.

This distribution included 43% of the Project trips assigned to the east and 15% to the west on Mission Avenue. It also included 25% to the north and 10% to the south on N. Coast Highway. The remaining 5% of the Project trips were assigned on N Cleveland Street, north of the site and 2% of the Project trips were assigned on S Tremont Street, south of the site. ***Figure 7–1*** shows the Project trip distribution and ***Figure 7–2*** shows the Project traffic volume.

As discussed earlier, the Project proposes to demolish the existing site uses. It should be noted that the existing site does not have an onsite parking. Based on the observations and proximity to existing site,

it is assumed that a public parking lot located at the northeast corner of Mission Avenue and Mayers Street intersection is used by tenants of existing site.

The proposed project is proposing parking within the project site and will be accessed via a driveway on Seagaze Drive. Since the existing site and proposed project have different trip origin / destination and they have different parking access, the trip distribution and assignments will be different. It should be noted that the existing site distribution is different than the proposed Project trip distribution since the existing site consists of theater and retail uses, and the proposed site consists of residential uses. The theater/retail uses draw their traffic mostly from residential uses and the Project residential uses are oriented mostly towards office, retail, and school uses. Therefore, the two distributions will differ.

Therefore, in order to calculate the net project trips in the study area, the existing site distribution and assignment were calculated separately and subtracted from the proposed project trips at each study intersection and segment. It should be noted that although the net trips at some approaches were negative, we assumed those trips as zero.

Figure 7–3 shows the Existing Site trip distribution and ***Figure 7–4*** shows the Existing Site Project traffic volume.

Figure 7–5 shows the net Project traffic volumes. ***Figure 7-6*** shows the Existing + Project traffic volumes.

TABLE 7-1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate [a]	Volume	% of ADT	In:Out Split	Volume In	Volume Out	Volume Total	% of ADT	In:Out Split	Volume In	Volume Out	Volume Total
Proposed													
Apartments	332 DU	6 /DU[b]	1,992	8%	20 : 80	32	127	159	9%	70 : 30	125	54	179
Retail	7,461 SF	40 /KSF[c]	298	3%	60 : 40	5	4	9	9%	50 : 50	14	14	28
Restaurant	11,830 SF	160 /KSF[d]	1,893	8%	50 : 50	76	75	151	8%	60 : 40	91	60	151
Subtotal			**4,183**			**113**	**206**	**319**			**230**	**127**	**258**
Spli Mode[f]													
Transit	Daily	5%	(209)			(6)	(11)	(16)			(12)	(7)	(18)
Total Trip Reduction			(209)			**(6)**	**(11)**	**(16)**			**(12)**	**(7)**	**(18)**
Proposed Project Total Trips			**3,974**			**107**	**195**	**303**			**218**	**120**	**339**
Existing (to be demolished)													
Specialty Retail	79,805 SF	40 /KSF[e]	3,192	3%	60 : 40	58	38	96	9%	50 : 50	144	143	287
Subtotal			**3,192**			**58**	**38**	**96**			**144**	**143**	**287**
Split Mode[f]													
Transit	Daily	5%	(160)			(3)	(2)	(5)			(8)	(8)	(15)
Total Trip Reduction			**(287)**			**(3)**	**(2)**	**(5)**			**(8)**	**(8)**	**(15)**
Exiting Site Total Trips			**3,032**			**55**	**36**	**91**			**136**	**135**	**272**
Net Trips			***941***			***52***	***159***	***212***			***82***	***(15)***	***67***

Footnotes:

a. Rates are based on SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

b. Based on apartment rate of 6/DU.

c. Based on specialty retail/strip commercial rate of 40/KSF.

d. Based on sit-down,high turnover rate of 160/KSF.

e. To be conservative, a general retail/restaurant/cinema rate of 40/KSF was used given the amount of vehicular traffic generated in the downtown area compared to a more suburban area.

f. Percentage obtained from SANDAG's *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/24

Figure 7-1

Proposed Project Trip Distribution

401 Mission Avenue Project



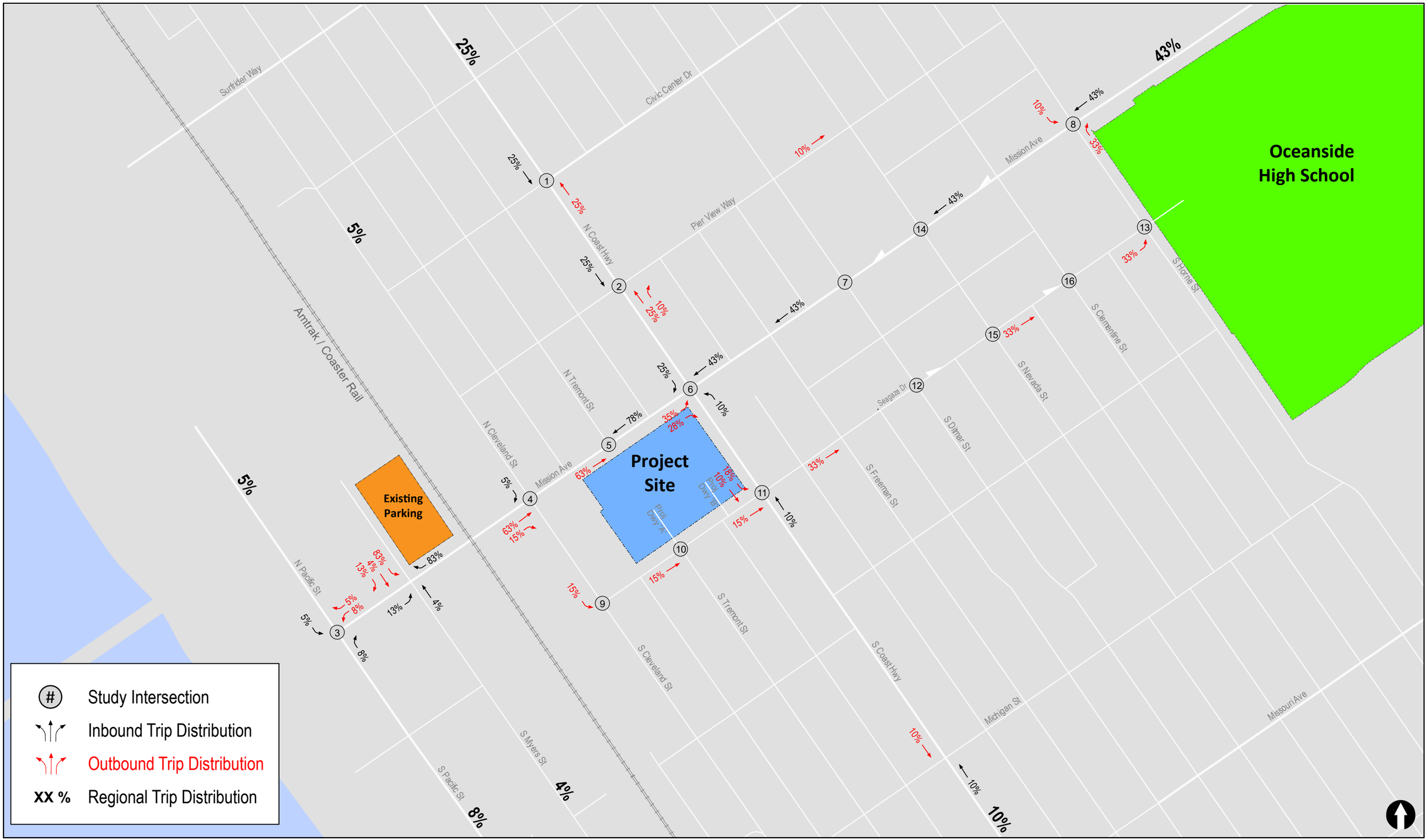
LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/2024
Time: 11:03 AM

Figure 7-2

Proposed Project Traffic Volumes

401 Mission Avenue Project



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/24

Figure 7-3

Existing Site Trip Distribution

401 Mission Avenue Project



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/2024
Time: 10:48 AM

Figure 7-4

Existing Site (To Be Demolised) Project Traffic Volumes

401 Mission Avenue Project



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/2024
Time: 10:47 AM

Figure 7-5

Net Project Traffic Volumes

401 Mission Avenue Project



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/2024
Time: 10:47 AM

Figure 7-6

Existing + Net Project Traffic Volumes

401 Mission Avenue Project

8.0 ANALYSIS OF EXISTING + PROJECT CONDITIONS

8.1 Peak Hour Intersection Analysis

Table 8–1 summarizes the peak hour intersection operations under Existing + Project conditions in the study area. As shown, the study area intersections are calculated to continue to operate acceptably at LOS D or better during the AM and PM peak hours with the addition of Project trips except for the following:

- Intersection #8. Mission Avenue / S. Horne Street – LOS E during PM peak hour

Consistent with the accepted City methodology, as the Project adds less than 2 seconds of delay at intersection #8, the Project does not cause this intersection to operate at a level inconsistent with City standards. Improvements to address the operational deficiencies at intersection #14 is discussed in Section 11.0.

It is also important to note that no LOS analysis is required at the second project driveway since it is a right in / right out intersection, and would not result in any conflicting movements.

Appendix E contains the Existing + Project intersection analysis worksheets.

TABLE 8–1
EXISTING + PROJECT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Delay Δ [c]	Improvement Required?
			Delay [a]	LOS [b]	Delay	LOS		
1. N. Coast Hwy / Civic Center Drive	Signal	AM PM	6.7 10.8	A B	6.9 10.8	A B	0.2 0.0	No
2. N. Coast Hwy / Pier View Way	Signal	AM PM	8.6 5.5	A A	8.7 5.5	A A	0.1 0.0	No
3. Mission Ave / N. Pacific Street	AWSC	AM PM	8.6 10.8	A B	8.8 10.9	A B	0.2 0.1	No
4. Mission Ave / N. Cleveland Street	Signal	AM PM	12.5 16.5	B B	13.6 16.5	B B	1.1 0.0	No
5. Mission Ave / N. Tremont Street	AWSC	AM PM	8.1 11.2	A B	8.1 11.2	A B	0.0 0.0	No
6. Mission Ave / N. Coast Hwy	Signal	AM PM	18.9 27.8	B C	19.3 42.5	B D	0.4 14.7	No
7. Mission Ave / S. Ditmar Street	Signal	AM PM	11.4 11.5	B B	11.4 11.8	B B	0.0 0.3	No
8. Mission Ave / S. Horne Street	Signal	AM PM	23.4 76.8	C E	25.4 76.9	C E	2.0 0.1	No
9. Seagaze Drive / N. Cleveland Street	AWSC	AM PM	7.5 8.9	A A	7.6 9.3	A A	0.1 0.4	No
10. Seagaze Drive / N. Tremont Street[f]	MWSC	AM PM	10.3 16.4	B C	13.7 23.8	B B	3.4 7.4	No
11. Seagaze Drive / N. Coast Hwy	Signal	AM PM	11.6 15.3	B B	16.7 18.5	B B	5.1 3.2	No
12. Seagaze Drive / S. Ditmar Street	AWSC	AM PM	8.0 8.9	A A	8.4 9.0	A A	0.4 0.1	No
13. Seagaze Drive / S. Horne Street	AWSC	AM PM	8.9 10.6	A B	9.8 10.8	A B	0.9 0.2	No
14. Nevada Street / Mission Avenue	MSSC	AM PM	14.2 13.7	B B	14.5 14.1	B B	0.3 0.4	No
15. Nevada Street / Seagaze Dr	MSSC	AM PM	11.5 12.6	B B	12.4 12.7	B B	0.9 0.1	No
16. Seagaze Dr / Clementine Street	AWSC	AM PM	8.7 9.5	A A	9.5 9.6	A A	0.8 0.1	No

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to Project.
d. MSSC = Minor Street Stop-Controlled intersection. Minor street left-turn delay reported.
e. AWSC = All Way Stop-Controlled intersection. Average delay reported.
f. Existing with project condition at this intersection is analyzed assuming the project driveway forms the fourth leg.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

8.2 Daily Street Segment Operations

Table 8–2 summarizes the street segment operations along the study area roadways under Existing + Project. As shown, the study area street segments are calculated to continue to operate acceptably at LOS D or better with the addition of Project trips except for the following:

- Segment #3. N. Coast Hwy: Mission Avenue to Seagaze Drive – LOS E

Based on City of Oceanside criteria, one potential area of inconsistency is calculated with the addition of the Project since the Project increases the V/C by greater than 0.02 at this location. However, for the following reasons, the operations along this portion of N. Coast Highway is considered consistent with the City General Plan standards and improvements are not required.

- N. Coast highway is built to its General Plan Circulation Element classification.

- The intersections on either end of the segment operate at LOS D or better during the peak hours.

- A peak hour arterial analysis shows that the N. Coast Highway study segment will operate at an average LOS D or better during both the AM and PM peak hours under Existing + Project conditions. ***Appendix F*** contains the arterial analysis worksheets.

TABLE 8-2
EXISTING WITH PROJECT STREET SEGMENT OPERATIONS

Street Segment	Jurisdiction	Functional Capacity	Capacity (LOS E) [a]	Existing			Existing + Project			Δ V/C [e]	Improvement Required?
				ADT [b]	LOS [c]	V/C [d]	ADT [b]	LOS [c]	V/C [d]		
N Coast Hwy											
Civic Center Dr to Pier View Wy	Oceanside	4-Lane Sec Collector	25,000	16,425	C	0.657	16,665	C	0.667	0.010	No
Pier View Wy to Mission Ave	Oceanside	4-Lane Sec Collector	25,000	16,710	C	0.668	16,790	C	0.672	0.004	No
Mission Ave to Seagaze Dr	Oceanside	4-Lane Sec Collector	25,000	21,430	D	0.857	22,700	E	0.908	**0.051**	No[f]
Mission Avenue											
Cleveland St to Tremont St	Oceanside	4-Lane Sec Collector	25,000	13,420	C	0.537	13,420	C	0.537	0.000	No
Tremont St to N. Coast Hwy	Oceanside	4-Lane Sec Collector	25,000	15,035	C	0.601	15,035	C	0.601	0.000	No
N. Coast Hwy to S. Ditmar St	Oceanside	2-Lane Collector	15,000	11,315	D	0.754	11,525	D	0.768	0.014	No
Seagaze Drive											
Cleveland St to Tremont St	Oceanside	2-Lane Collector	15,000	6,910	B	0.461	7,070	C	0.471	0.010	No
Tremont St to N. Coast Hwy	Oceanside	2-Lane Collector	15,000	7,235	C	0.482	10,095	D	0.673	0.191	No
N. Coast Hwy to S. Freeman St	Oceanside	2-Lane Collector	15,000	5,500	B	0.367	5,860	B	0.391	0.024	No
S. Nevada St to S. Clementine St	Oceanside	2-Lane Collector	15,000	5,555	B	0.370	5,915	B	0.394	0.024	No

Footnotes:

a. Capacity at which the roadway currently functions and based on City of Oceanside Roadway Classification Table.
b. Average Daily Traffic Volumes.
c. Level of Service
d. Volume to Capacity ratio.
e. Δ denotes the increase in V/C due to Project.
f. See the discussion in *Section 8.2* regarding the analysis of this segment's operations.

9.0 ANALYSIS OF NEAR-TERM CONDITIONS

The following section presents the analysis of study area intersections and street segments under Near-Term conditions without and with the proposed Project.

9.1 Near-Term Traffic Volumes

Near-Term without Project traffic volumes were calculated by adding the cumulative project traffic volumes onto the Existing traffic volumes. Near-Term + Project traffic volumes were calculated by adding the Project traffic volumes.

Figure 9–1 shows the Near-Term traffic volumes. ***Figure 9–2*** shows the Near-Term + Project traffic volumes.

9.2 Near-Term without Project Conditions

9.2.1 *Peak Hour Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations under Near-Term conditions. As shown, the study area intersections are calculated to operate acceptably at LOS D or better during the AM and PM peak hours except for the following:

- Intersection #6. Mission Avenue / N. Coast Highway – LOS F during PM peak hour
- Intersection #8. Mission Avenue / S. Horne Street – LOS F during PM peak hour
- Intersection #10. Seagaze Drive / S Tremont Street – LOS E during PM peak hour
- Intersection #14. Nevada Street / Mission Avenue – LOS F during the PM peak hour

Appendix G contains the Near-Term intersection analysis worksheets.

9.2.2 *Daily Street Segment Operations*

Table 9–2 summarizes street segment operations along the study area roadways under Near-Term conditions. As shown, the study area street segments are calculated to operate acceptably at LOS D or better with the exception of the following:

- Segment #3. N. Coast Hwy: Mission Avenue to Seagaze Drive – LOS F
- Segment #6. Mission Avenue: N. Coast Highway to Ditmar Street – LOS E

9.3 Near-Term + Project Conditions

9.3.1 *Peak Hour Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations under Near-Term + Project conditions. As shown, the study area intersections are calculated to continue to operate acceptably at LOS D or better during the AM and PM peak hours with the addition of Project trips except for the following:

- Intersection #6. Mission Avenue / N. Coast Highway – LOS F during PM peak hour
- Intersection #8. Mission Avenue / S. Horne Street – LOS F during PM peak hour

- Intersection #10. Seagaze Drive / S Tremont Street – LOS F during PM peak hourIntersection #14. Nevada Street / Mission Avenue – LOS F during the AM/PM peak hours

Consistent with the accepted City methodology, as the Project adds less than 2 seconds of delay at intersection #6 and intersection #8, the Project does not cause this intersection to operate at a level inconsistent with City standards. Improvements to address the operational deficiencies at intersections #10 and #14 are discussed in Section 11.0

Appendix G contains the Near-Term + Project intersection analysis worksheets.

9.3.2 *Daily Street Segment Operations*

Table 9–2 summarizes the street segment operations along the study area roadways under Near-Term + Project conditions. As shown, the study area street segments are calculated to continue to operate acceptably at LOS B or better with the addition of Project trips except for the following:

- Segment #3. N. Coast Hwy: Mission Avenue to Seagaze Drive – LOS F
- Segment #6. Mission Avenue: N. Coast Highway to Ditmar Street – LOS E

Consistent with the accepted City methodology, as the Project increases the V/C by less than 0.02 at Segment #6, the Project does not cause this segment to operate at a level inconsistent with City standards. Based on City of Oceanside criteria, the potential area of inconsistency on Segment #3 is calculated with the addition of the Project traffic since the Project increases the V/C by greater than 0.02 at this location. Improvements to address the operational deficiencies at this segment is discussed in Section 11.0.

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term Without Project		Near-Term With Project		Delay Δ [c]	Improvement Required?
			Delay [a]	LOS [b]	Delay	LOS		
1. N. Coast Hwy / Civic Center Drive	Signal	AM PM	7.5 12.9	A B	7.6 13.1	A B	0.1 0.2	No
2. N. Coast Hwy / Pier View Way	Signal	AM PM	9.7 6.0	A A	9.8 6.0	A A	0.1 0.0	No
3. Mission Ave / N. Pacific Street	AWSC	AM PM	9.3 13.1	A B	9.5 13.3	A B	0.2 0.2	No
4. Mission Ave / N. Cleveland Street	Signal	AM PM	13.2 20.0	B B	14.3 20.0	B B	1.1 0.0	No
5. Mission Ave / N. Tremont Street	AWSC	AM PM	8.9 15.5	A C	8.9 15.5	A C	0.0 0.0	No
6. Mission Ave / N. Coast Hwy	Signal	AM PM	18.9 **58.7**	B **E**	23.1 **58.8**	C **E**	4.2 **0.1**	No
7. Mission Ave / S. Ditmar Street	Signal	AM PM	11.4 13.7	B B	13.3 14.4	B B	1.9 0.7	No
8. Mission Ave / S. Horne Street	Signal	AM PM	30.6 **100.9**	C **F**	38.5 **101.4**	D **F**	7.9 **0.5**	No
9. Seagaze Drive / N. Cleveland Street	AWSC	AM PM	7.9 10.4	A B	8.2 11.0	A B	0.3 0.6	No
10. Seagaze Drive / N. Tremont Street[f]	MWSC	AM PM	11.9 **35.8**	B **E**	24.1 **88.6**	C **F**	12.2 **52.8**	**Yes**
11. Seagaze Drive / N. Coast Hwy	Signal	AM PM	14.4 21.5	B C	18.4 26.9	B C	4.0 5.4	No
12. Seagaze Drive / S. Ditmar Street	AWSC	AM PM	8.9 10.3	A B	9.3 10.3	A B	0.4 0.0	No

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term Without Project		Near-Term With Project		Delay Δ [c]	Improvement Required?
			Delay [a]	LOS [b]	Delay	LOS		
13. Seagaze Drive / S. Horne Street	AWSC	AM PM	11.4 15.1	B C	13.8 15.4	B C	2.4 0.3	No
14. Nevada Street / Mission Avenue	MSSC	AM PM	**28.8** **36.2**	**D** **E**	**92.0** **55.1**	**F** **F**	**63.2** **18.9**	**Yes**
15. Nevada Street / Seagaze Dr	MSSC	AM PM	16.5 14.9	C B	18.6 15.0	C B	2.1 0.1	No
16. Seagaze Dr / Clementine Street	AWSC	AM PM	15.2 14.8	C B	19.4 14.8	C B	4.2 0.0	No

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to Project.
d. MSSC = Minor Street Stop-Controlled intersection. Minor street left-turn delay reported.
e. AWSC = All Way Stop-Controlled intersection. Average delay reported.
f. Near-term with project condition at this intersection is analyzed assuming the project driveway forms the fourth leg.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 9-2
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Jurisdiction	Functional Capacity	Capacity (LOS E) [a]	Near-Term Without Project			Near-Term With Project			Δ V/C [e]	Improvement Required?
				ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C		
N Coast Hwy											
Civic Center Dr to Pier View Wy	Oceanside	4-Lane Sec Collector	25,000	20,075	D	0.803	20,315	D	0.813	0.010	No
Pier View Wy to Mission Ave	Oceanside	4-Lane Sec Collector	25,000	20,116	D	0.805	20,196	D	0.808	0.003	No
Mission Ave to Seagaze Dr	Oceanside	4-Lane Sec Collector	25,000	26,511	F	1.060	27,811	**F**	**1.112**	**0.052**	**Yes**
Mission Avenue											
Cleveland St to Tremont St	Oceanside	4-Lane Sec Collector	25,000	15,231	C	0.609	15,231	C	0.609	0.000	No
N Tremont St to N Coast Hwy	Oceanside	4-Lane Sec Collector	25,000	16,726	C	0.669	16,726	C	0.669	0.000	No
N. Coast Hwy to S. Ditmar St	Oceanside	2-Lane Collector	15,000	13,492	E	0.899	13,702	E	0.913	0.014	No
Seagaze Drive											
Cleveland St to Tremont St	Oceanside	2-Lane Collector	15,000	9,166	C	0.611	9,326	C	0.622	0.011	No
S Tremont St to N. Coast Hwy	Oceanside	2-Lane Collector	15,000	10,008	D	0.667	12,868	D	0.858	0.191	No
N. Coast Hwy to S. Freeman St	Oceanside	2-Lane Collector	15,000	7,141	C	0.476	7,501	C	0.500	0.024	No
S. Nevada St to S. Clementine St	Oceanside	2-Lane Collector	15,000	7,844	C	0.523	8,204	C	0.547	0.024	No

Footnotes:

a. Capacity at which the roadway currently functions and based on City of Oceanside Roadway Classification Table.
b. Average Daily Traffic Volumes.
c. Level of Service
d. Volume to Capacity ratio.
e. Δ denotes the increase in V/C due to Project.



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/2024
Time: 10:46 AM

Figure 9-1

Near-Term Traffic Volumes

401 Mission Avenue Project



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/2024
Time: 10:46 AM

Figure 9-2

Near-Term + Project Traffic Volumes

401 Mission Avenue Project

10.0 ANALYSIS OF BUILDOUT CONDITIONS

The following section presents the analysis of study area intersections and street segments under Buildout (Year 2050) conditions without and with the proposed Project.

10.1 Buildout Traffic Volumes

Future traffic volumes for Buildout conditions (Year 2050) were calculated using a combination of sources including the City of Oceanside 2050 Traffic Model, the *810 Mission Avenue Local Transportation Study* and the *Oceanside Transit Center Redevelopment Project Local Transportation Study* prepared by Stantec. Following the City's directives, the Buildout volume at Study intersections and study segments was computed by aggregating the volumes from the City of Oceanside 2050 Traffic Model, the 810 Mission Avenue project trips, and the Oceanside Transit Center Redevelopment project trips.

The study intersection #3 and intersection #12 aren't included in the 2050 Traffic Model. For these intersections, a growth factor of 29% was applied to forecast the Buildout Year 2050 traffic volumes (calculated by Intersecting Metrics).

For the purposes of the analysis, no roadway network improvements were assumed to be in place under Buildout conditions.

Figure 10–1 shows the Buildout traffic volumes. ***Figure 10–2*** shows the Buildout + Project traffic volumes.

10.2 Buildout without Project Conditions

10.2.1 *Peak Hour Intersection Analysis*

Table 10–1 summarizes the peak hour intersection operations under Buildout conditions. As shown, the study area intersections are calculated to operate acceptably at LOS D or better during the AM and PM peak hours except for the following:

- Intersection #6. Mission Avenue / N. Coast Highway – LOS E during PM peak hour
- Intersection #8. Mission Avenue / S. Horne Street – LOS F during PM peak hour
- Intersection #10. Seagaze Drive / S Tremont Street – LOS F during PM peak hour

Appendix H contains the Buildout intersection analysis worksheets.

10.2.2 *Daily Street Segment Operations*

Table 10–2 summarizes the street segment operations along the study area roadways under Buildout conditions. As shown, the study area street segments are calculated to operate acceptably at LOS D or better except for the following:

- Segment #1. N. Coast Hwy: Civic Center Drive to Pier View Way – LOS F

- Segment #2. N Coast Hwy: Pier View Way to Mission Avenue – LOS F
- Segment #3. N. Coast Hwy: Mission Avenue to Seagaze Drive – LOS F
- Segment #6. Mission Avenue: N. Coast Highway to Ditmar Street – LOS F

10.3 Buildout + Project Conditions

10.3.1 *Peak Hour Intersection Analysis*

Table 10–1 summarizes the peak hour intersection operations under Buildout + Project conditions. As shown, the study area intersections are calculated to continue to operate acceptably at LOS D or better during the AM and PM peak hours with the addition of Project trips except for the following:

- Intersection #6. Mission Avenue / N. Coast Highway – LOS E during PM peak hour
- Intersection #8. Mission Avenue / S. Horne Street – LOS F during PM peak hour
- Intersection #10. Seagaze Drive / S Tremont Street – LOS E during AM peak hour and LOS F during PM peak hour

Consistent with the accepted City methodology, as the Project adds less than 2 seconds of delay at intersection #6 and intersection #8, the Project does not cause these intersections to operate at a level inconsistent with City standards. Improvements to address the operational deficiencies at intersection #10 is discussed in Section 11.0.

Appendix H contains the Buildout + Project intersection analysis worksheets.

10.3.2 *Daily Street Segment Operations*

Table 10–2 summarizes the street segment operations along the study area roadways under Buildout + Project conditions. As shown, the study area street segments are calculated to continue to operate acceptably at LOS D or better with the addition of Project trips except for the following:

- Segment #1. N. Coast Hwy: Civic Center Drive to Pier View Way – LOS F
- Segment #2. N Coast Hwy: Pier View Way to Mission Avenue – LOS F
- Segment #3. N. Coast Hwy: Mission Avenue to Seagaze Drive – LOS F
- Segment #6. Mission Avenue: N. Coast Highway to Ditmar Street – LOS F
- Segment #8. Seagaze Drive: S Tremont Street to N. Coast Highway – LOS E

Consistent with the accepted City methodology, as the Project increases the V/C by less than 0.02 at Segment #1, Segment #2, and Segment #6, the Project does not cause these segments to operate at a level inconsistent with City standards. Based on City of Oceanside criteria, the potential area of inconsistency on Segment #3 and Segment #8 are calculated with the addition of the Project traffic since the Project increases the V/C by greater than 0.02 at these locations. Improvements to address the operational deficiencies at these segments are discussed in Section 11.0.

TABLE 10–1
BUILDOUT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Buildout Without Project		Buildout With Project		Delay Δ [c]	Improvement Required?
			Delay [a]	LOS [b]	Delay	LOS		
1. N. Coast Hwy / Civic Center Drive	Signal	AM PM	8.1 32.5	A C	8.2 33.4	A C	0.1 0.9	No
2. N. Coast Hwy / Pier View Way	Signal	AM PM	16.1 6.8	B A	17.4 7.1	B A	1.3 0.3	No
3. Mission Ave / N. Pacific Street	AWSC	AM PM	9.5 14.1	A B	9.6 14.3	A B	0.1 0.2	No
4. Mission Ave / N. Cleveland Street	Signal	AM PM	14.2 25.3	B C	14.6 28.7	B C	0.4 3.4	No
5. Mission Ave / N. Tremont Street	AWSC	AM PM	8.3 12.2	A B	8.3 12.2	A B	0.0 0.0	No
6. Mission Ave / N. Coast Hwy	Signal	AM PM	23.5 **65.1**	C **E**	24.5 **66.5**	C **E**	1.0 **1.4**	No
7. Mission Ave / S. Ditmar Street	Signal	AM PM	12.0 14.2	B B	12.2 14.9	B B	0.2 0.7	No
8. Mission Ave / S. Horne Street	Signal	AM PM	39.5 **120.6**	D **F**	49.1 **121.4**	D **F**	9.6 **0.8**	No
9. Seagaze Drive / N. Cleveland Street	AWSC	AM PM	8.3 15.3	A C	8.6 17.2	A C	0.3 1.9	No
10. Seagaze Drive / N. Tremont Street[f]	MWSC	AM PM	**13.0** **53.8**	**B** **F**	**41.3** **326.6**	**E** **F**	**28.3** **272.8**	**Yes**
11. Seagaze Drive / N. Coast Hwy	Signal	AM PM	19.7 31.5	B C	26.4 43.0	C D	6.7 11.5	No
12. Seagaze Drive / S. Ditmar Street	AWSC	AM PM	8.8 10.1	A B	9.2 10.2	A B	0.4 0.1	No

TABLE 10–1
BUILDOUT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Buildout Without Project		Buildout With Project		Delay Δ [c]	Improvement Required?
			Delay [a]	LOS [b]	Delay	LOS		
13. Seagaze Drive / S. Horne Street	AWSC	AM	10.3	B	11.8	B	1.5	No
		PM	13.3	B	13.5	B	0.2	
14. Nevada Street / Mission Avenue	MSSC	AM	18.5	C	19.1	C	0.6	No
		PM	21.7	C	21.7	C	0.9	
15. Nevada Street / Seagaze Dr	MSSC	AM	16.6	C	19.6	C	3.0	No
		PM	15.6	C	15.8	C	0.2	
16. Seagaze Dr / Clementine Street	AWSC	AM	9.5	A	10.5	B	1.0	No
		PM	11.5	B	11.7	B	0.2	

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to Project.
d. MSSC = Minor Street Stop-Controlled intersection. Minor street left-turn delay reported.
e. AWSC = All Way Stop-Controlled intersection. Average delay reported.
f. Buildout with project condition at this intersection is analyzed assuming the project driveway forms the fourth leg.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 10-2
BUILDOUT STREET SEGMENT OPERATIONS

Street Segment	Functional (On the Ground) Capacity	Capacity (LOS E) [a]	Buildout condition			Buildout condition + Project			Δ V/C [e]	Improvement Required?
			ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C		
N Coast Hwy										
Civic Center Dr to Pier View Wy	4-Lane Sec Collector	25,000	25,960	F	1.038	26,195	F	1.048	0.010	No
Pier View Wy to Mission Ave	4-Lane Sec Collector	25,000	27,525	F	1.101	27,605	F	1.104	0.003	No
Mission Ave to Seagaze Dr	4-Lane Sec Collector	25,000	30,685	F	1.227	31,980	**F**	1.279	**0.052**	**Yes**
Mission Avenue										
Cleveland St to Tremont St	4-Lane Sec Collector	25,000	14,045	C	0.562	14,045	C	0.562	0.000	No
Tremont St to N. Coast Hwy	4-Lane Sec Collector	25,000	15,525	C	0.621	15,525	C	0.621	0.000	No
N. Coast Hwy to S. Ditmar St	2-Lane Collector	15,000	17,505	F	1.167	17,715	**F**	1.181	0.014	No
Seagaze Drive										
Cleveland St to Tremont St	2-Lane Collector	15,000	10,910	D	0.727	11,065	D	0.738	0.011	No
Tremont St to N. Coast Hwy	2-Lane Collector	15,000	11,800	D	0.787	14,660	E	0.977	**0.190**	**Yes**
N. Coast Hwy to S. Freeman St	2-Lane Collector	15,000	7,195	C	0.480	7,555	C	0.504	0.024	No
S. Nevada St to S. Clementine St	2-Lane Collector	15,000	7,210	C	0.481	7,570	C	0.505	0.024	No

Footnotes:

a. Capacity at which the roadway currently functions and based on City of Oceanside Roadway Classification Table.
b. Average Daily Traffic Volumes.
c. Level of Service
d. Volume to Capacity ratio.
e. Δ denotes the increase in V/C due to Project.



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/2024
Time: 10:46 AM

Figure 10-1

Buildout Traffic Volumes

401 Mission Avenue Project



LINSCOTT LAW & GREENSPAN engineers

N:\3618\Figures
Date: 11/21/2024
Time: 10:45 AM

Figure 10-2

Buildout + Project Traffic Volumes

401 Mission Avenue Project

11.0 CONSISTENCY ANALYSIS AND RECOMMENDED IMPROVEMENTS

The Project is consistent with the City's adopted General Plan and is located in a Transit Priority Area. Therefore, a Transportation VMT Analysis is not required and the VMT impact is considered not significant.

The project will provide an access driveway on Seagaze Drive opposite of Tremont Street forming the fourth (north) leg of the unsignalized Tremont Street / Seagaze Drive intersection. This will initially be a full access driveway with Stop sign controlled for the Tremont Street and Project Driveway approaches. The Project plans to provide another driveway on Seagaze Drive between Tremont Street and N Coast Highway. This driveway should be limited to right-in / right-out only.

Per the City of Oceanside's thresholds for the determination of the need for roadway improvements, and the analysis methodology presented in this report, the increase in Project related delay exceeds the allowable thresholds at the following intersection and segments.

- Intersection #10: Seagaze Drive / S Tremont Street (Near-term and Buildout Conditions)
- Intersection #14: Mission Avenue / Nevada Street (Near-term Conditions)
- Segment #3. N. Coast Hwy: Mission Avenue to Seagaze Drive (Near-term and Buildout)
- Segment # 8. Seagaze Drive: S Tremont Street to N Coast Highway (Buildout)

A. Intersection Mitigation

The following improvements are recommended to address the Near-term and Buildout operational deficiencies at the Seagaze Drive / S Tremont Street intersection:

Near-term Conditions

Seagaze Drive / S Tremont Street: An all-way stop sign is recommended to address the Near-term operational deficiencies at this intersection. As shown in ***Table 11-1***, an all-way stop sign will bring this intersection to a level consistent with City guidelines. The project should install an all-way stop as a Project feature.

Mission Avenue / Nevada Street: A signal is recommended to address the Near-term operational deficiencies at this intersection. As shown in ***Table 11-1***, a signal will bring this intersection to a level consistent with City guidelines. It is recommended that the Project contribute a fair share towards the future signalization of this intersection. Based on the City of Oceanside's fair share formula (Fair Share % = Project Volumes divided by (Near-Term + Project minus Existing Volumes)), the Project's fair share towards the potential improvement is 4.32%.

The fair share calculations are included in ***Appendix I***.

Buildout Conditions

Seagaze Drive / S Tremont Street: It is recommended the Project signalize the intersection and provide the following lane configurations:

- Southbound approach (Project Driveway) – one shared left / thru / right-turn lane.
- Westbound approach (N. Seagaze Drive) – one dedicated left-turn lane, and one shared thru / right-turn lane.
- Northbound approach (S. Tremont Street) – one dedicated left-turn lane, and one shared thru / right-turn lane.
- Eastbound approach (Seagaze Drive): one dedicated left-turn lane, and one shared thru / right-turn lane.

  As shown in ***Table 11-1***, a traffic signal will bring this intersection to a level consistent with City guidelines. The traffic signal warrant worksheets are included in ***Appendix J***. The analysis shows that a traffic signal is warranted at the Seagaze Drive and S Tremont Street intersection. It is recommended that the Project contribute a fair share towards the potential signalization of this intersection. Based on the City of Oceanside's fair share formula (Fair Share % = Project Volumes divided by (Buildout Volumes minus Existing Volumes)), the Project's fair share towards the potential improvement is 40.1%.

The fair share calculations are included in ***Appendix I***.

B. Segment Mitigation

The following improvements are recommended to address the operational deficiencies identified at the following segments.

- *Segment #1. N. Coast Hwy: Mission Avenue to Seagaze Drive (Near-term and Buildout)*

  A lane would need to be added to this section of N. Coast Highway in order to mitigate the impact. This would require the widening of the roadway by approximately 12 feet. Currently, the curb-to-curb width of this section of N. Coast Highway is 56 feet, with a 6-foot landscaped area featuring trees and an 8-foot sidewalk on each side, within an 80-foot right-of-way. There is not sufficient right-of-way to widen N. Coast Highway and the presence of buildings built along N. Coast Highway makes this widening infeasible. It should be noted that if the full trip credit for the theater (which will be demolished) was taken, no deficiency would occur at this segment.
- *Segment # 5. Seagaze Drive: S Tremont Street to N Coast Highway (Buildout):* The improvements listed above at the intersection of Seagaze Drive / S Tremont Street/ Project Driveway will also address the operation deficiency identified at the segment of Seagaze Drive between S Tremont Street and N Coast Highway under Buildout conditions.

TABLE 11–1
POST IMPROVEMENT INTERSECTION ANALYSIS

Intersection	Control Type	Peak Hour	Existing + Project		Near-Term + Project		Buildout + Project	
			Delay[a]	LOS[b]	Delay	LOS	Delay	LOS
10. Seagaze Drive / Tremont Street/Project Dwy	MWSC [c] / Signal [d]	AM	13.7	B	10.5	B	24.5	C
		PM	23.8	B	19.5	C	28.4	C
14. Mission Avenue / Nevada Street	Signal	AM	6.3	A	6.7	A	6.3	A
		PM	6.2	A	7.0	A	6.4	A

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Near-term with project condition is analyzed assuming an all-way stop sign.
d. Buildout with project condition is analyzed assuming a traffic signal.

SIGNALIZED		UNSIGNALIZED	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

City of Oceanside-Engineering Division

Conceptually Approved

Plans conform with State laws, City procedures, policies, and ordinances. City's plan review is limited and is not a determination of technical design sufficiency, EOW is responsible for the design and it's sufficiency.

AJSmith 11/24/2024 6:13:21 AM

PERMIT #: RT23-00001

CITY OF OCEANSIDE
ENGINEERING DIVISION

PRIORITY DEVELOPMENT PROJECT
STORM WATER QUALITY MANAGEMENT PLAN
FOR
401 Mission Avenue Mixed Use

ENGINEER OF WORK

Suleen Lao, P.E.

PREPARED FOR:

JH Real Estate Partners, Inc

520 Newport Center Drive, Suite 780

Newport, CA 92660

949.723.8989

PREPARED BY:

X Engineering and Consulting, Inc.

6 Hutton Center Drive, Suite 650

Santa Ana, CA 92707

949.522.7100

How to Use This Template

This template, assembled by GHD Inc. on behalf of the City of Oceanside, is for the development of Storm Water Quality Management Plans (SWQMPs) for Priority Development Projects (PDPs) proposed within Oceanside, CA. It is based on requirements set forth in the Regional Water Quality Control Board's National Pollutant Discharge Elimination System MS4 Permit that covers the San Diego Region (Order No. R9-2013-0001).

All references within the template refer to the City of Oceanside BMP Design Manual dated February 2016 (Manual). Use of this template in conjunction with the Manual is intended to help a project applicant develop a SWQMP compliant with City of Oceanside and MS4 Permit requirements.

Template Date: February 16, 2016

Assembled By:

Quick Reference Guide

Item	Project Information
Project Name	401 Mission Avenue Mixed Use
Application Number(s)	RT23-00001
Project Address	401 Mission Avenue, Oceanside, CA 92054
Total Parcel Area	2.71 acres (118,179 ft²)
Project Description	The project proposes the redevelopment of the existing movie theater plaza into a proposed seven-story mixed-use building with 332 units and 20,000 square feet of retail restaurant spaces. The existing plaza is fully developed as a commercial development, with typical vegetation cover of 3% as tree wells, planter boxes, and landscaping areas. The proposed mixed-use building will incorporate both residential and commercial uses into the site, with increased typical vegetation cover of ~9% of total site area. Offsite improvements include retrofitting of the existing sidewalk pavement, from the property line to the back of curb, that matches the proposed pavement along the project frontages. Additional landscaping area is also proposed along the sidewalk to minimize impervious areas.
Proposed Disturbed Area	131,982 ft² (118,179 ft² onsite + 13,803 ft² offsite)
Created or Replaced Impervious	118,846 ft² (107,926 ft² onsite + 10,920 ft² offsite)
Project Hydrologic Unit Watershed	☐ Santa Maria ☒ San Luis Rey ☐ Carlsbad
Required to implement HMP	☐ Yes ☒ No

Table of Contents

CERTIFICATION PAGE ..... **Section 1**

SUBMITTAL RECORD ..... **Section 2**

PROJECT VICINITY MAP ..... **Section 3**

FORM I-1: APPLICABILITY OF PERMANENT STORM Water BMP REQUIREMENTS ..... **Section 4**

FORM I-2: PROJECT TYPE DETERMINATION CHECKLIST ..... **Section 5**

FORM I-3B: SITE INFORMATION CHECKLIST ..... **Section 6**

FORM I-4: SOURCE CONTROL BMP CHECKLIST ..... **Section 7**

FORM I-5: SITE DESIGN BMP CHECKLIST ..... **Section 8**

FORM I-6: SUMMARY OF PDP STRUCTURAL BMPS ..... **Section 9**

BMP CONSTRUCTION SELF CERTIFICATION FORM ..... **Section 10**

ATTACHMENT 1: BACKUP FOR PDP POLLUTANT CONTROL BMPS ..... **Section 11**

ATTACHMENT 1a: DMA Exhibit ..... Section 11

ATTACHMENT 1b: Tabular Summary of DMAs ..... Section 11

ATTACHMENT 1c: Design Capture Volume Worksheet ..... Section 11

ATTACHMENT 1d: FORM I-7: Harvest and Use Feasibility Screening Checklist ..... Section 11

ATTACHMENT 1e: FORM I-8: Categorization of Infiltration Feasibility Condition ..... Section 11

ATTACHMENT 1f: Pollutant Control BMP Design Worksheets/Calculations ..... Section 11

ATTACHMENT 2: BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES ..... **Section 12**

ATTACHMENT 2a: Hydromodification Management Exhibit ..... Section 12

ATTACHMENT 2b: Management of Critical Coarse Sediment Yield Areas ..... Section 12

ATTACHMENT 2c: Geomorphic Assessment of Receiving Channels ..... Section 12

ATTACHMENT 2d: Flow Control Facility Design and BMP Drawdown Calculations ..... Section 12

ATTACHMENT 2e: Vector Control Plan ..... Section 12

ATTACHMENT 3: STRUCTURAL BMP MAINTENANCE INFORMATION ..... **Section 13**

ATTACHMENT 3a: Structural BMP Maintenance Thresholds and Actions ..... Section 13

ATTACHMENT 3b: Management of Critical Coarse Sediment Yield Areas ..... Section 13

ATTACHMENT 4: STORM WATER BMP PLAN SHEETS ..... **Section 14**

ATTACHMENT 5: DRAINAGE REPORT ..... **Section 15**

ATTACHMENT 6: GEOTECHNICAL AND GROUNDWATER INVESTIGATION REPORT ..... **Section 16**

ATTACHMENT 7: STORM WATER QUALITY ASSESSMENT FORM ..... **Section 17**

ADDITIONAL SUPPORTING DOCUMENTATION ..... **Section 18**

CERTIFICATION PAGE

Project Name: 401 Mission Avenue Mixed Use
Permit Application Number: RT23-00001

I hereby declare that I am the Engineer in Responsible Charge of design of storm water BMPs for this project, and that I have exercised responsible charge over the design of the project as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the requirements of the City of Oceanside BMP Design Manual, which is based on the requirements of San Diego Regional Water Quality Control Board Order No. R9-2013-0001 (MS4 Permit).

I have read and understand that the City has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual. I certify that this SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable source control and site design BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this SWQMP by City staff is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

As Engineer of Work, I agree to indemnify, defend, and hold harmless the City of Oceanside, its officers, agents, and employees from any and all liability, claims, damages, or injuries to any person or property which might arise from the negligent acts, errors, or omissions of the Engineer of Work, my employees, agents or consultants.



Engineer of Work's Signature, PE Number & Expiration Date

Suleen Lao, PE
Print Name

X Engineering & Consulting, Inc.
Company

09/26/2024
Date

Engineer's Seal:

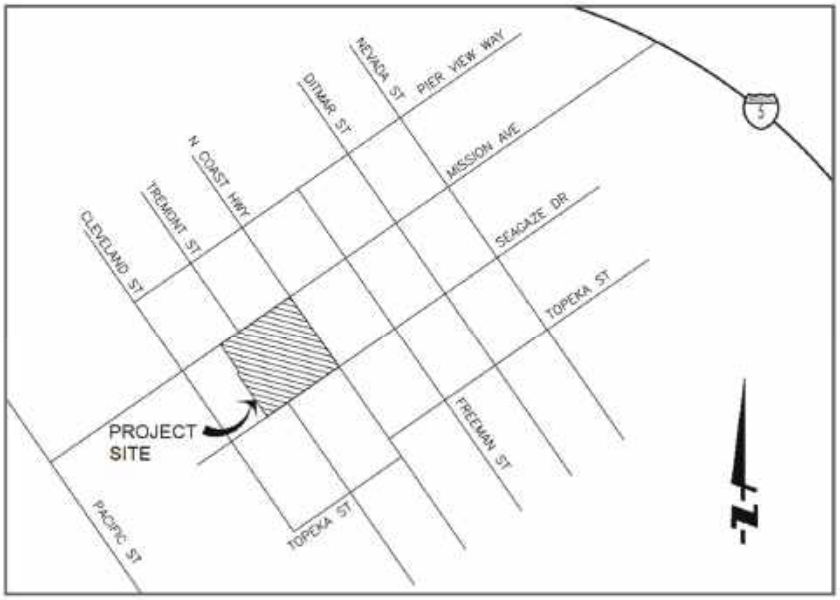


SUBMITTAL RECORD

Use this Table to keep a record of submittals of this SWQMP. Each time the SWQMP is re-submitted, provide the date and status of the project. In last column indicate changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments behind this page.

Submittal Number	Date	Project Status	Changes
1	03/08/2023	☒ Preliminary Design/ Planning/ CEQA ☐ Final Design	Initial Submittal
2	01/15/2024	☒ Preliminary Design/ Planning/ CEQA ☐ Final Design	Second submittal
3	05/29/2024	☒ Preliminary Design/ Planning/ CEQA ☐ Final Design	Third submittal
4	09/26/2024	☒ Preliminary Design/ Planning/ CEQA ☐ Final Design	Fourth submittal

Project Vicinity Map



VICINITY MAP
NOT TO SCALE

Applicability of Permanent, Post-Construction Storm Water BMP Requirements (Storm Water Intake Form for all Development Permit Applications)	Form I-1

Project Identification

Project Name: 401 Mission Avenue Mixed Use

Permit Application Number: RT23-00001 | Date: 09/26/2024

Determination of Requirements

The purpose of this form is to identify permanent, post-construction requirements that apply to the project. This form serves as a short summary of applicable requirements, in some cases referencing separate forms that will serve as the backup for the determination of requirements.

Answer each step below, starting with Step 1 and progressing through each step until reaching "Stop".
Refer to the manual sections and/or separate forms referenced in each step below.

Step	Answer	Progression
Step 1: Is the project a "development project"? See Section 1.3 of the manual for guidance.	☒Yes	Go to Step 2.
	☐No	Stop. Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.
Discussion / justification if the project is not a "development project" (e.g., the project includes *only* interior remodels within an existing building):		
Step 2: Is the project a Standard Project, PDP, or exception to PDP definitions? To answer this item, see Section 1.4 of the manual *in its entirety* for guidance, AND complete Form I-2, Project Type Determination.	☐Standard Project	Stop. Standard Project requirements apply, including Standard Project SWQMP.
	☒PDP	PDP requirements apply, including PDP SWQMP. Go to Step 3.
	☐ Exception to PDP definitions	Stop. Standard Project requirements apply. Provide discussion and list any additional requirements below. Prepare Standard Project SWQMP.
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:		

Form I-1 Page 2 of 2		
Step	**Answer**	**Progression**
Step 3. Is the project subject to earlier PDP requirements due to a prior lawful approval? See Section 1.10 of the manual for guidance.	☐Yes	Consult the [City Engineer] to determine requirements. Provide discussion and identify requirements below. Go to Step 4.
	☒No	BMP Design Manual PDP requirements apply. Go to Step 4.
Discussion / justification of prior lawful approval, and identify requirements (*not required if prior lawful approval does not apply*):		
Step 4. Do hydromodification control requirements apply? See Section 1.6 of the manual for guidance.	☐Yes	PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification control (Chapter 6). Go to Step 5.
	☒No	Stop. PDP structural BMPs required for pollutant control (Chapter 5) only. Provide brief discussion of exemption to hydromodification control below.
Discussion / justification if hydromodification control requirements do <u>not</u> apply: The project site is two blocks east of Pacific Ocean and discharges into concrete storm drain pipes that connect directly to the ocean.		
Step 5. Does protection of critical coarse sediment yield areas apply? See Section 6.2 of the manual for guidance.	☐Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). Stop.
	☐No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. Stop.
Discussion / justification if protection of critical coarse sediment yield areas does <u>not</u> apply: The site is not subject to hydromodification management requirements.		

Project Type Determination Checklist			Form I-2
Project Information			
Project Name: 401 Mission Avenue Mixed Use			
Permit Application Number: RT23-00001			
Project Type Determination: Standard Project or PDP			
The project is (select one): ☐ New Development ☒ Redevelopment			
The total proposed newly created or replaced impervious area is: 118,846 ft² (107,926 ft² onsite + 10,920 ft² offsite)			
Is the project in any of the following categories, (a) through (f)?			
Yes ☐	No ☒	(a)	New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☒	No ☐	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☒	No ☐	(c)	New and redevelopment projects that create 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption SIC code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

Form I-2 Page 2 of 2			
Yes ☐	No ☒	(d)	New or redevelopment projects that create or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and SDRWQCB; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and SDRWQCB; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See manual Section 1.4.2 for additional guidance.
Yes ☐	No ☒	(e)	New development projects that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets. This category includes retail gasoline outlets that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic of 100 or more vehicles per day.
Yes ☒	No ☐	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the PDP categories (a) through (f) listed above?

☐ No – the project is not a PDP (Standard Project).

☒ Yes – the project is a PDP.

The following is for redevelopment PDPs only:

The area of existing (pre-project) impervious area at the project site is: 119,270 ft² (A)
The total proposed newly created or replaced impervious area is: 119,270 ft² (B)
Percent impervious surface created or replaced (A/B)*100: 100 %
The percent impervious surface created or replaced is (select one based on the above calculation):

☐ less than or equal to fifty percent (50%) – only new impervious areas are considered PDP

OR

☒ greater than fifty percent (50%) – the entire project site is a PDP

Site Information Checklist For PDPs	Form I-3B (PDPs)
Project Summary Information	
Project Name	401 Mission Avenue Mixed Use
Project Address	401 Mission Avenue, Oceanside, CA 92054
Assessor's Parcel Number(s)	147-271-14-00
Permit Application Number	RT23-00001
Project Watershed (Hydrologic Unit)	Select One: ☐Santa Margarita 902 ☒San Luis Rey 903 ☐Carlsbad 904
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	2.71 acres (118,179 ft^2)
Area to be disturbed by the project (Project Area)	131,982 ft^2 (118,179 ft^2 onsite + 13,803 ft^2 offsite)
Project Proposed Impervious Area (subset of Project Area)	118,846 ft^2 (107,926 ft^2 onsite + 10,920 ft^2 offsite)
Project Proposed Pervious Area (subset of Project Area)	13,136 ft^2 (10,253ft^2 + 2,883ft^2)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.	

Hydrologic Unit	Hydrologic Area	Hydrologic Sub-Area
Santa Margarita 902.00	☐ Ysidora 902.10	☐ Lower Ysidora 902.11
San Luis Rey 903.00	☒ Lower San Luis 903.10	☒ Mission 903.11
		☐ Bonsall 903.12
Carlsbad 904.00	☐ Loma Alta 904.10	Not Applicable
	☐ Buena Vista Creek 904.20	☐ El Salto 904.21
		☐ Vista 904.22
	☐ Agua Hedionda 4.30	☐ Los Monos 904.31

Description of Existing Site Condition and Drainage Patterns

Current Status of the Site (select all that apply):

☒Existing development

☐Previously graded but not built out

☐Agricultural or other non-impervious use

☐Vacant, undeveloped/natural

Description / Additional Information:
Existing site is fully developed and occupied by an movie theater plaza.

Existing Land Cover Includes (select all that apply):

☒Vegetative Cover

☐Non-Vegetated Pervious Areas

☒Impervious Areas

Description / Additional Information:
Existing vegetative cover is made up by tree wells, planter boxes, and landscaping area.

Existing impervious area is made up of building rooftops and concrete pavement.

Underlying Soil belongs to Hydrologic Soil Group (select all that apply):

☒NRCS Type A

☐NRCS Type B

☐NRCS Type C

☐NRCS Type D

Approximate Depth to Groundwater:

☐Groundwater Depth < 5 feet

☐5 feet < Groundwater Depth < 10 feet

☐10 feet < Groundwater Depth < 20 feet

☒Groundwater Depth > 20 feet

Description of Existing Site Topography and Drainage [How is storm water runoff conveyed from the site? At a minimum, this description should answer (1) whether existing drainage conveyance is natural or urban; (2) describe existing constructed storm water conveyance systems, if applicable; and (3) is runoff from offsite conveyed through the site? If so, describe]:

Runoff from the existing site is conveyed in the combined form of roof runoff, surface runoff and pipe flow. The existing site is fully developed and does not receive any offsite runoff; most of the onsite runon is directed to four storm drain laterals along the northerly and southerly site perimeters, which are connected to concrete storm drain mainlines that ultimately discharge directly to the Pacific Ocean. Drainage from a minor portion of the site perimeter is allowed to run on to the sidewalks and conveyed as street gutter flow.

Description of Proposed Site Development and Drainage Patterns

Project Description / Proposed Land Use and/or Activities:

The project entails the redevelopment of an existing movie theater plaza into a seven-story mixed-use building with 332 residential units and 20,000 square feet of retail restaurant spaces.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

Impervious features of the project consist of building rooftop, outdoor plaza areas, courtyards, and sidewalks along the ROW.

List/describe proposed pervious features of the project (e.g., landscape areas):

Pervious features of the project consist of patio trees in the courtyards, and planter boxes and low curb planters within the plaza area and along the building perimeters and sidewalks.

Does the project include grading and changes to site topography?

☒Yes

☐No

Description / Additional Information:

The project will be graded to match the existing grades along the property lines.

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

☒Yes

☐No

Description / Additional Information:

The existing onsite drainage conveyance systems will be replaced by new onsite drainage systems that works with the proposed mixed-use building.

All precipitation that falls on the building rooftops and indoor courtyards above ground will be drained by area drains and routed to downspout(s) piped to structural BMPs (see Form I-6),

Similarly, runoff from the outdoor courtyards and pedestrian walkways on the ground level will drain towards area drains that are piped to structural BMPs.

A portion of the site area on the ground level will surface drain to the sidewalks to accommodate site design.

Ultimately, runoff from the project site eventually drains into interconnected storm drain system and discharges directly to Pacific Ocean via the Surfrider Way Storm Drain.

Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply):

☒Onsite storm drain inlets

☒Interior floor drains and elevator shaft sump pumps

☒Interior parking garages

☒Need for future indoor & structural pest control

☒Landscape/outdoor pesticide use

☒Pools, spas, ponds, decorative fountains, and other water features

☒Food service

☒Refuse areas

☐Industrial processes

☐Outdoor storage of equipment or materials

☐Vehicle and equipment cleaning

☐Vehicle/equipment repair and maintenance

☐Fuel dispensing areas

☐Loading docks

☒Fire sprinkler test water

☒Miscellaneous drain or wash water

☒Plazas, sidewalks, and parking lots

Identification of Receiving Water Pollutants of Concern

Describe path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):

Stormwater from the project site is discharged into storm drain mainline along Mission Avenue to the north and storm drain mainline Seagaze Drive to the south. The two mainlines eventually join to the storm drain mainline within Cleveland Street and ultimately discharges to the Pacific Ocean via the Surfrider Way Storm Drain. See Attachment 2 for Exhibit depicting path of stormwater discharges to Pacific Ocean.

List any 303(d) impaired water bodies within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs
Pacific Ocean Shoreline, San Luis Rey HU, at San Luis Rey river outlet	Indicator Bacteria	Indicator Bacteria

Form I-3B Page 7 of 10			
Identification of Project Site Pollutants* ***Identification of project site pollutants is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated)**			
Identify pollutants expected from the project site based on all proposed use(s) of the site (see manual Appendix B.6):			
Pollutant	**Not Applicable to the Project Site**	**Expected from the Project Site**	**Also a Receiving Water Pollutant of Concern**
Sediment	☐	☐	☐
Nutrients	☐	☐	☐
Heavy Metals	☐	☐	☐
Organic Compounds	☐	☐	☐
Trash & Debris	☐	☐	☐
Oxygen Demanding Substances	☐	☐	☐
Oil & Grease	☐	☐	☐
Bacteria & Viruses	☐	☐	☐
Pesticides	☐	☐	☐

Note: Indicator Bacteria shall be addressed as a Pollutant of Concern (POC) for projects located in the Lower San Luis Hydrologic Area and for projects that discharge to the Pacific Ocean Shoreline within the boundaries of the City of Oceanside.

Note: Nutrients shall be addressed as a Pollutant of Concern (POC) for projects located in the Loma Alta Hydrologic Area.

Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the manual)?

☐Yes, hydromodification management flow control structural BMPs required.

☒No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

Stormwater from the project site is discharged into storm drain mainline along Mission Avenue to the north and storm drain mainline Seagaze Drive to the south. The two mainlines eventually join to the storm drain mainline within Cleveland Street and ultimately discharges to the Pacific Ocean via the Surfrider Way Storm Drain. See Attachment 2 for Exhibit depicting path of stormwater discharges to Pacific Ocean.

Critical Coarse Sediment Yield Areas*

***This Section only required if hydromodification management requirements apply**

Based on the maps provided within the WMAA, do potential critical coarse sediment yield areas exist within the project drainage boundaries?

☐Yes

☐No, no critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the manual been performed?

☐6.2.1 Verification of GLUs Onsite

☐6.2.2 Downstream Systems Sensitivity to Coarse Sediment

☐6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite

☐No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what is the final result?

☐No critical coarse sediment yield areas to be protected based on verification of GLUs onsite.

☐Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 8 of the SWQMP.

☐Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

Flow Control for Post-Project Runoff*

***This Section only required if hydromodification management requirements apply**

List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit.

N/A

Has a geomorphic assessment been performed for the receiving channel(s)?

☐No, the low flow threshold is 0.1Q2 (default low flow threshold)

☐Yes, the result is the low flow threshold is 0.1Q2

☐Yes, the result is the low flow threshold is 0.3Q2

☐Yes, the result is the low flow threshold is 0.5Q2

If a geomorphic assessment has been performed, provide title, date, and preparer:

Discussion / Additional Information: (optional)

Other Site Requirements and Constraints

When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.

A portion of the onsite area along the site perimeter interconnects with the proposed sidewalk replacement along the ROW. Grading design within this area will need to adhere to drainage requirements set forth by state and regional criteria as well as accommodate the competing uses along the ROW.

Optional Additional Information or Continuation of Previous Sections As Needed

This space provided for additional information or continuation of information from previous sections as needed.

Stormwater mitigation along the ROW and portion of the onsite perimeter area will be achieved by incorporating Green Street features into the ROW, per the City of Oceanside BMPDM Chapter 1, Section 1.4.3 and Appendix K. Existing street trees along the ROW will be preserved and landscaping strips using native/drought-tolerant species are proposed to the maximum extent practicable to act as pollutant treatment measures and dispersion areas (SD-5 and SD-7). Impervious areas are minimized through maintaining minimum sidewalk area for safe pedestrian access (SD-3).
See DMA exhibit in Attachment 1 for implementation of the site design as Green Street features implementation.

Source Control BMP Checklist for All Development Projects (Standard Projects and PDPs)	Form I-4

Project Identification

Project Name: 401 Mission Avenue Mixed Use

Permit Application Number: RT23-00001

Source Control BMPs

All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the manual for information to implement source control BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.

Source Control Requirement	Implemented?		
SC-1 Prevention of Illicit Discharges into the MS4	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-1 not implemented: All non-stormwater discharges from the project will be eliminated by way of scheduled maintenance discussed in the Operations and Maintenace manual, employee/tenant education, regular trash service, irrigation inspection/maintenance, covered trash areas, storm drain placards, and street and parking lot sweeping BMPs to keep illicit discharges away from the MS4. Responsibility lies with JH Real Estate Partners, Inc.			
SC-2 Storm Drain Stenciling or Signage	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-2 not implemented: Storm drain placards with graphical icons depicting prohibition of illegal dumping will be provided at all stormwater inlets.			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-3 not implemented: No outdoor materials storage area is proposed for the project.			

Form I-4 Page 2 of 3			
Source Control Requirement	**Implemented?**		
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-4 not implemented: No outdoor work area is proposed for the project.			
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-5 not implemented: No outdoor trash storage area is proposed for the project.			

Form I-4 Page 3 of 3			
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)	**Implemented?**		
Onsite storm drain inlets	☒ Yes	☐ No	☐ N/A
Interior floor drains and elevator shaft sump pumps	☒ Yes	☐ No	☐ N/A
Interior parking garages	☒ Yes	☐ No	☐ N/A
Need for future indoor & structural pest control	☒ Yes	☐ No	☐ N/A
Landscape/outdoor pesticide use	☒ Yes	☐ No	☐ N/A
Pools, spas, ponds, decorative fountains, and other water features	☒ Yes	☐ No	☐ N/A
Food service	☒ Yes	☐ No	☐ N/A
Refuse area	☐ Yes	☐ No	☒ N/A
Industrial processes	☐ Yes	☐ No	☒ N/A
Outdoor storage of equipment or materials	☐ Yes	☐ No	☒ N/A
Vehicle and equipment cleaning	☐ Yes	☐ No	☒ N/A
Vehicle/equipment repair and maintenance	☐ Yes	☐ No	☒ N/A
Fuel dispensing areas	☐ Yes	☐ No	☒ N/A
Loading docks	☐ Yes	☐ No	☒ N/A
Fire sprinkler test water	☒ Yes	☐ No	☐ N/A
Miscellaneous drain or wash water	☒ Yes	☐ No	☐ N/A
Plazas, sidewalks, and parking lots	☒ Yes	☐ No	☐ N/A

Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for all "No" answers shown above.

All non-stormwater discharges from the project will be eliminated by way of scheduled maintenance discussed in the Operations and Maintenace manual, employee/tenant education, regular trash service, irrigation inspection/maintenance, covered trash areas, storm drain placards, and street and parking lot sweeping BMPs to ensure runoff pollutants are controlled at its sources. Responsibility lies with JH Real Estate Partners, Inc.

Site Design BMP Checklist for All Development Projects (Standard Projects and PDPs)	Form I-5

Project Identification

Project Name: 401 Mission Avenue Mixed Use

Permit Application Number: RT23-00001

Site Design BMPs

All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the manual for information to implement site design BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided.

Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	☐ Yes	☐ No	☒ N/A
Discussion / justification if SD-1 not implemented: The existing site is fully developed with concrete storm drain pipes serving as drainage systems.			
SD-2 Conserve Natural Areas, Soils, and Vegetation	☐ Yes	☐ No	☒ N/A
Discussion / justification if SD-2 not implemented: The existing site is fully developed with no natural areas.			
SD-3 Minimize Impervious Area	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-3 not implemented: The proposed development is a multi-story structure with large floor-to-area ratio, which greatly increases the useable area within a smaller footprint and allow for the incorporation of more pervious/landscape features into the site.			
SD-4 Minimize Soil Compaction	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-4 not implemented: Almost the entire area will be used for the mixed-use building and plaza, where soil compaction is critical for supporting the load. Soil compaction will be minimized where applicable near planned BMP biofiltration units and landscaping areas. If this cannot be achieved, these post-construction regions will be re-tilled and amended if practicable.			

Form I-5 Page 2 of 2			
Site Design Requirement	**Applied?**		
SD-5 Impervious Area Dispersion	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-5 not implemented: Landscaped features are proposed throughout the project, both onsite and offsite, to intercept runoff from impervious areas. Refer to DMA Exhibit depicting flow arrows to pervious areas. Landscape features are provided offsite and onsite totaling 13,136 square feet.			
SD-6 Runoff Collection	☐ Yes	☒ No	☐ N/A
Discussion / justification if SD-6 not implemented: Infiltration BMPs are not implemented. Infiltration BMPs as noted on Form I-6 are not utilized on site due to infeasible infiltration rate measured at 0.01 inches per hour, 15-feet below existing grade.			
SD-7 Landscaping with Native or Drought Tolerant Species	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-7 not implemented: Native/drought-tolerant species are proposed for all landscaped features.			
SD-8 Harvesting and Using Precipitation	☐ Yes	☒ No	☐ N/A
Discussion / justification if SD-8 not implemented: The site design is not feasible for the harvest-and-use BMP, as there is insufficient landscaping demand for the project.			

Summary of PDP Structural BMPs	Form I-6 (PDPs)
Project Identification	
Project Name: 401 Mission Avenue Mixed Use	
Permit Application Number: RT23-00001	
PDP Structural BMPs	
All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the manual). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s). PDP structural BMPs must be verified by the local jurisdiction at the completion of construction. This may include requiring the project owner or project owner's representative to certify construction of the structural BMPs (see Section 1.12 of the manual). PDP structural BMPs must be maintained into perpetuity, and the local jurisdiction must confirm the maintenance (see Section 7 of the manual). Use this form to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP).	
Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate. In choosing the structural BMP at the site, feasibility of retention BMPs (i.e. infiltration-based BMPs (INF) and harvest-and-use (HU) BMPs) were first considered. Per the Geotechnical Report dated September 2022, stormwater infiltration is not recommended at the subject site due to the site's infeasible infiltration rate of 0.01in/hr at 15' below ground surface. The site design is also not feasible for the harvest-and-use BMPs, as there is likely insufficient landscaping demand. Biofiltration (BF) BMPs were selected as the site's structural BMP. Both BF-1 (traditional biofiltration BMP) and BF-3 (Proprietary Biofiltration BMP) will be used depending on the site design and space constraints of the project. Three BF-3 deployed along the building's north frontage and plaza area where space is limited, and two BF-1 will be deployed along the building's south perimeter. (Continue on page 2 as necessary.)	

(Page reserved for continuation of description of general strategy for structural BMP implementation at the site)

(Continued from page 1)

Roof runoff, which makes up most of the onsite area, will be collected and conveyed towards the biofiltration BMPs via downspouts and underground pipes. Runoff from the ground area (i.e. outdoor courtyard, pedestrian walkways) will be intercepted by area drains and routed towards the biofiltration BMPs.

Roof runoff from the northern half of the proposed building will be piped underground and combined with area drain flow from the plaza area and directed into the BF-3 BMPs (MWS-L-4-8-V for BMP #1, #3, and MWS-L-6-8 for BMP #2). The treated runoff is then directed towards the two northerly 12" storm drain laterals and discharge offsite.

Runoff from the southern half of the proposed building will be discharged on top of the two BF-1 BMPs (Raised planter boxes/BMP #4 and #5) via downspouts, where the treated runoff is piped towards the southerly storm drain lateral and discharge offsite. (It is noted that the water in the above ground pool will not drain towards the BMPs, but to the sewer system. This area is accounted for in the BMP sizing for simplicity. This is also applicable to Source Control BMP SC-6E.)

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 1

Construction Plan Sheet No. DMA Exhibit

Type of structural BMP:

☐Retention by harvest and use (HU-1)

☐Retention by infiltration basin (INF-1)

☐Retention by bioretention (INF-2)

☐Retention by permeable pavement (INF-3)

☐Partial retention by biofiltration with partial retention (PR-1)

☒Proprietary Biofiltration (BF-3)

☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)

☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)

☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)

☐Detention pond or vault for hydromodification management

☐Other (describe in discussion section below)

Purpose:

☒Pollutant control only

☐Hydromodification control only

☐Combined pollutant control and hydromodification control

☐Pre-treatment/forebay for another structural BMP

☐Other (describe in discussion section below)

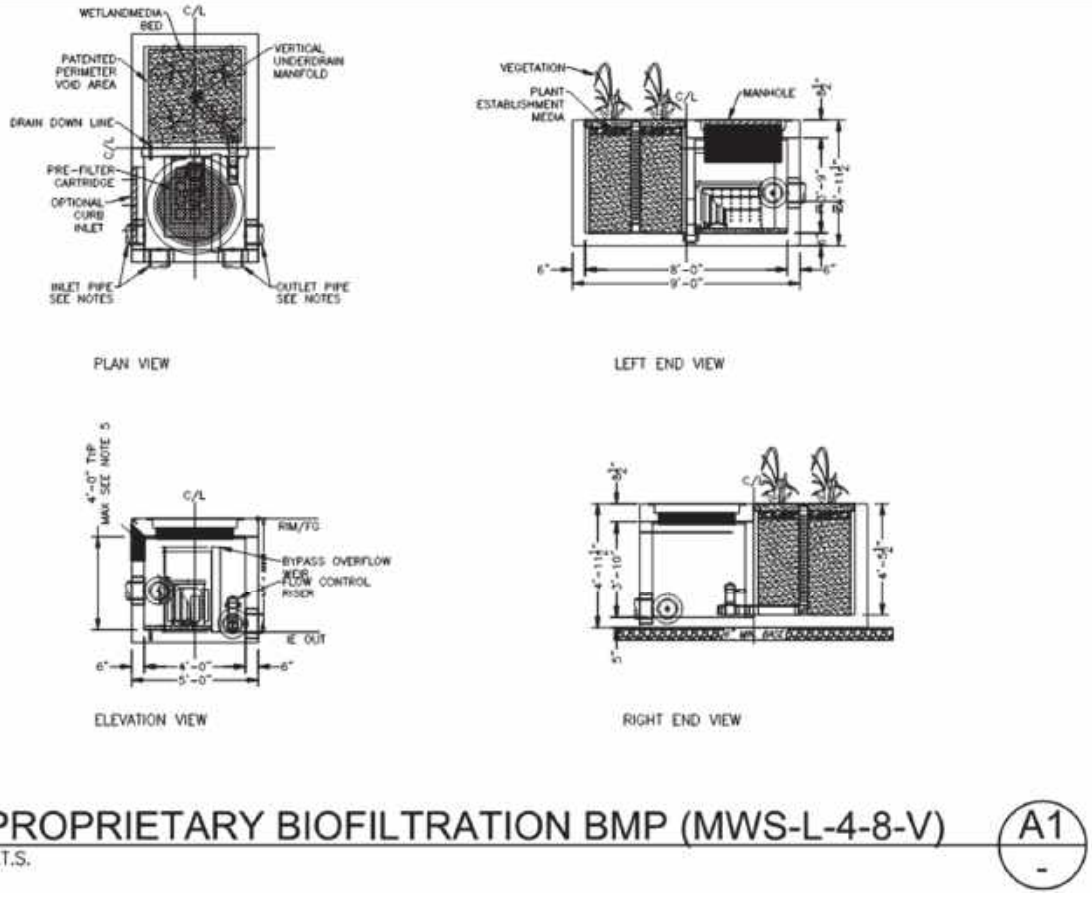
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the manual)	Suleen Lao, PE
Who will be the final owner of this BMP?	JH Real Estate Partners, Inc
Who will maintain this BMP into perpetuity?	JH Real Estate Partners, Inc
What is the funding mechanism for maintenance?	JH Real Estate Partners, Inc

Structural BMP Summary Information

(Copy this page as needed to provide information for each individual proposed structural BMP)

Discussion (as needed):

The BMP is a proprietary biofiltration BMP that meets the City of Oceanside specific guidance and criteria in meeting biofiltration requirements. This BMP is a compact BMP that is used in area where space is constrained and where the site design makes traditional biofiltration BMP an infeasible option. The BMP is a horizontal flow system, where stormwater is treated by flowing through the soil media horizontally instead of vertically, which allows for underground piping and routing of runoff to the system. The BMPs will be placed in the plaza area along the building frontage. The outer dimension of the BMP measures 5'W by 9'L as indicated on the details before.



Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 2

Construction Plan Sheet No. DMA Exhibit

Type of structural BMP:

☐Retention by harvest and use (HU-1)

☐Retention by infiltration basin (INF-1)

☐Retention by bioretention (INF-2)

☐Retention by permeable pavement (INF-3)

☐Partial retention by biofiltration with partial retention (PR-1)

☒Proprietary Biofiltration (BF-3)

☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)

☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)

☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)

☐Detention pond or vault for hydromodification management

☐Other (describe in discussion section below)

Purpose:

☒Pollutant control only

☐Hydromodification control only

☐Combined pollutant control and hydromodification control

☐Pre-treatment/forebay for another structural BMP

☐Other (describe in discussion section below)

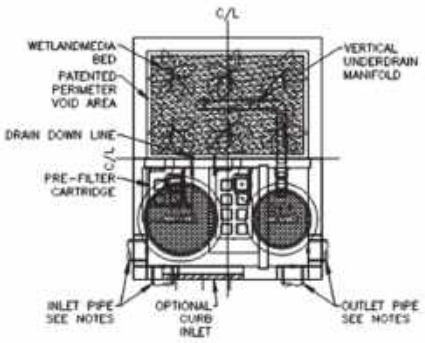
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the manual)	Suleen Lao, PE
Who will be the final owner of this BMP?	JH Real Estate Partners, Inc
Who will maintain this BMP into perpetuity?	JH Real Estate Partners, Inc
What is the funding mechanism for maintenance?	JH Real Estate Partners, Inc

Structural BMP Summary Information

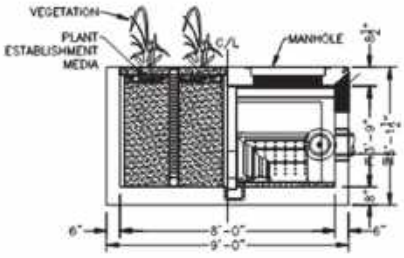
(Copy this page as needed to provide information for each individual proposed structural BMP)

Discussion (as needed):

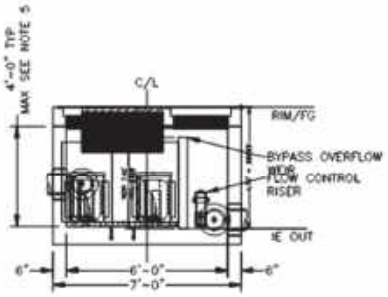
The BMP is a proprietary biofiltration BMP that meets the City of Oceanside specific guidance and criteria in meeting biofiltration requirements. This BMP is a compact BMP that is used in area where space is constrained and where the site design makes traditional biofiltration BMP an infeasible option. The BMP is a horizontal flow system, where stormwater is treated by flowing through the soil media horizontally instead of vertically, which allows for underground piping and routing of runoff to the system. The BMPs will be placed in the plaza area along the building frontage. The outer dimension of the BMP measures 7'W by 9'L as indicated on the details before.



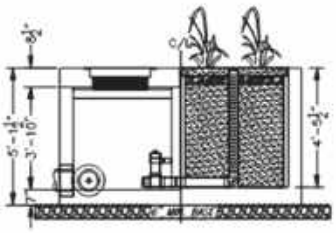
PLAN VIEW



LEFT END VIEW



ELEVATION VIEW



RIGHT END VIEW

PROPRIETARY BIOFILTRATION BMP (MWS-L-6-8-V) A2

N.T.S. -

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 3

Construction Plan Sheet No. DMA Exhibit

Type of structural BMP:

☐Retention by harvest and use (HU-1)

☐Retention by infiltration basin (INF-1)

☐Retention by bioretention (INF-2)

☐Retention by permeable pavement (INF-3)

☐Partial retention by biofiltration with partial retention (PR-1)

☒Proprietary Biofiltration (BF-3)

☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)

☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)

☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)

☐Detention pond or vault for hydromodification management

☐Other (describe in discussion section below)

Purpose:

☒Pollutant control only

☐Hydromodification control only

☐Combined pollutant control and hydromodification control

☐Pre-treatment/forebay for another structural BMP

☐Other (describe in discussion section below)

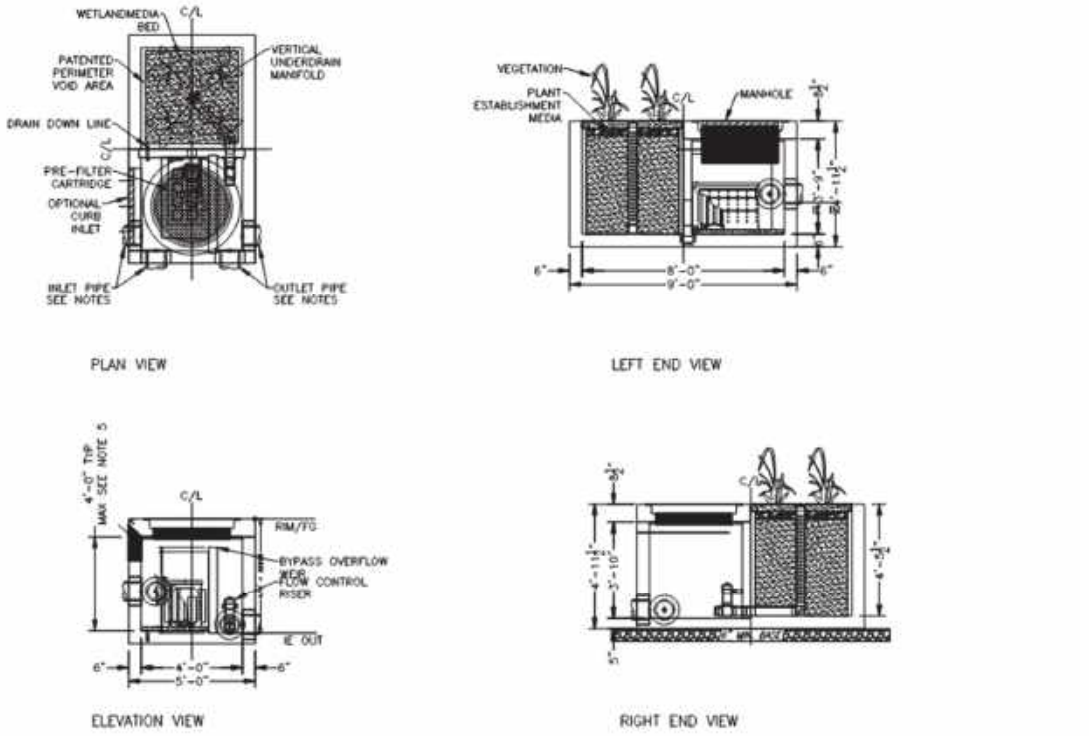
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the manual)	Suleen Lao, PE
Who will be the final owner of this BMP?	JH Real Estate Partners, Inc
Who will maintain this BMP into perpetuity?	JH Real Estate Partners, Inc
What is the funding mechanism for maintenance?	JH Real Estate Partners, Inc

Structural BMP Summary Information

(Copy this page as needed to provide information for each individual proposed structural BMP)

Discussion (as needed):

The BMP is a proprietary biofiltration BMP that meets the City of Oceanside specific guidance and criteria in meeting biofiltration requirements. This BMP is a compact BMP that is used in area where space is constrained and where the site design makes traditional biofiltration BMP an infeasible option. The BMP is a horizontal flow system, where stormwater is treated by flowing through the soil media horizontally instead of vertically, which allows for underground piping and routing of runoff to the system. The BMPs will be placed in the plaza area along the building frontage. The outer dimension of the BMP measures 5'W by 9'L as indicated on the details before.



PROPRIETARY BIOFILTRATION BMP (MWS-L-4-8-V) A1

N.T.S. -

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 4

Construction Plan Sheet No. DMA Exhibit

Type of structural BMP:

☐Retention by harvest and use (HU-1)

☐Retention by infiltration basin (INF-1)

☐Retention by bioretention (INF-2)

☐Retention by permeable pavement (INF-3)

☐Partial retention by biofiltration with partial retention (PR-1)

☒Biofiltration (BF-1)

☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)

☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)

☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)

☐Detention pond or vault for hydromodification management

☐Other (describe in discussion section below)

Purpose:

☒Pollutant control only

☐Hydromodification control only

☐Combined pollutant control and hydromodification control

☐Pre-treatment/forebay for another structural BMP

☐Other (describe in discussion section below)

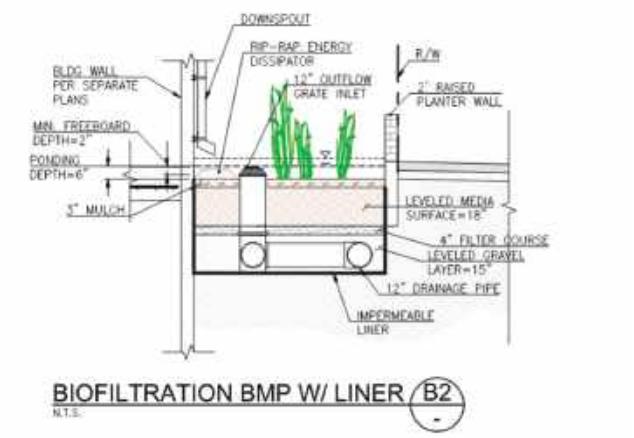
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the manual)	Suleen Lao, PE
Who will be the final owner of this BMP?	JH Real Estate Partners, Inc
Who will maintain this BMP into perpetuity?	JH Real Estate Partners, Inc
What is the funding mechanism for maintenance?	JH Real Estate Partners, Inc

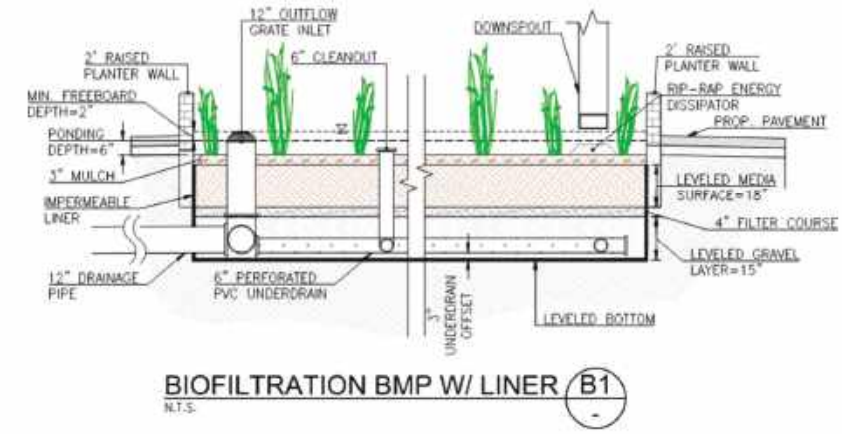
Structural BMP Summary Information

(Copy this page as needed to provide information for each individual proposed structural BMP)

Discussion (as needed):

The BMP is a traditional biofiltration BMP strategically placed along the building wall with downspout(s) discharging roof runoff onto an energy dissipator in the BMP. The BMP will have raised planter wall for pedestrian safety. The stormwater is then treated through trickling into the soil media and collected in a perforated pipe, which eventually discharges into a storm drain pipe connected to the offsite storm drain lateral.





Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 5

Construction Plan Sheet No. DMA Exhibit

Type of structural BMP:

☐Retention by harvest and use (HU-1)

☐Retention by infiltration basin (INF-1)

☐Retention by bioretention (INF-2)

☐Retention by permeable pavement (INF-3)

☐Partial retention by biofiltration with partial retention (PR-1)

☒Biofiltration (BF-1)

☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)

☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)

☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)

☐Detention pond or vault for hydromodification management

☐Other (describe in discussion section below)

Purpose:

☒Pollutant control only

☐Hydromodification control only

☐Combined pollutant control and hydromodification control

☐Pre-treatment/forebay for another structural BMP

☐Other (describe in discussion section below)

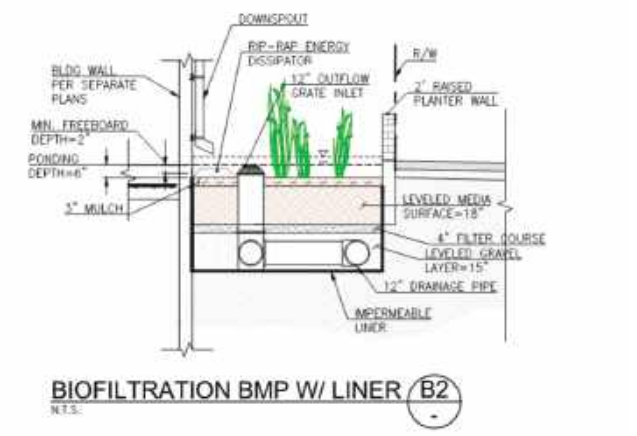
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the manual)	Suleen Lao, PE
Who will be the final owner of this BMP?	JH Real Estate Partners, Inc
Who will maintain this BMP into perpetuity?	JH Real Estate Partners, Inc
What is the funding mechanism for maintenance?	JH Real Estate Partners, Inc

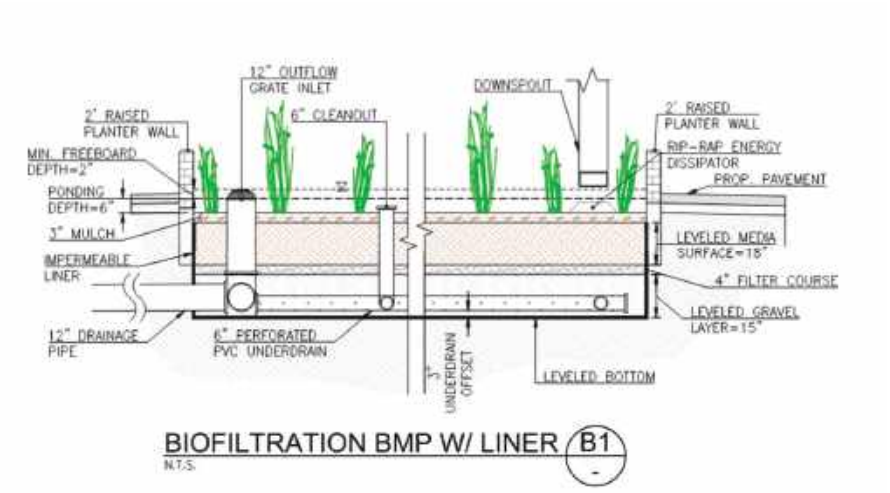
Structural BMP Summary Information

(Copy this page as needed to provide information for each individual proposed structural BMP)

Discussion (as needed):

The BMP is a traditional biofiltration BMP strategically placed along the building wall with downspout(s) discharging roof runoff onto an energy dissipator in the BMP. The BMP will have raised planter wall for pedestrian safety. The stormwater is then treated through trickling into the soil media and collected in a perforated pipe, which eventually discharges into a storm drain pipe connected to the offsite storm drain lateral.





	City of Oceanside 300 N Coast Highway Oceanside, CA 92054	**Permanent BMP Construction** **Self Certification Form**	February 2016

Date Prepared: 09/26/2024	Project No.: RT23-00001
Project Applicant: JH Real Estate Partners, Inc	Phone: 949.723.8989
Project Address: 401 Mission Avenue, Oceanside, CA 92054	
Project Engineer: Suleen Lao, PE	Phone: 949.522.7100

The purpose of this form is to verify that the site improvements for the project, identified above, have been constructed in conformance with the approved Storm Water Quality Management Plan (SWQMP) documents and drawings.

This form must be completed by the engineer and installing contractor and submitted prior to final inspection of the construction permit. Completion and submittal of this form is required for all new development and redevelopment projects in order to comply with the City's Storm Water ordinances and NDPES Permit Order No. R9-2013-0001. Final inspection for occupancy and/or release of grading or public improvement bonds may be delayed if this form is not submitted and approved by the City of Oceanside.

ENGINEER'S CERTIFICATION:

As the professional in responsible charge for the design of the above project, I certify that I have inspected all constructed Low Impact Development (LID) site design, source control and treatment control BMP's required per the approved SWQMP and Construction Permit No. Click here to enter text.; and that said BMP's have been constructed in compliance with the approved plans and all applicable specifications, permits, ordinances and Order No. R9-2013-0001 of the San Diego Regional Water Quality Control Board.

I understand that this BMP certification statement does not constitute an operation and maintenance verification.

Signature: _____

Date of Signature: 09/26/2024

Printed Name: _ Suleen Lao, PE_____

Title: _ Project Manager_____

Phone No. _ 949.522.7100 _____



Engineer's Stamp

CONTRACTOR'S CERTIFICATION:

As the professional in responsible charge for construction of the above project, I certify that all constructed Low Impact Development (LID) site design, source control and treatment control BMP's required per the approved SWQMP and Construction Permit No. Click here to enter text.; have been constructed in compliance with the approved plans and all applicable specifications, permits, and ordinances.

I understand that this BMP certification statement does not constitute an operation and maintenance verification.

Signature: _____

Date of Signature: September 23, 2024

Printed Name: Ernest Rivas

Title: Vice President, Dire

Phone No. 949-723-8989 ext 104

ATTACHMENT 1

BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

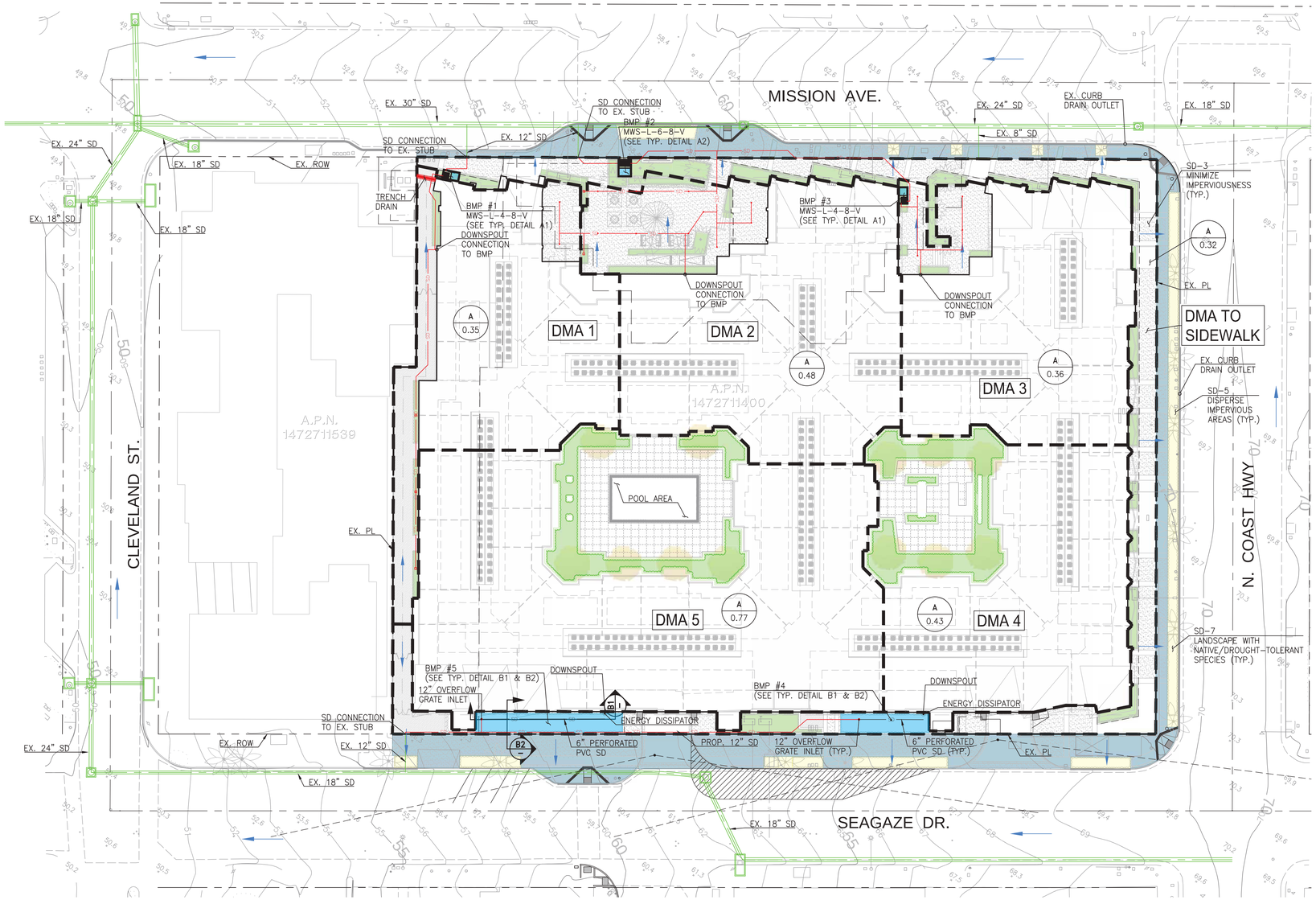
Indicate which Items are Included:

Attachment Sequence	Contents	Checklist
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist.	☒Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	☒Included on DMA Exhibit in Attachment 1a ☐Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	Design Capture Volume Worksheet	☒Included
Attachment 1d	Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs) Refer to Appendix B.3-1 of the BMP Design Manual to complete Form I-7.	☒Included ☐Not included because the entire project will use infiltration BMPs
Attachment 1e	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	☒Included ☐Not included because the entire project will use harvest and use BMPs
Attachment 1f	Pollutant Control BMP Design Worksheets / Calculations (Required) Refer to Appendices B and E of the BMP Design Manual for structural pollutant control BMP design guidelines	☒Included

Use this checklist to ensure the required information has been included on the DMA Exhibit:

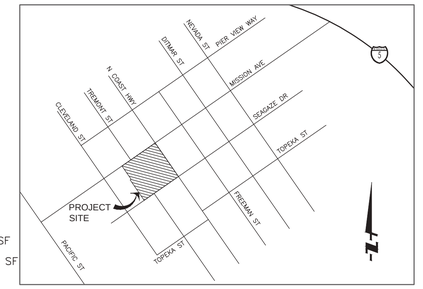
The DMA Exhibit must identify:

☒Underlying hydrologic soil group
☒Approximate depth to groundwater
☐Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☐Critical coarse sediment yield areas to be protected
☒Existing topography and impervious areas
☒Existing and proposed site drainage network and connections to drainage offsite
☒Proposed grading
☒Proposed impervious features
☒Proposed design features and surface treatments used to minimize imperviousness
☒Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
☒Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form I-3B)
☒Structural BMPs (identify location, type of BMP, and size/detail)

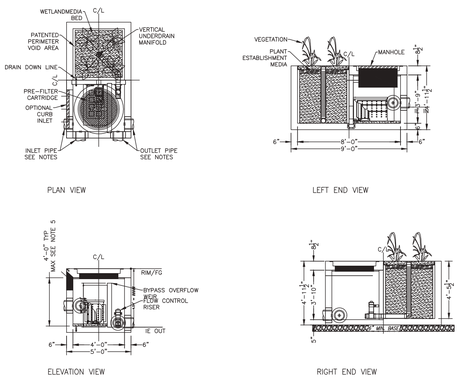


LEGEND

- PROPOSED DMA
- EXISTING RIGHT OF WAY
- PROPERTY BOUNDARY
- A 0.64 — HYDROLOGIC SOILS GROUP ACREAGE
- SURFACE FLOW DIRECTION
- SD — PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED LID BMP
- PERVIOUS AREA (ONSITE)
- RETROFITTED PERVIOUS AREA (OFFSITE)– 2,841 SF
- RETROFITTED IMPERVOUS AREA (OFFSITE)–10,742 SF



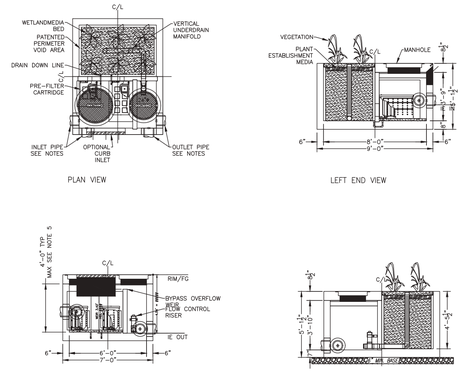
VICINITY MAP
NOT TO SCALE



PLAN VIEW — LEFT END VIEW — ELEVATION VIEW — RIGHT END VIEW

PROPRIETARY BIOFILTRATION BMP (MWS-L-4-8-V) A1

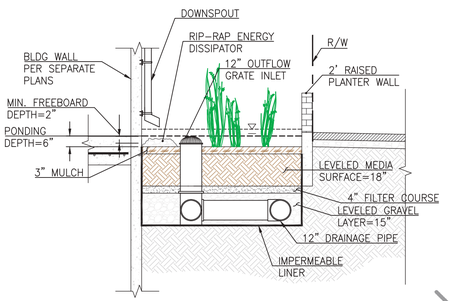
N.T.S.



PLAN VIEW — LEFT END VIEW — ELEVATION VIEW — RIGHT END VIEW

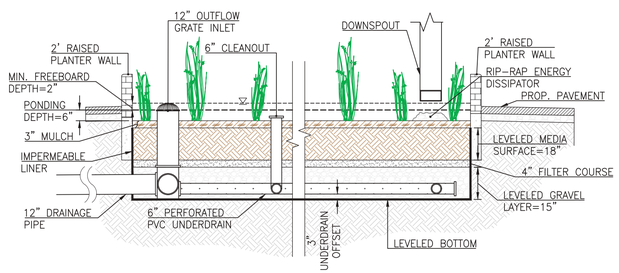
PROPRIETARY BIOFILTRATION BMP (MWS-L-6-8-V) A2

N.T.S.



BIOFILTRATION BMP W/ LINER B2

N.T.S.



BIOFILTRATION BMP W/ LINER B1

N.T.S.

ONSITE SWQMP SUMMARY

DMA DESIGNATION	DMA 1	DMA 2	DMA 3	DMA 4	DMA 5	DMA TO SIDEWALK**	PROJECT TOTAL (ONSITE)
PERVIOUS AREA* (AC)	0	0	0	0	0	0.10	0.10
IMPERVIOUS AREA (AC)	0.35	0.48	0.36	0.46	0.77	0.22	2.61
TOTAL AREA (AC)	0.35	0.48	0.36	0.46	0.77	0.32	2.71
DESIGN CAPTURE VOLUME (CF)	683	948	713	844	1,508	442***	–
BMP TYPE	PROPRIETARY BIOFILTRATION BMP (MWS-L-4-8-V)	PROPRIETARY BIOFILTRATION BMP (MWS-L-6-8-V)	PROPRIETARY BIOFILTRATION BMP (MWS-L-4-8-V)	BIOFILTRATION BMP W/ IMPERMEABLE LINER	BIOFILTRATION BMP W/ IMPERMEABLE LINER	DISPERSION TO TREE WELLS AND LANDSCAPED AREA ALONG ROW TO MEP	–
REQUIRED BMP DESIGN VOLUME OR FLOWRATE (CF OR CFS)	0.094 CFS	0.131 CFS	0.098 CFS	1,113 CF	2,016 CF	–	–
PROVIDED BMP DESIGN VOLUME OR FLOWRATE (CF)	0.115 CFS	0.147 CFS	0.115 CFS	1,821 CF****	3025 CF****	–	–

* ASSUMED TO BE ZERO FOR CONSERVATIVE BMP SIZING.
** GREEN STREET FEATURES SUCH AS LANDSCAPING AREAS AND STREET TREES ALONG ROW ARE PROVIDED TO THE MAXIMUM EXTENT PRACTICABLE AS RUNOFF DISPERSION MEASURES. A PORTION OF THE IMPERVIOUS AREA IN THIS DMA (0.12AC) IS INFEASIBLE TO BE DIRECTED TO LID BMPs DUE TO CONFLICTS WITH OTHER ROW USES AND RESTRICTIVE SITE LAYOUT FOR DRAINAGE DESIGN.
*** DCV FROM THESE AREAS ARE COMPENSATED BY OVERSIZING BMP_S FOR THE OTHER DMAS, PARTICULARLY BMP 4 AND 5.
**** CALCULATED AS TOTAL DEPTH FILTERED MULTIPLIED BY PROVIDED BMP SURFACE AREA PER COUNTY BMPDM WORKSHEET, STEP 3, LINE 41.

NOTES

1. PROJECT DISCHARGE RUNOFF DIRECTLY TO EXISTING UNDERGROUND STORM DRAINS DISCHARGING DIRECTLY TO PACIFIC OCEAN AND IS THEREFORE EXEMPTED FROM HYDROMODIFICATION MANAGEMENT REQUIREMENTS.
2. GROUNDWATER IS ENCOUNTERED AT 43' BELOW GROUND SURFACE DURING SOILS EXPLORATION.
3. ENTIRE PROJECT SITE IS UNDERLAIN BY HYDROLOGIC SOILS GROUP A.
4. ROOFTOP BOUNDARIES ARE ASSUMED AND WILL BE CONFIRMED AT FINAL ENGINEERING PHASE
5. PUBLIC RIGHT OF WAY DRAINS TO LANDSCAPE POCKETS BY GRADING DESIGN AND SURFACE FLOW.

30' 0' 15' 30'
SCALE: 1" = 30'

DMA EXHIBIT

401 MISSION AVENUE
MIXED-USE
OCEANSIDE, CA

X ENGINEERING & CONSULTING, INC.
6 Hutton Centre Drive, Suite 650
Santa Ana, California 92707
949.522.7100 | xengineeringinc.com

P:\135\002\Reports\Entitlement\WQMP - Preliminary\Exhibits\135-002_DMA Exhibit.dwg Plotted At: September 11, 2024 10:26 AM Last Saved By: RandyRettig Last Saved At: September 11, 2024 10:18 AM

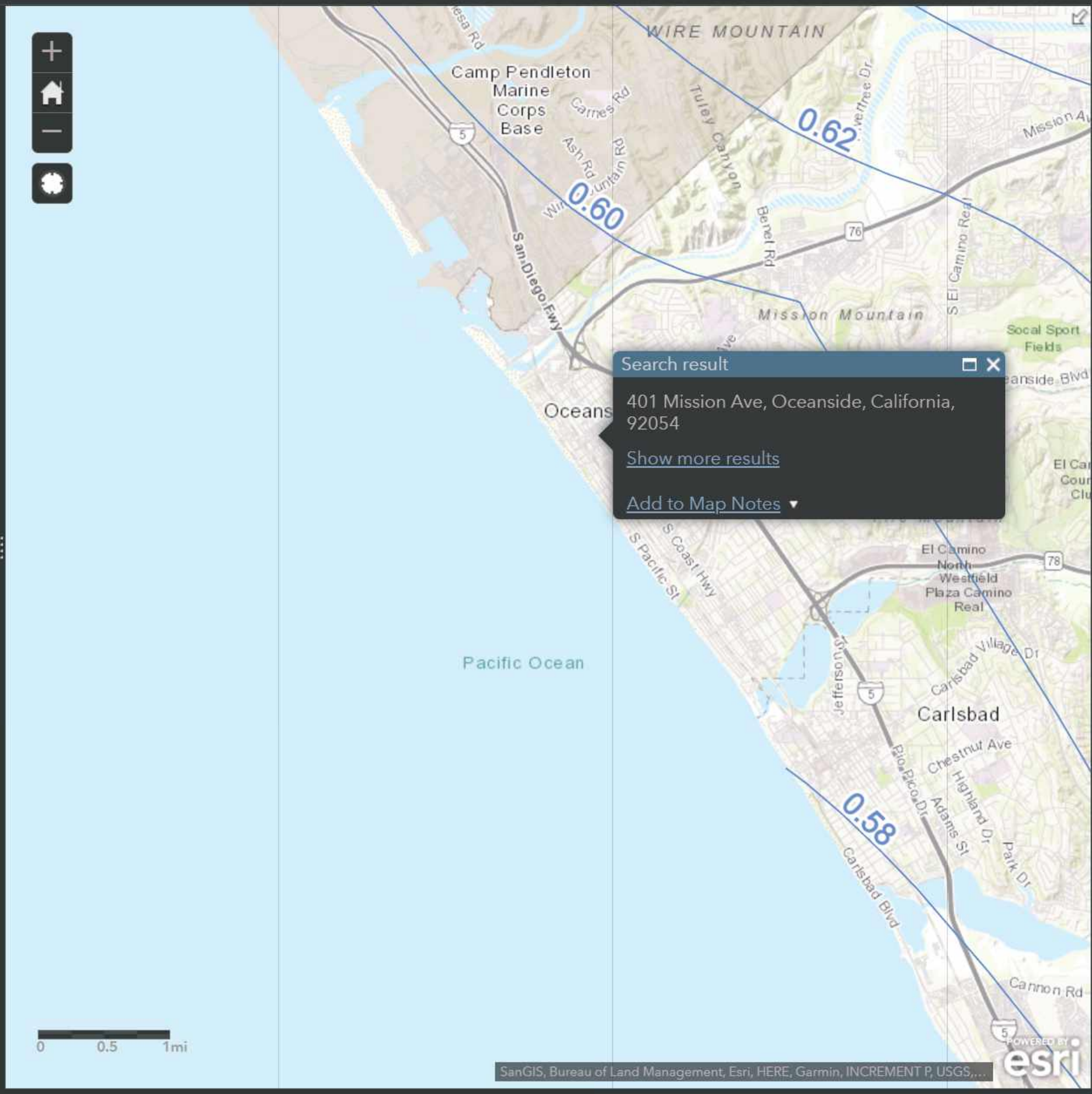
Home | 85th Percentile Rainfall

Open in new Map Viewer | Sign In

Details | Basemap | Share | Print | Measure | 401 Mission Avenue, Oceanside

Legend

85th Percentile Rainfall



Contact Us

Automated Worksheet B.1: Calculation of Design Capture Volume (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	1	2	3	4	5	TO SIDEWALK (onsite only)	unitless
	2	85th Percentile 24-hr Storm Depth	0.60	0.60	0.60	0.60	0.60	0.60	inches
	3	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	15,168	21,064	15,854	18,756	33,515	5,058	sq-ft
	4	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)							sq-ft
	5	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)						1,509	sq-ft
	6	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)						2,795	sq-ft
	7	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)							sq-ft
	8	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)							sq-ft
	9	Natural Type D Soil Not Serving as Dispersion Area (C=0.30)							sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	No	No	No	No	No	n/a	yes/no
	11	Impervious Surfaces **Directed to Dispersion Area** per SD-B (Ci=0.90)						~~4,458~~	sq-ft
	12	Semi-Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.30)							sq-ft
	13	Engineered Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.10)							sq-ft
	14	Natural Type A Soil **Serving as Dispersion Area** per SD-B (Ci=0.10)							sq-ft
	15	Natural Type B Soil **Serving as Dispersion Area** per SD-B (Ci=0.14)							sq-ft
	16	Natural Type C Soil **Serving as Dispersion Area** per SD-B (Ci=0.23)							sq-ft
	17	Natural Type D Soil **Serving as Dispersion Area** per SD-B (Ci=0.30)							sq-ft
	18	Number of Tree Wells Proposed per SD-A							#
	19	Average Mature Tree Canopy Diameter							ft
	20	Number of Rain Barrels Proposed per SD-E							#
	21	Average Rain Barrel Size							gal
Initial Runoff Factor Calculation	22	Total Tributary Area	15,168	21,064	15,854	18,756	33,515	13,820	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.90	0.90	0.90	0.90	0.90	0.53	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	0.00	0.00	0.00	0.00	0.90	unitless
	25	Initial Weighted Runoff Factor	0.90	0.90	0.90	0.90	0.90	0.65	unitless
	26	Initial Design Capture Volume	683	948	713	844	1,508	449	cubic-feet
Dispersion Area Adjustments	27	Total Impervious Area Dispersed to Pervious Surface	0	0	0	0	0	4,458	sq-ft
	28	Total Pervious Dispersion Area	0	0	0	0	0	0	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	n/a	n/a	n/a	n/a	n/a	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	1.00	1.00	1.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.90	0.90	0.90	0.90	0.90	0.65	unitless
	32	Design Capture Volume After Dispersion Techniques	683	948	713	844	1,508	449	cubic-feet
Tree & Barrel Adjustments	33	Total Tree Well Volume Reduction	0	0	0	0	0	0	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	cubic-feet
Results	35	Final Adjusted Runoff Factor	0.90	0.90	0.90	0.90	0.90	0.65	unitless
	36	Final Effective Tributary Area	13,651	18,958	14,269	16,880	30,164	8,983	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	0	0	0	0	0	0	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	683	948	713	844	1,508	449	cubic-feet

No Warning Messages

Automated Worksheet B.2: Retention Requirements (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	Units
Basic Analysis	1	Drainage Basin ID or Name	1	2	3	4	5	TO SIDEWALK (onsite only)	unitless
	2	85th Percentile Rainfall Depth	0.60	0.60	0.60	0.60	0.60	0.60	inches
	3	Predominant NRCS Soil Type Within BMP Location	A	A	A	A	A	A	unitless
	4	Is proposed BMP location Restricted or Unrestricted for Infiltration Activities?	Restricted	Restricted	Restricted	Restricted	Restricted	Restricted	unitless
	5	Nature of Restriction	Soil Type	Soil Type	Soil Type	Soil Type	Soil Type	Prop. Line	unitless
	6	Do Minimum Retention Requirements Apply to this Project?	Yes	Yes	Yes	Yes	Yes	Yes	yes/no
	7	Are Habitable Structures Greater than 9 Stories Proposed?	No	No	No	No	No	No	yes/no
Advanced Analysis	8	Has Geotechnical Engineer Performed an Infiltration Analysis?	Yes	Yes	Yes	Yes	Yes	Yes	yes/no
	9	Design Infiltration Rate Recommended by Geotechnical Engineer	0.010	0.010	0.010	0.010	0.010	0.010	in/hr
Result	10	Design Infiltration Rate Used To Determine Retention Requirements	0.000	0.000	0.000	0.000	0.000	0.000	in/hr
	11	Percent of Average Annual Runoff that Must be Retained within DMA	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	percentage
	12	Fraction of DCV Requiring Retention	0.02	0.02	0.02	0.02	0.02	0.02	ratio
	13	Required Retention Volume	14	19	14	17	30	9	cubic-feet

No Warning Messages

Automated Worksheet B.3: BMP Performance (V2.0)

Category	#	Description	*iv*	*v*	Units
BMP Inputs	1	Drainage Basin ID or Name	4	5	sq-ft
	2	Design Infiltration Rate Recommended	0.000	0.000	in/hr
	3	Design Capture Volume Tributary to BMP	844	1,508	cubic-feet
	4	Is BMP Vegetated or Unvegetated?	Vegetated	Vegetated	unitless
	5	Is BMP Impermeably Lined or Unlined?	Lined	Lined	unitless
	6	Does BMP Have an Underdrain?	Underdrain	Underdrain	unitless
	7	Does BMP Utilize Standard or Specialized Media?	Standard	Standard	unitless
	8	Provided Surface Area	463	769	sq-ft
	9	Provided Surface Ponding Depth	6	6	inches
	10	Provided Soil Media Thickness	18	18	inches
	11	Provided Gravel Thickness (Total Thickness)	15	15	inches
	12	Underdrain Offset	3	3	inches
	13	Diameter of Underdrain or Hydromod Orifice (Select Smallest)	6.00	6.00	inches
	14	Specialized Soil Media Filtration Rate			in/hr
	15	Specialized Soil Media Pore Space for Retention			unitless
	16	Specialized Soil Media Pore Space for Biofiltration			unitless
	17	Specialized Gravel Media Pore Space			unitless
Retention Calculations	18	Volume Infiltrated Over 6 Hour Storm	0	0	cubic-feet
	19	Ponding Pore Space Available for Retention	0.00	0.00	unitless
	20	Soil Media Pore Space Available for Retention	0.05	0.05	unitless
	21	Gravel Pore Space Available for Retention (Above Underdrain)	0.00	0.00	unitless
	22	Gravel Pore Space Available for Retention (Below Underdrain)	0.40	0.40	unitless
	23	Effective Retention Depth	2.10	2.10	inches
	24	Fraction of DCV Retained (Independent of Drawdown Time)	0.10	0.09	ratio
	25	Calculated Retention Storage Drawdown Time	120	120	hours
	26	Efficacy of Retention Processes	0.12	0.11	ratio
	27	Volume Retained by BMP (Considering Drawdown Time)	102	164	cubic-feet
	28	Design Capture Volume Remaining for Biofiltration	742	1,344	cubic-feet
Biofiltration Calculations	29	Max Hydromod Flow Rate through Underdrain	1.5678	1.5678	cfs
	30	Max Soil Filtration Rate Allowed by Underdrain Orifice	146.28	88.07	in/hr
	31	Soil Media Filtration Rate per Specifications	5.00	5.00	in/hr
	32	Soil Media Filtration Rate to be used for Sizing	5.00	5.00	in/hr
	33	Depth Biofiltered Over 6 Hour Storm	30.00	30.00	inches
	34	Ponding Pore Space Available for Biofiltration	1.00	1.00	unitless
	35	Soil Media Pore Space Available for Biofiltration	0.20	0.20	unitless
	36	Gravel Pore Space Available for Biofiltration (Above Underdrain)	0.40	0.40	unitless
	37	Effective Depth of Biofiltration Storage	14.40	14.40	inches
	38	Drawdown Time for Surface Ponding	1	1	hours
	39	Drawdown Time for Effective Biofiltration Depth	3	3	hours
	40	Total Depth Biofiltered	44.40	44.40	inches
	41	Option 1 - Biofilter 1.50 DCV: Target Volume	1,113	2,016	cubic-feet
	42	Option 1 - Provided Biofiltration Volume	1,113	2,016	cubic-feet
	43	Option 2 - Store 0.75 DCV: Target Volume	557	1,008	cubic-feet
	44	Option 2 - Provided Storage Volume	556	923	cubic-feet
	45	Portion of Biofiltration Performance Standard Satisfied	1.00	1.00	ratio
Result	46	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	Yes	Yes	yes/no
	47	Overall Portion of Performance Standard Satisfied (BMP Efficacy Factor)	1.00	1.00	ratio
	48	**Deficit of Effectively Treated Stormwater**	**0**	**0**	cubic-feet

Attention!

- BMPs sized at <3% of the effective tributary areas must be accompanied by Reduced Size BMP Maintenance calculations (see last tab).
- BMPs must have at least 3 inches of gravel below the underdrain. If lined, a maximum of 3 inches of gravel is permitted beneath underdrain

-Minimum annual retention criteria are not satisfied for each individual drainage area. Implement additional site design elements, increase structural BMP retention
-This BMP does not fully satisfy the performance standards for pollutant control for the drainage area.

Automated Worksheet B.4: Reduced Size BMP Maintenance Interval (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Drainage Basin Info	1	Drainage Basin ID or Name	-	-	-	4	5	-	-	-	-	-	unitless
	2	Final Effective Tributary Area	-	-	-	16,880	30,164	-	-	-	-	-	sq-ft
	3	Provided BMP Surface Area	-	-	-	463	769	-	-	-	-	-	sq-ft
Biofiltration Clogging Inputs	4	Average Annual Precipitation				13.0	13.0						inches
	5	Load to Clog (default =2.0)				2.0	2.0						lb/sq-ft
	6	TSS Pretreatment Efficacy				0.00	0.00						yes/no
	7	Percentage "Commercial"				0%	0%						percentage
	8	Percentage "Education"				0%	0%						percentage
	9	Percentage "Industrial"				0%	0%						percentage
	10	Percentage "Low Traffic Areas"				0%	0%						percentage
	11	Percentage "Multi-Family Residential"				0%	0%						percentage
	12	Percentage "Roof Areas"				100%	100%						percentage
	13	Percentage "Single Family Residential"				0%	0%						percentage
	14	Percentage "Transportation"				0%	0%						percentage
	15	Percentage "Vacant/Open Space"				0%	0%						percentage
	16	Percentage "Steep Hillslopes"				0%	0%						percentage
Result	17	Total Percentage of Above Land Uses	0%	0%	0%	100%	100%	0%	0%	0%	0%	0%	percentage
	18	Average TSS Concentration for Tributary After Pretreatment	0	0	0	13	13	0	0	0	0	0	mg/L
	19	Average Annual Runoff Volume	0	0	0	18,287	32,678	0	0	0	0	0	cubic-feet
	20	Average Annual TSS Load	0	0	0	15	27	0	0	0	0	0	lb/yr
	21	Available Sediment Storage within BMP	0	0	0	926	1,538	0	0	0	0	0	lb
	22	Anticipated Major Maintenance Frequency	-	-	-	62.4	58.0	-	-	-	-	-	years

No Warning Messages

City of Oceanside- Flow Based Biotreatment- Worksheet B.6-1

#	Description		*i*	*ii*	*iii*	Units
	Drainage Basin ID or Name		1	2	3	
1	DCV	DCV	683	948	713	cubic-feet
2	DCV retained	$DCV_{retained}$	0	0	0	cubic-feet
3	DCV biofiltered	$DCV_{biofiltered}$	0	0	0	cubic-feet
4	DCV requiring flow-thru (Line 1 – Line 2 – 0.67*Line 3)	$DCV_{flow-thru}$	683	948	713	cubic-feet
5	Adjustment factor (Line 4 / Line 1)*	AF=	1	1	1	unitless
6	Design rainfall intensity	i=	0.20	0.20	0.20	in/hr
7	Area tributary to BMP (s)	A=	15,168	21,064	15,854	acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=	0.90	0.90	0.90	unitless
9	Calculate Flow Rate = AF x (C x i x A)	Q=	0.0627	0.0870	0.0655	cfs
	Proprietary Biofiltration (BF-3) is used?		YES	YES	YES	
	Biofiltration flow rate= Q x 1.5	Q=	0.094	0.131	0.098	cfs
	Proprietary Biofiltration flow rate= Q x 1.5	Q_{BF-3}=	0.155	0.144	0.155	cfs
	Propietary Biofiltration MWS model		L-4-8-V	L-6-8-V	L-4-8-V	

1) Adjustment factor shall be estimated considering only retention and biofiltration BMPs located upstream of flow-thru BMPs. That is, if the flow-thru BMP is upstream of the project's retention and biofiltration BMPs then the flow-thru BMP shall be sized using an adjustment factor of 1.

2) Volume based (e.g., dry extended detention basin) flow-thru treatment control BMPs shall be sized to the volume in Line 4 and flow based (e.g., vegetated swales) shall be sized to flow rate in Line 9. Sand filter and media filter can be designed either by volume in Line 4 or flow rate in Line 9.

3) Proprietary BMPs, if used, shall provide certified treatment capacity equal to or greater than the calculated flow rate in Line 9; certified treatment capacity per unit shall be consistent with third party certifications.

Harvest and Use Feasibility Checklist	Form I-7

1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?

☐ Toilet and urinal flushing

☐ Landscape irrigation

☒ Other: Proposed development is not suitable for harvest and use due to insufficient water demand.

2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2.

[Provide a summary of calculations here]

3. Calculate the DCV using worksheet B-2.1.

DCV = _____ (cubic feet)

3a. Is the 36 hour demand greater than or equal to the DCV?	3b. Is the 36 hour demand greater than 0.25DCV but less than the full DCV?	3c. Is the 36 hour demand less than 0.25DCV?
☐ Yes / ☐ No ⇨ ⇩	☐ Yes / ☐ No ⇨ ⇩	☐ Yes ⇩
Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.	Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.	Harvest and use is considered to be infeasible.

Is harvest and use feasible based on further evaluation?

☐ Yes, refer to Appendix E to select and size harvest and use BMPs.

☒ No, select alternate BMPs.

Categorization of Infiltration Feasibility Condition	Form I-8

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	☐	☒

Provide basis:

Per the Geotechnical Report dated September 2022, the in-situ soils infiltration rate is measured at 0.01in/hr between 15 and 25.5 feet below ground.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	☐	☒

Provide basis:

Not applicable. See response to Criterion 1.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Form I-8 Page 2 of 4			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☒
Provide basis: Not applicable. See response to Criterion 1. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☐
Provide basis: Not applicable. See response to Criterion 1. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result *	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2	☐Full Infiltration ☒No	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

Form I-8 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	☐	☒

Provide basis:

Not applicable. See response to Criterion 1.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	☐	☒

Provide basis:

Not applicable. See response to Criterion 1.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

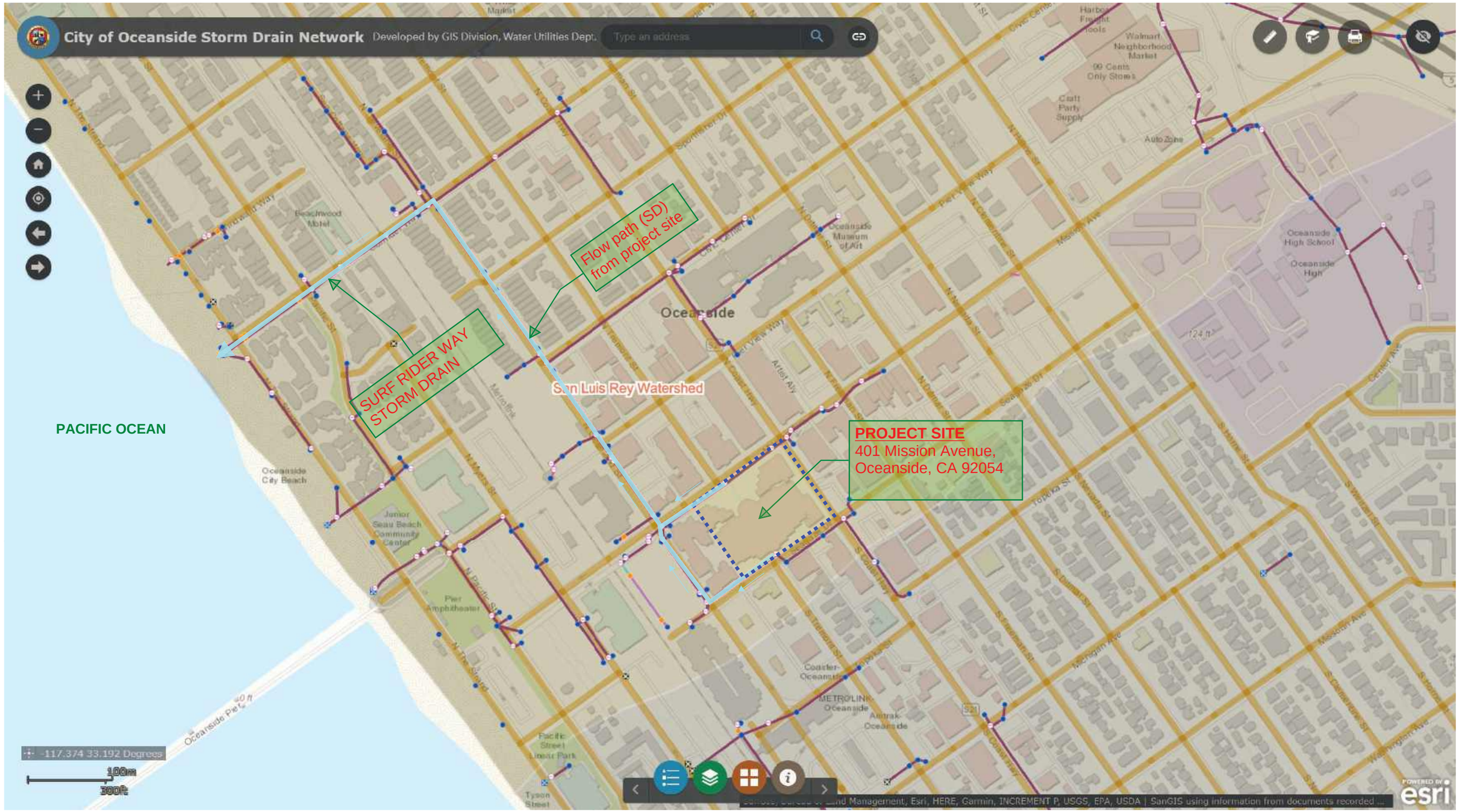
Form I-8 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☒
Provide basis: Not applicable. See response to Criterion 1. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☒
Provide basis: Not applicable. See response to Criterion 1. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 1-4 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**	☐Partial Infiltration ☒No Infiltration	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

ATTACHMENT 2
BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

☒Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.



EXHIBIT

DRAINAGE FLOW PATH FROM PROJECT SITE TO PACIFIC OCEAN

ATTACHMENT 3
STRUCTURAL BMP MAINTENANCE INFORMATION

This is the cover sheet for Attachment 3.

Indicate which Items are Included:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	☒Included See Structural BMP Maintenance Information Checklist.
Attachment 3b	Draft Maintenance Agreement (when applicable)	☐Included ☒Not Applicable

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

Preliminary Design / Planning / CEQA level submittal:

- Attachment 3a must identify:

☒Typical maintenance indicators and actions for proposed structural BMP(s) based on Section 7.7 of the BMP Design Manual

- Attachment 3b is not required for preliminary design / planning / CEQA level submittal.

Final Design level submittal:

Attachment 3a must identify:

☐Specific maintenance indicators and actions for proposed structural BMP(s). This shall be based on Section 7.7 of the BMP Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)
☐How to access the structural BMP(s) to inspect and perform maintenance
☐Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
☐Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
☐Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
☐Recommended equipment to perform maintenance
☐When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
Attachment 3b: For private entity operation and maintenance, Attachment 3b shall include a draft maintenance agreement in the local jurisdiction's standard format (PDP applicant to contact the City Engineer to obtain the current maintenance agreement forms).

Appendix

F

Biofiltration Standard and Checklist

January 2022

Appendix F Biofiltration Standard and Checklist

Introduction

The MS4 Permit and this manual define a specific category of storm water pollutant treatment BMPs called "biofiltration BMPs." The MS4 Permit (Section E.3.c.1) states:

Biofiltration BMPs must be designed to have an appropriate hydraulic loading rate to maximize storm water retention and pollutant removal, as well as to prevent erosion, scour, and channeling within the BMP, and must be sized to:

a) **Treat 1.5 times the DCV not reliably retained onsite, OR**

b) **Treat the DCV not reliably retained onsite with a flow-thru design that has a total volume, including pore spaces and pre-filter detention volume, sized to hold at least 0.75 times the portion of the DCV not reliably retained onsite.**

A project applicant must be able to affirmatively demonstrate that a given BMP is designed and sized in a manner consistent with this definition to be considered as a "biofiltration BMP" as part of a compliant storm water management plan. Retention is defined in the MS4 Permit as evapotranspiration, infiltration, and harvest and use of storm water vs. discharge to a surface water system.

Contents and Intended Uses

This appendix contains a checklist of the key underlying criteria that must be met for a BMP to be considered a biofiltration BMP. The purpose of this checklist is to facilitate consistent review and approval of biofiltration BMPs that meet the "biofiltration standard" defined by the MS4 Permit.

This checklist includes specific design criteria that are essential to defining a system as a biofiltration BMP; however it does not present a complete design basis. This checklist was used to develop BMP Fact Sheets for PR-1 biofiltration with partial retention and BF-1 biofiltration, which do present a complete design basis. Therefore, biofiltration BMPs that substantially meet all aspects of the Fact sheets PR-1 or BF-1 should be able to complete this checklist without additional documentation beyond what would already be required for a project submittal.

Other biofiltration BMP designs[1] (including both non-proprietary and proprietary designs) may also meet the underlying MS4 Permit requirements to be considered biofiltration BMPs. These BMPs may be classified as biofiltration BMPs if they (1) meet the minimum design criteria listed in this appendix, including the pollutant treatment performance standard in Appendix F.1, (2) are designed and maintained in a manner consistent with their performance certifications (See explanation in Appendix F.2), if applicable, and (3) are acceptable at the discretion of the City Engineer. The applicant may be required to provide additional studies and/or required to meet additional design criteria beyond the scope of this document in order to demonstrate that these criteria are met.

Organization

The checklist in this appendix is organized into the seven (7) main objectives associated with biofiltration BMP design. It describes the associated minimum criteria that must be met in order to qualify a biofiltration BMP as meeting the biofiltration standard. The seven main objectives are listed below. Specific design criteria and associated manual references associated with each of these objectives is provided in the checklist in the following section.

1. Biofiltration BMPs shall be allowed only as described in the BMP selection process in this manual (i.e., retention feasibility hierarchy).

2. Biofiltration BMPs must be sized using acceptable sizing methods described in this manual.

3. Biofiltration BMPs must be sited and designed to achieve maximum feasible infiltration and evapotranspiration.

4. Biofiltration BMPs must be designed with a hydraulic loading rate to maximize pollutant retention, preserve pollutant control/sequestration processes, and minimize potential for pollutant washout.

5. Biofiltration BMPs must be designed to promote appropriate biological activity to support and maintain treatment processes.

6. Biofiltration BMPs must be designed to prevent erosion, scour, and channeling within the BMP.

7. Biofiltration BMP must include operations and maintenance design features and planning

[1] Defined as biofiltration designs that do not conform to the specific design criteria described in Fact Sheets PR-1 or BF-1. This category includes proprietary BMPs that are sold by a vendor as well as non-proprietary BMPs that are designed and constructed of primarily of more elementary construction materials.

considerations to provide for continued effectiveness of pollutant and flow control functions.

Biofiltration Criteria Checklist

The applicant shall provide documentation of compliance with each criterion in this checklist as part of the project submittal. The right column of this checklist identifies the submittal information that is recommended to document compliance with each criterion. Biofiltration BMPs that substantially meet all aspects of Fact Sheets PR-1 or BF-1 should still use this checklist; however additional documentation (beyond what is already required for project submittal) should not be required.

1. Biofiltration BMPs shall be allowed to be used only as described in the BMP selection process based on a documented feasibility analysis.

Intent: This manual defines a specific prioritization of pollutant treatment BMPs, where BMPs that retain water (retained includes evapotranspired, infiltrated, and/or harvested and used) must be used before considering BMPs that have a biofiltered discharge to the MS4 or surface waters. Use of a biofiltration BMP in a manner in conflict with this prioritization (i.e., without a feasibility analysis justifying its use) is not permitted, regardless of the adequacy of the sizing and design of the system.

☒	The project applicant has demonstrated that it is not technically feasible to retain the full DCV onsite.	Document feasibility analysis and findings in project submittalSWQMP per Appendix C.

2. Biofiltration BMPs must be sized using acceptable sizing methods.

Intent: The MS4 Permit and this manual defines specific sizing methods that must be used to size biofiltration BMPs. Sizing of biofiltration BMPs is a fundamental factor in the amount of storm water that can be treated and also influences volume and pollutant retention processes.

☒	The project applicant has demonstrated that biofiltration BMPs are sized to meet one of the biofiltration sizing options available (Appendix B.5).	Submit sizing worksheets (Appendix B.5) or other equivalent documentation with the SWQMP.

3. Biofiltration BMPs must be sited and designed to achieve maximum feasible infiltration and evapotranspiration.

Intent: Various decisions about BMP placement and design influence how much water is retained via infiltration and evapotranspiration. The MS4 Permit requires that biofiltration BMPs achieve maximum feasible retention (evapotranspiration and infiltration) of storm water volume.

☐	The biofiltration BMP is sited to allow for maximum infiltration of runoff volume based on the feasibility factors considered in site planning efforts. It is also designed to maximize evapotranspiration through the use of amended media and plants (biofiltration designs without amended media and plants may be permissible; see Item 5).	Document site planning and feasibility analyses in SWQMP per Section 5.4.
☒	For biofiltration BMPs categorized as "Partial Infiltration Condition" the infiltration storage depth in the biofiltration design has been selected to drain in 36 hours (+/-25%) or an alternative value shown to maximize infiltration on the site.	Included documentation of estimated infiltration rate per Appendix D; provide calculations using Appendix B.4 and B.5 to show that the infiltration storage depth meets this criterion. Note, depths that are too shallow or too deep may not be acceptable.
☐	For biofiltration BMP locations categorized as "Partial Infiltration Condition," the infiltration storage is over the entire bottom of the biofiltration BMP footprint.	Document on plans that the infiltration storage covers the entire bottom of the BMP (i.e., not just underdrain trenches); or an equivalent footprint elsewhere on the site.
☐	For biofiltration BMP locations categorized as "Partial Infiltration Condition," the sizing factor used for the infiltration storage area is not less than the minimum biofiltration BMP sizing factors calculated using Worksheet B.5.1 to achieve 40% average annual percent capture within the BMP or downstream of the BMP. .	Provide a table that compares the minimum sizing factor per Appendix B.5 to the provided sizing factor. Note: The infiltration storage area could be a separate storage feature located downstream of the biofiltration BMP, not necessarily within the same footprint.
☒	An impermeable liner or other hydraulic restriction layer is only used when needed to avoid geotechnical and/or subsurface contamination issues in locations identified as "No Infiltration Condition."	If using an impermeable liner or hydraulic restriction layer, provide documentation of feasibility findings per Appendix C that recommend the use of this feature.
☒	The use of "compact" biofiltration BMP design[2] is permitted only in conditions identified as "No Infiltration Condition" and where site-specific documentation demonstrates that the use of larger footprint biofiltration BMPs would be infeasible.	Provide documentation of feasibility findings that recommend no infiltration is feasible. Provide site-specific information to demonstrate that a larger footprint biofiltration BMP would not be feasible.

[2] Compact biofiltration BMPs are defined as features with infiltration storage footprint less than the minimum sizing factors required to achieve 40% volume retention. Note that if a biofiltration BMP is accompanied by an infiltrating area downstream that has a footprint equal to at least the minimum sizing factors calculated using

4. Biofiltration BMPs must be designed with a hydraulic loading rate to maximize pollutant retention, preserve pollutant control processes, and minimize potential for pollutant washout.

Intent: Various decisions about biofiltration BMP design influence the degree to which pollutants are retained. The MS4 Permit requires that biofiltration BMPs achieve maximum feasible retention of storm water pollutants.

X	Media selected for the biofiltration BMP meets minimum quality and material specifications per 2021 City of San Diego Storm Water Standards or County BMP Design Manual, including the maximum allowable design filtration rate and minimum thickness of media.	Provide documentation that media meets the specifications in 2021 City of San Diego Storm Water Standards or County BMP Design Manual.
	OR	
X	Alternatively, for proprietary designs and custom media mixes not meeting the media specifications contained in the 2021 City of San Diego Storm Water Standards or County BMP Design Manual, field scale testing data are provided to demonstrate that proposed media meets the pollutant treatment performance criteria in Section F.1 below.	Provide documentation of performance information as described in Section F.1.
X	To the extent practicable, filtration rates are outlet controlled (e.g., via an underdrain and orifice/weir) instead of controlled by the infiltration rate of the media.	Include outlet control in designs or provide documentation of why outlet control is not practicable.
X	The water surface drains to at least 12 inches below the media surface within 24 hours from the end of storm event flow to preserve plant health and promote healthy soil structure.	Include calculations to demonstrate that drawdown rate is adequate. Surface ponding drawdown time greater than 24-hours but less than 96 hours may be allowed at the discretion of the City Engineer if certified by a landscape architect or agronomist.

Worksheet B.5.1 assuming a partial infiltration condition, then it is not considered to be a compact biofiltration BMP for the purpose of Item 4 of the checklist. For potential configurations with a higher rate biofiltration BMP upstream of an larger footprint infiltration area, the BMP would still need to comply with Item 5 of this checklist for pollutant treatment effectiveness.

☐	If nutrients are a pollutant of concern, design of the biofiltration BMP follows nutrient-sensitive design criteria.	Follow specifications for nutrient sensitive design in Fact Sheet BF-2. Or provide alternative documentation that nutrient treatment is addressed and potential for nutrient release is minimized.
☒	Media gradation calculations or geotextile selection calculations demonstrate that migration of media between layers will be prevented and permeability will be preserved.	Follow specification for choking layer or geotextile in Fact Sheet PR-1 or BF-1. Or include calculations to demonstrate that choking layer is appropriately specified.
	5. Biofiltration BMPs must be designed to promote appropriate biological activity to support and maintain treatment processes. Intent: Biological processes are an important element of biofiltration performance and longevity.	
☒	Plants have been selected to be tolerant of project climate, design ponding depths and the treatment media composition.	Provide documentation justifying plant selection. Refer to the plant list in Appendix E.20.
☒	Plants have been selected to minimize irrigation requirements.	Provide documentation describing irrigation requirements for establishment and long term operation.
☒	Plant location and growth will not impede expected long-term media filtration rates and will enhance long term infiltration rates to the extent possible.	Provide documentation justifying plant selection. Refer to the plant list in Appendix E.20.
☒	If plants are not part of the biofiltration design, other biological processes are supported as needed to sustain treatment processes (e.g., biofilm in a subsurface flow wetland).	For biofiltration designs without plants, describe the biological processes that will support effective treatment and how they will be sustained.
	6. Biofiltration BMPs must be designed with a hydraulic loading rate to prevent erosion, scour, and channeling within the BMP. Intent: Erosion, scour, and/or channeling can disrupt treatment processes and reduce biofiltration effectiveness.	
☒	Scour protection has been provided for both sheet flow and pipe inflows to the BMP, where needed.	Provide documentation of scour protection as described in Fact Sheets PR-1 or BF-1 or approved equivalent.
☒	Where scour protection has not been provided, flows into and within the BMP are kept to non-erosive velocities.	Provide documentation of design checks for erosive velocities as described in Fact Sheets PR-1 or BF-1 or approved equivalent.

☒	For proprietary BMPs, the BMP is used in a manner consistent with manufacturer guidelines and conditions of its third-party certification[3] (i.e., maximum tributary area, maximum inflow velocities, etc., as applicable).	Provide copy of manufacturer recommendations and conditions of third-party certification.

7. Biofiltration BMP must include operations and maintenance design features and planning considerations for continued effectiveness of pollutant and flow control functions.

Intent: Biofiltration BMPs require regular maintenance in order provide ongoing function as intended. Additionally, it is not possible to foresee and avoid potential issues as part of design; therefore plans must be in place to correct issues if they arise.

☒	The biofiltration BMP O&M plan describes specific inspection activities, regular/periodic maintenance activities and specific corrective actions relating to scour, erosion, channeling, media clogging, vegetation health, and inflow and outflow structures.	Include O&M plan with project submittal as described in Chapter 7.
☒	Adequate site area and features have been provided for BMP inspection and maintenance access.	Illustrate maintenance access routes, setbacks, maintenance features as needed on project water quality plans.
☒	For proprietary biofiltration BMPs, the BMP maintenance plan is consistent with manufacturer guidelines and conditions of its third-party certification (i.e., maintenance activities, frequencies).	Provide copy of manufacturer recommendations and conditions of third-party certification.

[3] Certifications or verifications issued by the Washington Technology Acceptance Protocol-Ecology program and the New Jersey Corporation for Advanced Technology programs are typically accompanied by a set of guidelines regarding appropriate design and maintenance conditions that would be consistent with the certification/verification

E.18 BF-1 Biofiltration



Location: 43rd Street and Logan Avenue, San Diego, California

MS4 Permit Category
Biofiltration

Manual Category
Biofiltration

Applicable Performance Standard
Pollutant Control
Flow Control

Primary Benefits
Treatment
Volume Reduction (Incidental)
Peak Flow Attenuation (Optional)

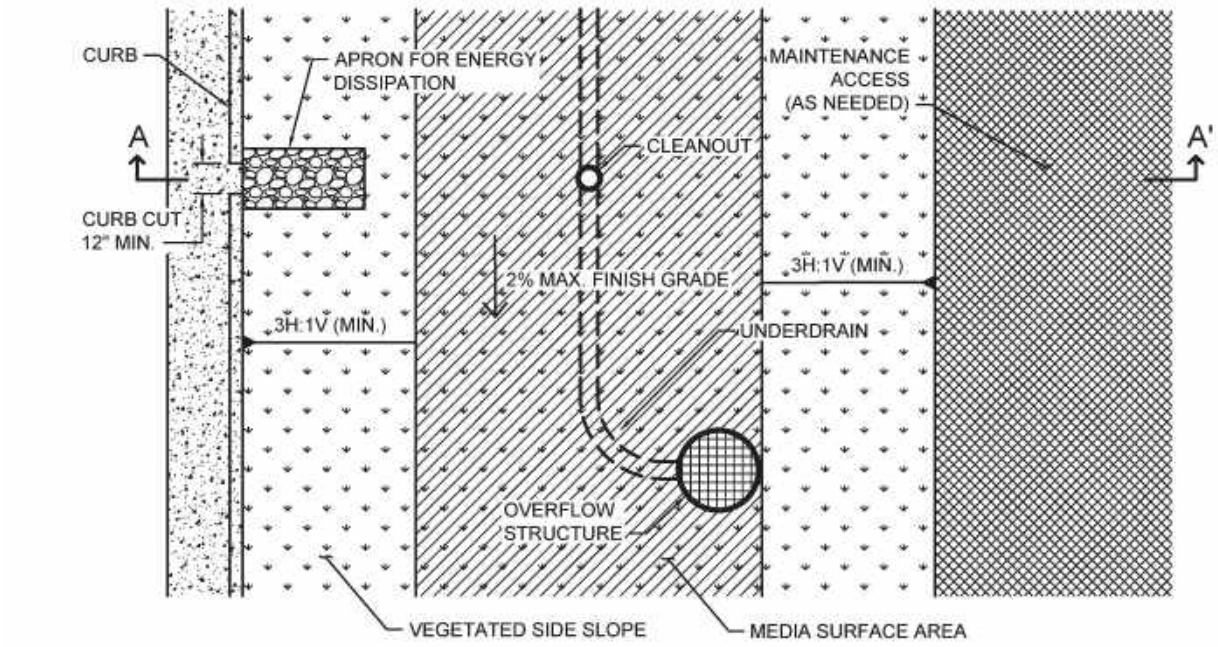
Description

Biofiltration (Bioretention with underdrain) facilities are vegetated surface water systems that filter water through vegetation, and soil or engineered media prior to discharge via underdrain or overflow to the downstream conveyance system. Bioretention with underdrain facilities are commonly incorporated into the site within parking lot landscaping, along roadsides, and in open spaces. Because these types of facilities have limited or no infiltration, they are typically designed to provide enough hydraulic head to move flows through the underdrain connection to the storm drain system. Treatment is achieved through filtration, sedimentation, sorption, biochemical processes and plant uptake.

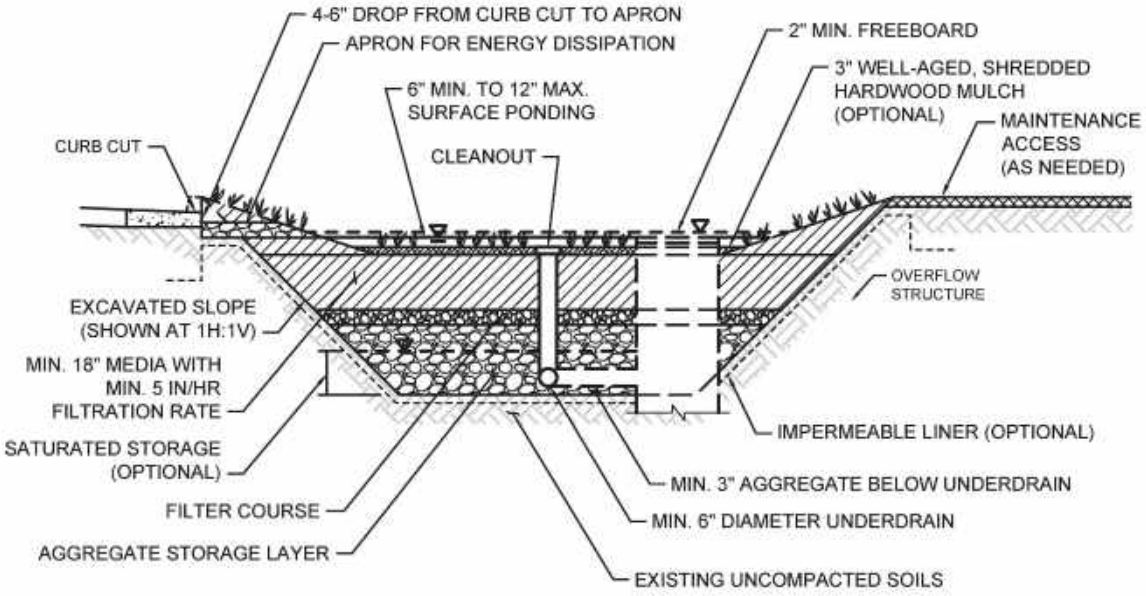
Typical bioretention with underdrain components include:

- Inflow distribution mechanisms (e.g, perimeter flow spreader or filter strips)
- Energy dissipation mechanism for concentrated inflows (e.g., splash blocks or riprap)
- Shallow surface ponding for captured flows
- Side slope and basin bottom vegetation selected based on expected climate and ponding depth
- Non-floating mulch layer (Optional)
- Media layer (planting mix or engineered media) capable of supporting vegetation growth
- Filter course layer consisting of aggregate to prevent the migration of fines into uncompacted native soils or the aggregate storage layer
- Aggregate storage layer with underdrain(s)

- Impermeable liner or uncompacted native soils at the bottom of the facility
- Overflow structure



PLAN
NOT TO SCALE



SECTION A-A'
NOT TO SCALE

Typical plan and Section view of a Biofiltration BMP

Design Adaptations for Project Goals

Biofiltration Treatment BMP for storm water pollutant control. The system is lined or un-lined to provide incidental infiltration, and an underdrain is provided at the bottom to carry away filtered runoff. This configuration is considered to provide biofiltration treatment via flow through the media layer. Storage provided above the underdrain within surface ponding, media, and aggregate storage is considered included in the biofiltration treatment volume. Saturated storage within the aggregate storage layer can be added to this design by raising the underdrain above the bottom of the aggregate storage layer or via an internal weir structure designed to maintain a specific water level elevation.

Integrated storm water flow control and pollutant control configuration. The system can be designed to provide flow rate and duration control by primarily providing increased surface ponding and/or having a deeper aggregate storage layer above the underdrain. This will allow for significant detention storage, which can be controlled via inclusion of an outlet structure at the downstream end of the underdrain.

Design Criteria and Considerations

Bioretention with underdrain must meet the following design criteria. Deviations from the below criteria may be approved at the discretion of County staff if it is determined to be appropriate:

	Siting and Design	*Intent/Rationale*
☒	Placement observes geotechnical recommendations regarding potential hazards (e.g., slope stability, landslides, liquefaction zones) and setbacks (e.g., slopes, foundations, utilities).	Must not negatively impact existing site geotechnical concerns.
☒	An impermeable liner or other hydraulic restriction layer is included if site constraints indicate that infiltration or lateral flows should not be allowed.	Lining prevents storm water from impacting groundwater and/or sensitive environmental or geotechnical features. Incidental infiltration, when allowable, can aid in pollutant removal and groundwater recharge.

Siting and Design		*Intent/Rationale*
☒	Contributing tributary area must be ≤ 5 acres (≤ 1 acre preferred).	Bigger BMPs require additional design features for proper performance. Contributing tributary area greater than 5 acres may be allowed at the discretion of County staff if the following conditions are met: 1) incorporate design features (e.g. flow spreaders) to minimize short circuiting of flows in the BMP and 2) incorporate additional design features requested by County staff for proper performance of the regional BMP.
☒	Finish grade of the facility is ≤ 2%.	Flatter surfaces reduce erosion and channelization within the facility.
Surface Ponding		
☒	Surface ponding is limited to a 24-hour drawdown time.	Surface ponding limited to 24 hour for plant health. Surface ponding drawdown time greater than 24-hours but less than 96 hours may be allowed at the discretion of County staff if certified by a landscape architect or agronomist.
☒	Surface ponding depth is ≥ 6 and ≤ 12 inches.	Surface ponding capacity lowers subsurface storage requirements. Deep surface ponding raises safety concerns. Surface ponding depth greater than 12 inches (for additional pollutant control or surface outlet structures or flow-control orifices) may be allowed at the discretion of County staff if the following conditions are met: 1) surface ponding depth drawdown time is less than 24 hours; and 2) safety issues and fencing requirements are considered (typically ponding greater than 18" will require a fence and/or flatter side slopes) and 3) potential for elevated clogging risk is considered.
☒	A minimum of 2 inches of freeboard is provided.	Freeboard provides room for head over overflow structures and minimizes risk of uncontrolled surface discharge.

Surface Ponding		
☒	Side slopes are stabilized with vegetation and are = 3H:1V or shallower.	Gentler side slopes are safer, less prone to erosion, able to establish vegetation more quickly and easier to maintain.
Vegetation		
☒	Plantings are suitable for the climate and expected ponding depth. A plant list to aid in selection can be found in Appendix E.20.	Plants suited to the climate and ponding depth are more likely to survive.
☒	An irrigation system with a connection to water supply should be provided as needed.	Seasonal irrigation might be needed to keep plants healthy.
Mulch (Mandatory)		
☒	A minimum of 3 inches of well-aged, shredded hardwood mulch that has been stockpiled or stored for at least 12 months is provided.	Mulch will suppress weeds and maintain moisture for plant growth. Aging mulch kills pathogens and weed seeds and allows the beneficial microbes to multiply.
Media Layer		
☒	Media maintains a minimum filtration rate of 5 in/hr over lifetime of facility. An initial filtration rate of 8 to 12 in/hr is recommended to allow for clogging over time; the initial filtration rate should not exceed 12 inches per hour.	A filtration rate of at least 5 inches per hour allows soil to drain between events. The initial rate should be higher than long term target rate to account for clogging over time. However an excessively high initial rate can have a negative impact on treatment performance, therefore an upper limit is needed.

Media Layer		
	Media is a minimum 18 inches deep, meeting either of these two media specifications:	
☒	City of San Diego Storm Water Standards Appendix F (February 2016, unless superseded by more recent edition) **or** County of San Diego Low Impact Development Handbook: Appendix G -Bioretention Soil Specification (June 2014, unless superseded by more recent edition).	A deep media layer provides additional filtration and supports plants with deeper roots. Standard specifications must be followed.
	Alternatively, for proprietary designs and custom media mixes not meeting the media specifications contained in the 2016 City Storm Water Standards or County LID Manual, the media meets the pollutant treatment performance criteria in Section F.1.	For non-standard or proprietary designs, compliance with F.1 ensures that adequate treatment performance will be provided.
☒	Media surface area is 3% of contributing area times adjusted runoff factor or greater. Unless demonstrated that the BMP surface area can be smaller than 3%.	Greater surface area to tributary area ratios: a) maximizes volume retention as required by the MS4 Permit and b) decrease loading rates per square foot and therefore increase longevity. Adjusted runoff factor is to account for site design BMPs implemented upstream of the BMP (such as rain barrels, impervious area dispersion, etc.). Refer to Appendix B.2 guidance. Use Worksheet B.5-1 Line 26 to estimate the minimum surface area required per this criteria.
☒	Where receiving waters are impaired or have a TMDL for nutrients, the system is designed with nutrient sensitive media design (see fact sheet BF-2).	Potential for pollutant export is partly a function of media composition; media design must minimize potential for export of nutrients, particularly where receiving waters are impaired for nutrients.
Filter Course Layer		
☒	A filter course is used to prevent migration of fines through layers of the facility. Filter fabric is not used.	Migration of media can cause clogging of the aggregate storage layer void spaces or subgrade. Filter fabric is more likely to clog.

Filter Course Layer		
☒	Filter course is washed and free of fines.	Washing aggregate will help eliminate fines that could clog the facility and impede infiltration.
☒	Filter course calculations assessing suitability for particle migration prevention have been completed.	Gradation relationship between layers can evaluate factors (e.g., bridging, permeability, and uniformity) to determine if particle sizing is appropriate or if an intermediate layer is needed.
Aggregate Storage Layer		
☒	Class 2 Permeable per Caltrans specification 68-1.025 is recommended for the storage layer. Washed, open-graded crushed rock may be used, however a 4-6 inch washed pea gravel filter course layer at the top of the crushed rock is required.	Washing aggregate will help eliminate fines that could clog the aggregate storage layer void spaces or subgrade.
☒	The depth of aggregate provided (12-inch typical) and storage layer configuration is adequate for providing conveyance for underdrain flows to the outlet structure.	Proper storage layer configuration and underdrain placement will minimize facility drawdown time.
Inflow, Underdrain, and Outflow Structures		
☒	Inflow, underdrains and outflow structures are accessible for inspection and maintenance.	Maintenance will prevent clogging and ensure proper operation of the flow control structures.
☒	Inflow velocities are limited to 3 ft/s or less or use energy dissipation methods. (e.g., riprap, level spreader) for concentrated inflows.	High inflow velocities can cause erosion, scour and/or channeling.
☒	Curb cut inlets are at least 12 inches wide, have a 4-6 inch reveal (drop) and an apron and energy dissipation as needed.	Inlets must not restrict flow and apron prevents blockage from vegetation as it grows in. Energy dissipation prevents erosion.
☒	Underdrain outlet elevation should be a minimum of 3 inches above the bottom elevation of the aggregate storage layer.	A minimal separation from subgrade or the liner lessens the risk of fines entering the underdrain and can improve hydraulic performance by allowing perforations to remain unblocked.
☒	Minimum underdrain diameter is 6 inches.	Smaller diameter underdrains are prone to clogging.

Inflow, Underdrain, and Outflow Structures		
☒	Underdrains are made of slotted, PVC pipe conforming to ASTM D 3034 or equivalent or corrugated, HDPE pipe conforming to AASHTO 252M or equivalent.	Slotted underdrains provide greater intake capacity, clog resistant drainage, and reduced entrance velocity into the pipe, thereby reducing the chances of solids migration.
☒	An underdrain cleanout with a minimum 6-inch diameter and lockable cap is placed every 250 to 300 feet as required based on underdrain length.	Properly spaced cleanouts will facilitate underdrain maintenance.
☒	Overflow is safely conveyed to a downstream storm drain system or discharge point Size overflow structure to pass 100-year peak flow for on-line infiltration basins and water quality peak flow for off-line basins.	Planning for overflow lessens the risk of property damage due to flooding.

Conceptual Design and Sizing Approach for Storm Water Pollutant Control Only

To design bioretention with underdrain for storm water pollutant control only (no flow control required), the following steps should be taken:

1. Verify that siting and design criteria have been met, including placement requirements, contributing tributary area, maximum side and finish grade slopes, and the recommended media surface area tributary ratio.
2. Calculate the DCV per Appendix B based on expected site design runoff for tributary areas.
3. Use the sizing worksheet presented in Appendix B.5 to size biofiltration BMPs.

Conceptual Design and Sizing Approach when Storm Water Flow Control is Applicable

Control of flow rates and/or durations will typically require significant surface ponding and/or aggregate storage volumes, and therefore the following steps should be taken prior to determination of storm water pollutant control design. Pre-development and allowable post-project flow rates and durations should be determined as discussed in Chapter 6 of the manual.

1. Verify that siting and design criteria have been met, including placement requirements, contributing tributary area, maximum side and finish grade slopes, and the recommended media surface area tributary ratio.
2. Iteratively determine the facility footprint area, surface ponding and/or aggregate storage layer depth required to provide detention storage to reduce flow rates and durations to allowable limits. Flow rates and durations can be controlled from detention storage by altering outlet structure orifice size(s) and/or water control levels. Multi-level orifices can be

used within an outlet structure to control the full range of flows.

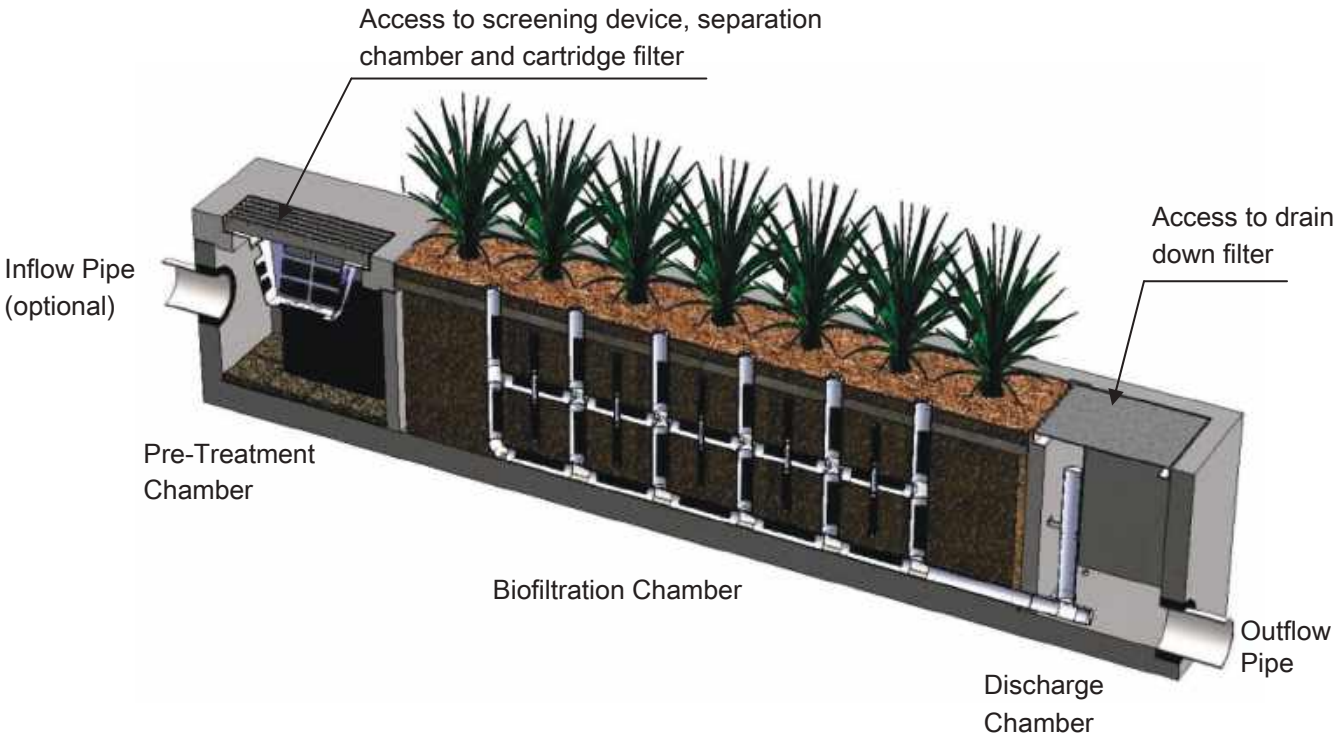
3. If bioretention with underdrain cannot fully provide the flow rate and duration control required by this manual, an upstream or downstream structure with significant storage volume such as an underground vault can be used to provide remaining controls.
4. After bioretention with underdrain has been designed to meet flow control requirements, calculations must be completed to verify if storm water pollutant control requirements to treat the DCV have been met.

Maintenance Guidelines for Modular Wetland System - Linear

Maintenance Summary

- Remove Trash from Screening Device – average maintenance interval is 6 to 12 months.
  - (*5 minute average service time*).
- Remove Sediment from Separation Chamber – average maintenance interval is 12 to 24 months.
  - (*10 minute average service time*).
- Replace Cartridge Filter Media – average maintenance interval 12 to 24 months.
  - (*10-15 minute per cartridge average service time*).
- Replace Drain Down Filter Media – average maintenance interval is 12 to 24 months.
  - (*5 minute average service time*).
- Trim Vegetation – average maintenance interval is 6 to 12 months.
  - (*Service time varies*).

System Diagram



Maintenance Procedures

Screening Device

1. Remove grate or manhole cover to gain access to the screening device in the Pre-Treatment Chamber. Vault type units do not have screening device. Maintenance can be performed without entry.
2. Remove all pollutants collected by the screening device. Removal can be done manually or with the use of a vacuum truck. The hose of the vacuum truck will not damage the screening device.
3. Screening device can easily be removed from the Pre-Treatment Chamber to gain access to separation chamber and media filters below. Replace grate or manhole cover when completed.

Separation Chamber

1. Perform maintenance procedures of screening device listed above before maintaining the separation chamber.
2. With a pressure washer spray down pollutants accumulated on walls and cartridge filters.
3. Vacuum out Separation Chamber and remove all accumulated pollutants. Replace screening device, grate or manhole cover when completed.

Cartridge Filters

1. Perform maintenance procedures on screening device and separation chamber before maintaining cartridge filters.
2. Enter separation chamber.
3. Unscrew the two bolts holding the lid on each cartridge filter and remove lid.
4. Remove each of 4 to 8 media cages holding the media in place.
5. Spray down the cartridge filter to remove any accumulated pollutants.
6. Vacuum out old media and accumulated pollutants.
7. Reinstall media cages and fill with new media from manufacturer or outside supplier. Manufacturer will provide specification of media and sources to purchase.
8. Replace the lid and tighten down bolts. Replace screening device, grate or manhole cover when completed.

Drain Down Filter

1. Remove hatch or manhole cover over discharge chamber and enter chamber.
2. Unlock and lift drain down filter housing and remove old media block. Replace with new media block. Lower drain down filter housing and lock into place.
3. Exit chamber and replace hatch or manhole cover.

Maintenance Notes

1. Following maintenance and/or inspection, it is recommended the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.

2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.

3. Transport all debris, trash, organics and sediments to approved facility for disposal in accordance with local and state requirements.

4. Entry into chambers may require confined space training based on state and local regulations.

5. No fertilizer shall be used in the Biofiltration Chamber.

6. Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may require irrigation.

Maintenance Procedure Illustration

Screening Device

The screening device is located directly under the manhole or grate over the Pre-Treatment Chamber. It's mounted directly underneath for easy access and cleaning. Device can be cleaned by hand or with a vacuum truck.



Separation Chamber

The separation chamber is located directly beneath the screening device. It can be quickly cleaned using a vacuum truck or by hand. A pressure washer is useful to assist in the cleaning process.







Cartridge Filters

The cartridge filters are located in the Pre-Treatment chamber connected to the wall adjacent to the biofiltration chamber. The cartridges have removable tops to access the individual media filters. Once the cartridge is open media can be easily removed and replaced by hand or a vacuum truck.







Drain Down Filter

The drain down filter is located in the Discharge Chamber. The drain filter unlocks from the wall mount and hinges up. Remove filter block and replace with new block.

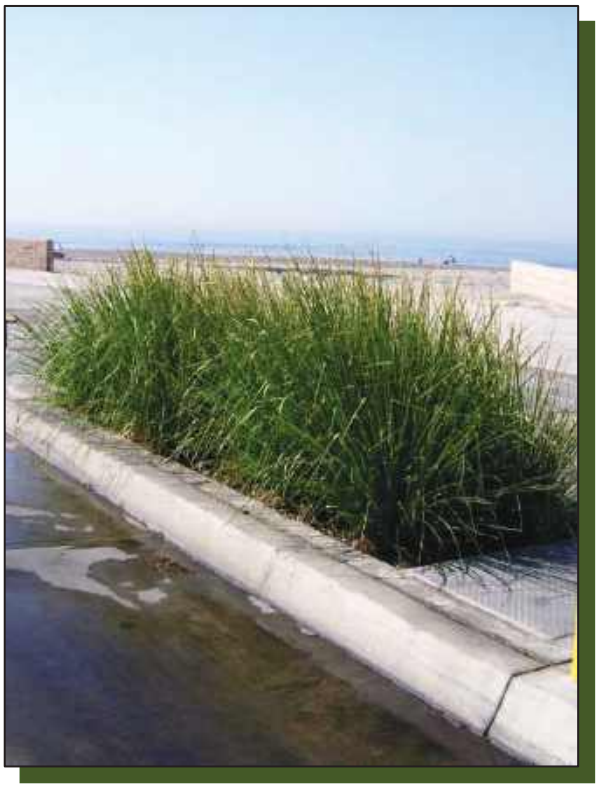


Trim Vegetation

Vegetation should be maintained in the same manner as surrounding vegetation and trimmed as needed. No fertilizer shall be used on the plants. Irrigation per the recommendation of the manufacturer and or landscape architect. Different types of vegetation requires different amounts of irrigation.









Inspection Form



Modular Wetland System, Inc.
P. 760.433-7640
F. 760-433-3176
E. Info@modularwetlands.com

www.modularwetlands.com

Inspection Report
Modular Wetlands System

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

Inspection Checklist

Modular Wetland System Type (Curb, Grate or UG Vault): _____ Size (22', 14' or etc.): _____

Structural Integrity:	**Yes**	**No**	**Comments**
Damage to pre-treatment access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Damage to discharge chamber access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Does the MWS unit show signs of structural deterioration (cracks in the wall, damage to frame)?			
Is the inlet/outlet pipe or drain down pipe damaged or otherwise not functioning properly?			
Working Condition:			
Is there evidence of illicit discharge or excessive oil, grease, or other automobile fluids entering and clogging the unit?			
Is there standing water in inappropriate areas after a dry period?			
Is the filter insert (if applicable) at capacity and/or is there an accumulation of debris/trash on the shelf system?			
Does the depth of sediment/trash/debris suggest a blockage of the inflow pipe, bypass or cartridge filter? If yes, specify which one in the comments section. Note depth of accumulation in in pre-treatment chamber.			Depth:
Does the cartridge filter media need replacement in pre-treatment chamber and/or discharge chamber?			Chamber:
Any signs of improper functioning in the discharge chamber? Note issues in comments section.			
Other Inspection Items:			
Is there an accumulation of sediment/trash/debris in the wetland media (if applicable)?			
Is it evident that the plants are alive and healthy (if applicable)? Please note Plant Information below.			
Is there a septic or foul odor coming from inside the system?			

Waste:	**Yes**	**No**
Sediment / Silt / Clay		
Trash / Bags / Bottles		
Green Waste / Leaves / Foliage		

Recommended Maintenance	
No Cleaning Needed	
Schedule Maintenance as Planned	
Needs Immediate Maintenance	

Plant Information	
Damage to Plants	
Plant Replacement	
Plant Trimming	

Additional Notes:

2972 San Luis Rey Road, Oceanside, CA 92058 P (760) 433-7640 F (760) 433-3176

Maintenance Report



Modular Wetland System, Inc.
P. 760.433-7640
F. 760-433-3176
E. Info@modularwetlands.com

www.modularwetlands.com

Cleaning and Maintenance Report
Modular Wetlands System

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Site Map #	GPS Coordinates of Insert	Manufacturer / Description / Sizing	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Total Debris Accumulation	Condition of Media 25/50/75/100 (will be changed @ 75%)	Operational Per Manufactures' Specifications (If not, why?)
	Lat: Long:	MWS Catch Basins						
		MWS Sedimentation Basin						
		Media Filter Condition						
		Plant Condition						
		Drain Down Media Condition						
		Discharge Chamber Condition						
		Drain Down Pipe Condition						
		Inlet and Outlet Pipe Condition						

Comments:

2972 San Luis Rey Road, Oceanside, CA 92058 P. 760.433.7640 F. 760.433.3176

ATTACHMENT 4
Copy of Plan Sheets Showing Permanent Storm Water BMPs

This is the cover sheet for Attachment 4.

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

☒Structural BMP(s) with ID numbers matching Form I-6 Summary of PDP Structural BMPs
☒The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
☒Details and specifications for construction of structural BMP(s)
☒Signage indicating the location and boundary of structural BMP(s) as required by the City Engineer
☐How to access the structural BMP(s) to inspect and perform maintenance
☒Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
☐Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
☐Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
☐Recommended equipment to perform maintenance
☐When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
☐Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
☒All BMPs must be fully dimensioned on the plans
☒When propritery BMPs are used, site specific cross section with outflow, inflow and model number shall be provided. Broucher photocopies are not allowed.



AGENCY RESUBMITTAL
OCEANSIDE, CA
SEPTEMBER 5,2024

SHEET INDEX

SHEET	DESCRIPTION
G1.0	COVER SHEET
G1.1	PROJECT INFORMATION - UNIT SUMMARY, PARKING
G2.0	CONCEPTUAL PERSPECTIVES
G2.1	CONCEPTUAL PERSPECTIVES
G2.2	CONCEPTUAL PERSPECTIVES
G3.0	EXISTING PHOTO SURVEY
G3.1	EXISTING PHOTO SURVEY
A1.0	SITE PLAN
A2.0	OPEN SPACE PLAN
A2.1	FIRE ACCESS PLAN
A2.2	FIRE ACCESS MODEL
A2.3	FIRE ACCESS NOTES
A2.4	EGRESS PLANS
A2.4A	EGRESS PLANS
A2.5	WASTE MANAGEMENT PLAN
A2.6	FACADE ARTICULATION
A2.7	FACADE ARTICULATION
A2.8	FACADE ARTICULATION
A3.0	BUILDING COMPOSITE PLAN - SUB LEVEL P1 & P2
A3.1	BUILDING COMPOSITE PLAN - LEVEL P3 & 1 (PODIUM)
A3.2	BUILDING COMPOSITE PLAN - LEVEL 2-4
A3.3	BUILDING COMPOSITE PLAN - LEVEL 5 &ROOF PLAN
A4.0	CONCEPTUAL BUILDING ELEVATIONS
A4.1	CONCEPTUAL BUILDING ELEVATIONS
A5.0	CONCEPTUAL BUILDING SECTIONS
A6.0	COLOR AND MATERIAL BOARD
A7.0	CONCEPTUAL UNIT PLANS
A7.1	CONCEPTUAL UNIT PLANS
L-1	SITE PLAN - GROUND LEVEL
L-2	SITE PLAN - PODIUM LEVEL
L-3	SITE PLAN - LEVEL 5 ROOF AMENITY
L-4	PLANT PALETTE IMAGERY
C.1	EXISTING CONDITIONS
C.2	TYPICAL SECTIONS
C.3	CONCEPTUAL GRADING
C.4	CONCEPTUAL UTILITY PLAN

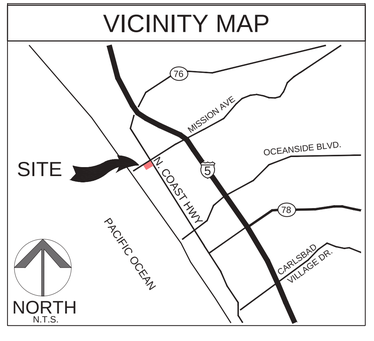
Project Team

APPLICANT / OWNER
JH REAL ESTATE PARTNERS, INC.
520 Newport Center Drive, Suite 780
Newport Beach, CA 92660
(949) 723-8989
Contact: Ernie Rivas
erivas@jhep.com

RESIDENTIAL ARCHITECT
ARCHITECTS ORANGE
144 N. Orange Street
Orange, CA 92866
(714) 639-9860
Contact: Tobin Symmank
tobins@aoarchitects.com

CIVIL ENGINEER
X Engineering & Consulting, Inc.
6 Hutton Center Drive, Suite 650
Santa Ana, CA 92707
(949) 522-7727
Contact: Puneet Comar
puneet.comar@xengineeringinc.com

LANDSCAPE ARCHITECT
Summers Murphy & Partners
34197 Pacific Coast Highway, Suite 200
Dana Point, CA 92629
(949) 443-1446
Contact: Pat Murphy
pmurphy@smpinc.net



REVISION LOG

NO.	DESCRIPTION	Date
1	ORIGINAL	06-05-23
2	RESUBMITTAL	09-05-24
2		
3		
4		
5		

mber 17, 2024 10:16:34 AM
4 JHREP - 401 MISSION - OCEANSIDE\03 DESIGN\SCHEMATIC\CAD\--22-124_G1.0 COVER SHEET.DWG

JH Real Estate Partners, Inc.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Cover Sheet

Architecture. Design. Relationships.

G1.0

Scale N/A
Job No. 2022-124
Date 08-22-2024

BUILDING PROJECT DESCRIPTION

A 332 UNIT DEVELOPMENT CONSISTING OF A
5-STORY TYPE III-A OVER 3 LEVELS
OF TYPE I-A PARKING STRUCTURE

GROSS LAND AREA		118,484	SQ. FT.
	±	**2.72**	**ACRES**
RESIDENTIAL GROSS AREA:		405,698	SQ. FT.
PARKING STRUCTURE GROSS AREA		238,550	SQ. FT.
TOTAL UNITS:		**332**	**UNITS**
FAR (PARKING STRUCTURE NOT INCLUDED):		3.42	FAR
OPEN SPACE: 150 S.F. /D.U.		49,819	SQ. FT.
LOT COVERAGE:	**69%**	**81,240**	**SQ. FT.**
CURRENT ZONING:		D-1	

AFFORDABLE RESIDENTIAL UNIT SUMMARY

PLAN TYPE	SF	AFFORDABLE UNITS (LOW)*		MARKET RATE UNITS		TOTAL
STUDIO	564	2	6%	13		15
1BR/1BA	580-788	17	50%	148		165
2BR/2BA	1050-1138	11	32%	102		113
3BR/2BA	1267-1499	4	12%	35		39
TOTAL		**34**	**10%**	**298**	**90%**	**332**

*AFFORDABLE LOW-INCOME LEVEL UNITS WILL BE PROPORTIONAL TO THE OVERALL PROJECT IN UNIT SIZE AND DISPERSED THROUGHOUT THE PROJECT

GENERAL DISCLAIMER

THESE CONCEPTUAL ARCHITECTURAL PLANS ARE FOR PLANNING & DEVELOPMENT PURPOSES ONLY. REVISIONS MAY BE REQUIRED DUE TO FURTHER REQUIREMENTS, INVESTIGATION FROM GOVERNING AGENCIES AND BUILDING CODE ANALYSIS. PLEASE REFER TO CIVIL SURVEYS, DRAWINGS AND EXHIBITS FOR TECHNICAL INFORMATION AND MEASUREMENTS. PLEASE REFER TO THE LANDSCAPE ARCHITECTS DRAWINGS AND EXHIBITS FOR ALL LANDSCAPE PLANTING, IRRIGATION, DESIGN AND SPECIFICATIONS.

Residential Multi-Family Building — UNITS PER LEVEL SUMMARY

07.10.24

LEVEL	STUDIO	1BR							2BR				3BR					TOTAL
	S1	A0	A0.1	A0.2	A1	A1.1	A1.2	A2	B1	B1.1	B2	B3	C1	C1A	C1B	C1.1	C2	
5	3	4	3	4	2	3	3	12	9	1	12	3	1	2	1	1	2	66
4	3	4	3	4	2	4	3	13	9	1	11	3	1	2	1	2	2	68
3	3	4	3	4	2	4	3	13	9	1	11	3	1	2	1	2	2	68
2	3	4	3	4	2	4	3	13	9	1	11	1	1	2	1	2	2	66
1 (Podium)	3	4	3	4	2	4	3	15	7	1	9	1	1	2	1	2	2	64
	15	20	15	20	10	19	15	66	43	5	54	11	5	10	5	9	10	**332**
Totals	15	165							113				39					
	4.5%	6.0%	4.5%	6.0%	3.0%	5.7%	4.5%	19.9%	13.0%	1.5%	16.3%	3.3%	1.5%	3.0%	1.5%	2.7%	3.0%	**100%**
	4.5%	49.6%							34.1%				11.7%					
	54.1%								45.8%									

DWELLING UNIT INFO

Unit	Unit SF	Qty.	%	SF TOT.*
S1	564	15	4.5%	8,460
A0	580	20	6.0%	11,600
A0.1	595	15	4.5%	8,925
A0.2	586	20	6.0%	11,720
A1	715	10	3.0%	7,150
A1.1	741	19	5.7%	14,079
A1.2	739	15	4.5%	11,085
A2	788	66	19.9%	52,008
B1	1,072	43	13.0%	46,096
B1.1	1,098	5	1.5%	5,490
B2	1,138	54	16.3%	61,452
B3	1,050	11	3.3%	11,550
C1	1,267	5	1.5%	6,335
C1A	1,290	10	3.0%	12,900
C1B	1,280	5	1.5%	6,400
C1.1	1,282	9	2.7%	11,538
C2	1,499	10	3.0%	14,990
Avg.	**909**	**332**	100%	**301,778**

*** DENSITY:** **122 D.U./ACRES**

* RESIDENTIAL UNIT NET AREA

AVG. SF

TYPE	SF
STUDIO	**564**
1-BR	**706**
2-BR	**1103**
3-BR	**1338**

PRIVATE O.S.

Unit	DECK AREA	TOT. AREA
S1	0	0
A0	50	1,000
A0.1	83	1,245
A0.2	57	1,140
A1	61	610
A1.1	84	1,596
A1.2	58	870
A2	65	4,290
B1	61	2,623
B1.1	78	390
B2	65	3,510
B3	74	814
C1	89	445
C1A	69	690
C1B	76	380
C1.1	88	792
C2	122	1,220
TOTAL		**21,615**

8.30.24

OPEN SPACE SUMMARY

TYPE	REQUIRED RATIO	REQUIRED SF	PROVIDED SF
COMMON OPEN SPACE	200 SF/DU	66,400	
OUTDOOR			19,492
INDOOR			8,712
PRIVATE OPEN SPACE			21,615
COMBINED COMMON AND PRIVATE OPEN SPACES	**200 SF/DU**	**66,400**	**49,819 (146 SF/DU)**

COMMON OPEN SPACE

POOL COURTYARD A	7,520
COURTYARD B	5,069
ROOF DECK	750
PODIUM DECK 1	1,415
PODIUM DECK 2	1,338
DOG RUN	3,400
TOTAL	**19,492**

ENCLOSED AMENITY SF

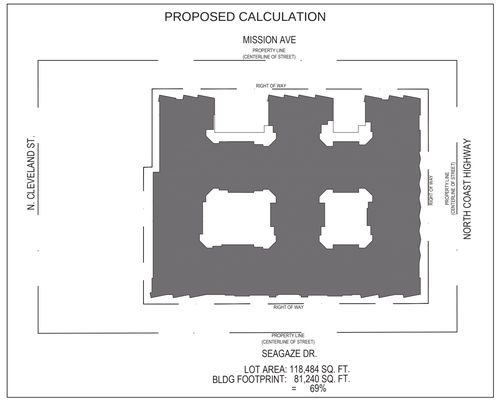
AMENITIES	SF
INDOOR AMENITY	5,264
LEASING/ LOBBY	1,472
CO-WORK (Mezzanine)	1,228
BIKE STORAGE	284
MAIL / PARCEL	464
TOTAL	**8,712**

PUBLIC OPEN SPACE

PLAZA 1	6,633
PLAZA 2	2,816
PLAZA CONNECTORS	2,876
TOTAL	**12,325**

LOT COVERAGE

PROPOSED CALCULATION



LOT AREA: 118,484 SQ. FT.
BLDG FOOTPRINT: 81,240 SQ. FT.
= 69%

RESIDENTIAL AREA (GSF)

per CBC Definition

Level 5	79,158
Level 4	81,178
Level 3	81,178
Level 2	78,915
Level 1 - Podium	81,229
P3 - Mezzanines	1,228
P2 -Street Level	2,812
TOTAL GROSS AREA	**405,698**
Land Area (sf)	118,484
F.A.R.	3.42

RETAIL / RESTAURANT (GSF)

Restaurants 1 & 2 P2 - Street Level	6,593
Restaurants P3 -Mezzanines	3,906
Restaurant P5 Level - Roof Deck	750
Retail 1 & 2 P2 - Street Level	7,433
TOTAL GROSS AREA	**18,682**

STRUCTURED PARKING AREA (GSF)

P3	74,497
P2 -Street Level	75,913
P1 - Sub-T	88,140
TOTAL GROSS AREA	**238,550**

BEDROOM COUNT

Studio	15
One Bedroom	165
Two Bedroom	226
Three Bedroom	117
TOTAL	**523**

BUILDING - PARKING SUMMARY

TYPE	COUNT	REQUIRED RATIO	REQUIRED STALLS	PROVIDED RATIO	PROVIDED STALLS
STUDIO	15	1.0	15	1.0	15
1 BR	165	1.0	165	1.0	165
2 BR	113	1.5	170	1.5	170
3 BR	39	1.5	59	1.5	59
TOTALS	332		**409**	1.23	**409**
GUEST			0		0
LEASING			0		5
USPS			1		1
Additional Shared					54
*Restaurant SF 8,999		1/100 SF	90	1/100 SF	90
Retail SF 7,433		1/200 SF	37	1/200 SF	37
TOTAL STALLS REQUIRED		1.62	**537**	1.80	**596**

***Excludes Back of House (BOH) - 20% at street level and bar area at mezzanine and roof deck**

ACCESSIBLE STALLS REQUIRED

	STALLS	RATIO	REQ'D
RESIDENTIAL	347	0.02	7
ADDITIONAL SHARED	45	0.02	1
LEASING	5	0.02	1
RETAIL	107	0.02	2
TOTAL ACCESSIBLE PARKING REQUIRED			**11**
TOTAL ACCESSIBLE PARKING PROVIDED			**11**

NOTE: PROVIDE (1) VAN AC. STALL FOR EVERY 6 AC. STALLS PROVIDED (PER TYPE)

BICYCLE PARKING

REQUIRED PARKING STALLS		RATIO	
RESIDENTIAL	409	5%	21
COMMERCIAL	127	5%	7
TOTAL BICYCLE REQUIRED			**28**
TOTAL BICYCLE PROVIDED			**42**

EVCS PARKING REQUIRED

	STALLS	RATIO	REQ'D	ACCESS.
RESIDENTIAL	409	0.15	62	3
RETAIL / RESTAURANT	127	0.15	20	1
ADDITIONAL SHARED	54	0.15	9	1
LEASING	5	<10	0	0
TOTAL EVCS PARKING REQUIRED			**91**	**5**
TOTAL EVCS PARKING PROVIDED			**91**	**5**

NOTE: THE REQUIRED EVCS STALLS ARE INCLUDED IN THE COUNT TO MEET THE MINIMUM ZONING REQUIREMENTS FOR BOTH THE RESIDENTIAL & LEASING PARKING REQUIREMENTS. - ONE ACCESSIBLE EV STALL PER 25 EV STALLS

BUILDING - PARKING PROVIDED

	STD	Acc.	TOTAL
LEVEL P0	5	0	5
LEVEL P1	238	6	244
LEVEL P2	177	7	184
LEVEL P3	157	6	163
TOTAL STALLS	**572**	**19**	**596**
	96%	3%	

nber 05, 2024 3:37:55 PM
4 JHREP - 401 MISSION - OCEANSIDE\03 DESIGN\SCHEMATIC\CAD\-22-124_G1.1 PROJECT INFORMATION.DWG

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Project Information - Unit Summary, Parking Analysis

Architecture. Design. Relationships.

G1.1

Scale 0" = 00'
Job No. 2022-124
Date 08-22-2024

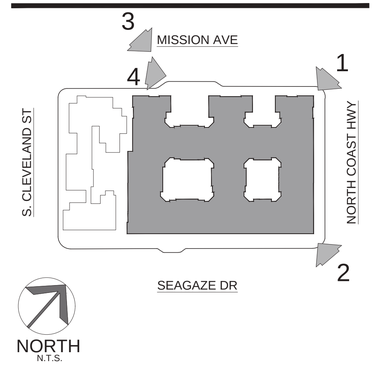


VIEW ON NORTH COAST HIGHWAY LOOKING SOUTH 1



VIEW ON NORTH COAST HIGHWAY LOOKING NORTH 2

KEY MAP



tober 17, 2024 10:14:04 AM
4 JHREP - 401 MISSION - OCEANSIDE\03 DESIGN\SCHEMATIC\CAD\-22-124_G2.0 - G2.1 - G2.0 PERSPECTIVES.DWG

JH Real Estate Partners, Inc.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Conceptual Perspectives

Architecture. Design. Relationships.

G2.0

Scale	1" = 20'
Job No.	2022-124
Date	08-22-2024

Xref :\Xref\X-KEYNOTE - ELEVATIONS.dwg



VIEW ON MISSION AVE LOOKING EAST 3



VIEW ON MISSION AIVE LOOKING INTO COURTYARD 4

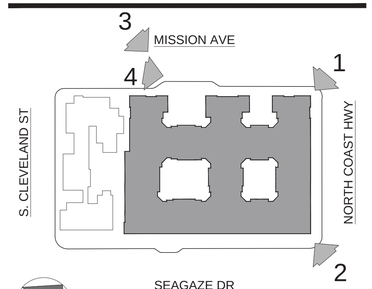


VIEW ON MISSION AVE LOOKING EAST (WITH CHRISTMAS TREE) 3



VIEW ON MISSION AIVE LOOKING INTO COURTYARD (WITH CHRISTMAS TREE) 4

KEY MAP



NORTH
N.T.S.

Wednesday, September 18, 2024 1:27:57 PM
R:\2022\2022-124 JHREP - 401 MISSION - OCEANSIDE\03 DESIGN\SCHEMATIC\CAD\-22-124_G2.0 - G2.1 - G2.0 PERSPECTIVES.DWG

JH Real Estate Partners, Inc.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA
JH Real Estate Partners, Inc.

Xref .\Xref\X-KEYNOTE - ELEVATIONS.dwg

RESIDENTIAL BUILDING
Conceptual Perspectives

AO Architecture. Design. Relationships.

G2.1

Scale	1" = 20'
Job No.	2022-124
Date	08-22-2024



VIEW ON MISSION AVE LOOKING EAST 5

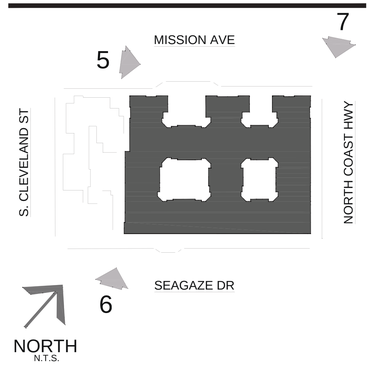


VIEW ON SEAGAZE DRIVE LOOKING NORTHEAST 6



VIEW ON NORTH COAST HIGHWAY LOOKING SOUTH 7

KEY MAP



Tuesday, September 17, 2024 10:15:03 AM
R:\2022\2022-124 JHREP - 401 MISSION - OCEANSIDE\03 DESIGN\SCHEMATIC\CAD\- 22-124_G2.0 - G2.1 - G2.0 PERSPECTIVES.DWG

JH Real Estate Partners, Inc.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

JH Real Estate Partners, Inc.

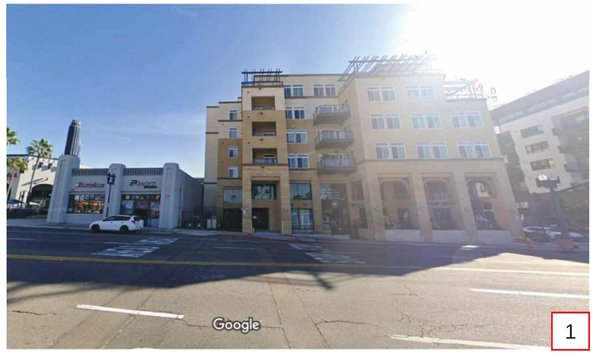
RESIDENTIAL BUILDING
Conceptual Perspectives

Architecture. Design. Relationships.

G2.2

Scale 1" = 20'
Job No. 2022-124
Date 08-22-2024

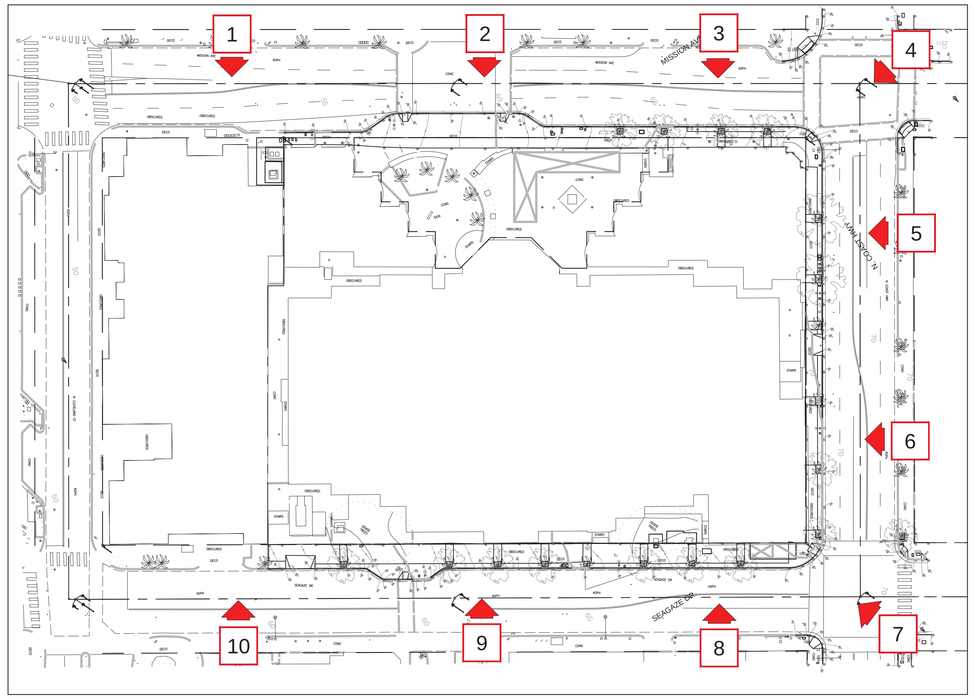
Xref .\Xref\X-KEYNOTE - ELEVATIONS.dwg















KEY MAP
NTS

NORTH









EXISTING VIEWS OF THE PROJECT SITE

JH Real Estate Partners, Inc.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

JH Real Estate Partners, Inc.

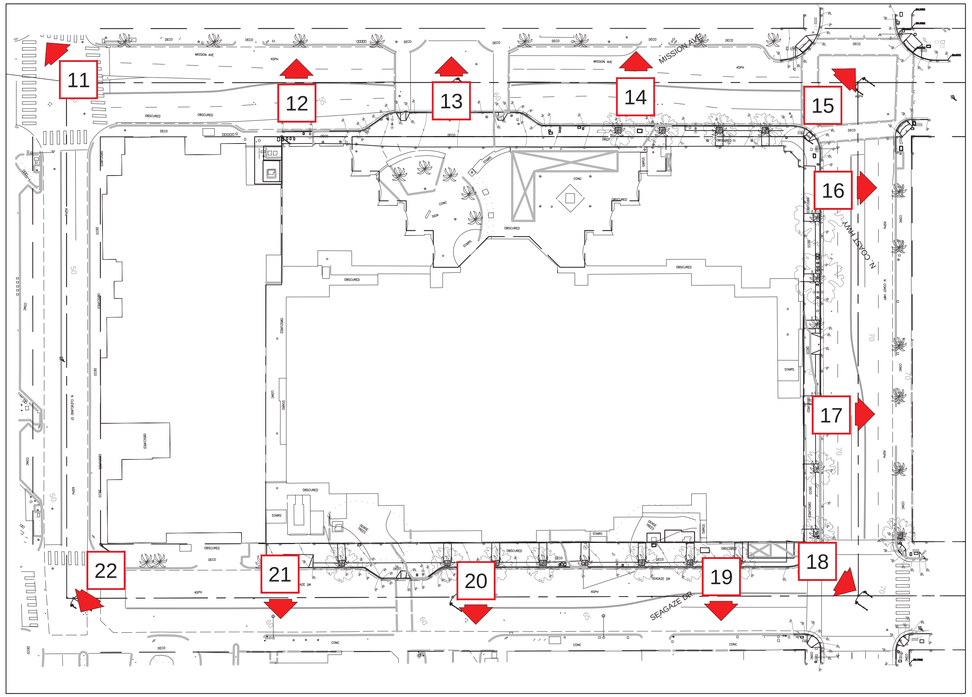
RESIDENTIAL BUILDING
Existing Photo Survey

G3.0

Scale	N/A
Job No.	2022-124
Date	05-24-2024



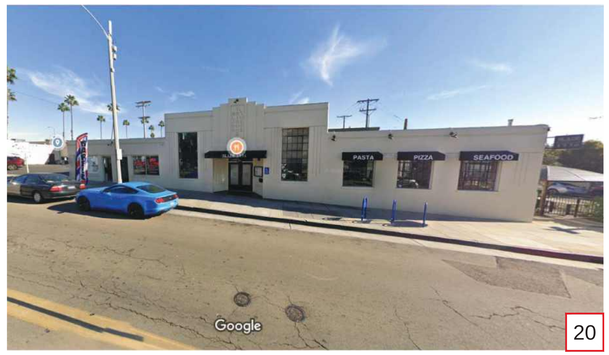




NORTH

KEY MAP
NTS





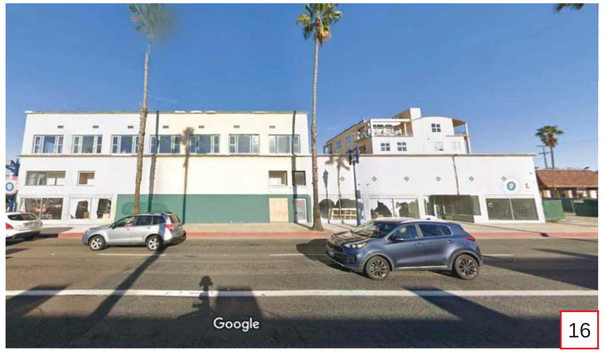
















EXISTING VIEWS SURROUNDING THE PROJECT SITE

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

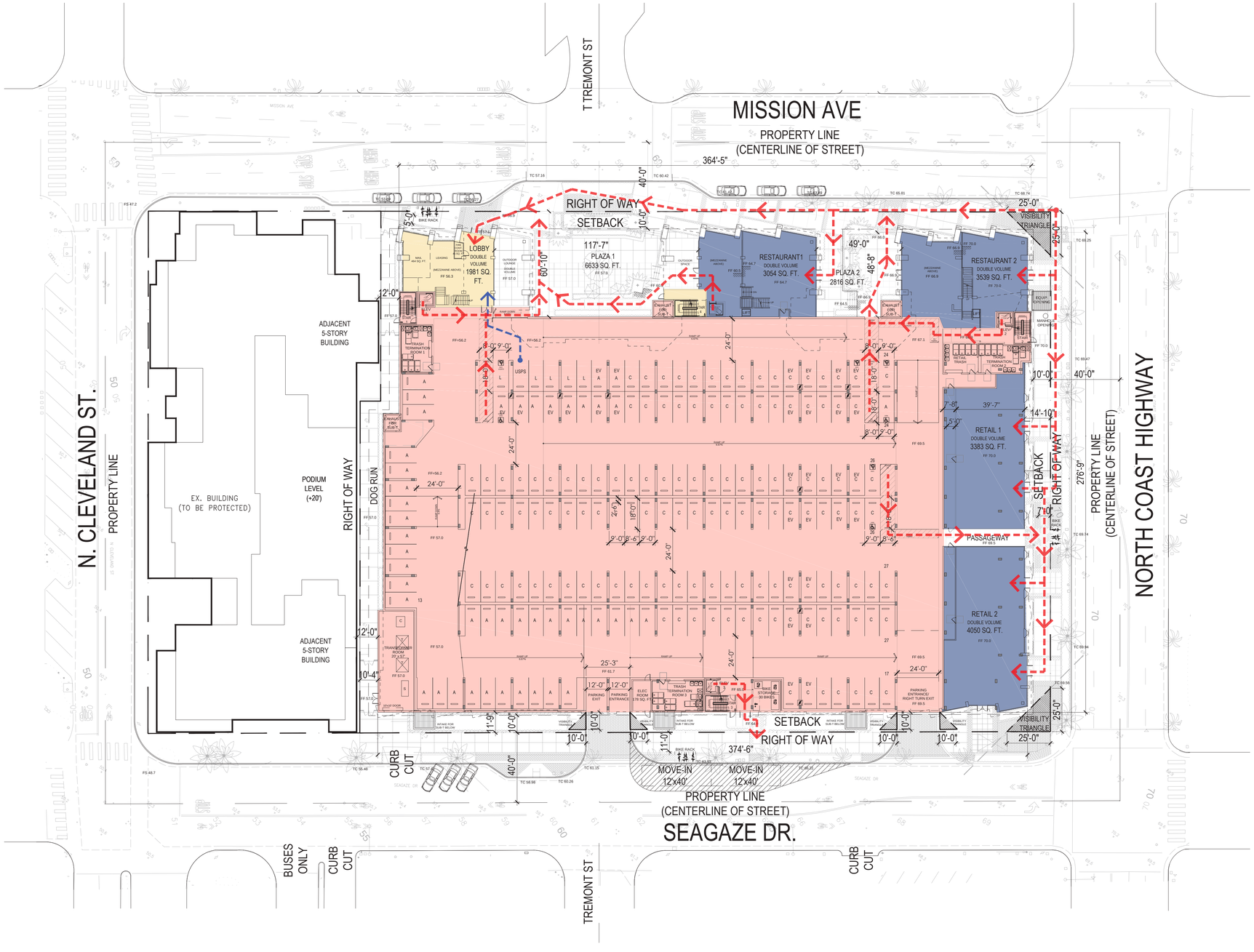
401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Existing Photo Survey

G3.1

Scale	N/A
Job No.	2022-124
Date	05-24-2024



BUILDING PARKING LEVEL P2

LEGEND

- INDICATES RETAIL / RESTAURANT
- INDICATES GROUND FLOOR RESIDENTIAL AMENITY
- INDICATES STRUCTURED PARKING (5 LEVELS)
- USPS DESIGNATED PATH OF TRAVEL
- ACCESSIBLE PATH OF TRAVEL

GENERAL NOTES

1. SEE SHEETS L.1 - L.11 FOR LANDSCAPE.
2. SEE SHEETS 1 - 8 FOR CIVIL.
3. THE DESIGNATED "USPS ONLY" PARKING STALL SHALL HAVE STRIPING AND NAME IN WHITE OR YELLOW PARKING STALL STRIPING.
4. PROMINENT SIGN STATING "USPS PARKING ONLY 7AM-6PM"

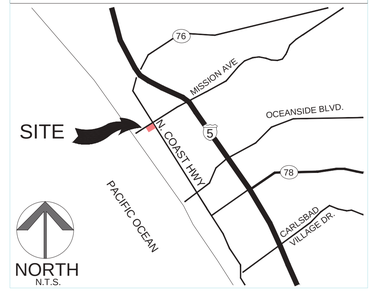
SITE PLAN NOTES

1. THIS ARCHITECTURAL SITE PLAN IS PROVIDED FOR OVERALL SITE REFERENCE. THE LOCATION OF ITEMS INCLUDED IN THIS SET OF PLANS IS FOR AGENCY DEPARTMENT USE ONLY.
2. THIS SITE PLAN IS FOR REFERENCE ONLY, AS AN ARCHITECTURAL PLAN FOR GENERAL LAYOUT AND IDENTIFICATION PURPOSES ONLY
3. FOR LOT LINE DIMENSIONS & HORIZONTAL CONTROL, SEE CIVIL DRAWINGS
4. FOR HARDSCAPE AND ALL SITE IMPROVEMENTS, SEE LANDSCAPE DRAWINGS
5. FOR PARKING GARAGE, SEE SEPARATE SUBMITTAL PACKAGE
6. FOR "FIRE LANE" DESIGN, SEE CIVIL AND LANDSCAPE DRAWINGS
7. FOR PERIMETER FENCING, SEE LANDSCAPE DRAWINGS
8. REFER TO CIVIL AND LANDSCAPE DRAWINGS FOR SPECIFIC SITE REQUIREMENTS
9. ALL PROPERTY LINES, EASEMENTS, AND BUILDINGS, EXISTING AND PROPOSED ARE SHOWN ON THIS PLAN BUT MUST BE VERIFIED WITH THE CIVIL PLANS
10. BUILDING SIGNAGE IS DESIGNED BY OTHERS AND INSTALLED BY THE GENERAL CONTRACTOR.
11. SITE SIGNAGE IS DESIGNED BY OTHERS AND INSTALLED BY THE CONTRACTOR.
12. SITE WALLS ARE DESIGNED BY OTHERS
13. DECORATIVE SITE LIGHTING IS DESIGNED BY OTHERS.
14. SURFACE WATER MUST DRAIN AWAY FROM BUILDING SEE CIVIL AND LANDSCAPE PLANS FOR DRAINAGE DESIGN.

PARKING STALL LEGEND

R	RESIDENTIAL STALLS
C	COMMERCIAL / RETAIL / RESTAURANT STALLS
A	ADDITIONAL AVAILABLE STALLS
EV	ELECTRICAL VEHICLE STALLS

VICINITY MAP



NORTH

1"=30'-0" 0 15' 30' 60' 90'

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Site Plan

Architecture. Design. Relationships.

A1.0

Scale 1" = 30'
Job No. 2022-124
Date 08-22-2024



BUILDING L1
PODIUM LEVEL

LEGEND

- COMMON OUTDOOR OPEN SPACE
- PRIVATE OPEN SPACE (PATIO AND BALCONY)
- ENCLOSED AMENITY SPACE

OPEN SPACE SUMMARY			
TYPE	REQUIRED RATIO	REQUIRED SF	PROVIDED SF
COMMON OPEN SPACE	200 SF/DU	66,400	
OUTDOOR			19,492
INDOOR			8,712
PRIVATE OPEN SPACE			21,615
COMBINED COMMON AND PRIVATE OPEN SPACES	**200 SF/DU**	**66,400**	**49,819 (146 SF/DU)**

COMMON OPEN SPACE	
POOL COURTYARD A	7,520
COURTYARD B	5,069
ROOF DECK	750
PODIUM DECK 1	1,415
PODIUM DECK 2	1,338
DOG RUN	3,400
TOTAL	**19,492**

ENCLOSED AMENITY SF	
AMENITIES	SF
INDOOR AMENITY	5,264
LEASING/ LOBBY	1,472
CO-WORK (Mezzanine)	1,228
BIKE STORAGE	284
MAIL / PARCEL	464
TOTAL	**8,712**

PUBLIC OPEN SPACE	
PLAZA 1	6,633
PLAZA 2	2,816
PLAZA CONNECTORS	2,876
TOTAL	**12,325**

PRIVATE O.S.		
Unit	DECK AREA	TOT. AREA
S1	0	0
A0	50	1,000
A0.1	83	1,245
A0.2	57	1,140
A1	61	610
A1.1	84	1,596
A1.2	58	870
A2	65	4,290
B1	61	2,623
B1.1	78	390
B2	65	3,510
B3	74	814
C1	89	445
C1A	69	690
C1B	76	380
C1.1	88	792
C2	122	1,220
TOTAL		21,615

NORTH

1"=30'-0" 0 15' 30' 60' 90'

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

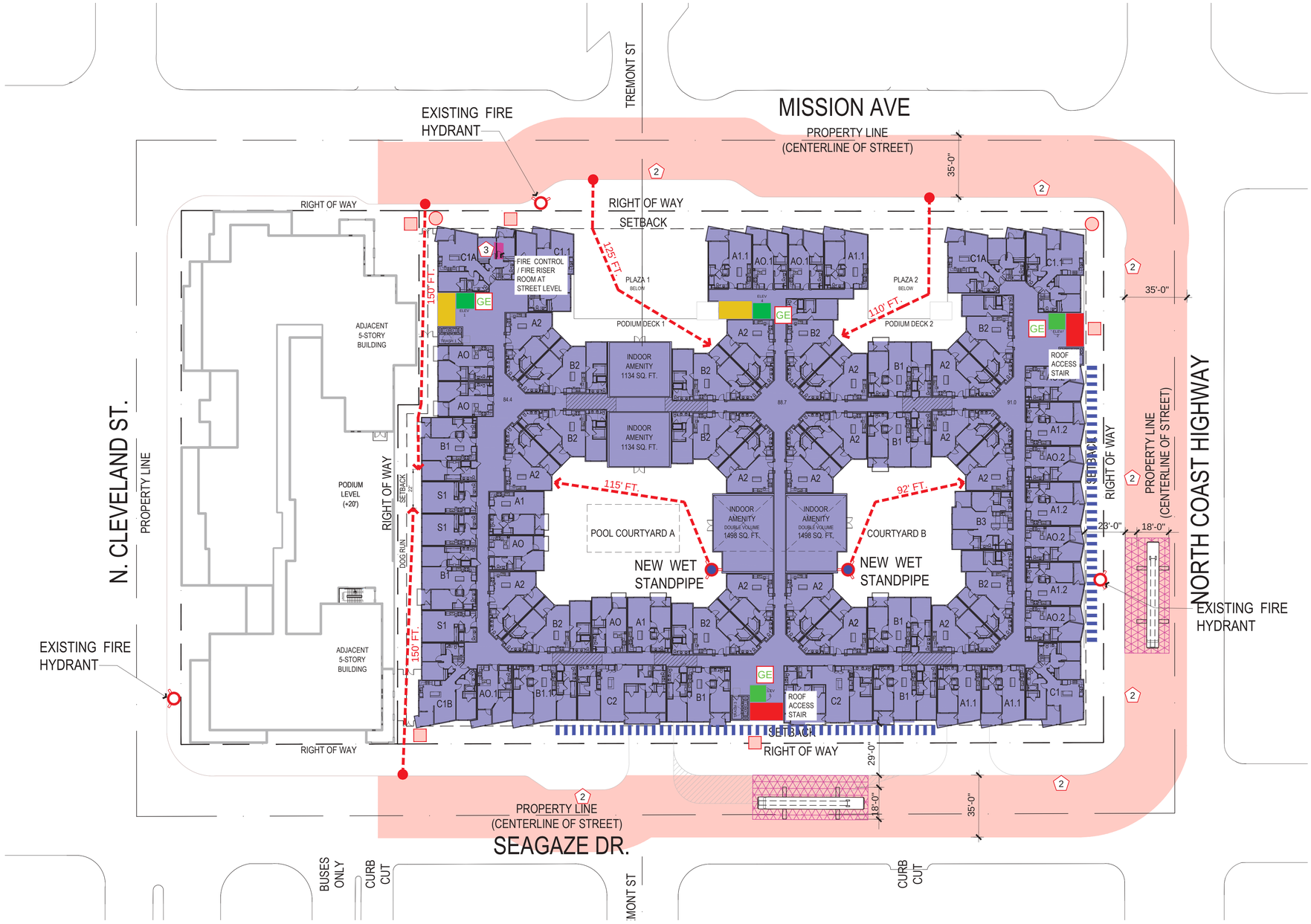
OCEANSIDE, CA
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Open Space Plan

AO Architecture. Design. Relationships.

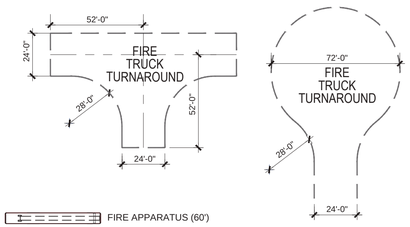
A2.0

Scale 1" = 30'
Job No. 2022-124
Date 08-22-2024



BUILDING L1
PODIUM LEVEL

LEGEND

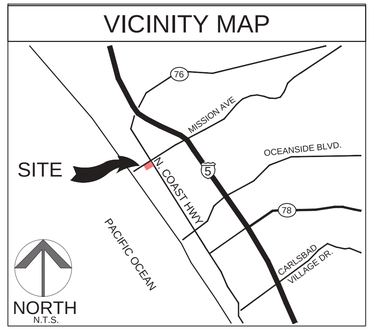


- FIRE APPARATUS (60')
- BUILDING ADDRESS IDENTIFICATION LOCATIONS WITH MINIMUM OF 8" HIGH WITH MINIMUM STROKE WIDTH OF 1/2". FINAL COUNT AND LOCATION SHALL BE FINALIZED WITH THE LOCAL JURISDICTION AND THE FIRE CODE OFFICIAL
- GE — GURNEY SIZED ELEVATOR(S)
- KNOX BOX / LOCKED KEY SWITCH
- FIRE LANE SIGN PER DETAIL
- EXISTING PUBLIC FIRE HYDRANT
- NEW WET STANDPIPE
- 150'-0" HOSE PULL
- AERIAL TRUCK LADDER ACCESS TO BUILDING (REFER TO DETAIL)
- 25'-0" x 65'-0" FIRE STAGING AREA WITH MIN. 20'-0" SETBACK FROM BUILDING(S)

SITE KEYNOTES

1. DRIVEWAY / FIRELANE MEETING ALL-WEATHER SURFACE
2. PAINT CURB RED (AND SURFACE WHERE NO CURB)
3. FIRE ALARM ANNUNCIATOR PANEL / CONTROL ROOM
4. INSTALL "ENTRANCE - FIRE LANE" SIGN
5. INSTALL "NO PARKING - FIRE LANE" SIGN
6. FIRE SPRINKLER RISER (FR)
7. FIRE DEPARTMENT CONNECTION (FDC)
8. INSTALL KNOX BOX AT GATE

VICINITY MAP



NORTH

1"=30'-0" 0 15' 30' 60' 90'

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

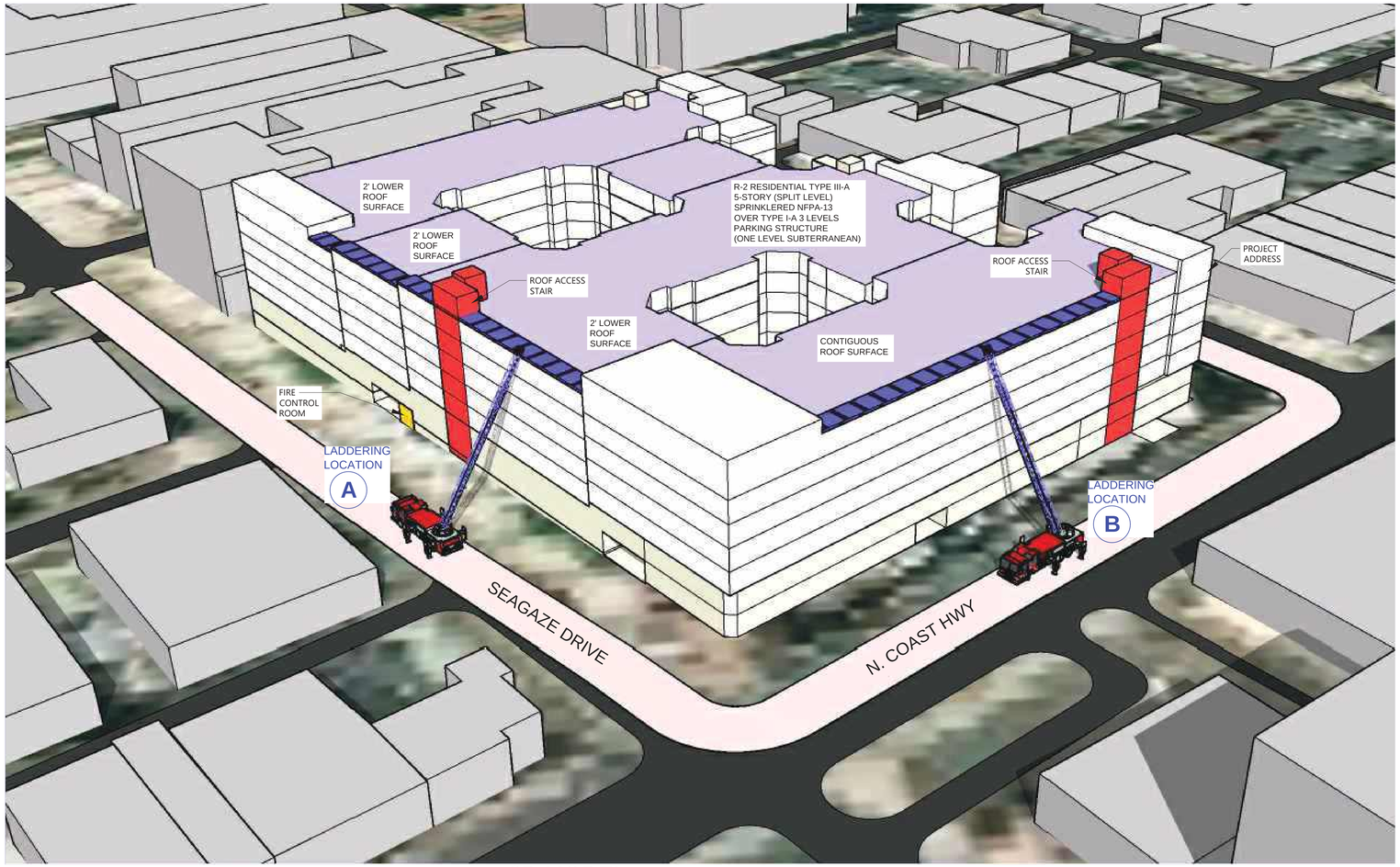
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Fire Access Plan

Architecture. Design. Relationships.

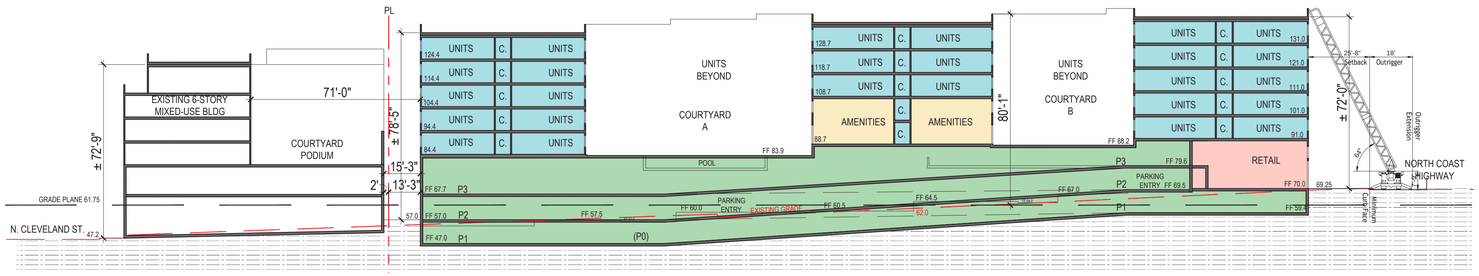
A2.1

Scale	1" = 30'
Job No.	2022-124
Date	05-24-2024



3D MODEL

N.T.S.



BUILDING SECTION A

LEGEND

BUILDING FOOTPRINT - RESIDENTIAL
R2 OCCUPANCY, 5 STORIES TYPE III-A CONSTRUCTION, SPRINKLERED THROUGHOUT, CONTIGUOUS ROOF SURFACE

AERIAL TRUCK LADDER ACCESS TO BUILDING

EXIT STAIR (ROOF ACCESS WHERE NOTED)

24'-0" WIDE PAVED FIRELANE

2019 CBC - BUILDING CODE ANALYSIS - HEIGHT AND AREA - TYPE III-A CONSTRUCTION

Building Use	Occup. Group	Const. Type	Sprinklers (903.3.1.1)	Allowable Ht / Stories	Height Provided	Allowable Building Area							Max Bldg Area per Bldg Section	Avg. Bldg Area per Story (5-St)
						Tab. 506.2		Nonsprinklered (Sec. 506.2.3)		Frontage Increase (Sec. 506.3)		Sec 506.2.3		
Parking Structure	S-2	II-A	NFPA 13	8 Tiers	6 Tiers	117,000				-		-	117,000	-
Leasing Office	B	III-A	NFPA 13	85' / 6 St.	1 St.	85,500				-		-	-	-
Recreation/Fitness	A-3	III-A	NFPA 13	85' / 4 St.	1 St.	14,000				-		-	14,000	-
Residential Dwelling Units	R-2	III-A	NFPA 13	85' / 5 St.	60' / 5 St.	[24,000	+ (	24,000	x	0	)] x	2	48,000	9,600
Residential Dwelling Units	R-2	III-A	NFPA 13	85' / 5 St.	60' / 5 St.	[24,000	+ (	24,000	x	0.25	)] x	2	60,000	12,000
Residential Dwelling Units	R-2	III-A	NFPA 13	85' / 5 St.	60' / 5 St.	[24,000	+ (	24,000	x	0.50	)] x	2	72,000	14,400

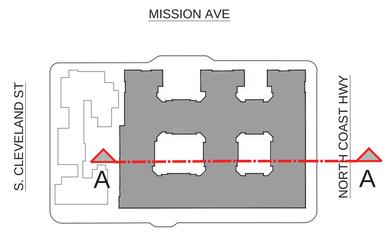
NOTES:

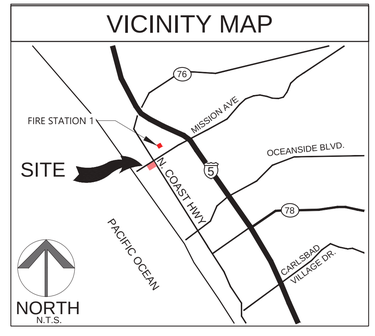
- Approved sprinklers (NFPA 13) used for Height and Story increase. NOT area increase
- Frontage Increase *If=[F/P-0.25]W/30*: (0-1 side = 0 sf increase; 2 sides = 6,000 sf increase; 3 sides = 12,000 sf increase)
- 2019 CBC Section 510.2 & 510.4 allows multiple stories below a horizontal assembly (podium)
- Highest occupiable floor level is less than 75' above lowest level of fire department access and therefore building is not considered a High-rise per Section 202
- Building corridors shall comply with the requirements of CBC Section 1020
- Building Exit Passageways shall comply with the requirements of CBC Section 1024
- Where an exit enclosure is extended to an exit discharge or a public way by an exit passageway, the exit enclosure shall be separated from the exit passageway by a fire barrier constructed in accordance with CBC Section 707 or a horizontal assembly constructed in accordance with Section 711, or both.
- 50' max. dead-end corridor where the building is equipped with an approved automatic fire sprinkler system (NFPA 13) per CBC Section 1020.4



FIRE AREA CALCULATIONS

KEY MAP





401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

JH Real Estate Partners, Inc.

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

RESIDENTIAL BUILDING
Fire Access Plan

Architecture. Design. Relationships.

A2.2

Scale 1" = 30'
Job No. 2022-124
Date 05-24-2024

ATTACHMENTS

I. Attachment 1 - Fire Master Plan Notes

All of the notes listed in the INSPECTION REQUIREMENTS and GENERAL REQUIREMENTS sections shall be placed, verbatim, on the plan. Include individual notes, as applicable, from the PROJECT – SPECIFIC REQUIREMENTS section.

A. Inspection Requirements – Buildings Under Construction

1. Site inspections are required for this project. Please schedule all field inspections at least 24 hours in advance. Call the Oceanside Fire Prevention Bureau at (760) 435-4101, Monday through Friday.
2. A lumber drop inspection shall be performed prior to bringing combustible materials or combustible fixtures and finishes for structures of non-combustible construction onsite. All-weather access roads capable of supporting 78,000 lbs., topped with asphalt, concrete, or equivalent shall be in place and hydrants shall be operational at time of lumber drop inspection.
3. For projects in a wildland interface area, a vegetation clearance inspection is required prior to a lumber drop inspection.
4. An original approved, signed, wet-stamped fire master plan shall be available on-site at time of inspection.
5. Access roads and hydrants shall be maintained and remain clear of obstructions at all times during and after construction. Areas where parking is not permitted shall be clearly identified at all times.
6. Temporary fuel tanks of 60 or more gallons shall be reviewed, inspected, and permitted by the Fire Department prior to use.
7. The project address shall be clearly posted and visible from the public road during construction.
8. All gates in construction fencing shall be equipped with either a Knox or breakaway padlock.
9. Buildings of four or more stories shall be provided with stairs and a standpipe before reaching 35 feet in height.

B. General Requirements

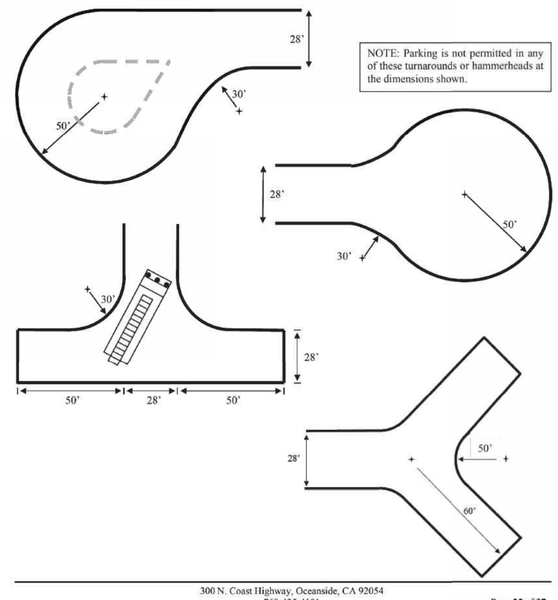
1. Fire lane widths shall be measured from top face of the curb to top face of the curb for fire lanes with standard curbs and gutters, and from flow-line to flow-line for fire lanes with modified curb designs (e.g., rolled, ramped, etc.).
2. The developer is responsible to verify that all approved public works or grading department street improvement plans or precise grading plans conform to the minimum street width measurements per the approved fire master plan.
3. Fire lane signs and red curbs shall meet the Oceanside Fire Department Fire Lane Requirements. Additional fire lane markings may be required at the time of inspection depending on field conditions.

4. Address numbers shall be located and be of a color and size so as to be plainly visible and legible from the roadway from which the building is addressed. Address numbers shall be illuminated at night.
5. Access gates shall be approved prior to installation and shall be in compliance with Chapter 5 of the CFC and Oceanside Fire Department requirements.
6. Approved access walkways shall be provided to all required openings and all rescue windows.
7. Vegetation shall be selected and maintained in such a manner as to allow immediate access to all hydrants, valves, and fire department connections, pull stations, extinguishers, sprinkler risers, alarm control panels, rescue windows, and other devices or areas used for firefighting purposes. Vegetation or building features shall not obstruct address numbers or inhibit the functioning of alarm bells, horns, or strobes.
8. Dumpsters and trash containers larger than 1.5 cubic yards shall not be stored in buildings or placed within 10 feet of combustible walls, openings, or combustible roof eave lines unless protected by an approved sprinkler system.
9. Any future modification to the approved Fire Master Plan or approved site plan, including but not limited to road width, grade, speed humps, turning radii, gates or other obstructions, shall require review, inspection, and approval by the Fire Department.
10. This project may be subject to additional requirements not stated here-in upon examination of actual site and project conditions or disclosure of additional information.

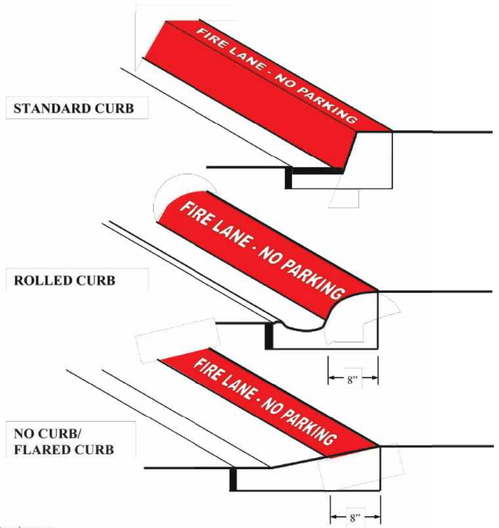
C. Project – Specific Requirements
(Include only those notes that are applicable to the project as designed; some notes may need to be modified to address specific project conditions)

1. An automatic fire sprinkler system shall be installed in accordance with applicable codes and local ordinances, amendments, and guidelines. A separate plan submittal is required.
2. An underground piping plan is required for the installation of an automatic fire sprinkler system or for a private fire hydrant system. A separate plan submittal to the Fire Department is required.
3. A chemical classification and hazardous materials compliance plan shall be approved by the Oceanside Fire Department prior to any hazardous materials being stored or used on site. A separate plan submittal is required.
4. This property is located in or adjacent to a fuel modification area. Addition or alteration of structures or landscaping requires review and approval by the Oceanside Fire Department.

VII. Attachment 7 – Minimum Turnaround and Hammerhead Dimensions



IX. Attachment 9 – Fire Lane Curb Identification



Requirements:

- Fire lane entrance sign(s) shall be provided per Attachment 10 or 11.
- Curbs shall be painted O.S.H.A. Safety Red.
- "FIRE LANE – NO PARKING" shall be painted on top of curb in 3" lettering at a spacing of 30' on center or portion thereof.

X. Attachment 10 – Fire Lane Entrance Signs

To be used only at vehicle entry points to areas that contain "Fire Lane – No Parking" signs or red curbs.



- All sign and lettering dimensions shown are minimum required.
- This sign shall be posted at all vehicle entrances to areas marked with either red curbs or fire lane "No Parking" signs.
- Signs shall be securely mounted facing the direction of travel and clearly visible to oncoming traffic entering the designated area. Signs shall be made of durable material and installed per Attachment 13.
- Towing company contact information is required for all properties with a standing written agreement for services with a towing company, per the California Vehicle Code.

XII. Attachment 12 – Specifications for Fire Lane No Parking Sign



- All sign and lettering dimensions shown are minimums. "Arial Narrow" font is used in the example above though other legible sans-serif fonts may be acceptable.
- In areas where fire lane parking restrictions are enforced by the California Highway Patrol, "NO STOPPING – FIRE LANE" signs meeting Caltrans standards shall be used.
- Signs shall be securely mounted facing the direction of travel and clearly visible to oncoming traffic entering the designated area. Signs shall be made of durable material and installed per Attachments 13 and 14.

JH Real Estate Partners, Inc.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

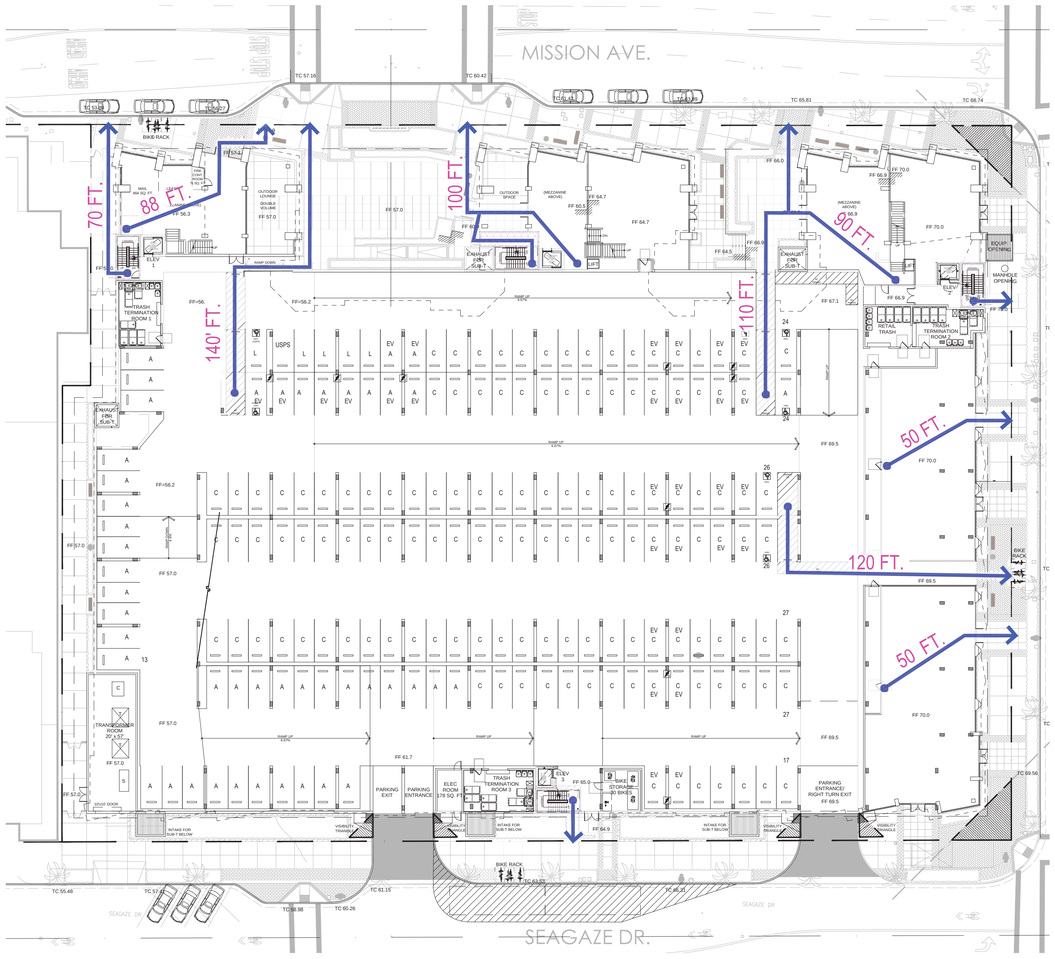
OCEANSIDE, CA
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Fire Plan Notes

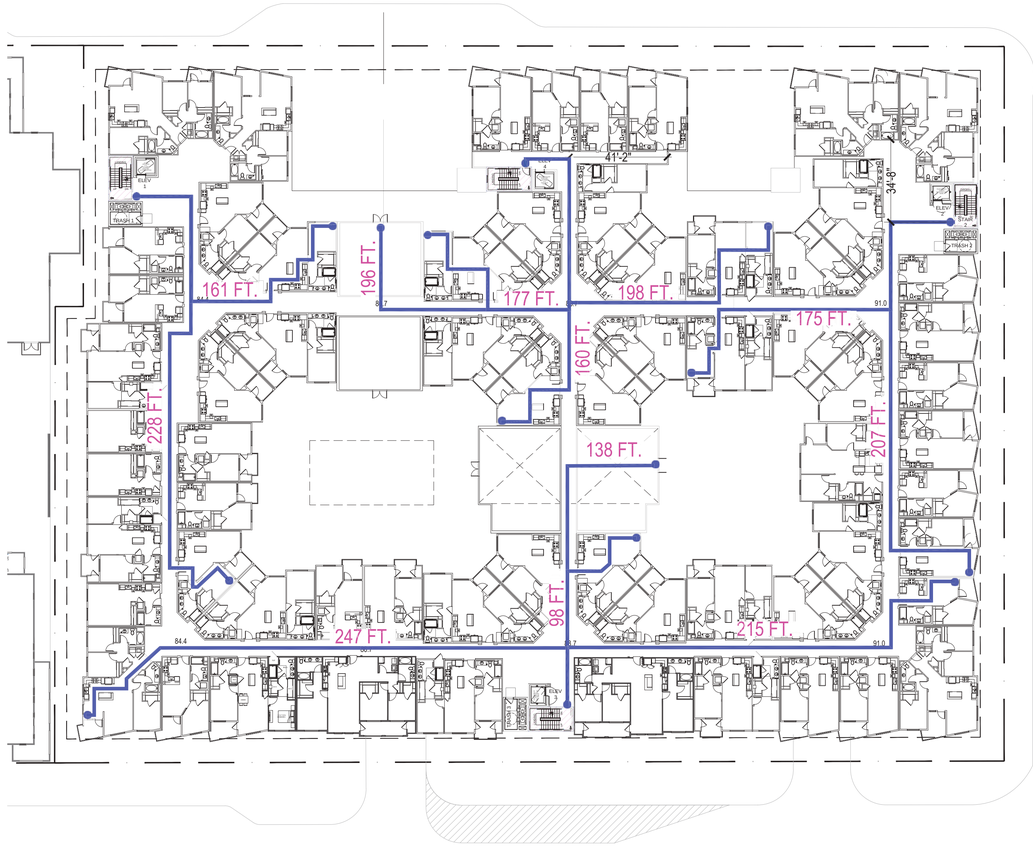
Architecture. Design. Relationships.

A2.3

Scale 1" = 30'
Job No. 2022-124
Date 05-24-2024



LEVEL P1



LEVEL 1

GENERAL NOTES

1. EXIT ACCESS TRAVEL DISTANCES SHOWN ARE MEASURED FROM THE MOST REMOTE POINT WITHIN EACH DWELLING UNIT TO EITHER AN EXTERIOR EXIT STAIRWAY OR EXIT DISCHARGE AS PER CBC SECTION 1016.
2. THE MAXIMUM LENGTHS OF EXIT ACCESS TRAVEL PER OCCUPANCY ARE LISTED BELOW AS PER CBC TABLE 1016.1:
   A: 250 FEET (WITH SPRINKLER SYSTEM)
   B: 300 FEET (WITH SPRINKLER SYSTEM)
   R: 250 FEET (WITH SPRINKLER SYSTEM)
   S-2: 400 FEET (WITH SPRINKLER SYSTEM)
3. EGRESS THROUGH AN INTERVENING SPACE SHALL COMPLY WITH SECTION 1014.2
4. THE COMMON PATH OF EGRESS TRAVEL SHALL NOT EXCEED THE FOLLOWING DISTANCES PER SECTIONS 1014.3 AND 1028.8:
   A: 75 FEET*
   B: 100 FEET*
   R-2: 125 FEET*
   S-2: 100 FEET*
   (* = PROVIDED THAT THE BUILDING IS PROTECTED THROUGHOUT WITH AN APPROVED AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.3.1.2)
5. SEE ELECTRICAL DRAWINGS AND ARCHITECTURAL REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION REGARDING EXIT SIGNS.
6. EXIT ACCESS (SECTION 1002): THAT PORTION OF A MEANS OF EGRESS SYSTEM THAT LEADS FROM ANY OCCUPIED PORTION OF A BUILDING OR STRUCTURE TO AN EXIT.
7. THE MEANS OF EGRESS, INCLUDING THE EXIT DISCHARGE, SHALL BE ILLUMINATED TO A LEVEL OF NOT LESS THAN ONE FOOT-CANDLE AT THE WALKING SURFACE AT ALL TIMES THE BUILDING SPACE SERVED BY THE MEANS OF EGRESS IS OCCUPIED. SECTION 1006.2
8. THE MEAN OF EGRESS ILLUMINATION SHALL BE PROVIDED BY THE PREMISES' ELECTRICAL SUPPLY. IN THE EVENT OF A POWER SUPPLY FAILURE, AN AUTOMATIC EMERGENCY ELECTRICAL SYSTEM SHALL BE PROVIDED PER SECTION 1006.3.
9. APPROVED EXIT SIGNS SHALL BE LOCATED AS NECESSARY TO CLEARLY INDICATE THE DIRECTION OF EGRESS TRAVEL AS REQUIRED BY BUILDING CODE 1011.1; AND SHALL BE INTERNALLY OR EXTERNALLY ILLUMINATED AS REQUIRED BY SECTION 1011.3 IN ACCORDANCE WITH THE PROVISIONS SET FORTH IN SECTIONS 1011.5 AND 1011.6. NOTE: ADDITIONAL EXIT SIGNS MAY BE REQUIRED AT THE TIME OF FIELD INSPECTION.
10. IN THE EVENT OF POWER FAILURE AN EMERGENCY ELECTRICAL SYSTEM SHALL ILLUMINATE EXIT SIGNS FOR A DURATION OF NOT LESS THAN 90 MINUTES IN ACCORDANCE WITH THE PROVISIONS SET FORTH IN SECTION 1011.6.3

LEGEND

2-HOUR VERTICAL EXIT ENCLOSURE

2-HOUR EXIT PASSAGEWAY

EXIT PATH

NOTE: MAXIMUM TRAVEL DISTANCE FROM UNIT TO EXIT TO PUBLIC WAY SHALL NOT EXCEED 250 FEET.

NORTH

1"=30'-0" 0 15' 30' 60' 90'

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

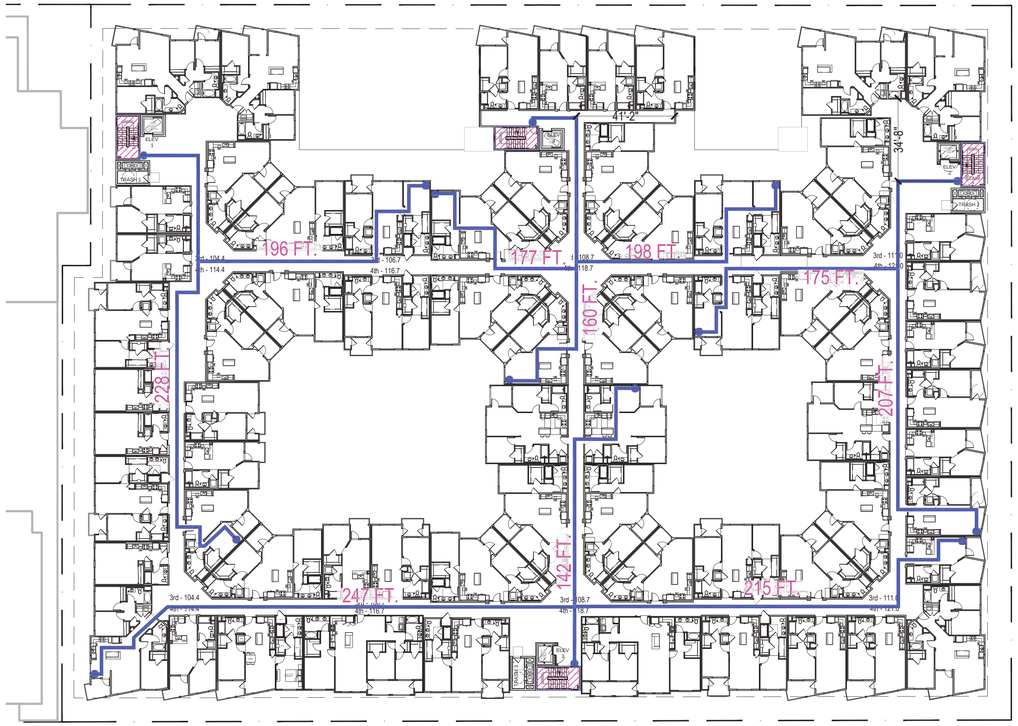
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Egress Plan

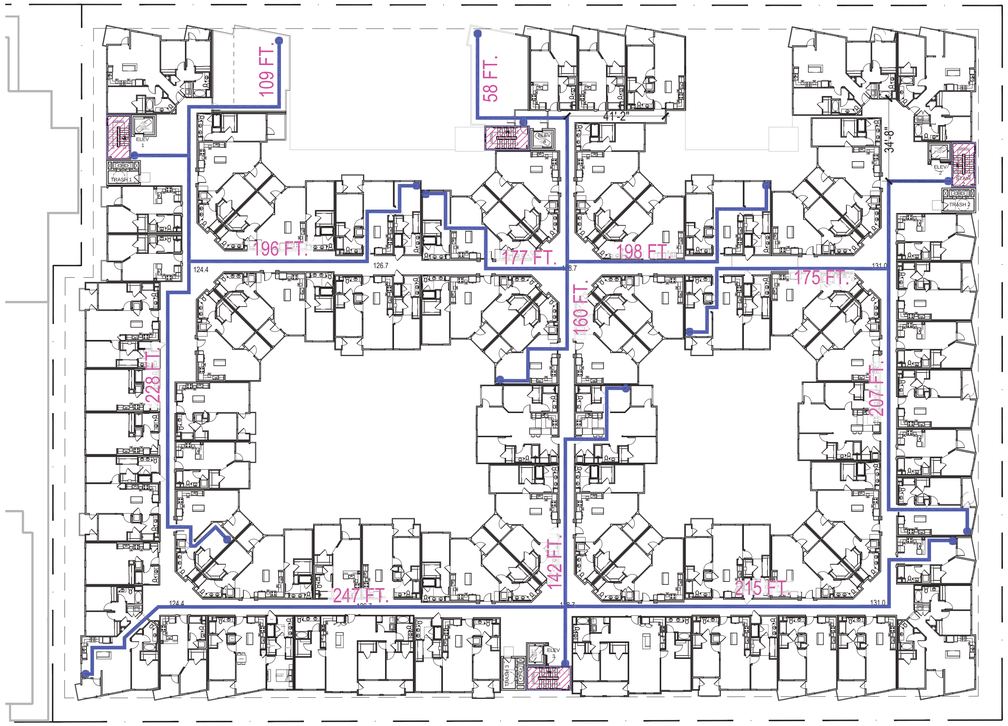
Architecture. Design. Relationships.

A2.4

Scale	1" = 30'
Job No.	2022-124
Date	08-22-2024



LEVEL 2-4



LEVEL 5

GENERAL NOTES

1. EXIT ACCESS TRAVEL DISTANCES SHOWN ARE MEASURED FROM THE MOST REMOTE POINT WITHIN EACH DWELLING UNIT TO EITHER AN EXTERIOR EXIT STAIRWAY OR EXIT DISCHARGE AS PER CBC SECTION 1016.
2. THE MAXIMUM LENGTHS OF EXIT ACCESS TRAVEL PER OCCUPANCY ARE LISTED BELOW AS PER CBC TABLE 1016.1:
   A: 250 FEET (WITH SPRINKLER SYSTEM)
   B: 300 FEET (WITH SPRINKLER SYSTEM)
   R: 250 FEET (WITH SPRINKLER SYSTEM)
   S-2: 400 FEET (WITH SPRINKLER SYSTEM)
3. EGRESS THROUGH AN INTERVENING SPACE SHALL COMPLY WITH SECTION 1014.2
4. THE COMMON PATH OF EGRESS TRAVEL SHALL NOT EXCEED THE FOLLOWING DISTANCES PER SECTIONS 1014.3 AND 1028.8:
   A: 75 FEET*
   B: 100 FEET*
   R-2: 125 FEET*
   S-2: 100 FEET*
   (* = PROVIDED THAT THE BUILDING IS PROTECTED THROUGHOUT WITH AN APPROVED AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.3.1.2)
5. SEE ELECTRICAL DRAWINGS AND ARCHITECTURAL REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION REGARDING EXIT SIGNS.
6. EXIT ACCESS (SECTION 1002): THAT PORTION OF A MEANS OF EGRESS SYSTEM THAT LEADS FROM ANY OCCUPIED PORTION OF A BUILDING OR STRUCTURE TO AN EXIT.
7. THE MEANS OF EGRESS, INCLUDING THE EXIT DISCHARGE, SHALL BE ILLUMINATED TO A LEVEL OF NOT LESS THAN ONE FOOT-CANDLE AT THE WALKING SURFACE AT ALL TIMES THE BUILDING SPACE SERVED BY THE MEANS OF EGRESS IS OCCUPIED. SECTION 1006.2
8. THE MEAN OF EGRESS ILLUMINATION SHALL BE PROVIDED BY THE PREMISES' ELECTRICAL SUPPLY. IN THE EVENT OF A POWER SUPPLY FAILURE, AN AUTOMATIC EMERGENCY ELECTRICAL SYSTEM SHALL BE PROVIDED PER SECTION 1006.3.
9. APPROVED EXIT SIGNS SHALL BE LOCATED AS NECESSARY TO CLEARLY INDICATE THE DIRECTION OF EGRESS TRAVEL AS REQUIRED BY BUILDING CODE 1011.1; AND SHALL BE INTERNALLY OR EXTERNALLY ILLUMINATED AS REQUIRED BY SECTION 1011.3 IN ACCORDANCE WITH THE PROVISIONS SET FORTH IN SECTIONS 1011.5 AND 1011.6. NOTE: ADDITIONAL EXIT SIGNS MAY BE REQUIRED AT THE TIME OF FIELD INSPECTION.
10. IN THE EVENT OF POWER FAILURE AN EMERGENCY ELECTRICAL SYSTEM SHALL ILLUMINATE EXIT SIGNS FOR A DURATION OF NOT LESS THAN 90 MINUTES IN ACCORDANCE WITH THE PROVISIONS SET FORTH IN SECTION 1011.6.3

LEGEND

2-HOUR VERTICAL EXIT ENCLOSURE

2-HOUR EXIT PASSAGEWAY

EXIT PATH

NOTE: MAXIMUM TRAVEL DISTANCE FROM UNIT TO EXIT TO PUBLIC WAY SHALL NOT EXCEED 250 FEET.

NORTH

1"=30'-0" 0 15' 30' 60' 90'

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

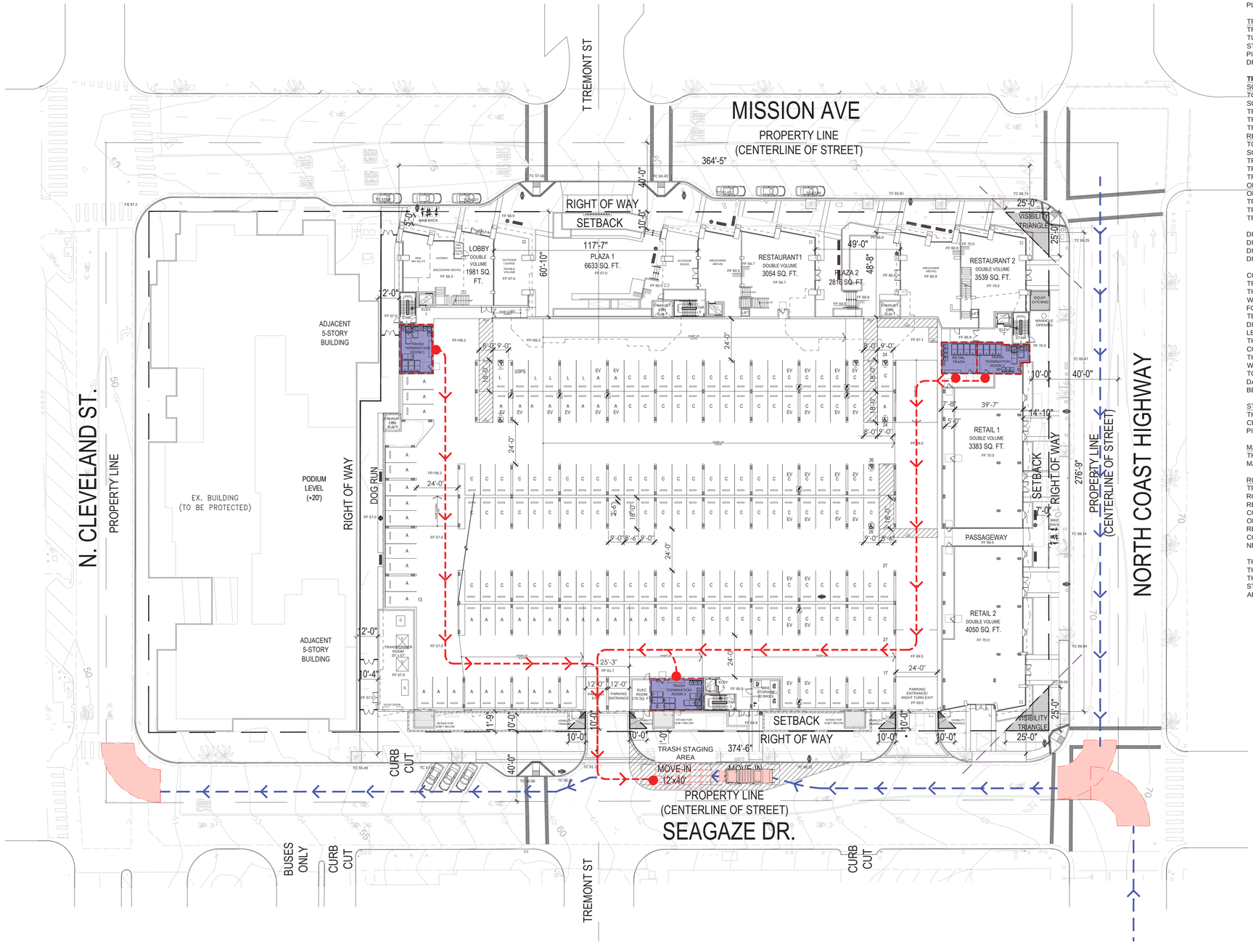
OCEANSIDE, CA
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Egress Plan

Architecture. Design. Relationships.

A2.4A

Scale 1" = 30'
Job No. 2022-124
Date 08-22-2024



BUILDING L1
STREET LEVEL

NARRATIVE

THE WRITTEN SOLID WASTE DISPOSAL AND RECYCLING MANAGEMENT PLAN FOR THE RESIDENTIAL BUILDING IS EXPLAINED AS FOLLOWS:

TRASH TRUCK ROUTING
TRUCKS WILL APPROACH THE PROJECT FROM SOUTH COAST HIGHWAY, TURN WEST ON SEAGAZE DRIVE AND PARK ADJACENT TO THE TRASH STAGING AREAS AND COMMENCE OPERATIONS. AFTER COMPLETING PICK-UP, TRUCKS WILL CONTINUE ALONG THE PROPERTY AT SEAGAZE DRIVE TOWARDS CLEVELAND STREET.

TRASH ROOMS
SOLID WASTE: A MIN. TOTAL OF SIX (6) 4-CUBIC YARD TRASH BINS ARE TO BE ON SITE AT ALL TIMES FOR TWO TIMES A WEEK PICK-UP SCHEDULE.
TRASH ROOM #1 WILL HAVE (2) 4-CUBIC YARD TRASH BINS;
TRASH ROOM #2 WILL HAVE (2) 4-CUBIC YARD TRASH BINS;
TRASH ROOM #3 WILL HAVE (2) 4-CUBIC YARD TRASH BINS.
RECYCLABLE: A MIN. TOTAL OF (12) 4-CUBIC YARD RECYCLE BINS ARE TO BE ON SITE AT ALL TIMES FOR TWO TIMES A WEEK PICK-UP SCHEDULE.
TRASH ROOM #1 WILL HAVE (4) 4-CUBIC YARD TRASH BINS;
TRASH ROOM #2 WILL HAVE (4) 4-CUBIC YARD TRASH BINS;
TRASH ROOM #3 WILL HAVE (4) 4-CUBIC YARD TRASH BINS.
ORGANICS: A MIN. TOTAL OF (9) 64-GALLON ORGANIC CART ARE TO BE ON SITE AT ALL TIMES FOR TWO TIMES A WEEK PICK-UP SCHEDULE.
TRASH ROOM #1 WILL HAVE (3) 64-GALLON CART;
TRASH ROOM #2 WILL HAVE (3) 64-GALLON CART;
TRASH ROOM #3 WILL HAVE (3) 64-GALLON CART.

DIMENSIONS FOR TRASH ROOM #1 ARE +/- 18'-0" X 27'-0" (486 S.F.);
DIMENSIONS FOR TRASH ROOM #2 ARE +/- 17"-0" X 30'-0" (510 S.F.);
DIMENSIONS FOR TRASH ROOM #3 ARE +/- 18"-0" X 30'-0" (540 S.F.);
DIMENSIONS FOR RETAIL TRASH ROOM ARE +/- 17"-0" X 19'-0" (323 S.F.).

COLLECTION WILL BE VIA RECYCLABLE AND COMPACTED SOLID WASTE TRASH CHUTES LOCATED WITHIN THREE SEPARATE ENCLOSURES IN THE BUILDING AT EACH LEVEL. THE THREE TRASH TERMINATION ROOMS WILL PROVIDE FOR SOLID WASTE TRASH BINS AT EACH TRASH ROOM FOR TWO TIMES A WEEK PICK UP.
TENANTS WILL NOT ACCESS THE TRASH TERMINATION ROOMS DIRECTLY, BUT THROUGH TRASH-CHUTE ROOMS LOCATED AT EVERY LEVEL OF THE BUILDING OFF THE RESIDENTIAL CORRIDORS.
THE TRASH CHUTES WILL CONTAIN A MECHANISM THAT WILL ALLOW COMPLETE SHUT-OFF IN ORDER TO REMOVE / REPLACE THE BINS AS THEY REQUIRE EMPTYING AND LIMIT ACCESS TO ALL OTHER FLOORS WHEN ANY ONE CHUTE DOOR IS OPENED. A PORTER WILL BE REQUIRED TO MONITOR THE TRASH LEVELS THROUGHOUT THE DAY AS A PART OF DAILY DUTIES. A VEHICLE APPROPRIATE FOR TOWING TRASH BINS WILL BE PART OF CONTRACTING WITH THE SERVICE PROVIDER.

STAGING AREA
THE STAGING AREA OUTSIDE IS FOR THE COLLECTION OF ALL BINS IN CLOSE PROXIMITY TO WHERE THE HAULER (TRASH TRUCK) WILL PICK-UP THE BINS.

MAINTENANCE OF TRASH ROOMS
THE MAINTENANCE OF THE TRASH ROOMS WILL BE MONITORED AND MANAGED BY PROPERTY MANAGEMENT.

ROLL OUT SERVICE AND PICK-UP
TRASH COLLECTION BINS WILL BE MOVED FROM THE THREE TRASH ROOMS AT LEVEL 1 (PARKING STRUCTURE) WITH AN APPROPRIATE RETRIEVAL VEHICLE (STINGER-TRUCK). THE PROPERTY OWNER WILL CONTRACT FOR THE PROPERTY MANAGEMENT COMPANY TO PROVIDE ON-SITE TRASH MANAGEMENT TO ENSURE THAT FULL BINS ARE REPLACED WITH EMPTY ONES. A SERVICE PROVIDER WILL BE CONTRACTED BY THE PROPERTY OWNER TO EMPTY THE BINS AS NECESSARY PER SCHEDULE.

THE RENTAL / OWNERSHIP OF THE BINS AND THE TRASH SERVICE FOR THE TENANTS WILL BE PAID FOR BY THE BUILDING OWNER.
THE SERVICE PROVIDER WILL BE CONTRACTED TO PROVIDE STINGER-TRUCK SERVICE FOR CONVEYANCE OF BINS TO THE STAGING AREA AND COLLECTION OF BINS FROM THE STAGING AREA.

LEGEND



TRASH TRUCK TURNING RADIUS

TRASH TRUCK WITH BIN

TRASH TRUCK WITH BIN

STRINGER TRUCK ROUTE

TRASH TRUCK ROUTE

TRASH TERMINATION ROOM

GENERAL NOTES

1. TRASH ENCLOSURE AREAS ARE FULLY ROOFED AND CONTAINED WITHIN THE PARKING STRUCTURE.
2. TWO TRASH PICKUPS A WEEK IS THE MAXIMUM ALLOWED BASED ON 0.5 CUBIC YARDS OF TRASH GENERATED PER RESIDENTIAL UNIT. SEE TRASH SUMMARY TABLE.
3. MINIMUM 16'x40' WIDE STAGING AREA AVAILABLE ON DAYS OF SERVICE FROM 6am to 6pm.
4. MINIMUM VERTICAL CLEARANCE OF 25' AT STAGING AREA FOR BIN CLEARANCE.
5. MINIMUM 13'-0" VERTICAL CLEARANCE FOR STINGER TRUCK.
6. ALL DRIVEWAYS & STAGING AREAS MUST BE ABLE TO CARRY MIN. 60,000 POUND GROSS VEHICLE WEIGHT
7. MAXIMUM BIN SIZE 4 CU. YD.

NORTH

1"=30'-0" 0 15' 30' 60' 90'

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA
JH Real Estate Partners, Inc.

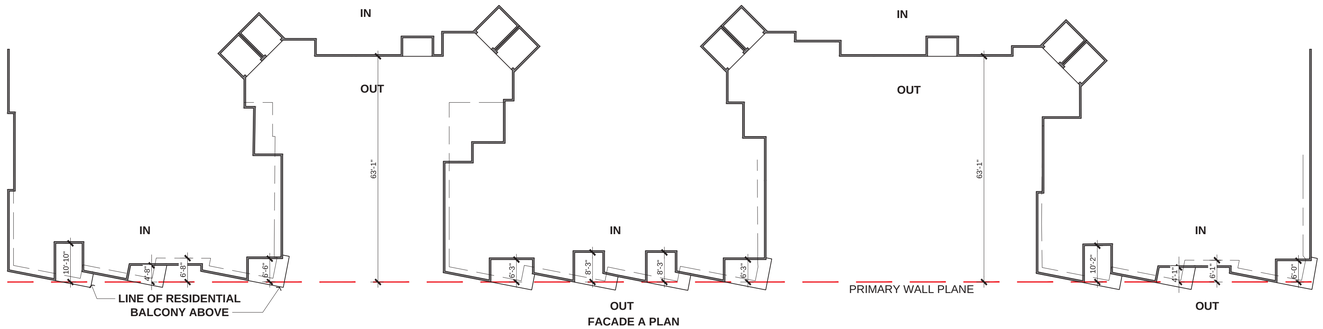
RESIDENTIAL BUILDING
Waste Management Plan

Architecture. Design. Relationships.

A2.5

Scale 1" = 30'
Job No. 2022-124
Date 08-22-2024





NORTH BUILDING ELEVATION 1
(MISSION AVE)

FACADE A ELEVATION			
REQUIRED % OF PRIMARY WALL PLANE	PROVIDED % OF PRIMARY WALL PLANE	REQUIRED AVERAGE OFFSET	PROVIDED AVERAGE OFFSET
LESS THAN 75%	37%	MINIMUM 5 FEET	15 FEET

TOTAL FACADE AREA: 29,605 SF

AREA OFFSET AT EXTERIOR BALCONIES : 4,920 SF (17%)

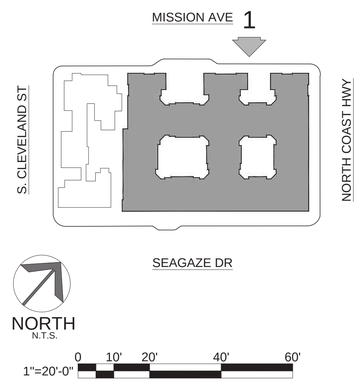
AREA OFFSET AT PLAZAS / COURTYARDS : 9,450 SF (32%)

AREA OFFSET AT RESTAURANTS / LOBBY : 4,075 SF (14%)
- IF ALLOWED AS ONLY PARTIAL RESTAURANT FACADE IS MORE THAN 5' OFFSET

TOTAL FACADE AREA: 29,605 SF
TOTAL OFFSET AREA: 18,445 SF
TOTAL FACADE AREA ON PRIMARY WALL PLANE: 11,160 SF
75% OF TOTAL FACADE AREA: 22,204 SF
11,160 SF < 22,204 SF

AVERAGE OFFSET DEPTH
(10'-10"+4'-8"+6'-8"+6'-6"+6'-3"+8'-3"+8'-3"+6'-3"+10'-2"+4'-1"+6'-1"+6'-0"+63'-1"+63'-1") / 14 = 15'-0"
15'-0" > 5'-0"

KEY MAP



3, 2024 5:05:07 PM
4 JHREP - 401 MISSION - OCEANSIDE\03 DESIGN\SCHEMATIC\CAD\22-124_A2.6 FACADE ARTICULATION.DWG

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

JH Real Estate Partners, Inc.

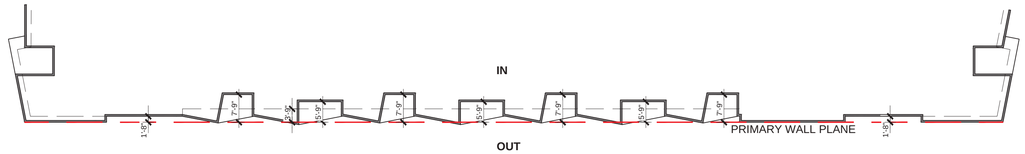
RESIDENTIAL BUILDING
Facade Articulation

Architecture. Design. Relationships.

A2.6

Scale	1" = 20'
Job No.	2022-124
Date	08-22-2024





FACADE B ELEVATION

EAST BUILDING ELEVATION 2
(NORTH COAST HIGHWAY)

FACADE B ELEVATION			
REQUIRED % OF PRIMARY WALL PLANE	PROVIDED % OF PRIMARY WALL PLANE	REQUIRED AVERAGE OFFSET	PROVIDED AVERAGE OFFSET
LESS THAN 75%	70%	MINIMUM 5 FEET	5'-6" FEET

TOTAL FACADE AREA: 21,035 SF

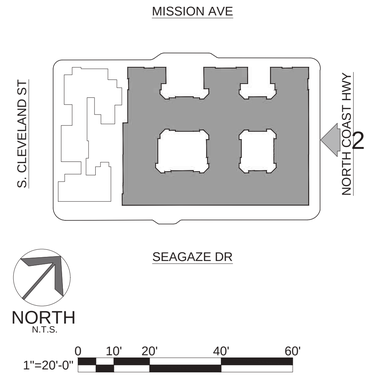
AREA OFFSET AT EXTERIOR BALCONIES : 3,275 SF (16%)

AREA OFFSET AT RETAIL / PARKING STRUCTURE : 3,040 SF (14%)
- IF ALLOWED AS ONLY PARTIAL RETAIL FACADE IS MORE THAN 5' OFFSET

TOTAL FACADE AREA: 21,035 SF
TOTAL OFFSET AREA: 6,315 SF
TOTAL FACADE AREA ON PRIMARY WALL PLANE: 14,720 SF
75% OF TOTAL FACADE AREA: 15,776 SF
14,720 SF < 15,776 SF

AVERAGE OFFSET DEPTH
(1'-8"+7'-9"+3'-9"+5'-9"+7'-9"+5'-9"+7'-9"+5'-9"+7'-9"+1'-8") / 10 = 5'-6"
5'-6" > 5'-0"

KEY MAP



3, 2024 5:03:21 PM
4 JHREP - 401 MISSION - OCEANSIDE\03 DESIGN\SCHEMATIC\CAD\22-124_A2.6 FACADE ARTICULATION.DWG

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

JH Real Estate Partners, Inc.

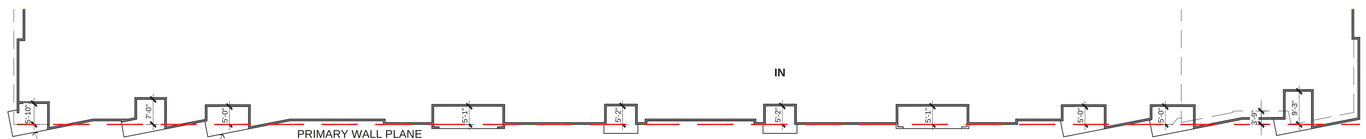
RESIDENTIAL BUILDING
Facade Articulation

Architecture. Design. Relationships.

A2.7

Scale	1" = 20'
Job No.	2022-124
Date	08-22-2024





SOUTH BUILDING ELEVATION 3
(SEAGAZE DRIVE)

FACADE C ELEVATION			
REQUIRED % OF PRIMARY WALL PLANE	PROVIDED % OF PRIMARY WALL PLANE	REQUIRED AVERAGE OFFSET	PROVIDED AVERAGE OFFSET
LESS THAN 75%	68%	MINIMUM 5 FEET	5'-7" FEET

TOTAL FACADE AREA: 29,790 SF

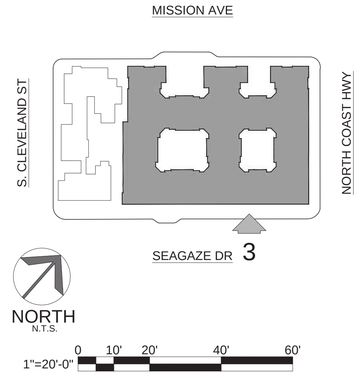
AREA OFFSET AT EXTERIOR BALCONIES : 4,125 SF (14%)

AREA OFFSET AT RETAIL / PARKING STRUCTURE : 5,750 SF (19%)
- IF ALLOWED AS ONLY PARTIAL RETAIL FACADE IS MORE THAN 5' OFFSET

TOTAL FACADE AREA: 29,790 SF
TOTAL OFFSET AREA: 9,875 SF
TOTAL FACADE AREA ON PRIMARY WALL PLANE: 19,915 SF
75% OF TOTAL FACADE AREA: 22,343 SF
19,915 SF < 22,343 SF

AVERAGE OFFSET DEPTH
(5'-10"+7'-0"+5'-0"+5'-1"+5'-2"+5'-2"+5'-1"+5'-0"+5'-0"+3'-9"+9'-3") / 11 = 5'-7"
5'-7" > 5'-0"

KEY MAP



3, 2024 5:04:32 PM
4 JHREP - 401 MISSION - OCEANSIDE\03 DESIGN\SCHEMATIC\CAD\22-124_A2.6 FACADE ARTICULATION.DWG

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Facade Articulation

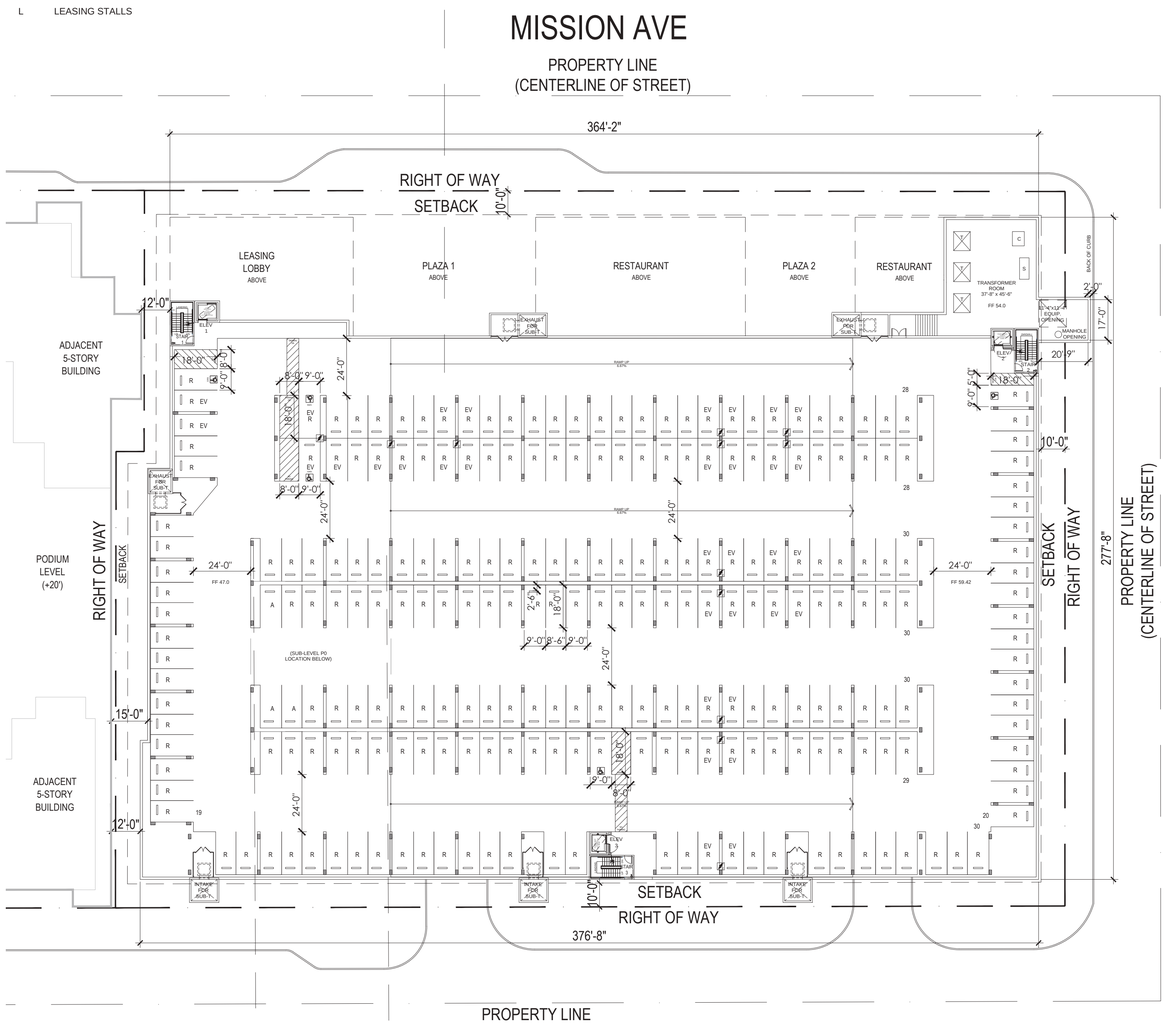
Architecture. Design. Relationships.

A2.8

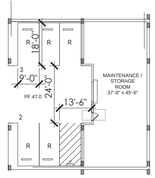
Scale	1" = 20'
Job No.	2022-124
Date	08-22-2024

PARKING STALL LEGEND

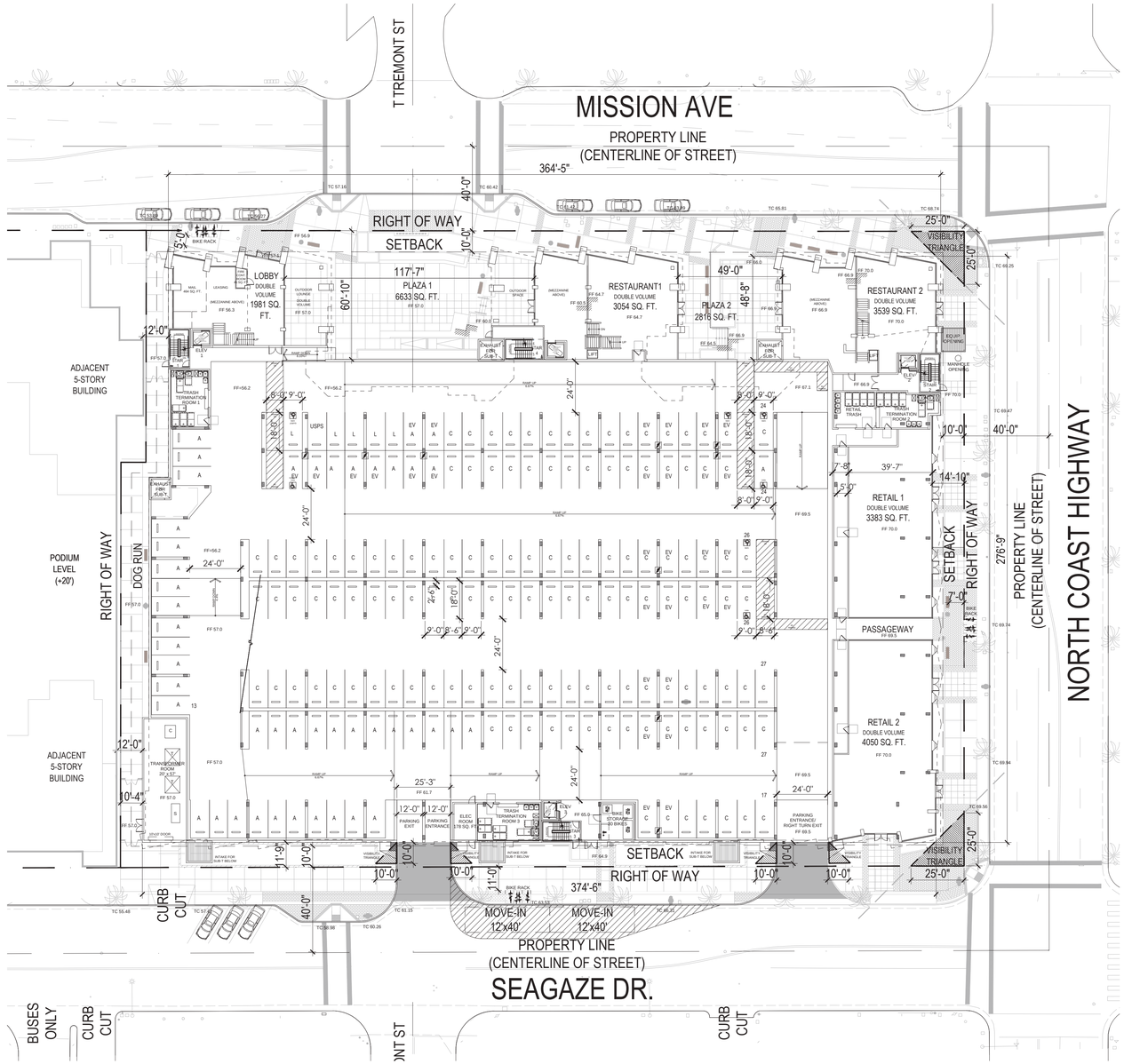
R	RESIDENTIAL STALLS
C	COMMERCIAL / RETAIL / RESTAURANT STALLS
A	ADDITIONAL AVAILABLE STALLS
EV	ELECTRICAL VEHICLE STALLS
L	LEASING STALLS



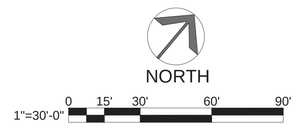
BUILDING SUB LEVEL P1



BUILDING SUB LEVEL P0



BUILDING PARKING LEVEL P2



401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

JH Real Estate Partners, Inc.

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

RESIDENTIAL BUILDING

Building Floor Plan - Parking Level P1 & P2

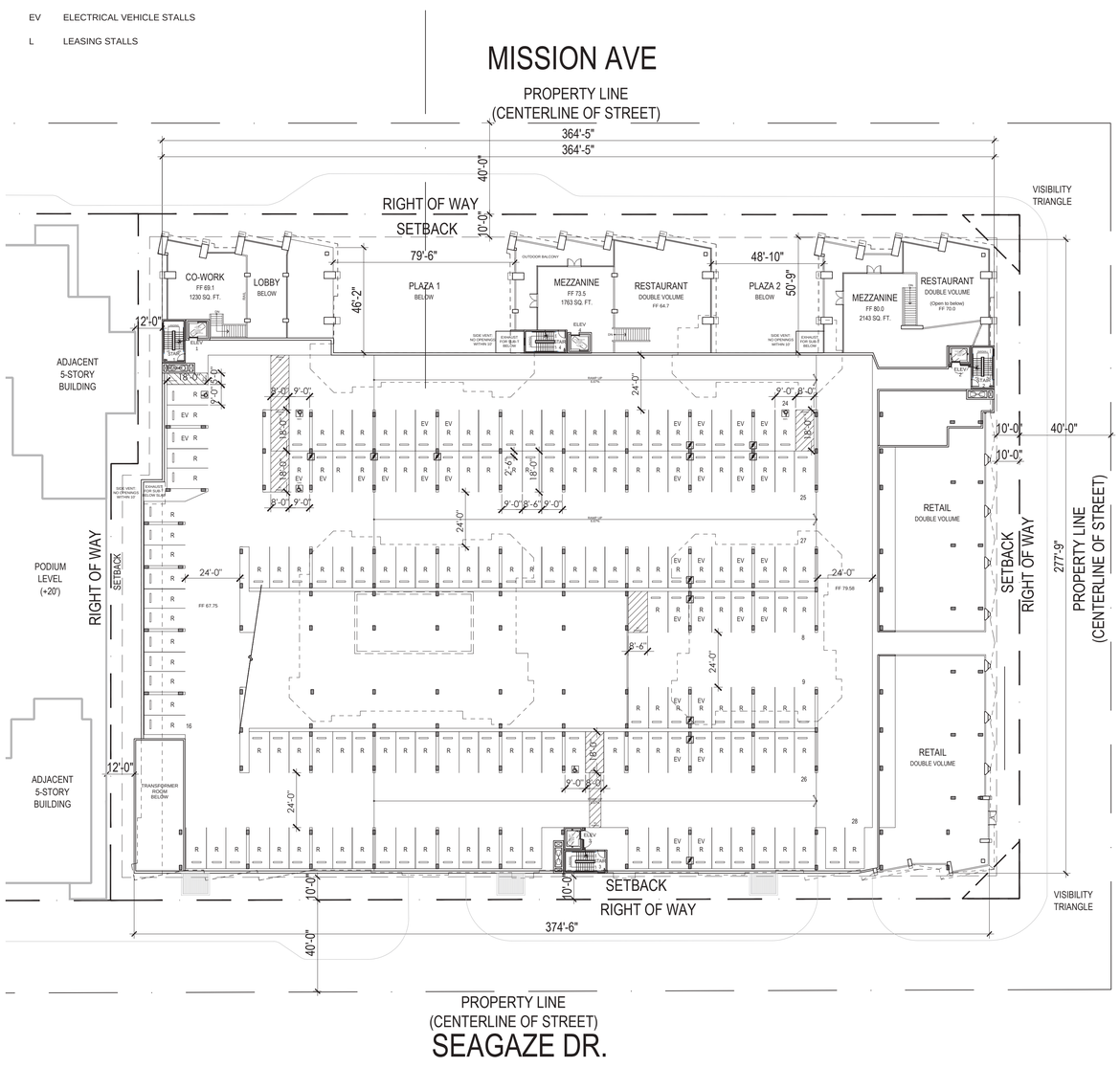
Architecture. Design. Relationships.

A3.0

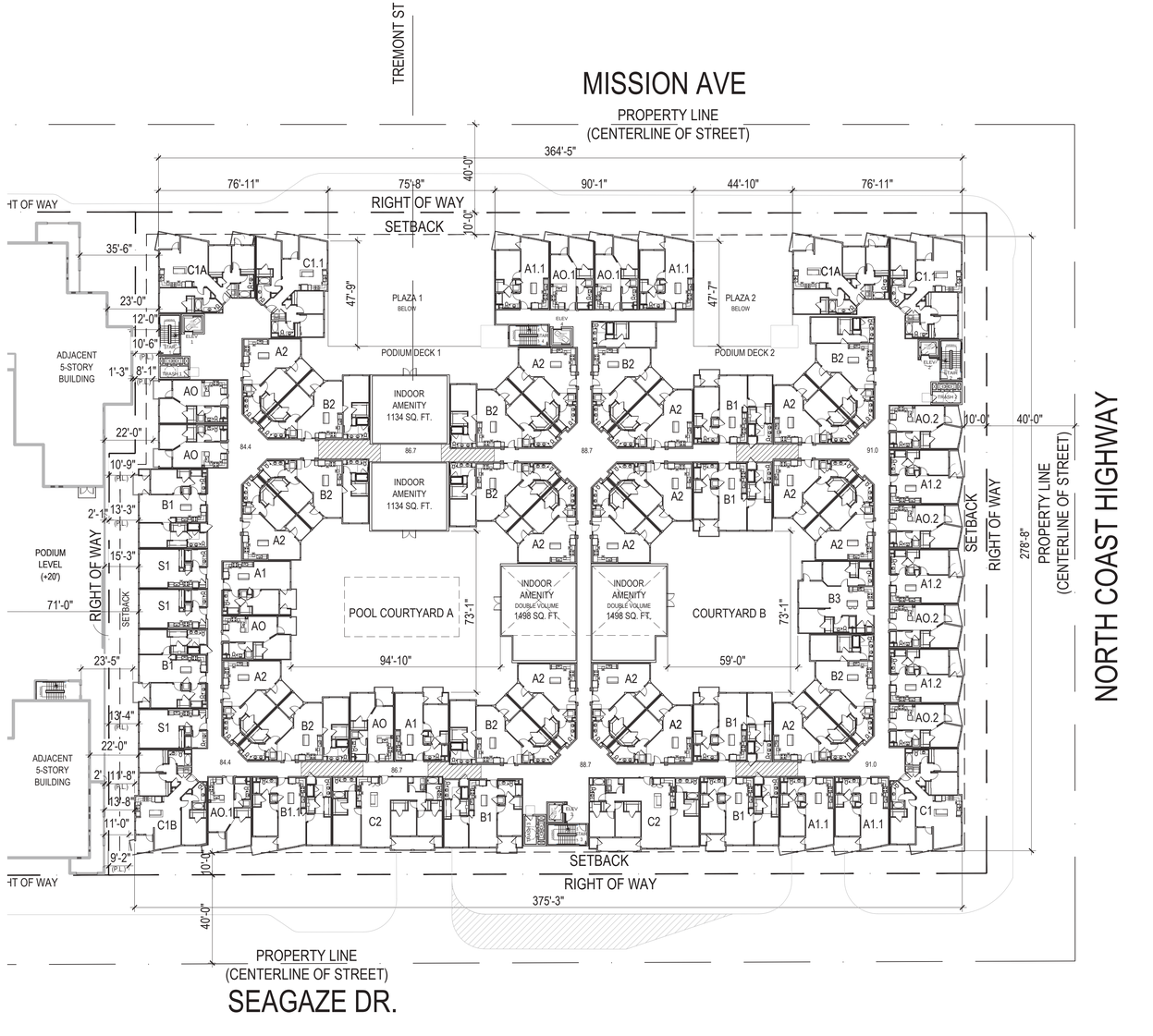
Scale	1" = 30'
Job No.	2022-124
Date	08-22-2024

PARKING STALL LEGEND

R	RESIDENTIAL STALLS
C	COMMERCIAL / RETAIL / RESTAURANT STALLS
A	ADDITIONAL AVAILABLE STALLS
EV	ELECTRICAL VEHICLE STALLS
L	LEASING STALLS



BUILDING PARKING LEVEL P3



BUILDING LEVEL 1
PODIUM

NORTH

1"=30'-0" 0 15' 30' 60' 90'

JH Real Estate Partners, Inc.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

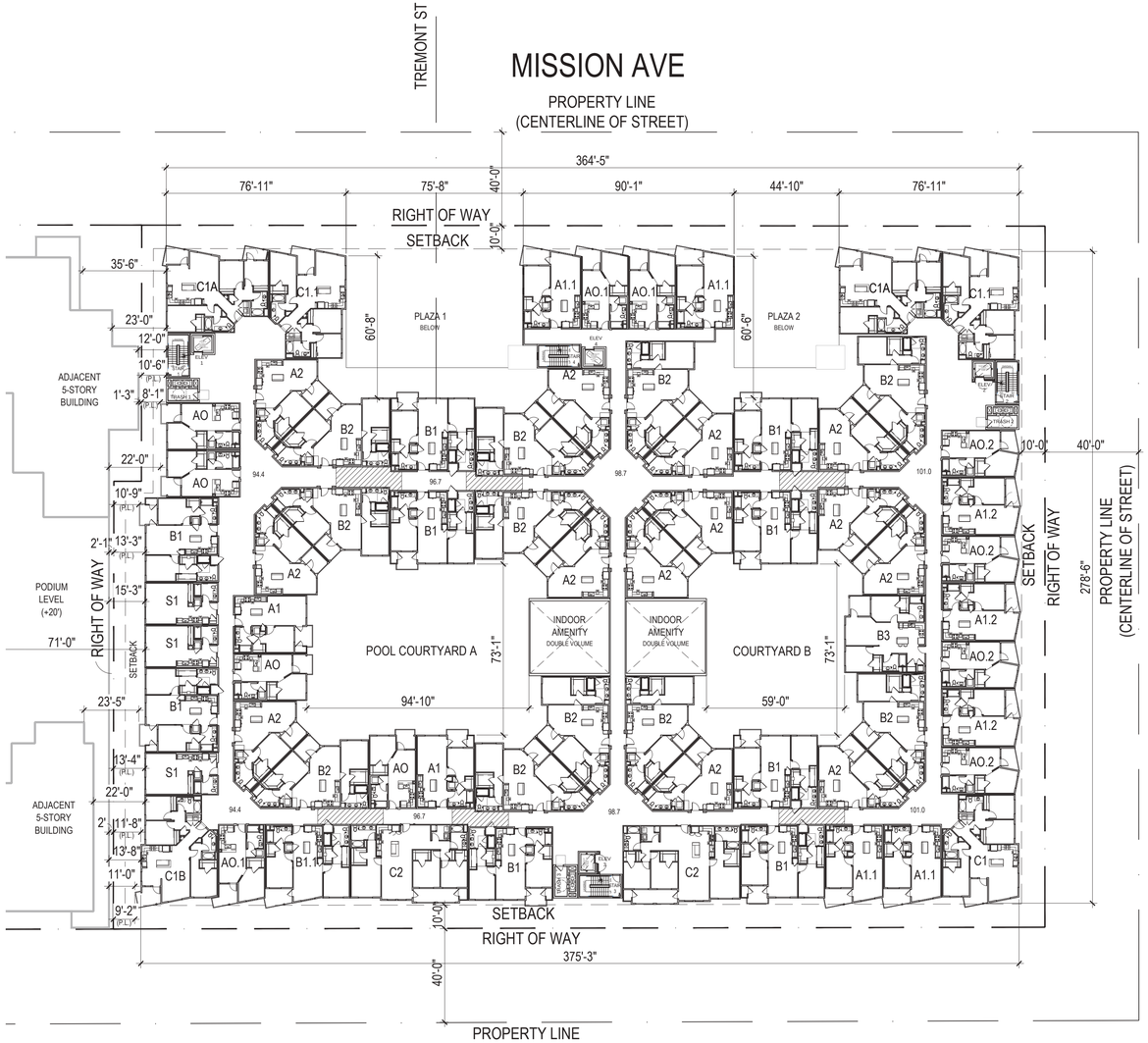
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Building Floor Plan - Parking Level 1 & Level 1

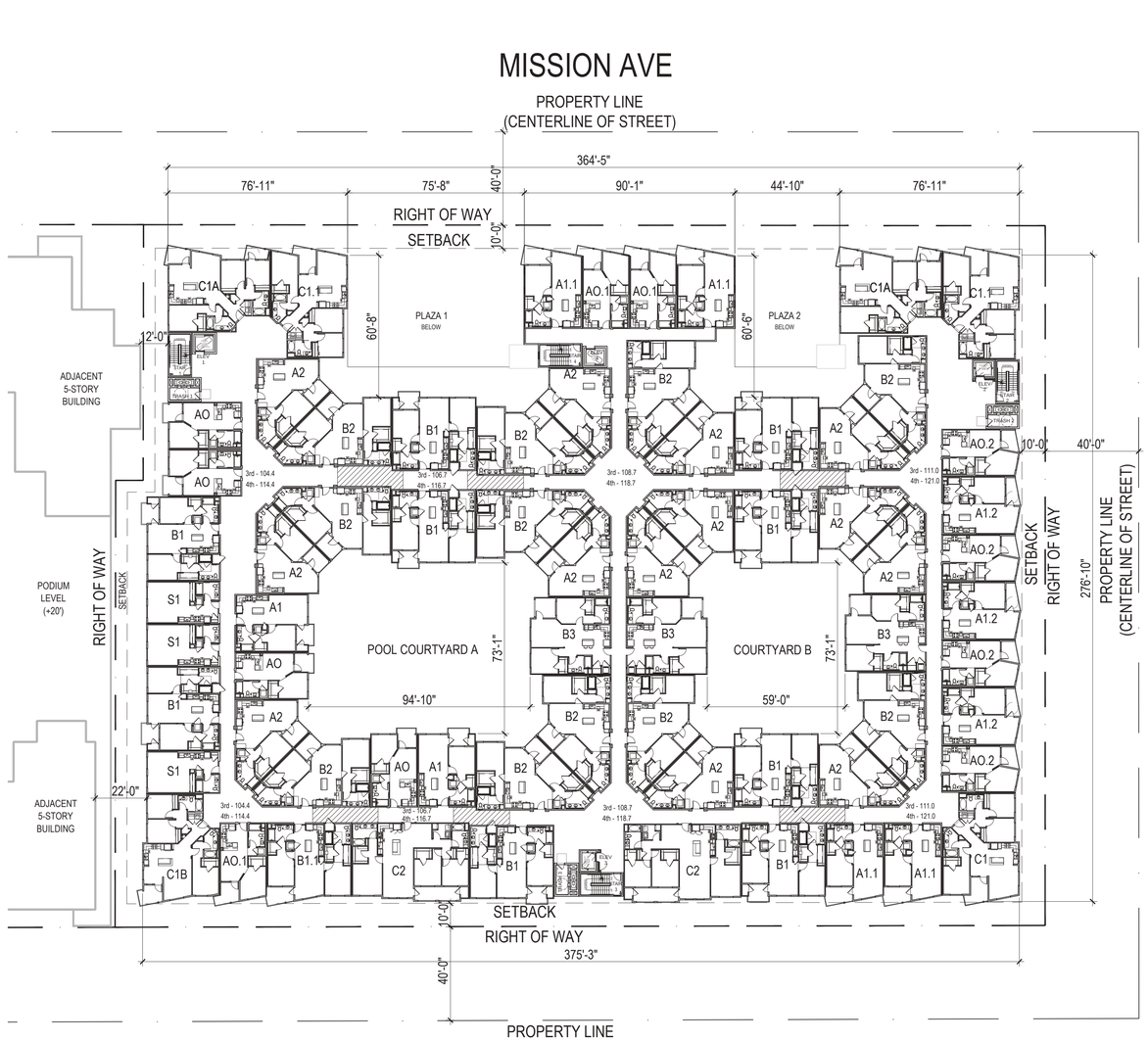
AO Architecture. Design. Relationships.

A3.1

Scale	1" = 30'
Job No.	2022-124
Date	08-22-2024



BUILDING LEVEL 2



BUILDING LEVEL 3-4

NORTH

1"=30'-0" 0 15' 30' 60' 90'

JH Real Estate Partners, Inc. • Retail • Development • Investments

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

JH Real Estate Partners, Inc.

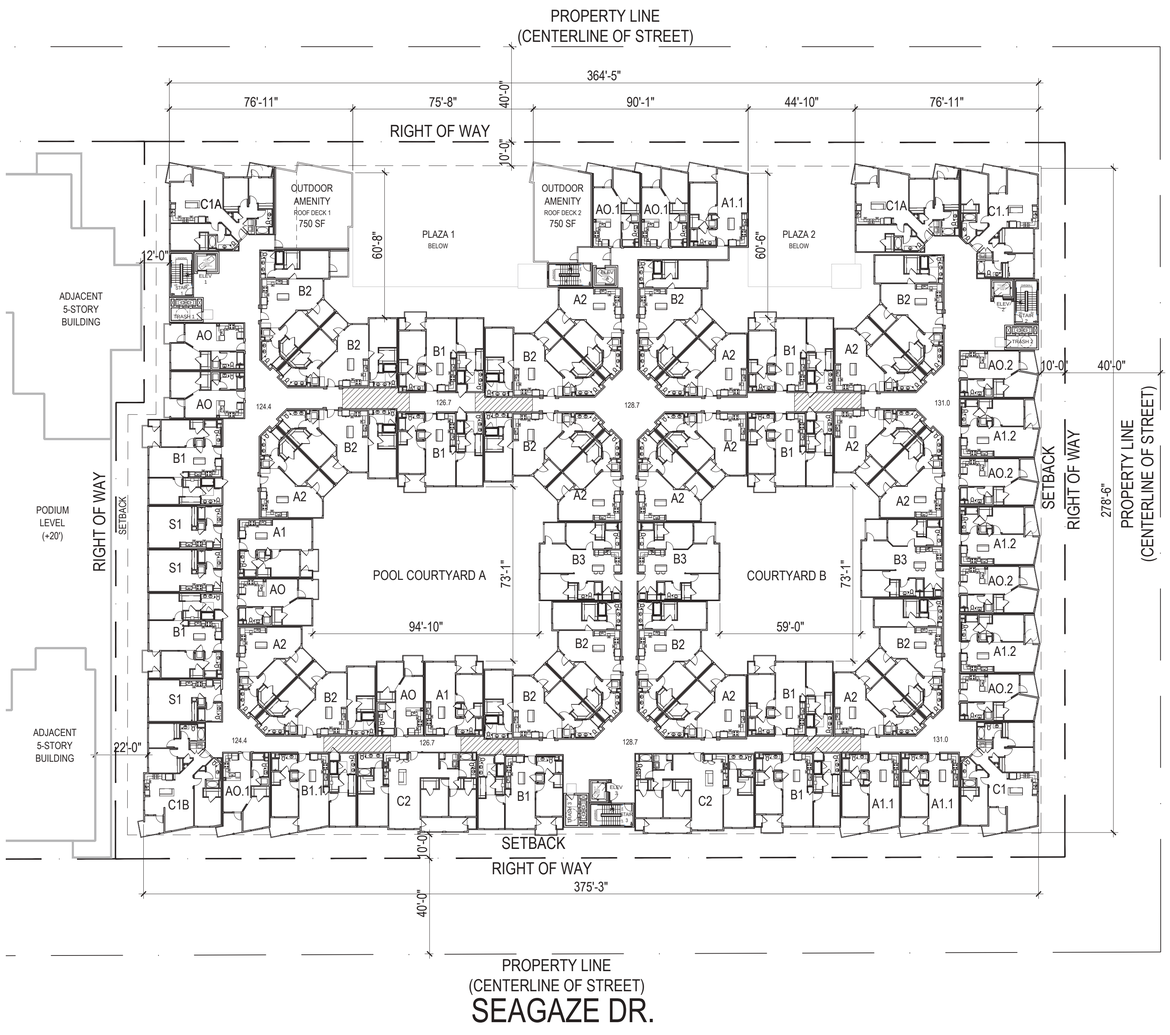
RESIDENTIAL BUILDING

Building Floor Plan - Level 2-4

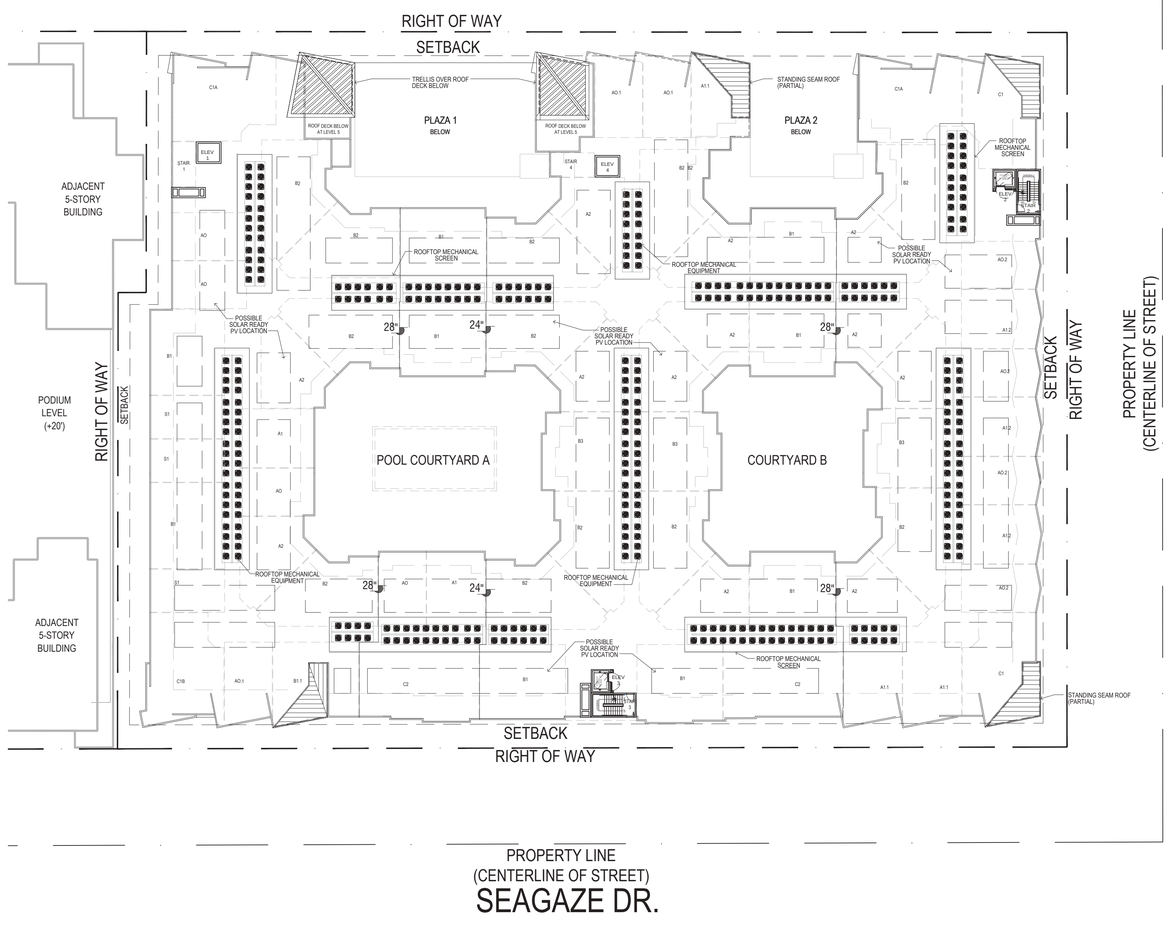
AO Architecture. Design. Relationships.

A3.2

Scale	1" =30'
Job No.	2022-124
Date	08-22-2024



BUILDING LEVEL 5



BUILDING ROOF LEVEL

NORTH

1"=30'-0" 0 15' 30' 60' 90'

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING

Building Floor Plan - Level 5 & Roof

Architecture. Design. Relationships.

A3.3

Scale	1" =30'
Job No.	2022-124
Date	08-22-2024



NORTH BUILDING ELEVATION 1
(MISSION AVE)

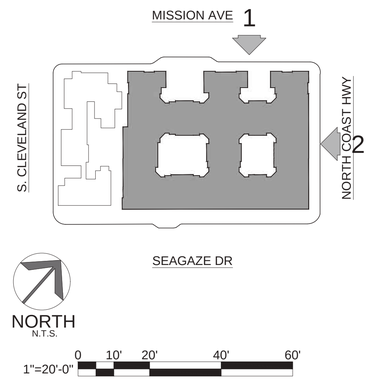
MATERIAL LEGEND

1	COMPOSITE PANELS
2	PAINTED STUCCO (WHITE SAND)
3	LIGHT SAND FINISH STUCCO (SAND BEACH)
4	SIMULATED WOOD
5	VINYL WINDOWS AND DOORS
6	GLASS RAILING
7	CONCRETE COLUMN
8	ALUMINUM STOREFRONT SYSTEM
9	METAL SCREEN SYSTEM
10	MURAL
11	STANDING SEAM METAL ROOF



EAST BUILDING ELEVATION 2
(NORTH COAST HIGHWAY)

KEY MAP



t 22, 2024 3:55:26 PM
4 JHREP - 401 MISSION - OCEANSIDE\03 DESIGN\SCHEMATIC\CAD\22-124_A4.0 - A4.2 BUILDING ELEVATIONS.DWG

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

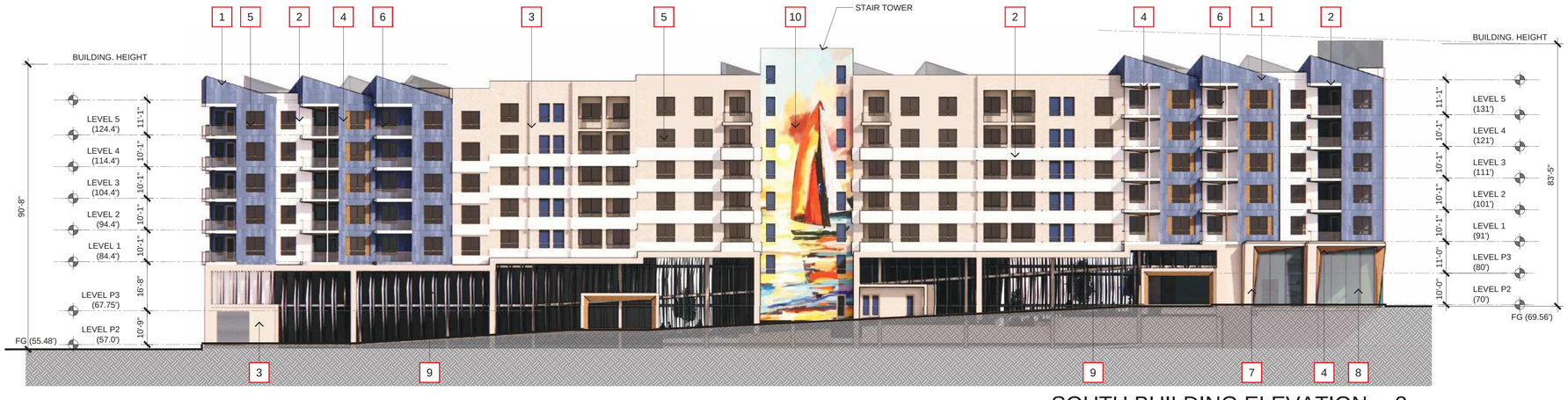
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Conceptual Building Elevations

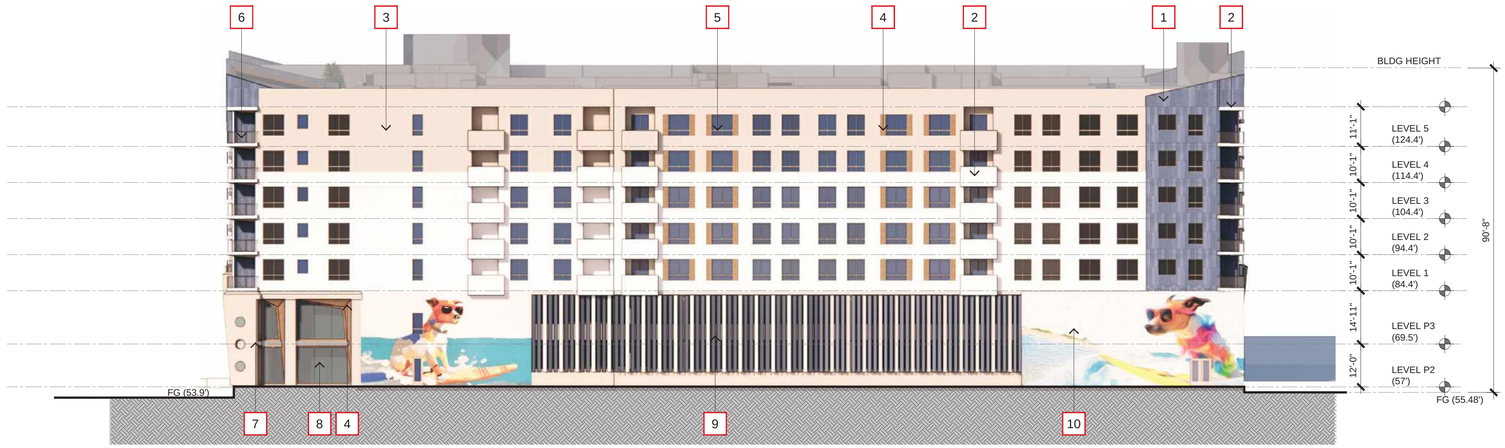
Architecture. Design. Relationships.

A4.0

Scale	1" = 20'
Job No.	2022-124
Date	08-22-2024



SOUTH BUILDING ELEVATION 3
(SEAGAZE DRIVE)

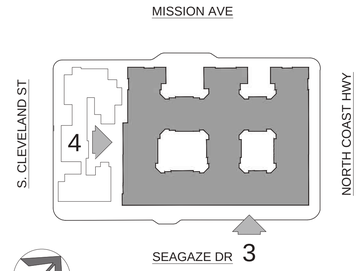


WEST BUILDING ELEVATION 4
(ALLEY)

MATERIAL LEGEND

1	COMPOSITE PANELS
2	PAINTED STUCCO (WHITE SAND)
3	LIGHT SAND FINISH STUCCO (SAND BEACH)
4	SIMULATED WOOD
5	VINYL WINDOWS AND DOORS
6	GLASS RAILING
7	CONCRETE COLUMN
8	ALUMINUM STOREFRONT SYSTEM
9	METAL SCREEN SYSTEM
10	MURAL
11	STANDING SEAM METAL ROOF

KEY MAP



3, 2024 9:48:37 AM
4 JHREP - 401 MISSION - OCEANSIDE\03 DESIGN\SCHEMATIC\CAD\22-124_A4.0 - A4.2 BUILDING ELEVATIONS.DWG

JH REAL ESTATE PARTNERS, INC.
• RETAIL • DEVELOPMENT • INVESTMENTS

401 MISSION AVENUE MIXED-USE

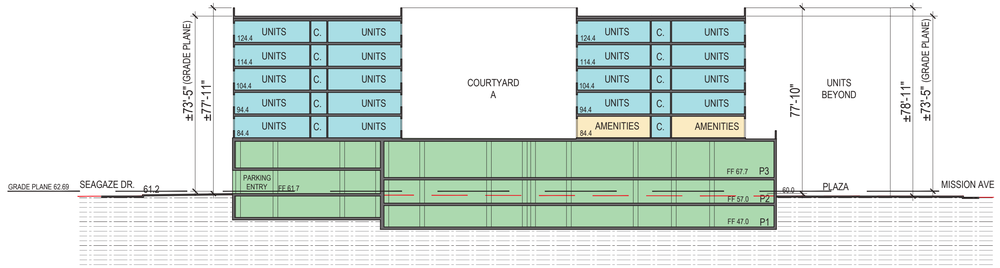
OCEANSIDE, CA
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Conceptual Building Elevations

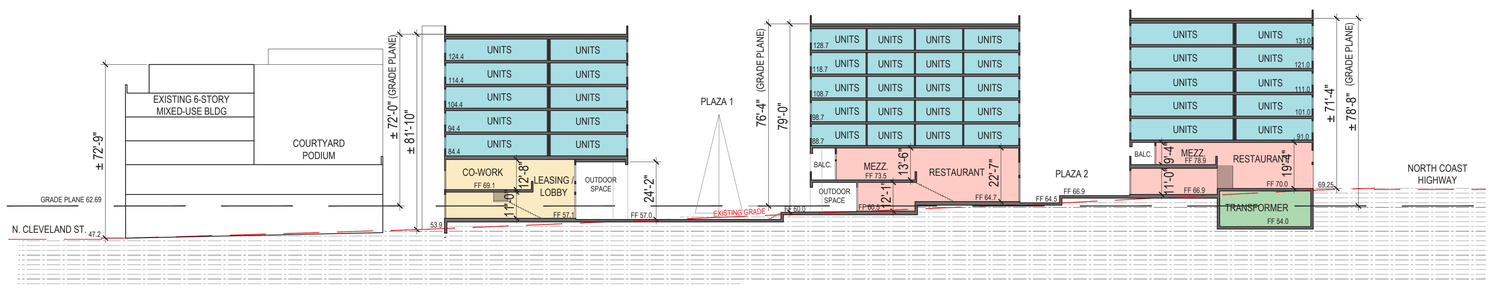
Architecture. Design. Relationships.

A4.1

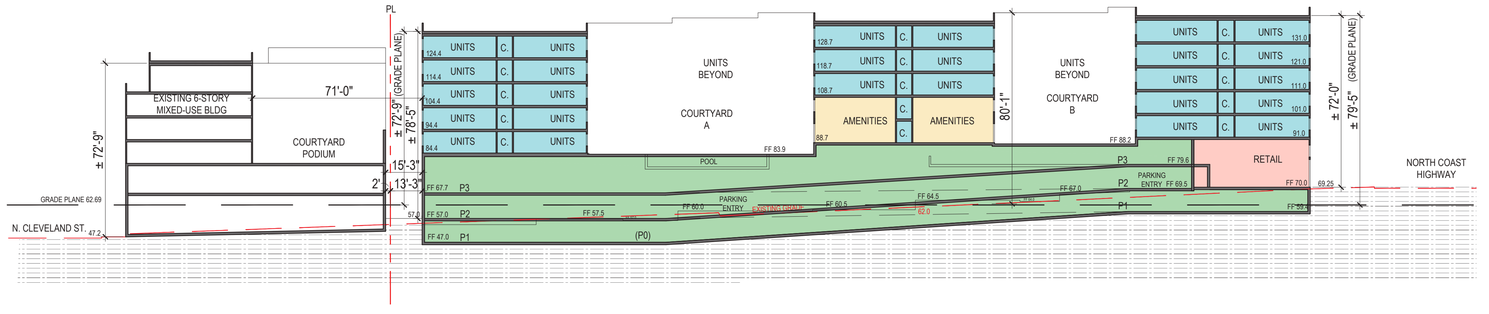
Scale	1" = 20'
Job No.	2022-124
Date	08-22-2024



BUILDING SECTION C



BUILDING SECTION B

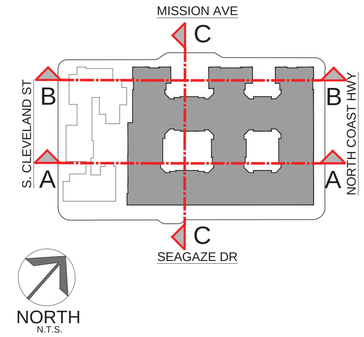


BUILDING SECTION A

LEGEND

- INDICATES AREA OF RESIDENTIAL
- INDICATES AREA OF PARKING
- INDICATES AREA OF RESIDENTIAL AMENITIES
- INDICATES AREA OF RETAIL / RESTAURANT

KEY MAP



1"=30'-0" 0 15' 30' 60' 90'

JH Real Estate Partners, Inc. • Retail • Development • Investments

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Building Sections

Architecture. Design. Relationships.

A5.0

Scale	1" = 30'
Job No.	2022-124
Date	08-22-2024



NORTH ELEVATION

MATERIAL LEGEND

1	COMPOSITE PANELS	8	ALUMINUM STOREFRONT SYSTEM
2	PAINTED STUCCO	9	METAL SCREEN SYSTEM
3	LIGHT SAND FINISH STUCCO	10	MURAL
4	SIMULATED WOOD		
5	VINYL WINDOW/DOOR		
6	GLASS RAILING		
7	CONCRETE COLUMN		
A	SW9582 WHITE SAND		
B	SW7529 SAND BEACH		



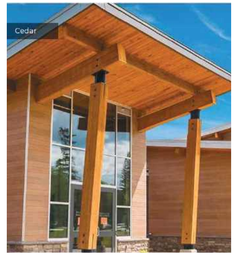
1. Composite Panels



2. Painted Stucco



3. Light Sand Finish Stucco



4. Simulated Wood

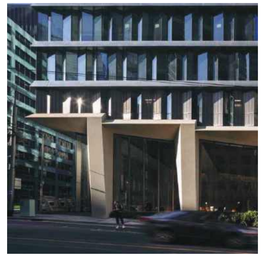


5. Vinyl Window / Door

A. SW9582 White Sand



6. Glasss Railing



7. Concrete Column



8. Aluminum Storefront System



9. Metal Screen System



10. Artistic Murals (Examples)

B. SW7529 Sand Beach

JH Real Estate Partners, Inc.
• Retail • Development • Investments

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

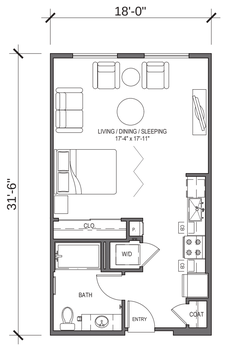
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Color and Material Board

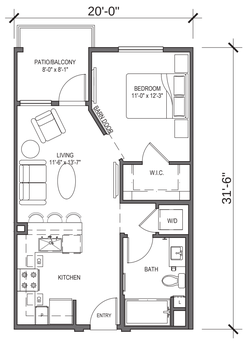
Architecture. Design. Relationships.

A6.0

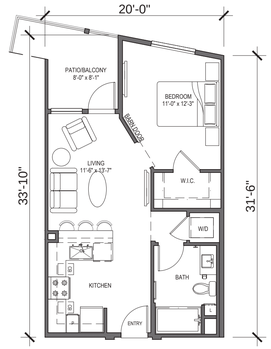
Scale NTS
Job No. 2022-124
Date 08-22-2024



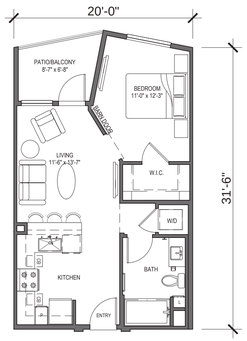
UNIT S1
STUDIO - 1 BATH
UNIT AREA: 564 SQ. FT.



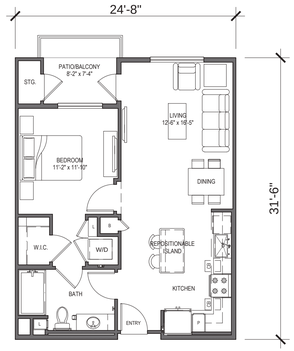
UNIT A0
Jr. 1BED - 1 BATH
UNIT AREA: 580 SQ. FT.
PATIO/BALCONY: 65 SQ. FT.



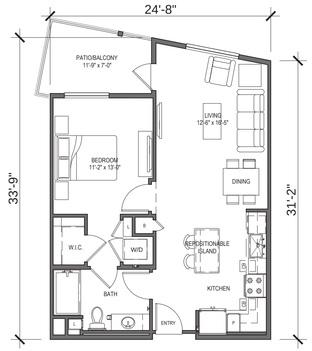
UNIT A0.1
Jr. 1BED - 1 BATH
UNIT AREA: 595 SQ. FT.
PATIO/BALCONY: 83 SQ. FT.



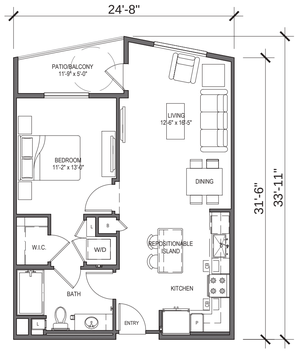
UNIT A0.2
Jr. 1BED - 1 BATH
UNIT AREA: 586 SQ. FT.
PATIO/BALCONY: 57 SQ. FT.



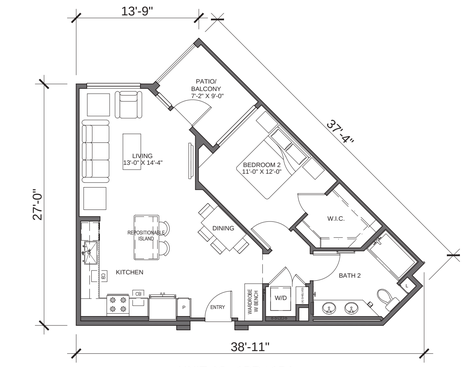
UNIT A1: 1BR / 1BA
LIVABLE AREA: 715 SQ. FT.
PATIO/BALCONY: 61 SQ. FT.



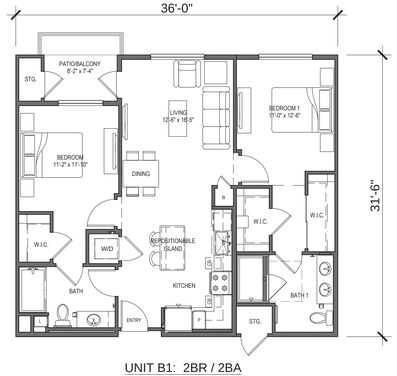
UNIT A1.1: 1BR / 1BA
LIVABLE AREA: 741 SQ. FT.
PATIO/BALCONY: 84 SQ. FT.



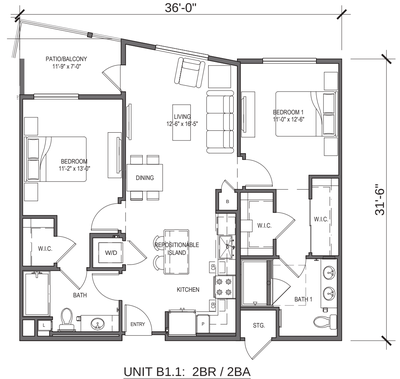
UNIT A1.2: 1BR / 1BA
LIVABLE AREA: 739 SQ. FT.
PATIO/BALCONY: 58 SQ. FT.



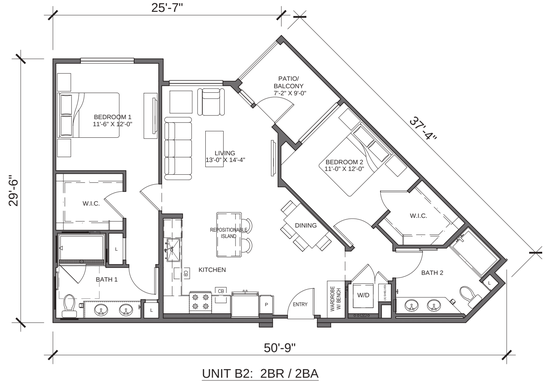
UNIT A2: 1BR / 1BA
LIVABLE AREA: 788 SQ. FT.
PATIO/BALCONY: 65 SQ. FT.



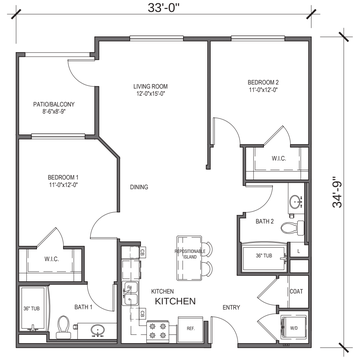
UNIT B1: 2BR / 2BA
LIVABLE AREA: 1072 SQ. FT.
PATIO/BALCONY: 61 SQ. FT.



UNIT B1.1: 2BR / 2BA
LIVABLE AREA: 1098 SQ. FT.
PATIO/BALCONY: 78 SQ. FT.



UNIT B2: 2BR / 2BA
LIVABLE AREA: 1138 SQ. FT.
PATIO/BALCONY: 65 SQ. FT.



UNIT B3: 2BR / 2BA
LIVABLE AREA: 1050 SQ. FT.
PATIO/BALCONY: 74 SQ. FT.

1/8"=1'-0" 0 4' 8' 16' 24'

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA
JH Real Estate Partners, Inc.

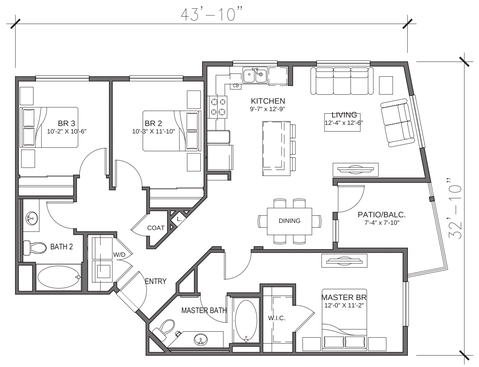
JH Real Estate Partners, Inc.
• RETAIL • DEVELOPMENT • INVESTMENTS

RESIDENTIAL BUILDING
Conceptual Unit Plans

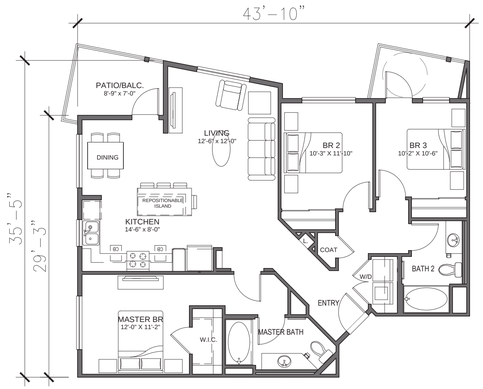
Architecture. Design. Relationships.

A7.0

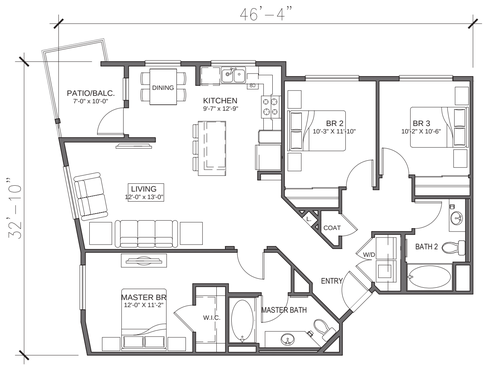
Scale 1" = 8'
Job No. 2022-124
Date 05-24-2024



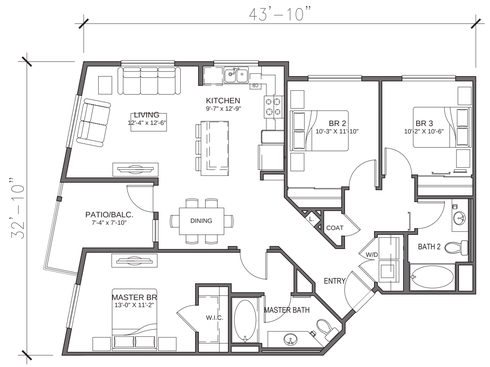
UNIT C1: 3BR / 2BA
LIVABLE AREA: 1267 SQ. FT.
PATIO/BALCONY: 89 SQ. FT.



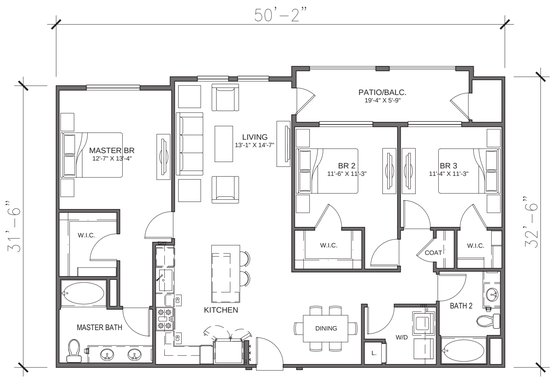
UNIT C1A: 3BR / 2BA
LIVABLE AREA: 1290 SQ. FT.
PATIO/BALCONY: 69 SQ. FT.



UNIT C1B: 3BR / 2BA
LIVABLE AREA: 1280 SQ. FT.
PATIO/BALCONY: 76 SQ. FT.



UNIT C1.1: 3BR / 2BA
LIVABLE AREA: 1282 SQ. FT.
PATIO/BALCONY: 88 SQ. FT.



UNIT C2: 3BR / 2BA
LIVABLE AREA: 1499 SQ. FT.
PATIO/BALCONY: 122 SQ. FT.

JH Real Estate Partners, Inc.
• Retail • Development • Investments

401 MISSION AVENUE MIXED-USE

OCEANSIDE, CA
JH Real Estate Partners, Inc.

RESIDENTIAL BUILDING
Conceptual Unit Plans

Architecture. Design. Relationships.

0 4' 8' 16' 24'
1/8"=1'-0"

A7.1

Scale 1" = 8'
Job No. 2022-124
Date 05-24-2024

OCEANSIDE NOTES:

PAVING NOTE:
- ALL PEDESTRIAN PAVING SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE AMERICAN DISABILITY ACT.

SITE GRADING & DRAINAGE NOTE:
- REFER TO CIVIL ENGINEER'S PLANS FOR ALL DRAINAGE AND GRADING INFORMATION, TYP.

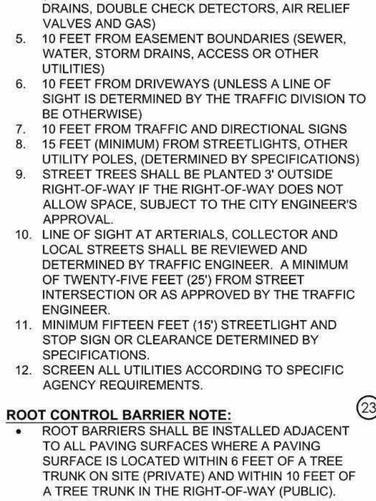
OVERHEAD LINE / UTILITY EASEMENT NOTE:
- PROJECT CONTAINS **NO** SDG&E EASEMENT AND / OR OVERHEAD UTILITY LINES.

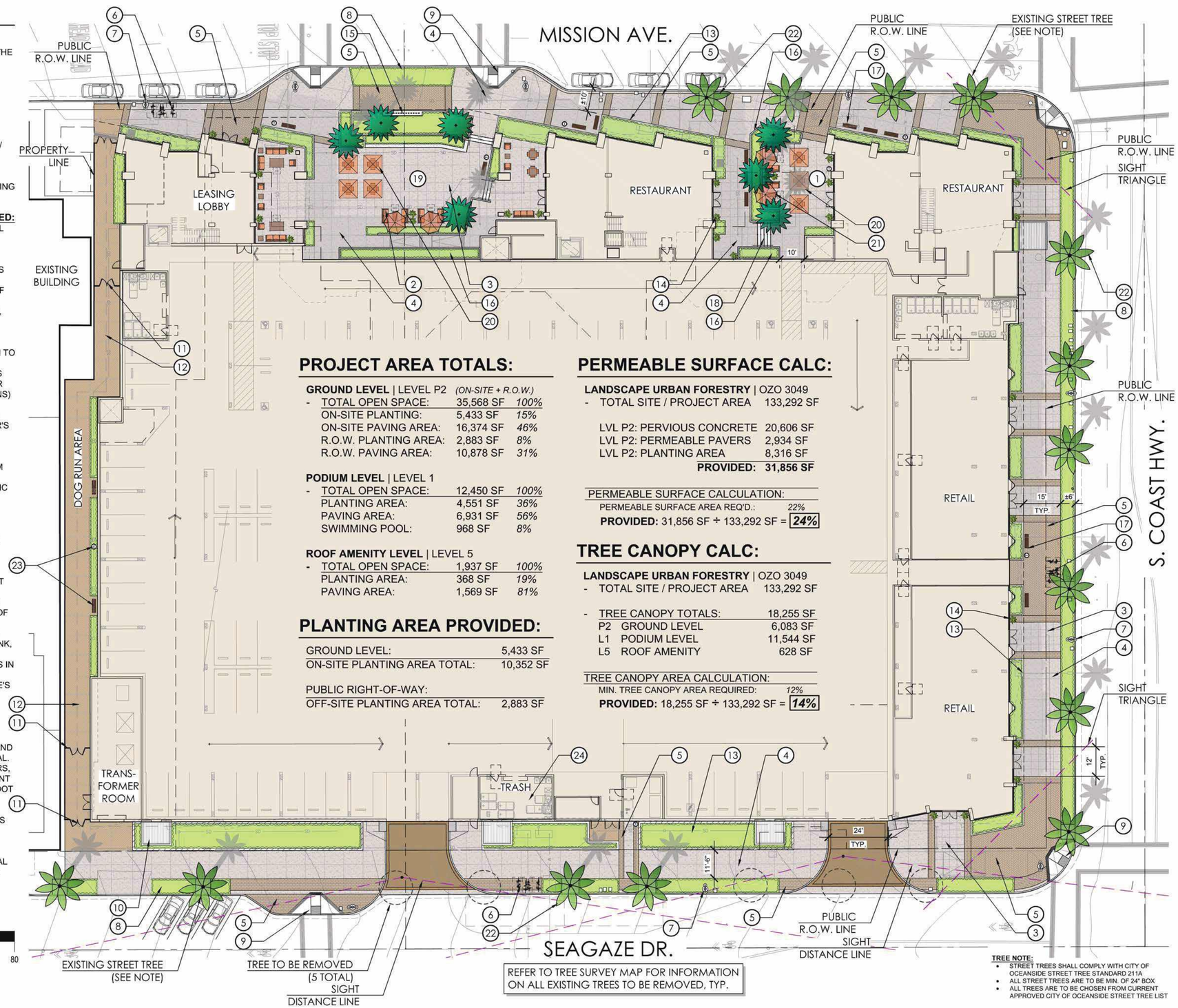
MAINTENANCE RESPONSIBILITY NOTE:
- PRIVATE ON-SITE AND PUBLIC R.O.W. LANDSCAPING TO BE MAINTAINED BY OWNER / DEVELOPER.

STREET TREES & OTHER TREES SHALL BE SPACED:
1. 8 FEET FROM TRANSFORMERS, CABLE, AND PULL BOXES.
2. 5 FEET FROM MAILBOXES
3. 5 FEET FROM FIRE HYDRANTS (ALL SIDES)
4. 10 FEET FROM CENTERLINE OF ALL UTILITY LINES (WITHOUT EASEMENT) (SEWER, WATER, STORM DRAINS, DOUBLE CHECK DETECTORS, AIR RELIEF VALVES AND GAS)
5. 10 FEET FROM EASEMENT BOUNDARIES (SEWER, WATER, STORM DRAINS, ACCESS OR OTHER UTILITIES)
6. 10 FEET FROM DRIVEWAYS (UNLESS A LINE OF SIGHT IS DETERMINED BY THE TRAFFIC DIVISION TO BE OTHERWISE)
7. 10 FEET FROM TRAFFIC AND DIRECTIONAL SIGNS
8. 15 FEET (MINIMUM) FROM STREETLIGHTS, OTHER UTILITY POLES, (DETERMINED BY SPECIFICATIONS)
9. STREET TREES SHALL BE PLANTED 3' OUTSIDE RIGHT-OF-WAY IF THE RIGHT-OF-WAY DOES NOT ALLOW SPACE, SUBJECT TO THE CITY ENGINEER'S APPROVAL.
10. LINE OF SIGHT AT ARTERIALS, COLLECTOR AND LOCAL STREETS SHALL BE REVIEWED AND DETERMINED BY TRAFFIC ENGINEER. A MINIMUM OF TWENTY-FIVE FEET (25') FROM STREET INTERSECTION OR AS APPROVED BY THE TRAFFIC ENGINEER.
11. MINIMUM FIFTEEN FEET (15') STREETLIGHT AND STOP SIGN OR CLEARANCE DETERMINED BY SPECIFICATIONS.
12. SCREEN ALL UTILITIES ACCORDING TO SPECIFIC AGENCY REQUIREMENTS.

ROOT CONTROL BARRIER NOTE:
- ROOT BARRIERS SHALL BE INSTALLED ADJACENT TO ALL PAVING SURFACES WHERE A PAVING SURFACE IS LOCATED WITHIN 6 FEET OF A TREE TRUNK ON SITE (PRIVATE) AND WITHIN 10 FEET OF A TREE TRUNK IN THE RIGHT-OF-WAY (PUBLIC).
- ROOT BARRIERS SHALL EXTEND 5 FEET IN EACH DIRECTION FROM THE CENTERLINE OF THE TRUNK, FOR A TOTAL DISTANCE OF 10 FEET.
- ROOT BARRIERS SHALL BE A MINIMUM 24 INCHES IN DEPTH.
- INSTALLING A ROOT BARRIER AROUND THE TREE'S ROOT BALL IS UNACCEPTABLE.

FIRE NOTES:
1. LANDSCAPE IMPROVEMENT PLAN SET AND INSTALLATION ARE REQUIRED TO IMPLEMENT APPROVED FIRE DEPT. REGULATIONS, CODES, AND STANDARDS AT THE TIME OF PROJECT APPROVAL.
2. ALL FIRE HYDRANTS, DOUBLE CHECK DETECTORS, POST INDICATING VALVES, AND FIRE DEPARTMENT CONNECTIONS SHALL BE PROVIDED WITH A 3-FOOT CLEARANCE AROUND ALL FIRE APPARATUSES.
3. ALL TREES AT MATURITY SHALL MEET A HORIZONTAL CLEARANCE ALONG ALL ROADWAYS FROM CURB TO CURB. HORIZONTAL ROADWAY CLEARANCE FOR A ONE-STORY BUILDING IS 28-FEET WIDE.
4. ALL TREES AT MATURITY SHALL MEET A VERTICAL CLEARANCE OF 14-FEET FROM THE TOP OF THE ROADWAY TO THE LOWEST BRANCHES.





PROJECT AREA TOTALS:

GROUND LEVEL | LEVEL P2	*(ON-SITE + R.O.W.)*	
- TOTAL OPEN SPACE:	35,568 SF	*100%*
ON-SITE PLANTING:	5,433 SF	*15%*
ON-SITE PAVING AREA:	16,374 SF	*46%*
R.O.W. PLANTING AREA:	2,883 SF	*8%*
R.O.W. PAVING AREA:	10,878 SF	*31%*

PODIUM LEVEL | LEVEL 1		
- TOTAL OPEN SPACE:	12,450 SF	*100%*
PLANTING AREA:	4,551 SF	*36%*
PAVING AREA:	6,931 SF	*56%*
SWIMMING POOL:	968 SF	*8%*

ROOF AMENITY LEVEL | LEVEL 5		
- TOTAL OPEN SPACE:	1,937 SF	*100%*
PLANTING AREA:	368 SF	*19%*
PAVING AREA:	1,569 SF	*81%*

PLANTING AREA PROVIDED:

GROUND LEVEL:	5,433 SF
ON-SITE PLANTING AREA TOTAL:	10,352 SF
PUBLIC RIGHT-OF-WAY:	
OFF-SITE PLANTING AREA TOTAL:	2,883 SF

PERMEABLE SURFACE CALC:

LANDSCAPE URBAN FORESTRY \| OZO 3049

- TOTAL SITE / PROJECT AREA	133,292 SF
LVL P2: PERVIOUS CONCRETE	20,606 SF
LVL P2: PERMEABLE PAVERS	2,934 SF
LVL P2: PLANTING AREA	8,316 SF
PROVIDED:	**31,856 SF**

PERMEABLE SURFACE CALCULATION:
PERMEABLE SURFACE AREA REQ'D.: *22%*
PROVIDED: 31,856 SF ÷ 133,292 SF = ***24%***

TREE CANOPY CALC:

LANDSCAPE URBAN FORESTRY \| OZO 3049

- TOTAL SITE / PROJECT AREA	133,292 SF
- TREE CANOPY TOTALS:	18,255 SF
P2 GROUND LEVEL	6,083 SF
L1 PODIUM LEVEL	11,544 SF
L5 ROOF AMENITY	628 SF

TREE CANOPY AREA CALCULATION:
MIN. TREE CANOPY AREA REQUIRED: *12%*
PROVIDED: 18,255 SF ÷ 133,292 SF = ***14%***

LEGEND

1. RAISED SUN TERRACE FOR DINING & LOUNGE SEATING
2. OVERSIZED SOFT LOUNGE SEATING WITH LARGE COFFEE TABLE & SHADE UMBRELLA
3. COLORED ACCENT PERVIOUS CONCRETE PAVING WITH SAWCUT GRID PATTERN (PER O.Z.O. 3049)
4. COLORED PERVIOUS CONCRETE PAVING WITH LARGE SAWCUT GRID PATTERN (PER O.Z.O. 3049)
5. INTERLOCKING CONCRETE PERMEABLE PAVER FIELD & STANDARD INTERLOCKING CONCRETE PAVER BANDING
6. BIKE RACK LOCATION, TYPICAL.
7. EXISTING STREET POLE LIGHT, PROTECT IN PLACE
8. LANDSCAPED PARKWAY UTILIZING DROUGHT TOLERATE PLANTING & DRIP IRRIGATION
9. ADA ACCESSIBLE RAMP & CROSSWALK LOCATION
10. ARCHITECTURAL AIRWAY / LIGHT WELL LOCATION. SEE ARCHITECTURAL PLANS. TYP.
11. FULL HEIGHT TUBULAR STEEL ACCESS GATE & MASONRY WALL AT EAST PROPERTY LINE
12. PERVIOUS CONCRETE PAVING / ACCESS WALK, PER OCEANSIDE ZONING ORDINANCE 3049
13. LOW CURB WALL PLANTER AT BUILDING FOUNDATION
14. ACCENT POTTERY WITH PLANTING
15. LARGE STYLIZED PROJECT SIGNAGE WITH ACCENT LIGHTING
16. POURED-IN PLACE BOARD-FORM CONCRETE RAISED PLANTER WALLS
17. BENCH SEATING & TRASH RECEPTACLES, TYPICAL
18. DECORATIVE STEPS AND HANDRAILS TO RAISED SUN TERRACE
19. LARGE OPEN PLAZA WITH MOVEABLE FURNITURE
20. DINING SETS WITH LARGE MARKET UMBRELLAS
21. LOUNGE SEATING & TABLES UNDER BUILT-IN CANTILEVERED RETRACTABLE UMBRELLAS
22. EXISTING FAN PALM / STREET TREES. PROTECT IN PLACE
23. GATE ENCLOSED DOG RUN AREA WITH BENCH SEATING, PET WASTE BAG DISPENSER & TRASH
24. DEDICATED TRASH ROOM WITHIN BUILDING -REFER TO ARCHITECTURAL PLAN FOR STORAGE & COLLECTION INFO

PLANT MATERIAL

EXISTING STREET TREES:

WASHINGTONIA ROBUSTA MEXICAN FAN PALM	14	(PROTECT IN PLACE)
WASHINGTONIA ROBUSTA MEXICAN FAN PALM	5	(TO BE REMOVED)

PROTECT IN PLACE - TREE NOTE:
- NO MECHANICAL GRADING TO CAUSE A CHANGE OF GRADE OR ELEVATION AROUND THE BASE OF TREES OR WITHIN THE DRIP LINE OF THE TREES.
- NO MECHANICAL EQUIPMENT OR TRENCHING WITHIN THE DRIP LINE OF THE TREES TO AVOID DISTURBANCE OF THE ROOT SYSTEM.
- NO EXCESSIVE PRUNING OR EQUIPMENT AROUND THE CANOPY TO CAUSE INJURY TO BRANCHES, TRUNK AND COMPACTION OF ROOTS.
- IF THE EXISTING TREES ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES THAT THE TREES ARE TO BE REPLACED IN KIND AND OF THE SAME SIZE DIAMETER.
- REFER TO TREE SURVEY MAP FOR INFORMATION ON ALL EXISTING TREES TO BE REMOVED, TYP.

ACCENT CANOPY TREE / PALM TREE:

PHOENIX D. 'MEDJOOL' MEDJOOL DATE PALM	7	14ft. BTH

SHRUBS:

LANDSCAPE PLANTER AREAS

TREE NOTE:
- STREET TREES SHALL COMPLY WITH CITY OF OCEANSIDE STREET TREE STANDARD 211A
- ALL STREET TREES ARE TO BE MIN. OF 24" BOX.
- ALL TREES ARE TO BE CHOSEN FROM CURRENT APPROVED CITY OF OCEANSIDE STREET TREE LIST

401 MISSION BLVD, Oceanside CA. | Site Plan - Level P2 (Ground Level)

JH Real Estate Partners, Inc. | 520 Newport Center Dr., Suite 780 | Newport Beach, CA 92660 | September 23, 2024

723139

SMP ENVIRONMENTAL DESIGN
SUMMERS/MURPHY & PARTNERS, INC.
34197 COAST HWY SUITE 200
DANA POINT CA 92629
(949) 443-1446

SHEET: **L-1**

OCEANSIDE NOTES:

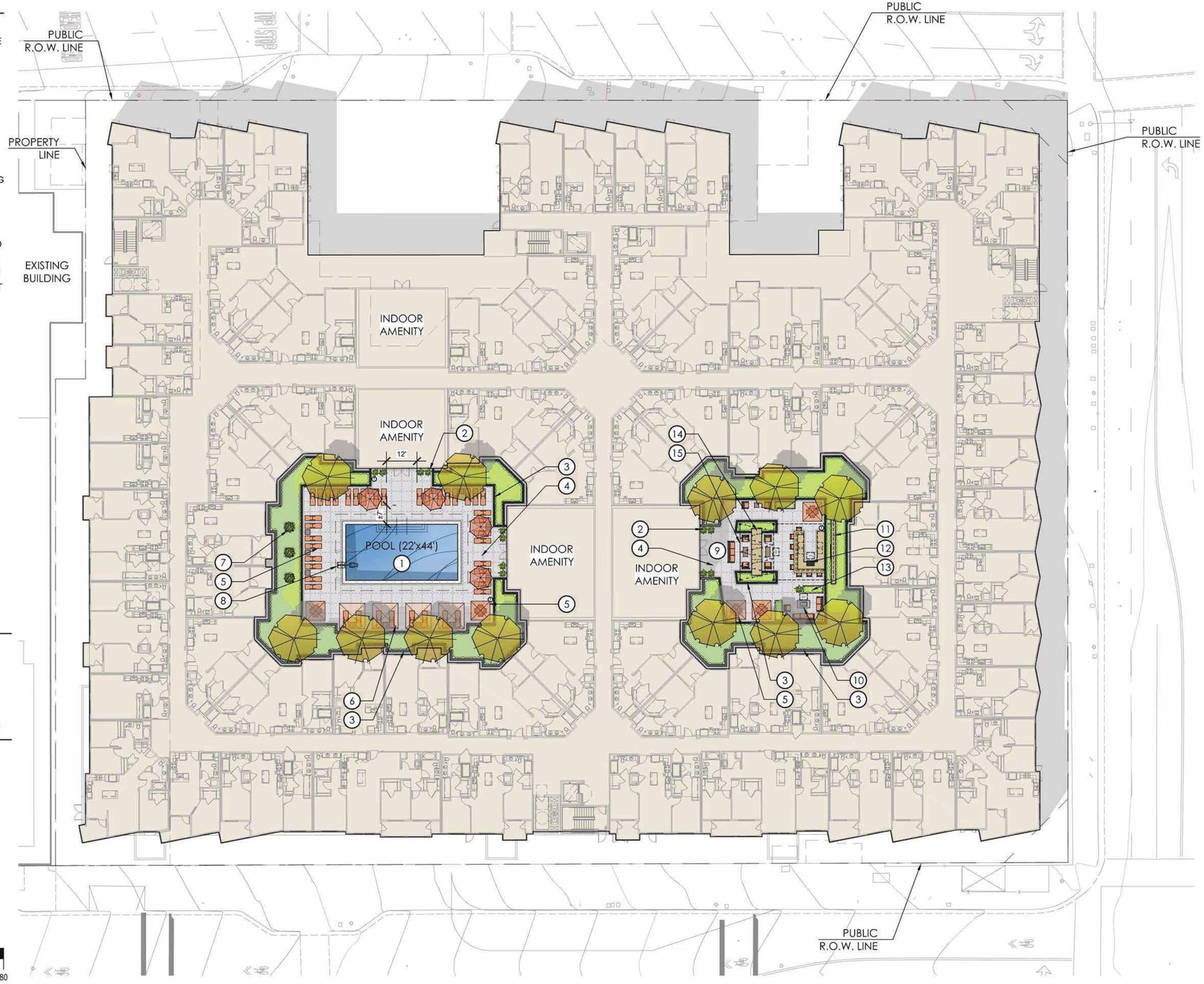
PAVING NOTE:
- ALL PEDESTRIAN PAVING SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE AMERICAN DISABILITY ACT.

SITE GRADING & DRAINAGE NOTE:
- REFER TO CIVIL ENGINEER'S PLANS FOR ALL DRAINAGE AND GRADING INFORMATION, TYP.

OVERHEAD LINE / UTILITY EASEMENT NOTE:
- PROJECT CONTAINS **NO** SDG&E EASEMENT AND / OR OVERHEAD UTILITY LINES.

MAINTENANCE RESPONSIBILITY NOTE:
- PRIVATE ON-SITE AND PUBLIC R.O.W. LANDSCAPING TO BE MAINTAINED BY OWNER / DEVELOPER.

FIRE NOTES:
1. LANDSCAPE IMPROVEMENT PLAN SET AND INSTALLATION ARE REQUIRED TO IMPLEMENT APPROVED FIRE DEPT. REGULATIONS, CODES, AND STANDARDS AT THE TIME OF PROJECT APPROVAL.
2. ALL FIRE HYDRANTS, DOUBLE CHECK DETECTORS, POST INDICATING VALVES, AND FIRE DEPARTMENT CONNECTIONS SHALL BE PROVIDED WITH A 3-FOOT CLEARANCE AROUND ALL FIRE APPARATUSES.
3. ALL TREES AT MATURITY SHALL MEET A HORIZONTAL CLEARANCE ALONG ALL ROADWAYS FROM CURB TO CURB. HORIZONTAL ROADWAY CLEARANCE FOR A ONE-STORY BUILDING IS 28-FEET WIDE.
4. ALL TREES AT MATURITY SHALL MEET A VERTICAL CLEARANCE OF 14-FEET FROM THE TOP OF THE ROADWAY TO THE LOWEST BRANCHES.



LEGEND

1. ±3FT DEEP RESIDENT SWIMMING POOL WITH DECORATIVE PRECAST COPING (ON PODIUM)
2. DECORATIVE POTS WITH ACCENT PLANTING
3. RAISED BUILT PLANTER WALL ON PODIUM
4. ENHANCED PAVING (ON PODIUM)
5. CHAISE LOUNGE CHAIRS & SIDE TABLES
6. DECORATIVE SHADE CABANAS & LOUNGE CHAIRS
7. LARGE LOW PLANTER BOWLS SET ON MASONRY BUILT PILASTERS, (3) TOTAL
8. ADA ACCESSIBLE CHAIR LIFT, TYPICAL
9. RESIDENT LOUNGE AREA WITH DOUBLE-SIDED FIREPLACE & BBQ ENTERTAINMENT BAR
10. NATURAL GAS FIRE TABLE & LOUNGE SEATING AREA
11. DECORATIVE MEDIA WALL WITH TV & SHADE OVERHEAD
12. LARGE BARBEQUE KITCHEN WITH BAR SEATING & UNDERCOUNTER APPLIANCES
13. PREFAB DECORATIVE FIBERGLASS PLANTERS
14. MODERN LINEAR DOUBLE SIDED FIREPLACE WITH SOFT LOUNGE SEATING & COFFEE TABLE
15. DECORATIVE STRING CAFE LIGHTING

PROJECT AREA TOTALS:

PODIUM LEVEL | LEVEL 1

TOTAL OPEN SPACE:	12,450 SF	*100%*
PLANTING AREA:	4,551 SF	*36%*
PAVING AREA:	6,931 SF	*56%*
SWIMMING POOL:	968 SF	*8%*

PLANTING AREA PROVIDED:

PODIUM LEVEL :	4,551 SF
ON-SITE PLANTING AREA TOTAL :	10,352 SF

PLANT MATERIAL

PATIO TREES:

ARBUTUS U. 'MARINA' 12 36" BOX
MARINA STRAWBERRY TREE

LAGERSTROEMIA I. 'NATCHEZ'
NATCHEZ CRAPE MYRTLE

SHRUBS:

LANDSCAPE PLANTER AREAS

SCALE: 1" = 20' - 0"
NORTH 0 20 40 60 80

401 MISSION BLVD, Oceanside CA. | Site Plan - Level 1 (Podium Level)

JH Real Estate Partners, Inc. | 520 Newport Center Dr., Suite 780 | Newport Beach, CA 92660 | September 9, 2024

723139

SUMMERS/MURPHY & PARTNERS, INC.
34197 COAST HWY SUITE 200
DANA POINT CA 92629
(949) 443-1446

SHEET: **L-2**

OCEANSIDE NOTES:

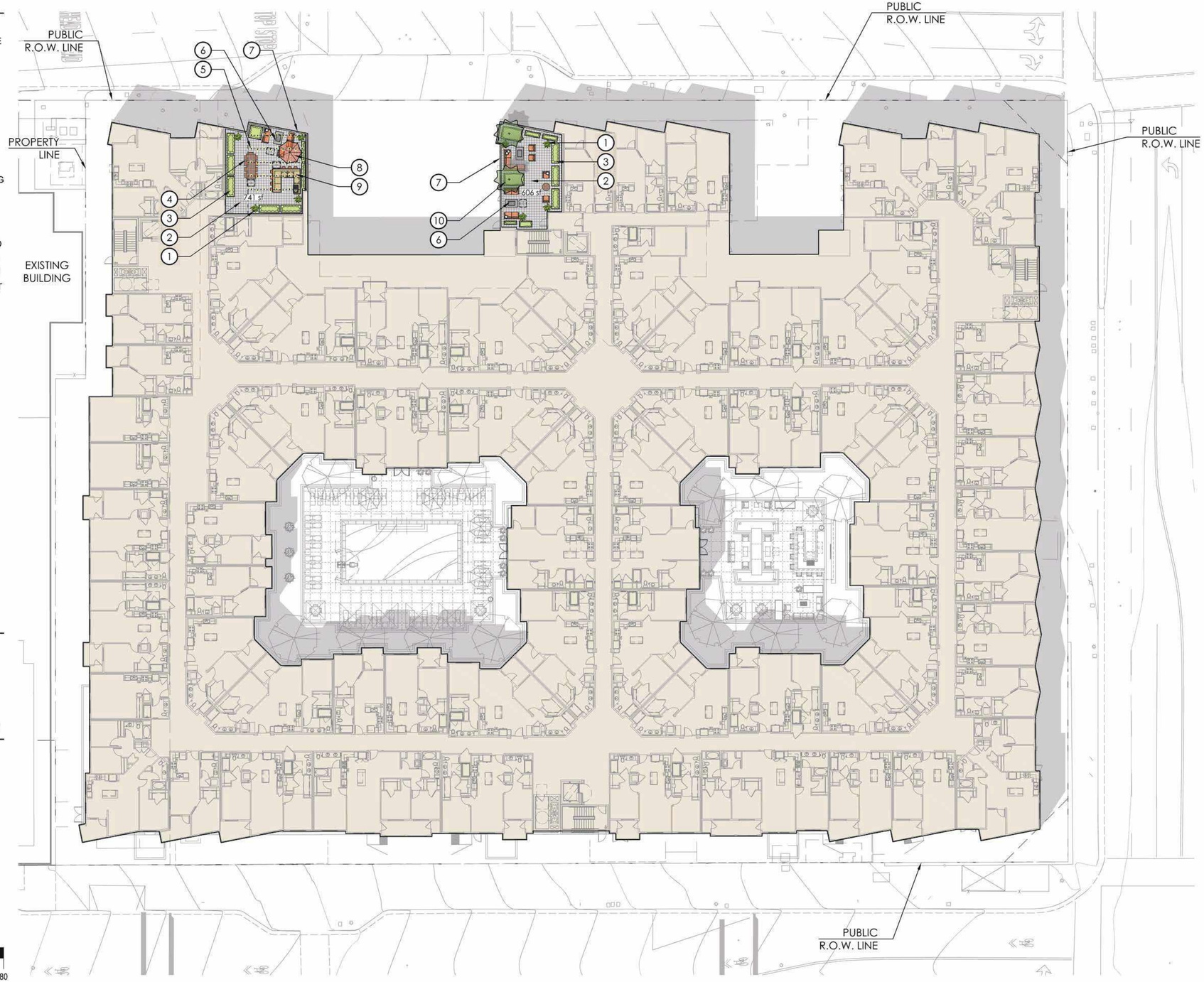
PAVING NOTE:
- ALL PEDESTRIAN PAVING SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE AMERICAN DISABILITY ACT.

SITE GRADING & DRAINAGE NOTE:
- REFER TO CIVIL ENGINEER'S PLANS FOR ALL DRAINAGE AND GRADING INFORMATION, TYP.

OVERHEAD LINE / UTILITY EASEMENT NOTE:
- PROJECT CONTAINS **NO** SDG&E EASEMENT AND / OR OVERHEAD UTILITY LINES.

MAINTENANCE RESPONSIBILITY NOTE:
- PRIVATE ON-SITE AND PUBLIC R.O.W. LANDSCAPING TO BE MAINTAINED BY OWNER / DEVELOPER.

FIRE NOTES:
1. LANDSCAPE IMPROVEMENT PLAN SET AND INSTALLATION ARE REQUIRED TO IMPLEMENT APPROVED FIRE DEPT. REGULATIONS, CODES, AND STANDARDS AT THE TIME OF PROJECT APPROVAL.
2. ALL FIRE HYDRANTS, DOUBLE CHECK DETECTORS, POST INDICATING VALVES, AND FIRE DEPARTMENT CONNECTIONS SHALL BE PROVIDED WITH A 3-FOOT CLEARANCE AROUND ALL FIRE APPARATUSES.
3. ALL TREES AT MATURITY SHALL MEET A HORIZONTAL CLEARANCE ALONG ALL ROADWAYS FROM CURB TO CURB. HORIZONTAL ROADWAY CLEARANCE FOR A ONE-STORY BUILDING IS 28-FEET WIDE.
4. ALL TREES AT MATURITY SHALL MEET A VERTICAL CLEARANCE OF 14-FEET FROM THE TOP OF THE ROADWAY TO THE LOWEST BRANCHES.



LEGEND

1. DECORATIVE POTS WITH ACCENT PLANTING
2. DECORATIVE PAVING
3. PREFABRICATED FIBERGLASS PLANTERS WITH SELF-WATERING IRRIGATION BLADDER
4. LONG RECTANGULAR DINING TABLE
5. DECORATIVE CAFE STRING LIGHTING
6. PREFABRICATED RECTANGULAR FIRE TABLE & SOFT LOUNGE SEATING
7. TEMPERED GLASS VIEW BARRIER WALL
8. LARGE MARKET UMBRELLA
9. LARGE BARBEQUE KITCHEN WITH BAR SEATING & UNDERCOUNTER APPLIANCES
10. PREFABRICATED FIBERGLASS TREE PLANTERS

PROJECT AREA TOTALS:

ROOF AMENITY LEVEL | LEVEL 5

-	TOTAL OPEN SPACE:	1,937 SF	*100%*
	PLANTING AREA:	368 SF	*19%*
	PAVING AREA:	1,569 SF	*81%*

PLANTING AREA PROVIDED:

-	ROOF LEVEL :	368 SF
	ON-SITE PLANTING AREA TOTAL :	10,352 SF

PLANT MATERIAL

SMALL ACCENT TREES:

LAGERSTROEMIA I. 'NATCHEZ' NATCHEZ CRAPE MYRTLE	2	36" BOX

SHRUBS:

LANDSCAPE PLANTER AREAS

401 MISSION BLVD, Oceanside CA. | Site Plan - Level 5 (Roof Amenity)

JH Real Estate Partners, Inc. | 520 Newport Center Dr., Suite 780 | Newport Beach, CA 92660 | September 23, 2024

723139

SUMMERS/MURPHY & PARTNERS, INC.
34197 COAST HWY SUITE 200
DANA POINT CA 92629
(949) 443-1446

SHEET: **L-3**



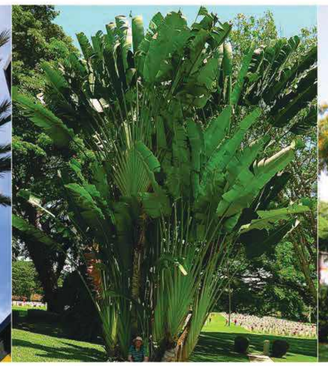
ARBUTUS 'MARINA'
MARINA STRAWBERRY TREE



LAGERSTROEMIA I. 'NATCHEZ'
NATCHEZ CRAPE MYRTLE



PHOENIX D. 'MEDJOOL'
MEDJOOL DATE PALM



STRELITZIA NICOLAI
GIANT BIRD OF PARADISE



TIPUANA TIPU
TIPU TREE



AEONIUM CANARIENSE
CANARY ISLAND AEONIUM



AEONIUM A. 'ZWARTKOPF'
PURPLE AEONIUM



AGAVE AMERICANA
CENTURY PLANT



AGAVE ATTENUATA
FOXTAIL AGAVE



AGAVE 'BLUE GLOW'
BLUE GLOW AGAVE



ASPIDISTRA ELATIOR
CAST IRON PLANT



ASPARAGUS D. 'MYERS'
FOXTAIL FERN



CHONDROPETALUM TECTORUM
CAPE RUSH



DIANELLA T. 'VARIEGATA'
VARIEGATED FLAX LILY



FURCRAEA F. 'MEDIOPICTA'
MAURITIUS HEMP



NANDINA D. 'MOON BAY'
MOON BAY HEAVENLY BAMBOO



PEDILANTHUS BRACTEATUS
TALL SLIPPER PLANT



PHILODENDRON 'XANADU'
XANADU PHILODENDRON



PHORMIUM 'AMAZING RED'
AMAZING RED FLAX



ROSMARINUS O. 'PROSTRATUS'
TRAILING ROSEMARY



SANSEVIERIA HYBRID
SNAKE PLANT



SENECIO MANDRALISCAE
BLUE CHALKSTICKS



SENECIO VITALIS
NARROW-LEAF CHALKSTICKS



WESTRINGIA F. 'WYNABBIE GEM'
WYNABBIE GEM COAST ROSEMARY

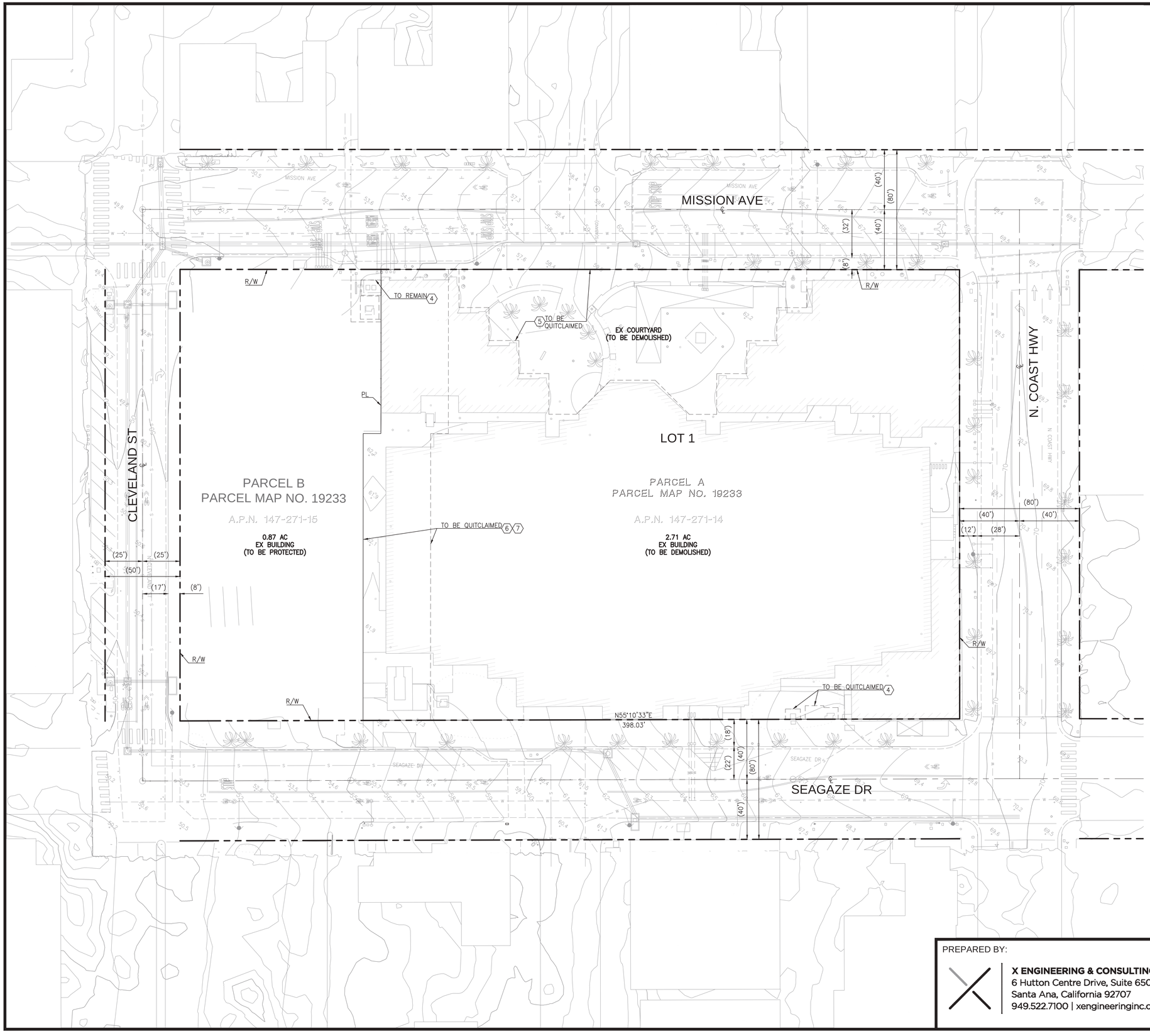
401 MISSION BLVD, Oceanside CA. | Plant Palette Imagery

JH Real Estate Partners, Inc. | 520 Newport Center Dr., Suite 780 | Newport Beach, CA 92660 | September 23, 2024

723139

SMP ENVIRONMENTAL DESIGN
SUMMERS/MURPHY & PARTNERS, INC.
34197 COAST HWY SUITE 200
DANA POINT CA 92629
(949) 443-1446

SHEET:
L-4



EXISTING EASEMENT NOTES

1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS. THE EXTENT TO WHICH THIS ITEM AFFECTS THE SUBJECT PROPERTY CAN NOT BE DETERMINED FROM THE TITLE REPORT OR DOCUMENTS PROVIDED AND IS NOT PLOTTED HEREON.
2. A NOTICE THAT THE SUBJECT PROPERTY IS LOCATED WITHIN A REDEVELOPMENT AGENCY PROJECT AREA RECORDED JULY 13, 1978 AS INSTRUMENT NO. 78-293056 OF OFFICIAL RECORDS. THIS ITEM AFFECTS THE SUBJECT PROPERTY, BUT IS BLANKET IN NATURE AND IS NOT PLOTTED HEREON.
3. A NOTICE THAT THE SUBJECT PROPERTY IS LOCATED WITHIN A REDEVELOPMENT AGENCY PROJECT AREA RECORDED AUGUST 12, 1982 AS INSTRUMENT NO. 82-248561 OF OFFICIAL RECORDS. THIS ITEM AFFECTS THE SUBJECT PROPERTY, BUT IS BLANKET IN NATURE AND IS NOT PLOTTED HEREON.
4. AN EASEMENT FOR ELECTRIC UTILITIES, INGRESS AND EGRESS RECORDED JANUARY 13, 1999 AS INSTRUMENT NO. 1999-020515 OF OFFICIAL RECORDS IN FAVOR OF SAN DIEGO GAS & ELECTRIC. THIS ITEM AFFECTS THE SUBJECT PROPERTY AND IS APPROXIMATELY PLOTTED HEREON.
5. AN EASEMENT FOR PUBLIC PASSAGE OF PEDESTRIANS RECORDED FEBRUARY 17, 1999 AS INSTRUMENT NO. 1999-0095213 OF OFFICIAL RECORDS. THIS ITEM AFFECTS THE SUBJECT PROPERTY AND IS PLOTTED HEREON.
6. MATTERS CONTAINED IN DOCUMENT ENTITLED "CONSTRUCTION EASEMENT ENCROACHMENT AGREEMENT", RECORDED APRIL 1, 2005 AS INSTRUMENT NO. 2005-0265200 OF OFFICIAL RECORDS. THIS ITEM AFFECTS THE SUBJECT PROPERTY AND IS PLOTTED HEREON.
7. AN EASEMENT FOR CONSTRUCTION AND UNDERGROUND IMPROVEMENTS RECORDED APRIL 1, 2005 AS INSTRUMENT NO. 2005-265200 OF OFFICIAL RECORDS. THIS ITEM AFFECTS THE SUBJECT PROPERTY AND IS PLOTTED HEREON.
8. AN EASEMENT FOR ELECTRIC UTILITIES RECORDED DECEMBER 30, 2005 AS INSTRUMENT NO. 2005-1119125 OF OFFICIAL RECORDS IN FAVOR OF SAN DIEGO GAS & ELECTRIC. THIS ITEM AFFECTS THE SUBJECT PROPERTY, BUT THE EXACT LOCATION CAN NOT BE DETERMINED AND IS NOT PLOTTED HEREON. EASEMENT TO BE QUITCLAIMED.

LEGEND

PROPERTY LINE	———
R/W	— — —
STREET CENTERLINE	——— – ———
EASEMENT	– – – – – –

BENCHMARK

DESIGNATION: PIER RM 2 ELEVATION: 28.65 NAVD88 1993

DESCRIPTION:

IN OCEANSIDE AT THE EAST END OF THE PIER EXTENDING WEST FROM THE WEST END OF THIRD STREET, APPROXIMATELY 420 FT. WEST OF THE CENTERLINE OF PACIFIC STREET, SET IN THE TOP OF THE SOUTH CONCRETE CURBING ON THE PIER, 25.9 FEET. EAST OF THE STATION MARK.

FOUND NGS BRASS DISK SET IN PIER CURBING WITH CROSS STAMPED "PIER NO 2 1933", FLUSH, NORTHING (USFT) 2016134.61 EASTING (USFT) 6214596.96

COMBINATION FACTOR 0.9999119

PER NGS DATA SHEET DX3432

BASIS OF BEARINGS

THE BEARINGS HEREON ARE BASED ON THE SAN DIEGO COUNTY REAL TIME NETWORK USING CALIFORNIA COORDINATE SYSTEM 83, ZONE 6, NAD 83, EPOCH 2011.00, AS DETERMINED LOCALLY BY A LINE BETWEEN CONTINUOUS GLOBAL POSITIONING STATIONS P478 AND DSME BEING NORTH N 37° 25' 20" E AS DERIVED FROM GEODETIC VALUES PUBLISHED BY THE CALIFORNIA SPATIAL REFERENCE CENTER (CSRC) AND MEETS ALL THE REQUIREMENTS OF THE CALIFORNIA PUBLIC RESOURCES CODE, AS SHOWN ON A MAP OF RECORD OF SURVEY MAP NO. 22165 ON FILE IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, CALIFORNIA.

ASSESSOR'S PARCEL NUMBER

147-271-14

LEGAL DESCRIPTION

ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL A OF PARCEL MAP NO. 19233, IN THE CITY OF OCEANSIDE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, AS FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, ON MAY 16, 2003 AS INSTRUMENT NO. 2003-0574372 OF PARCEL MAPS.

30' 0' 15' 30'

SCALE: 1" = 30'

DATE PREPARED: 9/10/2024

PREPARED BY:

X ENGINEERING & CONSULTING, INC.
6 Hutton Centre Drive, Suite 650
Santa Ana, California 92707
949.522.7100 | xengineeringinc.com

REGISTERED PROFESSIONAL ENGINEER SULEEN LAO NO. 91426 CIVIL STATE OF CALIFORNIA

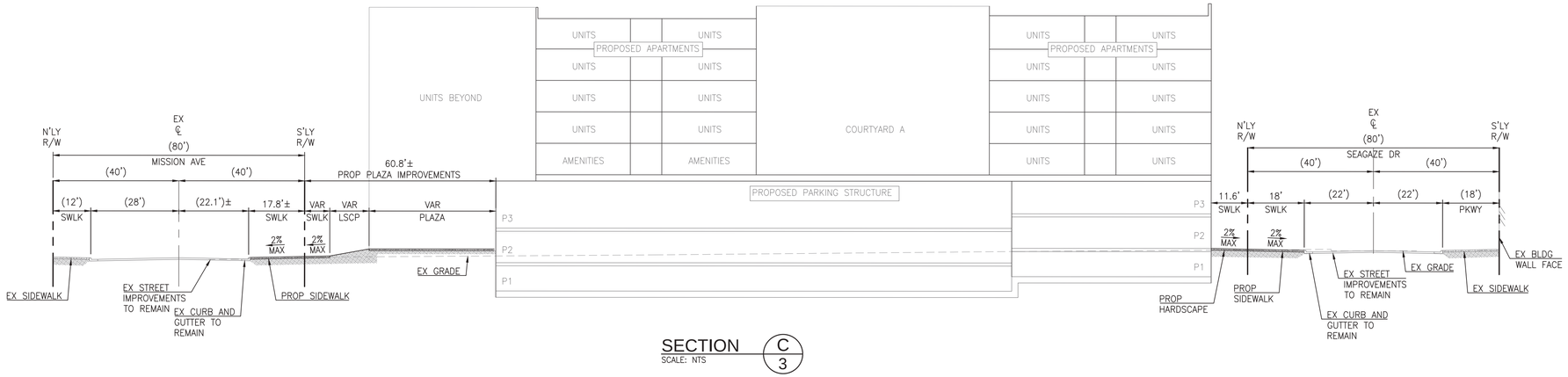
EXISTING CONDITIONS

401 MISSION AVENUE MIXED-USE
EASEMENTS AND RIGHTS-OF WAY
ENTITLEMENT PLAN

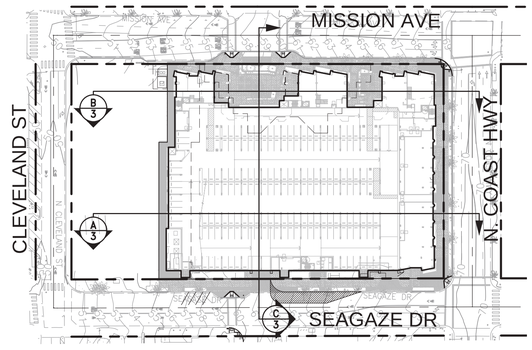
CITY OF OCEANSIDE, CALIFORNIA

SHEET C.1 OF 4

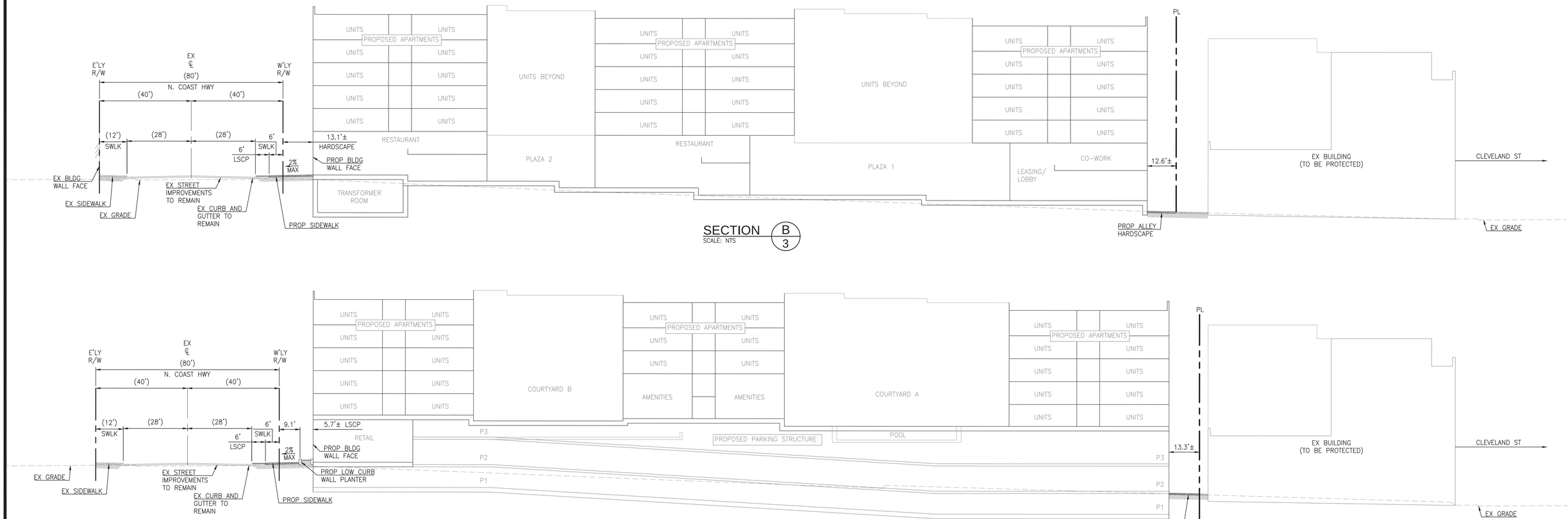
P:\135\002\Plans\Entitlement\Entitlement\135-002-et01tm.dwg Plotted At: September 13, 2024 10:41 AM Last Saved By: SuleenLao Last Saved At: August 26, 2024 9:19 AM



SECTION C/3
SCALE: NTS



SECTION LOCATIONS



SECTION B/3
SCALE: NTS

SECTION A/3
SCALE: NTS

DATE PREPARED: 9/10/2024

PREPARED BY:
X ENGINEERING & CONSULTING, INC.
6 Hutton Centre Drive, Suite 650
Santa Ana, California 92707
949.522.7100 | xengineeringinc.com

TYPICAL SECTIONS
401 MISSION AVENUE MIXED-USE
ENTITLEMENT PLAN
CITY OF OCEANSIDE, CALIFORNIA

SHEET C.2 OF 4

P:\135\002\Plans\Entitlement\Entitlement\135-002-at02xs.dwg Plotted At: September 13, 2024 10:41 AM Last Saved By: SuleenLoo Last Saved At: August 24, 2024 9:16 PM

MISSION AVE

CLEVELAND ST

N. COAST HWY

SEAGAZE DR

EX. BUILDING
(TO BE PROTECTED)

EX STOP SIGN

EX CROSSWALK

EX. STOP SIGN TO BE RELOCATED TO PROP. LOCATION

PROP. CURB RAMP

PROP CURB RAMP

PROP PEDESTRIAN ACCESS EASEMENT

EX 12" FAN PALM

EX CURB AND GUTTER

RED CURB

R/W

PROP 25' CURB RETURN

EX TRAFFIC SIGNAL TO BE RELOCATED

EX TRAFFIC SIGNAL

LOADING

EX CONSTRUCTION AND UNDERGROUND IMPROVEMENTS EASEMENT TO BE QUITCLAIMED

EX PEDESTRIAN ACCESS EASEMENT TO BE QUITCLAIMED

PROP TIPU TREE

EX 18" FAN PALM

EX 12" FAN PALM

EX STREET LIGHT W/ STOP SIGN

EX DRIVEWAY TO BE PROTECTED

PROP DETECTABLE WARNING MAT

EX PUBLIC UTILITY EASEMENT TO BE QUITCLAIMED

PROP. ADA RAMP

PROP. DETECTABLE WARNING MAT

PROP DRIVEWAY SIGHT DISTANCE TRIANGLE

PROP REVERSE ANGLE PARKING

EX METER TO BE PROTECTED

EX CURB RAMP TO BE RECONSTRUCTED

EX. DRY UTILITY TO BE PROTECTED

PROP MOVE IN

EX 12" FAN PALM TO BE RELOCATED

EX STREET LIGHT TO BE PROTECTED

PROP RRFB

EX CROSSWALK

EX STREET LIGHT W/ TRAFFIC SIGNAL TO BE PROTECTED

PROP DRIVEWAY SIGHT DISTANCE TRIANGLE

PROP PEDESTRIAN ACCESS EASEMENT

EX TRAFFIC SIGNAL TO BE RELOCATED

PROP 25' CURB RETURN

PROP. CURB RAMP

EX 18" FAN PALM

EX 12" FAN PALM

EX CURB AND GUTTER

EX 12" FAN PALM

EX TRAFFIC SIGNAL TO BE RELOCATED

PROP CURB RAMP

PROP DRIVEWAY SIGHT DISTANCE TRIANGLE

EX STREET LIGHT W/ TRAFFIC SIGNAL TO BE PROTECTED

PL

FF=56.30
PAD=55.9

GROUND P2 FF=56.20
SUB P1=46.20
PAD=45.8

FF=60.50
PAD=60.1

FF=64.70
PAD=64.3

FF=66.90
PAD=66.5

FF=70.00
SUB=54.00
PAD=53.6

FF=67.10

FF=69.50

FF=70.00
SUB P1=59.40
PAD=59.0

FF=70.00
SUB P1=59.40
PAD=59.0

GROUND P2 FF=57.00
SUB P1=47.00
PAD=46.6

FF=61.70

GROUND P2 FF=69.50
SUB P1=59.50
PAD=59.1

LEGEND

- PROPERTY LINE
- R/W
- STREET CENTERLINE
- EASEMENT
- SIGHT DISTANCE LINE
- RED CURB

30' 0' 15' 30'
SCALE: 1" = 30'

DATE PREPARED: 9/10/2024

PREPARED BY:

X ENGINEERING & CONSULTING, INC.
6 Hutton Centre Drive, Suite 650
Santa Ana, California 92707
949.522.7100 | xengineeringinc.com

REGISTERED PROFESSIONAL ENGINEER SULEEN LAO NO. 91426 CIVIL STATE OF CALIFORNIA

CONCEPTUAL GRADING

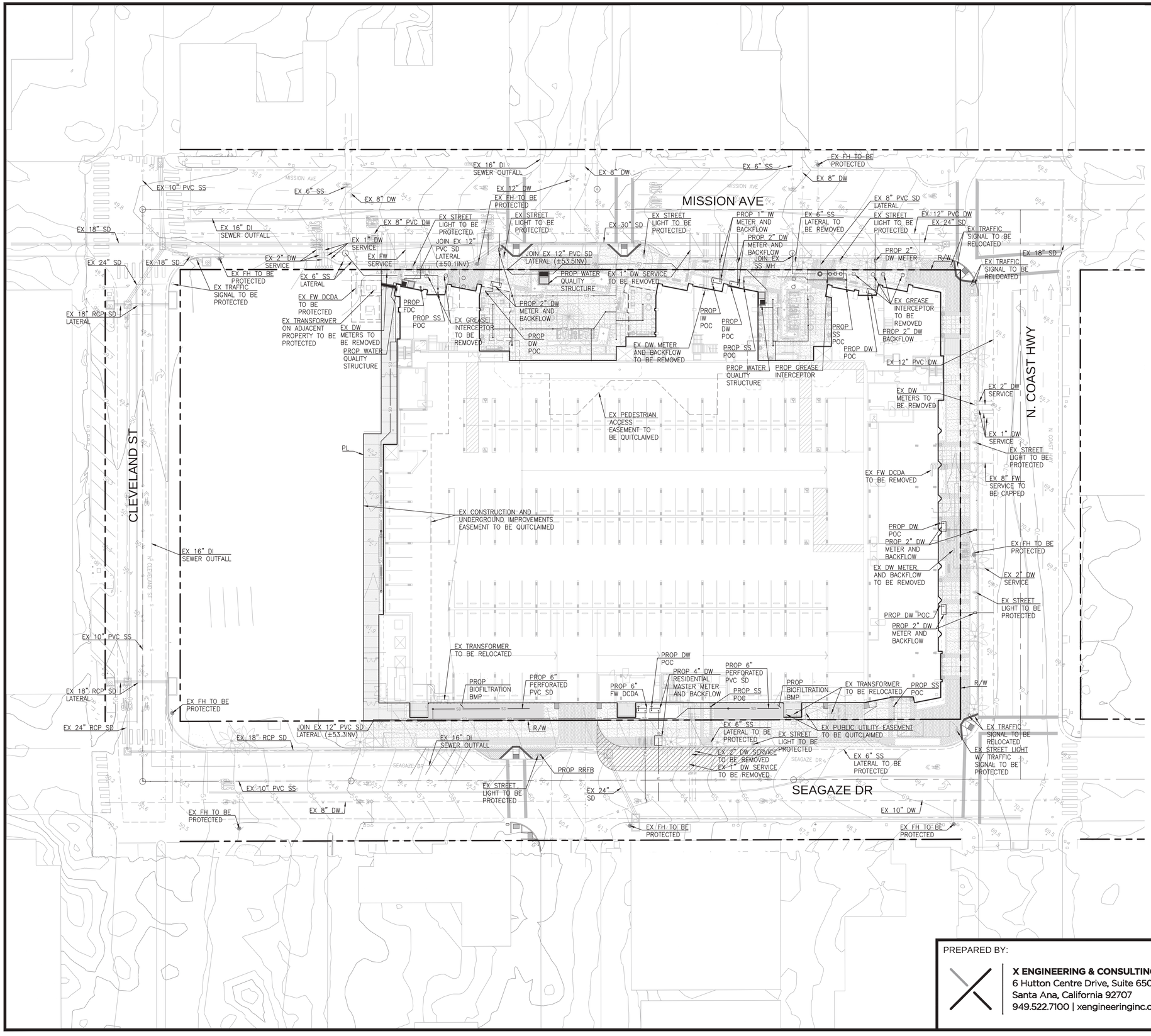
401 MISSION AVENUE MIXED-USE

ENTITLEMENT PLAN

CITY OF OCEANSIDE, CALIFORNIA

SHEET C.3 OF 4

P:\135\002\Plans\Entitlement\Entitlement\135-002-e003cg.dwg Plotted At: September 13, 2024 10:41 AM Last Saved By: SuleenLao Last Saved At: September 10, 2024 8:16 AM



FIXTURE COUNT AND SUPPLY DEMAND

	UNIT TYPE	NUMBER OF UNITS	TOTAL NUMBER OF FIXTURES	SUPPLY DEMAND
	STUDIO	15	60	
	1 BR	165	660	
	2 BR	113	791	
	3 BR	39	273	
	AMENITY	–	14	
TOTAL	–	332	1,798	300 GPM

LEGEND

- PROPERTY LINE
- R/W
- STREET CENTERLINE
- EASEMENT
- PROPOSED DOMESTIC WATER
- PROPOSED FIRE WATER
- PROPOSED IRRIGATION WATER
- PROPOSED SEWER
- PROPOSED STORM DRAIN
- EXISTING DOMESTIC WATER
- EXISTING FIRE WATER
- EXISTING SEWER
- EXISTING STORM DRAIN

NOTES

1. ANY UNUSED WATER SERVICES OR SEWER LATERALS SHALL BE ABANDONED IN ACCORDANCE WITH WATER UTILITIES REQUIREMENTS.

30' 0' 15' 30'

SCALE: 1" = 30'

DATE PREPARED: 9/10/2024

PREPARED BY:

X ENGINEERING & CONSULTING, INC.
6 Hutton Centre Drive, Suite 650
Santa Ana, California 92707
949.522.7100 | xengineeringinc.com

REGISTERED PROFESSIONAL ENGINEER SUILEEN LAO NO. 91426 CIVIL STATE OF CALIFORNIA

CONCEPTUAL UTILITY PLAN

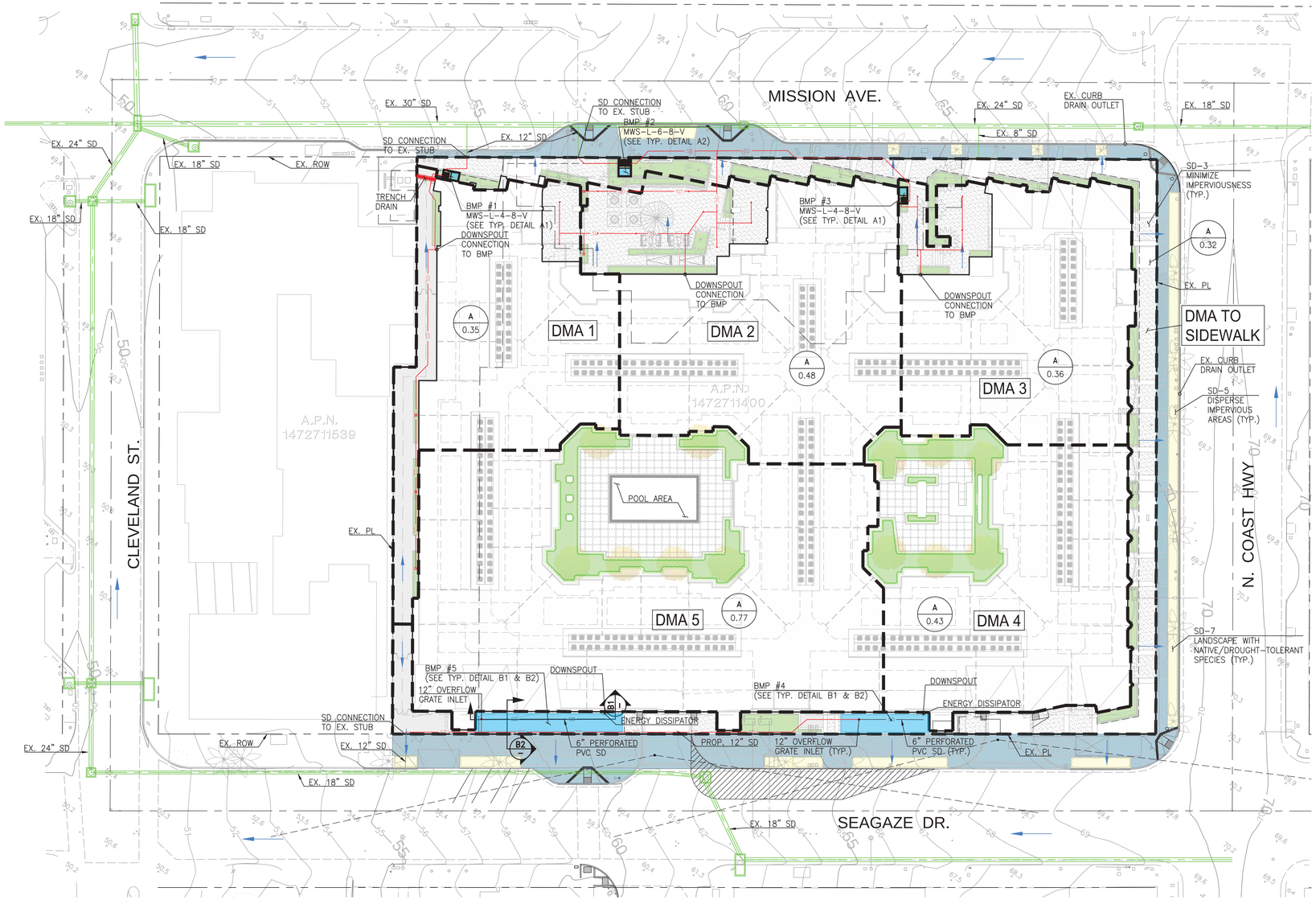
401 MISSION AVENUE MIXED-USE

ENTITLEMENT PLAN

CITY OF OCEANSIDE, CALIFORNIA

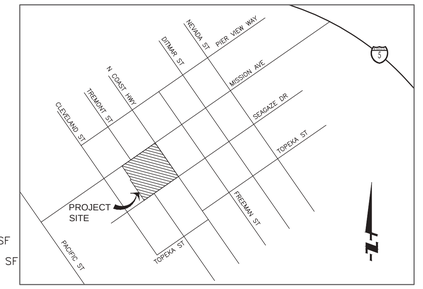
SHEET C.4 OF 4

P:\135\002\Plans\Entitlement\Entitlement\135-002-e104ut.dwg Plotted At: September 13, 2024 10:42 AM Last Saved By: SuileenLao Last Saved At: August 24, 2024 9:20 PM

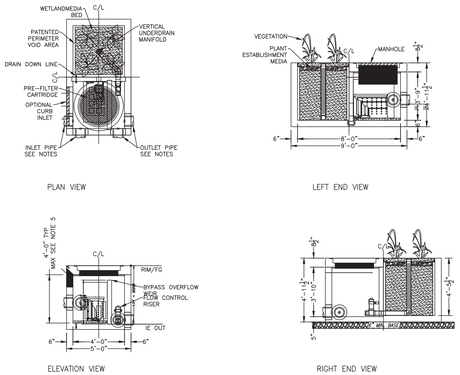


LEGEND

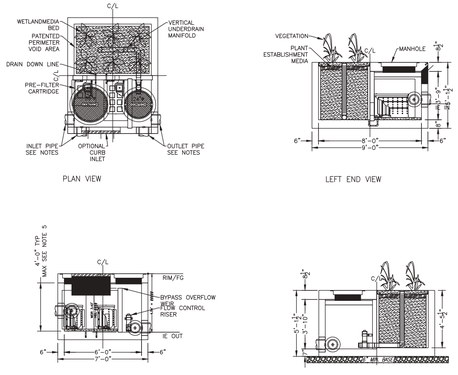
- PROPOSED DMA
- EXISTING RIGHT OF WAY
- PROPERTY BOUNDARY
- A 0.64 — HYDROLOGIC SOILS GROUP ACREAGE
- SURFACE FLOW DIRECTION
- SD — PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED LID BMP
- PERVIOUS AREA (ONSITE)
- RETROFITTED PERVIOUS AREA (OFFSITE)– 2,841 SF
- RETROFITTED IMPERVOUS AREA (OFFSITE)–10,742 SF



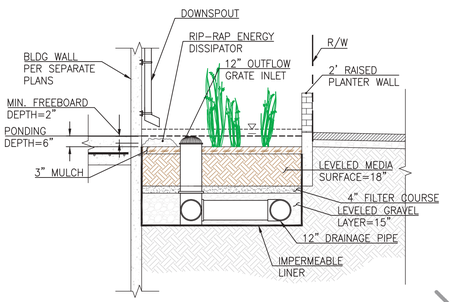
VICINITY MAP
NOT TO SCALE



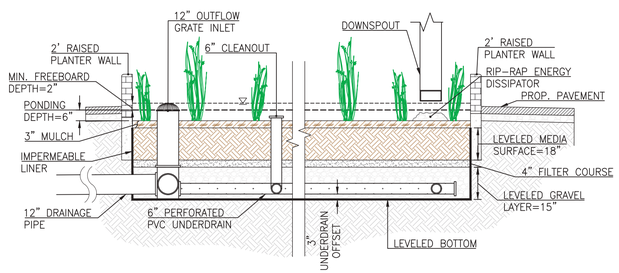
PROPRIETARY BIOFILTRATION BMP (MWS-L-4-8-V) A1
N.T.S.



PROPRIETARY BIOFILTRATION BMP (MWS-L-6-8-V) A2
N.T.S.



BIOFILTRATION BMP W/ LINER B2
N.T.S.



BIOFILTRATION BMP W/ LINER B1
N.T.S.

ONSITE SWQMP SUMMARY

DMA DESIGNATION	DMA 1	DMA 2	DMA 3	DMA 4	DMA 5	DMA TO SIDEWALK**	PROJECT TOTAL (ONSITE)
PERVIOUS AREA* (AC)	0	0	0	0	0	0.10	0.10
IMPERVIOUS AREA (AC)	0.35	0.48	0.36	0.46	0.77	0.22	2.61
TOTAL AREA (AC)	0.35	0.48	0.36	0.46	0.77	0.32	2.71
DESIGN CAPTURE VOLUME (CF)	683	948	713	844	1,508	442***	–
BMP TYPE	PROPRIETARY BIOFILTRATION BMP (MWS-L-4-8-V)	PROPRIETARY BIOFILTRATION BMP (MWS-L-6-8-V)	PROPRIETARY BIOFILTRATION BMP (MWS-L-4-8-V)	BIOFILTRATION BMP W/ IMPERMEABLE LINER	BIOFILTRATION BMP W/ IMPERMEABLE LINER	DISPERSION TO TREE WELLS AND LANDSCAPED AREA ALONG ROW TO MEP	–
REQUIRED BMP DESIGN VOLUME OR FLOWRATE (CF OR CFS)	0.094 CFS	0.131 CFS	0.098 CFS	1,113 CF	2,016 CF	–	–
PROVIDED BMP DESIGN VOLUME OR FLOWRATE (CF)	0.115 CFS	0.147 CFS	0.115 CFS	1,821 CF****	3025 CF****	–	–

* ASSUMED TO BE ZERO FOR CONSERVATIVE BMP SIZING.
** GREEN STREET FEATURES SUCH AS LANDSCAPING AREAS AND STREET TREES ALONG ROW ARE PROVIDED TO THE MAXIMUM EXTENT PRACTICABLE AS RUNOFF DISPERSION MEASURES. A PORTION OF THE IMPERVIOUS AREA IN THIS DMA (0.12AC) IS INFEASIBLE TO BE DIRECTED TO LID BMPs DUE TO CONFLICTS WITH OTHER ROW USES AND RESTRICTIVE SITE LAYOUT FOR DRAINAGE DESIGN.
*** DCV FROM THESE AREAS ARE COMPENSATED BY OVERSIZING BMP_S FOR THE OTHER DMAS, PARTICULARLY BMP 4 AND 5.
**** CALCULATED AS TOTAL DEPTH FILTERED MULTIPLIED BY PROVIDED BMP SURFACE AREA PER COUNTY BMPDM WORKSHEET, STEP 3, LINE 41.

NOTES

1. PROJECT DISCHARGE RUNOFF DIRECTLY TO EXISTING UNDERGROUND STORM DRAINS DISCHARGING DIRECTLY TO PACIFIC OCEAN AND IS THEREFORE EXEMPTED FROM HYDROMODIFICATION MANAGEMENT REQUIREMENTS.
2. GROUNDWATER IS ENCOUNTERED AT 43' BELOW GROUND SURFACE DURING SOILS EXPLORATION.
3. ENTIRE PROJECT SITE IS UNDERLAIN BY HYDROLOGIC SOILS GROUP A.
4. ROOFTOP BOUNDARIES ARE ASSUMED AND WILL BE CONFIRMED AT FINAL ENGINEERING PHASE
5. PUBLIC RIGHT OF WAY DRAINS TO LANDSCAPE POCKETS BY GRADING DESIGN AND SURFACE FLOW.

30' 0' 15' 30'
SCALE: 1" = 30'

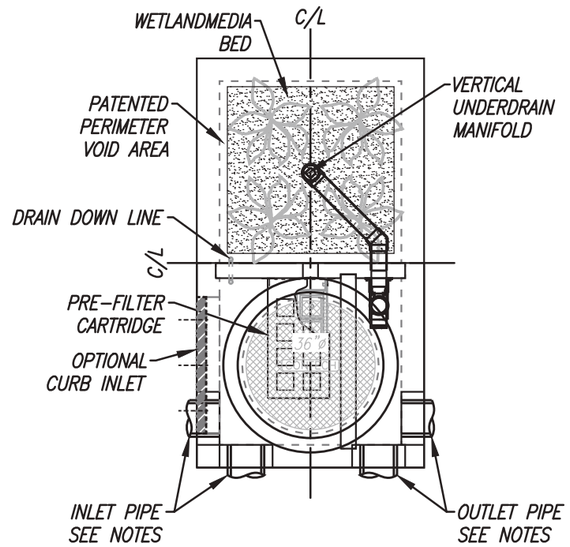
DMA EXHIBIT
401 MISSION AVENUE
MIXED-USE
OCEANSIDE, CA

X ENGINEERING & CONSULTING, INC.
6 Hutton Centre Drive, Suite 650
Santa Ana, California 92707
949.522.7100 | xengineeringinc.com

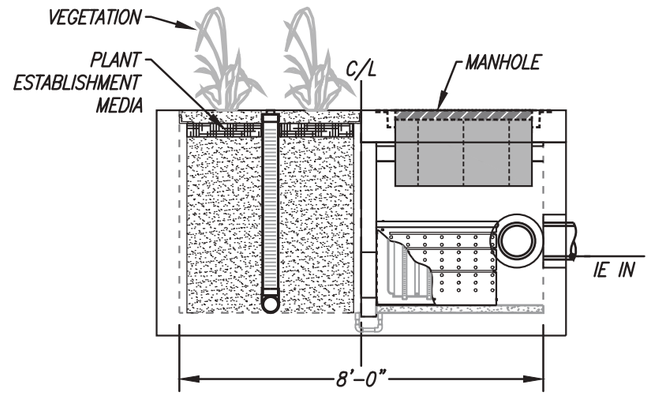
P:\135\002\Reports\Entitlement\WQMP - Preliminary\Exhibits\135-002_DMA Exhibit.dwg Plotted At: September 11, 2024 10:26 AM Last Saved By: RandyRettig Last Saved At: September 11, 2024 10:18 AM

SITE SPECIFIC DATA			
PROJECT NUMBER		135-002	
PROJECT NAME		401 Mission Avenue	
PROJECT LOCATION		Oceanside, CA	
STRUCTURE ID		BMP 1 & 3	
TREATMENT REQUIRED			
TREATMENT FLOW (CFS)			0.115
PRETREATMENT LOADING RATE (GPM/SF)			2.1 GPM/SF
WETLAND MEDIA LOADING RATE (GPM/SF)			1.0
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			_____ (CFS)
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN		
NOTES:			

* PRELIMINARY ONLY - NOT FOR CONSTRUCTION



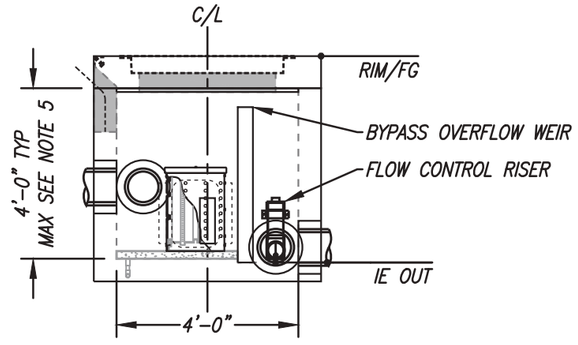
PLAN VIEW



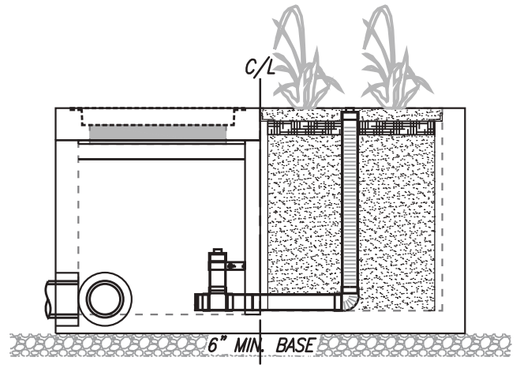
LEFT END VIEW

INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PROJECT ENGINEER'S RECOMMENDED BASE SPECIFICATIONS.
3. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATERTIGHT PER MANUFACTURER'S STANDARD CONNECTION DETAIL.
4. CONTRACTOR RESPONSIBLE FOR CONTACTING CONTECH FOR ACTIVATION OF UNIT. MANUFACTURER'S WARRANTY IS VOID WITHOUT PROPER ACTIVATION BY A CONTECH REPRESENTATIVE.
5. VERTICAL HEIGHT VARIES BASED ON SITE SPECIFIC REQUIREMENTS.



ELEVATION VIEW



RIGHT END VIEW

MODULAR WETLANDS
FOR PATENT INFORMATION, GO TO www.ContechES.com/IP

PROPRIETARY AND CONFIDENTIAL:
THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE SOLE PROPERTY OF CONTECH AND ITS COMPANIES. THIS DOCUMENT, NOR ANY PART THEREOF, MAY BE USED, REPRODUCED OR MODIFIED IN ANY MANNER WITH OUT THE WRITTEN CONSENT OF CONTECH.

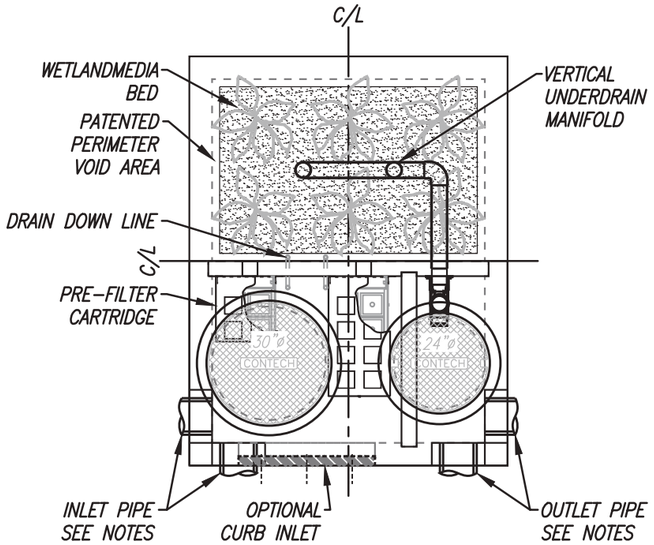
CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com

MWS-L-4-8-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

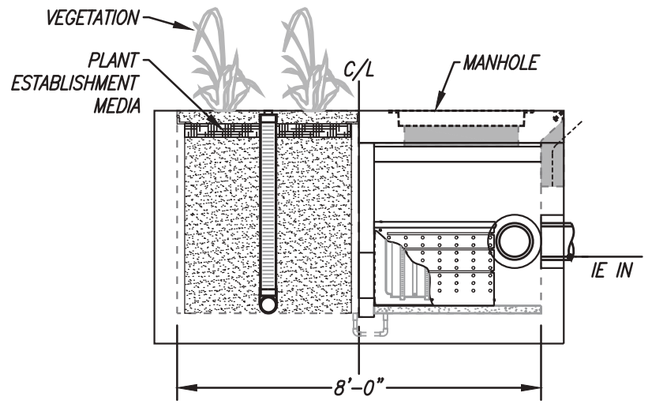
8/15/23SCOTT.SERTICH

SITE SPECIFIC DATA			
PROJECT NUMBER		135-002	
PROJECT NAME		401 Mission Avenue	
PROJECT LOCATION		Oceanside, CA	
STRUCTURE ID		BMP 2	
TREATMENT REQUIRED			
TREATMENT FLOW (CFS)			0.147
PRETREATMENT LOADING RATE (GPM/SF)			2.1 GPM/SF
WETLAND MEDIA LOADING RATE (GPM/SF)			1.0
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			_____ (CF
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN		
NOTES:			

* PRELIMINARY ONLY - NOT FOR CONSTRUCTION



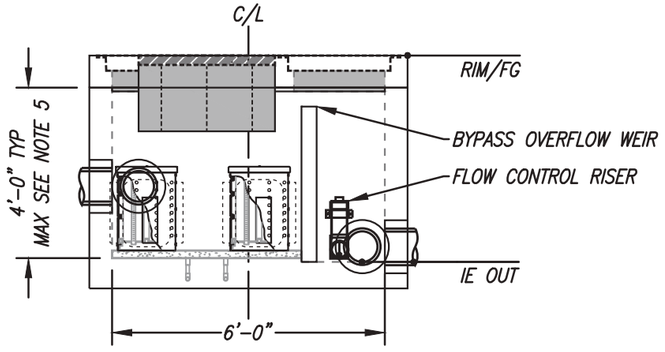
PLAN VIEW



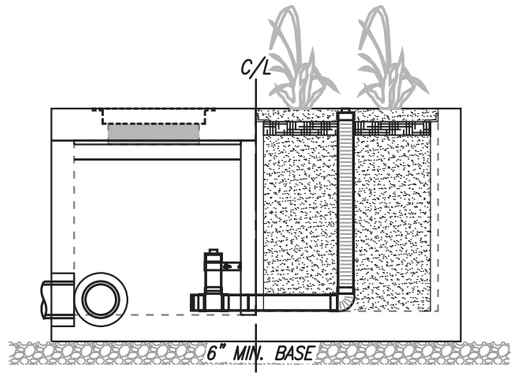
LEFT END VIEW

INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PROJECT ENGINEER'S RECOMMENDED BASE SPECIFICATIONS.
3. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATERTIGHT PER MANUFACTURER'S STANDARD CONNECTION DETAIL.
4. CONTRACTOR RESPONSIBLE FOR CONTACTING CONTECH FOR ACTIVATION OF UNIT. MANUFACTURER'S WARRANTY IS VOID WITHOUT PROPER ACTIVATION BY A CONTECH REPRESENTATIVE.
5. VERTICAL HEIGHT VARIES BASED ON SITE SPECIFIC REQUIREMENTS.



ELEVATION VIEW



RIGHT END VIEW

MODULAR WETLANDS
FOR PATENT INFORMATION, GO TO www.ContechES.com/IP

PROPRIETARY AND CONFIDENTIAL:

THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE SOLE PROPERTY OF CONTECH AND ITS COMPANIES. THIS DOCUMENT, NOR ANY PART THEREOF, MAY BE USED, REPRODUCED OR MODIFIED IN ANY MANNER WITH OUT THE WRITTEN CONSENT OF CONTECH.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com

MWS-L-6-8-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

8/14/23SCOTT.SERTICH

ATTACHMENT 5
Drainage Report

This is the cover sheet for Attachment 5.

401 MISSION AVENUE MIXED USE

OCEANSIDE, CALIFORNIA

PRELIMINARY HYDROLOGY REPORT

PREPARED FOR:

JH Real Estate Partners, Inc.
520 Newport Center Drive, Suite 780
Newport, CA 92660
949.723.8989
Date Prepared: March, 2023
Date Revised: August, 2024

PREPARED BY:

X Engineering & Consulting, Inc.
6 Hutton Centre Drive, Suite 650
Santa Ana, California 92707
949.522.7100
Project Manager: Suleen Lao, PE
Project Number: 135-002



This report was prepared by or under the supervision of the undersigned registered civil engineer who attests to the technical information contained herein. The registered civil engineer has also judged the qualifications of any technical specialists providing engineering data upon which recommendations, conclusions, and decisions are based.

Declaration of Responsible Charge:
I hereby declare that I am the Engineer of Work for this project, that I have exercised responsible charge over the design of the project as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with current standards.

I understand that the check of project drawings and specifications by the City of Oceanside is confined to a review only and does not relieve me, as Engineer of Work, of my responsibilities for project design.

_____ _____

Suleen Lao, PE Date

ENGINEERING & CONSULTING

TABLE OF CONTENTS

I. Introduction 4
A. Project Description 4
B. Purpose and Scope 4
C. Project Location Map 4
II. Existing Topographic and Hydrologic Conditions 5
A. Existing Topography 5
B. Existing Drainage Pattern 5
C. Existing Storm Drain Facilities 5
III. Hydrologic Analysis 5
A. Storm Frequency 5
B. Methodology 6
C. Existing Condition 6
D. Proposed Condition 7
IV. Proposed Onsite Drainage Facilities 7
A. Peak Storm Flows 7
B. Hydraulic capacity of drainage facilities 8
V. Conclusion 8
VI. References 9

FIGURES

Figure 1: Existing Condition Rational Method Hydrology Map

Figure 2: Proposed Condition Rational Method Hydrology Map

Appendices

Appendix A: Hydrology Exhibits

- Figure 1: Existing Condition Hydrology Map
- Figure 2: Proposed Condition Hydrology Map

Appendix B: Hydrology and Hydraulic Calculations

Appendix C: Supporting Materials

- Isopluvial Maps
- Soils Report
- Record Drawings

I. INTRODUCTION

A. PROJECT DESCRIPTION

The subject site is located at 401 Mission Avenue, in the City of Oceanside, San Diego County. The site is a single lot (APN: 147-271-14-00) covering a land area of 2.71 acres and is bounded by a mixed-use development to the west (APN: 147-271-15-15), Mission Avenue to the north, North Coast Highway to the east, and Seagaze Drive to the south. See Vicinity Map in **Section I.C**.

The existing site, currently a movie theater plaza, will be transformed into a 332 unit development consisting of a 5-story Type III-A over 3 levels of Type I-A parking structure. The existing structures will be demolished for this redevelopment.

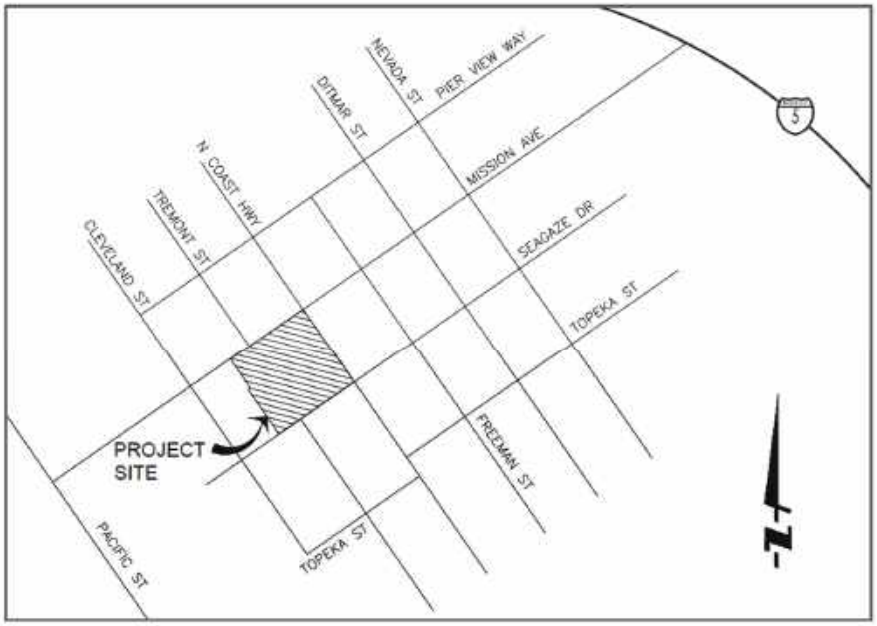
B. PURPOSE AND SCOPE

The purpose of this preliminary study is to analyze the pre- and post-development drainage conditions in order to provide adequate onsite drainage facilities for the proposed redevelopment project.

The scope of this study includes:

1. Determination of the existing and proposed drainage patterns.
2. Peak flow analysis at the downstream/discharge point(s) for both existing and proposed drainage conditions.
3. Validation of the proposed drainage facilities design.

C. PROJECT LOCATION MAP



VICINITY MAP
NOT TO SCALE

II. EXISTING TOPOGRAPHIC AND HYDROLOGIC CONDITIONS

A. EXISTING TOPOGRAPHY

The existing topography is sloped approximately 4% from east to west along the street side, with elevations ranging between 54' and 69'. Per the soils report dated September 2022 by TGR Geotechnical Inc, the site is underlain by fine-grained sands, which are categorized as hydrologic soils group A (See **Appendix C** for soils report).

B. EXISTING DRAINAGE PATTERN

The project site is located within the lower reaches of the San Luis Rey Watershed, two blocks east of the Pacific Ocean, and is exempted from hydromodification mitigation requirements as the site discharge runoff directly to existing underground storm drains discharging directly to Pacific Ocean. In general, the existing site drainage is distributed relatively even for discharge to the north and south. Drainage from the existing site includes roof runoff, ground-level overland runoff, and piped flow. The existing onsite peak flows originate as roof runoff from the existing building, which are then routed to downspouts and conveyed as underground pipe flows, joined by area drain flows, and eventually discharge offsite into storm drain laterals connecting to the public storm drain mainlines. A total of four tributary areas were identified for the existing condition. See **Figure 1** in **Appendix A** for Existing Condition Hydrology Map.

C. EXISTING STORM DRAIN FACILITIES

The existing site drainage is collected and conveyed by onsite pipes to four different locations: two 12" and one 8" storm drain laterals to the north along Mission Avenue, and one 12" lateral to the south along Seagaze Drive. The storm drain laterals along Mission Avenue are connected to an existing storm drain mainline, with segments ranging from 24" to 30" in size. The storm drain lateral along Seagaze Drive is connected to an existing 18" mainline. The 18" mainline along Seagaze Drive eventually joins to the same manhole downstream of the 30" mainline along Mission Avenue. (see **Appendix A**- **Figure 1** for Existing Condition Hydrology Map).

III. HYDROLOGIC ANALYSIS

A. STORM FREQUENCY

This report includes hydrology analysis for the 100-year storm events, per the City of Oceanside's Engineering Design Manual hydrology requirements, for the existing and proposed project conditions. The hydrologic parameters used for the analysis are in accordance to the 2003 County of San Diego Hydrology Manual and are summarized as follows (also see **Appendix C** for supporting materials).

Storm Frequency	6-hr rainfall depth* (in)	24-hr rainfall depth* (in)
100-yr	2.6	4.5

*Per 2003 County of San Diego Hydrology Manual- Appendix B.

B. METHODOLOGY

The City of Oceanside is an incorporated city within San Diego County. Accordingly, the City of Oceanside accepts methodologies and practices as described in the County of San Diego Hydrology Manual dated June 2003.

Rational method, as described in Section 3 of the County's hydrology manual, is used for determining all peak runoff rates and times of concentration for this study.

C. EXISTING CONDITION

As described in Section II.B, drainage areas of the existing project site are depicted in **Figure 1** in **Appendix A**.

Since majority of the existing site is covered by roof, the peak flows are expected to follow short flow paths and are governed by the minimum time of concentration (hereafter, Tc) at 5 min, which is validated using the overland flow time equation in Figure 3-3 of the County's hydrology manual. Accordingly, peak flows of all tributary drainage areas are calculated using Tc of 5 min, which also yields the most conservative peak flow.

Most of the existing site drainage is collected and discharged into storm drain mainlines along Mission Avenue and Seagaze Drive. Using tributary area A1 as an example, the peak flow originates as roof runoff at the roof ridge (node 101) and travels to the downspout (node 102) at 2% slope. The downspout flow then transitions into pipe flow and flows towards the 12" storm drain lateral at node 103. Tributary areas B1, B2, D1, D2, D3, and D4 follow the same drainage pattern as tributary area A1 and end at their respective final drainage nodes (node 104, 105 and 106).

Drainage from a minor portion of the site perimeter (tributary area S1) is discharged offsite as sheet flow towards the sidewalk.

Table III.1 Existing Onsite Runoff

Node	Peak flow, Q_{peak} (cfs)	Area (AC)
103	3.9	0.65
104	2.8	0.47
105	0.4	0.06
106	8.4	1.40
Sheet flow towards sidewalk	0.8	0.13
Total	**16.3**	**2.71**

See **Appendix B** for detailed hydrology calculations.

D. PROPOSED CONDITION

The proposed drainage areas are depicted in **Figure 2** in **Appendix A**.

In general, the existing drainage pattern is preserved. The proposed drainage areas are delineated to closely match the existing drainage areas for discharge to the north and south.

Per the MS4 Permit requirements for new developments and redevelopments, this project will also incorporate low impact development (hereafter, LID) elements into the site design as well as implementing structural best management practice (hereafter, BMP). Stormwater runoff will be routed through these BMPs prior to discharging offsite.

Drainage from the proposed site includes roof runoff, ground-level overland runoff and piped flow, where roof runoff accounts for most (i.e. >85%) of the onsite drainage. The proposed onsite peak flows originate as roof runoff from the proposed building, which are then routed to downspouts and conveyed as underground pipe flows, joined by area drain flows from the ground level drainage area, and conveyed through stormwater treatment system before discharging offsite through the existing storm drain laterals.

A total of four tributary areas are delineated for the proposed condition. See **Figure 2** in **Appendix A** for Proposed Condition Hydrology Map.

IV. PROPOSED ONSITE DRAINAGE FACILITIES

A. PEAK STORM FLOWS

As described in Section III. D, the proposed drainage patterns are depicted in **Figure 2** in **Appendix A**.

The peak flow calculations follow the same assumption used for the existing conditions in Section III.C, where a Tc of 5 min is used for all tributary areas. All peak flows are also assumed to bypass the LID BMPs. A total of four tributary areas are proposed.

The proposed site drainage will be collected and discharged into storm drain mainlines along Mission Avenue and Seagaze Drive. Using tributary area B1 as an example, the peak flow originates as roof runoff at a high point on the roof (node 101) and travels to the downspout (node 102) at 2% slope. The downspout flow then transitions into pipe flow, which then combines with area drain flows on the ground level, bypass the LID BMP, and flows towards the 12" storm drain lateral at node 103. All the other tributary areas follow the same drainage pattern as tributary area B1 and end at their respective final drainage nodes (node 104 and 106).

Peak onsite drainage from the northern portion of the site (area A and B) will be discharged into the two existing 12" storm drain laterals (node 102 and 103) connecting to the 30" mainline along Mission Avenue, whereas peak onsite drainage from the southern portion (area C) will be discharged into the existing 12" storm drain lateral (node 106) connecting to the 18" mainline along Seagaze Avenue.

Drainage from a minor portion of the site perimeter (tributary area S1) is discharged offsite as sheet flow towards the sidewalk.

The proposed peak flow from the site is summarized in Table IV.1.

Table IV.1 Proposed Onsite Runoff

Node	Peak flow, Q_{peak} (cfs)	Area (AC)
103	4.8	0.84
104	2.0	0.35
106	6.9	1.20
Sheet flow towards sidewalk	1.8	0.32
Total	**15.5**	**2.71**

The results indicate a proposed peak flow addition of 6.9cfs to the 30" mainline along Mission Avenue. Proposed peak flow addition to the 18" mainline along Seagaze Drive is 8.4 cfs. Proposed onsite peak discharge towards the sidewalk/street is 1.8cfs.

Overall, the proposed peak discharge from the project is slightly reduced from 16.3cfs to 15.5cfs. See **Appendix B** for detailed hydrology calculations.

B. HYDRAULIC CAPACITY OF DRAINAGE FACILITIES

As discussed in Section IV.A, the proposed peak flow addition to the 30" mainline along Mission Avenue (6.8cfs) is similar to the existing peak flow addition (7.1 cfs). The proposed peak flow addition to the 18" mainline along Seagaze Avenue(6.9cfs) is slightly reduced as compared to existing peak flow addition (8.4 cfs). Therefore, the hydraulic capacity of the existing storm drain mainlines is preserved for the proposed storm drain connections.

The proposed peak site discharge towards the sidewalk/street is increased from 0.8 cfs to 1.8 cfs. Based on the 2014 San Diego County's Hydraulic Design Manual- Figure 2-4, the street capacity along Mission Avenue and Seagaze Drive with flow depth at the top of curb (with a minimum running slope of 3.5%) is 24cfs. Assuming even surface drainage contribution to the north and south, Mission Avenue and Seagaze Drive would be receiving a peak discharge of 0.9cfs from the site, which accounts for 3% of the street capacity. Accordingly, the proposed peak surface discharge from the site is justified by the relatively much greater street capacity.

See **Appendix B** for street capacity calculations.

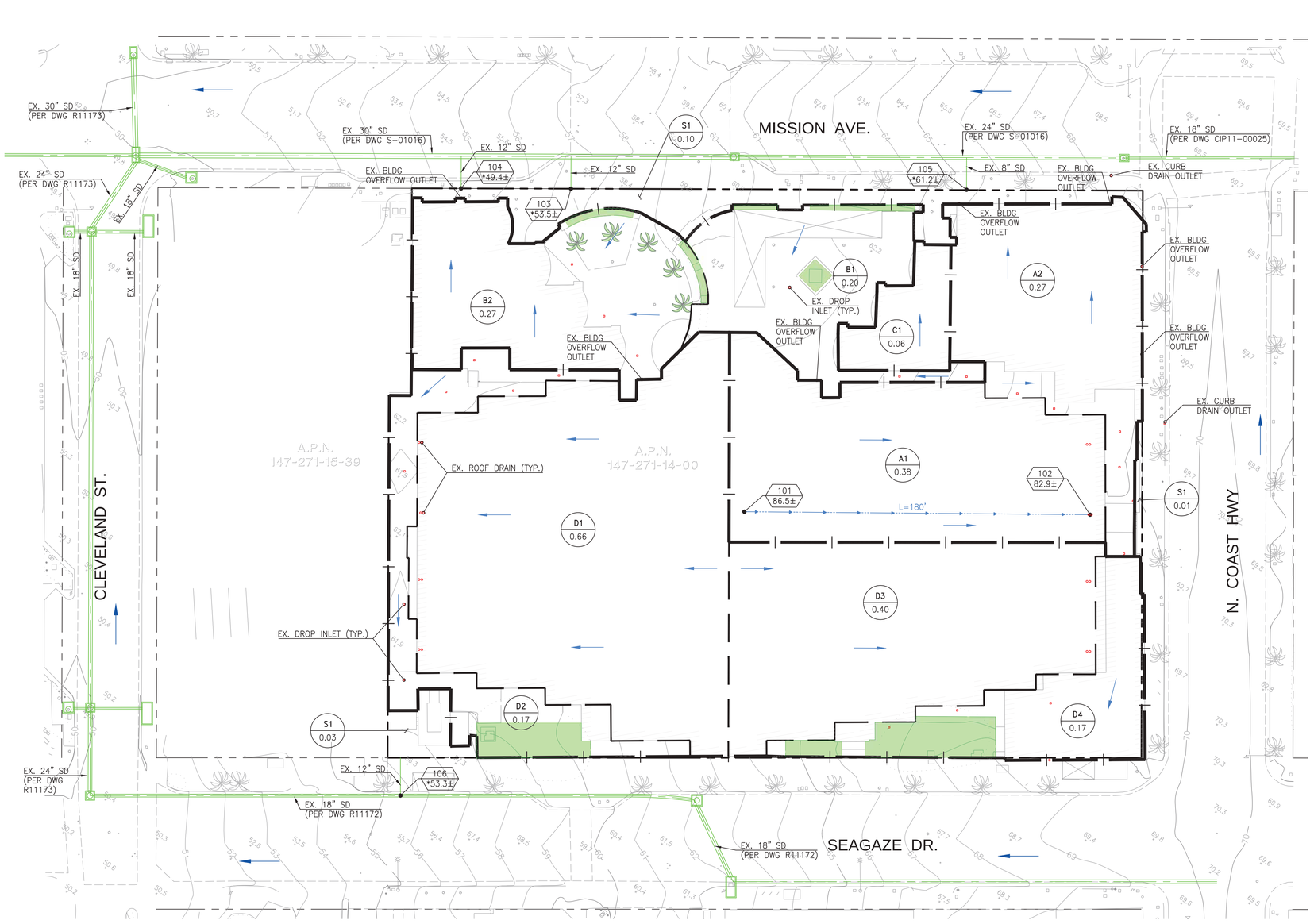
V. CONCLUSION

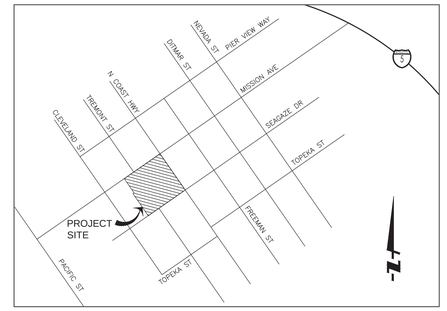
Based upon the analyses completed in this preliminary study, the proposed condition of this project has been designed to closely match the existing condition and adequately convey the 100-year storm flows to ensure flood protection for the onsite areas as well as for the surrounding neighbors, and no adverse impacts to the storm drain system.

VI. REFERENCES

1. County of San Diego Hydrology Manual (June 2003)
2. San Diego County Hydraulic Design Manual (September 2014)

APPENDIX A





VICINITY MAP
NOT TO SCALE

LEGEND

- MAJOR WATERSHED BOUNDARY
- MINOR WATERSHED BOUNDARY
- EXISTING RIGHT OF WAY
- PROPERTY BOUNDARY
- L=270' — SURFACE FLOW PATH LENGTH
- SURFACE FLOW PATH
- 101 / 781.0 / *771.0 — NODE NUMBER, FLOWLINE ELEVATION, *INDICATES INVERT ELEVATION
- A / 0.64 — SUBAREA DESIGNATION, SUBAREA ACREAGE
- DIRECTION OF SURFACE FLOW
- EXISTING STORM DRAIN
- PERVIOUS AREA

DRAINAGE SUMMARY

FINAL NODE DESIGNATION	TRIBUTARY AREA	TOTAL AREA (AC)	100-YR STORM	
			PEAK FLOW (CFS)	T_C (MIN)*
103	A1 & A2	0.65	3.9	5.0
104	B1 & B2	0.47	2.8	5.0
105	C1	0.06	0.4	5.0
106	D1, D2, D3 & D4	1.40	8.4	5.0
TO SIDEWALK**	ΣS1	0.13	0.8	5.0
	TOTAL	2.71	16.3	5.0

* MINIMUM TIME OF CONCENTRATION OF 5 MIN PER 2003 SAN DIEGO COUNTY HYDROLOGY MANUAL IS USED FOR ALL TRIBUTARY AREAS.
** SHEET FLOWS FROM SITE PERIMETER DISCHARGING TOWARDS SIDEWALK.

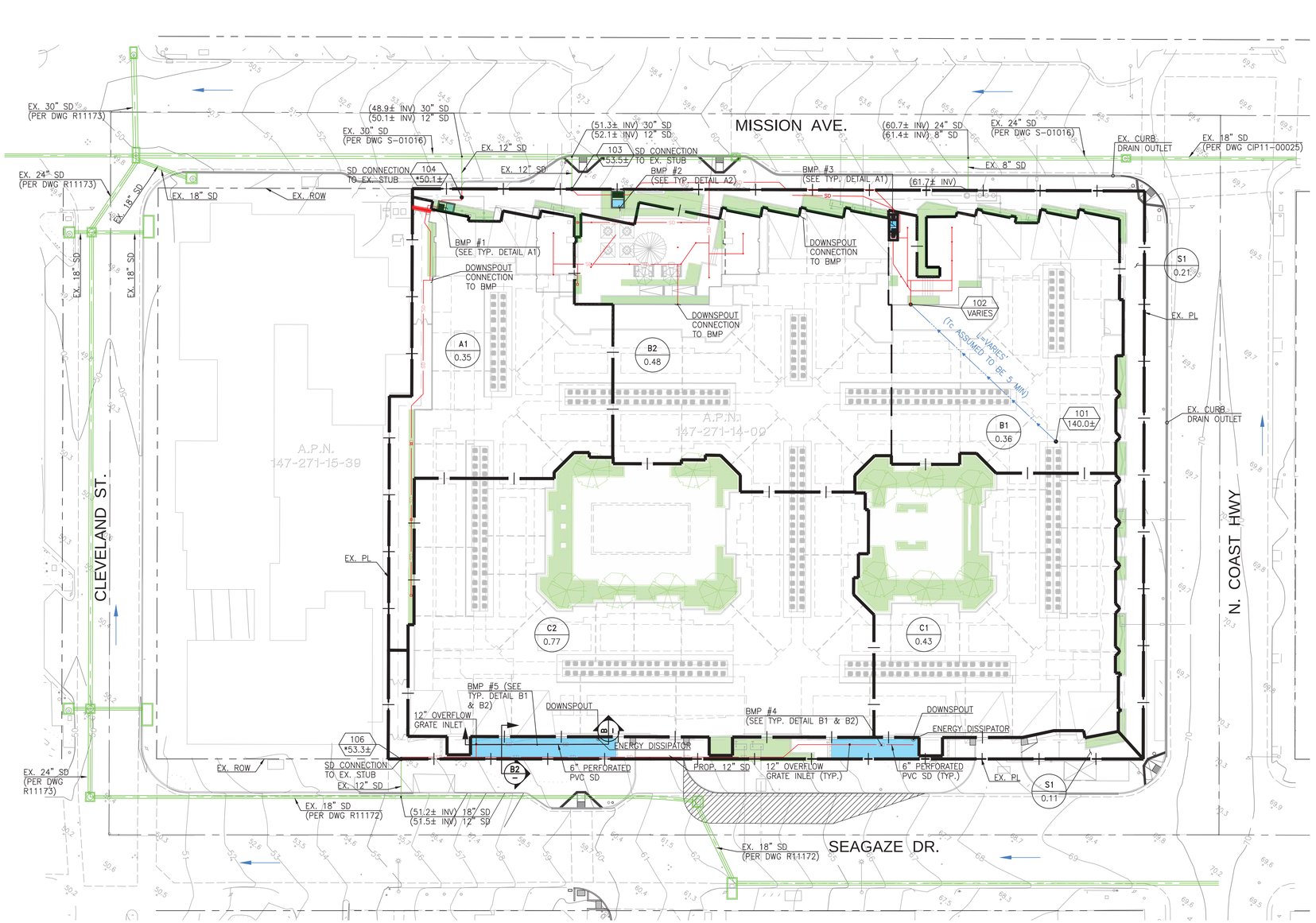
30' 0' 15' 30'
SCALE: 1" = 30'

FIGURE 1: EXISTING CONDITION HYDROLOGY MAP

401 MISSION AVENUE
MIXED-USE
OCEANSIDE, CA

X ENGINEERING & CONSULTING, INC.
6 Hutton Centre Drive, Suite 650
Santa Ana, California 92707
949.522.7100 | xengineeringinc.com

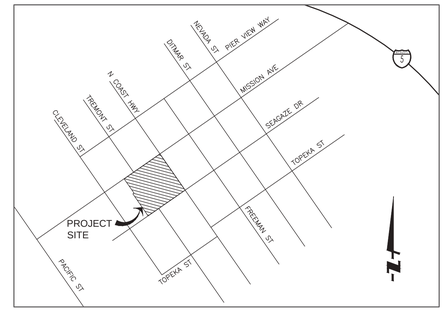
P:\135\002\Reports\Entitlement\Hydrology - Preliminary\Exhibits\135-002_ExHydroMap.dwg Plotted At: January 12, 2024 7:34 PM Last Saved By: Dean.Acre Last Saved At: January 12, 2024 7:33 PM



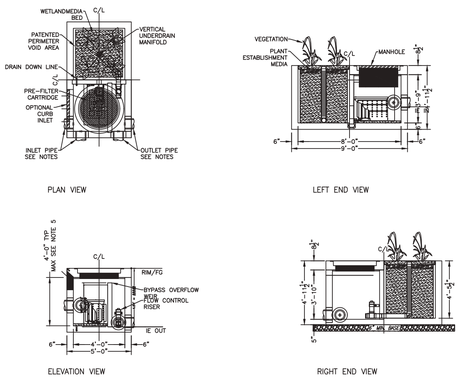
NOTE: ALL ROOF RUNOFF DRAIN TOWARDS LID BMPS.

LEGEND

- MAJOR WATERSHED BOUNDARY
- MINOR WATERSHED BOUNDARY
- EXISTING RIGHT OF WAY
- PROPERTY BOUNDARY
- L=270' — SURFACE FLOW PATH LENGTH
- SURFACE FLOW PATH
- 101 / 781.0 / *771.0 — NODE NUMBER / FLOWLINE ELEVATION / *INDICATES INVERT ELEVATION
- A / 0.64 — SUBAREA DESIGNATION / SUBAREA ACREAGE
- SD — PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED LID BMP
- PERVIOUS AREA

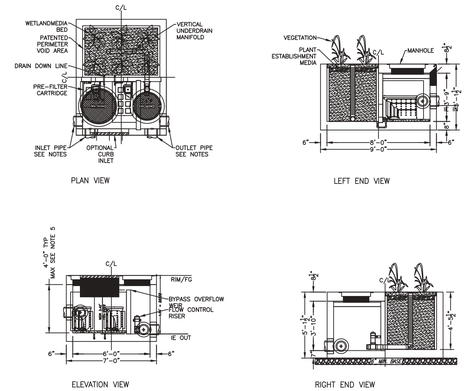


VICINITY MAP
NOT TO SCALE



PROPRIETARY BIOFILTRATION BMP (MWS-L-4-8-V) A1

N.T.S.



PROPRIETARY BIOFILTRATION BMP (MWS-L-6-8-V) A2

N.T.S.

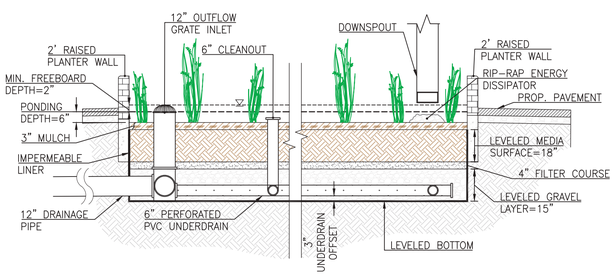
30' 0' 15' 30'
SCALE: 1" = 30'

DRAINAGE SUMMARY

FINAL NODE DESIGNATION	TRIBUTARY AREA	TOTAL AREA (AC)	100-YR STORM	
			PEAK FLOW (CFS)	T_c (MIN)*
103	B1 & B2	0.84	4.8	5.0
104	A1	0.35	2.0	5.0
106	C1 & C2	1.20	6.9	5.0
TO SIDEWALK**	ΣS1	0.32	1.8	5.0
	TOTAL	2.71	15.5	5.0

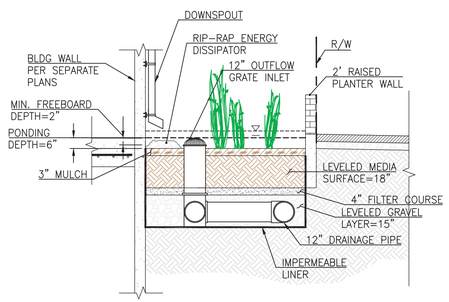
* MINIMUM Tc OF 5 MIN PER 2003 SAN DIEGO COUNTY HYDROLOGY MANUAL IS USED FOR ALL TRIBUTARY AREAS, WHICH IS TYPICAL FOR ROOF RUNOFF.

** SHEET FLOWS FROM ALL AREAS AROUND SITE PERIMETER THAT ARE NOT FEASIBLE TO BE DIRECTED TO THE LID BMPs WILL FLOW TOWARDS THE SIDEWALK.



BIOFILTRATION BMP W/ LINER B1

N.T.S.



BIOFILTRATION BMP W/ LINER B2

N.T.S.

FIGURE 2: PROPOSED CONDITION HYDROLOGY MAP

401 MISSION AVENUE
MIXED-USE
OCEANSIDE, CA

X ENGINEERING & CONSULTING, INC.
6 Hutton Centre Drive, Suite 650
Santa Ana, California 92707
949.522.7100 | xengineeringinc.com

P:\135\002\Reports\Entitlement\Hydrology - Preliminary\Exhibits\135-002_PrePrelimHydrMap.dwg Plotted At: August 27, 2024 4:53 PM Last Saved By: randy.nettig Last Saved At: August 27, 2024 4:51 PM

APPENDIX B

Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS

Land Use		Runoff Coefficient "C"				
			Soil Type			
NRCS Elements	County Elements	% IMPER.	A	B	C	D
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30	0.35
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36	0.41
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42	0.46
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45	0.49
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48	0.52
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54	0.57
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57	0.60
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60	0.63
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69	0.71
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0.77	0.78	0.79
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0.77	0.78	0.79
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0.80	0.81	0.82
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87	0.87

*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, Cp, for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).
DU/A = dwelling units per acre
NRCS = National Resources Conservation Service

$$C = 0.90 \times (\% \text{ Impervious}) + C_p \times (1 - \% \text{ Impervious})$$

Where: C_p = Pervious Coefficient Runoff Value for the soil type (shown in Table 3-1 as Undisturbed Natural Terrain/Permanent Open Space, 0% Impervious). Soil type can be determined from the soil type map provided in Appendix A.

Note that the Initial Time of Concentration should be reflective of the general land-use at the upstream end of a drainage basin. A single lot with an area of two or less acres does not have a significant effect where the drainage basin area is 20 to 600 acres.

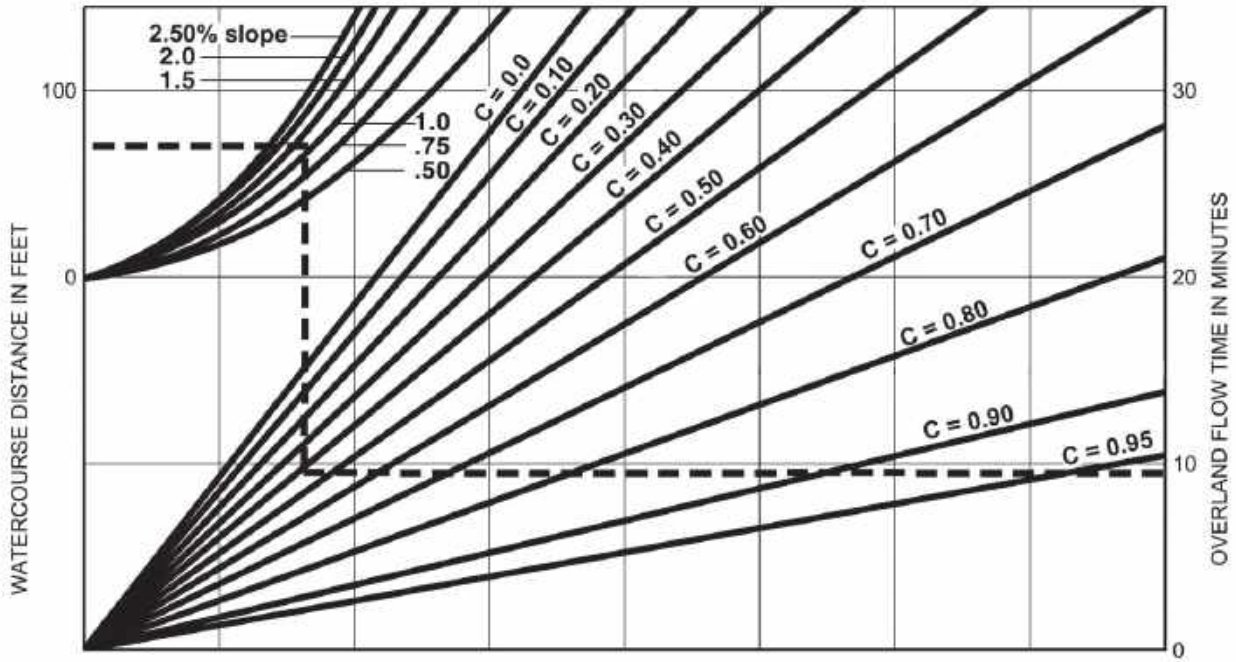
Table 3-2 provides limits of the length (Maximum Length (L_M)) of sheet flow to be used in hydrology studies. Initial T_i values based on average C values for the Land Use Element are also included. These values can be used in planning and design applications as described below. Exceptions may be approved by the "Regulating Agency" when submitted with a detailed study.

Table 3-2

MAXIMUM OVERLAND FLOW LENGTH (L_M) & INITIAL TIME OF CONCENTRATION (T_i)

Element*	DU/ Acre	.5%		1%		2%		3%		5%		10%	
		L_M	T_i	L_M	T_i	L_M	T_i	L_M	T_i	L_M	T_i	L_M	T_i
Natural		50	13.2	70	12.5	85	10.9	100	10.3	100	8.7	100	6.9
LDR	1	50	12.2	70	11.5	85	10.0	100	9.5	100	8.0	100	6.4
LDR	2	50	11.3	70	10.5	85	9.2	100	8.8	100	7.4	100	5.8
LDR	2.9	50	10.7	70	10.0	85	8.8	95	8.1	100	7.0	100	5.6
MDR	4.3	50	10.2	70	9.6	80	8.1	95	7.8	100	6.7	100	5.3
MDR	7.3	50	9.2	65	8.4	80	7.4	95	7.0	100	6.0	100	4.8
MDR	10.9	50	8.7	65	7.9	80	6.9	90	6.4	100	5.7	100	4.5
MDR	14.5	50	8.2	65	7.4	80	6.5	90	6.0	100	5.4	100	4.3
HDR	24	50	6.7	65	6.1	75	5.1	90	4.9	95	4.3	100	3.5
HDR	43	50	5.3	65	4.7	75	4.0	85	3.8	95	3.4	100	2.7
N. Com		50	5.3	60	4.5	75	4.0	85	3.8	95	3.4	100	2.7
G. Com		50	4.7	60	4.1	75	3.6	85	3.4	90	2.9	100	2.4
O.P./Com		50	4.2	60	3.7	70	3.1	80	2.9	90	2.6	100	2.2
Limited I.		50	4.2	60	3.7	70	3.1	80	2.9	90	2.6	100	2.2
General I.		50	3.7	60	3.2	70	2.7	80	2.6	90	2.3	100	1.9

*See Table 3-1 for more detailed description



EXAMPLE:

Given: Watercourse Distance (D) = 70 Feet
Slope (s) = 1.3%
Runoff Coefficient (C) = 0.41
Overland Flow Time (T) = 9.5 Minutes

$$T = \frac{1.8\,(1.1-C)\sqrt{D}}{\sqrt[3]{s}}$$

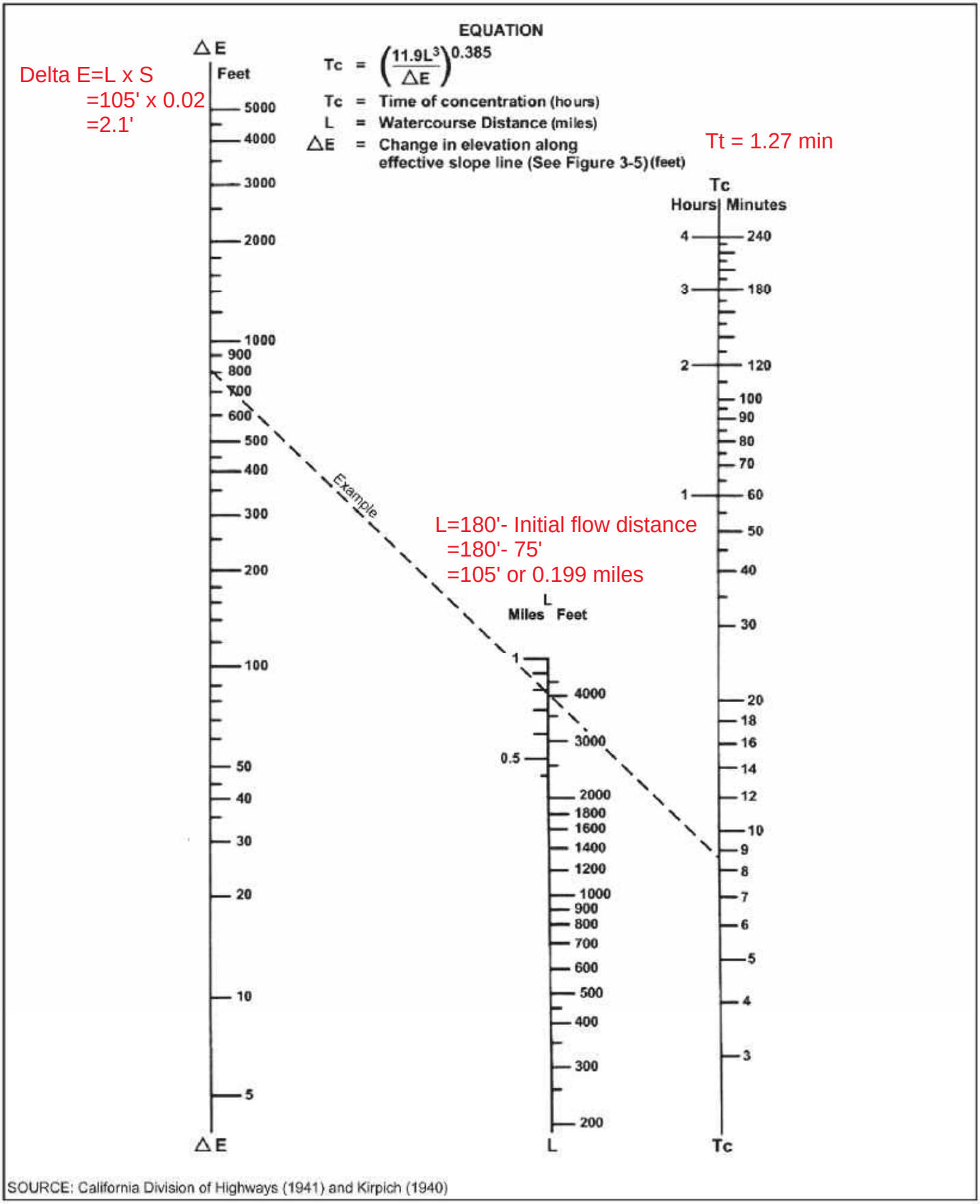
C~0.88 for Existing site condition, HSG A
D=75', S=2
Ti=2.72 min (~ 3.6min in Table 3.2)

SOURCE: Airport Drainage, Federal Aviation Administration, 1965

FIGURE

Rational Formula - Overland Time of Flow Nomograph

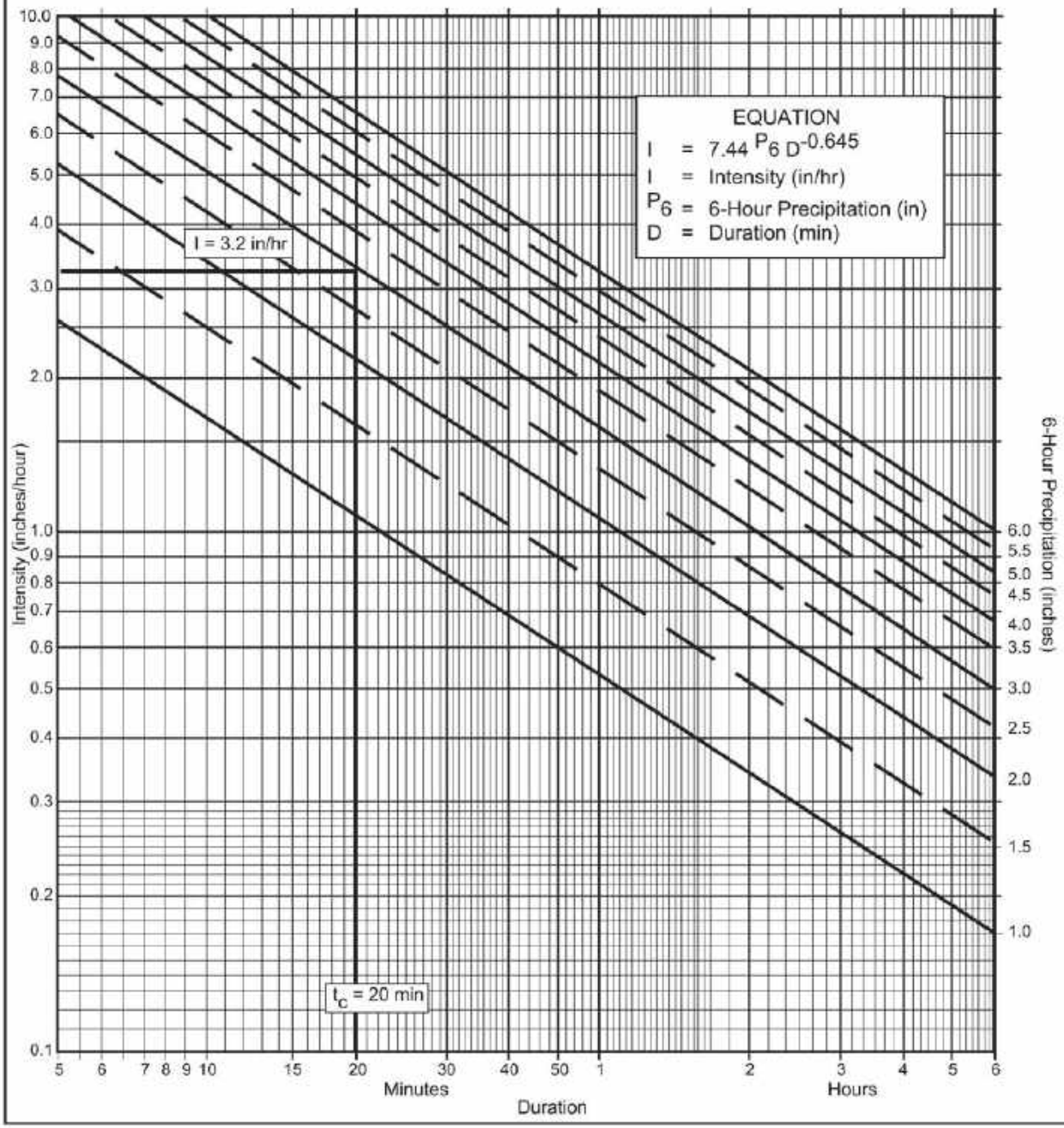
3-3



SOURCE: California Division of Highways (1941) and Kirpich (1940)

FIGURE 3-4

Nomograph for Determination of
Time of Concentration (Tc) or Travel Time (Tt) for Natural Watersheds



Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Ti= 2.72 min
Tt = 1.27 min
Tc =Ti + Tt = 3.99 min
Minimum Tc= 5 min

Application Form:

(a) Selected frequency 50 year

(b) P_6 = 2.6 in., P_{24} = 4.5 in., $\frac{P_6}{P_{24}}$ = 58 %(2)

(c) Adjusted $P_6^{(2)}$ = 2.6 in.

(d) t_x = 5 min.

(e) I = 6.85 in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Example

FIGURE
3-2

Rational method Calc

100-yr storm,P6	2.6 inches
100-yr storm, P24	4.5 inches
P6/P24	58%
Adjusted 100-yr storm, P6	2.6 inches
Time of Concentration	5 min
Rainfall intensity, i	6.85 in/hr
Existing development type	General commercial
Proposed development type	Mixed-use development
Dominant HSG	A
Runoff coefficient at 0% imperviousness, C_p	0.2 unitless

Existing Condition

Drainage area ID	Area, A (ac)	Impervious area portion, Imp	Runoff coefficient, C= 0.9 x Imp + C_p (1- Imp)	Rainfall Intensity, i (in/hr)	Peak runoff, Q= C x i x A (cfs)	Node Designation	Total Q (cfs)	Total area (ac)
A1	0.38	0.97	0.88	6.85	2.29			
A2	0.27	0.97	0.88	6.85	1.63	103	3.9	0.65
B1	0.20	0.97	0.88	6.85	1.20			
B2	0.27	0.97	0.88	6.85	1.63	104	2.8	0.47
C1	0.06	0.97	0.88	6.85	0.36	105	0.4	0.06
D1	0.66	0.97	0.88	6.85	3.97			
D2	0.17	0.97	0.88	6.85	1.02			
D3	0.40	0.97	0.88	6.85	2.43			
D4	0.17	0.97	0.88	6.85	1.00	106	8.4	1.40
S1	0.13	0.97	0.88	6.85	0.78	To sidewalk	0.8	0.13
Total	**2.71**						**16.3**	**2.71**

Proposed Condition

Drainage area ID	Area, A (ac)	Impervious area portion, Imp	Runoff coefficient, C= 0.9 x Imp + C_p (1- Imp)	Rainfall Intensity, i (in/hr)	Peak runoff, Q= C x i x A (cfs)	Node Designation	Total Q (cfs)	Total area (ac)
A1	0.35	0.91	0.84	6.85	2.01	104	2.0	0.35
B1	0.48	0.91	0.84	6.85	2.75			
B2	0.36	0.91	0.84	6.85	2.06	103	4.8	0.84
C1	0.43	0.91	0.84	6.85	2.47			
C2	0.77	0.91	0.84	6.85	4.41	106	6.9	1.20
S1	0.32	0.91	0.84	6.85	1.83	To sidewalk	1.8	0.32
Total	**2.71**						**15.5**	**2.71**

Worksheet for Ex. 30" Mainline

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.040 ft/ft
Normal Depth	30.0 in
Diameter	30.0 in

Results	
Discharge	82.03 cfs
Flow Area	4.9 ft²
Wetted Perimeter	7.9 ft
Hydraulic Radius	7.5 in
Top Width	0.00 ft
Critical Depth	29.6 in
Percent Full	100.0 %
Critical Slope	0.036 ft/ft
Velocity	16.71 ft/s
Velocity Head	4.34 ft
Specific Energy	6.84 ft
Froude Number	(N/A)
Maximum Discharge	88.24 cfs
Discharge Full	82.03 cfs
Slope Full	0.040 ft/ft
Flow Type	Undefined

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	30.0 in
Critical Depth	29.6 in
Channel Slope	0.040 ft/ft
Critical Slope	0.036 ft/ft

Worksheet for Ex. 24" Mainline

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.048 ft/ft
Normal Depth	24.0 in
Diameter	24.0 in

Results	
Discharge	49.35 cfs
Flow Area	3.1 ft²
Wetted Perimeter	6.3 ft
Hydraulic Radius	6.0 in
Top Width	0.00 ft
Critical Depth	23.7 in
Percent Full	100.0 %
Critical Slope	0.044 ft/ft
Velocity	15.71 ft/s
Velocity Head	3.84 ft
Specific Energy	5.84 ft
Froude Number	(N/A)
Maximum Discharge	53.09 cfs
Discharge Full	49.35 cfs
Slope Full	0.048 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	24.0 in
Critical Depth	23.7 in
Channel Slope	0.048 ft/ft
Critical Slope	0.044 ft/ft

Worksheet for Ex. 18" Mainline

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.032 ft/ft
Normal Depth	18.0 in
Diameter	18.0 in

Results	
Discharge	18.73 cfs
Flow Area	1.8 ft²
Wetted Perimeter	4.7 ft
Hydraulic Radius	4.5 in
Top Width	0.00 ft
Critical Depth	17.5 in
Percent Full	100.0 %
Critical Slope	0.028 ft/ft
Velocity	10.60 ft/s
Velocity Head	1.75 ft
Specific Energy	3.25 ft
Froude Number	(N/A)
Maximum Discharge	20.15 cfs
Discharge Full	18.73 cfs
Slope Full	0.032 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	18.0 in
Critical Depth	17.5 in
Channel Slope	0.032 ft/ft
Critical Slope	0.028 ft/ft

Worksheet for Ex. 12" Lateral (Node 103)

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.085 ft/ft
Normal Depth	12.0 in
Diameter	12.0 in

Results	
Discharge	10.39 cfs
Flow Area	0.8 ft²
Wetted Perimeter	3.1 ft
Hydraulic Radius	3.0 in
Top Width	0.00 ft
Critical Depth	11.9 in
Percent Full	100.0 %
Critical Slope	0.080 ft/ft
Velocity	13.22 ft/s
Velocity Head	2.72 ft
Specific Energy	3.72 ft
Froude Number	(N/A)
Maximum Discharge	11.17 cfs
Discharge Full	10.39 cfs
Slope Full	0.085 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	12.0 in
Critical Depth	11.9 in
Channel Slope	0.085 ft/ft
Critical Slope	0.080 ft/ft

Worksheet for Ex. 12" Lateral (Node 104)

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.020 ft/ft
Normal Depth	12.0 in
Diameter	12.0 in

Results	
Discharge	5.04 cfs
Flow Area	0.8 ft²
Wetted Perimeter	3.1 ft
Hydraulic Radius	3.0 in
Top Width	0.00 ft
Critical Depth	11.0 in
Percent Full	100.0 %
Critical Slope	0.017 ft/ft
Velocity	6.41 ft/s
Velocity Head	0.64 ft
Specific Energy	1.64 ft
Froude Number	(N/A)
Maximum Discharge	5.42 cfs
Discharge Full	5.04 cfs
Slope Full	0.020 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	12.0 in
Critical Depth	11.0 in
Channel Slope	0.020 ft/ft
Critical Slope	0.017 ft/ft

Worksheet for Ex. 12" Lateral (Node 106)

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.106 ft/ft
Normal Depth	12.0 in
Diameter	12.0 in

Results	
Discharge	11.60 cfs
Flow Area	0.8 ft²
Wetted Perimeter	3.1 ft
Hydraulic Radius	3.0 in
Top Width	0.00 ft
Critical Depth	12.0 in
Percent Full	100.0 %
Critical Slope	0.101 ft/ft
Velocity	14.77 ft/s
Velocity Head	3.39 ft
Specific Energy	4.39 ft
Froude Number	(N/A)
Maximum Discharge	12.48 cfs
Discharge Full	11.60 cfs
Slope Full	0.106 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	12.0 in
Critical Depth	12.0 in
Channel Slope	0.106 ft/ft
Critical Slope	0.101 ft/ft

Figure 2-4

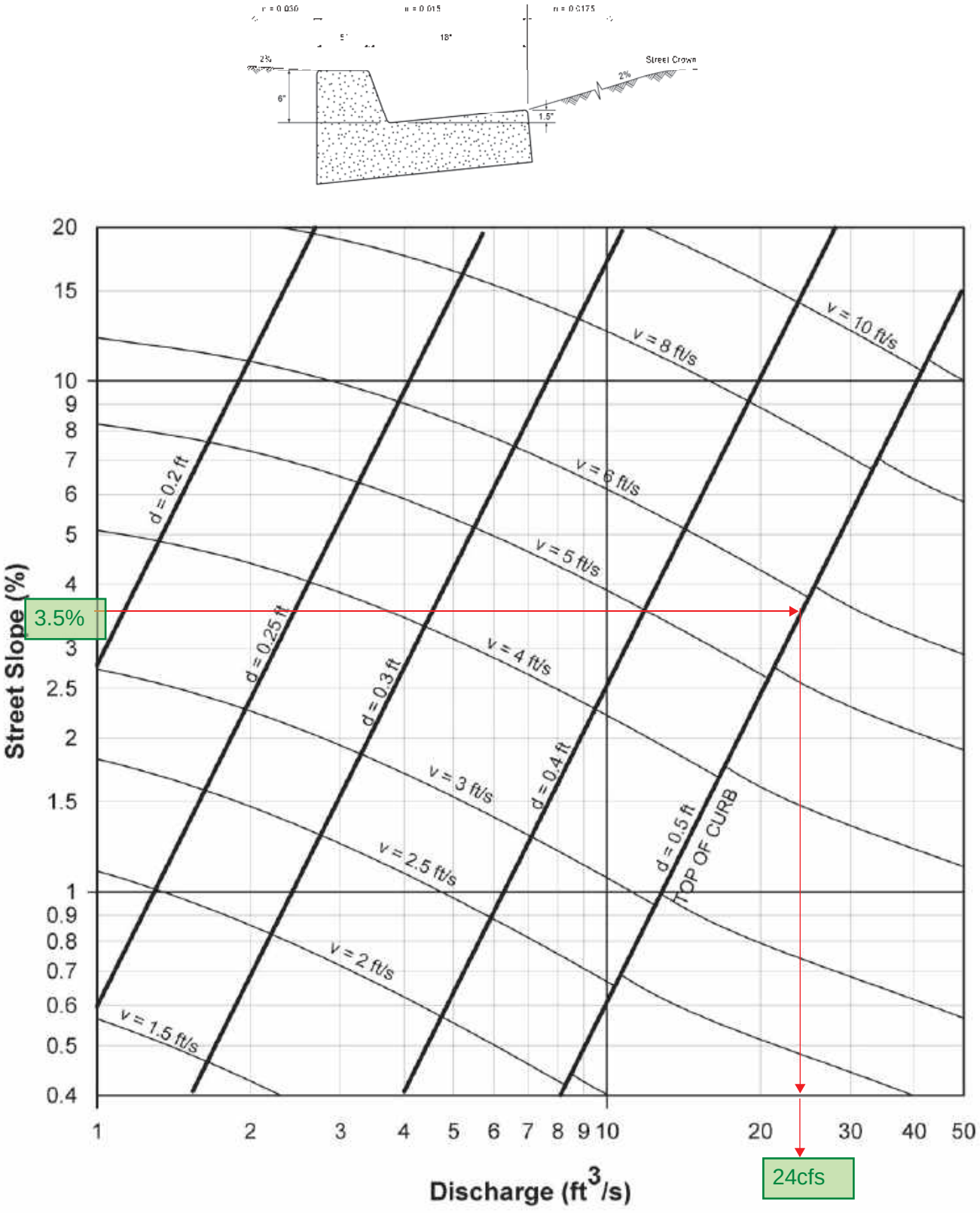


Figure 2-4 6-inch Gutter and Roadway Discharge-Velocity Chart

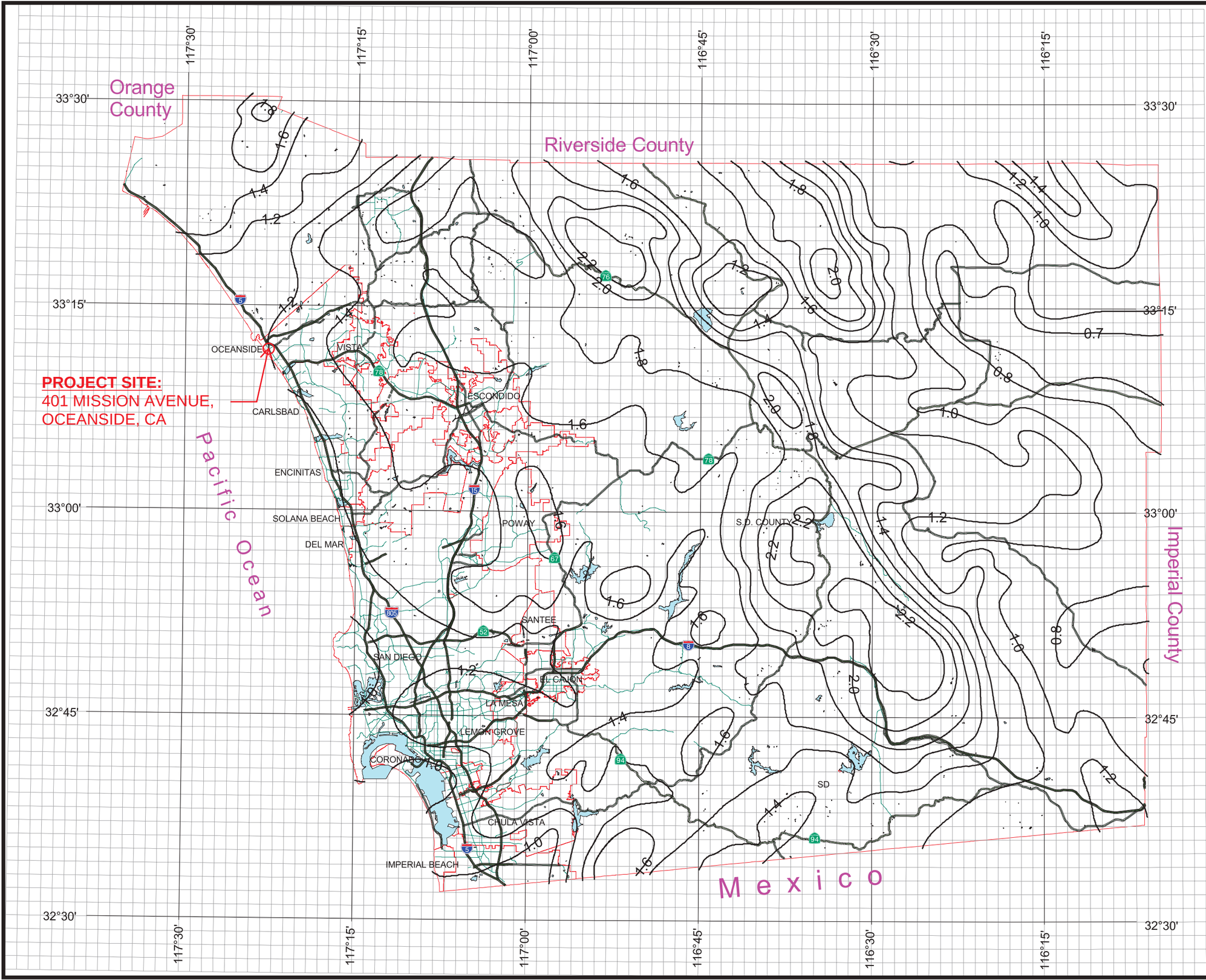
APPENDIX C

County of San Diego Hydrology Manual

Rainfall Isopluvials

2 Year Rainfall Event - 6 Hours

Isopluvial (inches)



DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
We Have San Diego Covered!

N
W E
S

3 0 3 Miles

THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
Copyright SanGIS. All Rights Reserved.

This products may contain information from the SANDAG Regional Information System which cannot be reproduced without the written permission of SANDAG.

This product may contain information which has been reproduced with permission granted by Thomas Brothers Maps.

County of San Diego Hydrology Manual

Rainfall Isopluvials

2 Year Rainfall Event - 24 Hours

Isopluvial (inches)

PROJECT SITE:
401 MISSION AVENUE,
OCEANSIDE, CA

Orange County

Riverside County

Imperial County

Pacific Ocean

Mexico

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
SD
CHULA VISTA
IMPERIAL BEACH

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
We Have San Diego Covered!

N W E S

3 0 3 Miles

THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
Copyright SanGIS. All Rights Reserved.

This products may contain information from the SANDAG Regional Information System which cannot be reproduced without the written permission of SANDAG.

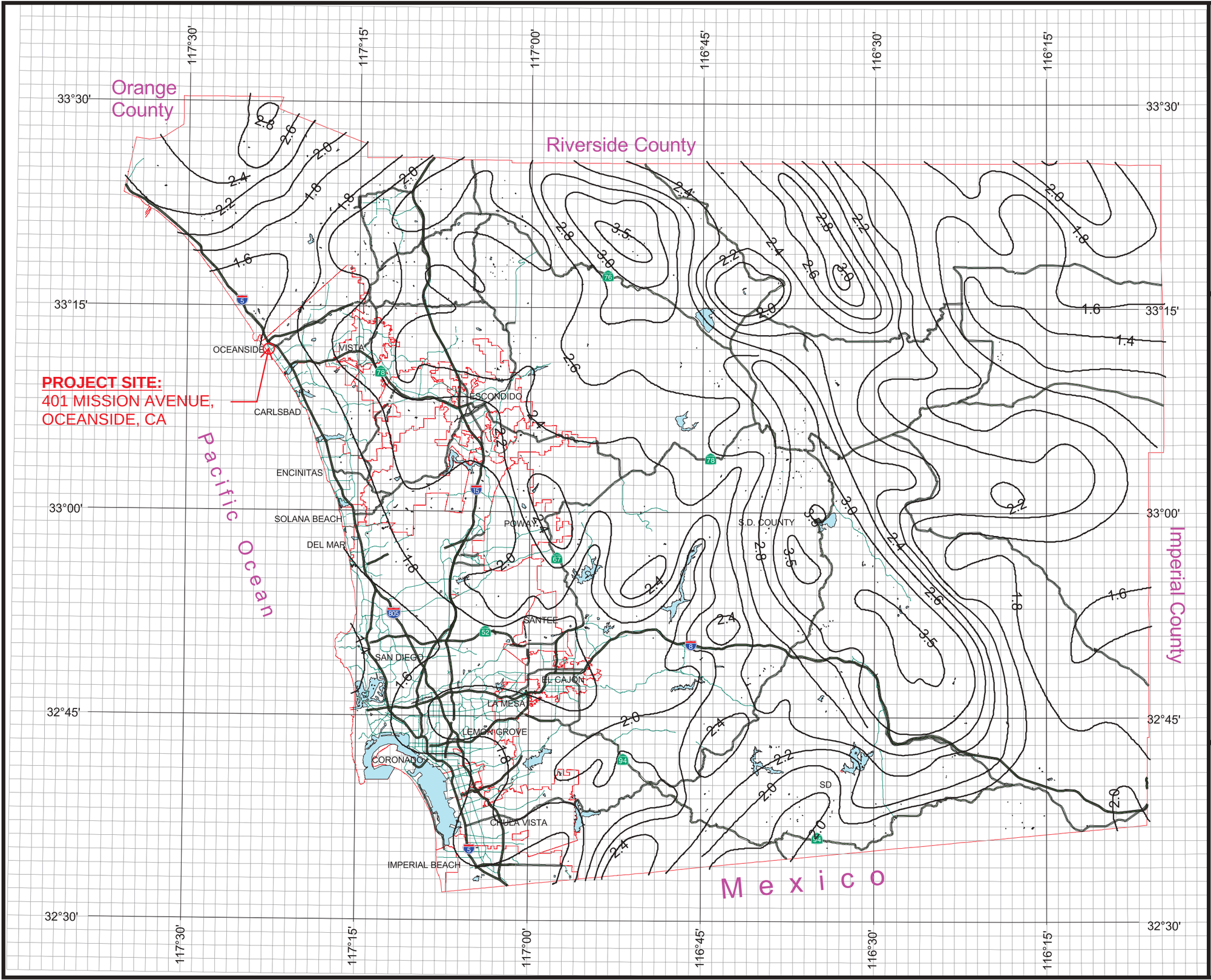
This product may contain information which has been reproduced with permission granted by Thomas Brothers Maps.

County of San Diego Hydrology Manual

Rainfall Isopluvials

10 Year Rainfall Event - 6 Hours

Isopluvial (inches)



DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
We Have San Diego Covered!

N
W E
S

3 0 3 Miles

THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
Copyright SanGIS. All Rights Reserved.

This products may contain information from the SANDAG Regional Information System which cannot be reproduced without the written permission of SANDAG.

This product may contain information which has been reproduced with permission granted by Thomas Brothers Maps.

County of San Diego Hydrology Manual

Rainfall Isopluvials

10 Year Rainfall Event - 24 Hours

Isopluvial (inches)

PROJECT SITE:
401 MISSION AVENUE,
OCEANSIDE, CA

Orange County

Riverside County

Imperial County

Pacific Ocean

Mexico

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
CHULA VISTA
IMPERIAL BEACH
SD

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
We Have San Diego Covered!

THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
Copyright SanGIS. All Rights Reserved.

This products may contain information from the SANDAG Regional Information System which cannot be reproduced without the written permission of SANDAG.

This product may contain information which has been reproduced with permission granted by Thomas Brothers Maps.

N W E S

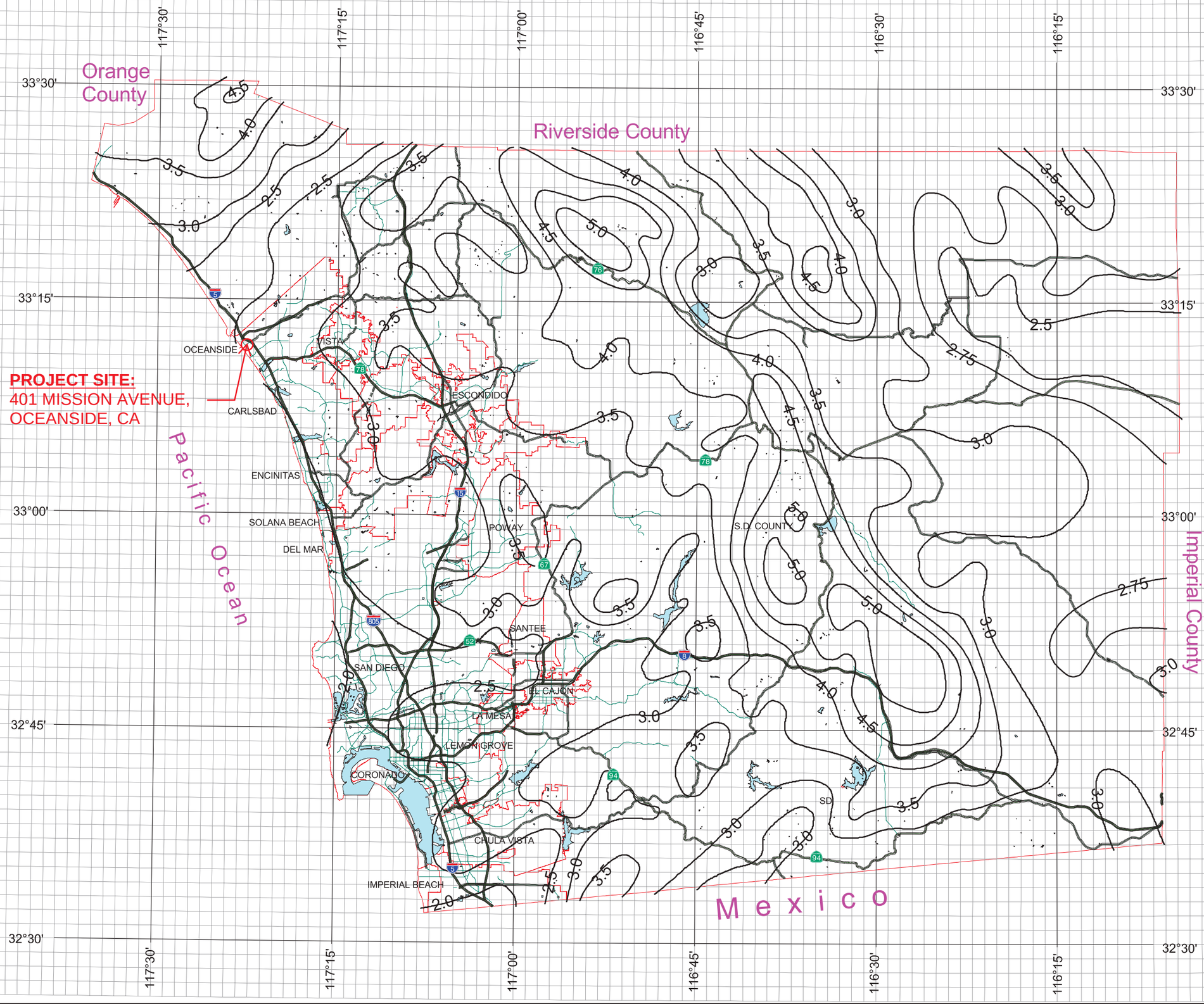
3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

Isopluvial (inches)



DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
We Have San Diego Covered!

N
W E
S

THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
Copyright SanGIS. All Rights Reserved.

This products may contain information from the SANDAG Regional Information System which cannot be reproduced without the written permission of SANDAG.

This product may contain information which has been reproduced with permission granted by Thomas Brothers Maps.

3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 24 Hours

Isopluvial (inches)

PROJECT SITE:
401 MISSION AVENUE,
OCEANSIDE, CA

Orange County

Riverside County

Imperial County

Mexico

Pacific Ocean

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
SD
CHULA VISTA
IMPERIAL BEACH

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
We Have San Diego Covered!

THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
Copyright SanGIS. All Rights Reserved.

This products may contain information from the SANDAG Regional Information System which cannot be reproduced without the written permission of SANDAG.

This product may contain information which has been reproduced with permission granted by Thomas Brothers Maps.

N W E S

3 0 3 Miles

Geotechnical
Environmental
Hydrogeology
Material Testing
Construction Inspection

September 22, 2022

Project No. 22-7517
LMWP-005585

Mr. Ernie Rivas Company
Ocean Place Retail VII, LLC
520 Newport Center Drive, Suite 780
Newport Beach, California 92660

Subject: Preliminary Geotechnical Investigation Report, Mixed Use, 401 Mission Avenue, Oceanside, California 92054 (APN 1472711400).

Mr. Rivas,

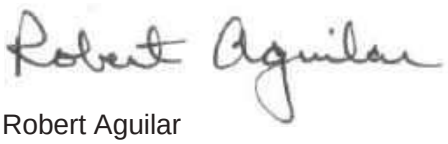
In accordance with your request and authorization, TGR Geotechnical, Inc. (TGR) has performed a geotechnical investigation for the proposed mixed-use development at 401 Mission Avenue in the city of Oceanside, California. The subject site is an existing Regal Cinema movie theater with associated restaurants and it is our understanding that the proposed development will consist of demolition of the existing buildings and construction of an eight story building which includes two levels of above-grade parking and one level of subterranean parking with associated amenities, recreation areas and courtyards. This report presents the findings of our geotechnical investigation, including site seismicity, settlement potential, infiltration rates and provides geotechnical design recommendations for the proposed development. The work was performed in general accordance with our proposal dated June 27, 2022.

Based on our investigation the proposed development is feasible from a geotechnical viewpoint provided the recommendations presented in this report are implemented during design and construction.

If you have any questions regarding this report, please do not hesitate to contact this office. We appreciate this opportunity to be of service.

Respectfully submitted,

TGR GEOTECHNICAL, INC.



Robert Aguilar
Staff Engineer



Sanjay Govil, PhD, PE, GE 2382
Principal Geotechnical Engineer

Distribution: (1) Addressee

TGR GEOTECHNICAL
DBE & 8(a) firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

ATTACHMENTS

Plate 1A – Boring Location Map
Plate 1B – Cross Section A-A'

Figure 1 – Site Location Map
Figure 2 – Regional Geology Map
Figure 3 – County Liquefaction Hazard Map
Figure 4 – County Landslide Hazard Map
Figure 5 – Regional Fault Map

Table 1 – Percolation Test Worksheet

Appendix A – References
Appendix B – Log of Borings
Appendix C – Laboratory Testing Procedures and Results
Appendix D – Site Seismicity

INTRODUCTION

Site Description and Proposed Project Development

The subject site is located on the southern corner of Mission Avenue and South Coast Highway in the city of Oceanside, California (Figure 1). The subject site is an existing Regal Cinemas movie theater with associated restaurants and it is our understanding that the proposed development will consist of demolition of the existing buildings and construction of an eight story building which includes two levels of above-grade parking and one level of subterranean parking with associated amenities, recreation areas and courtyards. No grading plans were available at the time of this report. Based on the conceptual site plan, one level of subterranean parking will be located approximately 15 feet below existing grade and the proposed building will be approximately 75 feet above existing grade. No column loads were available at the time of this report, however we have assumed column loads will be 800 kips or less.

Scope of Work

The scope of work for this geotechnical investigation included the following:

- Site reconnaissance to assess current site conditions, mark boring locations and call Dig-Alert for utility clearance.
- GPR utility scanning at the proposed boring locations by Inspection Resources prior to drilling.
- Obtain drilling permit from the County of San Diego.
- Review of readily available previous geotechnical investigation reports for the subject site and adjacent properties.
- Sampling and logging three (3) borings utilizing a limited access hollow stem drill rig to approximate depths ranging from 10.25 to 25.5 feet at the subject site to evaluate subsurface soil conditions. The borings were backfilled with Portland cement grout and surface patched with rapid set concrete.
- Percolation testing at one (1) location at a depth of 15 to 25.5 feet below existing grade. The percolation testing was performed in general accordance with the County of San Diego guidelines.
- All soil cuttings were drummed and disposed by Belshire in coordination with Regal Cinema staff.
- Laboratory testing of selected samples to include in-situ moisture and dry density, maximum dry density and optimum moisture content, shear, consolidation, passing No. 200 sieve and corrosion series.
- Engineering analysis including infiltration rates, site seismicity, seismic settlement, foundation design, retaining wall design, pavement section and soils engineering/earthwork with respect to the suitability of the proposed development.
- Preparation of this report summarizing current subsurface soil conditions, findings, and presenting our recommendations for the proposed development.

Field Investigation

Field exploration was performed on August 24th, 2022 by members from our firm who logged the borings and obtained representative samples, which were subsequently transported to the laboratory

for further review and testing. The approximate locations of the borings are indicated on the enclosed Boring Location Map (Plate 1A).

The subsurface conditions were explored by drilling, sampling, and logging three (3) borings with a limited access track rig equipped with a CME-75 hollow stem auger drill. Borings B-1 and B-3 were advanced to approximate depths of 10.25 and 12 feet, respectively, before encountering refusal on large cobbles. Boring B-2 was advanced to an approximate depth of 25.5 feet below existing grade. Subsequent to drilling, boring B-2 was converted into a percolation test boring and percolation testing was performed in general accordance with County of San Diego guidelines. The log of borings together with an explanation of symbols used are given in Appendix B.

Soil cuttings from all borings were drummed, borings backfilled with Portland cement grout and surface repaired with rapid set concrete. The cuttings were placed in one (1) 55-gallon drum and were disposed by Belshire in coordination with Regal Cinema staff.

The limited access track rig was equipped with a sampling apparatus to allow for recovery of driven modified California Ring Sampler (CRS), 3-inch outside diameter, and 2.42-inch inside diameter and SPT samples.

The samples were driven using an automatic 140-pound hammer falling freely from a height of 30 inches. The blow counts for CRS were converted to equivalent SPT blow counts utilizing a factor of 0.65. Soil descriptions were entered on the logs in general accordance with the Unified Soil Classification System (USCS). Driven samples and bulk samples of the earth materials encountered at selected intervals were recovered from the borings. The locations and depths of the soil samples recovered are indicated on the boring logs in Appendix B.

Literature Review

A previous Geotechnical Investigation was performed by South California Geotechnical, Inc. (2002) for the property directly adjacent to the subject site to the west. The purpose of the report was to provide geotechnical recommendations for a six-story residential/office building with two levels of subterranean parking. The investigation consisted of six (6) exploratory borings to depths ranging from approximately 17 feet to 54.5 feet below existing grade. Fill was encountered from depths ranging from 0.5 feet to 6.5 feet below existing grade, underlain by terrace deposits to approximately 54.5 feet below existing grade. The terrace deposits in the upper 9.5 to 13 feet consisted of medium dense to dense reddish brown, fine grained sands and from 13 feet to 54.5 feet the terrace deposits consisted of sand, gravel and silt with increased gravel content with increased depth. Groundwater was encountered at a depth of approximately 43 feet below ground surface. Based on the subsurface investigation South California Geotechnical, Inc. determined the seismic site class to be Site Class “C”.

Laboratory Testing

Laboratory tests were performed on representative samples to verify the field classification of the recovered samples and to evaluate the geotechnical properties of the subsurface soils. The following tests were performed:

- In-situ Moisture Content (ASTM D2216) and Dry Density (ASTM D7263);
- Maximum Dry Density and Optimum Moisture Content (ASTM D1557);
- Direct Shear Strength (ASTM D3080);
- Consolidation (ASTM D2435);

- Passing No. 200 Sieve (ASTM D1140);
- Corrosion series:
    1. Soluble Sulfate (CAL.417A);
    2. Soluble Chlorides (CAL.422);
    3. Minimum Resistivity (CAL.643); and
    4. pH (CAL 747)

Laboratory tests for geotechnical characteristics were performed in general accordance with the ASTM procedures. The results of the in-situ moisture content and density tests are shown on the borings logs. The results of other laboratory tests and laboratory test results are presented in Appendix C.

Percolation Testing

Field percolation testing was performed in general accordance with the with the City of Oceanside BMP Design Manal For Permanent Site Design, Stormwater Treatment and Hydromodification Management (2022).

Boring B-2 was converted to field percolation test wells by placing approximately two inches of gravel at the bottom of the borehole, installation of two-inch diameter PVC pipes and placement of gravel in the annulus between the borehole and the PVC pipe to hold it securely in place. Infiltration test rates were determined utilizing the referenced City of Oceanside guidelines. A gravel factor of 0.54 was used in the calculations to account for the volume of water reduction from the gravel in the annular space of the boring. Results of the infiltration testing are presented in Table 1 - Percolation Test Worksheet and in the table below:

Test Location	Test Depth (feet)	Infiltration Rate (inches/hour)
B-2	15 – 25.5	0.01

Based on the percolation test results and the referenced guidelines, stormwater infiltration is not recommended at the subject site from a geotechnical standpoint.

GEOTECHNICAL FINDINGS

Geology

Regional Geologic Setting

The project site is located in the northeast corner of the Oceanside 7.5-minute quadrangle, San Diego County, California. Per the Geologic Map of the Oceanside 30x60-minute Quadrangle, California (Kennedy, 2007), the subject site is underlain by old paralic deposits, consisting of silt, sand and cobbles. Figure 2 presents the Regional Geology Map.

Earth Units

Based on our subsurface investigation, the subject site is generally underlain by approximately 5 to 6 feet of fill consisting of reddish-brown to brown fine-grained silty sand in a moist condition. This fill is not considered suitable for the support of structures or structural fill. The silty sand is underlain by approximately 5 feet of old paralic deposits consisting of reddish-brown fine-grained sand, underlain by old paralic deposits consisting of very hard silt, sand and gravel to an approximate depth of 25.5 feet below existing grade, the maximum depth explored. Detailed descriptions of the earth units encountered in our borings are presented in the log of the borings. (Appendix B)

Groundwater

Subsurface water was not encountered to a depth of approximately 25.5 feet below existing grade during the subsurface exploration.

Based on our review of USGS groundwater levels for the nation data for groundwater wells nearest to the subject site, the historic high groundwater was recorded at 20 feet below existing grade in October 1965 (USGS 331217117211601 011S005W13Q003S). This groundwater well is located approximately 1.5 miles to the northeast of the subject site.

Per the geotechnical report by Southern California Geotechnical (2002) for the property directly adjacent to the west of the subject site, groundwater was encountered at a depth of approximately 43 feet below existing grade in 2002.

Seasonal and long-term fluctuations in the groundwater may occur as a result of variations in subsurface conditions, rainfall, run-off conditions and other factors. Therefore, variations from our observations may occur.

Static groundwater is not anticipated to adversely impact development.

Expansive Soil

Onsite soils are granular in nature, correlating to a “very low” expansion potential. The recommendations provided in this report account for the expansion potential of the onsite soils.

Hydrocollapse

Laboratory testing indicates near surface soils undergo approximately 0.1% to 1% hydrocollapse when inundated under load, correlating to a “very low to low” potential for hydrocollapse. The recommendations in this report account for the hydro collapse potential of near surface soils.

Cement Type and Corrosion

Based on laboratory testing concrete used should be designed in accordance with the provisions of ACI 318-14, Chapter 19 for Exposure Class S0: Cement with a minimum unconfined compressive strength of 2,500 psi, and for Exposure Class C1 (Moderate) – Concrete exposed to moisture but not a significant source of chlorides, per ACI 318-14 Table 19.3.1.1.

Corrosion tests indicate a moderate corrosion potential for ferrous metals exposed to site soils.

TGR does not practice corrosion engineering. If needed, a qualified specialist should review the site conditions and evaluate the corrosion potential of the site soil to the proposed improvements and to provide the appropriate corrosion mitigations for the project.

Seismic Review

Faulting and Seismicity

The subject site, like the rest of Southern California, is located within a seismically active region as a result of being located near the active margin between the North American and Pacific tectonic plates. The principal source of seismic activity is movement along the northwest-trending regional faults such as the San Andreas, San Jacinto and Elsinore fault zones. These fault systems produce approximately 5 to 35 millimeters per year of slip between the plates.

We consider the most significant geologic hazard to be the potential for moderate to strong seismic shaking that is likely to occur at the subject site. The subject site is located in the highly seismic Southern California region within the influence of several faults that are considered to be Holocene-active or pre-Holocene faults. A Holocene-active fault is defined by the State of California as a fault that has exhibited surface displacement within the Holocene time (about the last 11,700 years). A pre-Holocene fault is defined by the State as a fault whose history of past movement is older than 11,700 years ago and does not meet the criteria for a Holocene-active fault.

These Holocene-active and pre-Holocene faults are capable of producing potentially damaging seismic shaking at the site. It is anticipated that the subject site will periodically experience ground acceleration as the result of small to moderate magnitude earthquakes. Other active faults without surface expression (blind faults) or other potentially active seismic sources that are not currently zoned and may be capable of generating an earthquake are known to be present under in the region.

The subject site is not included within any Earthquake Fault Zones as created by the Alquist-Priolo Earthquake Fault Zoning Act (CGS, 2018). Our review of geologic literature pertaining to the site area indicates that there are no known active or potentially active faults located within or immediately adjacent to the subject property.

The nearest fault to the subject site is the Newport-Inglewood-Rose Canyon offshore fault zone mapped approximately 2.7 miles southwest of the site. Other nearby faults include the San Mateo-San Onofre-Carlsbad fault zone mapped approximately 10.1 miles to the southwest of the site, the Coronado Bank fault zone mapped approximately 20.6 miles to the west of the site, and the Wildomar fault mapped approximately 24.5 miles to the northeast of the site. The Regional Fault Map, Figure 4, shows the location of the subject site in respect to the regional faults.

Secondary Seismic Hazards

Surface Fault Rupture and Ground Shaking

Since no known faults are located within the site, surface fault rupture is not anticipated. However, due to the close proximity of known active and potentially active faults, severe ground shaking should be expected during the life of the proposed structures.

Liquefaction

Liquefaction is a seismic phenomenon in which loose, saturated, fine-grained granular soils behave similarly to a fluid when subjected to high-intensity ground shaking. Liquefaction occurs when these ground conditions exist: 1) Shallow groundwater; 2) Low density, fine, clean sandy soils; and 3) High-intensity ground motion. Effects of liquefaction can include sand boils, settlement, and bearing capacity failures below foundations.

A review of the San Diego County Geologic Hazards, Figure 4 - Potential Liquefaction Areas Map indicates that the subject site is not located within an area mapped as having a potential for earthquake induced liquefaction (Figure 5).

Based on the above and high SPT blowcounts recorded during drilling, potential for liquefaction is considered to be ‘very low’.

Seismically Induced Settlement

Ground accelerations generated from a seismic event can produce settlements in sands or in granular earth materials both above and below the groundwater table. This phenomenon is often referred to as seismic settlement and is most common in relatively clean sands, although it can also occur in other soil materials. Based on the nature and density of site soils encountered, seismic settlement is anticipated to be ‘very low’.

Landsliding

Landsliding involves downhill motion of earth materials during or subsequent to earth shaking. Historically, landslides triggered by earthquakes have been a significant cause of damage. Areas that are most susceptible to earthquake induced landslides are areas with steep slopes in poorly cemented or highly fractured bedrock, areas underlain by loose, weak soils, and areas on or adjacent to existing landslide deposits.

A review of the San Diego County Geologic Hazards, Figure 5 - Potential Landslide Susceptible Areas Map indicates the subject site is not located within a mapped zone of landsliding and adjacent areas are situated on relatively flat topography. Based on the above, the general landslide susceptibility is considered to be negligible.

Lateral Spreading

Seismically induced lateral spreading involves primarily movement of earth materials due to earth shaking. Lateral spreading is demonstrated by near-vertical cracks with predominantly horizontal movement of the soil mass involved. The topography in the vicinity of the subject site is relatively flat, with a gentle slope to the coastline. Based on the above and absence of liquefaction, the potential for lateral spreading at the subject site is considered to be ‘very low’.

DISCUSSIONS AND CONCLUSIONS

General

Based on our field exploration, laboratory testing and engineering analysis, it is our opinion that the proposed structures and proposed grading will be safe against hazard from landslide, settlement, or slippage and the proposed construction will have no adverse effect on the geologic stability of the adjacent properties provided our recommendations presented in this report are followed.

Conclusions

Based on our findings and analyses, the subject site is likely to be subjected to moderate to severe ground shaking due to the proximity of known active and potentially active faults. This may reasonably be expected during the life of the structure and should be designed accordingly.

The primary conditions affecting the proposed project site development are as follows:

- One level (approximately 15 foot) of excavations for subterranean parking.
- Excavation adjacent to existing structures and public right-of-way.
- Presence of a two-level of subterranean structure to the west of the subject site.

The engineering evaluation performed concerning site preparation and the recommendations presented are based on information provided to us and obtained by us during our office and fieldwork. This report is prepared for the construction of a new eight-story building including two levels of above-grade parking and one level of subterranean parking with associated amenities, recreation areas and courtyards. In the event that any significant changes are made to the proposed development, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the recommendations of this report are verified or modified in writing by TGR.

RECOMMENDATIONS

Seismic Design Parameters

When reviewing the 2019 California Building Code along with our field data as well as the referenced Southern California Geotechnical, Inc. (2002) report, the following data should be incorporated into the design.

Parameter	Value
Latitude (degree)	33.1950
Longitude (degree)	-117.3798
Site Class	C
Site Coefficient, F_a	1.2
Site Coefficient, F_v	1.5
Mapped Spectral Acceleration at 0.2-sec Period, S_s	1.068 g
Mapped Spectral Acceleration at 1.0-sec Period, S_1	0.390 g
Spectral Acceleration at 0.2-sec Period Adjusted for Site Class, S_{MS}	1.281 g
Spectral Acceleration at 1.0-sec Period Adjusted for Site Class, S_{M1}	0.584 g
Design Spectral Acceleration at 0.2-sec Period, S_{DS}	0.854 g
Design Spectral Acceleration at 1.0-sec Period, S_{D1}	0.390 g

The structural consultant should review the above parameters and the 2019 California Building Code to evaluate the seismic design.

Conformance to the criteria presented in the above table for seismic design does not constitute any type of guarantee or assurance that significant structural damage or ground failure will not occur during a large earthquake event. The intent of the code is “life safety” and not to completely prevent damage of the structure, since such design may be economically prohibitive.

Shallow Foundation Design Recommendations for Basement Level of Eight Story Building

The proposed eight-story structure may be supported on continuous and/or spread footings. It is our understanding that the basement of the adjacent building to the west extends approximately 22 feet below grade. This depth should be verified. Depending on the proximity of the proposed building to the property line, it is recommended that the footings be deepened so as not to surcharge the adjacent basement wall. As an alternative, drilled piers may be utilized.

Bearing capacity recommendations for shallow foundations are presented below. These recommendations assume that the footings will be supported on competent native paralic deposits.

For foundations supported on competent native paralic deposits, an allowable bearing pressure of 3,000 pounds per square foot may be used in design, with an increase of 400 psf per additional foot of embedment depth to a maximum of 4,000 psf. The recommended minimum footing depth is twenty (24) inches.

The minimum recommended footing width is twenty-four (24) inches for continuous and pad footings. A minimum reinforcement of two (2) No. 5 steel bar top and two (2) No. 5 steel bar bottom is required for continuous footings from a geotechnical viewpoint. Foundation design details such as concrete strength, reinforcements, etc should be established by the Structural Engineer.

A one-third (1/3) increase on the aforementioned bearing pressure may be used in design for short-term wind or seismic loads.

The total and differential static settlement is anticipated to be 1 inch and 0.5 inches or less over 30 feet.

Resistance to lateral loads including wind and seismic forces may be provided by frictional resistance between the bottom of concrete and the underlying fill soils and by passive pressure against the sides of the foundations. A coefficient of friction of 0.50 may be used between concrete foundation and underlying soil. The recommended passive pressure of the native paralic deposits may be taken as an equivalent fluid pressure of 300 pounds per cubic foot (3,000 psf max).

Footings located near property lines or existing footings where the lateral removal cannot be achieved shall be designed for a reduced bearing capacity of 1,500 pounds per square foot and the passive resistance shall be ignored.

Modulus of Subgrade Reaction

The modulus of subgrade reaction may be taken as 200 pci (K_1) for one (1) square foot may be used for the native site soils at the subterranean subgrade elevation. This value should be reduced for change in size per the following formula.

$$K = K_1 \left(\frac{B+1}{B}\right)^2$$

Where B = Width of Footing;
K = Coefficient of Subgrade Reaction of Footings Measuring B(ft) x B(ft).

Drilled Pier Foundations:

As an alternative, the proposed eight-story structure may be supported on drilled piers. It is recommended that piers be a minimum of 24-inches in diameter. All temporary excavations shall comply with Cal OSHA requirements.

It is recommended that the drilled piers have a minimum embedment of twenty-five (25) feet below basement grade. The drilled piers may be designed for an allowable axial frictional capacity of 500 pounds per square foot. The uplift capacity may be taken as one-half of downward frictional capacity plus the weight of the pier. The lateral capacity shall be taken as 350 psf per foot of depth (maximum 3,500 psf).

The above values may be increased by one-third when considering short duration seismic or wind loads. Foundation design details such as concrete strength, reinforcements, etc. should be established by the Structural Engineer. Once column loads are available TGR can provide load deflection curves for the piers.

The total settlement is not expected to exceed ½ inch. The differential settlement between columns is estimated as ¼ inch.

For piers spaced at less than three (3) diameters on center, additional group capacity reduction effects should be taken into account on evaluating the allowable axial capacity of the pile groups.

For piers spaced at less than eight (8) diameters on center, additional group capacity reduction effects should be taken into account on evaluating the allowable lateral capacity of the pile groups.

Proposed piers installed less than three (3) and eight (8) diameters on center to the existing adjacent basement structure to the west of the subject site, shall have the axial and lateral capacities ignored, respectively.

The drilling and installation of piers should be performed under the full-time observation of TGR Geotechnical.

The pile excavation should be filled with concrete as soon as possible after drilling is completed. The pile excavation should not be left open for more than forty-eight (48) hours. Vibration should take place throughout the full length of the pile to eliminate voids in either the pile base or the shaft. Placement procedure such as tremie may be utilized to ensure that aggregate segregation does not occur. Where pile spacing is less than three (3) diameters, piles should be drilled and filled alternately, allowing the previously poured pile concrete to set for at least twenty-four (24) hours, or as permitted by the geotechnical engineer.

Piers extending below 45 feet below surface grade may encounter subsurface groundwater. If water is encountered, it may be pumped out prior to placement of concrete. As an alternate, placement of concrete may be performed under water utilizing a tremie and the concrete strength adjusted per the project structural engineer. Due to the gravelly nature of the subsurface soils, difficulty in drilling may be encountered. Casing and/or drilling mud may be required.

Shallow Foundation Design Recommendations for Ancillary Structures

The proposed ancillary structures may be supported on continuous and/or spread footings. Bearing capacity recommendations for shallow foundations are presented below. These recommendations assume that the footings will be supported on a minimum of two (2) feet of engineered fill compacted to a minimum of ninety-five (95) percent relative compaction per ASTM D1557.

For foundations supported on a minimum of two (2) feet of engineered fill, an allowable bearing pressure of 2,000 pounds per square foot may be used in design. The recommended minimum footing depth is twenty (24) inches.

The minimum recommended footing width is eighteen (18) inches for continuous footings and twenty-four (24) inches for pad footings. A minimum reinforcement of two (2) No. 4 steel bar top and two (2) No. 4 steel bar bottom is required for continuous footings from a geotechnical viewpoint. Foundation design details such as concrete strength, reinforcements, etc. should be established by the Structural Engineer.

A one-third (1/3) increase on the aforementioned bearing pressure may be used in design for short-term wind or seismic loads.

The total and differential static settlement is anticipated to be 1 inch and 0.5 inches or less over 30 feet.

Resistance to lateral loads including wind and seismic forces may be provided by frictional resistance between the bottom of concrete and the underlying fill soils and by passive pressure against the sides of the foundations. A coefficient of friction of 0.44 may be used between concrete foundation and the engineered fill. The recommended passive pressure of the engineered fill may be taken as an equivalent fluid pressure of 250 pounds per cubic foot (2,500 psf max).

Footings located near property lines or existing footings where the lateral removal cannot be achieved shall be designed for a reduced bearing capacity of 1,500 pounds per square foot and the passive resistance shall be ignored.

Slab-On-Grade

Slab-on-grade should be a minimum of five (5) inches thick and reinforced with a minimum of No. 4 reinforcing bar on 18-inch centers in two horizontally perpendicular directions. Reinforcing should be properly supported to ensure placement near the vertical midpoint of the slab. "Hooking" of the reinforcement is not considered an acceptable method of positioning the steel. The slab should not be structurally connected to the buildings.

Subgrade material for the slab-on-grade should be native paralic deposits or engineered fill compacted to a minimum of ninety-five (95) percent of the maximum laboratory dry density to a depth of one (1) foot for basement level and two (2) feet for street level ancillary structures. Prior to placement of concrete, the subgrade soils should be moistened to near optimum moisture content and verified by our field representative.

The actual thickness and reinforcement of the slab shall be designed by the structural engineer per the 2019 California Building Code and should include the anticipated loading condition and the anticipated use of the building.

For moisture sensitive flooring, the floor slab should be underlain by minimum 15-mil impermeable polyethylene membrane (Stego Wrap, Moistop Plus, or any equivalent meeting the requirements of ASTM E1745, Class A rating) as a capillary break. Sand may be placed above and below the impermeable polyethylene membrane at the discretion of the project structural engineer/concrete contractor for proper curing and finish of the concrete slab-on-grade and protection of the membrane and is considered outside the scope of geotechnical engineering.

Flatwork

Flatwork should be a minimum of four (4) inches thick for pedestrian walkways and eight (8) inches for trash enclosures and delivery truck areas should be reinforced with a minimum of No. 3 reinforcing bar on 24-inch centers in two horizontally perpendicular directions. Reinforcing should be properly supported to ensure placement near the vertical midpoint of the slab. "Hooking" of the reinforcement is not considered an acceptable method of positioning the steel. The subgrade material should be compacted to a minimum of ninety-five (95) percent of the maximum laboratory dry density per ASTM D1557 to a minimum depth of one (1) foot. Prior to placement of concrete, the subgrade soils should be moistened to near percent of optimum moisture content and verified by our field representative. The actual thickness and reinforcement of the slab shall be designed by the structural engineer and should include the anticipated loading condition.

Retaining Wall Recommendations

The following soil parameters may be used for the design of the retaining wall with level backfill and a maximum height of fifteen (15) feet:

Conditions	Parameters
Active (Level)	35 psf/ft
At-Rest (Basement Wall)	30H uniform
Passive	300 (maximum 3,000 psf)
Friction Coefficient	0.44

- Unrestrained retaining wall, such as a cantilever wall, the active earth pressure shall be used.
- Retaining walls over 6 feet high shall be designed for a seismic lateral load of $15H^2$ active at a distance of 0.6H above the base of the wall.
- Any import backfill shall be granular non-expansive select fill with a minimum sand equivalent of 30 The import fill should be tested and approved by TGR prior to backfill.
- An allowable coefficient of friction between native paralic deposits and concrete of 0.50 may be used with the dead-load forces.
- Passive pressure and frictional resistance could be combined in determining the total lateral resistance. However, one of them shall be reduced by 50 percent.
- The passive pressure in the upper 1 foot of soil not confined by slabs or pavement should be neglected.
- The retaining wall should be provided with a drainage system (Miradrain or equivalent) to prevent buildup of hydrostatic pressure behind the walls. We do not recommend omitting the drains behind walls.

Retaining structures should be provided with a drainage system to prevent buildup of hydrostatic pressure behind the walls. Provisions should be made to collect and dispose of excess water away from the wall. Wall drainage may be provided by a perforated pipe encased in gravel or crushed rock and enclosed by geo-synthetic filter fabric. We do not recommend omitting the drains behind walls.

In addition to the above lateral forces due to retained earth, surcharge due to improvements, such as an adjacent structure, should be considered in the design of the retaining wall. A minimum vertical surcharge load of 300 psf should be used in design of walls due to adjacent traffic unless the traffic is kept at least six (6) feet from the walls. Loads applied within a 1:1 projection from any surcharging structure on the stem of the wall shall be considered as lateral surcharge.

For uniform lateral surcharge conditions applied to free-to-deflect walls and restrained walls, we recommend utilizing a minimum horizontal load equal to 33 percent and 50 percent of the vertical load, respectively, and should be applied uniformly over the entire height of the wall. This horizontal load should be applied below the 1:1 projection plane. To minimize the surcharge load from an adjacent footing, deepened footings may be considered.

Retaining wall footings should have a minimum embedment of twenty-four (24) inches below the lowest adjacent grade. The retaining walls footings shall be supported on native paralic deposits or a minimum one (1) foot of compacted engineered fill compacted to a minimum ninety-five (95) percent relative compaction as per ASTM D1557.

Shrinkage/Subsidence

Removal and recompaction of the near surface soils is estimated to result in shrinkage ranging from 5 to 10 percent. Minor ground subsidence is expected to occur in the soils below the zone of removal, due to settlement and machinery working. The subsidence is estimated to be between one and two tenths of a foot.

Site Development Recommendations

General

During earthwork construction, all site preparation and the general procedures of the contractor should be observed, and the fill selectively tested by a representative of TGR. If unusual or unexpected conditions are exposed in the field, they should be reviewed by this office and if warranted, modified and/or additional recommendations will be offered. During demolition of the existing buildings, large concrete slab and associated site work, voids created from removal of buried elements (footings, pipelines, septic pits, etc.) shall be backfilled with engineered fill to a minimum ninety (90) percent relative compaction per ASTM D1557 under the observation of TGR.

Grading

All grading should conform to the guidelines presented in the California Building Code (2019 edition), except where specifically superseded in the text of this report. Prior to grading, TGR's representative should be present at the pre-construction meeting to provide grading guidelines, if needed, and review any earthwork. Oversize particles may be encountered during grading. All particles greater than 4-inches shall be removed and disposed offsite. The existing fill is not considered suitable for the support of structures or structural fill.

The basement level footings and slab-on-grade shall be supported on competent native paralic deposits or a minimum one (1) foot of engineered fill. A minimum two (2) feet of engineered fill is recommended under street level footings and slab-on-grade for ancillary structures and a minimum of one (1) foot of engineered fill is recommended under flatwork. Site soils may be reused as engineered fill provided, they are free of oversized particles and the recommendations presented in this report are implemented. Exposed bottoms should be scarified a minimum of six (6) inches, moisture conditioned to near optimum moisture and compacted to a minimum ninety-five (95) percent relative compaction. Subsequently, site fill soils should be re-compacted to a minimum of ninety-five (95) percent relative compaction at near optimum moisture content.

The depth of over-excavation should be reviewed by the Geotechnical Consultant during the actual construction. Any subsurface obstruction buried structural elements, and unsuitable material encountered during grading, should be immediately brought to the attention of the Geotechnical Consultant for proper exposure, removal and processing, as recommended.

Fill Placement

Prior to any fill placement TGR should observe the exposed surface soils. The site soils may be re-used as engineered fill provided, they are free of organic content and particle size greater than 4-inches. All particles greater than 4-inches shall be removed and disposed offsite. Fill shall be

moisture conditioned to near optimum moisture and compacted to a minimum relative compaction of ninety-five (95) percent in accordance with ASTM D1557. Any import soils shall be non-expansive and approved by TGR Geotechnical Inc.

Compaction

Prior to fill placement, the exposed surface should be scarified to a minimum depth of six (6) inches, fill placed in eight (8) inch loose lifts moisture conditioned to near optimum moisture and compacted to a minimum relative compaction of ninety-five (95) percent in accordance with ASTM D1557.

Trenching

All excavations should conform to CAL-OSHA and local safety codes.

Temporary Excavation

All excavations to a maximum depth of four (4) feet may be excavated vertically. However, all excavations deeper than four (4) feet must either be properly sloped or shored. Where sufficient space is available for sloped excavation, the excavation may be sloped to no steeper than 1:1 (horizontal to vertical). Flattened side slopes may be required where less stable localized deposits are encountered. The exposed slope faces should be kept moist and not allowed to dry out. Where sloped excavation cannot be performed, temporary shoring may be utilized.

No surcharge loads should be permitted within a horizontal distance equal to the height of cut from the toe of excavation unless the cut is properly shored. Excavations that extend below an imaginary plane inclined at 45 degrees below the edge of any nearby adjacent existing site facilities should be properly shored to maintain foundation support at the adjacent structures.

Temporary shoring may be required for those excavations where temporary slope cuts as specified above are not feasible. Temporary cantilever shoring should be designed to resist an active earth pressure of 35 pounds per cubic foot equivalent fluid pressure for level conditions behind shoring. The design of shoring should also include surcharge-loading effects of existing structures and anticipated traffic, including construction equipment, when loading is within a distance from the shoring equal to the depth of excavation. The passive resistance may be taken as 250 pounds per square foot per foot of depth (maximum 2,500 psf). All excavations should conform to CAL-OSHA and local safety codes. The stability of temporary excavation is the responsibility of the contractor. TGR should be present to observe the excavation to provide additional recommendations as considered necessary depending on the exposed condition.

Temporary Shoring

Temporary shoring may be required for those excavations where temporary slope cuts as specified above are not feasible. Temporary cantilever shoring should be designed using the following parameters:

Conditions	Parameters
Active (Level)	30 psf/ft
Passive	350 (maximum 3,000 psf)
Friction Coefficient	0.45

The design of shoring should also include surcharge-loading effects of existing structures and anticipated traffic, including construction equipment, when loading is within a distance from the shoring equal to the depth of excavation. All excavations should conform to CAL-OSHA and local safety codes. The stability of temporary excavation is the responsibility of the contractor. However, as a minimum the lateral movement at the top of the shoring soldier piles should be monitored. Lateral deflection of 0.50 inches or more shall be brought to the attention of TGR with remedial measures. If lateral deflection exceeds 1.0 inches, work shall stop, and mitigation measures taken prior to continuing work. TGR should be present to observe the excavation to provide additional recommendations as considered necessary depending on the exposed condition.

Soldier piles shall have a minimum diameter of 24-inches and shall be spaced at least three diameters on centers, a lateral passive resistance of 350 psf/ft of embedment depth into native soil with a maximum lateral passive resistance of 3,500 psf should be used in design. The shoring design engineer may utilize this passive pressure over one to two pile diameters at their discretion/design procedure. The shoring design engineer is however responsible for the performance of the shoring system.

Soldier pile members placed in drilled holes should be properly backfilled with sand/cement slurry or lean concrete in order to develop the required passive resistance.

Final temporary shoring calculations and plans shall be reviewed by this office to ensure that the recommendations presented in this report has been incorporated in the design. TGR may provide additional recommendations based on a review of the final shoring configuration.

The lagging between the soldier piles may be designed for a nominal pressure of 400 psf, and should consist of wood members, or solid plywood or steel sheets. All excavations should conform to CAL-OSHA and local safety codes.

Utility Trench Backfill

All utility trench backfills in structural areas and beneath hardscape features should be brought to near optimum moisture content and compacted to a minimum relative compaction of ninety-five (95) percent of the laboratory standard. Flooding/jetting is not recommended.

Sand backfill, (unless trench excavation material), should not be allowed in parallel exterior trenches adjacent to and within an area extending below a 1:1 plane projected from the outside bottom edge of the footing. All trench excavations should minimally conform to CAL-OSHA and local safety codes. Soils generated from utility trench excavations may be used provided it is moisture conditioned and compacted to ninety-five (95) percent minimum relative compaction.

Drainage

Positive site drainage should be maintained at all times. Water should be directed away from foundations and not allowed to pond and/or seep into the ground. Pad drainage should be directed towards the street/parking or other approved area.

Geotechnical Review of Plans

All grading and foundation plans should be reviewed and accepted by the geotechnical consultant prior to construction. If significant time elapses since preparation of this report, the geotechnical consultant should verify the current site conditions, and provide any additional recommendations (if necessary) prior to construction.

Geotechnical Observation/Testing During Construction

Per sections 1705.6 and table 1705.6 of the 2019 California Building Code, periodic special inspection shall be performed to:

- Verify materials below shallow foundations are adequate to achieve the design bearing capacity;
- Verify excavations are extended to the proper depth and have reached proper material;
- Verify classification and test compacted materials; and
- Prior to placement of compacted fill, inspect subgrade and verify that the site has been prepared properly.

Per sections 1705.6 and table 1705.6 of the 2019 California Building Code, continuous special inspection shall be performed to:

- Verify use of proper materials, densities and lift thickness during placement and compaction of compacted fill.

The geotechnical consultant should also perform observation and/or testing at the following stages:

- During any grading and fill placement;
- During trench excavation and backfill;
- After foundation excavation and prior to placing concrete;
- During caisson excavation;
- Prior to placing slab and flatwork concrete;
- During placement of aggregate base and asphalt or Portland cement concrete; and
- When any unusual soil conditions are encountered during any construction operation subsequent to issuance of this report.

Limitations

This report was prepared for a specific client and a specific project, based on the client's needs, directions and requirements at the time.

This report was necessarily based upon data obtained from a limited number of observances, site visits, soil and/or other samples, tests, analyses, histories of occurrences, spaced subsurface exploration and limited information on historical events and observations. Such information is necessarily incomplete. Variations can be experienced within small distances and under various climatic conditions. Changes in subsurface conditions can and do occur over time.

This report is not authorized for use by and is not to be relied upon by any party except the client with whom TGR contracted for the work. Use or reliance on this report by any other party is that party's sole risk. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify TGR from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, or strict liability of TGR.



B-3 ⊕ APPROXIMATE LOCATION OF EXPLORATORY BORING

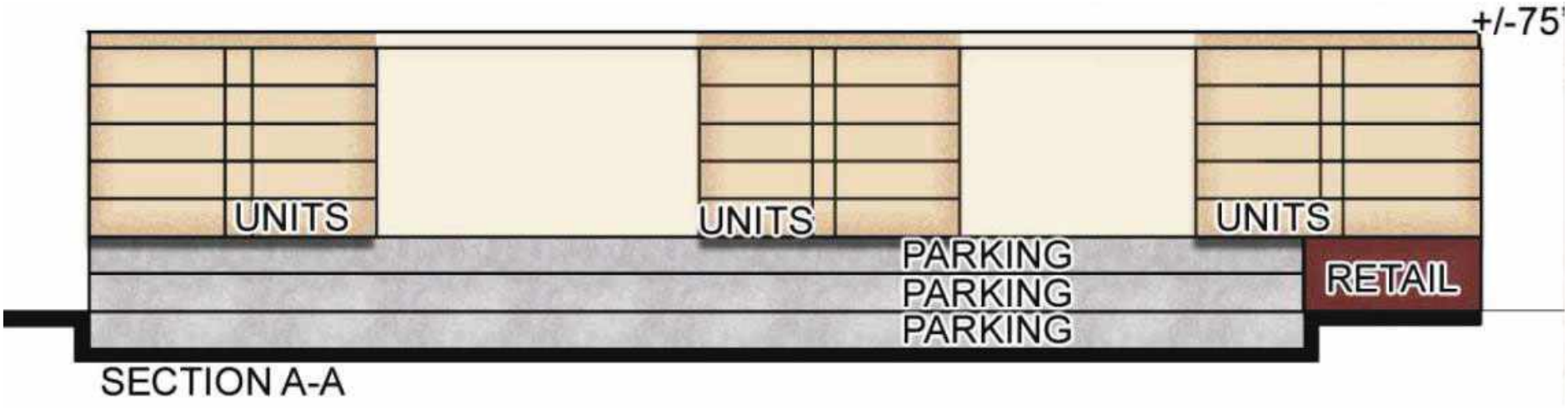
0 30' 60' 120'

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

BORING LOCATION MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

PLATE 1A



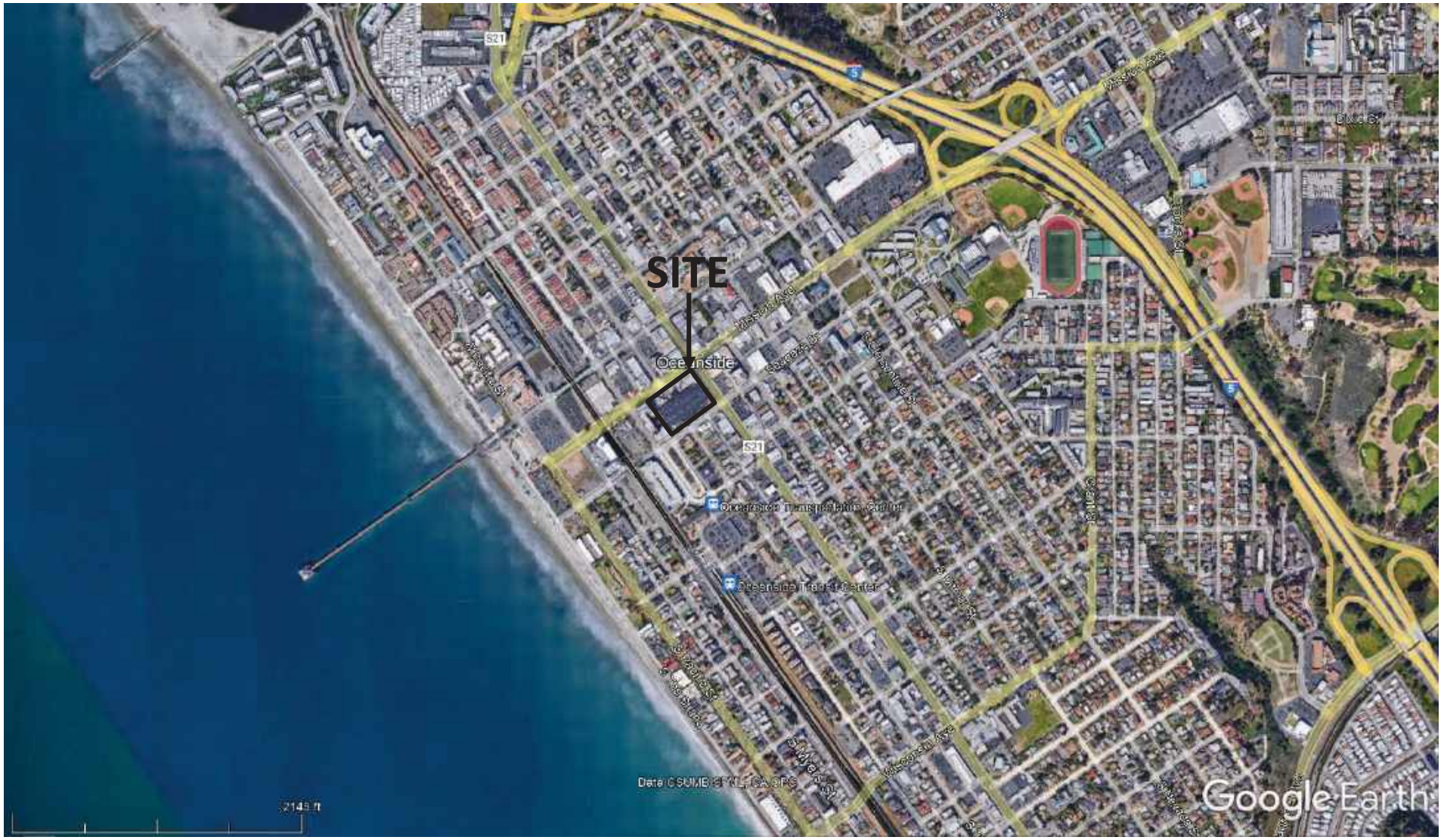


TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

CROSS SECTION A-A'
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

PLATE 1B



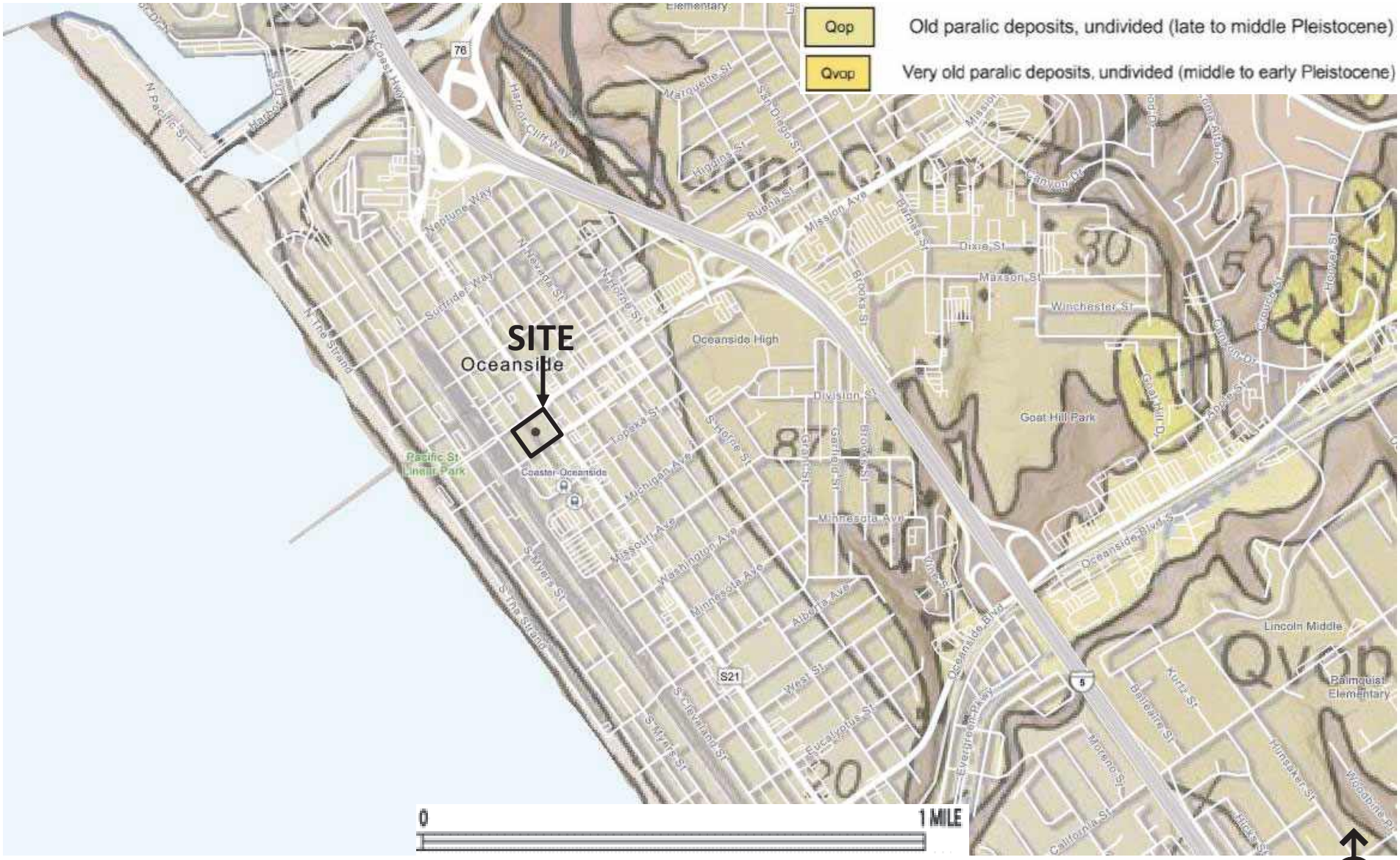
N

TGR
Geotechnical
Environmental
Hydrogeology
Material Testing
Construction Inspection

SITE LOCATION MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

FIGURE 1



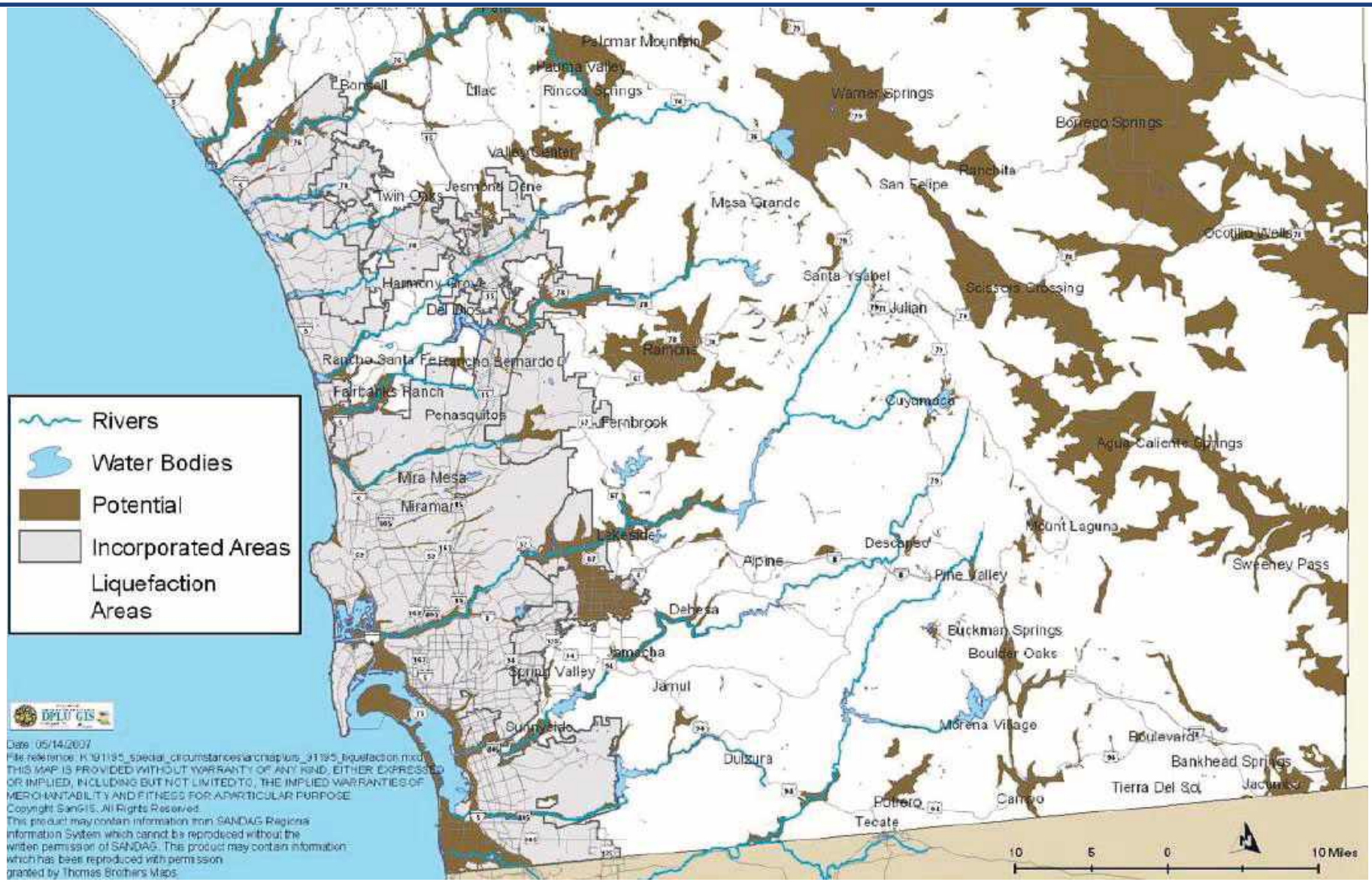
Modified From: Kennedy, M.P., Tan, S.S., Bovard, K.R., Alvarez, R.M., Watson, M.J., and Gutierrez, C.I., 2007, Geologic map of the Oceanside 30x60-minute quadrangle, California: California Geological Survey, No. 2, scale 1:100,000.

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

REGIONAL GEOLOGY MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

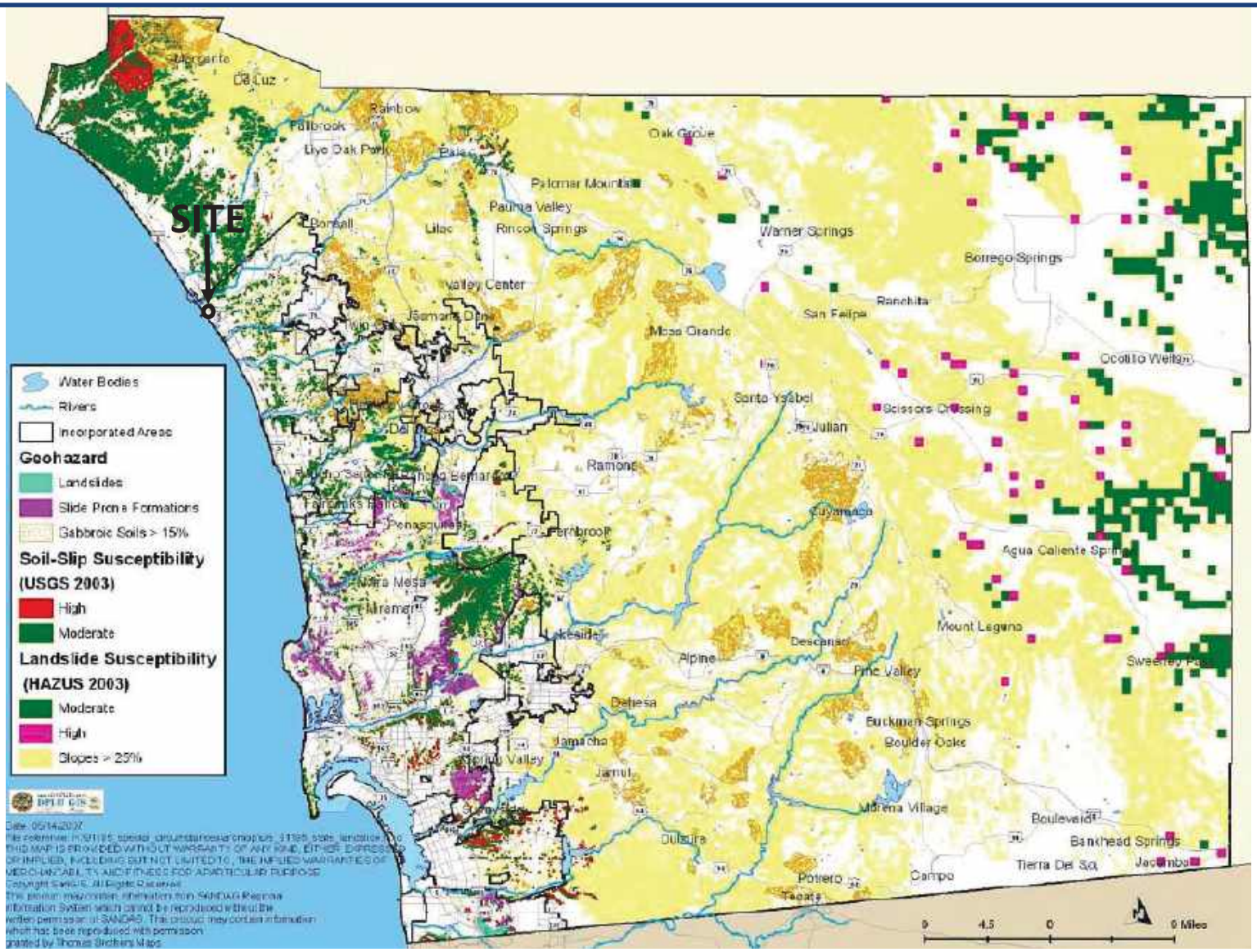
PROJECT NO. 22-7517

FIGURE 2



Modified From: County of San Diego, Department of Planning and Land Use, Department of Public Works, Land Use and Environment Group, Guidelines for Determining Significance, Geologic Hazards, Figure 4 – Potential Liquefaction Areas, dated July 30, 2007.

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection	COUNTY LIQUEFACTION HAZARD MAP 401 MISSION AVENUE OCEANSIDE, CALIFORNIA	PROJECT NO. 22-7517 FIGURE 3



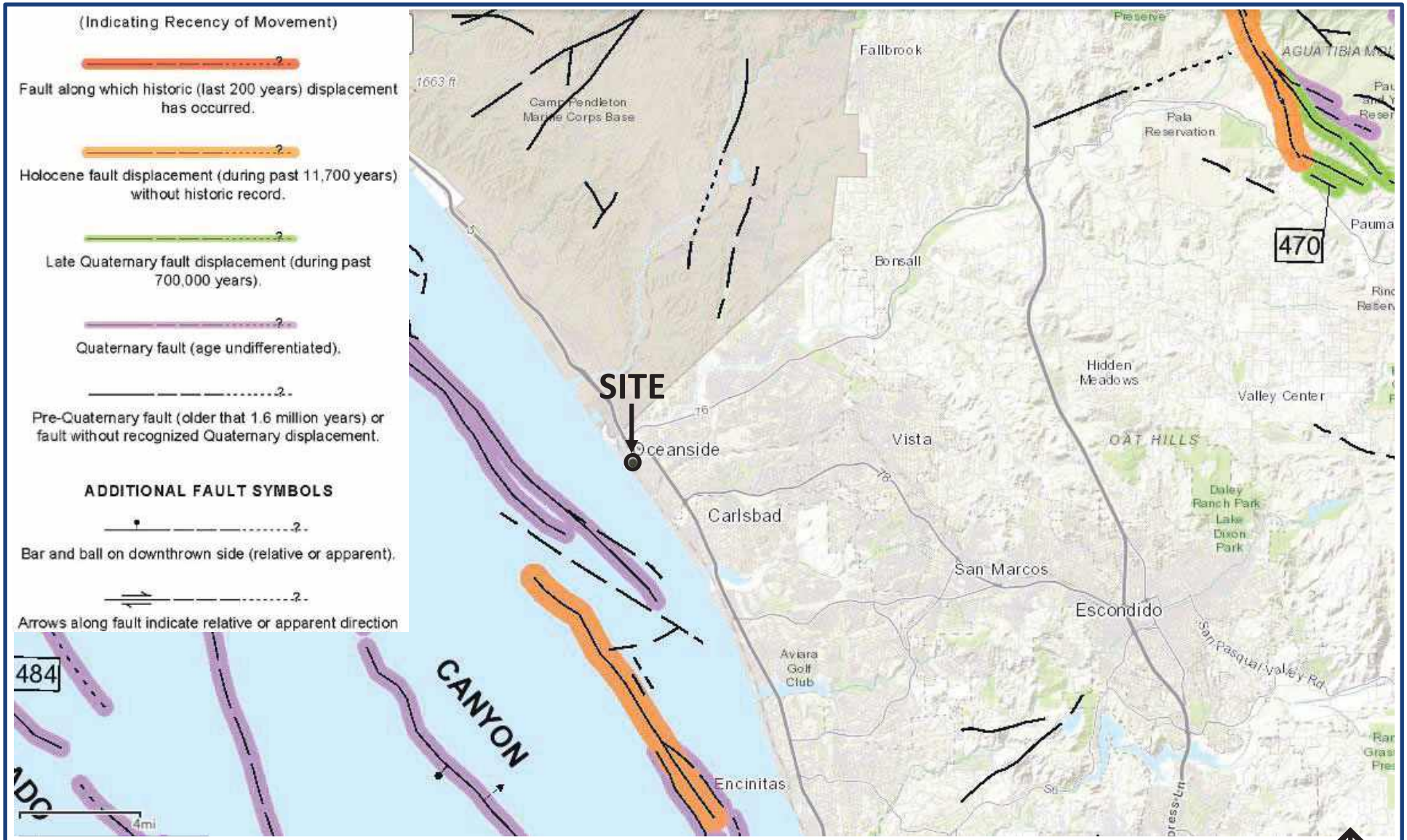
Modified From: County of San Diego, Department of Planning and Land Use, Department of Public Works, Land Use and Environment Group, Guidelines for Determining Significance, Geologic Hazards, Figure 5 – Potential Landslide Susceptible Areas, dated July 30, 2007.

TGR
Geotechnical
Environmental
Hydrogeology
Material Testing
Construction Inspection

COUNTY LANDSLIDE HAZARD MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

FIGURE 4



Modified From: Jennings, C. W., 2010, Fault Activity Map of California and Adjacent Areas, California Division of Mines and Geology, Geologic Data Map Series, No. 6, Scale 1:750,000.

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

REGIONAL FAULT MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

FIGURE 5

Table 1: Percolation Test Worksheet

Test Hole	Total Depth (in)	Initial Depth (in)	Final Depth (in)	ΔWater Level (in)	Initial Time (min)	Final Time (min)	Δ Time (min)	Initial Height of Water (in)	Final Height of Water (in)	Average Height of Water (in)	Gravel Factor	Infiltration Rate (in/hr)
B-2	306	182.0	182.7	0.7	0.0	30.0	30.0	124.0	123.3	123.6	0.54	0.01
	306	182.7	183.4	0.7	0.0	30.0	30.0	123.3	122.6	122.9	0.54	0.01
	306	183.4	184.1	0.7	0.0	30.0	30.0	122.6	121.9	122.2	0.54	0.01
	306	184.1	184.8	0.7	0.0	30.0	30.0	121.9	121.2	121.5	0.54	0.01
	306	181.8	182.5	0.7	0.0	30.0	30.0	124.2	123.5	123.8	0.54	0.01
	306	182.5	183.2	0.7	0.0	30.0	30.0	123.5	122.8	123.1	0.54	0.01
	306	183.2	183.9	0.7	0.0	30.0	30.0	122.8	122.1	122.4	0.54	0.01
	306	183.9	184.6	0.7	0.0	30.0	30.0	122.1	121.4	121.7	0.54	0.01
	306	180.6	181.3	0.7	0.0	30.0	30.0	125.4	124.7	125.0	0.54	0.01
	306	181.0	181.7	0.7	0.0	30.0	30.0	125.0	124.3	124.7	0.54	0.01
	306	181.7	182.4	0.7	0.0	30.0	30.0	124.3	123.6	124.0	0.54	0.01
	306	182.4	183.1	0.7	0.0	30.0	30.0	123.6	122.9	123.2	0.54	0.01

$$I_t = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

ΔH = Change in height

Δt = Time interval

r = Radius

I_t Infiltration Rate

H_{ave} Average Head Height over the time interval

APPENDIX A
REFERENCES

TGR GEOTECHNICAL
DBE & 8(a) firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

APPENDIX A

References

AO Architects, Option One Conceptual Site Plan, 401 Mission Avenue Mixed Use, Oceanside, CA, dated 04-08-2022.

California Department of Conservation – California Geological Survey, 2018, Earthquake Fault Zones, A Guide for Government Agencies, Property Owners/Developers and Geoscience Practitioners for Assessing Fault Rupture Hazards in California, Special Publication 42.

California Department of Conservation – Division of Mines and Geology, 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California, CDMG Special Publication 117A.

California Department of Conservation – Division of Mines and Geology, 1998, Maps of Known Active Fault Near – Source Zones in California and Adjacent Portions of Nevada.

City of Oceanside, BMP Design Manual for Permanent Site Design, Storm Water Treatment and Hydromodification Management, dated January 2022.

County of San Diego, 2007, Department of Planning and Land Use, Department of Public Works, Land Use and Environment Group, Guidelines for Determining Significance, Geologic Hazards, dated July 30, 2007.

Kennedy, M.P., Tan, S.S., Bovard, K.R., Alvarez, R.M., Watson, M.J., and Gutierrez, C.I., 2007, Geologic map of the Oceanside 30x60-minute quadrangle, California: California Geological Survey, No. 2, scale 1:100,000.

International Code Council (ICC), California Building Code, 2019 Edition.

Jennings, C. W., 2010, Fault Activity Map of California and Adjacent Areas, California Division of Mines and Geology, Geologic Data Map Series, No. 6, Scale 1:750,000.

Southern California Geotechnical, 2002, Geotechnical Investigation, Proposed Residential/Retail/Office Building, South Cleveland Street at Seagaze Drive, Oceanside, prepared for Southland Land Corp. by Southern California Geotechnical, Inc., dated October 24, 2002, SCG Project No. 02G230-1.

APPENDIX B
LOG OF BORINGS

TGR GEOTECHNICAL
DBE & 8(a) firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

THE FOLLOWING DESCRIBES THE TERMS AND SYMBOLS USED ON THE LOG OF BORINGS TO SUMMARIZE THE RESULTS OBTAINED IN THE FIELD INVESTIGATION AND SUBSEQUENT LABORATORY TESTING

DENSITY AND CONSISTENCY

The consistency of fine grained soils and the density of coarse grained soils are described on the basis of the Standard Penetration Test as follows:

COARSE GRAINED SOILS		ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (Tsf)	FINE GRAINED SOILS	
Very Loose	< 4	< 0.25	Very Soft	< 2
Loose	4 – 10	0.35 – 0.50	Soft	2 – 4
Medium	10 – 30	0.50 – 1.0	Firm (Medium)	4 – 8
Dense	30 – 50	1.0 – 2.0	Stiff	8 – 15
Very Dense	> 50	2.0 – 4.0	Very Stiff	15 – 30
		> 4.0	Hard	> 30

PARTICLE SIZE DEFINITION (As per ASTM D2487 and D422)

Boulder	⇒ Larger than 12 inches	Coarse Sands	⇒ No. 10 to No. 4 sieve
Cobbles	⇒ 3 to 12 inches	Medium Sands	⇒ No. 40 to No. 10 sieve
Coarse Gravel	⇒ 3/4 to 3 inches	Fine Sands	⇒ No. 200 to 40 sieve
Fine Gravel	⇒ No. 4 to 3/4 inches	Silt	⇒ 5µm to No. 200 sieve
		Clay	⇒ Smaller than 5µm

SOIL CLASSIFICATION

Soils and bedrock are classified and described based on their engineering properties and characteristics using ASTM D2487 and D2488.

Percentage description of minor components:

Trace	1 – 10%	Some	20 – 35%
Little	10 – 20%	And or y	25 – 50%

Stratified soils description:

Parting	0 to 1/16 inch thick	Layer	½ to 12 inches thick
Seam	1/16 to ½ inch thick	Stratum	> 12 inches thick

SOIL CLASSIFICATION CHART

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

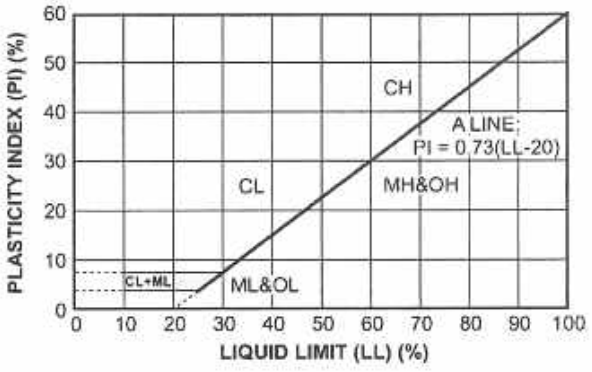
LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line with P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for GW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP
More than 12 percent ..... GM, GC, SM, SC
5 to 12 percent ..... Borderline cases requiring dual symbols

PLASTICITY CHART



PARTICLE SIZE LIMITS

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	
	3"	¾"	NO. 4	NO. 10	NO. 40	NO. 200

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

LOG OF BORING EXPLANATION

LOG OF EXPLORATORY BORING B-1

Project Number: **22-7517**
Project Name: **401 Mission Avenue, Oceanside**
Date Drilled: **8/24/22 - 8/24/22**
Ground Elev: **58**

Logged By: **RA**
Project Engineer: **SG**
Drill Type: **LAR Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Elevation (ft)	Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
58	0							Surface is 5 inches of concrete with rebar.			
								FILL: Silty SAND- reddish brown, moist, medium dense, fine grained, some fine grained gravel, pieces of brick.			Corrosion
55											
	5				31		SP	NATIVE: Old Paralic Deposits (Qop): SAND- reddish brown, moist, dense, fine grained.	7	128	
50											
	10				>50			...No Recovery.			
								Refusal at 10.25 feet due to a large rock.			
								No groundwater encountered during drilling.			
								No caving observed.			
								Boring backfilled with Portland cement grout (approximately 3.5 cubic feet) and surface repaired with rapid set concrete upon completion.			
45								Ground elevation estimated using Google Earth.			
	15										
40											

LOG OF BORING 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/20/22

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 2

TGR GEOTECHNICAL, INC.

LOG OF EXPLORATORY BORING B-2

Project Number: **22-7517**
Project Name: **401 Mission Avenue, Oceanside**
Date Drilled: **8/24/22 - 8/24/22**
Ground Elev: **56**

Logged By: **RA**
Project Engineer: **SG**
Drill Type: **LAR Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Elevation (ft)	Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
55								Surfacce is 6 inches of concrete with rebar. FILL: Silty SAND- reddish brown, moist, medium dense, fine grained, roots from 0-1.5 feet, pieces of brick.			Max, Shear
50	5				35		SP	NATIVE: Old Paralic Deposits (Qop): SAND- reddish brown to brown, moist, dense, fine grained.	5	126	Shear
45	10				>50		MLS	Old Paralic Deposits (Qop): SILT, SAND and GRAVEL- tan, moist, hard, fine grained sand, trace corase grained sand, fine to medium grained gravel, some orange oxidation.	11	125	Shear
40	15				>50		MLS	...Same as above, fine to coarse grained gravel.	6	119	-200= 21.9%
35	20				>50		MLS	...Same as above.	10	126	Shear, -200= 28.0%
30	25				>50		SP	Old Paralic Deposits (Qop): SAND- golden brown, moist, very dense, fine to coarse grained, trace fine grained gravel, some silt. Total Depth: 25.5 feet.	7	115	Shear, Consol -200= 21.5%
25	30							No groundwater encountered during drilling. No caving observed. Boring utilized for percolation testing. Boring backfilled with Portland cement grout (approximately 7 cubic feet) and surface repaired with rapid set concrete upon completion. Ground elevation estimated using Google Earth.			

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 3

TGR GEOTECHNICAL, INC.

LOG OF BORING 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/20/22

LOG OF EXPLORATORY BORING B-3

Sheet **1** of **1**

Project Number:	**22-7517**	Logged By:	**RA**
Project Name:	**401 Mission Avenue, Oceanside**	Project Engineer:	**SG**
Date Drilled:	**8/24/22 - 8/24/22**	Drill Type:	**LAR Hollow Stem**
Ground Elev:	**59**	Drive Wt & Drop:	**140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Elevation (ft)	Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
								Surface is 5 inches of concrete with rebar.			
								FILL: Silty SAND- reddish brown to brown, moist, medium dense, fine grained, trace fine to coarse gravel, pieces of brick.			
55	5			■	27		SP		9	123	Consol
								NATIVE: Old Paralic Deposits (Qop): SAND- dark reddish brown to dark brown, moist, dense, fine grained.			
50	10			■	>50		SP	Old Paralic Deposits (Qop): SAND- light brown, slightly moist, very dense, fine grained, trace fine grained gravel.	3	118	Consol
								Refusal at 12 feet due to a large rock. No groundwater encountered during drilling. No caving observed. Boring backfilled with Portland cement grout (approximately 4 cubic feet) and surface repaired with rapid set concrete upon completion. Ground elevation estimated using Google Earth.			
45	15										
40											

LOG OF BORING 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/20/22

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 4

TGR GEOTECHNICAL, INC.

APPENDIX C
LABORATORY TEST RESULTS

TGR GEOTECHNICAL
DBE & 8(a) firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

APPENDIX C

Laboratory Testing Procedures and Results

In-Situ Moisture and Dry Density Determination (ASTM D2216 and D7263): Moisture content and dry density determinations were performed on relatively undisturbed samples obtained from the test borings. The results of these tests are presented in the boring logs. Where applicable, only moisture content was determined from "undisturbed" or disturbed samples.

Maximum Density and Optimum Moisture Content (ASTM D1557): The maximum dry density and optimum moisture content of typical materials were determined in accordance with ASTM Test Method D1557. The results of these tests are presented in the table below:

Sample Location	Sample Description	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
B-2 @ 0-5 feet	Silty Sand	136.0	8.0

Direct Shear Strength (ASTM D3080): Direct shear test was performed on selected remolded samples and relatively undisturbed samples, which were soaked for a minimum of 24 hours under a surcharge equal to the applied normal force during testing. After transfer of the sample to the shear box, and reloading the sample, pore pressures set up in the sample due to the transfer were allowed to dissipate for a period of approximately 1-hour prior to application of shearing force. The sample was tested under various normal loads, a motor-driven, strain-controlled, direct-shear testing apparatus at a strain rate of less than 0.001 to 0.5 inches per minute (depending upon the soil type). The test results are presented in the test data and in the table below:

Sample Location	Sample Description	Friction Angle (degrees)	Apparent Cohesion (psf)
B-2 @ 0-5 feet	Silty Sand (Remolded)	34	132
B-2 @ 5 feet	Sand	36	11
B-2 @ 10 feet	Old Paralic Deposits	39	354
B-2 @ 20 feet	Old Paralic Deposits	38	276
B-2 @ 24 feet	Sand	29	792

Consolidation Tests (ASTM D2435): Consolidation test were performed on selected, relatively undisturbed ring samples. Samples were placed in a consolidometer and loads were applied in geometric progression. The percent consolidation for each load cycle was recorded as the ratio of the amount of vertical compression to the original 1-inch height. The consolidation pressure curves are presented in the test data.

Soluble Sulfate (CAL 417A): The soluble sulfate content of selected sample was determined by standard geochemical methods. The test results are presented in the test data and in the table below:

Sample Location	Sample Description	Water Soluble Sulfate in Soil, (% by Weight)	Sulfate Content (ppm)	Exposure Class*
B-1 @ 0-5 feet	Silty Sand	0.0341	341	S0

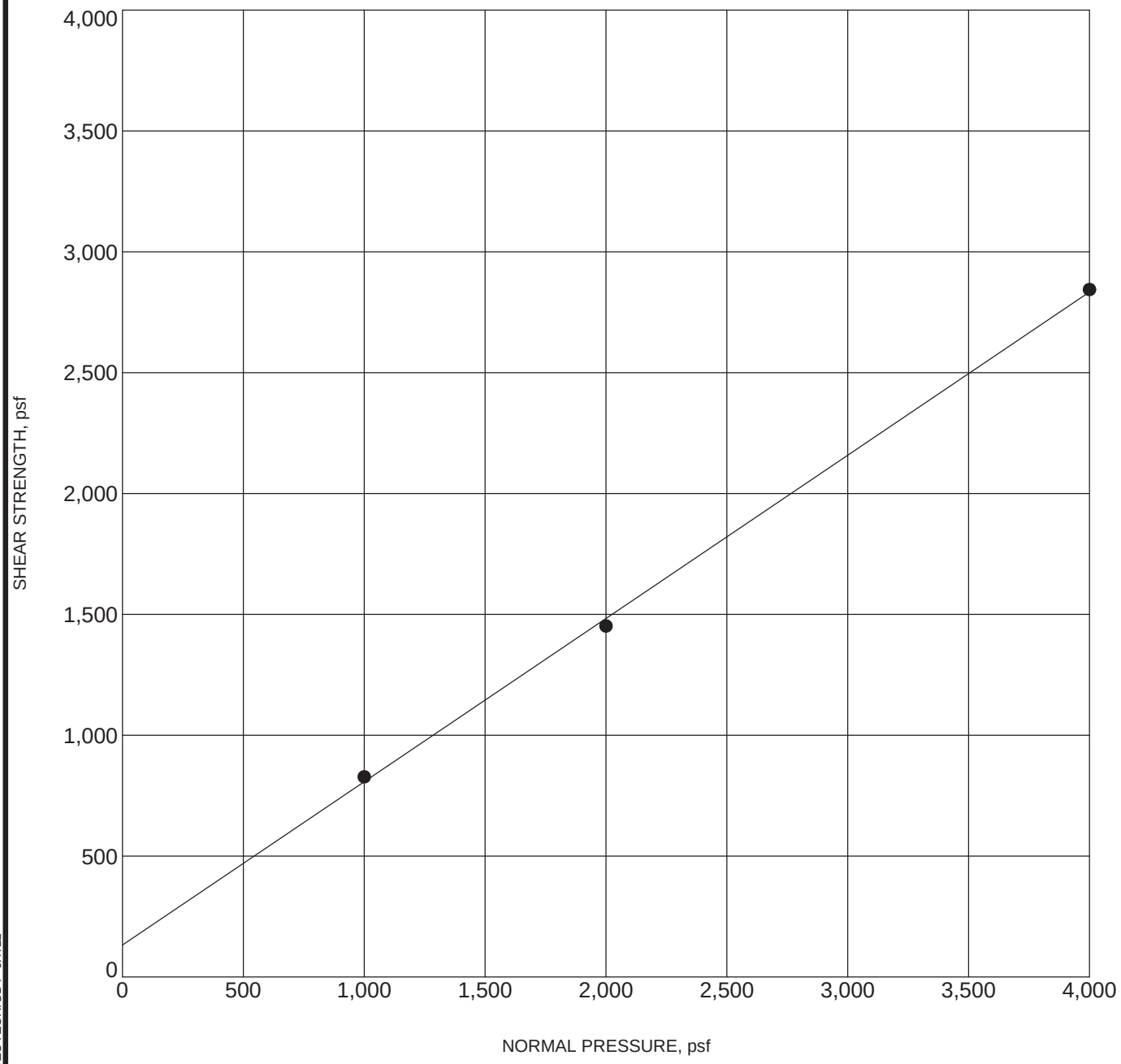
* Based on the current version of ACI 318-14 Building Code, Table No. 19.3.1.1; Exposure Categories and Classes.

Corrosivity Tests (CAL 422, CAL 643 and CAL 747): Electrical conductivity, pH, and soluble chloride tests were conducted on representative samples and the results are provided in the test data and in the table below:

Sample Location	Sample Description	Soluble Chloride (CAL 422) (ppm)	Electrical Resistivity (CAL 643) (ohm-cm)	pH (CAL 747)	Potential Degree of Attack on Steel
B-1 @ 0-5 feet	Silty Sand	74	3,600	7.2	Moderate

Passing No. 200 Sieve (ASTM D1140): Typical materials were washed over No. 200 sieve. The test results are presented below:

Sample Location	% Passing No. 200 Sieve
B-2 @ 15 feet	21.9%
B-2 @ 20 feet	28.0%
B-2 @ 24 feet	21.5%



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**0-5**	**Silty Sand - Remolded 90% RC**	**122**	**8**	**132**	**34**

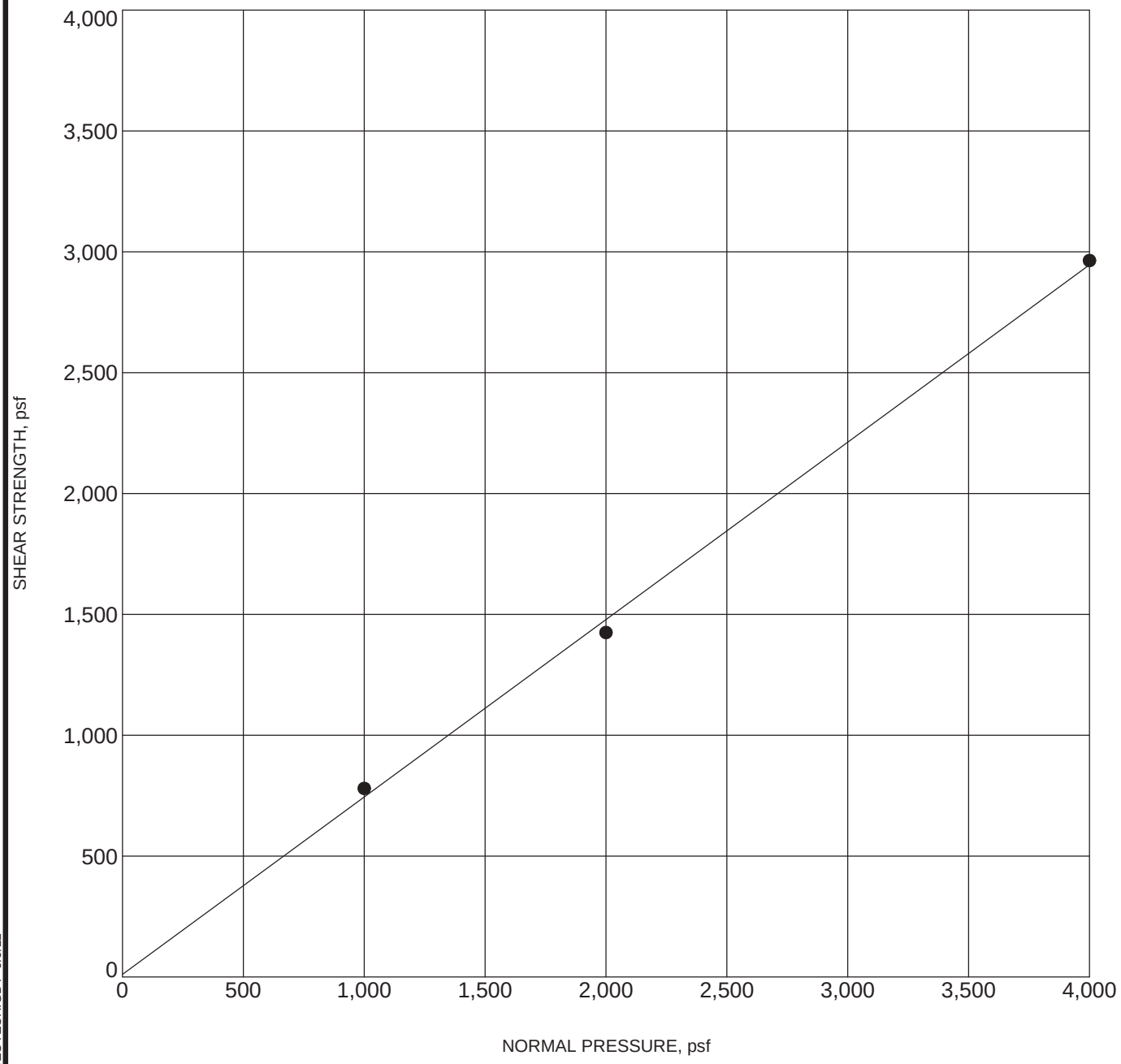
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/7/22



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**5.0**	**Old Paralic Deposits - Sand**	**126**	**5**	**11**	**36**

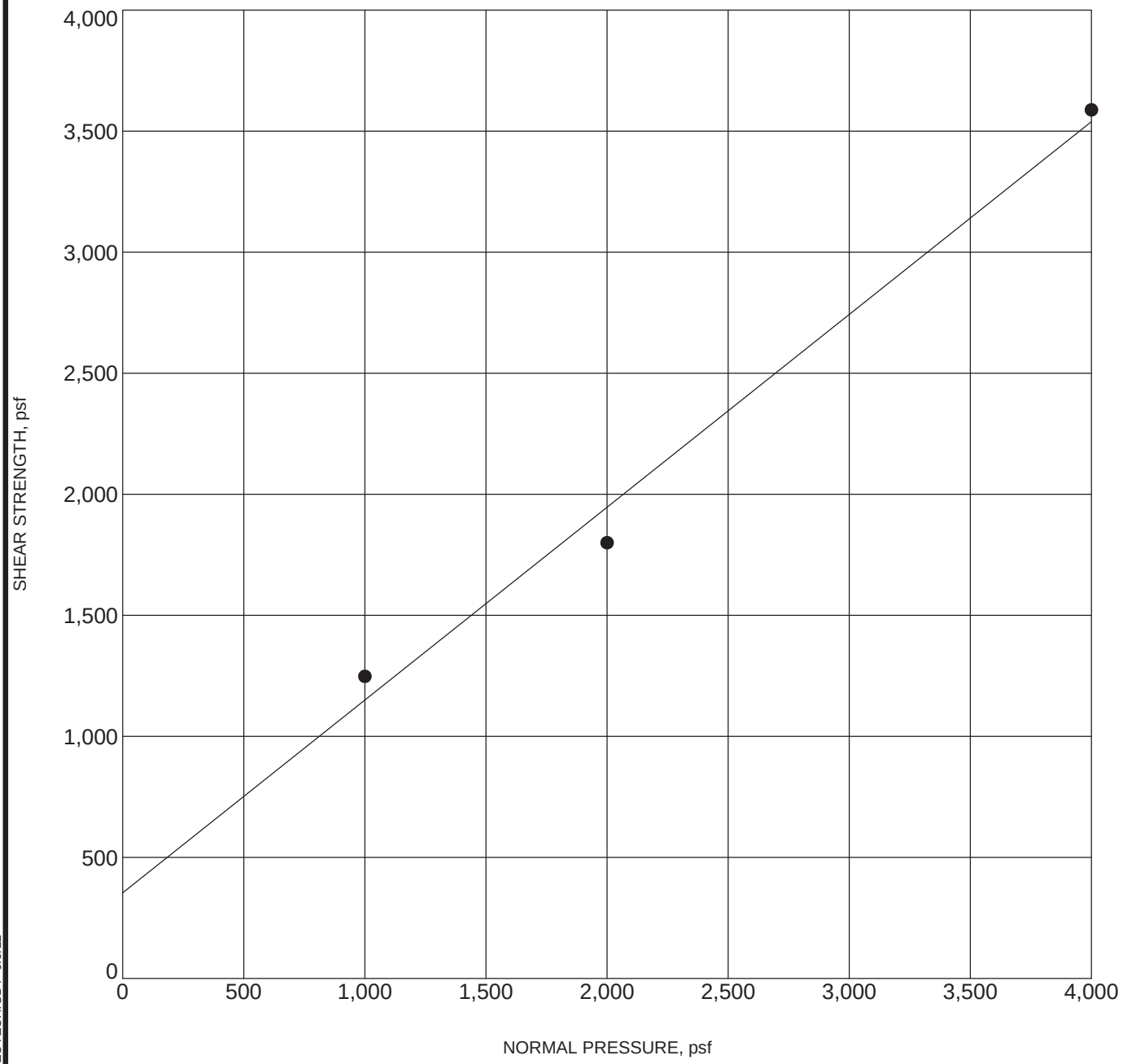
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**10.0**	**Old Paralic Deposits - Silt and Gravel**	**125**	**11**	**354**	**39**

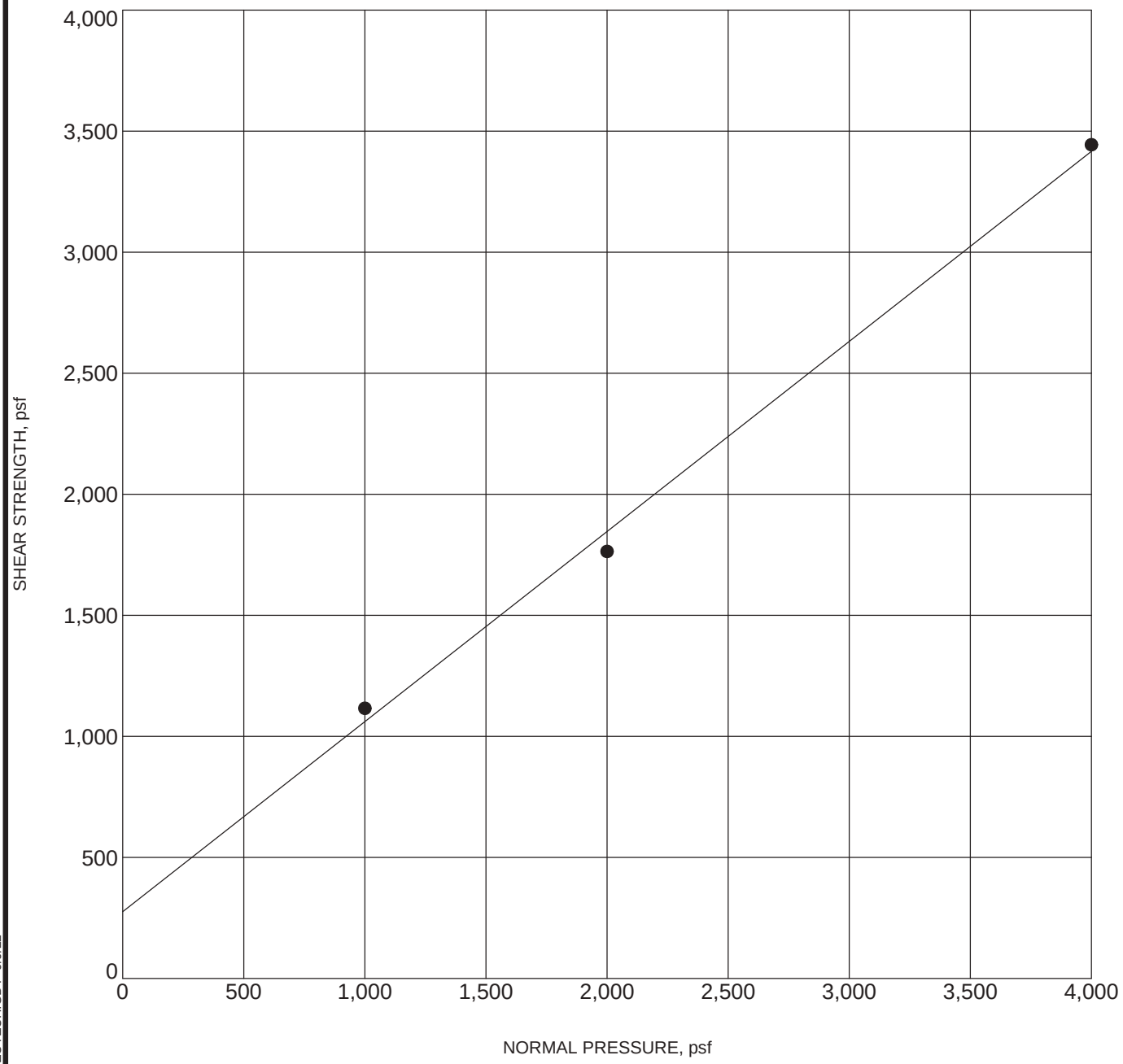
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**20.0**	**Old Paralic Deposits - Silt and Gravel**	**126**	**10**	**276**	**38**

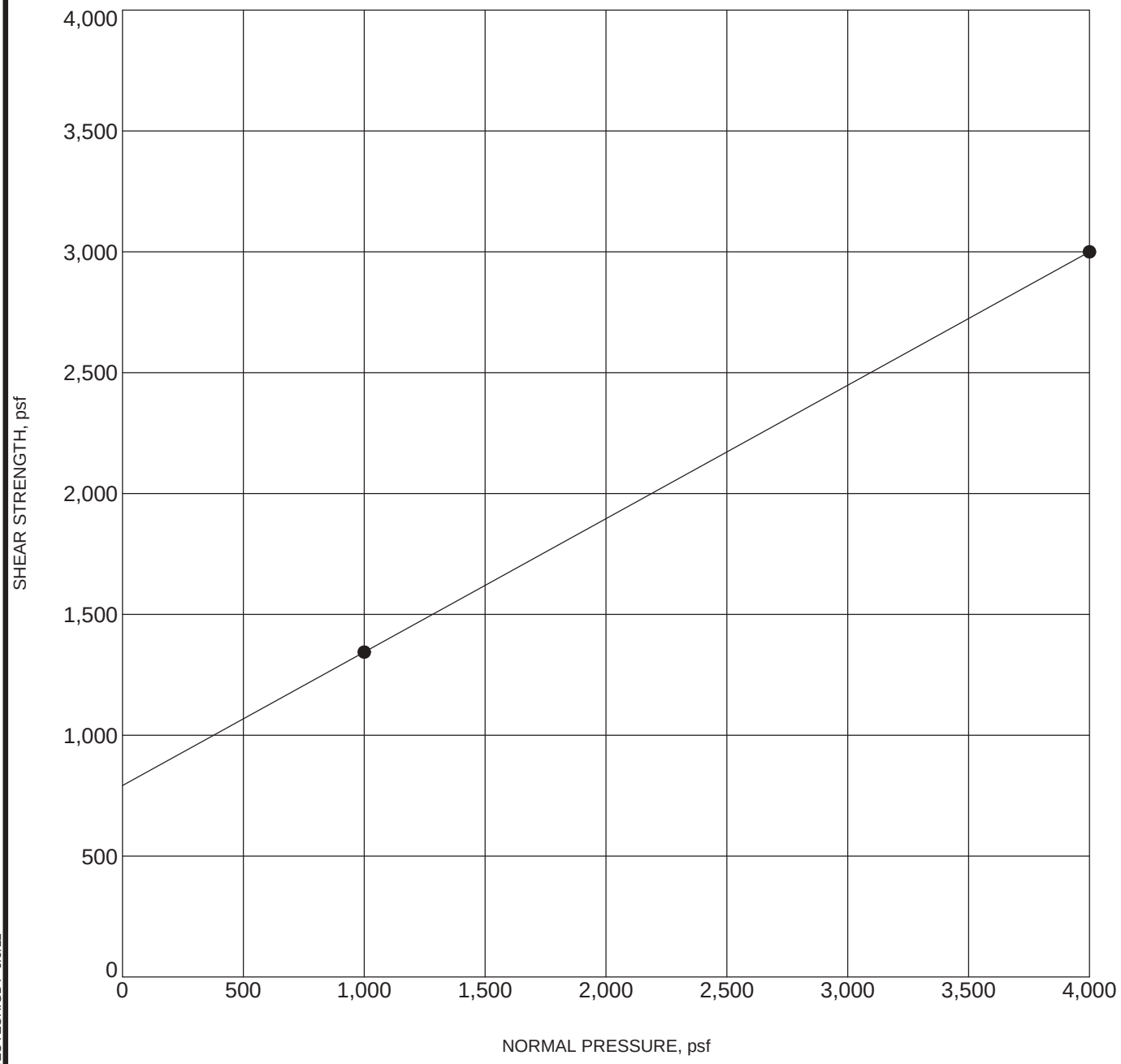
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**24.0**	**Old Paralic Deposits - Sand**	**115**	**7**	**792**	**29**

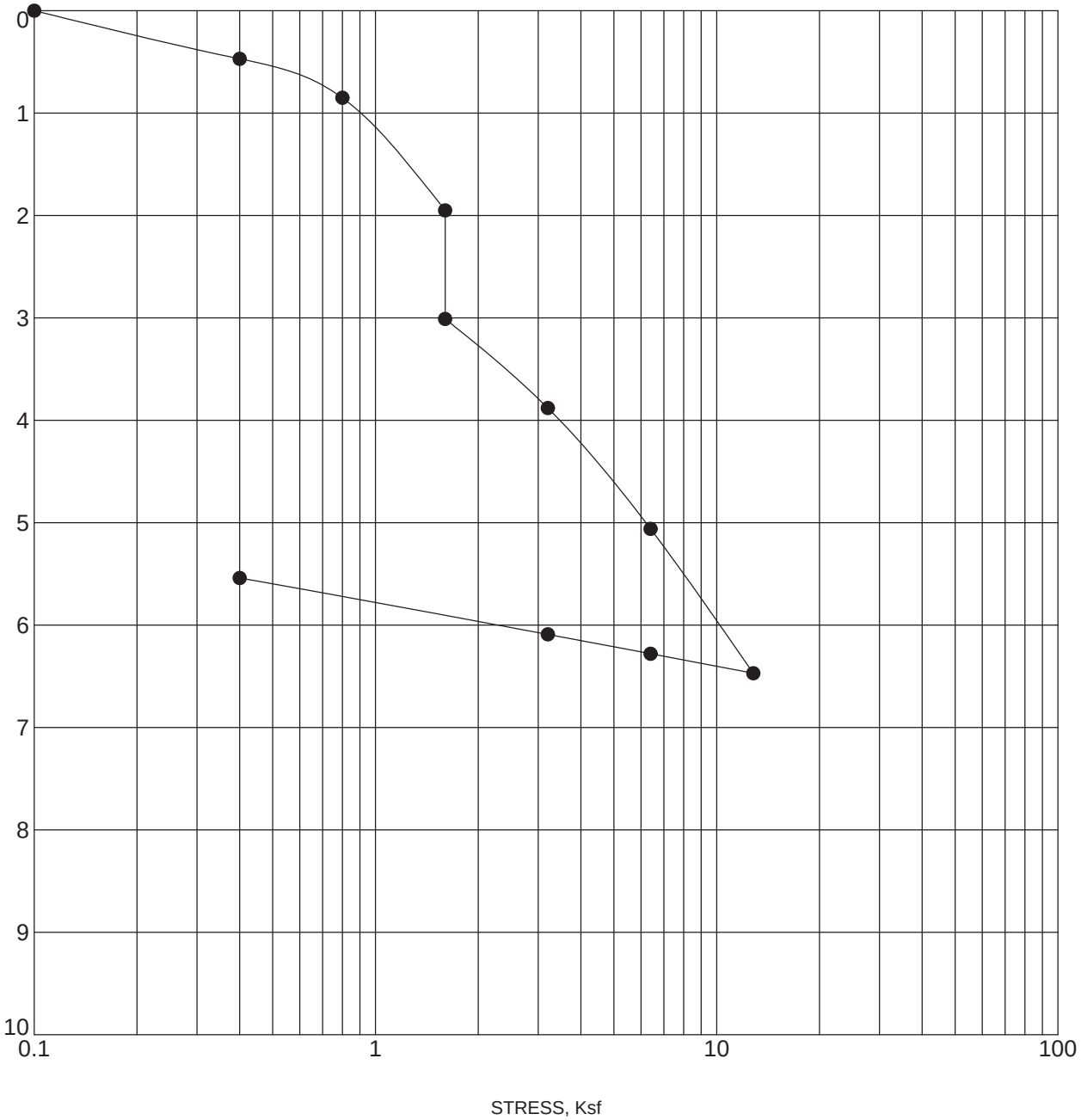
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%
● **B-2** **24.0**		**Old Paralic Deposits - Sand**	**115**	**7**

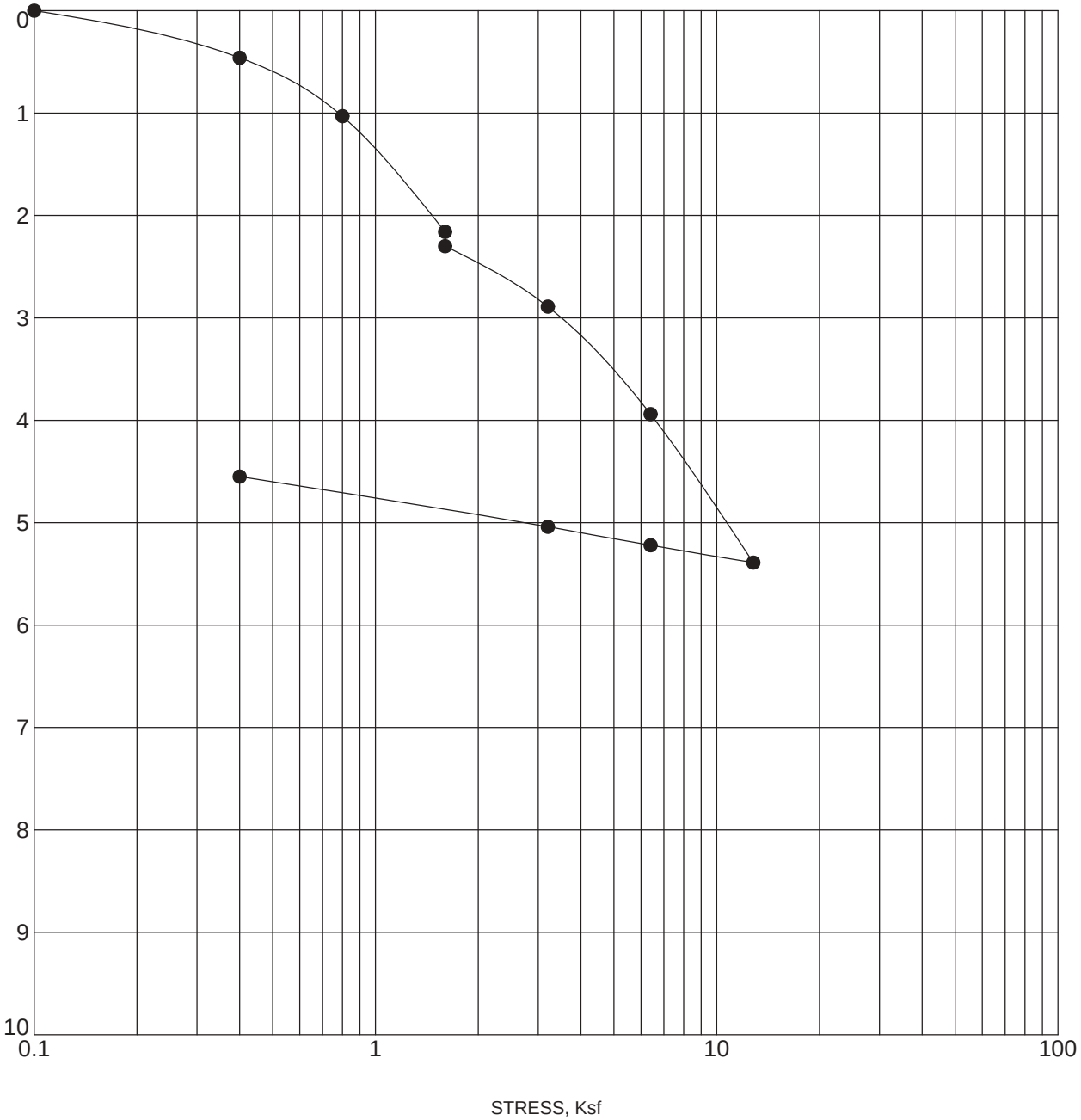
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

CONSOLIDATION TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US CONSOL STRAIN 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification			Classification	γ_d	MC%
●	**B-3**	**5.0**	**Old Paralic Deposits - Sand**	**123**	**9**

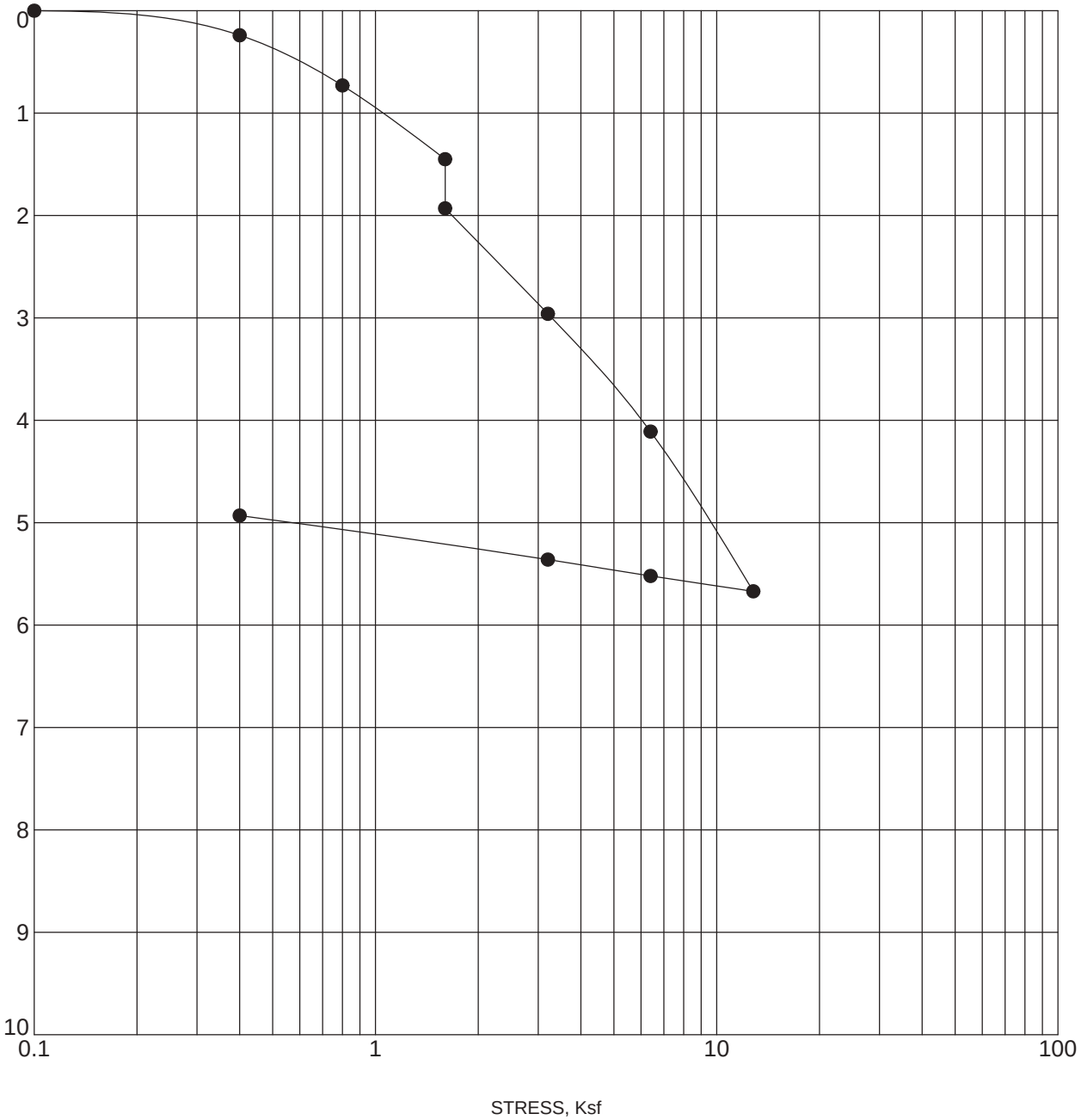
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

CONSOLIDATION TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US CONSOL STRAIN 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%
● **B-3** **10.0**		**Old Paralic Deposits - Sand**	**118**	**3**

TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

CONSOLIDATION TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US CONSOL STRAIN 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22

ANAHEIM TEST LAB, INC

196 Technology Dr., Unit D
Irvine, CA 92618
Phone (949) 336-6544

TO:

TGR GEOTECHNICAL
3037 S. HARBOR BLVD.
SANTA ANA, CA 92704

DATE: 8/30/2022

P.O. NO.: Verbal

LAB NO.: C-6281

SPECIFICATION: CTM-643/417/422

MATERIAL: Soil

Project No.: 22-7517
Project: 401 Mission Ave.
Sample ID: B1 @ 0-5'

ANALYTICAL REPORT

CORROSION SERIES

SUMMARY OF DATA

pH	MIN. RESISTIVITY per CT. 643 ohm-cm	SOLUBLE SULFATES per CT. 417 ppm	SOLUBLE CHLORIDES per CT. 422 ppm
7.2	3,600	341	74

RESPECTFULLY SUBMITTED

WES BRIDGER LAB MANAGER

APPENDIX D
SITE SEISMICITY

TGR GEOTECHNICAL
DBE & 8(a) firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

401 Mission Avenue, Oceanside

Latitude, Longitude: 33.1950, -117.3798



Date	9/21/2022, 11:17:41 AM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	C - Very Dense Soil and Soft Rock

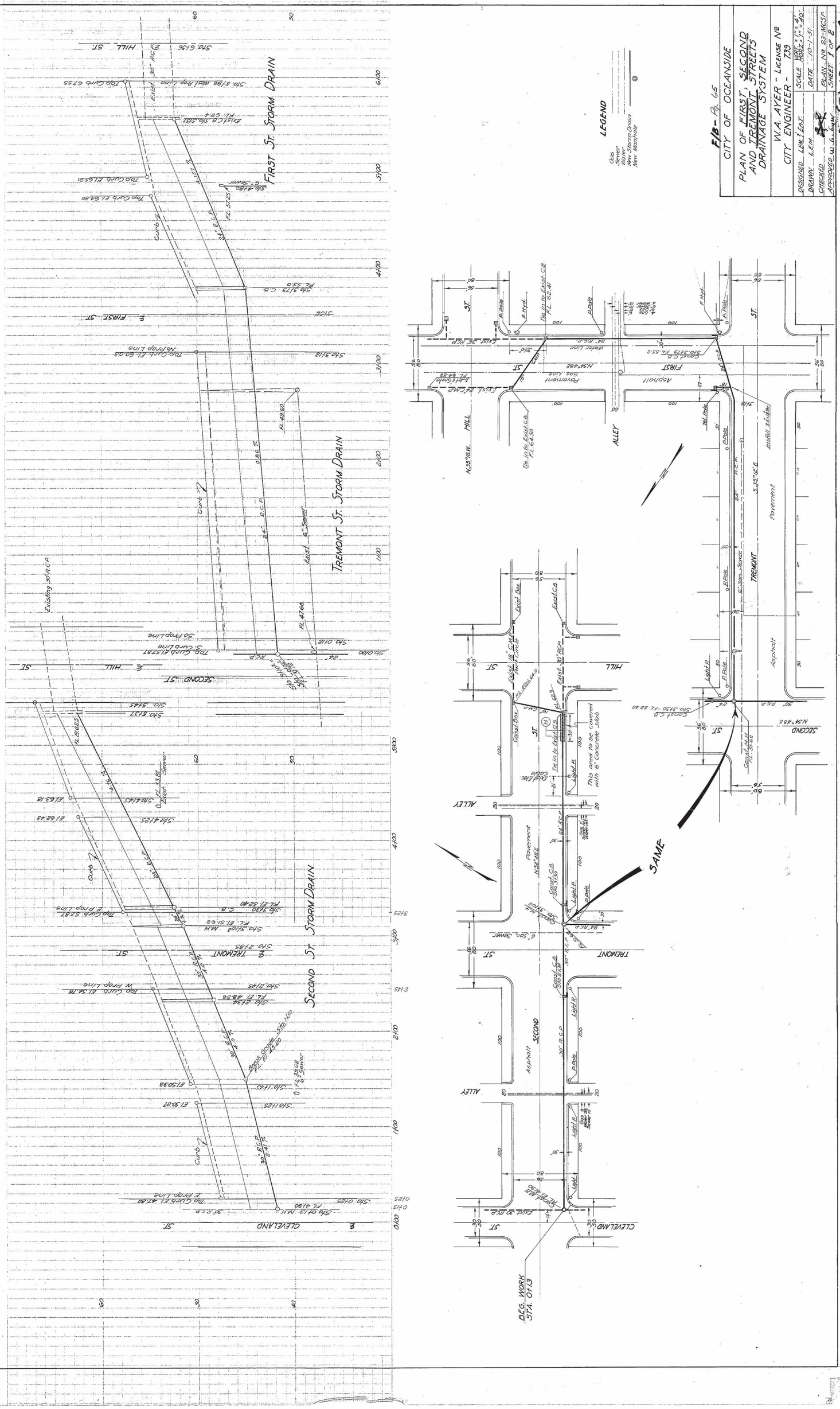
Type	Value	Description
S_S	1.068	MCE_R ground motion. (for 0.2 second period)
S_1	0.39	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.281	Site-modified spectral acceleration value
S_{M1}	0.584	Site-modified spectral acceleration value
S_{DS}	0.854	Numeric seismic design value at 0.2 second SA
S_{D1}	0.39	Numeric seismic design value at 1.0 second SA

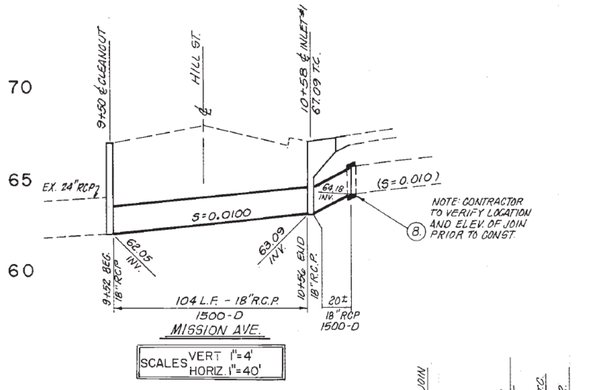
Type	Value	Description
SDC	D	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	1.5	Site amplification factor at 1.0 second
PGA	0.47	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.564	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	1.068	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.19	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.523	Factored deterministic acceleration value. (0.2 second)
S1RT	0.39	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.429	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.627	Factored deterministic acceleration value. (Peak Ground Acceleration)
PGA_{UH}	0.47	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration
C_{RS}	0.897	Mapped value of the risk coefficient at short periods
C_{R1}	0.909	Mapped value of the risk coefficient at a period of 1 s
C_V	1.114	Vertical coefficient

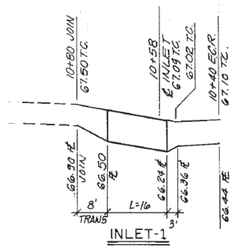
DISCLAIMER

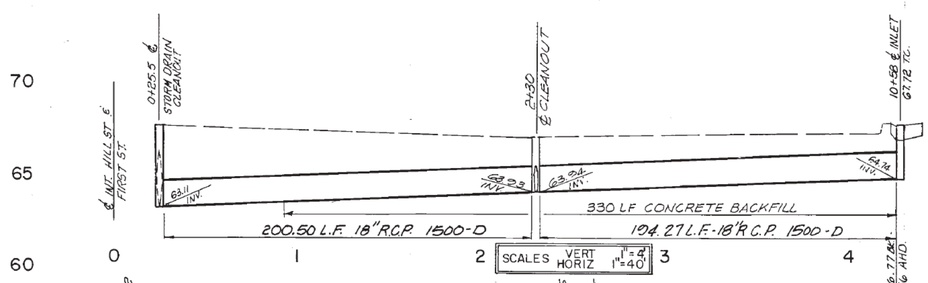
While the information presented on this website is believed to be correct, SEAOC /OSHPD and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in this web application should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. SEAOC / OSHPD do not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the seismic data provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the search results of this website.

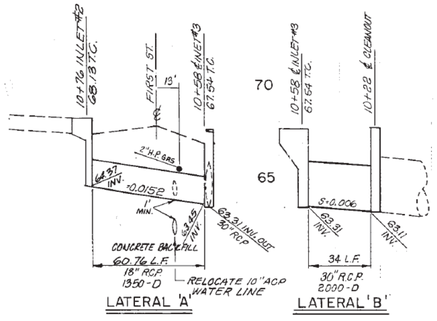
S-1016

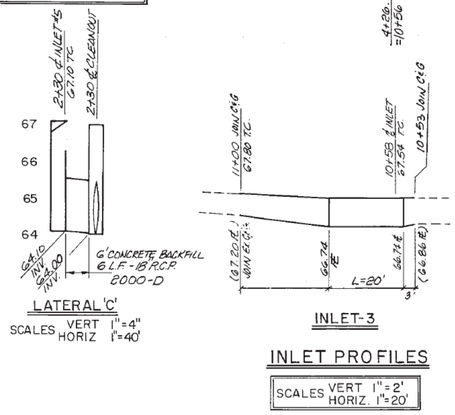

LEGEND
Gas
Sewer
Water
Storm Drain
New Manhole
F/B - Pg. 65
CITY OF OCEANSIDE
PLAN OF FIRST, SECOND AND TREMONT STREETS DRAINAGE SYSTEM
W.A. AYER - LICENSE NO 739
CITY ENGINEER
DESIGNED
DRAWN
CHECKED
APPROVED
SCALE
DATE
PLAN NO 23-MCSA
SHEET 1 OF 2
FIRST ST. STORM DRAIN
TREMONT ST. STORM DRAIN
SECOND ST. STORM DRAIN
HILL ST
FIRST ST
SECOND ST
TREMONT ST
CLEVELAND ST
ALLEY
Asphalt Pavement
This area to be covered with 6" Concrete Slab
SAME
BEG. WORK STA. 01.13

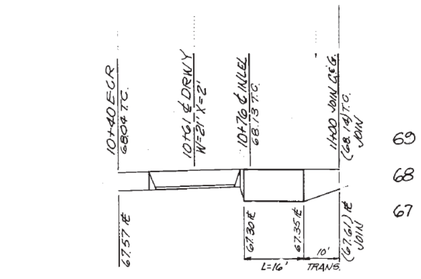


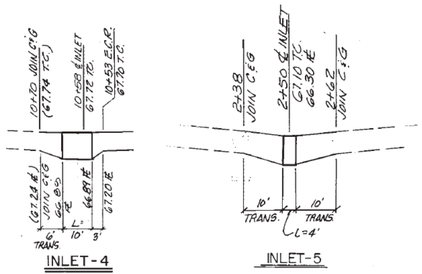


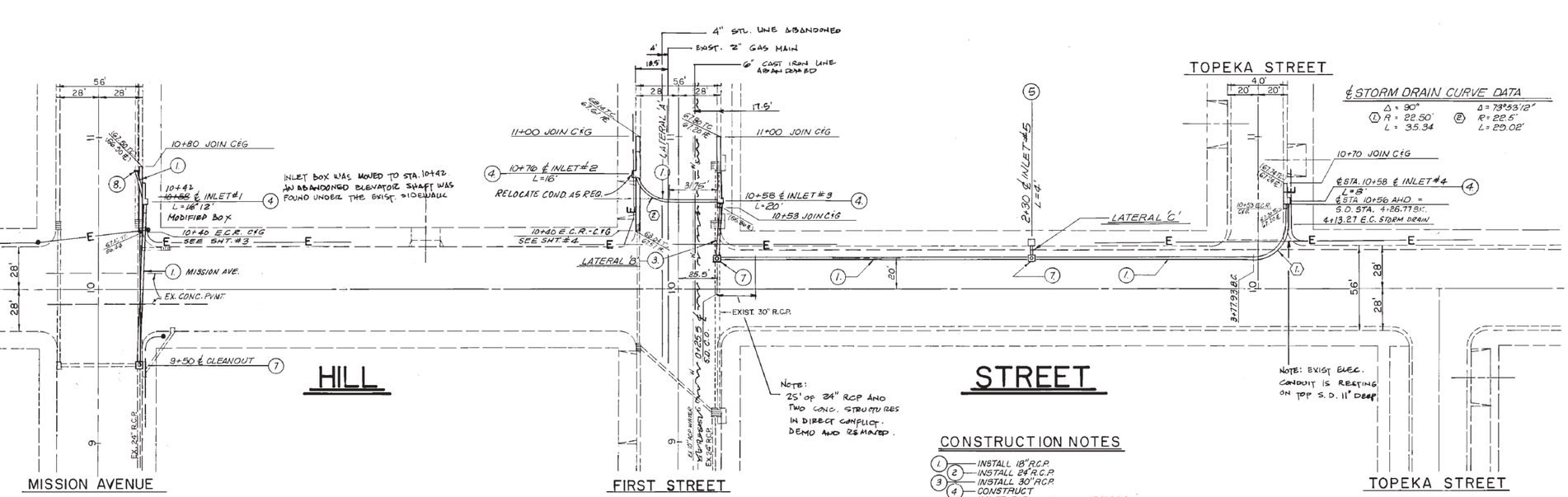












℄ STORM DRAIN CURVE DATA

① $\Delta = 90°$, $R = 22.50'$, $L = 35.34$

② $\Delta = 73°53'12"$, $R = 22.5'$, $L = 29.02'$

DETAIL: REINFORCED CONCRETE COLLAR

NO SCALE

CONSTRUCTION NOTES

1. INSTALL 18" R.C.P.
2. INSTALL 24" R.C.P.
3. INSTALL 30" R.C.P.
4. CONSTRUCT INLET PER STD. D-2.1 TYPE B-1.
5. CONSTRUCT INLET PER STD. D-2.1 TYPE B.
6. CONSTRUCT INLET PER STD. D-3.1 TYPE G.
7. CONST STORM DRAIN PER STD. D-10 TYPE B-5.
8. CONST. REINFORCED CONCRETE COLLAR PER DETAIL HEREON.
9. SINGLE GRATE PER STD. DWG. D-15, TYPE G-4

REVISIONS				REFERENCES	
NUMBER	DATE	INITIALS	APP'VD		

PREPARED UNDER THE SUPERVISION OF: Monte P. Bowers, R.C.E. NO. 26293 — DATE: 6/30/83

DRAWN BY

CHECKED

RECOMMENDED

APPROVED: DEPARTMENT OF PUBLIC WORKS — DATE:

STORM DRAIN IMPROVEMENTS

HILL STREET RECONSTRUCTION

HILL STREET

MISSION AVE TO TOPEKA ST.

CITY OF OCEANSIDE

R-4597

SHEET NO. 10 OF 12

CENTERLINE

50

TOP OF CURB
32' RIGHT

50

70

70

17+14.92 ℄ CLEVELAND ST (47.77)
17+20.92 39.00 IE
17+25.00 (47.50)
17+50.00 (48.15)
17+55.00 PCR (47.97 TC)
17+75.00 (48.52)
17+75.00 (48.40 TC)
18+00.00 (49.10)
18+00.00 (48.98 TC)
18+25.00 (49.96)
18+25.00 (49.77 TC)
18+50.00 – SEWER MANHOLE (50.88)
18+50.00 (50.77 TC)
18+54.00 – CONNECT TO EXIST. 8" WATER 48.0 TOP
18+75.00 (51.84)
18+75.00 (51.73 TC)
19+00.00 (52.74)
19+00.00 (52.59 TC)
19+25.00 (53.75)
19+25.00 (53.82 TC)
19+50.00 (54.75)
19+50.00-MATCH EXISTING (54.34 TC)
19+75.00 (55.72)
19+79.9 46.02± IE
19+99.9 – CONNECT TO EXIST. 12" WATER 49.6 TOP
20+00.00 (56.99)
20+09.9 – CONNECT TO EXIST. 8" WATER 50.0 TOP
20+25.00 (57.60)
20+50.00 (58.64)
20+50.00 55.6 TOP
20+51.50-MATCH EXISTING (58.36 TC)
20+75.00 (59.75)
20+75.00 (59.40 TC)
21+00.00 (60.86)
21+00.00 (60.46 TC)
21+25.00 (61.94)
21+25.00 (61.53 TC)
21+48 SEWER MANHOLE
21+50.00 (63.06)
21+50.00 (62.58 TC)
21+55.00 – CONNECT TO EXIST. 8" WATER 60.2 TOP
21+75.00 (64.12)
21+75.00 (63.66 TC)
22+00.00 (65.10)
22+00.00 (64.70 TC)
22+25.00 (65.93)
22+25.00 (65.68 TC)
22+50.00 (66.52)
22+51.50 PCR (66.57 TC)
22+75.00 (66.83)
23+00.00 ℄ COAST HWY. (67.47)
22+82.00 90° BEND
61.5 TOP

16" DI OUTFALL @ 2.70% (RESTRAINED JOINTS)
10" PVC SEWER
30" SDR
8" PVC WATER C900 @ 4.0%
38.92 IE± VERIFY INVERT ELEVATION
12" PVC WATER @ 4.4%
12" PVC WATER C900 @ 4.0%
4" BEND
4" BEND
4" BEND
12" PVC WATER @ 4.4%
12" PVC WATER C900 @ 1.0%
53.00± VERIFY INVERT ELEVATION
EXIST. 16" DI OUTFALL @ 2.70%
EXIST. SDG&E
EXIST. GRADE @ CENTERLINE
EXIST. TOP OF CURB

PROFILE: MISSION AVENUE

SCALE: 1"=20' HORIZ.
1"=4' VERT.

17 18 19 20 21 22 23

SEE SHEET 7

STREET

WATER DATA

NO.	DELTA/BRG	RADIUS	LENGTH	REMARKS
1	N55°21'19"E		145.92'	8"PVC C900
2	N55°21'19"E		155.12'	12"PVC C900
3	N55°21'19"E		127.00'	12"PVC C900

EXIST. 6" SEWER
EXIST. 8" WATER
18+54 – 20' LT. EXIST. 8" GV
18+88 6" FIRE SERVICE
EXISTING ENHANCED PAVEMENT (SEE DETAIL SHEET 2)
17+20.92 90° BEND
17+14.92 MISSION AVE.= 20+00.00 CLEVELAND
MISSION
CLEVELAND
18+50 – LOCATE EXIST. 6" SEWER, CONST. MANHOLE OVER PIPE, REMOVE PIPE SOUTHERLY, CONNECT 6" LATERAL
18+54± – LOCATE EXIST. 8" WATER, CONNECT WITH 8" 90° BEND, ABANDON PIPE SOUTHERLY
16" DI OUTFALL
19+79.9 – LOCATE EXIST. DI OUTFALL, CUT & CONNECT WITH 90° BEND INSTALL THRUST BLOCK PER NOTE 4 OF OUTFALL TRENCH DETAIL SHT. 2
8" PVC WATER C900
EXIST. 36" STORM DRAIN
17+55 PCR
17+57.5 – EXIST. 5' CURB INLET
18+47 – INSTALL 6" SEWER LATERAL @ 2%, 41.00 IE AT ℄
REMOVE EXISTING UNDERGROUND UTILITIES WITHIN ALLEY SOUTHERLY OF MISSION AVE.
EXIST. 6" SEWER
ALLEY
18+59 – INSTALL 6" SEWER LATERAL @ 2%, 41.00 IE AT ℄
18+69 2"
18+72 2"
18+75 2"
18+78 1"
18+81 1"
18+84 1"
SET SERVICE BOXES FOR FUTURE CURB @ 36' RT. OF ℄
19+00 – INSTALL 12" PVC SDR-35 STORM DRAIN @ 2%, LUG, CONNECT TO EXIST. 36" RCP @ SWING LINE PER D-53, CAP AT ℄
19+38 41' RT. OF ℄ INSTALL COMMERCIAL FIRE HYDRANT 2-1/2" & 1 – 4" OUTLETS PER W-2*, 54.60 FLG.
19+58 12" PVC SDR-35 CONNECT TO EXIST. 36" RCP
19+81 – 27' RIGHT INSTALL 2" AIR VAC PER DETAIL SHEET 2
ELECT.
TREMONT STREET
REMOVE EXISTING UNDERGROUND UTILITIES WITHIN TREMONT ST. SOUTHERLY OF MISSION AVE. (DID NOT REMOVE OUTFALL PIPELINE-DRY SAND FILLED)
20+20 TREMONT STREET EXIST. 8" GV
LOCATE EXIST. 6" SEWER – CONSTRUCT M.H. OVER PIPE, ABANDON SOUTHERLY
19+99.9± – LOCATE EXIST. 12" WATER, CONNECT WITH 12" GV (FLGx RT) & 12"TEE,(FLG), ADD 2 VERTICAL 22½° BENDS & THRUST BLOCKS FOR TIE-IN, ABANDON PIPE SOUTHERLY.
20+09.9± – LOCATE EXIST. 8" WATER, CONNECT WITH 12"x 8" TEE (FLG) ABANDON PIPE SOUTHERLY
EXIST. 16" DI OUTFALL SEWER
EXIST. 12" WATER
EXIST. 8" WATER
EXIST. 6"SEWER
19+99.87 MISSION AVE.= 20+00.00 TREMONT ST.
20'±
8" X 12" REDUCER
EXISTING ENHANCED PAVEMENT (SEE DETAIL SHEET 2)
12" PVC WATER C900
12"GV
8"GV
19+54.5 – EXIST. 7' CURB INLET
20+80 1"
20+25 – REMOVE EXIST. SEWER MANHOLE, ABANDON PIPE BOTH DIRECTIONS
AVENUE
21+55± – 20' LT. EXIST. 8" GV
21+48± – LOCATE EXIST. 6" SEWER, CONST. MANHOLE OVER PIPE, ABANDON PIPE SOUTHERLY
21+55± – LOCATE EXIST. 8" WATER, 12"x 8" TEE (FLG) ABANDON PIPE SOUTHERLY
EXISTING ENHANCED PAVEMENT (SEE DETAIL SHEET 2)
EXIST. 24" STORM DRAIN
21+52 6" SEWER LATERAL @ 2% 53.80 IE AT ℄
21+67 – INSTALL 8" PVC SDR-35 STORM DRAIN @ 2%, LUG, CONNECT TO EXIST. 24" RCP @ SWING LINE PER D-63, CAP AT ℄
REMOVE EXISTING UNDERGROUND UTILITIES WITHIN ALLEY SOUTHERLY OF MISSION AVE.
22+82 – 90° BEND
22+51.5 PCR
COAST HIGHWAY
23+00.00 MISSION AVE.= 20+00.00 COAST HWY.
SEE SHEET 4
SEE SHEET 6

OUTFALL DATA

NO.	DELTA/BRG	RADIUS	LENGTH	REMARKS
1	N55°20'51"E		258.99'	16"DI CL350 RESTRAINED JOINTS

20 10 0 20 40 60
SCALE: 1" = 20'

SCALE: 1" = 20'

ENGINEER OF WORK
SNIPES-DYE ASSOCIATES
CIVIL ENGINEERS AND LAND SURVEYORS
8348 CENTER DRIVE, STE. G, LA MESA, CA 91942
TELEPHONE (619) 697-9234 FAX (619) 460-2033
ROBERT L. BRUCKART R.C.E. 48158
EXPIRES 06-30-00 10/21/98

NO.	DESCRIPTION	APPV'D	DATE
1	ADD AIR VAC		
2	REVISE FIRE HYDRANT AND SERVICE LOCATIONS		
3	RECORD DRAWINGS		

Description CITY OF OCEANSIDE BM # 1
USGS A-64 BRASS CAP
Location SOUTHERLY PORTION OF INTERSECTION OF 2ND & CLEVELAND
Record From: CITY DATUM BOOK 162-5
Elev. 47.257 Datum MSL

REGISTERED PROFESSIONAL ENGINEER ROBERT L. BRUCKART No. 48158 Exp. 6-30-00 CIVIL STATE OF CALIFORNIA

SHEET 3	CITY OF OCEANSIDE ENGINEERING DEPARTMENT	11 SHEETS

PLANS FOR THE IMPROVEMENT OF:

MISSION AVENUE

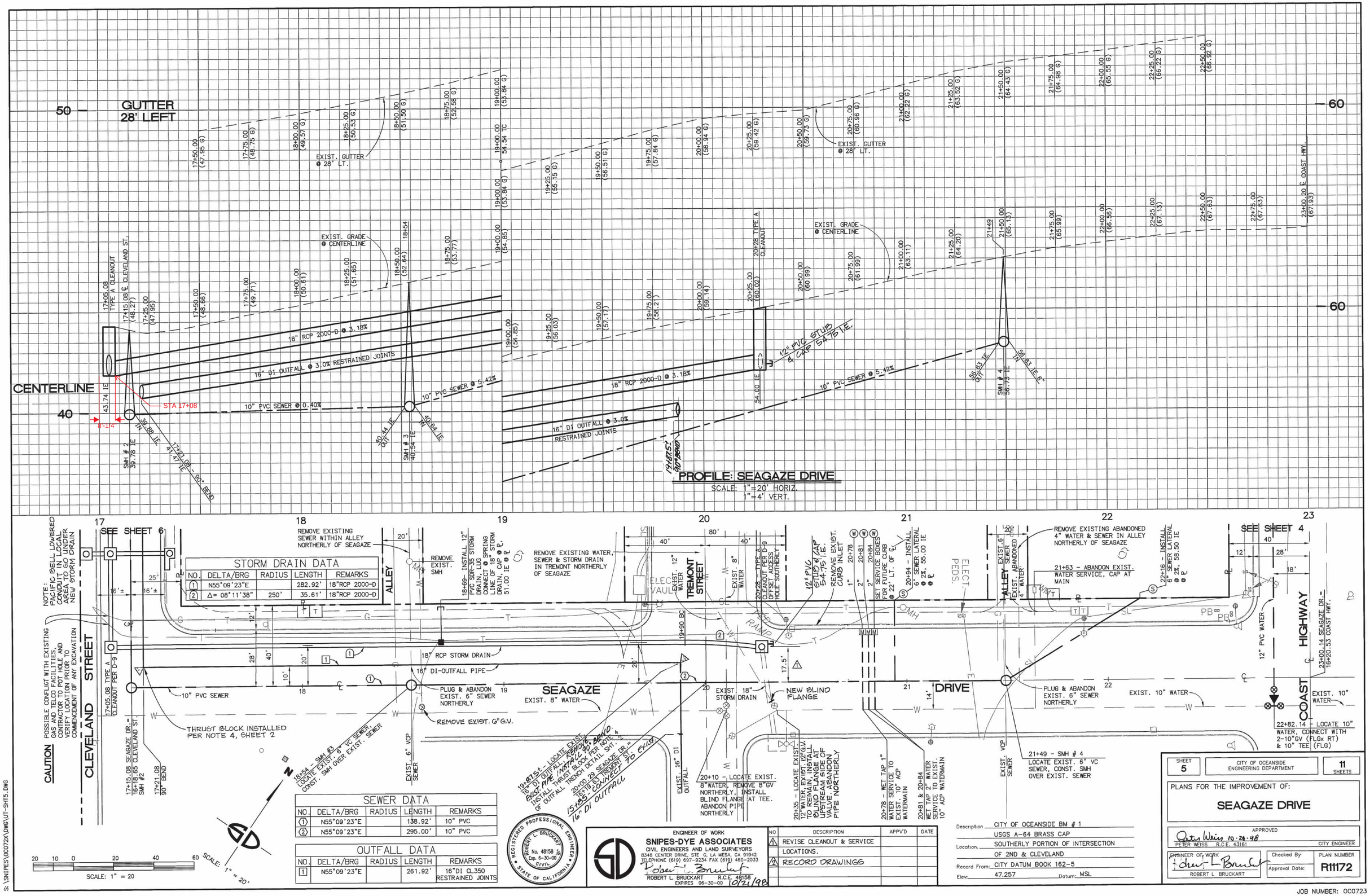
APPROVED
Peter Weiss 10-20-98
PETER WEISS R.C.E. 43161 CITY ENGINEER

ENGINEER OF WORK Robert L. Bruckart ROBERT L. BRUCKART
Checked By
Approval Date
PLAN NUMBER R11170

JOB NUMBER: 0C0723 (C2)

S:\SNIPES\0C072X\DWG\UT-SHT3.DWG

R11170



NOTE: PACIFIC BELL LOWERED CABLE FACILITIES CONDUIT IN LOCAL AREA TO GO UNDER NEW STORM DRAIN

CAUTION POSSIBLE CONFLICT WITH EXISTING CABLE FACILITIES. CONTRACTOR TO POT HOLE AND VERIFY LOCATION PRIOR TO COMMENCEMENT OF ANY EXCAVATION

STORM DRAIN DATA				
NO.	DELTA/BRG	RADIUS	LENGTH	REMARKS
1	N55°09'23"E		282.92'	18"RCP 2000-D
2	Δ= 08°11'38"	250'	35.61'	18"RCP 2000-D

SEWER DATA				
NO.	DELTA/BRG	RADIUS	LENGTH	REMARKS
1	N55°09'23"E		138.92'	10" PVC
2	N55°09'23"E		295.00'	10" PVC

OUTFALL DATA				
NO.	DELTA/BRG	RADIUS	LENGTH	REMARKS
1	N55°09'23"E		261.92'	16"DI CL.350 RESTRAINED JOINTS

SCALE: 1" = 20'

ENGINEER OF WORK
SNIPES-DYE ASSOCIATES
CIVIL ENGINEERS AND LAND SURVEYORS
8349 CENTER DRIVE, STE. G, LA MESA, CA 91942
TELEPHONE (619) 697-9234 FAX (619) 460-2033
ROBERT L. BRUCKART R.C.E. 48158
EXPIRES 06-30-00 10/21/98

REGISTERED PROFESSIONAL ENGINEER ROBERT L. BRUCKART No. 48158 Exp. 6-30-00 CIVIL STATE OF CALIFORNIA

NO	DESCRIPTION	APPV'D	DATE
1	REVISE CLEANOUT & SERVICE LOCATIONS.		
2	RECORD DRAWINGS		

Description CITY OF OCEANSIDE BM # 1
USGS A-64 BRASS CAP
Location SOUTHERLY PORTION OF INTERSECTION OF 2ND & CLEVELAND
Record From: CITY DATUM BOOK 162-5
Elev. 47.257 Datum: MSL

SHEET 5 | CITY OF OCEANSIDE ENGINEERING DEPARTMENT | 11 SHEETS

PLANS FOR THE IMPROVEMENT OF:
SEAGAZE DRIVE

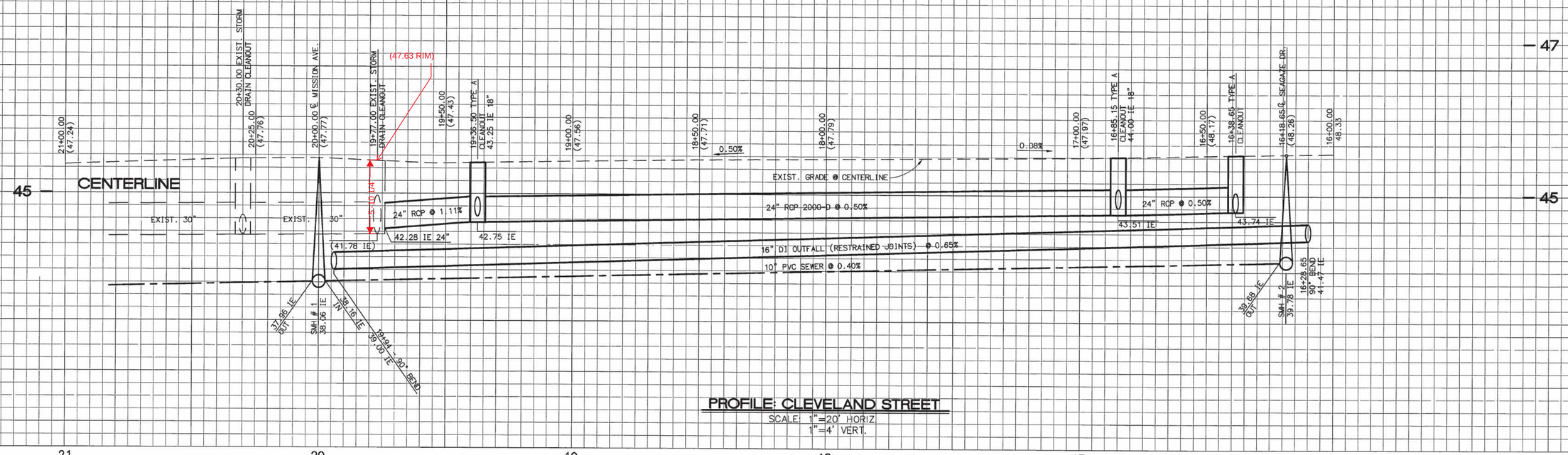
APPROVED
PETER WEISS R.C.E. 43161 CITY ENGINEER

ENGINEER OF WORK ROBERT L. BRUCKART
Checked By
Approval Date:
PLAN NUMBER R11172

JOB NUMBER: OC0723

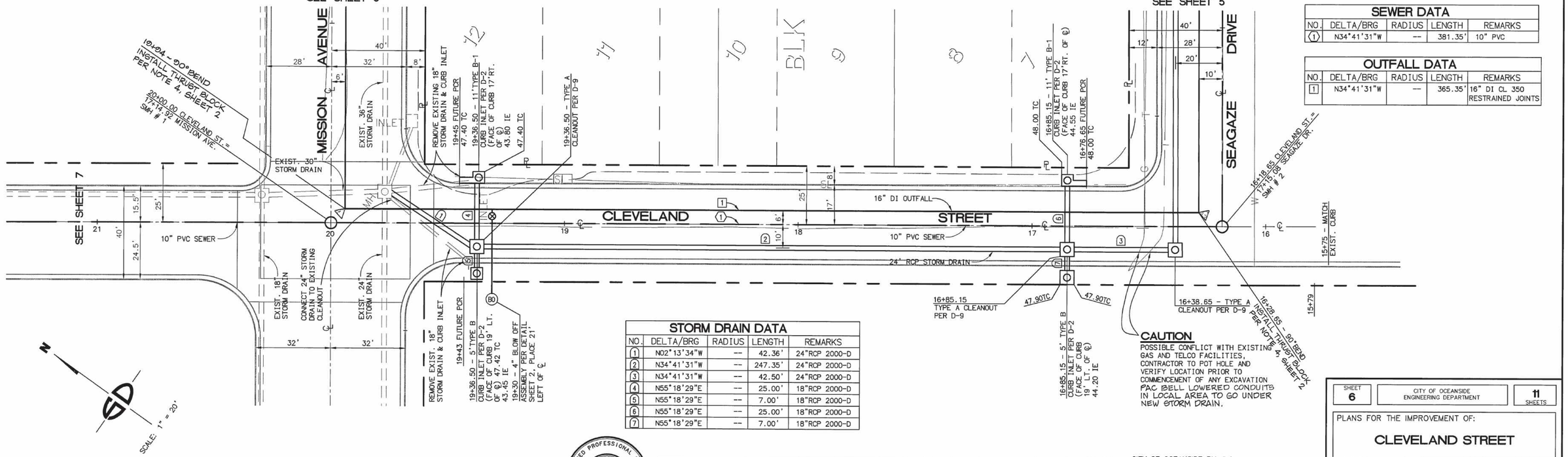
S:\SNIPES\OC0723\DWG\UT-SH15.DWG

R11172



PROFILE: CLEVELAND STREET

SCALE: 1"=20' HORIZ.
1"=4' VERT.



SEWER DATA

NO.	DELTA/BRG	RADIUS	LENGTH	REMARKS
⟨1⟩	N34°41'31"W	--	381.35'	10" PVC

OUTFALL DATA

NO.	DELTA/BRG	RADIUS	LENGTH	REMARKS
[1]	N34°41'31"W	--	365.35'	16" DI CL 350 RESTRAINED JOINTS

STORM DRAIN DATA

NO.	DELTA/BRG	RADIUS	LENGTH	REMARKS
(1)	N02°13'34"W	--	42.36'	24"RCP 2000-D
(2)	N34°41'31"W	--	247.35'	24"RCP 2000-D
(3)	N34°41'31"W	--	42.50'	24"RCP 2000-D
(4)	N55°18'29"E	--	25.00'	18"RCP 2000-D
(5)	N55°18'29"E	--	7.00'	18"RCP 2000-D
(6)	N55°18'29"E	--	25.00'	18"RCP 2000-D
(7)	N55°18'29"E	--	7.00'	18"RCP 2000-D

CAUTION
POSSIBLE CONFLICT WITH EXISTING GAS AND TELCO FACILITIES, CONTRACTOR TO POT HOLE AND VERIFY LOCATION PRIOR TO COMMENCEMENT OF ANY EXCAVATION PAC BELL LOWERED CONDUITS IN LOCAL AREA TO GO UNDER NEW STORM DRAIN.

REGISTERED PROFESSIONAL ENGINEER — ROBERT L. BRUCKART — No. 48158 Exp. 6-30-00 CIVIL — STATE OF CALIFORNIA

ENGINEER OF WORK
SNIPES-DYE ASSOCIATES
CIVIL ENGINEERS AND LAND SURVEYORS
8348 CENTER DRIVE, STE G, LA MESA, CA 91942
TELEPHONE (619) 697-9234 FAX (619) 460-2033
Robert L. Bruckart
ROBERT L. BRUCKART R.C.E. 48158
EXPIRES 06-30-00

NO	DESCRIPTION	APPV'D	DATE
1	RECORD DRAWINGS		

Description CITY OF OCEANSIDE BM # 1
USGS A-64 BRASS CAP
Location SOUTHERLY PORTION OF INTERSECTION OF 2ND & CLEVELAND
Record From: CITY DATUM BOOK 162-5
Elev 47.257 Datum MSL

SHEET 6	CITY OF OCEANSIDE ENGINEERING DEPARTMENT	11 SHEETS

PLANS FOR THE IMPROVEMENT OF:
CLEVELAND STREET

APPROVED
Peter Weiss 10-26-98
PETER WEISS R.C.E. 43161 CITY ENGINEER

ENGINEER OF WORK 9/11/98
Robert L. Bruckart
ROBERT L BRUCKART

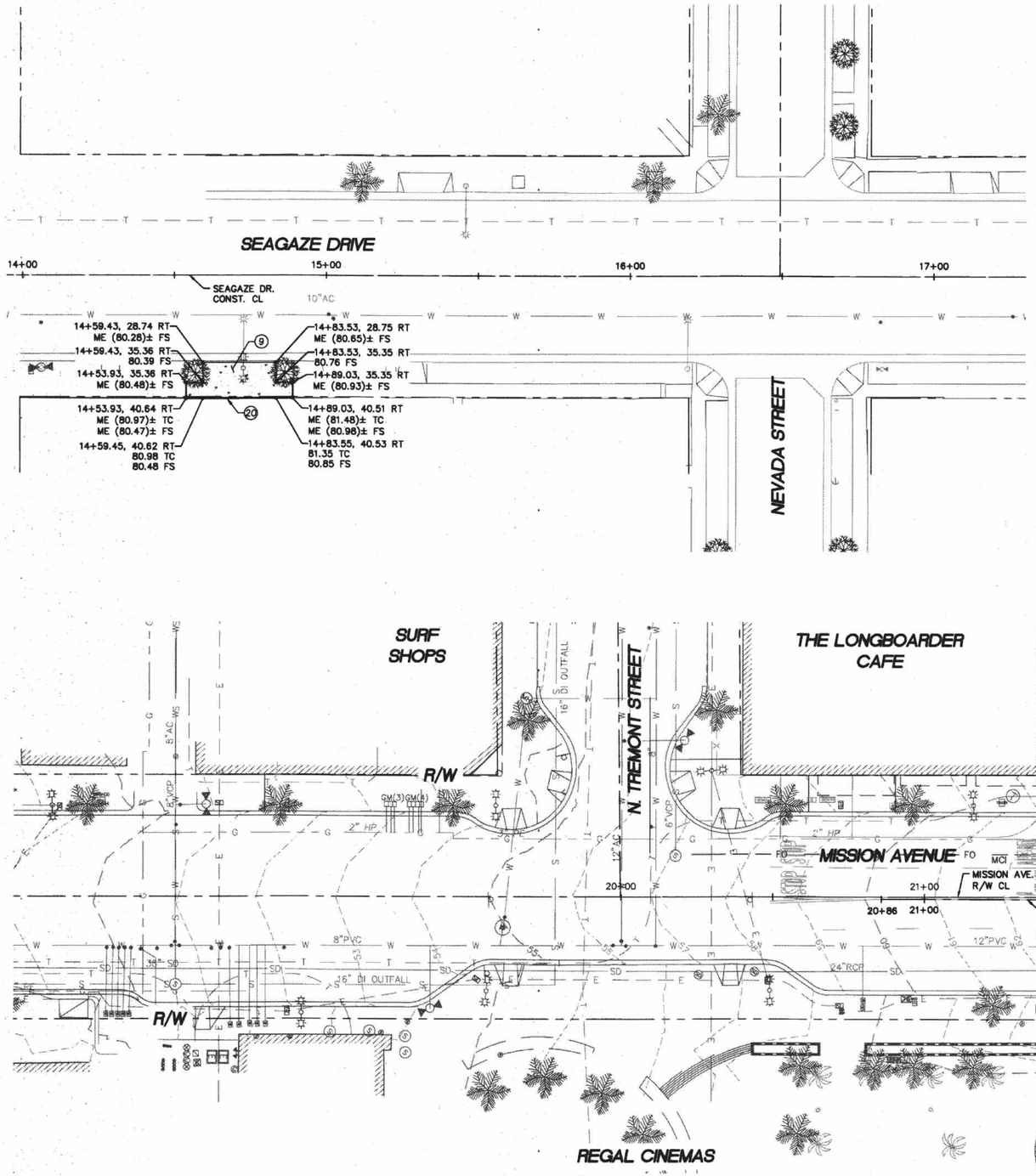
Checked By:
Approval Date.

PLAN NUMBER R11173

JOB NUMBER: 0C0723 (C2)

S:\SNIPES\0C0723X\DWG\UT-SHT6.DWG

R11173



LEGEND

	TYPICAL PAVEMENT SECTION 1 1/2" RUBBERIZED AC OVER 2 1/2" AC OVER 8" CLASS II AGGREGATE BASE, OVER PREPARED SUBGRADE PER GREENBOOK SPECIFICATIONS
	CONCRETE PAVEMENT
	LANDSCAPE AREA, REFER TO LANDSCAPE PLANS FOR DETAILS
— — —	SAWCUT
— · · · —	DRAINAGE FLOW LINE
(XXX.XX)	MATCH EXISTING

CONSTRUCTION NOTES

③	CONSTRUCT CURB RAMP – TYPE 'A' PER SDRSD G-27 (MODIFIED WIDTH=10') OVER 6" CLASS II AGGREGATE BASE, WITH TRUNCATED DOMES (DARK GRAY) PER CALTRANS STD DETAIL A88A
⑨	4" P.C.C. SIDEWALK OVER 6" CLASS II AGGREGATE BASE PER SDRSD G-7, FINISH PER LANDSCAPE ARCHITECT PLANS
⑭	ROADWAY SAWCUT PER DETAIL A SHEET 18
⑮	CONSTRUCT CURB TRANSITION PER DETAIL B SHEET 18
⑯	INSTALL TRUNCATED DOMES (DARK GRAY) PER CALTRANS STD DETAIL A88A
⑰	CONSTRUCT 7" 520-C-2500 P.C.C. PAVEMENT OVER 6" CLASS II AGGREGATE BASE, COLOR AND FINISH PER LANDSCAPE PLANS SHEET 41
⑳	CONSTRUCT GRAVITY RETAINING WALL TYPE A PER SDRSD C-9

PROJECT EARTHWORK
CUT 3,850 CY

NOTE: EARTHWORK QUANTITIES ARE TAKEN FROM THE BOTTOM OF THE PROPOSED SUBRADE TO THE EXISTING GRADE. EARTHWORK INCLUDES BUT IS NOT LIMITED TO, EXISTING BITUMINOUS PAVEMENT, CONCRETE PAVEMENT, CURB OR ANY OTHER MATERIALS BEING REMOVED AS PART OF THIS CONTRACT.

ABBREVIATIONS

AC	ASPHALT CONCRETE
BC	BEGINNING OF CURVE
BVCE	BEGINNING OF VERTICAL CURVE ELEVATION
BVCS	BEGINNING OF VERTICAL CURVE STATION
C&G	CURB AND GUTTER
CL	CENTERLINE
DWAY	DRIVEWAY
EC	END OF CURVE
EVCE	END OF VERTICAL CURVE ELEVATION
EVCS	END OF VERTICAL CURVE STATION
FL	FLOW LINE
FS	FINISHED SURFACE
HORIZ	HORIZONTAL
LT	LEFT
ME	MATCH EXISTING
NO.	NUMBER
P.C.C.	PORTLAND CEMENT CONCRETE
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
PVI	POINT OF VERTICAL INTERSECTION
RT	RIGHT
R/W	RIGHT OF WAY
S.	SOUTH
SDRSD	SAN DIEGO REGIONAL STANDARD DRAWINGS
STA	STATION
STD	STANDARD
S/W	SIDEWALK
TC	TOP OF CURB
VC	VERTICAL CURVE
VERT	VERTICAL

GENERAL NOTES:

1. SEE HORIZONTAL CONTROL SHEETS FOR CURB AND CENTERLINE DATA.
2. CONTRACTOR TO SAWCUT AND REMOVE SIDEWALK TO THE NEAREST SCORE MARK BEYOND THE LIMITS OF REMOVAL AS SHOWN ON THE PLANS.
3. SEE STAKING DETAILS FOR DETAILED CROSS GUTTER INFORMATION.
4. SEE DRAINAGE PLANS FOR STORM DRAIN IMPROVEMENTS.
5. SEE SIGNING AND STRIPING PLANS FOR SIGNING AND STRIPING IMPROVEMENTS.

GRAPHIC SCALE IN FEET
0 10 20 40
SCALE: 1"=20'

WDID NO. 9 37 C367799

SHEET	CITY OF OCEANSIDE ENGINEERING DEPARTMENT	70 SHEETS
10		

IMPROVEMENT PLANS FOR:
MISSION AVENUE IMPROVEMENTS
IMPROVEMENT PLAN

Approved By:
SCOTT O. SMITH, RCE 58859 — CITY ENGINEER — 5-22-16 DATE

ENGINEER OF WORK EXP 06-30-14
MATTHEW CAPUZZI, RCE 69815

Checked By: CS
Approved Date: 5/16

CIP11-00025
R11-00005

CITY OF OCEANSIDE - MISSION AVENUE IMPROVEMENTS

DIGALERT
DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG
CALL 811
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

RECORD DRAWING
This drawing has been revised to show those changes during the construction process reported by the contractor to Kimley-Horn and Associates, Inc. and considered to be significant. This drawing is not guaranteed to be "As Built" but is based on the information made available.
Date: 3/13/15 By: Matthew B. Capuzzi

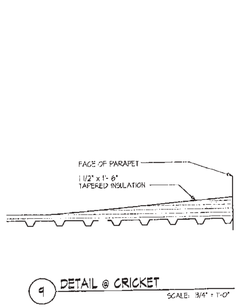
ENGINEER'S SEAL
REGISTERED PROFESSIONAL ENGINEER — MATTHEW B. CAPUZZI NO. 69815 — CIVIL — STATE OF CALIFORNIA

Kimley-Horn and Associates, Inc.
401 B Street, Suite 600, San Diego, CA 92101-4218
Tel: (619) 234-9411 Fax: (619) 234-9433
PREPARED UNDER THE DIRECT SUPERVISION OF:
MATTHEW B. CAPUZZI R.C.E. EXP. 06/30/14

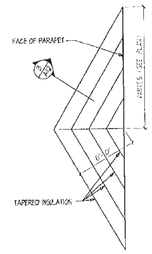
APPROVED CHANGES			
No.	Description	Approved By	Date

BENCH MARK
Description: FOUND CHISELED SQUARE
Location: 4' N'LY OF NORTH P.C., NORTH WESTERLY CURB RETURN OF HORNE AND MISSION STREETS
Record From: CITY OF OCEANSIDE, BM #F-43
Elev. 1984 ADJ. ELEV=117.368 FEET Datum: NGVD29

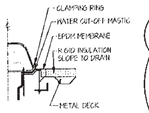
Oct 22, 2014 - 4:06pm K:\SND_LDEV\085488001-Mission Avenue\Design\Imp Plans\488001-IMP-01.dwg
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.



9 DETAIL @ CRICKET
SCALE: 3/4" = 1'-0"

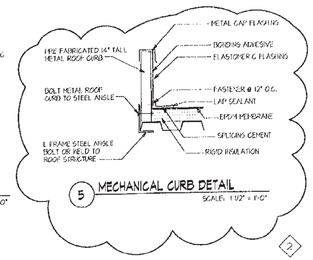


8 PLAN OF CRICKET
SCALE: 1/4" = 1'-0"

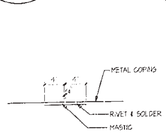


7 ROOF DRAIN DETAIL
SCALE: 1 1/2" = 1'-0"

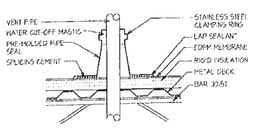
6 NOT USED
SCALE:



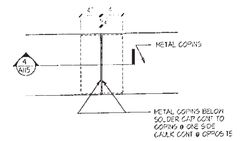
5 MECHANICAL CURB DETAIL
SCALE: 1 1/2" = 1'-0"



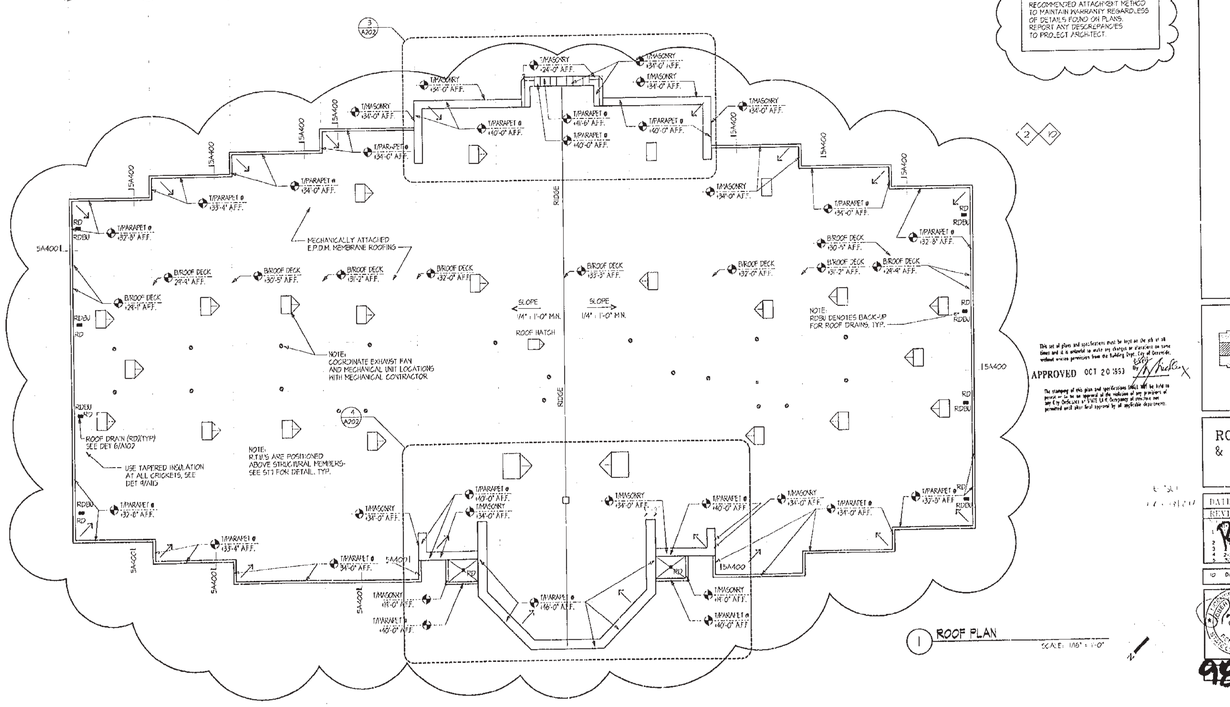
4 SECT. @ PARAPET CAP SPLICE
SCALE: 1 1/2" = 1'-0"

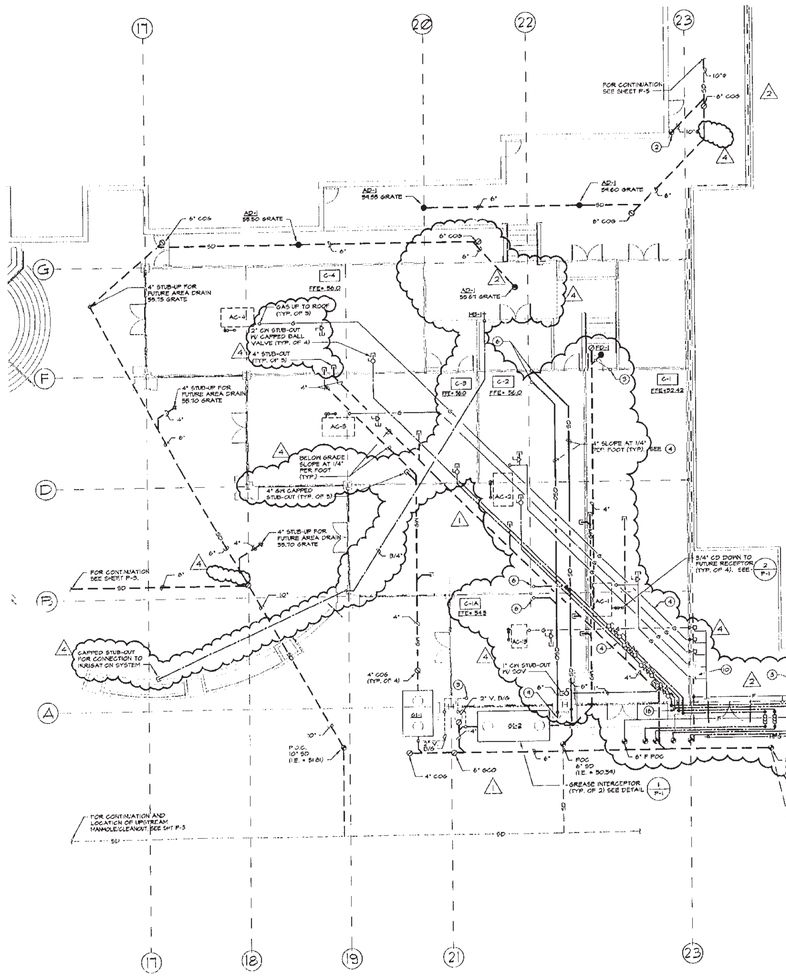


3 VENT PIPE FLASHING
SCALE: 1 1/2" = 1'-0"



2 PLAN @ PARAPET CAP SPLICE
SCALE: 1 1/2" = 1'-0"


MASONRY @36'-0" A.F.F.
MASONRY @34'-0" A.F.F.
MASONRY @38'-0" A.F.F.
MASONRY @35'-0" A.F.F.
MASONRY @37'-0" A.F.F.
MASONRY @34'-0" A.F.F.
MASONRY @36'-0" A.F.F.
MASONRY @38'-0" A.F.F.
MASONRY @34'-0" A.F.F.
MASONRY @36'-0" A.F.F.
MASONRY @35'-0" A.F.F.
MASONRY @37'-0" A.F.F.
MASONRY @36'-0" A.F.F.
MASONRY @34'-0" A.F.F.
MASONRY @36'-0" A.F.F.
MASONRY @35



NORTHWEST FLOOR PLAN - PLUMBING

SCALE: 1/8" = 1'-0"

NORTH

SHEET NOTES:

4
11 SEE NOTE 11
2 CONNECT TO STORM DRAIN PIPING FROM ROOF OF THEATRE
3 2" VTR
4 HANG PIPING TIGHT TO STRUCTURE ABOVE
5 6" REDUCED PRESSURE DETECTOR ASSEMBLY WITH OSY VALVES AND TAMPER SWITCHES
6 4" SCD & COD UP TO 4" RD'S & COD ON ROOF
7 MPG PIPING BY SDBC SIZE AND ROUTING OF MPG PIPING SERVING GAS METERS TO BE DETERMINED BY SDBC CONTRACTOR TO COORDINATE MPG LOCATION WITH SDBC TRENCHING FOR PIPE SHALL BE DONE BY CONTRACTOR
8 POC BY SDBC TO (E) 2" MPG. LOCATION OF POC TO (E) MPG TO BE DETERMINED BY SDBC
9 TERMINATE 6" OSD THRU FACE OF WALL AT 6" AFF
4 10 GAS METER (TYP OF 4) SEE 11 THRU 14 AND 17

11 GAS DEMAND ANALYSIS FOR SPACE G-1A:
TOTAL DEVELOPED LENGTH 200 FT
FUTURE FOOD PREPARATION 200 CFH
SPACE HEATING 20 CFH
TOTAL DEMAND 220 CFH
AC-4 (220 CFH) 4
PRESSURE REGULATOR SET AT 1" PG
GAS COCK (TYP.)
GAS METER SEE DETAIL 4/P-1
GAS PIPING CONNECTION SEE DETAIL (TYP.) 5/P-1
FUTURE (400 CFH)

12 GAS DEMAND ANALYSIS FOR SPACE G-2:
TOTAL DEVELOPED LENGTH 150 FT
FUTURE FOOD PREPARATION 400 CFH
SPACE HEATING 40 CFH
TOTAL DEMAND 440 CFH
AC-3 (40 CFH)
PRESSURE REGULATOR SET AT 1" PG
GAS COCK (TYP.)
GAS METER SEE DETAIL 4/P-1
GAS PIPING CONNECTION SEE DETAIL (TYP.) 5/P-1
FUTURE (400 CFH)

13 GAS DEMAND ANALYSIS FOR SPACE G-3:
TOTAL DEVELOPED LENGTH 100 FT
FUTURE FOOD PREPARATION 400 CFH
SPACE HEATING 120 CFH
TOTAL DEMAND 520 CFH
AC-2 (120 CFH) 4
PRESSURE REGULATOR SET AT 1" PG
GAS COCK (TYP.)
GAS METER SEE DETAIL 4/P-1
GAS PIPING CONNECTION SEE DETAIL (TYP.) 5/P-1
FUTURE (400 CFH)

14 GAS DEMAND ANALYSIS FOR SPACE G-4:
TOTAL DEVELOPED LENGTH 100 FT
FUTURE FOOD PREPARATION 400 CFH
SPACE HEATING 120 CFH
TOTAL DEMAND 520 CFH
AC-1 (120 CFH) 4
PRESSURE REGULATOR SET AT 1" PG
GAS COCK (TYP.)
GAS METER SEE DETAIL 4/P-1
GAS PIPING CONNECTION SEE DETAIL (TYP.) 5/P-1
FUTURE (400 CFH)

15 SEE CIVIL DRAWINGS FOR EXACT LOCATION AND FURTHER INFORMATION
2 16 2" CW TO TENANT SPACE (TYP OF 4)

4 17 GAS DEMAND ANALYSIS FOR SPACE G-5A:
TOTAL DEVELOPED LENGTH 50 FT
FUTURE FOOD PREPARATION 400 CFH
SPACE HEATING 40 CFH
TOTAL DEMAND 440 CFH
AC-13 (40 CFH)
PRESSURE REGULATOR SET AT 1" PG
GAS COCK (TYP.)
GAS METER SEE DETAIL 4/P-1
GAS PIPING CONNECTION SEE DETAIL (TYP.) 5/P-1
FUTURE (400 CFH)

PROJECT NO. 1001

ISSUED

NO.	DESCRIPTION	DATE
1	PLANNING SUBMITTAL	10/31/07
2	PLANNING SUBMITTAL	12/21/07
3	PLANNING SUBMITTAL	2/29/08
4	PLANNING SUBMITTAL	4/30/08
5	PLANNING SUBMITTAL	6/30/08
6	PLANNING SUBMITTAL	8/29/08
7	PLANNING SUBMITTAL	10/31/08
8	PLANNING SUBMITTAL	12/19/08
9	PLANNING SUBMITTAL	2/27/09
10	PLANNING SUBMITTAL	4/30/09
11	PLANNING SUBMITTAL	6/30/09
12	PLANNING SUBMITTAL	8/31/09
13	PLANNING SUBMITTAL	10/30/09
14	PLANNING SUBMITTAL	12/18/09
15	PLANNING SUBMITTAL	2/26/10
16	PLANNING SUBMITTAL	4/30/10
17	PLANNING SUBMITTAL	6/30/10
18	PLANNING SUBMITTAL	8/31/10
19	PLANNING SUBMITTAL	10/29/10
20	PLANNING SUBMITTAL	12/17/10
21	PLANNING SUBMITTAL	2/25/11
22	PLANNING SUBMITTAL	4/29/11
23	PLANNING SUBMITTAL	6/30/11
24	PLANNING SUBMITTAL	8/31/11
25	PLANNING SUBMITTAL	10/31/11
26	PLANNING SUBMITTAL	12/16/11
27	PLANNING SUBMITTAL	2/24/12
28	PLANNING SUBMITTAL	4/30/12
29	PLANNING SUBMITTAL	6/29/12
30	PLANNING SUBMITTAL	8/31/12
31	PLANNING SUBMITTAL	10/31/12
32	PLANNING SUBMITTAL	12/14/12
33	PLANNING SUBMITTAL	2/22/13
34	PLANNING SUBMITTAL	4/30/13
35	PLANNING SUBMITTAL	6/28/13
36	PLANNING SUBMITTAL	8/30/13
37	PLANNING SUBMITTAL	10/31/13
38	PLANNING SUBMITTAL	12/13/13
39	PLANNING SUBMITTAL	2/21/14
40	PLANNING SUBMITTAL	4/30/14
41	PLANNING SUBMITTAL	6/30/14
42	PLANNING SUBMITTAL	8/29/14
43	PLANNING SUBMITTAL	10/31/14
44	PLANNING SUBMITTAL	12/19/14
45	PLANNING SUBMITTAL	2/27/15
46	PLANNING SUBMITTAL	4/30/15
47	PLANNING SUBMITTAL	6/30/15
48	PLANNING SUBMITTAL	8/31/15
49	PLANNING SUBMITTAL	10/30/15
50	PLANNING SUBMITTAL	12/18/15
51	PLANNING SUBMITTAL	2/26/16
52	PLANNING SUBMITTAL	4/29/16
53	PLANNING SUBMITTAL	6/30/16
54	PLANNING SUBMITTAL	8/31/16
55	PLANNING SUBMITTAL	10/31/16
56	PLANNING SUBMITTAL	12/16/16
57	PLANNING SUBMITTAL	2/24/17
58	PLANNING SUBMITTAL	4/28/17
59	PLANNING SUBMITTAL	6/30/17
60	PLANNING SUBMITTAL	8/31/17
61	PLANNING SUBMITTAL	10/31/17
62	PLANNING SUBMITTAL	12/15/17
63	PLANNING SUBMITTAL	2/23/18
64	PLANNING SUBMITTAL	4/30/18
65	PLANNING SUBMITTAL	6/29/18
66	PLANNING SUBMITTAL	8/31/18
67	PLANNING SUBMITTAL	10/31/18
68	PLANNING SUBMITTAL	12/14/18
69	PLANNING SUBMITTAL	2/22/19
70	PLANNING SUBMITTAL	4/30/19
71	PLANNING SUBMITTAL	6/28/19
72	PLANNING SUBMITTAL	8/30/19
73	PLANNING SUBMITTAL	10/31/19
74	PLANNING SUBMITTAL	12/13/19
75	PLANNING SUBMITTAL	2/21/20
76	PLANNING SUBMITTAL	4/30/20
77	PLANNING SUBMITTAL	6/30/20
78	PLANNING SUBMITTAL	8/28/20
79	PLANNING SUBMITTAL	10/30/20
80	PLANNING SUBMITTAL	12/18/20
81	PLANNING SUBMITTAL	2/26/21
82	PLANNING SUBMITTAL	4/30/21
83	PLANNING SUBMITTAL	6/30/21
84	PLANNING SUBMITTAL	8/31/21
85	PLANNING SUBMITTAL	10/29/21
86	PLANNING SUBMITTAL	12/17/21
87	PLANNING SUBMITTAL	2/25/22
88	PLANNING SUBMITTAL	4/29/22
89	PLANNING SUBMITTAL	6/30/22
90	PLANNING SUBMITTAL	8/31/22
91	PLANNING SUBMITTAL	10/31/22
92	PLANNING SUBMITTAL	12/16/22
93	PLANNING SUBMITTAL	2/24/23
94	PLANNING SUBMITTAL	4/28/23
95	PLANNING SUBMITTAL	6/30/23
96	PLANNING SUBMITTAL	8/31/23
97	PLANNING SUBMITTAL	10/31/23
98	PLANNING SUBMITTAL	12/15/23
99	PLANNING SUBMITTAL	2/23/24
100	PLANNING SUBMITTAL	4/30/24
101	PLANNING SUBMITTAL	6/28/24
102	PLANNING SUBMITTAL	8/30/24
103	PLANNING SUBMITTAL	10/31/24
104	PLANNING SUBMITTAL	12/13/24
105	PLANNING SUBMITTAL	2/21/25
106	PLANNING SUBMITTAL	4/30/25
107	PLANNING SUBMITTAL	6/30/25
108	PLANNING SUBMITTAL	8/29/25
109	PLANNING SUBMITTAL	10/31/25
110	PLANNING SUBMITTAL	12/19/25
111	PLANNING SUBMITTAL	2/27/26
112	PLANNING SUBMITTAL	4/30/26
113	PLANNING SUBMITTAL	6/30/26
114	PLANNING SUBMITTAL	8/31/26
115	PLANNING SUBMITTAL	10/30/26
116	PLANNING SUBMITTAL	12/18/26
117	PLANNING SUBMITTAL	2/26/27
118	PLANNING SUBMITTAL	4/30/27
119	PLANNING SUBMITTAL	6/30/27
120	PLANNING SUBMITTAL	8/31/27
121	PLANNING SUBMITTAL	10/29/27
122	PLANNING SUBMITTAL	12/17/27
123	PLANNING SUBMITTAL	2/25/28
124	PLANNING SUBMITTAL	4/29/28
125	PLANNING SUBMITTAL	6/30/28
126	PLANNING SUBMITTAL	8/31/28
127	PLANNING SUBMITTAL	10/31/28
128	PLANNING SUBMITTAL	12/16/28
129	PLANNING SUBMITTAL	2/24/29
130	PLANNING SUBMITTAL	4/30/29
131	PLANNING SUBMITTAL	6/29/29
132	PLANNING SUBMITTAL	8/31/29
133	PLANNING SUBMITTAL	10/31/29
134	PLANNING SUBMITTAL	12/14/29
135	PLANNING SUBMITTAL	2/22/30
136	PLANNING SUBMITTAL	4/30/30
137	PLANNING SUBMITTAL	6/28/30
138	PLANNING SUBMITTAL	8/30/30
139	PLANNING SUBMITTAL	10/31/30
140	PLANNING SUBMITTAL	12/13/30
141	PLANNING SUBMITTAL	2/21/31
142	PLANNING SUBMITTAL	4/30/31
143	PLANNING SUBMITTAL	6/30/31
144	PLANNING SUBMITTAL	8/29/31
145	PLANNING SUBMITTAL	10/31/31
146	PLANNING SUBMITTAL	12/19/31
147	PLANNING SUBMITTAL	2/27/32
148	PLANNING SUBMITTAL	4/30/32
149	PLANNING SUBMITTAL	6/30/32
150	PLANNING SUBMITTAL	8/31/32
151	PLANNING SUBMITTAL	10/30/32
152	PLANNING SUBMITTAL	12/18/32
153	PLANNING SUBMITTAL	2/26/33
154	PLANNING SUBMITTAL	4/30/33
155	PLANNING SUBMITTAL	6/30/33
156	PLANNING SUBMITTAL	8/31/33
157	PLANNING SUBMITTAL	10/29/33
158	PLANNING SUBMITTAL	12/17/33
159	PLANNING SUBMITTAL	2/25/34
160	PLANNING SUBMITTAL	4/29/34
161	PLANNING SUBMITTAL	6/30/34
162	PLANNING SUBMITTAL	8/31/34
163	PLANNING SUBMITTAL	10/31/34
164	PLANNING SUBMITTAL	12/16/34
165	PLANNING SUBMITTAL	2/24/35
166	PLANNING SUBMITTAL	4/28/35
167	PLANNING SUBMITTAL	6/30/35
168	PLANNING SUBMITTAL	8/31/35
169	PLANNING SUBMITTAL	10/31/35
170	PLANNING SUBMITTAL	12/15/35
171	PLANNING SUBMITTAL	2/23/36
172	PLANNING SUBMITTAL	4/30/36
173	PLANNING SUBMITTAL	6/28/36
174	PLANNING SUBMITTAL	8/30/36
175	PLANNING SUBMITTAL	10/31/36
176	PLANNING SUBMITTAL	12/13/36
177	PLANNING SUBMITTAL	2/21/37
178	PLANNING SUBMITTAL	4/30/37
179	PLANNING SUBMITTAL	6/30/37
180	PLANNING SUBMITTAL	8/29/37
181	PLANNING SUBMITTAL	10/31/37
182	PLANNING SUBMITTAL	12/19/37
183	PLANNING SUBMITTAL	2/27/38
184	PLANNING SUBMITTAL	4/30/38
185	PLANNING SUBMITTAL	6/30/38
186	PLANNING SUBMITTAL	8/31/38
187	PLANNING SUBMITTAL	10/30/38
188	PLANNING SUBMITTAL	12/18/38
189	PLANNING SUBMITTAL	2/26/39
190	PLANNING SUBMITTAL	4/30/39
191	PLANNING SUBMITTAL	6/30/39
192	PLANNING SUBMITTAL	8/31/39
193	PLANNING SUBMITTAL	10/29/39
194	PLANNING SUBMITTAL	12/17/39
195	PLANNING SUBMITTAL	2/25/40
196	PLANNING SUBMITTAL	4/29/40
197	PLANNING SUBMITTAL	6/30/40
198	PLANNING SUBMITTAL	8/31/40
199	PLANNING SUBMITTAL	10/31/40
200	PLANNING SUBMITTAL	12/16/40
201	PLANNING SUBMITTAL	2/24/41
202	PLANNING SUBMITTAL	4/28/41
203	PLANNING SUBMITTAL	6/30/41
204	PLANNING SUBMITTAL	8/31/41
205	PLANNING SUBMITTAL	10/31/41
206	PLANNING SUBMITTAL	12/15/41
207	PLANNING SUBMITTAL	2/23/42
208	PLANNING SUBMITTAL	4/30/42
209	PLANNING SUBMITTAL	6/28/42
210	PLANNING SUBMITTAL	8/30/42
211	PLANNING SUBMITTAL	10/31/42
212	PLANNING SUBMITTAL	12/13/42
213	PLANNING SUBMITTAL	2/21/43
214	PLANNING SUBMITTAL	4/30/43
215	PLANNING SUBMITTAL	6/30/43
216	PLANNING SUBMITTAL	8/29/43
217	PLANNING SUBMITTAL	10/31/43
218	PLANNING SUBMITTAL	12/19/43
219	PLANNING SUBMITTAL	2/27/44
220	PLANNING SUBMITTAL	4/30/44
221	PLANNING SUBMITTAL	6/30/44
222	PLANNING SUBMITTAL	8/31/44
223	PLANNING SUBMITTAL	10/30/44
224	PLANNING SUBMITTAL	12/18/44
225	PLANNING SUBMITTAL	2/26/45
226	PLANNING SUBMITTAL	4/30/45
227	PLANNING SUBMITTAL	6/30/45
228	PLANNING SUBMITTAL	8/31/45
229	PLANNING SUBMITTAL	10/29/45
230	PLANNING SUBMITTAL	12/17/45
231	PLANNING SUBMITTAL	2/25/46
232	PLANNING SUBMITTAL	4/29/46
233	PLANNING SUBMITTAL	6/30/46
234	PLANNING SUBMITTAL	8/31/46
235	PLANNING SUBMITTAL	10/31/46
236	PLANNING SUBMITTAL	12/16/46
237	PLANNING SUBMITTAL	2/24/47
238	PLANNING SUBMITTAL	4/28/47
239	PLANNING SUBMITTAL	6/30/47
240	PLANNING SUBMITTAL	8/31/47
241	PLANNING SUBMITTAL	10/31/47
242	PLANNING SUBMITTAL	12/15/47
243	PLANNING SUBMITTAL	2/23/48
244	PLANNING SUBMITTAL	4/30/48
245	PLANNING SUBMITTAL	6/28/48
246	PLANNING SUBMITTAL	8/30/48
247	PLANNING SUBMITTAL	10/31/48
248	PLANNING SUBMITTAL	12/13/48
249	PLANNING SUBMITTAL	2/21/49
250	PLANNING SUBMITTAL	4/30/49
251	PLANNING SUBMITTAL	6/30/49
252	PLANNING SUBMITTAL	8/29/49
253	PLANNING SUBMITTAL	10/31/49
254	PLANNING SUBMITTAL	12/19/49
255	PLANNING SUBMITTAL	2/27/50
256	PLANNING SUBMITTAL	4/30/50
257	PLANNING SUBMITTAL	6/30/50
258	PLANNING SUBMITTAL	8/31/50
259	PLANNING SUBMITTAL	10/30/50
260	PLANNING SUBMITTAL	12/18/50
261	PLANNING SUBMITTAL	2/26/51
262	PLANNING SUBMITTAL	4/30/51
263	PLANNING SUBMITTAL	6/30/51
264	PLANNING SUBMITTAL	8/31/51
265	PLANNING SUBMITTAL	10/29/51
266	PLANNING SUBMITTAL	12/17/51
267	PLANNING SUBMITTAL	2/25/52
268	PLANNING SUBMITTAL	4/29/52
269	PLANNING SUBMITTAL	6/30/52
270	PLANNING SUBMITTAL	8/31/52
271	PLANNING SUBMITTAL	10/31/52
272	PLANNING SUBMITTAL	12/16/52
273	PLANNING SUBMITTAL	2/24/53
274	PLANNING SUBMITTAL	4/28/53
275	PLANNING SUBMITTAL	6/30/53
276	PLANNING SUBMITTAL	8/31/53
277	PLANNING SUBMITTAL	10/31/53
278	PLANNING SUBMITTAL	12/15/53
279	PLANNING SUBMITTAL	2/23/54
280	PLANNING SUBMITTAL	4/30/54
281	PLANNING SUBMITTAL	6/28/54
282	PLANNING SUBMITTAL	8/30/54
283	PLANNING SUBMITTAL	10/31/54
284	PLANNING SUBMITTAL	12/13/54
285	PLANNING SUBMITTAL	2/21/55
286	PLANNING SUBMITTAL	4/30/55
287	PLANNING SUBMITTAL	6/30/55
288	PLANNING SUBMITTAL	8/29/55
289	PLANNING SUBMITTAL	10/31/55
290	PLANNING SUBMITTAL	12/19/55
291	PLANNING SUBMITTAL	2/27/56
292	PLANNING SUBMITTAL	4/30/56
293	PLANNING SUBMITTAL	6/30/56
294	PLANNING SUBMITTAL	8/31/56
295	PLANNING SUBMITTAL	10/30/56
296	PLANNING SUBMITTAL	12/18/56
297	PLANNING SUBMITTAL	2/26/57
298	PLANNING SUBMITTAL	4/30/57
299	PLANNING SUBMITTAL	6/30/57
300	PLANNING SUBMITTAL	8/31/57
301	PLANNING SUBMITTAL	10/29/57
302	PLANNING SUBMITTAL	12/17/57
303	PLANNING SUBMITTAL	2/25/58
304	PLANNING SUBMITTAL	4/29/58
305	PLANNING SUBMITTAL	6/30/58
306	PLANNING SUBMITTAL	8/31/58
307	PLANNING SUBMITTAL	10/31/58
308	PLANNING SUBMITTAL	12/16/58
309	PLANNING SUBMITTAL	2/24/59
310	PLANNING SUBMITTAL	4/28/59
311	PLANNING SUBMITTAL	6/30/59
312	PLANNING SUBMITTAL	8/31/59
313	PLANNING SUBMITTAL	10/31/59
314	PLANNING SUBMITTAL	12/15/59
315	PLANNING SUBMITTAL	2/23/60
316	PLANNING SUBMITTAL	4/30/60
317	PLANNING SUBMITTAL	6/28/60
318	PLANNING SUBMITTAL	8/30/60
319	PLANNING SUBMITTAL	10/31/60
320	PLANNING SUBMITTAL	12/13/60
321	PLANNING SUBMITTAL	2/21/61
322	PLANNING SUBMITTAL	4/30/61
323	PLANNING SUBMITTAL	6/30/61
324	PLANNING SUBMITTAL	8/29/61
325	PLANNING SUBMITTAL	10/31/61
326	PLANNING SUBMITTAL	12/19/61
327	PLANNING SUBMITTAL	2/27/62
328	PLANNING SUBMITTAL	4/30/62
329	PLANNING SUBMITTAL	6/30/62
330	PLANNING SUBMITTAL	8/31/62
331	PLANNING SUBMITTAL	10/30/62
332	PLANNING SUBMITTAL	12/18/62
333	PLANNING SUBMITTAL	2/26/63
334	PLANNING SUBMITTAL	4/30/63
335	PLANNING SUBMITTAL	6/30/63
336	PLANNING SUBMITTAL	8/31/63
337	PLANNING SUBMITTAL	10/29/63
338	PLANNING SUBMITTAL	12/17/63
339	PLANNING SUBMITTAL	2/25/64
340	PLANNING SUBMITTAL	4/29/64
341	PLANNING SUBMITTAL	6/30/64
342	PLANNING SUBMITTAL	8/31/64
343	PLANNING SUBMITTAL	10/31/64
344	PLANNING SUBMITTAL	12/16/64
345	PLANNING SUBMITTAL	2/24/65
346	PLANNING SUBMITTAL	4/28/65
347	PLANNING SUBMITTAL	6/30/65
348	PLANNING SUBMITTAL	8/31/65
349	PLANNING SUBMITTAL	10/31/65
350	PLANNING SUBMITTAL	12/15/65
351	PLANNING SUBMITTAL	2/23/66
352	PLANNING SUBMITTAL	4/30/66
353	PLANNING SUBMITTAL	6/28/66
354	PLANNING SUBMITTAL	8/30/66
355	PLANNING SUBMITTAL	10/31/66
356	PLANNING SUBMITTAL	12/13/66
357	PLANNING SUBMITTAL	2/21/67
358	PLANNING SUBMITTAL	4/30/67
359	PLANNING SUBMITTAL	6/30/67
360	PLANNING SUBMITTAL	8/29/67
361	PLANNING SUBMITTAL	10/31/67
362	PLANNING SUBMITTAL	12/19/67
363	PLANNING SUBMITTAL	2/27/68
364	PLANNING SUBMITTAL	4/30/68
365	PLANNING SUBMITTAL	6/30/68
366	PLANNING SUBMITTAL	8/31/68
367	PLANNING SUBMITTAL	10/30/68
368	PLANNING SUBMITTAL	12/18/68
369	PLANNING SUBMITTAL	2/26/69
370	PLANNING SUBMITTAL	4/30/69
371	PLANNING SUBMITTAL	6/30/69
372	PLANNING SUBMITTAL	8/31/69
373	PLANNING SUBMITTAL	10/29/69
374	PLANNING SUBMITTAL	12/17/69
375	PLANNING SUBMITTAL	2/25/70
376	PLANNING SUBMITTAL	4/29/70
377	PLANNING SUBMITTAL	6/30/70
378	PLANNING SUBMITTAL	8/31/70
379	PLANNING SUBMITTAL	10/31/70
380	PLANNING SUBMITTAL	12/16/70
381	PLANNING SUBMITTAL	2/24/71
382	PLANNING SUBMITTAL	4/28/71
383	PLANNING SUBMITTAL	6/30/71
384	PLANNING SUBMITTAL	8/31/71
385	PLANNING SUBMITTAL	10/31/71
386	PLANNING SUBMITTAL	12/15/71
387	PLANNING SUBMITTAL	2/23/72
388	PLANNING SUBMITTAL	4/30/72
389	PLANNING SUBMITTAL	6/28/72
390	PLANNING SUBMITTAL	8/30/72
391	PLANNING SUBMITTAL	10/31/72
392	PLANNING SUBMITTAL	12/13/72
393	PLANNING SUBMITTAL	2/21/73
394	PLANNING SUBMITTAL	4/30/73
395	PLANNING SUBMITTAL	6/30/73
396	PLANNING SUBMITTAL	8/29/73
397	PLANNING SUBMITTAL	10/31/73
398	PLANNING SUBMITTAL	12/19/73
399	PLANNING SUBMITTAL	2/27/74
400	PLANNING SUBMITTAL	4/30/74
401	PLANNING SUBMITTAL	6/30/74
402	PLANNING SUBMITTAL	8/31/74
403	PLANNING SUBMITTAL	10/30/74
404	PLANNING SUBMITTAL	12/18/74
405	PLANNING SUBMITTAL	2/26/75
406	PLANNING SUBMITTAL	4/30/75
407	PLANNING SUBMITTAL	6/30/75
408	PLANNING SUBMITTAL	8/31/75
409	PLANNING SUBMITTAL	10/29/75
410	PLANNING SUBMITTAL	12/17/75
411	PLANNING SUBMITTAL	2/25/76
412	PLANNING SUBMITTAL	4/29/76
413	PLANNING SUBMITTAL	6/30/76
414	PLANNING SUBMITTAL	8/31/76
415	PLANNING SUBMITTAL	10/31/76
416	PLANNING SUBMITTAL	12/16/76
417	PLANNING SUBMITTAL	2/24/77
418	PLANNING SUBMITTAL	4/28/77
419	PLANNING SUBMITTAL	6/30/77
420	PLANNING SUBMITTAL	8/31/77
421	PLANNING SUBMITTAL	10/31/77
422	PLANNING SUBMITTAL	12/15/77
423	PLANNING SUBMITTAL	2/23/78
424	PLANNING SUBMITTAL	4/30/78
425	PLANNING SUBMITTAL	6/28/78
426	PLANNING SUBMITTAL	8/30/78
427	PLANNING SUBMITTAL	10/31/78
428	PLANNING SUBMITTAL	12/13/78
429	PLANNING SUBMITTAL	2/21/79
430	PLANNING SUBMITTAL	4/30/79
431	PLANNING SUBMITTAL	6/30/79
432	PLANNING SUBMITTAL	8/29/79
433	PLANNING SUBMITTAL	10/31/79
434	PLANNING SUBMITTAL	12/19/79
435	PLANNING SUBMITTAL	2/27/80
436	PLANNING SUBMITTAL	4/30/80
437	PLANNING SUBMITTAL	6/30/80
438	PLANNING SUBMITTAL	8/31/80
439	PLANNING SUBMITTAL	10/30/80
440	PLANNING SUBMITTAL	12/18/80
441	PLANNING SUBMITTAL	2/26/81
442	PLANNING SUBMITTAL	4/30/81
443	PLANNING SUBMITTAL	6/30/81
444	PLANNING SUBMITTAL	8/31/81
445	PLANNING SUBMITTAL	10/29/81
446	PLANNING SUBMITTAL	12/17/81
447	PLANNING SUBMITTAL	2/25/82
448	PLANNING SUBMITTAL	4/29/82
449	PLANNING SUBMITTAL	6/30/82
450	PLANNING SUBMITTAL	8/31/82
451	PLANNING SUBMITTAL	10/31/82
452	PLANNING SUBMITTAL	12/16/82
453	PLANNING SUBMITTAL	2/24/83
454	PLANNING SUBMITTAL	4/28/83
455	PLANNING SUBMITTAL	6/30/83
456	PLANNING SUBMITTAL	8/31/83
457	PLANNING SUBMITTAL	10/31/83
458	PLANNING SUBMITTAL	12/15/83
459	PLANNING SUBMITTAL	2/23/84
460	PLANNING SUBMITTAL	4/30/84
461	PLANNING SUBMITTAL	6/28/84
462	PLANNING SUBMITTAL	8/30/84
463	PLANNING SUBMITTAL	10/31/84
464	PLANNING SUBMITTAL	12/13/84
465	PLANNING SUBMITTAL	2/21/85
466	PLANNING SUBMITTAL	4/30/85
467	PLANNING SUBMITTAL	6/30/85
468	PLANNING SUBMITTAL	8/29/85
469	PLANNING SUBMITTAL	10/31/85
470	PLANNING SUBMITTAL	12/19/85
471	PLANNING SUBMITTAL	2/27/86
472	PLANNING SUBMITTAL	4/30/86
473	PLANNING SUBMITTAL	6/30/86
474	PLANNING SUBMITTAL	8/31/86
475	PLANNING SUBMITTAL	10/30/86
476	PLANNING SUBMITTAL	12/18/86
477	PLANNING SUBMITTAL	2/26/87
478	PLANNING SUBMITTAL	4/30/87
479	PLANNING SUBMITTAL	6/30/87
480	PLANNING SUBMITTAL	8/31/87
481	PLANNING SUBMITTAL	10/29/87

SHEET NOTES:

1. 4" SD ↓ OSD UP TO 4" RD↑ ↓ OD↑ ON ROOF.
2. 3" SD ↓ OSD UP TO 3" RD↑ ↓ OD↑ ON ROOF.
3. 6" REDUCED PRESSURE DETECTOR ASSEMBLY WITH OS&Y VALVES AND TAMPER SWITCHES.
4. 2"G STUB-OUT WITH SHUT OFF VALVE
5. 2"CW STUB-OUT WITH SHUT OFF VALVE
6. 4"GW STUB-OUT.
7. 4"W STUB-OUT.
8. GAS RISE UP TO HVAC UNIT ON ROOF. SEE RISER DIAGRAM ON P-5 SHEET.
9. 2 RDOF ON 2"CW. (TYP)
10. 4" FIRE SPRINKLER RISER
11. GAS METER (TYP OF 5). SEE NOTES (12) THRU (29)
12. NOT USED
13. NPG PIPING BY SDGE. SIZE AND ROUTING OF NPG PIPING SERVING GAS METERS TO BE DETERMINED BY SDGE. CONTRACTOR TO COORDINATE PIPE LOCATION WITH SDGE. TRENCHING FOR PIPE SHALL BE DONE BY CONTRACTOR.
14. 2" SD ↓ OSD UP TO 2" RD↑ ↓ OD↑ ON ROOF.
15. TERMINATE OSD THRU FACE OF WALL AT 6" AFF. SIZE AS INDICATED.
16. 2" SD THRU CURB.
17. 6" FIRE SPR. RISER FOR THEATRE. (NIC)
18. CONNECT TO STORM DRAIN PIPING FROM ROOF OF THEATRE.

19. GAS DEMAND ANALYSIS FOR SPACE P-2:
TOTAL DEVELOPED LENGTH: 80 FT.
FUTURE FOOD PREPARATION DEMAND: 400 CFH
SPACE HEATING DEMAND: 270 CFH
TOTAL DEMAND: 670 CFH

20. GAS DEMAND ANALYSIS FOR SPACE P-3:
TOTAL DEVELOPED LENGTH: 125 FT.
FUTURE FOOD PREPARATION DEMAND: 400 CFH
SPACE HEATING DEMAND: 105 CFH
TOTAL DEMAND: 505 CFH

21. GAS DEMAND ANALYSIS FOR SPACE P-1:
TOTAL DEVELOPED LENGTH: 200 FT.
FUTURE FOOD PREPARATION DEMAND: 400 CFH
SPACE HEATING DEMAND: 40 CFH
TOTAL DEMAND: 440 CFH

22. GAS DEMAND ANALYSIS FOR SPACE P-2:
TOTAL DEVELOPED LENGTH: 200 FT.
FUTURE FOOD PREPARATION DEMAND: 400 CFH
SPACE HEATING DEMAND: 40 CFH
TOTAL DEMAND: 440 CFH

23. GAS DEMAND ANALYSIS FOR SPACE P-3:
TOTAL DEVELOPED LENGTH: 200 FT.
FUTURE FOOD PREPARATION DEMAND: 400 CFH
SPACE HEATING DEMAND: 120 CFH
TOTAL DEMAND: 520 CFH

24. SEE CIVIL DRAWINGS FOR EXACT LOCATION AND FURTHER INFORMATION.

25. 4" FOOTING DRAIN

COAST HIGHWAY

MISSION AVE.

NORTHEAST FLOOR PLAN - PLUMBING
SCALE: 1/8" = 1'-0"

NORTH

PROJECT NO. 1001

ISSUED FOR
1-21-05 PROGRESS
2-18-05
3-11-05 BID SET
4-15-05 PLAN CHECK
5-27-05 P-1 #2
6-24-05 P-1 #3
7-25-05 P-1 #4
8-30-05 SET P-1 #4

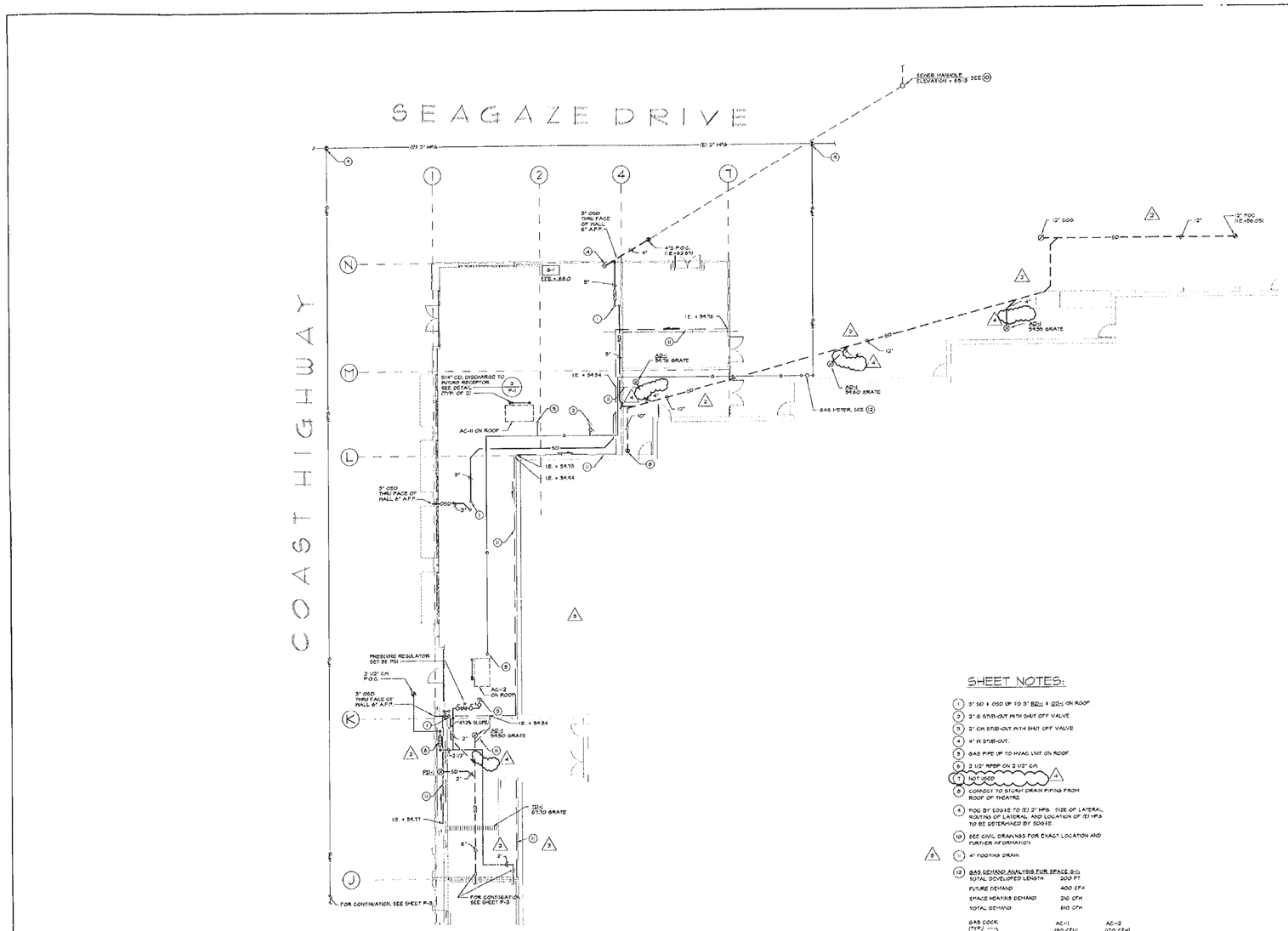
McPARLANE & ASSOCIATES
CONSULTING MECHANICAL ENGINEERS
3990 OLD TOWN AVENUE, SUITE A-101, SAN DIEGO, CA 92110 (619) 297-0796

BENSON & BOHL ARCHITECTS

OCEANPLACE CINEMAS
OCEANSIDE, CA

NORTHEAST FLOOR PLAN PLUMBING

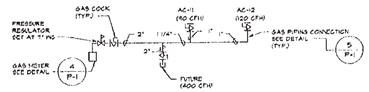
P-3



SHEET NOTES:

1. 3" SD ↕ OSD UP TO 3" BELOW ↕ 22'-0" ON ROOF.
2. 2" G STUB-OUT WITH SHUT OFF VALVE.
3. 2" CW STUB-OUT WITH SHUT OFF VALVE.
4. 4" H STUB-OUT.
5. GAS PIPE UP TO HVAC UNIT ON ROOF.
6. 2 1/2" RPDP ON 2 1/2" GAL.
7. NOT USED
8. CONNECT TO STORM DRAIN PIPING FROM ROOF OF THEATRE
9. FOC BY EDGE TO (E) 2" HPS. SIZE OF LATERAL, ROUTING OF LATERAL AND LOCATION OF (E) HPS TO BE DETERMINED BY SDG&E.
10. SEE CIVIL DRAWINGS FOR EXACT LOCATION AND FURTHER INFORMATION.
11. 4" FOOTING DRAIN.
12. GAS DEMAND ANALYSIS FOR SPACE G(1):

TOTAL DEVELOPED LENGTH	300 FT
FUTURE DEMAND	400 CFH
SPACE HEATING DEMAND	210 CFH
TOTAL DEMAND	610 CFH



SOUTHEAST FLOOR PLAN - PLUMBING

SCALE: 1/8" = 1'-0"

NORTH

PROJECT NO. 1991

ISSUED	FOR
4-22-05	
2	10-18-05 PLAN CHECK
3	2-15-06 PLAN CHECK
4	4-28-06 DSA
5	7-21-06 DSA
6	9-1-06 DSA
7	2-20-07 DSA

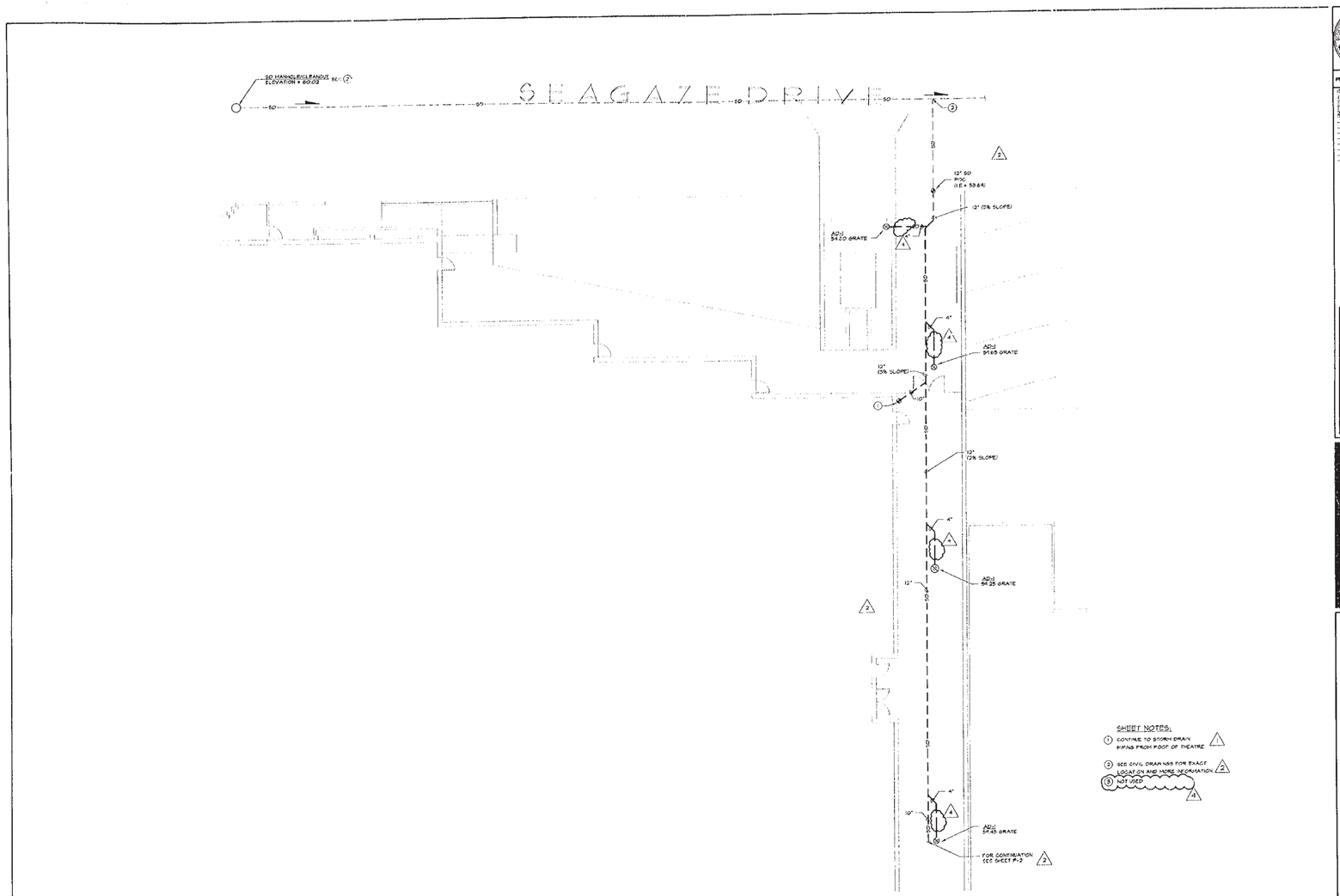
McPARLANE ASSOCIATES
CONSULTING MECHANICAL ENGINEERS
5880 OBEAN DRIVE, SAN DIEGO, CA 92115-7341
TEL: 619/582-1500 FAX: 619/582-1555

BENSON & BOHL
ARCHITECTS

OCEANPLACE CINEMAS
OCEANSIDE, CA

SOUTHEAST FLOOR PLAN PLUMBING

P-4



SOUTHWEST FLOOR PLAN - PLUMBING
SCALE: 1/8" = 1'-0"

NORTH

PROJECT NO. 1881

ISSUED FOR
12-14-18 BID SET
1-25-19 PLANCHECK
2-20-19 PLANCHECK
ADDITION 1

McPARLANE & ASSOCIATES
CONSULTING MECHANICAL ENGINEERS
MECHANICAL • PLUMBING • ELECTRICAL
SAN DIEGO, CA 92123

BENSON & BOHL ARCHITECTS

OCEANPLACE CINEMAS
OCEANSIDE, CA

PLUMBING
SOUTHWEST
FLOOR PLAN

P-5

ATTACHMENT 6
Geotechnical and Groundwater Investigation Report

This is the cover sheet for Attachment 6.

Geotechnical
Environmental
Hydrogeology
Material Testing
Construction Inspection

September 22, 2022

Project No. 22-7517
LMWP-005585

Mr. Ernie Rivas Company
Ocean Place Retail VII, LLC
520 Newport Center Drive, Suite 780
Newport Beach, California 92660

Subject: Preliminary Geotechnical Investigation Report, Mixed Use, 401 Mission Avenue, Oceanside, California 92054 (APN 1472711400).

Mr. Rivas,

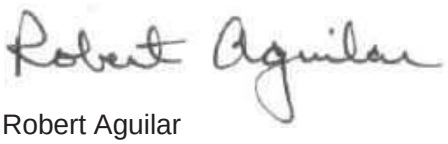
In accordance with your request and authorization, TGR Geotechnical, Inc. (TGR) has performed a geotechnical investigation for the proposed mixed-use development at 401 Mission Avenue in the city of Oceanside, California. The subject site is an existing Regal Cinema movie theater with associated restaurants and it is our understanding that the proposed development will consist of demolition of the existing buildings and construction of an eight story building which includes two levels of above-grade parking and one level of subterranean parking with associated amenities, recreation areas and courtyards. This report presents the findings of our geotechnical investigation, including site seismicity, settlement potential, infiltration rates and provides geotechnical design recommendations for the proposed development. The work was performed in general accordance with our proposal dated June 27, 2022.

Based on our investigation the proposed development is feasible from a geotechnical viewpoint provided the recommendations presented in this report are implemented during design and construction.

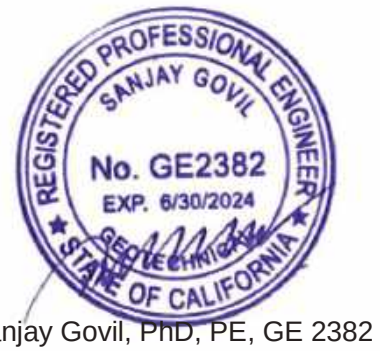
If you have any questions regarding this report, please do not hesitate to contact this office. We appreciate this opportunity to be of service.

Respectfully submitted,

TGR GEOTECHNICAL, INC.



Robert Aguilar
Staff Engineer



Sanjay Govil, PhD, PE, GE 2382
Principal Geotechnical Engineer

Distribution: (1) Addressee

TGR GEOTECHNICAL
DBE & 8(a) firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

ATTACHMENTS

Plate 1A – Boring Location Map
Plate 1B – Cross Section A-A'

Figure 1 – Site Location Map
Figure 2 – Regional Geology Map
Figure 3 – County Liquefaction Hazard Map
Figure 4 – County Landslide Hazard Map
Figure 5 – Regional Fault Map

Table 1 – Percolation Test Worksheet

Appendix A – References
Appendix B – Log of Borings
Appendix C – Laboratory Testing Procedures and Results
Appendix D – Site Seismicity

INTRODUCTION

Site Description and Proposed Project Development

The subject site is located on the southern corner of Mission Avenue and South Coast Highway in the city of Oceanside, California (Figure 1). The subject site is an existing Regal Cinemas movie theater with associated restaurants and it is our understanding that the proposed development will consist of demolition of the existing buildings and construction of an eight story building which includes two levels of above-grade parking and one level of subterranean parking with associated amenities, recreation areas and courtyards. No grading plans were available at the time of this report. Based on the conceptual site plan, one level of subterranean parking will be located approximately 15 feet below existing grade and the proposed building will be approximately 75 feet above existing grade. No column loads were available at the time of this report, however we have assumed column loads will be 800 kips or less.

Scope of Work

The scope of work for this geotechnical investigation included the following:

- Site reconnaissance to assess current site conditions, mark boring locations and call Dig-Alert for utility clearance.
- GPR utility scanning at the proposed boring locations by Inspection Resources prior to drilling.
- Obtain drilling permit from the County of San Diego.
- Review of readily available previous geotechnical investigation reports for the subject site and adjacent properties.
- Sampling and logging three (3) borings utilizing a limited access hollow stem drill rig to approximate depths ranging from 10.25 to 25.5 feet at the subject site to evaluate subsurface soil conditions. The borings were backfilled with Portland cement grout and surface patched with rapid set concrete.
- Percolation testing at one (1) location at a depth of 15 to 25.5 feet below existing grade. The percolation testing was performed in general accordance with the County of San Diego guidelines.
- All soil cuttings were drummed and disposed by Belshire in coordination with Regal Cinema staff.
- Laboratory testing of selected samples to include in-situ moisture and dry density, maximum dry density and optimum moisture content, shear, consolidation, passing No. 200 sieve and corrosion series.
- Engineering analysis including infiltration rates, site seismicity, seismic settlement, foundation design, retaining wall design, pavement section and soils engineering/earthwork with respect to the suitability of the proposed development.
- Preparation of this report summarizing current subsurface soil conditions, findings, and presenting our recommendations for the proposed development.

Field Investigation

Field exploration was performed on August 24th, 2022 by members from our firm who logged the borings and obtained representative samples, which were subsequently transported to the laboratory

for further review and testing. The approximate locations of the borings are indicated on the enclosed Boring Location Map (Plate 1A).

The subsurface conditions were explored by drilling, sampling, and logging three (3) borings with a limited access track rig equipped with a CME-75 hollow stem auger drill. Borings B-1 and B-3 were advanced to approximate depths of 10.25 and 12 feet, respectively, before encountering refusal on large cobbles. Boring B-2 was advanced to an approximate depth of 25.5 feet below existing grade. Subsequent to drilling, boring B-2 was converted into a percolation test boring and percolation testing was performed in general accordance with County of San Diego guidelines. The log of borings together with an explanation of symbols used are given in Appendix B.

Soil cuttings from all borings were drummed, borings backfilled with Portland cement grout and surface repaired with rapid set concrete. The cuttings were placed in one (1) 55-gallon drum and were disposed by Belshire in coordination with Regal Cinema staff.

The limited access track rig was equipped with a sampling apparatus to allow for recovery of driven modified California Ring Sampler (CRS), 3-inch outside diameter, and 2.42-inch inside diameter and SPT samples.

The samples were driven using an automatic 140-pound hammer falling freely from a height of 30 inches. The blow counts for CRS were converted to equivalent SPT blow counts utilizing a factor of 0.65. Soil descriptions were entered on the logs in general accordance with the Unified Soil Classification System (USCS). Driven samples and bulk samples of the earth materials encountered at selected intervals were recovered from the borings. The locations and depths of the soil samples recovered are indicated on the boring logs in Appendix B.

Literature Review

A previous Geotechnical Investigation was performed by South California Geotechnical, Inc. (2002) for the property directly adjacent to the subject site to the west. The purpose of the report was to provide geotechnical recommendations for a six-story residential/office building with two levels of subterranean parking. The investigation consisted of six (6) exploratory borings to depths ranging from approximately 17 feet to 54.5 feet below existing grade. Fill was encountered from depths ranging from 0.5 feet to 6.5 feet below existing grade, underlain by terrace deposits to approximately 54.5 feet below existing grade. The terrace deposits in the upper 9.5 to 13 feet consisted of medium dense to dense reddish brown, fine grained sands and from 13 feet to 54.5 feet the terrace deposits consisted of sand, gravel and silt with increased gravel content with increased depth. Groundwater was encountered at a depth of approximately 43 feet below ground surface. Based on the subsurface investigation South California Geotechnical, Inc. determined the seismic site class to be Site Class “C”.

Laboratory Testing

Laboratory tests were performed on representative samples to verify the field classification of the recovered samples and to evaluate the geotechnical properties of the subsurface soils. The following tests were performed:

- In-situ Moisture Content (ASTM D2216) and Dry Density (ASTM D7263);
- Maximum Dry Density and Optimum Moisture Content (ASTM D1557);
- Direct Shear Strength (ASTM D3080);
- Consolidation (ASTM D2435);

- Passing No. 200 Sieve (ASTM D1140);
- Corrosion series:
    1. Soluble Sulfate (CAL.417A);
    2. Soluble Chlorides (CAL.422);
    3. Minimum Resistivity (CAL.643); and
    4. pH (CAL 747)

Laboratory tests for geotechnical characteristics were performed in general accordance with the ASTM procedures. The results of the in-situ moisture content and density tests are shown on the borings logs. The results of other laboratory tests and laboratory test results are presented in Appendix C.

Percolation Testing

Field percolation testing was performed in general accordance with the with the City of Oceanside BMP Design Manal For Permanent Site Design, Stormwater Treatment and Hydromodification Management (2022).

Boring B-2 was converted to field percolation test wells by placing approximately two inches of gravel at the bottom of the borehole, installation of two-inch diameter PVC pipes and placement of gravel in the annulus between the borehole and the PVC pipe to hold it securely in place. Infiltration test rates were determined utilizing the referenced City of Oceanside guidelines. A gravel factor of 0.54 was used in the calculations to account for the volume of water reduction from the gravel in the annular space of the boring. Results of the infiltration testing are presented in Table 1 - Percolation Test Worksheet and in the table below:

Test Location	Test Depth (feet)	Infiltration Rate (inches/hour)
B-2	15 – 25.5	0.01

Based on the percolation test results and the referenced guidelines, stormwater infiltration is not recommended at the subject site from a geotechnical standpoint.

GEOTECHNICAL FINDINGS

Geology

Regional Geologic Setting

The project site is located in the northeast corner of the Oceanside 7.5-minute quadrangle, San Diego County, California. Per the Geologic Map of the Oceanside 30x60-minute Quadrangle, California (Kennedy, 2007), the subject site is underlain by old paralic deposits, consisting of silt, sand and cobbles. Figure 2 presents the Regional Geology Map.

Earth Units

Based on our subsurface investigation, the subject site is generally underlain by approximately 5 to 6 feet of fill consisting of reddish-brown to brown fine-grained silty sand in a moist condition. This fill is not considered suitable for the support of structures or structural fill. The silty sand is underlain by approximately 5 feet of old paralic deposits consisting of reddish-brown fine-grained sand, underlain by old paralic deposits consisting of very hard silt, sand and gravel to an approximate depth of 25.5 feet below existing grade, the maximum depth explored. Detailed descriptions of the earth units encountered in our borings are presented in the log of the borings. (Appendix B)

Groundwater

Subsurface water was not encountered to a depth of approximately 25.5 feet below existing grade during the subsurface exploration.

Based on our review of USGS groundwater levels for the nation data for groundwater wells nearest to the subject site, the historic high groundwater was recorded at 20 feet below existing grade in October 1965 (USGS 331217117211601 011S005W13Q003S). This groundwater well is located approximately 1.5 miles to the northeast of the subject site.

Per the geotechnical report by Southern California Geotechnical (2002) for the property directly adjacent to the west of the subject site, groundwater was encountered at a depth of approximately 43 feet below existing grade in 2002.

Seasonal and long-term fluctuations in the groundwater may occur as a result of variations in subsurface conditions, rainfall, run-off conditions and other factors. Therefore, variations from our observations may occur.

Static groundwater is not anticipated to adversely impact development.

Expansive Soil

Onsite soils are granular in nature, correlating to a “very low” expansion potential. The recommendations provided in this report account for the expansion potential of the onsite soils.

Hydrocollapse

Laboratory testing indicates near surface soils undergo approximately 0.1% to 1% hydrocollapse when inundated under load, correlating to a “very low to low” potential for hydrocollapse. The recommendations in this report account for the hydro collapse potential of near surface soils.

Cement Type and Corrosion

Based on laboratory testing concrete used should be designed in accordance with the provisions of ACI 318-14, Chapter 19 for Exposure Class S0: Cement with a minimum unconfined compressive strength of 2,500 psi, and for Exposure Class C1 (Moderate) – Concrete exposed to moisture but not a significant source of chlorides, per ACI 318-14 Table 19.3.1.1.

Corrosion tests indicate a moderate corrosion potential for ferrous metals exposed to site soils.

TGR does not practice corrosion engineering. If needed, a qualified specialist should review the site conditions and evaluate the corrosion potential of the site soil to the proposed improvements and to provide the appropriate corrosion mitigations for the project.

Seismic Review

Faulting and Seismicity

The subject site, like the rest of Southern California, is located within a seismically active region as a result of being located near the active margin between the North American and Pacific tectonic plates. The principal source of seismic activity is movement along the northwest-trending regional faults such as the San Andreas, San Jacinto and Elsinore fault zones. These fault systems produce approximately 5 to 35 millimeters per year of slip between the plates.

We consider the most significant geologic hazard to be the potential for moderate to strong seismic shaking that is likely to occur at the subject site. The subject site is located in the highly seismic Southern California region within the influence of several faults that are considered to be Holocene-active or pre-Holocene faults. A Holocene-active fault is defined by the State of California as a fault that has exhibited surface displacement within the Holocene time (about the last 11,700 years). A pre-Holocene fault is defined by the State as a fault whose history of past movement is older than 11,700 years ago and does not meet the criteria for a Holocene-active fault.

These Holocene-active and pre-Holocene faults are capable of producing potentially damaging seismic shaking at the site. It is anticipated that the subject site will periodically experience ground acceleration as the result of small to moderate magnitude earthquakes. Other active faults without surface expression (blind faults) or other potentially active seismic sources that are not currently zoned and may be capable of generating an earthquake are known to be present under in the region.

The subject site is not included within any Earthquake Fault Zones as created by the Alquist-Priolo Earthquake Fault Zoning Act (CGS, 2018). Our review of geologic literature pertaining to the site area indicates that there are no known active or potentially active faults located within or immediately adjacent to the subject property.

The nearest fault to the subject site is the Newport-Inglewood-Rose Canyon offshore fault zone mapped approximately 2.7 miles southwest of the site. Other nearby faults include the San Mateo-San Onofre-Carlsbad fault zone mapped approximately 10.1 miles to the southwest of the site, the Coronado Bank fault zone mapped approximately 20.6 miles to the west of the site, and the Wildomar fault mapped approximately 24.5 miles to the northeast of the site. The Regional Fault Map, Figure 4, shows the location of the subject site in respect to the regional faults.

Secondary Seismic Hazards

Surface Fault Rupture and Ground Shaking

Since no known faults are located within the site, surface fault rupture is not anticipated. However, due to the close proximity of known active and potentially active faults, severe ground shaking should be expected during the life of the proposed structures.

Liquefaction

Liquefaction is a seismic phenomenon in which loose, saturated, fine-grained granular soils behave similarly to a fluid when subjected to high-intensity ground shaking. Liquefaction occurs when these ground conditions exist: 1) Shallow groundwater; 2) Low density, fine, clean sandy soils; and 3) High-intensity ground motion. Effects of liquefaction can include sand boils, settlement, and bearing capacity failures below foundations.

A review of the San Diego County Geologic Hazards, Figure 4 - Potential Liquefaction Areas Map indicates that the subject site is not located within an area mapped as having a potential for earthquake induced liquefaction (Figure 5).

Based on the above and high SPT blowcounts recorded during drilling, potential for liquefaction is considered to be ‘very low’.

Seismically Induced Settlement

Ground accelerations generated from a seismic event can produce settlements in sands or in granular earth materials both above and below the groundwater table. This phenomenon is often referred to as seismic settlement and is most common in relatively clean sands, although it can also occur in other soil materials. Based on the nature and density of site soils encountered, seismic settlement is anticipated to be ‘very low’.

Landsliding

Landsliding involves downhill motion of earth materials during or subsequent to earth shaking. Historically, landslides triggered by earthquakes have been a significant cause of damage. Areas that are most susceptible to earthquake induced landslides are areas with steep slopes in poorly cemented or highly fractured bedrock, areas underlain by loose, weak soils, and areas on or adjacent to existing landslide deposits.

A review of the San Diego County Geologic Hazards, Figure 5 - Potential Landslide Susceptible Areas Map indicates the subject site is not located within a mapped zone of landsliding and adjacent areas are situated on relatively flat topography. Based on the above, the general landslide susceptibility is considered to be negligible.

Lateral Spreading

Seismically induced lateral spreading involves primarily movement of earth materials due to earth shaking. Lateral spreading is demonstrated by near-vertical cracks with predominantly horizontal movement of the soil mass involved. The topography in the vicinity of the subject site is relatively flat, with a gentle slope to the coastline. Based on the above and absence of liquefaction, the potential for lateral spreading at the subject site is considered to be ‘very low’.

DISCUSSIONS AND CONCLUSIONS

General

Based on our field exploration, laboratory testing and engineering analysis, it is our opinion that the proposed structures and proposed grading will be safe against hazard from landslide, settlement, or slippage and the proposed construction will have no adverse effect on the geologic stability of the adjacent properties provided our recommendations presented in this report are followed.

Conclusions

Based on our findings and analyses, the subject site is likely to be subjected to moderate to severe ground shaking due to the proximity of known active and potentially active faults. This may reasonably be expected during the life of the structure and should be designed accordingly.

The primary conditions affecting the proposed project site development are as follows:

- One level (approximately 15 foot) of excavations for subterranean parking.
- Excavation adjacent to existing structures and public right-of-way.
- Presence of a two-level of subterranean structure to the west of the subject site.

The engineering evaluation performed concerning site preparation and the recommendations presented are based on information provided to us and obtained by us during our office and fieldwork. This report is prepared for the construction of a new eight-story building including two levels of above-grade parking and one level of subterranean parking with associated amenities, recreation areas and courtyards. In the event that any significant changes are made to the proposed development, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the recommendations of this report are verified or modified in writing by TGR.

RECOMMENDATIONS

Seismic Design Parameters

When reviewing the 2019 California Building Code along with our field data as well as the referenced Southern California Geotechnical, Inc. (2002) report, the following data should be incorporated into the design.

Parameter	Value
Latitude (degree)	33.1950
Longitude (degree)	-117.3798
Site Class	C
Site Coefficient, F_a	1.2
Site Coefficient, F_v	1.5
Mapped Spectral Acceleration at 0.2-sec Period, S_s	1.068 g
Mapped Spectral Acceleration at 1.0-sec Period, S_1	0.390 g
Spectral Acceleration at 0.2-sec Period Adjusted for Site Class, S_{MS}	1.281 g
Spectral Acceleration at 1.0-sec Period Adjusted for Site Class, S_{M1}	0.584 g
Design Spectral Acceleration at 0.2-sec Period, S_{DS}	0.854 g
Design Spectral Acceleration at 1.0-sec Period, S_{D1}	0.390 g

The structural consultant should review the above parameters and the 2019 California Building Code to evaluate the seismic design.

Conformance to the criteria presented in the above table for seismic design does not constitute any type of guarantee or assurance that significant structural damage or ground failure will not occur during a large earthquake event. The intent of the code is “life safety” and not to completely prevent damage of the structure, since such design may be economically prohibitive.

Shallow Foundation Design Recommendations for Basement Level of Eight Story Building

The proposed eight-story structure may be supported on continuous and/or spread footings. It is our understanding that the basement of the adjacent building to the west extends approximately 22 feet below grade. This depth should be verified. Depending on the proximity of the proposed building to the property line, it is recommended that the footings be deepened so as not to surcharge the adjacent basement wall. As an alternative, drilled piers may be utilized.

Bearing capacity recommendations for shallow foundations are presented below. These recommendations assume that the footings will be supported on competent native paralic deposits.

For foundations supported on competent native paralic deposits, an allowable bearing pressure of 3,000 pounds per square foot may be used in design, with an increase of 400 psf per additional foot of embedment depth to a maximum of 4,000 psf. The recommended minimum footing depth is twenty (24) inches.

The minimum recommended footing width is twenty-four (24) inches for continuous and pad footings. A minimum reinforcement of two (2) No. 5 steel bar top and two (2) No. 5 steel bar bottom is required for continuous footings from a geotechnical viewpoint. Foundation design details such as concrete strength, reinforcements, etc should be established by the Structural Engineer.

A one-third (1/3) increase on the aforementioned bearing pressure may be used in design for short-term wind or seismic loads.

The total and differential static settlement is anticipated to be 1 inch and 0.5 inches or less over 30 feet.

Resistance to lateral loads including wind and seismic forces may be provided by frictional resistance between the bottom of concrete and the underlying fill soils and by passive pressure against the sides of the foundations. A coefficient of friction of 0.50 may be used between concrete foundation and underlying soil. The recommended passive pressure of the native paralic deposits may be taken as an equivalent fluid pressure of 300 pounds per cubic foot (3,000 psf max).

Footings located near property lines or existing footings where the lateral removal cannot be achieved shall be designed for a reduced bearing capacity of 1,500 pounds per square foot and the passive resistance shall be ignored.

Modulus of Subgrade Reaction

The modulus of subgrade reaction may be taken as 200 pci (K_1) for one (1) square foot may be used for the native site soils at the subterranean subgrade elevation. This value should be reduced for change in size per the following formula.

$$K = K_1 \left(\frac{B+1}{B}\right)^2$$

Where B = Width of Footing;
K = Coefficient of Subgrade Reaction of Footings Measuring B(ft) x B(ft).

Drilled Pier Foundations:

As an alternative, the proposed eight-story structure may be supported on drilled piers. It is recommended that piers be a minimum of 24-inches in diameter. All temporary excavations shall comply with Cal OSHA requirements.

It is recommended that the drilled piers have a minimum embedment of twenty-five (25) feet below basement grade. The drilled piers may be designed for an allowable axial frictional capacity of 500 pounds per square foot. The uplift capacity may be taken as one-half of downward frictional capacity plus the weight of the pier. The lateral capacity shall be taken as 350 psf per foot of depth (maximum 3,500 psf).

The above values may be increased by one-third when considering short duration seismic or wind loads. Foundation design details such as concrete strength, reinforcements, etc. should be established by the Structural Engineer. Once column loads are available TGR can provide load deflection curves for the piers.

The total settlement is not expected to exceed ½ inch. The differential settlement between columns is estimated as ¼ inch.

For piers spaced at less than three (3) diameters on center, additional group capacity reduction effects should be taken into account on evaluating the allowable axial capacity of the pile groups.

For piers spaced at less than eight (8) diameters on center, additional group capacity reduction effects should be taken into account on evaluating the allowable lateral capacity of the pile groups.

Proposed piers installed less than three (3) and eight (8) diameters on center to the existing adjacent basement structure to the west of the subject site, shall have the axial and lateral capacities ignored, respectively.

The drilling and installation of piers should be performed under the full-time observation of TGR Geotechnical.

The pile excavation should be filled with concrete as soon as possible after drilling is completed. The pile excavation should not be left open for more than forty-eight (48) hours. Vibration should take place throughout the full length of the pile to eliminate voids in either the pile base or the shaft. Placement procedure such as tremie may be utilized to ensure that aggregate segregation does not occur. Where pile spacing is less than three (3) diameters, piles should be drilled and filled alternately, allowing the previously poured pile concrete to set for at least twenty-four (24) hours, or as permitted by the geotechnical engineer.

Piers extending below 45 feet below surface grade may encounter subsurface groundwater. If water is encountered, it may be pumped out prior to placement of concrete. As an alternate, placement of concrete may be performed under water utilizing a tremie and the concrete strength adjusted per the project structural engineer. Due to the gravelly nature of the subsurface soils, difficulty in drilling may be encountered. Casing and/or drilling mud may be required.

Shallow Foundation Design Recommendations for Ancillary Structures

The proposed ancillary structures may be supported on continuous and/or spread footings. Bearing capacity recommendations for shallow foundations are presented below. These recommendations assume that the footings will be supported on a minimum of two (2) feet of engineered fill compacted to a minimum of ninety-five (95) percent relative compaction per ASTM D1557.

For foundations supported on a minimum of two (2) feet of engineered fill, an allowable bearing pressure of 2,000 pounds per square foot may be used in design. The recommended minimum footing depth is twenty (24) inches.

The minimum recommended footing width is eighteen (18) inches for continuous footings and twenty-four (24) inches for pad footings. A minimum reinforcement of two (2) No. 4 steel bar top and two (2) No. 4 steel bar bottom is required for continuous footings from a geotechnical viewpoint. Foundation design details such as concrete strength, reinforcements, etc. should be established by the Structural Engineer.

A one-third (1/3) increase on the aforementioned bearing pressure may be used in design for short-term wind or seismic loads.

The total and differential static settlement is anticipated to be 1 inch and 0.5 inches or less over 30 feet.

Resistance to lateral loads including wind and seismic forces may be provided by frictional resistance between the bottom of concrete and the underlying fill soils and by passive pressure against the sides of the foundations. A coefficient of friction of 0.44 may be used between concrete foundation and the engineered fill. The recommended passive pressure of the engineered fill may be taken as an equivalent fluid pressure of 250 pounds per cubic foot (2,500 psf max).

Footings located near property lines or existing footings where the lateral removal cannot be achieved shall be designed for a reduced bearing capacity of 1,500 pounds per square foot and the passive resistance shall be ignored.

Slab-On-Grade

Slab-on-grade should be a minimum of five (5) inches thick and reinforced with a minimum of No. 4 reinforcing bar on 18-inch centers in two horizontally perpendicular directions. Reinforcing should be properly supported to ensure placement near the vertical midpoint of the slab. "Hooking" of the reinforcement is not considered an acceptable method of positioning the steel. The slab should not be structurally connected to the buildings.

Subgrade material for the slab-on-grade should be native paralic deposits or engineered fill compacted to a minimum of ninety-five (95) percent of the maximum laboratory dry density to a depth of one (1) foot for basement level and two (2) feet for street level ancillary structures. Prior to placement of concrete, the subgrade soils should be moistened to near optimum moisture content and verified by our field representative.

The actual thickness and reinforcement of the slab shall be designed by the structural engineer per the 2019 California Building Code and should include the anticipated loading condition and the anticipated use of the building.

For moisture sensitive flooring, the floor slab should be underlain by minimum 15-mil impermeable polyethylene membrane (Stego Wrap, Moistop Plus, or any equivalent meeting the requirements of ASTM E1745, Class A rating) as a capillary break. Sand may be placed above and below the impermeable polyethylene membrane at the discretion of the project structural engineer/concrete contractor for proper curing and finish of the concrete slab-on-grade and protection of the membrane and is considered outside the scope of geotechnical engineering.

Flatwork

Flatwork should be a minimum of four (4) inches thick for pedestrian walkways and eight (8) inches for trash enclosures and delivery truck areas should be reinforced with a minimum of No. 3 reinforcing bar on 24-inch centers in two horizontally perpendicular directions. Reinforcing should be properly supported to ensure placement near the vertical midpoint of the slab. "Hooking" of the reinforcement is not considered an acceptable method of positioning the steel. The subgrade material should be compacted to a minimum of ninety-five (95) percent of the maximum laboratory dry density per ASTM D1557 to a minimum depth of one (1) foot. Prior to placement of concrete, the subgrade soils should be moistened to near percent of optimum moisture content and verified by our field representative. The actual thickness and reinforcement of the slab shall be designed by the structural engineer and should include the anticipated loading condition.

Retaining Wall Recommendations

The following soil parameters may be used for the design of the retaining wall with level backfill and a maximum height of fifteen (15) feet:

Conditions	Parameters
Active (Level)	35 psf/ft
At-Rest (Basement Wall)	30H uniform
Passive	300 (maximum 3,000 psf)
Friction Coefficient	0.44

- Unrestrained retaining wall, such as a cantilever wall, the active earth pressure shall be used.
- Retaining walls over 6 feet high shall be designed for a seismic lateral load of $15H^2$ active at a distance of 0.6H above the base of the wall.
- Any import backfill shall be granular non-expansive select fill with a minimum sand equivalent of 30 The import fill should be tested and approved by TGR prior to backfill.
- An allowable coefficient of friction between native paralic deposits and concrete of 0.50 may be used with the dead-load forces.
- Passive pressure and frictional resistance could be combined in determining the total lateral resistance. However, one of them shall be reduced by 50 percent.
- The passive pressure in the upper 1 foot of soil not confined by slabs or pavement should be neglected.
- The retaining wall should be provided with a drainage system (Miradrain or equivalent) to prevent buildup of hydrostatic pressure behind the walls. We do not recommend omitting the drains behind walls.

Retaining structures should be provided with a drainage system to prevent buildup of hydrostatic pressure behind the walls. Provisions should be made to collect and dispose of excess water away from the wall. Wall drainage may be provided by a perforated pipe encased in gravel or crushed rock and enclosed by geo-synthetic filter fabric. We do not recommend omitting the drains behind walls.

In addition to the above lateral forces due to retained earth, surcharge due to improvements, such as an adjacent structure, should be considered in the design of the retaining wall. A minimum vertical surcharge load of 300 psf should be used in design of walls due to adjacent traffic unless the traffic is kept at least six (6) feet from the walls. Loads applied within a 1:1 projection from any surcharging structure on the stem of the wall shall be considered as lateral surcharge.

For uniform lateral surcharge conditions applied to free-to-deflect walls and restrained walls, we recommend utilizing a minimum horizontal load equal to 33 percent and 50 percent of the vertical load, respectively, and should be applied uniformly over the entire height of the wall. This horizontal load should be applied below the 1:1 projection plane. To minimize the surcharge load from an adjacent footing, deepened footings may be considered.

Retaining wall footings should have a minimum embedment of twenty-four (24) inches below the lowest adjacent grade. The retaining walls footings shall be supported on native paralic deposits or a minimum one (1) foot of compacted engineered fill compacted to a minimum ninety-five (95) percent relative compaction as per ASTM D1557.

Shrinkage/Subsidence

Removal and recompaction of the near surface soils is estimated to result in shrinkage ranging from 5 to 10 percent. Minor ground subsidence is expected to occur in the soils below the zone of removal, due to settlement and machinery working. The subsidence is estimated to be between one and two tenths of a foot.

Site Development Recommendations

General

During earthwork construction, all site preparation and the general procedures of the contractor should be observed, and the fill selectively tested by a representative of TGR. If unusual or unexpected conditions are exposed in the field, they should be reviewed by this office and if warranted, modified and/or additional recommendations will be offered. During demolition of the existing buildings, large concrete slab and associated site work, voids created from removal of buried elements (footings, pipelines, septic pits, etc.) shall be backfilled with engineered fill to a minimum ninety (90) percent relative compaction per ASTM D1557 under the observation of TGR.

Grading

All grading should conform to the guidelines presented in the California Building Code (2019 edition), except where specifically superseded in the text of this report. Prior to grading, TGR's representative should be present at the pre-construction meeting to provide grading guidelines, if needed, and review any earthwork. Oversize particles may be encountered during grading. All particles greater than 4-inches shall be removed and disposed offsite. The existing fill is not considered suitable for the support of structures or structural fill.

The basement level footings and slab-on-grade shall be supported on competent native paralic deposits or a minimum one (1) foot of engineered fill. A minimum two (2) feet of engineered fill is recommended under street level footings and slab-on-grade for ancillary structures and a minimum of one (1) foot of engineered fill is recommended under flatwork. Site soils may be reused as engineered fill provided, they are free of oversized particles and the recommendations presented in this report are implemented. Exposed bottoms should be scarified a minimum of six (6) inches, moisture conditioned to near optimum moisture and compacted to a minimum ninety-five (95) percent relative compaction. Subsequently, site fill soils should be re-compacted to a minimum of ninety-five (95) percent relative compaction at near optimum moisture content.

The depth of over-excavation should be reviewed by the Geotechnical Consultant during the actual construction. Any subsurface obstruction buried structural elements, and unsuitable material encountered during grading, should be immediately brought to the attention of the Geotechnical Consultant for proper exposure, removal and processing, as recommended.

Fill Placement

Prior to any fill placement TGR should observe the exposed surface soils. The site soils may be re-used as engineered fill provided, they are free of organic content and particle size greater than 4-inches. All particles greater than 4-inches shall be removed and disposed offsite. Fill shall be

moisture conditioned to near optimum moisture and compacted to a minimum relative compaction of ninety-five (95) percent in accordance with ASTM D1557. Any import soils shall be non-expansive and approved by TGR Geotechnical Inc.

Compaction

Prior to fill placement, the exposed surface should be scarified to a minimum depth of six (6) inches, fill placed in eight (8) inch loose lifts moisture conditioned to near optimum moisture and compacted to a minimum relative compaction of ninety-five (95) percent in accordance with ASTM D1557.

Trenching

All excavations should conform to CAL-OSHA and local safety codes.

Temporary Excavation

All excavations to a maximum depth of four (4) feet may be excavated vertically. However, all excavations deeper than four (4) feet must either be properly sloped or shored. Where sufficient space is available for sloped excavation, the excavation may be sloped to no steeper than 1:1 (horizontal to vertical). Flattened side slopes may be required where less stable localized deposits are encountered. The exposed slope faces should be kept moist and not allowed to dry out. Where sloped excavation cannot be performed, temporary shoring may be utilized.

No surcharge loads should be permitted within a horizontal distance equal to the height of cut from the toe of excavation unless the cut is properly shored. Excavations that extend below an imaginary plane inclined at 45 degrees below the edge of any nearby adjacent existing site facilities should be properly shored to maintain foundation support at the adjacent structures.

Temporary shoring may be required for those excavations where temporary slope cuts as specified above are not feasible. Temporary cantilever shoring should be designed to resist an active earth pressure of 35 pounds per cubic foot equivalent fluid pressure for level conditions behind shoring. The design of shoring should also include surcharge-loading effects of existing structures and anticipated traffic, including construction equipment, when loading is within a distance from the shoring equal to the depth of excavation. The passive resistance may be taken as 250 pounds per square foot per foot of depth (maximum 2,500 psf). All excavations should conform to CAL-OSHA and local safety codes. The stability of temporary excavation is the responsibility of the contractor. TGR should be present to observe the excavation to provide additional recommendations as considered necessary depending on the exposed condition.

Temporary Shoring

Temporary shoring may be required for those excavations where temporary slope cuts as specified above are not feasible. Temporary cantilever shoring should be designed using the following parameters:

Conditions	Parameters
Active (Level)	30 psf/ft
Passive	350 (maximum 3,000 psf)
Friction Coefficient	0.45

The design of shoring should also include surcharge-loading effects of existing structures and anticipated traffic, including construction equipment, when loading is within a distance from the shoring equal to the depth of excavation. All excavations should conform to CAL-OSHA and local safety codes. The stability of temporary excavation is the responsibility of the contractor. However, as a minimum the lateral movement at the top of the shoring soldier piles should be monitored. Lateral deflection of 0.50 inches or more shall be brought to the attention of TGR with remedial measures. If lateral deflection exceeds 1.0 inches, work shall stop, and mitigation measures taken prior to continuing work. TGR should be present to observe the excavation to provide additional recommendations as considered necessary depending on the exposed condition.

Soldier piles shall have a minimum diameter of 24-inches and shall be spaced at least three diameters on centers, a lateral passive resistance of 350 psf/ft of embedment depth into native soil with a maximum lateral passive resistance of 3,500 psf should be used in design. The shoring design engineer may utilize this passive pressure over one to two pile diameters at their discretion/design procedure. The shoring design engineer is however responsible for the performance of the shoring system.

Soldier pile members placed in drilled holes should be properly backfilled with sand/cement slurry or lean concrete in order to develop the required passive resistance.

Final temporary shoring calculations and plans shall be reviewed by this office to ensure that the recommendations presented in this report has been incorporated in the design. TGR may provide additional recommendations based on a review of the final shoring configuration.

The lagging between the soldier piles may be designed for a nominal pressure of 400 psf, and should consist of wood members, or solid plywood or steel sheets. All excavations should conform to CAL-OSHA and local safety codes.

Utility Trench Backfill

All utility trench backfills in structural areas and beneath hardscape features should be brought to near optimum moisture content and compacted to a minimum relative compaction of ninety-five (95) percent of the laboratory standard. Flooding/jetting is not recommended.

Sand backfill, (unless trench excavation material), should not be allowed in parallel exterior trenches adjacent to and within an area extending below a 1:1 plane projected from the outside bottom edge of the footing. All trench excavations should minimally conform to CAL-OSHA and local safety codes. Soils generated from utility trench excavations may be used provided it is moisture conditioned and compacted to ninety-five (95) percent minimum relative compaction.

Drainage

Positive site drainage should be maintained at all times. Water should be directed away from foundations and not allowed to pond and/or seep into the ground. Pad drainage should be directed towards the street/parking or other approved area.

Geotechnical Review of Plans

All grading and foundation plans should be reviewed and accepted by the geotechnical consultant prior to construction. If significant time elapses since preparation of this report, the geotechnical consultant should verify the current site conditions, and provide any additional recommendations (if necessary) prior to construction.

Geotechnical Observation/Testing During Construction

Per sections 1705.6 and table 1705.6 of the 2019 California Building Code, periodic special inspection shall be performed to:

- Verify materials below shallow foundations are adequate to achieve the design bearing capacity;
- Verify excavations are extended to the proper depth and have reached proper material;
- Verify classification and test compacted materials; and
- Prior to placement of compacted fill, inspect subgrade and verify that the site has been prepared properly.

Per sections 1705.6 and table 1705.6 of the 2019 California Building Code, continuous special inspection shall be performed to:

- Verify use of proper materials, densities and lift thickness during placement and compaction of compacted fill.

The geotechnical consultant should also perform observation and/or testing at the following stages:

- During any grading and fill placement;
- During trench excavation and backfill;
- After foundation excavation and prior to placing concrete;
- During caisson excavation;
- Prior to placing slab and flatwork concrete;
- During placement of aggregate base and asphalt or Portland cement concrete; and
- When any unusual soil conditions are encountered during any construction operation subsequent to issuance of this report.

Limitations

This report was prepared for a specific client and a specific project, based on the client's needs, directions and requirements at the time.

This report was necessarily based upon data obtained from a limited number of observances, site visits, soil and/or other samples, tests, analyses, histories of occurrences, spaced subsurface exploration and limited information on historical events and observations. Such information is necessarily incomplete. Variations can be experienced within small distances and under various climatic conditions. Changes in subsurface conditions can and do occur over time.

This report is not authorized for use by and is not to be relied upon by any party except the client with whom TGR contracted for the work. Use or reliance on this report by any other party is that party's sole risk. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify TGR from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, or strict liability of TGR.



B-3 ⊕ APPROXIMATE LOCATION OF EXPLORATORY BORING

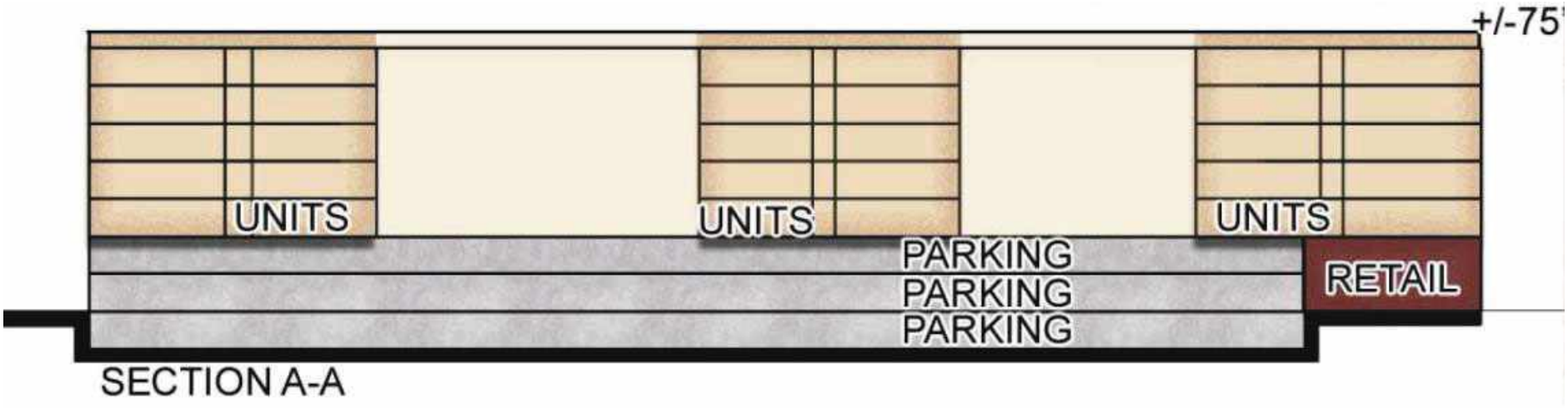
0 30' 60' 120'

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

BORING LOCATION MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

PLATE 1A



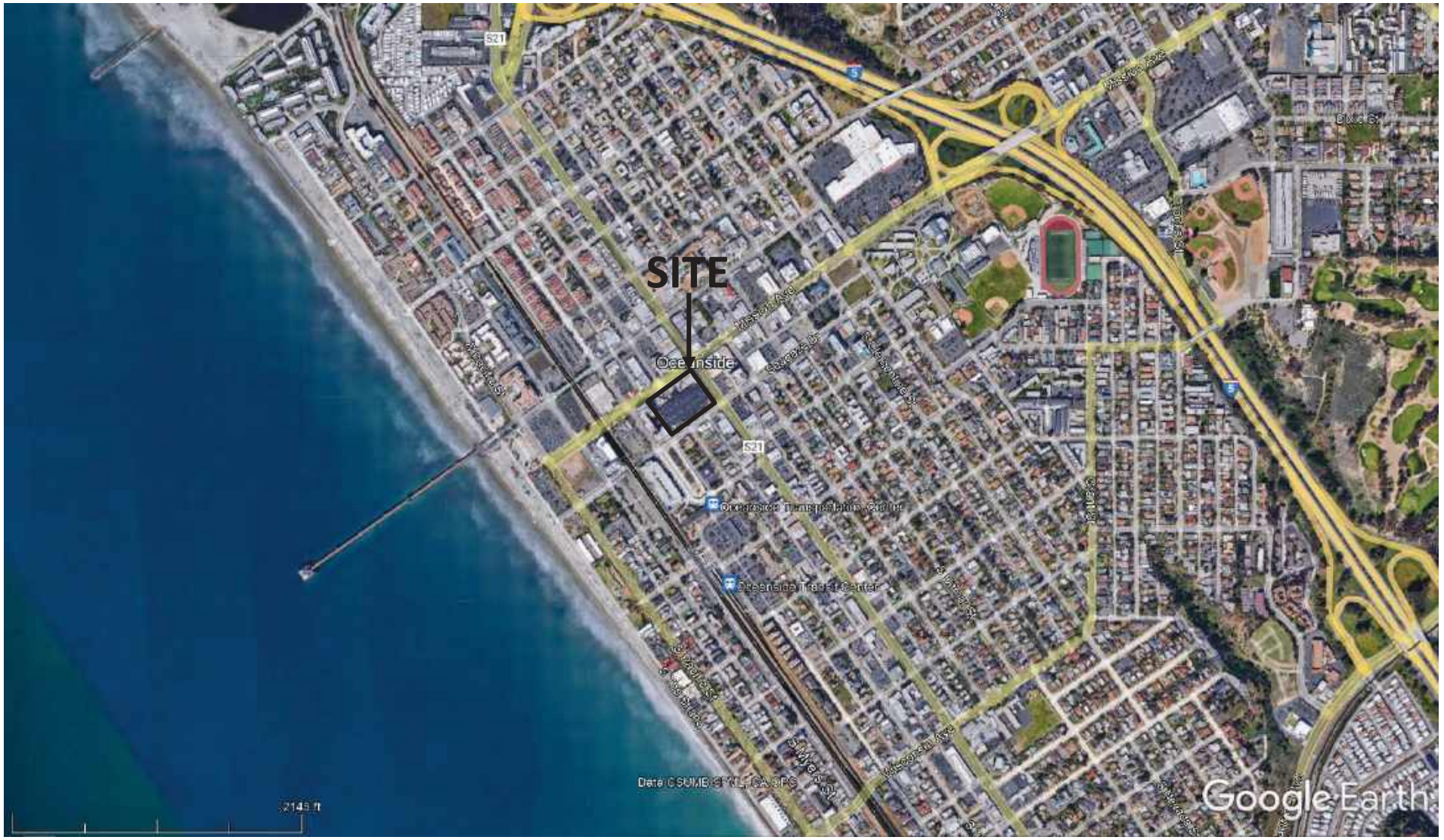


TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

CROSS SECTION A-A'
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

PLATE 1B



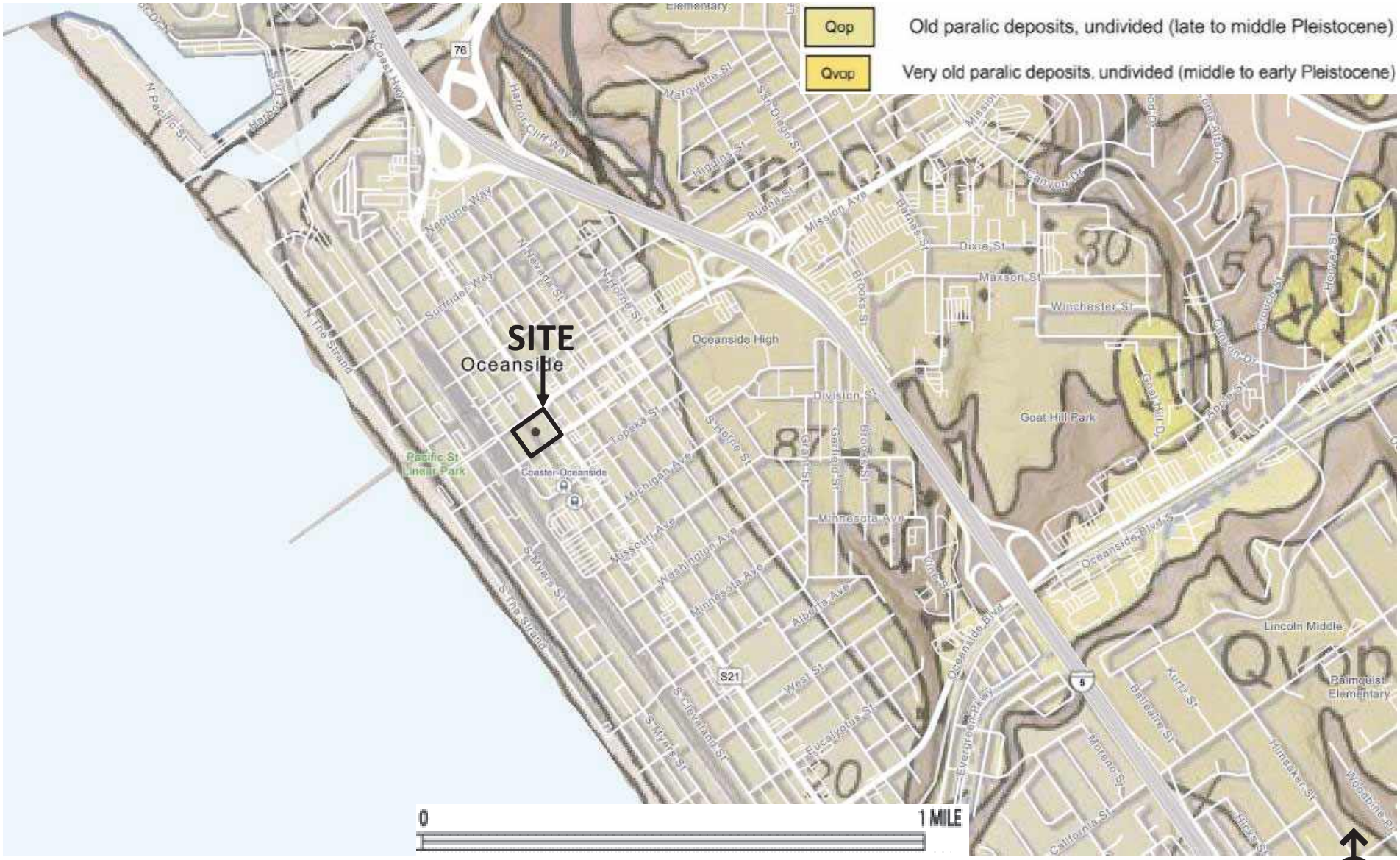
N

TGR
Geotechnical
Environmental
Hydrogeology
Material Testing
Construction Inspection

SITE LOCATION MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

FIGURE 1



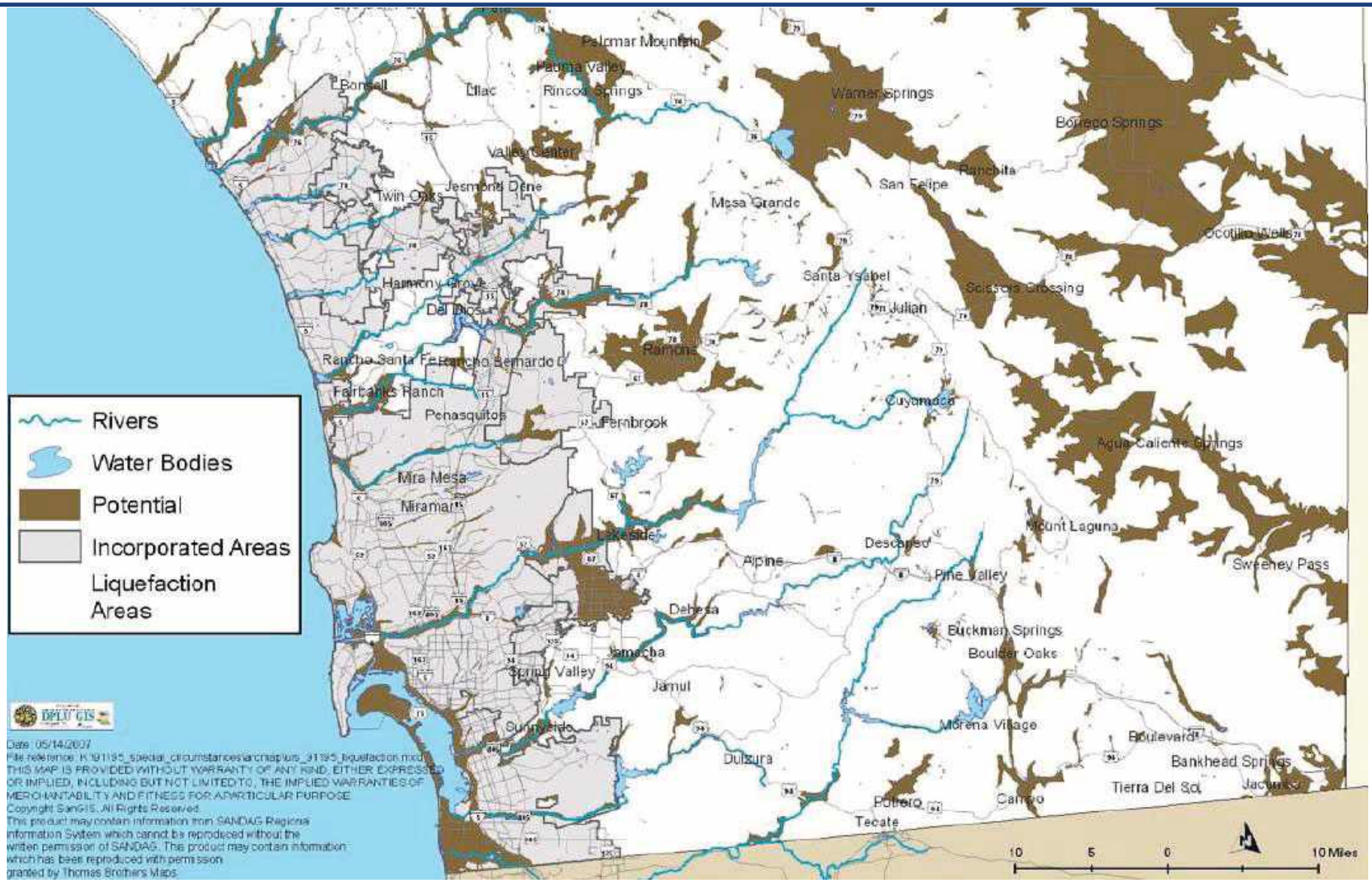
Modified From: Kennedy, M.P., Tan, S.S., Bovard, K.R., Alvarez, R.M., Watson, M.J., and Gutierrez, C.I., 2007, Geologic map of the Oceanside 30x60-minute quadrangle, California: California Geological Survey, No. 2, scale 1:100,000.

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

REGIONAL GEOLOGY MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

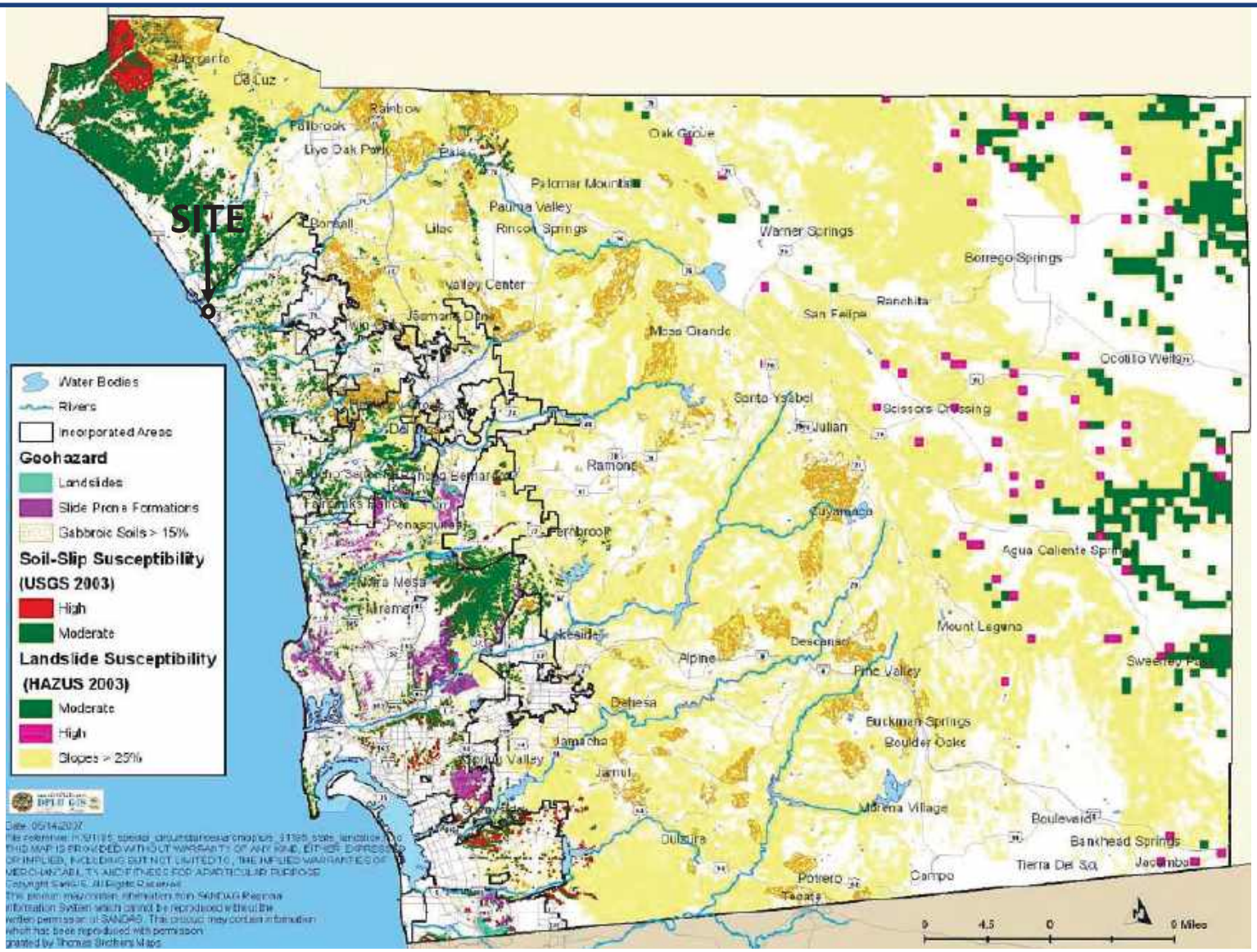
PROJECT NO. 22-7517

FIGURE 2



Modified From: County of San Diego, Department of Planning and Land Use, Department of Public Works, Land Use and Environment Group, Guidelines for Determining Significance, Geologic Hazards, Figure 4 – Potential Liquefaction Areas, dated July 30, 2007.

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection	COUNTY LIQUEFACTION HAZARD MAP 401 MISSION AVENUE OCEANSIDE, CALIFORNIA	PROJECT NO. 22-7517 FIGURE 3



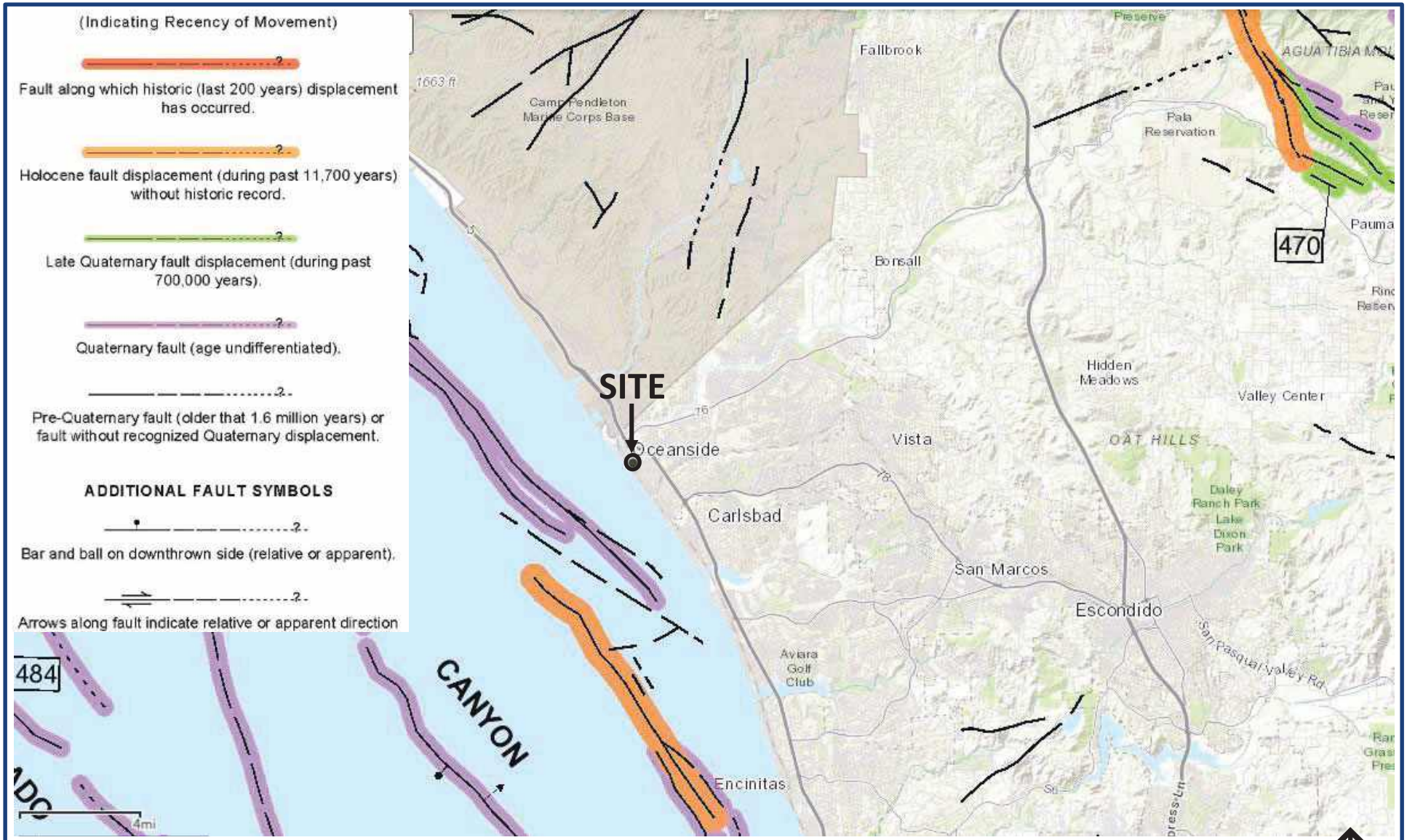
Modified From: County of San Diego, Department of Planning and Land Use, Department of Public Works, Land Use and Environment Group, Guidelines for Determining Significance, Geologic Hazards, Figure 5 – Potential Landslide Susceptible Areas, dated July 30, 2007.

TGR
Geotechnical
Environmental
Hydrogeology
Material Testing
Construction Inspection

COUNTY LANDSLIDE HAZARD MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

FIGURE 4



Modified From: Jennings, C. W., 2010, Fault Activity Map of California and Adjacent Areas, California Division of Mines and Geology, Geologic Data Map Series, No. 6, Scale 1:750,000.

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

REGIONAL FAULT MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

FIGURE 5

Table 1: Percolation Test Worksheet

Test Hole	Total Depth (in)	Initial Depth (in)	Final Depth (in)	ΔWater Level (in)	Initial Time (min)	Final Time (min)	Δ Time (min)	Initial Height of Water (in)	Final Height of Water (in)	Average Height of Water (in)	Gravel Factor	Infiltration Rate (in/hr)
B-2	306	182.0	182.7	0.7	0.0	30.0	30.0	124.0	123.3	123.6	0.54	0.01
	306	182.7	183.4	0.7	0.0	30.0	30.0	123.3	122.6	122.9	0.54	0.01
	306	183.4	184.1	0.7	0.0	30.0	30.0	122.6	121.9	122.2	0.54	0.01
	306	184.1	184.8	0.7	0.0	30.0	30.0	121.9	121.2	121.5	0.54	0.01
	306	181.8	182.5	0.7	0.0	30.0	30.0	124.2	123.5	123.8	0.54	0.01
	306	182.5	183.2	0.7	0.0	30.0	30.0	123.5	122.8	123.1	0.54	0.01
	306	183.2	183.9	0.7	0.0	30.0	30.0	122.8	122.1	122.4	0.54	0.01
	306	183.9	184.6	0.7	0.0	30.0	30.0	122.1	121.4	121.7	0.54	0.01
	306	180.6	181.3	0.7	0.0	30.0	30.0	125.4	124.7	125.0	0.54	0.01
	306	181.0	181.7	0.7	0.0	30.0	30.0	125.0	124.3	124.7	0.54	0.01
	306	181.7	182.4	0.7	0.0	30.0	30.0	124.3	123.6	124.0	0.54	0.01
	306	182.4	183.1	0.7	0.0	30.0	30.0	123.6	122.9	123.2	0.54	0.01

$$I_t = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

ΔH = Change in height

Δt = Time interval

r = Radius

I_t Infiltration Rate

H_{ave} Average Head Height over the time interval

APPENDIX A
REFERENCES

TGR GEOTECHNICAL
DBE & 8(a) firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

APPENDIX A

References

AO Architects, Option One Conceptual Site Plan, 401 Mission Avenue Mixed Use, Oceanside, CA, dated 04-08-2022.

California Department of Conservation – California Geological Survey, 2018, Earthquake Fault Zones, A Guide for Government Agencies, Property Owners/Developers and Geoscience Practitioners for Assessing Fault Rupture Hazards in California, Special Publication 42.

California Department of Conservation – Division of Mines and Geology, 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California, CDMG Special Publication 117A.

California Department of Conservation – Division of Mines and Geology, 1998, Maps of Known Active Fault Near – Source Zones in California and Adjacent Portions of Nevada.

City of Oceanside, BMP Design Manual for Permanent Site Design, Storm Water Treatment and Hydromodification Management, dated January 2022.

County of San Diego, 2007, Department of Planning and Land Use, Department of Public Works, Land Use and Environment Group, Guidelines for Determining Significance, Geologic Hazards, dated July 30, 2007.

Kennedy, M.P., Tan, S.S., Bovard, K.R., Alvarez, R.M., Watson, M.J., and Gutierrez, C.I., 2007, Geologic map of the Oceanside 30x60-minute quadrangle, California: California Geological Survey, No. 2, scale 1:100,000.

International Code Council (ICC), California Building Code, 2019 Edition.

Jennings, C. W., 2010, Fault Activity Map of California and Adjacent Areas, California Division of Mines and Geology, Geologic Data Map Series, No. 6, Scale 1:750,000.

Southern California Geotechnical, 2002, Geotechnical Investigation, Proposed Residential/Retail/Office Building, South Cleveland Street at Seagaze Drive, Oceanside, prepared for Southland Land Corp. by Southern California Geotechnical, Inc., dated October 24, 2002, SCG Project No. 02G230-1.

APPENDIX B
LOG OF BORINGS

TGR GEOTECHNICAL
DBE & 8(a) firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

THE FOLLOWING DESCRIBES THE TERMS AND SYMBOLS USED ON THE LOG OF BORINGS TO SUMMARIZE THE RESULTS OBTAINED IN THE FIELD INVESTIGATION AND SUBSEQUENT LABORATORY TESTING

DENSITY AND CONSISTENCY

The consistency of fine grained soils and the density of coarse grained soils are described on the basis of the Standard Penetration Test as follows:

COARSE GRAINED SOILS		ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (Tsf)	FINE GRAINED SOILS	
Very Loose	< 4	< 0.25	Very Soft	< 2
Loose	4 – 10	0.35 – 0.50	Soft	2 – 4
Medium	10 – 30	0.50 – 1.0	Firm (Medium)	4 – 8
Dense	30 – 50	1.0 – 2.0	Stiff	8 – 15
Very Dense	> 50	2.0 – 4.0	Very Stiff	15 – 30
		> 4.0	Hard	> 30

PARTICLE SIZE DEFINITION (As per ASTM D2487 and D422)

Boulder	⇒ Larger than 12 inches	Coarse Sands	⇒ No. 10 to No. 4 sieve
Cobbles	⇒ 3 to 12 inches	Medium Sands	⇒ No. 40 to No. 10 sieve
Coarse Gravel	⇒ 3/4 to 3 inches	Fine Sands	⇒ No. 200 to 40 sieve
Fine Gravel	⇒ No. 4 to 3/4 inches	Silt	⇒ 5µm to No. 200 sieve
		Clay	⇒ Smaller than 5µm

SOIL CLASSIFICATION

Soils and bedrock are classified and described based on their engineering properties and characteristics using ASTM D2487 and D2488.

Percentage description of minor components:

Trace	1 – 10%	Some	20 – 35%
Little	10 – 20%	And or y	25 – 50%

Stratified soils description:

Parting	0 to 1/16 inch thick	Layer	½ to 12 inches thick
Seam	1/16 to ½ inch thick	Stratum	> 12 inches thick

SOIL CLASSIFICATION CHART

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

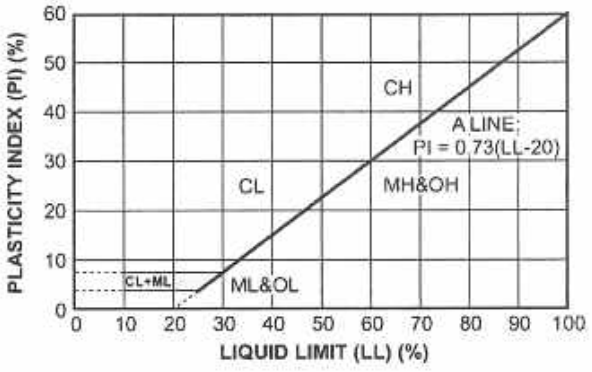
LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line with P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for GW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP
More than 12 percent ..... GM, GC, SM, SC
5 to 12 percent ..... Borderline cases requiring dual symbols

PLASTICITY CHART



PARTICLE SIZE LIMITS

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	
	3"	¾"	NO. 4	NO. 10	NO. 40	NO. 200

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

LOG OF BORING EXPLANATION

LOG OF EXPLORATORY BORING B-1

Project Number: **22-7517**
Project Name: **401 Mission Avenue, Oceanside**
Date Drilled: **8/24/22 - 8/24/22**
Ground Elev: **58**

Logged By: **RA**
Project Engineer: **SG**
Drill Type: **LAR Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Elevation (ft)	Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
								Surface is 5 inches of concrete with rebar.			
								FILL: Silty SAND- reddish brown, moist, medium dense, fine grained, some fine grained gravel, pieces of brick.			Corrosion
55											
	5				31		SP	NATIVE: Old Paralic Deposits (Qop): SAND- reddish brown, moist, dense, fine grained.	7	128	
50											
	10				>50			...No Recovery.			
								Refusal at 10.25 feet due to a large rock.			
								No groundwater encountered during drilling. No caving observed. Boring backfilled with Portland cement grout (approximately 3.5 cubic feet) and surface repaired with rapid set concrete upon completion.			
45								Ground elevation estimated using Google Earth.			
	15										
40											

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 2

TGR GEOTECHNICAL, INC.

LOG OF BORING 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/20/22

LOG OF EXPLORATORY BORING B-2

Project Number: **22-7517**
Project Name: **401 Mission Avenue, Oceanside**
Date Drilled: **8/24/22 - 8/24/22**
Ground Elev: **56**

Logged By: **RA**
Project Engineer: **SG**
Drill Type: **LAR Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Elevation (ft)	Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
55								Surfacce is 6 inches of concrete with rebar. FILL: Silty SAND- reddish brown, moist, medium dense, fine grained, roots from 0-1.5 feet, pieces of brick.			Max, Shear
50	5				35		SP	NATIVE: Old Paralic Deposits (Qop): SAND- reddish brown to brown, moist, dense, fine grained.	5	126	Shear
45	10				>50		MLS	Old Paralic Deposits (Qop): SILT, SAND and GRAVEL- tan, moist, hard, fine grained sand, trace corase grained sand, fine to medium grained gravel, some orange oxidation.	11	125	Shear
40	15				>50		MLS	...Same as above, fine to coarse grained gravel.	6	119	-200= 21.9%
35	20				>50		MLS	...Same as above.	10	126	Shear, -200= 28.0%
30	25				>50		SP	Old Paralic Deposits (Qop): SAND- golden brown, moist, very dense, fine to coarse grained, trace fine grained gravel, some silt. Total Depth: 25.5 feet.	7	115	Shear, Consol -200= 21.5%
25	30							No groundwater encountered during drilling. No caving observed. Boring utilized for percolation testing. Boring backfilled with Portland cement grout (approximately 7 cubic feet) and surface repaired with rapid set concrete upon completion. Ground elevation estimated using Google Earth.			

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 3

TGR GEOTECHNICAL, INC.

LOG OF BORING 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/20/22

LOG OF EXPLORATORY BORING B-3

Sheet **1** of **1**

Project Number:	**22-7517**	Logged By:	**RA**
Project Name:	**401 Mission Avenue, Oceanside**	Project Engineer:	**SG**
Date Drilled:	**8/24/22 - 8/24/22**	Drill Type:	**LAR Hollow Stem**
Ground Elev:	**59**	Drive Wt & Drop:	**140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Elevation (ft)	Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
								Surface is 5 inches of concrete with rebar.			
								FILL: Silty SAND- reddish brown to brown, moist, medium dense, fine grained, trace fine to coarse gravel, pieces of brick.			
55	5			■	27		SP		9	123	Consol
								NATIVE: Old Paralic Deposits (Qop): SAND- dark reddish brown to dark brown, moist, dense, fine grained.			
50	10			■	>50		SP	Old Paralic Deposits (Qop): SAND- light brown, slightly moist, very dense, fine grained, trace fine grained gravel.	3	118	Consol
								Refusal at 12 feet due to a large rock. No groundwater encountered during drilling. No caving observed. Boring backfilled with Portland cement grout (approximately 4 cubic feet) and surface repaired with rapid set concrete upon completion. Ground elevation estimated using Google Earth.			
45	15										
40											

LOG OF BORING 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/20/22

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 4

TGR GEOTECHNICAL, INC.

APPENDIX C
LABORATORY TEST RESULTS

TGR GEOTECHNICAL
DBE & 8(a) firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

APPENDIX C

Laboratory Testing Procedures and Results

In-Situ Moisture and Dry Density Determination (ASTM D2216 and D7263): Moisture content and dry density determinations were performed on relatively undisturbed samples obtained from the test borings. The results of these tests are presented in the boring logs. Where applicable, only moisture content was determined from "undisturbed" or disturbed samples.

Maximum Density and Optimum Moisture Content (ASTM D1557): The maximum dry density and optimum moisture content of typical materials were determined in accordance with ASTM Test Method D1557. The results of these tests are presented in the table below:

Sample Location	Sample Description	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
B-2 @ 0-5 feet	Silty Sand	136.0	8.0

Direct Shear Strength (ASTM D3080): Direct shear test was performed on selected remolded samples and relatively undisturbed samples, which were soaked for a minimum of 24 hours under a surcharge equal to the applied normal force during testing. After transfer of the sample to the shear box, and reloading the sample, pore pressures set up in the sample due to the transfer were allowed to dissipate for a period of approximately 1-hour prior to application of shearing force. The sample was tested under various normal loads, a motor-driven, strain-controlled, direct-shear testing apparatus at a strain rate of less than 0.001 to 0.5 inches per minute (depending upon the soil type). The test results are presented in the test data and in the table below:

Sample Location	Sample Description	Friction Angle (degrees)	Apparent Cohesion (psf)
B-2 @ 0-5 feet	Silty Sand (Remolded)	34	132
B-2 @ 5 feet	Sand	36	11
B-2 @ 10 feet	Old Paralic Deposits	39	354
B-2 @ 20 feet	Old Paralic Deposits	38	276
B-2 @ 24 feet	Sand	29	792

Consolidation Tests (ASTM D2435): Consolidation test were performed on selected, relatively undisturbed ring samples. Samples were placed in a consolidometer and loads were applied in geometric progression. The percent consolidation for each load cycle was recorded as the ratio of the amount of vertical compression to the original 1-inch height. The consolidation pressure curves are presented in the test data.

Soluble Sulfate (CAL 417A): The soluble sulfate content of selected sample was determined by standard geochemical methods. The test results are presented in the test data and in the table below:

Sample Location	Sample Description	Water Soluble Sulfate in Soil, (% by Weight)	Sulfate Content (ppm)	Exposure Class*
B-1 @ 0-5 feet	Silty Sand	0.0341	341	S0

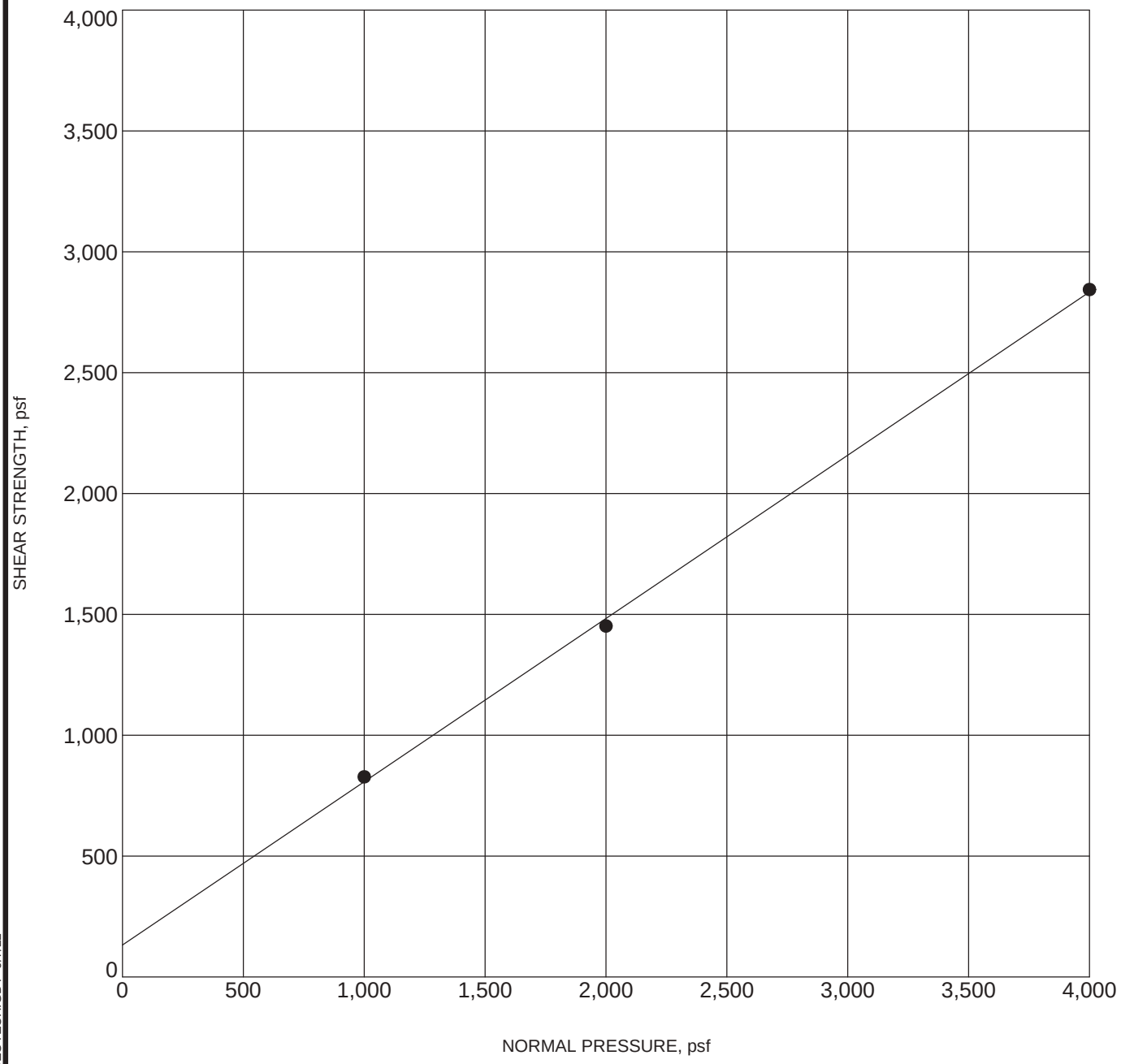
* Based on the current version of ACI 318-14 Building Code, Table No. 19.3.1.1; Exposure Categories and Classes.

Corrosivity Tests (CAL 422, CAL 643 and CAL 747): Electrical conductivity, pH, and soluble chloride tests were conducted on representative samples and the results are provided in the test data and in the table below:

Sample Location	Sample Description	Soluble Chloride (CAL 422) (ppm)	Electrical Resistivity (CAL 643) (ohm-cm)	pH (CAL 747)	Potential Degree of Attack on Steel
B-1 @ 0-5 feet	Silty Sand	74	3,600	7.2	Moderate

Passing No. 200 Sieve (ASTM D1140): Typical materials were washed over No. 200 sieve. The test results are presented below:

Sample Location	% Passing No. 200 Sieve
B-2 @ 15 feet	21.9%
B-2 @ 20 feet	28.0%
B-2 @ 24 feet	21.5%



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**0-5**	**Silty Sand - Remolded 90% RC**	**122**	**8**	**132**	**34**

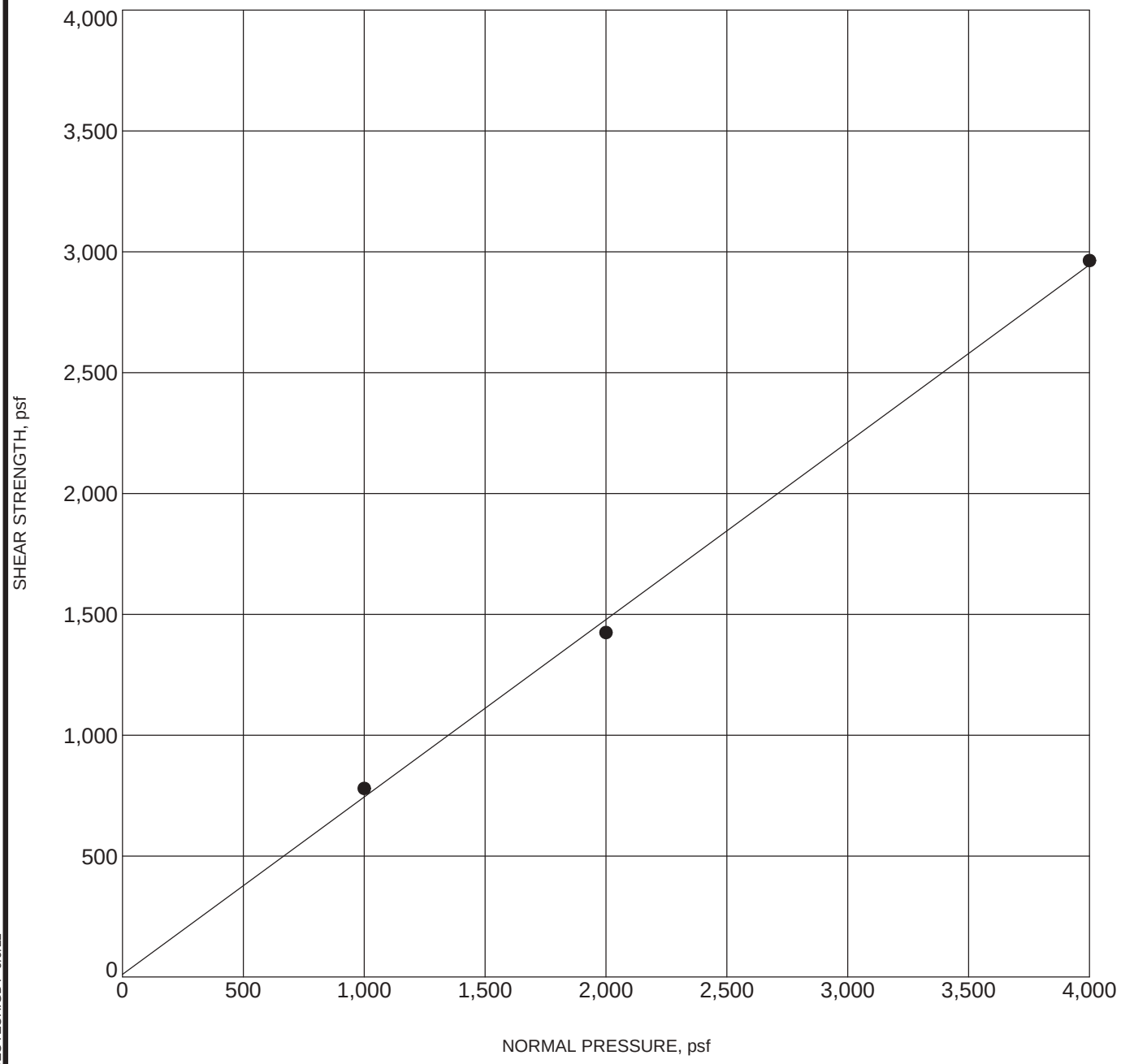
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/7/22



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**5.0**	**Old Paralic Deposits - Sand**	**126**	**5**	**11**	**36**

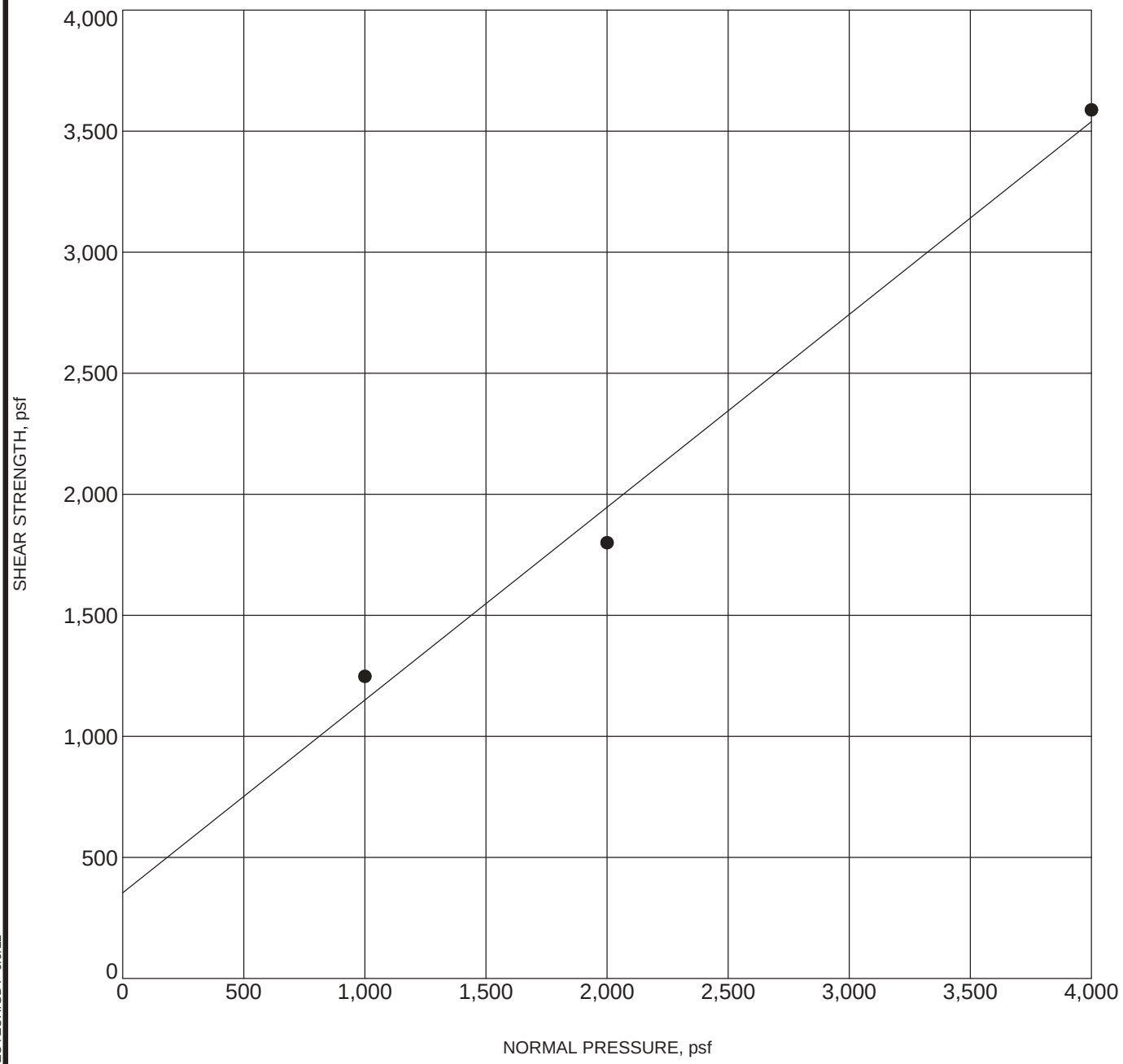
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**10.0**	**Old Paralic Deposits - Silt and Gravel**	**125**	**11**	**354**	**39**

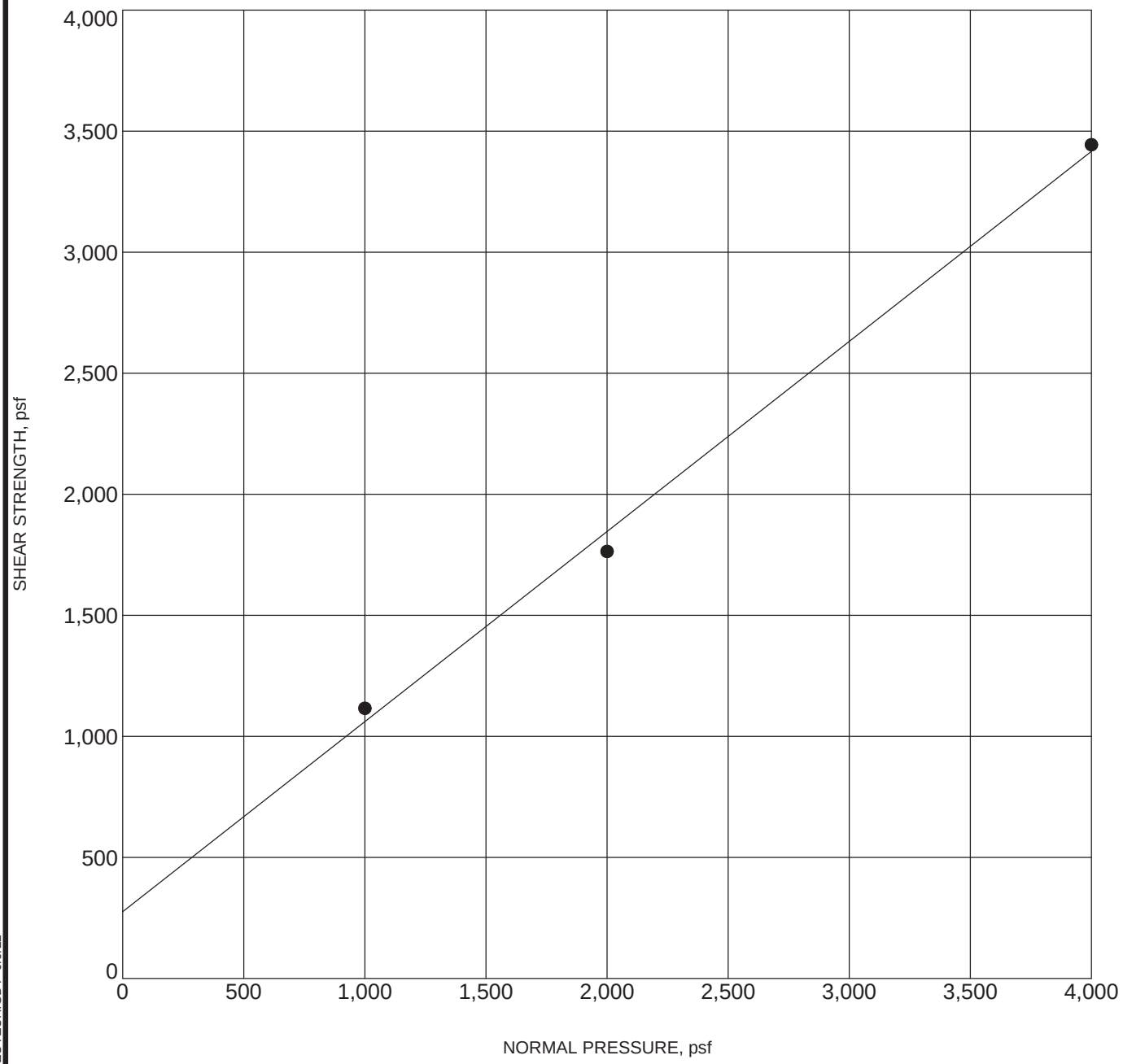
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**20.0**	**Old Paralic Deposits - Silt and Gravel**	**126**	**10**	**276**	**38**

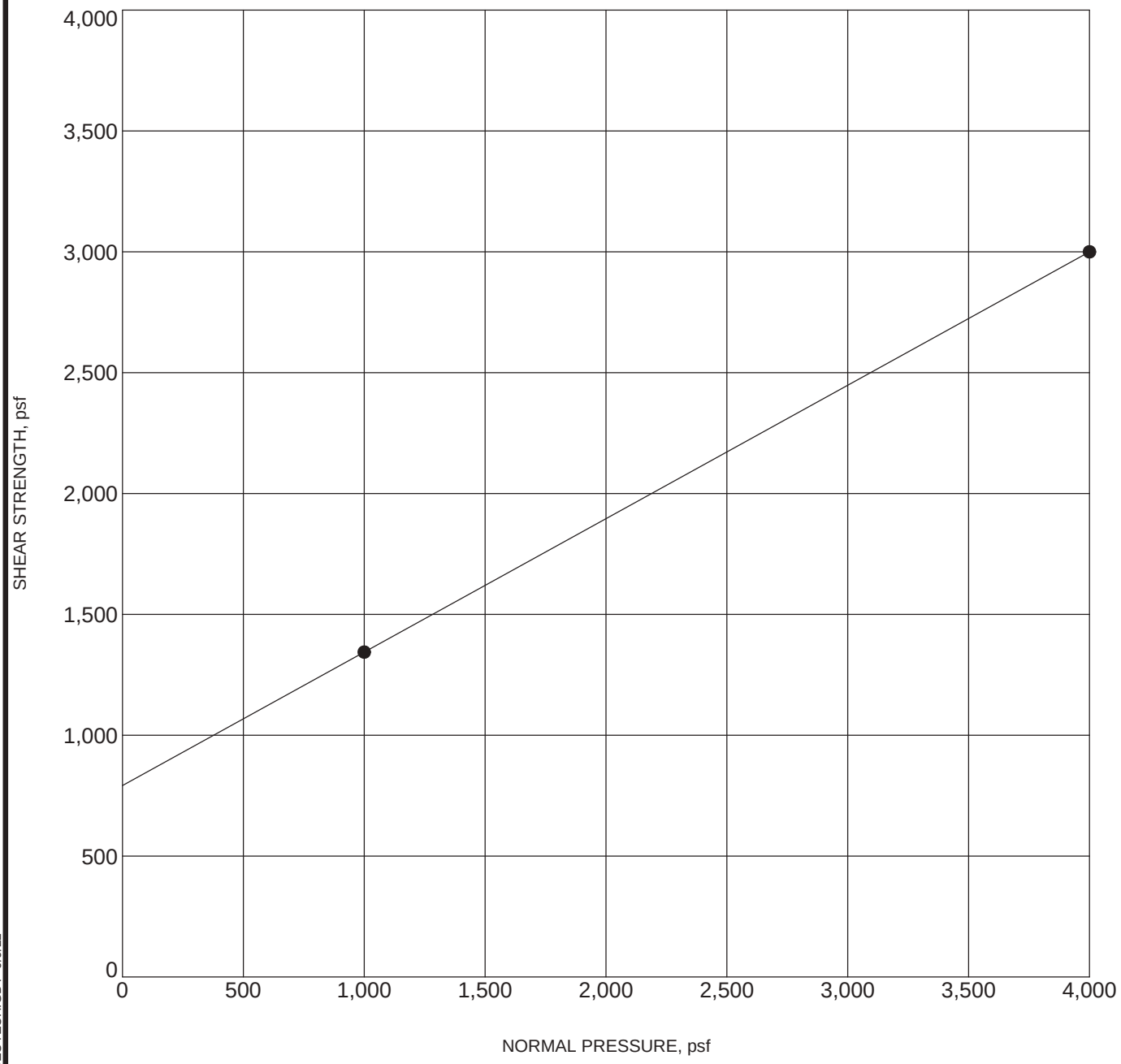
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**24.0**	**Old Paralic Deposits - Sand**	**115**	**7**	**792**	**29**

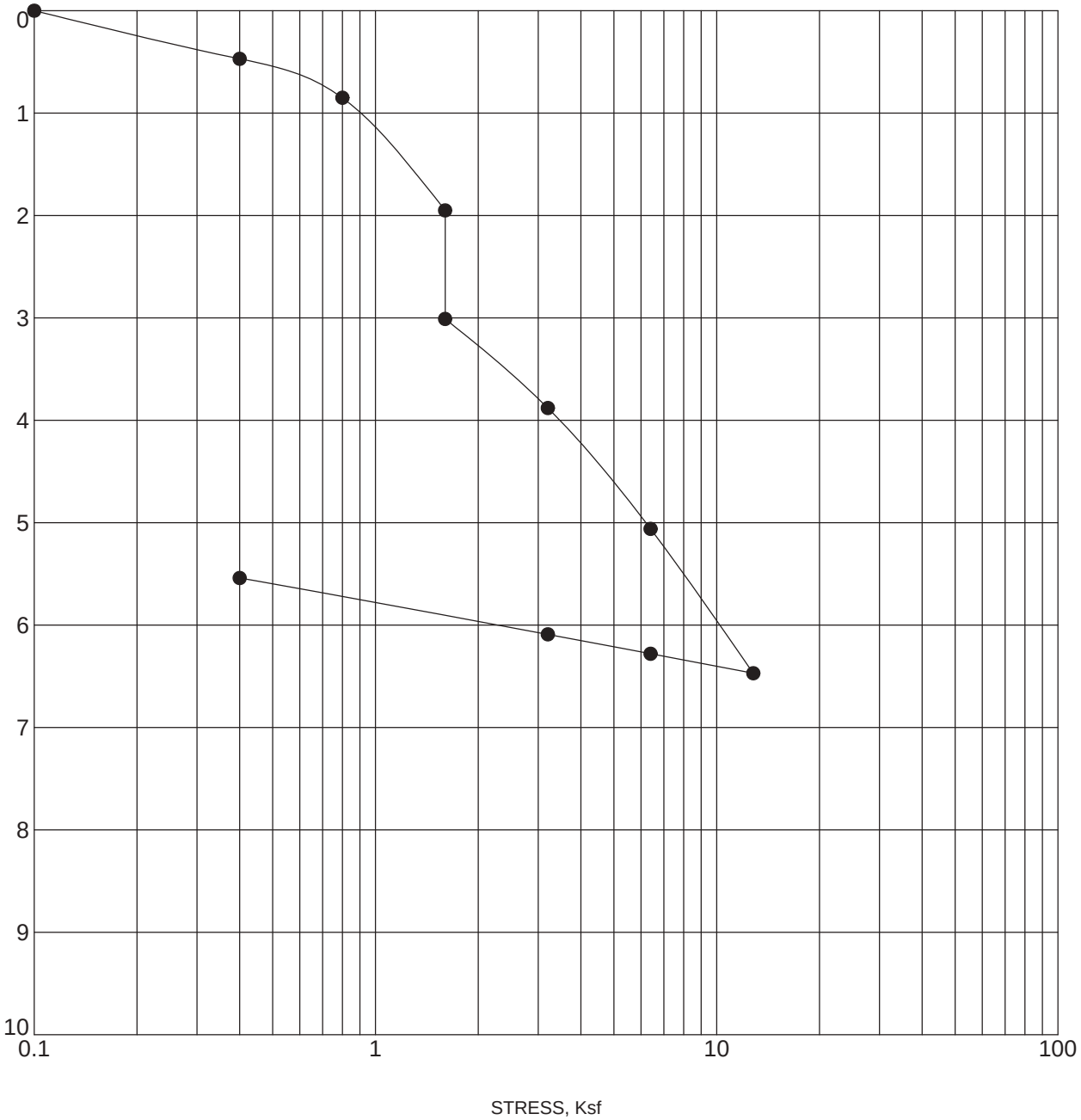
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%
● **B-2** **24.0**		**Old Paralic Deposits - Sand**	**115**	**7**

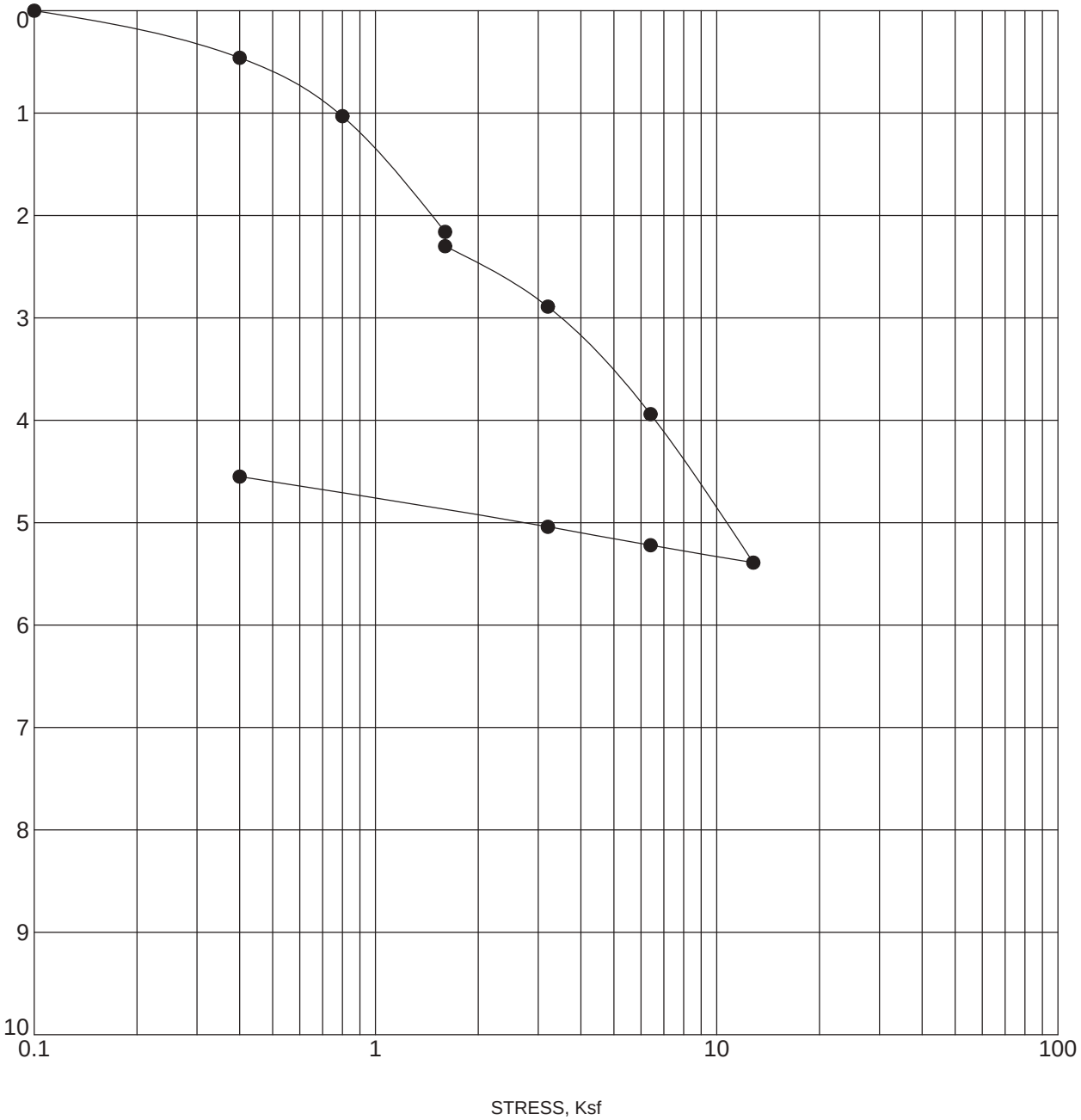
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

CONSOLIDATION TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US CONSOL STRAIN 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification			Classification	γ_d	MC%
●	**B-3**	**5.0**	**Old Paralic Deposits - Sand**	**123**	**9**

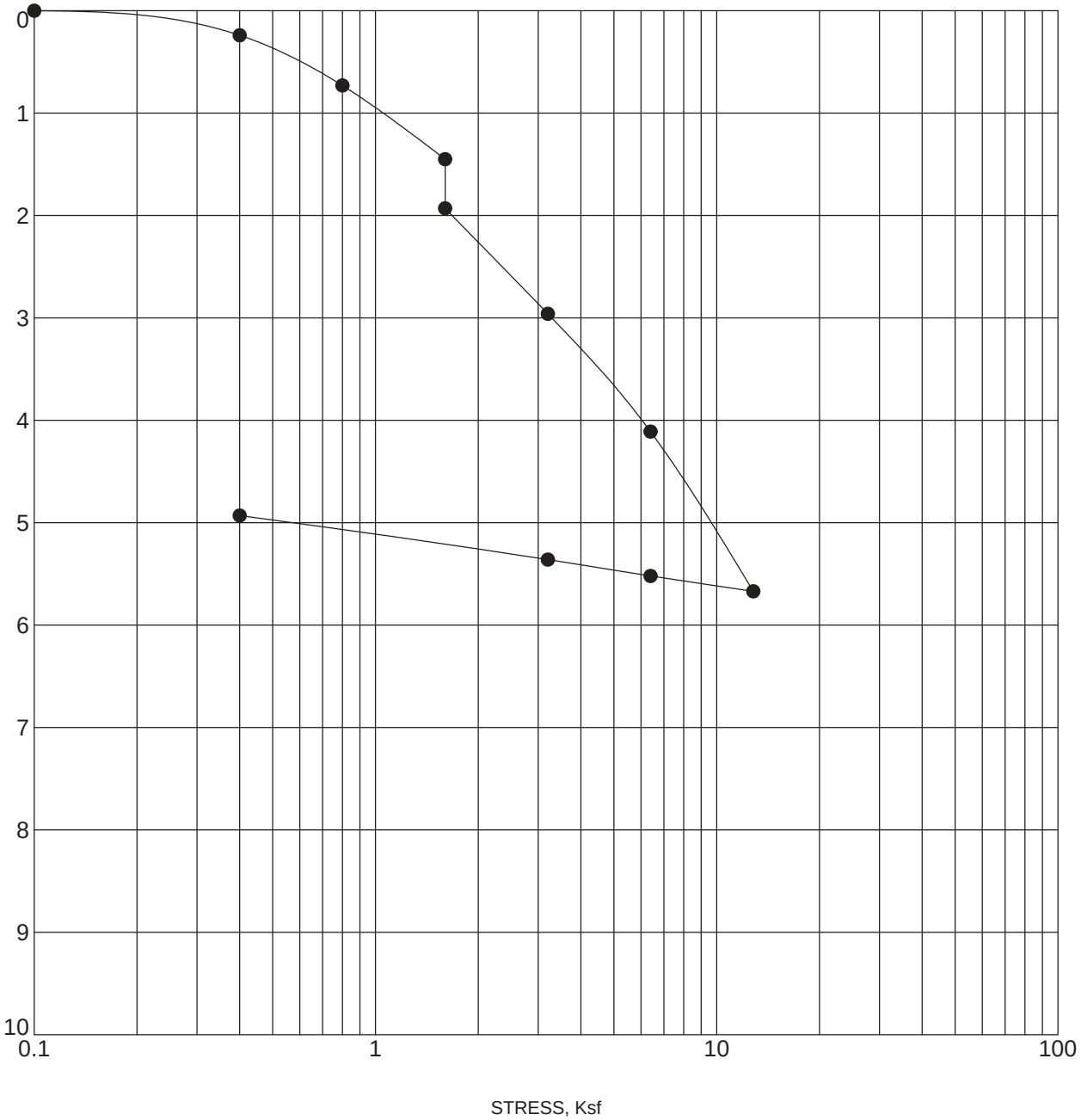
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

CONSOLIDATION TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US CONSOL STRAIN 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%
● **B-3** **10.0**		**Old Paralic Deposits - Sand**	**118**	**3**

TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

CONSOLIDATION TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US CONSOL STRAIN 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22

ANAHEIM TEST LAB, INC

196 Technology Dr., Unit D
Irvine, CA 92618
Phone (949) 336-6544

TO:

TGR GEOTECHNICAL
3037 S. HARBOR BLVD.
SANTA ANA, CA 92704

DATE: 8/30/2022

P.O. NO.: Verbal

LAB NO.: C-6281

SPECIFICATION: CTM-643/417/422

MATERIAL: Soil

Project No.: 22-7517
Project: 401 Mission Ave.
Sample ID: B1 @ 0-5'

ANALYTICAL REPORT

CORROSION SERIES

SUMMARY OF DATA

pH	MIN. RESISTIVITY per CT. 643 ohm-cm	SOLUBLE SULFATES per CT. 417 ppm	SOLUBLE CHLORIDES per CT. 422 ppm
7.2	3,600	341	74

RESPECTFULLY SUBMITTED

WES BRIDGER LAB MANAGER

APPENDIX D
SITE SEISMICITY

TGR GEOTECHNICAL
DBE & 8(a) firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

401 Mission Avenue, Oceanside

Latitude, Longitude: 33.1950, -117.3798



Date	9/21/2022, 11:17:41 AM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	C - Very Dense Soil and Soft Rock

Type	Value	Description
S_S	1.068	MCE_R ground motion. (for 0.2 second period)
S_1	0.39	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.281	Site-modified spectral acceleration value
S_{M1}	0.584	Site-modified spectral acceleration value
S_{DS}	0.854	Numeric seismic design value at 0.2 second SA
S_{D1}	0.39	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	D	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	1.5	Site amplification factor at 1.0 second
PGA	0.47	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.564	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	1.068	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.19	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.523	Factored deterministic acceleration value. (0.2 second)
S1RT	0.39	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.429	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.627	Factored deterministic acceleration value. (Peak Ground Acceleration)
PGA_{UH}	0.47	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration
C_{RS}	0.897	Mapped value of the risk coefficient at short periods
C_{R1}	0.909	Mapped value of the risk coefficient at a period of 1 s
C_V	1.114	Vertical coefficient

DISCLAIMER

While the information presented on this website is believed to be correct, SEAOC /OSHPD and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in this web application should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. SEAOC / OSHPD do not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the seismic data provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the search results of this website.

City of Oceanside – Engineering Division – Clean Water Program

STORM WATER QUALITY ASSESSMENT FOR PLANNING, ENGINEERING, AND BUILDING PERMIT APPLICATIONS

All applications for Planning, Engineering, or Building Division permits are required to complete this assessment form and include it as part of the initial permit application submittal. Staff will review the permit application content to determine the applicability of State and City storm water requirements. Please note a storm water assessment cannot be provided without a complete permit application package.

Section 1 – Project Information	
Applicant Name: JH Real Estate Partners, Inc.	Phone Number: 949.723.8989
Project Name: 401 Mission Avenue Mixed-use	Project Site Address: 401 Mission Avenue. Oceanside. CA 92054
Permit Applications Number(s): RT23-00001	Assessor Parcel Number(s): 147-271-14-00
Project Description: Prop. seven story mixed-use development	Project Disturbed Area (square feet): 131,982
Existing Impervious Area (square feet): 118,846	Created or Replaced Impervious Area (square feet): 118,846

	Section 2 – Identify Applicable Priority Development Project Categories (Check All Boxes that Apply)
☐	**New Development Project** – A project that creates 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
☑	**Redevelopment Project** – A project that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
☑	**Restaurants** – Category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812); where new or redevelopment projects create and/or replace 5,000 square feet or more impervious surface (collectively over the entire project site).
☐	**Hillside Development** – Category includes development on any natural slope that is twenty-five percent or greater; where new or redevelopment projects create and/or replace 5,000 square feet or more impervious surface (collectively over the entire project site).
☐	**Parking Lots** – Category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce; where new or redevelopment projects create and/or replace 5,000 square feet or more impervious surface (collectively over the entire project site).
☐	**Streets, Roads, Highways, Freeways, and Driveways** – Category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles; where new or redevelopment projects that create and/or replace 5,000 square feet or more impervious surface (collectively over the entire project site).
☐	**Water Quality Environmentally Sensitive Area** – New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharge directly to a Water Quality Environmentally Sensitive Area (WQESA). "Discharge directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the WQESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands).
☐	**Automotive Repair Shop** – Category is defined as a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539, where new or redevelopment projects create and/or replace 5,000 square feet or more impervious surface (collectively over the entire project site).
☐	**Retail Gasoline Outlet (RGOs)** – Category includes RGOs that meet the following criteria (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day; where new or redevelopment projects create and/or replace 5,000 square feet or more impervious surface (collectively over the entire project site).
☑	**Development Projects greater than one acre** – New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction.

City of Oceanside – Engineering Division – Clean Water Program

STORM WATER QUALITY ASSESSMENT FOR PLANNING, ENGINEERING, AND BUILDING PERMIT APPLICATIONS

Section 3 – Identify Projects Not Subject to Permanent Stormwater Requirements (Check All Boxes that Apply)	
☐	The project consists of work entirely within an existing structure.
☐	The project consists of construction of overhead or underground utilities (no new impervious surfaces).
☐	The project consists of routine maintenance.
☐	The project consists of less than 50 yards of grading and presents no opportunities to improve water quality.
Section 4 – Project Category Determination	
☑	**Priority Development Project**: If any item in Section 2 is applicable, the project is a Priority Development Project. **Please prepare a PDP SWQMP for the project.**
☐	**Standard Development Project**: If none of the items in Section 2 or 3 are applicable, the project is a Standard Development Project. **Please prepare an SDP SWQMP.**
☐	**Project Not Subject to Permanent Stormwater Requirements:** If any item in Section 3 is applicable, the project is not subject to Permanent Stormwater Requirements. **Please submit the project plans with this form.** **Note:** Projects in this category are subject to typical pollution prevention measures outlined by the pollution prevention checklist on the following page.

Section 5 – Applicant Certification	
Name of Responsible Party: Ernie Rivas	Title: Owner's representative
Email Address (optional) erivas@jhrep.com	Phone Number: 949.723.8989

I understand and acknowledge the City of Oceanside has adopted minimum requirements, as mandated by the San Diego Regional Water Quality Control Board – Order No. R9-2013-0001, as amended by Order Nos. R9-2015-0001 and R9-2015-0100 (NPDES NO. CAS0109266) for mitigating impacts associated with urban runoff, including storm water from construction and land development activities. I certify this assessment has been accurately completed to the best of my knowledge and is consistent with the proposed project. I acknowledge that non-compliance with the City Best Management Practice (BMP) Design Manual, Grading Ordinance, and Erosion Control Ordinance may result in enforcement action by the City, the California State Water Resources Control Board, and/or the San Diego Regional Water Quality Control Board. Enforcement action may include stop work orders, notice of violation, fines, or other actions.

Applicant Signature:	Date: 9/23/2024

Stormwater Pollution Prevention Measures for Projects Not Subject to Permanent Stormwater Requirements

Project Activity	Yes	No	Required Pollution Prevention
Trash & Waste Generation *****REQUIRED FOR ALL PROJECTS*****	☐	☐	• Train/inform all employees of pollution prevention requirements • Collect and contain all construction trash, waste, and debris • Promptly contain and clean any spill on site • Routinely inspect site, remove loose trash and prevent spills • Properly dispose of any hazardous materials • Do not wash down surfaces unless water is collected or directed to landscape • Permanent trash collection areas require full structure/enclosure
Digging of Dirt – excavation, trenching, or grading	☐	☐	• Do not allow dirt to migrate into street, sidewalk, or storm drain • Preserve existing vegetation where feasible • Perimeter site controls such as silt fence or straw wattles • Cover exposed dirt using mulch, tarps, or erosion control devices • Install and secure tarps over dirt piles • Routinely sweep site to remove dirt
Landscaping and Irrigation Systems	☐	☐	• Do not store landscape materials in street • Do not allow dirt to migrate into street, sidewalk, or storm drain • Test irrigation system and prevent runoff/overspray • Install and secure tarps over piles of mulch or soil • Routinely sweep site to remove mulch or soil • Do not wash down surfaces unless water is collected or directed to landscape
Concrete, Paint, Mortar, or Stucco Work	☐	☐	• Contain wet mixing areas within confined area • Do not allow material to travel into site soil, street, or storm drain • Properly dispose of waste material
Temporary Storage of Materials Outside	☐	☐	• Elevate material off ground where possible, such as on pallets • Install and secure tarps over materials
Demolition of Structures	☐	☐	• Follow Required Pollution Prevention for “Digging of Dirt”
New Structure – house addition, shed, etc.	☐	☐	• Follow Required Pollution Prevention for “Digging of Dirt” • Direct downspouts to landscape, where feasible • Consider rainwater harvesting • Preserve existing vegetation and drainage patterns, where feasible
Patio, Driveway, or Sidewalk	☐	☐	• Consider use of pervious pavers or pervious concrete (refer to Section 3 of page 4 for routine maintenance information) • Direct runoff to landscape areas, where feasible
Re-Roofing	☐	☐	• Contain removed roof debris in waste containers • Follow Required Pollution Prevention for “Temporary Storage of Materials Outside”
Washing of Material, Equipment, or Surface	☐	☐	• Do not wash down surfaces unless water is collected or directed to landscape
Draining of Water Heater, Pool, or Spa	☐	☐	• Direct drain water to landscape areas where possible • Contact Stormwater Division if considering draining to sanitary system cleanout or storm drain system (760-643-2804)
Storm Drain at Industrial or Commercial Property	☐	☐	• Install “No Dumping” or similar signage at each storm drain inlet

STORM WATER QUALITY ASSESSMENT FOR PLANNING, ENGINEERING, AND BUILDING PERMIT APPLICATIONS

Completion Guidance

Please note – the Applicant is required to complete and submit this form as part of the project application. For definitions and additional information, please refer to the City of Oceanside BMP Design Manual. For assistance, please contact Development Services Staff at (760) 435-4373.

Section 1 – Project Information

1. Applicant Name – provide name of Individual completing form, i.e. Owner or Owner Representative
2. Phone Number – provide phone number of Individual completing form, i.e. Owner or Owner Representative
3. Project Name – provide project name (consistent with project application)
4. Project Site Address – provide a physical address for the proposed project, or nearest cross street
5. Permit Application Number(s) – provide all applicable permit application numbers
6. Assessor Parcel Number(s) – provide Assessor Parcel Number(s); refer to title documents or contact City Staff for assistance
7. Project Description – provide a brief project description (e.g. single-family dwelling, retail business, repair shop, etc)
8. Project Disturbed Area – provide the disturbed area for the entire project, including onsite and offsite work
9. Existing Impervious Area – provide the total existing impervious area within the property and project boundary
10. Created or Replaced Impervious Area – provide the total area of all newly created or replaced impervious surfaces within the project area

Section 2 – Identify Applicable Priority Development Project Categories

1. Review each category and check the appropriate boxes that apply to your project.
2. General identification of Automotive Repair Shop SIC (Standard Industrial Classifications) as follows:
   5013 – Motor vehicle supplies and new parts, 5014 – Tires and tubes, 5541 – Gasoline service stations, 7532 – Top and body repair, and paint shops, 7533 – Auto exhaust system repair shops, 7534 – Tire retreading and repair shops, 7536 – Automotive glass replacement shops, 7537 – Automotive transmission repair shops, 7538 – General automotive repair shops, 7539 – Automotive repair shops-not elsewhere classified
3. Contact Staff for assistance in determining applicability of the Water Quality Environmentally Sensitive Area (WQESA) category

Section 3 – Identify Projects Not Subject to Permanent Stormwater Requirements

1. Please refer to Page 1-6 of the City of Oceanside BMP Design Manual for a complete list of routine maintenance activities.
2. Activities that expose native subgrade in the process of replacing impervious surfaces, are not considered routine maintenance.

Section 4 – Project Category Determination

1. PDP SWQMP – Priority Development Project Stormwater Quality Management Plan
2. SDP SWQMP – Standard Development Project Stormwater Quality Management Plan
3. Contact Staff for assistance in determining the Project Category

Section 5 – Applicant Certification

1. Name of Responsible Party – provide name of Owner
2. Title of Responsible Party – provide responsible party's title, if applicable
3. Phone Number – provide phone number of Owner
4. Email Address (Optional) – provide email address
5. Applicant Signature – provide signature of Individual completing form, i.e. Owner or Owner Representative
6. Date – provide date current date

Climate Action Plan (CAP) Consistent Checklist

For New Development Subject to Environmental Review
per the California Environmental Quality Act (CEQA)

With the adoption of the **Climate Action Plan (CAP)** on May 8, 2019, the City of Oceanside committed to measures designed to reduce local greenhouse gas (GHG) emissions in a manner consistent with state emissions reduction goals. In addition to City initiatives and voluntary community efforts, these measures include **requirements for certain types of new development**. These requirements promote local renewable energy generation, electric vehicle charging infrastructure, urban forestry, reduction in single-occupancy vehicle trips, recycled water use, and other efforts that reduce the City's carbon footprint while enhancing its energy and water independence.

The **CAP Consistency Checklist (Checklist)** consolidates these requirements within a single document, allowing for streamlined compliance review.

The **California Environmental Quality Act (CEQA)** requires that the potential GHG emissions impacts of new development be analyzed, and that significant emissions impacts be mitigated to the extent feasible. Under CEQA, local jurisdictions can establish their own significance thresholds for GHG emissions impacts.

The City of Oceanside has set a significance threshold that aligns with the City's emissions reduction targets as outlined in the CAP (3.5MT CO_2^e per service population). This threshold is discussed in a policy directive that can be furnished upon request. While applicants can choose to conduct project-specific GHG emissions analysis to demonstrate compliance with the City's significance threshold, conforming to the requirements consolidated in the Checklist may be a more expeditious way to address CEQA requirements.

Applicants who choose to utilize the Checklist should factor the associated requirements into the project design process and submit the Checklist concurrently with the initial entitlement application.

Version 1.0 (12/23/20)

Project Information

Contact Information

Project Number: RT23-00001 Project Name: 401 Mission Mixed-Use

Property Address/APN: 401 Mission Avenue, Oceanside, CA 92054

Applicant: JH Real Estate Partners, Inc.; Attn. Ernie Rivas

Address: 520 Newport Center Drive, Newport Beach, CA 92660

Phone Number: 949-723-8989, x.104 Email: erivas@jhrep.com

Is the Checklist being prepared by a professional consultant? ○ Yes ◉ No

Consultant Firm: _____ Point of Contact: _____

Phone Number: _____ Email: _____

Project Description

Project Site Area (Acres): 2.72 Status: ☐ Vacant ☑ Developed

If the site is developed, describe nature of existing development: various commercial including movie theater, and public plaza

Located within a Smart Growth Opportunity Area? ◉ Yes ○ No

Located within ¼ mile of a priority corridor? ◉ Yes ○ No

Consistent with current land use and zoning designations? ◉ Yes ○ No

Proposed land use(s): ☑ Residential ☑ Commercial ☐ Industrial ☐ Institutional

Residential density: 122/acre Percentage of maximum allowable density: unlimited

Commercial FAR: 3.42 overall project Percentage above minimum commercial FAR: unlimited

Industrial FAR: _____ Percentage of permeable surface area: 24

See LCP submitted with project. Permeable surface is not inclusive of all landscaped areas on site.

Applicability

In accordance with Section 15183.5 of the California Environmental Quality Act (CEQA), the Checklist provides for streamlined review of projects subject to environmental review, offering an alternative to project-specific analysis of GHG emissions impacts. The Checklist is available to projects that meet locational requirements that further the City's efforts to facilitate housing and employment growth in walkable, transit-served areas, as well as projects that either 1) conform to current land use and zoning standards or 2) involve uses that would generate less GHG emissions than those allowed under current standards. Projects not located in walkable, transit-served areas are subject to additional Checklist requirements designed to ensure that such projects

The Checklist is not mandatory. As part of the CEQA process, applicants can choose to mitigate significant GHG emissions impacts by other means. However, the City, as the lead agency for the CEQA process, reserves its discretion to determine if proposed mitigation measures are appropriate and adequate. For example, the City may or may not be amenable to out-of-jurisdiction carbon offsets as a means of mitigating significant GHG emissions impacts, based on the feasibility of on-site mitigation measures, opportunities for local offsets, etc.

Consistent with California's Climate Change Scoping Plan, the City has established a bright line threshold of significance for GHG emissions impacts: 900MT annually, with construction-related emissions amortized over 20 years. Projects that fall under this threshold are not required to conduct analysis of GHG emissions impacts, and thus would not benefit from the Checklist.

CEQA-exempted projects may still be subject to CAP measures. Requirements for on-site renewable energy generation, electric vehicle charging facilities, and transportation demand management (TDM) are triggered by project type and scale, as outlined in Section 3047 of the City's Zoning Ordinance.

The applicability of the Checklist may evolve in response to the City's progress in achieving its emissions reduction goals, new state policies or regulations, new methods of mitigating GHG emissions, etc. When the CAP is periodically updated, it is likely that the Checklist will need to be revised to accord with new or modified emissions reduction measures. The CEQA-qualified status of the CAP, which is the basis for its legal enforceability, relies upon a Checklist that ensures that new development supports the City's emissions reduction goals.

Checklist

Land Use Consistency

The City seeks to accommodate future housing and job growth primarily through infill and redevelopment within already urbanized areas. Specifically, the City seeks to facilitate new residential and employment-oriented development within SANDAG-designated Smart Growth Opportunity Areas and prior corridors (i.e., Coast Hwy, Mission Avenue, Oceanside Blvd, Vista Way). To this end, the Checklist includes locational criteria for new development subject to CEQA review.

Does the project meet one or more of the following locational criteria?

1) The project site is located within a designated Smart Growth Opportunity Area[1].

   ☑ Yes ☐ No

2) The project site is located within ¼ mile of a priority TOD corridor, as determined by the Smart and Sustainable Corridors Plan and/or SB 743 screen-out boundaries.

   ☒ Yes ☐ No

3) The project is consistent with current land use and zoning designations.

   ☒ Yes ☐ No

4) The project requires amendment of current land use and zoning designations. As demonstrated through a detailed analysis a) consistent with the precedent in the surrounding zoning district and b) subject to third party expert review, the proposed land uses would generate less GHG emissions than those associated with uses allowed under current land use and zoning designations.

   ☐ Yes ☒ No

[1] Smart Growth Opportunity Areas shall be defined as the half-mile radius around transit facilities identified on the current version of the SANDAG Smart Growth Concept Map.

Projects that do not qualify under any of the above criteria are not eligible for the Checklist. Projects that qualify under Criteria 3 or 4 are subject to additional Checklist requirements, as specified below.

CAP Measure Consistency

Renewable Energy Facilities

Outlined in Section 3047 of the City's Zoning Ordinance, this Checklist requirement applies to the following types of new development:

- Residential projects that include 25 or more dwelling units
- Commercial projects that comprise at least 12,500 square feet of habitable space
- Industrial projects that comprise at least 25,000 square feet of habitable space
- Institutional projects that comprise at least 12,500 square feet of habitable space

Does the project meet one or more of the above-noted thresholds?

☒ Yes ☐ No

If yes, will at least 50 percent of estimated electricity demand be met with on-site renewable, emissions-free energy supply (e.g., solar photovoltaic facilities)?

☐ Yes ☒ No

If no, will the project purchase an energy portfolio comprised of at least 75 percent renewable, emissions-free electricity?

☒ Yes ☐ No

The applicant will work with staff on an alternative to meet the requirements of Section 3047, including the option of purchasing an available energy portfolio as described, if available.

Electric Vehicle Parking and Charging Facilities

Outlined in Section 3047 of the City's Zoning Ordinance, this Checklist requirement is applicable to new development that requires at least five (5) parking spaces.

Is the project subject to this requirement?

☒ Yes ☐ No

If yes, how many electric vehicle parking stalls is the project required to provide?

257 based on % of required number of spaces

Based on current state requirements for commercial and residential uses.

If yes, how many electric vehicle charging stations is the project required to provide?

53

Based on current state requirements for commercial and residential uses.

Briefly describe where the required parking spaces and charging stations will be located within the project site. Note the plan sheet(s) on which the parking spaces and charging stations are depicted.

Spaces and equipped spaces will be located throughout the parking garage as shown on the plans. Final locations may be adjusted in construction plans to ensure access to EV spaces are available throughout the project garage. EV requirements will meet current state building codes that exceed city standards.

Recycled Water Infrastructure

The applicability of this requirement is determined by the City's Water Utilities Department. Does the Water Utilities Department require that the project install infrastructure to provide for recycled water service?

☐ Yes ☒ No

The project applicant has been made aware of a future recycled water line that the City will install in Mission Avenue. If or when that line is installed, the project may be conditioned to use that line as appropriate. The project has not been made responsible for the installation or construction related to his line installation.

If yes, will the project install the required infrastructure?

☐ Yes ☒ No

If yes, please briefly describe how the project will fulfill this requirement.

_____

_____

_____

_____

_____

Transportation Demand Management (TDM)

As outlined in Section 3047 of the City's Zoning Ordinance, the City requires that all new non-residential development expected to generate at least 50 daily employee commute trips prepare and implement a transportation demand management (TDM) plan that achieves a minimum 20 percent alternative commute mode share, with alternative commute modes being those that don't involve single-occupancy vehicle commute trips in combustion engine vehicles. The City does not prescribe specific TDM measures but rather allows developers and employers to tailor their TDM plans to suit their business location and operations.

Is the project subject to this requirement?

☒ Yes ☐ No The type of commercial tenants and number of employees is unknown at this time. When the project is operational, the owner/developer will review TDM requirements and provide a TDM if required.

If yes, does the applicant accept this requirement as a condition of project approval?

☒ Yes ☐ No If the number of employee trips, when tenants are determined, exceeds 50 daily trips, then the project will comply with this condition.

If yes, please provide a preliminary indication of the resources that will be utilized to prepare the TDM Plan (e.g., qualified traffic consultant, SANDAG Mobility Management Toolbox).

A qualified consultant will help prepare any necessary TDM plan using current standards and resources. The plan, if needed, will be prepared when the number of daily employee trips is known or better able to be estimated and transit options available at the time of the plan preparation are reviewed.

The TDM Plan must include a monitoring and reporting program that commits the project to submitting a bi-annual status report to the City. Does the applicant agree to conduct ongoing monitoring and reporting of employee commuting choices?

☒ Yes ☐ No If a TDM is needed for the project, the project will submit status reports to the City as required.

Urban Forestry

As part of its urban forestry efforts, the City requires that all new development establish a minimum tree canopy and permeable surface area. When meeting the minimum tree canopy and permeable surface area requirements on the project site is determined to be infeasible, applicants can pursue alternatives. Listed in order of preference, these alternatives include installing trees in adjacent public parkways, installing trees elsewhere in the City (subject to review and approval by the Public Works Department), or paying into the City's Tree Fund, should such a fund be established. Minimum tree canopy and permeable surface area requirements are outlined in Section 3047 of the City's Zoning Ordinance.

Does the project comply with minimum tree canopy and permeable surface area requirements?

☒ Yes ☐ No

If yes, do the applicant and successors agree to maintain minimum tree canopy and permeable surface area throughout the life of the project?

☒ Yes ☐ No

Does the applicant intend to pursue one of the above-noted alternatives to establishing minimum on-site tree canopy?

☒ Yes ☐ No

If yes, which alternative does the applicant intend to pursue?

☒ Tree installation in the adjacent public parkway

☐ Tree installation elsewhere in the City, as approved by the Public Works Department

☐ Payment into the City's Tree Fund, in an amount determined by the Public Works Department

If one of the above-noted alternatives is proposed, please explain why compliance with the on-site requirement is infeasible and why the proposed alternative is the most appropriate option.

The project is an infill project maximizing the site to provide apartments, including affordable units, on the site as designed. Even with extensive courtyard space, it is infeasible to provide enough trees to satisfy this requirement without including the parkway trees in the calculation. Parkway trees will be planted and maintained by the project.

_____

_____

_____

_____

_____

Food Scraps Recycling Program

In accordance with state law (AB 1826 and SB 1383), all non-residential uses are required to participate in the City's Food Scraps Recycling Program, which involves placement of food scraps in a separate bin for separate processing. The City's Water Utilities Department and Waste Management of North County provide free technical assistance and training for businesses and their employees.

Is the project subject to this requirement?

☒ Yes ☐ No

If yes, does the applicant agree to ensure that all business owners and employees associated with the project participate in relevant training?

☒ Yes ☐ No

Oceanside Green Business Network (Voluntary)

Supported by the City's Water Utilities Department, the Oceanside Green Business Network is a free program that encourages environmental stewardship in the local business community and provides members with strategies designed to help them thrive in the green economy. While membership is voluntary, applicants for non-residential development as well as those operating businesses within the development are strongly encouraged to join the Network. Membership is contingent upon earning a minimum score on the Network's Sustainability Scorecard.

Does the applicant intend to join and promote membership in the Oceanside Green Business Network?

☐ Yes ☒ No

Energy Efficiency Audits & Analysis (Applicable to Projects Not Meeting Locational Criteria 1 or 2)

San Diego Gas and Electric (SDG&E) offers a variety of energy audits and evaluations for both residential and non-residential ratepayers. These programs identify opportunities for enhanced energy efficiency, which can result in lower energy costs. SDG&E services for non-residential development include the Comprehensive Audit Program and the Facility Assessment Service Program. Applicants for non-residential development located outside of Smart Growth Opportunities areas or a ¼-mile radius of a priority corridor are required to participate in one of the above-noted programs no sooner than one year and no later than two years after initial building occupancy. Applicants are not required to implement the recommendations of the audit.

Is the project subject to this requirement?

☐ Yes ☒ No

If yes, does the applicant agree to participate in an SDG&E energy efficiency audit program within the above-noted timeframe?

☐ Yes ☐ No

Mitigation of Per Capita Vehicle Miles Traveled (VMT) above Baseline (Applicable to Projects Not Meeting Locational Criteria 1 or 2)

Consistent with state law (AB 743), the City's CEQA review process includes assessment of impacts on vehicle miles traveled (VMT). In general, projects located in walkable, transit-rich areas are expected to generate less VMT than those located in peripheral areas with more dispersed land use patterns. Projects not meeting locational criteria 1 or 2 are required to incorporate project features that reduce VMT by at least 15 percent below the regional average, consistent with the City's Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment.

Is the project subject to this requirement?

☐ Yes ☒ No

If yes, will the project include features that will reduce estimated VMT by at least 15 percent below the regional average, consistent with the City's Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment?

☐ Yes ☐ No

STAFF DETERMINATION REGARDING CHECKLIST COMPLIANCE

Does the project comply with the City's CAP Consistency Checklist?

☑ Yes ☐ No

If not, what additional information and/or commitments are required?

_____

_____

_____

_____

_____

_____

_____

_____

_____

Staff Reviewer: Manuel Baeza

Staff Email: mbaeza@oceansideca.org

Date: 3/27/2025

May 7, 2024 Project No. 22-7517

Ocean Place Retail VII, LLC, a Delaware Limited Liability Company
520 Newport Center Drive, Suite 780
Newport Beach, California 92660

Attention: Ernie Rivas

Subject: Updated Geotechnical Investigation Report and Response to City of Oceanside, 2024 Division Comments, Engineering (Geotechnical Review).

References: TGR Geotechnical, Inc., 2022, Preliminary Geotechnical Investigation Report, Mixed Use, 401 Mission Avenue, Oceanside, California 92054 (APN 1472711400). Project No. 22-7517, dated September 22, 2022.

Ernie,

In accordance with your request and authorization, TGR Geotechnical, Inc. (TGR) is providing this response to the City of Oceanside, 2024 Division Comments, Engineering (Geotechnical Review) with respect to the subject site. The correction items along with our responses are presented below. In addition, a copy of the correction letter is attached with this report.

1. 2nd request:

The soils report was prepared when the 2019 California Building Code (CBC) was in effect. Project was submitted for review after the 2022 CBC went into effect, please update soils report. Note that the 2022 CBC references the 2019 version of American Concrete Institute (ACI) Publication 318 (ACI 318-19)

Response:

The updated soil report complying with 2022 California Building Code (CBC) and 2019 American Concrete Institute (ACI) Publication 318 (ACI 318-19) is included in Appendix A. The updated report also incorporates responses to comments 2 through 6.

2. 2nd request:

Consultant recommended use of Site Class “C” in providing seismic parameters. It should be noted that most projects in the mapped geologic unit utilize Site Class “D” and that consultant references site class selection for an adjacent site. The boring logs note gravels with two boreholes terminated after encountering a large rock; blow count data is likely inflated by the presence of gravels (blow counts noted in the 30s before gravel was encountered). Provide discussion/basis for the selected site class.

Response:

TGR recommends that Site Class “D” be utilized in the seismic design parameters. The updated report (page 10) presented in Appendix A includes seismic parameters based on Site Class “D”.

3. 2nd request:

The liquefaction discussion on page 8 notes high SPT blow counts. A review of the included boring logs indicates that sampling consisted entirely of Modified California samples and bulk samples. Please revise to reflect actual work performed, conversions used, and conclusions drawn.

Response:

The SPT blow counts presented in the boring logs are equivalent SPT blow counts from Modified California samples by applying a conversion factor of 0.65 to the field blow counts. As such, our conclusions remain unchanged.

4. 2nd request:

The shallow foundation recommendations on page 10 recommend a minimum footing depth; text and number state different values (twenty / 24 inches). Please clarify.

Response:

The recommended minimum depth shall read twenty-four (24) inches and has been incorporated into the updated report (pages 12 and 14) presented in Appendix A.

5. 2nd request:
The Slab-on-Grade recommendations on page 13 recommend that moisture sensitive flooring use a vapor barrier as a capillary break. A vapor barrier is not a capillary break. Please clarify recommendations for a capillary break (e.g. a 4-inch layer of +1/2-inch rock).

Response:
Acknowledge. Updated recommendations are presented in the updated report on page 15 (Appendix A)

6. 2nd request:
The "Temporary Excavation" and "Temporary Shoring" sections on pages 16 and 17 provide conflicting temporary shoring design parameters. Please clarify the parameters to be used in the design of temporary shoring. Please clarify the inclusion of a friction coefficient in the design of a shoring system.

Response:
Temporary excavation and temporary shoring sections have been revised in the updated report on pages 17 and 18 (Appendix A).

7. 2nd request:

The excavation of sandy soils to construct the subterranean parking structure will generate soils that are anticipated to qualify for beach sand replenishment. The material proposed for excavation (upper approximately 15-feet) will need to be tested and results included in the updated geotechnical report. Please contact our Coastal Zone Administrator, Jayme Timberlake at 760-435-3073 or by email at JTimberlake@oceansideca.org to discuss specific testing requirements. Additional information can be found on the City website at: https://www.ci.oceanside.ca.us/government/development-services/engineering. We encourage you to contact Jayme Timberlake at your earliest convenience as the entire process takes at least 6 months and requires soil testing before the samples collected during investigation are discarded.

Response:

The testing to qualify for the beach sand replenishment shall be performed once the existing structures are demolished. A work plan shall be prepared at that time for approval.

The opportunity to be of continued service is greatly appreciated. If you have any questions regarding this report, please do not hesitate to contact this office. We appreciate this opportunity to be of service.

Respectfully submitted,

TGR GEOTECHNICAL, INC.



Sanjay Govil, PhD, PE, GE 2382
Principal Geotechnical Engineer

Distribution: (1) Addressee

Attachments: City of Oceanside, 2024 Division Comments, Engineering (Geotechnical Review)

Appendix A – Updated Report

(Parent) Project Number: D23-00009
Project Name: SD Homes Oceanside Mixed Use Development
Project Planner: Manuel Baeza

Application Review Committee
Division Comments - ENGINEERING *(GEOTECHNICAL REVIEW)*

Development Services Department
300 N. Coast Hwy, Oceanside, CA 92054 | (760) 435-4373

To be filled out by Project Planner

Project/property address and/or APN: 401 Mission (APN: 147-271-14-00)

Project description: Redevelopment of Existing to Include 5-Stories Residential over 2-Stories Commercial

To be filled out by ARC Division Reviewer

☐ **1st** ☒ **2nd** ☐ **3rd** ☐ **4th Review**

Staff member: Benjamin Grenis

Phone number: (760) 435-5182

E-mail: BGrenis@oceansideca.org

☒ Review Comments ☐ Conditions of Approval
(include attachments/forms on TRAKiT, if applicable):

Note: It appears as though the first round of review comments was not forwarded to the Soils Engineer. TGR has been contacted directly to facilitate conveyance of review comments.

Soils Report Review Comments

1. 2nd Request: The soils report was prepared when the 2019 California Building Code (CBC) was in effect. Project was submitted for review after the 2022 CBC went into effect, please update soils report. Note that the 2022 CBC references the 2019 version of American Concrete Institute (ACI) Publication 318 (ACI 318-19)
2. 2nd Request: Consultant recommended use of Site Class "C" in providing seismic parameters. It should be noted that most projects in the mapped geologic unit utilize Site Class "D" and that consultant references site class selection for an adjacent site. The boring logs note gravels with two boreholes terminated after encountering a large rock; blow count data is likely inflated by the

presence of gravels (blow counts noted in the 30s before gravel was encountered). Provide discussion/basis for the selected site class.

3. 2nd Request: The liquefaction discussion on page 8 notes high SPT blow counts. A review of the included boring logs indicates that sampling consisted entirely of Modified California samples and bulk samples. Please revise to reflect actual work performed, conversions used, and conclusions drawn.
4. 2nd Request: The shallow foundation recommendations on page 10 recommend a minimum footing depth; text and number state different values (twenty / 24 inches). Please clarify.
5. 2nd Request: The Slab-on-Grade recommendations on page 13 recommend that moisture sensitive flooring use a vapor barrier as a capillary break. A vapor barrier is not a capillary break. Please clarify recommendations for a capillary break (e.g. a 4-inch layer of +½-inch rock).
6. 2nd Request: The "Temporary Excavation" and "Temporary Shoring" sections on pages 16 and 17 provide conflicting temporary shoring design parameters. Please clarify the parameters to be used in the design of temporary shoring. Please clarify the inclusion of a friction coefficient in the design of a shoring system.
7. 2nd Request: The excavation of sandy soils to construct the subterranean parking structure will generate spoils that are anticipated to qualify for beach sand replenishment. The material proposed for excavation (upper approximately 15-feet) will need to be tested and results included in the updated geotechnical report. Please contact our Coastal Zone Administrator, Jayme Timberlake at 760-435-3073 or by email at JTimberlake@oceansideca.org to discuss specific testing requirements. Additional information can be found on the City website at: https://www.ci.oceanside.ca.us/government/development-services/engineering. We encourage you to contact Jayme Timberlake at your earliest convenience as the entire process takes at least 6 months and requires soil testing before the samples collected during the investigation are discarded.

Please contact me with any questions regarding the comments above.

APPENDIX A
UPDATED REPORT

Geotechnical
Environmental
Hydrogeology
Material Testing
Construction Inspection

May 7, 2024 Project No. 22-7517

Mr. Ernie Rivas Company
Ocean Place Retail VII, LLC
520 Newport Center Drive, Suite 780
Newport Beach, California 92660

Subject: Updated Preliminary Geotechnical Investigation Report, Mixed Use, 401 Mission Avenue, Oceanside, California 92054 (APN 1472711400).

Mr. Rivas,

In accordance with your request and authorization, TGR Geotechnical, Inc. (TGR) has performed a geotechnical investigation for the proposed mixed-use development at 401 Mission Avenue in the city of Oceanside, California. The subject site is an existing Regal Cinema movie theater with associated restaurants and it is our understanding that the proposed development will consist of demolition of the existing buildings and construction of an eight story building which includes two levels of above-grade parking and one level of subterranean parking with associated amenities, recreation areas and courtyards. This report presents the findings of our geotechnical investigation, including site seismicity, settlement potential, infiltration rates and provides geotechnical design recommendations for the proposed development. The work was performed in general accordance with our proposal dated June 27, 2022, and May 2, 2024. This report includes reference to 2022 California Building Code and City of Oceanside Comments.

Based on our investigation the proposed development is feasible from a geotechnical viewpoint provided the recommendations presented in this report are implemented during design and construction.

If you have any questions regarding this report, please do not hesitate to contact this office. We appreciate this opportunity to be of service.

Respectfully submitted,

TGR GEOTECHNICAL, INC.

REGISTERED PROFESSIONAL ENGINEER
SANJAY GOVIL
No. GE2382
EXP. 6/30/2024
GEOTECHNICAL
STATE OF CALIFORNIA

Robert Aguilar
Staff Engineer

Sanjay Govil, PhD, PE, GE 2382
Principal Geotechnical Engineer

Distribution: (1) Addressee

TGR GEOTECHNICAL
DBE, MBE & SBE firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

ATTACHMENTS

Plate 1A – Boring Location Map
Plate 1B – Cross Section A-A'

Figure 1 – Site Location Map
Figure 2 – Regional Geology Map
Figure 3 – County Liquefaction Hazard Map
Figure 4 – County Landslide Hazard Map
Figure 5 – Regional Fault Map

Table 1 – Percolation Test Worksheet

Appendix A – References
Appendix B – Log of Borings
Appendix C – Laboratory Testing Procedures and Results
Appendix D – Site Seismicity

INTRODUCTION

Site Description and Proposed Project Development

The subject site is located on the southern corner of Mission Avenue and South Coast Highway in the city of Oceanside, California (Figure 1). The subject site is an existing Regal Cinemas movie theater with associated restaurants and it is our understanding that the proposed development will consist of demolition of the existing buildings and construction of an eight story building which includes two levels of above-grade parking and one level of subterranean parking with associated amenities, recreation areas and courtyards. No grading plans were available at the time of this report. Based on the conceptual site plan, one level of subterranean parking will be located approximately 15 feet below existing grade and the proposed building will be approximately 75 feet above existing grade. No column loads were available at the time of this report, however we have assumed column loads will be 800 kips or less.

Scope of Work

The scope of work for this geotechnical investigation included the following:

- Site reconnaissance to assess current site conditions, mark boring locations and call Dig-Alert for utility clearance.
- GPR utility scanning at the proposed boring locations by Inspection Resources prior to drilling.
- Obtain drilling permit from the County of San Diego.
- Review of readily available previous geotechnical investigation reports for the subject site and adjacent properties.
- Sampling and logging three (3) borings utilizing a limited access hollow stem drill rig to approximate depths ranging from 10.25 to 25.5 feet at the subject site to evaluate subsurface soil conditions. The borings were backfilled with Portland cement grout and surface patched with rapid set concrete.
- Percolation testing at one (1) location at a depth of 15 to 25.5 feet below existing grade. The percolation testing was performed in general accordance with the County of San Diego guidelines.
- All soil cuttings were drummed and disposed by Belshire in coordination with Regal Cinema staff.
- Laboratory testing of selected samples to include in-situ moisture and dry density, maximum dry density and optimum moisture content, shear, consolidation, passing No. 200 sieve and corrosion series.
- Engineering analysis including infiltration rates, site seismicity, seismic settlement, foundation design, retaining wall design, pavement section and soils engineering/earthwork with respect to the suitability of the proposed development.
- Preparation of this report summarizing current subsurface soil conditions, findings, and presenting our recommendations for the proposed development.

Field Investigation

Field exploration was performed on August 24th, 2022 by members from our firm who logged the borings and obtained representative samples, which were subsequently transported to the laboratory

for further review and testing. The approximate locations of the borings are indicated on the enclosed Boring Location Map (Plate 1A).

The subsurface conditions were explored by drilling, sampling, and logging three (3) borings with a limited access track rig equipped with a CME-75 hollow stem auger drill. Borings B-1 and B-3 were advanced to approximate depths of 10.25 and 12 feet, respectively, before encountering refusal on large cobbles. Boring B-2 was advanced to an approximate depth of 25.5 feet below existing grade. Subsequent to drilling, boring B-2 was converted into a percolation test boring and percolation testing was performed in general accordance with County of San Diego guidelines. The log of borings together with an explanation of symbols used are given in Appendix B.

Soil cuttings from all borings were drummed, borings backfilled with Portland cement grout and surface repaired with rapid set concrete. The cuttings were placed in one (1) 55-gallon drum and were disposed by Belshire in coordination with Regal Cinema staff.

The limited access track rig was equipped with a sampling apparatus to allow for recovery of driven modified California Ring Sampler (CRS), 3-inch outside diameter, and 2.42-inch inside diameter and SPT samples.

The samples were driven using an automatic 140-pound hammer falling freely from a height of 30 inches. The blow counts for CRS were converted to equivalent SPT blow counts utilizing a factor of 0.65. Soil descriptions were entered on the logs in general accordance with the Unified Soil Classification System (USCS). Driven samples and bulk samples of the earth materials encountered at selected intervals were recovered from the borings. The locations and depths of the soil samples recovered are indicated on the boring logs in Appendix B.

Literature Review

A previous Geotechnical Investigation was performed by South California Geotechnical, Inc. (2002) for the property directly adjacent to the subject site to the west. The purpose of the report was to provide geotechnical recommendations for a six-story residential/office building with two levels of subterranean parking. The investigation consisted of six (6) exploratory borings to depths ranging from approximately 17 feet to 54.5 feet below existing grade. Fill was encountered from depths ranging from 0.5 feet to 6.5 feet below existing grade, underlain by terrace deposits to approximately 54.5 feet below existing grade. The terrace deposits in the upper 9.5 to 13 feet consisted of medium dense to dense reddish brown, fine grained sands and from 13 feet to 54.5 feet the terrace deposits consisted of sand, gravel and silt with increased gravel content with increased depth. Groundwater was encountered at a depth of approximately 43 feet below ground surface. Based on the subsurface investigation South California Geotechnical, Inc. determined the seismic site class to be Site Class “C”.

Laboratory Testing

Laboratory tests were performed on representative samples to verify the field classification of the recovered samples and to evaluate the geotechnical properties of the subsurface soils. The following tests were performed:

- In-situ Moisture Content (ASTM D2216) and Dry Density (ASTM D7263);
- Maximum Dry Density and Optimum Moisture Content (ASTM D1557);
- Direct Shear Strength (ASTM D3080);
- Consolidation (ASTM D2435);

- Passing No. 200 Sieve (ASTM D1140);
- Corrosion series:
    1. Soluble Sulfate (CAL.417A);
    2. Soluble Chlorides (CAL.422);
    3. Minimum Resistivity (CAL.643); and
    4. pH (CAL 747)

Laboratory tests for geotechnical characteristics were performed in general accordance with the ASTM procedures. The results of the in-situ moisture content and density tests are shown on the borings logs. The results of other laboratory tests and laboratory test results are presented in Appendix C.

Percolation Testing

Field percolation testing was performed in general accordance with the with the City of Oceanside BMP Design Manal For Permanent Site Design, Stormwater Treatment and Hydromodification Management (2022).

Boring B-2 was converted to field percolation test wells by placing approximately two inches of gravel at the bottom of the borehole, installation of two-inch diameter PVC pipes and placement of gravel in the annulus between the borehole and the PVC pipe to hold it securely in place. Infiltration test rates were determined utilizing the referenced City of Oceanside guidelines. A gravel factor of 0.54 was used in the calculations to account for the volume of water reduction from the gravel in the annular space of the boring. Results of the infiltration testing are presented in Table 1 - Percolation Test Worksheet and in the table below:

Test Location	Test Depth (feet)	Infiltration Rate (inches/hour)
B-2	15 – 25.5	0.01

Based on the percolation test results and the referenced guidelines, stormwater infiltration is not recommended at the subject site from a geotechnical standpoint.

GEOTECHNICAL FINDINGS

Geology

Regional Geologic Setting

The project site is located in the northeast corner of the Oceanside 7.5-minute quadrangle, San Diego County, California. Per the Geologic Map of the Oceanside 30x60-minute Quadrangle, California (Kennedy, 2007), the subject site is underlain by old paralic deposits, consisting of silt, sand and cobbles. Figure 2 presents the Regional Geology Map.

Earth Units

Based on our subsurface investigation, the subject site is generally underlain by approximately 5 to 6 feet of fill consisting of reddish-brown to brown fine-grained silty sand in a moist condition. This fill is not considered suitable for the support of structures or structural fill. The silty sand is underlain by approximately 5 feet of old paralic deposits consisting of reddish-brown fine-grained sand, underlain by old paralic deposits consisting of very hard silt, sand and gravel to an approximate depth of 25.5 feet below existing grade, the maximum depth explored. Detailed descriptions of the earth units encountered in our borings are presented in the log of the borings. (Appendix B)

Groundwater

Subsurface water was not encountered to a depth of approximately 25.5 feet below existing grade during the subsurface exploration.

Based on our review of USGS groundwater levels for the nation data for groundwater wells nearest to the subject site, the historic high groundwater was recorded at 20 feet below existing grade in October 1965 (USGS 331217117211601 011S005W13Q003S). This groundwater well is located approximately 1.5 miles to the northeast of the subject site.

Per the geotechnical report by Southern California Geotechnical (2002) for the property directly adjacent to the west of the subject site, groundwater was encountered at a depth of approximately 43 feet below existing grade in 2002.

Seasonal and long-term fluctuations in the groundwater may occur as a result of variations in subsurface conditions, rainfall, run-off conditions and other factors. Therefore, variations from our observations may occur.

Static groundwater is not anticipated to adversely impact development.

Expansive Soil

Onsite soils are granular in nature, correlating to a “very low” expansion potential. The recommendations provided in this report account for the expansion potential of the onsite soils.

Hydrocollapse

Laboratory testing indicates near surface soils undergo approximately 0.1% to 1% hydrocollapse when inundated under load, correlating to a “very low to low” potential for hydrocollapse. The recommendations in this report account for the hydro collapse potential of near surface soils.

Cement Type and Corrosion

Based on laboratory testing concrete used should be designed in accordance with the provisions of ACI 318-19, Chapter 19 for Exposure Class S0: Cement with a minimum unconfined compressive strength of 2,500 psi, and for Exposure Class C1 (Moderate) – Concrete exposed to moisture but not a significant source of chlorides, per ACI 318-19 Table 19.3.1.1.

Corrosion tests indicate a moderate corrosion potential for ferrous metals exposed to site soils.

TGR does not practice corrosion engineering. If needed, a qualified specialist should review the site conditions and evaluate the corrosion potential of the site soil to the proposed improvements and to provide the appropriate corrosion mitigations for the project.

Seismic Review

Faulting and Seismicity

The subject site, like the rest of Southern California, is located within a seismically active region as a result of being located near the active margin between the North American and Pacific tectonic plates. The principal source of seismic activity is movement along the northwest-trending regional faults such as the San Andreas, San Jacinto and Elsinore fault zones. These fault systems produce approximately 5 to 35 millimeters per year of slip between the plates.

We consider the most significant geologic hazard to be the potential for moderate to strong seismic shaking that is likely to occur at the subject site. The subject site is located in the highly seismic Southern California region within the influence of several faults that are considered to be Holocene-active or pre-Holocene faults. A Holocene-active fault is defined by the State of California as a fault that has exhibited surface displacement within the Holocene time (about the last 11,700 years). A pre-Holocene fault is defined by the State as a fault whose history of past movement is older than 11,700 years ago and does not meet the criteria for a Holocene-active fault.

These Holocene-active and pre-Holocene faults are capable of producing potentially damaging seismic shaking at the site. It is anticipated that the subject site will periodically experience ground acceleration as the result of small to moderate magnitude earthquakes. Other active faults without surface expression (blind faults) or other potentially active seismic sources that are not currently zoned and may be capable of generating an earthquake are known to be present in the region.

The subject site is not included within any Earthquake Fault Zones as created by the Alquist-Priolo Earthquake Fault Zoning Act (CGS, 2018). Our review of geologic literature pertaining to the site area indicates that there are no known active or potentially active faults located within or immediately adjacent to the subject property.

The nearest fault to the subject site is the Newport-Inglewood-Rose Canyon offshore fault zone mapped approximately 2.7 miles southwest of the site. Other nearby faults include the San Mateo-San Onofre-Carlsbad fault zone mapped approximately 10.1 miles to the southwest of the site, the Coronado Bank fault zone mapped approximately 20.6 miles to the west of the site, and the Wildomar fault mapped approximately 24.5 miles to the northeast of the site. The Regional Fault Map, Figure 5, shows the location of the subject site in respect to the regional faults.

Secondary Seismic Hazards

Surface Fault Rupture and Ground Shaking

Since no known faults are located within the site, surface fault rupture is not anticipated. However, due to the close proximity of known active and potentially active faults, severe ground shaking should be expected during the life of the proposed structures.

Liquefaction

Liquefaction is a seismic phenomenon in which loose, saturated, fine-grained granular soils behave similarly to a fluid when subjected to high-intensity ground shaking. Liquefaction occurs when these ground conditions exist: 1) Shallow groundwater; 2) Low density, fine, clean sandy soils; and 3) High-intensity ground motion. Effects of liquefaction can include sand boils, settlement, and bearing capacity failures below foundations.

A review of the San Diego County Geologic Hazards, Figure 4 - Potential Liquefaction Areas Map indicates that the subject site is not located within an area mapped as having a potential for earthquake induced liquefaction (Figure 3).

Based on the above and high SPT blow counts recorded during drilling, potential for liquefaction is considered to be ‘very low’. The blow counts for Modified California Ring Samples were converted to equivalent SPT blow counts utilizing a factor of 0.65 as stated earlier in the report.

Seismically Induced Settlement

Ground accelerations generated from a seismic event can produce settlements in sands or in granular earth materials both above and below the groundwater table. This phenomenon is often referred to as seismic settlement and is most common in relatively clean sands, although it can also occur in other soil materials. Based on the nature and density of site soils encountered, seismic settlement is anticipated to be ‘very low’.

Landsliding

Landsliding involves downhill motion of earth materials during or subsequent to earth shaking. Historically, landslides triggered by earthquakes have been a significant cause of damage. Areas that are most susceptible to earthquake induced landslides are areas with steep slopes in poorly cemented or highly fractured bedrock, areas underlain by loose, weak soils, and areas on or adjacent to existing landslide deposits.

A review of the San Diego County Geologic Hazards, Figure 5 - Potential Landslide Susceptible Areas Map indicates the subject site is not located within a mapped zone of landsliding and adjacent areas are situated on relatively flat topography. Based on the above, the general landslide susceptibility is considered to be negligible (Figure 4).

Lateral Spreading

Seismically induced lateral spreading involves primarily movement of earth materials due to earth shaking. Lateral spreading is demonstrated by near-vertical cracks with predominantly horizontal movement of the soil mass involved. The topography in the vicinity of the subject site is relatively flat, with a gentle slope to the coastline. Based on the above and absence of liquefaction, the potential for lateral spreading at the subject site is considered to be ‘very low’.

DISCUSSIONS AND CONCLUSIONS

General

Based on our field exploration, laboratory testing and engineering analysis, it is our opinion that the proposed structures and proposed grading will be safe against hazard from landslide, settlement, or slippage and the proposed construction will have no adverse effect on the geologic stability of the adjacent properties provided our recommendations presented in this report are followed.

Conclusions

Based on our findings and analyses, the subject site is likely to be subjected to moderate to severe ground shaking due to the proximity of known active and potentially active faults. This may reasonably be expected during the life of the structure and should be designed accordingly.

The primary conditions affecting the proposed project site development are as follows:

- One level (approximately 15 feet) of excavations for subterranean parking.
- Excavation adjacent to existing structures and public right-of-way.
- Presence of a two-level of subterranean structure to the west of the subject site.

The engineering evaluation performed concerning site preparation and the recommendations presented are based on information provided to us and obtained by us during our office and fieldwork. This report is prepared for the construction of a new eight-story building including two levels of above-grade parking and one level of subterranean parking with associated amenities, recreation areas and courtyards. In the event that any significant changes are made to the proposed development, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the recommendations of this report are verified or modified in writing by TGR.

RECOMMENDATIONS

Seismic Design Parameters

When reviewing the 2022 CBC the following parameters should be incorporated into the design. The Site Class is based on site soil conditions per Section 11.4.3 of the ASCE 7-16. It is our opinion Site Class D - Stiff is the most appropriate based on site soil conditions.

Parameter	Value
Latitude (degree)	33.1958
Longitude (degree)	-117.3794
Site Class (ASCE 7-16 Section 11.4.3)	D - Stiff
Site Coefficient, F_a (CBC Table 1613.2.3 (1))	1.074
Site Coefficient, F_v (CBC Table 1613.2.3 (2))	1.912
Mapped Spectral Acceleration at 0.2-sec, S_s (CBC Section 1613.2.1)	1.064 g
Mapped Spectral Acceleration at 1.0-sec, S_1 (CBC Section 1613.2.1)	0.388 g
Spectral Acceleration at 0.2-sec Adjusted for Site Class, S_{MS} (CBC Section 1613.2.3)	1.143 g
Spectral Acceleration at 1.0-sec Adjusted for Site Class, S_{M1} (CBC Section 1613.2.3)	0.742 g
Design Spectral Acceleration at 0.2-sec, S_{DS} (CBC Section 1613.2.4)	0.762 g
Design Spectral Acceleration at 1.0-sec, S_{D1} (CBC Section 1613.2.4)	0.495 g
Seismic Response Coefficient (C_s) ASCE 7-16	Per 12.8-6
Mapped MCE_G, Peak Ground Acceleration, PGA	0.468 g
Site Coefficient for Mapped MCE_G, F_{PGA}	1.132
Site Modified Peak Ground Acceleration, PGA_M	0.53 g

In general, ASCE 7-16 Section 11.4.8 requires site-specific hazard analysis for structures on Site Class D for values of S_1 greater than or equal to 0.2 g. When using Equivalent lateral Force (ELF) and Modal Response Spectrum Analysis (MRSA), the ASCE 7-16 Section 11.4.8 Item 1 exception shall be utilized. Increasing S_{M1} by 50% in Eq. (11.4-2) results in an increase in the value of S_{D1} determined by Eq. (11.4-4) by 50%. These increased values of S_{M1} and S_{D1} are to be used for all applications of these parameters throughout the Standard, including for the formulation of the design response spectrum where a design response spectrum is needed per this standard. It should be noted that the 50% increase in S_{D1} also increases *Ts* by 50% resulting in an extension of the acceleration-controlled plateau of the design response spectrum. *Cs* is determined in accordance with Eq. (12.8-6).

Site Specific Response Spectra

The USGS Unified Hazard tool, the USGS RTGM Calculator and the OpenSHA was run using the seismic sources as included in the Third Uniform California Earthquake Rupture Forecast

(UCERF3), prepared by Field et al. (2013). The magnitudes of shaking at the site resulting from each earthquake scenario were then estimated using a suite of GMPEs. The analysis was performed utilizing the following attenuation relationships that are part of NGA as required by 2022 CBC code requirements.

- Campbell & Bozorgnia (2014)
- Boore, Stewart, Seyhan & Atkinson (2014)
- Chiou & Youngs (2014)
- Abrahamson, Silva & Kamal (2014)

The results of the Site Specific Response Spectra are incorporated in Table 1 and on Figure 1 in Appendix D. The results include deterministic spectra at 5% damping, maximum rotated component at 0.84 fractile and the probabilistic spectra, maximum rotated component at 5% damping for a return period of 2475 year and subsequently multiplied by risk coefficient to obtain the MCER probabilistic spectral acceleration. The Vs30 utilized was 260 m/s.

The probabilistic response spectrum was determined using OpenSHA (Field 2003) and was run using the seismic sources as included in the Third Uniform California Earthquake Rupture Forecast (UCERF3), prepared by Field et al. (2013). The magnitudes of shaking at the site resulting from each earthquake scenario were then estimated using a suite of GMPEs.

The deterministic response spectrum was determined using the parameters in the list of BSSC 2014 scenarios for the Newport Inglewood, Rose Canyon Fault, Oceanside Alt1 Fault and Elsinore Fault. A fault Magnitude (M) of 7.02 and a fault distance (R) of 6.4 km were selected for Newport Inglewood Fault, magnitude (M) of 6.99 and a fault distance (R) of 7.97 km were selected for Rose Canyon Fault, magnitude (M) of 7.24 and a fault distance (R) of 13.7 km were selected for Oceanside Alt1 Fault and magnitude (M) of 7.62 and a fault distance (R) of 38.2 km were selected for Elsinore Fault . The fault parameters were entered into the Pacific Earthquake Engineering Research Center NGAW2 tool with a user defined sigma + 5% damping. For the deterministic analysis for the subject site, a characteristic earthquake was selected from the Building Seismic Safety Council 2014 Event Set (BSSC2014The data is presented on Table 3 in Appendix D.

The above generated spectral accelerations were compared against the minimum code requirements in ASCE7-16 (Chapters 11 and 21) resulting in the final design response spectra which is presented in Table 1 and on Figure 1 in Appendix D.

Based on Table 1 and Figure 1, the recommended Site Specific S_{DS} and S_{D1} for the controlling fault (Green Valley) are as follows:

$S_{DS} = 0.955$
$S_{D1} = 0.667$
$S_{MS} = 1.433$
$S_{M1} = 1.001$

The structural consultant should review the above parameters and the 2022 California Building Code to evaluate the seismic design.

Conformance to the criteria presented in the above table for seismic design does not constitute any type of guarantee or assurance that significant structural damage or ground failure will not occur during a large earthquake event. The intent of the code is “life safety” and not to completely prevent damage of the structure, since such design may be economically prohibitive.

Shallow Foundation Design Recommendations for Basement Level of Eight Story Building

The proposed eight-story structure may be supported on continuous and/or spread footings. It is our understanding that the basement of the adjacent building to the west extends approximately 22 feet below grade. This depth should be verified. Depending on the proximity of the proposed building to the property line, it is recommended that the footings be deepened so as not to surcharge the adjacent basement wall. As an alternative, drilled piers may be utilized.

Bearing capacity recommendations for shallow foundations are presented below. These recommendations assume that the footings will be supported on competent native paralic deposits.

For foundations supported on competent native paralic deposits, an allowable bearing pressure of 3,000 pounds per square foot may be used in design, with an increase of 400 psf per additional foot of embedment depth to a maximum of 4,000 psf. The recommended minimum footing depth is twenty-four (24) inches.

The minimum recommended footing width is twenty-four (24) inches for continuous and pad footings. A minimum reinforcement of two (2) No. 5 steel bar top and two (2) No. 5 steel bar bottom is required for continuous footings from a geotechnical viewpoint. Foundation design details such as concrete strength, reinforcements, etc should be established by the Structural Engineer.

A one-third (1/3) increase on the aforementioned bearing pressure may be used in design for short-term wind or seismic loads. The total and differential static settlement is anticipated to be 1 inch and 0.5 inches or less over 30 feet.

Resistance to lateral loads including wind and seismic forces may be provided by frictional resistance between the bottom of concrete and the underlying fill soils and by passive pressure against the sides of the foundations. A coefficient of friction of 0.50 may be used between concrete foundation and underlying soil. The recommended passive pressure of the native paralic deposits may be taken as an equivalent fluid pressure of 300 pounds per cubic foot (3,000 psf max).

Footings located near property lines or existing footings where the lateral removal cannot be achieved shall be designed for a reduced bearing capacity of 1,500 pounds per square foot and the passive resistance shall be ignored.

Modulus of Subgrade Reaction

The modulus of subgrade reaction may be taken as 200 pci (K_1) for one (1) square foot may be used for the native site soils at the subterranean subgrade elevation. This value should be reduced for change in size per the following formula.

$$K = K_1 \left(\frac{B+1}{2B}\right)^2$$

Where B = Width of Footing;
K = Coefficient of Subgrade Reaction of Footings Measuring B(ft) x B(ft).

Drilled Pier Foundations:

As an alternative, the proposed eight-story structure may be supported on drilled piers. It is recommended that piers be a minimum of 24-inches in diameter. All temporary excavations shall comply with Cal OSHA requirements.

It is recommended that the drilled piers have a minimum embedment of twenty-five (25) feet below basement grade. The drilled piers may be designed for an allowable axial frictional capacity of 500 pounds per square foot. The uplift capacity may be taken as one-half of downward frictional capacity plus the weight of the pier. The lateral capacity shall be taken as 350 psf per foot of depth (maximum 3,500 psf).

The above values may be increased by one-third when considering short duration seismic or wind loads. Foundation design details such as concrete strength, reinforcements, etc. should be established by the Structural Engineer. Once column loads are available TGR can provide load deflection curves for the piers.

The total settlement is not expected to exceed ½ inch. The differential settlement between columns is estimated as ¼ inch.

For piers spaced at less than three (3) diameters on center, additional group capacity reduction effects should be taken into account on evaluating the allowable axial capacity of the pile groups.

For piers spaced at less than eight (8) diameters on center, additional group capacity reduction effects should be taken into account on evaluating the allowable lateral capacity of the pile groups.

Proposed piers installed less than three (3) and eight (8) diameters on center to the existing adjacent basement structure to the west of the subject site, shall have the axial and lateral capacities ignored, respectively.

The drilling and installation of piers should be performed under the full-time observation of TGR Geotechnical.

The pile excavation should be filled with concrete as soon as possible after drilling is completed. The pile excavation should not be left open for more than forty-eight (48) hours. Vibration should take place throughout the full length of the pile to eliminate voids in either the pile base or the shaft. Placement procedure such as tremie may be utilized to ensure that aggregate segregation does not occur. Where pile spacing is less than three (3) diameters, piles should be drilled and filled alternately, allowing the previously poured pile concrete to set for at least twenty-four (24) hours, or as permitted by the geotechnical engineer.

Piers extending below 45 feet below surface grade may encounter subsurface groundwater. If water is encountered, it may be pumped out prior to placement of concrete. As an alternative, placement of concrete may be performed under water utilizing a tremie and the concrete strength adjusted per the

project structural engineer. Due to the gravelly nature of the subsurface soils, difficulty in drilling may be encountered. Casing and/or drilling mud may be required.

Shallow Foundation Design Recommendations for Ancillary Structures

The proposed ancillary structures may be supported on continuous and/or spread footings. Bearing capacity recommendations for shallow foundations are presented below. These recommendations assume that the footings will be supported on a minimum of two (2) feet of engineered fill compacted to a minimum of ninety-five (95) percent relative compaction per ASTM D1557.

For foundations supported on a minimum of two (2) feet of engineered fill, an allowable bearing pressure of 2,000 pounds per square foot may be used in design. The recommended minimum footing depth is twenty-four (24) inches.

The minimum recommended footing width is eighteen (18) inches for continuous footings and twenty-four (24) inches for pad footings. A minimum reinforcement of two (2) No. 4 steel bar top and two (2) No. 4 steel bar bottom is required for continuous footings from a geotechnical viewpoint. Foundation design details such as concrete strength, reinforcements, etc. should be established by the Structural Engineer.

A one-third (1/3) increase on the aforementioned bearing pressure may be used in design for short-term wind or seismic loads.

The total and differential static settlement is anticipated to be 1 inch and 0.5 inches or less over 30 feet.

Resistance to lateral loads including wind and seismic forces may be provided by frictional resistance between the bottom of concrete and the underlying fill soils and by passive pressure against the sides of the foundations. A coefficient of friction of 0.44 may be used between concrete foundation and the engineered fill. The recommended passive pressure of the engineered fill may be taken as an equivalent fluid pressure of 250 pounds per cubic foot (2,500 psf max).

Footings located near property lines or existing footings where the lateral removal cannot be achieved shall be designed for a reduced bearing capacity of 1,500 pounds per square foot and the passive resistance shall be ignored.

Slab-On-Grade

Slab-on-grade should be a minimum of five (5) inches thick and reinforced with a minimum of No. 4 reinforcing bar on 18-inch centers in two horizontally perpendicular directions. Reinforcing should be properly supported to ensure placement near the vertical midpoint of the slab. "Hooking" of the reinforcement is not considered an acceptable method of positioning the steel. The slab should not be structurally connected to the buildings.

Subgrade material for the slab-on-grade should be native paralic deposits or engineered fill compacted to a minimum of ninety-five (95) percent of the maximum laboratory dry density to a depth of one (1) foot for basement level and two (2) feet for street level ancillary structures. Prior to placement of concrete, the subgrade soils should be moistened to near optimum moisture content and verified by our field representative.

The actual thickness and reinforcement of the slab shall be designed by the structural engineer per the 2022 California Building Code and should include the anticipated loading condition and the anticipated use of the building.

For moisture sensitive flooring, the floor slab should be underlain by minimum 15-mil impermeable polyethylene membrane (Stego Wrap, Moistop Plus, or any equivalent meeting the requirements of ASTM E1745, Class A rating). Sand and/or gravel may be placed above and below the impermeable polyethylene membrane at the discretion of the project structural engineer/concrete contractor for proper curing and finish of the concrete slab-on-grade and protection of the membrane and is considered outside the scope of geotechnical engineering.

Flatwork

Flatwork should be a minimum of four (4) inches thick for pedestrian walkways and eight (8) inches for trash enclosures and delivery truck areas should be reinforced with a minimum of No. 3 reinforcing bar on 24-inch centers in two horizontally perpendicular directions. Reinforcing should be properly supported to ensure placement near the vertical midpoint of the slab. "Hooking" of the reinforcement is not considered an acceptable method of positioning the steel. The subgrade material should be compacted to a minimum of ninety-five (95) percent of the maximum laboratory dry density per ASTM D1557 to a minimum depth of one (1) foot. Prior to placement of concrete, the subgrade soils should be moistened to near percent of optimum moisture content and verified by our field representative. The actual thickness and reinforcement of the slab shall be designed by the structural engineer and should include the anticipated loading condition.

Retaining Wall Recommendations

The following soil parameters may be used for the design of the retaining wall with level backfill and a maximum height of fifteen (15) feet:

Conditions	Parameters
Active (Level)	35 psf/ft
At-Rest (Basement Wall)	30H uniform
Passive	300 (maximum 3,000 psf)
Friction Coefficient	0.44

- Unrestrained retaining wall, such as a cantilever wall, the active earth pressure shall be used.
- Retaining walls over 6 feet high shall be designed for a seismic lateral load of $15H^2$ active at a distance of 0.6H above the base of the wall.
- Any import backfill shall be granular non-expansive select fill with a minimum sand equivalent of 30. The import fill should be tested and approved by TGR prior to backfill.
- An allowable coefficient of friction between native paralic deposits and concrete of 0.50 may be used with the dead-load forces.
- Passive pressure and frictional resistance could be combined in determining the total lateral resistance. However, one of them shall be reduced by 50 percent.

- The passive pressure in the upper 1 foot of soil not confined by slabs or pavement should be neglected.
- The retaining wall should be provided with a drainage system (Miradrain or equivalent) to prevent buildup of hydrostatic pressure behind the walls. We do not recommend omitting the drains behind walls.

Retaining structures should be provided with a drainage system to prevent buildup of hydrostatic pressure behind the walls. Provisions should be made to collect and dispose of excess water away from the wall. Wall drainage may be provided by a perforated pipe encased in gravel or crushed rock and enclosed by geo-synthetic filter fabric. We do not recommend omitting the drains behind walls.

In addition to the above lateral forces due to retained earth, surcharge due to improvements, such as an adjacent structure, should be considered in the design of the retaining wall. A minimum vertical surcharge load of 300 psf should be used in design of walls due to adjacent traffic unless the traffic is kept at least six (6) feet from the walls. Loads applied within a 1:1 projection from any surcharging structure on the stem of the wall shall be considered as lateral surcharge.

For uniform lateral surcharge conditions applied to free-to-deflect walls and restrained walls, we recommend utilizing a minimum horizontal load equal to 33 percent and 50 percent of the vertical load, respectively, and should be applied uniformly over the entire height of the wall. This horizontal load should be applied below the 1:1 projection plane. To minimize the surcharge load from an adjacent footing, deepened footings may be considered.

Retaining wall footings should have a minimum embedment of twenty-four (24) inches below the lowest adjacent grade. The retaining walls footings shall be supported on native paralic deposits or a minimum one (1) foot of compacted engineered fill compacted to a minimum ninety-five (95) percent relative compaction as per ASTM D1557.

Shrinkage/Subsidence

Removal and recompaction of the near surface soils is estimated to result in shrinkage ranging from 5 to 10 percent. Minor ground subsidence is expected to occur in the soils below the zone of removal, due to settlement and machinery working. The subsidence is estimated to be between one and two tenths of a foot.

Site Development Recommendations

General

During earthwork construction, all site preparation and the general procedures of the contractor should be observed, and the fill selectively tested by a representative of TGR. If unusual or unexpected conditions are exposed in the field, they should be reviewed by this office and if warranted, modified and/or additional recommendations will be offered. During demolition of the existing buildings, large concrete slab and associated site work, voids created from removal of buried elements (footings, pipelines, septic pits, etc.) shall be backfilled with engineered fill to a minimum ninety (90) percent relative compaction per ASTM D1557 under the observation of TGR.

Grading

All grading should conform to the guidelines presented in the California Building Code (2022 edition), except where specifically superseded in the text of this report. Prior to grading, TGR's representative should be present at the pre-construction meeting to provide grading guidelines, if needed, and

review any earthwork. Oversize particles may be encountered during grading. All particles greater than 4-inches shall be removed and disposed offsite. The existing fill is not considered suitable for the support of structures or structural fill.

The basement level footings and slab-on-grade shall be supported on competent native paralic deposits or a minimum one (1) foot of engineered fill. A minimum two (2) feet of engineered fill is recommended under street level footings and slab-on-grade for ancillary structures and a minimum of one (1) foot of engineered fill is recommended under flatwork. Site soils may be reused as engineered fill provided, they are free of oversized particles and the recommendations presented in this report are implemented. Exposed bottoms should be scarified a minimum of six (6) inches, moisture conditioned to near optimum moisture and compacted to a minimum ninety-five (95) percent relative compaction. Subsequently, site fill soils should be re-compacted to a minimum of ninety-five (95) percent relative compaction at near optimum moisture content.

The depth of over-excavation should be reviewed by the Geotechnical Consultant during the actual construction. Any subsurface obstruction buried structural elements, and unsuitable material encountered during grading, should be immediately brought to the attention of the Geotechnical Consultant for proper exposure, removal and processing, as recommended.

Fill Placement

Prior to any fill placement TGR should observe the exposed surface soils. The site soils may be re-used as engineered fill provided, they are free of organic content and particle size greater than 4-inches. All particles greater than 4-inches shall be removed and disposed offsite. Fill shall be moisture conditioned to near optimum moisture and compacted to a minimum relative compaction of ninety-five (95) percent in accordance with ASTM D1557. Any import soils shall be non-expansive and approved by TGR Geotechnical Inc.

Compaction

Prior to fill placement, the exposed surface should be scarified to a minimum depth of six (6) inches, fill placed in eight (8) inch loose lifts moisture conditioned to near optimum moisture and compacted to a minimum relative compaction of ninety-five (95) percent in accordance with ASTM D1557.

Trenching

All excavations should conform to CAL-OSHA and local safety codes.

Temporary Excavation

All excavations to a maximum depth of four (4) feet may be excavated vertically. However, all excavations deeper than four (4) feet must either be properly sloped or shored. Where sufficient space is available for sloped excavation, the excavation may be sloped to no steeper than 1:1 (horizontal to vertical). Flattened side slopes may be required where less stable localized deposits are encountered. The exposed slope faces should be kept moist and not allowed to dry out. Where sloped excavation cannot be performed, temporary shoring may be utilized.

No surcharge loads should be permitted within a horizontal distance equal to the height of cut from the toe of excavation unless the cut is properly shored. Excavations that extend below an imaginary plane inclined at 45 degrees below the edge of any nearby adjacent existing site facilities should be properly shored to maintain foundation support at the adjacent structures. All excavations should conform to CAL-OSHA and local safety codes. The stability of temporary excavation is the

responsibility of the contractor. TGR should be present to observe the excavation to provide additional recommendations as considered necessary depending on the exposed condition

Temporary Shoring

Temporary shoring may be required for those excavations where temporary slope cuts as specified above are not feasible. Temporary cantilever shoring should be designed using the following parameters:

Conditions	Parameters
Active (Level)	30 psf/ft
Passive	350 (maximum 3,500 psf)

Soldier piles shall have a minimum diameter of 24-inches and shall be spaced at least three diameters on centers. The shoring design engineer may utilize this passive pressure over one to two pile diameters at their discretion/design procedure. The shoring design engineer is however responsible for the performance of the shoring system.

The design of shoring should also include surcharge-loading effects of existing structures and anticipated traffic, including construction equipment, when loading is within a distance from the shoring equal to the depth of excavation. All excavations should conform to CAL-OSHA and local safety codes. The stability of temporary excavation is the responsibility of the contractor. However, as a minimum the lateral movement at the top of the shoring soldier piles should be monitored. Lateral deflection of 0.50 inches or more shall be brought to the attention of TGR with remedial measures. If lateral deflection exceeds 1.0 inches, work shall stop, and mitigation measures taken prior to continuing work. TGR should be present to observe the excavation to provide additional recommendations as considered necessary depending on the exposed condition.

Soldier pile members placed in drilled holes should be properly backfilled with sand/cement slurry or lean concrete in order to develop the required passive resistance.

Final temporary shoring calculations and plans shall be reviewed by this office to ensure that the recommendations presented in this report has been incorporated in the design. TGR may provide additional recommendations based on a review of the final shoring configuration.

The lagging between the soldier piles may be designed for a nominal pressure of 400 psf, and should consist of wood members, or solid plywood or steel sheets. All excavations should conform to CAL-OSHA and local safety codes.

Utility Trench Backfill

All utility trench backfills in structural areas and beneath hardscape features should be brought to near optimum moisture content and compacted to a minimum relative compaction of ninety-five (95) percent of the laboratory standard. Flooding/jetting is not recommended.

Sand backfill, (unless trench excavation material), should not be allowed in parallel exterior trenches adjacent to and within an area extending below a 1:1 plane projected from the outside bottom edge of the footing. All trench excavations should minimally conform to CAL-OSHA and local safety

codes. Soils generated from utility trench excavations may be used provided it is moisture conditioned and compacted to ninety-five (95) percent minimum relative compaction.

Drainage

Positive site drainage should be maintained at all times. Water should be directed away from foundations and not allowed to pond and/or seep into the ground. Pad drainage should be directed towards the street/parking or other approved area.

Geotechnical Review of Plans

All grading and foundation plans should be reviewed and accepted by the geotechnical consultant prior to construction. If significant time elapses since preparation of this report, the geotechnical consultant should verify the current site conditions, and provide any additional recommendations (if necessary) prior to construction.

Geotechnical Observation/Testing During Construction

Per sections 1705.6 and table 1705.6 of the 2022 California Building Code, periodic special inspection shall be performed to:

- Verify materials below shallow foundations are adequate to achieve the design bearing capacity;
- Verify excavations are extended to the proper depth and have reached proper material;
- Verify classification and test compacted materials; and
- Prior to placement of compacted fill, inspect subgrade and verify that the site has been prepared properly.

Per sections 1705.6 and table 1705.6 of the 2022 California Building Code, continuous special inspection shall be performed to:

- Verify use of proper materials, densities and lift thickness during placement and compaction of compacted fill.

The geotechnical consultant should also perform observation and/or testing at the following stages:

- During any grading and fill placement;
- During trench excavation and backfill;
- After foundation excavation and prior to placing concrete;
- During caisson excavation;
- Prior to placing slab and flatwork concrete;
- During placement of aggregate base and asphalt or Portland cement concrete; and
- When any unusual soil conditions are encountered during any construction operation subsequent to issuance of this report.

Limitations

This report was prepared for a specific client and a specific project, based on the client's needs, directions and requirements at the time.

This report was necessarily based upon data obtained from a limited number of observances, site visits, soil and/or other samples, tests, analyses, histories of occurrences, spaced subsurface exploration and limited information on historical events and observations. Such information is necessarily incomplete. Variations can be experienced within small distances and under various climatic conditions. Changes in subsurface conditions can and do occur over time.

This report is not authorized for use by and is not to be relied upon by any party except the client with whom TGR contracted for the work. Use or reliance on this report by any other party is that party's sole risk. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify TGR from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, or strict liability of TGR.



B-3 ⊕ APPROXIMATE LOCATION OF EXPLORATORY BORING

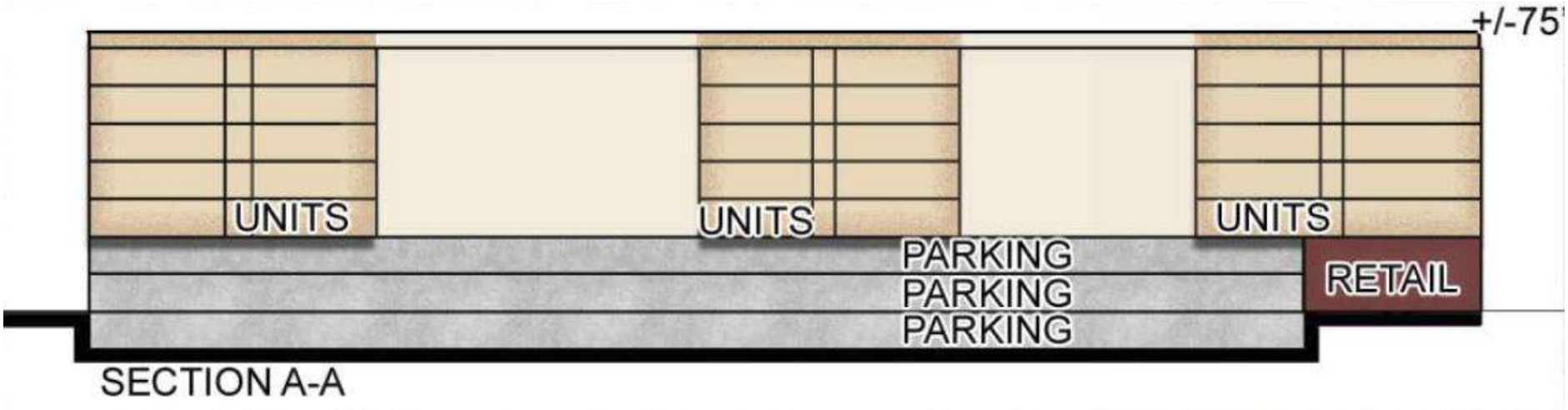
0 30' 60' 120'

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

BORING LOCATION MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

PLATE 1A





TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

CROSS SECTION A-A'
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

PLATE 1B

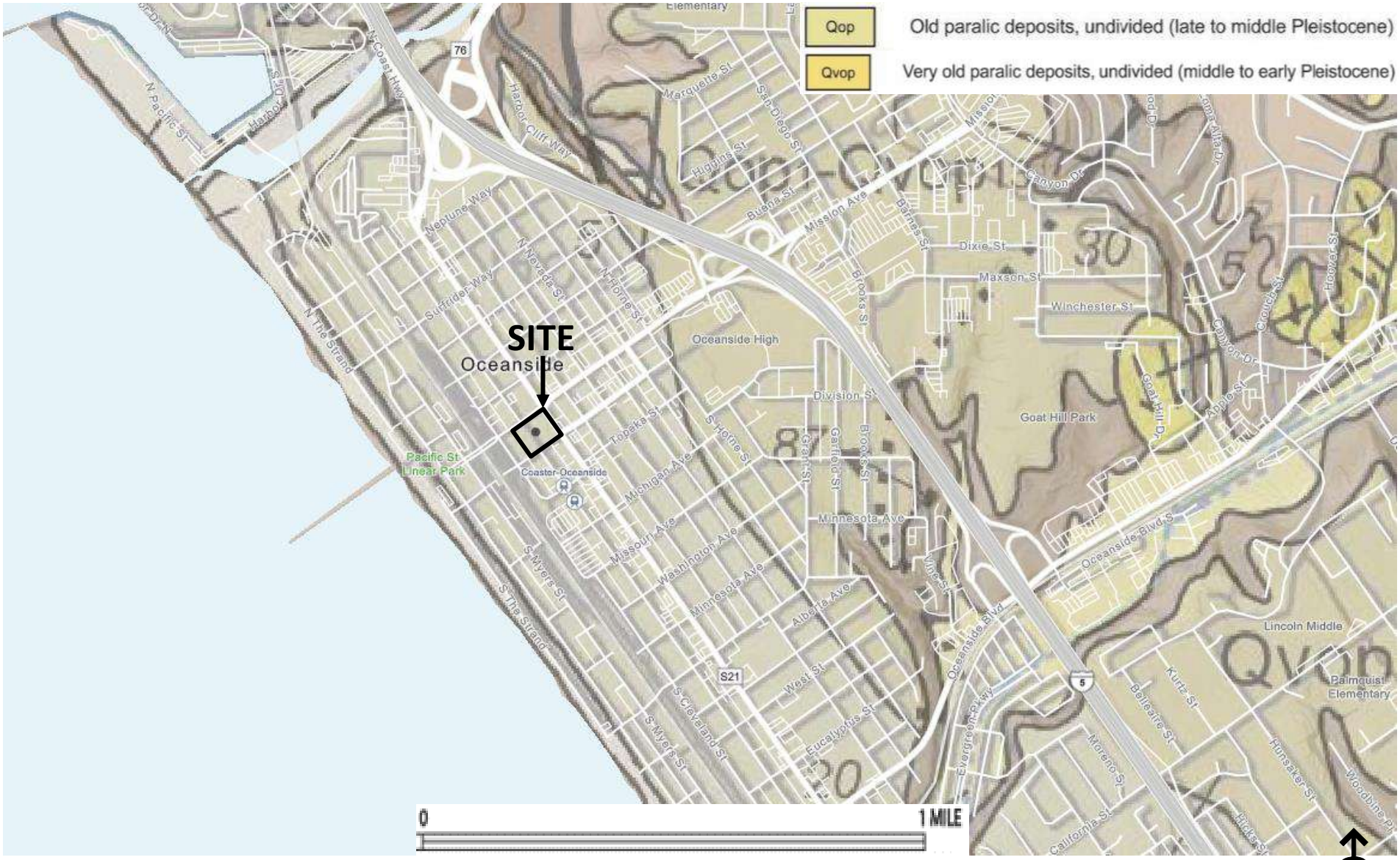


Geotechnical
Environmental
Hydrogeology
Material Testing
Construction Inspection

SITE LOCATION MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

FIGURE 1



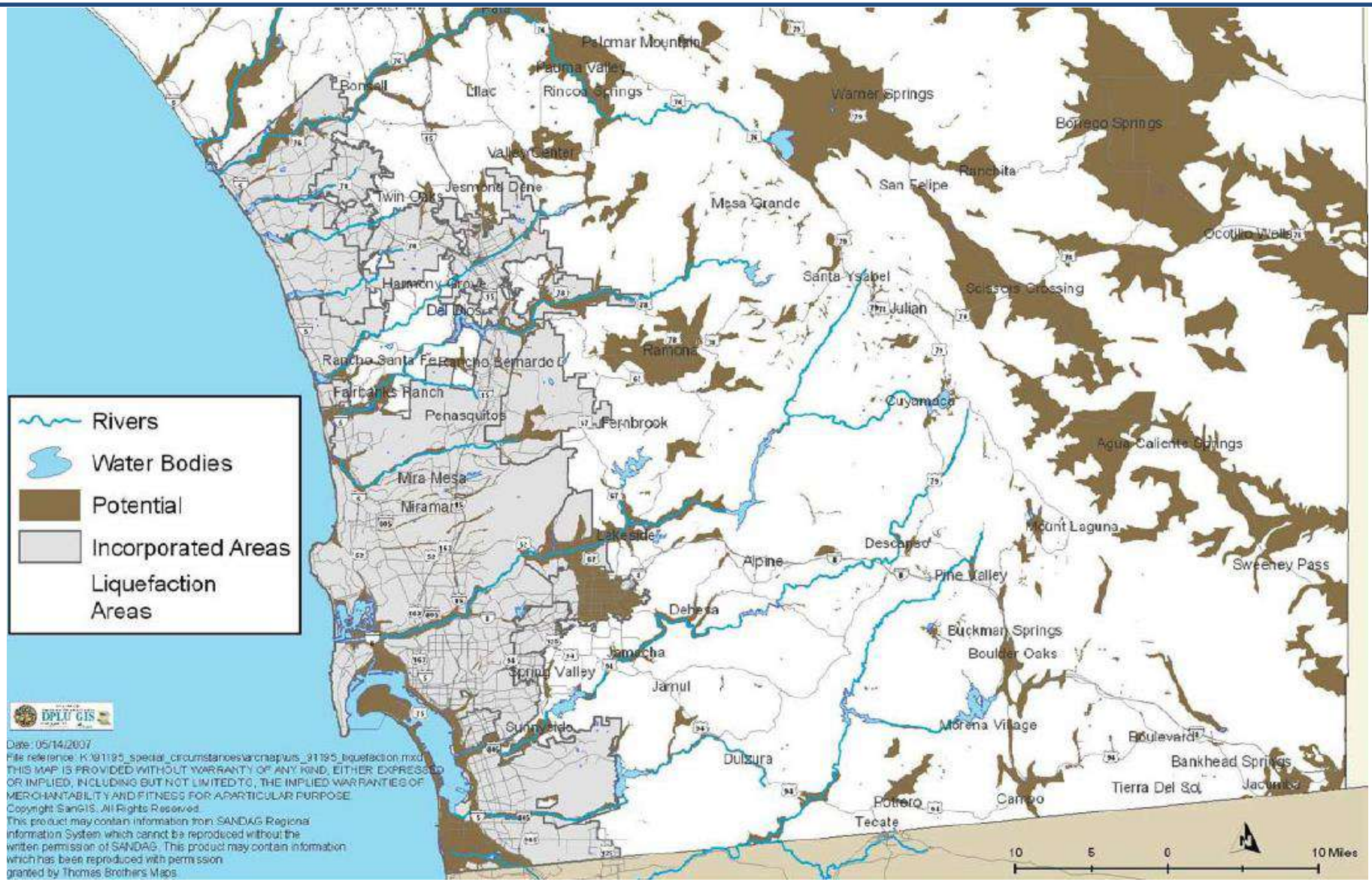
Modified From: Kennedy, M.P., Tan, S.S., Bovard, K.R., Alvarez, R.M., Watson, M.J., and Gutierrez, C.I., 2007, Geologic map of the Oceanside 30x60-minute quadrangle, California: California Geological Survey, No. 2, scale 1:100,000.

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

REGIONAL GEOLOGY MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

FIGURE 2



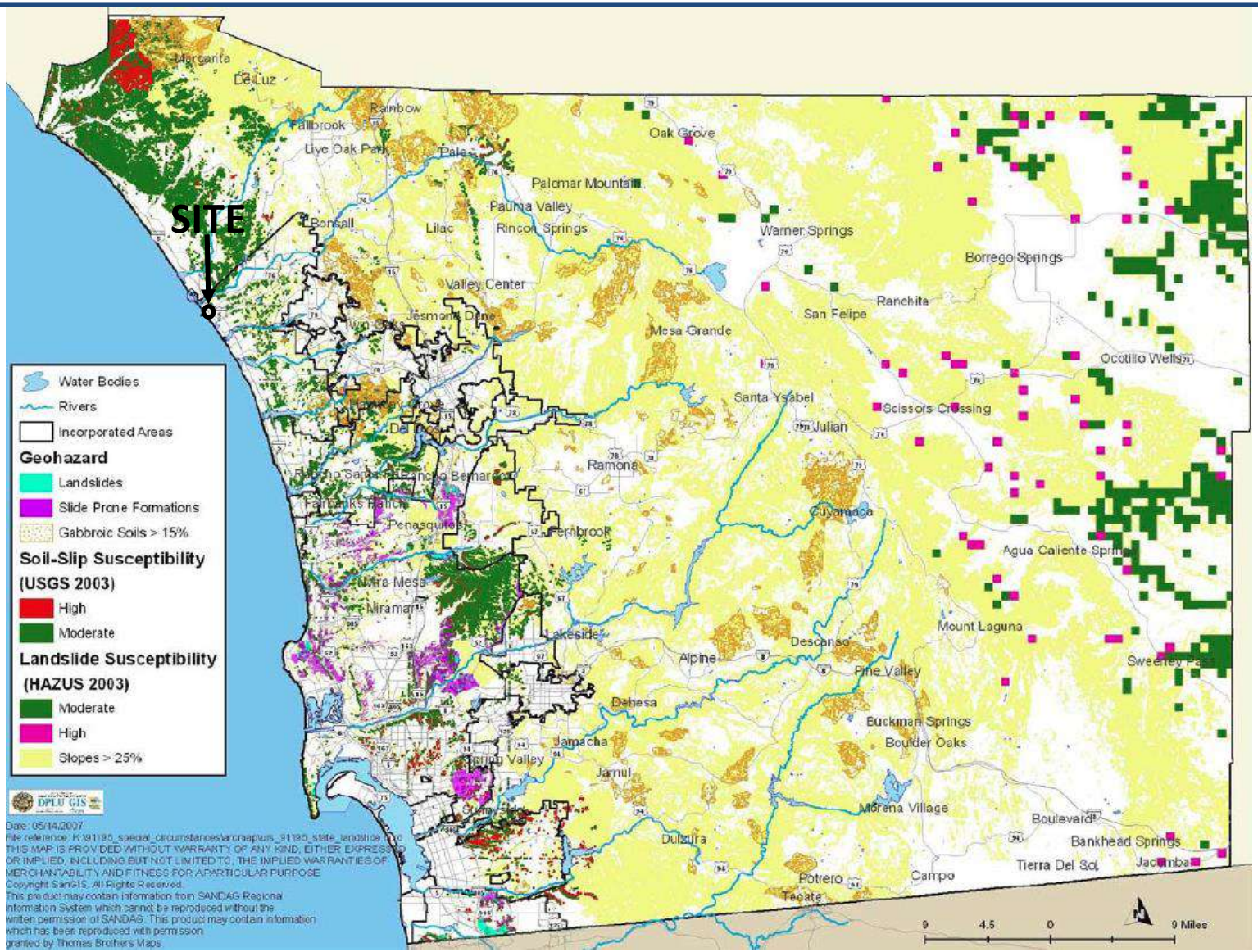
Modified From: County of San Diego, Department of Planning and Land Use, Department of Public Works, Land Use and Environment Group, Guidelines for Determining Significance, Geologic Hazards, Figure 4 – Potential Liquefaction Areas, dated July 30, 2007.

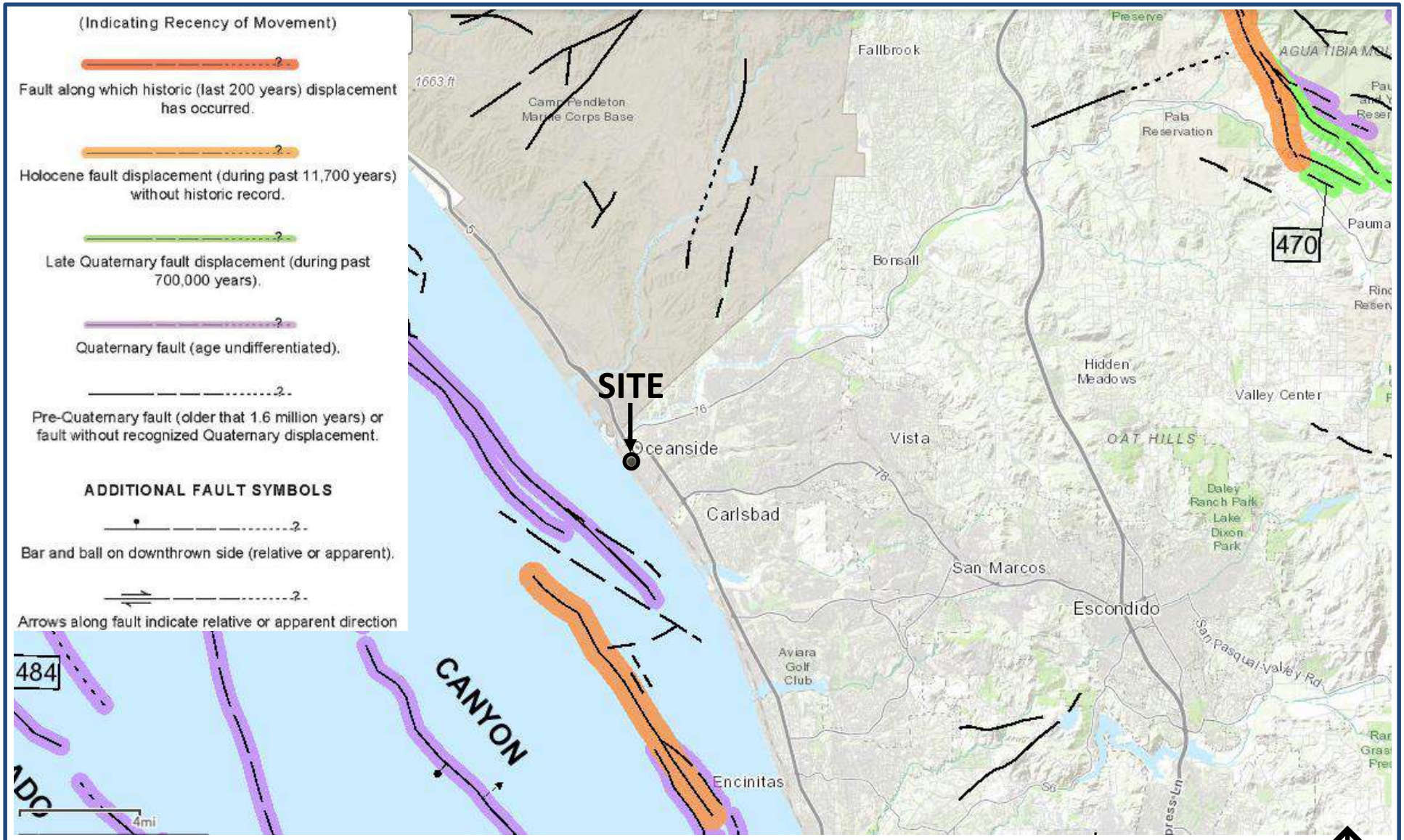
TGR
Geotechnical
Environmental
Hydrogeology
Material Testing
Construction Inspection

COUNTY LIQUEFACTION HAZARD MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

FIGURE 3


SITE
Water Bodies
Rivers
Incorporated Areas
Geohazard
Landslides
Slide Prone Formations
Gabbroic Soils > 15%
Soil-Slip Susceptibility
(USGS 2003)
High
Moderate
Landslide Susceptibility
(HAZUS 2003)
Moderate
High
Slopes > 25%
Oak Grove
Palomar Mountain
Pauma Valley
Rincon Springs
Warner Springs
Borrego Springs
Ranchita
San Felipe
Mesa Grande
Ocotillo Wells
Santa Ysabel
Julian
Scissors Crossing
Ramona
Cuyamaca
Agua Caliente Springs
Mount Laguna
Descanso
Alpine
Pine Valley
Lakeside
Miramar
Mira Mesa
Penasquitos
Pennbrook
Fallbrook
Rainbow
Live Oak Park
Bonsall
Lilac
Valley Center
Jesmond Dene
Twin Oaks
Del Dios
Rancho Santa Fe
San Dieguito
Fairbanks Ranch
Del Mar
Solana Beach
Encinitas
Leucadia
Carlsbad
La Costa
Rancho Santa Fe



Modified From: Jennings, C. W., 2010, Fault Activity Map of California and Adjacent Areas, California Division of Mines and Geology, Geologic Data Map Series, No. 6, Scale 1:750,000.

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

REGIONAL FAULT MAP
401 MISSION AVENUE
OCEANSIDE, CALIFORNIA

PROJECT NO. 22-7517

FIGURE 5

Table 1: Percolation Test Worksheet

Test Hole	Total Depth (in)	Initial Depth (in)	Final Depth (in)	ΔWater Level (in)	Initial Time (min)	Final Time (min)	Δ Time (min)	Initial Height of Water (in)	Final Height of Water (in)	Average Height of Water (in)	Gravel Factor	Infiltration Rate (in/hr)
B-2	306	182.0	182.7	0.7	0.0	30.0	30.0	124.0	123.3	123.6	0.54	0.01
	306	182.7	183.4	0.7	0.0	30.0	30.0	123.3	122.6	122.9	0.54	0.01
	306	183.4	184.1	0.7	0.0	30.0	30.0	122.6	121.9	122.2	0.54	0.01
	306	184.1	184.8	0.7	0.0	30.0	30.0	121.9	121.2	121.5	0.54	0.01
	306	181.8	182.5	0.7	0.0	30.0	30.0	124.2	123.5	123.8	0.54	0.01
	306	182.5	183.2	0.7	0.0	30.0	30.0	123.5	122.8	123.1	0.54	0.01
	306	183.2	183.9	0.7	0.0	30.0	30.0	122.8	122.1	122.4	0.54	0.01
	306	183.9	184.6	0.7	0.0	30.0	30.0	122.1	121.4	121.7	0.54	0.01
	306	180.6	181.3	0.7	0.0	30.0	30.0	125.4	124.7	125.0	0.54	0.01
	306	181.0	181.7	0.7	0.0	30.0	30.0	125.0	124.3	124.7	0.54	0.01
	306	181.7	182.4	0.7	0.0	30.0	30.0	124.3	123.6	124.0	0.54	0.01
	306	182.4	183.1	0.7	0.0	30.0	30.0	123.6	122.9	123.2	0.54	0.01

$$I_t = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

ΔH = Change in height

Δt = Time interval

r = Radius

I_t Infiltration Rate

H_{ave} Average Head Height over the time interval

APPENDIX A
REFERENCES

TGR GEOTECHNICAL
DBE, MBE & SBE firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

APPENDIX A

References

AO Architects, Option One Conceptual Site Plan, 401 Mission Avenue Mixed Use, Oceanside, CA, dated 04-08-2022.

California Department of Conservation – California Geological Survey, 2018, Earthquake Fault Zones, A Guide for Government Agencies, Property Owners/Developers and Geoscience Practitioners for Assessing Fault Rupture Hazards in California, Special Publication 42.

California Department of Conservation – Division of Mines and Geology, 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California, CDMG Special Publication 117A.

California Department of Conservation – Division of Mines and Geology, 1998, Maps of Known Active Fault Near – Source Zones in California and Adjacent Portions of Nevada.

City of Oceanside, BMP Design Manual for Permanent Site Design, Storm Water Treatment and Hydromodification Management, dated January 2022.

County of San Diego, 2007, Department of Planning and Land Use, Department of Public Works, Land Use and Environment Group, Guidelines for Determining Significance, Geologic Hazards, dated July 30, 2007.

Field, E.H., Jordan, T.H., Cornell, C.A., (2003). OpenSHA: A Developing Community-Modeling Environment for Seismic Hazard Analysis, Seismological Research Letter, 74, No. 4, p. 406-419.

Field, E.H., Biasi, G.P., Bird, P., Dawson, T.E., Felzer, K.R., Jackson, D.D., Johnson, K.M., Jordan, T.H., Madden, C., Michael, A.J., Milner, K.R., Page, M.T., Parsons, T., Powers, P.M., Shaw, B.E., Thatcher, W.R., Weldon, R.J., II, and Zeng, Y., (2013). Uniform California earthquake rupture forecast, version 3 (UCERF3)—The time-independent model: U.S. Geological Survey Open-File Report 2013–1165, 97 p.

Kennedy, M.P., Tan, S.S., Bovard, K.R., Alvarez, R.M., Watson, M.J., and Gutierrez, C.I., 2007, Geologic map of the Oceanside 30x60-minute quadrangle, California: California Geological Survey, No. 2, scale 1:100,000.

International Code Council (ICC), California Building Code, 2022 Edition.

Jennings, C. W., 2010, Fault Activity Map of California and Adjacent Areas, California Division of Mines and Geology, Geologic Data Map Series, No. 6, Scale 1:750,000.

Southern California Geotechnical, 2002, Geotechnical Investigation, Proposed Residential/Retail/Office Building, South Cleveland Street at Seagaze Drive, Oceanside, prepared for Southland Land Corp. by Southern California Geotechnical, Inc., dated October 24, 2002, SCG Project No. 02G230-1.

TGR Geotechnical, Inc., 2022, Preliminary Geotechnical Investigation Report, Mixed Use, 401 Mission Avenue, Oceanside, California 92054 (APN 1472711400). Project No. 22-7517, dated September 22, 2022

APPENDIX B
LOG OF BORINGS

TGR GEOTECHNICAL
DBE, MBE & SBE firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

THE FOLLOWING DESCRIBES THE TERMS AND SYMBOLS USED ON THE LOG OF BORINGS TO SUMMARIZE THE RESULTS OBTAINED IN THE FIELD INVESTIGATION AND SUBSEQUENT LABORATORY TESTING

DENSITY AND CONSISTENCY

The consistency of fine grained soils and the density of coarse grained soils are described on the basis of the Standard Penetration Test as follows:

COARSE GRAINED SOILS		ESTIMATED UNCONFINED COMPRESSIVE STRENGTH (Tsf)	FINE GRAINED SOILS	
Very Loose	< 4	< 0.25	Very Soft	< 2
Loose	4 – 10	0.35 – 0.50	Soft	2 – 4
Medium	10 – 30	0.50 – 1.0	Firm (Medium)	4 – 8
Dense	30 – 50	1.0 – 2.0	Stiff	8 – 15
Very Dense	> 50	2.0 – 4.0	Very Stiff	15 – 30
		> 4.0	Hard	> 30

PARTICLE SIZE DEFINITION (As per ASTM D2487 and D422)

Boulder	⇒ Larger than 12 inches	Coarse Sands	⇒ No. 10 to No. 4 sieve
Cobbles	⇒ 3 to 12 inches	Medium Sands	⇒ No. 40 to No. 10 sieve
Coarse Gravel	⇒ 3/4 to 3 inches	Fine Sands	⇒ No. 200 to 40 sieve
Fine Gravel	⇒ No. 4 to 3/4 inches	Silt	⇒ 5µm to No. 200 sieve
		Clay	⇒ Smaller than 5µm

SOIL CLASSIFICATION

Soils and bedrock are classified and described based on their engineering properties and characteristics using ASTM D2487 and D2488.

Percentage description of minor components:

Trace	1 – 10%	Some	20 – 35%
Little	10 – 20%	And or y	25 – 50%

Stratified soils description:

Parting	0 to 1/16 inch thick	Layer	½ to 12 inches thick
Seam	1/16 to ½ inch thick	Stratum	> 12 inches thick

SOIL CLASSIFICATION CHART

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

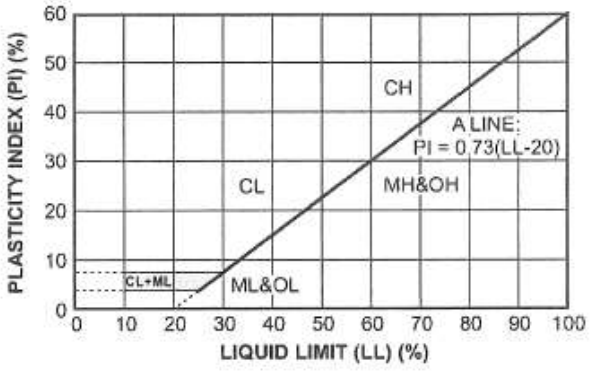
LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line with P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for GW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP
More than 12 percent ..... GM, GC, SM, SC
5 to 12 percent ..... Borderline cases requiring dual symbols

PLASTICITY CHART



PARTICLE SIZE LIMITS

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	
3"	¾"	NO. 4	NO. 10	NO. 40	NO. 200	

TGR Geotechnical Environmental Hydrogeology Material Testing Construction Inspection

LOG OF BORING EXPLANATION

LOG OF EXPLORATORY BORING B-1

Project Number: **22-7517**
Project Name: **401 Mission Avenue, Oceanside**
Date Drilled: **8/24/22 - 8/24/22**
Ground Elev: **58**

Logged By: **RA**
Project Engineer: **SG**
Drill Type: **LAR Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Elevation (ft)	Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
58	0							Surface is 5 inches of concrete with rebar.			
								FILL: Silty SAND- reddish brown, moist, medium dense, fine grained, some fine grained gravel, pieces of brick.			Corrosion
55	5				31		SP	NATIVE: Old Paralic Deposits (Qop): SAND- reddish brown, moist, dense, fine grained.	7	128	
50											
	10				>50			...No Recovery.			
45								Refusal at 10.25 feet due to a large rock. No groundwater encountered during drilling. No caving observed. Boring backfilled with Portland cement grout (approximately 3.5 cubic feet) and surface repaired with rapid set concrete upon completion. Ground elevation estimated using Google Earth.			
	15										
40											

LOG OF BORING 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/20/22

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 2

TGR GEOTECHNICAL, INC.

LOG OF EXPLORATORY BORING B-2

Sheet **1** of **1**

Project Number:	**22-7517**	Logged By:	**RA**
Project Name:	**401 Mission Avenue, Oceanside**	Project Engineer:	**SG**
Date Drilled:	**8/24/22 - 8/24/22**	Drill Type:	**LAR Hollow Stem**
Ground Elev:	**56**	Drive Wt & Drop:	**140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Elevation (ft)	Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
55								Surfacce is 6 inches of concrete with rebar. FILL: Silty SAND- reddish brown, moist, medium dense, fine grained, roots from 0-1.5 feet, pieces of brick.			Max, Shear
50	5			■	35		SP	NATIVE: Old Paralic Deposits (Qop): SAND- reddish brown to brown, moist, dense, fine grained.	5	126	Shear
45	10			■	>50		MLS	Old Paralic Deposits (Qop): SILT, SAND and GRAVEL- tan, moist, hard, fine grained sand, trace corase grained sand, fine to medium grained gravel, some orange oxidation.	11	125	Shear
40	15			■	>50		MLS	...Same as above, fine to coarse grained gravel.	6	119	-200= 21.9%
35	20			■	>50		MLS	...Same as above.	10	126	Shear, -200= 28.0%
30	25			■	>50		SP	Old Paralic Deposits (Qop): SAND- golden brown, moist, very dense, fine to coarse grained, trace fine grained gravel, some silt.	7	115	Shear, Consol -200= 21.5%
25	30							Total Depth: 25.5 feet.			

No groundwater encountered during drilling.
No caving observed.
Boring utilized for percolation testing.
Boring backfilled with Portland cement grout (approximately 7 cubic feet) and surface repaired with rapid set concrete upon completion.

Ground elevation estimated using Google Earth.

LOG OF BORING 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/20/22

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 3

TGR GEOTECHNICAL, INC.

LOG OF EXPLORATORY BORING B-3

Project Number: **22-7517**
Project Name: **401 Mission Avenue, Oceanside**
Date Drilled: **8/24/22 - 8/24/22**
Ground Elev: **59**

Logged By: **RA**
Project Engineer: **SG**
Drill Type: **LAR Hollow Stem**
Drive Wt & Drop: **140lbs / 30in**

Shelby Tube | Standard Split Spoon | No recovery | Modified California | Water Table ATD

Elevation (ft)	Depth (ft)	Graphic Log	FIELD RESULTS: Bulk Sample	Drive Sample	SPT blows/ft (or equivalent N)	Pocket Pen (tsf)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	LAB RESULTS: Moisture Content (%)	Dry Density, (pcf)	Other Tests
								Surface is 5 inches of concrete with rebar.			
								FILL: Silty SAND- reddish brown to brown, moist, medium dense, fine grained, trace fine to coarse gravel, pieces of brick.			
55	5			■	27		SP		9	123	Consol
								NATIVE: Old Paralic Deposits (Qop): SAND- dark reddish brown to dark brown, moist, dense, fine grained.			
50	10			■	>50		SP	Old Paralic Deposits (Qop): SAND- light brown, slightly moist, very dense, fine grained, trace fine grained gravel.	3	118	Consol
								Refusal at 12 feet due to a large rock.			
								No groundwater encountered during drilling. No caving observed. Boring backfilled with Portland cement grout (approximately 4 cubic feet) and surface repaired with rapid set concrete upon completion.			
45	15							Ground elevation estimated using Google Earth.			
40											

This Boring Log should be evaluated in conjunction with the complete geotechnical report. This Boring Log represents conditions observed at the specific location and date indicated, it is not warranted to be representative of subsurface conditions at other locations and times.

PLATE 4

TGR GEOTECHNICAL, INC.

LOG OF BORING 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/20/22

APPENDIX C
LABORATORY TEST RESULTS

TGR GEOTECHNICAL
DBE, MBE & SBE firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

TGR 20 YEARS ANNIVERSARY

APPENDIX C

Laboratory Testing Procedures and Results

In-Situ Moisture and Dry Density Determination (ASTM D2216 and D7263): Moisture content and dry density determinations were performed on relatively undisturbed samples obtained from the test borings. The results of these tests are presented in the boring logs. Where applicable, only moisture content was determined from "undisturbed" or disturbed samples.

Maximum Density and Optimum Moisture Content (ASTM D1557): The maximum dry density and optimum moisture content of typical materials were determined in accordance with ASTM Test Method D1557. The results of these tests are presented in the table below:

Sample Location	Sample Description	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
B-2 @ 0-5 feet	Silty Sand	136.0	8.0

Direct Shear Strength (ASTM D3080): Direct shear test was performed on selected remolded samples and relatively undisturbed samples, which were soaked for a minimum of 24 hours under a surcharge equal to the applied normal force during testing. After transfer of the sample to the shear box, and reloading the sample, pore pressures set up in the sample due to the transfer were allowed to dissipate for a period of approximately 1-hour prior to application of shearing force. The sample was tested under various normal loads, a motor-driven, strain-controlled, direct-shear testing apparatus at a strain rate of less than 0.001 to 0.5 inches per minute (depending upon the soil type). The test results are presented in the test data and in the table below:

Sample Location	Sample Description	Friction Angle (degrees)	Apparent Cohesion (psf)
B-2 @ 0-5 feet	Silty Sand (Remolded)	34	132
B-2 @ 5 feet	Sand	36	11
B-2 @ 10 feet	Old Paralic Deposits	39	354
B-2 @ 20 feet	Old Paralic Deposits	38	276
B-2 @ 24 feet	Sand	29	792

Consolidation Tests (ASTM D2435): Consolidation test were performed on selected, relatively undisturbed ring samples. Samples were placed in a consolidometer and loads were applied in geometric progression. The percent consolidation for each load cycle was recorded as the ratio of the amount of vertical compression to the original 1-inch height. The consolidation pressure curves are presented in the test data.

Soluble Sulfate (CAL 417A): The soluble sulfate content of selected sample was determined by standard geochemical methods. The test results are presented in the test data and in the table below:

Sample Location	Sample Description	Water Soluble Sulfate in Soil, (% by Weight)	Sulfate Content (ppm)	Exposure Class*
B-1 @ 0-5 feet	Silty Sand	0.0341	341	S0

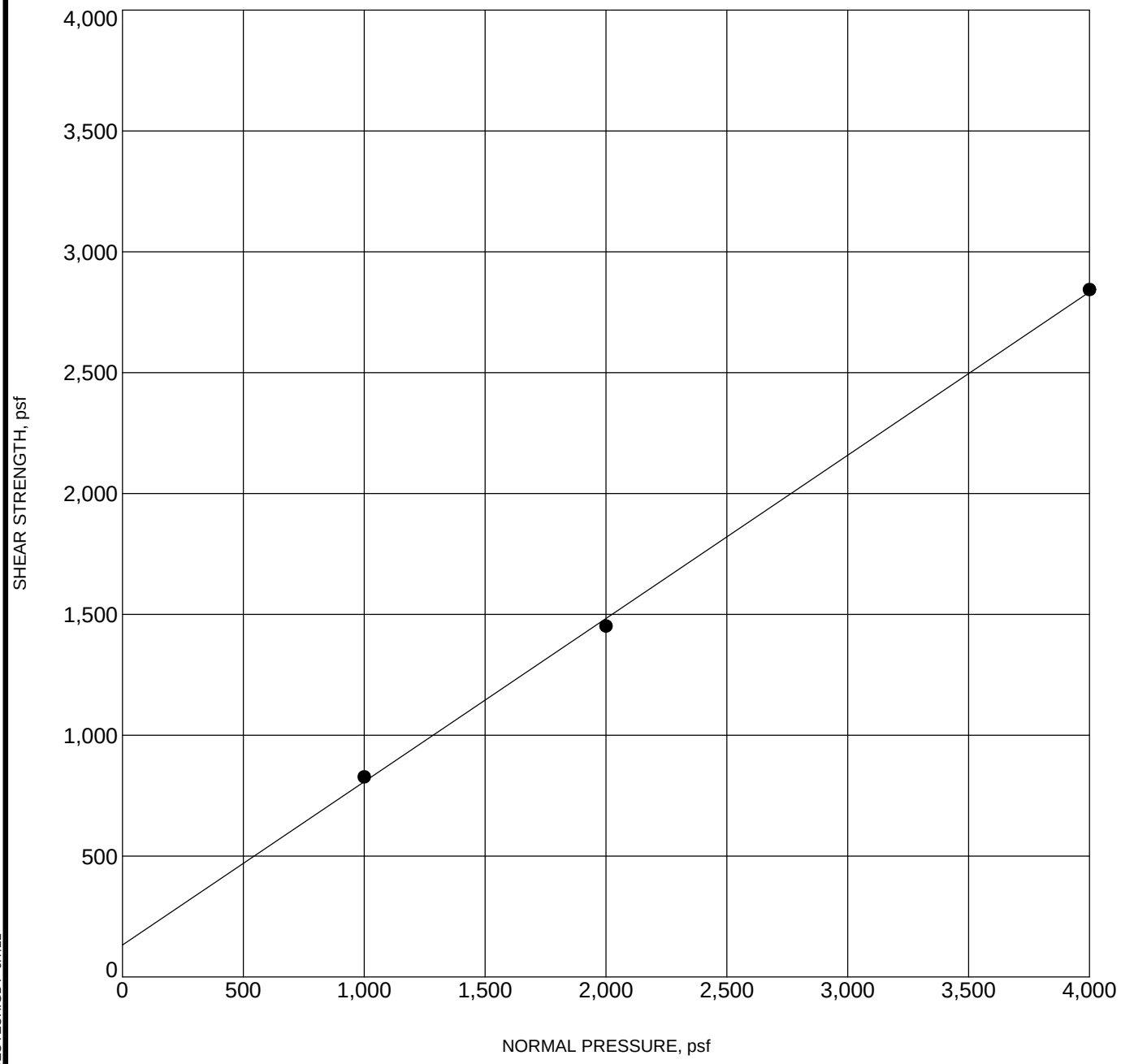
* Based on the current version of ACI 318-19 Building Code, Table No. 19.3.1.1; Exposure Categories and Classes.

Corrosivity Tests (CAL 422, CAL 643 and CAL 747): Electrical conductivity, pH, and soluble chloride tests were conducted on representative samples and the results are provided in the test data and in the table below:

Sample Location	Sample Description	Soluble Chloride (CAL 422) (ppm)	Electrical Resistivity (CAL 643) (ohm-cm)	pH (CAL 747)	Potential Degree of Attack on Steel
B-1 @ 0-5 feet	Silty Sand	74	3,600	7.2	Moderate

Passing No. 200 Sieve (ASTM D1140): Typical materials were washed over No. 200 sieve. The test results are presented below:

Sample Location	% Passing No. 200 Sieve
B-2 @ 15 feet	21.9%
B-2 @ 20 feet	28.0%
B-2 @ 24 feet	21.5%



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**0-5**	**Silty Sand - Remolded 90% RC**	**122**	**8**	**132**	**34**

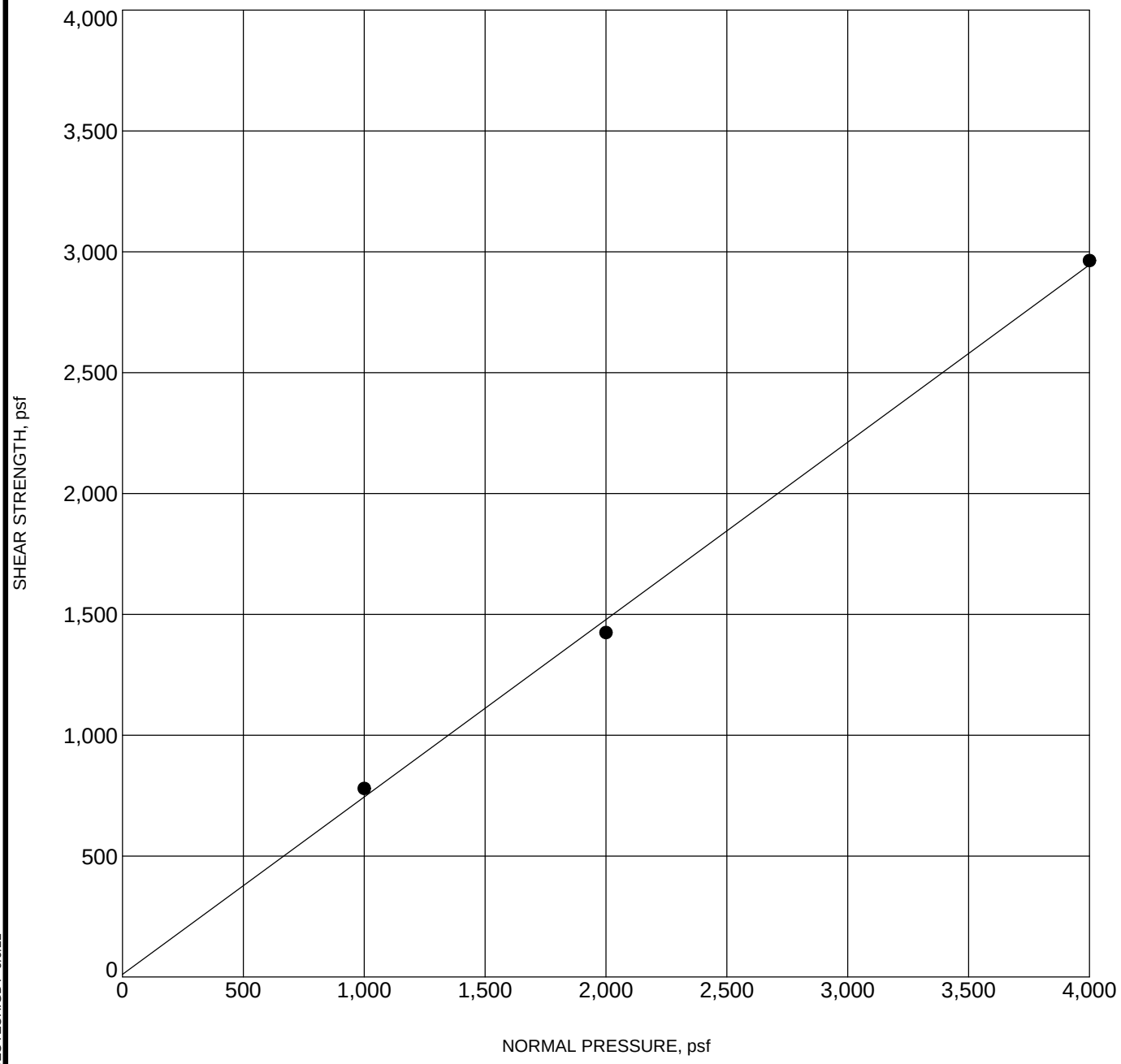
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/7/22



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**5.0**	**Old Paralic Deposits - Sand**	**126**	**5**	**11**	**36**

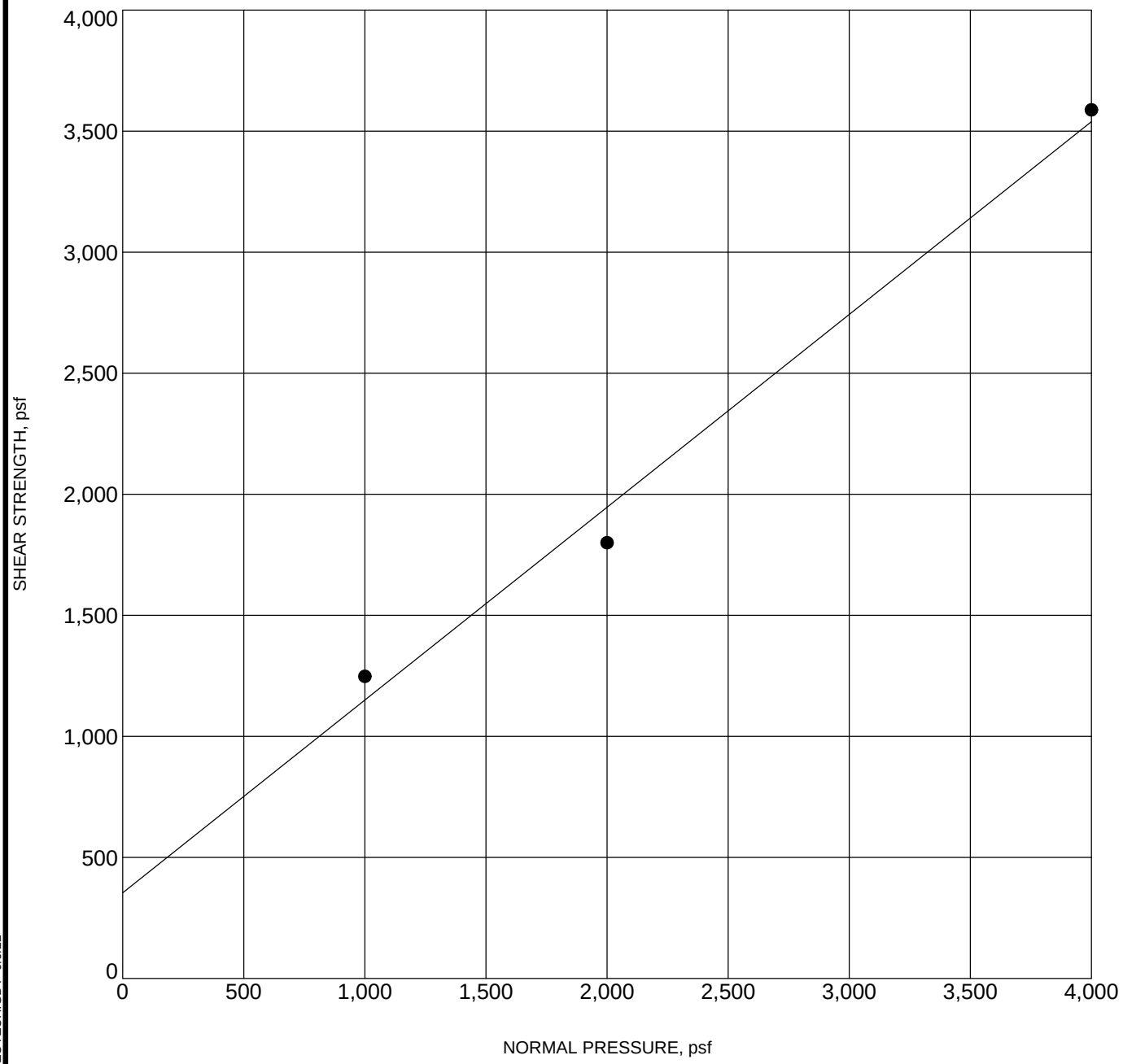
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**10.0**	**Old Paralic Deposits - Silt and Gravel**	**125**	**11**	**354**	**39**

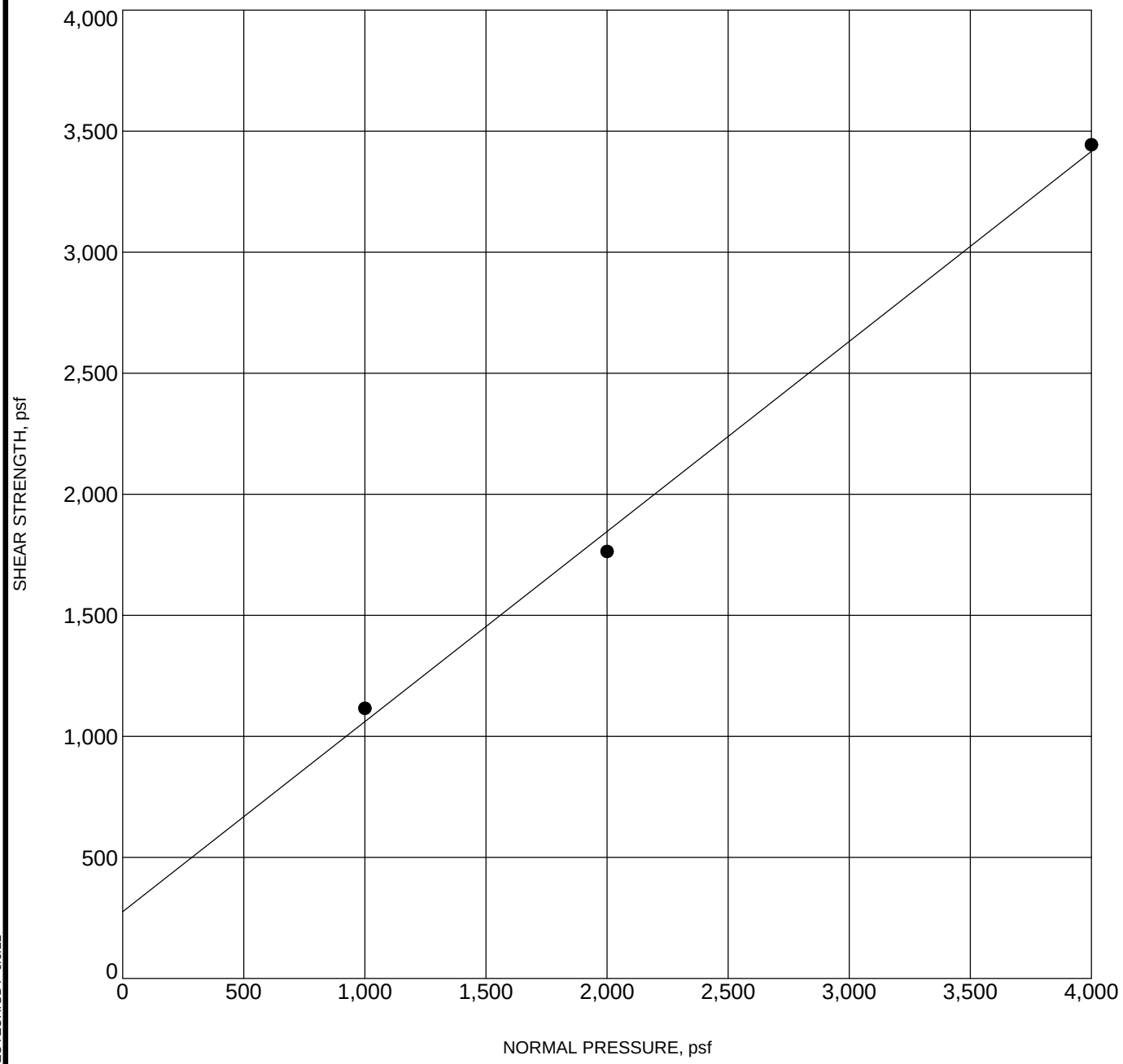
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**20.0**	**Old Paralic Deposits - Silt and Gravel**	**126**	**10**	**276**	**38**

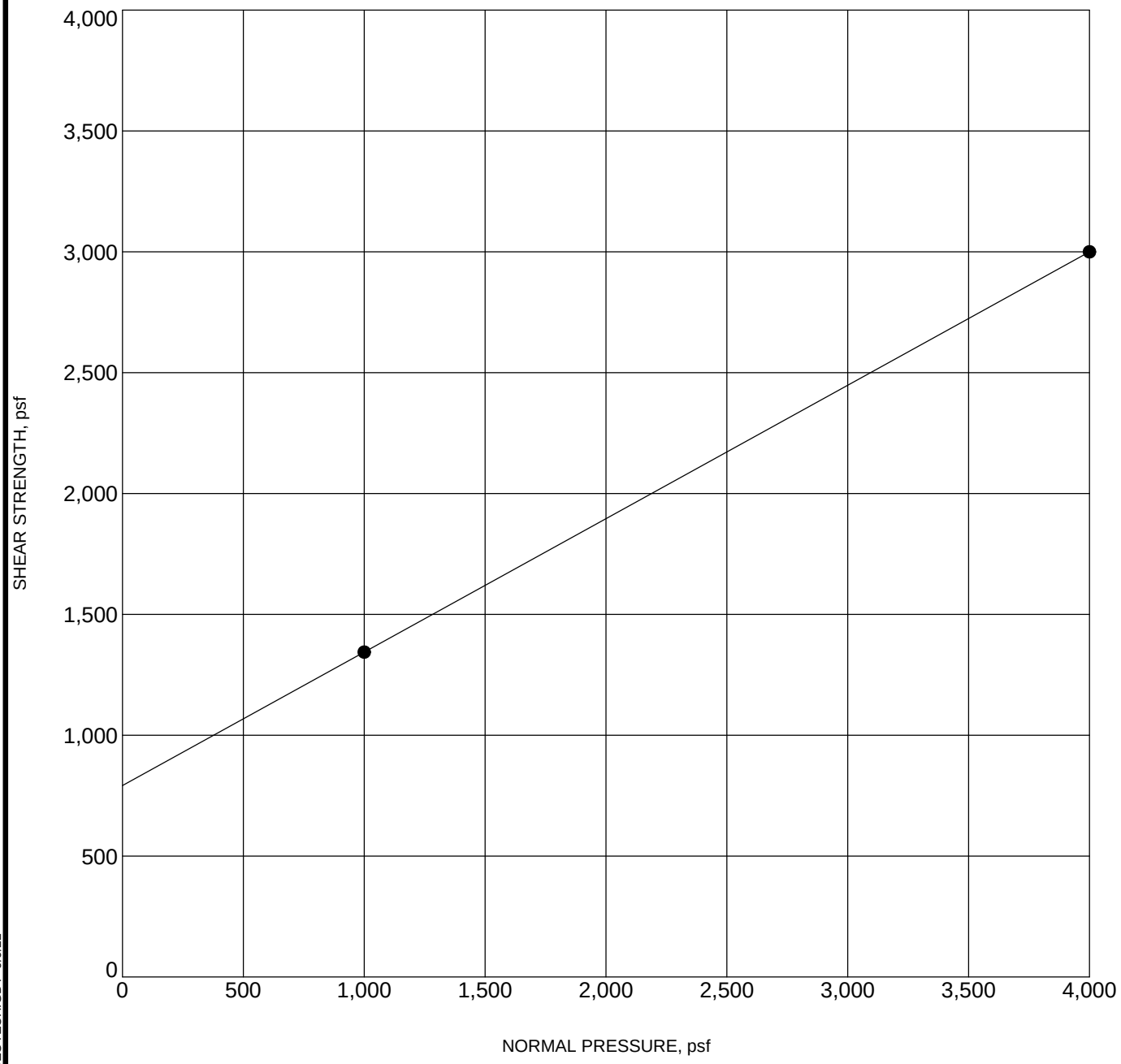
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%	c	ϕ
● **B-2**	**24.0**	**Old Paralic Deposits - Sand**	**115**	**7**	**792**	**29**

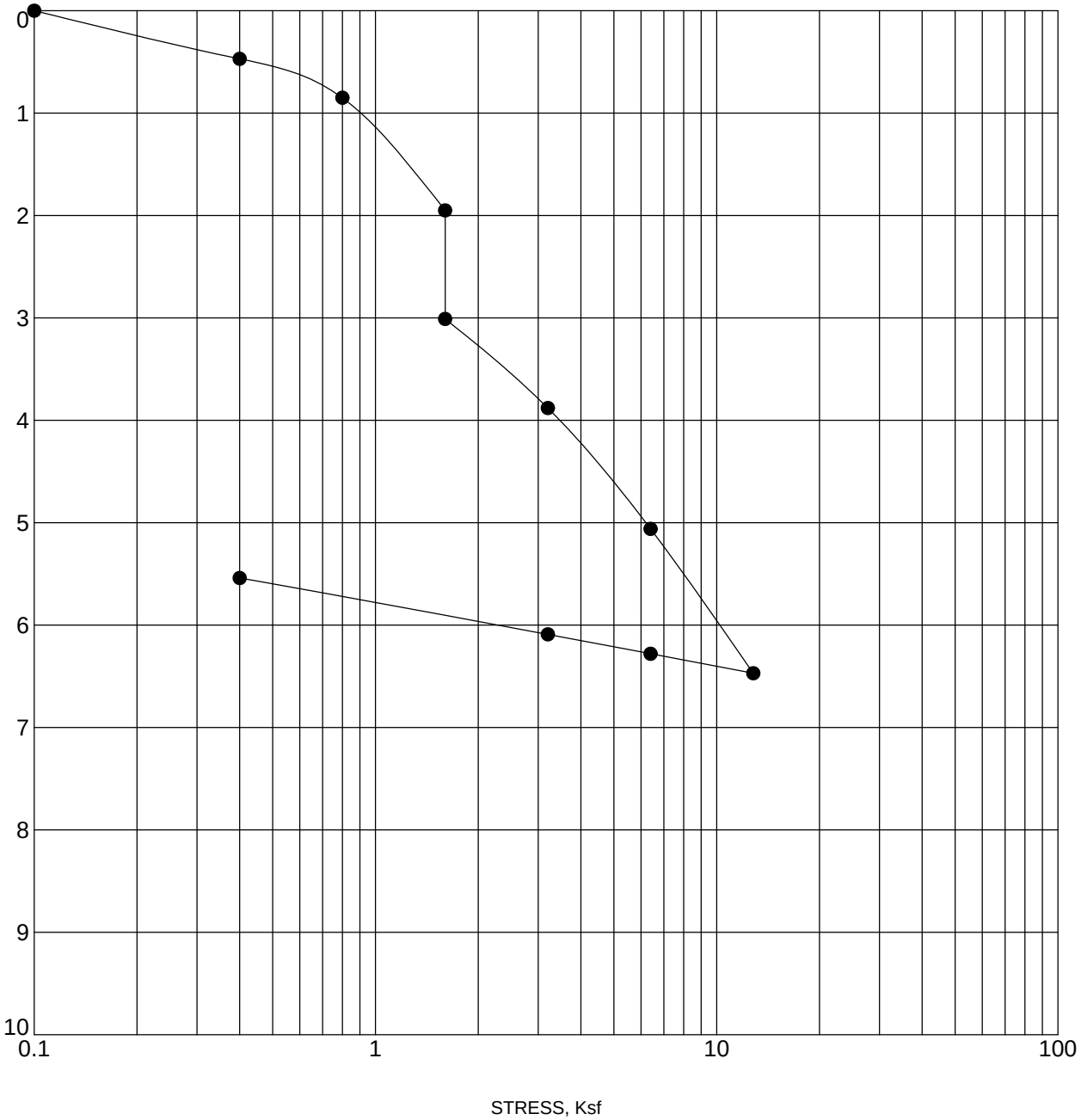
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

DIRECT SHEAR TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US DIRECT SHEAR 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%
● **B-2** **24.0**		**Old Paralic Deposits - Sand**	**115**	**7**

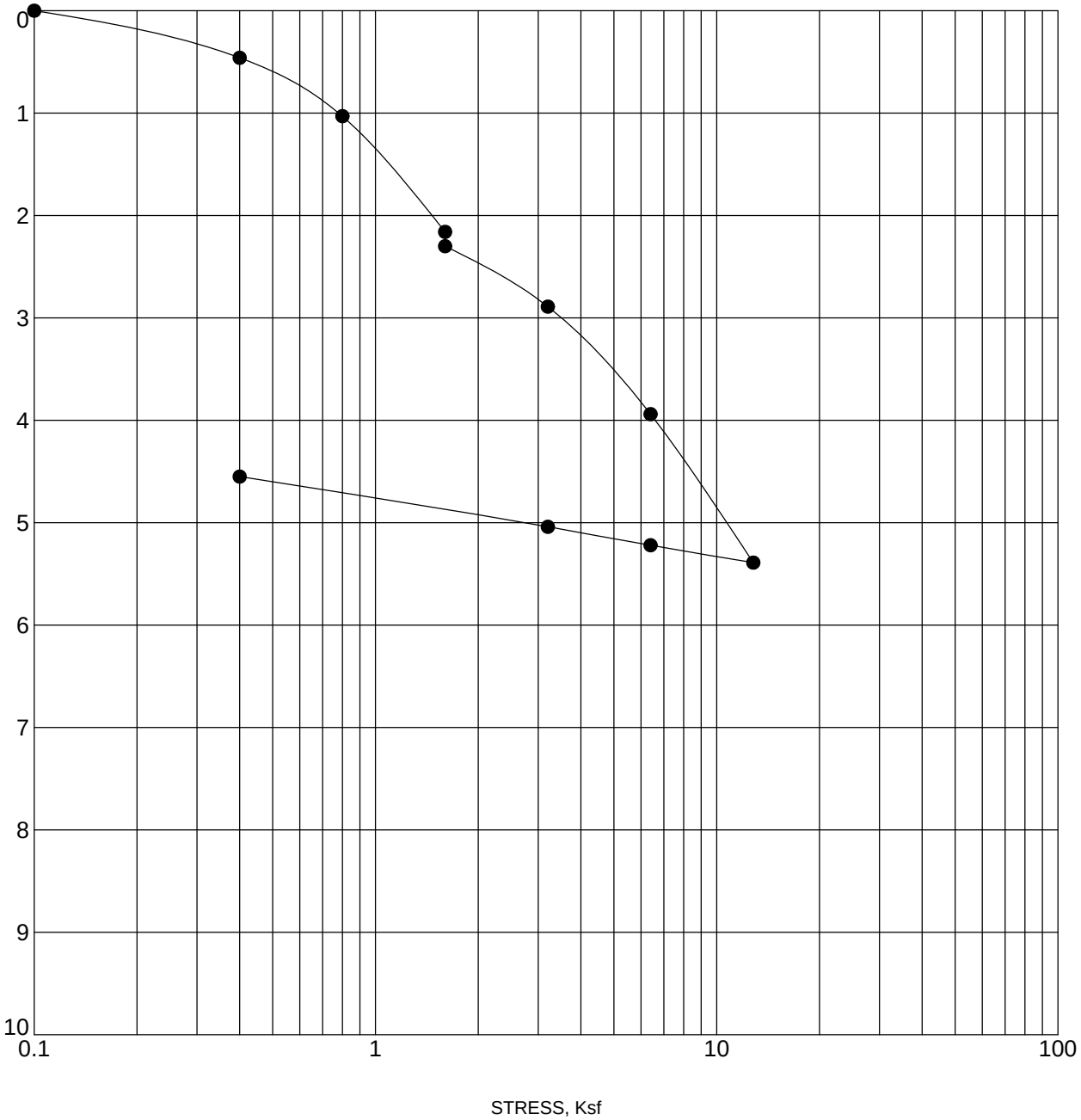
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

CONSOLIDATION TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US CONSOL STRAIN 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification			Classification	γ_d	MC%
●	**B-3**	**5.0**	**Old Paralic Deposits - Sand**	**123**	**9**

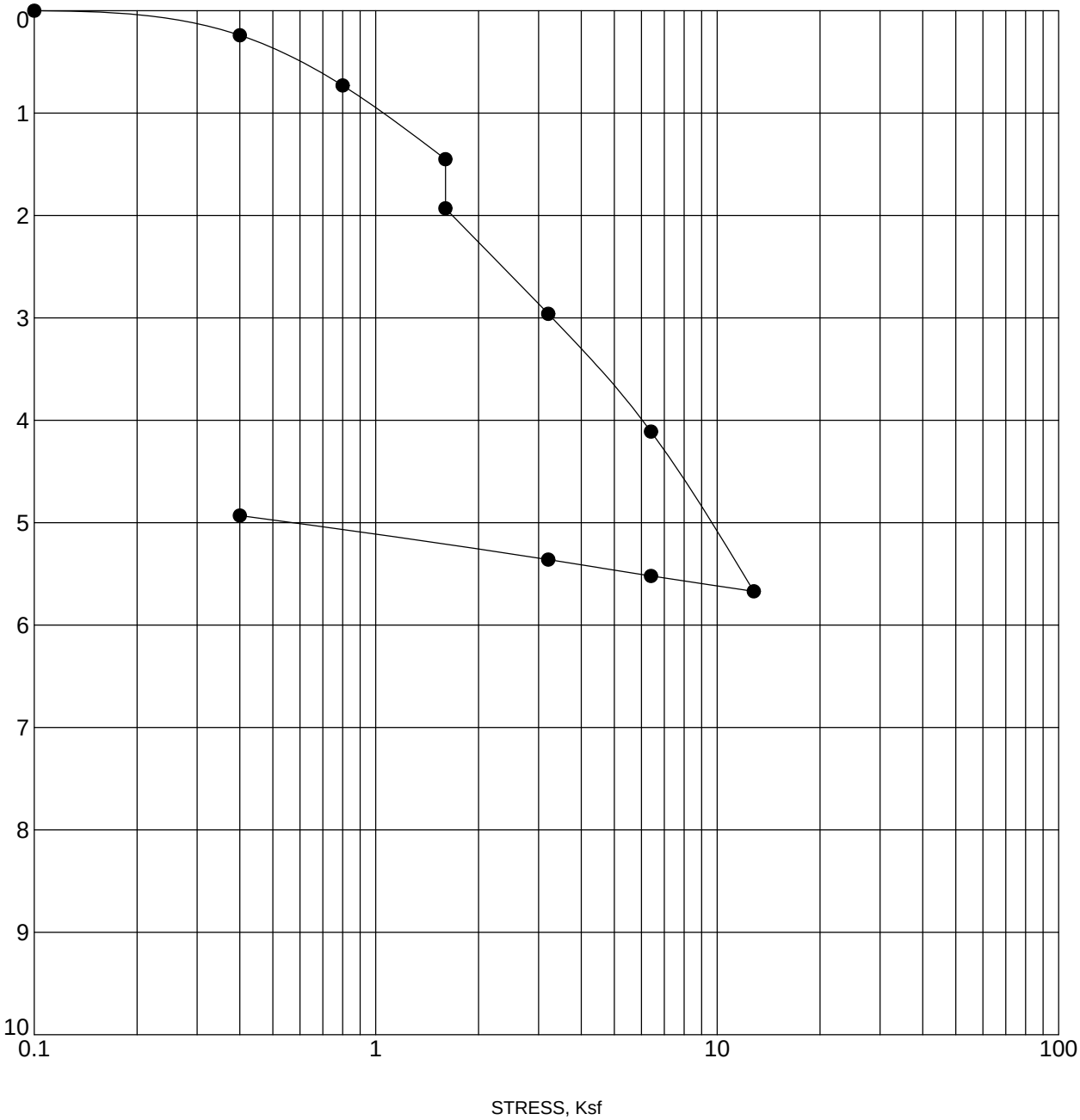
TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

CONSOLIDATION TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US CONSOL STRAIN 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22



Specimen Identification		Classification	γ_d	MC%
● **B-3** **10.0**		**Old Paralic Deposits - Sand**	**118**	**3**

TGR GEOTECHNICAL, INC.
3037 S. Harbor Blvd
Santa Ana, CA 92704
Telephone: 714-641-7189
Fax: 714-641-7190

CONSOLIDATION TEST

Project Number: 22-7517

Project Name: 401 Mission Avenue, Oceanside

US CONSOL STRAIN 22-7517 401 MISSION AVENUE, OCEANSIDE.GPJ TGR GEOTECH.GDT 9/9/22

ANAHEIM TEST LAB, INC

196 Technology Dr., Unit D
Irvine, CA 92618
Phone (949) 336-6544

TO:

TGR GEOTECHNICAL
3037 S. HARBOR BLVD.
SANTA ANA, CA 92704

DATE: 8/30/2022

P.O. NO.: Verbal

LAB NO.: C-6281

SPECIFICATION: CTM-643/417/422

MATERIAL: Soil

Project No.: 22-7517
Project: 401 Mission Ave.
Sample ID: B1 @ 0-5'

ANALYTICAL REPORT

CORROSION SERIES

SUMMARY OF DATA

pH	MIN. RESISTIVITY per CT. 643 ohm-cm	SOLUBLE SULFATES per CT. 417 ppm	SOLUBLE CHLORIDES per CT. 422 ppm
7.2	3,600	341	74

RESPECTFULLY SUBMITTED

WES BRIDGER LAB MANAGER

APPENDIX D
SITE SEISMICITY

TGR GEOTECHNICAL
DBE, MBE & SBE firm
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
www.tgrgeotech.com

TABLE 1

SITE SPECIFIC GROUND MOTION ANALYSIS

22-7517 401 Mission Avenue, Oceanside

SA Period (sec)	Probabilistic Spectral Acceleration MCER (g)	Deterministic Spectral Acceleration (g)	Is Largest Deterministic Spectral Acceleration <1.5*Fa	Deterministic MCER	Site Specific MCER	2/3 of Site Specific MCER	80% Code Design	Site Specific Design Response Spectrum
	Rotated Maximum	Rotated Maximum 84th Percentile						
0.01	0.6136	0.7507		0.7507	0.6136	0.4091	0.2457	0.4091
0.02	0.6164	0.7488		0.7488	0.6164	0.4109	0.2643	0.4109
0.03	0.6300	0.7554		0.7554	0.6300	0.4200	0.2830	0.4200
0.05	0.7180	0.8309		0.8309	0.7180	0.4787	0.3204	0.4787
0.075	0.9033	0.9954		0.9954	0.9033	0.6022	0.3670	0.6022
0.1	1.0780	1.1532		1.1532	1.0780	0.7187	0.4137	0.7187
0.15	1.3083	1.4017		1.4017	1.3083	0.8722	0.5071	0.8722
0.2	1.4516	1.6169		1.6169	1.4516	0.9678	0.5675	0.9678
0.25	1.5452	1.7675		1.7675	1.5452	1.0301	0.5675	1.0301
0.3	1.5910	1.8734		1.8734	1.5910	1.0606	0.5675	1.0606
0.4	1.5676	1.9414	No	1.9414	1.5676	1.0451	0.5675	1.0451
0.5	1.4838	1.9006		1.9006	1.4838	0.9892	0.5675	0.9892
0.75	1.1852	1.5984		1.5984	1.1852	0.7901	0.5675	0.7901
1	0.9606	1.3629		1.3629	0.9606	0.6404	0.5173	0.6404
1.5	0.6667	0.9785		0.9785	0.6667	0.4445	0.3449	0.4445
2	0.4950	0.7464		0.7464	0.4950	0.3300	0.2587	0.3300
3	0.3173	0.4804		0.4804	0.3173	0.2115	0.1724	0.2115
4	0.2235	0.3258		0.3258	0.2235	0.1490	0.1293	0.1490
5	0.1669	0.2289		0.2289	0.1669	0.1113	0.1035	0.1113
7.5	0.1010	0.1035		0.1035	0.1035	0.0690	0.0690	0.0690
10	0.0669	0.0564		0.0564	0.0621	0.0414	0.0414	0.0414

Code Sds	0.709	Crs =	0.898	Code Ss =	1.064
Code Sd1	0.647	Cr1 =	0.909	Code S1 =	0.388
To	0.18	Code Fa =	1	Sms =	1.064
Ts	0.91	Code Fv =	2.5	Sm1 =	0.97
TL	8				
Input					

Site Specific S_{DS} = 0.955

Site Specific S_{D1} = 0.667

FIGURE 1
Site Specific Design Response Spectra
22-7517 401 Mission Avenue, Oceanside

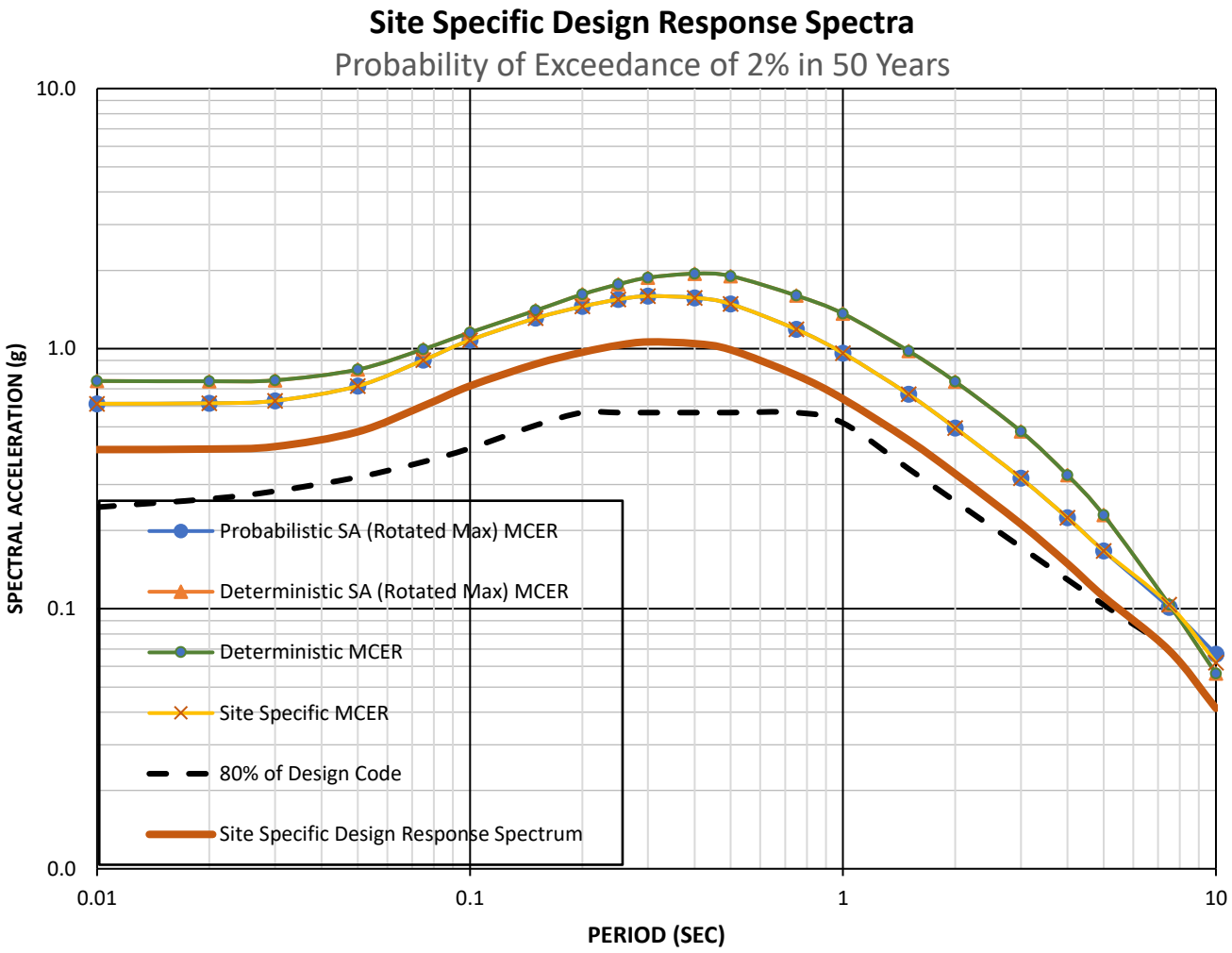


TABLE 2

Probabilistic Response Spectrum ASCE 7-16 Method 1

22-7517 401 Mission Avenue, Oceanside

Period (g)	Sa-OpenSHA (NGAWest2) (RotD50)	Ratio (RotD100 to RotD50)	RotD100	Risk Coefficients	Probabilistic Spectral Acceleration MCE_R (g)
0.01	0.574	1.19	0.683	0.898	0.614
0.02	0.577	1.19	0.686	0.898	0.616
0.03	0.590	1.19	0.702	0.898	0.630
0.05	0.672	1.19	0.800	0.898	0.718
0.075	0.845	1.19	1.006	0.898	0.903
0.1	1.009	1.19	1.200	0.898	1.078
0.15	1.214	1.20	1.457	0.898	1.308
0.2	1.336	1.21	1.617	0.898	1.452
0.25	1.409	1.22	1.719	0.899	1.545
0.3	1.450	1.22	1.769	0.899	1.591
0.4	1.415	1.23	1.740	0.901	1.568
0.5	1.337	1.23	1.645	0.902	1.484
0.75	1.055	1.24	1.309	0.906	1.185
1	0.852	1.24	1.057	0.909	0.961
1.5	0.592	1.24	0.733	0.909	0.667
2	0.439	1.24	0.545	0.909	0.495
3	0.279	1.25	0.349	0.909	0.317
4	0.195	1.26	0.246	0.909	0.223
5	0.146	1.26	0.184	0.909	0.167
7.5	0.087	1.28	0.111	0.909	0.101
10	0.057	1.29	0.074	0.909	0.067

Crs = 0.898

Cr1 = 0.909

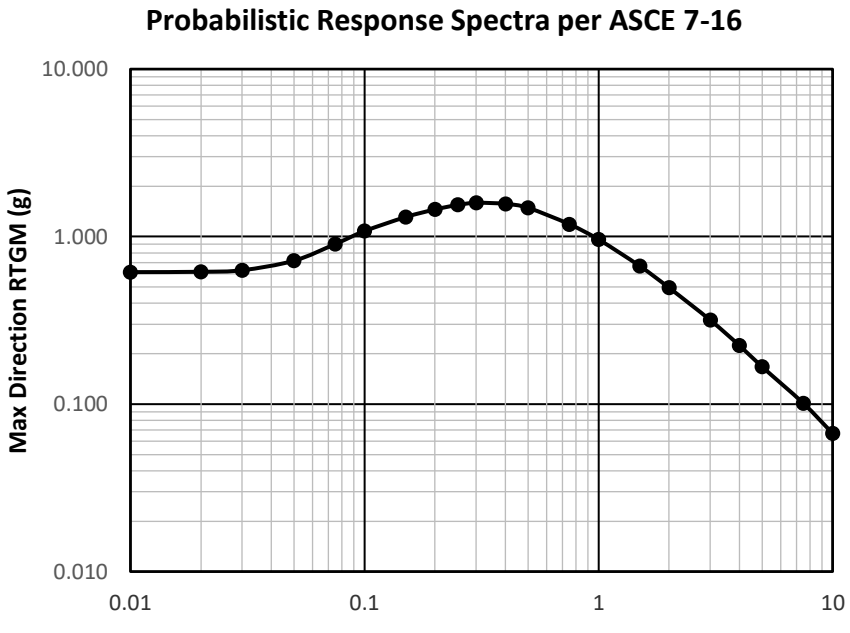
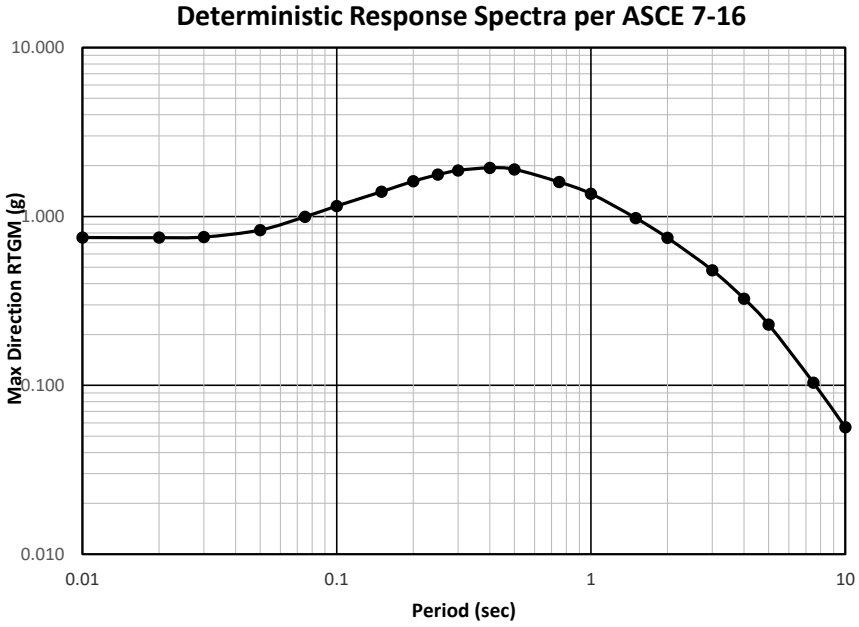


TABLE 3

Deterministic Response Spectrum ASCE 7-16

22-7517 401 Mission Avenue, Oceanside

Period (g)	84th-Percentile Spectral Acceleration (g)						**84th-Percentile Spectral Acceleration (g)-(Controlling)**	Max Dir Scale factor	Max Dir Deterministic SA (g)
	Newport-Inglewood Offshore	Rose Canyon	Oceanside Alt1	Elsinore					
0.01	0.631	0.573	0.520	0.292			0.631	1.190	0.751
0.02	0.629	0.575	0.520	0.291			0.629	1.190	0.749
0.03	0.635	0.581	0.523	0.295			0.635	1.190	0.755
0.05	0.698	0.642	0.578	0.329			0.698	1.190	0.831
0.075	0.836	0.774	0.699	0.403			0.836	1.190	0.995
0.1	0.969	0.902	0.817	0.477			0.969	1.190	1.153
0.15	1.178	1.103	1.000	0.588			1.178	1.190	1.402
0.2	1.325	1.241	1.128	0.664			1.325	1.220	1.617
0.25	1.443	1.342	1.220	0.712			1.443	1.225	1.767
0.3	1.523	1.406	1.286	0.743			1.523	1.230	1.873
0.4	1.572	1.435	1.315	0.729			1.572	1.235	1.941
0.5	1.533	1.388	1.268	0.694			1.533	1.240	1.901
0.75	1.269	1.132	1.020	0.556			1.269	1.260	1.598
1	1.073	0.949	0.847	0.452			1.073	1.270	1.363
1.5	0.764	0.670	0.598	0.327			0.764	1.280	0.979
2	0.579	0.505	0.450	0.247			0.579	1.290	0.746
3	0.370	0.320	0.282	0.166			0.370	1.300	0.480
4	0.249	0.216	0.188	0.119			0.249	1.310	0.326
5	0.175	0.152	0.136	0.088			0.175	1.310	0.229
7.5	0.079	0.069	0.066	0.048			0.079	1.310	0.104
10	0.043	0.037	0.037	0.028			0.043	1.310	0.056



USGS web services were down for some period of time and as a result this tool wasn't operational, resulting in *timeout* error.
USGS web services are now operational so this tool should work as expected.

22-7517

Oceanside, CA, USA

Latitude, Longitude: 33.1958696, -117.3794834



Date	5/7/2024, 2:51:16 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Stiff Soil

Type	Value	Description
S_S	1.064	MCE_R ground motion. (for 0.2 second period)
S_1	0.388	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.143	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	0.762	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.074	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.468	MCE_G peak ground acceleration
F_{PGA}	1.132	Site amplification factor at PGA
PGA_M	0.53	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	1.064	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.186	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.514	Factored deterministic acceleration value. (0.2 second)
S1RT	0.388	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.427	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.623	Factored deterministic acceleration value. (Peak Ground Acceleration)
PGA_{UH}	0.468	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration
C_{RS}	0.898	Mapped value of the risk coefficient at short periods
C_{R1}	0.909	Mapped value of the risk coefficient at a period of 1 s
C_V	1.313	Vertical coefficient

DISCLAIMER

While the information presented on this website is believed to be correct, SEAOC /OSHPD and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in this web application should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. SEAOC / OSHPD do not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the seismic data provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the search results of this website.

U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Input

Edition

Dynamic: Conterminous U.S. 2014 (update…

Spectral Period

Peak Ground Acceleration

Latitude

Decimal degrees

33.195

Time Horizon

Return period in years

2475

Longitude

Decimal degrees, negative values for western longitudes

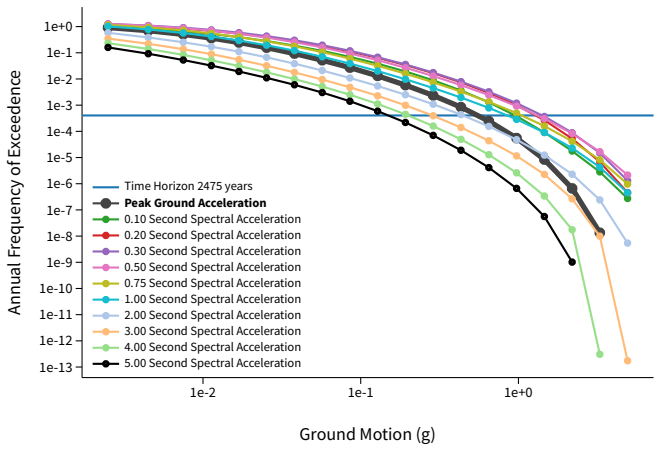
-117.3798

Site Class

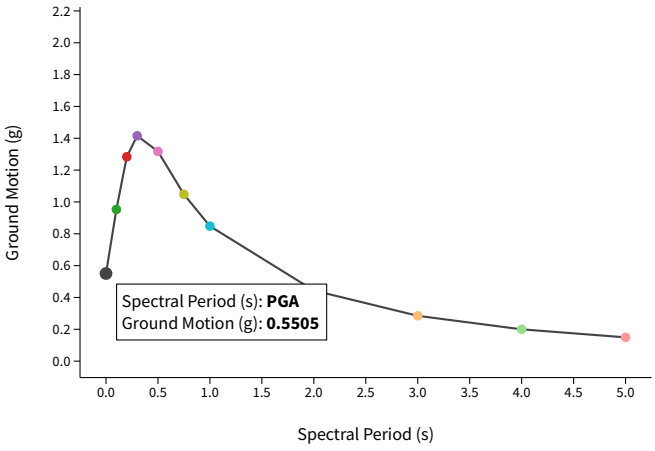
259 m/s (Site class D)

Hazard Curve

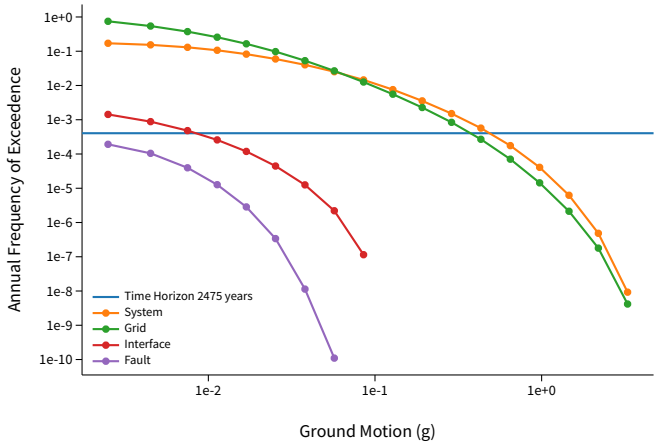
Hazard Curves



Uniform Hazard Response Spectrum



Component Curves for Peak Ground Acceleration

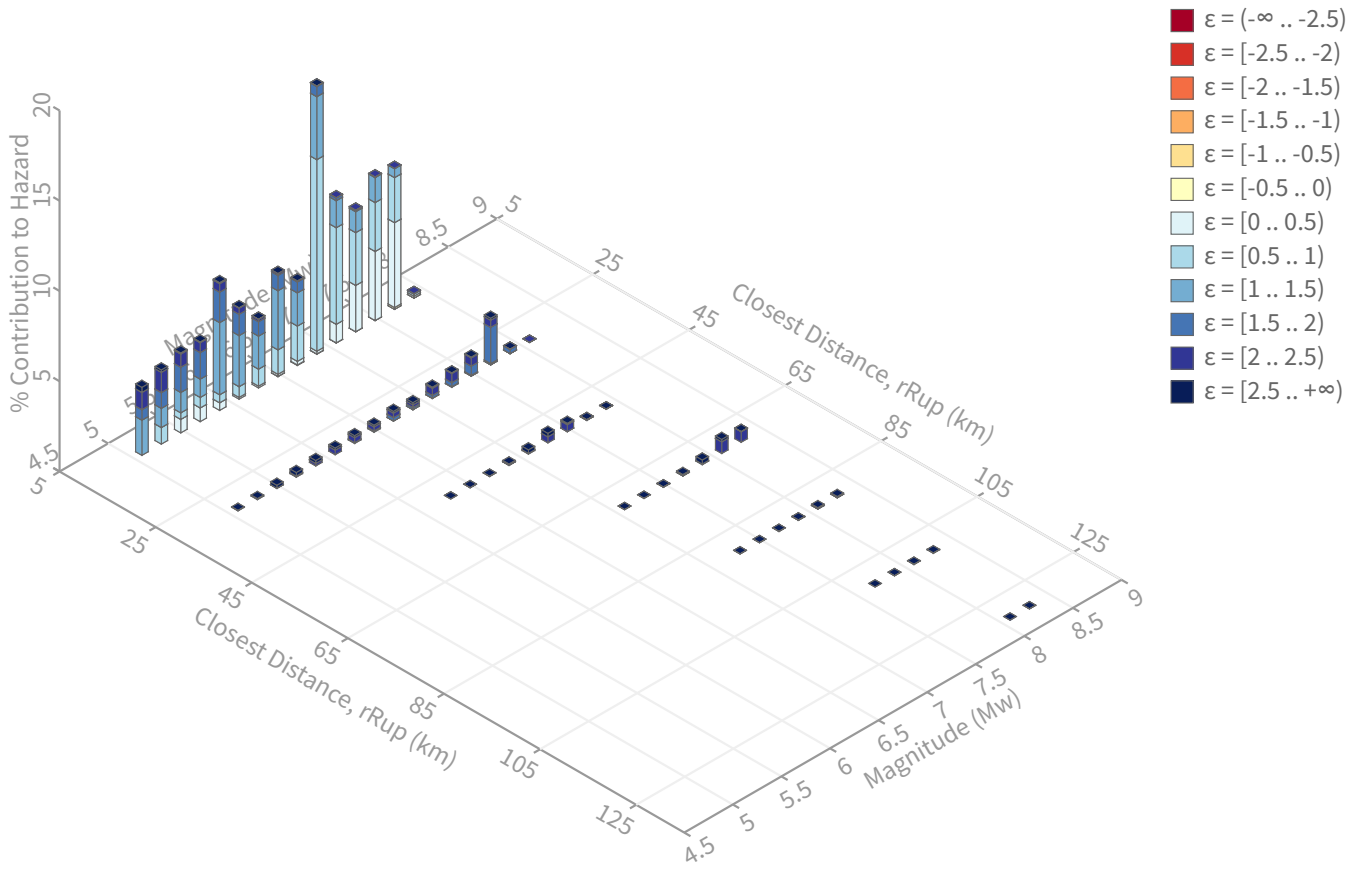


View Raw Data

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 0.55054777 g

Recovered targets

Return period: 2751.853 yrs
Exceedance rate: 0.0003633915 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.1 %

Mean (over all sources)

m: 6.69
r: 12.63 km
ε_0: 1.15 σ

Mode (largest m-r bin)

m: 6.9
r: 8.39 km
ε_0: 0.9 σ
Contribution: 14.85 %

Mode (largest m-r-ε_0 bin)

m: 6.91
r: 7.6 km
ε_0: 0.77 σ
Contribution: 10.61 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

Deaggregation Contributors

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
UC33brAvg_FM31	System							37.59
Newport-Inglewood (Offshore) [13]		6.40	7.25	0.58	117.436°W	33.163°N	235.22	14.20
Rose Canyon [19]		7.97	6.40	1.13	117.436°W	33.141°N	220.82	7.98
Oceanside alt1 [1]		13.72	7.10	0.99	117.603°W	33.063°N	234.72	6.27
Elsinore (Temecula) rev [5]		38.20	7.61	2.01	117.008°W	33.341°N	64.74	1.41
Rose Canyon [18]		8.94	6.75	1.07	117.407°W	33.118°N	196.29	1.31
UC33brAvg_FM32	System							32.41
Newport-Inglewood (Offshore) [13]		6.40	7.24	0.60	117.436°W	33.163°N	235.22	14.24
Rose Canyon [19]		7.97	6.46	1.10	117.436°W	33.141°N	220.82	6.87
Oceanside alt2 [7]		13.76	7.58	0.74	117.606°W	33.065°N	235.57	2.29
Elsinore (Temecula) rev [5]		38.20	7.65	1.98	117.008°W	33.341°N	64.74	1.51
Rose Canyon [18]		8.94	6.75	1.06	117.407°W	33.118°N	196.29	1.38
Coronado Bank alt2 [7]		34.04	7.56	1.95	117.667°W	33.006°N	231.88	1.00
UC33brAvg_FM31 (opt)	Grid							15.19
PointSourceFinite: -117.380, 33.208		5.25	5.52	0.90	117.380°W	33.208°N	0.00	2.39
PointSourceFinite: -117.380, 33.208		5.25	5.52	0.90	117.380°W	33.208°N	0.00	2.39
PointSourceFinite: -117.380, 33.262		8.43	5.85	1.25	117.380°W	33.262°N	0.00	1.35
PointSourceFinite: -117.380, 33.262		8.43	5.85	1.25	117.380°W	33.262°N	0.00	1.35
UC33brAvg_FM32 (opt)	Grid							14.82
PointSourceFinite: -117.380, 33.208		5.25	5.52	0.90	117.380°W	33.208°N	0.00	2.38
PointSourceFinite: -117.380, 33.208		5.25	5.52	0.90	117.380°W	33.208°N	0.00	2.38
PointSourceFinite: -117.380, 33.262		8.43	5.85	1.25	117.380°W	33.262°N	0.00	1.35
PointSourceFinite: -117.380, 33.262		8.43	5.85	1.25	117.380°W	33.262°N	0.00	1.35