17. Stormwater

Stormwater Management:

Surface stormwater from roofs parking areas and green space will be directed towards multiple rain garden areas dispersed throughout the site. These rain gardens will be underdrained and designed to remove pollutants and sediment and to cool stormwater before it is discharged into the Back Cove, which discharges to Casco Bay. In general, the existing surface drainage patterns will be retained. Overflows from the rain gardens during heavy rain events will drain into catch basins. During extreme rain events, the rain gardens will overflow to the surface and the site will be graded to direct overflows towards the roadways and away from the buildings.

The site's existing stormwater system is connected to the City's combined drainage system, which is often overwhelmed during heavy rain events, resulting in Combined Sewer Overflows (CSO), the discharge of untreated sewerage into Casco Bay. The proposed stormdrain system will be completely separate from the sewer system, which will reduce the strain on the combined sewer system during heavy rains and, in turn, help to reduce the duration and frequency of CSO's.

Please see the Stormwater Management Narrative and attachments for additional information.

RANSOM Consulting, Inc.

Consulting Engineers and Scientists

Front Street Stormwater Management Narrative

Date:	October 10, 2017
To:	City of Portland
From:	John Mahoney, P.E.
Peer Review:	Tom Nosal, EIT & Steve Bradstreet, P.E.
Location:	Front Street, Portland, Maine

Executive Summary:

Surface stormwater runoff from roofs, parking areas and green space will be directed towards multiple rain garden areas distributed throughout the site. These rain gardens will be underdrained and designed to remove pollutants and sediment and to cool stormwater before it is discharged into the Back Cove, which discharges to Casco Bay. In general, the existing surface drainage patterns will be retained. Overflows from the rain gardens during heavy rain events will drain into catch basins. During extreme rain events, the rain gardens will overflow to the surface and the site will be graded to direct overflows towards the roadways and away from the buildings.

The site's existing stormwater system is connected to the City's combined sewer system, which is often overwhelmed during heavy rain events, resulting in the discharge of untreated sewerage into Casco Bay, Combined Sewer Overflows (CSO). The proposed stormdrain system will be completely separate from the sewer system, which will reduce the strain on the combined sewer system during heavy rains and, in turn, help to reduce the duration and frequency of CSOs.

Existing Conditions:

The Site consists of two parcels on Front Street at the intersection of West Presumpscot Street. The Western Parcel at 63 Front Street contains 71,256 square feet, while the Eastern Parcel at 37 Front Street contains 100,253 square feet. The site is currently occupied by 19 buildings (50 residential apartments and a community space), along with associated parking lots and walkways, with the remaining portion of the property being lawn area.

The site generally drains from the back of the lots towards Front Street and along Front Street, from northwest to southeast. Both parcels contain closed stormdrain systems that are combined with sewer services for the existing buildings. These combined drainage systems discharge to the City's combined sewers at various locations along Front Street and on West Presumpscot Street. The entire Front Street Site currently drains to combined sewers.

Based on the Cumberland County USDA soil survey GIS data, the existing soils on this site are all hydrological group D (poorly drained).

Proposed Development:

The applicant, Front Street Housing Redevelopment, LP, proposes to construct 6 new buildings (100 residential apartments and a community space), along with associated parking, walkways and landscaped areas. The proposed development will increase the site's impervious area from 68,532 square feet to 109,012 square feet. The Western Parcel's impervious area will increase by 14,636 square feet, and the Eastern Parcel's will increase by 25,844 square feet.

In order to reduce the Site's impact on the City's combined drainage system, the applicant proposes to work with the City to construct a new separated stormdrain system within Front Street and West Presumpscot Street. This system, shown schematically on the civil plans, is proposed to discharge to an existing 48" stormdrain that crosses Front Street at the eastern edge of the site. In order to minimize long term maintenance and to maximize the potential for future separation projects, the applicant proposes to work in collaboration with the City on the final configuration/design of the new stormdrain system.

Stormwater Management – Basic Standards:

Erosion and sedimentation control measures are described on Sheet C8.0. Good housekeeping practices shall be in accordance with Maine DEP Best Management Practices. A post construction stormwater management plan and a stormwater BMP inspection and maintenance log are included with this submission.

Stormwater Management - Quality:

As shown on Sheet C5.0, stormwater treatment will be provided by 14 rain gardens distributed throughout the Site. Thirteen of the rain gardens will utilize the FocalPoint system. Focal Point is a high-flow biofiltration media, engineered to provide a permeability rate in excess of 100 inches/hour. This high permeability facilitates treatment of relatively large impervious areas with small rain gardens making the FocalPoint system ideal for constrained sites and for minimizing excavation/removal of urban soils.

All but one of the Focal Point systems have been sized to treat 1.6-inches of runoff from their respective contributing impervious areas and 0.4-inches of runoff from corresponding landscaped areas. See attached spreadsheets and table on Sheet C5.0 for additional detail.

The FocalPoint systems will be underdrained by R-Tanks, which is a modular system for stormwater storage and conveyance. The proposed R-Tanks will contain a maintenance row (see attached cut sheet). The maintenance row is proposed as an "approved equal" for the Maine DEP's "Isolator Row" requirement for FocalPoint.

The remaining rain garden (#6) will be a standard *underdrained soil filter,* as it has a relatively small contributing drainage area. The ponding volume for this rain garden exceeds the sum of 1.6-inches of runoff over its contributing impervious areas plus 0.4-inches of runoff over contributing landscaped areas. All rain gardens will include stone energy dissipaters to disperse concentrated flows. Rain gardens that receive runoff from parking areas will have sediment forebays to pre-treat stormwater by capturing sand/sediment upstream of the rain garden filter media.

Stormwater Management - Quantity:

The applicant is requesting a waiver from the flooding standard for the following reasons.

- Because the proposed Site will drain to a separated stormdrain system that discharges directly to Back Cove, our stormwater management approach focuses on stormwater treatment; i.e. removing pollutants and cooling runoff before discharging to Back Cove.

- While our primary focus has been treatment, as indicated above, a substantial volume of stormwater storage is proposed; 1,287 CF from rain garden ponding areas.

- In order to strictly meet the flooding standard, sizable detention ponds would be needed. The construction of which would require removing significant volumes of soil from the Site. Based on initial environmental investigations, onsite soils would be considered *special waste* per Maine DEP Solid Waste Management Rules. Tipping fees for offsite disposal of *special waste* would substantially increase the cost of providing stormwater detention.

- The project will remove approximately 4 acres of surface runoff from the City's combined drainage system, which will reduce loading on local combined sewers, which in turn, will help to reduce the frequency, intensity and duration of combined sewer overflows.

- The site will drain to a large (48" diameter) public stormdrain that will drain directly to Back Cove and into the Atlantic Ocean.

Hydraulic Analysis:

Stormwater runoff calculations for quantity were made using the HydroCAD 10.0 computer program, which is based on the Soil Conservation Service's TR-20 methodology. Runoff hydrographs are generated based on a standard Type III 24 hour storm.

Runoff Curve numbers were determined based on land coverage and hydro-geological group. A minimum time of concentration (Tc) of 6 minutes was set in the HydroCAD model.

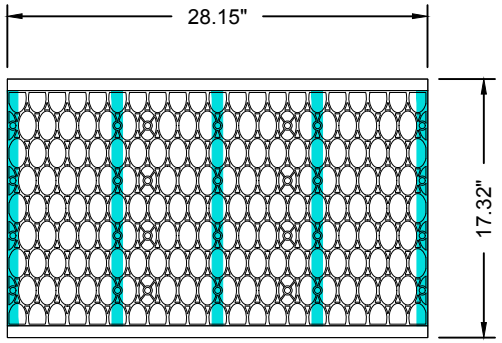
Peak runoff flow rates and runoff volumes for the pre-development conditions are provided at Analysis Point A , which is a 30" combined sewer in Front Street at the eastern edge of the site. Peak runoff flow rates and runoff volumes for the post-development conditions are provided at Analysis point A', which is the 48" separated stormdrain that crosses Front Street at the eastern edge of the site. These analysis points are essentially in the same location, see Sheet C5.0.

The following hydraulic analysis is conservative in that it does not factor in any of the onsite storage we are proposing. Three storm events were modeled as follows (rainfall data extracted by the Maine DEP from the Northeast Regional Climate Center Extreme Precipitation Tables).

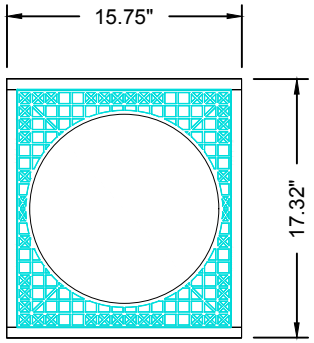
1. 2-year frequency flood event: 3.1" rainfall
2. 10-year frequency flood event: 4.6" rainfall
3. 25-year frequency flood event: 5.8" rainfall

Storm Event	PRE-Development Peak Runoff RATES cubic feet per second (CFS)
	Analysis Point A 30" Combined Sewer
2 Year Frequency Storm	8.58
10 Year Frequency Storm	14.69
25 Year Frequency Storm	19.60

Storm Event	POST-Development Peak Runoff RATES cubic feet per second (CFS)
	Analysis Point A' 48" Stormdrain
2 Year Frequency Storm	9.84
10 Year Frequency Storm	15.97
25 Year Frequency Storm	20.83



SIDE



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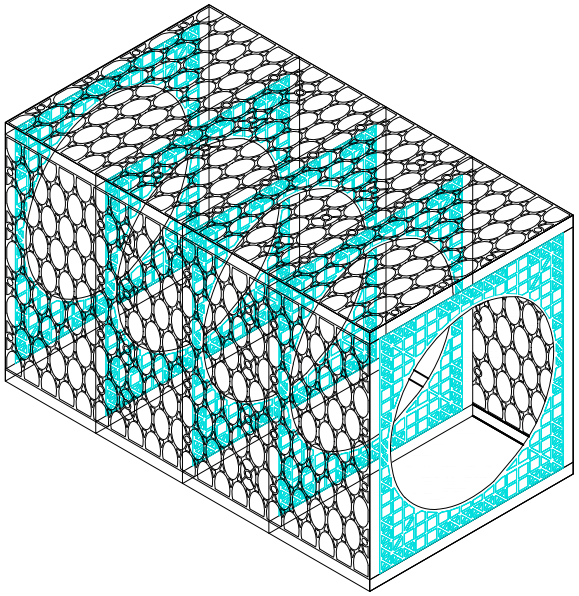

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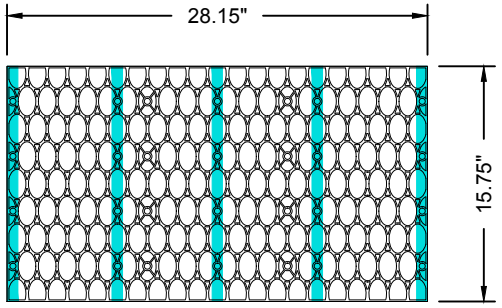


TOP

MODULE DATA

GEOMETRY:
LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 17.32 IN. (440 MM)
TANK VOLUME = 4.44 CF
STORAGE VOLUME = 4.22 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

LOAD RATING:
33.4 PSI, (MODULE ONLY)
HS20, (WITH ACF COVER SYSTEM)
MATERIAL:
100% RECYCLED
POLYPROPYLENE
SMALL PLATES PER SEGMENT/TOTAL:
5/5

ACF ENVIRONMENTAL
LET'S GET IT DONE

09/25/2017

R-TANK^{HD} - SINGLE MAINTENANCE MODULE

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

Front Street: Stormwater BMP Inspection Log

The City of Portland, ME requires ongoing annual inspections to ensure the proper maintenance and operation of stormwater management facilities. Inspections must be conducted by third parties qualified by the City.

A. General Information

Use only one Cover Sheet per site with as many specific structural BMP Inspection Report attachments as needed. Attach required color digital photos of site, structures and devices as applicable with captions.

Project Name:	**Front Street Housing Redevelopment**	**Inspection Date:**	
Parcel Map, Block and Lot:	**Map 166 Block B Lot 1; Map 167 Block E Lot 1**	**Current Weather:**	
BMP Owner:	**Portland Housing Authority**	**Date / Amount Last Precip:**	
Owner Mailing Address:	**14 Baxter Boulevard Portland, Maine**	**3PI Company:**	
		3PI Mailing Address:	
Owner Phone #:	**207-773-4753**		
Owner Email:	**jwaterman@porthouse.org**	**Inspector Name:**	
		Inspector Phone #:	
		Inspector Email:	

B. Inspection Report Attachments

Please document the number of each structural BMP type found at this site in the blank spaces provided below. Use additional Attachments if / as needed and submit all Attachments together with the Cover Sheet as a single report.

BMP Type	Number BMPs at site
Vegetated Areas	-
Parking Lot	2
Stormdrain Field Inlets/Catch Basins: Harco Drain with Stormsack	15
FocalPoint High Flow Biofiltration Unit	13
R-Tank Subsurface Detention-Infiltration System	13

Other (describe	

C. Inspection Results

FAIL** ☐

** If any one item on an Inspection Report attachment is coded as "Work Needed" then entire BMP fails inspection.

** If a site has multiple BMPs and one fails inspection, mark as "Fail" until all BMPs pass inspection.

Note: Applicable BMP Inspection Reports and confirmatory color digital photos summarizing required repairs must be submitted to the City following completion of the preliminary inspection. A re-inspection and certification must be completed within 60 days of the failed preliminary report. It is recommended that the inspector be part of the repair / maintenance process to ensure that repairs are performed properly.

PASS ☐

Note: a qualified professional (as determined by the City) must sign below and include all applicable Inspection Report attachments and confirmatory digital color photos with captions.

D. Professional Certification (as qualified by City of Portland Stormwater Program Coordinator)

To be completed only when all BMPs at this site are functioning as designed with no outstanding maintenance issues.

I, _____, as a duly qualified third party inspector attest that a thorough inspection has been completed for ALL applicable BMPs that are associated with this particular site. All inspected structural BMPs are performing as designed and intended and are in compliance with the provisions of the City Portland's Standards

Signature: _____

Date: _____

Owner: Portland Housing Authority	**Operator:**
Location & Parcel Id: Map 166 Block B Lot 1; Map 167 Block E Lot 1	**Inspector:**
	Date:

General Information	**Observations**
Inspection duration (hours)	
Days since last precipitation	
Quantity of last precipitation (in)	
Type of inspection	
Storm event	
Current weather	
Photos taken	☐ Yes ☐ No ☐ NA
Nearby natural resources	☐ Yes ☐ No ☐ NA
Copy of ESC plan	☐ Yes ☐ No ☐ NA
MEDEP Permit # (*if applicable*)	
General info notes	

Vegetated Areas	**Observations**
Condition of slopes and embankment is good	☐ Yes ☐ No ☐ NA
No bare areas (< 90% covered) with sparse growth	☐ Yes ☐ No ☐ NA
Armored areas have no rill erosion or the flow diverted to onsite areas can withstand concentrated flows	☐ Yes ☐ No ☐ NA
Vegetated area notes	

Parking Lot	**Observations**
Accumulated winter sand has been cleared	☐ Yes ☐ No ☐ NA
Pavement swept to help remove sediment	☐ Yes ☐ No ☐ NA
No stormwater is impeded by accumulations of material	☐ Yes ☐ No ☐ NA
Parking lot notes:	

Stormdrain Structures (Require inspection TWICE per year)	**Observations**
Accumulated sediments from inflow channels, pipes and sumps between basins have been removed and legally disposed of.	☐ Yes ☐ No ☐ NA
Floating debris and floating oils have been removed.	☐ Yes ☐ No ☐ NA
Debris and Sediment Removed From Harco Stormsack	☐ Yes ☐ No ☐ NA
Stormdrain Structure system notes The Harco Stormsack in the overflow drain shall be inspected every three months for the first year and twice annually after that. It is CRITICAL THAT THE STORMSACK BE MAINTAINED IN ORDER TO PREVENT DEBRIS AND SEDIMENT FROM ENTERING THE R-TANKs.	

FocalPoint High Flow Biofiltration and R-Tank System	**Observations**
Bark Mulch Layer Removed Replaced Annually	☐ Yes ☐ No ☐ NA
Accumulated sediments and debris (trash) within the surrounding ponding (rain garden) area have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Water level observed in inspection all 3 inspection port to ensure that the infiltration area is draining adequately and excessive sediment has not built up.	☐ Yes ☐ No ☐ NA
Eroded areas have been repaired.	☐ Yes ☐ No ☐ NA

FocalPoint/R-Tank notes

If sediment accumulates beyond an acceptable level in the R-Tank storage system, it will be necessary to flush the underdrain. This can be done by pumping water into the Observation/Maintenance Port or adjacent overflow structure, allowing the turbulent flows through the underdrain to re- suspend the fine sediments. The proposed R-Tanks include a maintenance plate row to facilitate this process. Measures shall be taken to capture sediment before discharge to the City's stormdrain system; i.e. sediment laden water vacuumed from the R-Tanks SHALL NOT be discharged to the stormdrain but rather hauled offsite and disposed of based on applicable Maine DEP regulations.

Other Comments	**Observations**
Corrective action needed	☐ Yes ☐ No ☐ NA

If corrective action in needed, please explain detail

Verbal notification provided to responsible party	☐ Yes ☐ No
Verbal notification contact	
Follow up required	☐ Yes ☐ No

Final comment notes

Photos (*use additional pages as needed*)
Review Notes
Date Reviewed: Reviewed by: Date entered: Date edited: Edited by:

Front Street Housing Redevelopment: Post-Construction Stormwater Compliance Requirements

The Applicant shall maintain the BMPs in accordance with the approved plan and shall demonstrate compliance with the plan as follows:

(a) *Inspections.* The owner or operator of a BMP shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, rain gardens, pervious pavers, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post- construction stormwater management plan.

(b) *Maintenance and repair.* If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action(s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action(s) to the department of public services (“DPS”) in the annual report.

(c) *Annual report.* The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, on or by June 30 of each year, provide a completed and signed certification to DPS in a form provided by DPS, certifying that the person has inspected the BMP(s) and that they are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they require maintenance or repair, including the record of the deficiency and corrective action(s) taken.

(d) *Filing fee.* Any persons required to file and annual certification under this section shall include with the annual certification a filing fee established by DPS to pay the administrative and technical costs of review of the annual certification.

(e) *Right of entry.* In order to determine compliance with this article and with the post-construction stormwater management plan, DPS may enter upon property at reasonable hours with the consent of the owner, occupant or agent to inspect the BMPs.

Front Street Housing Redevelopment
Portland, Maine

STORMWATER DRAINAGE SYSTEM MAINTENANCE AGREEMENT AND RELEASE FROM LIABILITY

IN CONSIDERATION OF the site plan and subdivision approval granted by the Planning Board of the City of Portland to a plan entitled **Front Street: C-5.0 Stormwater & Erosion Control Plan** prepared for **Front Street Housing Redevelopment, LP,** by **Ransom Consulting, Inc**. dated **_____, 2017** recorded in the Cumberland County Registry of Deeds in Plan Book _____, Page _____ (the "Plan") and pursuant to a condition thereof, **Front Street Housing Redevelopment, LP** (owner) having a mailing address of **14 Baxter Boulevard, Portland, ME 04101**, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the "Owner"), as follows:

Maintenance Agreement

That it will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the stormwater drainage system, as shown on said plan, including but not limited to the **rain garden, FocalPoint systems, R-Tanks and catch basins** in strict compliance with the Maintenance of Facilities as described in **Front Street Stormwater Management Narrative and the Front Street Stormwater Inspection and Maintenance Log** (Stormwater Management Plan) dated **_____, 2017** and Chapter 32 of the Portland City Code. Owner of the subject premises further agrees to keep a Stormwater Maintenance Log that will be made available for inspection by the City of Portland upon reasonable notice and request.

This Agreement is for the benefit of the said City of Portland and all persons in lawful possession of the property; further, that the said City of Portland may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice as described in this Agreement, and a stated time to perform, that the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon the property in question to maintain, repair, or replace said stormwater drainage system, including but not limited to the **rain garden, FocalPoint systems, R-Tanks and catch basins** thereon in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear. The Owner agrees to provide a copy of this Agreement to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions.

For the purpose of this Agreement the real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and liened if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the Owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by this Agreement shall be complete on the date the notice is mailed to the owner of record as shown on the tax roles on file in the City Assessor's Office. If the property has more than one owner on said tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this Agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or liening it or create a cause of action against the City.

Dated at Portland, Maine this_____day of _____, 20__.

_____
By:_____
Its: _____

STATE OF MAINE
CUMBERLAND, ss. Date: _____

Personally appeared the above-named_____, and acknowledged the foregoing instrument to be his/his free act and deed in his/her said capacity, and the free act and deed of said_____.

Before me,

_____
Notary Public/Attorney at Law

Print name: _____

CONVERGENT WATER TECHNOLOGIES

ACF FP and RT Calc 1.8

This calculator is designed to provide sizing and performance guidance for the FocalPoint Bio-Filtration and RTank Underground Storage Systems based on TR-55 protocol and distribution curves. There are three types of cells the user will want to be familiar with: White Cells are intended for user input, Green Cells require a selection off of the dropdown toggle switch and the Blue Cells contain the calculated result.

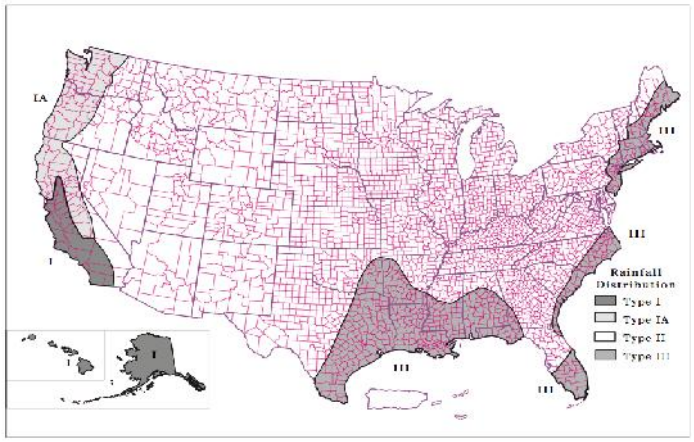
Contact:	John Mahoney	Project Name:	Front Street Housing Redevelopment
Company:	Ransom Consulting Inc.	Location:	Portland Maine
Phone:			
Email:			

Water Quality Volume Calculator

Step 1 - Rainfall Distribution

1.1 - SCS Type	Type III	

See TR-55 Map Tab below to determine which type event is appropriate for your area



Step 2 - Basis for Water Quality Volume

2.1 - Enter Methodolgy	Maine Scroll Down	Directions Select one of the following from Toggle: Manual if WQv is already calculated TR-55 to Calculate WQv and use that volume in one step New York to Calculate WQv off Figure 4.1 of NY SWM Manual Maine to Calculate WQv as 1" off Impervious and 0.4" off pervious

Step 3 - Enter Data As Described For Basis for Water Quality Chosen in Step 2 Highlighted in Blue Below

3 - Manual Input

			Directions
3.1 If "Manual", enter Water Quality volume	10,000	ft^3	Enter the Water Quality Volume (WQv) here.
3.2 If "Manual", enter Design Event volume	25,000	ft^3	Enter the Design Event here (if different than WQv).

Note: If FocalPoint not being used and runoff will be routed directly to RTank, enter "No" in cell E10 on FocalPoint Design worksheet

3.2 - TR-55 Input

				Directions
Enter Methodology	Toggle	W.Q. Volume		Use Toggle to select first flush of full event volume
Runoff (First Flush) or Rainfall (W.Q. Volume) Depth		7.54		Depth of First Flush treatment Requirement - in inches
Design Event Rainfall Depth		7.54		Depth of total rainfall event in inches

Subarea	Cover Condition	Area to BMP (ft^2)	TR-55 CN Value	
Post Cover 1	Roof	2,919	98	Enter cover conditions and CNs
Post Cover 2				
Post Cover 3				
	Total	2,919		

	W.Q. Even	Design Event	
Post Cover 1	1,776	1,776	ft^3
Post Cover 2	0	0	ft^3
Post Cover 3	0	0	ft^3
RESULTS	**1,776**	**1,776**	ft^3

3.3 - New York

90% Rainfall Amount (P)	1.00	inches	Enter rainfall depth from Figure 4.1, page 4-2 of NY SWM Design Man.

Impervious cover (I)	55.00%		Enter % of Impervious Cover
Drainage Area (A)	103,456	ft^2	Enter Drainage Area
Water Quality Volume (WQ_v)	4,699	ft^3	
Design Event Volume (Manual Entry)	10,000	ft^3	Enter Design Event Volume

3.4 - Maine			
Rain Garden 1			
Impervious Cover	13,066	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	8,134	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	2,013	ft^3	
Rain Garden 2			
Impervious Cover	9,575	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	4,332	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	1,421	ft^3	
Rain Garden 3			
Impervious Cover	8,420	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	443	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	1,137	ft^3	
Rain Garden 4			
Impervious Cover	9,180	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	383	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	1,237	ft^3	
Rain Garden 5			
Impervious Cover	1,849	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	2,669	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	336	ft^3	
Rain Garden 6			
Impervious Cover	103	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	1,184	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	53	ft^3	
Rain Garden 7			
Impervious Cover	6,322	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	404	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	856	ft^3	
Rain Garden 8			
Impervious Cover	9,066	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	923	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	1,240	ft^3	
Rain Garden 9			
Impervious Cover	4,426	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	171	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	596	ft^3	
Rain Garden 10			
Impervious Cover	6,300	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	4,562	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	677	ft^3	
Rain Garden 11			
Impervious Cover	6,224	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	192	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	836	ft^3	
Rain Garden 12			
Impervious Cover	3,674	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	1,660	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	545	ft^3	
Rain Garden 13			
Impervious Cover	15,640	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	8,089	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	2,355	ft^3	
Rain Garden 14			
Impervious Cover	9,855	ft^2	Enter ft3 of Impervious Cover
Pervious Cover	7,320	ft^2	Enter ft3 of Pervious Cover
Water Quality Volume	1,558	ft^3	

FocalPoint
BIOFILTRATION SYSTEMS

Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	2,013	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	2,013	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	110	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	152	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	2,013	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	4	4	**Flow through**	4	0	0	0
0.4	0.00	8	4	**Flow through**	4	0	0	0
0.6	0.01	12	4	**Flow through**	4	0	0	0
0.8	0.01	16	4	**Flow through**	4	0	0	0
1.0	0.01	20	4	**Flow through**	4	0	0	0
1.2	0.01	24	4	**Flow through**	4	0	0	0
1.4	0.01	28	4	**Flow through**	4	0	0	0
1.6	0.02	32	4	**Flow through**	4	0	0	0
1.8	0.02	36	4	**Flow through**	4	0	0	0
2.0	0.02	40	4	**Flow through**	4	0	0	0
2.2	0.02	44	4	**Flow through**	4	0	0	0
2.4	0.02	49	4	**Flow through**	4	0	0	0
2.6	0.03	53	4	**Flow through**	4	0	0	0
2.8	0.03	57	4	**Flow through**	4	0	0	0
3.0	0.03	62	5	**Flow through**	5	0	0	0
3.2	0.03	67	5	**Flow through**	5	0	0	0
3.4	0.04	71	5	**Flow through**	5	0	0	0
3.6	0.04	76	5	**Flow through**	5	0	0	0
3.8	0.04	81	5	**Flow through**	5	0	0	0
4.0	0.04	87	5	**Flow through**	5	0	0	0
4.2	0.05	92	5	**Flow through**	5	0	0	0
4.4	0.05	97	5	**Flow through**	5	0	0	0
4.6	0.05	103	6	**Flow through**	6	0	0	0
4.8	0.05	109	6	**Flow through**	6	0	0	0
5.0	0.06	114	6	**Flow through**	6	0	0	0
5.2	0.06	120	6	**Flow through**	6	0	0	0
5.4	0.06	126	6	**Flow through**	6	0	0	0
5.6	0.07	132	6	**Flow through**	6	0	0	0
5.8	0.07	138	6	**Flow through**	6	0	0	0
6.0	0.07	145	6	**Flow through**	6	0	0	0
6.2	0.08	152	7	**Flow through**	7	0	0	0
6.4	0.08	159	7	**Flow through**	7	0	0	0
6.6	0.08	166	7	**Flow through**	7	0	0	0
6.8	0.09	174	8	**Flow through**	8	0	0	0
7.0	0.09	182	8	**Flow through**	8	0	0	0
7.2	0.09	191	9	**Flow through**	9	0	0	0
7.4	0.10	200	9	**Flow through**	9	0	0	0
7.6	0.10	209	9	**Flow through**	9	0	0	0
7.8	0.11	219	10	**Flow through**	10	0	0	0
8.0	0.11	229	10	**Flow through**	10	0	0	0
8.2	0.12	240	11	**Flow through**	11	0	0	0
8.4	0.13	252	12	**Flow through**	12	0	0	0
8.6	0.13	265	13	**Flow through**	13	0	0	0
8.8	0.14	279	14	**Flow through**	14	0	0	0
9.0	0.15	293	15	**Flow through**	15	0	0	0
9.2	0.15	309	16	**Flow through**	16	0	0	0
9.4	0.16	326	17	**Flow through**	17	0	0	0
9.6	0.17	343	17	**Flow through**	17	0	0	0
9.8	0.18	361	18	**Flow through**	18	0	0	0
10.0	0.19	380	19	**Flow through**	19	0	0	0
10.2	0.20	401	21	**Flow through**	21	0	0	0
10.4	0.21	424	23	**Flow through**	23	0	0	0
10.6	0.22	448	25	**Flow through**	25	0	0	0
10.8	0.24	475	27	**Flow through**	27	0	0	0

FocalPoint
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ACF FP and RT Calc 1.8

Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	1,421	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	1,421	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	60	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	170	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	1,421	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	3	3	Flow through	3	0	0	0
0.4	0.00	6	3	Flow through	3	0	0	0
0.6	0.01	9	3	Flow through	3	0	0	0
0.8	0.01	11	3	Flow through	3	0	0	0
1.0	0.01	14	3	Flow through	3	0	0	0
1.2	0.01	17	3	Flow through	3	0	0	0
1.4	0.01	20	3	Flow through	3	0	0	0
1.6	0.02	23	3	Flow through	3	0	0	0
1.8	0.02	26	3	Flow through	3	0	0	0
2.0	0.02	28	3	Flow through	3	0	0	0
2.2	0.02	31	3	Flow through	3	0	0	0
2.4	0.02	34	3	Flow through	3	0	0	0
2.6	0.03	37	3	Flow through	3	0	0	0
2.8	0.03	40	3	Flow through	3	0	0	0
3.0	0.03	44	3	Flow through	3	0	0	0
3.2	0.03	47	3	Flow through	3	0	0	0
3.4	0.04	50	3	Flow through	3	0	0	0
3.6	0.04	54	3	Flow through	3	0	0	0
3.8	0.04	57	4	Flow through	4	0	0	0
4.0	0.04	61	4	Flow through	4	0	0	0
4.2	0.05	65	4	Flow through	4	0	0	0
4.4	0.05	69	4	Flow through	4	0	0	0
4.6	0.05	73	4	Flow through	4	0	0	0
4.8	0.05	77	4	Flow through	4	0	0	0
5.0	0.06	81	4	Flow through	4	0	0	0
5.2	0.06	85	4	Flow through	4	0	0	0
5.4	0.06	89	4	Flow through	4	0	0	0
5.6	0.07	93	4	Flow through	4	0	0	0
5.8	0.07	98	4	Flow through	4	0	0	0
6.0	0.07	102	5	Flow through	5	0	0	0
6.2	0.08	107	5	Flow through	5	0	0	0
6.4	0.08	112	5	Flow through	5	0	0	0
6.6	0.08	117	5	Flow through	5	0	0	0
6.8	0.09	123	6	Flow through	6	0	0	0
7.0	0.09	129	6	Flow through	6	0	0	0
7.2	0.09	135	6	Flow through	6	0	0	0
7.4	0.10	141	6	Flow through	6	0	0	0
7.6	0.10	148	7	Flow through	7	0	0	0
7.8	0.11	155	7	Flow through	7	0	0	0
8.0	0.11	162	7	Flow through	7	0	0	0
8.2	0.12	170	8	Flow through	8	0	0	0
8.4	0.13	178	8	Flow through	8	0	0	0
8.6	0.13	187	9	Flow through	9	0	0	0
8.8	0.14	197	10	Flow through	10	0	0	0
9.0	0.15	207	10	Flow through	10	0	0	0
9.2	0.15	218	11	Flow through	11	0	0	0
9.4	0.16	230	12	Flow through	12	0	0	0
9.6	0.17	242	12	Flow through	12	0	0	0
9.8	0.18	255	13	Flow through	13	0	0	0
10.0	0.19	269	14	Flow through	14	0	0	0
10.2	0.20	283	15	Flow through	15	0	0	0
10.4	0.21	299	16	Flow through	16	0	0	0
10.6	0.22	316	17	Flow through	17	0	0	0
10.8	0.24	335	19	Flow through	19	0	0	0

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Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	1,137	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	1,137	ft^3	Total event volume calculated from previous sheet

System Configuration		
Is FocalPoint used?	Yes	Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	80	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	47	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	1,137	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	2	2	**Flow through**	2	0	0	0
0.4	0.00	5	2	**Flow through**	2	0	0	0
0.6	0.01	7	2	**Flow through**	2	0	0	0
0.8	0.01	9	2	**Flow through**	2	0	0	0
1.0	0.01	11	2	**Flow through**	2	0	0	0
1.2	0.01	14	2	**Flow through**	2	0	0	0
1.4	0.01	16	2	**Flow through**	2	0	0	0
1.6	0.02	18	2	**Flow through**	2	0	0	0
1.8	0.02	20	2	**Flow through**	2	0	0	0
2.0	0.02	23	2	**Flow through**	2	0	0	0
2.2	0.02	25	2	**Flow through**	2	0	0	0
2.4	0.02	27	2	**Flow through**	2	0	0	0
2.6	0.03	30	3	**Flow through**	3	0	0	0
2.8	0.03	32	3	**Flow through**	3	0	0	0
3.0	0.03	35	3	**Flow through**	3	0	0	0
3.2	0.03	38	3	**Flow through**	3	0	0	0
3.4	0.04	40	3	**Flow through**	3	0	0	0
3.6	0.04	43	3	**Flow through**	3	0	0	0
3.8	0.04	46	3	**Flow through**	3	0	0	0
4.0	0.04	49	3	**Flow through**	3	0	0	0
4.2	0.05	52	3	**Flow through**	3	0	0	0
4.4	0.05	55	3	**Flow through**	3	0	0	0
4.6	0.05	58	3	**Flow through**	3	0	0	0
4.8	0.05	61	3	**Flow through**	3	0	0	0
5.0	0.06	64	3	**Flow through**	3	0	0	0
5.2	0.06	68	3	**Flow through**	3	0	0	0
5.4	0.06	71	3	**Flow through**	3	0	0	0
5.6	0.07	75	3	**Flow through**	3	0	0	0
5.8	0.07	78	4	**Flow through**	4	0	0	0
6.0	0.07	82	4	**Flow through**	4	0	0	0
6.2	0.08	86	4	**Flow through**	4	0	0	0
6.4	0.08	90	4	**Flow through**	4	0	0	0
6.6	0.08	94	4	**Flow through**	4	0	0	0
6.8	0.09	98	4	**Flow through**	4	0	0	0
7.0	0.09	103	5	**Flow through**	5	0	0	0
7.2	0.09	108	5	**Flow through**	5	0	0	0
7.4	0.10	113	5	**Flow through**	5	0	0	0
7.6	0.10	118	5	**Flow through**	5	0	0	0
7.8	0.11	124	6	**Flow through**	6	0	0	0
8.0	0.11	130	6	**Flow through**	6	0	0	0
8.2	0.12	136	6	**Flow through**	6	0	0	0
8.4	0.13	142	7	**Flow through**	7	0	0	0
8.6	0.13	150	7	**Flow through**	7	0	0	0
8.8	0.14	157	8	**Flow through**	8	0	0	0
9.0	0.15	166	8	**Flow through**	8	0	0	0
9.2	0.15	175	9	**Flow through**	9	0	0	0
9.4	0.16	184	9	**Flow through**	9	0	0	0
9.6	0.17	194	10	**Flow through**	10	0	0	0
9.8	0.18	204	10	**Flow through**	10	0	0	0
10.0	0.19	215	11	**Flow through**	11	0	0	0
10.2	0.20	227	12	**Flow through**	12	0	0	0
10.4	0.21	239	13	**Flow through**	13	0	0	0
10.6	0.22	253	14	**Flow through**	14	0	0	0
10.8	0.24	268	15	**Flow through**	15	0	0	0

FocalPoint
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ACF FP and RT Calc 1.8

Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	1,237	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	1,237	ft^3	Total event volume calculated from previous sheet

System Configuration		
Is FocalPoint used?	Yes	Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	80	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	47	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	1,237	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	2	2	Flow through	2	0	0	0
0.4	0.00	5	2	Flow through	2	0	0	0
0.6	0.01	7	2	Flow through	2	0	0	0
0.8	0.01	10	2	Flow through	2	0	0	0
1.0	0.01	12	2	Flow through	2	0	0	0
1.2	0.01	15	2	Flow through	2	0	0	0
1.4	0.01	17	2	Flow through	2	0	0	0
1.6	0.02	20	2	Flow through	2	0	0	0
1.8	0.02	22	2	Flow through	2	0	0	0
2.0	0.02	25	2	Flow through	2	0	0	0
2.2	0.02	27	2	Flow through	2	0	0	0
2.4	0.02	30	3	Flow through	3	0	0	0
2.6	0.03	33	3	Flow through	3	0	0	0
2.8	0.03	35	3	Flow through	3	0	0	0
3.0	0.03	38	3	Flow through	3	0	0	0
3.2	0.03	41	3	Flow through	3	0	0	0
3.4	0.04	44	3	Flow through	3	0	0	0
3.6	0.04	47	3	Flow through	3	0	0	0
3.8	0.04	50	3	Flow through	3	0	0	0
4.0	0.04	53	3	Flow through	3	0	0	0
4.2	0.05	56	3	Flow through	3	0	0	0
4.4	0.05	60	3	Flow through	3	0	0	0
4.6	0.05	63	3	Flow through	3	0	0	0
4.8	0.05	67	3	Flow through	3	0	0	0
5.0	0.06	70	3	Flow through	3	0	0	0
5.2	0.06	74	4	Flow through	4	0	0	0
5.4	0.06	78	4	Flow through	4	0	0	0
5.6	0.07	81	4	Flow through	4	0	0	0
5.8	0.07	85	4	Flow through	4	0	0	0
6.0	0.07	89	4	Flow through	4	0	0	0
6.2	0.08	93	4	Flow through	4	0	0	0
6.4	0.08	97	4	Flow through	4	0	0	0
6.6	0.08	102	5	Flow through	5	0	0	0
6.8	0.09	107	5	Flow through	5	0	0	0
7.0	0.09	112	5	Flow through	5	0	0	0
7.2	0.09	117	5	Flow through	5	0	0	0
7.4	0.10	123	6	Flow through	6	0	0	0
7.6	0.10	129	6	Flow through	6	0	0	0
7.8	0.11	135	6	Flow through	6	0	0	0
8.0	0.11	141	6	Flow through	6	0	0	0
8.2	0.12	148	7	Flow through	7	0	0	0
8.4	0.13	155	7	Flow through	7	0	0	0
8.6	0.13	163	8	Flow through	8	0	0	0
8.8	0.14	171	8	Flow through	8	0	0	0
9.0	0.15	180	9	Flow through	9	0	0	0
9.2	0.15	190	10	Flow through	10	0	0	0
9.4	0.16	200	10	Flow through	10	0	0	0
9.6	0.17	211	11	Flow through	11	0	0	0
9.8	0.18	222	11	Flow through	11	0	0	0
10.0	0.19	234	12	Flow through	12	0	0	0
10.2	0.20	247	13	Flow through	13	0	0	0
10.4	0.21	260	14	Flow through	14	0	0	0
10.6	0.22	275	15	Flow through	15	0	0	0
10.8	0.24	292	16	Flow through	16	0	0	0

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Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	336	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	336	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	10	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	86	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	336	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	1	1	**Flow through**	1	0	0	0
0.4	0.00	1	1	**Flow through**	1	0	0	0
0.6	0.01	2	1	**Flow through**	1	0	0	0
0.8	0.01	3	1	**Flow through**	1	0	0	0
1.0	0.01	3	1	**Flow through**	1	0	0	0
1.2	0.01	4	1	**Flow through**	1	0	0	0
1.4	0.01	5	1	**Flow through**	1	0	0	0
1.6	0.02	5	1	**Flow through**	1	0	0	0
1.8	0.02	6	1	**Flow through**	1	0	0	0
2.0	0.02	7	1	**Flow through**	1	0	0	0
2.2	0.02	7	1	**Flow through**	1	0	0	0
2.4	0.02	8	1	**Flow through**	1	0	0	0
2.6	0.03	9	1	**Flow through**	1	0	0	0
2.8	0.03	10	1	**Flow through**	1	0	0	0
3.0	0.03	10	1	**Flow through**	1	0	0	0
3.2	0.03	11	1	**Flow through**	1	0	0	0
3.4	0.04	12	1	**Flow through**	1	0	0	0
3.6	0.04	13	1	**Flow through**	1	0	0	0
3.8	0.04	14	1	**Flow through**	1	0	0	0
4.0	0.04	14	1	**Flow through**	1	0	0	0
4.2	0.05	15	1	**Flow through**	1	0	0	0
4.4	0.05	16	1	**Flow through**	1	0	0	0
4.6	0.05	17	1	**Flow through**	1	0	0	0
4.8	0.05	18	1	**Flow through**	1	0	0	0
5.0	0.06	19	1	**Flow through**	1	0	0	0
5.2	0.06	20	1	**Flow through**	1	0	0	0
5.4	0.06	21	1	**Flow through**	1	0	0	0
5.6	0.07	22	1	**Flow through**	1	0	0	0
5.8	0.07	23	1	**Flow through**	1	0	0	0
6.0	0.07	24	1	**Flow through**	1	0	0	0
6.2	0.08	25	1	**Flow through**	1	0	0	0
6.4	0.08	26	1	**Flow through**	1	0	0	0
6.6	0.08	28	1	**Flow through**	1	0	0	0
6.8	0.09	29	1	**Flow through**	1	0	0	0
7.0	0.09	30	1	**Flow through**	1	0	0	0
7.2	0.09	32	1	**Flow through**	1	0	0	0
7.4	0.10	33	2	**Flow through**	2	0	0	0
7.6	0.10	35	2	**Flow through**	2	0	0	0
7.8	0.11	37	2	**Flow through**	2	0	0	0
8.0	0.11	38	2	**Flow through**	2	0	0	0
8.2	0.12	40	2	**Flow through**	2	0	0	0
8.4	0.13	42	2	**Flow through**	2	0	0	0
8.6	0.13	44	2	**Flow through**	2	0	0	0
8.8	0.14	47	2	**Flow through**	2	0	0	0
9.0	0.15	49	2	**Flow through**	2	0	0	0
9.2	0.15	52	3	**Flow through**	3	0	0	0
9.4	0.16	54	3	**Flow through**	3	0	0	0
9.6	0.17	57	3	**Flow through**	3	0	0	0
9.8	0.18	60	3	**Flow through**	3	0	0	0
10.0	0.19	64	3	**Flow through**	3	0	0	0
10.2	0.20	67	3	**Flow through**	3	0	0	0
10.4	0.21	71	4	**Flow through**	4	0	0	0
10.6	0.22	75	4	**Flow through**	4	0	0	0
10.8	0.24	79	4	**Flow through**	4	0	0	0

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ACF FP and RT Calc 1.8

Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	53	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	53	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	135	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	45	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	53	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	0	0	Flow through	0	0	0	0
0.4	0.00	0	0	Flow through	0	0	0	0
0.6	0.01	0	0	Flow through	0	0	0	0
0.8	0.01	0	0	Flow through	0	0	0	0
1.0	0.01	1	0	Flow through	0	0	0	0
1.2	0.01	1	0	Flow through	0	0	0	0
1.4	0.01	1	0	Flow through	0	0	0	0
1.6	0.02	1	0	Flow through	0	0	0	0
1.8	0.02	1	0	Flow through	0	0	0	0
2.0	0.02	1	0	Flow through	0	0	0	0
2.2	0.02	1	0	Flow through	0	0	0	0
2.4	0.02	1	0	Flow through	0	0	0	0
2.6	0.03	1	0	Flow through	0	0	0	0
2.8	0.03	2	0	Flow through	0	0	0	0
3.0	0.03	2	0	Flow through	0	0	0	0
3.2	0.03	2	0	Flow through	0	0	0	0
3.4	0.04	2	0	Flow through	0	0	0	0
3.6	0.04	2	0	Flow through	0	0	0	0
3.8	0.04	2	0	Flow through	0	0	0	0
4.0	0.04	2	0	Flow through	0	0	0	0
4.2	0.05	2	0	Flow through	0	0	0	0
4.4	0.05	3	0	Flow through	0	0	0	0
4.6	0.05	3	0	Flow through	0	0	0	0
4.8	0.05	3	0	Flow through	0	0	0	0
5.0	0.06	3	0	Flow through	0	0	0	0
5.2	0.06	3	0	Flow through	0	0	0	0
5.4	0.06	3	0	Flow through	0	0	0	0
5.6	0.07	3	0	Flow through	0	0	0	0
5.8	0.07	4	0	Flow through	0	0	0	0
6.0	0.07	4	0	Flow through	0	0	0	0
6.2	0.08	4	0	Flow through	0	0	0	0
6.4	0.08	4	0	Flow through	0	0	0	0
6.6	0.08	4	0	Flow through	0	0	0	0
6.8	0.09	5	0	Flow through	0	0	0	0
7.0	0.09	5	0	Flow through	0	0	0	0
7.2	0.09	5	0	Flow through	0	0	0	0
7.4	0.10	5	0	Flow through	0	0	0	0
7.6	0.10	6	0	Flow through	0	0	0	0
7.8	0.11	6	0	Flow through	0	0	0	0
8.0	0.11	6	0	Flow through	0	0	0	0
8.2	0.12	6	0	Flow through	0	0	0	0
8.4	0.13	7	0	Flow through	0	0	0	0
8.6	0.13	7	0	Flow through	0	0	0	0
8.8	0.14	7	0	Flow through	0	0	0	0
9.0	0.15	8	0	Flow through	0	0	0	0
9.2	0.15	8	0	Flow through	0	0	0	0
9.4	0.16	9	0	Flow through	0	0	0	0
9.6	0.17	9	0	Flow through	0	0	0	0
9.8	0.18	10	0	Flow through	0	0	0	0
10.0	0.19	10	1	Flow through	1	0	0	0
10.2	0.20	11	1	Flow through	1	0	0	0
10.4	0.21	11	1	Flow through	1	0	0	0
10.6	0.22	12	1	Flow through	1	0	0	0
10.8	0.24	13	1	Flow through	1	0	0	0

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Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	856	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	856	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	40	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	84	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	856	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	2	2	Flow through	2	0	0	0
0.4	0.00	3	2	Flow through	2	0	0	0
0.6	0.01	5	2	Flow through	2	0	0	0
0.8	0.01	7	2	Flow through	2	0	0	0
1.0	0.01	9	2	Flow through	2	0	0	0
1.2	0.01	10	2	Flow through	2	0	0	0
1.4	0.01	12	2	Flow through	2	0	0	0
1.6	0.02	14	2	Flow through	2	0	0	0
1.8	0.02	15	2	Flow through	2	0	0	0
2.0	0.02	17	2	Flow through	2	0	0	0
2.2	0.02	19	2	Flow through	2	0	0	0
2.4	0.02	21	2	Flow through	2	0	0	0
2.6	0.03	23	2	Flow through	2	0	0	0
2.8	0.03	24	2	Flow through	2	0	0	0
3.0	0.03	26	2	Flow through	2	0	0	0
3.2	0.03	28	2	Flow through	2	0	0	0
3.4	0.04	30	2	Flow through	2	0	0	0
3.6	0.04	32	2	Flow through	2	0	0	0
3.8	0.04	35	2	Flow through	2	0	0	0
4.0	0.04	37	2	Flow through	2	0	0	0
4.2	0.05	39	2	Flow through	2	0	0	0
4.4	0.05	41	2	Flow through	2	0	0	0
4.6	0.05	44	2	Flow through	2	0	0	0
4.8	0.05	46	2	Flow through	2	0	0	0
5.0	0.06	49	2	Flow through	2	0	0	0
5.2	0.06	51	3	Flow through	3	0	0	0
5.4	0.06	54	3	Flow through	3	0	0	0
5.6	0.07	56	3	Flow through	3	0	0	0
5.8	0.07	59	3	Flow through	3	0	0	0
6.0	0.07	62	3	Flow through	3	0	0	0
6.2	0.08	64	3	Flow through	3	0	0	0
6.4	0.08	67	3	Flow through	3	0	0	0
6.6	0.08	71	3	Flow through	3	0	0	0
6.8	0.09	74	3	Flow through	3	0	0	0
7.0	0.09	77	4	Flow through	4	0	0	0
7.2	0.09	81	4	Flow through	4	0	0	0
7.4	0.10	85	4	Flow through	4	0	0	0
7.6	0.10	89	4	Flow through	4	0	0	0
7.8	0.11	93	4	Flow through	4	0	0	0
8.0	0.11	98	4	Flow through	4	0	0	0
8.2	0.12	102	5	Flow through	5	0	0	0
8.4	0.13	107	5	Flow through	5	0	0	0
8.6	0.13	113	5	Flow through	5	0	0	0
8.8	0.14	119	6	Flow through	6	0	0	0
9.0	0.15	125	6	Flow through	6	0	0	0
9.2	0.15	131	7	Flow through	7	0	0	0
9.4	0.16	138	7	Flow through	7	0	0	0
9.6	0.17	146	7	Flow through	7	0	0	0
9.8	0.18	154	8	Flow through	8	0	0	0
10.0	0.19	162	8	Flow through	8	0	0	0
10.2	0.20	171	9	Flow through	9	0	0	0
10.4	0.21	180	10	Flow through	10	0	0	0
10.6	0.22	191	10	Flow through	10	0	0	0
10.8	0.24	202	11	Flow through	11	0	0	0

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Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	1,240	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	1,240	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	70	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	109	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	1,240	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	2	2	**Flow through**	2	0	0	0
0.4	0.00	5	2	**Flow through**	2	0	0	0
0.6	0.01	7	2	**Flow through**	2	0	0	0
0.8	0.01	10	2	**Flow through**	2	0	0	0
1.0	0.01	12	2	**Flow through**	2	0	0	0
1.2	0.01	15	2	**Flow through**	2	0	0	0
1.4	0.01	17	2	**Flow through**	2	0	0	0
1.6	0.02	20	2	**Flow through**	2	0	0	0
1.8	0.02	22	2	**Flow through**	2	0	0	0
2.0	0.02	25	2	**Flow through**	2	0	0	0
2.2	0.02	27	2	**Flow through**	2	0	0	0
2.4	0.02	30	3	**Flow through**	3	0	0	0
2.6	0.03	33	3	**Flow through**	3	0	0	0
2.8	0.03	35	3	**Flow through**	3	0	0	0
3.0	0.03	38	3	**Flow through**	3	0	0	0
3.2	0.03	41	3	**Flow through**	3	0	0	0
3.4	0.04	44	3	**Flow through**	3	0	0	0
3.6	0.04	47	3	**Flow through**	3	0	0	0
3.8	0.04	50	3	**Flow through**	3	0	0	0
4.0	0.04	53	3	**Flow through**	3	0	0	0
4.2	0.05	57	3	**Flow through**	3	0	0	0
4.4	0.05	60	3	**Flow through**	3	0	0	0
4.6	0.05	63	3	**Flow through**	3	0	0	0
4.8	0.05	67	3	**Flow through**	3	0	0	0
5.0	0.06	70	3	**Flow through**	3	0	0	0
5.2	0.06	74	4	**Flow through**	4	0	0	0
5.4	0.06	78	4	**Flow through**	4	0	0	0
5.6	0.07	81	4	**Flow through**	4	0	0	0
5.8	0.07	85	4	**Flow through**	4	0	0	0
6.0	0.07	89	4	**Flow through**	4	0	0	0
6.2	0.08	93	4	**Flow through**	4	0	0	0
6.4	0.08	98	4	**Flow through**	4	0	0	0
6.6	0.08	102	5	**Flow through**	5	0	0	0
6.8	0.09	107	5	**Flow through**	5	0	0	0
7.0	0.09	112	5	**Flow through**	5	0	0	0
7.2	0.09	118	5	**Flow through**	5	0	0	0
7.4	0.10	123	6	**Flow through**	6	0	0	0
7.6	0.10	129	6	**Flow through**	6	0	0	0
7.8	0.11	135	6	**Flow through**	6	0	0	0
8.0	0.11	141	6	**Flow through**	6	0	0	0
8.2	0.12	148	7	**Flow through**	7	0	0	0
8.4	0.13	155	7	**Flow through**	7	0	0	0
8.6	0.13	163	8	**Flow through**	8	0	0	0
8.8	0.14	172	8	**Flow through**	8	0	0	0
9.0	0.15	181	9	**Flow through**	9	0	0	0
9.2	0.15	190	10	**Flow through**	10	0	0	0
9.4	0.16	201	10	**Flow through**	10	0	0	0
9.6	0.17	211	11	**Flow through**	11	0	0	0
9.8	0.18	222	11	**Flow through**	11	0	0	0
10.0	0.19	234	12	**Flow through**	12	0	0	0
10.2	0.20	247	13	**Flow through**	13	0	0	0
10.4	0.21	261	14	**Flow through**	14	0	0	0
10.6	0.22	276	15	**Flow through**	15	0	0	0
10.8	0.24	293	16	**Flow through**	16	0	0	0

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Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	596	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	596	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	30	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	75	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	596	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	1	1	**Flow through**	1	0	0	0
0.4	0.00	2	1	**Flow through**	1	0	0	0
0.6	0.01	4	1	**Flow through**	1	0	0	0
0.8	0.01	5	1	**Flow through**	1	0	0	0
1.0	0.01	6	1	**Flow through**	1	0	0	0
1.2	0.01	7	1	**Flow through**	1	0	0	0
1.4	0.01	8	1	**Flow through**	1	0	0	0
1.6	0.02	10	1	**Flow through**	1	0	0	0
1.8	0.02	11	1	**Flow through**	1	0	0	0
2.0	0.02	12	1	**Flow through**	1	0	0	0
2.2	0.02	13	1	**Flow through**	1	0	0	0
2.4	0.02	14	1	**Flow through**	1	0	0	0
2.6	0.03	16	1	**Flow through**	1	0	0	0
2.8	0.03	17	1	**Flow through**	1	0	0	0
3.0	0.03	18	1	**Flow through**	1	0	0	0
3.2	0.03	20	1	**Flow through**	1	0	0	0
3.4	0.04	21	1	**Flow through**	1	0	0	0
3.6	0.04	23	1	**Flow through**	1	0	0	0
3.8	0.04	24	1	**Flow through**	1	0	0	0
4.0	0.04	26	2	**Flow through**	2	0	0	0
4.2	0.05	27	2	**Flow through**	2	0	0	0
4.4	0.05	29	2	**Flow through**	2	0	0	0
4.6	0.05	30	2	**Flow through**	2	0	0	0
4.8	0.05	32	2	**Flow through**	2	0	0	0
5.0	0.06	34	2	**Flow through**	2	0	0	0
5.2	0.06	36	2	**Flow through**	2	0	0	0
5.4	0.06	37	2	**Flow through**	2	0	0	0
5.6	0.07	39	2	**Flow through**	2	0	0	0
5.8	0.07	41	2	**Flow through**	2	0	0	0
6.0	0.07	43	2	**Flow through**	2	0	0	0
6.2	0.08	45	2	**Flow through**	2	0	0	0
6.4	0.08	47	2	**Flow through**	2	0	0	0
6.6	0.08	49	2	**Flow through**	2	0	0	0
6.8	0.09	51	2	**Flow through**	2	0	0	0
7.0	0.09	54	2	**Flow through**	2	0	0	0
7.2	0.09	57	3	**Flow through**	3	0	0	0
7.4	0.10	59	3	**Flow through**	3	0	0	0
7.6	0.10	62	3	**Flow through**	3	0	0	0
7.8	0.11	65	3	**Flow through**	3	0	0	0
8.0	0.11	68	3	**Flow through**	3	0	0	0
8.2	0.12	71	3	**Flow through**	3	0	0	0
8.4	0.13	75	4	**Flow through**	4	0	0	0
8.6	0.13	78	4	**Flow through**	4	0	0	0
8.8	0.14	83	4	**Flow through**	4	0	0	0
9.0	0.15	87	4	**Flow through**	4	0	0	0
9.2	0.15	91	5	**Flow through**	5	0	0	0
9.4	0.16	96	5	**Flow through**	5	0	0	0
9.6	0.17	101	5	**Flow through**	5	0	0	0
9.8	0.18	107	5	**Flow through**	5	0	0	0
10.0	0.19	113	6	**Flow through**	6	0	0	0
10.2	0.20	119	6	**Flow through**	6	0	0	0
10.4	0.21	125	7	**Flow through**	7	0	0	0
10.6	0.22	133	7	**Flow through**	7	0	0	0
10.8	0.24	141	8	**Flow through**	8	0	0	0

FocalPoint
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Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	677	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	677	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	50	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	20	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	677	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	1	1	**Flow through**	1	0	0	0
0.4	0.00	3	1	**Flow through**	1	0	0	0
0.6	0.01	4	1	**Flow through**	1	0	0	0
0.8	0.01	5	1	**Flow through**	1	0	0	0
1.0	0.01	7	1	**Flow through**	1	0	0	0
1.2	0.01	8	1	**Flow through**	1	0	0	0
1.4	0.01	9	1	**Flow through**	1	0	0	0
1.6	0.02	11	1	**Flow through**	1	0	0	0
1.8	0.02	12	1	**Flow through**	1	0	0	0
2.0	0.02	14	1	**Flow through**	1	0	0	0
2.2	0.02	15	1	**Flow through**	1	0	0	0
2.4	0.02	16	1	**Flow through**	1	0	0	0
2.6	0.03	18	1	**Flow through**	1	0	0	0
2.8	0.03	19	1	**Flow through**	1	0	0	0
3.0	0.03	21	2	**Flow through**	2	0	0	0
3.2	0.03	22	2	**Flow through**	2	0	0	0
3.4	0.04	24	2	**Flow through**	2	0	0	0
3.6	0.04	26	2	**Flow through**	2	0	0	0
3.8	0.04	27	2	**Flow through**	2	0	0	0
4.0	0.04	29	2	**Flow through**	2	0	0	0
4.2	0.05	31	2	**Flow through**	2	0	0	0
4.4	0.05	33	2	**Flow through**	2	0	0	0
4.6	0.05	35	2	**Flow through**	2	0	0	0
4.8	0.05	36	2	**Flow through**	2	0	0	0
5.0	0.06	38	2	**Flow through**	2	0	0	0
5.2	0.06	40	2	**Flow through**	2	0	0	0
5.4	0.06	42	2	**Flow through**	2	0	0	0
5.6	0.07	44	2	**Flow through**	2	0	0	0
5.8	0.07	47	2	**Flow through**	2	0	0	0
6.0	0.07	49	2	**Flow through**	2	0	0	0
6.2	0.08	51	2	**Flow through**	2	0	0	0
6.4	0.08	53	2	**Flow through**	2	0	0	0
6.6	0.08	56	3	**Flow through**	3	0	0	0
6.8	0.09	58	3	**Flow through**	3	0	0	0
7.0	0.09	61	3	**Flow through**	3	0	0	0
7.2	0.09	64	3	**Flow through**	3	0	0	0
7.4	0.10	67	3	**Flow through**	3	0	0	0
7.6	0.10	70	3	**Flow through**	3	0	0	0
7.8	0.11	74	3	**Flow through**	3	0	0	0
8.0	0.11	77	3	**Flow through**	3	0	0	0
8.2	0.12	81	4	**Flow through**	4	0	0	0
8.4	0.13	85	4	**Flow through**	4	0	0	0
8.6	0.13	89	4	**Flow through**	4	0	0	0
8.8	0.14	94	5	**Flow through**	5	0	0	0
9.0	0.15	99	5	**Flow through**	5	0	0	0
9.2	0.15	104	5	**Flow through**	5	0	0	0
9.4	0.16	109	6	**Flow through**	6	0	0	0
9.6	0.17	115	6	**Flow through**	6	0	0	0
9.8	0.18	121	6	**Flow through**	6	0	0	0
10.0	0.19	128	6	**Flow through**	6	0	0	0
10.2	0.20	135	7	**Flow through**	7	0	0	0
10.4	0.21	143	8	**Flow through**	8	0	0	0
10.6	0.22	151	8	**Flow through**	8	0	0	0
10.8	0.24	160	9	**Flow through**	9	0	0	0

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Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	836	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	836	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	60	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	44	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	836	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	2	2	**Flow through**	2	0	0	0
0.4	0.00	3	2	**Flow through**	2	0	0	0
0.6	0.01	5	2	**Flow through**	2	0	0	0
0.8	0.01	7	2	**Flow through**	2	0	0	0
1.0	0.01	8	2	**Flow through**	2	0	0	0
1.2	0.01	10	2	**Flow through**	2	0	0	0
1.4	0.01	12	2	**Flow through**	2	0	0	0
1.6	0.02	13	2	**Flow through**	2	0	0	0
1.8	0.02	15	2	**Flow through**	2	0	0	0
2.0	0.02	17	2	**Flow through**	2	0	0	0
2.2	0.02	18	2	**Flow through**	2	0	0	0
2.4	0.02	20	2	**Flow through**	2	0	0	0
2.6	0.03	22	2	**Flow through**	2	0	0	0
2.8	0.03	24	2	**Flow through**	2	0	0	0
3.0	0.03	26	2	**Flow through**	2	0	0	0
3.2	0.03	28	2	**Flow through**	2	0	0	0
3.4	0.04	30	2	**Flow through**	2	0	0	0
3.6	0.04	32	2	**Flow through**	2	0	0	0
3.8	0.04	34	2	**Flow through**	2	0	0	0
4.0	0.04	36	2	**Flow through**	2	0	0	0
4.2	0.05	38	2	**Flow through**	2	0	0	0
4.4	0.05	40	2	**Flow through**	2	0	0	0
4.6	0.05	43	2	**Flow through**	2	0	0	0
4.8	0.05	45	2	**Flow through**	2	0	0	0
5.0	0.06	47	2	**Flow through**	2	0	0	0
5.2	0.06	50	3	**Flow through**	3	0	0	0
5.4	0.06	52	3	**Flow through**	3	0	0	0
5.6	0.07	55	3	**Flow through**	3	0	0	0
5.8	0.07	58	3	**Flow through**	3	0	0	0
6.0	0.07	60	3	**Flow through**	3	0	0	0
6.2	0.08	63	3	**Flow through**	3	0	0	0
6.4	0.08	66	3	**Flow through**	3	0	0	0
6.6	0.08	69	3	**Flow through**	3	0	0	0
6.8	0.09	72	3	**Flow through**	3	0	0	0
7.0	0.09	76	3	**Flow through**	3	0	0	0
7.2	0.09	79	4	**Flow through**	4	0	0	0
7.4	0.10	83	4	**Flow through**	4	0	0	0
7.6	0.10	87	4	**Flow through**	4	0	0	0
7.8	0.11	91	4	**Flow through**	4	0	0	0
8.0	0.11	95	4	**Flow through**	4	0	0	0
8.2	0.12	100	5	**Flow through**	5	0	0	0
8.4	0.13	105	5	**Flow through**	5	0	0	0
8.6	0.13	110	5	**Flow through**	5	0	0	0
8.8	0.14	116	6	**Flow through**	6	0	0	0
9.0	0.15	122	6	**Flow through**	6	0	0	0
9.2	0.15	128	6	**Flow through**	6	0	0	0
9.4	0.16	135	7	**Flow through**	7	0	0	0
9.6	0.17	142	7	**Flow through**	7	0	0	0
9.8	0.18	150	8	**Flow through**	8	0	0	0
10.0	0.19	158	8	**Flow through**	8	0	0	0
10.2	0.20	167	9	**Flow through**	9	0	0	0
10.4	0.21	176	9	**Flow through**	9	0	0	0
10.6	0.22	186	10	**Flow through**	10	0	0	0
10.8	0.24	197	11	**Flow through**	11	0	0	0

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Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	545	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	545	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	40	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	19	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	545	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	1	1	**Flow through**	1	0	0	0
0.4	0.00	2	1	**Flow through**	1	0	0	0
0.6	0.01	3	1	**Flow through**	1	0	0	0
0.8	0.01	4	1	**Flow through**	1	0	0	0
1.0	0.01	5	1	**Flow through**	1	0	0	0
1.2	0.01	7	1	**Flow through**	1	0	0	0
1.4	0.01	8	1	**Flow through**	1	0	0	0
1.6	0.02	9	1	**Flow through**	1	0	0	0
1.8	0.02	10	1	**Flow through**	1	0	0	0
2.0	0.02	11	1	**Flow through**	1	0	0	0
2.2	0.02	12	1	**Flow through**	1	0	0	0
2.4	0.02	13	1	**Flow through**	1	0	0	0
2.6	0.03	14	1	**Flow through**	1	0	0	0
2.8	0.03	16	1	**Flow through**	1	0	0	0
3.0	0.03	17	1	**Flow through**	1	0	0	0
3.2	0.03	18	1	**Flow through**	1	0	0	0
3.4	0.04	19	1	**Flow through**	1	0	0	0
3.6	0.04	21	1	**Flow through**	1	0	0	0
3.8	0.04	22	1	**Flow through**	1	0	0	0
4.0	0.04	23	1	**Flow through**	1	0	0	0
4.2	0.05	25	1	**Flow through**	1	0	0	0
4.4	0.05	26	1	**Flow through**	1	0	0	0
4.6	0.05	28	2	**Flow through**	2	0	0	0
4.8	0.05	29	2	**Flow through**	2	0	0	0
5.0	0.06	31	2	**Flow through**	2	0	0	0
5.2	0.06	33	2	**Flow through**	2	0	0	0
5.4	0.06	34	2	**Flow through**	2	0	0	0
5.6	0.07	36	2	**Flow through**	2	0	0	0
5.8	0.07	37	2	**Flow through**	2	0	0	0
6.0	0.07	39	2	**Flow through**	2	0	0	0
6.2	0.08	41	2	**Flow through**	2	0	0	0
6.4	0.08	43	2	**Flow through**	2	0	0	0
6.6	0.08	45	2	**Flow through**	2	0	0	0
6.8	0.09	47	2	**Flow through**	2	0	0	0
7.0	0.09	49	2	**Flow through**	2	0	0	0
7.2	0.09	52	2	**Flow through**	2	0	0	0
7.4	0.10	54	2	**Flow through**	2	0	0	0
7.6	0.10	57	3	**Flow through**	3	0	0	0
7.8	0.11	59	3	**Flow through**	3	0	0	0
8.0	0.11	62	3	**Flow through**	3	0	0	0
8.2	0.12	65	3	**Flow through**	3	0	0	0
8.4	0.13	68	3	**Flow through**	3	0	0	0
8.6	0.13	72	3	**Flow through**	3	0	0	0
8.8	0.14	75	4	**Flow through**	4	0	0	0
9.0	0.15	79	4	**Flow through**	4	0	0	0
9.2	0.15	84	4	**Flow through**	4	0	0	0
9.4	0.16	88	4	**Flow through**	4	0	0	0
9.6	0.17	93	5	**Flow through**	5	0	0	0
9.8	0.18	98	5	**Flow through**	5	0	0	0
10.0	0.19	103	5	**Flow through**	5	0	0	0
10.2	0.20	109	6	**Flow through**	6	0	0	0
10.4	0.21	115	6	**Flow through**	6	0	0	0
10.6	0.22	121	7	**Flow through**	7	0	0	0
10.8	0.24	129	7	**Flow through**	7	0	0	0

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Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	2,354	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	2,354	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	120	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	198	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	2,354	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	5	5	**Flow through**	5	0	0	0
0.4	0.00	9	5	**Flow through**	5	0	0	0
0.6	0.01	14	5	**Flow through**	5	0	0	0
0.8	0.01	19	5	**Flow through**	5	0	0	0
1.0	0.01	24	5	**Flow through**	5	0	0	0
1.2	0.01	28	5	**Flow through**	5	0	0	0
1.4	0.01	33	5	**Flow through**	5	0	0	0
1.6	0.02	38	5	**Flow through**	5	0	0	0
1.8	0.02	42	5	**Flow through**	5	0	0	0
2.0	0.02	47	5	**Flow through**	5	0	0	0
2.2	0.02	52	5	**Flow through**	5	0	0	0
2.4	0.02	57	5	**Flow through**	5	0	0	0
2.6	0.03	62	5	**Flow through**	5	0	0	0
2.8	0.03	67	5	**Flow through**	5	0	0	0
3.0	0.03	73	5	**Flow through**	5	0	0	0
3.2	0.03	78	5	**Flow through**	5	0	0	0
3.4	0.04	84	6	**Flow through**	6	0	0	0
3.6	0.04	89	6	**Flow through**	6	0	0	0
3.8	0.04	95	6	**Flow through**	6	0	0	0
4.0	0.04	101	6	**Flow through**	6	0	0	0
4.2	0.05	107	6	**Flow through**	6	0	0	0
4.4	0.05	114	6	**Flow through**	6	0	0	0
4.6	0.05	120	7	**Flow through**	7	0	0	0
4.8	0.05	127	7	**Flow through**	7	0	0	0
5.0	0.06	133	7	**Flow through**	7	0	0	0
5.2	0.06	141	7	**Flow through**	7	0	0	0
5.4	0.06	148	7	**Flow through**	7	0	0	0
5.6	0.07	155	7	**Flow through**	7	0	0	0
5.8	0.07	162	7	**Flow through**	7	0	0	0
6.0	0.07	169	8	**Flow through**	8	0	0	0
6.2	0.08	177	8	**Flow through**	8	0	0	0
6.4	0.08	185	8	**Flow through**	8	0	0	0
6.6	0.08	194	9	**Flow through**	9	0	0	0
6.8	0.09	203	9	**Flow through**	9	0	0	0
7.0	0.09	213	10	**Flow through**	10	0	0	0
7.2	0.09	223	10	**Flow through**	10	0	0	0
7.4	0.10	234	11	**Flow through**	11	0	0	0
7.6	0.10	245	11	**Flow through**	11	0	0	0
7.8	0.11	256	12	**Flow through**	12	0	0	0
8.0	0.11	268	12	**Flow through**	12	0	0	0
8.2	0.12	281	13	**Flow through**	13	0	0	0
8.4	0.13	295	14	**Flow through**	14	0	0	0
8.6	0.13	310	15	**Flow through**	15	0	0	0
8.8	0.14	326	16	**Flow through**	16	0	0	0
9.0	0.15	343	17	**Flow through**	17	0	0	0
9.2	0.15	361	18	**Flow through**	18	0	0	0
9.4	0.16	381	19	**Flow through**	19	0	0	0
9.6	0.17	401	20	**Flow through**	20	0	0	0
9.8	0.18	422	21	**Flow through**	21	0	0	0
10.0	0.19	445	23	**Flow through**	23	0	0	0
10.2	0.20	469	24	**Flow through**	24	0	0	0
10.4	0.21	496	26	**Flow through**	26	0	0	0
10.6	0.22	524	29	**Flow through**	29	0	0	0
10.8	0.24	555	31	**Flow through**	31	0	0	0

FocalPoint
BIOFILTRATION SYSTEMS

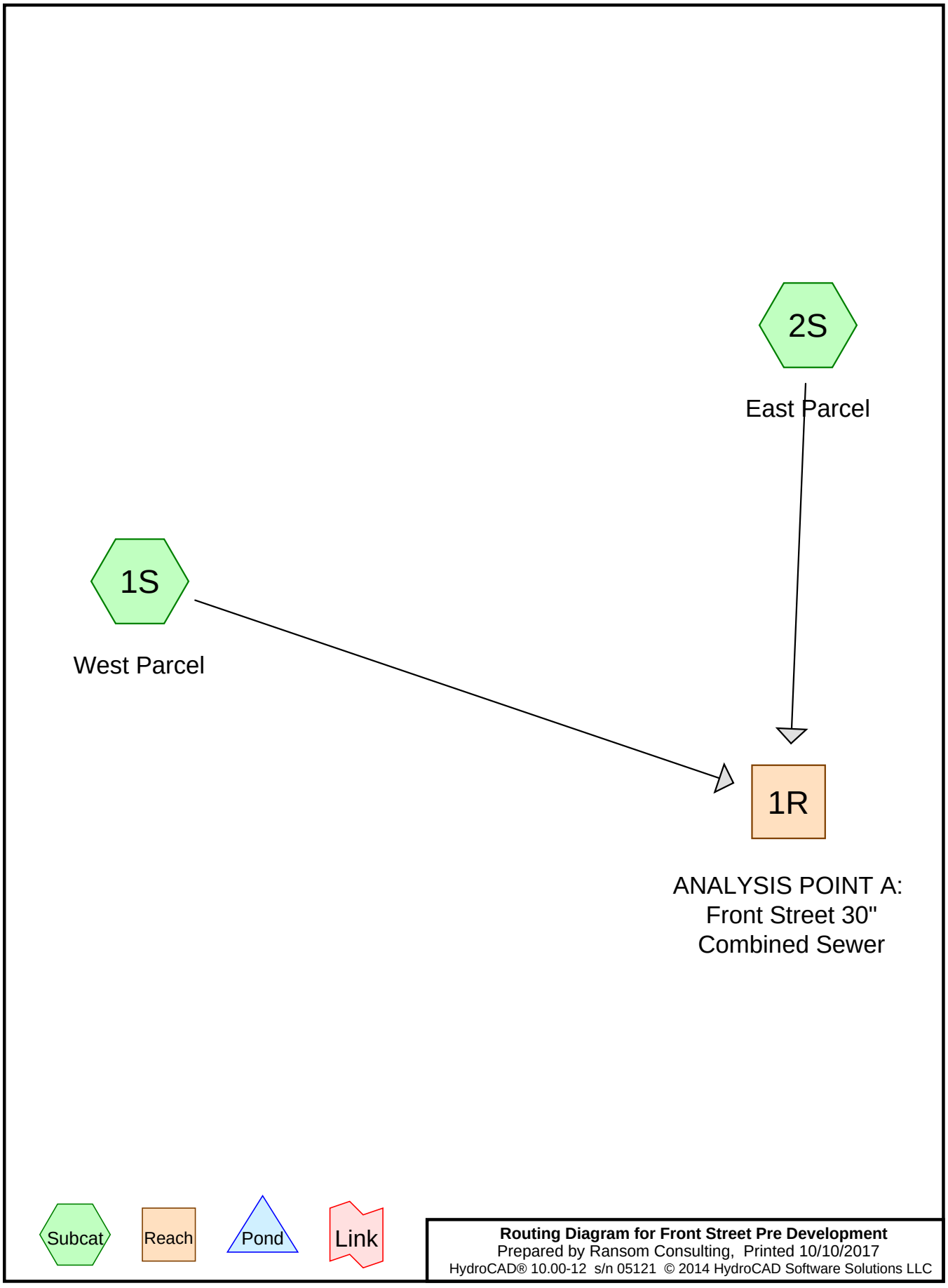
Water Quality Volume and Design Event			**Directions**
Water Quality Volume (WQv)	1,558	ft^3	Water Quality Volume calculated from previous Sheet
Design Event	1,558	ft^3	Total event volume calculated from previous sheet

System Configuration			
Is FocalPoint used?	Yes		Enter Yes if FocalPoint used. Enter No if runoff flows directly into RTank and proceed to RTank Design worksheet

Step 4 - FocalPoint Configuration			
4.1 - FocalPoint Factor of Safety	1		Enter optional factor-of-safety
4.2 - FocalPoint bed area	80	ft^2	Enter target FocalPoint footprint, 20 SF min. (See Step 4.5)
4.3 - Storage volume above FocalPoint provided	136	ft^3	Enter available surface storage volume (See Step 4.5)
4.4 - Desired treatment time	24	hours	Select 24, 48, 72 or 96 hrs from toggle
4.5 - Water Quality Volume treated prior to overflow?	**Yes**		If Yes = WQv has been treated If No = larger FocalPoint bed (Step 4.2) and/or surface storage volume (Step 4.3) required
4.6 - FocalPoint drain within desired time?	**Yes**		If Yes = time goal has been met If No = larger FocalPoint bed (Step 4.2) required
4.7 - Flow in excess of storage volume above	To RTank		Select routing location for overflow/bypass vol. from toggle: Off site to disregard flow, RTank to store for retention / detention, harvesting, or infiltration

Step 5 - Evaluation of Design			
5.1 - Volume treated prior to overflow	No Overflow	ft^3	Result = Volume ft3 treated prior to overflow/bypass
5.2 - Total volume treated	1,558	ft^3	Result = Total Volume ft3 treated

Time (hrs)	Rainfall Distribution	Cumulative Rainfall (ft^3)	Incremetal Runoff into FocalPoint (ft^3)	FocalPoint Test (-)	Incremental Volume thru FocalPoint (ft^3)	Incremental Volume to Storage Above (ft^3)	Total Volume in Storage Above (ft^3)	Incremental Volume Overflow (ft^3)
0.0	0.00	0						
0.2	0.00	3	3	**Flow through**	3	0	0	0
0.4	0.00	6	3	**Flow through**	3	0	0	0
0.6	0.01	9	3	**Flow through**	3	0	0	0
0.8	0.01	12	3	**Flow through**	3	0	0	0
1.0	0.01	16	3	**Flow through**	3	0	0	0
1.2	0.01	19	3	**Flow through**	3	0	0	0
1.4	0.01	22	3	**Flow through**	3	0	0	0
1.6	0.02	25	3	**Flow through**	3	0	0	0
1.8	0.02	28	3	**Flow through**	3	0	0	0
2.0	0.02	31	3	**Flow through**	3	0	0	0
2.2	0.02	34	3	**Flow through**	3	0	0	0
2.4	0.02	38	3	**Flow through**	3	0	0	0
2.6	0.03	41	3	**Flow through**	3	0	0	0
2.8	0.03	44	3	**Flow through**	3	0	0	0
3.0	0.03	48	4	**Flow through**	4	0	0	0
3.2	0.03	52	4	**Flow through**	4	0	0	0
3.4	0.04	55	4	**Flow through**	4	0	0	0
3.6	0.04	59	4	**Flow through**	4	0	0	0
3.8	0.04	63	4	**Flow through**	4	0	0	0
4.0	0.04	67	4	**Flow through**	4	0	0	0
4.2	0.05	71	4	**Flow through**	4	0	0	0
4.4	0.05	75	4	**Flow through**	4	0	0	0
4.6	0.05	80	4	**Flow through**	4	0	0	0
4.8	0.05	84	4	**Flow through**	4	0	0	0
5.0	0.06	88	4	**Flow through**	4	0	0	0
5.2	0.06	93	5	**Flow through**	5	0	0	0
5.4	0.06	98	5	**Flow through**	5	0	0	0
5.6	0.07	102	5	**Flow through**	5	0	0	0
5.8	0.07	107	5	**Flow through**	5	0	0	0
6.0	0.07	112	5	**Flow through**	5	0	0	0
6.2	0.08	117	5	**Flow through**	5	0	0	0
6.4	0.08	123	5	**Flow through**	5	0	0	0
6.6	0.08	129	6	**Flow through**	6	0	0	0
6.8	0.09	135	6	**Flow through**	6	0	0	0
7.0	0.09	141	6	**Flow through**	6	0	0	0
7.2	0.09	148	7	**Flow through**	7	0	0	0
7.4	0.10	155	7	**Flow through**	7	0	0	0
7.6	0.10	162	7	**Flow through**	7	0	0	0
7.8	0.11	170	8	**Flow through**	8	0	0	0
8.0	0.11	178	8	**Flow through**	8	0	0	0
8.2	0.12	186	8	**Flow through**	8	0	0	0
8.4	0.13	195	9	**Flow through**	9	0	0	0
8.6	0.13	205	10	**Flow through**	10	0	0	0
8.8	0.14	216	11	**Flow through**	11	0	0	0
9.0	0.15	227	11	**Flow through**	11	0	0	0
9.2	0.15	239	12	**Flow through**	12	0	0	0
9.4	0.16	252	13	**Flow through**	13	0	0	0
9.6	0.17	265	13	**Flow through**	13	0	0	0
9.8	0.18	280	14	**Flow through**	14	0	0	0
10.0	0.19	294	15	**Flow through**	15	0	0	0
10.2	0.20	311	16	**Flow through**	16	0	0	0
10.4	0.21	328	17	**Flow through**	17	0	0	0
10.6	0.22	347	19	**Flow through**	19	0	0	0
10.8	0.24	368	21	**Flow through**	21	0	0	0



Routing Diagram for Front Street Pre Development
Prepared by Ransom Consulting, Printed 10/10/2017

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.364	80	>75% Grass cover, Good, HSG D (1S, 2S)
1.573	98	Paved parking, HSG D (1S, 2S)
3.937	**87**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
3.937	HSG D	1S, 2S
0.000	Other	
3.937		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	2.364	0.000	2.364	>75% Grass cover, Good	1S, 2S
0.000	0.000	0.000	1.573	0.000	1.573	Paved parking	1S, 2S
0.000	**0.000**	**0.000**	**3.937**	**0.000**	**3.937**	**TOTAL AREA**	

Time span=2.00-20.00 hrs, dt=0.01 hrs, 1801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: West Parcel Runoff Area=71,262 sf 42.61% Impervious Runoff Depth>1.79"
Tc=6.0 min CN=88 Runoff=3.65 cfs 0.243 af

Subcatchment2S: East Parcel Runoff Area=100,252 sf 38.07% Impervious Runoff Depth>1.71"
Tc=6.0 min CN=87 Runoff=4.93 cfs 0.327 af

Reach 1R: ANALYSISPOINT A: Front Street 30" Combined Sewer Inflow=8.58 cfs 0.571 af
Outflow=8.58 cfs 0.571 af

Total Runoff Area = 3.937 ac Runoff Volume = 0.571 af Average Runoff Depth = 1.74"
60.04% Pervious = 2.364 ac 39.96% Impervious = 1.573 ac

Summary for Subcatchment 1S: West Parcel

Runoff = 3.65 cfs @ 12.09 hrs, Volume= 0.243 af, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
30,368	98	Paved parking, HSG D
40,894	80	>75% Grass cover, Good, HSG D
71,262	88	Weighted Average
40,894		57.39% Pervious Area
30,368		42.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Subcatchment 2S: East Parcel

Runoff = 4.93 cfs @ 12.09 hrs, Volume= 0.327 af, Depth> 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
38,164	98	Paved parking, HSG D
62,088	80	>75% Grass cover, Good, HSG D
100,252	87	Weighted Average
62,088		61.93% Pervious Area
38,164		38.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Reach 1R: ANALYSIS POINT A: Front Street 30" Combined Sewer

Inflow Area = 3.937 ac, 39.96% Impervious, Inflow Depth > 1.74" for 2-Year event
Inflow = 8.58 cfs @ 12.09 hrs, Volume= 0.571 af
Outflow = 8.58 cfs @ 12.09 hrs, Volume= 0.571 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs / 3

Time span=2.00-20.00 hrs, dt=0.01 hrs, 1801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: West Parcel Runoff Area=71,262 sf 42.61% Impervious Runoff Depth>3.10"
Tc=6.0 min CN=88 Runoff=6.19 cfs 0.423 af

Subcatchment2S: East Parcel Runoff Area=100,252 sf 38.07% Impervious Runoff Depth>3.00"
Tc=6.0 min CN=87 Runoff=8.49 cfs 0.576 af

Reach 1R: ANALYSISPOINT A: Front Street 30" Combined Sewer Inflow=14.69 cfs 0.998 af
Outflow=14.69 cfs 0.998 af

Total Runoff Area = 3.937 ac Runoff Volume = 0.998 af Average Runoff Depth = 3.04"
60.04% Pervious = 2.364 ac 39.96% Impervious = 1.573 ac

Summary for Subcatchment 1S: West Parcel

Runoff = 6.19 cfs @ 12.09 hrs, Volume= 0.423 af, Depth> 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
30,368	98	Paved parking, HSG D
40,894	80	>75% Grass cover, Good, HSG D
71,262	88	Weighted Average
40,894		57.39% Pervious Area
30,368		42.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Subcatchment 2S: East Parcel

Runoff = 8.49 cfs @ 12.09 hrs, Volume= 0.576 af, Depth> 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
38,164	98	Paved parking, HSG D
62,088	80	>75% Grass cover, Good, HSG D
100,252	87	Weighted Average
62,088		61.93% Pervious Area
38,164		38.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Reach 1R: ANALYSIS POINT A: Front Street 30" Combined Sewer

Inflow Area = 3.937 ac, 39.96% Impervious, Inflow Depth > 3.04" for 10-Year event
Inflow = 14.69 cfs @ 12.09 hrs, Volume= 0.998 af
Outflow = 14.69 cfs @ 12.09 hrs, Volume= 0.998 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs / 3

Time span=2.00-20.00 hrs, dt=0.01 hrs, 1801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: West Parcel Runoff Area=71,262 sf 42.61% Impervious Runoff Depth>4.19"
Tc=6.0 min CN=88 Runoff=8.23 cfs 0.571 af

Subcatchment2S: East Parcel Runoff Area=100,252 sf 38.07% Impervious Runoff Depth>4.08"
Tc=6.0 min CN=87 Runoff=11.37 cfs 0.783 af

Reach 1R: ANALYSISPOINT A: Front Street 30" Combined Sewer Inflow=19.60 cfs 1.354 af
Outflow=19.60 cfs 1.354 af

Total Runoff Area = 3.937 ac Runoff Volume = 1.354 af Average Runoff Depth = 4.13"
60.04% Pervious = 2.364 ac 39.96% Impervious = 1.573 ac

Summary for Subcatchment 1S: West Parcel

Runoff = 8.23 cfs @ 12.09 hrs, Volume= 0.571 af, Depth> 4.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
30,368	98	Paved parking, HSG D
40,894	80	>75% Grass cover, Good, HSG D
71,262	88	Weighted Average
40,894		57.39% Pervious Area
30,368		42.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Subcatchment 2S: East Parcel

Runoff = 11.37 cfs @ 12.09 hrs, Volume= 0.783 af, Depth> 4.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

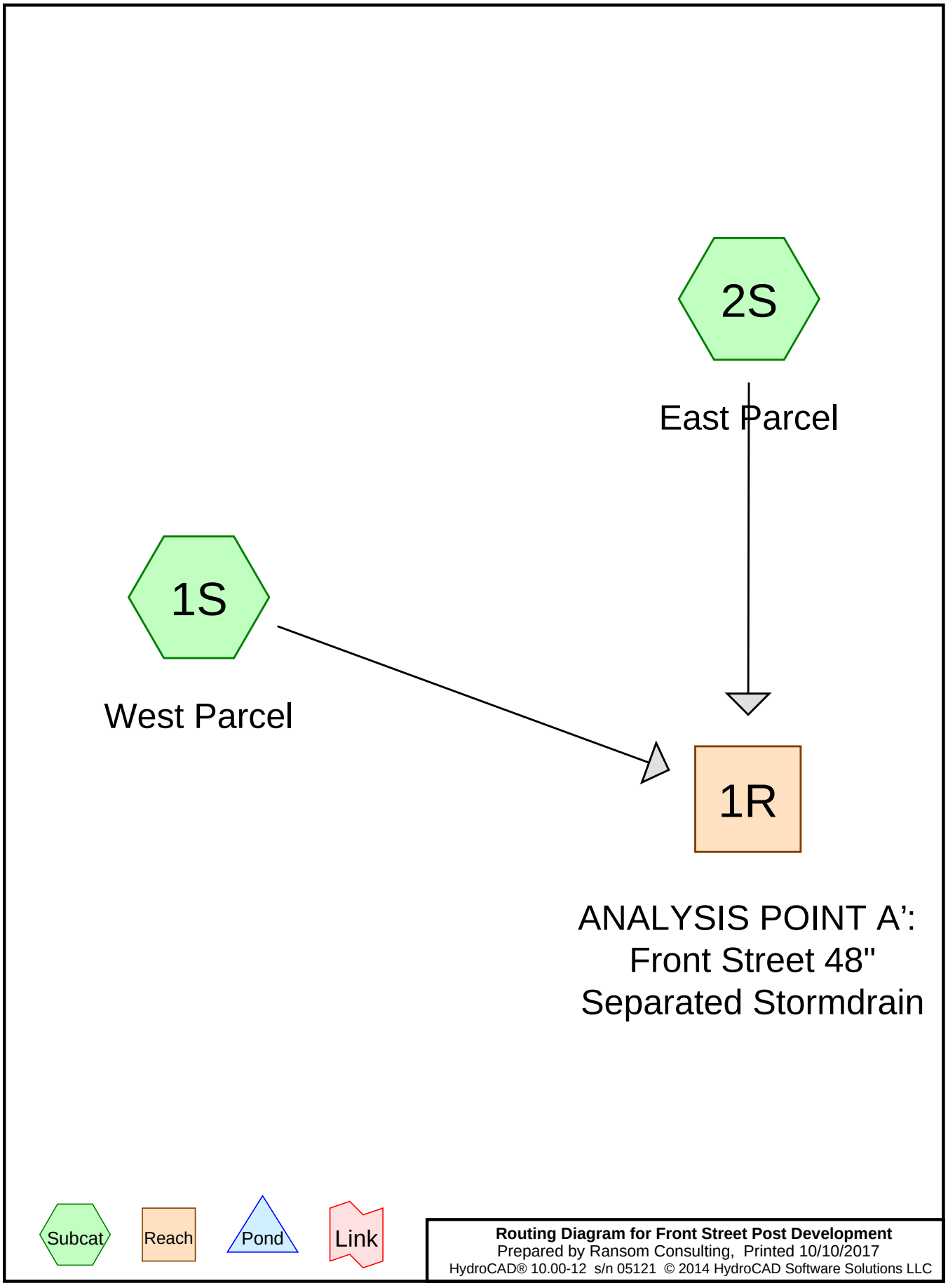
Area (sf)	CN	Description
38,164	98	Paved parking, HSG D
62,088	80	>75% Grass cover, Good, HSG D
100,252	87	Weighted Average
62,088		61.93% Pervious Area
38,164		38.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Reach 1R: ANALYSIS POINT A: Front Street 30" Combined Sewer

Inflow Area = 3.937 ac, 39.96% Impervious, Inflow Depth > 4.13" for 25-Year event
Inflow = 19.60 cfs @ 12.09 hrs, Volume= 1.354 af
Outflow = 19.60 cfs @ 12.09 hrs, Volume= 1.354 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs / 3



Routing Diagram for Front Street Post Development
Prepared by Ransom Consulting, Printed 10/10/2017

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.435	80	>75% Grass cover, Good, HSG D (1S, 2S)
2.503	98	Paved parking, HSG D (1S, 2S)
3.937	**91**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
3.937	HSG D	1S, 2S
0.000	Other	
3.937		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	1.435	0.000	1.435	>75% Grass cover, Good	1S, 2S
0.000	0.000	0.000	2.503	0.000	2.503	Paved parking	1S, 2S
0.000	**0.000**	**0.000**	**3.937**	**0.000**	**3.937**	**TOTAL AREA**	

Time span=2.00-20.00 hrs, dt=0.01 hrs, 1801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: West Parcel Runoff Area=71,256 sf 63.16% Impervious Runoff Depth>2.04"
Tc=6.0 min CN=91 Runoff=4.09 cfs 0.278 af

Subcatchment2S: East Parcel Runoff Area=100,253 sf 63.85% Impervious Runoff Depth>2.04"
Tc=6.0 min CN=91 Runoff=5.75 cfs 0.391 af

Reach 1R: ANALYSISPOINT A': Front Street 48" Separated Stormdrain Inflow=9.84 cfs 0.668 af
Outflow=9.84 cfs 0.668 af

Total Runoff Area = 3.937 ac Runoff Volume = 0.668 af Average Runoff Depth = 2.04"
36.44% Pervious = 1.435 ac 63.56% Impervious = 2.503 ac

Summary for Subcatchment 1S: West Parcel

Runoff = 4.09 cfs @ 12.09 hrs, Volume= 0.278 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
45,004	98	Paved parking, HSG D
26,252	80	>75% Grass cover, Good, HSG D
71,256	91	Weighted Average
26,252		36.84% Pervious Area
45,004		63.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Subcatchment 2S: East Parcel

Runoff = 5.75 cfs @ 12.09 hrs, Volume= 0.391 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
64,008	98	Paved parking, HSG D
36,245	80	>75% Grass cover, Good, HSG D
100,253	91	Weighted Average
36,245		36.15% Pervious Area
64,008		63.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Reach 1R: ANALYSIS POINT A': Front Street 48" Separated Stormdrain

Inflow Area = 3.937 ac, 63.56% Impervious, Inflow Depth > 2.04" for 2-Year event
Inflow = 9.84 cfs @ 12.09 hrs, Volume= 0.668 af
Outflow = 9.84 cfs @ 12.09 hrs, Volume= 0.668 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs / 3

Time span=2.00-20.00 hrs, dt=0.01 hrs, 1801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: West Parcel Runoff Area=71,256 sf 63.16% Impervious Runoff Depth>3.40"
Tc=6.0 min CN=91 Runoff=6.64 cfs 0.463 af

Subcatchment2S: East Parcel Runoff Area=100,253 sf 63.85% Impervious Runoff Depth>3.40"
Tc=6.0 min CN=91 Runoff=9.34 cfs 0.652 af

Reach 1R: ANALYSISPOINT A': Front Street 48" Separated Stormdrain Inflow=15.97 cfs 1.115 af
Outflow=15.97 cfs 1.115 af

Total Runoff Area = 3.937 ac Runoff Volume = 1.115 af Average Runoff Depth = 3.40"
36.44% Pervious = 1.435 ac 63.56% Impervious = 2.503 ac

Summary for Subcatchment 1S: West Parcel

Runoff = 6.64 cfs @ 12.08 hrs, Volume= 0.463 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
45,004	98	Paved parking, HSG D
26,252	80	>75% Grass cover, Good, HSG D
71,256	91	Weighted Average
26,252		36.84% Pervious Area
45,004		63.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Subcatchment 2S: East Parcel

Runoff = 9.34 cfs @ 12.08 hrs, Volume= 0.652 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
64,008	98	Paved parking, HSG D
36,245	80	>75% Grass cover, Good, HSG D
100,253	91	Weighted Average
36,245		36.15% Pervious Area
64,008		63.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Reach 1R: ANALYSIS POINT A': Front Street 48" Separated Stormdrain

Inflow Area = 3.937 ac, 63.56% Impervious, Inflow Depth > 3.40" for 10-Year event
Inflow = 15.97 cfs @ 12.08 hrs, Volume= 1.115 af
Outflow = 15.97 cfs @ 12.08 hrs, Volume= 1.115 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs / 3

Time span=2.00-20.00 hrs, dt=0.01 hrs, 1801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: West Parcel Runoff Area=71,256 sf 63.16% Impervious Runoff Depth>4.51"
Tc=6.0 min CN=91 Runoff=8.66 cfs 0.615 af

Subcatchment2S: East Parcel Runoff Area=100,253 sf 63.85% Impervious Runoff Depth>4.51"
Tc=6.0 min CN=91 Runoff=12.18 cfs 0.865 af

Reach 1R: ANALYSISPOINT A': Front Street 48" Separated Stormdrain Inflow=20.83 cfs 1.480 af
Outflow=20.83 cfs 1.480 af

Total Runoff Area = 3.937 ac Runoff Volume = 1.480 af Average Runoff Depth = 4.51"
36.44% Pervious = 1.435 ac 63.56% Impervious = 2.503 ac

Summary for Subcatchment 1S: West Parcel

Runoff = 8.66 cfs @ 12.08 hrs, Volume= 0.615 af, Depth> 4.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
45,004	98	Paved parking, HSG D
26,252	80	>75% Grass cover, Good, HSG D
71,256	91	Weighted Average
26,252		36.84% Pervious Area
45,004		63.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Subcatchment 2S: East Parcel

Runoff = 12.18 cfs @ 12.08 hrs, Volume= 0.865 af, Depth> 4.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
64,008	98	Paved parking, HSG D
36,245	80	>75% Grass cover, Good, HSG D
100,253	91	Weighted Average
36,245		36.15% Pervious Area
64,008		63.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, direct entry**

Summary for Reach 1R: ANALYSIS POINT A': Front Street 48" Separated Stormdrain

Inflow Area = 3.937 ac, 63.56% Impervious, Inflow Depth > 4.51" for 25-Year event
Inflow = 20.83 cfs @ 12.08 hrs, Volume= 1.480 af
Outflow = 20.83 cfs @ 12.08 hrs, Volume= 1.480 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.01 hrs / 3