Appendix E

Preliminary Priority Project Water Quality Management Plan (WQMP), February 2021, Revised November 2021

This page is intentionally left blank.

OTH 2021-01363

PRELIMINARY

CITY OF ANAHEIM
Priority Project
Water Quality Management Plan (WQMP)

Project Name:

Lincoln Colony Apartments

898, 900 & 914 W. Lincoln Avenue

APN 036-112-03 & 036-112-32

Prepared for:
Pacific Coast Management LLC
301 S. Anaheim Boulevard
Anaheim, CA 92805
(310) 704-5050

Prepared by:
Anacal Engineering Co.
1211 N. Tustin Avenue
Anaheim, CA 92807
(714) 774-1763 – dave@anacalengineering.com

November 18, 2019
Revision Date(s): February 2, 2021
June 10, 2021
August 26, 2021
November 19,2021

Project Owner's Certification			
Planning Application No. (If applicable)	OTH2021-01363	Grading Permit No.	
Tract/Parcel Map and Lot(s) No.		Building Permit No.	
Address of Project Site: 898, 900 & 914 W. Lincoln Avenue APN: 036-112-03 and 036-112-32			

This Water Quality Management Plan (WQMP) has been prepared for Pacific Coast Management LLC by Anacal Engineering Co. 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.

Owner:			
Title			
Company	Pacific Coast Management LLC		
Address	301 S. Anaheim Blvd., Anaheim, CA 92805		
Email			
Telephone #	(310) 704-5050		
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.			
Owner Signature		Date	

Preparer (Engineer):			
Title	David C. Queyrel, President	PE Registration #	42812
Company	Anacal Engineering Co.		
Address	1211 N. Tustin Avenue, Anaheim CA 92807		
Email	dave@anacalengineering.com		
Telephone #	(714) 774-1763		

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	11-19-21
Place Stamp Here			

Contents

Page No.

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)	OTH2021-01363	Grading or Building Permit No. (If applicable)	
Address of Project Site (or Tract Map and Lot Number if no address) and APN	898, 900 & 914 W. Lincoln Avenue, Anaheim, CA 92805 APN 036-112-03, 036-112-32		
Water Quality Conditions of Approval or Issuance			
Water Quality Conditions of Approval or Issuance applied to this project. (Please list verbatim.)	N/A		
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.	San Gabriel River Watershed No WIHMPs or TMDLs established TMDLS established Coyote Creek Malathion Indicator Bacteria Toxicity Iron San Gabriel River Reach 1 Temp San Gabriel River Estuary Nickel Copper Dissolved Oxygen	 2027 2021 2019 2027 2027 2021 2021 2021

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.*

<table>
<tr><th colspan="5">Description of Proposed Project</th></tr>
<tr><td>Development Category (From Model WQMP, Table 7.11-2; or -3):</td><td colspan="4">Reconstructed 100% redeveloped for multi-family apartments
Development Category 8:
All significant redevelopment projects, where significant redevelopment is defined as the addition or replacement of 5,000 or more square feet of impervious surface on an already developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of the facility, or emergency redevelopment activity required to protect public health and safety.
If the redevelopment results in the addition or replacement of less than 50 percent of the impervious area on-site and the existing development was not subject to WQMP requirement, the numeric sizing criteria discussed in Section 7.II-2.0 only applies to the addition or replacement area. If the addition or replacement accounts for 50 percent or more of the impervious area, the Project WQMP requirements apply to the entire development.</td></tr>
<tr><td>Project Area (ft²): 32,635</td><td colspan="2">Number of Dwelling Units: 41</td><td colspan="2">SIC Code: 6513</td></tr>
<tr><td rowspan="2">Project Area</td><td colspan="2">Pervious</td><td colspan="2">Impervious</td></tr>
<tr><td>Area
(acres or sq ft)</td><td>Percentage</td><td>Area
(acres or sq ft)</td><td>Percentage</td></tr>
</table>

Pre-Project Conditions	0.03 ac	4%	.72 ac	96%
Post-Project Conditions	0.14 ac	19%	0.61 ac	81%
Drainage Patterns/Connections	The project proposes to combine two existing parcels into one for the purpose of constructing a 41 unit apartment complex. Currently the site sheet flows to the existing adjacent streets and alley. Lincoln Avenue to the north, Ohio Street to the east and an Alley to the south. Proposed is a roof drain system which captures site water and conveys it to a dry-well system for infiltration. The third floor is partially open to the sky and the open area is utilized for green roof capture. All impervious areas are captured and conveyed to the dry-well system. Higher flows are to be pumped or gravity overflow to the adjacent street. Lincoln Avenue drains partially west to Illinois Street and southerly to an existing 12 feet catch basin at Broadway Street. The easterly project frontage on Lincoln Avenue drains easterly to Ohio Street and southerly to a 21 foot catch basin on Ohio Street at Broadway. The Alley in the rear of the property drains west and south and west again to Illinois Street, and south to the aforementioned catch basin at Broadway Street. The storm drain in Broadway Street is city owned and operated and drains in a 48" RCP west to County drain B01P01 and northwest to the Crescent retarding basin and outlets southwesterly to Coyote Creek and to the San Gabriel River just inland from estuary at the Pacific Ocean.			
Narrative Project Description:	The project consists of the demolition of an existing single-family lot and an existing car wash to create an apartment complex. The apartment complex is to consists of 41 new units with no open-air parking spaces. Such onsite activities for this development include the demolition of the existing buildings and existing concrete work, the construction of apartment homes along with parking spaces, concrete work, and the installation of stormwater BMPs. This project does include some offsite work such as the construction of the 2 driveways, concrete walkways, curb and gutters, and the installation of 2 park way culverts for overflow. Runoff from this project is considered to be all roof runoff, parking lot shown on site plan is closed off from receiving direct runoff. The total area is 32,635 ft^2 (0.75AC) with 26,572 ft^2 being impervious and 6,063 ft^2 being pervious. Landscaping consists of pervious area located along the project perimeter with interior green roof areas located at the 3rd floor of the four-floor development.			

We are proposing using two BMPs for mitigation of the DCV. The first being a dry well system installed by Torrent Resources. The second BMP we are using is green roods.

The use of green roofs will cover roughly 0.11 acers of the site. The green roof is to be considered self-retaining making our DCV a product of only the acreage left, 0.64ac.

The Drywell system was chosen to efficiently use the depth to ground water and the infiltration rate found onsite. Also, since the only capture is roof run-off, drainage can be routed directly towards the system without treatment per the OCTGD. Using the Capture efficiency worksheet, the drywell is accurately sized to successfully infiltrate the remaining DCV of 1,338 c.f., as shown in the calcs found in Appendix A, but does require additional storage to infiltrate the whole site. We plan to add 2- 42" storm drain pipes to help with the storage for the complete DCV and for the additional storage required for the 100 yr storm.

In the event of overflow, we have two systems in place, one is the sump pumps which will pump the water out towards Lincoln avenue via box culverts, and 2, using an 8" overflow pipe which exits south towards the alley. The pumps are designed to pump the maximum of a 10- year storm while the overflow pipe is to overflow after the storage of the 25yr and 100-yr storms.

We are not exempt from hydromodification, but our hydrology plan shows we are within the 5% difference from pre and post thus showing that the hydromodification requirement isn't our design option. More information can be found in HCOC section of this report.

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 ☐	Nutrients are a pollution of concern for San Gabriel River Estuary
Heavy Metals	E ☒	N ☐	Metals are listed as a pollutant of concern for Coyote Creek and San Gabriel River Estuary
Pathogens (Bacteria/Virus)	E ☒	N ☐	Indicator bacteria is a pollutant of concern for Coyote Creek and San Gabriel River Estuary
Pesticides	E ☒	N ☐	Pesticides are a pollutant of concern for Coyote Creek
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).*

The property is shown to be in an area that is potentially subject to hydromodification requirements due to portions of the drain system being unlined downstream of the crescent and Gilbert retarding basins. Since the pre-developed and post-developed conditions are shown to not increase the 2 year flow or change the time of concentration by more than 5 percent.

Q_2 pre =1.6 cfs

V_2 pre =2,772 cf T_c pre =5 min

Q_2 post = 1.4 cfs

V_2 post = 1,255 cf T_c post = 5 min

Project is located within the San Gabriel River Watershed. A copy of the map is included here for reference.

Volume calculations were obtained using the Results from WinTR-20. Using the Runoff amount in inches, we multiplied that by the area and divided by 12. See example below. Find the Reports for pre and post in Attachment D.

V2pre= 1.018in * 0.75AC * 43560 S.F. * 1ft/12in=**2,772c.f.**

II.4 Post Development Drainage Characteristics

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

Drainage from the site drains to Ohio Street and south to a city owned storm drain. From there the drainage is west within Broadway Street to Orange County line (B01P01), Carbon Creek. The outlet drains westerly to Coyote Creek and to the San Gabriel River and to the Pacific Ocean. Below is a comparison of existing and proposed storm flows from the site.

Pre-Development	Post-Development
Q_2 = 1.5 cfs	Q_2= 1.4 cfs
Q_{10} = 2.9 cfs	Q_{10} = 2.7 cfs
Q_{25} = 3.4 cfs	Q_{25} = 3.2 cfs
Q_{100} = 4.3 cfs	Q_{100} = 4.1 cfs

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:

Pacific Coast Management LLC
301 S. Anaheim Boulevard
Anaheim, CA 92805
(310) 704-5050

Once the project is completed maintenance responsibility shall be transferred to the Owner.

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)	N/A
Location/Address	898, 900 & 914 W. Lincoln Avenue
	Anaheim
General Plan Land Use Designation	Mixed use urban low medium density
Zoning	"C-G" General Commercial
Acreage of Project Site	0.75 acres
Predominant Soil Type	HSG-A

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	0.85"
Topography	Site is a previously graded flat area, developed. It drains towards Lincoln avenue as well as south towards the existing alley and out to Ohio St.

Drainage Patterns/Connections	Above grade planters are provided as a green roof element for a portion of the site. Roof drains are directed to a dry-well and overflow is directed to the street via a curb drain onto Ohio Street.
Soil Type, Geology, and Infiltration Properties	Soil report Soil Pacific Inc. #1664-S dated Nov. 24, 2019. Report indicates as having a field infiltration rates over 5 in/hr and a design infiltration rate of 2.5in/hr.
Hydrogeologic (Groundwater) Conditions	Ground water is 50 feet below surface per Orange County Infiltration Study.
Geotechnical Conditions (relevant to infiltration)	The subsurface soils disclosed at the test borings consist generally of native alluvial soils, brown, fine to medium sand with fill 1.5-2 feet, underlain by light brown to brown, fine to medium sand to the depth explored of 10 feet. No groundwater was encountered in the test borings to the depth of 15 feet below the existing grade. Using GeoTracker we found that there was a LUST cleanup done but was completed back in June of 2018. See attachment A for site map and worksheet I.
Off-Site Drainage	There is no off-site drainage onto the site
Utility and Infrastructure Information	Site is to be served by full utilities, but will not conflict with the proposed drainage system that is to be in place. No major utility easements on site that would affect bmp or storm drain placement.

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	Drains to Anaheim Coyote Creek to San Gabriel River and to San Gabriel River Estuary
303(d) Listed Impairments	Coyote Creek – • Indicator Bacteria 2016 • Iron 2027 • Malathion 2027 • Toxicity 2008 • Ph 2019 San Gabriel River Estuary- • Copper 2012 • Dioxin 2021 • Indicator bacteria 2016 • Nickle 2021
Applicable TMDLs	Coyote Creek – • Indicator Bacteria 2016 • Iron 2027 • Malathion 2027 • Toxicity 2008 • Ph 2019 San Gabriel River Estuary- • Copper 2012 • Dioxin 2021 • Indicator bacteria 2016 • Nickle 2021
Pollutants of Concern for the Project	Bacteria, Nutrients, Pesticides, Metals
Environmentally Sensitive and Special Biological Significant Areas	No environmentally sensitive areas or areas of special biological significance are within 500 feet of the project area

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 X
If yes, describe WIHMP feasibility criteria or regional/sub-regional LID opportunities.		

Project Performance Criteria

<table>
<tr><td>If HCOC exists, list applicable hydromodification control performance criteria (Section 7.II-2.4.2.2 in MWQMP)</td><td>Post Q2 and Tc must be no greater than 5% over Pre Q2 and Tc</td></tr>
<tr><td>List applicable LID performance criteria (Section 7.II-2.4.3 from MWQMP)</td><td>Priority project: Priority project must infiltrate, harvest and use, evapotranspire or biotreat/biofilter the 85th percentile, 24-hour storm event (design capture volume). √ol. Req = 0.9” – d (HSC) x c x area (ac) x 43, 560 sf/ac x 1”/12”ft = (C.F.)
Where: d (HSC) – Source control depth
c – Runoff co-efficient
V=C*d*A*43560*1/12</td></tr>
<tr><td>List applicable treatment control BMP performance criteria (Section 7.II-3.2.2 from MWQMP)</td><td>Not Applicable</td></tr>
<tr><td>Calculate LID design storm capture volume for Project.</td><td>Area 1A DCV = 1,338 CF Underground Infiltration though Dry Well
Area 1A-a –(0.11ac) Full Capture Green Roof Incidental only

<table>
<tr><td>Area in Question</td><td colspan="4">1A</td></tr>
<tr><td>∑Area</td><td>28,025</td><td>sf</td><td>0.64</td><td>acres</td></tr>
<tr><td>Impervious</td><td>26,546</td><td>sf</td><td>0.61</td><td>acres</td></tr>
<tr><td>Pervious</td><td>1,479</td><td>sf</td><td>0.03</td><td>acres</td></tr>
<tr><td>→Retention (Green Roof)</td><td>4610</td><td>sf</td><td>0.11</td><td>acres</td></tr>
</table>
*See worksheet C for DCV calculations using constant Drawdown</td></tr>
</table>

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).

The site is designed to utilize the BMP facility effectively. Site runoff is directed via roof drains to the parking area within the building to the proposed pump stations. From the pump stations, the water will flow towards the 42" storage pipes prior to entering the infiltration dry well located near the driveway. Water is then allowed to store in the chambers as the drywell infiltrates during the higher flowing storms. Once the flow exceeds the 2-year capture, an on switch within the pumps will be triggered pumping water towards Lincoln Ave. Any capture past the 10yr storm will be stored and allowed to overflow towards the alley through an overflow pipe and curb eventually follows the drainage path described earlier in this report.

See WQMP BMP Exhibit Site Plan and Exhibit for location and Attachment A for sizing calculations.

Coordinates for Drywell BMP: 33.832785° Lat., -117.925117 Long.

Area 1A DCV = 1,338 CF Underground Infiltration/Storage V= 2,158 CF

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: HSCs not used	☐
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:	☐

Infiltration BMP used is a dry well system. Water is to enter drainage system through roof drain into pump stations, where it is routed towards the storage pipes and ultimately to the drywell system. Once drywell system is filled, water is allowed to collect in the storage pipes. DCV will be infiltrated within the 48hr drawdown time.

Using Worksheet C: Capture Efficiency Method for Volume-Based, Constant Drawdown

Area 1A DCV w/ 25hr drawdown = 1,338 c.f.

Total 48 hr. infiltration volume= 3,330 c.f.

See BMP Calcs in Attachment A

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 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.

Not applicable

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.

Not applicable

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	
BMP Name	**BMP Description**
Pre and Post flow is within 5%	No additional controls necessary DCV capture only

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	
BMP Name	**BMP Description**
Not applicable	

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.

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	☒	☐	
N3	Common Area Landscape Management	☒	☐	
N4	BMP Maintenance	☒	☐	
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	None
N6	Local Industrial Permit Compliance	☐	☒	Residential Use
N7	Spill Contingency Plan	☐	☒	No hazardous waste storage
N8	Underground Storage Tank Compliance	☐	☒	None
N9	Hazardous Materials Disclosure Compliance	☐	☒	None
N10	Uniform Fire Code Implementation	☐	☒	No hazardous material storage.
N11	Common Area Litter Control	☒	☐	
N12	Employee Training	☒	☐	
N13	Housekeeping of Loading Docks	☐	☒	None
N14	Common Area Catch Basin Inspection	☐	☒	None
N15	Street Sweeping Private Streets and Parking Lots	☐	☒	Not subject to Storm Water
N16	Retail Gasoline Outlets	☐	☒	None

See Section V for description of non-structural source control BMP and for implementation

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	☐	☒	None allowed
S3	Design and construct trash and waste storage areas to reduce pollution introduction	☒	☐	Curb side pick up
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	
S5	Protect slopes and channels and provide energy dissipation	☐	☒	None proposed
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	☒	☐	
S6	Dock areas	☐	☒	None
S7	Maintenance bays	☐	☒	None
S8	Vehicle wash areas	☐	☒	None
S9	Outdoor processing areas	☐	☒	None
S10	Equipment wash areas	☐	☒	None
S11	Fueling areas	☐	☒	None
S12	Hillside landscaping	☐	☒	None
S13	Wash water control for food preparation areas	☐	☒	None
S14	Community car wash racks	☐	☒	None

See Section V for description of structural source control BMP and for implementation

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.* Not applicable

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.*

Description of Proposed Project				
Project Types that Qualify for Water Quality Credits (Select all that apply):				
☐Redevelopment projects that reduce the overall impervious footprint of the project site.	☐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.	☐ 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).		
☐ 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).		☐ 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		☐ 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).
☐Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses.	☐ Developments in a city center area.	☐ Developments in historic districts or historic preservation areas.	☐ 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.	☐In-fill projects, the conversion of empty lots and other underused spaces into more beneficially used spaces, such as residential or commercial areas.

Calculation of Water Quality Credits (if applicable)	N/A

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.*

The property ownership shall maintain the BMPs as listed below at the frequency indicated.

See Attachment at the end of Section 5

The owner shall maintain a fund of $600.00 operating budget to provide said maintenance. This amount shall be adjusted as needed to provide the maintenance listed, on an ongoing basis.

BMP	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
N1 - Education for Property Owners, Tenants and Occupants	Owner	Provide literature and instruction pertaining to environmental awareness included in Section VII Educational Material to all employees and residences.	Once yearly and for new employees
N2 - Activity Restrictions	Owner	See Attachment D for restrictions. Report any violations relating to activity restrictions listed herein.	Continuous
N3 - Common Area Landscape management	Owner	Hire contractor familiar with Orange County guidelines for use of fertilizers and pesticides. Maintain all landscape equipment improper working order.	Monthly

N4 - BMP Maintenance	Owner	See Attachment D for maintenance required.	Continuous
N11 - BMP Maintenance	Owner	Inspect parking and trash areas, clean and dispose of all litter. Report any violations to the owner.	Weekly
N12 - Employee Training	Owner	Educate all employees on environmental awareness. Instruct on proper use of chemicals and cleanup procedures.	Once yearly prior to storm season
Irrigation	Owner	Inspect for siltation or debris washing out of planters. Sweep silt to planters and check amount of irrigation used and for properly functioning irrigation. Check irrigation system for leaks and over spray, provide maintenance as required.	Monthly
Landscape	Owner	Check for landscape to be in healthy conditions. Replace dead or barren areas with plants consistent with the approved landscape plans.	Monthly
Stormwater Pump	Owner	In accordance to what the manufacture recommends.	Once yearly prior to rainy season.
Torrent Resources MaxWell IV-Dry Well	Owner	Inspect for standing water 48 hours after rain storm. Remove debris and silt and service per manufacture recommendations.	Once after first significant rain event on a yearly basis

Green Roofs	Owner	Weed out unwanted plants, and keep the drainage area clear of plants. Maintenance inspections should monitor whether or not project requirements are being met. Written reports of inspections should be reviewed prior to each subsequent inspection.	Inspections should be conducted at least once a year, and should be conducted more frequently during the establishment phase.

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.

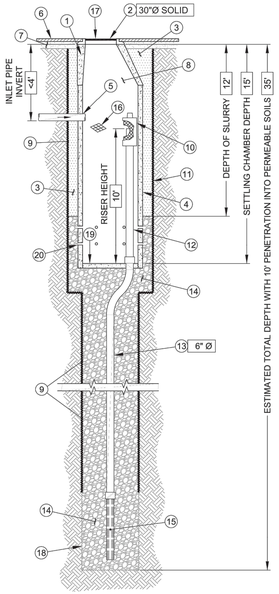
Each approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be recorded in the Orange County Clerk-Recorder's Office, prior to close-out of grading and/or building permit. Educational Materials are not required to be included.

The MaxWell® IV

DRAINAGE SYSTEM DETAILS AND SPECIFICATIONS

Lincoln Colony Apartments

Anaheim, CA



AZ Lic. ROC070465 A, ROC047697 B-4, ADWR 363
CA Lic. 996758- C-42, C-57, HAZ.
Also licensed in the following states: MT, NM, NV, OR, TX, UT, and WA.

U.S. Patent No. 4,303,290. ™ Trademark 1974, 1990, 2004

ITEM NUMBERS

1. **MANHOLE CONE** - MODIFIED FLAT BOTTOM.
2. **BOLTED RING & GRATE/COVER** - DIAMETER & TYPE AS SHOWN. CLEAN CAST IRON WITH WORDING **"STORM WATER ONLY"** IN RAISED LETTERS. **BOLTED IN 2 LOCATIONS** AND SECURED TO CONE WITH MORTAR. RIM ELEVATION ±0.02' OF PLANS.
3. **STABILIZED BACKFILL** - TWO-SACK SLURRY MIX.
4. **PRE-CAST LINER** - 4000 PSI CONCRETE 48" ID. X 54" OD. **CENTER IN HOLE** AND ALIGN SECTIONS **TO MAXIMIZE BEARING SURFACE.***
5. **INLET PIPE (BY OTHERS).** SEE SEPARATE PLAN FOR INVERT ELEVATIONS.
6. **GRADED BASIN OR PAVING** (BY OTHERS).
7. **COMPACTED BASE MATERIAL**, IF REQUIRED (BY OTHERS).
8. **FREEBOARD DEPTH VARIES** WITH INLET PIPE ELEVATION. INCREASE SETTLING CHAMBER DEPTH AS NEEDED TO MAINTAIN ALL INLET PIPE ELEVATIONS ABOVE RISER PIPE.
9. **NON-WOVEN GEOTEXTILE SLEEVE** - MIRAFI 140 NL. MIN. 6 FT Ø. HELD APPROX. 10 FEET OFF THE BOTTOM OF EXCAVATION.
10. **PUREFLO® DEBRIS SHIELD** - ROLLED 16 GA. STEEL X 24" LENGTH WITH VENTED ANTI-SIPHON AND INTERNAL 0.265" MAX. SWO FLATTENED EXPANDED STEEL SCREEN X 12" LENGTH. **FUSION BONDED EPOXY COATED**.
11. **MIN. 6' Ø DRILLED SHAFT.**
12. **RISER PIPE** - SCH. 40 PVC MATED TO DRAINAGE PIPE AT BASE SEAL.
13. **DRAINAGE PIPE** - ADS HIGHWAY GRADE OR SCH. 40 PVC WITH TRI-A COUPLER. SUSPEND PIPE DURING BACKFILL OPERATIONS. DIAMETER AS NOTED.
14. **ROCK** - WASHED, SIZED BETWEEN 3/8" AND 1-1/2".
15. **FLOFAST® DRAINAGE SCREEN** - SCH. 40 PVC 0.120" SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. OVERALL LENGTH VARIES, UP TO 120" WITH TRI-B COUPLER.
16. **ABSORBENT** - HYDROPHOBIC PETROCHEMICAL SPONGE. MIN. 128 OZ. CAPACITY. TYPICAL, 2 PER CHAMBER.
17. **FABRIC SEAL** - U.V. RESISTANT GEOTEXTILE - **TO BE REMOVED BY CUSTOMER** AT PROJECT COMPLETION. GRATED ONLY.
18. **MIN 4' Ø DRILLED SHAFT.**
19. **BASE SEAL** - CONCRETE SLURRY.
20. **6 PERFORATIONS MINIMUM PER FOOT, 2 ROWS MINIMUM.**

* USE W5 WWF AT 5" ON CENTER.

Manufactured and Installed by

TORRENT RESOURCES

An evolution of McGuckin Drilling
www.torrentresources.com
CALIFORNIA 909-829-0740
ARIZONA 602-268-0785

DETAIL: IV-4-SS-CA	REVISED BY: BDJ	
DRAWN ON: 05-14-19	REVISED DATE: 06-09-21	SCALE: N.T.S

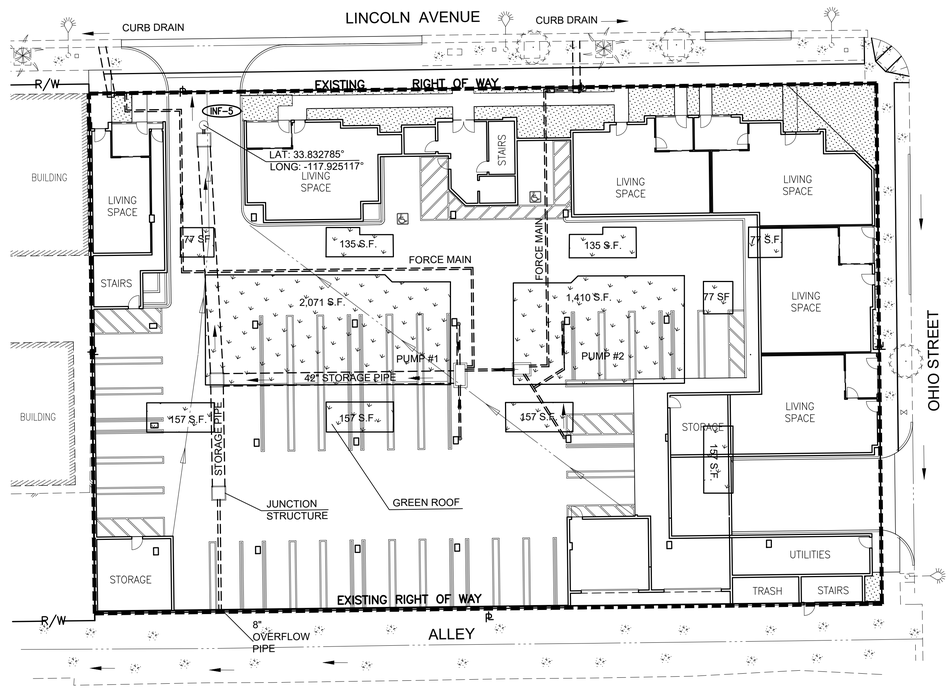
INF-5 MAXWELL-DRYWELL
NO SCALE

BMP CALCULATIONS

AREA=0.64 AC.
DCV= 1,338 C.F.
VOLUME PROVIDED= 1,802 CF
*ADDITIONAL STORAGE FOR CAPTURE OF 100YR STORM

NOTE:

STORM WATER GENERATED FROM THIS PROJECT SITE WILL ULTIMATELY DRAIN TO THE SAN GABRIEL WATERSHED AND THE PACIFIC OCEAN



SCALE: 1" = 20'

NOTE:

ALL RUN-OFF EXPERIENCED BY THE SITE IS CONSIDERED ROOF RUN-OFF, THUS NO PRETREATMENT IS APPLIED FOLLOWING OCTGD APPENDIX FOR DRY WELLS.

LEGEND

- DRAINAGE BOUNDARY
- HSC-5 — GREEN ROOF (HSC; A=0.11AC)
- LANDSCAPE AREA
- INF-5 — DRY WELL

REVISIONS

NO.	INIT.	DATE	DESCRIPTION	APP'D	DATE

BENCH MARK:

BENCHMARK NO. 4A-27

BRASS CAP MARKED C OF A BM, IN THE TOP OF CURB AT THE NORTHEAST BEGIN OF CURB RETURN.

ELEVATION: 147.87' (NAVD88)

JOB NO. 19-122-GP

BMP'S

- N-15 — STREET SWEEPING PARKING LOT
- INF-5 — DRY WELL INFILTRATION
- SD-13 — STORM DRAIN SIGNAGE

LAND AREA

GROSS = 0.7483 ACRES
NET = 0.69 ACRES

DATE 08-25-21
SCALE 1" = 20'
DRAWN V.F.L./J.M.
CHECKED D. C. Q.

PREPARED BY: AEC NO. 19-122
ANACAL ENGINEERING CO.
CIVIL ENGINEERING & LAND SURVEYING
1211 NORTH TUSTIN AVENUE
ANAHEIM, CALIFORNIA 92807
PHONE: 714-774-1763 FAX: 714-774-4690
E-MAIL ADDRESS: ANACAL@ANACALENGINEERING.COM

DAVID C. QUEYREL 42812 3-31-22
CIVIL ENGINEER LICENSE NO. EXP. DATE

ANACAL ENGINEERING
Civil Engineering and Land Surveying
Anaheim

WQMP SITE PLAN PLAN

SITE ADDRESS: 898, 900 & 914 W LINCOLN AVE

GRA X

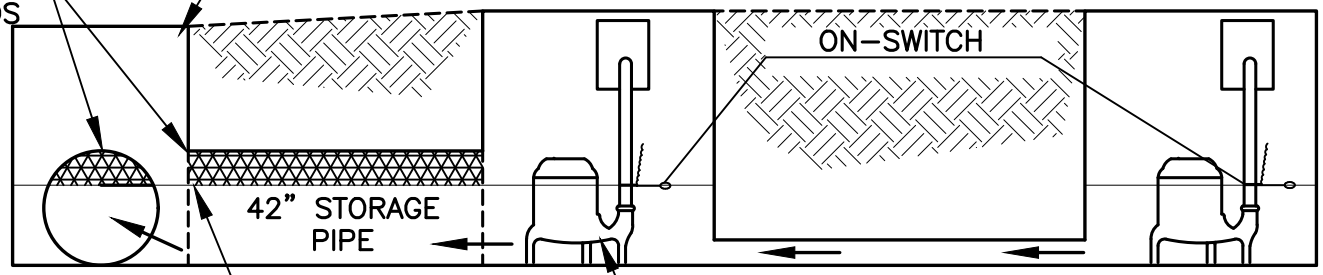
SHEET 1 OF 1

SCALE: AS NOTED | DRAWN BY: J. M. | CHECKED BY: D. C. Q.

CITY OF ANAHEIM

FOR CITY USE ONLY

CROSS SECTION OF
PUMP SYSTEM AND STORAGE PIPES



DCV =1,338CF.

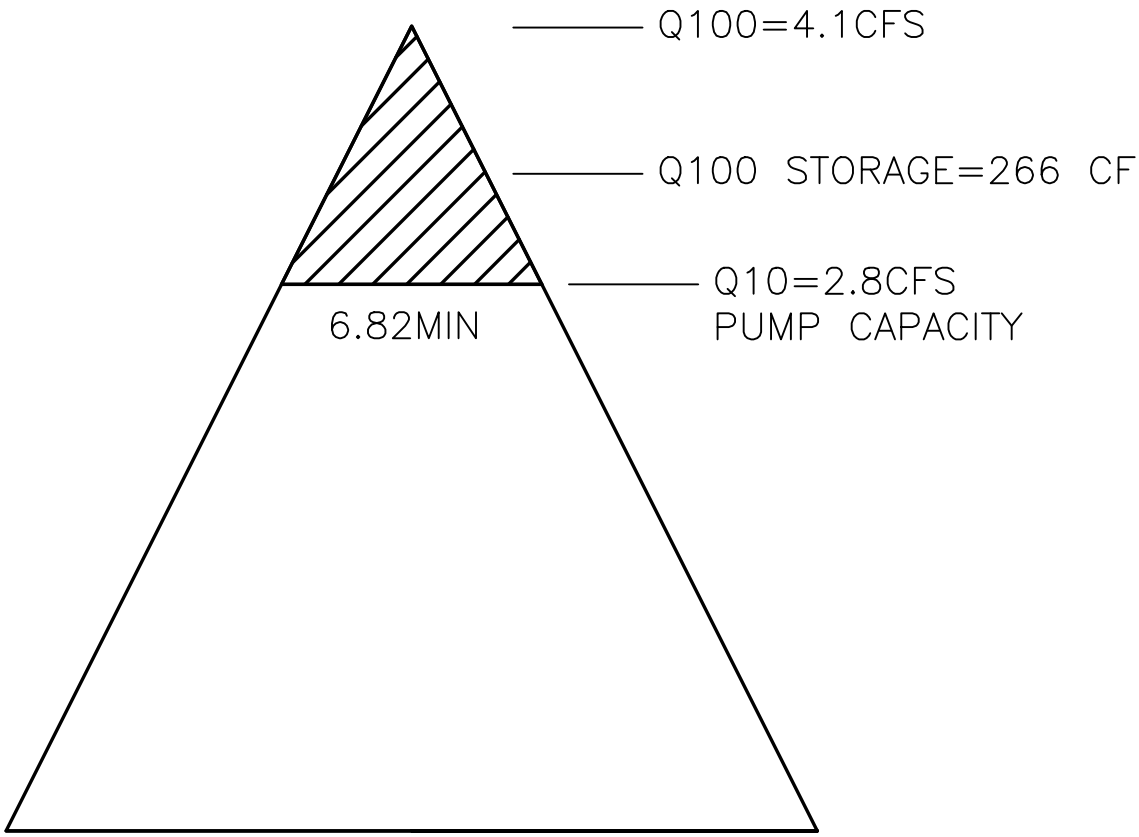
MAXWELL DRY-WELL STORAGE	=302 CF
DCV NEEDED TO CAPTURE	=1,036 CF
ADDITIONAL STORAGE PROVIDE BY PIPES	=1,500 CF
REMAINING STORAGE AFTER DCV CAPTURE	=464 CF
100 YR STORAGE NEEDED TO CAPTURE	=266 CF

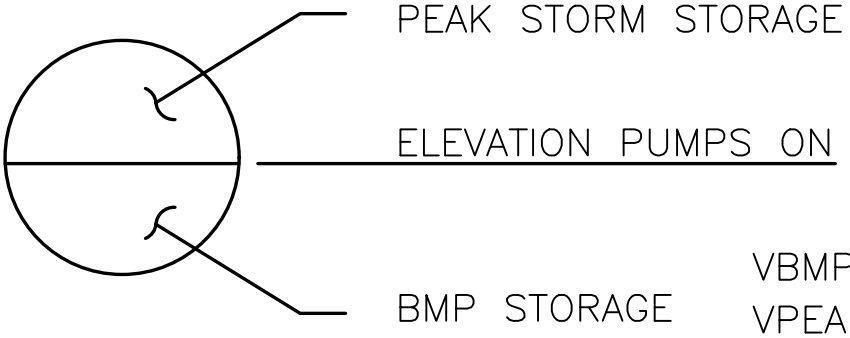
ANACAL ENGINEERING CO.
CIVIL ENGINEERING & LAND SURVEYING
1211 N TUSTIN AVENUE
ANAHEIM, CALIFORNIA 92807
PHONE :(714)774-1763 FAX:(714)774-4690
E-MAIL ADDRESS:
anacal@anacalengineering.com

ANACAL ENGINEERING Civil Engineering and Land Surveying Anaheim

BY: DAVID C. QUEYREL	LOCATION: LINCOLN COLONY APARTMENTS SITE ADDRESS: 898, 900 & 914 W LINCOLN AVE
DATE: 06-10-21	
SCALE: NA	OWNER:
JOB NO. 19-122	SHEET NO. 1 OF 1

SMALL AREA HYDROGRAPH





VBMP=760 CF
VPEAK STORAGE=266CF

36" STORAGE PIPE

190 LF 33"SD V=1129CF

BMP STORAGE

ANACAL ENGINEERING CO.
CIVIL ENGINEERING & LAND SURVEYING
1900 E. LA PALMA AVE. ~ SUITE 202 ~
ANAHEIM, CALIFORNIA 92805
PHONE :(714)774-1763 FAX:(714)774-4690
E-MAIL ADDRESS:
anacal@anacalengineering.com

ANACAL ENGINEERING Civil Engineering and Land Surveying Anaheim

BY: DAVID C. QUEYREL	LOCATION: LINCOLN COLONY APARTMENTS SITE ADDRESS: 898, 900 & 914 W LINCOLN AVE
DATE: 06-10-21	
SCALE: NA	OWNER:
JOB NO. 19-122	SHEET NO. 1 OF 1

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)	☐		☐
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	☐		☐

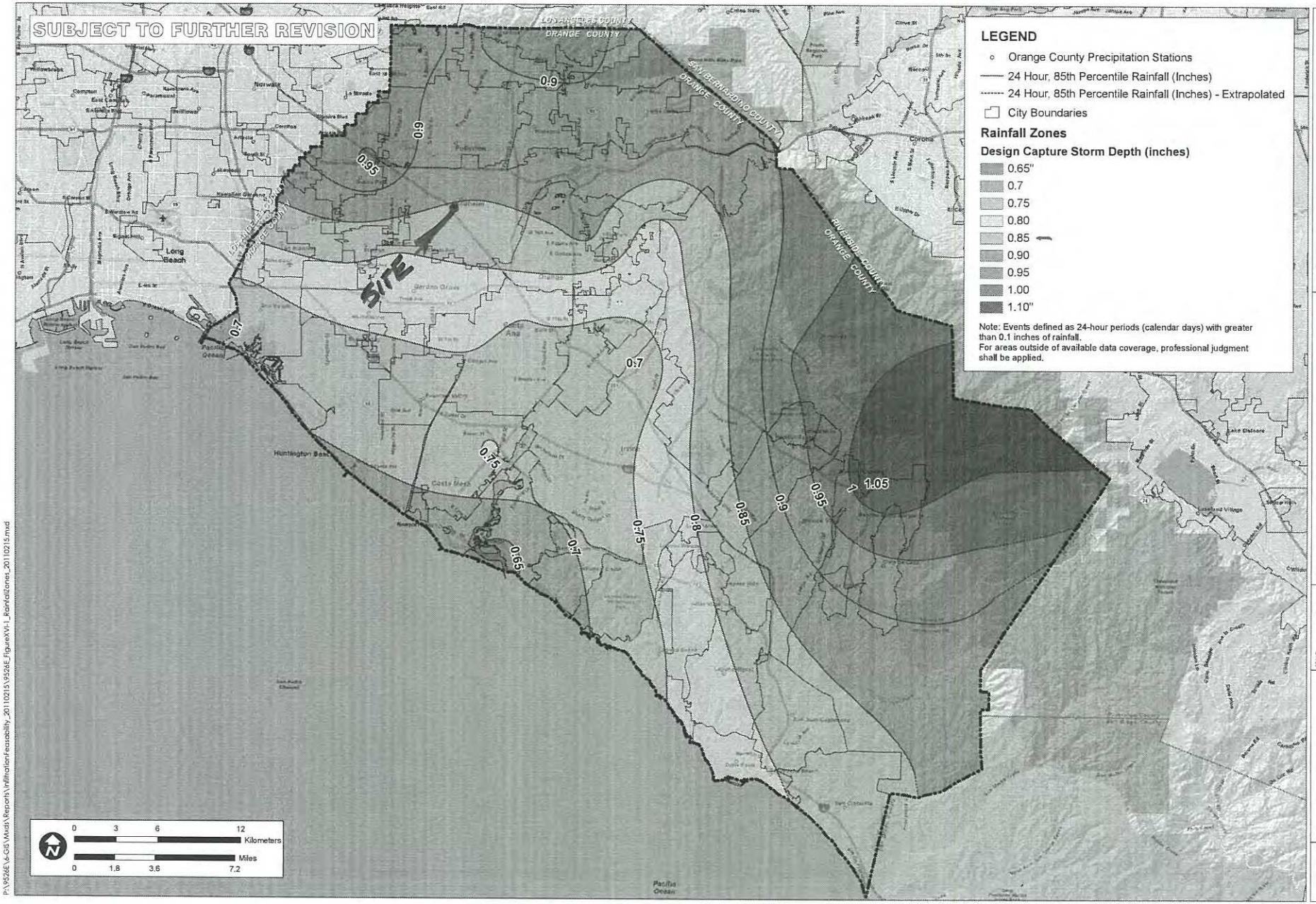
Attachment A

City of Anaheim

BMP Calculations

For: Lincoln Colony Apartments

APN: 036-112-03 & 036-112-32


SUBJECT TO FURTHER REVISION
LOS ANGELES COUNTY
ORANGE COUNTY
SAN BERNARDINO COUNTY
ORANGE COUNTY
RIVERSIDE COUNTY
ORANGE COUNTY
LOS ANGELES COUNTY
ORANGE COUNTY
SITE
0.9
0.9
0.95
0.7
0.7
0.75
0.7
0.65
0.75
0.8
0.85
0.9
0.95
1
1.05
Long Beach
Norwalk
Santa Ana
Huntington Beach
Corona
Lake Elsinore
Pacific Ocean
LEGEND
Orange County Precipitation Stations
24 Hour, 85th Percentile Rainfall (Inches)
24 Hour, 85th Percentile Rainfall (Inches) - Extrapolated
City Boundaries
Rainfall Zones
Design Capture Storm Depth (inches)
0.65"
0.7
0.75
0.80
0.85
0.90
0.95
1.00
1.10"
Note: Events defined as 24-hour periods (calendar days) with greater than 0.1 inches of rainfall.
For areas outside of available data coverage, professional judgment shall be applied.
0 3 6 12
Kilometers
0 1.8 3.6 7.2
P:\P526E\v6-GIS\Mxds\Reports\InfiltrationFeasibility_20110215\P526E_FigureXVI-1_RainfallZones_20110215.mxd
TITLE
RAINFALL ZONES
ORANGE COUNTY
TECHNICAL GUIDANCE
DOCUMENT
ORANGE CO.
CA
JOB
SCALE 1" = 1.8 miles
DESIGNED TH
DRAWING TH
CHECKED BMP
DATE 04/22/10
JOB NO P526-E
PACE
Advanced Water Engineering
FIGURE
XVI-1

Worksheet I: Summary of Groundwater-related Feasibility Criteria

1	Is project large or small? (as defined by **Table VIII.2**) circle one	Large		Small
2	What is the tributary area to the BMP?	A	0.75	acres
3	What type of BMP is proposed?	INF-5: Dry well		
4	What is the infiltrating surface area of the proposed BMP?	A_{BMP}	56	sq-ft
5	What land use activities are present in the tributary area (list all) -Roof Tributary Area Only			
6	What land use-based risk category is applicable?	L	M	H
7	If M or H, what pretreatment and source isolation BMPs have been considered and are proposed (describe all): -The Maxwell has its own form of treatment by having a settling chamber as well as absorbent pouches to capture hydrocarbons. -Run-off from our site is all roof run-off, and per OCTGD, roof run-off is allowed to be captured directly into a drywell infiltration system.			
8	What minimum separation to mounded seasonally high groundwater applies to the proposed BMP? See Section **VIII.2** (circle one)	5 ft		10 ft
9	Provide rationale for selection of applicable minimum separation to seasonally high mounded groundwater: -Underground infiltration method requires minimum separation of 10 ft to SHGWT mounded level.			
10	What is separation from the infiltrating surface to seasonally high groundwater?	SHGWT	50	ft
11	What is separation from the infiltrating surface to mounded seasonally high groundwater?	Mounded SHGWT	47	ft
12	Describe assumptions and methods used for mounding analysis: -Using Figure VIII.1 in Technical Guidance Document for area<500 sf. According to Attachment XVI-2d Depth of groundwater 50'/ No water found in test pits to 15'.			
13	Is the site within a plume protection boundary (See **Figure**	Y	N	N/A

Worksheet I: Summary of Groundwater-related Feasibility Criteria

	VIII.2)?	
14	Is the site within a selenium source area or other natural plume area (See Figure VIII.2)?	Y (N) N/A
15	Is the site within 250 feet of a contaminated site?	Y (N) N/A
16	If site-specific study has been prepared, provide citation and briefly summarize relevant findings: -A LUST clean up was found on-site, but completed and closed on June 2018. Results Attached.	
17	Is the site within 100 feet of a water supply well, spring, septic system?	Y (N) N/A
18	Is infiltration feasible on the site relative to groundwater-related criteria?	(Y) N
Provide rationale for feasibility determination: No criteria was found that would negate the ability to use infiltration as a BMP for the site.		

Note: if a single criterion or group of criteria would render infiltration infeasible, it is not necessary to evaluate every question in this worksheet.

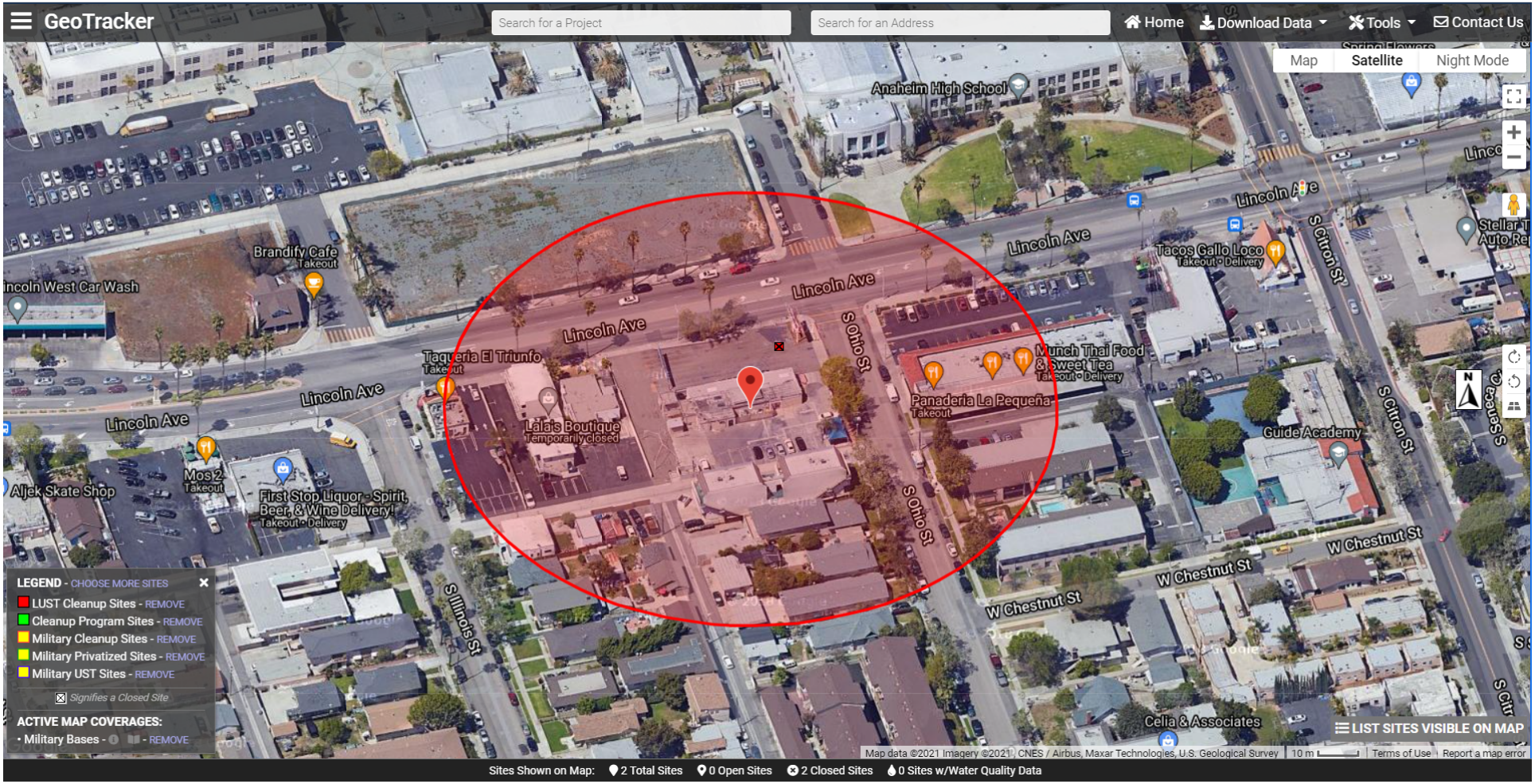

GeoTracker
Search for a Project
Search for an Address
Home
Download Data
Tools
Contact Us
Map
Satellite
Night Mode
Anaheim High School
Lincoln Ave
S Ohio St
S Citron St
W Chestnut St
S Illinois St
Brandify Cafe
Takeout
Taqueria El Triunfo
Takeout
Lala's Boutique
Temporarily closed
Panaderia La Pequeña
Takeout
Munch Thai Food & Sweet Tea
Takeout • Delivery
Tacos Gallo Loco
Takeout • Delivery
Guide Academy
Mos 2
Takeout
First Stop Liquor - Spirit, Beer, & Wine Delivery!
Takeout • Delivery
Aljek Skate Shop
Celia & Associates
LEGEND - CHOOSE MORE SITES
LUST Cleanup Sites - REMOVE
Cleanup Program Sites - REMOVE
Military Cleanup Sites - REMOVE
Military Privatized Sites - REMOVE
Military UST Sites - REMOVE
Signifies a Closed Site
ACTIVE MAP COVERAGES:
• Military Bases - REMOVE
LIST SITES VISIBLE ON MAP
Map data ©2021 Imagery ©2021 CNES / Airbus, Maxar Technologies, U.S. Geological Survey
10 m
Terms of Use
Report a map error
Sites Shown on Map:
2 Total Sites
0 Open Sites
2 Closed Sites
0 Sites w/Water Quality Data

Table 2.7: Infiltration BMP Feasibility Worksheet

	Infeasibility Criteria	*Yes*	*No*
1	**Would Infiltration BMPs pose significant risk for groundwater related concerns?** Refer to Appendix VIII (Worksheet I) for guidance on groundwater-related infiltration feasibility criteria.		X
Provide basis: FROM WORKSHEET I GROUNWATER-RELATED FEASIBILITY WAS FOUND TO ALLOW INFILTRATION Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
2	Would Infiltration BMPs **pose significant risk of increasing risk of geotechnical hazards that cannot be mitigated to an acceptable level**? (Yes if the answer to any of the following questions is yes, as established by a geotechnical expert): • The BMP can only be located less than 50 feet away from slopes steeper than 15 percent • The BMP can only be located less than eight feet from building foundations or an alternative setback. • A study prepared by a geotechnical professional or an available watershed study substantiates that stormwater infiltration would potentially result in significantly increased risks of geotechnical hazards that cannot be mitigated to an acceptable level.		X
Provide basis: NO GEOTECHNICAL HAZARDS WERE LISTED IN THE SOIL REPORT BY SOIL PACIFIC INC. INCLUDED AS ATTACHMENT B ATTACHED Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
3	Would infiltration of the DCV from drainage area **violate downstream water rights**?		X
Provide basis: NO WATER RIGHTS EXIST IN THIS AREA OF THE CARBON CREEK WATERSHED Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

Table 2.7: Infiltration BMP Feasibility Worksheet (continued)

	Partial Infeasibility Criteria	*Yes*	*No*
4	Is proposed infiltration facility **located on HSG D soils** or the site geotechnical investigation identifies presence of soil characteristics which support categorization as D soils?		X
Provide basis: SOIL MAP AND SOIL REPORT ATTACHMENT B Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
5	Is **measured infiltration rate below proposed facility less than 0.3 inches per hour**? This calculation shall be based on the methods described in **Appendix VII**.		X
Provide basis: SOIL REPORT LISTS RATES GREATER THAN 5 IN/HR PAGE 18 OF APP. B Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
6	Would **reduction of over predeveloped conditions cause impairments to downstream beneficial uses, such as change of seasonality of ephemeral washes or increased discharge of contaminated groundwater to surface waters?**		X
Provide citation to applicable study and summarize findings relative to the amount of infiltration that is permissible: NONE EXIST FOR [illegible] Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
7	Would **an increase in infiltration over predeveloped conditions cause impairments to downstream beneficial uses, such as change of seasonality of ephemeral washes or increased discharge of contaminated groundwater to surface waters?**		X
Provide citation to applicable study and summarize findings relative to the amount of infiltration that is permissible: NO BENEFICIAL USES EFFECTED FOR THIS AREA OF WATERSHED Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

Table 2.7: Infiltration BMP Feasibility Worksheet (continued)

Infiltration Screening Results (check box corresponding to result):		
8	Is there substantial evidence that infiltration from the project would result in a significant increase in I&I to the sanitary sewer that cannot be sufficiently mitigated? (See **Appendix XVII**) Provide narrative discussion and supporting evidence: NO SEWER IN THIS AREA Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.	NO
9	If any answer from row 1-3 is yes: infiltration of any volume is **not feasible** within the DMA or equivalent. Provide basis: N/A Summarize findings of infeasibility screening	NO
10	If any answer from row 4-7 is yes, infiltration is **permissible but is not presumed to be feasible for the entire DCV.** Criteria for designing biotreatment BMPs to achieve the maximum feasible infiltration and ET shall apply. Provide basis: PROJECT FOUND TO BE FEASIBLE TO INFILTRATE ENTIRE DCV Summarize findings of infeasibility screening	NO
11	If all answers to rows 1 through 11 are no, infiltration of the full DCV is potentially feasible, BMPs must be designed to infiltrate the full DCV to the maximum extent practicable.	YES

Harvest and Use Infeasibility

Harvest and use infeasibility criteria include:

- If inadequate demand exists for the use of the harvested rainwater. See **Appendix X** for guidance on determining harvested water demand and applicable feasibility thresholds.
- If the use of harvested water for the type of demand on the project violates codes or ordinances most applicable to stormwater harvesting in effect at the time of project application and a waiver of these codes and/or ordinances cannot be obtained. It is noted that codes and ordinances most applicable to stormwater harvesting may change

Worksheet H: Factor of Safety and Design Infiltration Rate and Worksheet

Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	1	0.25
		Predominant soil texture	0.25	1	0.25
		Site soil variability	0.25	1	0.25
		Depth to groundwater / impervious layer	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			1.0
B	Design	Tributary area size	0.25	1	0.25
		Level of pretreatment/ expected sediment loads	0.25	2	0.50
		Redundancy	0.25	3	0.75
		Compaction during construction	0.25	2	0.50
		Design Safety Factor, $S_B = \Sigma p$			2.0
Combined Safety Factor, $S_{TOT} = S_A \times S_B$					2.0
Measured Infiltration Rate, inch/hr, K_M (corrected for test-specific bias)					4.45
Design Infiltration Rate, in/hr, $K_{DESIGN} = S_{TOT} \times K_M$					2.23

Supporting Data

Briefly describe infiltration test and provide reference to test forms:

See Soil Report for test pit location and methods in accordance with the county's requirements.

Note: The minimum combined adjustment factor shall not be less than 2.0 and the maximum combined adjustment factor shall not exceed 9.0.

Worksheet C: Capture Efficiency Method for Volume-Based, Constant Drawdown BMPs

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from **Figure III.1**, *d* (inches)	d=	0.85	inches
2	Enter calculated drawdown time of the proposed BMP based on equation provided in applicable BMP Fact Sheet, *T* (hours)	T=	25	hours
3	Using **Figure III.2**, determine the "fraction of design capture storm depth" at which the BMP drawdown time (T) line achieves 80% capture efficiency, X_1	X_1=	0.79	
4	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (**Worksheet A**)	d_{HSC}=	------	inches
5	Enter capture efficiency corresponding to d_{HSC}, Y_2 (**Worksheet A**)	Y_2=	------	%
6	Using **Figure III.2**, determine the fraction of "design capture storm depth" at which the drawdown time (T) achieves the equivalent of the upstream capture efficiency(Y_2), X_2	X_2=	------	
7	Calculate the fraction of design volume that must be provided by BMP, *fraction* = X_1 - X_2	fraction=	0.79	
8	Calculate the resultant design capture storm depth (inches), $d_{fraction}$= *fraction* × *d*	$d_{fraction}$=	0.67	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.64	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.95	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.86	
4	Calculate runoff volume, V_{design}= (C x $d_{rfraction}$ x A x 43560 x (1/12))	V_{design}=	1,338	cu-ft
Supporting Calculations				

Describe system:

-We are using a Dry-Well (INF-5) system to infiltrate our on-site runoff. Storage from this system is 304 c.f (per manufacture specs) which leaves a DCV of 1,034 cf to be stored. Using 42" storage pipes to help capture the remaining storage required.
42" storage pipe Volume= 1500c.f.

Provide drawdown time calculations per applicable BMP Fact Sheet:

-See next sheet for drawdown calculations.

Maxwell® IV Drainage System Calculations Prepared on June 09, 2021
Project: **Lincoln Colony Apartments - Anaheim, CA**
Contact: Juan Macias at Anacal Engineering Company - Anaheim, CA

Given:

Measured Infiltration Rate	5.00	in/hr
Safety Factor	2.00	
Design Infiltration Rate	2.50	in/hr
Mitigated Volume	1,698	ft^3
Required Drawdown Time	48	hours
Min. Depth to Infiltration	12	ft
Groundwater Depth for Design	50	ft

Proposed:

Drywell Rock Shaft Diameter	4	ft
Drywell Chamber Depth	15	ft
Rock Porosity	40	%
Depth to Infiltration	12	ft
Drywell Bottom Depth	35	ft

Apply Safety Factor to get Design Rate.

$5.00 \ \frac{in}{hr} \div 2 = 2.50 \ \frac{in}{hr}$

Convert Design Rate from in/hr to ft/sec.

$2.50 \ \frac{in}{hr} \times \frac{1 \ ft}{12 \ in} \times \frac{1 \ hr}{3600 \ sec} = 0.000058 \ \frac{ft}{sec}$

A 4 foot diameter drywell provides 12.57 SF of infiltration area per foot of depth, plus 12.57 SF at the bottom.

For a 35 foot deep drywell, infiltration occurs between 12 feet and 35 feet below grade. This provides 23 feet of infiltration depth in addition to the bottom area. Infiltration area per drywell is calculated below.

$5 \ ft \times 18.85 \ \frac{ft^2}{ft} + 18 \ ft \times 12.57 \ \frac{ft^2}{ft} + 12.57 \ ft^2 = 333 \ ft^2$

Combine design rate with infiltration area to get flow (disposal) rate for each drywell.

$0.000058 \ \frac{ft}{sec} \times 333 \ ft^2 = 0.01927 \ \frac{ft^3}{sec}$

Volume of disposal for each drywell based on various time frames are included below.

48 hrs: 0.0193 CFS x 48 hours x $\frac{3600 \ sec}{1 \ hr}$ = 3,330 cubic feet of retained water disposed of.
25 hrs: 0.0193 CFS x 25 hours x $\frac{3600 \ sec}{1 \ hr}$ = 1,734 cubic feet of retained water disposed of.

Chamber diameter = 4 feet. Drywell rock shaft diameter = 4 feet.
Volume provided in each drywell with chamber depth of 15 feet.

$15 \ ft \times 12.57 \ ft^2 + 2 \ ft \times 28.27 \ ft^2 \times 40 \ \% + 18 \ ft \times 12.57 \ ft^2 \times 40 \ \% = 302 \ ft^3$

The MaxWell System is composed of 1 drywell(s) .
Total volume provided = 302 ft^3
Total 25 hour infiltration volume = 1,734 ft^3
Total 48 hour infiltration volume = 3,330 ft^3
Total infiltration flowrate = 0.01927 $\frac{ft^3}{sec}$

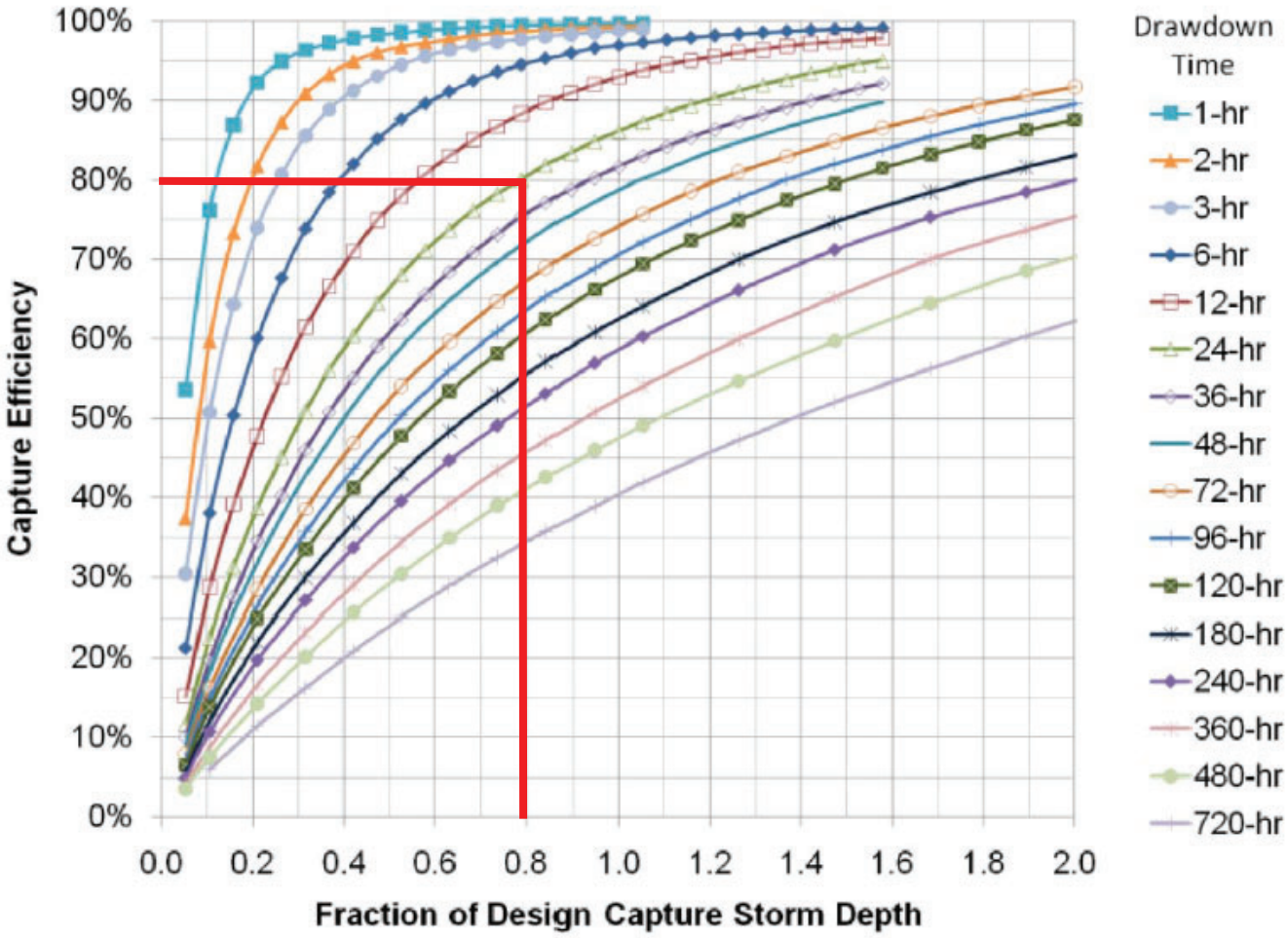
Based on the total mitigated volume of 1698 CF, the actual drawdown time is only 25 hours. Using the Capture Efficiency Method for Volume-Based, Constant Drawdown BMPs, the DCV fraction , X1, is 0.79. Taking the DCV multiplied by 0.79 = 1341 CF. The storage provided in the drywell is 302 CF therefore the remaining storage requirement is 1040 CF.

For any questions, please contact Bill De Jong at 909-915-9490 or via email at BDejong@TorrentResources.com

Torrent Resources (CA) Incorporated
9950 Alder Avenue
Bloomington, CA 92316
Phone 909-829-0740

Lincoln Colony Apartments

Anaheim, CA



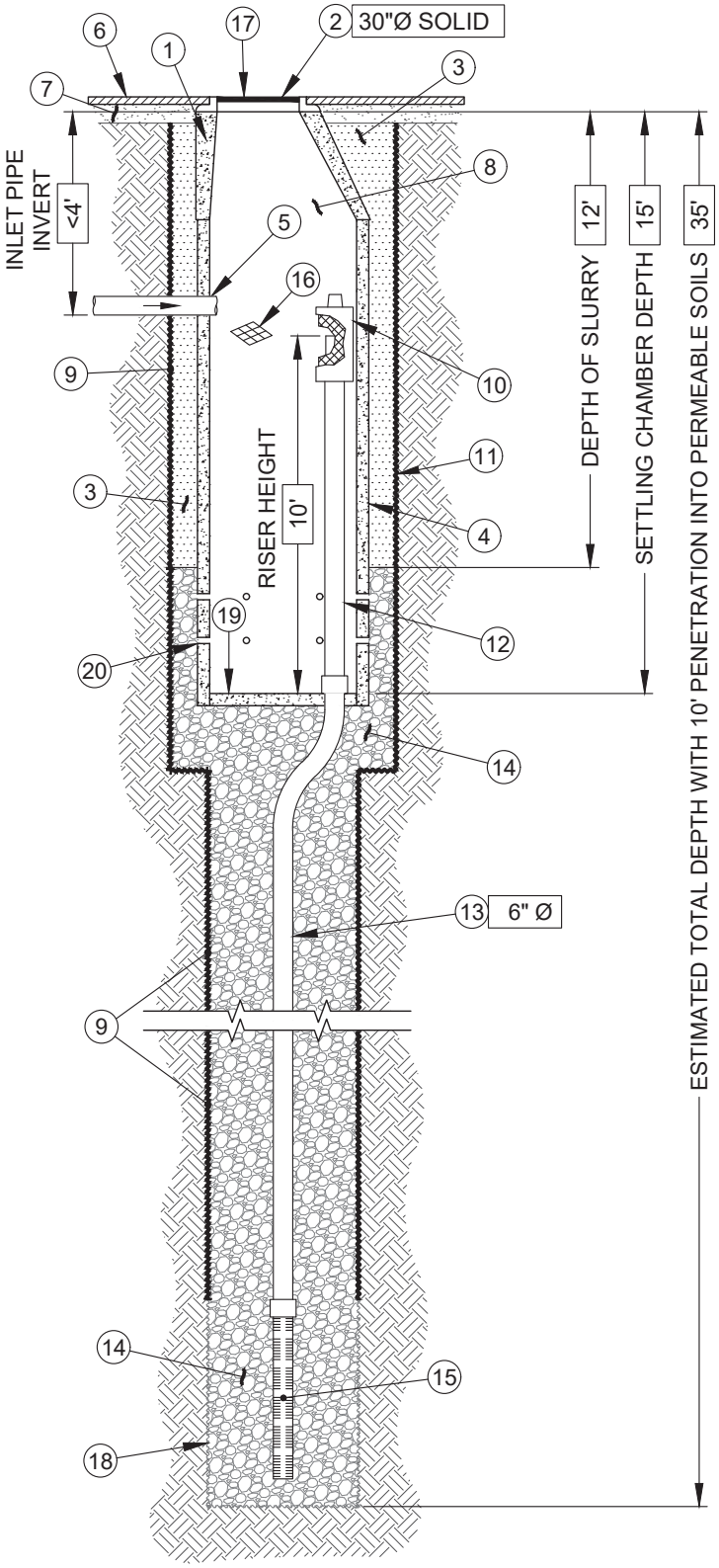
1-HR	0.12	***13-HR***	0.57	***25-HR***	0.79	***37-HR***	0.96
2-HR	0.20	***14-HR***	0.59	***26-HR***	0.81	***38-HR***	0.97
3-HR	0.25	***15-HR***	0.61	***27-HR***	0.82	***39-HR***	0.97
4-HR	0.29	***16-HR***	0.63	***28-HR***	0.84	***40-HR***	0.98
5-HR	0.33	***17-HR***	0.65	***29-HR***	0.85	***41-HR***	0.99
6-HR	0.37	***18-HR***	0.67	***30-HR***	0.87	***42-HR***	1.00
7-HR	0.40	***19-HR***	0.68	***31-HR***	0.88	***43-HR***	1.00
8-HR	0.43	***20-HR***	0.70	***32-HR***	0.89	***44-HR***	1.01
9-HR	0.46	***21-HR***	0.72	***33-HR***	0.91	***45-HR***	1.02
10-HR	0.49	***22-HR***	0.74	***34-HR***	0.92	***46-HR***	1.03
11-HR	0.52	***23-HR***	0.76	***35-HR***	0.94	***47-HR***	1.03
12-HR	0.55	***24-HR***	0.78	***36-HR***	0.95	***48-HR***	1.04

The MaxWell® IV

DRAINAGE SYSTEM DETAILS AND SPECIFICATIONS

Lincoln Colony Apartments

Anaheim, CA



ITEM NUMBERS

1. **MANHOLE CONE** - MODIFIED FLAT BOTTOM.
2. **BOLTED RING & GRATE/COVER** - DIAMETER & TYPE AS SHOWN. CLEAN CAST IRON WITH WORDING **"STORM WATER ONLY"** IN RAISED LETTERS. **BOLTED IN 2 LOCATIONS** AND SECURED TO CONE WITH MORTAR. RIM ELEVATION ±0.02' OF PLANS.
3. **STABILIZED BACKFILL** - TWO-SACK SLURRY MIX.
4. **PRE-CAST LINER -** 4000 PSI CONCRETE 48" ID. X 54" OD. **CENTER IN HOLE** AND ALIGN SECTIONS **TO MAXIMIZE BEARING SURFACE.***
5. **INLET PIPE (BY OTHERS).** SEE SEPARATE PLAN FOR INVERT ELEVATIONS.
6. **GRADED BASIN OR PAVING** (BY OTHERS).
7. **COMPACTED BASE MATERIAL**, IF REQUIRED (BY OTHERS).
8. **FREEBOARD DEPTH VARIES** WITH INLET PIPE ELEVATION. INCREASE SETTLING CHAMBER DEPTH AS NEEDED TO MAINTAIN ALL INLET PIPE ELEVATIONS ABOVE RISER PIPE.
9. **NON-WOVEN GEOTEXTILE SLEEVE** - MIRAFI 140 NL. MIN. 6 FT Ø. HELD APPROX. 10 FEET OFF THE BOTTOM OF EXCAVATION.
10. **PUREFLO® DEBRIS SHIELD** - ROLLED 16 GA. STEEL X 24" LENGTH WITH VENTED ANTI-SIPHON AND INTERNAL 0.265" MAX. SWO FLATTENED EXPANDED STEEL SCREEN X 12" LENGTH. **FUSION BONDED EPOXY COATED**.
11. **MIN. 6' Ø DRILLED SHAFT.**
12. **RISER PIPE** - SCH. 40 PVC MATED TO DRAINAGE PIPE AT BASE SEAL.
13. **DRAINAGE PIPE** - ADS HIGHWAY GRADE OR SCH. 40 PVC WITH TRI-A COUPLER. SUSPEND PIPE DURING BACKFILL OPERATIONS. DIAMETER AS NOTED.
14. **ROCK** - WASHED, SIZED BETWEEN 3/8" AND 1-1/2".
15. **FLOFAST® DRAINAGE SCREEN** - SCH. 40 PVC 0.120" SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. OVERALL LENGTH VARIES, UP TO 120" WITH TRI-B COUPLER.
16. **ABSORBENT** - HYDROPHOBIC PETROCHEMICAL SPONGE. MIN. 128 OZ. CAPACITY. TYPICAL, 2 PER CHAMBER.
17. **FABRIC SEAL** - U.V. RESISTANT GEOTEXTILE - **TO BE REMOVED BY CUSTOMER** AT PROJECT COMPLETION. GRATED ONLY.
18. **MIN 4' Ø DRILLED SHAFT.**
19. **BASE SEAL** - CONCRETE SLURRY.
20. **6 PERFORATIONS MINIMUM PER FOOT, 2 ROWS MINIMUM.**

* USE W5 WWF AT 5" ON CENTER.

DETAIL :	IV-4-SS-CA	REVISED BY:	BDJ		
DRAWN ON:	05-14-19	REVISED DATE:	06-09-21	SCALE:	N.T.S

Manufactured and Installed by
TORRENT® RESOURCES
An evolution of McGuckin Drilling
www.torrentresources.com
CALIFORNIA 909-829-0740
ARIZONA 602-268-0785

INF-5: Drywell

Also known as:

- *Soakaway Pits*
- *Infiltration Sumps*
- *Rock Sumps*
- *Underground Injection Controls*

Drywell
Source: K&A Enterprises

Drywells are similar to infiltration trenches in their design and function, but generally have a greater depth to footprint area ratio and can be installed at relatively large depths. A drywell is a subsurface storage facility designed to temporarily store and infiltrate runoff, primarily from rooftops or other impervious areas with low pollutant loading. A drywell may be either a small excavated pit filled with aggregate or a prefabricated storage chamber or pipe segment. Drywells can be used to reduce the volume of runoff from roofs and other relatively clean surfaces. While roofs are generally not a significant source of stormwater pollutants, they can be a major contributor of runoff volumes. Therefore, drywells can indirectly enhance water quality by reducing the water quality design volume that must be treated by other, downstream stormwater management facilities. *Note: A drywell is considered a "Class V Injection Wells" under the federal Underground Injection Control (UIC) Program regulated in California by U.S. EPA Region 9. A UIC permit may be required (for details see http://www.epa.gov/region9/water/groundwater/uic-classv.html).*

Feasibility Screening Considerations

- Drywells shall pass infiltration infeasibility screening criteria (**TGD Section 2.4.2.4**) to be considered for use.
- Dry wells provide a more direct pathway for stormwater to groundwater, therefore pose a greater risk to groundwater quality than surface infiltration systems.

Opportunity Criteria

- Drywells may be used to infiltrate roof runoff, either directly or from the overflow from a cistern.
- Soils are adequate for infiltration or can be amended to provide an adequate infiltration rate.
- Space available for pretreatment (biotreatment or treatment control BMP as described below).
- The drywell must be located in native soil; over-excavated by at least one foot in depth and replaced uniformly without compaction.
- Potential for groundwater contamination can be mitigated through isolation of pollutant sources, pretreatment of inflow, and/or demonstration of adequate treatment capacity of underlying soils.
- Infiltration is into native soil, or depth of engineered fill is ≤ 5 feet from the bottom of the facility to native material and infiltration into fill is approved by a geotechnical professional.

OC-Specific Design Criteria and Considerations

☐ Must comply with local, state, and federal UIC regulations; a permit may be required.

☐ Minimum set-backs from foundations and slopes should be observed

- ☐ Infiltration should not cause geotechnical concerns related to slope stability, liquefaction, or erosion.
- ☐ Minimum separation to mounded seasonally high groundwater of 10 feet shall be observed.
- ☐ Drywells should not receive untreated stormwater runoff, except rooftop runoff. Pretreatment of runoff from other surfaces is necessary to prevent premature failure that results from clogging with fine sediment, and to prevent potential groundwater contamination due to nutrients, salts, and hydrocarbons.
- ☐ Design infiltration rate should be determined with an infiltration test at each drywell location.
- ☐ Drywell should be encased by 1 foot of coarse (3/4" to 2 ½"), round river rock on sides and bottom of facility.
- ☐ Maximum facility depth is 25 feet with the approval of a geotechnical professional; preferred depth less than 10 feet does not require geotechnical approval.
- ☐ If inlet is an underground pipe, a fine mesh screen should be installed to prevent coarse solids from entering drywell.
- ☐ An overflow route must be installed for flows that overtop facility.

Sizing Criteria for Drywells

Drywell sizing is highly site-specific. Sizing calculations shall demonstrate via the methods described in **Appendix III** or via project-specific methods that the system captures and fully discharges the DCV within 48 hours following the end of precipitation, or captures and infiltrates 80 percent of average annual runoff volume.

Configuration for Use in a Treatment Train

- Drywells may be preceded in a treatment train by HSCs in the drainage area, which would reduce the required volume of the drywell.
- Drywells treating any areas other than roof tops must be preceded by a robust biotreatment or conventional treatment capable of addressing all potentially generated pollutants.
- Drywells may be used in conjunction with other infiltration BMPs to increase the infiltration capacity of the entire treatment train system.

Additional References for Design Guidance

- Stormwater Management in Western Washington (Volume III: Hydrologic Analysis and Flow Control Design BMPs) **http://www.ecy.wa.gov/pubs/0510031.pdf**
- Los Angeles Unified School District (LAUSD) Stormwater Technical Manual, Chapter 4: **http://www.laschools.org/employee/design/fs-studies-and-reports/download/white_paper_report_material/Storm_Water_Technical_Manual_2009-opt-red.pdf?version_id=76975850**
- City of Portland Stormwater Management Manual (Drywell, page 2-87) **http://www.portlandonline.com/bes/index.cfm?c=47954&a=202883**
- San Diego County LID Handbook Appendix 4 (Factsheet 25): **http://www.sdcounty.ca.gov/dplu/docs/LID-Appendices.pdf**
- City of Santa Barbara Storm Water BMP Guidance Manual, Chapter 6: **http://www.santabarbaraca.gov/NR/rdonlyres/91D1FA75-C185-491E-A882-49EE17789DF8/0/Manual_071008_Final.pdf**

SUBJECT TO FURTHER REVISION

LEGEND

- Depth To First Groundwater Contours
- City Boundaries
- OCWD Groundwater Basin Protection Boundary

Note: Data are not available for South Orange County at this time.

Source:
Sprotte, Fuller and Greenwood, 1980.
California Division of Mines and Geology;
California Geological Survey

LOS ANGELES COUNTY
ORANGE COUNTY

SAN BERNARDINO COUNTY
ORANGE COUNTY

RIVERSIDE COUNTY
ORANGE COUNTY

SITE

Downey, Santa Fe Springs, South Whittier, La Habra, Norwalk, La Mirada, Whittier, Chino Hills, Los Serranos, Yorba Linda, Placentia, Cerritos, Artesia, Lakewood, Buena Park, Hawaiian Gardens, Cypress, Los Alamitos, Rossmoor, Seal Beach, Garden Grove, Orange, Santa Ana, Tustin Foothills, Villa Park, Fountain Valley, Huntington Beach, Costa Mesa, Newport Beach, Irvine, Corona, Home Gardens, El Cerrito, Silverado, Foothill Ranch, Portola Hills, El Toro, Trabuco Canyon, Lake Forest, Mission Viejo, Rancho Santa Margarita, Laguna Woods, Laguna Hills, Coto de Caza, Las Flores, Pacific Ocean

0 2 4 8 Kilometers
0 1.25 2.5 5 Miles

P:\9526EV6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2d_DepthToGroundwaterOverview_20110215.mxd

TITLE
NORTH ORANGE COUNTY
MAPPED DEPTH TO FIRST
GROUNDWATER

ORANGE COUNTY
INFILTRATION STUDY

CA

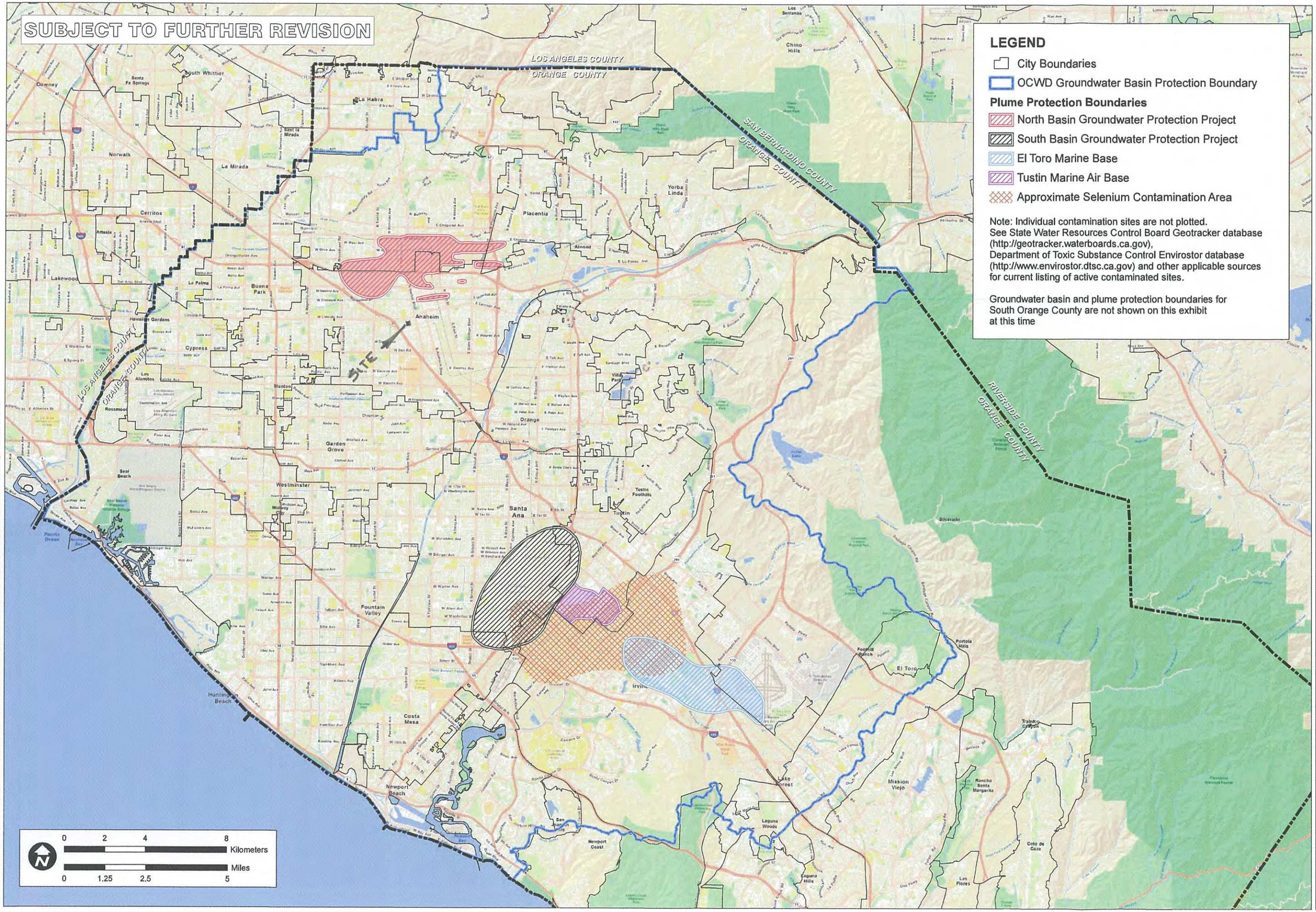
JOB
ORANGE CO.

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE
XVI-2d

SUBJECT TO FURTHER REVISION



LEGEND

- City Boundaries
- OCWD Groundwater Basin Protection Boundary

Plume Protection Boundaries

- North Basin Groundwater Protection Project
- South Basin Groundwater Protection Project
- El Toro Marine Base
- Tustin Marine Air Base
- Approximate Selenium Contamination Area

Note: Individual contamination sites are not plotted. See State Water Resources Control Board Geotracker database (http://geotracker.waterboards.ca.gov), Department of Toxic Substance Control Envirostor database (http://www.envirostor.dtsc.gov) and other applicable sources for current listing of active contaminated sites.

Groundwater basin and plume protection boundaries for South Orange County are not shown on this exhibit at this time

TITLE

NORTH ORANGE COUNTY GROUNDWATER PROTECTION AREAS

ORANGE COUNTY INFILTRATION STUDY

CA

JOB

ORANGE CO.

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/22/10
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE

XVI-2f

P:\9526E\6-GIS\Mxds\Reports\Infiltration Feasability_20110215\9526E_FigureXVI-2f_NorthOCGroundwaterProtectionAreasStreetMap_20110215.mxd

Green Roofs

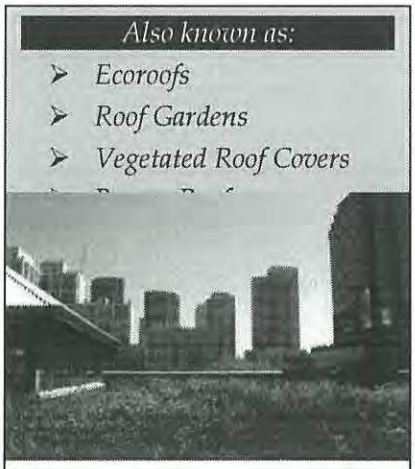
City of Anaheim

For: Lincoln Colony Apartments

APN: 036-112-03 & 036-112-32

HSC-5: Green Roof / Brown Roof

Green roofs are also known as ecoroofs, roof gardens, or vegetated roof covers. Green roofs are roofing systems that layer a soil/vegetative cover over a waterproofing membrane. There are two types of green roofing systems; extensive, which is a light weight system and intensive, which is a heavier system that allows for larger plants but requires additional maintenance. A green roof mimics pre-development conditions by limiting the impervious area created by development. Green roofs filter, absorb, and evapotranspire precipitation to help mitigate the effects of urbanization on water quality and delivery of excess runoff to the local storm water conveyance systems.



Green Roof
Source: Milwaukee Department of Environmental Sustainability

Brown roofs are essentially a type of green roof designed to maximize biodiversity. Brown roofs typically utilize natural soil and locally available substrates to create a protected biodiverse habitat for specific species of local flora and fauna. Rather than landscaping the roof during construction, plants are left to germinate and grow on their own in the native soils, thus the "brown" (i.e., initially unvegetated) designation. Hand-seeding may be implemented where self-colonization via airborne seeds is unlikley.

Feasibility Screening Considerations

- Green roofs should be selected with consideration for their impacts on irrigation during the dry season and during dry periods of the wet season.

Opportunity Criteria

- Green roofs can be applied to multi-family residential, commercial, or institutional land uses including rooftops and decks above building structures (e.g., parking structures, outdoor eating area roofs, or storage facilities.
- Roofs are ideally multi-story with significant structural over-design to support the additional weight of the soil, retained water, and plants, as confirmed by a licensed structural engineer.
- Roofs are ideally relatively flat.

OC-Specific Design Criteria and Considerations

☒ Saturated soil will weigh approximately 10 – 25 lbs/square foot. If the building and roof are not designed to hold this weight (such as in a retrofit situation), a licensed structural engineer should be consulted.

☒ Soil depth should be consistent with minimum depths provided in **Appendix IX**.

☐ A drain pipe (gutter) is required to convey runoff safely from the roof.
INCIDENTAL RAIN ONLY

☐ Depending on the design of the roof, a drainage layer may be required to move the excess runoff off of the roof.

☒ A waterproof membrane, preventing the roof runoff from penetrating and damaging the roofing material, should be used. There are many materials available for this purpose; they come in various forms (i.e., rolls, sheets, liquid) and exhibit different characteristics (e.g., flexibility, strength, etc.). Depending on the type of membrane chosen a root barrier may be required to prevent roots from compromising the integrity of the membrane.

☒ Green roofs should be about 90% vegetated with a mix of erosion resistant plant species that effectively bind the soil and can withstand the extreme environment of rooftops (i.e., heat, cold, and high winds).

☒ A diverse selection of low growing plants that thrive under the specific site, climatic, and watering conditions should be specified. A mixture of drought tolerant, self-sustaining (perennial or self-sowing without need for fertilizers, herbicides, and or pesticides) is most effective. Native or adapted sedum/succulent plants are preferred because they generally require less fertilizer, limited maintenance, and are more drought resistant than exotic plants. When appropriate, green roofs may be planted with larger plants; however, this depends on structural support, soil depth, and irrigation requirements.

☒ Irrigation is required if the seed is planted in spring or summer. Use of a permanent smart (self-regulating) irrigation system, or other watering system, may help provide maximal water quality performance. Drought-tolerant plants should be specified to minimize irrigation requirements. For projects seeking "High Performance Building" recognition, ASHRAE Standard 189.1 states that potable water cannot be used for irrigating green roofs after they are established.

☒ Locate the green roof in an area without excessive shade to avoid poor vegetative growth. For moderately shaded areas, shade tolerant plants should be used.

☒ Project-specific planting recommendations should be provided by a landscape professional including recommendations on appropriate plants, fertilizer, mulching applications, and irrigation requirements (if any) to ensure healthy vegetation growth.

Sizing

Appendix IX provides minimum criteria for green roofs to be considered self-retaining and shall be the governing sizing basis for green roofs.

Configuration for Use in a Treatment Train

- If implemented in a treatment train, green roofs are typically at the most upstream end. A green roof placed upgradient of a cistern can improve the quality and reduce the rate and volume of water flowing to the cistern. Alternatively, a planter box could be placed downstream of a downspout that drains the green roof.

Additional References for Design Guidance

- Los Angeles Unified School District Stormwater Technical Manual, 2009. http://www.laschools.org/employee/design/fs-studies-and-reports/download/white_paper_report_material/Storm_Water_Technical_Manual_2009-opt-red.pdf?version_id=76975850
- City of Santa Barbara, Technical Guidance Manual for Post-Construction Storm Water Management, 2008. http://www.santabarbaraca.gov/NR/rdonlyres/91D1FA75-C185-491E-A882-49EE17789DF8/0/Manual_071008_Final.pdf
- Portland Stormwater Management Manual. http://www.portlandonline.com/bes/index.cfm?c=35122&a=55791
- San Diego County – Low Impact Development Fact Sheets. http://www.sdcounty.ca.gov/dplu/docs/LID-Appendices.pdf
- Brown Roofs. http://www.brownroofs.co.uk/brown-roof-maintenance.php

Worksheet A: Hydrologic Source Control Calculation Form

Drainage area ID	DA-1 (a)			
Total drainage area	0.11	acres		
Total drainage area Impervious Area (IA_{total})	0.11	acres		
HSC ID	HSC Type/ Description/ Reference BMP Fact Sheet	Effect of individual HSC_i per criteria in **BMP Fact Sheets (XIV.1)** (d_{HSCi})[1]	Impervious Area Tributary to HSC_i (IA_i)	$d_i \times IA_i$
HSC-5	Green Roof	N/A	0.11	
	Box 1:	$\sum d_i \times IA_i =$		
	Box 2:	$IA_{total} =$		
	[Box 1]/[Box 2]:	$d_{HSC\ total} =$		
		Percent Capture Provided by HSCs (Table III.1)		100%

1 - For HSCs meeting criteria to be considered self-retaining, enter the DCV for the project.

The DCV for the area of the Green Roof HSC is 291 cu-ft.
The Green roof planters are considered self retaining due to a minimum of 12" of soil and a required Retention depth of 0.85"
From chart- 9" of soil is required.*

*See attached chart

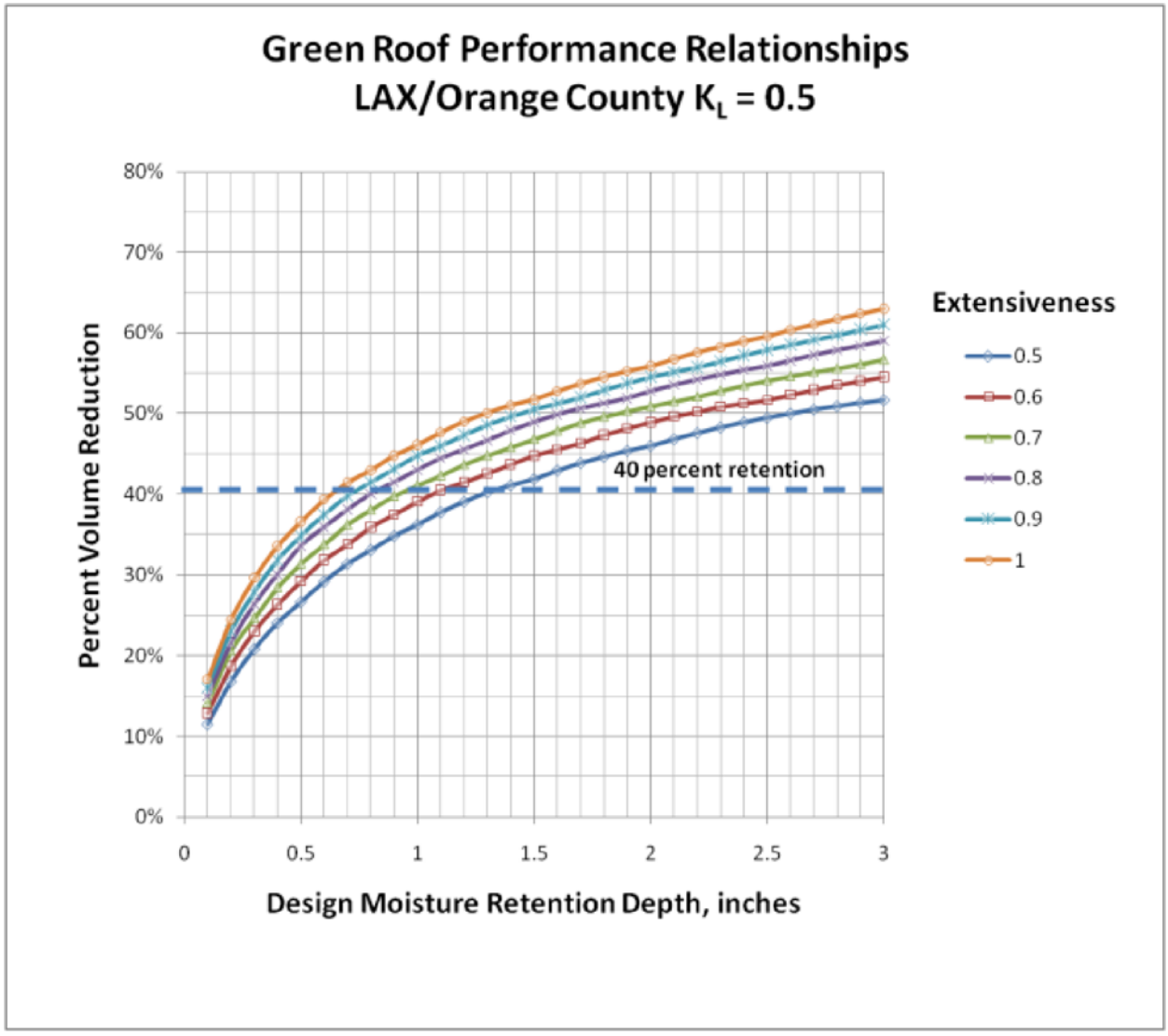
more extensive area would theoretically increase wet season performance, this would also tend to increase irrigation demand during the dry season and during dry periods of the wet season.

Table IX.1: Green Roof Moisture Retention Depth Required for 40 Percent Volume Reduction, Los Angeles/Orange County

Landscape Coefficient (K_L) = 0.5						
Extensiveness	0.5	0.6	0.7	0.8	0.9	1.0
Minimum Required Moisture Retention Depth, inches	1.3	1.05	0.9	0.8	0.7	0.6
Typical Soil Depth Required to Provide Minimum Moisture Retention Depth(FC - WP = 0.15)	8.7	7.0	6.0	5.3	4.7	4.0
Landscape Coefficient (K_L) = 0.75						
Extensiveness	0.5	0.6	0.7	0.8	0.9	1.0
Minimum Required Moisture Retention Depth, inches	0.9	0.75	0.65	0.55	0.5	0.45
Typical Soil Depth Required to Provide Minimum Moisture Retention Depth(FC - WP = 0.15)	6.0	5.0	4.3	3.7	3.3	3.0

K_L = Landscape Coefficient; WP = soil wilting point; FC = soil field capacity

Figure IX.1: Green Roof Performance Relationships for Los Angeles and Orange County, Landscape Coefficient (KL) = 0.5 (Low water use plant palette)



Attachment B

City of Anaheim

Soil Report

For: Lincoln Colony Apartments

APN: 036-112-03 & 036-112-32

soil PACIFIC INC.
Geotechnical and Environmental Services

Project No. A-7075up-20
August 3, 2021

Mr. Jerry Zomoredian
914 West Lincoln Avenue
Anaheim, California

Log# OTH2021-01363

Subject: **On-Site Infiltration at Deeper Elevation**
Proposed Apartment Building
914 West Lincoln Avenue, Anaheim, California

Dear Sir;

Pursuant to the City of Anaheim Public Works Division inquiry date July 8, 2021, we are pleased to submit this clarification letter concerning the questioned items:

Item 3: This office was commissioned to perform on-site infiltration testing at the designated spot in order to verify the feasibility of the proposed dry well at depth of 10 to 35 feet below grade. This evaluation is based on the review of the primary WQMP design, as suggested by the project Civil Engineer. The location of the tested area is depicted on the attached plot plan.

On August 2, 2021, a bucket auger drill rig was used to perform a 6 inches boring to a depth of -35 feet as planned. Encountered soils at the proposed infiltration depth and were mainly granular sandy soil, interbedded with more silty matrix at depth of 19 to 26 feet. The encountered materials are not subject to have expansion potential. Subsurface soils within the proposed infiltration basin are mostly damp and consolidated.

The proposed infiltration basin will be placed and capped at a minimum of 10 feet away horizontally and vertically from the adjacent foundation (proposed or existing building or foundation if there is any) in order to not have an adverse effect on the proposed foundation and or public property.

On-site percolation testing was performed between -10 feet below the existing grade and -35 feet the depth of the proposed drywell for on-site infiltration purposes. As shown on the attached calculation sheet 372 inches of water column percolated in 65 minutes intervals. Used auger outward diameter is about 6 inches, however, the vibration auger drilling within sandy soils causes enlarging of the borehole diameter. Therefore, the borehole diameter of 7 inches has been assumed in the design calculation.

The calculated design rate of on-site percolation on a drywell at the suggested depth is 4.45 inches per hour. The Civil engineer in charge of WQMP will consider a factor safety into the design.

675 N. Eckhoff, Suite A, Orange, CA 92868 OTel (714) 879-1203 OFax (714) 879-4812

The proposed dry well at the proposed depth ranges that should be capped at -10 feet below the existing grade shall be filled by 3/4 single-size gravel. Prior to backfill, a 12 inches heavy schedule PCV perforated pipe will be placed in the middle of dry well. Gravel pack will be placed around the pipe the will receive the filtered sheet flow water subject to discharge through on-site infiltration.

Placing of the gravel must be observed by this office representative, any contaminated gravel (mixed by smaller size particles or soils) will be refused and or required to remove from the dry well. This action might have a heavy financial burden on the owner/developer, which the contractor must avoid. The upper 10 feet of the well will be capped and sealed to avoid infiltration above the 10 feet depth setback. The dry well shall be located a minimum of 10 feet away horizontally and vertically from any foundation and or public property. This distance shall be measured from the edge and top of the dry well.

The cap portion (upper 10 feet) will be backfilled using bentonite mixed slurry to prevent surficial infiltration during overflow. Two automatic submersible sump pumps with housing will be attached to the top of the infiltration basin /dry well at about -10 feet depth to flush out the overflow. The project civil engineer will connect the overflow pipe to a discharging pipe per his justification

If a prefabricated concrete box is used to shore the upper portion of the dry well during the construction of the well, then a surrounding void area of the box between the box and excavated wall must be sealed by 3 sacs slurry mix injection grouting.

The opportunity to be of service is appreciated. Should any question arise concerning this clarification letter please contact this office for further clarification.

Respectfully submitted,

SOIL PACIFIC, INC.

Hoss Eftekhari
RCE

Log of Sub-surface Exploration

B-1(infiltration)

Std. Pen / Bulk/Bag / Ring	Drive Wt: / Drop:	USCS Letter / Graphic	Equipment Type: D-7700		Boring # B-1
			Diameter: 7"	Logged by:YK	Date:7/1/21
			Depth: 35 feet	G.water: - feet	Backfilled:Y

Elev. (feet)	SPT N	Laboratory M%	Laboratory D.D.	USCS	Description of Earth Materials
0				SM	Gray, light brown fine grained silty sand with some gravel. Damp, Topsoil.
5				SM/ SP	Light brown, brown fine to medium grained silty sand/ sand , dense. Dry to Damp, Native.
10					
15				SM	Gray, to brown, fine to medium grained sand, with some silt, silty sand. Dense and damp.
20				SM/ ML	Dark gray, brown fine to medium garined silty sand interbedded with thin layers of sandy silt. Damp to moist. Dense.
25					
30				SM/ SP	Borwn light brown fine to medium garined silty sand and sand with some silt. Moist.
35					End of Boring 35 feet. Ground water not encountered.
40					

Log depicts conditions at the time and location drilled.

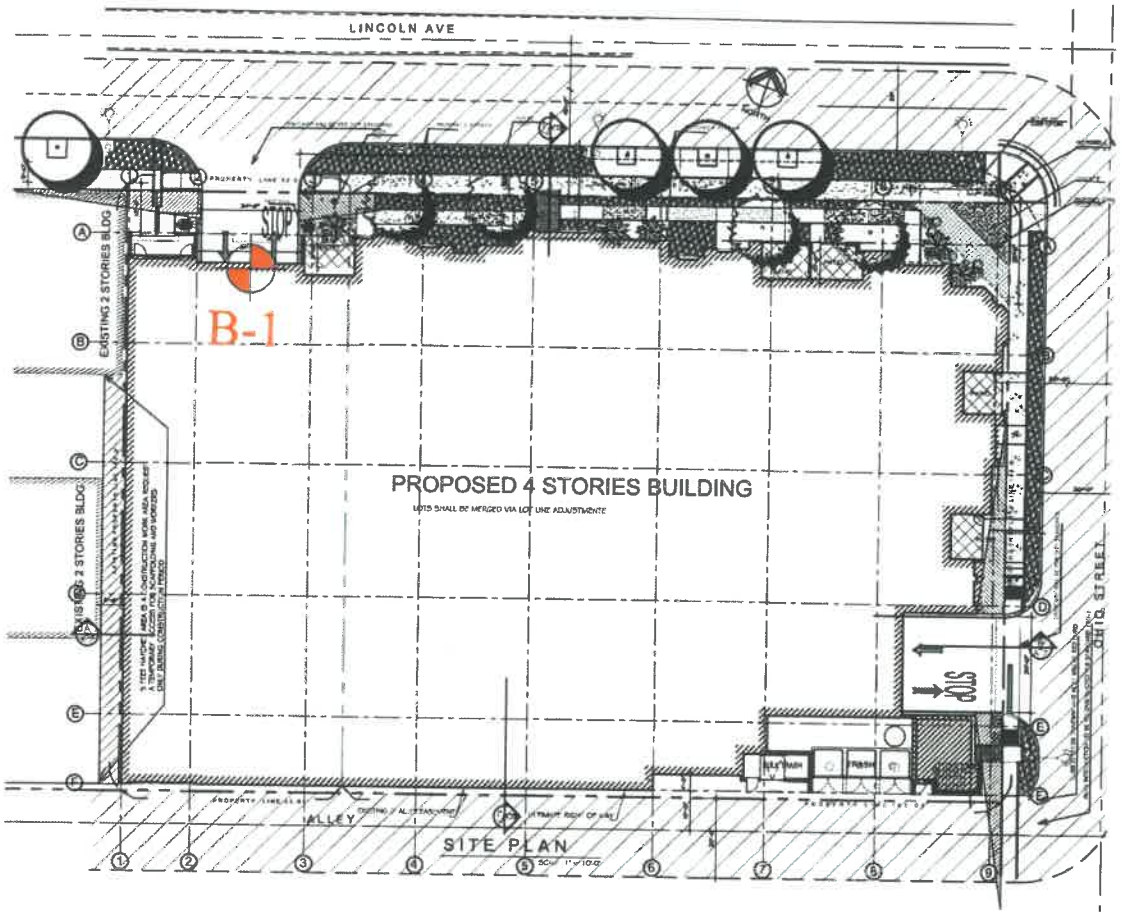
Soil Pacific Inc.
Geotechnical and Environmental Services

Project Name:914 W. Lincoln, Anaheim, CA

Project Number: A-7075-inf-21

Report Date:

Figure:



LEGEND

Soil Boring Location

soil PACIFIC Inc.
Geotechnical & Environmental Services
675 N. Eckhoff, Suite # A
Orange, CA 92868

Project Location:
914 West Lincoln Ave,
Anaheim, CA

GEOTECHNICAL PLAN

FIGURE-A-1-1	PROJECT NO.:A-7075-20
DATE : 8/03/2021	SCALE: 1"=30'

Figure VII.18. Sample Test Data Form for Percolation Test

Percolation Test Data Sheet

Project:	Lincoln	Project No:	A-7075	Date:	8-2-21
Test Hole No:	B-1	Tested By:	X.K		
Depth of Test Hole, D_T:	35	USCS Soil Classification:	SM - ML		
Test Hole Dimensions (inches)				Length	Width
Diameter (if round)=	7	Sides (if rectangular)=			

Sandy Soil Criteria Test*

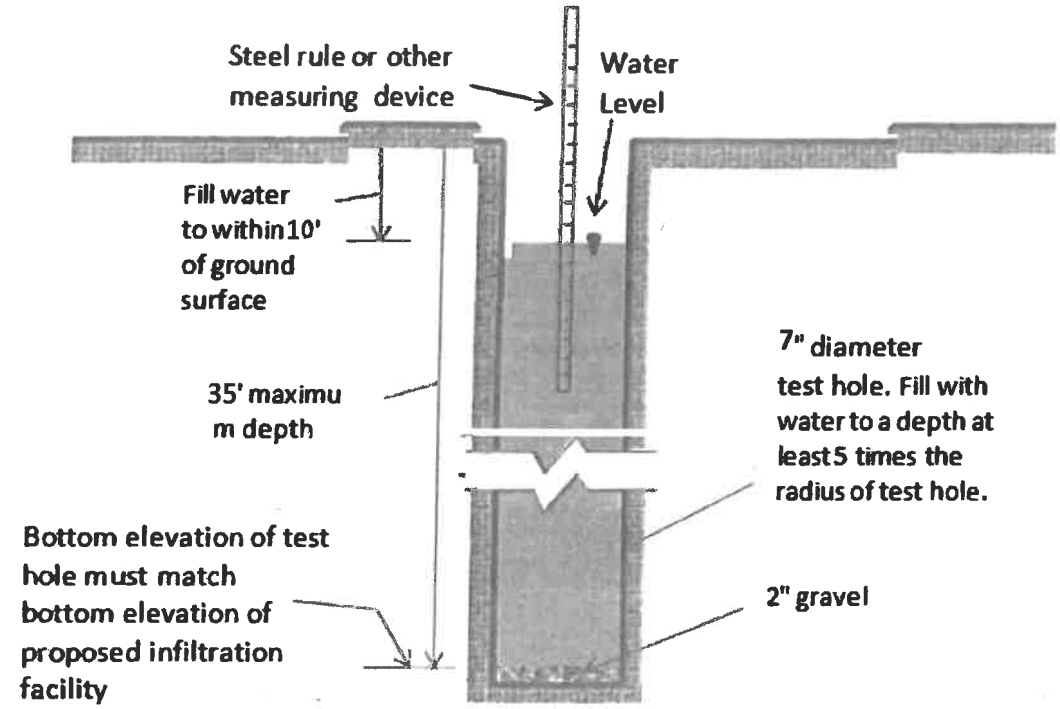
Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6"? (y/n)
1	11:59	1:08	10	144	372	228	
2							

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Other wise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	Stop Time	Δt Time Interval (min.)	D_o Initial Depth to Water (in.)	D_f Final Depth to Water (in.)	ΔD Change in Water Level (in.)	Percolation Rate (min./in.)
1	11:59	12:08	10	144	217	73	
2	12:08	12:18	10	217	277	60	
3	12:18	12:28	10	277	320	43	
4	12:28	12:38	10	320	370	50	
5	12:38	12:48	10	370	381	11	
6	12:49	12:58	10	381	392	11	
7	15:58	1:08	10	592	590	2	
8							
9							
10							
11							
12							
13							
14							
15							

COMMENTS: Encountered earth material at about 22 feet become more Silty.

Test Pit for Deep Percolation Test



Attachment C

City of Anaheim

Operations and Maintenance Plan

For: Lincoln Colony Apartments

APN: 036-112-03 & 036-112-32

Attachment D

City of Anaheim

WinTR-20 Pre- and Post- Reports

For: Lincoln Colony Apartments

APN: 036-112-03 & 036-112-32

EXISTING CONDITION

```
WinTR-20 Printed Page File      Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10                  0         0         0.05
Lincoln Colony Apartments
no project subtitle provided

SUB-AREA:
          Anaheim   Outlet              .00117    96.       .1

STREAM REACH:

STORM ANALYSIS:
          2-Yr                          2.05      Type I    2

STRUCTURE RATING:


GLOBAL OUTPUT:
          2         0.05                YYYYN     YYYYNN


WinTR-20 Printed Page File      End of Input Data List

                          Lincoln Colony Apartments
                        no project subtitle provided

                        Name of printed page file:
                                TR20.out

                                        STORM 2-Yr

Area or    Drainage  Rain Gage     Runoff   ------------ Peak Flow ------------
 Reach       Area      ID or       Amount   Elevation   Time      Rate      Rate
Identifier (sq mi)   Location      (in)      (ft)      (hr)     (cfs)     (csm)

Anaheim       0.001                1.018                9.93      0.95    815.42

   Line
Start Time   ------------ Flow Values @ time increment of  0.006 hr ------------
      (hr)     (cfs)     (cfs)     (cfs)     (cfs)     (cfs)     (cfs)     (cfs)

     8.256      0.05      0.05      0.05      0.05      0.05      0.05      0.05
     8.300      0.05      0.05      0.05      0.05      0.05      0.05      0.05
     8.345      0.05      0.05      0.06      0.06      0.06      0.06      0.06
     8.389      0.06      0.06      0.06      0.06      0.06      0.06      0.06
     8.433      0.06      0.06      0.06      0.06      0.06      0.06      0.06
     8.477      0.06      0.06      0.06      0.06      0.06      0.06      0.06
     8.521      0.06      0.06      0.06      0.06      0.07      0.07      0.07
     8.566      0.07      0.07      0.07      0.07      0.07      0.07      0.07
     8.610      0.07      0.07      0.07      0.07      0.07      0.07      0.07
     8.654      0.07      0.07      0.07      0.07      0.07      0.07      0.07
     8.698      0.07      0.07      0.07      0.07      0.07      0.07      0.07
     8.742      0.08      0.08      0.08      0.08      0.08      0.08      0.08
     8.787      0.08      0.08      0.08      0.08      0.08      0.08      0.08
     8.831      0.08      0.08      0.08      0.08      0.08      0.08      0.08
     8.875      0.08      0.08      0.08      0.08      0.08      0.08      0.08
     8.919      0.08      0.09      0.09      0.09      0.09      0.09      0.09
     8.963      0.09      0.09      0.09      0.09      0.09      0.09      0.09
     9.008      0.09      0.09      0.09      0.09      0.09      0.09      0.09
     9.052      0.09      0.09      0.09      0.09      0.10      0.10      0.10
     9.096      0.10      0.10      0.10      0.10      0.10      0.10      0.10
     9.140      0.10      0.10      0.10      0.10      0.10      0.10      0.10
     9.185      0.10      0.11      0.11      0.11      0.11      0.11      0.11
     9.229      0.11      0.11      0.11      0.11      0.11      0.11      0.11
     9.273      0.11      0.11      0.12      0.12      0.12      0.12      0.12
     9.317      0.12      0.12      0.12      0.12      0.12      0.12      0.12
     9.361      0.12      0.12      0.12      0.13      0.13      0.13      0.13
     9.406      0.13      0.13      0.13      0.13      0.13      0.13      0.13
     9.450      0.13      0.13      0.13      0.13      0.14      0.14      0.14
     9.494      0.14      0.14      0.14      0.14      0.14      0.14      0.14
     9.538      0.15      0.15      0.16      0.16      0.17      0.17      0.18
     9.582      0.18      0.19      0.19      0.19      0.19      0.20      0.20
     9.627      0.21      0.21      0.22      0.23      0.24      0.25      0.26
     9.671      0.27      0.28      0.29      0.29      0.30      0.31      0.31
     9.715      0.32      0.32      0.33      0.34      0.36      0.37      0.39
     9.759      0.41      0.43      0.44      0.46      0.47      0.49      0.50
```

9.803	0.51	0.52	0.53	0.55	0.56	0.59	0.62
9.848	0.65	0.69	0.72	0.76	0.79	0.82	0.85
9.892	0.88	0.90	0.92	0.94	0.95	0.95	0.95
9.936	0.95	0.94	0.92	0.91	0.89	0.87	0.85
9.980	0.83	0.82	0.80	0.79	0.78	0.77	0.75

Lincoln Colony Apartments
no project subtitle provided

Line Start Time (hr)	Flow Values @ time increment of 0.006 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.025	0.74	0.72	0.69	0.66	0.62	0.58	0.54
10.069	0.51	0.47	0.44	0.41	0.38	0.36	0.34
10.113	0.33	0.31	0.30	0.29	0.28	0.28	0.27
10.157	0.26	0.26	0.25	0.25	0.24	0.24	0.23
10.201	0.23	0.23	0.23	0.23	0.22	0.22	0.22
10.246	0.22	0.21	0.21	0.21	0.21	0.21	0.20
10.290	0.20	0.20	0.20	0.20	0.20	0.20	0.20
10.334	0.19	0.19	0.19	0.19	0.19	0.18	0.18
10.378	0.18	0.18	0.18	0.18	0.17	0.17	0.17
10.422	0.17	0.17	0.17	0.17	0.16	0.16	0.16
10.467	0.16	0.16	0.15	0.15	0.15	0.15	0.15
10.511	0.15	0.15	0.15	0.14	0.14	0.14	0.14
10.555	0.14	0.14	0.14	0.14	0.13	0.13	0.13
10.599	0.13	0.13	0.13	0.13	0.13	0.13	0.13
10.643	0.13	0.13	0.13	0.13	0.13	0.12	0.12
10.688	0.12	0.12	0.12	0.12	0.12	0.12	0.12
10.732	0.12	0.12	0.12	0.12	0.12	0.12	0.12
10.776	0.12	0.12	0.12	0.12	0.12	0.12	0.12
10.820	0.12	0.12	0.12	0.11	0.11	0.11	0.11
10.865	0.11	0.11	0.11	0.11	0.11	0.11	0.11
10.909	0.11	0.11	0.11	0.11	0.11	0.11	0.11
10.953	0.11	0.11	0.11	0.11	0.11	0.11	0.10
10.997	0.10	0.10	0.10	0.10	0.10	0.10	0.10
11.041	0.10	0.10	0.10	0.10	0.10	0.10	0.10
11.086	0.10	0.10	0.10	0.10	0.10	0.10	0.10
11.130	0.10	0.10	0.10	0.10	0.10	0.10	0.10
11.174	0.10	0.10	0.10	0.10	0.10	0.10	0.10
11.218	0.10	0.10	0.10	0.10	0.10	0.10	0.10
11.262	0.10	0.10	0.10	0.10	0.09	0.09	0.09
11.307	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.351	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.395	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.439	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.483	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.528	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.572	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.616	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.660	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.705	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.749	0.08	0.08	0.08	0.08	0.08	0.08	0.08
11.793	0.08	0.08	0.08	0.08	0.08	0.08	0.08
11.837	0.08	0.08	0.08	0.08	0.08	0.08	0.08
11.881	0.08	0.08	0.08	0.08	0.08	0.08	0.08
11.926	0.08	0.08	0.08	0.08	0.08	0.08	0.08
11.970	0.08	0.08	0.08	0.08	0.08	0.08	0.08
12.014	0.08	0.08	0.08	0.08	0.08	0.08	0.08
12.058	0.08	0.08	0.08	0.08	0.08	0.08	0.08
12.102	0.08	0.08	0.08	0.08	0.08	0.08	0.08
12.147	0.08	0.08	0.08	0.08	0.08	0.08	0.08
12.191	0.08	0.08	0.08	0.08	0.08	0.08	0.08
12.235	0.08	0.08	0.07	0.07	0.07	0.07	0.07

WinTR-20: Version 1.10 0 0 0.05
ln Colony Apartments (continued)
no project subtitle provided

STORM 2-Yr

SUB-AREA:
Anaheim Outlet .00117 96. .1

STREAM REACH:

Lincoln Colony Apartments
no project subtitle provided

Line Start Time (hr)	Flow Values @ time increment of 0.006 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.279	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.323	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.368	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.412	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.456	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.500	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.545	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.589	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.633	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.677	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.721	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.766	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.810	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.854	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.898	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.942	0.07	0.07	0.06	0.06	0.06	0.06	0.06
12.987	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.031	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.075	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.119	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.163	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.208	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.252	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.296	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.340	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.385	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.429	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.473	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.517	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.561	0.06	0.06	0.06	0.06	0.06	0.06	0.06

WinTR-20: Version 1.10 0 0 0.05
ln Colony Apartments (continued)
no project subtitle provided

STORM 2-Yr

SUB-AREA:
Anaheim Outlet .00117 96. .1

STREAM REACH:

13.606	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.650	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.694	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.738	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.782	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.827	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.871	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.915	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.959	0.05	0.05	0.05	0.05			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.001		1.018		9.93	0.95	815.42

Lincoln Colony Apartments
no project subtitle provided

Line Start Time (hr)	Flow Values @ time increment of 0.006 hr (cfs)						
8.256	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8.300	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8.345	0.05	0.05	0.06	0.06	0.06	0.06	0.06
8.389	0.06	0.06	0.06	0.06	0.06	0.06	0.06
8.433	0.06	0.06	0.06	0.06	0.06	0.06	0.06
8.477	0.06	0.06	0.06	0.06	0.06	0.06	0.06
8.521	0.06	0.06	0.06	0.06	0.07	0.07	0.07

WinTR-20: Version 1.10 0 0 0.05
ln Colony Apartments (continued)
no project subtitle provided

STORM 2-Yr

SUB-AREA:
Anaheim Outlet .00117 96. .1

STREAM REACH:

8.566	0.07	0.07	0.07	0.07	0.07	0.07	0.07
8.610	0.07	0.07	0.07	0.07	0.07	0.07	0.07
8.654	0.07	0.07	0.07	0.07	0.07	0.07	0.07
8.698	0.07	0.07	0.07	0.07	0.07	0.07	0.07
8.742	0.08	0.08	0.08	0.08	0.08	0.08	0.08
8.787	0.08	0.08	0.08	0.08	0.08	0.08	0.08
8.831	0.08	0.08	0.08	0.08	0.08	0.08	0.08
8.875	0.08	0.08	0.08	0.08	0.08	0.08	0.08
8.919	0.08	0.09	0.09	0.09	0.09	0.09	0.09
8.963	0.09	0.09	0.09	0.09	0.09	0.09	0.09
9.008	0.09	0.09	0.09	0.09	0.09	0.09	0.09
9.052	0.09	0.09	0.09	0.09	0.10	0.10	0.10
9.096	0.10	0.10	0.10	0.10	0.10	0.10	0.10
9.140	0.10	0.10	0.10	0.10	0.10	0.10	0.10
9.185	0.10	0.11	0.11	0.11	0.11	0.11	0.11
9.229	0.11	0.11	0.11	0.11	0.11	0.11	0.11
9.273	0.11	0.11	0.12	0.12	0.12	0.12	0.12
9.317	0.12	0.12	0.12	0.12	0.12	0.12	0.12
9.361	0.12	0.12	0.12	0.13	0.13	0.13	0.13
9.406	0.13	0.13	0.13	0.13	0.13	0.13	0.13
9.450	0.13	0.13	0.13	0.13	0.14	0.14	0.14
9.494	0.14	0.14	0.14	0.14	0.14	0.14	0.14
9.538	0.15	0.15	0.16	0.16	0.17	0.17	0.18
9.582	0.18	0.19	0.19	0.19	0.19	0.20	0.20
9.627	0.21	0.21	0.22	0.23	0.24	0.25	0.26
9.671	0.27	0.28	0.29	0.29	0.30	0.31	0.31
9.715	0.32	0.32	0.33	0.34	0.36	0.37	0.39
9.759	0.41	0.43	0.44	0.46	0.47	0.49	0.50
9.803	0.51	0.52	0.53	0.55	0.56	0.59	0.62
9.848	0.65	0.69	0.72	0.76	0.79	0.82	0.85
9.892	0.88	0.90	0.92	0.94	0.95	0.95	0.95
9.936	0.95	0.94	0.92	0.91	0.89	0.87	0.85
9.980	0.83	0.82	0.80	0.79	0.78	0.77	0.75
10.025	0.74	0.72	0.69	0.66	0.62	0.58	0.54
10.069	0.51	0.47	0.44	0.41	0.38	0.36	0.34
10.113	0.33	0.31	0.30	0.29	0.28	0.28	0.27
10.157	0.26	0.26	0.25	0.25	0.24	0.24	0.23
10.201	0.23	0.23	0.23	0.23	0.22	0.22	0.22

WinTR-20: Version 1.10 0 0 0.05
ln Colony Apartments (continued)
no project subtitle provided

STORM 2-Yr

SUB-AREA:
Anaheim Outlet .00117 96. .1

STREAM REACH:

10.246	0.22	0.21	0.21	0.21	0.21	0.21	0.20
10.290	0.20	0.20	0.20	0.20	0.20	0.20	0.20
10.334	0.19	0.19	0.19	0.19	0.19	0.18	0.18
10.378	0.18	0.18	0.18	0.18	0.17	0.17	0.17
10.422	0.17	0.17	0.17	0.17	0.16	0.16	0.16
10.467	0.16	0.16	0.15	0.15	0.15	0.15	0.15

Lincoln Colony Apartments
no project subtitle provided

Line Start Time (hr)	Flow Values @ time increment of 0.006 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.511	0.15	0.15	0.15	0.14	0.14	0.14	0.14
10.555	0.14	0.14	0.14	0.14	0.13	0.13	0.13
10.599	0.13	0.13	0.13	0.13	0.13	0.13	0.13
10.643	0.13	0.13	0.13	0.13	0.13	0.12	0.12
10.688	0.12	0.12	0.12	0.12	0.12	0.12	0.12
10.732	0.12	0.12	0.12	0.12	0.12	0.12	0.12
10.776	0.12	0.12	0.12	0.12	0.12	0.12	0.12
10.820	0.12	0.12	0.12	0.11	0.11	0.11	0.11
10.865	0.11	0.11	0.11	0.11	0.11	0.11	0.11
10.909	0.11	0.11	0.11	0.11	0.11	0.11	0.11
10.953	0.11	0.11	0.11	0.11	0.11	0.11	0.10
10.997	0.10	0.10	0.10	0.10	0.10	0.10	0.10
11.041	0.10	0.10	0.10	0.10	0.10	0.10	0.10
11.086	0.10	0.10	0.10	0.10	0.10	0.10	0.10
11.130	0.10	0.10	0.10	0.10	0.10	0.10	0.10
11.174	0.10	0.10	0.10	0.10	0.10	0.10	0.10
11.218	0.10	0.10	0.10	0.10	0.10	0.10	0.10
11.262	0.10	0.10	0.10	0.10	0.09	0.09	0.09
11.307	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.351	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.395	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.439	0.09	0.09	0.09	0.09	0.09	0.09	0.09

WinTR-20: Version 1.10 0 0 0.05
ln Colony Apartments (continued)
no project subtitle provided

STORM 2-Yr

SUB-AREA:
Anaheim Outlet .00117 96. .1

STREAM REACH:

11.483	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.528	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.572	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.616	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.660	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.705	0.09	0.09	0.09	0.09	0.09	0.09	0.09
11.749	0.08	0.08	0.08	0.08	0.08	0.08	0.08
11.793	0.08	0.08	0.08	0.08	0.08	0.08	0.08
11.837	0.08	0.08	0.08	0.08	0.08	0.08	0.08
11.881	0.08	0.08	0.08	0.08	0.08	0.08	0.08
11.926	0.08	0.08	0.08	0.08	0.08	0.08	0.08
11.970	0.08	0.08	0.08	0.08	0.08	0.08	0.08
12.014	0.08	0.08	0.08	0.08	0.08	0.08	0.08
12.058	0.08	0.08	0.08	0.08	0.08	0.08	0.08
12.102	0.08	0.08	0.08	0.08	0.08	0.08	0.08
12.147	0.08	0.08	0.08	0.08	0.08	0.08	0.08
12.191	0.08	0.08	0.08	0.08	0.08	0.08	0.08
12.235	0.08	0.08	0.07	0.07	0.07	0.07	0.07
12.279	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.323	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.368	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.412	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.456	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.500	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.545	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.589	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.633	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.677	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.721	0.07	0.07	0.07	0.07	0.07	0.07	0.07

Lincoln Colony Apartments
no project subtitle provided

Line Start Time (hr)	Flow Values @ time increment of 0.006 hr (cfs)						
	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)

WinTR-20: Version 1.10 0 0 0.05
ln Colony Apartments (continued)
no project subtitle provided

STORM 2-Yr

SUB-AREA:
Anaheim Outlet .00117 96. .1

STREAM REACH:

12.766	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.810	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.854	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.898	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12.942	0.07	0.07	0.06	0.06	0.06	0.06	0.06
12.987	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.031	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.075	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.119	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.163	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.208	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.252	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.296	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.340	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.385	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.429	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.473	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.517	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.561	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.606	0.06	0.06	0.06	0.06	0.06	0.06	0.06
13.650	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.694	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.738	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.782	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.827	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.871	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.915	0.05	0.05	0.05	0.05	0.05	0.05	0.05
13.959	0.05	0.05	0.05	0.05			

WinTR-20: Version 1.10 0 0 0.05
ln Colony Apartments (continued)
no project subtitle provided

STORM 2-Yr

SUB-AREA:
Anaheim Outlet .00117 96. .1

STREAM REACH:

Lincoln Colony Apartments
no project subtitle provided

Area or Reach Identifier	Drainage Area (sq mi)	Alternate	Peak Flow by Storm 2-Yr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)
Anaheim	0.001		0.95				
OUTLET	0.001		0.95				

WinTR-20 Printed Page File Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10 0 0 0.05
ln Colony Apartments (continued)
no project subtitle provided
STORM 2-Yr
SUB-AREA:
Anaheim Outlet .00117 96. .1

STREAM REACH:

```
WinTR-20: Version 1.10                0         0         0.05
ln Colony Apartments                                                (continued)
no project subtitle provided
                                         STORM 2-Yr
SUB-AREA:
          Anaheim   Outlet              .00117    96.       .1

STREAM REACH:
```

PROPOSED CONDITION

```
WinTR-20 Printed Page File      Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10                  0         0         0.05
Lincoln Colony Apartments
no project subtitle provided

SUB-AREA:
          Anaheim   Outlet              .00117    87.       .1

STREAM REACH:

STORM ANALYSIS:
          2-Yr                          2.05      Type I    2

STRUCTURE RATING:


GLOBAL OUTPUT:
          2         0.05                YYYYN     YYYYNN


WinTR-20 Printed Page File      End of Input Data List

                          Lincoln Colony Apartments
                        no project subtitle provided

                        Name of printed page file:
                                TR20.out

                                        STORM 2-Yr

Area or    Drainage  Rain Gage     Runoff   ------------ Peak Flow ------------
 Reach       Area      ID or       Amount   Elevation   Time      Rate      Rate
Identifier (sq mi)   Location      (in)      (ft)      (hr)     (cfs)     (csm)

Anaheim       0.001                0.461                9.93      0.52    445.57

   Line
Start Time   ------------ Flow Values @ time increment of  0.006 hr ------------
      (hr)     (cfs)     (cfs)     (cfs)     (cfs)     (cfs)     (cfs)     (cfs)

     9.454      0.05      0.05      0.05      0.05      0.05      0.05      0.05
     9.498      0.05      0.05      0.05      0.05      0.06      0.06      0.06
     9.542      0.06      0.06      0.06      0.07      0.07      0.07      0.07
     9.586      0.07      0.08      0.08      0.08      0.08      0.08      0.08
     9.630      0.09      0.09      0.09      0.10      0.10      0.11      0.11
     9.675      0.12      0.12      0.12      0.13      0.13      0.13      0.14
     9.719      0.14      0.15      0.15      0.16      0.17      0.17      0.18
     9.763      0.19      0.20      0.21      0.22      0.23      0.23      0.24
     9.807      0.24      0.25      0.26      0.27      0.28      0.30      0.32
     9.852      0.34      0.36      0.38      0.40      0.42      0.44      0.46
     9.896      0.47      0.49      0.50      0.51      0.51      0.52      0.52
     9.940      0.52      0.52      0.51      0.50      0.49      0.49      0.48
     9.984      0.47      0.46      0.46      0.46      0.45      0.45      0.44
    10.028      0.43      0.42      0.40      0.38      0.36      0.34      0.31
    10.073      0.29      0.27      0.25      0.24      0.22      0.21      0.20
    10.117      0.20      0.19      0.18      0.18      0.17      0.17      0.16
    10.161      0.16      0.16      0.15      0.15      0.15      0.15      0.15
    10.205      0.14      0.14      0.14      0.14      0.14      0.14      0.14
    10.249      0.14      0.14      0.13      0.13      0.13      0.13      0.13
    10.294      0.13      0.13      0.13      0.13      0.13      0.13      0.12
    10.338      0.12      0.12      0.12      0.12      0.12      0.12      0.12
    10.382      0.12      0.11      0.11      0.11      0.11      0.11      0.11
    10.426      0.11      0.11      0.11      0.11      0.11      0.10      0.10
    10.470      0.10      0.10      0.10      0.10      0.10      0.10      0.10
    10.515      0.10      0.10      0.10      0.09      0.09      0.09      0.09
    10.559      0.09      0.09      0.09      0.09      0.09      0.09      0.09
    10.603      0.09      0.09      0.09      0.09      0.09      0.08      0.08
    10.647      0.08      0.08      0.08      0.08      0.08      0.08      0.08
    10.692      0.08      0.08      0.08      0.08      0.08      0.08      0.08
    10.736      0.08      0.08      0.08      0.08      0.08      0.08      0.08
    10.780      0.08      0.08      0.08      0.08      0.08      0.08      0.08
    10.824      0.08      0.08      0.08      0.08      0.08      0.08      0.08
    10.868      0.08      0.08      0.08      0.07      0.07      0.07      0.07
    10.913      0.07      0.07      0.07      0.07      0.07      0.07      0.07
    10.957      0.07      0.07      0.07      0.07      0.07      0.07      0.07
```

11.001	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.045	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.089	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.134	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.178	0.07	0.07	0.07	0.07	0.07	0.07	0.07

Line Start Time (hr)	Flow Values @ time increment of 0.006 hr (cfs)						
11.222	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.266	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.310	0.07	0.07	0.06	0.06	0.06	0.06	0.06
11.355	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.399	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.443	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.487	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.532	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.576	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.620	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.664	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.708	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.753	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.797	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.841	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.885	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.929	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.974	0.06	0.06	0.06	0.06	0.06	0.06	0.06
12.018	0.06	0.06	0.06	0.06	0.06	0.06	0.06
12.062	0.06	0.06	0.06	0.05	0.05	0.05	0.05
12.106	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.150	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.195	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.239	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.283	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.327	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.372	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.416	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.460	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.504	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.548	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.593	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.637	0.05	0.05	0.05				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.001		0.461		9.93	0.52	445.57

Line Start Time (hr)	Flow Values @ time increment of 0.006 hr (cfs)						
9.454	0.05	0.05	0.05	0.05	0.05	0.05	0.05
9.498	0.05	0.05	0.05	0.05	0.06	0.06	0.06
9.542	0.06	0.06	0.06	0.07	0.07	0.07	0.07
9.586	0.07	0.08	0.08	0.08	0.08	0.08	0.08
9.630	0.09	0.09	0.09	0.10	0.10	0.11	0.11
9.675	0.12	0.12	0.12	0.13	0.13	0.13	0.14
9.719	0.14	0.15	0.15	0.16	0.17	0.17	0.18

Line Start Time (hr)	Flow Values @ time increment of 0.006 hr (cfs)						
9.763	0.19	0.20	0.21	0.22	0.23	0.23	0.24
9.807	0.24	0.25	0.26	0.27	0.28	0.30	0.32

WinTR-20: Version 1.10 0 0 0.05
ln Colony Apartments (continued)
no project subtitle provided

STORM 2-Yr

SUB-AREA:
Anaheim Outlet .00117 87. .1

STREAM REACH:

9.852	0.34	0.36	0.38	0.40	0.42	0.44	0.46
9.896	0.47	0.49	0.50	0.51	0.51	0.52	0.52
9.940	0.52	0.52	0.51	0.50	0.49	0.49	0.48
9.984	0.47	0.46	0.46	0.46	0.45	0.45	0.44
10.028	0.43	0.42	0.40	0.38	0.36	0.34	0.31
10.073	0.29	0.27	0.25	0.24	0.22	0.21	0.20
10.117	0.20	0.19	0.18	0.18	0.17	0.17	0.16
10.161	0.16	0.16	0.15	0.15	0.15	0.15	0.15
10.205	0.14	0.14	0.14	0.14	0.14	0.14	0.14
10.249	0.14	0.14	0.13	0.13	0.13	0.13	0.13
10.294	0.13	0.13	0.13	0.13	0.13	0.13	0.12
10.338	0.12	0.12	0.12	0.12	0.12	0.12	0.12
10.382	0.12	0.11	0.11	0.11	0.11	0.11	0.11
10.426	0.11	0.11	0.11	0.11	0.11	0.10	0.10
10.470	0.10	0.10	0.10	0.10	0.10	0.10	0.10
10.515	0.10	0.10	0.10	0.09	0.09	0.09	0.09
10.559	0.09	0.09	0.09	0.09	0.09	0.09	0.09
10.603	0.09	0.09	0.09	0.09	0.09	0.08	0.08
10.647	0.08	0.08	0.08	0.08	0.08	0.08	0.08
10.692	0.08	0.08	0.08	0.08	0.08	0.08	0.08
10.736	0.08	0.08	0.08	0.08	0.08	0.08	0.08
10.780	0.08	0.08	0.08	0.08	0.08	0.08	0.08
10.824	0.08	0.08	0.08	0.08	0.08	0.08	0.08
10.868	0.08	0.08	0.08	0.07	0.07	0.07	0.07
10.913	0.07	0.07	0.07	0.07	0.07	0.07	0.07
10.957	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.001	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.045	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.089	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.134	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.178	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.222	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.266	0.07	0.07	0.07	0.07	0.07	0.07	0.07
11.310	0.07	0.07	0.06	0.06	0.06	0.06	0.06
11.355	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.399	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.443	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.487	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.532	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.576	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.620	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.664	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.708	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.753	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.797	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.841	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.885	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.929	0.06	0.06	0.06	0.06	0.06	0.06	0.06
11.974	0.06	0.06	0.06	0.06	0.06	0.06	0.06

Lincoln Colony Apartments
no project subtitle provided

Line Start Time (hr)	Flow Values @ time increment of 0.006 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)

WinTR-20: Version 1.10 0 0 0.05
ln Colony Apartments (continued)
no project subtitle provided

STORM 2-Yr

SUB-AREA:
Anaheim Outlet .00117 87. .1

STREAM REACH:

12.018	0.06	0.06	0.06	0.06	0.06	0.06	0.06
12.062	0.06	0.06	0.06	0.05	0.05	0.05	0.05
12.106	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.150	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.195	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.239	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.283	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.327	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.372	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.416	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.460	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.504	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.548	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.593	0.05	0.05	0.05	0.05	0.05	0.05	0.05
12.637	0.05	0.05	0.05				

Area or Reach	Drainage Area	Alternate	Peak Flow by Storm 2-Yr

WinTR-20: Version 1.10 0 0 0.05
ln Colony Apartments (continued)
no project subtitle provided
STORM 2-Yr

SUB-AREA:

Anaheim	Outlet	.00117	87.	.1	

STREAM REACH:

Identifier	(sq mi)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
Anaheim	0.001	0.52				
OUTLET	0.001	0.52				