



STORMWATER CONTROL PLAN
MILES LANE HOUSING DEVELOPMENT

OWNER: MIDPEN HOUSING COORPORATION
275 MAIN STREET, SUITE 204
WATSONVILLE, CA 95076
(831)707-2130

PREPARED BY: C3 ENGINEERING
126 BONIFACIO PLACE, SUITE C
MONTEREY, CA 93940
(831)647-1192
06-10-2019

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I. Project Data

Background

The project consists of the construction of an inpatient and outpatient rehabilitation facility and affordable housing units. Also included is a common community building and hardscape (circulation and parking) associated with this kind of development.

The project site consists of four parcels:

APN 016-111-44 5077.92 SQFT

APN 016-491-01 44,054.65 SQFT

APN 016-491-02 61,171.61 SQFT

APN 016-491-03 94,055.13 SQFT

For a total of 204,361 SQFT

The overall project will be broken into 3 sperate sites for stormwater evaluation. The Encompass site (fronting Santa Clara and Miles) includes the inpatient and outpatient facilities (buildings 9 & 10). The MidPen Marchisio site sits in between the Encompass site and the sensitive habitat and includes building 1-5 and 8. The MidPen Dinyari Site lies to the east of the sensitive habitat and includes buildings 6 & 7.

All of the parcels have frontage on Miles Lane except for APN 016-111-44 which fronts Kimberly Lane. The overall site is roughly rectangular in shape, with a slight dog-leg. From the highest point on Kimberly lane, the site slopes to the east at about 13% and falls over 60' to a drainage ditch that crosses the site from north to south. From the low point at the drainage ditch the site slopes back up at roughly 13%. The site is currently occupied by 4 single family residences fronting miles lane and 3 other structures fronting Santa Clara. All existing structures will be demolished.

The drainage ditch and surrounding area are being considered as sensitive habitat. While no construction will be occurring in this area or within the setback, the ditch will still be used as a point of discharge for onsite storm drainage. No runoff will be allowed into the ditch until it has been mitigated for quality and quantity in accordance with the City's stormwater development standards. The proposed development will result in a net increase of impervious area by about 119,217sqft. Water Quality Treatment Performance Requirements 1-4 apply to the project.

Table 1. Project Data

Project Name/Number	Miles Lane – Encompass Site
Project Location	139, 141, 161 MILES LANE & 201 KIMBERLY LANE, WATSONVILLE, CA 95076 APN's (106-491-03, -02, -01, 016-111-44)
Project Phase No.	NA
Project Type and Description	CONSTRUCTION OF 60 NEW AFFORDABLE HOUSING UNITS ALONG WITH OUTPATIENT REHAB TREATMENT FACILITY.
Total Project Site Area (acres)	41,694sqft – 0.96ac
Total New Impervious Surface Area	4,922 sqft
Total Replaced Impervious Surface Area	17,826 sqft
Total Pre-Project Impervious Surface Area	26,140 sqft
Total Post-Project Impervious Surface Area	22,748 sqft
Net Impervious Area	-3,392 sqft
Watershed Management Zone(s)	Zone 1
Design Storm Frequency and Depth	95th Percentile 24-hour Rainfall Event ~ 1.3"
Urban Sustainability Area	NA
Applicable Water Quality Treatment Performance Requirements	Water Quality Treatment Performance Requirements 1-4 apply to the project

Project Name/Number	Miles Lane – MidPen Marchisio
Project Location	139, 141, 161 MILES LANE & 201 KIMBERLY LANE, WATSONVILLE, CA 95076 APN's (106-491-03, -02, -01, 016-111-44)
Project Phase No.	NA
Project Type and Description	CONSTRUCTION OF 60 NEW AFFORDABLE HOUSING UNITS ALONG WITH OUTPATIENT REHAB TREATMENT FACILITY.
Total Project Site Area (acres)	68,610 sqft – 1.56ac
Total New Impervious Surface Area	47,049 sqft
Total Replaced Impervious Surface Area	9,071 sqft
Total Pre-Project Impervious Surface Area	12,300 sqft
Total Post-Project Impervious Surface Area	56,120 sqft
Net Impervious Area	43,820 sqft
Watershed Management Zone(s)	Zone 1
Design Storm Frequency and Depth	95th Percentile 24-hour Rainfall Event ~ 1.3"
Urban Sustainability Area	NA
Applicable Water Quality Treatment Performance Requirements	Water Quality Treatment Performance Requirements 1-4 apply to the project

Project Name/Number	Miles Lane – MidPen Dinyari
Project Location	139, 141, 161 MILES LANE & 201 KIMBERLY LANE, WATSONVILLE, CA 95076 APN's (106-491-03, -02, -01, 016-111-44)
Project Phase No.	NA
Project Type and Description	CONSTRUCTION OF 60 NEW AFFORDABLE HOUSING UNITS ALONG WITH OUTPATIENT REHAB TREATMENT FACILITY.
Total Project Site Area (acres)	94,855 sqft – 2.17ac
Total New Impervious Surface Area	41,121 sqft
Total Replaced Impervious Surface Area	0 sqft
Total Pre-Project Impervious Surface Area	0 sqft
Total Post-Project Impervious Surface Area	41,121 sqft
Net Impervious Area	41,121 sqft
Watershed Management Zone(s)	Zone 1
Design Storm Frequency and Depth	95th Percentile 24-hour Rainfall Event ~ 1.3"
Urban Sustainability Area	NA
Applicable Water Quality Treatment Performance Requirements	Water Quality Treatment Performance Requirements 1-4 apply to the project

II. Performance Requirement No. 1: Site Design and Runoff Reduction

The project will create and/or replace more than 2,500 square feet of impervious surface. The following design strategies shall be implemented throughout the project site to satisfy performance requirement 1:

Encompass Site

- i) Limit disturbance of creeks and natural drainage features – No natural Drainage Features.
- ii) Minimize compaction of highly permeable soils – Not applicable

iii) Limit clearing and grading of native vegetation at the site to the minimum area needed to build the project, allow access, and provide fire protection – Clearing will be limited to the immediate areas of development.

iv) Minimize impervious surfaces by concentrating improvements on the least-sensitive portions of the site, while leaving the remaining land in a natural undisturbed state. Improvements are confined to North and the south. Large open spaces provided.

v) Minimize stormwater runoff by implementing the following site design measures: The site has been design with large open space areas that will take runoff safely away from building foundations and footings, consistent with California building code. The swale was constructed in a previous phase of development to satisfy LEED requirements.

Mid Pen Marchisio

i) Limit disturbance of creeks and natural drainage features – A 35' setback along the drainage ditch will be observed. There is also another sensitive area east of the southerly end of the ditch in which a 35' setback will be observed.

ii) Minimize compaction of highly permeable soils – Not applicable

iii) Limit clearing and grading of native vegetation at the site to the minimum area needed to build the project, allow access, and provide fire protection – Clearing will be limited to the immediate areas of development. In addition 35' setbacks to sensitive areas will be observed.

iv) Minimize impervious surfaces by concentrating improvements on the least-sensitive portions of the site, while leaving the remaining land in a natural undisturbed state. The site has been designed so that the sensitive areas are protected from development. In addition

v) Minimize stormwater runoff by implementing the following site design measures:

The site has been design with large open space areas that will take runoff safely away from building foundations and footings, consistent with California building code. The swale was constructed in a previous phase of development to satisfy LEED requirements.

MidPen Dinyari

i) Limit disturbance of creeks and natural drainage features – A setback along the drainage and seep area will be observed. There is also another sensitive area east of the southerly end of the ditch in which a 35' setback will be observed.

ii) Minimize compaction of highly permeable soils – Not applicable

iii) Limit clearing and grading of native vegetation at the site to the minimum area needed to build the project, allow access, and provide fire protection – Clearing will be limited to the immediate areas of development. In addition 35' setbacks to sensitive areas will be observed.

iv) Minimize impervious surfaces by concentrating improvements on the least-sensitive portions of the site, while leaving the remaining land in a natural undisturbed state. – The site has been designed so that the sensitive areas are protected from development.

v) Minimize stormwater runoff by implementing the following site design measures:

III. Performance Requirement No. 2: Water Quality Treatment

The project will create and/or replace more than 5,500 square feet of impervious surface. Performance requirement 2 will be achieved as follows:

Encompass Site

All runoff from impervious surfaces will be routed to catch basins equipped with media filters. The media filter will be capable of removing suspended solids as well as hydrocarbons and will have the capacity to treat flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area. The filters to be used are REM TRITON (TR 1818 STD, FOG & BFTG FILTERED) with a filtered capacity of 0.38 cfs and a bypass capacity of 5.14 cfs

DMA 1 & 2

2x85th percentile $Q_p = 0.19 \text{ cfs} < 0.38 \text{ cfs}$

DMA 3 & 4

2x85th percentile $Q_p = 0.11 \text{ cfs} < 0.38 \text{ cfs}$

DMA 5

No impervious area

MidPen Marchisio

All runoff from impervious surfaces will be routed to catch basins equipped with media filters. The media filter will be capable of removing suspended solids as well as hydrocarbons and will have the capacity to treat flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area. The filters to be used are REM TRITON (TR 1818 STD, FOG & BFTG FILTERED) with a filtered capacity of 0.38 cfs and a bypass capacity of 5.14 cfs

DMA 6 & 7

2x85th percentile $Q_p = 0.18 \text{ cfs} < 0.38 \text{ cfs}$

DMA 8

2x85th percentile $Q_p = 0.14 \text{ cfs} < 0.38 \text{ cfs}$

DMA 9

2x85th percentile $Q_p = 0.31 \text{ cfs} < 0.38 \text{ cfs}$

DMA 10

2x85th percentile $Q_p = 0.31 \text{ cfs} < 0.38 \text{ cfs}$

MidPen Dinyari

All runoff from impervious surfaces will be routed to catch basins equipped with media filters. The media filter will be capable of removing suspended solids as well as hydrocarbons and will have the capacity to treat flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area. The filters to be used are REM TRITON (TR 1818 STD, FOG & BFTG FILTERED) with a filtered capacity of 0.38 cfs and a bypass capacity of 5.14 cfs

DMA 11

2x85th percentile $Q_p = 0.31 \text{ cfs} < 0.38 \text{ cfs}$

DMA 12

2x85th percentile $Q_p = 0.25 \text{ cfs} < 0.38 \text{ cfs}$

See Attachment 3.

- See section II, Performance Requirement No. 1: Site Design and Runoff Reduction for a summary of Site Design and Runoff Reduction
- Structural Stormwater Control Measures used for this site:
 - Underground Infiltration Chambers
 - Mechanical Filters
- See Attachment 4 for supporting calculation
- See Attachment 5 for media filter detail and specification

IV. Performance Requirement No. 3: Runoff retention

The project will create and/or replace more than 15,000 square feet of impervious surface. In order to satisfy Performance requirement 3, runoff from events up to the 95th percentile 24-hour rainfall event (1.3") shall be retained on site.

Based on Attachment 3 of Resolution 4-14, the total required reduced volume is 3,955 FT³.

See Attachment 4 for supporting calculation.

Encompass Site

DMA 1 & 2 – (808 FT³ retention required) – to be retained by underground infiltration chambers (SCM 1 – 28 chambers (SC-740)) with a total capacity of 2,306 FT³

DMA 3 & 4 – (331 FT³ retention required) – to be retained by underground infiltration chambers (SCM 2 – 32 chambers (SC-310)) with a total capacity of 1,116 FT³

MidPen Marchisio

DMA 5,6,7,8 & 9 – (2077 FT³ retention required) – to be retained by underground infiltration chambers (SCM 3 – 24 chambers (MC-3500)) with a total capacity of 4,573 FT³

DMA 10 – (1425 FT³ retention required) – to be retained by underground infiltration chambers (SCM 3 – 22 chambers (MC-3500)) with a total capacity of 4,210 FT³

MidPen Dinyari

DMA 11 – (1782 FT³ retention required) – to be retained by underground infiltration chambers (SCM 1 – 40 chambers (SC-740)) with a total capacity of 3,250 FT³

DMA 12 – (1276 FT³ retention required) – to be retained by underground infiltration chambers (SCM 1 – 40 chambers (SC-740)) with a total capacity of 3,250 FT³

See Attachment 3.

V. Performance Requirement No. 4: Peak Flow Management

The project will create and/or replace more than 22,500 square feet of impervious surface (collectively over the entire project site) and is located in Watershed Management Zone 1. Performance requires 4 peak requires that Post-development peak flows, discharged from the site, shall not exceed pre-project peak flows for the 2- through 10-year storm events. In order to satisfy Requirement 4, additional volume has been provided so that the peak flows do not exceed predevelopment flows.

Encompass Site

	95th		2 Year		5 Year		10 Year	
	Pre-Con	Post-Con	Pre-Con	Post-Con	Pre-Con	Post-Con	Pre-Con	Post-Con
Peak Flow	0.15cfs	0.0cfs	0.58 cfs	0.05 cfs	0.84cfs	0.18cfs	1.06cfs	0.87cfs
Runoff Volume	1396 cf	0cf	5113 cf	1011cf	7458 cf	1901 cf	9448 cf	4680 cf

MidPen Marchisio

	95th		2 Year		5 Year		10 Year	
	Pre-Con	Post-Con	Pre-Con	Post-Con	Pre-Con	Post-Con	Pre-Con	Post-Con
Peak Flow	0.015cfs	0.0cfs	0.42 cfs	0.09 cfs	0.75cfs	0.71cfs	1.05cfs	0.79cfs
Runoff Volume	496 cf	0cf	4106 cf	2451cf	6933 cf	8769 cf	9508 cf	4068 cf

MidPen Dinyari

	95th		2 Year		5 Year		10 Year	
	Pre-Con	Post-Con	Pre-Con	Post-Con	Pre-Con	Post-Con	Pre-Con	Post-Con
Peak Flow	0.015cfs	0.0cfs	0.45 cfs	0.39 cfs	0.92cfs	0.53cfs	1.36cfs	1.35cfs
Runoff Volume	161 cf	0cf	4106 cf	2503cf	4559 cf	4829 cf	6497 cf	6905 cf

VI. Summary

- See Section II for a summary of Site Design and Runoff Reduction measures
- Post-construction structural Stormwater Control Measures
 - Underground infiltration chambers
 - Above ground detention ponds with standpipes to control peak flows
- See Section III for a summary of Water Quality Treatment Performance Requirements measures
- See Section IV for a summary of Runoff Retention Performance Requirements that apply to the Project

Retention and peak flow calculations were modeled using HydroCAD software, using the SCS method.

VI.A. Drainage Management Areas

See attachment 3

VII. Stormwater Facility Maintenance

VII.A. Ownership and Responsibility for Maintenance in Perpetuity

Prior to the issuance of final Certificate of Occupancy, the owner will submit for review and approval to the City of Watsonville, a maintenance agreement that will include a statement accepting responsibility for operation and maintenance of facilities until that responsibility is formally transferred to another entity. This maintenance agreement will be filed with the City of Watsonville.

VIII. Certifications

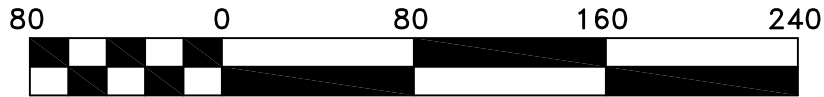
The design of stormwater treatment facilities and other stormwater pollution control measures in this plan are in accordance with Resolution 4-14, A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF WATSONVILLE INCORPORATING STORMWATER POSTCONSTRUCTION STANDARDS TO THE CITY OF WATSONVILLE PUBLIC IMPROVEMENT STANDARDS. Water Quality Treatment requirements will be met on-site.



Frank Campo, P.E. 61390

06-11-2019

Date



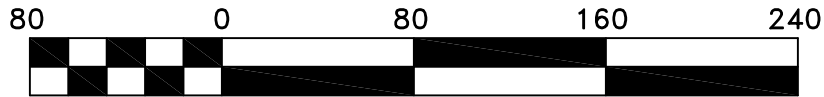
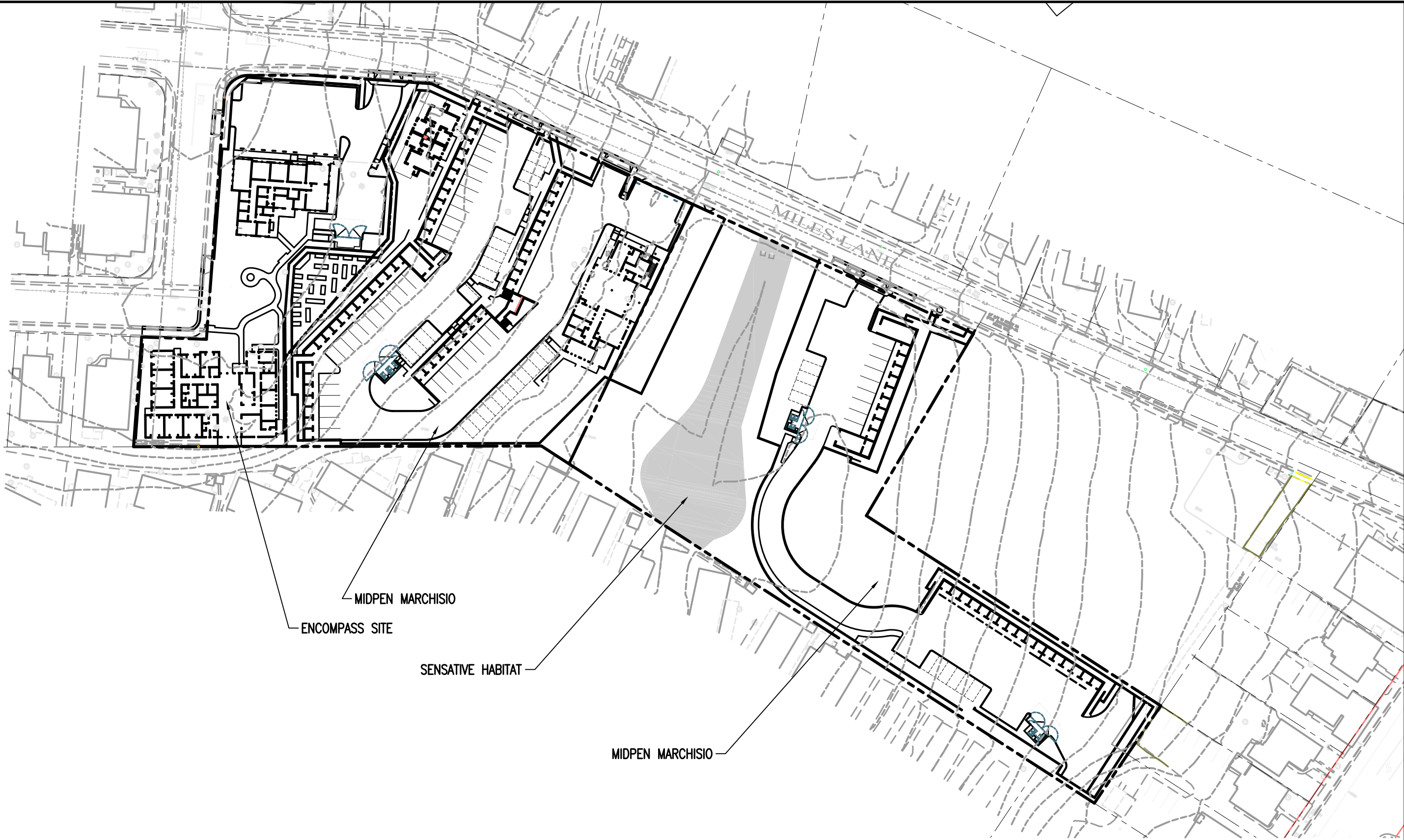
Scale 1" = 80'

ATTACHMENT 1
EXISTING CONDITIONS



126 Bonifacio Place, Suite C, Monterey, CA 93940
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mailto:AC3Engineering.net

SCALE:	AS NOTED
DATE:	06-11-19
DRAWN BY:	CADD
CHECKED BY:	FJC
PROJECT NO:	118186



Scale 1" = 80'

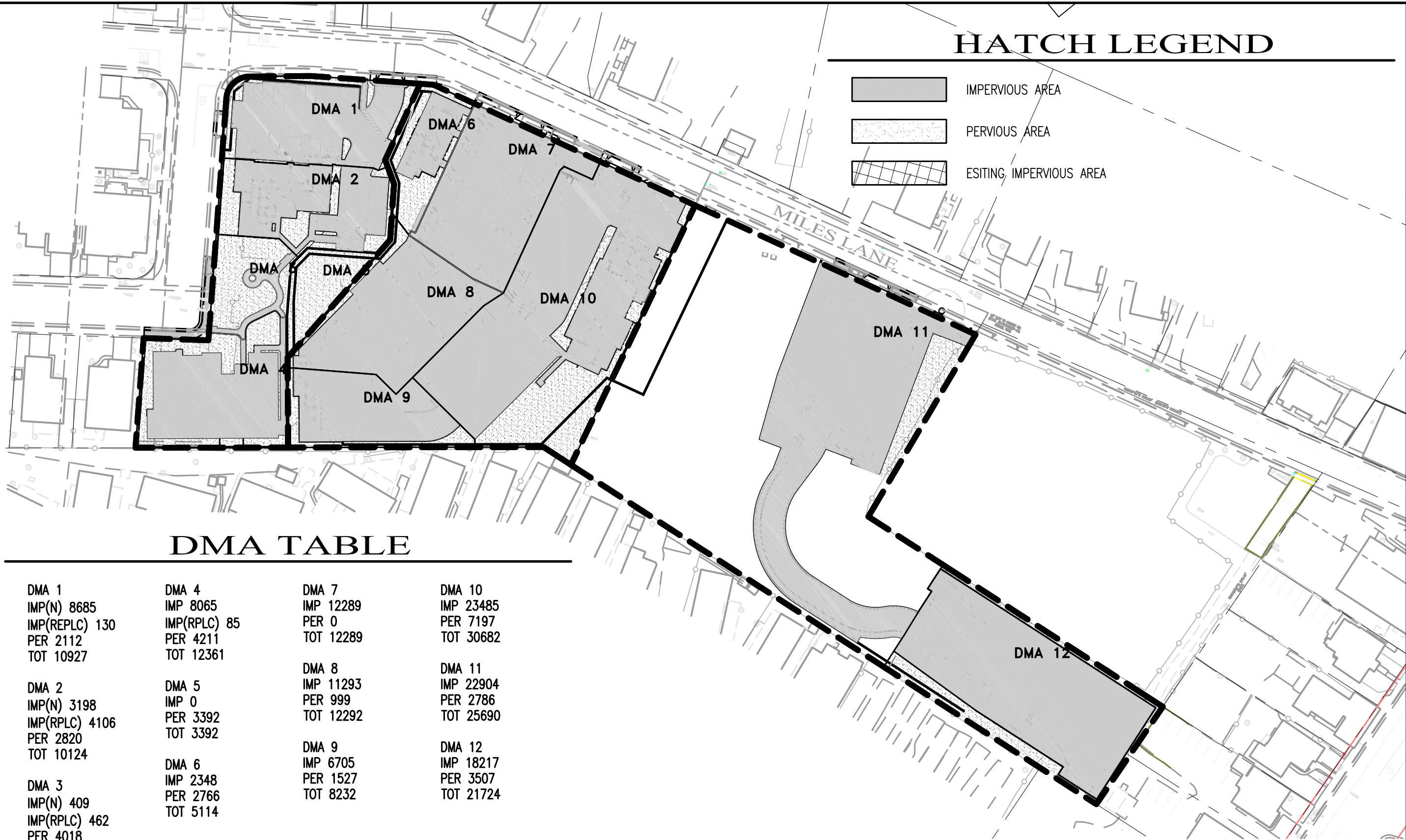
ATTACHMENT 2

PROPOSED CONDITIONS



126 Bonifacio Place, Suite C, Monterey, CA 93940
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SCALE:	AS NOTED
DATE:	06-11-19
DRAWN BY:	CADD
CHECKED BY:	FJC
PROJECT NO:	118186

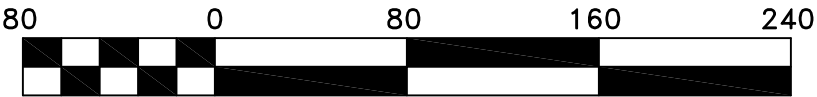


HATCH LEGEND

- IMPERVIOUS AREA
- PERVIOUS AREA
- EXISTING IMPERVIOUS AREA

DMA TABLE

DMA 1 IMP(N) 8685 IMP(REPLC) 130 PER 2112 TOT 10927	DMA 4 IMP 8065 IMP(RPLC) 85 PER 4211 TOT 12361	DMA 7 IMP 12289 PER 0 TOT 12289	DMA 10 IMP 23485 PER 7197 TOT 30682
DMA 2 IMP(N) 3198 IMP(RPLC) 4106 PER 2820 TOT 10124	DMA 5 IMP 0 PER 3392 TOT 3392	DMA 8 IMP 11293 PER 999 TOT 12292	DMA 11 IMP 22904 PER 2786 TOT 25690
DMA 3 IMP(N) 409 IMP(RPLC) 462 PER 4018 TOT 4889	DMA 6 IMP 2348 PER 2766 TOT 5114	DMA 9 IMP 6705 PER 1527 TOT 8232	DMA 12 IMP 18217 PER 3507 TOT 21724



Scale 1" = 80'

SCALE:	AS NOTED
DATE:	06-11-19
DRAWN BY:	CADD
CHECKED BY:	FJC
PROJECT NO:	118186

AC3 ENGINEERING
INCORPORATED

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ATTACHMENT 3

DMA EXHIBIT

ATTACHMENT 4 - CALCULATIONS

PERFORMANCE REQUIREMENT NO. 2: WATER QUALITY TREATMENT

SCM1 – SIZE MEDIA FILTER FOR PEAK FLOW (Q_P) FROM 2 X 85TH PERCENTILE STORM (DMA 1 & 2)

2x85th percentile Q_p = 0.19 cfs < 0.38 cfs

REM TRITON (TR 1818 STD, FOG & BFTG FILTERED)

FILTERED CAPACITY = 0.38CFS, BYPASS CAPACITY = 5.14CFS

SCM2 – SIZE MEDIA FILTER FOR PEAK FLOW (Q_P) FROM 2 X 85TH PERCENTILE STORM(DMA 3 & 4)

2x85th percentile Q_p = 0.11 cfs < 0.38 cfs

REM TRITON (TR 1818 STD, FOG & BFTG FILTERED)

FILTERED CAPACITY = 0.38CFS, BYPASS CAPACITY = 5.14CFS

SCM3 – SIZE MEDIA FILTER FOR PEAK FLOW (Q_P) FROM 2 X 85TH PERCENTILE STORM(DMA 6 & 7)

2x85th percentile Q_p = 0.18 cfs < 0.38 cfs

REM TRITON (TR 1818 STD, FOG & BFTG FILTERED)

FILTERED CAPACITY = 0.38CFS, BYPASS CAPACITY = 5.14CFS

SCM4 – SIZE MEDIA FILTER FOR PEAK FLOW (Q_P) FROM 2 X 85TH PERCENTILE STORM(DMA 8)

2x85th percentile Q_p = 0.14 cfs < 0.38 cfs

REM TRITON (TR 1818 STD, FOG & BFTG FILTERED)

FILTERED CAPACITY = 0.38CFS, BYPASS CAPACITY = 5.14CFS

SCM5 – SIZE MEDIA FILTER FOR PEAK FLOW (Q_P) FROM 2 X 85TH PERCENTILE STORM(DMA 9)

2x85th percentile Q_p = 0.31 cfs < 0.38 cfs

REM TRITON (TR 1818 STD, FOG & BFTG FILTERED)

FILTERED CAPACITY = 0.38CFS, BYPASS CAPACITY = 5.14CFS

SCM6 – SIZE MEDIA FILTER FOR PEAK FLOW (Q_P) FROM 2 X 85TH PERCENTILE STORM(DMA 10)

2x85th percentile Q_p = 0.31 cfs < 0.38 cfs

REM TRITON (TR 1818 STD, FOG & BFTG FILTERED)

FILTERED CAPACITY = 0.38CFS, BYPASS CAPACITY = 5.14CFS

SCM7 – SIZE MEDIA FILTER FOR PEAK FLOW (Q_P) FROM 2 X 85TH PERCENTILE STORM(DMA 11)

2x85th percentile Q_p = 0.31 cfs < 0.38 cfs

REM TRITON (TR 1818 STD, FOG & BFTG FILTERED)

FILTERED CAPACITY = 0.38CFS, BYPASS CAPACITY = 5.14CFS

SCM8 – SIZE MEDIA FILTER FOR PEAK FLOW (Q_P) FROM 2 X 85TH PERCENTILE STORM(DMA 12)

2x85th percentile Q_p = 0.25 cfs < 0.38 cfs

REM TRITON (TR 1818 STD, FOG & BFTG FILTERED)

FILTERED CAPACITY = 0.38CFS, BYPASS CAPACITY = 5.14CFS

PERFORMANCE REQUIREMENT NO. 3: RUNOFF RETENTION

RETENTION VOLUME REQUIRED

- A. BASED ON WMZ, DESIGN STORM = 95TH PERCENTILE
- B. $I = 1.3''/\text{HR}$
- C. RUNOFF COEFFICIENT C

$$C = 0.858i^3 - 0.78i^2 + 0.774i + 0.04 = 0.9$$

- D. RETENTION VOLUME

$$\text{Retention Volume} = C \times \text{Rainfall Depth}_{95th} \times \text{Adjusted Area}$$

DMA	Drains To	Area (SF)	"C"	Retention Volume Req'd	Retention Volume Provided
1 & 2	SCM 1	14001	0.53	808	2306
3 & 4	SCM 2	8748	0.35	331	1116
5,6,7,8,9	SCM 3	32635	0.59	2077	4573
10	SCM 4	23485	0.56	1425	4210
11	SCM 5	22904	0.72	1782	3250
12	SCM 6	18217	0.65	1276	3250

PERFORMANCE REQUIREMENT NO. 4: PEAK FLOW MANAGEMENT

POST-DEVELOPMENT PEAK FLOWS, DISCHARGED FROM THE SITE, SHALL NOT EXCEED PRE-PROJECT PEAK FLOWS FOR THE 2- THROUGH 10-YEAR STORM EVENTS

Encompass Site

	95th		2 Year		5 Year		10 Year	
	Pre-Con	Post-Con	Pre-Con	Post-Con	Pre-Con	Post-Con	Pre-Con	Post-Con
Peak Flow	0.15cfs	0.0cfs	0.58 cfs	0.05 cfs	0.84cfs	0.18cfs	1.06cfs	0.87cfs
Runoff Volume	1396 cf	0cf	5113 cf	1011cf	7458 cf	1901 cf	9448 cf	4680 cf

MidPen Marchisio

	95th		2 Year		5 Year		10 Year	
	Pre-Con	Post-Con	Pre-Con	Post-Con	Pre-Con	Post-Con	Pre-Con	Post-Con
Peak Flow	0.015cfs	0.0cfs	0.42 cfs	0.09 cfs	0.75cfs	0.71cfs	1.05cfs	0.79cfs
Runoff Volume	496 cf	0cf	4106 cf	2451cf	6933 cf	8769 cf	9508 cf	4068 cf

MidPen Dinyari

	95th		2 Year		5 Year		10 Year	
	Pre-Con	Post-Con	Pre-Con	Post-Con	Pre-Con	Post-Con	Pre-Con	Post-Con
Peak Flow	0.015cfs	0.0cfs	0.45 cfs	0.39 cfs	0.92cfs	0.53cfs	1.36cfs	1.35cfs
Runoff Volume	161 cf	0cf	4106 cf	2503cf	4559 cf	4829 cf	6497 cf	6905 cf

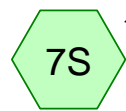
SEE ATTACHED HYDROGRAPHS AND SUMMARIES

Encompass



DMA2

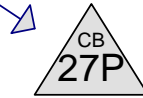
SCM1



DMA1

28R

12" Pipe



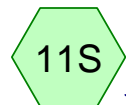
Post Con



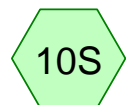
Encompass PreCon

30R

12" Pipe

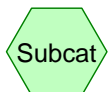


DMA4



DMA3

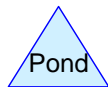
SCM2



Subcat



Reach



Pond



Link

Routing Diagram for 118186 HydroCAD Encompass

Prepared by C3 Engineering, INC., Printed 6/11/2019

HydroCAD® 10.00-21 s/n 07597 © 2018 HydroCAD Software Solutions LLC

118186 HydroCAD Encompas

Prepared by C3 Engineering, INC.

HydroCAD® 10.00-21 s/n 07597 © 2018 HydroCAD Software Solutions LLC

CA 24-hr 5 0-2x85th Rainfall=1.60"

Printed 6/11/2019

Page 1

Summary for Pond 8P: SCM1

Inflow Area = 14,001 sf, 100.00% Impervious, Inflow Depth = 1.38" for 0-2x85th event
 Inflow = 0.19 cfs @ 12.29 hrs, Volume= 1,609 cf
 Outflow = 0.01 cfs @ 4.50 hrs, Volume= 1,576 cf, Atten= 97%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 4.50 hrs, Volume= 1,576 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs / 2
 Peak Elev= 72.06' @ 24.26 hrs Surf.Area= 1,096 sf Storage= 1,121 cf

Plug-Flow detention time= 1,461.4 min calculated for 1,573 cf (98% of inflow)
 Center-of-Mass det. time= 1,450.1 min (2,252.5 - 802.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	70.50'	1,020 cf	20.50'W x 53.46'L x 3.50'H Field A 3,836 cf Overall - 1,286 cf Embedded = 2,549 cf x 40.0% Voids
#2A	71.00'	1,286 cf	ADS StormTech SC-740 +Cap x 28 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 4 Rows of 7 Chambers
		2,306 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	70.50'	0.250 in/hr Exfiltration over Surface area
#2	Primary	73.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 4.50 hrs HW=70.54' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=70.50' (Free Discharge)
 ↑ **2=Orifice/Grate** (Controls 0.00 cfs)

Pond 8P: SCM1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

7 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 51.46' Row Length +12.0" End Stone x 2 = 53.46' Base Length

4 Rows x 51.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.50' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

28 Chambers x 45.9 cf = 1,286.3 cf Chamber Storage

3,835.5 cf Field - 1,286.3 cf Chambers = 2,549.2 cf Stone x 40.0% Voids = 1,019.7 cf Stone Storage

Chamber Storage + Stone Storage = 2,306.0 cf = 0.053 af

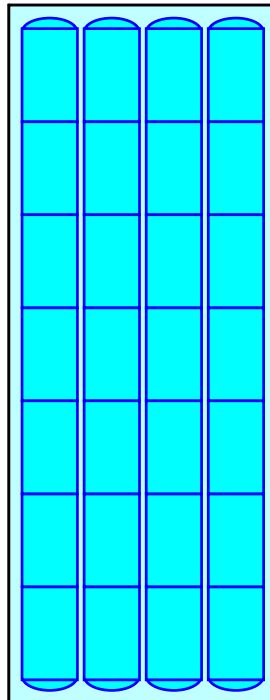
Overall Storage Efficiency = 60.1%

Overall System Size = 53.46' x 20.50' x 3.50'

28 Chambers

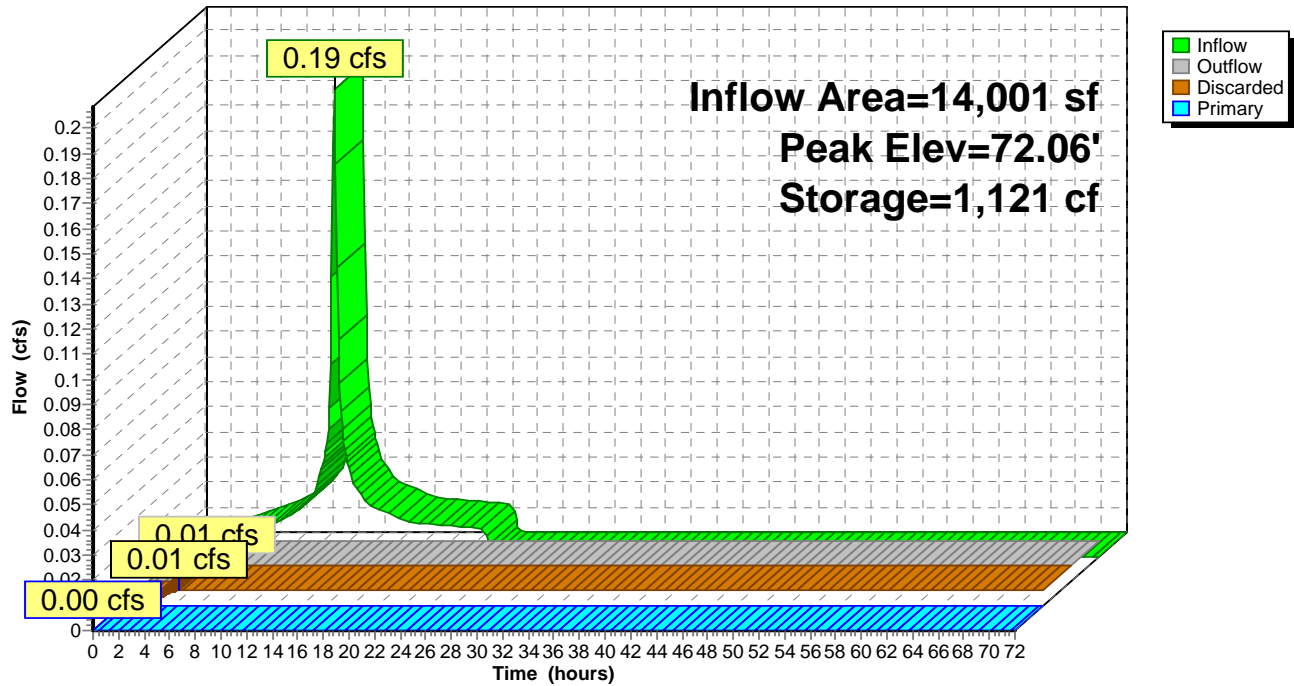
142.1 cy Field

94.4 cy Stone



Pond 8P: SCM1

Hydrograph



Summary for Pond 12P: SCM2

Inflow Area = 8,748 sf, 100.00% Impervious, Inflow Depth = 1.38" for 0-2x85th event
 Inflow = 0.11 cfs @ 12.35 hrs, Volume= 1,005 cf
 Outflow = 0.01 cfs @ 5.50 hrs, Volume= 1,005 cf, Atten= 95%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 5.50 hrs, Volume= 1,005 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs / 4
 Peak Elev= 78.17' @ 24.26 hrs Surf.Area= 892 sf Storage= 615 cf

Plug-Flow detention time= 1,023.7 min calculated for 1,005 cf (100% of inflow)
 Center-of-Mass det. time= 1,023.2 min (1,830.2 - 807.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	77.00'	644 cf	14.83'W x 60.16'L x 2.33'H Field A 2,082 cf Overall - 472 cf Embedded = 1,610 cf x 40.0% Voids
#2A	77.50'	472 cf	ADS StormTech SC-310 +Cap x 32 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 4 Rows of 8 Chambers
		1,116 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	77.00'	0.250 in/hr Exfiltration over Surface area
#2	Primary	80.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 5.50 hrs HW=77.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=77.00' (Free Discharge)
 ↑ **2=Orifice/Grate** (Controls 0.00 cfs)

Pond 12P: SCM2 - Chamber Wizard Field A**Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)**

Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf

Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

8 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 58.16' Row Length +12.0" End Stone x 2 = 60.16' Base Length

4 Rows x 34.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 14.83' Base Width

6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

32 Chambers x 14.7 cf = 471.7 cf Chamber Storage

2,082.2 cf Field - 471.7 cf Chambers = 1,610.5 cf Stone x 40.0% Voids = 644.2 cf Stone Storage

Chamber Storage + Stone Storage = 1,115.9 cf = 0.026 af

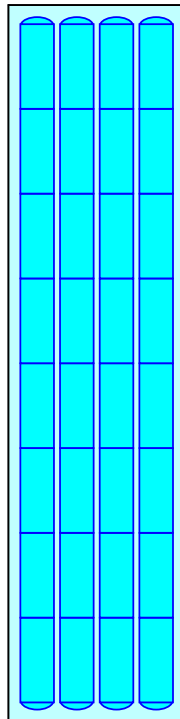
Overall Storage Efficiency = 53.6%

Overall System Size = 60.16' x 14.83' x 2.33'

32 Chambers

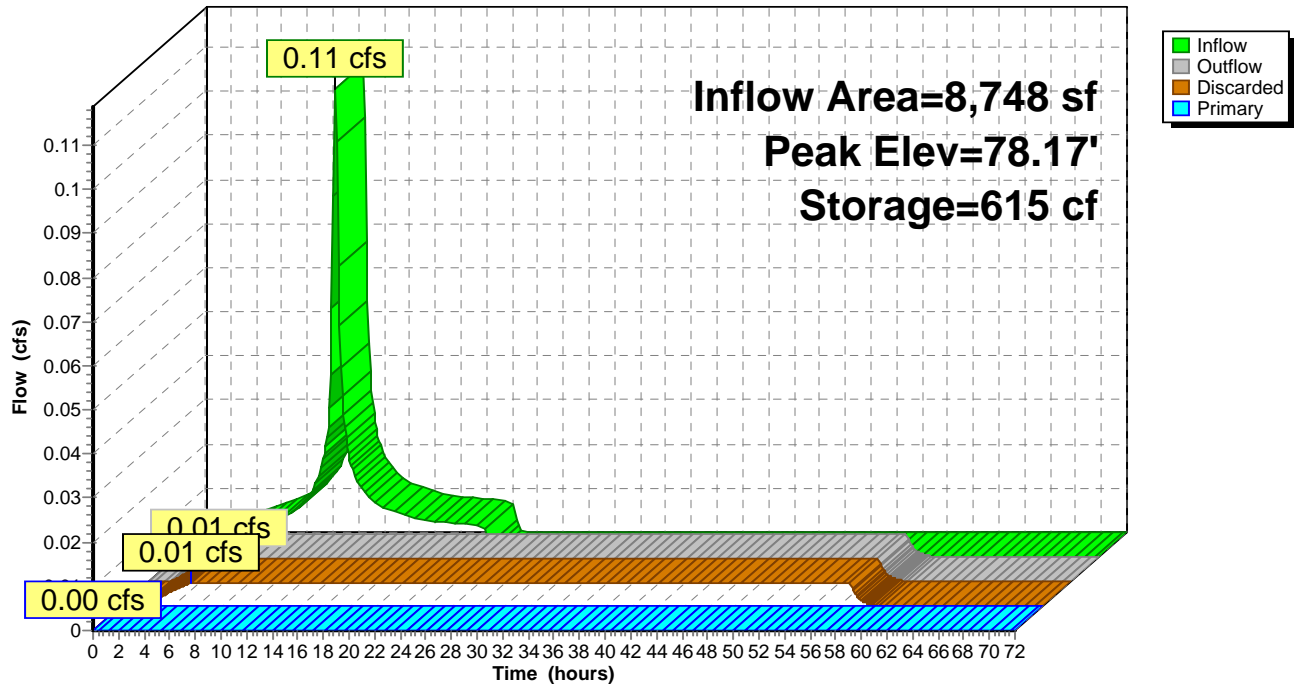
77.1 cy Field

59.6 cy Stone

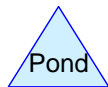
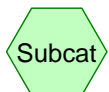
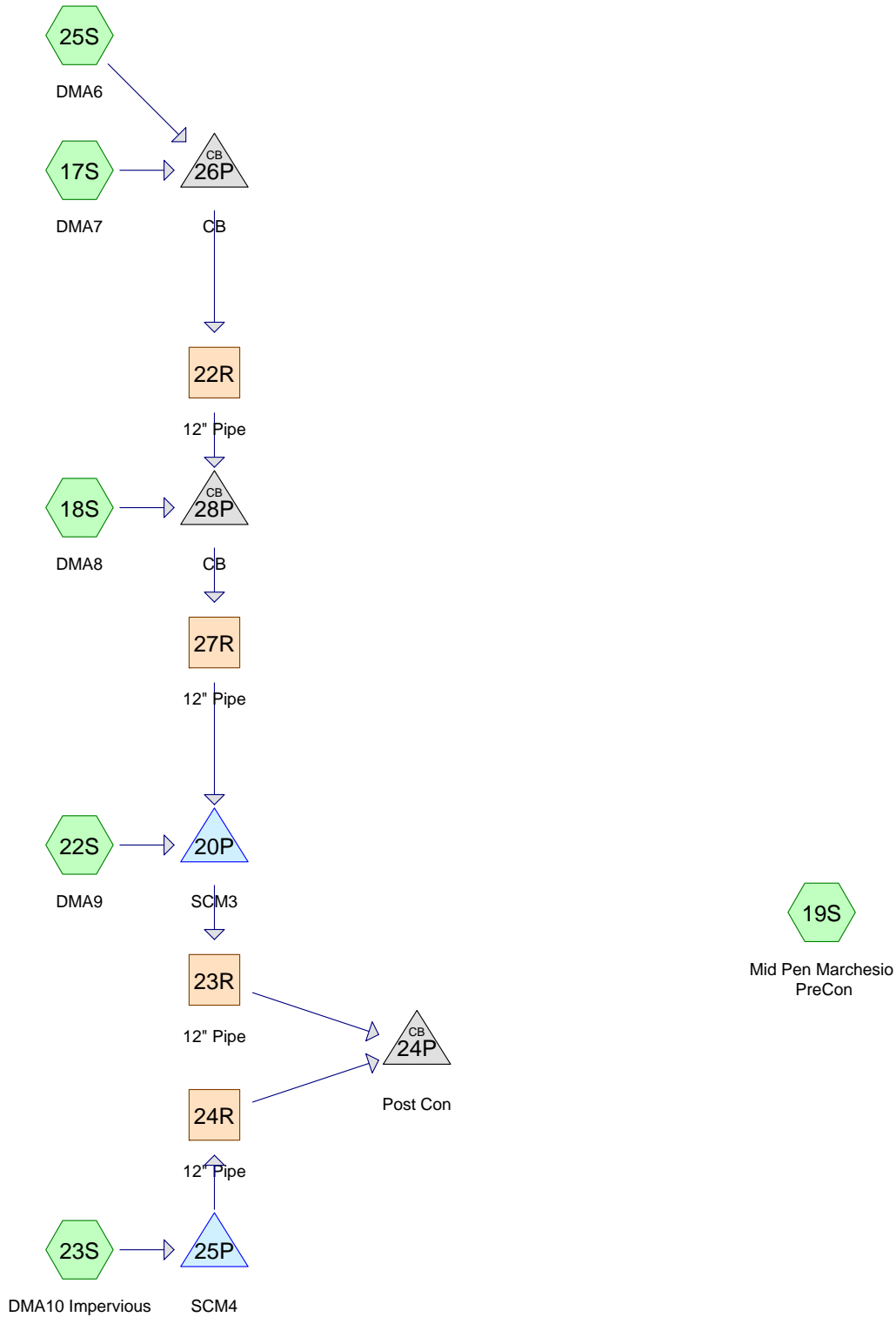


Pond 12P: SCM2

Hydrograph



Mid Pen Marchesio



Summary for Pond 20P: SCM3

Inflow Area = 32,635 sf, 100.00% Impervious, Inflow Depth = 1.38" for 0-2x85th event
 Inflow = 0.39 cfs @ 12.36 hrs, Volume= 3,750 cf
 Outflow = 0.01 cfs @ 3.60 hrs, Volume= 976 cf, Atten= 98%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 3.60 hrs, Volume= 976 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs / 2
 Peak Elev= 40.04' @ 24.48 hrs Surf.Area= 1,407 sf Storage= 3,107 cf

Plug-Flow detention time= 677.7 min calculated for 976 cf (26% of inflow)
 Center-of-Mass det. time= 354.9 min (1,163.3 - 808.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	36.75'	1,875 cf	15.33'W x 91.74'L x 5.25'H Field A 7,385 cf Overall - 2,698 cf Embedded = 4,687 cf x 40.0% Voids
#2A	37.75'	2,698 cf	ADS StormTech MC-3500 d +Cap x 24 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 2 Rows of 12 Chambers Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf
		4,573 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.75'	0.250 in/hr Exfiltration over Surface area
#2	Primary	42.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 3.60 hrs HW=36.80' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=36.75' (Free Discharge)
 ↑ **2=Orifice/Grate** (Controls 0.00 cfs)

Pond 20P: SCM3 - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf

77.0" Wide + 6.0" Spacing = 83.0" C-C Row Spacing

12 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 89.74' Row Length +12.0" End Stone x 2 = 91.74' Base Length

2 Rows x 77.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 15.33' Base Width

12.0" Base + 45.0" Chamber Height + 6.0" Cover = 5.25' Field Height

24 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 2 Rows = 2,698.4 cf Chamber Storage

7,385.1 cf Field - 2,698.4 cf Chambers = 4,686.6 cf Stone x 40.0% Voids = 1,874.6 cf Stone Storage

Chamber Storage + Stone Storage = 4,573.1 cf = 0.105 af

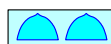
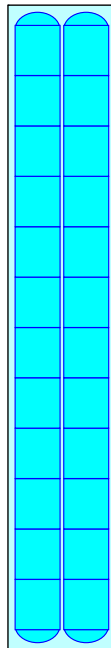
Overall Storage Efficiency = 61.9%

Overall System Size = 91.74' x 15.33' x 5.25'

24 Chambers

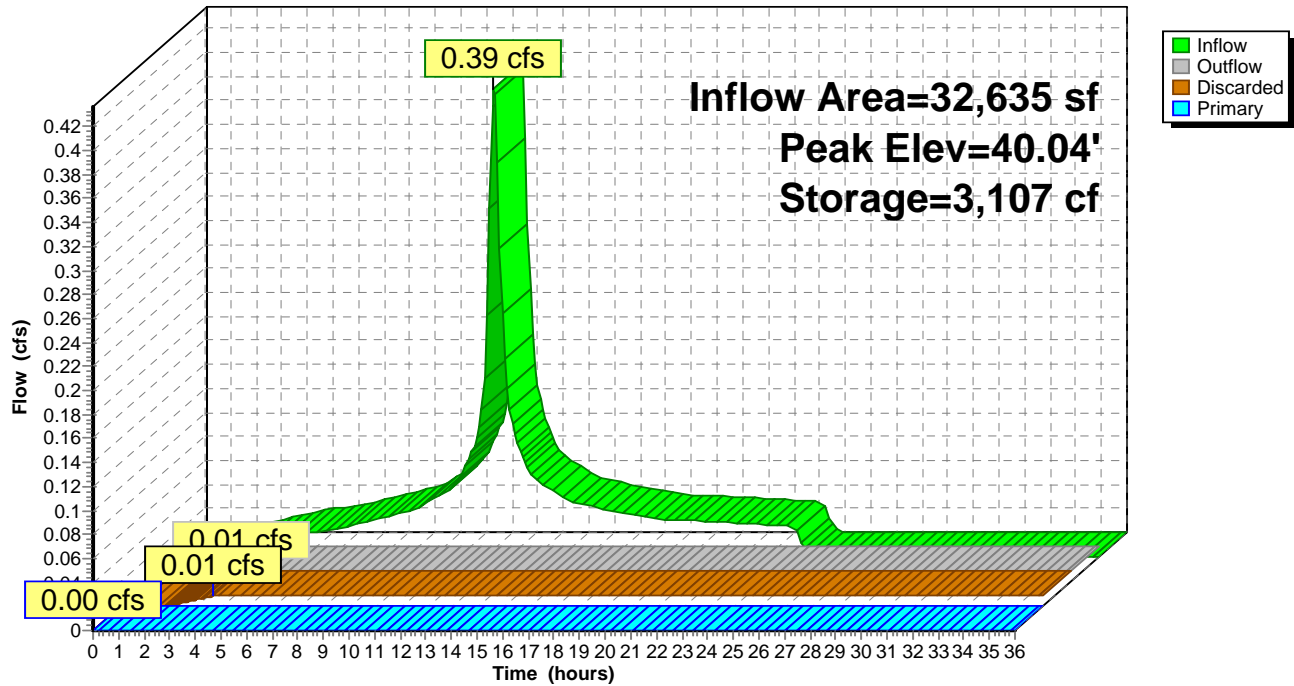
273.5 cy Field

173.6 cy Stone



Pond 20P: SCM3

Hydrograph



Summary for Pond 25P: SCM4

Inflow Area = 23,485 sf, 100.00% Impervious, Inflow Depth = 1.38" for 0-2x85th event
 Inflow = 0.31 cfs @ 12.29 hrs, Volume= 2,698 cf
 Outflow = 0.01 cfs @ 3.90 hrs, Volume= 897 cf, Atten= 98%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 3.90 hrs, Volume= 897 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
 Peak Elev= 37.27' @ 24.32 hrs Surf.Area= 1,297 sf Storage= 2,115 cf

Plug-Flow detention time= 637.7 min calculated for 894 cf (33% of inflow)
 Center-of-Mass det. time= 364.4 min (1,166.7 - 802.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	34.75'	1,732 cf	15.33'W x 84.57'L x 5.25'H Field A 6,808 cf Overall - 2,479 cf Embedded = 4,329 cf x 40.0% Voids
#2A	35.75'	2,479 cf	ADS StormTech MC-3500 d +Cap x 22 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 2 Rows of 11 Chambers Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf
		4,210 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.75'	0.250 in/hr Exfiltration over Surface area
#2	Primary	39.50'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 3.90 hrs HW=34.80' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=34.75' (Free Discharge)
 ↑ **2=Orifice/Grate** (Controls 0.00 cfs)

Pond 25P: SCM4 - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf

77.0" Wide + 6.0" Spacing = 83.0" C-C Row Spacing

11 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 82.57' Row Length +12.0" End Stone x 2 = 84.57' Base Length

2 Rows x 77.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 15.33' Base Width

12.0" Base + 45.0" Chamber Height + 6.0" Cover = 5.25' Field Height

22 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 2 Rows = 2,478.5 cf Chamber Storage

6,807.9 cf Field - 2,478.5 cf Chambers = 4,329.3 cf Stone x 40.0% Voids = 1,731.7 cf Stone Storage

Chamber Storage + Stone Storage = 4,210.3 cf = 0.097 af

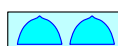
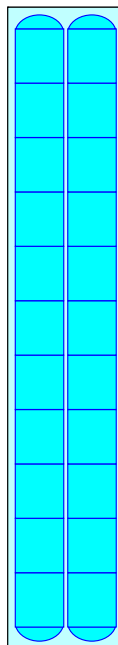
Overall Storage Efficiency = 61.8%

Overall System Size = 84.57' x 15.33' x 5.25'

22 Chambers

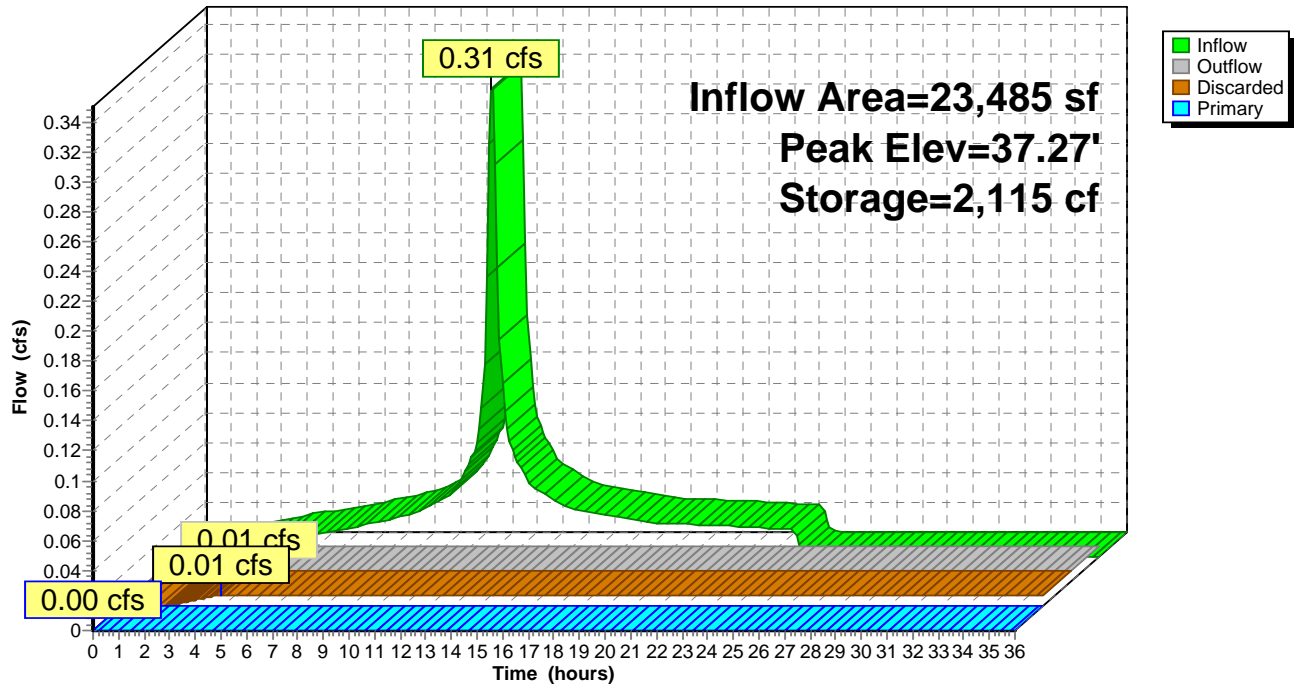
252.1 cy Field

160.3 cy Stone



Pond 25P: SCM4

Hydrograph



Summary for Pond 26P: CB

Inflow Area = 14,637 sf, 100.00% Impervious, Inflow Depth = 1.38" for 0-2x85th event
 Inflow = 0.18 cfs @ 12.35 hrs, Volume= 1,682 cf
 Outflow = 0.18 cfs @ 12.35 hrs, Volume= 1,682 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.18 cfs @ 12.35 hrs, Volume= 1,682 cf

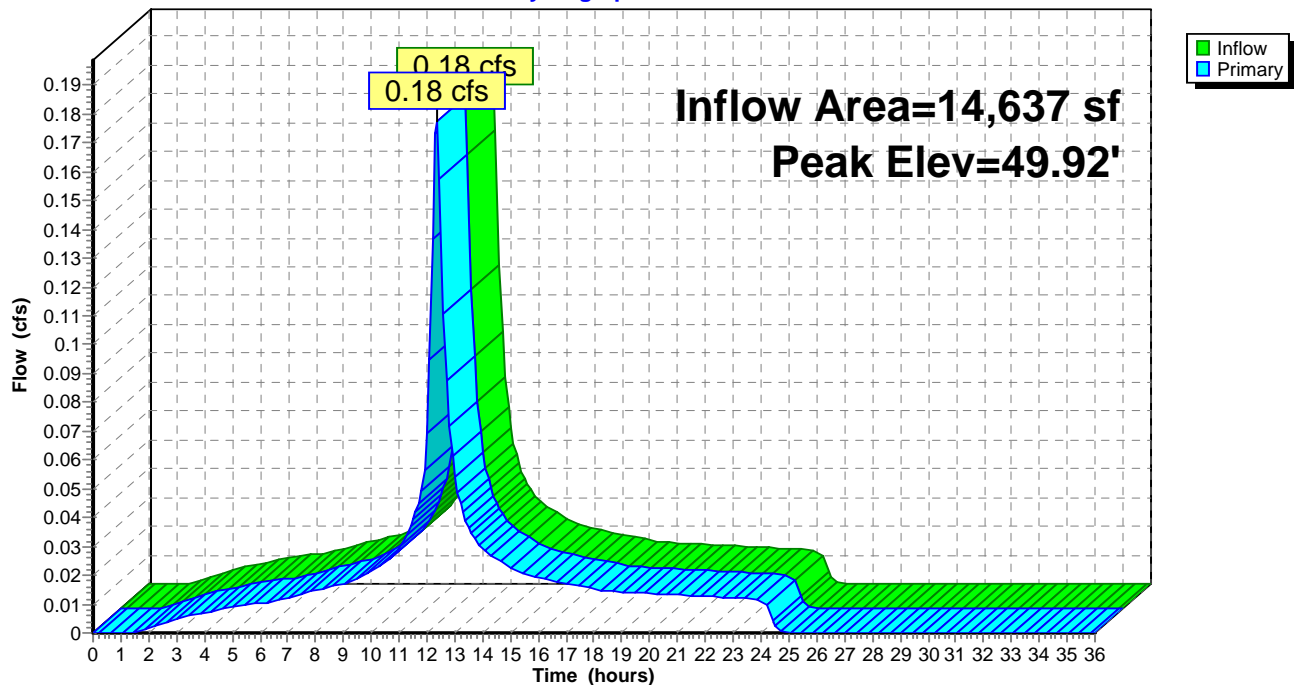
Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
 Peak Elev= 49.92' @ 12.35 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	49.72'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.17 cfs @ 12.35 hrs HW=49.92' (Free Discharge)
 ↳ 1=Orifice/Grate (Orifice Controls 0.17 cfs @ 1.53 fps)

Pond 26P: CB

Hydrograph



Summary for Pond 28P: CB

Inflow Area = 25,930 sf, 100.00% Impervious, Inflow Depth = 1.38" for 0-2x85th event
 Inflow = 0.31 cfs @ 12.36 hrs, Volume= 2,979 cf
 Outflow = 0.31 cfs @ 12.36 hrs, Volume= 2,979 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 12.36 hrs, Volume= 2,979 cf

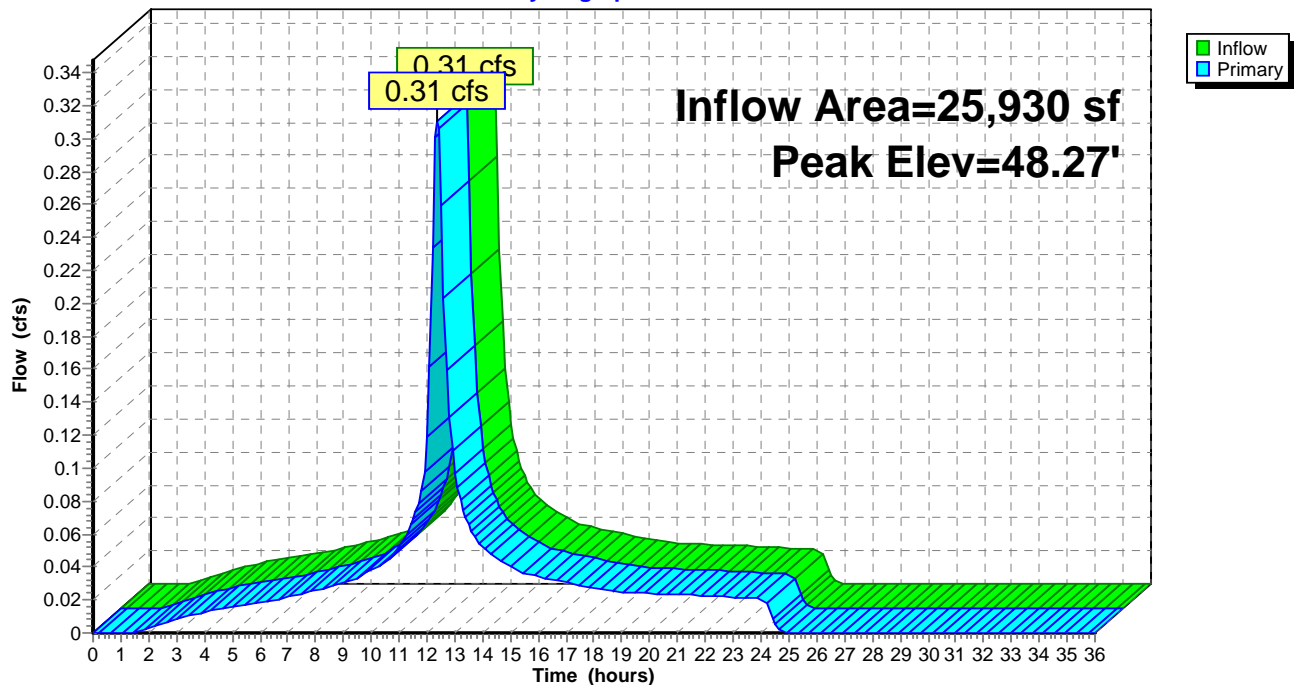
Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
 Peak Elev= 48.27' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	48.00'	12.0" Vert. Orifice/Grate C= 0.600

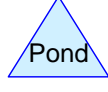
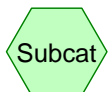
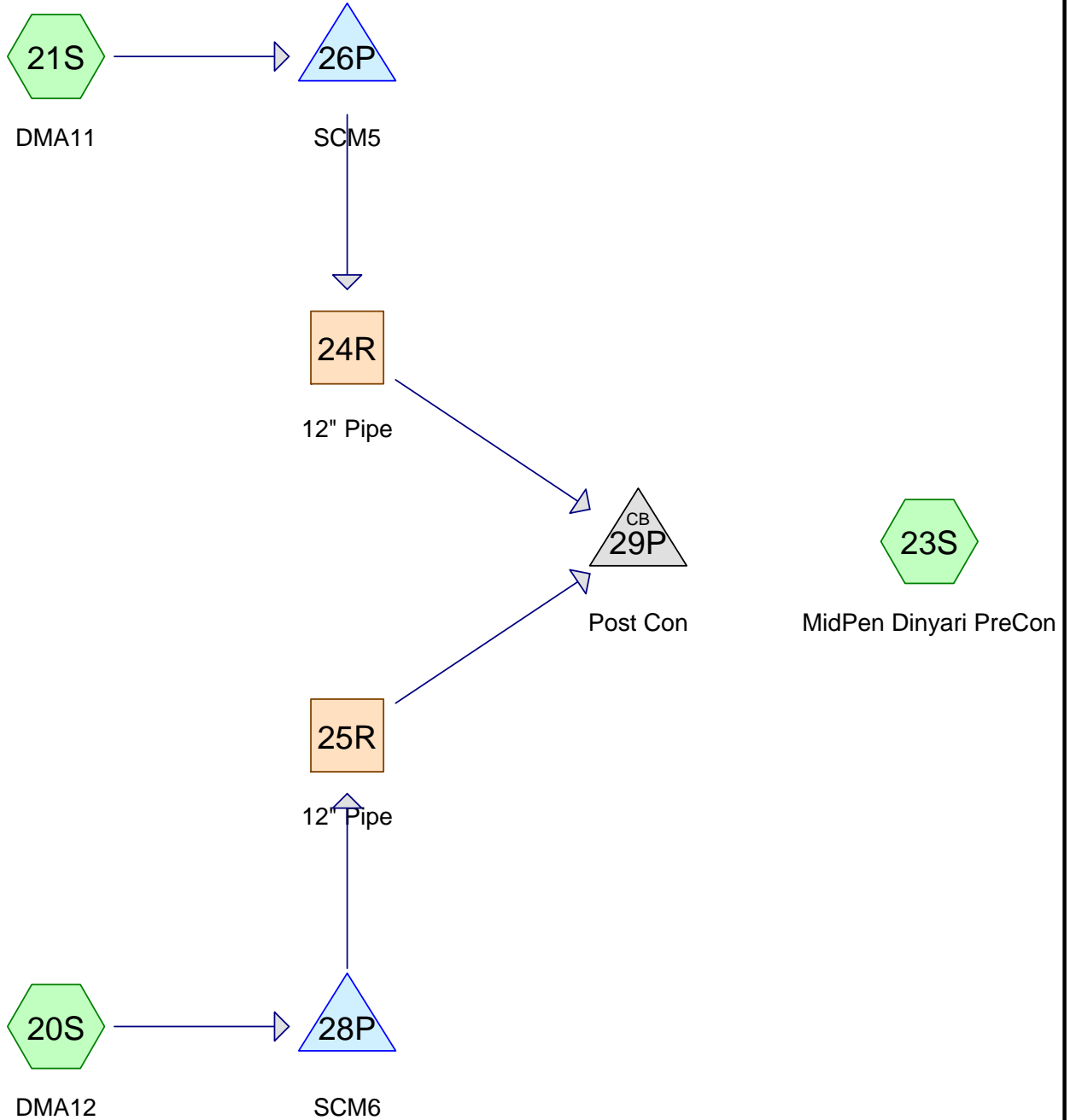
Primary OutFlow Max=0.30 cfs @ 12.36 hrs HW=48.27' (Free Discharge)
 ↳ 1=Orifice/Grate (Orifice Controls 0.30 cfs @ 1.77 fps)

Pond 28P: CB

Hydrograph



MidPen Dinyari



Summary for Pond 26P: SCM5

Inflow Area = 22,904 sf, 100.00% Impervious, Inflow Depth = 1.38" for 0-2x85th event
 Inflow = 0.31 cfs @ 12.28 hrs, Volume= 2,632 cf
 Outflow = 0.01 cfs @ 3.99 hrs, Volume= 1,443 cf, Atten= 97%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 3.99 hrs, Volume= 1,443 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 27.38' @ 24.29 hrs Surf.Area= 1,534 sf Storage= 1,942 cf

Plug-Flow detention time= 914.7 min calculated for 1,443 cf (55% of inflow)
 Center-of-Mass det. time= 723.1 min (1,525.5 - 802.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	25.50'	1,412 cf	20.50'W x 74.82'L x 3.50'H Field A 5,368 cf Overall - 1,838 cf Embedded = 3,530 cf x 40.0% Voids
#2A	26.00'	1,838 cf	ADS StormTech SC-740 +Cap x 40 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 4 Rows of 10 Chambers
		3,250 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	25.50'	0.250 in/hr Exfiltration over Surface area
#2	Primary	28.50'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 3.99 hrs HW=25.54' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=25.50' (Free Discharge)
 ↑ **2=Orifice/Grate** (Controls 0.00 cfs)

Pond 26P: SCM5 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

10 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 72.82' Row Length +12.0" End Stone x 2 = 74.82' Base Length

4 Rows x 51.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.50' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

40 Chambers x 45.9 cf = 1,837.6 cf Chamber Storage

5,368.1 cf Field - 1,837.6 cf Chambers = 3,530.5 cf Stone x 40.0% Voids = 1,412.2 cf Stone Storage

Chamber Storage + Stone Storage = 3,249.8 cf = 0.075 af

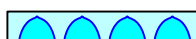
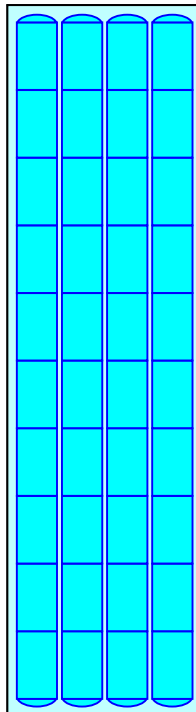
Overall Storage Efficiency = 60.5%

Overall System Size = 74.82' x 20.50' x 3.50'

40 Chambers

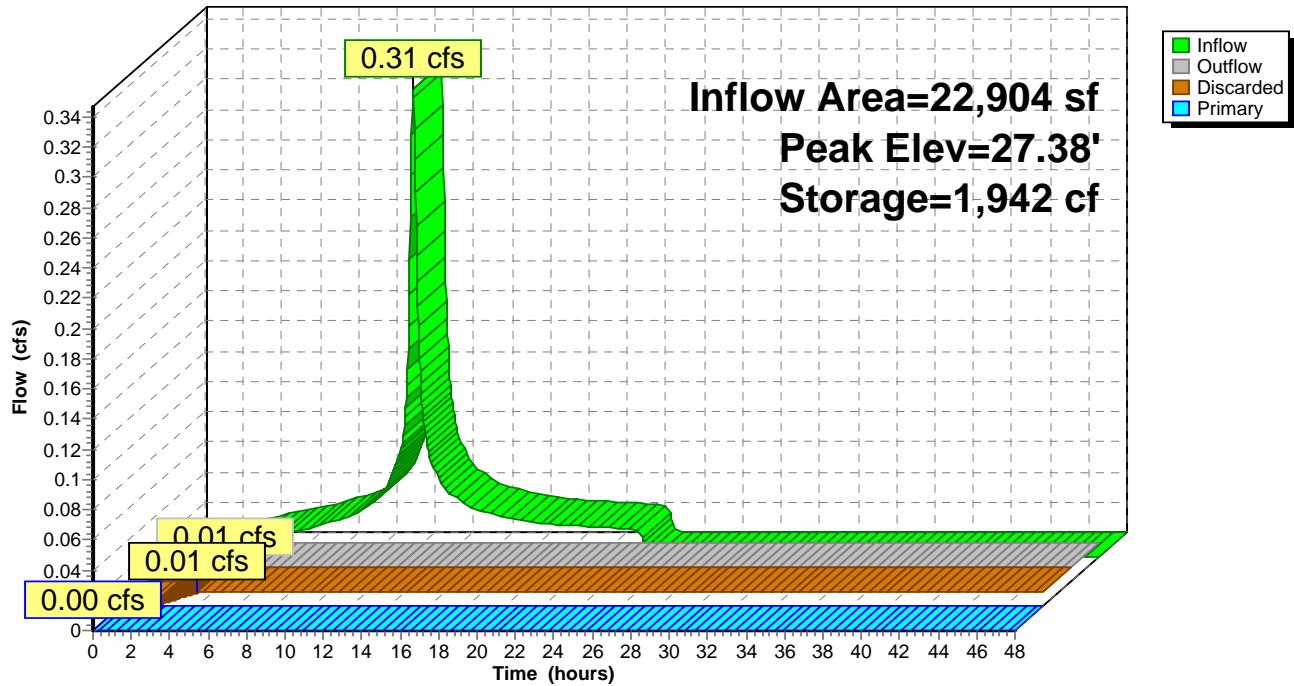
198.8 cy Field

130.8 cy Stone



Pond 26P: SCM5

Hydrograph



Summary for Pond 28P: SCM6

Inflow Area = 18,217 sf, 100.00% Impervious, Inflow Depth = 1.38" for 0-2x85th event
 Inflow = 0.25 cfs @ 12.28 hrs, Volume= 2,093 cf
 Outflow = 0.02 cfs @ 18.27 hrs, Volume= 1,291 cf, Atten= 92%, Lag= 359.2 min
 Discarded = 0.01 cfs @ 3.66 hrs, Volume= 1,043 cf
 Primary = 0.01 cfs @ 18.27 hrs, Volume= 249 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs / 4
 Peak Elev= 42.51' @ 18.27 hrs Surf.Area= 1,104 sf Storage= 1,384 cf

Plug-Flow detention time= 840.3 min calculated for 1,290 cf (62% of inflow)
 Center-of-Mass det. time= 668.8 min (1,471.1 - 802.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	39.50'	794 cf	14.83'W x 74.40'L x 2.33'H Field A 2,575 cf Overall - 590 cf Embedded = 1,985 cf x 40.0% Voids
#2A	40.00'	590 cf	ADS StormTech SC-310 +Cap x 40 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 4 Rows of 10 Chambers
		1,384 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	39.50'	0.250 in/hr Exfiltration over Surface area
#2	Primary	42.50'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 3.66 hrs HW=39.53' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.01 cfs @ 18.27 hrs HW=42.51' (Free Discharge)
 ↑ **2=Orifice/Grate** (Weir Controls 0.01 cfs @ 0.29 fps)

Pond 28P: SCM6 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)

Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf

Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

10 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 72.40' Row Length +12.0" End Stone x 2 = 74.40' Base Length

4 Rows x 34.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 14.83' Base Width

6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

40 Chambers x 14.7 cf = 589.7 cf Chamber Storage

2,575.1 cf Field - 589.7 cf Chambers = 1,985.4 cf Stone x 40.0% Voids = 794.2 cf Stone Storage

Chamber Storage + Stone Storage = 1,383.8 cf = 0.032 af

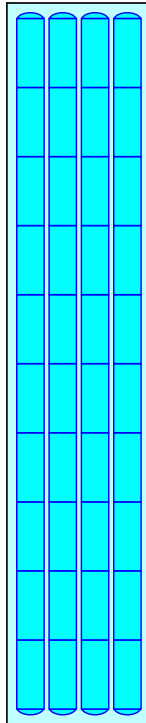
Overall Storage Efficiency = 53.7%

Overall System Size = 74.40' x 14.83' x 2.33'

40 Chambers

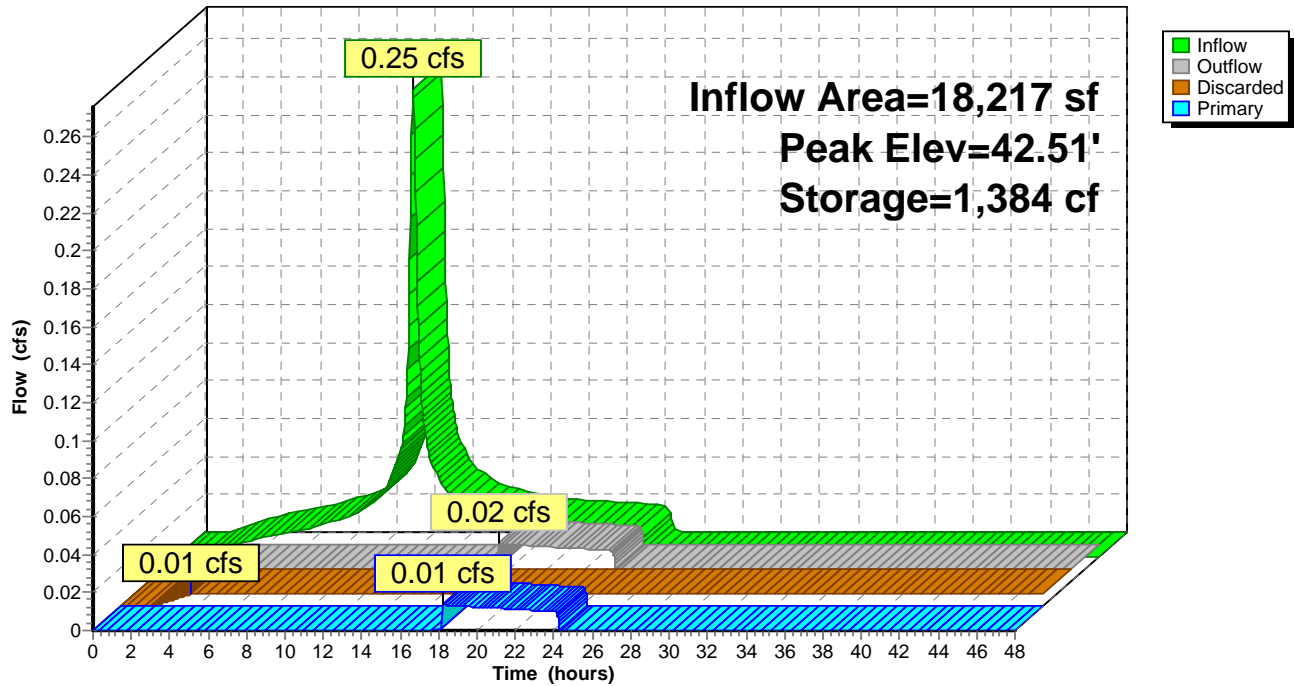
95.4 cy Field

73.5 cy Stone



Pond 28P: SCM6

Hydrograph



Summary for Subcatchment 13S: Encompass PreCon

Runoff = 0.15 cfs @ 12.37 hrs, Volume= 1,396 cf, Depth= 0.40"

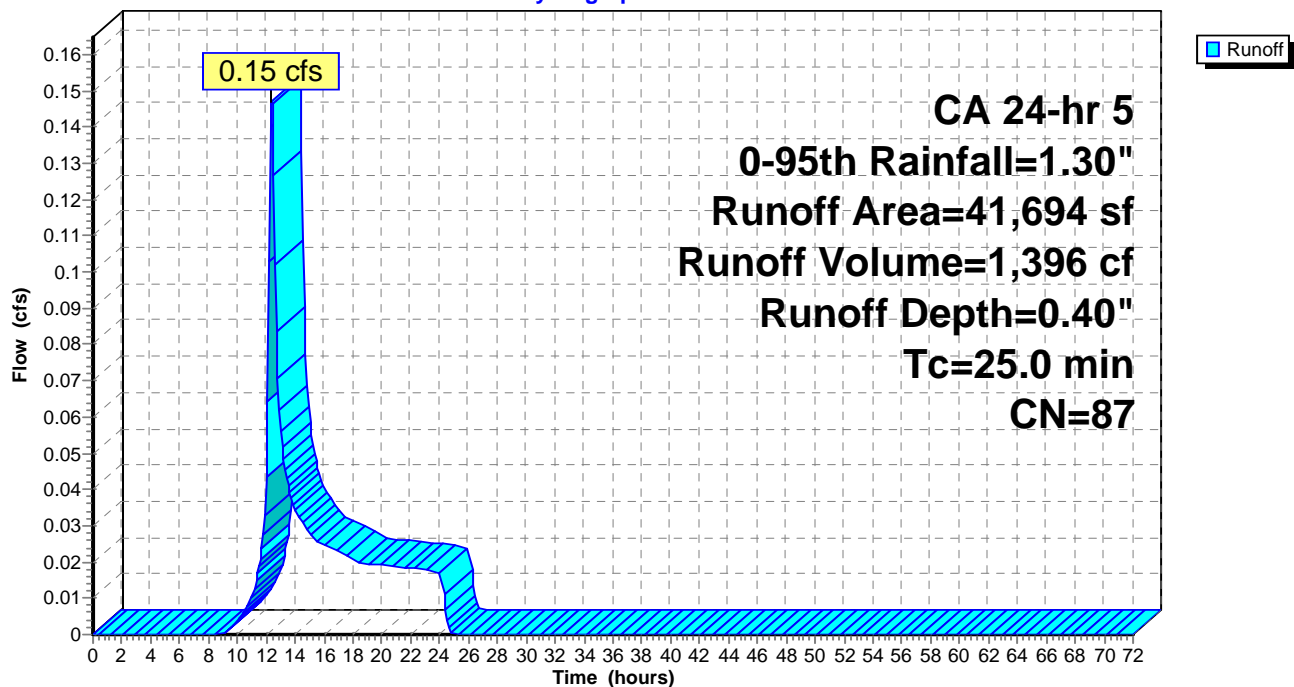
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
CA 24-hr 5 0-95th Rainfall=1.30"

	Area (sf)	CN	Description
*	26,536	98	Impervious
*	15,158	69	Pervious
	41,694	87	Weighted Average
	15,158		36.36% Pervious Area
	26,536		63.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0					Direct Entry,

Subcatchment 13S: Encompass PreCon

Hydrograph



Summary for Pond 27P: Post Con

Inflow Area = 22,749 sf, 100.00% Impervious, Inflow Depth = 0.00" for 0-95th event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

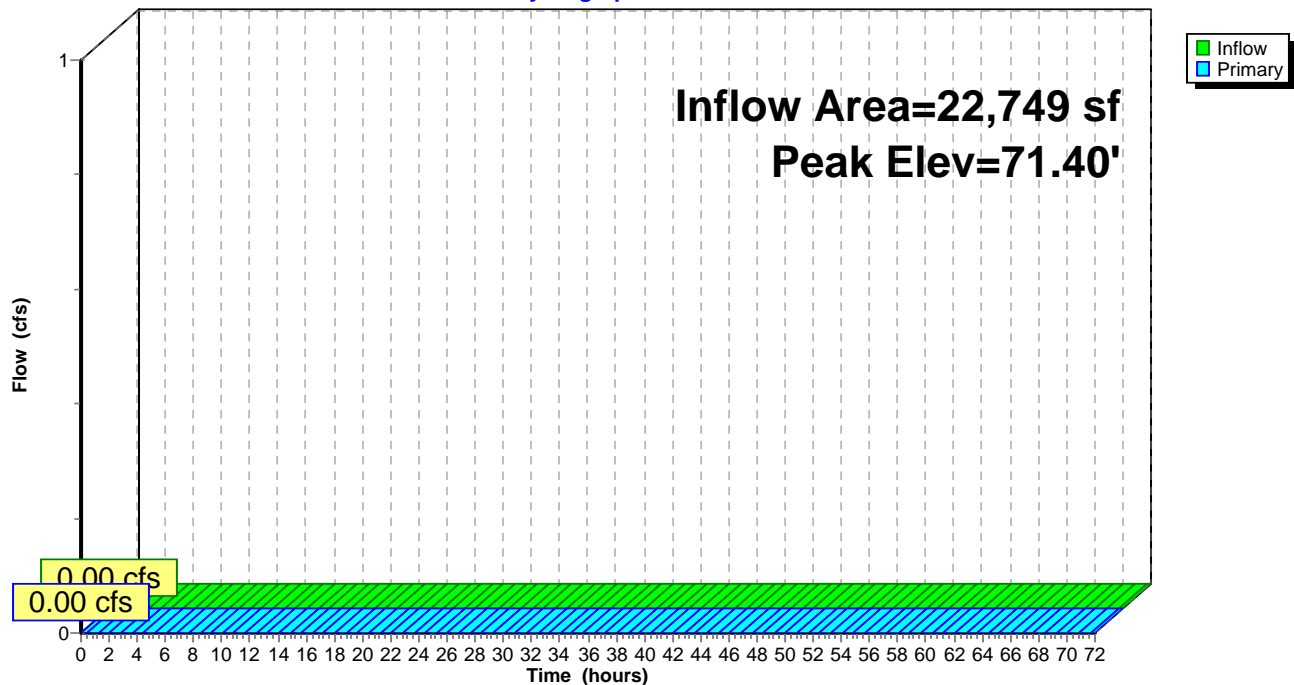
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
Peak Elev= 71.40' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	71.40'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.40' (Free Discharge)
1=Orifice/Grate (Controls 0.00 cfs)

Pond 27P: Post Con

Hydrograph



Summary for Subcatchment 13S: Encompass PreCon

Runoff = 0.58 cfs @ 12.36 hrs, Volume= 5,113 cf, Depth= 1.47"

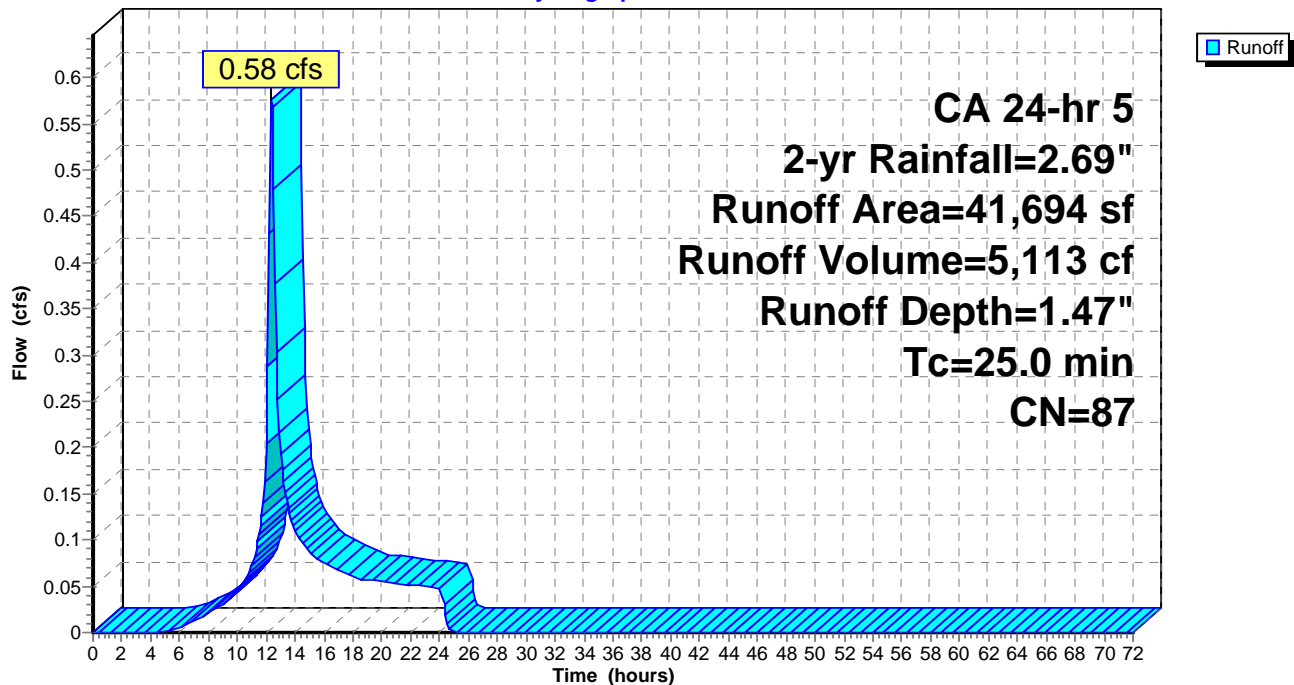
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
CA 24-hr 5 2-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	26,536	98	Impervious
*	15,158	69	Pervious
	41,694	87	Weighted Average
	15,158		36.36% Pervious Area
	26,536		63.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0					Direct Entry,

Subcatchment 13S: Encompass PreCon

Hydrograph



Summary for Pond 27P: Post Con

Inflow Area = 22,749 sf, 100.00% Impervious, Inflow Depth = 0.53" for 2-yr event
 Inflow = 0.05 cfs @ 16.53 hrs, Volume= 1,011 cf
 Outflow = 0.05 cfs @ 16.53 hrs, Volume= 1,011 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.05 cfs @ 16.53 hrs, Volume= 1,011 cf

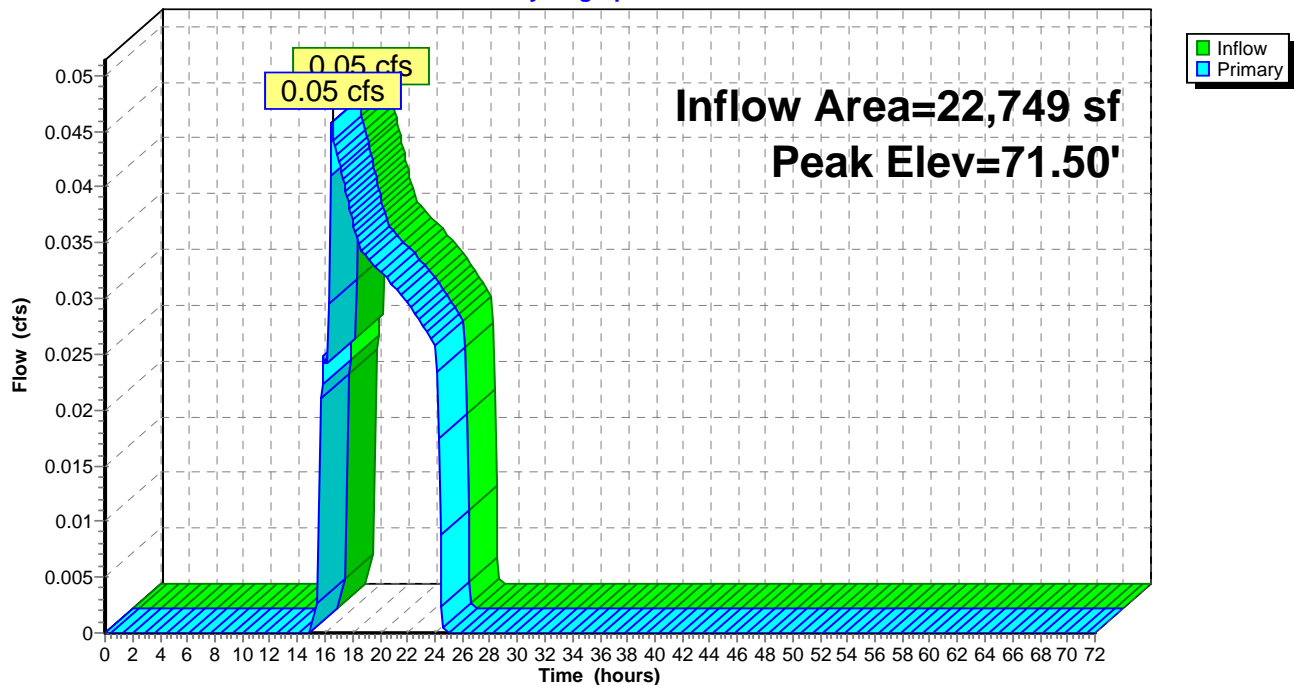
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
 Peak Elev= 71.50' @ 16.53 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	71.40'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.05 cfs @ 16.53 hrs HW=71.50' (Free Discharge)
 ↳ 1=Orifice/Grate (Orifice Controls 0.05 cfs @ 1.08 fps)

Pond 27P: Post Con

Hydrograph



Summary for Subcatchment 13S: Encompass PreCon

Runoff = 0.84 cfs @ 12.35 hrs, Volume= 7,458 cf, Depth= 2.15"

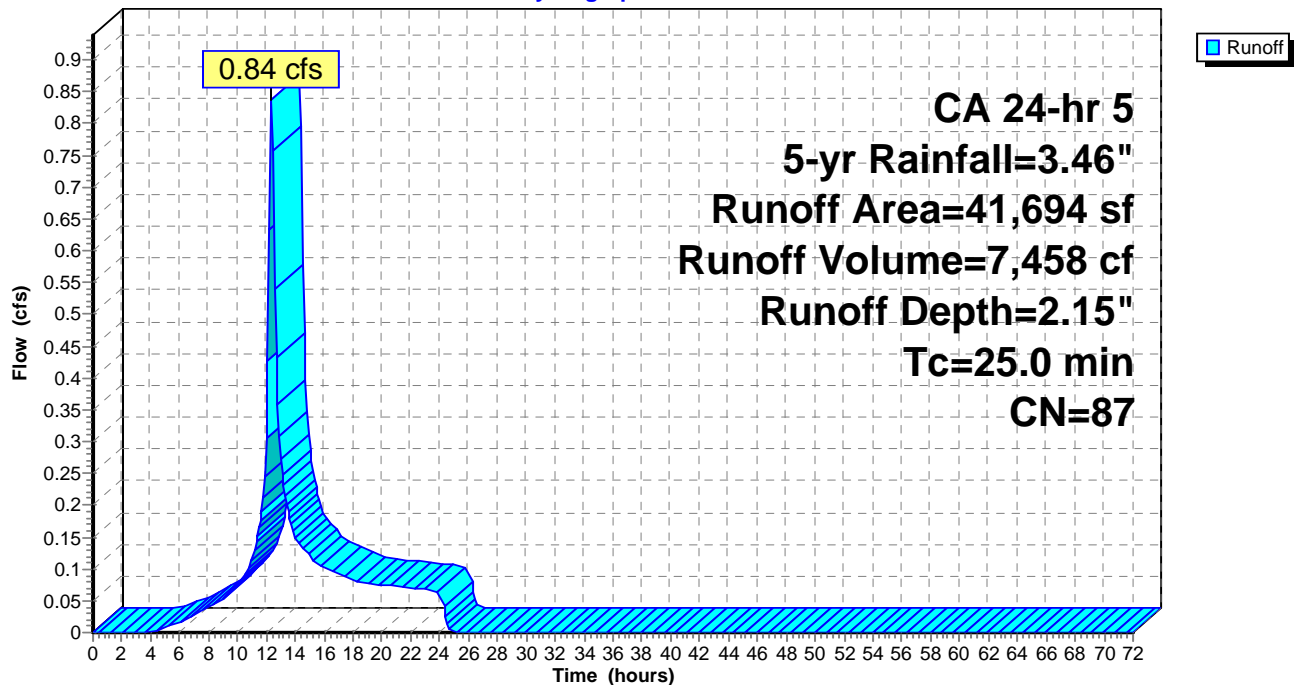
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
CA 24-hr 5 5-yr Rainfall=3.46"

	Area (sf)	CN	Description
*	26,536	98	Impervious
*	15,158	69	Pervious
	41,694	87	Weighted Average
	15,158		36.36% Pervious Area
	26,536		63.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0					Direct Entry,

Subcatchment 13S: Encompass PreCon

Hydrograph



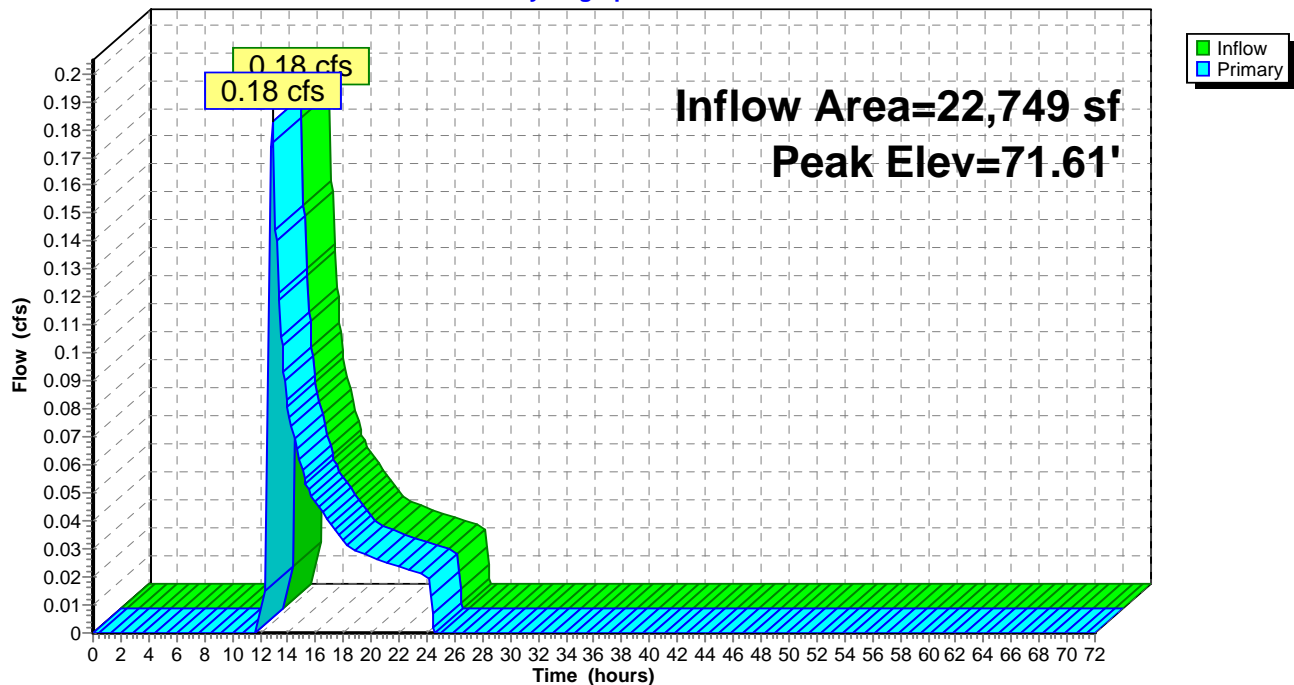
Summary for Pond 27P: Post Con

Inflow Area = 22,749 sf, 100.00% Impervious, Inflow Depth = 1.00" for 5-yr event
 Inflow = 0.18 cfs @ 12.91 hrs, Volume= 1,901 cf
 Outflow = 0.18 cfs @ 12.91 hrs, Volume= 1,901 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.18 cfs @ 12.91 hrs, Volume= 1,901 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
 Peak Elev= 71.61' @ 12.91 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	71.40'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.18 cfs @ 12.91 hrs HW=71.61' (Free Discharge)
 1=Orifice/Grate (Orifice Controls 0.18 cfs @ 1.55 fps)

Pond 27P: Post Con**Hydrograph**

Summary for Subcatchment 13S: Encompass PreCon

Runoff = 1.06 cfs @ 12.35 hrs, Volume= 9,448 cf, Depth= 2.72"

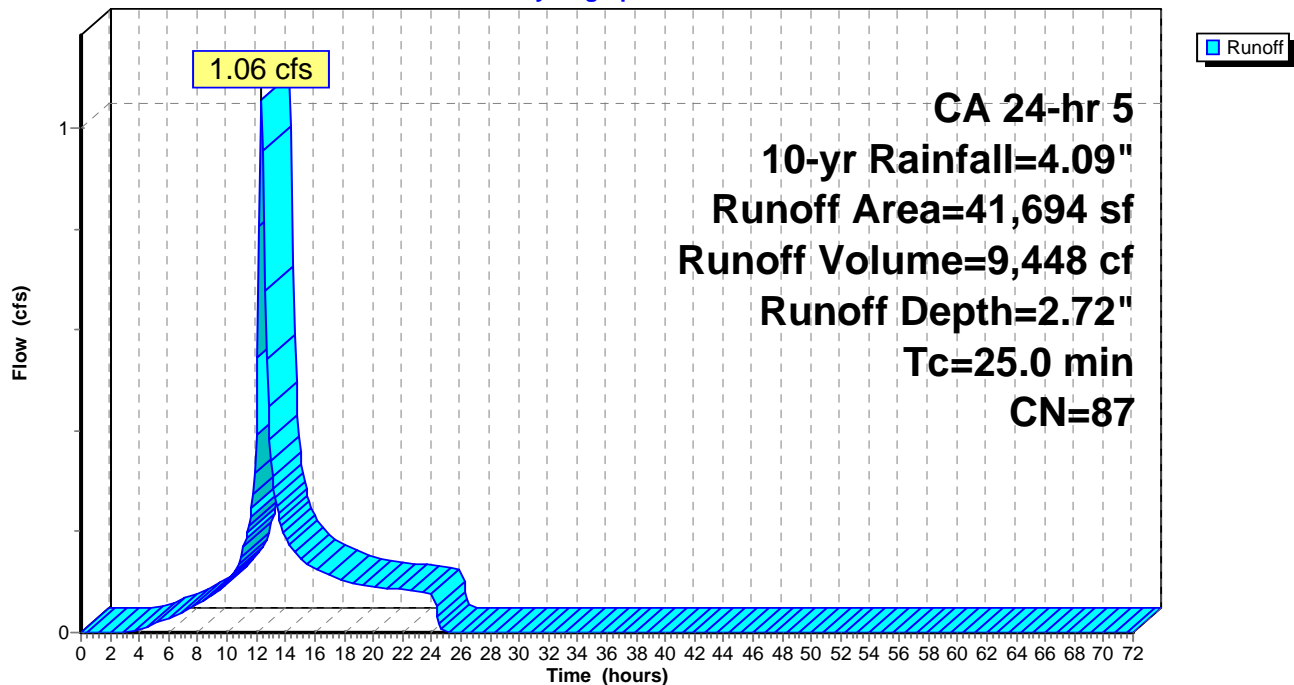
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
CA 24-hr 5 10-yr Rainfall=4.09"

	Area (sf)	CN	Description
*	26,536	98	Impervious
*	15,158	69	Pervious
	41,694	87	Weighted Average
	15,158		36.36% Pervious Area
	26,536		63.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0					Direct Entry,

Subcatchment 13S: Encompass PreCon

Hydrograph



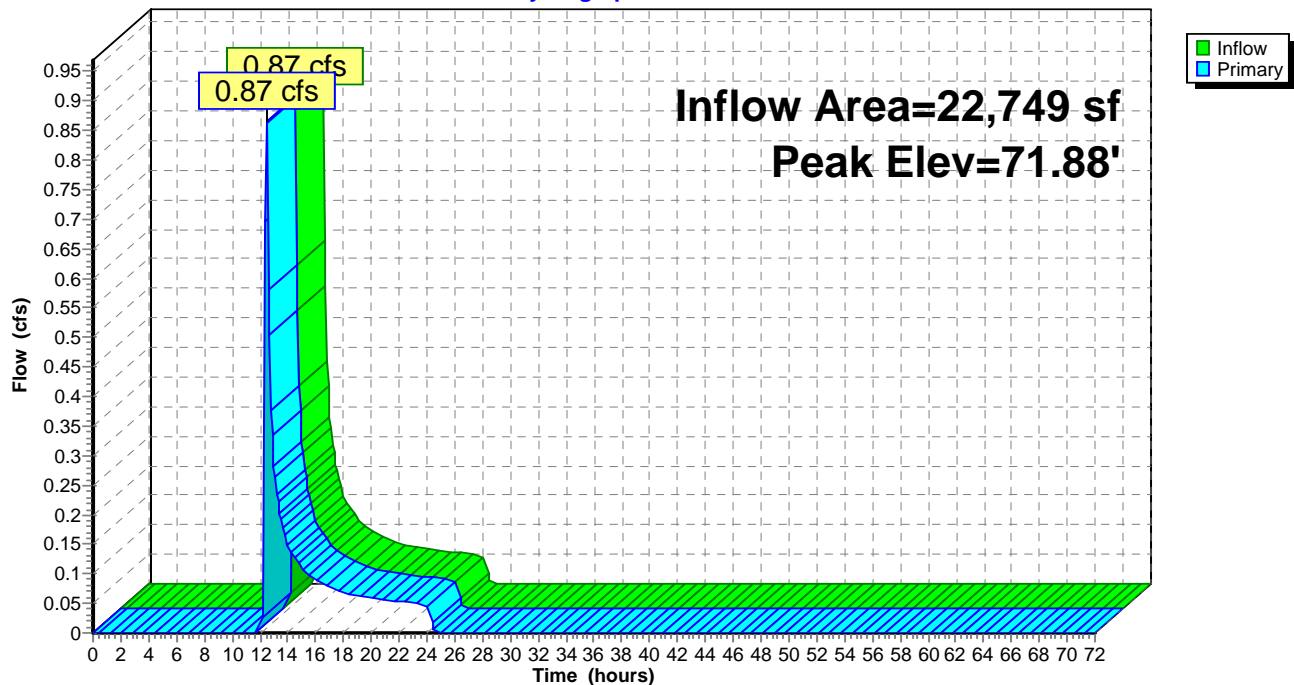
Summary for Pond 27P: Post Con

Inflow Area = 22,749 sf, 100.00% Impervious, Inflow Depth = 2.47" for 10-yr event
 Inflow = 0.87 cfs @ 12.49 hrs, Volume= 4,680 cf
 Outflow = 0.87 cfs @ 12.49 hrs, Volume= 4,680 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.87 cfs @ 12.49 hrs, Volume= 4,680 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.10 hrs
 Peak Elev= 71.88' @ 12.49 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	71.40'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.84 cfs @ 12.49 hrs HW=71.87' (Free Discharge)
 1=Orifice/Grate (Orifice Controls 0.84 cfs @ 2.33 fps)

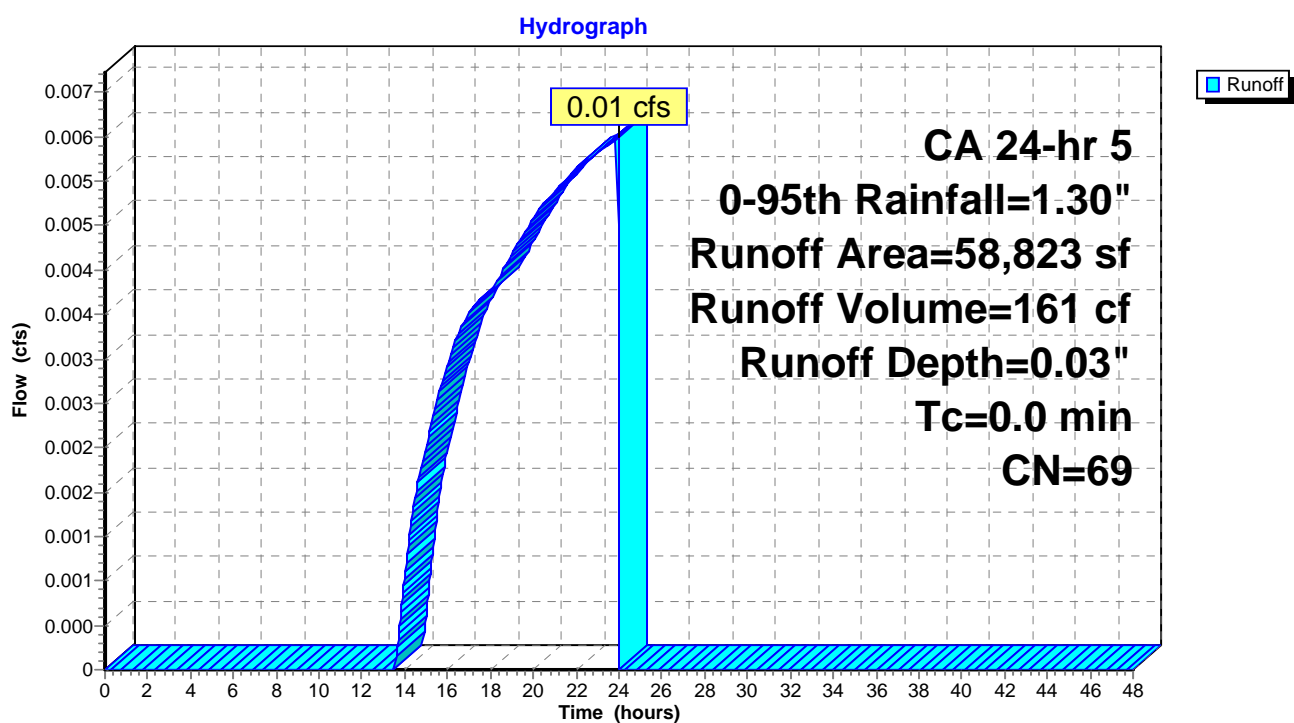
Pond 27P: Post Con**Hydrograph**

Summary for Subcatchment 23S: MidPen Dinyari PreCon

Runoff = 0.01 cfs @ 23.97 hrs, Volume= 161 cf, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs
CA 24-hr 5 0-95th Rainfall=1.30"

	Area (sf)	CN	Description
*	58,823	69	Impervious
	58,823		100.00% Pervious Area

Subcatchment 23S: MidPen Dinyari PreCon

Summary for Pond 29P: Post Con

Inflow Area = 41,121 sf, 100.00% Impervious, Inflow Depth = 0.00" for 0-95th event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

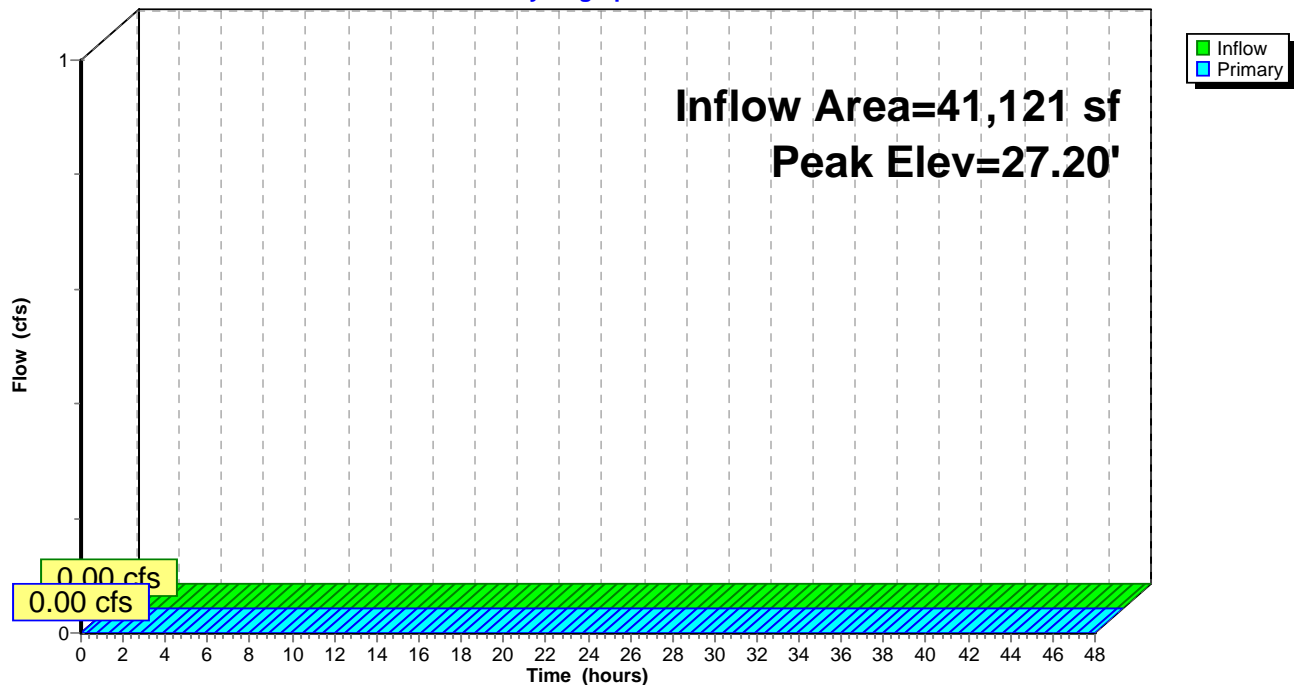
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs
 Peak Elev= 27.20' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	27.20'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=27.20' (Free Discharge)
 1=Orifice/Grate (Controls 0.00 cfs)

Pond 29P: Post Con

Hydrograph



Summary for Subcatchment 23S: MidPen Dinyari PreCon

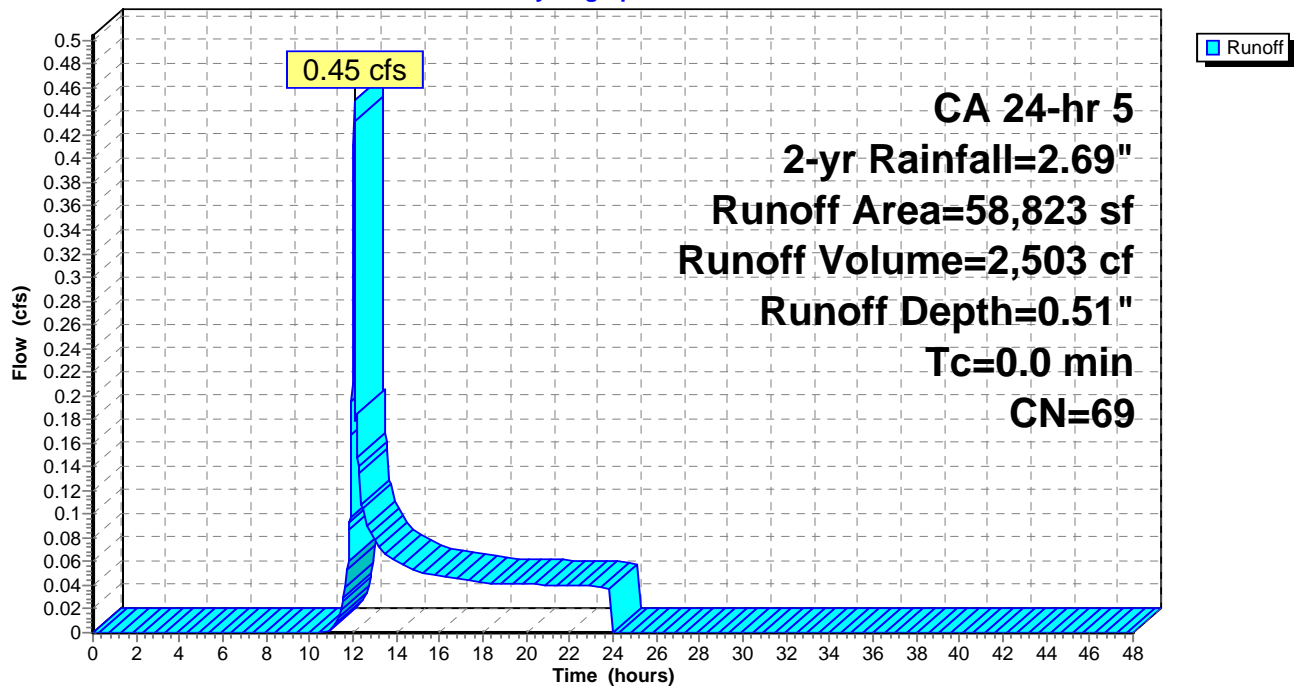
Runoff = 0.45 cfs @ 12.07 hrs, Volume= 2,503 cf, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs
CA 24-hr 5 2-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	58,823	69	Impervious
	58,823		100.00% Pervious Area

Subcatchment 23S: MidPen Dinyari PreCon

Hydrograph



Summary for Pond 29P: Post Con

Inflow Area = 41,121 sf, 100.00% Impervious, Inflow Depth = 0.46" for 2-yr event
 Inflow = 0.39 cfs @ 12.34 hrs, Volume= 1,584 cf
 Outflow = 0.39 cfs @ 12.34 hrs, Volume= 1,584 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.39 cfs @ 12.34 hrs, Volume= 1,584 cf

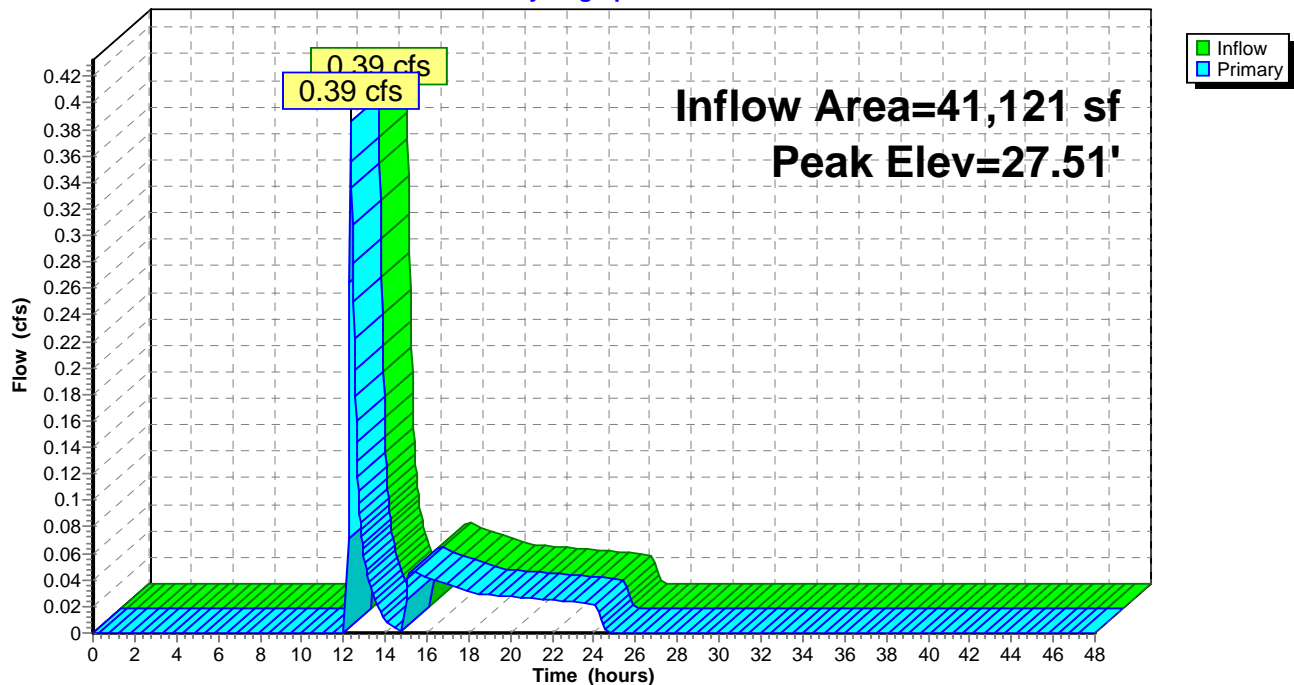
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs
 Peak Elev= 27.51' @ 12.34 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	27.20'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.37 cfs @ 12.34 hrs HW=27.50' (Free Discharge)
 ↳ **1=Orifice/Grate** (Orifice Controls 0.37 cfs @ 1.87 fps)

Pond 29P: Post Con

Hydrograph

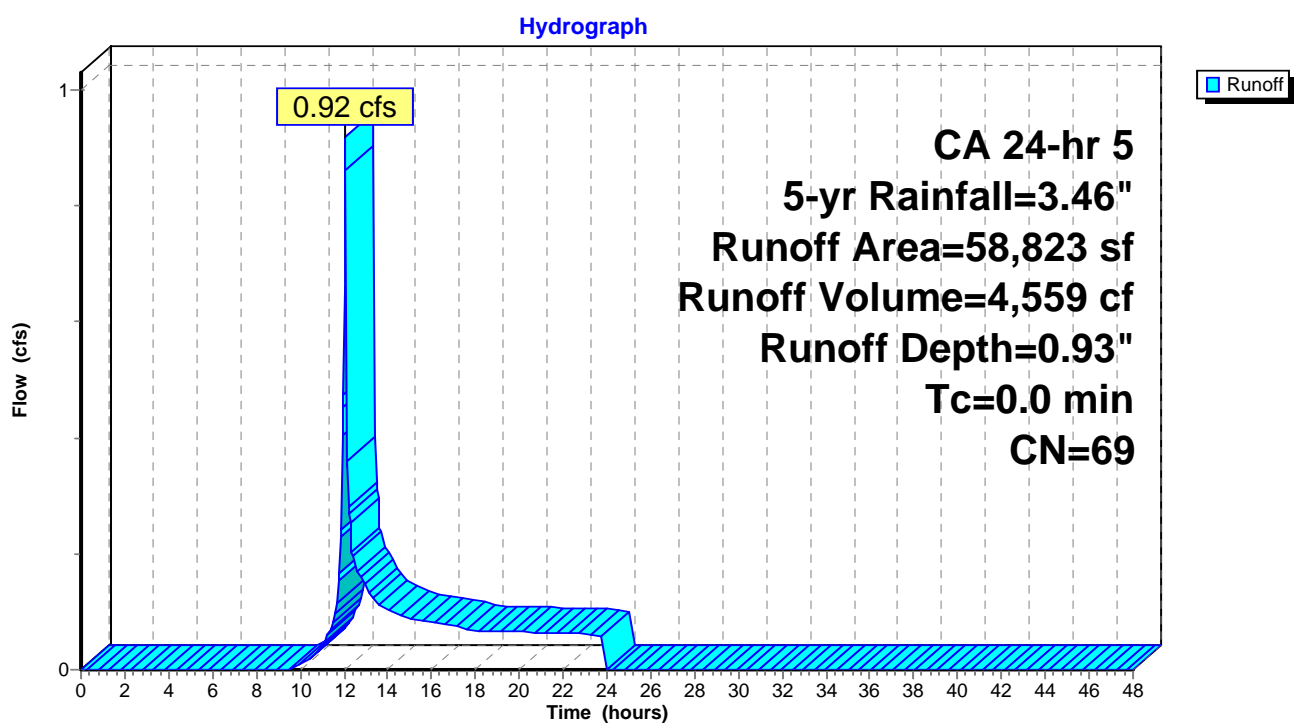


Summary for Subcatchment 23S: MidPen Dinyari PreCon

Runoff = 0.92 cfs @ 12.06 hrs, Volume= 4,559 cf, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs
CA 24-hr 5 5-yr Rainfall=3.46"

	Area (sf)	CN	Description
*	58,823	69	Impervious
	58,823		100.00% Pervious Area

Subcatchment 23S: MidPen Dinyari PreCon

Summary for Pond 29P: Post Con

Inflow Area = 41,121 sf, 100.00% Impervious, Inflow Depth = 1.41" for 5-yr event
 Inflow = 0.53 cfs @ 12.31 hrs, Volume= 4,829 cf
 Outflow = 0.53 cfs @ 12.31 hrs, Volume= 4,829 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.53 cfs @ 12.31 hrs, Volume= 4,829 cf

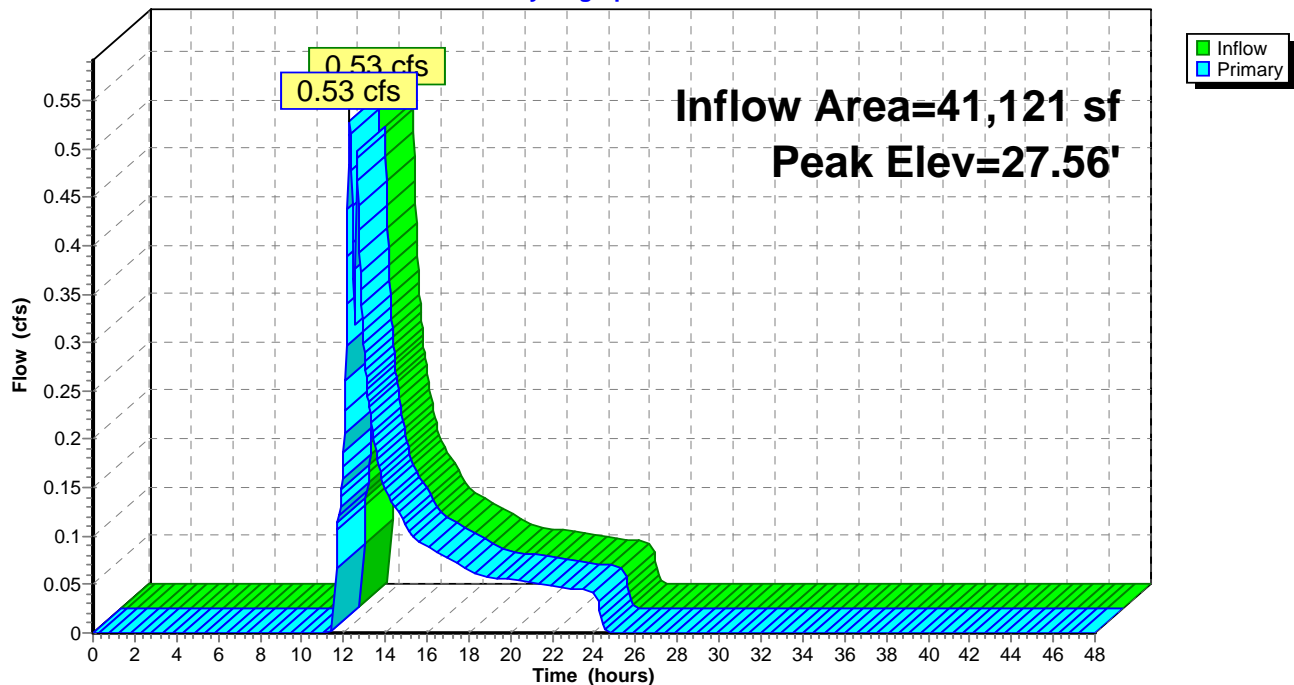
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs
 Peak Elev= 27.56' @ 12.31 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	27.20'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.53 cfs @ 12.31 hrs HW=27.56' (Free Discharge)
 ↳ 1=Orifice/Grate (Orifice Controls 0.53 cfs @ 2.05 fps)

Pond 29P: Post Con

Hydrograph

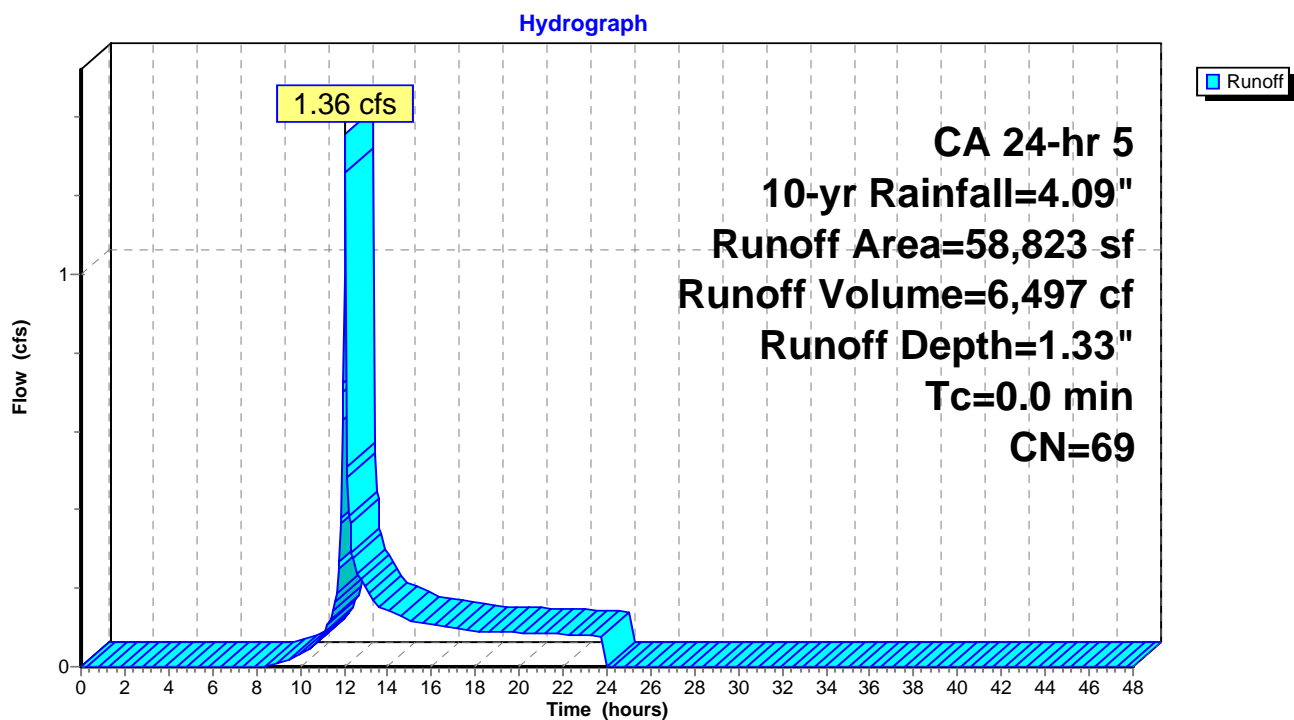


Summary for Subcatchment 23S: MidPen Dinyari PreCon

Runoff = 1.36 cfs @ 12.06 hrs, Volume= 6,497 cf, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs
CA 24-hr 5 10-yr Rainfall=4.09"

	Area (sf)	CN	Description
*	58,823	69	Impervious
	58,823		100.00% Pervious Area

Subcatchment 23S: MidPen Dinyari PreCon

Summary for Pond 29P: Post Con

Inflow Area = 41,121 sf, 100.00% Impervious, Inflow Depth = 2.02" for 10-yr event
Inflow = 1.35 cfs @ 12.36 hrs, Volume= 6,905 cf
Outflow = 1.35 cfs @ 12.36 hrs, Volume= 6,905 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.35 cfs @ 12.36 hrs, Volume= 6,905 cf

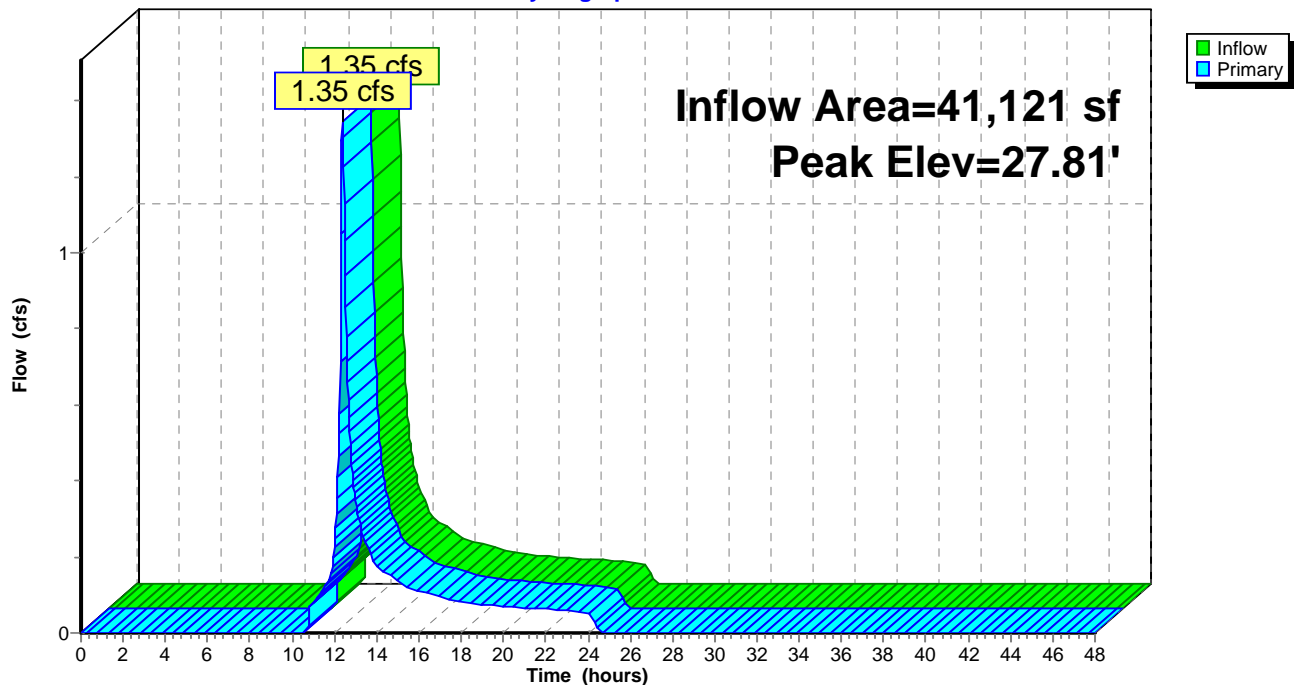
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs
Peak Elev= 27.81' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	27.20'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.34 cfs @ 12.36 hrs HW=27.81' (Free Discharge)
1=Orifice/Grate (Orifice Controls 1.34 cfs @ 2.66 fps)

Pond 29P: Post Con

Hydrograph



118186 HydroCAD MidPen March

Prepared by C3 Engineering, INC.

HydroCAD® 10.00-21 s/n 07597 © 2018 HydroCAD Software Solutions LLC

CA 24-hr 5 0-95th Rainfall=1.30"

Printed 6/11/2019

Page 1

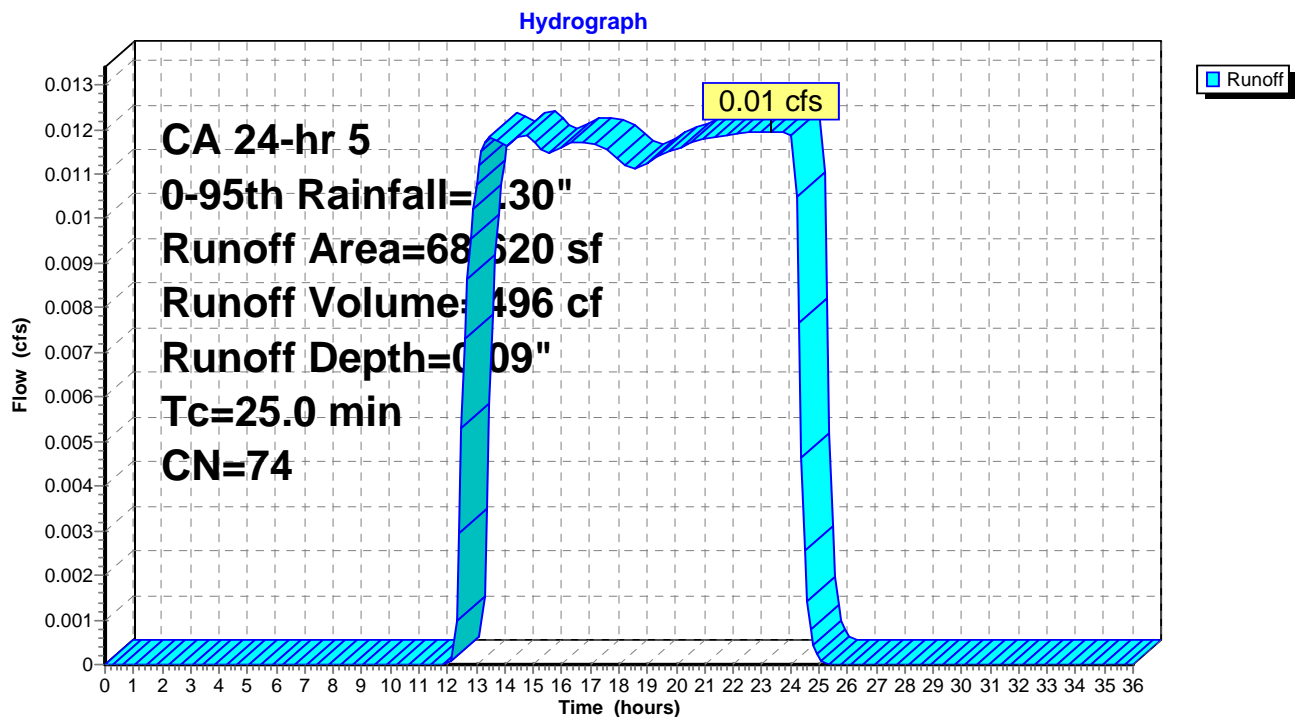
Summary for Subcatchment 19S: Mid Pen Marchesio PreCon

Runoff = 0.01 cfs @ 23.33 hrs, Volume= 496 cf, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
CA 24-hr 5 0-95th Rainfall=1.30"

	Area (sf)	CN	Description
*	11,887	98	Impervious
*	56,733	69	Pervious
	68,620	74	Weighted Average
	56,733		82.68% Pervious Area
	11,887		17.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0					Direct Entry,

Subcatchment 19S: Mid Pen Marchesio PreCon

Summary for Pond 24P: Post Con

Inflow Area = 56,120 sf, 100.00% Impervious, Inflow Depth = 0.00" for 0-95th event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

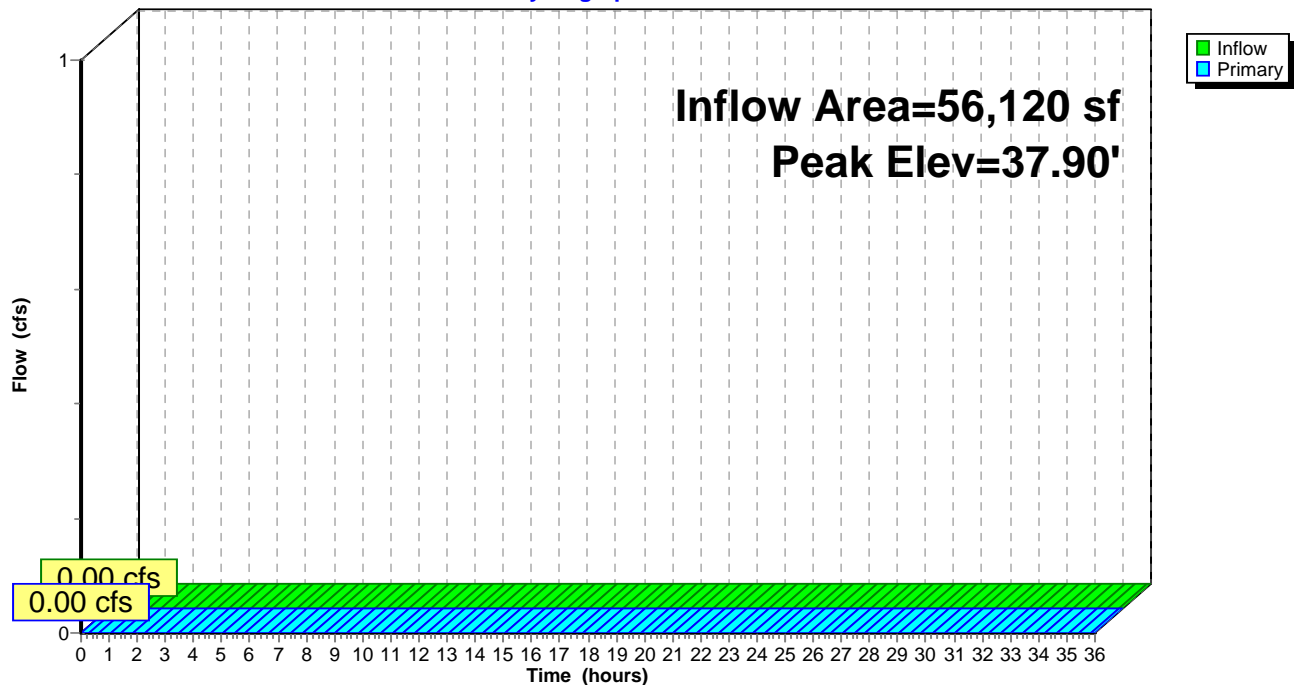
Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs / 2
Peak Elev= 37.90' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.90'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=37.90' (Free Discharge)
1=Orifice/Grate (Controls 0.00 cfs)

Pond 24P: Post Con

Hydrograph



Summary for Subcatchment 19S: Mid Pen Marchesio PreCon

Runoff = 0.42 cfs @ 12.38 hrs, Volume= 4,106 cf, Depth= 0.72"

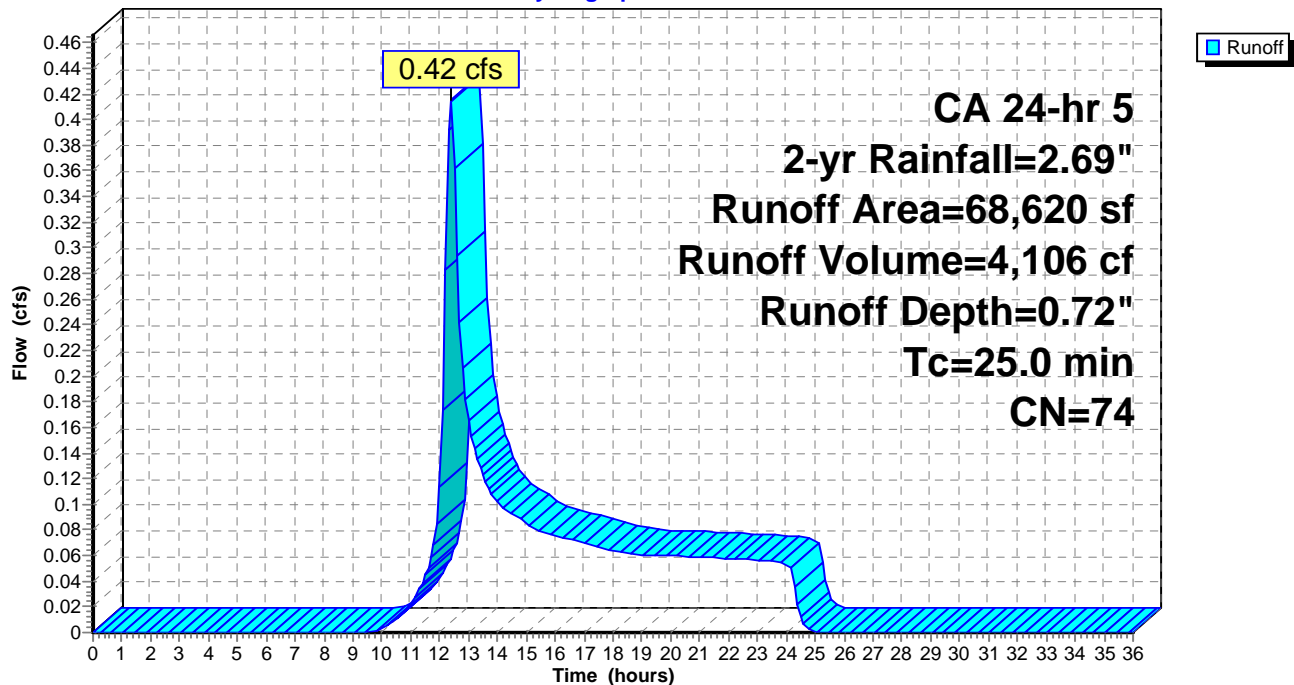
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
CA 24-hr 5 2-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	11,887	98	Impervious
*	56,733	69	Pervious
	68,620	74	Weighted Average
	56,733		82.68% Pervious Area
	11,887		17.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0					Direct Entry,

Subcatchment 19S: Mid Pen Marchesio PreCon

Hydrograph



Summary for Pond 24P: Post Con

Inflow Area = 56,120 sf, 100.00% Impervious, Inflow Depth = 0.52" for 2-yr event
 Inflow = 0.09 cfs @ 15.90 hrs, Volume= 2,451 cf
 Outflow = 0.09 cfs @ 15.90 hrs, Volume= 2,451 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.09 cfs @ 15.90 hrs, Volume= 2,451 cf

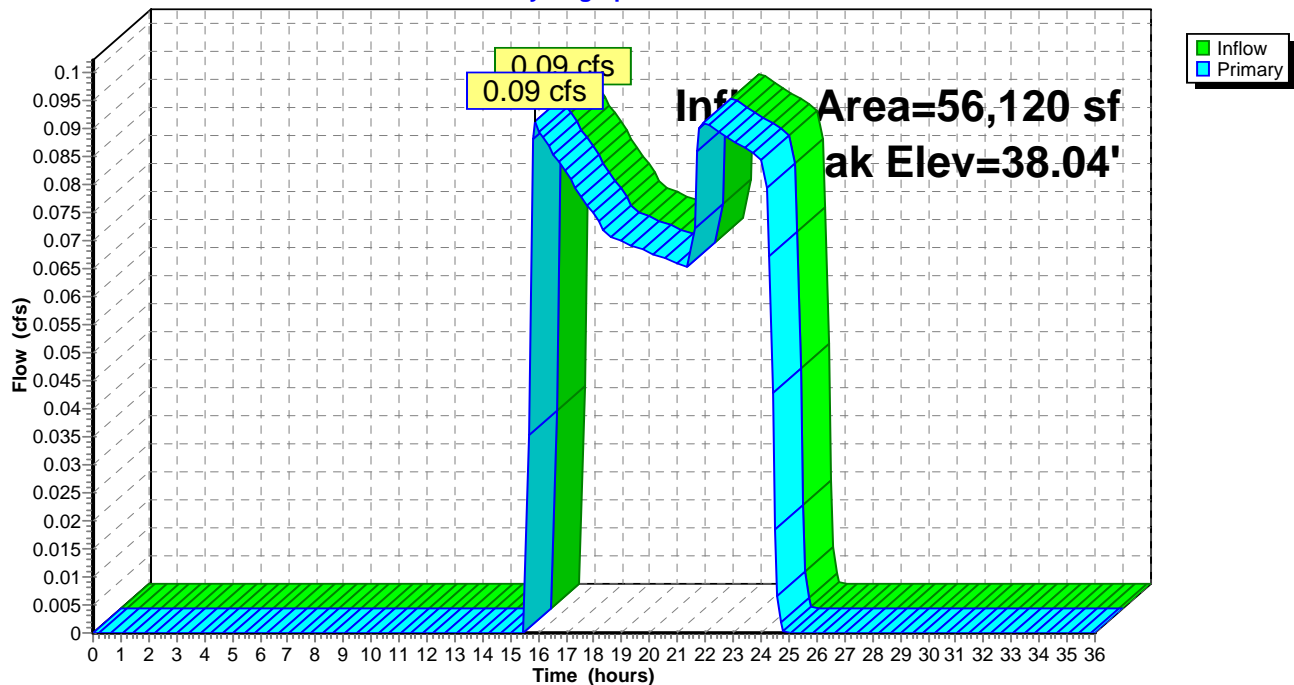
Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs / 2
 Peak Elev= 38.04' @ 15.90 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.90'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.09 cfs @ 15.90 hrs HW=38.04' (Free Discharge)
 1=Orifice/Grate (Orifice Controls 0.09 cfs @ 1.30 fps)

Pond 24P: Post Con

Hydrograph



Summary for Subcatchment 19S: Mid Pen Marchesio PreCon

Runoff = 0.75 cfs @ 12.37 hrs, Volume= 6,933 cf, Depth= 1.21"

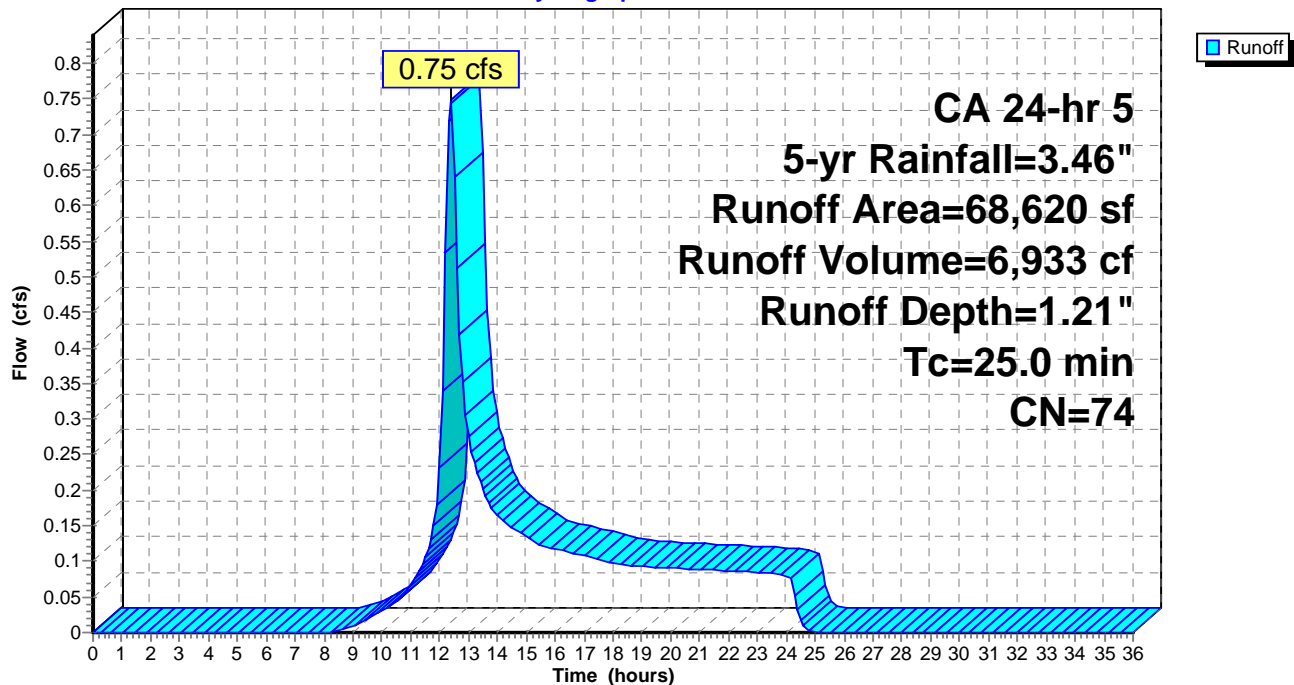
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs
CA 24-hr 5 5-yr Rainfall=3.46"

	Area (sf)	CN	Description
*	11,887	98	Impervious
*	56,733	69	Pervious
	68,620	74	Weighted Average
	56,733		82.68% Pervious Area
	11,887		17.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0					Direct Entry,

Subcatchment 19S: Mid Pen Marchesio PreCon

Hydrograph



Summary for Pond 24P: Post Con

Inflow Area = 56,120 sf, 100.00% Impervious, Inflow Depth = 1.88" for 5-yr event
 Inflow = 0.71 cfs @ 12.91 hrs, Volume= 8,769 cf
 Outflow = 0.71 cfs @ 12.91 hrs, Volume= 8,769 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.71 cfs @ 12.91 hrs, Volume= 8,769 cf

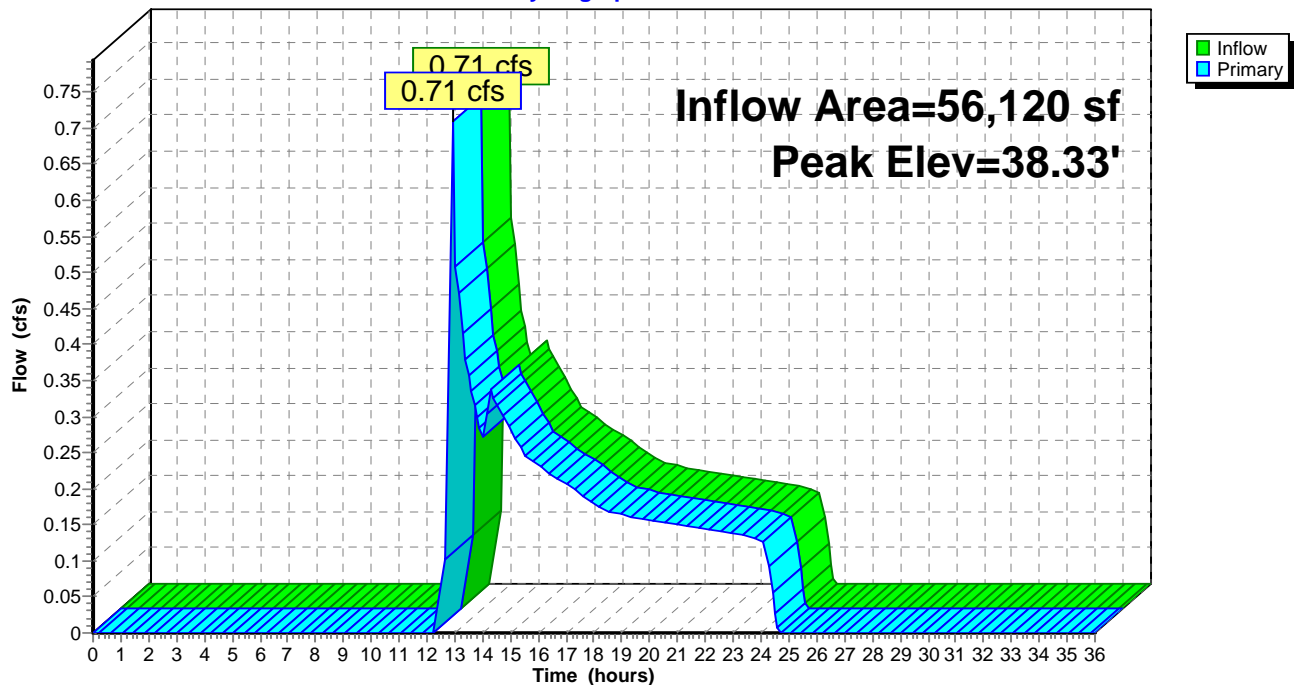
Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.10 hrs / 2
 Peak Elev= 38.33' @ 12.91 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.90'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.69 cfs @ 12.91 hrs HW=38.32' (Free Discharge)
 ↳ **1=Orifice/Grate** (Orifice Controls 0.69 cfs @ 2.20 fps)

Pond 24P: Post Con

Hydrograph





STORMWATER CONTROL PLAN
MILES LANE HOUSING DEVELOPMENT

OWNER: MIDPEN HOUSING COORPORATION
275 MAIN STREET, SUITE 204
WATSONVILLE, CA 95076
(831)707-2130

PREPARED BY: C3 ENGINEERING
126 BONIFACIO PLACE, SUITE C
MONTEREY, CA 93940
(831)647-1192
06-10-2019

Mid Pen Housing Development
Stormwater Control Measures
Operations and Maintenance Plan
(MILES LANE, WATSONVILLE, CA 95076)

The general manager and/or the person(s) appointed by the general manager to maintain the storm drain facilities must familiarize themselves with the purposes, design specifications, features, and mode of operation of the storm drain system and should review the Stormwater Control Plan (in addition to this document). Maintenance supervisors and employees need to be informed of the following specific maintenance requirements for the bio-retention planters and accompanying storm drain system. See Attachment 3.

At a minimum the following activities must occur to properly maintain the underground retention areas:

- Regular inspection and maintenance are essential to assure a properly functioning stormwater system. Inspection is easily accomplished through the manhole or optional inspection ports of an Isolator Row. Please follow local and OSHA rules for a confined space entry. Inspection ports can allow inspection to be accomplished completely from the surface without the need for a confined space entry. Inspection ports provide visual access to the system with the use of a flashlight. A stadia rod may be inserted to determine the depth of sediment. If upon visual inspection it is found that sediment has accumulated to an average depth exceeding 3" (76 mm), cleanout is required. A StormTech Isolator Row should initially be inspected immediately after completion of the site's construction.
- While every effort should be made to prevent sediment from entering the system during construction, it is during this time that excess amounts of sediments are most likely to enter any stormwater system. Inspection and maintenance, if necessary, should be performed prior to passing responsibility over to the site's owner. Once in normal service, a StormTech Isolator Row should be inspected bi-annually until an understanding of the sites characteristics is developed. The site's maintenance manager can then revise the inspection schedule based on experience or local requirements. (StormTech Manual)
- Semi-annual inspection of the inlet/overflow structure and the inspection port focusing on erosion, trash, debris and stagnant water. Stagnant water may be a sign of a plugged filter fabric in the isolator row and require immediate cleaning per manufacturer's recommendations.
- JetVac maintenance is recommended if sediment has been collected to an average depth of 3" (76 mm) inside the Isolator Row. More frequent maintenance may be required to maintain minimum flow rates through the Isolator Row. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, a wave of suspended sediments is flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/ JetVac combination vehicles. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" (1143 mm) are best. The JetVac process shall only be performed on StormTech Rows that have AASHTO class 1 woven geotextile over the foundation stone (ADS 315ST or equal). (StormTech Manual)

- If hazardous material has been spilled, immediately contact a disaster cleanup specialist to remove and replace material per the construction details.
- Inspect system at first rain to ensure that valve diversions are functioning properly.
- Ensure that site operations are in effectively deploying valve diversions for wet and dry operations.

CHECKLIST FOR ROUTINE INSPECTION AND MAINTENANCE

(SEE MAINTENANCE MATRIX FOR ADDITIONAL DETAIL.)

- Examine each drain and clean if necessary.
- Check rocks at inlets and repair, replace, or replenish as necessary.
- Remove any accumulation of sediment, litter, and debris in the swale.
- Examine the overflow. Remove any debris.
- Observe the structure of the swales and bio-retention area and fix any cracks, or failure.
- Note condition of vegetation.
- Replace any dead vegetation.
- Remove any nuisance or invasive vegetation.
- Clean up fallen leaves or debris.
- Remove any debris from curb cuts leading to swales or bio-retention area.

Frank Campo

Frank Campo, P.E. 61390

01-17-2017

Date



Nordic Naturals
Stormwater Control Measures
Operations and Maintenance Plan
(111 JENNINGS DRIVE, WATSONVILLE, CA 95076)

Storm Drain System

Frequency	Observation	Maintenance Activity	Inspected by	Date
Once a year prior to Sept 30	Inspect the storm drain system. Look for obstructions, vegetation, debris, litter, sediment, etc. blocking the system. Check for bushes, trees, or other dense vegetation growing immediately in front of the system.	Remove obstructions, etc.		
	Observation	Maintenance Activity		
	Inspect all catch basins. Look for obstructions, vegetation, debris, litter, sediment, etc. blocking the catch basins.	Remove obstructions, etc.		
Frequency	Observation	Maintenance Activity		
Once a year prior to Sept 30 and after the first heavy rain after heavy rain events. Every other month minimum during dry periods.	Inspect the entire storm drain system from the upstream end to the outfall, including all catch basins. Observe the flow of water. Any evidence of ponding in the catch basins indicates a blockage.	Find and remove any obstructions. Flushing may be necessary.		

Media Filters

Frequency	Observation	Maintenance Activity	Inspected by	Date
Before each rainy season and every 4 months.	Inspect media filters for debris and pollutant accumulations.	Replace media filters when pollutant accumulations exceed more than 80% of the filter's capacity.		

Infiltration Chambers

Frequency	Observation	Maintenance Activity	Inspected by	Date
Before each rainy season.	Inspect isolator row for accumulated sediment.	Remove accumulated sediment when it exceeds 3" in depth.		

Each year during a period beginning on September 1 and ending no later than September 30, and at the time of any sale or other transfer of title to the Property, Owner shall provide the City with a Maintenance Certificate certifying that the SCMs have been recently inspected and are functioning in compliance with the Operation and Maintenance Plan or, if such SCMs were not in compliance with the Operation and Maintenance Plan, what measures have been taken to bring the SCMs and the maintenance thereof into compliance with the Operation and Maintenance Plan. Proof of maintenance, such as copies of completed Maintenance Matrix and/or receipts shall be included with the Maintenance Certificate

The applicant accepts responsibility for the operation and maintenance of stormwater treatment and flow-control facilities for the life of the project. Any future change or alteration, or the failure to maintain any feature described herein can result in penalties including but not limited to fines, property liens, and other actions for enforcement of a civil judgment.

For any questions regarding the Stormwater Control Plan or the Operations and Maintenance Plan, contact C3 Engineering, Inc. (831-647-1192 or Stormwater@C3Engineering.net)