



**Town of Windham
Final – Major Site Plan**

For:

**State of Maine Correctional Center:
Maintenance & Control Plant Building
17 Mallison Falls Road
Windham, Maine**

Prepared for:

**State of Maine, Department of Corrections
17 Mallison Falls Road
Windham, Maine**

Prepared by:

**Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, Maine 04106**

November 2018

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November 6, 2018
16405

Ms. Amanda Lessard, Planner
Town of Windham Planning Board
8 School Road
Windham ME, 04062

Final Site Review - State of Maine Windham Corrections Center Maintenance and Central Plant Building

Dear Amanda and Planning Board members:

On behalf of the State of Maine Department of Corrections, we have prepared the following Final - Major Site Plan application for a new Maintenance and Central Plant Building at the Maine Correctional Facility located off of Malison Falls Road in Windham, Maine. This Final Plan application has been prepared in follow-up to our sketch plan submittal submitted in October of this year.

Our submittal includes the application, site development plans, stormwater management plan, building plan and supporting technical submittals. In support of the application, we offer the following narrative for staff and Planning Board consideration.

Introduction:

The State of Maine, Maine Department of Corrections owns and operates the Windham Correctional Facility. The facility is located on 265 acres of land and was originally developed prior to 1970. The facility is antiquated and in need of modernization.

The first phase of the facility modernization and the basis of this permit application is a 20,017 square foot Maintenance and Central Plant Building with supporting paved circulation and parking area. The construction of this new building is the first critical piece of infrastructure to accommodate not only operational needs but will also serve as point of beginning to eventually support the entire modernization project.

As depicted on the development plans, the new building will be located on the westerly side of the existing facility just outside the security fence and next to an existing parking lot. Site access will be gained through the existing perimeter access road. The new building will be single-story with garage access doors, office entry doors and a sloped metal roof.

The project will also include a 1,000-gallon aboveground fuel storage tank for the purpose of fueling operational vehicles. The fuel tank will be double walled with monitoring and will also be set inside a precast concrete chamber with a shed roof. Prior to the site being operational, a revised SPCC plan will be prepared in general conformance with State standards and 40 CFR 112. Details of the fueling tank are included on the site development plans.

Permitting History:

The facility originally received a Maine DEP (MDEP) Site Location of Development Act Permit in 1989 (L-015483-26-A-N) for numerous sites and building construction projects since the original pre-1970's facility construction. More recently, the facility received local approval and a MDEP permit amendment for the construction of a 72 bed Women's Reentry Center completed in 2017 together with Town of Windham Site Plan Approval. A Maine DEP application was submitted in late September for the new Maintenance and Central Plant and a permit issued in early November of 2018.

Project Funding:

The project is funded through the State of Maine authorized funding (S.P. 547- L.D. 1447) an act to authorize the Maine governmental facilities authority to issue securities to pay for capital improvements at the Maine Correctional Facility in Windham. This funding provides the State with capital investment money to rehabilitate and modernize the antiquated Windham Correctional Facility.

Traffic:

The new Maintenance and Physical Plant Building will replace an existing building that is antiquated and no longer functional to meet the facility current and future needs. Since this is a replacement building that will provide similar function to the existing building, no change in traffic generation or patterns are expected. This is a low traffic generation project since the building is for internal maintenance, heating and cooling with only limited employee usage and periodic deliveries similar to the existing maintenance building.

Utilities:

The existing facility is served by public water and sewer from the Portland Water District. The new building will also be served by public water and sewer. Natural Gas is available and will provide the fuel for the heating system. Three phase power currently services the site and will also serve the new building.

Since this project will replace an existing building, no change in overall water usage or wastewater generation is expected. The facility will connect to the internally facility sanitary system and a new water main for fire suppression and domestic water will be extended from Malison Falls Road to the project site. Enclosed is correspondence from the Portland Water District indicating their ability to provide service to the project.

Lighting:

The project will include exterior building mounted lights (LED) with sharp cut-offs. Enclosed with this submittal are the electrical and lighting drawings.

Stormwater:

The new building and site improvements will include stormwater collection and management system including catch-basins, underground conveyance piping, underdrained soil filter and buffers for the

treatment and detention of runoff. The stormwater management plan and supporting analysis are included in this submittal. The stormwater management plan has been reviewed and approved by the Maine DEP as part of the recent SLODA Amendment permit.

Schedule:

Site construction is expected to commence in late November of 2018 upon receipt of state and local approvals for the Site Plan. The Maine Department of Corrections is hopeful to complete the permitting process through the Town in November to allow for a late fall/ early winter start and completion of the facility by October 2019.

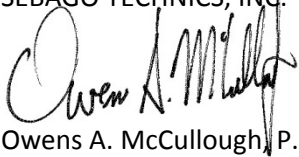
Closure:

On behalf of the Maine Department of Corrections, we look forward to working with the Planning Staff and Planning Board to permit this project.

SEBAGO TECHNICS, INC.

Sincerely,

SEBAGO TECHNICS, INC.

A handwritten signature in black ink, appearing to read "Owens A. McCullough", is written over the printed name.

Owens A. McCullough, P.E., LEED-AP

Sr. Vice President, Strategy and Client Development

Cc: Dennis Morin, AIA – SMRT

Gary LaPlante - Maine Department of Corrections

TOWN OF WINDHAM MAJOR SITE PLAN APPLICATION

Final Plan

(Section 811 – Site Plan Review, Submission Requirements)

The original signed copy of this application must be accompanied by:

- The required application and review escrow fees,
- Five (5) collated submission packets, which must include
 - Full size paper copies of each plan, map, or drawing, and
 - A bound copy of the required information found in Section 811 of the Land Use Ordinance.
 - The checklist below offers a brief description of these requirements for the purpose of determining the completeness of a submission. Please use the Ordinance for assembling the submission packets.
 - Only two (2) full copies of Stormwater Management Plan and Traffic Impact Study are required. Summaries and conclusions of the Stormwater Management Plan and Traffic Impact Study are adequate for the remaining three (3) submission packets.
- Electronic submission in PDF format of:
 - All plans, maps, and drawings.
 - These may be submitted as a single PDF file or a PDF for each sheet in the plan set.
 - A PDF of the required information found in Section 811 of the Land Use Ordinance

The submission deadline for Final plans is three (3) weeks before the Planning Board meeting for which it will be scheduled.

Applicants are strongly encouraged to schedule a brief submission meeting with Planning Staff, to walk through the application checklist at the time a Planning Board submission is made. This will allow applicants to receive a determination of completeness, or a punch list of outstanding items, at the time a submission is made.

If you have questions about the submission requirements, please contact:

Windham Planning Department	(207) 894-5960, ext. 2
Amanda Lessard, Planner	allessard@windhammaine.us
Ben Smith, Planning Director	bwsmith@windhammaine.us

Final Plan - Major Site Plan

Project Name: State of Maine Correctional Center: Maintenance & Control Plant Building

Tax Map: 3 **Lot:** 5

Estimated square footage of building(s): 20,017 s.f.

If no buildings proposed, estimated square footage of total development: _____

Is the total disturbance proposed > 1 acre? ☒ Yes ☐ No

Contact Information

1. Applicant

Name: State of Maine, Department of Correction

Mailing Address: 17 Mallison Falls Road, Windham, ME

Telephone: 207-287-4389 **Fax:** _____ **E-mail:** Gary.LaPlante@maine.gov

2. Record owner of property

X (Check here if same as applicant)

Name: _____

Mailing Address: _____

Telephone: _____ **Fax:** _____ **E-mail:** _____

3. Contact Person/Agent (if completed and signed by applicant's agent, provide written documentation of authority to act on behalf of applicant)

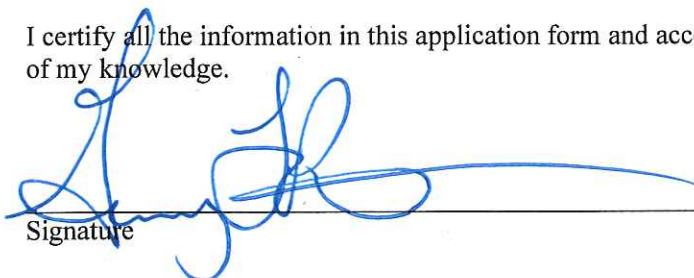
Name: Owens McCullough, P.E.

Company Name: Sebago Technics, Inc.

Mailing Address: 75 John Roberts Road, Suite 4A, South Portland, ME 04106

Telephone: 207-200-2073 **Fax:** _____ **E-mail:** omccullough@sebagotechnics.com

I certify all the information in this application form and accompanying materials is true and accurate to the best of my knowledge.


Signature

11/7/2018
Date

Final Plan - Major Site Plan: Submission Requirements		Applicant	Staff
a.	Complete Sketch Plan Application form	x	
b.	Evidence of payment of application and escrow fees	x	
c.	Written information - submitted in bound report		
1	A narrative describing the proposed use or activity	x	
2	Name, address, & phone number of record owner, and applicant if different	x	
3	Names and addresses of all abutting property owners	x	
4	Documentation demonstrating right, title, or interest in property	x	
5	Copies of existing proposed covenants or deed restrictions	n/a	
6	Copies of existing or proposed easements on the property	n/a	
7	Name, registration number, and seal of the licensed professional who prepared the plan, if applicable	x	
8	Evidence of applicant's technical capability to carry out the project	x	
9	Assessment of the adequacy of any existing sewer and water mains, culverts and drains, on-site sewage disposal systems, wells, underground tanks or installations, and power and telephone lines and poles on the property	x	
10	Estimated demand for water supply and sewage disposal	x	
11	Provisions for handling all solid wastes, including hazardous and special wastes	x	
12	Detail sheets of proposed light fixtures	x	
13	Listing of proposed trees or shrubs to be used for landscaping	x	
14	Estimate weekday AM and PM and Saturday peak hour and daily traffic to be generated by the project	x	
15	Description of important or unique natural areas and site features, including floodplains, deer wintering areas, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, sand and gravel aquifers, and historic and/or archeological resources	x	
16	If the project requires a stormwater permit from MaineDEP or if the Planning Board or if the Staff Review Committee determines that such information is required, submit the following:		
	stormwater calculations	x	
	erosion and sedimentation control measures	x	
	water quality and/or phosphorous export management provisions	x	
17	If public water or sewerage will be utilized, provide statement from utility district regarding the adequacy of water supply in terms of quantity and pressure for both domestic and fire flows, and the capacity of the sewer system to accommodate additional wastewater.	x	
18	Financial Capacity	x	
	i. Estimated costs of development and itemize estimated major expenses	x	
	ii. Financing (submit one of the following)		
	a. Letter of commitment to fund	x	

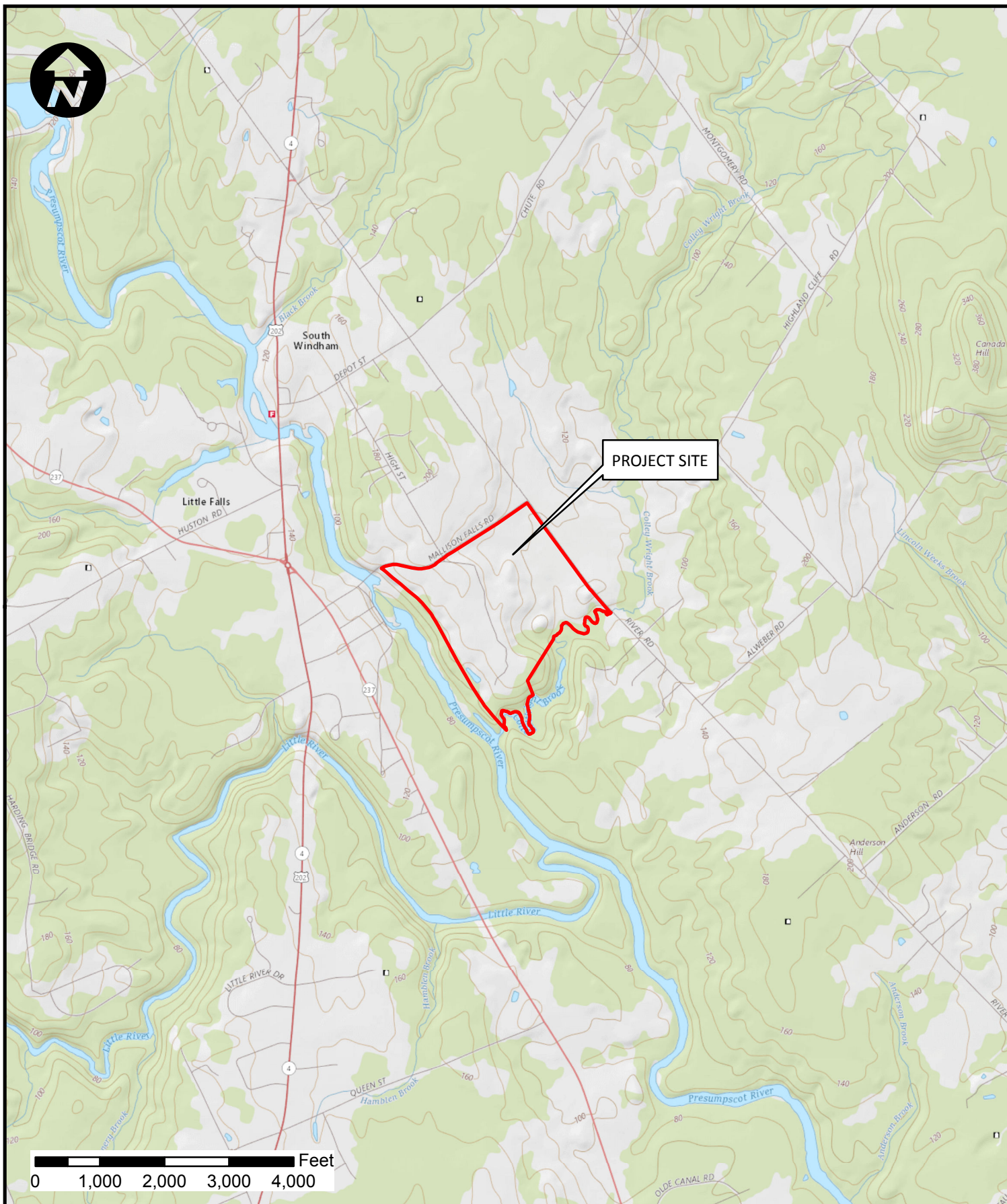
	b. Self-financing		
	1. Annual corporate report		
	2. Bank Statement		
	c. Other		
	1. Cash equity commitment of 20% of total cost of development		
	2. Financial plan for remaining financing		
	3. Letter from institution indicating intent to finance		
	iii. If a registered corporation a Certificate of Good Standing from:		
	Secretary of State, or		
	statement signed by corporate officer		
19	Technical Capacity (address both)		
	i. Prior experience	x	
	ii. Personnel	x	
d. Plan Requirements - Existing Conditions			
i.	Location Map adequate to locate project within the municipality	x	
ii.	Vicinity Plan. Drawn to scale of not over 400 feet to the inch, and showing area within 250 feet of the property line, and shall show the following:	x	
	a. Approximate location of all property lines and acreage of parcels	x	
	b. Locations, widths and names of existing, filed or proposed streets, easements or building footprints	x	
	c. Location and designations of any public spaces	x	
	d. Outline of proposed subdivision, together with its street system and an indication of the future probable street system of the remaining portion of the tract	x	
iii.	North Arrow identifying Grid North; Magnetic North with the declination between Grid and Magnetic; and whether Magnetic or Grid bearings were used	x	
iv.	Location of all required building setbacks, yards, and buffers	x	
v.	Boundaries of all contiguous property under the total or partial control of the owner or applicant	x	
vi.	Tax map and lot number of the parcel or parcels on which the project is located	x	
vii.	Zoning classification(s), including overlay and/or subdistricts, of the property and the location of zoning district boundaries if the property is located in 2 or more districts or abuts a different district.	x	
viii.	Bearings and lengths of all property lines of the property to be developed, and the stamp of the surveyor that performed the survey.	n/a	
ix.	Existing topography of the site at 2-foot contour intervals	x	
x.	Location and size of any existing sewer and water mains, culvers and drains, on-site sewage disposal systems, wells, underground tanks or installations, and power and telephone lines and poles on the property and on abutting streets or land that may serve the development.	x	
xi.	Location, names, and present widths of existing public and/or private streets and rights-of way within or adjacent to the proposed development	n/a	
xii.	Location, dimensions, and ground floor elevation of all existing buildings	x	

xiii.	Location and dimensions of existing driveways, parking and loading areas, walkways, and sidewalks on or adjacent to the site.	x	
xiv.	Location of intersecting roads or driveways within 200 feet of the site.	x	
xv.	Location of the following:		
	a. Open drainage courses	x	
	b. Wetlands	x	
	c. Stone walls	n/a	
	d. Graveyards	n/a	
	e. Fences	x	
	f. Stands of trees or treeline, and	x	
	g. Other important or unique natural areas and site features, including but not limited to, floodplains, deer wintering areas, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, sand and gravel aquifers, and historic and/or archaeological resources	x	
xvi.	Direction of existing surface water drainage across the site	x	
xvii.	Location, front view, dimensions, and lighting of existing signs	x	
xviii.	Location & dimensions of existing easements that encumber or benefit the site	x	
xix.	Location of the nearest fire hydrant, dry hydrant, or other water supply	x	
Plan Requirements - Proposed Development Activity			
i.	Location and dimensions of all provisions for water supply and wastewater disposal, and evidence of their adequacy for the proposed use, including soils test pit data if on-site sewage disposal is proposed	x	
ii.	Grading plan showing the proposed topography of the site at 2-foot contour intervals	x	
iii.	Direction of proposed surface water drainage across the site and from the site, with an assessment of impacts on downstream properties.	x	
iv.	Location and proposed screening of any on-site collection or storage facilities	n/a	
v.	Location, dimensions, and materials to be used in the construction of proposed driveways, parking and loading areas, and walkways, and any changes in traffic flow onto or off-site	x	
vi.	Proposed landscaping and buffering	n/a	
vii.	Location, dimensions, and ground floor elevation of all buildings or expansions	x	
viii.	Location, front view, materials and dimensions of proposed signs together with method for securing sign	n/a	
ix.	Location and type of exterior lighting. Photometric plan to demonstrate coverage area of all lighting may be required by Planning Board.	x	
x.	Location of all utilities, including fire protection systems	x	
xi.	Approval block: Provide space on the plan drawing for the following words, "Approved: Town of Windham Planning Board" along with space for signatures and date	x	

2. Major Final Site Plan Requirements		
a.	Narrative and/or plan describing how the proposed development plan relates to the sketch plan	x
b.	Stormwater drainage and erosion control program showing:	x
	1. Existing and proposed method of handling stormwater runoff	x
	2. Direction of the flow of the runoff, through the use of arrows and a description of the type of flow (e.g. sheet flow, concentrated flow, etc.)	x
	3. Location, elevation, and size of all catch basins, dry wells, drainage ditches, swales, retention basins, and storm sewers	x
	4. Engineering calculations used to determine drainage requirements based on the 25-year, 24-hour storm frequency.	x
	5. Methods of minimizing erosion and controlling sedimentation during and after construction.	x
c.	A groundwater impact analysis prepared by a groundwater hydrologist for projects involving on-site water supply or sewage disposal facilities with a capacity of 2,000 gallons or more per day	n/a
d.	Name, registration number, and seal of the Maine Licensed Professional Architect, Engineer, Surveyor, Landscape Architect and/or similar professional who prepared the plan	x
e.	A utility plan showing, in addition to provisions for water supply and wastewater disposal, the location and nature of electrical, telephone, cable TV, and any other utility services to be installed on the site	x
f.	A planting schedule keyed to the site plan indicating the general varieties and sizes of trees, shrubs, and other vegetation to be planted on the site, as well as information pertaining to provisions that will be made to retain and protect existing trees, shrubs, and other vegetation	n/a
g.	Digital transfer of any site plan data to the town (GIS format)	x
h.	A traffic impact study if the project expansion will generate 50 or more trips during the AM or PM peak hour, or if required by the Planning Board	n/a
Electronic Submission		x

Exhibit 1

Vicinity Maps



SEBAGO
TECHNICS

WWW.SEBAGOTECHNICS.COM

75 John Roberts Rd. - Suite 1A
South Portland, ME 04106
Tel. 207-200-2100

**TITLE
FOR:**

SITE LOCATION MAP
Maine Correctional Center – Maintenance & Central Plant Building -
Department of Corrections

LOCATION:

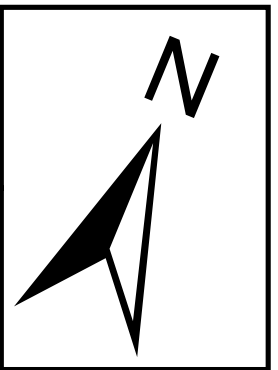
17 Mallison Falls Rd
Windham, ME 04062

INFORMATION:

USGS Quadrangle: Gorham

SCALE: 1" = 2,000'

DATE: 09/21/2018



THESE MAPS ARE FOR ASSESSMENT PURPOSES ONLY AND ARE NOT FOR CONVEYANCE.

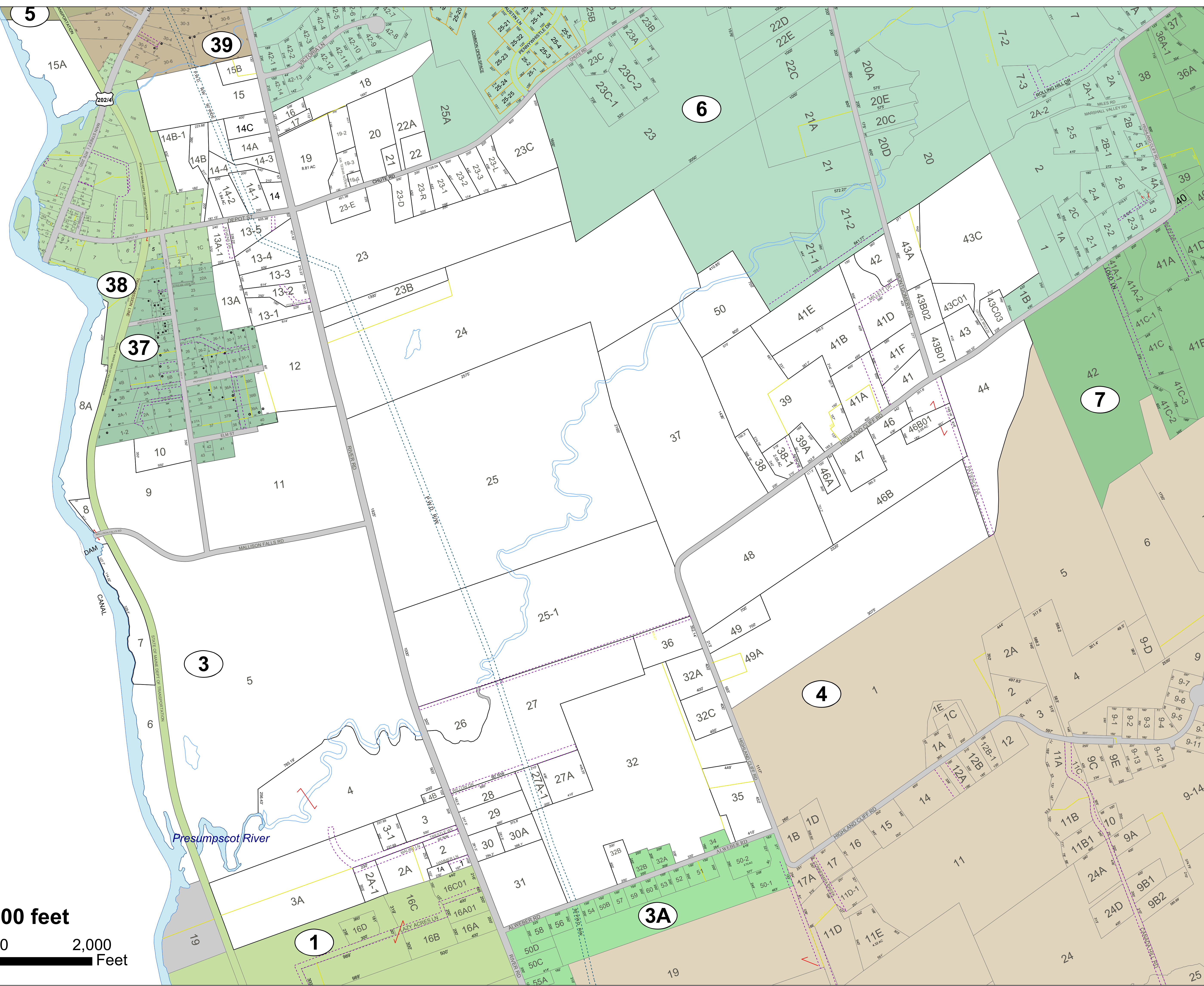
These Tax Maps are based on original maps compiled by James W. Sewall Co.

TOWN OF WINDHAM CUMBERLAND COUNTY, MAINE 2016 PROPERTY MAPS

SOURCES:
Windham Tax Assessor's Office
Completion Date: April 1, 2016
UTM NAD83 Z19N
Prepared by: Windham GIS Dept.
Scale is based on printing at 24" x 36".

- Legend**
- Cemetery
 - Condominium
 - Farmstead
 - Hook
 - Old Property Lines
 - PWD ROW Easement
 - ROW Easement
 - Streams
 - Subdivision Number
 - Tie Line
 - Town Line
 - Utility
 - Vacated Subdivision
 - Subject Map

Map 3



Gorham

1 inch = 400 feet



Exhibit 2

Abutting Property Owners

Exhibit 2: Abutters List

Richard R & Norma L Boulanger

13 Trestle Way

Windham, ME 04062

Sicklestroke, LLC

3 Mallison Falls Rd

Windham, ME 04062

Buker Enterprises, LLC

430 Northeast Road

Standish, ME 04084

Maine State Society for the Protection of Animals

279 River Road

Windham, ME 0402

Michael R & Pamela Allen Pattee

157 River Road

Windham, ME 04062

Exhibit 3

Right, Title Interest

Exhibit 3: Title, Right or Interest

The record owner of the parcel is the State of Maine by a deed recorded at the Cumberland County Registry of Deed in Book 1051, Page 179. Please see this Exhibit for a copy of the property card and Exhibit 5 for the existing deed.

17 MALLISON FALLS RD

Location 17 MALLISON FALLS RD**Mblu** 3/ 5/ / /**Acct#** S3820R**Owner** STATE REFORMATORY**Assessment** \$32,661,400**PID** 108**Building Count** 1

Current Value

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$32,057,900	\$603,500	\$32,661,400

Owner of Record

Owner STATE REFORMATORY**Sale Price** \$0**Co-Owner****Certificate** 1**Address** 17 MALLISON FALLS ROAD
WINDHAM, ME 04062**Book & Page** 1051/ 179**Sale Date** 05/18/1920

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
STATE REFORMATORY	\$0	1	1051/ 179	05/18/1920

Building Information

Building 1 : Section 1**Year Built:****Living Area:** 0**Replacement Cost:** \$0**Building Percent****Good:****Replacement Cost****Less Depreciation:** \$0

Building Attributes	
Field	Description
Style	Vacant Land
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	

Building Photo

(http://images.vgsi.com/photos/WindhamMEPhotos//\00\00\45\73.jpg)

Building Layout

Building Layout

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land**Land Use**

Use Code 901V
Description STATE OF MAINE
Zone I
Neighborhood 001
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 108.40
Frontage
Depth
Assessed Value \$603,500

Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FA	FLAT AMOUNT			9160600 UNITS	\$8,702,600	1
FA	FLAT AMOUNT			9160600 UNITS	\$8,702,600	1
FA	FLAT AMOUNT			9160600 UNITS	\$8,702,600	1
FA	FLAT AMOUNT			6263221 UNITS	\$5,950,100	1

Valuation History

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$26,107,800	\$603,500	\$26,711,300
2015	\$26,107,800	\$603,500	\$26,711,300
2014	\$26,107,800	\$603,500	\$26,711,300

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Exhibit 4

**A. Existing or Proposed
Covenants or Deed Restrictions**

B. Existing or Proposed Easements

Exhibit 4: Existing Covenants or Easements

There are no existing covenants or easements on the subject site.

Exhibit 5

Existing Deeds

KNOW ALL MEN BY THESE PRESENTS: That the County of Cumberland, a body corporate and politic, existing by law and located in the State of Maine, In consideration of one dollar and other valuable considerations paid by the State of Maine, a body corporate and politic, and duly existing under the law, the receipt whereof it does hereby acknowledge, does hereby give, grant, bargain, sell and convey unto the said State of Maine, its successors and assigns forever, the following described real estate.

Co. of Cumb.
to
State of Me.
Warranty

A certain lot or parcel of land with the buildings thereon situated in the town of Windham, County of Cumberland and State of Maine, bounded and described as follows, viz:- Beginning at an iron hub set in the ground at the southeasterly corner of the land of Frank W. Bryant on the Southwesterly side of the River Road, so called, running through said Windham; thence southeasterly by said River Road to Dole's Brook, so called; thence westerly by said Brook to a large willow tree on the northerly side of said brook; thence westerly in a straight line and by the northerly side line of the land now or formerly belonging to the heirs of Jonathan Sanborn to an iron hub set in the ground; thence southerly by said land now or formerly of said Sanborn heirs to an iron hub and spruce tree on the northerly bank of said brook; thence southwesterly by said brook to the eastern boundary of the present location of the Portland & Ogdensburg Railroad Company now leased to the Maine Central Railway and known as the Mountain Division thereof; thence northwesterly by said railroad location to the so-called tank lot; thence easterly by said tank lot and land of J. L. Brackett to the southerly side of the Mallison Falls road, so called; thence easterly by said southerly side of said Mallison Falls road to an iron hub set in the ground on the southerly side line of said Mallison Falls Road at the westerly corner of said land of said Frank W. Bryant; thence southerly by said Frank W. Bryant's land to the southerly corner thereof; thence easterly by said Frank W. Bryant's land to the point of beginning.

Subject to whatever rights the Maine Central Railway may have upon or over the premises.

Meaning and intending hereby to convey the same premises conveyed to Joseph L. Robinson by Fred C. Phinney by his deed dated July 11, A. D. 1895, and recorded in the Registry of Deeds for Cumberland County, Book 629, Page 14; by Charles W. Caswell by his deed dated Feb. 17, A. D. 1898, and recorded in said Registry, Book 660, page 182; by Nielsina Madsen by deed dated Feb. 17, 1898, and recorded in said Registry in Book 660, Page 183; and by Jonathan Sanborn by his deed dated Feb. 23, A. D. 1898, and recorded in said Registry in Book 668, Page 178, except a small irregular shaped piece of land on the southerly side of Dole's Brook, which the said Joseph L. Robinson conveyed to Jonathan Sanborn by deed dated March 1, A. D. 1898, and recorded in said Registry, Book 666, Page 494.

Also another certain lot or parcel of land with the buildings thereon situated in said Windham, bounded and described as follows, viz:- Commencing on the northeasterly side of the River Road, so called, running through said Windham at

the southwesterly corner of land of Rebecca Johnson; thence running southeasterly by said River Road to the Cross Road leading northeasterly to the schoolhouse lot; thence northeasterly by said last named road to said schoolhouse lot; thence northwesterly and northeasterly by said schoolhouse lot to the road running to the northeasterly side of said schoolhouse lot and past the house of Ann Moore; thence northwesterly by said last named road and the westerly side line of land now or formerly belonging to the heirs of Nathan Wood to the southerly side line of land of said Rebecca Johnson; thence southwesterly by said southerly side line of said Rebecca Johnson land to the point of beginning.

Meaning and intending hereby to convey the same premises conveyed to the said Joseph L. Robinson by Clara L. Webb by her deed dated Oct. 30, A. D. 1906, and recorded in the Cumberland County Registry of Deeds, Book 798, Page 27; by Maud E. Hubbard by deed dated Oct. 30, A. D. 1906, said deed recorded in said Registry in Book 798, Page 199; and by Lindley M. Webb, guardian of Fred L. Webb and Roy F. Webb, by deed dated Nov. 20, A. D. 1906, said deed being recorded in said Registry in Book 777, Page 397;

Also another certain lot or parcel of land with the buildings thereon situated in said Windham on the westerly side of the 'New Road', so called, leading from the Mallison Falls Road to the Depot Road, so called, near the Railroad Station at South Windham, and bounded northerly by land now or formerly of S. D. Warren Company; easterly by said New Road; southerly by land of the heirs of Joseph L. Robinson and westerly by land of the Maine Central Railway; containing about fourteen (14) acres. Being the same premises conveyed to the said Joseph L. Robinson by Hannah N. Frink by her deed dated April 26, A. D. 1895, recorded in said Registry, Book 626, Page 68. Subject, however, to a lease given by the said Joseph L. Robinson to the Maine Central Railway for location of a semaphore upon said land, which lease and rights thereunder the said Joseph L. Robinson assigned to The Aspenhurst Farm, and which lease and rights thereunder the said The Aspenhurst Farm assigned to the County of Cumberland, and which lease and rights thereunder the said County of Cumberland assigns to the State of Maine as a part of this conveyance.

All of the hereinbefore described lots or parcels of land being a part of the same premises which were conveyed by Joseph L. ~~Robinson~~ and Mary E. Robinson to the said The Aspenhurst Farm by their warranty deed dated January 22, A. D. 1907, said deed being recorded in said Registry of Deeds, Book 802, Page 145; and by deed of The Aspenhurst Farm to the County of Cumberland dated January 22, 1913 and recorded in said Registry of Deeds, Book 907, Page 161.

The last above described lot or parcel is subject to a reservation and exception in favor of The Aspenhurst Farm, its successors and assigns forever, of a certain spring located upon the southerly side of said lot or parcel of land and being the same now furnishing or supplying water for the dwelling house and premises of the late Joseph L. Robinson. And for the purpose of taking, drawing and conducting the waters of said spring across said lot to the said premises formerly

of said Joseph L. Robinson, the said The Aspenhurst Farm has further reserved and excepted unto itself, its successors and assigns forever, the right to enter upon said premises at all reasonable times to dig and excavate the soil thereof and to lay, repair and maintain pipes below the surface of the same, said pipes to be forever laid and maintained in a course substantially the same as that of the present pipe line, viz: in a southerly direction and straight line from said spring to said premises formerly of said Joseph L. Robinson. For further description of said reservations and exceptions reference is hereby made to said deed from said The Aspenhurst Farm to The County of Cumberland.

Also another certain lot or parcel of land situated in the town of Windham, in said County and State, and bounded and described as follows, viz:-
Commencing at the intersection of the South side of the Mallison Falls Road, so called, with the West side of the River Road, so called, leading from Gambo past the Squire Webb Homestead to the Cumberland Mills, and from thence running West-erly by said Mallison Falls Road fifty-three and one-half ($53 \frac{1}{2}$) rods to an iron hub driven in the ground; thence Southerly to land now or formerly of Charles J. Larry thirty and one-third ($30 \frac{1}{3}$) rods to an iron hub driven in the ground and land now or formerly of Fred C. Phinney; thence Easterly parallel with the first bound of fifty-three and one-half ($53 \frac{1}{2}$) rods to said River Road to a point thirty and one-third rods Southerly from the point of beginning and measured on said River Road and to an iron hub driven in the ground; thence Northerly by said River Road thirty and one-third rods to the point of beginning, containing ten (10) acres, more or less. Meaning and intending hereby to convey the same prop-erty conveyed to said County of Cumberland by deed of John C. Nichols, Administrator of the estate of Frank W. Bryant, dated April 3, 1913 and recorded in the Cumber-land Registry of Deeds, Book 904, Page 493.

Also a certain lot or parcel of land located on the Northeasterly side of High Street, so called, in the town of Windham and bounded and described as follows, to wit, beginning at an iron hub on the Northeasterly side of said High Street on the line between land of William H. Bickford and land of J. W. C. Roberts; thence Northeasterly along the line of said Robert's land to an iron hub set in the line between said Bickford's land and land of George Long; thence Southerly by said Long's land to an iron hub set in the Northerly side line of the Mallison Falls Road; thence Westerly along said Mallison Falls Road to a standing post set in the Northeasterly side line of said High Street; thence along the Northeasterly side line of said High Street to the point of beginning, containing seventeen (17) acres, more or less.

Hereby conveying a portion of the real estate which was bequeathed to William H. Bickford by his late father William Bickford, by his last will and testament, which was duly proved and allowed by the Judge of Probate for said County.

Being the same property conveyed the said County of Cumberland by William H. Bickford by his Warranty Deed dated July 14, 1913 and recorded in the Cumberland Registry of Deeds, Book 916, Page 201.

Also a certain lot or parcel of land in said Windham on the westerly side of the "New Road" so called, which leads from Depot Street in said Windham to the Mallison Falls Road, so called, said lot or parcel of land being bounded and described as follows, viz;- Beginning at a point on said westerly side of said road, which point is distant on a course South 6° 30' West, five hundred and thirty-one and three tenths (531.3) feet from the southeast corner of land of the S. D. Warren Company; thence North 86° 50' West a distance of five hundred and forty-five (545) feet more or less to an iron hub set in the ground; thence North 4° 17' East one hundred fifty-two and twenty-five hundredths (152.25) feet to the southerly side of the so-called Frink lot, which on Jan. 22, 1913 was conveyed by The Aspenhurst Farm to the County of Cumberland; thence in an easterly direction along said southerly side of said Frink lot a distance of five hundred and forty-five (545) feet more or less to said westerly side of said New Road; thence South 6° 30' West along said westerly side of said New Road to the point of beginning.

Hereby conveying the same premises that were conveyed to this Grantor by two deeds, one from Mary E. Robinson et als dated February 18, 1913, and recorded in said Registry in Book 909, Page 203, and the other from Mary E. Robinson, Guardian of Albert L. Robinson and Mary Elizabeth Robinson dated February 27, 1913, and recorded in said Registry, Book 904, Page 483, said two deeds conveying the interests of the widow and only heirs at law of Joseph L. Robinson, late of said Windham, deceased.

TO HAVE AND TO HOLD the aforegranted and bargained premises, with all the privileges and appurtenances thereof to the State of Maine, its successors and assigns, to its and their use and behoof forever.

AND the said County of Cumberland does covenant with the said Grantee, its successors and assigns, that it is lawfully seized in fee of the premises; that they are free of all incumbrances; that it has good right to sell and convey the same to the said Grantee to hold as aforesaid; and that it and its successors and assigns shall and will WARRANT AND DEFEND the same to the said Grantee, its successors and assigns, against the lawful claims and demands of all persons.

IN WITNESS WHEREOF the said County of Cumberland by its Board of County Commissioners thereunto duly authorized in accordance with the provisions of the Private and Special Laws of Maine for the year 1919, chapter 85, section 2, and in pursuance of a vote of said Board taken on the eighth day of April, A. D. 1920, has hereunto caused its name to be signed and its seal to be affixed this eighth day of May, A. D. 1920.

IN WITNESS WHEREOF the said County of Cumberland also by its agent Norman True duly appointed in complinace with the provisions of the 1916 revision of the Statutes of Maine, chapter 83, section 10, by vote duly passed by its board of County Commissioners in regular session on the fourth day of May, 1920 which said vote is duly recorded in the record of its proceedings duly kept by

said board of County Commissioners, has hereunto caused his name to be signed and his seal to be affixed this eighth day of May, 1920.

Signed, Sealed and Delivered in the presence of:-

Thomas J. Kennon to all

County of Cumberland (County Seal)

By Charles A. Maxwell Seal

Clarence L. Bucknam Chairman Seal U.S.I.R. \$16.00 C.L.B. May 8 1920 N.T.

Frank M. Hawkes Commissioners Seal

Norman True Agent Seal

State of Maine Cumberland, ss. Portland, May 8, 1920.

Personally appeared the above named Charles A. Maxwell, Clarence L. Bucknam and Frank M. Hawkes, to me personally known, who took oath that they are the duly elected Commissioners of said County of Cumberland, and that the foregoing is their free act and deed in their said capacity, and the free act and deed of said County of Cumberland.

And personally appeared the above named Norman True to me personally known, who took oath that he was the duly appointed agent of the Commissioners of said County of Cumberland in pursuance of the provisions of the 1916 revision of the Statutes of Maine, Chapter 83, Section 10, and that the foregoing is his free act and deed in his said capacity, and the free act and deed of said County of Cumberland.

Before me, Franz U. Burkett, Justice of the Peace.
Received May 18, 1920, at 1h, 45m, P. M., and recorded according to the original.

KNOW ALL MEN BY THESE PRESENTS, That I, Jesse Holden of Harrison County of Cumberland State of Maine being the owner of a certain mortgage given by William L. Ash of Otisfield County and State aforesaid to Jesse Holden dated June 4th, A. D. 1917, and recorded in Cumberland Registry of Deeds, Book 994, Page 16, do hereby acknowledge that I have received full payment and satisfaction of the same, and of the debt thereby secured, and in consideration thereof I do hereby cancel and discharge said mortgage, and release unto the said William L. Ash, his heirs and assigns forever the premises therein described.

HOLDEN
to
Ash
Discharge

IN WITNESS WHEREOF, I the said Jesse Holden have hereunto set my hand and seal this fourth day of May, A. D. 1920.
Signed, Sealed and Delivered in presence of

Jesse Holden, SEAL.

State of Maine. County of Cumberland, ss. May 4th, 1920.

Then personally appeared the above named Jesse Holden and acknowledged the foregoing instrument to be his free act and deed, before me,
Notarial Seal. A. F. Chute, Notary Public.

Received May 18, 1920, at 2h, P. M., and recorded according to the original.

State of Maine. Cumberland, ss. Portland, May 18, A. D. 1920.

I, Harry H. Cannell, attorney of record for Edward M. Norton, plaintiff in

Norton
to
Haney &

Exhibit 6

Technical Capacity

Exhibit 6: Consultant List

Architectural

SMRT
144 Fore Street
Portland, ME 04101
Contact: Dennis Morin
877.700.7678
DMorin@SMRTInc.com

Construction Manager

Cianbro Corporation
101 Cianbro Square
P.O. Box 1000
Pittsfield, ME 04967
(207) 773-5852

Civil, Survey, Soils, Traffic, Environmental

Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, ME 04106
Contact: Owens McCullough
(207) 200-2073
omcculloughs@sebagotechnics.com

INTRODUCTION

Throughout our 69-year history, Cianbro has safely and efficiently planned, managed, and constructed many technically complex, historic, and environmentally sensitive projects for a wide variety of public and private clients. A total commitment to safety combined with the enthusiasm of an innovative team of construction professionals, has enabled Cianbro to build a durable reputation for completing projects safely, on schedule, and within budget. Teamwork, dedication, and commitment are what differentiate Cianbro from its competitors. Cianbro applies our can-do spirit in the workplace every day, implementing innovative and creative solutions for client's needs on a wide variety of projects. Ranked #92 on Engineering News-Record's (ENR) 2018 The Top 400 Contractors, Cianbro is best known for managing major construction projects along with self-perform capabilities and hands-on construction techniques.

Founded in 1949 by the Cianchette Brothers, Cianbro is one of the United States' largest, most diverse, successful, open shop, 100% employee-owned construction and construction services companies. Presently operating in more than 40 states, 5 markets, and employing over 4,000 team members, Cianbro manages and self-performs civil, structural, mechanical, electrical, instrumentation, fabrication, and coating. Cianbro has been named the 30th largest majority employee-owned company in the U.S. by the National Center for Employee Ownership (NCEO).

At the core of Cianbro's construction philosophy are the Cianbro Vision, Mission, Values, and Strategy. Cianbro's Vision is *To be the Best Employee Owned Construction Company in the World*. The Mission states "Cianbro will safely provide quality construction services, on time and at a competitive price. Through innovation, efficiency, and our can do spirit, we will develop people, satisfy customers and grow shareholder value." Cianbro's values are built around its people, including accountability, commitment, trust, respect, mutual prosperity, responsibility, and integrity. Cianbro's Strategy states "Guided by our vision, mission and values, we will carefully allocate resources to drive sustainable long term growth and competitive advantage, by focusing on key markets, geographies, clients and services."

In 2001, The Cianbro Companies was incorporated as a holding company; it is comprised of operating companies, including among them, Cianbro Corporation, Cianbro Fabrication and Coating Corporation, Cianbro Development Corporation, Starcon International, Inc., Cianbro Equipment, as well as Cianbro Constructors. These are distinct legal entities that operate under their respective management who are responsible for and report separate financials and statistical information.

HEALTH, SAFETY & ENVIRONMENTAL

Cianbro is committed to ensuring the health and safety of our team. This commitment includes our journey to Beyond Zero – creating an environment where our team members go home in better condition than they arrived at work; healthier, more educated, and able to influence the people around them. As leaders, Cianbro team members continually reinforce the value of taking care of personal health, looking out for fellow team members, and not taking or accepting unnecessary risks. This is Cianbro's moral obligation. It is how we choose to work. It is a value instead of a priority.

Cianbro takes great pride in a low Recordable Injury Rate and Experience Modification Rate, which are among the lowest in the construction industry. Among Cianbro Corporation's greatest safety accomplishments was 5 years, with zero lost time injuries over 12.3 million work hours. Management skills, commitment, and teamwork required to achieve an injury free workplace are identical to those needed to build an organizationally strong, morally and ethically right, and financially secure company. Cianbro's Healthy Lifestyle Program helps to educate and develop team members towards realistic, sustainable lifestyle changes.

Cianbro protects its team members, the public, and the environment from undue risks that may result from operations, or the use of hazardous materials, by developing, implementing, and monitoring programs to support the successful completion of each project. As evidenced through exemplary regulatory compliance, environmental stewardship is at the forefront of Cianbro's projects.

FINANCIAL RESOURCES

Cianbro has extraordinary financial strength to match its unsurpassed construction expertise. The Cianbro Companies generates annual revenues of approximately \$775 million, almost exclusively from self-performed work. Cianbro has a bonding capacity of \$500 million for a single project and \$1 billion aggregate. The Cianbro Companies' Dun & Bradstreet (D&B) Rating is 5A3 and D&B Viability Rating is 14AA.

Equipment: Cianbro owns an equipment fleet consisting of approximately 3,500 pieces and valued at nearly \$150 million. Cianbro has complete control over its operation, having the ability to prioritize needs to assure the proper equipment is available where it is required the most. Cianbro is prepared for rapid mobilization.

GEOGRAPHIC LOCATIONS

Each geographic location is comprised of offices, enclosed shops, and equipment yards, in addition to fabrication and coating as well as deepwater marine and modular manufacturing facilities, to support ongoing projects and clients. Cianbro has established a service territory across the United States, with the Corporate Office located in Maine, as well as operations and support services facilities in the North East, Mid-Atlantic, Great Lakes, South East, South West, and Pacific Regions:

- Corporate Headquarters
 - Pittsfield, Maine
- Operations Support Facilities
 - Pittsfield, Falmouth & Portland, Maine
 - Bloomfield, Connecticut
 - Baltimore, Maryland
 - Lexington, South Carolina
 - Catlettsburg, Kentucky
 - New Lenox, Illinois
 - Gonzales, Louisiana
 - La Porte, Texas
 - Burlington, Washington
- Fabrication & Coating Facilities
 - Pittsfield, Maine
 - Georgetown, Massachusetts
 - Freeport, Texas
- Deepwater Marine & Modular Manufacturing Facilities
 - Brewer, Maine
 - Portland, Maine
 - Baltimore, Maryland

HUMAN RESOURCES

Cianbro employs over 4,000 team members company-wide, inclusive of the following:

Civil

Civil General Foreman/Foreman, Construction Worker, Carpenter, Concrete Finisher, Brick/Block Spec (Mason), Rigger/Piledriver, Reinforcing Steel Worker, Fabricator, Welder (Structural), Painter, Diver, Scaffolder, Insulator, Scaffolder/Insulator, Multi-Trade

Mechanical

Mechanical General Foreman/Foreman, Electrician, Millwright, Boilermaker, Pipewelder, Pipefitter, Instrumentation Fitter, Ironworker/Rigger, Transmission Line Worker, Distribution Line Worker, Industrial Technician, Data Cable Technician

Equipment

Warehouse Foreman, Shipping/Receiving, Equipment Mechanic, Crane Operator, Equipment Operator, Truck Driver, Boat Pilot, Parts/Inventory Worker, Tool Crib Worker, Custodian/Security, Blaster/Wheelabrator Operator, Multi-Trade

Operations Support

Project Manager, Superintendent, Engineer, Estimating, Project Costing, Design, Layout, QA/QC, Fabrication, Coating, Equipment/Yard, Warehousing, Safety, Human Resources, Accounting/ Finance, Purchasing, Information Technology, Administrator, Contracts, Business Development, Executive

Project Teams

Cianbro's Project Teams are assembled with the depth, experience, and expertise to streamline each project's success, through attention to detail and aggressive management techniques. Key members of the Project Team are educated in the use of technology, through revolutionary practices and effective problem-solving, as well as the procedures necessary to effectively manage each project's elements. Cianbro team members reflect a can-do spirit of cooperation, enthusiasm, and concern for the client, which is unmatched in the construction industry. Cianbro's diverse veteran team of local resident construction personnel will provide the expertise to analyze and plan the work through valuable foresight, assemble the required documents, bid, contract, and manage the work, as well as support successful trade partners to assure project completion by the scheduled date.

Corporate Support

The depth of the Cianbro Team is found deeper than just those individuals who are involved solely at the project site. This includes those individuals who work within the Corporate Office, the operations support facilities, and the individual departments which provide specialized services. A strong, seasoned, and extensive Corporate Team will provide the project with the initial momentum upon outset. Supplementary resources can be applied at critical times to key areas, as required, in order to be efficient, flexible, and responsive to immediate demands.

Cianbro's ultimate strength is a combination of the team members at the project site and the other business units who work to support the Project Team at various other locations. Cianbro has several departments which function as support services to the client, both internal and external, including Safety, Human Resources, The Cianbro Institute (Skills & Professional Development), Quality Assurance/Quality Control, Purchasing and Procurement, Contracts, Estimating, Business Development and Creative Services, Finance, Information Technology, as well as our Construction Design Team.

PROJECT COMMUNICATIONS & CONTROLS

Project communications and controls begin with the preparation of an accurate and detailed project approach and plan, continuous monitoring and updating of progress, and ending with the formal close-out of the project. Cianbro believes by continually sharing information and fully utilizing investments in technology, accurate planning, monitoring, and control of project information will be the result.

Cianbro is eager to serve and understand how critical each project is to the client. Cianbro will bring the finest talent to construct each project, with an aggressive approach to the work and dedication to the best interests of the client. Cianbro stands behind all commitments with devotion and loyalty.

CAPABILITIES

Cianbro offers construction services from the conceptual stages of design through implementation, all the way to start-up activities and turn-key operations. Cianbro's versatility can be attributed to a vast service territory, across the United States, effectively demonstrated by the diverse nature of completed projects. Cianbro's success can be credited directly to the team's attitude towards working safely, cooperation, enthusiasm, and genuine concern for clients – one which is unmatched in the industry. Skill and experience possessed by Cianbro's team members cover the complete spectrum of construction trades.

Cianbro is involved in five **markets**, including:

- Building
- Industrial & Manufacturing
- Infrastructure
- Oil, Gas & Chemical
- Power & Energy

Cianbro has been involved in these markets in several different **capacities**, including:

- Prime / General Contractor
- Joint Venture / Partner
- Trade Partner
- Construction Manager
- Fabricator
- Consultant
- Developer
- Equipment Supplier / Vendor

Cianbro has performed services under the following **contractual methods**:

- Conventional (Bid, Build)
- Construction Management
- Construction Manager/General Contractor
- Design-Build
- Public-Private Partnerships
- Engineering, Procurement, Construction

CONSTRUCTION DESIGN & ESTIMATING SERVICES

Cianbro has a dedicated team of highly skilled engineers, who specialize in project-specific temporary design applications, which incorporates civil, mechanical, piping, electrical, controls, and instrumentation. Working alongside Cianbro's Operations Team, the Construction Design Team develops the most effective methods for safely constructing a project, while meeting the needs of that project. In conjunction with the Construction Design Team, Cianbro's Estimating Team is responsible for cost estimate development, as well as assistance in operational, tactical, and strategic planning, cost control analysis, scheduling, and management. The overall objective of the Cianbro Team is to make sure each project is completed on schedule and within budget. The intimate rapport between Construction Design, Estimating, and Operations assures a project's success.

Since the 1950s, Cianbro has provided specialized knowledge and innovative solutions to a broad spectrum of clients along the eastern seaboard, within several different industries. This experience is invaluable in understanding the client's needs, priorities, and concerns. The desire to move with velocity, innovation, and quality is ingrained in Cianbro's Team of construction professionals.



PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF CORRECTIONS
111 STATE HOUSE STATION
AUGUSTA MAINE
04333-0111

DR. JOSEPH FITZPATRICK
COMMISSIONER

December 5, 2017

Mr. Richard Brescia
Cianbro Corporation
101 Cianbro Square
PO Box 1000
Pittsfield, ME 04967

RE: Maine Correctional Center Expansion Project

Mr. Brescia,

Thank you for your interest in the Maine Correctional Center Expansion project, for the quality of your presentation, and the responses to our questions during the recent interview. The Selection Committee is pleased to inform you that your company received the highest ranking of those interviewed to provide Construction Manager at Risk services for the Maine Correctional Center Expansion project.

This letter is notice of conditional award of the contract for the project. The award is subject to negotiation and execution of a contract. This does not constitute the formation of a contract between the Department of Corrections and Cianbro. Cianbro shall not acquire any legal or equitable rights relative to the contract services until a contract containing terms and conditions acceptable to the Department is executed. The Department further reserves the right to cancel this Notice of Conditional Contract Award at any time prior to the execution of a written contract.

The terms of the contract will include, but are not limited to, the preconstruction fee, the items included in the General Conditions of the construction contract, the project schedule, the CM contingency, and shared cost savings.

We look forward to our next meeting and ultimately working with your team on this important project. I will be in contact with you in the coming weeks to schedule our next meeting to discuss negotiations.

Sincerely,

Ryan Thornell, Ph.D.
Associate Commissioner

copy: BREM

Statement of appeal rights

Any person aggrieved by an award decision may appeal the decision to the Director of the Bureau of General Services (Bureau of Real Estate Management). The appeal must be made to the Director, in writing, within 5 calendar days of the receipt of notification of the contract award as provided in 5 M.R.S. §§ 1743 (C) (3) and 1749.

JUSTICE DESIGN

SMRT's Justice and Public Safety Team is nationally recognized for its intelligent and innovative design of secure, functional and efficient facilities, including prisons, jails and special needs population facilities. We provide needs assessments, feasibility studies, programming and design services for new and renovated facilities of all sizes and security levels.

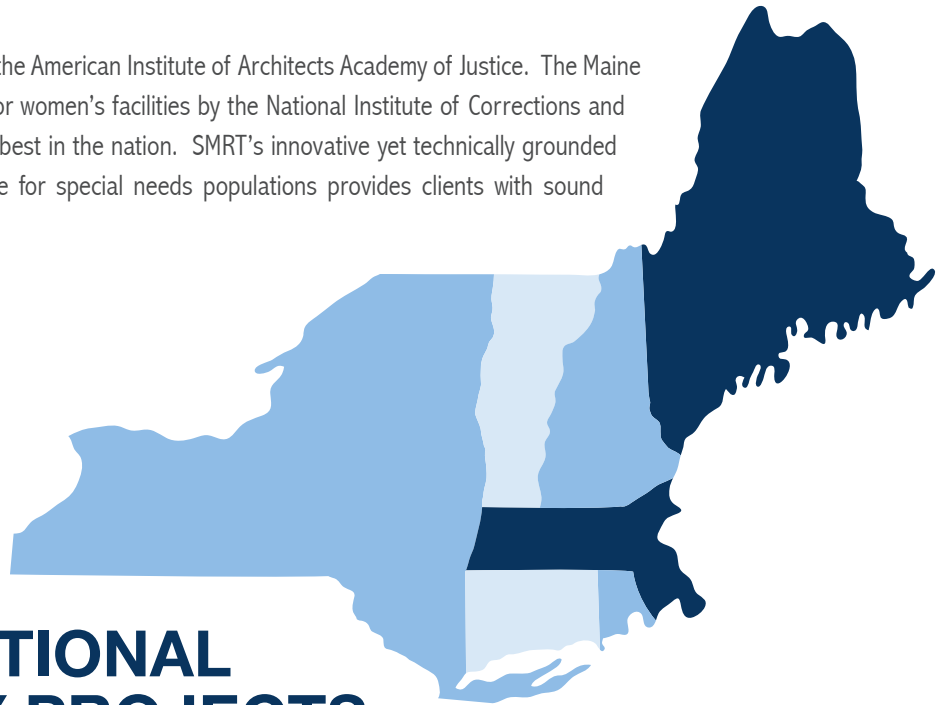
SMRT has an excellent record of guiding cost-effective solutions that meet and exceed our clients' expectations. Strong project management and quality control drive that success. SMRT was recognized as one of the country's top managed firms with the Circle of Excellence Award from PSMJ, the A/E industry's premier management consulting firm.

Our fully integrated architectural and engineering services include:

- Architecture
- Landscape Architecture
- Interior Design
- Site Selection
- Energy Modeling
- Commissioning
- Master Planning
- Mechanical Engineering
- Electrical Engineering
- Structural Engineering
- Civil Engineering
- Fire Protection/Life Safety Engineering
- Infrastructure Evaluation and Planning
- Communications & Technology Planning

Design Excellence

SMRT has been recognized for design excellence by the American Institute of Architects Academy of Justice. The Maine Women's Center was adopted as a national model for women's facilities by the National Institute of Corrections and one of our juvenile facilities was ranked among the best in the nation. SMRT's innovative yet technically grounded approach to housing, programming and healthcare for special needs populations provides clients with sound solutions that meet their operational requirements.



SMRT has led more than

**30 CORRECTIONAL
FACILITY PROJECTS**

encompassing more than **2.5 MILLION S.F.**

Selected Justice Experience Matrix

Project Name	Number of Beds	Square Feet	Jail Planning	Prison Planning	Campus Planning
Maine State Prison - Warren, ME	816	400,000		●	●
Northern New Hampshire Correctional Facility - Berlin, NH	500	241,000		●	●
Southern State Correctional Facility - Springfield, VT	350	130,000		●	●
MCC Women's Unit, Windham, ME	100	38,000		●	●
MCI Shirley Prison Food Service, Shirley MA	NA	23,000		●	●
New York Prison Security Upgrades at Sing Sing, Wall Kill, Collins, Greene, Coxsackie, and Sullivan State Correctional Facilities	NA	NA		●	●
Puerto Rico Juvenile Facility and Adult Women's Prison Programming Design and Specifications for P-3 delivery	1,230	750000		●	●
Wyatt Detention Facility - Central Falls, RI	342 (711 Capacity)	122,000 (new const.)	●		●
Barnstable County House of Correction - Bourne, MA	300	172,200	●		●
Cumberland County Jail - Portland, ME	450	142,000	●		●
York County Jail - Alfred, ME	298	110,104	●		●
Merrimack County House of Correction - Boscawen, NH	237	114,670	●		●
Cheshire County Jail - Westmoreland, NH	225	90,000	●		●
Two Bridges Regional County Jail	200	92,000	●		●
St. Lawrence County Jail - Canton, NY	186	93,000	●		●
Cortland County Jail and Public Safety, Cortland, NY	180	92,000	●		●
Grafton County House of Corrections	170	92,000	●		●
Long Creek Youth Development Center - South Portland, ME	163	122,510	●	●	●
Greene County Jail and Sheriff's Office, Coxsackie, NY	150	85,000	●		●
Mountain View Youth Development Center - Charleston, ME	133	112,139	●	●	●
MCC Women's Re-entry, Windham, ME	96	26600		●	●
Hampshire County Re-entry facility	64	21000	●		●
Knox County Jail - Rockland, ME	49	31,000	●		●
Washington County Jail - Machias, ME	42		●		●
Sheyenne Valley Correctional Center - Valley City, ND, Schematic Design	80	40,000	●		●
Waldo County Jail Site Selection & Schematic Design	63	67,000	●		●
Kennebec County Re-Entry Facility, Concept Design	60 M, 40 F	22609	●		
Lawrence Alternative Correctional Re-Entry Center, Lawrence MA, Schematic Design	98	26300	●		●
MDOC/Washington County Joint Facility, Concept	634	232000	●		●
In& Out-Patient Medical Facility at MCC, Schematic Design	44	29144		●	●



What Sets Us Apart?

Approach

Our approach to project delivery provides a single point of contact, responsive scheduling and cost efficiency.

Reputation

Sebago Technics is recognized as a firm that excels in the permitting of projects through experienced knowledge and excellent reputation.

Ownership

Employee-ownership results in improved responsiveness, commitment and accountability throughout the organization.

Quality

Our designs, graphics and plans are subject to rigorous quality standards and review which results in clear, effective documents.

Innovation

Sebago Technics' design professionals employ the latest engineering and technological methods to develop practical, cost-effective solutions.

Results

Sebago Technics' resources and experience combined with our project team approach provide the capacity to meet client needs and deliver results.

Founded in 1981, Sebago Technics, Inc. is a consulting firm of more than fifty design professionals and technical staff providing services throughout New England. From the start, our business plan was simple: "To provide quality, cost-effective civil engineering services that are responsive to a customer's goals, schedule and budget." Our One Company capabilities and resources provide clients with experience and solutions to respond to their planning, permitting and design needs. Guided by integrity, experience and teamwork we understand that we can only succeed when quality, responsive and cost-effective service is provided to our customers.

At a Glance:

Year Established: 1981
(Employee-Owned Since 1998)

Licensed & Certified Professionals

Professional Engineers	Registered Landscape Architects
Certified Flood Plain Manager	Licensed Soil Scientist
Certified Wetland Scientist	Subsurface Disposal Systems Designers
DOT Project Administrators	Erosion Control, Sedimentation &
LEED Accredited Professionals	Stormwater Inspectors
Professional Land Surveyors	Professional Traffic Operations Engineer



We provide engineering, planning, surveying and environmental services to companies, developers, landowners and the public sector for customers and projects, both large and small. Our experience includes projects in commercial, industrial, retail, residential, recreation, utility and government sectors. We meet our client needs through an efficient and effective delivery system providing clients a single point-of-contact. Our approach combined with our expertise and services allows us to meet the needs of our customers within One Company.

Nearly every project requires some level of regulatory permitting and public process. Sebago Technics excels in these areas. The nature of our work enables us to remain current on the latest regulations and forge important relationships with regulatory and enforcement personnel in governments and agencies throughout the region. Our project managers and technicians are experienced with the requirements and processes of various federal, regional, state and municipal authorities. We work diligently and proactively in pursuit of permits and approvals striving to balance compliance with our clients' needs and interests.

Clients rely on Sebago Technics to guide their projects through design, permitting and construction processes utilizing either traditional or design-build delivery. Our licensed professionals remain current in the latest engineering practices and are certified in LEED, Erosion, Sedimentation and Stormwater Control & Inspection, Wetlands, Soils, Septic Design, and Traffic Operations. Our One Company range of services and expertise allows us to assist projects from concept through construction.

As a 100% employee-owned company our employees set us apart through commitment and integrity. Our team-based approach to services provides each client with the expertise and input of multiple disciplines. Whether an engineer, surveyor, landscape architect or environmental scientist each project benefits from the perspective and skills of varied professionals. The combined experience and knowledge, under one roof, benefits each project and customer for a better result.

General Services

- Land Surveying
- Site and Civil Engineering
- Transportation/Traffic Engineering
- Landscape Architecture
- Environmental Services
- Natural Resources and Soils Science
- Permitting (Local/State/Federal)
- Construction Services
- GIS & Mapping



Civil Engineering is a broad based profession that deals with the design, construction and maintenance of the physical and naturally built environment. Civil and Site Engineering projects may include regulatory permitting at all levels of government, technical studies and evaluations, planning and implementation, feasibility assessments, stormwater modeling, infrastructure design, site and subdivision planning/design. Often, the Civil Engineer will take the lead on a project coordinating other disciplines such as environmental, geotechnical, survey and transportation components that comprise a complete project approach.

From the beginning, Sebago Technics, Inc. has focused on offering a broad range of Civil Engineering services to the public and private sector. Our diverse Civil Engineering staff provides customers the experience and expertise to evaluate, design and permit projects covering a broad spectrum. As technology advances and regulatory processes evolve, our Civil Engineering staff has remained flexible and adaptive with a focus on customer service. Our Civil Engineers work together in teams of experienced professionals to assist customers on a variety of projects. Our staff works with customers from inception to completion to plan, design, permit and construct projects. Throughout a project, we strive to be attentive to the customer's goals and seek solutions that are cost-effective and responsive to regulatory requirements.

• Fort Meade

• Department of Defense, MD

• Masterplanning for the 500-Acre, Ft. Meade housing development including civil design for Phase I consisting of 1,000 new homes, 330 acres, and 9 miles of roadway and supporting infrastructure.

• Eastern Manufacturing Facility

• Brewer, ME

• Civil Engineering, permitting and transportation planning for a \$19 million site redevelopment for fabricated assembled modular industrial structures for shipment via rail, barge and highway throughout the United States.

• Government & Municipal

• General Engineering Services

• Sebago Technics has a long history of ID/IQ delivery of services to municipalities and government agencies.

• U.S.P.S. Distribution Center Expansion

• North Reading, MA

• Civil Engineering, Regulatory permitting and Traffic Impact Assessment for 140,000 s.f. (design-build) expansion of an existing postal facility.

• Exit 3, I-295

• South Portland, ME

• \$6.5 million redesign of existing interchange to expand capacity and eliminate 3 High Crash Locations.

• Municipal Streets

• Portland, ME

• Redesign of 16 arterial and collector streets, including storm sewer separation, totaling more than 4 miles in length as part of the City's CSO program.



Survey is a fundamental component required by almost every project. We believe maintaining a qualified in-house staff of survey professionals and technicians provides enhanced project coordination and responsive customer service. With one of the largest survey staffs in Maine, we are able to respond promptly to client and project needs. We can produce multiple survey crews on any given day with state of the art technical equipment including, high definition laser scanning, GPS systems, robotic instruments, total stations and technical support. Sebago maintains its own GPS base station allowing us to complete real time kinematic GPS within a supporting network. Data collected in the field is processed electronically by survey technicians and professional land surveyors to produce quality final products whether it is a stand alone survey plan or engineering data to be used in design and construction.

• Cutler Naval Communications Facility Cutler, ME

Boundary and Existing Conditions Survey using aerial mapping for Naval Facility along the coast of Maine.

• Brunswick Naval Air Station Brunswick, ME

Boundary Survey of Base perimeter and supporting Existing Conditions survey for Base projects.

• Remote Terminal Survey Statewide, ME

Boundary survey, existing conditions surveys and topographic surveys on hundreds of Remote Terminal sites. Site design, civil engineering and landscape design were a few of the services performed on the sites. In addition, we performed the site selection, property owner negotiation and represented the utility company before municipal/state agencies.

• Maine Medical Center Multiple Locations, ME

Boundary, Existing Conditions, Construction Layout and As-Built Surveys for multiple campus and single facility locations throughout Maine. Including a recently completed as-built survey of the entire Bramhall Campus consisting of several city blocks within Portland, Maine.

GPS Mapping – Maine Superfund Sites Statewide, ME

Created maps of all locations identified on the Maine Department of Environmental Protection's Uncontrolled Site Program List. A 2,500 foot radius was mapped to identify all properties within 2,500 feet of the published Superfund Sites for all easements or transfer of real property.



Landscape Architecture was integrated into Sebago Technics' practice in 1988, bringing a creative design focus to the company and complimenting its civil engineering capability. Landscape architects lead the design effort on all projects, working closely with our natural resource scientists and engineers. We listen closely to the needs of our clients, their goals for each project, and strive to accomplish their objectives, accounting for the environmental and regulatory constraints affecting each project.

Having practiced throughout the United States and overseas, observing regional and international design vocabulary, we bring diverse knowledge to each project. Our landscape architects focus on innovative design practices yet remain grounded by a strong technical knowledge that produces cost-effective, constructible solutions. A high standard of quality is our trademark.

As LEED Accredited Professionals we are committed to the principles of sustainable design practices. Embracing technology, we believe people understand design in a visual context and continue to reflect our designs with quality graphic communication.

LL Bean Flagship Campus Freeport, ME

Masterplanning, site design and landscape architecture for three building expansions at the Freeport Campus, including LEED certification and branding of the LL Bean image using native materials and site detailing.

Waterfront City Park Gardiner, ME

Transformation of a former industrial waterfront into an expansive green, riverfront boardwalk, visitor center and natural amphitheatre along the Kennebec River, including park access gateways and connectivity to adjacent historic downtown area.

Portsmouth Public Library Portsmouth, NH

Site design and landscape architecture for civic library building and site within Portsmouth's historic waterfront district. This project features extensive brick and granite site paving, native plant materials and was awarded LEED Silver accreditation.

Maine Medical Center Portland, ME

Masterplanning, site design and landscape architecture for a state of the art birthing center expansion, eight level parking garage, central utility plant, Lifeflight helipad and associated site improvements.

PD Merrill Marine Gateway Portland, ME

Situated at the eastern terminus of the Veteran's Memorial Bridge, this public park will feature two major pieces of sculpture, and is designed within the context of the marine heritage of Portland's working waterfront.



At Sebago Technics, our Environmental Engineers and Technical Staff provide its customers with planning, assessments, designing, project management and permit acquisition for a variety of projects. Our experienced team assists with the design of municipal and private water, wastewater, and stormwater conveyance systems. Sebago Technics has completed miles of sewer separation projects, designed sanitary pump stations and solid waste facilities. We also support both businesses and landowners in the completion of Environmental Site Assessments (ESA's) and remediation prior to land transfers or project development.

Sebago Technics offers Phase I & II site assessment services to characterize and quantify site contamination for future site remediation. Sebago Technics has successfully guided numerous properties through the Maine Department of Environmental Protection's Voluntary Response Action Program (VRAP). This process includes timely and cost-effective Phase I & II assessments which are typically completed in conjunction with property redevelopment.

With a well respected Environmental Staff, we are known in the industry for high intensity soil surveys, wetland delineations and vernal pool surveys for development prospects. Our licensed Site Evaluators and Engineers work together to design our client's subsurface wastewater disposal systems; and are able to do so for both small and large engineered systems which include local and state permits.

- **Maine Coast Heritage Trust**
- **Natural Resource Inventories**
- **Islands and Coastal Properties**
- **North Haven to Mount Desert Island**

Natural resource field mapping of a variety of natural resources, particularly vegetation habitat communities, on 11 different preserves owned by Maine Coast Heritage Trust, and publishing the data in ArcGIS.

- **City of Portland, ME**

Hydrology and FEMA flood plain analysis, mapping and permitting.

- **Turner Farm Restoration**
- **North Haven, ME**

Inventory of natural resources on 260 acres of land. Delineation, classification, and GPS location of the wetlands was performed. Class 'B' High Intensity Soil Survey was prepared to classify all soils on the property. A wetlands map, a soils map, and natural resources report were final deliverables.

- **Freeport Village Station**
- **Freeport, ME**

Sebago Technics conducted Phase II remediation in conjunction with the site's application to the Maine Department of Environmental Protection (MDEP) Voluntary Response Action Program (VRAP). Working closely with the developer and the MDEP, coordinated the most cost-effective and permanent solutions to remediate the site in concert with the construction schedule.



Achieving the proper balance between mobility, pedestrian, bicycle and vehicular safety, and preservation of community character, is often the challenge we face today as transportation engineers in the urban environment. In addressing the efficient movement of people and goods for the vitality of our local and regional economies, we can no longer afford to solve our congestion concerns by solely constructing more system capacity. Today's fiscal realities demand more creative approaches that consider more fully the interrelationships between land use and transportation. Our solutions need to explore a wide range of alternatives that can make our current roadway networks more efficient and better able to accommodate a broader range of users beyond just motorized vehicles, i.e. pedestrians, bicyclists, and transit riders. What began 10-12 years ago as Context Sensitive Design, has now evolved into the Complete Streets and Green Streets movements – both of which are transforming our transportation facilities into more community friendly and environmentally responsible infrastructure systems.

At Sebago we embrace a holistic approach to transportation planning, engineering, and operations in urban settings. Our transportation engineers routinely collaborate with in-house land use planners and landscape architects to develop designs that achieve superior results in terms of mobility, safety, aesthetics, and environmental quality. We are passionate about developing design solutions that meet the needs of a wide variety of system users.

Large or small – state level or community level – Sebago is equipped and experienced to offer you sage advice with regard to your transportation needs. While our talents are predominantly focused on planning and design activities, our skills don't end there. We also have a post-construction traffic signal system operations practice that is "unique" to the industry. Our Traffic Engineers are skilled in operating centrally controlled traffic signal systems for optimizing traffic mobility and minimizing system maintenance costs.

• Sarah Mildred Long Bridge Replacement Kittery, ME – Portsmouth, NH

• Performing the roadway and intersection design, traffic engineering, and railroad design in support of this \$160M two-state construction project between Maine and New Hampshire.

• William Clarke Drive Westbrook, ME

• Non-traditional planning and design for a safer highway to serve as the gateway into downtown and reconnect the CBD with area neighborhoods.

• Implementation of City-Wide ATMS Dover, NH

• Local officials embrace the notion of a centrally controlled traffic signal system to enhance signal maintenance response time, better manage customer complaints, reduce motorist delays on major arterials, lower fuel consumption, and reduce harmful air emissions within the City.

• On-Call Traffic/Transportation Engineering Services South Portland, ME

• As the City of South Portland's on-call traffic engineer our services include support for the Planning and Public Works Departments. Projects range from performing peer reviews of developer traffic impact studies, to addressing High Crash Location traffic safety issues, to managing the City's centrally controlled traffic signal system, and assisting Public Works with road, sidewalk, and bike/pedestrian construction projects.



We approach planning much as we do all opportunities; with pragmatism and creativity. Combining site specific information (such as topography, natural resources, and existing development on site), with regulatory criteria, and local ordinance requirements we work to create conceptual and long-term masterplans that move our client's vision to reality.

Every great land development project needs a solid plan as the foundation. Without this crucial piece of design, sites never realize their true potential and become victim to an ad-hoc style of development, wedging uses together, creating poor internal site circulation and wasted space within the development, as well as reduced income potential for landowners.

During the planning process we meet with local, state and federal regulators to ensure the design not only fits the site and the restrictions, but to identify potential red flags from a permitting perspective early in the planning process. This is extremely important to both the budget and timeline. Understanding the regulatory obstacles at the outset allows for simplified navigation throughout the permitting and development process.

• Unum Provident Headquarters Portland, ME

• Masterplanning and landscape architecture for Unum Provident Home Office III, the largest office building in Maine, together with a three level parking structure with 1200 parking spaces and employee amenities including walking pathways constructed with porous paving materials.

• LL Bean Order Fulfillment Center Freeport, ME

• Site planning and permitting for 1.2 million square feet of warehousing and distribution space, employee parking and site amenities on a 72 acre campus in Freeport. This facility processes and ships every order from LL Bean to customers worldwide.

• Central Maine Medical Center Lewiston, ME

• Site design to accommodate a major expansion and new emergency department at Central Maine Medical Center, including arrival and visitor drop off areas, ambulance service arrival bays, visitor parking and related site features.

• Edward T. Gignoux Federal Courthouse Portland, ME

• Streetscape and site planning for the \$20 million renovation of this federal facility, located in Portland's civic district. Site materials selected reflect the institutional nature of the courthouse, instilling a character of authority and permanence.

Site Evaluation & Regulatory Permitting



The site alternatives and selection process is often an evolutionary one that begins with defining the project needs and objectives. Over the past 25 plus years Sebago Technics, Inc. has participated in site selection process and permitting for projects ranging in size and complexity. While there are commonalities in the process, no two projects are exactly the same. As a result, we apply our knowledge and depth of experience to develop specific solutions to each and every project.

We have gained a tremendous amount of experience over the years with permitting projects in many regulatory environments. In the development of a design we strive to anticipate the regulatory issues and address them in the design process so that they do not become obstacles later in the process. When considering alternative sites or alternative site designs we are able to quickly summarize the permitting considerations as well as the cost and performance considerations.

When it comes to permitting we have had a great deal of experience with the Maine Department of Environmental Protection (MDEP) and the Army Corps of Engineers (ACOE). We have developed working relationships with the project analysts at the MDEP and the ACOE and as a result have been able to get projects through the permitting process with successful outcomes for our clients.

• Maine Crossing • South Portland, ME

Site evaluations and investigation to develop a 13 acre wetland mitigation area responsive to project impacts including permitting through the Maine DEP, USACE and EPA.

• Cliff Island and Cushing Barge Landings • City of Portland, ME

Sebago Technics, Inc. assisted the City of Portland with natural resource assessments and permitting for two municipal barge landings. Multiple regulatory permits and coordination were required to include the Harbor Commission, Submerged Lands lease, Maine DEP, USACE, Department of Marine Resources, Inland Fisheries and Wildlife, City of Portland Flood Plain and Shoreland Zoning permits.

• International Jetport (GA) Facility • Portland, ME

Planning and Design of a 7 acre General Aviation Facility required preparation of a comprehensive permit application for the Maine DEP Site Location of Development Act, Federal Aviation Administration (FAA) and City of South Portland for a new major development project.

• Eastern Fine Paper Redevelopment • Brewer, ME

Engineering and permitting for redevelopment of a 39 acre manufacturing site. Permitting was extensive and fast-tracked to include City of Brewer approvals, Maine DEP Site Location of Development Act and Natural Resources Protection Act permits, Submerged Lands lease USACE permitting, Maine Department of Transportation coordination, Beneficial Use permit for dredging and coordination with multiple agencies (Historic Preservation Office, Dept. of Marine Resources, Inland Fisheries & Wildlife).



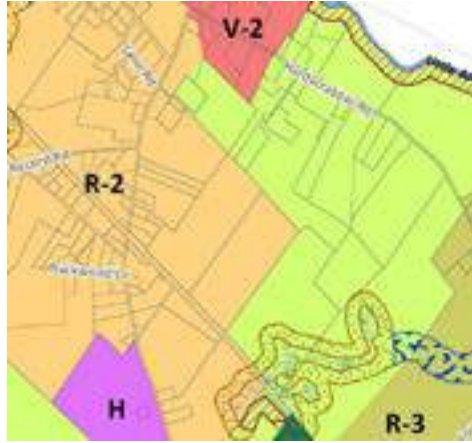
The Design-Build process offers a coordinated team approach to the planning, design and construction of a Project. Sebago Technics, Inc. has successfully participated in a wide variety of Design-Build projects. Our success is a function of an open working relationship committed to customer service, innovation balanced by practicality and the timely delivery of services.

Sebago Technics, Inc. has participated in a wide range of design-build projects throughout Maine and New England. We have partnered with national and local teams for transportation and site development projects focused on government and private/public projects. At the federal level we have successfully completed large scale military housing, infrastructure and facility support projects along with postal services expansions and new facilities.

Our broad design-build experience also includes unique private-public partnerships including wind generation and site redevelopment projects. Sebago Technics, Inc. successfully participated in Maine's first large scale Island wind generation project on Vinal Haven Island. We also participated in a fast-tracked private-public partnership of a Brownfield's site in Brewer, Maine. The project included substantial permitting and agency coordination to accommodate a new modular construction facility. Our experienced team of professionals understands the design-build process, importance of strong partnerships and the delivery of quality services focused on the customer.

- 72 Unit Family Housing, Phase I
- Brunswick Naval Air Station, Brunswick, ME
- Bachelor Enlisted Quarters (BEQs)
- Brunswick Naval Air Station, Brunswick, ME
- Brunswick Gardens Sewer Realignment
- Brunswick Naval Air Station, Brunswick, ME
- 50-Unit Navy Lodge, Naval Station
- Newport, RI
- Naval Exchange Addition, Naval Station
- Newport, RI
- Naval Submarine Base
- New London, Groton, CT
- 126 Unit Family Housing, Phase II
- Brunswick Naval Air Station, Brunswick, ME
- U.S.P.S. Flat Sequencing System Expansion
- North Reading, MA
- U.S. Postal Service Distribution Center
- Scarborough, ME
- Picerne Military Housing, Fort Meade
- Fort Meade, MD
- Killock Pond Road
- Hollis, ME
- Fox Island Wind Power Project
- Vinal Haven, ME
- (Partnership with Cianbro Corporation)

GIS and Mapping Services Municipal



GIS is a set of technologies and software tools that enable maps to be made from geospatial data as well as other data sets, such as tabular information in tables and databases. The data is visualized in the form of a map or other graphical expression of location.

The days of approximate GIS mapping is giving way in many quarters to more accurate and formally constructed maps which can be available for use at various scales, through multiple software platforms, and can be utilized on multiple devices. Additionally, the data is coordinated and registered to one another and other critical data layers to create tightly integrated municipal mapping collections. For instance, zoning and shoreland zoning map layers can be created that will accurately agree with parcel data and orthoimagery collected over many years as part of larger state/regional orthoimagery projects. The data can be available locally for town staff use as well as in hosted, public facing web mapping applications for the staff and public to access. Data which is more reliable and accurate can also be more economical in the long run as it is used to support municipal staff decision making. Activities in planning, code enforcement, assessment, public works, and economic development all can benefit from more reliable and accurate data.

Our team can work with all of today's mapping technologies to deliver superior spatial services to public and private clients. Through the use of today's spatial data sources like real time GPS (sub-meter and survey-grade), photogrammetry, orthoimagery, LIDAR, remote sensing, web mapping services (WMS), and mobile mapping we have been able to build and maintain geospatial datasets for local and state government throughout Maine and New England. Our staff is also involved with many state/regional projects such as orthoimagery acquisition and can help town staff navigate through what may be of benefit locally to town specific matters.

• Raymond GIS Services

• Raymond, ME

- Annual maintenance of core GIS data such as tax maps, zoning map, shoreland zoning map, pavement management CIP maps, and various other on call GIS related projects in support of Town staff. Additionally we have assisted in the resolution of town boundary related mapping issues.

• Poland Zoning Map Maintenance

• Poland, ME

- Restructuring an existing municipal zoning map to incorporate a higher degree of spatial accuracy along the water's edge for shoreland zoning and modifying the spatial dataset to represent both overlay zones as well as general zone classes.

• South Portland Storm Sewer Inventory Project

• South Portland, ME

- Capture of centimeter level (survey-grade) GPS elevations for a large municipal storm sewer system and the verification of pipe connections from structure to structure. The data was delivered to the client in an edited version of their own geodatabase to update storm sewer mapping and serve as the basis for a storm water modeling exercise.

• Hart Brook Sanitary & Storm Sewer Mapping

• Lewiston, ME

- Capture of centimeter level (survey-grade) GPS elevations for an impaired municipal watershed and the verification of pipe connections from structure to structure. The data was delivered to the client in a geodatabase designed relative to their existing wastewater geodatabase and serves as the basis for updates to their existing mapping in-house.

Kittery Shorezone Mapping Project

Kittery, ME

Used LIDAR collected at low tide to map the intertidal zone for all of Kittery's coastline to assist town staff in shoreland zoning issues and parcel mapping efforts being conducted in-house. Also created multiple high water lines to assist with changing shoreland zoning needs due to annual tidal variations.



The City of South Portland currently operates their public services department from an antiquated, out of date and inefficient facility. Sebago Technics was retained in 2010 to begin the feasibility planning and site selection process to develop a new combined Municipal Public Works Facility, Solid Waste Transfer Facility, Public Bus Transportation and Parks and Recreation Facility. The planning, site selection and costing of a facility was completed in early 2014 with a referendum being approved by the community for a total project cost of \$15.2 million. During 2014 and into 2015, Sebago Technics, Inc. completed the site and civil design work including local, state and federal permitting. Due to size of the project and selected location at the City's Highland Avenue property, a phased approach was taken beginning with the construction of a new solid waste transfer facility. This new facility will be completed in the late fall of 2015 with bidding of the full facility taking place in the winter of 2016 and construction completion in the summer of 2017.

Sebago Technics, Inc. under contract with the City of South Portland is providing project management, performed land surveying, natural resources assistance, civil engineering services, landscape architecture, permitting and construction administration for the entire project. At completion the project will include a new solid waste transfer station, new sand and salt storage building, city fueling facility, 71,000 square feet of new building construction, public utilities, roadway and site infrastructure.

U.S. Postal Service Southern Maine Processing and Distribution Center Scarborough, ME



Aerial 2010

In January 2005, the Korte Company and the Cianbro Corporation formed a design-build joint venture to construct the U.S. Postal Service's (USPS) Southern Maine Processing and Distribution Center in Scarborough, Maine.

Sebago Technics was engaged to complete the site design, civil and geotechnical engineering and permitting for the construction of the 407,000 s.f. facility.

The design-build project presented a demanding schedule. Beginning in the pre-construction/bidding phase, Sebago Technics collaborated with the design-build team and site contractor to revise the USPS solicitation's site, grading, utility and stormwater management design. Our effort resulted in site construction cost savings of approximately \$700,000 and reduced the owner's local utility impact fee assessments by approximately \$100,000.

The design and construction of the project proceeded on an aggressive fast-track schedule. Sebago Technics submitted State and local permit applications that allowed initial site construction to commence within 30 days of contract notice to proceed. A full set of construction documents for the 30-acre development was prepared within 60 days of notice to proceed. Sebago Technics worked with the joint venture team through the construction of the facility which was completed ahead of schedule in the summer of 2006.



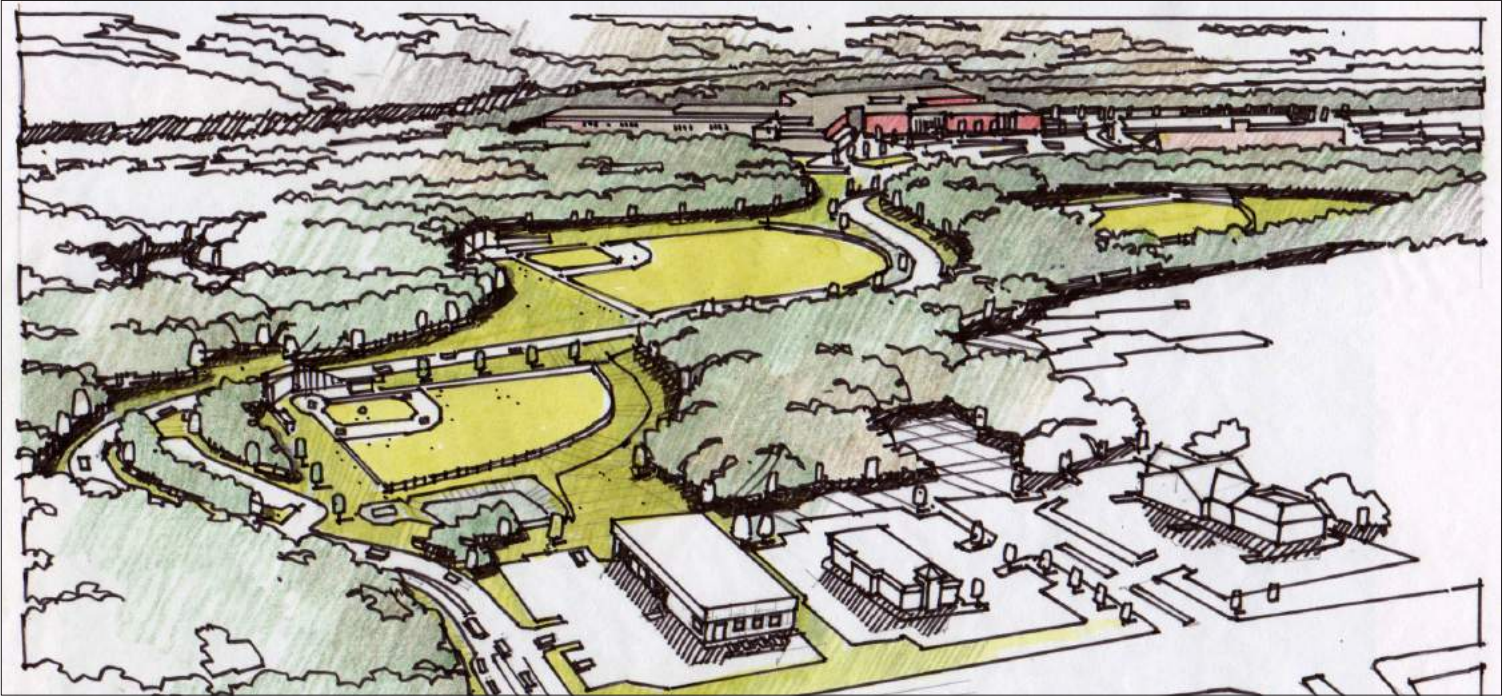
April 2005



July 2005

Sanford High School & Regional Technical Center

Sanford, ME



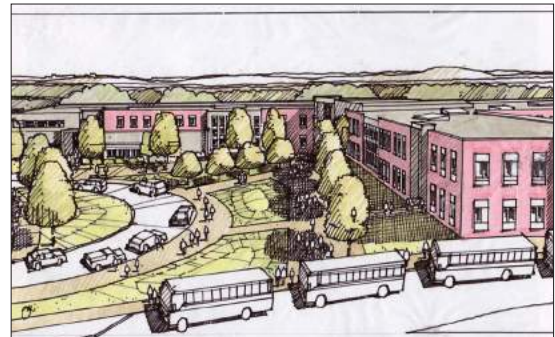
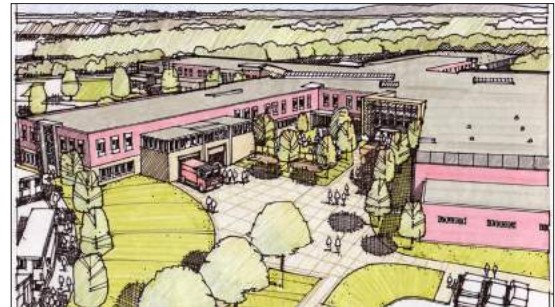
Bird's Eye Illustration of Campus

Partnering with Lavallee Brensinger Architects, Sebago Technics led the site selection, engineering and permitting for a new High School and Regional Technical Center.

Sebago Technics was engaged to identify potential sites that would adequately support development for a new school project. The Sebago team developed a sophisticated GIS database that combined publicly available GIS data with proprietary databases from regulatory agencies, and utility providers. A total of 126 sites were investigated; considerations included topography, freshwater wetlands, vernal pools, floodplains, phosphorous - sensitive watersheds, wildlife habitat, archaeological resources and aquifer recharge/ wellhead protection zones. After careful examination and review with the stakeholders and public, it was determined that a 115 acre site with direct access to Route 109 and Route 4 was best suited site for the development of a new High School and Regional Technical Facility.

Upon site approval from the State Department of Education in August 2014, the team designed the site to best accommodate the new building and amenities, including access roads, parking for over 500 vehicles, a large apron for automotive and large machine training, fire and EMT training areas, pedestrian promenades, a 2,000 seat athletic stadium, baseball field, 2 softball fields, multipurpose fields, 4 tennis courts, significant stormwater infrastructure and associated utilities. The Sanford High School and Technical Center main building is a free-standing state-of-the-art school facility. It will include both traditional High School programs as well as Regional Technical Center programs offered to students of several communities. The 330,000 gross square foot building is predominantly a two-story structure including 4 wings. Each wing has both high school and specialty technical center lab spaces offering a myriad of courses which prepare students for careers and colleges in multiple disciplines including everything from Culinary Arts to Welding. The design utilizes site so that surrounding natural resources are protected.

The team managed a collaborative search and design with significant input from the community, the Sanford School District, the Maine Department of Education, and the Maine Bureau of General Services. The ability to synthesize and present complicated, overlaying technical information was integral to the success of this process and completing all tasks on schedule.





View of one of several "Pocket Park" concepts within Campus

Sebago Technics has consulted for L.L. Bean on all of their projects in Freeport since 1992, a 23 year relationship we are certainly proud of.

Within Freeport Village, we have designed all of the improvements at the Flagship Store Campus, and most recently at Freeport Village Station, the new three-story retail plaza located across Main Street, at the original L.L. Bean Factory Store location. Through all of these projects, we have worked closely with the Town on the design of public streets and sidewalks. Most recently, Sebago Technics led the design for Cross Street Extension, in partnership with the Town of Freeport. Additionally, the implementation of a new Main Street Entry Plaza along Route One and the relocation of Ben & Jerry's into the L.L. Bean Campus.

Grossing millions of visitors annually, the Town of Freeport still looks, feels and operates as a small New England town. Today, we are working to convert large vehicular travel ways in the center of downtown into pedestrian plazas and central green spaces. In addition, we have taken advantage of an impacted brownfield site with significant grade changes to create retail opportunities that expand the downtown without creating more surface parking.



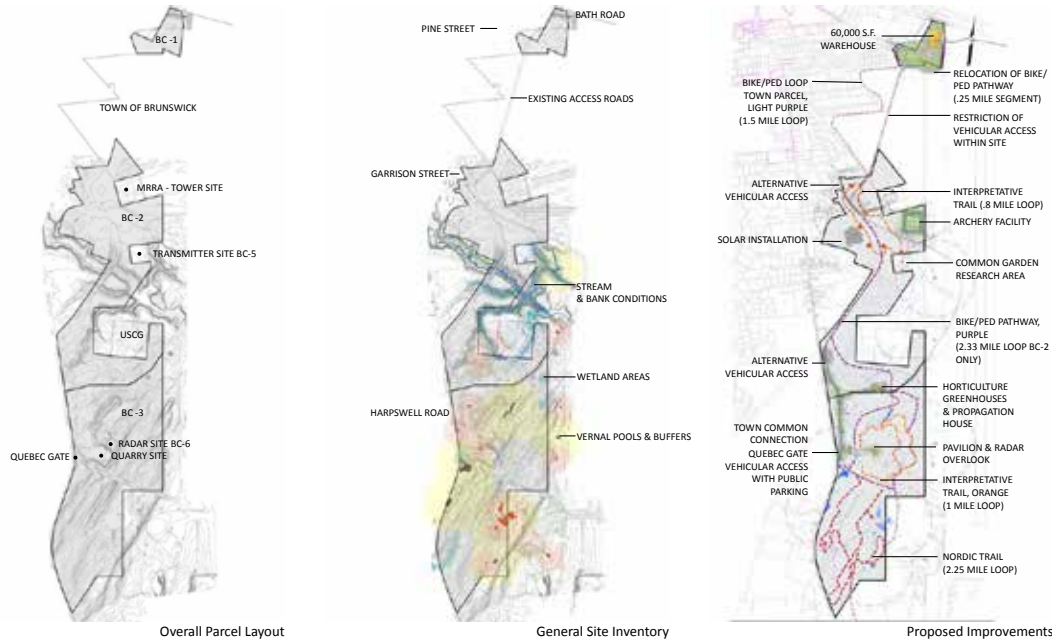
New Hunt Fish - "Boot" Plaza



Bio-retention - Rain Garden, L.L. Bean Campus, Fall 2009

Bowdoin College Masterplan

Brunswick, ME



Overall Parcel Layout, General Inventory and Proposed Improvements

Overall Masterplan Graphics

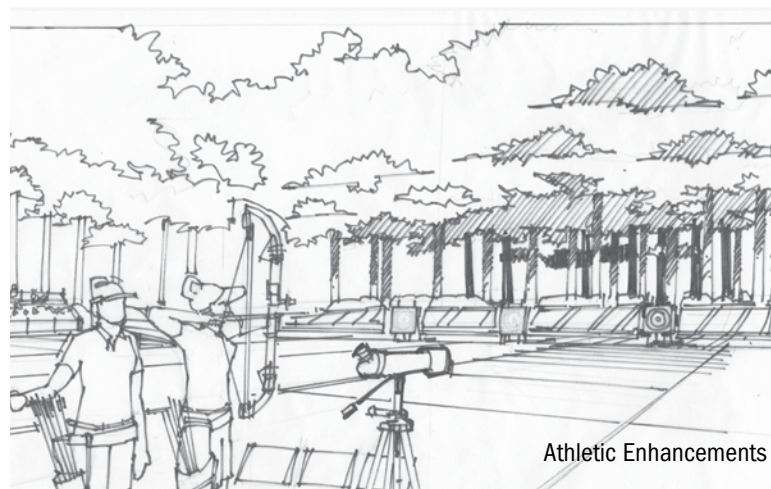
As part of a strategic property acquisition through the decommissioning of the Brunswick Naval Air Station, Bowdoin College engaged Sebago Technics to evaluate the available parcels and determine potential development value for the college.

Following the study the team was reengaged to help develop a masterplan that would identify opportunities for development and communicate these improvements to the Bowdoin College stakeholders, community and Departments of Education and Defense in support of the land transfer.

A masterplan focusing on recreational enhancements and connectivity with the existing campus was developed. This masterplan includes expansion opportunities for educational programming including but not limited to: Geology, Horticultural and Biology. Additionally, athletic campus enhancements were considered along with passive recreation including trails for biking, walking and skiing. The masterplan includes approximately 10 miles of looped trails with connections to the Town Common and Bike/Ped trails as part of the new Brunswick Landing Development.

As part of the masterplan process students and faculty were involved for input, considerations and key features such as interpretative trails and common garden research areas associated with current educational research and programming.

The completed masterplan is currently being integrated with overall campus planning and enhancement programs.





Visitor entry and patient discharge access

Sebago Technics was engaged to provide landscape architecture, civil engineering, and permitting for this comprehensive facilities construction project at the Bramhall Campus.

The project included a four-story, state-of-the-art obstetrics and newborn center, a new helicopter landing pad, a new 512-car parking garage, a new central utility plant, and reconfiguration of the main entrances to the hospitals and lobbies. The new campus encompasses three city blocks and included the vacation and re-alignment of two city streets in Portland's West End Neighborhood.

Sebago Technics led the effort for the Phase I Expansion project. Grade changes exceeding 80 vertical feet, complicated existing and proposed utility infrastructure and significant circulation patterns challenged and invigorated the design team. Completed in the fall of 2009, a new main entrance graces the arrival to Bramhall, creates a new pocket park dedicated to the City of Portland, and resolves a long - standing parking shortage at Maine Medical Center.

Permits to construct the project were obtained from the Maine Department of Environmental Protection, the Federal Aviation Administration and the City of Portland. Led by Paul Gray at Maine Medical Center, the City review, public input and participation process was extensive, and we were pleased to support that process with presentation graphics and verbal testimony.



New arrival sequence and street creation



Grade changes and existing infrastructure created opportunities for creative solutions

Exhibit 7

Financial Capacity

Exhibit 7: Financial Capability

A. Estimated Costs

The anticipated cost of the proposed development is approximately \$6,161,935.

Included within the submission is a copy of preliminary cost estimating by the Project Construction Manager.

B. Financing

The Proposed project is a State funded project. Attached is an e-mail detailing the funds that have been allotted for the proposed project has been included in this Section. Also included in this Section is a copy of the legislative approval of the proposed project.

Owens McCullough

From: LaPlante, Gary <Gary.LaPlante@maine.gov>
Sent: Tuesday, September 11, 2018 5:39 PM
To: Owens McCullough; Dennis Morin (DMorin@SMRTInc.com); Jimgilman
Cc: Landry, Scott; McCarthy, Mark S; Schoenherr, David; Thornell, Ryan
Subject: Dept of Corrections Spending authorization
Attachments: PL 472 MGFA Authorization - MCC So Windham.pdf

Owens,

The attached enabling documentation outlines there is 149.7 million dedicated to the Maine Department of Corrections (MDOC) for capital construction, repairs and improvements. The legislation did not dictate how the funds would be utilized. The MDOC is moving ahead with a 2018 plan to construct the Central Plant for the new facility in Windham and sufficient funds will be available for this aspect of the project.

Thanks

[Gary LaPlante](#)

[Director of Operations](#)

[Maine Department of Corrections](#)

[111 State House Station](#)

[Augusta, Maine 04333-0111](#)

[Office: \(207\) 287-4392](#)



APPROVED

APRIL 14, 2016

BY GOVERNOR

CHAPTER

472

PUBLIC LAW

STATE OF MAINE

IN THE YEAR OF OUR LORD

TWO THOUSAND AND SIXTEEN

S.P. 547 - L.D. 1447

An Act To Authorize the Maine Governmental Facilities Authority To Issue Securities To Pay for Capital Repairs and Improvements to the Maine Correctional Center in South Windham and a Facility Owned by the Department of Corrections in Washington County

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 4 MRSA §1610-I is enacted to read:

§1610-I. Additional securities for capital construction, repairs and improvements

Notwithstanding any limitation on the amount of securities that may be issued pursuant to section 1606, subsection 2, as limited by section 1610-A, the authority may issue additional securities in an amount not to exceed \$149,700,000 outstanding at any one time to pay for capital construction, repairs and improvements to the Maine Correctional Center in South Windham and a facility owned by the Department of Corrections in Washington County.

Windham Correctional Facility Central Utility Plant

Run Date:

Schematic Estimate - September 26, 2018			
DIVISION	1	\$	810,740
	2	\$	85,000
	3	\$	521,618
	4	\$	294,600
	5	\$	90,900
	6	\$	256,000
	7		
	Roof System	\$	125,000
	Metal Wall Panels	\$	266,000
	Moisture Protection/Insulation	\$	140,000
	Fireproofing		
	8		
	Doors/HDWR/Frames	\$	26,500
	Aluminum Windows	\$	30,000
	OH Doors/Equip	\$	66,000
	9		
	Drywall / Ext. Framing	\$	125,000
	Floors	\$	70,000
	Ceiling/Acoustics	\$	46,000
	Paint	\$	53,500
	10		
	Accessories	\$	45,000
	11		
	Break Room Equipment	\$	15,000
	Loading Dock Equipment	\$	25,500
	12	\$	-
	13	\$	-
	14	\$	-
	21	\$	89,100
	22, 23	\$	867,700
	26	\$	334,800
	31	\$	690,000
	Winter Protection	\$	125,000
	Pre-Construction	\$	-
		\$	-
	Sub Total:	\$	5,198,958
	P&P Bond:	\$	64,259
	Contingency (3%):	\$	155,969
	1.9% Fee:	\$	102,965
	GRAND TOTAL:	\$	5,522,150

PROJECT NAME:	State of Maine MCC Windham Central Plant						
DATE:	9/26/2018		BY:	OAM			
OPINION OF SITE WORK CONSTRUCTION COSTS							
<u>Item</u>				<u>Subtotal</u>	<u>Total</u>		
Base Bid				\$521,135	\$521,135		
Site work Subtotal					\$521,135		
<u>General Conditions</u>		<u>Unit</u>	<u>Quantity</u>	<u>Unit</u>	<u>Total</u>		<u>Notes</u>
Mobilization/General Conditions		ls	1	\$36,479	\$36,479		7% of Site Work Total
Material Testing compaction, sieve		1/2 days	8	\$500	\$4,000		
General Conditions Subtotal					\$40,479		
Contingency	15%				\$78,170		% of Site Work Total
Grand Total					\$639,785		
	<u>Unit</u>	<u>Quantity</u>	<u>Materials</u>	<u>Unit Cost</u>	<u>Total</u>		<u>Notes</u>
Earth Work							
Erosion & Sedimentation Control	ls	1		\$15,000	\$15,000		
Mass Site Grading	cy	3,500		\$12	\$42,000		
Clearing and Grubbing	ac	1		\$7,500	\$7,500		
Gravel Subbase	cy	1,200	15" Deep	\$25	\$30,000		
Gravel Base	cy	400	3" Deep	\$27	\$10,800		
Stone Drip Edge	lf	315		\$35	\$11,025		
Stormwater Pond	ls	1		\$50,000	\$50,000	\$166,325	Subtotal Earthwork
Pavement/Curbing							
Bituminous Pavement 3"	ton	500	3.75" Thick	\$95	\$47,500		
Concrete Pads	sf	450	8" Thick	\$15	\$6,750		
Painted Pavement Markings	sf	100		\$4	\$400		
Parking Spaces Paint	lf	220		\$0.50	\$110		
Traffic Signs	ea	4		\$50.00	\$200	\$54,960	Subtotal Pavement/Curbing
Storm drain System							
12" storm drain	lf	305		\$60	\$18,300		
18" storm drain	lf	70		\$70	\$4,900		
24" storm drain	lf	150		\$85	\$12,750		
New Catch Basins	ea	4		\$3,500	\$14,000		
						\$49,950	Subtotal Storm Drain System
Water							
12" Water	lf	975		\$90	\$87,750		
Water Services	lf	120		\$60	\$7,200		
						\$94,950	Subtotal Water System
Sanitary Sewer							
Holding Tank	ea	1		\$7,500	\$7,500		
4 and 6" Sewer Pipe	lf	130		\$65	\$8,450		
Oil & Water Separator	ls	1		\$10,000	\$10,000		
						\$25,950	Subtotal Sanitary System
Fuel Storage & Distribution							
1,000 gal above ground fuel storage tank with on tank dispenser	ls	1		\$35,000	\$35,000	\$35,000	Subtotal Fuel Storage
Site Electrical							
Transformer	ea	2		\$15,000	\$30,000		

PROJECT NAME:	State of Maine MCC Windham Central Plant						
DATE:	9/26/2018		BY:	OAM			
OPINION OF SITE WORK CONSTRUCTION COSTS							
Conduit	lf	800		\$30	\$24,000		
Electrical Service Entrance - CMP	lf	1		\$20,000	\$20,000	\$74,000	Subtotal Electrical
Landscaping							
Allowance	ls	1		\$5,000	\$5,000		
Loam & Seed	sy	2500		\$6	\$15,000	\$20,000	Subtotal Landscaping
Subtotal - Project Site Costs						\$521,135	

Exhibit 8

Adequacy and Availability of Public Utilities

Exhibit 8: Adequacy & Availability of Public Facilities

Water

The development will be serviced by municipal water supplied by the Portland Water District. It is anticipated that the 20,017 s.f. facility will use approximately 43.6 gpm (Peak Flow) and approximately 220 gallons per day. Please see this Exhibit for correspondence from the Portland Water District.

Sewer

The project is expected to generate approximately 220 gallons per day from domestic/employee usage of the facility. This building is a critical piece of infrastructure for the Correctional Facility to replace existing aged heat/physical plant for the facility and must be built first in the sequence of a much larger rehabilitation project that is currently under design and planning. This initial building will include new high efficiency boilers and must be built first to facilitate the masterplan of the facility that will be undertaken and permitted in 2019. Since this facility will be a low wastewater generator, a holding tank (pumped as needed similar to a septic tank) will be installed for the short time this facility is under construction to accommodate wastewater from the construction administration activities. The building will be interconnected with the entire facility as part of the full facility rehabilitation. This approach is needed since the full facility planning and design is not yet completed and therefore, a definitive point of connection to the overall facility sewer has yet to be determined.

Peak Flow Based on Fixture Count

Customer	
Street Address	
City	

Fixture	Fixture Value 60 psi		No. of Fixtures		Fixture Value
Bathtub	8	x	0	=	0
Bedpan Washers	10	x	0	=	0
Bidet	2	x	0	=	0
Dental Unit	2	x	0	=	0
Drinking Fountain - Public	2	x	1	=	2
Kitchen Sink	2.2	x	2	=	4.4
Lavatory	1.5	x	5	=	7.5
Showerhead (Shower Only)	2.5	x	1	=	2.5
Service Sink	4	x	1	=	4
Toilet -Flush Valve	35	x	5	=	175
-Tank Type	4	x	0	=	0
Urinal -Pedestal Flush Valve	35	x	0	=	0
-Wall Flush Valve	16	x	0	=	0
Wash Sink (Each Set of Faucets)	4	x	0	=	0
Dishwasher	2	x	1	=	2
Washing Machine	6	x	0	=	0
Hose (50 ft. Wash Down) -1/2 in.	5	x	0	=	0
-5/8 in.	9	x	0	=	0
-3/4 in.	12	x	2	=	24

Combined Fixture Value Total	221.4
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Customer Peak Demand From Fig. 4-2 or 4-3	30
Pressure Factor From Table 4-1	1.09

No. of Irrigation Sections (Areas of 100 sq. ft.)	0
Irrigation Factor (1.16-Spray Systems, 0.40-Rotary Systems)	0
Hose Bibs for Irrigation:	
Size	Fixture Value
1/2"	0
5/8"	0
3/4"	2.5

Total Fixed Demand (Peak Flow)	43.6 gpm
--------------------------------	----------

Table 4-1 Pressure Adjustment Factors

Working Pressure at Meter Discharge (psi)	Pressure Adjustment Factor
35	0.74
40	0.80
50	0.90
60	1.00
70	1.09
80	1.17
90	1.25
100	1.34

Adapted from AWWA Manual M22 table 4-1

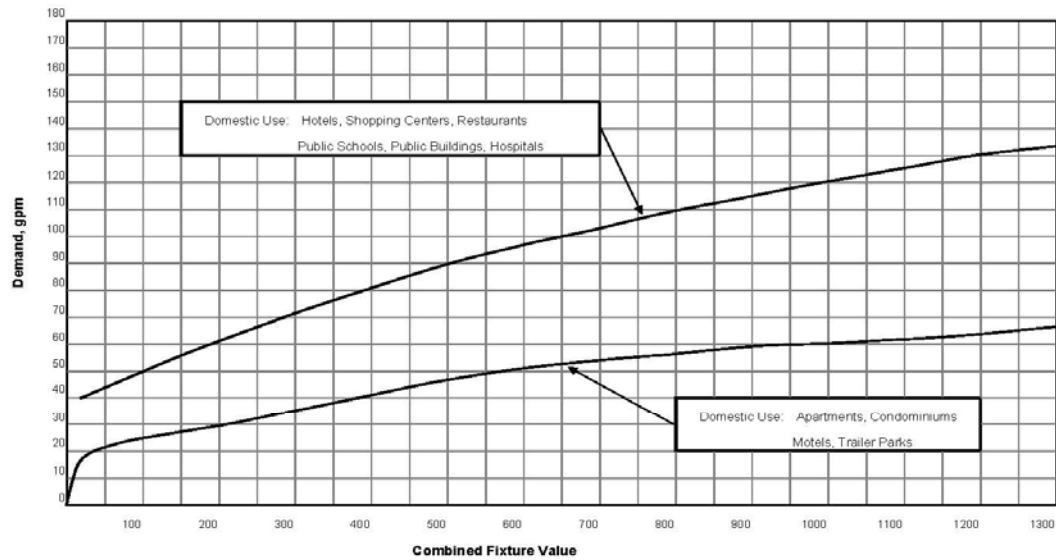


Figure 4-2 Water flow demand per fixture value - low range

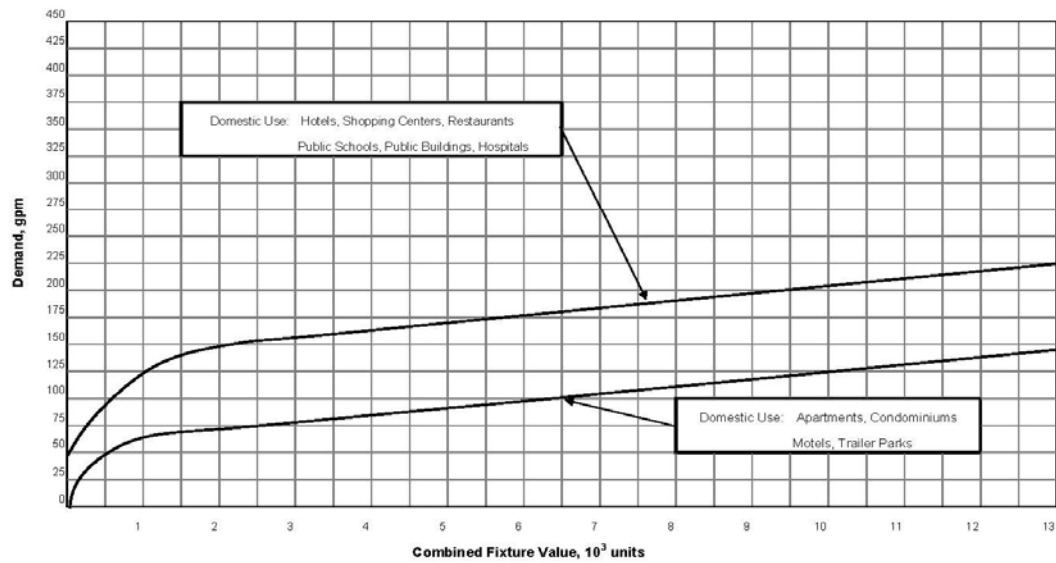


Figure 4-3 Water flow demand per fixture value - High range

Owens McCullough

From: Robert Bartels <rbartels@pwd.org> on behalf of AMaP MEANS <means@pwd.org>
Sent: Thursday, October 18, 2018 4:34 PM
To: Owens McCullough
Subject: RE: Maine Correctional Facility
Attachments: WO - 119 Mallison Falls Rd - Infrastructure Map - 2018.pdf

Hello Mr. McCullough,

Attached is a copy of PWD's infrastructure map noting the location, type, and size of the public water mains near your site. It is possible to make a new connection into a public main only after proper review and approval by PWD; in no way shall this information be interpreted as a determination of PWD's ability to serve the project at this time. Water District approval of water infrastructure plans will be required for the project prior to construction. As your project progresses, we advise that you submit any preliminary design plans to MEANS for review of the water main and water service line configuration. We will work with you to ensure that the design meets our current standards. Please let me know if you have any questions.

Thanks,

Robert Bartels
Senior Project Engineer
Portland Water District
Phone:
E-mail: rbartels@pwd.org
<http://www.pwd.org>

From: Owens McCullough <omccullough@sebagotechnics.com>
Sent: Thursday, October 18, 2018 4:17 PM
To: Robert Bartels <rbartels@pwd.org>
Subject: Re: Maine Correctional Facility

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Going to the Town Planning Board next Monday night. If I could take something with me, that would be great.

Thank you, Owens

Sent from my mobile phone.
Owens A. McCullough, PE
Sebago Technics, Inc.

On Oct 18, 2018, at 3:47 PM, Robert Bartels <rbartels@pwd.org> wrote:

When does the town need this?

Robert Bartels
Senior Project Engineer
Portland Water District



PWD

Disclaimer: This map is suitable for preliminary study and analysis and is based on PWD record information. PWD is not liable for any damages whatsoever resulting from inaccurate data or from errors made in the location and marking of its infrastructure.

Scale: As Noted

Drawn By: KAR

Infrastructure Map

Date: Sept. 19, 2018

Scale: 1 inch = 400 feet

Feet

0 105 210 420 630 840

Legend

Air Valve

Blow Off

By Pass

Distribution

Transmission

Connection

Attribute Change

Hydrant Control

Reducer

Hydrant

Meter Pits

Combined Service

Domestic Service

Fire Service

Shallow Water Main

Deep Water Main

Proposed Water Main

Private Hydrants

Gravity

Force

Manhole

CSO

119 Mallison Falls Rd.

Windham

PORTLAND WATER DISTRICT

225 Douglass Street

Portland, ME 04104

Exhibit 9

Solid Waste

Exhibit 9 - Solid Waste

A. Estimated Quantities of Solid Waste

The proposed 20,017 s.f. Maintenance and Control Plant building will support the existing Correctional Center. The proposed building will generate low volumes of waste in the form of typical daily office waste and recyclable materials. Solid waste generated will be stored in trash bins at designated areas within the building and outside of the building. As the facility will also serve as vehicle storage and light maintenance, there will be small amounts for waste liquids such as oil, grease, anti-freeze and cleaning fluids.

The building is expected to generate average quantities of waste as follows:

Municipal Solid Waste:

0.5 lbs. of waste/person/day X 20 people X 30 days/month = 300 lbs. of waste/month = 10 lbs. of waste/day (avg.) → 10 lbs. X 1 cy/500 lbs. = 0.02 (avg.) cy of waste/day.

Source - National Solid Waste Management Association

https://www.wastecare.com/usefulinfo/Waste_Generated_by_Industry.htm

The Department of Corrections will be responsible for collecting solid waste from the building and disposing of it in on-site dumpsters. Waste removal for the facility is subcontracted with Reynolds and Son's who disposes of the waste at ECO Maine.

See Section D below for other waste types and quantities.

B. Off-Site Disposal of Construction/Demolition Debris

Construction debris associated with building construction, including clean wood, material packaging, cardboard, etc. will be collected in large onsite construction dumpsters. It is recommended that the contractor separate waste into 2 to 4 roll-off dumpsters. The waste material should be separated into the following types: wood, metal, all other material, and possibly cardboard (for recycling). Assuming roughly 4.34 lbs./sf of construction debris, waste generation is anticipated to be approximately 43.4 tons, and have a volume 140 cubic yards (CY) assuming 7 CY/1,000 square feet of floor space. It will be the responsibility of the site contractor to remove this building waste from the site during construction. All construction debris will be transported to the City of Portland Riverside Street Facility located in Portland, Maine by a licensed Non-Hazardous Waste Transporter, likely Reynolds and Sons or Casella Waste Systems.

There is no demolition work planned as part of this proposed project as the project is new construction.

C. On-Site Disposal of Wood Waste/Land Clearing Debris

A qualified tree cutter will perform the required tree clearing and the logs will be taken off site. The associated stumps and grubbing will be ground on site by a portable stump grinder and used as mulch in the stabilization of back slopes and for erosion control. The grinding must be completed within a 30-day time period if a DEP permit has not been obtained. Material that has been ground and is not being used on-site must be hauled off-site within a time-period of 30 days from the end of the grinding process by a licensed Non-Hazardous Waste Transporter. An estimated 400 cubic yards of stumps and grubbing (assuming 1 acre of clearing @ 400 CY/acre) will be generated during construction.

D. Special or Hazardous Waste

Since the facility will include light maintenance of vehicles and equipment (oil changes, greasing, brake repairs, etc.) there will be some limited amounts of special or hazardous waste stored on site. It is anticipated that the following will be kept on site:

- Individual quart or gallon containers (total of 50 gal. motor/hydraulic/gear)
- Used oil (30-gallon container – burned as waste oil at Windham Public Works)
- Bulk grease (30 to 50 tubes)
- Antifreeze (plastic 50-gallon drum removed by Clean Harbors)
- Gasoline/Diesel (1,000 gal, as part of Fuel Station)
- Generator reserved fuel/day tanks (diesel)
- Paints (water based -latex, 10 gal)
- Thinners or solvents (10 gal, Safety-Kleen solvent cleaning station)
- Bottled gases (six K-type compressed gas cylinders – Oxygen/Nitrogen/Acetylene/Argon)
- Propane Cylinders (five 20#tanks/four 30# tanks)
- Boiler chemicals (seven 55 gal drums (Aqualab RL-300/Liquid Deoxit-514)
- Flammable Storage cabinets (three 4'x2'x5' cabinets for various chemicals – WD40, lubricating oils, carb/choke cleaner/brake cleaner, etc.)

Please see this Section for the Safety Data Sheets.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and
OSHA GHS

Printing date 01/30/2015

Revision: 01/30/2015

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
- **Trade name:** Liquid Deoxit
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Water treatment
- **1.3 Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
Aqua Laboratories, Inc.
8 Industrial Way
PO Box 645
Amesbury, MA 01913
(978) 388-3989
- **1.4 Emergency telephone number:**
ChemTel Inc.
(800)255-3924, +1 (813)248-0585

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
Classifications listed also are applicable to the OSHA GHS Hazard Communication Standard (29CFR1910.1200).



corrosion

Skin Corr. 1C H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



C; Corrosive

R34: Causes burns.

- **Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

- **Classification system:**

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

- **Additional information:**

Contact with acids liberates toxic gas.

There are no other hazards not otherwise classified that have been identified.

0 percent of the mixture consists of component(s) of unknown toxicity

(Contd. on page 2)

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and
OSHA GHS

Printing date 01/30/2015

Revision: 01/30/2015

Trade name: Liquid Deoxit

(Contd. of page 1)

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The product is additionally classified and labelled according to the Globally Harmonized System within the United States (GHS).

The product is classified and labelled according to the CLP regulation.

Hazard pictograms



GHS05

Signal word Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

Precautionary statements

The following Precautionary Statements are applicable only to the OSHA GHS regulations and not the specific CLP regulation: P363.

P260 Do not breathe mist/vapours/spray.

P280 Wear protective gloves / eye protection.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor. P363

Wash contaminated clothing before reuse. P301+P330+P331 IF

SWALLOWED: rinse mouth. Do NOT induce vomiting.

Additional information:

EUH031 Contact with acids liberates toxic gas.

Hazard description:

WHMIS-symbols:

D2B - Toxic material causing other toxic effects

E - Corrosive material



NFPA ratings (scale 0 - 4)



Health = 3

Fire = 0

Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = 3

Fire = 0

Reactivity = 0

(Contd. on page 3)

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and
OSHA GHS

Printing date 01/30/2015

Revision: 01/30/2015

Trade name: Liquid Deoxit

(Contd. of page 2)

• HMIS Long Term Health Hazard Substances



None of the ingredients are listed.

- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.2 Mixtures**
- **Description:** Mixture of substances listed below with nonhazardous additions.

• Dangerous components:

CAS: 7757-83-7 EINECS: 231-821-4	sodium sulphite R31	10-25%
CAS: 1310-73-2 EINECS: 215-185-5 Index number: 011-002-00-6	sodium hydroxide  C R35  Skin Corr. 1A, H314	≤ 2,5%

• Additional information:

For the listed ingredients, the identity and exact percentages are being withheld as a trade secret.
For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**
Immediately rinse with water.
If skin irritation continues, consult a doctor.
Seek immediate medical help for blistering or open wounds.
- **After eye contact:**
Remove contact lenses if worn, if possible.
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; call for medical help immediately.
- **4.2 Most important symptoms and effects, both acute and delayed**
Caustic effect on skin and mucous membranes.
- **Hazards**
Danger of gastric perforation.
Causes burns.
Causes serious eye damage.

(Contd. on page 4)

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and
OSHA GHS

Printing date 01/30/2015

Revision: 01/30/2015

Trade name: Liquid Deoxit

(Contd. of page 3)

- **4.3 Indication of any immediate medical attention and special treatment needed**
Medical supervision for at least 48 hours.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
Use fire extinguishing methods suitable to surrounding conditions.
Fight fire with normal precautions from a reasonable distance.
The product is not flammable.
- **For safety reasons unsuitable extinguishing agents:** None.
- **5.2 Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **5.3 Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information** No special measures required.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Particular danger of slipping on leaked/spilled product.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Send for recovery or disposal in suitable receptacles.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Prevent formation of aerosols.
Use only in well ventilated areas.
Avoid splashes or spray in enclosed areas.
- **Information about fire - and explosion protection:**
Keep respiratory protective device available.
During heating or in case of fire poisonous gases are produced.

(Contd. on page 5)

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and
OSHA GHS

Printing date 01/30/2015

Revision: 01/30/2015

Trade name: Liquid Deoxit

(Contd. of page 4)

- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Store only in the original receptacle.
Unsuitable material for receptacle: aluminium.
Unsuitable material for receptacle: steel.
- **Information about storage in one common storage facility:**
Store away from foodstuffs.
Do not store together with acids.
Store away from oxidising agents.
- **Further information about storage conditions:** Keep container tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

· 8.1 Control parameters

- **Ingredients with limit values that require monitoring at the workplace:**

1310-73-2 sodium hydroxide

PEL (USA) Long-term value: 2 mg/m³
 REL (USA) Ceiling limit: 2 mg/m³
 TLV (USA) Ceiling limit: 2 mg/m³
 EL (Canada) Ceiling limit: 2 mg/m³
 EV (Canada) Ceiling limit: 2 mg/m³

- **DNELs** No further relevant information available.
- **PNECs** No further relevant information available.
- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
Not required under normal conditions of use.
Use suitable respiratory protective device in case of insufficient ventilation.
For spills, respiratory protection may be advisable.
- **Protection of hands:**



Protective gloves

(Contd. on page 6)

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and
OSHA GHS

Printing date 01/30/2015

Revision: 01/30/2015

Trade name: Liquid Deoxit

(Contd. of page 5)

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**

Contact lenses should not be worn.



Safety glasses

- **Body protection:** Alkaline resistant protective clothing

- **Limitation and supervision of exposure into the environment**

No further relevant information available.

- **Risk management measures**

See Section 7 for additional information.

No further relevant information available.

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form: Liquid

Colour: Clear

- **Odour:** Odourless

- **Odour threshold:** Not determined.

- **pH-value:** 13,36

- **Change in condition**

Melting point/Melting range: Not Determined.

Boiling point/Boiling range: 100 °C (212 °F)

- **Flash point:** Not applicable - does not support sustained combustion.

- **Flammability (solid, gaseous):** Not applicable.

- **Auto/Self-ignition temperature:** Not determined.

- **Decomposition temperature:** Not determined.

- **Self-igniting:** Product is not self-igniting.

- **Danger of explosion:** Product does not present an explosion hazard.

(Contd. on page 7)

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and
OSHA GHS

Printing date 01/30/2015

Revision: 01/30/2015

Trade name: Liquid Deoxit

(Contd. of page 6)

- **Explosion limits:**
 - Lower:** Not determined.
 - Upper:** Not determined.
- **Vapour pressure at 20 °C (68 °F):** 23 hPa (17 mm Hg)
- **Density at 20 °C (68 °F):** 1,12 g/cm³ (9,346 lbs/gal)
- **Relative density** Not determined.
- **Vapour density** Not determined.
- **Evaporation rate** Not determined.
- **Solubility in / Miscibility with water:** Fully miscible.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
 - Dynamic:** Not determined.
 - Kinematic:** Not determined.
- **9.2 Other information** No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity**
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **10.3 Possibility of hazardous reactions**
Reacts with acids releasing sulphur dioxide.
Strong exothermic reaction with acids.
Toxic fumes may be released if heated above the decomposition point.
Reacts with certain metals.
- **10.4 Conditions to avoid** Avoid acids.
- **10.5 Incompatible materials:** Contact with acids liberates toxic gas (sulphur dioxide).
- **10.6 Hazardous decomposition products:** Sulphur oxides (SO_x)

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity:**

· LD/LC50 values relevant for classification:
--

1310-73-2 sodium hydroxide

Oral LD50 2000 mg/kg (rat)

- **Primary irritant effect:**
 - **on the skin:** Caustic effect on skin and mucous membranes.
 - **on the eye:** Strong caustic effect.
- **Sensitisation:** No sensitising effects known.

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- **Subacute to chronic toxicity:** No further relevant information available.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Corrosive
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
- **Acute effects (acute toxicity, irritation and corrosivity):** Causes severe skin burns and eye damage.
- **Repeated dose toxicity:** No further relevant information available.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralised.
Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. If the dilution of the use-level pH-value is considerably reduced, the aqueous waste, emptied into drains, is only low water-dangerous.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Do not allow undiluted product to reach sewage system.
Small amounts may be diluted with plenty of water and washed away. Dispose of larger amounts in accordance with Local Authority requirements.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

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- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

- **14.1 UN-Number**
- **DOT, ADR, IMDG, IATA**
- **14.2 UN proper shipping name**
- **DOT**
- **ADR**
- **IMDG, IATA**
- **14.3 Transport hazard class(es)**

UN1824

Sodium hydroxide solution mixture
1824 SODIUM HYDROXIDE SOLUTION mixture
SODIUM HYDROXIDE SOLUTION mixture

- **DOT**



- **Class**
- **Label**

8 Corrosive substances.
8

- **ADR**



- **Class**
- **Label**

8 (C5) Corrosive substances.
8

- **IMDG, IATA**



- **Class**
- **Label**
- **14.4 Packing group**
- **DOT, ADR, IMDG, IATA**
- **14.5 Environmental hazards:**
- **Marine pollutant:**
- **14.6 Special precautions for user**
- **Danger code (Kemler):**
- **EMS Number:**
- **Segregation groups**
- **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

8 Corrosive substances.
8

III

No
Warning: Corrosive substances.

80
F-A,S-B
Alkalis

Not applicable.

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· **Transport/Additional information:**

- | | |
|-----------------------------------|---|
| · ADR | 5L |
| · Limited quantities (LQ) | Code: E1 |
| · Excepted quantities (EQ) | Maximum net quantity per inner packaging: 30 ml |
| | Maximum net quantity per outer packaging: 1000 ml |
| · Transport category | 3 |
| · Tunnel restriction code | E |
-
- | | |
|-----------------------------------|---|
| · IMDG | 5L |
| · Limited quantities (LQ) | Code: E1 |
| · Excepted quantities (EQ) | Maximum net quantity per inner packaging: 30 ml |
| | Maximum net quantity per outer packaging: 1000 ml |
| · UN "Model Regulation": | UN1824, SODIUM HYDROXIDE SOLUTION mixture, 8, III |

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65 (California):**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **Carcinogenic Categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients are listed.

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- **IARC (International Agency for Research on Cancer)**

None of the ingredients are listed.

- **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients are listed.

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

- **Canada**

- **Canadian Domestic Substances List (DSL)**

All ingredients are listed.

- **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients are listed.

- **Canadian Ingredient Disclosure list (limit 1%)**

1310-73-2 sodium hydroxide

- **Other regulations, limitations and prohibitive regulations**

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

- **Substances of very high concern (SVHC) according to REACH, Article 57**

None of the ingredients are listed.

- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**

H314 Causes severe skin burns and eye damage.

R31 Contact with acids liberates toxic gas.

R35 Causes severe burns.

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

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LD50: Lethal dose, 50 percent

Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A

Skin Corr. 1C: Skin corrosion/irritation, Hazard Category 1C

Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

Sources

SDS Prepared by:

ChemTel Inc.

1305 North Florida Avenue

Tampa, Florida USA 33602-2902

Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573

Website: www.chemtelinc.com

Safety Data Sheet

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1 Identification

- **Product identifier**
- **Trade name:** RL 300
- **Article number:** No other identifiers
- **Recommended use and restriction on use**
- **Recommended use:** Condensate Neutralizer
- **Restrictions on use:** No relevant information available.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
Aqua Laboratories, Inc.
8 Industrial Way
PO Box 645
Amesbury, MA 01913
(978) 388-3989
- **Emergency telephone number:**
ChemTel Inc.
(800)255-3924, +1 (813)248-0585

2 Hazard(s) identification

- **Classification of the substance or mixture**
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
- **Label elements**
- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**



GHS05

- **Signal word:** Danger
- **Hazard statements:**
H314 Causes severe skin burns and eye damage.
- **Precautionary statements:**
P260 Do not breathe mist/vapors/spray.
P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P363 Wash contaminated clothing before reuse.
P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

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P405 Store locked up.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

110-91-8	morpholine	Flam. Liq. 3, H226 Skin Corr. 1B, H314 Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332	<10%
----------	------------	---	------

· **Additional information:**

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
 For the wording of the listed Hazard Statements refer to section 16.

4 First-aid measures

· **Description of first aid measures**

· **After inhalation:**

Supply fresh air; consult doctor in case of complaints.
 Provide oxygen treatment if affected person has difficulty breathing.

· **After skin contact:**

Immediately remove any clothing soiled by the product.
 Immediately rinse with water.
 If skin irritation continues, consult a doctor.
 Seek immediate medical help for blistering or open wounds.

· **After eye contact:**

Protect unharmed eye.
 Remove contact lenses if worn.
 Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Rinse out mouth and then drink plenty of water.
 Do not induce vomiting; immediately call for medical help.

· **Most important symptoms and effects, both acute and delayed:**

Headache

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Breathing difficulty
 Coughing
 Cramp
 Diarrhea.
 Strong caustic effect on skin and mucous membranes.
 Gastric or intestinal disorders when ingested.
 Nausea in case of ingestion.

- **Danger:**

Danger of gastric perforation.
 Causes serious eye damage.
 May be harmful if inhaled.

- **Indication of any immediate medical attention and special treatment needed:**

Later observation for pneumonia and pulmonary edema.
 Medical supervision for at least 48 hours.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray.

- **For safety reasons unsuitable extinguishing agents:** None.

- **Special hazards arising from the substance or mixture**

Formation of toxic gases is possible during heating or in case of fire.

- **Advice for firefighters**

- **Protective equipment:**

Wear self-contained respiratory protective device.
 Wear fully protective suit.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Use respiratory protective device against the effects of fumes/dust/aerosol.

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation.

- **Environmental precautions** Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Send for recovery or disposal in suitable receptacles.

- **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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7 Handling and storage

- **Handling**
- **Precautions for safe handling:**
 - Prevent formation of aerosols.
 - Avoid splashes or spray in enclosed areas.
 - Use only in well ventilated areas.
 - Avoid contact with the eyes and skin.
 - Avoid breathing mist, vapors, or spray.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:**
 - Avoid storage near extreme heat, ignition sources or open flame.
- **Information about storage in one common storage facility:**
 - Store away from foodstuffs.
 - Store away from oxidizing agents.
 - Do not store together with acids.
- **Further information about storage conditions:**
 - Store in cool, dry conditions in well sealed receptacles.
 - Keep containers tightly sealed.
- **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· Control parameters

· Components with limit values that require monitoring at the workplace:

110-91-8 morpholine

PEL (USA)	Long-term value: 70 mg/m ³ , 20 ppm Skin
REL (USA)	Short-term value: 105 mg/m ³ , 30 ppm Long-term value: 70 mg/m ³ , 20 ppm Skin
TLV (USA)	Long-term value: 71 mg/m ³ , 20 ppm Skin
EL (Canada)	Long-term value: 20 ppm Skin
EV (Canada)	Short-term value: 105 mg/m ³ , 30 ppm Long-term value: 70 mg/m ³ , 20 ppm Skin
LMPE (Mexico)	Long-term value: 20 ppm A4, PIEL

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- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 The usual precautionary measures for handling chemicals should be followed.
 Keep away from foodstuffs, beverages and feed.
 Immediately remove all soiled and contaminated clothing.
 Wash hands before breaks and at the end of work.
 Do not inhale gases / fumes / aerosols.
 Avoid contact with the eyes and skin.
- **Engineering controls:** No relevant information available.
- **Breathing equipment:**
 Not required under normal conditions of use.
 Use suitable respiratory protective device in case of insufficient ventilation.
 Use suitable respiratory protective device when aerosol or mist is formed.
 For spills, respiratory protection may be advisable.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

- **Eye protection:**
 Contact lenses should not be worn.



Safety glasses

- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment**
 No relevant information available.

9 Physical and chemical properties

· Information on basic physical and chemical properties

- **Appearance:**
 - Form: Liquid
 - Color: Clear
- **Odor:** Ammonia-like
- **Odor threshold:** Not determined.
- **pH-value:** 11.44
- **Melting point/Melting range:** Not determined.
- **Boiling point/Boiling range:** 100 °C (212 °F)
- **Flash point:** Not applicable.
- **Flammability (solid, gaseous):** Not applicable.

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· Auto-ignition temperature:	Not determined.
· Decomposition temperature:	Not determined.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits	
Lower:	Not determined.
Upper:	Not determined.
· Oxidizing properties:	Non-oxidizing.
· Vapor pressure:	Not determined.
· Density:	
Relative density:	1.00
Vapor density:	Not determined.
Evaporation rate:	Not determined.
· Solubility in / Miscibility with Water:	Soluble.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Other information	No relevant information available.

10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:** Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions**
Toxic fumes may be released if heated above the decomposition point.
Reacts with strong acids and oxidizing agents.
- **Conditions to avoid** Excessive heat.
- **Incompatible materials**
Oxidizers
Strong acids
- **Hazardous decomposition products**
Carbon monoxide and carbon dioxide
Nitrogen oxides (NOx)

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11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

110-91-8 morpholine

Oral	LD50	1050 mg/kg (rat)
Dermal	LD50	500 mg/kg (rabbit)

- **Primary irritant effect:**

- **On the skin:** Strong caustic effect on skin and mucous membranes.

- **On the eye:** Strong caustic effect.

- **Sensitization:** Based on available data, the classification criteria are not met.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

- **NTP (National Toxicology Program):**

None of the ingredients are listed.

- **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

- **Probable route(s) of exposure:**

Ingestion.

Inhalation.

Eye contact.

Skin contact.

- **Acute effects (acute toxicity, irritation and corrosivity):**

Causes severe skin burns and eye damage.

May be harmful if inhaled.

- **Repeated dose toxicity:** Repeated exposure may cause skin dryness or cracking.

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

- **Carcinogenicity:** Based on available data, the classification criteria are not met.

- **Reproductive toxicity:** Based on available data, the classification criteria are not met.

- **STOT-single exposure:** Based on available data, the classification criteria are not met.

- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.

- **Aspiration hazard:** Based on available data, the classification criteria are not met.

12 Ecological information

- **Toxicity**

- **Aquatic toxicity** No relevant information available.

- **Persistence and degradability** No relevant information available.

- **Bioaccumulative potential:** No relevant information available.

- **Mobility in soil:** No relevant information available.

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- **Ecotoxicological effects:**
- **Remark:** After neutralization a reduction of the harming action may be recognized
- **Additional ecological information**
- **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.
- **Other adverse effects** No relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- | | |
|---|--|
| · UN-Number | |
| · DOT, ADR, IMDG, IATA | UN2735 |
| · UN proper shipping name | |
| · DOT, IATA | Amines, liquid, corrosive, n.o.s. (Morpholine) |
| · ADR, IMDG | AMINES, LIQUID, CORROSIVE, N.O.S. (MORPHOLINE) |
| · Transport hazard class(es) | |
| · DOT | |
|  | |
| · Class | 8 Corrosive substances |

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· **Label** 8

· **ADR**



· **Class** 8 (C7) Corrosive substances

· **Label** 8

· **IMDG, IATA**



· **Class** 8 Corrosive substances

· **Label** 8

· **Packing group**

· **DOT, ADR, IMDG, IATA** II

· **Environmental hazards**

· **Marine pollutant:** No

· **Special precautions for user** Warning: Corrosive substances

· **Danger code (Kemler):** 80

· **EMS Number:** F-A,S-B

· **Segregation groups** Alkalis

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **DOT**



Limited Quantity for packages less than 30 kg gross and inner packagings less than 1 L each.

· **ADR**



Limited Quantity for packages less than 30 kg gross and inner packagings less than 1 L each.

· **IMDG**



Limited Quantity for packages less than 30 kg gross and inner packagings less than 1 L each.

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· IATA



Limited Quantity for packages less than 30 kg gross and inner packagings less than 0.1 L each / 0.5 L net.

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

- **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

- **Section 304 (emergency release notification):**

None of the ingredients are listed.

- **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

- **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

- **TSCA (Toxic Substances Control Act)**

All ingredients are listed.

- **Proposition 65 (California)**

- **Chemicals known to cause cancer:**

None of the ingredients are listed.

- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

- **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

- **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

- **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

- **NIOSH-Ca (National Institute for Occupational Safety and Health):**

None of the ingredients are listed.

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16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** 12/07/2016 / -

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

LDLo: Lowest Lethal Dose Observed

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)

Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor_internet/registry/substreg/home/overview/home.do)

Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

SDS Prepared by:

ChemTel Inc.

1305 North Florida Avenue

Tampa, Florida USA 33602-2902

Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573

Website: www.chemtelinc.com

Exhibit 10

Lighting Information

Exhibit 10: Lighting

The project will include exterior building mounted lights (LED) with sharp cut-offs. Enclosed with this this submittal are the electrical and lighting drawings.

Exhibit 11

Traffic

Exhibit 11: Traffic

The new Maintenance and Physical Plant Building will replace an existing building that is antiquated and no longer functional to meet the facility current and future needs. Since this is a replacement building that will provide similar function to the existing building, no change in traffic generation or patterns are expected. This is a low traffic generation project since the building is for internal maintenance, heating and cooling with only limited employee usage and periodic deliveries similar to the existing maintenance building.

Exhibit 12

Unique Natural Areas
Sand & Gravel Aquifer Map
FEMA FIRM Map

Exhibit 12: Unique Natural Areas

The proposed building footprint lies within the existing footprint area that was previously disturbed and there will be no impact to adjacent wetlands.



July 24, 2018
16405

John Perry
Environmental Coordinator
Maine Department of Inland Fisheries
284 State Street
41 State House Station
Augusta, Maine 04333

Inland Fisheries and Wildlife Review
Maine Department of Correctional Facility Project, Windham, ME

Dear Mr. Perry:

The Maine Department of Corrections is proposing to start a major renovation and reconstruction project at their Windham facility. Given the scope of this project a Maine DEP site Location of Development Act permit and most likely an NRPA permit will be required. As part of this application process a review of the project area from your department is required.

The project will involve a renovation of some buildings, demolition and reconstruction of other buildings and an overall facility expansion to modernize the facility and allow for an increased occupancy. In general, the construction will occur with the area of the existing facility in a phased manner to allow for a continued secure operation while construction occurs. I have enclosed a project location figure and an aerial photo of the existing facility.

At your earliest convenience, please review and forward your findings. If you have any questions or need further information please do not hesitate to contact me at omccullough@sebagotechnics.com.

Sincerely,

SEBAGO TECHNICS, INC.

A handwritten signature in black ink, appearing to read "Owens McCullough", written over a light blue circular stamp.

Owens McCullough, P.E.
Senior Vice President, Strategy & Client Development

OAM/lg
Enc.



July 24, 2018
16405

Maine Historic Preservation Commission
65 State House Station
Augusta, Maine 04333 - 0065

Maine Historic Preservation Commission Review
Maine Department of Correctional Facility Project, Windham, ME

Dear MHPC Project Review Staff,

The Maine Department of Corrections is proposing to start a major renovation and reconstruction project at their Windham facility. Given the scope of this project a Maine DEP site Location of Development Act permit and most likely an NRPA permit will be required. As part of this application process a review of the project area from your department is required.

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SEBAGO TECHNICS, INC.

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Owens McCullough, P.E.
Senior Vice President, Strategy & Client Development

OAM/lg
Enc.



July 24, 2018
16405

Ms. Lisa St. Hillarie
Maine Natural Areas Program
93 State House Station
Augusta, ME 04333-0093

Maine Natural Areas Program Review
Maine Department of Correctional Facility Project, Windham, ME

Dear Ms. St. Hillarie:

The Maine Department of Corrections is proposing to start a major renovation and reconstruction project at their Windham facility. Given the scope of this project a Maine DEP site Location of Development Act permit and most likely an NRPA permit will be required. As part of this application process a review of the project area from your department is required.

The project will involve a renovation of some buildings, demolition and reconstruction of other buildings and an overall facility expansion to modernize the facility and allow for an increased occupancy. In general, the construction will occur with the area of the existing facility in a phased manner to allow for a continued secure operation while construction occurs. I have enclosed a project location figure and an aerial photo of the existing facility.

At your earliest convenience, please review and forward your findings. If you have any questions or need further information please do not hesitate to contact me at omccullough@sebagotechnics.com.

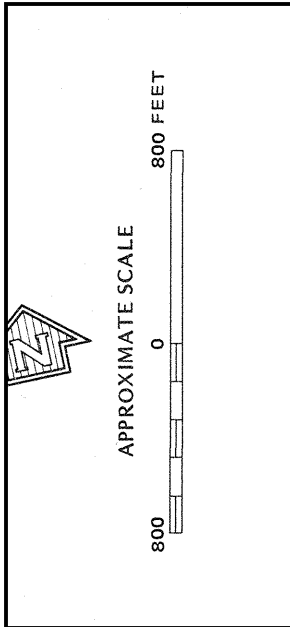
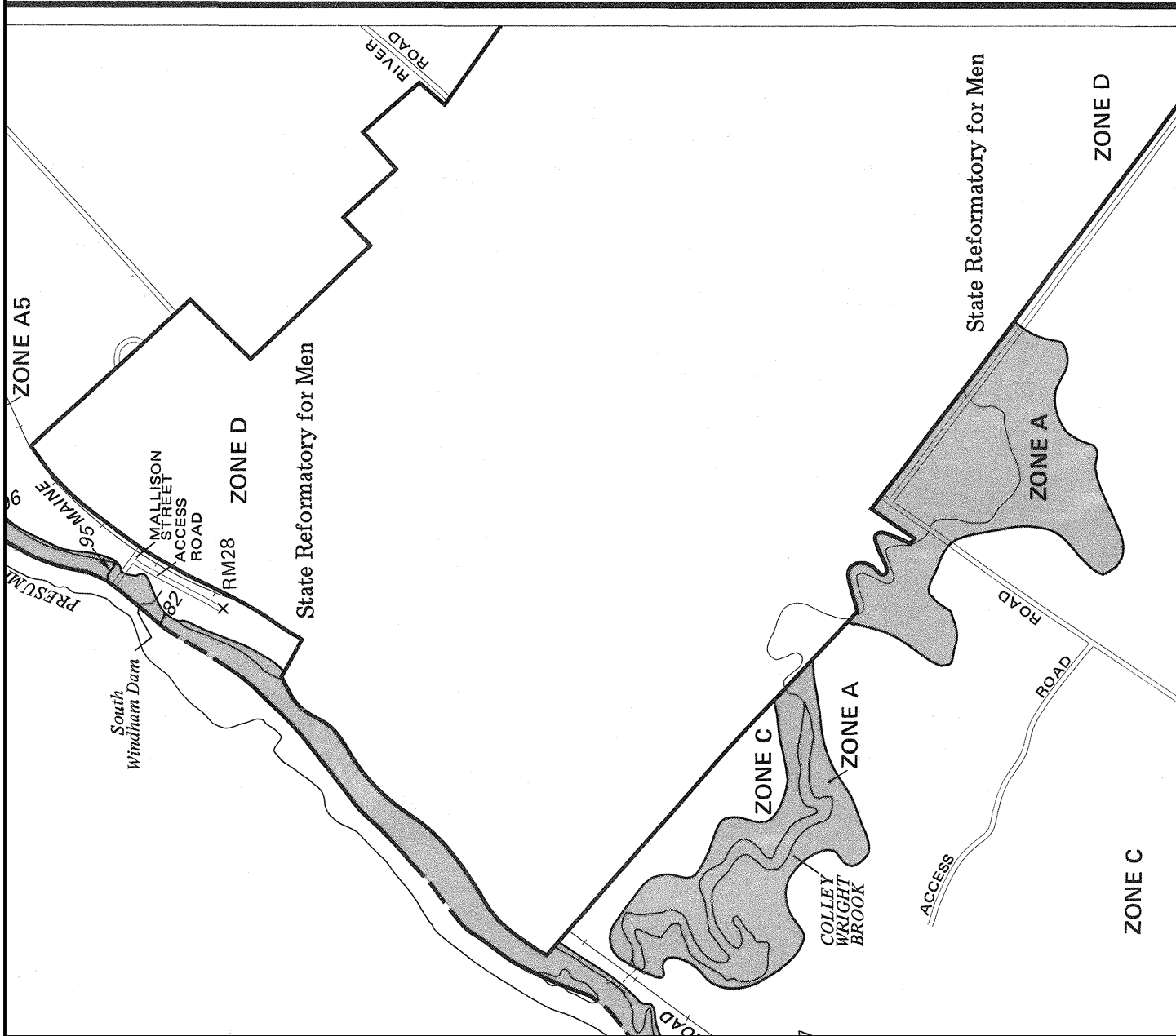
Sincerely,

SEBAGO TECHNICS, INC.

A handwritten signature in black ink, appearing to read "Owens McCullough", written over a faint, larger version of the same signature.

Owens McCullough, P.E.
Senior Vice President, Strategy & Client Development

OAM/lg
Enc.



NATIONAL FLOOD INSURANCE PROGRAM	
FIRM FLOOD INSURANCE RATE MAP	
TOWN OF WINDHAM, MAINE CUMBERLAND COUNTY	
PANEL 25 OF 35 (SEE MAP INDEX FOR PANELS NOT PRINTED)	
COMMUNITY-PANEL NUMBER 230189 0025 B	EFFECTIVE DATE: SEPTEMBER 2, 1981
federal emergency management agency federal insurance administration	

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Exhibit 13

Stormwater Narrative

Stormwater Management Report

Maintenance and Central Plant Building Maine Correctional Center

Mallison Falls Drive
Windham, Maine

Prepared for:

Maine Correctional Center
Mallison Falls Drive
Windham, Maine

Prepared by:

Sebago Technics, Inc.
75 John Roberts Road, Suite 1A
South Portland, ME 04106

Revised October 2018

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ATTACHMENTS

- A. Water Quality Calculations & Test Pit Logs
- B. Pre-Development Stormwater Modeling
- C. Post-Development Stormwater Modeling
- D. Inspection, Maintenance, and Housekeeping Plan

Stormwater Management Report

A. General

This Stormwater Management Plan has been prepared to address the potential impacts associated with the proposed modification in stormwater runoff characteristics for the new Maintenance and Central Plant Building at the Maine Correction Center in Windham, Maine. The stormwater management controls that are outlined in this plan are designed to best suit the proposed development and to comply with applicable regulatory requirements to evaluate the pre- and post-development conditions.

The subject site is located on the northwesterly side of the Maine Correctional Center in Windham, Maine. Existing land areas that will be disturbed for the project are mostly developed for the existing looped gravel access drive and associated lawn areas. Redevelopment will result in approximately 79,887 square feet (1.83 acres) of total land disturbance, including 45,283 square feet (1.04 acres) of impervious area and 34,594 square feet (0.79 acres) of landscaped area. The building will be 330 feet long and 60 feet wide, and will be surrounded by other impervious surfaces including an access drive, walkways and utility pads. Landscaped areas consist of vegetated sideslopes, shallow swales for stormwater conveyance, and stormwater best management practices (BMPs) for stormwater detention and treatment.

The project's subject parcel is currently permitted under a Maine Department of Environmental Protection (MDEP) Site Location of Development permit (#L-015483-26-B-N) therefore; an amended Site Location of Development (Site Law) permit is being submitted for the proposed project. The project's stormwater management plan will generally conform to Chapter 500 General Standard and the Flooding Standard for stormwater quality and quantity. Development will also meet the Basic Standards by providing an Erosion and Sedimentation Control Plan, and an Inspection, Maintenance, and Housekeeping Plan for use by the contractor/owner during and after construction is complete. The site is in the watershed of the Presumpscot River, which is not classified as most-at-risk or urban impaired according to Chapter 502, Direct Watersheds of Lakes Most At Risk From New Development, And Urban Impaired Stream Standards.

The Stormwater Management Plan is designed to treat and detain stormwater runoff discharged from the developed site by utilizing one underdrained soil filter and one drip edge filter. Stormwater models were created to depict flow conditions in the pre- and post-development conditions during the 2-, 10- and 25-year storm events. New surfaces will be graded to direct surface runoff in a manner to best maintain existing drainage patterns. Modeling data demonstrates that peak rates of runoff in the post-development condition will decrease as compared to pre-development conditions, thus, satisfying the Flooding Standard. Proposed stormwater BMPs will provide high levels of containment removal and stormwater attenuation before discharging to downstream properties and Presumpscot River.

B. Existing Conditions

Exterior to the correctional facility, an existing gravel access drive generally follows the perimeter fence for routine patrol measures. The proposed Maintenance and Central Plant Building will be constructed in northwesterly portions of the parcel that are currently developed for the access road. Land areas gradually slope away from the perimeter fence, directing runoff west toward onsite forested, freshwater wetlands which ultimately drain to Presumpscot River further west.

C. Proposed Site Improvements

The project will redevelop a portion of the correctional facility, resulting in approximately 79,87 square feet (1.83 acres) of total land disturbance, including 45,283 square feet (1.04 acres) of impervious area and 34,594 square feet (0.79 acres) of landscaped area. New impervious surfaces will be comprised of the building, an access drive, walkways and utility pads. The proposed 20,000 square foot building will be constructed with a wood frame and sloped metal roof. A paved apron at the front of building (facing east) will replace the existing gravel access road. The apron width is designed to accommodate parked vehicles near the building while allowing for continued access of vehicles using the gravel access drive. Landscaped areas consist of vegetated sideslopes, shallow swales for stormwater conveyance, and stormwater best management practices (BMPs) for stormwater detention and treatment.

The Stormwater Management Plan is designed so that existing drainage patterns will not be significantly altered. Impervious and vegetated surfaces will be graded to direct a majority of runoff as sheet, shallow concentrated and channelized flow toward one underdrained soil filter, one drip edge filter and one wooded buffer for stormwater quantity and quality control. A closed storm drainage system is proposed on the easterly side of the building for purposes of routing stormwater runoff toward the underdrained soil filter. Drainage from the remainder of developed site that is not directed toward the soil filter, drip edge filter or wooded buffer will drain as sheet flow toward the onsite forested wetland.

D. Soils

A Class 'D' Medium Intensity Soil Survey for the site was obtained from the Soil Survey of Cumberland County Maine, published by the United States Department of Agriculture (USDA) and Natural Resources Conservation Service, latest revision. Soil data was obtained from the Web Soil Survey. The Hydrologic Soil Group (HSG) of the site soils are classified by Technical Release TR-55 of the Soil Conservation Service as follows:

Soil Type	Symbol	HSG	Drainage Class
Belgrade Sandy Loam	BgC2/ BgB	B/D	Poorly drained
Buxton Silt Loam	BuC2/ BuB	C/D	Poorly drained

E. Methodology

The stormwater runoff analysis was developed using the “HydroCAD” computer modeling software, which incorporates the TR-55 and TR-20 methodologies as provided by the Soil Conservation Service of the U.S. Department of Agriculture. A minimum Time of Concentration of 6 minutes was used in the model for subcatchments with direct entry flow in order to comply with the above-mentioned methodologies.

Soils with hydrologic soil groups C/D as identified in the County Soil Survey were evaluated as group D in the runoff analysis. Onsite test pits for stormwater and a geotechnical evaluation observed high seasonal groundwater tables and ledge.

The peak runoff rates were calculated using a 24-hour duration storm event with a Type III rainfall distribution. The rainfall amounts for Cumberland County for the 2-year, 10-year and 25-year storm events are as follows:

Storm Frequency	24-hr Duration Rainfall (in.)
2-yr	3.1
10-yr	4.6
25-yr	5.8

F. Pre-Development Watershed Model

The pre-development watershed model consists of four (4) subcatchments. Subcatchments 1.0S and 1.1S drain to an existing ditch that directs runoff toward the large onsite forested wetland complex. Subcatchments 2.0S and 2.1S drain to another existing ditch that also directs runoff toward the same forested wetland complex. The upper edge of wetland was designated Study Point 1, designated SP1.

G. Post-Development Watershed Model

The post-development watershed model consists of ten (10) subcatchments with stormwater discharging to one (1) study point in the adjacent wetland. Modeling reflects on-site ground cover changes to include proposed landscaping and impervious areas associated with the storage buildings, paved areas, gravel areas, and stormwater BMPs. Existing drainage patterns will be generally maintained with the proposed stormwater design.

All subcatchments ultimately drain to Study Point 1, designated SP1, which is located in the wetlands at the southwest corner of the project site.

Subcatchments in the 10-series generally drain to a ditch at the southern end of the project site. Subcatchment 10.2 drains to a ditch, where a 24” culvert conveys the stormwater runoff to the western sideslope, that directs water to the wetlands. Subcatchment 10.1S directs water to the wooded buffer, ultimately ending at the wetlands.

Subcatchments in the 20-series contain the bulk of impervious areas and generally direct water to the underdrained soil filter. Subcatchments in the paved area direct water to a network of catch basins, outletting to the underdrained soil filter for treatment, and then directed by a ditch to Study Point 1 in the adjacent wetlands. The foundation drain of the proposed building outlets to the same ditch.

H. Stormwater Quality Management

Stormwater BMPs are designed to generally satisfy Maine DEP's General Standard. Maine DEP's Volume III. BMP Technical Design Manual was used as the basis for design and evaluation of BMP's. Per Chapter 500 Section 4, subsection C (d) allows for scaling of land uses to calculate the level of treatment required. Redevelopment standards apply because the proposed project will replace a portion of the existing perimeter access drive and associated lawn area. The total redevelopment footprint evaluated is 1.83 acres. Approximately 9,531 square feet of woods will be cleared for the project, resulting in an insignificant increase in development footprint. Upon working through the calculations outlined in §4.C(2)(d) of Chapter 500, the ranked impact change due to redevelopment is calculated to be 0.88, requiring 60% of the developed area to be treated. As shown in the water quality calculations in **Attachment A**, the provided treatment is runoff from 61.82% of developed area and 90.38% of impervious area.

Stormwater BMPs include one underdrained soil filter, one drip edge filter and one wooded/ meadow buffer for stormwater treatment and detention. The underdrained soil filter and drip edge are filtration BMPs designed in general conformance with Sections 7.1 and 7.5 of the BMPs Technical Design Manual, respectively. Channel protection volumes are designed to provide the minimum volume to detain 1-inch of runoff. Filtration through a sand layer will provide a high level of contaminate removal prior to discharge to downstream drainage ways.

The meadow buffer area down gradient of the utility pad is designed in general compliance with Section 5.1 the BMPs Technical Design Manual. The designated buffer area is partially wooded, and was designed standards of Table 5.2 for a buffer located immediately adjacent to a buffer adjacent to residential, largely pervious or small impervious areas. Buffers provide an additional means of capturing containments from stormwater discharged from the project, therefore further enhancing water quality of runoff before ultimately discharging to onsite wetlands.

Test pits were observed within the general footprints of the wooded buffer (TP-1) and the underdrained soil filter (TP-2). Test pit logs are included as part of **Attachment A**. Soil characteristics of TP-1 indicated a Hydrologic Group B soil within the buffer. The seasonal high groundwater table depth observed at TP-2 was shallow, thus indicating the need for an impermeable membrane to prevent groundwater from comingling with the treated runoff. Excavation for construction of BMPs may require bedrock blasting, and if encountered, a minimum 12-inch vertical separation will be maintained between the bottom of underdrain and surface of bedrock.

As proposed, the stormwater management design will exceed Maine DEP Chapter 500 General Standards for treatment requirements. Stormwater management design calculations for the BMPs used on this site are enclosed as part of **Attachment A**.

I. Stormwater Quantity Management (Flooding Standard)

Existing drainage patterns are not anticipated to be significantly altered with the proposed Stormwater Management Plan. Proposed impervious and landscaped surfaces will be graded to direct runoff toward drainage swales or a closed storm drainage system for conveyance to stormwater BMPs for flooding control before ultimate discharge to one study point.

Runoff will be discharged at one study point evaluated at the upper edge of the onsite wetland immediately adjacent to the project site. The following table summarizes the results of stormwater calculations for the design storm events for the project area. Calculations and computer modeling data sheets are provided within this report.

The HydroCAD model predicts no change or slight decreases in peak flow rates during the 2-, 10- and 25-year storm events at both study points.

Stormwater Peak Discharge Summary Table									
Study Point	2-Year Storm			10-Year Storm			25-Year Storm		
	Pre (cfs)	Post (cfs)	Diff. (cfs)	Pre (cfs)	Post (cfs)	Diff. (cfs)	Pre (cfs)	Post (cfs)	Diff. (cfs)
SP-1	6.57	5.84	-0.73	13.10	12.41	-0.69	19.60	19.14	-0.46

J. Inspection & Maintenance

Provisions for periodic inspection and maintenance of the grassed underdrained soil filter and drip edge are included in the Inspection, Maintenance, and Housekeeping Plan within this section of the application.

K. Summary

An Erosion and Sedimentation Control Plan has been developed for the project site placing emphasis on the installation of sedimentation barriers and revegetation to minimize erosion potential from development activities during and after construction. The Erosion Control Plan is incorporated into the design plans and includes the locations of the erosion control provisions (i.e., silt fence, construction entrance) along with a narrative and construction details for reference by the contractor during construction. The Erosion Control and Sedimentation Plan calls for permanent or temporary measures to be in place on any disturbed ground resulting from construction by use of riprap, seed, mulch, or other ground cover within one week from the time it was actively worked.

The proposed development will include the construction of one underdrained soil filter BMPs, which will provide treatment and detention of runoff from the majority of new impervious and developed surfaces. Runoff from the project site will continue to

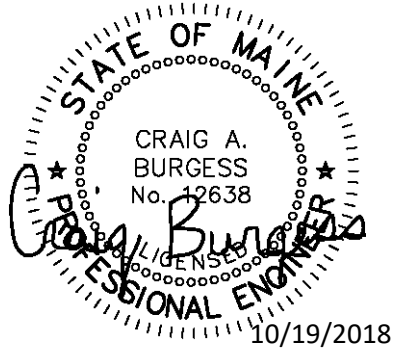
ultimately discharge to the onsite wetlands. Decreases in post-development peak flow rates during the 2-, 10-, and 25-year storm events are anticipated to have negligible impact on flow characteristics. With incorporation of these measures, no significant impacts to off-site drainage ways are anticipated due to the development of the facility.

Prepared by,

SEBAGO TECHNICS, INC.



Craig A. Burgess, P.E.
Senior Project Engineer



Attachment A

**Water Quality, BMP Sizing, Test Pit Logs and
Gravel Calculations**

Table 1: MDEP GENERAL STANDARD CALCULATIONS
Maintenance and Central Plant Building, MMC
Job #16405

AREA ID	WATERSHED SIZE S.F.	ONSITE IMPERVIOUS AREA S.F.	ONSITE LANDSCAPED AREA S.F.	DEVELOPED AREA S.F.	UNDEVELOPED/ EXISTING AREAS S.F.	TREATMENT PROVIDED?	IMPERVIOUS AREA TREATED* S.F.	LANDSCAPED AREA TREATED* S.F.	DEVELOPED AREA TREATED* S.F.	TREATMENT BMP
10.05	41,264	3,411	13,653	17,064	24,200	NO	0	0	0	NONE
10.15*	2,475	2,040	435	2,475	N/A	YES	2,040	435	2,475	BUFFER
10.25	154,242	0	7,798	7,798	146,444	NO	0	0	0	NONE
10.35	11,557	11,557	0	11,557	0	YES	11,557	0	11,557	DEF-1
20.05	5,385	444	3,156	3,600	1,785	NO	0	0	0	NONE
20.15	98,001	500	1,536	2,036	95,965	NO	0	0	0	NONE
20.25	9,131	1,115	8,016	9,131	0	YES	1,115	8,016	9,131	UDSF-1
20.35	6,713	6,713	0	6,713	0	YES	6,713	0	6,713	UDSF-1
20.45	10,154	10,154	0	10,154	0	YES	10,154	0	10,154	UDSF-1
20.55	9,349	9,349	0	9,349	0	YES	9,349	0	9,349	UDSF-1
TOTAL (S.F.)	348,271	45,283	34,594	79,877	268,394	-	40,928	8,451	49,379	-

*Subwatershed of 10.05 - Area draining to wooded/meadow buffer

TOTAL IMPERVIOUS AREA (S.F.)	45,283	TOTAL DEVELOPED AREA (S.F.)	79,877
TOTAL IMPERVIOUS AREA RECEIVING TREATMENT (S.F.)	40,928	TOTAL DEV. AREA RECEIVING TREATMENT (S.F.)	49,379
% OF IMPERVIOUS AREA RECEIVING TREATMENT	90.38%	% OF DEV. AREA RECEIVING TREATMENT	61.82%

Redevelopment Calculations

(Calculations based on Chapter 500, Section 4.C.d)

Redevelopment Footprint	79,887	SF	=	1.83	AC
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Per Table 2: Pollutant Impact Rankings of Various Redevelopment Land Uses

Existing Use	Existing Area (SF)	Existing Area (AC)	Pollutant Ranking	Weighted Ave. Impact
Existing Gravel	8,546	0.20	3	0.59
Grassed Areas	61,800	1.42	2	2.84
Wooded Area	9,531	0.22	0	0.00
			Sum	3.43

Proposed Use	Proposed Area (SF)	Proposed Area (AC)	Pollutant Ranking	Weighted Ave. Impact
Building - Pitched Metal*	20,017	0.46	2	0.92
Pavement at Building Front	17,984	0.41	4	1.65
Concrete Apron at Building Front	846	0.02	3	0.06
Walkways	1,700	0.04	2	0.08
Utility, Dumpster & Back Concrete Pads**	4,302	0.10	3	0.30
Existing Gravel to Remain	1,660	0.04	3	0.11
New/ Existing Grassed Areas	30,238	0.69	2	1.39
Lawn - BMP Area	3,130	0.07	1	0.07
Wooded Area	0	0.00	0	0.00
			Sum	4.58

* Light use building pollutant ranking for metal roof (other rooftop classification)

** No vehicular traffic

a. Existing Impact Rating =	3.43
b. Proposed Impact Rating =	4.58
c. Development = Existing Impact Rating per Acre of Proposed Impact Rating per Acre of	1.87
d. Development =	2.50
e. Redevelopment Rating Difference	0.63

Therefore 60% of Developed Area must be treated

(per Table 3 - Treatment Levels for Redevelopment Projects)

SEBAGO TECHNICS, INC.

75 John Roberts Road, Suite 4A
 South Portland, Maine 04106
(207) 200-2100

JOB	16405		
SHEET NO.	<u>1</u>	OF	<u>4</u>
CALCULATED BY	<u>CAB</u>	DATE	<u>9/24/2018</u>
CHECKED BY	<u>CAB</u>		
FILE NAME	<u>16405 WQC</u>	PRINT DATE	<u>11/7/2018</u>
MDEP Site Location of Development Submission			

Note: Underdrained Soil Filters are sized in accordance with Chapter 7.1 of the Maine Department of Environmental Protection BMPs Technical Design Manual, latest revision

Treatment Calculations for Proposed Underdrained Soil Filter #1 (UDSF-1)

Subcatchments tributary to UDSF-1 include 20.25 to 20.55

WQV Calculation

(WQV = Water Quality Volume)

Total Impervious Area = 27,331 sf

Total Landscaped Area = 7,488 sf

WQV Required = 1" x Impervious Area + 0.4" x Landscape Area

WQV Required = 2,527 cf

WQV Provided = 4,008 cf

Filterbed Area Calculation

Filterbed Area Required = 0.05 x Impervious + 0.02 x Landscape

Filterbed Area Required = 1,516 sf

Filterbed Area Provided = 2,113 sf

Pre-treatment Sediment Forebay Volume Calculation

Sand Application Rate = 50 cf/acre/year

Total Impervious Area = 27,331 sf
 Tributary to UDSF-1

Required Pre-treatment Volume = 31 cf

Provided Pre-treatment Volume = 40 cf

SEBAGO TECHNICS, INC.

75 John Roberts Road Suite 4A
South Portland, Maine 04106
(207) 200-2100

JOB

SHEET NO.

CALCULATED BY

FILE NAME

16405

2

OF

4

CAB

DATE

9/27/2018

16405 WQC

PRNT DATE

11/7/2018

MDEP Site Location of Development Submission

Note: Underdrained Soil Filters are sized in accordance with Chapter 7.5 of the Maine Department of Environmental Protection BMPs Technical Design Manual, latest revision

Treatment Calculations for Proposed Roof Drip Edge Filter 1 (DEF-1)*Subcatchments tributary to DEF-1 include 10.25*Water Quality Volume Calculation

Total Impervious Area	10,008	sf	* does not include riprap stone
-----------------------	--------	----	---------------------------------

WQV Required = 1" x Impervious Area

WQV Required	834.0	cf
--------------	-------	----

Length of Trench	312.0	ft
------------------	-------	----

Width of Trench	5.0	ft
-----------------	-----	----

Depth of Stone	17.0	in	40% porosity
----------------	------	----	--------------

WQV Provided = Area of Trench x Stone Depth x Stone Porosity

Total WQV Provided	884.0	cf
--------------------	-------	----

SEBAGO TECHNICS, INC.

75 John Roberts Road, Suite 1A
 South Portland, ME 04106
(207) 200-2100

JOB	16405		
SHEET NO.	3	OF	4
CALCULATED BY	CAB	DATE	10/19/2018
CHECKED BY			
FILE NAME	16405 WQC	PRINT DATE	10/19/2018
MDEP Site Location of Development Submission			

Note: Buffers are sized in accordance with Chapter 5 of the Maine Department of Environmental Protection BMPs Technical Design Manual, latest revision.

Meadow/ Wooded Buffer 1 (WB-1)					
Type of Buffer :	Buffer with Stone Bermed Level Spreader				
Existing Cover :	Meadow/Forested				
Soils :	Belgrade				
Buffer Slope :	5.7%	< 8.0%			
Buffer Length :	70	feet			
Per Table 5-5 of Manual for Soil Group B:					
Buffer Length for Meadow Buffer :		60	ft		
Buffer Length for Meadow Buffer :		85	ft		
Total Area of Buffer		4900	s.f.		
Forested Area:		3226.00	s.f.		
% Forested:		65.8%			
Required Buffer Length:		66.80	ft.		
Provided Buffer Length :		70.0	ft		

SEBAGO TECHNICS, INC.

75 John Roberts Road, Suite 4A
South Portland, Maine 04106
(207) 200-2100

JOB	16405		
SHEET NO.	4	OF	4
CALCULATED BY	CAB	DATE	10/19/2018
CHECKED BY	CAB		
FILE NAME	16405 WQC	PRINT DATE	10/19/2018
MDEP Site Location of Development Submission			

Underdrained Soil Filter 1 - Orifice Sizing CalculationOrifice Equation $Q = CA \sqrt{2gh}$

Q = Rate of Discharge (cfs)

A = Orifice Area (sf)

G = Gravitational Constant (32.2 ft/s²)

h = Depth of water above the flow line (center) of the orifice (ft)

C = Orifice coefficient (usually assumed = 0.6)

Average discharge rate required to drawdown the treatment volume in a
desired amount of time is:

$$Q = \frac{TV}{tCF}$$

TV= Treatment Volume (cf)

t = Recovery Time (hrs)

CF = Conversion Factor = 3600 sec/hr

$$TV = \frac{2,527}{24} \text{ cf}$$

$$t = 24 \text{ hr}$$

$$Q = \frac{TV}{tCF} = \frac{0.03}{1} \text{ cfs}$$

$$\text{surface area of filter} = \frac{Q}{C} = \frac{0.03}{0.6} = 0.05 \text{ SF}$$

$$h = \frac{Q^2}{C^2 A} = \frac{0.03^2}{0.6^2 \times 0.05} = 1.20 \text{ ft}$$

$$A = \frac{Q}{C \sqrt{2gh}} = \frac{0.03}{0.6 \sqrt{2 \times 32.2 \times 1.20}} = 0.006 \text{ sf} = 0.80 \text{ sq. in.}$$

$$\text{Diam} = \sqrt{\frac{4A}{\pi}} = \sqrt{\frac{4 \times 0.006}{\pi}} = 1.01 \text{ in}$$

Meadow Buffer

DECLARATION OF RESTRICTIONS

(Meadow/ Wooded Buffer)

THIS DECLARATION OF RESTRICTIONS is made this _____ day of _____, 20____, by

_____, _____
(name) (street address)
_____, _____ County, Maine, _____, (herein referred to as the
(city or town) (county) (zip code)

"Declarant"), pursuant to a permit received from the Maine Department of Environmental Protection under the Stormwater Management Law, to preserve a buffer area on a parcel of land developed as the Maine Correction Center in Windham, Maine and accessed from the easterly side of Mallison Falls Road.

WHEREAS, the Declarant holds title to certain real property situated in _____, Maine
(town)

described in a deed from _____ to _____, dated
(name) (name of Declarant)

_____, 20____, and recorded in Book ____ Page ____ at the _____ County
Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer location here)

WHEREAS, pursuant to the Stormwater Management Law, 38 M.R.S. Section 420-D and Chapter 500 of rules promulgated by the Maine Board of Environmental Protection ("Stormwater Management Rules"), Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. **Restrictions on Restricted Buffer Area.** Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.
 - a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material will be placed, stored or dumped on the Restricted Buffer Area, nor may the topography or the natural mineral soil of the area be altered or manipulated in any way;
 - b. In wooded area, no trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown or damaged trees and for pruning of tree branches below a height of 12 feet provided two thirds of the tree's canopy is maintained;
 - c. No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except that one winding path, that is no wider than six feet and that does not provide a downhill channel for runoff, is allowed through the area;
 - b. In grassed areas, a dense cover of grassy vegetation must be maintained over the Restricted Buffer Area, except that shrubs, trees and other woody vegetation may also be planted or allowed to grow in the area. The Restricted Buffer Area may not be maintained as a lawn or used as a pasture. If vegetation in the Restricted Buffer Area is mowed, it may be mown no more than two times per year.
 - c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole or fence (whether constructed of wood, steel or other materials) and appurtenant equipment such as guys and guy anchors;
 - d. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area, except for vehicles used in mowing;

Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. **Enforcement.** The MDEP may enforce any of the Restrictions set forth in Section 1 above.
3. **Binding Effect.** The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.
4. **Amendment.** Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the MDEP.

5. **Effective Provisions of Declaration.** Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.
6. **Severability.** Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.
7. **Governing Law.** This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

(NAME)

STATE OF MAINE, _____, County, dated _____, 20__ .
(County)

Personally appeared before me the above named _____, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

Notary Public

SOIL PROFILE/CLASSIFICATION INFORMATION

Detailed Description of Subsurface Conditions at Project Sites

Project Name: MAINE CORRECTIONAL CENTER	Applicant Name: SMRT, INC.	Project Location (municipality): WINDHAM
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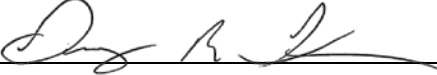
SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: TP-1		<input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring		
0" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistency	Color	Mottling	
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2				
3				
4				
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LIMIT OF EXCAVATION = 48"				

<input type="checkbox"/> hydric	Slope %	Limiting factor	<input type="checkbox"/> ground water
<input checked="" type="checkbox"/> non-hydric	0-3	>48"	<input type="checkbox"/> restrictive layer
			<input type="checkbox"/> bedrock
C.S.S. Soil Series / phase name: SALMON WD B			
Drainage Class Hydrologic Group			
L.S.E. Soil Classification: Profile Drainage Class Design Class			

SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: <input type="checkbox"/>		<input type="checkbox"/> Test Pit <input type="checkbox"/> Boring		
0" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistency	Color	Mottling	
1				
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<input type="checkbox"/> hydric	Slope %	Limiting factor	<input type="checkbox"/> ground water
<input type="checkbox"/> non-hydric			<input type="checkbox"/> restrictive layer
			<input type="checkbox"/> bedrock
C.S.S. Soil Series / phase name: Drainage Class Hydrologic Group			
L.S.E. Soil Classification: Profile Drainage Class Design Class			

Professional Endorsements (as applicable)

C.S.S. signature: 	Date: 9/19/18
name printed/typed: Gary M. Fullerton	Lic.#: 462
L.S.E. signature:	Date:
name printed/typed:	Lic.#:

affix professional seal





BORING LOG

CLIENT: SMRT, Inc.
PROJECT: Proposed Maine Correctional Facility
LOCATION: Mallison Falls Road, Windham, Maine

BORING NO.: B-501
SHEET: 1 of 2
PROJECT NO. 13-0876.7
DATE START: 9/19/2018
DATE FINISH: 9/19/2018

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 147.5' +/- TOTAL DEPTH (FT): 46.1 LOGGED BY: Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Scott Hollabaugh DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50 AUGER ID/OD: 2 1/4 in / 5 5/8 in SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic HAMMER WEIGHT (lbs): 140 CASING ID/OD: N/A /N/A CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.91 HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): 7 ft Soils Moist to Wet Below 2', Saturated Below 7' +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level
At time of Drilling
At Completion of Drilling
After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
145	5		1D	X	0-2	24/20	3-3-3-4		0.4 Vegetation / Dark brown silty SAND with organics (Topsoil)		
			2D	X	2-4	24/16	4-4-3-4		3.0 Loose, brown, clayey SILT and SAND, trace gravel, with roots (Fill)		
			3D	X	5-7	24/4	2-1-1-1		Loose, gray and gray-brown, clayey SILT and silty CLAY, trace gravel (Fill)		
140			4D	X	7-9	24/20	3-5-3-6	q _p =6.5 ksf	7.0 Loose, gray-brown silty SAND with organics	7	
	10		5D	X	10-12	24/22	3-3-3-3	q _p =2 to 2.5 ksf	8.0 Very stiff, gray-brown, layered silty CLAY and silty SAND		
135									10.0 Stiff, brown to gray-brown, silty CLAY with frequent clayey silt and silty sand layers		
	15		6D	X	15-17	24/24	1-1-2-2	q _p =1 to 0.5 ksf	16.0 Medium, gray, silty CLAY		
130											
	20		7D	X	20-22	24/24	1-1-1-1				
125									Hydraulic Push Rod Probe Below 22'		
	25										
120											
	30										
115											
	35										
110											

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: B-501



BORING LOG

CLIENT: SMRT, Inc.
 PROJECT: Proposed Maine Correctional Facility
 LOCATION: Mallison Falls Road, Windham, Maine

BORING NO.: **B-502**
 SHEET: 1 of 1
 PROJECT NO. 13-0876.7
 DATE START: 9/19/2018
 DATE FINISH: 9/19/2018

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 145.5' +/- TOTAL DEPTH (FT): 14.5 LOGGED BY: Evan Walker
 DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Scott Hollabaugh DRILLING METHOD: Hollow Stem Auger
 RIG TYPE: Track Mounted Diedrich D-50 AUGER ID/OD: 2 1/4 in / 5 5/8 in SAMPLER: Standard Split-Spoon
 HAMMER TYPE: Automatic HAMMER WEIGHT (lbs): 140 CASING ID/OD: N/A / N/A CORE BARREL:
 HAMMER EFFICIENCY FACTOR: 0.91 HAMMER DROP (inch): 30
 WATER LEVEL DEPTHS (ft): 8 ft Soils Moist Below 5', Wet to Saturated Below 8' +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
 Water Level
 At time of Drilling
 At Completion of Drilling
 After Drilling
 D = Split Spoon Sample
 U = Thin Walled Tube Sample
 R = Rock Core Sample
 V = Field Vane Shear
 Pen. = Penetration Length
 Rec. = Recovery Length
 bpf = Blows per Foot
 mpf = Minute per Foot
 WOR = Weight of Rods
 WOH = Weight of Hammer
 RQD = Rock Quality Designation
 PID = Photoionization Detector
 S_v = Field Vane Shear Strength, kips/sq.ft.
 q_u = Unconfined Compressive Strength, kips/sq.ft.
 N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
145			1D		0-2	24/16	3-3-6-6		0.5 Vegetation / Dark brown silty SAND with organics (Topsoil)		
			2D		2-4	24/18	7-6-5-4		Stiff, brown, silty sandy CLAY (Fill)		
	5		3D		5-7	24/6	3-1-1-2		3.0 Loose, gray and gray-brown, silty SAND, some gravel, trace organics (Fill)		
140			4D		7-9	24/18	3-2-2-3		7.0 Loose, gray, clayey SILT with frequent sand layers, with black wood and organics		
	10		5D		10-12	24/18	4-5-6-8	q _p =6.5 to 7 ksf	10.0 Very stiff, gray-brown, silty CLAY with frequent sand seams and layers		
135									12.5 Probable dense granular soils or weathered bedrock - penetrated by auger		

Refusal at 14.5 feet
 Probable Bedrock

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-502**



BORING LOG

CLIENT: SMRT, Inc.
PROJECT: Proposed Maine Correctional Facility
LOCATION: Mallison Falls Road, Windham, Maine

BORING NO.: B-503
SHEET: 1 of 2
PROJECT NO. 13-0876.7
DATE START: 9/19/2018
DATE FINISH: 9/19/2018

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 145.5' +/- TOTAL DEPTH (FT): 63.6 LOGGED BY: Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Scott Hollabaugh DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted Diedrich D-50 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic HAMMER WEIGHT (lbs): 140 / 140 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.91 HAMMER DROP (inch): 30 / 30
WATER LEVEL DEPTHS (ft): 7 ft Soils Moist to Wet Below 4', Saturated Below 7' +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level
▽ At time of Drilling
▽ At Completion of Drilling
▽ After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
145			1D		0-2	24/18	2-5-5-4		0.4 Vegetation / Dark brown silty SAND with organics (Topsoil)		
			2D		2-4	24/16	3-4-6-6		Loose, brown, silty SAND, some gravel, with brick (Fill)		
	5		3D		4-6	24/14			4.0 Loose, brown, silty SAND, with trace organics (Fill)		
140			4D		6-8	24/15	4-3-4-3		6.0 Loose, brown and gray, silty SAND, some gravel, with wood, metal wire, plastic, and styrofoam (Fill)	▽	
			5D		8-10	24/20	2-3-3-3		8.0 Loose, dark gray, SILT, some sand, with organics and peat seams		
135	10		6D		10-12	24/18	4-4-4-5	q _p =4 to 6 ksf	9.5 Loose, gray, silty fine SAND with trace organics		
									10.0 Very stiff, gray silty CLAY with frequent sand layers and seams		
									13.0 Stiff, gray-brown silty CLAY with frequent sand layers		
130	15		7D		14-16	24/24	2-1-1-1	q _p =2 to 2.5 ksf	17.0 Medium, gray, silty CLAY		
	20		1C		19-21	24/0					
	25		2C		24-26	24/24					
120											
			1V		27-28	12		S _v =0.43/0.09ksf			
			1V'		28-29	12		S _v =0.46/0.1ksf			
115	30										
	35		3C		35-37	24/4					
110											

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.


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BORING NO.: B-503



BORING NO.:	B-307
SHEET:	1 OF 1
PROJECT NO.:	13-0876.2
DATE START:	7/31/2014
DATE FINISH:	7/31/2014
ELEVATION:	
SWC REP.:	E. WALKER

WATER LEVEL INFORMATION
SOILS MOIST @ SURFACE,
SATURATED BELOW 5' +/-

SAMPLES: SOIL CLASSIFIED BY:		REMARKS:	
D = SPLIT SPOON C = 3" SHELBY TUBE U = 3.5" SHELBY TUBE	 DRILLER - VISUALLY SOIL TECH. - VISUALLY LABORATORY TEST	STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.	
		BORING NO.: B-307	



BORING LOG

BORING NO.: **B-308**
 SHEET: 1 OF 2
 PROJECT NO.: 13-0876.2
 DATE START: 7/31/2014
 DATE FINISH: 7/31/2014
 ELEVATION:
 SWC REP.: E. WALKER

PROJECT: PROPOSED CORRECTIONAL FACILITY
 CLIENT : SMRT, INC.
 LOCATION: RIVER ROAD AND MALLISON FALLS ROAD, WINDHAM, MAINE
 DRILLING FIRM: GREAT WORKS TEST BORING, INC. DRILLER: PETER MICHAUD
 TYPE SIZE I.D. HAMMER WT. HAMMER FALL
 CASING: HW 4" HYD PUSH
 SAMPLER: SS 1 3/8" 140 LBS. 30"
 CORE BARREL:

WATER LEVEL INFORMATION

SOILS MOIST @ SURFACE,
 SATURATED BELOW 5' +/-

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
									0.5'	VEGETATION / BROWN SILT AND SAND WITH ORGANICS (TOPSOIL / FILL)
	1D	24"	18"	2.0'	2	3	3	3	5.0'	BROWN SILT AND SAND WITH TRACE ORGANICS (FILL) ~ LOOSE TO MEDIUM DENSE ~
	2D	24"	18"	4.0'	3	4	6	6		
	3D	24"	22"	7.0'	WOH - 24"				8.0'	GRAY AND BROWN SILT, SOME FINE SAND. WITH ORGANICS (FILL) ~ VERY LOOSE ~
									11.0'	GRAY SILT AND FINE SAND ~ LOOSE ~
	4D	24"	24"	12.0'	2	2	2	4	15.0'	BROWN SILTY CLAY WITH FREQUENT FINE SAND SEAMS
	5D	24"	24"	17.0'	WOR - 12"		WOH - 12"		20.0'	VARVED GRAY SILTY CLAY AND SILTY FINE SAND ~ MEDIUM / LOOSE ~
									GRAY SILTY CLAY S _v = 0.50 KSF / 0.02 KSF ~ SOFT ~ S _v = 0.43 KSF / 0.02 KSF S _v = 0.54 KSF / 0.01 KSF ~ MEDIUM ~ S _v = 0.49 KSF / 0.02 KSF ~ SOFT ~	
	6D	24"	24"	22.0'	WOR - 12"		WOH - 12"			
	1V			25.8'	3 5/8" X 7" VANE					
	1V'			26.6'	3 5/8" X 7" VANE					
	2V			45.8'	3 5/8" X 7" VANE					
	2V'			46.6'	3 5/8" X 7" VANE					

SAMPLES: SOIL CLASSIFIED BY:
 D = SPLIT SPOON
 C = 3" SHELBY TUBE
 U = 3.5" SHELBY TUBE
 DRILLER - VISUALLY
 SOIL TECH. - VISUALLY
 LABORATORY TEST

REMARKS: CONTINUED...

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-308**



BORING NO.:	B-308
SHEET:	2 OF 2
PROJECT NO.:	13-0876.2
DATE START:	7/31/2014
DATE FINISH:	7/31/2014
ELEVATION:	
SWC REP.:	E. WALKER

PROJECT:	PROPOSED CORRECTIONAL FACILITY			
CLIENT :	SMRT, INC.			
LOCATION:	RIVER ROAD AND MALLISON FALLS ROAD, WINDHAM, MAINE			
DRILLING FIRM:	GREAT WORKS TEST BORING, INC.		DRILLER:	PETER MICHAUD
	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	HYD	PUSH
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

SOILS MOIST @ SURFACE,
SATURATED BELOW 5' +/-

[illegible]

KEY TO THE NOTES & SYMBOLS

Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q _u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S _v	-	field vane shear strength, kips/sq. ft.
L _v	-	lab vane shear strength, kips/sq. ft.
q _p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W _L	-	liquid limit - Atterberg test
W _P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ _T	-	total soil weight
γ _B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to 1/2" thickness
Layer:	1/2" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: Test Boring Explorations - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: Test Pit Explorations - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

Determine: The stand-alone curve number for a gravel surface, not including the right-of-way.

Source: SCS TR-55, 2nd Edition, June 1986
Table 2-2a: Runoff curve numbers for urban areas

Assumption: The CN for gravel (including R.O.W.) is based on a typical road section, assuming 75% gravel surface and 25% open space in good condition for each HSG.

- This is determined by an analysis of the similar category of "Paved; open ditches (including R.O.W.)"
- $x = \% \text{ pavement and } y = \% \text{ open space (good)}, x + y = 1$
- Given at HSG A, CN for pavement = 98 and grass = 39

$$98x + 39y = 83 \sim \text{Paved (with ROW)}$$

$$y = 1 - x$$

$$98x + 39(1 - x) = 83$$

$$98x - 39x = 83 - 39$$

$$59x = 44$$

$$x = 0.746 \approx 75\%$$

$$y = 1 - x = 25\%$$

Calculations: for gravel curve number as stand-alone surface

① HSG 'A' $G = \text{curve number for gravel @ 75\% area}$

CN for open space (good) = 39
① 25 % area

$$0.75G + 0.25(39) = 76$$

$$G = (76 - 0.25(39)) / 0.75$$

$$G = 88.33 \approx \underline{88}$$

② HSG 'B'

$$0.75G + 0.25(61) = 85$$

$$G = 93.00 = \underline{93}$$

③ HSG 'C'

$$0.75G + 0.25(74) = 89$$

$$G = 94.00 = \underline{94}$$

④ HSG 'D'

$$0.75G + 0.25(80) = 91$$

$$G = 94.67 \approx \underline{95}$$

Summary:

Surface	'A'	'B'	HSG 'C'	'D'
Gravel	88	93	94	95

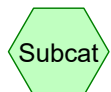
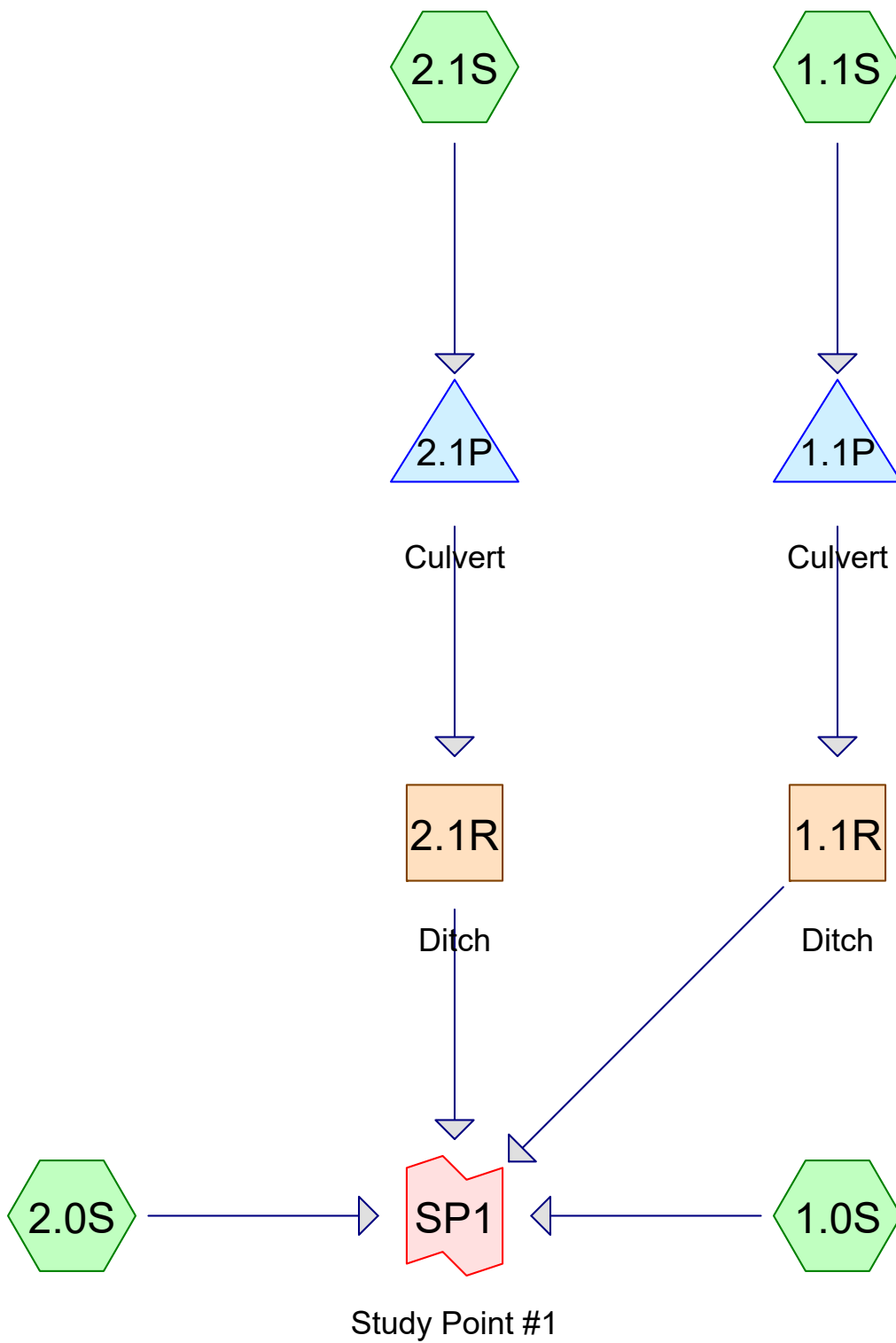
Table 2-2a.—Runoff curve numbers for urban areas¹

Cover description		Curve numbers for hydrologic soil group—			
Cover type and hydrologic condition	Average percent impervious area ²	A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>					
Open space (lawns, parks, golf courses, cemeteries, etc.) ³ :					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ⁴ ...		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
<i>Developing urban areas</i>					
Newly graded areas (pervious areas only, no vegetation) ⁵		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

¹Average runoff condition, and $I_a = 0.25$.²The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.³CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.⁴Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.⁵Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4, based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Attachment B

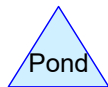
Pre-Development Stormwater Modeling



Subcat



Reach



Pond



Link

Routing Diagram for 16405 PRE-DEV

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.218	61	>75% Grass cover, Good, HSG B (1.1S, 2.0S, 2.1S)
2.440	80	>75% Grass cover, Good, HSG D (1.0S, 1.1S, 2.0S, 2.1S)
0.301	93	Gravel surface, HSG B (1.0S, 1.1S, 2.0S, 2.1S)
0.203	95	Gravel surface, HSG D (1.0S, 1.1S, 2.0S, 2.1S)
0.744	98	Paved roads w/curbs & sewers, HSG B (1.1S)
0.575	98	Unconnected roofs, HSG B (1.1S, 2.1S)
0.106	55	Woods, Good, HSG B (1.0S, 2.0S)
0.583	77	Woods, Good, HSG D (1.0S, 2.0S)
8.170	76	TOTAL AREA

Summary for Subcatchment 1.0S:

Runoff = 5.62 cfs @ 12.17 hrs, Volume= 0.487 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

Area (sf)	CN	Description
40,632	80	>75% Grass cover, Good, HSG D
* 3,568	95	Gravel surface, HSG D
* 200	93	Gravel surface, HSG B
3,065	55	Woods, Good, HSG B
25,269	77	Woods, Good, HSG D
72,734	79	Weighted Average
72,734		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	100	0.0400	0.15		Sheet Flow, A-B
					Grass: Dense n= 0.240 P2= 3.10"
1.1	120	0.1300	1.80		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
12.1	220	Total			

Summary for Subcatchment 1.1S:

Runoff = 11.21 cfs @ 12.20 hrs, Volume= 1.037 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

Area (sf)	CN	Description
20,714	98	Unconnected roofs, HSG B
* 5,848	93	Gravel surface, HSG B
* 2,780	95	Gravel surface, HSG D
32,423	98	Paved roads w/curbs & sewers, HSG B
90,015	61	>75% Grass cover, Good, HSG B
17,112	80	>75% Grass cover, Good, HSG D
168,892	76	Weighted Average
115,755		68.54% Pervious Area
53,137		31.46% Impervious Area
20,714		38.98% Unconnected

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Type III 24-hr 25-YEAR Rainfall=5.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	100	0.0400	0.15		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.10"
2.9	170	0.0200	0.99		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
0.5	40	0.0700	1.32		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
14.4	310	Total			

Summary for Subcatchment 2.0S:

Runoff = 1.16 cfs @ 12.09 hrs, Volume= 0.082 af, Depth= 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

Area (sf)	CN	Description
* 1,148	95	Gravel surface, HSG D
* 132	93	Gravel surface, HSG B
6,667	80	>75% Grass cover, Good, HSG D
5,558	61	>75% Grass cover, Good, HSG B
1,570	55	Woods, Good, HSG B
135	77	Woods, Good, HSG D
15,210	72	Weighted Average
15,210		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	10	0.0100	0.08		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.1	15	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.9	95	0.0600	1.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9					Direct Entry,
6.0	120	Total			

Summary for Subcatchment 2.1S:

Runoff = 5.81 cfs @ 12.21 hrs, Volume= 0.554 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

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Type III 24-hr 25-YEAR Rainfall=5.80"

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Area (sf)	CN	Description
4,340	98	Unconnected roofs, HSG B
* 6,920	93	Gravel surface, HSG B
* 1,327	95	Gravel surface, HSG D
44,595	61	>75% Grass cover, Good, HSG B
41,885	80	>75% Grass cover, Good, HSG D
99,067	73	Weighted Average
94,727		95.62% Pervious Area
4,340		4.38% Impervious Area
4,340		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.3	100	0.0250	0.13		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.10"
2.2	145	0.0250	1.11		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
15.5	245	Total			

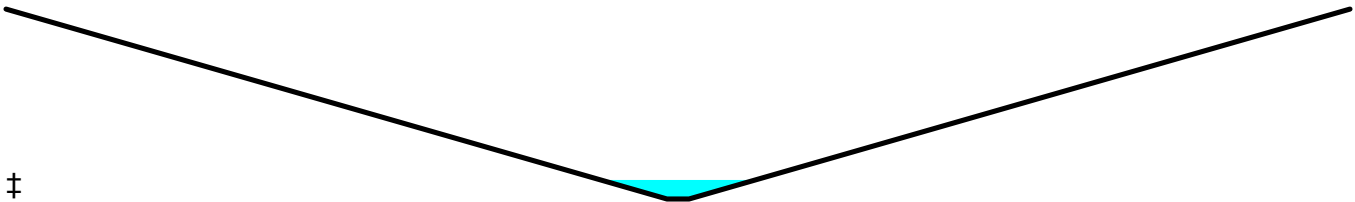
Summary for Reach 1.1R: Ditch

Inflow Area = 3.877 ac, 31.46% Impervious, Inflow Depth = 3.21" for 25-YEAR event
 Inflow = 10.05 cfs @ 12.27 hrs, Volume= 1.037 af
 Outflow = 9.99 cfs @ 12.28 hrs, Volume= 1.037 af, Atten= 1%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Max. Velocity= 4.13 fps, Min. Travel Time= 0.7 min
 Avg. Velocity = 1.81 fps, Avg. Travel Time= 1.6 min

Peak Storage= 424 cf @ 12.28 hrs
 Average Depth at Peak Storage= 0.30'
 Bank-Full Depth= 3.00' Flow Area= 186.0 sf, Capacity= 3,285.03 cfs

2.00' x 3.00' deep channel, n= 0.030 Earth, grassed & winding
 Side Slope Z-value= 20.0 ' / ' Top Width= 122.00'
 Length= 175.0' Slope= 0.0726 ' / '
 Inlet Invert= 144.70', Outlet Invert= 132.00'

**Summary for Reach 2.1R: Ditch**

Inflow Area = 2.274 ac, 4.38% Impervious, Inflow Depth = 2.92" for 25-YEAR event
 Inflow = 5.77 cfs @ 12.23 hrs, Volume= 0.554 af
 Outflow = 5.77 cfs @ 12.24 hrs, Volume= 0.554 af, Atten= 0%, Lag= 0.3 min

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Type III 24-hr 25-YEAR Rainfall=5.80"

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Max. Velocity= 3.10 fps, Min. Travel Time= 0.4 min

Avg. Velocity = 1.35 fps, Avg. Travel Time= 1.0 min

Peak Storage= 149 cf @ 12.24 hrs

Average Depth at Peak Storage= 0.26'

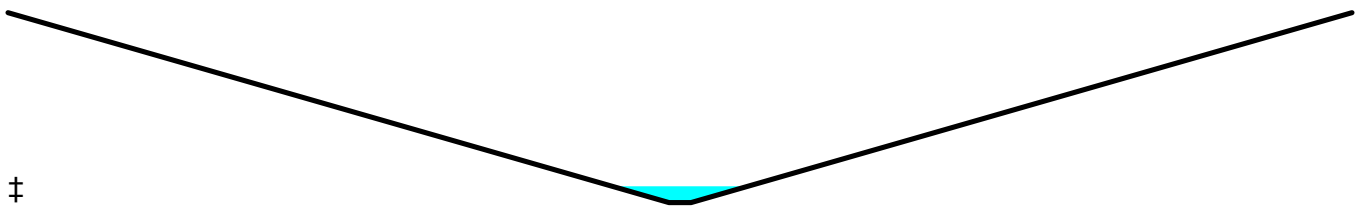
Bank-Full Depth= 3.00' Flow Area= 186.0 sf, Capacity= 2,692.43 cfs

2.00' x 3.00' deep channel, n= 0.030 Earth, grassed & winding

Side Slope Z-value= 20.0 '/' Top Width= 122.00'

Length= 80.0' Slope= 0.0488 '/'

Inlet Invert= 146.40', Outlet Invert= 142.50'

**Summary for Pond 1.1P: Culvert**

Inflow Area = 3.877 ac, 31.46% Impervious, Inflow Depth = 3.21" for 25-YEAR event

Inflow = 11.21 cfs @ 12.20 hrs, Volume= 1.037 af

Outflow = 10.05 cfs @ 12.27 hrs, Volume= 1.037 af, Atten= 10%, Lag= 4.4 min

Primary = 10.05 cfs @ 12.27 hrs, Volume= 1.037 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 149.15' @ 12.27 hrs Surf.Area= 3,538 sf Storage= 3,117 cf

Flood Elev= 149.50' Surf.Area= 6,189 sf Storage= 4,808 cf

Plug-Flow detention time= 3.0 min calculated for 1.036 af (100% of inflow)

Center-of-Mass det. time= 3.0 min (836.3 - 833.3)

Volume	Invert	Avail.Storage	Storage Description
#1	146.45'	8,856 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
146.45	6	0	0
147.00	160	46	46
148.00	1,352	756	802
149.00	2,378	1,865	2,667
150.00	10,000	6,189	8,856

Device	Routing	Invert	Outlet Devices
#1	Primary	146.45'	18.0" Round Culvert L= 22.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 146.45' / 146.45' S= 0.0000 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf
#2	Primary	149.10'	50.0' long x 16.0' breadth Overflow at Drive Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60

Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=10.03 cfs @ 12.27 hrs HW=149.15' TW=145.00' (Dynamic Tailwater)

1=Culvert (Barrel Controls 8.45 cfs @ 4.78 fps)

2=Overflow at Drive (Weir Controls 1.59 cfs @ 0.61 fps)

Summary for Pond 2.1P: Culvert

Inflow Area = 2.274 ac, 4.38% Impervious, Inflow Depth = 2.92" for 25-YEAR event
 Inflow = 5.81 cfs @ 12.21 hrs, Volume= 0.554 af
 Outflow = 5.77 cfs @ 12.23 hrs, Volume= 0.554 af, Atten= 1%, Lag= 1.0 min
 Primary = 5.77 cfs @ 12.23 hrs, Volume= 0.554 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 147.40' @ 12.23 hrs Surf.Area= 212 sf Storage= 46 cf

Flood Elev= 149.50' Surf.Area= 6,073 sf Storage= 3,643 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.0 min (841.6 - 841.6)

Volume	Invert	Avail.Storage	Storage Description
#1	147.00'	7,661 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
147.00	20	0	0
148.00	505	263	263
149.00	2,146	1,326	1,588
150.00	10,000	6,073	7,661

Device	Routing	Invert	Outlet Devices
#1	Primary	149.50'	50.0' long x 16.0' breadth Overflow at Drive Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	145.21'	18.0" Round Culvert L= 22.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 145.21' / 144.71' S= 0.0227 ' S= 0.0227 ' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=5.77 cfs @ 12.23 hrs HW=147.40' TW=146.66' (Dynamic Tailwater)

1=Overflow at Drive (Controls 0.00 cfs)

2=Culvert (Inlet Controls 5.77 cfs @ 3.27 fps)

Summary for Link SP1: Study Point #1

Inflow Area = 8.170 ac, 16.15% Impervious, Inflow Depth = 3.17" for 25-YEAR event
 Inflow = 20.46 cfs @ 12.27 hrs, Volume= 2.160 af
 Primary = 20.46 cfs @ 12.27 hrs, Volume= 2.160 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.0S: Runoff Area=72,734 sf 0.00% Impervious Runoff Depth=1.26"
 Flow Length=220' Tc=12.1 min CN=79 Runoff=1.98 cfs 0.176 af

Subcatchment 1.1S: Runoff Area=168,892 sf 31.46% Impervious Runoff Depth=1.08"
 Flow Length=310' Tc=14.4 min CN=76 Runoff=3.61 cfs 0.350 af

Subcatchment 2.0S: Runoff Area=15,210 sf 0.00% Impervious Runoff Depth=0.87"
 Flow Length=120' Tc=6.0 min CN=72 Runoff=0.33 cfs 0.025 af

Subcatchment 2.1S: Runoff Area=99,067 sf 4.38% Impervious Runoff Depth=0.92"
 Flow Length=245' Slope=0.0250 '/' Tc=15.5 min CN=73 Runoff=1.68 cfs 0.174 af

Reach 1.1R: Ditch Avg. Flow Depth=0.19' Max Vel=3.12 fps Inflow=3.34 cfs 0.350 af
 n=0.030 L=175.0' S=0.0726 '/' Capacity=3,285.03 cfs Outflow=3.33 cfs 0.350 af

Reach 2.1R: Ditch Avg. Flow Depth=0.15' Max Vel=2.25 fps Inflow=1.68 cfs 0.174 af
 n=0.030 L=80.0' S=0.0488 '/' Capacity=2,692.43 cfs Outflow=1.68 cfs 0.174 af

Pond 1.1P: Culvert Peak Elev=147.80' Storage=551 cf Inflow=3.61 cfs 0.350 af
 Outflow=3.34 cfs 0.350 af

Pond 2.1P: Culvert Peak Elev=147.00' Storage=0 cf Inflow=1.68 cfs 0.174 af
 Outflow=1.68 cfs 0.174 af

Link SP1: Study Point #1 Inflow=6.87 cfs 0.725 af
 Primary=6.87 cfs 0.725 af

Total Runoff Area = 8.170 ac Runoff Volume = 0.725 af Average Runoff Depth = 1.06"
83.85% Pervious = 6.851 ac 16.15% Impervious = 1.319 ac

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Type III 24-hr 10-YEAR Rainfall=4.60"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.0S: Runoff Area=72,734 sf 0.00% Impervious Runoff Depth=2.46"
Flow Length=220' Tc=12.1 min CN=79 Runoff=3.95 cfs 0.342 af

Subcatchment 1.1S: Runoff Area=168,892 sf 31.46% Impervious Runoff Depth=2.21"
Flow Length=310' Tc=14.4 min CN=76 Runoff=7.67 cfs 0.714 af

Subcatchment 2.0S: Runoff Area=15,210 sf 0.00% Impervious Runoff Depth=1.89"
Flow Length=120' Tc=6.0 min CN=72 Runoff=0.76 cfs 0.055 af

Subcatchment 2.1S: Runoff Area=99,067 sf 4.38% Impervious Runoff Depth=1.97"
Flow Length=245' Slope=0.0250 '/' Tc=15.5 min CN=73 Runoff=3.86 cfs 0.374 af

Reach 1.1R: Ditch Avg. Flow Depth=0.25' Max Vel=3.69 fps Inflow=6.41 cfs 0.714 af
n=0.030 L=175.0' S=0.0726 '/' Capacity=3,285.03 cfs Outflow=6.40 cfs 0.714 af

Reach 2.1R: Ditch Avg. Flow Depth=0.22' Max Vel=2.80 fps Inflow=3.86 cfs 0.374 af
n=0.030 L=80.0' S=0.0488 '/' Capacity=2,692.43 cfs Outflow=3.86 cfs 0.374 af

Pond 1.1P: Culvert Peak Elev=148.64' Storage=1,881 cf Inflow=7.67 cfs 0.714 af
Outflow=6.41 cfs 0.714 af

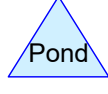
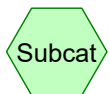
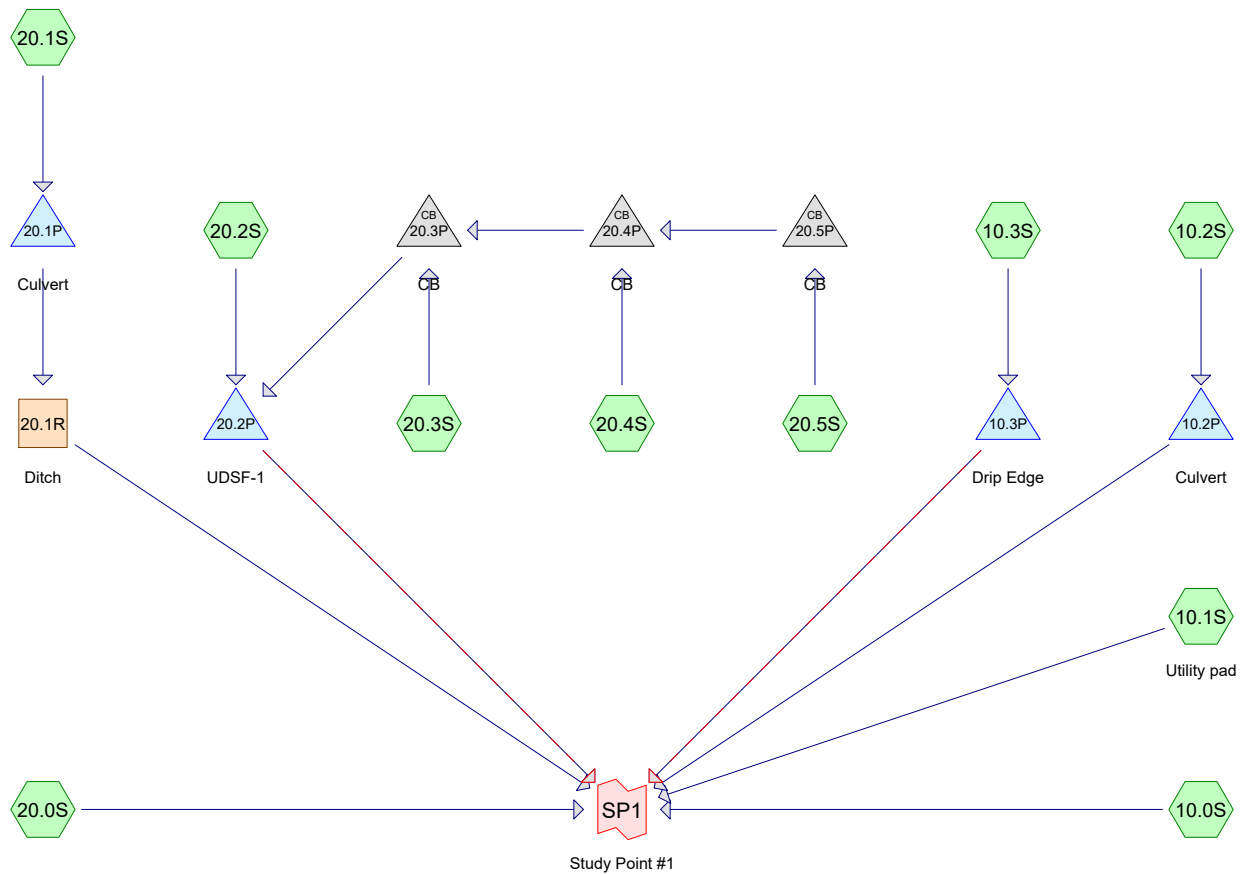
Pond 2.1P: Culvert Peak Elev=147.00' Storage=0 cf Inflow=3.86 cfs 0.374 af
Outflow=3.86 cfs 0.374 af

Link SP1: Study Point #1 Inflow=13.60 cfs 1.485 af
Primary=13.60 cfs 1.485 af

Total Runoff Area = 8.170 ac Runoff Volume = 1.485 af Average Runoff Depth = 2.18"
83.85% Pervious = 6.851 ac 16.15% Impervious = 1.319 ac

Attachment C

Post-Development Stormwater Modeling



Routing Diagram for 16405 POST-DEV
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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.127	61	>75% Grass cover, Good, HSG B (10.2S, 20.0S, 20.1S)
1.070	80	>75% Grass cover, Good, HSG D (10.0S, 10.2S, 20.1S)
0.286	93	Gravel surface, HSG B (10.0S, 10.2S, 20.0S, 20.1S)
0.047	95	Gravel surface, HSG D (10.0S, 10.2S, 20.0S, 20.1S, 20.2S)
0.192	61	New >75% Grass cover, Good, HSG B (10.0S, 10.2S, 20.0S, 20.2S)
0.587	80	New >75% Grass cover, Good, HSG D (10.0S, 10.1S, 10.2S, 20.0S, 20.1S, 20.2S)
0.090	98	New concrete pads (10.0S, 10.1S, 20.2S, 20.3S, 20.4S, 20.5S)
0.457	98	New pavement (10.0S, 10.2S, 20.1S, 20.2S, 20.3S, 20.4S, 20.5S)
0.087	80	New riprap, HSG D (10.0S, 10.2S, 10.3S, 20.0S, 20.2S)
0.376	98	New roofs (10.2S, 10.3S, 20.3S, 20.4S)
0.744	98	Paved roads w/curbs & sewers, HSG B AND D (10.2S)
0.659	98	Roofs (10.2S, 20.1S, 20.5S)
0.044	55	Woods, Good, HSG B (10.0S, 20.0S)
0.404	77	Woods, Good, HSG D (10.0S)
8.170	78	TOTAL AREA

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Type III 24-hr 25-YEAR Rainfall=5.80"

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Summary for Subcatchment 10.0S:

Runoff = 3.78 cfs @ 12.09 hrs, Volume= 0.269 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	1,493	98	New pavement
*	1,075	98	New concrete pads
*	1,397	61	New >75% Grass cover, Good, HSG B
*	12,325	80	New >75% Grass cover, Good, HSG D
*	267	80	New riprap, HSG D
	4,712	80	>75% Grass cover, Good, HSG D
*	597	95	Gravel surface, HSG D
*	187	93	Gravel surface, HSG B
	1,631	55	Woods, Good, HSG B
	17,580	77	Woods, Good, HSG D
	41,264	78	Weighted Average
	38,696		93.78% Pervious Area
	2,568		6.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 10.1S: Utility pad

Runoff = 0.26 cfs @ 12.16 hrs, Volume= 0.025 af, Depth= 5.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	2,040	98	New concrete pads
*	435	80	New >75% Grass cover, Good, HSG D
	2,475	95	Weighted Average
	435		17.58% Pervious Area
	2,040		82.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	35	0.0570	0.14		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.10"
8.2	50	0.0570	0.10		Sheet Flow, B-C Woods: Light underbrush n= 0.400 P2= 3.10"
12.3	85	Total			

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Type III 24-hr 25-YEAR Rainfall=5.80"

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Summary for Subcatchment 10.2S:

Runoff = 9.72 cfs @ 12.26 hrs, Volume= 0.993 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	699	98	New roofs
*	1,221	98	New pavement
*	2,035	61	New >75% Grass cover, Good, HSG B
*	5,763	80	New >75% Grass cover, Good, HSG D
	87,769	61	>75% Grass cover, Good, HSG B
	4,282	80	>75% Grass cover, Good, HSG D
*	20,714	98	Roofs
*	32,423	98	Paved roads w/curbs & sewers, HSG B AND D
*	5,748	93	Gravel surface, HSG B
*	122	95	Gravel surface, HSG D
*	1,082	80	New riprap, HSG D
	161,858	76	Weighted Average
	106,801		65.98% Pervious Area
	55,057		34.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0300	0.14		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.10"
4.7	280	0.0200	0.99		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.6	200	0.0200	2.12		Shallow Concentrated Flow, C-D Swale Grassed Waterway Kv= 15.0 fps
18.6	580	Total			

Summary for Subcatchment 10.3S:

Runoff = 1.49 cfs @ 12.08 hrs, Volume= 0.118 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	10,008	98	New roofs
*	1,549	80	New riprap, HSG D
	11,557	96	Weighted Average
	1,549		13.40% Pervious Area
	10,008		86.60% Impervious Area

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Type III 24-hr 25-YEAR Rainfall=5.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TC Time < 6 Mins

Summary for Subcatchment 20.0S:

Runoff = 0.31 cfs @ 12.09 hrs, Volume= 0.023 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	2,774	61	New >75% Grass cover, Good, HSG B
*	382	80	New >75% Grass cover, Good, HSG D
	1,350	61	>75% Grass cover, Good, HSG B
*	156	80	New riprap, HSG D
*	133	93	Gravel surface, HSG B
*	311	95	Gravel surface, HSG D
	279	55	Woods, Good, HSG B
	5,385	65	Weighted Average
	5,385		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TC < 6 Mins

Summary for Subcatchment 20.1S:

Runoff = 6.01 cfs @ 12.19 hrs, Volume= 0.548 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	4,340	98	Roofs
*	6,408	93	Gravel surface, HSG B
*	831	95	Gravel surface, HSG D
	47,101	61	>75% Grass cover, Good, HSG B
*	1,536	80	New >75% Grass cover, Good, HSG D
	37,625	80	>75% Grass cover, Good, HSG D
*	160	98	New pavement
	98,001	73	Weighted Average
	93,501		95.41% Pervious Area
	4,500		4.59% Impervious Area

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Type III 24-hr 25-YEAR Rainfall=5.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0500	0.17		Sheet Flow, A-B
					Grass: Dense n= 0.240 P2= 3.10"
3.8	280	0.0300	1.21		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
13.8	380	Total			

Summary for Subcatchment 20.2S:

Runoff = 0.84 cfs @ 12.09 hrs, Volume= 0.059 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

Area (sf)	CN	Description
* 184	95	Gravel surface, HSG D
* 5,117	80	New >75% Grass cover, Good, HSG D
* 2,150	61	New >75% Grass cover, Good, HSG B
* 199	98	New concrete pads
* 732	98	New pavement
* 749	80	New riprap, HSG D
9,131	78	Weighted Average
8,200		89.80% Pervious Area
931		10.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TC Time < 6 Mins

Summary for Subcatchment 20.3S:

Runoff = 0.88 cfs @ 12.08 hrs, Volume= 0.071 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

Area (sf)	CN	Description
* 4,883	98	New pavement
* 1,787	98	New roofs
* 43	98	New concrete pads
6,713	98	Weighted Average
6,713		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TC < 6 Mins

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Type III 24-hr 25-YEAR Rainfall=5.80"

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Summary for Subcatchment 20.4S:

Runoff = 1.32 cfs @ 12.08 hrs, Volume= 0.108 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	5,824	98	New pavement
*	3,884	98	New roofs
*	446	98	New concrete pads
	10,154	98	Weighted Average
	10,154		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TC < 6 Mins

Summary for Subcatchment 20.5S:

Runoff = 1.22 cfs @ 12.08 hrs, Volume= 0.099 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	5,597	98	New pavement
*	3,633	98	Roofs
*	119	98	New concrete pads
	9,349	98	Weighted Average
	9,349		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TC < 6 Mins

Summary for Reach 20.1R: Ditch

Inflow Area = 2.250 ac, 4.59% Impervious, Inflow Depth = 2.92" for 25-YEAR event
 Inflow = 5.98 cfs @ 12.20 hrs, Volume= 0.548 af
 Outflow = 5.98 cfs @ 12.21 hrs, Volume= 0.548 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Max. Velocity= 3.92 fps, Min. Travel Time= 0.4 min
 Avg. Velocity= 1.42 fps, Avg. Travel Time= 1.0 min

Peak Storage= 130 cf @ 12.21 hrs
 Average Depth at Peak Storage= 0.45'
 Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 144.15 cfs

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Type III 24-hr 25-YEAR Rainfall=5.80"

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2.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding

Side Slope Z-value= 3.0 '/' Top Width= 14.00'

Length= 85.0' Slope= 0.0294 '/'

Inlet Invert= 145.00', Outlet Invert= 142.50'

**Summary for Pond 10.2P: Culvert**

Inflow Area = 3.716 ac, 34.02% Impervious, Inflow Depth = 3.21" for 25-YEAR event
 Inflow = 9.72 cfs @ 12.26 hrs, Volume= 0.993 af
 Outflow = 9.72 cfs @ 12.26 hrs, Volume= 0.993 af, Atten= 0%, Lag= 0.0 min
 Primary = 9.72 cfs @ 12.26 hrs, Volume= 0.993 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 147.00' @ 12.26 hrs Surf.Area= 20 sf Storage= 0 cf

Flood Elev= 149.50' Surf.Area= 6,073 sf Storage= 3,643 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 0.0 min (837.2 - 837.2)

Volume	Invert	Avail.Storage	Storage Description
#1	147.00'	7,661 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
147.00	20	0	0
148.00	505	263	263
149.00	2,146	1,326	1,588
150.00	10,000	6,073	7,661

Device	Routing	Invert	Outlet Devices
#1	Primary	144.70'	24.0" Round Culvert L= 142.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 144.70' / 141.40' S= 0.0232 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Primary	149.50'	50.0' long x 16.0' breadth Overflow at Drive Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=13.62 cfs @ 12.26 hrs HW=147.00' TW=0.00' (Dynamic Tailwater)

1=Culvert (Inlet Controls 13.62 cfs @ 4.33 fps)

2=Overflow at Drive (Controls 0.00 cfs)

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Type III 24-hr 25-YEAR Rainfall=5.80"

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Summary for Pond 10.3P: Drip Edge

Inflow Area = 0.265 ac, 86.60% Impervious, Inflow Depth = 5.33" for 25-YEAR event
 Inflow = 1.49 cfs @ 12.08 hrs, Volume= 0.118 af
 Outflow = 1.42 cfs @ 12.13 hrs, Volume= 0.117 af, Atten= 5%, Lag= 3.0 min
 Primary = 0.18 cfs @ 12.13 hrs, Volume= 0.102 af
 Secondary = 1.23 cfs @ 12.13 hrs, Volume= 0.015 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 149.51' @ 12.13 hrs Surf.Area= 1,668 sf Storage= 1,430 cf
 Flood Elev= 149.60' Surf.Area= 3,136 sf Storage= 1,635 cf

Plug-Flow detention time= 87.4 min calculated for 0.117 af (100% of inflow)
 Center-of-Mass det. time= 85.2 min (844.2 - 759.0)

Volume	Invert	Avail.Storage	Storage Description	
#1	146.62'	4,262 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
146.62	1,420	0.0	0	0
146.63	1,420	30.0	4	4
148.29	1,420	30.0	707	711
148.30	1,420	40.0	6	717
149.49	1,420	40.0	676	1,393
149.50	1,420	100.0	14	1,407
150.00	10,000	100.0	2,855	4,262

Device	Routing	Invert	Outlet Devices
#1	Primary	146.63'	4.0" Round Underdrain L= 300.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 146.63' / 146.63' S= 0.0000 '/ Cc= 0.900 n= 0.012 Wood, planed, Flow Area= 0.09 sf
#2	Secondary	149.50'	300.0' long x 4.0' breadth Overflow Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.18 cfs @ 12.13 hrs HW=149.51' TW=0.00' (Dynamic Tailwater)

↑**1=Underdrain** (Barrel Controls 0.18 cfs @ 2.12 fps)

Secondary OutFlow Max=1.15 cfs @ 12.13 hrs HW=149.51' TW=0.00' (Dynamic Tailwater)

↑**2=Overflow** (Weir Controls 1.15 cfs @ 0.28 fps)

Summary for Pond 20.1P: Culvert

Inflow Area = 2.250 ac, 4.59% Impervious, Inflow Depth = 2.92" for 25-YEAR event
 Inflow = 6.01 cfs @ 12.19 hrs, Volume= 0.548 af
 Outflow = 5.98 cfs @ 12.20 hrs, Volume= 0.548 af, Atten= 0%, Lag= 0.7 min
 Primary = 5.98 cfs @ 12.20 hrs, Volume= 0.548 af

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 147.05' @ 12.20 hrs Surf.Area= 218 sf Storage= 55 cf

Flood Elev= 149.50' Surf.Area= 6,189 sf Storage= 4,808 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.0 min (840.0 - 840.0)

Volume	Invert	Avail.Storage	Storage Description
#1	146.45'	8,856 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
146.45	6	0	0
147.00	160	46	46
148.00	1,352	756	802
149.00	2,378	1,865	2,667
150.00	10,000	6,189	8,856

Device	Routing	Invert	Outlet Devices
#1	Primary	145.50'	18.0" Round Culvert L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 145.50' / 145.20' S= 0.0056 ' S= 0.0056 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Primary	149.10'	50.0' long x 16.0' breadth Overflow at Drive Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.98 cfs @ 12.20 hrs HW=147.05' TW=145.45' (Dynamic Tailwater)

1=Culvert (Barrel Controls 5.98 cfs @ 4.08 fps)

2=Overflow at Drive (Controls 0.00 cfs)

Summary for Pond 20.2P: UDSF-1

Inflow Area = 0.811 ac, 76.80% Impervious, Inflow Depth = 5.00" for 25-YEAR event

Inflow = 4.25 cfs @ 12.08 hrs, Volume= 0.338 af

Outflow = 1.53 cfs @ 12.34 hrs, Volume= 0.273 af, Atten= 64%, Lag= 15.5 min

Primary = 0.05 cfs @ 12.34 hrs, Volume= 0.170 af

Secondary = 1.47 cfs @ 12.34 hrs, Volume= 0.102 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 144.60' @ 12.34 hrs Surf.Area= 3,787 sf Storage= 7,519 cf

Flood Elev= 145.00' Surf.Area= 4,113 sf Storage= 9,105 cf

Plug-Flow detention time= 635.6 min calculated for 0.273 af (81% of inflow)

Center-of-Mass det. time= 558.9 min (1,317.7 - 758.8)

Volume	Invert	Avail.Storage	Storage Description
#1	140.33'	9,105 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Type III 24-hr 25-YEAR Rainfall=5.80"

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
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Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.33	2,113	0.0	0	0
140.34	2,113	30.0	6	6
142.49	2,113	30.0	1,363	1,369
142.50	2,113	100.0	21	1,390
143.00	2,438	100.0	1,138	2,528
144.00	3,301	100.0	2,870	5,398
145.00	4,113	100.0	3,707	9,105

Device	Routing	Invert	Outlet Devices
#1	Primary	140.20'	6.0" Round UD Outlet Pipe L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 140.20' / 140.00' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	140.30'	1.0" Vert. Orifice C= 0.600
#3	Secondary	144.50'	20.0' long x 4.0' breadth Emergency Overflow Spillway Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.05 cfs @ 12.34 hrs HW=144.60' TW=0.00' (Dynamic Tailwater)

1=UD Outlet Pipe (Passes 0.05 cfs of 1.48 cfs potential flow)


2=Orifice (Orifice Controls 0.05 cfs @ 9.93 fps)
Secondary OutFlow Max=1.47 cfs @ 12.34 hrs HW=144.60' TW=0.00' (Dynamic Tailwater)

3=Emergency Overflow Spillway (Weir Controls 1.47 cfs @ 0.75 fps)
Summary for Pond 20.3P: CB


Inflow Area = 0.602 ac, 100.00% Impervious, Inflow Depth = 5.56" for 25-YEAR event
 Inflow = 3.42 cfs @ 12.08 hrs, Volume= 0.279 af
 Outflow = 3.42 cfs @ 12.08 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.42 cfs @ 12.08 hrs, Volume= 0.279 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 146.08' @ 12.08 hrs

Flood Elev= 148.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.36'	12.0" Round Stormdrain L= 64.5' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.36' / 144.04' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.41 cfs @ 12.08 hrs HW=146.07' TW=144.07' (Dynamic Tailwater)

1=Stormdrain (Barrel Controls 3.41 cfs @ 4.35 fps)

Summary for Pond 20.4P: CB

Inflow Area = 0.448 ac, 100.00% Impervious, Inflow Depth = 5.56" for 25-YEAR event
 Inflow = 2.54 cfs @ 12.08 hrs, Volume= 0.208 af
 Outflow = 2.54 cfs @ 12.08 hrs, Volume= 0.208 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.54 cfs @ 12.08 hrs, Volume= 0.208 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 146.95' @ 12.09 hrs
 Flood Elev= 148.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	145.08'	12.0" Round Stormdrain L= 124.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.08' / 144.46' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.52 cfs @ 12.08 hrs HW=146.94' TW=146.07' (Dynamic Tailwater)
 ↑1=Stormdrain (Outlet Controls 2.52 cfs @ 3.21 fps)

Summary for Pond 20.5P: CB

Inflow Area = 0.215 ac, 100.00% Impervious, Inflow Depth = 5.56" for 25-YEAR event
 Inflow = 1.22 cfs @ 12.08 hrs, Volume= 0.099 af
 Outflow = 1.22 cfs @ 12.08 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.22 cfs @ 12.08 hrs, Volume= 0.099 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 147.14' @ 12.10 hrs
 Flood Elev= 148.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	145.80'	12.0" Round Stormdrain L= 124.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.80' / 145.18' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.01 cfs @ 12.08 hrs HW=147.06' TW=146.94' (Dynamic Tailwater)
 ↑1=Stormdrain (Outlet Controls 1.01 cfs @ 1.32 fps)

Summary for Link SP1: Study Point #1

Inflow Area = 8.170 ac, 28.47% Impervious, Inflow Depth > 3.30" for 25-YEAR event
 Inflow = 19.14 cfs @ 12.25 hrs, Volume= 2.248 af
 Primary = 19.14 cfs @ 12.25 hrs, Volume= 2.248 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10.0S: Runoff Area=41,264 sf 6.22% Impervious Runoff Depth=1.20"
 Tc=6.0 min CN=78 Runoff=1.30 cfs 0.095 af

Subcatchment 10.1S: Utility pad Runoff Area=2,475 sf 82.42% Impervious Runoff Depth=2.55"
 Flow Length=85' Slope=0.0570 '/' Tc=12.3 min CN=95 Runoff=0.13 cfs 0.012 af

Subcatchment 10.2S: Runoff Area=161,858 sf 34.02% Impervious Runoff Depth=1.08"
 Flow Length=580' Tc=18.6 min CN=76 Runoff=3.12 cfs 0.335 af

Subcatchment 10.3S: Runoff Area=11,557 sf 86.60% Impervious Runoff Depth=2.65"
 Tc=6.0 min CN=96 Runoff=0.77 cfs 0.059 af

Subcatchment 20.0S: Runoff Area=5,385 sf 0.00% Impervious Runoff Depth=0.55"
 Tc=6.0 min CN=65 Runoff=0.06 cfs 0.006 af

Subcatchment 20.1S: Runoff Area=98,001 sf 4.59% Impervious Runoff Depth=0.92"
 Flow Length=380' Tc=13.8 min CN=73 Runoff=1.74 cfs 0.172 af

Subcatchment 20.2S: Runoff Area=9,131 sf 10.20% Impervious Runoff Depth=1.20"
 Tc=6.0 min CN=78 Runoff=0.29 cfs 0.021 af

Subcatchment 20.3S: Runoff Area=6,713 sf 100.00% Impervious Runoff Depth=2.87"
 Tc=6.0 min CN=98 Runoff=0.46 cfs 0.037 af

Subcatchment 20.4S: Runoff Area=10,154 sf 100.00% Impervious Runoff Depth=2.87"
 Tc=6.0 min CN=98 Runoff=0.70 cfs 0.056 af

Subcatchment 20.5S: Runoff Area=9,349 sf 100.00% Impervious Runoff Depth=2.87"
 Tc=6.0 min CN=98 Runoff=0.65 cfs 0.051 af

Reach 20.1R: Ditch Avg. Flow Depth=0.24' Max Vel=2.73 fps Inflow=1.74 cfs 0.172 af
 n=0.030 L=85.0' S=0.0294 '/' Capacity=144.15 cfs Outflow=1.74 cfs 0.172 af

Pond 10.2P: Culvert Peak Elev=147.00' Storage=0 cf Inflow=3.12 cfs 0.335 af
 Outflow=3.12 cfs 0.335 af

Pond 10.3P: Drip Edge Peak Elev=148.73' Storage=961 cf Inflow=0.77 cfs 0.059 af
 Primary=0.15 cfs 0.058 af Secondary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.058 af

Pond 20.1P: Culvert Peak Elev=146.45' Storage=0 cf Inflow=1.74 cfs 0.172 af
 Outflow=1.74 cfs 0.172 af

Pond 20.2P: UDSF-1 Peak Elev=143.88' Storage=5,000 cf Inflow=2.10 cfs 0.165 af
 Primary=0.05 cfs 0.144 af Secondary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.144 af

Pond 20.3P: CB Peak Elev=145.24' Inflow=1.81 cfs 0.144 af
 12.0" Round Culvert n=0.013 L=64.5' S=0.0050 '/' Outflow=1.81 cfs 0.144 af

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Pond 20.4P: CB

Peak Elev=145.85' Inflow=1.35 cfs 0.107 af
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=1.35 cfs 0.107 af

Pond 20.5P: CB

Peak Elev=146.33' Inflow=0.65 cfs 0.051 af
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=0.65 cfs 0.051 af

Link SP1: Study Point #1

Inflow=5.84 cfs 0.823 af
Primary=5.84 cfs 0.823 af

Total Runoff Area = 8.170 ac Runoff Volume = 0.844 af Average Runoff Depth = 1.24"
71.53% Pervious = 5.844 ac 28.47% Impervious = 2.326 ac

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Type III 24-hr 10-YEAR Rainfall=4.60"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10.0S: Runoff Area=41,264 sf 6.22% Impervious Runoff Depth=2.38"
 Tc=6.0 min CN=78 Runoff=2.64 cfs 0.188 af

Subcatchment 10.1S: Utility pad Runoff Area=2,475 sf 82.42% Impervious Runoff Depth=4.02"
 Flow Length=85' Slope=0.0570 '/' Tc=12.3 min CN=95 Runoff=0.20 cfs 0.019 af

Subcatchment 10.2S: Runoff Area=161,858 sf 34.02% Impervious Runoff Depth=2.21"
 Flow Length=580' Tc=18.6 min CN=76 Runoff=6.65 cfs 0.684 af

Subcatchment 10.3S: Runoff Area=11,557 sf 86.60% Impervious Runoff Depth=4.14"
 Tc=6.0 min CN=96 Runoff=1.17 cfs 0.091 af

Subcatchment 20.0S: Runoff Area=5,385 sf 0.00% Impervious Runoff Depth=1.39"
 Tc=6.0 min CN=65 Runoff=0.19 cfs 0.014 af

Subcatchment 20.1S: Runoff Area=98,001 sf 4.59% Impervious Runoff Depth=1.97"
 Flow Length=380' Tc=13.8 min CN=73 Runoff=4.00 cfs 0.370 af

Subcatchment 20.2S: Runoff Area=9,131 sf 10.20% Impervious Runoff Depth=2.38"
 Tc=6.0 min CN=78 Runoff=0.58 cfs 0.041 af

Subcatchment 20.3S: Runoff Area=6,713 sf 100.00% Impervious Runoff Depth=4.36"
 Tc=6.0 min CN=98 Runoff=0.69 cfs 0.056 af

Subcatchment 20.4S: Runoff Area=10,154 sf 100.00% Impervious Runoff Depth=4.36"
 Tc=6.0 min CN=98 Runoff=1.05 cfs 0.085 af

Subcatchment 20.5S: Runoff Area=9,349 sf 100.00% Impervious Runoff Depth=4.36"
 Tc=6.0 min CN=98 Runoff=0.96 cfs 0.078 af

Reach 20.1R: Ditch Avg. Flow Depth=0.37' Max Vel=3.50 fps Inflow=3.99 cfs 0.370 af
 n=0.030 L=85.0' S=0.0294 '/' Capacity=144.15 cfs Outflow=3.99 cfs 0.370 af

Pond 10.2P: Culvert Peak Elev=147.00' Storage=0 cf Inflow=6.65 cfs 0.684 af
 Outflow=6.65 cfs 0.684 af

Pond 10.3P: Drip Edge Peak Elev=149.51' Storage=1,415 cf Inflow=1.17 cfs 0.091 af
 Primary=0.18 cfs 0.088 af Secondary=0.27 cfs 0.003 af Outflow=0.46 cfs 0.091 af

Pond 20.1P: Culvert Peak Elev=146.67' Storage=8 cf Inflow=4.00 cfs 0.370 af
 Outflow=3.99 cfs 0.370 af

Pond 20.2P: UDSF-1 Peak Elev=144.52' Storage=7,239 cf Inflow=3.29 cfs 0.260 af
 Primary=0.05 cfs 0.166 af Secondary=0.18 cfs 0.031 af Outflow=0.23 cfs 0.198 af

Pond 20.3P: CB Peak Elev=145.58' Inflow=2.71 cfs 0.219 af
 12.0" Round Culvert n=0.013 L=64.5' S=0.0050 '/' Outflow=2.71 cfs 0.219 af

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Pond 20.4P: CB

Peak Elev=146.17' Inflow=2.01 cfs 0.163 af
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=2.01 cfs 0.163 af

Pond 20.5P: CB

Peak Elev=146.54' Inflow=0.96 cfs 0.078 af
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=0.96 cfs 0.078 af

Link SP1: Study Point #1

Inflow=12.41 cfs 1.563 af
Primary=12.41 cfs 1.563 af

Total Runoff Area = 8.170 ac Runoff Volume = 1.627 af Average Runoff Depth = 2.39"
71.53% Pervious = 5.844 ac 28.47% Impervious = 2.326 ac

Attachment D

Inspection, Maintenance, and Housekeeping Plan

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN
Maintenance and Central Plant Building
Maine Correctional Center
Windham, Maine

Introduction

The following plan outlines the anticipated inspection and maintenance procedures for the erosion and sedimentation control measures as well as stormwater management facilities for the project. This plan also outlines several housekeeping requirements that shall be followed during and after construction. These procedures shall be followed in order to ensure the intended function of the designed measures and to prevent unreasonably adverse impacts to the surrounding environment.

The procedures outlined in this Inspection, Maintenance, and Housekeeping Plan are provided as an overview of the anticipated practices to be used on this site by the Inspector during construction and by Maine Correctional Center after construction. In some instances, additional measures may be required due to unexpected conditions. For additional detail on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the Maine Department of Environmental Protection (MDEP).

During Construction

1. **Inspection:** During the construction process, it is the Inspector's responsibility to comply with the inspection and maintenance procedures outlined in this section and the erosion and sedimentation control plan for the project. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once per week as well as before and after a storm event, and prior to completing permanent stabilization measures. Needed repairs (as identified during an inspection) will be started no later than the end of the next workday and be completed within seven (7) calendar days. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.
2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (rainfall).
3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. Correction action shall be performed in general conformance with the Maine Construction General Permit and Maine DEP Chapter 500 Stormwater standards. 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, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or

proved inadequate for a particular location, and locations 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 the appropriate regulatory agency 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.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

A. Filter Berms:

- Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
- If the fabric on a silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
- Sediment deposits should be removed after each storm event. They must be removed before deposits reach approximately one-half the height of the barrier.
- Filter berms shall be reshaped as needed.
- Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

B. Stone Check Dams:

- Inspect the center of the dam to make sure it is lower than the edges. Erosion caused by high flows around the edges of the dam must be corrected.
- Sediment accumulation shall be removed prior to reaching half of the original design height.
- Areas beneath stone check dams must be seeded and mulched upon removal.

C. Riprap Materials:

- Once a riprap installation has been completed, it should require very little maintenance. It shall, however, be inspected periodically to determine if high flows have caused scour beneath the riprap or dislodged any of the stone.

D. Erosion Control Blankets:

- Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
- Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to the requirements of this plan.

E. Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.
- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or waterways).

F. Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

G. Stabilized Temporary Drainage Swales:

- Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
- The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
- In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.

5. **Housekeeping:** The following general performance standards apply to the proposed project.

- A. Spill prevention: Controls must be used to prevent pollutants from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation. A Spill, Prevention, Control and Countermeasures Plan is created for the project and is to be kept onsite at all times.
- B. Groundwater protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors, accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.
- C. Fugitive sediment and dust: Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control. If off-site tracking occurs, public roads should be

- swept immediately and not less than once a week and prior to significant storm events.
- D. Debris and other materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.
- E. Trench or foundation dewatering: Trench dewatering is the removal of water from trenches, foundations, cofferdams, ponds, and other areas within the construction area that retain water after excavation. In most cases, the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved.

Post-Construction

1. **Inspection:** After construction, it is the responsibility of Maine Correctional Center or assigned heirs to comply with the inspection and maintenance procedures outlined in this section. All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in all applicable permits, shall conduct the inspections.
2. **Specific Inspection and Maintenance Tasks:** The following is a list of permanent erosion control and stormwater management measures and the inspection and maintenance tasks to be performed after construction.
 - A. Vegetated Areas:
 - Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems.
 - Replant 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.
 - B. Ditches, Swales and Other Open Channels:
 - Inspect ditches, swales, level spreaders and other open stormwater channels in the spring, in the late fall, and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris, remove woody vegetative growth that could obstruct flow, and repair any erosion of the ditch lining.
 - Vegetated ditches must 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 in areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged.

C. Winter Sanding:

- Clear accumulations of winter sand along access road at least once a year, preferably in the spring.
- 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 or other acceptable method.

D. Culverts:

- Inspect culverts in the spring, in the late fall, and after heavy rains to remove any obstructions to flow.
- Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit.
- Inspect and repair any erosion damage at the culvert's inlet and outlet.

E. Underdrained Soil Filter:

- During the first year, the basins shall be inspected semi-annually and following major storm events.
- Debris and sediment buildup shall be removed from the forebays and basins as needed. Mowing of a grassed basin can occur semiannually to a height no less than 6 inches. Any bare area or erosion rills shall be repaired with new filter media or sandy loam then seeded and mulched. Maintaining good grass cover will minimize clogging with fine sediments and if ponding exceeds 48 hours, the top of the filter beds must be rototilled to reestablish the soil's filtration capacity.
- The soil filters should be inspected after every major storm in the first year to be sure it is functioning properly. Thereafter, the filters should be inspected at least once every six months to ensure that it is draining within 48 hours following a one-inch storm or greater. Following storms that fill the system and overflow is observed, the soil filters should drain in no less than 36 to 60 hours. If the system drains too fast, an orifice may need to be added on the underdrain outlet or, if already present, may need to be modified.
- Soil Filter Replacement: The top several inches of the filters shall be replaced with fresh material when water ponds on the surface of the bed for more than 72 hours. Removed sediments should be disposed of in an acceptable manner.
- Sediment Removal: Sediment and plant debris should be removed from the pretreatment structures at least annually.
- Mowing: If mowing is desired, only handheld string trimmers or push-mowers are allowed on the filters (no tractor) and the grass beds should be mowed no more than 2 times per growing season to maintain grass heights of no less than 6 inches.
- Fertilization: Fertilization of the underdrained filter areas should be avoided unless absolutely necessary to establish vegetation.
- Harvesting and Weeding: Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary.
- Snow storage is prohibited on infiltration treatment structures. This shall be

noted where appropriate.

F. Wooded Buffer Areas:

- Remove dead wood and debris with minimal disturbance. Monitor for bypass and channelization; repair as it is occurring and remove sediment build-up to assure sheet flow conditions. Replant trees and bushes if needed. Perform monitoring on a semi-annual basis.
3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained. 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 controls. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations 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 the appropriate regulatory agency upon request. A sample "Stormwater Inspection and Maintenance Form" has been included as Attachment 2 of this Inspection, Maintenance, and Housekeeping Plan.
 4. **Maine DEP Recertification:** A certification of the following shall be submitted to the MDEP within three months of the expiration of each five-year interval from the date of issuance of MDEP permits.
 - 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. The Inspection, Maintenance, and Housekeeping Plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the MDEP, and the maintenance log is being maintained.
 5. **Duration of Maintenance:** Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the MDEP stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with MDEP standards. Upon such assumption of responsibility, and approval by the MDEP, the municipality, quasi-municipal district, or association becomes a co-permittee for this purpose only and must comply with all terms and conditions of the permit.

Authorized Non-stormwater discharges

1. Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater

component(s) of the discharge. Authorized non-stormwater discharges are:

- A. Discharges from firefighting activity;
- B. Fire hydrant flushings;
- C. Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
- D. Dust control runoff in accordance with permit conditions and Appendix (C)(3);
- E. Routine external building washdown, not including surface paint removal, that does not involve detergents;
- F. Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
- G. Uncontaminated air conditioning or compressor condensate;
- H. Uncontaminated groundwater or spring water;
- I. Foundation or footer drain-water where flows are not contaminated;
- J. Uncontaminated excavation dewatering (see requirements in Appendix C(5));
- K. Potable water sources including waterline flushings; and
- L. Landscape irrigation.

Unauthorized non-stormwater discharges:

1. The Department's approval does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with Appendix C (6) of Chapter 500. Specifically, the Department's approval does not authorize discharges of the following:
 - A. Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
 - B. Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
 - C. Soaps, solvents, or detergents used in vehicle and equipment washing; and
 - D. Toxic or hazardous substances from a spill or other release.

Attachments

Attachment 1 – Stormwater Inspection and Maintenance Log Form
16405

ATTACHMENT 1 – STORMWATER INSPECTION AND MAINTENANCE LOG

Maintenance and Central Plant Building Maine Correctional Center Windham, Maine

This log is intended to accompany the Inspection, Maintenance, and Housekeeping Plan for the Maintenance and Central Plant Building in Windham, Maine. The following items shall be checked, cleaned and maintained on a regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five (5) years and shall be available for review by the municipality. Qualified personnel familiar with drainage systems and soils shall perform all inspections. Attached is a copy of the construction and post-construction maintenance logs.

		INSPECTOR NAME	DATE PERFORMED	SUGGESTED INTERVAL
Vegetated Areas				
	Inspect all slopes and embankments			Annually
	Replant bare areas or areas with sparse growth			Annually
Paved Surfaces				
	Clear accumulated winter sand			Annually
	Remove sediment along edges and in pockets			Annually
Ditches & Swales				
	Remove any obstructions and accumulated sediments and debris			Monthly
	Repair any erosion of ditch lining			Annually
	Mow vegetated ditches			Annually
	Remove woody vegetation growing through riprap			Annually
	Repair any slumping side slopes			Annually
	Replace riprap where stones have dislodged			Annually
Catch Basins				
	Remove accumulated sediments and debris in the sump and at grate			Annually
Culverts				
	Remove accumulated sediments and debris at the inlet, outlet and within conduit			Annually
	Repair any erosion at inlet and outlet			Annually

Underdrained Soil Filter				
	Remove sediment & debris			Monthly
	Remove weeds			Monthly (during growing season)
	Erosion (side slopes, embankment)			Monthly
	Inspection after major storm to verify proper function			Bi-Annually
Drip Edge Filter				
	Remove sediment & debris			Monthly
	Remove weeds			Monthly (during growing season)
	Erosion (side slopes, embankment)			Monthly
	Inspection after major storm to verify proper function			Bi-Annually
Meadow/ Wooded Buffer				
	Remove dead tree limbs and plants, and other accumulated debris in buffer area			
	Check for evidence of channelized flow through buffer area			
	Reestablish vegetation disturbed by construction and other site activities			

Exhibit 15

Landscaping

Exhibit 15: Landscaping

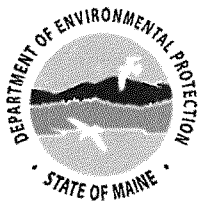
Due to the nature of and sequencing of the proposed project, landscaping will be addressed during the larger prison modifications to follow this application.

Exhibit 16

Waivers

Exhibit 16: Waivers

No waivers from performance or design standards are proposed or anticipated as part the State of Maine Correctional Center, Maintenance & Control Plant Building Site Plan Review.



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

MAINE DEPARTMENT OF CORRECTIONS) SITE LOCATION OF DEVELOPMENT ACT
Windham, Cumberland County)
CENTRAL MAINTENANCE PLANT) MINOR AMENDMENT
L-15483-26-H-B (approval)) FINDINGS OF FACT AND ORDER

Pursuant to the provisions of 38 M.R.S. §§ 481–489-E and Chapters 375, 500, 501, and 502 of Department rules, the Department of Environmental Protection has considered the application of the MAINE DEPARTMENT OF CORRECTIONS with the supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROJECT DESCRIPTION:

A. History of Project: The applicant operates a correctional facility on the west side of an approximately 265-acre parcel with road frontage on Mallison Falls Road and River Road in Windham. The original correctional facility was constructed prior to the enactment of the Site Location of Development Act (Site Law). In Department Order #L-15483-26-A-N, dated January 19, 1989, the Department granted after-the-fact approval for construction at the facility between 1970 and 1989, and approved a new receiving area, two minimum security buildings, and an additional parking area near the gym. In Department Order #L-15483-26-B-M, dated April 7, 1989, the Department approved reclaiming 36 acres of agricultural field for a hayfield on the west side of River Road and allowing a 100-foot buffer along Colley Wright Brook to revert to woodland. In a letter dated January 6, 1999 (#L-15483-26-C-D), the Department acknowledged the Town of Windham's delegated review authority to approve a new building for minimum security inmates, two paved courtyards, roadways, and parking. On March 8, 2008, the Department suspended the municipality's delegated review authority pursuant to the Site Law. Most recently, in Department Order #L-15483-F-A/L-15483-TA-G-N, dated September 28, 2015, the Department approved the construction of a Women's Re-entry Center on the east side of the project parcel with access from River Road.

B. Summary: The applicant proposes to construct a 20,117-square foot central maintenance plant building in an area just outside the facility's security fence. The proposed project is the first phase of a larger-scale rehabilitation and modernization effort at the Maine Correctional Center. The project site is near an existing parking lot on the westerly side of the applicant's parcel, as shown on a set of plans, the first of which is entitled "Maintenance & Central Plant Building – Maine Correctional Center," prepared by Sebago Technics and dated September 27, 2018, with a last revision date of October 26, 2018. The project site is located on the south side of Mallison Falls Road in the Town of Windham.

C. Current Use of Site: The project parcel contains the Maine Correctional Center, which consists of a number of buildings, fields, recreation areas, roads, and parking areas. The area of the proposed project is currently landscaped lawn.

2. FINANCIAL CAPACITY:

The total cost of the project is estimated to be \$6,161,935. The applicant submitted a copy of enabling legislation (L.D. 1447, approved by the Governor on April 14, 2016) that allocated \$149.7 million for capital construction, repairs, and improvements of two facilities operated by the applicant, one of which is the Maine Correctional Center in Windham.

The Department finds that the applicant has demonstrated adequate financial capacity to comply with Department standards.

3. TECHNICAL ABILITY:

The applicant has successfully operated the Maine Correctional Center for many years and provided resume information for key persons involved with the project. The applicant also retained the services of SMRT, a professional architectural firm, and Sebago Technics, a professional engineering firm, to assist in the design and engineering of the project.

The Department finds that the applicant has demonstrated adequate technical ability to comply with Department standards.

4. NOISE:

The proposed project is anticipated to generate low levels of noise. It will be located within the existing facility, and will include a new building to house general maintenance and a new heat plant system. All activities will be enclosed within the building, generating little or no exterior noise. The project includes self-contained exterior generators for backup power during emergencies when electric service to the development is interrupted. The generators will be enclosed with noise reduction mufflers and will only operate during emergencies or routine testing.

The Department finds that the applicant has made adequate provision for the control of excessive environmental noise from the proposed project.

5. SCENIC CHARACTER:

The proposed building will be located within the existing limits of the Maine Correctional Center in an area that currently contains lawn and a road. The building is designed to be visually consistent with other buildings that are part of the center and is not anticipated to not result in any measurable change in the scenic quality in the general vicinity of the project.

Based on the project's location and design, the Department finds that the proposed project will not have an unreasonable adverse effect on the scenic character of the surrounding area.

6. BUFFER STRIPS:

The proposed project includes the use of a meadow buffer for stormwater treatment as further described in Finding 8. The applicant proposes to use the deed restriction language contained in Appendix G of Chapter 500 and submitted a draft deed restriction that meets Department standards.

Prior to the start of construction, the location of the stormwater buffer must be permanently marked on the ground. The deed for the lot that contains any portion of the designated buffer must contain deed restrictions relative to the buffer and have attached to it a plot plan for the lot, drawn to scale, that specifies the location of the buffer on the lot. The applicant must execute and record all required deed restrictions, including the appropriate buffer deed restrictions, within 60 days of the date of this Order. The applicant must submit a copy of the recorded deed restriction, including the plot plan, to the BLR within 60 days of its recording.

The Department finds that the applicant has made adequate provision for buffer strips provided the location of the buffer is marked and deed restrictions are executed as described above.

7. SOILS:

The applicant submitted a soil survey map and report and a geotechnical report prepared by S.W. Cole Engineering, Inc. (dated October 26, 2018), that are based on the soils found at the project site. Soil profiles were prepared by a certified soils scientist and were reviewed by staff from the Division of Environmental Assessment (DEA) of the Bureau of Water Quality (BWQ). DEA noted that the report indicates the presence of debris in the fill on site, and commented that Department response staff should be notified immediately if potential contaminants or materials that present a risk to human health or the environment are detected in any excavated soils during construction.

Blasting may be necessary during construction, and the applicant submitted a blasting plan (revision date October 16, 2018). DEA commented that the plan is substantially consistent with Department performance standards.

The Department finds that, based on the soil and geotechnical reports, the blasting plan, and DEA's review, the soils on the project site present no limitations to the proposed project that cannot be overcome through standard engineering practices.

8. STORMWATER MANAGEMENT:

The proposed project includes approximately 1.83 acres of developed area, of which 1.04 acres is impervious area. Most of the proposed developed area will be located on existing developed area (existing gravel access drive and lawn). The project site lies within the watershed of the Presumpscot River. The applicant submitted a stormwater management plan based on the Basic, General, and Flooding Standards contained in Chapter 500 Stormwater Management rules (06-096 C.M.R. ch. 500, effective August 12, 2015). The proposed stormwater management system consists of an underdrained soil filter, a roof drip edge filter, and a meadow buffer.

A. Basic Standards:

(1) Erosion and Sedimentation Control: The applicant submitted an Erosion and Sedimentation Control Plan (Section 14 of the application) that is based on the performance standards contained in Appendix A of Chapter 500 and the Best Management Practices outlined in the Maine Erosion and Sediment Control BMPs, which were developed by the Department. This plan and plan sheets containing erosion control details were reviewed by, and revised in response to the comments of, the Bureau of Land Resources (BLR).

Erosion control details will be included on the final construction plans and the erosion control narrative will be included in the project specifications to be provided to the construction contractor.

(2) Inspection and Maintenance: The applicant submitted a maintenance plan that addresses both short and long-term maintenance requirements. The maintenance plan is based on the standards contained in Appendix B of Chapter 500. This plan was reviewed by, and revised in response to the comments of, BLR. The applicant will be responsible for the maintenance the stormwater management system.

(3) Housekeeping: The proposed project will comply with the performance standards outlined in Appendix C of Chapter 500.

Based on BLR's review of the erosion and sedimentation control plan and the maintenance plan, the Department finds that the proposed project meets the Basic Standards contained in Chapter 500(4)(B).

B. General Standards:

The applicant's stormwater management plan includes general treatment measures that will mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms, provide for effective treatment of pollutants in stormwater, and mitigate potential temperature impacts. The project area consists primarily of previously developed area, including existing lawn and roadway.

Pursuant to Department Rules, Chapter 500(4)(C)(2)(d), the treatment requirement for a redevelopment project is scaled based on the change of use between the existing developed area and the proposed developed area. Mitigation for the proposed project requires control of stormwater runoff from no less than 60% of the new developed area. The applicant's stormwater management plan includes general treatment measures that will mitigate for approximately 87% of the new developed area, which exceeds the required treatment.

The meadow stormwater buffer will be protected from alteration through the execution of a deed restriction as described in Finding 6.

The stormwater management system proposed by the applicant was reviewed by, and revised in response to comments from, BLR. After a final review, BLR commented that the proposed stormwater management system is designed in accordance with the General Standards contained in Chapter 500(4)(C), provided the design engineer or other qualified professional oversees the construction of the stormwater management system to ensure that it is installed in accordance with the details and notes on the approved plans.

Based on the stormwater system's design and BLR's review, the Department finds that the applicant has made adequate provision to ensure that the proposed project will meet the General Standards contained in Chapter 500(4)(C).

C. Flooding Standard:

The applicant is proposing to utilize a stormwater management system based on estimates of pre- and post-development stormwater runoff flows obtained by using Hydrocad, a stormwater modeling software that utilizes the methodologies outlined in Technical Releases #55 and #20, U.S.D.A., Soil Conservation Service) and detains stormwater from 24-hour storms of 2-, 10-, and 25-year frequency. The post-development peak flow from the site will not exceed the pre-development peak flow from the site and the peak flow of the receiving water will not be increased as a result of stormwater runoff from the development site.

BLR commented that the proposed system is designed in accordance with the Flooding Standard contained in Chapter 500(4)(F).

Based on the system's design and BLR's review, the Department finds that the applicant has made adequate provision to ensure that the proposed project will meet the Flooding Standard contained in Chapter 500(4)(F) for peak flow from the project site, and channel limits and runoff areas.

9. GROUNDWATER:

The project site is not located over a mapped sand and gravel aquifer. The proposed project will be connected into public water and public sewer systems and does not

propose any withdrawal from, or discharge to, the groundwater. The applicant stated that the boilers in the central plant will be heated by natural gas.

The proposed project includes a 1,000-gallon gasoline tank, emergency generators, and transformers at the southeast side of the proposed building. The Maine Correctional Center has an existing Spill Containment, Control and Countermeasures Plan (SPCC Plan). Prior to operation of the Central Maintenance Plant, the applicant must submit a revised SPCC Plan that incorporates the gasoline tank, generators, and transformers to the BLR for review and approval.

The Department finds that the proposed project will not have an unreasonable adverse effect on ground water quality.

10. WATER SUPPLY:

The proposed project is not anticipated to result in any increase in the overall water usage at the facility.

11. WASTEWATER DISPOSAL:

The proposed project is not anticipated to result in any increase in overall wastewater flows from the facility.

12. SOLID WASTE:

When completed, the proposed project is anticipated to generate 1.8 tons of general solid waste per year. All general solid wastes from the proposed project will be disposed of at ecomaine in Portland, which is currently in substantial compliance with the Maine Solid Waste Management Rules.

The proposed project will generate approximately 400 cubic yards of stumps and grubblings. All stumps and grubblings generated will be processed on site and utilized as an erosion control measure, in compliance with the Maine Solid Waste Management Rules.

The proposed project will generate approximately 140 cubic yards of construction debris and demolition debris. All construction and demolition debris generated will be disposed of at the Riverside Transfer Station in Portland, which is currently in substantial compliance with the Maine Solid Waste Management Rules.

Based on the above information, the Department finds that the applicant has made adequate provision for solid waste disposal.

13. AIR QUALITY:

The proposed central maintenance plant will initially be used as a staging area for contractors and will not be put on line immediately. The new building is intended to house new boilers and generators, but the types, sizes and other details of the equipment is not yet known. The applicant intends to apply to amend its existing air emissions license when those specifications are further defined.

Prior to operation of the central maintenance plant as a heat and power source, the applicant must obtain an amendment to its existing air emissions license and submit a copy of the approval to the BLR for review.

14. ALL OTHER:

All other Findings of Fact, Conclusions and Conditions remain as approved in Department Order #L-15483-26-A-N, and subsequent Orders.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S. §§ 481–489-E:

- A. The applicant has provided adequate evidence of financial capacity and technical ability to develop the project in a manner consistent with state environmental standards.
- B. The applicant has made adequate provision for fitting the development harmoniously into the existing natural environment and the development will not adversely affect existing uses, scenic character, air quality, water quality or other natural resources in the municipality or in neighboring municipalities provided an amendment to the existing air emissions license is obtained as described in Finding 13.
- C. The proposed development will be built on soil types which are suitable to the nature of the undertaking and will not cause unreasonable erosion of soil or sediment nor inhibit the natural transfer of soil.
- D. The proposed development meets the standards for stormwater management in 38 M.R.S. § 420-D and the standard for erosion and sedimentation control in 38 M.R.S. § 420-C provided the stormwater buffer is marked and deed restrictions are executed as outlined in Finding 6 and the stormwater system construction is inspected by a qualified engineer as outlined in Finding 8B.
- E. The proposed development will not pose an unreasonable risk that a discharge to a significant groundwater aquifer will occur provided the applicant submits a revised SPCC Plan for review and approval as described in Finding 9.
- F. The applicant has made adequate provision of utilities, including water supplies, sewerage facilities and solid waste disposal required for the development and the

development will not have an unreasonable adverse effect on the existing or proposed utilities in the municipality or area served by those services provided Department response staff are notified if potential contaminants or materials are detected in any excavated soils during construction as described in Finding 7.

- G. The activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties nor create an unreasonable flood hazard to any structure.

THEREFORE, the Department APPROVES the application of the MAINE DEPARTMENT OF CORRECTIONS to construct a central maintenance plant at the Maine Correctional Center in Windham as described in Finding 1, SUBJECT TO THE FOLLOWING CONDITIONS and all applicable standards and regulations:

1. The Standard Conditions of Approval, a copy attached.
2. In addition to any specific erosion control measures described in this or previous orders, the applicant shall take all necessary actions to ensure that its activities or those of its agents do not result in noticeable erosion of soils or fugitive dust emissions on the site during the construction and operation of the project covered by this approval.
3. Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.
4. The applicant shall execute and record all required deed restrictions, including the appropriate buffer deed restrictions, within 60 days of the date of this Order. The applicant shall submit a copy of the recorded deed restriction, including the plot plan, to the BLR within 60 days of its recording.
5. Prior to the start of construction, the location of the stormwater meadow buffer shall be permanently marked on the ground.
6. The applicant's design engineer or other qualified professional shall oversee the construction of the stormwater management system to ensure that it is installed in accordance with the details and notes on the approved plans.
7. Prior to operation of the Central Maintenance Plant as a heat and power source, the applicant shall obtain an amendment to its existing air emissions license and submit a copy of the approval to the BLR for review.
8. Prior to operation of the Central Maintenance Plant, the applicant shall submit a revised SPCC Plan that incorporates the gasoline tank, generators, and transformers to the BLR for review and approval.

9. Department response staff shall be notified immediately if potential contaminants or materials that present a risk to human health or the environment are detected in any excavated soils during construction.
10. All other Findings of Fact, Conclusions and Conditions remain as approved in Department Order #L-15483-26-A-N, and subsequent Orders, and are incorporated herein.

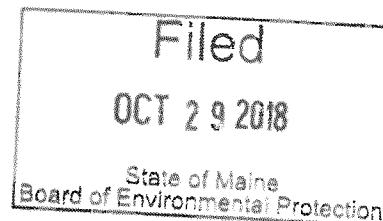
THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DONE AND DATED IN AUGUSTA, MAINE, THIS 29TH DAY OF OCTOBER, 2018.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____

Mah Byron
For: Paul Mercer, Commissioner



PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

MR/L15483HB/ATS#83625

Department of Environmental Protection
SITE LOCATION OF DEVELOPMENT (SITE)
STANDARD CONDITIONS

- A. Approval of Variations from Plans.** The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation. Further subdivision of proposed lots by the applicant or future owners is specifically prohibited without prior approval of the Board, and the applicant shall include deed restrictions to that effect.
- B. Compliance with All Applicable Laws.** The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.
- C. Compliance with All Terms and Conditions of Approval.** The applicant shall submit all reports and information requested by the Board or the Department demonstrating that the applicant has complied or will comply with all preconstruction terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.
- D. Advertising.** Advertising relating to matters included in this application shall refer to this approval only if it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.
- E. Transfer of Development.** Unless otherwise provided in this approval, the applicant shall not sell, lease, assign or otherwise transfer the development or any portion thereof without prior written approval of the Board where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval shall be granted only if the applicant or transferee demonstrates to the Board that the transferee has the technical capacity and financial ability to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant.
- F. Time frame for approvals.** If the construction or operation of the activity is not begun within four years, this approval shall lapse and the applicant shall reapply to the Board for a new approval. The applicant may not begin construction or operation of the development until a new approval is granted. A reapplication for approval may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.
- G. Approval Included in Contract Bids.** A copy of this approval must be included in or attached to all contract bid specifications for the development.
- H. Approval Shown to Contractors.** Work done by a contractor pursuant to this approval shall not begin before the contractor has been shown by the developer a copy of this approval.

(2/81)/Revised December 27, 2011

STORMWATER STANDARD CONDITIONS

STRICT CONFORMANCE WITH THE STANDARD AND SPECIAL CONDITIONS OF THIS APPROVAL IS NECESSARY FOR THE PROJECT TO MEET THE STATUTORY CRITERIA FOR APPROVAL

Standard conditions of approval. Unless otherwise specifically stated in the approval, a department approval is subject to the following standard conditions pursuant to Chapter 500 Stormwater Management Law.

- (1) Approval of variations from plans. The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the permittee. Any variation from these plans, proposals, and supporting documents must be reviewed and approved by the department prior to implementation. Any variation undertaken without approval of the department is in violation of 38 M.R.S. §420-D(8) and is subject to penalties under 38 M.R.S. §349.
- (2) Compliance with all terms and conditions of approval. The applicant shall submit all reports and information requested by the department demonstrating that the applicant has complied or will comply with all terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.
- (3) Advertising. Advertising relating to matters included in this application may not refer to this approval unless it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.
- (4) Transfer of project. Unless otherwise provided in this approval, the applicant may not sell, lease, assign, or otherwise transfer the project or any portion thereof without written approval by the department where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval may only be granted if the applicant or transferee demonstrates to the department that the transferee agrees to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant. Approval of a transfer of the permit must be applied for no later than two weeks after any transfer of property subject to the license.
- (5) Time frame for approvals. If the construction or operation of the activity is not begun within four years, this approval shall lapse and the applicant shall reapply to the department for a new approval. The applicant may not begin construction or operation of the project until a new approval is granted. A reapplication for approval may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.
- (6) Certification. Contracts must specify that "all work is to comply with the conditions of the Stormwater Permit." Work done by a contractor or subcontractor pursuant to this approval may not begin before the contractor and any subcontractors have been shown a copy of this approval with the conditions by the permittee, and the permittee and each contractor and subcontractor has certified, on a form provided by the department, that the approval and conditions have been received and read, and that the work will be carried out in accordance with the approval and conditions. Completed certification forms must be forwarded to the department.

- (7) Maintenance. The components of the stormwater management system must be adequately maintained to ensure that the system operates as designed, and as approved by the Department. If maintenance responsibility is to be transferred from the permittee to another entity, a transfer request must be filed with the Department which includes the name and contact information for the person or entity responsible for this maintenance. The form must be signed by the responsible person or agent of the responsible entity.
- (8) Recertification requirement. Within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the department.
- (a) 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) All aspects of the stormwater control system are operating as approved, 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, as necessary.
 - (c) The stormwater maintenance plan for the site is being implemented as approved by the Department, and the maintenance log is being maintained.
 - (d) 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.
 - (e) The Department may waive some or all of these recertification requirements on a case-by-case basis for permittees subject to the Department's Multi-Sector General Permit ("MSGP") and/or Maine Pollutant Discharge Elimination System ("MEPDES") programs where it is demonstrated that these programs are providing stormwater control that is at least as effective as required pursuant to this Chapter.
- (9) Transfer of property subject to the license. If any portion of the property subject to the license containing areas of flow or areas that are flooded are transferred to a new property owner, restrictive covenants protecting these areas must be included in any deeds or leases, and recorded at the appropriate county registry of deeds. Also, in all transfers of such areas and areas containing parts of the stormwater management system, deed restrictions must be included making the property transfer subject to all applicable terms and conditions of the permit. These terms and conditions must be incorporated by specific and prominent reference to the permit in the deed. All transfers must include in the restrictions the requirement that any subsequent transfer must specifically include the same restrictions unless their removal or modification is approved by the Department. These restrictions must be written to be enforceable by the Department, and must reference the permit number.
- (10) Severability. The invalidity or unenforceability of any provision, or part thereof, of this permit shall not affect the remainder of the provision or any other provisions. This permit shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.



DEP INFORMATION SHEET

Appealing a Department Licensing Decision

Dated: March 2012

Contact: (207) 287-2811

SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's ("DEP") Commissioner: (1) in an administrative process before the Board of Environmental Protection ("Board"); or (2) in a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S.A. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S.A. § 480-HH(1)) or a general permit for a tidal energy demonstration project (38 M.R.S.A. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

This INFORMATION SHEET, in conjunction with a review of the statutory and regulatory provisions referred to herein, can help a person to understand his or her rights and obligations in filing an administrative or judicial appeal.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

The laws concerning the DEP's *Organization and Powers*, 38 M.R.S.A. §§ 341-D(4) & 346, the *Maine Administrative Procedure Act*, 5 M.R.S.A. § 11001, and the DEP's *Rules Concerning the Processing of Applications and Other Administrative Matters* ("Chapter 2"), 06-096 CMR 2 (April 1, 2003).

HOW LONG YOU HAVE TO SUBMIT AN APPEAL TO THE BOARD

The Board must receive a written appeal within 30 days of the date on which the Commissioner's decision was filed with the Board. Appeals filed after 30 calendar days of the date on which the Commissioner's decision was filed with the Board will be rejected.

HOW TO SUBMIT AN APPEAL TO THE BOARD

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, c/o Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017; faxes are acceptable for purposes of meeting the deadline when followed by the Board's receipt of mailed original documents within five (5) working days. Receipt on a particular day must be by 5:00 PM at DEP's offices in Augusta; materials received after 5:00 PM are not considered received until the following day. The person appealing a licensing decision must also send the DEP's Commissioner a copy of the appeal documents and if the person appealing is not the applicant in the license proceeding at issue the applicant must also be sent a copy of the appeal documents. All of the information listed in the next section must be submitted at the time the appeal is filed. Only the extraordinary circumstances described at the end of that section will justify evidence not in the DEP's record at the time of decision being added to the record for consideration by the Board as part of an appeal.

WHAT YOUR APPEAL PAPERWORK MUST CONTAIN

Appeal materials must contain the following information at the time submitted:

1. *Aggrieved Status.* The appeal must explain how the person filing the appeal has standing to maintain an appeal. This requires an explanation of how the person filing the appeal may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions or conditions objected to or believed to be in error.* Specific references and facts regarding the appellant's issues with the decision must be provided in the notice of appeal.
3. *The basis of the objections or challenge.* If possible, specific regulations, statutes or other facts should be referenced. This may include citing omissions of relevant requirements, and errors believed to have been made in interpretations, conclusions, and relevant requirements.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.
5. *All the matters to be contested.* The Board will limit its consideration to those arguments specifically raised in the written notice of appeal.
6. *Request for hearing.* The Board will hear presentations on appeals at its regularly scheduled meetings, unless a public hearing on the appeal is requested and granted. A request for public hearing on an appeal must be filed as part of the notice of appeal.
7. *New or additional evidence to be offered.* The Board may allow new or additional evidence, referred to as supplemental evidence, to be considered by the Board in an appeal only when the evidence is relevant and material and that the person seeking to add information to the record can show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process or that the evidence itself is newly discovered and could not have been presented earlier in the process. Specific requirements for additional evidence are found in Chapter 2.

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, made easily accessible by DEP. Upon request, the DEP will make the material available during normal working hours, provide space to review the file, and provide opportunity for photocopying materials. There is a charge for copies or copying services.
2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer questions regarding applicable requirements.
3. *The filing of an appeal does not operate as a stay to any decision.* If a license has been granted and it has been appealed the license normally remains in effect pending the processing of the appeal. A license holder may proceed with a project pending the outcome of an appeal but the license holder runs the risk of the decision being reversed or modified as a result of the appeal.

WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD

The Board will formally acknowledge receipt of an appeal, including the name of the DEP project manager assigned to the specific appeal. The notice of appeal, any materials accepted by the Board Chair as supplementary evidence, and any materials submitted in response to the appeal will be sent to Board members with a recommendation from DEP staff. Persons filing appeals and interested persons are notified in advance of the date set for Board consideration of an appeal or request for public hearing. With or without holding a public hearing, the Board may affirm, amend, or reverse a Commissioner decision or remand the matter to the Commissioner for further proceedings. The Board will notify the appellant, a license holder, and interested persons of its decision.

II. JUDICIAL APPEALS

Maine law generally allows aggrieved persons to appeal final Commissioner or Board licensing decisions to Maine's Superior Court, see 38 M.R.S.A. § 346(1); 06-096 CMR 2; 5 M.R.S.A. § 11001; & M.R. Civ. P. 80C. A party's appeal must be filed with the Superior Court within 30 days of receipt of notice of the Board's or the Commissioner's decision. For any other person, an appeal must be filed within 40 days of the date the decision was rendered. Failure to file a timely appeal will result in the Board's or the Commissioner's decision becoming final.

An appeal to court of a license decision regarding an expedited wind energy development, a general permit for an offshore wind energy demonstration project, or a general permit for a tidal energy demonstration project may only be taken directly to the Maine Supreme Judicial Court. See 38 M.R.S.A. § 346(4).

Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board's Executive Analyst at (207) 287-2452 or for judicial appeals contact the court clerk's office in which your appeal will be filed.

Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.