

STORMWATER CONTROL MEASURES CALCULATION

Project subject to Performance Requirement No. 4 (PR-4) Peak Management

1. Project Data

Development area:	77,281 sf
Percent imperviousness:	45.79%
Required to infiltrate the 95th percentile storm:	2.00 inches
Impervious area:	35,385 sf
Pervious area:	41,896 sf

2. Assume the following Drainage Management Area (DMAs) drain to the same Stormwater Control Measure (SCM)

DMA Name	DMA Area (sq.ft)	Post-project surface type	DMA Runoff Factor	DMA Area x Runoff Factor
DMA-1	15,296	Paver	1.00	15,296
DMA-4	5,512	Paver	1.00	5,512
DMA-5	2,782	Paver	1.00	2,782
DMA-6	704	Roof	1.00	704
DMA-7	10,173	Paver	1.00	10,173
DMA-8	918	Paver	1.00	918
TOTAL				35,385

DMA2, DMA-3, DMA-9 drain to landscape areas

3. Size the SCM for water quality treatment only:

DMA Name	DMA Area (sq.ft)	Post-project surface type	DMA Runoff Factor	DMA Area x Runoff Factor	Facility Sizing Factor	Minium Facility Size	Proposed Facility Size
DMA-1	15,296	Paver	1.00	15,296	0.04	612	616
DMA-4	5,512	Paver	1.00	5,512	0.04	220	228
DMA-5	2,782	Paver	1.00	2,782	0.04	111	592
DMA-6	704	Roof	1.00	704	0.04	28	
DMA-7	10,173	Paver	1.00	10,173	0.04	407	
DMA-8	918	Paver	1.00	918	0.04	37	
TOTAL				35,385		1,415	1,436

Retention of Tributary Area 35,385 sf

Runoff Coefficient:

$C = 0.858i^3 - 0.78i^2 + 0.774i + 0.04$ C = 0.31
 Where: i = 0.46 (fraction of impervious)

Rainfall depth: 1.75 inches = 0.167 ft
 (95th percentile 24-hour rainfall event depth map)

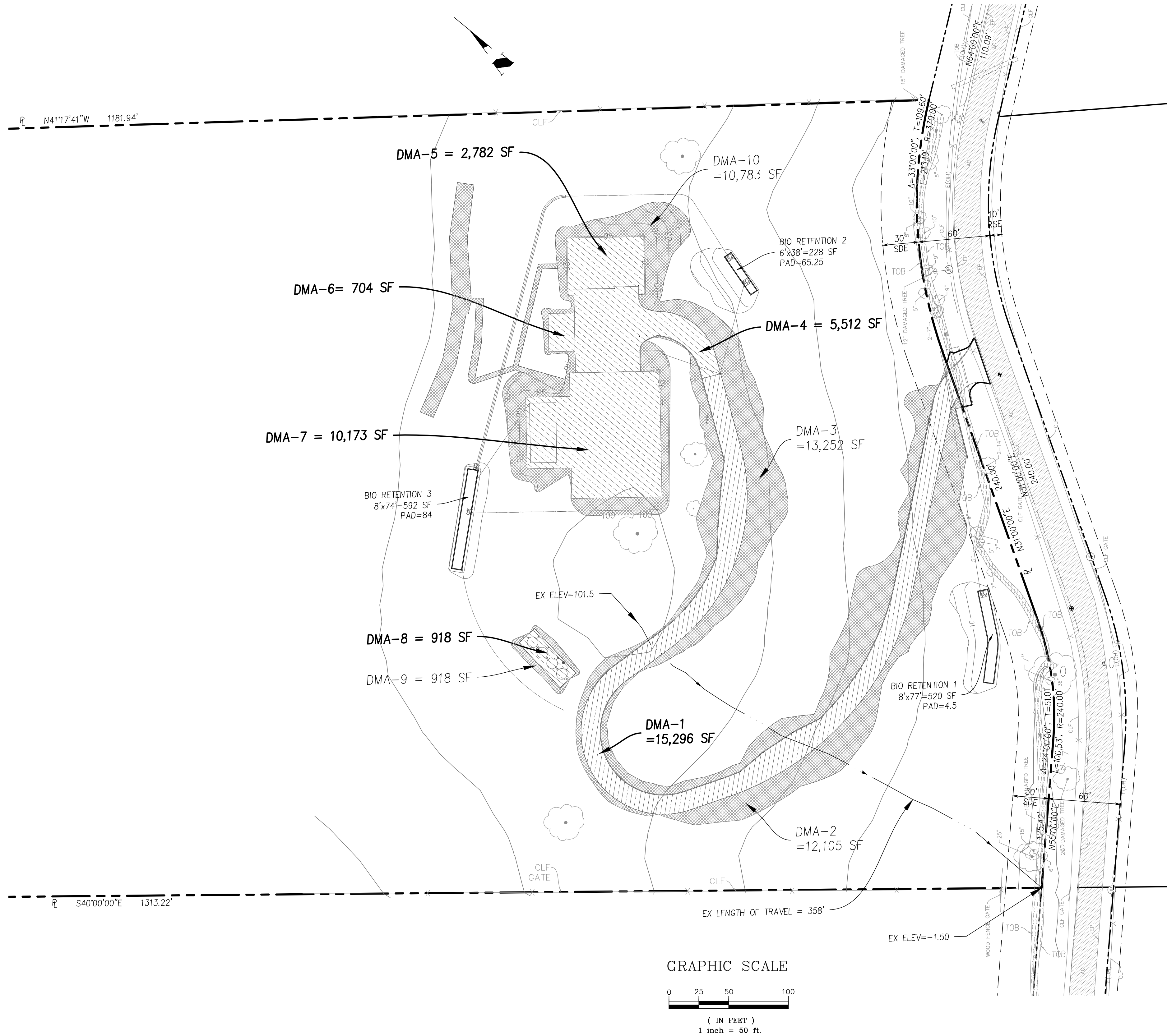
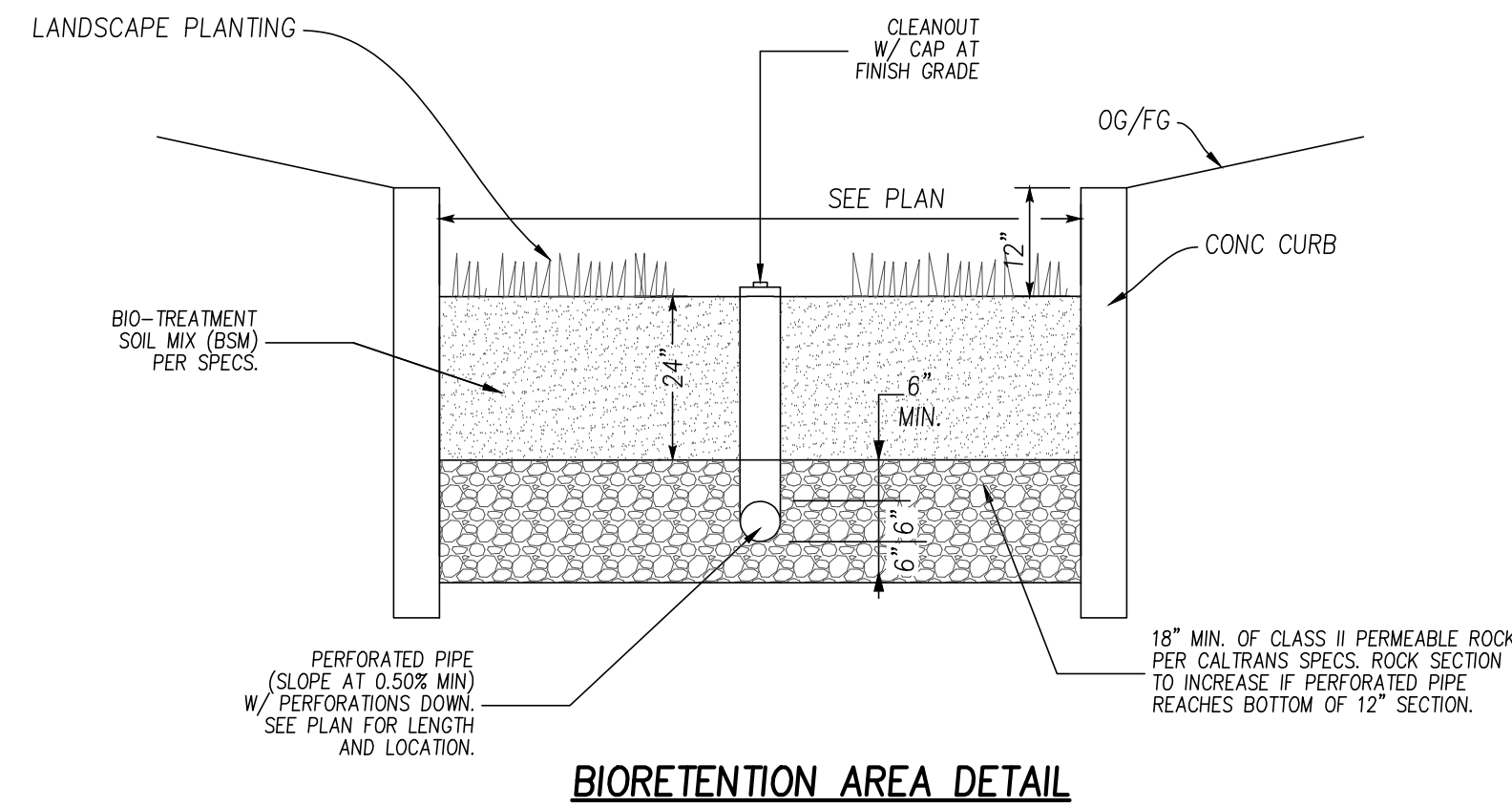
Retention Volume = C x Depth x Tributary Area
 0.31 x 0.167 ft x 35,385 sf = **1,831.88 cu.ft**

4. Calculate Required SCM Storage Capacity by Simple Method

Bioretention surface area 1,415 sf
 Required water depth = Retention volume ÷ surface area:
 $1,831.88 \text{ cu.ft} \div 1,415 \text{ sf} = 1.294 \text{ ft} = 15.53 \text{ inches}$
 Approach: Store volume in ponding area, biotreatment soil, and gravel (no underdrain)
 Surface ponding depth = 6 inches
 Soil depth = 24" x 0.25 porosity = 6 inches
 Remaining water depth 15.53 inches - 12.00 inches = 4.00 inches
 Gravel depth required (porosity 0.35): 4.00 ÷ 0.35 = 11.43 inches **Say 15 inches**

Summary: Bioretention area has:

Ponding depth:	6.00 inches
Soil depth:	24.00 inches
Gravel depth:	15.00 inches



DESIGNED	DATE	DRAWN	DATE	REVISIONS
02/15/21	02/15/21			
CHECKED	DATE	APP'D	DATE	
	02/15/21			
ENGINEERING				
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PRELIMINARY				
STORMWATER CONTROL PLAN				
LAND OF JHA W SAN MARTIN AVE APN 779-47-007				
San Martin		California		
CONTRACT NO.		PROJECT NO.		
FILE NO.		FILE NO.		
1 OF 1		SHT NO.		