

DRAINAGE SCHEDULE FOR "A"				
Description	Rim or Surface	Invert In Elev.	Invert Out Elev.	Special Notes
A-0	Replace Existing Catch Basin	11.37	5.70 (Proposed 12" A-1) 6.70 (A-20)	3.05 (A-21)
A-1	6'-0" Dia. Manhole	11.45	6.28 (12" A-2) 6.00 (12" A-17)	5.90 (18" A-0)
A-2	6'-0" Dia. Manhole	11.90	6.60 (12" A-3)	6.55 (12" A-1)
A-3	Underground Storage	11.74 to 11.86	6.74 (Bottom Elev.) 9.74 (Top Elev.)	6.74 (A-2)
A-4	Overflow Catch Basin	11.25		7.14 (12")
A-5	Overflow Catch Basin	11.25		7.18 (12")
A-6	5'-0" Dia. Outlet Control Manhole	11.52	8.26 (18")	7.09 (to A-3) (18")
A-7	Surge Storage (not included as part of WQ storage)	11.32 to 11.60	8.26 (18") 8.32 (Bottom Elev.) 9.32 (Top Elev.)	8.32 (18" A-6)
A-8	Flow Distribution Manifold	10.40	8.82	8.82 (12" A-7)
A-9	Surge Storage (not included as part of WQ storage)	11.20 to 11.50	8.32 (Bottom Elev.) 9.32 (Top Elev.)	8.32 (18" A-6)
A-10	Flow Distribution Manifold	10.50	8.82	8.82 (12" A-9)
A-11	Vortex Based Pretreatment	11.40	8.98 (A-12)	8.93 (A-9)
A-12	Catch Basin	10.94	9.15 (roof)	9.05 (A-11)
A-13	Catch Basin and Overflow Manhole	11.60	6.58 (6") (A-3)	9.55 (A12) 6.48 (H-5)
A-14	Catch Basin	9.34		4.53 (12" A-21)
A-15	Catch Basin	8.60		4.76 (12" A-21)
A-16	Catch Basin	8.60		4.80 (12" A-21)
A-17	4' dia. Manhole Along Trail (See Dwg. 8.2A)	11.33		6.77 (12" A-1)
A-18	2' Square Catch Basin Along Trail (See Dwg. 8.2A)	11.12	7.0 (6" UD)	6.80 (12" TEE)
A-19	2' Square Catch Basin Along Trail (See Dwg. 8.2A)	10.66	7.0 (6" UD)	6.60 (12" TEE)
A-20	2' Square Catch Basin Along Trail (See Dwg. 8.2A)	10.71	7.0 (6" UD)	6.79 (12" A-0)
A-21	Replace Existing Catch Basin	10.50	2.92 (18")(A-0) 4.63 (12")(A-15) 4.38 (12")(A-14) 4.57 (12")(A-16)	2.82 (18" City System)
New Storm Drain				
	Pipe Diameter (in.)	Length (ft)	Slope (ft/ft)	Grade Difference (ft)
A-0 from Existing Catch Basin to A-1 to A-0	12	40	0.0050	0.20
A-2 to A-1	12	53	0.0050	0.27
A-3 to A-2	12	27	0.0050	0.14
A-4 to A-3	12	14	0.0240	0.40
A-5 to A-3	12	18	0.0240	0.44
A-6 to A-3	18	6	0.0580	0.35
A-7 to A-6	18	14	0.0000	0.00
A-8 to A-7	6	Varies	0.0000	0.00
A-9 to A-6	18	12	0.0000	0.00
A-10 to A-9	6	Varies	0.0000	0.00
A-11 to A-9	18	5	0.0100	0.05
A-12 to A-11	18	7	0.0100	0.07
A-13 to A-12	12	81	0.0050	0.41
H-5 to A-13	18	26	0.0150	0.38
A-15 to A-21	12	39	0.0033	0.13
A-16 to A-21	12	47	0.0050	0.24
A-17 to A-1	12	164	0.0030	0.49
A-20 to A-0	12	18	0.0050	0.09
A-14 to A-21	12	30	0.0050	0.15
1	A test pit on the outlet pipes of all new connections to verify the invert is lower than the proposed elevation of the new incoming line.			
2	Invert Elevations of existing storm drains are based upon a plan prepared for the City of Portland by SGC survey dated 10/30/08.			
3	The underground storage tanks will have a top of prepared subgrade Elev. of 6.74 and a top of storage Elev. of 9.74.			
4	Refer to Details on Drawing C-7.8 for boxless treatment filter.			
5	The 18" pipe discharge line from the Federated Phase 1 area will require a backflow preventer installed inside of the manhole to avoid tidal backwater into the system.			
6	The storm drain for A-16 may be teed into drainage downstream of A-10 to avoid the adverse angle for pipes entering A-14.			
7	The bottom 6" of the 12" high surge storage is filled with crushed stone. Normal water level elevation is 8.82 (i.e. stone is below pool).			
8	Drainage system requires scupper inlets or field inlets from abutting property line at A-18, A-19, and A-20. Abutting property owner to select inlet type from Options on Dwg. C-7.12.			

SYSTEM B DRAINAGE SCHEDULE				
Description	Rim or Surface	Invert In Elev.	Invert Out Elev.	Special Notes
Building	Roof Drain	12.00		9.38 (12" B-2)
B-0	Special Inlet for Depressed Filterra®	11.25	9.15 (12" B-2)	9.15 (12" B-1)
B-1	4'-0" x 6'-0" Filterra® Tree Box Filter	9.50	9.15 (12" B-0)	6.00 (4" B-3)
B-2	Roof Drain Control Manhole	11.88	9.28 (12" Roof)	9.18 (12" B-0) 6.00 (12" B-3)
B-3	4'-0" sq. Inspection/Maintenance Manhole	11.88	5.90 (12" B-2) 5.90 (4" B-1)	5.90 (12" Storage)
B-4	4'-0" sq. Inspection/Maintenance Manhole	11.88	5.90 (12" Storage)	5.90 (12" B-5)
B-5	4' x 6' sq. Overflow Manhole	11.70	5.90 (12" B-4) 5.60 (6" UD Storage)	5.60 (12" O-7)
New Storm Drain				
	Pipe Diameter (in.)	Length (ft)	Slope (ft/ft)	Grade Difference (ft)
Building to B-2	12	4	0.0250	0.10
B-2 to B-0	12	6	0.0050	0.03
B-2 to B-3	12	13	0.0080	0.10
B-0 to B-1	12	2	0.0000	0.00
B-1 to B-3	4	20	0.0050	0.10
B-3 to Storage	12	2	0.0000	0.10 (connect to underground storage; pipe is installed level)
Storage to B-4	12	2	0.0000	0.00
B-4 to B-5	12	7	0.0000	0.00
Storage to B-5	6	7	0.0000	0.00 (6" underdrain set 0.5' below bottom of chamber elevation 5.40)
B-5 to Q-7	12	40	0.0050	0.20
Notes:				
1	A 6" underdrain shall be installed below the underground storage and connected to OCS B-1 on the downstream side of the wier at Elev. 5.60.			
2	The prepared subgrade at the bottom of the underground storage unit is set at Elev. 5.90; the top is set at Elev. 7.90.			
3	The Filterra® underdrain connects directly to the underground storage system.			

SYSTEM C DRAINAGE SCHEDULE				
Description	Rim or Surface	Invert In Elev.	Invert Out Elev.	Special Notes
Building	Roof Drain	12.00		9.38 (12" C-2)
C-0	Special Inlet for Depressed Filterra®	11.55	8.97 (12" C-2)	8.97 (12" C-1)
C-1	4'-0" x 6'-0" Filterra® Tree Box Filter	9.80	8.97 (12" C-0)	6.30 (4" C-3)
C-2	Roof Drain Control Manhole	11.88	9.28 (12" Roof Drain)	9.18 (12" C-0) 6.40 (12" C-3)
C-3	4'-0" sq. Inspection/Maintenance Manhole	11.88	6.30 (12" C-2) 6.30 (4" C-1)	6.30 (12" Storage)
C-4	4'-0" sq. Overflow Manhole	11.88	6.30 (12" Storage)	6.30 (12" C-5)
C-5	4' x 6' sq. Overflow Manhole	11.70	6.30 (12" C-4) 5.80 (6" Storage)	5.70 (12" L6=C6)
New Storm Drain				
	Pipe Diameter (in.)	Length (ft)	Slope (ft/ft)	Grade Difference (ft)
Building to C-2	12	5	0.0200	0.10
C-2 to C-0	12	30	0.0070	0.21
C-2 to C-3	12	7	0.0140	0.10
C-0 to C-1	12	2	0.0000	0.00
C-1 to C-3	4	7	0.0000	0.00
C-3 to Storage	12	2	0.0000	0.0 (connect to underground storage; pipe is installed level)
Storage to C-4	12	0	0.0000	0.00
C-4 to C-5	12	6	0.0000	0.00
Storage to C-5	6	6	0.0000	0.00 (6" underdrain set 0.5' below bottom of chamber elevation 5.80)
C-5 to L-6	12	15	0.0050	0.08
Notes:				
1	A 6" underdrain shall be installed below the underground storage and connected to OCS C-5 on the downstream side of the wier at Elev. 5.80.			
2	The 4" Filterra® underdrain is to be installed level.			
3	The prepare subgrade at the bottom of the underground storage unit is set at Elev. 6.30; the top is set at Elev. 8.30.			

STORM TREAT LOCATION D				
Description	Rim	Inlet Apron at Gutter	Invert In Elev.	Invert Out Elev.
Elm Street - Existing Catch Basin			2.61 (18" D-0)	2.56 (18" City System)
D-0	Replace Existing 4'-0" Dia. Catch Basin	11.40	2.90 (18" D-1)	2.85 (18" Elm Street Catch Basin)
D-1	6'-0" Dia. Manhole	11.48	3.21 (4" Storm Treats) 3.21 (18" D-2)	3.11 (18" D-0)
D-2	4'-0" Outlet Control Manhole	11.50	3.90 (18")	3.80 (18" D-1)
D-3	4' x 6' Overflow Manhole (twin pipes)	10.05 to 10.55	3.90 (18" Storage)	3.90 (4")(Storm Treats) 4.19 (18") 3.90 (D-2)
D-4	5'-0" Splitter Manhole	8.07	4.55 (18" D-5)	4.45 (18" Storage)
D-5	Vortex Based Pretreatment	8.60	4.69	4.59
D-6	4'-0" Dia. Catch Basin	8.10	5.36 (12" D-7)	5.26 (18" D-5)
D-7	4'-0" Dia. Manhole	10.90	5.75 (12" D-9)	5.65 (D-6)
D-9	4'-0" Dia. Catch Basin	9.25	6.1 (12" Field Inlet)	6.0 (12" D-7)
New Storm Drain				
	Pipe Diameter (in.)	Length (ft)	Slope (ft/ft)	Grade Difference (ft)
Elm Street - Existing Catch Basin	18	76	0.0032	0.243
D-1 to D-0	18	55	0.0038	0.209
D-2 to D-1	18	47	0.0120	0.564
D-3 to D-2	18	10	0.0000	0.000
D-4 to D-3	18	6	0.0100	0.060
D-5 to D-4	18	8	0.0067	0.054
D-6 to D-5	18	19	0.0300	0.570
D-7 to D-6	12	57	0.0050	0.285
Roof to D-6	15	11	0.0100	0.110
D-9 to D-7	12	25	0.0100	0.250
Field Inlet to D-9	12	5	0.4800	2.400
NOTES:				
1	A test pit on the outlet pipe for the existing catch basin is required to verify the invert is lower than the proposed elevation of the new line.			
2	Invert elevations of existing storm drains are based upon a plan prepared for the City of Portland by SGC survey dated 10/30/08.			
3	The underground storage tanks will have a top of prepared subgrade elevation of 3.90, a top of storage elevation of 6.90 and a minimum surface elevation above the storage units of 9.10 (to provide 24 inches of cover).			
4	The bottom of the StormTreat units is to be set at 2.98 with a top of lip elevation of 6.98 at the surface. The incoming pipe will be set at elevation 3.90 with the outlet elevation of 3.48.			
5	The 15 inch pipe from the Federated Phase 3 area will require a backflow preventer installed inside of the manhole to avoid tidal backwater into the system.			
6	Plants for the StormTreat™ units should have moderate tolerance for saline water.			
7	Proposed sewer for Midtown 4 crosses the storm drain between the existing catch basin and catch basin D-0. Sewer invert 4.80+/-.			

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

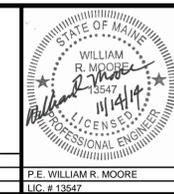
- REINFORCED CONCRETE PIPE (RCP) WITH A MINIMUM STRENGTH OF CLASS III
- PVC RING TYPE SEWER PIPE (SDR 35 OR EQUIVALENT, MINIMUM PS-46 RATING)
- P.V.C. RING TYPE SEWER PIPE MEETING ASTM F 789 OR EQUAL TO SDR 35
- DUCTILE IRON PIPE (DIP)
- ADS N-12 HP TRIPLE-WALL PIPE MEETING A MINIMUM PS-46
- ADS SANITITE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

REV	DATE	DESCRIPTION
1	11.14.14	FINAL LEVEL III SUBMISSION TO CITY OF PORTLAND
2		



PROJECT	midtown PORTLAND, MAINE
SHEET TITLE	PROPOSED STORM DRAIN SCHEDULES FOR SYSTEMS WITHIN OR NEAR THE FEDERATED PROPERTY
CLIENT	THE FEDERATED COMPANIES

FAY, SPOFFORD & THORNDIKE ENGINEERS · PLANNERS · SCIENTISTS 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106	
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-3.10