

DRAINAGE ANALYSIS

FOR
Site Plan – Senior Village
Panther Way and West Central Street

LOCATED IN
FRANKLIN, MASSACHUSETTS

PREPARED FOR
Camford Property Group, LLC
37 East Central Street
Franklin, MA 02038

PREPARED BY
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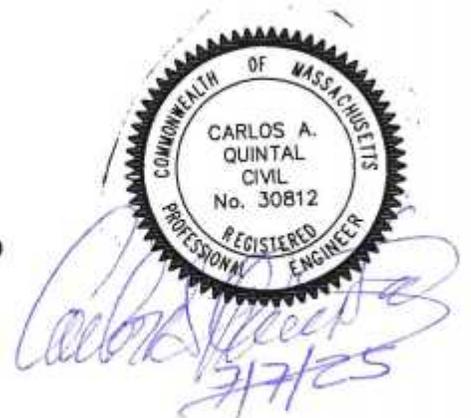


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I. DESCRIPTION

This report is offered in support of the stormwater management system designed for the "Site Plan – Panther Way – Senior Village in Franklin, Massachusetts. This project included the construction of 44 residential units as well as a mixed use building including commercial uses and apartments. The site was partially developed with a building which included parking areas and utilities and a stormwater system. The stormwater analysis at the time of the original project permitting process includes rainfall values from TP-40. Due to the portion of the stormwater management system for that development original development being utilized for this phase of the project we have continued with the TP-40 rainfall values. The primary goals of the stormwater system are to collect the stormwater runoff generated from the proposed driveways, parking areas, and buildings. The stormwater will be directed to one of four infiltration ponds. Infiltration Pond 1 is an underground infiltration area located to the front of the existing building. Pond 2 is an open pond which was constructed as part of the original development project. This pond will now receive flow as well as overflow from the proposed development. Pond 2 and Pond 3 receive flow from the proposed project driveway drainage system and after treatment provide for storage and infiltration. Pond 5 receives flow from the lots located to the north of the main driveway. An overflow is included from Ponds 3 and 5 which directs the stormwater overflow to Pond 2. Both the pre-development and post-development conditions flowing offsite are summarized in Appendix B.

II. Purpose

The purpose of this report is to examine the hydrological and hydraulic aspects of the proposed Panther Way – Senior Village" Site Plan. This report was developed for review by the Town of Franklin Planning Board and Conservation Commission to obtain the necessary permits to allow the project to proceed.

This report considers the overall hydrological impact of proposed additional development upon the local watersheds with specific emphasis directed toward the adjacent and immediate downstream areas. The hydrology and criteria are consistent with the Town of Franklin Planning Board, Franklin Conservation Commission and Mass DEP Storm Water Management Policies.

III. Pre-Development Conditions

The site consists of three parcels of land containing 800,948+/- square feet of land, when combined, and is located off of Panther Way and West Central Street in Franklin. A portion of the site is currently developed with an existing building and paved parking areas, lawn and landscaping. The upland soils for the site were taken from the soil survey of Norfolk and Suffolk counties. Additionally, soil test was conducted to determine the Hydrologic soil group of the western portion of the site. This testing was used to determine the HSG was a B soil which has been used in the evaluation. Refer to the site plan for the location and soil types. Soil testing was conducted on the site to determine soil types and permeability rates. See the soil logs and permeability test results located in Appendix F. Permeability test was completed on site and the infiltration rate used for the design are based on the Rawls rate for sand. Utilizing a Hydrocad computer model the pre-development and post development conditions were calculated. This included an analysis of the watershed utilizing a Hydrologic soil group A or B. A comparison of the pre-development vs. post development rate and volume of runoff can be found in Appendix B.

IV. Post Development Conditions

The proposed development will consist of the construction of a mixed-use building and residential housing units. The proposed buildings will be accessed by private driveways and parking areas. The driveways will be captured in deep sump hooded catch basing and will be piped to water quality units and then directed to the three underground infiltration pond or the open pond. The proposed infiltration

system will promote groundwater re-charge as required by the Town of Franklin Stormwater Regulations. Municipal utility connections are also included in the project. The proposal is to service the buildings with town water and sewer. The project design includes the construction of one main site driveway and a connection driveway to the exiting commercial site.. TSS removal will be accomplished by a treatment train. The site will be treated by deep sump hooded catch basins, water quality units and four infiltration ponds. Utilizing the same computer model as the existing conditions we have modeled the changes in surfaces and ground cover and have calculated the post development conditions. All calculations for the above have been included in this report. Pre-development calculations are in Appendix C. Post-development calculations are located in Appendix D.

V. Conclusion

Stormwater from the existing and proposed parking areas and driveways will be captured by the catch basins and water quality units for TSS removal which will then be directed to the three underground infiltration ponds and one open pond. The existing and proposed roofs will be captured and directed to an underground infiltration pond. The comparison in Appendix B summarizes the rate and volumes of runoff leaving the site in both the pre-development and post-development conditions.

VI. Stormwater Management Standards

Refer to Checklist for Stormwater Report in Appendix II

Town of Franklin Stormwater Management Bylaw – Chapter 153 – Bylaw Amendment 21-867

Impervious Coverage Entire Site site =

1" x 276,371 sq. ft. impervious = 23,031 cubic feet (Required)

Storage in Pond 1 – Pond 5 below the outlet invert = 34,843 cubic feet (Provided)

This narrative is for the Panther Way Site Plan – Senior Housing Development located on Panther Way and West Central Street.

LID Measures

- No disturbance is proposed to any Wetland Resource Area.
- Existing Vegetation Removal within the buffer zone is minimal.
-

Standard 1: No New Untreated Discharges

No new untreated discharges are proposed.

A stormwater system has been provided or is proposed which will provide the required TSS removal which includes the installation of deep sump hooded catch basins, water quality units and five infiltration basins.

Standard 2: Peak Rate Attenuation

The drainage system has been designed to match or reduce the rate of storm-water runoff from the site when comparing the pre-development conditions to the post development conditions. See Appendix B of this report for a summary of the design storms.

Standard 3: Recharge

- Soil testing has been completed. See Appendix F or this report for permeability test results and sheet 4 for soil testing information. Additional soil testing can be found on the plan sheets.
- Drawdown within 72 hours

Pond 1

Storage Volume below outlet = 4,375 cubic feet

Time = $(4,375) / (8.27"/hr \times 1'/12" \times 5,214 \text{ sf.}) = 1.22 \text{ hours} < 72 \text{ hours}$

Pond 2

Storage Volume below outlet = 12,620 cubic feet

Time = $(12,620) / (8.27"/hr \times 1'/12" \times 10,086 \text{ sf.}) = 1.82 \text{ hours} < 72 \text{ hours}$

Pond 3

Storage Volume below outlet = 9,626 cubic feet

Time = $(9,636) / (13.60"/hr \times 1'/12" \times 4,009 \text{ sf.}) = 1.66 \text{ hours} < 72 \text{ hours}$

Pond 5

Storage Volume below outlet = 8,222 cubic feet

Time = $(8,222) / (14.90"/hr \times 1'/12" \times 3,432 \text{ sf.}) = 1.93 \text{ hours} < 72 \text{ hours}$

See Stage Area-Storage tables this appendix.

Standard 4: Water Quality

- The owner will be responsible for compliance with standard four requirements.
- Refer to the Operation and Maintenance Plan and the Storm-water Facilities Plan for the Inspection and Maintenance Schedule and the Operation and Maintenance Schedule.
- See Appendix E for the Manufacturer's TSS removal rate. The site is not located within a zone II. The Infiltration Ponds have been designed with an infiltration rate of 8.27 inches per hour. This led to the Water Quality unit being modeled with a 1" WQV.
- The proposed project will include a Water Quality Unit which will provide TSS removal. The summary of the Manufacturer's Predicted Net Annual results as well as the TSS Removal Worksheet are included.

Water Quality Volumes for Ponds 1, 2, 3 and 5

Pond 1

$48,773 \times 1/12 = 4,064 \text{ cubic feet (Required)}$

Storage Volume below outlet = 4,375 cubic feet provided

Pond 2

$150,722 \times 1/12 = 12,560 \text{ cubic feet (Required)}$

Storage Volume below outlet = 12,620 cubic feet provided

Pond 3

$53,525 \times 1/12 = 4,460 \text{ cubic feet (Required)}$

Storage Volume below outlet = 9,626 cubic feet provided

Pond 5

$18,940 \times 1/12 = 1,578 \text{ cubic feet (Required)}$

Storage Volume below outlet = 8,222 cubic feet provided

Standard 5: Land uses with higher potential pollutant loads

None proposed for Lot 2.

Standard 6: Critical Areas

N/A

Standard 7: Re-developments and Other Projects

N/A

Standard 8: Construction Period Pollution Prevention and Erosion Sedimentation Control

- Refer to Site Plans for the Inspection and Maintenance Schedule and the Operation and Maintenance Schedule.
- The project will be covered by an NPDES Construction General Permit.

Standard 9: Operation and Maintenance Plan

- Refer to Site Plans for the Inspection and Maintenance Schedule and the Operation and Maintenance Schedule.
- The owner will be responsible for the storm-water management system, implementation of the operation and maintenance, the maintenance costs, and completion of the maintenance logs.

Standard 10: Prohibition of Illicit Discharges

- Owner to be responsible for compliance with avoiding illicit discharges.
- The site will be connected to the town sewer system.

Stage-Area-Storage for Pond 1P: POND 1 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
244.79	5,214	2,512	245.31	5,214	4,413
244.80	5,214	2,546	245.32	5,214	4,451
244.81	5,214	2,581	245.33	5,214	4,489
244.82	5,214	2,615	245.34	5,214	4,527
244.83	5,214	2,650	245.35	5,214	4,565
244.84	5,214	2,685	245.36	5,214	4,603
244.85	5,214	2,720	245.37	5,214	4,641
244.86	5,214	2,755	245.38	5,214	4,679
244.87	5,214	2,790	245.39	5,214	4,717
244.88	5,214	2,825	245.40	5,214	4,755
244.89	5,214	2,860	245.41	5,214	4,793
244.90	5,214	2,896	245.42	5,214	4,831
244.91	5,214	2,931	245.43	5,214	4,869
244.92	5,214	2,967	245.44	5,214	4,907
244.93	5,214	3,003	245.45	5,214	4,945
244.94	5,214	3,039	245.46	5,214	4,983
244.95	5,214	3,075	245.47	5,214	5,021
244.96	5,214	3,111	245.48	5,214	5,059
244.97	5,214	3,147	245.49	5,214	5,097
244.98	5,214	3,183	245.50	5,214	5,135
244.99	5,214	3,219	245.51	5,214	5,173
245.00	5,214	3,256	245.52	5,214	5,211
245.01	5,214	3,292	245.53	5,214	5,248
245.02	5,214	3,329	245.54	5,214	5,286
245.03	5,214	3,365	245.55	5,214	5,324
245.04	5,214	3,402	245.56	5,214	5,362
245.05	5,214	3,439	245.57	5,214	5,400
245.06	5,214	3,476	245.58	5,214	5,438
245.07	5,214	3,513	245.59	5,214	5,476
245.08	5,214	3,550	245.60	5,214	5,513
245.09	5,214	3,587	245.61	5,214	5,551
245.10	5,214	3,624	245.62	5,214	5,589
245.11	5,214	3,661	245.63	5,214	5,626
245.12	5,214	3,698	245.64	5,214	5,664
245.13	5,214	3,735	245.65	5,214	5,702
245.14	5,214	3,773	245.66	5,214	5,739
245.15	5,214	3,810	245.67	5,214	5,777
245.16	5,214	3,847	245.68	5,214	5,814
245.17	5,214	3,885	245.69	5,214	5,851
245.18	5,214	3,922	245.70	5,214	5,889
245.19	5,214	3,960	245.71	5,214	5,926
245.20	5,214	3,997	245.72	5,214	5,963
245.21	5,214	4,035	245.73	5,214	6,001
245.22	5,214	4,073	245.74	5,214	6,038
245.23	5,214	4,110	245.75	5,214	6,075
245.24	5,214	4,148	245.76	5,214	6,112
245.25	5,214	4,186	245.77	5,214	6,149
245.26	5,214	4,224	245.78	5,214	6,186
245.27	5,214	4,261	245.79	5,214	6,222
245.28	5,214	4,299	245.80	5,214	6,259
245.29	5,214	4,337	245.81	5,214	6,296
245.30	5,214	4,375	245.82	5,214	6,333

Stage-Area-Storage for Pond 2P: POND 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
249.00	10,086	0	250.04	11,332	11,137
249.02	10,110	202	250.06	11,356	11,364
249.04	10,134	404	250.08	11,381	11,591
249.06	10,158	607	250.10	11,405	11,819
249.08	10,182	811	250.12	11,430	12,047
249.10	10,206	1,015	250.14	11,454	12,276
249.12	10,230	1,219	250.16	11,479	12,505
249.14	10,254	1,424	250.18	11,503	12,735
249.16	10,278	1,629	250.20	11,528	12,966
249.18	10,301	1,835	250.22	11,552	13,196
249.20	10,325	2,041	250.24	11,577	13,428
249.22	10,349	2,248	250.26	11,601	13,659
249.24	10,373	2,455	250.28	11,626	13,892
249.26	10,397	2,663	250.30	11,650	14,125
249.28	10,421	2,871	250.32	11,675	14,358
249.30	10,445	3,080	250.34	11,699	14,591
249.32	10,469	3,289	250.36	11,724	14,826
249.34	10,493	3,498	250.38	11,748	15,060
249.36	10,517	3,709	250.40	11,773	15,296
249.38	10,541	3,919	250.42	11,797	15,531
249.40	10,565	4,130	250.44	11,822	15,768
249.42	10,589	4,342	250.46	11,846	16,004
249.44	10,613	4,554	250.48	11,871	16,241
249.46	10,637	4,766	250.50	11,895	16,479
249.48	10,661	4,979	250.52	11,920	16,717
249.50	10,685	5,193	250.54	11,944	16,956
249.52	10,708	5,407	250.56	11,969	17,195
249.54	10,732	5,621	250.58	11,993	17,435
249.56	10,756	5,836	250.60	12,018	17,675
249.58	10,780	6,051	250.62	12,042	17,915
249.60	10,804	6,267	250.64	12,067	18,156
249.62	10,828	6,483	250.66	12,091	18,398
249.64	10,852	6,700	250.68	12,116	18,640
249.66	10,876	6,917	250.70	12,140	18,883
249.68	10,900	7,135	250.72	12,165	19,126
249.70	10,924	7,353	250.74	12,189	19,369
249.72	10,948	7,572	250.76	12,214	19,613
249.74	10,972	7,791	250.78	12,238	19,858
249.76	10,996	8,011	250.80	12,263	20,103
249.78	11,020	8,231	250.82	12,287	20,348
249.80	11,044	8,452	250.84	12,312	20,594
249.82	11,068	8,673	250.86	12,336	20,841
249.84	11,091	8,895	250.88	12,361	21,088
249.86	11,115	9,117	250.90	12,385	21,335
249.88	11,139	9,339	250.92	12,410	21,583
249.90	11,163	9,562	250.94	12,434	21,832
249.92	11,187	9,786	250.96	12,459	22,080
249.94	11,211	10,010	250.98	12,483	22,330
249.96	11,235	10,234	251.00	12,508	22,580
249.98	11,259	10,459	251.02	12,532	22,830
250.00	11,283	10,685	251.04	12,556	23,081
250.02	11,307	10,910	251.06	12,581	23,332

250.17

12,620

Stage-Area-Storage for Pond 3P: POND 3 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.72	4,009	7,340	278.24	4,009	8,877
277.73	4,009	7,370	278.25	4,009	8,907
277.74	4,009	7,400	278.26	4,009	8,936
277.75	4,009	7,429	278.27	4,009	8,965
277.76	4,009	7,459	278.28	4,009	8,994
277.77	4,009	7,489	278.29	4,009	9,023
277.78	4,009	7,519	278.30	4,009	9,052
277.79	4,009	7,549	278.31	4,009	9,081
277.80	4,009	7,579	278.32	4,009	9,110
277.81	4,009	7,608	278.33	4,009	9,139
277.82	4,009	7,638	278.34	4,009	9,167
277.83	4,009	7,668	278.35	4,009	9,196
277.84	4,009	7,698	278.36	4,009	9,225
277.85	4,009	7,727	278.37	4,009	9,254
277.86	4,009	7,757	278.38	4,009	9,283
277.87	4,009	7,787	278.39	4,009	9,312
277.88	4,009	7,817	278.40	4,009	9,340
277.89	4,009	7,846	278.41	4,009	9,369
277.90	4,009	7,876	278.42	4,009	9,398
277.91	4,009	7,906	278.43	4,009	9,426
277.92	4,009	7,935	278.44	4,009	9,455
277.93	4,009	7,965	278.45	4,009	9,483
277.94	4,009	7,995	278.46	4,009	9,512
277.95	4,009	8,024	278.47	4,009	9,540
277.96	4,009	8,054	278.48	4,009	9,569
277.97	4,009	8,084	278.49	4,009	9,597
277.98	4,009	8,113	278.50	4,009	9,626
277.99	4,009	8,143	278.51	4,009	9,654
278.00	4,009	8,172	278.52	4,009	9,682
278.01	4,009	8,202	278.53	4,009	9,711
278.02	4,009	8,232	278.54	4,009	9,739
278.03	4,009	8,261	278.55	4,009	9,767
278.04	4,009	8,291	278.56	4,009	9,795
278.05	4,009	8,320	278.57	4,009	9,823
278.06	4,009	8,350	278.58	4,009	9,852
278.07	4,009	8,379	278.59	4,009	9,880
278.08	4,009	8,409	278.60	4,009	9,908
278.09	4,009	8,438	278.61	4,009	9,936
278.10	4,009	8,467	278.62	4,009	9,964
278.11	4,009	8,497	278.63	4,009	9,992
278.12	4,009	8,526	278.64	4,009	10,019
278.13	4,009	8,556	278.65	4,009	10,047
278.14	4,009	8,585	278.66	4,009	10,075
278.15	4,009	8,614	278.67	4,009	10,103
278.16	4,009	8,644	278.68	4,009	10,130
278.17	4,009	8,673	278.69	4,009	10,158
278.18	4,009	8,702	278.70	4,009	10,186
278.19	4,009	8,731	278.71	4,009	10,213
278.20	4,009	8,761	278.72	4,009	10,241
278.21	4,009	8,790	278.73	4,009	10,268
278.22	4,009	8,819	278.74	4,009	10,296
278.23	4,009	8,848	278.75	4,009	10,323

Stage-Area-Storage for Pond 5P: POND 5 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
268.82	3,432	6,271	269.34	3,432	7,583
268.83	3,432	6,297	269.35	3,432	7,608
268.84	3,432	6,322	269.36	3,432	7,633
268.85	3,432	6,347	269.37	3,432	7,658
268.86	3,432	6,373	269.38	3,432	7,683
268.87	3,432	6,398	269.39	3,432	7,707
268.88	3,432	6,424	269.40	3,432	7,732
268.89	3,432	6,449	269.41	3,432	7,757
268.90	3,432	6,475	269.42	3,432	7,782
268.91	3,432	6,500	269.43	3,432	7,806
268.92	3,432	6,525	269.44	3,432	7,831
268.93	3,432	6,551	269.45	3,432	7,856
268.94	3,432	6,576	269.46	3,432	7,880
268.95	3,432	6,602	269.47	3,432	7,905
268.96	3,432	6,627	269.48	3,432	7,929
268.97	3,432	6,652	269.49	3,432	7,954
268.98	3,432	6,678	269.50	3,432	7,979
268.99	3,432	6,703	269.51	3,432	8,003
269.00	3,432	6,729	269.52	3,432	8,027
269.01	3,432	6,754	269.53	3,432	8,052
269.02	3,432	6,779	269.54	3,432	8,076
269.03	3,432	6,805	269.55	3,432	8,101
269.04	3,432	6,830	269.56	3,432	8,125
269.05	3,432	6,855	269.57	3,432	8,149
269.06	3,432	6,881	269.58	3,432	8,174
269.07	3,432	6,906	269.59	3,432	8,198
269.08	3,432	6,931	269.60	3,432	8,222
269.09	3,432	6,956	269.61	3,432	8,246
269.10	3,432	6,982	269.62	3,432	8,271
269.11	3,432	7,007	269.63	3,432	8,295
269.12	3,432	7,032	269.64	3,432	8,319
269.13	3,432	7,057	269.65	3,432	8,343
269.14	3,432	7,083	269.66	3,432	8,367
269.15	3,432	7,108	269.67	3,432	8,391
269.16	3,432	7,133	269.68	3,432	8,415
269.17	3,432	7,158	269.69	3,432	8,439
269.18	3,432	7,183	269.70	3,432	8,463
269.19	3,432	7,208	269.71	3,432	8,487
269.20	3,432	7,233	269.72	3,432	8,511
269.21	3,432	7,259	269.73	3,432	8,535
269.22	3,432	7,284	269.74	3,432	8,558
269.23	3,432	7,309	269.75	3,432	8,582
269.24	3,432	7,334	269.76	3,432	8,606
269.25	3,432	7,359	269.77	3,432	8,629
269.26	3,432	7,384	269.78	3,432	8,653
269.27	3,432	7,409	269.79	3,432	8,677
269.28	3,432	7,434	269.80	3,432	8,700
269.29	3,432	7,459	269.81	3,432	8,724
269.30	3,432	7,484	269.82	3,432	8,747
269.31	3,432	7,509	269.83	3,432	8,771
269.32	3,432	7,534	269.84	3,432	8,794
269.33	3,432	7,559	269.85	3,432	8,818

APPENDIX B

Pre-Development vs. Post Development Rate and Volume of Runoff

This analysis was prepared to show the summary of the pre-development and post development rate and volume of runoff as required by the Town of Franklin Storm-water Requirements.

The pre-development watershed area 1S is located to the middle portion of the site with a discharge to Panther Way. Post-development Link 1L was provided to combine the outlet control structure from Pond 2 and the piped outlet from Pond 1 with the undeveloped area which discharge to Panther Way. A comparison of the rate and volume for pre-development area 1S and post-development Link 1L is provided below:

2-year storm event (CFS)			2 year storm event (A.F.)		
Pre		Post	Pre		Post
1S	vs	1L	1S	vs	1L
0.11		0.00	0.067		0.002
10 year storm event (CFS)			10 year storm event (A.F.)		
Pre		Post	Pre		Post
1S	vs	1L	1S	vs	1L
1.59		1.20	0.407		0.113
100 year storm event (CFS)			100 year storm event (A.F.)		
Pre		Post	Pre		Post
1S	vs	1L	1S	vs	1L
8.08		7.84	1.269		0.884
NOAA - 100 year storm event (CFS)			NOAA - 100 year storm event (A.F.)		
Pre		Post	Pre		Post
1S	vs	1L	1S	vs	1L
14.24		<u>15.76²</u>	2.006		1.610

The pre-development watershed area 2S is located to the north portion of the site with a discharge to the Highwood Condominiums. Post-development Sub-catchment 52S was included to show the reduced discharge to the Highwood Condominiums. A comparison of the rate and volume for pre-development area 2S and post-development 52S is provided below:

2-year storm event (CFS)			2 year storm event (A.F.)		
Pre		Post	Pre		Post
2S	vs	52S	2S	vs	52S
0.00		0.00	0.000		0.000
10 year storm event (CFS)			10 year storm event (A.F.)		
Pre		Post	Pre		Post
2S	vs	52S	2S	vs	52S
0.00		0.00	0.001		0.002
100 year storm event (CFS)			100 year storm event (A.F.)		
Pre		Post	Pre		Post
2S	vs	52S	2S	vs	52S
0.08		0.06	0.036		0.009

NOAA - 100 year storm event (CFS)

Pre		Post
2S	vs	52S
0.38		0.15

NOAA - 100 year storm event (A.F.)

Pre		Post
2S	vs	52S
0.081		0.015

The pre-development watershed areas 3S and 4S are directed to West Central Street and have been combined into Line 1L (To 140) Post-development watershed 52S and 54S are directed to West Central Street and have been combined into Link 54L. A comparison of the rate and volume for pre-development area 1S and post-development Link 1L is provided below:

2-year storm event (CFS)

Pre		Post
1L	vs	54L
0.38		0.32

2 year storm event (A.F.)

Pre		Post
1L	vs	54L
0.076		0.064

10 year storm event (CFS)

Pre		Post
1L	vs	54L
2.24		1.86

10 year storm event (A.F.)

Pre		Post
1L	vs	54L
0.240		0.202

100 year storm event (CFS)

Pre		Post
1L	vs	54L
6.62		5.48

100 year storm event (A.F.)

Pre		Post
1L	vs	54L
0.590		0.502

NOAA - 100 year storm event (CFS)

Pre		Post
1L	vs	54L
10.13		8.55

NOAA - 100 year storm event (A.F.)

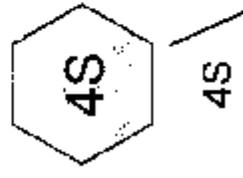
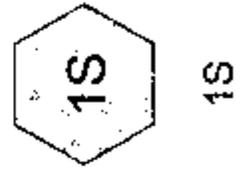
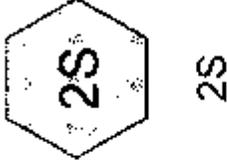
Pre		Post
1L	vs	54L
0.872		0.744

*No changes or a reduction in both the rate of runoff and volume of runoff for the 2 year, 10 year and 100 year storm events have been realized, with the exception of 52S which has a slight increase in the volume of runoff but has a reduction in the rate of runoff.

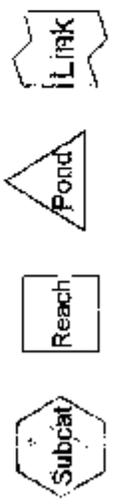
The NOAA 100 year storm event has an increase in the rate of runoff for the overflow directed to Panther Way. The watershed has four infiltration ponds located within it which were based on the 100 year TP 40 rainfall events. Two of the infiltration ponds were constructed with the first project developed on the site.

Pre-development areas 3S and 4S were included as the discharge from these areas was directed away from the development. Based on post-development conditions these areas are now included in the developments stormwater system and have been included in the post-development areas.

APPENDIX C



TO-140



Drainage Diagram for UC1378-PRE-NOV-2024
Prepared by United Consultants, Inc.
HydroCAD® 8.00 s/n 001535 © 2006 HydroCAD Software Solutions LLC

Area Listing (all nodes)

<u>Area (acres)</u>	<u>CN</u>	<u>Description (subcats)</u>
7.486	30	Woods, Good, HSG A (1S,2S,3S)
9.991	55	Woods, Good, HSG B (1S,2S,3S,4S)
0.740	76	Gravel roads, HSG A (1S)
<hr/>		
18.217		

2 YR PRE-DEVELOPMENT

Subcatchment 1S: 1S

Runoff = 0.11 cfs @ 15.31 hrs, Volume= 0.067 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
32,213	76	Gravel roads, HSG A
231,397	30	Woods, Good, HSG A
278,160	55	Woods, Good, HSG B
541,770	46	Weighted Average
541,770		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0630	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
2.6	197	0.0680	1.28		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.3	68	0.0300	0.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.5	107	0.0560	1.18		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.7	55	0.0730	1.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	63	0.0630	1.25		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.0	200	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	96	0.1670	2.04		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.0	180	0.0220	0.74		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.6	204	0.0680	1.30		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.3	68	0.0290	0.85		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.9	112	0.1700	2.06		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.1	140	0.0180	2.16		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
28.3	1,540	Total			

Subcatchment 2S: 2S

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
64,758	30	Woods, Good, HSG A
4,438	55	Woods, Good, HSG B
69,196	32	Weighted Average
69,196		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.1180	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.3	38	0.1580	1.99		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.3	34	0.1180	1.72		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.4	31	0.0650	1.27		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.0	92	0.0230	0.76		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	47	0.0350	0.94		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	12	0.1670	2.04		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
9.9	304	Total			

Subcatchment 3S: 3S

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
29,937	30	Woods, Good, HSG A
2,732	55	Woods, Good, HSG B
32,669	32	Weighted Average
32,669		Pervious Area

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

Subcatchment 4S: 4S

Runoff = 0.38 cfs @ 12.38 hrs, Volume= 0.076 af, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
149,899	55	Woods, Good, HSG B
149,899		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1140	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
1.7	168	0.1150	1.70		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.6	145	0.0970	1.56		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
9.4	363	Total			

Link 1L: TO-140

Inflow Area = 4.191 ac, Inflow Depth = 0.22" for 2YR event
 Inflow = 0.38 cfs @ 12.38 hrs, Volume= 0.076 af
 Primary = 0.38 cfs @ 12.38 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

10 YR PRE-DEVELOPMENT

Subcatchment 1S: 1S

Runoff = 1.59 cfs @ 12.64 hrs, Volume= 0.407 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
32,213	76	Gravel roads, HSG A
231,397	30	Woods, Good, HSG A
278,160	55	Woods, Good, HSG B
541,770	46	Weighted Average
541,770		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0630	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
2.6	197	0.0660	1.28		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.3	68	0.0300	0.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.5	107	0.0560	1.18		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.7	55	0.0730	1.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	63	0.0630	1.25		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.0	200	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	96	0.1670	2.04		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.0	180	0.0220	0.74		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.6	204	0.0680	1.30		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.3	68	0.0290	0.85		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.9	112	0.1700	2.06		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.1	140	0.0180	2.16		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
28.3	1,540	Total			

Subcatchment 2S: 2S

Runoff = 0.00 cfs @ 22.89 hrs, Volume= 0.001 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
64,758	30	Woods, Good, HSG A
4,438	55	Woods, Good, HSG B
69,196	32	Weighted Average
69,196		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.1180	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.3	38	0.1580	1.99		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.3	34	0.1180	1.72		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.4	31	0.0850	1.27		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.0	92	0.0230	0.78		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	47	0.0350	0.94		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	12	0.1670	2.04		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
9.9	304	Total			

Subcatchment 3S: 3S

Runoff = 0.00 cfs @ 22.86 hrs, Volume= 0.001 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
29,937	30	Woods, Good, HSG A
2,732	55	Woods, Good, HSG B
32,669	32	Weighted Average
32,669		Pervious Area

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

Subcatchment 4S: 4S

Runoff = 2.24 cfs @ 12.16 hrs, Volume= 0.239 af, Depth= 0.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
149,899	55	Woods, Good, HSG B
149,899		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1140	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
1.7	168	0.1150	1.70		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.6	145	0.0970	1.56		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
9.4	363	Total			

Link 1L: TO-140

Inflow Area = 4.191 ac, Inflow Depth = 0.69" for 10YR event
 Inflow = 2.24 cfs @ 12.16 hrs, Volume= 0.240 af
 Primary = 2.24 cfs @ 12.16 hrs, Volume= 0.240 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

100 YR PRE-DEVELOPMENT

Subcatchment 1S: 1S

Runoff = 8.08 cfs @ 12.49 hrs, Volume= 1.269 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
32,213	76	Gravel roads, HSG A
231,397	30	Woods, Good, HSG A
278,160	55	Woods, Good, HSG B
541,770	46	Weighted Average
541,770		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0630	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
2.6	197	0.0660	1.28		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.3	68	0.0300	0.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.5	107	0.0560	1.18		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.7	55	0.0730	1.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	63	0.0830	1.25		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.0	200	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	96	0.1670	2.04		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.0	180	0.0220	0.74		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.6	204	0.0680	1.30		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.3	68	0.0290	0.85		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.9	112	0.1700	2.06		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.1	140	0.0180	2.16		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
28.3	1,540	Total			

Subcatchment 2S: 2S

Runoff = 0.08 cfs @ 12.53 hrs, Volume= 0.036 af, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
64,758	30	Woods, Good, HSG A
4,438	55	Woods, Good, HSG B
69,196	32	Weighted Average
69,196		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.1180	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.3	38	0.1580	1.99		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.3	34	0.1180	1.72		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.4	31	0.0650	1.27		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.0	92	0.0230	0.76		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	47	0.0350	0.94		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	12	0.1670	2.04		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
9.9	304	Total			

Subcatchment 3S: 3S

Runoff = 0.04 cfs @ 12.47 hrs, Volume= 0.017 af, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
29,937	30	Woods, Good, HSG A
2,732	55	Woods, Good, HSG B
32,669	32	Weighted Average
32,669		Pervious Area

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

Subcatchment 4S: 4S

Runoff = 6.62 cfs @ 12.14 hrs, Volume= 0.573 af, Depth= 2.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
149,899	55	Woods, Good, HSG B
149,899		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1140	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
1.7	168	0.1150	1.70		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.6	145	0.0970	1.56		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
9.4	363	Total			

Link 1L: TO-140

Inflow Area = 4.191 ac, Inflow Depth = 1.69" for 100YR event
 Inflow = 6.62 cfs @ 12.14 hrs, Volume= 0.590 af
 Primary = 6.62 cfs @ 12.14 hrs, Volume= 0.590 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

100 YR-NOAA PRE-DEVELOPMENT

Subcatchment 1S: 1S

Runoff = 14.24 cfs @ 12.45 hrs, Volume= 2.006 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
32,213	76	Gravel roads, HSG A
231,397	30	Woods, Good, HSG A
278,160	55	Woods, Good, HSG B
541,770	46	Weighted Average
541,770		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0630	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
2.6	197	0.0660	1.28		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.3	68	0.0300	0.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.5	107	0.0560	1.18		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.7	55	0.0730	1.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	63	0.0630	1.25		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.0	200	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	96	0.1670	2.04		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.0	180	0.0220	0.74		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.6	204	0.0680	1.30		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.3	68	0.0290	0.85		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.9	112	0.1700	2.06		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.1	140	0.0180	2.16		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
28.3	1,540	Total			

Subcatchment 2S: 2S

Runoff = 0.38 cfs @ 12.40 hrs, Volume= 0.081 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
64,758	30	Woods, Good, HSG A
4,438	55	Woods, Good, HSG B
69,196	32	Weighted Average
69,196		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.1180	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.3	38	0.1580	1.99		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.3	34	0.1180	1.72		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.4	31	0.0650	1.27		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.0	92	0.0230	0.76		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	47	0.0350	0.94		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	12	0.1670	2.04		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
9.9	304	Total			

Subcatchment 3S: 3S

Runoff = 0.18 cfs @ 12.34 hrs, Volume= 0.038 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
29,937	30	Woods, Good, HSG A
2,732	55	Woods, Good, HSG B
32,669	32	Weighted Average
32,669		Pervious Area

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

Subcatchment 4S: 4S

Runoff = 10.03 cfs @ 12.14 hrs, Volume= 0.834 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
149,899	55	Woods, Good, HSG B
149,899		Pervious Area

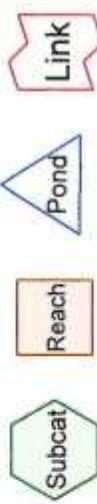
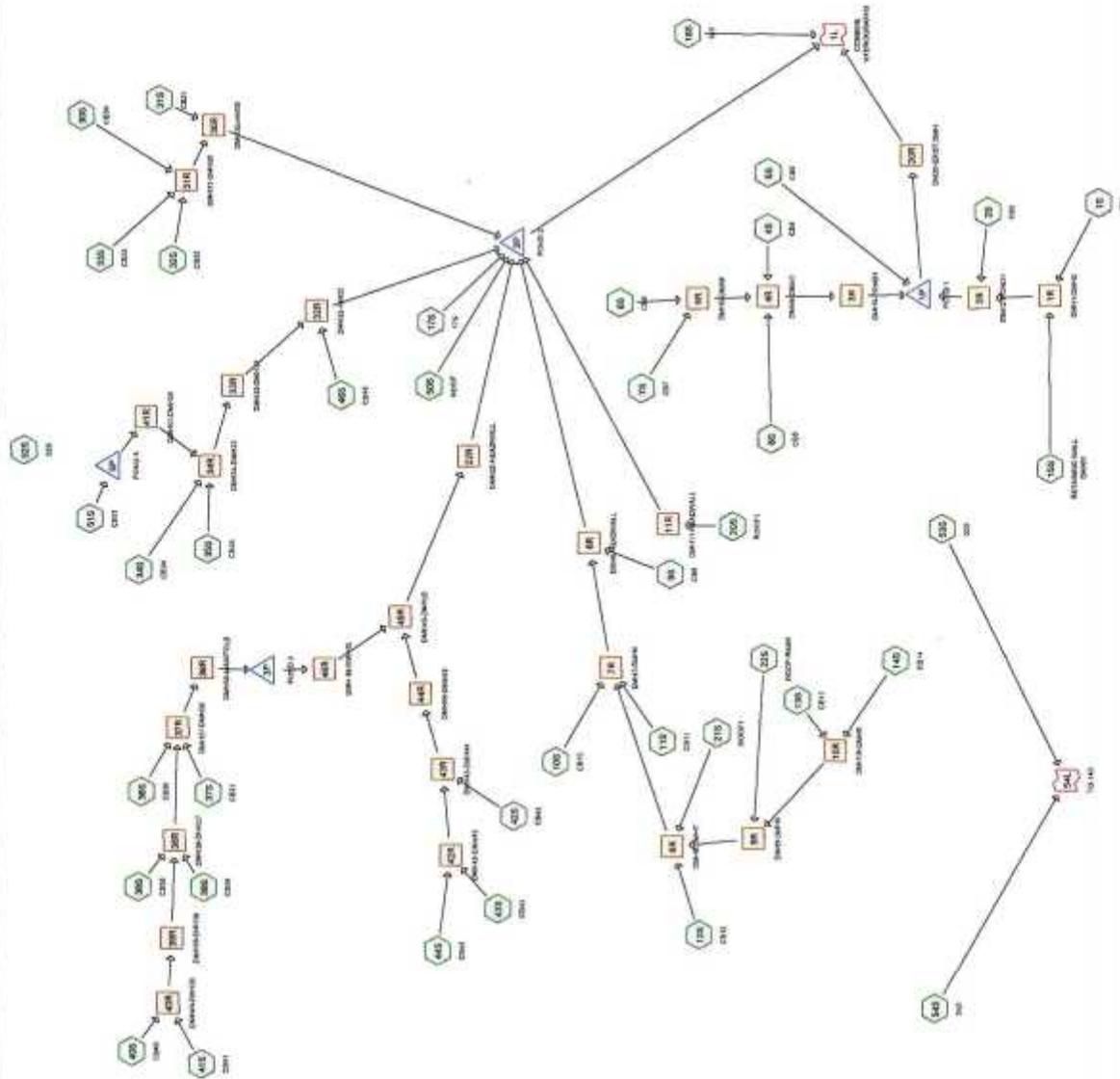
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1140	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
1.7	168	0.1150	1.70		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.6	145	0.0970	1.56		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
9.4	363	Total			

Link 1L: TO-140

Inflow Area = 4.191 ac, Inflow Depth = 2.50" for 100YR-noaa event
 Inflow = 10.13 cfs @ 12.14 hrs, Volume= 0.872 af
 Primary = 10.13 cfs @ 12.14 hrs, Volume= 0.872 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

APPENDIX D



Drainage Diagram for UC1378-POST-2025-REV1
 Prepared by United Consultants, Inc.
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Area Listing (all nodes)

<u>Area (acres)</u>	<u>CN</u>	<u>Description (subcats)</u>
0.668	30	Woods, Good, HSG A (18S,52S,53S)
3.512	39	>75% Grass cover, Good, HSG A (2S,5S,6S,7S,8S,9S,10S,11S,12S,13S,14S,15S,17S,18
3.494	55	Woods, Good, HSG B (12S,51S,52S,53S,54S)
3.868	61	>75% Grass cover, Good, HSG B (10S,12S,34S,35S,36S,37S,38S,39S,40S,41S,42S,43S
6.345	98	Paved parking & roofs (1S,2S,4S,5S,6S,7S,8S,9S,10S,11S,12S,13S,14S,17S,18S,20S,21
0.330	98	Pond (17S)
<hr/>		
18.217		

2 YR POST-DEVELOPMENT

Subcatchment 1S: CB1

Runoff = 0.68 cfs @ 12.09 hrs, Volume= 0.055 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
9,594	98	Paved parking & roofs
9,594		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	62	0.0100	4.91	3.86	Circular Channel (pipe), CB1-DMH1 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry,
6.0	62	Total			

Subcatchment 2S: CB2

Runoff = 1.03 cfs @ 12.09 hrs, Volume= 0.084 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
14,408	98	Paved parking & roofs
122	39	>75% Grass cover, Good, HSG A
14,530	98	Weighted Average
122		Pervious Area
14,408		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.0100	4.91	3.86	Circular Channel (pipe), CB2-DMH2 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0					Direct Entry, MIN. TC
6.0	10	Total			

Subcatchment 4S: CB4

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 0.044 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
7,554	98	Paved parking & roofs
7,554		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	13	0.0100	4.91	3.86	Circular Channel (pipe), CB4-DMH4 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0					Direct Entry, MIN.TC
6.0	13	Total			

Subcatchment 5S: CB5

Runoff = 0.47 cfs @ 12.09 hrs, Volume= 0.034 af, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
7,852	98	Paved parking & roofs
2,558	39	>75% Grass cover, Good, HSG A
10,410	84	Weighted Average
2,558		Pervious Area
7,852		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	41	0.0030	2.69	2.11	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.7					Direct Entry, MIN. TC
6.0	41	Total			

Subcatchment 6S: CB6

Runoff = 0.27 cfs @ 12.09 hrs, Volume= 0.020 af, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
4,648	98	Paved parking & roofs
1,389	39	>75% Grass cover, Good, HSG A
6,037	84	Weighted Average
1,389		Pervious Area
4,648		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	38	0.0050	3.47	2.73	Circular Channel (pipe), CB6-DMH5 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry,
6.0	38	Total			

Subcatchment 7S: CB7

Runoff = 0.10 cfs @ 12.09 hrs, Volume= 0.007 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
1,784	98	Paved parking & roofs
584	39	>75% Grass cover, Good, HSG A
2,368	83	Weighted Average
584		Pervious Area
1,784		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	48	0.0200	6.95	5.46	Circular Channel (pipe), CB7-DMH5 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.9					Direct Entry, MIN. TC
6.0	48	Total			

Subcatchment 8S: CB8

Runoff = 0.10 cfs @ 12.11 hrs, Volume= 0.009 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
2,933	98	Paved parking & roofs
3,025	39	>75% Grass cover, Good, HSG A
5,958	68	Weighted Average
3,025		Pervious Area
2,933		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	100	0.0200	6.95	5.46	Circular Channel (pipe), CB8-DMH4 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry, MIN. TC
6.0	100	Total			

Subcatchment 9S: CB9

Runoff = 0.03 cfs @ 12.16 hrs, Volume= 0.005 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
2,195	98	Paved parking & roofs
4,619	39	>75% Grass cover, Good, HSG A
6,814	58	Weighted Average
4,619		Pervious Area
2,195		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	25	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.8	19	0.3330	0.38		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.0	11	0.0454	4.33		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.4	114	0.0600	4.97		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	22	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.5					Direct Entry, MIN. TC.
6.0	191	Total			

Subcatchment 10S: CB10

Runoff = 0.38 cfs @ 12.15 hrs, Volume= 0.038 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
11,195	98	Paved parking & roofs
13,303	39	>75% Grass cover, Good, HSG A
7,605	61	>75% Grass cover, Good, HSG B
32,103	65	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	20,908				Pervious Area
	11,195				Impervious Area
3.4	28	0.0210	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
2.6	22	0.0260	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
1.7	100	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	7	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	19	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	10	0.0500	4.54		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	31	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.4					Direct Entry, MIN TC
8.4	222	Total			

Subcatchment 11S: CB11

Runoff = 0.07 cfs @ 12.11 hrs, Volume= 0.006 af, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
2,003	98	Paved parking & roofs
2,251	39	>75% Grass cover, Good, HSG A
4,254	67	Weighted Average
2,251		Pervious Area
2,003		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	22	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.8	12	0.1670	0.26		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.3	6	0.3330	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	17	0.0740	1.90		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	8	0.0600	4.97		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	40	0.0300	8.51	6.69	Circular Channel (pipe), CB11-DMH7 Diam= 12.0' Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.9					Direct Entry, MIN. TC
6.0	105	Total			

Subcatchment 12S: CB12

Runoff = 0.30 cfs @ 12.13 hrs, Volume= 0.033 af, Depth= 0.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
8,359	98	Paved parking & roofs
11,088	39	>75% Grass cover, Good, HSG A
11,592	61	>75% Grass cover, Good, HSG B
2,937	55	Woods, Good, HSG B
33,976	62	Weighted Average
25,617		Pervious Area
8,359		Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	41	0.1950	0.16		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.0	8	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	14	0.1250	2.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	62	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	102	0.0490	4.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.9					Direct Entry, MIN TC
0.5	93	0.0210	2.94		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	47	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.5	372	Total			

Subcatchment 13S: CB13

Runoff = 0.24 cfs @ 12.10 hrs, Volume= 0.019 af, Depth= 1.01"
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
5,493	98	Paved parking & roofs
4,121	39	>75% Grass cover, Good, HSG A
9,614	73	Weighted Average
4,121		Pervious Area
5,493		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	11	0.1820	0.27		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
1.2	29	0.3330	0.41		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.4	75	0.0210	2.94		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	9	0.0200	6.95	5.46	Circular Channel (pipe), CB13-DMH10 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
3.7					Direct Entry, MIN. TC
6.0	124	Total			

Subcatchment 14S: CB14

Runoff = 0.46 cfs @ 12.11 hrs, Volume= 0.037 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
11,118	98	Paved parking & roofs
7,973	39	>75% Grass cover, Good, HSG A
19,091	73	Weighted Average
7,973		Pervious Area
11,118		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	37	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.7	92	0.0110	2.13		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	35	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	43	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.3	100	0.0100	4.91	3.86	Circular Channel (pipe), CB14-DMH10 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
7.2	307	Total			

Subcatchment 15S: RETAINING WALL DRAIN

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
3,920	39	>75% Grass cover, Good, HSG A
3,920		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	105	0.0200	6.95	5.46	Circular Channel (pipe), RETWALL-DMH1 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.7					Direct Entry, MIN. TC
6.0	105	Total			

Subcatchment 17S: 17S

Runoff = 0.47 cfs @ 12.15 hrs, Volume= 0.047 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
3,022	98	Paved parking & roofs
14,391	98	Pond
22,278	39	>75% Grass cover, Good, HSG A
39,691	65	Weighted Average
22,278		Pervious Area
17,413		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0390	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.2	17	0.0390	1.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	16	0.1250	2.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	12	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	11	0.1540	2.75		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	59	0.0230	1.06		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	6	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	21	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	15	0.1321	2.54		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.8	178	0.0560	1.66		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	65	0.0310	1.23		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.5	450	Total			

Subcatchment 18S: 18S

Runoff = 0.00 cfs @ 15.60 hrs, Volume= 0.002 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
4,411	98	Paved parking & roofs
22,080	39	>75% Grass cover, Good, HSG A
8,779	30	Woods, Good, HSG A
35,270	44	Weighted Average
30,859		Pervious Area
4,411		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.5	36	0.0560	1.18		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	37	0.2700	2.60		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	14	0.1430	1.89		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	19	0.0820	1.43		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
8.9	156	Total			

Subcatchment 20S: ROOF1

Runoff = 0.36 cfs @ 12.09 hrs. Volume= 0.029 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
5,064	98	Paved parking & roofs
5,064		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	70	0.0100	4.91	3.86	Circular Channel (pipe), CLEANOUT-DMH6 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished Direct Entry, MIN. TC.
5.8					
6.0	70	Total			

Subcatchment 21S: ROOF1

Runoff = 0.36 cfs @ 12.09 hrs. Volume= 0.029 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
5,048	98	Paved parking & roofs
5,048		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	58	0.0400	9.83	7.72	Circular Channel (pipe), CLEANOUT-DMH8 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished Direct Entry, MIN. TC.
5.9					
6.0	58	Total			

Subcatchment 22S: ROOF-REAR

Runoff = 0.72 cfs @ 12.09 hrs, Volume= 0.058 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
10,112	98	Paved parking & roofs
10,112		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	160	0.0200	6.95	5.46	Circular Channel (pipe), CLEANOUT-DMH9 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished Direct Entry, MIN. TC.
5.6					
6.0	160	Total			

Subcatchment 30S: CB30

Runoff = 0.02 cfs @ 12.38 hrs, Volume= 0.006 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
3,270	98	Paved parking & roofs
10,380	39	>75% Grass cover, Good, HSG A
13,650	53	Weighted Average
10,380		Pervious Area
3,270		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	38	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	38	Total			

Subcatchment 31S: CB31

Runoff = 0.34 cfs @ 12.10 hrs, Volume= 0.025 af, Depth= 1.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
6,355	98	Paved parking & roofs
2,758	39	>75% Grass cover, Good, HSG A
9,113	80	Weighted Average
2,758		Pervious Area
6,355		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	8	0.0075	4.26	3.34	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	8	Total			

Subcatchment 32S: CB32

Runoff = 0.35 cfs @ 12.10 hrs, Volume= 0.026 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
7,349	98	Paved parking & roofs
4,297	39	>75% Grass cover, Good, HSG A
11,646	76	Weighted Average
4,297		Pervious Area
7,349		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	32	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	32	Total			

Subcatchment 33S: CB33

Runoff = 0.09 cfs @ 12.12 hrs, Volume= 0.009 af, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
3,439	98	Paved parking & roofs
5,144	39	>75% Grass cover, Good, HSG A
8,583	63	Weighted Average
5,144		Pervious Area
3,439		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	42	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	42	Total			

Subcatchment 34S: CB34

Runoff = 0.48 cfs @ 12.10 hrs, Volume= 0.037 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
10,509	98	Paved parking & roofs
6,920	39	>75% Grass cover, Good, HSG A
1,505	61	>75% Grass cover, Good, HSG B
18,934	73	Weighted Average
8,425		Pervious Area
10,509		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	50	0.0350	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	7	0.0350	1.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	83	0.0635	5.12		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	209	0.0800	5.74		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6					Direct Entry, MIN TC
0.0	16	0.0200	6.95	5.46	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	345	Total			

Subcatchment 35S: CB35

Runoff = 0.31 cfs @ 12.10 hrs, Volume= 0.022 af, Depth= 1.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
5,089	98	Paved parking & roofs
1,446	39	>75% Grass cover, Good, HSG A
1,165	61	>75% Grass cover, Good, HSG B
7,700	81	Weighted Average
2,611		Pervious Area
5,089		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	2	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	2	Total			

Subcatchment 36S: CB36

Runoff = 0.64 cfs @ 12.09 hrs, Volume= 0.047 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
8,647	98	Paved parking & roofs
3,366	61	>75% Grass cover, Good, HSG B
12,013	88	Weighted Average

3.366 Pervious Area
8.647 Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	43	0.0470	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.2	17	0.0410	1.42		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	32	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	26	0.0770	5.63		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.4	87	0.0400	4.06		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.7					Direct Entry, MIN TC
0.0	19	0.0210	7.12	5.59	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	224	Total			

Subcatchment 37S: CB37

Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.016 af, Depth= 2.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
2,907	98	Paved parking & roofs
590	61	>75% Grass cover, Good, HSG B
3,497	92	Weighted Average
590		Pervious Area
2,907		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	8	0.0500	10.99	8.63	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	8	Total			

Subcatchment 38S: CB38

Runoff = 0.50 cfs @ 12.09 hrs, Volume= 0.037 af, Depth= 2.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
6,806	98	Paved parking & roofs
1,621	61	>75% Grass cover, Good, HSG B
8,427	91	Weighted Average
1,621		Pervious Area
6,806		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	19	0.0330	8.93	7.01	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	19	Total			

Subcatchment 39S: CB39

Runoff = 0.47 cfs @ 12.09 hrs, Volume= 0.034 af, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
6,620	98	Paved parking & roofs
3,815	61	>75% Grass cover, Good, HSG B
10,435	84	Weighted Average
3,815		Pervious Area
6,620		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	8	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	8	Total			

Subcatchment 40S: CB40

Runoff = 0.52 cfs @ 12.09 hrs, Volume= 0.038 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
7,083	98	Paved parking & roofs
3,954	61	>75% Grass cover, Good, HSG B
11,037	85	Weighted Average
3,954		Pervious Area
7,083		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	19	0.0410	9.95	7.82	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	19	Total			

Subcatchment 41S: CB41

Runoff = 1.47 cfs @ 12.11 hrs, Volume= 0.113 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
21,462	98	Paved parking & roofs
21,670	61	>75% Grass cover, Good, HSG B
43,132	79	Weighted Average
21,670		Pervious Area
21,462		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	7	0.0450	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	5	0.0450	1.05		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.25"
2.0	21	0.0450	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
2.1	17	0.0260	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.9	59	0.0260	1.13		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	56	0.0280	1.17		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	27	0.0190	2.80		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	147	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	9	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
7.5	348	Total			

Subcatchment 42S: CB42

Runoff = 0.70 cfs @ 12.09 hrs, Volume= 0.051 af, Depth= 2.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
9,346	98	Paved parking & roofs
2,328	61	>75% Grass cover, Good, HSG B
11,674	91	Weighted Average
2,328		Pervious Area
9,346		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	14	0.0200	6.95	5.46	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	14	Total			

Subcatchment 43S: CB43

Runoff = 0.69 cfs @ 12.09 hrs, Volume= 0.050 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
9,303	98	Paved parking & roofs
6,582	61	>75% Grass cover, Good, HSG B
15,885	83	Weighted Average
6,582		Pervious Area
9,303		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	12	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	12	Total			

Subcatchment 44S: CB44

Runoff = 1.00 cfs @ 12.13 hrs, Volume= 0.088 af, Depth= 0.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
11,746	98	Paved parking & roofs
45,362	61	>75% Grass cover, Good, HSG B
57,108	69	Weighted Average
45,362		Pervious Area
11,746		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0380	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	8	0.0380	1.36		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	50	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	64	0.0940	2.15		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	31	0.3200	3.96		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	91	0.0220	1.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	46	0.0860	2.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	13	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	18	0.0200	6.95	5.46	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
7.7	395	Total			

Subcatchment 46S: CB46

Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.032 af, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
6,048	98	Paved parking & roofs
605	39	>75% Grass cover, Good, HSG A
6,653	93	Weighted Average
605		Pervious Area
6,048		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	9	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	9	Total			

Subcatchment 50S: ROOF

Runoff = 1.03 cfs @ 12.09 hrs, Volume= 0.085 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
14,656	98	Paved parking & roofs
14,656		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	88	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	88	Total			

Subcatchment 51S: CB51

Runoff = 0.89 cfs @ 12.33 hrs, Volume= 0.120 af, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
18,940	98	Paved parking & roofs
12,143	39	>75% Grass cover, Good, HSG A
54,072	61	>75% Grass cover, Good, HSG B
22,931	55	Woods, Good, HSG B
108,086	64	Weighted Average
89,146		Pervious Area
18,940		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0480	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.6	48	0.0830	1.44		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	9	0.2220	2.36		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	40	0.5000	4.95		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.6	133	0.0150	0.86		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	11	0.1820	2.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	43	0.0470	1.52		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	6	0.3330	4.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	33	0.0610	1.73		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	18	0.1110	2.33		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	20	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	47	0.0430	1.45		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	42	0.0480	1.53		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	68	0.0290	1.19		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.3	144	0.0690	1.84		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	115	0.0175	0.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	25	0.2800	3.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0200	8.34	6.55	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
18.7	857	Total			

Subcatchment 52S: 52S

Runoff = 0.00 cfs @ 23.57 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

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Type III 24-hr 2YR Rainfall=3.25"

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Area (sf)	CN	Description
3,594	30	Woods, Good, HSG A
2,275	55	Woods, Good, HSG B
5,869	40	Weighted Average
5,869		Pervious Area

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

Subcatchment 53S: 53S

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
2,249	55	Woods, Good, HSG B
16,708	30	Woods, Good, HSG A
10,000	39	>75% Grass cover, Good, HSG A
28,957	35	Weighted Average
28,957		Pervious Area

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

Subcatchment 54S: 54S

Runoff = 0.32 cfs @ 12.38 hrs, Volume= 0.064 af, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2YR Rainfall=3.25"

Area (sf)	CN	Description
121,822	55	Woods, Good, HSG B
3,269	61	>75% Grass cover, Good, HSG B
125,091	55	Weighted Average
125,091		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1140	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
1.7	168	0.1150	1.70		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	58	0.0970	1.56		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	7	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	80	0.0970	1.56		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
9.5	363	Total			

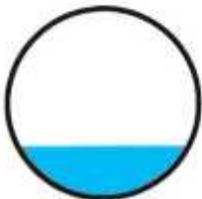
Reach 1R: DMH1-DMH2

Inflow Area = 0.310 ac, Inflow Depth = 2.14" for 2YR event
 Inflow = 0.68 cfs @ 12.09 hrs, Volume= 0.055 af
 Outflow = 0.67 cfs @ 12.09 hrs, Volume= 0.055 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.93 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.30 fps, Avg. Travel Time= 0.7 min

Peak Storage= 9 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.27'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 4.21 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 53.0' Slope= 0.0119 '/'
 Inlet Invert= 246.00', Outlet Invert= 245.37'



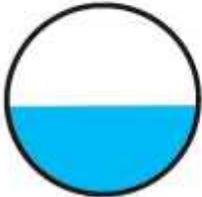
Reach 2R: DMH2-POND1

Inflow Area = 0.644 ac, Inflow Depth = 2.60" for 2YR event
 Inflow = 1.70 cfs @ 12.09 hrs, Volume= 0.139 af
 Outflow = 1.70 cfs @ 12.09 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.75 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.60 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.46'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.86 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 7.0' Slope= 0.0100 '/
 Inlet Invert= 245.37', Outlet Invert= 245.30'



Reach 3R: DMH3-POND1

Inflow Area = 0.503 ac, Inflow Depth = 1.90" for 2YR event
 Inflow = 1.01 cfs @ 12.09 hrs, Volume= 0.080 af
 Outflow = 1.01 cfs @ 12.09 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.14 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.33 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.35'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.86 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 8.0' Slope= 0.0100 '/
 Inlet Invert= 245.38', Outlet Invert= 245.30'



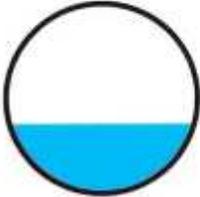
Reach 4R: DMH4-DMH3

Inflow Area = 0.503 ac, Inflow Depth = 1.90" for 2YR event
 Inflow = 1.01 cfs @ 12.09 hrs, Volume= 0.080 af
 Outflow = 1.01 cfs @ 12.09 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.90 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.26 fps, Avg. Travel Time= 0.0 min

Peak Storage= 1 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.36'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.56 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, bends & connections
Length= 2.0' Slope= 0.0100 '/
Inlet Invert= 245.40', Outlet Invert= 245.38'



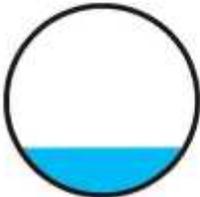
Reach 5R: DMH5-DMH4

Inflow Area = 0.193 ac, Inflow Depth = 1.70" for 2YR event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 0.027 af
Outflow = 0.38 cfs @ 12.10 hrs, Volume= 0.027 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.48 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.88 fps, Avg. Travel Time= 0.5 min

Peak Storage= 4 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.78 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 25.0' Slope= 0.0052 '/
Inlet Invert= 245.63', Outlet Invert= 245.50'



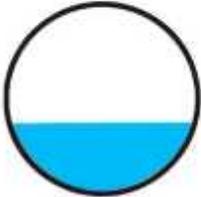
Reach 6R: DMH6-HEADWALL

Inflow Area = 2.778 ac, Inflow Depth = 0.97" for 2YR event
Inflow = 2.43 cfs @ 12.12 hrs, Volume= 0.225 af
Outflow = 2.37 cfs @ 12.15 hrs, Volume= 0.225 af, Atten= 2%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.02 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.35 fps, Avg. Travel Time= 1.7 min

Peak Storage= 81 cf @ 12.14 hrs, Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 8.19 cfs

18.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 135.0' Slope= 0.0052 '/
 Inlet Invert= 252.20', Outlet Invert= 251.50'



Reach 7R: DMH7-DMH6

Inflow Area = 2.622 ac, Inflow Depth = 1.01" for 2YR event
 Inflow = 2.43 cfs @ 12.12 hrs, Volume= 0.220 af
 Outflow = 2.40 cfs @ 12.12 hrs, Volume= 0.220 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.58 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 2.53 fps, Avg. Travel Time= 0.6 min

Peak Storage= 27 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.38'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.93 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 86.0' Slope= 0.0291 '/
 Inlet Invert= 254.95', Outlet Invert= 252.45'



Reach 8R: DMH8-DMH7

Inflow Area = 1.787 ac, Inflow Depth = 1.18" for 2YR event
 Inflow = 2.01 cfs @ 12.11 hrs, Volume= 0.176 af
 Outflow = 1.99 cfs @ 12.11 hrs, Volume= 0.176 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.61 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 2.54 fps, Avg. Travel Time= 0.6 min

Peak Storage= 26 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.37'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.90 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 97.0' Slope= 0.0320 '/'
Inlet Invert= 258.30', Outlet Invert= 255.20'



Reach 9R: DMH9-DMH8

Inflow Area = 0.891 ac, Inflow Depth = 1.54" for 2YR event
Inflow = 1.38 cfs @ 12.10 hrs, Volume= 0.114 af
Outflow = 1.37 cfs @ 12.11 hrs, Volume= 0.114 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.36 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.39 fps, Avg. Travel Time= 0.7 min

Peak Storage= 18 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.62 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 98.0' Slope= 0.0390 '/'
Inlet Invert= 262.22', Outlet Invert= 258.40'



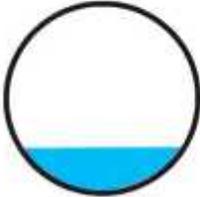
Reach 10R: DMH10-DMH9

Inflow Area = 0.659 ac, Inflow Depth = 1.01" for 2YR event
Inflow = 0.70 cfs @ 12.11 hrs, Volume= 0.056 af
Outflow = 0.69 cfs @ 12.12 hrs, Volume= 0.056 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.86 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.93 fps, Avg. Travel Time= 1.1 min

Peak Storage= 18 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.61 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 127.0' Slope= 0.0211 '/
 Inlet Invert= 265.90', Outlet Invert= 263.22'



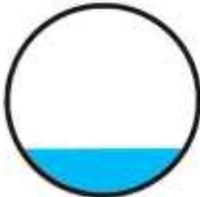
Reach 11R: DMH11-HEADWALL

Inflow Area = 0.116 ac, Inflow Depth = 3.02" for 2YR event
 Inflow = 0.36 cfs @ 12.09 hrs, Volume= 0.029 af
 Outflow = 0.34 cfs @ 12.12 hrs, Volume= 0.029 af, Atten= 5%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.40 fps, Min. Travel Time= 1.2 min
 Avg. Velocity = 0.78 fps, Avg. Travel Time= 3.7 min

Peak Storage= 26 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.24'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.73 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 174.0' Slope= 0.0050 '/
 Inlet Invert= 251.62', Outlet Invert= 250.75'



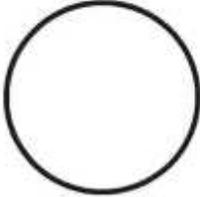
Reach 20R: DM20-EXIST.DMH

Inflow Area = 1.386 ac, Inflow Depth = 0.00" for 2YR event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.22 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 36.0' Slope= 0.0350 1'
 Inlet Invert= 241.77', Outlet Invert= 240.51'



Reach 22R: DMH22-HEADWALL

Inflow Area = 3.976 ac, Inflow Depth = 0.57" for 2YR event
 Inflow = 2.25 cfs @ 12.13 hrs, Volume= 0.190 af
 Outflow = 2.23 cfs @ 12.14 hrs, Volume= 0.190 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 6.88 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 2.36 fps, Avg. Travel Time= 0.8 min

Peak Storage= 36 cf @ 12.14 hrs, Average Depth at Peak Storage= 0.39'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 10.68 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 110.0' Slope= 0.0233 1'
 Inlet Invert= 254.50', Outlet Invert= 251.94'



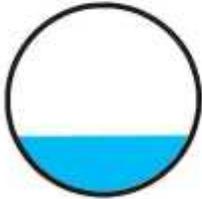
Reach 30R: DMH30-HW30

Inflow Area = 0.987 ac, Inflow Depth = 0.80" for 2YR event
 Inflow = 0.78 cfs @ 12.10 hrs, Volume= 0.066 af
 Outflow = 0.78 cfs @ 12.10 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.85 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 1.50 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.31'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.86 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 12.0' Slope= 0.0100 '/'
 Inlet Invert= 251.10', Outlet Invert= 250.98'



Reach 31R: DMH31-DMH30

Inflow Area = 0.778 ac, Inflow Depth = 0.63" for 2YR event
 Inflow = 0.44 cfs @ 12.11 hrs, Volume= 0.041 af
 Outflow = 0.44 cfs @ 12.11 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.55 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 1.07 fps, Avg. Travel Time= 0.2 min

Peak Storage= 2 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.27'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.73 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 10.0' Slope= 0.0050 '/'
 Inlet Invert= 251.25', Outlet Invert= 251.20'



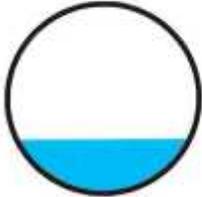
Reach 32R: DMH32-HW32

Inflow Area = 3.245 ac, Inflow Depth = 0.34" for 2YR event
 Inflow = 1.18 cfs @ 12.10 hrs, Volume= 0.091 af
 Outflow = 1.18 cfs @ 12.10 hrs, Volume= 0.091 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 6.42 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.09 fps, Avg. Travel Time= 0.1 min

Peak Storage= 1 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.28'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.69 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 7.0' Slope= 0.0300 '/'
 Inlet Invert= 252.65', Outlet Invert= 252.44'



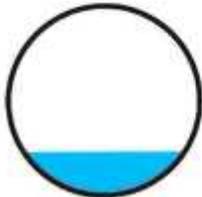
Reach 33R: DMH33-DMH32

Inflow Area = 3.093 ac, Inflow Depth = 0.23" for 2YR event
 Inflow = 0.77 cfs @ 12.11 hrs, Volume= 0.059 af
 Outflow = 0.77 cfs @ 12.11 hrs, Volume= 0.059 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.67 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 2.09 fps, Avg. Travel Time= 0.4 min

Peak Storage= 6 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.23'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.69 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 47.0' Slope= 0.0300 '/'
 Inlet Invert= 254.16', Outlet Invert= 252.75'



Reach 34R: DMH34-DMH33

Inflow Area = 3.093 ac, Inflow Depth = 0.23" for 2YR event
 Inflow = 0.78 cfs @ 12.10 hrs, Volume= 0.059 af
 Outflow = 0.77 cfs @ 12.11 hrs, Volume= 0.059 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 6.84 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 2.51 fps, Avg. Travel Time= 0.8 min

Peak Storage= 14 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.20'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 8.63 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 120.0' Slope= 0.0500 '/
 Inlet Invert= 260.26', Outlet Invert= 254.26'



Reach 36R: DMH36-MANIFOLD

Inflow Area = 2.033 ac, Inflow Depth = 1.69" for 2YR event
 Inflow = 3.68 cfs @ 12.11 hrs, Volume= 0.286 af
 Outflow = 3.67 cfs @ 12.11 hrs, Volume= 0.286 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.84 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.23 fps, Avg. Travel Time= 0.2 min

Peak Storage= 15 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.40'
 Bank-Full Depth= 1.50', Capacity at Bank-Full= 24.14 cfs

18.0" Diameter Pipe, n= 0.010 PVC, smooth interior
 Length= 40.0' Slope= 0.0313 '/
 Inlet Invert= 280.00', Outlet Invert= 278.75'



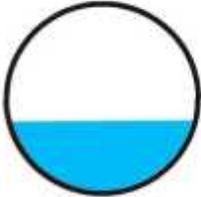
Reach 37R: DMH37-DMH36

Inflow Area = 2.033 ac, Inflow Depth = 1.69" for 2YR event
 Inflow = 3.71 cfs @ 12.11 hrs, Volume= 0.286 af
 Outflow = 3.68 cfs @ 12.11 hrs, Volume= 0.286 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.67 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 2.85 fps, Avg. Travel Time= 0.5 min

Peak Storage= 36 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.47'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 12.12 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 84.0' Slope= 0.0300 '/
 Inlet Invert= 282.77', Outlet Invert= 280.25'



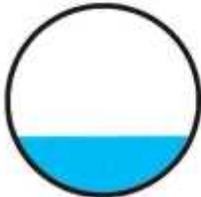
Reach 38R: DMH38-DHH37

Inflow Area = 1.677 ac, Inflow Depth = 1.60" for 2YR event
 Inflow = 2.91 cfs @ 12.11 hrs, Volume= 0.223 af
 Outflow = 2.87 cfs @ 12.11 hrs, Volume= 0.223 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.99 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 2.95 fps, Avg. Travel Time= 0.8 min

Peak Storage= 47 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.39'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 14.00 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 146.0' Slope= 0.0400 '/
 Inlet Invert= 288.71', Outlet Invert= 282.87'



Reach 39R: DMH39-DHH38

Inflow Area = 1.244 ac, Inflow Depth = 1.46" for 2YR event
 Inflow = 1.96 cfs @ 12.11 hrs, Volume= 0.151 af
 Outflow = 1.96 cfs @ 12.12 hrs, Volume= 0.151 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.18 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 2.93 fps, Avg. Travel Time= 0.2 min

Peak Storage= 8 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.34'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.72 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 35.0' Slope= 0.0400 '/
 Inlet Invert= 292.40', Outlet Invert= 291.00'



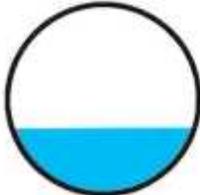
Reach 40R: DMH40-DHH39

Inflow Area = 1.244 ac, Inflow Depth = 1.46" for 2YR event
 Inflow = 1.99 cfs @ 12.11 hrs, Volume= 0.151 af
 Outflow = 1.96 cfs @ 12.11 hrs, Volume= 0.151 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.22 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 2.93 fps, Avg. Travel Time= 0.7 min

Peak Storage= 30 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.35'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.72 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 126.0' Slope= 0.0400 '/
 Inlet Invert= 299.44', Outlet Invert= 294.40'



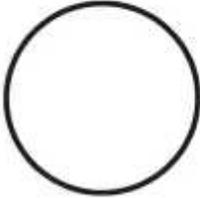
Reach 41R: DMH41-DMH34

Inflow Area = 2.481 ac, Inflow Depth = 0.00" for 2YR event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.72 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 34.0' Slope= 0.0400 '/'
Inlet Invert= 264.62', Outlet Invert= 263.26'



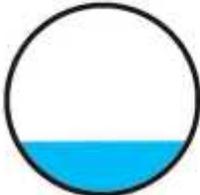
Reach 42R: DMH42-DMH43

Inflow Area = 1.676 ac, Inflow Depth = 0.99" for 2YR event
Inflow = 1.68 cfs @ 12.11 hrs, Volume= 0.138 af
Outflow = 1.68 cfs @ 12.11 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.00 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.24 fps, Avg. Travel Time= 0.2 min

Peak Storage= 6 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 9.90 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 22.0' Slope= 0.0200 '/'
Inlet Invert= 271.39', Outlet Invert= 270.95'



Reach 43R: DMH43-DMH44

Inflow Area = 1.944 ac, Inflow Depth = 1.17" for 2YR event
Inflow = 2.36 cfs @ 12.11 hrs, Volume= 0.190 af
Outflow = 2.33 cfs @ 12.11 hrs, Volume= 0.190 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.16 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.43 fps, Avg. Travel Time= 0.6 min

Peak Storage= 28 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.06 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 86.0' Slope= 0.0250 '/'
Inlet Invert= 270.85', Outlet Invert= 268.70'



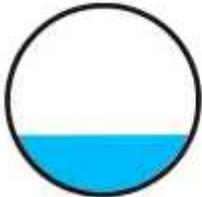
Reach 44R: DMH44-DMH45

Inflow Area = 1.944 ac, Inflow Depth = 1.17" for 2YR event
Inflow = 2.33 cfs @ 12.11 hrs, Volume= 0.190 af
Outflow = 2.31 cfs @ 12.12 hrs, Volume= 0.190 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.12 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.42 fps, Avg. Travel Time= 0.5 min

Peak Storage= 23 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.05 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 71.0' Slope= 0.0249 '/'
Inlet Invert= 266.70', Outlet Invert= 264.93'



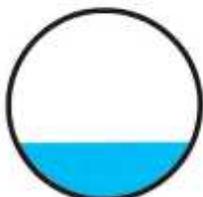
Reach 45R: DMH45-DMH22

Inflow Area = 3.976 ac, Inflow Depth = 0.57" for 2YR event
Inflow = 2.31 cfs @ 12.12 hrs, Volume= 0.190 af
Outflow = 2.25 cfs @ 12.13 hrs, Volume= 0.190 af, Atten= 3%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.38 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.52 fps, Avg. Travel Time= 1.4 min

Peak Storage= 65 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.75 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 211.0' Slope= 0.0282 '/'
 Inlet Invert= 260.61', Outlet Invert= 254.66'



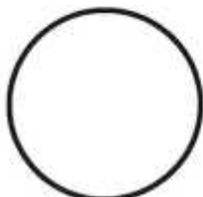
Reach 46R: DMH 46-DMH45

Inflow Area = 2.033 ac, Inflow Depth = 0.00" for 2YR event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 8.02 cfs

12.0" Diameter Pipe, n= 0.010 PVC, smooth interior
 Length= 25.0' Slope= 0.0300 '/'
 Inlet Invert= 272.25', Outlet Invert= 271.50'



Pond 1P: POND 1

Inflow Area = 1.386 ac, Inflow Depth = 2.19" for 2YR event
 Inflow = 3.18 cfs @ 12.09 hrs, Volume= 0.253 af
 Outflow = 1.00 cfs @ 11.85 hrs, Volume= 0.253 af, Atten= 69%, Lag= 0.0 min
 Discarded = 1.00 cfs @ 11.85 hrs, Volume= 0.253 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 244.55' @ 12.41 hrs Surf.Area= 5,214 sf Storage= 1,730 cf

Plug-Flow detention time= 8.0 min calculated for 0.253 af (100% of inflow)
 Center-of-Mass det. time= 8.0 min (786.5 - 778.5)

Volume	Invert	Avail.Storage	Storage Description
#1	243.75'	3,772 cf	39.50'W x 132.00'L x 2.67'H Prismatic 13,921 cf Overall - 4,492 cf Embedded = 9,429 cf x 40.0% Voids
#2	244.42'	4,492 cf	24.0"D x 130.00'L Horizontal Cylinder x 11 Inside #1
		8,264 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	245.30'	12.0" Vert. Orifice/Grate X 3.00 C= 0.600

Discarded OutFlow Max=1.00 cfs @ 11.85 hrs HW=243.78' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 1.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=243.75' (Free Discharge)

↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 2P: POND 2

Inflow Area = 12.351 ac, Inflow Depth = 0.71" for 2YR event
 Inflow = 8.20 cfs @ 12.12 hrs, Volume= 0.733 af
 Outflow = 2.08 cfs @ 12.58 hrs, Volume= 0.733 af, Atten= 75%, Lag= 27.5 min
 Discarded = 2.08 cfs @ 12.58 hrs, Volume= 0.733 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 249.66' @ 12.58 hrs Surf.Area= 10,876 sf Storage= 8,916 cf

Plug-Flow detention time= 20.1 min calculated for 0.732 af (100% of inflow)
 Center-of-Mass det. time= 20.1 min (854.8 - 834.7)

Volume	Invert	Avail.Storage	Storage Description
#1	249.00'	50,131 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
249.00	10,086	0	0
250.00	11,283	10,685	10,685
252.00	13,732	25,015	35,700
253.00	15,130	14,431	50,131

Device	Routing	Invert	Outlet Devices
#1	Discarded	248.90'	8.270 in/hr Exfiltration over Surface area above invert Excluded Surface area = 0 sf
#2	Primary	250.66'	12.0" Vert. Orifice/Grate C= 0.600
#3	Primary	250.17'	4.0" Vert. Orifice/Grate X 5.00 C= 0.600

Discarded OutFlow Max=2.08 cfs @ 12.58 hrs HW=249.66' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 2.08 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=249.00' (Free Discharge)

↑2=Orifice/Grate (Controls 0.00 cfs)

↑3=Orifice/Grate (Controls 0.00 cfs)

Pond 3P: POND 3

Inflow Area = 2.033 ac, Inflow Depth = 1.69" for 2YR event
 Inflow = 3.67 cfs @ 12.11 hrs, Volume= 0.286 af
 Outflow = 1.26 cfs @ 11.95 hrs, Volume= 0.286 af, Atten= 66%, Lag= 0.0 min
 Discarded = 1.26 cfs @ 11.95 hrs, Volume= 0.286 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 275.81' @ 12.46 hrs Surf.Area= 4,009 sf Storage= 2,021 cf

Plug-Flow detention time= 8.1 min calculated for 0.286 af (100% of inflow)
 Center-of-Mass det. time= 8.1 min (837.7 - 829.6)

Volume	Invert	Avail.Storage	Storage Description
#1	274.60'	5,122 cf	59.83'W x 67.00'L x 5.00'H Prismaoid 20,043 cf Overall - 7,238 cf Embedded = 12,805 cf x 40.0% Voids
#2	275.60'	7,238 cf	48.0"D x 64.00'L Horizontal Cylinder x 9 Inside #1
		12,360 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.50'	13.600 in/hr Exfiltration over Surface area above invert Excluded Surface area = 0 sf
#2	Primary	278.50'	12.0" Vert. Orifice/Grate X 6.00 C= 0.600

Discarded OutFlow Max=1.26 cfs @ 11.95 hrs HW=274.66' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 1.26 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.60' (Free Discharge)

↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 5P: POND 5

Inflow Area = 2.481 ac, Inflow Depth = 0.58" for 2YR event
 Inflow = 0.89 cfs @ 12.33 hrs, Volume= 0.120 af
 Outflow = 0.89 cfs @ 12.35 hrs, Volume= 0.120 af, Atten= 0%, Lag= 1.2 min
 Discarded = 0.89 cfs @ 12.35 hrs, Volume= 0.120 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 285.74' @ 12.35 hrs Surf.Area= 3,432 sf Storage= 51 cf

Plug-Flow detention time= 1.0 min calculated for 0.120 af (100% of inflow)

Center-of-Mass det. time= 1.0 min (911.0 - 910.0)

Volume	Invert	Avail. Storage	Storage Description
#1	265.70'	4,400 cf	36.90'W x 93.00'L x 5.00'H Prismatoid 17,159 cf Overall - 6,158 cf Embedded = 11,001 cf x 40.0% Voids
#2	266.70'	6,158 cf	48.0"D x 70.00'L Horizontal Cylinder x 7 Inside #1
		10,558 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	265.60'	14.900 In/hr Exfiltration over Surface area above invert Excluded Surface area = 0 sf
#2	Primary	269.60'	12.0" Vert. Orifice/Grate X 3.00 C= 0.600

Discarded OutFlow Max=1.18 cfs @ 12.35 hrs HW=265.74' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 1.18 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.70' (Free Discharge)

↑2=Orifice/Grate (Controls 0.00 cfs)

Link 1L: COMBINE HYDROGRAPHS

Inflow Area = 14.546 ac, Inflow Depth = 0.00" for 2YR event
 Inflow = 0.00 cfs @ 15.60 hrs, Volume= 0.002 af
 Primary = 0.00 cfs @ 15.60 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link 54L: TO-140

Inflow Area = 3.536 ac, Inflow Depth = 0.22" for 2YR event
 Inflow = 0.32 cfs @ 12.38 hrs, Volume= 0.064 af
 Primary = 0.32 cfs @ 12.38 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

10 YR POST-DEVELOPMENT

Subcatchment 1S: CB1

Runoff = 0.99 cfs @ 12.09 hrs, Volume= 0.082 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
9,594	98	Paved parking & roofs
9,594		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	62	0.0100	4.91	3.86	Circular Channel (pipe), CB1-DMH1 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry,
6.0	62	Total			

Subcatchment 2S: CB2

Runoff = 1.50 cfs @ 12.09 hrs, Volume= 0.124 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
14,408	98	Paved parking & roofs
122	39	>75% Grass cover, Good, HSG A
14,530	98	Weighted Average
122		Pervious Area
14,408		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.0100	4.91	3.86	Circular Channel (pipe), CB2-DMH2 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0					Direct Entry, MIN. TC
6.0	10	Total			

Subcatchment 4S: CB4

Runoff = 0.78 cfs @ 12.09 hrs, Volume= 0.065 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
7,554	98	Paved parking & roofs
7,554		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	13	0.0100	4.91	3.86	Circular Channel (pipe), CB4-DMH4 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0					Direct Entry, MIN.TC
6.0	13	Total			

Subcatchment 5S: CB5

Runoff = 0.82 cfs @ 12.09 hrs, Volume= 0.060 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
7,852	98	Paved parking & roofs
2,558	39	>75% Grass cover, Good, HSG A
10,410	84	Weighted Average
2,558		Pervious Area
7,852		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	41	0.0030	2.69	2.11	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.7					Direct Entry, MIN. TC
6.0	41	Total			

Subcatchment 6S: CB6

Runoff = 0.47 cfs @ 12.09 hrs, Volume= 0.035 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
4,648	98	Paved parking & roofs
1,389	39	>75% Grass cover, Good, HSG A
6,037	84	Weighted Average
1,389		Pervious Area
4,648		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	38	0.0050	3.47	2.73	Circular Channel (pipe), CB6-DMH5 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry,
6.0	38	Total			

Subcatchment 7S: CB7

Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
1,784	98	Paved parking & roofs
584	39	>75% Grass cover, Good, HSG A
2,368	83	Weighted Average
584		Pervious Area
1,784		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	48	0.0200	6.95	5.46	Circular Channel (pipe), CB7-DMH5 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.9					Direct Entry, MIN. TC
6.0	48	Total			

Subcatchment 8S: CB8

Runoff = 0.25 cfs @ 12.10 hrs, Volume= 0.019 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
2,933	98	Paved parking & roofs
3,025	39	>75% Grass cover, Good, HSG A
5,958	68	Weighted Average
3,025		Pervious Area
2,933		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	100	0.0200	6.95	5.46	Circular Channel (pipe), CB8-DMH4 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry, MIN. TC
6.0	100	Total			

Subcatchment 9S: CB9

Runoff = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
2,195	98	Paved parking & roofs
4,619	39	>75% Grass cover, Good, HSG A
6,814	58	Weighted Average
4,619		Pervious Area
2,195		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	25	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.8	19	0.3330	0.38		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.0	11	0.0454	4.33		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.4	114	0.0600	4.97		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	22	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.5					Direct Entry, MIN. TC.
6.0	191	Total			

Subcatchment 10S: CB10

Runoff = 1.06 cfs @ 12.13 hrs, Volume= 0.089 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
11,195	98	Paved parking & roofs
13,303	39	>75% Grass cover, Good, HSG A
7,605	61	>75% Grass cover, Good, HSG B
32,103	65	Weighted Average

20,908 Pervious Area
11,195 Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	28	0.0210	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
2.6	22	0.0280	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
1.7	100	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	7	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	19	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	10	0.0500	4.54		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	31	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.4					Direct Entry, MIN TC
8.4	222	Total			

Subcatchment 11S: CB11

Runoff = 0.17 cfs @ 12.10 hrs, Volume= 0.013 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
2,003	98	Paved parking & roofs
2,251	39	>75% Grass cover, Good, HSG A
4,254	67	Weighted Average
2,251		Pervious Area
2,003		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	22	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.8	12	0.1670	0.26		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.3	6	0.3330	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	17	0.0740	1.90		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	8	0.0600	4.97		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	40	0.0300	8.51	8.69	Circular Channel (pipe), CB11-DMH7 Diam= 12.0' Area= 0.8 sf Perlm= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.9					Direct Entry, MIN. TC
6.0	105	Total			

Subcatchment 12S: CB12

Runoff = 1.01 cfs @ 12.11 hrs, Volume= 0.082 af, Depth= 1.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
8,359	98	Paved parking & roofs
11,088	39	>75% Grass cover, Good, HSG A
11,592	61	>75% Grass cover, Good, HSG B
2,937	55	Woods, Good, HSG B
33,976	62	Weighted Average
25,617		Pervious Area
8,359		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	41	0.1950	0.16		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.0	8	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	14	0.1250	2.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	62	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	102	0.0490	4.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.9					Direct Entry, MIN TC
0.5	93	0.0210	2.94		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	47	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.5	372	Total			

Subcatchment 13S: CB13

Runoff = 0.51 cfs @ 12.10 hrs, Volume= 0.038 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
5,493	98	Paved parking & roofs
4,121	39	>75% Grass cover, Good, HSG A
9,614	73	Weighted Average
4,121		Pervious Area
5,493		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	11	0.1820	0.27		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
1.2	29	0.3330	0.41		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.4	75	0.0210	2.94		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	9	0.0200	6.95	5.46	Circular Channel (pipe), CB13-DMH10 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
3.7					Direct Entry, MIN. TC
6.0	124	Total			

Subcatchment 14S: CB14

Runoff = 0.99 cfs @ 12.11 hrs, Volume= 0.075 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
11,118	98	Paved parking & roofs
7,973	39	>75% Grass cover, Good, HSG A
19,091	73	Weighted Average
7,973		Pervious Area
11,118		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	37	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.7	92	0.0110	2.13		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	35	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	43	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.3	100	0.0100	4.91	3.86	Circular Channel (pipe), CB14-DMH10 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
7.2	307	Total			

Subcatchment 15S: RETAINING WALL DRAIN

Runoff = 0.00 cfs @ 13.76 hrs, Volume= 0.001 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
3,920	39	>75% Grass cover, Good, HSG A
3,920		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	105	0.0200	6.95	5.46	Circular Channel (pipe), RETWALL-DMH1 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.7					Direct Entry, MIN. TC
6.0	105	Total			

Subcatchment 17S: 17S

Runoff = 1.31 cfs @ 12.14 hrs, Volume= 0.111 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
3,022	98	Paved parking & roofs
14,391	98	Pond
22,278	39	>75% Grass cover, Good, HSG A
39,691	65	Weighted Average
22,278		Pervious Area
17,413		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0390	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.2	17	0.0390	1.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	16	0.1250	2.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	12	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	11	0.1540	2.75		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	59	0.0230	1.06		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	6	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	21	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	15	0.1321	2.54		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.8	178	0.0560	1.66		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	65	0.0310	1.23		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.5	450	Total			

Subcatchment 18S: 18S

Runoff = 0.09 cfs @ 12.41 hrs, Volume= 0.021 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
4,411	98	Paved parking & roofs
22,080	39	>75% Grass cover, Good, HSG A
8,779	30	Woods, Good, HSG A
35,270	44	Weighted Average
30,859		Pervious Area
4,411		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.5	36	0.0560	1.18		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	37	0.2700	2.60		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	14	0.1430	1.89		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	19	0.0820	1.43		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
8.9	156	Total			

Subcatchment 20S: ROOF1

Runoff = 0.52 cfs @ 12.09 hrs, Volume= 0.043 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
5,064	98	Paved parking & roofs
5,064		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	70	0.0100	4.91	3.86	Circular Channel (pipe), CLEANOUT-DMH6 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished Direct Entry, MIN. TC.
5.8					
6.0	70	Total			

Subcatchment 21S: ROOF1

Runoff = 0.52 cfs @ 12.09 hrs, Volume= 0.043 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
5,048	98	Paved parking & roofs
5,048		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	58	0.0400	9.83	7.72	Circular Channel (pipe), CLEANOUT-DMH8 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.9					Direct Entry, MIN. TC.
6.0	58	Total			

Subcatchment 22S: ROOF-REAR

Runoff = 1.04 cfs @ 12.09 hrs, Volume= 0.086 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
10,112	98	Paved parking & roofs
10,112		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	160	0.0200	6.95	5.46	Circular Channel (pipe), CLEANOUT-DMH9 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.6					Direct Entry, MIN. TC.
6.0	160	Total			

Subcatchment 30S: CB30

Runoff = 0.18 cfs @ 12.12 hrs, Volume= 0.019 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
3,270	98	Paved parking & roofs
10,380	39	>75% Grass cover, Good, HSG A
13,650	53	Weighted Average
10,380		Pervious Area
3,270		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	38	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	38	Total			

Subcatchment 31S: CB31

Runoff = 0.63 cfs @ 12.09 hrs, Volume= 0.046 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
6,355	98	Paved parking & roofs
2,758	39	>75% Grass cover, Good, HSG A
9,113	80	Weighted Average
2,758		Pervious Area
6,355		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	8	0.0075	4.26	3.34	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	8	Total			

Subcatchment 32S: CB32

Runoff = 0.70 cfs @ 12.10 hrs, Volume= 0.051 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
7,349	98	Paved parking & roofs
4,297	39	>75% Grass cover, Good, HSG A
11,646	76	Weighted Average
4,297		Pervious Area
7,349		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	32	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	32	Total			

Subcatchment 33S: CB33

Runoff = 0.27 cfs @ 12.11 hrs, Volume= 0.022 af, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
3,439	98	Paved parking & roofs
5,144	39	>75% Grass cover, Good, HSG A
8,583	63	Weighted Average
5,144		Pervious Area
3,439		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	42	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	42	Total			

Subcatchment 34S: CB34

Runoff = 1.01 cfs @ 12.10 hrs, Volume= 0.074 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
10,509	98	Paved parking & roofs
6,920	39	>75% Grass cover, Good, HSG A
1,505	61	>75% Grass cover, Good, HSG B
18,934	73	Weighted Average
8,425		Pervious Area
10,509		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	50	0.0350	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	7	0.0350	1.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	63	0.0635	5.12		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	209	0.0800	5.74		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6					Direct Entry, MIN TC
0.0	16	0.0200	6.95	5.46	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	345	Total			

Subcatchment 35S: CB35

Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.040 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
5,089	98	Paved parking & roofs
1,446	39	>75% Grass cover, Good, HSG A
1,165	61	>75% Grass cover, Good, HSG B
7,700	81	Weighted Average
2,611		Pervious Area
5,089		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	2	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	2	Total			

Subcatchment 36S: CB36

Runoff = 1.05 cfs @ 12.09 hrs, Volume= 0.076 af, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
8,647	98	Paved parking & roofs
3,366	61	>75% Grass cover, Good, HSG B
12,013	88	Weighted Average

3,366 Pervious Area
8,647 Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	43	0.0470	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.2	17	0.0410	1.42		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	32	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	26	0.0770	5.63		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.4	87	0.0400	4.06		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.7					Direct Entry, MIN TC
0.0	19	0.0210	7.12	5.59	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	224	Total			

Subcatchment 37S: CB37

Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.025 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
2,907	98	Paved parking & roofs
590	61	>75% Grass cover, Good, HSG B
3,497	92	Weighted Average
590		Pervious Area
2,907		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	8	0.0500	10.99	8.63	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	8	Total			

Subcatchment 38S: CB38

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 0.060 af, Depth= 3.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
6,806	98	Paved parking & roofs
1,621	61	>75% Grass cover, Good, HSG B
8,427	91	Weighted Average
1,621		Pervious Area
6,806		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	19	0.0330	8.93	7.01	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	19	Total			

Subcatchment 39S: CB39

Runoff = 0.82 cfs @ 12.09 hrs, Volume= 0.060 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
6,620	98	Paved parking & roofs
3,815	61	>75% Grass cover, Good, HSG B
10,435	84	Weighted Average
3,815		Pervious Area
6,620		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	8	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	8	Total			

Subcatchment 40S: CB40

Runoff = 0.89 cfs @ 12.09 hrs, Volume= 0.065 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
7,083	98	Paved parking & roofs
3,954	61	>75% Grass cover, Good, HSG B
11,037	85	Weighted Average
3,954		Pervious Area
7,083		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	19	0.0410	9.95	7.82	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	19	Total			

Subcatchment 41S: CB41

Runoff = 2.77 cfs @ 12.11 hrs, Volume= 0.210 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
21,462	98	Paved parking & roofs
21,670	61	>75% Grass cover, Good, HSG B
43,132	79	Weighted Average
21,670		Pervious Area
21,462		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	7	0.0450	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	5	0.0450	1.05		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.25"
2.0	21	0.0450	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
2.1	17	0.0260	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.9	59	0.0260	1.13		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	56	0.0280	1.17		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	27	0.0190	2.80		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	147	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	9	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
7.5	348	Total			

Subcatchment 42S: CB42

Runoff = 1.09 cfs @ 12.09 hrs. Volume= 0.082 af, Depth= 3.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
9,346	98	Paved parking & roofs
2,328	61	>75% Grass cover, Good, HSG B
11,674	91	Weighted Average
2,328		Pervious Area
9,346		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	14	0.0200	6.95	5.46	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	14	Total			

Subcatchment 43S: CB43

Runoff = 1.21 cfs @ 12.09 hrs. Volume= 0.088 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
9,303	98	Paved parking & roofs
6,582	61	>75% Grass cover, Good, HSG B
15,885	83	Weighted Average
6,582		Pervious Area
9,303		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	12	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	12	Total			

Subcatchment 44S: CB44

Runoff = 2.41 cfs @ 12.12 hrs, Volume= 0.190 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
11,746	98	Paved parking & roofs
45,362	61	>75% Grass cover, Good, HSG B
57,108	69	Weighted Average
45,362		Pervious Area
11,746		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0380	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	8	0.0380	1.36		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	50	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	64	0.0940	2.15		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	31	0.3200	3.96		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	91	0.0220	1.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	46	0.0860	2.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	13	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	18	0.0200	6.95	5.46	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
7.7	395	Total			

Subcatchment 46S: CB46

Runoff = 0.64 cfs @ 12.09 hrs, Volume= 0.050 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
6,048	98	Paved parking & roofs
605	39	>75% Grass cover, Good, HSG A
6,653	93	Weighted Average
605		Pervious Area
6,048		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	9	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	9	Total			

Subcatchment 50S: ROOF

Runoff = 1.50 cfs @ 12.09 hrs, Volume= 0.125 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
14,656	98	Paved parking & roofs
14,656		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	88	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	88	Total			

Subcatchment 51S: CB51

Runoff = 2.57 cfs @ 12.29 hrs, Volume= 0.287 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
18,940	98	Paved parking & roofs
12,143	39	>75% Grass cover, Good, HSG A
54,072	61	>75% Grass cover, Good, HSG B
22,931	55	Woods, Good, HSG B
108,086	64	Weighted Average
89,146		Pervious Area
18,940		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0480	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.6	48	0.0830	1.44		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	9	0.2220	2.36		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	40	0.5000	4.95		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.6	133	0.0150	0.86		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	11	0.1820	2.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	43	0.0470	1.52		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	6	0.3330	4.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	33	0.0610	1.73		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	18	0.1110	2.33		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	20	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	47	0.0430	1.45		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	42	0.0480	1.53		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	68	0.0290	1.19		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.3	144	0.0690	1.84		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	115	0.0175	0.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	25	0.2800	3.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0200	8.34	6.55	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
18.7	857	Total			

Subcatchment 52S: 52S

Runoff = 0.00 cfs @ 12.50 hrs, Volume= 0.002 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
3,594	30	Woods, Good, HSG A
2,275	55	Woods, Good, HSG B
5,869	40	Weighted Average
5,869		Pervious Area

To (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC

Subcatchment 53S: 53S

Runoff = 0.00 cfs @ 15.63 hrs, Volume= 0.003 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
2,249	55	Woods, Good, HSG B
16,708	30	Woods, Good, HSG A
10,000	39	>75% Grass cover, Good, HSG A
28,957	35	Weighted Average
28,957		Pervious Area

To (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC

Subcatchment 54S: 54S

Runoff = 1.86 cfs @ 12.17 hrs, Volume= 0.200 af, Depth= 0.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10YR Rainfall=4.70"

Area (sf)	CN	Description
121,822	55	Woods, Good, HSG B
3,269	61	>75% Grass cover, Good, HSG B
125,091	55	Weighted Average
125,091		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1140	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
1.7	168	0.1150	1.70		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	58	0.0970	1.56		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	7	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	80	0.0970	1.56		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
9.5	363	Total			

Reach 1R: DMH1-DMH2

Inflow Area = 0.310 ac, Inflow Depth = 3.21" for 10YR event
 Inflow = 0.99 cfs @ 12.09 hrs, Volume= 0.083 af
 Outflow = 0.98 cfs @ 12.09 hrs, Volume= 0.083 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.37 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.47 fps, Avg. Travel Time= 0.6 min

Peak Storage= 12 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.33'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 4.21 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 53.0' Slope= 0.0119 '/'
 Inlet Invert= 246.00', Outlet Invert= 245.37'



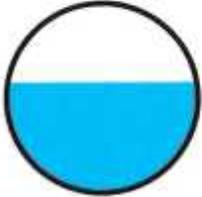
Reach 2R: DMH2-POND1

Inflow Area = 0.644 ac, Inflow Depth = 3.86" for 10YR event
 Inflow = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af
 Outflow = 2.48 cfs @ 12.09 hrs, Volume= 0.207 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.21 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.81 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.58'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.86 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 7.0' Slope= 0.0100 '/
 Inlet Invert= 245.37', Outlet Invert= 245.30'



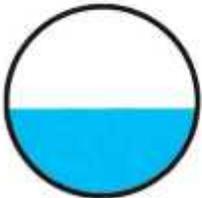
Reach 3R: DMH3-POND1

Inflow Area = 0.503 ac, Inflow Depth = 3.13" for 10YR event
 Inflow = 1.68 cfs @ 12.09 hrs, Volume= 0.131 af
 Outflow = 1.68 cfs @ 12.09 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.74 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.53 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.46'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.86 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 8.0' Slope= 0.0100 '/
 Inlet Invert= 245.38', Outlet Invert= 245.30'



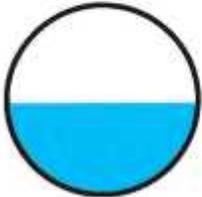
Reach 4R: DMH4-DMH3

Inflow Area = 0.503 ac, Inflow Depth = 3.13" for 10YR event
 Inflow = 1.68 cfs @ 12.09 hrs, Volume= 0.131 af
 Outflow = 1.68 cfs @ 12.09 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.47 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.44 fps, Avg. Travel Time= 0.0 min

Peak Storage= 1 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.48'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.56 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, bends & connections
 Length= 2.0' Slope= 0.0100 '/'
 Inlet Invert= 245.40', Outlet Invert= 245.38'



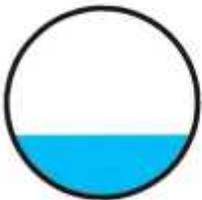
Reach 5R: DMH5-DMH4

Inflow Area = 0.193 ac, Inflow Depth = 2.97" for 10YR event
 Inflow = 0.66 cfs @ 12.09 hrs, Volume= 0.048 af
 Outflow = 0.65 cfs @ 12.09 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.90 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 1.00 fps, Avg. Travel Time= 0.4 min

Peak Storage= 6 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.33'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.78 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 25.0' Slope= 0.0052 '/'
 Inlet Invert= 245.63', Outlet Invert= 245.50'



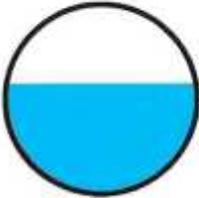
Reach 6R: DMH6-HEADWALL

Inflow Area = 2.778 ac, Inflow Depth = 1.90" for 10YR event
 Inflow = 5.28 cfs @ 12.12 hrs, Volume= 0.439 af
 Outflow = 5.13 cfs @ 12.13 hrs, Volume= 0.439 af, Atten= 3%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.89 fps, Min. Travel Time= 0.5 min
 Avg. Velocity = 1.60 fps, Avg. Travel Time= 1.4 min

Peak Storage= 144 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.87'
 Bank-Full Depth= 1.50', Capacity at Bank-Full= 8.19 cfs

18.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 135.0' Slope= 0.0052 '/
 Inlet Invert= 252.20', Outlet Invert= 251.50'



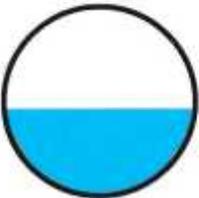
Reach 7R: DMH7-DMH6

Inflow Area = 2.622 ac, Inflow Depth = 1.95" for 10YR event
 Inflow = 5.17 cfs @ 12.11 hrs, Volume= 0.426 af
 Outflow = 5.12 cfs @ 12.12 hrs, Volume= 0.426 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.34 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 2.99 fps, Avg. Travel Time= 0.5 min

Peak Storage= 47 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.58'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.93 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 86.0' Slope= 0.0291 '/
 Inlet Invert= 254.95', Outlet Invert= 252.45'



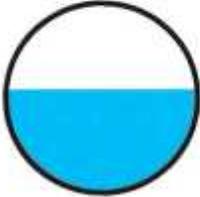
Reach 8R: DMH8-DMH7

Inflow Area = 1.787 ac, Inflow Depth = 2.17" for 10YR event
 Inflow = 3.98 cfs @ 12.11 hrs, Volume= 0.324 af
 Outflow = 3.95 cfs @ 12.11 hrs, Volume= 0.324 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.09 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 2.97 fps, Avg. Travel Time= 0.5 min

Peak Storage= 42 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.55'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.90 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 97.0' Slope= 0.0320 '/'
 Inlet Invert= 258.30', Outlet Invert= 255.20'



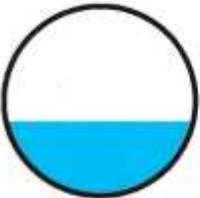
Reach 9R: DMH9-DMH8

Inflow Area = 0.891 ac, Inflow Depth = 2.68" for 10YR event
 Inflow = 2.49 cfs @ 12.10 hrs, Volume= 0.199 af
 Outflow = 2.47 cfs @ 12.11 hrs, Volume= 0.199 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.68 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 2.76 fps, Avg. Travel Time= 0.6 min

Peak Storage= 28 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.39'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.62 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 98.0' Slope= 0.0390 '/'
 Inlet Invert= 262.22', Outlet Invert= 258.40'



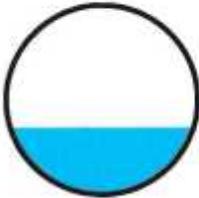
Reach 10R: DMH10-DMH9

Inflow Area = 0.659 ac, Inflow Depth = 2.05" for 10YR event
 Inflow = 1.50 cfs @ 12.10 hrs, Volume= 0.112 af
 Outflow = 1.47 cfs @ 12.11 hrs, Volume= 0.112 af, Atten= 2%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 6.03 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.26 fps, Avg. Travel Time= 0.9 min

Peak Storage= 31 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.35'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.61 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 127.0' Slope= 0.0211 '/
 Inlet Invert= 265.90', Outlet Invert= 263.22'



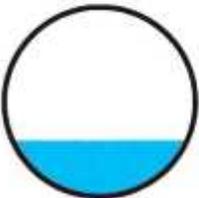
Reach 11R: DMH11-HEADWALL

Inflow Area = 0.116 ac, Inflow Depth = 4.46" for 10YR event
 Inflow = 0.52 cfs @ 12.09 hrs, Volume= 0.043 af
 Outflow = 0.50 cfs @ 12.12 hrs, Volume= 0.043 af, Atten= 5%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.67 fps, Min. Travel Time= 1.1 min
 Avg. Velocity = 0.88 fps, Avg. Travel Time= 3.3 min

Peak Storage= 34 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.30'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.73 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 174.0' Slope= 0.0050 '/
 Inlet Invert= 251.62', Outlet Invert= 250.75'



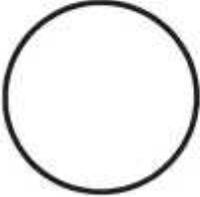
Reach 20R: DM20-EXIST.DMH

Inflow Area = 1.386 ac, Inflow Depth = 0.00" for 10YR event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.22 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 36.0' Slope= 0.0350 '/'
 Inlet Invert= 241.77', Outlet Invert= 240.51'



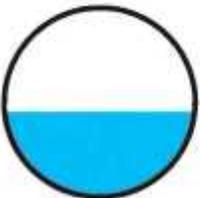
Reach 22R: DMH22-HEADWALL

Inflow Area = 3.976 ac, Inflow Depth = 1.09" for 10YR event
 Inflow = 4.49 cfs @ 12.12 hrs, Volume= 0.361 af
 Outflow = 4.43 cfs @ 12.13 hrs, Volume= 0.361 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.27 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 2.72 fps, Avg. Travel Time= 0.7 min

Peak Storage= 59 cf @ 12.13 hrs, Average Depth at Peak Storage= 0.56'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 10.68 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 110.0' Slope= 0.0233 '/'
 Inlet Invert= 254.50', Outlet Invert= 251.94'



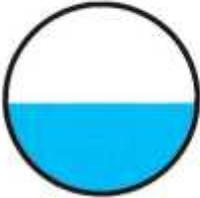
Reach 30R: DMH30-HW30

Inflow Area = 0.987 ac, Inflow Depth = 1.67" for 10YR event
 Inflow = 1.77 cfs @ 12.10 hrs, Volume= 0.138 af
 Outflow = 1.77 cfs @ 12.10 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.81 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.77 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.48'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.86 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 12.0' Slope= 0.0100 '/'
 Inlet Invert= 251.10', Outlet Invert= 250.98'



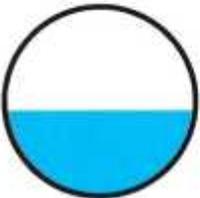
Reach 31R: DMH31-DMH30

Inflow Area = 0.778 ac, Inflow Depth = 1.41" for 10YR event
 Inflow = 1.15 cfs @ 12.10 hrs, Volume= 0.092 af
 Outflow = 1.14 cfs @ 12.10 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.32 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 1.28 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.45'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.73 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 10.0' Slope= 0.0050 '/'
 Inlet Invert= 251.25', Outlet Invert= 251.20'



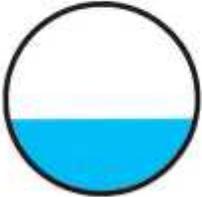
Reach 32R: DMH32-HW32

Inflow Area = 3.245 ac, Inflow Depth = 0.61" for 10YR event
 Inflow = 2.18 cfs @ 12.10 hrs, Volume= 0.164 af
 Outflow = 2.18 cfs @ 12.10 hrs, Volume= 0.164 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.61 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.41 fps, Avg. Travel Time= 0.0 min

Peak Storage= 2 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.39'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.69 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 7.0' Slope= 0.0300 '/
 Inlet Invert= 252.65', Outlet Invert= 252.44'



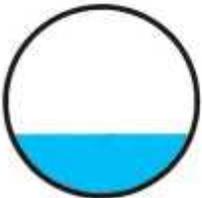
Reach 33R: DMH33-DMH32

Inflow Area = 3.093 ac, Inflow Depth = 0.44" for 10YR event
 Inflow = 1.55 cfs @ 12.10 hrs, Volume= 0.114 af
 Outflow = 1.54 cfs @ 12.10 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 6.93 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 2.41 fps, Avg. Travel Time= 0.3 min

Peak Storage= 11 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.33'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.69 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 47.0' Slope= 0.0300 '/
 Inlet Invert= 254.16', Outlet Invert= 252.75'



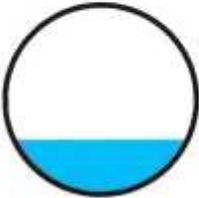
Reach 34R: DMH34-DMH33

Inflow Area = 3.093 ac, Inflow Depth = 0.44" for 10YR event
 Inflow = 1.57 cfs @ 12.09 hrs, Volume= 0.114 af
 Outflow = 1.55 cfs @ 12.10 hrs, Volume= 0.114 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.35 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 2.90 fps, Avg. Travel Time= 0.7 min

Peak Storage= 23 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.29'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 8.63 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 120.0' Slope= 0.0500 '/
 Inlet Invert= 260.26', Outlet Invert= 254.26'



Reach 36R: DMH36-MANIFOLD

Inflow Area = 2.033 ac, Inflow Depth = 2.94" for 10YR event
 Inflow = 6.43 cfs @ 12.11 hrs, Volume= 0.498 af
 Outflow = 6.41 cfs @ 12.11 hrs, Volume= 0.498 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 11.54 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.69 fps, Avg. Travel Time= 0.2 min

Peak Storage= 22 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.53'
 Bank-Full Depth= 1.50', Capacity at Bank-Full= 24.14 cfs

18.0" Diameter Pipe, n= 0.010 PVC, smooth interior
 Length= 40.0' Slope= 0.0313 '/
 Inlet Invert= 280.00', Outlet Invert= 278.75'



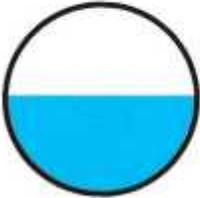
Reach 37R: DMH37-DMH36

Inflow Area = 2.033 ac, Inflow Depth = 2.94" for 10YR event
 Inflow = 6.47 cfs @ 12.11 hrs, Volume= 0.498 af
 Outflow = 6.43 cfs @ 12.11 hrs, Volume= 0.498 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 10.03 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.26 fps, Avg. Travel Time= 0.4 min

Peak Storage= 54 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.65'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 12.12 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 84.0' Slope= 0.0300 '/'
 Inlet Invert= 282.77', Outlet Invert= 280.25'



Reach 38R: DMH38-DHH37

Inflow Area = 1.677 ac, Inflow Depth = 2.82" for 10YR event
 Inflow = 5.17 cfs @ 12.11 hrs, Volume= 0.395 af
 Outflow = 5.12 cfs @ 12.11 hrs, Volume= 0.395 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 10.54 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 3.38 fps, Avg. Travel Time= 0.7 min

Peak Storage= 72 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.53'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 14.00 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 146.0' Slope= 0.0400 '/'
 Inlet Invert= 288.71', Outlet Invert= 282.87'



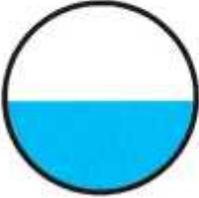
Reach 39R: DMH39-DHH38

Inflow Area = 1.244 ac, Inflow Depth = 2.66" for 10YR event
 Inflow = 3.61 cfs @ 12.11 hrs, Volume= 0.275 af
 Outflow = 3.60 cfs @ 12.11 hrs, Volume= 0.275 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.65 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.34 fps, Avg. Travel Time= 0.2 min

Peak Storage= 13 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.48'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.72 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 35.0' Slope= 0.0400 '/
 Inlet Invert= 292.40', Outlet Invert= 291.00'



Reach 40R: DMH40-DHH39

Inflow Area = 1.244 ac, Inflow Depth = 2.66" for 10YR event
 Inflow = 3.65 cfs @ 12.11 hrs, Volume= 0.275 af
 Outflow = 3.61 cfs @ 12.11 hrs, Volume= 0.275 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.68 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 3.34 fps, Avg. Travel Time= 0.6 min

Peak Storage= 47 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.48'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.72 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 126.0' Slope= 0.0400 '/
 Inlet Invert= 299.44', Outlet Invert= 294.40'



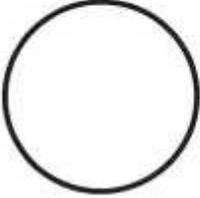
Reach 41R: DMH41-DMH34

Inflow Area = 2.481 ac, Inflow Depth = 0.00" for 10YR event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.72 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 34.0' Slope= 0.0400 '/
 Inlet Invert= 264.62', Outlet Invert= 263.26'



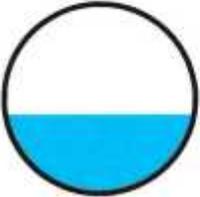
Reach 42R: DMH42-DMH43

Inflow Area = 1.676 ac, Inflow Depth = 2.00" for 10YR event
 Inflow = 3.59 cfs @ 12.11 hrs, Volume= 0.279 af
 Outflow = 3.59 cfs @ 12.11 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.41 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.60 fps, Avg. Travel Time= 0.1 min

Peak Storage= 11 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.52'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 9.90 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 22.0' Slope= 0.0200 '/
 Inlet Invert= 271.39', Outlet Invert= 270.95'



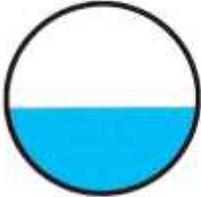
Reach 43R: DMH43-DMH44

Inflow Area = 1.944 ac, Inflow Depth = 2.23" for 10YR event
 Inflow = 4.65 cfs @ 12.10 hrs, Volume= 0.361 af
 Outflow = 4.62 cfs @ 12.11 hrs, Volume= 0.361 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.62 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 2.81 fps, Avg. Travel Time= 0.5 min

Peak Storage= 46 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.57'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.06 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 86.0' Slope= 0.0250 '/'
Inlet Invert= 270.85', Outlet Invert= 268.70'



Reach 44R: DMH44-DMH45

Inflow Area = 1.944 ac, Inflow Depth = 2.23" for 10YR event
Inflow = 4.62 cfs @ 12.11 hrs, Volume= 0.361 af
Outflow = 4.59 cfs @ 12.11 hrs, Volume= 0.361 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.59 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.81 fps, Avg. Travel Time= 0.4 min

Peak Storage= 38 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.05 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 71.0' Slope= 0.0249 '/'
Inlet Invert= 266.70', Outlet Invert= 264.93'



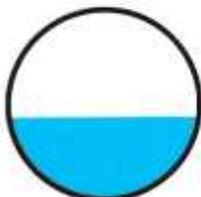
Reach 45R: DMH45-DMH22

Inflow Area = 3.976 ac, Inflow Depth = 1.09" for 10YR event
Inflow = 4.59 cfs @ 12.11 hrs, Volume= 0.361 af
Outflow = 4.49 cfs @ 12.12 hrs, Volume= 0.361 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.94 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.93 fps, Avg. Travel Time= 1.2 min

Peak Storage= 108 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.54'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.75 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 211.0' Slope= 0.0282 '/
 Inlet Invert= 260.61', Outlet Invert= 254.66'



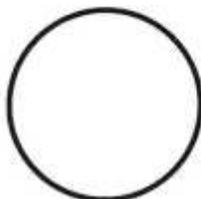
Reach 46R: DMH 46-DMH45

Inflow Area = 2.033 ac, Inflow Depth = 0.00" for 10YR event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 8.02 cfs

12.0" Diameter Pipe, n= 0.010 PVC, smooth interior
 Length= 25.0' Slope= 0.0300 '/
 Inlet Invert= 272.25', Outlet Invert= 271.50'



Pond 1P: POND 1

Inflow Area = 1.386 ac, Inflow Depth = 3.45" for 10YR event
 Inflow = 4.97 cfs @ 12.09 hrs, Volume= 0.398 af
 Outflow = 1.00 cfs @ 11.75 hrs, Volume= 0.398 af, Atten= 80%, Lag= 0.0 min
 Discarded = 1.00 cfs @ 11.75 hrs, Volume= 0.398 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 245.23' @ 12.53 hrs Surf.Area= 5,214 sf Storage= 4,096 cf

Plug-Flow detention time= 21.6 min calculated for 0.398 af (100% of inflow)
 Center-of-Mass det. time= 21.6 min (794.1 - 772.6)

Volume	Invert	Avail. Storage	Storage Description
#1	243.75'	3,772 cf	39.50'W x 132.00'L x 2.67'H Prismaoid 13,921 cf Overall - 4,492 cf Embedded = 9,429 cf x 40.0% Voids
#2	244.42'	4,492 cf	24.0"D x 130.00'L Horizontal Cylinder x 11 Inside #1
		8,264 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	245.30'	12.0" Vert. Orifice/Grate X 3.00 C= 0.600

Discarded OutFlow Max=1.00 cfs @ 11.75 hrs HW=243.79' (Free Discharge)

↳1=Exfiltration (Exfiltration Controls 1.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=243.75' (Free Discharge)

↳2=Orifice/Grate (Controls 0.00 cfs)

Pond 2P: POND 2

Inflow Area = 12.351 ac. Inflow Depth = 1.34" for 10YR event
 Inflow = 16.61 cfs @ 12.12 hrs, Volume= 1.381 af
 Outflow = 3.44 cfs @ 12.61 hrs, Volume= 1.381 af, Atten= 79%, Lag= 29.5 min
 Discarded = 2.31 cfs @ 12.61 hrs, Volume= 1.289 af
 Primary = 1.14 cfs @ 12.61 hrs, Volume= 0.092 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 250.63' @ 12.61 hrs Surf.Area= 12,053 sf Storage= 18,025 cf

Plug-Flow detention time= 51.7 min calculated for 1.380 af (100% of inflow)
 Center-of-Mass det. time= 51.7 min (876.5 - 824.9)

Volume	Invert	Avail. Storage	Storage Description
#1	249.00'	50,131 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
249.00	10,086	0	0
250.00	11,283	10,685	10,685
252.00	13,732	25,015	35,700
253.00	15,130	14,431	50,131

Device	Routing	Invert	Outlet Devices
#1	Discarded	248.90'	8.270 in/hr Exfiltration over Surface area above invert Excluded Surface area = 0 sf
#2	Primary	250.66'	12.0" Vert. Orifice/Grate C= 0.600
#3	Primary	250.17'	4.0" Vert. Orifice/Grate X 5.00 C= 0.600

Discarded OutFlow Max=2.31 cfs @ 12.61 hrs HW=250.63' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 2.31 cfs)

Primary OutFlow Max=1.13 cfs @ 12.61 hrs HW=250.63' (Free Discharge)

↑2=Orifice/Grate (Controls 0.00 cfs)

↑3=Orifice/Grate (Orifice Controls 1.13 cfs @ 2.60 fps)

Pond 3P: POND 3

Inflow Area = 2.033 ac. Inflow Depth = 2.94" for 10YR event
 Inflow = 6.41 cfs @ 12.11 hrs, Volume= 0.498 af
 Outflow = 1.26 cfs @ 11.80 hrs, Volume= 0.498 af, Atten= 80%, Lag= 0.0 min
 Discarded = 1.26 cfs @ 11.80 hrs, Volume= 0.498 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 277.18' @ 12.59 hrs Surf.Area= 4,009 sf Storage= 5,744 cf

Plug-Flow detention time= 27.3 min calculated for 0.498 af (100% of inflow)
 Center-of-Mass det. time= 27.3 min (841.7 - 814.4)

Volume	Invert	Avail. Storage	Storage Description
#1	274.60'	5,122 cf	59.83'W x 67.00'L x 5.00'H PrismaToid 20,043 cf Overall - 7,238 cf Embedded = 12,805 cf x 40.0% Voids
#2	275.60'	7,238 cf	48.0'D x 64.00'L Horizontal Cylinder x 9 Inside #1
		12,360 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.50'	13.600 In/hr Exfiltration over Surface area above invert Excluded Surface area = 0 sf
#2	Primary	278.50'	12.0' Vert. Orifice/Grate X 6.00 C= 0.600

Discarded OutFlow Max=1.26 cfs @ 11.80 hrs HW=274.67' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 1.26 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.60' (Free Discharge)

↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 5P: POND 5

Inflow Area = 2.481 ac. Inflow Depth = 1.39" for 10YR event
 Inflow = 2.57 cfs @ 12.29 hrs, Volume= 0.287 af
 Outflow = 1.18 cfs @ 12.15 hrs, Volume= 0.287 af, Atten= 54%, Lag= 0.0 min
 Discarded = 1.18 cfs @ 12.15 hrs, Volume= 0.287 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 288.92' @ 12.68 hrs Surf.Area= 3,432 sf Storage= 1,758 cf

Plug-Flow detention time= 7.7 min calculated for 0.287 af (100% of inflow)

Center-of-Mass det. time= 7.7 min (887.2 - 879.5)

Volume	Invert	Avail. Storage	Storage Description
#1	265.70'	4,400 cf	36.90'W x 93.00'L x 5.00'H Prismaoid 17,159 cf Overall - 6,158 cf Embedded = 11,001 cf x 40.0% Voids
#2	266.70'	6,158 cf	48.0'D x 70.00'L Horizontal Cylinder x 7 Inside #1
		10,558 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	265.60'	14.900 in/hr Exfiltration over Surface area above invert Excluded Surface area = 0 sf
#2	Primary	269.60'	12.0" Vert. Orifice/Grate X 3.00 C= 0.600

Discarded OutFlow Max=1.18 cfs @ 12.15 hrs HW=265.80' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 1.18 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.70' (Free Discharge)
 ↳2=Orifice/Grate (Controls 0.00 cfs)

Link 1L: COMBINE HYDROGRAPHS

Inflow Area = 14.546 ac, Inflow Depth = 0.09" for 10YR event
 Inflow = 1.20 cfs @ 12.58 hrs, Volume= 0.113 af
 Primary = 1.20 cfs @ 12.58 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link 54L: TO-140

Inflow Area = 3.536 ac, Inflow Depth = 0.69" for 10YR event
 Inflow = 1.86 cfs @ 12.17 hrs, Volume= 0.202 af
 Primary = 1.86 cfs @ 12.17 hrs, Volume= 0.202 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

100 YR POST-DEVELOPMENT

UC1378-POST-2025-REV1

Prepared by United Consultants, Inc.
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Subcatchment 1S: CB1

Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.120 af, Depth= 6.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
9,594	98	Paved parking & roofs
9,594		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	62	0.0100	4.91	3.86	Circular Channel (pipe), CB1-DMH1 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry,
6.0	62	Total			

Subcatchment 2S: CB2

Runoff = 2.17 cfs @ 12.09 hrs, Volume= 0.182 af, Depth= 6.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
14,408	98	Paved parking & roofs
122	39	>75% Grass cover, Good, HSG A
14,530	98	Weighted Average
122		Pervious Area
14,408		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.0100	4.91	3.86	Circular Channel (pipe), CB2-DMH2 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0					Direct Entry, MIN. TC
6.0	10	Total			

Subcatchment 4S: CB4

Runoff = 1.13 cfs @ 12.09 hrs, Volume= 0.095 af, Depth= 6.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
7,554	98	Paved parking & roofs
7,554		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	13	0.0100	4.91	3.86	Circular Channel (pipe), CB4-DMH4 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished Direct Entry, MIN.TC
6.0					
6.0	13	Total			

Subcatchment 5S: CB5

Runoff = 1.33 cfs @ 12.09 hrs, Volume= 0.099 af, Depth= 4.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
7,852	98	Paved parking & roofs
2,558	39	>75% Grass cover, Good, HSG A
10,410	84	Weighted Average
2,558		Pervious Area
7,852		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	41	0.0030	2.69	2.11	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished Direct Entry, MIN. TC
5.7					
6.0	41	Total			

Subcatchment 6S: CB6

Runoff = 0.77 cfs @ 12.09 hrs, Volume= 0.057 af, Depth= 4.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
4,648	98	Paved parking & roofs
1,389	39	>75% Grass cover, Good, HSG A
6,037	84	Weighted Average
1,389		Pervious Area
4,648		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	38	0.0050	3.47	2.73	Circular Channel (pipe), CB6-DMH5 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry,
6.0	38	Total			

Subcatchment 7S: CB7

Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af, Depth= 4.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
1,784	98	Paved parking & roofs
584	39	>75% Grass cover, Good, HSG A
2,368	83	Weighted Average
584		Pervious Area
1,784		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	48	0.0200	6.95	5.46	Circular Channel (pipe), CB7-DMH5 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.9					Direct Entry, MIN. TC
6.0	48	Total			

Subcatchment 8S: CB8

Runoff = 0.51 cfs @ 12.09 hrs, Volume= 0.037 af, Depth= 3.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
2,933	98	Paved parking & roofs
3,025	39	>75% Grass cover, Good, HSG A
5,958	68	Weighted Average
3,025		Pervious Area
2,933		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	100	0.0200	6.95	5.46	Circular Channel (pipe), CB8-DMH4 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry, MIN. TC
6.0	100	Total			

Subcatchment 9S: CB9

Runoff = 0.39 cfs @ 12.10 hrs, Volume= 0.030 af, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
2,195	98	Paved parking & roofs
4,619	39	>75% Grass cover, Good, HSG A
6,814	58	Weighted Average
4,619		Pervious Area
2,195		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	25	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.8	19	0.3330	0.38		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.0	11	0.0454	4.33		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.4	114	0.0600	4.97		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	22	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.5					Direct Entry, MIN. TC.
6.0	191	Total			

Subcatchment 10S: CB10

Runoff = 2.28 cfs @ 12.12 hrs, Volume= 0.181 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
11,195	98	Paved parking & roofs
13,303	39	>75% Grass cover, Good, HSG A
7,605	61	>75% Grass cover, Good, HSG B
32,103	65	Weighted Average

20,908 Pervious Area
11,195 Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	28	0.0210	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
2.6	22	0.0260	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
1.7	100	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	7	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	19	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	10	0.0500	4.54		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	31	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.4					Direct Entry, MIN TC
8.4	222	Total			

Subcatchment 11S: CB11

Runoff = 0.35 cfs @ 12.10 hrs, Volume= 0.026 af, Depth= 3.15"

Runoff by SCS TR-20 method. UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
2,003	98	Paved parking & roofs
2,251	39	>75% Grass cover, Good, HSG A
4,254	67	Weighted Average
2,251		Pervious Area
2,003		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	22	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.8	12	0.1670	0.26		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.3	6	0.3330	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	17	0.0740	1.90		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	8	0.0600	4.97		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	40	0.0300	8.51	6.69	Circular Channel (pipe), CB11-DMH7 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.9					Direct Entry, MIN. TC
6.0	105	Total			

Subcatchment 12S: CB12

Runoff = 2.30 cfs @ 12.10 hrs. Volume= 0.173 af. Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
8,359	98	Paved parking & roofs
11,088	39	>75% Grass cover, Good, HSG A
11,592	61	>75% Grass cover, Good, HSG B
2,937	55	Woods, Good, HSG B
33,976	62	Weighted Average
25,617		Pervious Area
8,359		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	41	0.1950	0.16		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.0	8	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	14	0.1250	2.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	62	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	102	0.0490	4.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.9					Direct Entry, MIN TC
0.5	93	0.0210	2.94		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	47	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.5	372	Total			

Subcatchment 13S: CB13

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.069 af, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
5,493	98	Paved parking & roofs
4,121	39	>75% Grass cover, Good, HSG A
9,614	73	Weighted Average
4,121		Pervious Area
5,493		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	11	0.1820	0.27		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
1.2	29	0.3330	0.41		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.4	75	0.0210	2.94		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	9	0.0200	6.95	5.46	Circular Channel (pipe), CB13-DMH10 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
3.7					Direct Entry, MIN. TC
6.0	124	Total			

Subcatchment 14S: CB14

Runoff = 1.83 cfs @ 12.11 hrs, Volume= 0.137 af, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
11,118	98	Paved parking & roofs
7,973	39	>75% Grass cover, Good, HSG A
19,091	73	Weighted Average
7,973		Pervious Area
11,118		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	37	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.7	92	0.0110	2.13		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	35	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	43	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.3	100	0.0100	4.91	3.86	Circular Channel (pipe), CB14-DMH10 Diam= 12.0' Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
7.2	307	Total			

Subcatchment 15S: RETAINING WALL DRAIN

Runoff = 0.03 cfs @ 12.15 hrs, Volume= 0.005 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
3,920	39	>75% Grass cover, Good, HSG A
3,920		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	105	0.0200	6.95	5.46	Circular Channel (pipe), RETWALL-DMH1 Diam= 12.0' Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.7					Direct Entry, MIN. TC
6.0	105	Total			

Subcatchment 17S: 17S

Runoff = 2.79 cfs @ 12.13 hrs, Volume= 0.224 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
3,022	98	Paved parking & roofs
14,391	98	Pond
22,278	39	>75% Grass cover, Good, HSG A
39,691	65	Weighted Average
22,278		Pervious Area
17,413		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0390	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.2	17	0.0390	1.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	16	0.1250	2.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	12	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	11	0.1540	2.75		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	59	0.0230	1.06		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	6	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	21	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	15	0.1321	2.54		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.8	178	0.0560	1.66		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	65	0.0310	1.23		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.5	450	Total			

Subcatchment 18S: 18S

Runoff = 0.63 cfs @ 12.17 hrs, Volume= 0.072 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
4,411	98	Paved parking & roofs
22,080	39	>75% Grass cover, Good, HSG A
8,779	30	Woods, Good, HSG A
35,270	44	Weighted Average
30,859		Pervious Area
4,411		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.5	36	0.0560	1.16		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	37	0.2700	2.60		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	14	0.1430	1.89		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	19	0.0820	1.43		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
8.9	156	Total			

Subcatchment 20S: ROOF1

Runoff = 0.76 cfs @ 12.09 hrs, Volume= 0.064 af, Depth= 6.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
5,064	98	Paved parking & roofs
5,064		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	70	0.0100	4.91	3.86	Circular Channel (pipe), CLEANOUT-DMH6 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry, MIN. TC.
6.0	70	Total			

Subcatchment 21S: ROOF1

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.063 af, Depth= 6.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
5,048	98	Paved parking & roofs
5,048		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	58	0.0400	9.83	7.72	Circular Channel (pipe), CLEANOUT-DMH8 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished Direct Entry, MIN. TC.
5.9					
6.0	58	Total			

Subcatchment 22S: ROOF-REAR

Runoff = 1.51 cfs @ 12.09 hrs, Volume= 0.127 af, Depth= 6.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
10,112	98	Paved parking & roofs
10,112		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	160	0.0200	6.95	5.46	Circular Channel (pipe), CLEANOUT-DMH9 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished Direct Entry, MIN. TC.
5.6					
6.0	160	Total			

Subcatchment 30S: CB30

Runoff = 0.59 cfs @ 12.11 hrs, Volume= 0.047 af, Depth= 1.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
3,270	98	Paved parking & roofs
10,380	39	>75% Grass cover, Good, HSG A
13,650	53	Weighted Average
10,380		Pervious Area
3,270		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	38	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	38	Total			

Subcatchment 31S: CB31

Runoff = 1.07 cfs @ 12.09 hrs, Volume= 0.079 af, Depth= 4.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
6,355	98	Paved parking & roofs
2,758	39	>75% Grass cover, Good, HSG A
9,113	80	Weighted Average
2,758		Pervious Area
6,355		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	8	0.0075	4.26	3.34	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	8	Total			

Subcatchment 32S: CB32

Runoff = 1.25 cfs @ 12.09 hrs, Volume= 0.091 af, Depth= 4.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
7,349	98	Paved parking & roofs
4,297	39	>75% Grass cover, Good, HSG A
11,646	76	Weighted Average
4,297		Pervious Area
7,349		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	32	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	32	Total			

Subcatchment 33S: CB33

Runoff = 0.61 cfs @ 12.10 hrs, Volume= 0.045 af, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
3,439	98	Paved parking & roofs
5,144	39	>75% Grass cover, Good, HSG A
8,583	63	Weighted Average
5,144		Pervious Area
3,439		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	42	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	42	Total			

Subcatchment 34S: CB34

Runoff = 1.88 cfs @ 12.09 hrs, Volume= 0.136 af, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
10,509	98	Paved parking & roofs
6,920	39	>75% Grass cover, Good, HSG A
1,505	61	>75% Grass cover, Good, HSG B
18,934	73	Weighted Average
8,425		Pervious Area
10,509		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	50	0.0350	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	7	0.0350	1.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	63	0.0635	5.12		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	209	0.0800	5.74		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6					Direct Entry, MIN TC
0.0	16	0.0200	6.85	5.46	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	345	Total			

Subcatchment 35S: CB35

Runoff = 0.93 cfs @ 12.09 hrs, Volume= 0.068 af, Depth= 4.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
5,089	98	Paved parking & roofs
1,446	39	>75% Grass cover, Good, HSG A
1,165	61	>75% Grass cover, Good, HSG B
7,700	81	Weighted Average
2,611		Pervious Area
5,089		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					Direct Entry, MIN TC
0.0	2	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	2	Total			

Subcatchment 36S: CB36

Runoff = 1.63 cfs @ 12.09 hrs, Volume= 0.124 af, Depth= 5.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
8,647	98	Paved parking & roofs
3,366	61	>75% Grass cover, Good, HSG B
12,013	88	Weighted Average

3,366 Pervious Area
8,647 Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	43	0.0470	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.2	17	0.0410	1.42		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	32	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	26	0.0770	5.63		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.4	87	0.0400	4.06		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.7					Direct Entry, MIN TC
0.0	19	0.0210	7.12	5.59	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	224	Total			

Subcatchment 37S: CB37

Runoff = 0.50 cfs @ 12.09 hrs, Volume= 0.039 af, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
2,907	98	Paved parking & roofs
590	61	>75% Grass cover, Good, HSG B
3,497	92	Weighted Average
590		Pervious Area
2,907		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	8	0.0500	10.89	8.63	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	8	Total			

Subcatchment 38S: CB38

Runoff = 1.19 cfs @ 12.09 hrs, Volume= 0.093 af, Depth= 5.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
6,806	98	Paved parking & roofs
1,621	61	>75% Grass cover, Good, HSG B
8,427	91	Weighted Average
1,621		Pervious Area
6,806		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	19	0.0330	8.93	7.01	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	19	Total			

Subcatchment 39S: CB39

Runoff = 1.33 cfs @ 12.09 hrs, Volume= 0.099 af, Depth= 4.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
6,620	98	Paved parking & roofs
3,815	61	>75% Grass cover, Good, HSG B
10,435	84	Weighted Average
3,815		Pervious Area
6,620		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	8	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	8	Total			

Subcatchment 40S: CB40

Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.107 af, Depth= 5.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
7,083	98	Paved parking & roofs
3,954	61	>75% Grass cover, Good, HSG B
11,037	85	Weighted Average
3,954		Pervious Area
7,083		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	19	0.0410	9.95	7.82	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	19	Total			

Subcatchment 41S: CB41

Runoff = 4.76 cfs @ 12.11 hrs, Volume= 0.363 af, Depth= 4.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
21,462	98	Paved parking & roofs
21,670	61	>75% Grass cover, Good, HSG B
43,132	79	Weighted Average
21,670		Pervious Area
21,462		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	7	0.0450	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	5	0.0450	1.05		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.25"
2.0	21	0.0450	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
2.1	17	0.0260	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.9	59	0.0260	1.13		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	56	0.0280	1.17		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	27	0.0190	2.80		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	147	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	9	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
7.5	348	Total			

Subcatchment 42S: CB42

Runoff = 1.65 cfs @ 12.09 hrs, Volume= 0.128 af, Depth= 5.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
9,346	98	Paved parking & roofs
2,328	61	>75% Grass cover, Good, HSG B
11,674	91	Weighted Average
2,328		Pervious Area
9,346		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	14	0.0200	6.95	5.46	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	14	Total			

Subcatchment 43S: CB43

Runoff = 1.99 cfs @ 12.09 hrs, Volume= 0.147 af, Depth= 4.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
9,303	98	Paved parking & roofs
6,582	61	>75% Grass cover, Good, HSG B
15,885	83	Weighted Average
6,582		Pervious Area
9,303		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	12	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	12	Total			

Subcatchment 44S: CB44

Runoff = 4.78 cfs @ 12.11 hrs, Volume= 0.366 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
11,746	98	Paved parking & roofs
45,362	61	>75% Grass cover, Good, HSG B
57,108	69	Weighted Average
45,362		Pervious Area
11,746		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0380	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	8	0.0380	1.36		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	50	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	64	0.0940	2.15		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	31	0.3200	3.96		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	91	0.0220	1.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	46	0.0860	2.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	13	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	18	0.0200	6.95	5.46	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
7.7	395	Total			

Subcatchment 46S: CB46

Runoff = 0.96 cfs @ 12.09 hrs, Volume= 0.076 af, Depth= 5.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
6,048	98	Paved parking & roofs
605	39	>75% Grass cover, Good, HSG A
6,653	93	Weighted Average
605		Pervious Area
6,048		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	9	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	9	Total			

Subcatchment 50S: ROOF

Runoff = 2.18 cfs @ 12.09 hrs, Volume= 0.184 af, Depth= 6.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
14,656	98	Paved parking & roofs
14,656		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	88	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	88	Total			

Subcatchment 51S: CB51

Runoff = 5.63 cfs @ 12.27 hrs, Volume= 0.589 af, Depth= 2.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
18,940	98	Paved parking & roofs
12,143	39	>75% Grass cover, Good, HSG A
54,072	61	>75% Grass cover, Good, HSG B
22,931	55	Woods, Good, HSG B
108,086	64	Weighted Average
89,146		Pervious Area
18,940		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0480	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.6	48	0.0830	1.44		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	9	0.2220	2.36		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	40	0.5000	4.95		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.6	133	0.0150	0.86		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	11	0.1820	2.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	43	0.0470	1.52		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	6	0.3330	4.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	33	0.0610	1.73		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	18	0.1110	2.33		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	20	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	47	0.0430	1.45		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	42	0.0480	1.53		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	68	0.0290	1.19		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.3	144	0.0690	1.84		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	115	0.0175	0.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	25	0.2800	3.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0200	8.34	6.55	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
18.7	857	Total			

Subcatchment 52S: 52S

Runoff = 0.06 cfs @ 12.16 hrs, Volume= 0.009 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
3,594	30	Woods, Good, HSG A
2,275	55	Woods, Good, HSG B
5,869	40	Weighted Average
5,869		Pervious Area

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

Subcatchment 53S: 53S

Runoff = 0.10 cfs @ 12.37 hrs, Volume= 0.024 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
2,249	55	Woods, Good, HSG B
16,708	30	Woods, Good, HSG A
10,000	39	>75% Grass cover, Good, HSG A
28,957	35	Weighted Average
28,957		Pervious Area

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

Subcatchment 54S: 54S

Runoff = 5.45 cfs @ 12.15 hrs, Volume= 0.478 af, Depth= 2.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR Rainfall=6.80"

Area (sf)	CN	Description
121,822	55	Woods, Good, HSG B
3,269	61	>75% Grass cover, Good, HSG B
125,091	55	Weighted Average
125,091		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1140	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
1.7	168	0.1150	1.70		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	58	0.0970	1.56		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	7	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	80	0.0970	1.56		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
9.5	363	Total			

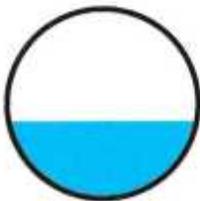
Reach 1R: DMH1-DMH2

Inflow Area = 0.310 ac, Inflow Depth = 4.86" for 100YR event
 Inflow = 1.46 cfs @ 12.09 hrs, Volume= 0.126 af
 Outflow = 1.45 cfs @ 12.09 hrs, Volume= 0.126 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.86 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.66 fps, Avg. Travel Time= 0.5 min

Peak Storage= 16 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.41'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 4.21 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 53.0' Slope= 0.0119 1/100'
 Inlet Invert= 246.00', Outlet Invert= 245.37'



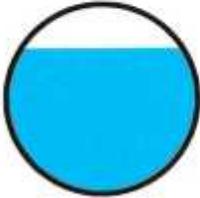
Reach 2R: DMH2-POND1

Inflow Area = 0.644 ac, Inflow Depth = 5.74" for 100YR event
 Inflow = 3.62 cfs @ 12.09 hrs, Volume= 0.308 af
 Outflow = 3.62 cfs @ 12.09 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.58 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.04 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.77'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.86 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 7.0' Slope= 0.0100 '/
 Inlet Invert= 245.37', Outlet Invert= 245.30'



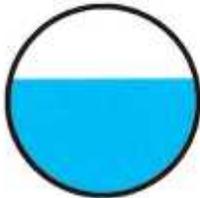
Reach 3R: DMH3-POND1

Inflow Area = 0.503 ac, Inflow Depth = 5.03" for 100YR event
 Inflow = 2.70 cfs @ 12.09 hrs, Volume= 0.211 af
 Outflow = 2.70 cfs @ 12.09 hrs, Volume= 0.211 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.31 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.75 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.62'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.86 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 8.0' Slope= 0.0100 '/
 Inlet Invert= 245.38', Outlet Invert= 245.30'



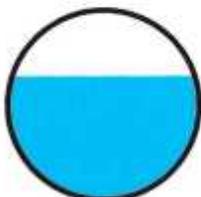
Reach 4R: DMH4-DMH3

Inflow Area = 0.503 ac, Inflow Depth = 5.03" for 100YR event
 Inflow = 2.70 cfs @ 12.09 hrs, Volume= 0.211 af
 Outflow = 2.70 cfs @ 12.09 hrs, Volume= 0.211 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.98 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.66 fps, Avg. Travel Time= 0.0 min

Peak Storage= 1 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.65'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.56 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, bends & connections
 Length= 2.0' Slope= 0.0100 '/
 Inlet Invert= 245.40', Outlet Invert= 245.38'



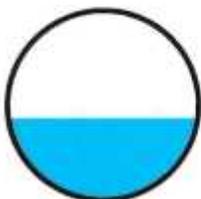
Reach 5R: DMH5-DMH4

Inflow Area = 0.193 ac, Inflow Depth = 4.92" for 100YR event
 Inflow = 1.07 cfs @ 12.09 hrs, Volume= 0.079 af
 Outflow = 1.06 cfs @ 12.09 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.31 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 1.12 fps, Avg. Travel Time= 0.4 min

Peak Storage= 8 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.43'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.78 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 25.0' Slope= 0.0052 '/
 Inlet Invert= 245.63', Outlet Invert= 245.50'



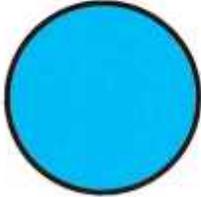
Reach 6R: DMH6-HEADWALL

Inflow Area = 2.778 ac, Inflow Depth = 3.48" for 100YR event
 Inflow = 10.09 cfs @ 12.11 hrs, Volume= 0.806 af
 Outflow = 8.73 cfs @ 12.23 hrs, Volume= 0.806 af, Atten= 14%, Lag= 7.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.27 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 1.86 fps, Avg. Travel Time= 1.2 min

Peak Storage= 239 cf @ 12.10 hrs, Average Depth at Peak Storage= 1.50'
 Bank-Full Depth= 1.50', Capacity at Bank-Full= 8.19 cfs

18.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 135.0' Slope= 0.0052 '/
Inlet Invert= 252.20', Outlet Invert= 251.50'



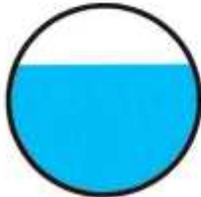
Reach 7R: DMH7-DMH6

Inflow Area = 2.622 ac, Inflow Depth = 3.55" for 100YR event
Inflow = 9.77 cfs @ 12.11 hrs, Volume= 0.776 af
Outflow = 9.71 cfs @ 12.11 hrs, Volume= 0.776 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.83 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.51 fps, Avg. Travel Time= 0.4 min

Peak Storage= 77 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.86'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.93 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 86.0' Slope= 0.0291 '/
Inlet Invert= 254.95', Outlet Invert= 252.45'



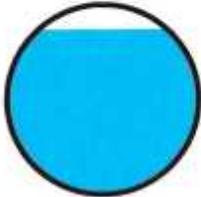
Reach 8R: DMH8-DMH7

Inflow Area = 1.787 ac, Inflow Depth = 3.82" for 100YR event
Inflow = 7.24 cfs @ 12.10 hrs, Volume= 0.570 af
Outflow = 7.17 cfs @ 12.11 hrs, Volume= 0.570 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.98 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.46 fps, Avg. Travel Time= 0.5 min

Peak Storage= 70 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.87'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.90 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 97.0' Slope= 0.0320 '/'
Inlet Invert= 258.30', Outlet Invert= 255.20'



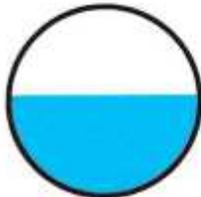
Reach 9R: DMH9-DMH8

Inflow Area = 0.891 ac, Inflow Depth = 4.49" for 100YR event
Inflow = 4.23 cfs @ 12.10 hrs, Volume= 0.334 af
Outflow = 4.20 cfs @ 12.11 hrs, Volume= 0.334 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.95 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.19 fps, Avg. Travel Time= 0.5 min

Peak Storage= 42 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.53'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.62 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 98.0' Slope= 0.0390 '/'
Inlet Invert= 262.22', Outlet Invert= 258.40'



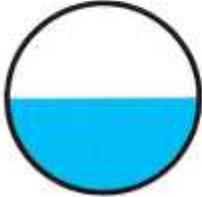
Reach 10R: DMH10-DMH9

Inflow Area = 0.659 ac, Inflow Depth = 3.76" for 100YR event
Inflow = 2.78 cfs @ 12.10 hrs, Volume= 0.207 af
Outflow = 2.74 cfs @ 12.11 hrs, Volume= 0.207 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.12 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.59 fps, Avg. Travel Time= 0.8 min

Peak Storage= 50 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.50'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.61 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 127.0' Slope= 0.0211 '/
 Inlet Invert= 265.90', Outlet Invert= 263.22'



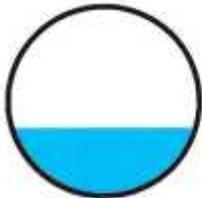
Reach 11R: DMH11-HEADWALL

Inflow Area = 0.116 ac, Inflow Depth = 6.56" for 100YR event
 Inflow = 0.76 cfs @ 12.09 hrs, Volume= 0.064 af
 Outflow = 0.73 cfs @ 12.11 hrs, Volume= 0.064 af, Atten= 4%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.97 fps, Min. Travel Time= 1.0 min
 Avg. Velocity = 0.99 fps, Avg. Travel Time= 2.9 min

Peak Storage= 44 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.36'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.73 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 174.0' Slope= 0.0050 '/
 Inlet Invert= 251.62', Outlet Invert= 250.75'



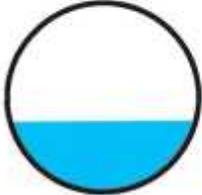
Reach 20R: DM20-EXIST.DMH

Inflow Area = 1.386 ac, Inflow Depth = 0.64" for 100YR event
 Inflow = 2.16 cfs @ 12.31 hrs, Volume= 0.074 af
 Outflow = 2.16 cfs @ 12.31 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.03 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 5.18 fps, Avg. Travel Time= 0.1 min

Peak Storage= 10 cf @ 12.31 hrs, Average Depth at Peak Storage= 0.38'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.22 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 36.0' Slope= 0.0350 '/'
 Inlet Invert= 241.77', Outlet Invert= 240.51'



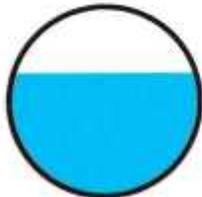
Reach 22R: DMH22-HEADWALL

Inflow Area = 3.976 ac, Inflow Depth = 2.10" for 100YR event
 Inflow = 8.08 cfs @ 12.12 hrs, Volume= 0.697 af
 Outflow = 7.96 cfs @ 12.13 hrs, Volume= 0.697 af, Atten= 2%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.51 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 3.17 fps, Avg. Travel Time= 0.6 min

Peak Storage= 93 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.81'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 10.68 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 110.0' Slope= 0.0233 '/'
 Inlet Invert= 254.50', Outlet Invert= 251.94'



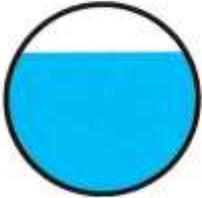
Reach 30R: DMH30-HW30

Inflow Area = 0.987 ac, Inflow Depth = 3.19" for 100YR event
 Inflow = 3.51 cfs @ 12.10 hrs, Volume= 0.262 af
 Outflow = 3.50 cfs @ 12.10 hrs, Volume= 0.262 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.57 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.03 fps, Avg. Travel Time= 0.1 min

Peak Storage= 8 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.75'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.86 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 12.0' Slope= 0.0100 '/'
Inlet Invert= 251.10', Outlet Invert= 250.98'



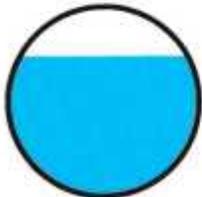
Reach 31R: DMH31-DMH30

Inflow Area = 0.778 ac, Inflow Depth = 2.83" for 100YR event
Inflow = 2.44 cfs @ 12.10 hrs, Volume= 0.184 af
Outflow = 2.44 cfs @ 12.10 hrs, Volume= 0.184 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.93 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 0.1 min

Peak Storage= 6 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.74'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.73 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 10.0' Slope= 0.0050 '/'
Inlet Invert= 251.25', Outlet Invert= 251.20'



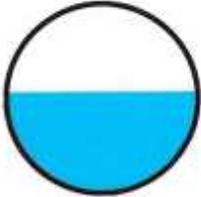
Reach 32R: DMH32-HW32

Inflow Area = 3.245 ac, Inflow Depth = 1.04" for 100YR event
Inflow = 3.73 cfs @ 12.10 hrs, Volume= 0.280 af
Outflow = 3.73 cfs @ 12.10 hrs, Volume= 0.280 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.74 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.78 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.53'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.69 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 7.0' Slope= 0.0300 '/
Inlet Invert= 252.65', Outlet Invert= 252.44'



Reach 33R: DMH33-DMH32

Inflow Area = 3.093 ac, Inflow Depth = 0.79" for 100YR event
Inflow = 2.79 cfs @ 12.10 hrs, Volume= 0.204 af
Outflow = 2.78 cfs @ 12.10 hrs, Volume= 0.204 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.13 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.75 fps, Avg. Travel Time= 0.3 min

Peak Storage= 16 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.45'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.69 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 47.0' Slope= 0.0300 '/
Inlet Invert= 254.16', Outlet Invert= 252.75'



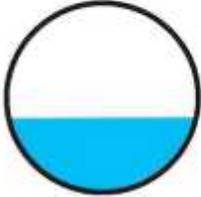
Reach 34R: DMH34-DMH33

Inflow Area = 3.093 ac, Inflow Depth = 0.79" for 100YR event
Inflow = 2.81 cfs @ 12.09 hrs, Volume= 0.204 af
Outflow = 2.79 cfs @ 12.10 hrs, Volume= 0.204 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.82 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.30 fps, Avg. Travel Time= 0.6 min

Peak Storage= 34 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 8.63 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 120.0' Slope= 0.0500 '
 Inlet Invert= 260.26', Outlet Invert= 254.26'



Reach 36R: DMH36-MANIFOLD

Inflow Area = 2.033 ac, Inflow Depth = 4.87" for 100YR event
 Inflow = 10.53 cfs @ 12.11 hrs, Volume= 0.825 af
 Outflow = 10.51 cfs @ 12.11 hrs, Volume= 0.825 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 13.18 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 4.21 fps, Avg. Travel Time= 0.2 min

Peak Storage= 32 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.69'
 Bank-Full Depth= 1.50', Capacity at Bank-Full= 24.14 cfs

18.0" Diameter Pipe, n= 0.010 PVC, smooth interior
 Length= 40.0' Slope= 0.0313 '
 Inlet Invert= 280.00', Outlet Invert= 278.75'



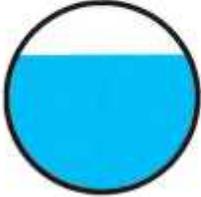
Reach 37R: DMH37-DMH36

Inflow Area = 2.033 ac, Inflow Depth = 4.87" for 100YR event
 Inflow = 10.59 cfs @ 12.10 hrs, Volume= 0.825 af
 Outflow = 10.53 cfs @ 12.11 hrs, Volume= 0.825 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 11.13 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.73 fps, Avg. Travel Time= 0.4 min

Peak Storage= 80 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.90'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 12.12 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 84.0' Slope= 0.0300 '/
 Inlet Invert= 282.77', Outlet Invert= 280.25'



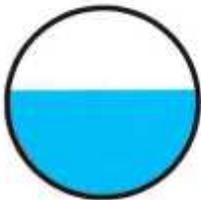
Reach 38R: DMH38-DHH37

Inflow Area = 1.677 ac, Inflow Depth = 4.73" for 100YR event
 Inflow = 8.58 cfs @ 12.10 hrs, Volume= 0.661 af
 Outflow = 8.50 cfs @ 12.11 hrs, Volume= 0.661 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 11.98 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 3.87 fps, Avg. Travel Time= 0.6 min

Peak Storage= 105 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.71'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 14.00 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 146.0' Slope= 0.0400 '/
 Inlet Invert= 288.71', Outlet Invert= 282.87'



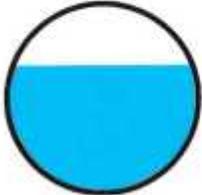
Reach 39R: DMH39-DHH38

Inflow Area = 1.244 ac, Inflow Depth = 4.54" for 100YR event
 Inflow = 6.12 cfs @ 12.11 hrs, Volume= 0.470 af
 Outflow = 6.10 cfs @ 12.11 hrs, Volume= 0.470 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 10.89 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.78 fps, Avg. Travel Time= 0.2 min

Peak Storage= 20 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.67'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.72 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 35.0' Slope= 0.0400 1'
 Inlet Invert= 292.40', Outlet Invert= 291.00'



Reach 40R: DMH40-DHH39

Inflow Area = 1.244 ac, Inflow Depth = 4.54" for 100YR event
 Inflow = 6.17 cfs @ 12.10 hrs, Volume= 0.470 af
 Outflow = 6.12 cfs @ 12.11 hrs, Volume= 0.470 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 10.91 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 3.78 fps, Avg. Travel Time= 0.6 min

Peak Storage= 71 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.68'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.72 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 126.0' Slope= 0.0400 1'
 Inlet Invert= 299.44', Outlet Invert= 294.40'



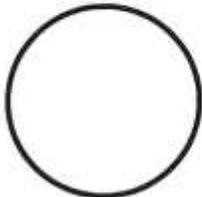
Reach 41R: DMH41-DMH34

Inflow Area = 2.481 ac, Inflow Depth = 0.00" for 100YR event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.72 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 34.0' Slope= 0.0400 '/'
 Inlet Invert= 264.62', Outlet Invert= 263.26'



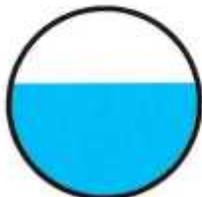
Reach 42R: DMH42-DMH43

Inflow Area = 1.676 ac, Inflow Depth = 3.67" for 100YR event
 Inflow = 6.72 cfs @ 12.11 hrs, Volume= 0.513 af
 Outflow = 6.71 cfs @ 12.11 hrs, Volume= 0.513 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.67 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.97 fps, Avg. Travel Time= 0.1 min

Peak Storage= 17 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.76'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 9.90 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 22.0' Slope= 0.0200 '/'
 Inlet Invert= 271.39', Outlet Invert= 270.95'



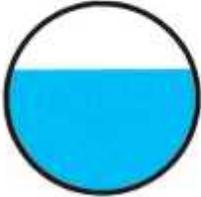
Reach 43R: DMH43-DMH44

Inflow Area = 1.944 ac, Inflow Depth = 3.96" for 100YR event
 Inflow = 8.33 cfs @ 12.10 hrs, Volume= 0.641 af
 Outflow = 8.28 cfs @ 12.11 hrs, Volume= 0.641 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.90 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.25 fps, Avg. Travel Time= 0.4 min

Peak Storage= 72 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.81'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.06 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 86.0' Slope= 0.0250 '/'
Inlet Invert= 270.85', Outlet Invert= 268.70'



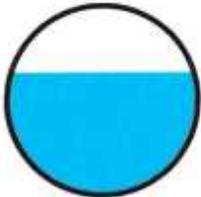
Reach 44R: DMH44-DMH45

Inflow Area = 1.944 ac, Inflow Depth = 3.96" for 100YR event
Inflow = 8.28 cfs @ 12.11 hrs, Volume= 0.641 af
Outflow = 8.23 cfs @ 12.11 hrs, Volume= 0.641 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.87 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.24 fps, Avg. Travel Time= 0.4 min

Peak Storage= 59 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.81'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.05 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 71.0' Slope= 0.0249 '/'
Inlet Invert= 266.70', Outlet Invert= 264.93'



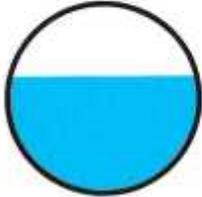
Reach 45R: DMH45-DMH22

Inflow Area = 3.976 ac, Inflow Depth = 2.10" for 100YR event
Inflow = 8.23 cfs @ 12.11 hrs, Volume= 0.697 af
Outflow = 8.08 cfs @ 12.12 hrs, Volume= 0.697 af, Atten= 2%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.33 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.40 fps, Avg. Travel Time= 1.0 min

Peak Storage= 167 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.77'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.75 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 211.0' Slope= 0.0282 '/'
 Inlet Invert= 260.61', Outlet Invert= 254.66'



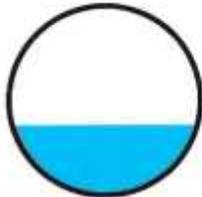
Reach 46R: DMH 46-DMH45

Inflow Area = 2.033 ac, Inflow Depth = 0.33" for 100YR event
 Inflow = 2.34 cfs @ 12.43 hrs, Volume= 0.056 af
 Outflow = 2.33 cfs @ 12.43 hrs, Volume= 0.056 af, Atten= 1%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.82 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 5.54 fps, Avg. Travel Time= 0.1 min

Peak Storage= 7 cf @ 12.43 hrs, Average Depth at Peak Storage= 0.37'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 8.02 cfs

12.0" Diameter Pipe, n= 0.010 PVC, smooth interior
 Length= 25.0' Slope= 0.0300 '/'
 Inlet Invert= 272.25', Outlet Invert= 271.50'



Pond 1P: POND 1

Inflow Area = 1.386 ac, Inflow Depth = 5.35" for 100YR event
 Inflow = 7.64 cfs @ 12.09 hrs, Volume= 0.618 af
 Outflow = 3.16 cfs @ 12.31 hrs, Volume= 0.618 af, Atten= 59%, Lag= 13.3 min
 Discarded = 1.00 cfs @ 11.65 hrs, Volume= 0.544 af
 Primary = 2.16 cfs @ 12.31 hrs, Volume= 0.074 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 245.73' @ 12.31 hrs Surf.Area= 5,214 sf Storage= 6,000 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 25.6 min (792.5 - 766.9)

Volume	Invert	Avail.Storage	Storage Description
#1	243.75'	3,772 cf	39.50'W x 132.00'L x 2.67'H Prismatic 13,921 cf Overall - 4,492 cf Embedded = 9,429 cf x 40.0% Voids
#2	244.42'	4,492 cf	24.0"D x 130.00'L Horizontal Cylinder x 11 Inside #1
		8,264 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	245.30'	12.0" Vert. Orifice/Grate X 3.00 C= 0.600

Discarded OutFlow Max=1.00 cfs @ 11.65 hrs HW=243.79' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 1.00 cfs)

Primary OutFlow Max=2.14 cfs @ 12.31 hrs HW=245.73' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 2.14 cfs @ 2.23 fps)

Pond 2P: POND 2

Inflow Area = 12.351 ac, Inflow Depth = 2.45" for 100YR event
 Inflow = 28.90 cfs @ 12.11 hrs, Volume= 2.517 af
 Outflow = 8.52 cfs @ 12.56 hrs, Volume= 2.517 af, Atten= 71%, Lag= 27.1 min
 Discarded = 2.61 cfs @ 12.56 hrs, Volume= 1.819 af
 Primary = 5.91 cfs @ 12.56 hrs, Volume= 0.698 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 251.91' @ 12.56 hrs Surf.Area= 13,621 sf Storage= 34,463 cf

Plug-Flow detention time= 57.1 min calculated for 2.515 af (100% of inflow)
 Center-of-Mass det. time= 57.0 min (869.8 - 812.8)

Volume	Invert	Avail.Storage	Storage Description
#1	249.00'	50,131 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
249.00	10,086	0	0
250.00	11,283	10,685	10,685
252.00	13,732	25,015	35,700
253.00	15,130	14,431	50,131

Device	Routing	Invert	Outlet Devices
#1	Discarded	248.90'	8.270 in/hr Exfiltration over Surface area above invert Excluded Surface area = 0 sf
#2	Primary	250.66'	12.0" Vert. Orifice/Grate C= 0.600
#3	Primary	250.17'	4.0" Vert. Orifice/Grate X 6.00 C= 0.600

Discarded OutFlow Max=2.61 cfs @ 12.56 hrs HW=251.91' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 2.61 cfs)

Primary OutFlow Max=5.90 cfs @ 12.56 hrs HW=251.91' (Free Discharge)

↑2=Orifice/Grate (Orifice Controls 3.27 cfs @ 4.16 fps)

↑3=Orifice/Grate (Orifice Controls 2.63 cfs @ 6.03 fps)

Pond 3P: POND 3

Inflow Area = 2.033 ac, Inflow Depth = 4.87" for 100YR event
 Inflow = 10.51 cfs @ 12.11 hrs, Volume= 0.825 af
 Outflow = 3.60 cfs @ 12.43 hrs, Volume= 0.825 af, Atten= 66%, Lag= 19.2 min
 Discarded = 1.26 cfs @ 11.65 hrs, Volume= 0.769 af
 Primary = 2.34 cfs @ 12.43 hrs, Volume= 0.056 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 278.81' @ 12.43 hrs Surf.Area= 4,009 sf Storage= 10,482 cf

Plug-Flow detention time= 51.3 min calculated for 0.824 af (100% of inflow)
 Center-of-Mass det. time= 51.3 min (852.1 - 800.7)

Volume	Invert	Avail.Storage	Storage Description
#1	274.60'	5,122 cf	59.83'W x 67.00'L x 5.00'H Prismatic 20,043 cf Overall - 7,238 cf Embedded = 12,805 cf x 40.0% Voids
#2	275.60'	7,238 cf	48.0"D x 64.00'L Horizontal Cylinder x 9 Inside #1
		12,360 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.50'	13.600 in/hr Exfiltration over Surface area above invert Excluded Surface area = 0 sf
#2	Primary	278.50'	12.0" Vert. Orifice/Grate X 6.00 C= 0.600

Discarded OutFlow Max=1.26 cfs @ 11.65 hrs HW=274.66' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 1.26 cfs)

Primary OutFlow Max=2.29 cfs @ 12.43 hrs HW=278.81' (Free Discharge)

↑2=Orifice/Grate (Orifice Controls 2.29 cfs @ 1.88 fps)

Pond 5P: POND 5

Inflow Area = 2.481 ac, Inflow Depth = 2.85" for 100YR event
 Inflow = 5.63 cfs @ 12.27 hrs, Volume= 0.589 af
 Outflow = 1.18 cfs @ 11.95 hrs, Volume= 0.589 af, Atten= 79%, Lag= 0.0 min
 Discarded = 1.18 cfs @ 11.95 hrs, Volume= 0.589 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 269.33' @ 12.99 hrs Surf.Area= 3,432 sf Storage= 7,568 cf

Plug-Flow detention time= 46.9 min calculated for 0.589 af (100% of inflow)

Center-of-Mass det. time= 48.9 min (904.4 - 857.5)

Volume	Invert	Avail.Storage	Storage Description
#1	265.70'	4,400 cf	36.90'W x 93.00'L x 5.00'H Prismaoid 17,159 cf Overall - 6,158 cf Embedded = 11,001 cf x 40.0% Voids
#2	266.70'	6,158 cf	48.0"D x 70.00'L Horizontal Cylinder x 7 Inside #1
		10,558 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	265.60'	14.900 in/hr Exfiltration over Surface area above invert Excluded Surface area = 0 sf
#2	Primary	269.60'	12.0" Vert. Orifice/Grate X 3.00 C= 0.600

Discarded OutFlow Max=1.18 cfs @ 11.95 hrs HW=265.77' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 1.18 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.70' (Free Discharge)

↑**2=Orifice/Grate** (Controls 0.00 cfs)

Link 1L: COMBINE HYDROGRAPHS

Inflow Area = 14.546 ac, Inflow Depth = 0.70" for 100YR event
 Inflow = 7.84 cfs @ 12.41 hrs, Volume= 0.843 af
 Primary = 7.84 cfs @ 12.41 hrs, Volume= 0.843 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link 54L: TO-140

Inflow Area = 3.536 ac, Inflow Depth = 1.71" for 100YR event
 Inflow = 5.48 cfs @ 12.15 hrs, Volume= 0.502 af
 Primary = 5.48 cfs @ 12.15 hrs, Volume= 0.502 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

100 YR-NOAA POST-DEVELOPMENT

Subcatchment 1S: CB1

Runoff = 1.73 cfs @ 12.09 hrs, Volume= 0.146 af, Depth= 7.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
9,594	98	Paved parking & roofs
9,594		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	62	0.0100	4.91	3.86	Circular Channel (pipe), CB1-DMH1 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry,
6.0	62	Total			

Subcatchment 2S: CB2

Runoff = 2.62 cfs @ 12.09 hrs, Volume= 0.221 af, Depth= 7.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
14,408	98	Paved parking & roofs
122	39	>75% Grass cover, Good, HSG A
14,530	98	Weighted Average
122		Pervious Area
14,408		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.0100	4.91	3.86	Circular Channel (pipe), CB2-DMH2 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0					Direct Entry, MIN. TC
6.0	10	Total			

Subcatchment 4S: CB4

Runoff = 1.36 cfs @ 12.09 hrs, Volume= 0.115 af, Depth= 7.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
7,554	98	Paved parking & roofs
7,554		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	13	0.0100	4.91	3.86	Circular Channel (pipe), CB4-DMH4 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0					Direct Entry, MIN.TC
6.0	13	Total			

Subcatchment 5S: CB5

Runoff = 1.66 cfs @ 12.09 hrs, Volume= 0.125 af, Depth= 6.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
7,852	98	Paved parking & roofs
2,558	39	>75% Grass cover, Good, HSG A
10,410	84	Weighted Average
2,558		Pervious Area
7,852		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	41	0.0030	2.69	2.11	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.7					Direct Entry, MIN. TC
6.0	41	Total			

Subcatchment 6S: CB6

Runoff = 0.96 cfs @ 12.09 hrs, Volume= 0.072 af, Depth= 6.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
4,648	98	Paved parking & roofs
1,389	39	>75% Grass cover, Good, HSG A
6,037	84	Weighted Average
1,389		Pervious Area
4,648		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	38	0.0050	3.47	2.73	Circular Channel (pipe), CB6-DMH5 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry,
6.0	38	Total			

Subcatchment 7S: CB7

Runoff = 0.37 cfs @ 12.09 hrs, Volume= 0.028 af, Depth= 6.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
1,784	98	Paved parking & roofs
584	39	>75% Grass cover, Good, HSG A
2,368	83	Weighted Average
584		Pervious Area
1,784		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	48	0.0200	6.95	5.46	Circular Channel (pipe), CB7-DMH5 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.9					Direct Entry, MIN. TC
6.0	48	Total			

Subcatchment 8S: CB8

Runoff = 0.69 cfs @ 12.09 hrs, Volume= 0.050 af, Depth= 4.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
2,933	98	Paved parking & roofs
3,025	39	>75% Grass cover, Good, HSG A
5,958	68	Weighted Average
3,025		Pervious Area
2,933		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	100	0.0200	6.95	5.46	Circular Channel (pipe), CB8-DMH4 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry, MIN. TC
6.0	100	Total			

Subcatchment 9S: CB9

Runoff = 0.57 cfs @ 12.10 hrs, Volume= 0.042 af, Depth= 3.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
2,195	98	Paved parking & roofs
4,619	39	>75% Grass cover, Good, HSG A
6,814	58	Weighted Average
4,619		Pervious Area
2,195		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	25	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.8	19	0.3330	0.38		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.0	11	0.0454	4.33		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.4	114	0.0600	4.97		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	22	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.5					Direct Entry, MIN. TC.
6.0	191	Total			

Subcatchment 10S: CB10

Runoff = 3.16 cfs @ 12.12 hrs, Volume= 0.248 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
11,195	98	Paved parking & roofs
13,303	39	>75% Grass cover, Good, HSG A
7,605	61	>75% Grass cover, Good, HSG B
32,103	65	Weighted Average

20,908 Pervious Area
11,195 Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	28	0.0210	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
2.6	22	0.0260	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
1.7	100	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	7	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	19	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	10	0.0500	4.54		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	31	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.4					Direct Entry, MIN TC
8.4	222	Total			

Subcatchment 11S: CB11

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.035 af, Depth= 4.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
2,003	98	Paved parking & roofs
2,251	39	>75% Grass cover, Good, HSG A
4,254	67	Weighted Average
2,251		Pervious Area
2,003		Impervious Area

To (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	22	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.8	12	0.1670	0.26		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.3	6	0.3330	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	17	0.0740	1.90		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	8	0.0600	4.97		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	40	0.0300	8.51	6.69	Circular Channel (pipe), CB11-DMH7 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.9					Direct Entry, MIN. TC
6.0	105	Total			

Subcatchment 12S: CB12

Runoff = 3.25 cfs @ 12.10 hrs, Volume= 0.240 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
8,359	98	Paved parking & roofs
11,088	39	>75% Grass cover, Good, HSG A
11,592	61	>75% Grass cover, Good, HSG B
2,937	55	Woods, Good, HSG B
33,976	62	Weighted Average
25,817		Pervious Area
8,359		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	41	0.1950	0.16		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.0	8	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	14	0.1250	2.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	62	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	102	0.0490	4.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.9					Direct Entry, MIN TC
0.5	93	0.0210	2.94		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	47	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.5	372	Total			

Subcatchment 13S: CB13

Runoff = 1.26 cfs @ 12.09 hrs. Volume= 0.091 af. Depth= 4.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
5,493	98	Paved parking & roofs
4,121	39	>75% Grass cover, Good, HSG A
9,614	73	Weighted Average
4,121		Pervious Area
5,493		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	11	0.1820	0.27		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
1.2	29	0.3330	0.41		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.4	75	0.0210	2.94		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	9	0.0200	6.95	5.46	Circular Channel (pipe), CB13-DMH10 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
3.7					Direct Entry, MIN. TC
6.0	124	Total			

Subcatchment 14S: CB14

Runoff = 2.41 cfs @ 12.11 hrs, Volume= 0.182 af, Depth= 4.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
11,118	98	Paved parking & roofs
7,973	39	>75% Grass cover, Good, HSG A
19,091	73	Weighted Average
7,973		Pervious Area
11,118		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	37	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.7	92	0.0110	2.13		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	35	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	43	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.3	100	0.0100	4.91	3.86	Circular Channel (pipe), CB14-DMH10 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
7.2	307	Total			

Subcatchment 15S: RETAINING WALL DRAIN

Runoff = 0.09 cfs @ 12.12 hrs, Volume= 0.009 af, Depth= 1.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
3,920	39	>75% Grass cover, Good, HSG A
3,920		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	105	0.0200	6.95	5.46	Circular Channel (pipe), RETWALL-DMH1 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.7					Direct Entry, MIN. TC
6.0	105	Total			

Subcatchment 17S: 17S

Runoff = 3.89 cfs @ 12.12 hrs, Volume= 0.307 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
3,022	98	Paved parking & roofs
14,391	98	Pond
22,278	39	>75% Grass cover, Good, HSG A
39,691	65	Weighted Average
22,278		Pervious Area
17,413		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0390	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.2	17	0.0390	1.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	16	0.1250	2.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	12	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	11	0.1540	2.75		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	59	0.0230	1.06		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	6	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	21	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	15	0.1321	2.54		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.8	178	0.0560	1.66		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	65	0.0310	1.23		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.5	450	Total			

Subcatchment 18S: 18S

Runoff = 1.21 cfs @ 12.15 hrs, Volume= 0.117 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
4,411	98	Paved parking & roofs
22,080	39	>75% Grass cover, Good, HSG A
8,779	30	Woods, Good, HSG A
35,270	44	Weighted Average
30,859		Pervious Area
4,411		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.5	36	0.0560	1.18		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	37	0.2700	2.60		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	14	0.1430	1.89		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	19	0.0820	1.43		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
8.9	156	Total			

Subcatchment 20S: ROOF1

Runoff = 0.91 cfs @ 12.09 hrs, Volume= 0.077 af, Depth= 7.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
5,064	98	Paved parking & roofs
5,064		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	70	0.0100	4.91	3.86	Circular Channel (pipe), CLEANOUT-DMH6 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.8					Direct Entry, MIN. TC.
6.0	70	Total			

Subcatchment 21S: ROOF1

Runoff = 0.91 cfs @ 12.09 hrs, Volume= 0.077 af, Depth= 7.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
5,048	98	Paved parking & roofs
5,048		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	58	0.0400	9.83	7.72	Circular Channel (pipe), CLEANOUT-DMH8 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.9					Direct Entry, MIN. TC.
6.0	58	Total			

Subcatchment 22S: ROOF-REAR

Runoff = 1.82 cfs @ 12.09 hrs, Volume= 0.154 af, Depth= 7.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
10,112	98	Paved parking & roofs
10,112		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	160	0.0200	6.95	5.46	Circular Channel (pipe), CLEANOUT-DMH9 Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
5.6					Direct Entry, MIN. TC.
6.0	160	Total			

Subcatchment 30S: CB30

Runoff = 0.92 cfs @ 12.10 hrs, Volume= 0.070 af, Depth= 2.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
3,270	98	Paved parking & roofs
10,380	39	>75% Grass cover, Good, HSG A
13,650	53	Weighted Average
10,380		Pervious Area
3,270		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	38	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	38	Total			

Subcatchment 31S: CB31

Runoff = 1.37 cfs @ 12.09 hrs, Volume= 0.101 af, Depth= 5.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
6,355	98	Paved parking & roofs
2,758	39	>75% Grass cover, Good, HSG A
9,113	80	Weighted Average
2,758		Pervious Area
6,355		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	8	0.0075	4.26	3.34	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	8	Total			

Subcatchment 32S: CB32

Runoff = 1.61 cfs @ 12.09 hrs, Volume= 0.119 af, Depth= 5.32"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
7,349	98	Paved parking & roofs
4,297	39	>75% Grass cover, Good, HSG A
11,646	76	Weighted Average
4,297		Pervious Area
7,349		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	32	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	32	Total			

Subcatchment 33S: CB33

Runoff = 0.85 cfs @ 12.10 hrs, Volume= 0.063 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
3,439	98	Paved parking & roofs
5,144	39	>75% Grass cover, Good, HSG A
8,583	83	Weighted Average
5,144		Pervious Area
3,439		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	42	0.0050	3.47	2.73	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	42	Total			

Subcatchment 34S: CB34

Runoff = 2.48 cfs @ 12.09 hrs, Volume= 0.180 af, Depth= 4.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
10,509	98	Paved parking & roofs
6,920	39	>75% Grass cover, Good, HSG A
1,505	61	>75% Grass cover, Good, HSG B
18,934	73	Weighted Average
8,425		Pervious Area
10,509		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	50	0.0350	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	7	0.0350	1.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	63	0.0635	5.12		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	209	0.0800	5.74		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6					Direct Entry, MIN TC
0.0	16	0.0200	6.95	5.46	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	345	Total			

Subcatchment 35S: CB35

Runoff = 1.17 cfs @ 12.09 hrs, Volume= 0.087 af, Depth= 5.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
5,089	98	Paved parking & roofs
1,446	39	>75% Grass cover, Good, HSG A
1,165	61	>75% Grass cover, Good, HSG B
7,700	81	Weighted Average
2,611		Pervious Area
5,089		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	2	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	2	Total			

Subcatchment 36S: CB36

Runoff = 2.02 cfs @ 12.09 hrs, Volume= 0.155 af, Depth= 6.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
8,647	98	Paved parking & roofs
3,366	61	>75% Grass cover, Good, HSG B
12,013	88	Weighted Average

3,366 Pervious Area
8,647 Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	43	0.0470	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.2	17	0.0410	1.42		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	32	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	26	0.0770	5.63		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.4	87	0.0400	4.06		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.7					Direct Entry, MIN TC
0.0	19	0.0210	7.12	5.59	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	224	Total			

Subcatchment 37S: CB37

Runoff = 0.61 cfs @ 12.09 hrs, Volume= 0.048 af, Depth= 7.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
2,907	98	Paved parking & roofs
590	61	>75% Grass cover, Good, HSG B
3,497	92	Weighted Average
590		Pervious Area
2,907		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	8	0.0500	10.99	8.63	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	8	Total			

Subcatchment 38S: CB38

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 0.114 af, Depth= 7.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
6,806	98	Paved parking & roofs
1,621	61	>75% Grass cover, Good, HSG B
8,427	91	Weighted Average
1,621		Pervious Area
6,806		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	19	0.0330	8.93	7.01	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	19	Total			

Subcatchment 39S: CB39

Runoff = 1.67 cfs @ 12.09 hrs, Volume= 0.125 af, Depth= 6.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
6,620	98	Paved parking & roofs
3,815	61	>75% Grass cover, Good, HSG B
10,435	84	Weighted Average
3,815		Pervious Area
6,620		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	8	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	8	Total			

Subcatchment 40S: CB40

Runoff = 1.79 cfs @ 12.09 hrs, Volume= 0.135 af, Depth= 6.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
7,083	98	Paved parking & roofs
3,954	61	>75% Grass cover, Good, HSG B
11,037	85	Weighted Average
3,954		Pervious Area
7,083		Impervious Area

To (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	19	0.0410	9.95	7.82	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	19	Total			

Subcatchment 41S: CB41

Runoff = 6.10 cfs @ 12.11 hrs, Volume= 0.468 af, Depth= 5.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
21,462	98	Paved parking & roofs
21,670	61	>75% Grass cover, Good, HSG B
43,132	79	Weighted Average
21,670		Pervious Area
21,462		Impervious Area

To (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	7	0.0450	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	5	0.0450	1.05		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.25"
2.0	21	0.0450	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
2.1	17	0.0280	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.9	58	0.0280	1.13		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	58	0.0280	1.17		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	27	0.0190	2.80		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	147	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	9	0.0400	9.83	7.72	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
7.5	348	Total			

Subcatchment 42S: CB42

Runoff = 2.02 cfs @ 12.09 hrs, Volume= 0.159 af, Depth= 7.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
9,346	98	Paved parking & roofs
2,328	61	>75% Grass cover, Good, HSG B
11,674	91	Weighted Average
2,328		Pervious Area
9,346		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	14	0.0200	6.95	5.46	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	14	Total			

Subcatchment 43S: CB43

Runoff = 2.50 cfs @ 12.09 hrs, Volume= 0.187 af, Depth= 6.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
9,303	98	Paved parking & roofs
6,582	61	>75% Grass cover, Good, HSG B
15,885	83	Weighted Average
6,582		Pervious Area
9,303		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	12	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	12	Total			

Subcatchment 44S: CB44

Runoff = 6.45 cfs @ 12.11 hrs, Volume= 0.492 af, Depth= 4.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
11,746	98	Paved parking & roofs
45,362	61	>75% Grass cover, Good, HSG B
57,108	69	Weighted Average
45,362		Pervious Area
11,746		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0380	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.25"
0.1	8	0.0380	1.36		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	50	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	64	0.0940	2.15		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	31	0.3200	3.96		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	91	0.0220	1.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	46	0.0860	2.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	13	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	18	0.0200	6.95	5.46	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
7.7	395	Total			

Subcatchment 46S: CB46

Runoff = 1.17 cfs @ 12.09 hrs, Volume= 0.093 af, Depth= 7.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
6,048	98	Paved parking & roofs
605	39	>75% Grass cover, Good, HSG A
6,653	93	Weighted Average
605		Pervious Area
6,048		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.0	9	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.0	9	Total			

Subcatchment 50S: ROOF

Runoff = 2.63 cfs @ 12.09 hrs, Volume= 0.223 af, Depth= 7.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
14,656	98	Paved parking & roofs
14,656		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN TC
0.2	88	0.0300	8.51	6.69	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.2	88	Total			

Subcatchment 51S: CB51

Runoff = 7.85 cfs @ 12.26 hrs, Volume= 0.812 af, Depth= 3.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
18,940	98	Paved parking & roofs
12,143	39	>75% Grass cover, Good, HSG A
54,072	61	>75% Grass cover, Good, HSG B
22,931	55	Woods, Good, HSG B
108,086	64	Weighted Average
89,146		Pervious Area
18,940		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0480	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
0.6	48	0.0830	1.44		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	9	0.2220	2.36		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.1	40	0.5000	4.95		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.6	133	0.0150	0.86		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	11	0.1820	2.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	43	0.0470	1.52		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	6	0.3330	4.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	33	0.0610	1.73		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	18	0.1110	2.33		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	20	0.1000	2.21		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	47	0.0430	1.45		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.5	42	0.0480	1.53		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	68	0.0290	1.19		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.3	144	0.0690	1.84		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	115	0.0175	0.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	25	0.2800	3.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0200	8.34	6.55	Circular Channel (pipe), Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
18.7	857	Total			

Subcatchment 52S: 52S

Runoff = 0.15 cfs @ 12.12 hrs, Volume= 0.015 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
3,594	30	Woods, Good, HSG A
2,275	55	Woods, Good, HSG B
5,869	40	Weighted Average
5,869		Pervious Area

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

Subcatchment 53S: 53S

Runoff = 0.31 cfs @ 12.17 hrs, Volume= 0.048 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
2,249	55	Woods, Good, HSG B
16,708	30	Woods, Good, HSG A
10,000	39	>75% Grass cover, Good, HSG A
28,957	35	Weighted Average
28,957		Pervious Area

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

Subcatchment 54S: 54S

Runoff = 8.24 cfs @ 12.15 hrs, Volume= 0.696 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100YR-noaa Rainfall=8.18"

Area (sf)	CN	Description
121,822	55	Woods, Good, HSG B
3,269	61	>75% Grass cover, Good, HSG B
125,091	55	Weighted Average
125,091		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1140	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.25"
1.7	168	0.1150	1.70		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	58	0.0970	1.56		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	7	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	80	0.0970	1.56		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
9.5	363	Total			

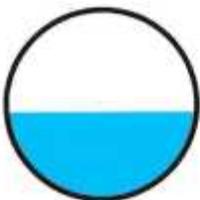
Reach 1R: DMH1-DMH2

Inflow Area = 0.310 ac, Inflow Depth = 5.99" for 100YR-noaa event
 Inflow = 1.81 cfs @ 12.09 hrs, Volume= 0.155 af
 Outflow = 1.80 cfs @ 12.09 hrs, Volume= 0.155 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.15 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.77 fps, Avg. Travel Time= 0.5 min

Peak Storage= 19 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.46'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 4.21 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 53.0' Slope= 0.0119 1/
 Inlet Invert= 246.00', Outlet Invert= 245.37'



Reach 2R: DMH2-POND1

Inflow Area = 0.644 ac, Inflow Depth = 7.00" for 100YR-noaa event
 Inflow = 4.41 cfs @ 12.09 hrs, Volume= 0.376 af
 Outflow = 4.03 cfs @ 12.15 hrs, Volume= 0.376 af, Atten= 9%, Lag= 3.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.58 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.16 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.10 hrs, Average Depth at Peak Storage= 1.00'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.86 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 7.0' Slope= 0.0100 '/'
 Inlet Invert= 245.37', Outlet Invert= 245.30'



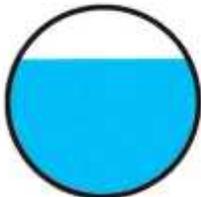
Reach 3R: DMH3-POND1

Inflow Area = 0.503 ac, Inflow Depth = 6.32" for 100YR-noaa event
 Inflow = 3.38 cfs @ 12.09 hrs, Volume= 0.265 af
 Outflow = 3.38 cfs @ 12.09 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.54 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.88 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.72'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.86 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 8.0' Slope= 0.0100 '/'
 Inlet Invert= 245.38', Outlet Invert= 245.30'



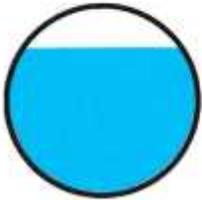
Reach 4R: DMH4-DMH3

Inflow Area = 0.503 ac, Inflow Depth = 6.32" for 100YR-noaa event
 Inflow = 3.38 cfs @ 12.09 hrs, Volume= 0.265 af
 Outflow = 3.38 cfs @ 12.09 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.16 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.77 fps, Avg. Travel Time= 0.0 min

Peak Storage= 1 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.78'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.56 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, bends & connections
 Length= 2.0' Slope= 0.0100 '/'
 Inlet Invert= 245.40', Outlet Invert= 245.38'



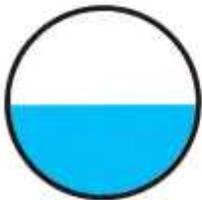
Reach 5R: DMH5-DMH4

Inflow Area = 0.193 ac, Inflow Depth = 6.23" for 100YR-noaa event
 Inflow = 1.34 cfs @ 12.09 hrs, Volume= 0.100 af
 Outflow = 1.33 cfs @ 12.09 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.50 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 1.19 fps, Avg. Travel Time= 0.4 min

Peak Storage= 10 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.49'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.78 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 25.0' Slope= 0.0052 '/'
 Inlet Invert= 245.63', Outlet Invert= 245.50'



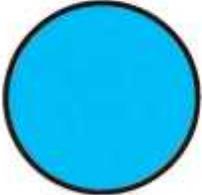
Reach 6R: DMH6-HEADWALL

Inflow Area = 2.778 ac, Inflow Depth = 4.62" for 100YR-noaa event
 Inflow = 11.08 cfs @ 12.12 hrs, Volume= 1.069 af
 Outflow = 8.19 cfs @ 12.10 hrs, Volume= 1.069 af, Atten= 26%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.28 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.01 fps, Avg. Travel Time= 1.1 min

Peak Storage= 239 cf @ 12.05 hrs, Average Depth at Peak Storage= 1.50'
 Bank-Full Depth= 1.50', Capacity at Bank-Full= 8.19 cfs

18.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 135.0' Slope= 0.0052 '/
 Inlet Invert= 252.20', Outlet Invert= 251.50'



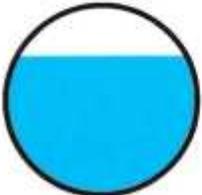
Reach 7R: DMH7-DMH6

Inflow Area = 2.622 ac, Inflow Depth = 4.70" for 100YR-noaa event
 Inflow = 10.53 cfs @ 12.12 hrs, Volume= 1.026 af
 Outflow = 10.53 cfs @ 12.12 hrs, Volume= 1.026 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 10.97 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.79 fps, Avg. Travel Time= 0.4 min

Peak Storage= 83 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.91'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.93 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 86.0' Slope= 0.0291 '/
 Inlet Invert= 254.95', Outlet Invert= 252.45'



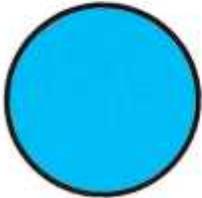
Reach 8R: DMH8-DMH7

Inflow Area = 1.787 ac, Inflow Depth = 4.99" for 100YR-noaa event
 Inflow = 9.51 cfs @ 12.10 hrs, Volume= 0.743 af
 Outflow = 7.62 cfs @ 12.28 hrs, Volume= 0.743 af, Atten= 20%, Lag= 10.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.81 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 3.71 fps, Avg. Travel Time= 0.4 min

Peak Storage= 76 cf @ 12.05 hrs, Average Depth at Peak Storage= 1.00'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.90 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 97.0' Slope= 0.0320 '/'
 Inlet Invert= 258.30', Outlet Invert= 255.20'



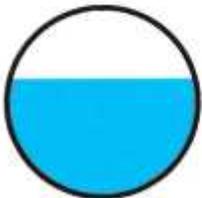
Reach 9R: DMH9-DMH8

Inflow Area = 0.891 ac, Inflow Depth = 5.74" for 100YR-noaa event
 Inflow = 5.41 cfs @ 12.10 hrs, Volume= 0.427 af
 Outflow = 5.37 cfs @ 12.10 hrs, Volume= 0.427 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 10.53 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 3.43 fps, Avg. Travel Time= 0.5 min

Peak Storage= 50 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.62'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.62 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 98.0' Slope= 0.0390 '/'
 Inlet Invert= 262.22', Outlet Invert= 258.40'



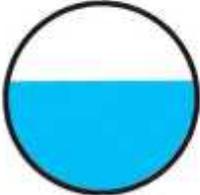
Reach 10R: DMH10-DMH9

Inflow Area = 0.659 ac, Inflow Depth = 4.97" for 100YR-noaa event
 Inflow = 3.66 cfs @ 12.10 hrs, Volume= 0.273 af
 Outflow = 3.62 cfs @ 12.11 hrs, Volume= 0.273 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.61 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 2.76 fps, Avg. Travel Time= 0.8 min

Peak Storage= 61 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.59'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.61 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 127.0' Slope= 0.0211 '
 Inlet Invert= 265.90', Outlet Invert= 263.22'



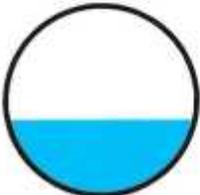
Reach 11R: DMH11-HEADWALL

Inflow Area = 0.116 ac, Inflow Depth = 7.94" for 100YR-noaa event
 Inflow = 0.91 cfs @ 12.09 hrs, Volume= 0.077 af
 Outflow = 0.88 cfs @ 12.11 hrs, Volume= 0.077 af, Atten= 4%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.12 fps, Min. Travel Time= 0.9 min
 Avg. Velocity = 1.05 fps, Avg. Travel Time= 2.8 min

Peak Storage= 51 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.40'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.73 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 174.0' Slope= 0.0050 '
 Inlet Invert= 251.62', Outlet Invert= 250.75'



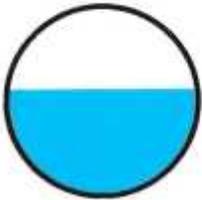
Reach 20R: DM20-EXIST.DMH

Inflow Area = 1.386 ac, Inflow Depth = 1.22" for 100YR-noaa event
 Inflow = 4.36 cfs @ 12.22 hrs, Volume= 0.141 af
 Outflow = 4.34 cfs @ 12.22 hrs, Volume= 0.141 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.55 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 5.47 fps, Avg. Travel Time= 0.1 min

Peak Storage= 16 cf @ 12.22 hrs, Average Depth at Peak Storage= 0.56'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.22 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 36.0' Slope= 0.0350 '/'
 Inlet Invert= 241.77', Outlet Invert= 240.51'



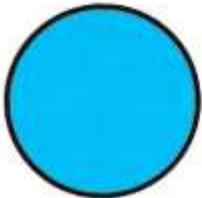
Reach 22R: DMH22-HEADWALL

Inflow Area = 3.976 ac, Inflow Depth = 3.02" for 100YR-noaa event
 Inflow = 12.36 cfs @ 12.26 hrs, Volume= 1.002 af
 Outflow = 10.68 cfs @ 12.33 hrs, Volume= 1.002 af, Atten= 14%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.92 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 3.41 fps, Avg. Travel Time= 0.5 min

Peak Storage= 135 cf @ 12.25 hrs, Average Depth at Peak Storage= 1.25'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 10.68 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 110.0' Slope= 0.0233 '/'
 Inlet Invert= 254.50', Outlet Invert= 251.94'



Reach 30R: DMH30-HW30

Inflow Area = 0.987 ac, Inflow Depth = 4.28" for 100YR-noaa event
 Inflow = 4.31 cfs @ 12.07 hrs, Volume= 0.352 af
 Outflow = 4.29 cfs @ 12.07 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.60 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.17 fps, Avg. Travel Time= 0.1 min

Peak Storage= 9 cf @ 12.07 hrs, Average Depth at Peak Storage= 0.95'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.86 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 12.0' Slope= 0.0100 '/'
 Inlet Invert= 251.10', Outlet Invert= 250.98'



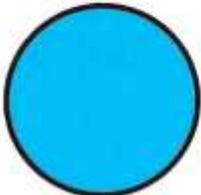
Reach 31R: DMH31-DMH30

Inflow Area = 0.778 ac, Inflow Depth = 3.88" for 100YR-noaa event
 Inflow = 3.38 cfs @ 12.10 hrs, Volume= 0.251 af
 Outflow = 2.99 cfs @ 12.07 hrs, Volume= 0.251 af, Atten= 12%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.89 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.57 fps, Avg. Travel Time= 0.1 min

Peak Storage= 8 cf @ 12.13 hrs, Average Depth at Peak Storage= 1.00'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.73 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 10.0' Slope= 0.0050 '/'
 Inlet Invert= 251.25', Outlet Invert= 251.20'



Reach 32R: DMH32-HW32

Inflow Area = 3.245 ac, Inflow Depth = 1.68" for 100YR-noaa event
 Inflow = 4.78 cfs @ 12.10 hrs, Volume= 0.455 af
 Outflow = 4.77 cfs @ 12.10 hrs, Volume= 0.455 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.25 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 3.06 fps, Avg. Travel Time= 0.0 min

Peak Storage= 4 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.63'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.69 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 7.0' Slope= 0.0300 '/
 Inlet Invert= 252.65', Outlet Invert= 252.44'



Reach 33R: DMH33-DMH32

Inflow Area = 3.093 ac, Inflow Depth = 1.40" for 100YR-noaa event
 Inflow = 3.63 cfs @ 12.10 hrs, Volume= 0.362 af
 Outflow = 3.61 cfs @ 12.10 hrs, Volume= 0.362 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.69 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.03 fps, Avg. Travel Time= 0.3 min

Peak Storage= 20 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.53'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.69 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 47.0' Slope= 0.0300 '/
 Inlet Invert= 254.16', Outlet Invert= 252.75'



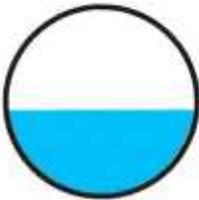
Reach 34R: DMH34-DMH33

Inflow Area = 3.093 ac, Inflow Depth = 1.40" for 100YR-noaa event
 Inflow = 3.65 cfs @ 12.09 hrs, Volume= 0.362 af
 Outflow = 3.63 cfs @ 12.10 hrs, Volume= 0.362 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 10.53 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 3.63 fps, Avg. Travel Time= 0.6 min

Peak Storage= 42 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.45'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 8.63 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 120.0' Slope= 0.0500 '/'
 Inlet Invert= 260.26', Outlet Invert= 254.26'



Reach 36R: DMH36-MANIFOLD

Inflow Area = 2.033 ac, Inflow Depth = 6.18" for 100YR-noaa event
 Inflow = 13.19 cfs @ 12.14 hrs, Volume= 1.046 af
 Outflow = 13.12 cfs @ 12.14 hrs, Volume= 1.046 af, Atten= 1%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 13.90 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 4.50 fps, Avg. Travel Time= 0.1 min

Peak Storage= 38 cf @ 12.13 hrs, Average Depth at Peak Storage= 0.79'
 Bank-Full Depth= 1.50', Capacity at Bank-Full= 24.14 cfs

18.0" Diameter Pipe, n= 0.010 PVC, smooth interior
 Length= 40.0' Slope= 0.0313 '/'
 Inlet Invert= 280.00', Outlet Invert= 278.75'



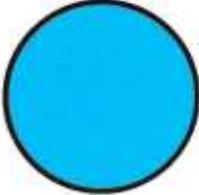
Reach 37R: DMH37-DMH36

Inflow Area = 2.033 ac, Inflow Depth = 6.18" for 100YR-noaa event
 Inflow = 13.30 cfs @ 12.10 hrs, Volume= 1.046 af
 Outflow = 13.19 cfs @ 12.14 hrs, Volume= 1.046 af, Atten= 1%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 11.21 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.98 fps, Avg. Travel Time= 0.4 min

Peak Storage= 105 cf @ 12.12 hrs, Average Depth at Peak Storage= 1.25'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 12.12 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 84.0' Slope= 0.0300 '/
Inlet Invert= 282.77', Outlet Invert= 280.25'



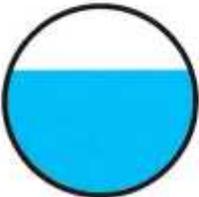
Reach 38R: DMH38-DHH37

Inflow Area = 1.677 ac, Inflow Depth = 6.03" for 100YR-noaa event
Inflow = 10.82 cfs @ 12.10 hrs, Volume= 0.843 af
Outflow = 10.72 cfs @ 12.11 hrs, Volume= 0.843 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.59 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.15 fps, Avg. Travel Time= 0.6 min

Peak Storage= 125 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.83'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 14.00 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
Length= 146.0' Slope= 0.0400 '/
Inlet Invert= 288.71', Outlet Invert= 282.87'



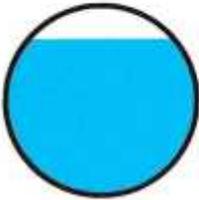
Reach 39R: DMH39-DHH38

Inflow Area = 1.244 ac, Inflow Depth = 5.82" for 100YR-noaa event
Inflow = 7.78 cfs @ 12.11 hrs, Volume= 0.603 af
Outflow = 7.75 cfs @ 12.11 hrs, Volume= 0.603 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.20 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.02 fps, Avg. Travel Time= 0.1 min

Peak Storage= 24 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.72 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 35.0' Slope= 0.0400 '/
 Inlet Invert= 292.40', Outlet Invert= 291.00'



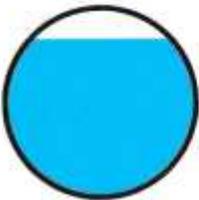
Reach 40R: DMH40-DHH39

Inflow Area = 1.244 ac, Inflow Depth = 5.82" for 100YR-noaa event
 Inflow = 7.86 cfs @ 12.10 hrs, Volume= 0.603 af
 Outflow = 7.78 cfs @ 12.11 hrs, Volume= 0.603 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 11.20 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 4.02 fps, Avg. Travel Time= 0.5 min

Peak Storage= 88 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.83'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.72 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 126.0' Slope= 0.0400 '/
 Inlet Invert= 299.44', Outlet Invert= 294.40'



Reach 41R: DMH41-DMH34

Inflow Area = 2.481 ac, Inflow Depth = 0.46" for 100YR-noaa event
 Inflow = 3.04 cfs @ 12.59 hrs, Volume= 0.095 af
 Outflow = 3.03 cfs @ 12.59 hrs, Volume= 0.095 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.23 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 5.52 fps, Avg. Travel Time= 0.1 min

Peak Storage= 11 cf @ 12.59 hrs, Average Depth at Peak Storage= 0.44'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.72 cfs

12.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 34.0' Slope= 0.0400 '/
 Inlet Invert= 264.62', Outlet Invert= 263.26'



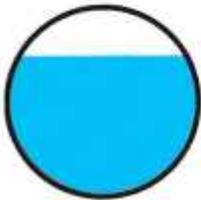
Reach 42R: DMH42-DMH43

Inflow Area = 1.676 ac, Inflow Depth = 4.86" for 100YR-noaa event
 Inflow = 8.89 cfs @ 12.11 hrs, Volume= 0.679 af
 Outflow = 8.87 cfs @ 12.11 hrs, Volume= 0.679 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.12 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 3.17 fps, Avg. Travel Time= 0.1 min

Peak Storage= 21 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.93'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 9.90 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 22.0' Slope= 0.0200 '/
 Inlet Invert= 271.39', Outlet Invert= 270.95'



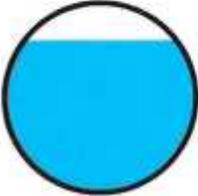
Reach 43R: DMH43-DMH44

Inflow Area = 1.944 ac, Inflow Depth = 5.17" for 100YR-noaa event
 Inflow = 10.86 cfs @ 12.10 hrs, Volume= 0.837 af
 Outflow = 10.78 cfs @ 12.11 hrs, Volume= 0.837 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 10.28 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.49 fps, Avg. Travel Time= 0.4 min

Peak Storage= 91 cf @ 12.10 hrs, Average Depth at Peak Storage= 1.00'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.06 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 86.0' Slope= 0.0250 '/
 Inlet Invert= 270.85', Outlet Invert= 268.70'



Reach 44R: DMH44-DMH45

Inflow Area = 1.944 ac, Inflow Depth = 5.17" for 100YR-noaa event
 Inflow = 10.78 cfs @ 12.11 hrs, Volume= 0.837 af
 Outflow = 10.72 cfs @ 12.11 hrs, Volume= 0.837 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 10.26 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.48 fps, Avg. Travel Time= 0.3 min

Peak Storage= 75 cf @ 12.11 hrs, Average Depth at Peak Storage= 1.00'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.05 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 71.0' Slope= 0.0249 '/
 Inlet Invert= 266.70', Outlet Invert= 264.93'



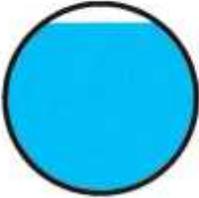
Reach 45R: DMH45-DMH22

Inflow Area = 3.976 ac, Inflow Depth = 3.02" for 100YR-noaa event
 Inflow = 12.63 cfs @ 12.25 hrs, Volume= 1.002 af
 Outflow = 12.36 cfs @ 12.26 hrs, Volume= 1.002 af, Atten= 2%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 10.91 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 3.66 fps, Avg. Travel Time= 1.0 min

Peak Storage= 246 cf @ 12.26 hrs, Average Depth at Peak Storage= 1.13'
 Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.75 cfs

15.0" Diameter Pipe, n= 0.012 Concrete pipe, finished
 Length= 211.0' Slope= 0.0282 '/
 Inlet Invert= 260.61', Outlet Invert= 254.66'



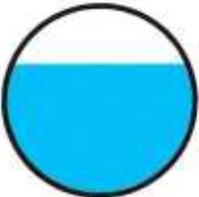
Reach 46R: DMH 46-DMH45

Inflow Area = 2.033 ac, Inflow Depth = 0.97" for 100YR-noaa event
 Inflow = 6.59 cfs @ 12.27 hrs, Volume= 0.165 af
 Outflow = 6.60 cfs @ 12.27 hrs, Volume= 0.165 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Max. Velocity= 11.35 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 6.51 fps, Avg. Travel Time= 0.1 min

Peak Storage= 15 cf @ 12.27 hrs, Average Depth at Peak Storage= 0.69'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 8.02 cfs

12.0" Diameter Pipe, n= 0.010 PVC, smooth interior
 Length= 25.0' Slope= 0.0300 '/
 Inlet Invert= 272.25', Outlet Invert= 271.50'



Pond 1P: POND 1

Inflow Area = 1.386 ac, Inflow Depth = 6.63" for 100YR-noaa event
 Inflow = 8.90 cfs @ 12.09 hrs, Volume= 0.766 af
 Outflow = 5.35 cfs @ 12.22 hrs, Volume= 0.766 af, Atten= 40%, Lag= 8.1 min
 Discarded = 1.00 cfs @ 11.55 hrs, Volume= 0.624 af
 Primary = 4.36 cfs @ 12.22 hrs, Volume= 0.141 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 245.94' @ 12.22 hrs Surf.Area= 5,214 sf Storage= 6,773 cf

Plug-Flow detention time= 24.6 min calculated for 0.765 af (100% of inflow)
 Center-of-Mass det. time= 24.6 min (788.7 - 764.1)

Volume	Invert	Avail.Storage	Storage Description
#1	243.75'	3,772 cf	39.50'W x 132.00'L x 2.67'H Prismatic 13,921 cf Overall - 4,492 cf Embedded = 9,429 cf x 40.0% Voids
#2	244.42'	4,492 cf	24.0'D x 130.00'L Horizontal Cylinder x 11 Inside #1
		8,264 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	245.30'	12.0" Vert. Orifice/Grate X 3.00 C= 0.600

Discarded OutFlow Max=1.00 cfs @ 11.55 hrs HW=243.78' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 1.00 cfs)

Primary OutFlow Max=4.20 cfs @ 12.22 hrs HW=245.93' (Free Discharge)
 ↳2=Orifice/Grate (Orifice Controls 4.20 cfs @ 2.70 fps)

Pond 2P: POND 2

Inflow Area = 12.351 ac, Inflow Depth = 3.39" for 100YR-noaa event
 Inflow = 34.61 cfs @ 12.11 hrs, Volume= 3.485 af
 Outflow = 16.54 cfs @ 12.55 hrs, Volume= 3.485 af, Atten= 52%, Lag= 26.3 min
 Discarded = 2.90 cfs @ 12.55 hrs, Volume= 2.132 af
 Primary = 13.65 cfs @ 12.55 hrs, Volume= 1.353 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 256.25' @ 12.55 hrs Surf.Area= 15,130 sf Storage= 50,131 cf

Plug-Flow detention time= 59.0 min calculated for 3.483 af (100% of inflow)
 Center-of-Mass det. time= 59.0 min (863.8 - 804.9)

Volume	Invert	Avail.Storage	Storage Description
#1	249.00'	50,131 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
249.00	10,086	0	0
250.00	11,283	10,685	10,685
252.00	13,732	25,015	35,700
253.00	15,130	14,431	50,131

Device	Routing	Invert	Outlet Devices
#1	Discarded	248.90'	8.270 in/hr Exfiltration over Surface area above invert Excluded Surface area = 0 sf
#2	Primary	250.66'	12.0" Vert. Orifice/Grate C= 0.600
#3	Primary	250.17'	4.0" Vert. Orifice/Grate X 5.00 C= 0.600

Discarded OutFlow Max=2.90 cfs @ 12.55 hrs HW=256.25' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 2.90 cfs)

Primary OutFlow Max=13.63 cfs @ 12.55 hrs HW=256.24' (Free Discharge)
 ↳2=Orifice/Grate (Orifice Controls 8.52 cfs @ 10.85 fps)
 ↳3=Orifice/Grate (Orifice Controls 5.10 cfs @ 11.70 fps)

Pond 3P: POND 3

Inflow Area = 2.033 ac, Inflow Depth = 6.18" for 100YR-noaa event
 Inflow = 13.12 cfs @ 12.14 hrs, Volume= 1.046 af
 Outflow = 7.86 cfs @ 12.27 hrs, Volume= 1.046 af, Atten= 40%, Lag= 7.8 min
 Discarded = 1.26 cfs @ 11.50 hrs, Volume= 0.881 af
 Primary = 6.59 cfs @ 12.27 hrs, Volume= 0.165 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 279.05' @ 12.27 hrs Surf.Area= 4,009 sf Storage= 11,108 cf

Plug-Flow detention time= 47.8 min calculated for 1.046 af (100% of inflow)
 Center-of-Mass det. time= 47.8 min (842.2 - 794.4)

Volume	Invert	Avail.Storage	Storage Description
#1	274.60'	5,122 cf	59.83'W x 67.00'L x 5.00'H Prismaoid 20,043 cf Overall - 7,238 cf Embedded = 12,805 cf x 40.0% Voids
#2	275.60'	7,238 cf	48.0'D x 64.00'L Horizontal Cylinder x 9 Inside #1
		12,360 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.50'	13.600 in/hr Exfiltration over Surface area above Invert Excluded Surface area = 0 sf
#2	Primary	278.50'	12.0" Vert. Orifice/Grate X 6.00 C= 0.600

Discarded OutFlow Max=1.26 cfs @ 11.50 hrs HW=274.65' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 1.26 cfs)

Primary OutFlow Max=6.19 cfs @ 12.27 hrs HW=279.03' (Free Discharge)
 ↳2=Orifice/Grate (Orifice Controls 6.19 cfs @ 2.47 fps)

Pond 5P: POND 5

Inflow Area = 2.481 ac, Inflow Depth = 3.93" for 100YR-noaa event
 Inflow = 7.85 cfs @ 12.26 hrs, Volume= 0.812 af
 Outflow = 4.23 cfs @ 12.59 hrs, Volume= 0.812 af, Atten= 46%, Lag= 19.5 min
 Discarded = 1.18 cfs @ 11.85 hrs, Volume= 0.717 af
 Primary = 3.04 cfs @ 12.59 hrs, Volume= 0.095 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 270.12' @ 12.59 hrs Surf.Area= 3,432 sf Storage= 9,431 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 51.5 min (899.6 - 848.2)

Volume	Invert	Avail. Storage	Storage Description
#1	265.70'	4,400 cf	36.90'W x 93.00'L x 6.00'H Prismatic 17,159 cf Overall - 6,158 cf Embedded = 11,001 cf x 40.0% Voids
#2	266.70'	6,158 cf	48.0"D x 70.00'L Horizontal Cylinder x 7 Inside #1
		10,558 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	265.60'	14.900 in/hr Exfiltration over Surface area above invert Excluded Surface area = 0 sf
#2	Primary	269.60'	12.0" Vert. Orifice/Grate X 3.00 C= 0.600

Discarded OutFlow Max=1.18 cfs @ 11.85 hrs HW=265.78' (Free Discharge)

↳1=Exfiltration (Exfiltration Controls 1.18 cfs)

Primary OutFlow Max=3.01 cfs @ 12.59 hrs HW=270.12' (Free Discharge)

↳2=Orifice/Grate (Orifice Controls 3.01 cfs @ 2.45 fps)

Link 1L: COMBINE HYDROGRAPHS

Inflow Area = 14.546 ac, Inflow Depth = 1.33" for 100YR-noaa event
 Inflow = 15.76 cfs @ 12.55 hrs, Volume= 1.610 af
 Primary = 15.76 cfs @ 12.55 hrs, Volume= 1.610 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link 54L: TO-140

Inflow Area = 3.536 ac, Inflow Depth = 2.52" for 100YR-noaa event
 Inflow = 8.55 cfs @ 12.15 hrs, Volume= 0.744 af
 Primary = 8.55 cfs @ 12.15 hrs, Volume= 0.744 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

APPENDIX E

TSS Removal:

TSS Removal sheet 1 provides the pre-treatment for the following:

- **HW30 to Pond 2**
- **IIW32 to Pond 2**
- **Inflow to DMI 45 (Connected to the existing drain line)**
- **Inlet into Pond 3**

TSS Removal sheet 2 provides the total treatment for the following:

- **Pond 2**
- **Pond 3**

TSS Removal sheet 3 provides the total treatment for the following:

- **Pond 5 (Impervious within contributory area to Pond 5 includes shingled roofs)**

Note:

TSS Removal sheets from the approved drainage report for the existing drainage system have been included.

10

INSTRUCTIONS:

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C value within Row
5. Total TSS Removal = Sum All Values in Column D

Location: Panther Way - Senior Village

A BMP ¹	B TSS Removal Rate ¹	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Deep Sump Hooded CB	25%	1.00	25%	75%
Contech WQU	80%	75%	60%	15%

Separate Form Needs to be Completed for Each Outlet or BMP Train

85%

Total TSS Removal =

Project: UC 137B
 Prepared By: PARB
 Date: 6/20/25

*Equals remaining load from previous BMP (E) which enters the BMP



INSTRUCTIONS:

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Location: Panther Way - Senior Village

A BMP ¹	B TSS Removal Rate ¹	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Deep Sump Hooded CB	25%	1.00	25%	75%
Contech WQU	80%	75%	60%	15%
Infiltration Basin	80%	15%	12%	3%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Total TSS Removal = 97%

Project: UC 137B
 Prepared By: KAG
 Date: 6/20/25

*Equals remaining load from previous BMP (E) which enters the BMP



INSTRUCTIONS:

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Location: Panther Way - Senior Village

A BMP ¹	B TSS Removal Rate ¹	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Deep Sump	25%	1.00	25%	75%
Hooded CB	80%	75%	60%	15%
Infiltration Basin				

Separate Form Needs to be Completed for Each Outlet or BMP Train

Total TSS Removal = 85%

Project: UC1378
 Prepared By: RMB
 Date: 6/20/25

*Equals remaining load from previous BMP (E) which enters the BMP

INSTRUCTIONS:

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Location: Paperbox Way, DC 1378

A	B	C	D	E
BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (B*C)	Remaining Load (C-D)
Storm capture (ASPH) CB 5	65%	1.00	65	35%
Turbidation Basin Parallel	80% w/pretreatment	1.00	80%	20%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Total TSS Removal = 90%

Project: DC 1378
 Prepared By: RMB
 Date: 2/19/2000

*Equals remaining load from previous BMP (E) which enters the BMP

TSS Removal Calculation Worksheet

INSTRUCTIONS:

1. Sheet is non-automated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column J loadings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Location: Partridge Way, W. 127B

A	B	C	D	E
BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (B*C)	Remaining Load (C-D)
Any Storm Hydrology CB	25%	1.00	2.5%	75%
Storm Drain Catchment	65%	75%	48.75%	26.25%
Infiltration Basin, pond I	80% w/prec treatment	100%	80%	20%

Separate Form Needs to be Completed for Each Outlet or BMP Train

90%

Total TSS Removal =

Project: WC 137B
 Prepared By: RKG
 Date: 10/1/2010

*Equals remaining load from previous BMP (E) which enters the BMP

INSTRUCTIONS:

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B. See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E, value, subtract Column D value within Row from Column C value within Row
5. Total TSS Removal = Sum All Values in Column D

Location: Panther Way UC 137B

A	B	C	D	E
BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (B*C)	Remaining Load (C-D)
Prop Camp Hooded CB	25%	1.00	2.5%	75%
CDS Unit	65%	75%	48.75%	26.25%
Infiltration Basin Pond 2	80% w/prec. treatment	100%	80%	20%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Total TSS Removal =

80%

Project: UC 137B
 Prepared By: RKG
 Date: 2/19/2000

*Equals remaining load from previous BMP (B) which enters the BMP

De Minimus Storm-water Discharge Calculation

Impervious Areas

To Pond 1 - 48,773 sq. ft.

To Pond 2 - 150,722 sq. ft.

To Pond 3 - 53,525 sq. ft.

To Pond 5 - 18,940 sq. ft.

De minimus area to Panther Way - 4,411 sq. ft.

TSS Removal

To Ponds 1, 2 and 3 - 97%

To Pond 5 - 85%

Pond 1 - $48,778 \times .97 = 47,315$

Pond 2 - $150,722 \times .97 = 146,200$

Pond 3 - $53,525 \times .97 = 51,919$

Pond 4 - $18,940 \times .85 = 16,099$

De minimus - $4,411 \times 0 = 0$

$$47,315 + 146,200 + 51,919 - 16,099 + 0 = 245,481$$

$$48,778 + 150,722 + 53,525 + 18,940 + 4,411 = 276,376$$

$$\frac{245,481}{276,376}$$

$= 88.8\%$ which is greater than 80%

**Estimated Net Annual Solids Load Reduction
Based on the Rational Rainfall Method**



**Senior Village / Panther Way
Franklin, MA
DMH 32**

**CASCADE
separator™**

AREA	1.21	acres	CASCADE MODEL	CS-4
WEIGHTED C	0.95			
TC	5.00	minutes	RAINFALL STATION	68

Rainfall Intensity ¹ (In/hr)	Percent Rainfall Volume ¹	Hydraulic Loading Rate (gpm/ft ²)	Removal Efficiency (%)	Incremental Removal (%)
0.02	9.3%	0.82	100.0	9.3
0.04	9.5%	1.64	100.0	9.5
0.06	8.7%	2.46	100.0	8.7
0.08	10.1%	3.28	100.0	10.1
0.10	7.2%	4.11	100.0	7.2
0.12	6.0%	4.93	100.0	6.0
0.14	6.3%	5.75	100.0	6.3
0.16	5.6%	6.57	100.0	5.6
0.18	4.7%	7.39	100.0	4.7
0.20	3.6%	8.21	100.0	3.6
0.25	8.2%	10.26	100.0	8.2
0.50	14.9%	20.53	92.6	13.8
0.75	3.2%	30.79	83.0	2.7
1.00	1.2%	41.06	73.3	0.9
1.50	0.7%	61.58	54.0	0.4
2.00	0.8%	76.08	37.4	0.3
				97.2
				Removal Efficiency Adjustment ² = 6.5%
				Predicted % Annual Rainfall Treated = 93.5%
				Predicted Net Annual Load Removal Efficiency = 90.7%

1 - Based on 10 years of rainfall data from NCDC station 736, Blue Hill, Norfolk County, MA

2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

**Estimated Net Annual Solids Load Reduction
Based on the Rational Rainfall Method**



**Senior Village / Panther Way
Franklin, MA
DMH 36**

**CASCADE
separator™**

AREA	1.49	acres	CASCADE MODEL	CS-4
WEIGHTED C	0.95			
TC	5.00	minutes	RAINFALL STATION	68

Rainfall Intensity ¹ (in/hr)	Percent Rainfall Volume ¹	Hydraulic Loading Rate (gpm/ft ²)	Removal Efficiency (%)	Incremental Removal (%)
0.02	9.3%	1.01	100.0	9.3
0.04	9.5%	2.02	100.0	9.5
0.06	8.7%	3.03	100.0	8.7
0.08	10.1%	4.04	100.0	10.1
0.10	7.2%	5.06	100.0	7.2
0.12	6.0%	6.07	100.0	6.0
0.14	6.3%	7.08	100.0	6.3
0.16	5.6%	8.09	100.0	5.6
0.18	4.7%	9.10	100.0	4.7
0.20	3.6%	10.11	100.0	3.6
0.25	8.2%	12.64	100.0	8.2
0.50	14.9%	25.28	88.1	13.1
0.75	3.2%	37.92	76.3	2.5
1.00	1.2%	50.56	64.4	0.8
1.50	0.7%	75.84	40.6	0.3
2.00	0.8%	76.08	30.4	0.2
				96.1
				Removal Efficiency Adjustment ² = 6.5%
				Predicted % Annual Rainfall Treated = 93.4%
				Predicted Net Annual Load Removal Efficiency = 89.6%

1 - Based on 10 years of rainfall data from NCDC station 736, Blue Hill, Norfolk County, MA

2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

APPENDIX F

Guelph Permeameter Data Sheet

Investigator: G. R. W. J. J. J. J.

Date: 2-25-25

Location: BRIDGEWAY

Test Id: 3-1

Depth of hole: 2.41 Radius: 3 cm (standard calcs assume 3 cm radius)

Reservoirs used during test (check one): Combined: Inner only:

Reservoir constant used: 35.72

Water level in well = 5 cm				
Time <i>t</i> (min)	<i>Dt</i> (min)	Water level in reservoir <i>h</i> (cm)	<i>Dh</i> (cm)	Rate of change <i>Dh/Dt</i>
0		25		
0:09	0.15	30	5	33.3
0:21	0.20	35	5	25.0
0:33	0.18	40	5	27.8
0:44	0.20	45	5	25.0
0:56	0.20	50	5	25.0
1:09	0.18	55	5	27.8
1:20	0.22	60	5	22.7
1:33	0.22	65	5	22.7
1:46	0.22	70	5	22.7

Steady rate for 3 consecutive readings (R_1): 22.7

Water level in well = 10 cm				
Time <i>t</i> (min)	<i>Dt</i> (min)	Water level in reservoir <i>h</i> (cm)	<i>Dh</i> (cm)	Rate of change <i>Dh/Dt</i>
0		25		
0:10	0.12	30	5	30.0
0:18	0.13	35	5	32.5
0:26	0.13	40	5	37.5
0:35	0.15	45	5	33.3
0:44	0.15	50	5	28.3
0:53	0.13	55	5	37.5
1:00	0.13	60	5	37.5
1:10	0.12	65	5	30.0
1:19	0.15	70	5	33.3

Steady rate for 3 consecutive readings (R_2): 35.0

Comments:

$K_{eff} = 0.681 \text{ (u/m)} = 22.56 \text{ m/dm}$

GP FIELD DATA SHEET

SECTION 1: SITE INFORMATION

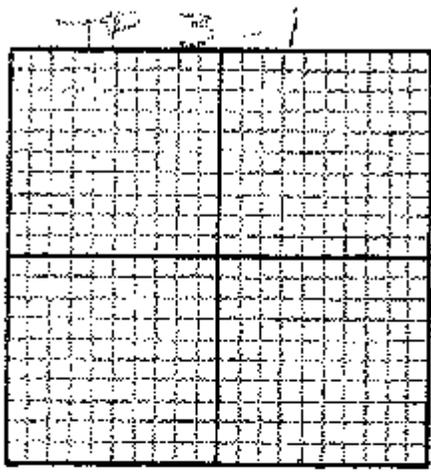
Date 2-25-85 Investigator C. R. W. [unclear]

Site Location CHRYSLER W. 2nd

Dominant Soil Type(s) SAND & GRAVEL

Site Map:

Soil Profile Description (horizon depth, texture, structure, color, etc.):



Depth	Description
0-12"	GRAVELLY SAND
12-10"	SANDY LOAM 10 4/2 1/2
10-15"	10 4/2 1/2
15-18"	10 4/2 1/2
18-20"	10 4/2 1/2
20-25"	10 4/2 1/2
25-30"	10 4/2 1/2
30-35"	10 4/2 1/2
35-40"	10 4/2 1/2
40-45"	10 4/2 1/2
45-50"	10 4/2 1/2

Presence of special soil conditions (mottling, water table depth, hardpan, induration, compacted layers, etc.):

NO MOTTLED
NO WATER
NO HARDPAN

Comments and Notes (topography, slope, vegetation, etc.):



GP FIELD DATA SHEET

SECTION 1: SITE INFORMATION

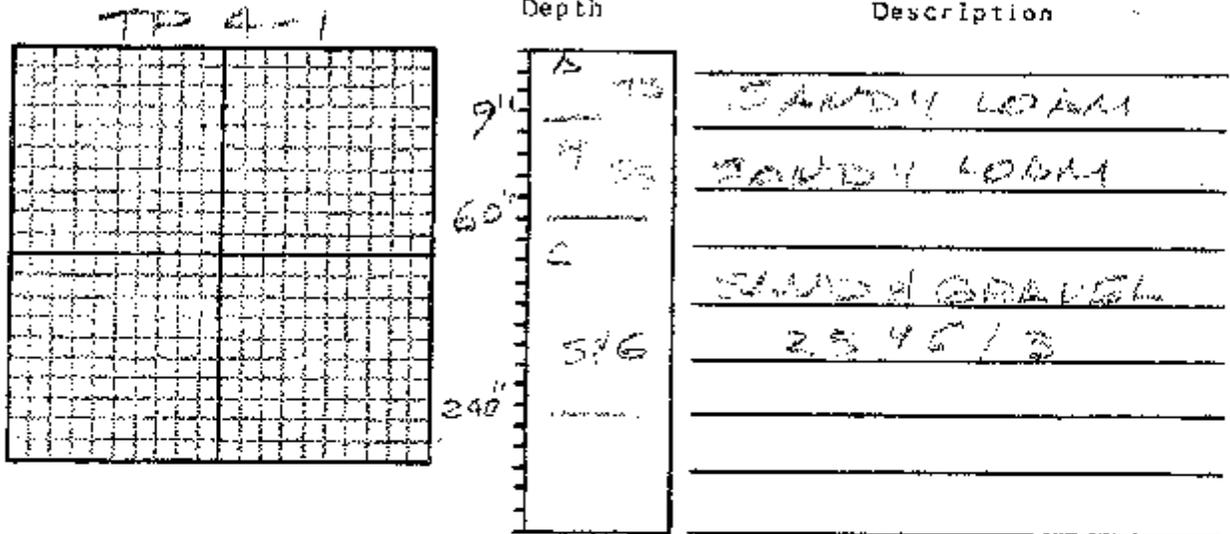
Date 7/14/25 Investigator C. B. J. NITEL

Site Location PAINTED BR. WOOD

Dominant Soil Type(s) SAND & GRAVEL

Site Map:

Soil Profile Description (horizon depth, texture, structure, color, etc.):



Presence of special soil conditions (mottling, water table depth, hardpan, induration, compacted layers, etc.):

no water
no mottling
no hardpan

Comments and Notes (topography, slope, vegetation, etc.):



Head #1

Reservoir Type (enter "1" for Combined and "2" for lower reservoir): 1 2

Enter the first water head height ("H1" in cm):

Enter the second water head height ("H2" in cm):

Enter the Borehole Radius ("R" in cm):

Enter the soil texture-structure category (enter one of the below numbers): 1 2 3 4

1. Coarse sand, structureless, clayey or silty materials such as beach caps and bars, limestone or marble sediments, etc.
2. Soils which are both fine textured (clayey or silty) and unstratified; may also include some fine sands.
3. Most unstratified soils from clays through loams; also includes unstratified medium and fine sands. The category most frequently applicable for agricultural soils.
4. Coarse and gravelly sands; may also include some light stratified soils with large scale resistance cracks, stratigraphy, etc.

Steady State Rate of Water Level Change ("R" in cm/hr):

$Q^* = 0.38 \text{ (cm}^3\text{)}$
 $Z = 0.83518$
 $Q = 0.8079$
 $K_1 = 2.09E-02 \text{ cm/sec}$
 $K_2 = 2.91E-04 \text{ cm/sec}$
 $K_3 = 1.96E-01 \text{ cm/sec}$
 $K_4 = 1.98E-02 \text{ cm/sec}$

Head #2

Reservoir Type (enter "1" for Combined and "2" for lower reservoir): 1 2

Enter water head height ("H1" in cm):

Enter the Borehole Radius ("R" in cm):

Enter the soil texture-structure category (enter one of the below numbers): 1 2 3 4

1. Coarse sand, structureless, clayey or silty materials such as beach caps and bars, limestone or marble sediments, etc.
2. Soils which are both fine textured (clayey or silty) and unstratified; may also include some fine sands.
3. Most unstratified soils from clays through loams; also includes unstratified medium and fine sands. The category most frequently applicable for agricultural soils.
4. Coarse and gravelly sands; may also include some light stratified soils with large scale resistance cracks, stratigraphy, etc.

Steady State Rate of Water Level Change ("R" in cm/hr):

$Q^* = 0.38 \text{ (cm}^3\text{)}$
 $Z = 1.28724$
 $Q = 12.8184$
 $K_1 = 2.09E-02 \text{ cm/sec}$
 $K_2 = 2.91E-04 \text{ cm/sec}$
 $K_3 = 1.96E-01 \text{ cm/sec}$
 $K_4 = 1.98E-02 \text{ cm/sec}$

Two Head Method

Reservoir Type (enter "1" for Combined and "2" for lower reservoir): 1 2

Enter the first water head height ("H1" in cm):

Enter the second water head height ("H2" in cm):

Enter the Borehole Radius ("R" in cm):

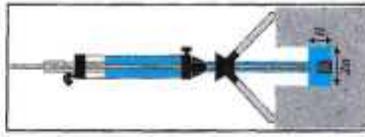
Enter the soil texture-structure category (enter one of the below numbers): 1 2 3 4

1. Coarse sand, structureless, clayey or silty materials such as beach caps and bars, limestone or marble sediments, etc.
2. Soils which are both fine textured (clayey or silty) and unstratified; may also include some fine sands.
3. Most unstratified soils from clays through loams; also includes unstratified medium and fine sands. The category most frequently applicable for agricultural soils.
4. Coarse and gravelly sands; may also include some light stratified soils with large scale resistance cracks, stratigraphy, etc.

Steady State Rate of Water Level Change ("R1" in cm/hr):

Steady State Rate of Water Level Change ("R2" in cm/hr):

$Q^* = 0.38 \text{ (cm}^3\text{)}$
 $Q_1 = 0.83518$
 $Q_2 = 0.83518$
 $Q_3 = 1.82754$
 $Q_4 = 0.84489$
 $Q_5 = 0.83207$
 $Q_6 = 0.66699$
 $Q_7 = 0.62415$
 $K_1 = 2.09E-02 \text{ cm/sec}$
 $K_2 = 2.91E-04 \text{ cm/sec}$
 $K_3 = 1.96E-01 \text{ cm/sec}$
 $K_4 = 1.98E-02 \text{ cm/sec}$



Calculations based on the input data. If the flow rate is not specified, the program will assume a steady state flow rate. The program will also calculate the hydraulic conductivity (K) and the specific yield (Sy) of the soil.

Soil Texture-Structure Category	Flow Rate (cm/hr)				
Coarse sand, structureless, clayey or silty materials such as beach caps and bars, limestone or marble sediments, etc.	0.01	0.01	0.01	0.01	0.01
Soils which are both fine textured (clayey or silty) and unstratified; may also include some fine sands.	0.01	0.01	0.01	0.01	0.01
Most unstratified soils from clays through loams; also includes unstratified medium and fine sands. The category most frequently applicable for agricultural soils.	0.12	0.12	0.12	0.12	0.12
Coarse and gravelly sands; may also include some light stratified soils with large scale resistance cracks, stratigraphy, etc.	0.18	0.18	0.18	0.18	0.18

Calculations based on the input data. If the flow rate is not specified, the program will assume a steady state flow rate. The program will also calculate the hydraulic conductivity (K) and the specific yield (Sy) of the soil.

Soil Texture-Structure Category	Flow Rate (cm/hr)				
Coarse sand, structureless, clayey or silty materials such as beach caps and bars, limestone or marble sediments, etc.	0.01	0.01	0.01	0.01	0.01
Soils which are both fine textured (clayey or silty) and unstratified; may also include some fine sands.	0.01	0.01	0.01	0.01	0.01
Most unstratified soils from clays through loams; also includes unstratified medium and fine sands. The category most frequently applicable for agricultural soils.	0.12	0.12	0.12	0.12	0.12
Coarse and gravelly sands; may also include some light stratified soils with large scale resistance cracks, stratigraphy, etc.	0.18	0.18	0.18	0.18	0.18

TP 5-1

GP FIELD DATA SHEET

SECTION 1: SITE INFORMATION

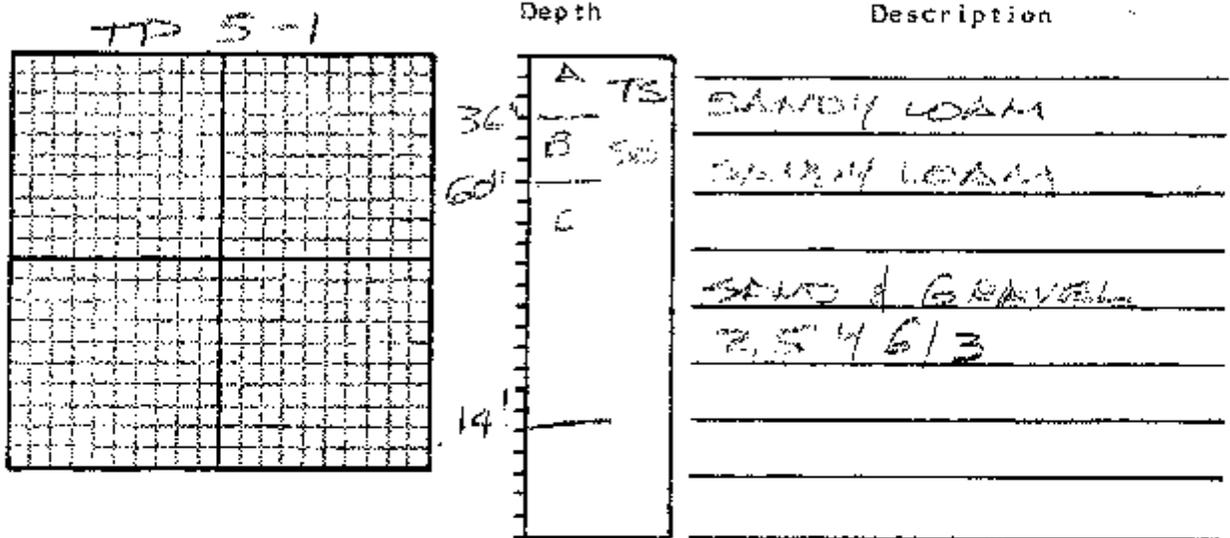
Date 2-25-25 Investigator C. CRUICKSHANK

Site Location ROADSIDE WALK

Dominant Soil Type(s) SAND & GRAVEL

Site Map:

Soil Profile Description (horizon depth, texture, structure, color, etc.):



Presence of special soil conditions (mottling, water table depth, hardpan, induration, compacted layers, etc.):

no water
no water

Comments and Notes (topography, slope, vegetation, etc.):



GP FIELD DATA SHEET

SECTION 1: SITE INFORMATION

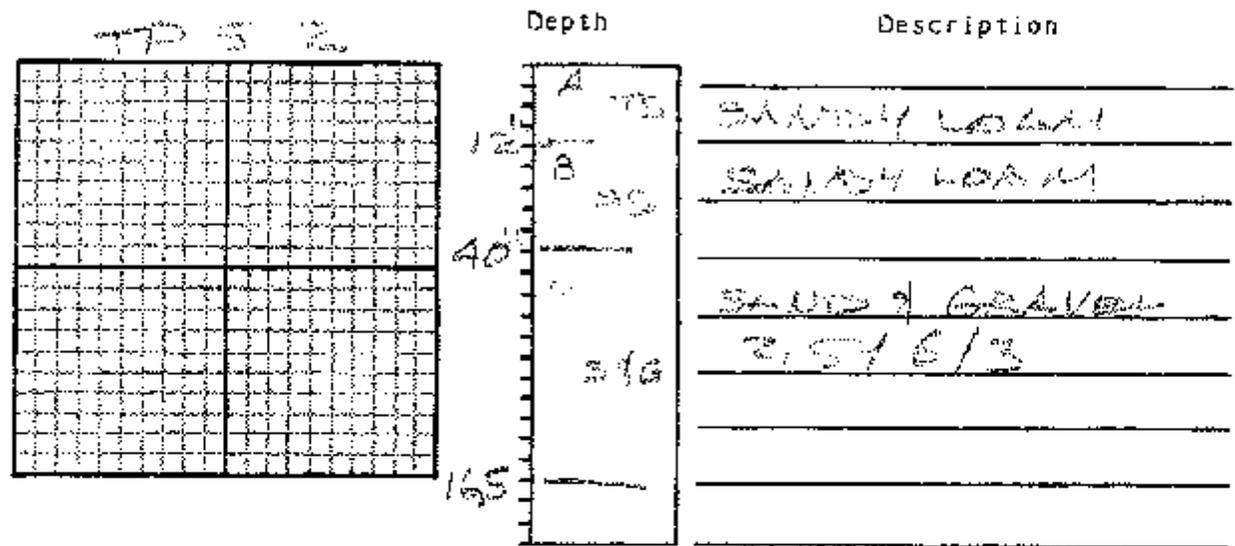
Date 2-25-25 Investigator C. D. WINTAL

Site Location PEWEE RIVER WASH

Dominant Soil Type(s) SAND & GRAVEL

Site Map:

Soil Profile Description (horizon depth, texture, structure, color, etc.):



Presence of special soil conditions (mottling, water table depth, hardpan, induration, compacted layers, etc.):

water @ 16.5'
no compaction

Comments and Notes (topography, slope, vegetation, etc.):



GP FIELD DATA SHEET

SECTION 1: SITE INFORMATION

Date 9/17/19 Investigator CARLOS & QUENTAL

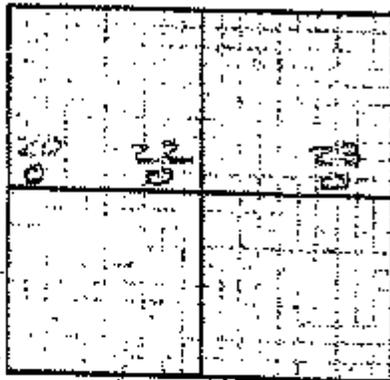
Site Location WETHER WAY

Dominant Soil Type(s) SAND + GRAVEL

Site Map:

Soil Profile Description (horizon depth, texture, structure, color, etc.):

PT-20



Depth	Description
13" A	A-7.5Y 3/2 Loamy SAND
18" B	B-10YR 5/4 Loamy sand
48" C1	C1-2.5Y 4/3 S&G
	C2-2.5Y 6/3
60"	Mod. Sand

Presence of special soil conditions (mottling, water table depth, hardpan, induration, compacted layers, etc.):

Comments and Notes (topography, slope, vegetation, etc.):



GP FIELD DATA SHEET

SECTION 1: SITE INFORMATION

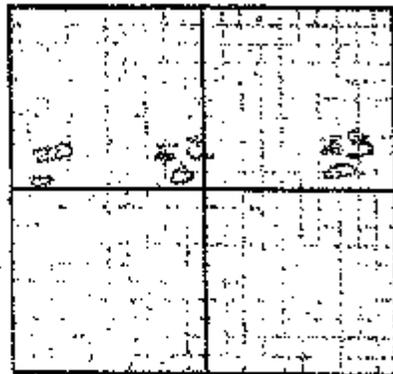
Date 4/12/19 Investigator SARAH M. COU MATHIAS

Site Location PAULINE WAY

Dominant Soil Type(s) SAND / GRAVEL

Site Map: Soil Profile Description (horizon depth, texture, structure, color, etc.):

DT-22



Depth	Description
12" FILL	
36" C1	10YR 4/3
96" C2	10YR 5/3

Presence of special soil conditions (mottling, water table depth, hardpan, induration, compacted layers, etc.):

NO HARD PAN 78" 7.5 YR 5/6

Comments and Notes (topography, slope, vegetation, etc.):





Guelph Permeameter Calculations

Printed
Result

Page: 1/1

Head B1

Permeameter Type: **Flow** (for unconfined flow) or **Head** (for confined flow)
 Soil Name: **Clay**
 Sample Description: **Clay**

1. Measure the initial water level in the standpipes, h_1 and h_2 .
2. Measure the final water level in the standpipes, h_1' and h_2' .
3. Measure the time interval, t .
4. Measure the length of the specimen, L .
5. Measure the cross-sectional area of the specimen, A .
6. Measure the cross-sectional area of the standpipes, a .

Permeability Coefficient, k (cm/s) = $\frac{2.303}{L} \frac{a^2}{A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

Head A1

Permeameter Type: **Flow** (for unconfined flow) or **Head** (for confined flow)
 Soil Name: **Clay**
 Sample Description: **Clay**

1. Measure the initial water level in the standpipes, h_1 and h_2 .
2. Measure the final water level in the standpipes, h_1' and h_2' .
3. Measure the time interval, t .
4. Measure the length of the specimen, L .
5. Measure the cross-sectional area of the specimen, A .
6. Measure the cross-sectional area of the standpipes, a .

Permeability Coefficient, k (cm/s) = $\frac{2.303}{L} \frac{a^2}{A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

Flow

Permeability Coefficient, k (cm/s) = $\frac{Q}{A} \frac{L}{h}$

$k = \frac{Q L}{A h}$

Two Head Method

Permeability Coefficient, k (cm/s) = $\frac{2.303}{L} \frac{a^2}{A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

1. Measure the initial water level in the standpipes, h_1 and h_2 .
2. Measure the final water level in the standpipes, h_1' and h_2' .
3. Measure the time interval, t .
4. Measure the length of the specimen, L .
5. Measure the cross-sectional area of the specimen, A .
6. Measure the cross-sectional area of the standpipes, a .

Permeability Coefficient, k (cm/s) = $\frac{2.303}{L} \frac{a^2}{A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

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$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

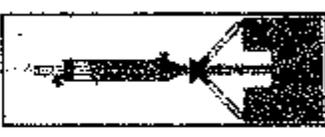
$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$

$k = \frac{2.303 a^2}{L A} \frac{h_1 - h_2}{h_1' - h_2'} \log \frac{h_1 - h_2}{h_1' - h_2'}$



Flow rate, Q (cm³/s) = $\frac{V}{t}$

$Q = \frac{V}{t}$

GP FIELD DATA SHEET

SECTION 1: SITE INFORMATION

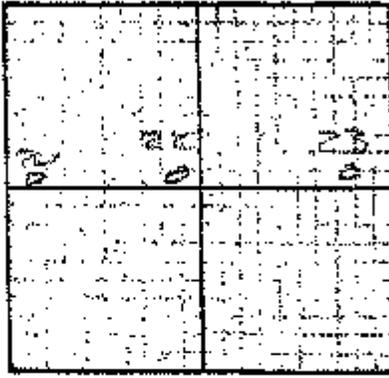
Date 4/13/19 Investigator CARLOS A. QUINTANA

Site Location PANTHER WAY

Dominant Soil Type(s) Sand / gravel

Site Map: _____ Soil Profile Description (horizon depth, texture, structure, color, etc.):

PT - 23



Depth	Description
0' - 20'	FILL
20' - 110'	sand / gravel
110' - 120'	
120' - 130'	
130' - 140'	
140' - 150'	
150' - 160'	
160' - 170'	
170' - 180'	
180' - 190'	
190' - 200'	

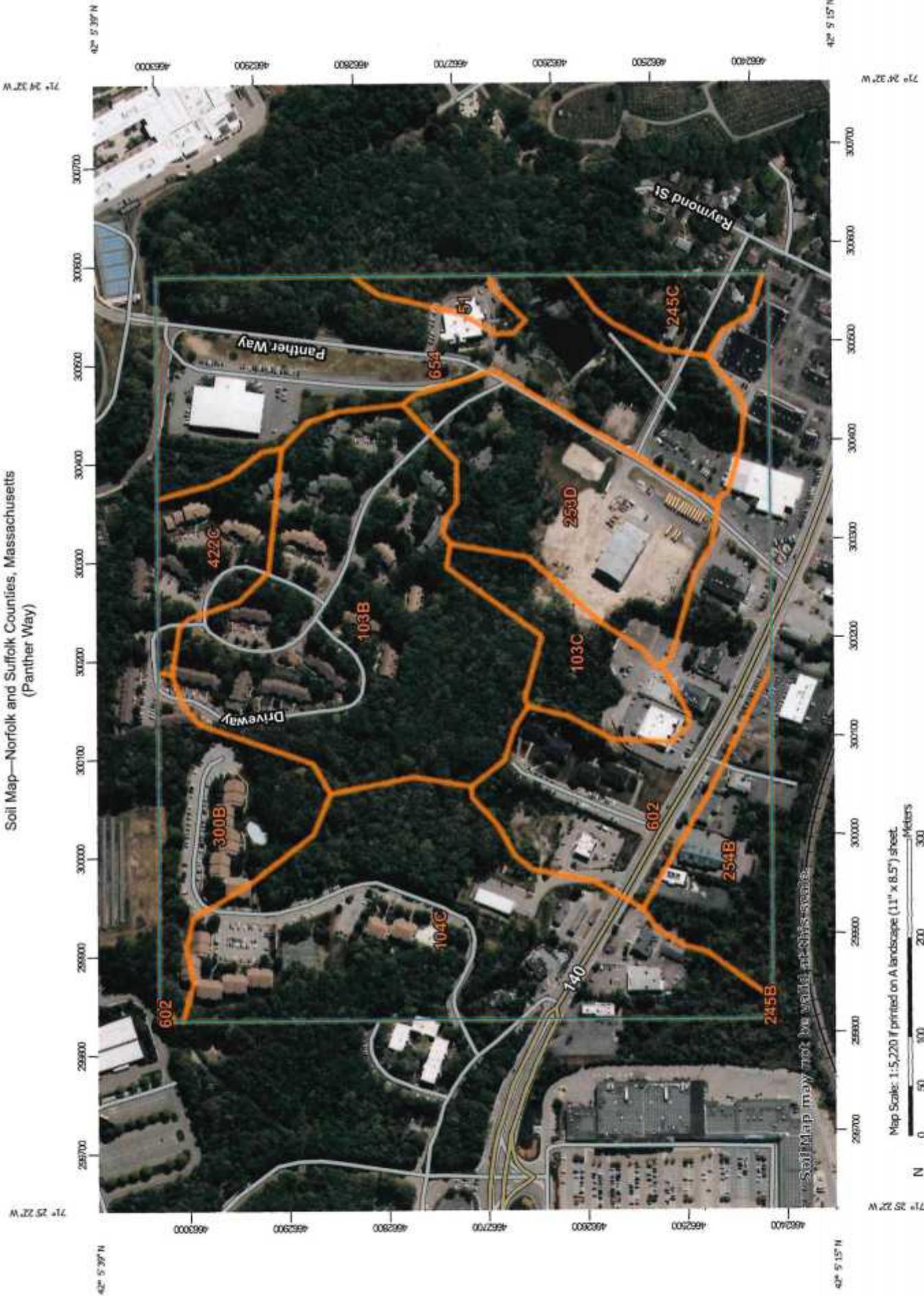
Presence of special soil conditions (mottling, water table depth, hardpan, induration, compacted layers, etc.):

water @ 3 ft

Comments and Notes (topography, slope, vegetation, etc.):



Soil Map—Norfolk and Suffolk Counties, Massachusetts
(Panther Way)



SoilMap may not be valid at this scale.

Map Scale: 1:5,220 if printed on A landscape (11" x 8.5") sheet

Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 18N WGS84



MAP LEGEND

 Area of Interest (AOI)	 Area of Interest (AOI)	 Spoil Area
 Soils	 Soil Map Unit Polygons	 Stony Spot
	 Soil Map Unit Lines	 Very Stony Spot
	 Soil Map Unit Points	 Wet Spot
 Special Point Features	 Blowout	 Other
	 Borrow Pit	 Special Line Features
	 Clay Spot	 Streams and Canals
	 Closed Depression	 Transportation
	 Gravel Pit	 Rails
	 Gravelly Spot	 Interstate Highways
	 Landfill	 US Routes
	 Lava Flow	 Major Roads
	 Marsh or swamp	 Local Roads
	 Mine or Quarry	 Background
	 Miscellaneous Water	 Aerial Photography
	 Perennial Water	
	 Rock Outcrop	
	 Saline Spot	
	 Sandy Spot	
	 Severely Eroded Spot	
	 Sinkhole	
	 Slides or Slip	
	 Sodlic Spot	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 20, Aug 27, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
51	Swansea muck, 0 to 1 percent slopes	1.3	1.1%
103B	Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes	22.4	19.4%
103C	Charlton-Hollis-Rock outcrop complex, 8 to 15 percent slopes	5.0	4.3%
104C	Hollis-Rock outcrop-Charlton complex, 0 to 15 percent slopes	22.3	19.4%
245B	Hinckley loamy sand, 3 to 8 percent slopes	0.0	0.0%
245C	Hinckley loamy sand, 8 to 15 percent slopes	2.6	2.3%
253D	Hinckley loamy sand, 15 to 36 percent slopes	1.5	10.0%
254B	Memrac fine sandy loam, 3 to 8 percent slopes	5.4	4.7%
300B	Montauk fine sandy loam, 3 to 8 percent slopes	7.0	6.1%
422C	Canton fine sandy loam, 8 to 15 percent slopes, extremely stony	4.0	3.5%
602	Urban land, 9 to 15 percent slopes	14.3	12.4%
654	Udorthents, loamy	19.5	16.9%
Totals for Area of Interest		115.4	100.0%

APPENDIX G

CHECKLIST FOR DESIGNERS

GOALS and NEEDS Addressed:

1. Create a visually appealing community
2. Stabilize and increase property values
3. Encourage low impact development
4. Preserve the Town's historic and cultural heritage
5. Protect Franklin's natural environment, including habitat, water resources, and ecosystem services

FRANKLIN POLICY:

Subdivision plans and site plans for all forms of development shall adhere to the principles of environmental and aesthetic compatibility and energy-efficient design.

BEST DEVELOPMENT PRACTICES	Incorporated into Project?
The site plan should be designed to address the following to the maximum extent practicable	
Unique natural features have been preserved <i>(the development program should either avoid altering or showcase significant natural features)</i>	✓
Native vegetation planted in disturbed areas as needed to enhance or restore habitat	✓
Historic and cultural resources have been preserved <i>(the development program should either avoid altering or showcase significant historic and cultural features)</i>	✓
Clearing, grading, and building placement consider view sheds	✓
Cut and fill have been minimized	✓
Buildings blend into the natural topography	✓
Buildings are oriented to the sun and wind for maximum energy efficiency <i>Vegetated protection from northwest (winter) winds is provided Deciduous species planted or retained close to the East, South and West building edges</i>	✓
Conforms to §185-31 of the Town of Franklin Zoning Code and/or Chapter 300 of the Town of Franklin Subdivision Regulations	✓ ①

① See Waivers requested sheet 1.

GOALS and NEEDS addressed:

1. Protect local and regional wetlands and water bodies;
2. Maximize groundwater recharge to retain a viable local groundwater supply; and
3. Minimize pollutants in stormwater runoff.

FRANKLIN POLICY: In addition to MassDEP's Stormwater Management Standards, all new development projects in Franklin must meet the following performance measures. All redevelopment projects shall meet the standards and if they fail to meet the standards, shall retrofit or expand existing stormwater management systems to improve existing conditions.

1. Post-development peak discharge rates and volumes from the site shall not exceed pre-development peak discharge rates and volumes from the site.
2. All drainage facilities proposed shall utilize best management practices as outlined in the Massachusetts Stormwater Management Standards.
3. All sites will have an Operation and Maintenance plan to insure future compliance.

Additionally, new development projects must:

1. Retain the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface area on the site AND/OR
2. Remove 90% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site AND 60% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site.

And redevelopment projects must:

1. Retain the volume of runoff equivalent to, or greater than, 0.80 inch multiplied by the total post-construction impervious surface area on the site AND/OR
2. Remove 80% of the average annual post-construction load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site AND 50% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site.

BEST DEVELOPMENT PRACTICES

Incorporated into Project?

The site plan should be designed to address the following to the maximum extent practicable

Vegetated swales (<i>recommended to convey runoff from roadways & parking lots</i>)	NO
Vegetated filter strips (<i>recommended to filter and infiltrate runoff from roadways, parking lots, and driveways; use along roadsides and parking lots</i>)	NO
Constructed wetlands (<i>preferred method for stormwater retention & pollutant removal</i>)	NO
Bioretention cells (<i>rain gardens</i>) (<i>recommended on residential lots and parking lot islands</i>)	NO
Pervious paving surfaces (<i>recommended in overflow parking and low-traffic areas</i>)	NO
Sediment Forebays (<i>use in combination with other BDP</i>)	NO
Roof gardens (<i>encouraged on flat or gently sloped commercial and industrial rooftops</i>)	NO
Retention/Detention basins (<i>may be used in series with other practices to provide pre-treatment</i>)	✓
Recharge Systems (<i>suitable for all areas of development</i>)	✓
Drain pipe/catch basin systems (<i>as required to collect runoff when other systems are not practical</i>)	✓
If utilizing drain pipe and/or catch basin systems, have you documented that other systems are infeasible?	✓

GOALS and NEEDS addressed:

1. Minimize clearing and regrading
2. Prevent erosion and sedimentation

FRANKLIN POLICIES:

- a) Any proposed project on a previously undeveloped site shall accommodate the development program in a way that minimizes clearing and re-grading, especially in areas of steep slopes, erosion-prone soils, or sensitive vegetation. For redevelopment projects, the site plan shall concentrate development in previously-disturbed areas to the extent possible.
- b) As a condition of approval, every proposed project shall submit and adhere to an erosion control plan that addresses soil stabilization, sediment retention, perimeter protection, construction scheduling, and traffic area stabilization and dust control.
- c) If the proposed project is in an area under conservation jurisdiction, the project will require permitting deemed appropriate by the Conservation Commission.

BEST DEVELOPMENT PRACTICES

The site plan should be designed to address the following to the maximum extent practicable.

Incorporated into Project?

Clearing and re-grading have been minimized	✓
Plan identifies sensitive areas to be protected and areas that are suitable for development	✓
Conservation Permits have been obtained <i>(when applicable)</i>	<i>Applied For</i>
The erosion and sedimentation control plan addresses: <ul style="list-style-type: none"> • Soil stabilization <ul style="list-style-type: none"> ○ <i>(cover or stabilize erodible surfaces not in immediate use)</i> • Sediment retention <ul style="list-style-type: none"> ○ <i>(runoff interceptors and sediment traps/ponds)</i> • Perimeter protection <ul style="list-style-type: none"> ○ <i>(vegetated buffers, compost socks or straw wattles at limit of work)</i> • Construction scheduling <ul style="list-style-type: none"> ○ <i>(minimize disturbed area at any given time)</i> • Traffic area stabilization <ul style="list-style-type: none"> ○ <i>(crushed rock or similar at construction vehicle entrance and parking areas)</i> • Dust control <ul style="list-style-type: none"> ○ <i>(plan for stabilizing dry, dust-prone surfaces when necessary)</i> • Vegetation <ul style="list-style-type: none"> ○ <i>(preserve existing vegetation and/or identify areas to be revegetated including proposed planting species, quantity and planting specifications)</i> 	✓ ✓ ✓ ✓ ✓ ✓ ✓

GOALS and NEEDS addressed:

1. Stabilize water use at a sustainable level;
2. Create landscapes that minimize habitat destruction and maximize habitat value;
3. Encourage the development of landscapes that provide environmental quality and visual relief through the planting of native or naturalized species

FRANKLIN POLICIES:

- a) Site plans and landscape plans for all proposed projects shall take appropriate steps, as outlined in the Guidebook, to minimize water use for irrigation and to allow for natural recharge of groundwater. Landscape plans shall follow the guidelines in the Guidebook for selecting species that are most appropriate to the site conditions.
- b) Native and habitat-creating species shall be used in all landscape plans to the maximum extent possible while still meeting the site's landscaping needs. Invasive species may not be planted in Franklin under any condition. Refer to the Massachusetts Prohibited Plant list for more information.
- c) Actively promote the Town of Franklin's Water Conservation Measures.

BEST DEVELOPMENT PRACTICES	Incorporated into Project?
The site plan must address all of the following principles.	
Retain and Recharge water on site (<i>install bio-retention cells, vegetated filter strips and minimize lawn areas where feasible</i>)	✓
Preserve natural vegetation to the maximum extent practicable	✓
Irrigation system is water efficient (<i>if an in-ground irrigation system is proposed, it is a water efficient system with timers and automatic sensors to prevent overwatering</i>)	None Proposed
Preserve soil permeability (<i>minimize disturbing existing landscapes. Prepare new planting beds in accordance to the Planting Bed Guidelines on p. 13, and install 1-2" of shredded pine bark mulch on new planting areas</i>)	✓
Minimize the use of turf grass (<i>when applicable, reduce the size of the lawn area; instead, plant a bio-retention cell, use alternative, drought tolerant groundcover</i>)	✓
Specify variety of native and naturalized species (<i>species from the plant list have been incorporated into the landscape design, and no invasive species are used. Refer to the Plant Species Section and the Massachusetts Prohibited Plant List</i>)	✓
Species are appropriate to the soil, site, and microclimate conditions (<i>select appropriate species from the plant list in this guidebook</i>)	✓

APPENDIX H



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

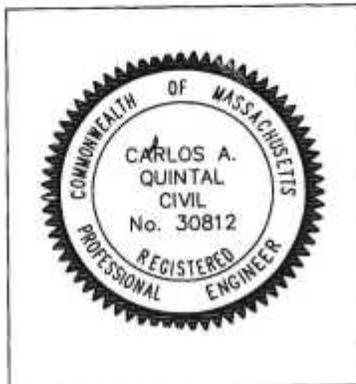
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



Carlos A. Quintal 7/7/25
Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
 - Credit 1
 - Credit 2
 - Credit 3
- Use of "country drainage" versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): _____

Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - Static
 - Simple Dynamic
 - Dynamic Field¹
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - Site is comprised solely of C and D soils and/or bedrock at the land surface
 - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - Solid Waste Landfill pursuant to 310 CMR 19.000
 - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The $\frac{1}{2}$ " or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the proprietary BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted *prior* to the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does *not* cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has *not* been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as at:
 - Limited Project
 - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - Bike Path and/or Foot Path
 - Redevelopment Project
 - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- The project is **not** covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - Name of the stormwater management system owners;
 - Party responsible for operation and maintenance;
 - Schedule for implementation of routine and non-routine maintenance tasks;
 - Plan showing the location of all stormwater BMPs maintenance access areas;
 - Description and delineation of public safety features;
 - Estimated operation and maintenance budget; and
 - Operation and Maintenance Log Form.
- The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

APPENDIX I

Operation and Maintenance Plan

FOR
Site Plan – Senior Village
Panther Way and West Central Street

LOCATED IN
FRANKLIN, MASSACHUSETTS

PREPARED FOR
Camford Property Group, LLC
37 East Central Street
Franklin, MA 02038

PREPARED BY
UNITED CONSULTANTS, INC.
850 FRANKLIN STREET, SUITE 11D
WRENTHAM, MA. 02093

DATE: December 13, 2024
Revised June 20, 2025

Operation and Maintenance Plan

Good House Keeping Measures

1. The parking area and driveways will receive the minimum amount of sand and salt. Snow for (Lot 2) will be stored on the sides of the driveways.
2. The site landscaping will consist of mulch with trees, shrubs, turf lawn and existing wooded areas. These areas will be assessed by the owner's landscape professional to determine the minimum amounts of fertilizers, herbicides and pesticides necessary and shall only apply the minimums necessary.
3. The site will be stabilized with landscaped areas with mulch and turf lawn. This will improve the existing site coverage.

Long Term Pollution Prevention Plan

The owner shall employ good housekeeping measures, which include removing trash and debris from the site, keeping trash in receptacles and complying with the long-term operation and maintenance plan.

The owner does not plan to store materials or waste products on the site.

The owner will not allow vehicles to be washed outside of the building.

The owner will have routine inspections and maintenance completed for the Storm-water BMP's. See the Operation and Maintenance Plan Stormwater Facilities Plan for details and schedule.

No hazardous materials for businesses are anticipated. If hazardous materials are proposed in the future they will be stored within the building.

The owner will employ a landscape professional to determine and apply the minimum amounts of fertilizers, herbicides and pesticides. No storage of landscape materials on site is proposed.

The site is serviced by Town water and sewer.

A dumpster is proposed to provide refuse storage and will be emptied and disposed of offsite.

The owner will designate an emergency contact person prior to commencing construction.

Snow will be placed in the snow storage areas provided on the site plan. If necessary, excess parking spaces could be used to store snow.

The owner will apply the minimum amount of sand and salt necessary. The parking area will be swept four per year with one sweeping immediately following the last winter sanding.

Sand piles will not be stored on site.

Operation and Maintenance Plan

An operation and maintenance schedule for the construction period and the post-development period has been provided on the Operation and Maintenance Plan Stormwater Facilities Plan.

During the construction period and after completion the Owner, Panther Way 2019, LLC shall be responsible for the operation and maintenance of the site and the drainage system.

Upon completion of the construction work the property owner shall be responsible for the maintenance of the drainage facilities.

The yearly estimated operation and maintenance budget is \$8,000.

The owner will provide documentation which will be submitted to the Franklin DPW confirming when maintenance has been satisfactorily completed.

The owner of the stormwater management system will notify the Director of changes in ownership or assignment of financial responsibility.

The owner, Panther Way 2019, LLC is the responsible party.

Name Title

Yearly Inspection and Maintenance Log

Page 1

100 and 110 East Central Street
Franklin, Massachusetts

Parking Lot Sweeping and Curb Inspection – Four Times Per Year

Date: _____ Performed By: _____
Date: _____ Performed By: _____
Date: _____ Performed By: _____
Date: _____ Performed By: _____

Notes:

Water Quality Units - 4 Times per year

Date: _____ Performed By: _____
Date: _____ Performed By: _____
Date: _____ Performed By: _____
Date: _____ Performed By: _____

Cleaning Performed – 4 Times per year

Date: _____ Performed By: _____
Date: _____ Performed By: _____
Date: _____ Performed By: _____
Date: _____ Performed By: _____

Notes:

Catch Basins - 4 Times per year

Date: _____ Performed By: _____
Date: _____ Performed By: _____
Date: _____ Performed By: _____
Date: _____ Performed By: _____

Cleaning Performed – When Sediment Depth reaches 18"

Date: _____ Performed By: _____
Date: _____ Performed By: _____
Date: _____ Performed By: _____
Date: _____ Performed By: _____

Notes:

Open Infiltration Pond – 4 times per year

Date: _____
Date: _____
Date: _____
Date: _____

Performed By: _____
Performed By: _____
Performed By: _____
Performed By: _____

Inspect and clean pretreatment BMP's every six months and after every major storm event (2 year return frequency).

Items to be inspect:

- Signs of differential settling
- Cracking
- Erosion
- Leakage in the embankments
- Tree growth on the embankments
- Condition of Riprap
- Sediment accumulation and
- The health of the turf

If any of the above items are found to be in need of maintenance the corrective measures shall be completed immediately.

Underground Infiltration Pond – 4 times per year

Date: _____
Date: _____
Date: _____
Date: _____

Performed By: _____
Performed By: _____
Performed By: _____
Performed By: _____

Cleaning Performed:

Date: _____
Date: _____
Date: _____
Date: _____

Performed By: _____
Performed By: _____
Performed By: _____
Performed By: _____

Notes:

Inspect and clean pretreatment BMP's every six months and after every major storm event (2 year return frequency). Check the inlet and outlet pipes to determine if they are clogged. Remove accumulated sediment, trash, debris, leaves, lawn clippings from mowing.

Inspect the infiltration area after the first several rainfall events, after all major storms, and on regularly scheduled dates every six months.

Inspect the infiltration area 24 hours to several days after a rain event, to look for ponded water at the surface of the trench. If water is present in may be that the infiltration area is clogged. If so then rehabilitation of the bottom of the trench shall be completed including removing all accumulated sediment, scarifying and till the bottom area, remove and replace the stone media.

Landscape Area Inspection – 4 times per year

Date: _____
Date: _____
Date: _____
Date: _____

Performed By: _____
Performed By: _____
Performed By: _____
Performed By: _____

Work Performed Repairs completed:

Date: _____
Date: _____
Date: _____
Date: _____

Performed By: _____
Performed By: _____
Performed By: _____
Performed By: _____

Headwall and Riprap – 4 times per year

Date: _____
Date: _____
Date: _____
Date: _____

Performed By: _____
Performed By: _____
Performed By: _____
Performed By: _____

Work Performed Repairs completed:

Date: _____
Date: _____
Date: _____
Date: _____

Performed By: _____
Performed By: _____
Performed By: _____
Performed By: _____

APPENDIX J

In Compliance with DEP Storm-water Management Standard 10

Panther Way – Senior Village Site

No Illicit discharges to the storm-water management system, including wastewater discharges and discharges of storm-water contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease are proposed and shall not be allowed.

The site map located in Appendix J shall be part of this Illicit Discharge Compliance Statement.

The owner, Panther Way 2019, LLC is the responsible party.

Name _____ Title _____

APPENDIX K

Last updated: July 29, 2024

Rip Rap Calculator

HW-30

I want to find the... ...

- average rock diameter (D_{50})
- rip rap volume
- both D_{50} and rip rap volume

^ Rip rap specifications

Water velocity (v) ⓘ ...

5.57 ft/s v

Isbash constant (C) ...

- Highly turbulent (0.86)
- Low turbulence (1.2)

Gravitational acceleration (g) ...

32.17 ft/s² v

Specific gravity (S) ⓘ ...

2.75

Average rock diameter (D_{50}) ...

4.471 in v



Share result

Reload calculator

Clear all changes

Did we solve your problem today? Yes No

Last updated: July 29, 2024

Rip Rap Calculator

Outlet 32

I want to find the... ...

- average rock diameter (D_{50})
- rip rap volume
- both D_{50} and rip rap volume

^ Rip rap specifications

Water velocity (V) ⁱ ...

8.74 ft/s ∨

Isbash constant (C) ...

- Highly turbulent (0.86)
- Low turbulence (1.2)

Gravitational acceleration (g) ...

32.17 ft/s² ∨

Specific gravity (S) ⁱ ...

2.75

Average rock diameter (D_{50}) ...

11.007 in ∨



Share result

Reload calculator

Clear all changes

Did we solve your problem today?

Yes

No

Last updated: July 29, 2024

Rip Rap Calculator

I want to find the...

- average rock diameter (D_{50})
- rip rap volume
- both D_{50} and rip rap volume

^ Rip rap specifications

Water velocity (V) ⓘ ...

9.51 ft/s v

Isbash constant (C) ...

- Highly turbulent (0.86)
- Low turbulence (1.2)

Gravitational acceleration (g) ...

32.17 ft/s² v

Specific gravity (S) ⓘ ...

2.75

Average rock diameter (D_{50}) ...

13.032 in v



Share result

Reload calculator

Clear all changes

Did we solve your problem today?

Yes

No

*DM H 22 to H.W
Highest Velocity*

APPENDIX L