ATTACHMENT H

PRELIMINARY WATER QUALITY MANAGEMENT PLAN

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City of Santa Ana

Priority Project

Preliminary Water Quality Management Plan (WQMP)

Project Name:

South Coast Technology Center Development

PERMIT NOS. TBD, 3100 LAKE CENTER DRIVE, SANTA ANA, CA 92704, TRACT NOS - LOT NOS: 11420 - 1 ; 11421 - 1; 2; 3; 4; 5; 10; 34; A, AND APNS: 414-261-01; 414-272-09; 414-272-10

Prepared for:

C.J. Segerstrom & Sons

3315 Fairview Road

Costa Mesa, California 92626

(714)546-0110

reesej@southcoastplaza.com

Prepared by:

Incledon Consulting Group

1570 Corporate Drive, Suite A

Costa Mesa, California 92626

(657)622-2121

mincledon@icgcivil.com

Date Prepared: 06/06/2024

Project Owner's Certification			
Planning Application No. (If applicable)	DP No. 2023-337	Grading Permit No.	
Tract/Parcel Map and Lot(s) No.	Tr 11420 lot 1 Tr 11421 lot (see Title sheet)	Building Permit No.	
Address of Project Site and APN (If no address, specify Tract/Parcel Map and Lot Numbers)			3100 Lake Center Dr, Santa Ana, CA 92704 414-261-01; 414-272-09; 414-272-10;

This Water Quality Management Plan (WQMP) has been prepared for C.J. Segerstrom & Sons by Incledon Consulting Group. The WQMP is intended to comply with the requirements of the County of Orange NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan , including the ongoing operation and maintenance of all best management practices (BMPs), and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

Representation on the Authority of Parties/Signatories. Each person signing this Agreement represents and warrants that he or she is duly authorized and has legal capacity to execute and deliver this Agreement. Each party represents and warrants to the other that the execution and delivery of the Agreement and the performance of such party's obligations hereunder have been duly authorized and that the Agreement is a valid and legal agreement binding on such party and enforceable in accordance with its terms. This agreement is binding on any successors in interest, designees or transferees. Attach proof of authority to execute this agreement.

Developer: Jeff Reese	
Title	Property Developer
Company	C.J. Segerstrom & Sons
Address	3315 Fairview Road, Costa Mesa, California 92626
Email	reesej@southcoastplaza.com
Telephone #	714-546-0110

I understand my responsibility to implement the provisions of this WQMP including the ongoing operation and maintenance of the best management practices (BMPs) described herein.			
Developer Signature		Date	

Preparer (Engineer): Michael Incledon			
Title	Owner	PE Registration #	C52390
Company	Incledon Consulting Group		
Address	1570 Corporate Drive, Suite A, Costa Mesa, CA 92626		
Email	mincledon@icgcivil.com		
Telephone #	657-622-2121		
I hereby certify that this Water Quality Management Plan is in compliance with, and meets the requirements set forth in, Order No. R8-2009-0030/NPDES No. CAS618030, of the Santa Ana Regional Water Quality Control Board.			
Preparer Signature		Date	06/06/2024
Place Stamp Here	REGISTERED PROFESSIONAL ENGINEER M.D. INCLEDON RCE 52390 CIVIL STATE OF CALIFORNIA		

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Attachments

Section I Permit(s) and Water Quality Conditions of Approval or Issuance

Provide discretionary or grading/building permit information and water quality conditions of approval, or permit issuance, applied to the project. If conditions are unknown, please request applicable conditions from staff. *Refer to Section 2.1 in the Technical Guidance Document (TGD) available on the OC Planning website (ocplanning.net).*

Project Infomation			
Permit/Application No. (If applicable)	DP No. 2023-337	Grading or Building Permit No. (If applicable)	
Address of Project Site (or Tract Map and Lot Number if no address) and APN	3100 Lake Center Dr, Santa Ana, CA 92704 414-261-01; 414-272-09; 414-272-10		
Water Quality Conditions of Approval or Issuance			
Water Quality Conditions of Approval or Issuance applied to this project. (Please list verbatim.)	Prior to the issuance of any grading or building permits, the applicant shall submit to the City, for review and approval, a Project WQMP.		
Conceptual WQMP			
Was a Conceptual Water Quality Management Plan previously approved for this project?	No		

Watershed-Based Plan Conditions	
Provide applicable conditions from watershed - based plans including WIHMPs and TMDLS.	Santa Ana River Basin Plan

Section II Project Description

II.1 Project Description

Provide a detailed project description including:

- Project areas;
- Land uses;
- Land cover;
- Design elements;
- A general description not broken down by drainage management areas (DMAs).

Include attributes relevant to determining applicable source controls. *Refer to Section 2.2 in the Technical Guidance Document (TGD) for information that must be included in the project description.*

Description of Proposed Project				
Development Category (From Model WQMP, Table 7.11-2; or -3):	1. New development projects that create 10,000 square feet or more of impervious surface. This category includes commercial, industrial, residential housing subdivisions, mixed-use, and public projects on private or public property that falls under the planning and building authority or the Permittees.			
Project Area (ft^2): ~730000	Number of Dwelling Units: 0		SIC Code: 4225	
Project Area	Pervious		Impervious	
	Area (acres)	Percentage (%)	Area (acres)	Percentage (%)
Pre-Project Conditions	9.89	59	6.85	41
Post-Project Conditions	2.40	14	14.34	86
Drainage Patterns/Connections	Surface drainage to bioretention basins with underdrain BMPs, overflow to either catch basins onsite or under sidewalk culverts to surrounding streets.			

Narrative Project Description: (Use as much space as necessary.)	The South Coast Technology Center development consists of the construction of three new industrial buildings, surface parking and site landscaping. The site is located in the SD-58 zoning district and has a General Plan land use designation of Industrial (IND). The land cover on the site will be asphalt in the parking areas (standard, EV, and ADA) and drive aisles; concrete in the sidewalks, tabled break areas, curbs and gutters, truck docks (3), trash enclosures (7), and ramps; and landscaping (trees, bushes, grass, etc.) in the applicable areas defined by the parking islands, concrete curbs and sidewalks, etc. Each building has a truck dock that slopes down towards the buildings, such that heavy, vehicular-rated trench drains (with sump pumps to pump water to grade) are to be placed at the trough of the docks. No materials are currently planned to be stored outside (only inside warehouses). The only activities regularly occurring outside are the movement of vehicles to, from, and around the site (both passenger and transport), landscaping maintenance, and the operation of security gates. Vehicular maintenance, repair, and cleaning is not expected on this site. There will be 3 truck docks on site: 9 bays in building 1, 11 in building 2, and 10 in building 3.

II.2 Potential Stormwater Pollutants

Determine and list expected stormwater pollutants based on land uses and site activities. *Refer to Section 2.2.2 and Table 2.1 in the Technical Guidance Document (TGD) for guidance.*

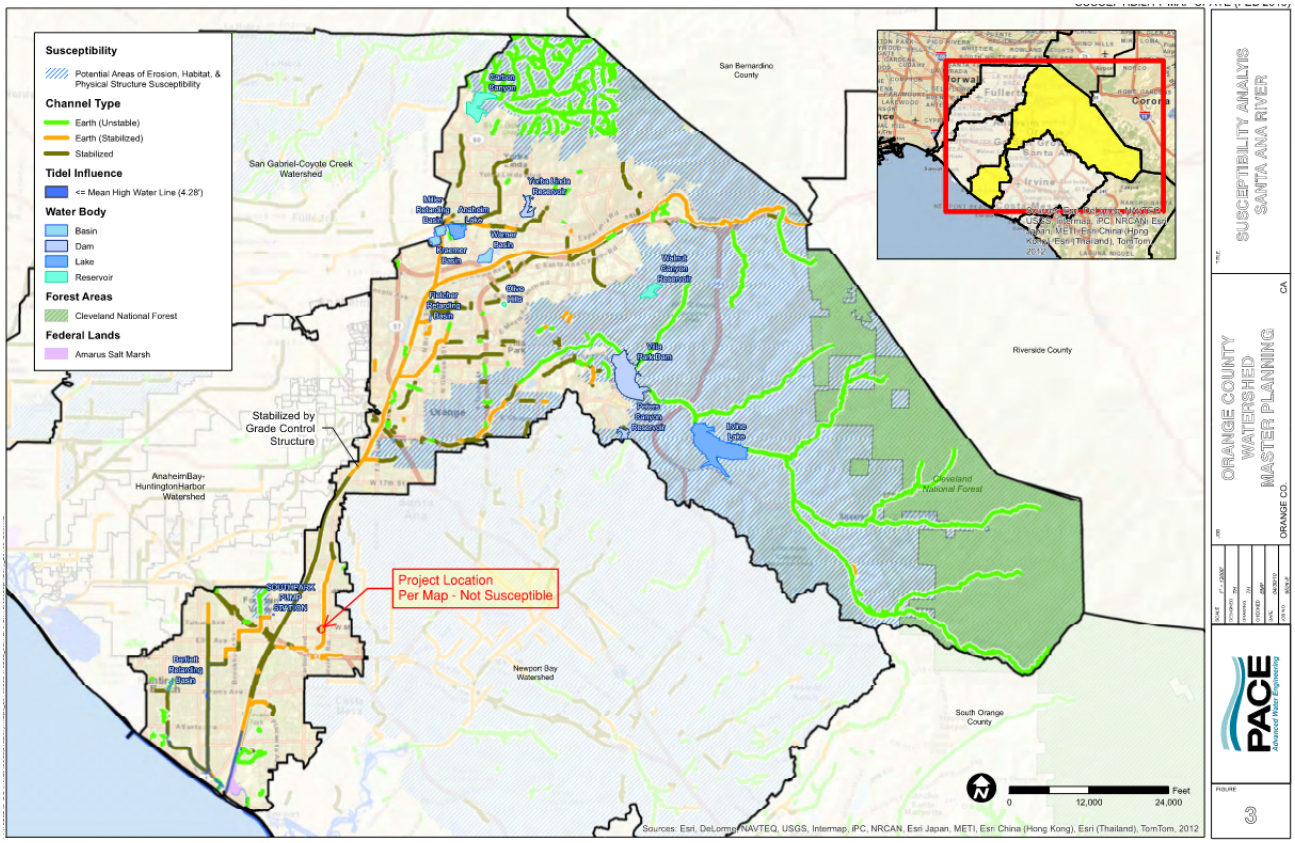
Pollutants of Concern			
Pollutant	Check One for each: E=Expected to be of concern N=Not Expected to be of concern		Additional Information and Comments
Suspended-Solid/ Sediment	E ☒	N ☐	
Nutrients	E ☒	N ☐	
Heavy Metals	E ☐	N ☒	Roofs not anticipated to be metal/ storage inside
Pathogens (Bacteria/Virus)	E ☐	N ☒	Food or animal waste products not anticipated
Pesticides	E ☒	N ☐	
Oil and Grease	E ☒	N ☐	
Toxic Organic Compounds	E ☒	N ☐	
Trash and Debris	E ☒	N ☐	

II.3 Hydrologic Conditions of Concern

Determine if streams located downstream from the project area are potentially susceptible to hydromodification impacts. *Refer to Section 2.2.3.1 in the Technical Guidance Document (TGD) for North Orange County or Section 2.2.3.2 for South Orange County.*

☒ No – Show map

☐ Yes – Describe applicable hydrologic conditions of concern below. *Refer to Section 2.2.3 in the Technical Guidance Document (TGD).*



II.4 Post Development Drainage Characteristics

Describe post development drainage characteristics. *Refer to Section 2.2.4 in the Technical Guidance Document (TGD).*

The project site is intended to drain into onsite bioretention basins with underdrain BMPs or other capture devices such as proprietary biotreatment devices, if necessary due to final site constraints. Overflow from onsite BMPs will flow to proposed catch basins within the BMP or sheet flow via under sidewalk culverts to existing offsite catch basins around the site. The site is located between Lake Center Drive and Sunflower Avenue (straddling Susan Street), so the incidental runoff and onsite storm drains anticipate tying into the storm drain infrastructure all flowing, into the Greenville Banning Channel (east) via existing connections. Runoff will not flow directly into receiving water bodies; however, the Greenville Banning Channel drains to the Santa Ana River Reach 1 (of which drains to the Pacific Ocean).

II.5 Property Ownership/Management

Describe property ownership/management. *Refer to Section 2.2.5 in the Technical Guidance Document (TGD).*

The property is owned and maintained by CJ Segerstrom and Sons. Maintenance procedures prescribed per BMP manuals provided (attached). Currently, no infrastructure is anticipated to be transferred to public agencies.

Section III Site Description

III.1 Physical Setting

Fill out table with relevant information. *Refer to Section 2.3.1 in the Technical Guidance Document (TGD).*

Name of Planned Community/Planning Area (if applicable)	South Coast Technology Center
Location/Address	3100 Lake Center Drive
	Santa Ana, CA 92704
General Plan Land Use Designation	Special Development - Industrial
Zoning	Special Development
Acreage of Project Site	~15.8 ac
Predominant Soil Type	Per the USDA Web Soil Survey: Bolsa Silt Loam (drained) - HSG C

III.2 Site Characteristics

Fill out table with relevant information and include information regarding BMP sizing, suitability, and feasibility, as applicable. *Refer to Section 2.3.2 in the Technical Guidance Document (TGD).*

Site Characteristics	
Precipitation Zone	0.75 inches
Topography	Relatively flat slopes. ~6 feet of elevation difference across the entire site. No hillsides anticipated.

Drainage Patterns/Connections	Surface drainage to bioretention basins with underdrain BMPs, overflow to either catch basins onsite or under sidewalk culverts to surrounding streets.
Soil Type, Geology, and Infiltration Properties	Soil Type C – per Geotechnical evaluation. Per the geotechnical evaluation (see attachment A), it is not feasible to infiltrate onsite or use infiltration BMPs because of the water table depths.
Hydrogeologic (Groundwater) Conditions	The shallowest depth of free water, based on historical well data and mapping by CDMG, has been approximately 5 feet, per geotechnical evaluation. The current estimate to groundwater depth is 10 to 15 feet per geotechnical evaluation, attachment A.
Geotechnical Conditions (relevant to infiltration)	Per the geotechnical evaluation (see attachment A), it is not feasible to infiltrate onsite or use infiltration BMPs because of the water table depths.
Off-Site Drainage	Surface flow and concentrated flow into catch basins in Lake Center Drive and Susan Street at Sunflower Avenue.
Utility and Infrastructure Information	All existing utilities that cannot be salvaged for the proposed site's design will be demolished (or abandoned in place) and replaced with new piping. Infiltration BMPs will not be considered for this project.

III.3 Watershed Description

Fill out table with relevant information and include information regarding BMP sizing, suitability, and feasibility, as applicable. *Refer to Section 2.3.3 in the Technical Guidance Document (TGD).*

Receiving Waters	Santa Ana River Reach 1 – Not listed in State Water Resources Control Board Website apx-j-newlistingsdelistings.xlsx (live.com)
303(d) Listed Impairments	NA
Applicable TMDLs	NA
Pollutants of Concern for the Project	NA
Environmentally Sensitive and Special Biological Significant Areas	None

Section IV Best Management Practices (BMPs)

IV. 1 Project Performance Criteria

Describe project performance criteria. Several steps must be followed in order to determine what performance criteria will apply to a project. These steps include:

- If the project has an approved WIHMP or equivalent, then any watershed specific criteria must be used and the project can evaluate participation in the approved regional or sub-regional opportunities. (Please ask your assigned planner or plan checker regarding whether your project is part of an approved WIHMP or equivalent.)
- Determine applicable hydromodification control performance criteria. *Refer to Section 7.II-2.4.2.2 of the Model WQMP.*
- Determine applicable LID performance criteria. *Refer to Section 7.II-2.4.3 of the Model WQMP.*
- Determine applicable treatment control BMP performance criteria. *Refer to Section 7.II-*3.2.2 *of the Model WQMP.*
- Calculate the LID design storm capture volume for the project. *Refer to Section 7.II-2.4.3 of the Model WQMP.*

(NOC Permit Area only) Is there an approved WIHMP or equivalent for the project area that includes more stringent LID feasibility criteria or if there are opportunities identified for implementing LID on regional or sub-regional basis?	YES ☐	NO ☒
If yes, describe WIHMP feasibility criteria or regional/sub-regional LID opportunities.	Not applicable	

Project Performance Criteria	
If HCOC exists, list applicable hydromodification control performance criteria (Section 7.II-2.4.2.2 in MWQMP)	Not applicable per Section II.3
List applicable LID performance criteria (Section 7.II-2.4.3 from MWQMP)	• Priority Projects must infiltrate, harvest and use, evapotranspire, or biotreat/biofilter, the 85th percentile, 24-hour storm event (Design Capture Volume). • A properly designed biotreatment system may only be considered if infiltration, harvest and use, and evapotranspiration (ET) cannot be feasibly implemented for the full design capture volume. In this case, infiltration, harvest and use, and ET practices must be implemented to the greatest extent feasible and biotreatment may be provided for the remaining design capture volume. • LID BMPs must be designed to retain, on-site, (infiltrate, harvest and use, or evapotranspire) stormwater runoff up to 80 percent average annual capture efficiency o Retain, on-site, (infiltrate, harvest and use, or evapotranspire) stormwater runoff as feasible up to the Design Capture Volume, and to Recover (i.e., draw down) the storage volume as soon as possible after a storm event (see criteria for maximizing drawdown rate in the TGD Appendix XI), and, if necessary o Biotreat, on-site, additional runoff, as feasible, up to 80 percent average annual capture efficiency (cumulative, retention plus biotreatment), and, if necessary o NOC Permit Area only – retain or biotreat, in a regional facility, the remaining runoff up to 80 percent average annual capture efficiency (cumulative, retention plus biotreatment, on-site plus off-site), and, if necessary o Fulfill alternative compliance obligations for runoff volume not retained or biotreated up to 80 percent average annual capture efficiency using treatment controls or other alternative approaches as described in Section 7.II-3.
List applicable treatment control BMP performance criteria (Section 7.II-3.2.2 from MWQMP)	Not applicable

Calculate LID design storm capture volume for Project.	DCV = (80% Capture Fraction)*((0.75*imp%)+0.15)*(85^{TH} perc. Rain depth)* (DMA||project area)*(conv. of in. to ft) DCV = 0.26*((0.75*0.86)+0.15)*0.75*(729699)*(1/12) **SITE DCV = 9395 CF** See the section IV.2 for the calculation of the 80% Capture Fraction.

IV.2. Site Design and Drainage

Describe site design and drainage including

- A narrative of site design practices utilized or rationale for not using practices;
- A narrative of how site is designed to allow BMPs to be incorporated to the MEP
- A table of DMA characteristics and list of LID BMPs proposed in each DMA.
- Reference to the WQMP "BMP Exhibit."
- Calculation of Design Capture Volume (DCV) for each drainage area.
- A listing of GIS coordinates for LID and Treatment Control BMPs.

Refer to Section 2.4.2 in the Technical Guidance Document (TGD).

Per the geotechnical letter (see attachment A), infiltration BMPs were not considered for this project due to water table depths. Biofiltration BMPs with an underdrain, and impermeable liner below, will allow for effective volume capture when infiltration is infeasible; therefore, the BMPs chosen will have the best impact possible for the culmination of the site's constraints, design/intended use, and hydrologic conditions. The site is designed to drain the BMPs, which will be set at the low point within their respective DMA. See the BMP Exhibit in Attachment A for a map of the Drainage Management Areas, with their associated BMPs. See the table below for a breakdown of the DCV per DMA.

TABLE: DMA DCV Summary

DMA	LAND COVER	AREA ac	% IMP	DCV REQ., cu-ft	LAT.	LONG.	BMP Proposed	Sizing Method
W1	Asphalt, Concrete, Landscaping	5.81	86%	3260	33.698529	-117.914488	Biofiltration with Underdrain (and impermeable bottom sheet)	Capture Efficiency Method for Bioretention with Underdrains
SE		6.46	88%	3689	33.698483	-117.912719		
E		4.48	83%	2446	33.698912	-117.911446		

DVC Calculation Example using DMA W1:

Capture Efficiency Method –

Known Variable	**Abbreviation**	**Value**	**Unit**
Area	A	253294	Square feet
Pervious Area	Ap	36435	Square feet
Impervious Area	Aimp	216859	Square feet
Ponding Depth	dp	6	inches

Design Infiltration Rate	K	2.5	Inches/hour
85th Percentile, 24-Hour storm depth	D85	0.75	inches

Runoff Coefficient = C = 0.15+(Aimp/A)*0.75

C = 0.15+0.75*0.86 = **0.79** = **C_{W1}**

C_E = **0.77**

C_{SE} = **0.81**

85th Percentile, 24-Hour storm depth = D80

Draw down time = dp/K = 6/2.5 = 2.4 -> Per manual, Kmin = 3 hours

---Per Figure III.5 of the TGD, 80% capture at 3 hour draw down time = **0.26**

Note: No HSCs are planned for this project.

DCV = V = C*A*D80*D85(1/12)

V = 0.79*253294.35*0.26*0.75*(1/12) = **3260 CF** = **DCV_{W1}**

DCV_E = **2446**

DCV_{SE} = **3689**

IV.3 LID BMP Selection and Project Conformance Analysis

Each sub-section below documents that the proposed design features conform to the applicable project performance criteria via check boxes, tables, calculations, narratives, and/or references to worksheets. *Refer to Section 2.4.2.3 in the Technical Guidance Document (TGD) for selecting LID BMPs and Section 2.4.3 in the Technical Guidance Document (TGD) for conducting conformance analysis with project performance criteria.*

IV.3.1 Hydrologic Source Controls (HSCs)

If required HSCs are included, fill out applicable check box forms. If the retention criteria are otherwise met with other LID BMPs, include a statement indicating HSCs not required.

Name	Included?
Localized on-lot infiltration	☐
Impervious area dispersion (e.g. roof top disconnection)	☒
Street trees (canopy interception)	☒
Residential rain barrels (not actively managed)	☐
Green roofs/Brown roofs	☐
Blue roofs	☐
Impervious area reduction (e.g. permeable pavers, site design)	☐
Other: Landscaping interception (non-tree canopy)	☒
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐

IV.3.2 Infiltration BMPs

Identify infiltration BMPs to be used in project. If design volume cannot be met, state why.

Name	Included?
Bioretention without underdrains	☐
Rain gardens	☐
Porous landscaping	☐
Infiltration planters	☐
Retention swales	☐
Infiltration trenches	☐
Infiltration basins	☐
Drywells	☐
Subsurface infiltration galleries	☐
French drains	☐
Permeable asphalt	☐
Permeable concrete	☐
Permeable concrete pavers	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Strom Capture Volume can be met with infiltration BMPs. If not, document how much can be met with infiltration and document why it is not feasible to meet the full volume with infiltration BMPs.

Per the geotechnical evaluation (see attachment A), it is not feasible to infiltrate onsite or use infiltration BMPs.

IV.3.3 Evapotranspiration, Rainwater Harvesting BMPs

If the full Design Storm Capture Volume cannot be met with infiltration BMPs, describe any evapotranspiration and/or rainwater harvesting BMPs included.

Name	Included?
All checked HSCs; *See Section IV.3.1*	☒
Surface-based infiltration BMPs	☐
Biotreatment BMPs	☒
Above-ground cisterns and basins	☐
Underground detention	☐
Other:	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Storm Capture Volume can be met with evapotranspiration and/or rainwater harvesting BMPs in combination with infiltration BMPs. If not, document below how much can be met with either infiltration BMPs, evapotranspiration, rainwater harvesting BMPs, or a combination, and document why it is not feasible to meet the full volume with these BMP categories.

Landscaping interception, impervious area dispersion and street trees HSC's are implemented on site; however, any possible retention volume associated with these HSC's will not be evaluated until final design. The Bioretention BMPs with an underdrain were designed assuming they needed to account for the capture of all rainfall to the site.

IV.3.4 Biotreatment BMPs

If the full Design Storm Capture Volume cannot be met with infiltration BMPs, and/or evapotranspiration and rainwater harvesting BMPs, describe biotreatment BMPs included. Include sections for selection, suitability, sizing, and infeasibility, as applicable.

Name	Included?
Bioretention with underdrains	☒
Stormwater planter boxes with underdrains	☐
Rain gardens with underdrains	☐
Constructed wetlands	☐
Vegetated swales	☐
Vegetated filter strips	☐
Proprietary vegetated biotreatment systems	☐
Wet extended detention basin	☐
Dry extended detention basins	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Storm Capture Volume can be met with infiltration, evapotranspiration, rainwater harvesting and/or biotreatment BMPs. If not, document how much can be met with either infiltration BMPs, evapotranspiration, rainwater harvesting BMPs, or a combination, and document why it is not feasible to meet the full volume with these BMP categories.

See the table below for the BMP storage breakdown per DMA.

DRAINAGE MANAGEMENT AREA - BMPS	Bottom Area (SF) A	Ponding Depth(ft) D	Vertical Ponding Volume (CF)	DCV Required (CF)
Collection in DMA W1	7,551	0.5	3776	3260
Collection in DMA SE	7,386	0.5	3693	3689
Collection in DMA E	5,081	0.5	2540	2446
Total	**20,018**		**10009**	**9395**

IV.3.5 Hydromodification Control BMPs

Describe hydromodification control BMPs. *See Section 5 of the Technical Guidance Document (TGD).* Include sections for selection, suitability, sizing, and infeasibility, as applicable. Detail compliance with Prior Conditions of Approval (if applicable).

Hydromodification Control BMPs – Not Applicable	
BMP Name	**BMP Description**

IV.3.6 Regional/Sub-Regional LID BMPs

Describe regional/sub-regional LID BMPs in which the project will participate. *Refer to Section 7.II-2.4.3.2 of the Model WQMP.*

Regional/Sub-Regional LID BMPs – Not Applicable

IV.3.7 Treatment Control BMPs

Treatment control BMPs can only be considered if the project conformance analysis indicates that it is not feasible to retain the full design capture volume with LID BMPs. Describe treatment control BMPs including sections for selection, sizing, and infeasibility, as applicable.

Treatment Control BMPs – Not Applicable	
BMP Name	**BMP Description**

IV.3.8 Non-structural Source Control BMPs

Fill out non-structural source control check box forms or provide a brief narrative explaining if non-structural source controls were not used.

Note: site has a potential for movement of hazardous materials to and from site buildings' into trucks

Non-Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**If not applicable, state brief reason**
		Included	**Not Applicable**	
N1	Education for Property Owners, Tenants and Occupants	☒	☐	
N2	Activity Restrictions (**premises gated**)	☒	☐	
N3	Common Area Landscape Management	☒	☐	
N4	BMP Maintenance	☒	☐	
N5	Title 22 CCR Compliance (How development will comply)	☒	☐	
N6	Local Industrial Permit Compliance	☐	☒	No fuel dispensing areas onsite
N7	Spill Contingency Plan	☒	☐	
N8	Underground Storage Tank Compliance	☐	☒	No underground storage tanks onsite
N9	Hazardous Materials Disclosure Compliance	☒	☐	
N10	Uniform Fire Code Implementation	☒	☐	
N11	Common Area Litter Control	☒	☐	
N12	Employee Training	☒	☐	
N13	Housekeeping of Loading Docks	☒	☐	
N14	Common Area Catch Basin Inspection	☒	☐	
N15	Street Sweeping Private Streets and Parking Lots	☒	☐	
N16	Retail Gasoline Outlets	☐	☒	No gasoline outlets onsite

IV.3.9 Structural Source Control BMPs

Fill out structural source control check box forms or provide a brief narrative explaining if structural source controls were not used.

Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**If not applicable, state brief reason**
		Included	**Not Applicable**	
S1	Provide storm drain system stenciling and signage	☒	☐	
S2	Design and construct outdoor material storage areas to reduce pollution introduction	☐	☒	No outdoor storage areas
S3	Design and construct trash and waste storage areas to reduce pollution introduction	☒	☐	
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	
S5	Protect slopes and channels and provide energy dissipation	☒	☐	
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	☐	☒	Not in san diego
S6	Dock areas	☒	☐	
S7	Maintenance bays	☐	☒	No maintenance bays
S8	Vehicle wash areas	☐	☒	No vehicle wash areas
S9	Outdoor processing areas	☐	☒	No outdoor processing areas
S10	Equipment wash areas	☐	☒	No equipment wash areas
S11	Fueling areas	☐	☒	No fueling areas
S12	Hillside landscaping	☐	☒	No hillsides onsite
S13	Wash water control for food preparation areas	☐	☒	No wash water control for food prep onsite
S14	Community car wash racks	☐	☒	No community car wash racks onsite

IV.4 Alternative Compliance Plan (If Applicable)

Describe an alternative compliance plan (if applicable). Include alternative compliance obligations (i.e., gallons, pounds) and describe proposed alternative compliance measures. *Refer to Section 7.II 3.0 in the WQMP.*

IV.4.1 Water Quality Credits

Determine if water quality credits are applicable for the project. *Refer to Section 3.1 of the Model WQMP for description of credits and Appendix VI of the Technical Guidance Document (TGD) for calculation methods for applying water quality credits.*

<table>
<tr><th colspan="5">Description of Proposed Project</th></tr>
<tr><td colspan="5">Project Types that Qualify for Water Quality Credits (Select all that apply): Not Applicable</td></tr>
<tr><td>☐Redevelopment projects that reduce the overall impervious footprint of the project site.</td><td colspan="2">☐Brownfield redevelopment, meaning redevelopment, expansion, or reuse of real property which may be complicated by the presence or potential presence of hazardous substances, pollutants or contaminants, and which have the potential to contribute to adverse ground or surface WQ if not redeveloped.</td><td colspan="2">☐ Higher density development projects which include two distinct categories (credits can only be taken for one category): those with more than seven units per acre of development (lower credit allowance); vertical density developments, for example, those with a Floor to Area Ratio (FAR) of 2 or those having more than 18 units per acre (greater credit allowance).</td></tr>
<tr><td colspan="2">☐ Mixed use development, such as a combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that can demonstrate environmental benefits that would not be realized through single use projects (e.g. reduced vehicle trip traffic with the potential to reduce sources of water or air pollution).</td><td colspan="2">☐ Transit-oriented developments, such as a mixed use residential or commercial area designed to maximize access to public transportation; similar to above criterion, but where the development center is within one half mile of a mass transit center (e.g. bus, rail, light rail or commuter train station). Such projects would not be able to take credit for both categories, but may have greater credit assigned</td><td>☐ Redevelopment projects in an established historic district, historic preservation area, or similar significant city area including core City Center areas (to be defined through mapping).</td></tr>
<tr><td>☐Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses.</td><td>☐ Developments in a city center area.</td><td>☐ Developments in historic districts or historic preservation areas.</td><td>☐ Live-work developments, a variety of developments designed to support residential and vocational needs together – similar to criteria to mixed use development; would not be able to take credit for both categories.</td><td>☐In-fill projects, the conversion of empty lots and other underused spaces into more beneficially used spaces, such as residential or commercial areas.</td></tr>
</table>

Calculation of Water Quality Credits (if applicable)	NOT APPLICABLE

IV.4.2 Alternative Compliance Plan Information

Describe an alternative compliance plan (if applicable). Include alternative compliance obligations (i.e., gallons, pounds) and describe proposed alternative compliance measures. *Refer to Section 7.II 3.0 in the Model WQMP.*

NOT APPLICABLE

Section V Inspection/Maintenance Responsibility for BMPs

Fill out information in table below. Prepare and attach an Operation and Maintenance Plan. Identify the funding mechanism through which BMPs will be maintained. Inspection and maintenance records must be kept for a minimum of five years for inspection by the regulatory agencies. *Refer to Section 7.II 4.0 in the Model WQMP.*

BMP Inspection/Maintenance			
BMP	**Reponsible Party(s)**	**Inspection/ Maintenance Activities Required**	**Minimum Frequency of Activities**
Biofiltration Basin w/ underdrain. Impermeable liner bottom.	CJ Segerstrom and Sons	See attached Document	See attached Document

Section VI BMP Exhibit (Site Plan)

VI.1 BMP Exhibit (Site Plan)

Include a BMP Exhibit (Site Plan), at a size no less than 24" by 36," which includes the following minimum information:

- Insert in the title block (lower right hand corner) of BMP Exhibit: the WQMP Number (assigned by staff) and the grading/building or Planning Application permit numbers
- Project location (address, tract/lot number(s), etc.)
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural BMP locations
- Drainage delineations and flow information
- Delineate the area being treated by each structural BMP
- GIS coordinates for LID and Treatment Control BMPs
- Drainage connections
- BMP details
- Preparer name and stamp

Please do not include any areas outside of the project area or any information not related to drainage or water quality. The approved BMP Exhibit (Site Plan) shall be submitted as a plan sheet on all grading and building plan sets submitted for plan check review and approval. The BMP Exhibit shall be at the same size as the rest of the plan sheets in the submittal and shall have an approval stamp and signature prior to plan check submittal.

VI.2 Submittal and Recordation of Water Quality Management Plan

Following approval of the Final Project-Specific WQMP, three copies of the approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be submitted. In addition, these documents shall be submitted in a PDF format.

Each approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be recorded in the Orange County Clerk-Recorder's Office, prior to close-out of grading and/or building permit. Educational Materials are not required to be included.

Section VII Educational Materials

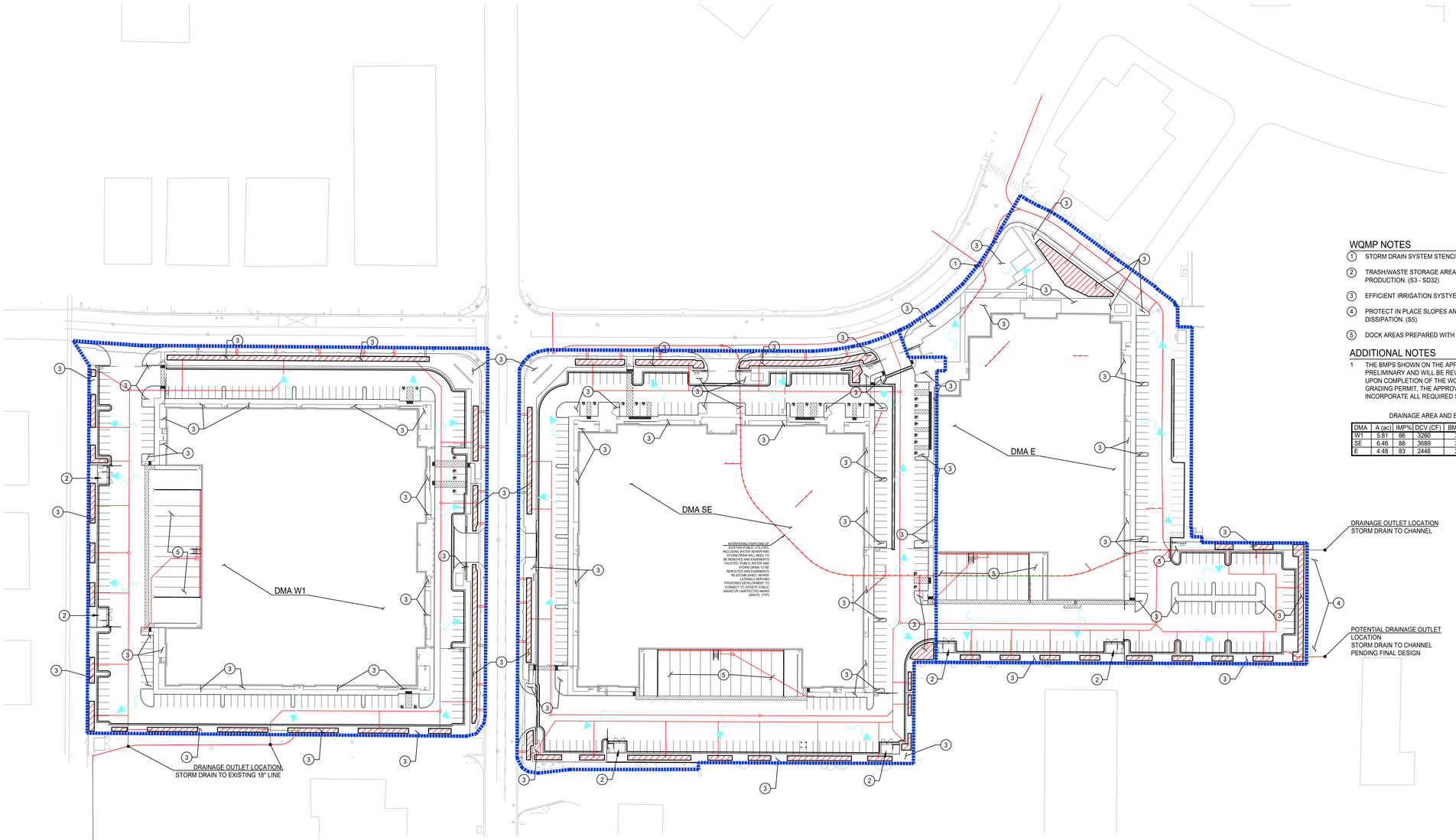
Refer to the Orange County Stormwater Program (ocwatersheds.com) for a library of materials available. Please only attach the educational materials specifically applicable to this project. Other materials specific to the project may be included as well and must be attached.

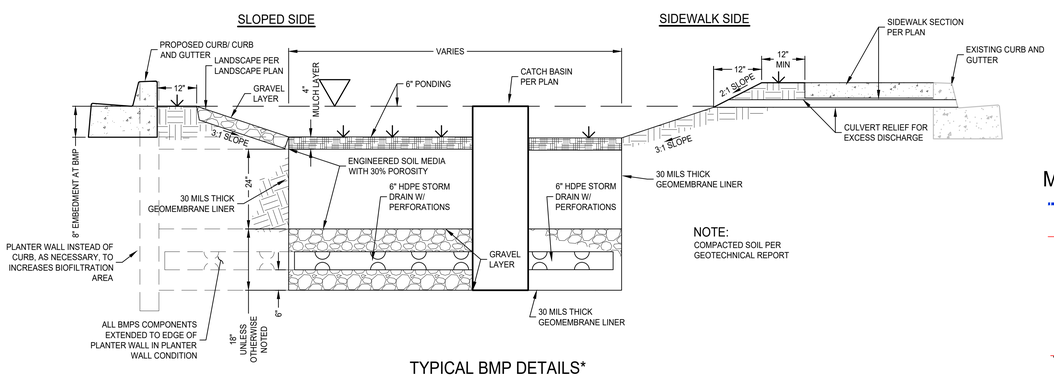
Education Materials			
Residential Material (http://www.ocwatersheds.com)	**Check If Applicable**	**Business Material (http://www.ocwatersheds.com)**	**Check If Applicable**
The Ocean Begins at Your Front Door	☐	Tips for the Automotive Industry	☐
Tips for Car Wash Fund-raisers	☐	Tips for Using Concrete and Mortar	☐
Tips for the Home Mechanic	☐	Tips for the Food Service Industry	☐
Homeowners Guide for Sustainable Water Use	☐	Proper Maintenance Practices for Your Business	☒
Household Tips	☐	**Other Material**	**Check If Attached**
Proper Disposal of Household Hazardous Waste	☐		
Recycle at Your Local Used Oil Collection Center (North County)	☐	See additional applicable BMPs at https://ocerws.ocpublicworks.com/service-areas/oc-environmental-resources/oc-watersheds/unincorporated-countywide-compliance/Industrial-Commercial	☐
Recycle at Your Local Used Oil Collection Center (Central County)	☐		☐
Recycle at Your Local Used Oil Collection Center (South County)	☐		☐
Tips for Maintaining a Septic Tank System	☐		☐
Responsible Pest Control	☐		☐
Sewer Spill	☐		☐
Tips for the Home Improvement Projects	☐		☐
Tips for Horse Care	☐		☐
Tips for Landscaping and Gardening	☐		☐
Tips for Pet Care	☐		☐
Tips for Pool Maintenance	☐		☐
Tips for Residential Pool, Landscape	☐		☐

and Hardscape Drains			
Tips for Projects Using Paint	☐		☐

ATTACHMENT A

Exhibits and Additional Information





NOTE:
COMPACTED SOIL PER GEOTECHNICAL REPORT

TYPICAL BMP DETAILS*

*PENDING FINAL DESIGN, EQUIVALENTLY SIZED FLOW BASED PROPRIETY BIOTREATMENT DEVICE MAY BE REQUIRED.

WQMP NOTES

1. STORM DRAIN SYSTEM STENCILING AND SIGNAGE. (S1 - SD13)
2. TRASH/WASTE STORAGE AREAS DESIGNED TO REDUCE POLLUTION PRODUCTION. (S3 - SD32)
3. EFFICIENT IRRIGATION SYSTYEM AND LANDSCAPING. (S4 - SD12)
4. PROTECT IN PLACE SLOPES AND CHANNELS WITH ENERGY DISSIPATION. (S5)
5. DOCK AREAS PREPARED WITH SUMP PUMPS. (S6 - SD31)

ADDITIONAL NOTES

1 THE BMPS SHOWN ON THE APPROVED SITE PLAN ARE ONLY PRELIMINARY AND WILL BE REVISED OR MODIFIED AS NECESSARY UPON COMPLETION OF THE WQMP. PRIOR TO THE ISSUANCE OF THE GRADING PERMIT, THE APPROVED GRADING/UTILITY PLAN SHALL INCORPORATE ALL REQUIRED STRUCTURAL BMPS.

DRAINAGE AREA AND BMP STATISTICS

DMA	A (ac)	IMP%	DCV (CF)	BMP V (CF)	LAT., LONG.
W1	5.81	86	3260	3775	33.698529, -117.914488
SE	6.46	88	3689	3693	33.698453, -117.912719
E	4.48	83	2446	2540	33.698912, -117.911446

PROJECT INFORMATION:

SITE ADDRESS:	3100 LAKE CENTER DRIVE, SANTA ANA, CA 92704
TRACT / LOT NUMBERS:	TR11420 / 1 ; TR11420 / 1,2,3,4,5,10,34,A
SITE CONSTRAINTS:	GROUNDWATER DEPTH (~5-10') SEE GEOTECH REPORT
LAND USE:	SPECIAL DEVELOPMENT - INDUSTRIAL
LAND COVER:	ASPHALT, CONCRETE, LANDSCAPING (TREES, GRASS, BUSHES, ETC.)

MAP LEGEND:

- DRAINAGE MANAGEMENT/ SITE BOUNDARY
- STORM DRAIN CONVEANCE
- FLOW PATH WITH DIRECTION
- BMP AREA
- DEMO/ABANDONED STORM DRAIN LINE

WQMP NUMBER: TBD
PERMIT NUMBERS: TBD

DRA ARCHITECTS
32 Executive, Suite 100
Irvine, CA 92614
T 949.833.3800 - F 949.833.3806

CONSULTANT:

INCLEDON CONSULTING GROUP
Civil Engineering • Surveying • Planning
1570 Corporate Drive, Suite A, Costa Mesa, CA 92626
P: 657.622.2121 / www.icgcivil.com

PROFESSIONAL SEAL:

PROJECT TITLE

South Coast Technology Center

3100 Lake Center Drive
Santa Ana, California
APN: 414-261-01
APN(S): 414-272-09; 414-272-10

OWNER/ APPLICANT:

C.J. SEGERSTROM & SONS

C.J. Segerstrom & Sons
a California general partnership

3315 Fairview Road
Costa Mesa, California 92626

SHEET NAME

BMP EXHIBIT

NO:	DATE:	DESCRIPTION:
	2023-08-21	1st Submittal Site Plan Review
	2024-01-22	2nd Submittal Site Plan Review
	2024-02-08	Misc. Corrections to 2nd Entitlement Submittal
	2024-03-08	Mtg. City - Bldg. 1 Fire Access & Bldgs 2 & 3 Unlimited Area
	2024-04-08	3rd Submittal Site Plan Review

JOB NO:	22020
DATE ISSUED:	2024-04-08
DRAWN BY:	JB
CHECK BY:	MI

SHEET NO:

C-6.1

Operation and Maintenance Plan for Permanent BMPs

Operation and Maintenance Plan for Permanent BMPs at Lake Center Industrial Complex

Maintenance Responsibility

Maintenance Actions and Frequency

Maintenance actions are generally grouped into two categories: routine and intermittent.

Routine Maintenance

Routine inspections of above ground biofiltration basins and inlet structures for overflow conditions are expected to be done twice per year. During these inspections staff evaluate if there is significant accumulation of trash, debris, or sediment that would need to be removed. Cleaning is done as needed based on the results of the inspections. The inspection frequency may be adjusted based on experience at the site (e.g., if inspections rarely find any material that needs to be cleaned out, then the inspection frequency can be reduced).

Intermittent Maintenance

Intermittent maintenance activities include more substantial maintenance that is not required as frequently as routine maintenance. The most likely form of intermediate maintenance is removal of sediment from above ground basins where necessary to maintain the capacity of the basins. Given that most of the project site is either impervious or maintained landscape areas, this type of maintenance is expected to be required approximately once every five to 10 years.

Maintenance Procedures

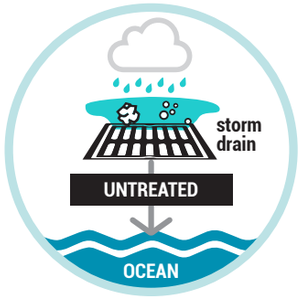
During each maintenance visit, the maintenance crew will evaluate the above ground basins and the inlet structures by inspecting for the maintenance indicators in

Table 1. When a maintenance indicator is observed, the action described in the “Maintenance Actions” column will be taken.

Note that regardless of the projected maintenance type (routine or intermittent) described in the previous section, when a maintenance indicator is observed, the required maintenance action will be taken. For example, if significant sediment accumulation in an above ground basin is observed in year three instead, then the accumulated sediment will still be cleaned out, even though the estimated frequency was once every five to 10 years.

Table 1. Maintenance Indicators and Actions for Vegetated BMPs

Typical Maintenance Indicator(s) for Detention Basins	Maintenance Actions
Poor vegetation establishment	Repair/re-seed/re-plant or re-establish vegetation per original plans. Apply routine watering and controlled nutrient release to help establish vegetation.
Overgrown vegetation	Mow or trim as appropriate, but not less than the design height of the vegetation per original plans when applicable (e.g. a vegetated swale may require a minimum vegetation height).
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system. Install rock-slope-protection to control concentrated flows.
Erosion due to concentrated storm water runoff flow	Repair/re-seed/re-plant eroded areas and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or re-grading where necessary.
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials, without damage to the basin or cleanout structures.
Standing water	Adjust irrigation system, remove any obstructions of debris or invasive vegetation, loosen or replace top soil to allow for better infiltration, or minor re-grading for proper drainage. If the issue is not corrected by restoring the basin to the original plan and grade, the Director of Public Works shall be contacted prior to any additional repairs or reconstruction.
Obstructed inlet or outlet structure	Clear obstructions.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable.



Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is **not treated or cleaned** before entering our waterways and should never contain any pollutants.

This brochure will help you protect our water quality by using BMPs appropriate to your facility.

← Learn more inside

Who is H_2OC?

H_2OC is YOU! H_2OC is also a cooperative stormwater program which includes all 34 cities in Orange County, the County of Orange, and Orange County Flood Control District (OCFCD). Clean and healthy beaches, creeks, rivers, bays, wetlands, and ocean are important to Orange County. H_2OC provides resources to residents and businesses to encourage personal action and prevent polluted runoff from entering our waterways.

Join Us

Visit **h2oc.org** to learn more about runoff, water pollution, and how you can be the solution to runoff pollution and protect our water resources!

Contact

24-hour Pollution Reporting Hotline:
1-877-89-SPILL (1-877-897-7455)

24-hour Reporting Website:
myOCeServices.ocgov.com

For emergencies, dial 911

* Some industrial facilities are also required to obtain coverage under the State's Industrial General Permit (IGP). To determine if your facility requires a permit, contact the State Water Resources Control Board at waterboards.ca.gov

** For more information about recycling and collection centers, visit oclandfills.com.

BEST MANAGEMENT PRACTICES FOR BUSINESSES

WATER POLLUTION AND COMMERCIAL & INDUSTRIAL FACILITIES

YOU ARE THE SOLUTION TO RUNOFF POLLUTION

H_2OC STORMWATER PROGRAM

How is Water Quality Affected By Your Business?

Commercial and industrial facilities can generate a variety of waste products which can become pollutants. These can include metals, plastics, toxic chemicals, oil, grease, and bacteria. If not properly managed, these pollutants can be transported to Orange County's creeks, rivers, and ocean through our storm drain system.

As a business owner or manager, you are responsible for overseeing the work of employees and outside contractors to prevent runoff pollution.

By law, commercial and industrial facilities are required to implement best management practices (BMPs) to prevent runoff pollution.*

Best Management Practices for Commercial & Industrial Sites

Implement these required best management practices (BMPs) to be in compliance and avoid enforcement actions:

Inspect

- Periodically inspect irrigation systems for leaks, overspray, and runoff. Repair and maintain as needed.
- Periodically check parking lots for discharges from leaking vehicles.
- Ensure lids on dumpsters are properly closed when not in use and sweep and pick up all debris daily.

Locate

- Locate and protect all area drains, yard drains, and catch basins where washwater could potentially enter the storm drain system.
- When working outdoors, conduct operations away from storm drains and waterbodies.
- Mix paint and clean tools in a contained area.

Contain

- Never allow washwater, sweepings, or sediment to enter storm drains.
- Store materials indoors or under cover and away from storm drains.
- Control, contain, and clean up all spills immediately with absorbents, rags, or mops. Never hose a spill.
- Follow the manufacturer's directions when applying fertilizers and pesticides. Never apply 48 hours before a forecasted rain event.

Collect

- Properly collect all washwater generated during business maintenance activities for disposal.
- Collect grass clippings, leaves, and other debris and dispose in covered containers.
- Use drop cloths underneath outdoor painting, scraping, and sandblasting work.
- Regulary sweep areas like corners and along curbs, where debris tends to accumulate, and dispose in covered containers.

Dispose

- Contact your waste hauler for proper waste, hazardous waste, and green waste disposal options.
- Contact your waste and recycling service to repair or replace leaking or damaged dumpsters.
- Recycle and dispose of materials as outlined by your local jurisdiction.**

What Pollutants Are Generated By Commercial & Industrial Sites?

Landscape Maintenance

When performing landscape maintenance, pollutants generated can include organic debris, trash, dirt, fertilizers, and pesticides.

Building Maintenance

When performing building maintenance, various types of pollutants can be generated including washwater, paint or paint chips, bacteria, and other toxic materials.

Parking Lots & Outdoor Areas

Pollutants in parking lots, patios, and outdoor areas can include trash, oil, grease, landscape debris, and bacteria.

Waste & Storage Area Management

Pollutants in waste and storage areas can include trash, oil, grease, bacteria, dirt, and other toxic materials.

Scan for more information about Commercial & Industrial site-specific BMPs or visit https://ocerws.ocpublicworks.com/service-areas/oc-environmental-resources/oc-watersheds/documents/best-management-practices-bmp-2

NMG Geotechnical, Inc.

December 7, 2023

Project No. 23111-01

To: C.J. Segerstrom & Sons
3315 Fairview Road
Costa Mesa, California 92626

Attention: Jeffrey M. Reese

Subject: Geotechnical Review of Site Conditions and Evaluation for Use of Infiltration BMPs for Preliminary Water Quality Management Plan (WQMP), Lake Center Office Park Redevelopment Project, City of Santa Ana, California

INTRODUCTION

At your request, NMG Geotechnical, Inc. (NMG) has reviewed the geologic and groundwater conditions for the subject Lake Center Office Park redevelopment project in the city of Santa Ana, California to evaluate the suitability for infiltration Best Management Practices (BMPs). We understand that the City of Santa Ana is the governing agency and requires that the infiltration study conform to the Orange County Orange County WQMP Technical Guidance Document (TGD).

NMG has performed several prior studies near the subject site. For this study, we have also reviewed published geologic, groundwater and soil survey data, and nearby studies found on the state's Geotracker website. This report provides a summary of the geologic and groundwater conditions anticipated for the site based on this information and our prior work near the site. The reference documents and data utilized for this study are attached.

SITE CONDITIONS AND PROPOSED DEVELOPMENT

The site is located south of MacArthur Boulevard between Fairview Street and Harbor Boulevard. The overall site is relatively level. A portion of the site is adjacent to the Greenville Banning Channel on the eastern boundary. This channel carries surface drainage from up gradient and is roughly 15 to 20 feet deep. There is an existing Southern Pacific railroad line on the western boundary of the site.

The redevelopment will consist of the demolition of the existing business park (office buildings and parking structure) located on the east side of Susan Street (that is roughly 10.2 acres) along with the vacant parcel on the west side of Susan Street (that is approximately 5.6 acres) to build three new Class A industrial buildings. The project civil engineer is Incledon Consulting Group.

GEOLOGIC CONDITIONS AND SEISMIC HAZARDS

The site is located on the southern end of the Downey Plain and is underlain by approximately 1000± feet of Quaternary-age alluvial deposits (CDMG, 1980). The alluvium is composed of massive to crudely layered sediments that are generally flat lying, with a gentle dip toward the southwest. The

alluvium consists of a heterogeneous mixture of silts, clays, and sands. The upper 25± feet of material at the site tends to be primarily silty and clayey. At depths below 20 to 30 feet, there are layers of silty sands and clean sands interbedded with sandy silts and some clays. The alluvium is slightly porous, with generally less porosity and higher density at depth. The alluvium is moderately consolidated.

The surface soils are mapped as Bolsa silt and clay loam (USDA, 1978). The site is classified as Hydrologic Group C, and the soil profile down to 69 inches is clay.

The Newport-Inglewood (LA Basin) Fault is the closest active fault to the site (CGS, 2018 and 2019). Review of aerial photographs, readily available background geologic literature, and field mapping have indicated no evidence of active faulting at the subject site. The site is mapped as being potentially liquefiable by the state as part of the Seismic Hazards Mapping (CGS, 2019).

GROUNDWATER CONDITIONS

Based on historic well data and mapping by CDMG, the shallowest depth of free water, or high-water saturation below the ground surface, has been approximately 5 feet deep (CDMG, 1980 and 1997). A copy of the high groundwater contour map is attached.

Prior geotechnical studies and groundwater monitoring data from 1995 to 2018 near the site encountered groundwater at depths that vary from approximately 7 to 20 feet deep. The borings and groundwater monitoring data are from sites within 1/3 mile of the subject site. The groundwater information is based on borings from prior NMG studies (1995a, 1995b, 2002a, and 2002b) and borings from AECOM (2016) and Golder (2021).

Arcadis (2019) monitored the groundwater levels at the Chevron/Unocal station (3599 Harbor Boulevard) between 1992 and 2018. The historical well monitoring data from MW-1 indicates the shallowest water level to be 8 feet deep in March of 1995 and the deepest level to be 12 feet in March of 2018. The well monitoring data for MW-1 is attached. The shallowest groundwater levels were recorded in the January to June months for each year. The seasonally high groundwater level is 10 feet based on this well-monitoring data.

CONCLUSION

The existing geologic and groundwater data presented above is consistent and considered representative for this area. Based on the fine-grained nature of the soils in the upper 20 to 30 feet and shallow groundwater conditions (current estimated depth of 10 to 15 feet), the use of infiltration BMPs at this site is not considered acceptable. In addition, the site is located in a mapped liquefaction zone. Based on these conditions, and in line with the Orange County TGD (OCPW, 2013), infiltration BMPs are not feasible at this site. Alternative BMP measures based the site-specific conditions should be considered.

If you have any questions regarding this document, please contact our office. We appreciate the opportunity to provide our services.

Respectfully submitted,

NMG GEOTECHNICAL, INC.

Zachary Haygood, CEG 2726
Project Geologist

Karlos Markouizos, RCE 50312
Principal Engineer

KGM/ZKH/TW/je

Attachments: References
Historically Highest Ground Water Contour Map
Historical Well Monitoring Data (MW-1)

Distribution: (1) Addressee (E-Mail)
Mr. Kevin Hadley, Incledon Consulting Group (E-Mail)

REFERENCES

AECOM, 2016, Well Abandonment Report, Shell Service Station, 3820 South Fairview Street, Santa Ana, SARWQCB Case # 083003174T, dated July 27, 2016.

ARCADIS, 2019. Quarterly Status Report, Fourth Quarter 2018, Chevron Site No. 306633 (Former Unocal No. 5404), 3599 Harbor Boulevard, Costa Mesa, California, Project No. GWR000KB.6633, dated February 4, 2019.

California Department of Conservation, Division of Mines and Geology (CDMG), 1980, Classification and Mapping of Quaternary Sedimentary Deposits for Purposes of Seismic Zonation, South Coastal Los Angeles Basin, Orange County, California, Open File Report 80-19 L.A.

California Department of Conservation, Division of Mines and Geology (CDMG), 1981, Geologic Map of Orange County California, Showing Mines and Mineral Deposits, Bulletin 204, Plate 1, by Morton, P.K. and Miller, R.V.

California Division of Mines and Geology (CDMG), 1997, Seismic Hazard Zone Report for the Anaheim and Newport Beach 7.5-Minute Quadrangles, SHZR 03, Open-File Report 97-08. Hazard Zone Report 03.

California Geological Survey (CGS), 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117, Originally Adopted March 13, 1997, Revised and Readopted September 11, 2008.

California Geological Survey (CGS), 2018, Earthquake Fault Zones, A Guide for Government Agencies, Property Owners / Developers, and Geoscience Practitioners 2018. for Assessing Fault Rupture Hazards in California, Special Publication 42, Revised.

California Geological Survey (CGS), 2019, Earthquake Zones of Required Investigation, 7.5 Minute Newport Beach Quadrangle, found at http://gmw.conservation.ca.gov/ SHP/EZRIM/Maps/NEWPORT_BEACH_EZRIM.pdf

Golder Associates Inc., 2021, Additional Site Investigation Report: Vapor Intrusion and Groundwater Assessment and Site Closure Report, JMA Trust Property, 3320 South Yale Street, Santa Ana California, Project No. 19126094, dated April 2, 2021.

Geotracker, 2023, State of California Water Resources Control Board Data Management System, website address: https://geotracker.waterboards.ca.gov/

NMG Geotechnical, Inc., 1995a, Geotechnical Investigation for the Proposed Susan Street and Sunflower Avenue Improvements, City of Costa Mesa, California, Project No. 94070-01, dated January 16, 1995.

REFERENCES (Cont'd)

NMG Geotechnical, Inc., 1995b, Preliminary Geotechnical Investigation for Disposal Site at Southwest of MacArther Boulevard and Lake Center Drive, City of Costa Mesa, California, Project No. 94070-02, dated September 14, 1995.

NMG Geotechnical, Inc., 2002a, Geotechnical Investigation and Review of Mass Grading Plan for Proposed Home Ranch Residential Site, Parcel 1 of P.M. No. 94-120, City of Costa Mesa, California, Project No. 01071-01, dated May 31, 2002.

NMG Geotechnical, Inc., 2002b, Geotechnical Investigation for Proposed Emulex Development at the Southwest Corner of Susan Street and Sunflower Avenue, Home Ranch, City of Costa Mesa, California, Project No. 02021-01, dated August 1, 2002.

Orange County Public Works (OCPW), 2013, OC Watersheds Water Quality Management Plan (WQMP) Technical Guidance Document for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans (WQMPs), Exhibit 7.III, dated December 20, 2013; https://www.ocpublicworks.com/civicax/filebank/blobdload.aspx?blobid=38765.

U.S. Department of Agriculture (USDA), Soil Conservation Service and Forest Service, September 1978, Soil Survey of Orange County and Western Part of Riverside County, California

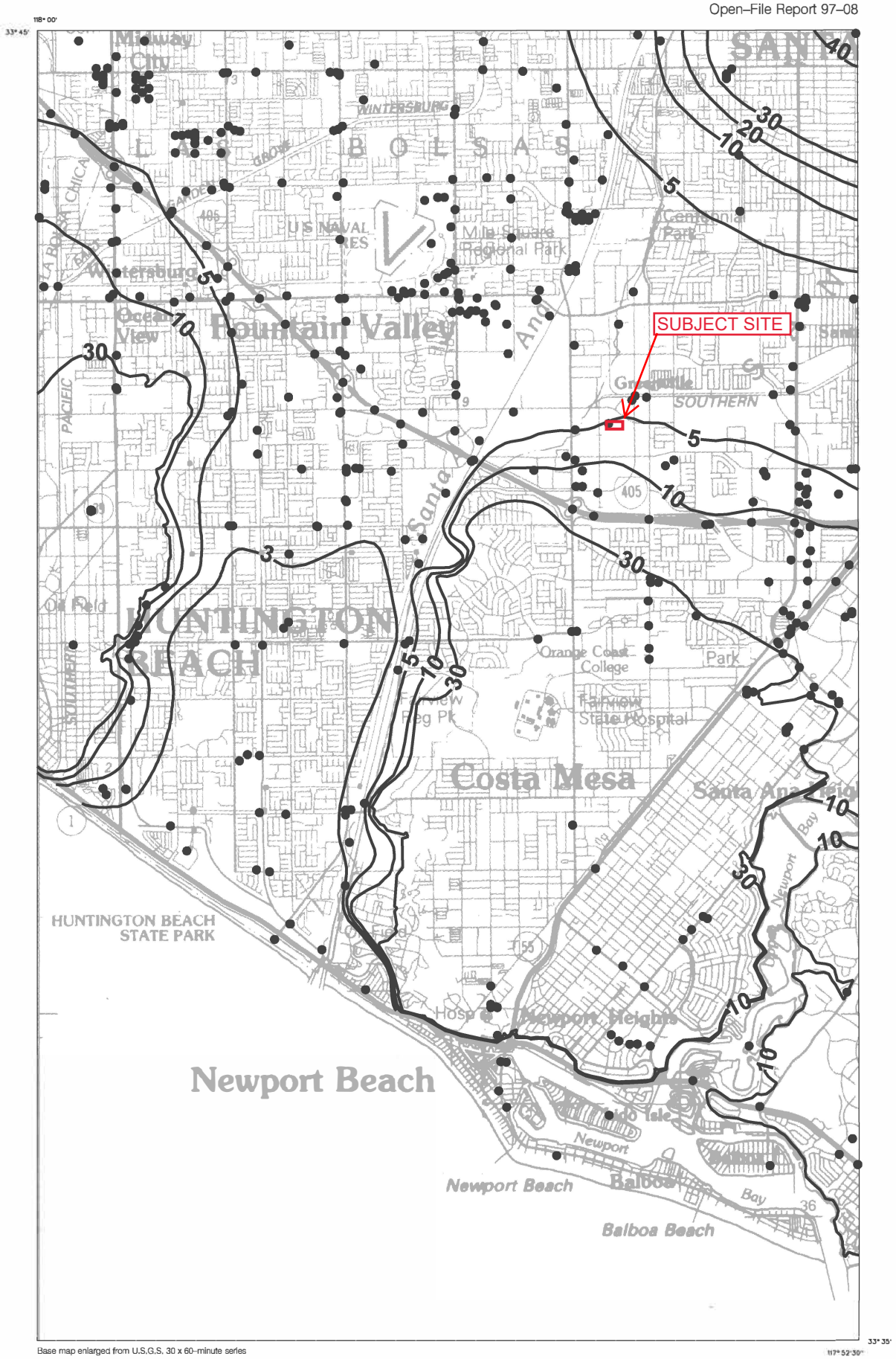


Plate 1.2 Historically Highest Ground Water Contours and Borehole Log Data Locations, Newport Beach Quadrangle.

Table 4
Historical Groundwater Monitoring Data and Analytical Results
Chevron Site No. 306633
Former Unocal Station No. 5404
3599 Harbor Boulevard, Costa Mesa, California

WELL ID	TOC* (ft)	DATE	DTW (ft)	GWE* (ft)	LNAPL THICKNESS (ft)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	COMMENTS
	--	3/3/2016	--	--	--	65,000**	11,000	1,400	1,100	7,100	Duplicate sample
	39.03	6/27/2016	15.29	23.74	0.00	82,000**	18,000	1,100	1,900	10,000	
	--	6/27/2016	--	--	--	83,000**	18,000	1,200	1,900	11,000	Duplicate sample
	39.03	9/16/2016	15.33	23.70	0.00	110,000**	20,000	1,200	1,900	12,000	
	--	9/16/2016	--	--	--	110,000**	21,000	1,200	1,800	13,000	Duplicate sample
	39.03	12/23/2016	14.56	24.47	0.00	50,000**	10,000	1,200	1,500	7,600	
	--	12/23/2016	--	--	--	57,000**	10,000	1,300	1,700	8,200	Duplicate sample
	39.03	3/17/2017	12.99	26.04	0.00	71,000**	8,600	1,200	1,400	7,900	
	--	3/17/2017	--	--	--	69,000**	8,400	1,100	1,400	7,800	Duplicate sample
	39.03	6/29/2017	13.53	25.50	0.00	34,000**	5,900	710	980	5,400	
	--	6/29/2017	--	--	--	51,000**	5,700	660	900	5,000	Duplicate sample
	39.03	9/8/2017	13.44	25.59	0.00	42,000**	6,300	580	960	3,900	
	--	9/8/2017	--	--	--	38,000**	5,600	520	880	3,500	Duplicate sample
	39.03	12/26/2017	13.13	25.90	0.00	55,000**	7,200	710	1,200	4,400	
	--	12/26/2017	--	--	--	58,000**	7,500	730	1,200	4,500	Duplicate sample
	39.03	3/22/2018	13.65	25.38	0.00	36,000**	7,200	540	1,100	5,000	
	--	3/22/2018	--	--	--	33,000**	6,700	500	1,100	4,600	Duplicate sample
	39.03	6/26/2018	14.25	24.78	0.00	41,000**	6,800	410	1000	3,800	
	--	6/26/2018	--	--	--	39,000**	6,600	400	950	3,600	Duplicate sample
	39.03	9/28/2018	14.69	24.34	0.00	38,000**	6,100	310	920	3,000	
	--	9/28/2018	--	--	--	39,000**	6,100	310	920	3,000	Duplicate sample
	39.03	**12/21/2018**	**14.80**	**24.23**	**0.00**	**46,000****	**8,200**	**320**	**1,100**	**3,500**	
	--	**12/21/2018**	**--**	**--**	**--**	**48,000****	**8,400**	**310**	**1,100**	**3,600**	Duplicate sample
MW-1	36.08	6/4/1992	10.42	25.66	0.00	3,725	12.1	27	126.8	413.5	
	36.08	7/28/1992	10.94	25.14	0.00	--	--	--	--	--	
	36.08	9/12/1992	11.26	24.82	0.00	ND	19.2	6.3	23	27.9	
	36.08	12/30/1992	10.93	25.15	0.00	1,000	33	7.5	25	90	
	36.08	3/17/1993	9.24	26.84	0.00	2,000	60	12	8.0	100	
	36.08	6/18/1993	9.44	26.64	0.00	14,000	50	6.0	ND	11	
	35.79	9/10/1993	9.72	26.07	0.00	710	8.1	ND	5.9	12	
	35.79	11/30/1993	9.76	26.03	0.00	160	0.7	0.4	0.4	4.0	
	35.79	3/9/1994	9.17	26.62	0.00	500	5.5	2.9	2.0	4.2	
	35.79	6/14/1994	9.52	26.27	0.00	460	5.0	ND	6.2	5.3	
	35.79	9/15/1994	10.20	25.59	0.00	820	13	0.8	6.9	10	

Table 4
Historical Groundwater Monitoring Data and Analytical Results
Chevron Site No. 306633
Former Unocal Station No. 5404
3599 Harbor Boulevard, Costa Mesa, California

WELL ID	TOC* (ft)	DATE	DTW (ft)	GWE* (ft)	LNAPL THICKNESS (ft)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	COMMENTS
	35.79	11/22/1994	9.89	25.90	0.00	690	4.2	0.7	12	7.3	
	35.79	3/16/1995	8.04	27.75	0.00	2,800	110	26	91	160	
	35.79	6/15/1995	9.10	26.69	0.00	2,900	ND	ND	46	69	
	35.79	9/28/1995	9.66	26.13	0.00	1,700	13	ND	25	11	
	35.72	3/11/1996	9.71	26.01	0.00	160	ND	ND	2.2	1.1	
	35.72	8/20/1996	8.82	26.90	0.00	ND	ND	ND	ND	ND	
	35.72	12/26/1996	8.95	26.77	0.00	ND	ND	ND	ND	ND	
	35.72	2/24/1997	8.75	26.97	0.00	150	ND	ND	ND	ND	
	35.72	5/8/1997	9.15	26.57	0.00	200	1.7	ND	ND	ND	
	35.72	8/6/1997	9.45	26.27	0.00	160	ND	7.0	ND	ND	
	35.72	11/18/1997	9.77	25.95	0.00	ND	ND	ND	0.9	ND	
	35.72	1/14/1998	9.52	26.20	0.00	210	ND	1.0	5.8	2.0	
	35.72	4/13/1998	8.39	27.33	0.00	490	20	61	13	43	
	35.72	7/7/1998	9.13	26.59	0.00	120	0.4	0.53	3.2	0.9	
	35.72	10/30/1998	9.74	25.98	0.00	100	ND	0.72	1.3	ND	
	35.72	1/12/1999	9.61	26.11	0.00	180	ND	0.56	4.3	0.9	
	35.72	5/18/1999	9.62	26.10	0.00	170	ND	0.69	7.8	ND	
	35.72	7/6/1999	9.99	25.73	0.00	220	ND	0.88	14	1.2	
	35.72	10/12/1999	10.39	25.33	0.00	310	ND	2.2	10	2.0	
	35.72	1/14/2000	10.31	25.41	0.00	190	<0.30	2.3	2.9	<0.60	
	35.72	4/27/2000	9.64	26.08	0.00	180	<0.30	1.3	7.3	0.72	
	35.72	7/20/2000	9.90	25.82	0.00	76	<0.30	0.44	7.6	<0.60	
	35.72	10/26/2000	11.12	24.60	0.00	51	<0.30	0.77	4.7	1.3	
	35.72	1/25/2001	8.70	27.02	0.00	130	0.64	0.37	19	<0.60	
	35.72	4/19/2001	9.25	26.47	0.00	62	<0.30	0.67	5.8	1.2	
	35.72	7/12/2001	9.70	26.02	0.00	58	<0.30	0.36	2.0	<0.60	
	35.72	10/18/2001	9.93	25.79	0.00	<50	<0.30	0.46	2.6	<0.60	
	37.91	2/21/2002	9.83	28.08	0.00	200	<0.30	2.0	7.4	1.2	
	37.91	5/13/2002	9.89	28.02	0.00	--	--	--	--	--	Gauge Only
	37.91	8/8/2002	9.53	28.38	0.00	<50	<0.50	<0.50	6.2	<1.0	
	37.91	11/5/2002	10.23	27.68	0.00	--	--	--	--	--	Gauge Only
	37.91	2/19/2003	9.50	28.41	0.00	<50	<0.50	<0.50	5.7	<1.0	
	37.91	6/12/2003	8.60	29.31	0.00	--	--	--	--	--	Gauge Only
	37.91	8/18/2003	8.58	29.33	0.00	87	<0.50	<0.50	5.1	<1.0	
	37.91	11/3/2003	9.14	28.77	0.00	--	--	--	--	--	Gauge Only

Table 4
Historical Groundwater Monitoring Data and Analytical Results
Chevron Site No. 306633
Former Unocal Station No. 5404
3599 Harbor Boulevard, Costa Mesa, California

WELL ID	TOC* (ft)	DATE	DTW (ft)	GWE* (ft)	LNAPL THICKNESS (ft)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	COMMENTS
	37.91	3/31/2004	8.99	28.92	0.00	220	<0.28	0.42	11	1.1	
	37.91	6/22/2004	9.62	28.29	0.00	--	--	--	--	--	Gauge Only
	37.91	9/13/2004	10.75	27.16	0.00	170	<0.28	<0.36	6.6	<0.52	
	37.91	12/9/2004	9.75	28.16	0.00	--	--	--	--	--	Gauge Only
	37.91	3/1/2005	8.38	29.53	0.00	160	<0.28	<0.36	5.1	<0.52	
	37.91	5/16/2005	9.42	28.49	0.00	--	--	--	--	--	Gauge Only
	37.91	8/11/2005	9.95	27.96	0.00	62	<0.26	<0.35	0.37 J	<0.59	
	37.91	2/28/2006	11.25	26.66	0.00	92	<0.50	<1.0	<1.0	<1.0	
	37.91	5/8/2006	10.22	27.69	0.00	--	--	--	--	--	Gauge Only
	37.91	7/20/2006	10.49	27.42	0.00	160	<0.50	<1.0	0.86 J	<1.0	
	37.91	12/12/2006	10.48	27.43	0.00	--	--	--	--	--	Gauge Only
	37.91	2/6/2007	11.11	26.80	0.00	210	<0.5	<05	1 J	<0.5	
	37.91	5/10/2007	11.27	26.64	0.00	--	--	--	--	--	Gauge Only
	37.91	8/1/2007	11.72	26.19	0.00	190	<0.5	<0.5	0.8 J	<0.5	
	37.91	10/25/2007	11.35	26.56	0.00	--	--	--	--	--	Gauge Only
	37.91	1/18/2008	10.79	27.12	0.00	240	<0.5	<0.5	3	<0.5	
	37.91	4/17/2008	11.11	26.80	0.00	--	--	--	--	--	Gauge Only
	37.91	7/31/2008	11.93	25.98	0.00	250	<0.5	<0.5	1	<0.5	
	37.91	10/8/2008	11.94	25.97	0.00	--	--	--	--	--	Gauge Only
	37.91	2/6/2009	11.80	26.11	0.00	520	<0.5	<0.5	2 J	2 J	
	37.91	6/11/2009	11.45	26.46	0.00	--	--	--	--	--	Gauge Only
	37.91	8/20/2009	11.18	26.73	0.00	490	<0.5	<0.5	1	<0.5	
	37.91	10/29/2009	12.50	25.41	0.00	--	--	--	--	--	Gauge Only
	37.91	1/12/2010	12.43	25.48	0.00	320	<0.5	<0.5	<0.5	<0.5	
	37.91	4/14/2010	11.75	26.16	0.00	--	--	--	--	--	Gauge Only
	37.91	7/20/2010	11.08	26.83	0.00	300	<0.5	<0.5	<0.5	<0.5	
	37.91	10/5/2010	11.10	26.81	0.00	--	--	--	--	--	Gauge Only
	37.91	1/26/2011	11.11	26.80	0.00	290	3 J	<0.5	0.8 J	0.7 J	
	37.91	4/26/2011	10.69	27.22	0.00	--	--	--	--	--	Gauge Only
	37.91	7/27/2011	11.68	26.23	0.00	470	<0.5	<0.5	<0.5	<0.5	
	37.91	10/25/2011	10.44	27.47	0.00	--	--	--	--	--	Gauge Only
	37.91	1/19/2012	14.34	23.57	0.00	260	<0.5	<0.5	<0.5	<1.0	
	37.91	4/18/2012	11.90	26.01	0.00	--	--	--	--	--	Gauge Only
	37.91	7/19/2012	11.92	25.99	0.00	740	<0.5	<0.5	<0.5	<1.0	
	37.91	10/15/2012	11.55	25.11	0.00	--	--	--	--	--	Gauge Only

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WELL ID	TOC* (ft)	DATE	DTW (ft)	GWE* (ft)	LNAPL THICKNESS (ft)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	COMMENTS
	37.91	3/15/2013	11.00	25.11	0.00	280	<0.50	<1.0	<1.0	<2.0	
	37.91	6/17/2013	11.64	26.27	0.00	--	--	--	--	--	Gauge Only
	37.91	9/10/2013	12.40	25.51	0.00	1200	<0.50	<1.0	<1.0	<2.0	
	37.91	12/6/2013	11.69	26.22	0.00	--	--	--	--	--	Gauge Only
	37.91	3/25/2014	11.25	26.66	0.00	910	<0.50	<1.0	<1.0	<1.0	
	37.91	6/12/2014	11.43	26.48	0.00	--	--	--	--	--	Gauge Only
	37.91	9/3/2014	11.43	26.48	0.00	370	<0.50	<1.0	<1.0	<1.0	
	37.91	12/19/2014	11.40	26.51	0.00	--	--	--	--	--	Gauge Only
	37.91	3/11/2015	11.66	26.25	0.00	410	<0.50	<1.0	<1.0	<1.0	
	37.91	6/15/2015	12.11	25.80	0.00	--	--	--	--	--	Gauge Only
	37.91	9/1/2015	12.72	25.19	0.00	370**	<0.14	<0.24	<0.14	<0.23	
	37.91	12/10/2015	12.98	24.93	0.00	--	--	--	--	--	Gauge only
	37.91	3/3/2016	13.36	24.55	0.00	1,200**	0.32 J	<0.24	0.16 J	<0.23	
	37.91	6/27/2016	13.14	24.77	0.00	--	--	--	--	--	Gauge Only
	37.91	9/16/2016	12.08	25.83	0.00	<31**	<0.14	<0.24	<0.14	<0.23	
	37.91	12/23/2016	11.70	26.21	0.00	--	--	--	--	--	Gauge Only
	37.91	3/17/2017	11.57	26.34	0.00	43 J**	<0.14	<0.24	<0.14	<0.23	
	37.91	6/29/2017	11.73	26.18	0.00	--	--	--	--	--	Gauged Only
	37.91	9/8/2017	11.74	26.17	0.00	130**	0.30 J	<0.24	<0.14	<0.23	
	37.91	12/26/2017	11.36	26.55	0.00	--	--	--	--	--	Gauge Only
	37.91	3/22/2018	12.10	25.81	0.00	47 J**	<0.14	<0.24	<0.14	<0.23	
	37.91	6/26/2018	12.90	25.01	0.00	--	--	--	--	--	Gauge Only
	37.91	9/28/2018	12.86	25.05	0.00	590**	<0.50	<1.0	<1.0	<1.0	
	37.91	**12/21/2018**	**12.81**	**25.10**	**0.00**	**--**	**--**	**--**	**--**	**--**	Gauge Only
MW-2	35.50	6/4/1992	10.98	24.52	0.00	ND	10	10.8	4.1	16.1	
	35.50	7/28/1992	11.50	24.00	0.00	--	--	--	--	--	Gauge Only
	35.50	9/12/1992	9.10	26.40	0.00	ND	ND	ND	ND	ND	
	35.50	12/30/1992	11.74	23.76	0.00	ND	1.6	1.7	0.90	3.3	
	34.31	3/17/1993	8.50	25.81	0.00	ND	4.0	ND	2.0	0.5	
	34.31	6/18/1993	9.00	25.31	0.00	ND	ND	ND	0.8	ND	
	34.31	9/10/1993	9.11	25.20	0.00	ND	ND	ND	ND	ND	
	34.31	11/30/1993	9.17	25.14	0.00	ND	4.3	0.50	2.0	0.90	
	34.31	3/9/1994	8.48	25.83	0.00	200	15.2	0.50	2.0	7.3	
	34.31	6/14/1994	8.84	25.47	0.00	ND	7.6	ND	4.8	ND	