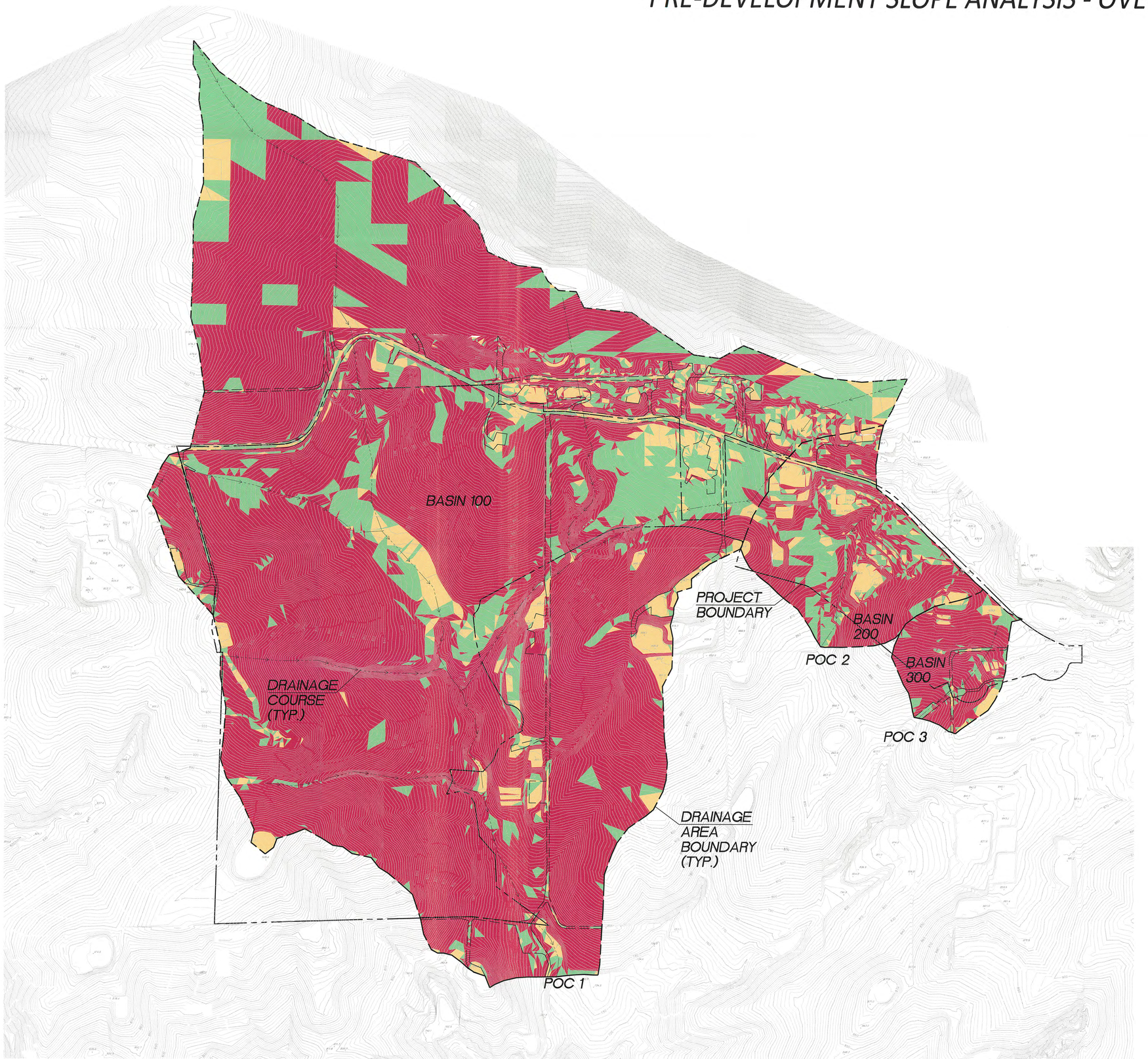
PRE-DEVELOPMENT SLOPE ANALYSIS - OVERALL



OVERALL AREAS

BASIN 100 Slopes Table

Number	Minimum Slope	Maximum Slope	Area	Color
1	0.00%	5.00%	12.58	
2	5.00%	10.00%	34.83	
3	10.00%	100.00%	153.02	

BASIN 200 Slopes Table

Number	Minimum Slope	Maximum Slope	Area	Color
1	0.00%	5.00%	2.52	
2	5.00%	10.00%	4.27	
3	10.00%	100.00%	10.15	

BASIN 300 Slopes Table

Number	Minimum Slope	Maximum Slope	Area	Color
1	0.00%	5.00%	0.51	
2	5.00%	10.00%	0.89	
3	10.00%	100.00%	5.35	

NOTE: OVERALL AREA INCLUDES PRE-DEV. IMPERVIOUS AREAS AS DIPICTED ON EXHIBIT 2

N
SCALE: 1"= 200'

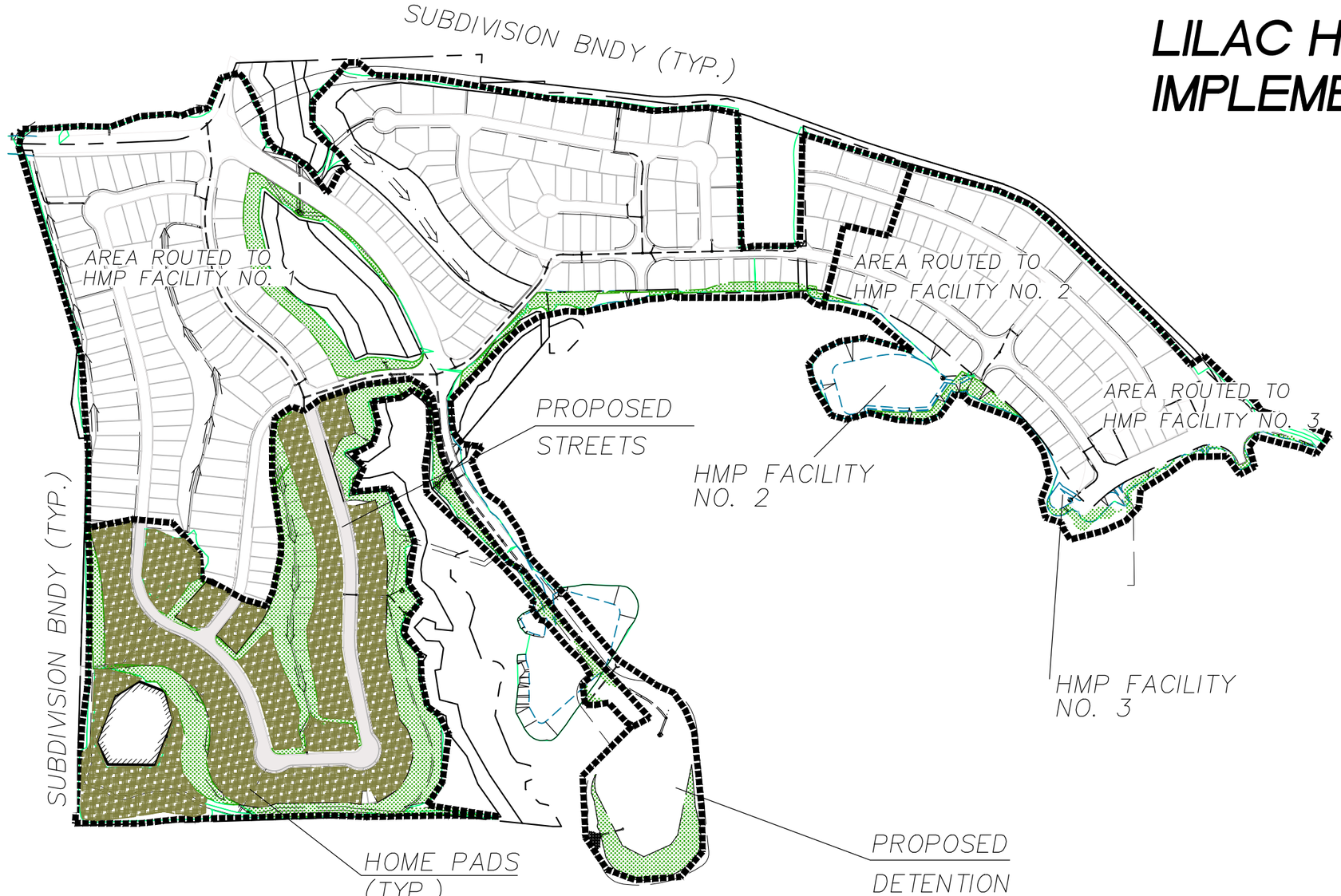
0 100 200 400 600 800 1000
SCALE: 1" = 200'

EXHIBIT 1

LANDMARK

Dwg: I:\103-7\hydro\hydro-surfaces-imp-pre.dwg Plot'd: 6/20/2012 5:31:16 PM

LAND USE TYPE WITHIN DEVELOPMENT FOOT PRINT
AREAS BYPASSING HMP FACILITEIS
LILAC HILLS RANCH
IMPLEMENTING TM 5572 RPL-1



LEGEND

DRAINAGE AREA BOUDNARY

LANDSCAPED 2:1 SLOPE

FLAT HOME PADS

AC PAVING

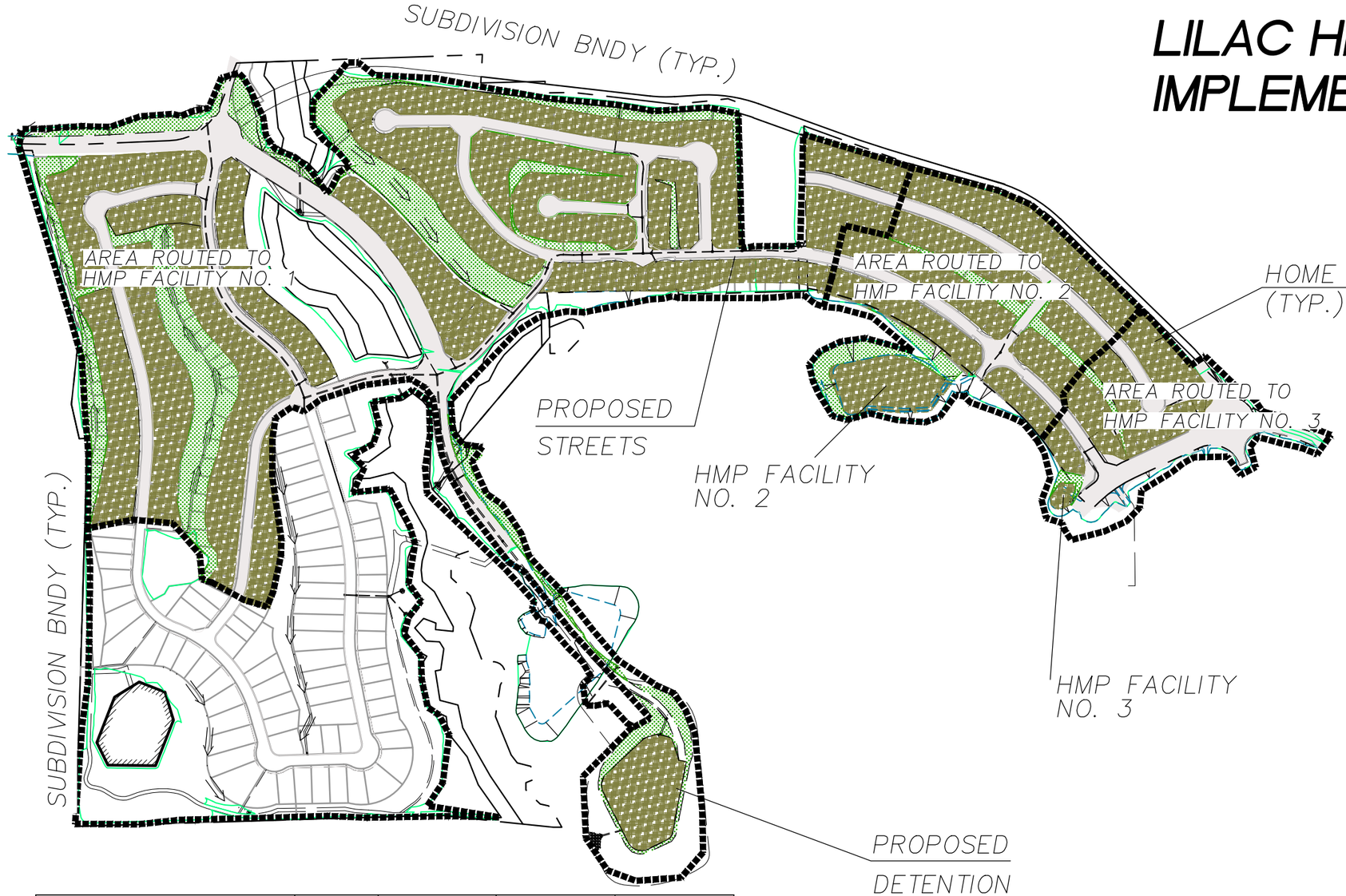
LAND USE TYPE	SLOPE	BASIN 100	BASIN 200	BASIN 300
CROP/GRASS/VEGETATION(C-SOIL)	0-5%	14.69	0	0
	5-10%	0	0	0
	>10%	10.47	0	0
IMPERVIOU (ROOF TOP/ROADS)	0-5%	2.13	0	0
	5-10%	3.09	0	0
	>10%			

SCALE: 1"= 400'

LANDMARK CONSULTING
Planning Engineering Surveying
9555 Genesee Avenue, Suite 200
San Diego, CA 92121, (858) 587-8070

J.N.: 103-7

LAND USE TYPE WITHIN DEVELOPMENT FOOT PRINT
AREAS ROUTED TO HMP FACILITEIS
LILAC HILLS RANCH
IMPLEMENTING TM 5572 RPL-1



LEGEND

DRAINAGE AREA BOUDNARY

LANDSCAPED 2:1 SLOPE

FLAT HOME PADS

AC PAVING

LAND USE TYPE	SLOPE	BASIN 100	BASIN 200	BASIN 300
CROP/GRASS/VEGETATION(C-SOIL)	0-5%	11.43	2.5	0.34
	5-10%	0	0	0
	>10%	8.65	1.32	0.65
IMPERVIOU (ROOF TOP/ROADS)	0-5%	11.08	1.85	1.49
	5-10%	6.51	1.5	0.85
	>10%			

SCALE: 1"= 400'

LANDMARK
CONSULTING
Planning Engineering Surveying
9555 Genesee Avenue, Suite 200
San Diego, CA 92121, (858) 587-8070

J.N.: 103-7

ADDENDUM

ASSUMPTIONS:

Bio-retention:

-Average lot size = 4500 sf

-Average impervious coverage per lot = 1500 sf roof + 300 sf walkways and driveway = 1800 sf

-Typical pervious coverage (bio-retention) per lot = 1000 sf with the top 13” layer providing a minimum of 5”/hour infiltration rate.

-Typical void ratio of engineered infiltration material = 0.55

Rain barrels:

-Typical home rain gutter down spout location = 4

-Typical rain barrel capacity = 50 gal.

Project design:

- Proposed residential units = 352 (Phase 1 only)

ANALYSIS:

Typical Lot rainwater capturing/retention calculations:

Bio-retention volume per typical home:1000 sf x 13”/12 x 0.55 void ratio = 575 cf.

Total bio-retention vol. = 575 cf x 352 SFR homes = 202400 cf = **4.64 Ac-Ft.**

Rain barrel capacity = 4 x 50gal = 200 gal = 27 cf

Total rain barrel capturing capacity = 27 cf x 352 SFR homes = 9500 cf = **0.2 Ac-Ft.**

Total lot rain capturing capacity for the development = 4.64 + 0.2 = **4.84 Ac-Ft.**

Total 10-year runoff volume from 352 homes:

Anticipated 24-hour 10-year runoff volume from the impervious areas of the proposed 352 home lots:

4” / 12 x 1800 sf x 352sfr / 43560 = **4.84 Ac-Ft**

With the deployment of the proposed rain barrels and bio-retention areas around each home, it is anticipated that no runoff will leave the home pad up to and including the 10-year storm. The individual home will become hydrologically invisible up to the upper limit of the HMP required 10-year storm. Thus, the homes are not included in the SDHM model in this Addendum. Only the roadways are modeled into the SDHM program as proposed impervious areas.

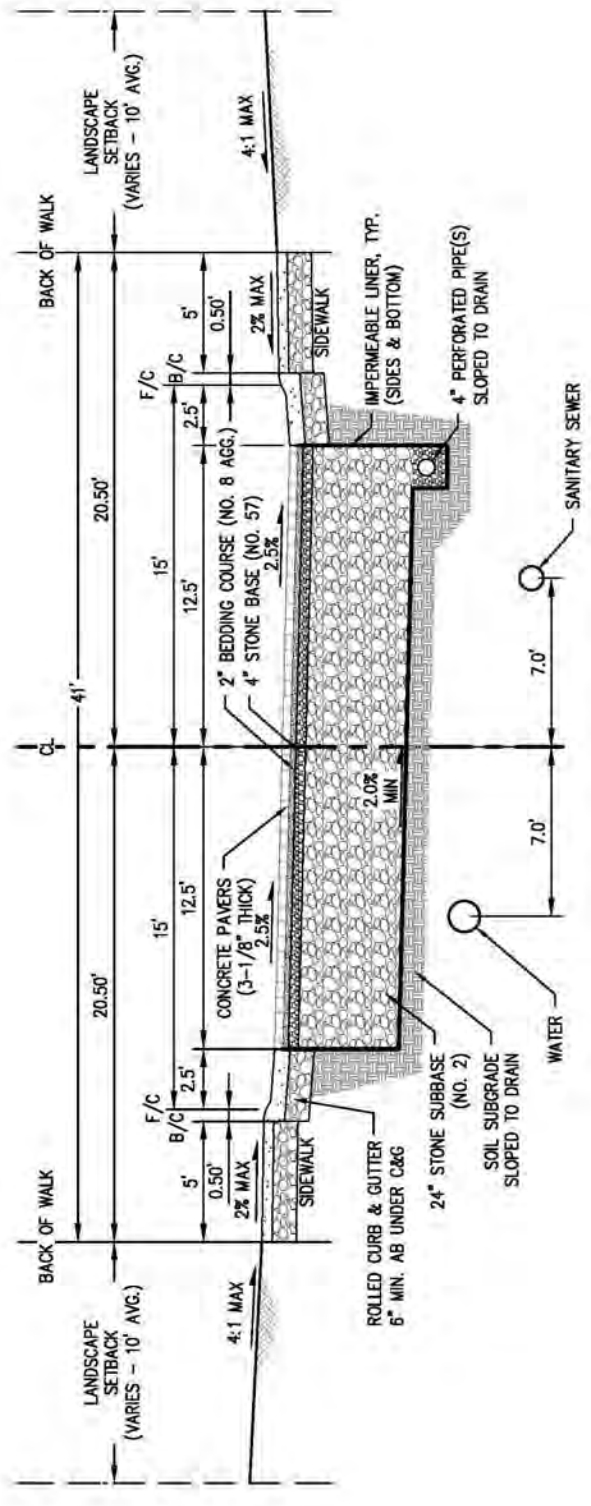
Extensive permeable pavers are proposed for this project as an alternative to the proposed detention basins for both the 100-year storm runoff volume attenuation and HMP mitigation. The permeable pavers will be placed at the low points of streets and roadway to capture and store storm runoff volume before it is eventually released. With the deployment of the permeable pavers and their underlying storage capacity, the proposed detention basins can be significantly reduced along with the development footprint.

The typical section of the permeable pavers consists of 3"thick unit pavers over 2" of bedding material over 4" of base material and over 24" sub-base material (see typical section in the following page). The permeable pavers and the bedding and base materials have an average porosity of 0.4. There will be 1.0 cubic feet of storage volume under each square foot of pavers. The pavers were modeled into the HMP analysis as an alternative to the traditional detention basin.

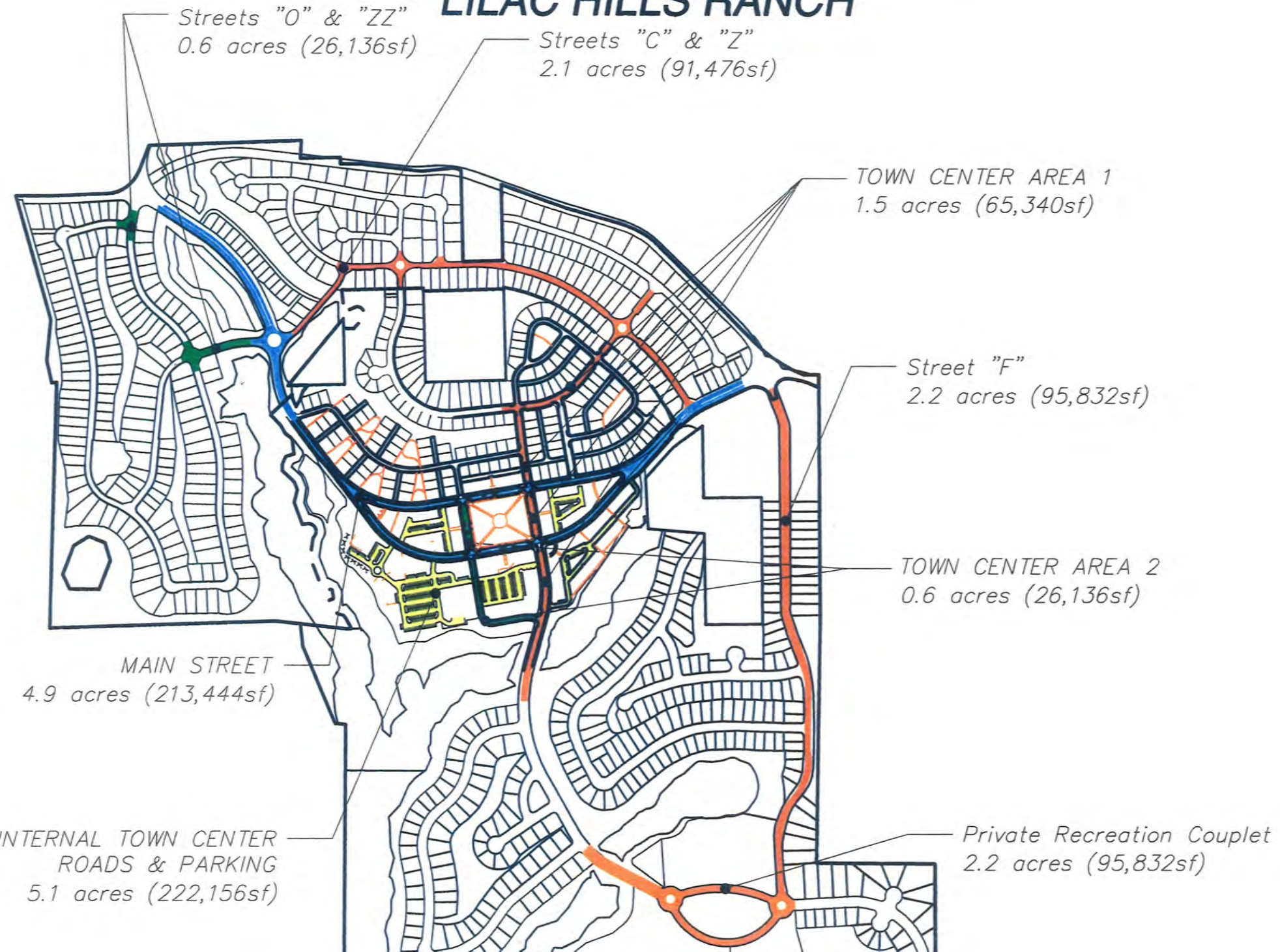
AVERAGE STORAGE VOLUME:

1' x 1' x (2" bedding +4" no. 57 stone base + 24" no. 2 sub base)/12 x 0.4= 1.0cf under each square foot of permeable pavers.

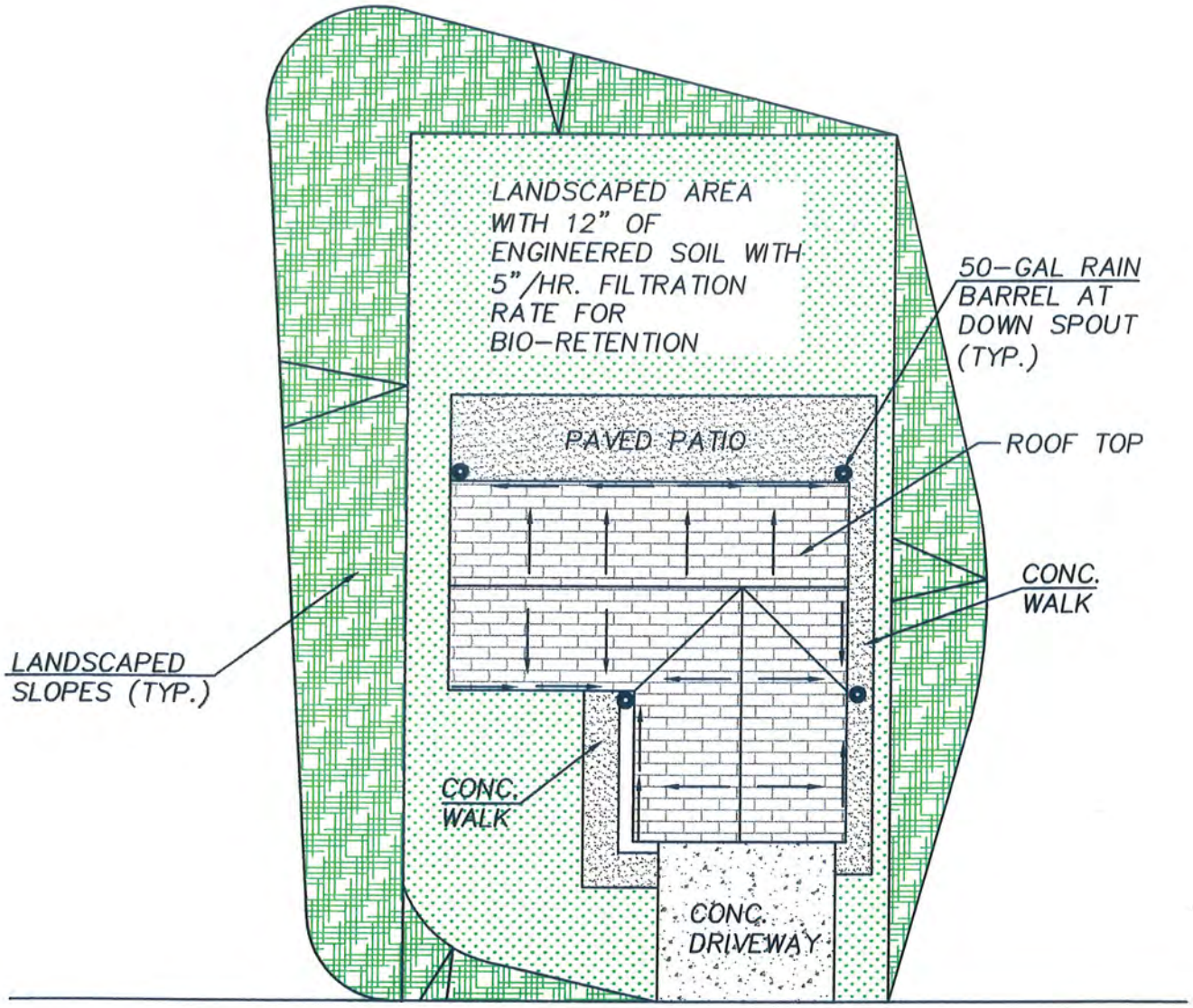
TYPICAL PERMEABLE PAVER SECTION



PERMEABLE PAVERS ANALYSIS
LILAC HILLS RANCH



LILAC HILLS RANCH
TYPICAL RESIDENTIAL LOT RAIN WATER CAPTURING SCHEMATIC



LANDMARK
CONSULTING
Planning Engineering Surveying
9555 Genesee Avenue, Suite 200
San Diego, CA 92121, (858) 587-8070

POST-DEV		OUTSIDE OF DEV FOOTPRINT		INSIDE OF DEV FOOTPRINT		BYPASSING SUBTOTAL	ROUTED SUBTOTAL
		BYPASSING HMP FACILITIES	ROUTED TO HMP FACILITIES	BYPASSING HMP FACILITIES	ROUTED TO HMP FACILITIES		
BASIN 100/POC1	SLOPE						
LAND COVER							
CROP/GRASS/VEGETATION	0-5%	5.15	1.39	14.69	11.43	19.84	12.82
	5-10%	15.14	6.67	0.00	0.00	15.14	6.67
	>10%	74.27	9.34	10.47	8.65	84.74	17.99
IMPERVIOUS/ROOF TOP/ROADS	0-5%	1.13	2.61	2.13	11.08	3.26	3.26*
	5-10%	1.27	0.85	3.09	6.51	6.47	6.47*
	>10%	2.11	0.82				
ROOF AREAS							11.65*
PAVER AREAS							1.00*
				TOTAL BYPASS	TOTAL ROUTED		
				129.44	59.35	TOTAL AREA	188.79
BASIN 200/POC 2							
LAND COVER	SLOPE						
CROP/GRASS/VEGETATION	0-5%	0.01	0	0	4.03	0.01	4.03
	5-10%	0.16	0	0	4.2	0.16	4.20
	>10%	0.37	0	0	9.8	0.37	9.80
IMPERVIOUS/ROOF TOP/ROADS	0-5%	0	0	0	1.85	0.00	0.35*
	5-10%	0	0	0	1.5	0.00	0.93*
	>10%	0	0				
ROOF AREAS							1.57*
PAVER AREAS							0.5*
				TOTAL BYPASS	TOTAL ROUTED		
				0.54	21.38	TOTAL AREA	21.92
BASIN 300/POC 3				0			0
LAND COVER	SLOPE			0			
CROP/GRASS/VEGETATION	0-5%	0.17	0.09	0	0.34	0.17	0.43
	5-10%	0.09	0.08	0	0	0.09	0.08
	>10%	0.92	0.34	0	0.65	0.92	0.99
IMPERVIOUS/ROOF TOP/ROADS	0-5%	0.02	0	0	1.49	0.02	0.24*
	5-10%	0.08	0	0	0.85	0.16	0.53*
	>10%	0.08	0				
ROOF AREAS							1.32*
PAVER AREAS							0.50*
				TOTAL BYPASS	TOTAL ROUTED		
				1.28	3.84	TOTAL AREA	5.12

Land use table note:

Per the rain capturing calculations presented in this Addendum, each lot has adequate runoff retention capacity to retain the 10-year 24-hour storm runoff. For HMP mitigation purposes, these lots are hydrologically invisible and their impervious areas were subtracted from the total impervious areas routed to POC. The areas of the pervious pavers were also subtracted from the overall impervious areas and modeled separately in the software.

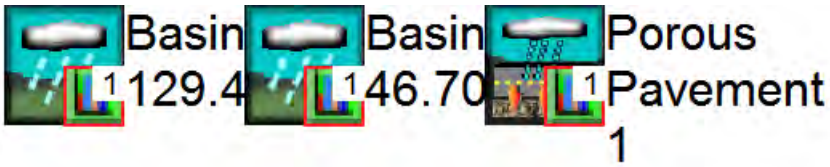
Basin 100
There are 282 homes in Basin 100, this translates to 11.65Ac of impervious areas such as roof tops and hardscaping. The project also proposes 1.0 Acre of pervious pavers. The combination of roof tops and pavers (12.65 Acres) were subtracted from the overall impervious area, leaving 9.73 Acres of roadway area that were still modeled into the SDHM program. The 1.0 paver area was modeled into the program as a separate element.

Basin 200
There are 38 homes in Basin 200, this translates to 1.57Ac of impervious areas such as roof tops and hardscaping. The project also proposes 1/2 Acre of pervious pavers. The combination of roof tops and pavers (2.07 Acres) were subtracted from the overall impervious area, leaving 1.28 Acres of roadway area that were still modeled into the SDHM program. The 1/2 paver area was modeled into the program as a separate element.

Basin 300
There are 32 homes in Basin 200, this translates to 1.32Ac of impervious areas such as roof tops and hardscaping. The project also proposes 1/4 Acre of pervious pavers. The combination of roof tops and pavers (1.57 Acres) were subtracted from the overall impervious area, leaving 0.77 Acres of roadway area that were still modeled into the SDHM program. The 1/4 paver area was modeled into the program as a separate element.

POST-DEVELOPMENT SCHEMATICS

BASINS 100



BASIN 100 RESULTS

SDHM2011
PROJECT REPORT

Project Name: 1037IMPTMPOC1a
Site Name: ILH Ranch
Site Address:
City :
Report Date: 5/20/2013
Gage : LAKE WOH
Data Start : 1959/10/01 00:00
Data End : 2004/09/30 00:00
Precip Scale: 1.00
Version : 2013/04/29

Low Flow Threshold for POC 1 : 10 Percent of the 2 Year

High Flow Threshold for POC 1: 10 year

PREDEVELOPED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	Acres
C,Grass,FLAT(0-5%)	9.32
C,Grass,MOD(5-10%)	28.36
C,Grass,STEEP(10-20	153.02
Pervious Total	190.7

Impervious Land Use	Acres
IMPERVIOUS-FLAT	3.26
IMPERVIOUS-MOD	6.47
Impervious Total	9.73
Basin Total	200.43

Element Flows To:
Surface **Interflow** **Groundwater**

MITIGATED LAND USE

Name : Basin 1
Bypass: Yes

GroundWater: No

Pervious Land Use	Acres
C,Grass,FLAT(0-5%)	19.84
C,Grass,MOD(5-10%)	15.14
C,Grass,STEEP(10-20	84.74
Pervious Total	119.72

Impervious Land Use	Acres
IMPERVIOUS-FLAT	3.26
IMPERVIOUS-MOD	6.47
Impervious Total	9.73
Basin Total	129.45

Element Flows To:
Surface **Interflow** **Groundwater**

Name : Basin 2
Bypass: Yes

GroundWater: No

Pervious Land Use	Acres
B,Grass,FLAT(0-5%)	11.43
B,Grass,STEEP(10-20	8.65
C,Grass,FLAT(0-5%)	1.39
C,Grass,MOD(5-10%)	6.67
C,Grass,STEEP(10-20	9.34
Pervious Total	37.48

Impervious Land Use	Acres
IMPERVIOUS-FLAT	5.04
IMPERVIOUS-MOD	4.18
Impervious Total	9.22
Basin Total	46.7

Element Flows To:
Surface **Interflow** **Groundwater**

Name : Porous Pavement 1
Pavement Length: 1320.00 ft.
Pavement Width: 33.00 ft.
Pavement slope 1: 0.01 To 1
Pavement thickness: 0.2
Pour Space of Pavement: 0.4
Material thickness of second layer: 0.3
Pour Space of material for second layer: 0.4
Material thickness of third layer: 2
Pour Space of material for third layer: 0.5

Element Flows To:
Outlet 1 **Outlet 2**

Porous Pavement Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	1.000	0.000	0.010	0.000
0.0278	1.000	0.013	0.010	0.000
0.0556	1.000	0.027	0.010	0.000
0.0833	1.000	0.041	0.010	0.000
0.1111	1.000	0.055	0.010	0.000
0.1389	1.000	0.069	0.010	0.000
0.1667	1.000	0.083	0.010	0.000
0.1944	1.000	0.097	0.010	0.000
0.2222	1.000	0.111	0.010	0.000
0.2500	1.000	0.125	0.010	0.000
0.2778	1.000	0.138	0.010	0.000
0.3056	1.000	0.152	0.011	0.000
0.3333	1.000	0.166	0.011	0.000
0.3611	1.000	0.180	0.011	0.000
0.3889	1.000	0.194	0.011	0.000
0.4167	1.000	0.208	0.011	0.000
0.4444	1.000	0.222	0.011	0.000
0.4722	1.000	0.236	0.011	0.000
0.5000	1.000	0.250	0.011	0.000
0.5278	1.000	0.263	0.011	0.000
0.5556	1.000	0.277	0.011	0.000
0.5833	1.000	0.291	0.011	0.000
0.6111	1.000	0.305	0.011	0.000
0.6389	1.000	0.319	0.011	0.000

0.6667	1.000	0.333	0.011	0.000
0.6944	1.000	0.347	0.011	0.000
0.7222	1.000	0.361	0.011	0.000
0.7500	1.000	0.375	0.011	0.000
0.7778	1.000	0.388	0.011	0.000
0.8056	1.000	0.402	0.011	0.000
0.8333	1.000	0.416	0.012	0.000
0.8611	1.000	0.430	0.012	0.000
0.8889	1.000	0.444	0.012	0.000
0.9167	1.000	0.458	0.012	0.000
0.9444	1.000	0.472	0.012	0.000
0.9722	1.000	0.486	0.012	0.000
1.0000	1.000	0.500	0.012	0.000
1.0278	1.000	0.513	0.012	0.000
1.0556	1.000	0.527	0.012	0.000
1.0833	1.000	0.541	0.012	0.000
1.1111	1.000	0.555	0.012	0.000
1.1389	1.000	0.569	0.012	0.000
1.1667	1.000	0.583	0.012	0.000
1.1944	1.000	0.597	0.012	0.000
1.2222	1.000	0.611	0.012	0.000
1.2500	1.000	0.625	0.012	0.000
1.2778	1.000	0.638	0.012	0.000
1.3056	1.000	0.652	0.012	0.000
1.3333	1.000	0.666	0.012	0.000
1.3611	1.000	0.680	0.012	0.000
1.3889	1.000	0.694	0.012	0.000
1.4167	1.000	0.708	0.013	0.000
1.4444	1.000	0.722	0.013	0.000
1.4722	1.000	0.736	0.013	0.000
1.5000	1.000	0.750	0.013	0.000
1.5278	1.000	0.763	0.013	0.000
1.5556	1.000	0.777	0.013	0.000
1.5833	1.000	0.791	0.013	0.000
1.6111	1.000	0.805	0.013	0.000
1.6389	1.000	0.819	0.013	0.000
1.6667	1.000	0.833	0.013	0.000
1.6944	1.000	0.847	0.013	0.000
1.7222	1.000	0.861	0.013	0.000
1.7500	1.000	0.875	0.013	0.000
1.7778	1.000	0.888	0.013	0.000
1.8056	1.000	0.902	0.013	0.000
1.8333	1.000	0.916	0.013	0.000
1.8611	1.000	0.930	0.013	0.000
1.8889	1.000	0.944	0.013	0.000
1.9167	1.000	0.958	0.013	0.000
1.9444	1.000	0.972	0.013	0.000
1.9722	1.000	0.986	0.013	0.000
2.0000	1.000	1.000	0.013	0.000
2.0278	1.000	1.011	0.014	0.000
2.0556	1.000	1.022	0.014	0.000
2.0833	1.000	1.033	0.014	0.000
2.1111	1.000	1.044	0.014	0.000
2.1389	1.000	1.055	0.014	0.000

2.1667	1.000	1.066	0.014	0.000
2.1944	1.000	1.077	0.014	0.000
2.2222	1.000	1.088	0.014	0.000
2.2500	1.000	1.100	0.014	0.000
2.2778	1.000	1.111	0.014	0.000
2.3056	1.000	1.122	0.014	0.000
2.3333	1.000	1.133	0.014	0.000
2.3611	1.000	1.144	0.014	0.000
2.3889	1.000	1.155	0.014	0.000
2.4167	1.000	1.166	0.014	0.000
2.4444	1.000	1.177	0.014	0.000
2.4722	1.000	1.188	0.014	0.000
2.5000	1.000	1.200	0.014	0.000

ANALYSIS RESULTS

Predeveloped Landuse Totals for POC #1
Total Pervious Area:190.7
Total Impervious Area:9.73

Mitigated Landuse Totals for POC #1
Total Pervious Area:157.2
Total Impervious Area:19.95

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	55.396999
5 year	85.086908
10 year	102.73363
25 year	117.033783

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	47.423302
5 year	73.61142
10 year	88.948635
25 year	102.097732

POC #1
The Facility PASSED

The Facility PASSED.

Flow(cfs) Predev Mit Percentage Pass/Fail

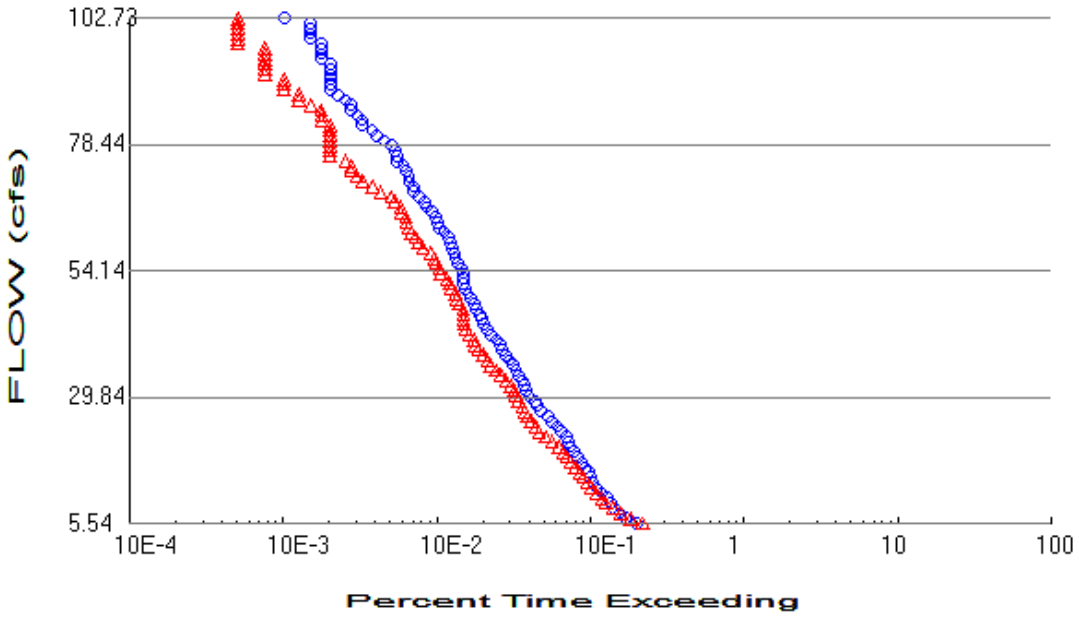
5.5397	785	863	109	Pass
6.5215	676	722	106	Pass
7.5032	613	619	100	Pass
8.4850	567	556	98	Pass
9.4667	536	498	92	Pass
10.4485	506	467	92	Pass
11.4302	466	429	92	Pass
12.4120	437	399	91	Pass
13.3938	413	377	91	Pass
14.3755	397	358	90	Pass
15.3573	381	334	87	Pass
16.3390	366	314	85	Pass
17.3208	350	295	84	Pass
18.3025	325	279	85	Pass
19.2843	310	261	84	Pass
20.2661	295	245	83	Pass
21.2478	286	221	77	Pass
22.2296	274	202	73	Pass
23.2113	255	183	71	Pass
24.1931	241	174	72	Pass
25.1748	223	162	72	Pass
26.1566	208	154	74	Pass
27.1384	189	148	78	Pass
28.1201	176	142	80	Pass
29.1019	171	134	78	Pass
30.0836	157	129	82	Pass
31.0654	150	126	84	Pass
32.0471	146	120	82	Pass
33.0289	141	111	78	Pass
34.0106	134	103	76	Pass
34.9924	129	96	74	Pass
35.9742	124	88	70	Pass
36.9559	118	84	71	Pass
37.9377	111	79	71	Pass
38.9194	105	74	70	Pass
39.9012	102	70	68	Pass
40.8829	96	69	71	Pass
41.8647	89	64	71	Pass
42.8465	84	61	72	Pass
43.8282	80	60	75	Pass
44.8100	77	59	76	Pass
45.7917	75	59	78	Pass
46.7735	71	59	83	Pass
47.7552	69	55	79	Pass
48.7370	65	53	81	Pass
49.7188	63	52	82	Pass
50.7005	60	49	81	Pass
51.6823	59	48	81	Pass
52.6640	59	46	77	Pass
53.6458	59	42	71	Pass
54.6275	57	41	71	Pass
55.6093	54	39	72	Pass
56.5911	52	38	73	Pass
57.5728	51	36	70	Pass

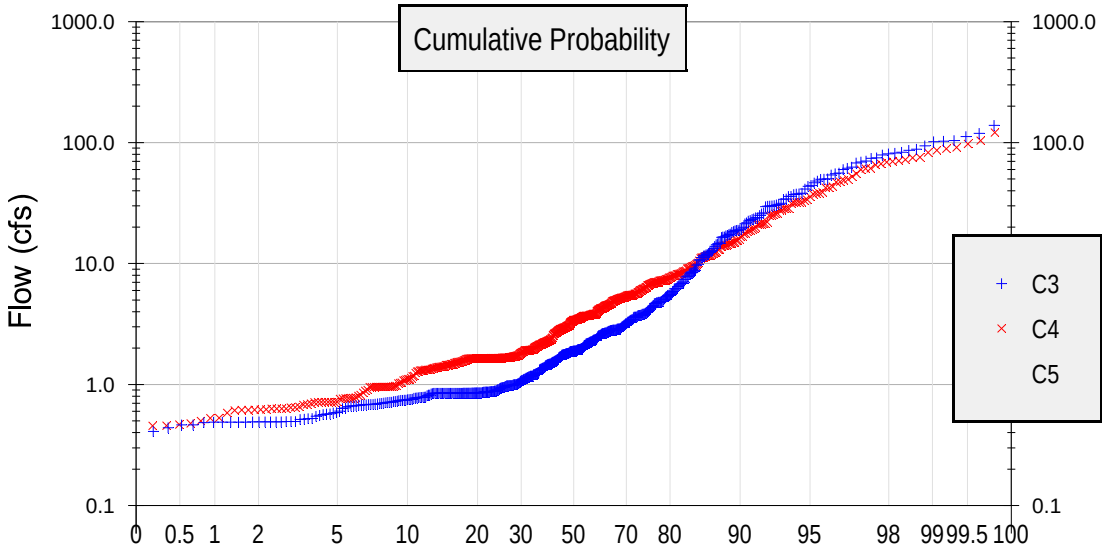
58.5546	50	32	64	Pass
59.5363	49	30	61	Pass
60.5181	47	29	61	Pass
61.4998	44	27	61	Pass
62.4816	41	26	63	Pass
63.4634	40	25	62	Pass
64.4451	39	25	64	Pass
65.4269	37	23	62	Pass
66.4086	34	23	67	Pass
67.3904	33	21	63	Pass
68.3721	30	20	66	Pass
69.3539	28	17	60	Pass
70.3357	28	15	53	Pass
71.3174	26	13	50	Pass
72.2992	26	12	46	Pass
73.2809	25	11	44	Pass
74.2627	24	11	45	Pass
75.2444	22	10	45	Pass
76.2262	22	8	36	Pass
77.2080	21	8	38	Pass
78.1897	20	8	40	Pass
79.1715	18	8	44	Pass
80.1532	16	8	50	Pass
81.1350	15	8	53	Pass
82.1167	13	8	61	Pass
83.0985	13	7	53	Pass
84.0802	12	7	58	Pass
85.0620	11	7	63	Pass
86.0438	11	6	54	Pass
87.0255	10	5	50	Pass
88.0073	9	5	55	Pass
88.9890	8	4	50	Pass
89.9708	8	4	50	Pass
90.9525	8	4	50	Pass
91.9343	8	3	37	Pass
92.9161	8	3	37	Pass
93.8978	8	3	37	Pass
94.8796	7	3	42	Pass
95.8613	7	3	42	Pass
96.8431	7	3	42	Pass
97.8248	7	2	28	Pass
98.8066	6	2	33	Pass
99.7884	6	2	33	Pass
100.7701	6	2	33	Pass
101.7519	6	2	33	Pass
102.7336	4	2	50	Pass

Drawdown Time Results

Perlnd and Implnd Changes

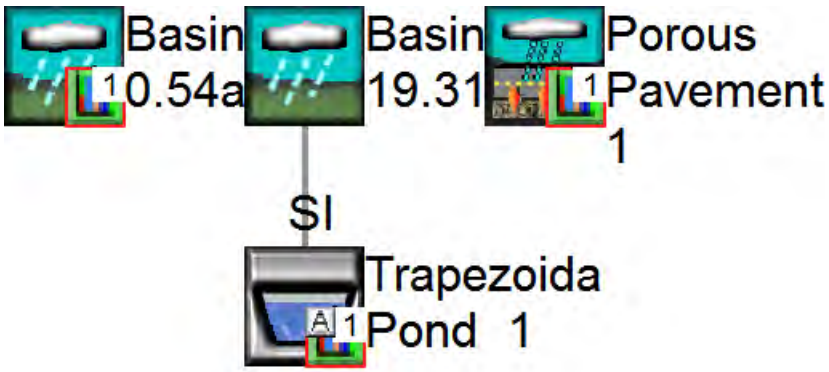
No changes have been made.





POST-DEVELOPMENT SCHEMATICS

BASINS 200



BASIN 200 RESULTS

SDHM2011

PROJECT REPORT

Project Name: 1037IMPTMPOC2a
Site Name: LHR IMP TM
Site Address:
City :
Report Date: 5/20/2013
Gage : LAKE WOH
Data Start : 10/01/1959
Data End : 09/30/2004
Precip Scale: 1.00
Version : 2013/04/29

Low Flow Threshold for POC 1 : 10 Percent of the 2 Year

High Flow Threshold for POC 1: 10 year

PREDEVELOPED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	Acres
C,Grass,FLAT(0-5%)	1.73
C,Grass,MOD(5-10%)	3.18
C,Grass,STEEP(10-20	10.15
Pervious Total	15.06

Impervious Land Use	Acres
IMPERVIOUS-FLAT	0.79
IMPERVIOUS-MOD	1.09
Impervious Total	1.88
Basin Total	16.94

Element Flows To:
Surface **Interflow** **Groundwater**

MITIGATED LAND USE

Name : Basin 1
Bypass: Yes

GroundWater: No

Pervious Land Use	Acres
C,Grass,FLAT(0-5%)	.01
C,Grass,MOD(5-10%)	.16
C,Grass,STEEP(10-20	.37
Pervious Total	0.54

Impervious Land Use	Acres
Impervious Total	0
Basin Total	0.54

Element Flows To:
Surface **Interflow** **Groundwater**

Name : Basin 2
Bypass: Yes

GroundWater: No

Pervious Land Use	Acres
B,Grass,FLAT(0-5%)	4.03
B,Grass,STEEP(10-20	4.2
C,Grass,FLAT(0-5%)	9.8
Pervious Total	18.03

Impervious Land Use	Acres
IMPERVIOUS-FLAT	0.35
IMPERVIOUS-MOD	0.93
Impervious Total	1.28
Basin Total	19.31

Element Flows To:
Surface **Interflow** **Groundwater**

Name : Porous Pavement 1
Pavement Length: 660.00 ft.
Pavement Width: 33.00 ft.
Pavement slope 1: 0.01 To 1
Pavement thickness: 1.4
Pour Space of Pavement: 0.4
Material thickness of second layer: 0.1
Pour Space of material for second layer: 0.4
Material thickness of third layer: 0.25
Pour Space of material for third layer: 0.4

Element Flows To:
Outlet 1 **Outlet 2**

Porous Pavement Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.500	0.000	1.158	0.000
0.0178	0.500	0.003	1.164	0.000
0.0356	0.500	0.007	1.171	0.000
0.0533	0.500	0.010	1.178	0.000
0.0711	0.500	0.014	1.185	0.000
0.0889	0.500	0.017	1.191	0.000
0.1067	0.500	0.021	1.198	0.000
0.1244	0.500	0.024	1.205	0.000
0.1422	0.500	0.028	1.211	0.000
0.1600	0.500	0.032	1.218	0.000
0.1778	0.500	0.035	1.224	0.000
0.1956	0.500	0.039	1.231	0.000
0.2133	0.500	0.042	1.237	0.000
0.2311	0.500	0.046	1.244	0.000
0.2489	0.500	0.049	1.250	0.000
0.2667	0.500	0.053	1.256	0.000
0.2844	0.500	0.056	1.263	0.000
0.3022	0.500	0.060	1.269	0.000
0.3200	0.500	0.064	1.275	0.000
0.3378	0.500	0.067	1.281	0.000
0.3556	0.500	0.071	1.287	0.000
0.3733	0.500	0.074	1.294	0.000
0.3911	0.500	0.078	1.300	0.000
0.4089	0.500	0.081	1.306	0.000
0.4267	0.500	0.085	1.312	0.000
0.4444	0.500	0.088	1.318	0.000
0.4622	0.500	0.092	1.324	0.000
0.4800	0.500	0.096	1.330	0.000
0.4978	0.500	0.099	1.336	0.000
0.5156	0.500	0.103	1.342	0.000

0.5333	0.500	0.106	1.348	0.000
0.5511	0.500	0.110	1.354	0.000
0.5689	0.500	0.113	1.360	0.000
0.5867	0.500	0.117	1.365	0.000
0.6044	0.500	0.120	1.371	0.000
0.6222	0.500	0.124	1.377	0.000
0.6400	0.500	0.128	1.383	0.000
0.6578	0.500	0.131	1.388	0.000
0.6756	0.500	0.135	1.394	0.000
0.6933	0.500	0.138	1.400	0.000
0.7111	0.500	0.142	1.405	0.000
0.7289	0.500	0.145	1.411	0.000
0.7467	0.500	0.149	1.417	0.000
0.7644	0.500	0.152	1.422	0.000
0.7822	0.500	0.156	1.428	0.000
0.8000	0.500	0.160	1.433	0.000
0.8178	0.500	0.163	1.439	0.000
0.8356	0.500	0.167	1.445	0.000
0.8533	0.500	0.170	1.450	0.000
0.8711	0.500	0.174	1.455	0.000
0.8889	0.500	0.177	1.461	0.000
0.9067	0.500	0.181	1.466	0.000
0.9244	0.500	0.184	1.472	0.000
0.9422	0.500	0.188	1.477	0.000
0.9600	0.500	0.192	1.483	0.000
0.9778	0.500	0.195	1.488	0.000
0.9956	0.500	0.199	1.493	0.000
1.0133	0.500	0.202	1.498	0.000
1.0311	0.500	0.206	1.504	0.000
1.0489	0.500	0.209	1.509	0.000
1.0667	0.500	0.213	1.514	0.000
1.0844	0.500	0.216	1.520	0.000
1.1022	0.500	0.220	1.525	0.000
1.1200	0.500	0.224	1.530	0.000
1.1378	0.500	0.227	1.535	0.000
1.1556	0.500	0.231	1.540	0.000
1.1733	0.500	0.234	1.545	0.000
1.1911	0.500	0.238	1.551	0.000
1.2089	0.500	0.241	1.556	0.000
1.2267	0.500	0.245	1.561	0.000
1.2444	0.500	0.248	1.566	0.000
1.2622	0.500	0.252	1.571	0.000
1.2800	0.500	0.256	1.576	0.000
1.2978	0.500	0.259	1.581	0.000
1.3156	0.500	0.263	1.586	0.000
1.3333	0.500	0.266	1.591	0.000
1.3511	0.500	0.270	1.596	0.000
1.3689	0.500	0.273	1.601	0.000
1.3867	0.500	0.277	1.606	0.000
1.4044	0.500	0.280	1.611	0.000
1.4222	0.500	0.284	1.616	0.000
1.4400	0.500	0.288	1.621	0.000
1.4578	0.500	0.291	1.626	0.000
1.4756	0.500	0.295	1.631	0.000

1.4933	0.500	0.298	1.635	0.000
1.5111	0.500	0.302	1.640	0.000
1.5289	0.500	0.305	1.645	0.000
1.5467	0.500	0.309	1.650	0.000
1.5644	0.500	0.312	1.655	0.000
1.5822	0.500	0.316	1.659	0.000
1.6000	0.500	0.320	1.664	0.000

Name : Trapezoidal Pond 1
Bottom Length: 120.00 ft.
Bottom Width: 80.00 ft.
Depth: 5 ft.
Volume at riser head: 1.0530 acre-ft.
Side slope 1: 2 To 1
Side slope 2: 2 To 1
Side slope 3: 2 To 1
Side slope 4: 2 To 1
Discharge Structure
Riser Height: 4 ft.
Riser Diameter: 18 in.
Notch Type: Rectangular
Notch Width: 0.500 ft.
Notch Height: 1.600 ft.
Orifice 1 Diameter: 3.448 in. **Elevation:** 0 ft.

Element Flows To:
Outlet 1 **Outlet 2**

Pond Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.220	0.000	0.000	0.000
0.0556	0.221	0.012	0.073	0.000
0.1111	0.222	0.024	0.104	0.000
0.1667	0.223	0.037	0.127	0.000
0.2222	0.224	0.049	0.147	0.000
0.2778	0.225	0.061	0.164	0.000
0.3333	0.226	0.074	0.180	0.000
0.3889	0.227	0.087	0.194	0.000
0.4444	0.228	0.099	0.208	0.000
0.5000	0.229	0.112	0.220	0.000
0.5556	0.230	0.125	0.232	0.000
0.6111	0.231	0.138	0.244	0.000
0.6667	0.232	0.151	0.254	0.000
0.7222	0.233	0.164	0.265	0.000
0.7778	0.234	0.177	0.275	0.000
0.8333	0.235	0.190	0.285	0.000
0.8889	0.237	0.203	0.294	0.000
0.9444	0.238	0.216	0.303	0.000
1.0000	0.239	0.229	0.312	0.000

1.0556	0.240	0.243	0.320	0.000
1.1111	0.241	0.256	0.329	0.000
1.1667	0.242	0.269	0.337	0.000
1.2222	0.243	0.283	0.345	0.000
1.2778	0.244	0.296	0.353	0.000
1.3333	0.245	0.310	0.360	0.000
1.3889	0.246	0.324	0.368	0.000
1.4444	0.247	0.337	0.375	0.000
1.5000	0.248	0.351	0.382	0.000
1.5556	0.249	0.365	0.389	0.000
1.6111	0.250	0.379	0.396	0.000
1.6667	0.252	0.393	0.403	0.000
1.7222	0.253	0.407	0.409	0.000
1.7778	0.254	0.421	0.416	0.000
1.8333	0.255	0.435	0.422	0.000
1.8889	0.256	0.449	0.429	0.000
1.9444	0.257	0.464	0.435	0.000
2.0000	0.258	0.478	0.441	0.000
2.0556	0.259	0.492	0.447	0.000
2.1111	0.260	0.507	0.453	0.000
2.1667	0.261	0.521	0.459	0.000
2.2222	0.263	0.536	0.465	0.000
2.2778	0.264	0.551	0.471	0.000
2.3333	0.265	0.565	0.477	0.000
2.3889	0.266	0.580	0.482	0.000
2.4444	0.267	0.595	0.503	0.000
2.5000	0.268	0.610	0.545	0.000
2.5556	0.269	0.625	0.598	0.000
2.6111	0.270	0.640	0.659	0.000
2.6667	0.272	0.655	0.726	0.000
2.7222	0.273	0.670	0.800	0.000
2.7778	0.274	0.685	0.877	0.000
2.8333	0.275	0.700	0.959	0.000
2.8889	0.276	0.716	1.044	0.000
2.9444	0.277	0.731	1.131	0.000
3.0000	0.278	0.747	1.221	0.000
3.0556	0.279	0.762	1.313	0.000
3.1111	0.281	0.778	1.407	0.000
3.1667	0.282	0.793	1.502	0.000
3.2222	0.283	0.809	1.597	0.000
3.2778	0.284	0.825	1.694	0.000
3.3333	0.285	0.841	1.791	0.000
3.3889	0.286	0.857	1.888	0.000
3.4444	0.288	0.873	2.001	0.000
3.5000	0.289	0.889	2.120	0.000
3.5556	0.290	0.905	2.243	0.000
3.6111	0.291	0.921	2.368	0.000
3.6667	0.292	0.937	2.496	0.000
3.7222	0.293	0.953	2.627	0.000
3.7778	0.295	0.970	2.761	0.000
3.8333	0.296	0.986	3.531	0.000
3.8889	0.297	1.003	3.707	0.000
3.9444	0.298	1.019	3.886	0.000
4.0000	0.299	1.036	4.068	0.000

4.0556	0.300	1.053	4.264	0.000
4.1111	0.302	1.069	4.618	0.000
4.1667	0.303	1.086	5.075	0.000
4.2222	0.304	1.103	5.616	0.000
4.2778	0.305	1.120	6.228	0.000
4.3333	0.306	1.137	6.905	0.000
4.3889	0.308	1.154	7.641	0.000
4.4444	0.309	1.171	8.431	0.000
4.5000	0.310	1.188	9.271	0.000
4.5556	0.311	1.206	10.16	0.000
4.6111	0.312	1.223	11.09	0.000
4.6667	0.314	1.240	12.07	0.000
4.7222	0.315	1.258	13.08	0.000
4.7778	0.316	1.275	14.14	0.000
4.8333	0.317	1.293	15.24	0.000
4.8889	0.319	1.311	16.37	0.000
4.9444	0.320	1.329	17.54	0.000
5.0000	0.321	1.346	18.75	0.000
5.0556	0.322	1.364	19.98	0.000

ANALYSIS RESULTS

Predeveloped Landuse Totals for POC #1
Total Pervious Area:15.06
Total Impervious Area:1.88

Mitigated Landuse Totals for POC #1
Total Pervious Area:18.57
Total Impervious Area:1.78

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	4.726828
5 year	7.238093
10 year	8.721725
25 year	9.947936

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.901838
5 year	4.353393
10 year	6.564302
25 year	8.106427

POC #1
The Facility PASSED

The Facility PASSED.

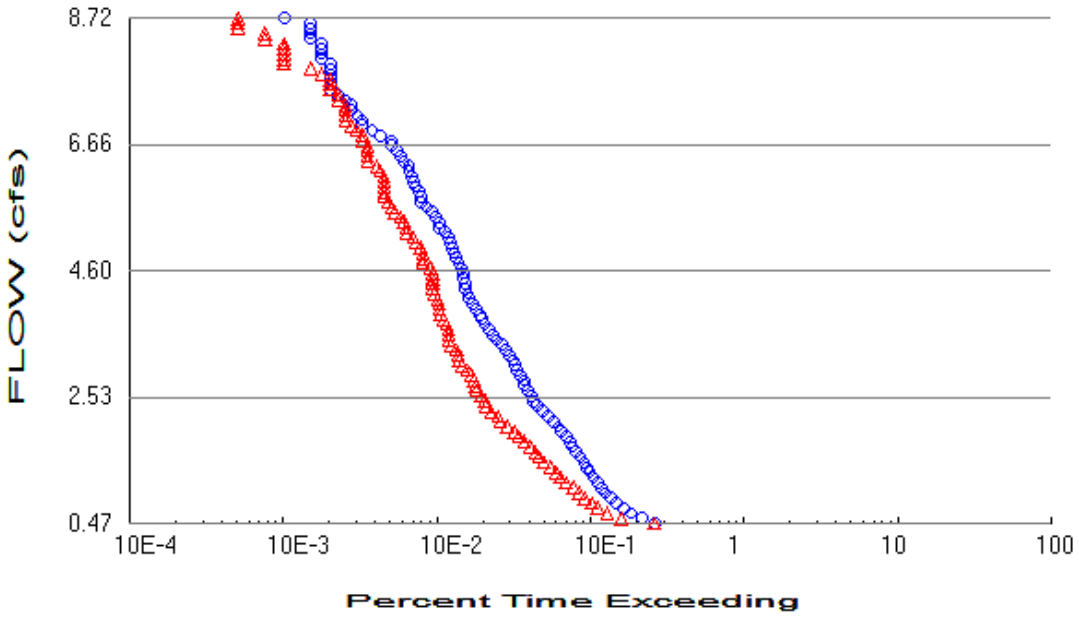
Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.4727	1033	825	79	Pass
0.5560	855	503	58	Pass
0.6393	735	413	56	Pass
0.7227	650	357	54	Pass
0.8060	587	311	52	Pass
0.8893	537	280	52	Pass
0.9726	492	257	52	Pass
1.0559	469	230	49	Pass
1.1393	439	210	47	Pass
1.2226	412	188	45	Pass
1.3059	391	167	42	Pass
1.3892	375	155	41	Pass
1.4726	359	147	40	Pass
1.5559	340	139	40	Pass
1.6392	321	124	38	Pass
1.7225	303	114	37	Pass
1.8059	290	102	35	Pass
1.8892	277	95	34	Pass
1.9725	257	88	34	Pass
2.0558	244	82	33	Pass
2.1392	227	76	33	Pass
2.2225	209	73	34	Pass
2.3058	191	65	34	Pass
2.3891	177	62	35	Pass
2.4725	170	59	34	Pass
2.5558	162	57	35	Pass
2.6391	153	54	35	Pass
2.7224	148	52	35	Pass
2.8057	146	51	34	Pass
2.8891	137	46	33	Pass
2.9724	132	46	34	Pass
3.0557	128	45	35	Pass
3.1390	123	45	36	Pass
3.2224	117	44	37	Pass
3.3057	110	42	38	Pass
3.3890	106	41	38	Pass
3.4723	97	40	41	Pass
3.5557	91	39	42	Pass
3.6390	86	39	45	Pass
3.7223	81	37	45	Pass
3.8056	77	35	45	Pass
3.8890	75	35	46	Pass
3.9723	71	34	47	Pass
4.0556	68	32	47	Pass
4.1389	64	30	46	Pass
4.2222	63	30	47	Pass
4.3056	61	29	47	Pass
4.3889	60	27	45	Pass

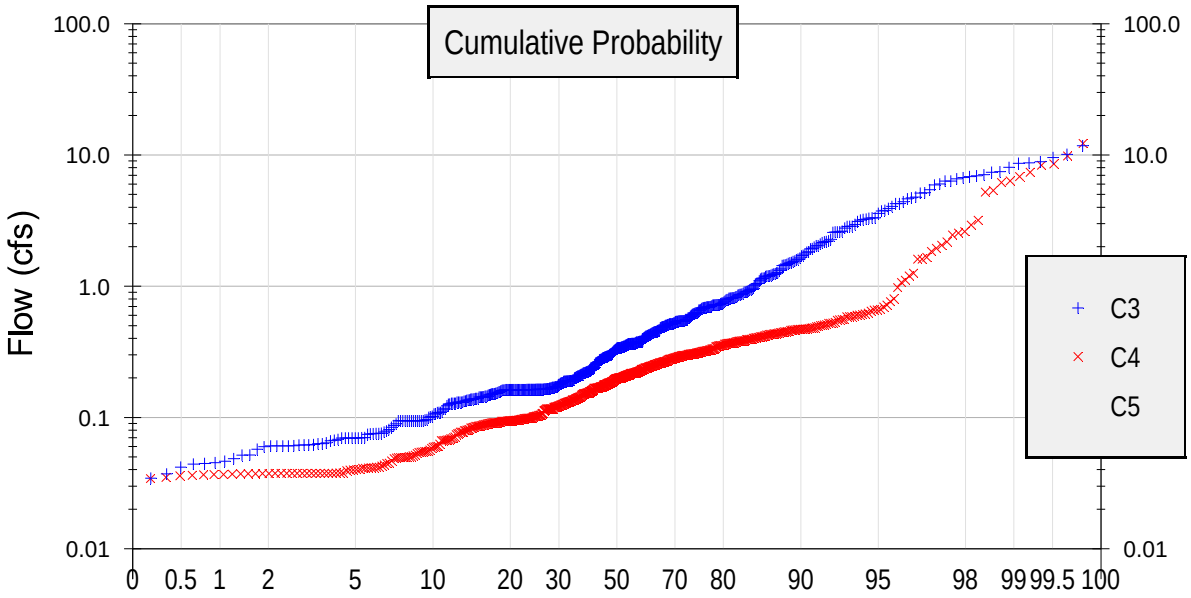
4.4722	59	27	45	Pass
4.5555	59	26	44	Pass
4.6389	57	22	38	Pass
4.7222	55	19	34	Pass
4.8055	53	17	32	Pass
4.8888	51	16	31	Pass
4.9722	50	16	32	Pass
5.0555	49	16	32	Pass
5.1388	47	16	34	Pass
5.2221	45	16	35	Pass
5.3055	41	16	39	Pass
5.3888	41	16	39	Pass
5.4721	39	15	38	Pass
5.5554	37	14	37	Pass
5.6387	34	14	41	Pass
5.7221	31	14	45	Pass
5.8054	31	13	41	Pass
5.8887	30	12	40	Pass
5.9720	29	12	41	Pass
6.0554	28	12	42	Pass
6.1387	27	11	40	Pass
6.2220	26	9	34	Pass
6.3053	26	9	34	Pass
6.3887	24	9	37	Pass
6.4720	23	8	34	Pass
6.5553	22	6	27	Pass
6.6386	20	6	30	Pass
6.7220	20	6	30	Pass
6.8053	17	5	29	Pass
6.8886	15	3	20	Pass
6.9719	13	3	23	Pass
7.0553	13	3	23	Pass
7.1386	12	3	25	Pass
7.2219	11	3	27	Pass
7.3052	11	3	27	Pass
7.3885	10	3	30	Pass
7.4719	9	2	22	Pass
7.5552	8	2	25	Pass
7.6385	8	2	25	Pass
7.7218	8	2	25	Pass
7.8052	8	2	25	Pass
7.8885	8	2	25	Pass
7.9718	8	2	25	Pass
8.0551	7	2	28	Pass
8.1385	7	2	28	Pass
8.2218	7	2	28	Pass
8.3051	7	2	28	Pass
8.3884	6	2	33	Pass
8.4718	6	2	33	Pass
8.5551	6	2	33	Pass
8.6384	6	2	33	Pass
8.7217	4	1	25	Pass

Drawdown Time Results

Perlnd and Implnd Changes

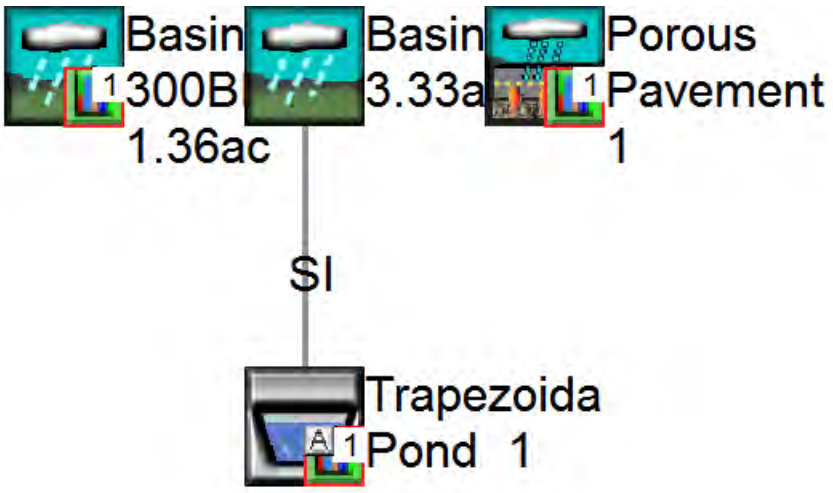
No changes have been made.




Cumulative Probability
Flow (cfs)
100.0
10.0
1.0
0.1
0.01
0
0.5
1
2
5
10
20
30
50
70
80
90
95
98
99
99.5
100
C3
C4
C5

POST-DEVELOPMENT SCHEMATICS

BASINS 300



BASIN 300 RESULTS

SDHM2011

PROJECT REPORT

Project Name: 1037IMPTMPOC3a
Site Name: LHR POC 3
Site Address: W. LILAC RD.
City : VALLEY CENTER
Report Date: 5/20/2013
Gage : LAKE WOH
Data Start : 10/01/1959
Data End : 09/30/2004
Precip Scale: 1.00
Version : 2013/04/29

Low Flow Threshold for POC 1 : 10 Percent of the 2 Year

High Flow Threshold for POC 1: 10 year

PREDEVELOPED LAND USE

Name : Basin 300
Bypass: No

GroundWater: No

Pervious Land Use	Acres
C,Grass,FLAT(0-5%)	.46
C,Grass,MOD(5-10%)	.72
C,Grass,STEEP(10-20	5.14
Pervious Total	6.32

Impervious Land Use	Acres
IMPERVIOUS-FLAT	0.05
IMPERVIOUS-MOD	0.38
Impervious Total	0.43
Basin Total	6.75

Element Flows To:

Surface	Interflow	Groundwater

MITIGATED LAND USE

Name : Basin 300BP
Bypass: Yes

GroundWater: No

Pervious Land Use	Acres
C,Grass,FLAT(0-5%)	.17
C,Grass,MOD(5-10%)	.09
C,Grass,STEEP(10-20	.92
Pervious Total	1.18

Impervious Land Use	Acres
IMPERVIOUS-FLAT	0.02
IMPERVIOUS-MOD	0.16
Impervious Total	0.18
Basin Total	1.36

Element Flows To:
Surface **Interflow** **Groundwater**

Name : Basin 300
Bypass: No

GroundWater: No

Pervious Land Use	Acres
B,Grass,FLAT(0-5%)	.34
B,Grass,STEEP(10-20	.65
C,Grass,MOD(5-10%)	.08
C,Grass,FLAT(0-5%)	.09
C,Grass,STEEP(10-20	.34
Pervious Total	1.5

Impervious Land Use	Acres
IMPERVIOUS-FLAT	0.24
IMPERVIOUS-MOD	0.53
Impervious Total	0.77
Basin Total	2.27

Element Flows To:

Surface	Interflow	Groundwater
Trapezoidal Pond 1	Trapezoidal Pond 1	

Name : Trapezoidal Pond 1
Bottom Length: 50.00 ft.
Bottom Width: 27.00 ft.
Depth: 5 ft.
Volume at riser head: 0.1920 acre-ft.
Side slope 1: 2 To 1
Side slope 2: 2 To 1
Side slope 3: 2 To 1
Side slope 4: 2 To 1
Discharge Structure
Riser Height: 4 ft.
Riser Diameter: 18 in.
Notch Type: Rectangular
Notch Width: 1.369 ft.
Notch Height: 0.098 ft.
Orifice 1 Diameter: 1.03895 in. **Elevation:** 0 ft.

Element Flows To:

Outlet 1	Outlet 2

Pond Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.031	0.000	0.000	0.000
0.0556	0.031	0.001	0.006	0.000
0.1111	0.031	0.003	0.009	0.000
0.1667	0.032	0.005	0.011	0.000
0.2222	0.032	0.007	0.013	0.000
0.2778	0.033	0.008	0.014	0.000
0.3333	0.033	0.010	0.016	0.000
0.3889	0.033	0.012	0.017	0.000
0.4444	0.034	0.014	0.018	0.000
0.5000	0.034	0.016	0.020	0.000
0.5556	0.035	0.018	0.021	0.000
0.6111	0.035	0.020	0.022	0.000
0.6667	0.035	0.022	0.023	0.000
0.7222	0.036	0.024	0.024	0.000
0.7778	0.036	0.026	0.025	0.000
0.8333	0.037	0.028	0.025	0.000
0.8889	0.037	0.030	0.026	0.000
0.9444	0.038	0.032	0.027	0.000
1.0000	0.038	0.034	0.028	0.000
1.0556	0.038	0.036	0.029	0.000

1.1111	0.039	0.039	0.029	0.000
1.1667	0.039	0.041	0.030	0.000
1.2222	0.040	0.043	0.031	0.000
1.2778	0.040	0.045	0.032	0.000
1.3333	0.041	0.047	0.032	0.000
1.3889	0.041	0.050	0.033	0.000
1.4444	0.042	0.052	0.034	0.000
1.5000	0.042	0.054	0.034	0.000
1.5556	0.042	0.057	0.035	0.000
1.6111	0.043	0.059	0.036	0.000
1.6667	0.043	0.062	0.036	0.000
1.7222	0.044	0.064	0.037	0.000
1.7778	0.044	0.067	0.037	0.000
1.8333	0.045	0.069	0.038	0.000
1.8889	0.045	0.072	0.039	0.000
1.9444	0.046	0.074	0.039	0.000
2.0000	0.046	0.077	0.040	0.000
2.0556	0.047	0.079	0.040	0.000
2.1111	0.047	0.082	0.041	0.000
2.1667	0.048	0.085	0.041	0.000
2.2222	0.048	0.087	0.042	0.000
2.2778	0.049	0.090	0.042	0.000
2.3333	0.049	0.093	0.043	0.000
2.3889	0.050	0.095	0.043	0.000
2.4444	0.050	0.098	0.044	0.000
2.5000	0.051	0.101	0.044	0.000
2.5556	0.051	0.104	0.045	0.000
2.6111	0.052	0.107	0.045	0.000
2.6667	0.052	0.110	0.046	0.000
2.7222	0.053	0.113	0.046	0.000
2.7778	0.053	0.116	0.047	0.000
2.8333	0.054	0.119	0.047	0.000
2.8889	0.054	0.122	0.048	0.000
2.9444	0.055	0.125	0.048	0.000
3.0000	0.055	0.128	0.049	0.000
3.0556	0.056	0.131	0.049	0.000
3.1111	0.056	0.134	0.050	0.000
3.1667	0.057	0.137	0.050	0.000
3.2222	0.057	0.140	0.050	0.000
3.2778	0.058	0.143	0.051	0.000
3.3333	0.058	0.147	0.051	0.000
3.3889	0.059	0.150	0.052	0.000
3.4444	0.059	0.153	0.052	0.000
3.5000	0.060	0.157	0.053	0.000
3.5556	0.060	0.160	0.053	0.000
3.6111	0.061	0.163	0.053	0.000
3.6667	0.061	0.167	0.054	0.000
3.7222	0.062	0.170	0.054	0.000
3.7778	0.062	0.174	0.055	0.000
3.8333	0.063	0.177	0.055	0.000
3.8889	0.064	0.181	0.055	0.000
3.9444	0.064	0.184	0.096	0.000
4.0000	0.065	0.188	0.196	0.000
4.0556	0.065	0.192	0.388	0.000

4.1111	0.066	0.195	0.738	0.000
4.1667	0.066	0.199	1.191	0.000
4.2222	0.067	0.203	1.728	0.000
4.2778	0.068	0.206	2.337	0.000
4.3333	0.068	0.210	3.010	0.000
4.3889	0.069	0.214	3.741	0.000
4.4444	0.069	0.218	4.528	0.000
4.5000	0.070	0.222	5.364	0.000
4.5556	0.070	0.226	6.249	0.000
4.6111	0.071	0.230	7.179	0.000
4.6667	0.072	0.234	8.152	0.000
4.7222	0.072	0.238	9.167	0.000
4.7778	0.073	0.242	10.22	0.000
4.8333	0.073	0.246	11.31	0.000
4.8889	0.074	0.250	12.44	0.000
4.9444	0.074	0.254	13.61	0.000
5.0000	0.075	0.258	14.81	0.000
5.0556	0.076	0.262	16.04	0.000

Name : Porous Pavement 1
Pavement Length: 330.00 ft.
Pavement Width: 33.00 ft.
Pavement slope 1: 0.02 To 1
Pavement thickness: 1.4
Pour Space of Pavement: 0.4
Material thickness of second layer: 0.1
Pour Space of material for second layer: 0.4
Material thickness of third layer: 0.25
Pour Space of material for third layer: 0.4

Element Flows To:
Outlet 1 **Outlet 2**

Porous Pavement Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.250	0.000	0.000	0.000
0.0178	0.250	0.001	0.126	0.000
0.0356	0.250	0.003	0.178	0.000
0.0533	0.250	0.005	0.218	0.000
0.0711	0.250	0.007	0.252	0.000
0.0889	0.250	0.008	0.281	0.000
0.1067	0.250	0.010	0.308	0.000
0.1244	0.250	0.012	0.333	0.000
0.1422	0.250	0.014	0.356	0.000
0.1600	0.250	0.016	0.378	0.000
0.1778	0.250	0.017	0.398	0.000
0.1956	0.250	0.019	0.418	0.000
0.2133	0.250	0.021	0.436	0.000
0.2311	0.250	0.023	0.454	0.000

0.2489	0.250	0.024	0.471	0.000
0.2667	0.250	0.026	0.488	0.000
0.2844	0.250	0.028	0.504	0.000
0.3022	0.250	0.030	0.519	0.000
0.3200	0.250	0.032	0.534	0.000
0.3378	0.250	0.033	0.549	0.000
0.3556	0.250	0.035	0.563	0.000
0.3733	0.250	0.037	0.577	0.000
0.3911	0.250	0.039	0.591	0.000
0.4089	0.250	0.040	0.604	0.000
0.4267	0.250	0.042	0.617	0.000
0.4444	0.250	0.044	0.630	0.000
0.4622	0.250	0.046	0.642	0.000
0.4800	0.250	0.048	0.655	0.000
0.4978	0.250	0.049	0.667	0.000
0.5156	0.250	0.051	0.678	0.000
0.5333	0.250	0.053	0.690	0.000
0.5511	0.250	0.055	0.701	0.000
0.5689	0.250	0.056	0.713	0.000
0.5867	0.250	0.058	0.724	0.000
0.6044	0.250	0.060	0.735	0.000
0.6222	0.250	0.062	0.745	0.000
0.6400	0.250	0.064	0.756	0.000
0.6578	0.250	0.065	0.766	0.000
0.6756	0.250	0.067	0.777	0.000
0.6933	0.250	0.069	0.787	0.000
0.7111	0.250	0.071	0.797	0.000
0.7289	0.250	0.072	0.807	0.000
0.7467	0.250	0.074	0.817	0.000
0.7644	0.250	0.076	0.826	0.000
0.7822	0.250	0.078	0.836	0.000
0.8000	0.250	0.080	0.845	0.000
0.8178	0.250	0.081	0.855	0.000
0.8356	0.250	0.083	0.864	0.000
0.8533	0.250	0.085	0.873	0.000
0.8711	0.250	0.087	0.882	0.000
0.8889	0.250	0.088	0.891	0.000
0.9067	0.250	0.090	0.900	0.000
0.9244	0.250	0.092	0.909	0.000
0.9422	0.250	0.094	0.917	0.000
0.9600	0.250	0.096	0.926	0.000
0.9778	0.250	0.097	0.934	0.000
0.9956	0.250	0.099	0.943	0.000
1.0133	0.250	0.101	0.951	0.000
1.0311	0.250	0.103	0.960	0.000
1.0489	0.250	0.104	0.968	0.000
1.0667	0.250	0.106	0.976	0.000
1.0844	0.250	0.108	0.984	0.000
1.1022	0.250	0.110	0.992	0.000
1.1200	0.250	0.112	1.000	0.000
1.1378	0.250	0.113	1.008	0.000
1.1556	0.250	0.115	1.016	0.000
1.1733	0.250	0.117	1.024	0.000
1.1911	0.250	0.119	1.031	0.000

1.2089	0.250	0.120	1.039	0.000
1.2267	0.250	0.122	1.047	0.000
1.2444	0.250	0.124	1.054	0.000
1.2622	0.250	0.126	1.062	0.000
1.2800	0.250	0.128	1.069	0.000
1.2978	0.250	0.129	1.077	0.000
1.3156	0.250	0.131	1.084	0.000
1.3333	0.250	0.133	1.091	0.000
1.3511	0.250	0.135	1.099	0.000
1.3689	0.250	0.136	1.106	0.000
1.3867	0.250	0.138	1.113	0.000
1.4044	0.250	0.140	1.120	0.000
1.4222	0.250	0.142	1.127	0.000
1.4400	0.250	0.144	1.134	0.000
1.4578	0.250	0.145	1.141	0.000
1.4756	0.250	0.147	1.148	0.000
1.4933	0.250	0.149	1.155	0.000
1.5111	0.250	0.151	1.162	0.000
1.5289	0.250	0.152	1.169	0.000
1.5467	0.250	0.154	1.175	0.000
1.5644	0.250	0.156	1.182	0.000
1.5822	0.250	0.158	1.189	0.000
1.6000	0.250	0.160	1.196	0.000

ANALYSIS RESULTS

Predeveloped Landuse Totals for POC #1
Total Pervious Area:6.32
Total Impervious Area:0.43

Mitigated Landuse Totals for POC #1
Total Pervious Area:2.68
Total Impervious Area:1.2

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	1.915375
5 year	2.931998
10 year	3.544594
25 year	4.024805

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.603194
5 year	1.265934
10 year	1.555072
25 year	2.317114

POC #1
The Facility PASSED

The Facility PASSED.

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.1915	834	522	62	Pass
0.2254	717	411	57	Pass
0.2593	627	331	52	Pass
0.2931	589	280	47	Pass
0.3270	545	242	44	Pass
0.3609	514	217	42	Pass
0.3948	477	192	40	Pass
0.4286	445	171	38	Pass
0.4625	423	152	35	Pass
0.4964	402	139	34	Pass
0.5302	385	124	32	Pass
0.5641	369	111	30	Pass
0.5980	356	98	27	Pass
0.6318	335	86	25	Pass
0.6657	314	81	25	Pass
0.6996	296	75	25	Pass
0.7334	286	70	24	Pass
0.7673	273	64	23	Pass
0.8012	254	60	23	Pass
0.8351	240	53	22	Pass
0.8689	226	51	22	Pass
0.9028	208	43	20	Pass
0.9367	191	42	21	Pass
0.9705	176	40	22	Pass
1.0044	170	39	22	Pass
1.0383	160	35	21	Pass
1.0721	151	33	21	Pass
1.1060	145	30	20	Pass
1.1399	143	28	19	Pass
1.1737	135	25	18	Pass
1.2076	131	24	18	Pass
1.2415	125	23	18	Pass
1.2754	118	21	17	Pass
1.3092	113	20	17	Pass
1.3431	106	19	17	Pass
1.3770	102	18	17	Pass
1.4108	97	17	17	Pass
1.4447	89	16	17	Pass
1.4786	84	14	16	Pass
1.5124	80	10	12	Pass
1.5463	77	9	11	Pass
1.5802	75	8	10	Pass
1.6140	71	7	9	Pass
1.6479	69	6	8	Pass

1.6818	65	5	7	Pass
1.7157	63	5	7	Pass
1.7495	61	5	8	Pass
1.7834	59	5	8	Pass
1.8173	59	5	8	Pass
1.8511	59	5	8	Pass
1.8850	57	5	8	Pass
1.9189	54	3	5	Pass
1.9527	52	3	5	Pass
1.9866	51	3	5	Pass
2.0205	50	3	6	Pass
2.0543	49	3	6	Pass
2.0882	47	2	4	Pass
2.1221	45	2	4	Pass
2.1560	41	2	4	Pass
2.1898	40	2	5	Pass
2.2237	39	2	5	Pass
2.2576	37	2	5	Pass
2.2914	34	2	5	Pass
2.3253	32	2	6	Pass
2.3592	31	2	6	Pass
2.3930	29	2	6	Pass
2.4269	28	1	3	Pass
2.4608	26	0	0	Pass
2.4946	26	0	0	Pass
2.5285	25	0	0	Pass
2.5624	24	0	0	Pass
2.5963	23	0	0	Pass
2.6301	22	0	0	Pass
2.6640	21	0	0	Pass
2.6979	20	0	0	Pass
2.7317	18	0	0	Pass
2.7656	16	0	0	Pass
2.7995	15	0	0	Pass
2.8333	13	0	0	Pass
2.8672	13	0	0	Pass
2.9011	12	0	0	Pass
2.9349	11	0	0	Pass
2.9688	11	0	0	Pass
3.0027	10	0	0	Pass
3.0366	8	0	0	Pass
3.0704	8	0	0	Pass
3.1043	8	0	0	Pass
3.1382	8	0	0	Pass
3.1720	8	0	0	Pass
3.2059	8	0	0	Pass
3.2398	8	0	0	Pass
3.2736	7	0	0	Pass
3.3075	7	0	0	Pass
3.3414	7	0	0	Pass
3.3752	6	0	0	Pass
3.4091	6	0	0	Pass
3.4430	6	0	0	Pass
3.4769	6	0	0	Pass

3.5107	5	0	0	Pass
3.5446	4	0	0	Pass

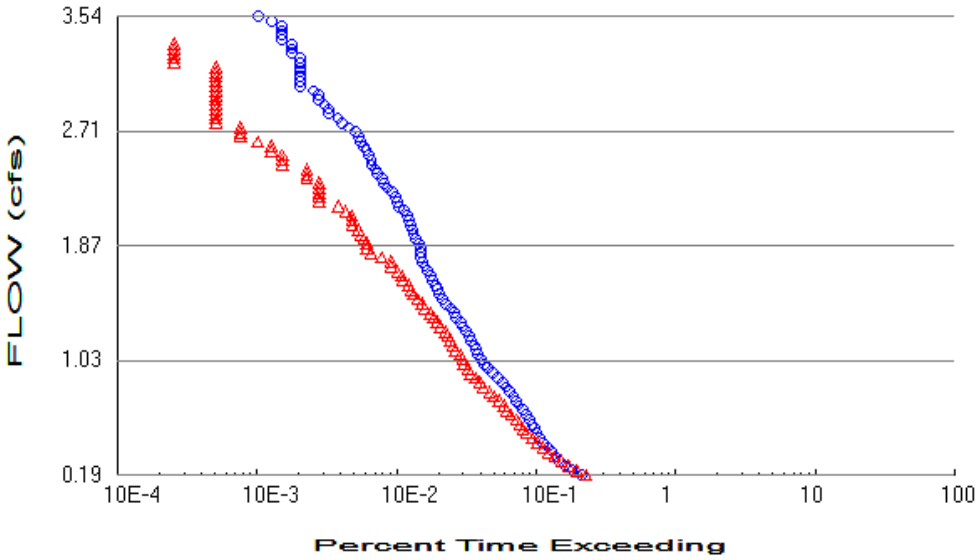
Drawdown Time Results
Pond: Trapezoidal Pond 1

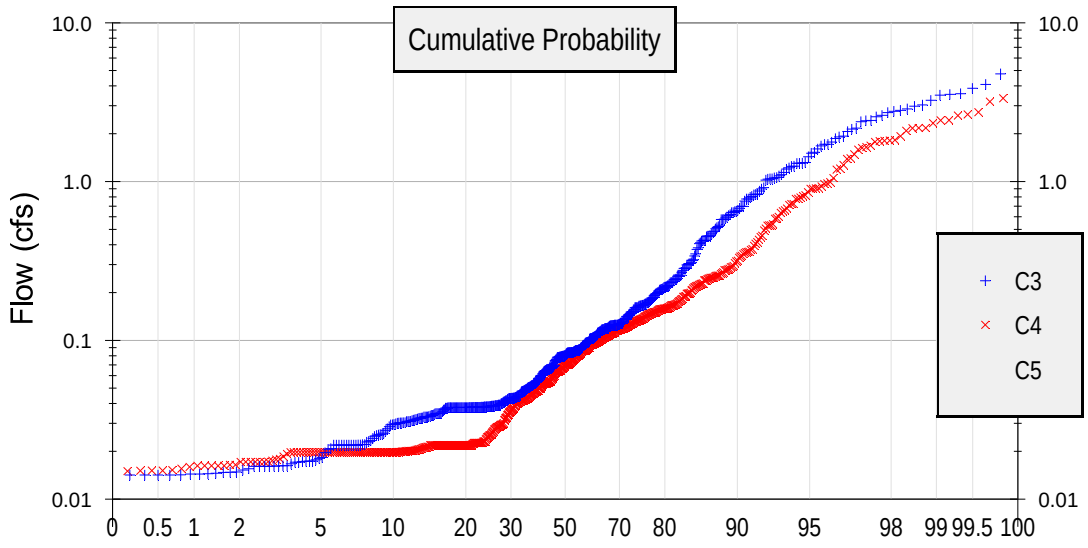
Days	Stage(feet)	Percent of Total Run Time
1	0.997	2.7560
2	2.291	0.8869
3	3.702	0.1531
4	5.000	0.0000
5	5.000	0.0000

Maximum Stage: 4.109
Drawdown Time: 02 23:55:50

Perlnd and Implnd Changes

No changes have been made.




Cumulative Probability
Flow (cfs)
10.0
1.0
0.1
0.01
0
0.5
1
2
5
10
20
30
50
70
80
90
95
98
99
99.5
100
C3
C4
C5

SUMMARY

PEAK FLOW

BASIN 100

	10% Q2	Q2	Q5	Q10
	(CFS)	(CFS)	(CFS)	(CFS)
PRE-DEV	5.5	55.4	85.1	102.7
POST-DEV	4.7	47.4	73.6	88.9

BASIN 200

	10% Q2	Q2	Q5	Q10
	(CFS)	(CFS)	(CFS)	(CFS)
PRE-DEV	0.5	4.7	7.2	8.7
POST-DEV	0.1	0.9	4.3	6.6

BASIN 300

	10% Q2	Q2	Q5	Q10
	(CFS)	(CFS)	(CFS)	(CFS)
PRE-DEV	0.2	1.9	2.9	3.5
POST-DEV	0.1	0.6	1.3	1.5

MITIGATION DEVICE	PROPOSED SIZE	DETAIL DESCRIPTION
PERMEABLE PAVERS	1Acre of pavers	1 acres of permeable pavers to be places at lot points of streets just upstream of the final discharging point. Permeable pavers consist of unit pavers over 30" of base material with a minimum of 0.4 porosity. **Drawdown time <72 hours, no vector control required**
PERMEABLE PAVERS & DETENTION BASIN 200	½ Acre of pavers with 1.0 Ac-Ft. detention basin	1/2 acres of permeable pavers to be places at lot points of streets just upstream of the final discharging point. Permeable pavers consist of unit pavers over 30" of base material with a minimum of 0.4 porosity. 1.0 Ac-Ft trapezoidal pond at 5' deep with a 1' freeboard. 18" diameter riser at 4' high with 17.9" wide notch at 0.13' high and 3" diameter orifice at bottom of pond. **Drawdown time <72 hours, no vector control**

		required.
PERMEABLE PAVERS & DETENTION BASIN 300	¼ Acre of pavers with 0.2 Ac-Ft. detention basin	0.2 Ac-Ft trapezoidal pond at 5' deep with a 1' freeboard. 18" diameter riser at 4' high with 16.4" wide notch at 0.098' high and 1.04" diameter orifice at bottom of pond. **Drawdown time <72 hours, no vector control**

As presented in this report, the post-development discharge durations will not deviate above the pre-development durations from 0.1Q2 to Q10. The flow rates from 0.1Q2 to Q10, under the post-development conditions, will not deviate above those under the pre-development conditions. The proposed detention basin is sized for 100-year storm mitigation and is verified to be more than adequate to mitigate the anticipated hydromodification peak flow and duration as a result of the proposed development's increased impervious areas. The proposed development will not adversely affect downstream drainage facilities.

MAINTENANACE

Immediately after construction, the proposed HMP facilities will be maintained by the developer until a Home Owner's Association is established. The maintenance responsibility will then be transferred to the HOA. The HOA will maintain these HMP facilities into perpetuity.