



November 16, 2020

John Maclaine, RFP Coordinator
Maine Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017
Transmitted via email to proposals@maine.gov

Re : RFP# 202008127 2021R1 Grant Application
East Ridge Road Crossing of Venture Brook – Cathance Twp, ME
St.Germain File No.: 4067-0005

Dear Mr. Maclaine:

On behalf of the Washington County Commissioner and The Nature Conservancy, St.Germain is pleased to submit the attached application for grant funding to upgrade the Venture Brook crossing on East Ridge Road – a municipal owned road maintained by the Washington County Commissioner.

The existing corrugated metal pipe culvert is corroded and undersized. The crossing regularly becomes obstructed with debris and requires maintenance. Wild brook trout and Atlantic salmon have been identified above or just below the crossing – which is considered a barrier to fish passage by the Maine Stream Habitat Viewer. According to the Beginning with Habitat Map Viewer, the crossing is adjacent to Inland Wading Bird and Waterfowl Habitat which is considered Significant Wildlife Habitat under Maine’s Natural Resource Protection Act. Please refer to the attached Site Location Map that depicts the crossing and surrounding area in greater detail.

The Washington County Commissioner is proposing to replace the existing failing infrastructure with a Stream Smart designed open-bottom metal arch culvert. The proposed crossing incorporates the US Forest Service Stream Simulation design methodology for Aquatic Organism Passage that will allow all diadromous and resident fish species to freely migrate both up and downstream. The constructed stream bed through the crossing has been designed to mimic unimpacted reaches of the stream crossing, and includes banks to facilitate crossing of terrestrial animals, such as frogs and turtles.

The Washington County Commissioner is committed to preserving its natural resources and improving its infrastructure with Stream Smart wildlife-friendly crossings. They are eager to upgrade this crossing and plans to authorize final design and permitting documents immediately after securing grant funding. Construction is anticipated to begin in the Summer of 2021 during the low flow conditions of July 15 through September 30. The estimated time to complete the replacement stream crossing is two weeks.

If you should have any questions or comments, please contact us at 207-591-7000 or by email at patrickg@stgermain.com.

Sincerely,
ST.GERMAIN



Patrick Gere, PE
Project Manager

Attachments

- 2020 Proposal Application Form
- Supplemental Materials (total 20 pages)
 - Wetland Delineation Memorandum with Photolog (five pages)
 - Plans (six pages)
 - Stream Stats Basin Characteristics Report (three pages)
 - HY8 Analysis (one page)
 - Stream Bed Analysis (one page)
 - Maine Stream Habitat Viewer Layer Details (two pages)
 - Maine Department of Inland Fisheries & Wildlife Environmental Review Map (one page)
 - The Nature Conservancy Letter of Support (one page)

Cc: Dean Preston, Washington County Commissioner
Ben Matthews, The Nature Conservancy

**Maine Department of Environmental Protection
Request for Proposals for Stream Crossing Public Infrastructure Improvement Projects
Proposal Application Form – 2020R1
RFP# 202008127**

I. Applicant Information

Applicant Name
Washington County Commissioner – Dean Preston

Applicant Mailing Address 85 Court Street	City Machias	State ME	Zip 04654
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*Applicant Contact Phone # 207-255-8919	*Contact Email Address ut@washingtoncountymaine.com
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**Please note that the applicant contact should be the individual that will be the primary contact for the Department should the project be awarded.*

II. Agent/Consultant Information Check if not applicable

Agent Name
St.Germain – Patrick Gere

Agent Mailing Address 846 Main Street	City Westbrook	State ME	Zip 04092
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Agent Phone # 207-591-7000	Agent Email Address patrickg@stgermain.com
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III. Applicability

Please indicate the ability to demonstrate the following:

- The proposed structure to be upgraded is a culvert located on a municipal road and is not owned by a private or state entity.
- The proposed project includes matching funds from local or other sources

IV. Culvert/Stream Crossing Information**1. Site Information**

A. Municipality or Unorganized territory where project will take place:	Cathance Twp		
B. GPS Location of crossing (Decimal degrees preferred) <i>Available on Google Maps by clicking the location on the map</i>	North	West	
	44.90866	- 67.32620	
C. Culvert/crossing location Name of the road on which the culvert/crossing is located and the nearest intersection.	East Ridge Road		
D. Watershed Location: List the HUC12 Watershed, name of the stream, brook, or the water body the culvert is located on, and the downstream waterbodies it drains to.	i. HUC12 Watershed: (can be found in Maine Stream Habitat Viewer)	Dennys River	
	ii. Waterbody name at project location ("Project Waterbody"):	Dennys River	
	iii. "Project Waterbody" drains to:	Passamaquoddy Bay-Bay of Fundy	

2. Existing Crossing Information

Culvert/Crossing Shape		Culvert Material		Stream Bed Material in culvert
<input type="checkbox"/> Closed bottom Box <input type="checkbox"/> Open bottom box <input checked="" type="checkbox"/> Circular <input type="checkbox"/> Open bottom arch <input type="checkbox"/> Closed bottom arch (pipe arch) <input type="checkbox"/> Oval <input type="checkbox"/> Bridge or span		<input checked="" type="checkbox"/> Corrugated Metal Pipe <input type="checkbox"/> Smooth Metal Pipe <input type="checkbox"/> Concrete <input type="checkbox"/> Plastic <input type="checkbox"/> Stone <input type="checkbox"/> Other (describe): _____		<input type="checkbox"/> none <input type="checkbox"/> Partial <input checked="" type="checkbox"/> Continuous
Culvert	Width (diameter if round)	Height	Length	Approximate Culvert Age
#1	3'	3'	40'	Unknown
(#2)				
(#3)				

3. Proposed Crossing Information

Culvert/Crossing Shape		Culvert Material					
<input type="checkbox"/> Closed bottom Box <input type="checkbox"/> Circular <input type="checkbox"/> Oval <input type="checkbox"/> Closed bottom arch (pipe arch) <input type="checkbox"/> Other (describe): _____	<input type="checkbox"/> Open bottom box <input checked="" type="checkbox"/> Open bottom arch <input type="checkbox"/> Bridge or span	<input type="checkbox"/> Corrugated Metal Pipe <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Other (describe): _____	<input type="checkbox"/> Smooth Metal Pipe <input type="checkbox"/> Plastic <input type="checkbox"/> Stone				
Width (diameter if round)	Height	Length	<i>If proposing a bridge/span</i>				
10'	3.5'	46'	<table border="1"> <thead> <tr> <th>Clear Span</th> <th>Total Span</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Clear Span	Total Span		
Clear Span	Total Span						

13. Will the new crossing be sized to be 1.2 times the bankfull width of the stream?

 Yes

 No
4. Stream Channel Description

Measured Bankfull Width (beyond culvert influence, min. of 3 upstream and downstream measurements)	Upstream widths	1.	2.	3.	4.	5.	Average	Average value of upstream & downstream measurements
		7.8'	8.0'	6.5'			7.4'	
	Downstream Widths	1.	2.	3.	4.	5.	Average	
		7.5'	10.8'	8.8'			9.0'	8.2'
Estimated Bankfull width (<i>measured average bankfull width values are the most accurate method</i>)	Maine Stream Habitat Viewer http://webapps2.cgis-solutions.com/MaineStreamViewer/						13.90 feet	
	StreamStats https://streamstats.usgs.gov/ss/						5.35 feet	
	Other Hydraulic & Hydrologic Analysis (if performed)						10.58xDA ^{0.43} =7.9 ft DA=0.5 square mile	
Has a Stream Bed Substrate analysis been performed?							<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Explain: JE Costa's Paleohydraulic Analysis and Field Confirmation								
Size of Downstream scour pool <input type="checkbox"/> N/A, No scour pool present		Width		Length		Max Depth		
		13'		22'		0.5'		

V. Public Infrastructure Information (25 Points total):						Yes	No				
1. Has the crossing caused flooding or overtopping of the road in the last 10 years?						<input type="checkbox"/>	<input checked="" type="checkbox"/>				
2. How many times in the last 10 years? (indicate if approximate)											
3. Does this crossing regularly become obstructed by debris or require cleaning?						<input checked="" type="checkbox"/>	<input type="checkbox"/>				
How often?						Semi-annually					
4. Has the crossing been damaged by flooding in the last 10 years?						<input type="checkbox"/>	<input checked="" type="checkbox"/>				
5. Do you have any photos of the flooding or damage? Please provide if available						<input type="checkbox"/>	<input checked="" type="checkbox"/>				
6. Has the crossing ever partially or fully failed in the last 10 years?						<input type="checkbox"/>	<input checked="" type="checkbox"/>				
7. List any dates and describe the severity of flooding/damage associated with the crossing. Include the duration of any full or partial road closures.						Unknown					
8. Describe any issues with the current condition of the crossing						Undersized barrier to aquatic and terrestrial organisms					
9. In how many years from now do you estimate the culvert/crossing would have a complete failure, a complete collapse, or total washout?						Less than 1 year	1-3 years	3-5 years	5-10 years	10+ years	
						<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Would any homes, businesses, or critical infrastructure be <u>completely cut-off from access</u> if the crossing were to completely fail?						Yes	No				
						<input type="checkbox"/>	<input checked="" type="checkbox"/>				
11. If the culvert/crossing fails, how many businesses, or other critical infrastructure would be completely cut off or require a detour? (Note: see definition of "cut off" in RFP#202008127)						Homes		Businesses		Critical Infrastructure	
						Detour	Cut-off	Detour	Cut-off	Detour	Cut-off
12. Using the space below, discuss what impacts would occur if the culvert/crossing were to fail. For instance, are there critical public services (fire or police station, hospital, school, public works facility) located on this road that would be cutoff or required to detour?											
13. Approximately how many vehicles per day travel this road (if known)?						Unknown					
14. If an alternate route exists, what is the minimum distance to travel from one side of the crossing along a detour to access the other side of the crossing?						25 Miles					
15. Using the space below, discuss any other safety concerns about the existing culvert/crossing.											
The existing crossing does not allow for aquatic or terrestrial animal passage, forcing terrestrial organisms to cross the barrier over the road. This results in unnecessary roadkill and potential traffic accidents. If the crossing failed, detoured vehicles would cause traffic along detoured routes, potentially leading to an increase in traffic accidents.											

VI. Environmental Information (50 Points total):			Yes	No
1. Are fish present in the stream?			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Source(s) of Information: <input type="checkbox"/> MDIFW <input type="checkbox"/> MDMR <input checked="" type="checkbox"/> Maine Stream Habitat Viewer <input type="checkbox"/> Other (describe):				
2. Has this crossing been identified by the Maine Stream Habitat Viewer, MDIFW, MDMR, or another qualified entity as a barrier to fish passage?			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provide source of barrier information		Maine Stream Habitat Viewer		
3. Is the existing culvert/crossing surveyed on Maine Stream Habitat Viewer? http://webapps2.cgis-solutions.com/MaineStreamViewer/			<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what is the Maine Stream Habitat Viewer Crossing ID# for the crossing proposed for upgrade?		51873		
4. What is the Maine Stream Habitat Viewer Crossing ID# for the crossings upstream and downstream of the proposed upgrade?		Upstream Crossing ID#	Downstream Crossing ID#	
			52085	
Are these considered to be a barrier to fish passage?		<input type="checkbox"/> Barrier <input type="checkbox"/> Partial/Potential Barrier <input type="checkbox"/> Not a Barrier	<input type="checkbox"/> Barrier <input type="checkbox"/> Partial/Potential Barrier <input type="checkbox"/> Not a Barrier	
5. Distance to the next barrier identified by the Maine Stream Habitat Viewer (miles)?		Upstream	Downstream	
		0	1	
6. Indicate if any of the following species have been identified above or just below the crossing.				
<input checked="" type="checkbox"/> Wild brook trout <input type="checkbox"/> Sea-run brook trout <input checked="" type="checkbox"/> Atlantic salmon (sea-run) <input type="checkbox"/> Atlantic salmon (landlocked) <input checked="" type="checkbox"/> Alewives <input type="checkbox"/> Blueback herring <input type="checkbox"/> American eels <input type="checkbox"/> Sea-run rainbow smelt <input type="checkbox"/> other diadromous (sea-run) species (list): _____				
7. Have you contacted MDMR regarding this stream and crossing?			<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, please include any relevant information they provided or attach letter of support		MDMR indicated no comments or concerns about this proposal and stated that they rarely provide letters of support for projects		
8. Have you contacted MDIFW regarding this stream and crossing?			<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, please include any relevant information they provided or attach letter of support		Their information indicates no locations of Endangered, Threatened, or Special Concern species within the project area that would be affected by the project. Additionally, the Department has not mapped any Essential or Significant Wildlife Habitats that would be directly affected by the project.		
9. Are there any state or federal Threatened or Endangered species (aquatic or terrestrial) according to Beginning with Habitat Map Viewer within 1 mile of this crossing?			<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, list identified presence or habitat(s):		Inland Wading Bird and Waterfowl Habitat		

		Yes	No
10. Is the project adjacent to other significant resources (e.g. Significant Wildlife Habitat, significant fisheries, "Heritage" waters, alewife ponds, etc.) according to the Maine Stream Habitat Viewer or Beginning with Habitat Map Viewer?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, list identified resource(s):	Lake Cathance, surveyed Rearing Habitat, Class 1 Modeled Rearing Habitat, some wetlands		
11. Have any priority habitats such as spawning areas been identified by the Maine Habitat Stream Viewer, MDIFW, or MDMR?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, List habitats identified and source of information:	Atlantic salmon critical habitat		
12. Is the current crossing undersized?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, how was this determined and what was the metric used?	Does not meet stream smart design criteria		
15. Will the new crossing contain an open bottom?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
16. Will the new crossing be embedded below the stream bed?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
17. If the new crossing will be embedded, is stream bed backfill proposed?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
If yes, how will material used for streambed backfill be determined?	NA		
18. Will the new crossing contain constructed stream banks within the structure?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
19. Will this new crossing meet Maine DOT 100-yr flood criteria?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
20. Is the upstream or downstream habitat degraded due to this crossing's orientation, slope, or sizing? (e.g. large scour pool, instability or stream bank erosion, significant downstream sedimentation, etc.)		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Describe:	Large scour pool		
21. Is the crossing located on a stream or reach where other culvert/crossing upgrades have been performed within the last 5 years leading to improved fish passage?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
If yes, describe any additional biological, ecological, or cost-saving benefits that could result from the current project:			
22. Describe any reasons the crossing or the waterbody should be considered a priority for restoration, including any input from Maine DMR or Maine IF&W Biologists:			
Location within critical habitat for Atlantic salmon			
23. Provide other information about the design or importance of the proposed project that benefits fish and/or wildlife such as terrestrial passage, stream banks within the structure, stream simulation design, or other factors:			
The proposed open bottom crossing has been designed to meet stream simulation design criteria, including constructed stream banks allowing terrestrial passage on either side of the crossing.			

VII. Cost & Budget Information (25 Points total):			
1. How much money has been spent on physical repairs within the last 10 years on the culvert/crossing (exclude normal maintenance costs such as painting).		Unknown	
2. Describe the types of expenditures made on repairs	Clearing debris from the inlet		
		Yes	No
3. Do you have engineered design plans and construction specifications for the replacement culvert/crossing?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
A. If yes, identify who designed the plans, and when the plans were completed.	St.Germain		
B. Will final plans be stamped by a Maine Licensed Engineer?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. If the new crossing will be over 20 feet in width, are you planning to request that the Maine Department of Transportation (MDOT) take responsibility for the structure?		<input type="checkbox"/>	<input type="checkbox"/>
If yes, have you had the design reviewed by MDOT's Bridge Maintenance Program? (If No, please contact MDOT Bridge Program as soon as possible)		<input type="checkbox"/>	<input type="checkbox"/>
Important NOTE: For all crossings proposed to be 20 feet or greater, please refer to Maine DOT's Bridge Design Guide: https://www.maine.gov/mdot/bdg/ and contact MaineDOT Bridge Program for requirements and limitations.			
5. This project will likely require a permit from the Army Corps of Engineers. Have you contacted Army Corps regarding this project?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Have you submitted an application to Army Corps of Engineers?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Do you already have a permit in-hand from Army Corps of Engineers?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. What is the anticipated construction duration?	Two weeks		
9. If awarded, when is construction anticipated to begin? (Keep in mind that the typical window for in-water work is July 15-October 1)	Start Date: July 15, 2021	Completion Date: September 30, 2021	
10. Provide any additional information regarding the efficiency and cost-effectiveness of the project in the space below:			
<p>The Nature Conservancy has partnered with the Washington County Commissioner and St.Germain to prepare the preliminary design and supporting grant application materials. The proposed open bottom arch is a cost effective culvert for the required span.</p>			
11. Provide any additional information as to why this project should be funded by a public infrastructure grant in the space below:			
<p>The Washington County Commissioner has a small tax base and cannot afford to replace the existing structure with a stream smart designed crossing without grant funding.</p>			

**State of Maine
Department of Environmental Protection
COST PROPOSAL FORM
RFP# 202008127**

2020 Grants for Stream Crossing Public Infrastructure Improvements

Bidder's Organization Name:	Washington County Commissioner
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Instructions: The cost proposal must include: the total amount of funds requested under this RFP, the total cost of the project to completion, and the amount of local matching funds dedicated to the project.

The cost proposal may not exceed \$125,000. Local matching funds must be included. The Department cannot fund 100% of any project.

1. Total Amount of Funds being Requested	\$125,000
2. Total Matching Funds Committed to Project	\$125,000
3. Total Cost to Complete Proposed Project (total of items 1&2 above)	\$250,000
4. All Sources of Matching Funds (list):	The Nature Conservancy \$5,000 for survey & design Washington County Commissioner

Budget Items	
5. Total Engineering Costs	\$10,000
6. Permitting and Bidding	\$12,000
7. Erosion & sediment controls (including de-watering, stream bypass, cofferdams, temporary and permanent stabilization measures)	\$5,000
8. All other items	\$223,000

**State of Maine
Department of Environmental Protection
DEBARMENT, PERFORMANCE and NON-COLLUSION CERTIFICATION
RFP# 202008127**

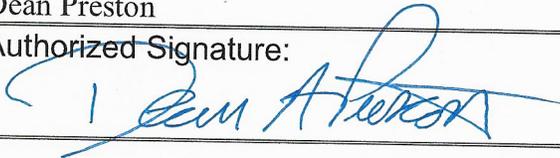
2020 Grants for Stream Crossing Public Infrastructure Improvements

Bidder's Organization Name:	Washington County Commissioner
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By signing this document, I certify to the best of my knowledge and belief that the aforementioned organization, its principals and any subcontractors named in this proposal:

- a. *Are not presently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from bidding or working on contracts issued by any governmental agency.*
- b. *Have not within three years of submitting the proposal for this contract been convicted of or had a civil judgment rendered against them for:*
 - i. *Fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government transaction or contract.*
 - ii. *Violating Federal or State antitrust statutes or committing embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;*
 - iii. *Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or Local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and*
 - iv. *Have not within a three (3) year period preceding this proposal had one or more federal, state or local government transactions terminated for cause or default.*
- c. *Have not entered into a prior understanding, agreement, or connection with any corporation, firm, or person submitting a response for the same materials, supplies, equipment, or services and this proposal is in all respects fair and without collusion or fraud. The above-mentioned entities understand and agree that collusive bidding is a violation of state and federal law and can result in fines, prison sentences, and civil damage awards.*

Failure to provide this certification may result in the disqualification of the Bidder's proposal, at the discretion of the Department.

Name (Print): Dean Preston	Title: UT Supervisor
Authorized Signature: 	Date: 11/16/2020



To: Patrick Coughlin
Director of Engineering
St. Germain
846 Main Street
Westbrook, ME 04092

Date: November 9, 2020

From: Alexander A. Finamore, CWS, LSE
Mainely Soils, LLC

Re: #51863 – East Ridge Road Culvert Replacement, Cathance
Twp, ME – Wetland Delineation Memorandum

At the request of the St. Germain (the “Client”), Mainely Soils conducted on-site wetland and waterbody delineations in an area approximately 250 feet in either direction of an existing culvert under East Ridge Road in Cathance Twp, Maine. These field investigations were performed to provide baseline environmental data to inform the client of a potential culvert replacement at the site. The natural resources assessments described in this memorandum were completed in October of 2020. In addition to describing the identified resources this report describes the existing conditions within the study area, and the methodologies employed for the assessments.

PROJECT DESCRIPTION

The project site is located along East Ridge Road in Cathance Twp. The site is currently occupied by a paved road, a corrugated metal culvert and a perennial stream shown as Venture Brook on the Porcupine Mountain USGS topographic quadrangle flowing easterly towards Dennys River. Surrounding land use of the site is forested land to the east, west, and south and residential to the north. Proposed use of the site is to replace the existing culvert and maintain fish passage upstream of the road crossing. Access to the site is currently from East Ridge Road. In total, the wetland and waterbody delineation survey area encompassed an approximately 250 foot radius around the existing culvert.

SITE DESCRIPTION

The Study Area occurs in the Maine Eastern Coastal biophysical region of Maine (McMahon, 1990). The Maine Eastern Coastal biophysical region is a glacially scoured and dissected peneplain with gently rolling topography characterized as low ridges surrounded by poorly drained and relatively flat terrain. Most bedrock is igneous. More precipitation occurs in winter than summer and days with fog are greater here than elsewhere in the province. Natural vegetation is mostly forests of spruce-fir, maple-beech-birch, and aspen-birch cover types. The survey area is located within the Maine Coastal watershed (Hydrologic Unit Classification (HUC) 8 identification 01050002).

The Natural Resource Conservation Service soil survey mapping identifies native soils have been developed in glacial till. (Naskeag Series). The Naskeag series is a somewhat poorly and poorly drained soil (Web Soil Survey, 2020).

Study Methodology

Mainely Soils conducted wetland delineation field work within the survey area in October, 2020. The boundary of wetlands were delineated in accordance with the Army Corps of Engineers 1987 Wetland Delineation Manual (1987 Manual) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0) (Regional Supplement, 2012). All wetland delineations were conducted using the Routine Determination Methods, which requires that a wetland contain a dominance of hydrophytic vegetation, hydric soils, and evidence of hydrology in order to be considered a wetland. Wetland boundaries were located and recorded in the field by Survey Inc. and incorporated onto project mapping.

Two distinct wetland areas were delineated within the study area. Additional field notes were also taken to record the classification of each wetland in accordance with the Classification of Wetlands and Deepwater Habitats of the United States, general site characteristics, unique qualities observed during the site assessment, and other considerations relevant to investigation findings and the future completion of a wetlands functions and values assessment in accordance with the Highway Methodology Workbook: Supplement. Representative photographs of each wetland were taken, field sketches were labeled of the wetland boundary on an aerial photograph-based map, and notes were recorded on the flagging sequence for each wetland.

Mainly Soils also surveyed the site for streams, in accordance with the State of Maine Natural Resources Protection Act stream criteria and definitions. One perennial stream, Venture Brook, was identified flowing as the outlet of the existing culvert. The bank full width and THALWAG of this stream were located by Survey Inc.

Study Results

Using the methodologies described above, a wetland delineation was performed on October 7, 2020. A description of the identified resources follows. Supporting attachments include Representative Photographs (Attachment 1). Wetland Delineation Data Forms can be provided upon request.

Wetlands at the project site consisted of two distinct features. Wetland A1 was a permanently saturated palustrine scrub shrub wetland (PSS1B) (Cowardin et al.) found within a wide depression on the western side of East Ridge Road. Dominant wetland vegetation within Wetland A1 consisted of speckled alder (*Alnus incana*), grey birch (*Betula populifolia*), swamp rose (*Rosa palustris*), meadowsweet (*Spiraea alba*), bluejoint (*Calamagrostis canadensis*), sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), and rough stemmed goldenrod (*Solidago rugosa*). The soils within the wetland generally had a thick, dark mucky surface overlaying a depleted bouldery loamy sand substratum meeting hydric soil criteria A2: Histic Epipedon. Evidence of wetland hydrology included standing water, water stained leaves, drainage patterns, and saturation to the soil surface at the time of field investigations.

Wetland A2 was located to the east of East Ridge Road and consisted of a seasonally saturated palustrine forested wetland (PFO1B) found within a depression associated with Venture Brook. Dominant wetland vegetation included red maple (*Acer rubrum*), white cedar (*Thuja occidentalis*), yellow birch (*Betula alleghaniensis*), speckled alder, winterberry (*Ilex verticillata*), sensitive fern, and cinnamon fern. Wetland soils and hydrology was of similar composition of Wetland A1.

One perennial stream was delineated within the Study Area. Stream S1 was Perennial stream flowing in an easterly direction within a wide depression. Stream S1 was shown as Venture Brook on USGS Maps. The stream commenced at the culvert outlet and was approximately 2 to 4 feet wide and contained up to 4 inches of flowing water. The stream had a cobble/gravel substrate and 12 to 15 inch vertical banks.

Summary

The information contained in this memorandum was collected in order to provide detailed, on-site information regarding wetland and waterbody resources. This information is intended to be used for project planning purposes and to support permitting needs. Two wetlands were delineated on the site and were identified as Wetlands A1 and A2. The wetland features were generally located within the floodplain of Venture Brook. The wetlands generally exhibited seasonally saturated/flooded hydroperiods, and provided shoreline stabilization, floodflow alteration, wildlife habitat, and stormwater/water quality maintenance functions. One perennial stream was identified on the site and shown as Venture Brook on the Porcupine Mountain USGS Topographic Quadrangle.

Wetlands are regulated by the U.S. Army Corps of Engineers under the federal Clean Water Act, and by the Maine Department of Environmental Protection under the Maine Natural Resources Protection Act (NRPA). The State of Maine further differentiates wetlands under NRPA by regulating certain wetlands as “wetlands of special significance” (WOSS). Wetlands within 25 feet of streams may be considered WOSS’s. Impacts to wetlands resulting from proposed project development require that permits first be obtained from the MDEP and the USACE before proceeding with construction, and where applicable, municipal governing bodies. Consultation with these agencies early in the project design process is encouraged.

Wetlands within the survey area may be further regulated under municipal ordinances, such as Shoreland Zone, Site Plan Review, or other local ordinances.

References:

- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe.1979. Classification of Wetlands and Deepwater Habitat in the United States. U.S. Fish and Wildlife Service. FWS/OBD-79/31 103pp.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- U.S. Army Corps of Engineers (USACE). 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region. ERDC/EL TR-12-01. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- Schlawin, J. Cutko, A. Maine Natural Areas Program. 2014. A Conservation Vision for Maine Using Ecological Systems.
- Web Soil Survey. 2020. U.S. Department of Agriculture – Natural Resources Conservation Service.
<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

Attachments:

1. Representative Site Photographs

Natural Resource Photographs – 10/7/2020
East Ridge Road Culvert Replacement Project, Cathance Twp – #51873, Maine



Photo 1: View looking east at the existing culvert inlet.



Photo 2: View looking east at the existing culvert outlet.

Natural Resource Photographs – 10/7/2020
East Ridge Road Culvert Replacement Project, Cathance Twp – #51873, Maine

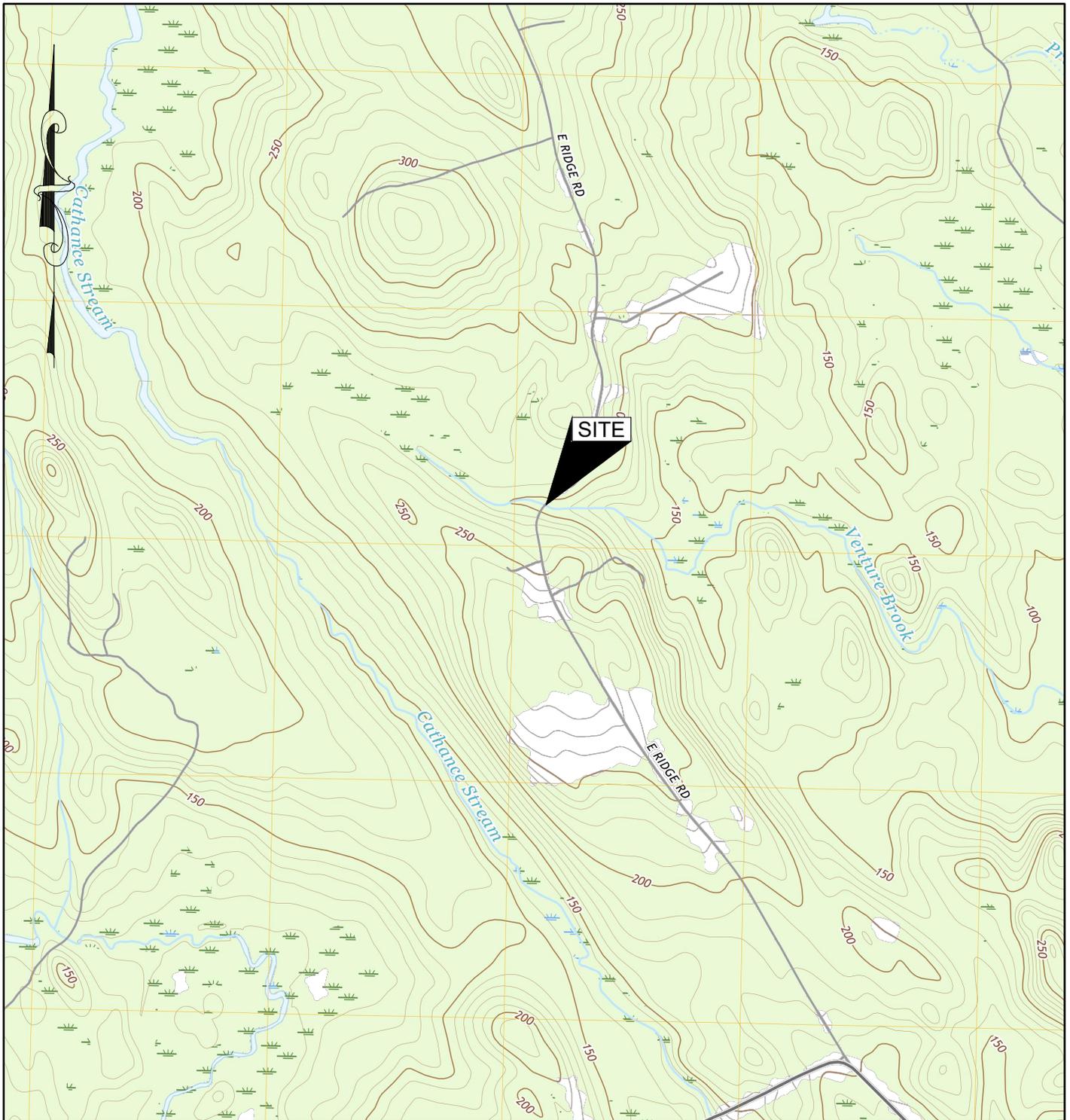


Photo 3: View looking upslope above the culvert inlet.



Photo 4: View looking downstream below the culvert outlet.

M:\Cadd Drawings - Dwg\Active Drawings\4067 TNC\4067-0005 Waterband\51873 - Cathance Twp\DWG\4067-0005 COVER.dwg 9/28/2020 3:20:30 PM



REFERENCE:
 USGS SERIES 7.5 TOPOGRAPHIC MAP, PORCUPINE MOUNTAIN, ME
 2018 QUADRANGLE.

SITE LOCATION MAP

STREAM CROSSING IMPROVEMENTS
 44.90866°N, -67.32620°W
 EAST RIDGE ROAD
 CATHANCE TWP, MAINE 04628

WASHINGTON COUNTY COMMISSIONER
 85 COURT STREET
 MACHIAS, MAINE 04654

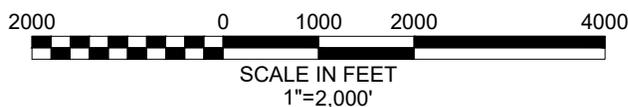
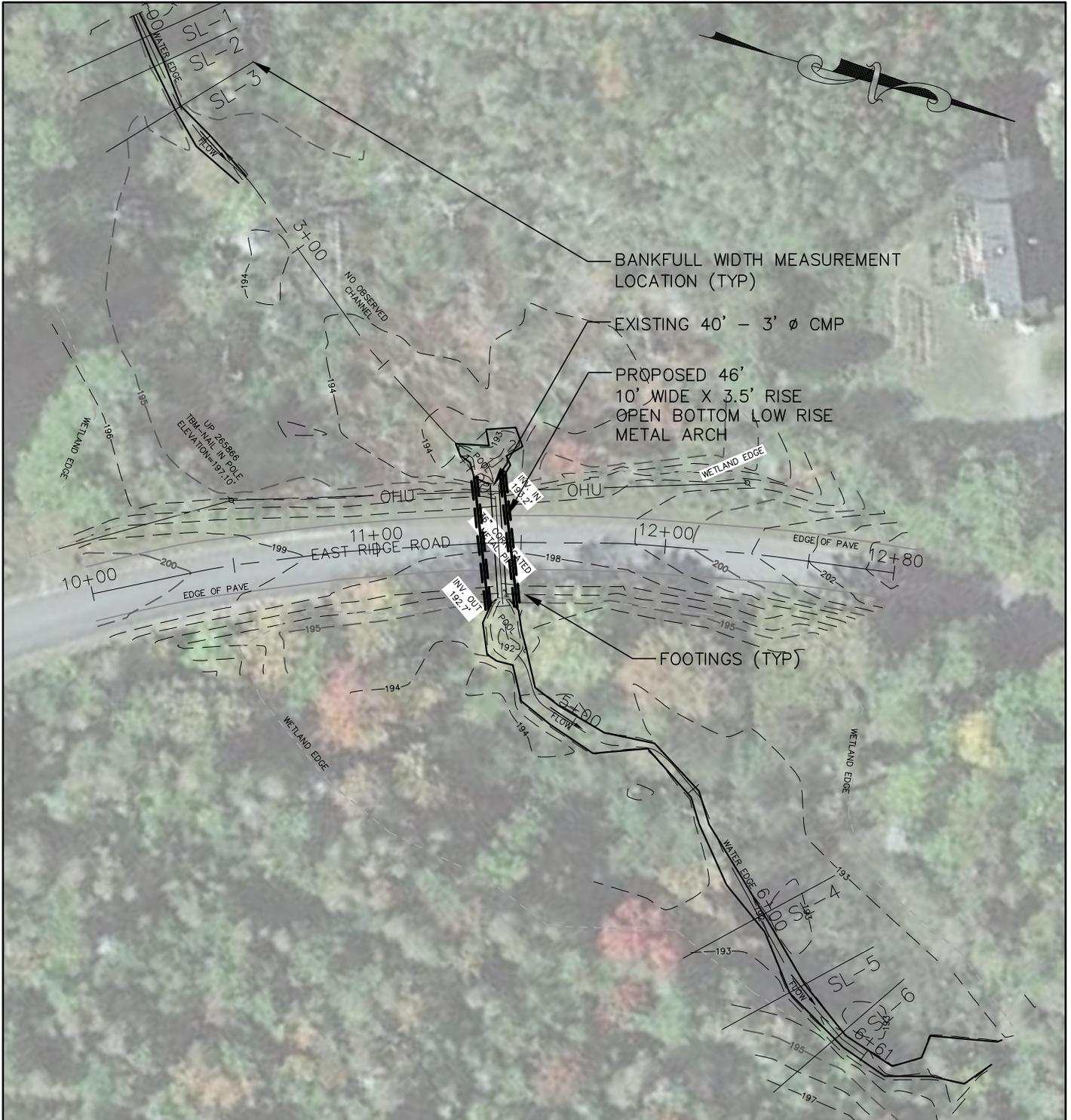


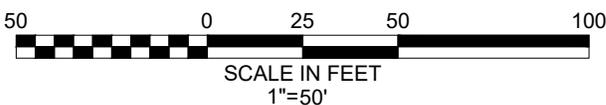
FIGURE
 1

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NOTES:

1. TOPOGRAPHIC INFORMATION OBTAINED FROM A FIELD SURVEY PERFORMED BY SURVEY, INC IN OCTOBER 2020. TOPOGRAPHIC ELEVATIONS ARE REFERENCED TO NAVD88 DATUM. HORIZONTAL DATA IS REFERENCED TO GRID NORTH, MAINE STATE PLANE, EAST ZONE, NAD83 DATUM.
2. WETLAND DELINEATION PERFORMED BY ALEX FINAMORE, CWS OF MAINELY SOILS, LLC IN OCTOBER 2020.
3. AERIAL IMAGE OBTAINED FROM GOOGLE EARTH DATED MAY 10, 2018.



SITE PLAN

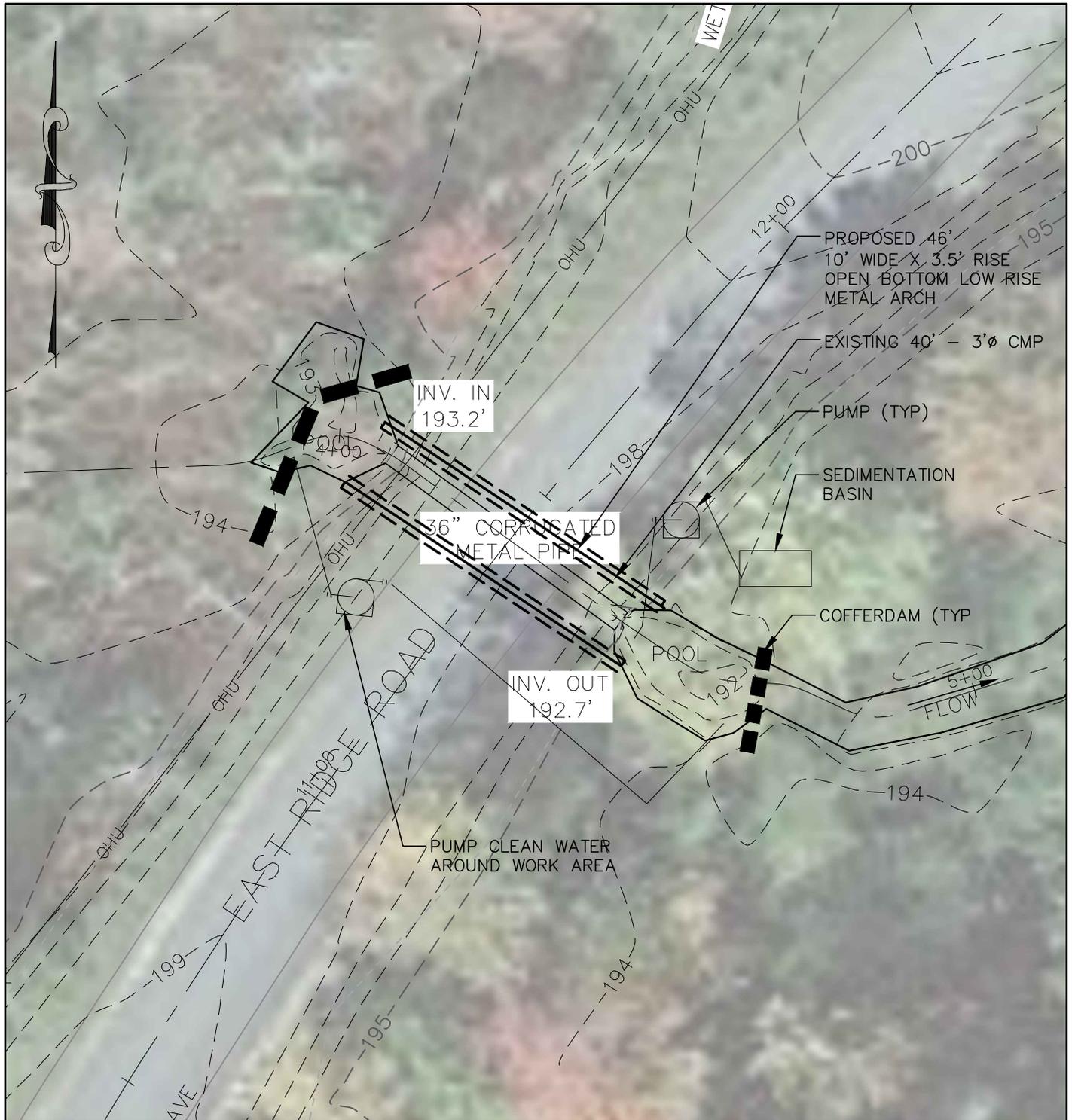
STREAM CROSSING IMPROVEMENTS
 44.90869°N, -67.32628°W
 EAST RIDGE ROAD
 CATHANCE TOWNSHIP, MAINE 04628

COUNTY OF WASHINGTON
 PO BOX 297
 MACHIAS, MAINE 04654



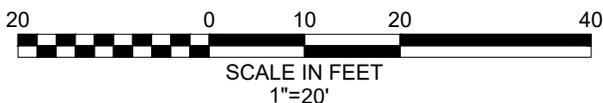
C-101

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NOTES:

1. TOPOGRAPHIC INFORMATION OBTAINED FROM A FIELD SURVEY PERFORMED BY SURVEY, INC IN OCTOBER 2020. TOPOGRAPHIC ELEVATIONS ARE REFERENCED TO NAVD88 DATUM. HORIZONTAL DATA IS REFERENCED TO GRID NORTH, MAINE STATE PLANE, EAST ZONE, NAD83 DATUM.
2. WETLAND DELINEATION PERFORMED BY ALEX FINAMORE, CWS OF MAINELY SOILS, LLC IN OCTOBER 2020.
3. AERIAL IMAGE OBTAINED FROM GOOGLE EARTH DATED MAY 10, 2018.



E&S CONTROL PLAN

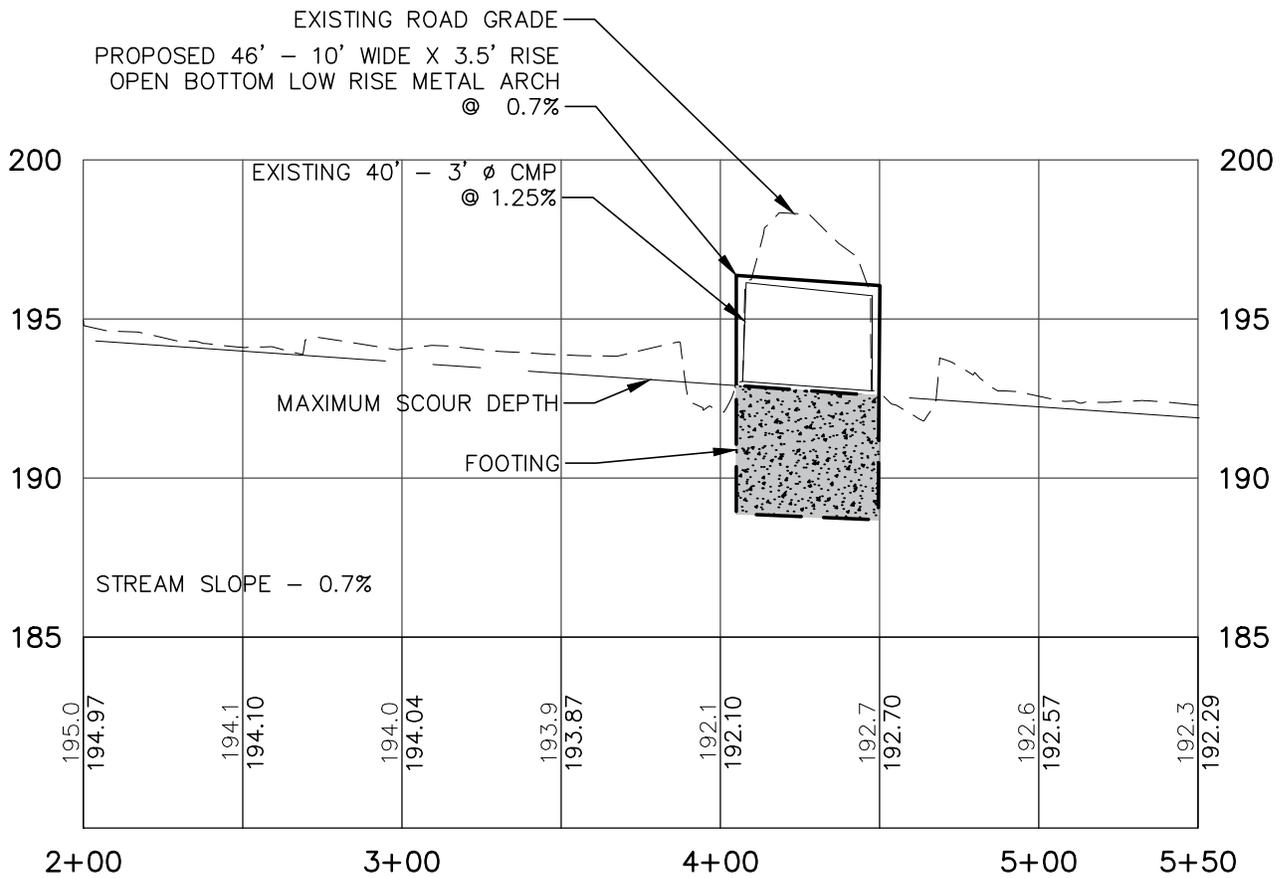
STREAM CROSSING IMPROVEMENTS
 44.90869°N, -67.32628°W
 EAST RIDGE ROAD
 CATHANCE TOWNSHIP, MAINE 04628

COUNTY OF WASHINGTON
 PO BOX 297
 MACHIAS, MAINE 04654



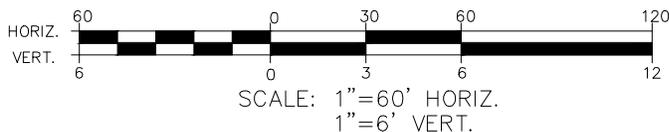
C-102

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NOTES:

1. TOPOGRAPHIC INFORMATION OBTAINED FROM A FIELD SURVEY PERFORMED BY SURVEY, INC IN OCTOBER 2020. TOPOGRAPHIC ELEVATIONS ARE REFERENCED TO NAVD88 DATUM. HORIZONTAL DATA IS REFERENCED TO GRID NORTH, MAINE STATE PLANE, EAST ZONE, NAD83 DATUM.



STREAM PROFILE

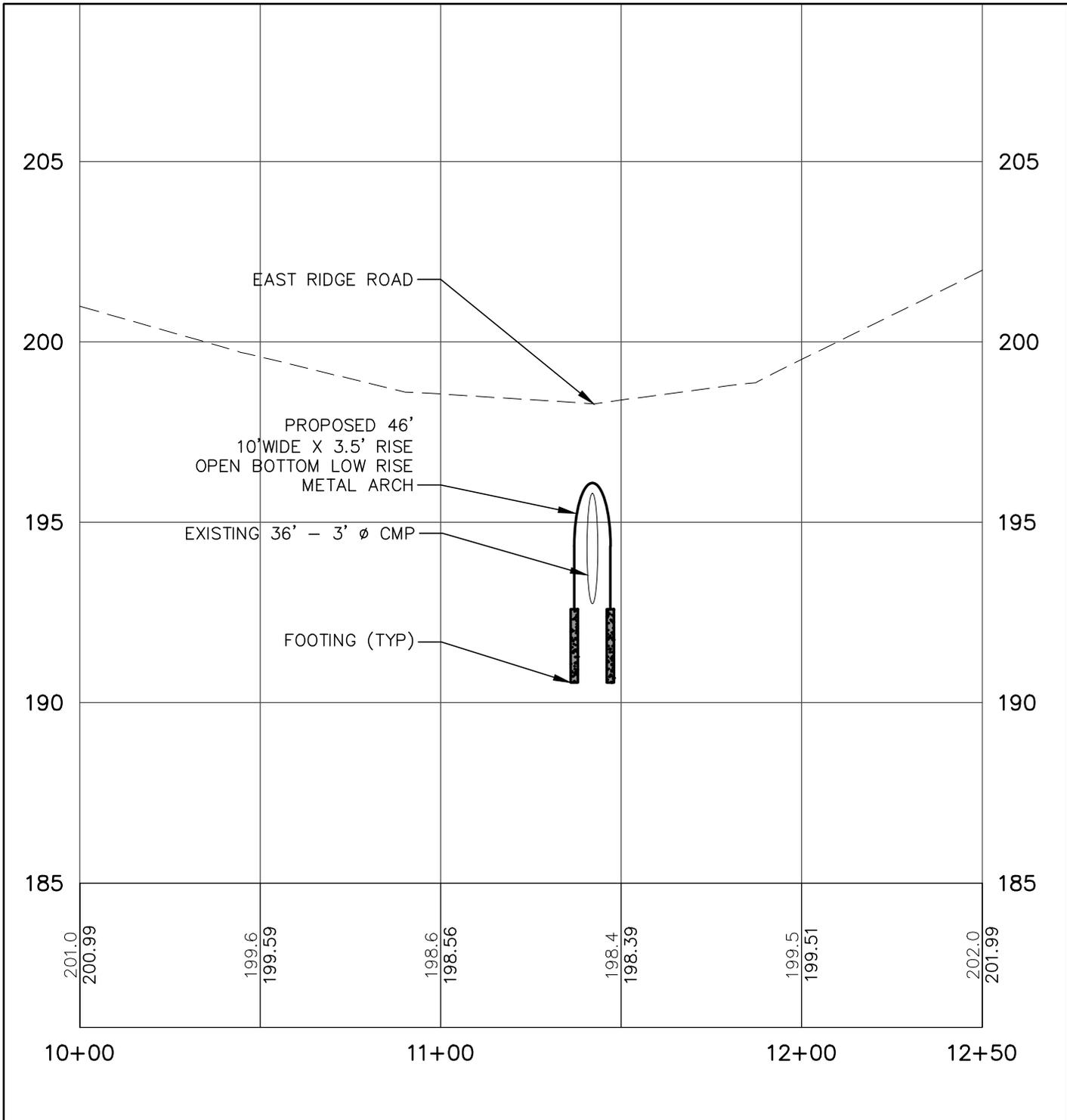
STREAM CROSSING IMPROVEMENTS
 44.90869°N, -67.32628°W
 EAST RIDGE ROAD
 CATHANCE TOWNSHIP, MAINE 04628

COUNTY OF WASHINGTON
 PO BOX 297
 MACHIAS, MAINE 04654



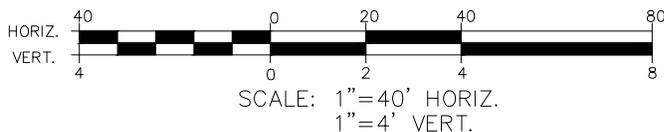
C-201

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NOTES:

1. TOPOGRAPHIC INFORMATION OBTAINED FROM A FIELD SURVEY PERFORMED BY SURVEY, INC IN OCTOBER 2020. TOPOGRAPHIC ELEVATIONS ARE REFERENCED TO NAVD88 DATUM. HORIZONTAL DATA IS REFERENCED TO GRID NORTH, MAINE STATE PLANE, EAST ZONE, NAD83 DATUM.



ROAD PROFILE

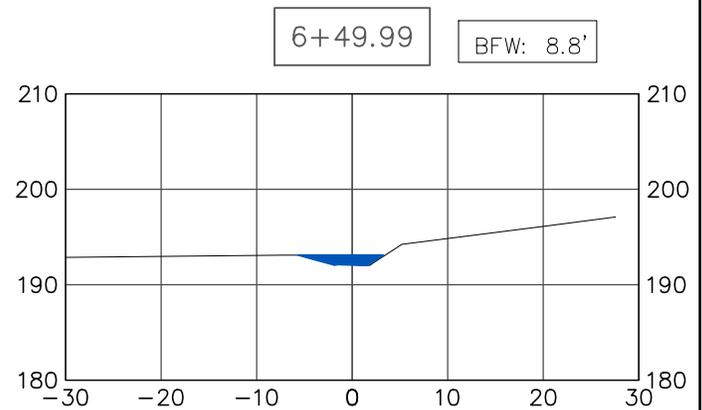
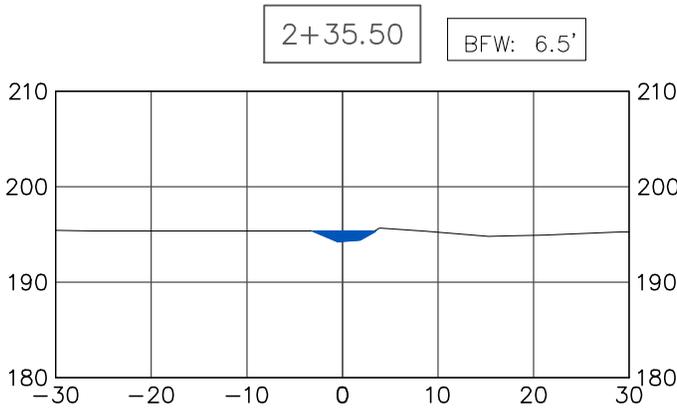
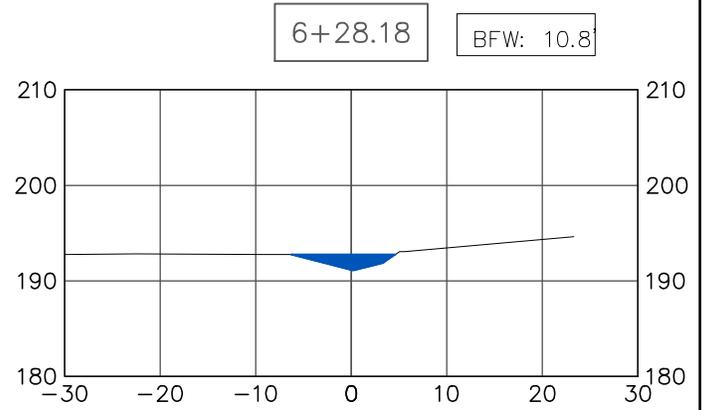
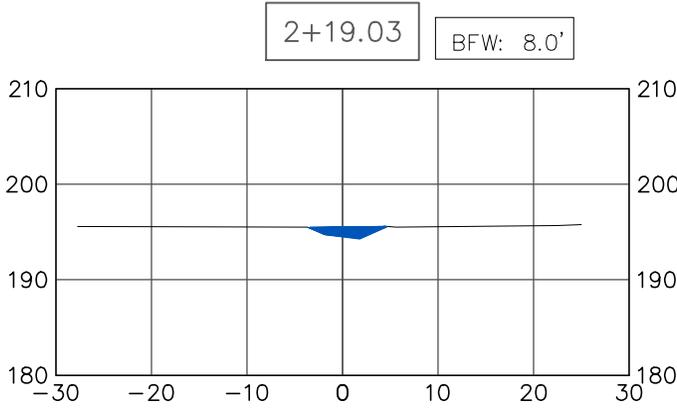
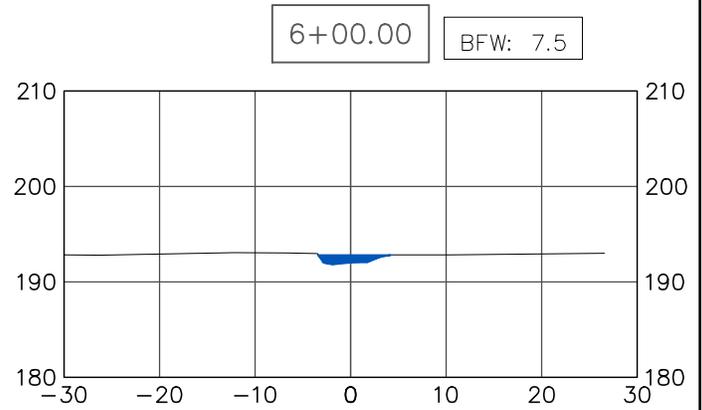
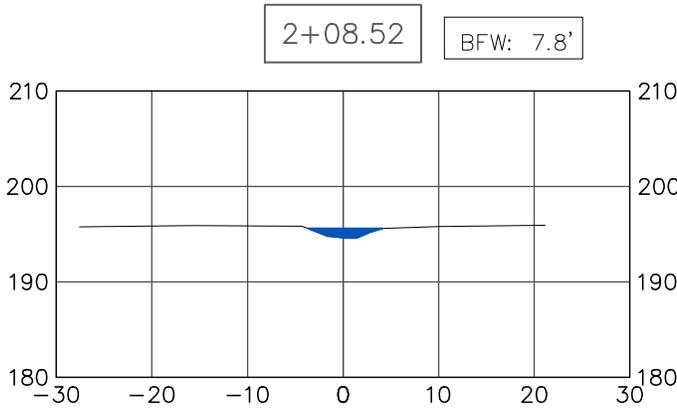
STREAM CROSSING IMPROVEMENTS
 44.90869°N, -67.32628°W
 EAST RIDGE ROAD
 CATHANCE TOWNSHIP, MAINE 04628

COUNTY OF WASHINGTON
 PO BOX 297
 MACHIAS, MAINE 04654



C-202

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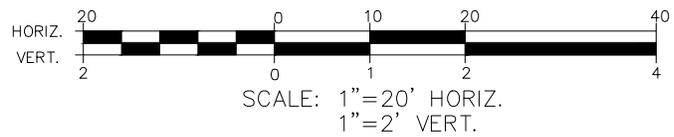


NOTES:
 1. TOPOGRAPHIC INFORMATION OBTAINED FROM A FIELD SURVEY PERFORMED BY SURVEY, INC IN OCTOBER 2020. TOPOGRAPHIC ELEVATIONS ARE REFERENCED TO NAVD88 DATUM. HORIZONTAL DATA IS REFERENCED TO GRID NORTH, MAINE STATE PLANE, EAST ZONE, NAD83 DATUM.

BANKFULL WIDTH SECTIONS

STREAM CROSSING IMPROVEMENTS
 44.90869°N, -67.32628°W
 EAST RIDGE ROAD
 CATHANCE TOWNSHIP, MAINE 04628

COUNTY OF WASHINGTON
 PO BOX 297
 MACHIAS, MAINE 04654



C-301

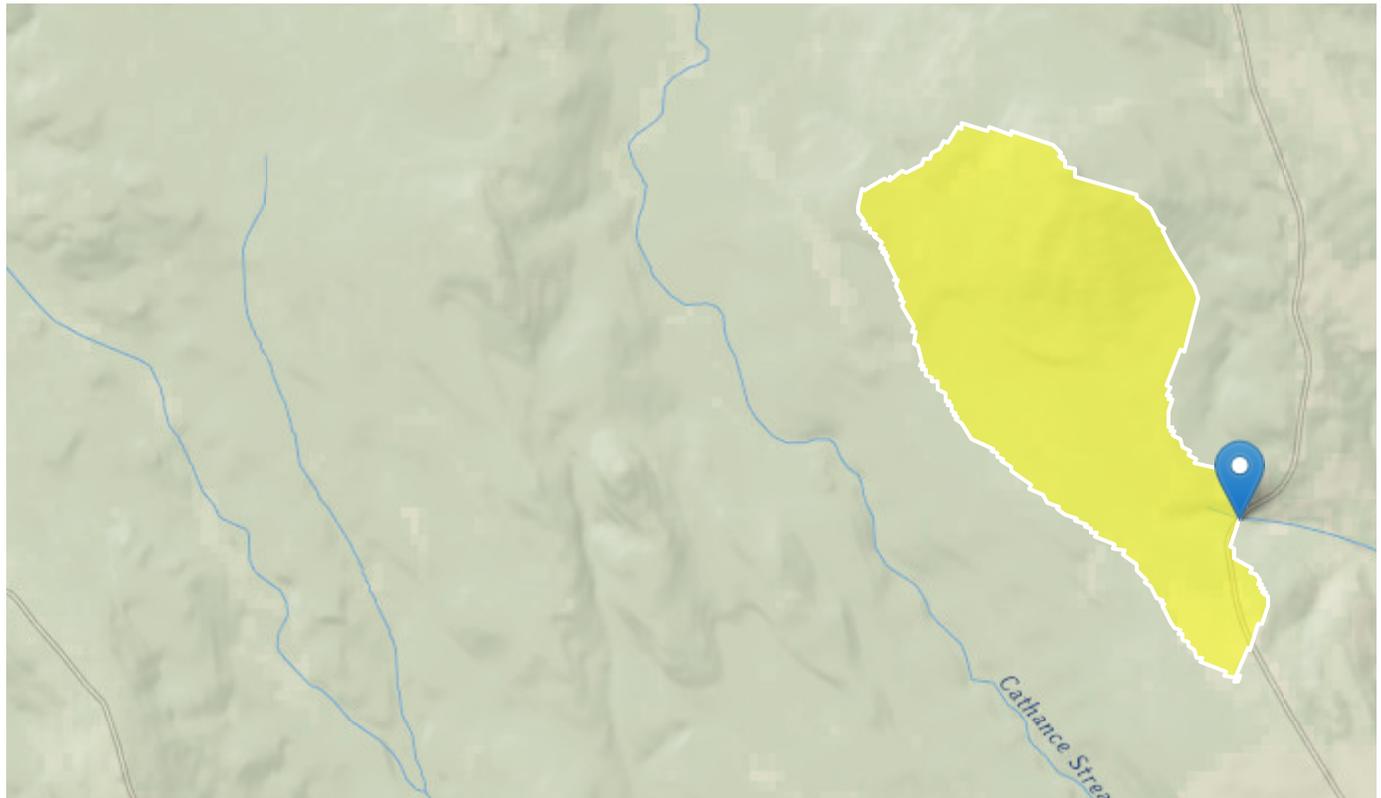
StreamStats Report

Region ID: ME

Workspace ID: ME20201009140815478000

Clicked Point (Latitude, Longitude): 44.90869, -67.32628

Time: 2020-10-09 10:08:56 -0400



StreamStats Report for East Ridge Road crossing in Cathance Township, Maine.

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.5	square miles
STORNWI	Percentage of storage (combined water bodies and wetlands) from the National Wetlands Inventory	12.93	percent
BSLDEM10M	Mean basin slope computed from 10 m DEM	4.73	percent
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	631547.6	meters

Parameter Code	Parameter Description	Value	Unit
CENTROIDY	Basin centroid vertical (y) location in state plane units	4974706.11	meters
COASTDIST	Shortest distance from the coastline to the basin centroid	37	miles
ELEV	Mean Basin Elevation	247	feet
ELEVMAX	Maximum basin elevation	351.1	feet
LC06WATER	Percent of open water, class 11, from NLCD 2006	0	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	0.73	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	0.0572	percent
PRDEC FEB90	Basin average mean precipitation for December to February from PRISM 1961-1990	12.3	inches
PRECIP	Mean Annual Precipitation	47.5	inches
SANDGRAVAF	Fraction of land surface underlain by sand and gravel aquifers	0	dimensionless
SANDGRAVAP	Percentage of land surface underlain by sand and gravel aquifers	0	percent
STATSGOA	Percentage of area of Hydrologic Soil Type A from STATSGO	11	percent

Peak-Flow Statistics Parameters [Statewide Peak Flow DA LT 12sqmi 2015 5049]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.5	square miles	0.31	12
STORNWI	Percentage of Storage from NWI	12.93	percent	0	22.2

Peak-Flow Statistics Flow Report [Statewide Peak Flow DA LT 12sqmi 2015 5049]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
1.01 Year Peak Flood	7.47	ft ³ /s	38
2 Year Peak Flood	23.5	ft ³ /s	34
5 Year Peak Flood	36.4	ft ³ /s	35
10 Year Peak Flood	45.2	ft ³ /s	37
25 Year Peak Flood	58.9	ft ³ /s	39
50 Year Peak Flood	67.9	ft ³ /s	41
100 Year Peak Flood	79.3	ft ³ /s	42
250 Year Peak Flood	88.7	ft ³ /s	44
500 Year Peak Flood	105	ft ³ /s	47

Peak-Flow Statistics Citations

Lombard, P.J., and Hodgkins, G.A., 2015, Peak flow regression equations for small, ungaged streams in Maine— Comparing map-based to field-based variables: U.S. Geological Survey Scientific Investigations Report 2015–5049, 12 p. (<http://dx.doi.org/10.3133/sir20155049>)

Bankfull Statistics Parameters[Central and Coastal Bankfull 2004 5042]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.5	square miles	2.92	298

Bankfull Statistics Disclaimers[Central and Coastal Bankfull 2004 5042]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Bankfull Statistics Flow Report[Central and Coastal Bankfull 2004 5042]

Statistic	Value	Unit
Bankfull Streamflow	2.51	ft ³ /s
Bankfull Width	5.35	ft
Bankfull Depth	0.469	ft
Bankfull Area	2.51	ft ²

Bankfull Statistics Citations

HY-8 Analysis Results

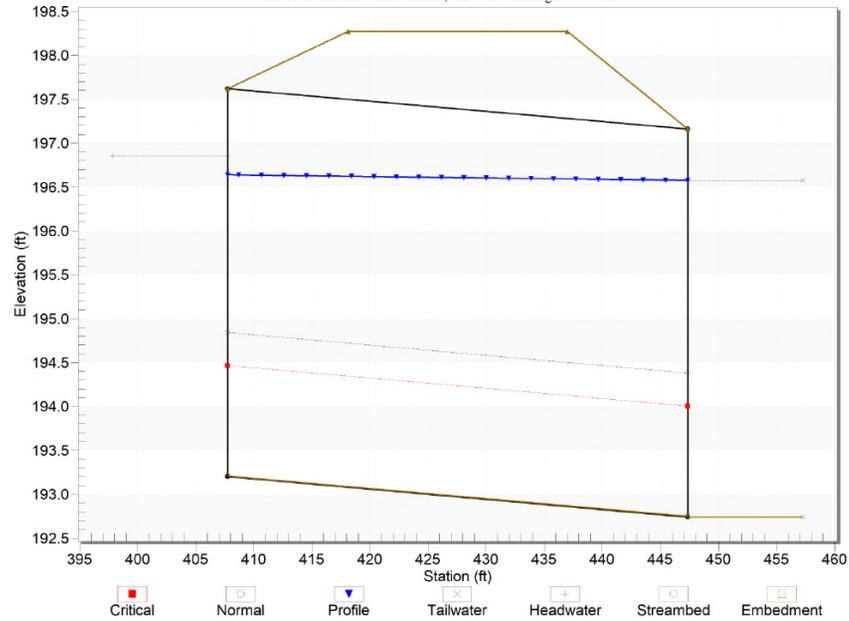
Culvert Summary Table - Proposed

Culvert Crossing: 51873 - Cathance

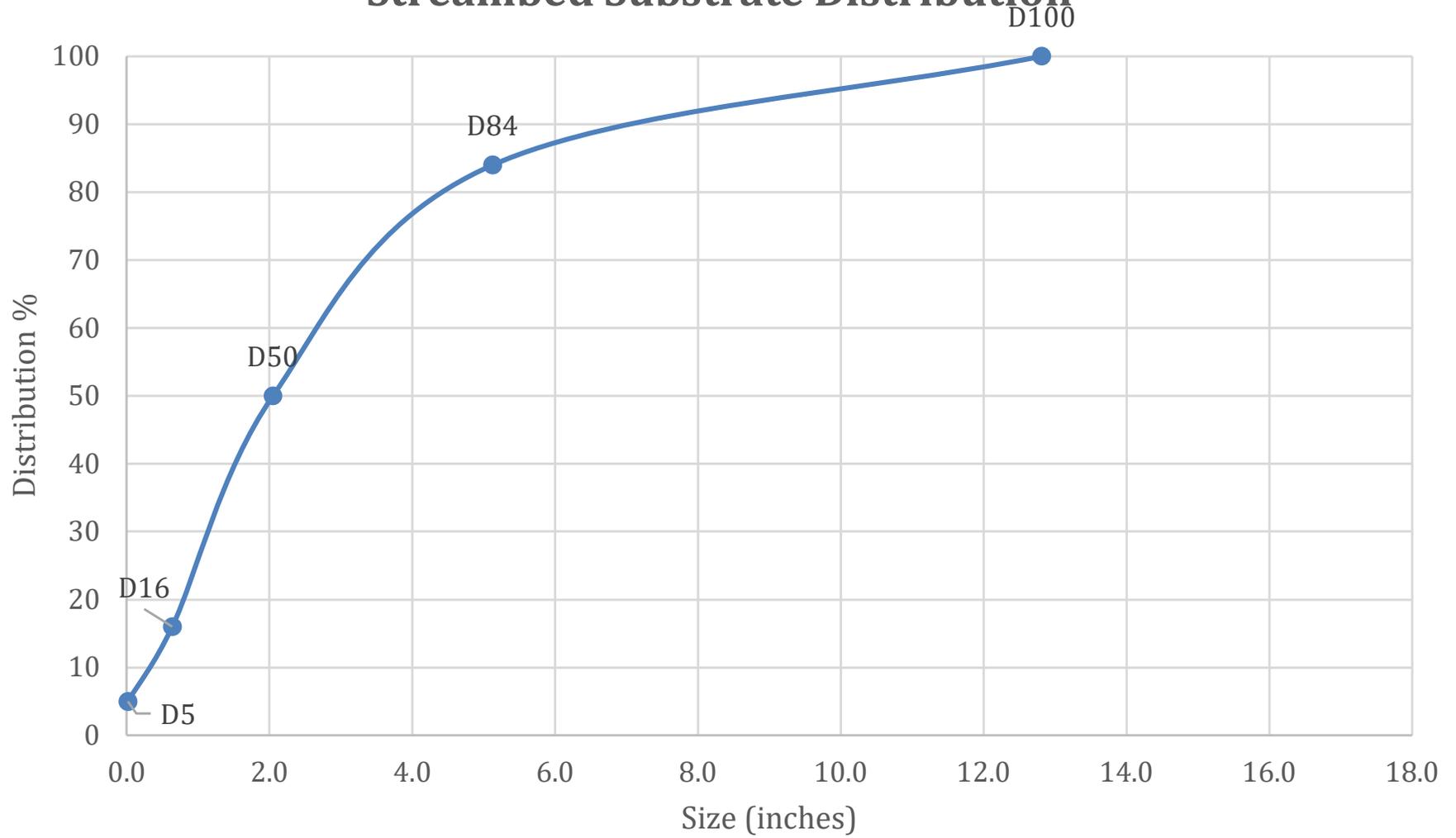
Discharge Names	Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
1 year	7.47	7.47	193.70	0.43	0.49	3-M1t	0.35	0.26	0.71	0.72	1.07	1.95
2 year	23.50	23.50	194.47	1.00	1.27	3-M1t	0.72	0.56	1.55	1.56	1.58	2.82
5 year	36.40	36.40	195.06	1.34	1.85	3-M1t	0.95	0.75	2.12	2.13	1.83	3.20
10 year	45.20	45.20	195.44	1.55	2.23	3-M1t	1.10	0.86	2.49	2.50	1.97	3.38
25 year	58.90	58.90	196.01	1.86	2.80	3-M1t	1.32	1.03	3.04	3.05	2.18	3.61
50 year	67.90	67.90	196.38	2.05	3.18	3-M1t	1.46	1.13	3.39	3.40	2.32	3.73
100 year	79.30	79.30	196.85	2.28	3.64	3-M1t	1.63	1.26	3.83	3.84	2.51	3.86
200 year	88.70	88.70	197.24	2.48	4.04	3-M1t	1.77	1.36	4.18	4.19	2.69	3.96
500 year	105.00	105.00	197.97	2.82	4.76	4-FFf	2.01	1.52	4.41	4.80	3.15	4.09

Crossing - 51873 - Cathance, Design Discharge - 79.3 cfs

Culvert - Culvert PROPOSED, Culvert Discharge - 79.3 cfs



Streambed Substrate Distribution



Maine Stream Habitat Viewer

Layer Details:

1 feature currently selected

Crossings and Barriers: Crossings

Site ID: 51873

Crossing Type: Culvert

Crossing Class: Potential Barrier

Survey Date: 2015-07-15

Stream: Venture Brook

Town: Cathance Twp

County: Washington

Road: East Ridge Rd

Detailed Stream Crossing Information

Latitude: 44.90866

Longitude: -67.32620

Road Type: Paved

Road Class: Town

Number of Culverts: 1

Crossing Condition: OK

Structure Type: Round Culvert

Material: Metal

Inlet Grade: At Stream Grade

Inlet Width (ft): 3.00

Inlet Water Depth (ft): 1.10

Inlet Height (ft): 3.00

Crossing Length (ft): 36.00

Outlet Grade: At Stream Grade

Outlet Width (ft): 3.00

Outlet Water Depth (ft): 0.60

Outlet Drop (ft): 0.00

Outlet Height (ft): 3.00

Structure Substrate Matches Stream: None

Physical Barriers: Deformation, Fencing

Physical Barrier Severity: Moderate

Road Fill Height (ft): 1.50

Total Opening Width (ft): 3.00

Area of Opening (sq ft): 7.10

Estimated Bankfull Width (ft): 13.90

Upstream Blocked Miles: 0.39

Upstream Total Miles: 0.39

Upstream Barriers: 0

Downstream Barriers: 1

Potential Effects of this Crossing

Atlantic Salmon Modeled 100 sq m Habitat

Units Blocked: 6.52

Alewife Pond Acres Blocked: -1.00

Wild Eastern Brook Trout Habitat: Yes

Rainbow Smelt Habitat: No data

Tidal Marsh: No data

Other Habitat Considerations

Beginning with Habitat Connectors: Yes

Threatened Endangered or Rare Species: No data

Non-Native Fish: No data

Tidal Waterfowl & Wading Bird Habitat: No data

Inland Waterfowl & Wading Bird Habitat: No data

Beginning with Habitat Focus Area: No data

Watersheds

HUC 12 Subwatershed Name: Dennys River

HUC 10 Watershed Name: Dennys River

HUC 8 Sub-basin Name: Passamaquoddy

Bay-Bay of Fundy

HUC 6 Basin Name: Maine Coastal

Cathance-East Ridge Road MSHV Photos 7/15/2015

Downstream



Outlet



Inlet



Upstream



630000

632000

634000

4976000

4976000

4974000

4974000

4972000

630000

632000

634000

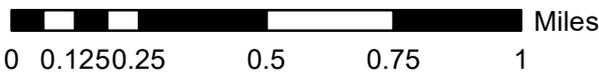


Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Stream Crossing 7--51873, Cathance Township
(Version 1)

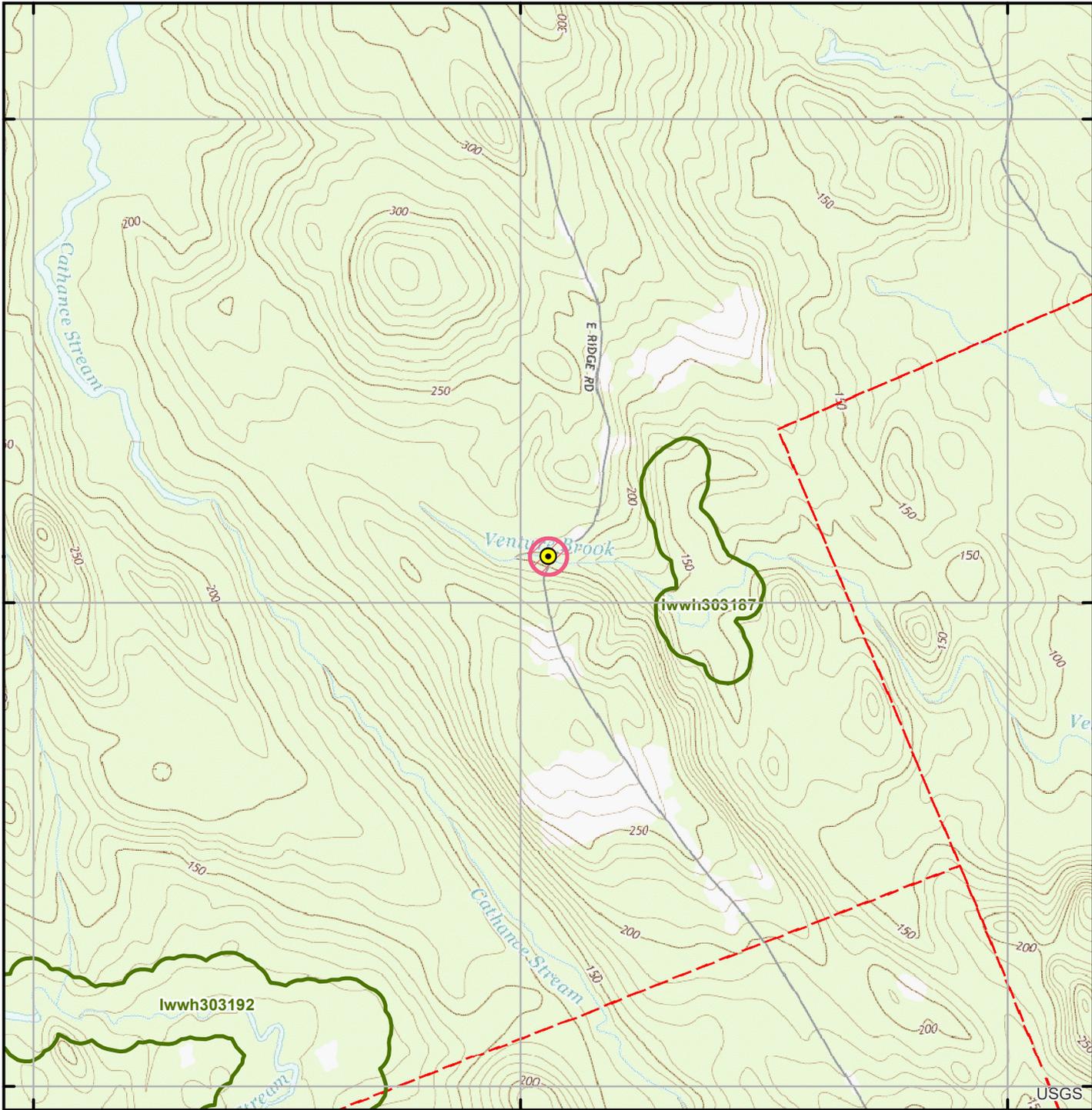
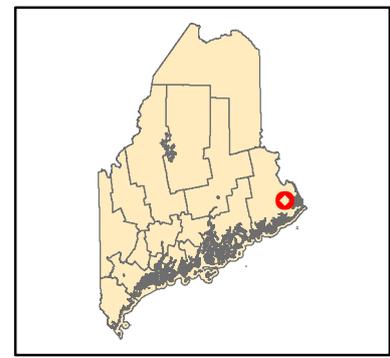


Maine Department of
Inland Fisheries and Wildlife



Projection: UTM, NAD83, Zone 19N

Date: 10/2/2020





The Nature Conservancy in Maine
14 Maine Street, Suite 401
Brunswick, ME 04011

tel [207] 729-5181
fax [207] 729-4118
www.nature.org/maine

Mr. John Maclaine
Grant for Culvert Upgrades Program
Maine Department of Environmental Protection
17 State House Station
Augusta, Maine 04333
207-615-3279
john.maclaine@maine.gov

Nov 12, 2020

Re: Cathance Township Application for East Ridge Road Stream Crossing Replacement Project

Dear Mr. Maclaine,

I am writing to express my support and enthusiasm for Cathance Township's proposal to the Grant for Culvert Upgrades Program to help fund the East Ridge Road fish passage restoration project. The Town's efforts to restore fish passage, improve water quality, and increase the river's ability to absorb heavy rain events with minimal flooding is an important goal and The Nature Conservancy (TNC) looks forward to supporting Cathance Township's efforts. These efforts to restore migratory fish access to the important habitats upstream will ensure the security of the road and stream networks in Cathance Township and the surrounding communities and promote a sustainable future for Maine's freshwater and marine resources.

TNC is dedicated to conserving the lands and waters on which all life depends and has been involved in efforts to restore rivers and streams in Maine for the past 10 years. Maine is remarkable for having so many good fish passage projects, as well as significant fish habitat. Free flowing rivers provide easy access to spawning and rearing habitat to several sea run fish species and allow resident fish species unfettered access to the multiple habitats need to support diverse life history strategies.

This crossing was identified as an important Fish Passage Restoration project by Maine Aquatic Barrier Prioritization Tool (<https://maps.coastalresilience.org/maine>) and is located in watershed identified by as high priority for restoration and protection.

Please join me in supporting Cathance Township in this proactive effort to both restore fish habitat and reduce threats to critical infrastructure in this innovative project to protect the towns ecological and economic integrity.

Sincerely,

Ben Matthews,
Watershed Restoration Scientist
The Nature Conservancy in Maine