



**MAINE POWER
RELIABILITY PROGRAM**
A CENTRAL MAINE POWER COMPANY PROGRAM

**DIXMONT, MAINE
FLOOD HAZARD DEVELOPMENT
PERMIT APPLICATION**

**Section 3023 Transmission Line Construction
and
Section 203 Transmission Line Rebuild**

Prepared for:

Central Maine Power Company
83 Edison Drive
Augusta, Maine 04336

Prepared by:



TRC Engineers, LLC
14 Gabriel Drive
Augusta, Maine 04330

July, 2010



July 22, 2010

Mr. Randy Hall, Code Enforcement Officer
Town of Dixmont, Maine
PO Box 100
Dixmont, Maine 04932

Dear Mr. Hall:

Enclosed please find an application for a Floodplain Hazard Development Permit for Central Maine Power Company's Maine Power Reliability Program.

The Maine Power Reliability Program is a program designed to increase the reliability of the bulk power transmission system throughout Maine. In Dixmont the program involves installing a new 345 kV transmission line, to be known as Section 3023, and rebuilding the existing Section 203 transmission line. All of the proposed upgrades will be done within the existing transmission line corridor which CMP already owns in fee. Some clearing of trees will be necessary within the corridor in order to accommodate the project. The Planning Board of the Town of Dixmont approved the project in September of 2009. The project has also received approval from the Maine Department of Environmental Protection (MDEP), the Maine Public Utilities Commission (MPUC), and the United States Army Corps of Engineers.

As you will see in the enclosed materials, portions of the project will be constructed within the 100-year floodplain, Zone A, which is comprised of Martin Stream and its tributaries as mapped by the Federal Emergency Management Association. A total of 30 poles will be removed and a total of 37 poles will be installed, for a net increase of 7 poles within the floodplain in Dixmont. Three (3) of those poles will be within the floodway of Martin Stream.

Enclosed please find the following items as part of this application.

- A fully completed and signed Flood Hazard Development Permit Application form;
- Site plan maps and cross sections showing the existing and proposed development, meant to address Article III (A- G) of the Ordinance;

- A Floodway Impact Study by a professional engineer meant to satisfy Article III (H-K.1) and Article VI (J) of the Ordinance, and;
- A statement from a professional engineer meant to satisfy Article VI (A) of the Ordinance.

Please feel free to contact me if you have any questions regarding this application.

Sincerely,



Douglas Ide
Environmental Specialist



(207) 620-3836 (office)

(207) 215-5161 (mobile)

dougide@trcsolutions.com

Flood Hazard Development Permit Application & Permit Forms

For Communities with Unnumbered A Zones
[60.3(b)]

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This document was prepared by the
Maine Floodplain Management Program
State Planning Office
38 State House Station
184 State Street
Augusta, Maine 04333-0038

Phone (207) 287-8050

FLOOD HAZARD DEVELOPMENT APPLICATION

Dixmont, Maine

(All applicants must complete entire application)

[60.3(b)]

Application is hereby made for a Flood Hazard Development Permit as required under Article II of the Floodplain Management Ordinance of Dixmont, Maine, for development as defined in said ordinance. This permit application does not preclude the need for other municipal permit applications.

Owner: Central Maine Power Company Address: 83 Edison Dr.

Phone No.: (207) 623-3521 Augusta, ME 04336

Applicant: TRC Engineers, Inc. (Agent) Address: 14 Gabriel Dr.

Phone No.: (207) 620-3836 Augusta, ME 04330

Contractor: TBD Address: _____

Phone No.: _____

LEGAL DESCRIPTION

Is this part of a subdivision? Yes No If yes, give the name of the subdivision and lot number:

Subdivision: _____ Lot #: _____

Tax Map: R7 Lot #: 46

Address: CMP Transmission Line corridor
Street/Road Name

Zip Code: Dixmont, ME 04932
Town/Zip Code

General explanation of proposed development: Installation of 3 transmission line poles in the floodplain as part of
rebuild of Section 203 (115 kV) and construction of Section 3023 (345 kV).

Estimated Value of Proposed Development: \$ 24 million

Proposed Lowest Floor elevation [for new or substantially improved structure]: n/a

OTHER PERMITS

Are other permits required from State or Federal jurisdictions? Yes No
If yes, are these other permits attached? Yes No Not Applicable

Federal and State Permits may include but are not limited to: ME/DEP/Natural Resource Protection Act, Site Location of Development Act, Metallic Mineral Exploration, Advanced Exploration and Mining; USACE/Section 9 &10 of the Rivers and Harbors Act/ Section 404 of the Clean Water Act; Federal Energy Regulation Commission.

SEWER AND WATER

Sewage Disposal: Public Private
 Existing Proposed Not Applicable Type _____

Water Supply: Public Private None.

Attach a Site Plan – Drawn to scale with north arrow.

- Show property boundaries, floodway, and floodplain lines.
- Show dimensions of the lot.
- Show dimensions and location of existing and/or proposed development on the site.
- Show areas to be cut and filled.

Attach Statement – describing in detail how each applicable development standard in Article VI will be met.

For New Construction or Substantial Improvement also show:

- Existing and proposed grade elevations adjacent to the walls of the structure done by a Professional land Surveyor, Architect, or Engineer.
- Location and elevation of temporary elevation reference marks on the site.

Special Note:

Substantial Improvement is defined as any reconstruction, rehabilitation, addition or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the start of construction of the improvement. Please refer to the floodplain management ordinance, Article XIV, for more complete definitions of New Construction and Substantial Improvement.

The applicant understands and agrees that:

- The permit applied for, if granted, is issued on the representations made herein;
- Any permit issued may be revoked because of any breach of representation;
- Once a permit is revoked all work shall cease until the permit is reissued or a new permit is issued;
- Any permit issued on this application will not grant any right or privilege to erect any structure or use any premises described for any purposes or in any manner prohibited by the ordinances, codes, or regulations of the municipality;
- The applicant hereby gives consent to the Code Enforcement Officer to enter and inspect activity covered under the provisions of the Floodplain management Ordinance;
- If issued, the permit form will be posted in a conspicuous place on the premises in plain view; and,
- If issued, the permit will expire if no work is commenced within 180 days of issuance.

I hereby certify that all the statements in, and in the attachments to this application are a true description of the existing property and the proposed development project.

Owner: _____ Date: _____
Signature

or

Authorized Agent: DP _____ Date: 7/22/10
Signature

(This section to be completed by Municipal Official)

Date: Submitted _____; Fee Paid _____; Reviewed by CEO _____; Reviewed by Planning Board _____

Permit # _____ Issued by _____ Date _____

FLOOD HAZARD DEVELOPMENT PERMIT PART I

Dixmont, Maine

(For New Construction or Substantial Improvements)

For New Construction or Substantial Improvement of any structure, this Flood Hazard Development Permit allows construction only up to the establishment of the lowest floor. This permit is issued based on documentation that the information provided in the Flood Hazard Development Permit Application is in compliance with the Floodplain Management Ordinance. Once the lowest floor is established, the permittee must provide an Elevation Certificate establishing the as built lowest floor elevation. When the Code Enforcement Officer finds the documentation in the Elevation Certificate to be in compliance with the Floodplain Management Ordinance, the Part II Flood Hazard Development Permit shall be issued. The Part II Permit must be issued in order for construction to continue.

A Part I Flood Hazard Development Permit is hereby issued as provided under Article V.F. of the Floodplain Management Ordinance of Dixmont, Maine, for development as defined in said ordinance.

Tax Map: R7 Lot #: 46

Project Description: Installation of 3 transmission line poles.

The permittee understands and agrees that:

- The permit is issued on the representations made herein and on the application for permit;
- The permit may be revoked because of any breach of representation;
- Once a permit is revoked all work shall cease until the permit is reissued or a new permit is issued;
- The permit will not grant any right or privilege to erect any structure or use any premises described for any purposes or in any manner prohibited by the ordinances, codes, or regulations of the municipality;
- The permittee hereby gives consent to the Code Enforcement Officer to enter and inspect activity covered under the provisions of the Floodplain Management Ordinance;
- The permit form will be posted in a conspicuous place on the premises in plain view; and,
- The permit will expire if no work is commenced within 180 days of issuance.

I hereby certify that all the statements in, and in the attachments to this permit are a true description of the existing property and the proposed development project.

Owner: _____ Date: _____
Signature

or

Authorized Agent: [Signature] Date: 7/22/10
Signature

Issued by: _____ Date: _____

Permit #: _____

**FLOOD HAZARD DEVELOPMENT PERMIT
PART II**

Dixmont, Maine

(For completion of New Construction or Substantial Improvements)

The following information has been submitted and found compliant with the Development Standards of the Floodplain Management Ordinance:

FEMA Elevation Certificate Form 81-31

A Part II Flood Hazard Development Permit is hereby issued as provided under Article V.F. of the Floodplain Management Ordinance of Dixmont, Maine, for development as defined in said ordinance.

Tax Map: R7 Lot #: 46


The permittee understands and agrees that:

- The permit is issued on the representations made herein and on the elevation certificate;
- The permit may be revoked because of any breach of representation;
- Once a permit is revoked all work shall cease until the permit is reissued or a new permit is issued;
- The permit will not grant any right or privilege to erect any structure or use any premises described for any purposes or in any manner prohibited by the ordinances, codes, or regulations of the municipality;
- The permittee hereby gives consent to the Code Enforcement Officer to enter and inspect activity covered under the provisions of the Floodplain Management Ordinance;
- The permit form will be posted in a conspicuous place on the premises in plain view; and,
- The permit will expire if no work is commenced within 180 days of issuance.

I hereby certify that all the statements in, and in the attachments to this permit are a true description of the existing property and the proposed development project.

Owner: _____ Date: _____
Signature

or

Authorized Agent:  Date: 7/22/10
Signature

Issued by: _____ Date: _____

Permit #: _____



Project: MPRP
Location: Dixmont, ME
Project Number: 166247
Applicant: CMP

Prepared By: PGT
Date: 6/14/10
Checked by: DTB
Date: 6/14/10

Floodway Impact Study Proposed and Rebuild of Sections Dixmont, Maine

Purpose of the Study:

Central Maine Power Company (CMP) has initiated the Maine Power Reliability Program (MPRP) to upgrade Maine's aging bulk power transmission system throughout the state. Approximately 80 communities are located within the MPRP project area including the Town of Dixmont. Transmission line improvements within the floodway in the Town of Dixmont will occur within Segment 3. Segment 3 consists of a 218-foot wide corridor containing a 115 kV transmission line, Section 203. The improvements will consist of the relocation and rebuild of section 203 within the corridor and the construction of a new 345 kV transmission line, Section 3023. Both lines will be collocated within this corridor.

Portions of the MPRP project will be constructed in a 100-year floodplain, Zone A, which is comprised of Martin Stream and its tributaries as mapped by the Federal Emergency Management Agency (FEMA).

In accordance with the Dixmont Floodplain Management Ordinance,
“Encroachments, including fill, new construction, substantial improvement, and other development shall not be permitted in a floodway which, in Zone A riverine areas, is the channel of the river or other water course and the adjacent land areas to a distance of one-half the width of the floodplain as measured from the normal high water mark to the upland limit of the floodplain, unless a technical evaluation certified by a registered professional engineer is provided demonstrating that the cumulative effect of the proposed development, when combined with all other existing development and anticipated development:

- 1. Will not increase the water surface elevation of the base flood more than one foot at any point within the community.”*

This study will show that the construction of the proposed project will not increase the base flood elevation by more than one foot; and, it will show the impact to be de minimis.



303 U.S. ROUTE ONE
SUITE 2A
FREEPORT, ME 04032

PHONE 207-869-1200
FAX 207-869-1299

February 22, 2010



Randy Hall
758 Western Avenue
PO Box 100
Dixmont, ME 04932-0100

Subject: 116239

Statements Describing How Applicable Development Standards in Article VI of the Dixmont Floodplain Management Ordinance Will Be Met

Dear Mr. Hall:

As required by the Dixmont Floodplain Management Ordinance, below are descriptions of the applicable development standards in Article VI and how they will be met during the course of design and construction of the Maine Power Reliability Program (MPRP). These statements apply to the transmission facilities associated with the MPRP in the Town of Dixmont, Maine all as more fully described in the body of the permit application document.

The Ordinance states:

A. All Development - All development shall:

1. be designed or modified and adequately anchored to prevent flotation (excluding piers and docks), collapse or lateral movement of the development resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;

Statement of Compliance:

The design of the proposed transmission structures and their associated supporting foundations will meet or exceed the strength and loading requirements of the National Electrical Safety Code (NESC 2007), Section 250 and 251. In addition to those strength and loading requirements, the effects of buoyancy and any lateral loadings resulting from hydraulic loadings are considered, where applicable, and addressed in the design to prevent flotation, collapse or unacceptable lateral movement.

The Ordinance also requires:

2. use construction materials that are resistant to flood damage;

Statement of Compliance:

The materials planned for use with the proposed transmission structures, including, but not limited to: wood or steel poles, concrete foundations, guy anchors and associated hardware all have been widely used in the industry under varying environmental conditions, including within floodplain areas, with a long history of demonstrated resistance to flood damage.

The Ordinance also requires:

3. use construction methods and practices that will minimize flood damage;

Statement of Compliance:

All contracts for work performed on Central Maine Power Company (CMP) transmission line rights-of-way will include the *Central Maine Power Company Environmental*

Study Assumptions:

A determination from the Maine State Planning Office ruled that transmission lines and poles are to be considered as "Minor development." The proposed construction of Section 3023 and the rebuild section 203 will consist of additional poles being placed within the floodway of the Martin Stream as shown on Figure 1, labeled Section A. There is anticipated to be 3 single pole tangent structures to be added within the Martin Stream floodway. Please refer to the attached Community Panel Numbers 230381 sheet 03 of the Town of Dixmont, Maine Flood Insurance Rate Maps and the included natural resource maps.

Based on our research of the Town of Dixmont, Flood Insurance Rate Maps and discussions with State Planning Office staff, there is no Base Flood Elevation information available for the Martin Stream within the Town of Dixmont. For this study a base flood elevation was derived from the use of a topographic map of the transmission line corridor overlaid over the floodplain limits as shown on the flood maps. The assumed base flood elevation is the approximate elevation at the location of the floodway limit line which was given as one-half the distance of the floodplain as measured from the normal high water mark to the upland limits of the floodplain. In order to determine the impacts to the floodway, a cross section was taken of the Martin Stream crossing where the transmission line crosses the stream. Using the area and width of the cross section the results of the impacts are calculated.

The average pole diameter assumed for this study will be three feet.

Martin Stream Floodway Impacts:

The transmission pole impacts occur at one location at Martin Stream (Labeled cross section A on Figure 1) at the location where the transmission line crosses.

The values used in the calculations are as follows:

- Martin Stream crossing (Section A)
- Floodplain width = 2,000 feet +/-
- Assumed floodway section width = 1,020 feet +/-
- Floodway section area = 502.82 square feet
- Elevation at floodway limits = 326.01
- Number of poles = 3

The Manning's values used for each of the tributaries were derived from referencing the Guide for Selecting Manning's Roughness Coefficients for Natural Channels and Flood plains – USGS Water-supply Paper 2339 as well as Maine Flood Insurance Studies. An average roughness of 0.034 was used for the channel portion of the section. For the floodplain or "overbank" portion of the section an average roughness of 0.073 was used.

February 22, 2010

Page 2

Guidelines for Construction and Maintenance Activities on Transmission Line and Substation Projects (Guidelines) to ensure the project is constructed in an environmentally conscious manner. CMP personnel or their designated representatives will ensure that the *Guidelines* are followed by inspecting all work and prescribing corrective steps to be taken where necessary. The *Guidelines* contain standards and methods used to protect soil and water resources during construction, reconstruction and maintenance of transmission lines and substations. They are based on practical methods developed for construction in utility corridors (Best Management Practices) and their use is enforced by both State of Maine and Federal regulatory agencies.

As part of the Best Management Practices identified, the *Guidelines* require project superintendents, foremen, and inspectors to monitor weather conditions and reports on an on-going basis and to modify schedules and practices when periods of rain or high water flows are expected. Such modifications may include rescheduling work and removing equipment and materials from an "area of special flood hazard" identified on the Dixmont Flood Insurance Rate Map in anticipation of a flood event. These practices, along with the other Best Management Practices will serve to minimize any flood damage that may occur during construction of the project.

The Ordinance also requires:

4. use electrical, heating, ventilation, plumbing, and air conditioning equipment, and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during flooding conditions.

Not applicable. Project within the limits of the Town of Dixmont does not use electrical, heating, ventilation, plumbing, or air conditioning equipment or other service facilities

Should you have questions related to any of this information, please don't hesitate to contact me at (207) 869-1209.

Sincerely,

Steve Walker, P.E.



c: DMS 116239.20.05.07
PER-03

Summary:

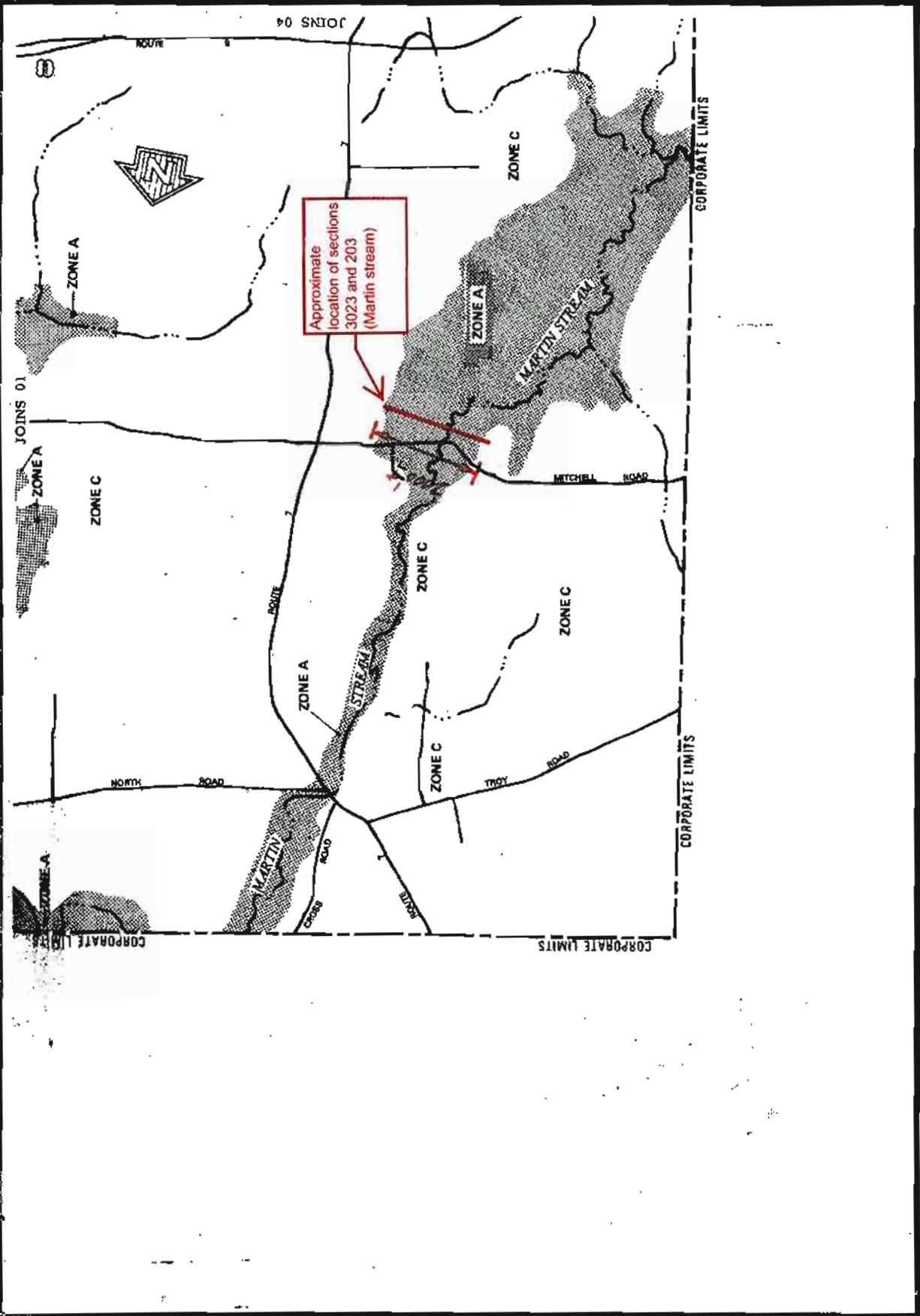
The proposed project and anticipated development is estimated to raise the base flood elevation at the Martin Stream at Section A is an estimated increase in the base flood elevation of 0.004 feet (just less than 1/16 of an inch) to 326.014 feet.

In this case the impact of the anticipated development is less than the 12 inch threshold required in the Dixmont Floodplain Management Ordinance. Furthermore, the calculated increase is based on the assumption the floodplain width will remain constant. In reality, any increase in depth will be less due to the mitigating effect of an increasing floodplain width. Taking the above factors into account, the actual rise in the 100-year flood elevation as a result of this project should be even less than the calculated rise and far less than the 12-inch allowable.

 6/14/10

Daniel T. Butler, P.E.
Manager, Civil & Transmission Engineering Dept.







Project: MPRP
 Location: Dixmont, Me
 Project Number: 166247
 Client: CMP

Prepared by: PGT
 Date: 6/14/10
 Checked by:
 Date:

Floodway Impact Study

Proposed and rebuild of Sections
Dixmont, Maine

Martin Stream Characteristics at Cross Section A (Pre-development):

$$\text{Floodplain_width} := 1020 \cdot \text{ft} \quad \text{Flow_Section_Area} := 502.82 \cdot \text{ft}^2 \quad \text{Base_Flood_El} := 326.01 \cdot \text{ft}$$

$$\text{Mean_Depth} := \frac{\text{Flow_Section_Area}}{\text{Floodplain_width}} \quad \text{Mean_Depth} = 0.49296 \cdot \text{ft}$$

Martin Stream Characteristics at Cross Section A (Post-development):

$$\text{Total_Pole_Count} := 3 \quad \text{Total_Pole_Width} := \text{Total_Pole_Count} \cdot 3 \cdot \text{ft}$$

$$\text{Total_Pole_Width} = 9 \cdot \text{ft}$$

$$\text{Effective_Floodplain_width} := \text{Floodplain_width} - \text{Total_Pole_Width} = 1011 \cdot \text{ft}$$

$$\text{Revised_Mean_Depth} := \frac{\text{Flow_Section_Area}}{\text{Effective_Floodplain_width}} = 0.49735 \cdot \text{ft}$$

$$\text{Total_Impact} := \text{Revised_Mean_Depth} - \text{Mean_Depth} = 0.0527 \cdot \text{in}$$

$$\text{Revised_Base_Flood_El} := \text{Base_Flood_El} + \text{Total_Impact} = 326.01 \cdot \text{ft}$$

Worksheet for Martin Stream Section A

Results

Discharge		4640.69	ft ³ /s
Elevation Range	323.00 to 326.01		ft
Flow Area		502.82	ft ² AREA
Wetted Perimeter		1020.19	ft
Top Width		1020.00	ft TOP WIDTH
Normal Depth		3.01	ft
Critical Depth		3.41	ft
Critical Slope		0.08108	ft/ft
Velocity		1.50	ft/s
Velocity Head		0.03	ft
Specific Energy		5.03	ft
Froude Number		0.18	
Flow Type	Subcritical		

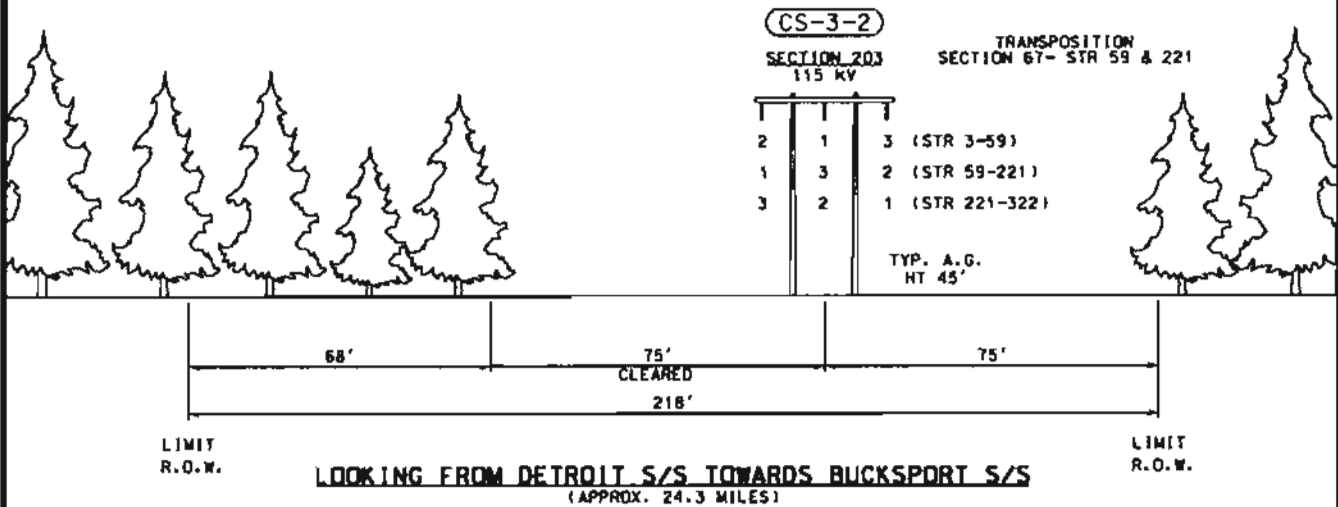
GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

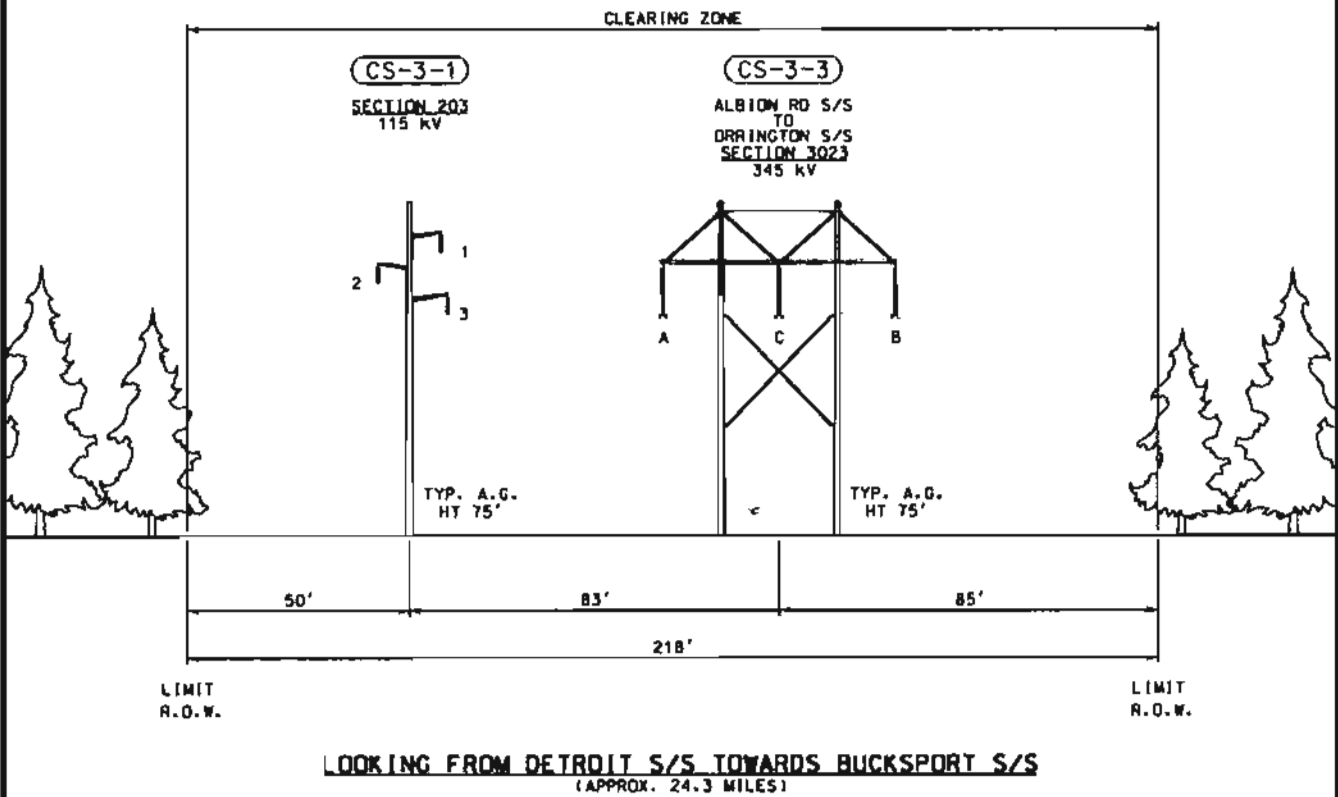
GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.01	ft
Critical Depth	3.41	ft
Channel Slope	0.00000	ft/ft
Critical Slope	0.08108	ft/ft

EXISTING



PROPOSED



THIS DRAWING SHALL BE REVISED ON THE CADD SYSTEM ONLY

-DRAFT- FOR REVIEW ONLY		SECTION 203	POLE 3 TO 322	STA. 9+60 TO 1293+80
MAINE POWER RELIABILITY PROGRAM				
EXISTING AND PROPOSED R.O.W. ALTERNATIVE N5 FOR N-1-1 ANALYSIS				
ENG. CONTRACTOR		CHECKED		DESIGNED KJF
D	ADDED CLEARING ZONE	9/23/09	PEI	DATE 8/8/07
C	ADDED SEQUENCING/PHASING REVISED STRUCTURES	8/7/09	PD	APPR.
B	ADDED SECTION NO.	4/11/08	PEI	SEGMENT 3
A	ISSUED FOR REVIEW	9/26/07	PEI	
NO. REVISION		DATE	BY	CENTRAL MAINE POWER CO. TRANSMISSION ENGINEERING
		SCALE	NTS	
				SHEET N5-3-2