

APPENDIX 9. INFILTRATION CHAMBER REFERENCE ONLY

N MOUNTAIN VIEW AVENUE

GENEVIEVE STREET

38TH STREET

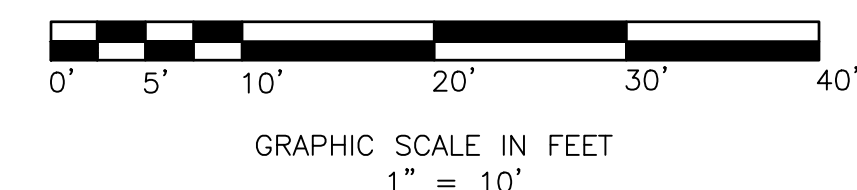
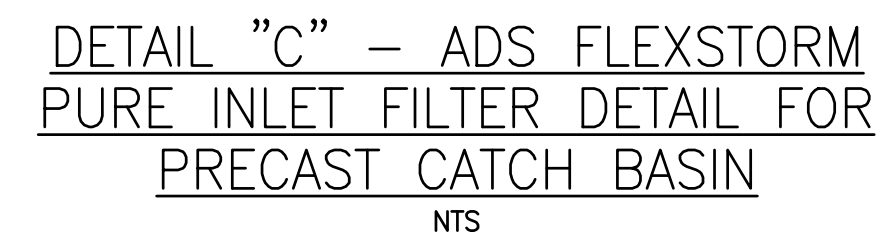
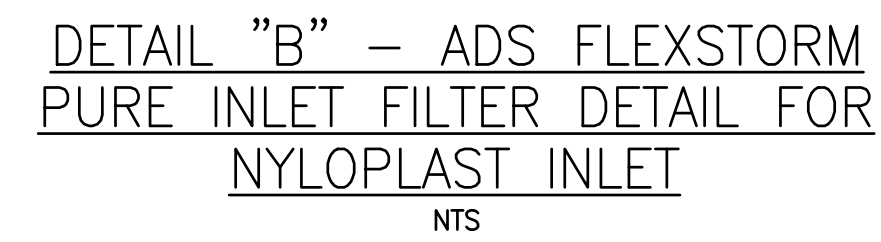
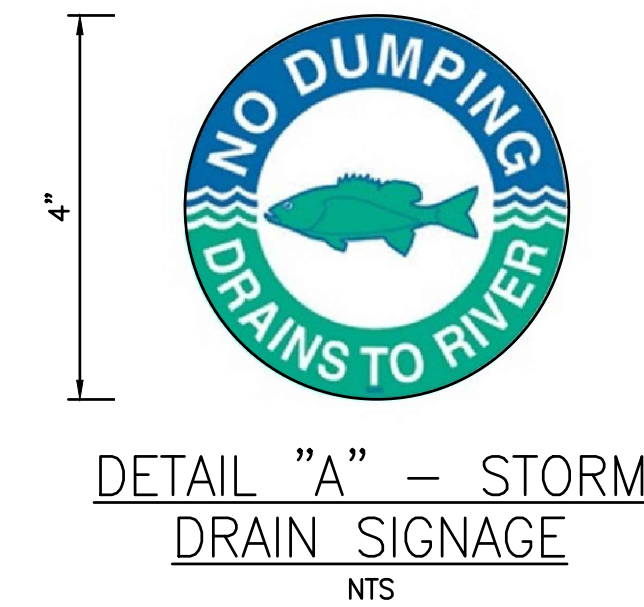
ULTIMATE DISCHARGE POINT TO 38TH STREET

LEGEND

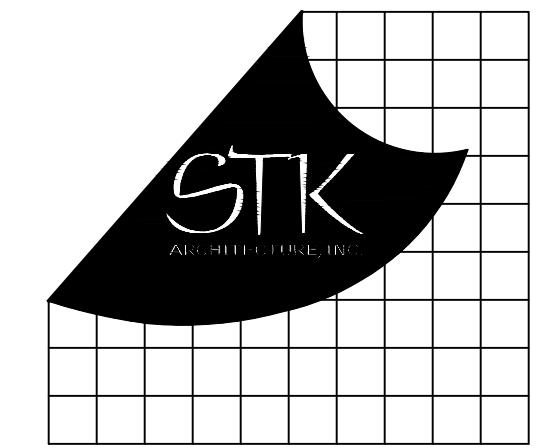
- DA1 DRAINAGE AREA (DA)
DMA-A DRAINAGE MANAGEMENT AREA (DMA)
1.00 ACRES NET AREA IN ACRES
DIRECTION OF SURFACE FLOW
DRAINAGE AREA
DMA BOUNDARY
PROPOSED PERVIOUS AREA (LANDSCAPE)
PROPOSED IMPERVIOUS AREA
BUILDING ROOF AREA
PROPOSED INFILTRATION CHAMBERS (BMP)
PROPOSED STORM DRAIN INLET/OUTLET
DISCHARGE LOCATION

STRUCTURAL BMP NOTES

- 1 TREATMENT CONTROL BMP - UNDERGROUND CHAMBER SYSTEM
2 STORAGE BUILDING PER DETAIL ON SHEET A1.3 OF ARCHITECTURAL PLANS
3 TRASH STORAGE AREA PER DETAIL ON SHEET A1.3 OF ARCHITECTURAL PLANS
4 LANDSCAPE AND IRRIGATION SYSTEM DESIGN
5 FUELING AREA PER DETAIL ON SHEET A1.2 OF ARCHITECTURAL PLANS
6 STORM DRAIN SYSTEM STENCILING/SIGNAGE PER DETAIL "A"
7 INSTALL ADS FLEXSTORM PURE INLET FOR NYLOPLAST INLET, OR APPROVED EQUAL PER DETAIL "B"
8 INSTALL ADS FLEXSTORM PURE INLET FOR PRECAST CATCH BASIN, OR APPROVED EQUAL PER DETAIL "C"



DA ID	AREA (ACRES)	EXISTING IMPERVIOUS AREA	PROPOSED IMPERVIOUS AREA	REQUIRED VOLUME	DESIGN VOLUME	BMP (SIZE AND TYPE)
DA 1	1.18	0%	77%	4,714 CF	4,917.45 CF	BMP 1: UNDERGROUND CHAMBERS



CONSULTANT:



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PROJECT ADMINISTERED BY:
SAN BERNARDINO COUNTY
PROJECT & FACILITIES
MANAGEMENT DEPARTMENT

385 N. ARROWHEAD AVE.
SAN BERNARDINO, CA 92415

PROJECT NAME:
SAN BERNARDINO
COUNTY FIRE
DEPARTMENT:
FIRE STATION 227

PROJECT # 10.10.1202

CIP #22-105

APN: 0154-281-01

180 W. 38TH STREET
SAN BERNARDINO,
CA 92405

ISSUE INFORMATION:

DATE:	INFORMATION:
03-14-25	Plan Check 1
05-13-25	Plan Check 2

SHEET INFORMATION:

STK PROJECT NO.: 374-193-24
SCALE: AS NOTED
DATE: DECEMBER 2024
PLOT DATE: -
DRAWING NAME: -

SEAL:



SHEET TITLE:

WQMP MAP

SHEET NO.:

1 OF 1

4.2 Project Performance Criteria

The purpose of this section of the Project WQMP is to establish targets for post-development hydrology based on performance criteria specified in the MS4 Permit. These targets include runoff volume for water quality control (referred to as LID design capture volume), and runoff volume, time of concentration, and peak runoff for protection of any downstream waterbody segments with a HCOC. ***If the project has more than one outlet for stormwater runoff, then complete additional versions of these forms for each DA / outlet.***

Methods applied in the following forms include:

- For LID BMP Design Capture Volume (DCV), the San Bernardino County Stormwater Program requires use of the P₆ method (MS4 Permit Section XI.D.6a.ii) – Form 4.2-1
- For HCOC pre- and post-development hydrologic calculation, the San Bernardino County Stormwater Program requires the use of the Rational Method (San Bernardino County Hydrology Manual Section D). Forms 4.2-2 through Form 4.2-5 calculate hydrologic variables including runoff volume, time of concentration, and peak runoff from the project site pre- and post-development using the Hydrology Manual Rational Method approach. For projects greater than 640 acres (1.0 mi²), the Rational Method and these forms should not be used. For such projects, the Unit Hydrograph Method (San Bernardino County Hydrology Manual Section E) shall be applied for hydrologic calculations for HCOC performance criteria.

Refer to Section 4 in the TGD for WQMP for detailed guidance and instructions.

Form 4.2-1 LID BMP Performance Criteria for Design Capture Volume (DA 1)		
1 Project area DA 1 (ft ²): 51,586 SF	2 Imperviousness after applying preventative site design practices (Imp%): 0.77	3 Runoff Coefficient (Rc): 0.57 $R_c = 0.858(Imp\%)^{0.3} - 0.78(Imp\%)^{0.2} + 0.774(Imp\%) + 0.04$
4 Determine 1-hour rainfall depth for a 2-year return period P _{2yr-1hr} (in): 0.660 http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html		
5 Compute P ₆ , Mean 6-hr Precipitation (inches): 0.98 $P_6 = \text{Item 4} * C_1$, where C ₁ is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)		
6 Drawdown Rate Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.		24-hrs ☐ 48-hrs ☒
7 Compute design capture volume, DCV (ft ³): 4,714 CF $DCV = 1/12 * [\text{Item 1} * \text{Item 3} * \text{Item 5} * C_2]$, where C ₂ is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963) Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2		

Project: SAN BERNARDINO CO.FIRE DEPARTMENT-FIRE STATION227



Chamber Model -	MC-3500
Units -	Imperial
Number of Chambers -	24
Number of End Caps -	6
Voids in the stone (porosity) -	40 %
Base of Stone Elevation -	1278.64 ft
Amount of Stone Above Chambers -	12 in
Amount of Stone Below Chambers -	9 in

Area of system - 1491 sf Min. Area - 1287 sf min. area

☒ Include Perimeter Stone in Calculations

☐ Click for Stage Area Data

☐ Click to Invert Stage Area Data

[Click Here for Metric](#)

StormTech MC-3500 Cumulative Storage Volumes								
Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch. EC and Stone (cubic feet)	Cumulative System (cubic feet)	Elevation (feet)
66	0.00	0.00	0.00	0.00	49.70	49.70	4917.45	1284.14
65	0.00	0.00	0.00	0.00	49.70	49.70	4867.74	1284.06
64	0.00	0.00	0.00	0.00	49.70	49.70	4818.04	1283.97
63	0.00	0.00	0.00	0.00	49.70	49.70	4768.34	1283.89
62	0.00	0.00	0.00	0.00	49.70	49.70	4718.64	1283.81
61	0.00	0.00	0.00	0.00	49.70	49.70	4668.93	1283.72
60	0.00	0.00	0.00	0.00	49.70	49.70	4619.23	1283.64
59	0.00	0.00	0.00	0.00	49.70	49.70	4569.53	1283.56
58	0.00	0.00	0.00	0.00	49.70	49.70	4519.83	1283.47
57	0.00	0.00	0.00	0.00	49.70	49.70	4470.12	1283.39
56	0.00	0.00	0.00	0.00	49.70	49.70	4420.42	1283.31
55	0.00	0.00	0.00	0.00	49.70	49.70	4370.72	1283.22
54	0.06	0.00	1.39	0.00	49.14	50.54	4321.02	1283.14
53	0.19	0.02	4.66	0.14	47.78	52.58	4270.48	1283.06
52	0.29	0.04	7.06	0.23	46.79	54.07	4217.89	1282.97
51	0.40	0.05	9.69	0.31	45.70	55.70	4163.82	1282.89
50	0.69	0.07	16.49	0.41	42.94	59.84	4108.12	1282.81
49	1.03	0.09	24.68	0.53	39.62	64.83	4048.28	1282.72
48	1.25	0.11	29.99	0.64	37.45	68.08	3983.45	1282.64
47	1.42	0.13	34.13	0.76	35.75	70.64	3915.37	1282.56
46	1.57	0.14	37.76	0.87	34.25	72.88	3844.73	1282.47
45	1.71	0.16	40.97	0.98	32.92	74.87	3771.86	1282.39
44	1.83	0.18	43.88	1.09	31.71	76.69	3696.99	1282.31
43	1.94	0.20	46.51	1.20	30.62	78.33	3620.30	1282.22
42	2.04	0.22	48.98	1.31	29.59	79.88	3541.97	1282.14
41	2.13	0.23	51.23	1.41	28.65	81.29	3462.10	1282.06
40	2.22	0.25	53.38	1.50	27.75	82.63	3380.81	1281.97
39	2.31	0.27	55.36	1.59	26.92	83.88	3298.17	1281.89
38	2.38	0.28	57.23	1.68	26.14	85.05	3214.30	1281.81
37	2.46	0.29	59.02	1.76	25.39	86.17	3129.25	1281.72
36	2.53	0.31	60.68	1.85	24.69	87.22	3043.08	1281.64
35	2.59	0.32	62.25	1.93	24.03	88.21	2955.86	1281.56
34	2.66	0.33	63.75	2.01	23.40	89.15	2867.65	1281.47
33	2.72	0.35	65.16	2.08	22.80	90.05	2778.50	1281.39
32	2.77	0.36	66.51	2.16	22.23	90.91	2688.45	1281.31
31	2.82	0.37	67.79	2.23	21.69	91.72	2597.54	1281.22
30	2.88	0.38	69.01	2.31	21.18	92.49	2505.82	1281.14
29	2.92	0.40	70.18	2.38	20.68	93.24	2413.33	1281.06
28	2.97	0.41	71.28	2.45	20.21	93.94	2320.10	1280.97
27	3.01	0.42	72.30	2.51	19.78	94.59	2226.16	1280.89
26	3.05	0.43	73.28	2.58	19.36	95.22	2131.57	1280.81
25	3.09	0.44	74.26	2.64	18.94	95.85	2036.35	1280.72
24	3.13	0.45	75.13	2.70	18.57	96.41	1940.51	1280.64
23	3.17	0.46	75.98	2.77	18.21	96.95	1844.10	1280.56
22	3.20	0.47	76.79	2.82	17.86	97.47	1747.16	1280.47
21	3.23	0.48	77.55	2.88	17.53	97.96	1649.69	1280.39
20	3.26	0.49	78.27	2.94	17.22	98.43	1551.73	1280.31
19	3.29	0.50	78.97	2.99	16.92	98.87	1453.30	1280.22
18	3.32	0.51	79.63	3.04	16.63	99.30	1354.43	1280.14
17	3.34	0.51	80.26	3.09	16.36	99.71	1255.12	1280.06
16	3.37	0.52	80.85	3.13	16.11	100.09	1155.41	1279.97
15	3.39	0.53	81.42	3.18	15.86	100.46	1055.32	1279.89
14	3.41	0.54	81.95	3.22	15.64	100.80	954.86	1279.81
13	3.44	0.54	82.49	3.26	15.40	101.15	854.06	1279.72
12	3.46	0.55	82.99	3.30	15.19	101.47	752.91	1279.64
11	3.48	0.56	83.49	3.33	14.97	101.79	651.43	1279.56
10	3.51	0.59	84.12	3.57	14.63	102.32	549.64	1279.47
9	0.00	0.00	0.00	0.00	49.70	49.70	447.32	1279.39
8	0.00	0.00	0.00	0.00	49.70	49.70	397.62	1279.31
7	0.00	0.00	0.00	0.00	49.70	49.70	347.92	1279.22
6	0.00	0.00	0.00	0.00	49.70	49.70	298.21	1279.14
5	0.00	0.00	0.00	0.00	49.70	49.70	248.51	1279.06
4	0.00	0.00	0.00	0.00	49.70	49.70	198.81	1278.97
3	0.00	0.00	0.00	0.00	49.70	49.70	149.11	1278.89
2	0.00	0.00	0.00	0.00	49.70	49.70	99.40	1278.81
1	0.00	0.00	0.00	0.00	49.70	49.70	49.70	1278.72