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91 Boston Post Rd East Lyme

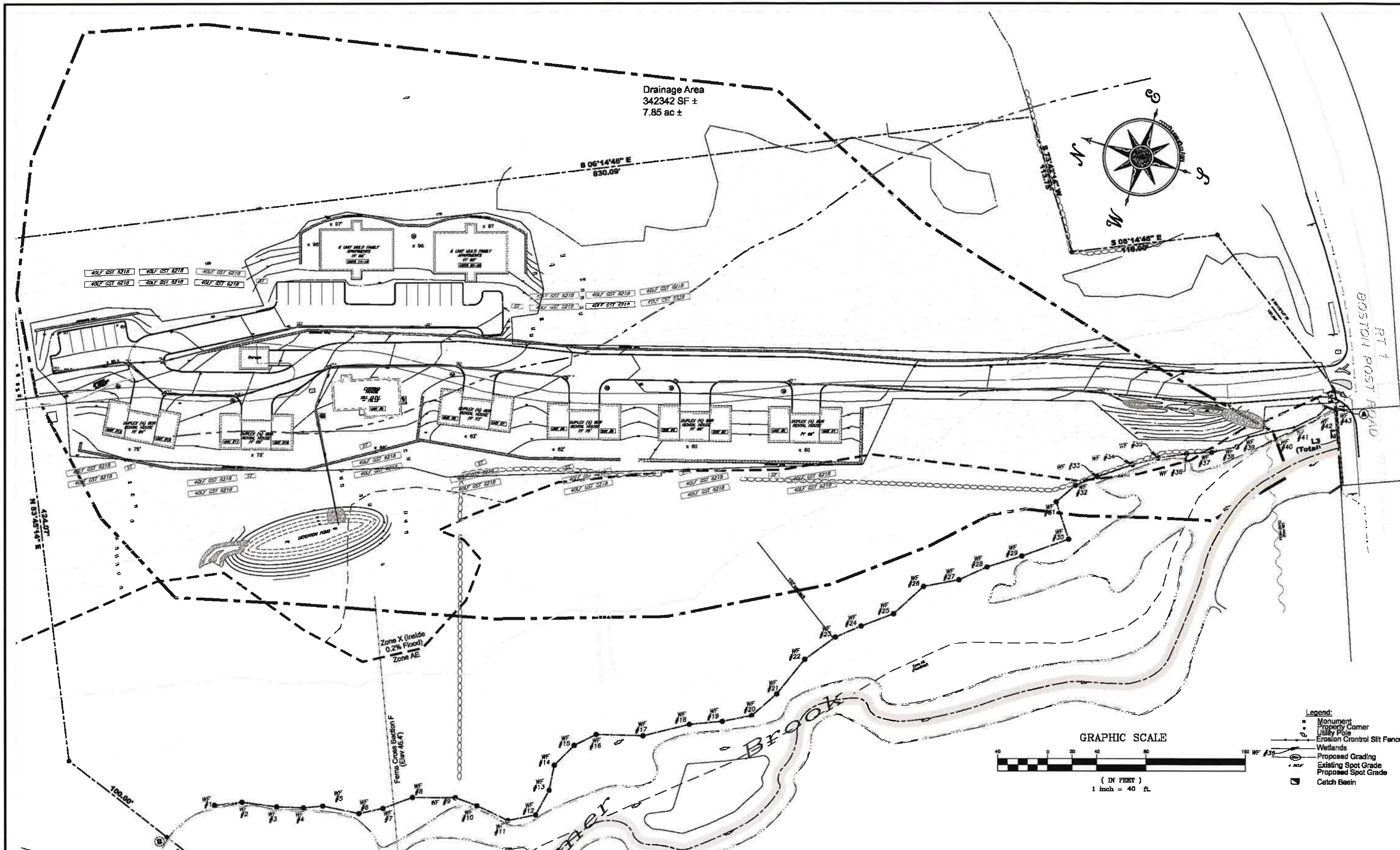
Conceptual Design Review
for Age Restricted Housing Development

May Engineering LLC

Civil Engineering and Site Planning

1297 RT 163 Oakdale, CT 06370

860 884-9671


Drainage Area
342342 SF ±
7.85 ac ±
S 06°14'46" E
830.09'
S 08°14'46" E
116.00'
N 83°45'14" E
424.07'
100.00'
BOSTON POST ROAD
RT 1
Zone X (inside
0.2% Flood)
Zone AE
Fems Cross Section F
(Elev 46.4')
Brook
GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.
Legend:
Monument
Property Corner
Utility Pole
Erosion Crontrol Silt Fence
Wetlands
Proposed Grading
Existing Spot Grade
Proposed Spot Grade
Catch Basin


S 06°14'46" E
830.09'
S 06°14'46" E
110.00'
BOSTON POST ROAD
RT 1
Pond
Zone X (Inside 0.2% Flood)
Zone AE
Fema Cross Section F (Elev 46.4')
424.07'
N 83°45'14" E
100.00'
N 38°50'26" E (Total = 340')
GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.
Legend
Monument
Property Corner
Utility Pole
Erosion Crontrol Silt Fence
Wetlands
Proposed Grading
Existing Spot Grade
Proposed Spot Grade
Catch Basin

Runoff = 11.27 cfs @ 12.31 hrs, Volume= 1.143 af, Depth> 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.80"

Area (sf)	CN	Description
9,191	98	Paved parking, HSG B
2,701	98	Unconnected roofs, HSG B
120,400	79	<50% Grass cover, Poor, HSG B
186,248	66	Woods, Poor, HSG B
318,540	72	Weighted Average
306,648		96.27% Pervious Area
11,892		3.73% Impervious Area
2,701		22.71% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	45	0.0300	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.35"
6.5	390	0.0400	1.00		**Shallow Concentrated Flow, wooded upland** Woodland Kv= 5.0 fps
2.0	220	0.1300	1.80		**Shallow Concentrated Flow, STeep Wooded** Woodland Kv= 5.0 fps
2.9	500	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.6	253	0.0100	7.27	581.53	**Channel Flow, brook** Area= 80.0 sf Perim= 45.0' r= 1.78' n= 0.030 Earth, grassed & winding
21.4	1,408	Total			

Runoff = 10.70 cfs @ 12.35 hrs, Volume= 1.142 af, Depth> 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.80"

Area (sf)	CN	Description
20,000	89	Paved roads w/open ditches, 50% imp, HSG B
* 7,500	55	Rain Garden Roofs, HSG B
124,400	79	<50% Grass cover, Poor, HSG B
166,640	66	Woods, Poor, HSG B
318,540	72	Weighted Average
308,540		96.86% Pervious Area
10,000		3.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	45	0.0300	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.35"
9.4	490	0.0300	0.87		**Shallow Concentrated Flow, wooded upland** Woodland Kv= 5.0 fps
0.9	100	0.1300	1.80		**Shallow Concentrated Flow, STeep Wooded** Woodland Kv= 5.0 fps
3.9	825	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.6	253	0.0100	7.27	581.53	**Channel Flow, brook** Area= 80.0 sf Perim= 45.0' r= 1.78' n= 0.030 Earth, grassed & winding
24.2	1,713	Total			

Water Quality Volume for 90% TSS & Pollutant Reduction

Area	A	342342 sf	7.8 ac
WQ Rainfall	P	1.3 inches	*90% rainfall event*
		0.005	
		0.009	
	I	12 Post Area dev %	
	R	0.113	

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

Required Retention Volume (RRV) **WQV = 4190.8 CF**

Table 4-1. Stormwater Management Standards and Performance Criteria Summary

Stormwater Management Standard	Performance Criteria
Standard 1 – Runoff Volume and Pollutant Reduction Preserve pre-development hydrology and pollutant loads to protect water quality and maintain groundwater recharge.	**LID Site Planning and Design (non-structural)** Consider the use of non-structural LID site planning and design strategies, to the maximum extent achievable, prior to the consideration of other practices, including structural stormwater BMPs. Refer to Chapter 5 - Low Impact Development Site Planning and Design Strategies for impervious surface disconnection and other non-structural LID Site Planning and Design techniques that can reduce post-development impervious area and stormwater runoff volumes. **Stormwater Retention and Treatment (structural)** After application of non-structural LID site planning and design techniques, use structural stormwater BMPs to retain and/or treat the remaining post-development stormwater runoff volume: ➢ Retention: Retain on-site the following post-development stormwater runoff volume for the site (Required Retention Volume) to the Maximum Extent Achievable using structural stormwater BMPs: Required Retention Volume (RRV): o 100% of the site's Water Quality Volume (WQV) ▪ All new development ▪ Redevelopment or retrofit of sites that are currently developed with existing DCIA[42] of less than 40% ▪ Any new stormwater discharges located within 500 feet of tidal wetlands o 50% of the site's WQV ▪ Redevelopment or retrofit of sites that are currently developed with existing DCIA of 40% or more ➢ Additional Treatment without Retention: If the post-development stormwater runoff volume retained on-site does not meet the Required Retention Volume for the site, provide stormwater treatment without retention to the Maximum Extent Achievable for the volume above that which can be retained, up to 100% of the site's WQV. The additional stormwater treatment should be provided using structural stormwater BMPs to achieve annual average pollutant load reduction targets for sediment, floatables, and nutrients, per Table 4-3.

Figure 4-1. Runoff Volume and Pollutant Reduction (Standard 1) Elements and Process

LID Site Planning and Design

Non-structural

Required consideration of LID site planning and design to the Maximum Extent Achievable prior to other practices.

Can reduce post-development impervious area and stormwater runoff volumes.

See Chapter 5 for impervious surface disconnection guidance.

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Stormwater Retention

Structural BMPs

Retain on-site the Required Retention Volume (100% or 50% of the site's water quality volume, WQV) to the Maximum Extent Achievable.

Retaining the Required Retention Volume on-site achieves compliance with Standard 1- Runoff Volume and Pollutant Reduction.

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Stormwater Treatment

Structural BMPs

If cannot retain on-site the Design Retention Volume, provide additional stormwater treatment to the Maximum Extent Achievable up to 100% of the site's WQV).

Document basis for alternative retention volume and compliance with minimum required pollutant load reductions.

Figure 13-9. Infiltration Trench Schematic - Near Road

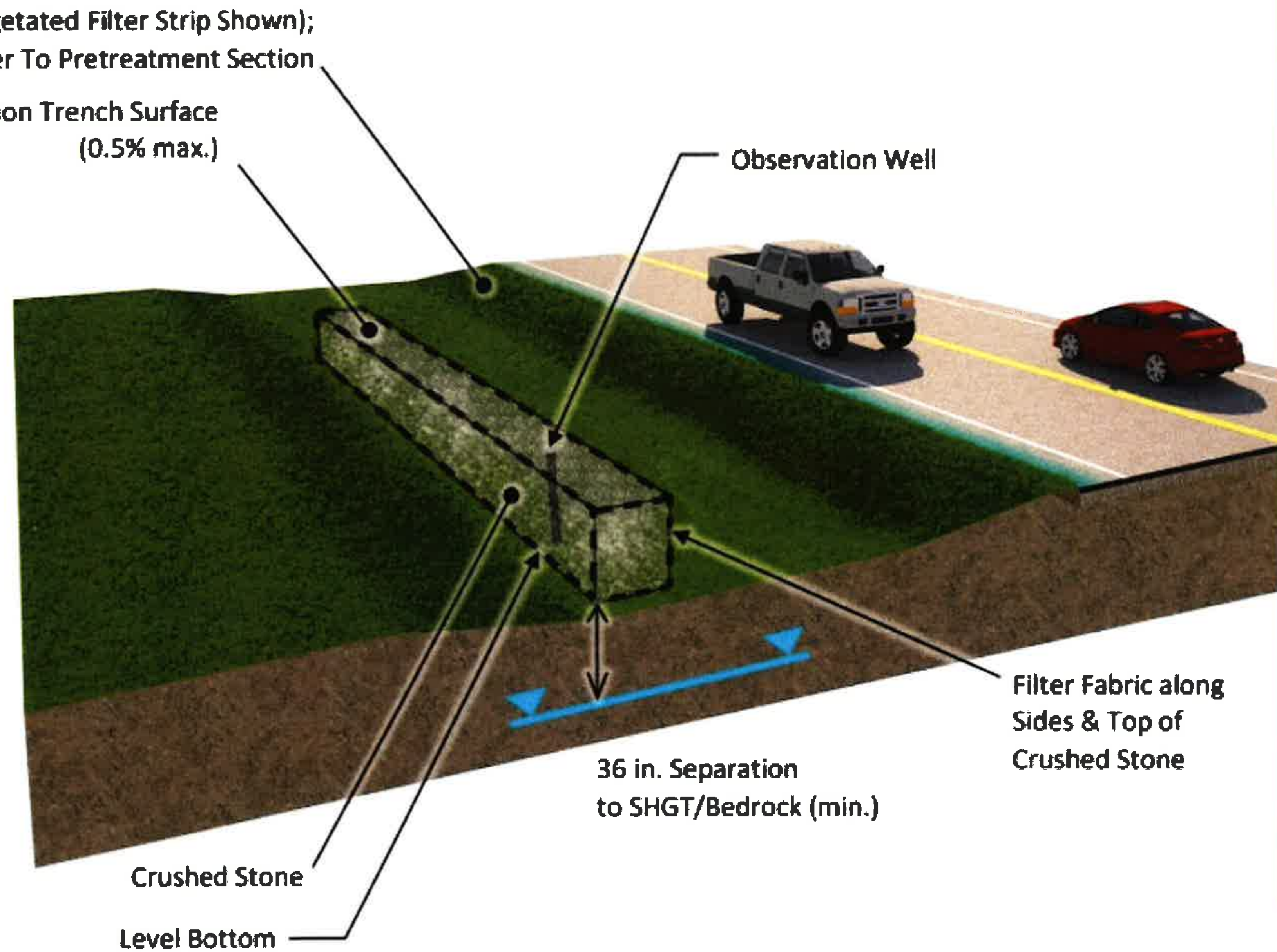
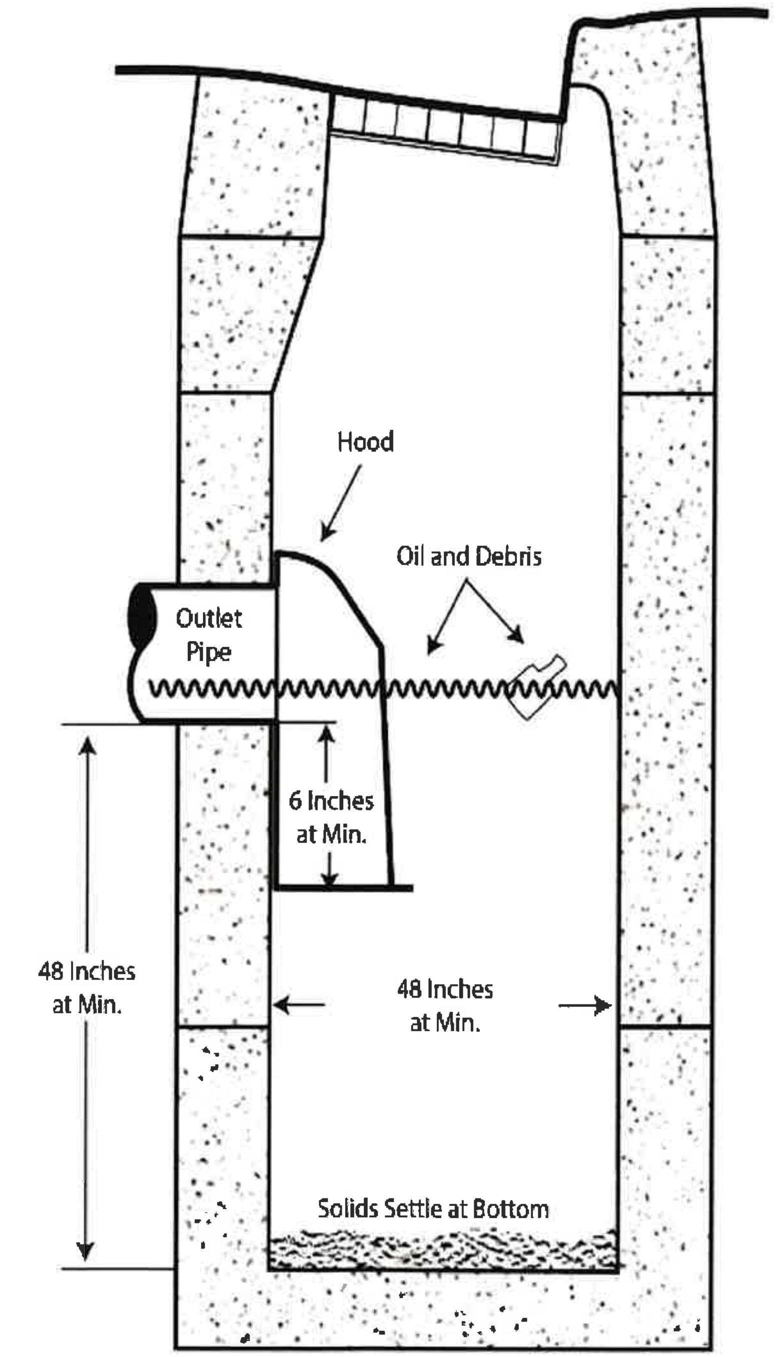


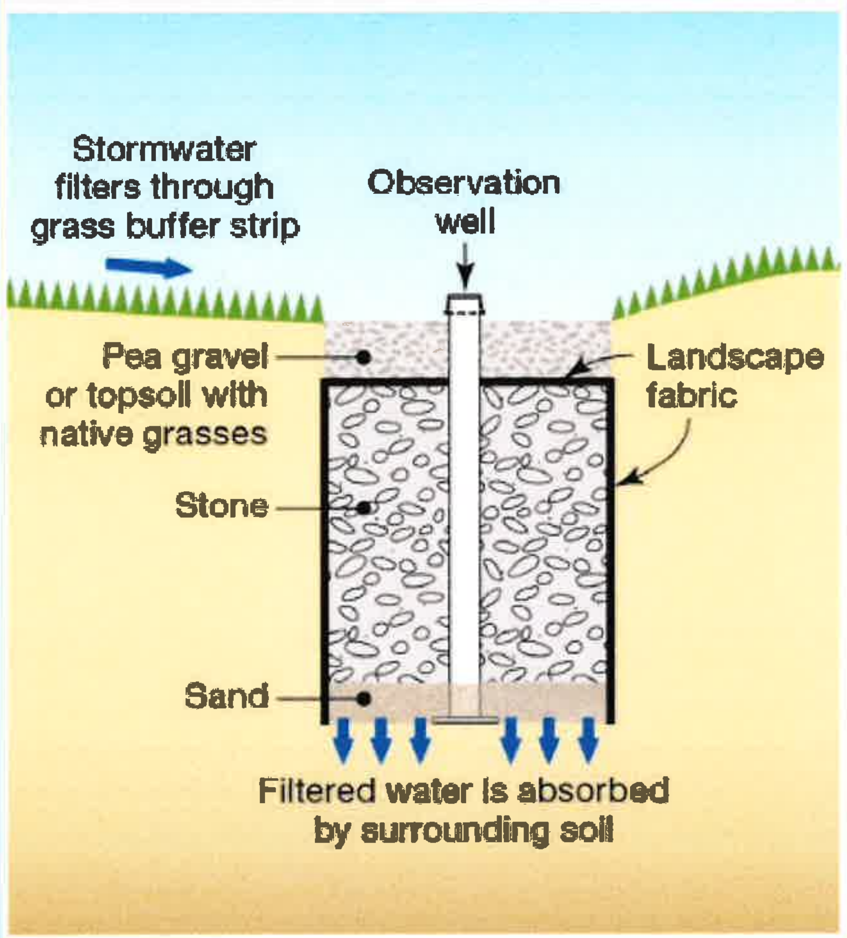
Figure 13-6. Typical Deep Sump Hooded Catch Basin



Infiltration Trench

What is an infiltration trench?

An infiltration trench is an excavated channel filled with gravel that is designed to filter stormwater. Infiltration trenches are commonly used in residential neighborhoods and around commercial businesses.



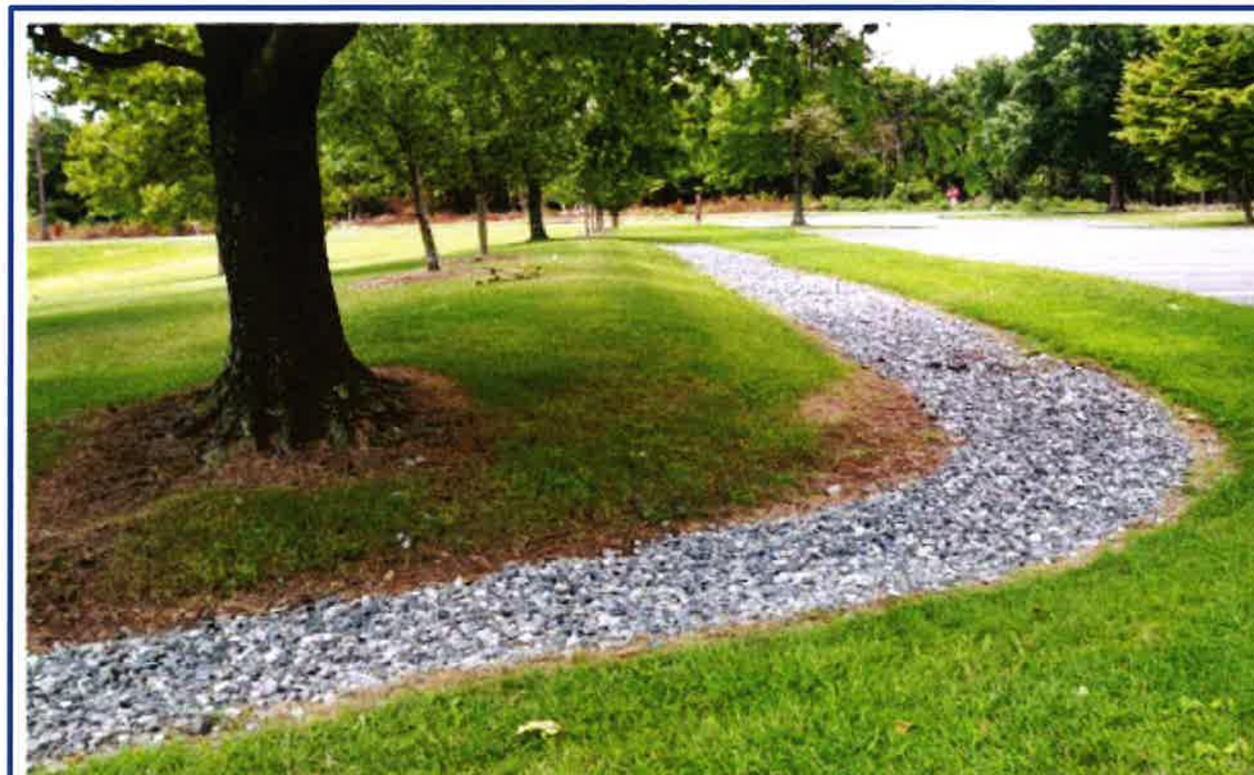
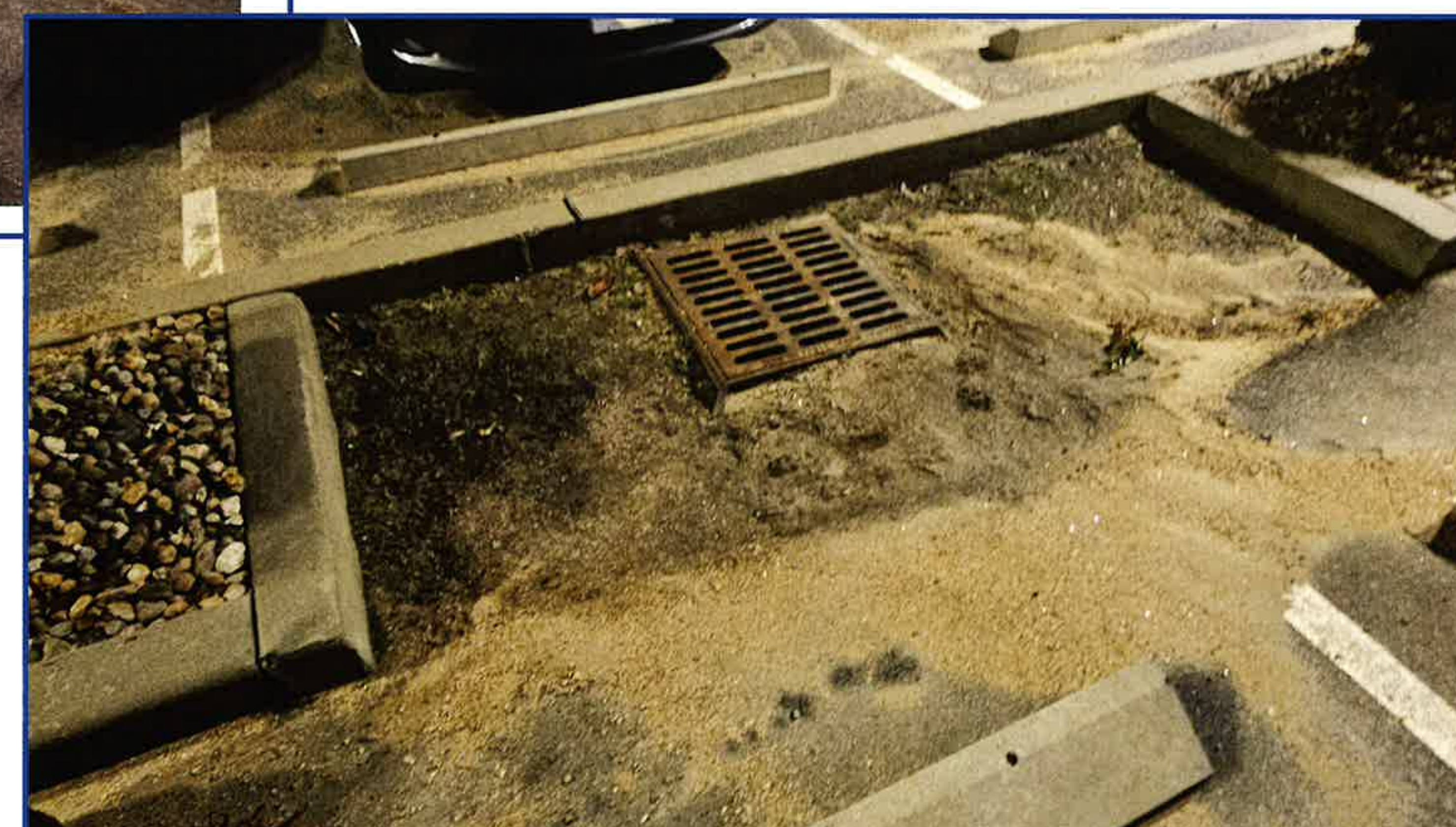
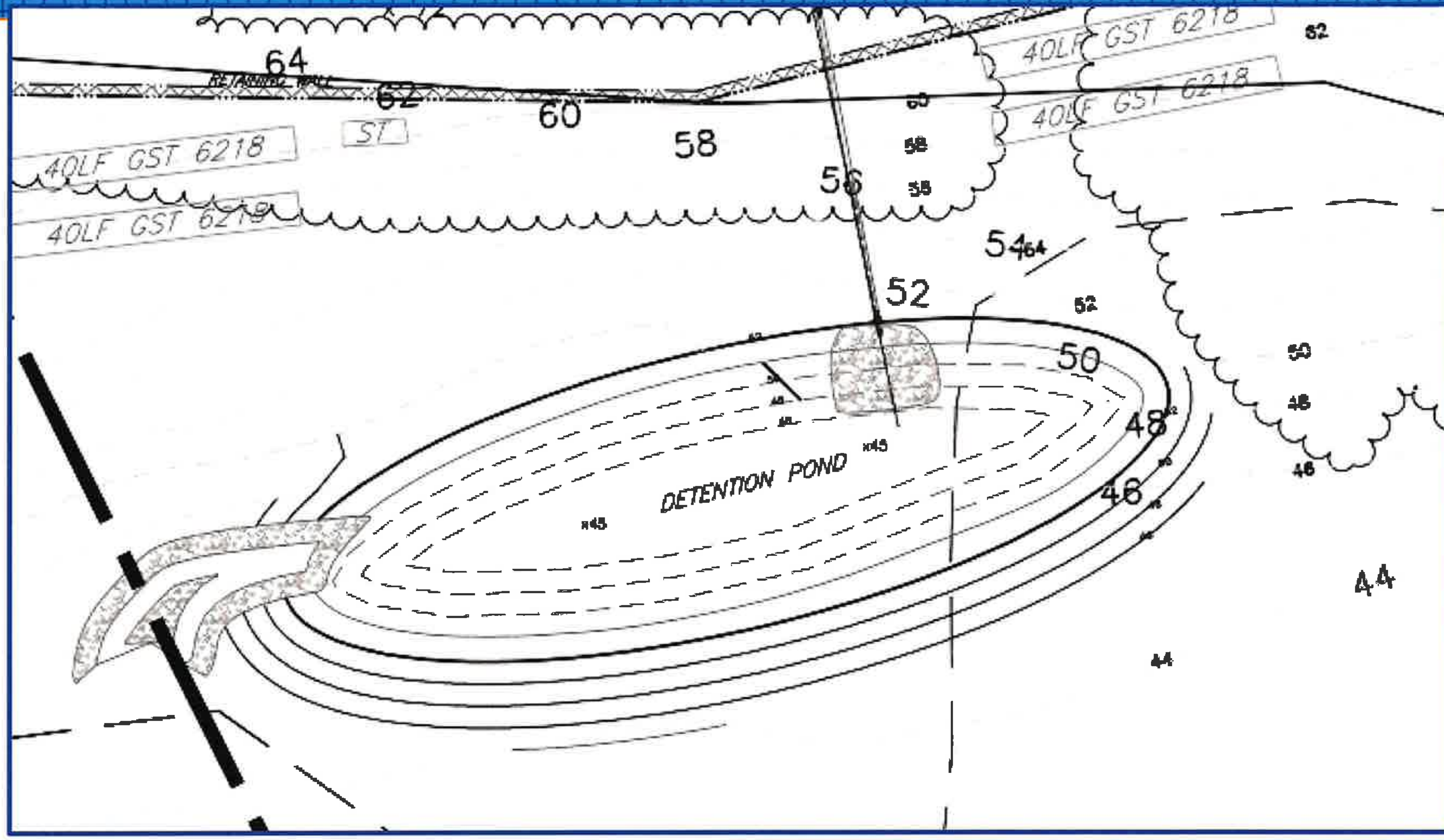


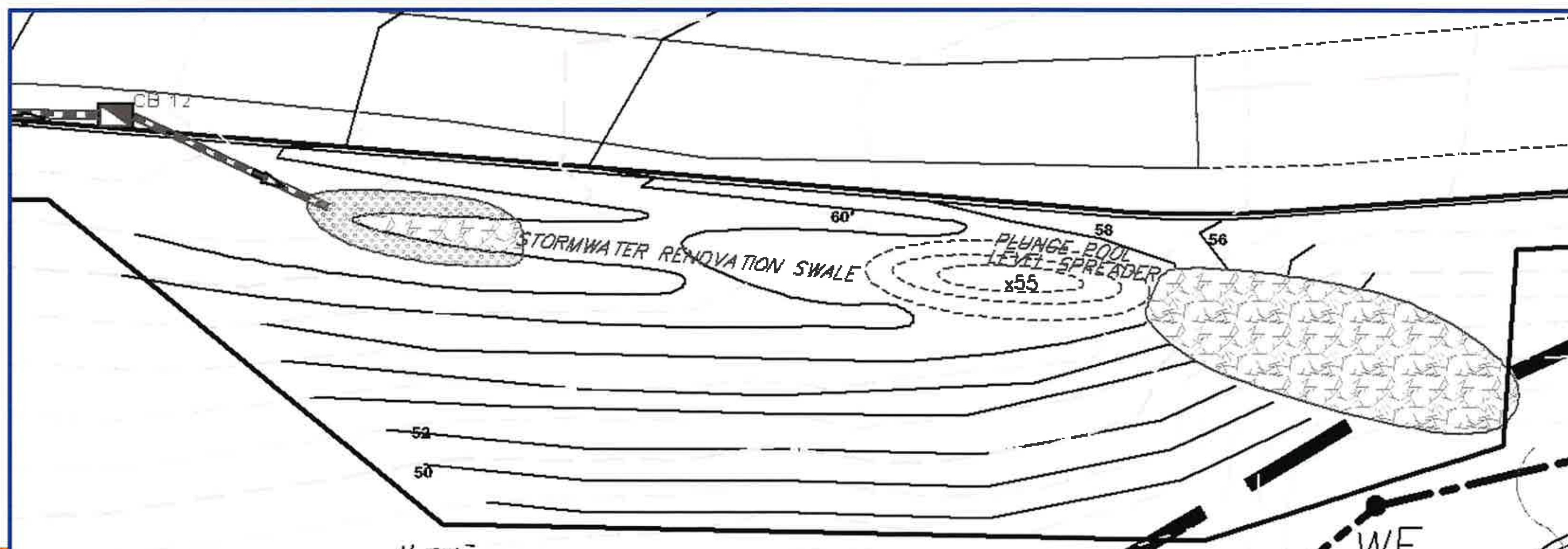
Photo courtesy of Montgomery County, Maryland, Department of Environmental Protection

An infiltration trench captures rainwater and directs it through layers of gravel and underlying soil, which allows the water to infiltrate into the surrounding soil and prevents flooding.

Figure 13-44. Roadside Bioswale with Inlet and Outlet Curb Cut Openings




RETAINING WALL
40LF GST 6218
ST
DETENTION POND
64
62
60
58
56
54
52
50
48
46
44


CB 12
STORMWATER RENOVATION SWALE
PLUNGE POOL
LEVEL SPREADER
x55
60'
58
56
52
50
WF