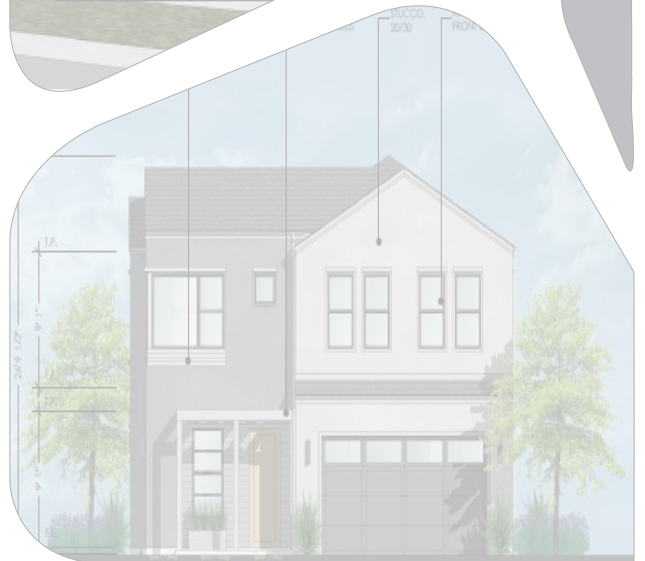


Water Quality Management Plan





WQ XX-XXXX

**County of Orange/Santa Ana Region
Priority Project
Water Quality Management Plan
(WQMP)**

Project Name:

The Pines at Sunrise Village

APN 287-241-01, 287-241-04, 287-241-06

Prepared for:

Shopoff Realty Investments, L.P.

2 Park Plaza, Suite 700

Irvine, CA 92614

(949) 417-1396

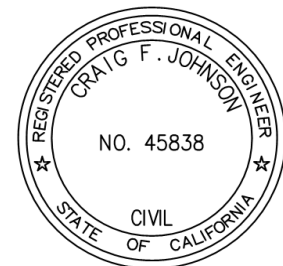
Prepared by:

Huitt-Zollars

2603 Main Street, Suite 400

Irvine, CA 92614

(949) 988-5815



Date Prepared 06/09/2021

Updated July 12, 2021 for CEQA

Priority Project Water Quality Management Plan (WQMP)
The Pines at Sunrise Village


Project Owner's Certification			
Planning Application No. (If applicable)		Grading Permit No.	T.B.D.
Tract/Parcel Map and Lot(s) No.		Building Permit No.	T.B.D.
Address of Project Site and APN (If no address, specify Tract/Parcel Map and Lot Numbers)			APN 287-241-01, 287-241-04, & 287-241-06

This Water Quality Management Plan (WQMP) has been prepared for Shopoff Realty Investments, L.P. by Huitt-Zollars. 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: Jenny Rocci			
Title	Senior Development Manager		
Company	Shopoff Realty Investments, L.P.		
Address	2 Park Plaza, Suite 700, Irvine, CA 92614		
Email	jrocci@shopoff.com		
Telephone #	(949) 417-1396		
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	

Water Quality Management Plan (WQMP)
The Pines at Sunrise Village

Preparer (Engineer): Craig Johnson			
Title	Project Manager/ Associate	PE Registration #	45838
Company	Huitt-Zollars		
Address	2603 Main Street, Suite 400, Irvine, CA 92614		
Email	craigj@huitt-zollars.com		
Telephone #	(949) 988-5815		
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	
Place Stamp Here			

Contents

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Attachments

Attachment 1..Vicinity Map & WQMP Exhibit
Attachment 2.. Site Plans
Attachment 3.. Soils Information
Attachment 4..BMP Design Details
Attachment 5.. Hydromodification
Attachment 6.. Source Control
Attachment 7..O&M
Attachment 8.. Educational Materials
Attachment 9..OC TGD Worksheets

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 Information	
Permit/ Application No. (If applicable)	Grading or Building Permit No. (If applicable) T.B.D.
Address of Project Site (or Tract Map and Lot Number if no address) and APN	APNs 287-241-01, 287-241-04, & 287-241-06
Water Quality Conditions of Approval or Issuance	
Water Quality Conditions of Approval or Issuance applied to this project. (Please list verbatim.)	T.B.D.
Conceptual WQMP	
Was a Conceptual Water Quality Management Plan previously approved for this project?	Conditions of Approval are not available at this time. This section will be completed as part of final engineering.

Watershed-Based Plan Conditions	
Provide applicable conditions from watershed - based plans including WIHMPs and TMDLS.	N/A

Section II Project Description

II.1 Project Description

Provide a detailed project description including:

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

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

Description of Proposed Project				
Development Category (From Model WQMP, Table 7.11-2; or -3):	Priority Project Category for North County Permit Area: <ul style="list-style-type: none"> • New Development project that creates 10,000 square feet or more of impervious surface; • Parking lots 5,000 square feet or more; • Significant redevelopment project 			
Project Area (ft ²): <u>545,805</u>	Number of Dwelling Units: 164		SIC Code: <u>7389</u>	
Project Area	Pervious		Impervious	
	Area (acres or sq ft)	Percentage	Area (acres or sq ft)	Percentage
Pre-Project Conditions	106,918	19.6%	438,887	80.4%
Post-Project Conditions	183,700	33.7%	362,105	66.3%
Drainage Patterns/Connections	Drainage runoff from the existing site flows, via sheet flow, east toward Euclid Street where it is captured by inlets that outlet into the existing concrete channel that runs along the eastern edge of the project. There is minimal on-site underground drainage infrastructure, which has been identified from site walks and aerial topography. Any existing onsite drainage that does not drain to Euclid Street is captured and outlets into the existing trapezoidal concrete			

	<p>channel.</p> <p>Drainage in the proposed condition is to maintain the same ultimate direction of flow (east to the concrete channel along Euclid Street). Proposed site improvements include the construction of drain inlets and multiple Bioclean proprietary modular wetland system units (MWS) to capture and convey runoff to the existing concrete channel along Euclid Street.</p>
<p>Narrative Project Description: (Use as much space as necessary.)</p>	<p>In the existing condition, the Project Site is comprised of General Commercial parcels (APNs 287-4241-01, 287-241-04, & 287-241-06). The Project Site is fully built-out, nearly 80% impervious, and mainly consists of asphalt parking lots, commercial buildings, and minor landscape areas. The Project will demolish and remove the existing parking lots and buildings and proposes a development with townhomes, single-family homes, associated utilities, parking and drive aisles, a recreational facility that includes a swimming pool, pocket parks, landscape areas and concrete walkways. It was calculated that the proposed site will consist of 66.3% (362,105 square feet) of impervious surfaces (roofs, homes, concrete sidewalks, streets, parking and hardscape) and 33.7% (183,732 square feet) of pervious surfaces (open space, trees, plants and grass).</p> <p>Drainage of the townhomes and single-family homes, streets, landscape and recreational facility will sheet flow to proposed inlets and MWS units. No infiltration will be allowed due to poor soil conditions on the Project Site. Stormwater runoff will be treated by the MWS units and discharge into the existing concrete channel along the eastern edge of the site. The proposed swimming pool will drain via a sanitary sewer line (grey water).</p> <p>Trash receptacles will be provided to the homeowners and trash enclosures will not be proposed for the development.</p>

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 <input checked="" type="checkbox"/>	N <input type="checkbox"/>	
Nutrients	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	303(d)
Heavy Metals	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Private Streets & Surface Parking TMDL
Pathogens (Bacteria/Virus)	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	303(d)
Pesticides	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	303(d)
Oil and Grease	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	
Toxic Organic Compounds	E <input type="checkbox"/>	N <input checked="" type="checkbox"/>	
Trash and Debris	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	

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).

Per the Orange County Watershed Master Planning Susceptibility Analysis San Gabriel-Coyote Creek exhibit, dated Dec. 2012), the Project Site is within an area of “Potential Areas of Erosion, Habitat & Physical Structure Susceptibility”. The exhibit shows that there are “Earth (Unstable)”, “Earth (Stabilized)”, and “Stabilized” portions of channel infrastructure downstream of the Project Site.

A comparison for the 2-year storm event pre vs post development (unmitigated) was analyzed using Advance Engineering Software (AES) at point of compliance. The results from the analysis are summarized in the table below for peak flow rate, runoff volume and time of concentration.

UNMITIGATED FLOWS			
EXISTING CONDITIONS			
Drainage Designation	Q₂ (CFS)	V₂ (CF)	T_{c2} (MIN.)
DMA- A, B, C & D	13.94	64,468.8	7.9
PROPOSED CONDITIONS			
Drainage Designation	Q₂ (CFS)	V₂ (CF)	T_{c2} (MIN.)
DMA- A, B, C & D	14.60	54,450	11.14
Pre vs Post Unmitigated Flows			
DELTA (%)	+4.73%	-15.5%	+41.0%

Per Section 5.3.1 of the Technical Guidance Document, the following calculations were developed:

1. $(V_{2\text{-year, post}} / V_{2\text{-year, pre}}) \leq 1.05$

$(54,450 \text{ cf} / 64,468.8 \text{ cf}) = 0.84 \leq 1.05$

2. $(Tc_{2\text{-year, post}} / Tc_{2\text{-year, pre}}) \leq 1.05$

$(11.14 \text{ min} / 7.9 \text{ min}) = 1.41 \leq 1.05$

¹Per the OC TGD Section 2.2.3.1 Footnote 8 this increase is deemed acceptable.

The amount of impervious area is decreased from the existing to the proposed condition. Using the

AES, peak discharge are not increased by more than 5% in the proposed condition. See attached AES calculations and maps in Attachment 5. The site meets the requirements of the MS4 Permit for HCOC mitigation. The implementation of the hydromodification BMPs are not required onsite.

Proposed development of the site include multi-family residential, parking and drive aisles, community amenities, and associated utilities. The project will include on-site drainage improvements to capture and convey runoff to existing facilities. Proposed drainage infrastructure will maintain the existing pattern of runoff draining south to existing infrastructure.

II.4 Post Development Drainage Characteristics

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

In its proposed condition, underground storm facilities will be installed onsite. The street slopes onsite will convey the flows to 5 drainage management areas. Surface flows will be directed into an area drain piping system or into onsite curb and gutters which will convey the flow to 5 separate Modular Wetland Systems (MWS). From each MWS, the flows are conveyed into a storm drain pipe that discharges into the existing concrete channel along the eastern edge of the site.

II.5 Property Ownership/Management

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

The HOA is responsible for maintenance of private streets/alleys, open space lots and underground private storm drains. HOA is responsible for maintenance of the modular wetlands systems.

The HOA will be formed upon completion of the development. Upon completion of the development, the owner (Jenny Rocci at Shopoff Realty Investments, L.P., 2 Park Plaza, Suite 700, Irvine, CA 92614) is responsible to transfer all operation and maintenance related activities until the HOA is funded.

1st Owner – Jenny Rocci at Shopoff Realty Investments will be responsible for all the operation and maintenance of water quality BMPs until the HOA is formed.

2nd Owner - HOA will be responsible for maintenance of the private streets/alleys, open space lots, private storm drains, and modular wetland systems.

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)	The Pines at Sunrise Village
Location/ Address	Southwest corner of the Rosecrans Avenue and Euclid Street Intersection
General Plan Land Use Designation	Commercial
Zoning	"G-C" (General Commercial)
Acreage of Project Site	12.52 acres
Predominant Soil Type	NRCS Hydrologic Soils -Sandy Clay Loam, Hydrologic Soil Group D (From the NRCS Soil Survey Maps in the Orange County Technical Guidance Document)

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	0.90
Topography	The property has a terrace topography with elevations ranging from a high of about 268 feet above mean sea level (msl) near its northwestern corner to a low of about 207 feet msl towards its southeastern end. Elevations of the site are measured using the North American Vertical Datum NAVD 88.

Priority Project Water Quality Management Plan (WQMP)
The Pines at Sunrise Village

<p>Drainage Patterns/Connections</p>	<p>Drainage runoff from the existing site flows, via sheet flow, east toward Euclid Street where it is captured by inlets that outlet into the existing concrete channel that runs along the eastern edge of the project. There is minimal on-site underground drainage infrastructure, which has been identified from site walks and aerial topography. Any existing onsite drainage that does not drain to Euclid Street is captured and outlets into the concrete channel.</p> <p>Drainage in the proposed condition is to maintain the same ultimate direction of flow (east to the concrete channel along Euclid Street). Proposed site improvements include the construction of drain inlets and multiple Bioclean proprietary modular wetland system units (MWS) to capture, treat and convey runoff to the existing concrete channel along Euclid Street.</p>
<p>Soil Type, Geology, and Infiltration Properties</p>	<p>Undocumented fill, older alluvium and La Habra formation Bedrock.</p>
<p>Hydrogeologic (Groundwater) Conditions</p>	<p>“Exploratory borings B-1 and B-3 drilled within the northeastern portion of the site encountered perched groundwater at 49 feet and 10 feet, respectively. The rest of the borings and CPT soundings did not encounter groundwater. According to the 2019 Groundwater Elevation Contours Map prepared by Orange County Water District (https://www.ocwd.com/what-we-do/groundwater-management/groundwater-location-maps/), the elevation of groundwater near the site is about 120 feet msl. Since the site elevations range from 205 to 268 feet msl, depth to groundwater is estimated to be approximately 85 feet or more. GeoTracker (https://geotracker.waterboards.ca.gov) and the California Water Data Library (https://wdl.water.ca.gov/waterdatalibrary/) also show several groundwater wells located about 1 to 1.5 miles southwest of the project indicating that groundwater in the region is deeper than 100 feet. Thus, the above information confirms that the groundwater encountered during drilling was perched groundwater”</p> <p>From Geo Teck’s soils report (Project No. 2495-CR) Dated December 14th, 2020 (Section 4.3.2, pages 7&8).</p>
<p>Geotechnical Conditions (relevant to infiltration)</p>	<p>Per Geo Teck’s soils report (Project No. 2495-CR) Dated December 14th, 2020 “Percolation test borings (Borings I-1 and I-2) were excavated with a hollow-stem auger drill rig. Test borings were eight inches in diameter and were drilled to depths of approximately five feet. Native materials consisting of older alluvial soils of poorly graded sand with silt were encountered in Boring I-2 drilled within the northeastern portion of the property. Bedrock of La Habra Formation was encountered in Boring I-1 excavated in the southeastern portion. Both test holes did not find groundwater (Section 3.3, page 4&5).</p> <p>Boring I-1 resulted in a infiltration rate of 2.4 inches per hour and Boring I-2 resulted in a infiltration rate of 1.8 inches per hour. Infiltration rates do not</p>

	include a factor of safety.
Off-Site Drainage	The Project Site does not receive any off-site drainage.
Utility and Infrastructure Information	There are no on-site utilities or infrastructure which would limit infiltration locations.

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	Fullerton Creek, Coyote Creek , San Gabriel Reach 1, San Gabriel River Estuary & San Pedro Bay
303(d) Listed Impairments	According to the 2010 303(d) list, the impaired water bodies that are downstream to the project include: Fullerton Creek – None Coyote Creek – Iron, Malathion, Copper, Indicator Bacteria, pH & Toxicity San Gabriel Reach 1 – Temperature San Gabriel River Estuary – Copper , Dioxin & Indicator Bacteria San Pedro Bay – None
Applicable TMDLs	Coyote Creek – Metals San Gabriel Reach 1 – Metals
Pollutants of Concern for the Project	Suspended Solid/Sediments, Nutrients, Pathogens (Bacteria/Virus) Pesticides, Oil & Grease, Trash & Debris
Environmentally Sensitive and Special Biological Significant Areas	The project is not located within 200 feet or adjacent to an Environmentally Sensitive Area (ESA).

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 <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
If yes, describe WIHMP feasibility criteria or regional/sub-regional LID opportunities.	N/A		

Project Performance Criteria	
<p>If HCOC exists, list applicable hydromodification control performance criteria (Section 7.II-2.4.2.2 in MWQMP)</p>	<p>If a hydrologic condition of concern (HCOC) exists, priority projects shall implement on-site or regional hydromodification controls such that:</p> <ul style="list-style-type: none"> • Post-development runoff volume for the two-year frequency storm does not exceed that of the predevelopment condition by more than five percent, and • Time of concentration of post-development runoff for the two-year storm event is not less than that for the predevelopment condition by more than five percent. <p>Where the Project WQMP documents that excess runoff volume from the two-year runoff event cannot feasibly be retained and where in-stream controls cannot be used to otherwise mitigate HCOCs, the project shall implement on-site or regional hydromodification controls to:</p> <ul style="list-style-type: none"> • Retain the excess volume from the two-year runoff event to the MEP, and • Implement on-site or regional hydromodification controls such that the postdevelopment runoff two-year peak flow rate is no greater than 110 percent of the predevelopment runoff two-year peak flow rate.
<p>List applicable LID performance criteria (Section 7.II-2.4.3 from MWQMP)</p>	<ul style="list-style-type: none"> • Priority Projects must infiltrate, harvest and use, evapotranspire, or biotreat/biofilter, the 85th percentile, 24-hour storm event (Design Capture Volume). • A properly designed biotreatment system may only be considered if infiltration, harvest and use, and evapotranspiration (ET) cannot be feasibly implemented for the full design capture volume. In this case, infiltration, harvest and use, and ET practices must be implemented to the greatest extent feasible and biotreatment may be provided for the remaining design capture volume. A diversity of controls will be provided, if feasible, to achieve the greatest feasible retention of the Design Capture Volume, then if necessary, biotreatment of the remaining design capture volume. <p>Equivalent performance criteria have been synthesized from permit requirements with consideration of the MEP standard and analysis of local precipitation and ET patterns. The following performance criteria result in capture and retention and/or biotreatment of 80 percent of average annual stormwater runoff volume. The performance criteria for LID are stated as follows:</p> <ul style="list-style-type: none"> • LID BMPs must be designed to retain, on-site, (infiltrate, harvest and use, or evapotranspire) stormwater runoff up to 80 percent average annual capture efficiency • LID BMPs must be designed to: <ul style="list-style-type: none"> o Retain, on-site, (infiltrate, harvest and use, or evapotranspire) stormwater runoff as feasible up to the Design Capture Volume, and o Recover (i.e., draw down) the storage volume as soon as possible after a storm event (see criteria for maximizing drawdown rate in the TGD Appendix XI), and, if necessary o Biotreat, on-site, additional runoff, as feasible, up to 80 percent average annual capture efficiency (cumulative, retention plus biotreatment), and, if necessary

	<ul style="list-style-type: none"> o NOC Permit Area only – retain or biotreat, in a regional facility, the remaining runoff up to 80 percent average annual capture efficiency (cumulative, retention plus biotreatment, on-site plus off-site), and, if necessary o Fulfill alternative compliance obligations for runoff volume not retained or biotreated up to 80 percent average annual capture efficiency using treatment controls or other alternative approaches as described in Section 7.II-3. 							
<p>List applicable treatment control BMP performance criteria (Section 7.II-3.2.2 from MWQMP)</p>	<p>If it is not feasible to meet LID performance criteria through retention and/or biotreatment provided on-site or at a sub-regional/regional scale, then treatment control BMPs shall be provided on-site or offsite prior to discharge to waters of the US. Sizing of treatment control BMP(s) shall be based on either the unmet volume after claiming applicable water quality credits.</p>							
<p>Calculate LID design storm capture volume for Project.</p>	<p> $DCV = C \times d \times A \times 43560 \text{ sf/ac} \times 1/12 \text{ in/ft}$ $Q = CiA$ Where: DCV = design storm capture volume, cu-ft C = runoff coefficient = $(0.75 \times \text{imp} + 0.15)$ i = rainfall intensity, determined by using the OC TGD Figure III.4 for 80% Capture Efficiency and an assumed initial Tc of 10 minutes. Imp = impervious fraction of drainage area (ranges from 0 to 1) d = storm depth (inches) A = tributary area (acres) Q_{Design} = Design Flow Rate </p> <table border="1" data-bbox="461 1476 1477 1717"> <thead> <tr> <th>DMA A.1 DCV & Q_{Design} Calculations</th> </tr> </thead> <tbody> <tr> <td>C=0.666</td> </tr> <tr> <td>d= 0.90 inches = 0.075 ft</td> </tr> <tr> <td>i=0.26 in/hour</td> </tr> <tr> <td>A=2.160 acres</td> </tr> <tr> <td>$DCV=(0.666)*(0.075 \text{ ft})*(2.160 \text{ acres}*43,560 \text{ ft}^2 / \text{acres}) = 4,701.3 \text{ ft}^3$</td> </tr> <tr> <td>$Q_{\text{Design}}= (0.666)*(0.26 \text{ in})*(2.160 \text{ AC})= 0.378 \text{ cfs}$</td> </tr> </tbody> </table>	DMA A.1 DCV & Q _{Design} Calculations	C=0.666	d= 0.90 inches = 0.075 ft	i=0.26 in/hour	A=2.160 acres	$DCV=(0.666)*(0.075 \text{ ft})*(2.160 \text{ acres}*43,560 \text{ ft}^2 / \text{acres}) = 4,701.3 \text{ ft}^3$	$Q_{\text{Design}}= (0.666)*(0.26 \text{ in})*(2.160 \text{ AC})= 0.378 \text{ cfs}$
DMA A.1 DCV & Q _{Design} Calculations								
C=0.666								
d= 0.90 inches = 0.075 ft								
i=0.26 in/hour								
A=2.160 acres								
$DCV=(0.666)*(0.075 \text{ ft})*(2.160 \text{ acres}*43,560 \text{ ft}^2 / \text{acres}) = 4,701.3 \text{ ft}^3$								
$Q_{\text{Design}}= (0.666)*(0.26 \text{ in})*(2.160 \text{ AC})= 0.378 \text{ cfs}$								

Priority Project Water Quality Management Plan (WQMP)
The Pines at Sunrise Village

DMA A.2 DCV & Q _{Design} Calculations
C=0.698
d= 0.90 inches = 0.075 ft
i=0.26 in/hour
A=1.517 acres
DCV=(0.698)*(0.075 ft)*(1.517 acres*43,560 ft ² /acres) = 3,460.3 ft ³
Q _{Design} = (0.698)*(0.26 in)*(1.517 AC)= 0.278 cfs

DMA B DCV & Q _{Design} Calculations
C=0.713
d= 0.90 inches = 0.075 ft
i=0.26 in/hour
A=2.379 acres
DCV=(0.713)*(0.075 ft)*(2.379 acres*43,560 ft ² /acres) = 5,540.1 ft ³
Q _{Design} = (0.713)*(0.26 in)*(2.379 AC)= 0.445 cfs

DMA C DCV & Q _{Design} Calculations
C=0.634
d= 0.90 inches = 0.075 ft
i=0.26 in/hour
A=1.764 acres
DCV=(0.634)*(0.075 ft)*(1.764 acres*43,560 ft ² /acres) = 3,652.2 ft ³
Q _{Design} = (0.634)*(0.26 in)*(1.764 AC)= 0.293 cfs

DMA D DCV & Q _{Design} Calculations
C=0.674
d= 0.90 inches = 0.075 ft
i=0.26 in/hour
A=3.667 acres
DCV=(0.677)*(0.075 ft)*(3.667 acres*43,560 ft ² /acres) = 8,069.3 ft ³
Q _{Design} = (0.677)*(0.26 in)*(3.642 AC)= 0.648 cfs

*NOTE: OFF-1 (0.051 AC) matches the existing condition of reducing runoff offsite by placing inlets as close as feasibly possible to the edge of the project to reduce the area draining offsite without flows being diverted to a treatment device. Half of the area for OFF-1 consist of an existing driveway approach (0.025 AC).

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).

Impervious surfaces have been minimized by incorporating landscaped areas over substantial portions of the site including common areas, parkways, medians, in addition to larger parks and open space areas. The streets/alleys and sidewalks will be designed with minimum width requirements to minimize impervious surfaces where feasible. Infiltration is not recommended because the hydrologic soil type is categorized as type D. Runoff from the site will continue to flow similar to existing conditions. Low-flows and first-flush runoff will drain to a Modular Wetland Systems for water quality treatment. Landscaping will be provided adjacent to sidewalks and between the proposed residential buildings. Where feasible, sidewalks will drain to adjacent landscaping.

The project site has been divided into 5 Drainage Management Areas (DMAs) to be utilized for defining drainage areas and sizing LID and other treatment control BMPs. DMAs have been delineated based on the proposed site grading patterns, drainage patterns, storm drain and catch basin locations. The design capture volumes (DCV) and treatment flow rates (Q_{Design}) for each DMA are summarized in the table below. These have been derived utilizing North Orange County TGD. Locations of DMAs and associated treatment BMPs are identified on the WQMP Exhibit (See Attachment 1).

DMA Name	Surface Type	BMP Name
A.1	Mixed Surface Types (Asphalt, Concrete, Roofs, Landscape)	Modular Wetland System
A.2	Mixed Surface Types (Asphalt, Concrete, Roofs, Landscape)	Modular Wetland System
B	Mixed Surface Types (Asphalt, Concrete, Roofs, Landscape)	Modular Wetland System
C	Mixed Surface Types (Asphalt, Concrete, Roofs, Landscape)	Modular Wetland System
D	Mixed Surface Types (Asphalt, Concrete, Roofs, Landscape)	Modular Wetland System

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DMA A.1 DCV & Q _{Design} Calculations
C=0.666
d= 0.90 inches = 0.075 ft
i=0.26 in/hour
A=2.160 acres
DCV=(0.666)*(0.075 ft)*(2.160 acres*43,560 ft ² /acres) = 4,701.3 ft ³
Q _{Design} = (0.666)*(0.26 in)*(2.160 AC)= 0.378 cfs

DMA A.2 DCV & Q _{Design} Calculations
C=0.698
d= 0.90 inches = 0.075 ft
i=0.26 in/hour
A=1.517 acres
DCV=(0.698)*(0.075 ft)*(1.517 acres*43,560 ft ² /acres) = 3,460.3 ft ³
Q _{Design} = (0.698)*(0.26 in)*(1.517 AC)= 0.278 cfs

DMA B DCV & Q _{Design} Calculations
C=0.713
d= 0.90 inches = 0.075 ft
i=0.26 in/hour
A=2.379 acres
DCV=(0.713)*(0.075 ft)*(2.379 acres*43,560 ft ² /acres) = 5,540.1 ft ³
Q _{Design} = (0.713)*(0.26 in)*(2.379 AC)= 0.445 cfs

DMA C DCV & Q _{Design} Calculations
C=0.634
d= 0.90 inches = 0.075 ft
i=0.26 in/hour
A=1.764 acres
DCV=(0.634)*(0.075 ft)*(1.764 acres*43,560 ft ² /acres) = 3,652.2 ft ³
Q _{Design} = (0.634)*(0.26 in)*(1.764 AC)= 0.293 cfs

DMA D DCV & Q _{Design} Calculations
C=0.674
d= 0.90 inches = 0.075 ft
i=0.26 in/hour
A=3.667 acres
DCV=(0.674)*(0.075 ft)*(3.667 acres*43,560 ft ² /acres) = 8,069.3 ft ³
Q _{Design} = (0.677)*(0.26 in)*(3.642 AC)= 0.648 cfs

*NOTE: OFF-1 (0.051 AC) matches the existing condition of reducing runoff offsite by placing inlets as close as feasibly possible to the edge of the project to reduce the area draining offsite without flows being diverted to a treatment device. Half of the area for OFF-1 consist of an existing driveway approach (0.025 AC).

The northing (N) and easting (E) coordinates for the MWS will be provided in the Final Engineering WQMP report.

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	<input type="checkbox"/>
Impervious area dispersion (e.g. roof top disconnection)	<input type="checkbox"/>
Street trees (canopy interception)	<input type="checkbox"/>
Residential rain barrels (not actively managed)	<input type="checkbox"/>
Green roofs/Brown roofs	<input type="checkbox"/>
Blue roofs	<input type="checkbox"/>
Impervious area reduction (e.g. permeable pavers, site design)	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>

HSCs not required.

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	<input type="checkbox"/>
Rain gardens	<input type="checkbox"/>
Porous landscaping	<input type="checkbox"/>
Infiltration planters	<input type="checkbox"/>
Retention swales	<input type="checkbox"/>
Infiltration trenches	<input type="checkbox"/>
Infiltration basins	<input type="checkbox"/>
Drywells	<input type="checkbox"/>
Subsurface infiltration galleries	<input type="checkbox"/>
French drains	<input type="checkbox"/>
Permeable asphalt	<input type="checkbox"/>
Permeable concrete	<input type="checkbox"/>
Permeable concrete pavers	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>

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

Infiltration not applicable.

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?
<i>All HSCs; See Section IV.3.1</i>	<input type="checkbox"/>
Surface-based infiltration BMPs	<input type="checkbox"/>
Biotreatment BMPs	<input type="checkbox"/>
Above-ground cisterns and basins	<input type="checkbox"/>
Underground detention	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>

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.

Evapotranspiration, Rainwater Harvesting BMPs 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	<input type="checkbox"/>
Stormwater planter boxes with underdrains	<input type="checkbox"/>
Rain gardens with underdrains	<input type="checkbox"/>
Constructed wetlands	<input type="checkbox"/>
Vegetated swales	<input type="checkbox"/>
Vegetated filter strips	<input type="checkbox"/>
Proprietary vegetated biotreatment systems	<input type="checkbox"/>
Wet extended detention basin	<input type="checkbox"/>
Dry extended detention basins	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>

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.

Five Modular Wetland Systems (MWS) will be employed for treatment of required runoff flowrates. The MWS will be in line with the proposed storm drain system and will be located prior to where the onsite storm drain system enters the existing concrete channel along the eastern edge of the site.

DMA	Acreage	WQ Flow (cfs)	Biotreatment Device	Treated Flow (cfs)
A.1	2.160	0.378	MWS-L-8-16-C	0.462

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DMA	Acreage	WQ Flow (cfs)	Biotreatment Device	Treated Flow (cfs)
A.2	1.517	0.278	MWS-L-8-12-C	0.346

DMA	Acreage	WQ Flow (cfs)	Biotreatment Device	Treated Flow (cfs)
B	2.379	0.445	MWS-L-8-16-C	0.462

DMA	Acreage	WQ Flow (cfs)	Biotreatment Device	Treated Flow (cfs)
C	1.764	0.293	MWS-L-8-12-C	0.346

DMA	Acreage	WQ Flow (cfs)	Biotreatment Device	Treated Flow (cfs)
D	3.667	0.648	MWS-L-8-24-V	0.693

*NOTE: OFF-1 (0.051 AC) matches the existing condition of reducing runoff offsite by placing inlets as close as feasibly possible to the edge of the project to reduce the area draining offsite without flows being diverted to a treatment device. Half of the area for OFF-1 consist of an existing driveway approach (0.025 AC).

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). N/A

Hydromodification Control BMPs	
BMP Name	BMP Description

IV.3.6 Regional/Sub-Regional LID BMPs

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

Regional/Sub-Regional LID BMPs
N/A

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
N/A	N/A

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N2	Activity Restrictions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N3	Common Area Landscape Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N4	BMP Maintenance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N5	Title 22 CCR Compliance (How development will comply)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Project does not include recycled water.
N6	Local Industrial Permit Compliance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A to multi-family residential
N7	Spill Contingency Plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A to multi-family residential
N8	Underground Storage Tank Compliance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A to multi-family residential
N9	Hazardous Materials Disclosure Compliance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A to multi-family residential
N10	Uniform Fire Code Implementation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The proposed residential project will not store toxic or highly toxic compressed gases.
N11	Common Area Litter Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N12	Employee Training	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A to multi-family residential
N13	Housekeeping of Loading Docks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A to multi-family residential
N14	Common Area Catch Basin Inspection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N15	Street Sweeping Private Streets and Parking Lots	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N16	Retail Gasoline Outlets	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A to multi-family residential

N1 Education of Property Owners, Tenants and Occupants:

Practical information will be provided to the tenants by the Property Manager on general housekeeping practices for each type of site occupancy that contribute to protection of storm water quality. Information will include, but not limited to the attachments provided in Attachment 8. The following resources can be contacted to obtain updated educational information at the County of Orange Stormwater Program website (<http://ocwatersheds.com/PublicED/>) and the California Storm water Quality Association's (CASQA) BMP Handbooks (<http://www.casqa.org/resources/bmphandbooks>).

N2 Activity Restrictions:

The owners/HOA is to develop continuous activity restrictions that include potential impacts to stormwater quality. The following is a list of activity restrictions, but are not limited:

- Do not wash water from concrete, mortar or other construction activities to enter the storm drain system.
- No unauthorized car washing will be permitted on the premises.
- No changing of car oil or other auto repairs will be permitted on the premises.
- On-Site Cleaning of trash dumpsters with water is prohibited.
- Do not sweep grass clippings, dead leaves into catch basins or other landscaping related debris into catch basins.
- Keep trash container areas, free of liter.
- Do not perform paint cleanup activities in paved areas or allow rinse water from these activities to enter the storm drain system.
- Do not use detergents or other chemicals additives when washing concrete sidewalks or building exteriors, use potable water only when and collect wash water runoff using a vacuum truck, for proper offsite disposal.

N3 Common Area Landscape Management:

Maintenance activities for landscape areas shall be consistent with County/City and manufacturer guidelines for fertilizer and pesticide use. Maintenance includes trimming, weeding and debris removal and vegetation planting and replacement. Stockpiled materials during maintenance activities shall be placed away from drain inlets and runoff conveyance devices. Wastes shall be properly disposed of or recycled. Maintenance for common areas and landscape parking islands is scheduled by future HOA

N4 BMP Maintenance:

Responsibility for implementation, inspection and maintenance of all BMPs (structural and non-structural) shall be consistent with the BMP Inspection and Maintenance Responsibilities Matrix provided in Section V of this WQMP, with documented records of inspections and maintenance activities completed. Cleaning of all structural BMP Facilities is scheduled by future HOA.

N11 Common Area Litter Control:

Litter control onsite will include the use of litter patrols, violation reporting and clean up during landscaping maintenance activities and as needed to ensure good housekeeping of the project's common areas.

N14 Catch Basin Inspection Program:

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All catch basin inlets and drainage facilities are to be inspected and maintained by the HOA/Owner at least once a year before the start of the rainy season.

N15 Street Sweeping Private Streets and Parking Lots:

The project's private streets shall be swept, prior to the start of the traditional rainy season at minimum quarterly.

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S2	Design and construct outdoor material storage areas to reduce pollution introduction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S3	Design and construct trash and waste storage areas to reduce pollution introduction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S5	Protect slopes and channels and provide energy dissipation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S6	Dock areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S7	Maintenance bays	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S8	Vehicle wash areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S9	Outdoor processing areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S10	Equipment wash areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S11	Fueling areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S12	Hillside landscaping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S13	Wash water control for food preparation areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S14	Community car wash racks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

S1 Provide Storm Drain Systems Stenciling and Signage:

Storm drain stencils or signage prohibiting dumping and discharge of materials (“No Dumping – Drains to Ocean”) shall be provided adjacent to each of the project’s proposed inlets. The stencils shall be inspected and re-stenciled as needed to maintain legibility.

S4 Use Efficient Irrigation Systems & Landscape Design, Water Conservation, Small Controllers and Source Control:

In conjunction with routine landscaping maintenance activities, inspect irrigation for signs of leaks, overspray and repair or adjust accordingly. Adjust system cycle to accommodate seasonal fluctuations in water demand and temperatures. Ensure use of native or drought tolerant/non-invasive plant species to minimize water consumption.

S5 Protect Slopes and Channels and Provide Energy Dissipation:

The site drainage design shall include appropriate BMPs to decrease the potential for erosion of slopes and/or channels. The design shall be consistent with Federal, State, and local standards (e.g., RWQCB, ACOE, CDFG). Where feasible, the following principles shall be considered: 1) convey runoff safely from the tops of slopes, 2) avoid disturbing steep or unstable slopes, as well as natural channels, 3) implement a permanent stabilization BMP on disturbed slopes and channels as quickly as possible, such as native vegetation, and 4) install energy dissipaters at the outlets of new storm drains, culverts, or channels

IV.4 Alternative Compliance Plan (If Applicable)

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

IV.4.1 Water Quality Credits

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

Description of Proposed Project				
Project Types that Qualify for Water Quality Credits (Select all that apply):				
<input type="checkbox"/> Redevelopment projects that reduce the overall impervious footprint of the project site.	<input type="checkbox"/> 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.	<input type="checkbox"/> 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).		
<input type="checkbox"/> 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).	<input type="checkbox"/> 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		<input type="checkbox"/> 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).	
<input type="checkbox"/> Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses.	<input type="checkbox"/> Developments in a city center area.	<input type="checkbox"/> Developments in historic districts or historic preservation areas.	<input type="checkbox"/> 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.	<input type="checkbox"/> 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)	Project site will not apply for Water Quality Credits.
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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.*

N/A

Section V Inspection/Maintenance Responsibility for BMPs

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

BMP Inspection/Maintenance			
BMP	Reponsible Party(s)	Inspection/Maintenance Activities Required	Minimum Frequency of Activities
Modular Wetlands Biofiltration Systems	HOA/Owner	<p>Inspection/replacement of biofiltration media, inspection of high-flow bypass.</p> <p>Remove trash from screening device, remove sediment from separation chamber, replace cartridge filter media, replace drain down filter media and trim vegetation at least annually.</p>	<p>Before/after rainy season. Removing trash and sediment should be performed annually, and as needed. Replacing the cartridge filter media should be performed annually, and as needed.</p>
Non-Structural Source Control BMPs			
N-1 Provide storm drain system stenciling and signage	HOA/Owner	<p>Educational Materials will be provided to the tenants. HOA/Owner shall distribute appropriate materials to owners and/or occupants via language, mailings, website or meeting. Educational materials</p>	Annually

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		can be downloaded from www.ocwatersheds.com	
N-2 Activity Restrictions	HOA/Owner	Conditions, covenants and restrictions must be prepared by the developer or building operator though terms and conditions to protect surface water quality.	On-going
N-3 Common Landscape Areas	HOA/Owner	On-going landscape maintenance requirements that are consistent with the County/City.	Monthly
N-4 BMP Maintenance	HOA/Owner	Scheduled by the future HOA for cleaning of all (structural and non-structural) BMP facilities. Maintenance of BMP's implemented at the project site shall be performed at the frequency prescribed in the final WQMP. Records of inspections and BMP maintenance shall be maintained by the HOA and documented in the final WQMP, and shall be available for review upon request.	Monthly
N-11 Common Area Litter Control	HOA/Owner	Litter patrol, violation inspections, reporting and other litter control activities shall be in conjunction with	Weekly

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		<p>maintenance activities to ensure good housekeeping of the project's common areas. Litter collection and removal shall be performed on a weekly basis</p>	
<p>N-14 Common Area Catch Basin Inspection</p>	<p>HOA/Owner</p>	<p>On-site catch basin inlets and other drainage facilities shall be inspected at four times per year, including prior to the start of the rainy season (October 1st). Inlets and other facilities shall be cleaned when the sump is 40% full and annually at a minimum.</p>	<p>Once a month to clean debris and silt in the bottom of drainage facilities. Intensified around October 1st of each year prior to the "first flush" storm.</p>
<p>N-15 Street Sweeping Private Streets and Parking Lots</p>	<p>HOA/Owner</p>	<p>The project's private streets shall be swept, quarterly, prior to the start of the traditional rainy season and as needed.</p>	<p>Annually as needed.</p>
<p>Structural Source Control BMPs</p>			
<p>S-1 Provide storm drain system stenciling and signage</p>	<p>HOA/Owner</p>	<p>Storm drains shall be inspected for legibility, at a minimum, once prior to the storm season, no later than October 1st each year. Those determined to be illegible will be re-stenciled as soon as possible. Storm Drain should be stenciled</p>	<p>Inspect for re-stencilling needs and re-stencil as necessary annually. Re-stencil every other year.</p>

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		every other year.	
S-4 Use efficient irrigation systems & landscape design, water conservation, smart controllers and source control	HOA/Owner	In conjunction with routine landscaping maintenance activities, inspect irrigation for signs of leaks, overspray and repair or adjust accordingly. Adjust system cycle to accommodate seasonal fluctuations in water demand and temperatures. Ensure use of native or drought tolerant/non-invasive plant species to minimize water consumption. Inspection shall be done annually.	On-going
S-5 Protect slopes and channels and provide energy dissipation	HOA/Owner	In conjunction with routine landscape maintenance activities, verify that slopes and channels do not exhibit erosive conditions (exposed soils) by ensuring that they are properly vegetated and stabilized	Monthly

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.

See Appendix 1 for WQMP Exhibit.

VI.2 Submittal and Recordation of Water Quality Management Plan

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

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

Section VII Educational Materials

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

Education Materials			
Residential Material (http://www.ocwatersheds.com)	Check If Applicable	Business Material (http://www.ocwatersheds.com)	Check If Applicable
The Ocean Begins at Your Front Door	<input checked="" type="checkbox"/>	Tips for the Automotive Industry	<input type="checkbox"/>
Tips for Car Wash Fund-raisers	<input type="checkbox"/>	Tips for Using Concrete and Mortar	<input type="checkbox"/>
Tips for the Home Mechanic	<input type="checkbox"/>	Tips for the Food Service Industry	<input type="checkbox"/>
Homeowners Guide for Sustainable Water Use	<input checked="" type="checkbox"/>	Proper Maintenance Practices for Your Business	<input type="checkbox"/>
Household Tips	<input checked="" type="checkbox"/>	Other Material (http://www.ocwatersheds.com) (http://www.casqa.org/resources/bmp-handbooks)	Check If Attached
Proper Disposal of Household Hazardous Waste	<input checked="" type="checkbox"/>		
Recycle at Your Local Used Oil Collection Center (North County)	<input checked="" type="checkbox"/>	R-3 Automobile Parking	<input checked="" type="checkbox"/>
Recycle at Your Local Used Oil Collection Center (Central County)	<input type="checkbox"/>	R-4 Home & Garden Care Activities	<input checked="" type="checkbox"/>
Recycle at Your Local Used Oil Collection Center (South County)	<input type="checkbox"/>	R-5 Disposal of Pet Waste	<input checked="" type="checkbox"/>
Tips for Maintaining a Septic Tank System	<input type="checkbox"/>	R-6 Disposal of Green Waste	<input checked="" type="checkbox"/>
Responsible Pest Control	<input checked="" type="checkbox"/>	R-7 Household Hazardous Waste	<input checked="" type="checkbox"/>
Sewer Spill	<input type="checkbox"/>	R-8 Water Conservation	<input checked="" type="checkbox"/>
Tips for the Home Improvement Projects	<input checked="" type="checkbox"/>	SD-10 Site Design & Landscape Planning	<input checked="" type="checkbox"/>
Tips for Horse Care	<input type="checkbox"/>	SD-11 Roof Runoff Controls	<input checked="" type="checkbox"/>
Tips for Landscaping and Gardening	<input checked="" type="checkbox"/>	SD-12 Efficient Irrigation	<input checked="" type="checkbox"/>
Tips for Pet Care	<input checked="" type="checkbox"/>	SD-13 Storm Drain Signage	<input checked="" type="checkbox"/>
Tips for Pool Maintenance	<input checked="" type="checkbox"/>	SD-32 Trash Storage Areas	<input checked="" type="checkbox"/>
Tips for Residential Pool, Landscape and Hardscape Drains	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Tips for Projects Using Paint	<input checked="" type="checkbox"/>		<input type="checkbox"/>