

STORMWATER MANAGEMENT REPORT

Brook Run Park
City of Dunwoody
DeKalb County, GA
January 04, 2019

Prepared For:
City of Dunwoody
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I. Introduction

- A. This report evaluates stormwater management plans and water quality best management practices for the proposed project of Brook Run Park located in the City of Dunwoody, DeKalb County, Georgia. This report and its supporting calculations analyze the proposed park expansion in its full design including all current and future phases.
- B. The project to be constructed consists of multi-purpose fields, roadways, restroom/concession buildings, related trails, and required parking areas.
- C. The site is located adjacent to Peeler Road and North Peachtree Road and encompasses approximately 103-acres of which approximately 19.20-acres will be disturbed for the proposed site development.

II. Existing Site Conditions

- A. This stormwater management report is an update from the stormwater management report published for Brook Run Park Multi-Use Trail – Phase II and dated September 20, 2013 and revised November 11, 2013.
- B. The existing site is a mostly wooded area that is operated by the City of Dunwoody Parks and Recreation Department as Brook Run Park. The site was previously operated as Brook Run Hospital from 1965 until 2007 and contained several buildings and parking lots with the main hospital campus in the southwest corner of the site. This is the proposed location for the multi-purpose fields.
- C. The topographic features of the site identify two study points along the western property line where separate unnamed tributaries of Nancy Creek Tributary A exit the property. The northernmost point is Study Point 1 and the southernmost point is Study Point 2. The drainage area to Study Point 1 is 66.46-acres and the drainage area to Study Point 2 is 91.18-acres. See the Existing Conditions Drainage Area Map in Appendix 1 for the study point locations and drainage areas to the study points.
- D. The peak flows for the existing conditions were calculated at all study points for the 1 through 100-year storm events using HydroCAD software and can be seen in Appendix 3 for supporting calculations.

III. Proposed Site Conditions

- A. The proposed project the construction of two multi-purpose fields, roadways, restroom/concession buildings, an entrance road, and associated parking areas and trails. Storm water will be routed through proposed pipe networks and through two proposed detention ponds (one open and above ground and another that is underground). In the proposed conditions, the drainage area to the Study Point 1 is 66.46-acres and the drainage area to Study Point 2 is 91.18-acres. See the Proposed Drainage Area Map in Appendix 2 for more information.

B. The peak flows for the proposed conditions were calculated at all study points for the 1 through 100-year storm events using HydroCAD software and can be seen in Appendix 4 for supporting calculations.

C. Best Management Practices (BMP):

- a. The on-site, above ground detention pond will provide water quality treatment for the first 1.2-inches of rainfall for the area draining to the pond. The impervious area to this detention pond is 1.92-acres and the total impervious area related to the new parking lot and related restroom building is 2.88-acres. Therefore, the above ground detention pond will provide almost twice the required amount of water quality volume treatment. An orifice has been sized in the new outlet structure to treat water quality volume, see Appendix 6 for more information. See the Georgia Stormwater Management (GSWMM) Stormwater Quality Site Development Review Tool in Appendix 9 for more information.
- b. The on-site, underground detention pond will provide water quality treatment for the first 1.2-inches of rainfall for the area draining to the pond. The impervious area to this detention pond is 5.4-acres and the total impervious area related to the new multi-purpose fields, parking area, and related restroom building is 9.4-acres. Therefore, the above ground detention pond will provide almost twice the required amount of water quality volume treatment. An orifice has been sized in the new outlet structure to treat water quality volume, see Appendix 6 for more information. See the Georgia Stormwater Management (GSWMM) Stormwater Quality Site Development Review Tool in Appendix 9 for more information.

IV. Methods

The SCS curve TR-20 method along with NOAA rainfall data for Dunwoody, GA were used to determine the peak flows for the project area. HydroCAD was used to determine peak flow quantities for the existing and proposed drainage area.

V. Results

The post development peak flow rates from the site will be reduced from the pre-development peak flow rates at each study point, see table below for the peak flow summary.

Study Point	Return Frequency (years)	Existing Conditions (cfs)	Proposed Conditions (cfs)
#1	1	26.16	25.32
	2	37.08	35.53
	5	57.84	54.84
	10	77.68	73.19
	25	108.77	101.73
	50	135.52	126.76
	100	164.06	153.83

Study Point	Return Frequency (years)	Existing Conditions (cfs)	Proposed Conditions (cfs)
#2	1	40.92	35.81
	2	56.97	51.47
	5	86.70	83.05
	10	114.40	110.71
	25	157.47	152.13
	50	194.30	187.17
	100	233.43	224.15

POST-DEVELOPMENT
PROPOSED DETENTION POND #1 SUMMARY

Return Frequency (years)	Inflow (cfs)	Outflow (cfs)	Ponding Elevation	Storage (ft ³)
1	10.53	.96	982.06	8,178
2	12.16	1.11	982.48	10,132
5	14.88	1.27	983.13	12,086
10	17.24	1.37	983.66	14,522
25	20.64	1.50	984.36	19,920
50	23.40	2.02	984.83	19,970
100	26.23	5.06	985.06	22,891

- A. Rainfall values used are the annual maximum time series provided by the NOAA Atlas 14 Point Precipitation Frequency Estimates, see table below.

Return Frequency (years)	Precipitation Value for 24-hr Event (inches)
1	3.28
2	3.69
5	4.38
10	4.98
25	5.85
50	6.56
100	7.29

- B. The pre-development and post-development curve numbers for each drainage area were calculated using the SCS method, see table below.

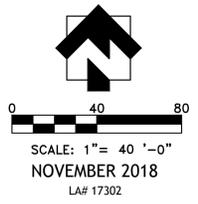
Drainage Area (PRE/POST)	Area (acres)	Curve Number	Time of Concentration (min)
2P3/17S	54.37/51.98	70/69	30.2
2P2/16S	5.27/5.27	82/82	10
2DA/11S	1.53/1.33	62/57	11.3
3S/2P1	30.01/24.45	62/58	38.6
1P1/2S	66.46/59.6	66/66	38.8
10S	2.4	91	3.1
28S	.4	70	15.1
27S	1.85	78	16.2
40S	3.26	88	5
39S	2.45	94	5
E1	1.37	85	7.1
E2	1.07	84	4.4

VI. Conclusions & Recommendations

The post development peak flows have not increased compared to the pre-development peak flows, therefore, no negative impact downstream of the site is anticipated.

EXISTING CONDITIONS DRAINAGE AREA MAP

C:\17302\17302_Brook Run Watershed Map.dwg, 04/25/18, CA 17302, Hydrographer - Revised 04/25/18, 03:31:31 AM



BROOK RUN PARK

EXISTING WATERSHED MAP

PROPOSED CONDITIONS DRAINAGE AREA MAP

BROOK RUN PARK
PROPERTY LINE

STUDY POINT 1

STUDY POINT 2

DRAINAGE BASIN

PROPOSED DA TO POND
DA= 2.40 AC
tc= 3.1 min
c= 91

PROPOSED DA TO C-3
DA= 0.4 AC
tc= 15.1 min
c= 70

PROPOSED DA TO D-18
DA= 1.85 AC
tc= 16.2
c= 78

PROPOSED DA TO G LINE
DA= 3.25 AC
tc= 5 min
c= 88

PROPOSED DA TO F LINE
DA= 2.45 AC
tc= 5 min
c= 94

PROPOSED DA TO EAST E LINE
DA= 1.07 AC
tc= 4.4 min
c= 84

PROPOSED DA TO WEST E LINE
DA= 1.37 AC
tc= 7.1 min
c= 85

EX DA TO OUTFALL
DA= 7.34 AC
tc= 12.2
c= 81

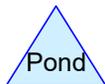
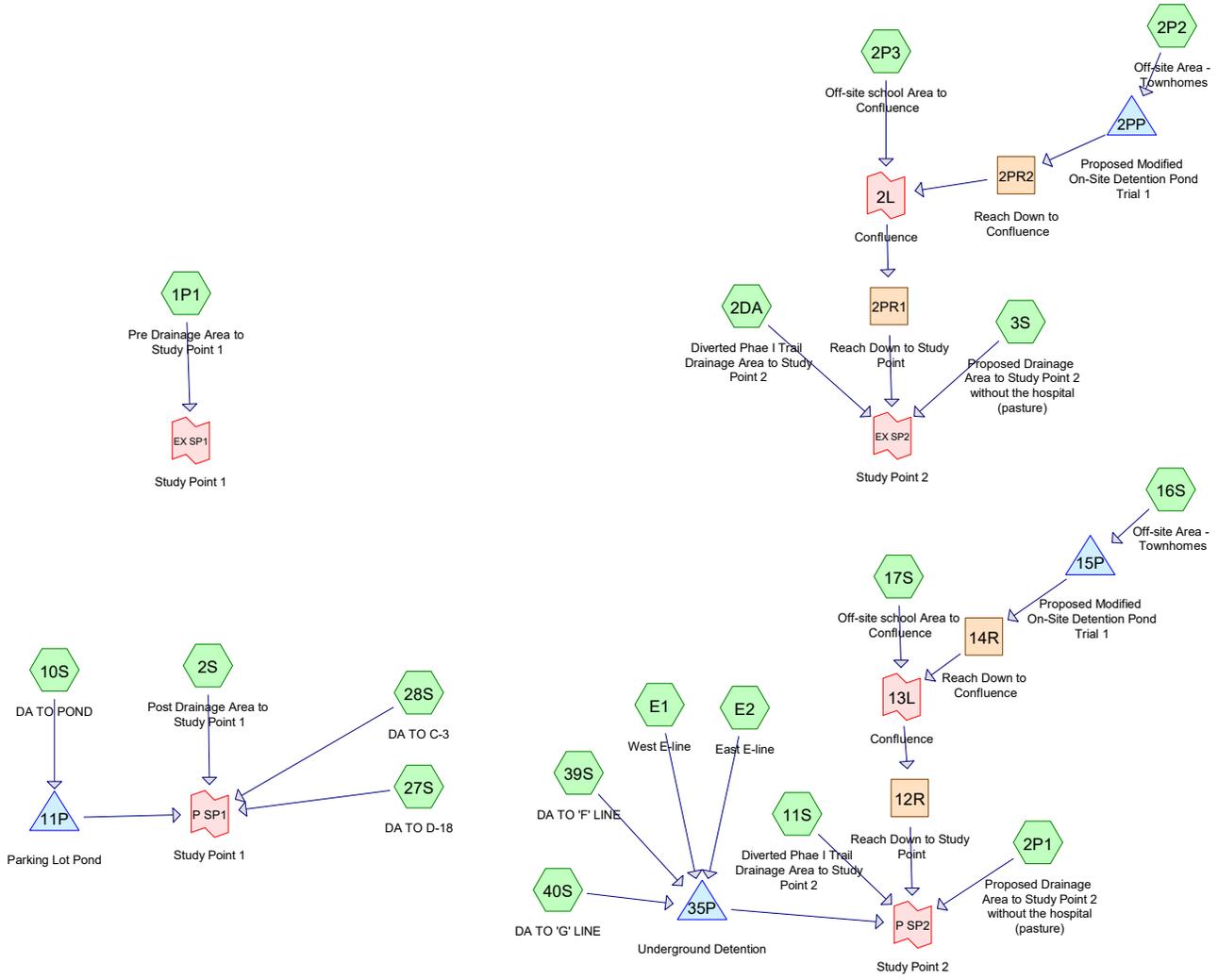
DRAINAGE BASIN

SCALE: 1"= 40'-0"
NOVEMBER 2018
LA# 17302

BROOK RUN PARK

PROPOSED WATERSHED MAP

HYDROCAD STUDY POINTS ANALYSIS AND OUTPUT



Routing Diagram for STUDY POINTS.PONDS
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STUDY POINTS.PONDS

Type II 24-hr 1 yr Rainfall=3.28"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Link 2L: Confluence

Inflow=36.34 cfs 3.773 af
Primary=36.34 cfs 3.773 af

Link 13L: Confluence

Inflow=32.14 cfs 3.417 af
Primary=32.14 cfs 3.417 af

Link EX SP1: Study Point 1

Inflow=26.16 cfs 3.276 af
Primary=26.16 cfs 3.276 af

Link EX SP2: Study Point 2

Inflow=40.92 cfs 4.861 af
Primary=40.92 cfs 4.861 af

Link P SP1: Study Point 1

Inflow=25.32 cfs 3.575 af
Primary=25.32 cfs 3.575 af

Link P SP2: Study Point 2

Inflow=36.69 cfs 5.360 af
Primary=36.69 cfs 5.360 af

STUDY POINTS.PONDS

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Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 0.76" for 1 yr event
Inflow = 36.34 cfs @ 12.28 hrs, Volume= 3.773 af
Primary = 36.34 cfs @ 12.28 hrs, Volume= 3.773 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

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Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 0.72" for 1 yr event
Inflow = 32.14 cfs @ 12.28 hrs, Volume= 3.417 af
Primary = 32.14 cfs @ 12.28 hrs, Volume= 3.417 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 1 yr Rainfall=3.28"

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Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 0.59" for 1 yr event
Inflow = 26.16 cfs @ 12.42 hrs, Volume= 3.276 af
Primary = 26.16 cfs @ 12.42 hrs, Volume= 3.276 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

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Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 0.64" for 1 yr event
Inflow = 40.92 cfs @ 12.49 hrs, Volume= 4.861 af
Primary = 40.92 cfs @ 12.49 hrs, Volume= 4.861 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 0.67" for 1 yr event
Inflow = 25.32 cfs @ 12.41 hrs, Volume= 3.575 af
Primary = 25.32 cfs @ 12.41 hrs, Volume= 3.575 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

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Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 0.71" for 1 yr event
Inflow = 36.69 cfs @ 12.48 hrs, Volume= 5.360 af
Primary = 36.69 cfs @ 12.48 hrs, Volume= 5.360 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 2 yr Rainfall=3.69"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Link 2L: Confluence

Inflow=48.86 cfs 4.875 af
Primary=48.86 cfs 4.875 af

Link 13L: Confluence

Inflow=43.74 cfs 4.442 af
Primary=43.74 cfs 4.442 af

Link EX SP1: Study Point 1

Inflow=37.08 cfs 4.383 af
Primary=37.08 cfs 4.383 af

Link EX SP2: Study Point 2

Inflow=56.97 cfs 6.403 af
Primary=56.97 cfs 6.403 af

Link P SP1: Study Point 1

Inflow=35.53 cfs 4.691 af
Primary=35.53 cfs 4.691 af

Link P SP2: Study Point 2

Inflow=52.31 cfs 6.917 af
Primary=52.31 cfs 6.917 af

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Type II 24-hr 2 yr Rainfall=3.69"

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Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 0.98" for 2 yr event
Inflow = 48.86 cfs @ 12.27 hrs, Volume= 4.875 af
Primary = 48.86 cfs @ 12.27 hrs, Volume= 4.875 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

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Type II 24-hr 2 yr Rainfall=3.69"

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Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 0.93" for 2 yr event
Inflow = 43.74 cfs @ 12.27 hrs, Volume= 4.442 af
Primary = 43.74 cfs @ 12.27 hrs, Volume= 4.442 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 2 yr Rainfall=3.69"

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Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 0.79" for 2 yr event
Inflow = 37.08 cfs @ 12.40 hrs, Volume= 4.383 af
Primary = 37.08 cfs @ 12.40 hrs, Volume= 4.383 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 2 yr Rainfall=3.69"

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Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 0.84" for 2 yr event
Inflow = 56.97 cfs @ 12.46 hrs, Volume= 6.403 af
Primary = 56.97 cfs @ 12.46 hrs, Volume= 6.403 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type II 24-hr 2 yr Rainfall=3.69"

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Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 0.88" for 2 yr event
Inflow = 35.53 cfs @ 12.39 hrs, Volume= 4.691 af
Primary = 35.53 cfs @ 12.39 hrs, Volume= 4.691 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type II 24-hr 2 yr Rainfall=3.69"

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Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 0.91" for 2 yr event
Inflow = 52.31 cfs @ 12.45 hrs, Volume= 6.917 af
Primary = 52.31 cfs @ 12.45 hrs, Volume= 6.917 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Link 2L: Confluence

Inflow=71.51 cfs 6.875 af
Primary=71.51 cfs 6.875 af

Link 13L: Confluence

Inflow=64.86 cfs 6.307 af
Primary=64.86 cfs 6.307 af

Link EX SP1: Study Point 1

Inflow=57.84 cfs 6.465 af
Primary=57.84 cfs 6.465 af

Link EX SP2: Study Point 2

Inflow=86.70 cfs 9.254 af
Primary=86.70 cfs 9.254 af

Link P SP1: Study Point 1

Inflow=54.84 cfs 6.772 af
Primary=54.84 cfs 6.772 af

Link P SP2: Study Point 2

Inflow=82.52 cfs 9.779 af
Primary=82.52 cfs 9.779 af

STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 1.38" for 5 yr event
Inflow = 71.51 cfs @ 12.26 hrs, Volume= 6.875 af
Primary = 71.51 cfs @ 12.26 hrs, Volume= 6.875 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 1.32" for 5 yr event
Inflow = 64.86 cfs @ 12.27 hrs, Volume= 6.307 af
Primary = 64.86 cfs @ 12.27 hrs, Volume= 6.307 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 1.17" for 5 yr event
Inflow = 57.84 cfs @ 12.38 hrs, Volume= 6.465 af
Primary = 57.84 cfs @ 12.38 hrs, Volume= 6.465 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 1.22" for 5 yr event
Inflow = 86.70 cfs @ 12.44 hrs, Volume= 9.254 af
Primary = 86.70 cfs @ 12.44 hrs, Volume= 9.254 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 1.26" for 5 yr event
Inflow = 54.84 cfs @ 12.37 hrs, Volume= 6.772 af
Primary = 54.84 cfs @ 12.37 hrs, Volume= 6.772 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 1.29" for 5 yr event
Inflow = 82.52 cfs @ 12.42 hrs, Volume= 9.779 af
Primary = 82.52 cfs @ 12.42 hrs, Volume= 9.779 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Link 2L: Confluence

Inflow=92.59 cfs 8.736 af
Primary=92.59 cfs 8.736 af

Link 13L: Confluence

Inflow=84.61 cfs 8.050 af
Primary=84.61 cfs 8.050 af

Link EX SP1: Study Point 1

Inflow=77.68 cfs 8.459 af
Primary=77.68 cfs 8.459 af

Link EX SP2: Study Point 2

Inflow=114.40 cfs 11.950 af
Primary=114.40 cfs 11.950 af

Link P SP1: Study Point 1

Inflow=73.19 cfs 8.742 af
Primary=73.19 cfs 8.742 af

Link P SP2: Study Point 2

Inflow=109.60 cfs 12.474 af
Primary=109.60 cfs 12.474 af

STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 1.76" for 10 yr event
Inflow = 92.59 cfs @ 12.26 hrs, Volume= 8.736 af
Primary = 92.59 cfs @ 12.26 hrs, Volume= 8.736 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 1.69" for 10 yr event
Inflow = 84.61 cfs @ 12.26 hrs, Volume= 8.050 af
Primary = 84.61 cfs @ 12.26 hrs, Volume= 8.050 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 1.53" for 10 yr event
Inflow = 77.68 cfs @ 12.38 hrs, Volume= 8.459 af
Primary = 77.68 cfs @ 12.38 hrs, Volume= 8.459 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 1.57" for 10 yr event
Inflow = 114.40 cfs @ 12.43 hrs, Volume= 11.950 af
Primary = 114.40 cfs @ 12.43 hrs, Volume= 11.950 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 1.63" for 10 yr event
Inflow = 73.19 cfs @ 12.37 hrs, Volume= 8.742 af
Primary = 73.19 cfs @ 12.37 hrs, Volume= 8.742 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 1.64" for 10 yr event
Inflow = 109.60 cfs @ 12.42 hrs, Volume= 12.474 af
Primary = 109.60 cfs @ 12.42 hrs, Volume= 12.474 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Link 2L: Confluence	Inflow=124.83 cfs 11.595 af
	Primary=124.83 cfs 11.595 af
Link 13L: Confluence	Inflow=114.94 cfs 10.735 af
	Primary=114.94 cfs 10.735 af
Link EX SP1: Study Point 1	Inflow=108.77 cfs 11.589 af
	Primary=108.77 cfs 11.589 af
Link EX SP2: Study Point 2	Inflow=157.47 cfs 16.143 af
	Primary=157.47 cfs 16.143 af
Link P SP1: Study Point 1	Inflow=101.73 cfs 11.804 af
	Primary=101.73 cfs 11.804 af
Link P SP2: Study Point 2	Inflow=152.32 cfs 16.654 af
	Primary=152.32 cfs 16.654 af

STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 2.33" for 25 yr event
Inflow = 124.83 cfs @ 12.26 hrs, Volume= 11.595 af
Primary = 124.83 cfs @ 12.26 hrs, Volume= 11.595 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 2.25" for 25 yr event
Inflow = 114.94 cfs @ 12.26 hrs, Volume= 10.735 af
Primary = 114.94 cfs @ 12.26 hrs, Volume= 10.735 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 2.09" for 25 yr event
Inflow = 108.77 cfs @ 12.37 hrs, Volume= 11.589 af
Primary = 108.77 cfs @ 12.37 hrs, Volume= 11.589 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 2.12" for 25 yr event
Inflow = 157.47 cfs @ 12.42 hrs, Volume= 16.143 af
Primary = 157.47 cfs @ 12.42 hrs, Volume= 16.143 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 2.20" for 25 yr event
Inflow = 101.73 cfs @ 12.36 hrs, Volume= 11.804 af
Primary = 101.73 cfs @ 12.36 hrs, Volume= 11.804 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 2.19" for 25 yr event
Inflow = 152.32 cfs @ 12.41 hrs, Volume= 16.654 af
Primary = 152.32 cfs @ 12.41 hrs, Volume= 16.654 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Link 2L: Confluence

Inflow=152.22 cfs 14.064 af
Primary=152.22 cfs 14.064 af

Link 13L: Confluence

Inflow=140.79 cfs 13.060 af
Primary=140.79 cfs 13.060 af

Link EX SP1: Study Point 1

Inflow=135.52 cfs 14.311 af
Primary=135.52 cfs 14.311 af

Link EX SP2: Study Point 2

Inflow=194.30 cfs 19.790 af
Primary=194.30 cfs 19.790 af

Link P SP1: Study Point 1

Inflow=126.76 cfs 14.453 af
Primary=126.76 cfs 14.453 af

Link P SP2: Study Point 2

Inflow=187.36 cfs 20.283 af
Primary=187.36 cfs 20.283 af

STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 2.83" for 50 yr event
Inflow = 152.22 cfs @ 12.25 hrs, Volume= 14.064 af
Primary = 152.22 cfs @ 12.25 hrs, Volume= 14.064 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 2.74" for 50 yr event
Inflow = 140.79 cfs @ 12.25 hrs, Volume= 13.060 af
Primary = 140.79 cfs @ 12.25 hrs, Volume= 13.060 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 2.58" for 50 yr event
Inflow = 135.52 cfs @ 12.36 hrs, Volume= 14.311 af
Primary = 135.52 cfs @ 12.36 hrs, Volume= 14.311 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 2.60" for 50 yr event
Inflow = 194.30 cfs @ 12.41 hrs, Volume= 19.790 af
Primary = 194.30 cfs @ 12.41 hrs, Volume= 19.790 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 2.70" for 50 yr event
Inflow = 126.76 cfs @ 12.36 hrs, Volume= 14.453 af
Primary = 126.76 cfs @ 12.36 hrs, Volume= 14.453 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 2.67" for 50 yr event
Inflow = 187.36 cfs @ 12.41 hrs, Volume= 20.283 af
Primary = 187.36 cfs @ 12.41 hrs, Volume= 20.283 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Link 2L: Confluence

Inflow=181.15 cfs 16.876 af
Primary=181.15 cfs 16.876 af

Link 13L: Confluence

Inflow=168.15 cfs 15.725 af
Primary=168.15 cfs 15.725 af

Link EX SP1: Study Point 1

Inflow=164.06 cfs 17.235 af
Primary=164.06 cfs 17.235 af

Link EX SP2: Study Point 2

Inflow=233.43 cfs 23.883 af
Primary=233.43 cfs 23.883 af

Link P SP1: Study Point 1

Inflow=153.83 cfs 17.307 af
Primary=153.83 cfs 17.307 af

Link P SP2: Study Point 2

Inflow=224.30 cfs 24.351 af
Primary=224.30 cfs 24.351 af

STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 3.40" for 100 yr event
Inflow = 181.15 cfs @ 12.25 hrs, Volume= 16.876 af
Primary = 181.15 cfs @ 12.25 hrs, Volume= 16.876 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 3.30" for 100 yr event
Inflow = 168.15 cfs @ 12.25 hrs, Volume= 15.725 af
Primary = 168.15 cfs @ 12.25 hrs, Volume= 15.725 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 3.11" for 100 yr event
Inflow = 164.06 cfs @ 12.36 hrs, Volume= 17.235 af
Primary = 164.06 cfs @ 12.36 hrs, Volume= 17.235 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 3.14" for 100 yr event
Inflow = 233.43 cfs @ 12.41 hrs, Volume= 23.883 af
Primary = 233.43 cfs @ 12.41 hrs, Volume= 23.883 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 3.23" for 100 yr event
Inflow = 153.83 cfs @ 12.35 hrs, Volume= 17.307 af
Primary = 153.83 cfs @ 12.35 hrs, Volume= 17.307 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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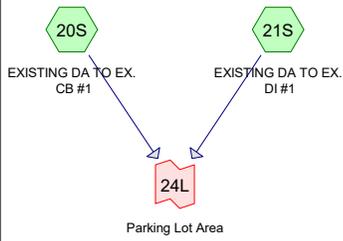
Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 3.20" for 100 yr event
Inflow = 224.30 cfs @ 12.41 hrs, Volume= 24.351 af
Primary = 224.30 cfs @ 12.41 hrs, Volume= 24.351 af, Atten= 0%, Lag= 0.0 min

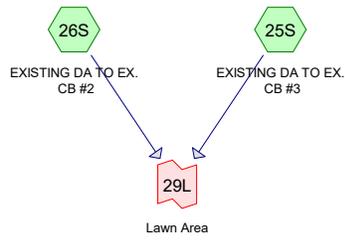
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**HYDROCAD ANALYSIS AND OUTPUT FOR DISTURBED
AREAS**

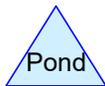
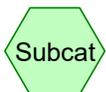
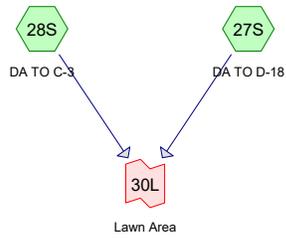
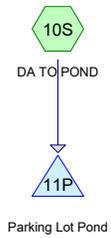
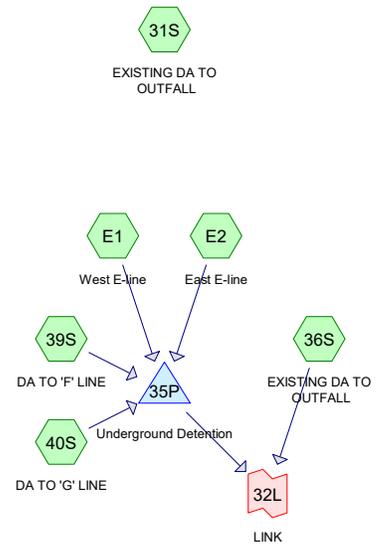
PARKING LOT AREA



LAWN AREA



MULTI-PURPOSE FIELD AREA



17302_Hydrology_Combined_Detention

Type II 24-hr 1 yr Rainfall=3.28"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Link 24L: Parking Lot Area

Inflow=1.02 cfs 0.066 af
Primary=1.02 cfs 0.066 af

Link 29L: Lawn Area

Inflow=3.68 cfs 0.210 af
Primary=3.68 cfs 0.210 af

Link 30L: Lawn Area

Inflow=3.45 cfs 0.235 af
Primary=3.45 cfs 0.235 af

Link 32L: LINK

Inflow=33.75 cfs 2.386 af
Primary=33.75 cfs 2.386 af

17302_Hydrology_Combined_Detention

Type II 24-hr 1 yr Rainfall=3.28"

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Summary for Link 24L: Parking Lot Area

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 0.83" for 1 yr event
Inflow = 1.02 cfs @ 12.06 hrs, Volume= 0.066 af
Primary = 1.02 cfs @ 12.06 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 1 yr Rainfall=3.28"

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Summary for Link 29L: Lawn Area

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 1.21" for 1 yr event
Inflow = 3.68 cfs @ 12.01 hrs, Volume= 0.210 af
Primary = 3.68 cfs @ 12.01 hrs, Volume= 0.210 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 1 yr Rainfall=3.28"

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Summary for Link 30L: Lawn Area

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 1.25" for 1 yr event
Inflow = 3.45 cfs @ 12.09 hrs, Volume= 0.235 af
Primary = 3.45 cfs @ 12.09 hrs, Volume= 0.235 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 1 yr Rainfall=3.28"

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Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 1.85" for 1 yr event
Inflow = 33.75 cfs @ 12.04 hrs, Volume= 2.386 af
Primary = 33.75 cfs @ 12.04 hrs, Volume= 2.386 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 2 yr Rainfall=3.69"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Link 24L: Parking Lot Area

Inflow=1.37 cfs 0.086 af
Primary=1.37 cfs 0.086 af

Link 29L: Lawn Area

Inflow=4.62 cfs 0.262 af
Primary=4.62 cfs 0.262 af

Link 30L: Lawn Area

Inflow=4.32 cfs 0.291 af
Primary=4.32 cfs 0.291 af

Link 32L: LINK

Inflow=38.75 cfs 2.841 af
Primary=38.75 cfs 2.841 af

17302_Hydrology_Combined_Detention

Type II 24-hr 2 yr Rainfall=3.69"

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Summary for Link 24L: Parking Lot Area

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 1.07" for 2 yr event
Inflow = 1.37 cfs @ 12.05 hrs, Volume= 0.086 af
Primary = 1.37 cfs @ 12.05 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 2 yr Rainfall=3.69"

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Summary for Link 29L: Lawn Area

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 1.51" for 2 yr event
Inflow = 4.62 cfs @ 12.01 hrs, Volume= 0.262 af
Primary = 4.62 cfs @ 12.01 hrs, Volume= 0.262 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 2 yr Rainfall=3.69"

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Summary for Link 30L: Lawn Area

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 1.55" for 2 yr event
Inflow = 4.32 cfs @ 12.09 hrs, Volume= 0.291 af
Primary = 4.32 cfs @ 12.09 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 2 yr Rainfall=3.69"

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Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 2.20" for 2 yr event
Inflow = 38.75 cfs @ 12.04 hrs, Volume= 2.841 af
Primary = 38.75 cfs @ 12.04 hrs, Volume= 2.841 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 5 yr Rainfall=4.38"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Link 24L: Parking Lot Area

Inflow=2.00 cfs 0.122 af
Primary=2.00 cfs 0.122 af

Link 29L: Lawn Area

Inflow=6.27 cfs 0.354 af
Primary=6.27 cfs 0.354 af

Link 30L: Lawn Area

Inflow=5.87 cfs 0.391 af
Primary=5.87 cfs 0.391 af

Link 32L: LINK

Inflow=47.12 cfs 3.630 af
Primary=47.12 cfs 3.630 af

17302_Hydrology_Combined_Detention

Type II 24-hr 5 yr Rainfall=4.38"

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Summary for Link 24L: Parking Lot Area

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 1.52" for 5 yr event
Inflow = 2.00 cfs @ 12.05 hrs, Volume= 0.122 af
Primary = 2.00 cfs @ 12.05 hrs, Volume= 0.122 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 5 yr Rainfall=4.38"

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Summary for Link 29L: Lawn Area

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 2.04" for 5 yr event
Inflow = 6.27 cfs @ 12.01 hrs, Volume= 0.354 af
Primary = 6.27 cfs @ 12.01 hrs, Volume= 0.354 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 5 yr Rainfall=4.38"

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Summary for Link 30L: Lawn Area

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 2.09" for 5 yr event
Inflow = 5.87 cfs @ 12.08 hrs, Volume= 0.391 af
Primary = 5.87 cfs @ 12.08 hrs, Volume= 0.391 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 5 yr Rainfall=4.38"

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Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 2.81" for 5 yr event
Inflow = 47.12 cfs @ 12.04 hrs, Volume= 3.630 af
Primary = 47.12 cfs @ 12.04 hrs, Volume= 3.630 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 10 yr Rainfall=4.98"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Link 24L: Parking Lot Area

Inflow=2.59 cfs 0.155 af
Primary=2.59 cfs 0.155 af

Link 29L: Lawn Area

Inflow=7.76 cfs 0.438 af
Primary=7.76 cfs 0.438 af

Link 30L: Lawn Area

Inflow=7.26 cfs 0.483 af
Primary=7.26 cfs 0.483 af

Link 32L: LINK

Inflow=54.38 cfs 4.333 af
Primary=54.38 cfs 4.333 af

17302_Hydrology_Combined_Detention

Type II 24-hr 10 yr Rainfall=4.98"

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Summary for Link 24L: Parking Lot Area

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 1.94" for 10 yr event
Inflow = 2.59 cfs @ 12.05 hrs, Volume= 0.155 af
Primary = 2.59 cfs @ 12.05 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 10 yr Rainfall=4.98"

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Summary for Link 29L: Lawn Area

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 2.52" for 10 yr event
Inflow = 7.76 cfs @ 12.01 hrs, Volume= 0.438 af
Primary = 7.76 cfs @ 12.01 hrs, Volume= 0.438 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 10 yr Rainfall=4.98"

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Summary for Link 30L: Lawn Area

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 2.58" for 10 yr event
Inflow = 7.26 cfs @ 12.08 hrs, Volume= 0.483 af
Primary = 7.26 cfs @ 12.08 hrs, Volume= 0.483 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 10 yr Rainfall=4.98"

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Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 3.36" for 10 yr event
Inflow = 54.38 cfs @ 12.04 hrs, Volume= 4.333 af
Primary = 54.38 cfs @ 12.04 hrs, Volume= 4.333 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 25 yr Rainfall=5.85"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Link 24L: Parking Lot Area

Inflow=3.49 cfs 0.208 af
Primary=3.49 cfs 0.208 af

Link 29L: Lawn Area

Inflow=9.98 cfs 0.564 af
Primary=9.98 cfs 0.564 af

Link 30L: Lawn Area

Inflow=9.33 cfs 0.621 af
Primary=9.33 cfs 0.621 af

Link 32L: LINK

Inflow=64.90 cfs 5.371 af
Primary=64.90 cfs 5.371 af

17302_Hydrology_Combined_Detention

Type II 24-hr 25 yr Rainfall=5.85"

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Summary for Link 24L: Parking Lot Area

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 2.60" for 25 yr event
Inflow = 3.49 cfs @ 12.04 hrs, Volume= 0.208 af
Primary = 3.49 cfs @ 12.04 hrs, Volume= 0.208 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 25 yr Rainfall=5.85"

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Summary for Link 29L: Lawn Area

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 3.26" for 25 yr event
Inflow = 9.98 cfs @ 12.01 hrs, Volume= 0.564 af
Primary = 9.98 cfs @ 12.01 hrs, Volume= 0.564 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 25 yr Rainfall=5.85"

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Summary for Link 30L: Lawn Area

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 3.31" for 25 yr event
Inflow = 9.33 cfs @ 12.08 hrs, Volume= 0.621 af
Primary = 9.33 cfs @ 12.08 hrs, Volume= 0.621 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 25 yr Rainfall=5.85"

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Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 4.16" for 25 yr event
Inflow = 64.90 cfs @ 12.04 hrs, Volume= 5.371 af
Primary = 64.90 cfs @ 12.04 hrs, Volume= 5.371 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 50 yr Rainfall=6.56"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Link 24L: Parking Lot Area

Inflow=4.26 cfs 0.253 af
Primary=4.26 cfs 0.253 af

Link 29L: Lawn Area

Inflow=11.82 cfs 0.671 af
Primary=11.82 cfs 0.671 af

Link 30L: Lawn Area

Inflow=11.06 cfs 0.737 af
Primary=11.06 cfs 0.737 af

Link 32L: LINK

Inflow=73.55 cfs 6.231 af
Primary=73.55 cfs 6.231 af

17302_Hydrology_Combined_Detention

Type II 24-hr 50 yr Rainfall=6.56"

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Summary for Link 24L: Parking Lot Area

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 3.16" for 50 yr event
Inflow = 4.26 cfs @ 12.04 hrs, Volume= 0.253 af
Primary = 4.26 cfs @ 12.04 hrs, Volume= 0.253 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 50 yr Rainfall=6.56"

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Summary for Link 29L: Lawn Area

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 3.87" for 50 yr event
Inflow = 11.82 cfs @ 12.00 hrs, Volume= 0.671 af
Primary = 11.82 cfs @ 12.00 hrs, Volume= 0.671 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link 30L: Lawn Area

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 3.93" for 50 yr event
Inflow = 11.06 cfs @ 12.08 hrs, Volume= 0.737 af
Primary = 11.06 cfs @ 12.08 hrs, Volume= 0.737 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 50 yr Rainfall=6.56"

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Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 4.83" for 50 yr event
Inflow = 73.55 cfs @ 12.04 hrs, Volume= 6.231 af
Primary = 73.55 cfs @ 12.04 hrs, Volume= 6.231 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 100 yr Rainfall=7.29"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Link 24L: Parking Lot Area

Inflow=5.06 cfs 0.300 af
Primary=5.06 cfs 0.300 af

Link 29L: Lawn Area

Inflow=13.74 cfs 0.784 af
Primary=13.74 cfs 0.784 af

Link 30L: Lawn Area

Inflow=12.85 cfs 0.859 af
Primary=12.85 cfs 0.859 af

Link 32L: LINK

Inflow=82.87 cfs 7.123 af
Primary=82.87 cfs 7.123 af

17302_Hydrology_Combined_Detention

Type II 24-hr 100 yr Rainfall=7.29"

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Summary for Link 24L: Parking Lot Area

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 3.75" for 100 yr event
Inflow = 5.06 cfs @ 12.04 hrs, Volume= 0.300 af
Primary = 5.06 cfs @ 12.04 hrs, Volume= 0.300 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 100 yr Rainfall=7.29"

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Summary for Link 29L: Lawn Area

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 4.52" for 100 yr event
Inflow = 13.74 cfs @ 12.00 hrs, Volume= 0.784 af
Primary = 13.74 cfs @ 12.00 hrs, Volume= 0.784 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 100 yr Rainfall=7.29"

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Summary for Link 30L: Lawn Area

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 4.58" for 100 yr event
Inflow = 12.85 cfs @ 12.08 hrs, Volume= 0.859 af
Primary = 12.85 cfs @ 12.08 hrs, Volume= 0.859 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

17302_Hydrology_Combined_Detention

Type II 24-hr 100 yr Rainfall=7.29"

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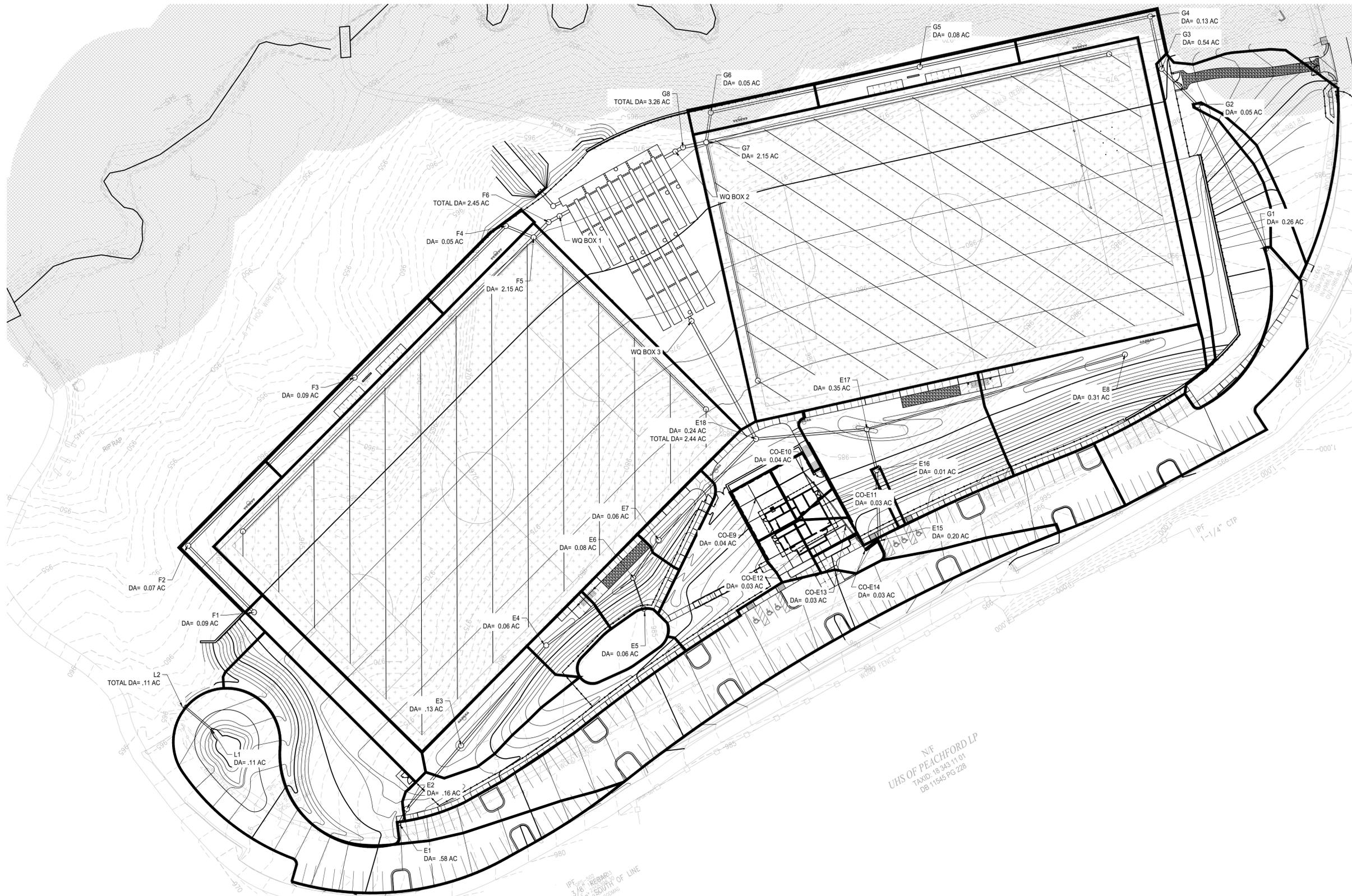
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Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 5.52" for 100 yr event
Inflow = 82.87 cfs @ 12.04 hrs, Volume= 7.123 af
Primary = 82.87 cfs @ 12.04 hrs, Volume= 7.123 af, Atten= 0%, Lag= 0.0 min

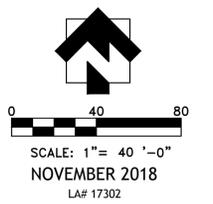
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

PROPOSED STORM INLETS DRAINAGE AREA MAP

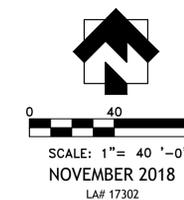


BROOK RUN PARK

INLET WATERSHED MAP



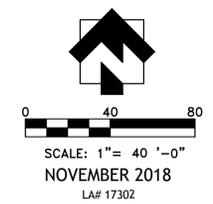
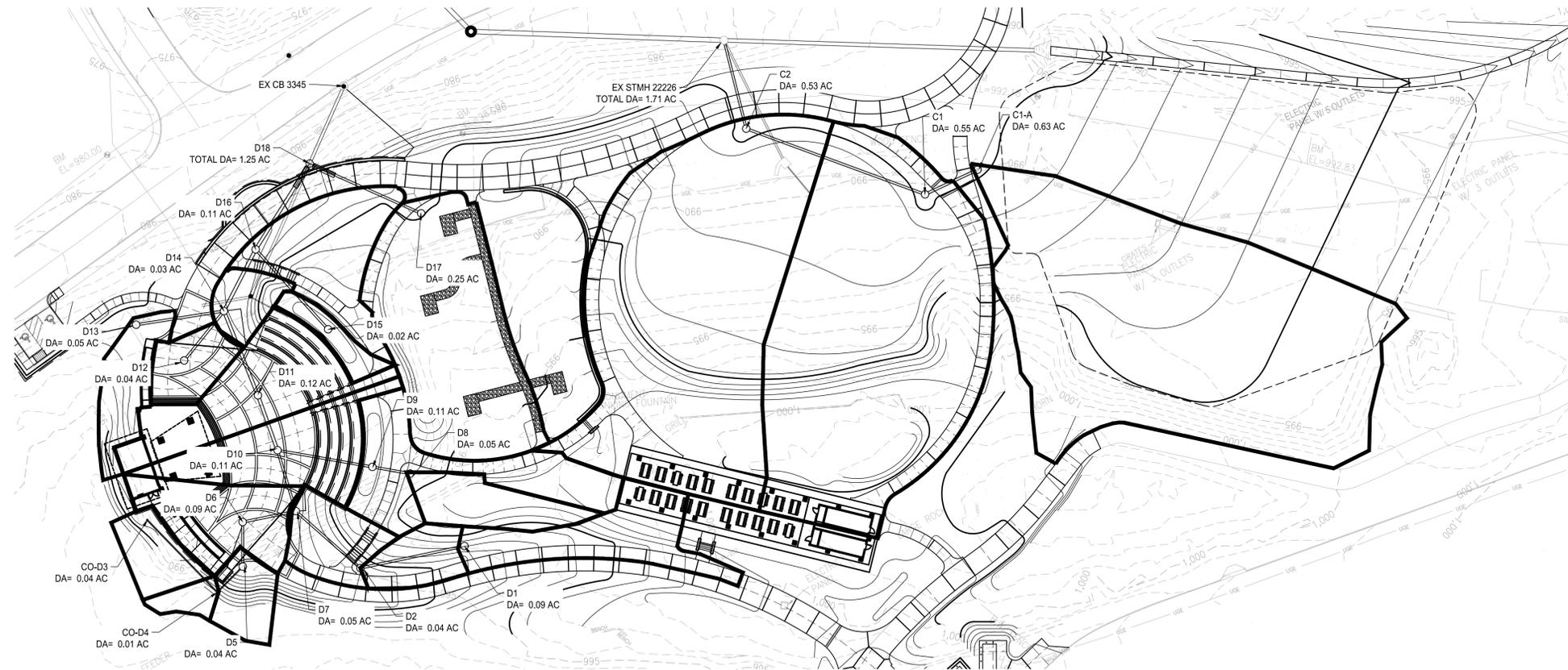
NOT FOR CONSTRUCTION



BROOK RUN PARK

INLET WATERSHED MAP

NOT FOR
CONSTRUCTION



BROOK RUN PARK

INLET WATERSHED MAP

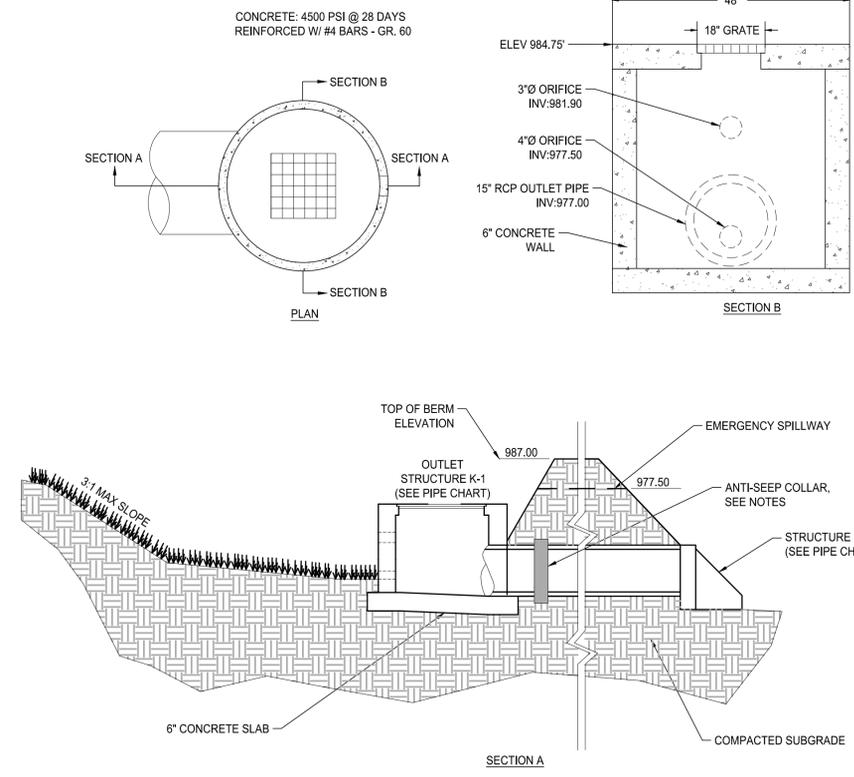
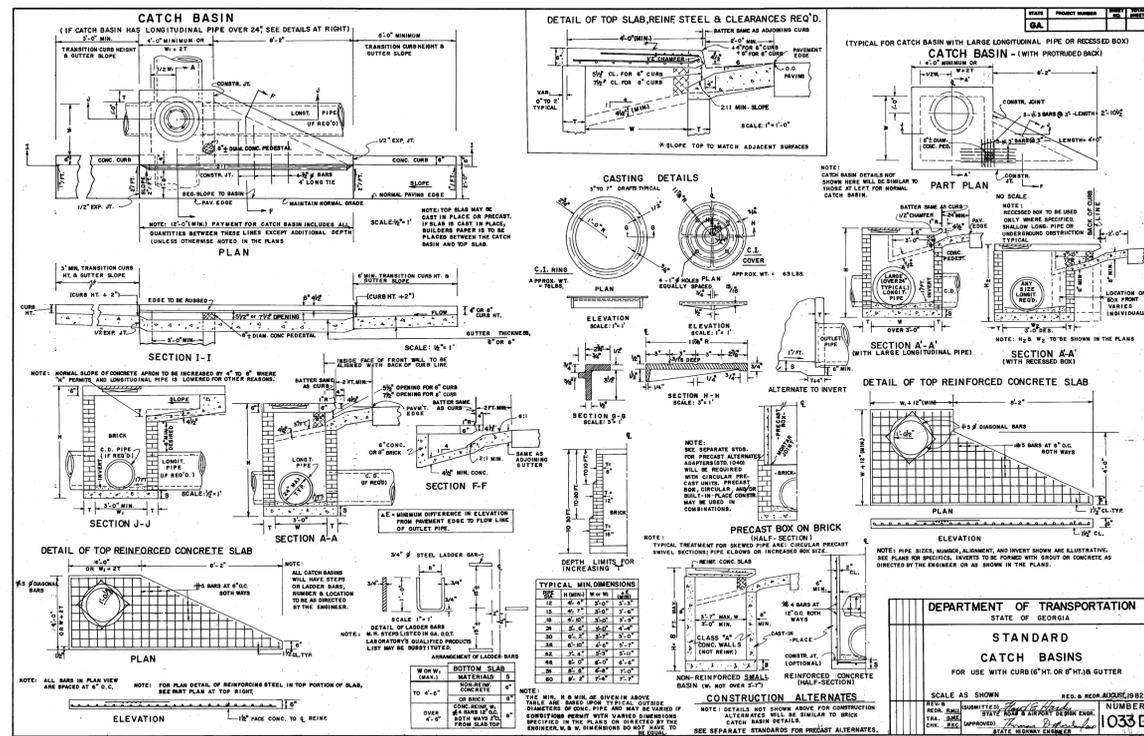
NOT FOR
 CONSTRUCTION

STORM DRAINAGE PIPE CHART

PIPE	DIA Inches	TYPE	LENGTH ft	Invert Up	Invert Down	DESIGN SLOPE %	Manning's n	DESIGN FREQ	FREQ. FACTOR	WEIGHTED RATIONAL INTENSITY	AREA Acres	DESIGN FLOW cfs	FFRIC SLOPE	VELOCITY' ft/sec	Time of Concentration min	DRAINAGE AREA Acres	UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	
COA1-COA2	6	HDPE	41.54	991.25	990.83	1.01%	0.012	25	1.1	0.70	9.38	0.03	0.2	0.13%	2.8	5.0	0.03	CLEANOUT PER DETAIL 1/C5.05	CLEANOUT PER DETAIL 1/C5.05
COA2-COA3	6	HDPE	19.36	990.83	990.64	0.98%	0.012	25	1.1	0.76	8.20	0.04	0.3	0.21%	3.0	5.2	0.01	CLEANOUT PER DETAIL 1/C5.05	CLEANOUT PER DETAIL 1/C5.05
COA3-COA5	6	HDPE	60.07	990.64	989.27	1.00%	0.012	25	1.1	0.80	8.48	0.10	0.4	0.25%	3.4	5.4	0.06	CLEANOUT PER DETAIL 1/C5.05	CLEANOUT PER DETAIL 1/C5.05
COA5-A7	6	HDPE	87.54	990.10	989.59	0.76%	0.012	25	1.1	0.49	8.11	0.21	0.9	0.48%	3.6	5.5	0.04	CLEANOUT PER DETAIL 1/C5.05	MANHOLE PER DETAIL 1/C5.04
COA5-COA5	6	HDPE	25.00	990.52	990.27	1.00%	0.012	25	1.1	0.31	9.38	0.07	0.2	0.14%	2.8	5.0	0.07	CLEANOUT PER DETAIL 1/C5.05	CLEANOUT PER DETAIL 1/C5.05
A6-A7	12	HDPE	111.93	994.90	989.35	4.96%	0.012	25	1.1	0.72	9.38	0.16	1.2	0.09%	7.7	5.0	0.16	MANHOLE PER DETAIL 3/2.97	MANHOLE PER DETAIL 3/2.97
A7-A8	12	HDPE	47.26	989.25	987.38	3.96%	0.012	25	1.1	0.39	8.02	0.74	2.6	0.45%	8.8	6.1	0.37	MANHOLE PER DETAIL 3/2.97	MANHOLE PER DETAIL 3/2.97
A8-A9	12	HDPE	140.00	987.38	983.19	2.99%	0.012	25	1.1	0.39	7.93	0.81	2.7	0.50%	8.0	6.2	0.07	MANHOLE PER DETAIL 3/2.97	PEDESTAL WEIR INLET PER DETAIL 3/C5.05
A9-A12	18	HDPE	16.15	982.94	982.17	1.00%	0.012	25	1.1	0.46	7.85	1.00	3.9	0.12%	5.8	6.5	0.19	PEDESTAL WEIR INLET PER DETAIL 3/C5.05	PEDESTAL WEIR INLET PER DETAIL 3/C5.05
A10-A11	12	HDPE	91.40	987.00	984.03	3.25%	0.012	25	1.1	0.58	9.38	0.06	0.4	0.01%	4.6	5.0	0.06	CATCH BASIN PER DETAIL 1/C2.96	CATCH BASIN PER DETAIL 1/C2.96
A11-A12	12	HDPE	90.25	983.03	982.42	0.88%	0.012	25	1.1	0.63	8.17	0.07	0.4	0.01%	3.9	5.3	0.01	CATCH BASIN PER DETAIL 1/C2.96	PEDESTAL WEIR INLET PER DETAIL 3/C5.05
A12-A13	18	HDPE	54.48	981.92	981.13	1.45%	0.012	25	1.1	0.46	7.79	1.96	7.7	0.46%	8.0	6.9	0.89	PEDESTAL WEIR INLET PER DETAIL 3/C5.05	HEADWALL PER DETAIL 2/C2.95
K1-EX CB8074	15	HDPE	25.08	976.67	975.93	2.95%	0.012	25	1.1	0.46	9.38	1.89	9.0	1.68%	10.7	5.0	1.89	HEADWALL PER DETAIL 2/C2.95	EXISTING CATCH BASIN
B1-EX CB	12	HDPE	120.00	970.62	969.42	1.00%	0.012	25	1.1	0.73	9.38	0.17	1.3	0.11%	4.4	5.0	0.17	SOLID INLET PER DETAIL 3/C2.95	EXISTING CATCH BASIN
C1-C2	12	HDPE	33.91	987.08	986.60	1.42%	0.012	25	1.1	0.20	9.38	0.83	1.3	0.12%	5.0	5.0	0.63	SOLID INLET PER DETAIL 3/C2.95	SOLID INLET PER DETAIL 3/C2.95
C2-C3	12	HDPE	111.45	986.60	985.49	1.00%	0.012	25	1.1	0.28	9.38	1.13	3.3	0.75%	5.6	5.1	0.56	SOLID INLET PER DETAIL 3/C2.95	SOLID INLET PER DETAIL 3/C2.95
C3-EX STMH2228	12	HDPE	53.17	985.39	981.58	7.17%	0.012	25	1.1	0.28	8.23	1.71	4.4	1.31%	12.6	5.4	0.53	SOLID INLET PER DETAIL 3/C2.95	EXISTING MANHOLE
D1-D2	12	HDPE	62.29	990.00	985.77	6.79%	0.012	25	1.1	0.62	9.38	0.09	0.6	0.02%	6.9	5.0	0.09	GRATE INLET PER DETAIL 3/C2.95	GRATE INLET PER DETAIL 3/C2.95
D2-D7	12	HDPE	50.23	985.67	981.56	8.18%	0.012	25	1.1	0.55	9.94	0.13	0.8	0.04%	8.1	5.1	0.04	GRATE INLET PER DETAIL 3/C2.95	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
D7-D10	12	HDPE	31.26	981.46	980.89	1.82%	0.012	25	1.1	0.53	8.22	0.18	0.9	0.05%	4.9	5.3	0.05	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	GRATE INLET PER DETAIL 3/C2.95
D10-D11	18	HDPE	36.69	980.00	978.07	2.03%	0.012	25	1.1	0.58	8.19	0.83	2.7	0.06%	5.4	5.4	0.11	GRATE INLET PER DETAIL 3/C2.95	GRATE INLET PER DETAIL 3/C2.95
D11-D14	18	HDPE	47.21	979.90	979.43	1.00%	0.012	25	1.1	0.57	8.16	0.75	3.8	0.12%	5.8	5.5	0.12	GRATE INLET PER DETAIL 3/C2.95	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
CO3-CO4	6	HDPE	58.74	986.00	984.56	2.45%	0.012	25	1.1	0.20	9.38	0.04	0.1	0.02%	3.0	5.0	0.04	CLEANOUT PER DETAIL 1/C5.05	CLEANOUT PER DETAIL 1/C5.05
CO4-C5	6	HDPE	21.13	984.46	982.75	8.09%	0.012	25	1.1	0.20	9.94	0.05	0.1	0.03%	4.9	5.3	0.01	CLEANOUT PER DETAIL 1/C5.05	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
DE-D10	12	HDPE	25.96	982.24	981.58	1.00%	0.012	25	1.1	0.20	8.17	0.09	0.2	0.00%	2.4	5.4	0.04	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	GRATE INLET PER DETAIL 3/C2.95
DE-D10	12	HDPE	37.90	981.88	981.50	1.00%	0.012	25	1.1	0.20	8.15	0.18	0.3	0.01%	3.0	5.6	0.09	GRATE INLET PER DETAIL 3/C2.95	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
D8-D9	12	HDPE	22.47	985.00	983.27	7.70%	0.012	25	1.1	0.20	9.38	0.05	0.1	0.00%	4.3	5.0	0.05	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	GRATE INLET PER DETAIL 3/C2.95
D9-D10	12	HDPE	56.34	983.17	980.80	4.21%	0.012	25	1.1	0.48	8.24	0.16	0.7	0.03%	6.2	5.1	0.11	GRATE INLET PER DETAIL 3/C2.95	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
D12-D14	12	HDPE	35.76	980.30	979.93	1.03%	0.012	25	1.1	0.95	9.38	0.04	0.4	0.01%	3.2	5.0	0.04	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	GRATE INLET PER DETAIL 3/C2.95
D13-D14	12	HDPE	52.00	980.45	979.93	1.00%	0.012	25	1.1	0.20	9.38	0.05	0.1	0.00%	2.1	5.0	0.05	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
D14-D16	18	HDPE	40.42	979.33	978.92	1.01%	0.012	25	1.1	0.57	8.08	0.87	4.4	0.15%	6.0	6.1	0.03	GRATE INLET PER DETAIL 3/C2.95	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
D16-D18	18	HDPE	63.44	978.67	978.13	1.00%	0.012	25	1.1	0.57	7.93	1.00	0.0	0.20%	6.4	6.2	0.11	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	JUNCTION BOX PER DETAIL 2/C5.05
D18-EX CB 3345	18	HDPE	49.19	978.03	974.21	7.77%	0.012	25	1.1	0.56	7.88	1.25	6.1	0.29%	13.8	6.3	0.63	JUNCTION BOX PER DETAIL 2/C5.05	EXISTN CATCH BASIN
D15-D16	12	HDPE	62.94	985.00	978.92	9.66%	0.012	25	1.1	0.46	9.38	0.02	0.1	0.00%	4.5	5.0	0.02	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	GRATE INLET PER DETAIL 3/C2.95
D17-D18	12	HDPE	72.70	982.20	978.63	4.91%	0.012	25	1.1	0.50	9.38	0.25	1.3	0.11%	7.8	5.0	0.25	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	JUNCTION BOX PER DETAIL 2/C5.05
E1-E2	18	HDPE	14.11	971.83	971.76	0.50%	0.012	25	1.1	0.89	9.38	0.58	5.3	0.22%	4.8	5.0	0.58	CATCH BASIN PER DETAIL 1/C2.96	GRATE INLET PER DETAIL 3/C2.95
E2-E3	18	HDPE	89.96	971.66	971.30	0.51%	0.012	25	1.1	0.77	8.25	0.74	5.2	0.21%	4.9	5.0	0.16	GRATE INLET PER DETAIL 3/C2.95	GRATE INLET PER DETAIL 3/C2.95
E3-E4	18	HDPE	110.31	971.20	970.65	0.50%	0.012	25	1.1	0.68	8.18	0.87	5.3	0.22%	4.9	5.3	0.13	GRATE INLET PER DETAIL 3/C2.95	GRATE INLET PER DETAIL 3/C2.95
E4-E5	18	HDPE	92.54	970.55	970.09	0.50%	0.012	25	1.1	0.66	8.07	0.93	5.4	0.23%	4.9	5.7	0.06	GRATE INLET PER DETAIL 3/C2.95	GRATE INLET PER DETAIL 3/C2.95
CO5-E5	6	HDPE	27.30	977.00	970.99	22.01%	0.012	25	1.1	0.20	9.38	0.06	0.1	0.04%	7.2	5.0	0.06	CLEANOUT PER DETAIL 1/C5.05	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
E5-E7	18	HDPE	38.30	969.99	969.80	0.50%	0.012	25	1.1	0.62	7.98	1.07	5.8	0.27%	4.9	6.0	0.08	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
E7-E8	18	HDPE	117.64	969.70	969.11	0.50%	0.012	25	1.1	0.61	7.93	1.13	6.0	0.28%	5.0	6.0	0.06	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
EB-E17	12	HDPE	226.10	974.76	972.50	1.00%	0.012	25	1.1	0.27	9.38	0.31	0.9	0.05%	4.0	5.0	0.31	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
COB9-COE10	6	HDPE	46.14	985.50	985.04	1.00%	0.012	25	1.1	0.95	9.38	0.04	0.4	0.42%	3.3	5.0	0.04	CLEANOUT PER DETAIL 1/C5.05	CLEANOUT PER DETAIL 1/C5.05
COE10-COE11	6	HDPE	33.53	984.94	984.61	0.98%	0.012	25	1.1	0.95	8.20	0.08	0.7	1.29%	3.5	5.2	0.04	CLEANOUT PER DETAIL 1/C5.05	CLEANOUT PER DETAIL 1/C5.05
COE11-E13	8	HDPE	23.61	984.51	984.27	1.02%	0.012	25	1.1	0.88	8.15	0.11	0.9	0.44%	4.0	5.4	0.03	CLEANOUT PER DETAIL 1/C5.05	CLEANOUT PER DETAIL 1/C5.05
COE13-COE14	8	HDPE	38.52	984.17	983.90	0.02%	0.012	25	1.1	0.90	8.12	0.14	1.1	0.72%	4.2	5.5	0.03	CLEANOUT PER DETAIL 1/C5.05	CLEANOUT PER DETAIL 1/C5.05
COE14-E15	10	HDPE	14.30	983.80	983.65	1.05%	0.012	25	1.1	0.86	8.09	0.17	1.3	0.31%	4.5	5.6	0.03	CLEANOUT PER DETAIL 1/C5.05	CATCH BASIN PER DETAIL 1/C2.96
E15-E16	18	HDPE	58.07	982.98	975.10	13.57%	0.012	25	1.1	0.81	8.08	0.37	2.7	0.06%	13.2	5.6	0.20	CATCH BASIN PER DETAIL 1/C2.96	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
E16-E17	18	HDPE	35.00	975.00	972.10	8.29%	0.012	25	1.1	0.80	8.06	0.38	2.7	0.06%	11.2	5.7	0.01	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95
E17-E18	18	HDPE	93.63	972.00	969.11	3.99%	0.012	25	1.1	0.56	7.99	0.70	3.5	0.09%	8.5	6.0	0.01	PEDESTRIAN GRATE INLET PER DETAIL 3/C2.95	JUNCTION BOX PER DETAIL 2/C5.05
E18-WQ 3	24	HDPE	112.74	968.61	968.05	0.50%	0.012	25	1.1	0.58	7.92	1.90	9.6	0.16%	5.6	6.4	0.07	JUNCTION BOX PER DETAIL 2/C5.05	WATER QUALITY BOX PER DETAIL 3/2.96
WQ 3-UQ	24	HDPE	4.19	967.95	967.63	0.48%	0.012	25	1.1	0.56	7.78	1.99	9.6	0.15%	5.6	6.7	0.09	WATER QUALITY BOX PER DETAIL 3/C2.96	UNDERGROUND DETENTION
ADS12A-ADS12B	6	HDPE	22.99	985.80	985.17	2.74%	0.012	25	1.1	0.90	9.38	0.01	0.1	0.02%	3.1	5.0	0.01	ADS DRAIN BASIN PER DETAIL 4/C2.95	ADS DRAIN BASIN PER DETAIL 4/C2.95
ADS12B-ADS13	6	HDPE	30.76	98															

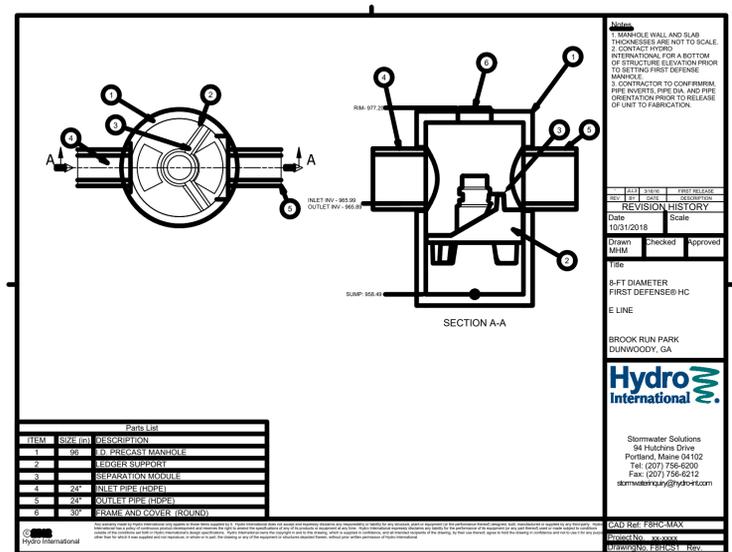
**DETENTION POND OUTLET STRUCTURE AND WATER
QUALITY POND DETAILS**

Table with 2 columns: NO. DATE, DESCRIPTION. Contains 10 rows for revision tracking.

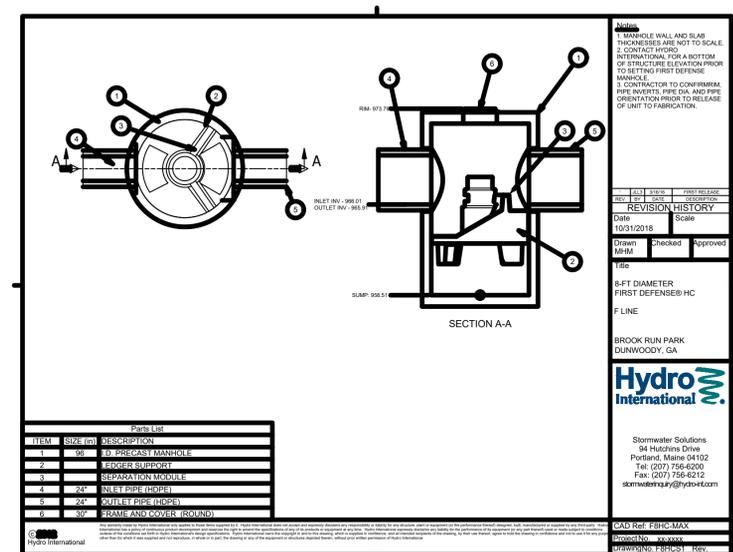


1 CATCH BASIN SCALE: NTS

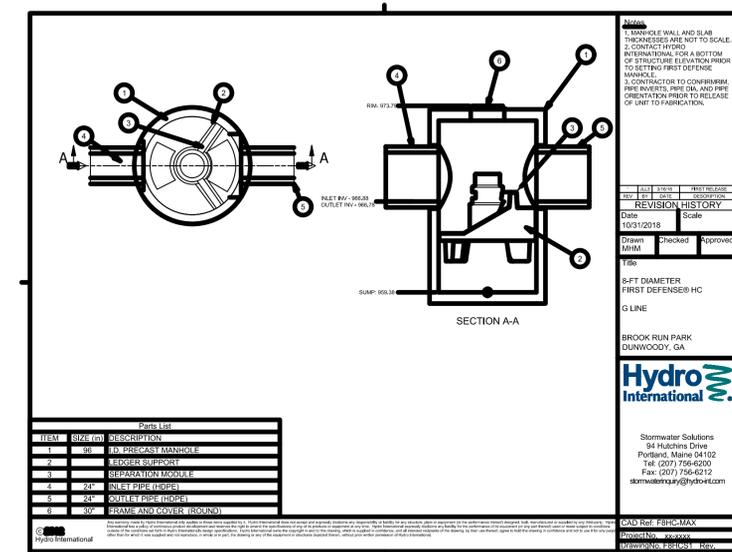
2 DETENTION POND #1 SCALE: NTS



3 WATER QUALITY BOX (E LINE) SCALE: NTS



4 WATER QUALITY BOX (F LINE) SCALE: NTS



5 WATER QUALITY BOX (G LINE) SCALE: NTS

95% DESIGN DEVELOPMENT DRAWINGS

**WATER QUALITY VOLUME AND ORIFICE SIZE
CALCULATIONS**

POND: #1 NAME/CASE: Brook Run Park

Water Quality Design

TSS AREAS	TSS Impervious Area =	1.92	Acres
	Disturbed Pervious =	0.48	Acres
	Undisturbed Pervious =		Acres
	Stream Buffer Areas =		Acres
	Total On-Site Pond Drainage Area =	2.40	Acres
Total On-Site Percent Impervious =		80.0%	
Required WQ Volume =		8,050	Cu. Ft.

Pond Stage/Storage interpolation of WQ 'H'. Vol.= (Cu.Ft.) Elev.= (Ft.)			
Invert Elev. of WQ Orifice =		977.5	Feet
S/S vol.below req'd.WQ	7,000	at Elev.	977.0
S/S vol.above req'd.WQ	9,000	at Elev.	978.0

Entered 'H' Value Used	
Interpolated or Direct 'H' value =	Invert# 0.1 Feet
WQ Orifice Dia. In.=	3.98 in. Use Lower Value Below:
Orifice =.5, .75, 1.0, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, > = Inch	

**HYDRAFLOW CALCULATIONS FOR STORM LINES
TO/FROM UNDERGROUND DETENTION**

Line No.	Line ID	Line Length (ft)	Line Size (in)	Line Slope (%)	Flow Rate (cfs)	Capac Full (cfs)	Gutter Spread (ft)	Invert Dn (ft)	Invert Up (ft)	HGL Dn (ft)	HGL Up (ft)	Gnd/Rim EI Dn (ft)	Gnd/Rim EI Up (ft)	Cover Dn (ft)	Cover Up (ft)
1	WQ 3-UD	4.192	24	0.72	9.66	20.74	....	965.86	965.89	966.82	967.00	0.00	977.20	n/a	9.31
2	E18-WQ3	112.736	24	0.50	9.81	17.27	3.81	965.99	966.55	967.07	967.67	977.20	978.80	9.21	10.25
3	E17-E18	93.508	18	5.29	4.34	26.17	3.60	967.05	972.00	967.67	972.80	978.80	977.00	10.25	3.50
4	E16-E17	35.000	18	8.29	2.50	32.75	0.82	972.10	975.00	972.80	975.60 j	977.00	980.72	3.40	4.22
5	E15-E16	58.068	18	14.55	2.51	43.40	5.13	975.10	983.55	975.60	984.15	980.72	991.19	4.12	6.14
6	COE14-E15	14.312	10	1.05	1.37	2.43	1.49	983.65	983.80	984.15	984.32	991.19	990.95	6.71	6.32
7	COE13-COE14	26.523	8	1.02	1.17	1.32	1.67	983.90	984.17	984.39	984.68	990.95	989.40	6.38	4.56
8	E11-E13	23.608	8	1.02	0.80	1.32	1.66	984.27	984.51	984.68	984.93	989.40	989.15	4.46	3.97
9	E10-E11	33.528	6	0.98	0.59	0.60	1.95	984.61	984.94	985.01	985.34	989.15	989.06	4.04	3.62
10	COE9-COE10	46.141	6	1.00	0.30	0.61	3.72	985.04	985.50	985.62	985.78 j	989.06	989.71	3.52	3.71
11	ADS E12-E13	40.897	6	1.32	0.17	0.70	1.63	984.27	984.81	984.68	985.01 j	989.40	989.30	4.63	3.99
12	E7-E18	117.635	18	1.00	5.09	11.39	1.64	967.05	968.23	967.75	969.10	978.80	978.00	10.25	8.27
13	E6-E7	38.333	18	1.02	4.93	11.48	1.75	968.23	968.62	969.10	969.47 j	978.00	978.00	8.27	7.88
14	CO5-A6	27.269	6	19.25	0.09	2.67	1.22	969.62	974.87	969.68	975.02	978.00	984.09	7.88	8.72
15	E8-E17	226.093	12	1.00	0.66	3.86	1.97	972.50	974.76	972.80	975.10	977.00	978.00	3.50	2.24
16	E4-E5	92.535	18	1.01	4.65	11.40	1.45	968.62	969.55	969.47	970.38 j	978.00	978.64	7.88	7.59
17	E3-E4	110.303	18	1.00	4.61	11.36	1.65	969.55	970.65	970.38	971.47 j	978.64	978.00	7.59	5.85
18	E2-E3	69.953	18	1.00	4.48	11.38	2.28	970.65	971.35	971.47	972.16 j	978.00	976.75	5.85	3.90
19	E1-E2	14.104	18	1.06	4.07	11.73	8.63	971.35	971.50	972.16	972.27 j	976.75	976.00	3.90	3.00
20	WQ 1-UD	9.430	24	0.53	13.30	17.84	....	965.86	965.91	967.27	967.22	0.00	973.79	n/a	5.88
21	F6-WQ 1	10.435	24	0.48	13.29	16.96	....	966.01	966.06	967.34	967.39	973.79	973.79	5.78	5.73
22	F5-F6	18.000	24	1.00	13.29	24.51	16.30	966.16	966.34	967.58	967.65 j	973.79	974.17	5.63	5.83
23	F4-F5	25.218	18	5.39	0.39	26.42	1.12	966.84	968.20	967.65	968.43 j	974.17	973.13	5.83	3.43

Project File: E, F, G, H lines.stm	Number of lines: 38	Date: 11/28/2018
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NOTES: ** Critical depth

Line No.	Line ID	Line Length (ft)	Line Size (in)	Line Slope (%)	Flow Rate (cfs)	Capac Full (cfs)	Gutter Spread (ft)	Invert Dn (ft)	Invert Up (ft)	HGL Dn (ft)	HGL Up (ft)	Gnd/Rim EI Dn (ft)	Gnd/Rim EI Up (ft)	Cover Dn (ft)	Cover Up (ft)
24	F3-F4	179.768	18	0.50	0.34	8.05	1.99	968.30	969.20	968.51	969.42	973.13	973.16	3.33	2.46
25	F2-F3	198.647	18	0.50	0.24	8.03	1.88	969.30	970.29	969.48	970.47	973.16	973.15	2.36	1.36
26	F1-F2	78.608	18	1.00	0.14	11.40	1.72	970.39	971.18	970.51	971.32	973.15	975.11	1.26	2.43
27	WQ 2-UD	10.534	24	0.57	16.18	18.50	....	966.72	966.78	968.17	968.23	0.00	973.79	n/a	5.01
28	G8-WQ2	7.298	24	0.55	16.19	18.13	....	966.88	966.92	968.35	968.39	973.79	973.79	4.91	4.87
29	G7-G8	20.000	24	1.00	16.23	24.50	16.30	967.02	967.22	968.61	968.67 j	973.79	973.98	4.77	4.76
30	G6-G7	25.164	18	1.03	3.03	11.56	1.12	967.72	967.98	968.67	968.64 j	973.98	973.16	4.76	3.68
31	G5-G6	180.000	18	0.50	3.08	8.04	1.52	968.08	968.98	968.72	969.65	973.16	973.18	3.58	2.70
32	G4-G5	198.500	18	0.50	3.10	8.03	1.82	969.08	970.07	969.73	970.74	973.18	973.18	2.60	1.61
33	G3-G4	45.000	18	0.51	2.95	8.13	4.24	970.17	970.40	970.79	971.05	973.18	974.84	1.51	2.94
34	G2-G3	42.793	18	4.44	1.66	23.97	1.09	970.50	972.40	971.05	972.88 j	974.84	975.75	2.84	1.85
35	G1-G2	133.480	18	3.33	1.64	20.77	8.03	972.50	976.95	972.88	977.43	975.75	989.33	1.75	10.88
36	EX10143-G1	42.642	18	22.44	0.07	53.89	1.17	977.05	986.62	977.43	986.71 j	989.33	991.53	10.78	3.41
37	H1-H2	16.074	24	1.49	25.70	29.94	....	964.49	964.73	972.95	973.13	965.29	973.45	-1.20	6.72
38	UD-H1	7.100	24	1.55	25.71	30.50	964.83	964.94	974.14	974.21	973.45	973.45	6.62	6.51

Project File: E, F, G, H lines.stm	Number of lines: 38	Date: 11/28/2018
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NOTES: ** Critical depth

GSWMM STORMWATER DEVELOPMENT REVIEW TOOL

Georgia Stormwater Management Manual

Stormwater Quality Site Development Review Tool

Version 2.2

General Information

Name of Developer:	City of Dunwoody	Date Submitted:	
Development Name:	Brook Run Park	Permit Number:	
Site Location / Address:	4770 N. Peachtree Road	Developer Contact:	
	Dunwoody, GA 30338	Phone Number:	
		Name of Engineer(s):	Lose Design
Development Type:	Parks, Recreation & Conservation Areas	Maintenance Responsibility:	City of Dunwoody

Site Summary

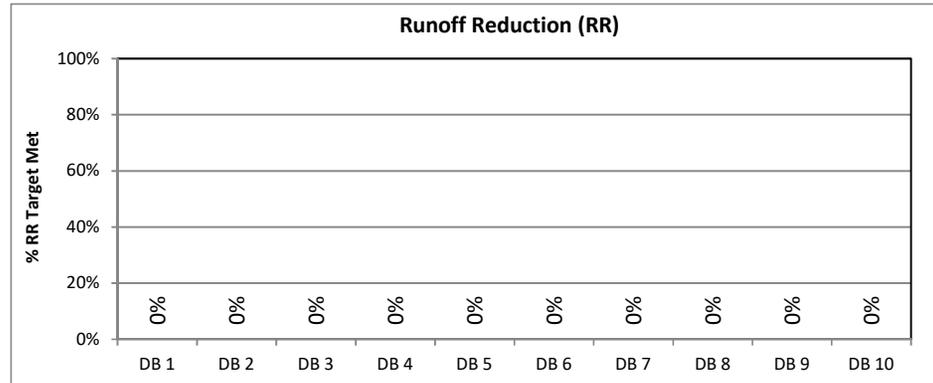
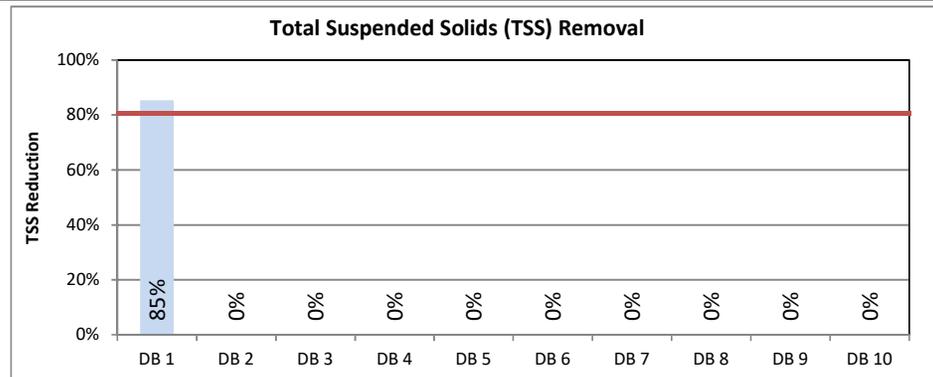
Total Pre-Development Area (ac): 15.49
Total Post-Development Area (ac): 15.49
Total Treated Area (ac): 13.86
Total Untreated Area (ac): 1.63

		I (ac)	P (ac)	CA (ac)
Multi-Purpose Fields	DB 1	10.82	4.67	0.00
Drainage Basin 2	DB 2	0.00	0.00	0.00
Drainage Basin 3	DB 3	0.00	0.00	0.00
Drainage Basin 4	DB 4	0.00	0.00	0.00
Drainage Basin 5	DB 5	0.00	0.00	0.00
Drainage Basin 6	DB 6	0.00	0.00	0.00
Drainage Basin 7	DB 7	0.00	0.00	0.00
Drainage Basin 8	DB 8	0.00	0.00	0.00
Drainage Basin 9	DB 9	0.00	0.00	0.00
Drainage Basin 10	DB 10	0.00	0.00	0.00
TOTAL		10.82	4.67	0.00

I = Impervious Area, P = Pervious Area, CA = Conservation Area

Target Runoff Reduction Volume Achieved? No
Target TSS Removal Achieved? Yes

Total Target Runoff Reduction Volume (cf) 45,792
 Runoff Reduction Volume Achieved (cf) 0
 Total Target Water Quality Volume (cf) 45,792
 % TSS Removal Achieved 85%



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Tracking #: _____
Reviewed By: _____
Date Approved: _____

Conditions of Approval: _____

Georgia Stormwater Management Manual

Stormwater Quality Site Development Review Tool, v2.2

Development Name: **Brook Run Park**
 Drainage Basin Name: **Multi-Purpose Fields**

data input cells
 calculation cells
 constant values

Site Data

Indicate Pre-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG* A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Woods - Fair Condition		36	5.81	60		73		79	5.81	38%
Open space - Fair condition (grass cover 50% to 75%)		49	5.81	69		79		84	5.81	38%
Impervious		98	3.87	98		98		98	3.87	25%
Select a land cover type...		0		0		0		0	0.00	0%
Select a land cover type...		0		0		0		0	0.00	0%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
Total	0.00		15.49		0.00		0.00		15.49	100%

*HSG = hydrologic soil group

Impervious (ac)	3.87
Weighted CN	73
Potential Max Soil Retention, S _{pre} (in)	3.72

Indicate Post-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Woods - grass combination (orchard or tree farm) - Fair Condition		43		65		76		82	0.00	0%
Open space - Fair condition (grass cover 50% to 75%)		49	3.34	69		79		84	3.34	22%
Impervious		98	4.00	98	1.11	98		98	5.11	33%
Open space - Good condition (grass cover > 75%)		39		61	1.33	74		80	1.33	9%
Impervious	5.71	98		98		98		98	5.71	37%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
Total	5.71		7.34		2.44		0.00		15.49	100%

Impervious (ac)	10.82
Rv	0.68
Weighted CN	90
Potential Max Soil Retention, S _{post} (in)	1.15

Conservation Area Credits

Scenario 1: Natural Conservation Area **See the GSMM Volume 2, Section 2.3.3.3 for more information.*

Check the box if a portion of the post-developed area is protected by a conservation easement or equivalent form of protection.

Area (ac) of development protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 1 box above is checked

Scenario 3: Soil Restoration **See the GSMM Volume 2, Section 4.23 for more information.*

Check the box if a portion of the post-developed area employs soil restoration and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development with restored soils and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 3 box above is checked

Scenario 2: Site Reforestation/Revegetation **See the GSMM Volume 2, Section 4.22 for more information.*

Check the box if a portion of the post-developed area employs site reforestation/revegetation and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development reforested/revegetated and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 2 box above is checked

Scenario 4: Site Reforestation/Revegetation & Soil Restoration **See the GSMM Volume 2, Section 4.22 and 4.23 for more information.*

Check the box if the same portion of the post-developed area employs site reforestation/revegetation and soil restoration, and is protected by a conservation easement or equivalent form of protection.

Area (ac) with restored soils in a reforested & revegetated area and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 4 box above is checked

Total Conservation Area Credit (acres) 0.00

Georgia Stormwater Management Manual

Stormwater Quality Site Development Review Tool, v2.2

Development Name: **Brook Run Park**
 Drainage Basin Name: **Multi-Purpose Fields**

data input cells
 calculation cells
 constant values

Water Quality Goals

Target Runoff Reduction Storm (in) **1.20**

Total Site Area for Water Quality Volume (acres)	15.49
Target Runoff Reduction Volume (cf)	45,792
Target Water Quality Volume (cf)	45,792

Select BMPs for Runoff Reduction and Water Quality

		Area Draining to Each BMP			Storage Volume Provided by BMP (cf)	RR Conveyance Volume Provided by BMP (cf)	Down-stream BMP	Runoff Reduction Calculations						WQ Calculations	
		On-site Pervious Area (acres)	On-site Impervious Area (acres)	Offsite Area (acres)				RR Volume from Direct Drainage (cf)	RR Volume from Upstream Practices (cf)	Total RR Volume Received by BMP (cf)	Runoff Reduction %	RR Achieved (cf)	Remaining RR Volume (cf)	WQ _v from Direct Drainage (cf)	Effective TSS Removal %
BMP 1	Infiltration Trench	0.30	2.15				BMP 2	8,962	0	8,962	100%	0	8,962	8,962	100%
BMP 2	Proprietary System	0.30	2.15		75		BMP 6	8,962	8,962	17,925	0%	0	17,925	8,962	90%
BMP 3	Infiltration Trench	1.11	2.15				BMP 4	9,139	0	9,139	100%	0	9,139	9,139	100%
BMP 4	Proprietary System	1.11	2.15		75		BMP 6	9,139	9,139	18,278	0%	0	18,278	9,139	90%
BMP 5	Proprietary System	1.33	1.11		75		BMP 6	4,883	0	4,883	0%	0	4,883	4,883	90%
BMP 6	Underground Detention					41,086		0	41,086	41,086	0%	0	41,086	0	0%
BMP 7	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 8	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 9	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 10	Select a BMP...							0	0	0	N/A	0	0	0	N/A
TOTAL		4.15	9.71	0.00				41,086				0		41,086	
UNTREATED AREA (acres)		0.52	1.11												

Target Runoff Reduction Volume (cf)	45,792
Target Achieved?	No
Remaining Runoff Reduction Volume (cf)	45,792

Target Water Quality Volume (cf)	45,792
% TSS Removal Achieved	85%
Target Achieved?	Yes!
Remaining TSS Removal %	0%

Georgia Stormwater Management Manual

Stormwater Quality Site Development Review Tool, v2.2

Development Name: **Brook Run Park**
 Drainage Basin Name: **Multi-Purpose Fields**

data input cells
 calculation cells
 constant values

Channel and Flood Protection Calculations

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Target Rainfall Event (in)	3.28	3.69	5.85	7.29

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Pre-Development Runoff Volume (in)	1.03	1.30	2.95	4.17
Post Development Runoff Volume (in) with no BMPs	2.21	2.60	4.67	6.07
Post-Development Runoff Volume (in) with BMPs	2.21	2.60	4.67	6.07
Adjusted CN	90	90	90	90

*See Stormwater Management Standards to Determine Detention Requirements.

Comments

Georgia Stormwater Management Manual

Stormwater Quality Site Development Review Tool

Version 2.2

General Information

Name of Developer:	City of Dunwoody	Date Submitted:	
Development Name:	Brook Run Park	Permit Number:	
Site Location / Address:	4770 N. Peachtree Road Dunwoody, GA 30338	Developer Contact:	
		Phone Number:	
		Name of Engineer(s):	Lose Design
Development Type:	Parks, Recreation & Conservation Areas	Maintenance Responsibility:	City of Dunwoody

Site Summary

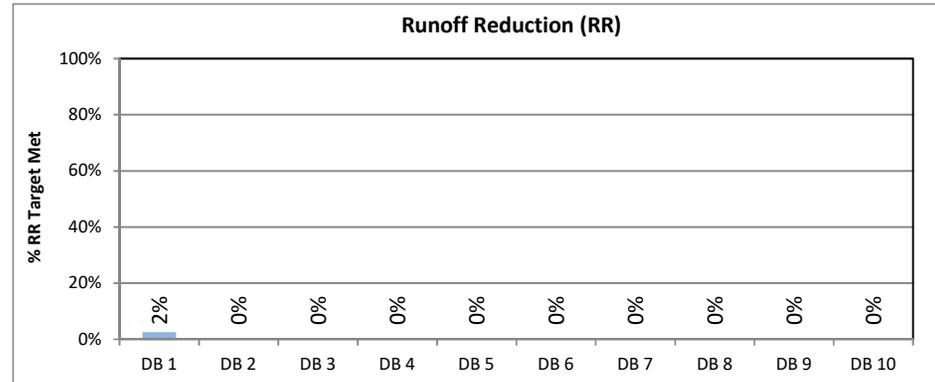
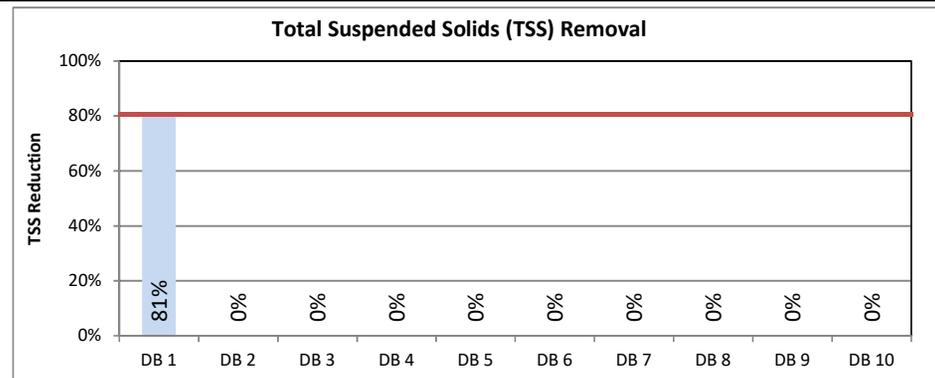
Total Pre-Development Area (ac): 0.96
Total Post-Development Area (ac): 2.40
Total Treated Area (ac): 2.40
Total Untreated Area (ac): 0.00

		I (ac)	P (ac)	CA (ac)
Parking Area	DB 1	1.92	0.48	0.00
Drainage Basin 2	DB 2	0.00	0.00	0.00
Drainage Basin 3	DB 3	0.00	0.00	0.00
Drainage Basin 4	DB 4	0.00	0.00	0.00
Drainage Basin 5	DB 5	0.00	0.00	0.00
Drainage Basin 6	DB 6	0.00	0.00	0.00
Drainage Basin 7	DB 7	0.00	0.00	0.00
Drainage Basin 8	DB 8	0.00	0.00	0.00
Drainage Basin 9	DB 9	0.00	0.00	0.00
Drainage Basin 10	DB 10	0.00	0.00	0.00
TOTAL		1.92	0.48	0.00

I = Impervious Area, P = Pervious Area, CA = Conservation Area

Target Runoff Reduction Volume Achieved? No
Target TSS Removal Achieved? Yes

Total Target Runoff Reduction Volume (cf)	8,050
Runoff Reduction Volume Achieved (cf)	183
Total Target Water Quality Volume (cf)	8,050
% TSS Removal Achieved	81%



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Tracking #: _____
Reviewed By: _____
Date Approved: _____

Conditions of Approval: _____

Georgia Stormwater Management Manual

Stormwater Quality Site Development Review Tool, v2.2

Development Name: **Brook Run Park**
 Drainage Basin Name: **Parking Area**

data input cells
 calculation cells
 constant values

Site Data

Indicate Pre-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG* A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Open space - Fair condition (grass cover 50% to 75%)		49	0.95	69		79		84	0.95	99%
Impervious		98	0.01	98		98		98	0.01	1%
Select a land cover type...		0		0		0		0	0.00	0%
Select a land cover type...		0		0		0		0	0.00	0%
Select a land cover type...		0		0		0		0	0.00	0%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
Total	0.00		0.96		0.00		0.00		0.96	100%

*HSG = hydrologic soil group

Impervious (ac) 0.01
 Weighted CN 69
 Potential Max Soil Retention, S_{pre} (in) 4.43

Indicate Post-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Open space - Good condition (grass cover > 75%)		39	0.48	61		74		80	0.48	20%
Impervious		98	1.92	98		98		98	1.92	80%
Impervious		98		98		98		98	0.00	0%
Select a land cover type...		0		0		0		0	0.00	0%
Select a land cover type...		0		0		0		0	0.00	0%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
Total	0.00		2.40		0.00		0.00		2.40	100%

Impervious (ac) 1.92
 Rv 0.77
 Weighted CN 91
 Potential Max Soil Retention, S_{post} (in) 1.04

Conservation Area Credits

Scenario 1: Natural Conservation Area **See the GSMM Volume 2, Section 2.3.3.3 for more information.*

Check the box if a portion of the post-developed area is protected by a conservation easement or equivalent form of protection.

Area (ac) of development protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 1 box above is checked

Scenario 3: Soil Restoration **See the GSMM Volume 2, Section 4.23 for more information.*

Check the box if a portion of the post-developed area employs soil restoration and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development with restored soils and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 3 box above is checked

Scenario 2: Site Reforestation/Revegetation **See the GSMM Volume 2, Section 4.22 for more information.*

Check the box if a portion of the post-developed area employs site reforestation/revegetation and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development reforested/revegetated and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 2 box above is checked

Scenario 4: Site Reforestation/Revegetation & Soil Restoration **See the GSMM Volume 2, Section 4.22 and 4.23 for more information.*

Check the box if the same portion of the post-developed area employs site reforestation/revegetation and soil restoration, and is protected by a conservation easement or equivalent form of protection.

Area (ac) with restored soils in a reforested & revegetated area and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 4 box above is checked

Total Conservation Area Credit (acres) 0.00

Georgia Stormwater Management Manual

Stormwater Quality Site Development Review Tool, v2.2

Development Name: **Brook Run Park**
 Drainage Basin Name: **Parking Area**

data input cells
 calculation cells
 constant values

Water Quality Goals

Target Runoff Reduction Storm (in) **1.20**

Total Site Area for Water Quality Volume (acres)	2.40
Target Runoff Reduction Volume (cf)	8,050
Target Water Quality Volume (cf)	8,050

Select BMPs for Runoff Reduction and Water Quality

		Area Draining to Each BMP			Storage Volume Provided by BMP (cf)	RR Conveyance Volume Provided by BMP (cf)	Down-stream BMP	Runoff Reduction Calculations						WQ Calculations	
		On-site Pervious Area (acres)	On-site Impervious Area (acres)	Offsite Area (acres)				RR Volume from Direct Drainage (cf)	RR Volume from Upstream Practices (cf)	Total RR Volume Received by BMP (cf)	Runoff Reduction %	RR Achieved (cf)	Remaining RR Volume (cf)	WQ _v from Direct Drainage (cf)	Effective TSS Removal %
BMP 1	Vegetated Filter Strip (C & D hydrologic soils)	0.13	0.17			732	BMP 2	732	0	732	25%	183	549	732	60%
BMP 2	Stormwater Pond	0.35	1.75		29,951			7,318	549	7,867	0%	0	7,867	7,318	80%
BMP 3	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 4	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 5	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 6	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 7	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 8	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 9	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 10	Select a BMP...							0	0	0	N/A	0	0	0	N/A
TOTAL		0.48	1.92	0.00				8,050				183		8,050	
UNTREATED AREA (acres)		0.00	0.00												

Target Runoff Reduction Volume (cf)	8,050
Target Achieved?	No
Remaining Runoff Reduction Volume (cf)	7,867

Target Water Quality Volume (cf)	8,050
% TSS Removal Achieved	81%
Target Achieved?	Yes!
Remaining TSS Removal %	0%

Georgia Stormwater Management Manual

Stormwater Quality Site Development Review Tool, v2.2

Development Name: **Brook Run Park**
 Drainage Basin Name: **Parking Area**

data input cells
 calculation cells
 constant values

Channel and Flood Protection Calculations

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Target Rainfall Event (in)	3.28	3.69	5.85	7.29

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Pre-Development Runoff Volume (in)	0.84	1.09	2.62	3.79
Post Development Runoff Volume (in) with no BMPs	2.30	2.68	4.77	6.18
Post-Development Runoff Volume (in) with BMPs	2.28	2.66	4.75	6.16
Adjusted CN	90	90	90	90

*See Stormwater Management Standards to Determine Detention Requirements.

Comments

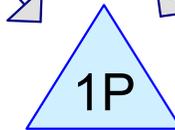
SEDIMENT BASIN HYDROCAD ANALYSIS



EXISTING DA TO EX.
CB #1



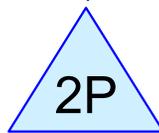
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DI #1



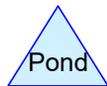
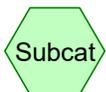
SEDIMENT BASIN 1



EXISTING DA TO
OUTFALL



SEDIMENT BASIN 2



17302 SED BASINS

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Type II 24-hr 2 yr Rainfall=3.60"

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Page 2

Time span=5.00-100.00 hrs, dt=0.10 hrs, 951 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: EXISTING DA TO Runoff Area=15.490 ac 24.98% Impervious Runoff Depth=1.25"
Flow Length=1,832' Tc=12.2 min CN=73 Runoff=24.68 cfs 1.610 af

Subcatchment 20S: EXISTING DA TO EX. Runoff Area=0.340 ac 0.00% Impervious Runoff Depth=1.01"
Flow Length=185' Slope=0.0400 '/' Tc=10.8 min CN=69 Runoff=0.45 cfs 0.029 af

Subcatchment 21S: EXISTING DA TO EX. DI Runoff Area=0.620 ac 1.61% Impervious Runoff Depth=1.01"
Flow Length=438' Tc=13.3 min CN=69 Runoff=0.76 cfs 0.052 af

Pond 1P: SEDIMENT BASIN 1 Peak Elev=981.09' Storage=298 cf Inflow=1.18 cfs 0.081 af
Primary=1.01 cfs 0.081 af Secondary=0.00 cfs 0.000 af Outflow=1.01 cfs 0.081 af

Pond 2P: SEDIMENT BASIN 2 Peak Elev=968.70' Storage=22,433 cf Inflow=24.68 cfs 1.610 af
Primary=5.34 cfs 1.610 af Secondary=0.00 cfs 0.000 af Outflow=5.34 cfs 1.610 af

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Type II 24-hr 2 yr Rainfall=3.60"

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Page 3

Summary for Subcatchment 3S: EXISTING DA TO OUTFALL

Runoff = 24.68 cfs @ 12.05 hrs, Volume= 1.610 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs
Type II 24-hr 2 yr Rainfall=3.60"

Area (ac)	CN	Description
5.810	69	50-75% Grass cover, Fair, HSG B
3.870	98	Paved parking, HSG B
5.810	60	Woods, Fair, HSG B
15.490	73	Weighted Average
11.620		75.02% Pervious Area
3.870		24.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	200	0.0750	0.37		Sheet Flow, Grass: Short n= 0.150 P2= 4.08"
1.3	354	0.0500	4.54		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.0	1,278	0.0100	10.88	565.72	Channel Flow, Area= 52.0 sf Perim= 21.0' r= 2.48' n= 0.025 Earth, clean & winding
12.2	1,832	Total			

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Type II 24-hr 2 yr Rainfall=3.60"

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Page 4

Summary for Subcatchment 20S: EXISTING DA TO EX. CB #1

Runoff = 0.45 cfs @ 12.03 hrs, Volume= 0.029 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs
Type II 24-hr 2 yr Rainfall=3.60"

Area (ac)	CN	Description
0.340	69	50-75% Grass cover, Fair, HSG B
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	185	0.0400	0.29		Sheet Flow, Grass: Short n= 0.150 P2= 4.08"

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Type II 24-hr 2 yr Rainfall=3.60"

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Page 5

Summary for Subcatchment 21S: EXISTING DA TO EX. DI #1

Runoff = 0.76 cfs @ 12.08 hrs, Volume= 0.052 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs
 Type II 24-hr 2 yr Rainfall=3.60"

Area (ac)	CN	Description
0.610	69	50-75% Grass cover, Fair, HSG B
0.010	98	Paved parking, HSG B
0.620	69	Weighted Average
0.610		98.39% Pervious Area
0.010		1.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	300	0.0800	0.42		Sheet Flow, Grass: Short n= 0.150 P2= 4.08"
1.3	138	0.0600	1.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
13.3	438	Total			

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Type II 24-hr 2 yr Rainfall=3.60"

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Summary for Pond 1P: SEDIMENT BASIN 1

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 1.01" for 2 yr event
 Inflow = 1.18 cfs @ 12.06 hrs, Volume= 0.081 af
 Outflow = 1.01 cfs @ 12.13 hrs, Volume= 0.081 af, Atten= 15%, Lag= 4.4 min
 Primary = 1.01 cfs @ 12.13 hrs, Volume= 0.081 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs
 Peak Elev= 981.09' @ 12.13 hrs Surf.Area= 900 sf Storage= 298 cf

Plug-Flow detention time= 4.4 min calculated for 0.081 af (100% of inflow)
 Center-of-Mass det. time= 4.4 min (877.7 - 873.3)

Volume	Invert	Avail.Storage	Storage Description
#1	980.50'	10,841 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
980.50	0	0	0
981.00	860	215	215
982.00	1,283	1,072	1,287
983.00	1,775	1,529	2,816
984.00	2,337	2,056	4,872
985.00	2,967	2,652	7,524
986.00	3,667	3,317	10,841

Device	Routing	Invert	Outlet Devices
#1	Primary	980.50'	12.0" Round Culvert L= 54.0' Ke= 0.900 Inlet / Outlet Invert= 980.50' / 975.27' S= 0.0969 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	982.50'	8.0' long Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.96 cfs @ 12.13 hrs HW=981.08' (Free Discharge)

↑1=Culvert (Inlet Controls 0.96 cfs @ 2.04 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=980.50' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Type II 24-hr 2 yr Rainfall=3.60"

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Summary for Pond 2P: SEDIMENT BASIN 2

Inflow Area = 15.490 ac, 24.98% Impervious, Inflow Depth = 1.25" for 2 yr event
 Inflow = 24.68 cfs @ 12.05 hrs, Volume= 1.610 af
 Outflow = 5.34 cfs @ 12.41 hrs, Volume= 1.610 af, Atten= 78%, Lag= 21.7 min
 Primary = 5.34 cfs @ 12.41 hrs, Volume= 1.610 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs
 Peak Elev= 968.70' @ 12.41 hrs Surf.Area= 8,699 sf Storage= 22,433 cf

Plug-Flow detention time= 40.3 min calculated for 1.610 af (100% of inflow)
 Center-of-Mass det. time= 40.1 min (900.5 - 860.4)

Volume	Invert	Avail.Storage	Storage Description
#1	965.00'	71,374 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
965.00	0	0	0
966.00	5,847	2,924	2,924
967.00	6,842	6,345	9,268
968.00	7,908	7,375	16,643
969.00	9,042	8,475	25,118
970.00	10,243	9,643	34,761
971.00	11,513	10,878	45,639
972.00	12,851	12,182	57,821
973.00	14,256	13,554	71,374

Device	Routing	Invert	Outlet Devices
#1	Primary	965.00'	12.0" Round Culvert L= 80.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 965.00' / 964.60' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	972.50'	10.0' long Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.34 cfs @ 12.41 hrs HW=968.69' (Free Discharge)

↑1=Culvert (Inlet Controls 5.34 cfs @ 6.79 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=965.00' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Type II 24-hr 25 yr Rainfall=6.24"

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Time span=5.00-100.00 hrs, dt=0.10 hrs, 951 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: EXISTING DA TO Runoff Area=15.490 ac 24.98% Impervious Runoff Depth=3.29"
Flow Length=1,832' Tc=12.2 min CN=73 Runoff=67.35 cfs 4.245 af

Subcatchment 20S: EXISTING DA TO EX. Runoff Area=0.340 ac 0.00% Impervious Runoff Depth=2.90"
Flow Length=185' Slope=0.0400 '/' Tc=10.8 min CN=69 Runoff=1.38 cfs 0.082 af

Subcatchment 21S: EXISTING DA TO EX. DI Runoff Area=0.620 ac 1.61% Impervious Runoff Depth=2.90"
Flow Length=438' Tc=13.3 min CN=69 Runoff=2.29 cfs 0.150 af

Pond 1P: SEDIMENT BASIN 1 Peak Elev=981.85' Storage=1,097 cf Inflow=3.62 cfs 0.232 af
Primary=2.76 cfs 0.232 af Secondary=0.00 cfs 0.000 af Outflow=2.76 cfs 0.232 af

Pond 2P: SEDIMENT BASIN 2 Peak Elev=972.99' Storage=71,169 cf Inflow=67.35 cfs 4.245 af
Primary=8.17 cfs 3.987 af Secondary=9.92 cfs 0.258 af Outflow=18.09 cfs 4.245 af

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Type II 24-hr 25 yr Rainfall=6.24"

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Summary for Subcatchment 3S: EXISTING DA TO OUTFALL

Runoff = 67.35 cfs @ 12.04 hrs, Volume= 4.245 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs
Type II 24-hr 25 yr Rainfall=6.24"

Area (ac)	CN	Description
5.810	69	50-75% Grass cover, Fair, HSG B
3.870	98	Paved parking, HSG B
5.810	60	Woods, Fair, HSG B
15.490	73	Weighted Average
11.620		75.02% Pervious Area
3.870		24.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	200	0.0750	0.37		Sheet Flow, Grass: Short n= 0.150 P2= 4.08"
1.3	354	0.0500	4.54		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.0	1,278	0.0100	10.88	565.72	Channel Flow, Area= 52.0 sf Perim= 21.0' r= 2.48' n= 0.025 Earth, clean & winding
12.2	1,832	Total			

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Type II 24-hr 25 yr Rainfall=6.24"

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Summary for Subcatchment 20S: EXISTING DA TO EX. CB #1

Runoff = 1.38 cfs @ 12.02 hrs, Volume= 0.082 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs
Type II 24-hr 25 yr Rainfall=6.24"

Area (ac)	CN	Description
0.340	69	50-75% Grass cover, Fair, HSG B
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	185	0.0400	0.29		Sheet Flow, Grass: Short n= 0.150 P2= 4.08"

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Type II 24-hr 25 yr Rainfall=6.24"

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Summary for Subcatchment 21S: EXISTING DA TO EX. DI #1

Runoff = 2.29 cfs @ 12.06 hrs, Volume= 0.150 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs
 Type II 24-hr 25 yr Rainfall=6.24"

Area (ac)	CN	Description
0.610	69	50-75% Grass cover, Fair, HSG B
0.010	98	Paved parking, HSG B
0.620	69	Weighted Average
0.610		98.39% Pervious Area
0.010		1.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	300	0.0800	0.42		Sheet Flow, Grass: Short n= 0.150 P2= 4.08"
1.3	138	0.0600	1.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
13.3	438	Total			

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Type II 24-hr 25 yr Rainfall=6.24"

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Summary for Pond 1P: SEDIMENT BASIN 1

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 2.90" for 25 yr event
 Inflow = 3.62 cfs @ 12.04 hrs, Volume= 0.232 af
 Outflow = 2.76 cfs @ 12.14 hrs, Volume= 0.232 af, Atten= 24%, Lag= 5.9 min
 Primary = 2.76 cfs @ 12.14 hrs, Volume= 0.232 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs
 Peak Elev= 981.85' @ 12.14 hrs Surf.Area= 1,219 sf Storage= 1,097 cf

Plug-Flow detention time= 5.0 min calculated for 0.232 af (100% of inflow)
 Center-of-Mass det. time= 5.0 min (846.3 - 841.3)

Volume	Invert	Avail.Storage	Storage Description
#1	980.50'	10,841 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
980.50	0	0	0
981.00	860	215	215
982.00	1,283	1,072	1,287
983.00	1,775	1,529	2,816
984.00	2,337	2,056	4,872
985.00	2,967	2,652	7,524
986.00	3,667	3,317	10,841

Device	Routing	Invert	Outlet Devices
#1	Primary	980.50'	12.0" Round Culvert L= 54.0' Ke= 0.900 Inlet / Outlet Invert= 980.50' / 975.27' S= 0.0969 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	982.50'	8.0' long Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.68 cfs @ 12.14 hrs HW=981.81' (Free Discharge)
 ↑1=Culvert (Inlet Controls 2.68 cfs @ 3.42 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=980.50' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Type II 24-hr 25 yr Rainfall=6.24"

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Summary for Pond 2P: SEDIMENT BASIN 2

Inflow Area = 15.490 ac, 24.98% Impervious, Inflow Depth = 3.29" for 25 yr event
 Inflow = 67.35 cfs @ 12.04 hrs, Volume= 4.245 af
 Outflow = 18.09 cfs @ 12.33 hrs, Volume= 4.245 af, Atten= 73%, Lag= 17.9 min
 Primary = 8.17 cfs @ 12.34 hrs, Volume= 3.987 af
 Secondary = 9.92 cfs @ 12.33 hrs, Volume= 0.258 af

Routing by Stor-Ind method, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs
 Peak Elev= 972.99' @ 12.34 hrs Surf.Area= 14,236 sf Storage= 71,169 cf

Plug-Flow detention time= 76.9 min calculated for 4.241 af (100% of inflow)
 Center-of-Mass det. time= 76.9 min (908.8 - 832.0)

Volume	Invert	Avail.Storage	Storage Description
#1	965.00'	71,374 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

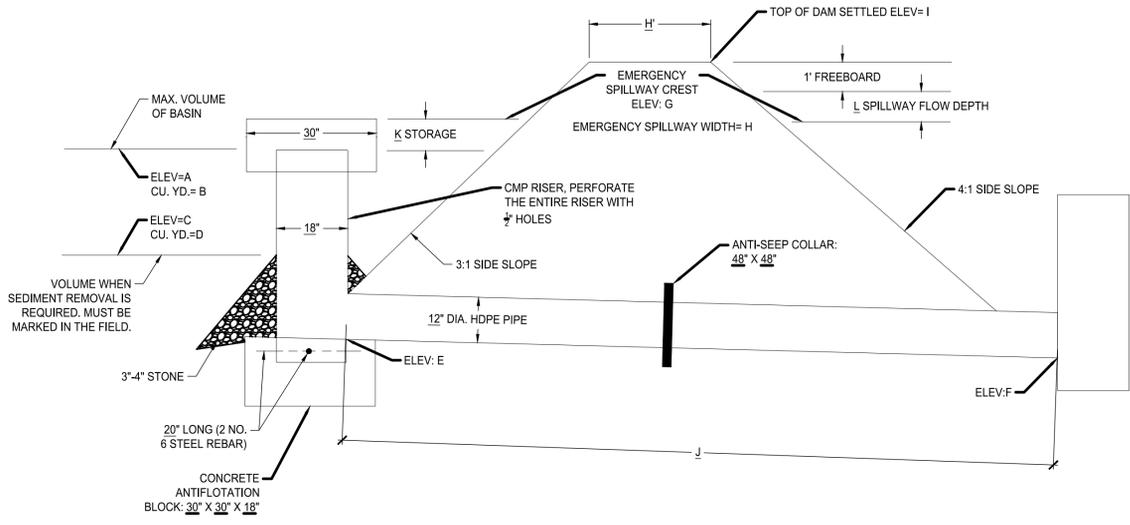
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
965.00	0	0	0
966.00	5,847	2,924	2,924
967.00	6,842	6,345	9,268
968.00	7,908	7,375	16,643
969.00	9,042	8,475	25,118
970.00	10,243	9,643	34,761
971.00	11,513	10,878	45,639
972.00	12,851	12,182	57,821
973.00	14,256	13,554	71,374

Device	Routing	Invert	Outlet Devices
#1	Primary	965.00'	12.0" Round Culvert L= 80.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 965.00' / 964.60' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	972.50'	10.0' long Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=8.15 cfs @ 12.34 hrs HW=972.95' (Free Discharge)
 ↑1=Culvert (Inlet Controls 8.15 cfs @ 10.37 fps)

Secondary OutFlow Max=8.92 cfs @ 12.33 hrs HW=972.95' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 8.92 cfs @ 1.98 fps)

SEDIMENT BASIN DETAILS



CROSS-SECTIONAL DETAIL OF EMERGENCY SPILLWAY

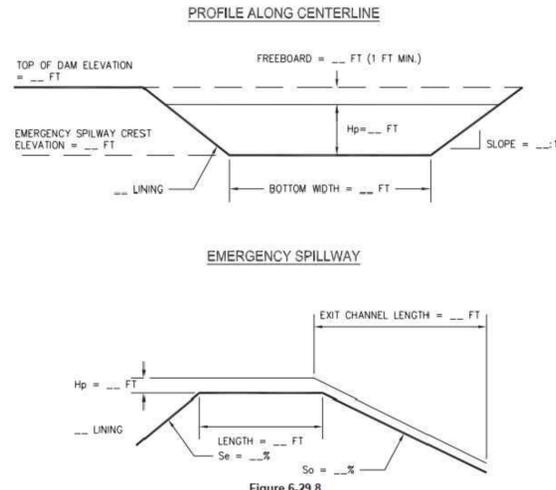
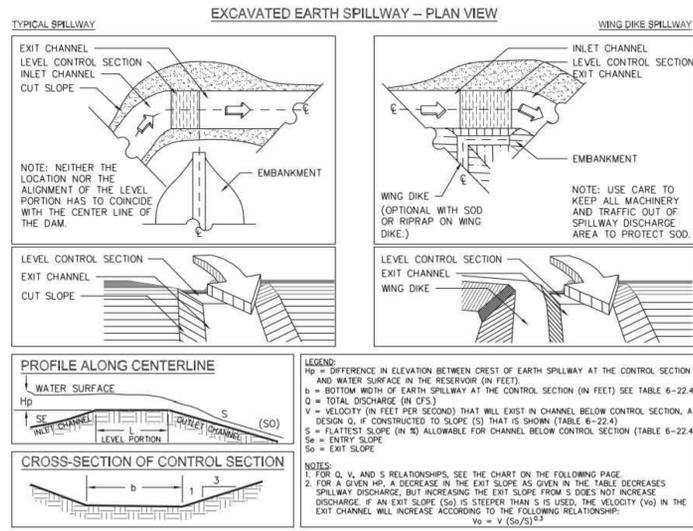
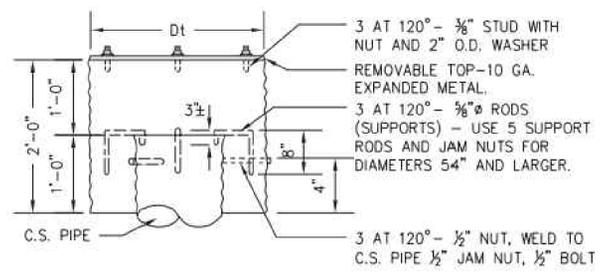


Figure 6-29.8



TYPICAL TRASH RACK



TEMPORARY SEDIMENT BASIN DESIGN SHEET	
Project Name:	BROOK RUN PARK
Basin No.:	Temporary Sediment Basin #1-Parking Lot
Total Area Draining to Basin =	0.96
Disturbed Area Draining to Basin =	0.96
User Input	
Standard Values or From Table	
Calculated	
VOLUME	
1. Compute minimum req'd storage volume (Vs)	
Vs = 67 cy/ac * 0.96 ac =	64 cy
	1,737 cf
2. Compute volume of basin at clean-out (Vc)	
Vc = 22 cy/ac * 0.96 ac =	21 cy
	570 cf
3. Determine elevation corresponding to minimum req'd storage volume (Vs)	
Minimum retrofit riser crest elevation =	982.50 ft (determined by stage/storage relationship)
Actual riser crest elevation =	982.50
4. Determine elevation corresponding to clean-out volume (Vc)	
Clean-out elevation =	981.80 ft (determined by stage/storage relationship)
Note: Clean-out elevation shall be clearly marked on the riser or marked by a post near the riser.	
5. Compute length of riser.	
Riser length = Min elevation of riser crest - lowest elevation of pipe at riser	1.00 ft
Riser Length =	1.00 ft
STORMWATER RUNOFF	
6. Compute peak discharge from a 2-yr, 24-hr storm event.	
Q2 =	1.01 cfs (attach runoff computation sheet)
7. Compute peak discharge from a 25-yr, 24-hr storm event.	
Q25 =	2.76 cfs (attach runoff computation sheet)
SURFACE AREA/CONFIGURATION DESIGN	
8. Compute minimum basin surface area (S _{Amin}).	
S _{Amin} = .01 ac/cfs * Q2 =	0.01 ac
	440 sf
9. Check available area at elevation of riser crest.	
Available area =	7647.00 sf (determined by stage/storage relationship)
Available area >= S _{Amin} ? yes	
10. Compute req'd length to achieve 2:1 L:W ratio.	
Average width =	23.00 ft
Req'd Length = 2*ave width =	46.00 ft
Available Length =	51.00 ft
2:1 L:W ratio satisfied? yes	
If "no", refer to Figure 6-22.2 for baffle designs. Note any required baffles on E&S plan and include calculations and details for baffles.	
PRINCIPAL SPILLWAY (PS)	
11. Determine maximum principal spillway capacity.	
Q _{max} = Q2 =	1.01 cfs
12. Compute the vertical distance between the centerline of the outlet pipe and the emergency spillway crest (H).	
Centerline of Outlet Pipe =	982.00 ft
H =	2.50 ft
13. Compute the total pipe length of the principal spillway, L, using Figure 6-22.3.	
L = [A-(B+C)/2]/[2u+Zd] + T + E =	24.23 ft
14. Determine diameter of principal spillway (Dps) and flow through the principal spillway (Q) from Table 6-29.1 using H and Q _{max} .	
Dps =	12.00 in
Type of Pipe	CMP
Q =	5.61 cfs
15. Compute actual flow through the principal spillway, using Table 6-22.1 to determine the correction factor for pipe length, L.	
Correction Factor =	1.36 (from table)
Qps = Q*correction factor =	7.63 cfs
16. Compute the riser diameter (Dr).	
Dr = 1.5 * Dps =	18.00 in
17. Compute trash rack diameter (Dt).	
Dt = 1.4 * Dr =	25.20 in
18. Determine the minimum distance between the riser crest and the emergency spillway crest, h, using Table 6-29.2, Dr, and Qps.	
h =	0.80 ft (from table)
CONCRETE RISER BASE DESIGN	
19. Determine volume of concrete per verticle foot (VF) of riser height needed, from Table 6-22.3 to prevent flotation.	
Riser Pipe Dia =	18.00 in
Req'd vol of concrete per VF =	1.54 cft/VF
20. Compute total volume of concrete required.	
Riser Length =	1.00 ft
Total req'd vol of concrete =	1.54 cf
21. Assume base thickness B (usually 18").	
B =	18.00 in
OR	5.61 in
B =	1.50 ft
22. Compute Req'd surface area.	
Req'd surface area =	1.03 sf
23. Compute Riser base length (l) and width (w) (assume square base)	
l = w =	1.01 ft
Overall Dimensions of Riser Box	12.16 in
Length =	30.00 in
Width =	30.00 in
Thickness =	18.00 in
ANTI-SEEP COLLAR DESIGN	
24. Determine if anti-seep collar is req'd. If yes to any of the following conditions, a collar is req'd.	
no	The settled height of the dam is greater than 15 ft.
no	The principal spillway diameter (Dps) is smooth pipe larger than 8 in.
no	The principal spillway diameter (Dps) is corrugated metal pipe larger than 12 in.
25. Determine size of anti-seep collar req'd.	
18 in projection (for heads (H) less than or equal to 10 ft)	
24 in projection (for heads (H) greater than 10 ft)	
EMERGENCY SPILLWAY (ES)	
26. Compute minimum capacity of emergency spillway (Qes)	
Qes = Q25-Qps =	5 cfs
27. Determine stage (Hp), bottom width (b), velocity (V), and minimum exit slope (S) using Table 6-29.4 and Qes.	
Hp =	0.50 ft
b =	8.00 ft
V =	2.70 fps
S =	3.90 %
28. Actual entrance channel slope, Se =	
Se =	33.33 %
29. Actual exit channel slope, So =	
So =	33.33 %
Note: If So is steeper than S (from table 6-22.4), then the velocity in the exit channel will increase.	
a) Calculate new exit velocity (Vo)	
Vo = V (So/S) ^{0.3} =	5.14 fps
Note: Refer to Channel Stabilization to determine the proper lining for the emergency spillway.	
Grass	
Rip Rap	X
Concrete	
DESIGN ELEVATIONS	
30. Riser crest elevation =	
	982.50 ft
31. Compute min. emergency spillway crest elevation.	
Min emergency spillway crest elevation = riser crest elevation + h	
Min emergency spillway crest elevation =	983.30 ft
Actual emergency spillway crest elevation =	984.50 ft
32. Determine design high water elevation.	
Design high water elevation = min emergency spillway crest elev. + stage elev (Hp)	
Design high water elevation =	985.00 ft
33. Determine elevation of top of dam.	
Elevation of top of dam = design high water elevation + 1 ft freeboard	
Elevation of top of dam =	986.00 ft
Actual top of dam =	986.00 ft
PLEASE NOTE THAT DESIGN VALUES DETERMINED BY THIS SHEET REPRESENT THE MINIMUM REQUIREMENTS FOR A TEMPORARY SEDIMENT BASIN.	

TEMPORARY SEDIMENT BASIN DESIGN SHEET	
Project Name:	BROOK RUN PARK
Basin No.:	Temporary Sediment Basin #2-Multipurpose Fields
Total Area Draining to Basin =	15.49
Disturbed Area Draining to Basin =	15.49
User Input	
Standard Values or From Table	
Calculated	
VOLUME	
1. Compute minimum req'd storage volume (Vs)	
Vs = 67 cy/ac * 15.49 ac =	1,038 cy
	28,021 cf
2. Compute volume of basin at clean-out (Vc)	
Vc = 22 cy/ac * 15.49 ac =	341 cy
	9,201 cf
3. Determine elevation corresponding to minimum req'd storage volume (Vs)	
Minimum retrofit riser crest elevation =	969.50 ft (determined by stage/storage relationship)
Actual riser crest elevation =	969.50
4. Determine elevation corresponding to clean-out volume (Vc)	
Clean-out elevation =	966.50 ft (determined by stage/storage relationship)
Note: Clean-out elevation shall be clearly marked on the riser or marked by a post near the riser.	
5. Compute length of riser.	
Riser length = Min elevation of riser crest - lowest elevation of pipe at riser	4.50 ft
Riser Length =	4.50 ft
STORMWATER RUNOFF	
6. Compute peak discharge from a 2-yr, 24-hr storm event.	
Q2 =	5.34 cfs (attach runoff computation sheet)
7. Compute peak discharge from a 25-yr, 24-hr storm event.	
Q25 =	8.17 cfs (attach runoff computation sheet)
SURFACE AREA/CONFIGURATION DESIGN	
8. Compute minimum basin surface area (S _{Amin}).	
S _{Amin} = .01 ac/cfs * Q2 =	0.05 ac
	2326 sf
9. Check available area at elevation of riser crest.	
Available area =	8865.00 sf (determined by stage/storage relationship)
Available area >= S _{Amin} ? yes	
10. Compute req'd length to achieve 2:1 L:W ratio.	
Average width =	80.30 ft
Req'd Length = 2*ave width =	160.60 ft
Available Length =	177.40 ft
2:1 L:W ratio satisfied? yes	
If "no", refer to Figure 6-22.2 for baffle designs. Note any required baffles on E&S plan and include calculations and details for baffles.	
PRINCIPAL SPILLWAY (PS)	
11. Determine maximum principal spillway capacity.	
Q _{max} = Q2 =	5.34 cfs
12. Compute the vertical distance between the centerline of the outlet pipe and the emergency spillway crest (H).	
Centerline of Outlet Pipe =	965.50 ft
H =	7.00 ft
13. Compute the total pipe length of the principal spillway, L, using Figure 6-22.3.	
L = [A-(B+C)/2]/[2u+Zd] + T + E =	29.40 ft
14. Determine diameter of principal spillway (Dps) and flow through the principal spillway (Q) from Table 6-29.1 using H and Q _{max} .	
Dps =	12.00 in
Type of Pipe	CMP
Q =	5.61 cfs
15. Compute actual flow through the principal spillway, using Table 6-22.1 to determine the correction factor for pipe length, L.	
Correction Factor =	1.36 (from table)
Qps = Q*correction factor =	7.63 cfs
16. Compute the riser diameter (Dr).	
Dr = 1.5 * Dps =	18.00 in
17. Compute trash rack diameter (Dt).	
Dt = 1.4 * Dr =	25.20 in
18. Determine the minimum distance between the riser crest and the emergency spillway crest, h, using Table 6-29.2, Dr, and Qps.	
h =	0.80 ft (from table)
CONCRETE RISER BASE DESIGN	
19. Determine volume of concrete per verticle foot (VF) of riser height needed, from Table 6-22.3 to prevent flotation.	
Riser Pipe Dia =	18.00 in
Req'd vol of concrete per VF =	1.54 cft/VF
20. Compute total volume of concrete required.	
Riser Length =	4.50 ft
Total req'd vol of concrete =	6.93 cf
21. Assume base thickness B (usually 18").	
B =	18.00 in
OR	5.61 in
B =	1.50 ft
22. Compute Req'd surface area.	
Req'd surface area =	4.62 sf
23. Compute Riser base length (l) and width (w) (assume square base)	
l = w =	2.15 ft
Overall Dimensions of Riser Box	25.79 in
Length =	30.00 in
Width =	30.00 in
Thickness =	18.00 in
ANTI-SEEP COLLAR DESIGN	
24. Determine if anti-seep collar is req'd. If yes to any of the following conditions, a collar is req'd.	
no	The settled height of the dam is greater than 15 ft.
no	The principal spillway diameter (Dps) is smooth pipe larger than 8 in.
no	The principal spillway diameter (Dps) is corrugated metal pipe larger than 12 in.
25. Determine size of anti-seep collar req'd.	
18 in projection (for heads (H) less than or equal to 10 ft)	
24 in projection (for heads (H) greater than 10 ft)	
EMERGENCY SPILLWAY (ES)	
26. Compute minimum capacity of emergency spillway (Qes)	
Qes = Q25-Qps =	1 cfs
27. Determine stage (Hp), bottom width (b), velocity (V), and minimum exit slope (S) using Table 6-29.4 and Qes.	
Hp =	0.50 ft
b =	10.00 ft
V =	2.70 fps
S =	3.90 %
28. Actual entrance channel slope, Se =	
Se =	33.33 %
29. Actual exit channel slope, So =	
So =	33.33 %
Note: If So is steeper than S (from table 6-22.4), then the velocity in the exit channel will increase.	
a) Calculate new exit velocity (Vo)	
Vo = V (So/S) ^{0.3} =	5.14 fps
Note: Refer to Channel Stabilization to determine the proper lining for the emergency spillway.	
Grass	
Rip Rap	X
Concrete	
DESIGN ELEVATIONS	
30. Riser crest elevation =	
	969.50 ft
31. Compute min. emergency spillway crest elevation.	
Min emergency spillway crest elevation = riser crest elevation + h	
Min emergency spillway crest elevation =	970.30 ft
Actual emergency spillway crest elevation =	972.50 ft
32. Determine design high water elevation.	
Design high water elevation = min emergency spillway crest elev. + stage elev (Hp)	
Design high water elevation =	973.00 ft
33. Determine elevation of top of dam.	
Elevation of top of dam = design high water elevation + 1 ft freeboard	
Elevation of top of dam =	974.00 ft
Actual top of dam =	974.00 ft
PLEASE NOTE THAT DESIGN VALUES DETERMINED BY THIS SHEET REPRESENT THE MINIMUM REQUIREMENTS FOR A TEMPORARY SEDIMENT BASIN.	

1 TEMPORARY SEDIMENT BASIN
SCALE: NTS

LOSE DESIGN
SPACES FOR LIFE.

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GSWCC LEVEL II # 77048
EXPIRES: 04/29/2019

BROOK RUN PARK IMPROVEMENTS
CITY OF DUNWOODY

DUNWOODY

SUBMITTALS / REVISIONS	
NO.	DESCRIPTION

ISSUE FOR PERMIT

SHEET TITLE

DRAINAGE AND ESPC DETAILS

PROJECT NO.	DATE
17302	01-04-2019
DRAWN BY	SCALE
LC/TF	NTS
CHECKED BY	
MB	
SHEET NO.	

C2.92