UC San Diego

Triton Center Project
UC San Diego Project Number: 5148

Addendum No. 11 to the Program Environmental Impact Report for the 2018 La Jolla Campus Long Range Development Plan

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1 INTRODUCTION

1.1 PROJECT SUMMARY

This addendum addresses the consistency of proposed Triton Center Project (Triton Center; proposed Project) with the 2018 Long Range Development Plan (LRDP) for the University of California, San Diego (UC San Diego) La Jolla Campus and its associated certified Program Environmental Impact Report (EIR), which assesses the potential environmental impacts resulting from the implementation of the land use plan (State Clearinghouse [SCH] No. 2016111019).

Project name:	Triton Center Project
Project location:	University of California, San Diego
Lead agency's name and address:	The Regents of the University of California 1111 Franklin Street Oakland, CA 94607
Contact person:	Lauren Kahal Lievers, Principal Planner Campus Planning Office, University of California, San Diego
Project sponsor's name and address:	University of California, San Diego 9500 Gilman Drive, MC 0074 La Jolla, California 92093-0074
Location of administrative record:	Campus Planning Office University of California, San Diego Torrey Pines Center South 10280 North Torrey Pines Road, Suite 460 La Jolla, CA 92093
Previously Certified 2018 LRDP Program EIR:	The 2018 LRDP is a comprehensive land use plan that guides physical development on the La Jolla Campus for the purposes of accommodating projected population increases as well as new and expanded program initiatives. The 2018 LRDP and its associated certified 2018 LRDP Program EIR are available at the following locations: • Campus Planning Office, University of California, San Diego Torrey Pines Center South

10280 North Torrey Pines Road, Suite 460
La Jolla, CA 92093

- Online at: http://lrdp.ucsd.edu/campus/review/final.html

1.2 PURPOSE OF CONSISTENCY REVIEW

This document evaluates whether the proposed Project is consistent with the programmed growth identified in the 2018 LRDP and whether the physical environmental impacts associated with the proposed Project are within the scope of those identified in the 2018 LRDP Program EIR. This document serves as an addendum to the 2018 LRDP Program EIR, as described in the California Environmental Quality Act (CEQA) determination (see Section 1.3, *CEQA Determination*).

The 2018 LRDP is a comprehensive land use plan that guides physical development on UC San Diego's La Jolla Campus for the purposes of accommodating projected population increases as well as new and expanded program initiatives (UC San Diego 2018a). The 2018 LRDP Program EIR (Volume I) was prepared in accordance with CEQA Guidelines §15168 and Public Resources Code §21094 and analyzes environmental impacts associated with implementation of the 2018 LRDP (UC San Diego 2018b). The 2018 LRDP Program EIR analyzes the full complement of land uses and physical development proposed under the 2018 LRDP and identifies mitigation measures to reduce significant adverse direct, indirect, and cumulative impacts associated with that growth to the maximum extent feasible.

This addendum documents whether the land use and development associated with the proposed Project is consistent with the objectives, land use designations, and development and population forecasts included in the 2018 LRDP as analyzed by the 2018 LRDP Program EIR. This project-specific evaluation is consistent with the intent of CEQA Guidelines §15168(c), which states that *"later activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared."* Pursuant to CEQA Guidelines §15168(c)(4), a Lead Agency should use *"…a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the program EIR."* This addendum also documents whether any of the conditions described in CEQA Guidelines §15162 have occurred. If any of these conditions have occurred, a subsequent EIR is required; if they have not occurred, an addendum to the 2018 LRDP Program EIR may be appropriate (CEQA Guidelines §15164).

1.3 CEQA DETERMINATION

UC San Diego previously prepared the 2018 LRDP Program EIR, which was certified by The Regents of the University of California (The Regents) on November 15, 2018. Based on that programmatic environmental evaluation, the environmental evaluation of this proposed Project, and pursuant to the CEQA Guidelines:

☒ The University finds that the proposed Project WOULD NOT have new significant effects on the environment that have not already been addressed by the 2018 LRDP Program EIR, no substantial changes have occurred with respect to the circumstances under which the proposed Project will be undertaken, and no new information of substantial importance to the proposed Project has been identified. However, minor technical changes or additions are necessary, and in accordance with CEQA Guidelines §15164, an ADDENDUM has been prepared.

☐ The University finds that although the proposed Project WOULD have one or more new significant effects on the environment, there will not be a significant effect in this case because new Project-specific mitigation measures have been identified that would reduce the effects to a less than significant level. In accordance with CEQA Guidelines §15162, a TIERED MITIGATED NEGATIVE DECLARATION has been prepared.

☐ The University finds that the proposed Project MAY have a new significant effect on the environment that was not adequately addressed by the 2018 LRDP Program EIR or a significant effect previously examined will be substantially more severe than described in the 2018 LRDP Program EIR, and there may not be feasible mitigation which would reduce the new significant effect to a less than significant level. In accordance with CEQA Guidelines §15162, a TIERED ENVIRONMENTAL IMPACT REPORT is required.

Lauren Kahal Lievers, Principal Planner Campus Planning Office University of California, San Diego	Date

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2 PROJECT DESCRIPTION

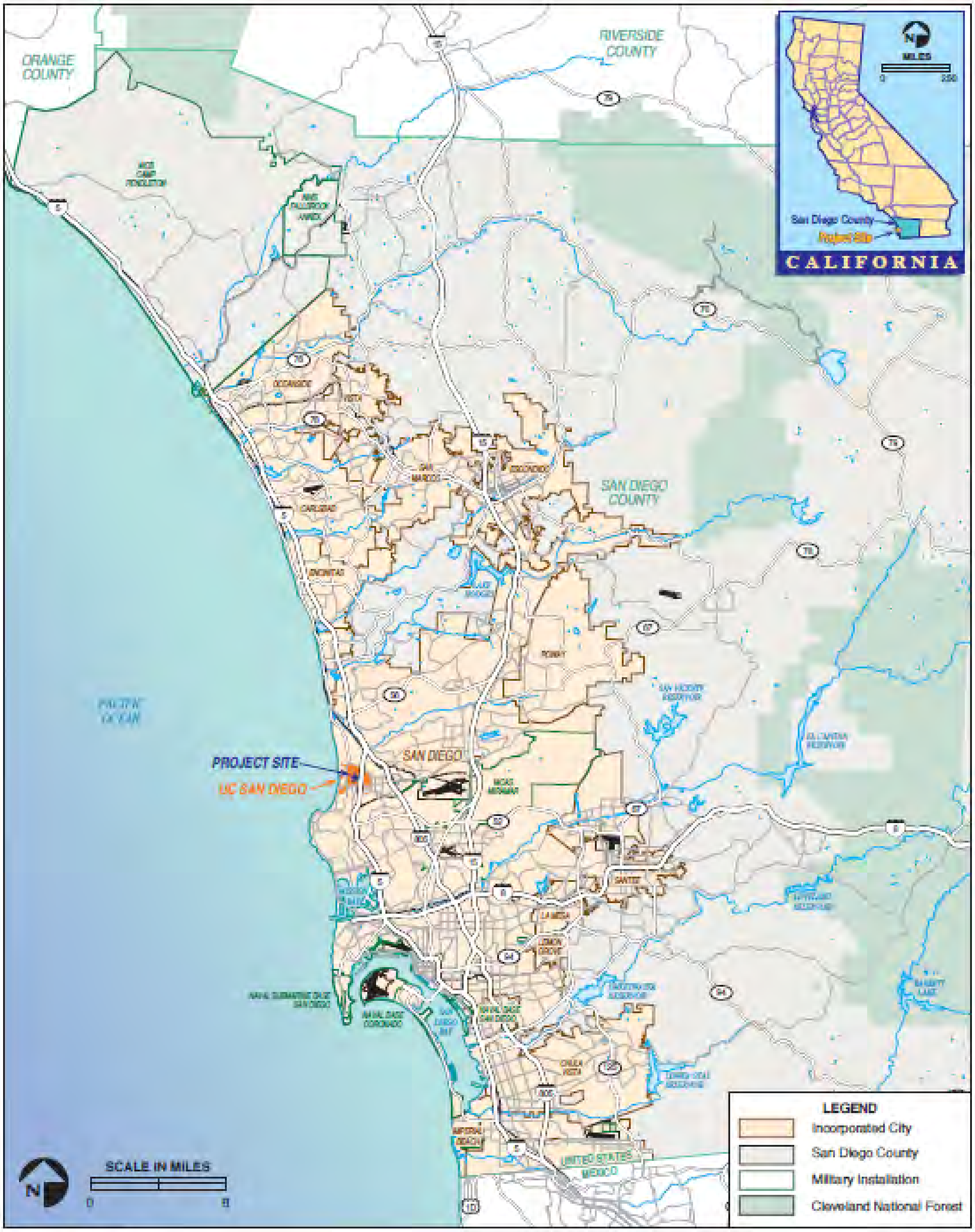
2.1 REGIONAL LOCATION AND SETTING

The UC San Diego La Jolla campus is located adjacent to the communities of La Jolla and University City, within the northwest portion of the City of San Diego (see Figure 2-1 of the 2018 LRDP Program EIR). The campus is generally composed of three distinct, but contiguous, geographical areas: Scripps Institution of Oceanography (SIO) (178.7 acres), West Campus (634.8 acres), and East Campus (265.7 acres). West Campus and East Campus are bisected by Interstate (I-) 5. The La Jolla del Sol housing complex (12 acres) is located to the southeast of these larger geographical areas and is not contiguous with the rest of the campus. The beach properties, including the Audrey Geisel House and an adjacent coastal canyon and beachfront parcel (25.8 acres), and the Torrey Pines Gliderport, Torrey Pines Center, and Torrey Pines Court (41.0 acres) are also included in the 2018 LRDP. Refer to Section 2.2 of the 2018 LRDP Program EIR for additional descriptions of these areas, which encompass a total of 1,158 acres in La Jolla (see Figure 2-2 of the 2018 LRDP Program EIR).

The Project site is located on the West Campus within the University Center neighborhood (see Figure 1 and Figure 2). The University Center neighborhood is located near the geographic center of West Campus and includes Geisel Library, Price Center, Conrad Prebys Music Center, Science and Engineering Research Facility, Gilman Parking Structure, Student Service Center and several student support services such as Career Services and Student Health and Wellness Center. The University Center neighborhood is envisioned by the 2018 LRDP to serve as a walkable, centralized "downtown" hub of campus activities. Specifically, this neighborhood has a focus on undergraduate programs and provides a place where the campus population can mingle, meet, study, eat, or relax (see Page 3.9-5 of the 2018 LRDP Program EIR).

The University Center neighborhood is generally bounded by Gilman Drive to the south, Library Walk to the west, Russell Lane to the east, and Matthews Lane to the north. The University Center neighborhood also includes Geisel Library to the northeast (pictured above looking north along Library Walk).

Figure 1. Regional Vicinity UC San Diego



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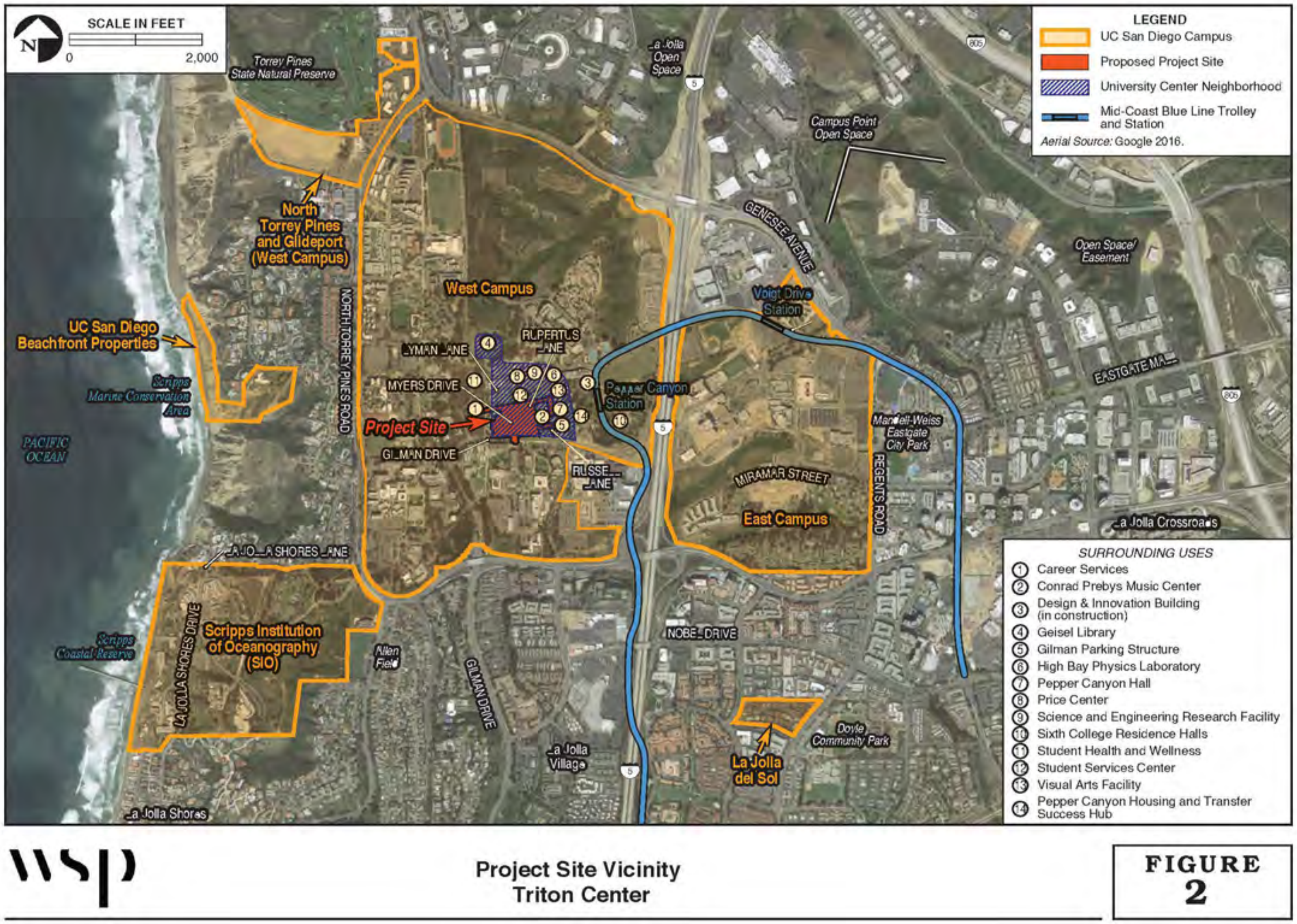
Regional Vicinity
UC San Diego

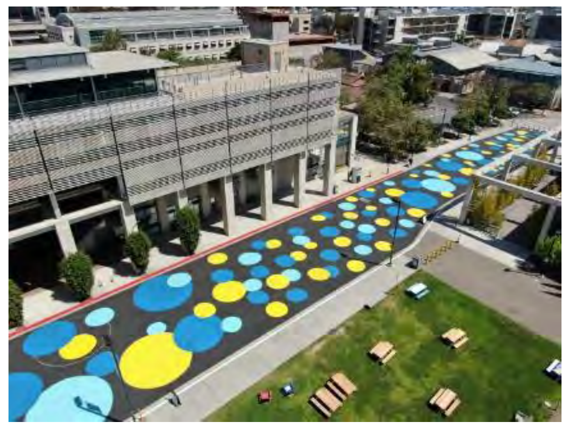
FIGURE
1

Figure 2. Project Site Vicinity Triton Center



The University Center neighborhood is bound by Library Walk to the west and Gilman Drive to the south. The eastern boundary is comprised of three structures: Gilman Parking Structure, Pepper Canyon Hall, and Visual Arts. Lyman Lane and the Price Center make up the northern boundary (see Figure 2-6 of the 2018 LRDP Program EIR).

UC San Diego, one of the region's largest trip generators, implements an extensive Transportation Demand Management (TDM) program. The Mid-Coast Corridor Transit Project, which was completed in November 2021, extended Blue Line Trolley service to both the West and East Campus.



Rupertus Lane was recently converted to a pedestrian only plaza as a part of the phased implementation of the University Center Tactical Mobility and Placemaking Plan.

The Pepper Canyon neighborhood recently underwent a transformational change as a part of the Mid-Coast Corridor Transit Project. This project extended the San Diego Metropolitan Transit System Blue Line Trolley from Santa Fe Depot in Downtown San Diego to the Westfield University Towne Centre (UTC) Transit Center, now serving major activity centers including UC San Diego. Within the vicinity of UC San Diego, the new aerial tracks cross over to the west side of I-5. The aerial trolley line runs through the east side of West Campus and continues along the northern boundary of East Campus along Voigt Drive. Two new trolley stations are now located at UC San Diego: Central Campus Station, located on the West Campus, approximately 800 feet (i.e., a 5-minute walk) from the Project site (see Figure 3); and UC San Diego Health La Jolla Station, located on the East Campus. Related development includes the extension of Rupertus Lane from its intersection with Russell Lane farther east to the Central Campus Station and the conversion of this vehicular road to a new multi-modal promenade now referred to as the Rupertus Lane Street Plaza. This multi-modal pathway serves as the primary pedestrian and bicyclist connection from the Central Campus Station into the West Campus. It provides increased connectivity for individuals commuting via the Central Campus Station to various parts of campus such as University Center and Geisel Library.

2.2 PROJECT SITE AND SETTING

The Project site includes approximately 7.7 acres generally bounded by the Rupertus Lane Street Plaza to the north, Gilman Drive to the south, Russell Lane to the east, and Center

Hall to the west. This area is bisected by Myers Drive, which is a two-way road[1] providing northbound and southbound access. The Project site is located in the center of the West Campus where high volumes of pedestrian and vehicular traffic converge and multiple transit opportunities are available.

Existing development at the Project site is inconsistent in nature and does not maximize the opportunities for a campus "town center." The proposed Project would replace the existing collection of 1940s-era, one-story buildings. These buildings are costly to maintain, energy-inefficient, and in need of seismic improvements. The proposed mixed-use redevelopment would create "town center" development, including a mix of uses, urban densities, and pedestrian-oriented ground floors with connection to adjacent neighborhoods and the new light rail transit system (see Section 2.3 of the 2018 LRDP Program EIR).

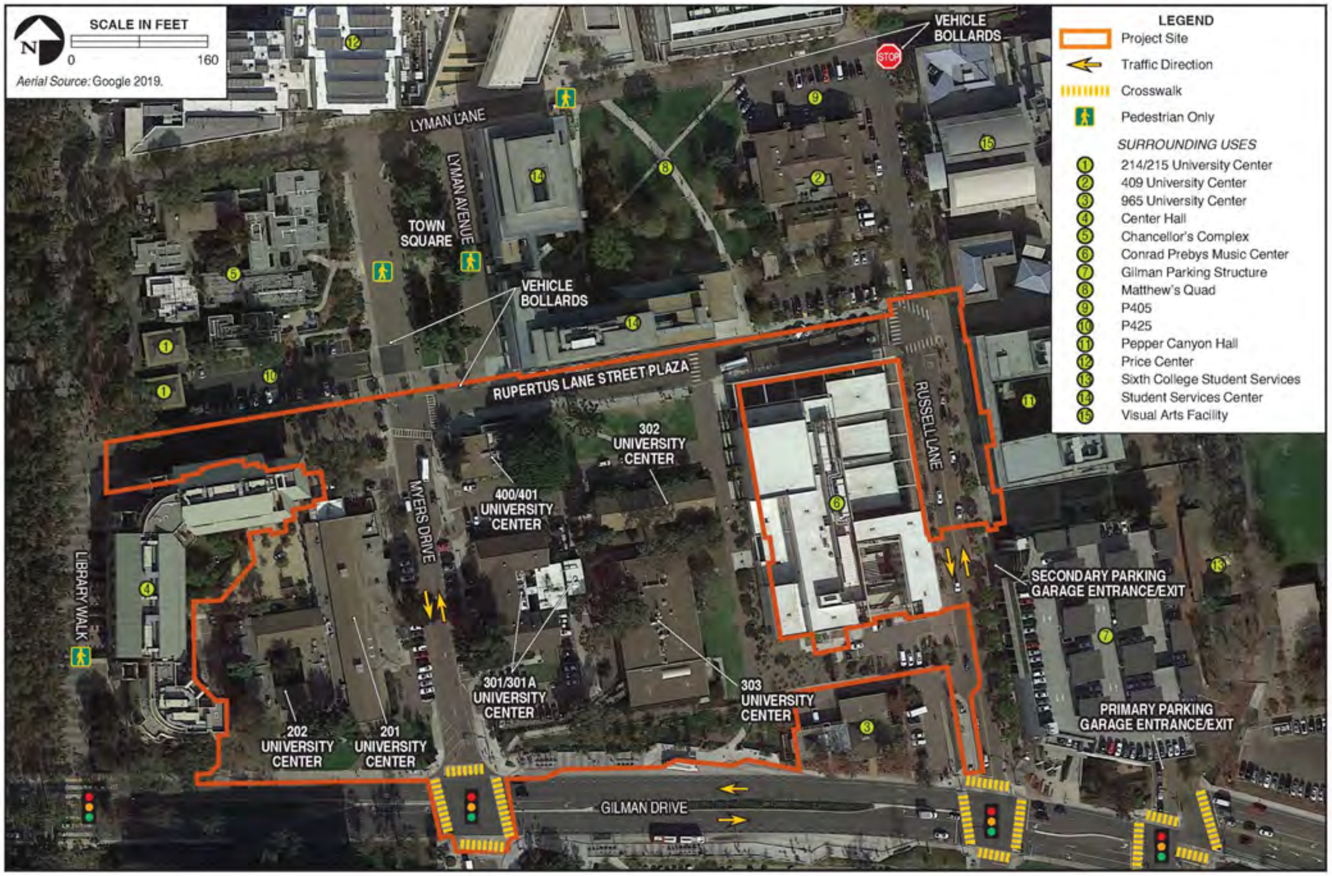
2.2.1 Surrounding Transportation Network

Gilman Drive is a four-lane arterial road with east-west traffic separated by raised medians. Within the immediate vicinity of the Project site, Gilman Drive has signalized intersections with Russell Lane, Myers Drive, and Library Walk. These signalized intersections also provide striped pedestrian crossings. Paved sidewalks are located on either side of Gilman Drive, which provide access to the existing transit stops along both sides of Gilman Drive between Russell Lane and Myers Drive (collectively referred to as the Gilman Transit Center). Currently, Class II (i.e., striped) bicycle lanes are provided along both sides of the paved road. (An improved cycle track along Gilman Drive is also currently being studied and considered separately by UC San Diego.) Approximately 200 feet east of Russell Lane at its intersection with Villa La Jolla Drive, Gilman Drive provides the primary existing entrance/exit to the Gilman Parking Structure.

Russell Lane is a paved road that provides vehicular access from Gilman Drive. A newly constructed roundabout directs vehicle traffic back towards Gilman Drive and Russell Lane and continues north to Lyman Lane as a primarily pedestrian route with limited vehicular use by service vehicles. Russell Lane includes large sidewalks – up to approximately 35 feet wide – located on either side of the roadway. These sidewalks include street lights, bicycle racks, and large street trees. Russell Lane also provides a secondary entrance/exit to the existing Gilman Parking Structure.

[1] Meyers Drive was converted from a one-way road to a two-way road in November 2018.

Figure 3. Existing Project Site and Transportation Network



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Existing Project Site and Transportation Network

FIGURE 3


The Rupertus Lane Street Plaza (pictured left) provides multi-modal access from Myers Drive to Russell Lane. Gilman Drive (pictured right) is an east-west arterial that provides four lanes of travel, bicycle lanes, transit stops, and pedestrian facilities. Gilman Drive provides the primary entrance/exit to the existing Gilman Parking Structure, located adjacent to the Project site.


Russell Lane (pictured left) is a two-lane road that provides access from Gilman Drive. Russell Lane includes wide pedestrian sidewalks and bicycle racks and provides a secondary entrance to the Gilman Parking Structure. Library Walk (pictured right) is a paved, pedestrian-only pathway that provides north-south access between Gilman Drive and Geisel Library. This heavily used pathway also provides access to adjacent campus facilities as well as tabling and event space.

Myers Drive provides two-way northbound and southbound access from Gilman Drive into the central area of the Project site and access to existing administrative facilities (see Section 2.2.2, *Existing Development*) and associated on-street and off-street parking. Myers Drive ends at its intersection with the Rupertus Lane Street Plaza.

Library Walk is a paved 35-foot-way pedestrian only pathway that provides direct north-south access between Gilman Drive to Geisel Library. This area is heavily trafficked by students, faculty, staff, and visitors as it provides access to Center Hall, Career Services Center, Chancellor's Complex, Student Health and Wellness Center, and the Price Center. Table space and event space can be rented along Library Walk including food spaces and amplified sound space near the Price Center.

2.2.2 Existing Development

The existing development within the Project site is described below (refer also to Figure 3).

The eastern third of the Project site includes the area surrounding the Conrad Prebys Music Center. This area is bounded by and includes the Rupertus Lane Street Plaza and Russell Lane. Gilman Drive forms the southern boundary of the Project site but would not be affected by the proposed Project with the exception of pedestrian improvements at its existing intersection with Myers Drive. As described in further detail in Section 2.5.1, *Building Program,* Myers Drive would be removed as part of the goal to provide a pedestrian-oriented space.

400/401 University Center is located at the intersection of Myers Drive and the Rupertus Lane Street Plaza. This building currently provides administrative office space. This building was originally constructed in 1942 and is a contributing element of the Camp Matthews Historic District.

The middle third of the Project site includes 400/401 University Center, 303 University Center, 302 University Center, and 301/301A University Center as well as associated surface parking lots. These facilities are currently used for administrative purposes (e.g., 301 University Center includes office space for Environmental Health & Safety [EH&S], Medical Education, and the Registrar). The Conrad Prebys Music Center and 965 University Center are located along Russell Lane but would remain in place and are excluded from the Project site.

The proposed Project would redevelop the existing Project site to create a pedestrian-oriented space.

The western third of the Project site is bounded by the Rupertus Lane Street Plaza and Myers Drive. Existing development within this corner of the Project site includes 201 University Center and 202 University Center, which are also used for administrative purposes. Center Hall, located along Library Walk, would remain in place and is excluded from the Project site.

2.3 PROJECT BACKGROUND

In August 2018, UC San Diego completed the University Center Urban Core (UCUC) and Public Realm Study (UC San Diego 2018c). The UCUC Study re-envisions the University Center neighborhood by providing a conceptual physical development plan and design guidelines for future open space, public realm spaces, circulation, and building improvement projects (UC San Diego 2018c). The UCUC Study identified four redevelopment parcels including the Project site, which was identified as the *UCUC-1 Parcel*.

The concepts from the UCUC Study were incorporated into the urban design principles described for the University Center in the 2018 LRDP (UC San Diego 2018a). As described in Planning Principle 2, UC San Diego is not located in or adjacent to a traditional “college town.” Thus, to achieve the services and atmosphere of a college town, the campus has developed one of its neighborhoods as a “town center.” The University Center affords a location within walking distance of many neighborhoods in the West Campus and will be conveniently accessible from the new Central Campus Station (refer to Section 2.1, *Regional Location and Setting*).

The following planning considerations (UC San Diego 2018a) will guide continued development of UC San Diego's University Center:

- *"The University Center will have an urban character and will incorporate transit-oriented development concepts;*
- *As UC San Diego's 'downtown,' the University Center will have a variety of uses, including academic facilities, classrooms, administrative and student services, campus-oriented retail and commercial uses, eating establishments, entertainment offerings, performance venues, galleries, museums, and gathering areas; and*
- *In general, buildings will be oriented to pedestrians, with open and inviting ground level facades and active uses, including retail, at the ground floor."*

As described in Section 2.2.2, *Existing Development*, the Project site currently supports a variety of existing student services and other important campus functions that are housed in a collection of low-density facilities, all of which are in poor condition with substantial deferred maintenance and seismic improvement needs. Many of these facilities are the oldest buildings on campus, several constructed in 1942 when the land was still part of Camp Matthews. Not only are these buildings outdated and insufficient to meet current needs, but they continue to deteriorate, representing a significant maintenance liability, and some have already been vacated due to health and safety concerns. The Project site would be transformed into a pedestrian-oriented space that serves as a principal entrance and active central district for the students, facility, staff, visitors, and the local community of UC San Diego. The proposed Project is intended to improve the campus experience and strengthen connections in the public realm across the West Campus.

The proposed Triton Center would provide a new Student Health, Mental Health and Well-Being Building, and a new Student Academic Resources Building, which would house an expansion of the Teaching + Learning Commons program as well as new permanent facilities for the Transfer Student Success Hub, Global Health Institute, and campus support and administration. The proposed Triton Center would also include an Alumni and Welcome Center, multi-purpose space for various campus programs, retail, public realm improvements, and accessible parking.

2.4 PROJECT OBJECTIVES

UC San Diego has identified the following objectives for the proposed Project:

- Contribute to a walkable University "town center" featuring a mix of uses, urban densities, and pedestrian-activated ground floors, with connections to adjacent neighborhoods and transit options.
- Create an arrival gateway at the center of the West Campus that is uniquely identifiable as belonging to UC San Diego and welcoming for students, faculty, staff, and visitors arriving by all modes of transportation.
- Provide well-designed facilities that are consistent with the *Academic Mixed-Use* land use described in the 2018 LRDP.
- Utilize the unique central location of the Project site in the West Campus to optimize campus-wide connectivity for all modes of transportation including light rail transit (Central Campus Station), bus (Gilman Transit Center), passenger loading zone, bicycle, and pedestrian foot traffic.
- Support active ground floor uses as well as meeting/event spaces that create an urban, mixed-use setting serving as a destination location for the West Campus.
- Leverage adjacencies and common space to create efficiencies and collaboration.
- Implement Low Impact Design (LID) opportunities with respect to stormwater management, landscape, planting, and hardscape design; and
- Incorporate sustainable design principles to the greatest extent feasible to achieve Leadership in Energy and Environmental Design (LEED) Gold Certification, thereby reducing energy consumption, conserving nonrenewable resources, and complying with the UC Sustainable Practices Policy.

These objectives are consistent with the overall objectives of the 2018 LRDP (see Section 2.3 of the 2018 LRDP Program EIR), including the following key project objectives:

> *"1. Accommodate projected growth by providing approximately 8.9 million [gross square feet] GSF of new facilities needed to expand academic and non-academic programs in support of the UC mission and its commitment to excellence in teaching, research and public service."*
>
> *"3. Locate buildings on campus in accordance with the character, scale, and design goals expressed in the 1989 Master Plan, Neighborhood Planning Studies, previous LRDPs, and the LRDP's guiding principles and its required elements."*
>
> *"4. Site future development to allow for the co-location and strengthening of campus programs, facilities, and activities, to continue the exchange of ideas between academics and scientists, and to create synergy between shared resources and services."*

"5. Activate and enliven the campus through strategic mixed-use and transit-oriented development, improved public spaces, expanded campus services, and additional on-campus housing to facilitate a living-learning campus environment."

"6. Complete the redevelopment of the University Center on West Campus as a walkable 'town center' featuring a mix of uses, urban densities, and pedestrian-activated ground floors, with connections to adjacent neighborhoods and the future light-rail transit station at Pepper Canyon."

"10. Expand multi-modal connections and Transportation Demand Management (TDM) programs to optimize trip reduction benefits of the light rail transit system, reduce automobile commuting, and coordinate with regional transportation programs."

"11. Minimize environmental impacts through sustainable development practices related to campus planning, building siting, design, construction and operations."

2.5 PROJECT FEATURES

In order to achieve the 2018 LRDP Planning Principles described in Section 2.3, *Project Background* and the project objectives described in Section 2.4, *Project Objectives*, the proposed Project would demolish existing buildings, pavements, and landscaping and redevelop the Project site with four multi-story buildings. The existing vehicle-oriented transportation network would be reconfigured to support new pedestrian-oriented spaces that facilitate connections throughout the University Center neighborhood and the West Campus.

2.5.1 Building Program

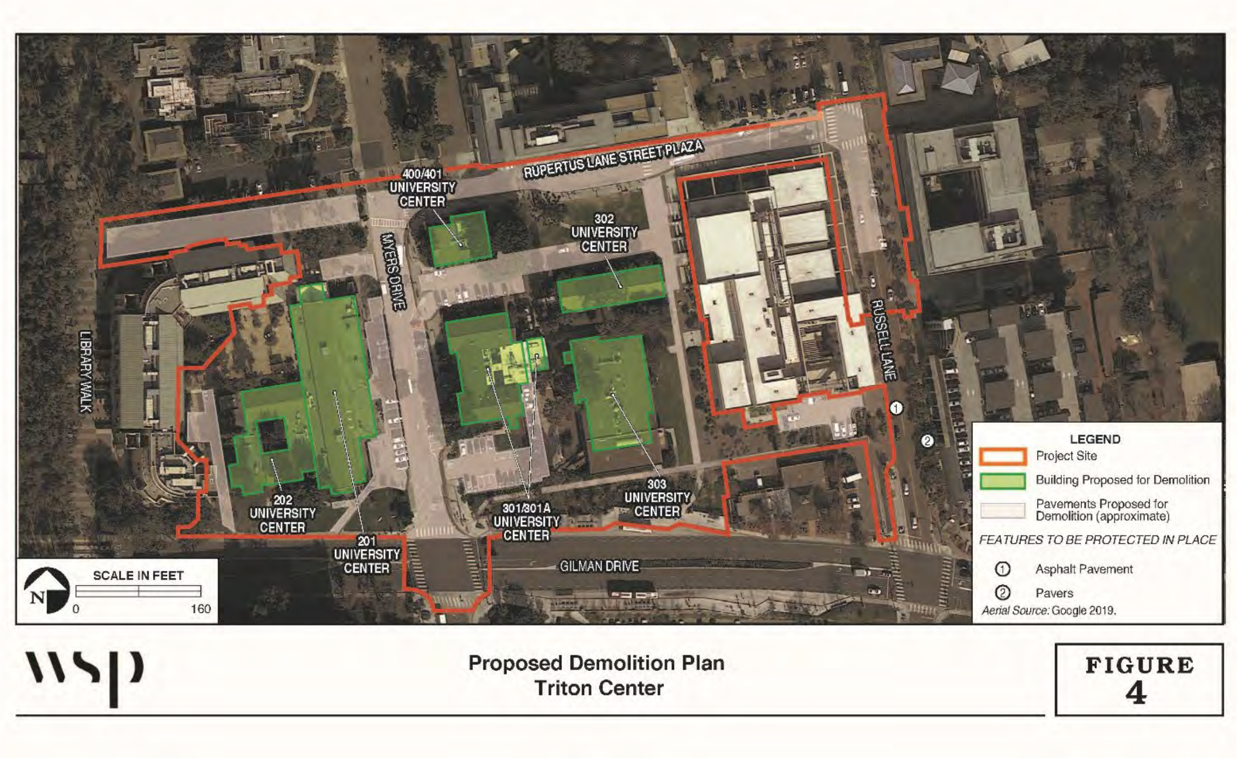
DEMOLITION

The proposed Project would begin with the demolition of the following buildings located within the Project site (see Figure 4):

- 400/401 University Center
- 301/301A University Center
- 302 University Center
- 303 University Center
- 201 University Center
- 202 University Center

Under the proposed Project, existing pavements would be removed to support redevelopment as pedestrian-oriented spaces.

Figure 4. Proposed Demolition Plan Triton Center



As described further in Section 4.1.4, *Cultural Resources and Tribal Cultural Resources*, 401, 301, 302, 201, and 202 University Center contribute to the Camp Matthews Historic District. Building 201 is the former Camp Matthews Mess Hall; if salvageable, a select portion of the posts, trusses, and other building materials could be repurposed and incorporated into the design as commemorative features (e.g., wood wall paneling or benches). As described further in Section 4.1.4, *Cultural and Tribal Cultural Resources*, UC San Diego has prepared Historic American Building Survey (HABS) Level I Documentation for the five contributors to the Camp Matthews Historic District that would be demolished under the proposed Project. This includes the preparation of an architectural and historical narrative, archival drawings, digital photography, and as-built site plans.

Additional demolition activities would include removal of existing pavements within the Project site, removal of existing landscape and trees, and removal of existing fences, railings, bollards, and street furniture (see Figure 4). Myers Drive would be removed and would no longer provide vehicle through access. As described further below in Public Realm Improvements, Myers Drive would be reconfigured as a pedestrian-only space that would provide connections to adjacent pedestrian pathways (e.g., Rupertus Lane Street Plaza, Library Walk, and Town Square) and public transit (e.g., Gilman Transit Station and Central Campus Station). Up to 195 existing surface parking spaces would be inaccessible during construction, and 119 of these spaces would be removed permanently. However, the proposed Project would include an above ground parking structure (approximately 175 spaces) – incorporated as a part of Building D in the southeast corner of the Project site.

The proposed Triton Center would include four multi-story buildings surrounding a central courtyard that would serve as a public gathering space.

BUILDING CONSTRUCTION

Following demolition, the proposed Project would include minor excavations to facilitate the construction of subterranean mechanical rooms below Building B and Building D as well as foundations for each of the proposed buildings. The four multi-story buildings would surround a central courtyard (i.e., Triton Plaza) (see Figure 4); features of these buildings are described below.

Building A would be located along Gilman Drive and would provide as a new gateway allowing pedestrian through access to the central courtyard.

Building A would be located along the southern boundary of the Project site and include approximately 550-feet of frontage with Gilman Drive. Building A would reach a maximum finished height of approximately 75 feet over a total of six stories. The first three floors of Building A would be constructed on either side of the pedestrian courtyard Myers Court, with the upper three floors forming a bridge supported by rows of columns framing a new “gateway.” This new gateway would allow pedestrian through access from Gilman Drive and the Gilman Transit Center. The west portion of Building A would include a lobby for Campus Support, the Transfer Center, and the Teaching + Learning Commons. The east end of Building A would include the Global Initiatives Institute, a fast-casual restaurant adjacent to Gilman Transit Center, and a non-food retail space fronting the parking structure. The three upper floors of the building, which would form the new gateway, would house Campus Support and shared community conference room spaces. These upper floors would also include a lightwell to provide daylight to office spaces.

Building B would be constructed to the northwest of Building A and would form the western boundary of Triton Plaza. This four-story building, which would be known as the Student Health and Well-Being Center, would reach a maximum height of approximately 57 feet (see Figure 6). A subterranean mechanical room would be established below Building B, The ground floor would provide space for urgent care, lab/radiology, pharmacy services, optometry services, a Wellness Center, and a fast/casual restaurant. Other medical space, including behavioral health, primary care, women’s health, occupational medicine, physical therapy, health promotion, and counseling and psychological services would be located on the upper three floors.

Building C, which would be known as the Beacon Building, would be located in the center of the Project site within Triton Plaza. This six-story building would reach a maximum height of 91 feet (see Figure 7). With its height and cylindrical shape, this building would serve as a distinct visual element, visible from all directions. The exterior of the building would incorporate expressive design features. Building C would include a ground floor Welcome Center, gallery/exhibit, and reception space. The upper five floors would include additional gallery/exhibit space, alumni office space, an Alumni Boardroom, and pre-function space. The sixth floor of the building would include an accessible observation deck and outdoor event space.

The Beacon Building would serve as the focal point of the Triton Center and provide a gathering space for students, faculty, staff, and visitors to the West Campus.

Building D would form the eastern boundary of Triton Plaza. This building would include the parking structure at its southernmost edge, the Celebration Space, and the Meta-Gallery. The Celebration Space would include an event space and ancillary program to host various activities, from academic and student programs to special events and symposiums. The Meta-Gallery would occupy three stories and would provide a reception area, flexible gallery, immersive gallery, and a traditional art gallery with an opportunity for an additional café. The facility would offer flexible space for students to host diverse cultural arts and education outreach opportunities and would promote the campus as a cultural destination for the San Diego region, consistent with the mission and vision statements of the UC San Diego Strategic Plan. The building includes a grand seat stair and sloped walkway facing Triton Plaza that would serve as a gathering space and observation platform for plaza events.

Building D (viewed from Triton Plaza) would include the Celebration Space, which would provide event space, and Meta-Gallery, which would provide art gallery space.

Table 2-1
Space Area Summary Program

Building	Uses / Services	Approximate Building Area[1]
Building A	Campus Support, Transfer Center, Teaching + Learning Commons, Global Initiatives Institute, Meeting Space, Retail	126,900 GSF
Building B	Urgent Care, Nurse Clinic, Lab/Radiology, Pharmacy, Optometry, Primary Care, Behavioral, Women's Clinic, Meeting and Events Space, Sports Medicine, Express Clinic, CAPS, Employee Health, Health Promotion, Wellness, College of Mental Health	81,550 GSF
Building C	Welcome Center, Stuart Collection, Art Power, Alumni Office, Meeting Space	29,010 GSF
Building D	Celebration Space, Meta-Gallery, Café	63,350 GSF
	TOTAL APPROXIMATAE GROSS SQUARE FOOTAGE	**318,700 GSF**

Figure 5. Proposed Construction Triton Center

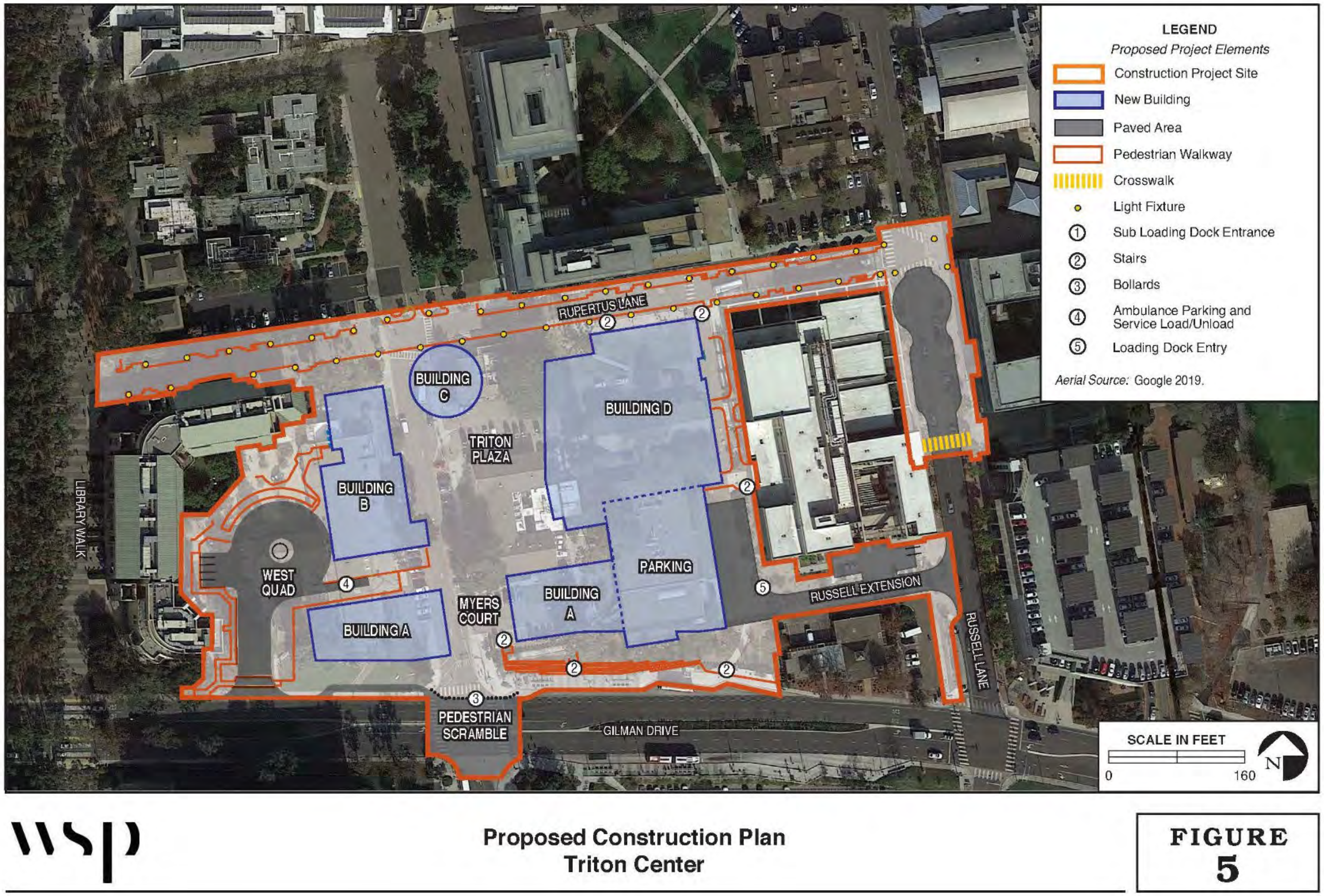
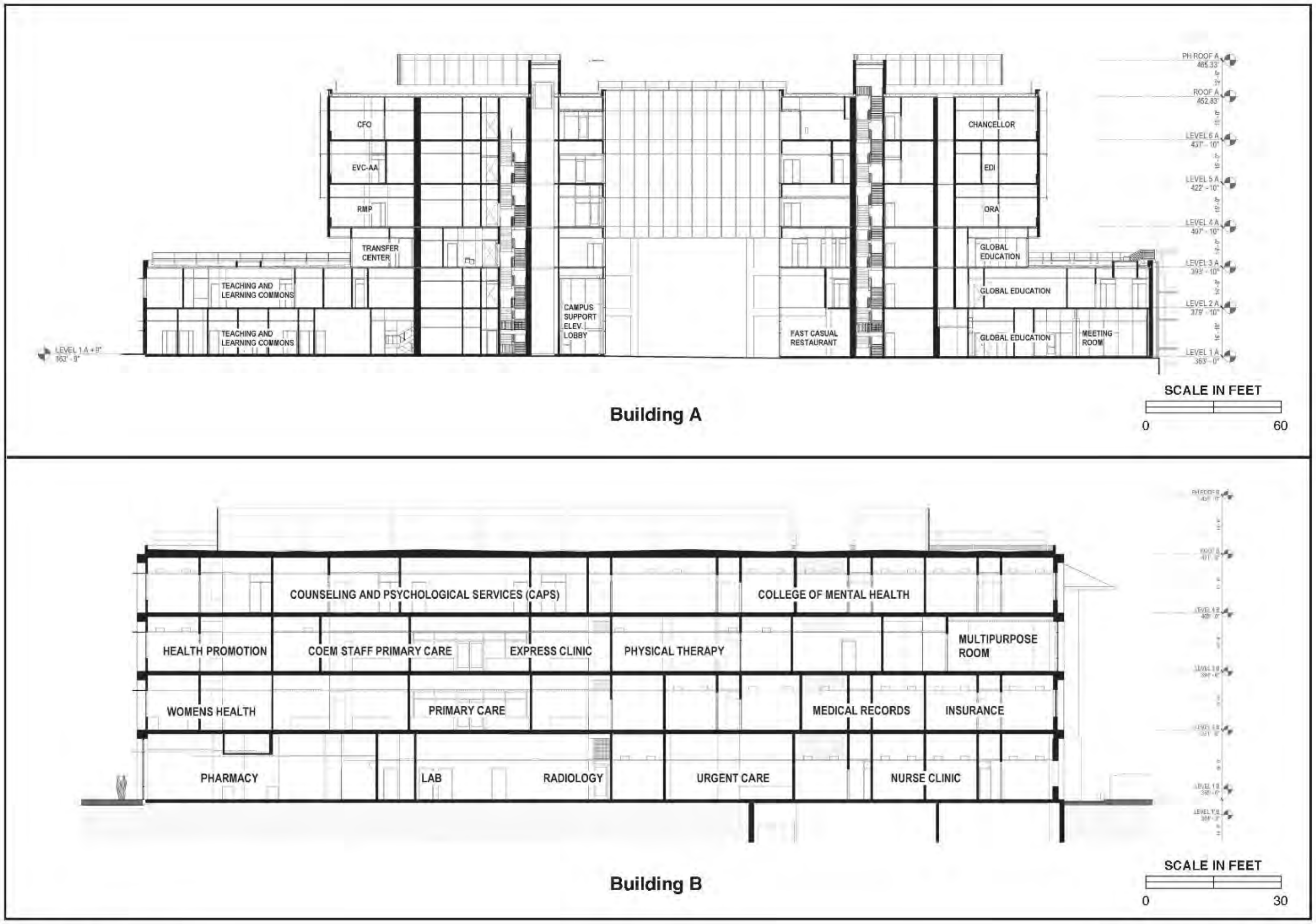


Figure 6. Visual Renderings (Buildings A and B)



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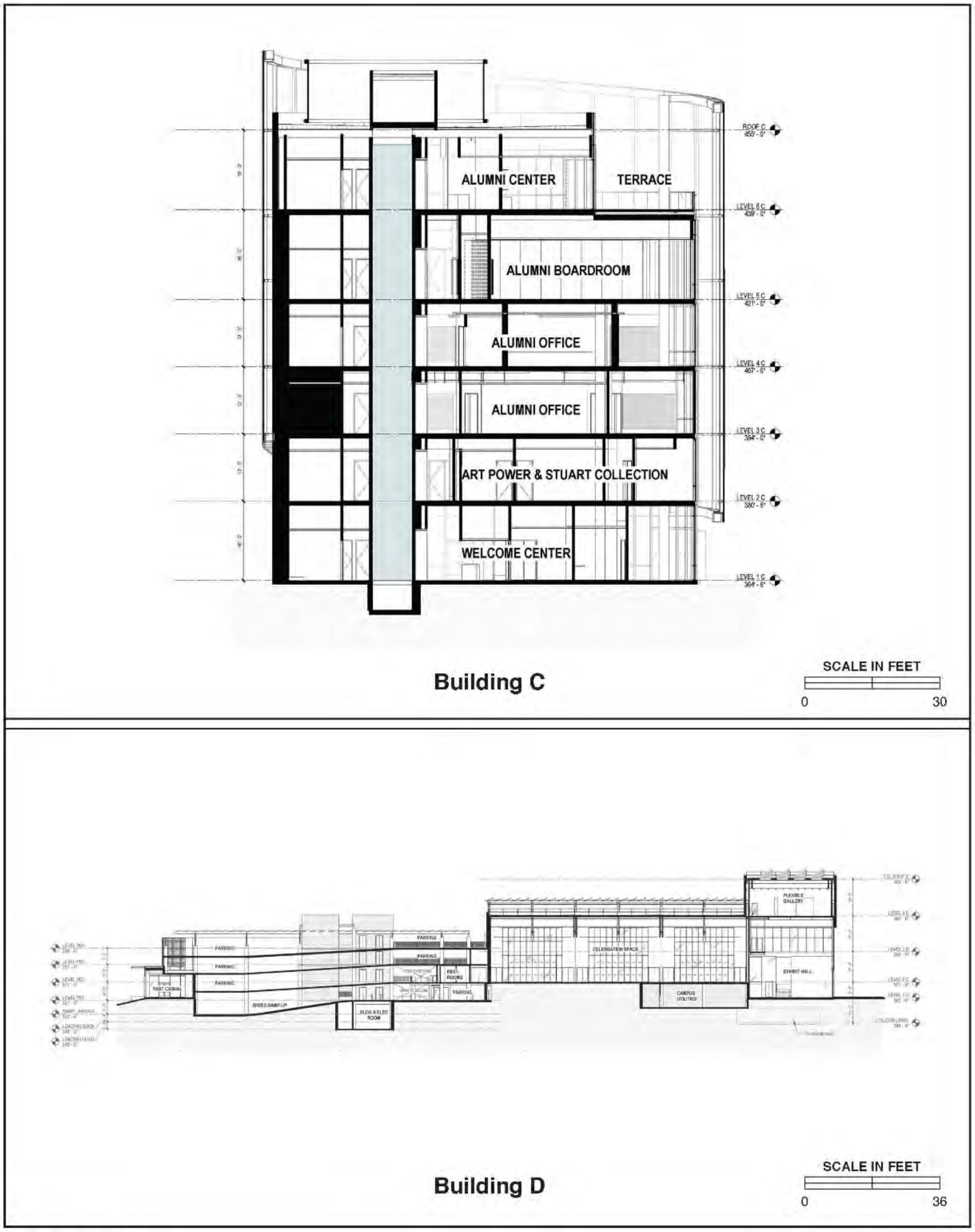
Building Profiles
Buildings A and B

FIGURE 6

Figure 7. Visual Renderings (Buildings C and D)



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Building Profiles
Buildings C and D

FIGURE 7

PUBLIC REALM IMPROVEMENTS

As described in Section 2.3, *Project Background*, the proposed Project is intended to transform the Project site into a pedestrian-oriented space that serves as a principal entrance and active central district for students, facility, staff, visitors, and the local community of UC San Diego. Therefore, public realm improvements would prioritize pedestrian circulation enhancements, and vehicular circulation would be rerouted to the perimeter of the Project site while maintaining emergency and off-hour service access.

The primary public realm elements of the proposed Project are described in detail below.

Triton Plaza is planned for the center of the Project site immediately south of Rupertus Lane. The plaza would be formed by Building A to the south, Building B to the west, Building C to the north, and Building D to the east. As described in *Building Construction* above, these buildings would include pedestrian gateways that would provide ground floor pedestrian passage through the buildings and into the plaza. Additionally, pedestrians could access this plaza from the West Quad (described further in *Vehicle Circulation* below) by walking in an east-west direction between Building A and Building B. Triton Plaza would have a variety of site elements (e.g., fixed seating walls/steps and moveable tables and chairs, etc.), lighting, and landscape, and would serve as the primary paved outdoor gathering and event space for students, faculty, staff, and visitors. Due to the proposed uses in the surrounding buildings (e.g., casual dining, event space, etc.), the plaza is intended to be active during the daytime and nighttime and host a variety of informal and formal gatherings.

Rupertus Lane Street Plaza would continue to provide a multi-modal corridor between Russell Lane and Library Walk with access to Matthews Quad, Triton Plaza, and Town Square. Under the proposed Project this pathway would be lined with street furniture (e.g., benches and bike parking), lighting, landscaping, and public art. As described in Section 2.1, *Regional Location and Setting* related development includes the Rupertus Lane Extension, which will extend Rupertus Lane from its intersection with Russell Lane farther east to the Central Campus Station. Following completion, this multi-modal pathway will be renamed as “Rupertus Walk” and be the primary pedestrian and bicyclist connection from the Central Campus Station into the West Campus.

Gilman Frontage is envisioned as the “front door” to the UCUC and includes improvements along the entire length of the Project site facing Gilman Drive.

On the east end of the Project site, the existing Gilman Transit Center has a need for additional seating and space for bus queuing, which would be addressed by the proposed Project. Improvements would involve the removal of the existing shelters, seating, and paving. The proposed “ripple” field paving (see Section 2.6, *Landscape/Hardscape Improvements and Stormwater Management*) would emanate from Building C, the Beacon

Building, and would extend across the entire Gilman Frontage, clearly defining the pedestrian zone. A terrace extending out from Building A facing Gilman Drive would create an outdoor eating area where moveable tables and chairs would be covered with an overhead trellis. Stone seat-steps would create places for people to comfortably sit and wait at the transit hub. Understory planting and trees would infill the areas between the stepped seating and Building A.

At the middle of the Gilman Frontage, a pedestrian gateway would be defined by a grand opening in Building A where Myers Drive is currently located. Along with the demolition of Myers Drive, the existing signal at Myers Drive would also be removed. Removable bollards would prevent vehicular traffic from entering the district (refer to Figure 5).

On the west-end of the Gilman Frontage, a new pull-out at Gilman Drive would create space for a pick-up/drop-off zone with adjacent seating. A wide pedestrian streetscape would be created by the proposed “ripple” field paving, providing a pedestrian connection with Library Walk as well as ample space for bicycle parking. A landscaped tree canopy would wrap around the building frontage, creating shade and accentuating the gateway. New vehicular access to West Quad would be created between Building B and the existing Center Hall.

The **West Quad** would provide vehicular access to Triton Center from Gilman Drive for emergency services, deliveries, and facilities at Building B, Americans with Disabilities Act (ADA) accessible parking for Center Hall, and tour bus loading for campus visitors arriving to/from campus. A vehicular roundabout would facilitate these programmatic functions, while also providing emergency vehicle access. Along the eastern edge of the West Quad, a new waiting area for tour bus pick-up/drop-off would provide shade with a steel trellis and vine planting. The proposed “ripple” field paving would define the floor. Sculptural stone seats and planters would breakdown the scale of the passageway between Buildings A and B connecting into the Triton Plaza. A concrete mock-up of the Geisel Library would also be located within this area – set into the landscape as a garden element. To the north, emergency services would be screened by landscaping while also maintaining discrete pedestrian access for deliveries through to the main circulation areas in West Quad. On the western side, connections to Center Hall would be maintained and new accessible parking spots would be provided.

VEHICLE CIRCULATION

The proposed Project would provide two primary vehicle access points from Gilman Drive into Triton Center: Russell Lane along the eastern boundary of the Project site and West Quad along the western boundary of the Project site (refer to Figure 5).

Vehicle access to the aboveground parking structure (within Building D) would be provided via the Russell Extension. Russell Lane would also continue to provide secondary access to the existing Gilman Parking Structure.

The West Quad would serve as a tour bus passenger loading zone for Triton Tours as well as a passenger loading zone for special events at the Celebration Space, or the other event spaces included as a part of the proposed Project. The West Quad would also include discreet ambulance parking for the Student Health and Well-Being Center. Five ADA-accessible parking spaces would be provided for Center Hall.

The proposed Project would reconfigure the existing intersection of Gilman Drive and Myers Drive with a pedestrian scramble supporting unrestricted pedestrian movement during the pedestrian signal phase.

2.5.2 Building Design

As described in Section 2.5.1, *Building Program,* the proposed Project would include the construction of four new student-oriented buildings. These new buildings would be designed to be consistent with the character and style of the remaining surrounding buildings while also visually defining the town center envisioned by the 2018 LRDP and reinforcing the unique individual character of each respective building, based on its service function and purpose. Each of the proposed buildings would incorporate ground floor setbacks or arcades which would provide shading for south, east, and west facing storefronts and would create pedestrian centered spaces for movement along building edges. Ground floor setbacks would align with the Student Affairs Services Facility (SASF) and other existing buildings. Together, the proposed buildings would frame the pedestrian-oriented open spaces located throughout the Project site.

The color palette shared between the buildings of the proposed Triton Center would include hues that complement existing surrounding buildings and balance with the natural surroundings. Body materials and cladding of the new buildings would include concrete, metal, and rain screen panels. Conservative use of smooth plaster finishes would provide additional depth to the distinct texture of body materials. Natural wood used at the ground plane or for amenities, decking, or benches would create a blend of the proposed structures with their natural surroundings. Similarly, tree and plant landscaping would also be carefully selected to provide coherent transitions between the surrounding development (see Section 2.6, *Landscape/Hardscape Improvements and Stormwater Management*).

2.5.3 Utility and Service System Improvements

Phased demolition of existing utility systems would be necessary throughout the Project site south of the Rupertus Lane Street Plaza during demolition and excavation activities described in Section 2.5.1, *Building Program*. This would include demolition of existing storm drain, sewer, water, telecom, electric, gas and associated appurtenances (e.g., manholes, cleanouts, valves, etc.). However, existing and/or temporary utility connections would maintain existing service at the Conrad Prebys Music Hall, 965 University Center, and other facilities that would remain in place.

HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS

The heating, ventilating, and air conditioning (HVAC) systems within each of the proposed buildings would utilize variable air volume (VAV) air handling systems with reheat coils in interior spaces. VAV systems allow for varied airflow at a constant temperature, allowing for precise temperature control and low energy consumption. The air handling unit (AHU) of Building B's HVAC system would be located on the rooftop. Building C's AHU would be located within the interior and Buildings A and D would use a combination of rooftop and interior AHUs.

TELECOM AND ELECTRICAL

Existing telecom and electrical infrastructure would be extended from the existing Campus Grid to the proposed buildings within the Project site. Electricity consumption associated with the proposed facilities is estimated at 2,145,000 kilowatt hours per year (kWh/yr). excluding electricity used for heated water. However, electricity used to heat water would be nominal and would not substantially alter this estimated value. A proposed joint trench at the Rupertus Lane Street Plaza would extend southward and connect within Buildings A, B, C, and D.

SEWER

The proposed Project's sanitary sewer would gravity flow to the south and connect to an existing UC San Diego sewer main beneath Gilman Drive. The existing 8-inch sewer main has sufficient capacity to accommodate the proposed Project based on previously completed master utility studies (e.g., UC San Diego Sewer System Management Plan, 2019 Revision). The proposed point of connection would be centrally located near Myers Court. The new sewer line serving the Project site would be 8-inch PVC pipe and would be designed to comply with UC San Diego sewer design guidelines for slope and flow velocities.

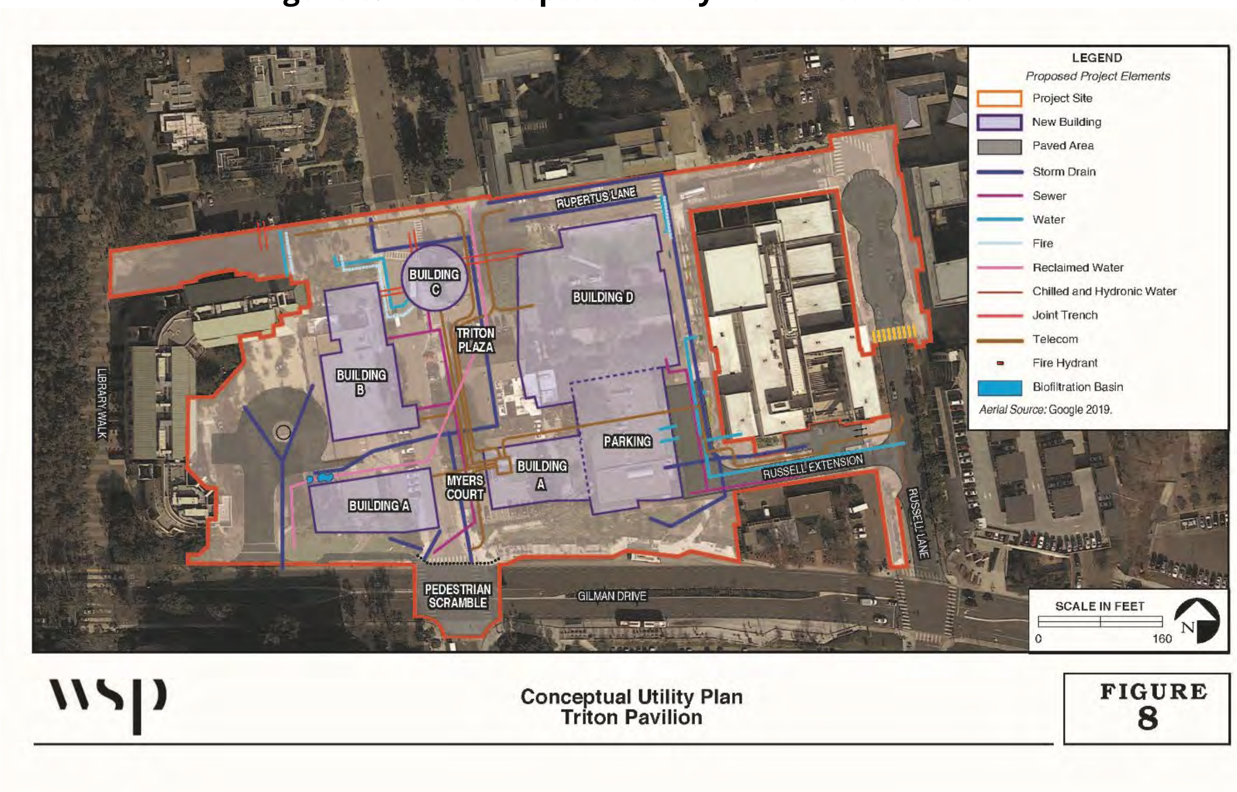
WATER

Chilled water services would be supplied to the Project site via connections to UC San Diego's existing chilled water infrastructure located beneath the Rupertus Lane Street Plaza. New chilled and medium temperature water line connections would be routed from the existing lines to a subterranean mechanical room. From the mechanical room, the chilled water and medium temperature water lines would be distributed to the other proposed facilities within the Project site.

POTABLE WATER AND FIRE SERVICE

Potable water and fire service would be provided from three locations. The first point of connection would be located at Rupertus Lane. This line would provide domestic water for potable use and fire service for Buildings B, C, and the existing Center Hall. The second point of connection from Rupertus Lane would provide service to Building D. An additional point of connection would be made at the east end the Russell Extension for water and fire service to the parking structure, Building A, and the existing Conrad Prebys Music Center. New water lines serving the Project site would be 10-inch PVC pipe. Private water meters would be installed at each building for monitoring of water use. Proposed fire service lines would consist of a wet pipe supply system, post indicator valves, and fire department connections. Fire hydrants would also be provided at locations to be coordinated with UC San Diego Fire Marshal and would be connected to the proposed water main.

Figure 8. Conceptual Utility Plan Triton Center



FIRE PROTECTION

All required fire systems, fire alarms, and a fire access plan would be prepared in accordance with the City of San Diego Fire Safety Code. The UC San Diego Fire Marshal would ensure that the proposed Project provides adequate emergency access at all times and would comply with the City of San Diego Fire Department (SDFD) policies. This fire access plan, which would be reviewed by UC San Diego Fire Marshall prior to construction of the proposed Triton Center, would ensure continued emergency access to the Project site during construction and operation.

2.6 Landscape/Hardscape Improvements and Stormwater Management

HARDSCAPE IMPROVEMENTS

Current development at the Project site includes over 20 different pavement types, contributing to a lack of visual continuity. Existing pavements include unit pavers of various colors, patterns, and textures, concrete slabs, exposed aggregated concrete, colored concrete, and asphalt that do not provide clear distinction between pathways meant for walking, biking, or vehicles. The proposed hardscape improvements would unify the Project site and support development of a pedestrian-oriented and ADA-accessible space.

Under the proposed Project, inconsistent paving at Myers Drive and the Rupertus Lane Street Plaza would be removed and replaced. The proposed paving would be minimal in variety and would be directly associated with mode of transportation it supports. The proposed “ripple” field paving that would emanate from Building C, the Beacon Building, would be created with concrete pavers and used for all primary campus connectors, large campus gathering spaces, and building entries. Concrete pavers used for campus connectors that also support emergency vehicle access would meet the SDFD Alternate Paving Policy for fire roads.

Use of asphalt would be restricted to zones supporting vehicular access and used primarily at Russell Lane and the West Quad.

LANDSCAPE IMPROVEMENTS

The proposed landscape improvements are focused on the creation of an immersive, but low maintenance design with minimal water use. Individual tree selection (see Table 2-2) would promote distinct identities for each space with plants of unique color, scale, and texture. A biofiltration/detention basin would also be established adjacent to Building A. This area would be planted with a mix of perennials and grasses, which would be maintained on a regular basis to remove vegetation and maintain the capacity of the basins.

Table 2-2
Conceptual/Sample Tree Palette

Location	Suggested Species	
	Common Name	**Scientific Name**
Gilman Drive	Torrey Pine	*Pinus torreyana*
	Nuttall's Scrub Oak	*Quercus dumosa*
	Coast Live Oak	*Quercus agrifolia*
West Quad	White Ironbark	*Eucalyptus leucoxylon*
	Coast Live Oak	*Quercus agrifolia*
	Torrey Pine	*Pinus torreyana*
	Engellmann's Oak	*Quercus engelmannii*
	Fruitless Oliver	*Olea europaea wilson*
	Western Redbud	*Cercis occidentalis*
	Pink Melaleuca	*Melaleuca nesophilia*
	Nuttall's Scrub Oak	*Quercus dumosa*
Rupertus Lane	Engellmann's Oak	*Quercus engelmannii*
Russell	Chinese Elm	*Ulmus parvifolia*
	Chinese Flame Tree	*Koelreuteria bipinnata*
Plaza	Chinese Pistache	*Pistacia chinensis*

STORMWATER MANAGEMENT

The campus is regulated under the Phase II Small MS4 General permit, and UC San Diego's Stormwater Management Program. A Storm Water Pollution Prevention Plan (SWPPP) containing appropriate construction site erosion and sedimentation control best management practices (BMPs) would be prepared and implemented at the beginning of the construction phase and adapted regularly during construction to reflect current conditions in the field, and the weather. The SWPPP would outline BMPs to be actively implemented during construction of the proposed Project, including (but not limited to) use of straw wattles, protection of inlets from sediment, stabilization of construction entrances, coverage of materials storage areas, and use of concrete washout areas.

The proposed Project would integrate LID techniques and features to maximize on-site treatment and minimize downstream hydrologic changes and water quality effects. Proposed LID features include the minimization of directly connected impervious areas; draining of runoff from proposed on-site impervious surfaces to adjacent pervious or landscaped areas for collection, storage, and on-site natural filtration prior to discharging to the storm drain system; and a focus on low-water use native plants in the landscape design.

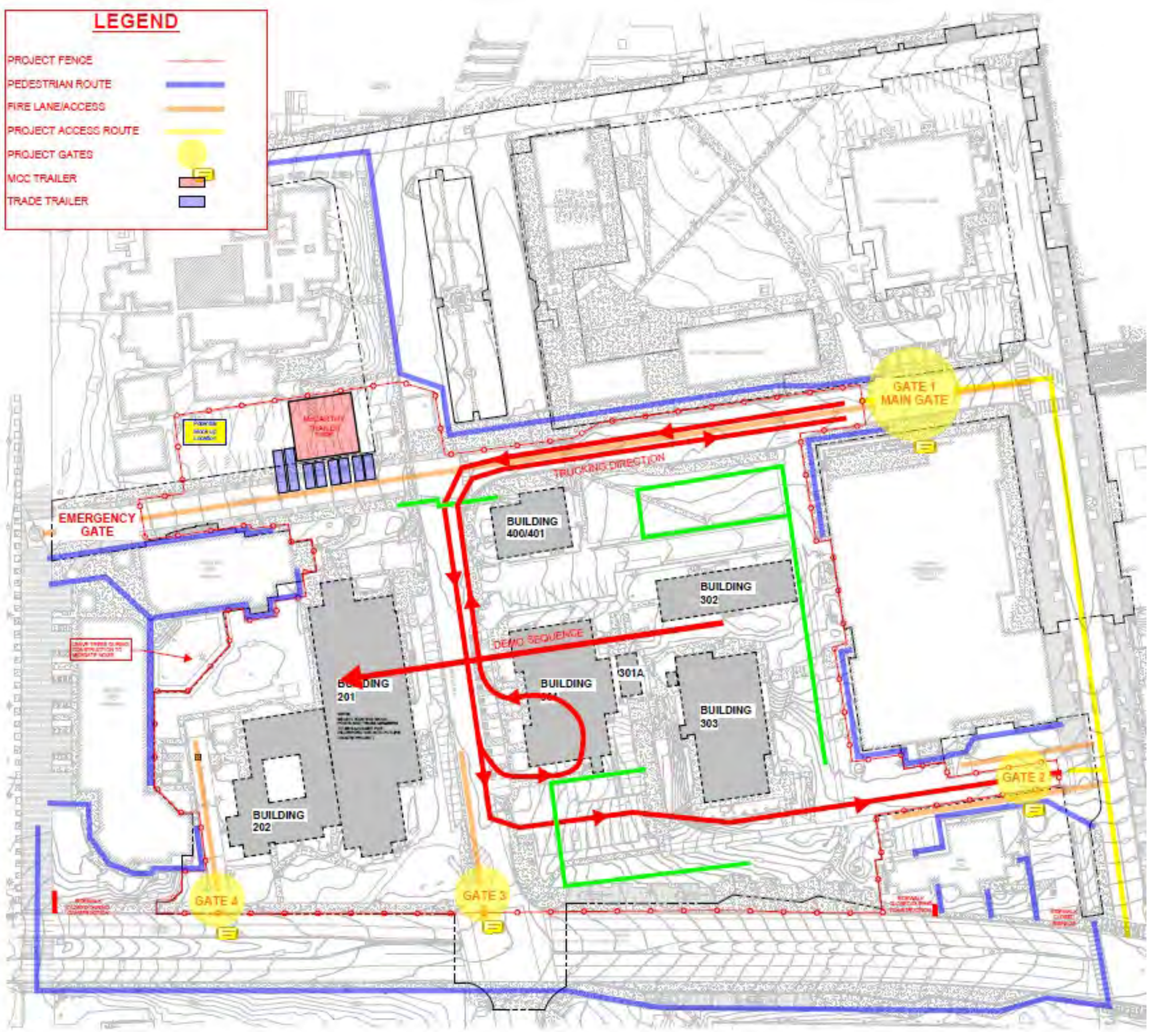
Latitude 33 Planning and Engineering (Latitude 33) prepared a Drainage Report for the proposed Triton Center that describes the existing and proposed stormwater drainage at the Project site (see Appendix B). The 7.7-acre Project site comprises a single drainage basin that flows south toward Gilman Drive.

Stormwater flows from the Project site would be collected within a series of proposed storm drain inlets that route to an existing 24-inch storm drain line in Gilman Drive. It is a goal of the proposed Project to utilize the regional off-site Pepper Canyon Basin for detention and water quality treatment. An allowance for the increased stormwater flows has been incorporated into the overall basin design (Latitude 33 2022). However, any stormwater flows that cannot be accommodated within the basin would be detained and treated in the combined biofiltration/detention basin that would be constructed on-site as a part of the proposed Project.

2.6.1 Project Construction

Construction of the proposed Triton Center would be scheduled to begin in the Summer of 2023, with the installation of temporary construction site fencing. Initial construction of Buildings A and B would be completed by Fall 2025. Construction of Buildings C and D and the remainder of the public realm and circulation improvements would be completed and ready for move-in scheduled for Winter 2025 or Spring 2026. Contractor trailers would be located along the Rupertus Lane Street Plaza, at surface parking lot P425, just south of the Chancellor’s Complex. The construction staging and materials laydown area would be located immediately adjacent to Center Hall within the footprint of 201 and 202 University Center. Primary construction access would be provided via Gilman Drive where construction vehicles would then turn onto Russell Lane. Russell Lane is heavily trafficked by pedestrians travelling across campus and vehicles entering and exiting the Gilman Parking Structure. To ensure pedestrian and vehicle safety during construction, temporary flaggers would be provided along the roadway, as necessary, to temporary control pedestrian and vehicle movements. Secondary construction access would be provided by Myers Drive off of Gilman Drive.

Construction would begin with the demolition of existing buildings and pavements as described in Section 2.5.1, *Building Program*. Following demolition, the proposed Project would include minor excavations to facilitate the construction of a subterranean mechanical room as well as foundations for each of the proposed buildings. The remainder of the site would require minor grading (i.e., leveling), as necessary. The initial excavation and minor grading would also include removal of utilities and existing landscaped trees, where required. These activities would require the use of dozers, loaders, drill rigs, 60-foot zoom booms, forklifts, haul trucks, water trucks, and graders. Excavation would involve the removal of approximately 14,000 cubic yards (CY) of unusable earthen material would be cleared from the site. Based on the estimated foundation design and finished grade elevations, a net import of 12,000 CY of soil would be anticipated. Assuming the use of 12 CY haul trucks, roughly a maximum of 2,170 heavy-haul truck trips would be required to/from the Project site during the excavation phase.



Contractor trailers would be located along the Rupertus Lane Street Plaza, at surface parking lot P425, just south of the Chancellor's Complex. The construction staging and materials laydown area would be located immediately adjacent to Center Hall within the footprint of 201 and 202 University Center. Primary construction access would be provided via Gilman Drive where construction vehicles would then turn onto Russell Lane.

2.6.2 Sustainability Features

The UC Sustainable Practices Policy (University of California, Office of the President 2022) covers nine areas of sustainable practices: green building, clean energy, climate protection, sustainable transportation, sustainable operations, recycling and waste management, environmentally preferable purchasing, sustainable food services, and sustainable water systems. The UC Sustainable Practices Policy establishes guidelines and includes climate change goals for the campus.

The proposed Project would comply with the UC Sustainable Practices Policy by implementing the following features

- Proximity to the Central Campus Station and the Blue Line Trolley service;
- Proximity to the Gilman Transit Center;
- Addition of new bicycle facilities including bicycle racks / storage spaces and showers;
- Pedestrian-oriented design with enhanced connections across West Campus;
- Featured stairs to encourage walking over using elevators;
- Selection of plant species requiring minimal water consumption;
- Use of recycled water in irrigation systems;
- Incorporation of narrow floorplates in building designs to allow for daylight into more spaces;
- Use of low-embodied carbon concrete and other low-impact building materials;
- Installation of photovoltaic panels on the building rooftops and/or facades as shading devices;
- Incorporation of exterior solar screening devices for south façade orientation to reduce energy consumption;
- Compliance with the UC Sustainable Practices Policy by requiring an energy-demand below the UC Whole Building Performance target, the electricity would be sourced from clean renewable energy from the UC Direct Access Program;
- Use of water efficient fixtures such as low-flow toilets in accordance with the water conservation goals of the UC Sustainable Practices Policy and Water Action Plan; and
- Achievement of LEED Gold Certification.

2.7 PROJECT APPROVAL/SCHEDULE

As a public agency principally responsible for approving or carrying out the proposed Project, the University of California is considered the Lead Agency under CEQA. The addendum for this proposed Project will be considered by The Regents or their delegates and the proposed Project may be approved at The Regents or their delegates discretion and only if The Regents or their delegates determine that such approval complies with CEQA. Regent Approval is anticipated to occur in March 2023.

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3 CONSISTENCY WITH 2018 LRDP

To determine whether the proposed Project is sufficiently addressed by and consistent with the 2018 LRDP and 2018 LRDP Program EIR, among the following key threshold questions that must be answered include:

- Are the objectives of the proposed Project consistent with the objectives adopted for the 2018 LRDP?
- Are the changes to campus population associated with the proposed Project included within the scope of the 2018 LRDP's population projections?
- Is the proposed location of the Project site in an area designated for this type of use in the 2018 LRDP?
- Is the proposed Project included in the amount of the development projected in the 2018 LRDP?
- Are the proposed Project activities within the scope of the environmental analysis in the 2018 LRDP Program EIR?
- Have the conditions described in CEQA Guidelines §15162 calling for the preparation of a subsequent EIR occurred?

Sections 3.1 through 3.4 document the consistency of the proposed Project with the objectives, population projections, land use designations, and development projections contained in the 2018 LRDP.

Section 4 contains a detailed examination of environmental topics with the potential for creating significant impacts addressed in the 2018 LRDP Program EIR and documents whether or not the proposed Project is consistent with and within the scope of the environmental impact analysis of the 2018 LRDP Program EIR.

3.1 2018 LRDP OBJECTIVES

Key objectives of the 2018 LRDP, as outlined in the plan, include the following: accommodate projected growth by expanding both academic and non-academic programs in support of the UC mission; establish two new undergraduate colleges; locate buildings in accordance with the established character, scale and design; co-locate and strengthen campus programs; activate and enliven the campus through mixed-use and transit-oriented development; redevelop the University Center neighborhood into a town center; house approximately 65 percent of eligible students; provide faculty/staff affordable housing options; expand and enhance facilities for UC Health; expand multi-modal connections and trip reduction programs; implement sustainable development practices; and be responsible stewards for the campus open space systems.

The proposed Project would support the following 2018 LRDP objectives:

- Accommodating projected growth by expanding both academic and non-academic programs in support of the UC mission;
- Locating buildings in accordance with the established character, scale, and design;
- Co-locating and strengthening campus programs;
- Activating and enlivening the campus through mixed-use and transit-oriented development;
- Redeveloping the University Center neighborhood into a town center;
- Expanding multi-modal connections and trip reduction programs; and
- Implementing sustainable development practices.

The proposed Project would support the following 2018 LRDP objectives:

<u>Accommodate Projected Growth.</u> As described in Section 2.3, *Project Background*, the proposed Project would accomplish the design principles in the UCUC and Public Realm Study (UC San Diego 2018c) as well as the 2018 LRDP (UC San Diego 2018a). The proposed Project would transform the Project site into a pedestrian-oriented space that serves as a principal entrance and active central district for students, faculty, staff, visitors, and the local community of UC San Diego. The proposed Project would include approximately 300,810 GSF of new development intended to support the UC mission and its commitment to excellence in teaching, research, and public service for existing and future users (refer to Table 2-1). The proposed buildings would support classrooms, offices, and meeting and assembly spaces as well as gallery/exhibit space, event space, dining, retail, and other amenities (refer to Section 2.5.1, *Building Program*). The proposed Project would also include a variety of public realm improvements indented to prioritize multi-modal transportation and pedestrian connections across the West Campus. Therefore, the proposed Triton Center is consistent with the 2018 LRDP objective of accommodating projected growth by expanding academic and non-academic programs on campus.

<u>Locate Buildings in accordance with Established Character, Scale, and Design.</u> Existing development in the vicinity of the Project site includes administrative buildings, academic buildings, research facilities, residence halls, and other service-oriented buildings (refer to Section 2.2.2, *Existing Development* and Figure 3). The proposed Project is consistent with the overall character of the surrounding vicinity but would contribute to the redevelopment

of the University Center neighborhood into a town center. As described in Section 2.5.2, *Building Design*, the proposed buildings as well as the associated hardscaping and landscaping would be designed to be consistent with the style of the remaining surrounding buildings while reinforcing the unique individual character of each respective building. Each of the proposed buildings would incorporate ground floor setbacks, which would provide shading for south, east, and west facing storefronts and create pedestrian centered spaces for movement along building edges. Setbacks would be incorporated on the fifth floor of Building A and Building C to maintain visual compatibility with the existing Center Hall and SASF. Additionally, Building D, would include a setback on the fourth floor. The color palette shared between the buildings of the proposed Triton Center would include hues that complement existing surrounding buildings and balance with the natural surroundings. Body materials and cladding of the new buildings would include concrete, metal, and rain screen panels. Conservative use of smooth plaster finishes would provide additional depth to the distinct texture of body materials. Natural wood used at the ground plane or for amenities, decking, or benches would create a blend of the proposed structures with their natural surroundings. Similarly, tree and plant landscaping would also be carefully selected to provide coherent transitions between the surrounding development (refer to Section 2.6, *Landscape/Hardscape Improvements and Stormwater Management*). Therefore, the proposed Triton Center is consistent with the established character, scale, and design of the goals and guiding principles of the 2018 LRDP.

<u>Co-Locate and Strengthen Campus Programs.</u> As described in the 2018 LRDP, the University Center neighborhood is intended to serve as a centralized “downtown” hub of campus activities. Specifically, this neighborhood has a focus on undergraduate programs and provides a place where the campus population can mingle, meet, study, eat, or relax (see Page 3.9-5 of the 2018 LRDP Program EIR). As described in Section 2.3, *Project Background,* the proposed Project is intended to improve the campus experience and strengthen connections in the public realm across the West Campus. The proposed Triton Center would serve as a hub of activity and provide services, and support student activities and events for students, faculty, staff, visitors, and the local community of UC San Diego, and academic-related facilities. Therefore, the proposed Triton Center is consistent with the 2018 LRDP objective of strengthening and creating active connections between the various programs at UC San Diego.

<u>Enliven the Campus through Mixed-Use and Transit-Oriented Development</u>. The proposed Project would reconfigure the existing vehicle-oriented transportation network to support new pedestrian spaces that facilitate connections throughout the University Center neighborhood and the West Campus. As described in Section 2.6, *Landscape/Hardscape Improvements and Stormwater Management,* current development at the Project site includes over 20 different pavement types, contributing to a lack of visual continuity. The proposed hardscape improvements would unify the Project site and support development of a pedestrian-oriented and ADA-accessible space. The Project site is located approximately 800 feet (i.e., a 5-minute walk) from the Central Campus Station and

immediately adjacent to the Gilman Transit Station. The existing paved roadways that bisect the Project site would be removed and would no longer provide vehicle through access. Instead, these roadways would be reconfigured as multi-modal spaces that would provide connections between public transit and West Campus. Therefore, the proposed Triton Center is consistent with the mixed-use and transit-oriented development objective of the 2018 LRDP.

<u>Redevelop the University Center.</u> The primary objective of the proposed Project is to accomplish the design principles in the UCUC and Public Realm Study (UC San Diego 2018c) as well as the 2018 LRDP (UC San Diego 2018a). The proposed Project would accomplish each of the planning considerations identified in Section 2.3, *Project Background*. As a result, the proposed Project would transform the Project site into a pedestrian-oriented space that serves as a principal entrance and active central district for the students, facility, staff, visitors, and the local community of UC San Diego. Therefore, the proposed Triton Center is consistent with the objective of redeveloping the University Center as described in the 2018 LRDP.

<u>Expand multi-modal connections and trip reduction programs.</u> The Project site is located approximately 800 feet (i.e., a 5-minute walk) from the Central Campus Station and immediately adjacent to the Gilman Transit Center. The existing paved roadways that bisect the Project site would be removed and would no longer provide vehicle through access. Instead, these roads would be reconfigured as pedestrian-only spaces that would provide connections between public transit and West Campus. Therefore, the proposed Triton Center would support multi-modal connections and trip reduction programs envisioned in the 2018 LRDP.

<u>Implement Sustainable Development Practices.</u> As described in Section 2.5.6, *Sustainability Features*, numerous sustainable design features have been incorporated into the building design to reduce energy consumption and conserve natural resources (e.g., proximity to Central Campus Station and the Gilman Transit Center, addition of bicycle racks / storage spaces and showers, pedestrian-oriented design, LID features, photovoltaic panels, etc.). The proposed Project has been designed to achieve LEED Gold Certification. Implementation of proposed sustainability features would minimize the environmental impacts associated with the construction and operation of the proposed Triton Center. With these features, the proposed Project is consistent with the 2018 LRDP sustainability goals.

3.2 2018 LRDP CAMPUS POPULATION

The 2018 LRDP anticipates that the total campus population would grow by 16,750 people over the 2018 LRDP planning period, resulting in a total population of 65,600 by 2035 (see Table 3-1). The proposed Triton Center would support a maximum of approximately 645

Full Time Employees (FTE), many of which are already employed by UC San Diego. Many of the existing faculty and staff occupying the proposed buildings would be relocated from existing buildings on campus (including the buildings proposed for demolition; refer to Section 2.5.1, *Building Program*). The proposed Triton Center would also support students and other visitors (e.g., people visiting the restaurants, gym, health facilities, etc.); however, visitors are expected to be existing campus users already traveling to the campus for other primary reasons (e.g., school or work). The proposed Project would primarily serve existing campus populations and provide supporting spaces to be used by existing students, faculty, staff, and visitors. Based on this evaluation, the proposed Project is consistent with the population growth anticipated by 2018 LRDP and would not cause the campus to exceed the horizon year population projection.

The campus population presented in Table 3-1 does not represent just those physically present on campus in any given day. Rather, it represents total student enrollment and fulltime-equivalent employees (e.g., "headcount"). The population figures are not adjusted to reflect the fact that not all students, faculty, and staff are on campus simultaneously on any given day due to variations in class and working/teaching schedules, vacations, sick leave, and sabbaticals. Additionally, since the onset of the COVID-19 pandemic in early 2020, a portion of the total campus staff population has transitioned to remote work schedules which may continue long-term. This has not been factored into any analysis or impact conclusions; however, the following detail on hybrid work is presented to provide context to the headcount population that is used for environmental analysis purposes. Based on work arrangement agreements completed by all campus and health employees in May 2022, the majority of campus employees are working at least 1 day per week from remote locations (e.g., from home) with many working remote full time. Approximately 15% of all campus employees are working remotely "all of the time," or 100% of their work hours; approximately 15% of campus employees are working remotely "most of the time," or 50-99% of their work hours; and approximately 22% of campus employees are working remotely "some of the time," or 1-49% of their work hours. Only approximately 48% percent of campus employees are working from a campus location full time. While hybrid schedules may shift over time, it is expected that hybrid remote work will continue to the foreseeable future. Thus, the actual on-campus staff population on any given weekday would be substantially less than what is presented in this table.

Table 3-1
Total Campus Population Growth Projections

Category	Fall 2015 (Baseline)[1]	Fall 2022 (Actual)[2]	Fall 2035 (LRDP Projected)[1]
Students	32,850	42,000	42,400
Faculty	1,300	1,770*	2,200
Staff	14,700	18,730*	21,000
Total Population	**48,850**	**62,500**	**65,600**

*While Fall 2022 population data were used for student enrollment, Fall 2022 population data for faculty and staff were not available at the time this document was drafted; therefore, Fall 2021 data was used to estimate faculty and staff.

Sources: [1] UC San Diego 2022a; [2] UC San Diego 2022a.

3.3 2018 LRDP LAND USE

The Land Use Plan of the 2018 LRDP describes functional land use categories that reflect those activities that would be predominant in any given area of campus (Figure 2-3 in the 2018 LRDP Program EIR). Predominant uses are the primary programs, facilities, and activities in a general geographic area. Other support or ancillary uses are allowable within any given area defined by a predominant use.

The 2018 LRDP designates the Project site as Academic and Academic Mixed-Use. Academic use areas are defined as land and structures that primarily include classrooms, class and research laboratories, and ancillary support facilities (e.g., administrative, housing and dining facilities, parking, and facilities supporting academic operations). Academic Mixed-Use areas are defined as land and structures that primarily include facilities for academic and administrative activities that generally serve the campus community as a whole (e.g., campus-wide classrooms, admissions, registration, University Extension, student services, etc.). The proposed Triton Center would support classrooms, offices, and meeting and assembly spaces as well as gallery/exhibit space, event space, dining, retail, and other student-oriented services, and amenities (refer to Section 2.5.1, *Building Program*). Therefore, the proposed Triton Center is consistent with the Land Use Plan in the 2018 LRDP.

3.4 2018 LRDP DEVELOPMENT SPACE

The 2018 LRDP provides capacity for approximately 9 million GSF of additional building space for academic, clinical, housing, administrative, and service programs. This projected net increase accounts for the potential removal (demolition) of approximately 1 million GSF of buildings that are beyond their useful life and/or are located in strategic redevelopment areas. The current total campus building space is presented by geographic area on the UC

San Diego La Jolla campus and compared to the 2018 LRDP Program EIR baseline (2015) and horizon year projection (2035) in Table 3-2 below.

Table 3-2
Total Campus Space Projections

Campus Location	Baseline GSF[1]	Actual Fall 2022 GSF[2]	LRDP Projected Fall 2035 GSF
West Campus	12,279,000	12,551,800	16,046,000
East Campus	5,121,300	5,011,900	9,358,300
Scripps Institution of Oceanography	1,049,000	1,018,000	2,011,000
Nearby Properties	471,000	471,000	471,000
Total Space	**15,663,300**	**19,052,700**	**27,886,300**

Sources: [1] UC San Diego2018a; [2] UC San Diego 2020a.

The table above presents the existing, operable building space on campus as of Fall 2022. In addition, at the time this document was prepared, approximately 1.5 million GSF of net new building space was approved and under construction on the West Campus (i.e., the Theatre District Living and Learning Neighborhood, Pepper Canyon West Housing, and the Central Utilities Plant Expansion) and approximately 100,000 GSF of net new building space was approved and pending construction on the East Campus (Viterbi Family Vision Research Center). As described in Section 2.5.2, *Building Design* the proposed Project would construct approximately 300,810 GSF in an area called for by the LRDP for redevelopment and increased density. Based on this data, it has been determined that the proposed Project combined with completed and ongoing construction of projects under the 2018 LRDP would not exceed the building space projections contemplated in the 2018 LRDP and is consistent with the plan.

4 CONSISTENCY WITH 2018 LRDP PROGRAM EIR

The evaluation contained in this consistency review was conducted in accordance with California Public Resources Code §21094. Pursuant to CEQA Guidelines §15164 and §15168, this addendum documents that the effects of the proposed Project have been adequately addressed in a prior (or earlier) programmatic analysis. The 2018 LRDP Program EIR comprehensively addressed the potential environmental effects of growth and development due to implementation of future projects and activities proposed under the 2018 LRDP. Therefore, given the consistency of the proposed Project with the 2018 LRDP, and non-applicability of Public Resources Code §21666, preparation of an addendum is appropriate.

In January 2019 and following certification of the 2018 LRDP Program EIR, amendments and additions to Appendix G of the CEQA Guidelines went into effect. Because the Governor's Office of Planning and Research (OPR) proposed these amendments and additions to Appendix G of the CEQA Guidelines in 2018, UC San Diego was able to anticipate the checklist changes during the preparation of the 2018 LRDP Program EIR and incorporate those concepts into the certified EIR. Therefore, while the 2018 LRDP Program EIR reflects the Appendix G checklist questions that were in effect at the time of EIR certification, the analysis contained therein reflects the context of and appropriately addresses the amended Appendix G that was approved in 2019. To address the amendments directly, this addendum reflects the current Appendix G of the CEQA Guidelines and refers to sections of the 2018 LRDP Program EIR where relevant analysis can be found.

4.1 EVALUATION OF PROJECT ENVIRONMENTAL IMPACTS

Checklist Explanation

Based on tiering and subsequent review concepts identified in the CEQA Guidelines, UC San Diego has defined the following column headings in this addendum. Both headings rely on relevant analyses in the 2018 LRDP Program EIR:

<u>Issues Examined in the 2018 LRDP Program EIR:</u> This column is checked where potential impacts of the proposed Project were adequately examined in the certified 2018 LRDP Program EIR. Where applicable, mitigation measures identified in the 2018 LRDP Program EIR would mitigate impacts of the proposed Project. All applicable mitigation measures from the 2018 LRDP Program EIR are incorporated into the proposed Project as noted in Section 5, *Applicable Mitigation Measures*. The proposed Project is consistent with the analysis provided in the 2018 LRDP Program EIR.

<u>Issues Not Examined in the 2018 LRDP Program EIR:</u> If a column is checked in this section, this indicates potential effects of the proposed Project were not adequately evaluated in the certified 2018 LRDP Program EIR. However, the potential Project would either: a) result in no impact in the category; b) result in less than significant impact in the category; or c) result in a new potentially significant impact. In the instances that “a” or “b” is checked, no additional CEQA documentation would be necessary to further address the issue. All applicable mitigation measures (LRDP Program EIR and/or project-specific) would be incorporated into the proposed Project, as noted in Section 5, *Applicable Mitigation Measures*.

Environmental Resource Areas Addressed

The following environmental resource areas, if checked below, would be potentially affected by the proposed Project, and would involve at least one significant impact that substantially exceeds or is otherwise outside the scope of development or activities evaluated for potential environmental impacts in the 2018 LRDP Program EIR, as discussed below in Sections 4.1.1 through 4.1.17 of the addendum. *Agriculture and Forestry Resources* and *Mineral Resources* are discussed in Section 4.1 of the 2018 LRDP Program EIR under Effects Not Found to be Significant. As noted in that discussion, there is no potential for significant impacts to *Agriculture and Forestry Resources* and *Mineral Resources* due to the lack of such resources on the campus. As such, those environmental resource areas are not discussed in this Addendum.

If “None” is checked below, the proposed Project is deemed entirely consistent with and covered by the environmental analysis contained in the 2018 LRDP Program EIR.

- ☐ Aesthetics
- ☐ Air Quality
- ☐ Biological Resources
- ☐ Cultural and Tribal Cultural Resources
- ☐ Energy
- ☐ Geology and Soils
- ☐ Greenhouse Gas Emissions
- ☐ Hazards and Hazardous Materials
- ☐ Hydrology and Water Quality
- ☐ Land Use and Planning
- ☐ Noise
- ☐ Population and Housing
- ☐ Public Services
- ☐ Recreation
- ☐ Transportation/Traffic
- ☐ Utilities and Service Systems
- ☐ Wildfire
- ☐ Mandatory Findings of Significance
- ☒ None

4.1.1 Aesthetics

Section 3.1 of the 2018 LRDP Program EIR evaluates the impacts of the La Jolla Campus growth under the 2018 LRDP on aesthetics and visual resources. The 2018 LRDP Program EIR concludes that future build out of designated land uses under the plan would result in potentially significant impacts to scenic vistas, visual character, or quality, and light or glare (see Sections 3.1.3.1 through 3.1.3.3 of the 2018 LRDP Program EIR). MMs Aes-1 (scenic vistas) and Aes-2A and Aes-2B (visual character/quality) and Aes-3 (night lighting) are identified in the mitigation framework of the 2018 LRDP Program EIR for projects that would contribute to these impacts. Implementation of the measures would reduce the future aesthetics impacts to a less than significant level, consistent with the 2018 LRDP. No significant impacts to scenic resources within the viewshed of the state scenic highway were identified (see Section 3.1.5 of the 2018 LRDP Program EIR).

AESTHETICS Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact with Project-Specific Mitigation	Potentially Significant Impact
a) Have a substantial adverse effect on a scenic vista?	☒	☐	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☒	☐	☐	☐
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☒	☐	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☒	☐	☐	☐

a) As shown on Figure 3.1-2 of the 2018 LRDP Program EIR, the Project site is not located within a designated Visual Sensitive Zone (SIO) or a Perimeter Development Zone (PDZ). Further, the Project site is not located near any of the Key Vantage Points (KVPs) identified in the 2018 LRDP Program EIR. The nearest KVP is located approximately 0.30 miles to the north along Voigt Drive. The view from this KVP includes the Geisel Library and the land to the north, which is part of the Open Space Preserve (UC San Diego 2018b). Located amid existing development near the center of West Campus, the Project site is not visible from I-5. As described in Section 2.2, *Project Site and Setting*, the Project site has been developed with low-rise buildings, landscaping, paved roads, and surface parking. Construction of the proposed Triton Center would involve demolition of the existing buildings and pavements, excavation and minor grading, and construction of four multi-story buildings (refer to Section 2.5.2, *Building Design*). Building C would reach a total of six stories and a maximum height of approximately 91 feet (refer to Figure 7); however, this building would not be visible from any KVPs. Additionally, it would not impact views or vistas from surrounding, off-campus areas. Therefore, the proposed Project would result in no impacts to scenic vistas/views in the surrounding vicinity, consistent with the analysis provided in the 2018 LRDP Program EIR.

b) Implementation of the proposed Project would not result in substantial damage to scenic resources within a state scenic highway because no such resources or roads exist on or adjacent to the campus. Existing street trees along Russell Lane would be protected in place. New landscaped trees along the east-west corridors would be consistent with existing street trees that would be protected in place. This new landscaping would also provide a more defined connection with Pepper Canyon (refer to Section 2.6, *Landscaping*). No unique rock outcroppings would be affected by future development associated with the proposed Project. For a discussion of impacts to historic buildings on the Project site refer to Section 4.1.4, *Cultural and Tribal Cultural Resources*.

c) As previously described, the Project site is not located within a designated SIO or PDZ or near any of the KVPs identified in the 2018 LRDP Program EIR. The Project site is located within the urban University Center neighborhood near the geographic center of West Campus. The University Center neighborhood is intended to serve as a centralized "downtown" hub of campus activities. As described in Section 2.2, existing development at the Project site is inconsistent in nature and does not maximize the opportunities for a "town center" development, including a mix of uses, urban densities, and pedestrian-oriented ground floors with connection to adjacent neighborhoods and the future light rail transit system (see Section 2.3 of the 2018 LRDP Program EIR). The proposed Project would transform the Project site into a pedestrian-oriented space that better serves as the principal entrance and active central district for the students, facility, staff, visitors, and the local community of UC San Diego. The proposed Project would improve the campus experience and strengthen connections in the public realm across the West Campus. Consistent with MM Aes-2A, the proposed Project has undergone a comprehensive design review by the UC San Diego Design Review Board (DRB) to ensure that the design is consistent with the visual landscape and/or character of surrounding development at the Project site (refer to Section 2.5.2, *Building Design*). The proposed Project was presented to the DRB several times during development and received endorsement by the DRB on September 7, 2022. As a result of DRB input, the design included more pedestrian-scale features, increased tree canopy, and public art throughout the architecture and public realm areas. The design was also asked to consider the longevity and materiality with final selection of material, limit exterior pallet with consistency of systems and detailing. Because the proposed Project would comply with all applicable UC regulations governing scenic quality, it would not have the potential for a significant impact related to degradation of the visual character of the Project site and its surroundings. Therefore, the proposed Project would result in less than significant impacts consistent with the visual character and quality analysis provided in the 2018 LRDP Program EIR.

The Project site is surrounded by existing buildings (e.g., Price Center pictured left) as well as street lamps (e.g., Library Walk, pictured right) that contribute to the nighttime lighting.

d) The UC San Diego campus is in a highly urbanized area with a substantial number of existing light and glare sources. Current light sources within the immediate vicinity of the Project site include multi-story buildings such as the Price Center, Conrad Prebys Music Center, Visual Arts Facility. Vehicle headlights from Gilman Parking Structure and Gilman Drive – a highly trafficked arterial roadway – also contribute to nighttime lighting in the immediate vicinity. Library Walk includes numerous streetlamps that provide lighting for pedestrians walking to and from the Geisel Library and other service-oriented facilities in the University Center neighborhood.

The proposed Project would introduce new light sources including multi-story buildings with interior and exterior lighting, streetlamps, and an aboveground parking structure that would replace existing parking spaces within the Project site. However, as with all projects at UC San Diego, the proposed Project has been designed to comply with the UC San Diego Design Guidelines which includes an Outdoor Lighting Policy. Compliance with these policies would require building materials that appropriately reduce glare (e.g., "clear vision" glass to minimize glare and reflectivity) as well as light fixtures that would be downcast and would minimize light pollution or spill over. The lighting associated with the proposed Project would be consistent with the surrounding uses and would not create any new source of substantial light or glare that could adversely affect daytime or nighttime views in the area. The proposed Project would result in less than significant impacts consistent with the light and glare analysis provided in the 2018 LRDP Program EIR.

4.1.2 Air Quality

Section 3.2 of the 2018 LRDP Program EIR addresses the air quality effects of campus growth under the 2018 LRDP and concludes that implementation of the plan would result in potentially significant impacts from construction and operational activities that could lead to violation of air quality standards or contribute substantially to an existing or projected air quality violation (see Section 3.2.3.2 of the 2018 LRDP Program EIR). Cumulatively significant impacts were identified due to a considerable net increase in criteria pollutants in a region that is in *nonattainment* (see Section 3.2.3.3 of the 2018 LRDP Program EIR). Potentially significant construction-related emissions would cause exposure of sensitive receptors to toxic air contaminant (TAC) emissions (see Section 3.2.3.5 of the 2018 LRDP Program EIR). Less than significant impacts were identified related to consistency with the Regional Air Quality Strategy (RAQS) and State Implementation Plan (SIP) and due to carbon monoxide (CO) hot spots (see Sections 3.2.3.1 and 3.2.3.4 of the 2018 LRDP Program EIR). No significant odors impacts were identified (see Section 3.2.5 of the 2018 LRDP Program EIR).

MMs AQ-2A (fugitive dust emissions) and AQ-2B (off-road construction emissions) are required for projects that would contribute to these impacts. However, the 2018 LRDP Program EIR acknowledges that not all projects under the plan can feasibly implement MM AQ-2B and certain projects would contribute to significant and unavoidable impacts related to criteria pollutants and TACs.

AIR QUALITY Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?	☒	☐	☐	☐

AIR QUALITY Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
c) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☒	☐	☐	☐

a) The 2018 LRDP incorporates development strategies identified in the San Diego Association of Governments (SANDAG) Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) by integrating land use, housing, and transportation planning, consistent with the goals developed by SANDAG and the University land use assumed in the RAQS. As described in Section 3.2.3.1 of the 2018 LRDP Program EIR, the 2018 LRDP incorporates strategies to promote mobility and reduce mobile sources of air pollutant emissions. The proposed Triton Center is consistent with these strategies at the project level. The proposed Project would reconfigure the existing vehicle-oriented roadway network into a pedestrian-oriented space, prioritizing pedestrian circulation and multi-modal connections. As described in Section 2.2.1, *Surrounding Transportation Network*, the Project site is located adjacent to the Gilman Transit Center, which provides service by San Diego Metropolitan Transit System (MTS), North County Transit District (NCTD), and Campus Shuttles. Additionally, the Project site is located within a 5-minute walk from the Central Campus Station and would benefit from Blue Line Trolley service.

The proposed Project is being brought forward as envisioned by the 2018 LRDP and was included as part of the development assumptions evaluated in the 2018 LRDP Program EIR. The proposed Project would provide new bicycle facilities including bicycle racks / storage spaces and showers. Given the existing Class II (i.e., striped) bicycle lanes provided along both sides of Gilman Drive, the proposed bicycles facilities would further encourage bicycle activity at the Project site and throughout the University Center neighborhood. Further, the pedestrian scramble at the intersection of Gilman Drive and Myers Court would provide an enhanced connection between the University Center neighborhood and the Health Sciences West neighborhood to the south.

Together these elements would reduce operational mobile source emissions associated with the proposed Triton Center. The proposed Project would result in less than significant impacts and is consistent with the air quality management plan analysis evaluated in the 2018 LRDP Program EIR.

b) Implementation the 2018 LRDP, including the proposed Project would contribute to a cumulatively considerable net increase of criteria pollutants for which the region is in non-attainment under an applicable federal or state ambient air quality standard as described in the Section 3.2.3.2 of the 2018 LRDP Program EIR. Temporary construction-related, short-term emissions associated with the proposed Project would occur for approximately 3 years between Spring 2023 and Spring 2026. Criteria pollutants such as fugitive dust emissions, nitrogen oxides (NO_x) and CO emissions, and reactive organic gases (ROGs) would result from demolition and other site preparation activities, excavation and grading, and the use of on-site construction equipment and heavy haul truck trips. MMs AQ-2A (fugitive dust emissions) and AQ-2B (off-road construction emissions) would be incorporated into construction specifications to minimize this impact. With these measures in place, the proposed Project would result in less than significant impacts. However, as described in the 2018 LRDP Program EIR, the feasibility of implementing MM AQ-2B cannot be assured as UC San Diego has no control over whether every contractor and sub-contractor can locate and secure Tier 4 interim equipment due to lack of specialized equipment meeting this standard, a lack of local availability requiring transport of the equipment across significant distances, and other complications. Because full compliance with MM AQ-2B cannot be assured, the 2018 LRDP's significant impact due to exceedance of the thresholds was concluded to remain cumulatively significant and unavoidable. Therefore, implementation of the proposed Project with implementation of the 2018 LRDP would contribute to a cumulatively considerable net increase of criteria pollutants for which the region is non-attainment. The proposed Project is consistent with the air quality analysis evaluated in the 2018 LRDP Program EIR.

c) Operational impacts associated with the proposed Project would include emissions of criteria pollutants associated with area sources such as energy use (e.g., heating, air conditioning, and ventilation, lighting and other electricity use, natural gas use, and water consumption). These emissions would be partially offset by the demolition of existing buildings and the elimination of associated stationary source emissions at the Project site. Additionally, the proposed Project would implement the sustainability features described in Section 2.6.2, *Sustainability Features* – including proximity to existing public transit, installation of photovoltaic panels, and compliance with the UC Sustainability Practices Policy requiring a reduction in building energy consumption. Nevertheless, given the increase in development, stationary source emissions would be slightly increased as a result of the proposed Project and sensitive receptors could be exposed to increased pollutant concentrations.

This increase in operational emissions was addressed in the 2018 LRDP Program EIR as a part of future build out of designated land uses under the plan. Implementation of the 2018 LRDP – including development of the proposed Project – would lead to long-term operational emissions of VOC, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$ emissions. Future build out under the 2018 LRDP would result in a net decrease of VOC, NO_x, CO, SO_2, and

$PM_{2.5}$ emissions compared to the Adjusted Existing Conditions (see Table 3.2-8 in the 2018 LRDP Program EIR). The net increase in total operational emissions in 2035 would exceed the significance threshold for PM_{10}. This net increase in PM_{10} is primarily related to mobile sources. A majority of the PM emissions from mobile sources are generated by brake and tire wear. Therefore, the proposed Project could expose sensitive receptors and contribute to the significant and unavoidable air quality (criteria pollutant) impacts associated with the implementation of the 2018 LRDP, consistent with the air quality analysis provided in the 2018 LRDP Program EIR. However, as future transportation programs and greenhouse gas (GHG) emissions reduction strategies are identified for the UC San Diego campus per the Sustainable Transportation goals for the UC Sustainable Practices Policy, mobile source emissions, including PM_{10}, are anticipated to decrease from levels estimated in the 2018 LRDP Program EIR.

d) As previously described the proposed Project would reconfigure the existing vehicle-oriented roadway network into a pedestrian-oriented space, prioritizing pedestrian circulation and multi-modal connections. Any increases in traffic and vehicle miles traveled (VMT) associated with the proposed Project would be minimal. The proposed Project would not induce additional, regular traffic trips to the campus and would not contribute to any exceedances of the 1-hour or 8-hour CO standards during the AM peak periods. Therefore, operation of the proposed Project would not expose sensitive receptors to substantial pollutant concentrations caused by localized traffic-related CO impacts. The proposed Project would result in less than significant impacts and is consistent with the air quality analysis provided in the 2018 LRDP Program EIR.

TAC emissions would be associated with Project-related construction and operations (e.g., delivery trucks) due to diesel PM emissions from construction equipment and motor vehicles. California regulations (California Code of Regulations [CCR] Title 13, §2449[d][3] and §2485) limit idling from both on-road and off-road diesel-powered equipment and are enforced by California Air Resources Board (CARB). As described in Section 3.2.3.5 of the 2018 LRDP Program EIR, campus growth – including the proposed Triton Center – would not exceed the risk threshold for on-campus residents and workers; however, the potential to exceed the thresholds for cancer risks for off-campus residents and workers and off-campus and on-campus sensitive receptors would still exist at a programmatic level. MMs AQ-2A (fugitive dust emissions) and AQ-2B (off-road construction emissions) would be incorporated into construction specifications for the proposed Project to minimize these impacts. However, as described above, the feasibility of implementing MM AQ-2B is not assured and the proposed Project would contribute to the significant and unavoidable air quality (criteria pollutant and TAC) impacts associated with the implementation of the 2018 LRDP. The proposed Project would contribute to previously identified cumulatively significant impacts, consistent with the air quality analysis provided in the 2018 LRDP Program EIR.

e) Potential sources of odors during construction of the proposed Project would include exhaust from diesel construction equipment. However, because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, odors from construction equipment would not affect a substantial amount of people. Construction of the proposed Project would involve typical construction techniques; the odors from off-road equipment and on-road vehicles would be typical of most construction sites and temporary in nature. In addition, operational activities associated with the proposed Project would not produce new sources of odor or other pollutants that would adversely affect a substantial number of people. Therefore, the proposed Project would result in less than significant impacts and is consistent with the air quality analysis evaluated in the 2018 LRDP Program EIR.

4.1.3 Biological Resources

Section 3.3 of the 2018 LRDP Program EIR addresses the effects of projected growth under the 2018 LRDP on biological resources and concludes that its implementation would result in potentially significant impacts to sensitive biological resources, including candidate, sensitive, or special-status plant species (see Section 3.3.3.1 of the 2018 LRDP Program EIR); sensitive wildlife species (see Section 3.3.3.2 of the 2018 LRDP Program EIR); sensitive vegetation communities (see Section 3.3.3.3 of the 2018 LRDP Program EIR); and federally regulated wetlands (see Section 3.3.3.4 of the 2018 LRDP Program EIR). No significant impacts to wildlife corridors or linkages or conflicts with local policies or ordinances, including any adopted habitat conservation plans were identified (see Section 3.3.3 of the 2018 LRDP Program EIR).

The mitigation framework addresses all the potentially significant impacts identified in Section 3.3.3 of the 2018 LRDP Program EIR. If a development under the 2018 LRDP would potentially impact sensitive plants, the site would be surveyed for sensitive plants in accordance with MM Bio-1A and, if applicable, San Diego barrel cactus (*Ferocactus viridescens*) would be relocated in accordance with MM Bio-1B. For impacts to sensitive wildlife species, surveys for the species, construction noise attenuation, and agency consultation is required by MMs Bio-2A, Bio-2B, and Bio-2C and avian nest surveys and avoidance measures are required by MMs Bio-2D and Bio-2E. MMs Bio-3A and Bio-3B require project-level surveys for sensitive vegetation communities, while avoidance and compensatory mitigation is required by MMs Bio-3C and Bio-3D. Indirect construction impacts are addressed through the implementation of MMs Bio-3E and Bio-3F, and indirect operational impacts require compliance with MMs Bio-3G through Bio-3M. Implementation of these measures would reduce future project-level impacts to less than significant levels.

BIOLOGICAL RESOURCES Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☒	☐	☐	☐

Existing street trees along Russell Lane would be protected in place. However, other trees located throughout the Project site – including the trees along Myers Drive (pictured above) – may be removed or trimmed as necessary during construction.

a) The Project site has been developed with low-rise buildings, landscaping, paved roads, and surface parking. The 2018 LRDP Program EIR defines the Project site it as Urban/Developed Land (refer to Figure 3.3-2 in the 2018 LRDP Program EIR). The nearest natural vegetation is located within Pepper Canyon, approximately 500 feet to the east of the Project site. Pepper Canyon is designated as the Urban Forest category of the Open Space Preserve. As such, the Project site and the immediate surrounding vicinity do not provide habitat for or otherwise support special-status species. All construction activities – including demolition of the existing buildings and pavements, excavation and minor grading, construction staging and materials laydown areas – would be located within previously disturbed/developed areas on the Project site. Nevertheless, the initial excavation and grading would include removal existing ornamental trees, where required (refer to Section 2.6.1, *Project Construction*). Removal of trees on the Project site would have the potential to impact nesting birds depending on the timing of removal. Therefore, MMs Bio-2D and Bio-2E would be implemented during construction, as necessary. Additionally, MM Bio-3G would be implemented to prevent the potential spread of shot hole borers (*Euwallacea* sp.) (SHB). With the implementation of these mitigations, the proposed Project would not cause any significant direct or indirect impacts to any species identified as a candidate, sensitive, or special status and is consistent with the analysis provided in the 2018 LRDP Program EIR. The proposed Project would not cause any significant direct or indirect impacts and is consistent with the sensitive species analysis evaluated in the 2018 LRDP Program EIR.

b, c) As previously described, the Project site has been developed with low-rise buildings, landscaping, paved roads, and surface parking. As such, the Project site does not contain any aquatic, wetland, or riparian habitat. No significant impacts to such resources would occur and the impacts associated with the proposed Project is consistent with the biological resources analysis provided in the 2018 LRDP Program EIR.

d) Development of the proposed Project would not preclude wildlife movement or impact wildlife corridors or linkages as none exist on the campus. The proposed Project is consistent with the biological resources analysis provided in the 2018 LRDP Program EIR.

e) UC San Diego is a part of the UC, a constitutionally created unit of the State of California. As a State entity, UC is not subject to municipal plans, policies, and regulations, such as County and City General Plans or local ordinances. The implementation of the proposed Project would not result in any conflicts with any local policies protecting biological resources and is consistent with the biological resources analysis provided in the 2018 LRDP Program EIR.

f) The proposed Project would not directly or indirectly affect resources preserved by the City of San Diego as part of its Multiple Species Conservation Plan (MSCP). Therefore, no impacts are anticipated to the City's MSCP or the Natural Community Conservation Plan (NCCP) Program and is consistent with the biological resources analysis provided in the 2018 LRDP Program EIR.

4.1.4 Cultural and Tribal Cultural Resources

Section 3.4 of the 2018 LRDP Program EIR addresses the effects of campus growth under the 2018 LRDP on archaeological and historical resources, including tribal cultural resources, and concludes that its implementation would result in potentially significant impacts as a result of: potential alterations of historical (built environment) resources that would cause a substantial adverse change in their significance (see Section 3.4.3.1 of the 2018 LRDP Program EIR); land disturbance of recorded archaeological resources and unrecorded subsurface archaeological resources (see Section 3.4.3.2 of the 2018 LRDP Program EIR); disturbance of human remains and of potential human remains in unrecorded subsurface sites (see Section 3.4.3.4 of the 2018 LRDP Program EIR); and disturbance of tribal cultural resources (TCRs) (see Section 3.4.3.5 of the 2018 LRDP Program EIR). Disturbance of geological formations containing paleontological (fossil) resources (see Section 3.4.3.3 of the 2018 LRDP Program EIR) is discussed further in Section 4.1.6, *Geology and Soils*, of this addendum.

The mitigation framework addresses all potentially significant impacts identified in Section 3.4.3 of the 2018 LRDP Program EIR. For impacts to historical resources, MM Cul-1A requires an analysis of historical resources and avoidance through compliance with the Secretary of the Interior's Standards for Rehabilitation; for projects involving historical resources that do not comply with the standards, project redesign is required in accordance with MM Cul-1B; preparation of HABS Level I Documentation is required by MM Cul-1C; and feasible relocation of historical resources through compliance with MM Cul-1D. Supplemental measures are also required for certain projects as described in MM Cul-1E through Cul-1G. Demolition would be considered a significant and unavoidable impact of the 2018 LRDP implementation.

The mitigation framework requires the identification of archaeological resources in the Area of Potential Effects (APE) and evaluation in accordance with MM Cul-2A; avoidance of impacted resources per MM Cul-2B; documentation and treatment is required by MM Cul-2C; unknown resources, including human remains, are treated in accordance with MM Cul-2D; and construction monitoring to comply with MM Cul-2E. Compliance with California Health and Safety Code §7050.5 and §7052 and Public Resources Code §5097.98 is required for inadvertent discoveries of human remains, as noted in MM Cul-2E. Implementation of these measures would reduce future project-level impacts to archaeological resources, including human remains, to less than significant levels.

If campus development would affect TCRs, UC San Diego would initiate tribal consultation and identify feasible avoidance and minimization measures in accordance with MM Cul-5A. If avoidance is not feasible, TCRs would be treated through construction monitoring in accordance with MM Cul-5B; any cultural materials would be returned to the affected tribe per MM Cul-5C. Implementation of these measures would reduce future project-level impacts to TCRs to less than significant levels.

CULTURAL AND TRIBAL CULTURAL RESOURCES Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?	☒	☐	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☐
d) Cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: 1) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code §5020.1(k), or	☒	☐	☐	☐

CULTURAL AND TRIBAL CULTURAL RESOURCES Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code §5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code §5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.				

a) As described in the Historic Resources Report prepared for the 2018 LRDP Program EIR (Architectural Resources Group [ARG] 2018), the Project site includes facilities that are considered historic resources (see Figure 3.4-1b in the 2018 LRDP Program EIR) because the facilities contribute to the Camp Mathews Historic District. The proposed Project would require the demolition of 400/401, 301/301A, 302, 303, 201, and 202 University Center. Except for 303 University Center, which was constructed in 1960, these buildings were constructed in 1942 and are associated with the former Camp Matthews, a marksmanship training camp that operated at the site for several decades until it was shuttered in 1964.

As described in Section 3.4.1 of the 2018 LRDP Program EIR, when the land comprising the training camp was transferred to UC San Diego, the campus inherited dozens of military buildings; however, almost all have since been demolished so this group of modest buildings stands as a rare vestige of the area's military history. These buildings originally housed uses related to the camp's administration and day-to-day operations; now they support operations of the campus.

The Camp Matthews Historic District is significant because it conveys broad patterns of history associated with military operations and the former Camp Matthews military base. It is one of few remaining resources associated with the former marksmanship training camp. The district is eligible for the California Register of Historic Resources (CRHR). Six buildings are contributors to the Camp Matthews Historic District:

- University Center 201 (1942)
- University Center 202 (1942)
- University Center 301 (1942)
- University Center 302 (1942)
- University Center 401 (1942)

- University Center 409 (1942)

As described in Section 3.4.3.1 of the 2018 LRDP Program EIR, if a project associated with the 2018 LRDP would include demolition within a historic district, the project would be evaluated to determine whether impacts to the district's historical significance could be mitigated to a level of less than significant. If the district retains integrity, then impacts may be mitigated to a level of less than significant. Demolition is generally considered an unavoidable adverse impact that cannot be mitigated to a level of less than significant. In the context of historic districts, this principle is applied to the district, rather than to an individual building or specific site or landscape feature that is located within its boundaries. It is possible for limited demolition to occur within a historic district without adversely affecting the overall integrity of the district, provided that the district's essential character and significance remain unimpaired.

There is no prescribed threshold for contributing elements that is needed to constitute a historic district; rather, eligibility hinges on whether a district retains enough of its historic character and integrity to adequately convey the reason(s) for its significance. However, best professional practices stipulate that a historic district should retain, at minimum, 60 percent of its contributing elements to retain its eligibility for listing in the CRHR (ARG 2018). If demolition consistent with the objectives of the proposed 2018 LRDP compromises the essential character and integrity of the district, the district's essential character and significance are no longer discernible, and/or less than 60 percent of its contributing features remain, then the project cannot be mitigated to a less than significant level. Thus, a significant and unavoidable impact to a historic district would result.

Given that the proposed Project would require demolition of five of the six contributing elements to the Camp Matthews Historic District (i.e., approximately 83 percent of its contributing elements) impacts would be considered significant and unavoidable. Consistent with the requirements of MM CUL-1C, UC San Diego has prepared HABS Level I Documentation for the five contributors to the Camp Matthews Historic District that would be demolished under the proposed Project (Wood 2020). This documentation fulfills the requirements of MM CUL-1C and is available for digital viewing via the UC San Diego Campus Planning office. This effort included the preparation of an architectural and historical narrative, archival drawings, digital photography, and as-built site plans.

Building 401 (upper left), Building 301 (upper right), Building 302 (lower left), and Building 202 (lower right) are all contributors to the Camp Matthews Historic District, and would be demolished to facilitate the construction of the proposed Triton Center.

Consistent with MM Cul-1D, UC San Diego considered relocating the five contributors to an appropriate receiver site. However, given the vision for redevelopment of the University Center neighborhood described in the LRDP, the district does not provide the space, necessary to retain the buildings or the associative qualities between the contributors and the district within which they are currently located. Therefore, relocation is not a feasible mitigation measure. Consistent with LRDP Program EIR Mitigation Measures Cul-1E and Cul-1G, a select portion of the existing building materials supporting Building 201, the former Camp Matthews Mess Hall, would be salvaged and incorporated into the proposed Triton Center as a commemorative feature (e.g., wood wall paneling or benches). The mitigation framework in the 2018 LRDP Program EIR states "supplemental mitigation measures (Cul-1E, Cul-1F, and Cul-1G) shall be applied in addition to the aforementioned standard mitigation programs for individual projects, as deemed appropriate, depending on the extent of the project impacts" (UC San Diego 2018a). Seeing that the district does not provide the space necessary to retain the buildings or the associative qualities between the contributors and the district within which they are currently located, Cul-1E: Interpretation/ Commemoration and Cul-1G: Salvage would be necessary to mitigate significant adverse changes to tribal cultural resources. The impacts of the proposed Project to the Camp Matthews Historic District were evaluated and disclosed in the 2018 LRDP Program EIR as a direct result of the 2018 LRDP Program EIR Objective #6, "Complete the redevelopment of the University Center on West Campus as a walkable 'town center' featuring a mix of uses, urban densities, and pedestrian-activated ground floors, with connections to adjacent neighborhoods and the future light-rail transit station at Pepper Canyon." A Reduced University Center Alternative that would allow for preservation of the historic district was considered but rejected in the 2018 LRDP Program EIR. This alternative would have avoided significant and unavoidable historic resources impacts to the Camp Matthews Historic District but would have also reduced development by 470,000 GSF (UC San Diego 2018b).

As described further in Chapter 5, *Alternatives*, of the 2018 LRDP Program EIR, this alternative was rejected because the "town center" is an important component and objective of the 2018 LRDP as it provides a unique dense urban core at the heart of the campus (i.e., a campus downtown), which allows for a significant increase in development capacity by enabling consolidation of shared campus services and amenities in one central location. A campus downtown is essential to the student experience because it creates a sense of place and facilitates a range of formal and informal uses and services, while still being well connected to the greater campus via pedestrian and bicycle paths and to the community at large via convenient connections to the Gilman Transit Center and the Central Campus Station. In addition to directly conflicting with 2018 LRDP Program EIR Objective #6 this alternative was also found to meet less completely 2018 LRDP Program EIR Objectives #1, #3, #5, and #10 (refer to Section 2.3, *Project Objectives*).

Compliance with MMs Cul-1C, Cul-1D, Cul-1E, and Cul-1G would minimize potential impacts to the maximum extent practicable; however, not to less than significant levels. Because the historic district would demolish the majority of the Camp Matthews Historic District, a significant impact would result. Therefore, the proposed Project would contribute to the significant and unavoidable impacts to historic resources that are associated with the implementation of the 2018 LRDP. This conclusion is consistent with the analysis and conclusion of the 2018 LRDP Program EIR.

b, c) As previously described, the Project site has been developed with low-rise buildings, landscaping, paved roads, and surface parking. Based on a review of the APE in accordance with MM Cul-2A and the inventory and analysis contained in the Archaeological Resources Report prepared for the 2018 LRDP Program EIR (AECOM 2018), the Project site contains no known archaeological resources. Given that the Project site has been developed/disturbed, none are expected to be found during the proposed construction activities. Similarly, human remains were not found in previous development and are not expected to be found during construction of the proposed Project. However, in the unlikely event that previously unidentified resources, including human remains, are discovered during construction, any inadvertently discovered resources would be protected and curated, as required. Therefore, implementation of the proposed Project would not result in any adverse change to archaeological resources and is consistent with the cultural resources analysis provided in the 2018 LRDP Program EIR.

d) Assembly Bill (AB) 52 requires that a Lead Agency consult with California Native American tribes that have requested such consultation, at initiation of the CEQA process, to identify and evaluate the significance of TCRs. The process for identification of TCRs on the UC San Diego campus consisted of the formal consultation process mandated by AB 52, as well as a Native American consultation and outreach program conducted for the 2018 LRDP Program EIR.

In January 2016, UC San Diego proactively contacted California Native American tribes traditionally and culturally affiliated with the San Diego region to solicit their interest in being notified of proposed campus development projects as part of the planning process pursuant to AB 52. UC San Diego did not receive any responses as a result of this outreach. However, UC San Diego was contacted independently by the San Luis Rey Band of Mission Indians, who expressed interest in receiving formal notifications of proposed projects on campus. Accordingly, UC San Diego has been sending out formal consultation request letters to the San Luis Rey Band of Mission Indians on a project-by-project basis. Such a letter describing the 2018 LRDP and requesting a consultation was sent to the San Luis Rey Band of Mission Indians on December 9, 2016. Because no response was received within the requested 30 days, UC San Diego assumed that consultation was declined.

The 2018 LRDP Program EIR Notice of Preparation (NOP) dated November 3, 2016, was also sent to 13 Native American tribes and the Native American Heritage Commission (NAHC) notifying them of the preparation of the 2018 LRDP Program EIR and soliciting input from them regarding potential environmental issues associated with implementing the 2018 LRDP. Although an NOP response letter was received from the NAHC, no response letters were received from the notified tribes (refer to Appendix A to the 2018 LRDP Program EIR).

In February 2017, a Sacred Lands File (SLF) search was requested from the NAHC as part of the 2018 LRDP Program EIR preparation (see Appendix D to the 2018 LRDP Program EIR). The NAHC responded that sites had been identified on campus and recommended contacting the Lipay Nation of Santa Ysabel for more information. Campus representatives contacted the tribe, which indicated there are several sites in the vicinity of UC San Diego that are considered sacred due to the known presence of human remains. Because the proposed Project is consistent with the 2018 LRDP and is not located on or near the TCRs identified on campus through these prior consultation and communication efforts, less than significant impacts to known TCRs are expected. The proposed Project is consistent with the cultural resources analysis provided in the 2018 LRDP Program EIR. Though impacts to TCRs are not anticipated, MM CUL-5B (Native American construction monitoring) will nonetheless be implemented during construction of the proposed Project as is standard practice for all significant construction efforts on campus, regardless of location.

4.1.5 Energy

Following the certification of the 2018 LRDP Program EIR, the CEQA Guidelines were amended to provide new requirements to address potential impacts on energy. While a separate section on energy was not included in the 2018 LRDP Program EIR, applicable analyses and discussion to these new questions in the CEQA Guidelines are addressed in Section 3.15, *Utilities, Service Systems, and Energy* of the 2018 LRDP Program EIR as well as Section 3.6, *Greenhouse Gas Emissions*. These analyses are referenced below as appropriate. No mitigation measures related to energy were required in the 2018 LRDP Program EIR.

ENERGY Would the Project…	Impact Examined in 2018 LRDP Program EIR	Impact Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

a) During construction, the proposed Project would result in an increase in energy consumption through the combustion of fossil fuels in construction worker commute vehicles, heavy construction equipment, and through the use of electricity for temporary buildings, lighting, and other sources. The proposed Project would also consume energy for building heating and cooling, refrigeration, lighting, electricity, and commercial equipment. New student, visitor, and faculty vehicle trips and fleet vehicle trips associated with the proposed Project would also be a source of energy consumption. However, the proposed Project would comply with the energy conservation strategies expressed in the UC Sustainable Practices Policy. The proposed Project would use electricity purchased from the UC Energy Services Unit Direct Access Program (100 percent renewable). As described in Section 2.5.6, *Sustainability Features*, numerous sustainable design features have been incorporated into the building design to reduce energy consumption and conserve natural resources (e.g., proximity to Central Campus Station and the Gilman Transit Center, addition of bicycle racks / storage spaces and showers, pedestrian-orient decision, LID features, photovoltaic panels, etc.). The proposed Project has been designed to achieve LEED Gold Certification. Implementation of proposed sustainability features would minimize the environmental impacts associated with the construction and operation of the proposed Triton Center. With these features, the proposed Project would be consistent with the 2018 LRDP sustainability goals. The Project would not result in wasteful, inefficient, or unnecessary use of energy and is consistent with the energy analysis evaluated in the 2018 LRDP Program EIR.

b) As previously described the proposed Project would implement the sustainability measures identified in Section 2.5.6, *Sustainability Features*. Conformance with the UC Sustainable Practices Policy and other UC requirements related to energy reduction and carbon-free energy use would ensure that the proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, the proposed Project would not result in any new significant environmental effects or a substantial increase in the severity of previously identified significant effects regarding conflict with energy plan or policy.

4.1.6 Geology and Soils

Section 3.5 of the 2018 LRDP Program EIR addresses the geology and soils effects of campus growth under the 2018 LRDP and concludes that implementation of future projects under the plan that comply with the applicable regulations related to geologic and soils hazards and result in less than significant impacts related to exposure to seismic-related hazards (see Section 3.5.3.1 of 2018 LRDP Program EIR), soil erosion and topsoil loss associated with ground disturbance (see Section 3.5.3.2 of 2018 LRDP Program EIR); unstable geologic or soil conditions (see Section 3.5.3.3 of 2018 LRDP Program EIR), and expansive soils (see Section 3.5.3.4 of 2018 LRDP Program EIR). The analysis determined there is no potential for a significant impact to geology or soils related to use of septic tanks or alternative wastewater disposal systems (see Section 3.5.5 of 2018 LRDP Program EIR).

No geology and soils mitigations are required in the 2018 LRDP Program EIR.

Section 3.4, C*ultural and Tribal Cultural Resources* of the 2018 LRDP Program EIR addresses the effects of campus growth under the 2018 LRDP on paleontological resources and concludes that its implementation would result in potentially significant impacts to disturbance of geological formations containing paleontological (fossil) resources (see Section 3.4.3.3 of the 2018 LRDP Program EIR). Paleontological monitoring is required in formations of high sensitivity; identification and evaluation; avoidance; documentation and treatment; and construction monitoring in accordance with MM Cul-3. Implementation of this measure would reduce future project-level impacts to less than significant levels.

GEOLOGY AND SOILS Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR: No Impact	Issue Not Examined in 2018 LRDP Program EIR: Less-than-Significant Impact	Issue Not Examined in 2018 LRDP Program EIR: Potentially Significant Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☒	☐	☐	☐
ii) Strong seismic ground shaking?	☒	☐	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☒	☐	☐	☐
iv) Landslides?	☒	☐	☐	☐
b) Result in substantial soil erosion or the loss of topsoil?	☒	☐	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☒	☐	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☒	☐	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☒	☐	☐	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☒	☐	☐	☐

a) UC San Diego La Jolla Campus and the surrounding area are not located within an Alquist Priolo Earthquake Fault Zone. The closest known active fault is the Rose Canyon fault zone located approximately 3 miles west-southwest of the Project site; however, this fault neither underlies nor projects towards the Project site, making probability of fault rupture low (Group Delta Consultants, Inc. 2022; see Appendix A).

Although the Project site would not be subject to surface fault rupture, it could be subject to a severe level of seismic ground shaking as a result of movement along an active fault zone in the vicinity. Group Delta Consultants Inc. calculated the maximum considered earthquake spectral response acceleration parameters in accordance with the current California Building Code (CBC) (Group Delta Consultants, Inc. 2022).

As described in the 2018 LRDP Program EIR, portions of the campus could be subject to earthquake-induced landslides. Group Delta Consultants, Inc. explored subsurface conditions at the Project site by drilling 12 borings to a maximum depth of 31.5 feet below ground surface (bgs). Materials encountered in the borings consisted of fill, Very Old Paralic Deposits, Eocene-age Scripps Formation and Ardath Shale. The fill extends to a depth varying from approximately 2 to 8 feet bgs and consists of silty or clayey sand. The fill is considered potentially compressible and unsuitable for the direct support of new fill or foundation loads, or other settlement-sensitive improvements such as pavements and walkways (Group Delta Consultants, Inc. 2022). Additionally, the clayey fill soils have a medium to high expansion potential (Group Delta Consultants, Inc. 2022). Very Old Paralic Deposits were encountered in most of the borings directly overlying the Scripps Formation. The Very Old Paralic Deposits typically have a low expansion potential, although the clay layers may be moderately or highly expansive (Group Delta Consultants, Inc. 2022). The Scripps Formation typically overlies the Ardath Shale in the region; however, at the Project site the claystone beds commonly associated with the Ardath Shale occurs within sandstone and siltstone beds that are more typical of the Scripps Formation. The claystone of the Scripps Formation may be moderately to highly expansive (Group Delta Consultants, Inc. 2022). The regional groundwater table is believed to be located more than 50 feet bgs. However, perched groundwater seepage was encountered within the Very Old Paralic Deposits at approximately 14 to 18 feet bgs (Group Delta Consultants, Inc. 2022).

Given the geologic age and relatively high density of the formational materials, the potential for dynamic settlement to adversely affect the proposed Project is considered to be negligible (Group Delta Consultants, Inc. 2022). Additionally, the geotechnical investigation did not identify any evidence of previous landslides and concluded that the potential for landslides or slope instabilities on the Project site was low (Group Delta Consultants, Inc. 2022).

The proposed Project would comply with the CBC and the UC Seismic Safety Policy, which require independent review of structural seismic design of both new construction and remodeling projects. The proposed Project would also incorporate the recommendations from the geotechnical investigation (Group Delta Consultants, Inc. 2022). For example, the fill underlying the Project site would be completely excavated and replaced with compacted fill in all settlement-sensitive improvement areas, including new pavements and exterior flatwork. Additionally, for any new structures with foundations at or near existing grades, the building pads would be over-excavated to remove deeper compressible fill and/or to address the presence of cut/fill transitions. Any nuisance seepage remaining in the excavation bottoms would be addressed using gravel sumps, and pumps. Compliance with the CBC and UC Seismic Safety Policy as well as the incorporation of recommendations from the geotechnical study would avoid any potential for seismic hazards. As such, the proposed Project is consistent with the geology and soils analysis evaluated in the 2018 LRDP Program EIR.

b) As with all other campus development, the proposed Project would comply with the UC San Diego Design Guidelines, which include the incorporation of LID features, erosion, and sediment control BMPs, and UC San Diego's Stormwater Management Program and other regulatory requirements, as needed, to minimize erosion and topsoil loss. Specifically, the Project would comply with all of UC San Diego's National Pollutant Discharge Elimination System (NPDES) permit requirements, including the General Permit for Storm Water Discharges Associated with Construction Activity (General Construction Permit) and the General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (Phase II Small MS4 Permit), which require soil erosion control measures. Compliance with these regulations during construction and operation would provide adequate protection against soil erosion during and following the completion of construction activities. Therefore, the proposed Project is consistent with the geology and soils analysis provided in the 2018 LRDP Program EIR.

c) As described in the geotechnical investigation, fill extends beneath the Project site to a depth varying from approximately 2 to 8 feet bgs and consists of silty or clayey sand. The fill is considered potentially compressible and unsuitable for the direct support of new fill or foundation loads, or other settlement-sensitive improvements such as pavements and walkways (Group Delta Consultants, Inc. 2022). The Very Old Paralic Deposits and Scripps Formation that would underlie the four multi-story buildings are dense to very dense materials. Given the geologic age and relatively high density of the formational materials, the potential for liquefaction and dynamic settlement to adversely affect the proposed Project is considered negligible (Group Delta Consultants, Inc. 2022). As previously described, the proposed Project would comply with the CBC and the UC Seismic Safety Policy, which would address underlying soil conditions, as necessary. Compliance with these regulations and implementation of the recommendations from the geotechnical investigation (Group Delta Consultants, Inc. 2022) would provide adequate protection against impacts. The proposed Project is consistent with the geology and soils analysis provided in the 2018 LRDP Program EIR.

d) Expansive soils are soils that are high in expansive clays or silts that can create a potential for soils to swell or shrink with wetting and drying. This swelling and shrinking can be detrimental to foundations, concrete slabs flatwork and pavement; however, strategies can be employed during construction to prevent damage caused by expansive soils. The clayey fill soils have a medium to high expansion potential. The Very Old Paralic Deposits typically have a low expansion potential, although the clay layers may be moderately or highly expansive (Group Delta Consultants, Inc. 2022). The sandstone and siltstone of the Scripps Formation typically have a very low to low expansion potential; however, claystone of the Scripps Formation may be moderately to highly expansive (Group Delta Consultants, Inc. 2022). As previously described, the proposed Project would comply with the CBC and the UC Seismic Safety Policy, which would address underlying soil conditions, as necessary. Additionally, the proposed Project would comply with the recommendations from the geotechnical investigation (Group Delta Consultants, Inc. 2022). For example, additional testing would be conducted during grading to confirm that the upper 2 feet of fill soils placed beneath each structure consists of very low expansion soil. Implementation of these policies and recommendations of from the geotechnical investigation would provide adequate protection against impacts. The proposed Project is consistent with the geology and soils analysis provided in the 2018 LRDP Program EIR.

e) UC San Diego is provided sanitary sewer service by the City of San Diego and no septic tanks or alternative wastewater systems are used or anticipated to be used during the implementation of the 2018 LRDP, including the development of the proposed Project. As such, the proposed Project is consistent with the geology and soils analysis provided in the 2018 LRDP Program EIR.

f) As described in Section 3.4 of the 2018 LRDP Program EIR the campus is underlain by various geologic units that are assigned sensitivity levels based on their potential to yield significant fossil remains. The geologic units under the campus that are considered regionally to be of high paleontological sensitivity are Ardath Shale, Scripps Formation, and the Old Paralic Deposits (Bay Point Formation). The Very Old Paralic Deposits (Lindavista Formation) are described as having moderate sensitivity (Deméré and Walsh 2003), while the other geologic units and soils found on the UC San Diego campus (artificial fill, quaternary alluvium, colluvium, quaternary landslide, and topsoil) are of low sensitivity.

As described in Section 2.2, *Project Site and Setting*, the Project site has been developed with low-rise buildings, landscaping, paved roads, and surface parking. Based on the mapping and analysis provided in the 2018 LRDP Program EIR, the Project site is not located within an area of high potential for paleontological resources (see Figure 3.4-2 in the LRDP Program EIR). However, subsurface conditions within the Project site were examined as part of a geotechnical investigation prepared for the proposed Project by Group Delta Consultants, Inc. (2022). Materials encountered in the borings drilled on the Project site consisted of sedimentary materials associated with the Eocene-age Scripps Formation and Ardath Shale which are considered to have high likelihood of encountering fossils (Group Delta Consultants, Inc. 2022). Therefore, while the Project site is not mapped as an area of high potential for paleontological resources, minor excavation associated with the subterranean mechanical room and building foundations could have the potential to impact paleontological resources, paleontological sites, or unique geologic features. In the unlikely event that previously unidentified resources are discovered during construction, implementation of MM Cul-3 would reduce impacts to less than significant levels. As such, the proposed Project is consistent with the cultural resources analysis provided in the 2018 LRDP Program EIR.

4.1.7 Greenhouse Gas Emissions

Section 3.6 of the 2018 LRDP Program EIR addresses potential impacts from GHG emissions and climate change and determines that implementation of the 2018 LRDP would generate GHG emissions that may have a potentially significant cumulative impact on the environment during construction and operation (see Section 3.6.3.1 of the 2018 LRDP Program EIR) even with the implementation of GHG Reduction Actions contained in the 2018 LRDP and described in Section 3.6.3.1 of the 2018 LRDP Program EIR. Despite the projected increase in GHG emissions over time, the campus would not conflict with UC policies and plans adopted for the purposes of reducing GHG emissions which are consistent with GHG reduction targets contained in AB 32 and Senate Bill (SB) 32 (see Section 3.6.3.2 of the 2018 LRDP Program EIR).

Implementation of programmatic measures identified in the 2018 LRDP Program EIR mitigation framework require the campus to decarbonize the cogeneration plant after 2032 (MM GHG-1A), to install electric charging stations across the campus (MM GHG-1B), and to conduct annual inventory updates and determine the need for and purchase of carbon credit purchases (MM GHG-1C) would reduce campus-wide contributions to cumulative GHG emissions (and related climate change impacts) a less than significant level. No project-level mitigation measures are required for cumulative GHG emissions impacts.

GREENHOUSE GAS EMISSIONS Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose or reducing the emissions of greenhouse gases?	☒	☐	☐	☐

a) Construction of the proposed Project would result in GHG emissions during demolition and other site preparation activities, excavation and grading, and the use of on-site construction equipment and heavy haul truck trips. Operational GHG impacts associated with the proposed Project would include emissions associated with area sources such as building energy use, water treatment/usage, solid waste disposal, and other mobile sources. However, the proposed Project would include multiple design features that would reduce its overall contribution to campus wide GHG emissions. As described in Section 2.6.2, *Sustainability Features*, the proposed Project would be certified as a LEED Gold and achieve building energy efficiency of 20 percent better than Title 24 energy performance standard, in accordance with the UC Sustainable Practices Policy. These design elements are reflective of UC San Diego's commitment to the sustainability.

Although the development of the proposed Project would result in GHG emissions, through the initiatives to reduce campus wide GHG emissions, project emissions would be reduced or offset over time. In addition, the anticipated GHG emissions associated with the proposed Project were part of the program-level emissions projections and analysis of the 2018 LRDP Program EIR, and following operation, actual emissions would be included in the annual campus-wide GHG inventory as part of the campus' implementation of MM GHG-1C. As such, the proposed Project is consistent with the GHG analysis provided in the 2018 LRDP Program EIR.

b) The 2018 LRDP contains several GHG Reduction Actions focused as minimizing and reducing future GHG emissions across the campus. Implementation of those strategies would support the efforts of the UC San Diego to reach the UC Sustainable Practices Policy target of climate neutrality for Scope 1 and 2 emissions by 2025 and climate neutrality for Scope 3 emissions by 2050, which are in line with the UC Carbon Neutrality Initiative and the UC San Diego Climate Action Plan. As previously described, the proposed Project would not conflict with UC Sustainable Practices Policy. Consistent with the overall 2018 LRDP, the proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose or reducing the emissions of GHGs and is consistent with the GHG analysis evaluated in the 2018 LRDP Program EIR.

4.1.8 Hazards and Hazardous Materials

Section 3.7 of the 2018 LRDP Program EIR addresses the hazards and hazardous materials effects of campus growth and determined that implementation of the 2018 LRDP would not result in a potentially significant impact related to the transport, use, and disposal of hazardous materials (see Sections 3.7.3.1 and 3.7.3.2 of the 2018 LRDP Program EIR); or pose a health risk to occupants of the school or the campus community (see Section 3.7.3.3 of the 2018 LRDP Program EIR). The potential for significant hazards related to listed hazardous materials sites on the UC San Diego campus would exist due to the unknown potential for munitions debris or munitions and explosives of concern (MEC) associated with historical military training (see Section 3.7.3.4 of the 2018 LRDP Program EIR). Aircraft operations and activities would not pose significant safety hazards (see Section 3.7.3.5 of the 2018 LRDP Program EIR). Construction-related road closures or detours on the campus could impair or intervene with emergency response and result in potentially significant impacts (see Section 3.7.3.6 of the 2018 LRDP Program EIR). Based on the analysis of wildfire hazards on campus, there would be less than significant potential for large-scale wildland fires (see Section 3.7.3.7 of the 2018 LRDP Program EIR).

The 2018 LRDP Program EIR mitigation framework requires the assessment of hazardous materials contamination on the Project site and removal or remediation if a public health risk is identified (MMs Haz-4A and Haz-4B). MM Haz-4C requires construction activities to be halted if unknown contamination is encountered and implementation of remedial activities. Implementation of these measures during project-level planning and construction would reduce potential hazards from past contamination to less than significant levels. Compliance with MM Haz-6 would require contractors to notify Campus Fire Marshall and the campus community of any required road closures to reduce emergency access/response impacts to less than significant levels.

HAZARDS AND HAZARDOUS MATERIALS Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☒	☐	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☒	☐	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within a 0.25-mile radius of an existing or proposed school?	☒	☐	☐	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☒	☐	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☒	☐	☐	☐

HAZARDS AND HAZARDOUS MATERIALS Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☒	☐	☐	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☒	☐	☐	☐

a, b) Adherence to existing regulations and compliance with campus safety standards mandated by applicable federal, state, University, and local laws and regulations, would minimize the risks resulting from the routine transportation, use, storage, or disposal of hazardous materials or hazardous wastes and from accidental releases during construction of the proposed Project. With adherence to these standards and regulations, the proposed Project would be consistent with the hazards and hazardous materials analysis provided in the 2018 LRDP Program EIR.

c) Construction of the proposed Project would involve the demolition of six existing buildings on the Project site. Except for 303 University Center, which was constructed in 1960, these buildings were constructed in 1942 and are associated with the former Camp Matthews (refer to Section 4.1.4, *Cultural Resources and Tribal Cultural Resources*). As discussed in Section 3.7 of the 2018 LRDP Program EIR, activities that involve cutting, grinding, or drilling during older building renovation (pre-1982) or demolition, or relocation of underground utilities, could release friable asbestos fibers (e.g., fibers that, when dry, can be easily crumbled or pulverized to powder by hand) unless proper precautions are taken. Lead, a naturally occurring metallic element, can be found in numerous uses and sources, such as paint, water pipes, and solder in plumbing systems. Lead-based paint on buildings and structures may contaminate surrounding soils. Elemental mercury, an insoluble (i.e., cannot be dissolved) liquid metal, is commonly used in laboratory and medical equipment, such as thermometers and manometers (used for measuring pressure), electrical equipment, and some water pumps. In addition, some equipment containing polychlorinated biphenyls (PCBs) may still be present in research labs and lighting ballasts containing PCBs may be present in buildings, but all low-voltage and high-voltage PCB transformers on campus have been removed.

UC San Diego has a comprehensive Asbestos Management Program in place to protect the health of the UC San Diego community. UC San Diego implements a Lead-Based Paint Management Program designed to identify, evaluate, and control lead hazards that may affect the UC San Diego community. In addition, federally and state mandated regulations related to hazardous materials that may be present in campus buildings or other infrastructure are implemented during renovation and demolition activities. Contractors who disturb or potentially disturb asbestos, lead, or other infrastructure-related hazardous materials are required to comply with all federal, state, and local regulations regarding hazardous materials.

As described in Section 2.5.1, *Building Program*, Building B would be known as the Health and Well-Being Center, and would provide space for urgent care, lab/radiology, and pharmacy services as well as other medical space, including optometry, behavioral health, primary care, women's health, occupational medicine, physical therapy, health promotion, and counseling and psychological services. As such, these proposed medical uses may involve the use, disposal, and transport of hazardous materials.

The campus would continue to comply with federal and state regulations pertaining to hazardous wastes and with existing campus programs, practices, and procedures that would ensure that risks associated with hazardous emissions or materials to existing or proposed primary or secondary schools located within a 0.25-mile radius of the campus would remain less that significant through proper handling procedures, disposal practices, and/or cleanup procedures. The proposed Project is consistent with the hazards and hazardous materials analysis provided in the 2018 LRDP Program EIR.

d) The Project site is located in an area formerly occupied by the U.S. Marine Corps Camp Calvin B. Matthews included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 (Cortese List; see Impact 3.9-2 in the 2018 LRDP Program EIR). The Formerly Used Defense Site (FUD) was primarily used for weapons training, coast artillery and anti-aircraft training which regularly involved fuel, gas and other hazardous materials (e.g., MEC). Camp Matthews was closed for operation prior to environmental legislation that required the removal and proper disposal of hazardous materials, and therefore, the possibility for military-related hazardous materials to be disturbed during construction exists. As previously described the Project site has been developed with low-rise buildings, landscaping, paved roads, and surface parking. Therefore, the potential to encounter hazardous materials is low. Additionally, no significant environmental contamination was noted during the analysis conducted on each of the soil borings. In the unlikely event that previously unknown contaminated sites are discovered during construction or activities, all work would immediately be discontinued until appropriate health and safety procedures are implemented. Contamination remediation and removal would be conducted in accordance with pertinent regulatory guidelines, under the oversight of the appropriate regulatory agency, consistent with MM Haz-4C. As such, the proposed Project is consistent with the hazards and hazardous materials analysis provided in the 2018 LRDP Program EIR and potential impacts associated with hazardous material sites would be reduced to a level that is less than significant.

e) UC San Diego is not located within any Aircraft Potential Zones (APZs) for Marine Corps Air Station (MCAS) Miramar and, thus, implementation of the proposed Project would not result in a significant aircraft safety hazard. With regard to the Torrey Pines Gliderport, its short-term use is not a safety hazard to the campus and surrounding area because the gliders do not take-off or land over UC San Diego structures. The proposed Project is consistent with the hazards and hazardous materials analysis provided in the 2018 LRDP Program EIR.

f) Project construction would require short-term, temporary road closures and detours. For example, construction fencing would temporarily remove access to Russell Lane and Myers Drive. Additionally, the proposed pedestrian scramble may require temporary closure of the signalized Gilman Drive and Myers Drive intersection. Nevertheless, these temporary road closures would not interfere with response times of emergency vehicles. As required by MM Haz-6, UC San Diego would require the construction contractor to notify the Campus Fire Marshall and community to prevent conflicts with emergency access or evacuation routes during construction. Compliance with the 2018 LRDP Program EIR mitigation framework would ensure the proposed Project would reduce its potentially significant impacts to less than significant levels.

   Operationally, the proposed Triton Center would not interfere with response times of emergency vehicles. In order to provide off-hours service to buildings and maintain emergency vehicle access, the northern terminus of Russell Lane would include a mountable or rolled curb and would be lined with retractable bollards. Concrete pavers used for campus connectors that also support emergency vehicle access would meet the SDFD Alternate Paving Policy for fire roads. The UC San Diego Fire Marshal would ensure that the proposed Project always provides adequate emergency access and would comply with the SDFD policies.

   With the implementation of MM Haz-6 as well as relevant design features, the proposed Project would be consistent with the hazards and hazardous materials analysis provided in the 2018 LRDP Program EIR.

g) The Project site is not located in the portion of the campus identified as Very High Fire Hazard Zone (City of San Diego 2009). UC San Diego would continue to implement brush management around buildings that are adjacent to undeveloped areas of the campus, would equip all new on-campus academic, residential, medical, research, and support facilities with emergency fire sprinkler systems and would continue to retrofit existing buildings with fire sprinklers, in accordance with the CBC. The UC San Diego Fire Marshal would be responsible for ensuring that adequate access is always maintained on campus and would meet regularly with the City of San Diego Deputy Fire Chief to maintain a site plan / access plan that would adequately serve the campus. The Project would result in less than significant wildfire impacts and is consistent with the hazards and hazardous materials analysis evaluated in the 2018 LRDP Program EIR.

4.1.9 Hydrology and Water Quality

Section 3.8 of the 2018 LRDP Program EIR addresses hydrology and water quality effects of La Jolla Campus growth under the 2018 LRDP and determined it would result in less than significant impacts related to alteration of drainage patterns and water quality effects due to project compliance with applicable policies and regulations (e.g., UC San Diego's Design Guidelines, Sustainability Policies, Phase II Small MS4 Permit and additional Storm Water Management Program requirements [see Sections 3.8.3.1 and 3.8.3.2 of the 2018 LRDP Program EIR]). There is no potential for seiches on campus; however, there is a less than significant risk associated with tsunamis, particularly on the SIO campus (see Section 3.8.3.3 of the 2018 LRDP Program EIR). No potential exists for significant impacts related to the depletion of groundwater supplies and flooding (see Section 3.8.5 of the 2018 LRDP Program EIR).

No mitigation is required for hydrology and water quality impacts as described in the 2018 LRDP Program EIR.

HYDROLOGY AND WATER QUALITY Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality?	☒	☐	☐	☐
b) Substantially decrease groundwater supplies or substantially interfere with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☒	☐	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (i) result in substantial erosion or siltation on- or off-site? (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☒	☐	☐	☐

HYDROLOGY AND WATER QUALITY Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
(iii) create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows?	☒	☐	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☒	☐	☐	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☒	☐	☐	☐

a, c) Construction of the proposed Project would not contribute substantial sediment loads or other pollutants to stormwater runoff due to required compliance with UC San Diego's General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activity (General Permit). As part of the General Permit, campus construction projects managed by outside contractors and disturbing more than 1 acre must implement SWPPPs, which specify BMPs to reduce the contribution of sediments, spilled and leaked liquids from construction equipment, and other construction-related pollutants to stormwater runoff. Compliance with these requirements would provide adequate protection from stormwater contamination and water quality protection from construction activities on-campus.

Post-construction, the proposed Project would result in only minor areas of newly created impervious surfaces which would result in new sources of stormwater runoff, contamination, increased risk of flooding, and sedimentation. As described in Section 2.6, *Landscape/Hardscape Improvements and Stormwater Management*, the proposed Project would integrate LID techniques and features to maximize on-site treatment and minimize downstream hydrologic changes and water quality effects. Proposed LID features include the minimization of directly connected impervious areas; draining of runoff from proposed on-site impervious surfaces to adjacent pervious or landscaped areas for collection, storage, and on-site natural filtration prior to discharging to the storm drain system; and a focus on low water use native plants in the landscape design. Campus development, including the proposed Project, is covered under UC San Diego's Phase II Small MS4 Permit, which requires management of long-term stormwater discharges and implementation of pollution protection measures. These management practices are enforced under the campus stormwater management program and ensure long-term protection related to stormwater pollution.

Latitude 33 (2022) prepared a Drainage Report for the proposed Triton Center that describes existing and proposed stormwater drainage at the Project site (see Appendix B).

Stormwater flows from the Project site would be collected within a series of proposed storm drain inlets that route to an existing 24-inch storm drain line in Gilman Drive. It is a goal of the proposed Project to utilize the regional off-site Pepper Canyon Basin for detention and water quality treatment. An allowance for the increased stormwater flows has been incorporated into the overall basin design (Latitude 33 2022). However, any stormwater flows that cannot be accommodated within the basin would be detained and treated in the combined biofiltration/detention basin that would be constructed on-site as a part of the proposed Project.

Table 4-1
Peak Flow Rates

Existing Condition Hydrology Results		Proposed Condition Hydrology Results	
10 Year 6-Hour Event (CFS)	**100 Year 6-Hour Event (CFS)**	**10 Year 6-Hour Event (CFS)**	**100 Year 6-Hour Event (CFS)**
25.5	35.5	20.0	31.0

Source: Latitude 33 2022.

Therefore, with these construction and operational protocols, the proposed Project would result in less than significant water quality impacts and is consistent with the hydrology/water quality analysis provided in the 2018 LRDP Program EIR.

b) Implementation of the proposed Project would not result in the removal of groundwater. Similar to the rest of the development on-campus, the proposed Project would use reclaimed water (e.g., for irrigation or other non-potable uses) supplied by the City of San Diego Public Utilities Department via existing and future lines on UC San Diego's campus. The proposed Project would not result in impacts to groundwater resources and is consistent with the hydrology/water quality analysis provided in the 2018 LRDP Program EIR.

d) The entire UC San Diego campus is outside of the 100-year and 500-year flood hazard areas or any County-identified flood hazard areas. In addition, the Project site is not located within an area that contains risk from seiches because this phenomenon is typically associated with land-locked bodies of water. The proposed Project is also not located within SIO and therefore not at risk for inundation by tsunamis. Thus, the proposed Project would not result in significant impacts related to potential pollutant release during floods, seiches, or tsunamis. The proposed Project is consistent with the hydrology/water quality analysis evaluated in the 2018 LRDP Program EIR.

e) Construction activities could result in significant short-term water quality impacts from uncontrolled sediment and pollutants in storm water runoff that could conflict with the policies of the Basin Plan. The proposed Project would be required to comply with the UC San Diego Design Guidelines, policies, Stormwater Management Plan (SWMP) and other regulatory requirements related to storm water runoff to minimize the potential for pollutants to enter receiving waters.

   Operation of the proposed Project could result in significant long-term water quality impacts from uncontrolled pollutants in storm water runoff that could conflict with the policies of the Basin Plan. The proposed Project would integrate a number of storm water BMPs to promote on-site treatment prior to being discharged. As described in Section 2.6, *Landscape/Hardscape Improvements and Stormwater Management*, during the planning and design phases for the proposed Project, UC San Diego Campus Planning and Capital Program Management (CPM) staff ensured that utility infrastructure improvements would be appropriately sized to accommodate stormwater flows from the proposed Triton Center. The proposed Project has been designed to bypass runoff from 10-year, 6-hour storm frequencies and 100-year, 6-hour storm frequencies (refer to Table 4-1). The proposed Project would generally maintain the existing stormwater flow patterns and any increases in stormwater flow would be detained in the regional off-site Pepper Canyon Basin or within the bioretention/detention basin on-site.

   With the incorporation of the proposed site design, source control, and treatment control BMPs and the continued implementation of UC San Diego Design Guidelines, SWMP and other regulatory requirements, water quality impacts associated with changes in storm water runoff would be minimized and would not conflict with or obstruct implementation of the Basin Plan. In addition, the proposed Project is not in an area governed by a sustainable groundwater management plan. Therefore, impacts would be less than significant, and the proposed Project is consistent with the hydrology and water quality analysis evaluated in the 2018 LRDP Program EIR.

4.1.10 Land Use and Planning

Section 3.9 of the 2018 LRDP Program EIR addresses the land use and planning effects of campus growth under the 2018 LRDP and determined that its implementation would not result in inconsistencies with applicable land use plans, policies, and regulation (see Section 3.9.3.1 of the 2018 LRDP Program EIR). In addition, as noted in Section 3.9.5 of the 2018 LRDP Program EIR, there is no potential for significant impacts related to physically dividing an established community or conflict with a Habitat Conservation Plan or NCCP.

No mitigation is required for land use and planning impacts as described in the 2018 LRDP Program EIR.

LAND USE AND PLANNING Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Physically divide an established community?	☒	☐	☐	☐
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐

a) The proposed Project does not involve any development outside of established campus properties or boundaries, and no incursion into, or division of, surrounding residential communities would occur. Development would be limited to the Project site, which is located within the University Center neighborhood and has been developed with low-rise buildings, landscaping, paved roads, and surface parking. As described in Section 4.1.1, *Aesthetics* the proposed Triton Center would not be visible from I-5 or surrounding, off-campus areas and would not result in an encroachment or impact on surrounding established communities. Therefore, the proposed Project is consistent with the land use analysis provided in the 2018 LRDP Program EIR.

b) As described in Section 3, *Consistency with 2018 LRDP*, the proposed Project is consistent with the objectives, population forecasts, building space projections, and land use designations identified in the 2018 LRDP, which is the applicable land use plan for the UC San Diego campus. The proposed Project is anticipated to result in approximately 645 FTE, and the remainder of the population occupying the buildings are expected to already be employed by the University. As described in Section 2.3, *Project Background*, the concepts from the UCUC Study were incorporated into the urban design principles described for the University Center in the 2018 LRDP (UC San Diego 2018a). The objectives of the proposed Project reflect a commitment to consistency with UC San Diego land use plan and center around providing for projected future demands (refer to Section 3.4, *2018 LRDP Development Space*). As such, the proposed Project would not result in an impact as is consistent with the land use analysis provided in the 2018 LRDP Program EIR.

4.1.11 Noise

Section 3.10 of the 2018 LRDP Program EIR addresses the noise effects of campus growth under the 2018 LRDP and concludes there is the potential for significant impacts due to noise-sensitive land uses being exposed to noise levels in excess of applicable standards (see Section 3.10.3.1 of the 2018 LRDP Program EIR); exposure of vibration sensitive land uses to – or generation of – excessive ground-borne vibration or ground-borne noise levels (see Section 3.10.3.2 of the 2018 LRDP Program EIR); permanent increases in ambient noise levels (see Section 3.10.3.3 of the 2018 LRDP Program EIR); and temporary increases in ambient noise levels (see Section 3.10.3.4 of the 2018 LRDP Program EIR). No potential exists for significant impacts from noise produced by an airport (see Section 3.10.5 of the 2018 LRDP Program EIR).

The mitigation framework in the 2018 LRDP Program EIR addresses these potentially significant impacts by evaluating whether screening distances can be observed/incorporated to reduce or avoid an impact; requiring site-specific studies based on the type of noise source; and integrating source-specific controls into project designs to reduce noise levels at sensitive land uses as required by MM Noi-1A through Noi-1F. MM Noi-2A requires new vibration-sensitive uses near the trolley to prepare a vibration mitigation program to identify controls to reduce vibration effects and the incorporation of those controls into project designs. Certain construction projects are required to prepare and implement a construction vibration program to comply with MM Noi-2B. Implementation of these measures would reduce future project-level impacts from noise and vibration to less than significant levels.

NOISE Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b) Generation of excessive ground borne vibration or ground borne noise levels?	☒	☐	☐	☐
c) For a project located within the vicinity of a private airstrip or within 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?	☒	☐	☐	☐

a) Acoustics Group, Inc., (AGI) conducted a noise study for the proposed Project in April 2019. Noise measurements were collected for 5 days – from April 1 through April 5, 2019 – to document the ambient noise levels at 303 Myers Drive. The sound level meter was placed on the rooftop facing the Gilman Transit Center, approximately 60 feet to the south.

Table 4-2
Exterior Noise Monitoring Results

Day / Time	L_{min} (dBA)	L_{max} (dBA)	Hourly L_{eq}	CNEL	Contributing Noise Sources
April 1, 2020 (11:00am – 11:59pm)	51.7	91.3	57.0 – 66.1	62.9	Vehicular Traffic, Bus Traffic, Bus Beeps, Siren, Community Noise
April 2, 2020 (12:00am – 11:59pm)	51.2	80.0	53.7 – 64.6	65.6	Vehicular Traffic, Bus Traffic, Bus Beeps, Car Honks, Community Noise
April 3, 2020 (12:00am – 11:59pm)	50.9	85.2	54.2 – 64.4	66.4	Vehicular Traffic, Bus Traffic, Motorcycle, Aircraft, Roof Top Mechanical, Community Noise
April 4, 2020 (12:00am – 11:59pm)	51.0	86.6	53.0 – 65.3	65.5	Vehicular Traffic, Bus Traffic, Aircraft, Car Honks, Community Noise
April 5, 2020 (12:00am – 4:00pm)	51.1	85.7	53.2 – 66.0	64.4	Vehicular Traffic, Bus Traffic, Bus Beeps, Motorcycle, Aircraft, Community Noise

Source: AGI 2019.

Construction Noise

Construction activities associated with the proposed Project could temporarily expose noise sensitive land uses (NSLUs) to noise levels in excess of standards due to their proximity to the Project site. The nearest NSLU in the vicinity of the Project site is Center Hall, located immediately adjacent to Building B and the West Quad. Additional NSLUs include Pepper Canyon Hall, Science and Engineering Facility and High Bay Physics Laboratory. Construction activities (e.g., use of heavy construction equipment including loaders, excavators, backhoes, cranes, and bulldozers) would occur within 150 feet of an NSLU; therefore, the proposed Project would be required to comply with MM Noi-1F, which requires the integration of construction noise mitigation recommendations into contractor specifications and their implementation during construction. Incorporation of construction noise control measures as required by the mitigation framework established in the 2018 LRDP Program EIR into contractor specifications would ensure that construction-related noise impacts would be less than significant, and the proposed Project is consistent with the noise analysis provided in the 2018 LRDP Program EIR.

Stationary Source Noise

Building B is located within 100 feet of Center Hall, which provides classroom space on campus. As such, the AHU of Building B's HVAC system, which would be located on the rooftop, would be located within 100 feet of a NSLU.

Typically, the loudest sources of continuous noise from a building are the operation of HVAC systems and other mechanical equipment, which emit sound levels that can create a noise impact when located near NSLUs. Major HVAC equipment located on rooftops of new or renovated buildings has the potential to generate noise levels averaging 65 to 71 A-weighted decibel (dBA) Community Noise Equivalent Level (CNEL) 50 feet from the equipment. Assuming a future new or renovated building contains a rooftop HVAC unit without any noise attenuation or shielding, the equipment would be expected to produce 65 dBA CNEL as close as 100 feet away. As described in Section 3.10 of the 2018 LRDP Program EIR, should an NSLU be situated closer than 100 feet from a new rooftop HVAC unit, the potential would exist for a significant noise impact.

As described in Section 2.5.3, *Utility and Service System Improvements*, the AHU of Building B's HVAC system would be located on the rooftop. Building C's AHU would be interior, and Buildings A and D would use a combination of rooftop and interior AHUs. The majority of NSLUs in the vicinity (e.g., Pepper Canyon Hall, Science and Engineering Facility, and High Bay Physics Laboratory) are located more than 100 feet from the proposed multi-story buildings and would not be affected by their rooftop HVAC units. However, the nearest existing NSLU (i.e., Center Hall) is located within 100 feet of Building B. Therefore, in accordance with the 2018 LRDP Program EIR noise impacts analysis and mitigation framework, the proposed Project would be required to implement 2018 LRDP Program MM Noi-1D, which would require a preliminary noise assessment conducted by a qualified acoustician to determine if there would be the potential for exterior noise impacts to Center Hall. If the preliminary noise assessment predicts the potential for impacts, a Project-specific noise analysis shall be conducted in accordance with MM Noi-1E.

Operational Noise

As described in Section 2.3, *Project Background*, the proposed Triton Center would serve as a hub of activity and support activities, events, and academic-related facilities. Typical daily noise from the proposed Project would consist of sporadic low-volume noise generated by students, faculty, staff, and visitors accessing service-oriented uses or fast-casual restaurants. Potential increases in noise would not be substantially noticeable and noise levels would generally be similar to and compatible with noise generated by surrounding buildings and pedestrian spaces (e.g., Library Walk) within the University Center neighborhood.

In addition to these typical daily activities, the proposed Triton Center would also support tour operations and would host academic events. The West Quad would serve as a tour bus passenger loading zone for Triton Tours as well as a passenger loading zone for special events at Celebration Hall, Forum Hall, or the other event spaces included as part of the proposed Project. Additionally, the sixth floor of Building C would include a publicly accessible observation deck and landscaped outdoor event spaces. These activities would have the potential to generate additional noise at the Project site (e.g., event attendees socializing on the open terraces). However, all academic events at the Project site – including events within landscaped outdoor event spaces – would be subject to all appropriate campus rules and regulations related to noise (e.g., UC San Diego Policy & Procedure Manual 510-1 Section V.A).

Roadway Noise

As described in Section 3.10 of the 2018 LRDP Program EIR, the increase in traffic resulting from buildout of the 2018 LRDP would result in a corresponding increase in future noise levels produced by off-campus roadway traffic (see Table 3.10-11 in the 2018 LRDP Program EIR). However, roadway noise levels for all on- and off-campus roads would increase by less than 3 dBA CNEL, where the existing noise level is in excess of the applicable land use compatibility threshold (e.g., 70 dBA CNEL). Because increases in noise levels less than 3 dBA are generally considered imperceptible, buildout under the 2018 LRDP would result in less than significant roadway noise impacts.

As described in Section 3.2, *2018 LRDP Campus Population*, the proposed Triton Center would support a maximum of approximately 645 FTE. Many of the existing faculty and staff occupying the proposed buildings would be relocated from existing buildings on campus (including the buildings proposed for demolition; refer to Section 2.5.1, *Building Program*). The proposed Triton Center would also support students and visitors (e.g., visiting the restaurants, gym, health facilities, etc.); however, visitors are expected to be existing campus users already traveling to the campus for other primary reasons (e.g., school or work). The proposed Project would not result in student enrollment growth. The Project site is located adjacent to the Gilman Transit Center, which provides service by MTS, NCTD, and Campus Shuttles. Additionally, the Project site is located within a 5-minute walk from the Central Campus Station and would benefit from Blue Line Trolley service. The proposed Project would also reconfigure the existing vehicle-oriented roadway network into a pedestrian-oriented space, prioritizing pedestrian circulation and multi-modal connections. Therefore, the proposed Triton Center would not substantially contribute to roadway noise in the vicinity of the Project site.

Implementation of the proposed Project would establish a new noise-sensitive land use (i.e., University Extension classrooms in Building D) near Gilman Drive. However, these classrooms would be located approximately 200 from the edge of the paved road. The 65 dBA CNEL noise contour associated with Gilman Drive extends to approximately 18 feet from the edge of the paved road at future buildout associated with the 2018 LRDP (see Table 3.10-10 in the 2018 LRDP Program EIR). Therefore, none of the proposed buildings – including Building D – would be significantly impacted by existing or future roadway noise. Additionally, implementation of the proposed Project would not establish new noise-sensitive land uses within 150 feet of the Blue Line Trolley or in close proximity to any existing station noise sources (i.e., HVAC units, utility plants, or parking structure ventilation units).

Overall, noise-related impacts associated with the proposed Triton Center would be less than significant after the 2018 LRDP Program EIR mitigation framework is applied, and the proposed Project would be consistent with the evaluation and findings of 2018 LRDP Program EIR.

b) Construction of the proposed Triton Center would involve demolition of the existing buildings and pavements, excavation and minor grading, and construction of four multi-story buildings (refer to Section 2.5.2, *Building Design*). Construction activities with the greatest potential for ground-borne vibration would involve the excavation of the subterranean mechanical room and foundations for each of the proposed buildings. This area is located approximately 50 feet from the Conrad Prebys Music Center; however, this building is not considered a vibration-sensitive land use as identified by the 2018 LRDP Program EIR (refer to Section 3.10.1.3 of the 2018 LRDP Program EIR). Proposed construction activities would not involve major heavy earth-moving equipment or impact-type pile driving within the applicable screening distance (as noted in Table 3.10-16 of the 2018 LRDP Program EIR).

   Operationally, the proposed Project would not establish vibration-sensitive land uses in proximity to the Blue Line Trolley. Based on the distance of the proposed Project from the Blue Line Trolley, none of the thresholds presented in Table 3.10-16 of the 2018 LRDP Program EIR would be exceeded. There would not be potential for significant vibration impacts as a result of proposed Project implementation and the proposed Project is consistent with the vibration analysis provided in the 2018 LRDP Program EIR.

c) There are no private airstrips within 2 miles of UC San Diego and the campus is not located within the 60 dBA CNEL contour of any airport, including MCAS Miramar and the Medical Center heliport operations. Therefore, there is no potential for significant noise impacts from aircraft operations in the vicinity of the Project site. As such, the proposed Project is consistent with the noise analysis provided in the 2018 LRDP Program EIR.

4.1.12 Population and Housing

Section 3.11 of the 2018 LRDP Program EIR addresses the population and housing effects of implementing the 2018 LRDP and concludes that plan implementation would result in the direct inducement of substantial population growth in the area (see Section 3.11.3.1 of the 2018 LRDP Program EIR); however, the 2018 LRDP would not result in indirect inducement of substantial population growth arising from any extension of roads or other infrastructure (see Section 3.11.3.1 of the 2018 LRDP Program EIR). Less than significant impacts are identified for the temporary displacement of existing on-campus housing and people (see Section 3.11.3.2 of the 2018 LRDP Program EIR). No feasible mitigation is available for direct inducement of substantial population growth in the area; therefore, the population-related impacts of the campus growth are unavoidable.

POPULATION AND HOUSING Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☒	☐	☐	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☒	☐	☐	☐

a) As described in the 2018 LRDP Program EIR, buildout under the 2018 LRDP will result in direct and substantial population growth by expanding academic, research, and related education and employment opportunities. The proposed Triton Center would support a maximum of approximately 645 FTE, many of which are already employed by UC San Diego. Many of the existing faculty and staff occupying the proposed buildings would be relocated from existing buildings on campus (including the buildings proposed for demolition; refer to Section 2.5.1, *Building Program*). The proposed Triton Center would also support students and visitors (e.g., visiting the restaurants, gym, health facilities, etc.); however, visitors are expected to be existing campus users already traveling to the campus for other primary reasons (e.g., school or work). The proposed Project would not encourage new student enrollment or significant population growth as it is intended to serve the existing campus population. As described in Section 3.2, *2018*

LRDP Campus Population, it has been determined that the proposed Triton Center is consistent with the campus population projections contained in the 2018 LRDP. Transportation improvements associated with the proposed Project would be limited to the reconfiguration of the existing vehicle-oriented transportation to support new pedestrian spaces that facilitate connections throughout the University Center neighborhood and the West Campus. These improvements would induce additional campus population growth. Additionally, no substantial off-site utilities improvements (e.g., utilities extensions or substantial increases in the capacity of one or more utilities) would be required as a part of the proposed Project. Therefore, it has been determined that the proposed Project is consistent with the campus population projections provided in the 2018 LRDP.

b) The proposed Project would neither temporarily nor permanently displace substantial numbers of people on the campus or create a demand for new housing that cannot be accommodated locally. Therefore, no impacts related to housing demand or supply would occur, consistent with the population and housing analysis provided in the 2018 LRDP Program EIR.

4.1.13 Public Services

Section 3.12 of the 2018 LRDP Program EIR addresses the physical effects of providing public services to meet the needs of the campus growth under the 2018 LRDP and determines that less than significant environmental impacts would occur due to the need for additional fire protection resources and/or facilities (see Section 3.12.3.1 of the 2018 LRDP Program EIR), police protection resources and/or facilities (see Section 3.12.3.2 of the 2018 LRDP Program EIR), and public school teachers, administrative staff, and/or facilities (see Section 3.12.3.3 of the 2018 LRDP Program EIR). No mitigation is required for public services impacts as described in the 2018 LRDP Program EIR.

PUBLIC SERVICES Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				

PUBLIC SERVICES Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
i) Fire protection?	☒	☐	☐	☐
ii) Police protection?	☒	☐	☐	☐
iii) Schools?	☒	☐	☐	☐
iv) Parks?	☒	☐	☐	☐
v) Other public facilities	☒	☐	☐	☐

a) As described in Section 4.1.11, *Population and Housing*, the proposed Triton Center would support a maximum of approximately 645 FTE many of which are already employed by UC San Diego. Many of the existing faculty and staff occupying the proposed buildings would be relocated from existing buildings on campus (including the buildings proposed for demolition; refer to Section 2.5.1, *Building Program*). As such, implementation of the proposed Project would contribute to the overall need for new fire protection, police protection, and school facilities in the University area. However, not at a level that would require new facilities beyond those that exist or are already planned by the various service providers, nor would any new facilities result in a significant physical impact to the environment.

The proposed Project would comply with all applicable building and fire code requirements. As a result, the likelihood of a large fire exceeding the effective response capability of the SDFD at the proposed project is extremely low. The proposed Project does not include elements susceptible to fire hazards and would be unlikely to generate substantial demand for Emergency Management Services. Additionally, construction of the proposed Project would include an extension of an existing road located to the south of the Triton Baseball Field to provide enhanced emergency vehicle access through the Project site.

UC San Diego provides its own police service for the UC San Diego campus as well as other UC San Diego properties. Pursuant to California Education Code §67381, the UC San Diego Police Department and the San Diego Police Department (SDPD) have adopted and signed a written agreement that clarifies and affixes operational responsibilities for the investigation of violent and non-violent crimes occurring on UC San Diego property. Pursuant to the agreement UC San Diego Police Department is the primary reporting and investigating law enforcement agency for nearly all crimes occurring on campus and over all UC San Diego-administered properties up to 1-mile of campus. Both UC San Diego Police Department and SDPD provide mutual aid assistance as appropriate, when requested. As a result, the SDPD rarely responds to on campus calls for police services. The campus' low demand for SDPD police services reduces the need for new off campus police facilities or expansions of existing facilities. The proposed Triton Center is not expected to generate the need for new on campus police facilities or expansions of existing facilities. Therefore, the physical impacts of providing police protection to the proposed project would be less than significant.

The demand for kindergarten through 12th grade public education facilities generated by the UC San Diego campus population is associated primarily with married students, faculty, and staff households. UC San Diego analysis concluded impacts to service ratios for public schools associated with implementation of the 2018 LRDP would be considered less than significant regarding off-campus grade school facilities. Further, the proposed Triton Center is not expected to generate a need for new public educational facilities or an expansion of existing facilities.

Implementation of the proposed Project would not induce population growth or otherwise contribute to the need for new fire protection, police protection and school resources and/or facilities in the vicinity of the campus beyond those that exist or are already planned by the various service providers. Therefore, the proposed Project is consistent with the public services analysis evaluated in the 2018 LRDP Program EIR.

4.1.14 Recreation

Section 3.13 of the 2018 LRDP Program EIR addresses the environmental effects associated with modifying recreational facilities to meet the needs of campus growth under the 2018 LRDP and concludes that despite the increase in usage of on- and off-campus recreational facilities, less than significant impacts would occur (see Section 3.13.3.1 of the 2018 LRDP Program EIR). Any construction and expansion of recreational facilities would be addressed through compliance with the 2018 LRDP Program EIR mitigation framework and less than significant impacts would occur (see Section 3.13.3.2 of the 2018 LRDP Program EIR). No mitigation is required for recreation impacts as described in the 2018 LRDP Program EIR.

RECREATION Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☒	☐	☐	☐

RECREATION Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☒	☐	☐	☐

a) The slight increase in campus population attributable to the proposed Project would contribute to incremental increased demands for recreation facilities on and off campus. However, the proposed Project was considered by the 2018 LRDP, which anticipates the need for new recreation facilities and the campus would continue to manage and maintain its existing recreation facilities. The City of San Diego would continue to expand and maintain its off-campus recreation facilities in response to its own population growth, whose residents could include the new campus population associated with the proposed Project. Substantial physical deterioration in recreation facilities is, therefore, not expected to occur as a result of the proposed Project. Therefore, the proposed Project is consistent with the public services analysis evaluated in the 2018 LRDP Program EIR.

b) Implementation of the proposed Project would not require the construction or expansion of recreational facilities but would contribute to the campus-wide need for new or expanded facilities. The environmental impacts associated with the development of new campus recreational facilities would be less than significant or would be mitigated to below a level of significance through the application of the mitigation framework in the 2018 LRDP Program EIR. Therefore, the proposed Project is consistent with the recreation analysis evaluated in the 2018 LRDP Program EIR.

4.1.15 Transportation and Circulation

Section 3.14 of the 2018 LRDP Program EIR addresses the transportation and traffic effects of campus growth under the 2018 LRDP and concludes that traffic associated with plan implementation would result in cumulatively significant impacts due to exceedances of level of service (LOS) criteria in the Near-Term (Year 2025) and Long-Term (Year 2035) Scenarios for intersections, street segments, freeway mainline segments, and freeway ramp meters in the area (see Section 3.14.3.1 of the 2018 LRDP Program EIR). However, implementation of the 2018 LRDP would not cause substantial additional VMT to exceed the regional averages for applicable campus land uses; therefore, less than significant VMT impacts are identified (see Section 3.14.3.2 of the 2018 LRDP Program EIR). In addition, implementation of the 2018 LRDP would not conflict with applicable policies, plans, or programs regarding safety or performance of public transit, bicycle, or pedestrian facilities and its impact would be less than significant (see Section 3.14.3.3 of the 2018 LRDP Program EIR). There is no potential for significant impacts to air traffic patterns, conflicts with a congestion management plan, safety hazards due to a design feature or incompatible uses, or inadequate emergency access (see Section 3.14.5 of the 2018 LRDP Program EIR).

The 2018 LRDP mitigation framework includes programmatic mitigation to reduce or minimize LOS impacts of plan implementation, as described in Section 3.14.3.1 of the 2018 LRDP Program EIR. Specifically, the campus would implement MM Tra-1A-OPT2 by funding and installing needed improvements at a subset of impacted intersections, and freeway ramp meters in phases over the next 5 years. UC San Diego would work with the City of San Diego and the California Department of Transportation (Caltrans) to obtain appropriate agreements and permits. Despite these improvements, impacts would be cumulatively significant and unavoidable as described in Section 3.14.3.1 of the 2018 LRDP Program EIR. No project-level mitigation measures are required for cumulative traffic impacts.

On September 27, 2013, SB 743 was signed into law, which changed the way that transportation impacts are analyzed under CEQA. The transportation impact assessment updates to the CEQA Guidelines required under SB 743 were approved on December 28, 2018 and were required to be implemented statewide by July 1, 2020. Under the new (i.e., current) CEQA transportation guidelines, LOS, or vehicle delay, is no longer considered an environmental impact under CEQA; and, VMT has been adopted as the most appropriate measure of transportation impacts under CEQA. Therefore, this addendum addresses the consistency of the proposed Project with the VMT analysis provided in the 2018 LRDP Program EIR.

TRANSPORTATION AND CIRCULATION Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Conflict with an applicable plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☒	☐	☐	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	☒	☐	☐	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐	☐	☐

TRANSPORTATION AND CIRCULATION Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
d) Result in inadequate emergency access?	☒	☐	☐	☐

a) Implementation of the proposed Project would not conflict with applicable policies, plans, or programs regarding safety or performance of public transit, bicycle, or pedestrian facilities. The proposed Project would remove the existing paved roadways that bisect the Project site and reconfigure the Project site to prioritize transit, bicycle, and pedestrian connections. As noted in Section 3.14.3.2 of the 2018 LRDP Program EIR, UC San Diego continues to look for opportunities to close gaps in the bicycle/pedestrian network in and adjacent to campus and improve last-mile connections to the campus trolley stations, whenever feasible. Therefore, less than significant impacts would occur, and the proposed Project is consistent with the transportation analysis provided in the 2018 LRDP Program EIR.

As described in Section 3.2, *2018 LRDP Campus Population*, the proposed Triton Center would support a maximum of approximately 645 FTE, many of which are already employed by UC San Diego. Many of the existing faculty and staff occupying the proposed buildings would be relocated from existing buildings on campus (including the buildings proposed for demolition; refer to Section 2.5.1, *Building Program*). The proposed Triton Center would also support students and visitors (e.g., visiting the restaurants, gym, health facilities, etc.); however, visitors are expected to be existing campus users already traveling to the campus for other primary reasons (e.g., school or work). The proposed Project would not provide housing or encourage new student enrollment. The proposed Project would serve existing populations and provide supporting spaces for students, faculty, staff, and visitors.

As described in Section 2.5.1, *Building Program*, the proposed Project would provide two primary vehicle access points from Gilman Drive into the Triton Center: Russell Lane along the eastern boundary of the Project site and West Quad along the western boundary of the Project site (refer to Figure 5). These vehicle access points would be generally consistent with the circulation schemes evaluated in the Transportation Assessment & Framework prepared by Chen Ryan (2018) for the UCUC and Public Realm Study (UC San Diego 2018c).

The West Quad would provide vehicular access to Triton Center from Gilman Drive for emergency services, deliveries, and facilities at Building B, ADA parking for Center Hall, and tour bus loading for campus visitors arriving to/from campus. A vehicular round-about will facilitate these programmatic functions, while also providing emergency vehicle access. At the middle of Gilman Frontage, a pedestrian gateway would be defined by a grand opening in the building where Myers Drive is currently located. This would promote walkability and strengthen pedestrian-oriented spaces.

The Project site is located immediately adjacent to the Gilman Transit Station, which provides service by San Diego MTS, NCTD, and Campus Shuttles. The siting of the proposed Triton Center would encourage transit, bicycle, and pedestrian connections.

The proposed Project may produce traffic that would contribute to cumulatively significant LOS impacts identified for the 2018 LRDP. Students, faculty, staff, and visitors driving to and from the Project site would continue to park in the Gilman Parking Structure and the proposed parking structure located in Building D. However, the proposed Project would include siting and design elements that would reduce its overall contribution to campus-wide traffic. As described in Section 2.2.1, *Surrounding Transportation Network*, the Project site is located adjacent to the Gilman Transit Center, which provides service by San Diego MTS, NCTD, and Campus Shuttles. Additionally, the Project site is located within a 5-minute walk from the Central Campus Station and would benefit from Blue Line Trolley service. The proximity to the Gilman Transit Center and the Central Campus Station would encourage alternative transportation and transit use, likely resulting in beneficial impacts to local LOS conditions.

The proposed Project would provide new bicycle facilities including bicycle racks / storage spaces and showers. Given the existing Class II (i.e., striped) bicycle lanes provided along both sides of Gilman Drive, the proposed bicycle facilities at the Project site would further encourage bicycle use at the Project site and throughout the University Center neighborhood. Further, the pedestrian scramble at the intersection of Gilman Drive and Myers Court would provide an enhanced connection between the University Center neighborhood and the Health Sciences West neighborhood to the south.

With these improvements in place, combined with the programmatic mitigation improvements (MM Tra-1A-Opt2) and continuation and expansion of the campus' trip reduction programs, the proposed Project's contribution to LOS traffic impacts would be minimized over time. However, as disclosed in the 2018 LRDP Program EIR, cumulatively significant and unavoidable impacts associated with implementing the 2018 LRDP, including the proposed Project, would occur. The proposed Project is consistent with the transportation analysis provided in the 2018 LRDP Program EIR.

b) CEQA Guidelines §15064.3 pertains to impacts associated with VMT. As part of the 2018 LRDP Program EIR, a six-tier analysis of VMT impacts was conducted in accordance with the concepts expressed in SB 743. As shown in that comprehensive analysis, the 2018 VMT per resident, VMT per employee, and VMT per capita would be measurably lower than the regional and City averages. In addition, the campus transportation demand management (TDM) program combined with its location within a transit priority area (TPA) would lower auto dependency and VMT over time. The siting of the proposed Project adjacent to the Gilman Transit Center and the Central Campus Station would encourage alternative transportation and transit. Therefore, less than significant impacts would occur, and the proposed Project is consistent with the transportation analysis evaluated in the 2018 LRDP Program EIR.

c) The UC San Diego campus, including the Project site, is not located within 2 miles of a public airport, public use airport, or private airstrip nor is it affected by any APZs or aircraft operations such that implementation of the proposed Project would result in a change in air traffic patterns. Therefore, no impacts would occur, and the proposed Project is consistent with the transportation analysis provided in the 2018 LRDP Program EIR.

d) Upon implementation of the proposed Project, UC San Diego would amend the Emergency Access Route Map, as necessary, to ensure that adequate fire protection and emergency access is always maintained on-campus. The northern terminus of Russell Lane would include a mountable or rolled curb and would be lined with hydraulic bollards to allow emergency vehicles access as needed. Pavers used in proposed improvements to campus connectors that also support emergency vehicle access would meet the SDFD Alternate Paving Policy for fire roads. Therefore, no impacts would occur, and the proposed Project is consistent with the transportation analysis provided in the 2018 LRDP Program EIR.

4.1.16 Utilities and Service Systems

Section 3.15 of the 2018 LRDP Program EIR addresses the physical effects of expanding the utility infrastructure and the energy demands associated with campus growth under the 2018 LRDP and concludes that less than significant impacts would occur related to wastewater treatment capacity (see Section 3.15.3.1 of the 2018 LRDP Program EIR); new and expanded water and wastewater infrastructure (see Section 3.15.3.2 of the 2018 LRDP Program EIR); new or expanded stormwater drainage facilities (see Section 3.15.3.3 of the 2018 LRDP Program EIR), water supply availability (see Section 3.15.3.4 of the 2018 LRDP Program EIR); compliance with statutes and regulations related to solid waste management (see Section 3.15.3.5 of the 2018 LRDP Program EIR); and energy usage (see Section 3.15.3.6 of the 2018 LRDP Program EIR). The 2018 LRDP Program EIR further determines there is no potential for significant impacts related to solid waste disposal needs or the capacity of local infrastructure to impact the provision of solid waste services or impair the attainment of solid waste reduction goals.

No mitigation is required for utilities, service systems, or energy impacts as described in the 2018 LRDP Program EIR.

UTILITIES AND SERVICE SYSTEMS Would the Project…	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities or expansion of existing facilities, the construction or relocation of which could cause significant environmental effects?	☒	☐	☐	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☒	☐	☐	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the providers existing commitments?	☒	☐	☐	☐
d) Generate solid waste in excess of State or local standards or the capacity of local infrastructure or negatively impact the provision of solid waste services or impair the attainment of solid waste reduction goals?	☒	☐	☐	☐
e) Comply with federal, state, and local management and reduction statues and regulations related to solid waste?	☒	☐	☐	☐

a) During the project planning and design phase for the proposed Project, UC San Diego Campus Planning, CPM, and Design and Development Services (DDS) staff conducted a review of the utility needs associated with the proposed Project to verify that adequate infrastructure would be available to serve its domestic water, wastewater, storm water, energy, and telecommunication needs. Additionally, as part of the site evaluation process and/or site feasibility study, the Campus Planner also consulted the Master Infrastructure Plan (MIP) and CPM/DDS engineers to identify any capacity constraints and determine whether system improvements would be required to support the Project. As described in Section 2.5.3, *Utility and Service System Improvements*, potable water and fire service would be provided from a 12-inch UC San Diego water main beneath Gilman Drive. Two points of connection are proposed. The first point of connection would be located at the West Quad and would run through the Project site connecting to another existing UC San Diego water main beneath Rupertus Lane, to create a redundant connection. The proposed Project's sanitary sewer would gravity flow to the south and connect to an existing UC San Diego sewer main beneath Gilman Drive. The existing 8-inch sewer main has sufficient capacity to accommodate the proposed development based on previously completed master utility studies (e.g., UC San Diego Sewer System Management Plan, 2019 Revision). Two points of connection are proposed: one would be centrally located near Myers Court and the other would be located southeast of Building D and Building A. Minor trenching would be required within the proposed Project footprint; however, no substantial off-site utility trenching would be required as a part of the proposed Project. As part of the site evaluation process and/or site feasibility study, UC San Diego Capital Program Management and Campus Planning consulted the Master Infrastructure Plan (MIP) and determined that the campus has sufficient capacity to oversee the water and wastewater treatment needs of the proposed Project. Therefore, less than significant impacts would occur. Therefore, less than significant impacts would occur, and the proposed Project is consistent with the utilities and service systems analysis evaluated in the 2018 LRDP Program EIR.

b) Implementation of the proposed Project would increase potable water usage on the campus however not beyond levels anticipated in the City's Water Supply Assessment Report prepared for the 2018 LRDP. Implementation of the proposed Project would increase potable water usage on the campus. However, this increase would not exceed the levels anticipated in the City's Water Supply Assessment Report prepared for the 2018 LRDP. As described in Section 2.5.6, *Sustainability Features*, the proposed Project has been designed to incorporate sustainable design features to achieve LEED Gold Certification. Further, the proposed Project would comply with the requirements of the of the UC Sustainable Practices Policy and Water Action Plan, reducing overall water consumption associated with the facility. Therefore, less than significant impacts would occur, and the proposed Project is consistent with the utilities, service systems, and energy analysis provided in the 2018 LRDP Program EIR.

c) Implementation of the proposed Project would increase the amount of on-campus building space. Such increases would result in the generation and discharge of additional wastewater from the campus; the additional wastewater which would require treatment at the Point Loma Wastewater Treatment Plant (PLWTP). However, the PLWTP would have more than adequate capacity to receive and treat wastewater from UC San Diego and existing commitments. Additionally, water conservation efforts implemented on campus, including the proposed Project, would further reduce flow rates from the campus. Therefore, less than significant impacts would occur, and the proposed Project is consistent with the utilities and service systems analysis evaluated in the 2018 LRDP Program EIR.

d) Implementation of the 2018 LRDP would not result in inadequate capacity of solid waste facilities in the region such that construction of a new landfill or expansion of an existing landfill would be necessary. As previously described, the proposed Project would minimize its waste disposal needs and assist the state and local agencies in achieving their applicable solid waste management and diversion goals. No impacts would result, and the proposed Project is consistent with the utilities and service systems analysis evaluated in the 2018 LRDP Program EIR.

e) Implementation of the proposed Project would require demolition activities that would generate green waste, asphalt/concrete, and other construction, and demolition waste. Additionally, the proposed Project would involve minor excavation and grading activities that would produce approximately 14,000 CY of excavated soils. Operation of the proposed Triton Center would contribute additional non-recyclable/non-reusable waste which would be deposited at Miramar Landfill, after accounting for waste reduction and diversion. However, the proposed Project would comply with applicable waste reduction and diversion programs as part of the campus-wide effort to meet the UC Sustainable Practices Policy's zero waste goal. Therefore, the proposed Project would minimize its waste disposal needs and assist the state and local agencies in achieving their applicable solid waste management and diversion goals, resulting in less than significant impacts. The proposed Project is consistent with the utilities, service systems, and energy analysis provided in the 2018 LRDP Program EIR.

4.1.17 Wildfire

Since the 2018 LRDP Program EIR was certified, the CEQA Guidelines were amended to provide new requirements to address a project's impacts on wildfire hazards. This section of this addendum addresses those new questions, which were not explicitly addressed in the 2018 LRDP Program EIR. Relevant information provided in the 2018 LRDP Program EIR along with new project-specific information is relied upon to make new impact determinations.

WILDFIRE Would the Project…	Impact Examined in 2018 LRDP Program EIR	Impact Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
d) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐

a) UC San Diego has an Emergency Operations Plan that addresses planned responses instructions and procedures to various levels of human-made or natural emergency situations for all campus staff, students, and visitors. It provides information for building evacuation, emergency supplies, and related emergency contacts and information sources. Multiple emergency response regions are provided throughout the campus equipped to provide necessary supplies and trained personnel in the event of an emergency. Construction activities associated with the proposed Project would require short-term, temporary road closures and detours. For example, construction fencing would temporarily remove access to Russell Lane and Myers Drive. Additionally, the proposed pedestrian scramble may require temporary closure of the signalized Gilman Drive and Myers Drive intersection. UC San Diego would require the construction contractor to notify the Campus Fire Marshall and community to prevent conflicts with emergency access or evacuation routes during construction. Consistent with the 2018 LRDP, the proposed Project would be reviewed by the Campus Fire Marshal to ensure that adequate fire protection and emergency access is always maintained on campus. As required by MM Haz-6, UC San Diego would require the construction contractor to notify the Campus Fire Marshal and community to prevent conflicts with emergency access or evacuation routes during construction. Implementation of MM Haz-6, which requires the notification of the Campus Fire

Marshal and campus community at large prior to the start of construction, would reduce impacts to less than significant levels. Therefore, the proposed Project would not result in any new significant environmental effects.

b) Vegetation used for landscaping, vehicles, and small machinery could exacerbate wildfire risk and expose project occupants to wildfire pollutants. Implementation of fire protection measures, fuel management regulations, and compliance with associated regulations would ensure impacts to project occupants due to wildfire pollutants under the proposed Project would be less than significant. Therefore, the proposed Project would not result in any new significant environmental effects regarding exposure of building occupants to pollutant concentrations from a wildfire.

c) Installation and/or maintenance associated with new infrastructure would be necessary for the proposed Project. However, this would not exacerbate fire risk due to its location within the campus where fire protection measures including fuel management zones and building review by the Campus Fire Marshal. Any temporary or ongoing impacts to the environment resulting from the installation and maintenance of infrastructure is part of ongoing operations and projected future development of the campus and therefore evaluated under the 2018 LRDP Program EIR. Therefore, the proposed Project would not result in any new significant environmental effects regarding installation or maintenance of associated infrastructure.

d) The Project site is not at risk of downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes. Stormwater flows from the Project site would be collected within a series of proposed storm drain inlets that route to an existing 24-inch storm drain line in Gilman Drive. It is a goal of the proposed Project to utilize the regional off-site Pepper Canyon Basin for detention and water quality treatment. An allowance for the increased stormwater flows has been incorporated into the overall basin design (Latitude 33 2022). However, any stormwater flows that cannot be accommodated within the basin would be detained and treated in the combined biofiltration/detention basin that would be constructed on-site as a part of the proposed Project. Therefore, the proposed Project would not result in any new significant environmental effects regarding downstream or down slope flooding.

4.1.18 Mandatory Findings of Significance

	Issue Examined in 2018 LRDP Program EIR	Issue Not Examined in 2018 LRDP Program EIR		
		No Impact	Less-than-Significant Impact	Potentially Significant Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

a) All applicable mitigation measures identified in the 2018 LRDP Program EIR to avoid and reduce impacts are integrated into the proposed Project and would not substantially degrade the quality of the environment. As described in Section 2.2, *Project Site and Setting*, the Project site has been developed with low-rise buildings, landscaping, paved roads, and surface parking. Construction of the proposed Project would not significantly affect fish or wildlife habitat or species. The Project site is developed and devoid of sensitive biological resources.

As described in Section 4.1.4, *Cultural and Tribal Cultural Resources*, the proposed Project would contribute to the significant and unavoidable impacts to historic districts associated with the implementation of the 2018 LRDP, consistent with the analysis of built environment resources provided in the 2018 LRDP Program EIR. However, the incorporation of MM Cul-1C, Cul-1D, Cul-1E, and Cul-1G would mitigate impacts to the Camp Matthews Historic District to the maximum extent practicable. The Project site is not located within an area of archaeological sensitivity. Therefore, the proposed Project would not eliminate any examples of the major periods of California history or prehistory.

b) The 2018 LRDP Program EIR identified significant and unavoidable cumulative impacts to air quality (construction, operational, and TACs), cultural resources (historical resources and tribal cultural resources), population and housing (physical effects of population growth), transportation and circulation (LOS) and growth inducement (regional growth). As part of the 2018 LRDP Program EIR development program, the proposed Project would contribute to some (air quality) of these significant and unavoidable impacts as described in this addendum. However, the proposed Project is within the scope of campus development and population evaluated in the 2018 LRDP Program EIR as noted in Section 3, *Consistency with 2018 LRDP*.

These impacts were also addressed in the Findings and Statement of Overriding Considerations adopted by The Regents in connection with its approval of the 2018 LRDP. No conditions have changed, and no new information has become available since certification of the 2018 LRDP Program EIR that would alter this previous analysis. No additional mitigation is available to reduce the contribution of the proposed Project to these previously identified impacts.

c) As described above, the proposed Project would incrementally contribute to cumulative air quality (TACs) that were identified as significant and unavoidable as well as cumulatively considerable in the 2018 LRDP Program EIR. The construction and operation emissions associated with the proposed Project are within the scope of impacts examined in the 2018 LRDP Program EIR. These impacts were also addressed in the Findings and Statement of Overriding Considerations adopted by The Regents in connection with its approval of the 2018 LRDP.

Effects of the proposed Project would not result in substantial adverse effects on human beings beyond those analyzed in the 2018 LRDP Program EIR. No conditions have changed, and no new information has become available since certification of the 2018 LRDP Program EIR that would alter this analysis. No additional mitigation is available to reduce the proposed Project’s contribution these impacts. Other impacts with the potential to affect human beings were determined to be less than significant.

5 APPLICABLE MITIGATION MEASURES

The following mitigation measures from the certified 2018 LRDP Program EIR Mitigation Monitoring and Reporting Program (MMRP) would be applicable to the impacts associated with the Project. No new significant impacts or increased severity in impacts that were not analyzed in the 2018 LRDP Program EIR have been identified; therefore, no additional Project-specific mitigation is required.

Aesthetics

Aes-2A: Prior to project design approval, any proposed project that would have the potential to substantially degrade the visual character of the campus shall undergo design review by the UC San Diego Design Review Board (DRB) to ensure that the design is consistent with the visual landscape and/or the character of the surrounding development. The design review process shall evaluate and incorporate, where appropriate, factors including but not necessarily limited to: building mass and form, building proportion, roof profile, architectural detail and fenestration, texture, color, type and quality of building materials, and landscaping.

Air Quality

AQ-2A: <u>Implement Measures to Control PM Emissions Generated by Construction Activities.</u> UC San Diego shall require by contract specification that contractors implement the following measures during all phases of construction of individual projects developed under the proposed 2018 LRDP:

- Water the grading areas a minimum of twice daily to minimize fugitive dust;
- Stabilize graded areas as quickly as possible to minimize fugitive dust;
- Apply chemical stabilizer or pave the last 100 feet of internal travel path within the construction site prior to public road entry;
- Install wheel washers adjacent to a paved apron prior to vehicle entry on public roads;
- Remove any visible track-out into traveled public streets via regular street sweeping;
- Wet wash the construction access point at the end of each workday if any vehicle travel on unpaved surfaces has occurred;
- Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads;

- Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling;
- Suspend all soil disturbance and travel on unpaved surfaces if winds exceed 25 mph;
- Cover/water onsite stockpiles of excavated material;
- Enforce a 15-mph speed limit on unpaved surfaces;
- On dry days, dirt and debris spilled onto paved surfaces shall be swept up immediately to reduce re-suspension of particulate matter caused by vehicle movement. Approach routes to construction sites shall be cleaned daily of construction-related dirt in dry weather;
- Disturbed areas shall be hydroseeded, landscaped, or developed as quickly as possible to reduce dust generation; and
- Limit the daily grading volumes/area to extent feasible.

AQ-2B: Minimize Off-Road Construction Equipment Emissions. UC San Diego shall require by contract specification that the construction contractor use off-road construction diesel engines that meet, at a minimum, the Tier 4 interim California Emissions Standards, unless such an engine is not available for a particular item of equipment. Tier 3 engines will be allowed on a project-by-project basis when the contractor has documented that no Tier 4 interim equipment or emissions equivalent retrofit equipment is available or feasible for the project.

Biological Resources

Bio-2D: If project construction is scheduled to commence during the raptor nesting season (generally January 15 through July 31), pre-construction surveys for raptor nests shall be performed by a qualified biologist within 500 feet of project construction activities no more than seven days prior to the initiation of construction. Construction activities within 500 feet of an identified active raptor nest shall not commence during the breeding season until a qualified biologist determines that the nest is no longer active and any young birds in the area have adequately fledged and are no longer reliant on the nest. Trees with inactive nests can be removed outside the breeding season without causing an impact.

Bio-2E: No grubbing, trimming, or clearing of vegetation (including brush management) from project sites shall occur during the general avian breeding season (February 15 through August 31). If grubbing, trimming, or clearing cannot feasibly occur outside of the general avian breeding season, a qualified biologist shall perform a pre-construction nesting bird survey no more than seven days prior to the commencement of vegetation clearing or grubbing to determine if active bird nests are present in the affected areas. Should an active migratory bird nest be located, the project biologist shall direct vegetation clearing away from the nest until it has been determined by the project biologist that the young have fledged, or the nest has failed. If there are no nesting birds (includes nest building or other breeding/nesting behavior) within the survey area, clearing, grubbing, and grading shall be allowed to proceed.

Bio-3G: The following best management practices shall be implemented for each project that would remove or install tree species on UC San Diego that may be used as host trees by SHB

i. Trees to be planted on UC San Diego shall be obtained from a reliable source and be free of sign of SHB infestation.

ii. An education program for on-site workers responsible for tree installation shall be implemented. The program shall describe the signs of SHB infestation (e.g., sugary exudate on trunks or branches, and SHB entry/exit holes [approximately the size of the tip of a ballpoint pen]).

iii. Sign of SHB infestation shall be reported to CDFW and UC Riverside's Eskalen Lab (www.eskalenlab.ucr.edu) by the UC San Diego Project Manager and/or the project biologist.

iv. Trees with sign of SHB infestation shall be pruned or removed, as appropriate, and potential host materials shall be chipped to less than one inch prior to composting on site or transfer to a landfill.

v. Equipment that is used to prune or remove SHB-infected trees shall be disinfected prior to additional use.

vi. Biologists monitoring mitigation sites shall be knowledgeable regarding sign of SHB infestation.

Cultural and Tribal Cultural Resources

Cul-1C: <u>HABS or HALS Documentation.</u> If a project undertaken as part of implementation of the 2018 LRDP would result in the unavoidable demolition or alteration of a historical resource that cannot be mitigated through Standards compliance, then UC San Diego shall prepare archival HABS or HALS Level I documentation, as appropriate, for any historical resource that would be impacted by the project. Documentation of the existing conditions shall be undertaken prior to the commencement of construction. If requested, copies of HABS/HALS documentation shall be provided to the La Jolla Historical Society, the San Diego History Center, and other interested parties to be identified.

HABS or HALS Level I documentation may consist of the following:

- architectural and historical narrative;
- archival drawings;
- if adequate archival drawings are not available, measured drawings would be produced; and
- large-format photography.

Cul-1D: Relocation. If a project would result in the unavoidable demolition or removal of a historical resource, then UC San Diego shall consider relocating the historical resource to an appropriate receiver site, if any such site is available. When considering relocation, UC San Diego shall take into account the importance of setting to the significance of the historical resource; whether the proposed receiver site is compatible with the character and significance of the historical resource being considered for relocation; and whether the resource will retain its eligibility for the CRHR subsequent to its relocation. For historic district contributors, the receiver site should fall within the district boundaries to retain the associative qualities between the contributor and the district within which it is located.

Cul-1E: Interpretation/Commemoration. If a project would substantially alter a historical resource, then UC San Diego shall prepare an interpretive plan for the La Jolla Campus, a district/neighborhood, or a specific building/use focusing on its architectural and developmental legacy. This plan shall be used as part of community outreach efforts and on-campus orientation and tours. Interpretive displays in the public areas of significant buildings, landscapes, and sites shall be considered and installed as deemed appropriate.

Cul-1G: Salvage. If a project would substantially alter a historical resource, then UC San Diego, through careful methods of deconstruction to avoid damage and loss, shall salvage character-defining features and materials for educational and interpretive purposes on campus, or for reuse in new construction on campus in a way that interprets and commemorates their original use and significance.

Hazards and Hazardous Materials

Haz-6: In the event that the construction of a project requires a lane or roadway closure on campus, prior to construction the contractor and/or Project Manager shall ensure that the UC San Diego Fire Marshal and campus community at large are notified. If determined necessary by the UC San Diego Fire Marshal, local emergency services will be notified by the Fire Marshal of the closure.

Noise

Noi-1D: If the screening distances noted in Noi-1C cannot be achieved, a preliminary noise assessment shall be conducted by a qualified acoustician to determine if there would be the potential for exterior noise impacts to NSLUs using the sample analysis techniques contained in Appendix I or comparably equivalent methods for assessing the potential for exceeding the noise criteria outlined in Table 3.10-8. If the preliminary noise assessment predicts the potential for impacts, a project-specific noise analysis shall be conducted in accordance with Noi-1E.

Noi-1E: If the potential for noise impacts is determined in accordance with Noi-1D, a project-specific noise analysis shall be conducted by a qualified acoustician to determine if the future stationary source would expose NSLU(s) to noise in excess of 65 dBA CNEL at the building facade.

i. The analysis shall also demonstrate that the sound level in all habitable rooms will be 45 dBA CNEL or less and/or that the interior noise level within classrooms shall also not exceed 50 dBA CNEL.

ii. If the stated interior noise standards cannot be achieved through standard construction techniques, noise reduction measures shall be specified in the detailed noise analysis and incorporated into the stationary noise source or NSLU to ensure compliance with the stated standards.

Noi-1F: If project construction activities resulting from implementation of the 2018 LRDP are proposed less than 150 feet of NSLU, or may involve the use of vibratory or impact-type pile drivers, impact-type equipment (including but not limited to: clam shovels, hydra break rams, hoe rams, and jackhammers), concrete saws, pavement scarifiers, sand blasters, or vibrating hoppers, mitigation shall be integrated into the project's construction specifications to minimize temporary noise caused by construction activities to less than significant levels:

i. Require the construction contractor to work with proper administrative controls on equipment operation periods so as not to exceed a 12-hour average sound level of 75 dBA L_{eq} at any NSLU between 7:00 a.m. and 7:00 p.m. Monday through Saturday.

ii. Outfit construction equipment with properly maintained, manufacturer-approved or recommended sound abatement means on air intakes, combustion exhausts, heat dissipation vents, and the interior surfaces of engine hoods and power train enclosures.

iii. Locate (to the extent practical) steady-state, continuously operating stationary construction equipment such as generators, pumps, and air compressors at least 150 feet from nearby NSLUs. If this screening distance cannot be achieved in the field, consider deployment of temporary noise walls or acoustical blankets/curtains that would block direct sound paths between the operating equipment and the receptor(s) of concern.

iv. Position (to the extent practical) construction laydown and vehicle staging areas as far from NSLUs as feasible.

v. Inform, whenever possible and preferably with at least a two-week advanced notice, all neighboring NSLUs expected to be exposed to elevated noise levels that a construction project would commence.

vi. Where NSLU are expected to be less than 100 feet away, schedule anticipated loud construction activities, which could involve impact-type equipment and processes such as pile driving, jackhammering, pavement breaking, compactors, etc., to not coincide with any finals week of classes and recognized holidays. Adjust hours or days of the construction activity to occur before or after these noise-sensitive periods of the UC San Diego academic year.

6 REFERENCES

The primary sources of information for this Addendum are the 2018 LRDP and the associated 2018 LRDP Program EIR, including all relevant technical studies and references noted in those documents, which are incorporated by reference herein. Additional Project-specific information has been uses to supplement the information included in those primary references.

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Appendix A
Updated Report of Geotechnical Investigation UC San Diego – Triton Center (Project No. 5148) La Jolla, California
(Group Delta Consultants, Inc. 2022)

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UPDATED REPORT OF GEOTECHNICAL INVESTIGATION
UC SAN DIEGO – TRITON CENTER (PROJECT No. 5148)
LA JOLLA, SAN DIEGO, CALIFORNIA

Prepared for

UNIVERSITY OF CALIFORNIA, SAN DIEGO
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Prepared by

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Project No. SD547B
July 22, 2022

GROUP DELTA

July 22, 2022

University of California, San Diego
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10280 North Torrey Pines Road, Suite 470
La Jolla, California 92037-0916

SUBJECT: UPDATED REPORT OF GEOTECHNICAL INVESTIGATION
Triton Center
La Jolla, San Diego, California

Matthew Smith:

Group Delta Consultants (Group Delta) is submitting this updated report of geotechnical investigation to support the proposed Triton Center development. Based on the referenced project site plan and project update (UCSD, 2022a, 2022b), the project will require demolition of existing buildings, roads, hardscape and softscape and construction of four new buildings, the creation of new vehicular and pedestrian paths of travel, two new courtyards and new hardscape and softscape throughout. Other associated improvements relevant to this report will likely include underground utilities and stormwater best management practices (BMPs).

Group Delta has prepared this report in accordance with the referenced proposal (Group Delta, 2022). This submission is a draft version of the Updated Report. The purpose of this Report is to provide geotechnical information to support the preliminary design of the project. We anticipate revisions may be needed during design development and to obtain construction permits. We also anticipate review of deferred design submittals and project plans and specifications will be required to ensure our recommendations are adequately incorporated into the project documents.

The interpretations and recommendations in this Report supersede prior information submitted by Group Delta. If a specific aspect of the project is not addressed within this Report, or if questions or comments arise, please do not hesitate to contact us. We appreciate this opportunity to be of professional service

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1.0 INTRODUCTION

This Updated Report of Geotechnical Investigation (Report) provides the results of a geotechnical investigation by Group Delta Consultants (Group Delta). The investigation was conducted for the University of California, San Diego (UC San Diego) Triton Center development.

The purpose of this Report is to provide interpretations of the geologic and geotechnical conditions observed and recommendations for design and construction of the proposed improvements associated with the project. Appended to this Report are data associated with the subgrade materials within the project limits developed from: field investigations (Appendix A); geotechnical laboratory test results (Appendix B); feasibility study of on-site infiltration of stormwater runoff (Appendix C); and environmental laboratory test results (Appendix D). Field and laboratory data gathered by Group Delta as well as GeoDesign (GeoDesign, 2020) have been incorporated.

1.1 Scope of Services

Group Delta developed the recommendations herein based on the subsurface data acquired within the project limits; geologic and geotechnical engineering interpretation and analyses; and our previous experience with similar geologic and geotechnical conditions. The following scope of services were provided:

- Review of available background information associated with the site vicinity.
    - Review of mapped conditions with respect to the site vicinity: Figures 1A through 1C present the location of the site relative to existing improvements, the Local Geologic Map, and the City of San Diego Safety Map (Geologic Hazards and Faults Map), respectively.
    - Review of other geologic and geotechnical studies with respect to the site location.
- Geologic site reconnaissance and field investigation consisting of 14 exploratory borings. The locations of our field investigation activities are shown in relation to the current site improvements (Google, 2016), recent topographic survey (UCSD, 2017), and the currently proposed improvements (UCSD, 2022a) in Figures 2A through 2C, respectively. Photographs of the site at the time of our field investigation are provided in Figures 3A through 3D. Appendix A provides a summary of our field investigation and Subsurface Exploration Records relevant to the project.
- Review of mapped conditions to support our seismic assessment: Figures 4A and 4B present a Regional Fault Map and a Seismic Source Fault Map, respectively.
- Geotechnical laboratory testing of soil samples collected from the borings. Laboratory tests included sieve analysis, Plasticity Index, Expansion Index, corrosion (pH, resistivity, soluble sulfate and chloride), shear strength (direct shear), and R-Value. Appendix B provides a summary of the geotechnical laboratory tests and individual test results completed on subsurface materials obtained within the project limits.
- A feasibility study of storm water infiltration in accordance with the City of San Diego, Storm Water Standards, Part 1: BMP Design Manual dated October 2018 (referred to herein as *Design Manual*). Storm water infiltration assessment conclusions are presented in this Report. A detailed account of the field tests and results are presented in Appendix C.

- Environmental contaminant testing of soil samples collected during the field exploration, as required by the UC San Diego Soil Management Policy. Test results provided by a State of California Certified laboratory are presented in Appendix D.
- Engineering analysis of the field and laboratory data to develop geotechnical parameters and preliminary recommendations for design and construction. Mapped seismic design parameters are provided. Graphical representations of typical details pertaining to improvement setbacks and subgrades, and shallow foundations are presented in Figures 5A and 5B, respectively. Permanent retaining wall parameters and typical details are presented in Figures 6A and 6B, respectively. Temporary shoring parameters and details for cantilevered and restrained conditions are presented in Figures 7A and 7B, respectively.
- Preparation of this Report summarizing our findings, conclusions, and recommendations.

1.2 Site Description

The subject site is located on the main campus of the University of California, San Diego (UC San Diego). The site is generally bordered by Gilman Drive on the south, Russell Lane on the east, Rupertus Lane on the North, and Library Walk on the west. Myers Drive crosses roughly through the center of the site and provides access to two asphalt concrete paved parking areas to the east. The site contains numerous structures, sidewalks and subsurface improvements, and is landscaped in some areas with trees, grass, sand and gravel.

An aerial photograph showing the current site conditions is provided on the Site Investigation: Existing Improvement Map, Figure 2A. The existing building numbers and locations of subsurface utilities are shown on the Site Investigation: Topographic Map, Figure 2B. Photographs showing the site conditions at the time of our field investigation are provided in Figures 3A through 3D; the location and direction the photographs were taken are indicated in the Site Investigation Maps, Figures 2A through 2C.

Note that a number of existing structures are all located within the project site. Based on the current site development plan (UCSD, 2022b), we have assumed the existing University Center and Cancer Research Facility, as well as Buildings 201, 202, 301, 301A, 302, 400 and 401 will be demolished as part of the site development. However, we have assumed the Music Building, Center Hall, and Building 965 will remain.

Figure 2B also indicates that the site topography slopes gently down to the south and east. Existing elevations vary from a high of about 380 feet above mean sea level (MSL) along the western edge of the site, to a low of about 344 feet MSL near the southeast corner of the site.

1.3 Proposed Development

Based on the Triton Center Project Update (UCSD, 2022a), potential new improvements of geotechnical significance associated with the project consist of four new buildings: Student Academic Resources Building (Building A), Health and Well Being Building (B), Alumni & Welcome Center (C), and Multi-Purpose Building (D); two new courtyards: the West Court and Triton Plaza; new and updated pedestrian walkways: Music Walk and Rupertus Walk, respectively; and the reconfiguration of Russell Lane to create a vehicular turnaround. The current proposed improvements are shown on the Site Investigation: Proposed Improvement Plan, Figure 2C.

1.3.1 Proposed Structures

The Student Academic Resources Building (Building A) will be a relatively rectangular building primarily oriented east-west near the southern limits of the project. It will consist of six levels above grade. The lower three levels will be separated into a west (approximately 160 feet by 80 feet) and east wing (approximately 130'x80') with an exposed pedestrian corridor between. The upper three levels will be connected above grade with a rectangular shape (approximately 100 feet by 250 feet) centered above the corridor.

The Health and Well Being Building (Building B) will be a relatively rectangular building (approximately 100 feet by 200 feet) primarily oriented north-south near the northwest limits of the project. It will consist of four levels above grade.

The Alumni & Welcome Center (Building C) will be a circular building (approximately 80 feet in diameter) located near the northern limits of the project, along Rupertus Walk, between Buildings B and D. It will consist of one level below grade that will require excavations into the existing subgrade and six levels above grade.

The Multi-Purpose Building (Building D) will be a relatively rectangular building (approximately 380 feet by 150 feet) primarily oriented north-south near the center of the project limits, immediately west of the Music Building. It will consist of two levels below grade (a loading dock and underground parking) that will require relatively deep excavations into the existing subgrade, and four levels above grade, with a partial Level Five on the north side. The southern half of the building (approximately 180 feet long) is proposed as a parking structure.

Based on the conceptual drawings, Buildings A and D form a large 'L-shaped' structure; however, we have assumed they will be designed as two separate buildings. We have also assumed based on the referenced drawings (UCSD, 2022a) that Buildings A, B, and D will be constructed using reinforced concrete construction and appear to be preliminarily designed using concrete shear walls and columns. Building C may be a steel or concrete special moment frame design. We have assumed all structures are founded on shallow concrete grade beam foundations and spread footings and conventional concrete slabs-on-grade will form the floors.

1.3.2 Proposed Site Development

The proposed courtyards and hardscape surrounding the structures are assumed to be typical reinforced concrete flatwork. Based on the referenced drawings, the proposed ground surface elevations appear to match existing grades, which vary from a high of about 380 feet above mean sea level (MSL) along the western edge of the site, to a low of about 344 feet MSL near the southeast corner of the site. The reconfigured Rupertus Lane and Russell Lane are assumed to maintain the asphalt concrete pavement construction that currently exists. Other associated improvements will likely include underground utilities and stormwater best management practices (BMPs).

2.0 FIELD AND LABORATORY INVESTIGATION

Group Delta performed a field and laboratory investigation to explore the subsurface conditions at the site. In addition to our investigation, a geotechnical investigation was completed in the vicinity of the proposed improvements by GeoDesign (2020). The findings of their report were incorporated into our evaluation of the geotechnical and geologic conditions at the site.

2.1 Field Investigation

The field investigation conducted for this report included a geologic reconnaissance and subsurface explorations. Fourteen hollow-stem auger borings were advanced, under direction of Group Delta, by Pacific Drilling using a truck-mounted Unimog Marl M-5 drill rig. We logged the borings and collected soil samples. The borings were located near proposed improvements and within existing pavements. The borings were advanced as deep as 31½ feet below existing grades. Two of the borings were converted to Well Permeameter Tests to evaluate stormwater infiltration potential.

The field work was completed between September 25 and October 21, 2017. Site Investigation Maps, Figures 2A through 2C show the approximate locations of the activities with respect to the existing improvements and proposed improvements. Appendix A summarizes the methods used to complete the explorations and obtain soil samples and provides information regarding our findings, including a summary of the asphalt concrete pavement sections encountered and the Exploration Records.

2.2 Geotechnical Laboratory Testing

Soil samples were collected from the borings using a Standard Penetration Test (SPT) sampler and a ring lined sampler (a modified California sampler) for geotechnical laboratory testing. The geotechnical testing program included moisture content and dry density, sieve analyses and Plasticity Index testing to aid in soil classification using the ASTM Unified Soil Classification System (USCS), index tests to help evaluate the soil expansion potential and corrosivity, and direct shear tests of relatively intact samples to evaluate soil shear strength. R-value tests were conducted on selected soil samples to aid the pavement design. Appendix B provides the geotechnical laboratory test results.

2.3 Environmental Laboratory Testing

Subsurface samples were also collected from the borings for environmental testing as required by the Soil Management Policy from the UC San Diego Department of Environmental Health and Safety (EH&S). The environmental samples were sealed in glass containers with Teflon lids and stored in an ice chest until delivery to a certified testing laboratory. A total of 46 samples were collected from 12 borings for environmental testing to provide a screening level analysis for potential earthwork construction planning. The samples were delivered to a laboratory certified by the State Water Resources Control Board's (SWRCB) Environmental Laboratory Accreditation Program (ELAP) for analysis. The environmental samples were tested for contaminants using Environmental Protection Agency (EPA) test methods. Each sample was tested for Total Petroleum Hydrocarbons (TPH) (EPA Method 8015B), California Toxic Metals (Title 22) (EPA Method 6010B), and Mercury (EPA Method 7471A).

2.4 Infiltration Testing

Two borings were converted to Well Permeameter Tests to estimate potential infiltration rates for design of permanent stormwater Best Management Practice (BMP) installations. Based on the site improvement plans available at the time, and our experience, we located the boreholes (I-01 and I-02) and selected the depth of the test interval to best approximate a potential shallow basin or other similar permanent stormwater BMP installation. A soil sample was obtained from each borehole at the tested depth to evaluate the physical characteristics of the soils with respect to permeability.

The *Storm Water Infiltration Feasibility* section of this report presents our opinion on the feasibility of on-site infiltration. Figures 2A and 2B show the location of the field tests with respect to the existing improvements, and Figure 2C shows the locations with respect to anticipated improvements. Appendix C provides field test results along with a more detailed discussion of the test procedure.

2.5 Other Geotechnical Investigations

GeoDesign completed a subsurface investigation for this project in 2020. During that investigation, five geotechnical borings were drilled near the currently proposed improvements. These boring locations are shown on the Site Investigation Maps, Figures 2A through 2C. The boring logs and geotechnical laboratory test data are included in Appendices A and B, respectively.

3.0 GEOLOGY AND SUBSURFACE CONDITIONS

The site is located within the coastal plain section of the Peninsular Ranges geomorphic province of southern California. The coastal plain generally consists of subdued landforms underlain by marine sedimentary formations. As observed in our borings, the entire site is underlain at depth by the Scripps Formation, which is covered with Very Old Paralic Deposits in some areas. These materials are in turn covered with a variable depth of undocumented fill. The general geologic conditions at the site are depicted on the Local Geologic Map, Figure 1B. The approximate locations of the borings we reviewed at the site are shown on the Site Investigation Maps, Figures 2A through 2C. The approximate site topography is shown on the Topographic Map, Figure 2B. Logs describing the subsurface conditions encountered in the borings are provided in Appendix A. The geologic materials we observed at the site are described in more detail below.

3.1 Surficial Soils

Undocumented fill was generally encountered at the surface, extending to various depths, in our exploratory Borings. These units are generally referred to throughout this Report as “surficial soils” or “existing fill.”

3.1.1 Undocumented Fill (Q_{af})

Undocumented fill (map symbol af) refers to soil placed during prior construction activities with no record of observation and testing by a Geotechnical Engineer available for review. Our investigation revealed a layer of fill, likely associated with construction of the existing improvements, extending from the existing ground surface to between approximately 2 and 8 feet below grades. Undocumented fill soil was encountered in all of the exploratory borings.

As observed in the borings, the fill mostly consists of silty or clayey sand (SM or SC), with a considerable amount of sandy lean and fat clay (CL and CH). The fill is considered potentially compressible and unsuitable for the direct support of new fill or foundation loads, or other settlement sensitive improvements such as pavements and walkways. The clayey fill was typically stiff in consistency, although zones of soft clay were also observed.

Laboratory tests indicates that the clayey fill soils have a medium to high expansion potential, with an Expansion Index of 104 observed in one specimen (see Figure B-2). The tests also suggest that the fill has a negligible soluble sulfate content based on common criteria (see Figure B-3). However, the fill appears to be very corrosive to buried metals.

3.2 Formational Materials

Very Old Paralic Deposits underlie much of the site. Sedimentary rocks of the Scripps Formation underlie the Very Old Paralic Deposits. These geologic units are commonly considered “soft rock” and are generally referred to throughout this Report as “formational material.”

3.2.1 Very Old Paralic Deposits, Unit 10 ($Q_{vop,10}$)

Very Old Paralic Deposits (Map Symbol $Qvop_{10}$) were encountered in most of the explorations directly overlying the Scripps Formation. Based on the available topographic and subsurface data, the geologic contact appears to be located at an elevation of between 344 to 351 feet MSL throughout most of the site. The Very Old Paralic Deposits are early to middle Pleistocene in age, and are composed of interfingered strandline, beach and colluvial deposits (Kennedy, 2008).

As observed in the drive samples and cuttings generated by the hollow stem auger, the Very Old Paralic Deposits most commonly consist of light orange or grayish brown silty, clayey or poorly graded sand (SM, SC or SP) with occasional lean clay (CL). In several of the borings, gravel beds were encountered directly above the geologic contact with the Scripps Formation. The Very Old Paralic Deposits are typically dense to very dense in consistency, with corrected SPT blow counts (N_{60}) typically above 30. Our previous experience indicate that the sandy Very Old Paralic Deposits typically have a low expansion potential based on common criteria, although the clay layers may be moderately or highly expansive. The clayey soils also have a moderate soluble sulfate content, and a low minimum resistivity indicating highly corrosive conditions.

3.2.2 Scripps Formation (T_{sc})

Sedimentary materials associated with the Eocene-age Scripps Formation (Map Symbol T_{sc}) and Ardath Shale (T_a) were encountered in most of the exploratory borings conducted at the site. The Scripps Formation typically overlies the Ardath Shale in the region. However, at the subject site, we encountered claystone beds commonly associated with the Ardath Shale within sandstone and siltstone beds that are more typical of the Scripps Formation. For the purpose of this investigation, the two units were not differentiated, and are shown as Scripps Formation on the boring logs.

As observed on site, the Scripps Formation consists of a light yellow and gray silty sandstone (Unified Soil Classification SM) that is frequently interbedded with sandy siltstone (ML), and lean or fat claystone (CL or CH). The Liquid Limit of the clay samples we tested varied from 58 to 60, indicating a high plasticity. The sandstone was typically fine-grained, with zones of moderate cementation. The claystone was moderately indurated. The corrected Standard Penetration Test (SPT) blow counts (N_{60}) within the formation were well above 50, indicating a very dense condition.

Our previous experience in the site vicinity indicates that the sandstone and siltstone of the Scripps Formation typically have a very low to low expansion potential (EI < 50) and a negligible soluble sulfate content based on common criteria. However, the claystone of the Scripps Formation may be moderately to highly expansive, with a severe soluble sulfate content. The Scripps Formation is also very corrosive to buried metals.

Laboratory tests suggest an average in-situ dry density of about 100 lb/ft^3 for the Scripps Formation, with an average moisture content of about 20 percent at the site. Direct shear tests and our previous experience suggests that the granular formational materials typically have a peak shear strength exceeding 34^o with 200 lb/ft^2 cohesion. The siltstone is estimated to have a drained strength of about 28^o with 200 lb/ft^2 cohesion. Our previous experience indicate that the intact claystone beds typically have a drained shear strength exceeding 25^o with 200 lb/ft^2 cohesion.

3.3 Groundwater

The regional groundwater table is believed to be located more than 50 feet below site grades. However, perched groundwater seepage was encountered within the Paralic Deposits in Boring B-5 at a depth of 14 to 18 feet below grade (corresponding to elevations ranging from about 353 to 357 feet MSL at the boring location). Perched groundwater was encountered near the geologic contact with the Scripps Formation in Boring B-6 at an elevation of about 352 feet MSL. Pockets of wet soil were also encountered near the ground surface in Borings B-8, B-11, B-12 and I-2. It should be noted that changes in rainfall, irrigation or site drainage may produce seepage or locally perched groundwater conditions at any location within the fill or formational units underlying the site. Such conditions are difficult to predict, and are typically mitigated if and where they occur.

4.0 GEOLOGIC HAZARDS

The primary geologic hazard at the site is the potential for strong ground shaking due to nearby or distant seismic events. Evidence of past landslides, liquefaction or ground rupture at the site were not encountered in our geotechnical investigation or literature review. The City of San Diego Seismic Safety Study (2008) describes the area as "Other Terrain" primarily mapped as "*Level mesas" with nominal risk (Area 51) and "Level or sloping terrain" with low to moderate risk (Area 53)*, as shown in Figure 1C. Geologic hazards are further described below.

4.1 Strong Ground Motion

The site could be subject to moderate to strong ground shaking from nearby or more distant, large magnitude earthquakes occurring during the expected life span of the improvements. This hazard is managed by structural design per the latest edition of the California Building Code. Seismic design parameters are provided in the *Recommendations* section below.

4.2 Earthquake Surface Fault-Rupture Hazard

The potential for surface fault rupture is considered low. Surface rupture is the result of movement on an active fault reaching the ground surface. The site is not located within a State of California Alquist-Priolo Earthquake Fault Zone or a City of San Diego Seismic Safety Element Fault Zone.

Several potentially active faults associated with the La Nacion fault zone are mapped nearby the subject site, as shown on Figure 4A. Studies of these faults indicate no evidence of movement during the Holocene period and therefore they are not considered active. The nearest active fault is the Rose Canyon Fault Zone located about 2 miles (3¼ kilometers) west of the site, as shown in Figures 4A and 4B. The Rose Canyon Fault Zone is a strike-slip fault zone that extends from off the coast of Carlsbad down through La Jolla, and then through downtown San Diego to near the California and Mexico border. For these reasons, the potential for surface fault rupture at the site is considered low.

4.3 Liquefaction and Seismically Induced Settlement

Considering the dense condition (N_{60}>30) of the material underlying the site and the relatively deep groundwater, the potential for soil liquefaction and its secondary effects should be very low. Liquefaction is the sudden loss of soil shear strength within saturated, loose to medium dense, sands and non-plastic silts. Liquefaction is caused by the build-up of pore water pressure during strong ground shaking from an earthquake. The secondary effects of liquefaction are sand boils, settlement, and instabilities within sloping ground.

The potential for seismic compaction should be low since loose, unsaturated coarse-grained soils were generally not observed at the site. If they are encountered during excavation, these soils should be removed as part of the preparation of the building subgrade. Seismic compaction is another form of earthquake-induced ground failure that is caused by the densification during strong ground shaking of loose coarse-grained soils that are above groundwater. Based on our understanding of the current project, earthquake induced ground failure is not a design consideration.

4.4 Landslides and Slope Stability

Evidence of ancient landslides or slope instabilities were not observed during our literature review, site reconnaissance, or subsurface exploration. Based on our understanding of the current project, landslides and slope stability are not design considerations.

4.5 Tsunamis and Seiches

The site has a relatively high ground surface elevation, and it lies outside of the mapped tsunami inundation area to the west (CalEMA et al, 2009). The site is not located below any lakes or confined bodies of water so there is no potential for seiches or earthquake induced flooding.

5.0 GEOTECHNICAL CONDITIONS

The geotechnical conditions at the site, including those that may require engineering mitigation, are discussed below.

5.1 Compressible Soils

The undocumented fill (recorded as Fill on the Boring Records) is considered compressible. These soils have potential for adverse differential settlement and/or shear strength failure due to the variable physical characteristics and apparent densities that stem from the potentially uncontrolled placement and compaction of the fill. These soils should be removed and recompacted beneath new settlement sensitive improvements. Based on localized observations from our borings, we anticipate that remedial grading to remove the existing fill may vary between two and eight feet. However, deeper fill may exist in areas not explored and in localized utility trenches.

5.2 Expansive Soils

Three Expansion Index (EI) tests were conducted on soil samples obtained within the limits of the proposed improvements. Laboratory tests indicate the soils tested range from “low” to “high” expansion potential. Classification tests indicate that the near surface soils at the site primarily consist of silty and clayey sand (SM and SC); sands typically possess a low to very low expansion potential. Appendix B provides results of the laboratory testing. Soils with low expansion potential or greater are not recommended in the subgrade of proposed slabs-on-grade, as discussed in the *Recommendations* section below. Expansion Index testing should be conducted during construction.

5.3 Reactive Soils

Corrosivity testing was conducted on soil samples obtained within the limits of the proposed improvements. Appendix B provides the results. Water-soluble sulfate content was determined to assess the sulfate exposure of concrete in contact with the soils. The test results suggest the soils tested have a negligible potential for sulfate attack based on commonly accepted criteria. The sulfate content of the finish grade soils anticipated to come into contact with concrete improvements should be evaluated at the completion of earthwork.

The sampled soils were also tested for pH, resistivity, and chloride content to assess their reactivity with buried metals. The test results suggest the soils tested may be corrosive to buried metals and are very corrosive to ferrous metals. A Corrosion Consultant may be contacted for specific recommendations.

5.4 Reuse of Onsite Soils

The fill soils and formational materials observed within the proposed cut areas were generally comprised of sand with gravels and localized clay and claystone. These materials generally possess good geotechnical engineering characteristics when used for fill. Zones of clayey material may require mixing or selective placement to reduce the expansion potential within building pad and subgrade areas of heave sensitive improvements. The *On-Site Soils and Materials Management* section of this report provides further recommendations for reuse of onsite soils.

5.5 Storm Water Infiltration

Preliminary field infiltration test results summarized in Appendix C do not support on-site infiltration of stormwater runoff based on the criteria presented in Worksheet C.4-1 of the *Design Manual*. Infiltration rates were near zero and qualify as a “no infiltration” condition as defined in the *Design Manual*.

6.0 CONCLUSIONS

In our opinion, the site is geotechnically suitable for the proposed development. However, design of the proposed improvements will need to consider the geotechnical conditions at the site. Specific conclusions are provided below:

- The existing surficial soils encountered during this investigation are considered potentially compressible and not suitable for structural support in their current condition. Recommendations for remedial grading are provided in the following section.

- The existing formational materials encountered during this investigation are considered adequate for structural support. Recommendations for design of foundations and retention systems in these materials are provided in the following section.

- The formational materials at depth are typically very dense sandstone and hard claystone. However, expansive claystone (EI>50) may be encountered and may require additional remedial earthwork. Earthwork recommendations are provided in the following section.

- The fill and formational soils encountered are generally suitable for reuse as compacted fill. Specific recommendations for fill placement are provided in the following sections.

- The building foundations are anticipated to bear directly on formational materials or compacted fill over formational materials. Actual depths and locations of remedial grading and fill placement during construction should be taken into consideration with regard to foundation design and bearing capacity recommendations.

- The corrosion test data indicate the onsite soils have a negligible potential for sulfate attack of concrete but may be corrosive to metals. Typical corrosion measures should be incorporated into design. A corrosion consultant may be contacted for specific recommendations.

- Considering shallow stormwater BMPs and the criteria presented in the *Design Manual*, on-site infiltration of stormwater runoff is not recommended based on the field test results presented in Appendix C.

- Isolated areas of perched groundwater seepage were encountered in Borings B-5 and B-6, and wet soils were encountered in Borings B-8, B-11, B-12 and I-2. Seepage and wet soils may also be encountered in excavations located near existing irrigated areas. Some wet soils and seepage may be encountered during excavations. Recommendations regarding wet soils are provided in the following section.

- The main geologic hazards are the potential for strong ground shaking from an earthquake. Strong ground shaking is typically managed by structural design using the latest version of the California Building Code. Recommendations regarding seismic design are provided in the following section.

7.0 RECOMMENDATIONS

The remainder of this report presents recommendations for earthwork and design and construction of the proposed improvements. These recommendations are based on empirical and analytical methods typical of the standards of practice in southern California and common San Diego area construction methods and practice. They are provided for evaluation purposes and design of the project. These recommendations may need to be updated for final design or based on the results of field testing or actual subsurface conditions encountered during construction. If these recommendations do not address a specific feature of the project, please contact Group Delta for additions or revisions.

7.1 General

7.1.1 Design Groundwater Level

Groundwater should not be a design consideration. Note that changes in rainfall, irrigation, or site drainage may produce seepage or perched groundwater within the project limits. Such conditions are difficult to predict and are typically mitigated if and where they occur during construction.

7.1.2 Seismic Design

7.1.2.1 Site Class

The site classification for seismic design is Site Class C, in accordance with Chapter 20 of ASCE 7-16. Per Chapter 20 of ASCE 7-10, “where site-specific data are not available to 100 ft (30 m), appropriate soil properties are permitted to be estimated by the registered design professional preparing the soil report based on known geologic conditions.” Based on the subsurface exploration, underlying geology, and our experience with nearby sites, the Scripps Formation is underlain by the Ardath Shale at the site. The resistance to drive sampling (N_{60}) in the Ardath Shale is known to generally be greater than or equal to that of the Scripps Formation. Therefore, it is conservative to extrapolate the data obtained in our borings within the Scripps Formation to 100 feet for this evaluation. The Average Field Standard Penetration ($\overline{N}$) in the upper 100 feet (30 meters) was then calculated using the resistance to drive sampling in our borings, along with the extrapolated data, following the recommended procedure in Chapter 20 of ASCE 7-10. The $\overline{N}$ values are greater than 50, which is consistent with Site Class C.

7.1.2.2 Mapped Parameters

Mapped seismic design parameters in accordance with the 2019 California Building Code are presented in the table below. Mapped seismic design parameters were developed using the online SEAOC/OSHPD Seismic Design Maps tool (SEAOC/OSHPD, 2019).

Mapped Seismic Design Acceleration Parameters (ASCE 7-16)

Design Parameters	Seismic Design Parameter Mapped Values (ASCE 7-16 Section 11.4)
Site Latitude	32.8777
Site Longitude	-117.2360
S_s (g)	1.286
S_1 (g)	0.452
Site Class	C
F_a	1.200
F_v	1.500
T_S (sec)	0.439
T_L (sec)	8
S_{MS} (g)	1.544
S_{M1} (g)	0.678
S_{DS} (g)	1.029
S_{D1} (g)	0.452

7.1.3 Surface Drainage

Retaining wall, foundation and slab performance depend on how well surface runoff drains from the site. The ground surface should be graded so that water flows rapidly away from the structures and tops of slopes without ponding. The surface gradient needed to achieve this may depend on the planned landscaping. Planters should be built so that water will not seep into the foundation, slab, or pavement areas. If roof drains are used, the drainage should be channeled by pipe to storm drains or discharge 10 feet or more from buildings. Irrigation should be limited to that needed to sustain landscaping. Excessive irrigation, surface water, water line breaks, or rainfall may cause perched groundwater to develop within the underlying soil.

7.2 Earthwork

Earthwork should be conducted per the current applicable requirements of the California Building Code and the project specifications. This report provides the following recommendations for specific aspects of earthwork, which may need to be revised for final design, or based on the conditions observed during construction.

7.2.1 Site Preparation

General site preparation should begin with the removal of deleterious materials and demolition debris from the site, such as asphalt pavements, concrete slabs and pavements, existing structures, existing buried utilities, remnant foundations, landscaping and topsoil, and any expansive soil (EI>50) located within 36 inches of the planned finished subgrade elevations of heave sensitive improvements. Areas disturbed by demolition should be restored with a subgrade that is stabilized to the satisfaction of the Geotechnical Engineer.

7.2.2 Remedial Earthwork

Based on the proposed improvements, we anticipate remedial earthwork will be required for the proposed structures. The subgrade of building slabs-on-grade and any shallow foundations may require remedial grading to provide a suitable transition between cut and fill and a uniform bearing condition throughout. In addition, due to the apparent density observed in the borings and the intrinsic variability of the undocumented fill (potential for loose pockets, deleterious material, etc.), all of the soil defined as Fill on the boring logs are considered potentially compressible. The following sections discuss the remedial grading necessary to address these potential issues within the influence area of applicable improvements.

7.2.2.1 Cut-Fill Transition Over-Excavation

The engineering characteristics of materials in cut and fill may result in a high contrast in stiffness that could cause improvements to crack and display other forms of distress depending on the type and rigidity of the improvement. Details regarding the required over-excavations below building slabs-on-grade and any shallow foundations are presented in Typical Details: Figure 5A, *Setbacks and Transitions* and Figure 5B, *Shallow Foundations*, respectively. The recommendations provided in the *Finish Subgrade Preparation* section of this report should also be considered.

7.2.2.2 Compressible Material

Complete removal of undocumented fill and replacement with properly processed and compacted soil should be completed prior to placement of compacted fill associated with building slabs-on-grade and any shallow foundations. We anticipate that depths of remedial grading to remove the existing fill may vary throughout the site. Based on localized observations from the on-site subsurface borings, the undocumented fill was found to extend to depths of two to eight feet below the existing surface. However, deeper fill may exist in areas not explored and we anticipate deeper fill exists in localized utility trenches.

The *Geology* section of this report describes our findings regarding the Fill in more detail, while additional recommendations regarding undocumented fill associated with existing trench backfill are provided in the following section. The Project Geologist should verify that competent formational materials are exposed within the influence area of building slabs-on-grade and any shallow foundations prior to placement of compacted fill. The influence area extends beyond the lowest outer edge of the improvement, following a projected 1:1 line outward and down to an approved removal bottom, or a horizontal distance of 5 feet beyond the perimeter of the improvement, whichever is greater. The actual removal areas should be defined based on the conditions observed by the Project Geologist during earthwork.

7.2.2.3 Existing Utilities

Existing subsurface utilities that will be abandoned should be removed and the excavations backfilled and compacted as described in the *Fill Placement and Compaction* section. Alternatively, abandoned pipes may be grouted using a two-sack sand-cement slurry under the observation of the Geotechnical Engineer.

Existing trench backfill to remain in place should be evaluated by the Geotechnical Engineer and found to be firm and unyielding prior to placing new compacted fill. In addition, the following recommendations apply to existing utilities and existing trench backfill beneath new shallow foundations:

- Existing utilities within 3 feet of the bottom of footing elevation should be removed and relocated or replaced with a concrete encasement designed by the Structural Engineer.
- For deeper utilities that will remain in place, the upper 2 feet of associated trench backfill should be removed. Then the exposed subgrade should be evaluated and the excavation should be backfilled as described in the Excavations section.

7.2.3 Excavations

The bottom of any excavations should be observed by the Geotechnical Engineer. The bottom of all excavations should be firm and unyielding prior to placing fill or structural improvements. If loose soil, yielding subgrade, deleterious material, or expansive soil is encountered in any excavation subgrade, additional excavations may be recommended.

7.2.3.1 Subgrade Preparation

Prior to placement of any compacted fill, the exposed subgrade soil should be proof rolled, probed, or otherwise observed and tested by the Geotechnical Engineer to verify that the exposed subgrade is firm and unyielding. The approved subgrade should then be scarified at least one foot and recompacted to 90 percent of the maximum dry density based on ASTM D1557.

7.2.3.2 Subgrade Stabilization

In areas of loose, or saturated "pumping" subgrade, a layer of geogrid such as Tensar BX-1200 or Terragrid RX1200 may be placed directly on the excavation bottom, and then covered with at least 12-inches of open-graded crushed rock, followed by 12-inches of minus ¾-inch well-graded aggregate base. Once the excavation is firm enough to attain the required compaction within the base, the remainder of the excavation may be backfilled using either compacted soil or aggregate base.

7.2.4 Engineered Fill

The following subsections provide recommendations for material used as general engineered fill. Additional recommendations for material placed in the finish subgrade of proposed improvements are provided in the *Finish Subgrade* section below.

7.2.4.1 Onsite Soils

The existing soils within the proposed improvement areas are anticipated to be generally suitable for reuse. Excavations may encounter strongly cemented zones or concretions and large rocks that produce oversize material (greater than 6-inches in maximum dimension), or a high percentage of gravel and cobble. The *Fill Processing* section provides recommendations for processing soils, including those containing organic matter, gravel, cobbles, and expansive material. In addition, the *Finish Subgrade* section defines areas where select material is recommended.

7.2.4.2 Import Soil

Imported fill sources, if needed, should be observed prior to hauling onto the site to evaluate the suitability for use. In general, import for common fill should consist of granular soil with less than 35 percent passing the No. 200 sieve based on ASTM C136 and an Expansion Index less than 50 based on ASTM D4829. The Geotechnical Engineer should test samples of all proposed import to evaluate the suitability of these soils for their proposed use.

Additional testing per the guidelines provided by the Department of Toxic Substances Control (DTSC, 2001) is required by UC San Diego prior to accepting soil for import. Test results should meet the requirements for import material outlined in the UC San Diego *Site Development Guidelines and Procedures for UC San Diego* (UC San Diego, 2018).

For each proposed fill source, the Contractor should provide a submittal to the Geotechnical Engineer demonstrating that the proposed site and materials meet the geotechnical and environmental guidelines for import. Prior to import of the proposed materials, samples of proposed import should be tested by the Geotechnical Engineer to evaluate the suitability of these soils for their proposed use.

7.2.4.3 Demolition Debris

Concrete may be crushed to less than 1-inch in dimension for use as fill. Reinforcing steel should be removed prior to crushing the concrete. Properly crushed concrete will often meet the gradation and quality criteria from Section 200-2.4 of the Standard Specifications for Public Works Construction for use as Crushed Miscellaneous Base (CMB).

Asphalt concrete is not permitted to be used as fill based on the UC San Diego Site Development Guidelines that restrict the use of material containing Total Petroleum Hydrocarbons (TPHs).

7.2.4.4 Fill Processing

Soil should be processed to produce fill near optimum moisture content for compaction. Rocks or concrete fragments greater than 6 inches in dimension and soil with more than 2 percent organic content (based on ASTM D2974) or an Expansion Index greater than 50 (based on ASTM D4829) should not be reused without specific direction from the Geotechnical Engineer.

Rocks or concrete fragments greater than 6 inches in maximum dimension may be stockpiled for export or crushed to smaller than 6 inches for reuse in soil fills. They should be thoroughly blended with soils to create a relatively uniform distribution of material. Alternatively, rocks or concrete larger than 6 inches may be placed individually within soil fills at a depth greater than 10 feet below finish grades. The rock content of fills should not exceed 30 percent by weight.

Soil with an Expansion Index greater than 50 should be removed and placed within soil fills at a depth greater than 10 feet below finish grades or disposed of offsite. Alternatively, soils may be blended with select material to reduce the Expansion Index or organic content. The Geotechnical Engineer should test samples of the resulting soil blend to evaluate the suitability of these soils prior to their use.

During earthwork, soil types may be encountered by the Contractor that do not conform with those addressed by this Report. The Geotechnical Engineer should evaluate the suitability of these soils for their proposed use on a case-by-case basis.

7.2.4.5 Fill Placement and Compaction

Fill and backfill should be placed at slightly above optimum moisture content using equipment that can produce a consistently compacted product. Fill should be processed and placed to avoid “nesting” or concentrations of rock without sufficient fines for compaction. Unless noted otherwise on project documents, the minimum recommended density, relative to the maximum dry density of the soil (based on ASTM D1557), is 90 percent for general fills and 95 percent for the upper 12 inches of pavement and concrete slab subgrade.

Where fill is to be placed on surfaces inclined steeper than 5:1, these surfaces should be benched to provide a relatively level surface for fill placement. The bench width should generally be adequate to expose 3 to 5 feet of competent material in the vertical wall of the bench.

7.2.5 Finish Subgrade Preparation

The following assumes recommendations presented within this *Earthwork* section, including site preparation, remedial earthwork, and engineered fill are properly implemented. The finish subgrade of improvement areas not specifically addressed should be evaluated on a case-by-case basis. For example, landscape areas may not require fill processing or fill placement and compaction for geotechnical considerations but may require processing to meet Landscape Architect recommendations.

7.2.5.1 Building Slab-on-Grade Subgrade

The subgrade of any interior concrete slab-on-grade is defined as the area directly beneath and within five feet laterally outside (where practical) the footprint of the slab. If the subgrade is established with engineered compacted fill, at least the upper two feet should contain very low expansion (EI≤20) soil. If subgrade excavations expose undisturbed sandstone, no special remedial grading may be needed for the proposed structures. However, depending on the final slab subgrade elevations, highly expansive claystone of the Scripps Formation may be encountered directly beneath the slabs-on-grade. If expansive clays are observed at or near subgrade elevations, additional remedial excavations should be conducted to provide at least 2-feet of very low expansion (EI<20) soil directly beneath the basement slabs-on-grade.

7.2.5.2 Shallow Foundation Subgrade

The subgrade of all shallow foundations for new structures, with the specific exceptions noted below, should expose either:

- <u>Undisturbed formational material:</u> If areas of fill or otherwise disturbed material are observed, the disturbed material should be completely removed, and the foundation deepened to meet formational material using a 3-sack (minimum) slurry with a 28-day strength of at least 300 psi.
- <u>Engineered compacted fill:</u> A minimum of two feet of new engineered compacted fill with a low expansion potential (EI≤50). Additional depths of compacted fill may be required depending on the structure and subgrade condition; see *Foundations* section for additional requirements.

7.2.5.3 Vehicular Pavement Section Subgrade

The upper 12 inches of soil subgrade below new vehicular pavement sections should be scarified immediately prior to constructing the improvement, brought to optimum moisture, and compacted to at least 95 percent of the maximum dry density per ASTM D1557.

Based on the proposed improvements, applicable vehicular pavement sections would include new asphalt concrete and new Portland cement concrete (PCC) sections. The *Exterior Surface Improvements* section provides specific recommendations for design and placement of the paving materials.

7.2.5.4 Exterior Surface Improvement Subgrade

The subgrade of improvements that are prone to adverse differential movement due to heave or settlement of the subgrade (i.e. concrete sidewalks) should consist of at least two feet of very low expansion (EI≤20) engineered compacted fill. The subgrade is defined as the area directly beneath and within two feet laterally outside the footprint of the proposed improvement.

Based on the proposed improvements, applicable exterior surface improvements include pedestrian concrete. Other improvements may be considered applicable by others; the project documents should indicate the subgrade requirements for all planned improvements. The *Exterior Surface Improvements* section provides specific recommendations for design and placement of the paving materials.

7.2.6 Temporary Excavations

Temporary excavations will be needed to construct the planned improvements. All excavations should conform to Cal-OSHA guidelines. Based on the findings of our subsurface investigation, the following OSHA Soil Types may be used for planning temporary slopes. The Contractor should note that the materials encountered in construction excavations could vary across the site. This assessment of Soil Type is based on preliminary classifications of soils encountered in widely spaced explorations.

Geologic Unit	Cal/OSHA Soil Type
Fill	Type C
Formation	Type A[1]

Note: Based on limited site investigation, for planning purposes only.
1: Not subject to vibration, no fracturing, fissuring of dip into face of excavation.

The design, construction, maintenance and monitoring of all temporary slopes is the responsibility of the contractor. The contractor should have a competent person evaluate the geologic conditions encountered during excavation to determine permissible temporary slope inclinations and other measures as required by Cal-OSHA.

7.2.7 Earthwork Observation and Testing

Excavations for foundations and general earthwork should be observed by the project Geotechnical Engineer. The Geotechnical Engineer should also conduct sufficient testing of fill and backfill during earthwork and improvement operations to support their professional opinion as to the compliance with the compaction recommendations. Such observations and tests are considered essential to identify field conditions that differ from those anticipated by this investigation, to adjust designs to the actual field conditions, and to determine that the construction is completed in accordance with the governing geotechnical recommendations.

7.3 Shallow Foundations

Shallow spread and continuous footings may be designed using the parameters and recommendations below. These recommendations assume remedial grading and fill compaction are completed as described within this report, and that all foundations derive support entirely from compacted fill soils or entirely from formational materials.

If areas of fill are observed in foundation excavations designed to bear in formation, the fill soils should be completely removed beneath the foundations and replaced with a 3-sack slurry with a minimum 28-day strength of at least 300 psi. *Foundations should not transition between cut in formational materials* *and compacted fill without specific recommendations from a Geotechnical Engineer.* Localized trench backfill may be an exception but should be evaluated by the Geotechnical Engineer on a case-by-case basis. The location and depth of existing utilities to remain in place should be considered when designing the location of new shallow foundations.

Compacted Fill:

- Allowable vertical bearing pressure of 2,500 pounds per square foot (psf). The allowable bearing pressure may be increased by 250 psf per foot increase in the minimum footing width and 500 psf per foot increase in the minimum footing depth shown in Figure 5B to a maximum value of 4,000 psf. The bearing pressure assumes infinite level ground surrounds the footing.
- Allowable lateral bearing using a soil passive pressure of 300 psf per foot of embedment combined with a sliding resistance estimated using a coefficient of friction of 0.30. The passive pressure assumes infinite level ground in front of the footing.
- Minimum 2 feet of compacted fill in foundation subgrade, as shown in Figure 5B.

Formational Materials:

- Allowable vertical bearing pressure of 4,000 pounds per square foot (psf). The allowable bearing pressure may be increased by 500 psf per foot increase in the minimum footing width, and by 500 psf per foot increase in the minimum footing depth shown in Figure 5B to a maximum value of 7,500 psf. The bearing pressure assumes infinite level ground surrounds the footing.
- Allowable lateral bearing using a soil passive pressure of 400 psf per foot of embedment combined with a sliding resistance estimated using a coefficient of friction of 0.35. The passive pressure assumes infinite level ground in front of the footing.
- Minimum 1-foot embedment into competent formational material, as shown in Figure 5B. This extension may be accomplished using footing extensions and/or cement-sand slurry backfill of excavations below the footings that extend into the formational materials.

All Shallow Footings:

- Bearing pressure and soil passive pressure may be increased by one-third for short term seismic and wind loads.
- Minimum slope setbacks and adjacent footing setbacks shown in Figure 5A
- Minimum width, depth and embedment shown in Figure 5B.
- Reinforcement in accordance with recommendations provided by the Structural Engineer.

Provided that remedial grading is conducted as recommended in the *Earthwork* section and foundations are designed using the recommendations in this section, total and differential settlements of the proposed structure are not expected to exceed one inch and ¾-inch over 40 feet, respectively. These values are based on experience with similar structures. These values are contingent upon a review of the foundation plans and actual expected bearing pressures.

A subgrade modulus of 150 pci may be used for preliminary structural deformation analyses of the foundations, but specific recommendations for subgrade modulus should be provided by Group Delta based on the foundation type, size, depth and location during design development, if required for deformation analyses.

7.4 Interior Reinforced Concrete Slabs

Conventional reinforced concrete slabs-on-grade are anticipated. Building slabs should be at least 5 inches thick. Slab thickness, control joints, and reinforcement should be designed by the Structural Engineer and should conform to the requirements of the current CBC.

The additional recommended grading described in the *Earthwork* section of this report should be completed and result in at least two feet of very low expansion (EI≤20) compacted fill in the slab subgrade. In addition, a minimum thickness of at least 3 feet of compacted fill should be maintained throughout the subgrade, as illustrated in Figure 5A. Local over-excavation of formational material may be required.

Moisture protection should comply with requirements of the current CBC, American Concrete Institute (ACI 302.1R-15), and the desired functionality of the interior ground level spaces. The Architect typically specifies an appropriate level of moisture protection considering allowable moisture transmission rates for the flooring or other functionality considerations. Moisture protection may be a “Vapor Retarder” or “Vapor Barrier” that use membranes with a thickness of 10 and 15 mil or more, respectively. The membrane may be placed between the concrete slab and the finished subgrade immediately below the slab, provided it is protected from puncture and repaired per the manufacturer’s recommendations if damaged.

7.5 Earth Retention Design

Temporary and permanent earth retention to create subterranean levels will be required to construct the below-grade levels of Buildings C and D.

7.5.1 Restrained Retaining Walls

We have assumed permanent cast-in-place (CIP) concrete basement walls will be constructed to provide earth retention for Buildings C and D. Permanent subterranean walls that are restrained from lateral movement may be designed using the earth pressure diagram presented in Figure 6A.

The lateral earth pressures provided assume the walls will retain formational material or will be backfilled as described below. Pressures are provided assuming retained material maintains either a level or a 2:1 (horizontal to vertical) slope away from the top of the wall. For general wall design, foundations should be designed based on the recommendations provided in the *Foundations* section of this Report. Evaluation of the surcharge loads associated with specific vehicles, construction equipment and other loading that will load the walls should be considered when selecting the design surcharge value.

7.5.1.1 Subsurface Drainage and Waterproofing

Figure 6C provides recommendations for subsurface drainage behind the wall to avoid the buildup of hydrostatic pressures that may form from irrigation, surface runoff, leaking underground utilities, or other unknown sources of subsurface water.

Subterranean walls should be waterproofed for end use. Due to the potential for increased moisture from landscaping and leaking underground utilities, it may be necessary to place the waterproofing over the entire height of the walls, depending on the functionality of the wall surface needed. A high degree of waterproofing may be needed if functionality requires the interior of the basement wall surface to be free of all leakage, seepage, and damp patches. The lowest degree of waterproofing typically allows damp patches and minor leakage through construction joints.

7.5.1.2 Backfill

Backfilling retaining walls with expansive soil can increase lateral pressures well beyond normal active or at-rest pressures. Retaining walls should be backfilled with granular soil with less than 35 percent passing the No. 200 sieve based on ASTM C136 and an Expansion Index less than 20 based on ASTM D4829.

Retaining wall backfill should be compacted to at least 90 percent relative compaction based on ASTM D1557. Backfill should not be placed until the retaining walls have achieved adequate strength. Heavy compaction equipment, which could cause distress to the walls, should not be used. The backfill zone is defined in Figure 6B.

7.5.2 Temporary Shoring

We anticipate shoring will be needed around the circular perimeter of Building C and along the generally rectangular perimeter of Building D.

7.5.2.1 Soldier Piles and Lagging

Temporary shoring may be constructed using soldier piles and lagging to create a cantilevered temporary retaining wall. If tiebacks or internal bracing are added, an anchored/braced temporary retaining condition would apply. Earth pressure diagrams and other geotechnical parameters are provided for both cantilevered and braced conditions [with level backfill or a 2:1 (horizontal to vertical) sloping backfill] in Figures 7A and 7B, respectively.

Note that circular excavations supported by walers or other stiff structural members that generate internal hoop stresses could result in at-rest earth pressures acting on the shoring system. Revised lateral earth pressures can be provided for such systems upon request.

7.5.2.2 Soil Nail Retaining Walls

Soil nail walls may be used for shoring of compacted fill and formational materials. Note, due to potential remedial grading, any soil nails designed within the upper five to ten feet of finish grade may encounter compacted fill soils. Alternatively, a benched excavation of the fill may be completed to reduce the necessary shoring, limiting the retained material to the formational materials only.

It is the responsibility of the shoring designer and contractor to review the soil conditions relative to the constructability of the selected shoring system. Potential zones of gravel, strongly cemented sandstone, potentially cohesionless sands, and other potential conditions should be evaluated prior to choosing the method of shoring.

The following geotechnical parameters may be assumed for design of soil nail walls in formational material and compacted fill:

<u>Formational Material:</u>

Bulk Soil Unit Weight, Y.. 125 pound per cubic foot
Peak Effective Internal Friction Angle, ϕ'.. 35 degrees
Peak Effective Cohesion, c' .... 100 pounds per square foot
Ultimate Soil Nail Bond Stress... 20 pounds per square inch

Compacted Fill:

Bulk Soil Unit Weight, Y.. 120 pound per cubic foot
Peak Effective Internal Friction Angle, ϕ’.. 30 degrees
Peak Effective Cohesion, c’ 0
Ultimate Soil Nail Bond Stress.. 15 pounds per square inch

The design of the soil nail walls should incorporate the following items:

- Global stability once preliminary configurations have been developed.
- A drainage system behind the wall face such as vertical geocomposite drainage strips connected to weep holes and outlet pipes.

7.5.2.3 Construction Considerations

The subsurface conditions at the site should be suitable for typical soldier pile and soil nail construction techniques. However, zones of very dense and strongly cemented materials were encountered within the Scripps Formation; difficult drilling conditions were encountered within these zones during our subsurface investigation using truck-mounted hollow-stem auger methods.

The Contractor should implement a program to monitor potential horizontal or vertical movement of the ground surrounding a deep excavation. The program usually incorporates deformation monitoring points installed on the wall and on the ground and structures behind the wall. A baseline dataset is established before excavation of the slope face with weekly, or more frequent readings during the stages of construction that have the potential to cause movement.

7.6 Exterior Surface Improvements

Exterior surface improvements may include asphalt concrete (AC) paving (Section 7.6.1), concrete driveways and fire lanes (7.6.2), and are expected to include concrete sidewalks and hardscape (7.6.3). Note the following items that apply to all exterior surface improvements:

- Finish subgrade preparation should be completed as recommended in the *Earthwork* section of this report.
- The upper 12 inches of pavement and sidewalk subgrade should be scarified immediately prior to constructing the improvement, brought to optimum moisture, and compacted to at least 95 percent of the maximum dry density per ASTM D1557.
- Aggregate base, where specified below, should be compacted to 95 percent of the maximum dry density per ASTM D1557. Aggregate base should conform to the Standard Specifications for Public Works Construction (SSPWC) Section 200-2.

7.6.1 Asphalt Concrete Pavement Sections

Asphalt concrete pavement design was conducted in general accordance with the Caltrans Highway Design Manual (Topic 633.1). Traffic Indices of 5.0, 7.0, and 9.0 were assumed for preliminary design purposes. The project Civil Engineer should confirm the appropriate Traffic Indices for design.

A subgrade R-Value of 5 has been assumed for preliminary design. This R-value was chosen based on laboratory testing completed on soil sampled during this investigation in the vicinity of proposed pavements which resulted in R-Values of less than 5 and 12. R-Value tests should be completed on the finished subgrade for final design and construction of asphalt pavement sections.

Based on the assumed Traffic Indices and R-Value, the following minimum structural sections are recommended for new asphalt concrete pavements.

PRELIMINARY ASPHALT CONCRETE PAVEMENT SECTIONS

Traffic Index	Asphalt Section	Base Section
5.0	3 inches	10 inches
7.0	4 inches	16 inches
9.0	6 inches	20 inches

Note: Assumes subgrade materials have an R-Value of 5 or greater.

Asphalt concrete should conform to Section 400-4 of the SSPWC and should be compacted to between 91 and 97 percent of the maximum theoretical density per Caltrans Section 39 requirements (Caltrans Test 309 also known as Rice specific gravity or ASTM D2041).

7.6.2 Portland Cement Concrete (PCC)

Concrete pavement design was conducted in general accordance with the simplified design procedure of the Portland Cement Association. This methodology is based on a 20-year design life. For design, it was assumed that aggregate interlock would be used for load transfer across control joints. Concrete paving should have a minimum flexural strength (modulus of rupture) of 600 psi. The subgrade materials were assumed to provide "low" support.

The project Civil Engineer should confirm the appropriate Traffic Indices and prevailing standards for design. Based on the assumed Traffic Indices and subgrade support, the following minimum structural sections are recommended for new Portland cement concrete pavements.

PRELIMINARY PORTLAND CEMENT CONCRETE PAVEMENT SECTIONS

Traffic Index	PCC Section (M.O.R. 600 psi)	Base Section
5.0	6 inches	6 inches
7.0	7 inches	6 inches
9.0	7 inches	6 inches

Note: Assumes subgrade materials have an R-Value of 5 or greater.

Crack control joints should be constructed for all PCC pavements on a maximum spacing of 10 feet, each way. Concentrated truck traffic areas, such as truck parking areas, trash truck aprons and loading docks, should be reinforced with number 4 bars on 18-inch centers, each way.

7.6.3 Exterior Concrete Slabs

Exterior slabs and sidewalks should be at least 4 inches thick placed on prepared subgrade. Crack control joints should be placed on a maximum spacing of 10-foot centers, each way, for slabs, and on 5-foot centers for sidewalks. Expansion Index (EI) tests should be performed on the finished subgrade to confirm material meets the criteria outlined in the *Finish Subgrade Preparation* section of this report.

If desired, the potential for differential movements across the control joints may be reduced by using steel reinforcement. Typical steel reinforcement would consist of 6x6 W2.9/W2.9 welded wire fabric placed securely at mid-height of the slab or sidewalk. Note that the outer few feet of all slopes are susceptible to gradual down-slope movements due to slope creep. This will affect hardscape such as concrete slabs. We recommend that settlement sensitive structures not be constructed within five feet of the slope top without specific review by Group Delta.

7.7 Pipelines

The planned improvements may include various pipelines such as water, storm drain and sewer systems. Geotechnical aspects of pipeline design include lateral earth pressures for thrust blocks, modulus of soil reaction, and pipe bedding. Each of these parameters is discussed separately below.

7.7.1 Thrust Blocks

Lateral resistance for thrust blocks may be determined by a passive pressure value of 300 lbs/ft^2 per foot of embedment, assuming a triangular distribution. This value may be used for thrust blocks embedded into compacted fill soils as well as the formational materials.

7.7.2 Modulus of Soil Reaction

The modulus of soil reaction (E') is used to characterize the stiffness of soil backfill placed along the sides of buried flexible pipelines. For the purpose of evaluating deflection due to the load associated with trench backfill over the pipe, a value of 1,000 lbs/in^2 is recommended for pipelines less than 5 feet deep, and 1,500 lbs/in^2 is recommended for pipelines deeper than 5 feet. The values assume that granular bedding material is placed around the pipe.

7.7.3 Pipe Bedding

Typical pipe bedding as specified in the *Standard Specifications for Public Works Construction* may be used. As a minimum, we recommend that pipes be supported on at least 4 inches of granular bedding material such as minus ¾-inch crushed rock or disintegrated granite. Where pipeline or trench excavations exceed a 15 percent gradient, we do not recommend that open graded rock be used for bedding or backfill because of the potential for piping and internal erosion. For sloping utilities, we recommend that coarse sand or sand-cement slurry be used for the bedding and pipe zone. The slurry should consist of a 2-sack mix having a slump no greater than 5 inches.

7.7.4 Filter Fabric Separator

It has been our experience that soil may migrate into void spaces within an open graded gravel over time. A ¾-inch minus crushed rock may have 50 percent void space, creating the potential for migration of a large volume of soil into the gravel voids. This migration of soil may take several years to occur, and is generally recognized only when surface manifestations develop, such as settlement of the pavement around a manhole, near a storm drain inlet, or over a utility trench.

It is our understanding that the UC San Diego Inspection and Civil Engineering staff have recognized similar damage associated with gravel used for storm drain improvements on campus. In order to reduce the potential for distress to settlement sensitive improvements at the subject site, we recommend that a filter fabric separator (such as Mirafi 140N or an approved similar product) be placed between the soil and any open graded gravel used around storm drain pipes and manholes that are constructed within roadways, or beneath areas finished with concrete flatwork or pavers.

8.0 LIMITATIONS

The recommendations in this report are preliminary and subject to revision from changes that occur during design development or from the results of field testing or actual subsurface conditions encountered during construction. Group Delta needs to continue to be part of the project design and construction for these recommendations to remain valid. If another geotechnical consultant provides these services, they should prepare a letter indicating their intent to assume the responsibilities of the project Geotechnical Engineer-of-Record. This letter should also indicate their concurrence with the recommendations in the report or revise them as needed to assume the role of the project Geotechnical Engineer-of-Record.

This report was prepared using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in similar localities. No warranty, express or implied, is made as to the conclusions and professional opinions included in this report.

The findings of this report are valid as of the present date. However, changes in the condition of a property can occur with the passage of time, whether due to natural processes or the work of humans on this or adjacent properties. In addition, changes in applicable or appropriate standards of practice may occur from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

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FIGURES

GROUP DELTA

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9245 ACTIVITY ROAD, SUITE 103
SAN DIEGO, CA 92126 (858) 536-1000

PROJECT NAME
UC SAN DIEGO
UPDATED REPORT OF GEO. INVESTIGATION
TRITON CENTER

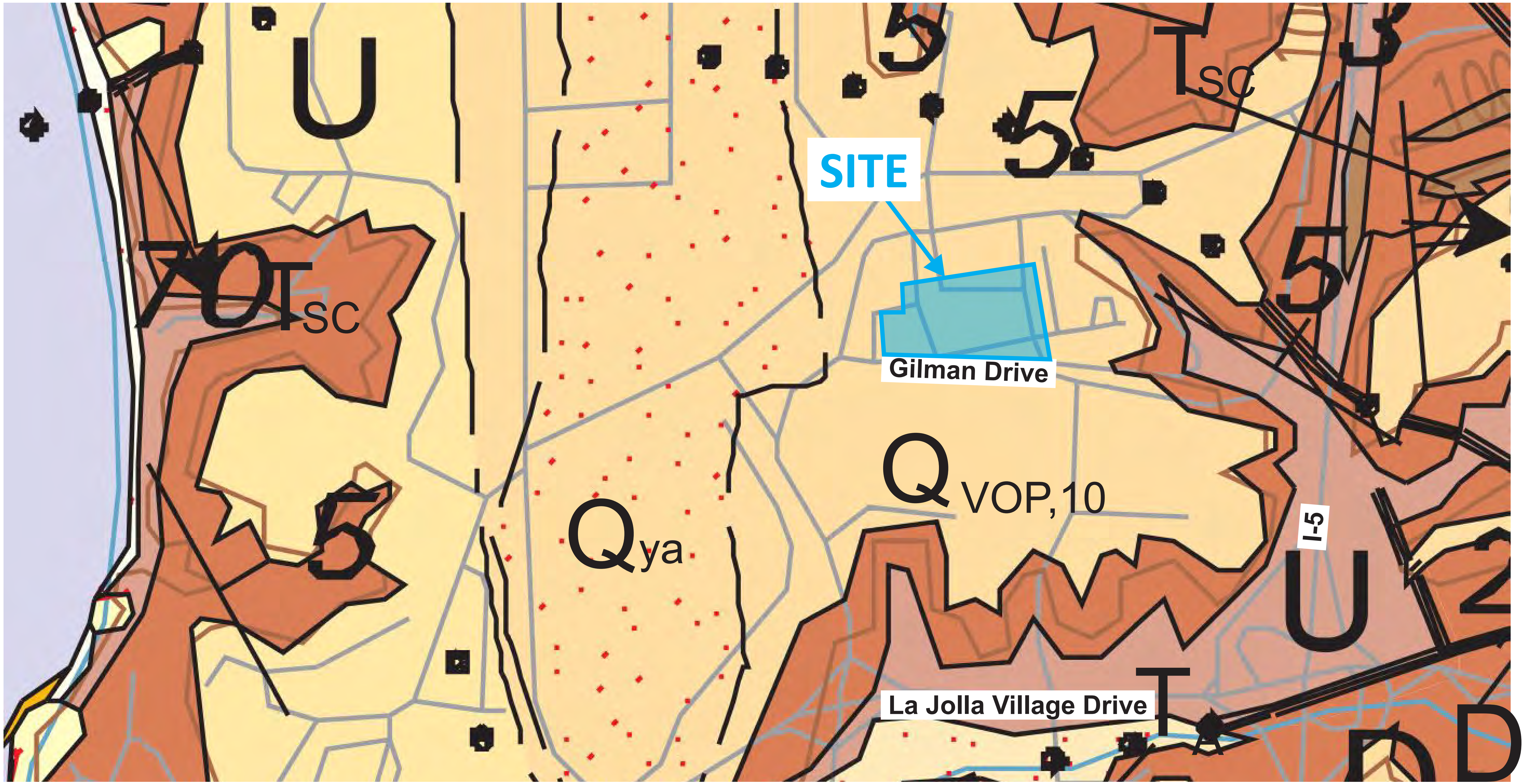
PROJECT NUMBER
SD547B

DOCUMENT NUMBER
22-0079

FIGURE NUMBER
1A

SITE LOCATION MAP

BASE IMAGE REFERENCE: Google Earth (2022), satelite imagery dated 8/1/21.



BASE IMAGE REFERENCE: Modified from: Kennedy, M. P., and Tan, S. S. (2005). *Geologic Map of the San Diego 30' x 60' Quadrangle, California*: California Geologic Survey, Scale 1:100,000.

Symbol	Description
Qvop10	Very Old Paralic Deposits, unit 10 (middle to early Pleistocene)
Qvop	Very Old Paralic Deposits, undivided (middle to early Pleistocene)
Tscu / Tsc	Scripps Formation (middle Eocene)
Ta	Ardath Shale (middle Eocene)
Qya	Young Alluvial Flood Plain Deposits (Holocene and Late Pleistocene)

Faults:

D / U — Dashed where approximately located; dotted where concealed.

D = Downthrown block,
U = Upthrown block

N

0' 300' 600'
1"
Approx. Scale (11"x17")

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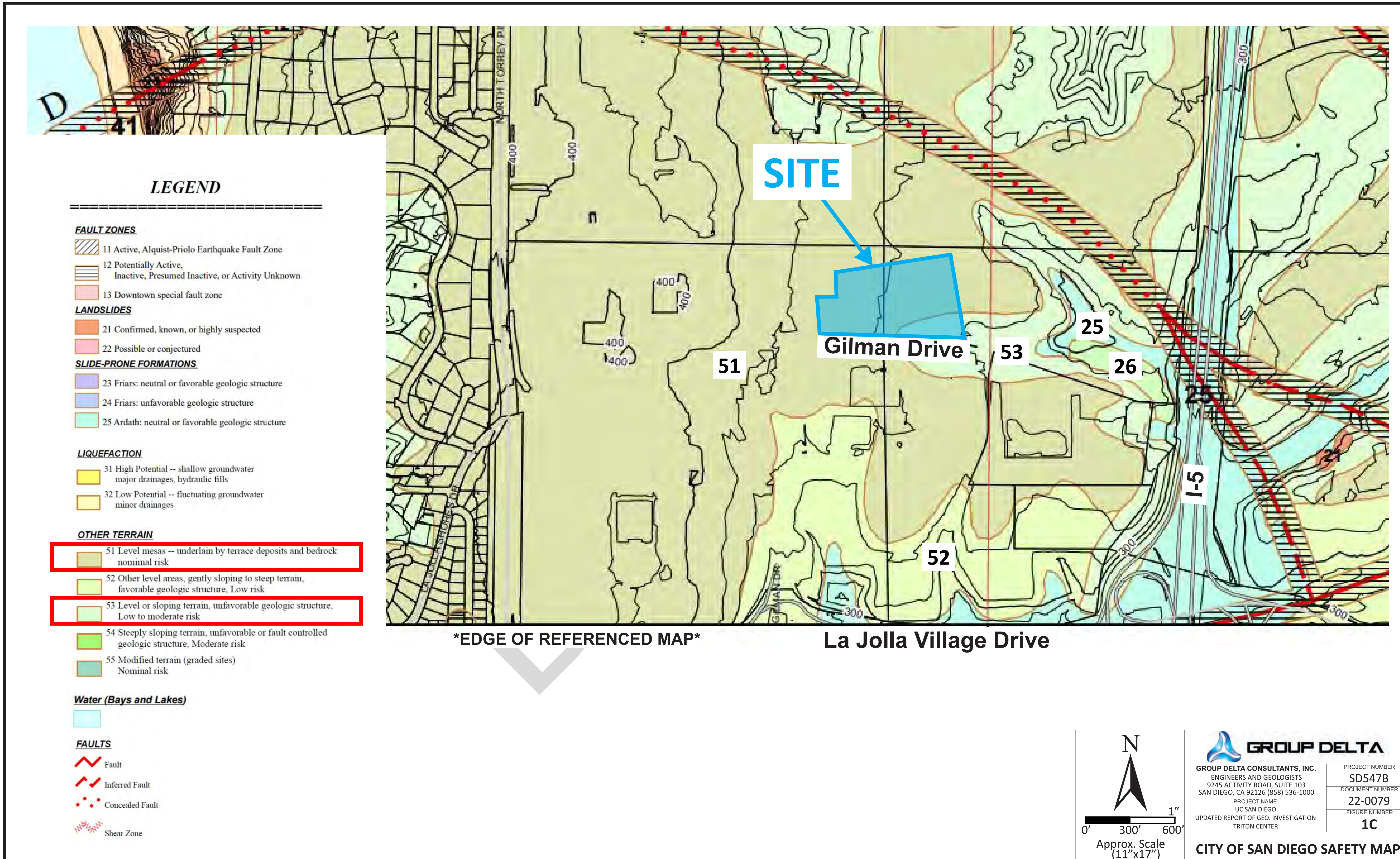
DOCUMENT NUMBER: 22-0079

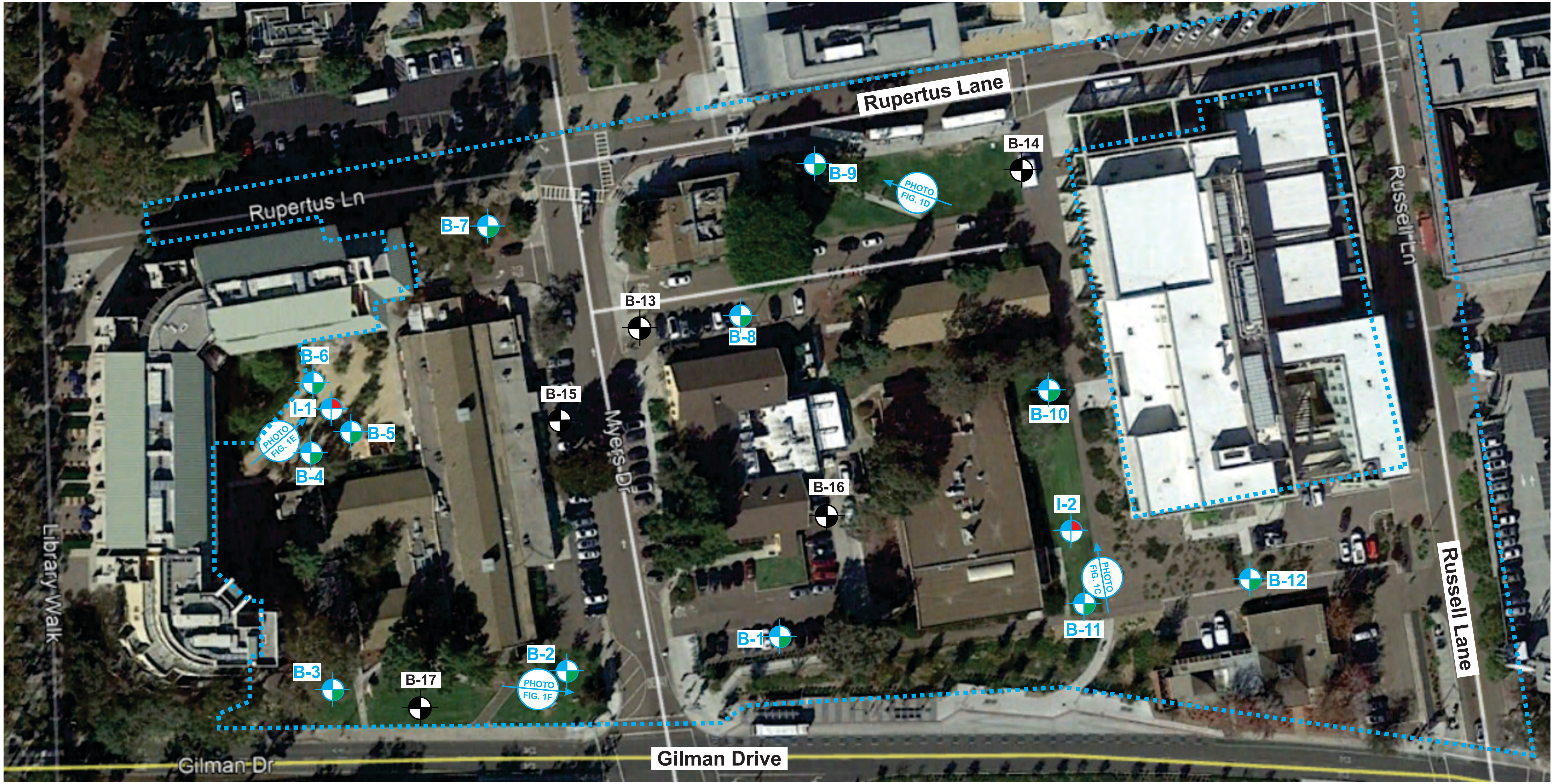
PROJECT NAME: UC SAN DIEGO UPDATED REPORT OF GEO. INVESTIGATION TRITON CENTER

FIGURE NUMBER: 1B

LOCAL GEOLOGIC MAP



BASE IMAGE REFERENCE: City of San Diego (2008), Seismic Safety Study, Geologic Hazards and Faults, Grid Tile 30, dated April 3.



BASE IMAGE REFERENCE: Google Earth (2017), satelite imagery dated 11/8/16.

PROPOSED IMPROVEMENTS

Approximate limits of proposed improvements.

GEOTECHNICAL BORINGS

B-05 Boring Identification

Approximate Location of Boring

Indicates hollow-stem auger rig

Indicates percolation test

Indicates environmental sampling

OTHER INVESTIGATIONS*

B-17* Exploration ID number

Location of boring

PHOTO FIG. 1F Approximate location and direction of the Site Photographs (see Figures 1C to 1F).

N

0' 40' 80' 1"

Approx. Scale (11"x17")

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TRITON CENTER

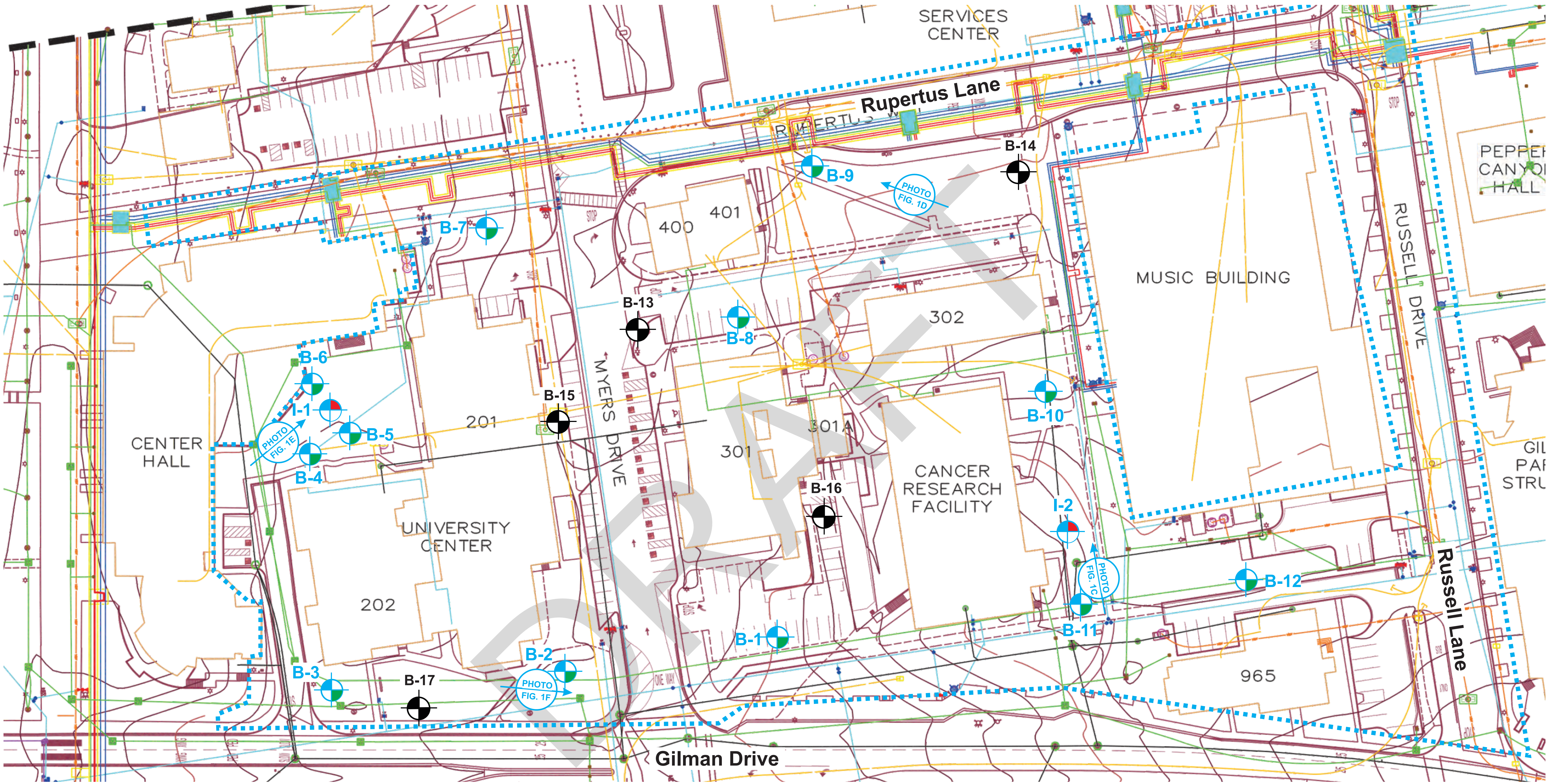
PROJECT NUMBER
SD547B

DOCUMENT NUMBER
22-0079

FIGURE NUMBER
2A

SITE INVESTIGATION: EXISTING IMPROVEMENT MAP

***OTHER INVESTIGATION**:S GeoDesign, Inc. (2019). Report of Geo. Engineering Services, UC San Diego, Proposed Triton Pavilion Project, Between Russell Lane & Library Walk North & Gilman Drive & Rupertus Way, La Jolla, California, Project No. PCL-14-01, dated September



REFERENCE: UCSD (2017). Gateway Project Base, August 16.

PROPOSED IMPROVEMENTS

Approximate limits of proposed improvements.

GEOTECHNICAL BORINGS

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Approximate Location of Boring

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OTHER INVESTIGATIONS*

B-17* Exploration ID number

Location of boring

PHOTO FIG. 1F Approximate location and direction of the Site Photographs (see Figures 1C to 1F).

N

0' 40' 80' 1"

Approx. Scale (11"x17")

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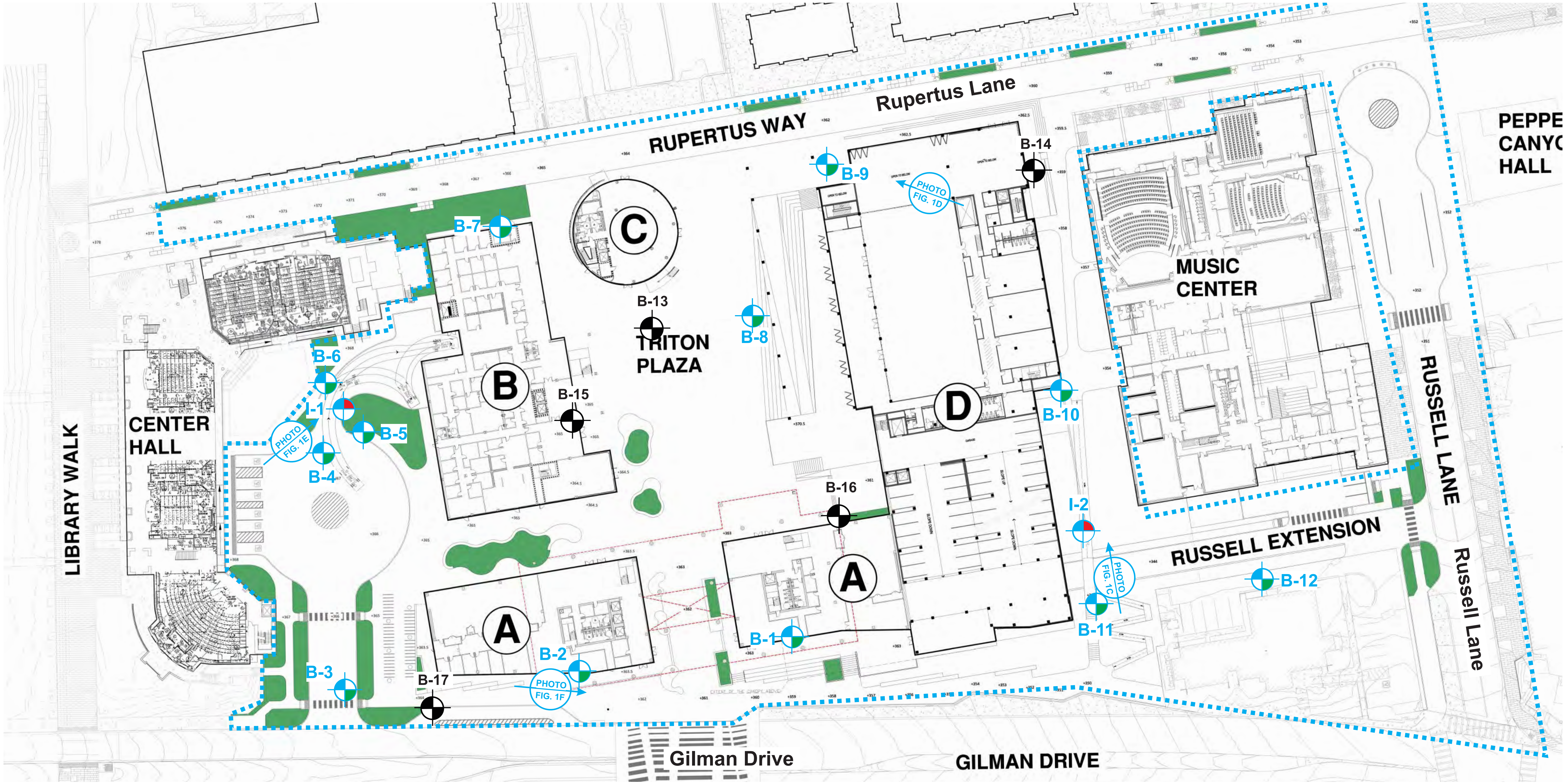
DOCUMENT NUMBER 22-0079

PROJECT NAME UC SAN DIEGO UPDATED REPORT OF GEO. INVESTIGATION TRITON CENTER

FIGURE NUMBER 2B

SITE INVESTIGATION: EXISTING TOPOGRAPHIC MAP

*OTHER INVESTIGATIONS: GeoDesign, Inc. (2019). Report of Geo. Engineering Services, UC San Diego, Proposed Triton Pavilion Project, Between Russell Lane & Library Walk North & Gilman Drive & Rupertus Way, La Jolla, California, Project No. PCL-14-01, dated September



REFERENCE: UCSD(2022b) Triton Center, Proposed Site Plan, dated 7-1-2022.

PROPOSED IMPROVEMENTS

Approximate limits of proposed improvements.

GEOTECHNICAL BORINGS

B-05 Boring Identification

Approximate Location of Boring

Indicates hollow-stem auger rig

Indicates percolation test

Indicates environmental sampling

OTHER INVESTIGATIONS*

B-17* Exploration ID number

Location of boring

PHOTO FIG. 1F Approximate location and direction of the Site Photographs (see Figures 1C to 1F).

N

0' 40' 80' 1"

Approx. Scale (11"x17")

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PROJECT NUMBER	SD547B
DOCUMENT NUMBER	22-0079
FIGURE NUMBER	2C

PROJECT NAME
UC SAN DIEGO
UPDATED REPORT OF GEO. INVESTIGATION
TRITON CENTER

SITE INVESTIGATION: PROPOSED IMPROVEMENT PLAN

***OTHER INVESTIGATIONS**: GeoDesign, Inc. (2019). Report of Geo. Engineering Services, UC San Diego, Proposed Triton Pavilion Project, Between Russell Lane & Library Walk North & Gilman Drive & Rupertus Way, La Jolla, California, Project No. PCL-14-01, dated September

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PROJECT NUMBER	SD547B
DOCUMENT NUMBER	22-079
FIGURE NUMBER	3A

SITE PHOTOGRAPH

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PROJECT NUMBER	SD547B
DOCUMENT NUMBER	22-079
FIGURE NUMBER	3B

SITE PHOTOGRAPH

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PROJECT NUMBER
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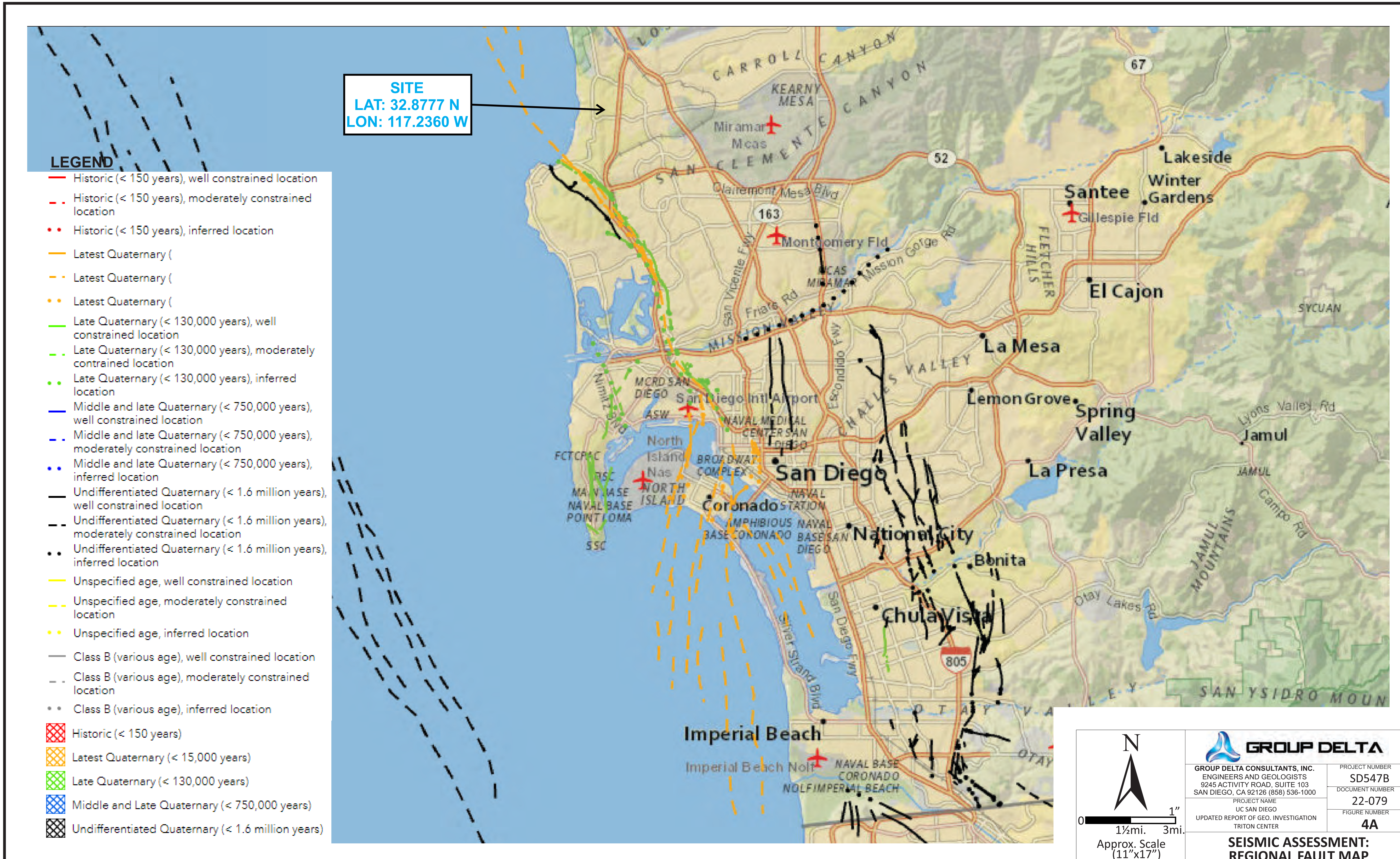
DOCUMENT NUMBER
22-079

FIGURE NUMBER
3C

SITE PHOTOGRAPH

GROUP DELTA	GROUP DELTA CONSULTANTS, INC. ENGINEERS AND GEOLOGISTS 9245 ACTIVITY ROAD, SUITE 103 SAN DIEGO, CA 92126 (858) 536-1000 PROJECT NAME UC SAN DIEGO UPDATED REPORT OF GEO. INVESTIGATION TRITON CENTER	PROJECT NUMBER SD547B DOCUMENT NUMBER 22-079 FIGURE NUMBER 3D
	SITE PHOTOGRAPH	



BASE IMAGE REFERENCE: Modified from: United States Geological Survey (2021), Quaternary Faults, https://usgs.maps.arcgis.com/.

N

0' 1½mi 3mi

Approx. Scale (11"x17")

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TRITON CENTER

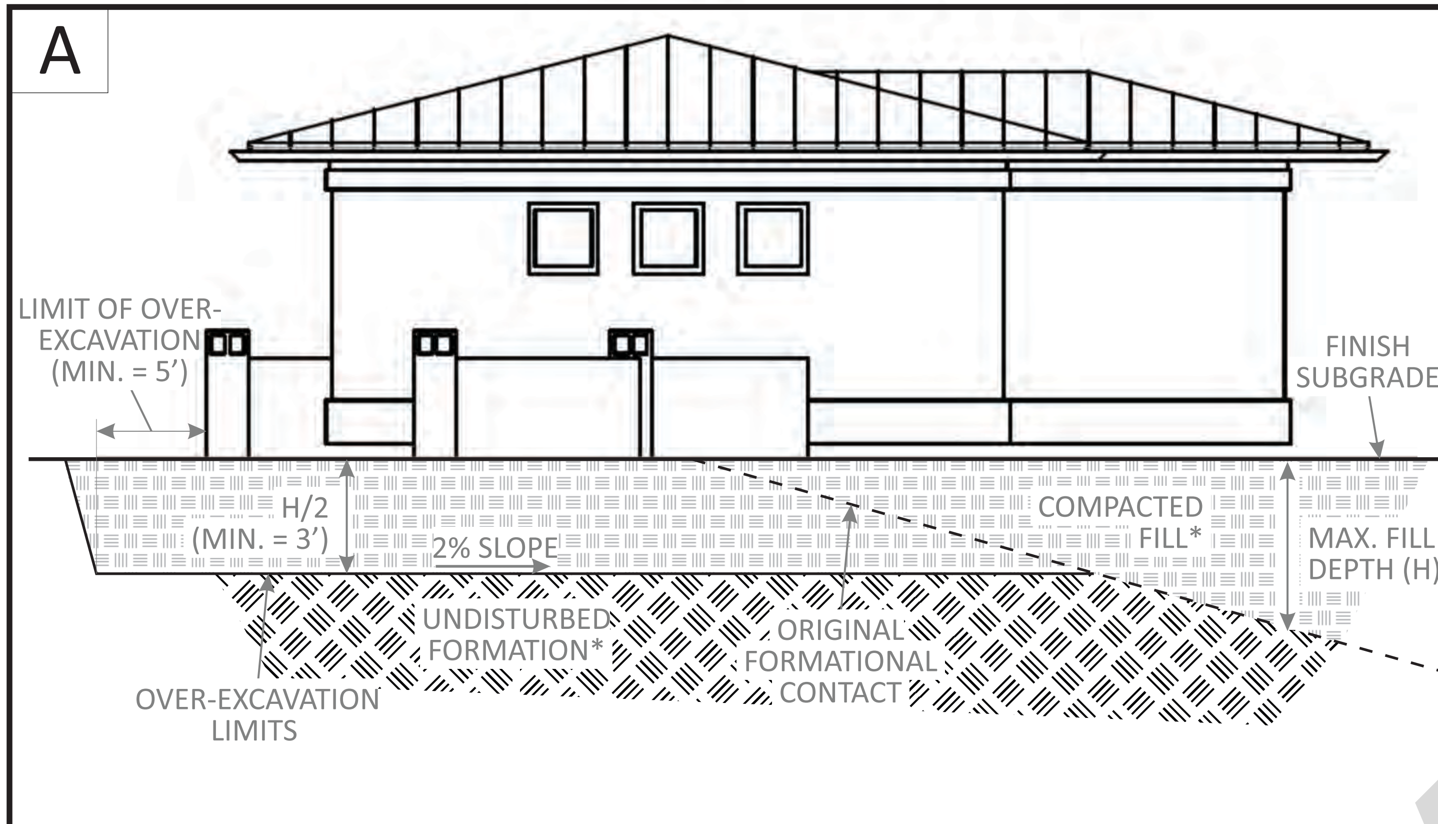
PROJECT NUMBER SD547B

DOCUMENT NUMBER 22-079

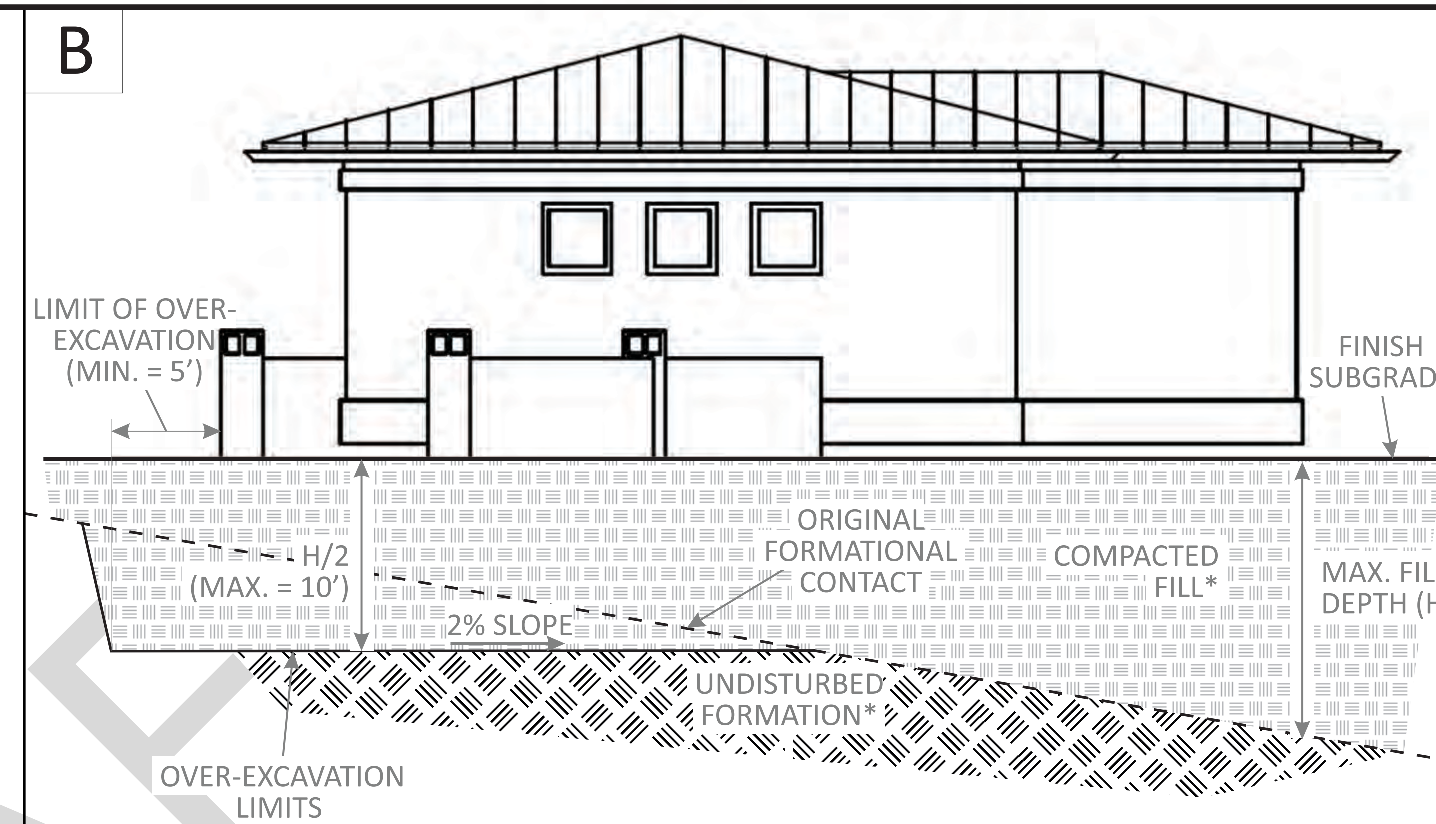
FIGURE NUMBER 4B

SEISMIC ASSESSMENT:
SEISMIC SOURCE FAULT MAP

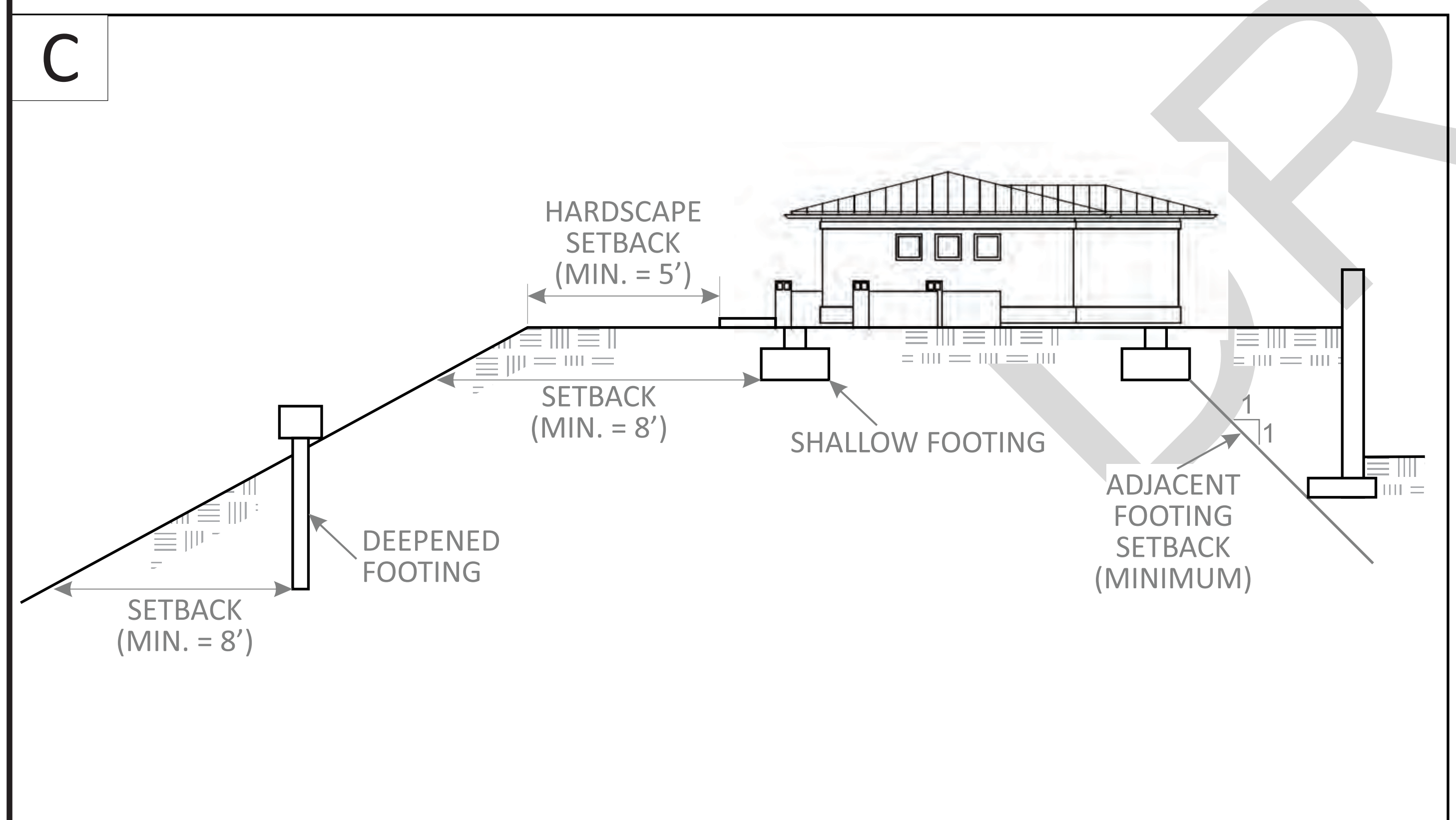
BASE IMAGE REFERENCE: Modified from: United States Geological Survey (2021), Quaternary Faults, NSHM 2014 Fault Sources, https://usgs.maps.arcgis.com/.



CUT-FILL TRANSITION OVER-EXCAVATION



DEEP FILL TRANSITION OVER-EXCAVATION



SETBACKS

*MATERIAL AS DESCRIBED IN REFERENCED REPORT.

1) STRUCTURES SHOULD NOT CROSS CUT-FILL NOR DEEP FILL TRANSITIONS, DUE TO THE POTENTIAL FOR ADVERSE DIFFERENTIAL MOVEMENT.
2) FOR BUILDING PADS UNDERLAIN BY BOTH CUT-FILL AND DEEP FILL TRANSITIONS, THE CUT PORTION OF THE PADS SHOULD BE OVER-EXCAVATED TO A DEPTH OF H/2, WHERE H IS EQUAL TO THE GREATEST DEPTH OF FILL BENEATH THE BUILDING.
3) OVER-EXCAVATIONS SHOULD EXTEND AT LEAST 3 FEET BELOW PAD GRADE, AND DO NOT NEED TO EXTEND MORE THAN 10 FEET BELOW PAD GRADE.
4) OVER-EXCAVATIONS SHOULD EXTEND AT LEAST 5 FEET BEYOND THE PERIMETERS OF THE BUILDING FOUNDATIONS, INCLUDING ANY ISOLATED COLUMN FOOTINGS.

NOT TO SCALE

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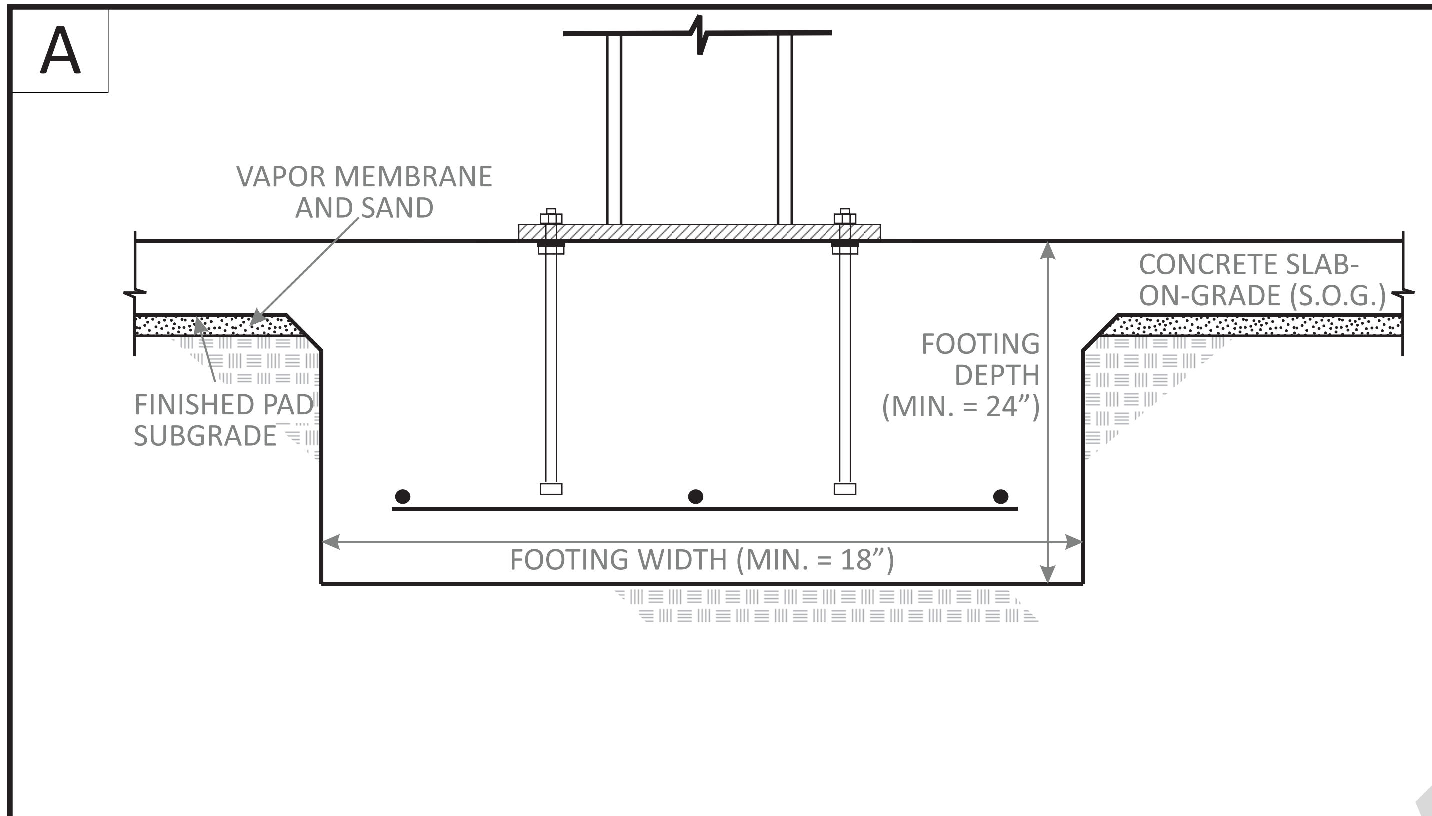
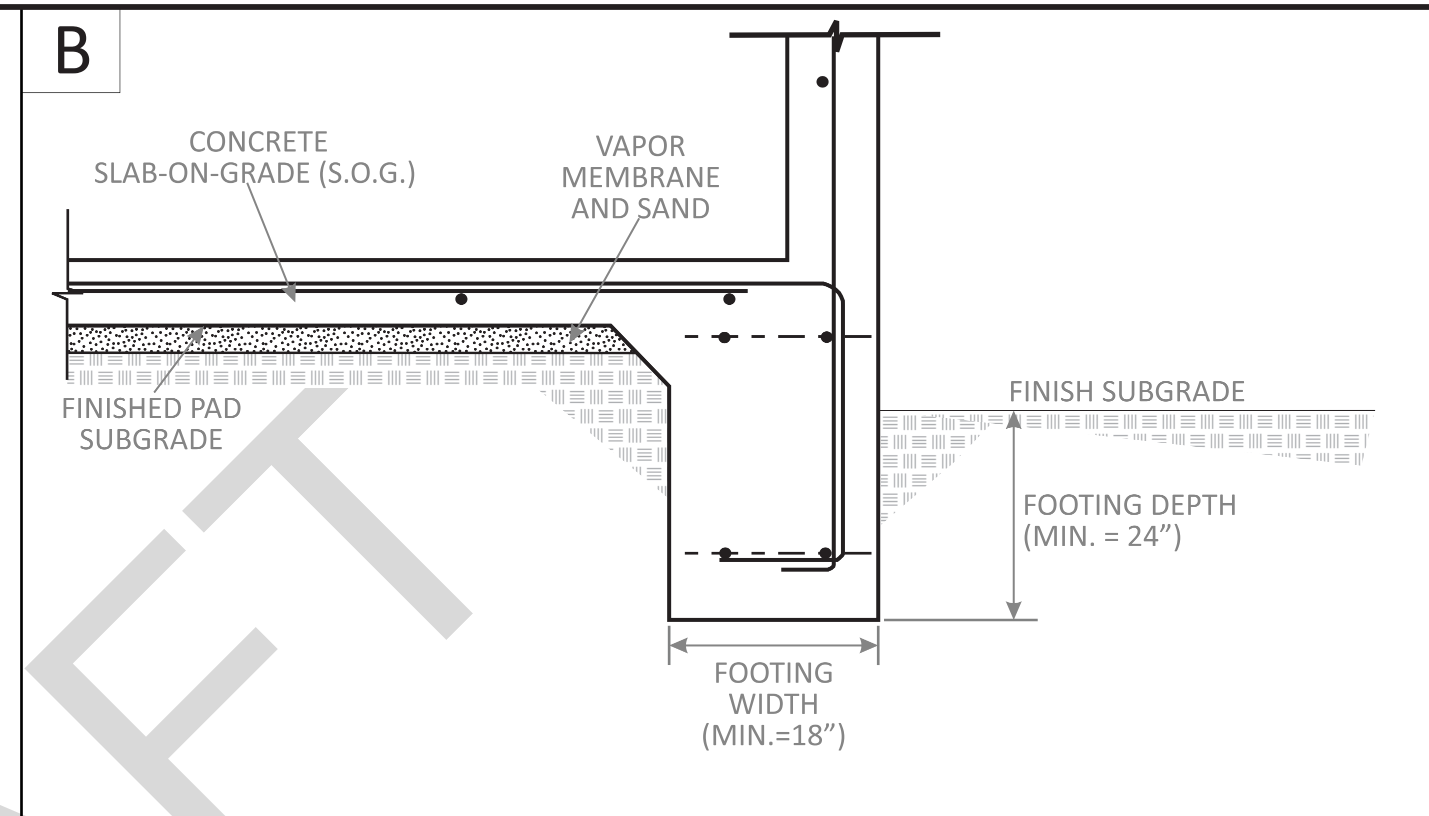
PROJECT NUMBER	SD547B
DOCUMENT NUMBER	22-079
PROJECT NAME	UC SAN DIEGO UPDATED REPORT OF GEO. INVESTIGATION TRITON CENTER
FIGURE NUMBER	5A

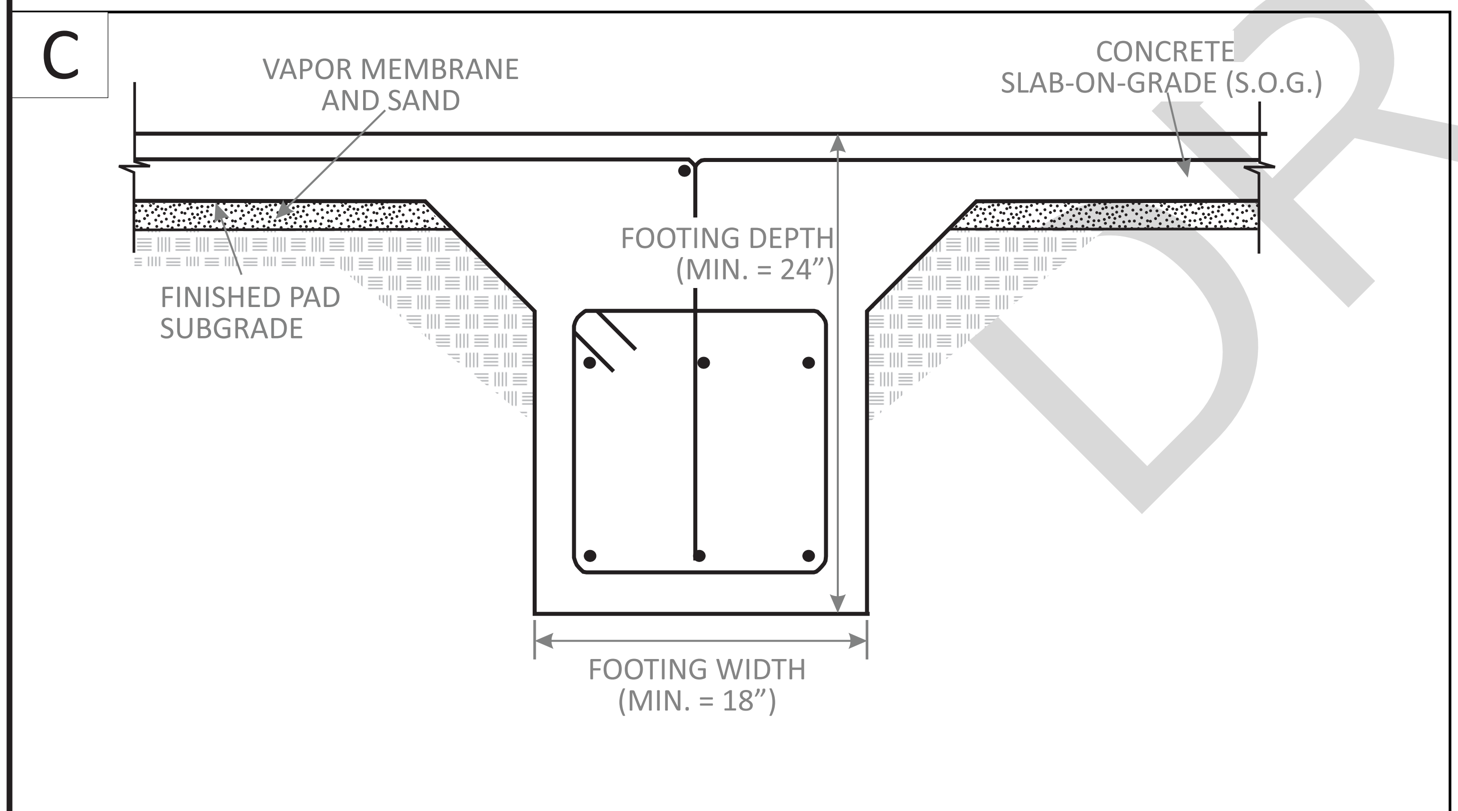
TYPICAL DETAILS: SETBACKS AND TRANSITIONS



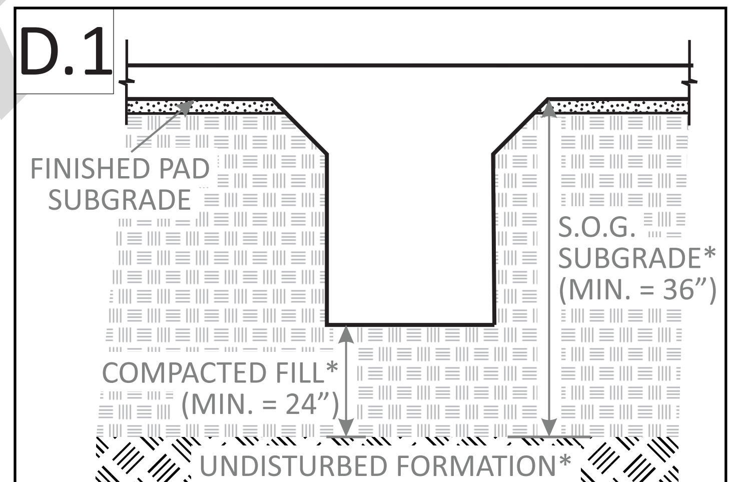
SQUARE FOOTING



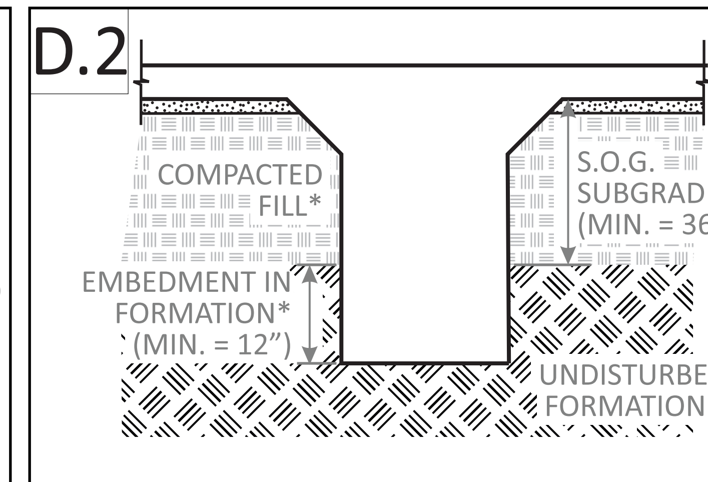
EXTERIOR CONTINUOUS FOOTING



INTERIOR CONTINUOUS FOOTING



FOUNDATION BEARING: COMPACTED FILL



FOUNDATION BEARING: FORMATIONAL MATERIAL

*MATERIAL (DESCRIBED IN REFERENCED REPORT) TO BE OBSERVED AND CONFIRMED BY GEOTECHNICAL ENGINEER.

1) FIGURE TO BE USED IN CONJUNCTION WITH REFERENCED REPORT.
2) FOUNDATION REINFORCING AND SIZING PER STRUCTURAL ENGINEER. (SHOWN FOR ILLUSTRATION PURPOSES ONLY)
3) VAPOR MEMBRANE AND SAND PER ARCHITECT. (SHOWN FOR ILLUSTRATION PURPOSES ONLY)

NOT TO SCALE

GROUP DELTA

GROUP DELTA CONSULTANTS, INC.
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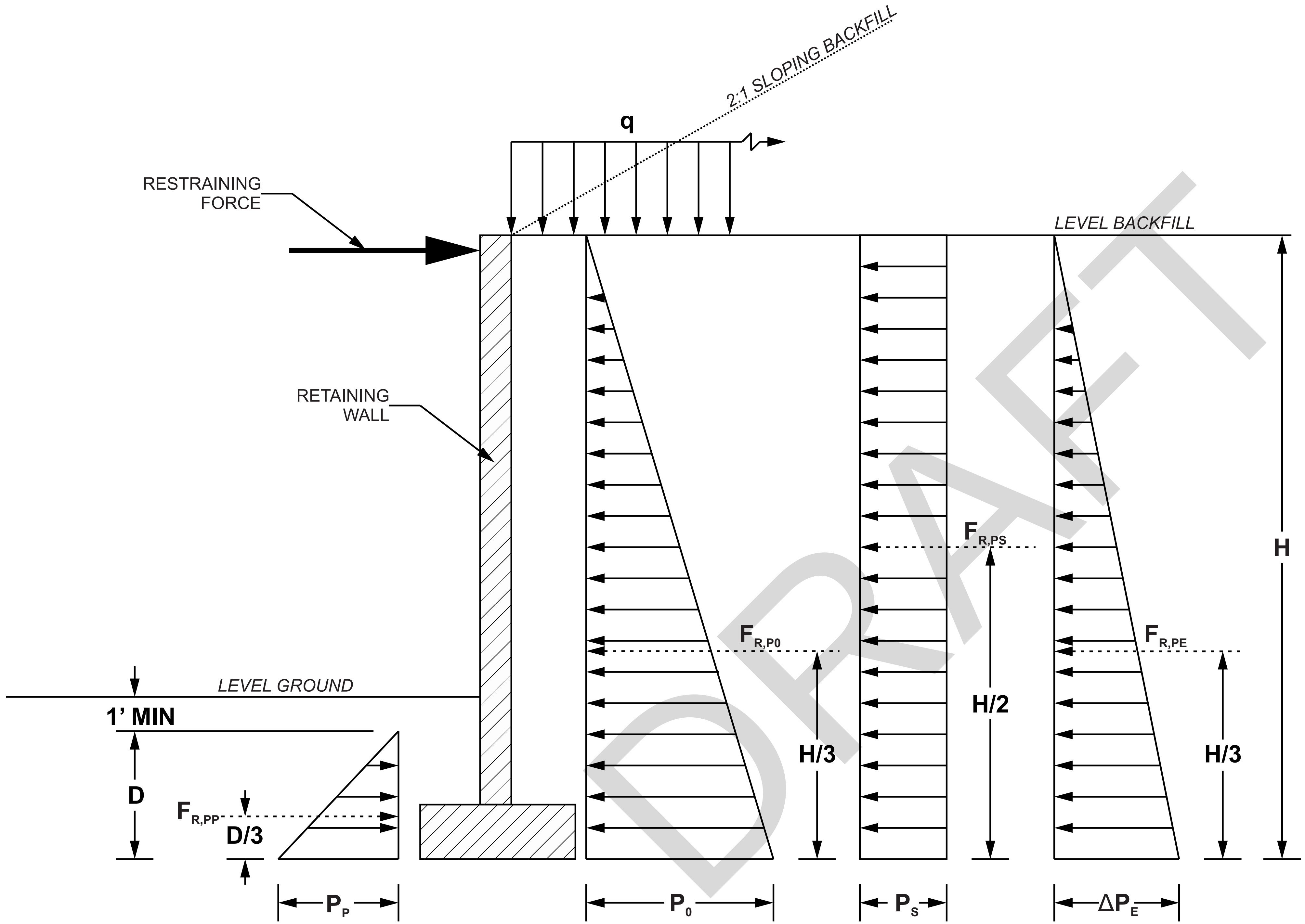
PROJECT NUMBER: SD547B
DOCUMENT NUMBER: 22-079
PROJECT NAME: UC SAN DIEGO UPDATED REPORT OF GEO. INVESTIGATION TRITON CENTER
FIGURE NUMBER: 5B

TYPICAL DETAILS: SHALLOW FOUNDATIONS



NOTES:

1. PASSIVE PRESSURES MAY BE INCREASED BY ⅓ DURING SEISMIC LOADING. THE UPPER 12 INCHES OF MATERIAL NOT PROTECTED BY CONCRETE SLABS OR PAVEMENTS SHOULD NOT BE INCLUDED IN THE ESTIMATION OF PASSIVE RESISTANCE.

2. ASSUMES NO HYDROSTATIC PRESSURE. A WALL BACK DRAIN SHOULD BE INSTALLED AS RECOMMENDED IN THE *WALL DRAINAGE DETAIL* FIGURE.

3. SURCHARGES FROM CONSTRUCTION EQUIPMENT, EXCAVATED SOIL, TRAFFIC LOADING OR OTHER UNIFORM LOADING ABOVE THE WALL SHOULD BE CALCULATED USING THE SURCHARGE LATERAL EARTH PRESSURE, P_S. POINT LOADS OR OTHER SURCHARGES CAN BE EVALUATED UPON REQUEST.

4. SEISMIC INCREMENT LATERAL EARTH PRESSURE (ΔP_E) IS BASED ON AN MCE-LEVEL PEAK GROUND ACCELERATION OF 0.58g. SEISMIC INCREMENT SHOULD BE APPLIED TO WALLS SIX FEET OR GREATER IN HEIGHT.

5. 'H' AND 'D' ARE MEASURED IN FEET.

6. PRESSURES ASSUME MATERIALS AS DESCRIBED IN THE REFERENCED REPORT.

LATERAL EARTH PRESSURES

LATERAL EARTH PRESSURE TYPE	EQUIVALENT FLUID PRESSURE (PSF)	
AT-REST, P_0	LEVEL BACKFILL	2:1 SLOPING BACKFILL
COMPACTED FILL	65H	90H
FORMATION	55H	80H
SEISMIC INCREMENT, ΔP_E*	14H	
PASSIVE, P_P**	400D	
SURCHARGE, P_S	0.5q	

*SEISMIC PRESSURE, $P_{AE} = P_0 + \Delta P_E$
**PASSIVE RESISTANCE VERSUS DISPLACEMENT CURVES CAN BE PROVIDED UPON REQUEST.

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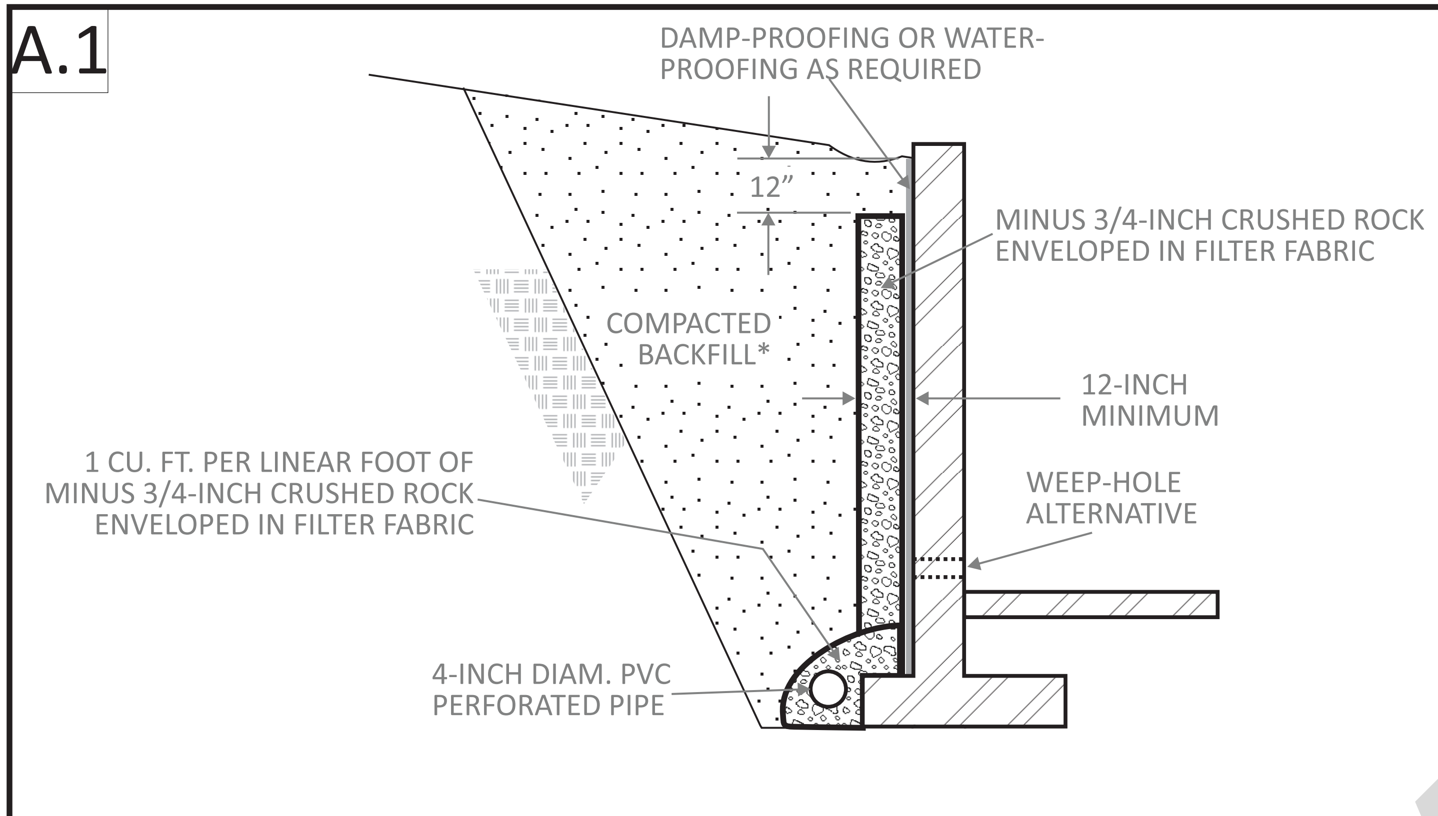
FIGURE NUMBER: 6A

LATERAL EARTH PRESSURES FOR RESTRAINED RETAINING WALLS

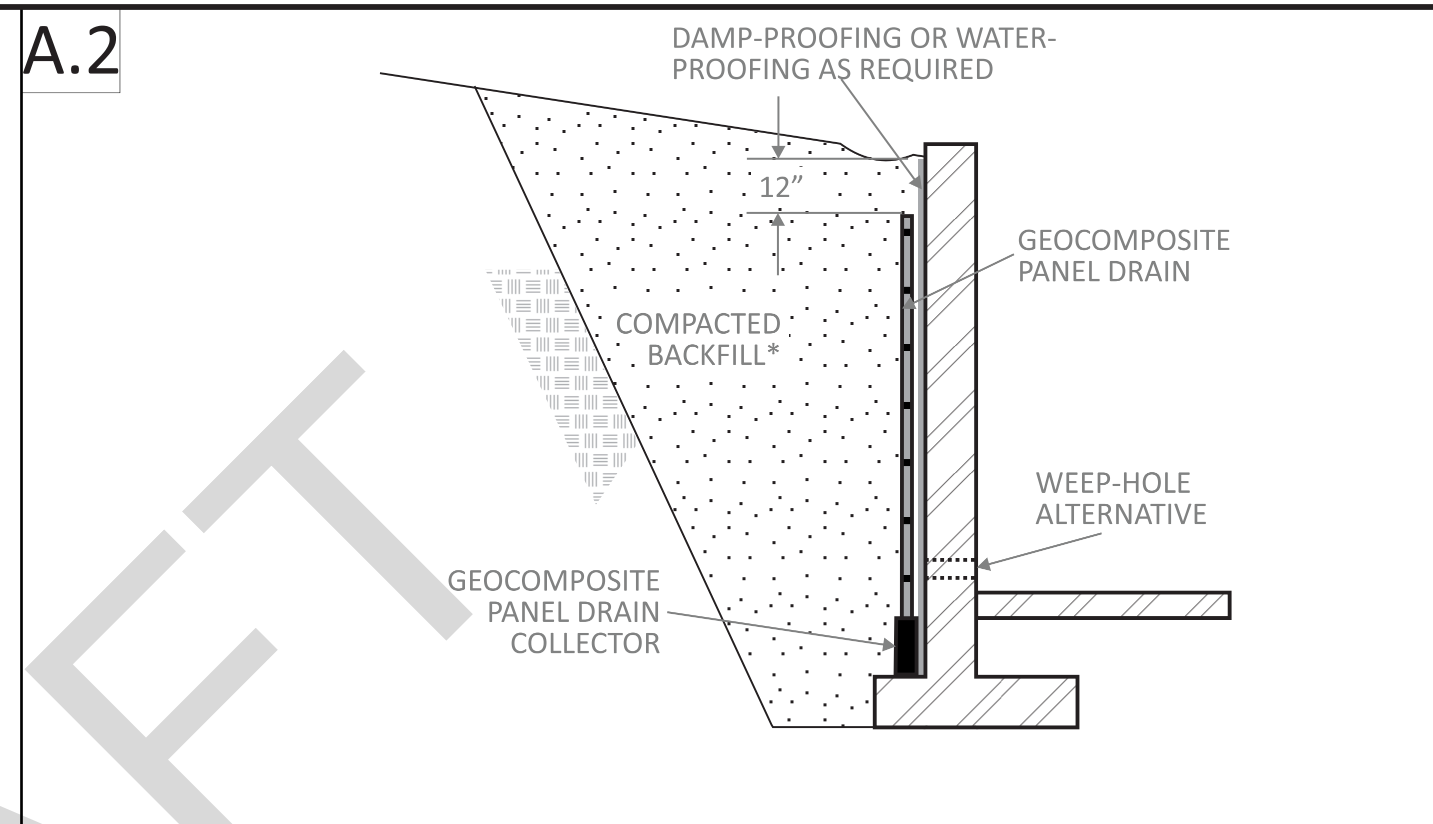
A.1



ROCK AND FABRIC DRAIN OPTION

1) Perforated pipe should outlet through a solid pipe to a free gravity outfall. Perforated pipe and outlet pipe should have a fall of at least 1%.
2) Filter fabric should consist of Mirafi 140N, Supac 5NP, Amoco 4599, or similar approved fabric. Filter fabric should be overlapped at least 6-inches.
3) As an alternative to the perforated pipe and outlet, weep-holes may be constructed. Weep-holes should be at least 2 inches in diameter, spaced no greater than 8 feet, and be located just above grade at the bottom of wall.

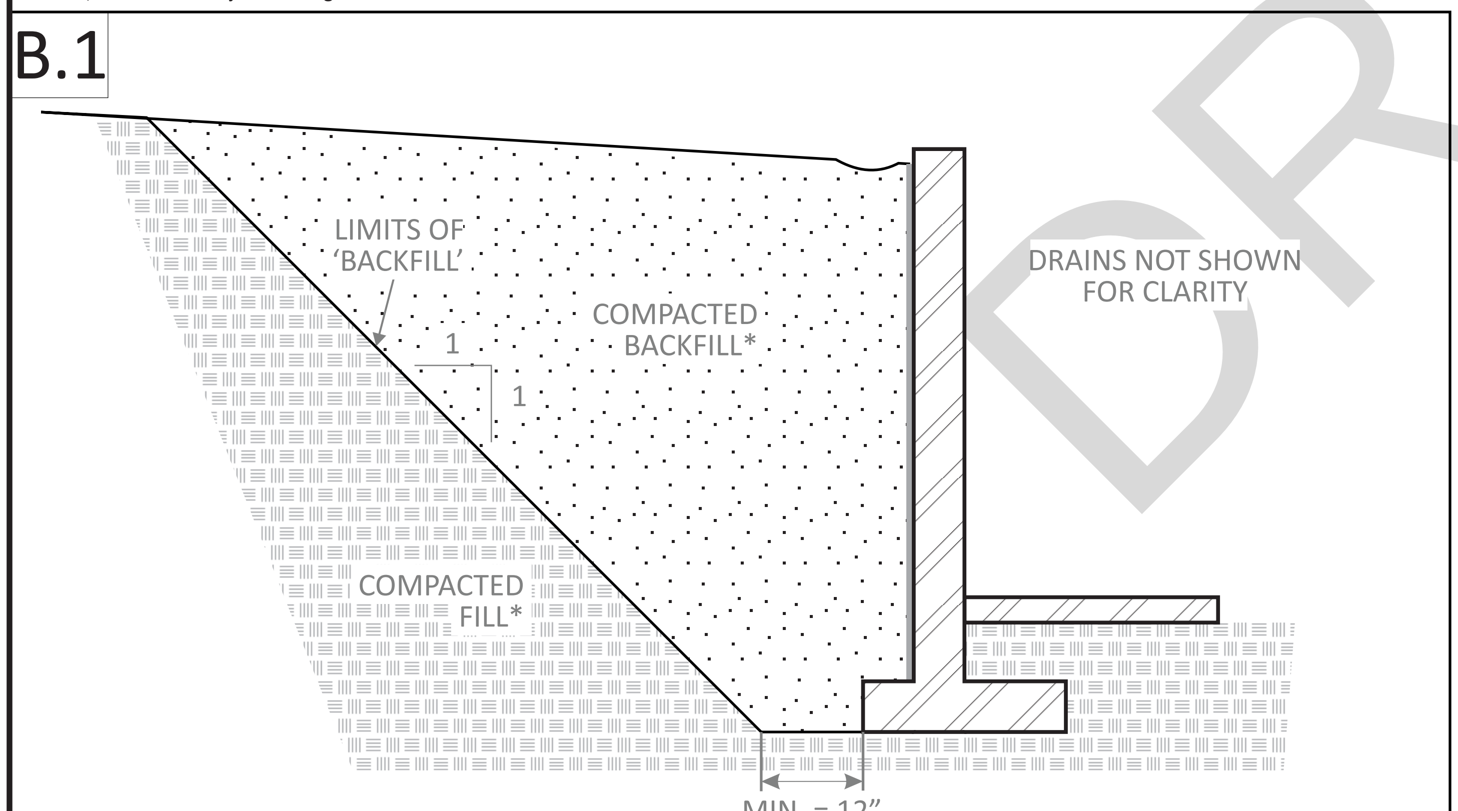
A.2



PANEL DRAIN OPTION

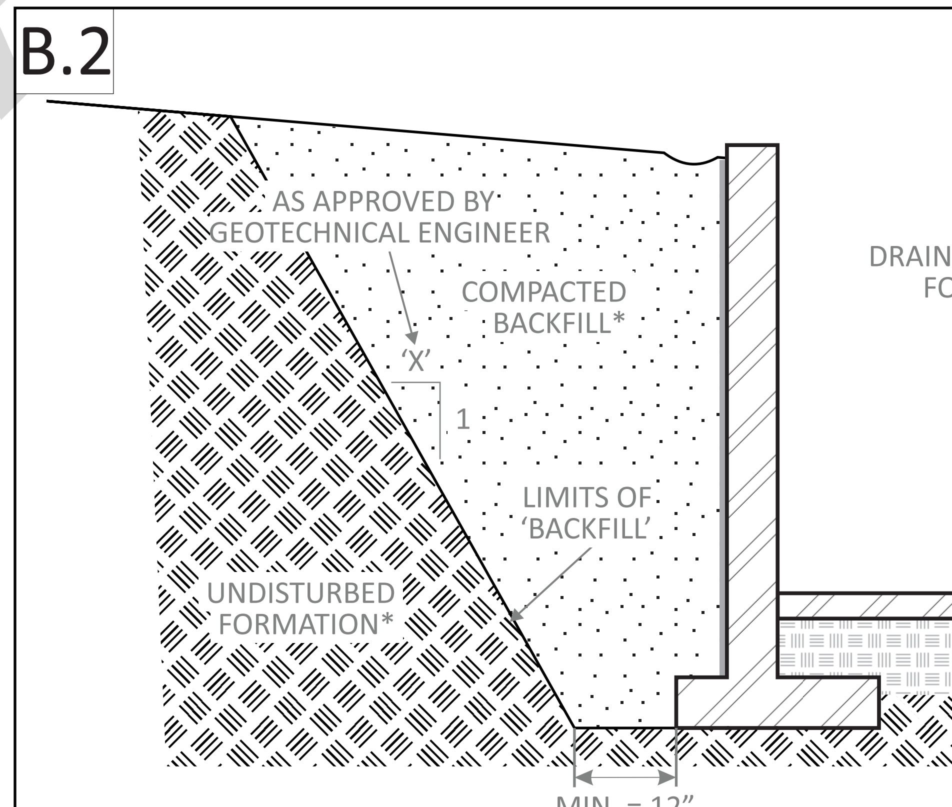
1) Geocomposite drain should meet specifications of CCW Miradrain 6000 or equivalent.
2) Geocomposite drain should meet specifications of CCW Quickdrain or equivalent.
3) As an alternative to the perforated pipe and outlet, weep-holes may be constructed. Weep-holes should be at least 2 inches in diameter, spaced no greater than 8 feet, and be located just above grade at the bottom of wall.

B.1



BACKFILL ZONE: COMPACTED FILL

B.2



BACKFILL ZONE: CUT IN FORMATION

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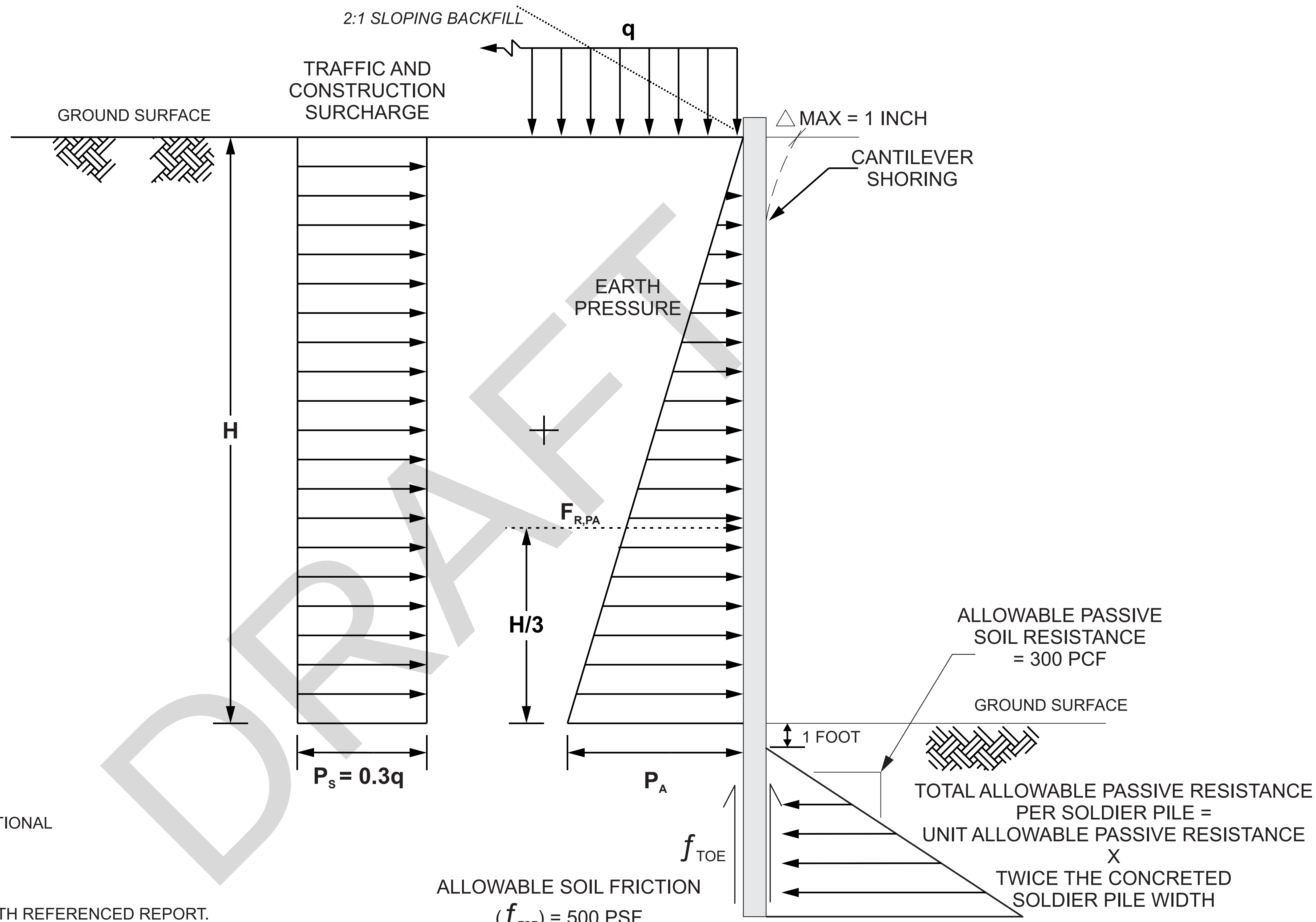
PROJECT NUMBER	SD547B
DOCUMENT NUMBER	22-079
FIGURE NUMBER	6B

PROJECT NAME
UC SAN DIEGO
UPDATED REPORT OF GEO. INVESTIGATION
TRITON CENTER

RETAINING WALL DETAILS

NOT TO SCALE



(ASSUMES SOLDIER PILE DRILLED AND FILLED WITH CONCRETE FOR FULL DEPTH OF PASSIVE RESISTANCE ZONE IN COMPETENT FORMATION)

NOTES:

1. ACTIVE LATERAL EARTH PRESSURE, P_A
   -WITH LEVEL BACKFILL: P_A = 35H
   -WITH 2:1 SLOPING BACKFILL: P_A = 52H
2. ASSUMES NO HYDROSTATIC PRESSURE.
3. VALUES ASSUME SHORED MATERIAL IS FORMATIONAL AS DESCRIBED IN THE REFERENCED REPORT.
4. H IS MEASURED IN FEET.
5. FIGURE SHOULD BE USED IN CONJUNCTION WITH REFERENCED REPORT.
6. FOR PRELIMINARY DESIGN.
7. SURCHARGES FROM CONSTRUCTION EQUIPMENT, EXCAVATED SOIL, CONSTRUCTION MATERIALS, TRAFFIC LOADING OR OTHER UNIFORM LOADING (q) ABOVE THE WALL SHOULD BE CALCULATED USING THE SURCHARGE LATERAL EARTH PRESSURE, P_S. BASED ON LOCATION AND AREAL EXTENT OF THE SURCHARGE, REVISIONS, INCLUDING REDUCING THE DEPTH OF THE LATERAL SURCHARGE PRESSURE, CAN BE CONSIDERED ON A CASE-BY-CASE BASIS.

NOT TO SCALE

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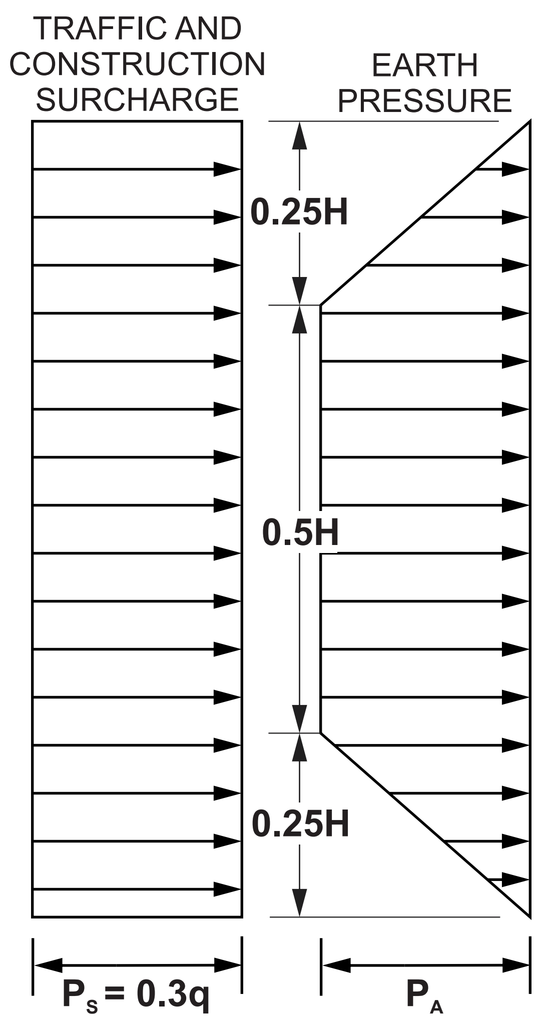
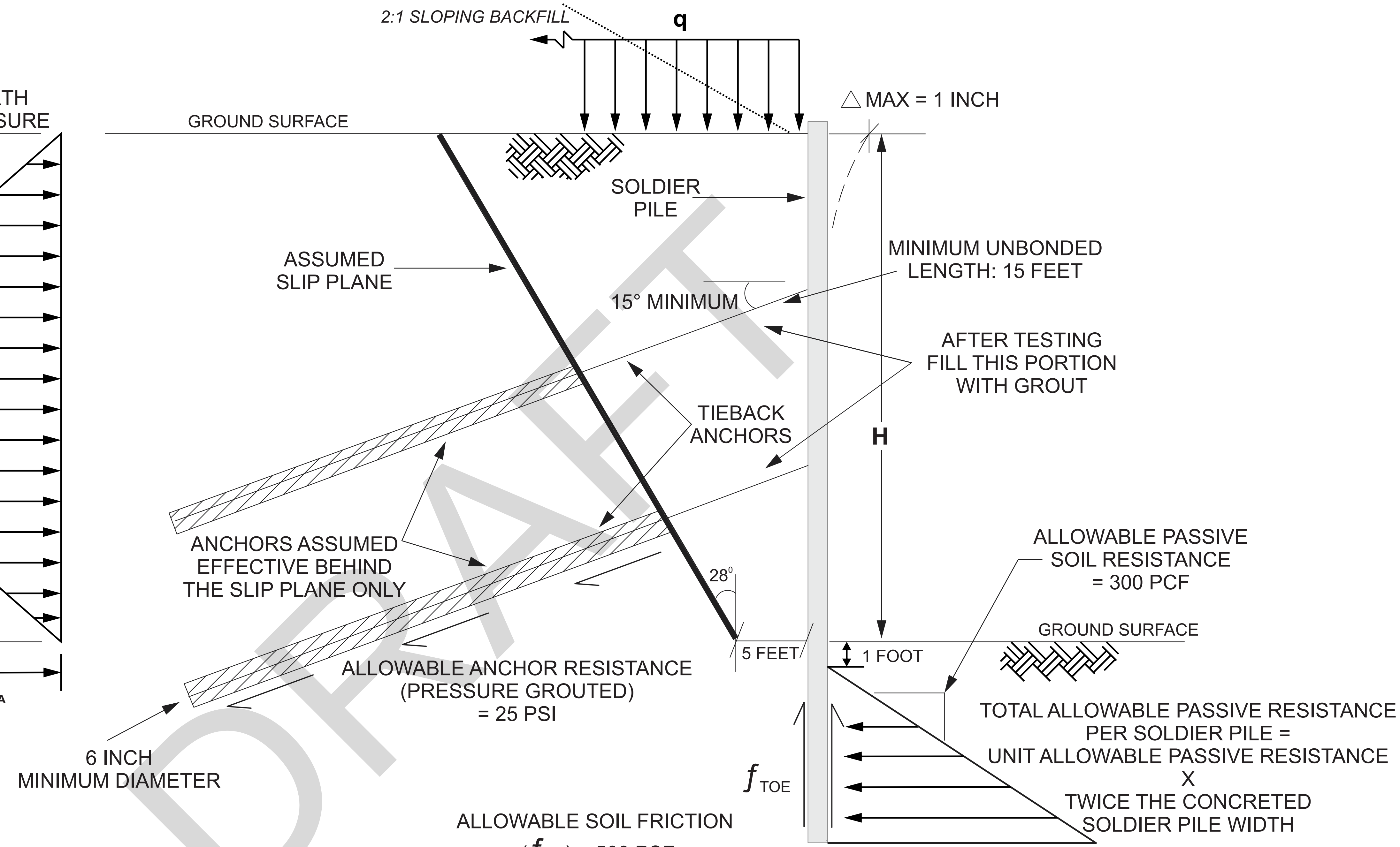
REPORT NAME
UC SAN DIEGO
UPDATED REPORT OF GEO. INVESTIGATION
TRITON CENTER

PROJECT NUMBER
SD547B
DOCUMENT NUMBER
22-079
FIGURE NUMBER
7A

DESIGN PARAMETERS
FOR CANTILEVER SHORING





(ASSUMES SOLDIER PILE DRILLED AND FILLED WITH CONCRETE FOR FULL DEPTH OF PASSIVE RESISTANCE ZONE IN COMPETENT FORMATION)

NOTES:

1. APPARENT LATERAL EARTH PRESSURE, P_A
   - -WITH LEVEL BACKFILL: $P_A = 30H$
   - -WITH 2:1 SLOPING BACKFILL: $P_A = 45H$
2. ASSUMES NO HYDROSTATIC PRESSURE.
3. VALUES ASSUME SHORED MATERIAL IS FORMATIONAL AS DESCRIBED IN THE REFERENCED REPORT.
4. H IS MEASURED IN FEET.
5. FIGURE SHOULD BE USED IN CONJUNCTION WITH REFERENCED REPORT.
6. FOR PRELIMINARY DESIGN.
7. SURCHARGES FROM CONSTRUCTION EQUIPMENT, EXCAVATED SOIL, CONSTRUCTION MATERIALS, TRAFFIC LOADING OR OTHER UNIFORM LOADING (q) ABOVE THE WALL SHOULD BE CALCULATED USING THE SURCHARGE LATERAL EARTH PRESSURE, P_S. BASED ON LOCATION AND AREAL EXTENT OF THE SURCHARGE, REVISIONS, INCLUDING REDUCING THE DEPTH OF THE LATERAL SURCHARGE PRESSURE, CAN BE CONSIDERED ON A CASE-BY-CASE BASIS.

NOT TO SCALE

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REPORT NAME
UC SAN DIEGO
UPDATED REPORT OF GEO. INVESTIGATION
TRITON CENTER

PROJECT NUMBER: SD547B
DOCUMENT NUMBER: 22-079
FIGURE NUMBER: 7B

DESIGN PARAMETERS
FOR BRACED SHORING

APPENDIX A
FIELD INVESTIGATIONS

APPENDIX A-1
GROUP DELTA FIELD INVESTIGATION (2017)

FIELD INVESTIGATION

The subsurface exploration program included a visual and geologic reconnaissance of the site and the drilling of fourteen exploratory borings using a truck-mounted, hollow-stem drill rig. The borings were drilled between September 25th and October 21st, 2017. The maximum depth of exploration was approximately 31½ feet below surrounding grades. The approximate exploration locations are shown on the Site Investigation figures, Figures 2A through 2C, respectively. Logs of the borings are provided in Figures A-1 through A-14, immediately after the Boring Record Legends.

Two of the borings were positioned within the existing asphalt concrete pavements to evaluate the pavement sections for demolition. The findings are summarized in the table below. Two of the exploratory borings were converted to Well Permeameter tests to evaluate onsite stormwater infiltration potential. The results of the field tests are presented in Appendix C.

The borings were excavated and backfilled by Pacific Drilling using a Unimog Marl M-5 truck-mounted drill rig. Drive samples were collected from the drilled borings using an automatic hammer with an average Energy Transfer Ratio (ETR) of about 82 percent. Disturbed samples were collected from the drilled borings using a 2-inch outside diameter Standard Penetration Test (SPT) sampler. Less disturbed samples were collected using a 3-inch outside diameter ring lined sampler (a modified California sampler). These samples were sealed in plastic bags, labeled, and returned to the laboratory for testing. For each sample, the number of blows needed to drive the sampler 12 inches was recorded on the logs. The field blow counts (N) were normalized to approximate the standard 60 percent ETR, as shown on the logs (N_{60}). Bulk samples were also collected from the cuttings generated at each boring.

The exploration locations were determined by visually estimating, pacing, and taping distances from landmarks shown on the Existing Improvement Map, Figure 2A. The locations shown should not be considered more accurate than is implied by the method of measurement used and the scale of the map. The lines designating the interface between differing soil materials on the logs may be abrupt or gradational. Further, soil conditions at locations between the excavations may be substantially different from those at the specific locations we explored. It should be noted that the passage of time may also result in changes in the soil conditions reported in the logs.

Existing Asphalt Concrete Sections

Location	Petromat Present?	Asphalt Section (in.)	Base Section (in.)
B-01	No	3½	0
B-08	No	2	7

SOIL IDENTIFICATION AND DESCRIPTION SEQUENCE

Sequence	Identification Components	Refer to Section: Field	Refer to Section: Lab	Required	Optional
1	Group Name	2.5.2	3.2.2	●	
2	Group Symbol	2.5.2	3.2.2	●	
	Description Components				
3	Consistency of Cohesive Soil	2.5.3	3.2.3	●	
4	Apparent Density of Cohesionless Soil	2.5.4		●	
5	Color	2.5.5		●	
6	Moisture	2.5.6		●	
7	Percent or Proportion of Soil	2.5.7	3.2.4	●	⬭
	Particle Size	2.5.8	2.5.8	●	⬭
	Particle Angularity	2.5.9			○
	Particle Shape	2.5.10			○
8	Plasticity (for fine-grained soil)	2.5.11	3.2.5		○
9	Dry Strength (for fine-grained soil)	2.5.12			○
10	Dilatency (for fine-grained soil)	2.5.13			○
11	Toughness (for fine-grained soil)	2.5.14			○
12	Structure	2.5.15			○
13	Cementation	2.5.16		●	
14	Percent of Cobbles and Boulders	2.5.17		●	
	Description of Cobbles and Boulders	2.5.18		●	
15	Consistency Field Test Result	2.5.3		●	
16	Additional Comments	2.5.19			○

Describe the soil using descriptive terms in the order shown

Minimum Required Sequence:

USCS Group Name (Group Symbol); Consistency or Density; Color; Moisture; Percent or Proportion of Soil; Particle Size; Plasticity (optional).

⬭ = optional for non-Caltrans projects

Where applicable:

Cementation; % cobbles & boulders; Description of cobbles & boulders; Consistency field test result

REFERENCE: Caltrans Soil and Rock Logging, Classification, and Presentation Manual (2010).

HOLE IDENTIFICATION

Holes are identified using the following convention:

H – YY – NNN

Where:

H: Hole Type Code

YY: 2-digit year

NNN: 3-digit number (001-999)

Hole Type Code and Description

Hole Type Code	Description
A	Auger boring (hollow or solid stem, bucket)
R	Rotary drilled boring (conventional)
RC	Rotary core (self-cased wire-line, continuously-sampled)
RW	Rotary core (self-cased wire-line, not continuously sampled)
P	Rotary percussion boring (Air)
HD	Hand driven (1-inch soil tube)
HA	Hand auger
D	Driven (dynamic cone penetrometer)
CPT	Cone Penetration Test
O	Other (note on LOTB)

Description Sequence Examples:

SANDY lean CLAY (CL); very stiff; yellowish brown; moist; mostly fines; some SAND, from fine to medium; few gravels; medium plasticity; PP=2.75.

Well-graded SAND with SILT and GRAVEL and COBBLES (SW-SM); dense; brown; moist; mostly SAND, from fine to coarse; some fine GRAVEL; few fines; weak cementation; 10% GRANITE COBBLES; 3 to 6 inches; hard; subrounded.

Clayey SAND (SC); medium dense, light brown; wet; mostly fine sand,; little fines; low plasticity.

GROUP DELTA

Project No. SD547

University Center Gateway Complex
University of California, San Diego

BORING RECORD LEGEND #1

GROUP SYMBOLS AND NAMES

Graphic / Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND
GP	Poorly graded GRAVEL Poorly graded GRAVEL with SAND
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GP-GM	Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND
GP-GC	Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GM	SILTY GRAVEL SILTY GRAVEL with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL
SP	Poorly graded SAND Poorly graded SAND with GRAVEL
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SP-SM	Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL
SP-SC	Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SM	SILTY SAND SILTY SAND with GRAVEL
SC	CLAYEY SAND CLAYEY SAND with GRAVEL
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL
PT	PEAT
	COBBLES COBBLES and BOULDERS BOULDERS

Graphic / Symbol	Group Names
CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY elastic ELASTIC SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTING

C	Consolidation (ASTM D 2435)
CL	Collapse Potential (ASTM D 5333)
CP	Compaction Curve (CTM 216)
CR	Corrosion, Sulfates, Chlorides (CTM 643; CTM 417; CTM 422)
CU	Consolidated Undrained Triaxial (ASTM D 4767)
DS	Direct Shear (ASTM D 3080)
EI	Expansion Index (ASTM D 4829)
M	Moisture Content (ASTM D 2216)
OC	Organic Content (ASTM D 2974)
P	Permeability (CTM 220)
PA	Particle Size Analysis (ASTM D 422)
PI	Liquid Limit, Plastic Limit, Plasticity Index (AASHTO T 89, AASHTO T 90)
PL	Point Load Index (ASTM D 5731)
PM	Pressure Meter
R	R-Value (CTM 301)
SE	Sand Equivalent (CTM 217)
SG	Specific Gravity (AASHTO T 100)
SL	Shrinkage Limit (ASTM D 427)
SW	Swell Potential (ASTM D 4546)
UC	Unconfined Compression - Soil (ASTM D 2166) Unconfined Compression - Rock (ASTM D 2938)
UU	Unconsolidated Undrained Triaxial (ASTM D 2850)
UW	Unit Weight (ASTM D 4767)

SAMPLER GRAPHIC SYMBOLS

- Standard Penetration Test (SPT)
- Standard California Sampler
- Modified California Sampler (2.4" ID, 3" OD)
- Shelby Tube
- Piston Sampler
- NX Rock Core
- HQ Rock Core
- Bulk Sample
- Other (see remarks)

DRILLING METHOD SYMBOLS

- Auger Drilling
- Rotary Drilling
- Dynamic Cone or Hand Driven
- Diamond Core

WATER LEVEL SYMBOLS

- ▽ First Water Level Reading (during drilling)
- ▼ Static Water Level Reading (after drilling, date)

Definitions for Change in Material

Term	Definition	Symbol
Material Change	Change in material is observed in the sample or core and the location of change can be accurately located.	
Estimated Material Change	Change in material cannot be accurately located either because the change is gradational or because of limitations of the drilling and sampling methods.	
Soil / Rock Boundary	Material changes from soil characteristics to rock characteristics.	

REFERENCE: Caltrans Soil and Rock Logging, Classification, and Presentation Manual (2010).

GROUP DELTA

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University Center Gateway Complex
University of California, San Diego

BORING RECORD LEGEND #2

CONSISTENCY OF COHESIVE SOILS				
Description	Shear Strength (tsf)	Pocket Penetrometer, PP, Measurement (tsf)	Torvane, TV, Measurement (tsf)	Vane Shear, VS, Measurement (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2

APPARENT DENSITY OF COHESIONLESS SOILS	
Description	SPT N_{60} (blows / 12 inches)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE	
Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS	
Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 - 10%
Little	15 - 25%
Some	30 - 45%
Mostly	50 - 100%

PARTICLE SIZE		
Description		Size (in)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

REFERENCE: Caltrans Soil and Rock Logging, Classification, and Presentation Manual (2010), with the exception of consistency of cohesive soils vs. N_{60}.

Plasticity

Description	Criteria
Nonplastic	A 1/8-in. thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

CONSISTENCY OF COHESIVE SOILS	
Description	SPT N_{60} (blows/12 inches)
Very Soft	0 - 2
Soft	2 - 4
Medium Stiff	4 - 8
Stiff	8 - 15
Very Stiff	15 - 30
Hard	Greater than 30

Ref: Peck, Hansen, and Thornburn, 1974, "Foundation Engineering," Second Edition.

Note: Only to be used (with caution) when pocket penetrometer or other data on undrained shear strength are unavailable. Not allowed by Caltrans Soil and Rock Logging and Classification Manual, 2010.

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Project No. SD547

University Center Gateway Complex
University of California, San Diego

BORING RECORD LEGEND #3

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	**B-01**

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	10/21/2017	10/21/2017	1 of 1

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	20.9	362	⊻ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS
	360	Bulk	B-1						
5		SPT	S-2	10 16 13	29	40			
	355								
10		Ring	R-3	16 16 21	37	34	9.3	101	
		Ring	R-4						
	350								
15		SPT	S-5	9 16 50	66	90			
	345								
20		Ring	R-6	25 50/5"	85	78	22.7	99	
	340								

DESCRIPTION AND CLASSIFICATION

PAVEMENT: Asphalt Concrete, 3½-inches thick.

FILL: Clayey SAND (SC); loose to medium dense; brown to dark brown; moist; mostly fine to medium SAND; some fines; low plasticity; trace GRAVEL; ~5% cobble sized pieces of formation.

Silty SAND (SM); loose to medium dense; light brown; moist; mostly SAND; some fines; low plasticity.

Sandy Lean CLAY (CL); stiff; reddish brown; moist; mostly fines; some fine SAND; low plasticity.

VERY OLD PARALIC DEPOSITS: Sandy Lean CLAYSTONE (CL); hard; light grayish brown; moist; mostly fines; some fine SAND; low plasticity; weakly indurated.

Hard drilling; possible concretion or strong cementation.

Silty SANDSTONE (SM); dense; light grayish brown; moist; mostly fine to medium SAND; little to few fines; nonplastic; weakly cemented.

SCRIPPS FORMATION: Sandy SILTSTONE (ML); very dense; light gray and light orange; moist; mostly fines; some fine SAND; low plasticity; weakly indurated.

CLAYSTONE (CL); hard; light gray and light orange; moist; mostly fines; trace fine SAND; low to medium plasticity; moderately indurated.

Total Depth = 20.9 Feet
No groundwater encountered.
Backfilled with bentonite chips and patched with black dyed, rapid set concrete on 10/21/17.

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THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-1

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	B-02

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/26/2017	9/26/2017	1 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV / TSL	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	31.5	365	▼ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			B-1						CR			**FILL:** Silty SAND with gravel (SM); loose to medium dense; light brown; moist; mostly fine sand; some fines; few gravel up to 3 inches in diameter; low plasticity; scattered roots and rootlets.
												Sandy Lean CLAY (CL); medium stiff to stiff; gray; moist; mostly fines; some fine sand; low plasticity.
5	360		B-2						PA PI EI	5		Sandy Fat CLAY (CH); soft to medium stiff; gray; moist; mostly fines; trace to few fine sand. (0% Gravel; 34% Sand; 66% Fines) (LL~55; PL~11; PI~44)
			S-3	14 17 17	34	47						**VERY OLD PARALIC DEPOSITS:** Clayey SANDSTONE (SC); dense; light brown and gray; moist; mostly fine sand; some fines; low plasticity; weakly cemented.
10	355		R-4	13 16 19	35	32	8.9	104	DS	10		Silty SANDSTONE (SM); dense; light brown and gray; moist; mostly fine to medium sand; some fines; low plasticity; friable to weakly cemented.
15	350		S-5	9 12 18	30	41				15		Gray and light reddish brown.
20	345		R-6	30 50/4"	105	96	21.1	97	PA PI	20		**SCRIPPS FORMATION:** Fat CLAYSTONE with Sand (CH); hard; light grayish brown with some orange iron oxide staining; moist; mostly fines; little fine to medium sand; high plasticity; weakly to moderately indurated. (2% Gravel; 25% Sand; 73% Fines) (LL~58; PL~23; PI~35)

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FIGURE A-2 a

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	**B-02**

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/26/2017	9/26/2017	2 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV / TSL	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	31.5	365	▼ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
		⊠	S-7	19 50/6"	69	95						**SCRIPPS FORMATION:** Fat CLAYSTONE with Sand (CH); hard; light grayish brown with some orange iron oxide staining; moist; mostly fines; little fine to medium sand; high plasticity; weakly to moderately indurated.
30	335	⊠	S-8	21 38 41	79	108				30		
												Total Depth = 31.5 Feet No groundwater encountered. Backfilled with bentonite chips on 9/26/17.
35	330									35		
40	325									40		
45	320									45		

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FIGURE A-2 b

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	**B-03**

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/26/2017	9/26/2017	1 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV / TSL	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	31	369	▼ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			B-1									**FILL:** Silty SAND (SM); loose to medium dense; dark to light brown; moist; mostly fine to medium sand; some fines; nonplastic; scattered roots and rootlets.
	365											**VERY OLD PARALIC DEPOSITS:** Silty SANDSTONE (SM); very dense; light brown with orange iron oxide staining; moist; mostly fine to medium sand; some fines; nonplastic; weakly cemented.
5			R-2	22 29 42	71	65	8.3	109		5		
			R-3									
	360											Light grayish brown; little fines.
10			S-4	15 21 20	41	56				10		
	355											
15			R-5	27 48 50/3"	148	135			PA	15		Light gray and light grayish brown. (0% Gravel; 79% Sand; 21% Fines)
			R-6				16.7	94	DS			
	350											**SCRIPPS FORMATION:** Sandy SILTSTONE (ML); very dense; light gray and light reddish brown; moist; mostly fines; few to little fine sand; low plasticity; weakly indurated.
20			S-7	20 50/5"	80	110				20		
	345											

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BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	B-03

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/26/2017	9/26/2017	2 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV / TSL	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	31	369	N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			R-8	43 50/2"	193	176	22.0	95				**SCRIPPS FORMATION:** Sandy SILTSTONE (ML); very dense; light gray and light reddish brown; moist; mostly fines; few to little fine sand; low plasticity; weakly to moderately indurated.
	340											
30			S-9	24 50	74	101				30		Light brown, light reddish brown, and light gray.
												Total Depth = 31 Feet No groundwater encountered. Backfilled with bentonite chips on 9/26/17.
	335											
35										35		
	330											
40										40		
	325											
45										45		
	320											

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FIGURE

A-3 b

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	**B-04**

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/25/2017	9/25/2017	1 of 1

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV / TSL	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	11.5	370	▼ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			B-1						PA PI EI R			**FILL:** Clayey SAND (SC); medium dense; light grayish brown; moist; mostly fine SAND; some fines; low plasticity. (2% Gravel; 50% Sand; 48% Fines) (LL~38; PL~11; PI~27)
												VERY OLD PARALIC DEPOSITS: Clayey SANDSTONE (SC); very dense; light grayish brown; moist; mostly fine to medium sand; some fines; low plasticity; weakly cemented. @5': Moderately cemented.
5	365		R-2	50/ 4"	150	137	9.6	---		5		
10	360		S-3	15 16 19	35	48				10		Dense; weakly cemented.
												Total Depth = 11.5 Feet No groundwater encountered. Backfilled on 9/25/17 shortly after drilling with bentonite chips.
15	355									15		
20	350									20		

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FIGURE

A-4

BORING RECORD

PROJECT NAME	UCSD Gateway Complex
PROJECT NUMBER	SD547
BORING	B-05
SITE LOCATION	Northwest of Gilman Drive and Russell Lane
START	9/25/2017
FINISH	9/25/2017
SHEET NO.	1 of 2
DRILLING COMPANY	Pacific Drilling Company
DRILLING METHOD	Hollow Stem Auger
LOGGED BY	CKV / TSL
CHECKED BY	MAF
DRILLING EQUIPMENT	Unimog Marl M5 (Wolverine)
BORING DIA. (in)	6
TOTAL DEPTH (ft)	31.4
GROUND ELEV (ft)	371
DEPTH/*ELEV.* GROUND WATER (ft)	▼ 14.0 / *357.0*
SAMPLING METHOD	Hammer: 140 lbs., Drop: 30 in. (Automatic)
NOTES	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	DESCRIPTION AND CLASSIFICATION
0	371										**FILL:** Silty SAND (SM); loose to medium dense; brown; moist; mostly fine sand; some fines; nonplastic.
1	370	Bulk	B-1						CR		Lean CLAY (CL); stiff to very stiff; dark brownish gray with red staining and caliche; mostly fines; few to little fine sand; medium plasticity.
2.5											**VERY OLD PARALIC DEPOSITS:** Silty SANDSTONE (SM); dense; light brown and grayish brown; moist; mostly fine sand; some fines; low plasticity; weakly cemented.
5	365	SPT	S-2	17 15 11	26	36				5	
9											Poorly-graded SANDSTONE with silt (SP-SM); dense; reddish brown and gray; moist; mostly fine sand; few fines; nonplastic; weakly cemented.
10	360	Ring	R-3 R-4	18 22 33	55	50	6.9	95		10	
13											@ 13' to 14': Concretion; very difficult drilling conditions.
14											@14' to 18': Perched groundwater; wet soil.
15	355	SPT	S-5	11 14 16	30	41			PA	15	Silty SANDSTONE (SM); dense; grayish brown; wet; mostly fine sand; little fines; trace gravel up to 1 inch in diameter; nonplastic; weakly cemented. (0% Gravel; 85% Sand; 15% Fines) Difficult drilling conditions.
20	350	Ring	R-6	48 50/5"	108	99	21.1	---		20	Very dense; moderately cemented.
23											**SCRIPPS FORMATION:** Sandy SILTSTONE (ML); very dense; grayish and brownish red; moist; mostly fines; some fine sand; low plasticity; weakly indurated.

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FIGURE A-5 a

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	**B-05**

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/25/2017	9/25/2017	2 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV / TSL	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	31.4	371	▼ 14.0 / *357.0*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
	345	☒	S-7	18 43 50/4"	118	162						**SCRIPPS FORMATION:** Sandy SILTSTONE (ML); very dense; grayish and brownish red; moist; mostly fines; some fine sand; low plasticity; weakly to moderately indurated. @ 26': Gray.
30	340	☒	S-8	19 35 50/5"	95	130				30		Gray and light brown.
												Total Depth = 31.4 Feet Perched groundwater at 14 to 18 Feet. Backfilled with bentonite chips on 9/25/17.
35	335									35		
40	330									40		
45	325									45		

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GDC_LOG_BORING_MMX_SOIL_SD SD547 LOGS.GPJ GDCLOG.GDT 11/9/17

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FIGURE

A-5 b

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	**B-06**

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/25/2017	9/25/2017	1 of 1

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	20	371	▼ 18.0 / *353.0*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
	370		B-1									**FILL:** Sandy Lean CLAY (CL); stiff to very stiff; brown; moist; mostly fines; some fine to medium sand; low plasticity.
			S-2	50/ 5"	120	164						**VERY OLD PARALIC DEPOSITS:** Sandy Lean CLAYSTONE (CL); hard; light brown and gray; dry to moist; mostly fines; some fine to medium sand; low plasticity.
5	365		S-3	8 10 13	23	32				5		Clayey SANDSTONE (SC); dense; gray; moist; mostly fine sand; some fines; low plasticity.
10	360		S-4	5 9 13	22	30	14.2			10		Brown and gray.
15	355		S-5	11 12 14	26	36				15		Poorly graded SANDSTONE (SP); dense; light brown; moist; mostly fine to medium sand; trace fines; nonplastic.
											▼	@18' to 19': Perched groundwater, wet soils. Clayey SANDSTONE with gravel (SC); dense; mottled black and gray; wet; mostly fine to medium sand; some fines; little subrounded gravel; low plasticity.
			S-6	26 27 47	74	101	6.5					**SCRIPPS FORMATION:** Sandy SILTSTONE (ML); very dense; light brown, gray and orange iron oxide stains; moist; mostly fines; little fine sand; low plasticity.
20			S-7							20		
	350											Total Depth = 20 Feet Perched groundwater at 18 to 19 Feet. Backfilled with bentonite chips on 9/25/17.

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BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	B-07

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/25/2017	9/25/2017	1 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	31.5	370	▼ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
												FILL: Clayey SAND (SC); loose; brown; dry; mostly fine to medium sand; little to some fines; low plasticity; scattered roots and vegetation.
												VERY OLD PARALIC DEPOSITS: Sandy Lean CLAYSTONE (CL); hard; light gray and light brownish red; moist; mostly fines; little fine sand; low to medium plasticity; weakly to moderately cemented.
			S-1	9 11 17	28	38						
5	365		R-2	40 50	90	82	8.6	115		5		Silty SANDSTONE (SM); very dense; light yellowish brown with orange iron oxide staining; moist; mostly fine SAND; some fines; nonplastic; moderately cemented.
10	360		S-3	21 23 23	46	63				10		@ 11' to 14': Possible concretion; very difficult drilling.
15	355		S-4	21 22 28	50	69				15		Light brown.
												@ 18' to 20': Possible concretion; very difficult drilling.
20	350									20		Dense; light gray and yellow brown; weakly cemented.
			S-5	15 18 18	36	49						**SCRIPPS FORMATION:** Sandy SILTSTONE (ML); very dense; light brown; moist; mostly fines; little fine sand; low plasticity; weakly to moderately indurated.

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FIGURE A-7 a

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	B-07

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/25/2017	9/25/2017	2 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	31.5	370	▼ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			R-6	31 50/4"	106	97	---	---				**SCRIPPS FORMATION:** Sandy SILTSTONE (ML); very dense; yellowish brown; moist; mostly fines; little fine sand; low plasticity; weakly cemented.
30	340									30		
			S-7	23 28 45	73	100						
												Total Depth = 31.5 Feet No groundwater encountered. Backfilled with bentonite chips on 9/25/17.
35	335									35		
40	330									40		
45	325									45		

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THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE
A-7 b

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	B-08

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	10/21/2017	10/21/2017	1 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	31.5	365	▼ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
												PAVEMENT: 2" Asphalt over 7" base.
			B-1									**FILL:** Silty SAND (SM); medium dense; light brown; moist; mostly fine SAND; some fines; nonplastic.
			S-2	5 4 2	6	8						Sandy Lean CLAY (CL); medium stiff; dark brown; moist; mostly fines; few to some fine SAND; low to medium plasticity.
5	360									5		**VERY OLD PARALIC DEPOSITS:** Silty SANDSTONE (SM); weakly cemented; light grayish brown with some orange iron oxide staining; moist; mostly fine SAND; some fines; nonplastic.
			R-3	16 18 27	45	41						
			R-4				9.0	110	DS			
10	355									10		
			S-5	11 15 16	31	42						
												@ 12' to 13': Possible concretion; very hard drilling.
15	350									15		@15': Very dense; mostly fine to coarse sand.
			R-6	21 27 50/4"	102	93						
			R-7				7.1	91				@16': Mostly fine sand.
20	345									20		**SCRIPPS FORMATION:** Interbedded SILTSTONE and CLAYSTONE; hard; light gray and light orange; moist; mostly fines; some fine SAND; low plasticity; weakly indurated.
			S-8	11 15 17	32	44	17.3					
												Silty SANDSTONE (SM); dense; light gray and light orange; moist; mostly fine sand; some fines; low plasticity; weakly cemented.

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GDC_LOG_BORING_MMX_SOIL_SD SD547 LOGS.GPJ GDCLOG.GDT 11/9/17

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FIGURE A-8 a

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	**B-08**

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	10/21/2017	10/21/2017	2 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	31.5	365	⊻ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			S-9	8 10 12	22	30	22.2					**SCRIPPS FORMATION:** Sandy SILTSTONE (ML); dense; light gray and light orange; moist to wet; mostly fines; some fine sand; low plasticity; weakly indurated. @26': 1" thick silty SAND lens.
30	335		S-10	16 27 16	43	59				30		Sandy CLAYSTONE (CL); hard; light gray and light orange; moist; mostly fines; some fine sand; low plasticity; moderately indurated.
												Total Depth = 31.5 Feet No groundwater encountered. Backfilled with bentonite chips and patched with rapid set concrete on 10/21/17.
35	330									35		
40	325									40		
45	320									45		

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FIGURE A-8 b

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	**B-09**

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/27/2017	9/27/2017	1 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV / SRN	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	31.3	364	▼ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DESCRIPTION AND CLASSIFICATION
0	364								**FILL:** Sandy Lean CLAY (CL); medium stiff; light dark brown; moist; mostly fines; some fine to medium SAND; trace GRAVEL up to 2" diameter; low to medium plasticity.
		B-1						CR	
5	360 (at 4)								
		S-2	6 12 17	29	40				**VERY OLD PARALIC DEPOSITS:** Silty SANDSTONE (SM); very dense; light brownish gray with light orange iron oxide staining; moist; mostly fine SAND; few to little fines; nonplastic; friable.
10	355 (at 9)	R-3 / R-4	16 27 46	73	67	8.8	105	PA	@10': Very dense; weakly cemented. (0% Gravel; 87% Sand; 13% Fines)
15	350 (at 14)	S-5	15 22 30	52	71				
	345 (at 19)								Clayey SANDSTONE (SC); very dense; light grayish and yellowish brown; moist; mostly fine sand; some fines; low plasticity; moderately cemented.
20		R-6	34 50/2"	184	168	20.0	96		**SCRIPPS FORMATION:** Silty SANDSTONE (SM); very dense; light gray; moist; mostly fine SAND; little to few fines; nonplastic; weakly cemented.
	340 (at 24)								

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BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	**B-09**

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/27/2017	9/27/2017	2 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV / SRN	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	31.3	364	▼ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			S-7	24 38 50/5"	98	134						**SCRIPPS FORMATION:** Silty SANDSTONE (SM); very dense; light gray; moist; mostly fine SAND; little to few fines; nonplastic; weakly cemented.
												Sandy CLAYSTONE (CL); hard; light gray and light reddish brown; moist; mostly fines; little to few fine SAND; low plasticity; moderately indurated.
	335											@29' to 30': Possible concretion; very hard drilling.
30										30		
			S-8	18 43 50/4"	118	162						Silty SANDSTONE (SM); very dense; light yellowish and grayish brown; moist; mostly fine to medium grained sand; some fines; low plasticity; weakly cemented.
												Total Depth = 31.3 Feet No groundwater encountered. Backfilled with bentonite chips on 9/27/17.
	330											
35										35		
	325											
40										40		
	320											
45										45		
	315											

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FIGURE
A-9 b

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	B-10

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/26/2017	9/26/2017	1 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV / SRN	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	25.8	358	▼ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
												FILL: Clayey SAND (SC); medium dense; dark brown; moist; moslty fine SAND; some fines; low plasticity.
			B-1									Poorly graded SAND with silt (SP-SM); medium dense; grayish orangish brown; moist; mostly fine to medium SAND; few fines; nonplastic.
	355											Sandy Lean CLAY (CL); medium stiff to stiff; dark reddish brown; moist; mostly fines; some fine SAND; medium plasticity.
5			R-2 R-3	18 21 40	61	56	---	---		5		**VERY OLD PARALIC DEPOSITS** Silty SANDSTONE (SM); very dense; light brownish gray and gray; moist; mostly fine sand; little fines; nonplastic; weakly cemented.
	350											
10			S-4	20 50	70	96				10		
	345											**SCRIPPS FORMATION:** Clayey SANDSTONE (SC); very dense; light reddish and grayish brown; moist; mostly fine SAND; some fines; low plasticity; weakly to moderately cemented.
15			R-5	50/ 6"	100	91	15.5	96		15		Silty SANDSTONE (SM); very dense; light reddish and grayish brown; moist; mostly fine sand; some fines; low plasticity; weakly to moderately cemented.
	340											
20			S-6	16 21 33	54	74				20		Light grayish yellow with iron oxide staining; weakly cemented.
	335											**SCRIPPS FORMATION:** CLAYSTONE; hard; light gray and light reddish brown; moist; mostly fines; little to trace fine SAND; low plasticity; moderately indurated.

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FIGURE A-10 a

GDC_LOG_BORING_MMX_SOIL_SD SD547 LOGS.GPJ GDCLOG.GDT 11/9/17

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	**B-10**

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/26/2017	9/26/2017	2 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV / SRN	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	25.8	358	⊻ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			R-7	43 50/3"	143	131	---	---				**SCRIPPS FORMATION:** CLAYSTONE; hard; light gray and light reddish brown; moist; mostly fines; little to trace fine SAND; low plasticity; moderately indurated.
	330											Total Depth = 25.8 Feet No groundwater encountered. Backfilled with bentonite chips on 9/26/17.
30										30		
	325											
35										35		
	320											
40										40		
	315											
45										45		
	310											

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FIGURE

A-10 b

BORING RECORD

PROJECT NAME	UCSD Gateway Complex
PROJECT NUMBER	SD547
BORING	B-11
SITE LOCATION	Northwest of Gilman Drive and Russell Lane
START	9/27/2017
FINISH	9/27/2017
SHEET NO.	1 of 2
DRILLING COMPANY	Pacific Drilling Company
DRILLING METHOD	Hollow Stem Auger
LOGGED BY	CKV / SRN
CHECKED BY	MAF
DRILLING EQUIPMENT	Unimog Marl M5 (Wolverine)
BORING DIA. (in)	6
TOTAL DEPTH (ft)	26.5
GROUND ELEV (ft)	351
DEPTH/*ELEV.* GROUND WATER (ft)	▼ N/A / *na*
SAMPLING METHOD	Hammer: 140 lbs., Drop: 30 in. (Automatic)
NOTES	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
	350		B-1									**FILL:** Sandy Lean CLAY (CL); medium stiff; gray to brown; mostly fines; some fine sand; low plasticity.
												Poorly graded SAND with Silt (SP-SM); light gray; moist to wet; mostly fine SAND; few fines; nonplastic; scattered pieces of concrete and asphalt concrete.
5										5		Clayey SAND (SC); loose; mottled orange and gray; moist; mostly fine to medium SAND; little fines; low plasticity. (0% Gravel; 60% Sand; 40% Fines) (LL~27; PL~14; PI~13)
	345		S-2	3 2 3	5	7			PA PI EI			Fat CLAY (CH); soft to stiff; dark brown; moist; mostly fines; trace fine SAND; high plasticity. PP = ½ to 1¼ tsf
												SCRIPPS FORMATION: Lean CLAYSTONE (CL); hard; light yellowish brown; moist; mostly fines; little fine sand; low to medium plasticity; moderately indurated.
10	340		R-3	18 50/5"	78	71	21.1	105		10		
15	335		S-4	11 20 29	49	67			PA PI	15		Fat CLAYSTONE (CH); hard; light yellowish brown with orange iron oxide staining; moist; mostly fines; few to little fine sand; high plasticity; weakly to moderately indurated. (0% Gravel; 13% Sand; 87% Fines) (LL~60; PL~21; PI~39)
20	330		R-5	21 50/5"	81	74	19.5	102	DS	20		

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FIGURE A-11 a

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	B-11

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/27/2017	9/27/2017	2 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV / SRN	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	26.5	351	N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
	325	X	S-6	15 25 36	61	84						**SCRIPPS FORMATION:** Lean CLAYSTONE (CL); hard; light gray; moist; mostly fines; few to little fine sand; low to medium plasticity; moderately indurated.
												Total Depth = 26.5 Feet No groundwater encountered. Backfilled with bentonite chips on 9/27/17.
30	320									30		
35	315									35		
40	310									40		
45	305									45		

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FIGURE

A-11 b

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	**B-12**

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/27/2017	9/27/2017	1 of 1

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Group Delta Consultants	Hand Auger	CKV / SRN	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Hand Auger	3	5	350	▼ N/A / *na*

SAMPLING METHOD	NOTES
Shovel	

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			B-1						PA R			**FILL:** Clayey SAND (SC); loose to medium dense; light to dark brown; moist to wet; mostly fine to medium SAND; some fines; low to medium plasticity. (5% Gravel; 58% Sand; 37% Fines)
			B-2									**VERY OLD PARALIC DEPOSITS:** Silty SANDSTONE (SM); dense; light yellow brown; moist to wet; mostly fine to medium sand; some fines; low plasticity; friable.
5	345									5		Total Depth = 5 Feet No groundwater encountered. Backfilled on 9/27/17.
10	340									10		
15	335									15		
20	330									20		

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FIGURE
A-12

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	**I-1**

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/25/2017	9/25/2017	1 of 1

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	5	371	▼ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
	370		B-1									**FILL:** Sandy Lean CLAY (CL); stiff; brown to dark brown; moist; mosly fines; little fine SAND; medium plasticity.
			S-2	21 50/4"	96	132						**VERY OLD PARALIC DEPOSITS:** Clayey SANDSTONE (SC); very dense; light brown; moist; mostly fine sand; some fines; low plasticity; moderately cemented. (0% Gravel; 66% Sand; 34% Fines)
			S-3	13 18 16	34	47			PA			Dense; weakly cemented.
5										5		
	365											Total Depth = 5 Feet No groundwater encountered. Converted to percolation test hole on 9/25/17. Backfilled on 9/27/17 after infiltration testing.
10										10		
	360											
15										15		
	355											
20										20		
	350											

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FIGURE A-13

BORING RECORD

PROJECT NAME	PROJECT NUMBER	BORING
UCSD Gateway Complex	SD547	I-2

SITE LOCATION	START	FINISH	SHEET NO.
Northwest of Gilman Drive and Russell Lane	9/26/2017	9/26/2017	1 of 1

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling Company	Hollow Stem Auger	CKV / SRN	MAF

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Unimog Marl M5 (Wolverine)	6	5	352	▼ N/A / *na*

SAMPLING METHOD	NOTES
Hammer: 140 lbs., Drop: 30 in. (Automatic)	ETR ~ 82%, N_{60} ~ 82/60 * N ~ 1.37 * N

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	OTHER TESTS	DEPTH (feet)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
	350		B-1									**FILL:** Clayey SAND (SC); medium dense; gray to brown; moist to wet; mostly fine to medium sand; some fines; medium plasticity.
5			B-2						PA	5		**VERY OLD PARALIC DEPOSITS:** Silty SANDSTONE (SM); dense; gray to orange; moist; mostly fine to medium SAND; some fines; nonplastic; weakly cemented. (1% Gravel; 60% Sand; 39% Fines)
	345											Total Depth = 5 Feet No groundwater encountered. Converted to percolation test hole on 9/26/17. Backfilled on 9/27/17 after infiltration testing.
10	340									10		
15	335									15		
20	330									20		

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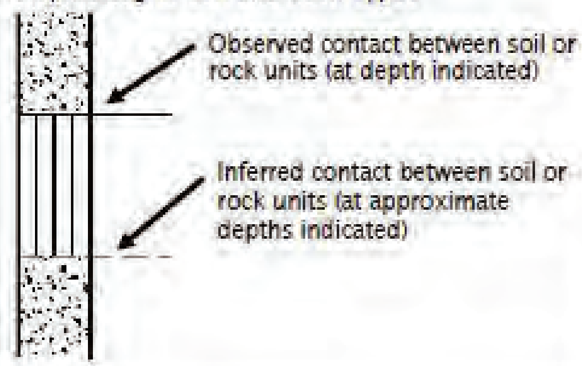
FIGURE A-14

APPENDIX A-2
GEODESIGN FIELD INVESTIGATION (2019)

SYMBOL	SAMPLING DESCRIPTION
	Location of sample collected in general accordance with ASTM D1586 using Standard Penetration Test with recovery
	Location of sample collected using thin-wall Shelby tube or Geoprobe® sampler in general accordance with ASTM D1587 with recovery
	Location of sample collected using Dames & Moore sampler and 300-pound hammer or pushed with recovery
	Location of sample collected using Dames & Moore sampler and 140-pound hammer or pushed with recovery
	Location of sample collected using 3-inch-O.D. California split-spoon sampler and 140-pound hammer with recovery
	Location of grab sample
	Rock coring interval
	Water level during drilling
	Water level taken on date shown

Graphic Log of Soil and Rock Types



GEOTECHNICAL TESTING EXPLANATIONS

ATT	Atterberg Limits	P	Pushed Sample
CBR	California Bearing Ratio	PP	Pocket Penetrometer
CON	Consolidation	P200	Percent Passing U.S. Standard No. 200 Sieve
DD	Dry Density		
DS	Direct Shear	RES	Resilient Modulus
HYD	Hydrometer Gradation	SIEV	Sieve Gradation
MC	Moisture Content	TOR	Torvane
MD	Moisture-Density Relationship	UC	Unconfined Compressive Strength
NP	Non-Plastic	VS	Vane Shear
OC	Organic Content	kPa	Kilopascal

ENVIRONMENTAL TESTING EXPLANATIONS

CA	Sample Submitted for Chemical Analysis	ND	Not Detected
P	Pushed Sample	NS	No Visible Sheen
PID	Photoionization Detector Headspace Analysis	SS	Slight Sheen
		MS	Moderate Sheen
ppm	Parts per Million	HS	Heavy Sheen

RELATIVE DENSITY - COARSE-GRAINED SOIL

Relative Density	Standard Penetration Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)
Very Loose	0 – 4	0 – 11	0 – 4
Loose	4 – 10	11 – 26	4 – 10
Medium Dense	10 – 30	26 – 74	10 – 30
Dense	30 – 50	74 – 120	30 – 47
Very Dense	More than 50	More than 120	More than 47

CONSISTENCY - FINE-GRAINED SOIL

Consistency	Standard Penetration Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)	Unconfined Compressive Strength (tsf)
Very Soft	Less than 2	Less than 3	Less than 2	Less than 0.25
Soft	2 – 4	3 – 6	2 – 5	0.25 – 0.50
Medium Stiff	4 – 8	6 – 12	5 – 9	0.50 – 1.0
Stiff	8 – 15	12 – 25	9 – 19	1.0 – 2.0
Very Stiff	15 – 30	25 – 65	19 – 31	2.0 – 4.0
Hard	More than 30	More than 65	More than 31	More than 4.0

PRIMARY SOIL DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE-GRAINED SOIL (more than 50% retained on No. 200 sieve)	GRAVEL (more than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (< 5% fines)	GW or GP	GRAVEL
		GRAVEL WITH FINES (≥ 5% and ≤ 12% fines)	GW-GM or GP-GM	GRAVEL with silt
			GW-GC or GP-GC	GRAVEL with clay
		GRAVEL WITH FINES (> 12% fines)	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND (50% or more of coarse fraction passing No. 4 sieve)	CLEAN SAND (<5% fines)	SW or SP	SAND
		SAND WITH FINES (≥ 5% and ≤ 12% fines)	SW-SM or SP-SM	SAND with silt
			SW-SC or SP-SC	SAND with clay
		SAND WITH FINES (> 12% fines)	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOIL (50% or more passing No. 200 sieve)	SILT AND CLAY	Liquid limit less than 50	ML	SILT
			CL	CLAY
			CL-ML	silty CLAY
			OL	ORGANIC SILT or ORGANIC CLAY
		Liquid limit 50 or greater	MH	SILT
			CH	CLAY
			OH	ORGANIC SILT or ORGANIC CLAY
HIGHLY ORGANIC SOIL			PT	PEAT

MOISTURE CLASSIFICATION

Term	Field Test
dry	very low moisture, dry to touch
moist	damp, without visible moisture
wet	visible free water, usually saturated

ADDITIONAL CONSTITUENTS

Secondary granular components or other materials such as organics, man-made debris, etc.

Percent	Silt and Clay In: Fine-Grained Soil	Silt and Clay In: Coarse-Grained Soil	Percent	Sand and Gravel In: Fine-Grained Soil	Sand and Gravel In: Coarse-Grained Soil
< 5	trace	trace	< 5	trace	trace
5 – 12	minor	with	5 – 15	minor	minor
> 12	some	silty/clayey	15 – 30	with	with
			> 30	sandy/gravelly	Indicate %

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SOIL CLASSIFICATION SYSTEM

TABLE A-2

HARDNESS	DESCRIPTION
Extremely Soft (R0)	Indented by thumbnail
Very Soft (R1)	Can be peeled by pocket knife or scratched with finger nail
Soft (R2)	Can be peeled by a pocket knife with difficulty
Medium Hard (R3)	Can be scratched by knife or pick
Hard (R4)	Can be scratched with knife or pick only with difficulty
Very Hard (R5)	Cannot be scratched with knife or sharp pick
WEATHERING	**DESCRIPTION**
Decomposed	Rock mass is completely decomposed
Predominantly Decomposed	Rock mass is more than 50% decomposed
Moderately Weathered	Rock mass is decomposed locally
Slightly Weathered	Rock mass is generally fresh
Fresh	No discoloration in rock fabric
JOINT SPACING	**DESCRIPTION**
Very Close	Less than 2 inches
Close	2 inches to 1 foot
Moderate Close	1 foot to 3 feet
Wide	3 feet to 10 feet
Very Wide	Greater than 10 feet
FRACTURING	**FRACTURE SPACING**
Very Intensely Fractured	Chips and fragments with a few scattered short core lengths
Intensely Fractured	0.1 foot to 0.3 foot with scattered fragments intervals
Moderately Fractured	0.3 foot to 1 foot with most lengths 0.6 foot
Slightly Fractured	1 foot to 3 feet
Very Slightly Fractured	Greater than 3 feet
Unfractured	No fractures
HEALING	**DESCRIPTION**
Not Healed	Discontinuity surface, fractured zone, sheared material or filling not re-cemented
Partly Healed	Less than 50% of fractured or sheared material
Moderately Healed	Greater than 50% of fractured or sheared material
Totally Healed	All fragments bonded

GEODESIGN INC 2121-S Towne Centre Place, Suite 104 Anaheim CA 92806 714.634.1701 www.geodesigninc.com	ROCK CLASSIFICATION SYSTEM	TABLE A-3

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	BLOW COUNT	INSTALLATION AND COMMENTS
0	ASPHALT CONCRETE (4.5 inches).	366.0 / 365.6 / 0.4			Bulk sample collected from 0.0 to 5.0 feet.
	AGGREGATE BASE (7.0 inches).	365.0 / 1.0			
	Medium dense, olive-gray, silty SAND (SM); moist, sand is fine to medium, micaceous.		DD	37	DD = 116 pcf
5	Medium dense, yellow-brown SAND (SP); moist, sand is fine to medium, micaceous.	362.0 / 4.0	DD DS	27	DD = 105 pcf
	Medium dense, red-brown SAND with silt (SP-SM); moist, sand is fine, micaceous, some iron oxide stains.	359.0 / 7.0	DD	35	DD = 103 pcf
10	Very dense, light gray SAND (SP); moist, sand is fine to coarse, micaceous.	356.5 / 9.5	DD	12-28-50/5"	DD = 110 pcf
15	trace manganese oxide stains at 15.0 feet		DD	21-37-50/5"	DD = 102 pcf
20	yellow-brown; slight cementation at 20.0 feet		DD	27-50/4"	DD = 95 pcf
	Medium hard to hard (R3-R4), olive-brown SANDSTONE; moderately weathered, moist (Scripps Formation (Tsc)).	343.0 / 23.0			
25			DD	14-46-50/4"	DD = 103 pcf
30	slightly weathered at 30.0 feet		DD	25-50/4"	DD = 107 pcf
35	very soft to soft (R1-R2), light brown; laminated at 35.0 feet		DD	44	DD = 107 pcf
40					

▲ BLOW COUNT ● MOISTURE CONTENT % ROD% CORE REC% (0 – 50 – 100)

DRILLED BY: Martini Drilling LOGGED BY: A. Atry COMPLETED: 05/14/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

GEODESIGN INC	PCL-14-01	BORING B-13	
2121 S Towne Centre Place - Suite 104 Anaheim CA 92806 714.834.3701 www.geodesigninc.com	SEPTEMBER 2019	UCSD - PROPOSED TRITON PAVILION PROJECT LA JOLLA, CA	FIGURE A-1

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT % ROD% CORE REC% (0 50 100)	INSTALLATION AND COMMENTS
40		medium hard to hard (R3-R4) at 40.0 feet	325.2 / 40.8			35-50/4"	
		Exploration completed at a depth of 40.8 feet.					
		Groundwater not encountered during drilling.					
45		**Backfilled with bentonite grout.**					
50							
55							
60							
65							
70							
75							
80							

DRILLED BY: Martini Drilling

LOGGED BY: A. Atry

COMPLETED: 06/14/19

BORING METHOD: hollow-stem auger (see document text)

BORING BIT DIAMETER: 8 inches

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SEPTEMBER 2019

BORING B-13
(continued)

UCSD - PROPOSED TRITON PAVILION PROJECT
LA JOLLA, CA

FIGURE A-1

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	BLOW COUNT	INSTALLATION AND COMMENTS
0	Stiff, dark brown, sandy CLAY (CL), trace gravel; moist, sand is fine, gravel is coarse - **FILL**.	361.0			
			DD DS	13	DD = 102 pcf
4.5	Medium dense, olive-brown, silty SAND (SM); moist, sand is fine to medium, trace iron oxide stains.	356.5 / 4.5			
5			DD CON	17	DD = 106 pcf
7.5	dense at 7.5 feet		DD	58	DD = 109 pcf
9.5	Dense, olive-gray SAND with silt (SP-SM); moist, sand is fine to medium, micaceous, some iron oxide veins.	351.5 / 9.5			
10			DD	74	DD = 113 pcf
15	very dense at 15.0 feet		DD	17-20-50/5"	DD = 107 pcf
20	**Exploration terminated at a depth of 20.0 feet due to refusal.**	341.0 / 20.0		50/0"	
	Groundwater not encountered during drilling.				
	Backfilled with bentonite grout.				

▲ BLOW COUNT
● MOISTURE CONTENT %
RQD% CORE REC%

DRILLED BY: Martini Drilling LOGGED BY: A. Alry COMPLETED: 08/15/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

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BORING B-14

UCSD - PROPOSED TRITON PAVILION PROJECT
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FIGURE A-2

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	BLOW COUNT	INSTALLATION AND COMMENTS
0	ASPHALT CONCRETE (3.5 inches).	367.0 / 366.7 / 0.3			Bulk sample collected from 0.0 to 5.0 feet.
	AGGREGATE BASE (6.0 inches).	366.2 / 0.8			
	Very stiff, dark brown, sandy CLAY (CL); moist, clay has medium plasticity, sand is fine, trace sand nodules - **FILL**.	363.5 / 3.5	DD	39	DD = 121 pcf
5	Medium dense, yellow-brown, silty SAND (SM); moist, sand is fine to medium, micaceous, some iron oxide staining. olive-gray at 5.0 feet		DD	41	DD = 116 pcf
	dense at 7.5 feet		DD DS	62	DD = 114 pcf
10	Very dense, gray SAND with silt (SP-SM); moist, sand is medium to coarse, trace iron oxide stains.	357.5 / 9.5	DD	19-30-50/5"	DD = 114 pcf
15	sand is fine at 15.0 feet slight cementation, some lamination at 16.0 feet		DD	10-19-50/4"	DD = 105 pcf
20	Very dense, olive-brown, silty SAND (SM); moist, sand is fine to medium, micaceous, some iron oxide stains, some lamination.	349.0 / 18.0	DD	20-50/3"	DD = 101 pcf
25	Medium hard to hard (R3-R4), olive-gray CLAYSTONE; moderately weathered, moist (Scripps Formation (Tsc)).	344.0 / 23.0	DD	32-50/4"	DD = 100 pcf
30	Medium hard to hard (R3-R4), gray SANDSTONE; moderately weathered, moist.	339.0 / 28.0	DD	16-50/5"	DD = 110 pcf
35			DD	14-50/5"	DD = 101 pcf
40					

▲ BLOW COUNT ● MOISTURE CONTENT % RQD% CORE REC% (scale 0 – 50 – 100)

DRILLED BY: Martini Drilling LOGGED BY: A. Atry COMPLETED: 08/14/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

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BORING B-15

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FIGURE A-3

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT % RQD% CORE REC% (0 – 50 – 100)	INSTALLATION AND COMMENTS
40		(continued from previous page)		DD		9-39-50/3"	DD = 101 pcf
		Exploration completed at a depth of 41.3 feet. **Groundwater not encountered during drilling.** **Backfilled with bentonite grout.**	325.7 / 41.3				
45							
50							
55							
60							
65							
70							
75							
80							

DRILLED BY: Martini Drilling LOGGED BY: A. Atry COMPLETED: 08/14/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

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BORING B-15
(continued)

UCSD - PROPOSED TRITON PAVILION PROJECT
LA JOLLA, CA

FIGURE A-3

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	BLOW COUNT	INSTALLATION AND COMMENTS
0	PORTLAND CEMENT CONCRETE (4.5 inches).	357.0 / 356.6 / 0.4			Bulk sample collected from 0.0 to 5.0 feet.
	AGGREGATE BASE (2.0 inches).	356.5 / 0.5			
	Hard, dark brown, sandy CLAY (CL), some organics (tree roots); moist, clay has medium plasticity, sand is fine - **FILL**.	353.5 / 3.5	DD	56	DD = 116 pcf
5	Medium dense, olive-brown, silty SAND (SM); moist, sand is fine to medium, micaceous, trace iron oxide. very dense, decreased silt at 5.0 feet sand is fine at 7.5 feet		DD DS	12-24-50/5"	DD = 112 pcf
			DD	17-39-50/5"	DD = 97 pcf
10	Medium hard to hard (R3-R4), yellow-brown SANDSTONE; laminated, moderately weathered, moist (Scripps Formation (Tsc)).	347.5 / 9.5	DD	6-40-50/2"	DD = 98 pcf
15			DD	22-50/3"	DD = 98 pcf
20			DD	31-50/2"	DD = 109 pcf
25			DD	47-50/3"	DD = 97 pcf
	Exploration terminated at a depth of 28.0 feet. **Groundwater not encountered during drilling.** **Backfilled with bentonite grout.**	329.0 / 28.0		50/0"	

Legend: ▲ BLOW COUNT; ● MOISTURE CONTENT %; RQD%; CORE REC% (scale 0 – 50 – 100)

DRILLED BY: Martini Drilling LOGGED BY: A. Alzy COMPLETED: 05/14/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

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BORING B-16

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FIGURE A-4

Depth (feet)	Material Description	Elevation / Depth	Testing	Blow Count	Installation and Comments
0	Stiff, dark brown, sandy CLAY (CL), trace gravel and organics (roots); moist, sand is fine, gravel is coarse - **FILL**.	367.0			Bulk sample collected from 0.0 to 5.0 feet.
			DD CON	15	DD = 110 pcf
3.5	Stiff, gray, sandy SILT (ML); moist, sand is fine to medium, micaceous, trace iron oxide stains.	363.5 / 3.5			
4.5	Very dense, olive-brown, silty SAND (SM); moist, sand is fine to medium, micaceous, trace iron oxide stains.	362.5 / 4.5	DD	50/6"	DD = 108 pcf
7.0	Very dense, gray-brown SAND with silt (SP-SM); moist, sand is fine to medium, micaceous, trace iron oxide stains.	360.0 / 7.0	DD DS	17-38-50/4"	DD = 114 pcf
9.5	Dense, yellow-brown SAND (SP); moist, sand is medium to fine, micaceous.	357.5 / 9.5	DD	61	DD = 115 pcf
13.0	Very dense, olive-brown, silty SAND (SM); moist, sand is fine to medium, micaceous, some iron-oxide stains.	354.0 / 13.0	DD	29-50/4"	DD = 104 pcf
18.0	Medium hard to hard (R3-R4), yellow-brown SANDSTONE; laminated, moderately cemented, moderately weathered, moist (Scripps Formation (Tsc)).	349.0 / 18.0	DD	22-50/3"	DD = 107 pcf
			DD	9-50/6"	DD = 97 pcf
28.0	Medium hard to hard (R3-R4), olive-gray SILTSTONE; laminated, weakly cemented, moderately weathered, moist.	339.0 / 28.0	DD	9-50/5"	DD = 96 pcf
33.0	Medium hard to hard (R3-R4), gray with brown mottled SANDSTONE; laminated, weakly cemented, moderately weathered, moist.	334.0 / 33.0	DD	9-31-50/3"	DD = 95 pcf

Legend: ▲ BLOW COUNT ● MOISTURE CONTENT % RQD% CORE REC% (scale 0 – 50 – 100)

Depth scale: 0, 5, 10, 15, 20, 25, 30, 35, 40

DRILLED BY: Martini Drilling LOGGED BY: A. Atry COMPLETED: 06/15/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

BORING LOG PCL-14-01-B1-L17.GPJ GEODESIGN.GDT PRINT DATE: 9/17/19 KM

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BORING B-17

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LA JOLLA, CA

FIGURE A-5

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT % RQD% CORE REC% (0 – 50 – 100)	INSTALLATION AND COMMENTS
40		olive-gray at 40.0 feet	326.1 / 40.9	DD		12-50/5"	DD = 93 pcf
		Exploration completed at a depth of 40.9 feet.					
		Groundwater not encountered during drilling.					
		Backfilled with bentonite grout.					
45							
50							
55							
60							
65							
70							
75							
80							

DRILLED BY: Martini Drilling LOGGED BY: A. Atry COMPLETED: 05/15/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

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BORING B-17
(continued)

UCSD - PROPOSED TRITON PAVILION PROJECT
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FIGURE A-5

APPENDIX B
GEOTECHNICAL LABORATORY TEST RESULTS

APPENDIX B-1
GROUP DELTA GEOTECHNICAL LABORATORY TEST RESULTS (2017)

LABORATORY TEST PROCEDURES

Laboratory testing was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions and in the same locality. No warranty, express or implied, is made as to the correctness or serviceability of the test results, or the conclusions derived from these tests. Where a specific laboratory test method has been referenced, such as ASTM or Caltrans, the reference only applies to the specified laboratory test method, which has been used only as a guidance document for the general performance of the test and not as a "Test Standard". A brief description of the various tests performed for this project follows.

Classification: Soils were visually and manually classified in the field in accordance with the Unified Soil Classification System (USCS) following ASTM D 2488; soil classifications were modified as necessary based on testing in the laboratory in accordance with ASTM D 2487. The details of the soil classification system and Boring Records showing the classifications are presented in Appendix A.

Dry Density and Moisture Content: The dry density and in-situ moisture content of selected soil samples were determined in general accordance with ASTM D2937 & D2216. The results of the tests are presented on the Boring Records in Appendix A.

Particle Size Analysis: Determination of grain size distribution of soils was performed to separate particles into size ranges and to determine quantitatively the mass of particles in each range following ASTM D 6913. This test method uses a square opening sieve criterion in determining the gradation of soil between the 3-in. (75-mm) and No. 200 (75-µm) sieves. In cases where the gradation of particles smaller than No. 200 (75-µm) sieve is obtained, Test Method D7928 was used to determine the grain size distribution. In cases where only the percent of fine-grained soil (percent passing No. 200 sieve) is desired, ASTM D1140 was used. The results of grain size distribution tests are presented on the Boring Records in Appendix A and plotted in Figures B-1.1 through B-1.11.

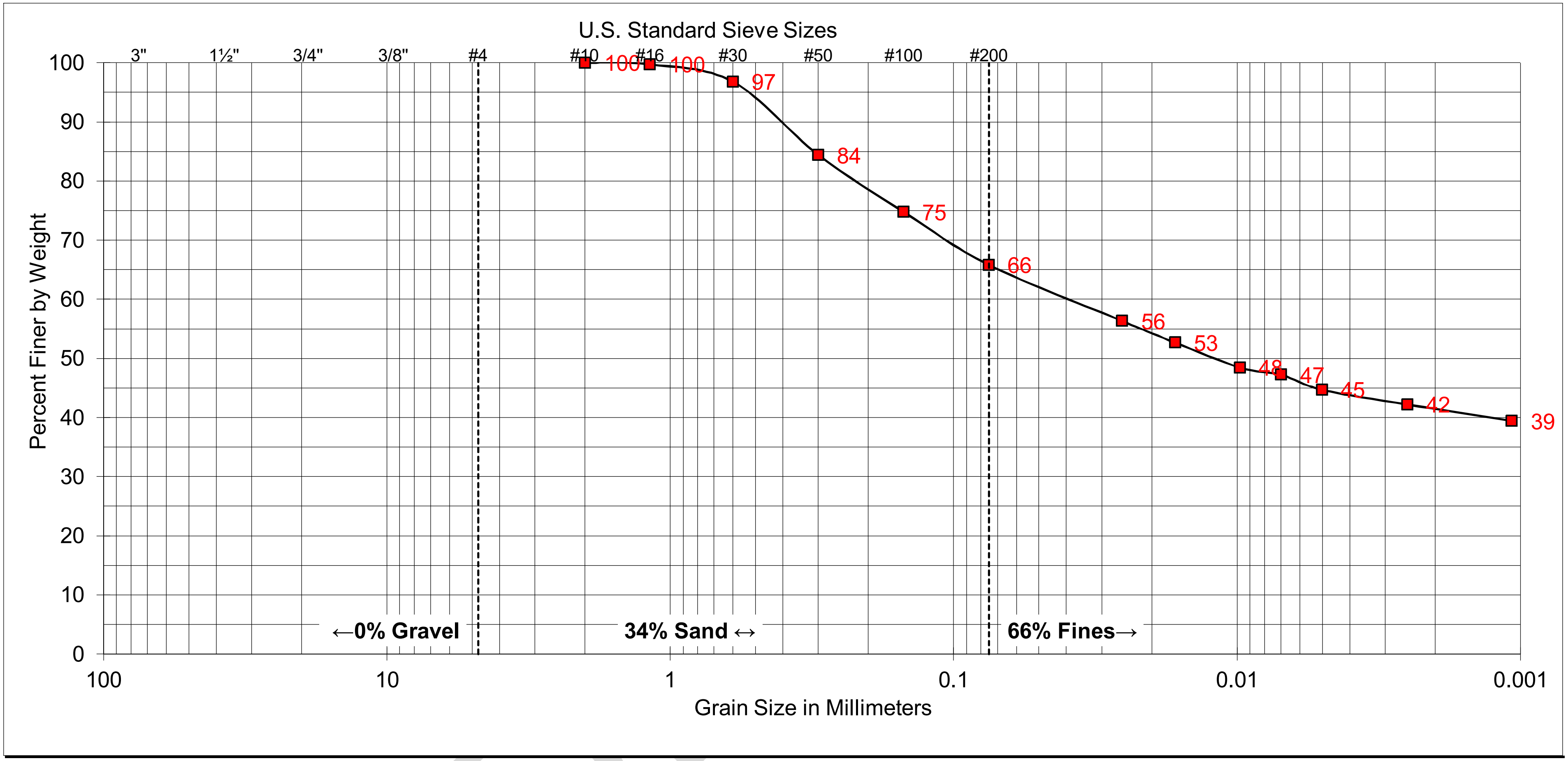
Atterberg Limits: Characterization of the fine-grained fractions of soils was evaluated using the Atterberg Limits. This test includes Liquid Limit (LL) and Plastic Limit (PL) tests to determine the Plasticity Index (PI) in accordance with ASTM D 4318. The results of the tests are presented on the boring records in Appendix A and with the associated gradation analyses in Figures B-1.1 through B-1.11.

Expansion Index: The expansion potential of selected soil samples was estimated in general accordance with the laboratory procedures outlined in ASTM test method D4829. The results of the tests are presented on the Boring Records in Appendix A and are summarized in Figure B-2. Figure B-2 also presents common criteria for evaluating the expansion potential based on the Expansion Index.

Corrosion Suite: To assess the potential for reactivity with buried metals, selected soil samples were tested for pH and minimum resistivity using Caltrans test method (CTM) 643. To assess the potential for reactivity with concrete, selected soil samples were tested for water soluble sulfate and chloride using CTM 417 and CTM 422. The corrosivity test results are summarized in Figure B-3.

Direct Shear: The shear strength of selected samples of the on-site soil was assessed using direct shear testing performed in general accordance with ASTM D3080. The test results are shown in Figures B-4.1 through B-4.4.

R-Value: R-Value test was performed on a selected sample of the on-site soils in general accordance with CTM 301. The test results are shown in Figures B-5.1 and B-5.2.



COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND
GRAVEL		SAND			CLAY

SAMPLE	
BORING NUMBER:	B-2
SAMPLE DEPTH:	4½' - 6½'

UNIFIED SOIL CLASSIFICATION: CH

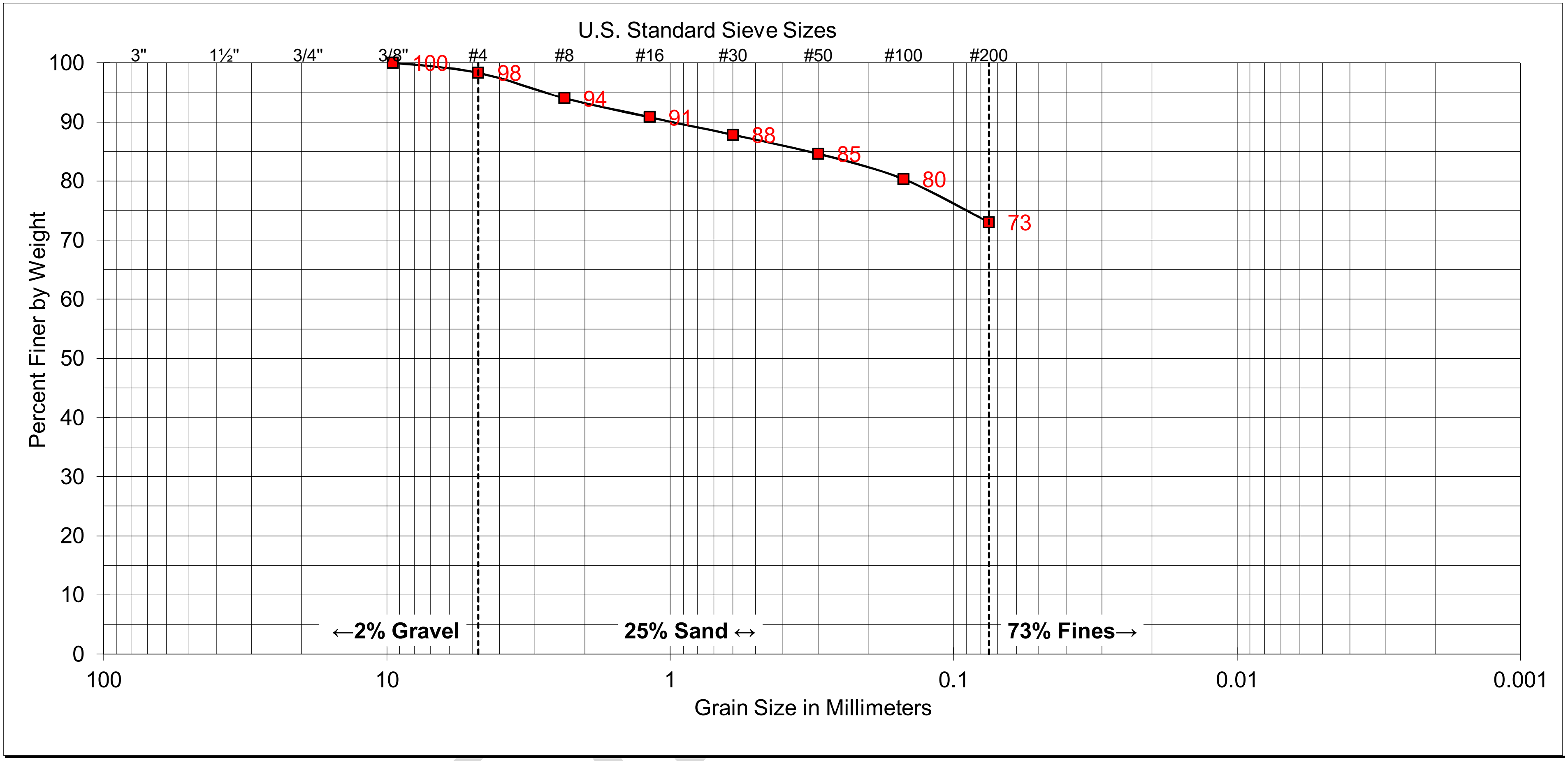
DESCRIPTION: SANDY FAT CLAY

ATTERBERG LIMITS	
LIQUID LIMIT:	55
PLASTIC LIMIT:	11
PLASTICITY INDEX:	44

GROUP DELTA

SOIL CLASSIFICATION

Document No. 17-0125
Project No. SD547
FIGURE B-1.1



COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY
GRAVEL		SAND			

SAMPLE	
BORING NUMBER:	B-2
SAMPLE DEPTH:	20½' - 21'

UNIFIED SOIL CLASSIFICATION: CH

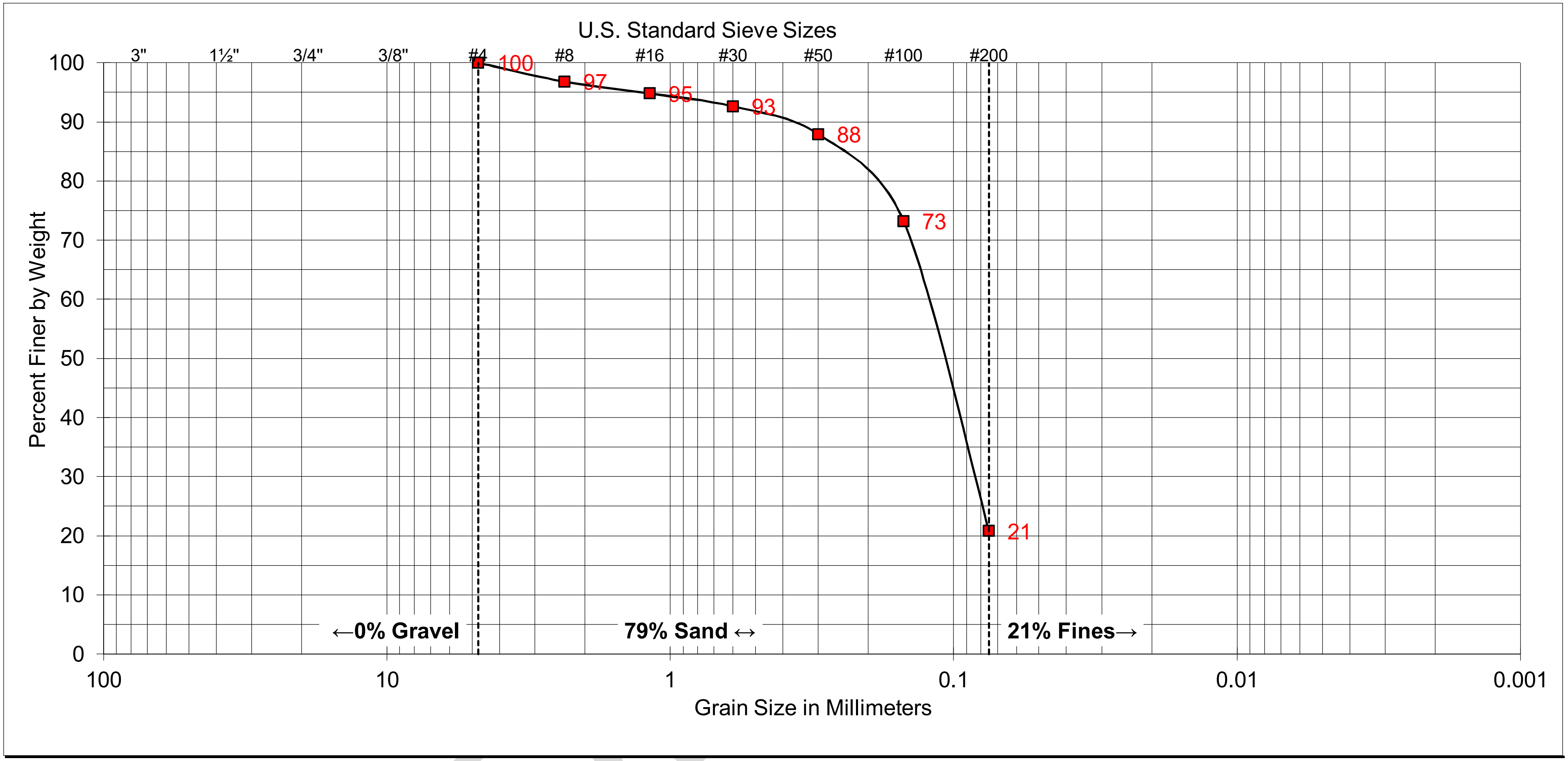
DESCRIPTION: FAT CLAY WITH SAND

ATTERBERG LIMITS	
LIQUID LIMIT:	58
PLASTIC LIMIT:	23
PLASTICITY INDEX:	35

GROUP DELTA

SOIL CLASSIFICATION

Document No. 17-0125
Project No. SD547
FIGURE B-1.2



COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND
GRAVEL		SAND			CLAY

SAMPLE	
BORING NUMBER:	B-3
SAMPLE DEPTH:	16' - 16½'

UNIFIED SOIL CLASSIFICATION: SM

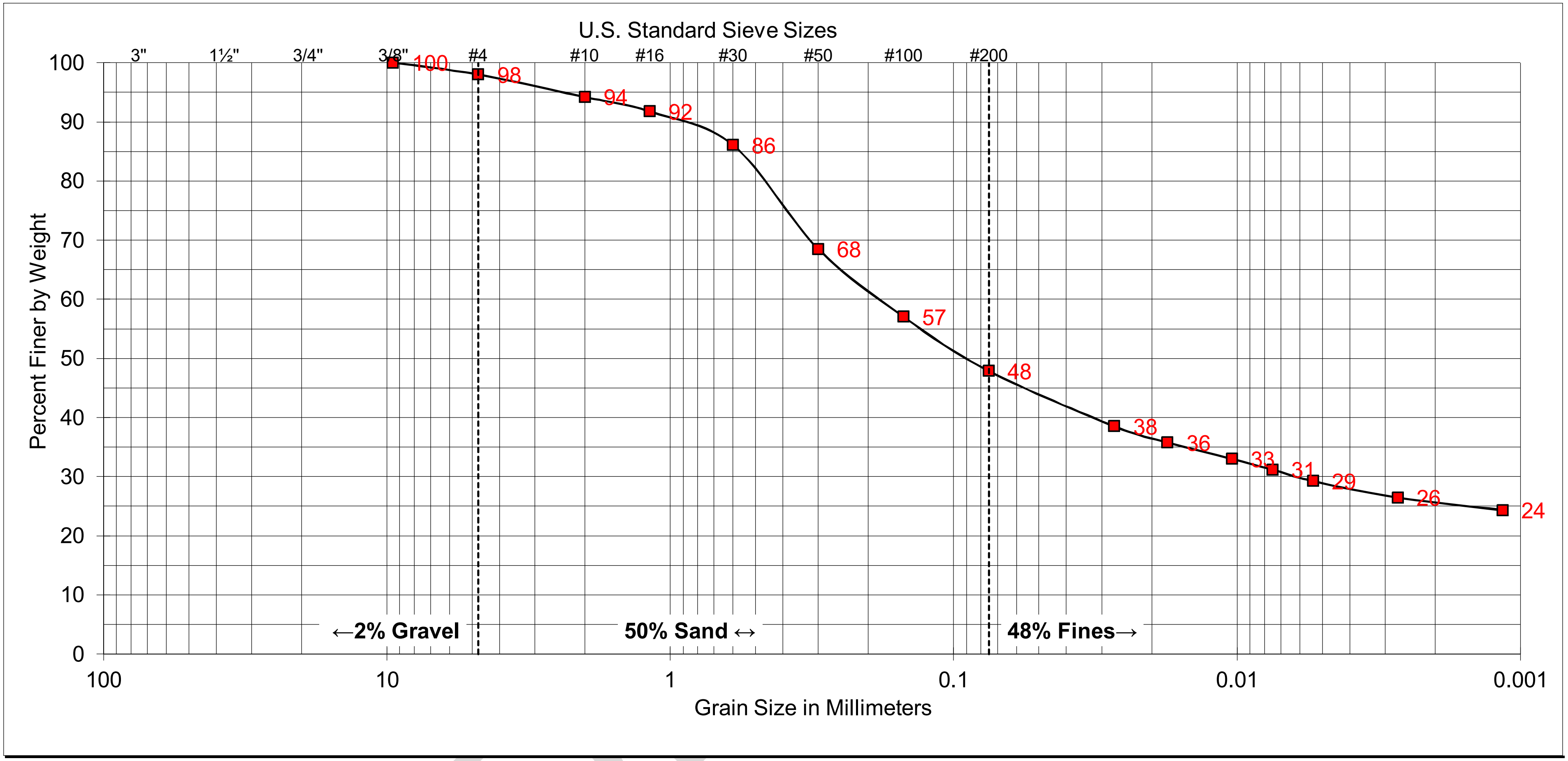
DESCRIPTION: SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT:	--
PLASTIC LIMIT:	--
PLASTICITY INDEX:	--

GROUP DELTA

SOIL CLASSIFICATION

Document No. 17-0125
Project No. SD547
FIGURE B-1.3



COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY
GRAVEL		SAND			

SAMPLE	
BORING NUMBER:	B-4
SAMPLE DEPTH:	½' - 3'

UNIFIED SOIL CLASSIFICATION: SC

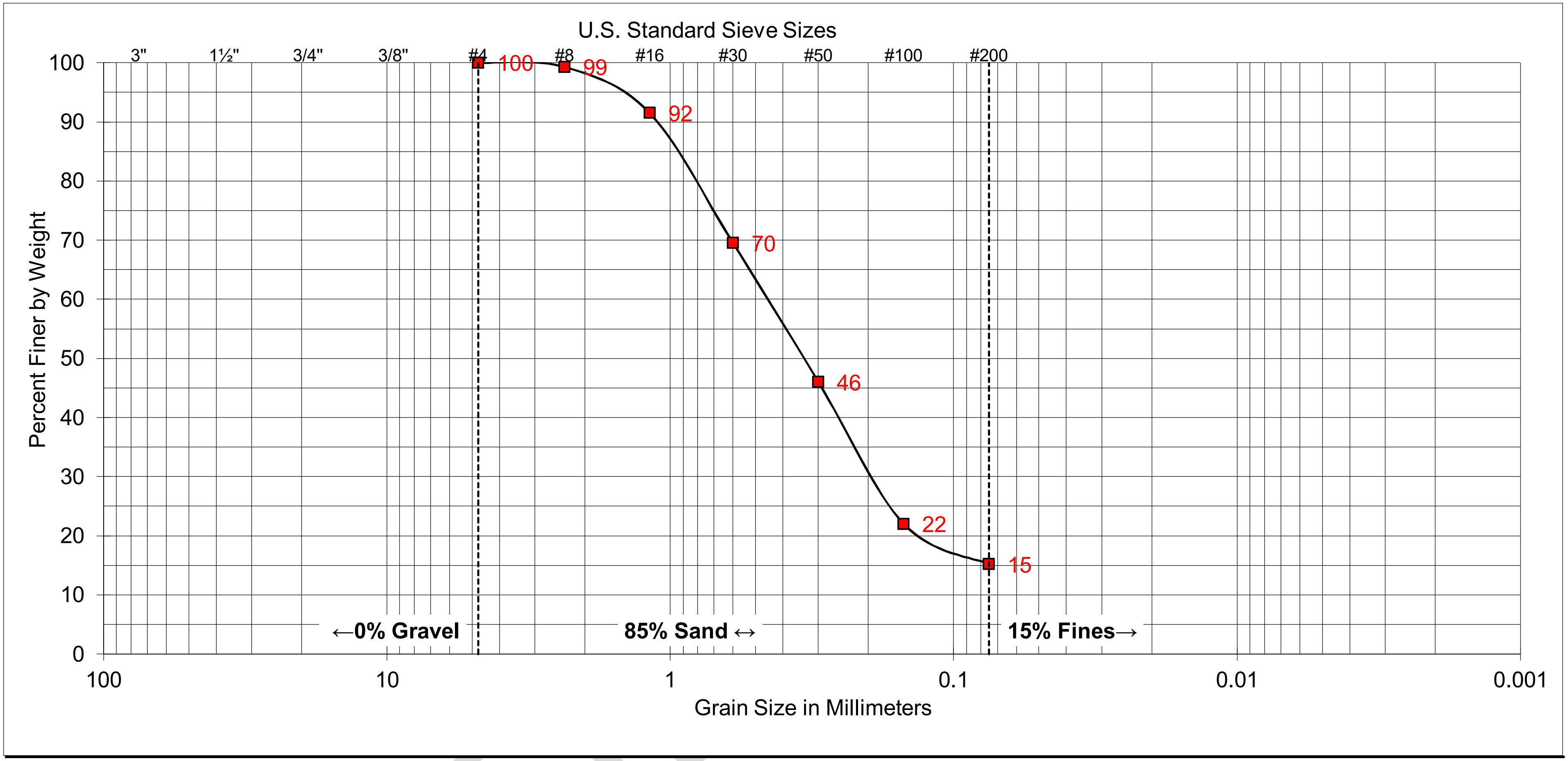
DESCRIPTION: CLAYEY SAND

ATTERBERG LIMITS	
LIQUID LIMIT:	38
PLASTIC LIMIT:	11
PLASTICITY INDEX:	27

GROUP DELTA

SOIL CLASSIFICATION

Document No. 17-0125
Project No. SD547
FIGURE B-1.4



GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

SAMPLE	
BORING NUMBER:	B-5
SAMPLE DEPTH:	15' - 16½'

UNIFIED SOIL CLASSIFICATION: SM

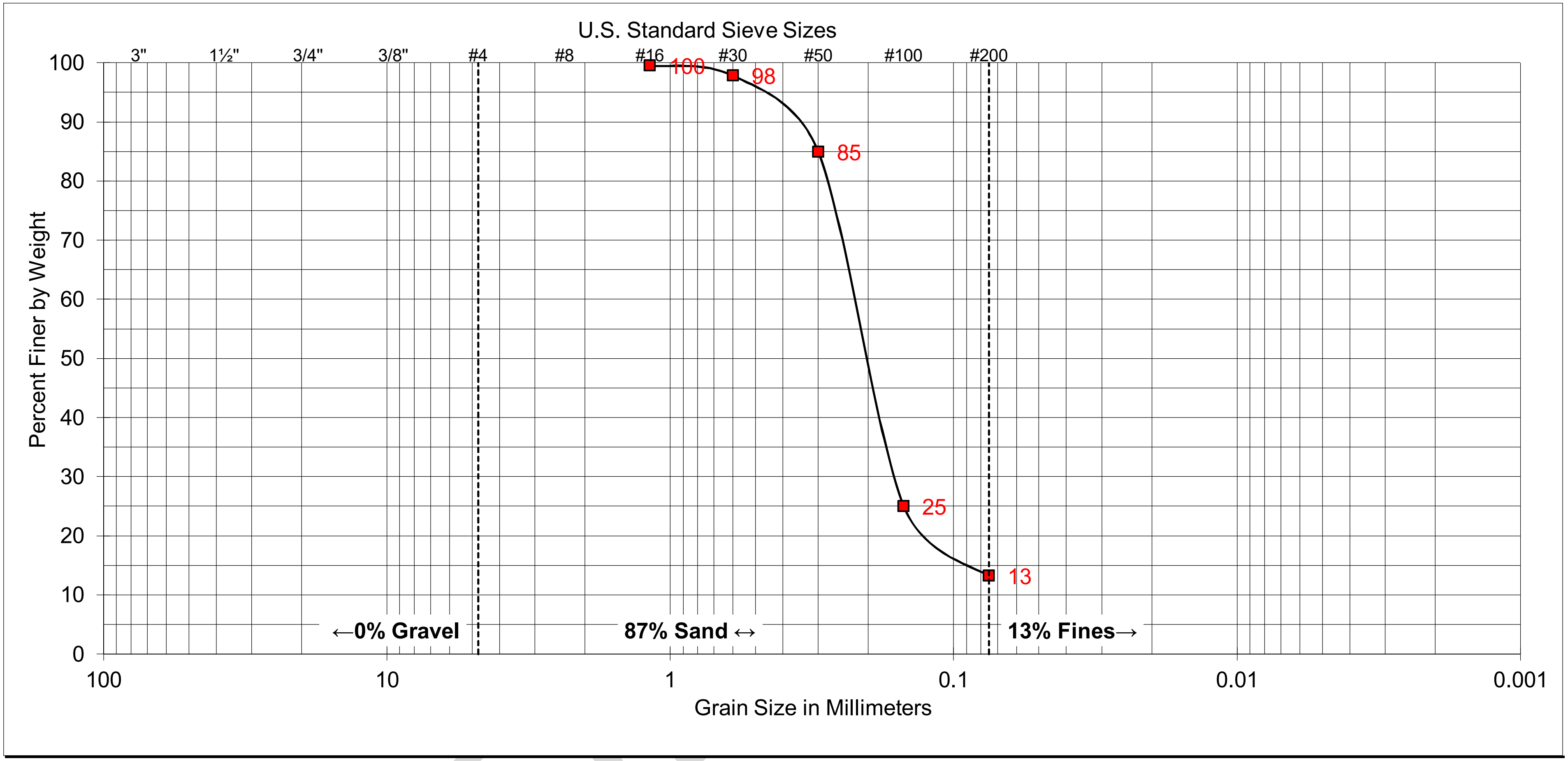
DESCRIPTION: SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT:	--
PLASTIC LIMIT:	--
PLASTICITY INDEX:	--

GROUP DELTA

SOIL CLASSIFICATION

Document No. 17-0125
Project No. SD547
FIGURE B-1.5



COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND
GRAVEL		SAND			CLAY

SAMPLE	
BORING NUMBER:	B-9
SAMPLE DEPTH:	10½' - 11'

UNIFIED SOIL CLASSIFICATION: SM

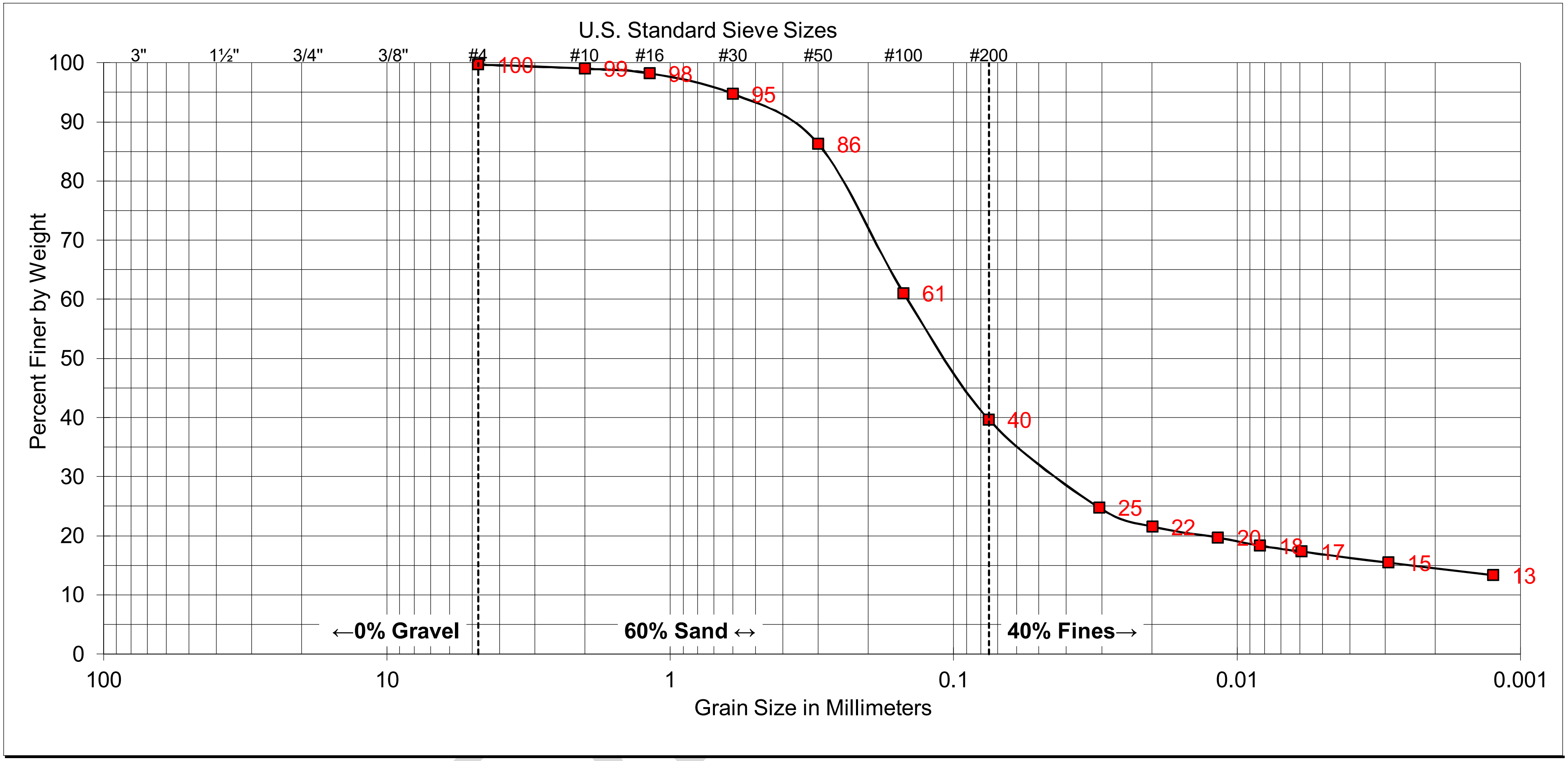
DESCRIPTION: SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT:	--
PLASTIC LIMIT:	--
PLASTICITY INDEX:	--

GROUP DELTA

SOIL CLASSIFICATION

Document No. 17-0125
Project No. SD547
FIGURE B-1.6



COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND
GRAVEL		SAND			CLAY

SAMPLE	
BORING NUMBER:	B-11
SAMPLE DEPTH:	5' - 6½'

UNIFIED SOIL CLASSIFICATION: SC

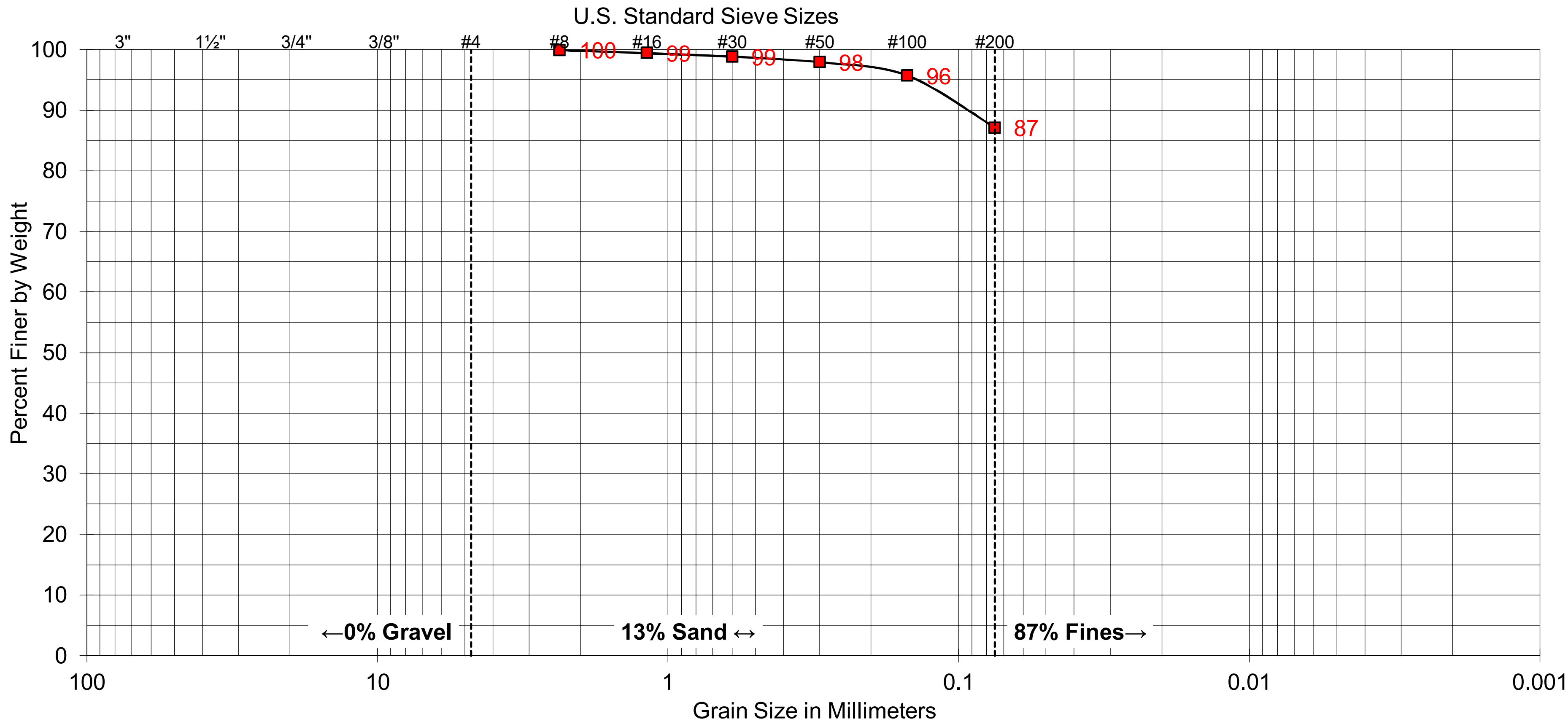
DESCRIPTION: CLAYEY SAND

ATTERBERG LIMITS	
LIQUID LIMIT:	27
PLASTIC LIMIT:	14
PLASTICITY INDEX:	13

GROUP DELTA

SOIL CLASSIFICATION

Document No. 17-0125
Project No. SD547
FIGURE B-1.7



COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND
GRAVEL		SAND			CLAY

SAMPLE	
BORING NUMBER:	B-11
SAMPLE DEPTH:	15' - 16½'

UNIFIED SOIL CLASSIFICATION: CH

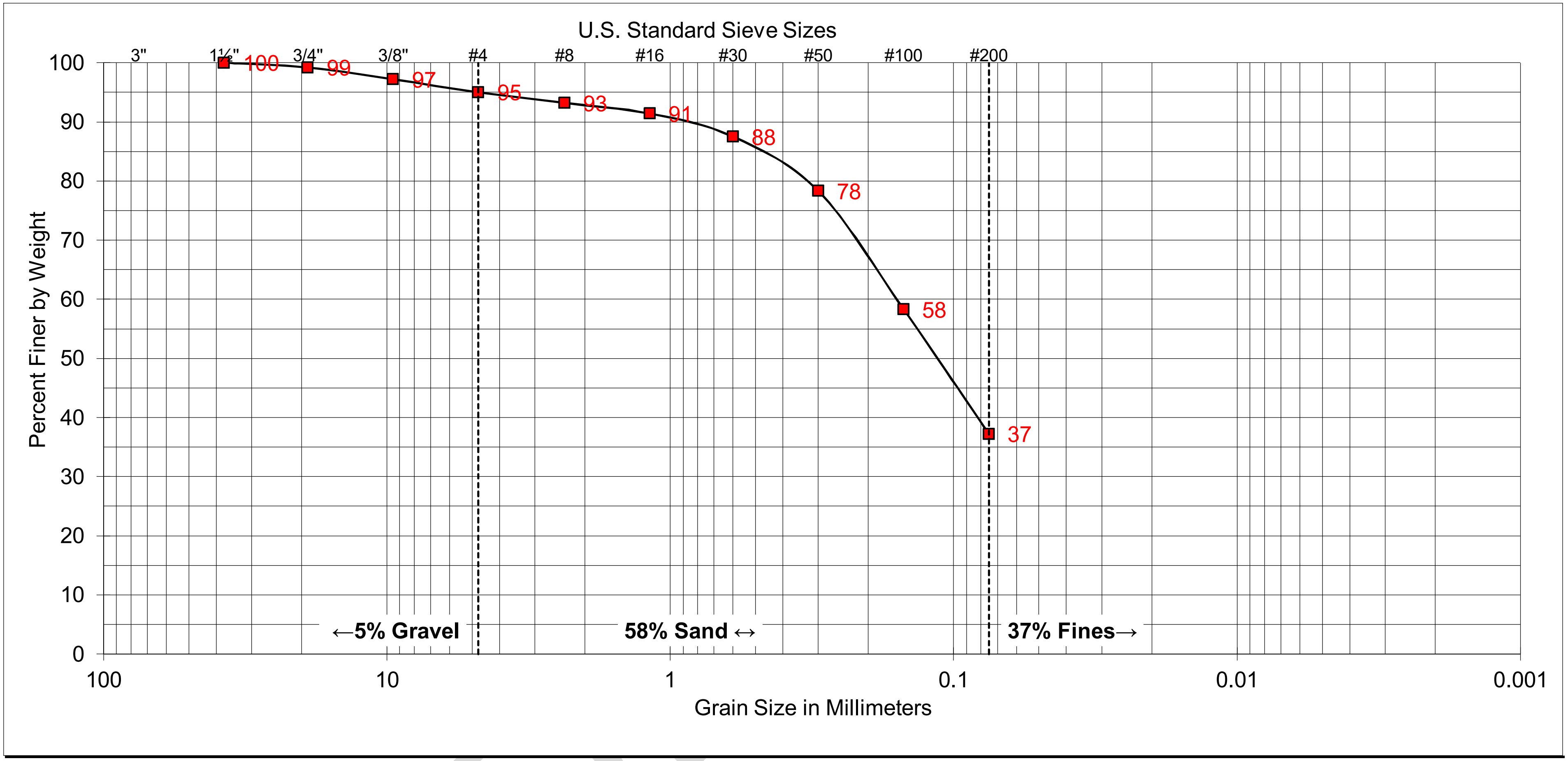
DESCRIPTION: FAT CLAY

ATTERBERG LIMITS	
LIQUID LIMIT:	60
PLASTIC LIMIT:	21
PLASTICITY INDEX:	39

GROUP DELTA

SOIL CLASSIFICATION

Document No. 17-0125
Project No. SD547
FIGURE B-1.8



COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY
GRAVEL		SAND			

SAMPLE	
BORING NUMBER:	B-12
SAMPLE DEPTH:	0 - 3½'

UNIFIED SOIL CLASSIFICATION: SC

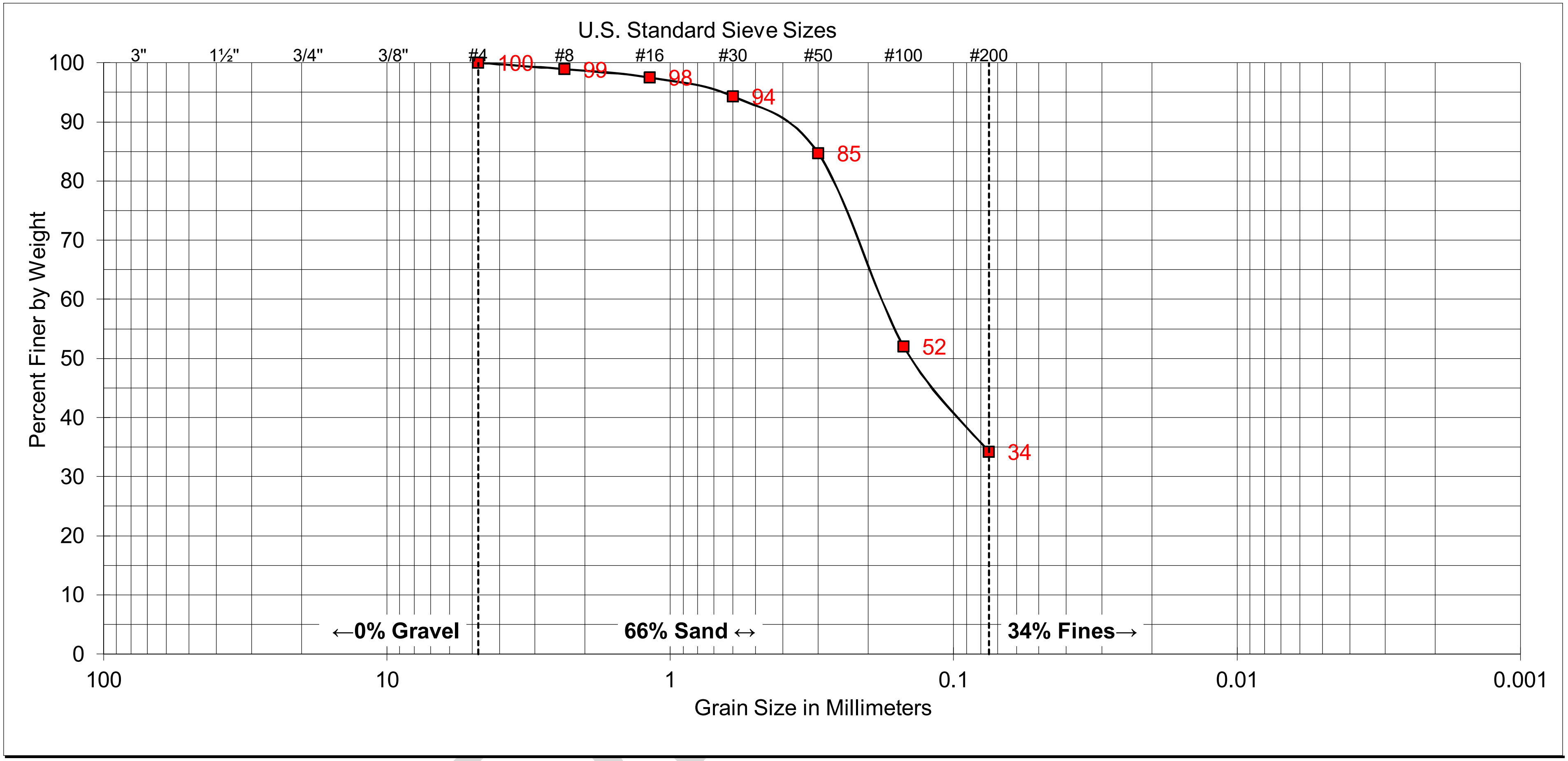
DESCRIPTION: CLAYEY SAND

ATTERBERG LIMITS	
LIQUID LIMIT:	--
PLASTIC LIMIT:	--
PLASTICITY INDEX:	--

GROUP DELTA

SOIL CLASSIFICATION

Document No. 17-0125
Project No. SD547
FIGURE B-1.9



COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY
GRAVEL		SAND			

SAMPLE	
BORING NUMBER:	I-1
SAMPLE DEPTH:	3½' - 5'

UNIFIED SOIL CLASSIFICATION: SC

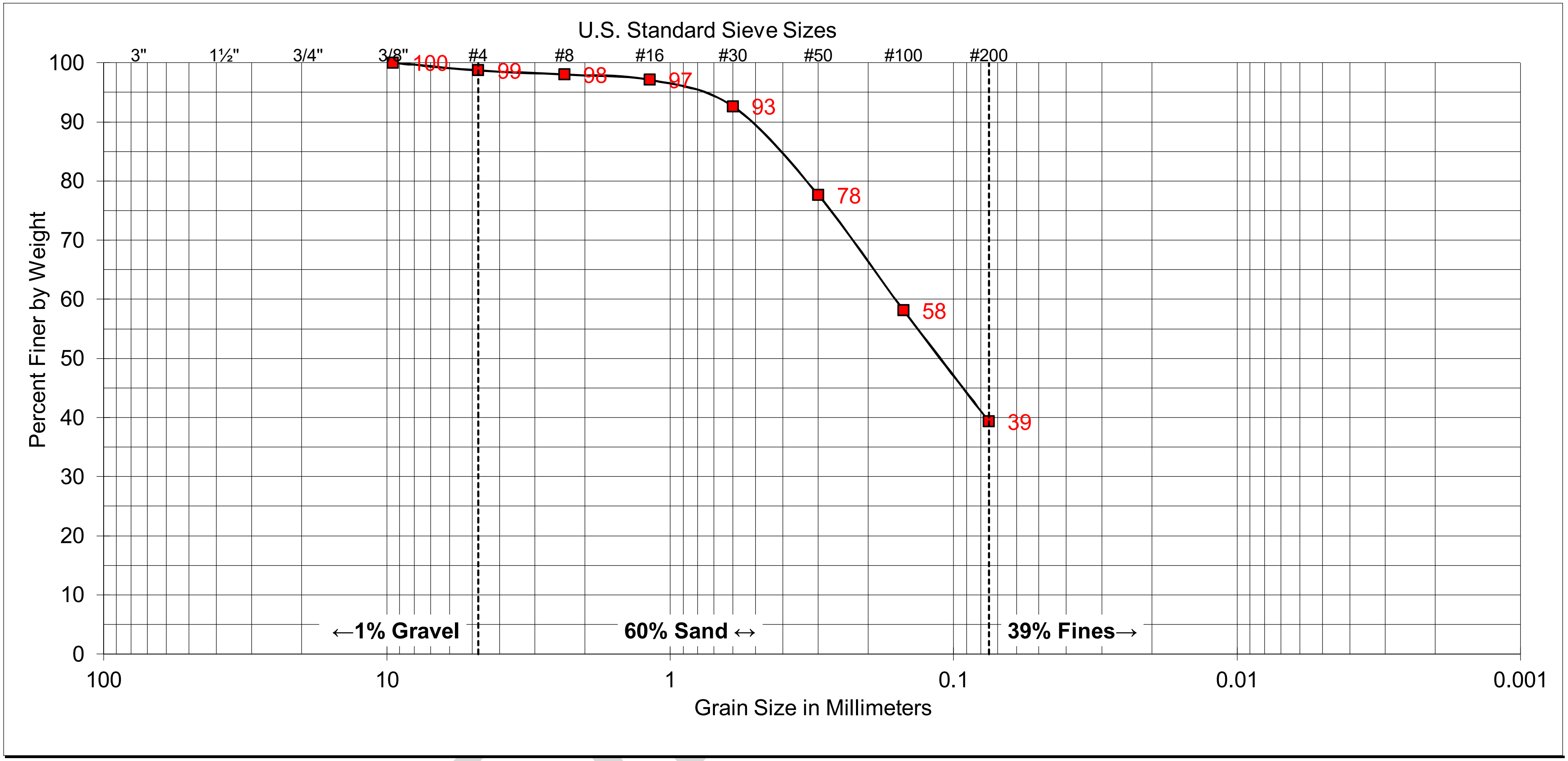
DESCRIPTION: CLAYEY SAND

ATTERBERG LIMITS	
LIQUID LIMIT:	--
PLASTIC LIMIT:	--
PLASTICITY INDEX:	--

GROUP DELTA

SOIL CLASSIFICATION

Document No. 17-0125
Project No. SD547
FIGURE B-1.10



GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

SAMPLE	
BORING NUMBER:	I-2
SAMPLE DEPTH:	3' - 5'

UNIFIED SOIL CLASSIFICATION: SM

DESCRIPTION: SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT:	--
PLASTIC LIMIT:	--
PLASTICITY INDEX:	--

GROUP DELTA

SOIL CLASSIFICATION

Document No. 17-0125
Project No. SD547
FIGURE B-1.11

EXPANSION TEST RESULTS
(ASTM D4829)

SAMPLE NO.	DESCRIPTION	EXPANSION INDEX
B-2 @ 4½' – 6½'	**Fill**: Gray sandy fat clay (CH)	104
B-4 @ ½' – 3'	**Fill**: Light gray brown clayey sand (SC)	69
B-11 @ 5' – 6½'	**Fill**: Dark brown clayey sand (SC)	24

EXPANSION INDEX	POTENTIAL EXPANSION
0 to 20	Very low
21 to 50	Low
51 to 90	Medium
91 to 130	High
Above 130	Very High

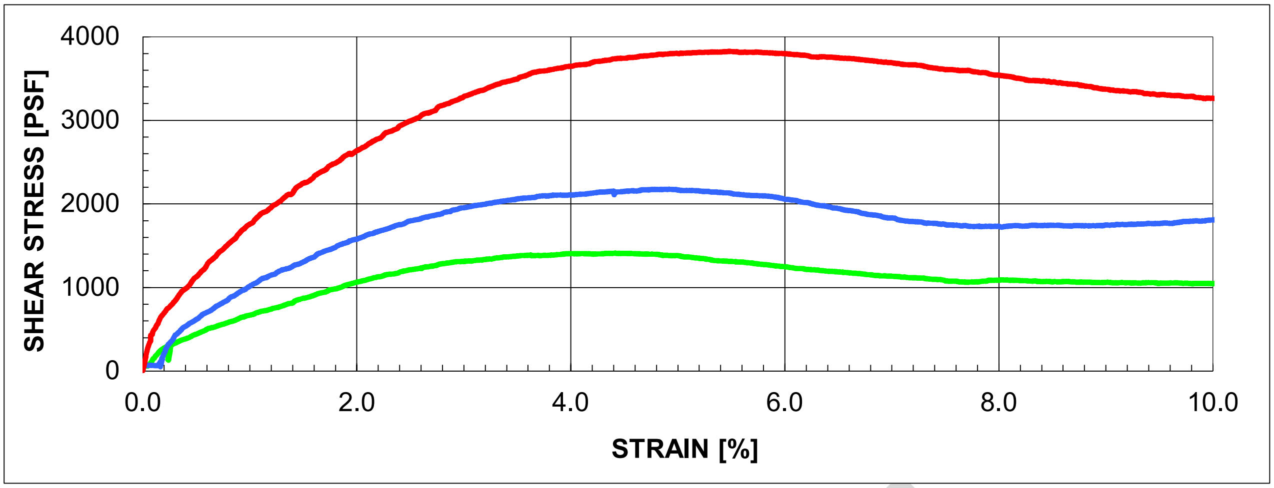
CORROSIVITY TEST RESULTS
(ASTM D516, CTM 643)

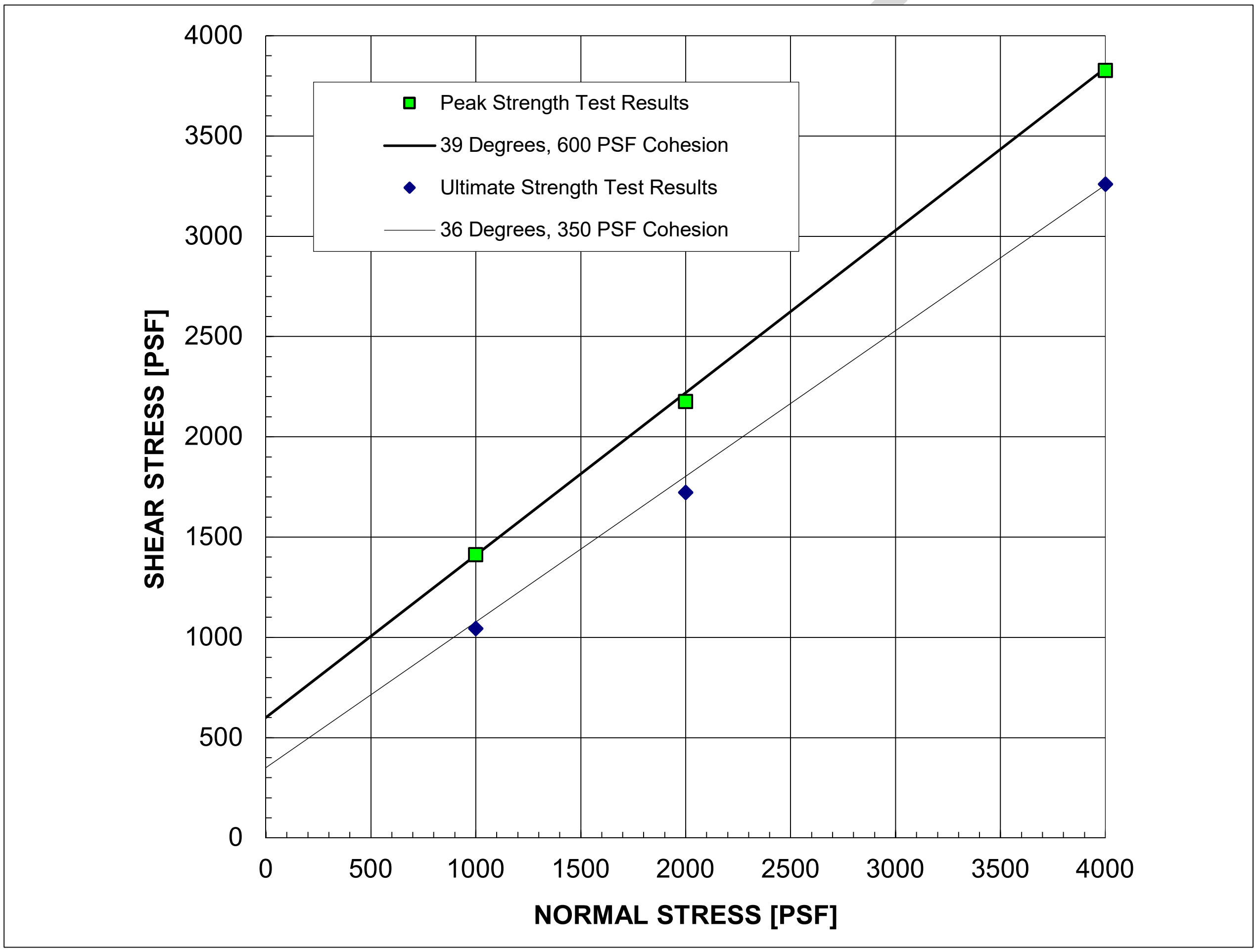
SAMPLE NO.	pH	RESISTIVITY [OHM-CM]	SULFATE CONTENT [%]	CHLORIDE CONTENT [%]
B-1 @ 20½' – 21'	7.8	520	0.06	0.04
B-2 @ ½' – 2'	7.0	1,280	< 0.01	0.01
B-5 @ ½' – 2'	8.0	490	< 0.01	0.01
B-9 @ ½' – 5'	7.4	550	0.04	< 0.01

SULFATE CONTENT [%]	SULFATE EXPOSURE	CEMENT TYPE
0.00 to 0.10	Negligible	-
0.10 to 0.20	Moderate	II, IP(MS), IS(MS)
0.20 to 2.00	Severe	V
Above 2.00	Very Severe	V plus pozzolan

SOIL RESISTIVITY	GENERAL DEGREE OF CORROSIVITY TO FERROUS
0 to 1,000	Very Corrosive
1,000 to 2,000	Corrosive
2,000 to 5,000	Moderately Corrosive
5,000 to 10,000	Mildly Corrosive
Above 10,000	Slightly Corrosive

CHLORIDE (Cl) CONTENT	GENERAL DEGREE OF
0.00 to 0.03	Negligible
0.03 to 0.15	Corrosive
Above 0.15	Severely Corrosive





SAMPLE: B-2 @ 10½' - 11'

Description: Yellowish brown silty sand (SM)

	PEAK	ULTIMATE
ϕ'	39 °	36 °
C'	600 PSF	350 PSF

STRAIN RATE: 0.0040 IN/MIN

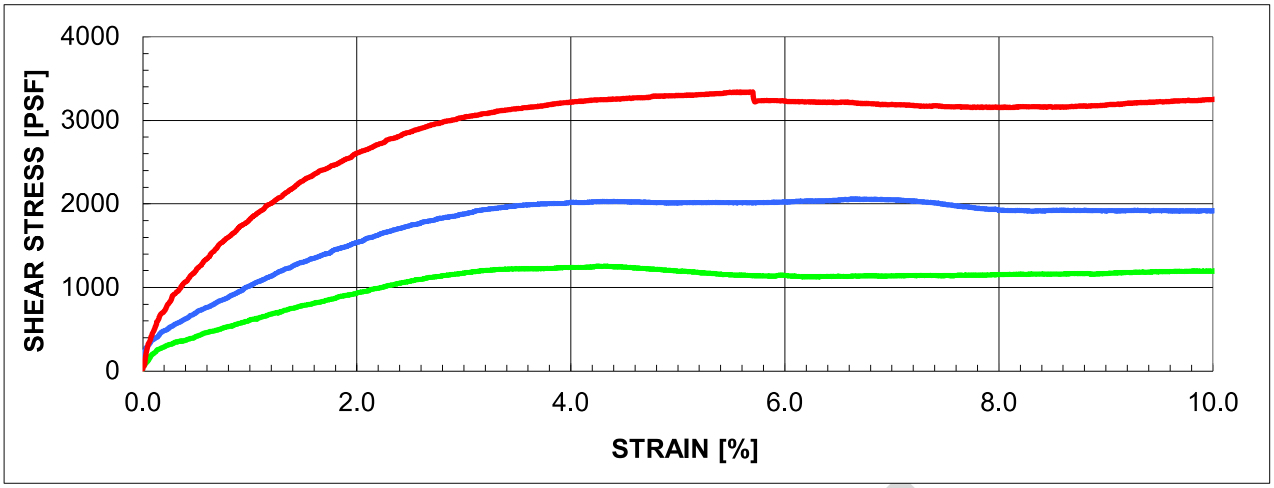
(Sample was consolidated and drained)

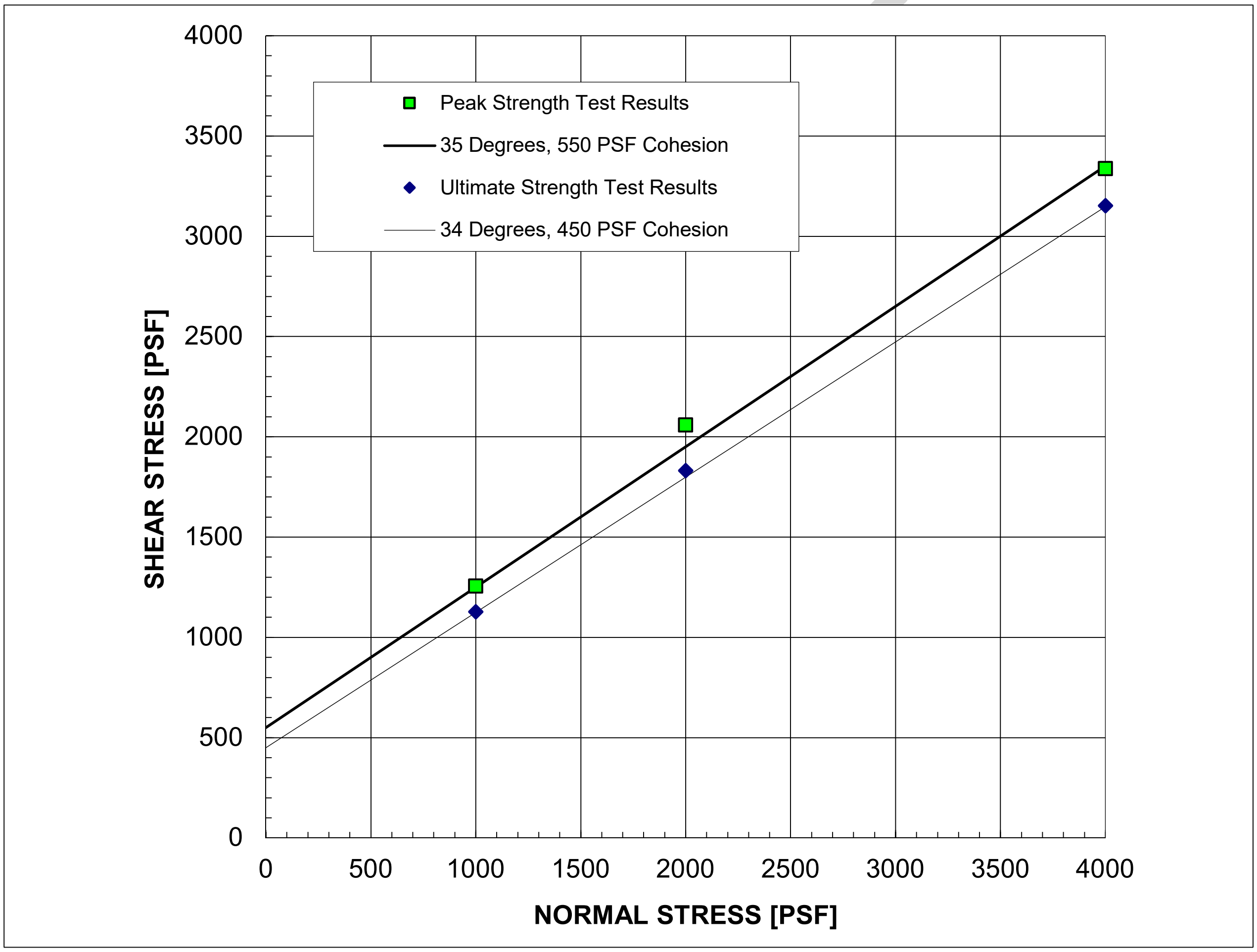
	IN-SITU	AS-TESTED
γ_d	104.1 PCF	104.1 PCF
w_c	8.9 %	16.9 %

GROUP DELTA

DIRECT SHEAR TEST RESULTS

Document No. 17-0125
Project No. SD547
FIGURE B-4.1





SAMPLE: B-3 @ 16' - 16½'

	PEAK	ULTIMATE
ϕ'	35 °	34 °
C'	550 PSF	450 PSF

Description:
Yellowish brown silty sand (SM)

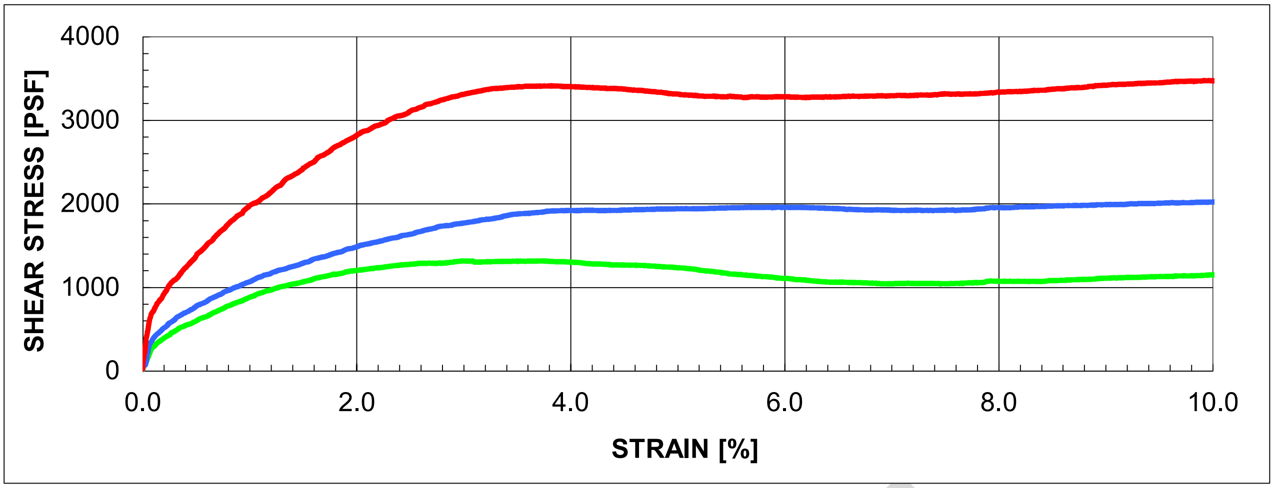
STRAIN RATE: 0.0040 IN/MIN
(Sample was consolidated and drained)

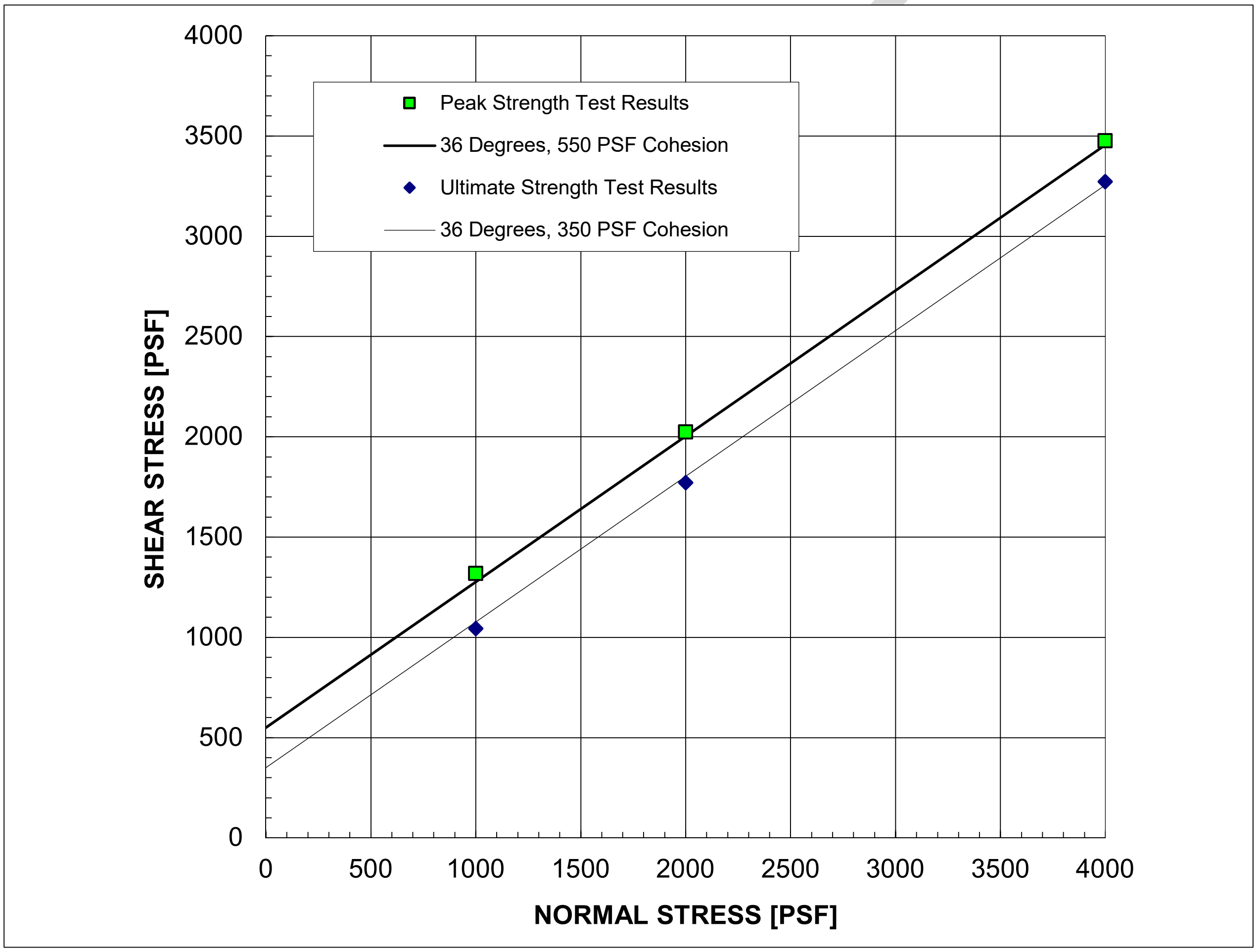
	IN-SITU	AS-TESTED
γ_d	93.7 PCF	93.7 PCF
w_c	16.7 %	23.2 %

GROUP DELTA

DIRECT SHEAR TEST RESULTS

Document No. 17-0125
Project No. SD547
FIGURE B-4.2





SAMPLE: B-8 @ 6' - 6½'

Description:
Yellowish brown silty sand (SM)

	PEAK	ULTIMATE
φ'	36 °	36 °
C'	550 PSF	350 PSF

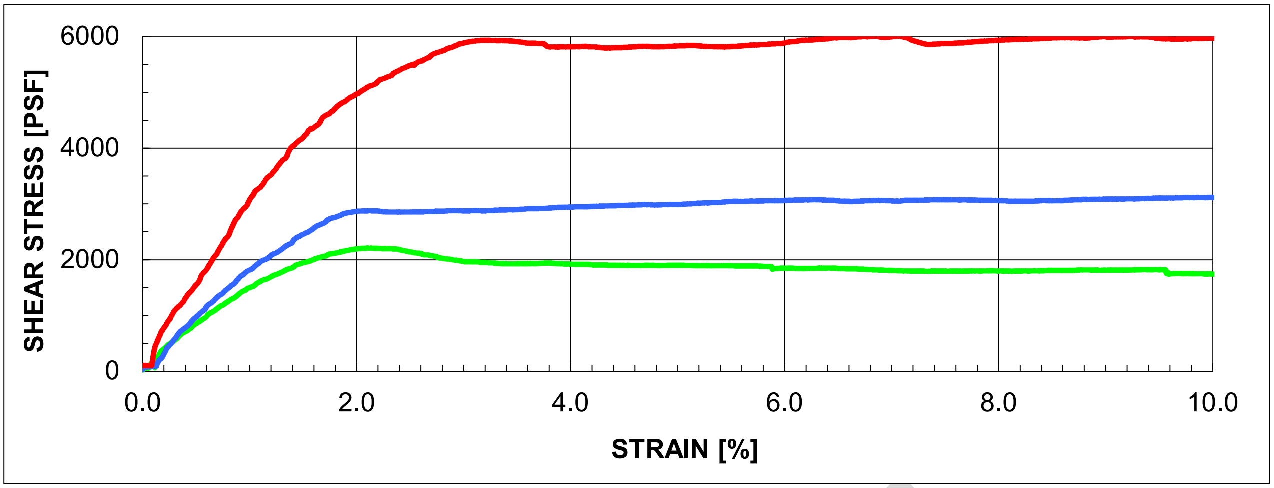
STRAIN RATE: 0.0030 IN/MIN
(Sample was consolidated and drained)

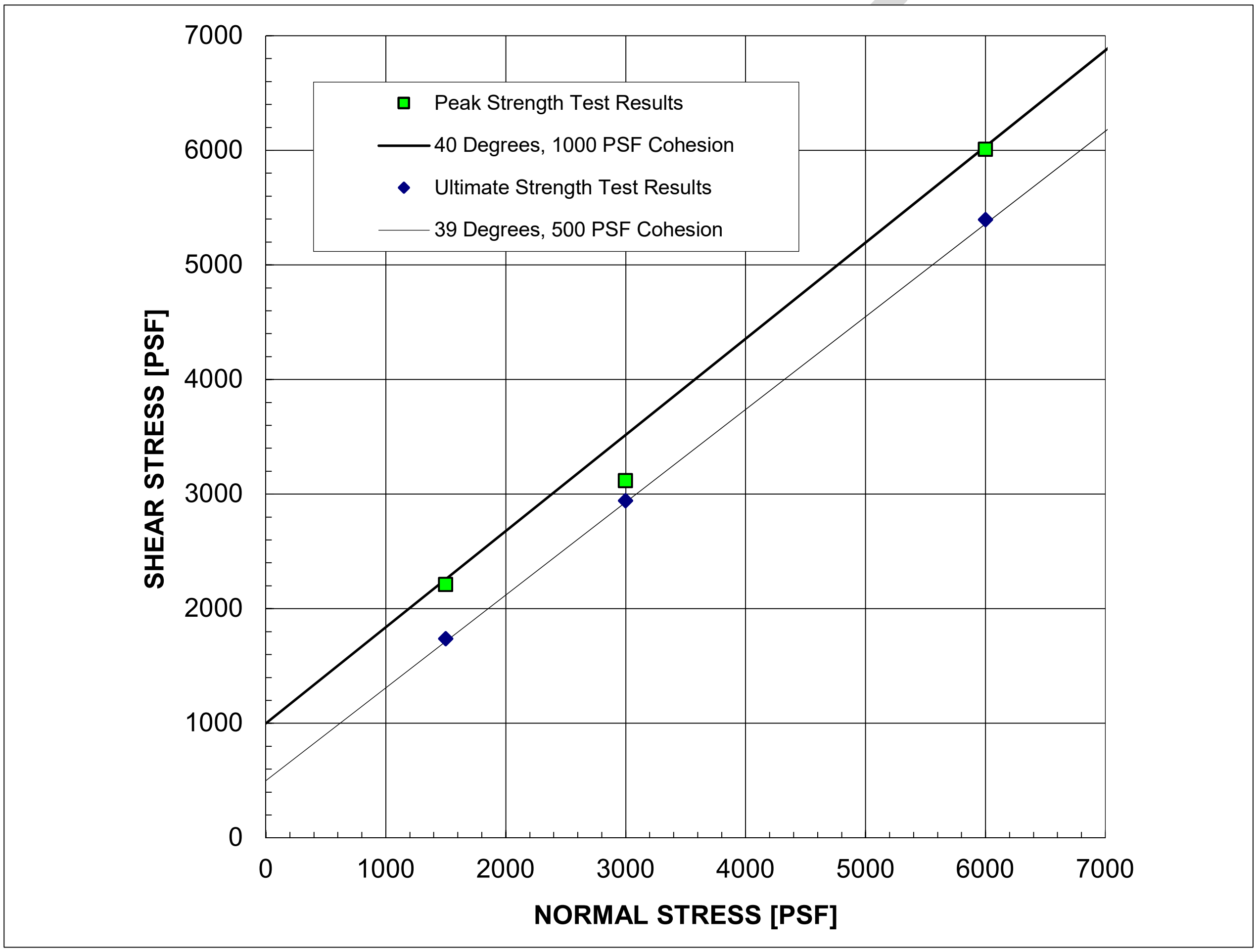
	IN-SITU	AS-TESTED
γ_d	109.5 PCF	109.5 PCF
w_c	9.0 %	19.9 %

GROUP DELTA

DIRECT SHEAR TEST RESULTS

Document No. 17-0125
Project No. SD547
FIGURE B-4.3





SAMPLE: B-11 @ 20½' - 21'

Description:
Yellow and gray brown fat clay (CH)

STRAIN RATE: 0.0030 IN/MIN

(Sample was consolidated and drained)

	PEAK	ULTIMATE
ϕ'	40 °	39 °
C'	1,000 PSF	500 PSF

	IN-SITU	AS-TESTED
γ_d	101.7 PCF	101.7 PCF
w_c	19.5 %	24.3 %

GROUP DELTA

DIRECT SHEAR TEST RESULTS

Document No. 17-0125
Project No. SD547
FIGURE B-4.4

BORING NO.: B-4 **SAMPLE DATE:** 9/25/17

BORING DEPTH: ½' - 3' **TEST DATE:** 10/12/17

SAMPLE DESCRIPTION: Dark reddish brown clayey sand (SC)

LABORATORY TEST DATA

	TEST SPECIMEN	**1**	**2**	**3**	**4**	**5**	
A	COMPACTOR PRESSURE	40					[PSI]
B	INITIAL MOISTURE	2.4					[%]
C	BATCH SOIL WEIGHT	1200					[G]
D	WATER ADDED	150					[ML]
E	WATER ADDED (D*(100+B)/C)	12.8					[%]
F	COMPACTION MOISTURE (B+E)	15.2					[%]
G	MOLD WEIGHT	2111.7					[G]
H	TOTAL BRIQUETTE WEIGHT						[G]
I	NET BRIQUETTE WEIGHT (H-G)						[G]
J	BRIQUETTE HEIGHT						[IN]
K	DRY DENSITY (30.3*I/((100+F)*J))						[PCF]
L	EXUDATION LOAD	9000+					[LB]
M	EXUDATION PRESSURE (L/12.54)						[PSI]
N	STABILOMETER AT 1000 LBS						[PSI]
O	STABILOMETER AT 2000 LBS						[PSI]
P	DISPLACEMENT FOR 100 PSI						[Turns]
Q	R VALUE BY STABILOMETER						
R	CORRECTED R-VALUE (See Fig. 14)						
S	EXPANSION DIAL READING						[IN]
T	EXPANSION PRESSURE (S*43,300)						[PSF]
U	COVER BY STABILOMETER						[FT]
V	COVER BY EXPANSION						[FT]

TRAFFIC INDEX:	5.0
GRAVEL FACTOR:	1.43
UNIT WEIGHT OF COVER [PCF]:	130
R-VALUE BY EXUDATION:	<5
R-VALUE BY EXPANSION:	<5
R-VALUE AT EQUILIBRIUM:	<5

NOTE: Section B.4k of CT301 states that: "Occasionally, material from exceptionally heavy clay test specimens will extrude from under the mold and around the follower ram during the loading operation. If this occurs when the 5520 kPa point is reached and less than 5 lights are lit, this should be noted and the soil should be reported as R-Value < 5."

*Note: Gravel factor estimated from required AC pavement section using CT301, Part 6.B.2.

GROUP DELTA **R-VALUE TEST RESULTS**

Document No. 17-0125
Project No. SD547
FIGURE B-5.1

BORING NO.:	B-12	**SAMPLE DATE:**	9/25/17
BORING DEPTH:	0' - 3½'	**TEST DATE:**	10/13/17
SAMPLE DESCRIPTION:	Dark yellowish brown clayey sand (SC)		

LABORATORY TEST DATA

	TEST SPECIMEN	1	2	3	4	5	
A	COMPACTOR PRESSURE	100	125	200			[PSI]
B	INITIAL MOISTURE	3.1	3.1	3.1			[%]
C	BATCH SOIL WEIGHT	1200	1200	1200			[G]
D	WATER ADDED	135	123	110			[ML]
E	WATER ADDED (D*(100+B)/C)	11.6	10.6	9.5			[%]
F	COMPACTION MOISTURE (B+E)	14.7	13.7	12.6			[%]
G	MOLD WEIGHT	2114.2	2108.6	2100.3			[G]
H	TOTAL BRIQUETTE WEIGHT	3259.4	3276.6	3180.5			[G]
I	NET BRIQUETTE WEIGHT (H-G)	1145.2	1168.0	1080.2			[G]
J	BRIQUETTE HEIGHT	2.62	2.64	2.41			[IN]
K	DRY DENSITY (30.3*I/((100+F)*J))	115.5	117.9	120.7			[PCF]
L	EXUDATION LOAD	3271	4202	7010			[LB]
M	EXUDATION PRESSURE (L/12.54)	261	335	559			[PSI]
N	STABILOMETER AT 1000 LBS	64	51	38			[PSI]
O	STABILOMETER AT 2000 LBS	137	124	96			[PSI]
P	DISPLACEMENT FOR 100 PSI	5.07	4.67	3.60			[Turns]
Q	R VALUE BY STABILOMETER	8	13	32			
R	CORRECTED R-VALUE (See Fig. 14)	9	14	30			
S	EXPANSION DIAL READING	0.0004	0.0011	0.0040			[IN]
T	EXPANSION PRESSURE (S*43,300)	17	48	173			[PSF]
U	COVER BY STABILOMETER	0.86	0.81	0.66			[FT]
V	COVER BY EXPANSION	0.13	0.37	1.33			[FT]

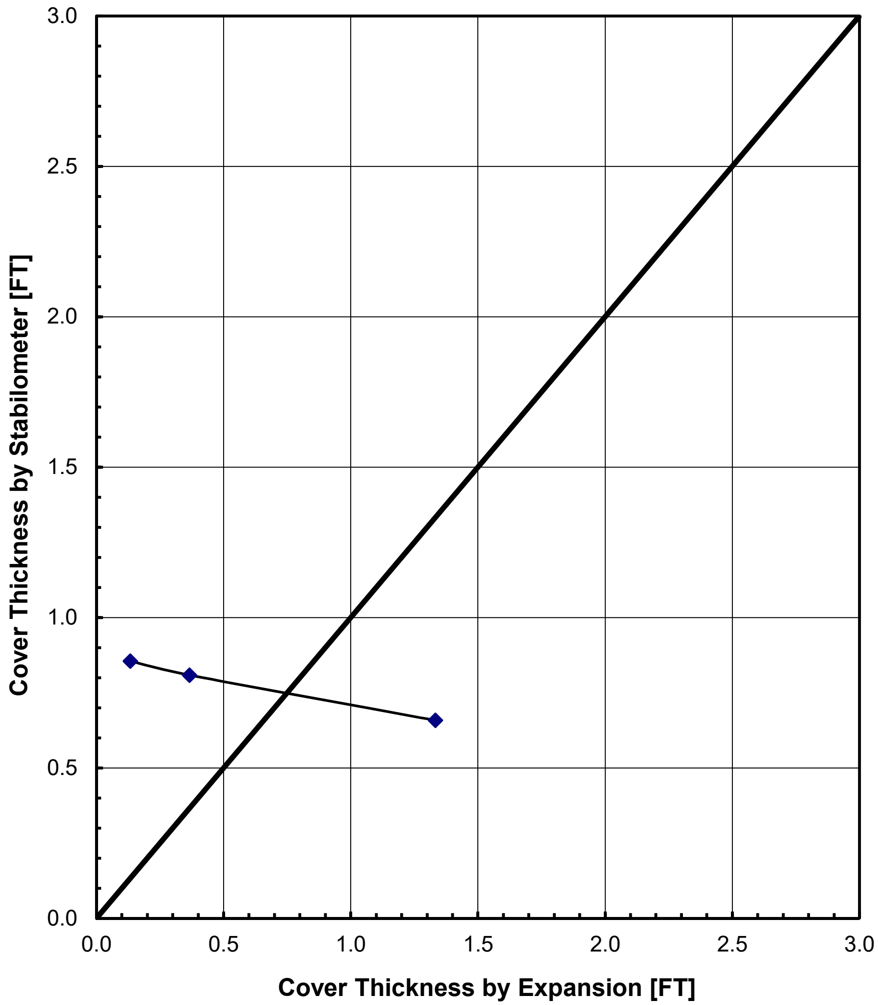
TRAFFIC INDEX:	5.0
GRAVEL FACTOR:	1.46
UNIT WEIGHT OF COVER [PCF]:	130
R-VALUE BY EXUDATION:	12
R-VALUE BY EXPANSION:	22
R-VALUE AT EQUILIBRIUM:	12

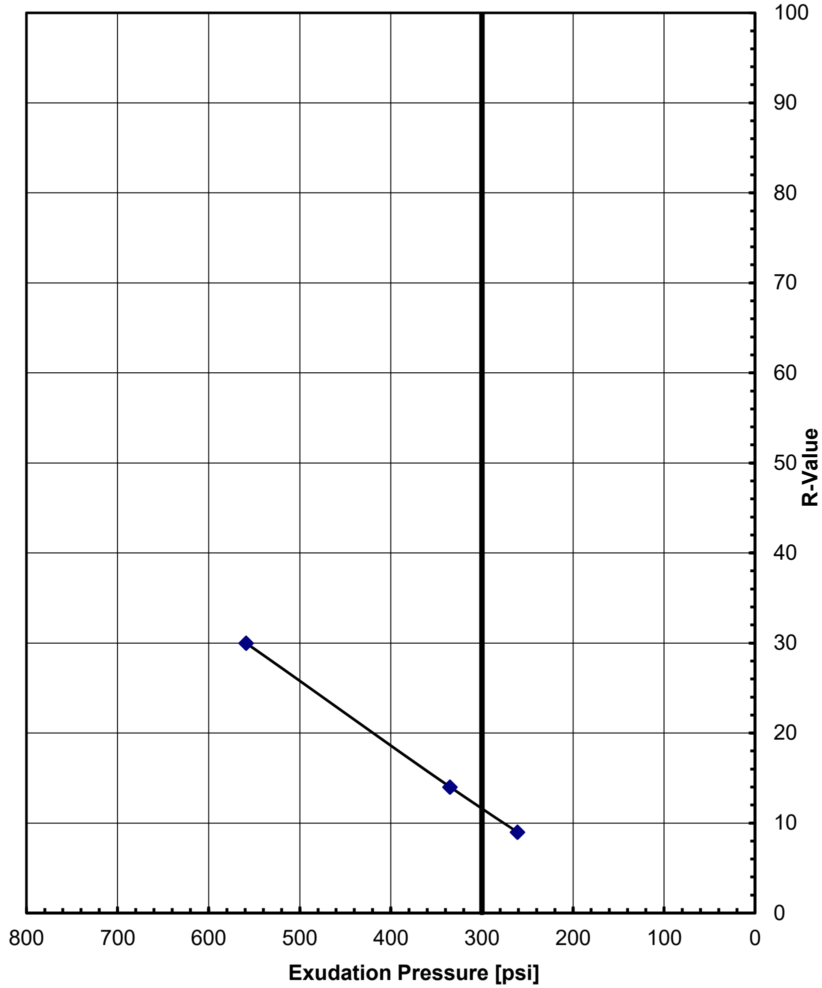
*Note: Gravel factor estimated from pavement section using CTM 301, Section C, Part b.

REV. 2, DATED 1/31/15

Sample: B-12 @ 0' - 3½'

R-Value at Equilibrium: 12



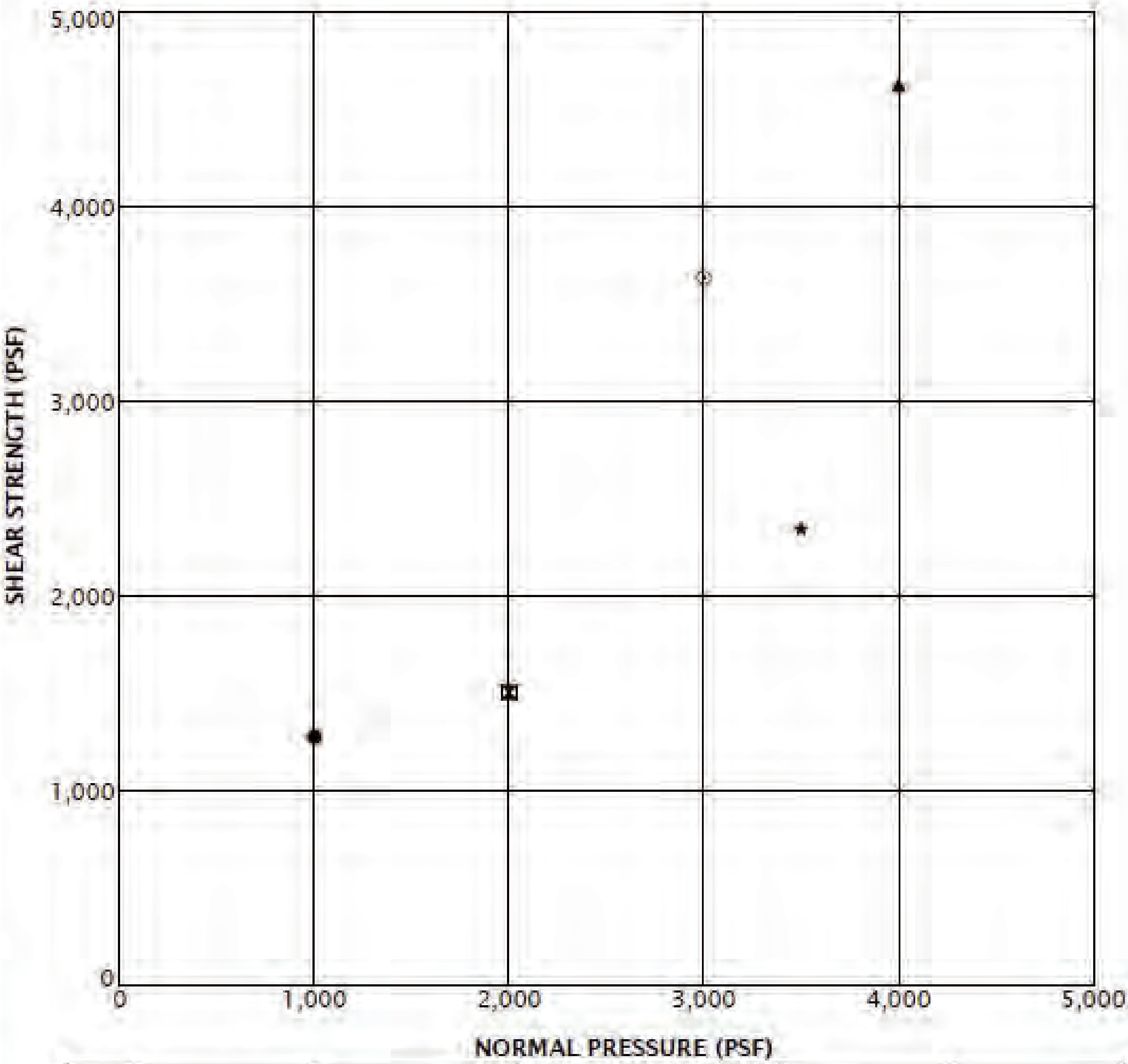


GROUP DELTA

COVER AND EXUDATION CHARTS

Document No. 17-0125
Project No. SD547
FIGURE B-5.2b

APPENDIX B-2
GEODESIGN GEOTECHNICAL LABORATORY TEST RESULTS (2019)



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SOAKED
●	B-13	5.0	8	105	YES
⊠	B-14	2.5	26	102	YES
▲	B-15	7.5	14	114	YES
★	B-16	5.0	11	112	YES
⊙	B-17	7.5	15	114	YES

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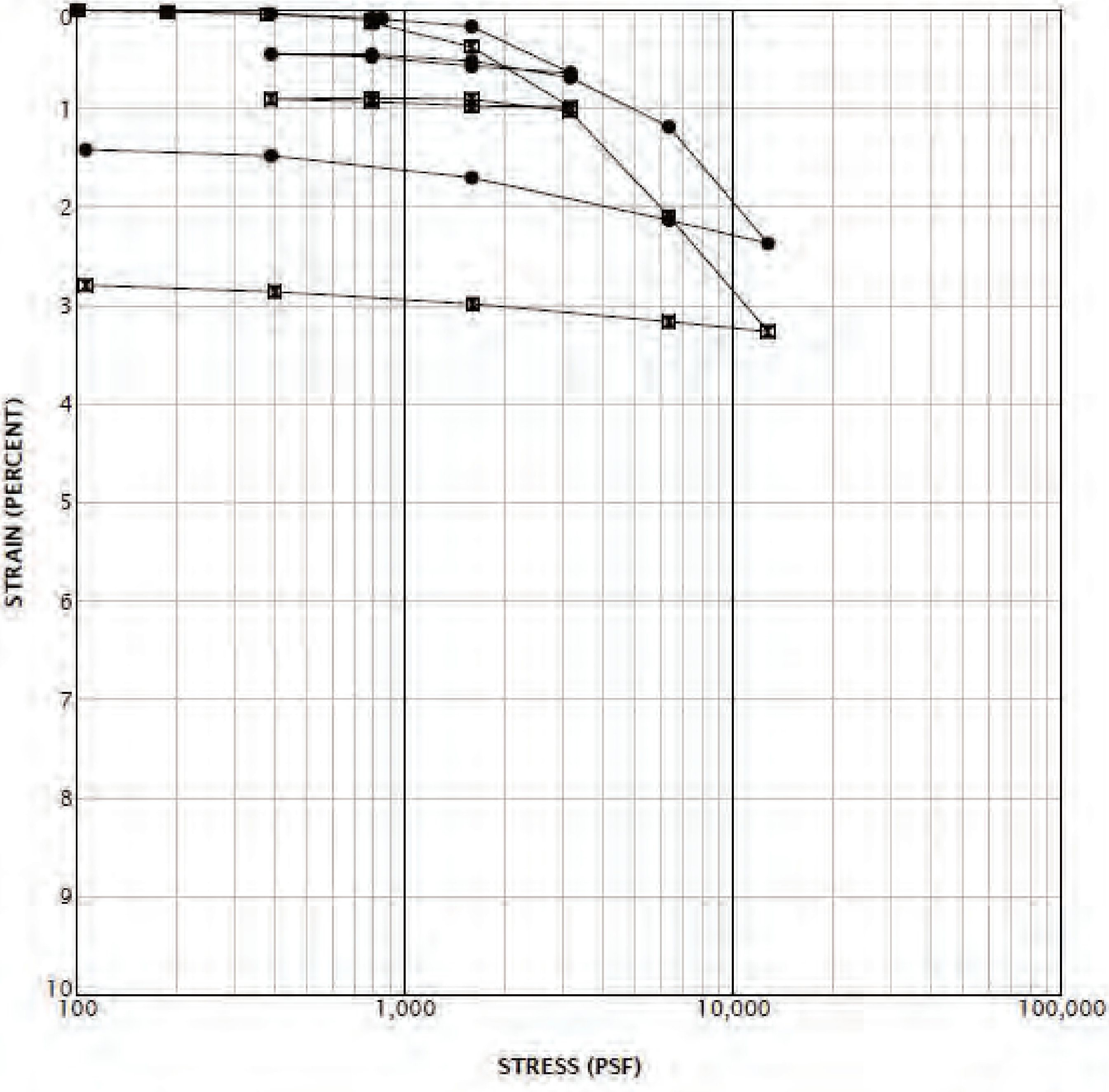
PCL-14-01	**DIRECT SHEAR TEST RESULTS**		
SEPTEMBER 2019	UCSD - PROPOSED TRITON PAVILION PROJECT LA JOLLA, CA		**FIGURE A-8**



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)
●	B-14	5.0	15	106
⊠	B-17	2.5	20	110

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
B-13	2.5	363.5	15	116						
B-13	5.0	361.0	8	105						
B-13	7.5	358.5	9	103						
B-13	10.0	356.0	6	110						
B-13	15.0	351.0	10	102						
B-13	20.0	346.0	19	95						
B-13	25.0	341.0	21	103						
B-13	30.0	336.0	16	107						
B-13	35.0	331.0	19	107						
B-14	2.5	358.5	26	102						
B-14	5.0	356.0	15	106						
B-14	7.5	353.5	9	109						
B-14	10.0	351.0	13	113						
B-14	15.0	346.0	19	107						
B-15	2.5	364.5	10	121						
B-15	5.0	362.0	12	116						
B-15	7.5	359.5	14	114						
B-15	10.0	357.0	15	114						
B-15	15.0	352.0	19	105						
B-15	20.0	347.0	19	101						
B-15	25.0	342.0	23	100						
B-15	30.0	337.0	21	110						
B-15	35.0	332.0	23	101						
B-15	40.0	327.0	23	101						
B-16	2.5	354.5	14	116						
B-16	5.0	352.0	11	112						
B-16	7.5	349.5	7	97						

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PCL-14-01

SEPTEMBER 2019

SUMMARY OF LABORATORY DATA

UCSD - PROPOSED TRITON PAVILION PROJECT
LA JOLLA, CA

FIGURE A-7

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
B-16	10.0	347.0	17	98						
B-16	15.0	342.0	20	98						
B-16	20.0	337.0	17	109						
B-16	25.0	332.0	12	97						
B-17	2.5	364.5	20	110						
B-17	5.0	362.0	11	108						
B-17	7.5	359.5	15	114						
B-17	10.0	357.0	9	115						
B-17	15.0	352.0	20	104						
B-17	20.0	347.0	22	107						
B-17	25.0	342.0	25	97						
B-17	30.0	337.0	23	96						
B-17	35.0	332.0	24	95						
B-17	40.0	327.0	25	93						

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PCL-14-01

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SUMMARY OF LABORATORY DATA
(continued)

UCSD - PROPOSED TRITON PAVILION PROJECT
LA JOLLA, CA

FIGURE A-7

APPENDIX C

FEASIBILITY STUDY OF ON-SITE INFILTRATION OF STORMWATER RUNOFF

INFILTRATION FIELD TEST PROCEDURE

Each proposed storm water infiltration Best Management Practice (BMP) requires exploratory borings and in-situ testing to justify an infiltration recommendation. The proposed BMPs for the subject site are anticipated to be on-site shallow BMPs (e.g. bioinfiltration basin). During the planning phase, The *City of San Diego, Storm Water Standards, Part 1: BMP Design Manual* dated October 2018 (referred to herein as *Design Manual*) recommends a feasibility study to assess the site conditions and potential for infiltration. Our investigation included two infiltration tests to provide a preliminary infiltration rate.

Our conclusions about storm water infiltration at the subject site, based on the requirements of the *Design Manual,* are discussed in the main body of this report. The field testing and subsequent calculations are discussed below. The results of our field tests are then summarized in tables below the discussion and shown in detail in Figures C-1.1 through C-2.6 on the following pages.

Test Method

The Well Permeameter Test method was used to help approximate infiltration rates of the soils near the anticipated infiltration zones. The location of the field tests are shown in relation to the existing and proposed improvements in Figures 2A through 2C.

Each test was set up by excavating an approximately six-inch diameter test hole (see Appendix A). The hole was cleaned of loose material down to the desired test depth using a hollow-stem auger followed by a hand auger. The hole was pre-soaked prior to testing to more closely model saturated conditions and to achieve a stabilized percolation rate.

The Well Permeameter Method requires the hole to be filled with water to the test depth. A column of water (head) is maintained at a constant height (H) through the use of a down-hole float attached to a water source. The amount of water used to maintain the constant water column in the hole is measured using a scale, and then mathematically converted to a volume (V) of water used. Readings are automatically recorded every half minute (Δt). Per the *Design Manual*, the H_{avg} value does not include the gravel base. However, our "test interval" includes the gravel base.

During the test, water percolates into the surrounding ground both horizontally through the side walls of the hole and vertically through the bottom of the hole. For shallow basins, a vertical infiltration rate is required. The test may be influenced by thin horizontal lenses of permeable material that otherwise would not contribute to vertical infiltration in a shallow basin. As recommended in the *Design Manual*, we sampled and logged the test interval (Appendix A) and the soil was found to be uniform throughout the test interval.

Calculations

To more accurately approximate the desired vertical infiltration rate (I_t), the percolation rate (measured from both horizontal and vertical flow of water) is modified mathematically. The *Design Manual* recommends using a formula called the simplified Porchet method, shown below in Equation C-1. The stabilized rate achieved during the test is used to calculate the stabilized, unfactored infiltration rate.

The simplified Porchet method assumes an open hole is used to obtain the percolation rate ($\Delta H/\Delta t$). Our hole was cased with perforated PVC pipe and gravel to stabilize the hole. The measured drop in water (ΔH) is amplified by the fact that some space in the hole was occupied by gravel, and not water. To account for this, the corrected drop in water (ΔH_c) is calculated by reducing the measured drop in water by the ratio of the area of the hole occupied by water to the total area of the hole. The porosity of the gravel was assumed to be 40 percent based on laboratory testing of similar gravel.

For the Well Permeameter Method, since the volume of water used over each time interval (percolation flow rate - Q) is measured, this value must be converted to a one-dimensional percolation rate ($\Delta H/\Delta t$) to use the simplified Porchet method, as recommended in the Design Manual. To do this, the volume of water used (V) is divided by the area of the hole to isolate the implied change in height of water (ΔHi). From there, the simplified Porchet method may be used.

The tests are influenced by the viscosity of the water. Therefore, the *Design Manual* recommends applying a Temperature Correction Factor (TCF) to the stabilized infiltration rate. The factor is a ratio of the viscosity of rainwater runoff to the viscosity of the water used in the test. The viscosity is directly calculated based on the temperature. The average temperature of the water (T_{avg}) was measured during the test and is presented in Table C-1 below. The temperature of rainwater runoff was assumed to be 60 degrees Fahrenheit.

Full-scale infiltration can be much lower than the rate measured by small-scale testing, especially over the lifetime of the BMPs. Therefore, the *Design Manual* recommends applying a Factor of Safety (FoS) to the stabilized infiltration rate. The recommended factor of safety is two for preliminary assessments. To maintain consistency with the *Design Manual*, this factored rate is referred to as the “preliminary factored infiltration rate” in this report. Equation C-2, below, presents the calculations performed to convert the stabilized unfactored infiltration rate to a factored infiltration rate to be used in preliminary design.

Equation C-1: Simplified Porchet method

$$I_t = \frac{\Delta H \, \pi r^2 \, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H \, 60 \, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
$^*r$ = effective radius of test hole
H_{avg} = average head over the time interval, inches

Equation C-2: Factored Infiltration Rate

$$I_{factored} = I_t / FoS / TCF$$

Where:

$FoS = 2$

$TCF = \mu_{runoff} / \mu_{test}$

where:

$\mu_{runoff} = 0.00112$ Pa-s

Table C-1: Borehole Percolation Test Properties

Test No.	Longitude[1] (N)	Latitude[1] (W)	Elevation[2] (feet MSL)	Head Pressure (feet)	Temp-erature (^{O}F)	Viscosity (Pa-s)
I-01	32.8778	117.2368	371	2.0	70	0.000975
I-02	32.8776	117.2351	352	2.0	70	0.000975

1: Estimated from Google Earth.
2: Estimated based on referenced topographic survey. See text of Appendix A for details.

Table C-2: Preliminary Borehole Percolation Test Results

Test No.	Unfactored Infiltration Rate[2] (in./hr.)	Preliminary Factored Infiltration Rate[1,2] (in./hr.)
I-01	0.02	0.01
I-02	<0.01	<0.01

1: See equations listed above.
2: Reference: The City of San Diego, BMP Design Manual (2018).

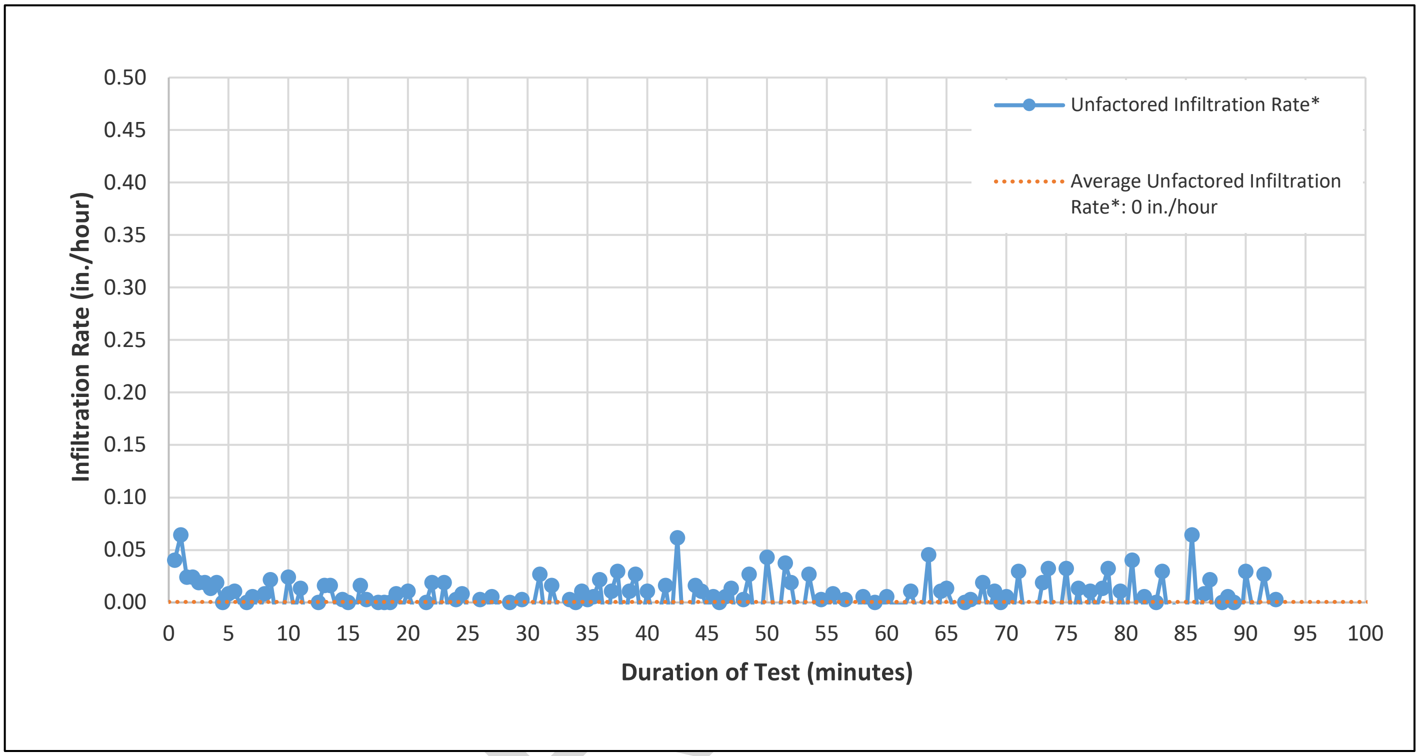
Limitations

The measured rates, and in turn, the infiltration rates, generated from the field tests are dependent on the location and elevation of the soils tested, as well as the head pressure present during the tests. The approximate coordinates, elevations, and head pressure of each percolation test is presented in Table C-1 below. If BMPs are designed in areas not tested, or designed to accommodate significantly different head pressures, the infiltration rate provided based on these field tests may not be applicable. In addition, if remedial grading results in changes to the proposed infiltration zones or different soil conditions within those zones, further analyses and field testing may be warranted.

WELL PERMEAMETER TEST

Project Name:	Triton Center	**Date Drilled:**	9/25/2017	**Borehole Radius (*r):**	3 in.
Project Number:	SD547B	**Date Tested:**	9/27/2017	**Casing Diameter:**	0 in.
Test Hole Number:	I-1	**Tested By:**	TSL	**Depth of Hole:**	5.0 ft
Drilling Method:	Hollow-Stem Auger	**Avg. Water Temp.:**	70 F	**Average Test Depth:**	3' - 5'

UNFACTORED INFILTRATION RATES* DURING TEST



Preliminary Factored Infiltration Rate[1]: 0.00 in./hr.

Feasibility Screening Factor of Safety, F.S.[2]: 2

Temperature Correction Factor[2,3]: 0.87

Factored Infiltration Rate[2]	Design Condition[2]
Below 0.05	No Infiltration
0.05 to 0.5	Partial Infiltration
Above 0.50	Full Infiltration

*Porchet method used to convert percolation rate to infiltration rate. See text of Appendix C for details.

1: Rate Factored by Factor of Safety of 2.

2: Reference: City of San Diego (2018). Storm Water Standards, Part 1: BMP Design Manual, dated October 2018.

3: Factor based on as-tested water temperature of 70 F and rainfall temperature of 60 F.

UC San Diego **Updated Report of Geo. Investigation** **Triton Center**	**WELL PERMEAMETER TEST - I-1** **INFILTRATION RATE**	**GROUP DELTA** PROJECT NUMBER **SD547B** FIGURE NUMBER **C-1.1**

WELL PERMEAMETER TEST

Project Name: Triton Center
Project Number: SD547B
Test Hole Number: I-1
Drilling Method: Hollow-Stem Auger

Date Drilled: 9/25/2017
Date Tested: 9/27/2017
Tested By: TSL
Avg. Water Temp.: 70 F

Borehole Radius (*r): 3 in.
Casing Diameter: 0 in.
Depth of Hole: 5.0 ft
Average Test Depth: 3' - 5'

DATA SHEET

Reading Number	Time Interval (min.)	Cumulative Time (min.)	Height of Water (Head) (in)	Volume of Water Consumed (in^3)	Measured Flow Rate (GPM)	Implied Drop in Water Level[1] (in)	Unfactored Percolation Rate[1] (in/min.)	Unfactored Infiltration Rate* (in/hour)
	Δt	T	H	V	Q	ΔH_i	$\Delta H_i/\Delta t$	I_t
Pre-soak	1035	--	--	--	--	--	--	--
1	0.50	0.50	28	0.18	0.002	0.01	0.01	0.04
2	0.50	1.00	28	0.29	0.003	0.01	0.02	0.06
3	0.50	1.50	28	0.11	0.001	0.00	0.01	0.02
4	0.50	2.00	28	0.11	0.001	0.00	0.01	0.02
5	0.50	2.50	28	0.09	0.001	0.00	0.01	0.02
6	0.50	3.00	28	0.09	0.001	0.00	0.01	0.02
7	0.50	3.50	28	0.06	0.001	0.00	0.00	0.01
8	0.50	4.00	28	0.09	0.001	0.00	0.01	0.02
9	0.50	4.50	28	0.00	0.000	0.00	0.00	0.00
10	0.50	5.00	28	0.04	0.000	0.00	0.00	0.01
11	0.50	5.50	28	0.05	0.000	0.00	0.00	0.01
12	0.50	6.00	28	-0.01	0.000	0.00	0.00	0.00
13	0.50	6.50	28	0.00	0.000	0.00	0.00	0.00
14	0.50	7.00	28	0.02	0.000	0.00	0.00	0.01
15	0.50	7.50	28	-0.05	0.000	0.00	0.00	-0.01
16	0.50	8.00	28	0.04	0.000	0.00	0.00	0.01
17	0.50	8.50	28	0.10	0.001	0.00	0.01	0.02
18	0.50	9.00	28	-0.07	-0.001	0.00	-0.01	-0.02
19	0.50	9.50	28	-0.06	-0.001	0.00	0.00	-0.01
20	0.50	10.00	28	0.11	0.001	0.00	0.01	0.02
21	0.50	10.50	28	-0.04	0.000	0.00	0.00	-0.01
22	0.50	11.00	28	0.06	0.001	0.00	0.00	0.01
23	0.50	11.50	28	-0.11	-0.001	0.00	-0.01	-0.02
24	0.50	12.00	28	-0.01	0.000	0.00	0.00	0.00
25	0.50	12.50	28	0.00	0.000	0.00	0.00	0.00
26	0.50	13.00	28	0.07	0.001	0.00	0.01	0.02
27	0.50	13.50	28	0.07	0.001	0.00	0.01	0.02
28	0.50	14.00	28	-0.02	0.000	0.00	0.00	-0.01
29	0.50	14.50	28	0.01	0.000	0.00	0.00	0.00
30	0.50	15.00	28	0.00	0.000	0.00	0.00	0.00
31	0.50	15.50	28	-0.07	-0.001	0.00	-0.01	-0.02
32	0.50	16.00	28	0.07	0.001	0.00	0.01	0.02
33	0.50	16.50	28	0.01	0.000	0.00	0.00	0.00
34	0.50	17.00	28	-0.04	0.000	0.00	0.00	-0.01
35	0.50	17.50	28	0.00	0.000	0.00	0.00	0.00
36	0.50	18.00	28	0.00	0.000	0.00	0.00	0.00
37	0.50	18.50	28	0.00	0.000	0.00	0.00	0.00
38	0.50	19.00	28	0.04	0.000	0.00	0.00	0.01
39	0.50	19.50	28	-0.02	0.000	0.00	0.00	-0.01
40	0.50	20.00	28	0.05	0.000	0.00	0.00	0.01

1: ΔHi is calculated for use with the Porchet Method.
*Porchet method used to convert percolation rate to infiltration rate.
See text of Appendix C for details.

Figure Number
C-1.2

WELL PERMEAMETER TEST

Project Name: Triton Center
Date Drilled: 9/25/2017
Borehole Radius (*r): 3 in.
Project Number: SD547B
Date Tested: 9/27/2017
Casing Diameter: 0 in.
Test Hole Number: I-1
Tested By: TSL
Depth of Hole: 5.0 ft
Drilling Method: Hollow-Stem Auger
Avg. Water Temp.: 70 F
Average Test Depth: 3' - 5'

DATA SHEET

Reading Number	Time Interval (min.)	Cumulative Time (min.)	Height of Water (Head) (in)	Volume of Water Consumed (in^3)	Measured Flow Rate (GPM)	Implied Drop in Water Level[1] (in)	Unfactored Percolation Rate[1] (in/min.)	Unfactored Infiltration Rate* (in/hour)
	Δt	T	H	V	Q	ΔH_i	$\Delta H_i/\Delta t$	I_t
41	0.50	20.50	28	-0.04	0.000	0.00	0.00	-0.01
42	0.50	21.00	28	-0.01	0.000	0.00	0.00	0.00
43	0.50	21.50	28	0.00	0.000	0.00	0.00	0.00
44	0.50	22.00	28	0.09	0.001	0.00	0.01	0.02
45	0.50	22.50	28	-0.09	-0.001	0.00	-0.01	-0.02
46	0.50	23.00	28	0.09	0.001	0.00	0.01	0.02
47	0.50	23.50	28	-0.07	-0.001	0.00	-0.01	-0.02
48	0.50	24.00	28	0.01	0.000	0.00	0.00	0.00
49	0.50	24.50	28	0.04	0.000	0.00	0.00	0.01
50	0.50	25.00	28	-0.02	0.000	0.00	0.00	-0.01
51	0.50	25.50	28	-0.04	0.000	0.00	0.00	-0.01
52	0.50	26.00	28	0.01	0.000	0.00	0.00	0.00
53	0.50	26.50	28	-0.04	0.000	0.00	0.00	-0.01
54	0.50	27.00	28	0.02	0.000	0.00	0.00	0.01
55	0.50	27.50	28	-0.01	0.000	0.00	0.00	0.00
56	0.50	28.00	28	-0.04	0.000	0.00	0.00	-0.01
57	0.50	28.50	28	0.00	0.000	0.00	0.00	0.00
58	0.50	29.00	28	-0.01	0.000	0.00	0.00	0.00
59	0.50	29.50	28	0.01	0.000	0.00	0.00	0.00
60	0.50	30.00	28	-0.04	0.000	0.00	0.00	-0.01
61	0.50	30.50	28	-0.01	0.000	0.00	0.00	0.00
62	0.50	31.00	28	0.12	0.001	0.00	0.01	0.03
63	0.50	31.50	28	-0.11	-0.001	0.00	-0.01	-0.02
64	0.50	32.00	28	0.07	0.001	0.00	0.01	0.02
65	0.50	32.50	28	-0.02	0.000	0.00	0.00	-0.01
66	0.50	33.00	28	-0.04	0.000	0.00	0.00	-0.01
67	0.50	33.50	28	0.01	0.000	0.00	0.00	0.00
68	0.50	34.00	28	0.00	0.000	0.00	0.00	0.00
69	0.50	34.50	28	0.05	0.000	0.00	0.00	0.01
70	0.50	35.00	28	0.01	0.000	0.00	0.00	0.00
71	0.50	35.50	28	0.02	0.000	0.00	0.00	0.01
72	0.50	36.00	28	0.10	0.001	0.00	0.01	0.02
73	0.50	36.50	28	-0.13	-0.001	0.00	-0.01	-0.03
74	0.50	37.00	28	0.05	0.000	0.00	0.00	0.01
75	0.50	37.50	28	0.13	0.001	0.00	0.01	0.03
76	0.50	38.00	28	-0.12	-0.001	0.00	-0.01	-0.03
77	0.50	38.50	28	0.05	0.000	0.00	0.00	0.01
78	0.50	39.00	28	0.12	0.001	0.00	0.01	0.03
79	0.50	39.50	28	-0.10	-0.001	0.00	-0.01	-0.02
80	0.50	40.00	28	0.05	0.000	0.00	0.00	0.01

1: ΔHi is calculated for use with the Porchet Method.
*Porchet method used to convert percolation rate to infiltration rate.
See text of Appendix C for details.

Figure Number
C-1.3

WELL PERMEAMETER TEST

Project Name:	Triton Center	**Date Drilled:**	9/25/2017	**Borehole Radius (*r):**	3 in.
Project Number:	SD547B	**Date Tested:**	9/27/2017	**Casing Diameter:**	0 in.
Test Hole Number:	I-1	**Tested By:**	TSL	**Depth of Hole:**	5.0 ft
Drilling Method:	Hollow-Stem Auger	**Avg. Water Temp.:**	70 F	**Average Test Depth:**	3' - 5'

DATA SHEET

Reading Number	Time Interval (min.)	Cumulative Time (min.)	Height of Water (Head) (in)	Volume of Water Consumed (in^3)	Measured Flow Rate (GPM)	Implied Drop in Water Level[1] (in)	Unfactored Percolation Rate[1] (in/min.)	Unfactored Infiltration Rate* (in/hour)
	Δt	T	H	V	Q	ΔH_i	$\Delta H_i/\Delta t$	I_t
81	0.50	40.50	28	-0.07	-0.001	0.00	-0.01	-0.02
82	0.50	41.00	28	-0.05	0.000	0.00	0.00	-0.01
83	0.50	41.50	28	0.07	0.001	0.00	0.01	0.02
84	0.50	42.00	28	-0.10	-0.001	0.00	-0.01	-0.02
85	0.50	42.50	28	0.28	0.002	0.01	0.02	0.06
86	0.50	43.00	28	-0.15	-0.001	-0.01	-0.01	-0.03
87	0.50	43.50	28	-0.12	-0.001	0.00	-0.01	-0.03
88	0.50	44.00	28	0.07	0.001	0.00	0.01	0.02
89	0.50	44.50	28	0.05	0.000	0.00	0.00	0.01
90	0.50	45.00	28	-0.02	0.000	0.00	0.00	-0.01
91	0.50	45.50	28	0.02	0.000	0.00	0.00	0.01
92	0.50	46.00	28	0.00	0.000	0.00	0.00	0.00
93	0.50	46.50	28	0.02	0.000	0.00	0.00	0.01
94	0.50	47.00	28	0.06	0.001	0.00	0.00	0.01
95	0.50	47.50	28	-0.12	-0.001	0.00	-0.01	-0.03
96	0.50	48.00	28	0.01	0.000	0.00	0.00	0.00
97	0.50	48.50	28	0.12	0.001	0.00	0.01	0.03
98	0.50	49.00	28	-0.11	-0.001	0.00	-0.01	-0.02
99	0.50	49.50	28	-0.09	-0.001	0.00	-0.01	-0.02
100	0.50	50.00	28	0.20	0.002	0.01	0.01	0.04
101	0.50	50.50	28	-0.01	0.000	0.00	0.00	0.00
102	0.50	51.00	28	-0.07	-0.001	0.00	-0.01	-0.02
103	0.50	51.50	28	0.17	0.001	0.01	0.01	0.04
104	0.50	52.00	28	0.09	0.001	0.00	0.01	0.02
105	0.50	52.50	28	-0.07	-0.001	0.00	-0.01	-0.02
106	0.50	53.00	28	-0.05	0.000	0.00	0.00	-0.01
107	0.50	53.50	28	0.12	0.001	0.00	0.01	0.03
108	0.50	54.00	28	-0.01	0.000	0.00	0.00	0.00
109	0.50	54.50	28	0.01	0.000	0.00	0.00	0.00
110	0.50	55.00	28	-0.04	0.000	0.00	0.00	-0.01
111	0.50	55.50	28	0.04	0.000	0.00	0.00	0.01
112	0.50	56.00	28	-0.09	-0.001	0.00	-0.01	-0.02
113	0.50	56.50	28	0.01	0.000	0.00	0.00	0.00
114	0.50	57.00	28	-0.02	0.000	0.00	0.00	-0.01
115	0.50	57.50	28	-0.04	0.000	0.00	0.00	-0.01
116	0.50	58.00	28	0.02	0.000	0.00	0.00	0.01
117	0.50	58.50	28	-0.04	0.000	0.00	0.00	-0.01
118	0.50	59.00	28	0.00	0.000	0.00	0.00	0.00
119	0.50	59.50	28	-0.06	-0.001	0.00	0.00	-0.01
120	0.50	60.00	28	0.02	0.000	0.00	0.00	0.01

1: ΔHi is calculated for use with the Porchet Method.
*Porchet method used to convert percolation rate to infiltration rate.
See text of Appendix C for details.

Figure Number
C-1.4

WELL PERMEAMETER TEST

Project Name: Triton Center
Date Drilled: 9/25/2017
Borehole Radius (*r): 3 in.

Project Number: SD547B
Date Tested: 9/27/2017
Casing Diameter: 0 in.

Test Hole Number: I-1
Tested By: TSL
Depth of Hole: 5.0 ft

Drilling Method: Hollow-Stem Auger
Avg. Water Temp.: 70 F
Average Test Depth: 3' - 5'

DATA SHEET

Reading Number	Time Interval (min.)	Cumulative Time (min.)	Height of Water (Head) (in)	Volume of Water Consumed (in^3)	Measured Flow Rate (GPM)	Implied Drop in Water Level[1] (in)	Unfactored Percolation Rate[1] (in/min.)	Unfactored Infiltration Rate* (in/hour)
	Δt	T	H	V	Q	ΔH_i	$\Delta H_i/\Delta t$	I_t
121	0.50	60.50	28	-0.01	0.000	0.00	0.00	0.00
122	0.50	61.00	28	-0.01	0.000	0.00	0.00	0.00
123	0.50	61.50	28	-0.01	0.000	0.00	0.00	0.00
124	0.50	62.00	28	0.05	0.000	0.00	0.00	0.01
125	0.50	62.50	28	-0.04	0.000	0.00	0.00	-0.01
126	0.50	63.00	28	-0.04	0.000	0.00	0.00	-0.01
127	0.50	63.50	28	0.21	0.002	0.01	0.01	0.05
128	0.50	64.00	28	-0.24	-0.002	-0.01	-0.02	-0.05
129	0.50	64.50	28	0.05	0.000	0.00	0.00	0.01
130	0.50	65.00	28	0.06	0.001	0.00	0.00	0.01
131	0.50	65.50	28	-0.01	0.000	0.00	0.00	0.00
132	0.50	66.00	28	-0.04	0.000	0.00	0.00	-0.01
133	0.50	66.50	28	0.00	0.000	0.00	0.00	0.00
134	0.50	67.00	28	0.01	0.000	0.00	0.00	0.00
135	0.50	67.50	28	-0.05	0.000	0.00	0.00	-0.01
136	0.50	68.00	28	0.09	0.001	0.00	0.01	0.02
137	0.50	68.50	28	-0.05	0.000	0.00	0.00	-0.01
138	0.50	69.00	28	0.05	0.000	0.00	0.00	0.01
139	0.50	69.50	28	0.00	0.000	0.00	0.00	0.00
140	0.50	70.00	28	0.02	0.000	0.00	0.00	0.01
141	0.50	70.50	28	-0.07	-0.001	0.00	-0.01	-0.02
142	0.50	71.00	28	0.13	0.001	0.00	0.01	0.03
143	0.50	71.50	28	-0.07	-0.001	0.00	-0.01	-0.02
144	0.50	72.00	28	-0.02	0.000	0.00	0.00	-0.01
145	0.50	72.50	28	-0.06	-0.001	0.00	0.00	-0.01
146	0.50	73.00	28	0.09	0.001	0.00	0.01	0.02
147	0.50	73.50	28	0.15	0.001	0.01	0.01	0.03
148	0.50	74.00	28	-0.12	-0.001	0.00	-0.01	-0.03
149	0.50	74.50	28	-0.05	0.000	0.00	0.00	-0.01
150	0.50	75.00	28	0.15	0.001	0.01	0.01	0.03
151	0.50	75.50	28	-0.09	-0.001	0.00	-0.01	-0.02
152	0.50	76.00	28	0.06	0.001	0.00	0.00	0.01
153	0.50	76.50	28	-0.13	-0.001	0.00	-0.01	-0.03
154	0.50	77.00	28	0.05	0.000	0.00	0.00	0.01
155	0.50	77.50	28	-0.02	0.000	0.00	0.00	-0.01
156	0.50	78.00	28	0.06	0.001	0.00	0.00	0.01
157	0.50	78.50	28	0.15	0.001	0.01	0.01	0.03
158	0.50	79.00	28	-0.13	-0.001	0.00	-0.01	-0.03
159	0.50	79.50	28	0.05	0.000	0.00	0.00	0.01
160	0.50	80.00	28	-0.07	-0.001	0.00	-0.01	-0.02

1: ΔHi is calculated for use with the Porchet Method.
*Porchet method used to convert percolation rate to infiltration rate.
See text of Appendix C for details.

Figure Number
C-1.5

WELL PERMEAMETER TEST

Project Name:	Triton Center	**Date Drilled:**	9/25/2017	**Borehole Radius (*r):**	3 in.
Project Number:	SD547B	**Date Tested:**	9/27/2017	**Casing Diameter:**	0 in.
Test Hole Number:	I-1	**Tested By:**	TSL	**Depth of Hole:**	5.0 ft
Drilling Method:	Hollow-Stem Auger	**Avg. Water Temp.:**	70 F	**Average Test Depth:**	3' - 5'

DATA SHEET

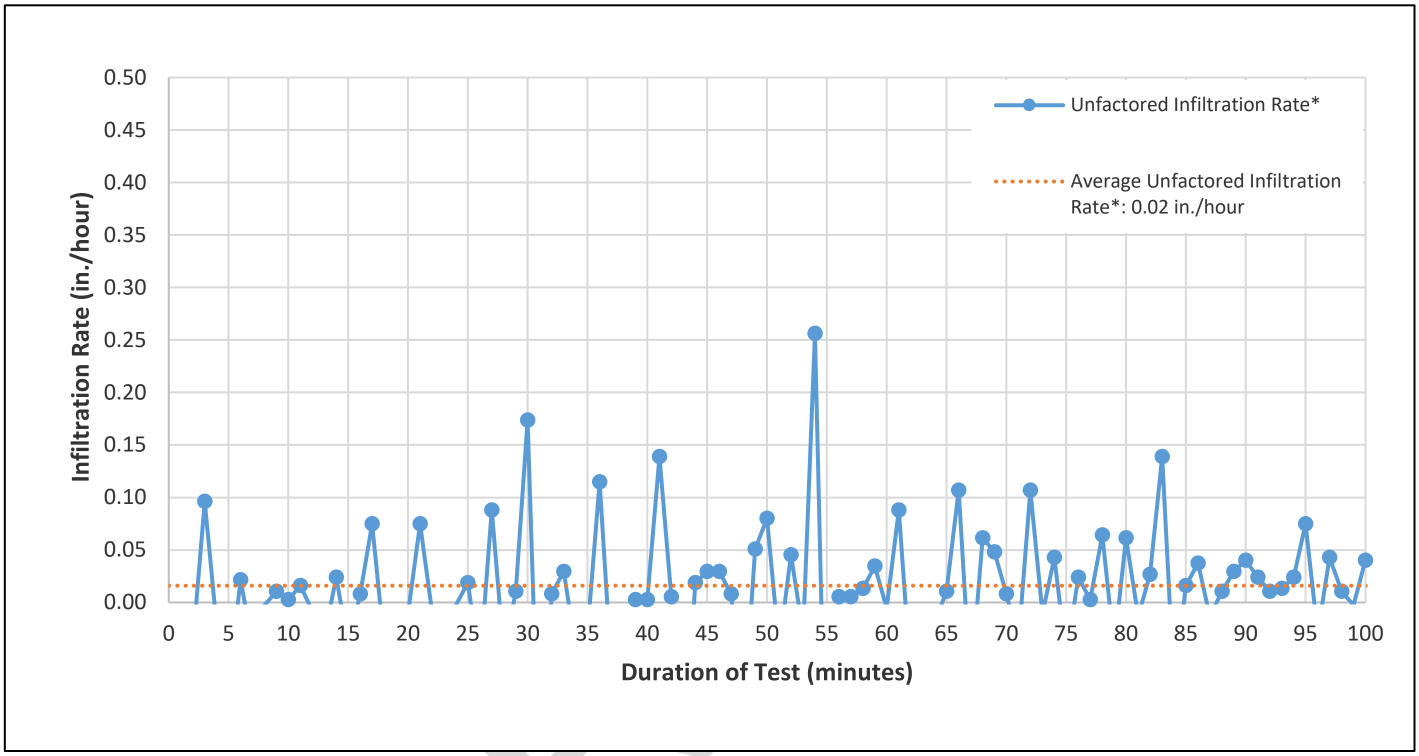
Reading Number	Time Interval (min.)	Cumulative Time (min.)	Height of Water (Head) (in)	Volume of Water Consumed (in^3)	Measured Flow Rate (GPM)	Implied Drop in Water Level[1] (in)	Unfactored Percolation Rate[1] (in/min.)	Unfactored Infiltration Rate* (in/hour)
	Δt	T	H	V	Q	ΔH_i	$\Delta H_i/\Delta t$	I_t
161	0.50	80.50	28	0.18	0.002	0.01	0.01	0.04
162	0.50	81.00	28	-0.12	-0.001	0.00	-0.01	-0.03
163	0.50	81.50	28	0.02	0.000	0.00	0.00	0.01
164	0.50	82.00	28	-0.09	-0.001	0.00	-0.01	-0.02
165	0.50	82.50	28	0.00	0.000	0.00	0.00	0.00
166	0.50	83.00	28	0.13	0.001	0.00	0.01	0.03
167	0.50	83.50	28	-0.06	-0.001	0.00	0.00	-0.01
168	0.50	84.00	28	-0.01	0.000	0.00	0.00	0.00
169	0.50	84.50	28	-0.04	0.000	0.00	0.00	-0.01
170	0.50	85.00	28	-0.10	-0.001	0.00	-0.01	-0.02
171	0.50	85.50	28	0.29	0.003	0.01	0.02	0.06
172	0.50	86.00	28	-0.09	-0.001	0.00	-0.01	-0.02
173	0.50	86.50	28	0.04	0.000	0.00	0.00	0.01
174	0.50	87.00	28	0.10	0.001	0.00	0.01	0.02
175	0.50	87.50	28	-0.23	-0.002	-0.01	-0.02	-0.05
176	0.50	88.00	28	0.00	0.000	0.00	0.00	0.00
177	0.50	88.50	28	0.02	0.000	0.00	0.00	0.01
178	0.50	89.00	28	0.00	0.000	0.00	0.00	0.00
179	0.50	89.50	28	-0.13	-0.001	0.00	-0.01	-0.03
180	0.50	90.00	28	0.13	0.001	0.00	0.01	0.03
181	0.50	90.50	28	-0.01	0.000	0.00	0.00	0.00
182	0.50	91.00	28	-0.02	0.000	0.00	0.00	-0.01
183	0.50	91.50	28	0.12	0.001	0.00	0.01	0.03
184	0.50	92.00	28	-0.01	0.000	0.00	0.00	0.00
185	0.50	92.50	28	0.01	0.000	0.00	0.00	0.00
186	0.50	93.00	28	-0.04	0.000	0.00	0.00	-0.01
187	0.50	93.50	28	0.02	0.000	0.00	0.00	0.01
188	0.50	94.00	28	0.00	0.000	0.00	0.00	0.00
189	0.50	94.50	28	0.15	0.001	0.01	0.01	0.03
190	0.50	95.00	28	0.01	0.000	0.00	0.00	0.00
191	0.50	95.50	28	-0.07	-0.001	0.00	-0.01	-0.02
192	0.50	96.00	28	0.00	0.000	0.00	0.00	0.00
193	0.50	96.50	28	-0.13	-0.001	0.00	-0.01	-0.03
194	0.50	97.00	28	-0.01	0.000	0.00	0.00	0.00
195	0.50	97.50	28	0.20	0.002	0.01	0.01	0.04
196	0.50	98.00	28	-0.13	-0.001	0.00	-0.01	-0.03
197	0.50	98.50	28	0.07	0.001	0.00	0.01	0.02
198	0.50	99.00	28	-0.16	-0.001	-0.01	-0.01	-0.03
199	0.50	99.50	28	0.15	0.001	0.01	0.01	0.03
200	0.50	100.00	28	0.01	0.000	0.00	0.00	0.00

1: ΔHi is calculated for use with the Porchet Method.
*Porchet method used to convert percolation rate to infiltration rate.
See text of Appendix C for details.

WELL PERMEAMETER TEST

Project Name:	Triton Center	**Date Drilled:**	9/26/2017	**Borehole Radius (*r):**	3 in.
Project Number:	SD547B	**Date Tested:**	9/27/2017	**Casing Diameter:**	0 in.
Test Hole Number:	I-2	**Tested By:**	TSL	**Depth of Hole:**	5.0 ft
Drilling Method:	Hollow-Stem Auger	**Avg. Water Temp.:**	70 F	**Average Test Depth:**	3' - 5'

UNFACTORED INFILTRATION RATES* DURING TEST



Preliminary Factored Infiltration Rate[1]: 0.01 in./hr.

Feasibility Screening Factor of Safety, F.S.[2]: 2

Temperature Correction Factor[2,3]: 0.87

Factored Infiltration Rate[2]	Design Condition[2]
Below 0.05	No Infiltration
0.05 to 0.5	Partial Infiltration
Above 0.50	Full Infiltration

*Porchet method used to convert percolation rate to infiltration rate. See text of Appendix C for details.

1: Rate Factored by Factor of Safety of 2.

2: Reference: City of San Diego (2018). Storm Water Standards, Part 1: BMP Design Manual, dated October 2018.

3: Factor based on as-tested water temperature of 70 F and rainfall temperature of 60 F.

UC San Diego **Updated Report of Geo. Investigation** **Triton Center**	**WELL PERMEAMETER TEST - I-2** **INFILTRATION RATE**	GROUP DELTA PROJECT NUMBER **SD547B**	FIGURE NUMBER **C-2.1**

WELL PERMEAMETER TEST

Project Name:	Triton Center	**Date Drilled:**	9/26/2017	**Borehole Radius (*r):**	3 in.
Project Number:	SD547B	**Date Tested:**	9/27/2017	**Casing Diameter:**	0 in.
Test Hole Number:	I-2	**Tested By:**	TSL	**Depth of Hole:**	5.0 ft
Drilling Method:	Hollow-Stem Auger	**Avg. Water Temp.:**	70 F	**Average Test Depth:**	3' - 5'

DATA SHEET

Reading Number	Time Interval (min.)	Cumulative Time (min.)	Height of Water (Head) (in)	Volume of Water Consumed (in^3)	Measured Flow Rate (GPM)	Implied Drop in Water Level[1] (in)	Unfactored Percolation Rate[1] (in/min.)	Unfactored Infiltration Rate* (in/hour)
	Δt	T	H	V	Q	ΔH_i	$\Delta H_i/\Delta t$	I_t
Pre-soak	1035	--	--	--	--	--	--	--
1	0.50	0.50	28	-0.17	-0.001	-0.01	-0.01	-0.04
2	0.50	1.00	28	-0.20	-0.002	-0.01	-0.01	-0.04
3	0.50	1.50	28	0.44	0.004	0.02	0.03	0.10
4	0.50	2.00	28	-0.10	-0.001	0.00	-0.01	-0.02
5	0.50	2.50	28	-0.35	-0.003	-0.01	-0.03	-0.08
6	0.50	3.00	28	0.10	0.001	0.00	0.01	0.02
7	0.50	3.50	28	-0.18	-0.002	-0.01	-0.01	-0.04
8	0.50	4.00	28	-0.01	0.000	0.00	0.00	0.00
9	0.50	4.50	28	0.05	0.000	0.00	0.00	0.01
10	0.50	5.00	28	0.01	0.000	0.00	0.00	0.00
11	0.50	5.50	28	0.07	0.001	0.00	0.01	0.02
12	0.50	6.00	28	-0.04	0.000	0.00	0.00	-0.01
13	0.50	6.50	28	-0.15	-0.001	-0.01	-0.01	-0.03
14	0.50	7.00	28	0.11	0.001	0.00	0.01	0.02
15	0.50	7.50	28	-0.18	-0.002	-0.01	-0.01	-0.04
16	0.50	8.00	28	0.04	0.000	0.00	0.00	0.01
17	0.50	8.50	28	0.34	0.003	0.01	0.02	0.07
18	0.50	9.00	28	-0.18	-0.002	-0.01	-0.01	-0.04
19	0.50	9.50	28	-0.15	-0.001	-0.01	-0.01	-0.03
20	0.50	10.00	28	-0.05	0.000	0.00	0.00	-0.01
21	0.50	10.50	28	0.34	0.003	0.01	0.02	0.07
22	0.50	11.00	28	-0.04	0.000	0.00	0.00	-0.01
23	0.50	11.50	28	-0.28	-0.002	-0.01	-0.02	-0.06
24	0.50	12.00	28	-0.01	0.000	0.00	0.00	0.00
25	0.50	12.50	28	0.09	0.001	0.00	0.01	0.02
26	0.50	13.00	28	-0.27	-0.002	-0.01	-0.02	-0.06
27	0.50	13.50	28	0.40	0.003	0.01	0.03	0.09
28	0.50	14.00	28	-0.23	-0.002	-0.01	-0.02	-0.05
29	0.50	14.50	28	0.05	0.000	0.00	0.00	0.01
30	0.50	15.00	28	0.79	0.007	0.03	0.06	0.17
31	0.50	15.50	28	-0.87	-0.008	-0.03	-0.06	-0.19
32	0.50	16.00	28	0.04	0.000	0.00	0.00	0.01
33	0.50	16.50	28	0.13	0.001	0.00	0.01	0.03
34	0.50	17.00	28	-0.20	-0.002	-0.01	-0.01	-0.04
35	0.50	17.50	28	-0.13	-0.001	0.00	-0.01	-0.03
36	0.50	18.00	28	0.52	0.005	0.02	0.04	0.11
37	0.50	18.50	28	-0.29	-0.003	-0.01	-0.02	-0.06
38	0.50	19.00	28	-0.23	-0.002	-0.01	-0.02	-0.05
39	0.50	19.50	28	0.01	0.000	0.00	0.00	0.00
40	0.50	20.00	28	0.01	0.000	0.00	0.00	0.00

1: ΔHi is calculated for use with the Porchet Method.
*Porchet method used to convert percolation rate to infiltration rate.
See text of Appendix C for details.

Figure Number
C-2.2

WELL PERMEAMETER TEST

Project Name: Triton Center
Date Drilled: 9/26/2017
Borehole Radius (*r): 3 in.
Project Number: SD547B
Date Tested: 9/27/2017
Casing Diameter: 0 in.
Test Hole Number: I-2
Tested By: TSL
Depth of Hole: 5.0 ft
Drilling Method: Hollow-Stem Auger
Avg. Water Temp.: 70 F
Average Test Depth: 3' - 5'

DATA SHEET

Reading Number	Time Interval (min.)	Cumulative Time (min.)	Height of Water (Head) (in)	Volume of Water Consumed (in^3)	Measured Flow Rate (GPM)	Implied Drop in Water Level[1] (in)	Unfactored Percolation Rate[1] (in/min.)	Unfactored Infiltration Rate* (in/hour)
	Δt	T	H	V	Q	ΔH_i	$\Delta H_i/\Delta t$	I_t
41	0.50	20.50	28	0.63	0.005	0.02	0.04	0.14
42	0.50	21.00	28	0.02	0.000	0.00	0.00	0.01
43	0.50	21.50	28	-0.73	-0.006	-0.03	-0.05	-0.16
44	0.50	22.00	28	0.09	0.001	0.00	0.01	0.02
45	0.50	22.50	28	0.13	0.001	0.00	0.01	0.03
46	0.50	23.00	28	0.13	0.001	0.00	0.01	0.03
47	0.50	23.50	28	0.04	0.000	0.00	0.00	0.01
48	0.50	24.00	28	-0.52	-0.005	-0.02	-0.04	-0.11
49	0.50	24.50	28	0.23	0.002	0.01	0.02	0.05
50	0.50	25.00	28	0.37	0.003	0.01	0.03	0.08
51	0.50	25.50	28	-0.20	-0.002	-0.01	-0.01	-0.04
52	0.50	26.00	28	0.21	0.002	0.01	0.01	0.05
53	0.50	26.50	28	-0.13	-0.001	0.00	-0.01	-0.03
54	0.50	27.00	28	1.17	0.010	0.04	0.08	0.26
55	0.50	27.50	28	-1.03	-0.009	-0.04	-0.07	-0.22
56	0.50	28.00	28	0.02	0.000	0.00	0.00	0.01
57	0.50	28.50	28	0.02	0.000	0.00	0.00	0.01
58	0.50	29.00	28	0.06	0.001	0.00	0.00	0.01
59	0.50	29.50	28	0.16	0.001	0.01	0.01	0.03
60	0.50	30.00	28	-0.02	0.000	0.00	0.00	-0.01
61	0.50	30.50	28	0.40	0.003	0.01	0.03	0.09
62	0.50	31.00	28	-0.32	-0.003	-0.01	-0.02	-0.07
63	0.50	31.50	28	-0.05	0.000	0.00	0.00	-0.01
64	0.50	32.00	28	-0.09	-0.001	0.00	-0.01	-0.02
65	0.50	32.50	28	0.05	0.000	0.00	0.00	0.01
66	0.50	33.00	28	0.49	0.004	0.02	0.03	0.11
67	0.50	33.50	28	-0.37	-0.003	-0.01	-0.03	-0.08
68	0.50	34.00	28	0.28	0.002	0.01	0.02	0.06
69	0.50	34.50	28	0.22	0.002	0.01	0.02	0.05
70	0.50	35.00	28	0.04	0.000	0.00	0.00	0.01
71	0.50	35.50	28	-0.17	-0.001	-0.01	-0.01	-0.04
72	0.50	36.00	28	0.49	0.004	0.02	0.03	0.11
73	0.50	36.50	28	-0.05	0.000	0.00	0.00	-0.01
74	0.50	37.00	28	0.20	0.002	0.01	0.01	0.04
75	0.50	37.50	28	-0.23	-0.002	-0.01	-0.02	-0.05
76	0.50	38.00	28	0.11	0.001	0.00	0.01	0.02
77	0.50	38.50	28	0.01	0.000	0.00	0.00	0.00
78	0.50	39.00	28	0.29	0.003	0.01	0.02	0.06
79	0.50	39.50	28	-0.20	-0.002	-0.01	-0.01	-0.04
80	0.50	40.00	28	0.28	0.002	0.01	0.02	0.06

1: ΔHi is calculated for use with the Porchet Method.
*Porchet method used to convert percolation rate to infiltration rate.
See text of Appendix C for details.

Figure Number
C-2.3

WELL PERMEAMETER TEST

Project Name:	Triton Center	**Date Drilled:**	9/26/2017	**Borehole Radius (*r):**	3 in.
Project Number:	SD547B	**Date Tested:**	9/27/2017	**Casing Diameter:**	0 in.
Test Hole Number:	I-2	**Tested By:**	TSL	**Depth of Hole:**	5.0 ft
Drilling Method:	Hollow-Stem Auger	**Avg. Water Temp.:**	70 F	**Average Test Depth:**	3' - 5'

DATA SHEET

Reading Number	Time Interval (min.)	Cumulative Time (min.)	Height of Water (Head) (in)	Volume of Water Consumed (in^3)	Measured Flow Rate (GPM)	Implied Drop in Water Level[1] (in)	Unfactored Percolation Rate[1] (in/min.)	Unfactored Infiltration Rate* (in/hour)
	Δt	T	H	V	Q	ΔH_i	$\Delta H_i/\Delta t$	I_t
81	0.50	40.50	28	-0.06	-0.001	0.00	0.00	-0.01
82	0.50	41.00	28	0.12	0.001	0.00	0.01	0.03
83	0.50	41.50	28	0.63	0.005	0.02	0.04	0.14
84	0.50	42.00	28	-0.37	-0.003	-0.01	-0.03	-0.08
85	0.50	42.50	28	0.07	0.001	0.00	0.01	0.02
86	0.50	43.00	28	0.17	0.001	0.01	0.01	0.04
87	0.50	43.50	28	-0.06	-0.001	0.00	0.00	-0.01
88	0.50	44.00	28	0.05	0.000	0.00	0.00	0.01
89	0.50	44.50	28	0.13	0.001	0.00	0.01	0.03
90	0.50	45.00	28	0.18	0.002	0.01	0.01	0.04
91	0.50	45.50	28	0.11	0.001	0.00	0.01	0.02
92	0.50	46.00	28	0.05	0.000	0.00	0.00	0.01
93	0.50	46.50	28	0.06	0.001	0.00	0.00	0.01
94	0.50	47.00	28	0.11	0.001	0.00	0.01	0.02
95	0.50	47.50	28	0.34	0.003	0.01	0.02	0.07
96	0.50	48.00	28	-0.13	-0.001	0.00	-0.01	-0.03
97	0.50	48.50	28	0.20	0.002	0.01	0.01	0.04
98	0.50	49.00	28	0.05	0.000	0.00	0.00	0.01
99	0.50	49.50	28	-0.01	0.000	0.00	0.00	0.00
100	0.50	50.00	28	0.18	0.002	0.01	0.01	0.04
101	0.50	50.50	28	0.17	0.001	0.01	0.01	0.04
102	0.50	51.00	28	-0.10	-0.001	0.00	-0.01	-0.02
103	0.50	51.50	28	0.46	0.004	0.02	0.03	0.10
104	0.50	52.00	28	0.06	0.001	0.00	0.00	0.01
105	0.50	52.50	28	-0.01	0.000	0.00	0.00	0.00
106	0.50	53.00	28	0.09	0.001	0.00	0.01	0.02
107	0.50	53.50	28	-0.27	-0.002	-0.01	-0.02	-0.06
108	0.50	54.00	28	0.12	0.001	0.00	0.01	0.03
109	0.50	54.50	28	0.43	0.004	0.02	0.03	0.09
110	0.50	55.00	28	0.15	0.001	0.01	0.01	0.03
111	0.50	55.50	28	0.09	0.001	0.00	0.01	0.02
112	0.50	56.00	28	0.81	0.007	0.03	0.06	0.18
113	0.50	56.50	28	-0.96	-0.008	-0.03	-0.07	-0.21
114	0.50	57.00	28	0.33	0.003	0.01	0.02	0.07
115	0.50	57.50	28	-0.33	-0.003	-0.01	-0.02	-0.07
116	0.50	58.00	28	0.81	0.007	0.03	0.06	0.18
117	0.50	58.50	28	-0.27	-0.002	-0.01	-0.02	-0.06
118	0.50	59.00	28	-0.11	-0.001	0.00	-0.01	-0.02
119	0.50	59.50	28	-0.06	-0.001	0.00	0.00	-0.01
120	0.50	60.00	28	0.43	0.004	0.02	0.03	0.09

1: ΔHi is calculated for use with the Porchet Method.
*Porchet method used to convert percolation rate to infiltration rate.
See text of Appendix C for details.

Figure Number
C-2.4

WELL PERMEAMETER TEST

Project Name:	Triton Center	**Date Drilled:**	9/26/2017	**Borehole Radius (*r):**	3 in.
Project Number:	SD547B	**Date Tested:**	9/27/2017	**Casing Diameter:**	0 in.
Test Hole Number:	I-2	**Tested By:**	TSL	**Depth of Hole:**	5.0 ft
Drilling Method:	Hollow-Stem Auger	**Avg. Water Temp.:**	70 F	**Average Test Depth:**	3' - 5'

DATA SHEET

Reading Number	Time Interval (min.)	Cumulative Time (min.)	Height of Water (Head) (in)	Volume of Water Consumed (in^3)	Measured Flow Rate (GPM)	Implied Drop in Water Level[1] (in)	Unfactored Percolation Rate[1] (in/min.)	Unfactored Infiltration Rate* (in/hour)
	Δt	T	H	V	Q	ΔH_i	$\Delta H_i/\Delta t$	I_t
121	0.50	60.50	28	-0.24	-0.002	-0.01	-0.02	-0.05
122	0.50	61.00	28	0.11	0.001	0.00	0.01	0.02
123	0.50	61.50	28	0.26	0.002	0.01	0.02	0.06
124	0.50	62.00	28	-0.21	-0.002	-0.01	-0.01	-0.05
125	0.50	62.50	28	0.15	0.001	0.01	0.01	0.03
126	0.50	63.00	28	0.12	0.001	0.00	0.01	0.03
127	0.50	63.50	28	0.22	0.002	0.01	0.02	0.05
128	0.50	64.00	28	0.13	0.001	0.00	0.01	0.03
129	0.50	64.50	28	-0.05	0.000	0.00	0.00	-0.01
130	0.50	65.00	28	-0.02	0.000	0.00	0.00	-0.01
131	0.50	65.50	28	0.12	0.001	0.00	0.01	0.03
132	0.50	66.00	28	0.73	0.006	0.03	0.05	0.16
133	0.50	66.50	28	-0.65	-0.006	-0.02	-0.05	-0.14
134	0.50	67.00	28	0.65	0.006	0.02	0.05	0.14
135	0.50	67.50	28	-0.35	-0.003	-0.01	-0.03	-0.08
136	0.50	68.00	28	0.66	0.006	0.02	0.05	0.14
137	0.50	68.50	28	-0.99	-0.009	-0.03	-0.07	-0.22
138	0.50	69.00	28	0.92	0.008	0.03	0.06	0.20
139	0.50	69.50	28	-0.52	-0.005	-0.02	-0.04	-0.11
140	0.50	70.00	28	-0.02	0.000	0.00	0.00	-0.01
141	0.50	70.50	28	0.21	0.002	0.01	0.01	0.05
142	0.50	71.00	28	0.37	0.003	0.01	0.03	0.08
143	0.50	71.50	28	-0.17	-0.001	-0.01	-0.01	-0.04
144	0.50	72.00	28	0.18	0.002	0.01	0.01	0.04
145	0.50	72.50	28	0.00	0.000	0.00	0.00	0.00
146	0.50	73.00	28	-0.02	0.000	0.00	0.00	-0.01
147	0.50	73.50	28	0.01	0.000	0.00	0.00	0.00
148	0.50	74.00	28	0.16	0.001	0.01	0.01	0.03
149	0.50	74.50	28	-0.02	0.000	0.00	0.00	-0.01
150	0.50	75.00	28	0.11	0.001	0.00	0.01	0.02
151	0.50	75.50	28	0.04	0.000	0.00	0.00	0.01
152	0.50	76.00	28	0.06	0.001	0.00	0.00	0.01
153	0.50	76.50	28	0.10	0.001	0.00	0.01	0.02
154	0.50	77.00	28	0.27	0.002	0.01	0.02	0.06
155	0.50	77.50	28	-0.09	-0.001	0.00	-0.01	-0.02
156	0.50	78.00	28	-0.13	-0.001	0.00	-0.01	-0.03
157	0.50	78.50	28	0.21	0.002	0.01	0.01	0.05
158	0.50	79.00	28	0.05	0.000	0.00	0.00	0.01
159	0.50	79.50	28	0.12	0.001	0.00	0.01	0.03
160	0.50	80.00	28	-0.09	-0.001	0.00	-0.01	-0.02

1: ΔHi is calculated for use with the Porchet Method.
*Porchet method used to convert percolation rate to infiltration rate.
See text of Appendix C for details.

Figure Number
C-2.5

WELL PERMEAMETER TEST

Project Name: Triton Center
Project Number: SD547B
Test Hole Number: I-2
Drilling Method: Hollow-Stem Auger

Date Drilled: 9/26/2017
Date Tested: 9/27/2017
Tested By: TSL
Avg. Water Temp.: 70 F

Borehole Radius (*r): 3 in.
Casing Diameter: 0 in.
Depth of Hole: 5.0 ft
Average Test Depth: 3' - 5'

DATA SHEET

Reading Number	Time Interval (min.)	Cumulative Time (min.)	Height of Water (Head) (in)	Volume of Water Consumed (in^3)	Measured Flow Rate (GPM)	Implied Drop in Water Level[1] (in)	Unfactored Percolation Rate[1] (in/min.)	Unfactored Infiltration Rate* (in/hour)
	Δt	T	H	V	Q	ΔH_i	$\Delta H_i/\Delta t$	I_t
161	0.50	80.50	28	0.07	0.001	0.00	0.01	0.02
162	0.50	81.00	28	0.51	0.004	0.02	0.04	0.11
163	0.50	81.50	28	-0.20	-0.002	-0.01	-0.01	-0.04
164	0.50	82.00	28	0.09	0.001	0.00	0.01	0.02
165	0.50	82.50	28	0.07	0.001	0.00	0.01	0.02
166	0.50	83.00	28	0.04	0.000	0.00	0.00	0.01
167	0.50	83.50	28	0.18	0.002	0.01	0.01	0.04
168	0.50	84.00	28	-0.15	-0.001	-0.01	-0.01	-0.03
169	0.50	84.50	28	0.13	0.001	0.00	0.01	0.03
170	0.50	85.00	28	0.05	0.000	0.00	0.00	0.01
171	0.50	85.50	28	0.23	0.002	0.01	0.02	0.05
172	0.50	86.00	28	0.26	0.002	0.01	0.02	0.06

1: ΔHi is calculated for use with the Porchet Method.
*Porchet method used to convert percolation rate to infiltration rate.
See text of Appendix C for details.

APPENDIX D
ENVIRONMENTAL LABORATORY TEST RESULTS

ENVIRONMENTAL TEST RESULTS

A total of 46 samples were collected from the 12 exploratory borings we advanced at the site for environmental testing per UCSD Department of Environmental Health and Safety requirements (in addition to the geotechnical testing described in Appendix B). The approximate boring locations are shown on the Site Investigation Maps, Figures 2A through 2C. The boring logs are provided in Appendix A.

The environmental samples were sealed in glass containers using Teflon lids, and then cooled within an ice chest during storage and transportation. Trip blanks were stored within the ice chest to check for incidental contamination until the samples were delivered to a certified environmental testing laboratory (Eurofins CalScience) under a Chain of Custody. The samples were tested for environmental contaminants using EPA methods. Each sample was tested for Total Petroleum Carbons (EPA 8015B), Metals (EPA 6010B) and Mercury (EPA 7470A). The environmental test results are provided following Tables D-1 and D-2 below.

The first group of attached analytical test reports present the Total Petroleum Hydrocarbon (TPH) testing per EPA 8015B. Some hydrocarbons in the C8 through C40 range were detected in several of the samples we collected from Borings B-2, B-3, B-6, B-9 and B-11. The TPH levels detected at those five locations were mostly in the range of 5 to 26 mg/kg, with a maximum TPH concentration of 110 mg/kg detected at the location of Boring B-9.

The second group of analytical reports present toxic metals testing per EPA 6010B/7470A. Various metals were detected in most of the samples including Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Molybdenum, Nickel, Vanadium and Zinc. No Mercury, Selenium, Silver or Thallium was detected in any of the samples we tested.

Analytical results were compared to UCSD Department of Environmental Health and Safety Screening Criteria, and San Diego Regional Water Quality Control Board (SDRWQCB) Tier 2 Soil Screening Levels. Only arsenic was detected above SDRWQCB Tier 2 Screening Levels. However, arsenic concentrations were, on average, within background levels. Arsenic, cobalt, copper, lead, molybdenum and zinc were detected at concentrations exceeded the UCSD Screening Criteria. At the request of UCSD, these samples may be retested within 30 days by Calscience Eurofins using both the Soluble Threshold Limit Concentration (STLC) preparation method, as well as the Toxicity Characteristic Leaching Procedure (TCLP). However, further TCLP and STLC analysis does not appear to be warranted based upon total concentrations. Tables D-1 and D-2 on the following page summarize the screening levels exceedances.

TABLE D-1: ANALYTICAL RESULTS FOR METAL EXCEEDENCES

Sample ID	Sample Depth (feet)	Sample Date	Units	Arsenic	Cobalt	Copper	Lead	Molybdenum	Zinc
US EPA Analytical Method Number				6010B	6010B	6010B	6010B	6010B	6010B
B-1-4	15.0	10/21/2017	mg/kg	**10.5**	--	--	--	--	--
B-2-1	2.0	9/26/2017	mg/kg	--	--	--	17.9	--	--
B-2-4	15.0		mg/kg	--	21.0	--	--	--	--
B-3-1	2.0	9/25/2017	mg/kg	--	--	--	19.3	--	--
B-5-3	10.0		mg/kg	**10.6**	--	--	--	--	--
B-6-5	18.5		mg/kg	--	--	--	--	2.91	--
B-7-2	5.0		mg/kg	**7.17**	--	--	--	--	--
B-8-1	2.0	10/21/2017	mg/kg	**23.8**	--	--	18.0	--	--
B-8-2	5.0		mg/kg	**6.64**	--	179	--	--	--
B-10-1	2.0	9/25/2017	mg/kg	**8.04**	--	--	23.3	--	--
B-10-3	10.0	9/26/2017	mg/kg	**9.96**	--	--	--	--	--
B-10-4	15.0		mg/kg	**9.62**	--	--	--	--	--
B-11-2	5.0	9/27/2017	mg/kg	**14.6**	31.5	--	30.3	--	--
B-11-3	10.0		mg/kg	**12.5**	26.4	--	18.7	--	--
B-11-4	15.0		mg/kg	**6.79**	--	--	--	--	--
B-12-1	2.0	9/25/2017	mg/kg	--	--	--	--	--	191
Tier 2 (SDRWQCB)			**mg/kg**	**5.5**	**3,200**	**1,300**	**49**	**3,500**	**5,000**
UCSD Screening Criteria			**mg/kg**	**50**	**20**	**60**	**15**	**2**	**149**

(shaded) - Tier 2 Exceedance

X - USCD Exceedance

TABLE D-2: ANALYTICAL RESULTS FOR PETROLEUM HYDROCARBONS

Sample ID	Sample Depth (feet)	Sample Date	Units	C8-C40 (Total)
US EPA Analytical Method Number				8015B
B-3-1	2.0	9/25/2017	mg/kg	**21**
B-6-1	2.0		mg/kg	**20**
B-6-3	10.0		mg/kg	**13**
B-9-1	5.0		mg/kg	**110**
B-9-2	5.0		mg/kg	**26**
B-11-1	2.0		mg/kg	**5.3**
B-2-1	2.0	9/26/2017	mg/kg	**8.4**
B-2-4	15.0		mg/kg	**5.3**
UCSD Screening Criteria			**mg/kg**	**0**

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 09/26/17. They were assigned to Work Order 17-09-2035.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Glossary of Terms and Qualifiers

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Analytical Report

Group Delta Consultants, Inc.		Date Received:	10/23/17
9245 Activity Road, Suite 103		Work Order:	17-10-1748
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1-1@2'	**17-10-1748-1-A**	**10/21/17 09:03**	**Solid**	**GC 45**	**10/25/17**	**10/26/17 01:22**	**171025B03**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	85	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	10/23/17
9245 Activity Road, Suite 103		Work Order:	17-10-1748
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1-2@5'	**17-10-1748-2-A**	**10/21/17 09:14**	**Solid**	**GC 45**	**10/25/17**	**10/26/17 01:46**	**171025B03**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	84	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 10/23/17
9245 Activity Road, Suite 103	Work Order: 17-10-1748
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	Page 3 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1-3@10'	**17-10-1748-3-A**	**10/21/17 09:39**	**Solid**	**GC 45**	**10/25/17**	**10/26/17 02:07**	**171025B03**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	86	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 10/23/17
9245 Activity Road, Suite 103	Work Order: 17-10-1748
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1-4@15'	**17-10-1748-4-A**	**10/21/17 09:50**	**Solid**	**GC 45**	**10/25/17**	**10/26/17 02:29**	**171025B03**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	84	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/27/17
9245 Activity Road, Suite 103		Work Order:	17-09-2134
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-2-1@2'	**17-09-2134-1-A**	**09/26/17 08:33**	**Solid**	**GC 47**	**09/29/17**	**09/29/17 18:29**	**170929B08**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	8.4	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	83	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-2-2@5'	**17-09-2134-4-A**	**09/26/17 11:08**	**Solid**	**GC 47**	**09/29/17**	**09/29/17 19:34**	**170929B08**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.1	1.00	
C9-C10	ND	5.1	1.00	
C11-C12	ND	5.1	1.00	
C13-C14	ND	5.1	1.00	
C15-C16	ND	5.1	1.00	
C17-C18	ND	5.1	1.00	
C19-C20	ND	5.1	1.00	
C21-C22	ND	5.1	1.00	
C23-C24	ND	5.1	1.00	
C25-C28	ND	5.1	1.00	
C29-C32	ND	5.1	1.00	
C33-C36	ND	5.1	1.00	
C37-C40	ND	5.1	1.00	
C8-C40 Total	ND	5.1	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	90	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-2-3@10'	**17-09-2134-5-A**	**09/26/17 11:40**	**Solid**	**GC 47**	**09/29/17**	**09/29/17 19:56**	**170929B08**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	86	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/27/17
9245 Activity Road, Suite 103		Work Order:	17-09-2134
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 6 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-2-4@15'	**17-09-2134-6-A**	**09/26/17 11:49**	**Solid**	**GC 47**	**09/29/17**	**09/29/17 20:17**	**170929B08**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	5.3	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	86	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	Page 18 of 25

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-3-1@2'	**17-09-2035-18-A**	**09/25/17 10:05**	**Solid**	**GC 48**	**09/28/17**	**09/29/17 01:28**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	6.6	5.0	1.00	
C33-C36	5.9	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	21	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	110	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-3-2@5'	**17-09-2134-2-A**	**09/26/17 08:50**	**Solid**	**GC 47**	**09/29/17**	**09/29/17 18:50**	**170929B08**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	83	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-3-3@10'	**17-09-2134-3-A**	**09/26/17 09:08**	**Solid**	**GC 47**	**09/29/17**	**09/29/17 19:12**	**170929B08**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.1	1.00	
C9-C10	ND	5.1	1.00	
C11-C12	ND	5.1	1.00	
C13-C14	ND	5.1	1.00	
C15-C16	ND	5.1	1.00	
C17-C18	ND	5.1	1.00	
C19-C20	ND	5.1	1.00	
C21-C22	ND	5.1	1.00	
C23-C24	ND	5.1	1.00	
C25-C28	ND	5.1	1.00	
C29-C32	ND	5.1	1.00	
C33-C36	ND	5.1	1.00	
C37-C40	ND	5.1	1.00	
C8-C40 Total	ND	5.1	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	89	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-4-1@2'	**17-09-2035-11-A**	**09/25/17 08:40**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 23:01**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	103	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-4-2@5'	**17-09-2035-12-A**	**09/25/17 13:16**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 23:22**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	105	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-4-3@10'	**17-09-2035-13-A**	**09/25/17 13:22**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 23:43**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	101	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 8 of 25

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-5-1@2'	**17-09-2035-8-A**	**09/25/17 09:35**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 21:58**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.1	1.00	
C9-C10	ND	5.1	1.00	
C11-C12	ND	5.1	1.00	
C13-C14	ND	5.1	1.00	
C15-C16	ND	5.1	1.00	
C17-C18	ND	5.1	1.00	
C19-C20	ND	5.1	1.00	
C21-C22	ND	5.1	1.00	
C23-C24	ND	5.1	1.00	
C25-C28	ND	5.1	1.00	
C29-C32	ND	5.1	1.00	
C33-C36	ND	5.1	1.00	
C37-C40	ND	5.1	1.00	
C8-C40 Total	ND	5.1	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	105	61-145	

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-5-2@5'	**17-09-2035-9-A**	**09/25/17 11:15**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 22:20**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	97	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-5-3@10'	**17-09-2035-10-A**	**09/25/17 11:31**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 22:40**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	109	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-1@2'	**17-09-2035-1-A**	**09/25/17 08:15**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 19:32**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	20	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	101	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-2@5'	**17-09-2035-2-A**	**09/25/17 08:25**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 19:53**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	108	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-3@10'	**17-09-2035-3-A**	**09/25/17 08:38**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 20:14**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	6.3	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	13	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	101	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-4@15'	**17-09-2035-4-A**	**09/25/17 08:56**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 20:35**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.1	1.00	
C9-C10	ND	5.1	1.00	
C11-C12	ND	5.1	1.00	
C13-C14	ND	5.1	1.00	
C15-C16	ND	5.1	1.00	
C17-C18	ND	5.1	1.00	
C19-C20	ND	5.1	1.00	
C21-C22	ND	5.1	1.00	
C23-C24	ND	5.1	1.00	
C25-C28	ND	5.1	1.00	
C29-C32	ND	5.1	1.00	
C33-C36	ND	5.1	1.00	
C37-C40	ND	5.1	1.00	
C8-C40 Total	ND	5.1	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	104	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received: 09/26/17
Work Order: 17-09-2035
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-5@18.5'	**17-09-2035-5-A**	**09/25/17 09:14**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 20:56**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.1	1.00	
C9-C10	ND	5.1	1.00	
C11-C12	ND	5.1	1.00	
C13-C14	ND	5.1	1.00	
C15-C16	ND	5.1	1.00	
C17-C18	ND	5.1	1.00	
C19-C20	ND	5.1	1.00	
C21-C22	ND	5.1	1.00	
C23-C24	ND	5.1	1.00	
C25-C28	ND	5.1	1.00	
C29-C32	ND	5.1	1.00	
C33-C36	ND	5.1	1.00	
C37-C40	ND	5.1	1.00	
C8-C40 Total	ND	5.1	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	103	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	Page 14 of 25

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-7-1@2'	**17-09-2035-14-A**	**09/25/17 14:26**	**Solid**	**GC 48**	**09/28/17**	**09/29/17 00:04**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	109	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-7-2@5'	**17-09-2035-15-A**	**09/25/17 14:38**	**Solid**	**GC 48**	**09/28/17**	**09/29/17 00:25**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	93	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-7-3@10'	**17-09-2035-16-A**	**09/25/17 14:47**	**Solid**	**GC 48**	**09/28/17**	**09/29/17 00:46**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	95	61-145	

Analytical Report

Group Delta Consultants, Inc.	Date Received: 10/23/17
9245 Activity Road, Suite 103	Work Order: 17-10-1748
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-8-1@2'	**17-10-1748-5-A**	**10/21/17 11:28**	**Solid**	**GC 45**	**10/25/17**	**10/26/17 02:52**	**171025B03**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	83	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 10/23/17
9245 Activity Road, Suite 103	Work Order: 17-10-1748
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-8-2@5'	**17-10-1748-6-A**	**10/21/17 11:39**	**Solid**	**GC 45**	**10/25/17**	**10/26/17 03:14**	**171025B03**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	83	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	10/23/17
9245 Activity Road, Suite 103		Work Order:	17-10-1748
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 7 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-8-3@10'	**17-10-1748-7-A**	**10/21/17 11:46**	**Solid**	**GC 45**	**10/25/17**	**10/26/17 03:37**	**171025B03**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	84	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-9-1@2'	**17-09-2035-19-A**	**09/25/17 14:32**	**Solid**	**GC 48**	**09/28/17**	**09/29/17 01:49**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	6.9	5.0	1.00	
C25-C28	16	5.0	1.00	
C29-C32	33	5.0	1.00	
C33-C36	29	5.0	1.00	
C37-C40	13	5.0	1.00	
C8-C40 Total	110	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	104	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-9-2@5'	**17-09-2035-20-A**	**09/25/17 14:57**	**Solid**	**GC 48**	**09/28/17**	**09/29/17 02:10**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	7.9	5.0	1.00	
C33-C36	8.0	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	26	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	100	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/28/17
9245 Activity Road, Suite 103	Work Order: 17-09-2249
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-9-3@10'	**17-09-2249-1-A**	**09/27/17 09:26**	**Solid**	**GC 46**	**09/29/17**	**09/29/17 21:26**	**170929B01A**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	90	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/28/17
9245 Activity Road, Suite 103	Work Order: 17-09-2249
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-9-4@15'	**17-09-2249-2-A**	**09/27/17 09:38**	**Solid**	**GC 46**	**09/29/17**	**09/29/17 21:47**	**170929B01A**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	90	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-10-1@2'	**17-09-2035-21-A**	**09/25/17 12:56**	**Solid**	**GC 45**	**09/28/17**	**09/29/17 06:47**	**170928B08A**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	95	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/27/17
Work Order:	17-09-2134
Preparation:	EPA 3550B
Method:	EPA 8015B (M)
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-10-2@5'	**17-09-2134-7-A**	**09/26/17 14:01**	**Solid**	**GC 47**	**09/29/17**	**09/29/17 20:39**	**170929B08**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	81	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-10-3@10'	**17-09-2134-8-A**	**09/26/17 14:15**	**Solid**	**GC 47**	**09/29/17**	**09/29/17 21:01**	**170929B08**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.1	1.00	
C9-C10	ND	5.1	1.00	
C11-C12	ND	5.1	1.00	
C13-C14	ND	5.1	1.00	
C15-C16	ND	5.1	1.00	
C17-C18	ND	5.1	1.00	
C19-C20	ND	5.1	1.00	
C21-C22	ND	5.1	1.00	
C23-C24	ND	5.1	1.00	
C25-C28	ND	5.1	1.00	
C29-C32	ND	5.1	1.00	
C33-C36	ND	5.1	1.00	
C37-C40	ND	5.1	1.00	
C8-C40 Total	ND	5.1	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	78	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-10-4@15'	**17-09-2134-9-A**	**09/26/17 14:23**	**Solid**	**GC 47**	**09/29/17**	**09/29/17 21:24**	**170929B08**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	72	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 22 of 25

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-11-1@2'	**17-09-2035-22-A**	**09/25/17 11:42**	**Solid**	**GC 45**	**09/28/17**	**09/29/17 07:09**	**170928B08A**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	5.3	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	97	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/28/17
9245 Activity Road, Suite 103	Work Order: 17-09-2249
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-11-2@5'	**17-09-2249-3-A**	**09/27/17 12:20**	**Solid**	**GC 46**	**09/29/17**	**09/29/17 22:08**	**170929B01A**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C8-C40 Total	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	80	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/28/17
9245 Activity Road, Suite 103	Work Order: 17-09-2249
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-11-3@10'	**17-09-2249-4-A**	**09/27/17 12:34**	**Solid**	**GC 46**	**09/29/17**	**09/29/17 22:29**	**170929B01A**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	70	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/28/17
9245 Activity Road, Suite 103	Work Order: 17-09-2249
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-11-4@15'	**17-09-2249-5-A**	**09/27/17 12:52**	**Solid**	**GC 46**	**09/29/17**	**09/29/17 22:51**	**170929B01A**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	71	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-12-1@2'	**17-09-2035-23-A**	**09/25/17 13:48**	**Solid**	**GC 45**	**09/28/17**	**09/29/17 07:31**	**170928B08A**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	94	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/27/17
Work Order:	17-09-2134
Preparation:	EPA 3550B
Method:	EPA 8015B (M)
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-12-2@5'	**17-09-2134-11-A**	**09/26/17 16:30**	**Solid**	**GC 47**	**09/29/17**	**09/29/17 22:08**	**170929B08**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.1	1.00	
C9-C10	ND	5.1	1.00	
C11-C12	ND	5.1	1.00	
C13-C14	ND	5.1	1.00	
C15-C16	ND	5.1	1.00	
C17-C18	ND	5.1	1.00	
C19-C20	ND	5.1	1.00	
C21-C22	ND	5.1	1.00	
C23-C24	ND	5.1	1.00	
C25-C28	ND	5.1	1.00	
C29-C32	ND	5.1	1.00	
C33-C36	ND	5.1	1.00	
C37-C40	ND	5.1	1.00	
C8-C40 Total	ND	5.1	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	80	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
I-1-1@2'	**17-09-2035-6-A**	**09/25/17 10:18**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 21:17**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	97	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/26/17
Work Order:	17-09-2035
Preparation:	EPA 3550B
Method:	EPA 8015B (M)
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
I-1-2@5'	**17-09-2035-7-A**	**09/25/17 10:27**	**Solid**	**GC 48**	**09/28/17**	**09/28/17 21:38**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	94	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
I-2-1@2'	**17-09-2035-17-A**	**09/25/17 12:16**	**Solid**	**GC 48**	**09/28/17**	**09/29/17 01:07**	**170928B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C8-C40 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	92	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 3550B
	Method: EPA 8015B (M)
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
I-2-2@5'	**17-09-2134-10-A**	**09/26/17 15:45**	**Solid**	**GC 47**	**09/29/17**	**09/29/17 21:45**	**170929B08**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C8	ND	5.1	1.00	
C9-C10	ND	5.1	1.00	
C11-C12	ND	5.1	1.00	
C13-C14	ND	5.1	1.00	
C15-C16	ND	5.1	1.00	
C17-C18	ND	5.1	1.00	
C19-C20	ND	5.1	1.00	
C21-C22	ND	5.1	1.00	
C23-C24	ND	5.1	1.00	
C25-C28	ND	5.1	1.00	
C29-C32	ND	5.1	1.00	
C33-C36	ND	5.1	1.00	
C37-C40	ND	5.1	1.00	
C8-C40 Total	ND	5.1	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	84	61-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.		Date Received:	10/23/17
9245 Activity Road, Suite 103		Work Order:	17-10-1748
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1-1@2'	**17-10-1748-1-A**	**10/21/17 09:03**	**Solid**	**ICP 7300**	**10/28/17**	**10/30/17 12:53**	**171028L03**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.725	0.966	
Arsenic	2.91	0.725	0.966	
Barium	65.6	0.483	0.966	
Beryllium	ND	0.242	0.966	
Cadmium	ND	0.483	0.966	
Chromium	9.10	0.242	0.966	
Cobalt	4.80	0.242	0.966	
Copper	4.97	0.483	0.966	
Lead	5.81	0.483	0.966	
Molybdenum	ND	0.242	0.966	
Nickel	3.66	0.242	0.966	
Selenium	ND	0.725	0.966	
Silver	ND	0.242	0.966	
Thallium	ND	0.725	0.966	
Vanadium	21.0	0.242	0.966	
Zinc	13.4	0.966	0.966	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	10/23/17
Work Order:	17-10-1748
Preparation:	EPA 3050B
Method:	EPA 6010B
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1-2@5'	**17-10-1748-2-A**	**10/21/17 09:14**	**Solid**	**ICP 7300**	**10/28/17**	**10/30/17 12:54**	**171028L03**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1.00	
Arsenic	4.49	0.750	1.00	
Barium	395	0.500	1.00	
Beryllium	ND	0.250	1.00	
Cadmium	ND	0.500	1.00	
Chromium	15.6	0.250	1.00	
Cobalt	3.99	0.250	1.00	
Copper	5.67	0.500	1.00	
Lead	3.03	0.500	1.00	
Molybdenum	ND	0.250	1.00	
Nickel	6.47	0.250	1.00	
Selenium	ND	0.750	1.00	
Silver	ND	0.250	1.00	
Thallium	ND	0.750	1.00	
Vanadium	33.9	0.250	1.00	
Zinc	15.3	1.00	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	10/23/17
9245 Activity Road, Suite 103		Work Order:	17-10-1748
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 3 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1-3@10'	**17-10-1748-3-A**	**10/21/17 09:39**	**Solid**	**ICP 7300**	**10/28/17**	**10/30/17 12:55**	**171028L03**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.773	1.03	
Arsenic	1.50	0.773	1.03	
Barium	58.0	0.515	1.03	
Beryllium	ND	0.258	1.03	
Cadmium	ND	0.515	1.03	
Chromium	11.8	0.258	1.03	
Cobalt	3.04	0.258	1.03	
Copper	4.96	0.515	1.03	
Lead	1.46	0.515	1.03	
Molybdenum	ND	0.258	1.03	
Nickel	3.76	0.258	1.03	
Selenium	ND	0.773	1.03	
Silver	ND	0.258	1.03	
Thallium	ND	0.773	1.03	
Vanadium	25.2	0.258	1.03	
Zinc	17.5	1.03	1.03	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 10/23/17
9245 Activity Road, Suite 103	Work Order: 17-10-1748
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1-4@15'	**17-10-1748-4-A**	**10/21/17 09:50**	**Solid**	**ICP 7300**	**10/28/17**	**10/30/17 12:56**	**171028L03**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.754	1.01	
Arsenic	10.5	0.754	1.01	
Barium	20.5	0.503	1.01	
Beryllium	0.419	0.251	1.01	
Cadmium	ND	0.503	1.01	
Chromium	11.3	0.251	1.01	
Cobalt	4.72	0.251	1.01	
Copper	12.7	0.503	1.01	
Lead	6.80	0.503	1.01	
Molybdenum	ND	0.251	1.01	
Nickel	5.53	0.251	1.01	
Selenium	ND	0.754	1.01	
Silver	ND	0.251	1.01	
Thallium	ND	0.754	1.01	
Vanadium	29.6	0.251	1.01	
Zinc	40.2	1.01	1.01	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-2-1@2'	**17-09-2134-1-A**	**09/26/17 08:33**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:10**	**170930L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.41	0.746	0.995	
Arsenic	3.26	0.746	0.995	
Barium	59.1	0.498	0.995	
Beryllium	ND	0.249	0.995	
Cadmium	ND	0.498	0.995	
Chromium	11.1	0.249	0.995	
Cobalt	3.06	0.249	0.995	
Copper	6.05	0.498	0.995	
Lead	17.9	0.498	0.995	
Molybdenum	ND	0.249	0.995	
Nickel	3.16	0.249	0.995	
Selenium	ND	0.746	0.995	
Silver	ND	0.249	0.995	
Thallium	ND	0.746	0.995	
Vanadium	31.0	0.249	0.995	
Zinc	14.5	0.995	0.995	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/27/17
Work Order:	17-09-2134
Preparation:	EPA 3050B
Method:	EPA 6010B
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-2-2@5'	**17-09-2134-4-A**	**09/26/17 11:08**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:14**	**170930L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	0.945	0.750	1.00	
Arsenic	1.62	0.750	1.00	
Barium	34.0	0.500	1.00	
Beryllium	ND	0.250	1.00	
Cadmium	ND	0.500	1.00	
Chromium	10.8	0.250	1.00	
Cobalt	2.52	0.250	1.00	
Copper	4.29	0.500	1.00	
Lead	4.90	0.500	1.00	
Molybdenum	ND	0.250	1.00	
Nickel	3.27	0.250	1.00	
Selenium	ND	0.750	1.00	
Silver	ND	0.250	1.00	
Thallium	ND	0.750	1.00	
Vanadium	28.4	0.250	1.00	
Zinc	8.28	1.00	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received: 09/27/17
Work Order: 17-09-2134
Preparation: EPA 3050B
Method: EPA 6010B
Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-2-3@10'	**17-09-2134-5-A**	**09/26/17 11:40**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:15**	**170930L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	0.783	0.721	0.962	
Arsenic	0.869	0.721	0.962	
Barium	12.7	0.481	0.962	
Beryllium	ND	0.240	0.962	
Cadmium	ND	0.481	0.962	
Chromium	6.59	0.240	0.962	
Cobalt	1.76	0.240	0.962	
Copper	11.8	0.481	0.962	
Lead	1.29	0.481	0.962	
Molybdenum	ND	0.240	0.962	
Nickel	2.46	0.240	0.962	
Selenium	ND	0.721	0.962	
Silver	ND	0.240	0.962	
Thallium	ND	0.721	0.962	
Vanadium	13.6	0.240	0.962	
Zinc	11.1	0.962	0.962	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received:	09/27/17
9245 Activity Road, Suite 103	Work Order:	17-09-2134
San Diego, CA 92126-4442	Preparation:	EPA 3050B
	Method:	EPA 6010B
	Units:	mg/kg
Project: UCSD Gateway Complex		Page 6 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-2-4@15'	**17-09-2134-6-A**	**09/26/17 11:49**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:15**	**170930L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.66	0.761	1.02	
Arsenic	2.26	0.761	1.02	
Barium	137	0.508	1.02	
Beryllium	0.469	0.254	1.02	
Cadmium	ND	0.508	1.02	
Chromium	13.4	0.254	1.02	
Cobalt	21.0	0.254	1.02	
Copper	6.48	0.508	1.02	
Lead	2.52	0.508	1.02	
Molybdenum	ND	0.254	1.02	
Nickel	7.08	0.254	1.02	
Selenium	ND	0.761	1.02	
Silver	ND	0.254	1.02	
Thallium	ND	0.761	1.02	
Vanadium	32.2	0.254	1.02	
Zinc	25.9	1.02	1.02	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-3-1@2'	**17-09-2035-18-A**	**09/25/17 10:05**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:47**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.32	0.721	0.962	
Arsenic	4.44	0.721	0.962	
Barium	62.4	0.481	0.962	
Beryllium	0.308	0.240	0.962	
Cadmium	ND	0.481	0.962	
Chromium	8.49	0.240	0.962	
Cobalt	3.60	0.240	0.962	
Copper	9.69	0.481	0.962	
Lead	19.3	0.481	0.962	
Molybdenum	ND	0.240	0.962	
Nickel	4.89	0.240	0.962	
Selenium	ND	0.721	0.962	
Silver	ND	0.240	0.962	
Thallium	ND	0.721	0.962	
Vanadium	24.1	0.240	0.962	
Zinc	23.2	0.962	0.962	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/27/17
Work Order:	17-09-2134
Preparation:	EPA 3050B
Method:	EPA 6010B
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-3-2@5'	**17-09-2134-2-A**	**09/26/17 08:50**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:12**	**170930L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.16	0.750	1.00	
Arsenic	4.74	0.750	1.00	
Barium	16.4	0.500	1.00	
Beryllium	0.331	0.250	1.00	
Cadmium	ND	0.500	1.00	
Chromium	13.6	0.250	1.00	
Cobalt	3.49	0.250	1.00	
Copper	4.96	0.500	1.00	
Lead	3.58	0.500	1.00	
Molybdenum	ND	0.250	1.00	
Nickel	3.95	0.250	1.00	
Selenium	ND	0.750	1.00	
Silver	ND	0.250	1.00	
Thallium	ND	0.750	1.00	
Vanadium	41.0	0.250	1.00	
Zinc	8.99	1.00	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/27/17
9245 Activity Road, Suite 103		Work Order:	17-09-2134
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-3-3@10'	**17-09-2134-3-A**	**09/26/17 09:08**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:13**	**170930L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.728	0.971	
Arsenic	1.53	0.728	0.971	
Barium	6.01	0.485	0.971	
Beryllium	ND	0.243	0.971	
Cadmium	ND	0.485	0.971	
Chromium	6.83	0.243	0.971	
Cobalt	2.43	0.243	0.971	
Copper	2.56	0.485	0.971	
Lead	2.66	0.485	0.971	
Molybdenum	ND	0.243	0.971	
Nickel	3.12	0.243	0.971	
Selenium	ND	0.728	0.971	
Silver	ND	0.243	0.971	
Thallium	ND	0.728	0.971	
Vanadium	21.8	0.243	0.971	
Zinc	6.39	0.971	0.971	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-4-1@2'	**17-09-2035-11-A**	**09/25/17 08:40**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:41**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	0.934	0.781	1.04	
Arsenic	2.64	0.781	1.04	
Barium	82.7	0.521	1.04	
Beryllium	ND	0.260	1.04	
Cadmium	ND	0.521	1.04	
Chromium	8.16	0.260	1.04	
Cobalt	1.81	0.260	1.04	
Copper	2.95	0.521	1.04	
Lead	6.38	0.521	1.04	
Molybdenum	ND	0.260	1.04	
Nickel	1.99	0.260	1.04	
Selenium	ND	0.781	1.04	
Silver	ND	0.260	1.04	
Thallium	ND	0.781	1.04	
Vanadium	44.9	0.260	1.04	
Zinc	5.73	1.04	1.04	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received: 09/26/17
Work Order: 17-09-2035
Preparation: EPA 3050B
Method: EPA 6010B
Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-4-2@5'	**17-09-2035-12-A**	**09/25/17 13:16**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:42**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.08	0.750	1.00	
Arsenic	2.32	0.750	1.00	
Barium	68.7	0.500	1.00	
Beryllium	0.268	0.250	1.00	
Cadmium	ND	0.500	1.00	
Chromium	8.47	0.250	1.00	
Cobalt	2.92	0.250	1.00	
Copper	5.86	0.500	1.00	
Lead	6.16	0.500	1.00	
Molybdenum	ND	0.250	1.00	
Nickel	3.50	0.250	1.00	
Selenium	ND	0.750	1.00	
Silver	ND	0.250	1.00	
Thallium	ND	0.750	1.00	
Vanadium	23.5	0.250	1.00	
Zinc	13.5	1.00	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/26/17
Work Order:	17-09-2035
Preparation:	EPA 3050B
Method:	EPA 6010B
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-4-3@10'	**17-09-2035-13-A**	**09/25/17 13:22**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:43**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.785	1.05	
Arsenic	4.69	0.785	1.05	
Barium	13.2	0.524	1.05	
Beryllium	0.505	0.262	1.05	
Cadmium	ND	0.524	1.05	
Chromium	8.75	0.262	1.05	
Cobalt	18.7	0.262	1.05	
Copper	2.21	0.524	1.05	
Lead	1.72	0.524	1.05	
Molybdenum	ND	0.262	1.05	
Nickel	5.01	0.262	1.05	
Selenium	ND	0.785	1.05	
Silver	ND	0.262	1.05	
Thallium	ND	0.785	1.05	
Vanadium	37.8	0.262	1.05	
Zinc	8.84	1.05	1.05	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-5-1@2'	**17-09-2035-8-A**	**09/25/17 09:35**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:37**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.769	1.03	
Arsenic	3.56	0.769	1.03	
Barium	15.1	0.513	1.03	
Beryllium	ND	0.256	1.03	
Cadmium	ND	0.513	1.03	
Chromium	8.48	0.256	1.03	
Cobalt	1.31	0.256	1.03	
Copper	4.70	0.513	1.03	
Lead	2.93	0.513	1.03	
Molybdenum	ND	0.256	1.03	
Nickel	1.91	0.256	1.03	
Selenium	ND	0.769	1.03	
Silver	ND	0.256	1.03	
Thallium	ND	0.769	1.03	
Vanadium	21.4	0.256	1.03	
Zinc	7.31	1.03	1.03	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/26/17
Work Order:	17-09-2035
Preparation:	EPA 3050B
Method:	EPA 6010B
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-5-2@5'	**17-09-2035-9-A**	**09/25/17 11:15**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:38**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	0.822	0.718	0.957	
Arsenic	2.47	0.718	0.957	
Barium	9.98	0.478	0.957	
Beryllium	ND	0.239	0.957	
Cadmium	ND	0.478	0.957	
Chromium	6.54	0.239	0.957	
Cobalt	1.01	0.239	0.957	
Copper	1.98	0.478	0.957	
Lead	3.54	0.478	0.957	
Molybdenum	ND	0.239	0.957	
Nickel	1.13	0.239	0.957	
Selenium	ND	0.718	0.957	
Silver	ND	0.239	0.957	
Thallium	ND	0.718	0.957	
Vanadium	21.4	0.239	0.957	
Zinc	5.08	0.957	0.957	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-5-3@10'	**17-09-2035-10-A**	**09/25/17 11:31**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:38**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.06	0.728	0.971	
Arsenic	10.6	0.728	0.971	
Barium	12.8	0.485	0.971	
Beryllium	0.638	0.243	0.971	
Cadmium	ND	0.485	0.971	
Chromium	14.8	0.243	0.971	
Cobalt	3.94	0.243	0.971	
Copper	3.17	0.485	0.971	
Lead	2.34	0.485	0.971	
Molybdenum	ND	0.243	0.971	
Nickel	7.23	0.243	0.971	
Selenium	ND	0.728	0.971	
Silver	ND	0.243	0.971	
Thallium	ND	0.728	0.971	
Vanadium	46.7	0.243	0.971	
Zinc	13.6	0.971	0.971	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-1@2'	**17-09-2035-1-A**	**09/25/17 08:15**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:27**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.754	1.01	
Arsenic	0.907	0.754	1.01	
Barium	20.4	0.503	1.01	
Beryllium	ND	0.251	1.01	
Cadmium	ND	0.503	1.01	
Chromium	10.5	0.251	1.01	
Cobalt	2.03	0.251	1.01	
Copper	3.37	0.503	1.01	
Lead	2.43	0.503	1.01	
Molybdenum	0.645	0.251	1.01	
Nickel	1.79	0.251	1.01	
Selenium	ND	0.754	1.01	
Silver	ND	0.251	1.01	
Thallium	ND	0.754	1.01	
Vanadium	19.4	0.251	1.01	
Zinc	5.11	1.01	1.01	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-2@5'	**17-09-2035-2-A**	**09/25/17 08:25**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:32**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.13	0.746	0.995	
Arsenic	1.77	0.746	0.995	
Barium	54.5	0.498	0.995	
Beryllium	ND	0.249	0.995	
Cadmium	ND	0.498	0.995	
Chromium	9.01	0.249	0.995	
Cobalt	2.92	0.249	0.995	
Copper	3.66	0.498	0.995	
Lead	12.8	0.498	0.995	
Molybdenum	0.313	0.249	0.995	
Nickel	2.77	0.249	0.995	
Selenium	ND	0.746	0.995	
Silver	ND	0.249	0.995	
Thallium	ND	0.746	0.995	
Vanadium	25.8	0.249	0.995	
Zinc	11.2	0.995	0.995	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/26/17
Work Order:	17-09-2035
Preparation:	EPA 3050B
Method:	EPA 6010B
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-3@10'	**17-09-2035-3-A**	**09/25/17 08:38**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:33**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.14	0.785	1.05	
Arsenic	3.54	0.785	1.05	
Barium	18.0	0.524	1.05	
Beryllium	ND	0.262	1.05	
Cadmium	ND	0.524	1.05	
Chromium	12.6	0.262	1.05	
Cobalt	2.40	0.262	1.05	
Copper	3.66	0.524	1.05	
Lead	2.69	0.524	1.05	
Molybdenum	0.685	0.262	1.05	
Nickel	3.39	0.262	1.05	
Selenium	ND	0.785	1.05	
Silver	ND	0.262	1.05	
Thallium	ND	0.785	1.05	
Vanadium	29.3	0.262	1.05	
Zinc	9.51	1.05	1.05	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-4@15'	**17-09-2035-4-A**	**09/25/17 08:56**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:34**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	0.848	0.718	0.957	
Arsenic	1.28	0.718	0.957	
Barium	15.5	0.478	0.957	
Beryllium	0.268	0.239	0.957	
Cadmium	ND	0.478	0.957	
Chromium	6.32	0.239	0.957	
Cobalt	2.57	0.239	0.957	
Copper	2.16	0.478	0.957	
Lead	1.43	0.478	0.957	
Molybdenum	ND	0.239	0.957	
Nickel	3.28	0.239	0.957	
Selenium	ND	0.718	0.957	
Silver	ND	0.239	0.957	
Thallium	ND	0.718	0.957	
Vanadium	12.1	0.239	0.957	
Zinc	9.41	0.957	0.957	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-5@18.5'	**17-09-2035-5-A**	**09/25/17 09:14**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:34**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.10	0.732	0.976	
Arsenic	4.01	0.732	0.976	
Barium	48.8	0.488	0.976	
Beryllium	0.248	0.244	0.976	
Cadmium	ND	0.488	0.976	
Chromium	24.1	0.244	0.976	
Cobalt	3.10	0.244	0.976	
Copper	7.84	0.488	0.976	
Lead	2.49	0.488	0.976	
Molybdenum	2.91	0.244	0.976	
Nickel	5.55	0.244	0.976	
Selenium	ND	0.732	0.976	
Silver	ND	0.244	0.976	
Thallium	ND	0.732	0.976	
Vanadium	19.6	0.244	0.976	
Zinc	17.3	0.976	0.976	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/26/17
Work Order:	17-09-2035
Preparation:	EPA 3050B
Method:	EPA 6010B
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-7-1@2'	**17-09-2035-14-A**	**09/25/17 14:26**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:44**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.18	0.777	1.04	
Arsenic	1.09	0.777	1.04	
Barium	6.21	0.518	1.04	
Beryllium	ND	0.259	1.04	
Cadmium	ND	0.518	1.04	
Chromium	6.51	0.259	1.04	
Cobalt	1.07	0.259	1.04	
Copper	1.55	0.518	1.04	
Lead	3.17	0.518	1.04	
Molybdenum	ND	0.259	1.04	
Nickel	1.07	0.259	1.04	
Selenium	ND	0.777	1.04	
Silver	ND	0.259	1.04	
Thallium	ND	0.777	1.04	
Vanadium	22.6	0.259	1.04	
Zinc	3.44	1.04	1.04	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 15 of 25

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-7-2@5'	**17-09-2035-15-A**	**09/25/17 14:38**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:45**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.48	0.725	0.966	
Arsenic	7.17	0.725	0.966	
Barium	69.6	0.483	0.966	
Beryllium	ND	0.242	0.966	
Cadmium	ND	0.483	0.966	
Chromium	6.82	0.242	0.966	
Cobalt	1.77	0.242	0.966	
Copper	2.86	0.483	0.966	
Lead	3.17	0.483	0.966	
Molybdenum	0.386	0.242	0.966	
Nickel	2.14	0.242	0.966	
Selenium	ND	0.725	0.966	
Silver	ND	0.242	0.966	
Thallium	ND	0.725	0.966	
Vanadium	37.7	0.242	0.966	
Zinc	8.41	0.966	0.966	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/26/17
Work Order:	17-09-2035
Preparation:	EPA 3050B
Method:	EPA 6010B
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-7-3@10'	**17-09-2035-16-A**	**09/25/17 14:47**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:45**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	0.942	0.743	0.990	
Arsenic	2.06	0.743	0.990	
Barium	9.77	0.495	0.990	
Beryllium	ND	0.248	0.990	
Cadmium	ND	0.495	0.990	
Chromium	12.7	0.248	0.990	
Cobalt	2.45	0.248	0.990	
Copper	2.73	0.495	0.990	
Lead	2.83	0.495	0.990	
Molybdenum	ND	0.248	0.990	
Nickel	2.46	0.248	0.990	
Selenium	ND	0.743	0.990	
Silver	ND	0.248	0.990	
Thallium	ND	0.743	0.990	
Vanadium	31.8	0.248	0.990	
Zinc	6.14	0.990	0.990	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.		Date Received:	10/23/17
9245 Activity Road, Suite 103		Work Order:	17-10-1748
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-8-1@2'	**17-10-1748-5-A**	**10/21/17 11:28**	**Solid**	**ICP 7300**	**10/28/17**	**10/30/17 12:56**	**171028L03**

Parameter	Result	RL	DF	Qualifiers
Antimony	0.798	0.754	1.01	
Arsenic	23.8	0.754	1.01	
Barium	213	0.503	1.01	
Beryllium	0.522	0.251	1.01	
Cadmium	ND	0.503	1.01	
Chromium	13.4	0.251	1.01	
Cobalt	7.60	0.251	1.01	
Copper	17.5	0.503	1.01	
Lead	18.0	0.503	1.01	
Molybdenum	0.265	0.251	1.01	
Nickel	8.11	0.251	1.01	
Selenium	ND	0.754	1.01	
Silver	ND	0.251	1.01	
Thallium	ND	0.754	1.01	
Vanadium	31.2	0.251	1.01	
Zinc	39.5	1.01	1.01	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	10/23/17
9245 Activity Road, Suite 103		Work Order:	17-10-1748
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 6 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-8-2@5'	**17-10-1748-6-A**	**10/21/17 11:39**	**Solid**	**ICP 7300**	**10/28/17**	**10/30/17 12:57**	**171028L03**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.732	0.976	
Arsenic	6.64	0.732	0.976	
Barium	156	0.488	0.976	
Beryllium	0.245	0.244	0.976	
Cadmium	ND	0.488	0.976	
Chromium	18.0	0.244	0.976	
Cobalt	3.54	0.244	0.976	
Copper	179	0.488	0.976	
Lead	4.59	0.488	0.976	
Molybdenum	0.307	0.244	0.976	
Nickel	5.01	0.244	0.976	
Selenium	ND	0.732	0.976	
Silver	ND	0.244	0.976	
Thallium	ND	0.732	0.976	
Vanadium	31.4	0.244	0.976	
Zinc	41.7	0.976	0.976	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 10/23/17
9245 Activity Road, Suite 103	Work Order: 17-10-1748
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg
Project: UCSD Gateway Complex	Page 7 of 8

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-8-3@10'	**17-10-1748-7-A**	**10/21/17 11:46**	**Solid**	**ICP 7300**	**10/28/17**	**10/30/17 12:58**	**171028L03**

Parameter	Result	RL	DF	Qualifiers
Antimony	0.841	0.718	0.957	
Arsenic	2.48	0.718	0.957	
Barium	31.3	0.478	0.957	
Beryllium	0.320	0.239	0.957	
Cadmium	ND	0.478	0.957	
Chromium	16.4	0.239	0.957	
Cobalt	4.82	0.239	0.957	
Copper	5.54	0.478	0.957	
Lead	2.33	0.478	0.957	
Molybdenum	0.787	0.239	0.957	
Nickel	4.82	0.239	0.957	
Selenium	ND	0.718	0.957	
Silver	ND	0.239	0.957	
Thallium	ND	0.718	0.957	
Vanadium	26.2	0.239	0.957	
Zinc	14.7	0.957	0.957	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-9-1@2'	**17-09-2035-19-A**	**09/25/17 14:32**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:48**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.746	0.995	
Arsenic	4.41	0.746	0.995	
Barium	62.9	0.498	0.995	
Beryllium	0.266	0.249	0.995	
Cadmium	ND	0.498	0.995	
Chromium	7.16	0.249	0.995	
Cobalt	3.85	0.249	0.995	
Copper	5.97	0.498	0.995	
Lead	11.5	0.498	0.995	
Molybdenum	0.272	0.249	0.995	
Nickel	4.01	0.249	0.995	
Selenium	ND	0.746	0.995	
Silver	ND	0.249	0.995	
Thallium	ND	0.746	0.995	
Vanadium	18.4	0.249	0.995	
Zinc	31.6	0.995	0.995	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-9-2@5'	**17-09-2035-20-A**	**09/25/17 14:57**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:49**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.769	1.03	
Arsenic	4.47	0.769	1.03	
Barium	61.9	0.513	1.03	
Beryllium	0.300	0.256	1.03	
Cadmium	ND	0.513	1.03	
Chromium	7.17	0.256	1.03	
Cobalt	3.34	0.256	1.03	
Copper	4.33	0.513	1.03	
Lead	3.13	0.513	1.03	
Molybdenum	ND	0.256	1.03	
Nickel	4.34	0.256	1.03	
Selenium	ND	0.769	1.03	
Silver	ND	0.256	1.03	
Thallium	ND	0.769	1.03	
Vanadium	21.5	0.256	1.03	
Zinc	16.9	1.03	1.03	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/28/17
9245 Activity Road, Suite 103	Work Order: 17-09-2249
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-9-3@10'	**17-09-2249-1-A**	**09/27/17 09:26**	**Solid**	**ICP 7300**	**10/04/17**	**10/04/17 15:07**	**171004L01**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.718	0.957	
Arsenic	2.11	0.718	0.957	
Barium	16.4	0.478	0.957	
Beryllium	ND	0.239	0.957	
Cadmium	ND	0.478	0.957	
Chromium	9.35	0.239	0.957	
Cobalt	2.37	0.239	0.957	
Copper	3.40	0.478	0.957	
Lead	1.63	0.478	0.957	
Molybdenum	0.383	0.239	0.957	
Nickel	3.75	0.239	0.957	
Selenium	ND	0.718	0.957	
Silver	ND	0.239	0.957	
Thallium	ND	0.718	0.957	
Vanadium	16.9	0.239	0.957	
Zinc	11.8	0.957	0.957	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/28/17
9245 Activity Road, Suite 103		Work Order:	17-09-2249
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-9-4@15'	**17-09-2249-2-A**	**09/27/17 09:38**	**Solid**	**ICP 7300**	**10/04/17**	**10/04/17 15:09**	**171004L01**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1.00	
Arsenic	2.94	0.750	1.00	
Barium	138	0.500	1.00	
Beryllium	ND	0.250	1.00	
Cadmium	ND	0.500	1.00	
Chromium	7.41	0.250	1.00	
Cobalt	4.79	0.250	1.00	
Copper	3.53	0.500	1.00	
Lead	1.43	0.500	1.00	
Molybdenum	0.434	0.250	1.00	
Nickel	3.71	0.250	1.00	
Selenium	ND	0.750	1.00	
Silver	ND	0.250	1.00	
Thallium	ND	0.750	1.00	
Vanadium	23.8	0.250	1.00	
Zinc	15.0	1.00	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/26/17
Work Order:	17-09-2035
Preparation:	EPA 3050B
Method:	EPA 6010B
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-10-1@2'	**17-09-2035-21-A**	**09/25/17 12:56**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:51**	**170930L03**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.30	0.735	0.980	
Arsenic	8.04	0.735	0.980	
Barium	55.2	0.490	0.980	
Beryllium	0.617	0.245	0.980	
Cadmium	ND	0.490	0.980	
Chromium	11.4	0.245	0.980	
Cobalt	9.81	0.245	0.980	
Copper	17.0	0.490	0.980	
Lead	23.3	0.490	0.980	
Molybdenum	0.283	0.245	0.980	
Nickel	13.0	0.245	0.980	
Selenium	ND	0.735	0.980	
Silver	ND	0.245	0.980	
Thallium	ND	0.735	0.980	
Vanadium	23.8	0.245	0.980	
Zinc	54.7	0.980	0.980	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-10-2@5'	**17-09-2134-7-A**	**09/26/17 14:01**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:16**	**170930L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	0.941	0.769	1.03	
Arsenic	2.63	0.769	1.03	
Barium	17.7	0.513	1.03	
Beryllium	ND	0.256	1.03	
Cadmium	ND	0.513	1.03	
Chromium	8.91	0.256	1.03	
Cobalt	2.75	0.256	1.03	
Copper	2.91	0.513	1.03	
Lead	2.29	0.513	1.03	
Molybdenum	ND	0.256	1.03	
Nickel	3.01	0.256	1.03	
Selenium	ND	0.769	1.03	
Silver	ND	0.256	1.03	
Thallium	ND	0.769	1.03	
Vanadium	22.7	0.256	1.03	
Zinc	9.81	1.03	1.03	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/27/17
9245 Activity Road, Suite 103		Work Order:	17-09-2134
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 8 of 12

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-10-3@10'	**17-09-2134-8-A**	**09/26/17 14:15**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:17**	**170930L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.39	0.781	1.04	
Arsenic	9.96	0.781	1.04	
Barium	28.3	0.521	1.04	
Beryllium	0.329	0.260	1.04	
Cadmium	ND	0.521	1.04	
Chromium	9.93	0.260	1.04	
Cobalt	5.02	0.260	1.04	
Copper	13.4	0.521	1.04	
Lead	11.3	0.521	1.04	
Molybdenum	ND	0.260	1.04	
Nickel	7.92	0.260	1.04	
Selenium	ND	0.781	1.04	
Silver	ND	0.260	1.04	
Thallium	ND	0.781	1.04	
Vanadium	32.1	0.260	1.04	
Zinc	47.7	1.04	1.04	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-10-4@15'	**17-09-2134-9-A**	**09/26/17 14:23**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:20**	**170930L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.46	0.746	0.995	
Arsenic	9.62	0.746	0.995	
Barium	26.3	0.498	0.995	
Beryllium	0.254	0.249	0.995	
Cadmium	ND	0.498	0.995	
Chromium	9.03	0.249	0.995	
Cobalt	5.59	0.249	0.995	
Copper	7.31	0.498	0.995	
Lead	5.84	0.498	0.995	
Molybdenum	0.301	0.249	0.995	
Nickel	8.35	0.249	0.995	
Selenium	ND	0.746	0.995	
Silver	ND	0.249	0.995	
Thallium	ND	0.746	0.995	
Vanadium	24.7	0.249	0.995	
Zinc	36.3	0.995	0.995	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/26/17
Work Order:	17-09-2035
Preparation:	EPA 3050B
Method:	EPA 6010B
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-11-1@2'	**17-09-2035-22-A**	**09/25/17 11:42**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:52**	**170930L03**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.746	0.995	
Arsenic	1.57	0.746	0.995	
Barium	21.8	0.498	0.995	
Beryllium	0.274	0.249	0.995	
Cadmium	ND	0.498	0.995	
Chromium	5.10	0.249	0.995	
Cobalt	3.64	0.249	0.995	
Copper	2.91	0.498	0.995	
Lead	1.93	0.498	0.995	
Molybdenum	ND	0.249	0.995	
Nickel	2.36	0.249	0.995	
Selenium	ND	0.746	0.995	
Silver	ND	0.249	0.995	
Thallium	ND	0.746	0.995	
Vanadium	14.6	0.249	0.995	
Zinc	7.78	0.995	0.995	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received: 09/28/17
Work Order: 17-09-2249
Preparation: EPA 3050B
Method: EPA 6010B
Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-11-2@5'	**17-09-2249-3-A**	**09/27/17 12:20**	**Solid**	**ICP 7300**	**10/04/17**	**10/04/17 15:10**	**171004L01**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.735	0.980	
Arsenic	14.6	0.735	0.980	
Barium	255	0.490	0.980	
Beryllium	0.905	0.245	0.980	
Cadmium	0.528	0.490	0.980	
Chromium	14.1	0.245	0.980	
Cobalt	31.5	0.245	0.980	
Copper	26.6	0.490	0.980	
Lead	30.3	0.490	0.980	
Molybdenum	0.347	0.245	0.980	
Nickel	19.0	0.245	0.980	
Selenium	ND	0.735	0.980	
Silver	ND	0.245	0.980	
Thallium	ND	0.735	0.980	
Vanadium	34.4	0.245	0.980	
Zinc	72.6	0.980	0.980	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/28/17
Work Order:	17-09-2249
Preparation:	EPA 3050B
Method:	EPA 6010B
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-11-3@10'	**17-09-2249-4-A**	**09/27/17 12:34**	**Solid**	**ICP 7300**	**10/04/17**	**10/04/17 15:11**	**171004L01**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.728	0.971	
Arsenic	12.5	0.728	0.971	
Barium	44.5	0.485	0.971	
Beryllium	0.642	0.243	0.971	
Cadmium	ND	0.485	0.971	
Chromium	13.6	0.243	0.971	
Cobalt	26.4	0.243	0.971	
Copper	24.5	0.485	0.971	
Lead	18.7	0.485	0.971	
Molybdenum	0.318	0.243	0.971	
Nickel	16.3	0.243	0.971	
Selenium	ND	0.728	0.971	
Silver	ND	0.243	0.971	
Thallium	ND	0.728	0.971	
Vanadium	25.8	0.243	0.971	
Zinc	63.3	0.971	0.971	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/28/17
9245 Activity Road, Suite 103	Work Order: 17-09-2249
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-11-4@15'	**17-09-2249-5-A**	**09/27/17 12:52**	**Solid**	**ICP 7300**	**10/04/17**	**10/04/17 15:12**	**171004L01**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.732	0.976	
Arsenic	6.79	0.732	0.976	
Barium	86.6	0.488	0.976	
Beryllium	0.464	0.244	0.976	
Cadmium	ND	0.488	0.976	
Chromium	12.7	0.244	0.976	
Cobalt	5.24	0.244	0.976	
Copper	16.9	0.488	0.976	
Lead	10.4	0.488	0.976	
Molybdenum	ND	0.244	0.976	
Nickel	8.63	0.244	0.976	
Selenium	ND	0.732	0.976	
Silver	ND	0.244	0.976	
Thallium	ND	0.732	0.976	
Vanadium	26.1	0.244	0.976	
Zinc	55.1	0.976	0.976	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 23 of 25

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-12-1@2'	**17-09-2035-23-A**	**09/25/17 13:48**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:53**	**170930L03**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.761	1.02	
Arsenic	1.95	0.761	1.02	
Barium	186	0.508	1.02	
Beryllium	ND	0.254	1.02	
Cadmium	ND	0.508	1.02	
Chromium	6.23	0.254	1.02	
Cobalt	2.11	0.254	1.02	
Copper	3.26	0.508	1.02	
Lead	3.85	0.508	1.02	
Molybdenum	ND	0.254	1.02	
Nickel	2.20	0.254	1.02	
Selenium	ND	0.761	1.02	
Silver	ND	0.254	1.02	
Thallium	ND	0.761	1.02	
Vanadium	20.6	0.254	1.02	
Zinc	191	1.02	1.02	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 3050B
	Method: EPA 6010B
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-12-2@5'	**17-09-2134-11-A**	**09/26/17 16:30**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:22**	**170930L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.41	0.721	0.962	
Arsenic	1.67	0.721	0.962	
Barium	337	0.481	0.962	
Beryllium	ND	0.240	0.962	
Cadmium	ND	0.481	0.962	
Chromium	15.4	0.240	0.962	
Cobalt	5.84	0.240	0.962	
Copper	7.74	0.481	0.962	
Lead	2.17	0.481	0.962	
Molybdenum	ND	0.240	0.962	
Nickel	4.97	0.240	0.962	
Selenium	ND	0.721	0.962	
Silver	ND	0.240	0.962	
Thallium	ND	0.721	0.962	
Vanadium	38.0	0.240	0.962	
Zinc	28.6	0.962	0.962	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
I-1-1@2'	**17-09-2035-6-A**	**09/25/17 10:18**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:35**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1.00	
Arsenic	2.28	0.750	1.00	
Barium	48.8	0.500	1.00	
Beryllium	ND	0.250	1.00	
Cadmium	ND	0.500	1.00	
Chromium	7.73	0.250	1.00	
Cobalt	1.31	0.250	1.00	
Copper	5.89	0.500	1.00	
Lead	2.51	0.500	1.00	
Molybdenum	ND	0.250	1.00	
Nickel	1.53	0.250	1.00	
Selenium	ND	0.750	1.00	
Silver	ND	0.250	1.00	
Thallium	ND	0.750	1.00	
Vanadium	17.9	0.250	1.00	
Zinc	7.36	1.00	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 7 of 25

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
I-1-2@5'	**17-09-2035-7-A**	**09/25/17 10:27**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:36**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.758	1.01	
Arsenic	ND	0.758	1.01	
Barium	6.87	0.505	1.01	
Beryllium	ND	0.253	1.01	
Cadmium	ND	0.505	1.01	
Chromium	6.71	0.253	1.01	
Cobalt	0.992	0.253	1.01	
Copper	1.19	0.505	1.01	
Lead	0.573	0.505	1.01	
Molybdenum	ND	0.253	1.01	
Nickel	1.08	0.253	1.01	
Selenium	ND	0.758	1.01	
Silver	ND	0.253	1.01	
Thallium	ND	0.758	1.01	
Vanadium	13.6	0.253	1.01	
Zinc	4.86	1.01	1.01	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 17 of 25

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
I-2-1@2'	**17-09-2035-17-A**	**09/25/17 12:16**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:46**	**170930L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.718	0.957	
Arsenic	1.85	0.718	0.957	
Barium	14.4	0.478	0.957	
Beryllium	ND	0.239	0.957	
Cadmium	ND	0.478	0.957	
Chromium	7.29	0.239	0.957	
Cobalt	2.53	0.239	0.957	
Copper	1.31	0.478	0.957	
Lead	5.11	0.478	0.957	
Molybdenum	ND	0.239	0.957	
Nickel	2.13	0.239	0.957	
Selenium	ND	0.718	0.957	
Silver	ND	0.239	0.957	
Thallium	ND	0.718	0.957	
Vanadium	22.2	0.239	0.957	
Zinc	4.70	0.957	0.957	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/27/17
9245 Activity Road, Suite 103		Work Order:	17-09-2134
San Diego, CA 92126-4442		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: UCSD Gateway Complex			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
I-2-2@5'	**17-09-2134-10-A**	**09/26/17 15:45**	**Solid**	**ICP 7300**	**09/30/17**	**10/02/17 13:21**	**170930L05**

Parameter	Result	RL	DF	Qualifiers
Antimony	1.02	0.721	0.962	
Arsenic	3.31	0.721	0.962	
Barium	218	0.481	0.962	
Beryllium	ND	0.240	0.962	
Cadmium	ND	0.481	0.962	
Chromium	27.3	0.240	0.962	
Cobalt	4.37	0.240	0.962	
Copper	4.91	0.481	0.962	
Lead	3.84	0.481	0.962	
Molybdenum	ND	0.240	0.962	
Nickel	4.70	0.240	0.962	
Selenium	ND	0.721	0.962	
Silver	ND	0.240	0.962	
Thallium	ND	0.721	0.962	
Vanadium	35.3	0.240	0.962	
Zinc	16.3	0.962	0.962	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Group Delta Consultants, Inc.		Date Received:	10/23/17
9245 Activity Road, Suite 103		Work Order:	17-10-1748
San Diego, CA 92126-4442		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1-1@2'	**17-10-1748-1-A**	**10/21/17 09:03**	**Solid**	**Mercury 07**	**10/30/17**	**10/30/17 15:33**	**171030L03**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0833	1.00		
B-1-2@5'	**17-10-1748-2-A**	**10/21/17 09:14**	**Solid**	**Mercury 07**	**10/30/17**	**10/30/17 15:36**	**171030L03**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0820	1.00		
B-1-3@10'	**17-10-1748-3-A**	**10/21/17 09:39**	**Solid**	**Mercury 07**	**10/30/17**	**10/30/17 15:38**	**171030L03**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0820	1.00		
B-1-4@15'	**17-10-1748-4-A**	**10/21/17 09:50**	**Solid**	**Mercury 07**	**10/30/17**	**10/30/17 15:40**	**171030L03**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0806	1.00		
B-8-1@2'	**17-10-1748-5-A**	**10/21/17 11:28**	**Solid**	**Mercury 07**	**10/30/17**	**10/30/17 15:47**	**171030L03**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0833	1.00		
B-8-2@5'	**17-10-1748-6-A**	**10/21/17 11:39**	**Solid**	**Mercury 07**	**10/30/17**	**10/30/17 15:49**	**171030L03**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0820	1.00		
B-8-3@10'	**17-10-1748-7-A**	**10/21/17 11:46**	**Solid**	**Mercury 07**	**10/30/17**	**10/30/17 15:52**	**171030L03**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0806	1.00		
Method Blank	**099-16-272-3433**	**N/A**	**Solid**	**Mercury 07**	**10/30/17**	**10/30/17 15:19**	**171030L03**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0833	1.00		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 7471A Total
	Method: EPA 7471A
	Units: mg/kg
Project: UCSD Gateway Complex	Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-2-1@2'	**17-09-2134-1-A**	**09/26/17 08:33**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 15:56**	**171003L03**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0862	1.00		
B-3-2@5'	**17-09-2134-2-A**	**09/26/17 08:50**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 15:58**	**171003L03**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0820	1.00		
B-3-3@10'	**17-09-2134-3-A**	**09/26/17 09:08**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 16:01**	**171003L03**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0877	1.00		
B-2-2@5'	**17-09-2134-4-A**	**09/26/17 11:08**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 16:03**	**171003L03**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0833	1.00		
B-2-3@10'	**17-09-2134-5-A**	**09/26/17 11:40**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 16:05**	**171003L03**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0847	1.00		
B-2-4@15'	**17-09-2134-6-A**	**09/26/17 11:49**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 16:08**	**171003L03**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0794	1.00		
B-10-2@5'	**17-09-2134-7-A**	**09/26/17 14:01**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 16:10**	**171003L03**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0794	1.00		
B-10-3@10'	**17-09-2134-8-A**	**09/26/17 14:15**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 16:12**	**171003L03**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0847	1.00		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/26/17
9245 Activity Road, Suite 103	Work Order: 17-09-2035
San Diego, CA 92126-4442	Preparation: EPA 7471A Total
	Method: EPA 7471A
	Units: mg/kg
Project: UCSD Gateway Complex	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-5-2@5'	**17-09-2035-9-A**	**09/25/17 11:15**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:34**	**171003L01**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0833	1.00		
B-5-3@10'	**17-09-2035-10-A**	**09/25/17 11:31**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:36**	**171003L01**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0833	1.00		
B-4-1@2'	**17-09-2035-11-A**	**09/25/17 08:40**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:38**	**171003L01**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0806	1.00		
B-4-2@5'	**17-09-2035-12-A**	**09/25/17 13:16**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:41**	**171003L01**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0794	1.00		
B-4-3@10'	**17-09-2035-13-A**	**09/25/17 13:22**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:43**	**171003L01**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0806	1.00		
B-7-1@2'	**17-09-2035-14-A**	**09/25/17 14:26**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:45**	**171003L01**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0847	1.00		
B-7-2@5'	**17-09-2035-15-A**	**09/25/17 14:38**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:47**	**171003L01**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0862	1.00		
B-7-3@10'	**17-09-2035-16-A**	**09/25/17 14:47**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:50**	**171003L01**
Parameter		Result		RL	DF	Qualifiers	
Mercury		ND		0.0862	1.00		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

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Group Delta Consultants, Inc.		Date Received:	09/26/17
9245 Activity Road, Suite 103		Work Order:	17-09-2035
San Diego, CA 92126-4442		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 1 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-1@2'	**17-09-2035-1-A**	**09/25/17 08:15**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 12:47**	**171003L01**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0794	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-2@5'	**17-09-2035-2-A**	**09/25/17 08:25**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 12:54**	**171003L01**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0794	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-3@10'	**17-09-2035-3-A**	**09/25/17 08:38**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 12:56**	**171003L01**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0806	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-4@15'	**17-09-2035-4-A**	**09/25/17 08:56**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 12:58**	**171003L01**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0820	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-6-5@18.5'	**17-09-2035-5-A**	**09/25/17 09:14**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:01**	**171003L01**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0847	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
I-1-1@2'	**17-09-2035-6-A**	**09/25/17 10:18**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:03**	**171003L01**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0820	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
I-1-2@5'	**17-09-2035-7-A**	**09/25/17 10:27**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:29**	**171003L01**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0794	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-5-1@2'	**17-09-2035-8-A**	**09/25/17 09:35**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:31**	**171003L01**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0794	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.
9245 Activity Road, Suite 103
San Diego, CA 92126-4442

Date Received:	09/26/17
Work Order:	17-09-2035
Preparation:	EPA 7471A Total
Method:	EPA 7471A
Units:	mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
I-2-1@2'	**17-09-2035-17-A**	**09/25/17 12:16**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:56**	**171003L01**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0877	1.00		
B-3-1@2'	**17-09-2035-18-A**	**09/25/17 10:05**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 13:59**	**171003L01**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0847	1.00		
B-9-1@2'	**17-09-2035-19-A**	**09/25/17 14:32**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 14:01**	**171003L01**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0820	1.00		
B-9-2@5'	**17-09-2035-20-A**	**09/25/17 14:57**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 14:03**	**171003L01**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0833	1.00		
B-10-1@2'	**17-09-2035-21-A**	**09/25/17 12:56**	**Solid**	**Mercury 07**	**10/03/17**	**10/03/17 14:31**	**171003L02**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0877	1.00		
B-11-1@2'	**17-09-2035-22-A**	**09/25/17 11:42**	**Solid**	**Mercury 07**	**10/03/17**	**10/03/17 14:34**	**171003L02**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0820	1.00		
B-12-1@2'	**17-09-2035-23-A**	**09/25/17 13:48**	**Solid**	**Mercury 07**	**10/03/17**	**10/03/17 14:36**	**171003L02**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0877	1.00		
Method Blank	**099-16-272-3346**	**N/A**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 12:42**	**171003L01**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0820	1.00		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

eurofins | Calscience

Analytical Report

Group Delta Consultants, Inc.		Date Received:	09/28/17
9245 Activity Road, Suite 103		Work Order:	17-09-2249
San Diego, CA 92126-4442		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
		Units:	mg/kg
Project: UCSD Gateway Complex			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-9-3@10'	**17-09-2249-1-A**	**09/27/17 09:26**	**Solid**	**Mercury 07**	**10/04/17**	**10/04/17 14:23**	**171004L02**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0820	1.00		
B-9-4@15'	**17-09-2249-2-A**	**09/27/17 09:38**	**Solid**	**Mercury 07**	**10/04/17**	**10/04/17 14:30**	**171004L02**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0794	1.00		
B-11-2@5'	**17-09-2249-3-A**	**09/27/17 12:20**	**Solid**	**Mercury 07**	**10/04/17**	**10/04/17 14:32**	**171004L02**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0806	1.00		
B-11-3@10'	**17-09-2249-4-A**	**09/27/17 12:34**	**Solid**	**Mercury 07**	**10/04/17**	**10/04/17 14:34**	**171004L02**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0794	1.00		
B-11-4@15'	**17-09-2249-5-A**	**09/27/17 12:52**	**Solid**	**Mercury 07**	**10/04/17**	**10/04/17 14:36**	**171004L02**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0806	1.00		
Method Blank	**099-16-272-3348**	**N/A**	**Solid**	**Mercury 07**	**10/04/17**	**10/04/17 14:18**	**171004L02**
Parameter		Result		RL	DF		Qualifiers
Mercury		ND		0.0833	1.00		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Group Delta Consultants, Inc.	Date Received: 09/27/17
9245 Activity Road, Suite 103	Work Order: 17-09-2134
San Diego, CA 92126-4442	Preparation: EPA 7471A Total
	Method: EPA 7471A
	Units: mg/kg

Project: UCSD Gateway Complex

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-10-4@15'	**17-09-2134-9-A**	**09/26/17 14:23**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 16:14**	**171003L03**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0862	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
I-2-2@5'	**17-09-2134-10-A**	**09/26/17 15:45**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 16:17**	**171003L03**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0833	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-12-2@5'	**17-09-2134-11-A**	**09/26/17 16:30**	**Solid**	**Mercury 08**	**10/03/17**	**10/03/17 17:22**	**171003L03**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0833	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-16-272-3345**	**N/A**	**Solid**	**Mercury 07**	**10/03/17**	**10/03/17 15:17**	**171003L03**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0806	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Appendix B
UC San Diego Triton Pavilion Drainage Report
(Latitude 33 Planning and Engineering 2022)

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UC JOB. #: 5148

UC SAN DIEGO
TRITON CENTER
DRAINAGE REPORT

PREPARED BY:

latitude 33
PLANNING & ENGINEERING

9968 Hibert Street 2nd Floor
San Diego, CA 92131
Latitude 33 Job #: 1653.0

DATE: 2022-07-29

Clay Ost RCE 72591
Registration Expires: 6-30-2023

Prepared By: CO

UC San Diego

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Abbreviations

ASF	Assignable Square Footage
CPM	Capital Program Management
CFS	Cubic Feet Per Second
Dn	Normal Depth
D	Depth
FPS	Feet per Second
GPD	Gallons per Day
GSF	Gross Square Footage
LRDP	Long Range Development Plan
OSHPD	Office of Statewide Health Planning and Development
MGD	Million Gallons per Day
MPF	Multi-Purpose Facility
PVC	Polyvinyl Chloride
UC	University of California

SECTION 1 – INTRODUCTION

1.1 PURPOSE

The purpose of this drainage report is to analyze the existing and proposed UC San Diego facilities for the development of Triton Center project based on the established campus guidelines referenced in Section 3. Recommendations on storm drain improvements, storm water storage, and overall hydrologic conditions will be analyzed for the existing condition and proposed condition of the site. It is the goal of this report to forecast needed utilities and ensure the project meets or exceeds the University of California San Diego hydrologic/hydraulic requirements.

1.2 SCOPE

The scope of this report includes the following elements:

- Existing UC San Diego Storm Drain System investigation and description.
- Determine estimated hydrologic flow rates for the existing and proposed conditions.
- Ensure compliance with UC San Diego flowrate requirements for projects creating/replacing 10,000 SqFt of Impervious Area.
- Determine any storm drain improvements necessary to convey flow in the proposed condition.

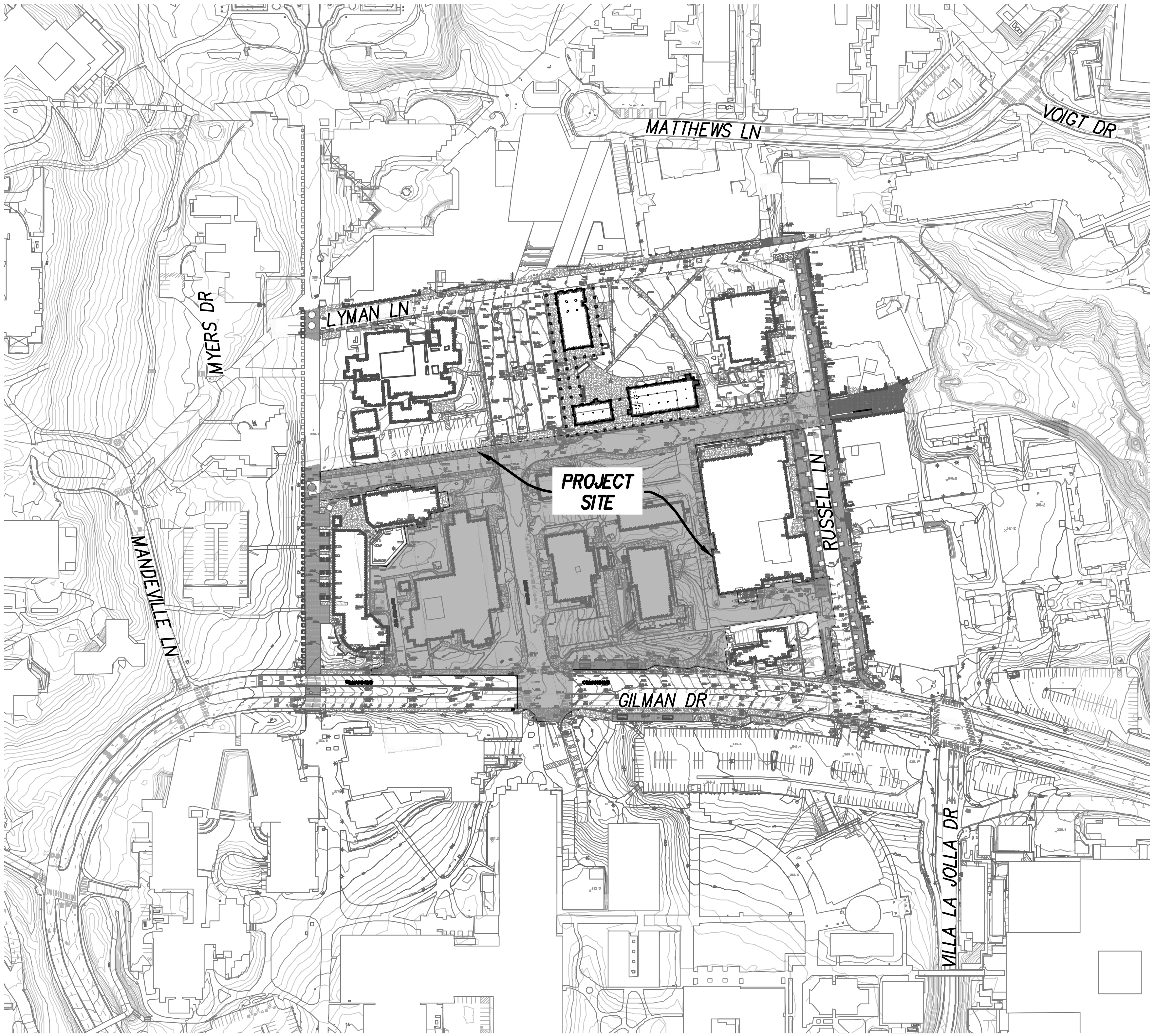
SECTION 2 – EXECUTIVE SUMMARY

The UC San Diego Triton Center project is located at the intersection of Gilman Drive and Myers Drive on the main UC San Diego campus. See **Figure 1** for the project location. This drainage study was prepared in support of the 5148 UC San Diego Triton Center project. The project proposes the construction of one 4-story building, one 5-story building, two 6-story buildings, and a subterranean loading dock/parking structure. In the proposed condition, new storm drain pipe, inlets and bio-filtration basins have been designed to enhance the drainage of the site and ensure that the project meets or exceeds all UC San Diego Design Guidelines.

The project will comply with all guidelines and requirements through design of on-site storm drain infrastructure, offsite coordination with the Pepper Canyon regional basin for treatment and storage, and the construction of bio-filtration basins in support of the post-construction BMP requirements as set forth in the MS4 Phase II permit.

For onsite peak flow rates, this report analyzes the net reduction for peak flows for the 10-year 6 hour storm event at each point of connection.

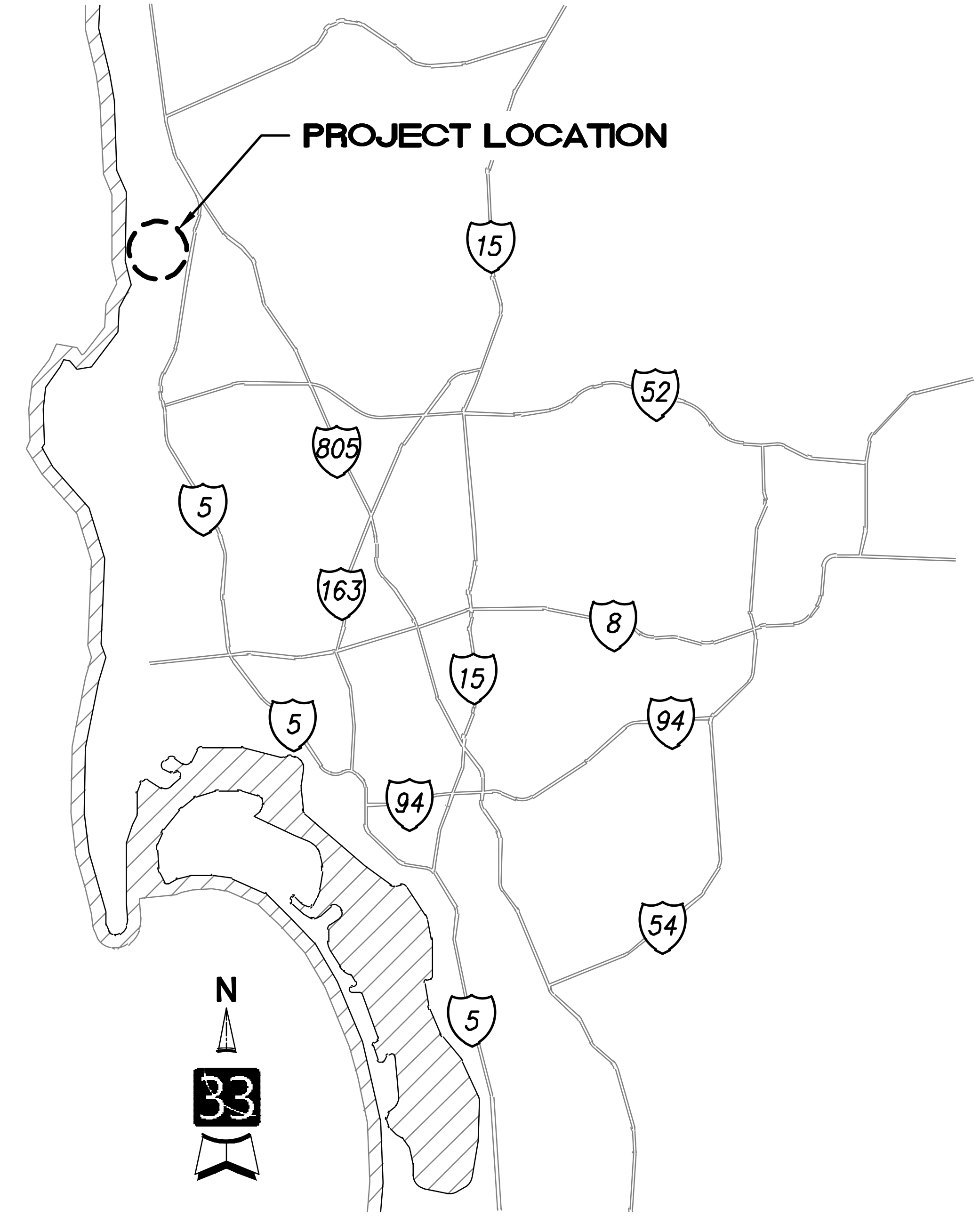
Figure 1 – Vicinity Map



N

UC SAN DIEGO LOCATION MAP

N.T.S.



N

VICINITY MAP

N.T.S.

UC SAN DIEGO TRITON PAVILION VICINITY MAP

SCALE:	NTS		
DATE:	12/2/2019	DRAWN BY:	M.D.
JOB NO.:	1653.00	CHECKED BY:	V.B.
SHEET:	1 OF 1		

latitude 33 PLANNING & ENGINEERING

UC San Diego

SECTION 3 – REGULATORY SETTING & PERFORMANCE CRITERIA

3.1 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

UC San Diego is one of ten UC campuses governed and administrated by the Regents of the University of California. As such, UC San Diego is regulated by the Federal Environmental Protection Agency (EPA) Phase II storm water regulations, the Clean Water Act (CWA) and the Small Municipal Separate Storm Sewer System's (MS4's) Order No. 2013-0001-DEG, NPDES No. CAS00004. UC San Diego adopted the revised Phase II Small MS4 General Permit as a Non-Traditional Permitee on July 1^{st}, 2013. In response to section F of said permit, UC San Diego is required to create and maintain a Storm Water Management Plan (SWMP) to govern Storm Water policy on the campus.

As part of the SWMP, design guidelines were created for all new projects on campus requiring drainage reports for any regulated project (those that create/replace 5,000 sq. ft or greater impervious area) that meet the following conditions:

- A development or redevelopment project that would result in an increase or decrease in impervious area
- A project that will install or modify an existing storm drain system
- A project that is in the Coastal Zone and will be reviewed by the Coastal Commission as determined by the University
- A project site area that is one acre or greater and SWPPP is required
- Project-level CEQA analysis is required
- A project or building that will be attaining a LEED Certification
- Projects that create or replace 2,500 sq. ft. or more of impervious area are required to follow the post-construction storm water management program as set by the UC San Diego Storm Water Management Plan and enforced by the EH&S department. These requirements are shown in Table 1 on the next page.

UC San Diego Storm Water BMP Requirements for all Development Projects	
All projects that create or replace more than 2,500 sq. ft.	Complete and submit the "Post-Construction Stormwater Management Checklist" and receive project approval from UC San Diego Civil Engineers as well as Environmental Health and Safety Staff during the planning phase, Design Development Phase, and Construction Document Phase.
All projects that create or replace less than 2,500 sq. ft of impervious surface	Complete page 1 & 2 of the checklist for 2,500 SF -5,000 SF and submit for record.
All projects that create or replace between 2,500 sq. ft. and less than 5,000 sq. ft. of impervious area	Complete Post-Construction Stormwater Management Checklist for 2,500 SF to 5,000 SF. Quantify the runoff reduction using State's Post-Construction Water Balance Calculator, available at http://stormwater.ucsd.edu or request from EH&S Environmental Affair at ehsea@ucsd.edu and attach to the checklist.
All projects that create or replace 5,000 sq. ft. or more of impervious area	Classified as a regulated project. Complete in full the Post-Construction Stormwater Management Checklist for 5,000 sq. ft. or greater. Quantify "Site Design" BMPs using State's Post-Construction Water Balance Calculator and show that post-construction water balance is achieved. If balancing is not possible, see below. "Treatment Control" BMPs are only required if the Site Design BMPs above cannot fully meet Permit requirements. a) Quantify and explain in the Post-Construction Stormwater Management Checklist and include any attachments as needed. b) Design shall be based on the Flow-Based or Volume-Based criteria specified in Section F.5.g.2.b (Numeric Sizing Criteria) of the Phase II Small MS4 Permit c) Bioretention facilities are preferred, however alternative treatment BMPs can be used if proper documentation and supporting calculations prepared by a Registered Civil Engineer are provided and attached to the checklist. d) An Operations and Maintenance Plan (O&M) for each Post-Construction BMP must be included in the checklist.

3.2 UC San Diego Design Guidelines

UC San Diego design guidelines, dated April 1^{st}, 2015, give specific guidelines for both hydrologic and hydraulic requirements per project. These are listed below in greater detail:

Hydrologic Requirements:

UC San Diego guidelines require the use of the 2003 County of San Diego Hydrology Manual for the generation of flow rate for overland flow. Based on the size of the UC San Diego Triton Center project, the rational method was utilized within this report. The rational method is a mathematical formula that calculates the peak rate of runoff (Q) at any given location in a watershed. This is computed using the drainage area (A), the runoff coefficient (C), and rainfall intensity (I) for a duration equal to the time of the concentration (Tc).

$$Q = C * I * A$$

Table 2 shows the criteria for Hydrologic modeling of the Modified Rational Method at UC San Diego:

Table 2	
UC San Diego Hydrologic Criteria:	
Hydrologic Soil Type:	Soil Type D, unless specified by Geotechnical Engineer
Runoff Coefficients (Based on Land Use)	See Table 2
Rainfall Intensity:	Based on County of San Diego Rainfall Isopluvials
Storm Event:	10 and 100 year, 6 - hour storm event

All projects on campus are required to use Soil Type D for poor infiltration unless specified otherwise by the Project Geotechnical Engineer. Runoff coefficients (C) are based on land use per table 3-1 of the 2003 County of San Diego Hydrology Manual, seen in Table 3 of this report. Rainfall intensities are provided by the County of San Diego Rainfall Isopluvial Maps and Section 3.1.3 of the County of San Diego Hydrology manual, and are selected by the storm duration to be modeled.

Table 3						
C-Values						
Land Use		Runoff Coefficient "C"				
		Soil Type				
NRCS Elements	County Elements	% IMPER.	A	B	C	D
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.2	0.25	0.3	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	0.6
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.6	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	0.8	0.8	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

Furthermore, per UC San Diego Design Guidelines, all projects that generate 10,000 sq. ft of new impervious area are required to adhere to pre-project 10 year, 6-hour flow rate per overall discharge.

Hydraulic Requirements:

UC San Diego guidelines require the use of the County of San Diego Drainage Design Manual (2014) for hydraulic design of storm drain systems on campus. Some of these requirements, but not limited to, are shown in Table 4.

Table 4
UC San Diego Hydraulic Requirements
HGL for 100-year 6-hour storm shall maintain a minimum of 1 foot freeboard below ground surface
If 1 foot freeboard is not possible, provide calculations and an exhibit that the overflow damage will not damage any improvements.
Minimum 1% slope*
Concentrated flow in unpaved areas shall be designed with natural swales to convey surface runoff.

* If not achievable, obtain approval from FD&C Civil Engineer

Based on the year this drainage report was written, evaluation of storm drain structures was based on the latest version of the County of San Diego Drainage Design Manual (2014). Future analysis of Storm Drain hydraulics should adhere to the latest version of the County San Diego Drainage Design Manual.

3.3 Hydrologic/Hydraulic Modeling Software/Base Mapping

This report utilizes the hydrologic/hydraulic modeling software Autodesk Storm and Sanitary Analysis to run the Rational Method criteria stated earlier in this section. This program creates a dynamic model of the hydrologic conditions of the site as well as a BIM of the Storm Drain system for the existing and proposed condition of the project. This model is based on several information sources, including information collected in the W4552 Executive Engineering Phase I (Utility Verification and Mapping) project, field survey conducted in support of the design of the project, and available as-built information.

SECTION 4 – EXISTING CONDITION ASSESSMENT

4.1 EXISTING CONDITION HYDROLOGIC SUMMARY

In the existing condition the 7 acre UC San Diego Triton Center project generally drains into three distinct drainage discharge points; the majority of the site connects to UCSD drainage system in Gilman Drive at 3 points (West Quad, Myers Drive and at the southeast corner of the site). The northern portion of the site (Rupertus Lane) surface flows to Russell Drive where it generally splits north-south where it ultimately converges in the Pepper Canyon basin downstream.

Southern Drainage (Basin 1):

The 33.1 acre Southern Drainage Basin is comprised of Buildings 201, 301, 302, 400, 965, Chancellors Complex, Town Square, Rupertus Way, Center Hall, Conrad Prebys Music Building, Gilman Parking Structure, Gilman Drive and portions of the School of Medicine. Flow from this basin generally is collected within a series of storm drain inlets that concentrates flow into an existing 24" storm drain pipe in Gilman Drive that discharges into Pepper Canyon South east of the property. This flow then travels through a natural channel within the canyon, enters a storm drain that outlets to the Caltrans Right-of-Way, then drains to Mission Bay via Rose Creek.

The limits of disturbance are analyzed as part of this report and demonstrate no net increase to the peak flows from the 10-year 6 hour storm event.

Northern Drainage (Basin 2):

The 11.3 acre Northern Drainage basin contains Building 409, Student Services, Matthew's Quad, Price Center, Powell Lab, High Bay Physics, Visual Arts Buildings and Lyman Lane. Flow from this basin generally is collected within a series of storm drain inlets that concentrates flow into an existing 24" storm drain that discharges to Pepper Canyon North. This flow then travels through a natural channel within the canyon, enters a storm drain that outlets to the Caltrans Right-of-Way, then drains to Mission Bay via Rose Creek.

The limits of work for this project which interact with the northern basin consist of the surface runoff from Rupertus. A portion of the Rupertus runoff will be redirected to the southern drainage basin and will reduce the amount of runoff to Russell Lane.

Figures 1 & 2 shows the existing condition of the Hydrology and Storm Drain Routing for the UC San Diego Triton Center project.

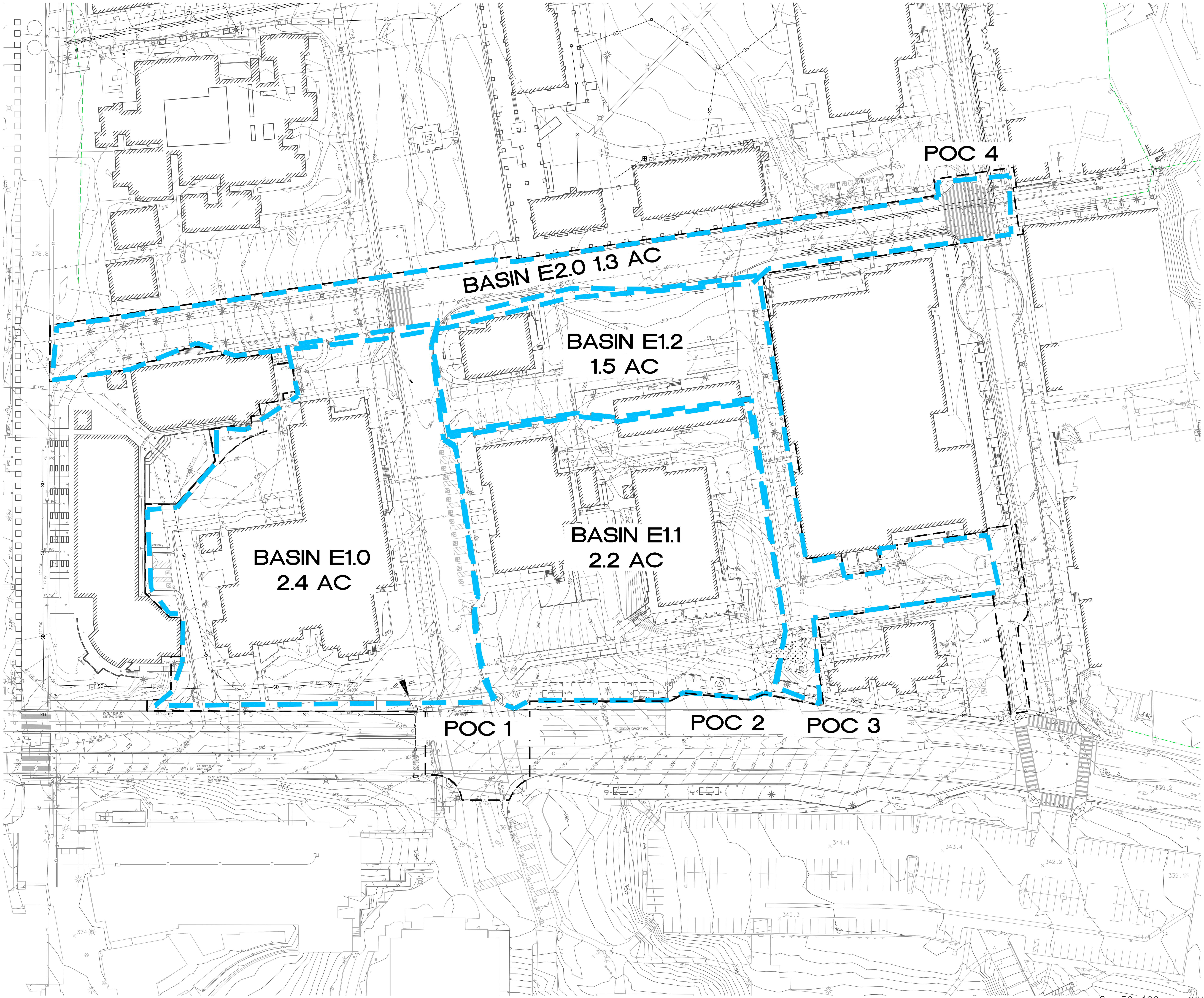
4.2 EXISTING CONDITION MODELING RESULTS

Existing conditions modeling results for the drainage basins can be seen below in table 5:

Table 5		
Existing Condition Hydrology Results		
Basin #	10 Year 6-Hour Event (CFS)	100 Year 6-Hour Event (CFS)
E1.0	8.6	11.9
E1.1	7.2	10.1
E1.2	4.9	6.8
E2.0	4.8	6.7
	25.5	35.5

More detailed hydrology and hydraulic analysis for the existing condition can be seen in **Appendix A**.

Figure 1 – Existing Condition Hydrology Exhibit



LEGEND

- STORM DRAIN PIPE (SOURCE: SURVEY)
- STROM DRAIN PIPE (SOURCE: GIS)
- DIRECTION OF FLOW
- GENERAL DRAINAGE PATTERN
- BASIN BOUNDARY
- SUB BASIN BOUNDARY
- PROJECT LIMITS

SUB BASIN PEAK FLOW RATES

BASIN	AREA (AC)	EXISTING Q10 (CFS)	EXISTING Q100 (CFS)
E1.0	2.4	8.6	11.9
E1.1	2.15	7.2	10.1
E1.2	1.5	4.9	6.8
E2.0	1.3	4.8	6.7

0 50 100 200 300
(IN FEET)
1 inch = 100 ft.

N

UC SAN DIEGO TRITON PAVILION
DRAINAGE - EXISTING CONDITION

latitude 33
PLANNING & ENGINEERING
9968 Hibert Street 2nd Floor, San Diego, CA 92131
Tel 858.751.0633

UC San Diego

H:\1600\1653.00 - PCL - UCSD TRITON PAVILION\Engineering\Reports\Drainage\Exhibits\1653.00 DRAINAGE - EXISTING.dwg
7/29/2022 8:53:34 AM

SECTION 5 – PROPOSED CONDITION ASSESSMENT

5.1 PROPOSED CONDITION HYDROLOGIC SUMMARY

The Triton Center project consists of the construction of Buildings A, B, C & D, subterranean loading dock and mechanical room, West Quad, Pavilion Courtyard, Music Walk, and surface improvements of Rupertus Lane. The site is divided into 5 distinct drainage basins, a description of these drainage basin in further detail is below:

Southern Drainage (Basin 1):

The Southern Drainage Basin contains proposed improvements to the Triton Center area, including but not limited to, Building A, B, C, D, subterranean loading dock/parking and mechanical room, West Quad, Pavilion Courtyard, Music Walk and Rupertus Lane. Chancellors Complex, Center Hall, Conrad Prebys Music Building, Gilman Parking Structure, Gilman Drive and portions of the School of Medicine are existing to remain.

Flows from the proposed development are collected within a series of proposed storm drain inlets that route to a bio-filtration basin and a detention structure before connecting to the downstream existing system. Storm water eventually concentrates into an existing 24" storm drain pipe in Gilman Drive and discharges into Pepper Canyon South east of the property. Any increase to flows due to the proposed development will be detained in the regional offsite Pepper Canyon Basin which is being designed through a cooperative effort with the Pepper Canyon Housing project. An allowance for the increased flows has been incorporated into the overall basin design.

Figures 3 & 4 shows the Proposed Condition for Hydrology and Storm Drain Routing for the UC San Diego Triton Center project.

5.2 PROPOSED CONDITIONS MODELING RESULTS

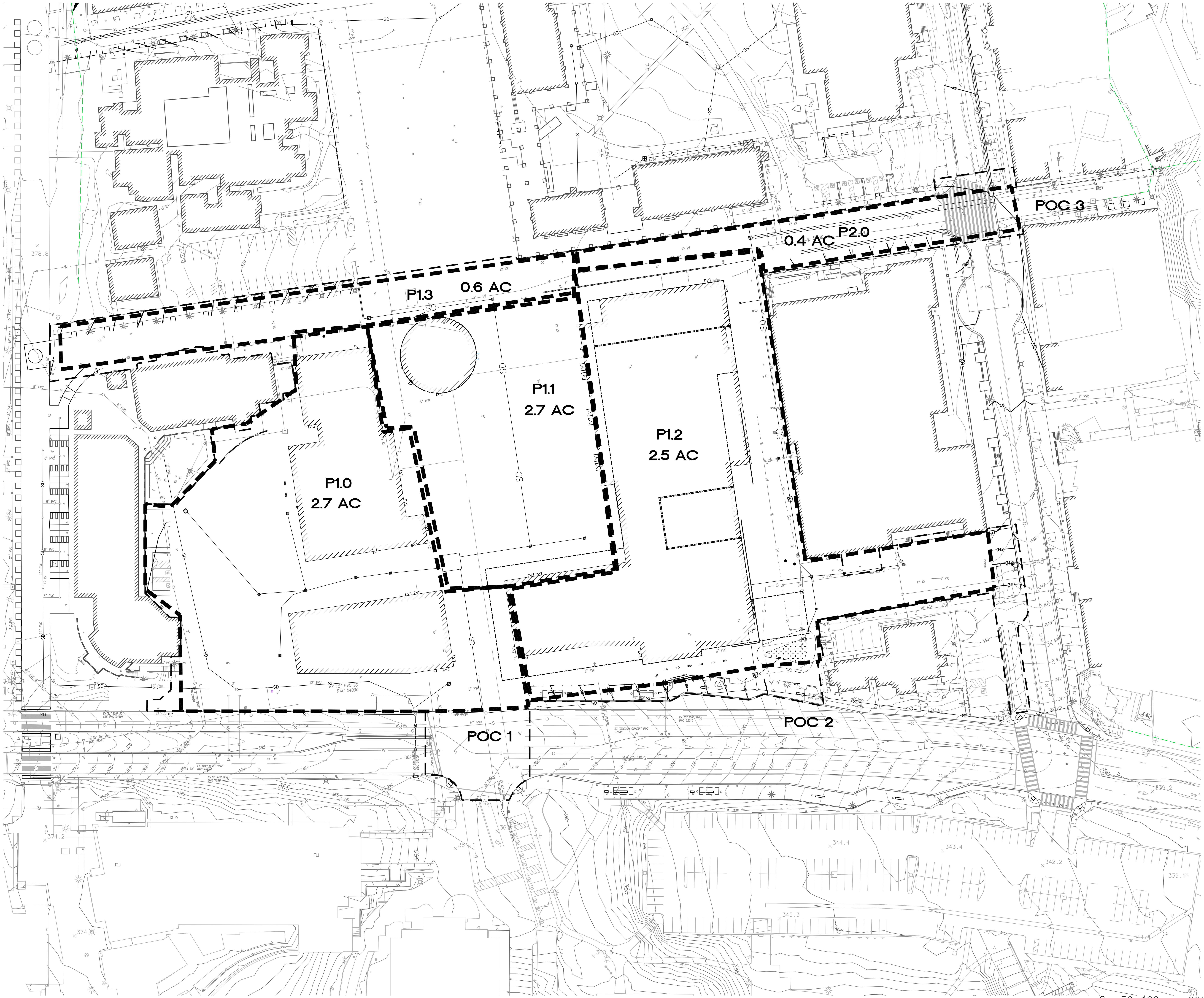
Proposed Condition modeling results for the three drainage basins can be seen below in Table 6:

Table 6		
Proposed Condition Hydrology Results		
Basin #	10 Year 6-Hour Event (CFS)	100 Year 6-Hour Event (CFS)
P1.0	6.0	10.5
P1.1	4.6	6.6
P1.2	6.2	9.2
P1.3	2.1	2.7
P2.0	1.1	2.0
TOTAL	20.0	31.0

(*) Detention will be provided to attenuate the peak flow to match the pre-project conditions.

More detailed hydrology and hydraulic analysis for the existing condition can be seen in **Appendix B**.

Figure 3 – Proposed Condition Hydrology Exhibit



LEGEND

STORM DRAIN PIPE (SOURCE: SURVEY)	
STROM DRAIN PIPE (SOURCE: GIS)	
DIRECTION OF FLOW	
GENERAL DRAINAGE PATTERN	
BASIN BOUNDARY	
SUB BASIN BOUNDARY	
PROPOSED SUB BASIN BOUNDARY	
PROJECT LIMITS	

SUB BASIN PEAK FLOWS

POC #	AREA (AC)	PROPOSED Q10 (CFS)	PROPOSED Q100 (CFS)
P1.0	2.3	6.0	10.5
P1.1	1.3	4.6	6.6
P1.2	2.5	6.2	9.2
P1.3	0.6	2.1	2.7
P2.0	0.4	1.1	2.0

0 50 100 200 300
(IN FEET)
1 inch = 100 ft.

N

UC SAN DIEGO TRITON PAVILION
DRAINAGE - PROPOSED CONDITION

latitude 33
PLANNING & ENGINEERING
9968 Hibert Street 2nd Floor, San Diego, CA 92131
Tel 858.751.0633

UC San Diego

H:\1600\1653.00 - PCL - UCSD TRITON PAVILION\Engineering\Reports\Drainage\Exhibits\1653.00 DRAINAGE - PROPOSED.dwg
7/29/2022 9:35:26 AM

SECTION 6 – CONCLUSION

This drainage report has been prepared to quantify the hydrology demands associated with all developmental phases of the UC San Diego Triton Center project, and to evaluate the hydrologic impacts of the proposed development and capacity of the proposed onsite storm drain system. Due to the flattening of the site and the increased time of concentrations, the intensity of the design storms are reduced so that the overall peak flow rates are also reduced as a result of development of the site.

The analysis demonstrates that the added demands from the development of the Triton project are accounted for within the regional basin constructed concurrently by the Pepper Canyon Housing design team. Additionally, all on-site storm drain proposed is designed to meet University standards and will meet or exceed campus design guidelines.

Appendix A – Existing Conditions Modeling Results

EXISTING

10 YEAR 6 HOUR

	a (sf)	a (acres)	c	I	Q
E1.0	105000	2.41	0.9	3.95	8.57
E1.1	94000	2.16	0.85	3.95	7.25
E1.2	67000	1.54	0.8	3.95	4.86
E2.0	56000	1.29	0.95	3.95	4.82
		7.39			25.50

100 YEAR 6 HOUR

	a (sf)	a (acres)	c	I	Q
E1.0	105000	2.41	0.9	5.5	11.93
E1.1	94000	2.16	0.85	5.5	10.09
E1.2	67000	1.54	0.8	5.5	6.77
E2.0	56000	1.29	0.95	5.5	6.72
					35.51

Appendix B – Proposed Condition Modeling Results

PROPOSED

10 year 6 hour

	a (sf)	a (acres)	c	I	Q
P1.0	100000	2.30	0.85	3.1	6.05
P1.1	58000	1.33	0.9	3.8	4.55
P1.2	110000	2.53	0.7	3.5	6.19
P1.3	26000	0.60	0.9	3.95	2.12
P2.0	13000	0.30	0.9	3.95	1.06
					19.97

100 year 6 hour

	a (sf)	a (acres)	c	I	Q
P1.0	100000	2.30	0.85	5.4	10.54
P1.1	58000	1.33	0.9	5.5	6.59
P1.2	110000	2.53	0.7	5.2	9.19
P1.3	26000	0.60	0.9	5.1	2.74
P2.0	18000	0.41	0.9	5.5	2.05
					31.11

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Appendix C
Ambient Noise Measurement Survey
(Acoustics Group, Inc. 2019)

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April 23, 2019

Mark Minieri
UCSD CPM
10280 N Torrey Pines Rd.
La Jolla, CA 92037

Subject: Results of the Ambient Noise Measurement Survey for the Triton Pavilion Project located at 303 Myers Drive in San Diego, CA.

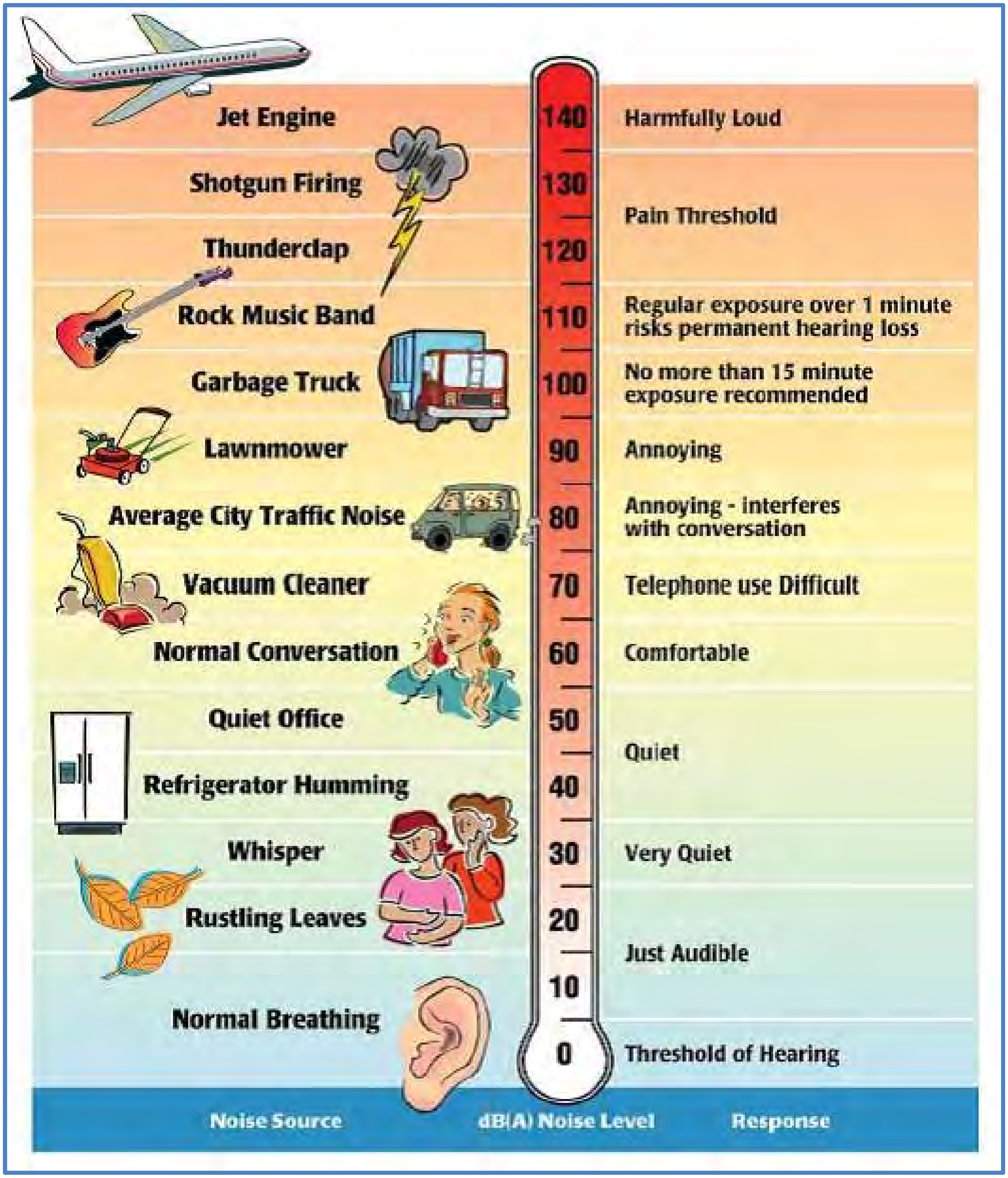
Dear Mr. Minieri:

Acoustics Group, Inc., (AGI) conducted an ambient noise survey for the Triton Pavilion Project at UCSD from April 1 through April 5, 2019. The measurement was conducted for 5 days to document the ambient noise levels at 303 Myers Drive. The sound level meter was placed on the rooftop facing the bus transit station on Gilman Drive. The following report summarizes the results of the survey:

NOISE

The magnitude by which noise affects its surrounding environment is measured on a logarithmic scale in decibels (dB). Because the human ear is limited to hearing a specific range of frequencies, the A-weighted filter system is used to form relevant results. A-weighted sound levels are represented as dBA. Figure 1 shows typical A-weighted exterior and interior noise levels that occur in human environments.

Several noise metrics have been developed to evaluate noise. L_{eq} is the energy average noise level and corresponds to a steady-state sound level that has the same acoustical energy as the sum of all the time-varying noise events. L_{max} is the maximum noise level measured during a sampling period.



Source: Melville Branch and R. Beland, 1970. EPA/ONAC 550/9-74-004, March 1974.

Figure 1. Typical A-weighted Noise Levels

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Irvine, CA 92612
877.595.9988 - Voice

The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels during the evening hours of 7:00 PM to 10:00 PM have an added 5 dBA weighting, and sound levels during the nighttime hours of 10:00 PM to 7:00 AM have an added 10 dBA weighting.

NOISE SURVEY

AGI staff conducted an ambient noise survey on April 1 through April 5, 2019 to measure the ambient noise at 303 Myers Drive. One Brüel & Kjær 2270 Type 1 Precision Acoustical Analyzer was used to conduct the 5-day noise measurement. In addition, the instrument was checked for calibration before and after the survey and was operated per the manufacturer's guidelines.

For the noise survey, the acoustical analyzer was installed on the south side rooftop at 303 Myers Drive (LT1). A short-term noise measurement was also conducted at location ST1 using a Brüel & Kjær 2270 Type 1 Precision Acoustical Analyzer. The ST1 BK2270 instrument was operated per manufacturers guidelines and checked for calibration before and after the measurement. Refer to Figure 2 for the location of the measurement positions.

Figure 2. Location of the Noise Measurements

On April 1, at location LT1, the measured hourly Leq ranged from 57.0 to 66.1 dBA, with a CNEL of 62.9 dB. Noise sources consist of vehicular traffic, bus traffic, bus beeps, bus air brake hiss, siren, loud cars, and community noise. With single noise events removed, the measured Leq ranged from 57.0 to 63.6 dBA, with a CNEL of 62.4 dB.

On April 2, at the same location, the measured hourly Leq ranged from 53.7 to 64.6 dBA, with a CNEL of 65.6 dB. Noise sources consist of vehicular traffic, bus traffic, bus beeps, car honks, and community noise. With single noise events removed, the measured Leq ranged from 53.7 to 64.6 dBA, with a CNEL of 65.6 dB.

On April 3, the measured hourly Leq ranged from 54.2 to 64.4 dBA, with a CNEL of 66.4 dB. Noise sources consist of vehicular traffic, bus traffic, bus beeps, motorcycle, aircraft, rooftop mechanical noise, and community noise. With single noise events removed, the measured Leq ranged from 54.2 to 64.4 dBA, with a CNEL of 65.2 dB.

On April 4, the measured hourly Leq ranged from 53.0 to 65.3 dBA, with a CNEL of 65.5 dB. Noise sources consist of vehicular traffic, bus traffic, aircraft, car honks, loud cars, and community noise. With single noise events removed, the measured Leq ranged from 53.0 to 64.0 dBA, with a CNEL of 65.3 dB.

On April 5, the measured hourly Leq ranged from 53.2 to 66.0 dBA, with a CNEL of 64.4 dB. Noise sources consist of vehicular traffic, bus traffic, aircraft, car honks, loud cars, motorcycle, and community noise. With single noise events removed, the measured Leq ranged from 53.2 to 64.1 dBA, with a CNEL of 64.1 dB.

Table 1 summarizes the noise measurement data from the survey. Refer to the appendix for the CNEL and 5-day noise level summaries of the measurement data.

Table 1. Summary of Ambient Noise Measurement

Receiver	Location	Time	Lmin, dBA	Lmax, dBA	Hourly Leq, dBA	CNEL, dB	Contributing Noise Sources
LT1	303 Myers Drive Rooftop	4/1/19 11:00 AM - 11:59 PM	51.7	91.3 (79.4)	57.0 – 66.1 (57.0 - 63.6)	62.9 (62.4)	Vehicular Traffic, Bus Traffic, Bus Beeps, Siren, Community Noise
LT1	303 Myers Drive Rooftop	4/2/19 12:00 AM - 11:59 PM	51.2	80.0 (80.0)	53.7 – 64.6 (53.7 – 64.6)	65.6 (65.6)	Vehicular Traffic, Bus Traffic, Bus Beeps, Car Honks, Community Noise
LT1	303 Myers Drive Rooftop	4/3/19 12:00 AM - 11:59 PM	50.9	85.2 (78.2)	54.2 – 64.4 (54.2– 64.4)	66.4 (65.2)	Vehicular Traffic, Bus Traffic, Motorcycle, Aircraft, Roof Top Mechanical, Community Noise
LT1	303 Myers Drive Rooftop	4/4/19 12:00 AM - 11:59 PM	51.0	86.6 (80.1)	53.0 – 65.3 (53.0 – 64.0)	65.5 (65.3)	Vehicular Traffic, Bus Traffic, Aircraft, Car Honks, Community Noise
LT1	303 Myers Drive Rooftop	4/5/19 12:00 AM - 4:00 PM	51.1	85.7 (78.7)	53.2 – 66.0 (53.2 – 64.1)	64.4 (64.1)	Vehicular Traffic, Bus Traffic, Bus Beeps, Motorcycle, Aircraft, Community Noise

Note: ( ) – Noise levels with single event noise removed.

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Irvine, CA 92612
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AGI also conducted a short term (20-minute) noise measurement along the future exterior building façade simultaneously with a portion of the long-term survey. A 1.4 dBA calibration factor was determined between the short-term noise and long-term measurements. The future noise exposure at the exterior building façade facing the bus transit station on Gilman Drive would be expected to be 1.4 dBA higher than the rooftop measurement.

CONCLUSION

AGI staff conducted a noise survey on April 1 through April 5, 2019 to measure the ambient noise survey for the Triton Pavilion Project at UCSD. The measured Leq from the 5-day ambient noise survey at LT1 ranged from 53.0 to 66.1 dBA. Without the contribution from high single noise events, the Leq ranged from 53.0 to 64.6 dBA. The CNEL ranged from 62.9 to 66.4 dB and without high single noise events the CNEL ranged from 62.4 to 65.6 dB. With a calibration factor of 1.4 dBA, the future exterior building façade of the UCSD Triton Pavilion project is expected to be 1.4 dBA higher than the rooftop measurement.

Please contact us at 877-595-9988 if you have any questions regarding this report.

Sincerely,
ACOUSTICS GROUP, INC.

Robert Woo
Principal Consultant

Omar Ramos
Associate Consultant

APPENDIX

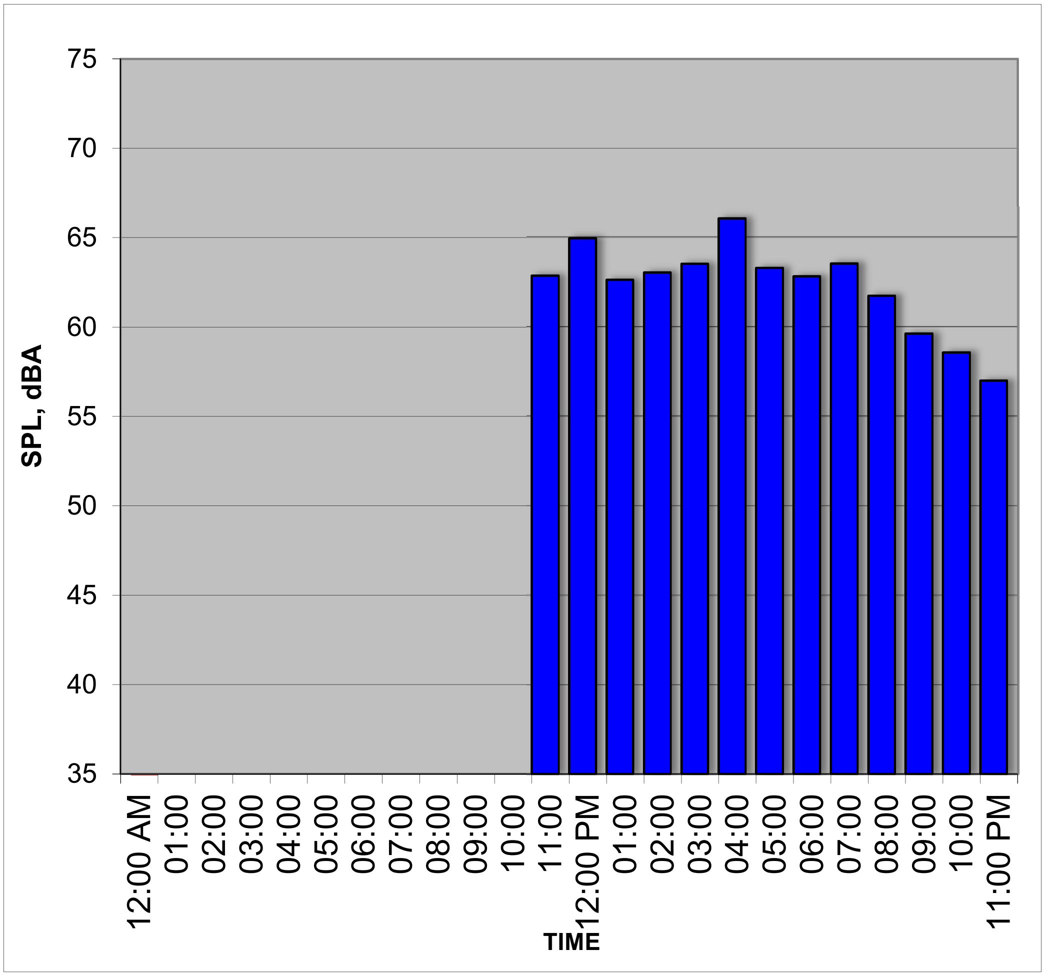
24-hr CNEL Plots

5 Day Noise Measurement Data

ACOUSTICS GROUP, INC.
2102 Business Center Drive, Suite 130
Irvine, CA 92612
877.595.9988 - Voice

MEASUREMENT DATA - HOURLY NOISE LEVELS

Project: UCSD Triton Pavilion Project
Address: 303 Myer Dr, San Diego, CA 92093 **Date:** 4/1/2019
Location: 303 Myer Dr, on Rooftop
Noise **Position:** LT1
Sources: Vehicular Traffic, Bus Traffic, Bus Beeps, Siren, Community Noise

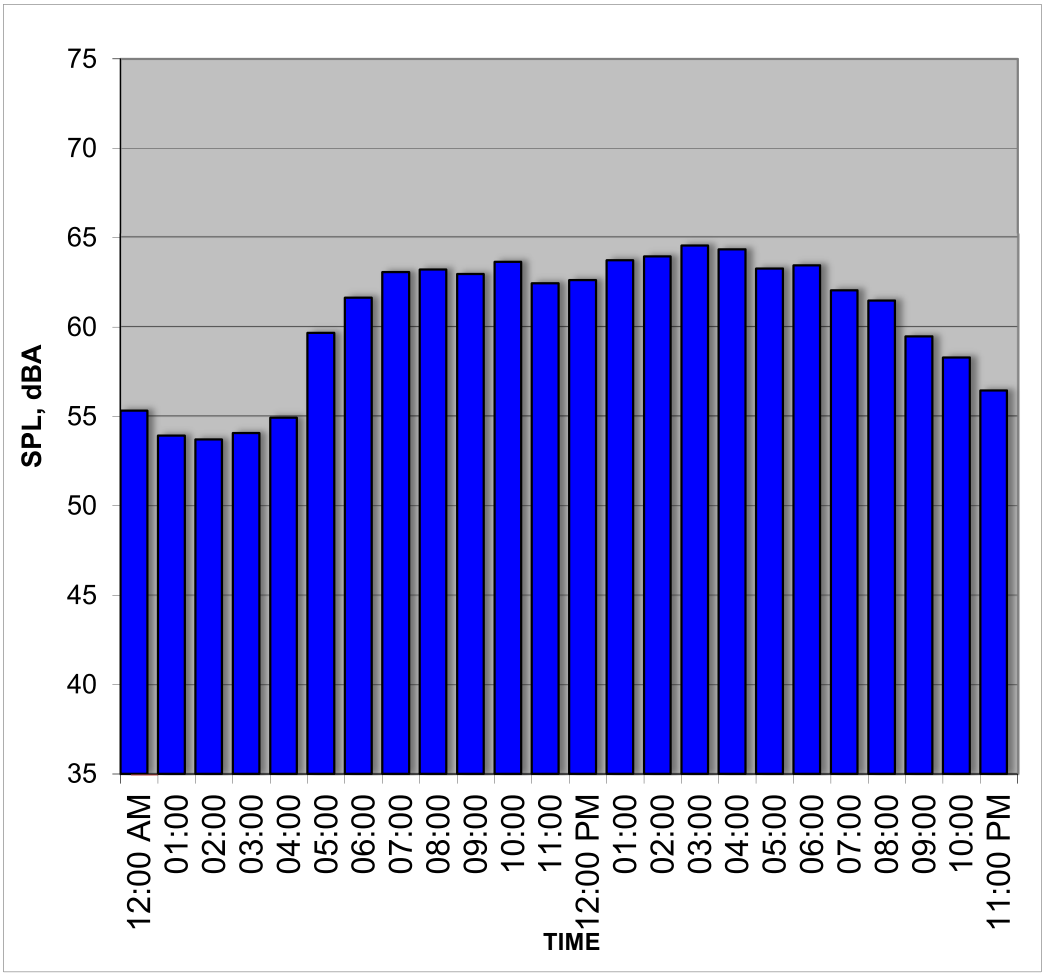


TIME	*HNL, dB(A)*
12:00 - 01:00 AM	*0.0*
01:00 - 02:00 AM	*0.0*
02:00 - 03:00 AM	*0.0*
03:00 - 04:00 AM	*0.0*
04:00 - 05:00 AM	*0.0*
05:00 - 06:00 AM	*0.0*
06:00 - 07:00 AM	*0.0*
07:00 - 08:00 AM	*0.0*
08:00 - 09:00 AM	*0.0*
09:00 - 10:00 AM	*0.0*
10:00 - 11:00 AM	*0.0*
11:00 - 12:00 PM	*62.9*
12:00 - 01:00 PM	*65.0*
01:00 - 02:00 PM	*62.6*
02:00 - 03:00 PM	*63.1*
03:00 - 04:00 PM	*63.5*
04:00 - 05:00 PM	*66.1*
05:00 - 06:00 PM	*63.3*
06:00 - 07:00 PM	*62.8*
07:00 - 08:00 PM	*63.6*
08:00 - 09:00 PM	*61.8*
09:00 - 10:00 PM	*59.6*
10:00 - 11:00 PM	*58.6*
11:00 - 12:00 AM	*57.0*
CNEL:	*62.9*

Notes:

MEASUREMENT DATA - HOURLY NOISE LEVELS

Project:	**UCSD Triton Pavilion Project**		
Address:	**303 Myer Dr, San Diego, CA 92093**	**Date:**	**4/2/2019**
Location:	**303 Myer Dr, on Rooftop**		
Noise Sources:	**Vehicular Traffic, Bus Traffic, Bus Beeps, Car Honks, Community Noise**	**Position:**	**LT1**



TIME	*HNL, dB(A)*
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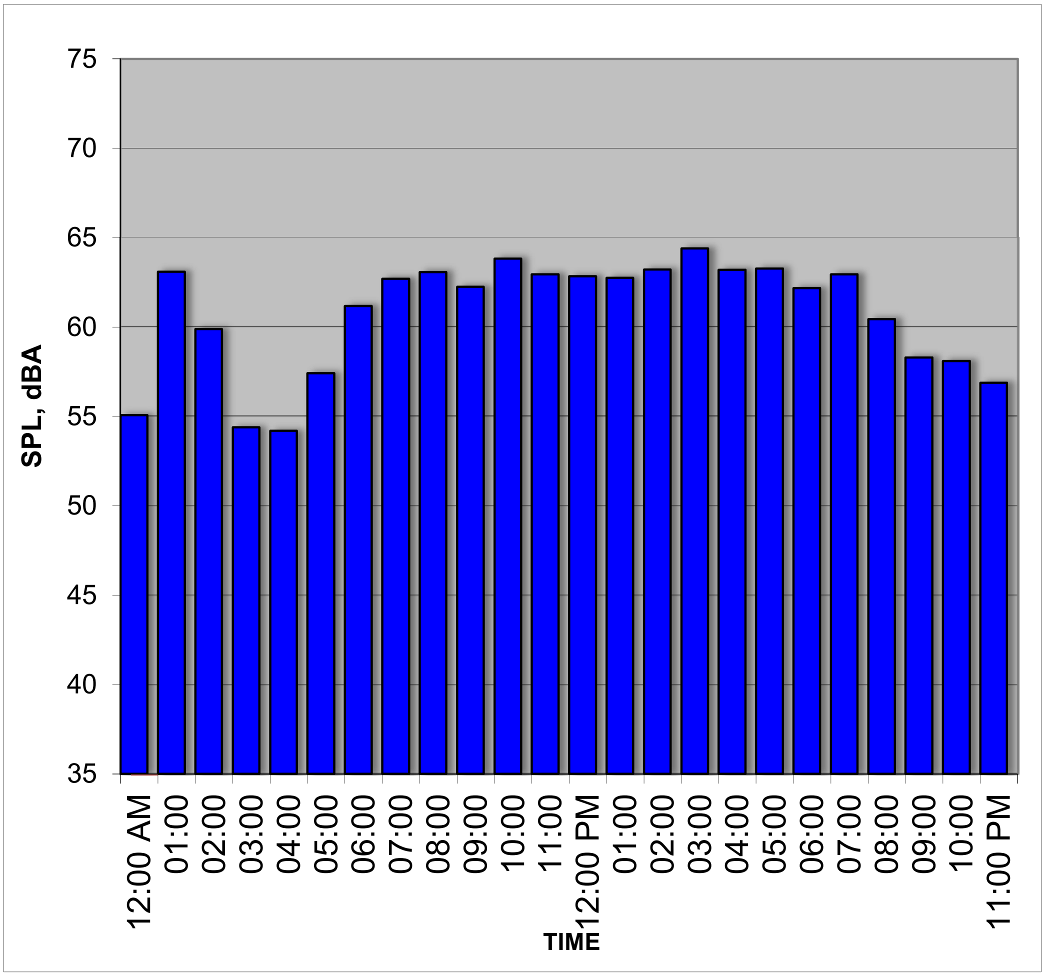
01:00 - 02:00 AM	*53.9*
02:00 - 03:00 AM	*53.7*
03:00 - 04:00 AM	*54.1*
04:00 - 05:00 AM	*54.9*
05:00 - 06:00 AM	*59.7*
06:00 - 07:00 AM	*61.6*
07:00 - 08:00 AM	*63.1*
08:00 - 09:00 AM	*63.2*
09:00 - 10:00 AM	*63.0*
10:00 - 11:00 AM	*63.7*
11:00 - 12:00 PM	*62.4*
12:00 - 01:00 PM	*62.6*
01:00 - 02:00 PM	*63.7*
02:00 - 03:00 PM	*64.0*
03:00 - 04:00 PM	*64.6*
04:00 - 05:00 PM	*64.3*
05:00 - 06:00 PM	*63.3*
06:00 - 07:00 PM	*63.5*
07:00 - 08:00 PM	*62.1*
08:00 - 09:00 PM	*61.5*
09:00 - 10:00 PM	*59.5*
10:00 - 11:00 PM	*58.3*
11:00 - 12:00 AM	*56.4*
CNEL:	***65.6***

Notes:

MEASUREMENT DATA - HOURLY NOISE LEVELS

Project: UCSD Triton Pavilion Project
Address: 303 Myer Dr, San Diego, CA 92093 **Date:** 4/3/2019
Location: 303 Myer Dr, on Rooftop
Noise Sources: Vehicular Traffic, Bus Traffic, Motorcycle, Aircraft, Roof Top Mechanical, Community Noise **Position:** LT1



TIME	*HNL, dB(A)*
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02:00 - 03:00 AM	*59.9*
03:00 - 04:00 AM	*54.4*
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05:00 - 06:00 AM	*57.4*
06:00 - 07:00 AM	*61.2*
07:00 - 08:00 AM	*62.7*
08:00 - 09:00 AM	*63.1*
09:00 - 10:00 AM	*62.3*
10:00 - 11:00 AM	*63.8*
11:00 - 12:00 PM	*62.9*
12:00 - 01:00 PM	*62.8*
01:00 - 02:00 PM	*62.8*
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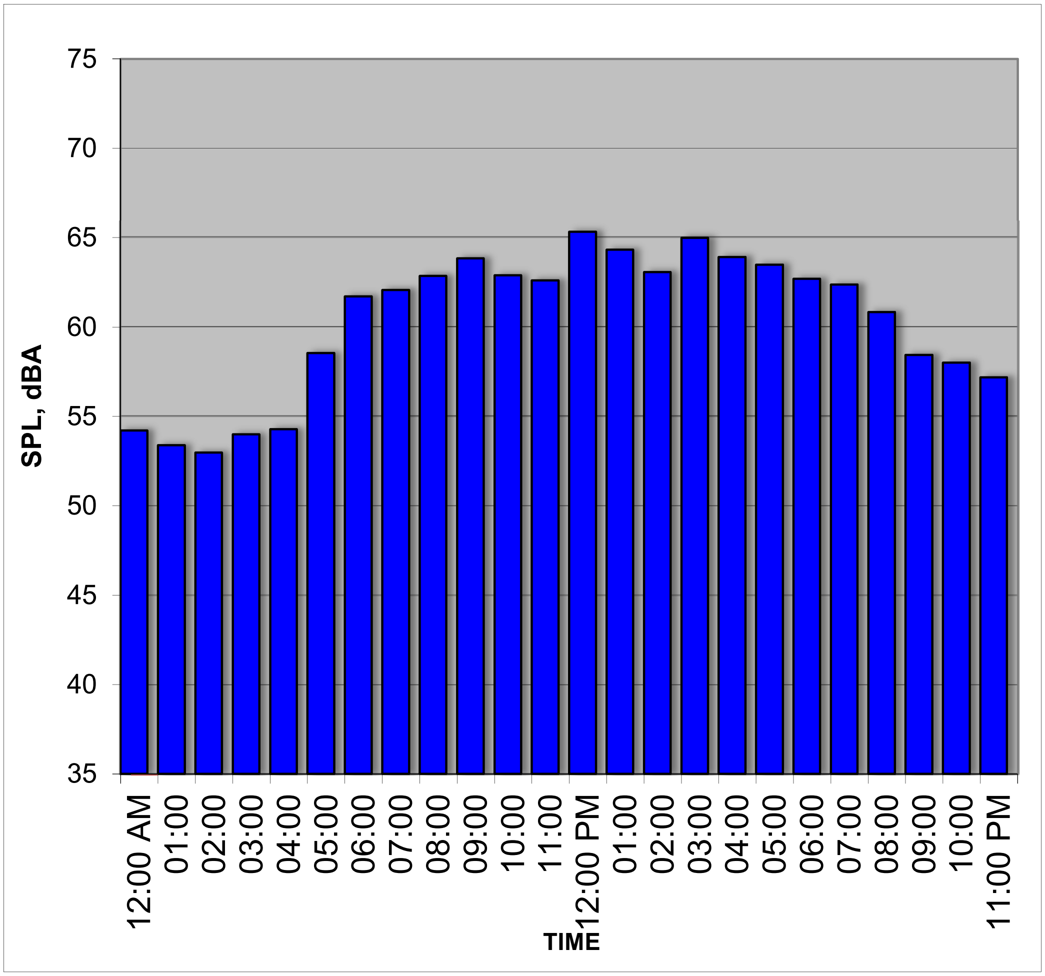
06:00 - 07:00 PM	*62.2*
07:00 - 08:00 PM	*62.9*
08:00 - 09:00 PM	*60.4*
09:00 - 10:00 PM	*58.3*
10:00 - 11:00 PM	*58.1*
11:00 - 12:00 AM	*56.9*
CNEL:	***66.4***

Notes:

MEASUREMENT DATA - HOURLY NOISE LEVELS

Project: UCSD Triton Pavilion Project
Address: 303 Myer Dr, San Diego, CA 92093 **Date:** 4/4/2019
Location: 303 Myer Dr, on Rooftop
Noise Sources: Vehicular Traffic, Bus Traffic, Aircraft, Car Honks, Community Noise **Position:** LT1



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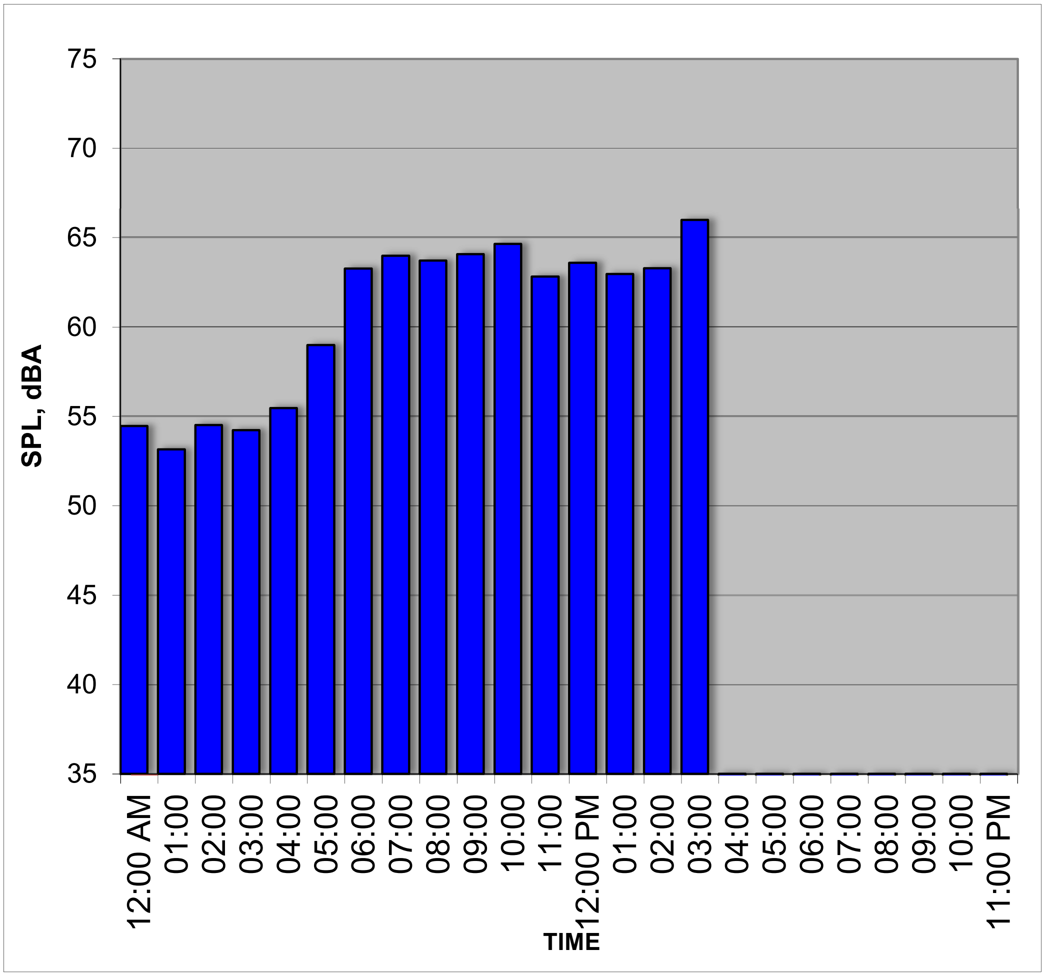
02:00 - 03:00 AM	*53.0*
03:00 - 04:00 AM	*54.0*
04:00 - 05:00 AM	*54.3*
05:00 - 06:00 AM	*58.6*
06:00 - 07:00 AM	*61.7*
07:00 - 08:00 AM	*62.1*
08:00 - 09:00 AM	*62.9*
09:00 - 10:00 AM	*63.8*
10:00 - 11:00 AM	*62.9*
11:00 - 12:00 PM	*62.6*
12:00 - 01:00 PM	*65.3*
01:00 - 02:00 PM	*64.3*
02:00 - 03:00 PM	*63.1*
03:00 - 04:00 PM	*65.0*
04:00 - 05:00 PM	*63.9*
05:00 - 06:00 PM	*63.5*
06:00 - 07:00 PM	*62.7*
07:00 - 08:00 PM	*62.4*
08:00 - 09:00 PM	*60.8*
09:00 - 10:00 PM	*58.4*
10:00 - 11:00 PM	*58.0*
11:00 - 12:00 AM	*57.2*
CNEL:	***65.5***

Notes:

Acoustics Group, Inc.

MEASUREMENT DATA - HOURLY NOISE LEVELS

Project: UCSD Triton Pavilion Project
Address: 303 Myer Dr, San Diego, CA 92093 **Date:** 4/5/2019
Location: 303 Myer Dr, on Rooftop
Noise Position: LT1
Sources: Vehicular Traffic, Bus Traffic, Bus Beeps, Motorcycle, Aircraft, Community Noise



TIME	*HNL, dB(A)*
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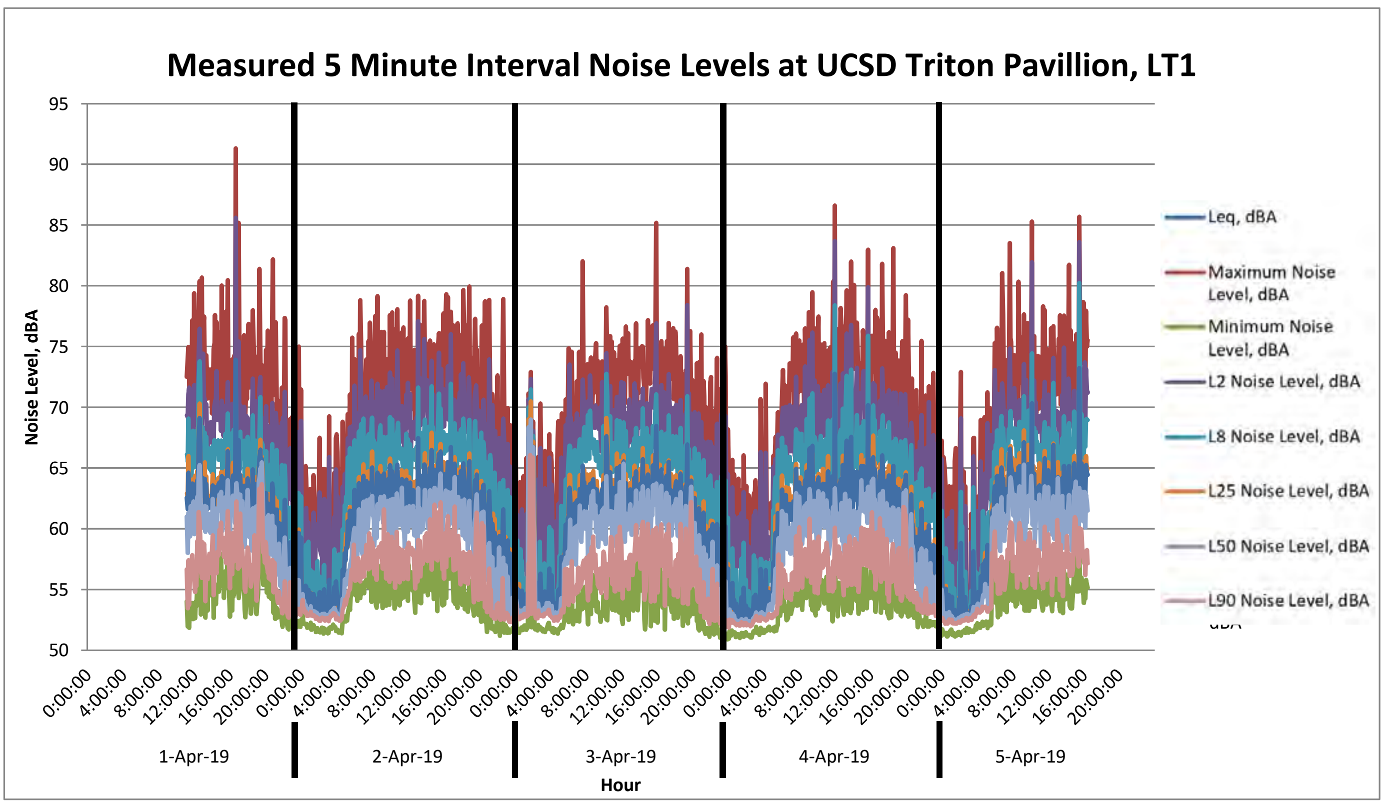
02:00 - 03:00 AM	*54.5*
03:00 - 04:00 AM	*54.2*
04:00 - 05:00 AM	*55.5*
05:00 - 06:00 AM	*59.0*
06:00 - 07:00 AM	*63.3*
07:00 - 08:00 AM	*64.0*
08:00 - 09:00 AM	*63.7*
09:00 - 10:00 AM	*64.1*
10:00 - 11:00 AM	*64.6*
11:00 - 12:00 PM	*62.8*
12:00 - 01:00 PM	*63.6*
01:00 - 02:00 PM	*63.0*
02:00 - 03:00 PM	*63.3*
03:00 - 04:00 PM	*66.0*
04:00 - 05:00 PM	*0.0*
05:00 - 06:00 PM	*0.0*
06:00 - 07:00 PM	*0.0*
07:00 - 08:00 PM	*0.0*
08:00 - 09:00 PM	*0.0*
09:00 - 10:00 PM	*0.0*
10:00 - 11:00 PM	*0.0*
11:00 - 12:00 AM	*0.0*
CNEL:	*64.4*

Notes:

AGI - UCSD TRITON PAVILLION NOISE MONITORING PROJECT

Location: **LT1**
Date: April 1-5, 2019

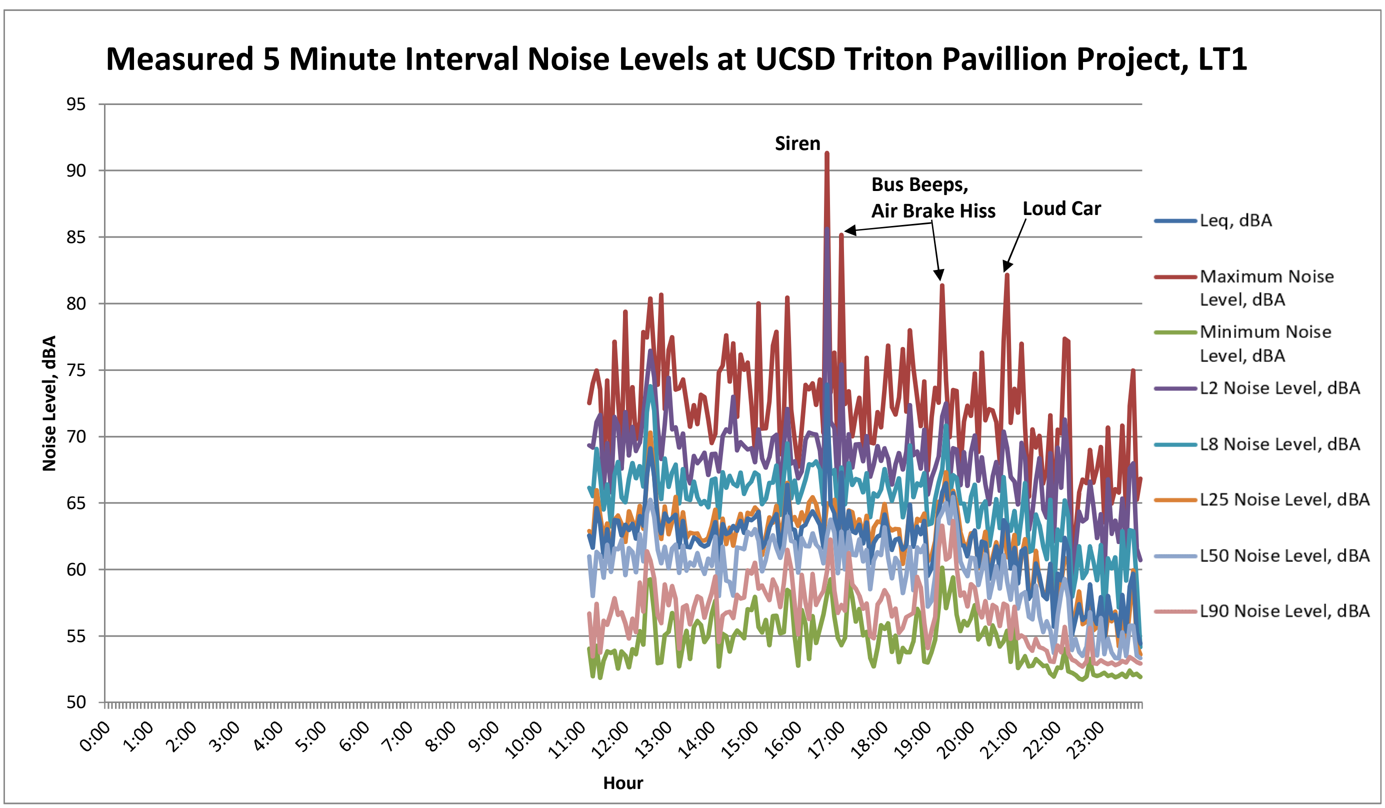
Date	Hour	Duration (Days)	Leq Noise Level	Maximum Noise Level	Minimum Noise Level	L2 Noise Level	L8 Noise Level	L25 Noise Level	L50 Noise Level	L90 Noise Level	Overloads
April 1-5	0:00	4	53.2 - 59.3	58.1 - 71.5	51.0 - 52.9	56.7 - 68.9	53.4 - 62.7	52.5 - 58.7	52.3 - 55.0	51.9 - 54.2	0
April 1-5	1:00	4	52.6 - 68.9	53.9 - 72.9	51.5 - 64.3	53.8 - 72.3	52.8 - 71.5	52.5 - 70.5	52.3 - 69.0	52.0 - 66.1	0
April 1-5	2:00	4	52.3 - 66.8	52.8 - 72.9	51.4 - 64.7	52.6 - 69.1	52.5 - 67.7	52.4 - 67.2	52.2 - 66.7	52.0 - 65.9	0
April 1-5	3:00	4	52.8 - 58.1	53.4 - 70.7	51.4 - 52.3	53.2 - 66.3	53.1 - 63.4	52.9 - 56.4	52.7 - 53.9	52.4 - 53.3	0
April 1-5	4:00	4	52.6 - 58.0	53.2 - 71.9	51.4 - 52.8	53.1 - 66.3	52.9 - 62.0	52.8 - 58.3	52.6 - 55.9	52.4 - 54.2	0
April 1-5	5:00	4	54.1 - 62.9	57.5 - 75.7	52.4 - 57.4	56.5 - 68.7	55.6 - 66.6	53.4 - 62.8	53.1 - 61.7	52.7 - 59.1	0
April 1-5	6:00	4	58.5 - 65.0	65.9 - 81.1	54.1 - 57.7	63.9 - 74.7	61.8 - 69.3	59.2 - 66.5	57.1 - 62.6	53.7 - 59.8	0
April 1-5	7:00	4	59.6 - 66.6	66.9 - 83.5	54.0 - 58.8	65.0 - 74.8	63.4 - 69.7	59.8 - 66.8	57.8 - 64.2	54.2 - 60.5	0
April 1-5	8:00	4	60.3 - 65.2	67.3 - 80.3	53.5 - 58.2	65.5 - 73.4	63.5 - 69.7	60.7 - 66.4	57.3 - 63.5	54.1 - 60.5	0
April 1-5	9:00	4	60.8 - 67.1	68.4 - 79.5	53.5 - 58.3	65.4 - 76.2	64.2 - 71.2	61.3 - 68.1	58.5 - 65.3	54.7 - 61.6	0
April 1-5	10:00	4	60.8 - 70.3	68.3 - 85.3	53.4 - 57.7	66.3 - 81.9	63.3 - 74.4	60.9 - 69.1	58.4 - 64.4	54.3 - 59.7	0
April 1-5	11:00	5	59.2 - 65.8	66.8 - 80.4	51.9 - 57.3	63.0 - 72.9	62.0 - 69.1	60.0 - 66.4	57.9 - 63.8	53.5 - 60.2	0
April 1-5	12:00	5	60.7 - 72.8	68.2 - 86.6	52.2 - 59.3	65.6 - 83.7	64.0 - 78.4	61.1 - 70.3	58.9 - 65.4	54.3 - 61.4	0
April 1-5	13:00	5	60.2 - 67.6	66.8 - 82.0	52.7 - 58.2	65.2 - 77.1	62.9 - 73.1	60.1 - 66.7	57.7 - 64.2	54.0 - 60.7	0
April 1-5	14:00	5	59.6 - 66.5	66.9 - 81.7	51.7 - 59.1	65.4 - 73.8	62.9 - 71.7	60.2 - 67.9	58.0 - 63.5	54.2 - 60.8	0
April 1-5	15:00	5	61.0 - 73.2	68.0 - 85.7	52.0 - 60.3	65.5 - 83.6	62.9 - 80.2	60.8 - 67.6	59.6 - 64.5	54.0 - 62.2	0
April 1-5	16:00	5	61.0 - 73.9	67.7 - 91.3	51.7 - 59.3	65.9 - 85.6	64.3 - 72.0	62.3 - 67.7	59.0 - 64.1	53.7 - 62.2	0
April 1-5	17:00	4	60.9 - 67.3	67.4 - 85.2	52.6 - 59.1	66.1 - 75.4	64.4 - 69.3	61.6 - 65.9	58.8 - 64.2	54.5 - 61.8	0
April 1-5	18:00	4	60.2 - 65.6	67.8 - 83.1	52.0 - 58.3	65.4 - 73.6	63.2 - 69.3	60.3 - 66.2	58.3 - 63.2	53.9 - 60.4	0
April 1-5	19:00	4	57.2 - 66.9	66.3 - 81.4	52.2 - 60.7	63.4 - 78.4	60.5 - 70.9	57.6 - 67.3	55.6 - 65.5	53.8 - 63.7	0
April 1-5	20:00	4	56.5 - 64.4	64.3 - 82.2	51.5 - 59.4	61.5 - 70.6	59.8 - 67.9	56.9 - 64.6	55.2 - 63.2	53.1 - 61.1	0
April 1-5	21:00	4	54.2 - 63.1	60.4 - 78.8	51.1 - 55.8	59.2 - 73.9	57.0 - 66.5	53.6 - 62.6	52.6 - 60.2	52.2 - 57.2	0
April 1-5	22:00	4	54.5 - 62.4	62.2 - 78.9	51.2 - 55.1	59.6 - 71.3	56.9 - 65.2	54.4 - 60.9	53.2 - 59.3	52.4 - 56.7	0
April 1-5	23:00	4	52.8 - 60.2	55.0 - 75.0	50.9 - 52.4	54.0 - 69.4	53.5 - 64.4	52.5 - 60.4	52.3 - 57.7	51.9 - 53.7	0
		Low:	52.3	52.8	50.9	52.6	52.5	52.4	52.2	51.9	
		High:	73.9	91.3	64.7	85.6	80.2	70.5	69.0	66.1	



AGI - UCSD TRITON PAVILLION NOISE MONITORING PROJECT

Location: **LT1**
Date: 1-Apr-19

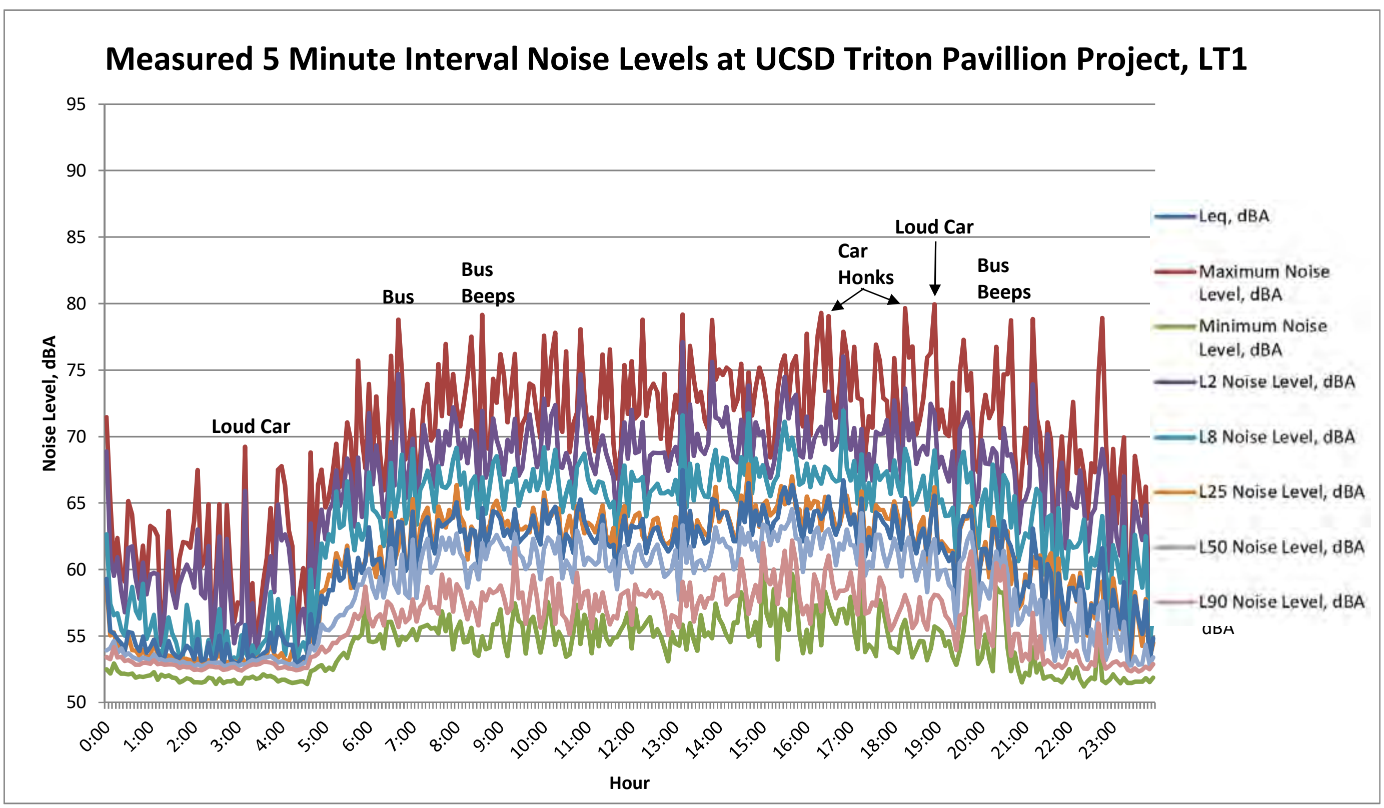
Date	Hour	Duration (s)	Leq Noise Level	Maximum Noise Level	Minimum Noise Level	L2 Noise Level	L8 Noise Level	L25 Noise Level	L50 Noise Level	L90 Noise Level	Overloads
1-Apr	0:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
1-Apr	1:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
1-Apr	2:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
1-Apr	3:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
1-Apr	4:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
1-Apr	5:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
1-Apr	6:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
1-Apr	7:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
1-Apr	8:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
1-Apr	9:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
1-Apr	10:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
1-Apr	11:00	3600	60.6 - 64.6	67.0 - 77.1	51.9 - 54.3	65.8 - 71.6	63.2 - 69.1	61.5 - 66.0	58.0 - 62.2	53.5 - 57.8	0
1-Apr	12:00	3600	62.3 - 69.1	69.8 - 80.7	52.6 - 59.3	68.3 - 76.5	65.1 - 73.8	62.1 - 70.3	59.6 - 65.2	54.8 - 61.4	0
1-Apr	13:00	3600	61.7 - 64.1	70.7 - 77.5	52.7 - 56.7	66.5 - 74.4	64.7 - 67.9	62.2 - 65.5	59.7 - 61.9	54.0 - 58.8	0
1-Apr	14:00	3600	60.6 - 63.8	69.5 - 77.6	52.7 - 57.6	67.4 - 73.0	63.9 - 67.3	61.3 - 64.5	58.0 - 62.8	54.5 - 59.9	0
1-Apr	15:00	3600	61.2 - 66.4	68.7 - 80.5	54.3 - 58.5	65.5 - 72.1	64.1 - 69.5	61.1 - 66.5	59.9 - 64.0	57.2 - 61.5	0
1-Apr	16:00	3600	61.0 - 73.9	67.7 - 91.3	52.8 - 59.3	65.9 - 85.6	64.3 - 71.9	62.4 - 65.4	59.7 - 63.8	55.1 - 62.2	0
1-Apr	17:00	3600	60.5 - 67.3	69.1 - 85.2	52.7 - 59.1	66.9 - 75.4	63.9 - 68.0	61.5 - 64.8	58.5 - 62.8	54.8 - 61.2	0
1-Apr	18:00	3600	61.5 - 64.9	70.8 - 78.0	53.0 - 57.1	66.4 - 72.4	63.9 - 69.3	60.4 - 64.9	58.2 - 63.2	55.2 - 59.5	0
1-Apr	19:00	3600	59.5 - 66.5	67.4 - 81.4	53.0 - 60.1	65.6 - 72.5	63.4 - 70.8	60.6 - 67.3	57.2 - 65.5	54.1 - 63.7	0
1-Apr	20:00	3600	59.3 - 63.7	68.0 - 82.2	53.1 - 57.3	64.9 - 70.4	61.8 - 67.0	59.7 - 63.1	57.7 - 61.1	54.8 - 58.9	0
1-Apr	21:00	3600	55.7 - 61.6	64.0 - 77.0	51.9 - 55.8	62.1 - 69.5	58.4 - 66.5	56.1 - 62.6	53.7 - 60.2	53.1 - 57.2	0
1-Apr	22:00	3600	55.0 - 62.4	60.6 - 77.4	51.7 - 54.0	58.8 - 71.3	58.0 - 65.2	55.3 - 60.9	53.5 - 59.3	52.7 - 55.7	0
1-Apr	23:00	3600	54.4 - 59.7	63.6 - 75.0	51.9 - 52.4	59.6 - 68.0	54.2 - 63.0	53.6 - 59.9	53.3 - 56.4	52.8 - 53.4	0
		Low:	54.4	60.6	51.7	58.8	54.2	53.6	53.3	52.7	
		High:	73.9	91.3	60.1	85.6	73.8	70.3	65.5	63.7	



AGI - UCSD TRITON PAVILLION NOISE MONITORING PROJECT

Location: **LT1**
Date: 2-Apr-19

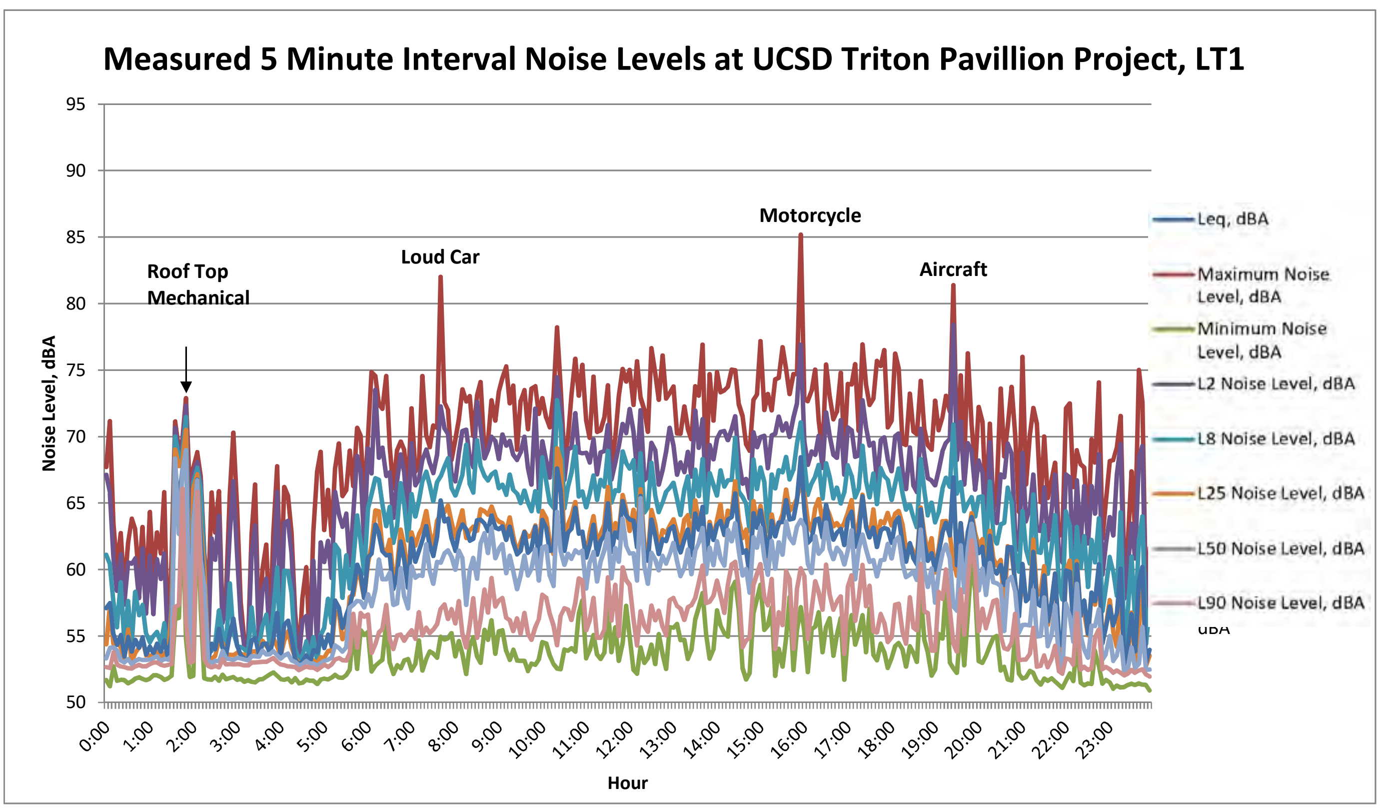
Date	Hour	Duration (s)	Leq Noise Level	Maximum Noise Level	Minimum Noise Level	L2 Noise Level	L8 Noise Level	L25 Noise Level	L50 Noise Level	L90 Noise Level	Overloads
2-Apr	0:00	3600	53.8 - 59.3	58.9 - 71.5	51.9 - 52.9	56.8 - 68.9	54.8 - 62.7	53.5 - 58.7	53.2 - 54.6	52.8 - 54.2	0
2-Apr	1:00	3600	53.3 - 54.7	55.1 - 64.4	51.5 - 52.3	54.3 - 61.3	53.5 - 57.3	53.1 - 54.7	52.9 - 53.6	52.6 - 53.2	0
2-Apr	2:00	3600	52.7 - 55.0	53.5 - 67.5	51.4 - 51.9	53.2 - 63.0	53.1 - 57.0	52.9 - 53.8	52.7 - 53.0	52.4 - 52.7	0
2-Apr	3:00	3600	52.9 - 55.8	54.1 - 69.3	51.4 - 52.1	53.6 - 65.9	53.1 - 58.3	52.9 - 54.5	52.7 - 53.5	52.4 - 53.0	0
2-Apr	4:00	3600	52.6 - 58.0	53.2 - 68.8	51.4 - 52.8	53.1 - 64.5	52.9 - 62.0	52.8 - 58.3	52.6 - 55.9	52.4 - 54.2	0
2-Apr	5:00	3600	57.4 - 61.5	64.0 - 75.7	52.4 - 57.4	62.3 - 68.4	60.9 - 66.6	58.5 - 61.8	55.4 - 59.7	53.8 - 58.7	0
2-Apr	6:00	3600	58.9 - 63.8	65.9 - 78.8	54.1 - 56.1	64.0 - 74.7	61.8 - 68.6	59.4 - 64.3	57.9 - 61.6	55.7 - 57.6	0
2-Apr	7:00	3600	59.6 - 64.4	67.0 - 77.0	54.0 - 56.9	65.0 - 72.2	63.4 - 69.1	60.1 - 65.3	57.9 - 62.4	56.1 - 59.6	0
2-Apr	8:00	3600	60.3 - 65.1	67.3 - 79.2	53.5 - 56.1	65.5 - 71.9	63.9 - 69.1	60.7 - 66.4	58.6 - 62.7	55.8 - 58.9	0
2-Apr	9:00	3600	61.9 - 64.5	68.7 - 76.2	53.5 - 57.5	67.1 - 71.7	64.5 - 67.6	62.3 - 64.6	59.3 - 62.7	55.6 - 61.6	0
2-Apr	10:00	3600	60.9 - 65.3	68.8 - 78.1	53.4 - 57.6	66.3 - 74.7	64.3 - 69.2	60.9 - 65.8	59.0 - 62.9	55.2 - 59.7	0
2-Apr	11:00	3600	59.2 - 64.1	66.8 - 76.6	53.7 - 56.7	63.0 - 71.1	62.0 - 67.8	60.0 - 64.8	58.5 - 63.4	55.6 - 58.4	0
2-Apr	12:00	3600	61.2 - 63.8	68.4 - 78.8	53.1 - 57.1	65.6 - 72.0	64.0 - 67.4	61.9 - 64.3	59.5 - 61.9	55.1 - 58.9	0
2-Apr	13:00	3600	60.9 - 67.5	66.9 - 79.2	53.9 - 57.4	66.1 - 77.1	64.7 - 71.6	61.2 - 66.7	57.7 - 63.3	55.7 - 59.4	0
2-Apr	14:00	3600	62.1 - 66.5	70.5 - 75.5	54.2 - 58.3	68.1 - 73.8	65.2 - 71.7	62.5 - 67.9	60.0 - 63.2	56.7 - 60.8	0
2-Apr	15:00	3600	62.1 - 66.4	68.4 - 76.1	53.2 - 60.3	66.9 - 74.5	65.5 - 71.1	62.4 - 67.0	59.8 - 64.5	56.6 - 62.2	0
2-Apr	16:00	3600	62.6 - 66.7	70.1 - 79.3	53.8 - 58.3	68.4 - 76.0	66.2 - 72.0	62.9 - 65.6	60.3 - 63.2	55.9 - 61.0	0
2-Apr	17:00	3600	61.0 - 65.4	68.5 - 76.9	53.5 - 59.0	66.7 - 71.2	64.4 - 68.7	61.9 - 65.9	59.5 - 64.2	55.4 - 61.8	0
2-Apr	18:00	3600	61.1 - 65.6	68.2 - 80.0	53.2 - 56.2	66.7 - 73.6	64.5 - 69.1	60.3 - 66.2	58.3 - 62.4	55.5 - 58.1	0
2-Apr	19:00	3600	57.2 - 64.5	66.3 - 77.3	52.8 - 59.9	63.4 - 71.8	60.5 - 68.9	57.6 - 64.7	55.6 - 62.8	54.0 - 61.3	0
2-Apr	20:00	3600	57.3 - 63.6	64.3 - 78.7	51.5 - 58.7	62.7 - 70.6	60.6 - 67.9	57.0 - 63.9	55.8 - 61.4	53.1 - 60.5	0
2-Apr	21:00	3600	54.2 - 63.1	60.4 - 78.8	51.5 - 54.1	59.2 - 73.9	57.0 - 66.1	53.9 - 61.2	53.1 - 58.8	52.6 - 56.7	0
2-Apr	22:00	3600	54.9 - 61.6	63.6 - 78.9	51.2 - 55.1	59.9 - 69.1	57.1 - 64.0	54.4 - 59.7	53.2 - 58.5	52.5 - 55.9	0
2-Apr	23:00	3600	52.8 - 59.0	55.0 - 69.9	51.4 - 52.1	54.0 - 67.0	53.5 - 63.2	53.0 - 59.3	52.8 - 57.0	52.3 - 53.1	0
		Low:	52.6	53.2	51.2	53.1	52.9	52.8	52.6	52.3	
		High:	67.5	80.0	60.3	77.1	72.0	67.9	64.5	62.2	



AGI - UCSD TRITON PAVILLION NOISE MONITORING PROJECT

Location: **LT1**
Date: 3-Apr-19

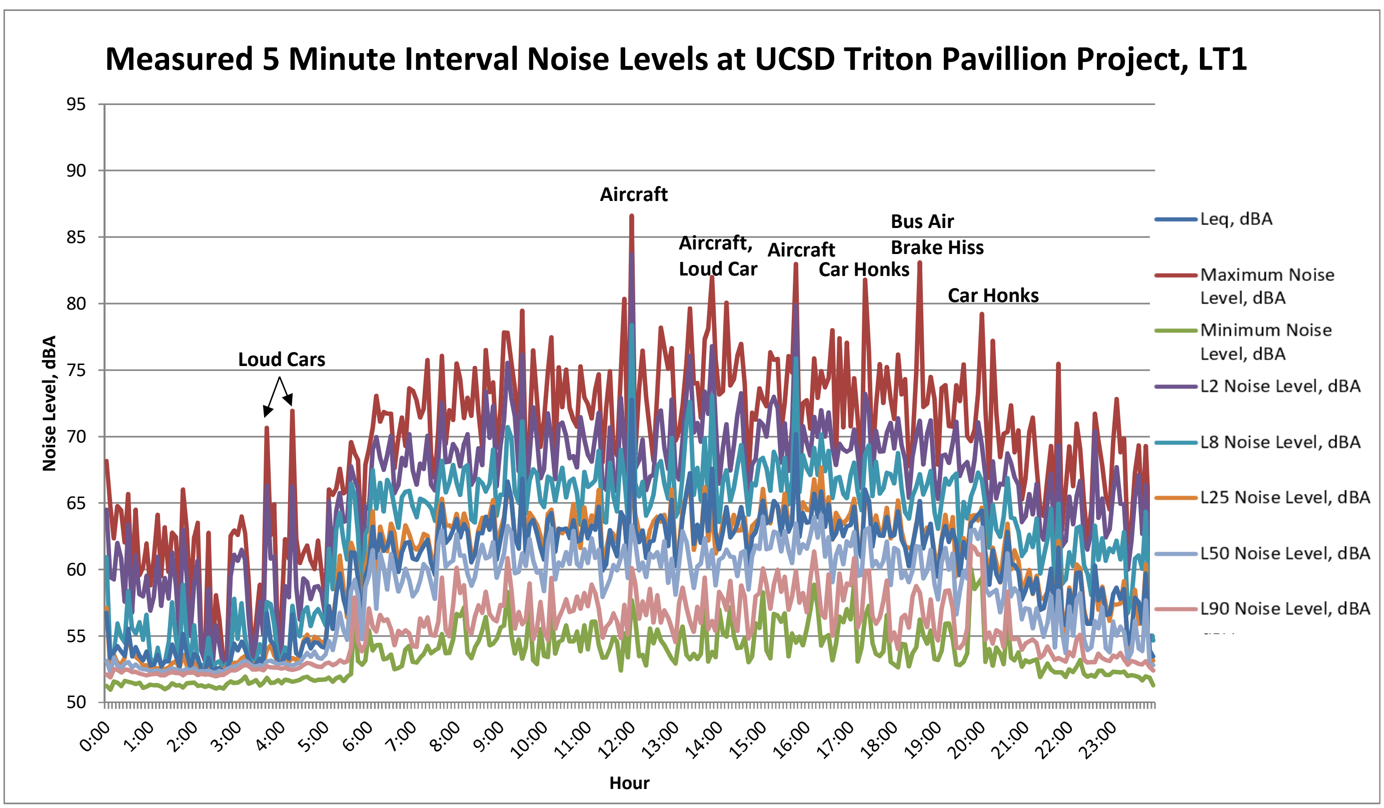
Date	Hour	Duration (s)	Leq Noise Level	Maximum Noise Level	Minimum Noise Level	L2 Noise Level	L8 Noise Level	L25 Noise Level	L50 Noise Level	L90 Noise Level	Overloads
3-Apr	0:00	3600	53.5 - 57.5	58.1 - 71.2	51.2 - 52.7	56.7 - 67.1	54.3 - 61.1	53.1 - 57.2	52.9 - 54.1	52.6 - 53.8	0
3-Apr	1:00	3600	53.2 - 68.9	53.9 - 72.9	51.7 - 64.3	53.8 - 72.3	53.6 - 71.5	53.3 - 70.5	53.1 - 69.0	52.8 - 66.1	0
3-Apr	2:00	3600	53.2 - 66.8	56.4 - 70.3	51.6 - 64.7	54.1 - 68.1	53.8 - 67.7	53.3 - 67.2	53.0 - 66.7	52.6 - 65.9	0
3-Apr	3:00	3600	53.2 - 56.7	54.4 - 67.8	51.5 - 52.3	54.0 - 65.9	53.7 - 60.2	53.4 - 54.8	53.2 - 53.9	52.8 - 53.3	0
3-Apr	4:00	3600	52.8 - 56.2	53.4 - 68.9	51.4 - 51.8	53.3 - 63.7	53.2 - 59.9	53.0 - 55.4	52.8 - 53.7	52.4 - 52.9	0
3-Apr	5:00	3600	54.1 - 60.4	62.5 - 70.7	51.7 - 55.5	59.4 - 68.5	55.6 - 64.1	53.4 - 59.9	53.1 - 57.7	52.7 - 56.7	0
3-Apr	6:00	3600	58.5 - 63.4	66.1 - 74.9	52.1 - 56.0	63.9 - 73.5	62.0 - 66.9	59.2 - 64.5	57.1 - 60.8	53.7 - 57.3	0
3-Apr	7:00	3600	60.6 - 65.2	67.4 - 82.0	52.4 - 55.2	66.3 - 72.3	64.0 - 68.4	61.7 - 64.8	58.9 - 61.9	54.8 - 57.4	0
3-Apr	8:00	3600	61.4 - 64.1	68.9 - 74.1	52.1 - 56.2	66.6 - 72.6	65.6 - 69.7	62.4 - 64.7	57.3 - 63.1	54.1 - 59.4	0
3-Apr	9:00	3600	60.8 - 63.3	69.0 - 75.3	52.4 - 55.4	66.1 - 72.1	64.4 - 67.1	61.3 - 63.9	58.5 - 61.9	54.7 - 57.9	0
3-Apr	10:00	3600	61.4 - 67.6	68.3 - 78.2	52.5 - 57.7	66.7 - 74.5	64.6 - 72.8	61.2 - 69.1	58.8 - 64.3	54.3 - 59.3	0
3-Apr	11:00	3600	60.9 - 65.2	67.8 - 75.1	53.1 - 57.3	66.8 - 70.9	64.7 - 68.9	60.9 - 66.2	58.6 - 63.8	54.9 - 60.2	0
3-Apr	12:00	3600	60.7 - 65.5	70.3 - 76.7	52.2 - 55.7	66.4 - 72.1	64.3 - 68.7	61.1 - 66.1	58.9 - 65.4	54.3 - 58.9	0
3-Apr	13:00	3600	60.7 - 64.7	66.8 - 76.9	53.3 - 58.2	65.2 - 72.0	64.0 - 68.3	61.2 - 65.2	59.5 - 63.1	56.2 - 60.3	0
3-Apr	14:00	3600	59.6 - 65.7	68.9 - 75.1	51.7 - 59.1	65.4 - 71.5	62.9 - 69.9	60.3 - 66.6	58.3 - 63.5	54.2 - 60.6	0
3-Apr	15:00	3600	61.0 - 68.5	72.0 - 85.2	52.0 - 58.9	67.6 - 76.9	62.9 - 71.1	60.8 - 66.5	59.6 - 63.7	54.0 - 60.4	0
3-Apr	16:00	3600	61.8 - 64.9	68.8 - 75.4	51.7 - 56.8	67.1 - 71.8	65.0 - 68.0	62.9 - 65.7	59.7 - 63.6	53.7 - 60.4	0
3-Apr	17:00	3600	61.7 - 65.5	70.4 - 77.0	52.6 - 57.1	66.6 - 72.7	64.9 - 69.3	62.1 - 65.6	59.3 - 63.0	54.5 - 60.4	0
3-Apr	18:00	3600	60.4 - 64.5	69.0 - 76.2	52.0 - 58.3	65.8 - 70.6	63.2 - 68.3	61.0 - 64.7	58.7 - 63.0	53.9 - 60.4	0
3-Apr	19:00	3600	60.0 - 66.9	67.6 - 81.4	52.2 - 60.7	66.0 - 78.4	63.6 - 70.9	59.5 - 64.2	56.9 - 63.5	53.8 - 62.2	0
3-Apr	20:00	3600	56.5 - 62.5	64.3 - 73.7	51.7 - 55.3	61.5 - 69.6	59.8 - 66.6	56.9 - 62.9	55.2 - 60.5	53.2 - 57.7	0
3-Apr	21:00	3600	54.3 - 61.3	62.5 - 76.0	51.1 - 52.4	60.5 - 68.8	57.7 - 65.7	53.6 - 62.2	52.6 - 58.5	52.2 - 55.6	0
3-Apr	22:00	3600	54.5 - 60.4	62.3 - 74.1	51.3 - 54.5	59.6 - 68.7	56.9 - 64.4	54.5 - 60.7	53.2 - 58.9	52.4 - 56.7	0
3-Apr	23:00	3600	52.9 - 60.2	57.6 - 75.0	50.9 - 51.5	56.4 - 69.4	54.1 - 64.3	52.5 - 59.9	52.3 - 55.7	51.9 - 52.5	0
		Low:	52.8	53.4	50.9	53.3	53.2	52.5	52.3	51.9	
		High:	68.9	85.2	64.7	78.4	72.8	70.5	69.0	66.1	



AGI - UCSD TRITON PAVILLION NOISE MONITORING PROJECT

Location: **LT1**
Date: 4-Apr-19

Date	Hour	Duration (s)	Leq Noise Level	Maximum Noise Level	Minimum Noise Level	L2 Noise Level	L8 Noise Level	L25 Noise Level	L50 Noise Level	L90 Noise Level	Overloads
4-Apr	0:00	3600	53.2 - 56.7	58.6 - 68.2	51.0 - 51.6	56.8 - 64.5	53.4 - 60.9	52.5 - 57.1	52.3 - 53.4	51.9 - 52.5	0
4-Apr	1:00	3600	52.6 - 55.2	57.7 - 66.0	51.0 - 51.5	55.0 - 63.0	52.8 - 58.9	52.5 - 53.6	52.3 - 52.6	52.0 - 52.3	0
4-Apr	2:00	3600	52.3 - 54.4	52.8 - 63.5	51.1 - 51.6	52.6 - 61.1	52.5 - 57.8	52.4 - 53.0	52.2 - 52.7	52.0 - 52.4	0
4-Apr	3:00	3600	52.8 - 56.7	53.4 - 70.7	51.3 - 51.9	53.2 - 66.3	53.1 - 57.5	52.9 - 54.3	52.7 - 53.2	52.4 - 52.8	0
4-Apr	4:00	3600	53.0 - 56.6	56.8 - 71.9	51.4 - 52.0	54.0 - 66.3	53.4 - 57.3	53.1 - 55.1	52.8 - 53.8	52.5 - 53.0	0
4-Apr	5:00	3600	54.1 - 61.3	57.5 - 69.6	51.6 - 56.8	56.5 - 67.8	55.8 - 66.5	54.7 - 62.0	53.6 - 59.2	52.8 - 57.9	0
4-Apr	6:00	3600	59.8 - 63.2	67.6 - 73.6	52.5 - 55.4	64.6 - 70.2	63.1 - 67.5	59.3 - 64.4	57.1 - 61.5	54.3 - 57.1	0
4-Apr	7:00	3600	59.6 - 64.9	66.9 - 76.1	53.0 - 55.1	66.0 - 72.5	63.7 - 68.2	59.8 - 65.3	57.8 - 62.9	54.2 - 59.4	0
4-Apr	8:00	3600	60.5 - 64.7	69.1 - 76.5	53.3 - 57.2	66.3 - 73.4	63.5 - 69.0	61.1 - 65.2	58.8 - 62.6	55.2 - 60.1	0
4-Apr	9:00	3600	61.0 - 66.8	68.4 - 79.5	52.9 - 58.3	65.4 - 76.2	64.2 - 71.2	62.1 - 66.2	59.7 - 63.3	54.8 - 60.8	0
4-Apr	10:00	3600	60.8 - 64.2	68.6 - 77.5	53.4 - 56.9	66.8 - 71.7	63.3 - 67.7	61.2 - 64.9	58.4 - 63.1	54.7 - 59.4	0
4-Apr	11:00	3600	59.9 - 64.7	67.9 - 80.4	52.4 - 56.1	65.9 - 72.9	63.6 - 69.0	60.6 - 66.0	57.9 - 62.3	54.8 - 58.9	0
4-Apr	12:00	3600	60.9 - 72.8	68.2 - 86.6	52.8 - 57.7	66.0 - 83.7	64.1 - 78.4	61.5 - 67.0	59.0 - 63.3	55.6 - 60.1	0
4-Apr	13:00	3600	60.3 - 67.6	69.7 - 82.0	52.9 - 57.5	66.8 - 76.8	64.0 - 73.1	61.1 - 66.3	58.1 - 62.9	54.5 - 59.4	0
4-Apr	14:00	3600	60.1 - 64.7	66.9 - 80.1	53.0 - 57.2	65.7 - 73.3	63.6 - 69.4	61.1 - 64.6	58.5 - 61.8	54.8 - 59.1	0
4-Apr	15:00	3600	62.5 - 70.2	69.6 - 83.0	53.3 - 58.3	66.8 - 79.9	64.9 - 75.9	63.4 - 67.6	60.5 - 64.0	57.0 - 60.1	0
4-Apr	16:00	3600	62.3 - 65.9	68.3 - 78.0	53.2 - 58.9	67.8 - 72.0	65.4 - 70.2	62.3 - 67.7	59.0 - 64.1	55.0 - 61.4	0
4-Apr	17:00	3600	60.9 - 66.0	67.4 - 81.8	53.0 - 59.1	66.1 - 73.2	64.5 - 69.3	61.6 - 65.3	58.8 - 63.1	54.6 - 60.9	0
4-Apr	18:00	3600	60.2 - 65.2	67.8 - 83.1	52.6 - 56.2	65.4 - 71.4	63.8 - 68.8	61.3 - 65.2	58.9 - 61.8	54.0 - 58.8	0
4-Apr	19:00	3600	59.5 - 64.1	67.9 - 75.4	52.8 - 60.1	65.3 - 71.1	61.5 - 67.3	59.5 - 64.1	56.6 - 63.0	54.1 - 61.8	0
4-Apr	20:00	3600	57.8 - 64.4	65.3 - 79.2	52.7 - 59.4	63.3 - 69.3	61.0 - 66.9	58.4 - 64.6	56.3 - 63.2	54.0 - 61.1	0
4-Apr	21:00	3600	55.6 - 61.6	63.0 - 75.5	51.9 - 53.2	61.1 - 69.4	58.7 - 65.0	55.0 - 62.2	53.7 - 58.4	53.1 - 54.7	0
4-Apr	22:00	3600	55.9 - 60.3	62.2 - 71.7	52.0 - 53.2	61.5 - 70.4	58.1 - 63.3	55.9 - 60.4	53.8 - 58.2	53.0 - 55.1	0
4-Apr	23:00	3600	53.5 - 59.7	60.2 - 72.8	51.3 - 52.3	58.3 - 67.7	54.7 - 64.4	53.1 - 60.4	52.8 - 57.7	52.4 - 53.7	0
		Low:	52.3	52.8	51.0	52.6	52.5	52.4	52.2	51.9	
		High:	72.8	86.6	60.1	83.7	78.4	67.7	64.1	61.8	

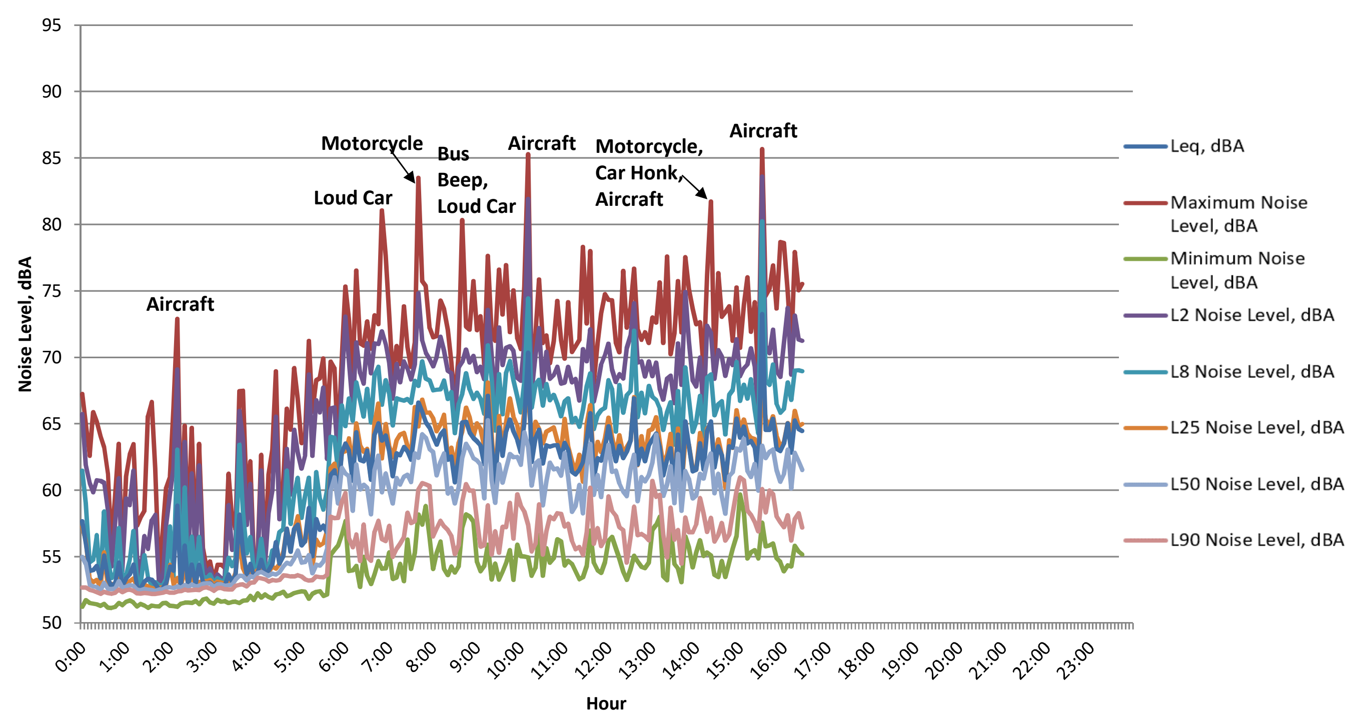


AGI - UCSD TRITON PAVILLION NOISE MONITORING PROJECT

Location: **LT1**
Date: 5-Apr-19

Date	Hour	Duration (s)	Leq Noise Level	Maximum Noise Level	Minimum Noise Level	L2 Noise Level	L8 Noise Level	L25 Noise Level	L50 Noise Level	L90 Noise Level	Overloads
5-Apr	0:00	3600	52.7 - 57.7	54.8 - 67.3	51.1 - 51.7	53.9 - 65.7	52.9 - 61.5	52.7 - 57.3	52.5 - 55.0	52.2 - 52.7	0
5-Apr	1:00	3600	52.5 - 54.4	53.6 - 66.7	51.1 - 51.7	53.0 - 61.5	52.8 - 56.9	52.6 - 53.4	52.4 - 52.9	52.2 - 52.5	0
5-Apr	2:00	3600	52.8 - 58.8	54.2 - 72.9	51.2 - 51.8	53.6 - 69.1	53.1 - 63.1	52.8 - 54.4	52.6 - 53.0	52.3 - 52.7	0
5-Apr	3:00	3600	52.7 - 58.1	53.3 - 67.5	51.5 - 52.0	53.2 - 66.0	53.0 - 63.4	52.9 - 56.4	52.7 - 53.6	52.4 - 53.1	0
5-Apr	4:00	3600	53.7 - 57.4	54.8 - 69.2	51.8 - 52.3	54.4 - 65.5	54.2 - 61.5	53.8 - 58.0	53.6 - 55.5	53.1 - 53.6	0
5-Apr	5:00	3600	55.0 - 62.9	63.4 - 71.2	51.8 - 56.7	61.6 - 68.7	55.8 - 66.4	54.3 - 62.8	53.7 - 61.7	53.2 - 59.1	0
5-Apr	6:00	3600	60.7 - 65.0	68.7 - 81.1	52.7 - 57.7	66.3 - 73.1	64.8 - 69.3	60.9 - 66.5	58.2 - 62.6	54.7 - 59.8	0
5-Apr	7:00	3600	61.0 - 66.6	68.5 - 83.5	53.2 - 58.8	66.9 - 74.8	64.9 - 69.7	62.5 - 66.8	59.0 - 64.2	55.0 - 60.5	0
5-Apr	8:00	3600	60.6 - 65.2	66.6 - 80.3	53.6 - 58.2	65.5 - 71.6	64.3 - 68.8	61.8 - 66.2	59.0 - 63.5	55.2 - 60.5	0
5-Apr	9:00	3600	60.6 - 67.1	69.5 - 77.7	53.2 - 55.9	66.3 - 73.6	64.5 - 70.9	60.4 - 68.1	59.0 - 65.3	55.1 - 59.7	0
5-Apr	10:00	3600	62.0 - 70.3	68.3 - 85.3	53.6 - 56.6	67.4 - 81.9	65.6 - 74.4	63.0 - 67.2	58.9 - 64.4	55.1 - 58.9	0
5-Apr	11:00	3600	60.9 - 65.8	68.1 - 78.3	53.3 - 56.9	66.7 - 72.1	64.6 - 68.8	60.6 - 66.4	58.2 - 63.5	55.1 - 60.2	0
5-Apr	12:00	3600	61.9 - 66.9	70.4 - 76.7	53.2 - 56.5	68.1 - 74.1	64.4 - 72.0	61.9 - 67.0	59.2 - 63.4	54.5 - 59.5	0
5-Apr	13:00	3600	60.2 - 65.2	70.2 - 77.6	53.1 - 58.0	66.6 - 74.9	62.9 - 69.2	60.1 - 65.5	58.4 - 64.2	54.5 - 60.7	0
5-Apr	14:00	3600	60.8 - 65.4	69.2 - 81.7	53.5 - 56.5	65.8 - 72.4	64.0 - 69.6	60.2 - 66.0	58.2 - 63.1	56.1 - 59.9	0
5-Apr	15:00	3600	61.0 - 73.2	68.0 - 85.7	54.6 - 59.7	65.6 - 83.6	64.3 - 80.2	61.7 - 67.4	60.0 - 63.9	56.9 - 61.0	0
5-Apr	16:00	3600	62.8 - 65.3	70.6 - 78.6	53.9 - 55.8	68.7 - 73.7	66.1 - 69.0	63.6 - 66.0	60.1 - 63.1	56.2 - 58.3	0
5-Apr	17:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
5-Apr	18:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
5-Apr	19:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
5-Apr	20:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
5-Apr	21:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
5-Apr	22:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
5-Apr	23:00	0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0
		Low:	52.5	53.3	51.1	53.0	52.8	52.6	52.4	52.2	
		High:	73.2	85.7	59.7	83.6	80.2	68.1	65.3	61.0	

Measured Hour 5 Minute Interval Noise Levels at UCSD Triton Pavillion Project, LT1



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