

<b>Project Name:</b>	<b>Intensive Development</b>
<b>Discharge Point:</b>	<b>1</b>
<b>Bioretention #</b>	<b>1</b>

**Bioretention (4.3.1)**

	Practice Drainage Area	For Permit Coverage	Not for Permit Coverage	Total to Practice
1	Total Area (acres)	6.360	0.000	6.360
2	New Impervious (acres)	1.150	0.000	1.150
3	Redeveloped Impervious	0.000	0.000	0.000
		WQ <sub>v</sub> for credit	WQ <sub>v</sub> not for credit	Total WQ <sub>v</sub>
4	WQ <sub>v</sub> to practice	0.1128	0.0000	0.1128

Modified CN for WQ (1.0") storm	87
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5	Designed to Infiltrate?	<input checked="" type="radio"/> Yes <input type="radio"/> No
6*	Design Volume for Infiltration (T <sub>v</sub> )	0.1895
7	Designed to Infiltrate >WQ <sub>v</sub> ?	<input type="radio"/> n/a <input type="radio"/> No <input checked="" type="radio"/> Yes

← T<sub>v</sub> value to enter on the Standards Compliance Workbook for this practice unless practice has under drain, then use answer to Question 35

Note: If the practice is designed to infiltrate the WQ<sub>v</sub>, then T<sub>v</sub> = WQ<sub>v</sub>. Designers may use the Practice Drainage Area Runoff Calculator (second tab) for calculation of practice-specific runoff volumes for other treatment standards. Sizing of the filter bed area/swale bottom need to consider the desired treatment volume (see treatment section). Some design requirements will change based on the size of storm the practice is designed to treat.

\* Questions preceded by an asterisk (\*) may change based on previously entered values

**Feasibility (4.3.1.1)**

	Response	Attachment location
8*	Is the SHGWT separated one (1) foot or more from the bottom of the practice?	<input checked="" type="radio"/> Yes <input type="radio"/> No SN1 Test Pit Logs
9*	Has the infiltration rate (fc) of the underlying soil been confirmed to be at least 0.2 inches per hour by the soil testing requirements in Section 4.3.3.2?	<input checked="" type="radio"/> Yes <input type="radio"/> No SN1 Test Pit Logs
10*	Has a groundwater mounding analysis been performed if the practice is designed to infiltrate >1 year storm and the SHGWT <4 feet?	<input type="radio"/> Yes <input checked="" type="radio"/> No n/a, designed for 1-year storm

**Conveyance (4.3.1.2)**

	Response	Attachment location
11	Has an underdrain been provided? (required if the underlying soils have an infiltration rate of less than 0.2 inches per hour)	<input type="radio"/> Yes <input checked="" type="radio"/> No
12*		<input type="radio"/> Yes <input type="radio"/> No
13	Have the outfalls and the conveyance to the discharge point been designed/protected to avoid erosive velocities?	<input checked="" type="radio"/> Yes <input type="radio"/> No Sheet C-3

14	Has the practice either been designed as offline for the $WQ_v$ or $T_v$ , or a non-erosive outlet for the 10 year storm event been provided?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-3
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<b>Pre-Treatment (4.3.1.3)</b>		<b>Response</b>	<b>Attachment location</b>
15	Has pretreatment been provided for non-rooftop runoff?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
16	What type of pretreatment is being used?	<input checked="" type="checkbox"/> Swale <input checked="" type="checkbox"/> Forebay (10% $WQ_v$ ) <input type="checkbox"/> Proprietary <input type="checkbox"/> Filter Strip <input type="checkbox"/> Deep Sump Catch Basins	Sheet C-3

<b>Treatment (4.3.1.4)</b>		<b>Response</b>	<b>Attachment location</b>
17	Does site plan specify a bioretention mix consisting of sand or loamy sand by USDA classification (85-88% sand, 8-12% silt, and 0-2% clay) and 3-5% organic matter in the form of compost?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-3

<b>Treatment Volume Calculation - Bioretention without Underdrain</b>		<b>Response</b>	<b>Attachment location</b>
18*	What is the Treatment Volume the Bioretention filter bed will be sized to accommodate and treat? (Question 5)	0.1895	
19	What is the depth of the filter bed? (2-4 feet) $d_f$ (ft)	2	
20	What is the coefficient of permeability of the filter media? $k$ (ft/day)	1	
21	What is the average height of water above the filter bed? $h_f$ (ft)	0.5	
22	What is the design filter bed drain time? ( $\leq 2$ days) $t_f$ (days)	2	
23*	Required minimum surface area of the filter bed $A_f$ (ft <sup>2</sup> )	3302	
24	Design filter bed area $A_f$ (ft <sup>2</sup> )	3303	
25	Is the Bioretention storage volume, including the storage volume above the filter bed, volume in any upstream pre-treatment practice, as well as within the filter media, > 75% of the design $WQ_v$ or $T_v$ (as applicable)?	<input checked="" type="radio"/> Yes <input type="radio"/> No	

<b>Treatment Volume Calculation- Bioretention with Underdrain</b>		<b>Response</b>	<b>Attachment location</b>
26*	$A_f$ (ft <sup>2</sup> )	3303	
27*	Underdrain not used (Question 10). This section not required. (ft)	0	
28*	porosity	0	
29*		0	ft <sup>3</sup>
30*		0.0000	ac-ft

<b>Landscaping (4.3.1.5)</b>		<b>Response</b>	<b>Attachment location</b>
31	Does the site plan specify a landscaping plan that ensures dense and vigorous vegetation over the contributing pervious drainage areas and the practice?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-3

**Attachment location:** Indicate the specific location (i.e. appendix, page, plan sheet) where the requisite support documentation has been provided within the application.

**Practice Drainage Area Runoff Calculator**

Project Name: **Intensive Development**

Discharge Point: **1**

Bioretention # **1**

This tool may be used to calculate the required treatment volumes for the area draining to an individual practice where the practices drainage area is only a portion of of the area draining to a discharge point. Where the practice receives runoff from the entire area to a discharge point, this calculator will give the same information as the Standards Compliance Workbook.

**Precipitation Data**

\* Precipitation values shall be obtained from [NOAA Atlas 14](#)

Storm	WQ Storm	1 yr, 24 hr	10 yr, 24 hr	100 yr, 24 hr
Precipitation (inches)	1.00	2.20	3.99	6.11

**Drainage Area Information**

Pre Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	5.380	0.980	<b>6.360</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>5.380</b>	<b>0.980</b>	<b>6.360</b>

Post Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	4.640	0.570	<b>5.210</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	1.150	<b>1.150</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>4.640</b>	<b>1.720</b>	<b>6.360</b>

T<sub>v</sub> of upstream practices:  ac-ft

T<sub>v</sub> credit of this practice:  ac-ft

Treatment Standard	Required Treatment Volume	Post Development Runoff Volume	Pre-development Runoff Volume	Post Composite CN (to practice)	CN <sub>Adj</sub> (with T <sub>v</sub> practice credit)	Pre Composite CN
Channel Protection (Hydrologic Condition Method)	<b>0.1694</b>	0.3767	0.1893	80	80	71
Overbank Flood	<b>0.2944</b>	1.0529	0.7405	79	79	71
Extreme Flood	<b>0.3895</b>	1.9964	1.5889	79	79	71

**Information for Calculating T<sub>c</sub> by the Watershed Lag Method**

Average Catchment	Hydraulic	Time of Concentration, T <sub>c</sub>
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	Slope, Y (%)	Length, l (ft)	1 yr	10 yr	100 yr
Pre Development	2%	634.00	3.4	3.4	3.4
Post Development, upstream of practice	2%	634.00	2.8	2.9	3.0
Post Development, with T <sub>v</sub> credit from practice	2%	634.00	2.8	2.9	3.0

**Simple Disconnection (4.2.2)**

Disconnected Area		For Permit Coverage	Not for Permit Coverage	Total to Practice
1	Total Area (acres)	0.218	0.000	0.218
2	Impervious (acres)	0.218	0.000	0.218
		WQ <sub>v</sub> for credit	WQ <sub>v</sub> not for credit	Total WQ <sub>v</sub>
4	WQ <sub>v</sub> to practice	0.0173	0.0000	0.0173

Modified CN for WQ (1.0") storm	100
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3 Disconnected Area Type

Rooftop

Paths/sidewalks/driveways

\* Questions preceded by an asterisk (\*) may change based on previously entered values

**Feasibility (4.2.2.1)**

		Response	Attachment location
4	For areas conveyed by sheetflow, is the disconnection area at least as wide as the area being disconnected?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
5	For rooftop areas conveyed by downspouts, is the disconnection area at least 12 feet wide?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
6	For rooftop areas conveyed by downspouts, is the contributing area to any one discharge location no greater than 1,000 square feet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
7	Do the underlying soils of the disconnection area meet the Post-Construction Soil Depth and Quality Standard?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6
8*	Is the maximum contributing impervious flow path length to any one discharge location no greater than 75 feet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
9*		<input type="radio"/> Yes <input type="radio"/> No	
10	Are disconnection areas configured such that there is no overlap between adjacent disconnection areas?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
11	Is the maximum slope of the disconnection area no steeper than 15%?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
12	For sites with septic systems, is the disconnection flow path cross-gradient or down-gradient of the leachfield?	<input checked="" type="radio"/> Yes <input type="radio"/> No	n/a, no on-site wastewater

**Conveyance (4.2.2.2)**

		Response	Attachment location
13	Is the runoff conveyed as sheet flow across the disconnection area for the applicable design storms and prevented from channelizing?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
14	Is the disconnection surface directed away from buildings so as to protect foundations and basements?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1

15	Are downspouts at least 10 feet from the nearest downgradient impervious surface to prevent reconnection?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
16	Has a stone diaphragm, level spreader, splash pad, or other acceptable flow spreading device been specified for each downspout outlet?	<input type="radio"/> Yes <input checked="" type="radio"/> No	n/a
17	For runoff not conveyed by downspout, does the runoff drain either as sheet flow or drain to a subsurface drain field that is not directly connected to the drainage network?	<input type="radio"/> Yes <input checked="" type="radio"/> No	n/a

**Pretreatment (4.2.2.3)**

		Response	Attachment location
18	Is runoff from qualifying surfaces prevented from co-mingling with other runoff, such that pre-treatment is not required?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1

**Treatment Volume Calculation**

		Response	Attachment location
19	Disconnected Impervious for permit coverage (from question 2) acres	0.218	
20*	ft	0.00	
21	Soil HSG $f_c \geq 1$ in/hr for $T_V = HC_V$ $f_c \geq 0.5$ in/hr for $T_V = WQ_V$ $f_c < 0.5$ in/hr for $T_V = WQ_V$	<input type="radio"/> A <input type="radio"/> A/B <input checked="" type="radio"/> C/D	
22	What is the slope of the disconnection area?	<input type="radio"/> <8% <input checked="" type="radio"/> 8-15%	
23	What is the required length of the disconnection area? ft	85	
24	What disconnection length is provided? ft	85	
25*	inches	0.0	
26	What is the treatment volume provided by the STP? $T_V$ (cu-ft)	791.3	
27	What is the treatment volume provided by the STP? $T_V$ (ac-ft)	0.018	

↑ Enter this value on the Standards Compliance Worksheet

**Treatment (4.2.2.4)**

		Response	Attachment location
28*		<input type="radio"/> Yes <input type="radio"/> No	

**Landscaping (4.3.2.5)**

		Response	Attachment location
29	Is a dense vegetative cover specified for the disconnection area on the plan sheet/detail sheet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6

Attachment location: Indicate the specific location (i.e. appendix, page, plan sheet) where the requisite support documentation has been provided within the application.



**Practice Drainage Area Runoff Calculator**

Project Name: **Intensive Development**

Discharge Point: **1**

Disconnection Area # **1**

This tool may be used to calculate the required treatment volumes for the area draining to an individual practice where the practices drainage area is only a portion of of the area draining to a discharge point. Where the practice receives runoff from the entire area to a discharge point, this calculator will give the same information as the Standards Compliance Workbook.

**Precipitation Data**

\* Precipitation values shall be obtained from [NOAA Atlas 14](#)

Storm	WQ Storm	1 yr, 24 hr	10 yr, 24 hr	100 yr, 24 hr
Precipitation (inches)	1.00	0.00	0.00	0.00

**Drainage Area Information**

Pre Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

Post Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

T<sub>v</sub> of upstream practices:  ac-ft

T<sub>v</sub> credit of this practice:  ac-ft

Treatment Standard	Required Treatment Volume	Post Development Runoff Volume	Pre-development Runoff Volume	Post Composite CN (to practice)	CN <sub>Adj</sub> (with T <sub>v</sub> practice credit)	Pre Composite CN
Channel Protection (Hydrologic Condition Method)	<b>0.0000</b>	0.0000	0.0000	0	0	0
Overbank Flood	<b>0.0000</b>	0.0000	0.0000	0	0	0
Extreme Flood	<b>0.0000</b>	0.0000	0.0000	0	0	0

**Information for Calculating T<sub>c</sub> by the Watershed Lag Method**

Average Catchment	Hydraulic	Time of Concentration, T <sub>c</sub>
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	Slope, Y (%)	Length, l (ft)	1 yr	10 yr	100 yr
Pre Development	0%	0.00	0.0	0.0	0.0
Post Development, upstream of practice	0%	0.00	0.0	0.0	0.0
Post Development, with $T_v$ credit from practice	0%	0.00	0.0	0.0	0.0



## SOIL TEST PIT LOG

Project: Intensive Development High Density Residential

Ground Surface Slope: 0-6%, varies    Logged By: Jimmy James, Site Technician

Test Pit #	Depth (inches)	Texture	Consistence or Density	Color	Mottles	Comments
16-01	0-9	Fine sandy loam	Loose, granular	Dark brown		Moist, roots. Topsoil.
	9-42	Fine sandy loam	Friable, subangular blocky	Tan and rust brown		Moist, roots.
	42-144	Fine to medium sand	Friable, subangular blocky	Tan brown	Faint rust at 120"	Moist, laminated. SHWT = 120" NLTD
16-02	0-5	Fine sandy loam	Loose, granular	Dark brown		Moist, roots. Topsoil.
	5-37	Fine sandy loam	Friable, subangular blocky	Tan and Rust		Moist, roots to 36".
	37-108	Fine to medium sand	Friable, subangular blocky	Tan brown	Faint, rust at 97"	Moist, laminated. SHWT = 97" NGWTD, NLTD
16-03	0-12	Fine sandy loam	Loose, granular	Dark brown		Moist, roots. Topsoil.
	12-36	Fine sandy loam	Friable, subangular blocky	Rust brown and tan		Moist, roots to 36"
	36-94	Fine sandy loam	Friable to firm, subangular blocky	Tan and brown	Faint at 90"	Moist. SHWT = 90" NGWTD, NLTD

Note:

NLTD - No ledge to depth

NGWTD - No groundwater to depth

SHWT - Seasonal high water table

Project Name: **Intensive Development**  
 Discharge Point: **2**  
 Dry Pond #: **1**

## Dry Pond (5.1)

1 Standard(s) Met by Pond  Channel Protection  
 Overbank/Extreme Flood

2 Discharges to Cold or Warm Water Fishery?  Cold  
 Warm

Note: Designers may use the Practice Drainage Area Runoff Calculator (second tab) for calculation of practice-specific runoff volumes for treatment standards.

\* Questions preceded by an asterisk (\*) may change based on previously entered values

		Response	Attachment location
3	Does the pond have side slopes no greater than 2:1 unless site constraints have required the use of retaining walls or similar structural support?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-4
4	Does the design specify an outlet that is stable for the Q <sub>10</sub> storm event?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-4
5	Have the outfalls and the conveyance to the discharge point been designed and protected to avoid erosive velocities?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-4
6	Is the outlet control structure located within the embankment for maintenance access and safety?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-4
7	Has a emergency spillway been provided to safely convey the 100-year storm without overtopping the embankment?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-4
8	Are end walls above pipe outfalls greater than 30 inches in diameter fenced with pipe or rebar at 8 inch intervals?	<input type="radio"/> Yes <input checked="" type="radio"/> No	Pipe outfall <30"
9*	Has a low for orifice been provided to meet the and CPV extended detention requirements without clogging?	<input type="radio"/> Yes <input type="radio"/> No	Sheet C-4 and Attachment 4
10*	Has a under-drained stone trench outlet been provided to discharge volumes up to an including the CPv in accordance with requirements in Section 4.3.6.2 unless detention time is less than 500 minutes?	<input checked="" type="radio"/> Yes <input type="radio"/> No	

**Attachment location:** Indicate the specific location (i.e. appendix, page, plan sheet) where the requisite support documentation has been provided within the application.

**Practice Drainage Area Runoff Calculator**

Project Name: **Intensive Development**

Discharge Point: **2**

Dry Pond #: **1**

This tool may be used to calculate the required treatment volumes for the area draining to an individual practice where the practices drainage area is only a portion of of the area draining to a discharge point. Where the practice receives runoff from the entire area to a discharge point, this calculator will give the same information as the Standards Compliance Workbook.

**Precipitation Data**

\* Precipitation values shall be obtained from [NOAA Atlas 14](#)

Storm	WQ Storm	1 yr, 24 hr	10 yr, 24 hr	100 yr, 24 hr
Precipitation (inches)	1.00	0.00	0.00	0.00

**Drainage Area Information**

Pre Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

Post Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

T<sub>v</sub> of upstream practices:  ac-ft

T<sub>v</sub> credit of this practice:  ac-ft

Treatment Standard	Required Treatment Volume	Post Development Runoff Volume	Pre-development Runoff Volume	Post Composite CN (to practice)	CN <sub>Adj</sub> (with T <sub>v</sub> practice credit)	Pre Composite CN
Channel Protection (Hydrologic Condition Method)	<b>0.0000</b>	0.0000	0.0000	0	0	0
Overbank Flood	<b>0.0000</b>	0.0000	0.0000	0	0	0
Extreme Flood	<b>0.0000</b>	0.0000	0.0000	0	0	0

**Information for Calculating T<sub>c</sub> by the Watershed Lag Method**

Average Catchment	Hydraulic	Time of Concentration, T <sub>c</sub>
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	Slope, Y (%)	Length, l (ft)	1 yr	10 yr	100 yr
Pre Development	0%	0.00	0.0	0.0	0.0
Post Development, upstream of practice	0%	0.00	0.0	0.0	0.0
Post Development, with $T_v$ credit from practice	0%	0.00	0.0	0.0	0.0

<b>Project Name:</b>	<b>Intensive Development</b>
<b>Discharge Point:</b>	<b>2</b>
<b>Dry Swale #</b>	<b>1</b>

### Dry Swale (4.3.2)

		For Permit Coverage	Not for Permit Coverage	Total to Practice
1	Total Area (acres)	1.680	0.000	1.680
2	New Impervious (acres)	0.240	0.000	0.240
3	Redeveloped Impervious	0.000	0.000	0.000
		WQ <sub>V</sub> for credit	WQ <sub>V</sub> not for credit	Total WQ <sub>V</sub>
4	WQ <sub>V</sub> to practice	0.0250	0.0000	0.0250

Modified CN for WQ (1.0") storm	85
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5	Designed to Infiltrate?	<input checked="" type="radio"/> Yes <input type="radio"/> No
6*	Design Volume for Infiltration (T <sub>V</sub> )	0.0210
7	Designed to Infiltrate >WQ <sub>V</sub> ?	<input type="radio"/> n/a <input checked="" type="radio"/> No <input type="radio"/> Yes

← T<sub>V</sub> value to enter on the Standards Compliance Workbook for this practice unless practice has under drain, then use answer to Question 36

Note: If the practice is designed to infiltrate the WQ<sub>V</sub>, then T<sub>V</sub> = WQ<sub>V</sub>. Designers may use the Practice Drainage Area Runoff Calculator (second tab) for calculation of practice-specific runoff volumes for other treatment standards. Sizing of the filter bed area/swale bottom need to consider the desired treatment volume (see treatment section). Some design requirements will change based on the size of storm the practice is designed to treat.

\* Questions preceded by an asterix (\*) may change based on previously entered values

#### Feasibility (4.3.2.1)

		Response	Attachment location
8	Is the maximum longitudinal slope of the swale ≤5% without check dams or similar grade controls or ≤6% with grade controls?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-4
9*	Is the SHGWT at or below the bottom of the practice?	<input checked="" type="radio"/> Yes <input type="radio"/> No	SN3 Test Pit Logs
10*	Has the infiltration rate (fc) of the underlying soil been confirmed to be at least 0.2 inches per hour by the soil testing requirements in Section 4.3.3.2?	<input checked="" type="radio"/> Yes <input type="radio"/> No	SN3 Infiltration Test Logs

#### Conveyance (4.3.2.2)

		Response	Attachment location
11	Has an underdrain been provided? (required if the underlying soils have an infiltration rate of less than 0.2 inches per hour)	<input type="radio"/> Yes <input checked="" type="radio"/> No	
12*		<input type="radio"/> Yes <input type="radio"/> No	
13	Is the peak velocity for the 1-year storm non-erosive (3.5-5 fps)?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-4

14	Does the swale have the capacity to convey the 10-year, 24-hour storm safely with 6 inches of freeboard?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-4
15	Have the outfalls and the conveyance to the discharge point been designed/protected to avoid erosive velocities?	<input type="radio"/> Yes <input type="radio"/> No	Sheet C-4
16	Does the swale have a trapezoidal or parabolic cross section with side slopes $\leq$ 2H:1V?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-4
17	Are check dams being used?	<input type="radio"/> Yes <input checked="" type="radio"/> No	
18*		<input type="radio"/> Yes <input type="radio"/> No	

<b>Pre-Treatment (4.3.2.3)</b>		<b>Response</b>	<b>Attachment location</b>
19	Has pretreatment been provided for non-rooftop runoff?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-4
20	What type of pretreatment is being used?	<input checked="" type="checkbox"/> Swale <input type="checkbox"/> Forebay (10% WQv) <input type="checkbox"/> Proprietary <input checked="" type="checkbox"/> Filter Strip <input type="checkbox"/> Deep Sump Catch Basins	

<b>Treatment (4.3.2.4)</b>		<b>Response</b>	<b>Attachment location</b>
21	What type filter media is being used?	<input type="radio"/> Bioretention Mix (Section 4.3.1.4) <input checked="" type="radio"/> Sand (ASTM C-33)	Sheet C-4
22*		<input type="radio"/> Yes <input type="radio"/> No	
23	Is the swale bottom 2-8 feet wide, or have measures to prevent braiding and erosion been provided if the swale bottom is wider than 8 feet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-4

<b>Treatment Volume Calculation - Dry Swale without Underdrain</b>		<b>Response</b>	<b>Attachment location</b>
24*	What is the Treatment Volume the Dry Swale filter bed will be sized to accommodate and treat? (Question 5)	<b>0.0210</b>	
25	What is the depth of the filter bed? (2-4 feet) $d_f$ (ft)	<b>2</b>	
26	What is the coefficient of permeability of the filter media? $k$ (ft/day)	<b>3.5</b>	
27	What is the average height of water above the filter bed? $h_f$ (ft)	<b>0.75</b>	
28	What is the design filter bed drain time? ( $\leq 2$ days) $t_f$ (days)	<b>2</b>	
29*	Required minimum surface area of the filter bed $A_f$ (ft <sup>2</sup> )	<b>95</b>	
30	Design filter bed area $A_f$ (ft <sup>2</sup> )	<b>93</b>	
31	Is the dry swale storage volume, including the storage volume above the filter bed, volume in any upstream pre-treatment practice, as well as within the filter media, > 75% of the design WQv or Tv (as applicable)?	<input checked="" type="radio"/> Yes <input type="radio"/> No	

<b>Treatment Volume Calculation- Dry Swale with Underdrain</b>		<b>Response</b>	<b>Attachment location</b>
32*	$A_f$ (ft <sup>2</sup> )	93	
33*	Underdrain not used (Question 10). This section not required.	(ft) 0	
34*	porosity	0	
35*		0	ft <sup>3</sup>
36*		0.0000	ac-ft

<b>Landscaping (4.3.2.5)</b>		<b>Response</b>	<b>Attachment location</b>
37	Does the site plan specify a landscaping plan that ensures dense and vigorous vegetation over the contributing pervious drainage areas and the practice?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-4

Attachment location: Indicate the specific location (i.e. appendix, page, plan sheet) where the requisite support documentation has been provided within the application.

**Practice Drainage Area Runoff Calculator**

Project Name: **Intensive Development**

Discharge Point: **2**

Dry Swale # **1**

This tool may be used to calculate the required treatment volumes for the area draining to an individual practice where the practices drainage area is only a portion of of the area draining to a discharge point. Where the practice receives runoff from the entire area to a discharge point, this calculator will give the same information as the Standards Compliance Workbook.

**Precipitation Data**

\* Precipitation values shall be obtained from [NOAA Atlas 14](#)

Storm	WQ Storm	1 yr, 24 hr	10 yr, 24 hr	100 yr, 24 hr
Precipitation (inches)	1.00	2.20	3.99	6.11

**Drainage Area Information**

Pre Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	1.680	<b>1.680</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>1.680</b>	<b>1.680</b>

Post Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	1.440	<b>1.440</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.240	<b>0.240</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>1.680</b>	<b>0.004</b>

T<sub>v</sub> of upstream practices:  ac-ft

T<sub>v</sub> credit of this practice:  ac-ft

Treatment Standard	Required Treatment Volume	Post Development Runoff Volume	Pre-development Runoff Volume	Post Composite CN (to practice)	CN <sub>Adj</sub> (with T <sub>v</sub> practice credit)	Pre Composite CN
Channel Protection (Hydrologic Condition Method)	<b>0.0357</b>	0.1180	0.0783	137	137	77
Overbank Flood	<b>0.0585</b>	0.3151	0.2526	198	198	77
Extreme Flood	<b>0.0746</b>	0.5791	0.5005	416	416	77

**Information for Calculating T<sub>c</sub> by the Watershed Lag Method**

Average Catchment	Hydraulic	Time of Concentration, T <sub>c</sub>
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	Slope, Y (%)	Length, l (ft)	1 yr	10 yr	100 yr
Pre Development	2%	285.00	1.5	1.5	1.5
Post Development, upstream of practice	2%	285.00	#NUM!	#NUM!	#NUM!
Post Development, with T <sub>v</sub> credit from practice	2%	285.00	#NUM!	#NUM!	#NUM!

Project Name: **Intensive Development**

Discharge Point: **2**

Disconnection Area # **2**

**Simple Disconnection (4.2.2)**

Disconnected Area		For Permit Coverage	Not for Permit Coverage	Total to Practice
1	Total Area (acres)	0.048	0.000	0.048
2	Impervious (acres)	0.048	0.000	0.048
		WQ <sub>v</sub> for credit	WQ <sub>v</sub> not for credit	Total WQ <sub>v</sub>
4	WQ <sub>v</sub> to practice	0.0038	0.0000	0.0038

Modified CN for WQ (1.0") storm **100**

3 Disconnected Area Type

Rooftop

Paths/sidewalks/driveways

\* Questions preceded by an asterisk (\*) may change based on previously entered values

**Feasibility (4.2.2.1)**

		Response	Attachment location
4	For areas conveyed by sheetflow, is the disconnection area at least as wide as the area being disconnected?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
5	For rooftop areas conveyed by downspouts, is the disconnection area at least 12 feet wide?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
6	For rooftop areas conveyed by downspouts, is the contributing area to any one discharge location no greater than 1,000 square feet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
7	Do the underlying soils of the disconnection area meet the Post-Construction Soil Depth and Quality Standard?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6
8*	Is the maximum contributing impervious flow path length to any one discharge location no greater than 75 feet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
9*		<input type="radio"/> Yes <input checked="" type="radio"/> No	
10	Are disconnection areas configured such that there is no overlap between adjacent disconnection areas?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
11	Is the maximum slope of the disconnection area no steeper than 15%?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
12	For sites with septic systems, is the disconnection flow path cross-gradient or down-gradient of the leachfield?	<input type="radio"/> Yes <input checked="" type="radio"/> No	n/a, no on-site wastewater

**Conveyance (4.2.2.2)**

		Response	Attachment location
13	Is the runoff conveyed as sheet flow across the disconnection area for the applicable design storms and prevented from channelizing?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
14	Is the disconnection surface directed away from buildings so as to protect foundations and basements?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1

15	Are downspouts at least 10 feet from the nearest downgradient impervious surface to prevent reconnection?	<input type="radio"/> Yes <input checked="" type="radio"/> No	n/a
16	Has a stone diaphragm, level spreader, splash pad, or other acceptable flow spreading device been specified for each downspout outlet?	<input type="radio"/> Yes <input checked="" type="radio"/> No	n/a
17	For runoff not conveyed by downspout, does the runoff drain either as sheet flow or drain to a subsurface drain field that is not directly connected to the drainage network?	<input type="radio"/> Yes <input checked="" type="radio"/> No	n/a

**Pretreatment (4.2.2.3)**

		Response	Attachment location
18	Is runoff from qualifying surfaces prevented from co-mingling with other runoff, such that pre-treatment is not required?	<input type="radio"/> Yes <input type="radio"/> No	Sheet SW-1

**Treatment Volume Calculation**

		Response	Attachment location
19	Disconnected Impervious for permit coverage (from question 2) acres	0.048	
20*	ft	0.00	
21	Soil HSG $f_c \geq 1$ in/hr for $T_V=HC_V$ $f_c \geq 0.5$ in/hr for $T_V=WQ_V$ $f_c < 0.5$ in/hr for $T_V=WQ_V$	<input type="radio"/> A <input type="radio"/> A/B <input checked="" type="radio"/> C/D	
22	What is the slope of the disconnection area?	<input type="radio"/> <8% <input checked="" type="radio"/> 8-15%	
23	What is the required length of the disconnection area? ft	85	
24	What disconnection length is provided? ft	85	
25*	inches	0.0	
26	What is the treatment volume provided by the STP? $T_V$ (cu-ft)	174.2	
27	What is the treatment volume provided by the STP? $T_V$ (ac-ft)	0.004	

↑ Enter this value on the Standards Compliance Worksheet

**Treatment (4.2.2.4)**

		Response	Attachment location
28*		<input type="radio"/> Yes <input type="radio"/> No	

**Landscaping (4.3.2.5)**

		Response	Attachment location
29	Is a dense vegetative cover specified for the disconnection area on the plan sheet/detail sheet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6

Attachment location: Indicate the specific location (i.e. appendix, page, plan sheet) where the requisite support documentation has been provided within the application.



**Practice Drainage Area Runoff Calculator**

Project Name: **Intensive Development**

Discharge Point: **2**

Disconnection Area # **2**

This tool may be used to calculate the required treatment volumes for the area draining to an individual practice where the practices drainage area is only a portion of of the area draining to a discharge point. Where the practice receives runoff from the entire area to a discharge point, this calculator will give the same information as the Standards Compliance Workbook.

**Precipitation Data**

\* Precipitation values shall be obtained from [NOAA Atlas 14](#)

Storm	WQ Storm	1 yr, 24 hr	10 yr, 24 hr	100 yr, 24 hr
Precipitation (inches)	1.00	0.00	0.00	0.00

**Drainage Area Information**

Pre Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

Post Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

T<sub>v</sub> of upstream practices:  ac-ft

T<sub>v</sub> credit of this practice:  ac-ft

Treatment Standard	Required Treatment Volume	Post Development Runoff Volume	Pre-development Runoff Volume	Post Composite CN (to practice)	CN <sub>Adj</sub> (with T <sub>v</sub> practice credit)	Pre Composite CN
Channel Protection (Hydrologic Condition Method)	<b>0.0000</b>	0.0000	0.0000	0	0	0
Overbank Flood	<b>0.0000</b>	0.0000	0.0000	0	0	0
Extreme Flood	<b>0.0000</b>	0.0000	0.0000	0	0	0

**Information for Calculating T<sub>c</sub> by the Watershed Lag Method**

Average Catchment	Hydraulic	Time of Concentration, T <sub>c</sub>
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	Slope, Y (%)	Length, l (ft)	1 yr	10 yr	100 yr
Pre Development	0%	0.00	0.0	0.0	0.0
Post Development, upstream of practice	0%	0.00	0.0	0.0	0.0
Post Development, with $T_v$ credit from practice	0%	0.00	0.0	0.0	0.0



## SOIL TEST PIT LOG

Project: Intensive Development High Density Residential

Ground Surface Slope: 0-6%, varies    Logged By: Jimmy James, Site Technician

Test Pit #	Depth (inches)	Texture	Consistence or Density	Color	Mottles	Comments
16-03	0-12	Fine sandy loam	Loose, granular	Dark brown		Moist, roots. Topsoil.
	12-36	Fine sandy loam	Friable, subangular blocky	Rust brown and tan		Moist, roots to 36"
	36-94	Fine sandy loam	Friable to firm, subangular blocky	Tan and brown	Faint at 40"	Moist. SHWT = 40" NGWTD, NLTD
16-04	0-5	Fine sandy loam	Loose, granular	Dark brown		Moist, roots. Topsoil.
	5-37	Fine sandy loam	Friable, subangular blocky	Tan and Rust		Moist, roots to 36".
	37-60	Fine to medium sand	Friable, subangular blocky	Tan brown	Faint, rust at 55"	Moist, laminated. SHWT = 55" NGWTD, NLTD

Note:  
 NLTD - No ledge to depth  
 NGWTD - No groundwater to depth  
 SHWT - Seasonal high water table

<b>Project Name:</b>	<b>Intensive Development</b>
<b>Discharge Point:</b>	<b>3</b>
<b>Bioretention #</b>	<b>2</b>

**Bioretention (4.3.1)**

Practice Drainage Area		For Permit Coverage	Not for Permit Coverage	Total to Practice
1	Total Area (acres)	10.140	0.000	10.140
2	New Impervious (acres)	2.000	0.000	2.000
3	Redeveloped Impervious	0.000	0.000	0.000
		WQ <sub>v</sub> for credit	WQ <sub>v</sub> not for credit	Total WQ <sub>v</sub>
4	WQ <sub>v</sub> to practice	0.1923	0.0000	0.1923

Modified CN for WQ (1.0") storm	87
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5	Designed to Infiltrate?	<input checked="" type="radio"/> Yes <input type="radio"/> No
6*	Design Volume for Infiltration (T <sub>v</sub> )	0.1224
7	Designed to Infiltrate >WQ <sub>v</sub> ?	<input type="radio"/> n/a <input checked="" type="radio"/> No <input type="radio"/> Yes

← T<sub>v</sub> value to enter on the Standards Compliance Workbook for this practice unless practice has under drain, then use answer to Question 35

Note: If the practice is designed to infiltrate the WQ<sub>v</sub>, then T<sub>v</sub> = WQ<sub>v</sub>. Designers may use the Practice Drainage Area Runoff Calculator (second tab) for calculation of practice-specific runoff volumes for other treatment standards. Sizing of the filter bed area/swale bottom need to consider the desired treatment volume (see treatment section). Some design requirements will change based on the size of storm the practice is designed to treat.

\* Questions preceded by an asterisk (\*) may change based on previously entered values

**Feasibility (4.3.1.1)**

	Response	Attachment location
8*	Is the SHGWT at or below the bottom of the practice?	<input checked="" type="radio"/> Yes <input type="radio"/> No SN3 Test Pit Logs
9*	Has the infiltration rate (fc) of the underlying soil been confirmed to be at least 0.2 inches per hour by the soil testing requirements in Section 4.3.3.2?	<input checked="" type="radio"/> Yes <input type="radio"/> No SN3 Infiltration Test Logs
10*		<input type="radio"/> Yes <input type="radio"/> No

**Conveyance (4.3.1.2)**

	Response	Attachment location
11	Has an underdrain been provided? (required if the underlying soils have an infiltration rate of less than 0.2 inches per hour)	<input type="radio"/> Yes <input checked="" type="radio"/> No
12*		<input type="radio"/> Yes <input type="radio"/> No
13	Have the outfalls and the conveyance to the discharge point been designed/protected to avoid erosive velocities?	<input checked="" type="radio"/> Yes <input type="radio"/> No Sheet C-5

14	Has the practice either been designed as offline for the $WQ_v$ or $T_v$ , or a non-erosive outlet for the 10 year storm event been provided?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-5
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<b>Pre-Treatment (4.3.1.3)</b>		<b>Response</b>	<b>Attachment location</b>
15	Has pretreatment been provided for non-rooftop runoff?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-2 and C-5
16	What type of pretreatment is being used?	<input type="checkbox"/> Swale <input checked="" type="checkbox"/> Forebay (10% $WQ_v$ ) <input type="checkbox"/> Proprietary <input checked="" type="checkbox"/> Filter Strip <input type="checkbox"/> Deep Sump Catch Basins	

<b>Treatment (4.3.1.4)</b>		<b>Response</b>	<b>Attachment location</b>
17	Does site plan specify a bioretention mix consisting of sand or loamy sand by USDA classification (85-88% sand, 8-12% silt, and 0-2% clay) and 3-5% organic matter in the form of compost?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-3

<b>Treatment Volume Calculation - Bioretention without Underdrain</b>		<b>Response</b>	<b>Attachment location</b>
18*	What is the Treatment Volume the Bioretention filter bed will be sized to accommodate and treat? (Question 5)	0.1224	
19	What is the depth of the filter bed? (2-4 feet) $d_f$ (ft)	2	
20	What is the coefficient of permeability of the filter media? $k$ (ft/day)	1	
21	What is the average height of water above the filter bed? $h_f$ (ft)	0.5	
22	What is the design filter bed drain time? ( $\leq 2$ days) $t_f$ (days)	2	
23*	Required minimum surface area of the filter bed $A_f$ (ft <sup>2</sup> )	2133	
24	Design filter bed area $A_f$ (ft <sup>2</sup> )	2138	
25	Is the Bioretention storage volume, including the storage volume above the filter bed, volume in any upstream pre-treatment practice, as well as within the filter media, > 75% of the design $WQ_v$ or $T_v$ (as applicable)?	<input checked="" type="radio"/> Yes <input type="radio"/> No	

<b>Treatment Volume Calculation- Bioretention with Underdrain</b>		<b>Response</b>	<b>Attachment location</b>
26*	$A_f$ (ft <sup>2</sup> )	2138	
27*	Underdrain not used (Question 10). This section not required. (ft)	0	
28*	porosity	0	
29*		0	ft <sup>3</sup>
30*		0.0000	ac-ft

<b>Landscaping (4.3.1.5)</b>		<b>Response</b>	<b>Attachment location</b>
31	Does the site plan specify a landscaping plan that ensures dense and vigorous vegetation over the contributing pervious drainage areas and the practice?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-5

**Attachment location:** Indicate the specific location (i.e. appendix, page, plan sheet) where the requisite support documentation has been provided within the application.

**Practice Drainage Area Runoff Calculator**

Project Name: **Intensive Development**

Discharge Point: **3**

Bioretention #: **2**

This tool may be used to calculate the required treatment volumes for the area draining to an individual practice where the practices drainage area is only a portion of of the area draining to a discharge point. Where the practice receives runoff from the entire area to a discharge point, this calculator will give the same information as the Standards Compliance Workbook.

**Precipitation Data**

\* Precipitation values shall be obtained from [NOAA Atlas 14](#)

Storm	WQ Storm	1 yr, 24 hr	10 yr, 24 hr	100 yr, 24 hr
Precipitation (inches)	1.00	2.20	3.99	6.11

**Drainage Area Information**

Pre Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	8.750	1.390	<b>10.140</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>8.750</b>	<b>1.390</b>	<b>10.140</b>

Post Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	6.530	1.000	<b>7.530</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.540	0.070	<b>0.610</b>
Pavement, roofs, and other impervious	0.000	0.000	1.680	0.320	<b>2.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>8.750</b>	<b>1.390</b>	<b>10.140</b>

T<sub>v</sub> of upstream practices:  ac-ft

T<sub>v</sub> credit of this practice:  ac-ft

Treatment Standard	Required Treatment Volume	Post Development Runoff Volume	Pre-development Runoff Volume	Post Composite CN (to practice)	CN <sub>Adj</sub> (with T <sub>v</sub> practice credit)	Pre Composite CN
Channel Protection (Hydrologic Condition Method)	<b>0.2888</b>	0.6173	0.2984	81	81	71
Overbank Flood	<b>0.4964</b>	1.7000	1.1737	80	80	71
Extreme Flood	<b>0.6532</b>	3.2066	2.5234	79	79	71

**Information for Calculating T<sub>c</sub> by the Watershed Lag Method**

Average Catchment	Hydraulic	Time of Concentration, T <sub>c</sub>
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	Slope, Y (%)	Length, l (ft)	1 yr	10 yr	100 yr
Pre Development	2%	839.00	4.4	4.4	4.4
Post Development, upstream of practice	2%	839.00	2.9	3.1	3.1
Post Development, with T <sub>v</sub> credit from practice	2%	839.00	2.9	3.1	3.1

<b>Project Name:</b>	<b>Intensive Development</b>
<b>Discharge Point:</b>	<b>3</b>
<b>Dry Pond #</b>	<b>2</b>

**Dry Pond (5.1)**

1 Standard(s) Met by Pond  Channel Protection  
 Overbank/Extreme Flood

2 Discharges to Cold or Warm Water Fishery?  Cold  
 Warm

Note: Designers may use the Practice Drainage Area Runoff Calculator (second tab) for calculation of practice-specific runoff volumes for treatment standards.

\* Questions preceded by an asterisk (\*) may change based on previously entered values

		Response	Attachment location
3	Does the pond have side slopes no greater than 2:1 unless site constraints have required the use of retaining walls or similar structural support?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-5
4	Does the design specify an outlet that is stable for the Q <sub>10</sub> storm event?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-5
5	Have the outfalls and the conveyance to the discharge point been designed and protected to avoid erosive velocities?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-5
6	Is the outlet control structure located within the embankment for maintenance access and safety?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-5
7	Has a emergency spillway been provided to safely convey the 100-year storm without overtopping the embankment?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-5
8	Are end walls above pipe outfalls greater than 30 inches in diameter fenced with pipe or rebar at 8 inch intervals?	<input type="radio"/> Yes <input checked="" type="radio"/> No	Pipe outfall <30"
9*	Has a low for orifice been provided to meet the and CPV extended detention requirements without clogging?	<input type="radio"/> Yes <input type="radio"/> No	Sheet C-5 and Attachment 4
10*	Has a under-drained stone trench outlet been provided to discharge volumes up to an including the CPv in accordance with requirements in Section 4.3.6.2 unless detention time is less than 500 minutes?	<input checked="" type="radio"/> Yes <input type="radio"/> No	

**Attachment location:** Indicate the specific location (i.e. appendix, page, plan sheet) where the requisite support documentation has been provided within the application.

**Practice Drainage Area Runoff Calculator**

Project Name: **Intensive Development**

Discharge Point: **3**

Dry Pond #: **2**

This tool may be used to calculate the required treatment volumes for the area draining to an individual practice where the practices drainage area is only a portion of of the area draining to a discharge point. Where the practice receives runoff from the entire area to a discharge point, this calculator will give the same information as the Standards Compliance Workbook.

**Precipitation Data**

\* Precipitation values shall be obtained from [NOAA Atlas 14](#)

Storm	WQ Storm	1 yr, 24 hr	10 yr, 24 hr	100 yr, 24 hr
Precipitation (inches)	1.00	0.00	0.00	0.00

**Drainage Area Information**

Pre Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

Post Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

T<sub>v</sub> of upstream practices:  ac-ft

T<sub>v</sub> credit of this practice:  ac-ft

Treatment Standard	Required Treatment Volume	Post Development Runoff Volume	Pre-development Runoff Volume	Post Composite CN (to practice)	CN <sub>Adj</sub> (with T <sub>v</sub> practice credit)	Pre Composite CN
Channel Protection (Hydrologic Condition Method)	<b>0.0000</b>	0.0000	0.0000	0	0	0
Overbank Flood	<b>0.0000</b>	0.0000	0.0000	0	0	0
Extreme Flood	<b>0.0000</b>	0.0000	0.0000	0	0	0

**Information for Calculating T<sub>c</sub> by the Watershed Lag Method**

Average Catchment	Hydraulic	Time of Concentration, T <sub>c</sub>
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	Slope, Y (%)	Length, l (ft)	1 yr	10 yr	100 yr
Pre Development	0%	0.00	0.0	0.0	0.0
Post Development, upstream of practice	0%	0.00	0.0	0.0	0.0
Post Development, with $T_v$ credit from practice	0%	0.00	0.0	0.0	0.0

**Project Name:** Intensive Development

**Discharge Point:** 3

**Reforestation Area #** 1

**Reforestation (4.2.1)**

1 Practice Type

- Active Reforestation
- Passive Reforestation
- Individual Tree Plantings

\* Questions preceded by an asterix (\*) may change based on previously entered values

**Feasibility (4.2.1.1)**

		Response	Attachment location
2	Is the reforested area under the same ownership or control as the site and identified as protected from development and disturbance on the site plan?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
3	Have tree species been selected that are appropriate for the soil and site conditions?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
4*	For reforested areas, is the minimum contiguous area at least 2,500 square feet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
5*	For reforested areas, is the minimum width at least 25 feet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1

**Treatment (4.2.1.2)**

		Response	Attachment location
6	Have tree species been selected that are well-suited to the site and with consideration for natural species composition and diversity of local forests?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
7	Does the soil within the reforested area meet the Post-Construction Soil Depth and Quality Standard?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
8	If the reforested area is also being used to receive additional credit through a disconnection practice, has the designer also completed the appropriate worksheet?	<input type="radio"/> Yes <input checked="" type="radio"/> No	n/a

**Treatment Volume Calculation**

		Response	Attachment location
9	Reforested area (excluding impervious surfaces) (acres)	1.186	
10*	Tv credit per unit area (inches)	0.1	
11*	What is the treatment volume provided by the STP? T <sub>v</sub> (cu-ft)	430.5	
12*	What is the treatment volume provided by the STP? T <sub>v</sub> (ac-ft)	0.010	

↑ Enter this value on the Standards Compliance Worksheet

**Landscaping (4.3.2.5)**

		Response	Attachment location
	Has a planting plan been developed in accordance with Section 4.2.1.3?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Example Only - n/a
	Does the planting plan specify that reforestation areas shall not be maintained as landscaped areas and that leaf litter, duff, saplings, and understory shall not be removed?	<input checked="" type="radio"/> Yes <input type="radio"/> No	

**Attachment location:** Indicate the specific location (i.e. appendix, page, plan sheet) where the requisite support documentation has been provided within the application.

**Practice Drainage Area Runoff Calculator**

Project Name: **Intensive Development**

Discharge Point: **3**

Reforestation Area # **1**

This tool may be used to calculate the required treatment volumes for the area draining to an individual practice where the practices drainage area is only a portion of of the area draining to a discharge point. Where the practice receives runoff from the entire area to a discharge point, this calculator will give the same information as the Standards Compliance Workbook.

**Precipitation Data**

\* Precipitation values shall be obtained from [NOAA Atlas 14](#)

Storm	WQ Storm	1 yr, 24 hr	10 yr, 24 hr	100 yr, 24 hr
Precipitation (inches)	1.00	0.00	0.00	0.00

**Drainage Area Information**

Pre Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

Post Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

T<sub>v</sub> of upstream practices:  ac-ft

T<sub>v</sub> credit of this practice:  ac-ft

Treatment Standard	Required Treatment Volume	Post Development Runoff Volume	Pre-development Runoff Volume	Post Composite CN (to practice)	CN <sub>Adj</sub> (with T <sub>v</sub> practice credit)	Pre Composite CN
Channel Protection (Hydrologic Condition Method)	<b>0.0000</b>	0.0000	0.0000	0	0	0
Overbank Flood	<b>0.0000</b>	0.0000	0.0000	0	0	0
Extreme Flood	<b>0.0000</b>	0.0000	0.0000	0	0	0

**Information for Calculating T<sub>c</sub> by the Watershed Lag Method**

Average Catchment	Hydraulic	Time of Concentration, T <sub>c</sub>
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	Slope, Y (%)	Length, l (ft)	1 yr	10 yr	100 yr
Pre Development	0%	0.00	0.0	0.0	0.0
Post Development, upstream of practice	0%	0.00	0.0	0.0	0.0
Post Development, with $T_v$ credit from practice	0%	0.00	0.0	0.0	0.0

**Simple Disconnection (4.2.2)**

Disconnected Area		For Permit Coverage	Not for Permit Coverage	Total to Practice
1	Total Area (acres)	0.255	0.000	0.255
2	Impervious (acres)	0.255	0.000	0.255
		WQ <sub>v</sub> for credit	WQ <sub>v</sub> not for credit	Total WQ <sub>v</sub>
4	WQ <sub>v</sub> to practice	0.0202	0.0000	0.0202

Modified CN for WQ (1.0") storm	100
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3 Disconnected Area Type

Rooftop

Paths/sidewalks/driveways

\* Questions preceded by an asterisk (\*) may change based on previously entered values

**Feasibility (4.2.2.1)**

		Response	Attachment location
4	For areas conveyed by sheetflow, is the disconnection area at least as wide as the area being disconnected?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
5	For rooftop areas conveyed by downspouts, is the disconnection area at least 12 feet wide?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
6	For rooftop areas conveyed by downspouts, is the contributing area to any one discharge location no greater than 1,000 square feet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
7	Do the underlying soils of the disconnection area meet the Post-Construction Soil Depth and Quality Standard?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6
8*	Is the maximum contributing impervious flow path length to any one discharge location no greater than 75 feet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
9*		<input type="radio"/> Yes <input type="radio"/> No	
10	Are disconnection areas configured such that there is no overlap between adjacent disconnection areas?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
11	Is the maximum slope of the disconnection area no steeper than 15%?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
12	For sites with septic systems, is the disconnection flow path cross-gradient or down-gradient of the leachfield?	<input type="radio"/> Yes <input checked="" type="radio"/> No	n/a, no on-site wastewater

**Conveyance (4.2.2.2)**

		Response	Attachment location
13	Is the runoff conveyed as sheet flow across the disconnection area for the applicable design storms and prevented from channelizing?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
14	Is the disconnection surface directed away from buildings so as to protect foundations and basements?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1

15	Are downspouts at least 10 feet from the nearest downgradient impervious surface to prevent reconnection?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
16	Has a stone diaphragm, level spreader, splash pad, or other acceptable flow spreading device been specified for each downspout outlet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1
17	For runoff not conveyed by downspout, does the runoff drain either as sheet flow or drain to a subsurface drain field that is not directly connected to the drainage network?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1

**Pretreatment (4.2.2.3)**

		Response	Attachment location
18	Is runoff from qualifying surfaces prevented from co-mingling with other runoff, such that pre-treatment is not required?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet SW-1

**Treatment Volume Calculation**

		Response	Attachment location
19	Disconnected Impervious for permit coverage (from question 2) acres	0.255	
20*	ft	0.00	
21	Soil HSG $f_c \geq 1$ in/hr for $T_V=HC_V$ $f_c \geq 0.5$ in/hr for $T_V=WQ_V$ $f_c < 0.5$ in/hr for $T_V=WQ_V$	<input type="radio"/> A <input type="radio"/> A/B <input checked="" type="radio"/> C/D	
22	What is the slope of the disconnection area?	<input checked="" type="radio"/> <8% <input type="radio"/> 8-15%	
23	What is the required length of the disconnection area? ft	65	
24	What disconnection length is provided? ft	65	
25*	inches	0.0	
26	What is the treatment volume provided by the STP? $T_V$ (cu-ft)	925.7	
27	What is the treatment volume provided by the STP? $T_V$ (ac-ft)	0.021	

↑ Enter this value on the Standards Compliance Worksheet

**Treatment (4.2.2.4)**

		Response	Attachment location
28*		<input type="radio"/> Yes <input type="radio"/> No	

**Landscaping (4.3.2.5)**

		Response	Attachment location
29	Is a dense vegetative cover specified for the disconnection area on the plan sheet/detail sheet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6

Attachment location: Indicate the specific location (i.e. appendix, page, plan sheet) where the requisite support documentation has been provided within the application.



**Practice Drainage Area Runoff Calculator**

Project Name: **Intensive Development**

Discharge Point: **3**

Disconnection Area # **3**

This tool may be used to calculate the required treatment volumes for the area draining to an individual practice where the practices drainage area is only a portion of of the area draining to a discharge point. Where the practice receives runoff from the entire area to a discharge point, this calculator will give the same information as the Standards Compliance Workbook.

**Precipitation Data**

\* Precipitation values shall be obtained from [NOAA Atlas 14](#)

Storm	WQ Storm	1 yr, 24 hr	10 yr, 24 hr	100 yr, 24 hr
Precipitation (inches)	1.00	0.00	0.00	0.00

**Drainage Area Information**

Pre Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

Post Development Land Use (acres)

Landuse	Hydrologic Soil Group				Total (acres)
	A	B	C	D	
Grass	0.000	0.000	0.000	0.000	<b>0.000</b>
Meadow	0.000	0.000	0.000	0.000	<b>0.000</b>
Woods	0.000	0.000	0.000	0.000	<b>0.000</b>
Pavement, roofs, and other impervious	0.000	0.000	0.000	0.000	<b>0.000</b>
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

T<sub>v</sub> of upstream practices:  ac-ft

T<sub>v</sub> credit of this practice:  ac-ft

Treatment Standard	Required Treatment Volume	Post Development Runoff Volume	Pre-development Runoff Volume	Post Composite CN (to practice)	CN <sub>Adj</sub> (with T <sub>v</sub> practice credit)	Pre Composite CN
Channel Protection (Hydrologic Condition Method)	<b>0.0000</b>	0.0000	0.0000	0	0	0
Overbank Flood	<b>0.0000</b>	0.0000	0.0000	0	0	0
Extreme Flood	<b>0.0000</b>	0.0000	0.0000	0	0	0

**Information for Calculating T<sub>c</sub> by the Watershed Lag Method**

Average Catchment	Hydraulic	Time of Concentration, T <sub>c</sub>
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	Slope, Y (%)	Length, l (ft)	1 yr	10 yr	100 yr
Pre Development	0%	0.00	0.0	0.0	0.0
Post Development, upstream of practice	0%	0.00	0.0	0.0	0.0
Post Development, with $T_v$ credit from practice	0%	0.00	0.0	0.0	0.0



## SOIL TEST PIT LOG

Project: Intensive Development High Density Residential

Ground Surface Slope: 0-6%, varies    Logged By: Jimmy James, Site Technician

Test Pit #	Depth (inches)	Texture	Consistence or Density	Color	Mottles	Comments
16-07	0-5	Fine sandy loam	Loose, granular	Dark brown		Moist, roots. Topsoil.
	5-37	Fine sandy loam	Friable, subangular blocky	Tan and Rust	Faint, rust at 36"	Moist, roots to 36", laminated SHWT = 36".
	37-108	Fine to medium sand	Friable, subangular blocky	Tan brown		NGWTD, NLTD

**Note:**

NLTD - No ledge to depth

NGWTD - No groundwater to depth

SHWT - Seasonal high water table

### Post-Construction Soil Depth and Quality Standard

Feasibility (3.1)		Response	Attachment location
1	Have all areas of disturbance within the site that are subject to the Post-Construction Soil Depth and Quality Standard been identified on a plan sheet? This includes all disturbed areas on slopes ≤ 33% which are not covered by an impervious surface, part of a structural stormwater treatment practice, or engineered as structural fill once development is complete.	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6
2	Have all areas that will not be disturbed and areas exempt from the Standard, including the reason for the exemption, been identified on a plan sheet?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6

Treatment (3.2)		Attachment Location
3	Is the minimum topsoil depth specified as: <input checked="" type="checkbox"/> 4 inches <input type="checkbox"/> The depth of the 0 and A horizons on the NRCS Official Soil Series Description of the native mapped soils (provide documentation)	Sheet C-6
4	Which of the following methods are utilized to meet soil quality requirements for this site? <input checked="" type="checkbox"/> Option 1: Leave undisturbed native vegetation and soil, and protect from compaction during construction. <input checked="" type="checkbox"/> Option 2: Amend existing site topsoil or subsoil in place. <input checked="" type="checkbox"/> Option 3: Remove and stockpile existing topsoil during grading. <input checked="" type="checkbox"/> Option 4: Import topsoil mix, or other materials for mixing, including compost, of sufficient organic content and depth.	Sheet C-6 Sheet C-6 Sheet C-6 Sheet C-6

		Response	Attachment location
5	Does the site layout retain the duff layer and native topsoil in an undisturbed state to the maximum extent practicable?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6
6	Is the organic matter content of the topsoil layer specified to be at least 4%?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6
7	Is compost or other materials used to amend soils specified to have a C:N ratio below 25:1?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6
8	Is it specified that compost shall meet the definition of "compost" or meet the contaminant standards in the Vermont Solid Waste Management Rules?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6
9	If Exceptional Quality (EQ) biosolids are used as a soil amendment, do they comprise no more than 35% of the total volume of soil, and is it specified that they be well mixed before or during application?	<input type="radio"/> Yes <input checked="" type="radio"/> No	n/a

<b>Vegetation and Landscaping (3.3)</b>		<b>Response</b>	<b>Attachment location</b>
	Does the application include a site-specific plan for soil management that:		
10	Identifies all areas on the site subject to the standard?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6
11	Includes construction details and notes on the various methods the contractor may use to meet the Standard?	<input type="radio"/> Yes <input type="radio"/> No	Sheet C-6
12	Includes a statement that soil depth and quality shall be established towards the end of construction, and once established, be protection from compaction?	<input type="radio"/> Yes <input type="radio"/> No	Sheet C-6
13	Includes instructions for contractor verification of the Standard, including a sampling scheme that includes nine 8-inch deep test holes per acre of area subject to the Standard?	<input type="radio"/> Yes <input type="radio"/> No	Sheet C-6
14	Instructions that test holes shall be excavated using only a shovel driven solely by the inspector's weight and shall be at least 50 feet apart from each other?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6
15	Instructions to establish dense and vigorous vegetative cover over turf areas?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Sheet C-6

Attachment location: Indicate the specific location (i.e. appendix, page, plan sheet) where the requisite support documentation has been provided within the application.

## Extreme Flood Protection Standard Waiver Worksheet

Fill out this worksheet for each discharge point in which use of this waiver is sought.

**Extreme Flood Protection Standard (Q<sub>P100</sub>) Waiver** (*check only one*):

1. A site that has a direct discharge to waters with a drainage area equal to or greater than or equal to 10 square miles and that is less than 5% of the watershed area at the site's upstream boundary.

Name of Waters at Discharge Point:

Drainage Area of Waters at Discharge Point (square miles):

2. The impervious on site or otherwise associated within a common plan of development, constructed after 2002, is less than 10 acres.

**Yes**     **No**

3. A downstream analysis was completed, pursuant to Section 2.5 of the 2017 VSMM, that indicated extreme flood control is not necessary for the site.

Has adequate conveyance from the site to the discharge point been verified?	<input type="checkbox"/> <b>Yes</b>	<input type="checkbox"/> <b>No</b>
Has supporting information (e.g. narrative description, calculations, modeling) for the completed downstream analysis been included with the application?	<input type="checkbox"/> <b>Yes</b>	<input type="checkbox"/> <b>No</b>

*For a project that has more than one discharge point and that discharges to different receiving waters, waiver eligibility shall be determined on a "per receiving water" basis. Receiving waters are considered separate if the drainage area at their downstream point of confluence is greater than 10 square miles.*

*For example, if discharge point S/N 001 drains directly to the Winooski River (greater than 10 square miles), but discharge point S/N 002 drains to a small tributary of the Winooski River, then S/N 001 could be waived from the Extreme Flood Protection Treatment Standard using Waiver 2, but S/N 002 could not. However, S/N002 may be still eligible for Waiver 1.*