STORM WATER MANAGEMENT REPORT

CuraLeaf Proposed Building Expansion
34 Hopmeadow Street
Simsbury, CT

Prepared For:

CURALEAF

Prepared By:

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3 Creamery Brook
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FAHA #21126

August 27, 2021

1. Introduction

This storm water management report has been prepared to demonstrate that the storm water management practices for the proposed development meet the design goals and requirements of the Town of Simsbury Stormwater and Zoning Regulations, attain the goal of the CT DEEP 2004 Stormwater Quality Manual (SWQM), follow sound engineering practices and protect adjacent land owners from adverse storm water impacts.

There are no changes to the existing storm drainage system serving the site. The only increase in impervious coverage is a portion of the building expansion, approximately 35,000 s.f.. The roof drainage system for the building expansion will be directed to a new underground infiltration system which has the capacity to hold up the volume generated up to the 25-year storm.

Project Description

The proposed development site is comprised of approximately 18 +/- acres of a 25.84 +/- acre property identified as Adjusted Parcel 1C on the property survey, located on the east side of Hopmeadow Street - Route 10. The development site is currently a portion of a larger Master Plan PAD which is at this time a combination of three different entities: the Curaleaf Facility, the Aspen Green Apartment development and the recently approved Self-Storage project.

The proposal includes the demolition of an existing elevated outdoor loading platform and the construction of a one-story building 41,168 s.f expansion to the main Curaleaf facility. There will be no changes to the existing on-site storm drainage system.

3. Hydrologic Analysis

The design of the stormwater management system for the proposed development is aimed at mitigating total peak rate of runoff and promoting stormwater water quality through use of infiltrator units. The design goal is to meet the requirements of the Simsbury Stormwater regulations including the incorporation of Low Impact Design (LID) strategies and Best Management Practices (BMP). Taking advantage of the underlying sandy soils and implementing onsite retention and infiltration is a design scheme that meets both the LID and BMP goals.

In accordance with CT DOT protocol, rainfall intensity data for the project area is taken from NOAA Atlas 14 data off the NOAA website. A copy of the NOAA rainfall data and the Rainfall Intensity Curve is presented in Attachment 1.

Surficial Soil mapping indicates that existing soil types are Merrimac (34A) fine sandy loam. This soil types fall under Hydrologic Group A meaning a well drained soil with high potential to support infiltration. For the recently approved abutting

self-storage facility, test pits were conducted in May 2021 to determine the feasibility of utilizing infiltration systems given the underlying soils. Based on the test results, it was determined that the infiltrator system would drain in less than 6 hours, meaning 4 complete cycles per 24-hour storm event. The noted report is included in Attachment 2.

Rational Method Runoff Coefficients used for the various land-use types are based on the following values:

- C=0.90 for impervious areas (i.e. rooftop)

The proposed infiltrator system will be comprised of 72 Stormtech SC-740 chamber units as depicted on Sheets GR-1 and SD-3. The total storage capacity of the system would be 5,393 c.f. See Attachment 3.

Sizing calculations for 25-year design storm:

I = 6.69 in. (24-hour event)

Roof Area = 41,168 s.f.

C = 0.9

Q = (6.69/12) X 41,168 X 0.9 = 20,656 c.f.

Required System Capacity = 20,656/4 (cycles per 24 hour.) = 5,164 c.f.

Calculations for Water Quality Volume (WQV) following CTDEEP methodology indicates the recommended WQV is 3,245 c.f. which is easily met by the proposed chamber design during the first cycle.

4. Summary

The analysis indicates that the proposed stormwater management system meets the design goals of incorporating Water Quality, LID and BMP practices outlined in the town stormwater regulations and CTDEEP requirements and ensures that there will be no negative impact to abutting properties for the design storm event.

Attachment 1

NOAA Rainfall Data
And
Rainfall Intensity Curve

NOAA Atlas 14, Volume 10, Version 3
Location name: Weatogue, Connecticut, USA*
Latitude: 41.8261°, Longitude: -72.8248°
Elevation: 195.19 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confiden

Duration	Average recurrence interval (years)						
	1	2	5	10	25	50	100
5-min	**0.350** (0.269-0.450)	**0.419** (0.322-0.540)	**0.532** (0.408-0.689)	**0.626** (0.477-0.817)	**0.756** (0.559-1.03)	**0.853** (0.619-1.19)	**0.955** (0.674-1.39)
10-min	**0.495** (0.381-0.638)	**0.594** (0.456-0.765)	**0.755** (0.579-0.977)	**0.888** (0.677-1.16)	**1.07** (0.791-1.46)	**1.21** (0.877-1.69)	**1.35** (0.955-1.96)
15-min	**0.583** (0.448-0.751)	**0.698** (0.536-0.901)	**0.887** (0.679-1.15)	**1.04** (0.795-1.36)	**1.26** (0.931-1.72)	**1.42** (1.03-1.99)	**1.59** (1.12-2.31)
30-min	**0.788** (0.606-1.02)	**0.947** (0.727-1.22)	**1.21** (0.923-1.56)	**1.42** (1.08-1.85)	**1.72** (1.27-2.34)	**1.94** (1.41-2.71)	**2.17** (1.53-3.15)
60-min	**0.994** (0.765-1.28)	**1.20** (0.918-1.54)	**1.52** (1.17-1.97)	**1.80** (1.37-2.34)	**2.17** (1.61-2.96)	**2.46** (1.78-3.43)	**2.75** (1.94-3.99)
2-hr	**1.28** (0.994-1.64)	**1.54** (1.19-1.97)	**1.95** (1.51-2.51)	**2.30** (1.76-2.98)	**2.78** (2.07-3.78)	**3.13** (2.29-4.36)	**3.51** (2.51-5.11)
3-hr	**1.48** (1.15-1.89)	**1.78** (1.38-2.27)	**2.26** (1.75-2.90)	**2.66** (2.05-3.43)	**3.22** (2.41-4.37)	**3.63** (2.67-5.05)	**4.07** (2.92-5.93)
6-hr	**1.86** (1.46-2.36)	**2.26** (1.77-2.86)	**2.90** (2.26-3.69)	**3.44** (2.66-4.40)	**4.17** (3.15-5.64)	**4.71** (3.49-6.55)	**5.30** (3.85-7.73)
12-hr	**2.29** (1.81-2.88)	**2.82** (2.22-3.55)	**3.69** (2.89-4.66)	**4.41** (3.44-5.61)	**5.39** (4.10-7.27)	**6.12** (4.57-8.48)	**6.92** (5.05-10.1)
24-hr	**2.68** (2.13-3.35)	**3.36** (2.67-4.21)	**4.49** (3.54-5.63)	**5.41** (4.25-6.84)	**6.69** (5.12-9.00)	**7.63** (5.74-10.6)	**8.67** (6.40-12.6)
2-day	**3.00** (2.40-3.72)	**3.84** (3.06-4.77)	**5.21** (4.15-6.50)	**6.35** (5.02-7.98)	**7.92** (6.12-10.6)	**9.06** (6.88-12.5)	**10.3** (7.73-15.2)
3-day	**3.26** (2.62-4.03)	**4.19** (3.36-5.18)	**5.70** (4.55-7.09)	**6.96** (5.53-8.71)	**8.69** (6.74-11.6)	**9.94** (7.59-13.7)	**11.4** (8.53-16.6)
4-day	**3.51** (2.82-4.32)	**4.50** (3.61-5.55)	**6.11** (4.90-7.57)	**7.46** (5.93-9.30)	**9.30** (7.23-12.4)	**10.6** (8.14-14.7)	**12.1** (9.14-17.7)
7-day	**4.19**	**5.31**	**7.13**	**8.64**	**10.7**	**12.2**	**13.9**

	(3.39-5.14)	(4.29-6.51)	(5.74-8.78)	(6.91-10.7)	(8.36-14.2)	(9.38-16.7)	(10.5-20.2)
10-day	**4.88** (3.97-5.96)	**6.06** (4.91-7.40)	**7.97** (6.45-9.79)	**9.57** (7.68-11.8)	**11.8** (9.19-15.5)	**13.3** (10.3-18.2)	**15.1** (11.4-21.8)
20-day	**7.05** (5.76-8.54)	**8.27** (6.76-10.0)	**10.3** (8.36-12.5)	**11.9** (9.65-14.6)	**14.2** (11.1-18.5)	**15.9** (12.2-21.3)	**17.7** (13.3-25.0)
30-day	**8.87** (7.28-10.7)	**10.1** (8.29-12.2)	**12.1** (9.92-14.7)	**13.8** (11.2-16.9)	**16.1** (12.7-20.8)	**17.8** (13.7-23.7)	**19.7** (14.7-27.4)
45-day	**11.1** (9.17-13.4)	**12.4** (10.2-14.9)	**14.5** (11.9-17.5)	**16.2** (13.2-19.7)	**18.6** (14.6-23.7)	**20.4** (15.7-26.7)	**22.3** (16.5-30.4)
60-day	**13.0** (10.8-15.6)	**14.3** (11.8-17.2)	**16.5** (13.6-19.9)	**18.3** (15.0-22.2)	**20.8** (16.3-26.3)	**22.7** (17.4-29.5)	**24.6** (18.1-33.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (P

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probabi estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less thar upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than

Please refer to NOAA Atlas 14 document for more information.

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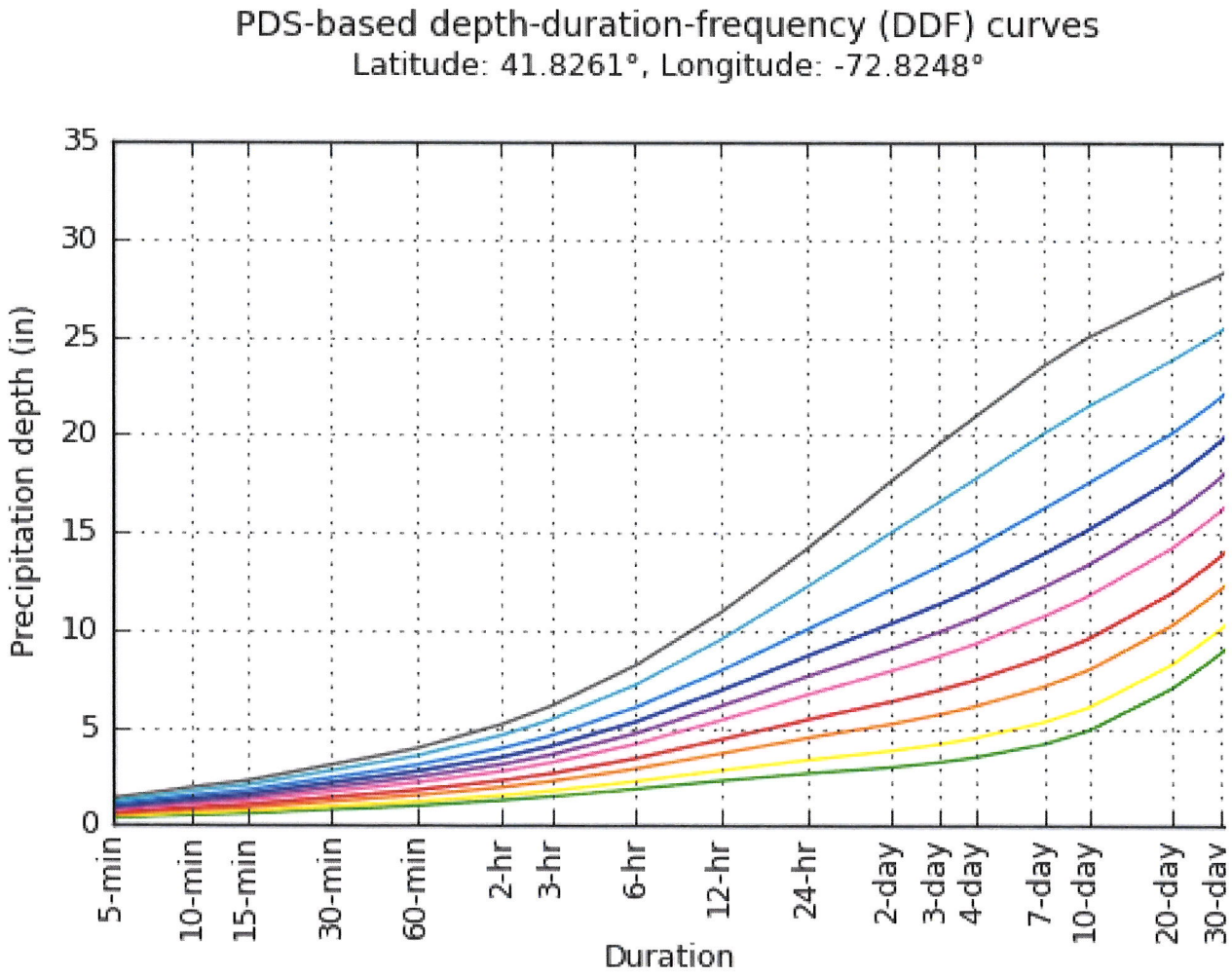
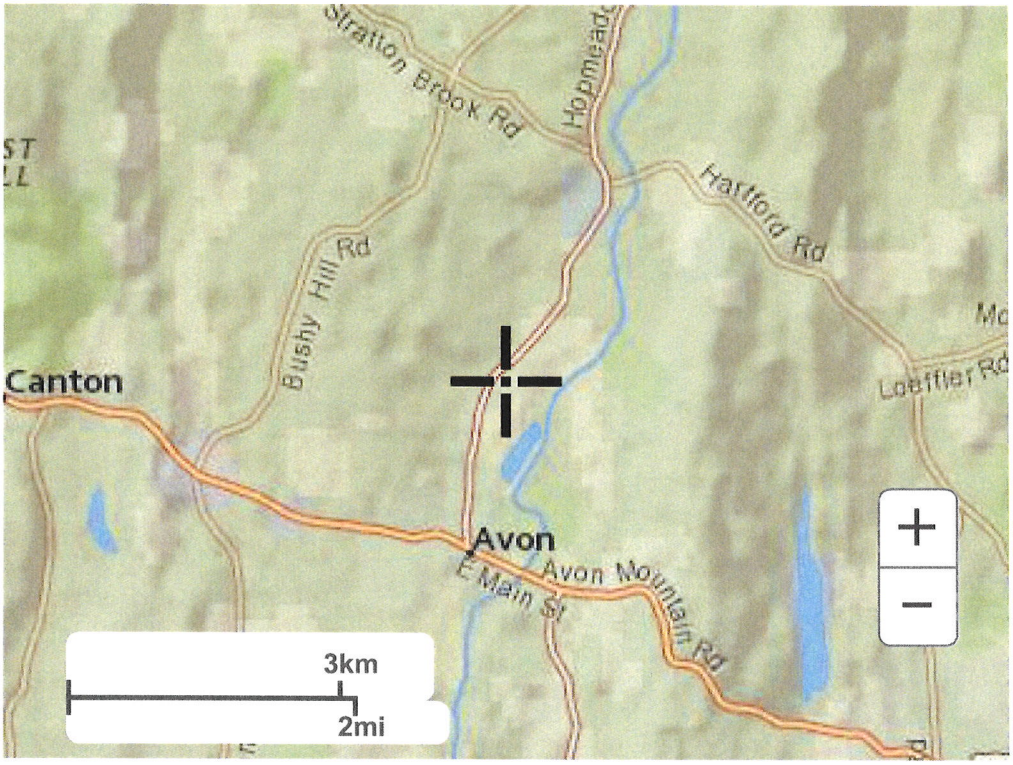
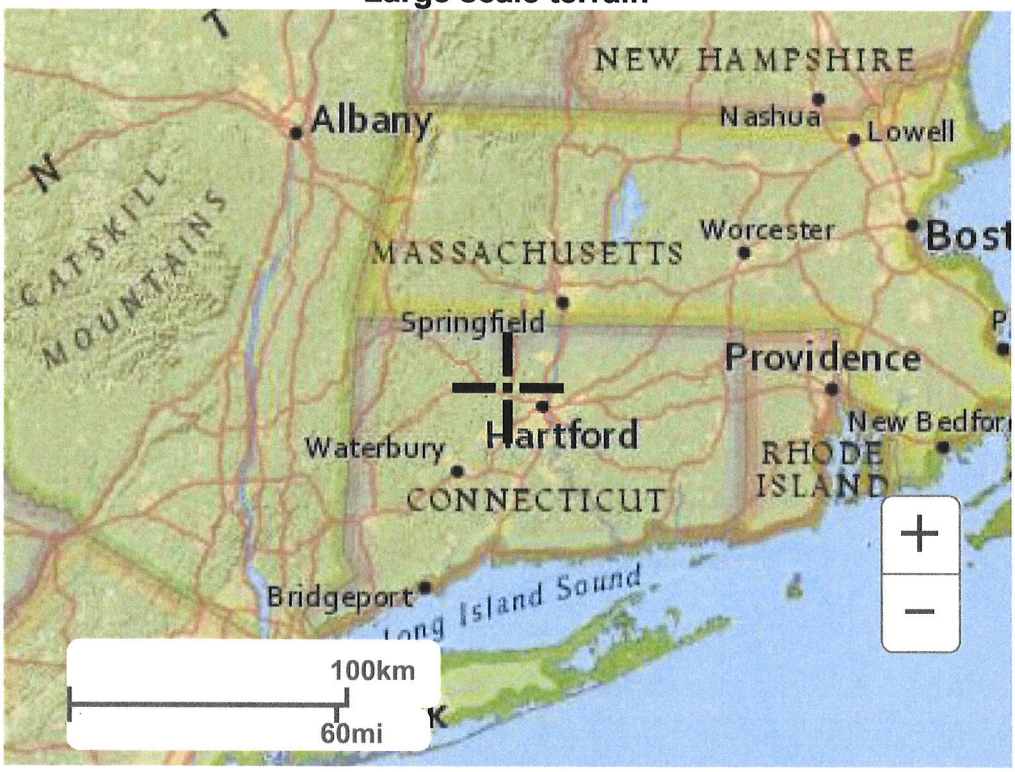
PF graphical





Large scale terrain



Large scale map

Attachment 2

Surficial Soils Map
And
On-site Soil Types

Soil Map—State of Connecticut
(34 Hopmeadow St. - CURALEAF)

Map Scale: 1:1,500 if printed on B landscape (17" x 11") sheet.

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: State of Connecticut
Survey Area Data: Version 20, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 15, 2019—Aug 29, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
34A	Merrimac fine sandy loam, 0 to 3 percent slopes	1.6	9.7%
38A	Hinckley loamy sand, 0 to 3 percent slopes	0.7	4.3%
306	Udorthents-Urban land complex	14.3	86.0%
Totals for Area of Interest		**16.6**	**100.0%**

Hesketh

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MEMORANDUM

To: **Jeff Shea, P.E.** **Date**: May 3, 2021

From: **Guy Hesketh, P.E.**

Subject: **Response to Engineering Comments Talcott Mountain Self Storage**
Our File: **21126**

Please find a copy of Sheet GR-1 (revised May 3, 2021) that depicts locations and data related to test pits and in-situ infiltration testing done as a follow-up to Comment 2 of your April 27, 2012 review memorandum. Also attached are calculations and data related to in-situ infiltration testing, as well as our conclusions as to the suitability of proposed infiltration systems depicted on the plans.

On Monday May 3, five test pits were conducted at the subject site. The test pits were conducted with a mini-excavator by advancing holes to 7 feet below existing grade. The soil profile was logged for each test pit, following the protocol used for the conduct of test pits under CT DOH guidelines for septic field evaluations. The locations of the test pits and soil profile logs are depicted on Sheet GR-1 (revised May 3, 2021), attached. Two locations were selected in the area of the proposed Water Quality/Infiltration basin (TP-1 and TP-2) , and two in the area of proposed underground infiltration chamber systems (TP-3 and Tp-4). An additional test pit (TP-5) was conducted in the area of the proposed berm.

PVC standpipes were installed in the four of the test pits, TP-1, TP-2, TP-3 and TP-4. The pipes consist of ten-foot long, 4-inch diameter solid pipe. Following excavation of the pits, the pipe was placed by pushing the pipe into the bottom of pipe pushed into the sand at the bottom of the excavation, and the excavation was backfilled as the pipes were maintained as plumb as possible. The amount of pipe exposed at the natural ground surface was measured (noted as stick-up) on the soil profile logs. Subtracting the stick-up

MEMORANDUM

length from the ten-foot pipe length indicates the depth below grade for the bottom of the pipe. In all case, the bottom of the pipe was placed below the proposed depth of the infiltration galleys or bottom elevation of the water quality/infiltration basin and in soils that is characteristic of the soil profile below the infiltration structures.

Following backfilling of the test pits, water was poured in the pipe until water overflowed the top of the pipe, and time was noted as the "pre-soak" time. After the water dropped to below the natural ground surface, the pipes were re-filled and the rate of decent was noted and logged. The drop in inches at time intervals was measured for each standpipe and the data summarized on a spreadsheet. The steady-state drop rate as water neared the bottom of the pipe was calculated to determine the average infiltration rate. Collected data and analysis is provide in the attached spreadsheets. A summary of the data is also included in the attached Table 1.

The data indicated the following:

- Subsurface soils are sands and gravels and are suitable soil types for the infiltration systems proposed.
- The groundwater table is located significantly below the bottom of the proposed Water Quality/Infiltration basin and proposed infiltration galley systems. There would be no reduction in the volumetric capacity of the basins or storage systems due to the presence of high groundwater conditions.
- The subsurface soils have sufficient permeability to provide for complete evacuation of the infiltration basin and underground storage systems within a few hours after termination of a precipitation event. Assuming the long-term infiltration rate was 25% of the slowest measured infiltration rate (27 in/hr), which would be 6.75 in/hr. The infiltration galley systems would completely drain in (36 inches) / (6.75 in/hr.) = 5.33 hours. And the Water Quality/Infiltration Basin in (36 inches/6.75 in/hr. = 5.33 hours. These calculated times indicate complete infiltration in much less than the 48-to 72-hr period recommended by the SWQM.

5/3/2021

Simsbury Self Storage

Table 1

Stand Pipe and Infiltration Data

						Standpipe		
Test Pit ID	Ground Elevation (feet)	Depth of Test Pit (feet)	El. of bottom of test pit (feet)	Groundwater Elevation (feet)	Bottom of Basin or Chamber Elevation (feet)	Stick-up (feet)	Bottom of Pipe El. (feet)	Infiltration Rate (in/hr)
TP-1	193.5	7.0	186.5	186.5	190.0	3.6	187.1	138
TP-2	194.3	7.0	187.3	187.3	190.0	2.9	187.2	50
TP-3	194.0	7.0	187.0	188.7	192.0	4.6	188.6	34
TP-4	196.5	7.0	189.5	189.5	192.5	3.2	189.7	27
TP-5	195.7	7.0	188.7	188.7	NA	NA	NA	NA

21126 - GREENBERG U-STORAGE

EXFILTRATION TESTING SUMMARY

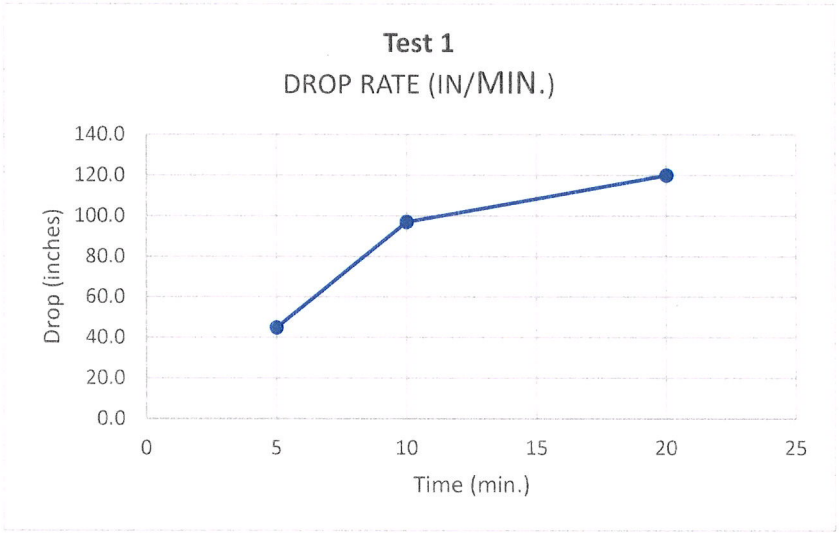
TP-1, 4" SDR-21 PVC Standpipe

Top of Pipe to Bottom of Pipe =10.00'
Top of Pipe to ground Level = 3.58'

Test 1

Time (min)	drop (inches)
0	0.0
5	45.0
10	97.0
20	120.0

Drop Rate (in/min) =	2.30		
Drop Rate (in/hour) =	138	Ave Drop Rate =	138 (in/hr)



21126 - GREENBERG U-STORAGE

EXFILTRATION TESTING SUMMARY

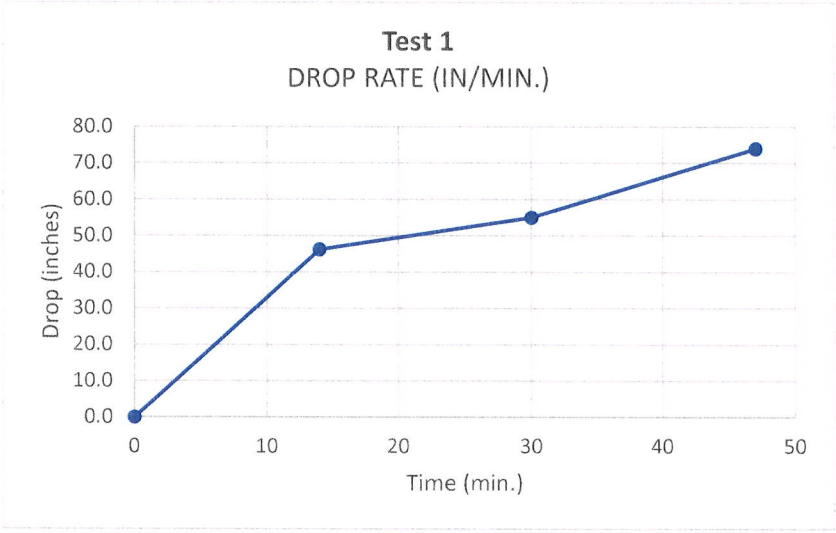
TP-2, 4" SDR-21 PVC Standpipe

Top of Pipe to Bottom of Pipe = 10.0'
Top of Pipe to ground Level = 2.91'

Test 1

Time (min:s)	drop (inches)
0	0.0
14	46.3
30	55.0
47	74.0

Drop Rate (in/min) =	0.84		
Drop Rate (in/hour) =	50	Ave Drop Rate =	50 (in/hr)



21126 - GREENBERG U-STORAGE
EXFILTRATION TESTING SUMMARY

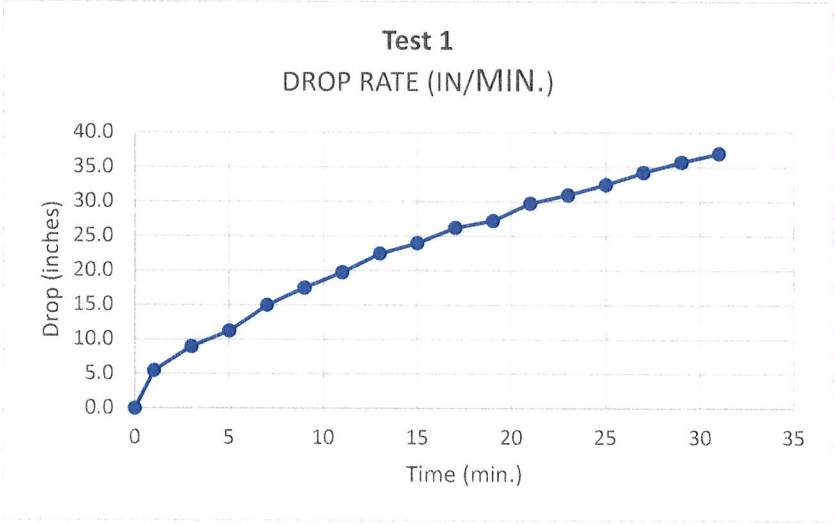
TP-3, 4" SDR-21 PVC Standpipe

Top of Pipe to Bottom of Pipe =10.00'
Top of Pipe to ground Level = 4.66'

Test 1

Time (min)	drop (inches)
0	0.0
1	5.5
3	9.0
5	11.3
7	15.0
9	17.5
11	19.8
13	22.5
15	24.0
17	26.3
19	27.3
21	29.8
23	31.0
25	32.5
27	34.3
29	35.8
31	37.0
33	38.5
35	40.0
37	41.3
39	42.0
41	44.5
45	48.5
63	55.8
73	64.5

Drop Rate (in/min) =	0.63		
Drop Rate (in/hour) =	38	Ave Drop Rate =	38 (in/hr)



21126 - GREENBERG U-STORAGE
EXFILTRATION TESTING SUMMARY

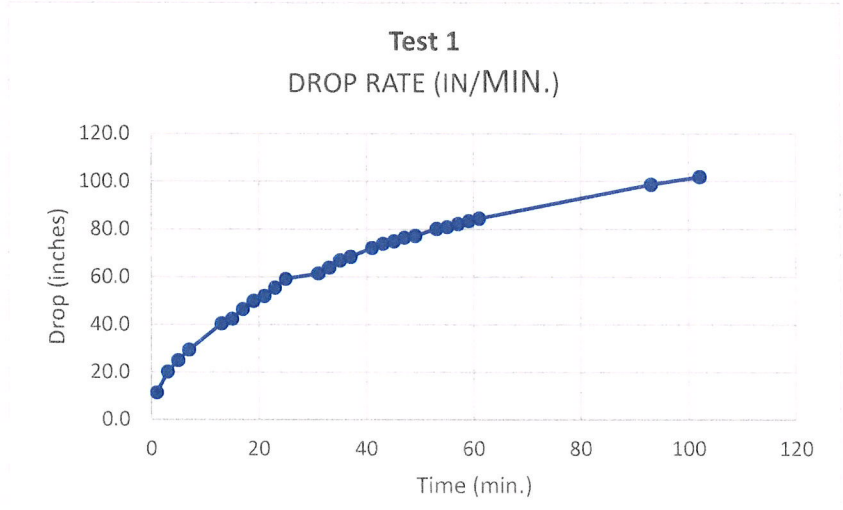
TP-4, 4" SDR-21 PVC Standpipe

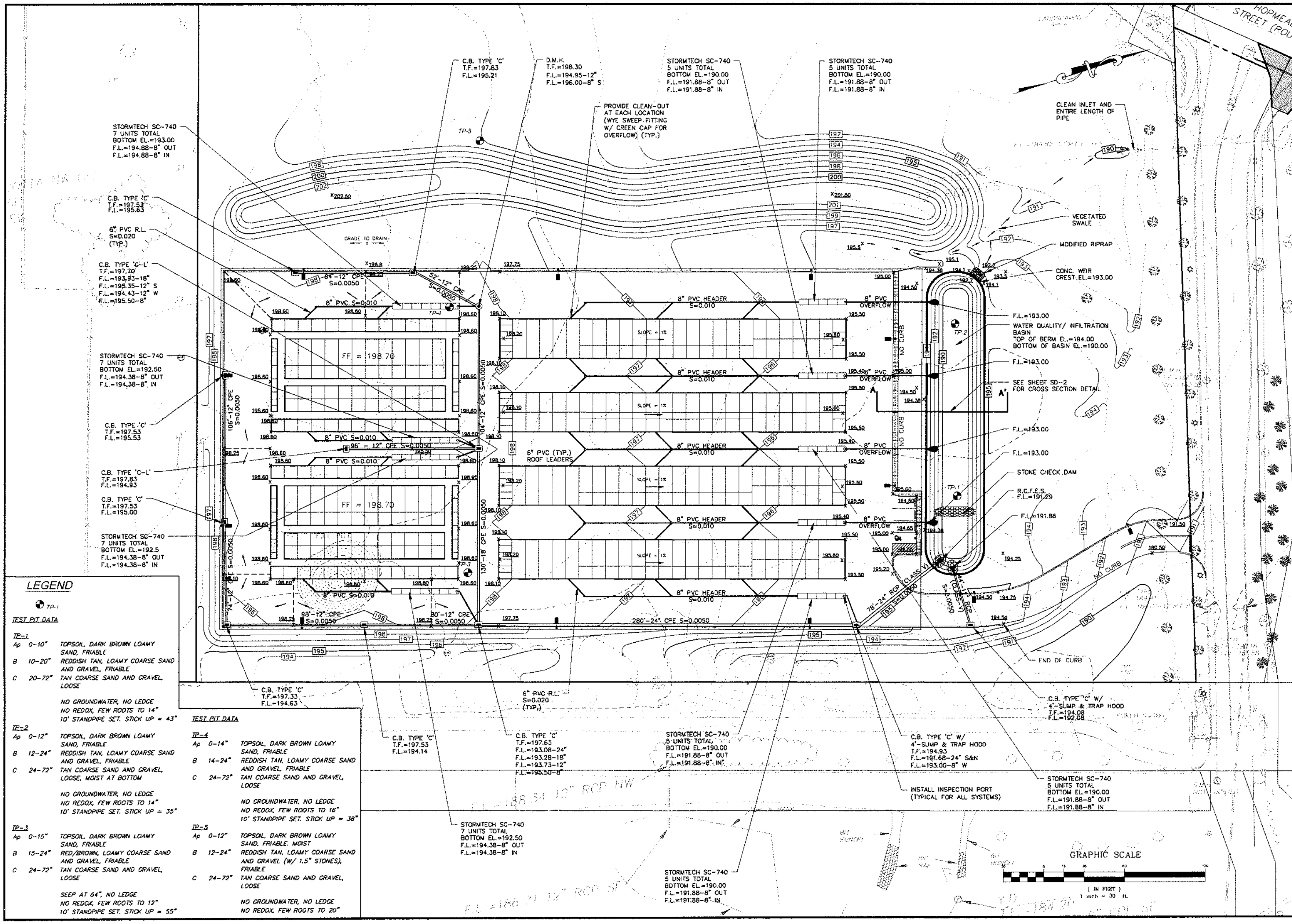
Top of Pipe to Bottom of Pipe =10.00'
Top of Pipe to ground Level = 3.2'

Test 1

Time (min)	drop (inches)
1	11.5
3	20.3
5	25.0
7	29.5
13	40.5
15	42.5
17	46.5
19	50.0
21	52.0
23	55.5
25	59.3
31	61.5
33	64.0
35	67.0
37	68.5
41	72.3
43	74.0
45	75.0
47	76.5
49	77.3
53	80.3
55	81.0
57	82.3
59	83.5
61	84.5
93	98.8
102	102.0

Drop Rate (in/min) =	0.44		
Drop Rate (in/hour) =	27	Ave Drop Rate =	27 (in/hr)




HOPMEADOW STREET (ROUTE
C.B. TYPE 'C'
T.F.=197.83
F.L.=195.21
D.M.H.
T.F.=198.30
F.L.=194.95-12"
F.L.=196.00-8" S
PROVIDE CLEAN-OUT AT EACH LOCATION (WYE SWEEP FITTING W/ CREEN CAP FOR OVERFLOW) (TYP.)
STORMTECH SC-740
5 UNITS TOTAL
BOTTOM EL.=190.00
F.L.=191.88-8" OUT
F.L.=191.88-8" IN
STORMTECH SC-740
7 UNITS TOTAL
BOTTOM EL.=193.00
F.L.=194.88-8" OUT
F.L.=194.88-8" IN
C.B. TYPE 'C'
T.F.=197.53
F.L.=195.63
6" PVC R.L.
S=0.020
(TYP.)
C.B. TYPE 'C-L'
T.F.=197.70
F.L.=193.93-18"
F.L.=195.35-12" S
F.L.=194.43-12" W
F.L.=195.50-8"
STORMTECH SC-740
7 UNITS TOTAL
BOTTOM EL.=192.50
F.L.=194.38-8" OUT
F.L.=194.38-8" IN
C.B. TYPE 'C'
T.F.=197.53
F.L.=195.53
C.B. TYPE 'C-L'
T.F.=197.83
F.L.=194.93
C.B. TYPE 'C'
T.F.=197.53
F.L.=195.00
STORMTECH SC-740
7 UNITS TOTAL
BOTTOM EL.=192.5
F.L.=194.38-8" OUT
F.L.=194.38-8" IN
CLEAN INLET AND ENTIRE LENGTH OF PIPE
VEGETATED SWALE
MODIFIED RIPRAP
CONC. WEIR CREST EL.=193.00
F.L.=193.00
WATER QUALITY/ INFILTRATION BASIN
TOP OF BERM EL.=194.00
BOTTOM OF BASIN EL.=190.00
F.L.=193.00
SEE SHEET SD-2 FOR CROSS SECTION DETAIL
F.L.=193.00
F.L.=193.00
STONE CHECK DAM
R.C.F.E.S.
F.L.=191.29
F.L.=191.86
NO CURB
END OF CURB
FF = 198.70
FF = 198.70
8" PVC HEADER
S=0.010
8" PVC OVERFLOW
SLOPE = 1%
6" PVC (TYP.) ROOF LEADERS
GRADE TO DRAIN
84'-12" CPE S=0.0050
52'-12" CPE S=0.0050
96' - 12" CPE S=0.0050
106'-12" CPE S=0.0050
104'-12" CPE S=0.0050
130'-18" CPE S=0.0050
98'-12" CPE S=0.0050
80'-12" CPE S=0.0050
280'-24" CPE S=0.0050
78'-24" RCP (CLASS V) S=0.0050
C.B. TYPE 'C'
T.F.=197.33
F.L.=194.63
C.B. TYPE 'C'
T.F.=197.53
F.L.=194.14
6" PVC R.L.
S=0.020
(TYP.)
C.B. TYPE 'C'
T.F.=197.63
F.L.=193.08-24"
F.L.=193.28-18"
F.L.=193.73-12"
F.L.=195.50-8"
STORMTECH SC-740
5 UNITS TOTAL
BOTTOM EL.=190.00
F.L.=191.88-8" OUT
F.L.=191.88-8" IN
C.B. TYPE 'C' W/
4'-SUMP & TRAP HOOD
T.F.=194.93
F.L.=191.68-24" S&N
F.L.=193.00-8" W
INSTALL INSPECTION PORT (TYPICAL FOR ALL SYSTEMS)
C.B. TYPE 'C' W/
4'-SUMP & TRAP HOOD
T.F.=194.08
F.L.=192.08
STORMTECH SC-740
5 UNITS TOTAL
BOTTOM EL.=190.00
F.L.=191.88-8" OUT
F.L.=191.88-8" IN
STORMTECH SC-740
7 UNITS TOTAL
BOTTOM EL.=192.50
F.L.=194.38-8" OUT
F.L.=194.38-8" IN
STORMTECH SC-740
5 UNITS TOTAL
BOTTOM EL.=190.00
F.L.=191.88-8" OUT
F.L.=191.88-8" IN
GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

LEGEND

TP-1

TEST PIT DATA

TP-1

Ap	0-10"	TOPSOIL, DARK BROWN LOAMY SAND, FRIABLE
B	10-20"	REDDISH TAN, LOAMY COARSE SAND AND GRAVEL, FRIABLE
C	20-72"	TAN COARSE SAND AND GRAVEL, LOOSE

NO GROUNDWATER, NO LEDGE
NO REDOX, FEW ROOTS TO 14"
10' STANDPIPE SET. STICK UP = 43"

TP-2

Ap	0-12"	TOPSOIL, DARK BROWN LOAMY SAND, FRIABLE
B	12-24"	REDDISH TAN, LOAMY COARSE SAND AND GRAVEL, FRIABLE
C	24-72"	TAN COARSE SAND AND GRAVEL, LOOSE, MOIST AT BOTTOM

NO GROUNDWATER, NO LEDGE
NO REDOX, FEW ROOTS TO 14"
10' STANDPIPE SET. STICK UP = 35"

TP-3

Ap	0-15"	TOPSOIL, DARK BROWN LOAMY SAND, FRIABLE
B	15-24"	RED/BROWN, LOAMY COARSE SAND AND GRAVEL, FRIABLE
C	24-72"	TAN COARSE SAND AND GRAVEL, LOOSE

SEEP AT 64", NO LEDGE
NO REDOX, FEW ROOTS TO 12"
10' STANDPIPE SET. STICK UP = 55"

TEST PIT DATA

TP-4

Ap	0-14"	TOPSOIL, DARK BROWN LOAMY SAND, FRIABLE
B	14-24"	REDDISH TAN, LOAMY COARSE SAND AND GRAVEL, FRIABLE
C	24-72"	TAN COARSE SAND AND GRAVEL, LOOSE

NO GROUNDWATER, NO LEDGE
NO REDOX, FEW ROOTS TO 16"
10' STANDPIPE SET. STICK UP = 38"

TP-5

Ap	0-12"	TOPSOIL, DARK BROWN LOAMY SAND, FRIABLE, MOIST
B	12-24"	REDDISH TAN, LOAMY COARSE SAND AND GRAVEL (W/ 1.5" STONES), FRIABLE
C	24-72"	TAN COARSE SAND AND GRAVEL, LOOSE

NO GROUNDWATER, NO LEDGE
NO REDOX, FEW ROOTS TO 20"

No.	Date	Description
1	04-29-2021	Town Comments
2	05-03-2021	Test Pit Data

Revisions

GRADING AND DRAINAGE PLAN
PREPARED FOR
TALCOTT MOUNTAIN SELF STORAGE
HOPMEADOW STREET
SIMSBURY, CONNECTICUT

Date: 04-06-2021 | Drawn by: ERN | Job no: 21126
Scale: 1" = 30' | Checked by: GAH | Sheet no. 1 OF 1

GR-1

FAH
F. A. Hesketh & Associates, Inc.
3 Creamery Brook, East Granby, CT 06026
Phone (860) 653-8000 Fax (860) 844-8600
Civil & Traffic Engineers - Surveyors - Planners - Landscape Architects
www.fahesketh.com - mail@fahesketh.com

Attachment 3

Hydrologic Calculations

Water Quality Volume Calculations

CURALEAF - 34 Hopmeadow
Simsbury, Connecticut

U.G. Infiltration System

8/25/2021

Stage-Storage Relationship

Number of SC-740 Chambers = 72

Minimum-recommended Water Quality Volume = **3,245 CU FT**

WQV Provided whithin chamber system at beneath elevation 194.00:
Storage vol.@ el. 195.00 = **5,393 CU FT**

72 Chambers Provided: Total Storage = **5,393 CU FT**

Elevation	U.G. Chamber Storage Volume per LF (CU FT)	Chamber System Length (FT)	Incremental Storage Volume (CU FT)	Cumulative Storage Volume (CU FT)	Storage Vol. per Chamber (CU FT) *
	Stormceptor Units ***				
191.50	0.000	512	0	0	0
192.00	0.950	512	487	487	6.76
192.50	2.044	512	1048	1534	21.31
193.00	1.956	512	1002	2537	35.23
193.50	1.821	512	933	3470	48.19
194.00	1.612	512	826	4296	59.66
194.50	1.192	512	611	4906	68.14
195.00	0.950	512	487	5393	74.9

* see cut sheet for volumetric capacity of unit and stone fill

34 Hopmeadow, Simsbury, Connecticut
Water Quality Volume Size Calculations

August 25, 2021

Minimum-Recommended Water Quality Volume (WQV)

Watershed	Total Area (Ac) A	Impervious Area (Ac)	Impervious (%) I	Runoff (R)	Min. Rec. WQV (ac-ft)	Min. Rec. WQV (Cu.Ft.)
PR-NORTH-DET	0.94	0.94	100.0	0.9500	0.07449	3,245

$$WQV = \frac{(1")(R)(A)}{12}$$

WQV = water quality volume (ac-ft)

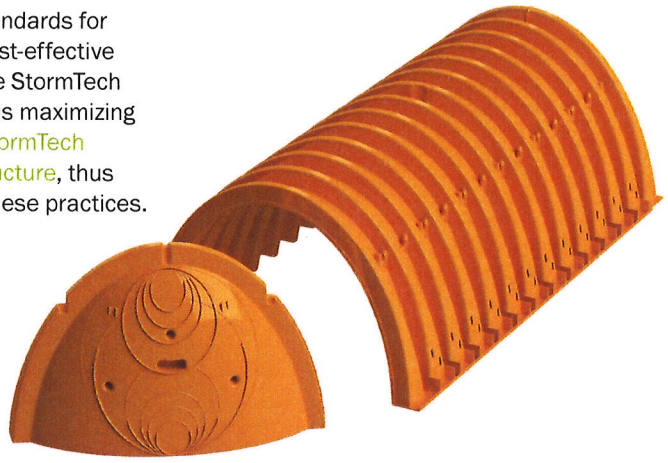
R = volumetric runoff coefficient
0.05+0.009(I)

I = percent impervious cover

A= Site area (acres)

STORMTECH SC-740 CHAMBER

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.



STORMTECH SC-740 CHAMBER
(not to scale)

Nominal Chamber Specifications

Size (L x W x H)
85.4" x 51" x 30"
2,170 mm x 1,295 mm x 762 mm

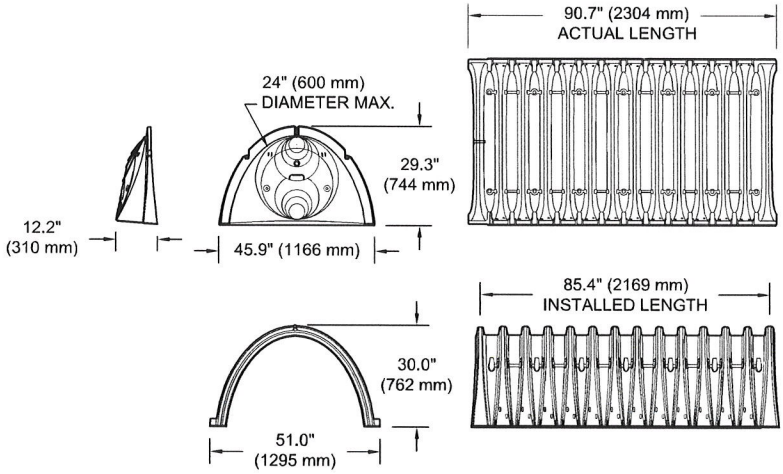
Chamber Storage
45.9 ft³ (1.30 m³)

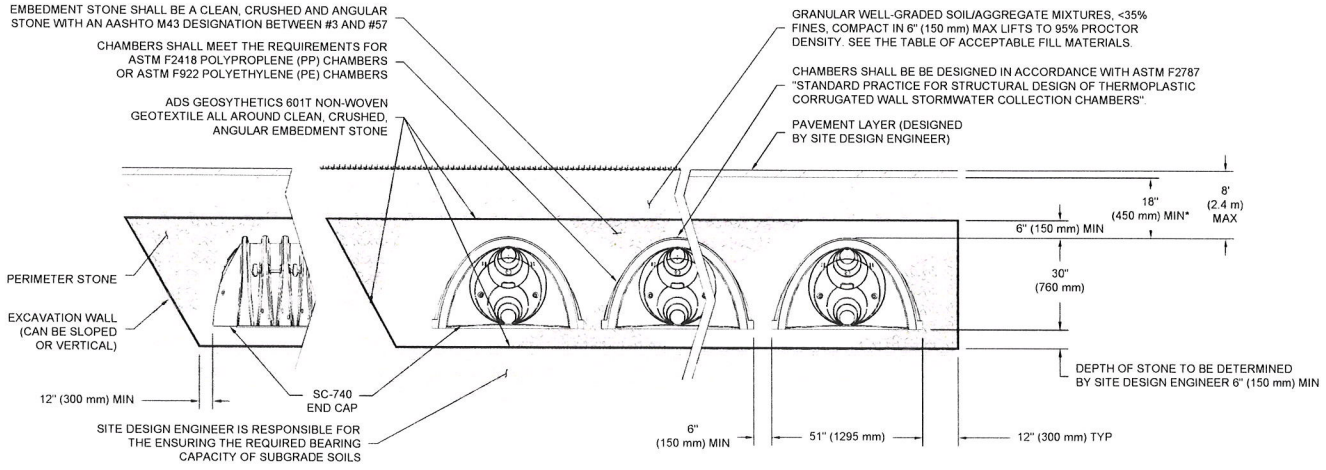
Min. Installed Storage*
74.9 ft³ (2.12 m³)

Weight
74.0 lbs (33.6 kg)

Shipping
30 chambers/pallet
60 end caps/pallet
12 pallets/truck

*Assumes 6" (150 mm) stone above, below and between chambers and 40% stone porosity.





*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24" (600 mm).

SC-740 CUMULATIVE STORAGE VOLUMES PER CHAMBER

Assumes 40% Stone Porosity. Calculations are Based Upon a 6" (150 mm) Stone Base Under Chambers.

Depth of Water in System Inches (mm)		Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
42 (1067)		45.90 (1.300)	74.90 (2.121)
41 (1041)		45.90 (1.300)	73.77 (2.089)
40 (1016)	Stone	45.90 (1.300)	72.64 (2.057)
39 (991)	Cover	45.90 (1.300)	71.52 (2.025)
38 (965)		45.90 (1.300)	70.39 (1.993)
37 (940)		45.90 (1.300)	69.26 (1.961)
36 (914)		45.90 (1.300)	68.14 (1.929)
35 (889)		45.85 (1.298)	66.98 (1.897)
34 (864)		45.69 (1.294)	65.75 (1.862)
33 (838)		45.41 (1.286)	64.46 (1.825)
32 (813)		44.81 (1.269)	62.97 (1.783)
31 (787)		44.01 (1.246)	61.36 (1.737)
30 (762)		43.06 (1.219)	59.66 (1.689)
29 (737)		41.98 (1.189)	57.89 (1.639)
28 (711)		40.80 (1.155)	56.05 (1.587)
27 (686)		39.54 (1.120)	54.17 (1.534)
26 (660)		38.18 (1.081)	52.23 (1.479)
25 (635)		36.74 (1.040)	50.23 (1.422)
24 (610)		35.22 (0.977)	48.19 (1.365)
23 (584)		33.64 (0.953)	46.11 (1.306)
22 (559)		31.99 (0.906)	44.00 (1.246)
21 (533)		30.29 (0.858)	1.85 (1.185)
20 (508)		28.54 (0.808)	39.67 (1.123)
19 (483)		26.74 (0.757)	37.47 (1.061)
18 (457)		24.89 (0.705)	35.23 (0.997)
17 (432)		23.00 (0.651)	32.96 (0.939)
16 (406)		21.06 (0.596)	30.68 (0.869)
15 (381)		19.09 (0.541)	28.36 (0.803)
14 (356)		17.08 (0.484)	26.03 (0.737)
13 (330)		15.04 (0.426)	23.68 (0.670)
12 (305)		12.97 (0.367)	21.31 (0.608)
11 (279)		10.87 (0.309)	18.92 (0.535)
10 (254)		8.74 (0.247)	16.51 (0.468)
9 (229)		6.58 (0.186)	14.09 (0.399)
8 (203)		4.41 (0.125)	11.66 (0.330)
7 (178)		2.21 (0.063)	9.21 (0.264)
6 (152)		0 (0)	6.76 (0.191)
5 (127)		0 (0)	5.63 (0.160)
4 (102)	Stone	0 (0)	4.51 (0.128)
3 (76)	Foundation	0 (0)	3.38 (0.096)
2 (51)		0 (0)	2.25 (0.064)
1 (25)		0 (0)	1.13 (0.032)

Note: Add 1.13 ft³ (0.032 m³) of storage for each additional inch (25 mm) of stone foundation.

STORAGE VOLUME PER CHAMBER FT³ (M³)

	Bare Chamber Storage ft³ (m³)	Chamber and Stone Foundation Depth in. (mm)		
		6 (150)	12 (300)	18 (450)
SC-740 Chamber	45.9 (1.3)	74.9 (2.1)	81.7 (2.3)	88.4 (2.5)

Note: Assumes 6" (150 mm) stone above chambers, 6" (150 mm) row spacing and 40% stone porosity.

AMOUNT OF STONE PER CHAMBER

ENGLISH TONS (yds³)	Stone Foundation Depth		
	6"	12"	16"
SC-740	3.8 (2.8)	4.6 (3.3)	5.5 (3.9)
METRIC KILOGRAMS (m³)	**150 mm**	**300 mm**	**450 mm**
SC-740	3,450 (2.1)	4,170 (2.5)	4,490 (3.0)

Note: Assumes 6" (150 mm) of stone above and between chambers.

VOLUME EXCAVATION PER CHAMBER YD³ (M³)

	Stone Foundation Depth		
	6 (150)	12 (300)	18 (450)
SC-740	5.5 (4.2)	6.2 (4.7)	6.8 (5.2)

Note: Assumes 6" (150 mm) of row separation and 18" (450 mm) of cover. The volume of excavation will vary as depth of cover increases.

Working on a project?
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For more information on the StormTech SC-740 Chamber and other ADS products, please contact our Customer Service Representatives at 1-800-821-6710

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