SHARED MAINTENANCE FACILITY

WINDHAM, MAINE

MARCH 2018

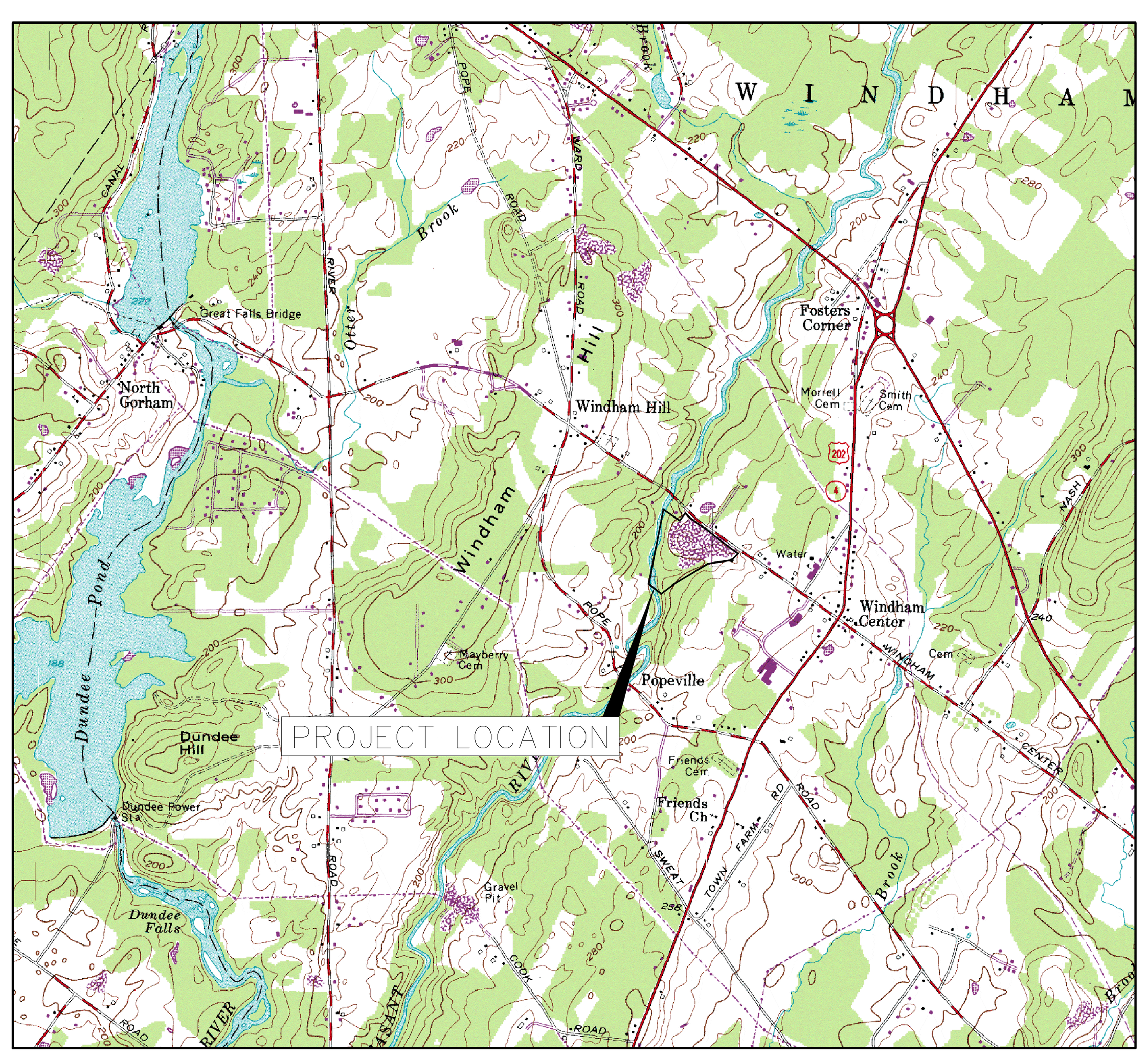
PROJECT PARCEL SITE
WINDHAM ASSESSOR'S
MAP & LOT NUMBERS

MAP	LOT
12	28

Applicant:

TOWN OF WINDHAM
8 SCHOOL ROAD
WINDHAM, ME 04062

VICINITY MAP



LOCATION MAP

N.T.S.

INDEX

Allied Engineering
Structural Mechanical Electrical Commissioning
160 Veranda Street
Portland, Maine 04103
T: 207.221.2260
F: 207.221.2266
Web: www.allied-eng.com

STATE OF MAINE
WILLIAM C. HASKELL
No. 8518
3/20/18
LICENSED
PROFESSIONAL ENGINEER

REVISIONS

NUMBER	DATE	BY	DESCRIPTION

Date:
Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File: 98083-05-COV
Graphic Scale: 0 1"

COVER SHEET

SHARED MAINTENANCE FACILITY

WINDHAM, MAINE

C-1

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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LEGEND

EXISTING	DESCRIPTION	PROPOSED
	BUILDING	
	RIGHT OF WAY	
	PROPERTY LINE	
	BUILDING SETBACK	
	ZONE LINE	
	WETLAND BOUNDARY	
	GUIDE RAIL	
	EDGE OF PAVEMENT	
	EDGE OF GRAVEL DRIVE	
100	GRADING CONTOUR LINE	100
X 226.4	SPOT ELEVATION	100.31
	TREELINE	
	TREES & HEDGES	
	POLE WITH LIGHT FIXTURE(S)	
	UTILITY POLE	
	FREESTANDING SIGN	
	PAINTED DIRECTIONAL TRAFFIC ARROW	
OE	OVERHEAD ELECTRIC/TELEPHONE	OHE/T
UE	UNDERGROUND ELECTRIC/TELEPHONE	UGE/T
W	WATER LINE	8"W
D	STORM DRAIN LINE	8"SD
	CULVERT	8"CULVERT
	HYDRANT	
WV	WATER GATE VALVE	
	WATER SHUT OFF VALVE	
	MANHOLE	
	CATCH BASIN	
	TEST PIT	
	IRON ROD (SET)	
	IRON ROD (FOUND)	
	MONUMENT	
	RIPRAP	
	SILT FENCE – PERIMETER	
	STONE SEDIMENT BARRIER	
x x	FENCE	
	WELL	
	TEST PIT	TP108
	BORING	B107

GENERAL NOTES

GENERAL NOTES

1. TOPOGRAPHIC DATA AND EXISTING CONDITIONS WERE PREPARED BY TITCOMB ASSOCIATES OF FALMOUTH, MAINE IN JUNE OF 2016.

2. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

3. MAINTENANCE OF EROSION CONTROL MEASURES IS OF PARAMOUNT IMPORTANCE TO THE OWNER AND THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTIONS OF THE OWNER, THE TOWN OF WINDHAM OR THEIR REPRESENTATIVES AT NO ADDITIONAL COST TO THE OWNER.

4. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.

5. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS AND TOWN OF WINDHAM SPECIFICATIONS.

6. WETLANDS ON THIS PLAN WERE DELINEATED AND GPS LOCATED BY TRC OF SCARBOROUGH, MAINE IN AUGUST 2017.

PERMITTING NOTES

1. THIS PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF A SITE PLAN APPROVAL FROM THE TOWN OF WINDHAM, AS WELL AS AN NRPA PERMIT BY RULE FOR ACTIVITIES ADJACENT TO A PROTECTED NATURAL RESOURCE, AND AN MDEP SITE LOCATION OF DEVELOPMENT PERMIT WHICH WILL BE MADE A PART OF THE CONTRACT BID DOCUMENTS. THE CONSTRUCTION WILL BE GOVERNED BY THE TOWN OF WINDHAM ZONING ORDINANCE WHICH IS AVAILABLE FOR VIEWING AT THE OFFICE OF THE ENGINEER OR THE MUNICIPAL OFFICE.

2. THE CONTRACTOR SHALL REVIEW THE ABOVE REFERENCED PERMITS PRIOR TO SUBMITTING A BID FOR THIS PROJECT, AND INCLUDE COSTS AS NECESSARY TO COMPLY WITH THE CONDITIONS OF THESE PERMITS.

LAYOUT NOTES

1. ALL DIMENSIONING, UNLESS NOTED OTHERWISE, IS TO THE FACE OF CURB.

2. OFFSETS TO CATCH BASINS AND MANHOLES ARE TO THE CENTER OF THE FRAME.

3. PIPE LENGTH EQUALS THE CENTER TO CENTER DISTANCES BETWEEN CATCH BASINS AND/OR MANHOLES MINUS ONE-HALF OF THE DIAMETER OF EACH CATCH BASIN OR MANHOLE.

4. PROPERTY LINE AND R.O.W. MONUMENTS SHALL NOT BE DISTURBED BY CONSTRUCTION. IF DISTURBED, THEY SHALL BE RESET TO THEIR ORIGINAL LOCATIONS AT THE CONTRACTOR'S EXPENSE, BY A MAINE LICENSED LAND SURVEYOR.

5. PROPOSED RIGHT OF WAY MONUMENTS AND PROPERTY LINE PINS SHALL BE INSTALLED UNDER THE DIRECTION OF A MAINE LICENSED LAND SURVEYOR.

UTILITY NOTES

1. ALL WATER UTILITY MATERIALS AND INSTALLATION METHODS SHALL CONFORM TO PORTLAND WATER DISTRICT STANDARDS. ALL WATER DISTRIBUTION PIPING SHALL BE CLASS 52 DUCTILE IRON PIPE, DOUBLE CEMENT LINED AND BITUMINOUS COATED CONFORMING TO AWWA/ANSI C104/A21.4. DISINFECTION OF WATER LINES SHALL CONFORM TO AWWA STANDARD C651, LATEST REVISION.

2. THE LOCATION OF THE PROPOSED UNDERGROUND ELECTRICAL SERVICE IS APPROXIMATE AND THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION WITH CENTRAL MAINE POWER COMPANY.

3. THRUST BLOCKS OR LOCKING RETAINER GLANDS SHALL BE PLACED ON THE WATER DISTRIBUTION LINES AT ALL BENDS, TEES, FIRE HYDRANTS, VALVES, CHANGES IN DIRECTION, ETC. THE THRUST BLOCKS OR LOCKING RETAINER GLANDS SHALL MEET THE REQUIREMENTS OF THE PORTLAND WATER DISTRICT STANDARDS.

4. TEST PITS AT ALL UTILITY CROSSINGS SHALL BE COMPLETED TWO WEEKS IN ADVANCE OF THE START OF CONSTRUCTION OR ORDERING OF MATERIALS. TEST PIT INFORMATION SHALL BE PROMPTLY PROVIDED TO ENGINEER FOR REVIEW.

GRADING AND DRAINAGE NOTES

1. UNLESS OTHERWISE NOTED, ALL STORM DRAIN PIPE SHALL BE IN ACCORDANCE WITH MDOT SPECIFICATIONS SECTION 603-- PIPE CULVERTS AND STORM DRAINS, LATEST REVISION WITH THE EXCEPTION THAT THE ONLY ACCEPTABLE TYPES OF PIPE ARE AS FOLLOWS:

   REINFORCED CONCRETE PIPE, CLASS III
   POLYVINYL-CHLORIDE (PVC) PIPE
   SMOOTH BORE POLYETHYLENE – ADS OR HANCOR

2. TOPSOIL STRIPPED IN AREAS OF CONSTRUCTION THAT IS SUITABLE FOR REUSE AS LOAM SHALL BE STOCKPILED ON SITE AT A LOCATION TO BE DESIGNATED BY THE OWNER. UNSUITABLE SOIL SHALL BE SEPARATED, REMOVED AND DISPOSED OF AT AN APPROVED DISPOSAL LOCATION OFF SITE.

3. THE CONTRACTOR SHALL ANTICIPATE THAT GROUNDWATER WILL BE ENCOUNTERED DURING CONSTRUCTION AND SHALL INCLUDE SUFFICIENT COSTS WITHIN THEIR BID TO PROVIDE DEWATERING AS NECESSARY. NO SEPARATE PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR DEWATERING.

EROSION CONTROL NOTES

1. LAND DISTURBING ACTIVITIES SHALL BE ACCOMPLISHED IN A MANNER AND SEQUENCE THAT CAUSES THE LEAST PRACTICAL DISTURBANCE OF THE SITE.

2. PRIOR TO BEGINNING ANY CLEARING/LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL THE PERIMETER SILT FENCES AND THE CONSTRUCTION ENTRANCE.

3. ALL GROUND AREAS DISTURBED FOR CONSTRUCTION WILL BE GRADED, LOAMED AND SEEDED AS SOON AS POSSIBLE. PERMANENT SEED MIXTURE SHALL CONFORM TO THE SEEDING PLAN CONTAINED IN THE EROSION CONTROL REPORT PREPARED FOR THIS PROJECT.

4. PRIOR TO PAVING, THE CONTRACTOR SHALL FLUSH SILT FROM ALL STORM DRAIN LINES.

5. ALL STORM DRAIN INLETS & OUTLETS ARE TO RECEIVE RIPRAP PROTECTION APRONS DURING CONSTRUCTION.

6. ALL CATCH BASINS WITH OUTLET PIPES 18" DIAMETER OR LESS SHALL BE PROVIDED WITH OUTLET HOOD (SNOUT) PER DETAIL.

7. SILT FENCES SHALL BE INSPECTED, REPAIRED AND CLEANED AS NOTED IN THE EROSION CONTROL REPORT.

8. THE CONTRACTOR SHALL REPAIR AND ADD STONE TO THE CONSTRUCTION ENTRANCE AS IT BECOMES SATURATED WITH MUD TO ENSURE THAT IT WORKS AS PLANNED DURING CONSTRUCTION.

9. SILT REMOVED FROM AROUND INLETS AND BEHIND THE SILT FENCES SHALL BE PLACED ON A TOPSOIL STOCKPILE AND MIXED INTO IT FOR LATER USE IN LANDSCAPING OPERATIONS.

10. A FULL EROSION CONTROL REPORT ACCOMPANIES THIS PLAN SET AND IS CONTAINED ON THE DRAWINGS OF THIS PLAN SET.

11. THE MAINTENANCE SCHEDULE FOR THE CATCH BASIN SEDIMENT SUMPS IS AS FOLLOWS:
THESE DEVICES SHALL BE INSPECTED IN APRIL AND OCTOBER OF EACH YEAR. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE CATCH BASIN WHEN THE DEPTH OF THE SEDIMENT IS GREATER THAN ONE FOOT. THE SEDIMENT WILL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

12. THE CONTRACTOR IS CAUTIONED THAT FAILURE TO COMPLY WITH THE SEQUENCE OF CONSTRUCTION, EROSION/SEDIMENT CONTROL PLAN, AND OTHER PERMIT REQUIREMENTS BASED UPON ANY THIRD PARTY REVIEW (ie MDEP) MAY RESULT IN MONETARY PENALTIES. THE CONTRACTOR SHALL BE ASSESSED ALL SUCH PENALTIES AT NO COST TO THE OWNER OR PERMITTEE.

13. ALL NON-PAVED AREAS DISTURBED DURING CONSTRUCTION SHALL BE LOAMED AND SEEDED, UNLESS OTHERWISE DIRECTED BY THE OWNER.

14. ALL DISTURBED AREAS ARE TO RECEIVE A MINIMUM OF 4" OF TOPSOIL PRIOR TO PERMANENT SEEDING.

UTILITIES

WATER:

PORTLAND WATER DISTRICT
225 DOUGLASS STREET
PORTLAND, MAINE 04102
(207) 761-8300

ELECTRIC:

CENTRAL MAINE POWER
162 CANCO ROAD
PORTLAND, MAINE 04103
(207) 826-2869

TELEPHONE:

VERIZON
5 DAVIS FARM ROAD
PORTLAND, MAINE 04103
(207) 797-1842

CABLE:

TIME WARNER CABLE
118 JOHNSON ROAD
PORTLAND, MAINE 04102
(207) 775-3431

CALL BEFORE YOU DIG
1-888-344-7233

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Web: www.allied-eng.com

Allied Engineering
Structural Mechanical Electrical Commissioning

STATE OF MAINE
WILLIAM C. HASKELL
No. 8518
3/30/18
LICENSED PROFESSIONAL ENGINEER

REVISIONS

NUMBER	DATE	BY	DESCRIPTION

Date:
Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File: 98083-05-COV
Graphic Scale: 0 1"

GENERAL NOTES & LEGEND

SHARED MAINTENANCE FACILITY
WINDHAM, MAINE

C-2

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SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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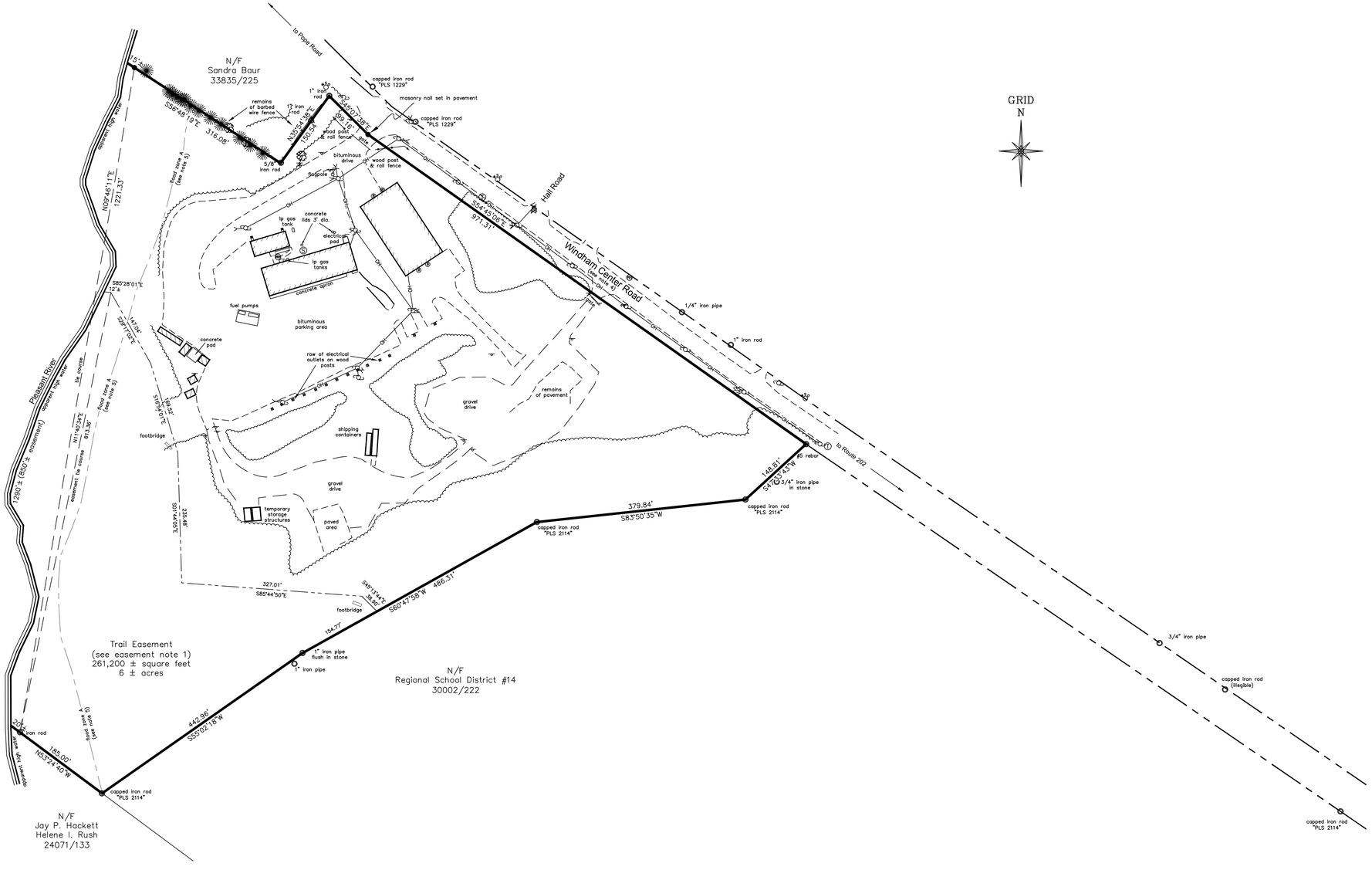

LEGEND

- Iron marker – found
- Iron marker – set (#5 rebar)
- Property line (locus)
- Property line (abutter)
- Right of way line
- Easement line
- Flood zone A
- Edge of pavement
- Edge of gravel
- Curb
- Wire fence
- Tree line
- Overhead utility line
- Utility pole
- Guy wire
- Bollard
- Water shutoff
- Telephone manhole
- Manhole
- Sewer manhole
- Water valve
- Test pit / boring
- Sign
- Coniferous tree
- Deciduous tree
- Existing building

NOTES

1) Book and Page references are to the Cumberland County Registry of Deeds unless otherwise noted.

2) Bearings are referenced to grid north, Maine State Plane Coordinate System, NAD83, West Zone.

3) Utility information on this plan is approximate, based on location of visible features. DigSafe and/or the appropriate utilities should be contacted prior to any construction.

4) Windham Center Road is a 4–rod road as described in County Commissioner Records Volume 2, Page 177.

5) A portion of the property lies within Zone A based on FIRM Community #230189 Panel #0030 B, dated September 2, 1981. No base flood elevation published. Line shown on this plan is approximate.

PLAN REFERENCES

1) Plan of Standard Boundary Survey at Windham Center Road for Town of Windham by Survey Inc. dated April, 1993, unrecorded.

2) Plan of Boundary Survey at Windham Center Road for Windham School Department dated October 9, 2001, unrecorded.

3) Plan of Composite Boundary at Windham Center Road, School Road, and Route 202 (Gray Road) for Windham Raymond School District, Regional School Unit No. 14 by Lewis & Wasina, Inc. dated November 12, 2012, unrecorded.

4) Revised Plan of Land at Hall Road and Windham Center Road for Randall A. Springer and Pamela C. Springer by Sawyer Engineering & Surveying Inc. dated December 30, 2013 recorded in Plan Book 214, Page 102.

EASEMENTS / ENCUMBRANCES

1) Property is subject to a trail easement reserved by RSU #14 as described by a deed recorded in Book 30002, Page 222..

TOTAL AREA

958,400 ± sqaure feet
22 ± acres

OWNER OF RECORD

Town of Windham
Book 4592, Page 222

SCALE IN FEET

100 0 100 200

1" = 100'

STATE OF MAINE · REX J. CROTEAU · 2273 · REGISTERED LAND SURVEYOR

CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

Rex J. Croteau, P.L.S. #2273

PLAN OF

Boundary Survey

Windham Center Road — Windham, Maine

MADE FOR

Gorrill Palmer

707 Sable Oaks Drive, Suite 30 — South Portland, Maine

JOB #217068	DATE: January 1, 2018	SCALE: 1" = 100'
BOOK #904		
217068_2.dwg		

Titcomb Associates
133 Gray Road, Falmouth, Maine 04105
(207)797-9199 www.titcombsurvey.com

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C-3	EXISTING CONDITIONS PLAN
	SHARED MAINTENANCE FACILITY
	WINDHAM, MAINE

Date:	12-18-17
Drawn By:	LAN
Checked By:	WCH
Project Mgr:	WPF
Project No:	15035
Cad File:	98083.05_EXIST
Graphic Scale:	0 1"

REVISIONS

NUMBER	DATE	BY	DESCRIPTION

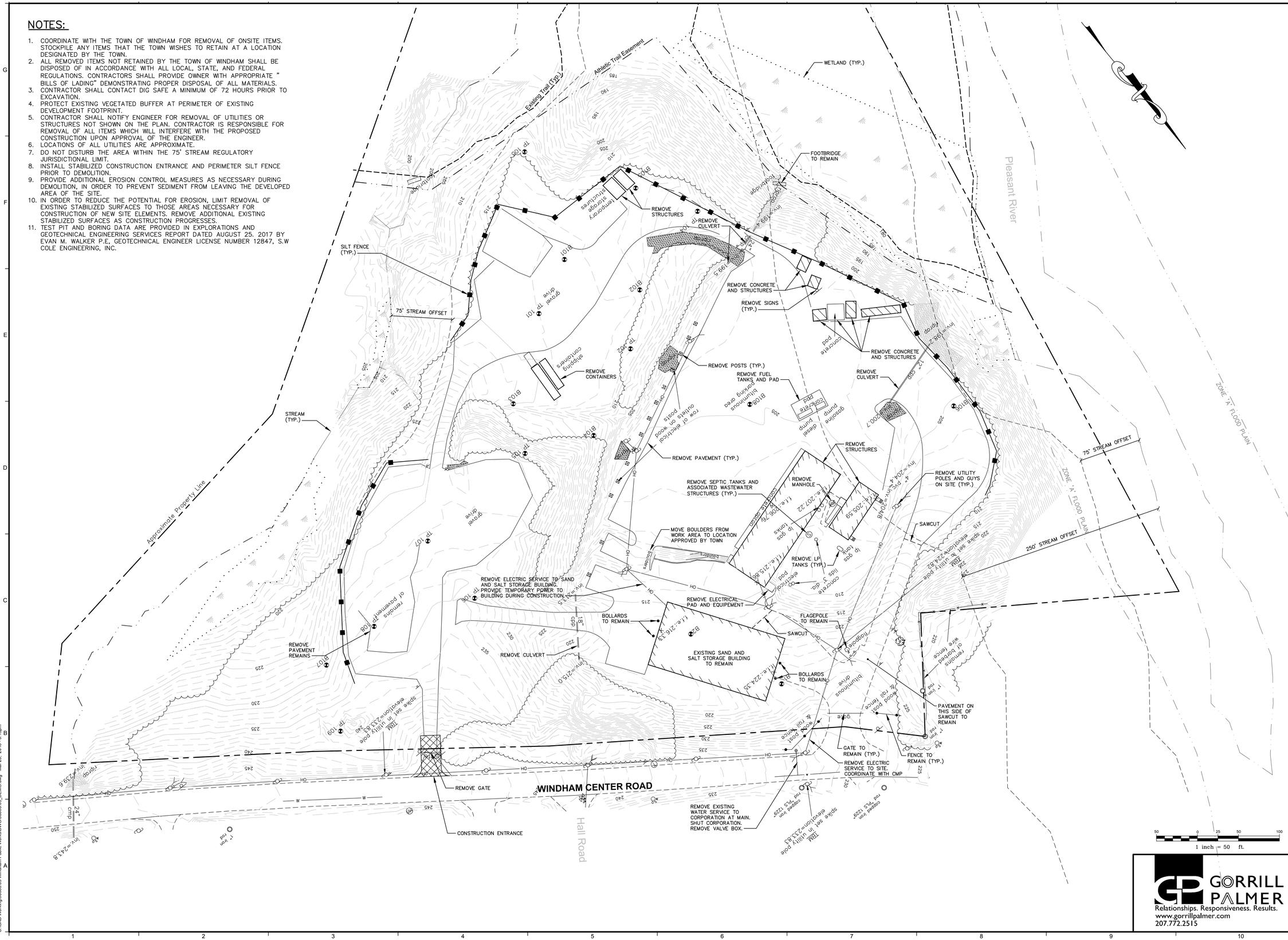
STATE OF MAINE
WILLIAM C. HASKELL
12047
REGISTERED PROFESSIONAL ENGINEER

Allied Engineering
Structural Mechanical Electrical Commissioning
160 Veranda Street
Portland, Maine 04103
T: 207.221.2260
F: 207.221.2266
Web: www.allied-eng.com

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

NOTES:

1. COORDINATE WITH THE TOWN OF WINDHAM FOR REMOVAL OF ONSITE ITEMS. STOCKPILE ANY ITEMS THAT THE TOWN WISHES TO RETAIN AT A LOCATION DESIGNATED BY THE TOWN.
2. ALL REMOVED ITEMS NOT RETAINED BY THE TOWN OF WINDHAM SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. CONTRACTORS SHALL PROVIDE OWNER WITH APPROPRIATE " BILLS OF LADING" DEMONSTRATING PROPER DISPOSAL OF ALL MATERIALS.
3. CONTRACTOR SHALL CONTACT DIG SAFE A MINIMUM OF 72 HOURS PRIOR TO EXCAVATION.
4. PROTECT EXISTING VEGETATED BUFFER AT PERIMETER OF EXISTING DEVELOPMENT FOOTPRINT.
5. CONTRACTOR SHALL NOTIFY ENGINEER FOR REMOVAL OF UTILITIES OR STRUCTURES NOT SHOWN ON THE PLAN. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL ITEMS WHICH WILL INTERFERE WITH THE PROPOSED CONSTRUCTION UPON APPROVAL OF THE ENGINEER.
6. LOCATIONS OF ALL UTILITIES ARE APPROXIMATE.
7. DO NOT DISTURB THE AREA WITHIN THE 75' STREAM REGULATORY JURISDICTIONAL LIMIT.
8. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND PERIMETER SILT FENCE PRIOR TO DEMOLITION.
9. PROVIDE ADDITIONAL EROSION CONTROL MEASURES AS NECESSARY DURING DEMOLITION, IN ORDER TO PREVENT SEDIMENT FROM LEAVING THE DEVELOPED AREA OF THE SITE.
10. IN ORDER TO REDUCE THE POTENTIAL FOR EROSION, LIMIT REMOVAL OF EXISTING STABILIZED SURFACES TO THOSE AREAS NECESSARY FOR CONSTRUCTION OF NEW SITE ELEMENTS. REMOVE ADDITIONAL EXISTING STABILIZED SURFACES AS CONSTRUCTION PROGRESSES.
11. TEST PIT AND BORING DATA ARE PROVIDED IN EXPLORATIONS AND GEOTECHNICAL ENGINEERING SERVICES REPORT DATED AUGUST 25. 2017 BY EVAN M. WALKER P.E, GEOTECHNICAL ENGINEER LICENSE NUMBER 12847, S.W COLE ENGINEERING, INC.



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STATE OF MAINE
WILLIAM C. HASKELL
No. 8518
LICENSED PROFESSIONAL ENGINEER

REVISIONS

DESCRIPTION	BY	DATE	NUMBER

Date:
Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File:98083.05_DEMO
Graphic Scale: 0 1"

DEMOLITION PLAN

SHARED MAINTENANCE FACILITY
WINDHAM, MAINE

C-4

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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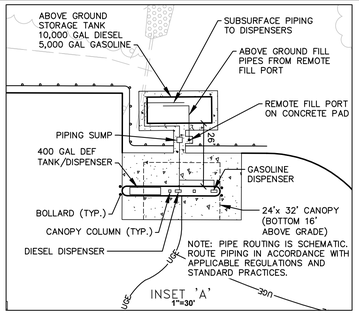

CURVE TABLE

CURVE #	Δ	T	L	E	R	PC	PT
C-1	25° 05' 15"	22.25	43.44	2.45	100.00	10+66.05	11+09.84
C-2	34° 33' 37"	31.11	59.41	4.73	100.00	14+72.46	15+32.78
C-3	34° 33' 37"	21.78	41.59	3.31	70.00	15+32.78	15+75.01
C-4	49° 42' 32"	32.43	58.84	7.15	70.00	15+81.41	16+42.14
C-5	49° 42' 32"	23.16	42.03	5.10	50.00	16+42.14	16+85.52
C-6	90° 00' 00"	30.00	42.43	12.43	30.00	17+74.40	18+21.52
C-7	45° 44' 24"	21.09	38.86	4.27	50.00	19+16.27	19+56.19
C-8	45° 44' 24"	29.53	54.41	5.97	70.00	19+56.19	20+12.07
C-9	45° 29' 03"	23.05	42.52	4.64	55.00	22+58.05	23+01.71
C-10	42° 28' 04"	43.71	81.49	8.19	112.50	23+36.33	24+19.72

BASELINE LINE TABLE

LINE NO.	LENGTH	BEARING
L1	66.05	S38°05'56"W
L2	362.63	S63°11'11"W
L3	6.40	S63°11'11"W
L4	88.88	S63°11'11"W
L5	94.75	N26°48'49"W
L6	245.98	N26°48'49"W
L7	34.62	N18°40'15"E
L8	299.40	N61°08'19"E

NOTES:

1. ELECTRIC SERVICE SHALL BE COORDINATED WITH CMP.
2. WATER SERVICE SHALL BE COORDINATED WITH PORTLAND WATER DISTRICT.
3. COORDINATE PROPANE TANK PAD SIZING WITH PROPANE SUPPLIER.
4. COORDINATE LOCATION OF UTILITY ENTRANCE POINTS WITH ARCHITECTURAL PLANS.
5. FLOOD PLAIN LOCATION IS APPROXIMATE BASED UPON FEMA FLOOD MAPS.
6. RIVER BANK BASED UPON GPS LOCATION BY TRC.
7. CONTRACTOR SHALL SUBMIT DESIGN OF RETAINING WALL BY MAINE LICENSED ENGINEER. DESIGN SHALL INCLUDE GLOBAL STABILITY.

SPACE AND BULK STANDARDS

ZONE: FARM RESIDENTIAL	REQUIRED	PROVIDED
* MIN. LOT SIZE	50,000 S.F.	21 ACRES
BUILDING SETBACKS		
FRONT	30'	>30'
SIDE	10'	>10'
REAR	10'	>10'
MAXIMUM LOT COVERAGE	20%	< 20%

RESOURCE PROTECTION DISTRICT: 250' SETBACK FROM RIVER

SIGN LEGEND

R1-1 30"x 30" [1]

R7-8 12"x 18" [2]

STRIPING LEGEND

SIGNAGE, STRIPING AND PAVEMENT MARKING SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) REGARDING SIZE, INSTALLATION, LOCATION & REFLECTIVITY.

12"SL - 12" WIDTH STOP LINE

PAVEMENT LEGEND

ALL PAVEMENT SHALL BE STANDARD DUTY EXCEPT AS FOLLOWS:

- BITUMINOUS PAVEMENT
- CONCRETE
- BITUMINOUS PAVEMENT WITH GEOTEXTILE

CURBING LEGEND

- MONOLITHIC CONCRETE CURB
- BITUMINOUS CURB

SANITARY SEWER SCHEDULE

STRUCTURE	SIZE	RIM	INVERT IN	INVERT OUT
ST-1	1,500 GAL	215.5	210.33/6"(BLDG)	210.08/6"(ST-2)
ST-2	1,500 GAL	215.0	209.97/6"(ST-1)	209.72/6"(PT)
PUMP TANK (PT)	3' X 3'	214.75	209.62/6"(ST-1)	209.28/2"(FM)

APPROVED: TOWN OF WINDHAM PLANNING DEPARTMENT

1 inch = 50 ft.

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Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File:98083.05_SP
Graphic Scale: 0 1"

SITE LAYOUT & UTILITY PLAN

SHARED MAINTENANCE FACILITY
WINDHAM, MAINE

C-5

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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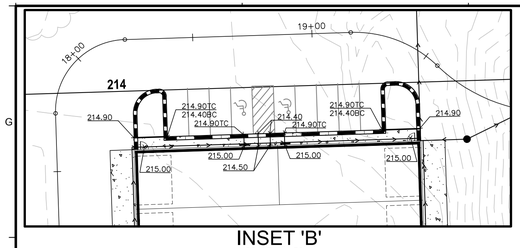
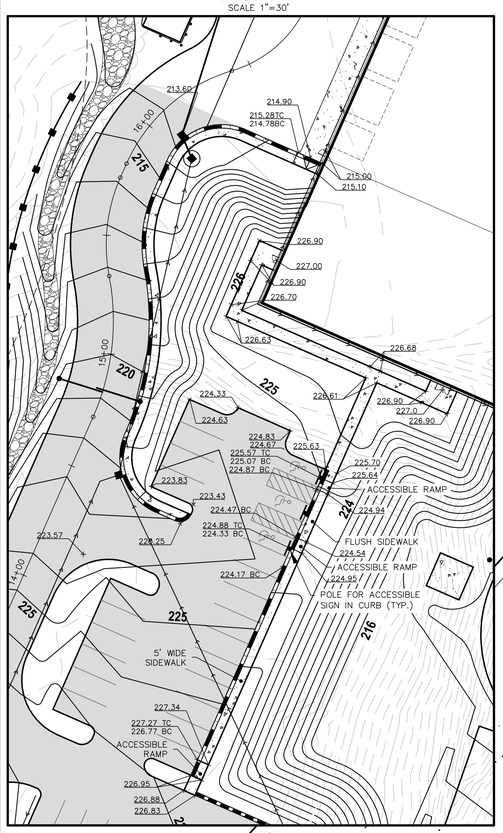


INSET 'B'
SCALE 1"=30'



INSET 'A'
SCALE 1"=30'

NOTES:

1. COORDINATE ROOF DRAIN EXIT POINT WITH ARCHITECTURAL PLANS.

BUILDING PROPOSED 2 STORY 23,400 S.F. FOOTPRINT FFE=215

UPPER ADMIN. FFE=227

COLD STORAGE FFE=212.55

EXISTING SAND AND SALT STORAGE BUILDING

WINDHAM CENTER ROAD

Pleasant River

ZONE 'A' FLOOD PLAIN

Hall Road

DRAINAGE STRUCTURE SCHEDULE					
STRUCTURE	SIZE	RIM	INVERT IN	INVERT OUT	COMMENT
CB1	4'ø	226.37	210.34/15"(CB5) 222.87/6"(UD)	210.24/15"(CB2)	
CB2	4'ø	222.05	208.59/15"(CB1) 218.55/6"(UD)	208.49/18"(CB3)	
CB3	4'ø	213.60	207.17/18"(CB2)	207.07/18"(CB4)	
CB4	4'ø	213.60	207.01/18"(CB5)	206.71/18"(OUTLET)	
CB5	4'ø	215.00	–	211.50/12"(CB1)	
CB6	4'ø	206.56	201.91/12"(DMH1)	201.81/15"(GUSF#1) 201.81/15"(GUSF#2)	
CB7	4'ø	207.10	–	203.10/12"(DMH1)	
CB8	4'ø	206.25	202.36/10"(FP)	201.13/24"(DMH3)	BEEHIVE GRATE NEENAH R-2561
DMH1	4'ø	207.68	202.95/12"(CB7)	202.85/12"(CB6)	
DMH2	4'ø	210.50	–	201.93/24"(ISOLATOR)	
DMH3	5'ø	206.90	201.01/24"(CB8)	200.93/24"(ISOLATOR) 200.93/24"(DMH4)	
DMH4	4'ø	206.90	200.93/24"(DMH3)	200.93/24"(ISOLATOR)	

NOTE: CATCH BASIN OUTLET HOOD (SNOUT) SHALL BE PROVIDED ON ALL STORM DRAIN OUTLET PIPES 18" IN DIAMETER OR LESS

1 inch = 50 ft.

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Structural Mechanical Electrical Commissioning

STATE OF MAINE
WILLIAM C. HASKELL
No. 8518
LICENSED
PROFESSIONAL ENGINEER

REVISIONS			
DESCRIPTION	DATE	BY	NUMBER

Date:
Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File:98083.05_GRADING
Graphic Scale: 0 1"

GRADING, DRAINAGE, AND EROSION CONTROL PLAN

SHARED MAINTENANCE FACILITY
WINDHAM, MAINE

C-6

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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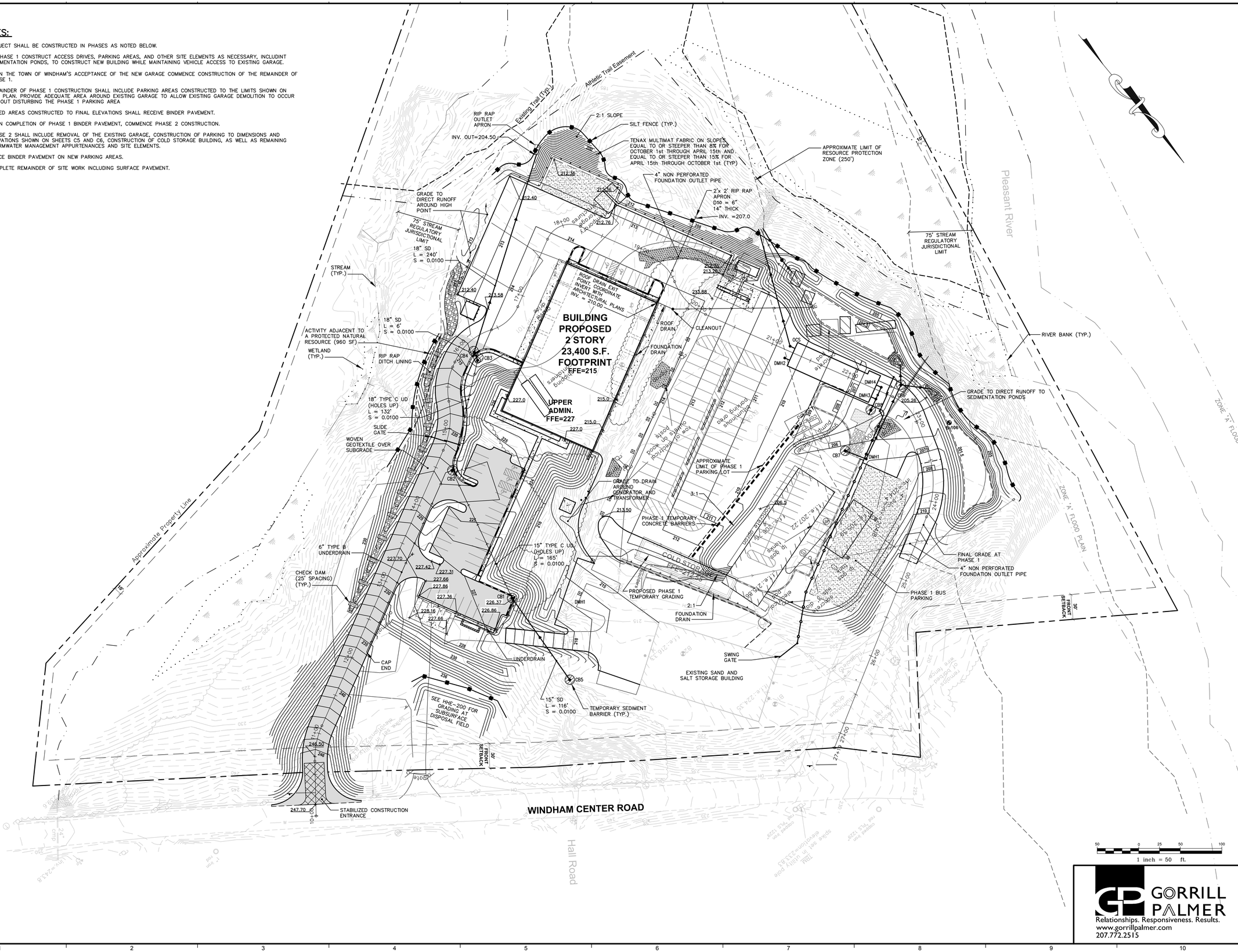
NOTES:

1. PROJECT SHALL BE CONSTRUCTED IN PHASES AS NOTED BELOW.
2. IN PHASE 1 CONSTRUCT ACCESS DRIVES, PARKING AREAS, AND OTHER SITE ELEMENTS AS NECESSARY, INCLUDINT SEDIMENTATION PONDS, TO CONSTRUCT NEW BUILDING WHILE MAINTAINING VEHICLE ACCESS TO EXISTING GARAGE.
3. UPON THE TOWN OF WINDHAM'S ACCEPTANCE OF THE NEW GARAGE COMMENCE CONSTRUCTION OF THE REMAINDER OF PHASE 1.
4. REMAINDER OF PHASE 1 CONSTRUCTION SHALL INCLUDE PARKING AREAS CONSTRUCTED TO THE LIMITS SHOWN ON THIS PLAN. PROVIDE ADEQUATE AREA AROUND EXISTING GARAGE TO ALLOW EXISTING GARAGE DEMOLITION TO OCCUR WITHOUT DISTURBING THE PHASE 1 PARKING AREA
5. PAVED AREAS CONSTRUCTED TO FINAL ELEVATIONS SHALL RECEIVE BINDER PAVEMENT.
6. UPON COMPLETION OF PHASE 1 BINDER PAVEMENT, COMMENCE PHASE 2 CONSTRUCTION.
7. PHASE 2 SHALL INCLUDE REMOVAL OF THE EXISTING GARAGE, CONSTRUCTION OF PARKING TO DIMENSIONS AND ELEVATIONS SHOWN ON SHEETS C5 AND C6, CONSTRUCTION OF COLD STORAGE BUILDING, AS WELL AS REMAINING STORMWATER MANAGEMENT APPURTENANCES AND SITE ELEMENTS.
8. PLACE BINDER PAVEMENT ON NEW PARKING AREAS.
9. COMPLETE REMAINDER OF SITE WORK INCLUDING SURFACE PAVEMENT.



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STATE OF MAINE
WILLIAM C. HASKELL
No. 8518
LICENSED
PROFESSIONAL ENGINEER

REVISIONS			
DESCRIPTION	DATE	BY	NUMBER
TEMP			

Date:
Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File:98083.05_GRADING_TEMP
Graphic Scale: 0 1"

CONSTRUCTION PHASING PLAN

SHARED MAINTENANCE FACILITY
WINDHAM, MAINE

C-7A

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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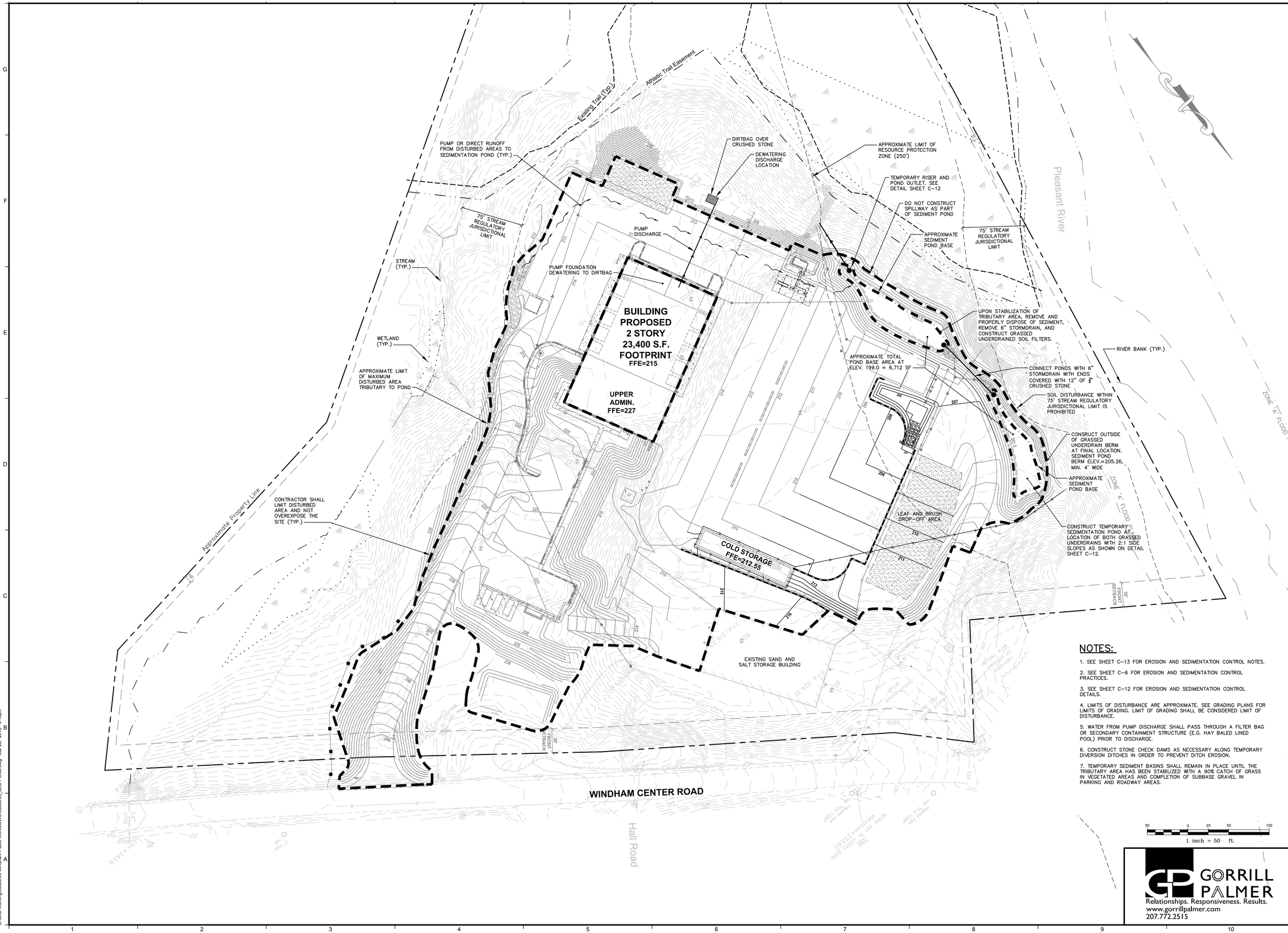

NOTES:

1. SEE SHEET C-13 FOR EROSION AND SEDIMENTATION CONTROL NOTES.
2. SEE SHEET C-6 FOR EROSION AND SEDIMENTATION CONTROL PRACTICES.
3. SEE SHEET C-12 FOR EROSION AND SEDIMENTATION CONTROL DETAILS.
4. LIMITS OF DISTURBANCE ARE APPROXIMATE. SEE GRADING PLANS FOR LIMITS OF GRADING. LIMIT OF GRADING SHALL BE CONSIDERED LIMIT OF DISTURBANCE.
5. WATER FROM PUMP DISCHARGE SHALL PASS THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALED LINED POOL) PRIOR TO DISCHARGE.
6. CONSTRUCT STONE CHECK DAMS AS NECESSARY ALONG TEMPORARY DIVERSION DITCHES IN ORDER TO PREVENT DITCH EROSION.
7. TEMPORARY SEDIMENT BASINS SHALL REMAIN IN PLACE UNTIL THE TRIBUTARY AREA HAS BEEN STABILIZED WITH A 90% CATCH OF GRASS IN VEGETATED AREAS AND COMPLETION OF SUBBASE GRAVEL IN PARKING AND ROADWAY AREAS.

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WILLIAM C. HASKELL
No. 8518
3/30/18
LICENSED PROFESSIONAL ENGINEER

NUMBER	DATE	BY	DESCRIPTION

REVISIONS

Date:
Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File:98083.05_SED POND
Graphic Scale: 1"

SEDIMENTATION POND

SHARED MAINTENANCE FACILITY
WINDHAM, MAINE

C-7

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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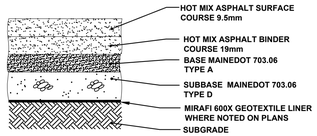
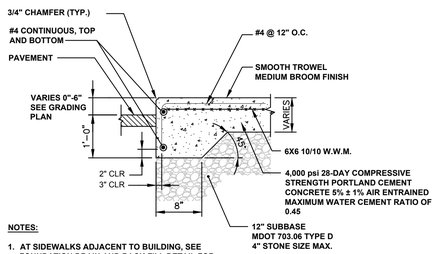


NOTE:
COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557

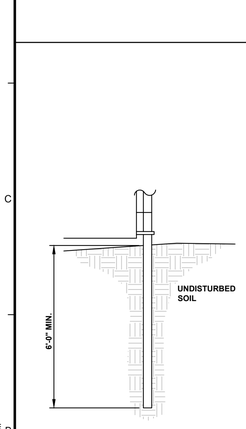
THICKNESS	LAYERS
1.5"	HOT MIX ASPHALT SURFACE COURSE 9.5mm
2.5"	HOT MIX ASPHALT BINDER COURSE 19mm
6"	AGGREGATE BASE GRAVEL MAINEDOT 703.06 TYPE A
15"	AGGREGATE SUBBASE GRAVEL MAINEDOT 703.06 TYPE D

BITUMINOUS PAVEMENT SECTION
NOT TO SCALE



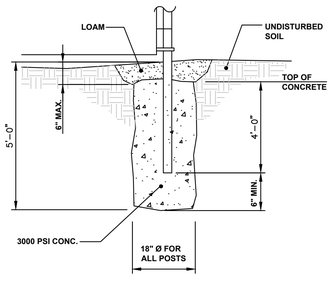
NOTES:
1. AT SIDEWALKS ADJACENT TO BUILDING, SEE FOUNDATION DRAIN AND BACK FILL DETAIL FOR SIDEWALK SUBSURFACE CONDITIONS.
2. PROVIDE CONCRETE EXPANSION JOINTS EVERY 6'.

MONOLITHIC CONCRETE CURB AND SIDEWALK
NOT TO SCALE

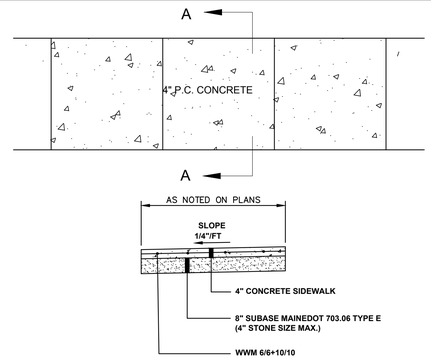


NOTE:
LINE POSTS TO BE DRIVEN INTO THE GROUND WITH THE MINIMUM DISTURBANCE TO SURROUNDING SOILS.

INTERMEDIATE LINE POST
NOT TO SCALE



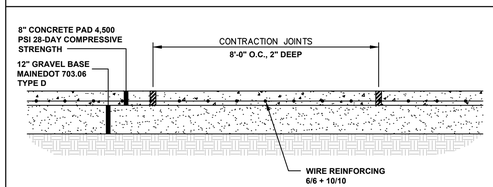
CORNER & TERMINAL POST
NOT TO SCALE



SECTION A-A

NOTES:
1. 1/4"x4" PREMOULDED EXPANSION MATERIALS AROUND ANY STRUCTURES IN WALK.
2. EXPANSION JOINTS MAXIMUM DISTANCE = 20', USED 1/4"x4" PREMOULDED EXPANSION MATERIAL.
3. CONTRACTION JOINTS MAXIMUM DISTANCE = 5', TROWEL JOINT 1" DEEP AND FILL WITH HOT POURED SEALER.

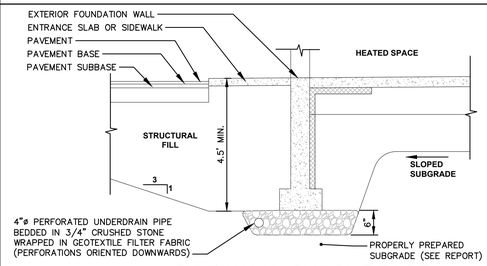
CONCRETE SIDEWALK
NOT TO SCALE



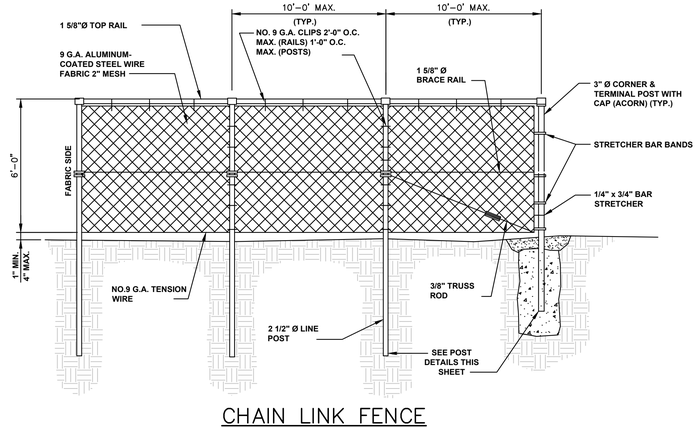
(RECYCLING BIN PAD, PROPANE PAD, FUEL TANK PAD, FUELING STATION PAD)

CONCRETE PAD
NOT TO SCALE

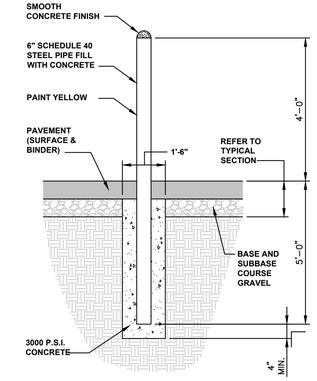
NOTES:
1. EXPANSION JOINTS TO BE INSTALLED AROUND ALL STRUCTURES IN PAD.



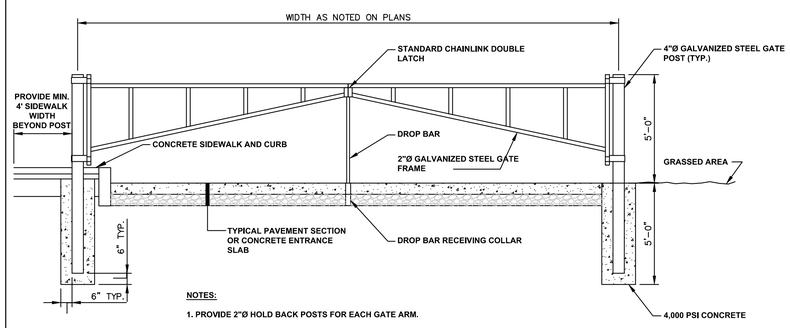
SIDEWALK SUBSURFACE
NOT TO SCALE



CHAIN LINK FENCE
NOT TO SCALE

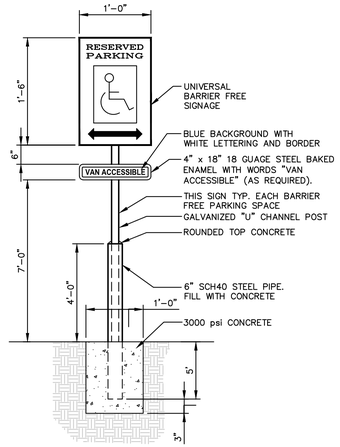


BOLLARD
NOT TO SCALE

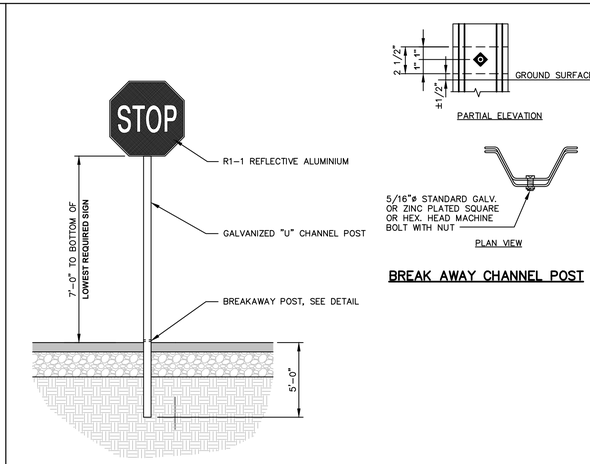


NOTES:
1. PROVIDE 2"Ø HOLD BACK POSTS FOR EACH GATE ARM.
2. GATE ARMS SHALL BE INSTALLED SUCH THAT THEY ARE AT EQUAL HEIGHTS AND LEVEL WHEN LOCKED

METAL TRAFFIC GATES
NOT TO SCALE

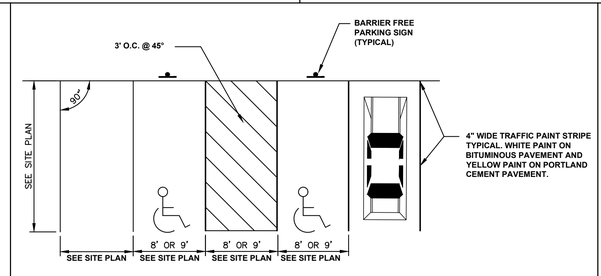


BARRIER FREE PARKING SIGN
NOT TO SCALE

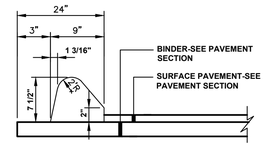


BREAK AWAY CHANNEL POST

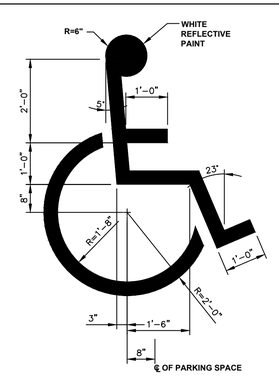
STOP SIGN
NOT TO SCALE



PARKING SPACE DIMENSIONS
NOT TO SCALE



TYPE 3A BITUMINOUS CURB DETAIL
NOT TO SCALE



INTERNATIONAL BARRIER FREE SYMBOL
NOT TO SCALE

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REVISIONS

NUMBER	DATE	BY	DESCRIPTION

Date:
Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File: 98083.05_DET
Graphic Scale: 0 1"

SITE DETAILS

SHARED MAINTENANCE FACILITY
WINDHAM, MAINE

C-8

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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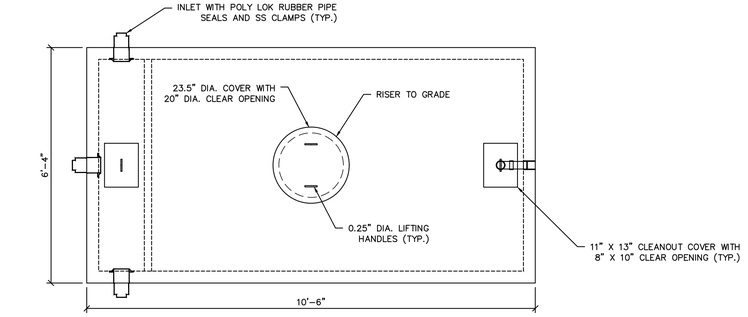
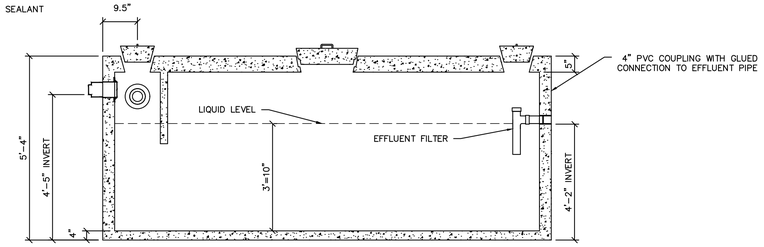


PLAN VIEW

NOTE:

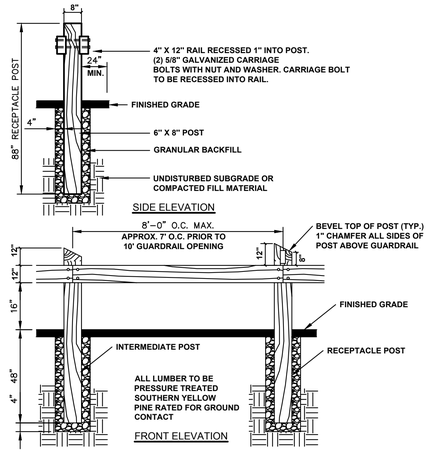
1. CONCRETE TO MEET THE FOLLOWING CRITERIA:
   - 4,000 PSI AT 28 DAYS
   - 4%-6% ENTRAINED AIR
2. ALL TANK PENETRATIONS ARE TO BE INTEGRALLY CAST
3. ALL JOINTS ARE TO BE SEALED WITH BUTYL RUBBER SEALANT



SECTION VIEW

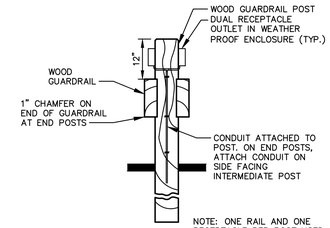
1,500 GALLON SEPTIC TANK

NOT TO SCALE



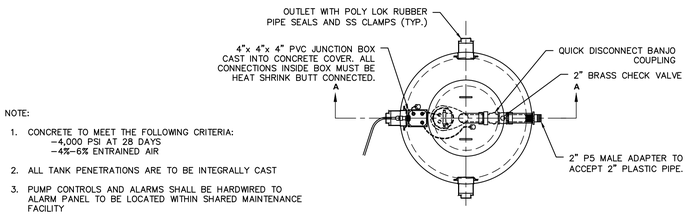
WOOD GUARD RAIL

NOT TO SCALE



GUARDRAIL RECEPTACLE DETAIL

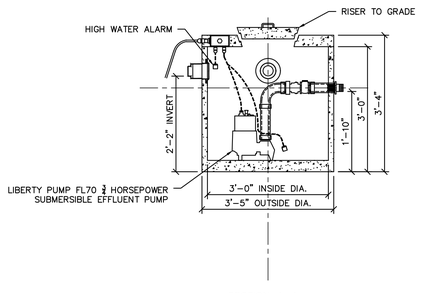
NOT TO SCALE



NOTE:

1. CONCRETE TO MEET THE FOLLOWING CRITERIA:
   - 4,000 PSI AT 28 DAYS
   - 4%-6% ENTRAINED AIR
2. ALL TANK PENETRATIONS ARE TO BE INTEGRALLY CAST
3. PUMP CONTROLS AND ALARMS SHALL BE HARDWIRED TO ALARM PANEL TO BE LOCATED WITHIN SHARED MAINTENANCE FACILITY

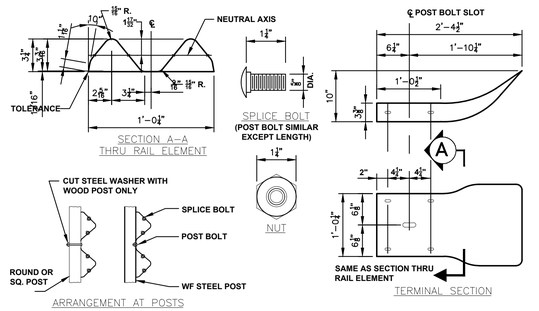
PLAN

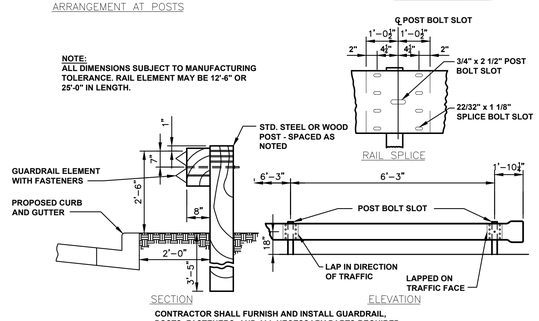


SECTION A–A

3' X 3' PUMP TANK

NOT TO SCALE





METAL GUARDRAIL DETAIL

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REVISIONS

DESCRIPTION	DATE	BY	NUMBER

Date:
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Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File: 98083.05_DET
Graphic Scale: 0 1"

SITE & SEPTIC SYSTEM DETAILS

SHARED MAINTENANCE FACILITY
WINDHAM, MAINE

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

C-9

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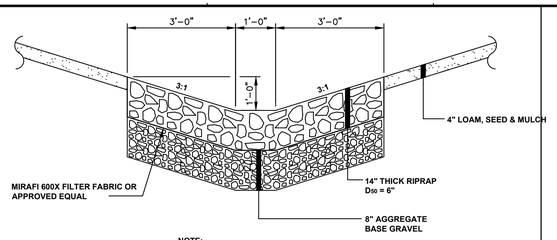
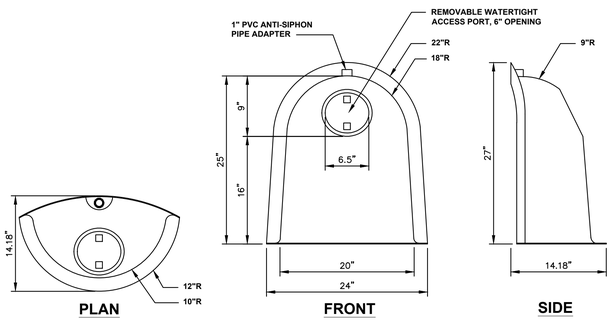


NOTE:
ALL MATERIALS SHALL CONFORM TO THE CURRENT EDITION OF THE MDOT STANDARD SPECIFICATIONS.

RIP RAP SWALE

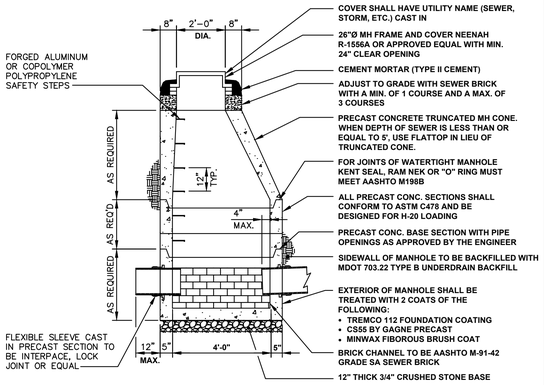
NOT TO SCALE



"THE SNOUT"

NOT TO SCALE

NOTE:
FOR USE ON CATCH BASIN OUTLET 18" IN DIAMETER AND LESS

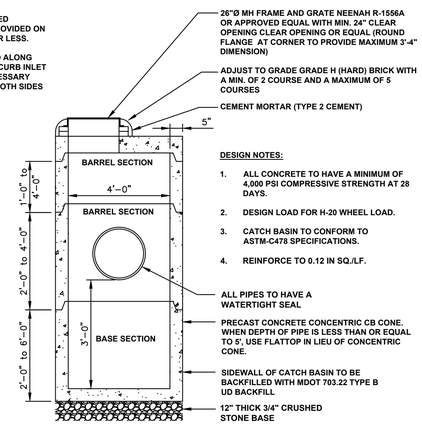


4'-0" PRECAST DRAIN MANHOLE

NOT TO SCALE

NOTES:

1. "THE SNOUT" OR APPROVED EQUIVALENT SHALL BE PROVIDED ON CATCH BASIN PIPES 18" OR LESS.
2. CATCH BASINS INSTALLED ALONG CURB LINES SHALL HAVE CURB INLET STONES AND WHERE NECESSARY TRANSITION STONES ON BOTH SIDES OF CURB INLET STONE.

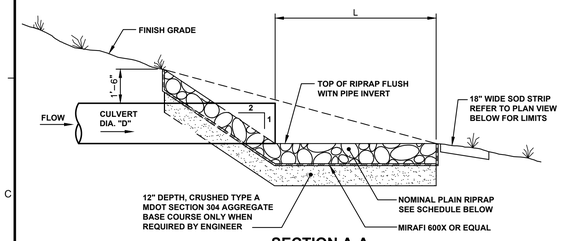


DESIGN NOTES:

1. ALL CONCRETE TO HAVE A MINIMUM OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. DESIGN LOAD FOR H-20 WHEEL LOAD.
3. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
4. REINFORCE TO 0.12 IN SQ./L.F.

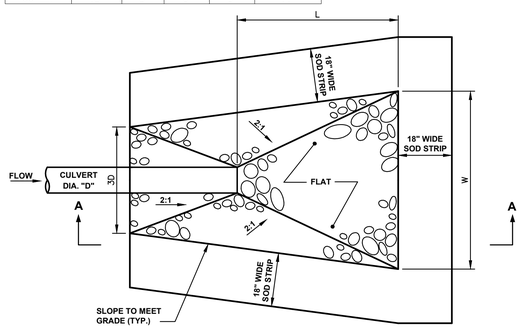
4'-0" PRECAST CATCH BASIN

NOT TO SCALE



SECTION A-A

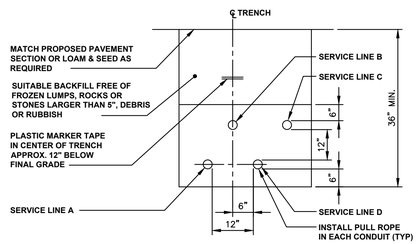
SCHEDULE					
	CULVERT DIAMETER (D)	LENGTH (L)	WIDTH (W)	STONE d50	RIPRAP THICKNESS
OUTLET	18"	5'	6'	6"	14"



PLAN VIEW

CULVERT OUTLET APRON

NOT TO SCALE

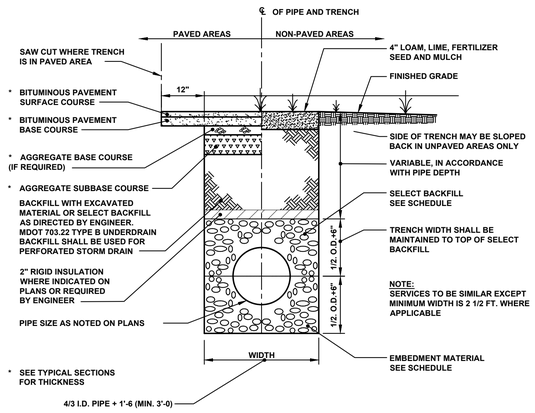


CONDUIT TYPE SCHEDULE				
SERVICE	CONDUIT SIZE	GRASS & PAVED AREAS	UTILITY	REMARKS
A	2–5"	SCHEDULE 40 PVC ELECTRICAL GRADE	PRIMARY POWER	SEE NOTE
B	2–4"	SCHEDULE 40	TELEPHONE	SEE NOTE
C	2–4"	SCHEDULE 40	CABLE	SEE NOTE
D	2–4"	SCHEDULE 40 PVC ELECTRICAL GRADE	SPARES	SEE NOTE

NOTE:
ONE CONDUIT CAPPED FOR SPARE, PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10" ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS.

UTILITY TRENCH - PRIMARY AND SECONDARY POWER, TELEPHONE, AND CABLE

NOT TO SCALE



SCHEDULE OF TRENCH BACKFILL		
TYPE OF PIPE	EMBEDMENT MATERIAL	SELECT BACKFILL
CMP DUCTILE IRON RCP	MDOT 703.22 TYPE B UD BACKFILL	MDOT 703.22 TYPE B UD BACKFILL
PVC–SDR 35 HDPE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE B UD BACKFILL
PERFORATED PVC–SDR35 HDPE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE

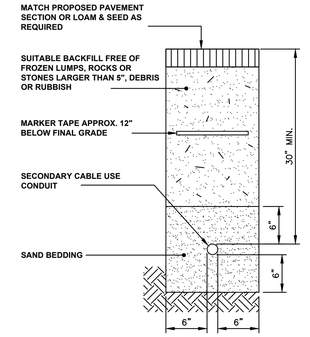
NOTE:
1. BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. INSTALL WARNING TAPE DIRECTLY ABOVE UTILITIES, 12" BELOW FINISH GRADE.

MINIMUM COVER	PIPE
2'-0"	DRAIN (1)
5'-5"	WATER
5'-0"	SEWER

(1) COVER BETWEEN 2' AND 3' SHALL INCLUDE 4" RIGID INSULATION. COVER BETWEEN 3' AND 4' SHALL INCLUDE 2" RIGID INSULATION.

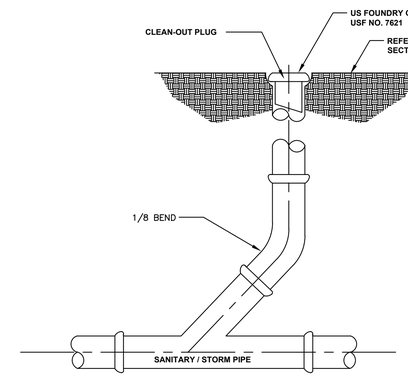
TRENCH SECTION

N.T.S.



SECONDARY ELECTRICAL TRENCH

NOT TO SCALE



CLEANOUT

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Structural Mechanical Electrical Commissioning

STATE OF MAINE
WILLIAM C. HASKELL
No. 8518
REGISTERED PROFESSIONAL ENGINEER

REVISIONS			
DESCRIPTION	DATE	BY	NUMBER

Date:	
Drawn By:	LAN
Checked By:	WCH
Project Mgr:	WPF
Project No:	15035
Cad File:	98083.05_DET
Graphic Scale:	0 1"

DRAINAGE & UTILITY DETAILS

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WINDHAM, MAINE

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C-10

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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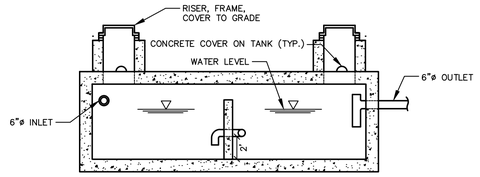
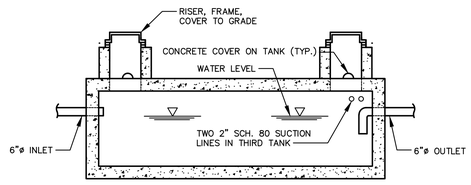


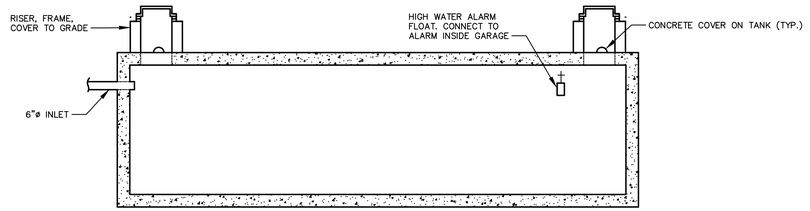
1,000 GALLON SETTLING TANK WITH WEIR WALL

NOT TO SCALE



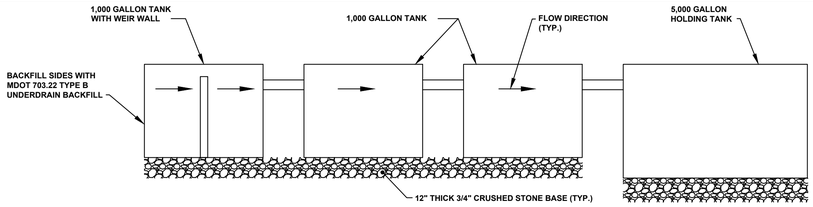
1,000 GALLON SETTLING TANK

NOT TO SCALE



5,000 GALLON HOLDING TANK

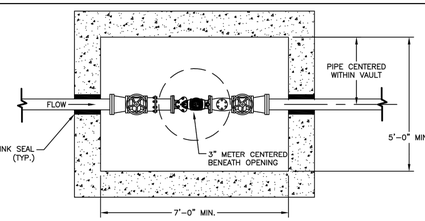
NOT TO SCALE

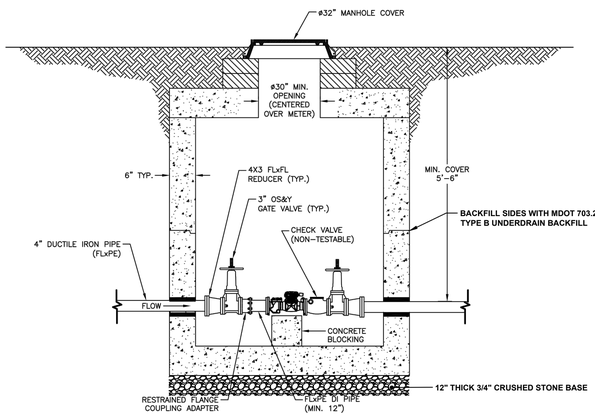


TYPICAL TANK LAYOUT
WASH BAY SETTLING AND HOLDING TANKS

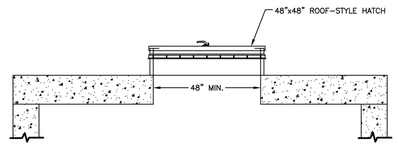
NOT TO SCALE

1. ALL TANKS, RISERS, FRAMES, COVERS SHALL BE DESIGNED FOR H20 LOADING.
2. COORDINATE WITH WASH BAY MANUFACTURER FOR EXACT SIZES, LOCATIONS OF ALL PLUMBING WITHIN TANKS.
3. SUBMIT SHOP DRAWINGS OF TANKS FOR APPROVAL BY ENGINEER PRIOR TO ORDERING.





ALTERNATE OPENING
(NON-PAVED SURFACES ONLY)

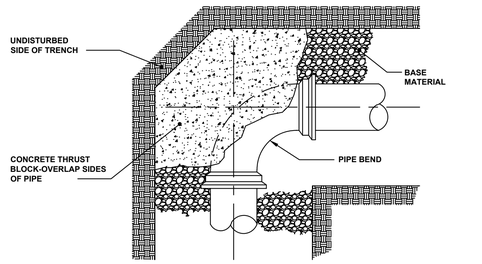


METER PIT AND COVER

1. SPECIAL APPROVAL BY PWD IS REQUIRED FOR ALL PROPOSED METER VAULT INSTALLATIONS. PROPOSED CONFIGURATION SHALL BE SUBMITTED FOR PWD REVIEW PRIOR TO CONSTRUCTION.
2. METER VAULT SHALL BE LOCATED ON PRIVATE PROPERTY BETWEEN 10' AND 20' FROM THE PROPERTY LINE UNLESS OTHERWISE APPROVED BY PWD.
3. THE VAULT SHALL BE MADE OF PRECAST CONCRETE OF SUFFICIENT SIZE TO PROVIDE 5'-6" MINIMUM GROUND COVER FROM FINISHED GRADE TO THE TOP OF THE SERVICE PIPE.
4. ALL PIPE JOINTS BETWEEN THE SERVICE VALVE AND THE METER SHALL BE RESTRAINED.
5. TESTABLE BACKFLOW PREVENTION DEVICES MAY NOT BE INSTALLED WITHIN METER PITS.
6. ALL SEAMS BETWEEN CONCRETE SECTIONS SHALL BE SEALED WITH MASTIC JOINT. ALL OPENINGS IN THE CONCRETE FOR SERVICE PIPING SHALL BE SEALED WITH A MODULAR SEAL (LINK-SEAL OR SIMILAR).
7. ENTRY COVER SHALL BE CAST IRON OR STEEL AND SHALL BE EITHER PERMANENTLY LABELED "WATER" OR HAVE NO LABEL. STEEL PLATE MATERIAL SHALL BE COATED WITH A RUST INHIBITOR PAINT.
8. FOR NON-PAVED SURFACES, A 48"x48" ROOF STYLE HATCH MAY BE USED.
9. WALL-MOUNTED LADDER RUNGS ARE NOT TO BE INSTALLED WITHIN METER VAULT.
10. CUSTOMER SHALL ENSURE THE METER VAULT AND COVER ARE PROPERLY RATED FOR TRAFFIC FLOW, IF APPLICABLE.
11. RESTRAINED FLANGE COUPLING ADAPTER SHALL BE FORD (MODEL RFAD) OR ROMAC (MODEL RFCA) UNLESS OTHERWISE APPROVED BY PWD.

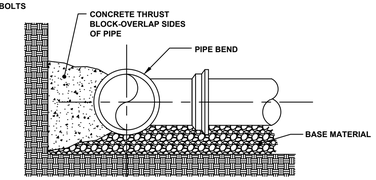
METER INSTALLATION

12. ONLY PWD PERSONNEL ARE AUTHORIZED TO INSTALL WATER METERS. PWD PERSONNEL ARE ADDITIONALLY AUTHORIZED TO OPERATE METER VALVES AS NEEDED FOR INSTALLATION AND MAINTENANCE.
13. PWD WILL SUPPLY THE WATER METER. ALL OTHER FITTINGS SHALL BE SUPPLIED AND INSTALLED BY CUSTOMER.
14. METER LAYING LENGTH SHOULD BE CONFIRMED WITH PWD PRIOR TO SETTING PIPE. PWD MAY REQUIRE THAT A FLANGED METER SPOOL PIECE BE INSTALLED PRIOR TO METER SET TO ENSURE PROPER SPACING. IF SO, THE METER SPOOL WILL BE PROVIDED BY PWD AND CAN BE PICKED UP AT PWD CUSTOMER SERVICE, 225 DOUGLASS STREET, PORTLAND DURING NORMAL BUSINESS HOURS.



PLAN VIEW

NOTE:
KEEP CONCRETE CLEAR OF PIPE JOINT, NUTS AND BOLTS



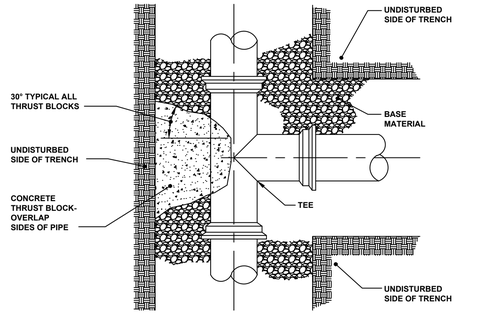
SECTION

THRUST/RETAINER GLAND SCHEDULE		
1/4 BEND	90°	USE POURED IN-PLACE THRUST BLOCK WITH RETAINERS
1/8 BEND	45°	THRUST BLOCK WITH RETAINERS
1/16 BEND	22 1/2°	THRUST BLOCK
1/32 BEND	11 1/4°	THRUST BLOCK

THE ABOVE SCHEDULE IS SUBJECT TO THE APPROVAL OF THE ON-SITE INSPECTOR DUE TO SOILS AND WORKING PRESSURES IN THE AREA.

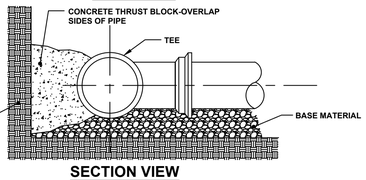
THRUST BLOCK PLACEMENT ON BENDS

NOT TO SCALE



NOTE: KEEP CONCRETE CLEAR OF PIPE JOINT, NUTS AND BOLTS

PLAN VIEW



SECTION VIEW

THRUST BLOCK PLACEMENT ON TEES

NOT TO SCALE

1. THE BEARING SURFACE OF THE THRUST BLOCK SHALL BE THE SURFACE AREA OF THE THRUST BLOCK WHICH IS CAST AGAINST THE TRENCH WALL. THE BEARING SURFACE SHALL NOT EXCEED THE FOLLOWING LOADINGS:

IN-SITU CONDITION	ALLOWABLE
BEDROCK	3,000 psf
SAND OR OUTWASH DEPOSITS	1,500 psf
OTHER SOILS	1,000 psf

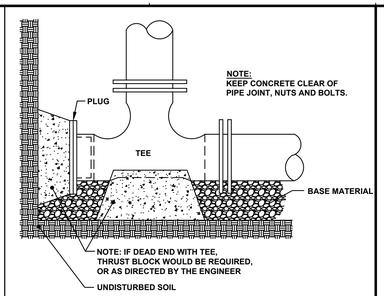
THE THRUST SHALL BE COMPUTED ON THE BASIS OF 150 psi x THE CROSS SECTIONAL AREA OF THE PIPE. FOR EXAMPLE, A THRUST BLOCK FOR A 1/4 BEND ON AN 8" WATER MAIN BEARING AGAINST CLAY WOULD REQUIRE A BEARING SURFACE OF 7.5 s.f.

$$\frac{150 \text{ psi} \times 50 \text{ sq. in.}}{1{,}000 \text{ psf}} = 7.5 \text{ s.f.}$$

2. INSTALL POLY BARRIER BETWEEN PIPE AND ALL THRUST BLOCKS.

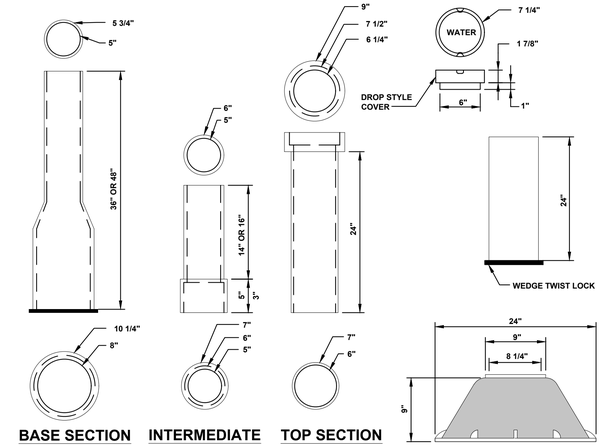
3. ANY WORK RELATED TO WATER PIPING OR DETAILS SHALL BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT SPECIFICATIONS.

THRUST BLOCK NOTES



STANDARD TEE BLOCKING

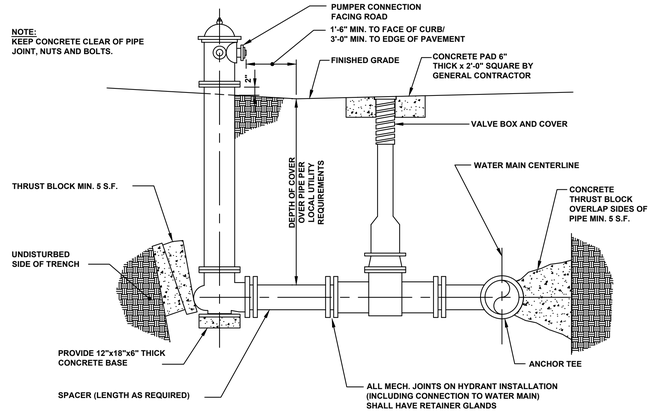
NOT TO SCALE



NOTE:
BUFFALO VALVE BOXES
NUMBERS ARE FOR 5.25"

TYPICAL VALVE BOXES

NOT TO SCALE



FIRE HYDRANT INSTALLATION

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Structural Mechanical Electrical Commissioning

STATE OF MAINE
WILLIAM C. HASKELL
No. 8518
LICENSED
PROFESSIONAL ENGINEER

REVISIONS

NUMBER	DATE	BY	DESCRIPTION
1	12/19/17	WCH	SEPTIC/WASH BAY DHE APPLICATIONS

Date:
Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File: 98083.05_DET
Graphic Scale: 0 1"

UTILITY DETAILS

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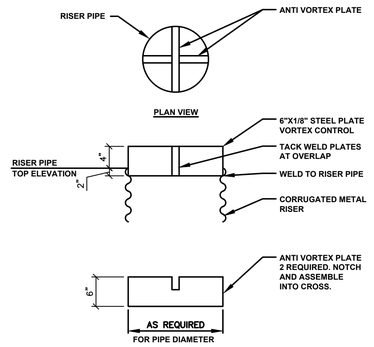
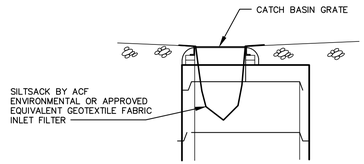


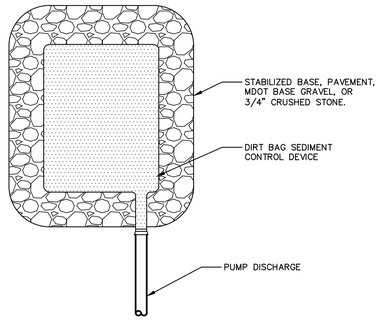
SEDIMENT BASIN TEMPORARY RISER ANTI VORTEX PLATE

N.T.S.



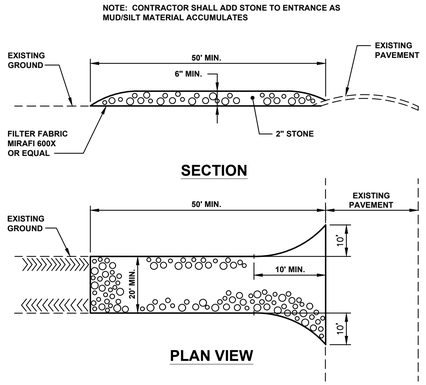
CATCH BASIN INLET FILTER

NOT TO SCALE



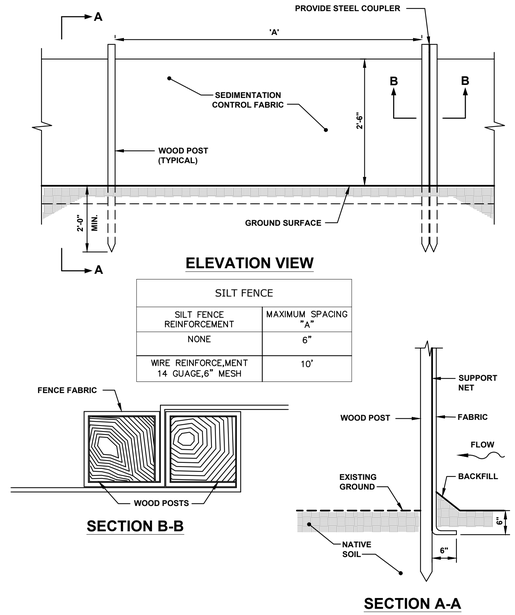
DIRT BAG PUMP OUTLET

NOT TO SCALE



STABILIZED CONSTRUCTION ENTRANCE

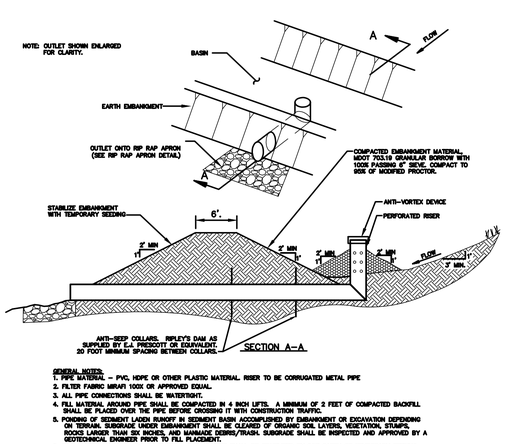
NOT TO SCALE



SILT FENCE	
SILT FENCE REINFORCEMENT	MAXIMUM SPACING "A"
NONE	6'
WIRE REINFORCE,MENT 14 GUAGE,6" MESH	10'

SILTATION FENCE

NOT TO SCALE



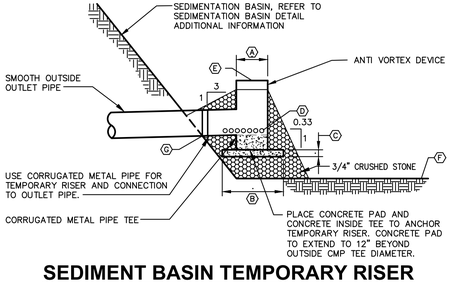
GENERAL NOTES:

1. PIPE MATERIAL – PVC, HDPE OR OTHER PLASTIC MATERIAL. RISER TO BE CORRUGATED METAL PIPE
2. FILTER FABRIC MIRAFI 100X OR APPROVED EQUAL.
3. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
4. FILL MATERIAL AROUND PIPE SHALL BE COMPACTED IN 4 INCH LIFTS. A MINIMUM OF 2 FEET OF COMPACTED BACKFILL SHALL BE PLACED OVER THE PIPE BEFORE CROSSING IT WITH CONSTRUCTION TRAFFIC.
5. PONDING OF SEDIMENT LADEN RUNOFF IN SEDIMENT BASIN ACCOMPLISHED BY EMBANKMENT OR EXCAVATION DEPENDING ON TERRAIN. SUBGRADE UNDER EMBANKMENT SHALL BE CLEARED OF ORGANIC SOIL LAYERS, VEGETATION, STUMPS, ROCKS LARGER THAN SIX INCHES, AND MANMADE DEBRIS/TRASH. SUBGRADE SHALL BE INSPECTED AND APPROVED BY A GEOTECHNICAL ENGINEER PRIOR TO FILL PLACEMENT.
6. SIDE SLOPES SHALL BE 2:1 OR FLATTER. EMBANKMENT SHALL BE STABILIZED BY 90% CATCH OF TEMPORARY SEEDING PRIOR TO DIRECTING RUNOFF TO BASIN.
7. SHOULD THE PERFORATED RISER BECOME PLUGGED, THE WATER WITHIN THE BASIN SHALL BE PUMPED TO FILTER BAGS. NO DISCHARGE OF SEDIMENT LADEN WATER CAN OCCUR INTO PROTECTED RESOURCES, ONTO OFFSITE PROPERTIES, INTO MUNICIPAL STORM DRAIN SYSTEMS, OR ONTO DISTURBED AREAS OF THE SITE. THE FILTER BAGS SHALL BE LOCATED IN A WELL-VEGETATED UPLAND AREA AT LEAST 100 FEET FROM A PROTECTED NATURAL RESOURCE.
8. EMBANKMENT MATERIAL GRADATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTING EMBANKMENT.

SEDIMENT BASIN WITH PIPE OUTLET

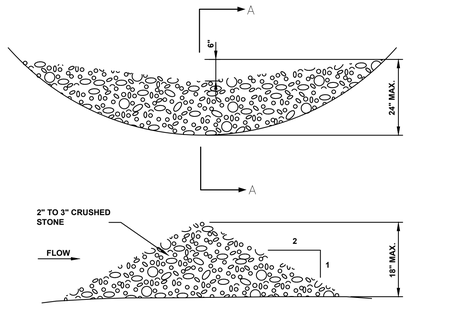
NOT TO SCALE

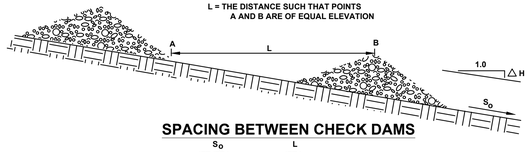
DESCRIPTION	BASIN 1
(A) PERFORATED RISER Ø	12"
(B) SQUARE CONCRETE PAD	36"
(C) CONCRETE BASE HEIGHT	12"
(D) PERFORATION ROW	24HR
-INVERT ELEVATION	200.00
-NO. OF ORFICES	11
-ORIFICE Ø	1"
(E) RISER PIPE TOP ELEV.	204.06
(F) POND BASE ELEVATION	199.00
(G) INVERT IN	200.00
TOP OF BERM	205.00



SEDIMENT BASIN TEMPORARY RISER

NOT TO SCALE





SPACING BETWEEN CHECK DAMS

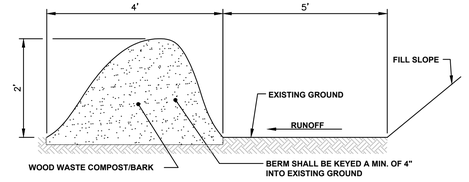
S_o (FT./FT.)	L (FT.)
0.020	75
0.030	50
0.040	40
0.050	30
0.080	20
0.100	10

STONE CHECK DAM

NOT TO SCALE

NOTES:

1. THE WOOD WASTE COMPOST/BARK MIX SHALL CONFORM TO THE FOLLOWING STANDARDS:
   - A. MOISTURE CONTENT - 30-60%.
   - B. pH - 5.0 - 8.0.
   - C. SCREEN SIZE - 100% LESS THAN 3". MAX. 70% LESS THAN 1".
   - D. NO LESS THAN 40% ORGANIC MATERIAL (DRY WEIGHT) BY LOSS OF IGNITION.
   - E. NO STONES LARGER THAN 2" IN DIAMETER.
   - F. SILTS, CLAYS OR SUGAR SANDS ARE NOT ACCEPTABLE IN THE MIX.
2. THE COMPOST BERM SHALL BE PLACED, UNCOMPACTED, ALONG A RELATIVELY LEVEL CONTOUR.
3. THE WOOD WASTE COMPOST/BARK FILTER BERM MAY BE USED IN LIEU OF SILTATION FENCE, AT THE TOE OF SHALLOW SLOPES, ON FROZEN GROUND, LEDGE OUT CROPS, VERY ROOTED FORESTED AREA OR AT THE EDGE OF GRAVEL PARKING AREAS.
4. BERMS SHALL REMAIN IN PLACE UNTIL UPSTREAM AREA IS COMPLETED OR 70% CATCH OF VEGETATION IS ATTAINED. BERMS SHALL BE REMOVED BY SPREADING SUCH THAT NATIVE EARTH CAN BE SEEN BELOW.
5. WOODWASTE COMPOST BARK FILTER SHALL NOT BE USED IN WETLAND AREAS.



WOOD WASTE COMPOST/BARK FILTER BERM DETAIL

NOT TO SCALE

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EROSION & SEDIMENT CONTROL DETAILS

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WINDHAM, MAINE

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C-12

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

1.3.5 Erosion Control Measures and Site Stabilization

The primary emphasis of the erosion/sedimentation control plan, which will be implemented for this project, is as follows:

- Development of a careful construction sequence.
- Rapid revegetation of denuded areas to minimize the period of soil exposure.
- Rapid stabilization of drainage paths to avoid rill and gully erosion.
- The use of on-site measures to capture sediment (sedimentation basins, hay bales/ stone check dams/silt fence, etc.)

The following temporary and permanent erosion and sediment control devices will be implemented as part of the site development. These devices shall be installed as indicated on the plans or as described within this report. For further reference, see the latest edition of the Maine Erosion and Sediment Control Practices Field Guide for Contractors.

A. Dewatering

Water from construction trench dewatering shall pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 50 feet of a protected natural resource.

B. Inspection and Monitoring

Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function. Following the temporary and/or final seeding and mulching, the contractor shall in the spring inspect and repair any damages and/or unestablished spots. Established vegetative cover means a minimum of 90% of areas vegetated with vigorous growth.

The following standards must be met during construction.

(a) Inspection and corrective action. Inspect disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and within 24 hours after a storm event (rainfall), and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.

(b) Maintenance. If best management practices (BMPs) need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event (rainfall). All measures must be maintained in effective operating condition until areas are permanently stabilized.

(c) Documentation. Keep a log (report) summarizing the inspections and any corrective action taken. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicles access points to the parcel. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and location(s) where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.

The log must be made accessible to Department staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

C. Temporary Erosion Control Measures

The following measures are planned as temporary erosion/sedimentation control measures during construction:

1. Crushed stone–stabilized construction entrances shall be placed at site access drives off Windham Center Road.

2. Siltation fence or wood waste compost berms shall be installed downstream of any disturbed areas to trap runoff– borne sediments until grass areas are revegetated. The silt fence and/or wood waste compost berms shall be installed per the details provided in this package and inspected at least once a week and before and immediately after a storm event of 0.5 inches or greater, and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence or berm line. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam. Wood waste compost berms are not to be used adjacent to wetland areas that are not to be disturbed.

3. A sedimentation basin is proposed for the development to aid in preventing migration of sediments as a result of construction. The sedimentation basin will be designed for a 24–hour delay time. A perforated riser shall be installed as the basin's outlet. The sediment basin shall remain in use until the tributary area has been stabilized.

4. Straw or hay mulch including hydroseeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and October 15th on slopes of less then 15 percent shall be anchored by applying water; mulch placed on slopes of equal to or steeper than 15 percent shall be covered by a fabric netting and anchored with staples in accordance with manufacturer's recommendation. Fabric netting and staples shall be used on disturbed areas within 50' of lakes, streams, and wetlands regardless of the upstream slope. Mulch placed between October 15th and April 15th on slopes equal to or steeper than 8 percent shall be covered with a fabric netting and anchored with staples in accordance with the manufacturer's recommendations. Slopes steeper than 3:1 and equal to or flatter than 2:1, which are to be revegetated, shall receive curlex blankets by American Excelsior or equal. Slopes steeper than 2:1 shall receive riprap as noted on the plans. The mulch application rate for both temporary and permanent seeding is 75 lbs per 1000 sf as identified in the seeding plan. Mulch shall not be placed over snow.

5. Temporary stockpiles of stumps, grubbings, or common excavation will be protected as follows:

a) Temporary stockpiles shall not be located within 50 feet of any wetlands which will not be disturbed and shall be located away from drainage swales.

b) Stockpiles shall be stabilized within 7 days by either temporarily seeding the stockpile by a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with mulch, such as hay, straw, or erosion control mix.

c) Stockpiles shall be surrounded by sedimentation barrier at the time of formation.

6. All denuded areas that are within 50 feet of an undisturbed wetland, which have been rough graded and are not located within a parking area or access drive subbase area, shall receive mulch or erosion control mesh fabric within 48 hours of initial disturbance of soil. All areas within 50 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 48 hour window. In other areas, the time period may be extended to 7 days.

7. For work, which is conducted between October 15th and April 15th of any calendar year, all denuded areas, shall be covered with hay mulch or erosion control mix, applied at twice the normal application rate and anchored with a fabric netting. The time period for applying mulch shall be limited to 2 days for all areas.

8. Windham Center Road shall be swept to control mud and dust as necessary. Additional stone shall be added to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.

9. During grubbing operations stone check dams shall be installed at any evident concentrated flow discharge points and as directed on the Erosion Control Plans.

10. Silt fencing with a minimum stake spacing of 6 feet shall be used, unless the fence is supported by wire fence reinforcement of minimum 14 gauge and with a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The bottom of the fence shall be anchored. A double row of silt fence shall be used adjacent to wetlands.

11. Wood waste compost/bark berms may be used in lieu of siltation fencing. Berms shall be removed and spread in a layer not to exceed 3" thick once upstream areas are completed and a 90% catch of vegetation is attained.

12. Storm drain catch basin inlet protection shall be provided through the use of stone sediment barriers or approved sediment bags (such as Silt Sack). Installation details are provided in the plan set. The barriers shall be inspected after each rainfall and repairs made as necessary. Sediment shall be removed and the barrier restored to its original dimensions when the sediment has accumulated to ½ the design depth of the barrier. The barrier shall be removed when the tributary drainage area has been stabilized.

13. Water and/or calcium chloride shall be furnished and applied in accordance with MDOT specifications – Section 637 – Dust Control.

14. Loam and seed is intended to serve, as the primary permanent revegetative measure for all denuded areas not provided with other erosion control measures, such as riprap. Application rates are provided in the seeding plan. Seeding shall not occur over snow.

D. Permanent Erosion Control Measures

The following permanent erosion control measures have been designed as part of the Erosion/Sedimentation Control Plan:

1. All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized, mulched, and seeded. Fabric netting, anchored with staples, shall be placed over the mulch in areas as noted in Temporary Erosion Control Measures paragraph 3 of this report. All areas within 100 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 48 hour window. Native topsoil shall be stockpiled and reused for final restoration when it is of sufficient quality.

2. All storm drain pipe outlets shall have riprap aprons at their outlet to protect the outlet and receiving channel from scour and deterioration. Installation details are provided in the plan set. The aprons shall be installed and stabilized to the extent practicable prior to directing runoff to the tributary pipe or culvert.

3. Catch basins shall be provided with sediment sumps and inlet hoods (the Snout) for all outlet pipes that are 18" in diameter or less.

1.4 Implementation Schedule

The following construction sequence shall be required to insure the effectiveness of the erosion and sedimentation control measures are optimized:

It is anticipated that construction of the Public Works Facility and related infrastructure will commence in Spring of 2018 and be completed by Spring of 2019.

Note: For all grading activities, the contractor shall exercise extreme caution not to overexpose the site, this shall be accomplished by limiting the disturbed area.

1. Install stabilized construction entrance at the construction access location.

2. Install perimeter silt fence and/or wood waste berms prior to grubbing respective areas.

3. Install sediment basin, diversion dikes, and check dams (clear only those areas necessary to install BMP's).

4. Commence demolition. Limit removal of existing stabilized surfaces to those areas necessary for construction of new site elements. Remove additional existing stabilized surfaces as construction progresses. Note: existing garage will remain open while new building is constructed. Once transitioned to new building, then existing building will be demolished and remaining site work completed.

5. Clear and grub site. Install stone check dams at any evident concentrated flow discharge points.

6. Commence installation of drainage appurtenances.

7. Commence earthwork and grading to subgrade.

8. Commence installation of utilities.

9. Foundation area shall be excavated for installation of the building footings. Building work will be on going through the remainder of the project.

10. Complete installation of drainage appurtenances.

11. Complete installation of utilities.

12. Install sub–base and base gravel within access drive, sidewalks, and parking areas.

13. Install base course paving for access drive and parking areas.

14. Install curbing as shown on plans.

15. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.

16. Once tributary area has been stabilized, complete construction of grassed underdrained soil filters and subsurface sand filter.

17. Install surface course paving for access drive. Stripe per plan.

18. Once the site is stabilized and a 90% catch of vegetation has been obtained, remove all temporary erosion control measures.

19. Touch up loam and seed.

Note: All denuded areas not subject to final paving, riprap, or gravel shall be revegetated.

Prior to construction of the project, the contractor shall submit to the owner a schedule for the completion of the work, which will satisfy the following criteria:

1. The above construction sequence should generally be completed in the specified order; however, several separate items may be constructed simultaneously. Work must also be scheduled or phased to reduce the extent of the exposed areas as specified below. The intent of this sequence is to provide for erosion control and to have structural measures such as silt fence and construction entrances in place before large areas of land are denuded.

2. The work shall be conducted in sections which shall:

a) Limit the amount of exposed area to those areas in which work is expected to be undertaken during the proceeding 30 days.

b) Revegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event; or temporarily stabilized within 48 hours of initial disturbance of soil for areas within 100 feet of an undisturbed wetland and 7 days for all other areas. Areas within 100 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 48 hour window.

c) Incorporate planned inlets and drainage system as early as possible into the construction phase. The ditches shall be immediately lined or revegetated as soon as their installation is complete.

1.5 Erosion, Sedimentation and Stabilization Control Plan

The Erosion Control Plan is included in the plan set.

1.6 Details and Specifications

The Erosion Control details and specifications are included in the plan set.

1.7 Winter Stabilization Plan

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15 then the site needs to be protected with over–winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mats, riprap or gravel base on a road.

Winter excavation and earthwork shall be completed such that any area left exposed can be controlled by the contractor. Limit the exposed area to those areas in which work is expected to be under taken during the proceeding 15 days and that can be mulched in one day prior to any snow event.

All areas shall be considered to be denuded until the subbase gravel is installed in roadway/parking areas or the areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor shall install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions. Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

1. Soil Stockpiles
Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs/1,000 s.f. (3 tons per acre) or with a four–inch layer of woodwaste erosion control mix. This shall be done within 24 hours of stocking and re–established prior to any rainfall or snowfall. Any soil stockpile shall not be placed (even covered with hay or straw) within 100 feet from any natural resources.

2. Natural Resource Protection
Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75% mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats. During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) shall be placed between any natural resource and the disturbed area. Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

3. Sediment Barriers
During frozen conditions, sediment barriers shall consist of woodwaste filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

4. Mulching
An area shall be considered denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75–lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Mulch shall not be spread on top of snow. The snow shall be removed down to a one–inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3 tons/acre) and adequately anchored that ground surface is not visible through the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by peg line, mulch netting, asphalt emulsion chemical, or wood cellulose fiber. When ground surface is not visible through the mulch then cover is sufficient. After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading workday.

5. Mulching on Slopes and Ditches
Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets. Mulching shall be applied at a rate of 230 lbs/1,000 s.f. on all slopes greater than 8%.

Mulch netting shall be used to anchor mulch in all drainage ways with a slope greater than 3% for slopes exposed to direct winds and for all other slopes greater that 8%. Erosion control blankets shall be used in lieu of mulch in all drainage ways with slopes greater than 8%. Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

6. Seeding
Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched. Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs/1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

Standards for Timely Stabilization of Construction Sites During Winter

1. Standard for the timely stabilization of ditches and channels –– The applicant shall construct and stabilize all stone–lined ditches and channels on the site by November 15. The applicant shall construct and stabilize all grass–lined ditches and channels on the site by September 1. If the applicant fails to stabilize a ditch or channel to be grass–lined by September 1, then the applicant will take one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch –– The applicant shall line the ditch with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

Install a stone lining in the ditch ––The applicant shall line the ditch with stone riprap by November 15. The applicant shall hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the applicant shall regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross–sectional area.

2. Standard for the timely stabilization of disturbed slopes –– The applicant shall construct and stabilize stone–covered slopes by November 15. The applicant shall seed and mulch all slopes to be vegetated by September 1. The department shall consider any area having a grade greater than 15% to be a slope. If the applicant fails to stabilize any slope to be vegetated by September 1, then the applicant shall take one of the following actions to stabilize the slope for late fall and winter.

Stabilize the soil with temporary vegetation and erosion control mats –– By September 1 the applicant shall seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1,000 square feet and apply erosion control mats over the mulched slope. The applicant shall monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the applicant shall cover the slope with a layer of woodwaste compost as described in item iii of this standard or with stone riprap as described in item iv of this standard.

Stabilize the slope with sod –– The applicant shall stabilize the disturbed slope with properly installed sod by September 1. Proper installation includes the applicant pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The applicant shall not use late–season sod installation to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with woodwaste compost –– The applicant shall place a six–inch layer of woodwaste compost on the slope by November 15. Prior to placing the woodwaste compost, the applicant shall remove any snow accumulation on the disturbed slope. The applicant shall not use woodwaste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap –– The applicant shall place a layer of stone riprap on the slope by November 15. The applicant shall hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

3. Standard for the timely stabilization of disturbed soils –– By September 15 the applicant shall seed and mulch all disturbed soils on areas having a slope less than 15%. If the applicant fails to stabilize these soils by this date, then the applicant shall take one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation –– By September 1 the applicant shall seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. The applicant shall monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed soil before November 1, then the applicant shall mulch the area for over–winter protection as described below.

Stabilize the soil with sod –– The applicant shall stabilize the disturbed soil with properly installed sod by September 15. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

Stabilize the soil with mulch –– By November 15 the applicant shall mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the applicant shall remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the applicant will anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

1.8 Maintenance of facilities

The stormwater facilities will be maintained by the Applicant, The Town of Windham or their assigned heirs. The Town shall enter into a five year contract with a maintenance provider for maintenance of the Subsurface Sand Filter. The contract shall be provided to MDEP for review and approval. The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction as required by the Erosion Control Report. Long–term operation/maintenance recommended for the stormwater facilities is presented below.

The responsible party may contract with such professionals, as may be necessary in order to comply with this provision and may rely on the advice of such professionals in carrying out its duty hereunder, provided, that the following operation and maintenance procedures are hereby established as a minimum for compliance with this section. A maintenance log of the inspections shall be kept by the responsible party.

Inspection and Maintenance Frequency and Corrective Measures:
The following areas, facilities, and measures will be inspected and the identified deficiencies will be corrected. Clean–out must include the removal and legal disposal of any accumulated sediments and debris.

Catch Basins:
Inspect catch basins 2 times per year (preferably in Spring and Fall) to ensure that the catch basins are working in their intended fashion and that they are free of debris. Clean structures when sediment depths reach 12" from invert of outlet. If the basin outlet is designed with a hood to trap floatable materials (i.e. Snout), check to ensure watertight seal is working. At a minimum, remove floating debris and hydrocarbons at the time of the inspection.

Inlet/Outlet Control Structures:
Inspect structures and piping 2 times per year (preferably in Spring and Fall) to ensure that the structures are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris within the structure.

Stormdrain Outlets:
Inspect outlets 2 times per year (preferably in Spring and Fall) to ensure that the outlets are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris at the outlet and within the conduit Repair any erosion damage at the stormdrain outlet.

Soil Filter – Grassed Underdrained Soil Filter:
Inspect all upstream pre–treatment measures 2 times per year (preferably in Spring and Fall) for sediment and floatables accumulation. Remove and dispose of any sediments or debris.

Surface (Underdrain Pond, Swale or Bio–Filter):
The soil filter will be inspected within the first three months after construction; thereafter the filter will be inspected 2 times per year (preferably in Spring and Fall) to ensure that the filter is draining within 24 to 48 hours of a rain event equivalent to 1" or more. Adjustments will be made to the outlet valve to ensure that the Bioretention Cell drains within 24 to 48 hours. Failure to drain in 72 hours will require part or all of the soil filter media to be removed and replaced with new material meeting the soil filter gradation. The facilities will be inspected after major storms and any identified deficiencies will be corrected. Harvesting and weeding of excessive growth shall be performed as needed. Inspect for unwanted or invasive plants and remove as necessary.

Vegetated Areas:
Inspect slopes and embankments early in the growing season to identify active or potential erosion problems. Repair bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on–site areas able to withstand the concentrated flows. The facilities will be inspected after major storms and any identified deficiencies will be corrected.

Ditches, Swales and other Open Stormwater Channels:
Inspect 2 times per year (preferably in Spring and Fall) to ensure they are working in their intended fashion and that they are free of sediment and debris. Remove any obstructions to flow, including accumulated sediments and debris and vegetated growth. Repair any erosion of the ditch lining. Vegetated ditches will be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. Correct any erosion of the channel's bottom or sideslopes. The facilities shall be inspected after major storms and any identified deficiencies shall be corrected.

Roadways and Parking Surfaces: Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front–end loader. Repair potholes and other roadway obstructions and hazards. Plowing and sanding of paved areas shall be performed as necessary to maintain vehicular traffic safety.

Recertification

As part of the Stormwater Permit, the applicant is required to meet the standards in Appendix B of the Chapter 500 Rules. Appendix B states that a project must submit a certification of the following to the department within three months of the expiration of each five–year interval from the date of issuance of the permit.

(a) Identification and repair of erosion problems. All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
(b) Inspection and repair of stormwater control system. All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system.
(c) Maintenance. The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the department, and the maintenance log is being maintained.
(d) Proprietary Systems. All proprietary systems have been maintained according to the manufacturer's recommendations. Where required by the Department, the permittee shall execute a 5–year maintenance contract with a qualified professional for the coming 5–year interval. The maintenance contract must include provisions for routine inspections, cleaning, and general maintenance.

Housekeeping

As part of the Stormwater Permit, the applicant is required to meet the standards in Appendix C of the Chapter 500 Rules. The following procedures are hereby established as a minimum for compliance with this section. For further information on the procedures listed below, refer to Chapter 500 rules – Appendix C.

Spill Prevention:
Appropriate spill prevention, containment, and response planning/implementation shall be used to prevent pollutants from being discharged from materials on site.

Groundwater Protection:
During construction, hazardous materials with the potential to contaminate groundwater shall not be stored or handled in areas of the site which drain to an infiltration area.

Fugitive Sediment and Dust:
Appropriate measures shall be taken to ensure that activities do not result in noticeable erosion of the soils and water and/or calcium chloride shall be used to ensure that activities do not result in fugitive dust emissions during or after construction.

Debris and Other Materials:
Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

Trench or Foundation De–watering:
Water collected through the process of trenching and/or de–watering must be removed from the ponded area, and must be spread through natural wooded buffers or other areas that are specifically designed to collect the maximum amount of sediment possible.

Non–stormwater Discharges:
Identify and prevent contamination by non–stormwater discharges.

SEEDING PLAN

Project: Town of Windham Combined Maintenance Facility

Site Location: Windham, ME

Temporary Seeding

1. Instruction on preparation of soil: Prepare a good seed bed for planting method used.
2. Apply lime as follows: _# / acres, OR 138 # /M Sq. Ft.
3. Fertilize with ____ pounds of ____ N–P–K/ac. OR 13.8 pounds of 10–10–10 N–P–K/M Sq. Ft.
4. Method of applying lime and fertilizer: Spread and work into the soil before seeding.
5. Seed with the following mixture:
   50% Winter Rye
   50% Annual Rye
6. Mulching instructions: Apply at the rate of ____per acre, OR 75 pounds per M. Sq. Ft.

	Amount	Unit # Tons, Etc.
7. TOTAL LIME	138	#/1000 sq. ft.
8. TOTAL FERTILIZER	13.8	#/1000 sq. ft.
9. TOTAL SEED	1.03	#/1000 sq. ft.
10. TOTAL MULCH	75	#/1000 sq. ft.
11. TOTAL other materials, seeds, etc.		
12. REMARKS		

Spring seeding is recommended; however, late summer (prior to September 1) seeding can be made. Permanent seeding should be made prior to August 5 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

SEEDING PLAN

Project: Town of Windham Combined Maintenance Facility

Site Location: Windham, ME

Permanent Seeding

1. Instruction on preparation of soil: Prepare a good seed bed for planting method used.
2. Apply lime as follows: _# / acres, OR 138 # /M Sq. Ft.
3. Fertilize with ____ pounds of ____ N–P–K/ac. OR 18.4 pounds of 10–20–20 N–P–K/M Sq. Ft.
4. Method of applying lime and fertilizer: Spread and work into the soil before seeding.
5. Seed with the following mixture:
   40% Creeping Red Fescue
   30% Charger II Perennial Ryegrass
   20% KenBlue Kentucky Bluegrass
   10% Tiffany Chewings Fescue
6. Mulching instructions: Apply at the rate of ____per acre, OR 75 pounds per M. Sq. Ft.

	Amount	Unit # Tons, Etc.
7. TOTAL LIME	138	#/1000 sq. ft.
8. TOTAL FERTILIZER	18.4	#/1000 sq. ft.
9. TOTAL SEED	1.03	#/1000 sq. ft.
10. TOTAL MULCH	75	#/1000 sq. ft.
11. TOTAL other materials, seeds, etc.		
12. REMARKS		

Spring seeding is recommended, however, late summer (prior to September 1) seeding can be made. Permanent seeding should be made prior to August 5 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

Allied Engineering
Structural Mechanical Electrical Commissioning
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Portland, Maine 04103
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Web: www.allied-eng.com

STATE OF MAINE
WILLIAM C. HASKELL
No. 8518
3/20/18
LICENSED PROFESSIONAL ENGINEER

REVISIONS

NUMBER	DATE	BY	DESCRIPTION

Date:
Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File: 98083.05_DET
Graphic Scale: 0 1"

EROSION CONTROL NOTES

SHARED MAINTENANCE FACILITY
WINDHAM, MAINE

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C-13

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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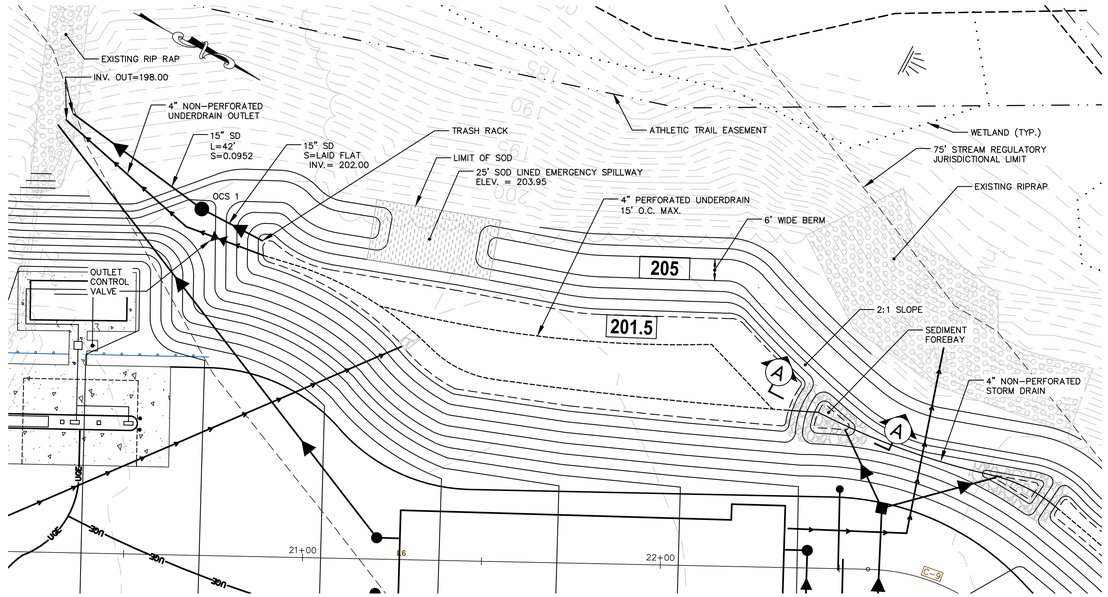


GRASSED UNDERDRAIN #1 PROJECT DETAILS

1"=20'

Table 1 Loamy Coarse Sand

SIEVE SIZE	% PASSING BY WEIGHT
#10	85–100
#20	70–100
#60	15–40
#200	8–15
#200 CLAY SIZE	<2.0

Table 2 MEDOT Specifications for Underdrain Type B (MEDOT #703.22)

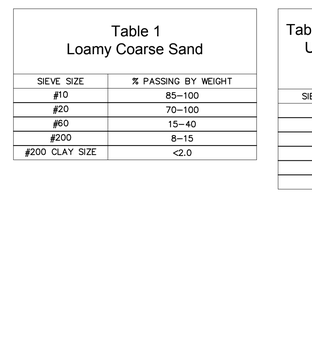
SIEVE SIZE	% PASSING BY WEIGHT
1"	90–100
1/2"	75–100
#4	50–100
#20	15–80
#50	0–15
#200	0–5

Table 3 Sandy Loam Topsoil

SIEVE SIZE	% PASSING BY WEIGHT
#4	75–95
#10	60–90
#40	35–85
#200	20–70
#200 CLAY SIZE	<2.0

SCHEDULE A

	ITEM DESCRIPTION	GRASSED UNDERDRAIN DIMENSION/ ELEVATION
A	CHANNEL PROTECTION VOLUME STAGE	202.70
B	TOP SOIL FILTER	201.50
C	TOP UNDERDRAIN BEDDING STONE	200.00
D	PIPE INVERT: 4" PERF., UD	199.33
E	BOTTOM UNDERDRAIN BEDDING	199.00

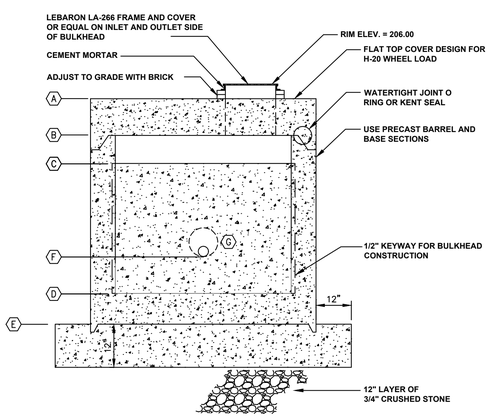


FRONT VIEW

SIDE VIEW

TRASH RACK

NOT TO SCALE

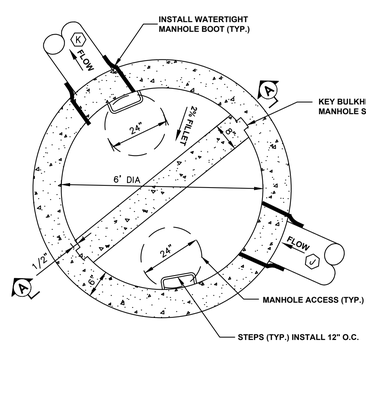


SECTION A-A

OUTLET CONTROL STRUCTURE 1 (OCS1)

SEE SCHEDULE C

NOT TO SCALE



PLAN VIEW

6' OUTLET CONTROL STRUCTURE 1 (OCS1)

SEE SCHEDULE B

NOT TO SCALE

SCHEDULE C

	ITEM DESCRIPTION	ELEVATION
A	TOP OF STRUCTURE	205.5
B	UNDERSIDE TOP SLAB	204.83
C	TOP CONCRETE BULKHEAD	203.95
D	MANHOLE INVERT	202.00
E	BOTTOM OF STRUCTURE	201.00
F	ORIFICE INVERT	202.70
G	ORIFICE DIAMETER	8.75"
J	PIPE DIAMETER	15"
	INVERT IN	202.00
K	PIPE DIAMETER	15"
	INVERT OUT	202.00

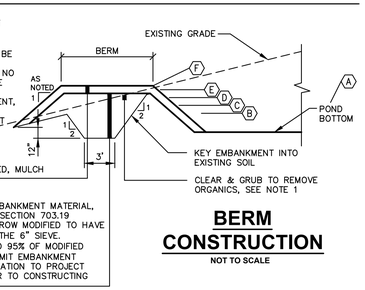
CONSTRUCTION OVERSIGHT

INSPECTION OF THE FILTER BASIN SHALL BE PROVIDED FOR EACH PHASE OF CONSTRUCTION BY THE DESIGN ENGINEER WITH REQUIRED REPORTING TO THE DEP. AT A MINIMUM, INSPECTIONS WILL OCCUR:

1. AFTER PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED.
2. AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA.
3. AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDED.
4. AFTER ONE YEAR TO INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS.
5. ALL MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN WILL BE APPROVED BY THE DESIGN ENGINEER AFTER TESTS BY A CERTIFIED LABORATORY SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS.

NOTE: CONTRACTOR SHALL NOTIFY PROJECT ENGINEER 48 HOURS PRIOR TO THE MILESTONES LISTED ABOVE TO ALLOW FOR INSPECTION.

NOTES:
1. EMBANKMENT FOOTPRINT SHALL BE CLEARED OF TRASH/DEBRIS AND ANY ROCKS GREATER THAN 6", BE FREE OF ANY STANDING WATER, BE GRADED TO BE NO STEEPER THAN 1H:1V, BE SCARIFIED PRIOR TO EMBANKMENT FILL PLACEMENT, AND BE INSPECTED AND APPROVED BY THE PROJECT ENGINEER BEFORE FILL PLACEMENT BEGINS.



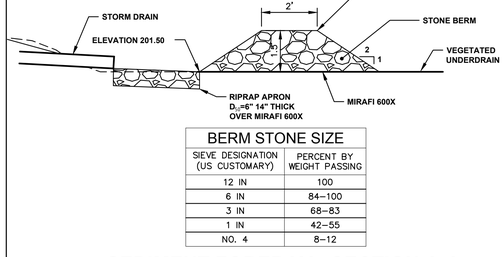
BERM CONSTRUCTION

NOT TO SCALE

SCHEDULE B – EMBANKMENT SCHEDULE	
ITEM DESCRIPTION	DIMENSION/ELEVATION
(A) POND BASE ELEVATION	201.50
(B) PEAK ELEVATION – CHANNEL PROTECTION VOLUME	202.70
(C) PEAK ELEVATION – 2 YEAR STORM	202.93
(D) PEAK ELEVATION – 10 YEAR STORM	203.43
(E) PEAK ELEVATION – 25 YEAR STORM	203.95
(F) TOP OF BERM	205.00

TYPICAL POND CROSS SECTION

NOT TO SCALE



BERM STONE SIZE

SIEVE DESIGNATION (US CUSTOMARY)	PERCENT BY WEIGHT PASSING
12 IN	100
6 IN	84–100
3 IN	68–83
1 IN	42–55
NO. 4	8–12

SEDIMENT FOREBAY - SECTION A-A

NOT TO SCALE

GRASSED UNDERDRAIN NOTES:

SOIL SPECIFICATIONS:

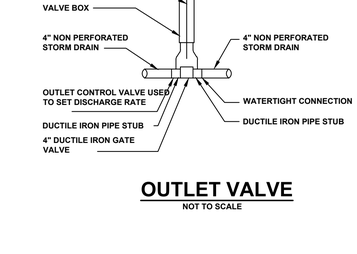
1. THE SOIL FILTER MEDIA SHALL BE A LAYERED SYSTEM CONSISTING OF THE FOLLOWING FROM THE BOTTOM:
   - A. 12" OF LOAMY COARSE SAND, SEE TABLE 1.
   - B. 2" LAYER OF TOPSOIL (SEE "C" BELOW) ROTOTILLED INTO THE LOAMY COARSE SAND LAYER.
   - C. 6" OF NON-CLAYEY, LOAMY TOPSOIL SUCH AS USDA SANDY LOAM TOPSOIL WITH 5–8% HUMIFIED ORGANIC MATTER. SUPERHUMUS OR EQUIVALENT MAY BE ADDED TO THE TOPSOIL TO INCREASE ORGANIC CONTENT, SEE TABLE 3.
2. SOIL FILTER MEDIA MIXTURE SHALL HAVE A PERMEABILITY OF 2.4 IN./HR. TO 4 IN./HR UPON COMPACTION BETWEEN 90% AND 92% STANDARD PROCTOR (ASTM D698).

SUBMITTALS:

1. IDENTIFY THE LOCATION OF EACH COMPONENT OF THE FILTER MEDIA AND SUBMIT RESULTS OF FIELD AND LABORATORY TESTING TO PROJECT ENGINEER.
2. SUBMIT 75 lb. SAMPLE OF EACH TYPE OF MATERIAL: SUBMIT IN AIR TIGHT CONTAINERS TO PROJECT ENGINEER.
3. THE FOLLOWING MATERIAL SHALL BE SUBMITTED:
   - A. SAND.
   - B. UNDERDRAIN BEDDING MATERIAL.
4. PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 – STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES; 1996a ON EACH TYPE OF THE SAMPLE MATERIAL AND SUBMIT RESULTS TO PROJECT ENGINEER.
5. PERFORM A PERMEABILITY TEST ON THE SOIL FILTER MEDIA MIXTURE CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90% TO 92% OF MAXIMUM DRY DENSITY BASED ON ASTM D698. SUBMIT RESULTS TO THE PROJECT ENGINEER.
6. PERFORM ONE COMPACTION DENSITY TEST ON THE IN PLACE SOIL FILTER FOR EVERY 2,000 SQUARE FEET OF FILTER SURFACE AREA. TEST SHALL CONFORM TO ASTM D 2922 – STANDARD TEST METHODS FOR DENSITY OF SOIL AND SOIL-AGGREGATE IN PLACE BY NUCLEAR METHODS (SHALLOW DEPTH); 1996. SUBMIT RESULTS TO THE PROJECT ENGINEER.

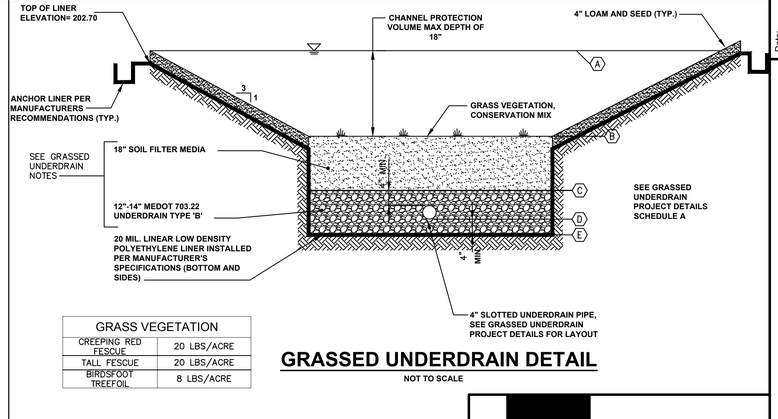
CONSTRUCTION:

1. SOIL FILTER MEDIA AND UNDERDRAIN BEDDING MATERIAL SHALL BE COMPACTED TO BETWEEN 90% AND 92% STANDARD PROCTOR.
2. PERFORATED UNDERDRAIN PIPE SHALL BE 4" SLOTTED PIPE. SPACED 15 FEET ON CENTER MAXIMUM.
3. TRIBUTARY AREAS SHALL BE STABILIZED PRIOR TO INSTALLATION OF THE SOIL FILTER MEDIA MIXTURE AND UNDERDRAIN. STABILIZED IS DEFINED AS PAVED IF IN A PARKING AREA OR ROADWAY, AND 90% GRASS CATCH IF IN A VEGETATED AREA.
4. OUTFLOW OF THE GRASSED UNDERDRAIN SHALL BE CONTROLLED BY A 4" DUCTILE IRON GATE VALVE WITH VALVE WRENCH AND EXTENSION (AVAILABLE FROM E.J. PRESCOTT OR EQUIVALENT). A THREE PIECE VALVE BOX (AVAILABLE FROM E.J. PRESCOTT OR EQUIVALENT) SHALL BE INSTALLED OVER THE VALVE.
5. ALL EQUIPMENT USED WITHIN THE LIMITS OF THE GRASSED UNDERDRAIN SHALL BE LOW GROUND PRESSURE VEHICLES (LESS THAN 2.0 PSI) WHEN FULLY LOADED.
6. UPON COMPLETION OF THE INSTALLATION OF THE SOIL FILTER MEDIA AND THE ESTABLISHMENT OF A 90% CATCH OF GRASS OVER THE FILTER MEDIA, THE CONTRACTOR SHALL FLOOD THE GRASSED UNDERDRAIN TO THE DESIGN ELEVATION WITH CLEAN WATER AND ADJUST THE VALVE TO OBTAIN A 24 HOUR TO 32 HOUR RELEASE TIME.



OUTLET VALVE

NOT TO SCALE



GRASS VEGETATION	
CREEPING RED FESCUE	20 LBS/ACRE
TALL FESCUE	20 LBS/ACRE
BIRDSFOOT TREEFOIL	8 LBS/ACRE

GRASSED UNDERDRAIN DETAIL

NOT TO SCALE

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STATE OF MAINE
WILLIAM C. HASKELL
No. 8518
LICENSED
PROFESSIONAL ENGINEER

REVISIONS

NUMBER	DATE	BY	DESCRIPTION

Date:
Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File: 98083.05_DET
Graphic Scale: 0 1"

GRASSED UNDERDRAIN #1 DETAIL

SHARED MAINTENANCE FACILITY
WINDHAM, MAINE

C-14

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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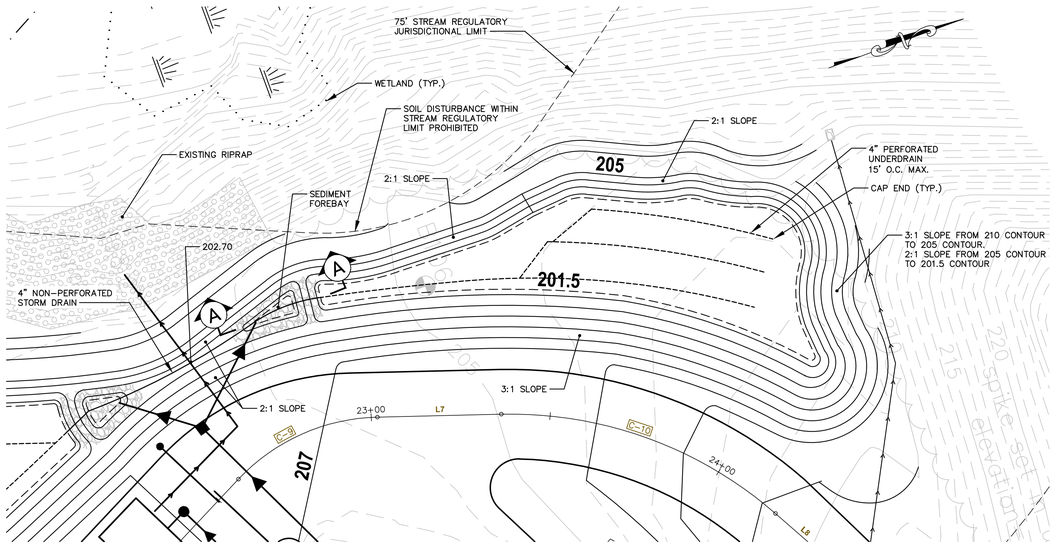

GRASSED UNDERDRAIN #2 PROJECT DETAILS

1"=20'

Table 1
Loamy Coarse Sand

SIEVE SIZE	% PASSING BY WEIGHT
#10	85–100
#20	70–100
#60	15–40
#200	8–15
#200 CLAY SIZE	<2.0

Table 2 MEDOT Specifications for Underdrain Type B (MEDOT #703.22)

SIEVE SIZE	% PASSING BY WEIGHT
1"	90–100
1/2"	75–100
#4	50–100
#20	15–80
#50	0–15
#200	0–5

Table 3
Sandy Loam Topsoil

SIEVE SIZE	% PASSING BY WEIGHT
#4	75–95
#10	60–90
#40	35–85
#200	20–70
#200 CLAY SIZE	<2.0

SCHEDULE A

	ITEM DESCRIPTION	GRASSED UNDERDRAIN DIMENSION/ ELEVATION
A	CHANNEL PROTECTION VOLUME STAGE	202.70
B	TOP SOIL FILTER	201.50
C	TOP UNDERDRAIN BEDDING STONE	200.00
D	PIPE INVERT: 4" PERF. UD	199.33
E	BOTTOM UNDERDRAIN BEDDING	199.00

CONSTRUCTION OVERSIGHT

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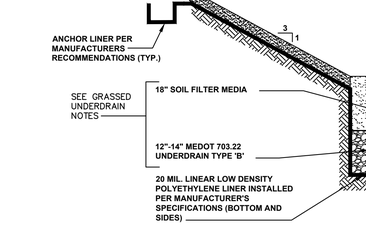

BERM CONSTRUCTION
NOT TO SCALE

SCHEDULE B – EMBANKMENT SCHEDULE	
ITEM DESCRIPTION	DIMENSION/ELEVATION
(A) POND BASE ELEVATION	201.50
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(E) PEAK ELEVATION – 25 YEAR STORM	203.95
(F) TOP OF BERM	205.00

TYPICAL POND CROSS SECTION
NOT TO SCALE

GRASSED UNDERDRAIN NOTES:

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2. SUBMIT 75 lb. SAMPLE OF EACH TYPE OF MATERIAL: SUBMIT IN AIR TIGHT CONTAINERS TO PROJECT ENGINEER.
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BERM STONE SIZE

SIEVE DESIGNATION (US CUSTOMARY)	PERCENT BY WEIGHT PASSING
12 IN	100
6 IN	84–100
3 IN	68–83
1 IN	42–55
NO. 4	8–12

SEDIMENT FOREBAY - SECTION A-A
NOT TO SCALE

GRASS VEGETATION	
CREEPING RED FESCUE	20 LBS/ACRE
TALL FESCUE	20 LBS/ACRE
BIRDSFOOT TREEFOIL	8 LBS/ACRE

GRASSED UNDERDRAIN DETAIL
NOT TO SCALE

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STATE OF MAINE
WILLIAM C. HASKELL
No. 8518
LICENSED
PROFESSIONAL ENGINEER

REVISIONS

DESCRIPTION	DATE	BY	NUMBER

Date:
Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File: 98083.05_DET
Graphic Scale: 0 1"

GRASSED UNDERDRAIN #2 DETAIL

SHARED MAINTENANCE FACILITY
WINDHAM, MAINE

C-15

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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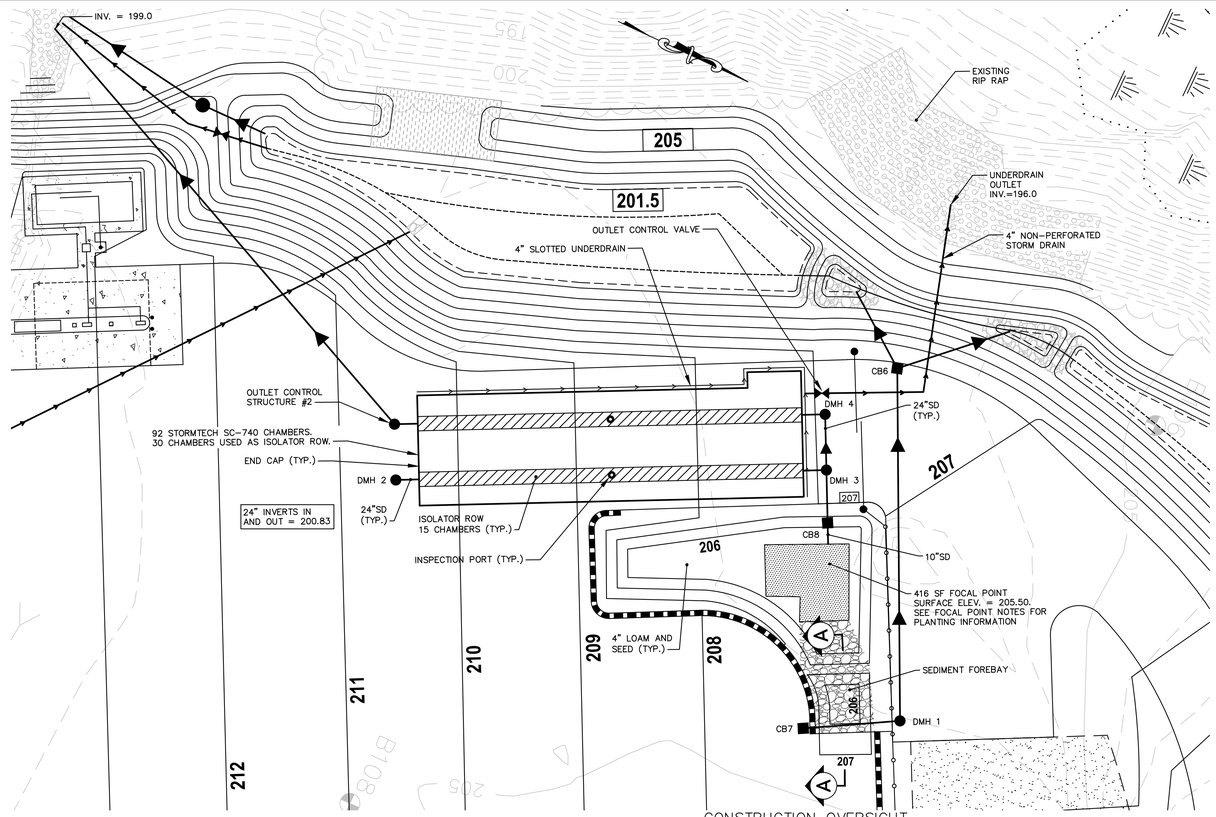
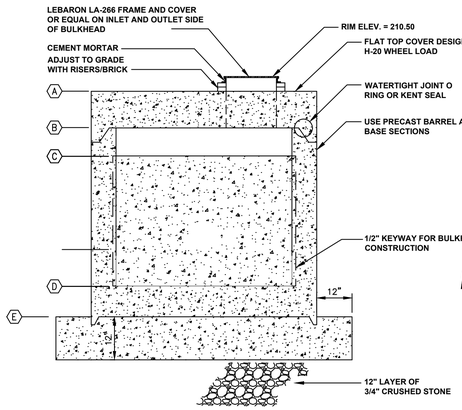


CONSTRUCTION OVERSIGHT

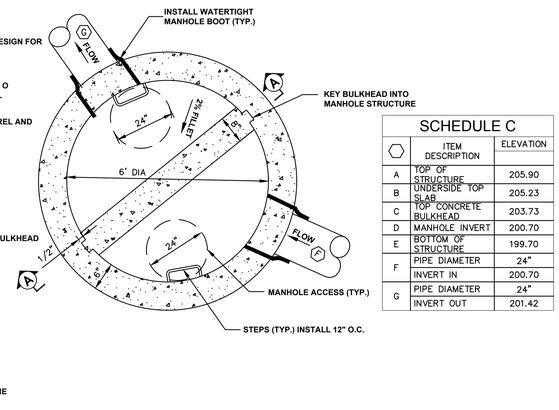
FOCAL POINT FILTER PROJECT DETAILS

1"=20'

1. THE FOCAL POINT SYSTEM SHALL BE INSTALLED UNDER THE SUPERVISION OF A MANUFACTURERS REPRESENTATIVE.
2. ALL PLANT MATERIAL SHALL BE APPROVED BY THE FOCAL POINT REPRESENTATIVE.

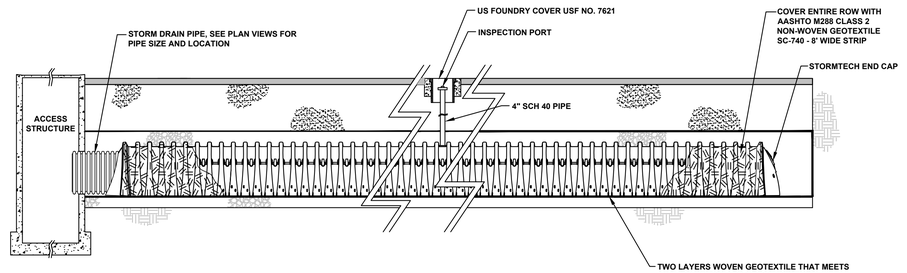


SECTION A-A
OUTLET CONTROL STRUCTURE 2 (OCS2)
SEE SCHEDULE C
NOT TO SCALE



SCHEDULE C		
	ITEM DESCRIPTION	ELEVATION
A	TOP OF STRUCTURE	205.90
B	UNDERSIDE TOP SLAB	205.23
C	TOP CONCRETE BULKHEAD	203.73
D	MANHOLE INVERT	200.70
E	BOTTOM OF STRUCTURE	199.70
F	PIPE DIAMETER	24"
	INVERT IN	200.70
G	PIPE DIAMETER	24"
	INVERT OUT	201.42

PLAN VIEW
6' OUTLET CONTROL STRUCTURE 2 (OCS2)
SEE SCHEDULE C
NOT TO SCALE



CHAMBER ISOLATOR ROW

CONSTRUCTION OVERSIGHT

STORMTECH PRODUCT SPECIFICATIONS

1.0 GENERAL

1.1 STORMTECH CHAMBERS ARE DESIGNED TO CONTROL STORMWATER RUNOFF. AS A SUBSURFACE RETENTION SYSTEM, STORMTECH CHAMBERS RETAIN AND ALLOW EFFECTIVE INFILTRATION OF WATER INTO THE SOIL. AS A SUBSURFACE DETENTION SYSTEM, STORMTECH CHAMBERS DETAIN AND ALLOW FOR THE METERED FLOW OF WATER TO AN OUTFALL.

2.0 CHAMBER PARAMETERS

2.1 THE CHAMBER SHALL BE INJECTION MOLDED OF POLYPROPYLENE RESIN TO BE INHERENTLY RESISTANT TO ENVIRONMENTAL STRESS CRACKING (ESCR), AND TO MAINTAIN ADEQUATE STIFFNESS THROUGH HIGHER TEMPERATURES EXPERIENCED DURING INSTALLATION AND SERVICE.

2.2 THE NOMINAL CHAMBER DIMENSIONS OF THE STORMTECH SC-740 SHALL BE 30.0 INCHES TALL, 51.0 INCHES WIDE AND 90.7 INCHES LONG. THE NOMINAL CHAMBER DIMENSIONS OF THE STORMTECH SC-310 SHALL BE 16.0 INCHES TALL, 34.0 INCHES WIDE AND 90.7 INCHES LONG. THE INSTALLED LENGTH OF A JOINED CHAMBER SHALL BE 85.4 INCHES.

2.3 THE CHAMBER SHALL HAVE A CONTINUOUSLY CURVED SECTION PROFILE.

2.4 THE CHAMBER SHALL BE OPEN-BOTTOMED.

2.5 THE CHAMBER SHALL INCORPORATE AN OVERLAPPING CORRUGATION JOINT SYSTEM TO ALLOW CHAMBER ROWS OF ALMOST ANY LENGTH TO BE CREATED. THE OVERLAPPING CORRUGATION JOINT SYSTEM SHALL BE EFFECTIVE WHILE ALLOWING A CHAMBER TO BE TRIMMED TO SHORTEN ITS OVERALL LENGTH.

2.6 THE NOMINAL STORAGE VOLUME OF A JOINED STORMTECH SC-740 CHAMBER SHALL BE 74.9 CUBIC FEET PER CHAMBER WHEN INSTALLED PER STORMTECH'S TYPICAL DETAILS (INCLUDES THE VOLUME OF CRUSHED ANGULAR STONE WITH AN ASSUMED 40% POROSITY). THIS EQUATES TO 2.2 CUBIC FEET OF STORAGE/SQUARE FOOT OF BED. THE NOMINAL STORAGE VOLUME OF AN INSTALLED STORMTECH SC-310 CHAMBER SHALL BE 31.0 CUBIC FEET PER CHAMBER WHEN INSTALLED PER STORMTECH'S TYPICAL DETAILS (INCLUDES THE VOLUME OF CRUSHED ANGULAR STONE WITH AN ASSUMED 40% POROSITY). THIS EQUATES TO 1.3 CUBIC FEET OF STORAGE/SQUARE FOOT OF BED.

2.7 THE CHAMBER SHALL HAVE FORTY-EIGHT ORIFICES PENETRATING THE SIDEWALLS TO ALLOW FOR LATERAL CONVEYANCE OF WATER.

2.8 THE CHAMBER SHALL HAVE TWO ORIFICES NEAR ITS TOP TO ALLOW FOR EQUALIZATION OF AIR PRESSURE BETWEEN ITS INTERIOR AND EXTERIOR.

2.9 THE CHAMBER SHALL HAVE BOTH OF ITS ENDS OPEN TO ALLOW FOR UNIMPEDED HYDRAULIC FLOWS AND VISUAL INSPECTIONS DOWN A ROW'S ENTIRE LENGTH.

2.10 THE CHAMBER SHALL HAVE 14 CORRUGATIONS.

2.11 THE CHAMBER SHALL HAVE A CIRCULAR, INDENTED, FLAT SURFACE ON THE TOP OF THE CHAMBER FOR AN OPTIONAL 4-INCH INSPECTION PORT OR CLEAN-OUT.

2.12 THE CHAMBER SHALL BE ANALYZED AND DESIGNED USING AASHTO METHODS FOR THERMOPLASTIC CULVERTS CONTAINED IN THE LRFD BRIDGE DESIGN SPECIFICATIONS, 2ND EDITION, INCLUDING INTERIM SPECIFICATIONS THROUGH 2001. DESIGN LIVE LOAD SHALL BE THE AASHTO HS20 TRUCK. DESIGN SHALL CONSIDER EARTH AND LIVE LOADS AS APPROPRIATE FOR THE MINIMUM TO MAXIMUM SPECIFIED DEPTH OF FILL.

2.13 THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILITY.

3.0 END CAP PARAMETERS

3.1 THE END CAP SHALL BE INJECTION MOLDED OF POLYPROPYLENE RESIN TO BE INHERENTLY RESISTANT TO ENVIRONMENTAL STRESS CRACKING, AND TO MAINTAIN ADEQUATE STIFFNESS THROUGH HIGHER TEMPERATURES EXPERIENCED DURING INSTALLATION AND SERVICE.

3.2 THE END CAP SHALL BE DESIGNED TO FIT INTO ANY CORRUGATION OF A CHAMBER, WHICH ALLOWS: CAPPING A CHAMBER THAT HAS ITS LENGTH TRIMMED; SEGMENTING ROWS INTO STORAGE BASINS OF VARIOUS LENGTHS.

3.3 THE END CAP SHALL HAVE SAW GUIDES TO ALLOW EASY CUTTING FOR VARIOUS DIAMETERS OF PIPE THAT MAY BE USED TO INLET THE SYSTEM.

3.4 THE END CAP SHALL HAVE EXCESS STRUCTURAL ADEQUACIES TO ALLOW CUTTING AN ORIFICE OF ANY SIZE AT ANY INVERT ELEVATION.

3.5 THE PRIMARY FACE OF AN END CAP SHALL BE CURVED OUTWARD TO RESIST HORIZONTAL LOADS GENERATED NEAR THE EDGES OF BEDS.

3.6 THE END CAP SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILITY.

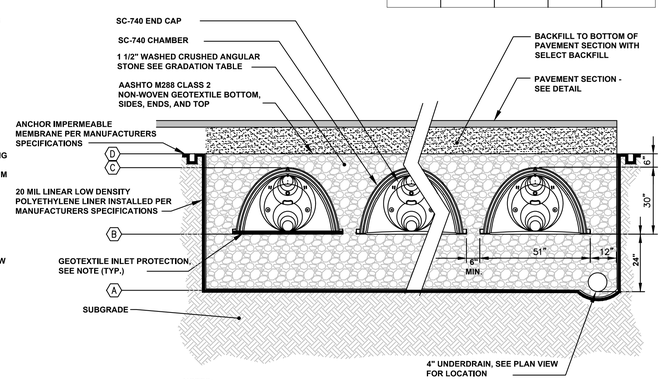
STORMTECH GENERAL NOTES

1. **STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.**
2. **OUR TECHNICAL SERVICES DEPARTMENT OFFERS INSTALLATION CONSULTATIONS TO INSTALLING CONTRACTORS. CONTACT OUR TECHNICAL SERVICES REPRESENTATIVE AT LEAST 30 DAYS PRIOR TO SYSTEM INSTALLATION TO ARRANGE A PRE-INSTALLATION CONSULTATION. OUR REPRESENTATIVES CAN THEN ANSWER QUESTIONS OR ADDRESS COMMENTS ON THE STORMTECH CHAMBER SYSTEM AND INFORM THE INSTALLING CONTRACTOR OF THE MINIMUM INSTALLATION REQUIREMENTS BEFORE BEGINNING THE SYSTEM'S TO SPEAK TO A TECHNICAL 1-888-892-2694 CONSTRUCTION. CALL TO WWW.STORMTECH.COM SERVICE REPRESENTATIVE OR VISIT RECEIVE A COPY OF OUR INSTALLATION INSTRUCTIONS.**
3. **STORMTECH'S REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.):MINIMUM COVER IS 18 INCHES NOT INCLUDING PAVEMENT; MAXIMUM COVER IS 96 INCHES INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT, WHERE RUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24 INCHES, MAXIMUM COVER IS 96 INCHES.**
4. **THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.**
5. **AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.**
6. **STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.**
7. **BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.**
8. **THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THIS INFORMATION IS ALSO AVAILABLE AT STORMTECH'S WEBSITE: WWW.STORMTECH.COM. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE STORMWATER SYSTEM. TEMPORARY FENCING, WARNING TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.**
9. **THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.**
10. **STORMTECH PRODUCT WARRANTY IS LIMITED. SEE CURRENT PRODUCT WARRANTY FOR DETAILS. TO ACQUIRE A COPY CALL 1-888-892-2694 STORMTECH OR VISIT WWW.STORMTECH.COM.**

SUBSURFACE DETENTION SYSTEMS MAY BE SUBSTITUTED WITH AN ENGINEER APPROVED EQUAL WHICH PROVIDES EQUAL DETENTION STORAGE AND WATER QUALITY TREATMENT

1 1/2" CRUSHED ANGULAR STONE GRADATION	
SIEVE DESIGNATION (US CUSTOMARY)	PERCENT BY WEIGHT PASSING
2"	100
1 1/2"	90–100
1"	20–55
3/4"	0–15
3/8"	0–5

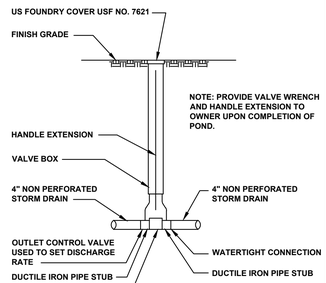
ELEVATION				
POND	A	B	C	D
1	198.73	200.73	203.23	203.73



NOTES:

1. **GEOTEXTILE INLET PROTECTION NOTE:**
   AT ALL PIPE INLETS TO CHAMBER PLACE WOVEN GEOTEXTILE THAT MEETS AASHTO M288 CLASS 1 REQUIREMENTS BETWEEN FOUNDATION STONE AND CHAMBER. PLACE A 5' - 6' WIDE STRIP CENTERED ON CHAMBER WIDTH WITH A LENGTH ALONG THE CHAMBERS EQUAL TO THE WIDTH OF THE FABRIC ROLL, BUT NOT LESS THAN 10'.
2. **CONSTRUCT 24" THICK STONE BASE FOR CHAMBERS.**

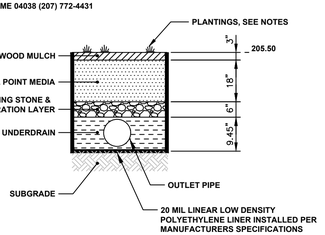
CHAMBER CROSS SECTION
NOT TO SCALE



OUTLET VALVE
NOT TO SCALE

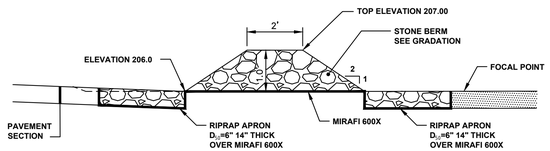
NOTES:

1. **FOCAL POINT SHALL BE PLANTED WITH NEW ENGLAND ASTER AND SWITCH GRASS SPACED 24" ON CENTER.**
2. **LANDSCAPING SUBSTITUTIONS SHALL BE APPROVED BY THE ENGINEER.**
3. **ALL FOCAL POINT MATERIAL SHALL BE PROVIDED BY THE MANUFACTURER. PLANT MATERIAL IS SUPPLIED BY GENERAL CONTRACTOR.**
4. **INSTALL SYSTEM PER MANUFACTURERS SPECIFICATIONS.**
5. **MANUFACTURERS REPRESENTATIVE SHALL SUPERVISE INSTALLATION.**
6. **FOCAL POINT REPRESENTATIVE:**
   ROBERT J WOODMAN, PE, CPESC
   ACF ENVIRONMENTAL
   23 FAITH DRIVE
   GORHAM, ME 04038 (207) 772-4431



FOCAL POINT
NOT TO SCALE

BERM STONE SIZE	
SIEVE DESIGNATION (US CUSTOMARY)	PERCENT BY WEIGHT PASSING
12 IN	100
6 IN	84–100
3 IN	68–83
1 IN	42–55
NO. 4	8–12



SEDIMENT FOREBAY - SECTION A-A
NOT TO SCALE

160 Veranda Street
Portland, Maine 04103
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Web: www.allied-eng.com

Allied Engineering
Structural Mechanical Electrical Commissioning

STATE OF MAINE — WILLIAM C. HASKELL — No. 8518 — 3/20/18 — LICENSED PROFESSIONAL ENGINEER

REVISIONS

NUMBER	DATE	BY	DESCRIPTION

Date:
Drawn By: LAN
Checked By: WCH
Project Mgr: WPF
Project No: 15035
Cad File: 98083.05_DET
Graphic Scale: 0 1"

FOCAL POINT FILTER DETAIL

SHARED MAINTENANCE FACILITY
WINDHAM, MAINE

C-16

SITE PLAN APPLICATION - APRIL 2018 - NOT FOR CONSTRUCTION

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