BOWDOINHAM WATER DISTRICT
P. O. BOX 86
BOWDOINHAM, ME 04008
TEL: (207) 737-4721
FAX: (207) 737-2427

email: bowdoinhamwater@ne.twcbc.com

June 4, 2021

Nicole Briand
Town of Bowdoinham
13 School Street
Bowdoinham, ME 04008

RE: Water capacity demand– Waterfront project, River Road, Bowdoinham

Dear Nicole,

You have inquired if the District can supply water at the new waterfront project having a two inch water line and we are informing you that we will be able to supply water for your needs.

If there is anything else we can assist you with, please contact me at the above email or phone number.

Thank you,

Robin L. Verow
Office Manager

RELEASE OF RESERVATION OF RIGHTS

KNOW ALL PERSONS BY THESE PRESENTS that the **STATE OF MAINE**, acting by and through its **DEPARTMENT OF TRANSPORTATION**, having a mailing address of 16 State House Station, Augusta, Maine 04333-0016, holder of certain excepted and reserved rights affecting a portion of the real property now owned by the **TOWN OF BOWDOINHAM** pursuant to a Governor's Deed (the "Deed") recorded at the Sagadahoc County Registry of Deeds in Book1649, Page 157 (the "Town Property"), does hereby release to the **TOWN OF BOWDOINHAM**, a Maine municipal corporation having a mailing address of 13 School Street, Bowdoinham, Maine 04008, the rights excepted and reserved in the Deed pertaining to the railroad tracks located on the Town Property at the time of the conveyance and the perpetual right to operate trains for the movement of goods and/or people (the "Reserved Rights") .

It is the intention of the State of Maine, acting by and through its Department of Transportation, that the Town of Bowdoinham own the Town Property free and clear of the Reserved Rights, which are hereby terminated.

IN WITNESS WHEREOF, the State of Maine acting by and through its Department of Transportation has caused this instrument to be signed and sealed by Bruce Van Note, its Commissioner, thereunto duly authorized this 9th day of May, 2021.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

Angela Dinkley
WITNESS:

By: Bruce A. Van Note
Bruce Van Note
Its: Commissioner

STATE OF MAINE
COUNTY OF KENNEBEC, ss.

May 19th, 2021

Personally appeared before me the above-named Bruce Van Note, Commissioner of the Department of Transportation, acting on behalf of the State of Maine, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of the Department of Transportation, and State of Maine.

Shelly Wood
Notary Public
Print Name: _____
My commission expires:

SHELLY WOOD
NOTARY PUBLIC
KENNEBEC COUNTY
MAINE
MY COMMISSION EXPIRES DECEMBER 26, 2026

Maine Department of Transportation

Janet T. Mills
Governor

Driveway/Entrance Permit

Bruce A. Van Note
Commissioner

Permit Number: 29594 - Entrance ID: 1

OWNER

Name:	**Town of Bowdoinham**
Address:	**13 School Street**
	Bowdoinham, Me 04008
Telephone:	**(207)666-5531**

Date Printed: May 25, 2021

LOCATION

Route:	**0024X, River Road**
Municipality:	**Bowdoinham**
County:	**Sagadahoc**
Tax Map:	**U01 Lot Number: 001**
Culvert Size:	**0 inches**
Culvert Type:	**N/R**
Culvert Length:	**0 feet**
Date of Permit:	**May 25, 2021**
Approved Entrance Width:	**22 feet**

In accordance with rules promulgated under 23 M.R.S.A., Chapter 13, Subchapter I, Section 704, the Maine Department of Transportation (MaineDOT) approves a permit and grants permission to perform the necessary grading to construct, in accordance with sketch or attached plan, **an Entrance to Public Park** at a point **312 feet South from River Road**, subject to the Chapter 299 Highway Driveway and Entrance Rules, standard conditions and special conditions (if any) listed below.

Conditions of Approval:

This Permittee acknowledges and agrees to comply with the Standard Conditions and Approval attached hereto and to any Specific Conditions of Approval shown here.

(G = GPS Location; W = Waiver; S = Special Condition)

G - THE ENTRANCE SHALL BE LOCATED AT GPS COORDINATES: 44.007746N, -69.896169W.

S - THE ENCLOSED NOTICE OF AUTHORIZATION TO PROCEED MUST BE POSTED IN A LOCATION CLEARLY VISIBLE FROM THE ROADWAY FROM AT LEAST 24 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ONE MONTH AFTER THE CONCLUSION OF THE CONSTRUCTION.

S - THE ENTRANCE INCLUDING ALL RADII MUST BE PAVED FROM THE EDGE OF PAVEMENT OF THE HIGHWAY TO THE HIGHWAY RIGHT OF WAY OR TO THE LENGTH OF THE DESIGN VEHICLE, WHICHEVER IS GREATER.

S - THIS ACCESS IS LIMITED TO THE APPROVED USE ONLY. ANY CHANGE IN THE USE AT THIS ACCESS WILL REQUIRE ADDITIONAL PERMIT APPROVAL OR MAY BE PROHIBITED.

S - OWNER IS RESPONSIBLE FOR ANY AND ALL CULVERT(S) AND MUST DITCH TO ENSURE WATER FLOWS ADEQUATELY THRU CULVERT(S) AND AT NO TIME ALLOW WATER TO FLOW INTO OR ONTO THE HIGHWAY.

S - PERMITTEE MUST KEEP BUSHES & ALL VEGETATION CUT BACK AND CLEARED AS GENERAL MAINTENANCE OF SIGHT DISTANCE FOR DRIVEWAYS OR ENTRANCES.

S - ENTRANCE MUST NOT BE USED TO PROVIDE ACCESS TO ANY PORTION OF A SUBDIVISION.

Approved by: _____ Date: 5-27-2021

STANDARD CONDITIONS AND APPROVAL

1. Provide, erect and maintain all necessary barricades, lights, warning signs and other devices as directed by MaineDOT to properly safeguard traffic while the construction is in progress.

2. At no time cause the highway to be closed to traffic

3. Where the driveway is located within a curb, curb and gutter, and/or sidewalk section, completely remove the existing curb, curb and gutter, and/or sidewalk as may be required to create the driveway and restore drainage. All driveways abutting sidewalk sections shall meet the requirements set forth in the Americans with Disabilities Act of 1990, 42 U.S.C. Sec. 12131 et seq.

4. Obtain, have delivered to the site, and install any culverts and/or drainage structures which may be necessary for drainage, the size, type and length as called for in the permit pursuant to 23 M.R.S.A. Sec. 705. All culverts and/or drainage structures shall be new.

5. Start construction of the proposed driveway within twenty-four (24) months of the date of permit issuance and substantially complete construction of the proposed driveway within twelve months of commencement of construction.

6. Comply with all applicable federal, state and municipal regulations and ordinances.

7. Do not alter, without the express written consent of the MaineDOT, any culverts or drainage swales within the MaineDOT right of way.

8. File a copy of the approved driveway permit with the affected municipality or LURC, as appropriate within 5 business days of receiving the MaineDOT approval.

9. Construct and maintain the driveway side slopes to be no steeper than the adjacent roadway side slopes, but in no case to be steeper than 3 horizontal to 1 vertical, unless the side slope is behind existing roadway guardrail, in which case it shall be no steeper than 2 horizontal to 1 vertical.

10. Notify the MaineDOT of a proposed change of use served by the driveway when increase in traffic flow is expected to occur. This does not exempt the need for obtaining a Traffic Movement Permit (TMP) if trip generation meets or exceeds 100 passenger car equivalents (PCE) during the peak hour of the day.

11. Construct or implement and maintain erosion and sedimentation measures sufficient to protect MaineDOT facilities.

12. Driveways shall be designed such that all maneuvering and parking of any vehicles will take place outside the highway right-of-way and where vehicles will exit the premises without backing onto the highway traveled way or shoulders. All driveways will have a turnaround area to accomodate vehicles using the premises.

13. Closing any portion of a highway or roadway including lanes, shoulders, sidewalks, bike lanes, or ATV access routes is not permitted without MaineDOT approval.

FURTHER CONDITION OF THE PERMIT

The owner shall assume, the defense of, and pay all damages, fines, and penalties for which he/she shall become liable, and shall indemnify and safe harmless said Department, its representatives, agents and employees from liability, actions against all suits, claims, damages for wrongful death, personal injuries or property damage suffered by any person or association which results from the willful or negligent action or inaction of the owner/applicant (agent) and in proceedings of every kind arising out of the construction and maintenance of said entrance(s), including snow removal.

Nothing herein shall, nor is intended to, waive any defense, immunity or limitation of liability which may be available to the MaineDOT, their officers, agents or employees under the Maine Tort Claims Act or any other privileges and/or immunities provided by law. It is a further condition that the owner will agree to keep the right of way inviolate for public highway purposes and no signs (other than traffic signs and signals), posters, billboards, roadside stands, culvert end walls or private installations shall be permitted within Right of Way limits.

ACORN ENGINEERING, INC.

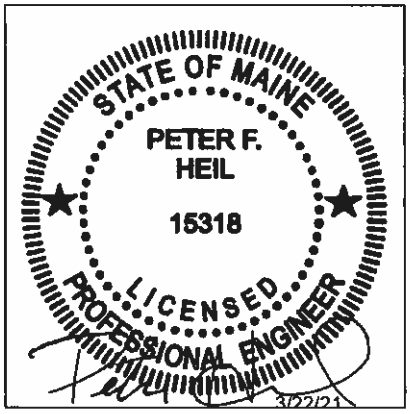
STORMWATER MANAGEMENT MEMO

Prepared For:

Town of Bowdoinham
13 School Street
Bowdoinham, Maine 04103

Prepared By:

Acorn Engineering, Inc.
65 Hanover Street
Portland, Maine 04101



April 2021

INTRODUCTION

Acorn Engineering, Inc. has been retained by Mitchell & Associates to provide civil engineering support services for the proposed redevelopment located at 8 River Road, Bowdoinham Maine (previously occupied by public works). The proposed project includes redevelopment of the parcel into a river front park, shoreland stabilization, non-motorized boat access, and site restoration.

EXISTING CONDITIONS

The proposed project site is located at 8 River Road Bowdoinham, Maine and Adjacent to the Cathance River. A Topographic Survey has been prepared by Little River Land Surveying, Inc. dated June 26th, 2019

With the site location being the Former Public Works Department, there are existing structures, remnants of former structures, driveways, parking areas, gravel laydown areas and existing utilities on site. The existing grades on site are relatively flat, with minor slopes to the east toward the Cathance River.

The project is located adjacent to the Cathance River and has mapped wetlands located along the shoreline and within the parcel. The project is not within an urban impaired stream watershed. The existing watershed on site is approximately 20 acres and flows into the Cathance River.

PROPOSED DEVELOPMENT

As part of the site restoration a significant amount of gravel area and former foundation remnants will be removed, and redeveloped with passive and active recreation areas, non-motorized boat access to the Cathance River, and associated parking. The proposed project anticipates 2.31 ac. of impervious area, which is a reduction of impervious area by 10,332 sf (0.28 ac.). Stormwater and Erosion Control Best Management Practices will be implemented during construction.

BASIC STANDARDS – EROSION & SEDIMENT CONTROL

The project proposes measures to meet the basic standards requirements as outlined in Chapter 500. Please refer to Section 1: Erosion & Sedimentation Control Report

GENERAL STANDARDS - WATER QUALITY

Given the site's existing developed area, the project will be required to meet the DEP Chapter 500 General Standards, specifically the redevelopment standards. It is anticipated due to the reduction of impervious coverage and redevelopment pollutant impact ranking calculations; no water quality treatment will be required as outlined in Chapter 500. Although not anticipated to be required per the DEP standards, the project is proposing to install rain gardens to provide water quality treatment for some portions of the stormwater runoff prior to discharging into the Cathance River. Please refer to the plan set for additional information.

SOILS

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Androscoggin & Sagadahoc County

The area within and surrounding the project includes soil types listed in the table below. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. Higher "K" values indicate more erodible soils.

Table 1 - "K" Value		
Soils Type	**Subsurface**	**Substratum**
BuB2	0.37	0.37
BuC2	0.37	0.37
Tn	-	-
W	-	-

The soil "K" values for the soils, listed above, show a low to moderate susceptibility to erosion. The site's susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. Although soil "K" values for the soils show a low susceptibility to erosion, implementation of the proposed Erosion & Sedimentation Measures by the contractor will be of the utmost importance given the proximity of the site to the Saco River.

PHOSPHOROUS STANDARD

As the project is not located in a watershed of a lake most-at-risk, or a proposing development of any other lake watershed, the Phosphorous Standard does not apply to this project.

URBAN IMPAIRED STREAM STANDARD

As the project is not located in an urban impaired stream watershed, the Urban Impaired Stream Standard does not apply to this project.

FLOODING STANDARD

The parcel will be redeveloped with the overall intensity of the land use decreasing, amount of impervious area decreasing and large expanses of lawn areas breaking up the overall impervious area. As such the proposed stormwater peak flow rates will remain at or below the predevelopment levels.

Furthermore, the project does not propose three acres or more of impervious coverage, or 20 acre or more of developed area, as such the MaineDEP Flooding Standard does not apply to this project. Lastly the project stormwater runoff discharges directly to a major river segment

(Cathance River) and would be eligible for a waiver from the Flooding Standard should a waiver had been required.

CONCLUSION

The project as designed shall not create erosion, drainage, or runoff problems for the development, the Town, or abutting properties. Please let us know if you have any questions or comments.

ATTACHMENTS

Attachment 1: Soils Map

Sincerely,

William H. Savage, P.E.
Principal
Acorn Engineering, Inc.

Peter Heil, P.E.
Project Manager
Acorn Engineering, Inc.

ACORN ENGINEERING, INC.

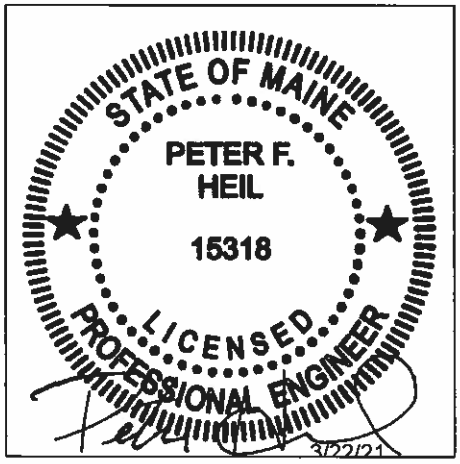
EROSION & SEDIMENTATION CONTROL REPORT

Prepared For:

Town of Bowdoinham
13 School Street
Bowdoinham, Maine 04103

Prepared By:

Acorn Engineering, Inc.
65 Hanover Street
Portland, Maine 04101



April 2021

INTRODUCTION

Acorn Engineering, Inc. has been retained by Mitchell & Associates to provide civil engineering support services for the proposed redevelopment located at 8 River Road, Bowdoinham, Maine (previously occupied by public works). The proposed project includes redevelopment of the parcel into a river front park, shoreland stabilization, non-motorized boat access, and site restoration.

The following Erosion and Sedimentation Control Report was developed in accordance with the Town of Bowdoinham Land Use Regulations, Article IV: Performance Standards, Section C: Erosion and Sedimentation Control Amended July 14, 2020, and the Maine DEP Chapter 500 Stormwater Management Appendix A and B (1), Amended August 12, 2015. This narrative also meets the standards required in the Maine DEP's Erosion & Sediment Control BMP's Manual, revised in 2016.

1.0 EXISTING CONDITIONS

The proposed project site is located at 8 River Road, Bowdoinham, Maine and is adjacent to the Cathance River. A topographic survey has been prepared by Little River Land Surveying, Inc. dated June 26th, 2019

Abutting Uses:

- North N/A — Residential
- East MSRD3 — Cathance River
- South MSRD3 — Cathance River
- West MSRD3 — Undeveloped

With the site location being the Former Public Works Department, there are existing structures, remnants of former structures, former fuel tanks, and existing utilities on site. The existing grades on site are relatively flat, with slopes to the east toward the Cathance River.

1.1 Existing Soils

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Androscoggin & Sagadahoc County

The area within and surrounding the project includes soil types listed in the table below. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. Higher "K" values indicate more erodible soils.

Table 1 - "K" Value

Soils Type	Subsurface	Substratum
BuB2	0.37	0.37
BuC2	0.37	0.37
Tn	-	-
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The soil "K" values for the soils, listed above, show a low to moderate susceptibility to erosion. The site's susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. Although soil "K" values for the soils show a low susceptibility to erosion, implementation of the proposed Erosion & Sedimentation Measures by the contractor will be of the utmost importance given the proximity of the site to the Saco River.

1.2 Existing Erosion Problems

Acorn is unaware of any signs of erosion.

1.3 Critical Areas

Portions of the site are mapped within the AE Flood Zone per FEMA FIRM mapping, dated 7/16/2015.

1.4 Protected Natural Resource

The site is located near the adjacent to the Cathance River, which is a Protected Natural Resource. The project is not located within a watershed classified as an Urban Impaired Stream by the Maine DEP.

1.5 Previous Construction Activity (5 years)

Acorn is unaware of any construction activity in the last 5 years.

1.6 Timber Harvesting

Acorn Engineering, Inc. is not aware of any timber harvesting within the past five years.

2.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

As part of the site development, the following temporary and permanent erosion and sedimentation control devices shall be implemented. Devices shall be installed as described in this report or within the plan set. See the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices for further reference.

2.1 Temporary Erosion Control Measures

The following temporary erosion and sedimentation control measures are planned for the project's construction period:

2.1.1 Crushed stone stabilized construction entrances shall be placed at all access points to the project site where there are disturbed areas. The following specifications shall be followed at a minimum:

- Stone size shall be 2-3 inches or reclaimed or recycled concrete equivalent.
- The thickness of the entrance stone layer shall be no less than 6 inches.
- The entrance shall not be less than 20 feet wide, however not less than the full width of points where ingress or egress occurs. The length shall not be less than 50 feet in length.
- Geotextile fabric (woven or non-woven) shall be placed over the entire entrance area.
- The entrance/exit shall be maintained to the extent that it will prevent the tracking of sediment onto public roadways.

2.1.2 Erosion control berm mix with hay bale reinforcement shall be installed down gradient of any disturbed areas to trap runoff borne sediments until permanent stabilization is achieved. The silt fence or erosion control berm shall be installed per the details provided in the plan set and inspected before and immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line or berm. If there are signs of undercutting at the center or the edges or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam.

2.1.3 Hay mulch including hydro seeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and November 1st on slopes of less than 15 percent shall be covered by fabric netting and anchored with staples in accordance with the manufacturer's recommendation. Mulch placed between November 1st and April 15th on slopes equal to or steeper than 8 percent and equal to or flatter than 2:1 shall use mats or fabric netting and anchored with staples in accordance with the manufacturer's recommendation.

2.1.4 At any time of the year, all slopes greater than 3:1 shall be stabilized with Double Net Erosion Control Blanket Bionet SC150BN by North American Green or Approved Equal, or Erosion Control Mix Slope Protection as detailed within the plans.

2.1.5 River Street shall be swept to control mud and dust from the construction site as necessary. Add additional stone to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.

2.1.6 During demolition, clearing and grubbing operations, stone check dams shall be installed at any areas of concentrated flow. The maximum height of the check dam shall not exceed 2 feet. The center of the check dam shall be 6 inches below the outer edges of the dam. The contractor shall mulch the side slopes and install stone check dams for all newly excavated ditch lines within 24 hours of their creation.

2.1.7 Silt fence stake spacing shall not exceed 6 feet unless the fence is supported with 14-gauge wire in which case the maximum spacing shall not exceed 10 feet. The silt fence shall be "toed" into the ground.

2.1.8 Storm drain inlet protection shall be provided to storm drains using any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and repaired as necessary. Sediments shall be removed when accumulation has reached ½ the design height.

2.1.9 Dust control shall be accomplished using any of the following: water, calcium chloride, stone, or an approved MDEP product. Dust control shall be applied as needed to accomplish dust control.

2.1.10 Temporary loam, seed, and mulching shall be used in areas where no other erosion control measure is used. Application rates for seeding are provided at the end of this report.

2.1.11 Stockpiles shall be stabilized within 7 days of formation unless a scheduled rain event occurs prior to the 7-day window, in which case the stockpile shall be stabilized prior to the rain event. Methods of stabilization shall be mulch, erosion control mix, or erosion control blankets/mats. Silt fence or a wood waste compost filter berm shall be placed downhill of any soil stockpile location.

2.1.12 For disturbance between November 1 and April 15, please refer to winter stabilization plan in this report and the Maine Erosion and Sediment Control BMP manual for further information.

2.1.13 It is of the utmost importance that stormwater runoff and potential sediment from the construction site be diverted around the proposed underdrains until the trench is backfilled.

2.2 Permanent Erosion Control Measures

The following permanent erosion control measures are intended for post disturbance areas of the project.

2.2.1 All disturbed areas during construction, not subject to other proposed conditions, shall receive a minimum 4" of loam, limed, and mulched. Erosion control blankets or mats shall be placed over the mulch in areas noted in paragraph 4.1 of this report.

2.2.2 All stormwater devices shall be installed, and tributary areas stabilized prior receiving stormwater.

2.2.3 Refer to the Maine Erosion and Sediment Control BMP manual for additional information.

3.0 EROSION AND SEDIMENTATION CONTROL PLAN

3.1 The Erosion and Sedimentation Control Plan is included within the plan set.

4.0 DETAILS AND SPECIFICATIONS

4.1 Erosion Control Details and Specifications are included in the plan set.

5.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

Winter Construction consists of earthwork disturbance between the dates of November 1 and April 15. If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15, then the site shall be protected with over-winter stabilization. Any area not stabilized with pavement, vegetation, mulching, erosion control mix, erosion control mats, riprap, or gravel base on a road shall be considered open.

The contractor shall limit the work area to areas that work will occur in during the subsequent 15 days and so that it can be mulched one day prior to a snow event. The contractor shall stabilize work areas prior to opening additional work areas to minimize areas without erosion control measures.

The following measures shall be implemented during winter construction periods:

5.1 Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

5.2 Mulching

All areas shall be considered to be denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4-inch thickness. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that ground surface is not visible through the mulch. Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

5.3 Soil Stockpiling

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or with a four-inch layer of erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

5.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until the final treatment can be applied. If the date is after November 1st and if the exposed area has not been loamed, final grading with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs./1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

5.5 Over winter stabilization of disturbed soils

By September 15th, all disturbed soils on areas having a slope less than 15% shall be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions shall be taken to stabilize the soil for late fall and winter:

- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.

- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

- Stabilize the soil with mulch – By November 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

5.6 Over winter stabilization of disturbed slopes

All stone-covered slopes shall be constructed and stabilized by November 15th. All slopes to be vegetated shall be seeded and mulched by September 1st. A slope is considered a grade greater than 15%. If a slope to be vegetated is not stabilized by September 1st, then one of the following action shall be taken to stabilize the slope for late fall and winter:

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st the disturbed slope shall be seeded with winter rye at a seeding rate of 3 lbs per 1,000 s.f. and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.

- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod by October 1st. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 3H:1V or having groundwater seeps on the slope face.

- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to stabilize slopes having grades greater than 2H:1V or having groundwater seeps on the slope face.

- Stabilize the soil with stone riprap – Place a layer of stone riprap on the slope by November 15th. A registered professional engineer shall be hired to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

6.0 INSPECTION AND MAINTENANCE

A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct periodic visual inspections of installed erosion control measures. The frequency of inspection shall occur at least once every two weeks, as well as after a "storm event". A "storm event" shall consist 0.5 inches of rain within a 24-hour period. The following Erosion and Sediment Control - Best Management Practices (BMP's) shall inspected in the manner as described.

6.1 Sediment Barriers

Hay bale barriers and filter berms shall be inspected and repaired for the following if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes

of water behind them, sediment barriers shall be replaced with a temporary check dam. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier. Filter berms should 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.

6.2 Stabilized Stone Construction Entrances

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 and redistributed on site in a stable manner. The entrance should then be reconstructed. The contractor shall sweep or wash pavement at exits, which have experienced mud-tracking on to the pavement or traveled way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or waterways.

6.3 Mulched Areas

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets must be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

6.4 Dust Control

When temporary dust control measures are used, repetitive treatment shall be applied as needed to accomplish control.

6.5 Stormwater Appurtenances

All underdrains, storm drains, and catch basins need to be operating effectively and free of debris.

6.6 Erosion and Sedimentation Control Inspections:

Acorn Engineering has personnel qualified to conduct Erosion and Sedimentation Control Inspections. For further information, contact:

Contact: Peter F. Heil, PE
Telephone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #15318
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #7071
- Maine DEP – Certified Third-Party Inspector
- Maine DEP – Certification in Inspection and Maintenance of Stormwater BMPs

The Contractor has sole responsibility for complying with the Erosion and Sedimentation Report/Plan, including control of fugitive dust. The Contractor shall be responsible for any monetary penalties resulting from failure to comply with these standards.

7.0 IMPLEMENTATION SCHEDULE

The following implementation sequence is intended to maximize the effectiveness of the above described erosion control measures. Contractors should avoid overexposing disturbed areas and limit the amount of stabilization area.

1. Install a stabilized construction entrance in all locations where construction traffic will enter and exit the site.
2. Install perimeter erosion control berm with hay bale reinforcement
3. Install all other erosion control devices as necessary throughout the remainder of this schedule.
4. Commence earthwork operations, associated with the roadway construction.
5. Commence installation of any utility work.
6. Continue earthwork and grading to subgrade as necessary for construction.
7. Complete installation of utilities.
8. Complete remaining earthwork operations.
9. Install sub-base and base gravels in paved areas.
10. Install paving, curbing and brickwork.
11. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
12. Once the site is stabilized, 90% catch of grass has been obtained, or mulching of landscape areas is complete, remove all temporary erosion control measures.
13. Touch up areas without a vigorous catch of grass with loam and seed.
14. Complete site signage and striping.

The above implementation sequence should be generally followed by the site contractor. However, the contractor may construct several items simultaneously. The contractor shall submit to the owner a schedule of the completion of the work. If the contractor is to commence the construction of more than one item above, they shall limit the amount of exposed areas to those areas in which work is expected to be undertaken during the following 30 days.

The contractor shall re-vegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event. The contractor shall incorporate planned inlets and drainage systems as early as possible into the construction phase.

8.0 CONCLUSION

The above erosion control narrative is intended to minimize the development impact by implementing temporary and permanent erosion control measures. The contractor shall also refer to the Maine Erosion and Sediment Control BMP manual for additional information.

9.0 ATTACHMENTS

- Temporary Seeding Plan
- Permanent Seeding Plan

TEMPORARY SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P2O5-K2O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of temporary seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.	Recommended Seeding Dates
Winter Rye	2.57	Aug-15 to Oct-1
Oats	1.84	Apr-1 to Jul-1 Aug-15 to Sep-15
Annual Ryegrass	0.92	Apr-1 to Jul-1
Sudangrass	0.92	May-15 to Aug-15
Perennial	0.92	Aug-15 to Sep-15

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to temporary seeding and mulching.

PERMANENT SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P2O5-K2O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of permanent seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.
Kentucky Bluegrass	0.46
Creeping Red Fescue	0.46
Perennial Ryegrass	0.11
Total	1.03

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Recommendations

Permanent seeding is recommended to be completed in the spring. Later summer seeding is allowed if completed prior to September 1st. If seeding cannot be accomplished during the periods recommended for permanent seeding, then the contractor shall perform temporary seeding per the temporary seeding plan.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to permanent seeding and mulching.