

TREE BOX FILTER LOCATION K								
Description	Rim	Inlet Apron at Gutter	Invert In Elev.	Invert Out Elev.	Top of Storage Elev.	Bottom of Storage Elev.	Ground Surface (Range in Elevation)	Overflow Weir Elevation
K-0	4' x 6' Tree Box Filter Sta. 9+00; 15.50' Left	11.63	10.79		8.13			
K-1	4'-0" dia. Overflow Catch Basin Sta. 9+10; 12.16' Left	10.78			6.60			
K-2	4'-0" dia. Junction Manhole Sta. 9+00; 22.50' Left	11.88		7.84 (4") 6.50 (12")	6.20			
K-3	4' x 6' Control Structure Sta. 8+70.50; 22' Left	11.87 11.91		5.70 (4") 6.20 (12")	5.70			8.20
K-4	4'-0" dia. Manhole Sta. 8+68; 10' Left	11.22		5.62 (K-3) 4.51 (18")	4.40 +/-			
Underground Storage Sta. 8+73 to 8+97; 21' to 24' Left						8.20	6.20	11.82 to 11.90
New Storm Drain		Pipe Diameter (in.)	Length (ft)	Slope (ft/ft)	Grade Difference (ft)	Notes		
K-0 to K-2		4	3	0.0967	0.29			
K-1 to K-2		12	10	0.0100	0.10			
K-2 to K-3		12	2	0.0100	0.02			
K-3 to K-4		12	8	0.0100	0.08			
K-4 to K-5		12	1	0.0100	0.01			

**NOTES:**

- Underdrains from underground storage and tree box filter to connect to downstream side of K-4 and K-2 respectively.
- Underground storage will project through the bottom of lightweight fill by up to 1 foot. Special provisions required.
- Install PVC Backwater Valves in K-4 on discharge from underdrains.
- Requires construction of new manhole on existing 18" storm drain.
- Centerline grade at bottom of excavation for concrete Sta. 8+75 = Elev. 7.24+; Sta. 9+00 = Elev. 7.81+

TREE BOX FILTER LOCATION M									
Description	Rim	Inlet Apron at Gutter	Invert In Elev.	Invert Out Elev.	Top of Storage Elev.	Bottom of Storage Elev.	Ground Surface (Range)	Overflow Weir Elevation	
M-0	4' x 6' Tree Box Filter Sta. 4+26; 31.5+/-' Left	11.29	10.46		7.79 (M-4)				
M-1	4'-0" Overflow Catch Basin 4+26; 27+/-' Left	10.45			6.91 (M-2)				
M-2	4'-0" dia. Junction Manhole Sta. 4+43; 30' Left	11.40		6.82 (M-1)	6.72 (M-4)				
M-3	4' x 4' Inspection Manhole Sta. 4+74.67; 41' Left	11.84			6.60				
M-4	4' x 6' Inlet Manhole Sta. 4+46; 43.00' Left	11.80 11.86		6.67 (M-2) 6.99 (M-0) 6.00 (4" UD from storage)	6.0 (M-5)			8.50	
M-5	6'-0" dia. Outlet Control Manhole Sta. 4+39; 48' Left	11.52		5.86 (12" from M-4)	5.76 (M-6)				
M-6	Existing Catch Basin Sta. 4+11; 68' Left	11.22		6.20 (M-7) 5.64 (M-5) 6.8 (M-8)	Existing 10" Inv. TBD				
M-7	4'-0" Dia. Manhole along Trail (See Dwg. 8.2A)	11.22			7.03 (M-6)				
M-8	2'-0" Square Type D Catch Basin (See Dwg. 8.2A)	11.17		7.0 (6") 7.0 (6")	6.90 (12")				
M-9	2'-0" Square Type D Catch Basin (See Dwg. 8.2A)	11.17		7.0 (6") 7.0 (6")	6.90 (12")				
M-10	2'-0" Square Type D Catch Basin (See Dwg. 8.2A)	11.17		7.0 (6") 7.0 (6")	6.90 (12")				
Underground Storage Sta. 4+24.33 to 4+72.33; 39.5' to 42.5' Left					6.5 (M-4)	6.5 (M-4)	8.50	6.50	11.70 to 11.80
New Storm Drain		Pipe Diameter (in.)	Length (ft)	Slope (ft/ft)	Grade Difference (ft)	Notes			
M-0 to M-4		4	14	0.0570	0.80				
M-1 to M-2		12	13	0.0070	0.09				
M-2 to M-4		12	9	0.0060	0.05				
M-4 to M-5		12	14	0.0100	0.14				
M-5 to M-6		12	24	0.0050	0.12				
M-6 to M-7		12	166	0.0050	0.83				

**NOTES:**

- Underdrains from underground storage to connect to downstream side of M-5; Underdrain from Filterra® to connect to M-4.
- Form area of underground storage prior to pouring lightweight concrete.
- Install 4" PVC Backwater Valve in M-4 on discharge from 4" storage underdrain.
- Centerline grade at bottom of excavation for concrete Station 4+00 = Elev. 3.50; Station 4+75 = Elev. 2.50.
- Drainage system requires scupper inlets or field inlets from abutting property line at M-8, M-9, and M-10. Abutting property owner to select inlet type from Options on Dwg. C-7.12.

TREE BOX FILTER LOCATION L									
Description	Rim	Inlet Apron at Gutter	Invert In Elev.	Invert Out Elev.	Top of Storage Elev.	Bottom of Storage Elev.	Ground Surface (Range in Elevation)	Overflow Weir Elevation	
L-1	4' x 6' Tree Box Filter Somerset Street Sta. 4+30; 21.5' Right	11.44	10.60		7.94 (L-4)				
L-2	4'-0" dia. Overflow Catch Basin Sta. 4+75; 18.16' Right	10.20			6.49 (L-3)				
L-3	4'-0" Junction Manhole Sta. 4+75; 22.75' Right	10.60		6.39 (L-2)	6.27 (L-4)				
L-4	Underground Storage Sta. 4+42 to Sta. 4+66; 20' to 23' Right			7.31 (L-1) 6.20 (L-3) 6.20 (L-5)		8.20	6.20	10.55 to 10.70	
L-5	4' x 6' Outlet Control Structure Sta. 4+38.5; 22.00' Right	10.78 11.10		6.20 (L-4) 5.70 (4" UD)(L-4) 5.50 (4" from wall drain)	5.24 (L-6)				
L-6	New 4'-0" dia. Manhole on Existing Storm Drain Sta. 4+60; 11.00' Left (See Schedule Q)	11.05		5.10 (L-5) 5.62 (C-5) 3.10+ (ex)	3.10+ (ex)				
Building Wall to 6" Invert Out from Building = 5.74.									
New Storm Drain		Pipe Diameter (in.)	Length (ft)	Slope (ft/ft)	Grade Difference (ft)	Notes			
L-1 to L-4		4	17	0.0368	0.626				
L-2 to L-3		12	1	0.0100	0.010				
L-3 to L-4		12	6	0.0200	0.120				
L-5 to L-6		12	28	0.0050	0.140				
6" Underdrain from wall drain adjacent to Noyes Building at invert 5.25					6	24	0.0100	0.240	

**NOTES:**

- From L-5 to L-6 requires test pit over existing water main.
- Connect 4" underdrain below storage unit to downstream side of L-5. Connect 4" underdrain below Filterra® to L-4.
- Underground storage will project through lightweight fill. Special provisions required.
- Install 4" PVC Backwater Valves in J-4 on discharge from underdrains (from underground storage and Filterra®).
- Centerline grade at bottom of excavation for concrete Sta. 4+50 = Elev. 2.51+; Sta. 4+75 = Elev. 2.45+

TREE BOX FILTER LOCATION N								
Description	Rim	Inlet Apron at Gutter	Invert In Elev.	Invert Out Elev.	Top of Storage Elev.	Bottom of Storage Elev.	Ground Surface (Range in Elevation)	Overflow Weir Elevation
N-0	4' x 6' Tree Box Filter Sta. 4+19; 25' Right	11.17	10.34		7.67			
N-1	4'-0" Overflow Catch Basin 3+98; 13' Right	10.20			6.71			
N-2	4'-0" dia. Junction Manhole Sta. 4+17+; 32.5' Right	11.30		7.50 (4")(N-0) 6.6 (N-1)	6.50 (storage)			
N-3	4' x 4' Inspection Manhole 4+46.5; 24' Right	11.58		6.48	6.27			
N-4	4' x 6' Control Manhole Sta. 4+29; 31.75' Right	11.25 11.27		5.77 (4") 6.27 (12")	5.67 (N-5)			8.27
N-5	Existing Catch Basin Sta. 4+12+; 8' Right	10.68		5.54 (N-4)	5.24 (12")			
Underground Storage Sta. 4+20 to 4+41; 23.00' to 26.00' Right						8.27	6.27	11.30 to 11.70
New Storm Drain		Pipe Diameter (in.)	Length (ft)	Slope (ft/ft)	Grade Difference (ft)	Notes		
N-0 to N-2		6	3.5	0.0480	0.17			
N-1 to N-2		12	21	0.0050	0.11			
N-2 to N-3		12	4	0.0050	0.02			
N-4 to N-5		12	26	0.0050	0.13			

**NOTES:**

- 4" underdrain from underground storage is to connect to the downstream face of N-4.
- Form area of underground storage prior to pouring lightweight concrete (storage is below underside of concrete).
- Install 4" PVC Backwater Valve in N-2 and N-4 on discharges from 4" underdrains.
- Frame Cover N-5 is to be raised from Elev. 9.84 to 10.64.
- Centerline grade at bottom of excavation for concrete Sta. 4+00 = Elev. 9.33+; Sta. 4+50 = Elev. 9.75+
- Existing 10" storm drain invert in and invert out of existing catch basin N-5 are unknown.

THE PROPOSED STORM DRAIN SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF PORTLAND TECHNICAL STANDARDS USING ONE OF THE FOLLOWING PIPE MATERIALS:

- REINFORCED CONCRETE PIPE (RCP) WITH A MINIMUM STRENGTH OF CLASS III
- PVC RING TYPE SEWER PIPE (SDR 35 OR EQUIVALENT, MINIMUM PS-46 RATING)
- P.V.C. RING TYPE SEWER PIPE MEETING ASTM F 789 OR EQUAL TO SDR 35
- DUCTILE IRON PIPE (DIP)
- ADS N-12 HP TRIPLE-WALL PIPE MEETING A MINIMUM PS-46
- ADS SANITITE HP MEETING A MINIMUM PS-46

ALL JOINTS SHALL BE WATERTIGHT (SILT TIGHT JOINTS ARE NOT PERMITTED. CONTRACTORS SHALL REFER TO THE TECHNICAL SPECIFICATIONS FOR THE PROJECT FOR ADDITIONAL INFORMATION INCLUDING ANY SPECIAL PIPE CLASSES.

ANY PIPELINE WITH LESS THAN 2 FEET OF COVER SHALL BE DUCTILE IRON PIPE

PRELIMINARY - NOT FOR CONSTRUCTION

	PROJECT	midtown PORTLAND, MAINE	<b>FAY, SPOFFORD &amp; THORNDIKE</b> ENGINEERS · PLANNERS · SCIENTISTS 778 MAIN ST., SUITE 8, SOUTH PORTLAND, ME 04106																										
	SHEET TITLE	PROPOSED STORM DRAIN SCHEDULES FOR TREE BOX FILTER SYSTEMS SHEET 2 OF 3																											
<table border="1"> <tr> <td>1</td> <td>11.14.14</td> <td>FINAL LEVEL III SUBMISSION TO CITY OF PORTLAND</td> </tr> <tr> <td>REV</td> <td>DATE</td> <td>DESCRIPTION</td> </tr> </table>	1	11.14.14	FINAL LEVEL III SUBMISSION TO CITY OF PORTLAND	REV	DATE	DESCRIPTION	CLIENT	THE FEDERATED COMPANIES	<table border="1"> <tr> <td>DRAWN:</td> <td>LA</td> <td>DATE:</td> <td>OCTOBER 2014</td> </tr> <tr> <td>DESIGNED:</td> <td>WGH/BEK</td> <td>SCALE:</td> <td>N.T.S.</td> </tr> <tr> <td>CHECKED:</td> <td>WGH/SRB</td> <td>JOB NO.</td> <td>SP-M037B</td> </tr> <tr> <td>FILE NAME:</td> <td colspan="3">3062-GRADE SCHED</td> </tr> <tr> <td>SHEET</td> <td colspan="3">C-3.12</td> </tr> </table>	DRAWN:	LA	DATE:	OCTOBER 2014	DESIGNED:	WGH/BEK	SCALE:	N.T.S.	CHECKED:	WGH/SRB	JOB NO.	SP-M037B	FILE NAME:	3062-GRADE SCHED			SHEET	C-3.12		
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