

STORMWATER MANAGEMENT REPORT

FOR

**PROPOSED RESIDENTIAL DEVELOPMENT
625 McGRATH HIGHWAY
SOMERVILLE, MA**

Prepared for:
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121 High Street, 3rd. fl.
Boston, MA 02110

Prepared by:

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Project 2012-098
March 19, 2013



A handwritten signature in black ink, appearing to be 'J. A. [unclear]', is written over a circular, dotted stamp. Below the signature, the date 'march 18, 2013' is handwritten in black ink.

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The proposed development includes the demolition of the existing building to accommodate two proposed apartment buildings with associated utilities, parking, and landscaped areas.

The catchments in the proposed condition are very similar to the catchments in the existing condition. (See Appendix C, *Figure 2*)

Drainage:

Drainage calculations were conducted to evaluate peak discharges from the project site under the pre-development and post-development conditions (See Appendix D). As required under the City of Somerville's Stormwater Management Policy, peak discharges under post development condition will be less than the pre-development conditions.

The proposed stormwater management system consists of a water quality inlet (Hydroworks HG41) and infiltration chambers for storage and groundwater recharge. No connection to the Municipal combined sewer is allowed. The infiltrators for the parking area are sized to hold the first inch of rain. The Stormceptors can be expected to provide a minimum of 75% TSS removal before discharging to the infiltrators that provide additional TSS removal. The grate of the Hydroworks unit can also function as an emergency overflow in the event of a drainage system failure, which will allow storm water to flow onto Otis Street.

No direct connection from the site to the Municipal system will exist in the proposed condition.

4:1 Infiltration/Inflow Removal:

The 4:1 I-I requirement stipulates that for every increased gallon of sewage flow per day, four gallons of stormwater are stored and infiltrated onsite. The volume of stormwater represents the required amount to be stored/infiltrated per year.

Assumptions

To calculate the increase in sewage flow, the current use of the property was considered. During a site visit in 2012 during a midweek workday at 10am there were 12 cars present in the parking area. DCI assumes there were 12 employees, 2 of which were in offices and 10 that worked in the warehouse/factory.

Flow Calculations:

Existing Condition

Factory, Industrial Plant, Warehouse 15gpd / person = (10people)*(15gpd) = 150 gpd
or Dry Storage without cafeteria

Proposed Conditions

Residential 110 gpd/bedroom x 53 total bedrooms = 5,830 gpd

Increase in gpd flow = 5,830 gpd – 150 gpd = 5,680 gpd

Required storage/recharge volume per year: 5,680 x 4 = 22,720 gallons (3,037 cubic feet)

Decrease in proposed runoff volume = 0.021 AF (915 cubic feet)

Total required onsite infiltration volume = 15,873 gallons (2,122 cubic feet)

Volume provided: The Applicant proposes 2,244 cubic feet of storage/infiltration onsite. This amount of storage is in excess of the required amount of 2,122 cubic feet, therefore the proposed stormwater management design will satisfy the 4:1 I-I requirement and reduce the site’s contribution to the Municipal sewer system.

HYDROLOGIC MODEL

The hydrologic model used for this analysis is based upon the SCS Method. Both existing and proposed conditions are modeled for the 2-year, 10-year and 100-year storm events. The SCS Method allows for variable rainfall intensity throughout the storm duration, peaking near the middle of the Type III, 24-hour storm. The drainage area’s time of concentration (tc), assumed to be five minutes for this site.

The designed on-site stormwater management system collects and infiltrates site runoff reducing off-site flows for all storm events.

Table 1

Stormwater Runoff Summary

625 McGrath Highway, Somerville, MA

Rate: cfs

		Design Point 1	Design Point 2		
2 Year (3.10")	Pre	1.14	1.29		
	Post	0.88	1.09		
10 Year (4.50")	Pre	1.67	1.88		
	Post	1.38	1.80		
100 Year (6.50")	Pre	2.43	2.73		
	Post	2.07	2.46		

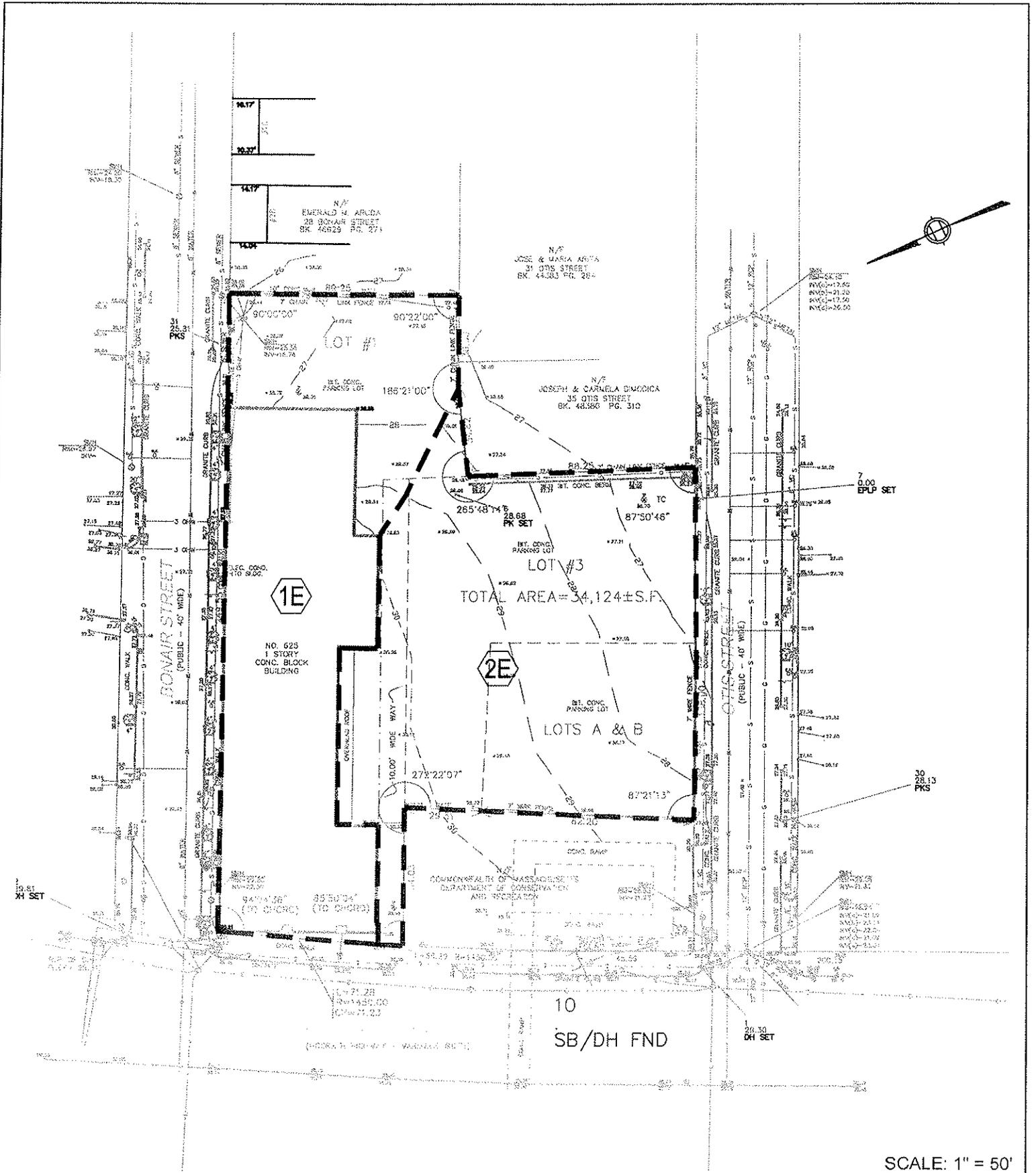
Volume: acre-feet

		Design Point 1	Design Point 2		
2 Year (3.10")	Pre	0.088	0.099		
	Post	0.062	0.054		
10 Year (4.50")	Pre	0.131	0.147		
	Post	0.099	0.105		
100 Year (6.50")	Pre	0.192	0.215		
	Post	0.153	0.180		

CONCLUSION

Based on DCI's analysis of the existing and proposed conditions, the proposed site condition meets the criteria set forth by the City of Somerville. Off-site runoff volume and peak flow rate for the 2, 10 and 100-year storm events is decreased. The existing connection to the Municipal system will be eliminated and no new connection is to occur. DCI will monitor the site for local flooding. If it is found that the site is subject to flooding, site grading changes maybe necessary to retain surface storage capacity. The 4:1 I/I requirement will be met. DCI concludes that the proposed development at 625 McGrath Highway, Somerville, MA adheres to all applicable stormwater management policies.

Appendix A



Design Consultants, Inc.
 Consulting Engineers and Surveyors

120 MIDDLESEX AVENUE
 SOMERVILLE, MA 02145
 617-776-3350

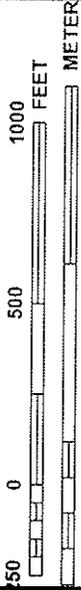
625 MCGRATH HIGHWAY
 SOMERVILLE, MA

FIGURE 1
EXISTING
CATCHMENT
AREAS

Appendix B



MAP SCALE 1" = 500'



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0439E

FIRM

FLOOD INSURANCE RATE MAP
MIDDLESEX COUNTY,
MASSACHUSETTS
(ALL JURISDICTIONS)

PANEL 439 OF 656

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
EVERETT, CITY OF	250192	04-39	E
MEDFORD, CITY OF	250146	04-39	E
SOMERVILLE, CITY OF	250214	04-39	E

Notice to User: The Map Number shown below should be used when placing map orders, the Community Number shown above should be used on insurance applications for the subject community



MAP NUMBER
25017C0439E

EFFECTIVE DATE
JUNE 4, 2010

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



Appendix C

Soil Map—Middlesex County, Massachusetts
 (625 McGrath Highway, Somerville)



Map Scale 1:1,770 if printed on A size (8.5" x 11") sheet.



MAP LEGEND

MAP INFORMATION

Area of Interest (AOI)
Area of Interest (AOI)

Very Stony Spot
Wet Spot
Other

Map Scale: 1:1,770 if printed on A size (8.5" x 11") sheet.
The soil surveys that comprise your AOI were mapped at 1:25,000.

Soil Map Units

Warning: Soil Map may not be valid at this scale.

Special Point Features

Special Line Features
Gully
Short Steep Slope
Other

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Political Features

Political Features
Cities

Please rely on the bar scale on each map sheet for accurate map measurements.

Water Features

Water Features
Streams and Canals

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 19N NAD83

Transportation

Transportation
Rails
Interstate Highways
US Routes
Major Roads
Local Roads

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Area of Interest (AOI)

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 12, Feb 26, 2010
Date(s) aerial images were photographed: 7/10/2003

Perennial Water
Rock Outcrop
Saline Spot
Sandy Spot
Severely Eroded Spot
Sinkhole
Slide or Slip
Sodic Spot
Spoil Area
Stony Spot

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Middlesex County, Massachusetts (MA017)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
602	Urban land	8.1	100.0%
Totals for Area of Interest		8.1	100.0%

Middlesex County, Massachusetts

602—Urban land

Map Unit Setting

Elevation: 0 to 3,000 feet

Mean annual precipitation: 32 to 50 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 200 days

Map Unit Composition

Urban land: 85 percent

Minor components: 15 percent

Description of Urban Land

Setting

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Excavated and filled land

Minor Components

Udorthents, loamy

Percent of map unit: 5 percent

Rock outcrop

Percent of map unit: 5 percent

Landform: Ledges

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Head slope

Down-slope shape: Concave

Across-slope shape: Concave

Udorthents, wet substratum

Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: Middlesex County, Massachusetts

Survey Area Data: Version 12, Feb 26, 2010

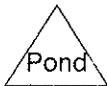
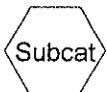
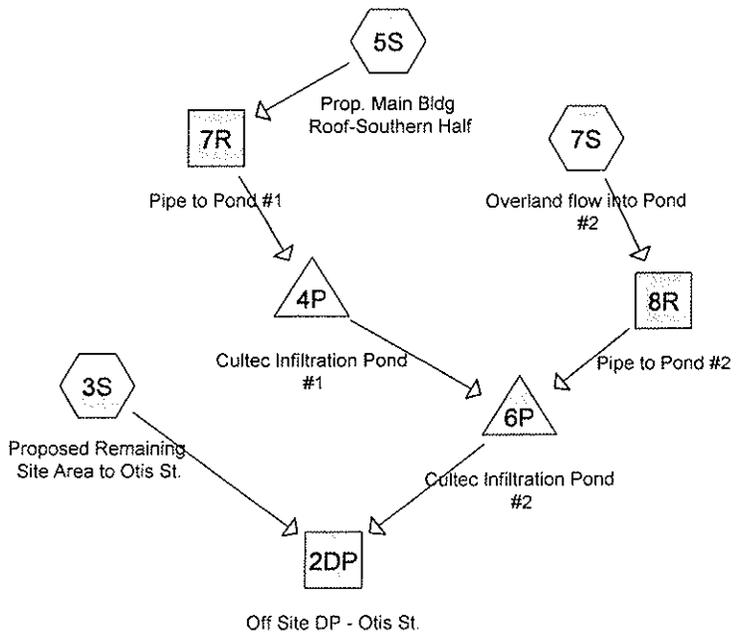
Appendix D

Appendix E

1E
Existing Conditions to
Bonair St.

2E
Existing Conditions to
Otis St.

1P
Proposed Remaining
Site Area to Bonair St.
1DP
Off Site DP - Bonair St.



Summary for Subcatchment 1E: Existing Conditions to Bonair St.

Runoff = 1.14 cfs @ 12.07 hrs, Volume= 0.088 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
* 16,061	98	Impervious areas
16,061		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 1P: Proposed Remaining Site Area to Bonair St.

Runoff = 0.88 cfs @ 12.07 hrs, Volume= 0.062 af, Depth> 2.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
* 10,763	98	Impervious areas
3,617	74	>75% Grass cover, Good, HSG C
14,380	92	Weighted Average
3,617		25.15% Pervious Area
10,763		74.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 2E: Existing Conditions to Otis St.

Runoff = 1.29 cfs @ 12.07 hrs, Volume= 0.099 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
* 18,063	98	Impervious areas
18,063		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 3S: Proposed Remaining Site Area to Otis St.

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.029 af, Depth> 2.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
683	74	>75% Grass cover, Good, HSG C
* 5,256	98	Impervious areas
5,939	95	Weighted Average
683		11.50% Pervious Area
5,256		88.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 5S: Prop. Main Bldg Roof-Southern Half

Runoff = 0.27 cfs @ 12.07 hrs, Volume= 0.021 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
3,800	98	Roofs, HSG C
3,800		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 7S: Overland flow into Pond #2

Runoff = 0.70 cfs @ 12.07 hrs, Volume= 0.053 af, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
* 9,405	98	impervious areas
600	74	>75% Grass cover, Good, HSG C
10,005	97	Weighted Average
600		6.00% Pervious Area
9,405		94.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

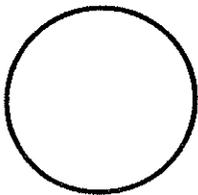
Summary for Reach 1DP: Off Site DP - Bonair St.

Inflow Area = 0.330 ac, 74.85% Impervious, Inflow Depth > 2.25" for 2-Year event
 Inflow = 0.88 cfs @ 12.07 hrs, Volume= 0.062 af
 Outflow = 0.88 cfs @ 12.07 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Max. Velocity= 2.89 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.67 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 12.07 hrs
 Average Depth at Peak Storage= 0.18'
 Bank-Full Depth= 8.25', Capacity at Bank-Full= 990.08 cfs

99.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 1.0' Slope= 0.0100 '/
 Inlet Invert= 0.00', Outlet Invert= -0.01'



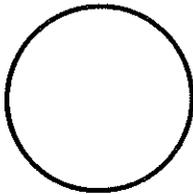
Summary for Reach 2DP: Off Site DP - Otis St.

Inflow Area = 0.453 ac, 93.50% Impervious, Inflow Depth > 1.42" for 2-Year event
 Inflow = 1.09 cfs @ 12.14 hrs, Volume= 0.054 af
 Outflow = 1.08 cfs @ 12.14 hrs, Volume= 0.054 af, Atten= 1%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Max. Velocity= 3.09 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.66 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 12.14 hrs
 Average Depth at Peak Storage= 0.20'
 Bank-Full Depth= 8.25', Capacity at Bank-Full= 990.08 cfs

99.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 1.0' Slope= 0.0100 '/
 Inlet Invert= 0.00', Outlet Invert= -0.01'



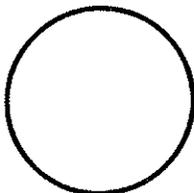
Summary for Reach 7R: Pipe to Pond #1

Inflow Area = 0.087 ac, 100.00% Impervious, Inflow Depth > 2.86" for 2-Year event
Inflow = 0.27 cfs @ 12.07 hrs, Volume= 0.021 af
Outflow = 0.27 cfs @ 12.07 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 3.65 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 0.3 min

Peak Storage= 2 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 0.50', Capacity at Bank-Full= 0.79 cfs

6.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 25.0' Slope= 0.0200 '/'
Inlet Invert= 0.00', Outlet Invert= -0.50'



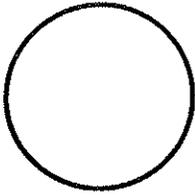
Summary for Reach 8R: Pipe to Pond #2

Inflow Area = 0.230 ac, 94.00% Impervious, Inflow Depth > 2.76" for 2-Year event
Inflow = 0.70 cfs @ 12.07 hrs, Volume= 0.053 af
Outflow = 0.70 cfs @ 12.07 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 3.87 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.27 fps, Avg. Travel Time= 0.4 min

Peak Storage= 5 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 0.83', Capacity at Bank-Full= 2.45 cfs

10.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0125 '/'
Inlet Invert= 0.00', Outlet Invert= -0.35'



Summary for Pond 4P: Cultec Infiltration Pond #1

Inflow Area = 0.087 ac, 100.00% Impervious, Inflow Depth > 2.86" for 2-Year event
 Inflow = 0.27 cfs @ 12.07 hrs, Volume= 0.021 af
 Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.001 af, Atten= 99%, Lag= 715.6 min
 Discarded = 0.00 cfs @ 24.00 hrs, Volume= 0.001 af
 Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 26.76' @ 24.00 hrs Surf.Area= 527 sf Storage= 843 cf

Plug-Flow detention time= 683.2 min calculated for 0.001 af (7% of inflow)
 Center-of-Mass det. time= 295.8 min (1,052.2 - 756.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	24.35'	496 cf	17.00'W x 31.00'L x 3.54'H Field A 1,866 cf Overall - 626 cf Embedded = 1,241 cf x 40.0% Voids
#2A	24.85'	626 cf	Cultec R-330XL x 12 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
		1,122 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	24.35'	0.270 in/hr Exfiltration over Wetted area above 24.35' Excluded Wetted area = 527 sf
#2	Primary	26.75'	4.0" Round Culvert L= 23.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 26.75' / 23.50' S= 0.1413 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Discarded OutFlow Max=0.00 cfs @ 24.00 hrs HW=26.76' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 24.00 hrs HW=26.76' (Free Discharge)
 ↳2=Culvert (Inlet Controls 0.00 cfs @ 0.28 fps)

Summary for Pond 6P: Cultec Infiltration Pond #2

Inflow Area = 0.317 ac, 95.65% Impervious, Inflow Depth > 2.00" for 2-Year event
 Inflow = 0.70 cfs @ 12.07 hrs, Volume= 0.053 af
 Outflow = 0.80 cfs @ 12.14 hrs, Volume= 0.027 af, Atten= 0%, Lag= 4.0 min
 Discarded = 0.00 cfs @ 12.14 hrs, Volume= 0.002 af
 Primary = 0.80 cfs @ 12.14 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 27.01' @ 12.14 hrs Surf.Area= 527 sf Storage= 1,122 cf

Plug-Flow detention time= 232.1 min calculated for 0.027 af (51% of inflow)
 Center-of-Mass det. time= 114.7 min (880.7 - 765.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	23.00'	496 cf	17.00'W x 31.00'L x 3.54'H Field A 1,866 cf Overall - 626 cf Embedded = 1,241 cf x 40.0% Voids
#2A	23.50'	626 cf	Cultec R-330XL x 12 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
		1,122 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.00'	0.270 in/hr Exfiltration over Wetted area above 23.00' Excluded Wetted area = 527 sf
#2	Primary	26.80'	3.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.00 cfs @ 12.14 hrs HW=27.01' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.75 cfs @ 12.14 hrs HW=27.01' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 0.75 cfs @ 1.22 fps)

Summary for Subcatchment 1E: Existing Conditions to Bonair St.

Runoff = 1.67 cfs @ 12.07 hrs, Volume= 0.131 af, Depth> 4.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
* 16,061	98	Impervious areas
16,061		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 1P: Proposed Remaining Site Area to Bonair St.

Runoff = 1.38 cfs @ 12.07 hrs, Volume= 0.099 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
* 10,763	98	Impervious areas
3,617	74	>75% Grass cover, Good, HSG C
14,380	92	Weighted Average
3,617		25.15% Pervious Area
10,763		74.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 2E: Existing Conditions to Otis St.

Runoff = 1.88 cfs @ 12.07 hrs, Volume= 0.147 af, Depth> 4.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
* 18,063	98	Impervious areas
18,063		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 3S: Proposed Remaining Site Area to Otis St.

Runoff = 0.60 cfs @ 12.07 hrs, Volume= 0.045 af, Depth> 3.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
683	74	>75% Grass cover, Good, HSG C
* 5,256	98	Impervious areas
5,939	95	Weighted Average
683		11.50% Pervious Area
5,256		88.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 5S: Prop. Main Bldg Roof-Southern Half

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af, Depth> 4.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
3,800	98	Roofs, HSG C
3,800		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 7S: Overland flow into Pond #2

Runoff = 1.03 cfs @ 12.07 hrs, Volume= 0.079 af, Depth> 4.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
* 9,405	98	impervious areas
600	74	>75% Grass cover, Good, HSG C
10,005	97	Weighted Average
600		6.00% Pervious Area
9,405		94.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

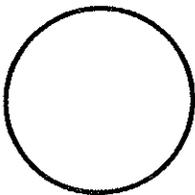
Summary for Reach 1DP: Off Site DP - Bonair St.

Inflow Area = 0.330 ac, 74.85% Impervious, Inflow Depth > 3.60" for 10-Year event
 Inflow = 1.38 cfs @ 12.07 hrs, Volume= 0.099 af
 Outflow = 1.38 cfs @ 12.07 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Max. Velocity= 3.29 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.69 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 12.07 hrs
 Average Depth at Peak Storage= 0.23'
 Bank-Full Depth= 8.25', Capacity at Bank-Full= 990.08 cfs

99.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 1.0' Slope= 0.0100 '/
 Inlet Invert= 0.00', Outlet Invert= -0.01'



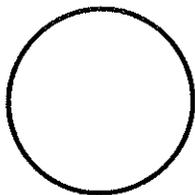
Summary for Reach 2DP: Off Site DP - Otis St.

Inflow Area = 0.453 ac, 93.50% Impervious, Inflow Depth > 2.79" for 10-Year event
 Inflow = 1.80 cfs @ 12.06 hrs, Volume= 0.105 af
 Outflow = 1.78 cfs @ 12.06 hrs, Volume= 0.105 af, Atten= 1%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Max. Velocity= 3.54 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.69 fps, Avg. Travel Time= 0.0 min

Peak Storage= 1 cf @ 12.06 hrs
 Average Depth at Peak Storage= 0.26'
 Bank-Full Depth= 8.25', Capacity at Bank-Full= 990.08 cfs

99.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 1.0' Slope= 0.0100 '/
 Inlet Invert= 0.00', Outlet Invert= -0.01'



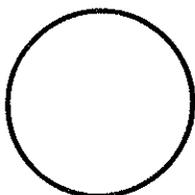
Summary for Reach 7R: Pipe to Pond #1

Inflow Area = 0.087 ac, 100.00% Impervious, Inflow Depth > 4.25" for 10-Year event
 Inflow = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af
 Outflow = 0.39 cfs @ 12.07 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Max. Velocity= 4.03 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 1.39 fps, Avg. Travel Time= 0.3 min

Peak Storage= 2 cf @ 12.07 hrs
 Average Depth at Peak Storage= 0.25'
 Bank-Full Depth= 0.50', Capacity at Bank-Full= 0.79 cfs

6.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 25.0' Slope= 0.0200 1'
 Inlet Invert= 0.00', Outlet Invert= -0.50'



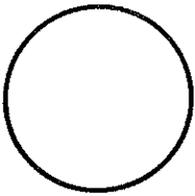
Summary for Reach 8R: Pipe to Pond #2

Inflow Area = 0.230 ac, 94.00% Impervious, Inflow Depth > 4.14" for 10-Year event
 Inflow = 1.03 cfs @ 12.07 hrs, Volume= 0.079 af
 Outflow = 1.03 cfs @ 12.07 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Max. Velocity= 4.30 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 1.45 fps, Avg. Travel Time= 0.3 min

Peak Storage= 7 cf @ 12.07 hrs
 Average Depth at Peak Storage= 0.38'
 Bank-Full Depth= 0.83', Capacity at Bank-Full= 2.45 cfs

10.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 28.0' Slope= 0.0125 1'
 Inlet Invert= 0.00', Outlet Invert= -0.35'



Summary for Pond 4P: Cultec Infiltration Pond #1

Inflow Area = 0.087 ac, 100.00% Impervious, Inflow Depth > 4.25" for 10-Year event
 Inflow = 0.39 cfs @ 12.07 hrs, Volume= 0.031 af
 Outflow = 0.05 cfs @ 12.63 hrs, Volume= 0.011 af, Atten= 88%, Lag= 33.3 min
 Discarded = 0.00 cfs @ 12.63 hrs, Volume= 0.002 af
 Primary = 0.04 cfs @ 12.63 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 26.91' @ 12.63 hrs Surf.Area= 527 sf Storage= 891 cf

Plug-Flow detention time= 353.4 min calculated for 0.011 af (37% of inflow)
 Center-of-Mass det. time= 191.0 min (941.0 - 750.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	24.35'	496 cf	17.00'W x 31.00'L x 3.54'H Field A 1,866 cf Overall - 626 cf Embedded = 1,241 cf x 40.0% Voids
#2A	24.85'	626 cf	Cultec R-330XL x 12 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
		1,122 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	24.35'	0.270 in/hr Exfiltration over Wetted area above 24.35' Excluded Wetted area = 527 sf
#2	Primary	26.75'	4.0" Round Culvert L= 23.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 26.75' / 23.50' S= 0.1413 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Discarded OutFlow Max=0.00 cfs @ 12.63 hrs HW=26.91' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.04 cfs @ 12.63 hrs HW=26.91' (Free Discharge)
 ↑2=Culvert (Inlet Controls 0.04 cfs @ 1.08 fps)

Summary for Pond 6P: Cultec Infiltration Pond #2

Inflow Area = 0.317 ac, 95.65% Impervious, Inflow Depth > 3.37" for 10-Year event
 Inflow = 1.03 cfs @ 12.07 hrs, Volume= 0.089 af
 Outflow = 1.21 cfs @ 12.06 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 11.90 hrs, Volume= 0.003 af
 Primary = 1.21 cfs @ 12.06 hrs, Volume= 0.061 af

Routing by Stor-Ind method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 27.08' @ 12.06 hrs Surf.Area= 527 sf Storage= 1,122 cf

Plug-Flow detention time= 173.2 min calculated for 0.063 af (71% of inflow)
 Center-of-Mass det. time= 76.1 min (852.0 - 775.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	23.00'	496 cf	17.00'W x 31.00'L x 3.54'H Field A 1,866 cf Overall - 626 cf Embedded = 1,241 cf x 40.0% Voids
#2A	23.50'	626 cf	Cultec R-330XL x 12 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
		1,122 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.00'	0.270 in/hr Exfiltration over Wetted area above 23.00' Excluded Wetted area = 527 sf
#2	Primary	26.80'	3.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.00 cfs @ 11.90 hrs HW=26.98' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=1.18 cfs @ 12.06 hrs HW=27.08' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 1.18 cfs @ 1.42 fps)

Summary for Subcatchment 1E: Existing Conditions to Bonair St.

Runoff = 2.43 cfs @ 12.07 hrs, Volume= 0.192 af, Depth> 6.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
* 16,061	98	Impervious areas
16,061		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 1P: Proposed Remaining Site Area to Bonair St.

Runoff = 2.07 cfs @ 12.07 hrs, Volume= 0.153 af, Depth> 5.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
* 10,763	98	Impervious areas
3,617	74	>75% Grass cover, Good, HSG C
14,380	92	Weighted Average
3,617		25.15% Pervious Area
10,763		74.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 2E: Existing Conditions to Otis St.

Runoff = 2.73 cfs @ 12.07 hrs, Volume= 0.215 af, Depth> 6.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
* 18,063	98	Impervious areas
18,063		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 3S: Proposed Remaining Site Area to Otis St.

Runoff = 0.88 cfs @ 12.07 hrs, Volume= 0.067 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
683	74	>75% Grass cover, Good, HSG C
* 5,256	98	Impervious areas
5,939	95	Weighted Average
683		11.50% Pervious Area
5,256		88.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 5S: Prop. Main Bldg Roof-Southern Half

Runoff = 0.57 cfs @ 12.07 hrs, Volume= 0.045 af, Depth> 6.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
3,800	98	Roofs, HSG C
3,800		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

Summary for Subcatchment 7S: Overland flow into Pond #2

Runoff = 1.50 cfs @ 12.07 hrs, Volume= 0.117 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
* 9,405	98	impervious areas
600	74	>75% Grass cover, Good, HSG C
10,005	97	Weighted Average
600		6.00% Pervious Area
9,405		94.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 min. minimum

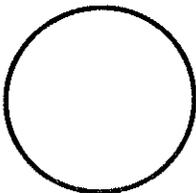
Summary for Reach 1DP: Off Site DP - Bonair St.

Inflow Area = 0.330 ac, 74.85% Impervious, Inflow Depth > 5.56" for 100-Year event
 Inflow = 2.07 cfs @ 12.07 hrs, Volume= 0.153 af
 Outflow = 2.07 cfs @ 12.07 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Max. Velocity= 3.72 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.71 fps, Avg. Travel Time= 0.0 min

Peak Storage= 1 cf @ 12.07 hrs
 Average Depth at Peak Storage= 0.28'
 Bank-Full Depth= 8.25', Capacity at Bank-Full= 990.08 cfs

99.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 1.0' Slope= 0.0100 '/'
 Inlet Invert= 0.00', Outlet Invert= -0.01'



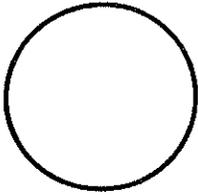
Summary for Reach 2DP: Off Site DP - Otis St.

Inflow Area = 0.453 ac, 93.50% Impervious, Inflow Depth > 4.76" for 100-Year event
 Inflow = 2.46 cfs @ 12.08 hrs, Volume= 0.180 af
 Outflow = 2.47 cfs @ 12.08 hrs, Volume= 0.180 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Max. Velocity= 3.93 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.73 fps, Avg. Travel Time= 0.0 min

Peak Storage= 1 cf @ 12.08 hrs
 Average Depth at Peak Storage= 0.30'
 Bank-Full Depth= 8.25', Capacity at Bank-Full= 990.08 cfs

99.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 1.0' Slope= 0.0100 '/'
 Inlet Invert= 0.00', Outlet Invert= -0.01'



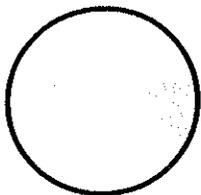
Summary for Reach 7R: Pipe to Pond #1

Inflow Area = 0.087 ac, 100.00% Impervious, Inflow Depth > 6.23" for 100-Year event
Inflow = 0.57 cfs @ 12.07 hrs, Volume= 0.045 af
Outflow = 0.57 cfs @ 12.07 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 4.40 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.57 fps, Avg. Travel Time= 0.3 min

Peak Storage= 3 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 0.50', Capacity at Bank-Full= 0.79 cfs

6.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 25.0' Slope= 0.0200 '/'
Inlet Invert= 0.00', Outlet Invert= -0.50'



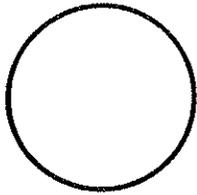
Summary for Reach 8R: Pipe to Pond #2

Inflow Area = 0.230 ac, 94.00% Impervious, Inflow Depth > 6.13" for 100-Year event
Inflow = 1.50 cfs @ 12.07 hrs, Volume= 0.117 af
Outflow = 1.50 cfs @ 12.07 hrs, Volume= 0.117 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 4.71 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.65 fps, Avg. Travel Time= 0.3 min

Peak Storage= 9 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 0.83', Capacity at Bank-Full= 2.45 cfs

10.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0125 '/'
Inlet Invert= 0.00', Outlet Invert= -0.35'



Summary for Pond 4P: Cultec Infiltration Pond #1

Inflow Area = 0.087 ac, 100.00% Impervious, Inflow Depth > 6.23" for 100-Year event
 Inflow = 0.57 cfs @ 12.07 hrs, Volume= 0.045 af
 Outflow = 0.24 cfs @ 12.24 hrs, Volume= 0.026 af, Atten= 57%, Lag= 10.3 min
 Discarded = 0.00 cfs @ 12.24 hrs, Volume= 0.002 af
 Primary = 0.24 cfs @ 12.24 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 27.45' @ 12.24 hrs Surf.Area= 527 sf Storage= 1,029 cf

Plug-Flow detention time= 237.9 min calculated for 0.026 af (57% of inflow)
 Center-of-Mass det. time= 121.6 min (867.0 - 745.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	24.35'	496 cf	17.00'W x 31.00'L x 3.54'H Field A 1,866 cf Overall - 626 cf Embedded = 1,241 cf x 40.0% Voids
#2A	24.85'	626 cf	Cultec R-330XL x 12 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
		1,122 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	24.35'	0.270 in/hr Exfiltration over Wetted area above 24.35' Excluded Wetted area = 527 sf
#2	Primary	26.75'	4.0" Round Culvert L= 23.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 26.75' / 23.50' S= 0.1413 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Discarded OutFlow Max=0.00 cfs @ 12.24 hrs HW=27.45' (Free Discharge)
 ↖1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.24 cfs @ 12.24 hrs HW=27.45' (Free Discharge)
 ↖2=Culvert (Inlet Controls 0.24 cfs @ 2.78 fps)

Summary for Pond 6P: Cultec Infiltration Pond #2

Inflow Area = 0.317 ac, 95.65% Impervious, Inflow Depth > 5.35" for 100-Year event
 Inflow = 1.61 cfs @ 12.08 hrs, Volume= 0.141 af
 Outflow = 1.61 cfs @ 12.09 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.4 min
 Discarded = 0.00 cfs @ 11.24 hrs, Volume= 0.003 af
 Primary = 1.61 cfs @ 12.09 hrs, Volume= 0.113 af

Routing by Stor-Ind method, Time Span= 2.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 27.14' @ 12.09 hrs Surf.Area= 527 sf Storage= 1,122 cf

Plug-Flow detention time= 129.0 min calculated for 0.115 af (82% of inflow)
 Center-of-Mass det. time= 56.5 min (825.4 - 768.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	23.00'	496 cf	17.00'W x 31.00'L x 3.54'H Field A 1,866 cf Overall - 626 cf Embedded = 1,241 cf x 40.0% Voids
#2A	23.50'	626 cf	Cultec R-330XL x 12 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
		1,122 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.00'	0.270 in/hr Exfiltration over Wetted area above 23.00' Excluded Wetted area = 527 sf
#2	Primary	26.80'	3.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.00 cfs @ 11.24 hrs HW=26.85' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=1.59 cfs @ 12.09 hrs HW=27.14' (Free Discharge)
 ↳2=Broad-Crested Rectangular Weir (Weir Controls 1.59 cfs @ 1.57 fps)

