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**CITY OF SOLVANG
PLANNING & BUILDING**

Preliminary Stormwater Control Plan

For

Wildwood

**Old Mission Drive @ Alamo Pintado Road
Solvang, CA.**

APN's 139-530-001 & 002

November 26, 2024

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I. Project Data

Project Name:	Wildwood
Application Submittal Date:	November 26, 2024
Project Location:	Old Mission Drive @ Alamo Pintado Road – Solvang, CA.
Total Project site area:	285,114 S.F. / 6.55 acres
Total New Impervious Surface Area:	137,489 S.F. / 3.16 acres
Total Pre-Project Impervious Area:	0 S.F. / 0 acres
Total Post-Project Impervious Area:	137,489 S.F. / 3.16 acres
Total Replaced Impervious Area:	0 S.F. / 0 acres
Design Storm Frequency and Depth:	1.9-inch Design Storm

II. Setting

II.A. Project Location and Description

The project site is located on the northwest corner of the intersection of Old Mission Drive and Alamo Pintado Road in the City of Solvang, in the County of Santa Barbara. The property is 6.77 AC. (294,905 S.F.) but the project only disturbs 6.55 AC. (285,114 S.F), which is the focus of this study. The project proposes the development of a 100-unit housing complex including a common amenity space and all necessary supporting infrastructure (i.e. Parking, driveways, trash enclosures, etc.). Access to the site will be from Old Mission Drive to the south. The required infiltration volume for this project will be handled within a combination of bio-retention basins and direct-infiltration basins spread throughout the site.

II.B. Existing Site Features and Conditions

The site is currently undeveloped and is 100% pervious. The site slopes to the south and east towards the intersection of Old Mission Drive and Alamo Pintado Road, eventually discharging onto the right-of-way, and into storm drain inlets. The USDA, Natural Resources Conservation Service, Web Soil Survey, determines that the site consists of 0.1%± Agueda silty clay loam (AgC), 64.7%± Diablo silty clay (DaD), 22.6%± Santa Ynez gravelly fine sandy loam (SnD) and 12.6%± Terrace escarpments, loamy (TdF). The definitions in the Stormwater Technical Guide helped determine the site’s soil would fit 87.3% into HSG D category and 0.1% into HSG C category.

II.C. Opportunities and Constraints for the Stormwater Control

The opportunities selected for stormwater control include 3 underground chamber systems and 2 direct infiltration basins designed to capture water runoff from a 1.9 inch design storm. With this, the grading design will direct / transport the stormwater to the proposed basins on-site via surface drainage.

III. Low Impact Development Design Strategies

III.A. Optimization of Site Layout

The site was designed to direct run-off into various infiltration systems spread out to minimized ponding and designed to infiltrate a 1.9 inch design storm. (see Appendix A).

III.A.1. Limitation of Development Envelope

The project has no substantial limitations for proposed development.

III.A.2. Preservation of Natural Drainage Features

The site currently sheet flows to the south and east towards the intersection of Old Mission Drive and Alamo Pintado Road. The project proposes to maintain this existing drainage pattern towards said intersection.

III.A.3. Setbacks from Creeks, Wetlands and Riparian Habitats

There are no Creeks, Wetlands or Riparian Habitats near the proposed project site.

III.A.4. Minimization of Imperviousness

Care was taken in the design process to minimize impervious to the extent possible.

III.A.5. Use of Drainage as a Design Element

Drainage has been considered in the design to allow drainage and minimize ponding on the hardscaped areas.

III.B. Use of Permeable Pavement

The project does not propose the use of permeable pavement as a control feature of the site.

III.C. Dispersal of Runoff to Pervious areas

Stormwater runoff from impervious surface areas is directed towards permeable surfaces and infiltration systems.

III.D. Stormwater Control Measures

The stormwater control measures (SCMs) are designed to retain and infiltrate stormwater. The Drainage Management Areas (DMAs) drain to the infiltration areas (see Appendix A).

IV. Documentation of Drainage Design

IV.A. Description of each Drainage Management Areas

IV.A.1. Tables

Table 1: DMA Exhibit 1 reference

DMA	AREA (SF)	Drains to
DMA 1	13,517	SCM 1
DMA 2	20,959	SCM 1

Table 2: SCM Exhibit 1 reference

SCM #	TYPE	AREA (SF)
SCM 1	Infil. Basin	2,352
SCM 2	Infil. Basin	3,960

DMA	3	15,199	SCM 1
DMA	4	19,735	SCM 2
DMA	5	22,828	SCM 2
DMA	6	32,826	SCM 2
DMA	7	15,280	SCM 3
DMA	8	35,164	SCM 3
DMA	9	27,068	SCM 3
DMA	10	3,900	SCM 4
DMA	11	1,065	SCM 4
DMA	12	30,099	SELF-TRTNG
DMA	13	9,212	SCM 5
DMA	14	15,204	SELF-RTNING

SCM 3	Infil. Basin	7,548
SCM 4	Infil. Basin	1,748
SCM 5	Infil. Basin	1,243

IV.A.2. Drainage Management Area Descriptions

DMA 1, totaling 13,517 square feet, drains building rooftops. DMA 1 flows through roof drains, onto DMA 3, then sheet flows into catch basins and into SCM 1.

DMA 2, totaling 20,959 square feet, drains hardscape areas. DMA 2 sheet flows into catch basins and into SCM 1.

DMA 3, totaling 15,199 square feet, drains landscape areas. DMA 3 sheet flows into catch basins and into SCM 1.

DMA 4, totaling 19,735 square feet, drains building rooftops. DMA 4 flows through roof drains, onto DMA 6, then sheet flows into catch basins and into SCM 2.

DMA 5, totaling 22,828 square feet, drains hardscape areas. DMA 5 sheet flows into catch basins and into SCM 2.

DMA 6, totaling 32,826 square feet, drains landscape areas. DMA 6 sheet flows into catch basins and into SCM 2.

DMA 7, totaling 15,280 square feet, drains building rooftops. DMA 7 flows through roof drains, onto DMA 9, then sheet flows into catch basins and into SCM 3.

DMA 8, totaling 35,164 square feet, drains hardscaped areas. DMA 8 sheet flows into catch basins and into SCM 3.

DMA 9, totaling 27,068 square feet, drains landscape areas. DMA 9 sheet flows into catch basins and into SCM 3.

DMA 10, totaling 3,900 square feet, drains building rooftops. DMA 10 flows through roof drains, onto DMA 11, then sheet flows into catch basins and into SCM 4.

DMA 11, totaling 1,065 square feet, drains landscape areas. DMA 11 sheet flows into catch basins and into SCM 4.

DMA 12, totaling 30,099 square feet, drains landscaped slopes. DMA 12 contains less than 5% impervious and is Self-Treating.

DMA 13, totaling 11,362 square feet, drains landscape areas. DMA 13 sheet flows into catch basins and into SCM 5.

DMA 14, totaling 15,204 square feet, drains the bypass basin at the northwest corner of the site. DMA 14 is Self-Retaining.

SCM 1, totaling 2,352 square feet collects run-off from DMA's 1 thru 3. SCM 1 is an underground chamber system and has been sized using HydroCAD software (see Appendix C).

SCM 2, totaling 3,960 square feet collects run-off from DMA's 4 and 6. SCM 2 is an underground chamber system and has been sized using HydroCAD software (see Appendix C).

SCM 3, totaling 7,548 square feet collects run-off from DMA's 7 thru 9. SCM 3 is an underground chamber system and has been sized using HydroCAD software (see Appendix C).

SCM 4, totaling 1,748 square feet collects run-off from DMA's 10 and 11. SCM 4 is a direct infiltration basin and has been sized using HydroCAD software (see Appendix C).

SCM 5, totaling 1,243 square feet collects run-off from DMA 13. SCM 5 is a direct infiltration basin and has been sized using HydroCAD software (see Appendix C).

IV.A.3. On-Site Retention Requirement

All 95th percentile storm event runoff will be retained on-site within the proposed bio-retention and infiltration basins (see Appendix A).

IV.A.4. Pre Development Flows for 2-10 Year Storm Events

The summary table below contains the results showing the post development runoff being less than the pre-development runoff (from the Preliminary Hydrology Report, dated 11/26/24).

	PRE-DEVELOPMENT RUNOFF	POST-DEVELOPMENT RUNOFF
2-YR	7.58 cfs	4.21 cfs
5-YR	14.29 cfs	8.08 cfs
10-YR	18.90 cfs	12.50 cfs

IV.B. Tabulation and Size Calculations

Stormwater control measure sizing was calculated using HydroCAD software.

V. Source Control Measures

V.A. Site Activities and Potential Sources of Pollutants

Any potential sources of pollutants that could be transported to the infiltration systems could also be transported off-site. Pollutants could be from the illegal dumping of chemicals into catch basins as well as pollutants left by vehicles that visit the site. In addition, the materials used to construct and maintain the site could also be possible sources of pollution. Overflow from landscape areas can carry pesticides. Storm water from roofs can carry metals. Drains made of copper or other materials with an unprotected surface may cast-off metal particles to the main basins. Parking areas and hardscapes may contribute litter that can be carried into the basins. All areas should be kept clean to minimize the possibility of litter making its way into the storm water control facilities.

V.B. Source Control Table

Source control table will be included in Final Storm Water Control Plan.

V.C. Features, Materials and Methods of Construction of Source Control BMP's

The stormwater features are to be built per the grading, landscape and architectural plans and material and methods of construction are to be determined by the owner/developer and contractors.

VI. Stormwater Facility Maintenance

VI.A. Ownership and Responsibility for Maintenance in Perpetuity

Signed ownership and responsibility for maintenance agreement to be on file at the City of Solvang Public Works Division.

VI.B. Summary of Maintenance Requirements for Each Stormwater Facility

For maintenance requirements, refer to the Stormwater Maintenance Plan (To be included with final Storm Water Control Plan).

VII. Construction Checklist

Construction Checklist to be included in Final Storm Water Control Plan.

VII.A. Stormwater Control Measures

Stormwater Control Measures will be included in Final Storm Water Control Plan.

VIII. Certifications

The preliminary design of stormwater treatment and other stormwater pollution control measures in this plan are in accordance with the current edition of the Santa Barbara County Project Clean Water's Stormwater Technical Guide.

Exhibit / Report Overview

The California Regional Water Quality Control Board of the Central Coast Region adopted the Post-Construction Requirements (PCRs) in July 2013. The County of Santa Barbara obtained a grant to assist designers and municipalities with the implementation of the PCRs. Through this grant, the County has developed, published, and released The Stormwater Technical Guide for Low Impact Development to ensure compliance with the Regional Board's PCRs. The development of the Post-Construction Stormwater Control Measures/LID features throughout the project site will adhere to the Technical Guide as described below.

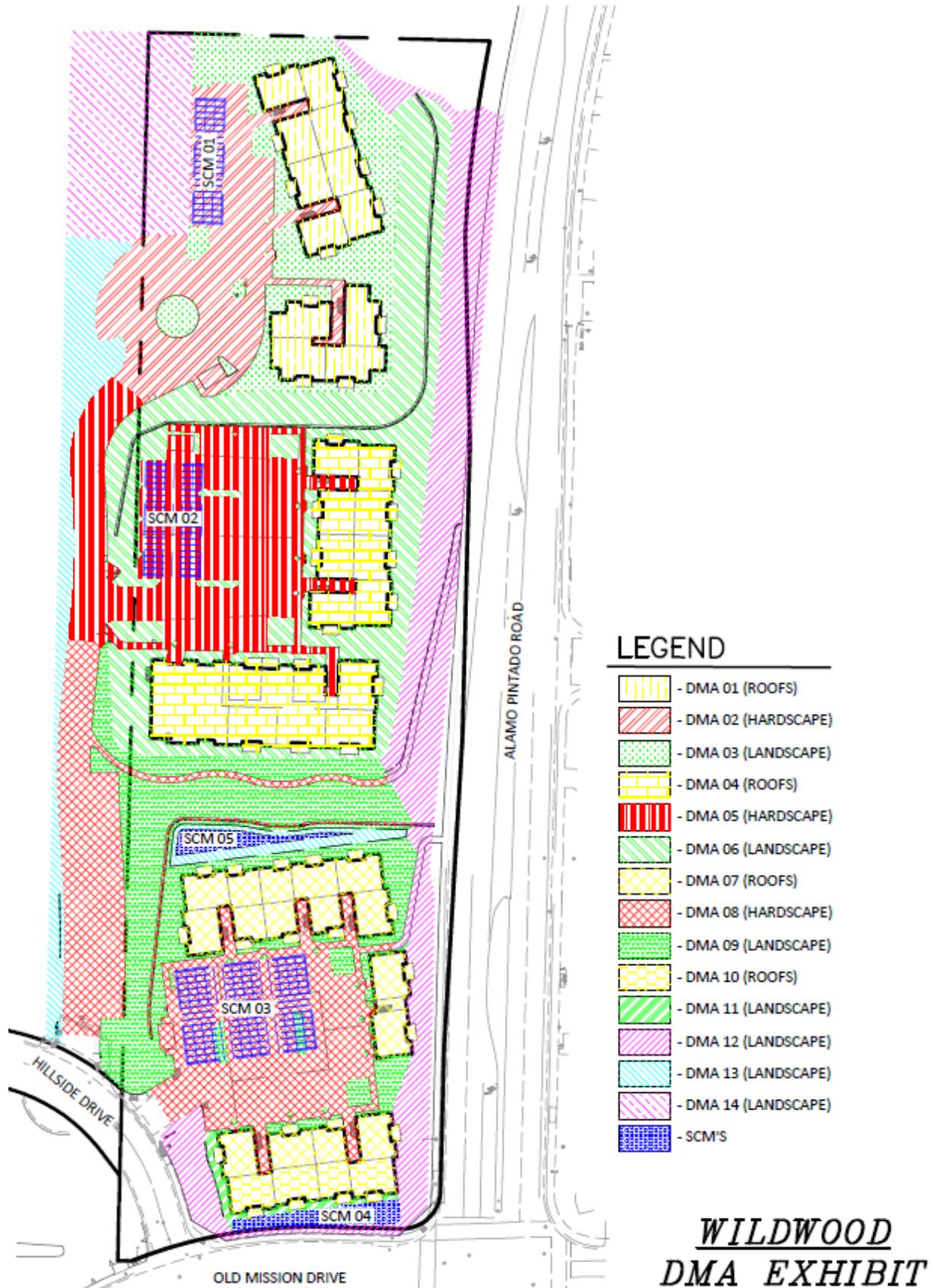
For the purposes of this report the post construction stormwater requirements the net impervious was calculated as follows

New impervious = 137,489 S.F.

Therefore, this project is designated as a Tier 4 project. This development proposes the following:

- Limit the disturbance of natural drainage features
- Limit clearing, grading, and soil compaction
- Minimize impervious surfaces
- Minimize runoff by dispersing/distributing runoff to landscape
- Treat runoff with an approved and appropriately sized LID treatment system prior to discharge from the site (1.9 inch design storm)
- Manage Post-Development Peak Flows for 2-10 year storms

Appendix A: DMA & SCM Map



Appendix B: SCM Sizing Calculator

Central Coast Region Stormwater Control Measure Sizing Calculator

Version: 7/2/2018

1. Project Information

Project name:	Wildwood
Project location:	Alamo Pintado Road - Solvang
Tier 2/Tier 3:	Tier 3 - Retention
Design rainfall depth (in):	1.9
Total project area (ft2):	285114
Total DMA area (ft2):	270312
Total new impervious area (ft2):	137489
Total replaced impervious within a USA (ft2):	0
Total replaced impervious not in a USA (ft2):	0
Total pervious/landscape area (ft2):	132823
Total SCM area (ft2):	16851

2. DMA Characterization

Add DMA Row

Remove DMA Row

Name	DMA Type	Area (ft2)	Surface Type	New, Replaced?	Connection
DMA 1	Drains to SCM	13517	Roof	New	SCM 1
DMA 2	Drains to SCM	20959	Concrete or asphalt	New	SCM 1
DMA 3	Drains to SCM	15199	Landscape	New	SCM 1
DMA 4	Drains to SCM	19735	Roof	New	SCM 2
DMA 5	Drains to SCM	22828	Concrete or asphalt	New	SCM 2
DMA 6	Drains to SCM	32826	Landscape	New	SCM 2
DMA 7	Drains to SCM	15280	Roof	New	SCM 3
DMA 8	Drains to SCM	35164	Concrete or asphalt	New	SCM 3
DMA 9	Drains to SCM	27068	Landscape	New	SCM 3
DMA 10	Drains to SCM	3900	Roof	New	SCM 4
DMA 11	Drains to SCM	1065	Landscape	New	SCM 4
DMA 12	Self-Treating	30099			
DMA 13	Drains to SCM	9212	Landscape	New	SCM 5
DMA 14	Self-Retaining	15204			

DMA Summary Area

Total assigned DMA area (ft2):	262056
New impervious area (ft2):	131383
Replaced impervious within a USA (ft2):	0
Replaced impervious not in a USA (ft2):	0
Total pervious/landscape area (ft2):	130673

Check 'DMA to SCM connections' DMA table areas against plan sheet areas

Check DMA table areas against plan sheet areas

3. SCM Characterization

Add SCM Row

Remove SCM Row

Name	SCM Type	Safety Factor	SCM Soil Type	Infiltr. Rate (in/hr)	Area (ft2)	Flow Control Orifice?	Reservoir Depth (in)
SCM 1	Direct Infiltration	2	HSG C/D	0.25	2352		
SCM 2	Direct Infiltration	2	HSG C/D	0.25	3960		
SCM 3	Direct Infiltration	2	HSG C/D	0.25	7548		
SCM 4	Direct Infiltration	2	HSG C/D	0.25	1748		
SCM 5	Direct Infiltration	2	HSG C/D	0.25	1243		

4. Run SBUH Model

Launch Model

Clear Results

5. SCM Minimum Sizing Requirements

SCM Name	Min. Required Storage Vol. (ft3)	Depth Below Underdrain (ft)	Drain Time (hours)	Orifice Diameter (in)
SCM 1	5789	6.15	196.7	
SCM 2	7277	4.59	146.9	
SCM 3	8182	2.71	86.7	
SCM 4	699	1.00	24.3	
SCM 5	497	1.00	5.9	

6. Self-Retaining Area Sizing Checks

Self-Retaining DMA Name	Self-Retaining DMA Area (ft2)	Tributary DMA Name(s)	Eff. Tributary DMA Area (ft2)	Effective Tributary / SRA Area Ratio
DMA 14	15204		0	0.00

Appendix C: Soil Map

Hydrologic Soil Group—Northern Santa Barbara Area, California
(Alamo Pintado)



USDA Natural Resources Conservation Service

Web Soil Survey National Cooperative Soil Survey

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Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AgC	Agueda silty clay loam, 2 to 9 percent slopes	C	0.0	0.1%
DaD	Diablo silty clay, 9 to 15 percent slopes	D	0.2	2.7%
DaE	Diablo silty clay, 15 to 30 percent slopes	D	4.0	62.0%
SnD	Santa Ynez gravelly fine sandy loam, 9 to 15 percent slopes	D	1.4	22.6%
TdF	Terrace escarpments, loamy		0.8	12.6%
Totals for Area of Interest			6.4	100.0%