Environmental Assessment
Fort Kent Blockhouse Levee Extension Project
Fort Kent, Aroostook County, ME

HMGP 4208-DR-ME

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FEMA

U.S. Department of Homeland Security
Federal Emergency Management Agency Region I
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ACHP – Advisory Council on Historic Preservation
APE – Area of Potential Effect
APHIS-Animal and Plant Health Inspection Services
BFE- Base Flood Elevation
BMP – Best Management Practice
CAA – Clean Air Act
CBRA – Coastal Barrier Resources Act
CDBG – Community Development Block Grant
CEQ – Council of Environmental Quality
CFR– Code of Federal Regulations
CWA – Clean Water Act
CZMA – Coastal Zone Management Act
DACF – Maine Department of Agriculture, Conservation, and Forestry
DEP – Maine Department of Environmental Protection
DHS – Department of Homeland Security
EA – Environmental Assessment
EO – Executive Order
ESA – Endangered Species Act
FEMA – Federal Emergency Management Agency
FIRM – Flood Insurance Rate Map
FONSI – Finding of No Significant Impact
FWCA – Fish and Wildlife Coordination Act
HMGP – Hazard Mitigation Grant Program
HUD – U.S. Department of Housing and Urban Development
IPaC – Information for Planning and Consultation
IWWH – Inland Waterfowl / Wading Bird Habitat
MBTA – Migratory Bird Treaty Act
MDIFW – Maine Department of Inland Fisheries and Wildlife
MEMA – Maine Emergency Management Agency
MHPC – Maine Historic Preservation Commission
MOA – Memorandum of Agreement
NAAQS – National Ambient Air Quality Standards
NEPA – National Environmental Policy Act
NFIP – National Flood Insurance Program
NHPA – National Historic Preservation Act
NMFS-National Marine Fisheries Services
NPDES – National Pollutant Discharge Elimination System
NPS – National Park Service
NRCS – Natural Resources Conservation Service
NRHP – National Register of Historic Places
NWI – National Wetland Inventory
SHPO – State Historic Preservation Office
SIP – State Implementation Plan
USACE – U.S. Army Corps of Engineers
USDA – U.S. Department of Agriculture
USEPA – U.S. Environmental Protection Agency
USFWS – U.S. Fish and Wildlife Service
USGS – U.S. Geological Survey
WOUS – Waters of the United State

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1 INTRODUCTION

In 1977, the U.S. Army Corps of Engineers New England District (USACE), completed the construction of a 3,250-foot long and 5 to 12-foot high earthen levee under Section 205 of the Continuing Authorities Program. The levee begins 370 feet upstream of the International Bridge and extends north-northwest to the historic Fort Kent Blockhouse. The purpose of the earthen levee, which also includes a concrete floodwall and pumping station, is to protect Fort Kent from flood events that occur at the confluence of the Fish River and St. John River during the spring months when snowmelt combines with runoff from heavy precipitation. The confluence of the Fish River and St. John River is located in the heart of Fort Kent, which increases the potential for flooding of homes, apartment buildings, businesses, public facilities and utilities, the Fort Kent Fire Department, and the Fort Kent Blockhouse. The Fort Kent Blockhouse is listed on the National Register of Historic Places (NRHP) and is designated as a National Historic Landmark (NHL). (MEMA, 2016)

Since the levee construction, there have been several documented flood events, most notably in 2008 when rapid snowmelt, thick river ice, and heavy April precipitation caused a 100-year flood in Fort Kent. The St. John River rose high enough to cause a rise in the Fish River, which flooded East Main Street, parts of West Main Street, and Meadow Lane. The Fort Kent Public Works Department constructed a temporary gravel berm along Blockhouse Road to prevent additional flooding of West Main Street.

On March 12, 2015, President Obama declared a major disaster in four counties in Maine. This declaration, DR-4208-ME, authorized the Federal Emergency Management Agency (FEMA) to provide Hazard Mitigation Grant Program (HMGP) assistance for hazard mitigation measures statewide in accordance with Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law (Pub. L.) 93-288 (1974), as amended, 42 United States Code (U.S.C.) § 5133. (FEMA, 2015a) The Town of Fort Kent (Town) has applied to FEMA's HMGP for financial assistance to plan, design, and install an 800-foot block wall levee extending from the existing St. John levee to the west, north, and east sides of the Fort Kent Blockhouse and along the Fish River riverbank to the US-1 Bridge. The block wall levee would add three (3) feet (in height) on top of the existing ground surface around the Fort Kent Blockhouse matching or exceeding the height of the base flood elevation (BFE) plus three (3) feet of freeboard. An additional one (1) foot of freeboard is also added where the block wall is within 100 feet of the rivers, as per required by 44 CFR 65.10. (Proposed Action). The Maine Emergency Management Agency (MEMA) is the state agency partner for the Proposed Action.

This Environmental Assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA) (42 U.S.C. §§ 4321-4347), and the Council of Environmental Quality (CEQ) Regulations for Implementation of the National Environmental Policy Act (40 Code of Federal Regulations [C.F.R.] 30 §§ 1500-1508). The purpose of the EA is to analyze the

potential environmental impacts of the Proposed Action and Alternatives, including the No Action Alternative, and to determine whether to prepare a Finding of No Significant Impact (FONSI) or an Environmental Impact Statement (EIS). In accordance with the above referenced regulations, Department of Homeland Security (DHS) Directive 108-1, *Environmental Planning and Historic Preservation Responsibilities and Program Requirements* (August 22, 2016), and DHS Instruction Manual 023-01-001-01, *Implementation of the National Environmental Policy Act,* (rev. 01) (November 6, 2014), FEMA is required to fully evaluate and consider during decision making the environmental consequences of major Federal actions it funds or undertakes. This EA was also prepared to satisfy the NEPA requirements under 33 U.S.C. Section 408 (Section 408) to modify a section of the USACE-constructed Fort Kent Local Protection Project. Section 408 allows the Secretary of the Army, on the recommendation of the Chief of Engineers, to grant permission for the alteration or occupation or use of a USACE civil works project if the Secretary determines that the activity will not be injurious to the public interest and will not impair the usefulness of the Federal project. A decision on a Section 408 request is a Federal action, and therefore subject to NEPA and other environmental compliance requirements.

2 PURPOSE AND NEED

FEMA's HMGP supports the protection of health, safety and welfare of citizens, and assists communities in mitigating damages caused by disasters and reduces future losses resulting from natural disasters. The purpose of the Proposed Action is to mitigate flooding in the mixed commercial and residential area at the confluence of the Fish and St. John Rivers in Fort Kent, Maine, an area that includes and surrounds the Fort Kent Blockhouse. The Proposed Action is needed because flooding has occurred regularly along the Fish and St. John Rivers, resulting in; continued loss of property, displacement of residents, disruption of traffic, and loss of Fire Department services.

3 PROJECT LOCATION AND BACKGROUND

The Town of Fort Kent is an approximately 52.5 square mile area located in Aroostook County in northern Maine. Fort Kent sits along the St. John River, which forms the border between the United States and Canada (Appendix A-1). The Fish River runs through the center of the Town. Within Maine, Fort Kent is primarily accessible to motorists via U.S. Route 1, Maine Route 11, and Maine Route 161. New Brunswick Routes 161 and 205 are the primary thoroughfares that lead into Fort Kent from Canada.

The historic Fort Kent Blockhouse was constructed 1838-1840 during fortification of the Maine frontier with blockhouses in response to the Aroostook War. The Fort Kent Blockhouse is bordered to the northeast by the Fish River. The St. John River is located roughly 700 feet to the northwest of the Fort Kent Blockhouse. The existing levee was constructed to protect Fort Kent from flood events that occur at the confluence of the Fish and St. John Rivers, which is in the middle of Fort Kent. (Appendix A-2) The NRHP-listed Fort Kent Blockhouse is the only existing fortification constructed as a result of the northeast boundary controversy between Great Britain and the United States. (Scharoun & Bartone, 2016)

Since the construction of the levee, there have been numerous documented flood events, including: 1977, 1978, 1989, 1991, 1993, 2000, 2001, 2005, 2007, and 2008. The typical scenario involves high snowfall winters, thick river ice, heavy spring rains, unseasonably warm spring weather, or a combination of the four. From April 28 to May 1, 2008, five (5) inches of rain combined with rapid snowmelt caused massive flooding in Fort Kent. The St. John River hit a high-water mark of 30.17 feet at Fort Kent, coming close to breaching the levee. The elevated St. John River then caused the Fish River to rise and flood East Main Street, parts of West Main Street, and Meadow Lane. Over 600 people (approximately 15 percent of Fort Kent's population) were evacuated, and 140 homes flooded. U.S. Route 1, Maine Route 11, and Maine Route 161 were closed for three (3) days, resulting in detour options that ranged from 5 to 120 miles. The Fort Kent Fire Department could not provide services during this three-day period due to road closures and standing water. Septic systems failed, contributing to the issuance of a boil order for Fort Kent's 500 public water supply customers. The extent of the 2008 flooding event prompted a new Flood Insurance Study (FIS) and a new Flood Insurance Rate Map (FIRM). (MEMA, 2016; USGS, 2012)

4 ALTERNATIVES

Several alternatives were evaluated for the Fort Kent, ME Levee Extension Project based upon engineering constraints, environmental impacts, and available property. Financial constraints were also considered, but were not the factor. (Muzzy, 2016)

Guidance provided in NEPA § 102(2)(E) and 40 C.F.R. § 1508.9 regarding alternatives analyses states that an agency must "rigorously explore and objectively evaluate all reasonable alternatives and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their elimination." A “no action” alternative must also be included. In addition, under Section 408, “reasonable” alternatives must be considered for assessing impacts to the Federally constructed civil works project (EC 1165-2-216). Reasonable alternatives should focus on the 1) no action alternative, and 2) the proposed alteration. This section discusses the No Action Alternative, other feasible Alternatives that would meet the purpose and need, and Alternatives eliminated from full analysis.

As codified in Section 14 of the Rivers and Harbors Act, this project requires a 408 authorization from the USACE. The requirement of the permit is a result of the project permanently altering a USACE Civil Works project, in this case, the 1977 St. John Levee. The permit has three (3) main parts, a project design, real estate/ownership, and an environmental assessment. This EA, in part, satisfies the NEPA requirements of the 408 application.

Alternative 1: No Action Alternative

Under the No Action Alternative, the existing levee would remain in its existing configuration. No additional flood protection would be provided. Surrounding areas in Fort Kent would remain at current risk levels for future flood events.

Alternative 2: Proposed Action – Block Wall Levee Extension Construction and Road Elevation

Under the Proposed Action, the Town plans to construct an approximately 800-foot block wall levee extending from the existing St. John levee to the west, north, and east sides of the Fort Kent Blockhouse and along the Fish River riverbank to the US-1 Bridge. The block wall levee would add three (3) feet (in height) on top of the existing ground surface around the Fort Kent Blockhouse matching or exceeding the height of the base flood elevation (BFE) plus three (3) feet of freeboard. An additional one (1) foot of freeboard is also added where the block wall is within 100 feet of the rivers, as per required by 44 CFR 65.10. (Appendix A-3)

In addition, the following project elements would be incorporated:

- An existing utility line would be relocated, and several 8-inch culverts and storm drains would be installed,
- An 8-inch toe drain would be installed on the "landside edge" of the block wall at a depth of 5 to 7 feet below the surface,
- The road profile of Blockhouse Road would be altered to a 10% slope for 30 feet where it connects to the picnic area access road. The slope of the picnic area access road would be changed (from 12.5%) to 17 % for a distance of approximately 100 feet and would have a paved surface,
- The road profile of Island Road would be altered (from 8%) to a 10% slope where the crest is leveled for approximately 40 feet where the block wall comes toward Island Road and follows alongside for approximately 40 feet where the height of the road serves as the flood berm. The block wall would pick up again on the opposite side of the road and continue to connect to the existing levee,
- The block wall would tie in with the existing St. John River levee section on the southwest side of Island Road,
- The block wall would tie in with the concrete wing wall at the northwestern corner of the U.S. Route 1 Bridge where it crosses the Fish River,
- Portions of Blockhouse Road would be narrowed, especially near the Route 1 Bridge, to reduce Blockhouse Road to serve as a one-way street,
- The Freeboard Modification would eliminate seven (7) existing angle-parking spaces. To compensate for the lost parking spaces, two tour bus-sized parking spaces would be added near the entrance to the picnic area,
- A semicircle-like section of roadway would be added to Blockhouse Road to allow traffic leaving the picnic area adequate turning space.

The vertical section of the block wall would consist of three (3) blocks and a cap; the two (2) bottom blocks would measure 41 inches wide by 18 inches tall, and the uppermost block would measure 24 inches wide by 18 inches tall. The cap block would measure 30 inches wide by 6 inches tall and overhang the stacked blocks by 3 inches on each side. The land side of the blocks would feature a textured surface to give exposed portions a quarried stone appearance. The river side of the levee along Blockhouse Road and the Fish River would consist of twenty-four (24) inches of riprap, crushed stone, nonwoven geotextile fabric, and a low-density polyethylene (LLDPE) geomembrane. The River side of the levee near the Blockhouse would have a back slope of grass-covered soil including nonwoven geotextile fabric, LLDPE geomembrane, erosion control matting, and four (4) inches of loam, seed, fertilizer, and mulch, with a slope of 2 feet vertical rise to 1 foot horizontal run.

Island Road and Blockhouse Road elevations would be raised to achieve a minimum road surface elevation equal to the BFE plus 3 feet. The raised portion of both roadways would be constructed using sand and gravel fill, which would be finished with paved surface. Where

the roadways cross the levee, a vertical seepage barrier of compacted, embankment material (till fill) would be used in place of the sand and gravel fill. The seepage barrier would serve to minimize occurrence of groundwater seepage from the riverside of the levee to the landside of the levee through the roadway buildups when flood levels greater than the BFE occur. The vertical barrier would be an extension of the till fill soil that forms the existing levee at the two roadway crossing locations. Along Island Road, the two lengths of block wall on either side of the roadway would be constructed and waterproofed the same as for the overall Freeboard Modification making the elevated crossing an integral transition from the St. John section of the levee to the Fish River section of levee.

To facilitate connection to the Route 1 Bridge, posts, rails, and balusters would be removed from the existing wing wall and a permanent reinforced concrete vertical extension would be constructed as an attachment to the existing wing wall base. To form a waterproof barrier on the riverside of the block wall, the flexible geomembrane used to waterproof the block wall would be extended and fastened onto the wing wall using a gasket (between the concrete and geomembrane) and batten strip to secure the membrane and gasket to the concrete.

To facilitate the connection to the St. John levee, a portion of the soil embankment at the downstream end of the levee would be removed to expose the sheet pile wall/concrete cap. The block wall Freeboard Modification would be placed against the landside of the sheet pile wall/concrete cap. The geomembrane against the block wall would be lapped onto the riverside of the concrete cap and fastened to it using a gasket and batten strip. Once in place, the geomembrane would be backfilled with soil in the same manner as other portions of the block wall. The combination of geomembrane and soil backfill would serve to waterproof the joint formed by connecting the Freeboard Modification to the downstream end of the St. John section.

The northwestern side of the Blockhouse is parallel to, and set back from, the property line by approximately 15 feet. The Maine Department of Agriculture, Conservation and Forestry (DACF) agreed to an easement with the Town on October 31, 2017 for work around the Blockhouse and along Blockhouse Road. DACF is responsible for the care of the Blockhouse and has requested that the setback be preserved and not encumbered by the Freeboard Modification. To meet that request, the Freeboard Modification adjacent to the northwestern side of the Blockhouse will be located on neighboring Lumber Yard property. The Lumber Yard and the Town signed an easement on March 15, 2018 allowing the Freeboard Modification to occur on the Lumber Yard property, including access for future inspections and maintenance.

For the block wall designs, excavation of the area would extend approximately 5-7 feet below the ground surface for toe drain construction and approximately 1-2 feet below ground for

placement of the block wall. Approximately fifteen (15) pine trees (various species) would be removed inside the block wall levee. (Appendix 4)

Alternatives Considered and Dismissed

4.1.1 Alternative 3: Elevate the Existing Levee with 400 Feet of Sheet Piling and a 400 Foot Soil Berm

Under Alternative 3, the Town of Fort Kent would install 400 feet of steel sheeting and a 400-foot soil berm on top of the existing Fish River levee system. This would increase the height of the existing levee by three feet and provide additional flood protection to the Fort Kent Blockhouse and surrounding neighborhoods. The steel sheet pile would be driven into the existing levee and connect with a constructed soil berm further downstream that would provide additional flood protection without the cost for additional sheeting. Soil borings would be necessary prior to construction. The use of natural materials for a soil berm would harmonize aesthetically with the natural vegetation along the shorelines of the Fish and St. John Rivers, minimizing the visual impacts to the Fort Kent Blockhouse.

This Alternative was dismissed because a soil berm would require a much wider base than the block wall alternative, further encroaching on DACF land.

4.1.2 Alternative 4: Extend the Block Wall (Levee) along the St. John River

Alternative 4 shares a substantial feature of the SOW presented in Alternative 2 an 800-foot block wall levee on top of the existing Fish River levee system. In addition, Alternative 4 would extend the existing levee along the St. John River. Currently, the levee follows the shoreline of the St. John River from a point upstream of the Clair-Fort Kent Bridge to the western edge of the S.W. Collins Lumberyard. Under Alternative 4, the block wall would be extended to include the area north and east of the S.W. Collins Lumberyard. Alternative 4 would improve flood protection for both the S.W. Collins Lumberyard and Fort Kent Blockhouse. Alternative 4 was considered and dismissed due to the considerable additional cost associated with the length of the block wall extension and the need for sheet pile.

4.1.3 Alternative 5: Relocate the Fort Kent Blockhouse

Alternative 5 would relocate the Fort Kent Blockhouse to a different site outside the floodplain. This Alternative was dismissed due to the high probability of structural damage to the historic building and other significant potential losses to the historic building's integrity. In addition, Alternative 5 would not meet the designated purpose of the project to improve flood protection for the Fort Kent Blockhouse and area neighborhoods. Furthermore, this option would be cost prohibitive and would impact the Blockhouse's historic integrity and significance as its setting would change.

5 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

The Council on Environmental Quality (CEQ) regulations at 40 C.F.R. § 1508.9 require Federal agencies to evaluate potential effects on the environment from the implementation of the considered alternatives. In the following section, the ***No Action Alternative*** would maintain the existing Fish River levee system in its present configuration. Impacts may be direct or indirect in the same manner as they currently exist. ***Alternative 2: Proposed Action*** consists of altering the existing levee and project area in an effort to prevent future damage from flooding. This undertaking will result in direct and/or indirect impacts to the local environment and infrastructure; however, such impacts are either not significant or have been sufficiently mitigated as detailed below. Potential impacts for both Alternatives are addressed in each resource section.

Section 5 of this EA provides information on the affected environment and potential direct and indirect impacts of the No Action Alternative and the Proposed Action on individual environmental resources. Impacts are designated as either Negligible, Minor, Moderate, or Major. Criteria for categorizing impacts to resources can be found in table 5-1.

CEQ notes: "Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial" (40 CFR 1508.8).

These types of effects are defined as follows (40 CFR 1508.8):

(a) Direct effects, which are caused by the action and occur at the same time and place.

(b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Table 5-1: Impact Significance and Context Evaluation Criteria for Potential Impacts:

Impact Scale	Criteria
Negligible	The resource area would not be affected and there would be no impact, OR changes or benefits would either be non-detectable or, if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, but the changes would be small and localized. Impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
Moderate	Changes to the resource would be measurable and have either localized or regional scale impacts. Impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary, and the measures would reduce any potential adverse effects.
Major	Changes to the resource would be readily measurable and would have substantial consequences on a regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

The impact analysis in this EA evaluates the potential environmental direct and indirect and of the No Action and Proposed Action alternatives. A summary table of the potential impacts of the No Action and Proposed Action alternatives is provided here in Table 5-2:

Table 5-2: Alternatives Analysis: Summary of Potential Effect and Mitigation to Be Applied

Affected Environment/ Resource Area	Alternative 1: No Action	Alternative 2: Block Wall Construction and Road Elevation (Proposed Action)	Best Management Practices (BMPs) / Mitigation
Geology and Soils	Negligible	Minor	Maine Erosion Control BMPs and Permit By

Affected Environment/ Resource Area	Alternative 1: No Action	Alternative 2: Block Wall Construction and Road Elevation (Proposed Action)	Best Management Practices (BMPs) / Mitigation
			Rule Requirements
Air Quality	Negligible	Negligible	BMPs to maintain equipment and avoid unnecessary vehicle idling
Climate Change	Moderate	Minor	None
Water Quality	Negligible	Minor	Maine Erosion Control BMPs and 408 Permit Requirements
Floodplains	Moderate	Minor	
Wetlands	Negligible	Negligible	None
Wildlife and Fish	Negligible	Negligible	None
Vegetation	Negligible	Moderate	None
Threatened and Endangered Species	Negligible	Negligible	Voluntary Time of Year Restriction for tree clearing activity between June 1st and July 31st.
Migratory Birds	Negligible	Negligible	None

Affected Environment/ Resource Area	Alternative 1: No Action	Alternative 2: Block Wall Construction and Road Elevation (Proposed Action)	Best Management Practices (BMPs) / Mitigation
Bald and Golden Eagles	Negligible	Negligible	None
Invasive Species	Minor	Minor	USDA and ME DEP requirements on transporting regulated articles
Historic Properties	Moderate	Major	MOA-Treatment Measures
Archaeological Resources	Negligible	Negligible	None
Environmental Justice	Negligible	Negligible	None
Transportation	Negligible	Moderate	None
Noise	Negligible	Minor	Maine Noise control measures: Maine Department of Environmental Protection (DEP) noise control regulations found in 06-096 Chapter 375.10.
Public Health and Safety	Moderate	Minor	Fencing and signage around construction site

The EA describes the potential impacts of the No Action Alternative and Alternative 2: Proposed Action (Block Wall Levee Extension Construction and Road Elevation) on existing environmental

and cultural resources in the Action Area. Potential cumulative impacts are also described. Of the Federal laws, Executive Orders (EO), and regulations that apply to Federal actions, particularly to FEMA, some are applicable to this Proposed Action. Table 5-3 discusses the resources that would not be considered in the EA and the reason for exclusion.

Table 5-3: Environmental Resources that Will Not be Included in This EA

Topic	Reason
EO 12699, Seismic Safety	Project area is not in a seismic active area nor would it impact seismic activity.
Coastal Barrier Resources Act (CBRA) and Coastal Zone Management Act (CZMA)	Project area is not located in a coastal area.
Magnuson-Stevens Fishery Conservation and Management Act	The Fish and St. John Rivers have not been designated as Essential Fish Habitat.
Wild and Scenic Rivers Act	The Fish and St. John Rivers have not been designated as Wild and Scenic Rivers.
Farmland Protection Policy Act	Project area is not within farmland and would not cause the conversion of land from farmland.
Hazardous Waste	There will be no hazardous waste exposed or used in relation to this project. Brownfield sites have been identified and there are none within close proximity to the project, there is no contamination of the soil on site.
Land Use and Planning	This site will continue to operate as a state park.
Public Services and Utilities	Project drainage would tie into existing utilities. This project would not increase or impact any of the existing systems capacities.

Physical Resources

5.1.1 Geology and Soils

The Soil Science Society of America defines soil as "the unconsolidated mineral or organic material on the immediate surface of the Earth that serves as a natural medium for the growth of land plants".

5.1.1.1 Existing Conditions

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey show soils within the project area as being completely composed of "Made Land" (i.e., fill material). Made Land is typically composed of "very gravelly silt loam" and is characterized as moderately well drained. (Appendix A-5)

5.1.1.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative there will be no ground disturbance and therefore no change to the geology and soils. Based on these factors, the No Action alternative will have a **negligible** impact on geology and soils.

Alternative 2: Proposed Action

Under Alternative 2, the Town would implement BMPs to include: use of silt fences during construction; addition of four inches of loam, seed, and mulch to disturbed areas; installation of erosion control mesh on all disturbed slopes 6 vertical to 1 horizontal or steeper; and stabilization of disturbed areas within seven days of final grading. In areas where trees would be removed, topsoil disturbance would be minimized. The project will be conditioned to follow State regulations to control erosion and sedimentation in accordance with the *Maine Erosion and Sediment Control Handbook: Best Management Practices,* which is produced by the Maine Department of Environmental Protection (DEP).

There exists some potential for minimal localized erosion due to the following activities: construction of the block wall levee; road elevation; installation of several catch basins and storm drains; relocation of the existing utility line; removal of trees on the slope; and operation of heavy equipment/machinery. Ground disturbance on existing filled land would total less than one acre. A Permit By Rule Notification Form was submitted to ME DEP on February 15, 2018 and was approved on February 20, 2018. This form was submitted to comply with DEP rules, Chapter 305 “notice of intent to carry out work” in accordance with Chapter 2 “Actions Adjacent to Protected Natural Resources”.

Based on these factors and with the use of BMP’s, the Proposed Action would result in **minor** impacts to geology and soils.

5.1.2 Air Quality

The U.S. Environmental Protection Agency (USEPA) has established primary and secondary National Ambient Air Quality Standards (NAAQS) under the provisions of the Clean Air Act (CAA). Primary standards define levels of air quality necessary to protect public health with an adequate margin of safety. Secondary standards define levels of air quality necessary to protect public welfare from any known or anticipated adverse impacts of a pollutant. Federal NAAQS are currently established for the following seven criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), lead (Pb), particulate matter (PM) equal to or less than 10 micrometers in aerodynamic diameter (PM_{10}), and PM equal to or less than 2.5 micrometers in diameter ($PM_{2.5}$).(USEPA, 2016a)

The CAA, as amended in 1990, defines non-attainment areas as geographic regions that have been designated as not meeting one or more of the NAAQS. When an area is designated as non-attainment by the USEPA, the State is required to develop and implement a State Implementation Plan (SIP). The SIP delineates how the State plans to achieve air quality that meets the NAAQS under the deadlines established by the CAA, followed by a plan for maintaining attainment status once the area is in attainment. (USEPA, 2017b)

The conformity requirements of the Clean Air Act and its regulations limit the ability of Federal agencies to assist, fund, permit, and approve projects that do not conform to the applicable SIP. When subject to this regulation, the Federal agency is responsible for demonstrating conformity for its proposed action. Conformity determinations for Federal actions other than those related to transportation plans, programs, and projects that are developed, funded, or approved under title 23 USC or the Federal Transit Act (49 USC 1601 et seq.) must be made according to the Federal general conformity regulations (40 CFR 93 Subpart B). Certain actions and activities are exempted from general conformity review, including the following:

- Stationary source emissions regulated under major or minor New Source Review (air permitting) programs
- Alteration and additions of existing structures as specifically required by new or existing applicable environmental legislation
- Actions where the emissions are not reasonably foreseeable
- Actions that have been defined by the Federal agency or by the state as "presumed to conform"
- Activities with total direct or indirect emissions (not including stationary source emissions regulated under New Source Review programs) below *de minimis* levels. Emissions from construction activities are subject to air conformity review, unless they are shown to be below the applicable *de minimis* levels.

The emissions from construction activities are subject to air conformity review, unless they are shown to be below the applicable de minimis levels.

5.1.2.1 Existing Conditions

Aroostook County, which includes the entire Town of Fort Kent, is in attainment for all NAAQS criteria pollutants. (USEPA, 2017c) Therefore, FEMA does not need to conduct air quality modeling or analysis for compliance with the CAA.

5.1.2.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, construction activities would not occur and the current air quality levels would not change. Therefore, there would be **negligible** impacts on air quality from the No Action Alternative.

Alternative 2: Proposed Action

Construction activities under the Proposed Action would temporarily increase emissions from construction equipment and vehicles. Emissions from construction activities would be localized and short-term. Ultra-low sulfur diesel fuel would be used, as required by the Clean Air Non-road Diesel Rule. Emissions would be below the de minimis levels. Impacts on air quality would be **negligible**, with the use of BMP's such as; maintaining equipment in good working order, or avoiding unnecessary vehicle idling.

5.1.3 Climate Change

Climate change refers to changes in Earth's climate caused by a general warming of the atmosphere caused by Greenhouse gases (GHG), which are emitted by both natural processes and human activities, and their accumulation in the atmosphere regulates temperature. GHGs include water vapor, carbon dioxide, methane, nitrous oxides, and other compounds. Climate change is capable of affecting species distribution, temperature fluctuations, sea level dynamics, and weather patterns.

5.1.3.1 Existing Conditions

Precipitation and Flooding

General climate changes have affected the seasonal distribution and total amount of precipitation across Maine. Warming ocean surface waters with enhanced evaporation, and more moisture in the atmosphere are key factors driving recent extreme weather events. Since 1895, total annual precipitation has increased by about six (6) inches or 13%; the Intergovernmental Panel on Climate Change (IPCC) predicts that precipitation will continue to increase in the Northeast by 5 to 10 percent within the next thirty (30) years, with precipitation increasing particularly in interior Maine. (University of Maine, 2015)

5.1.3.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, the St. John and Fish Rivers would continue to flood during storm events. Impacts from climate change likely would worsen over time due to the increasing frequency and intensity of storm events. The No Action Alternative would have no impact on climate change as there would be no changes from ongoing conditions in the Action Area. However based on climate change and the potential for increase in severity of storms and associated flooding, the No Action alternative could have a **moderate** impact to the project area and all of Fort Kent.

Alternative 2: Proposed Action

During construction, Alternative 2 would have a negligible impact on climate change due to greenhouse gas emissions from the use of equipment and vehicles that burn fossil fuels. However, Alternative 2 would benefit the project area by reducing flooding impacts associated with the potential for increase in severity of storms and associated flooding effected by climate change. Increased magnitude and frequency of severe weather events would present a growing risk to the area. Based on these factors, the Proposed Action would have a **minor** impact related to climate change.

Aquatic Resources

Aquatic resources encompass water quality (surface and groundwater), floodplains, and wetlands. Clean water from surface sources and groundwater is protected through State and Federal laws. Water quality is essential for human health and natural resources such as fish, wildlife, and ecosystems. Floodplains and wetlands are important components of aquatic systems. Floodplains, when allowed to function in their natural state, can contain water and mitigate downstream flooding when high stream flow events occur. Debris and sediment from flooding events build up along the edges of the floodplains and create natural levees, which protect upland areas from future flood waters. Wetland areas may hold water seasonally or year-round and are capable of storing excess water during flood events. Wetlands can support unique plant and animal species, and also function as important habitat for many species of wildlife for cover and foraging.

5.1.4 Water Quality

The Clean Water Act (CWA) regulates water quality (Section 401), authorizes the National Pollutant Discharge Elimination System (NPDES) program (Section 402), and requires permits for any dredge or fill activities into navigable Waters of the United States (WOUS) (Section 404). The U.S. Army Corps of Engineers (USACE) regulates the discharge of fill materials into WOUS, including wetlands, as established by Section 404 of the CWA. The USACE's regulation of

activities within navigable waters is also authorized under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403). Under the NPDES program, the USEPA regulates both point and non-point pollutant sources, including stormwater runoff. Activities with at least one (1) acre of ground disturbance are required to apply for a NPDES permit. In Maine, the DEP issues NPDES permits.

Water quality programs are implemented by the Maine DEP under the CWA and State law, Maine's Clean Water Act. Maine's Stormwater Management Law (Title 38 Maine Revised Statutes [M.R.S.] § 420-D) requires a permit from Maine DEP for any projects that disturb more than one acre of land in organized territories of Maine. A project's proposed plans are reviewed by Maine DEP for stormwater management. The Natural Resources Protection Act (Title 38 M.R.S. § 480-C) also requires a permit from Maine DEP if an activity is located adjacent to a river (Maine Legislature, 2016). Based on the project location and scope, this undertaking does not trigger any stormwater management permits. The USACE Maine Field Office reviews permit applications for work proposing to discharge of dredged or fill material into WOUS. Since this project will not result in any regulated activities into jurisdictional resources, no section 401 or 404 permits are required.

5.1.4.1 Existing Conditions

Surface Water

The project location is on the western bank of the Fish River approximately 0.15 to 0.25 miles upstream from its confluence with the St. John River. The St. John River flows through Maine and New Brunswick, Canada, and empties into St. John Bay in the Atlantic Ocean.

As of 2016, neither the Fish River nor the St. John River was listed as an impaired water body on Maine's CWA § 303(d) list. Potential sources of contaminants in the watershed that could affect water quality may include runoff of fertilizers, fuel or petroleum, road salt, pesticides, soil erosion, and farm animal waste. (DEP, 2016)

Groundwater

Groundwater resources include sand-gravel aquifers within this region of Maine that supply municipal water sources in Maine. The crystalline-rock aquifer within the project area has the potential for moderate to good groundwater yield, with a well average of greater than ten (10) gallons per minute (Neil, 2002). Water tables in the region are on average within fifteen (15) feet of the surface land and are recharged from nearby surface waterbodies, such as rivers and lakes. Water quality in the region is considered good, with no contamination from common sources such as solid waste facilities or road salts from storage areas (Locke, Steiger, Weddle, & Neil, 1989). However, due to the permeability and shallow depth of these aquifers, they are vulnerable to contamination from chemical or biological sources. (Olcott, 1995)

The Fort Kent Utility District's well is located approximately two (2) miles east of the Fort Kent business district off of U.S. Route 1. There are two (2) wells situated at the well location about sixty-five (65) yards apart, along the St. John River. The Fort Kent Utility District is approximately 1.5 miles northeast of the project area. The first well is sixty-two (62) feet deep, drilled in 1962, and the second, a sixty (65) foot well, was drilled in 1979. The wells serve over 1,800 residents, with an average of 219,000 gallons of water pumped a day. There are known sources of potential contaminants near the wellheads, and a wellhead protection plan is in place if a spill were to occur. (Fort Kent Water Department, 2017)

5.1.4.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, the area would remain unchanged, and flood events would continue to occur. Surface water quality could be affected when high water encounters contaminants during flood events. Although water quality is considered good in the area within the St. John and Fish Rivers, downstream water quality could be affected following future flood events. Groundwater quality would likely not be affected unless large quantities of contaminants were released during flood events and were allowed to be absorbed into soils. For these reasons, under no action there would be a **negligible** impact to water quality.

Alternative 2: Proposed Action

Temporary, localized soil erosion associated with excavation and construction of the floodwall would occur. Storm events during construction could increase inputs of sediment or pollutants into the Fish River during construction. Implementation of BMPs, such as erosion control and proper staging outside of flood-prone areas, including refueling and servicing equipment, would reduce potential impacts. Construction and excavation would not impact groundwater due to the shallow depth of excavation, and there is no anticipated use of chemicals that would affect groundwater quality. Overall, the project would benefit water quality of the Fish and St. John Rivers as it will reduce the likelihood of major flood events washing debris and other contaminants from the urbanized areas into the waterways. For the reasons described herein, the proposed action would have a **minor** impact on water quality.

5.1.5 Floodplains (EO 11988)

FEMA defines floodplains as "any land area susceptible to being inundated by floodwaters from any source". EO 11988, Floodplain Management, 42 Federal Register (FR) 26951 (May 24, 1977) requires Federal agencies to avoid direct or indirect support of development within the floodplain whenever there is a practicable alternative. FEMA uses FIRMs to identify floodplains for the NFIP. Federal actions within the 100-year floodplain require the Federal agency to conduct an Eight-Step Decision-Making Process (44 C.F.R. Part 9). This process requires the evaluation of alternatives prior to funding the action.

The National Flood Insurance Act of 1968 (42 U.S.C. § 4001) created the NFIP which "provides affordable insurance to property owners by encouraging communities to adopt and enforce floodplain management regulations, aiming to reduce the impact of flooding on private and public structures". The Maine State Planning Office is Maine's State Coordinating Agency for the NFIP, which assists towns in meeting standards required to join the Federal flood insurance program. Currently, Fort Kent is in the NFIP but does not participate in the NFIP's voluntary Community Rating System (CRS) to reduce flood insurance premiums through community efforts to go beyond minimum flood reduction standards. (FEMA, 2017a)

5.1.5.1 Existing Conditions

The project area is within the floodplain as shown on FEMA FIRM Maps 2300190013D and Map 2300190014D (both effective on July 6, 2016). A vast majority of the project area is located within the floodway in zone AE, or areas where the BFE is determined. For this project, the BFE is 517 feet above sea level. A small portion of the project is located within a shaded zone X or in this case, an area protected by levees from 1% annual chance flood. (Appendix A-6).

According to the 2013 Flood Insurance Study for the Town of Fort Kent, flood events were most common in April and May during periods of spring snowmelt. The top twelve (12) recorded flood events in Fort Kent, from 1933 to 2008, have all occurred between April 22 and May 16. (FEMA, 2013a)

5.1.5.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, the risk of flooding would continue and the Town would remain susceptible to flood events. Residents, businesses, and the Fort Kent Blockhouse would continue to be vulnerable to damages, loss of property, displacement, disruption of traffic, and loss of Fire Department services. Based on this, under the No Action alternative, the impacts would be **moderate** regarding the floodplain.

Alternative 2: Proposed Action

The Maine Floodplain Management Program requirements regarding work in the floodplain require a “no rise” analysis for projects consisting of new construction in the floodway. Based on guidance provided by Sue Baker, Maine NFIP coordinator, and FEMA NFIP and Risk Analysis experts, the project requires a no-rise analysis (Appendix A-7). On May 22, 2018, the U.S. Army Corp provided the analysis that concluded with the determination that based on flood models, the Proposed Action would not result in an increase to flood heights above the base flood elevation. FEMA reviewed and concurred with this determination.

In addition, a letter of (flood) map revision (LOMR) and a revision to the current levee certification are required. These requirements are also based on requirements from the Town of Fort Kent’s

Floodplain Management Ordinance (Town of Fort Kent, 2016) and FEMA Hazard Mitigation Assistance Guidance (FEMA, 2015b). Since the project includes new construction, particularly adding fill within a mapped floodway, the Town must document that the project will not result in a rise to the BFE, this was examined in the no-rise analysis and captured in the LOMR. Furthermore, since the existing levee is being modified, specifically to include the protection of the Blockhouse, this new modification and construction triggers a re-evaluation of the flood maps to depict any changes, no matter how minimal.

The levee extension and floodwall would reduce the threat of flood events from reaching the Fort Kent Blockhouse, businesses, and residents within the Town. Alternative 2 would prevent damage, loss of property, displacement of residents, disruption of traffic, and loss of Fire Department services. Part of the floodplain analysis included the 8-step decision making process detailed in 44 CFR Part 9. Through that analysis it was determined that alternatives were adequately assessed and the most practicable solution was the Proposed Action. Despite the construction in the floodway, proper steps were taken to comply with the local floodplain ordinance and the project usefulness outweighs any impacts to and from the floodplain. The local zoning and floodplain ordinances prevent development in mapped floodways and the direct area this project is intended to protect is already developed. Therefore, this project does not encourage any further development within the floodplain. (Appendix A-8)

Floodwater would be contained within the river channels which could lead to minor indirect impacts downstream due to increased water volume that previously would flow into Fort Kent during flood events. Overall, based on the benefit this proposed project would have by reducing the damages from potential flooding events, floodplains impacts are considered to be **minor**.

5.1.6 Wetlands (EO 11990)

Wetlands are areas inundated or saturated by water that normally support vegetation requiring saturated soil conditions, including swamps, marshes, bogs, and similar areas (44 C.F.R. § 9.4). Wetlands reduce runoff pollution by trapping sediment and contaminants, using excess nutrients introduced into the environment, and aid in flood prevention. The USACE regulates discharge of fill materials into WOUS, including wetlands, as established by Section 404 of the CWA.

The USACE also regulates activities within traditional navigable waterways authorized under Section 10 of the Rivers and Harbors Act, 33 U.S.C. § 403 (1899). Under the NPDES program, the USEPA regulates both point and non-point pollutant sources, including stormwater runoff. Activities with at least one (1) acre of ground disturbance are required to apply for a NPDES permit. In Maine, the State Department of Environmental Protection DEP issues NPDES permits. (USEPA, 2017d)

EO 11990, *Protection of Wetlands*, requires Federal agencies to avoid funding activities that directly or indirectly support occupancy, modification, or development of wetlands, whenever

there is a practicable alternative. FEMA applies an eight-step decision-making process to ensure that its actions comply with EO 11990. Based on the fact that no wetlands are present within the project location, there is no requirement to complete the eight-step process for wetlands.

The Natural Resources Protection Act (Title 38 M.R.S. § 480-C) Chapter 310, Wetlands and Waterbodies Protection Rules, requires a permit from Maine DEP if an activity is located "in or adjacent to (within seventy-five [75] feet) wetlands of special significance, rivers, streams and brooks" (DEP, 2003). Since there are no wetlands within seventy-five (75) feet of the project location, this permit does not apply.

5.1.6.1 Existing Condition

Maine has defined six (6) types of Significant Wildlife Habitat under Maine's Natural Resources Protection Act (NRPA; M.R.S. Title 38 § 480-A), including the Inland Waterfowl/Wading Bird Habitat (IWWH). The IWWH is defined as a wetland and includes a 250-foot wide upland zone surrounding it. The Maine DEP evaluates each IWWH for quality based on the dominant wetland type, diversity of wetland types within the area, size, interspersion of wetland types, and the relative amount of open water. At the south end of Fish River Island, a 5.6-acre wetland has been designated as low quality habitat by the Maine DEP. This area is managed by the Maine Department of Inland Fisheries and Wildlife (MDIFW). Based on the U.S. Fish and Wildlife Services (USFWS) National Wetlands Inventory (NWI), there are no wetlands identified within the project area. On November 28, 2017, USFWS Maine Field Office confirmed there are no jurisdictional wetlands present.

5.1.6.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

There are no wetlands within the Action Area, wetlands outside of the Action Area are adapted to inundation and flooding. Therefore, under the No Action Alternative, impacts to wetlands do not apply and their impact would be **negligible**.

Alternative 2: Proposed Action

Temporary, localized soil erosion associated with excavation and construction of the floodwall would occur; however, based on location erosion would not impact wetlands. Wetlands are not present in or near the project area and impacts do not apply. Therefore under Alternative 2, impacts to wetlands would be **negligible**.

Biological Resources

Biological resources encompass the species present in an area, wildlife, fish, and vegetation. Special protections are provided at the Federal and State levels for threatened and endangered

species. Migratory birds and bald and golden eagles are further protected under Federal statute. Invasive species are also covered under biological resources; Federal and State statutes have been enacted to manage invasive species currently found in and to exclude additional invasive species from entering native ecosystems.

5.1.7 Wildlife and Fish

5.1.7.1 Existing Conditions

The project location consists of a landscaped, maintained area. Wildlife that may be present within or near to the Action Area include mammals typical to urban environments, including chipmunks (*Tamias striatus*), gray squirrels (*Sciurus carolinensis*), mice (*Mus* spp.), voles (*Cricetidae* spp.), and hares (*Lepus* spp.) It is estimated that Maine has over 16,000 species of invertebrates with approximately 7,950 arthropod species (insects, crustaceans, and spiders) and thirty-nine (39) species of reptiles and amphibians. (MDIFW, 2017)

5.1.7.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, conditions would not change. The risk of flooding would continue and the project area would remain susceptible to flood events. Therefore, under the No Action Alternative there would be **negligible** impacts to wildlife and fish.

Alternative 2: Proposed Action

It is anticipated that wildlife adjacent to the Action Area would temporarily leave the area due to noise and disturbance resulting from construction activities, and BMPs for sediment control would be placed, as necessary, to minimize impacts to brook trout habitat, or other fish habitat. Alternative 2 involves tree removal, which may impact wildlife using these trees as habitat. However, similar habitat is found near the surrounding area, so the few trees being removed would not permanently impact any species. Based on these factors, the Proposed Action would have a **negligible** impact on Wildlife and Fish.

5.1.8 Vegetation

5.1.8.1 Existing Conditions

Fort Kent is within the Aroostook Hills ecoregion, which is vegetated primarily by spruce-fir and hardwoods. The project area is a completely disturbed and maintained landscaped area. The Fort Kent Blockhouse is a historic site designated as a state park open to the public. The park is owned and operated by the DACF but is maintained by local Boy Scout Troup 189 in cooperation with the DACF. The bank of the Fish River is hardened for approximately 300 feet (from U.S. Route 1 at the bridge) and continues into a forested riparian corridor with a mix of spruce-fir and hardwood trees. The Fort Kent Blockhouse is surrounded by a landscaped environment consisting

of lawn, paved parking and vehicle circulation areas, and several mature white pine trees. To the northwest of the Fort Kent Blockhouse is the S.W. Collins Lumberyard, which consists of buildings with paved and gravel areas. Beyond the S.W. Collins Lumberyard are Fish River Island and the St. John River. To the southwest of the Fort Kent Blockhouse is Island Road, bordered on the opposite side by residential buildings with maintained landscaped lawns and decorative trees.

5.1.8.1 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Vegetation within the project area is part of a maintained property and limited to small areas of trees surrounding the blockhouse and the park. This vegetation would not likely be impacted unless a flooding event was large in scale. Therefore, under the No Action Alternative impacts to vegetation would be **negligible**.

Alternative 2: Proposed Action

Construction of the block wall and the removal of the trees would impact the current vegetation. The landscape in the immediate vicinity the Blockhouse has experienced changes throughout its past, at various times consisting of open landscape, a stockade fence, and the present vegetative tree border along the northwest side of the Blockhouse parcel, planted in the late 1980s, to be removed. Limitations on planting vegetation or constructing structures near levees will affect the future of the landscape surrounding the Blockhouse. Based on these factors, the project will have a **moderate** impact to vegetation.

5.1.9 Threatened and Endangered Species

In accordance with Section 7 of the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. §§ 1531-1544), the project was evaluated for the potential occurrences of Federally-listed threatened and endangered species. The ESA requires Federal agencies that fund, authorize or carry out an action to ensure that their action is not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of designated critical habitats. The law also prohibits any action that causes a "take" of any listed species of endangered fish or wildlife. In this context, USFWS defines a take as; "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities".

Impacts to ESA-listed species are defined in specific terms by the USFWS and the National Marine Fisheries Service (NMFS). For ESA-listed species or designated critical habitat, the possible effects determinations are:

- *No Effect*: If the alternative will not affect (either adversely or beneficially) listed species or designated critical habitat;

- *Not Likely to Adversely Affect (NLAA)*: If effects on listed species or designated critical habitat are expected to be discountable, insignificant, or completely beneficial; or

- *Likely to Adversely Affect (LAA)*: If any adverse effect to a listed species or designated critical habitat may occur as a direct or indirect result of the alternative, or an interrelated or interdependent action, and the effect is not discountable, insignificant, or beneficial.

5.1.9.1 Existing Conditions

The USFWS has designed the Information, Planning and Consultation (IPaC) System to aid organizations in planning for project designing. The IPaC system produces a report that once specific locational information is provided, Federally endangered and threatened species and their critical habitat are identified within the provided geographic area. The IPaC report also produces contact information from the appropriate USFWS Ecological Services Field Office a user can contact for further coordination, as well as information on migratory birds, wildlife refuges, fish hatcheries and wetlands to satisfy coordination under the Fish and Wildlife Coordination Act (FWCA). Based on the IPaC report there are three (3) species potentially within the project area; the Canada lynx (*Lynx canadensis*), Furbish's lousewort (*Pedicularis furbishiae*), and northern long-eared bat (*Myotis septentrionalis*). (Appendix A-9) Upon further examination, the Canada lynx and Furbish's lousewort do not have the potential to occur in the project area due to lack of suitable habitat; therefore there is no effect on the Canada lynx or Furbish's lousewort.

Maine has four (4) documented hibernacula sites for northern long-eared bat: a system of caves in unincorporated territory, designated-T8 R14 WELS near Allagash Lake, and three (3) sites in the southern part of the state in the Towns of Rumford, Byron and Milford (USFWS, 2016). The northern long-eared bat generally migrates 35-55 miles from hibernacula locations to maternity roost trees (USFWS, 2014a). Allagash Lake, the nearest hibernacula to the project location, is approximately eighty (80) miles from Fort Kent. Despite these known hibernacula sites, the habitat found at the project location matches species habitat, and despite the noise that would likely deter the species from the urban setting and nearby lumberyard, species absence cannot be assumed.

The USFWS has developed the Streamlined 4(d) Rule Consultation Form for activities involving tree clearing since no critical habitat has been designated for this species. This process requires a form that is submitted to USFWS with basic information about the project and information on nearest known hibernacula and maternity roost trees. Based on guidance from USFWS, if USFWS does not respond to the submittal of the consultation form within thirty (30) days, the action agency (in this case FEMA) may presume USFWS concurrence with its determination and fulfilling FEMA's responsibilities under Section 7 (a)(2) of the ESA with respect to the northern long-eared bat and the tree clearing activity of clearing several dozen mature pine trees around the Blockhouse (approximately 0.3 acres).

Federally threatened and endangered species were also considered under the jurisdiction of the National Marine Fisheries Service due to the project's proximity to the Fish and St. John Rivers where anadromous fish, such as the Federally-listed Atlantic salmon *(Salo salar)*, Atlantic sturgeon *(Acipenser oxyrinchus oxyrinchus)*, and Shortnose sturgeon *(Acipenser brevirostrum)* have the potential to occur. Using the NOAA Fisheries Greater Atlantic Region ESA Section 7 Mapper, none of these listed species or critical habitat have a presence in the vicinity of the work area. In addition, there is no in-water work activities associated with the undertaking. Therefore, there is no effect to any Federally-listed anadromous fish native to the State of Maine and its surrounding waters. (Appendix A-10)

5.1.9.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no construction activity and no improvements to the levee surrounding the Fort Kent Blockhouse would be made. Therefore, the No Action alternative would have a **negligible** impact on threatened and endangered species, as current conditions would not change.

Alternative 2: Proposed Action

Due to the presence of potential summer habitat for the northern long-eared bat in mature trees (e.g., >6-inch Diameter at Breast Height), and the tree removal component to this project, the completion of the streamlined 4(d) rule form was required. FEMA submitted the streamlined consultation form to USFWS New England Field Office on December 15, 2017. The streamlined consultation form was also submitted to the USFWS Maine Field Office on December 19, 2017. Having received no response, FEMA has presumed USFWS concurrence with its determination that the project results in a finding of "Not Likely to Adversely Affect" the northern long-eared bat. The amount of tree removal is limited compared to the amount of trees that remain in the general area. The likelihood of a bat being present in the trees without the ability to migrate at the time of construction is highly unlikely. The northern long-eared bat is not a habitat-limited species. The Town has been notified of the option to implement a voluntary time of year restriction on the tree clearing activity. If the Town so chooses, they may elect to clear trees prior to June 1st or after July 31st, thus avoiding tree clearing during pup season for northern long-eared bats from June 1st to July 31st. (Appendix B-1)

Based on this determination, the Proposed Action will have a **negligible** impact to threatened and endangered species due to the minimal amount of trees being removed and no known roost trees or hibernacula near the project area.

5.1.10 Migratory Birds

The Migratory Bird Treaty Act of 1918 (MBTA; 16 U.S.C. §§ 703-712, 1918) provides a program for the conservation of migratory birds that fly through lands of the United States. The MBTA makes it illegal for anyone to "take," possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs. The Department of the Interior issued a memo on December 22, 2017, no longer prohibiting incidental take (DOI, 2017). The law requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any migratory birds or result in the destruction or adverse modification of identified ecosystems of special importance to such species.

5.1.10.1 Existing Conditions

As mentioned, the USFWS IPaC report identifies migratory birds listed as Birds of Conservation Concern. Details provided in the IPaC report include probability of presence, and breeding season, and survey efforts for the birds identified. Survey information is directly related to the probability of presence, meaning that probability is only established for times that surveys can corroborate such evidence. For the project location, nine (9) species have been identified as having probability of presence within their breeding season. Although the probability of presence in the project location matches the breeding season, these species have not necessarily been witnessed to have nests in the project area. Table 3-4 includes a list of the species of migratory birds identified in the IPaC report. On average these species are known to be located 15-30 miles away. There are two (2) species that potentially inhabit areas within five (5) miles of the project area, including the Wood Thrush, spotted approximately 4 miles to the southwest in the Violette Settlement of Maine, and the Evening Grosbeak, spotted 0.5 miles to the west in Canadian Village of Clair (New Brunswick, Madawaska County). All of these species were researched using USFWS's Environmental Online Conservation System (ECOS), the National Audubon Society, the Cornell Lab of Ornithology's *All About Birds*, and the Cornell Lab of Ornithology's eBird database to determine observed sightings and locations. (Appendix A-11)

Table 5-4: Migratory Birds Potentially in the Project Area

Species Name	Months of Probable Presence	Months of Breeding Season
Black-billed Cuckoo	May through July	May through October
Bobolink	May through Sept.	May through July
Canada Warbler	May through Sept.	May through August
Cape May Warbler	May through Sept.	June and July
Evening Grosbeak	January through Dec.	May through August
Long-eared Owl	July	March through July
Olive-sided Flycatcher	May, June and August	May through August
Rusty Blackbird	March through Oct.	May through July

Wood Thrush	May through Sept.	May through August

FEMA has coordinated this project with USFWS Maine Field Office. In November 2017, e-mail correspondence with Anna Harris, Maine Field Office Endangered Species Project Leader, occurred to document FWCA compliance. Ms. Harris had commented at the time that it appeared that ESA Section 7 consultation with the ME Field Office will be limited to only the Northern Long-eared Bat. In December 2017 the Maine Field Office was provided an opportunity to respond to FEMA's submittal of the NLEB streamlined consultation form. (Appendix, B-2)

5.1.10.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no Federal action and floodwall construction activities would not be undertaken; no improvements to the existing levee would be made. Therefore impacts to migratory birds due would be **negligible**.

Alternative 2: Proposed Action

Migratory birds would likely avoid the project area due to the regular noise from the large vehicles associated with lumber operation from the adjacent S.W. Collins Lumberyard, as well as the frequent visitors to the Blockhouse. While migratory birds that are not nesting and/or breeding in the project area have the ability to leave due to noise and disturbance from construction activities associated with the implementation of Alternative 2, nesting birds would likely not leave the area and could be impacted. The potential loss of nesting and breeding habitat at the project area would be offset by the sheer volume of similar habitat in the immediate vicinity. Based on these factors, Alternative 2 would have **negligible** impacts to migratory birds and their habitat.

5.1.11 Bald and Golden Eagles

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), enacted in 1940, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald and golden eagles, including their parts, nests, or eggs. Like the MBTA, the law makes it illegal for anyone to "take," possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or their parts, feathers, nests, or eggs. The bald eagle was delisted from the ESA in 2007 and from the Maine Endangered Species list in 2009.

5.1.11.1 Existing Conditions

Over 600 bald eagle pairs nest in Maine. Bald eagles nest in forested areas close to water, generally choosing the tallest living tree in the area. After choosing a nesting location, a bald eagle pair will return to the same nesting area each year. The breeding season for bald eagles in Maine begins February 1 and lasts through August 15. The first months are used to build, rebuild, or add to the

nest. Eggs hatch after roughly 35 days, and young fledge, or leave the nest, between 10 and 14 weeks. The nearest documented bald eagle nest is approximately 15 miles east of the project area at the northwestern tip of Long Lake, near St. Agatha, Maine. (USFWS, 2014b; USFWS, 2017a; National Eagle Center, 2017)

Golden eagles are one of the largest North American birds, with dark brown feathers with a golden tint. Golden eagles pass through Maine during their migration from Canadian nesting grounds to mid-Atlantic wintering grounds, which consist of open terrain with mountains, foothills, or plains. The last sighting of a golden eagle in Aroostook County was in 1997. (DIFW, 2000; USFWS, 2017a)

5.1.11.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no Federal action and floodwall construction activities would not be undertaken; no improvements to the existing levee would be made. Based on conditions remaining the same, there would be a **negligible** impact to Bald and Golden Eagles.

Alternative 2: Proposed Action

There are no nesting Bald or Golden Eagles documented in or near the project area. The removal of tall pine trees which would affect habitat for any future presence, is offset by the amount of similar habitat in this area. Therefore there would be **negligible** impacts to bald and golden eagles.

5.1.12 Invasive Species (EO 13112)

EO 13112, *Invasive Species*, 64 FR 25 (February 8, 1999) requires federal agencies, to the extent practicable, to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. Invasive species prefer disturbed habitats and generally possess high dispersal abilities, enabling them to out-compete native species.

The Plant Protection Act of 2000 (PPA; 7 U.S.C. § 7701 et seq.), as amended by the Noxious Weed Control and Eradication Act of 2004 (7 U.S.C. §§ 7781-7786), provides management regulations for the control of the spread of invasive plants. Maine enacted laws to prevent the spread of invasive aquatic plants in 1999 and the sale of invasive terrestrial plants by nurseries, landscapers, and horticulturists in 2017. (DACF, 2017)

5.1.12.1 Existing Conditions

The purple loosestrife (*Lythrum salicaria*), a terrestrial wetland plant, is noted as an invasive species of concern for the Town of Fort Kent. The purple loosestrife is a perennial herb with purple flowers grown on spikes. Stems may be up to six (6) feet tall and occupies wetlands, shorelines, and wet open areas along roadsides. Seeds are viable for several years, and are spread

in running water, by wildlife, or in soils and fill. Plants are managed using herbicides for large plants or colonies. Individual plants may be pulled by the root, but it must be pulled multiple times after re-sprouting to kill the plant (DACF, 2013). The purple loosestrife is not known to be present in the project area.

In April 2018, a search of the USDA Animal and Plant Health Inspection Services (APHIS) website was conducted that identified three (3) invasive insects within the State of Maine, the European Gypsy Moth, the Pine Shoot Beetle and the Japanese beetle. Only the Japanese beetle is identified as potentially being located within the Town of Fort Kent. Japanese beetles were first found in the United States in 1916 near Riverton, New Jersey. Since then, Japanese beetles have spread throughout most states east of the Mississippi River. Japanese beetle adults attack the foliage, flowers, or fruits of more than 300 different ornamental and agricultural plants. APHIS maintains the Japanese Beetle Quarantine and Regulations found in 7 CFR 301.48. The objective of the Japanese Beetle Quarantine is to protect the agriculture of the Western United States and prevent the human-assisted spread of the beetle from the Eastern U.S. The Federal quarantine is designed to reduce artificial spread of Japanese beetles by vehicle.

Maine is a regulated State for the Japanese beetle which means that restrictions are imposed on the movement of the regulated articles from the quarantined or regulated States, into areas outside the quarantined area. For the Japanese beetle the only States east of the Mississippi River outside of the quarantined area are Florida and Mississippi.

5.1.12.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Impacts could result from a flood event. Invasive plants with seeds spread by running water, such as the purple loosestrife, could colonize after a flooding event. Therefore, the No Action alternative would result in a **minor** impact to invasive species.

Alternative 2: Proposed Action

Those working on-site should be aware of the possibility that the purple loosestrife could colonize in disturbed areas and report any sightings to the Town. Any earth grading equipment should be cleaned before and after going on site to limit the spread of invasive species. Due to the quarantine zone of the Japanese beetle, the Town is required to dispose of any regulated materials inside of the designated quarantine zone. The USDA APHIS can provide further details if necessary. As long as regulated material is disposed of according to USDA guidelines, the Proposed Action will have a **minor** impact on invasive species by disturbing areas if their potential habitat.

Cultural Resources

As a Federal agency, FEMA must consider the potential effects of its funded actions upon cultural resources prior to engaging in any undertaking. There are several laws a Federal agency must take into account when working with and identifying cultural resources, including the National Historic Preservation Act of 1966, as amended (NHPA). For this project, FEMA determined to meet the obligations of NEPA through Section 106 of the NHPA, as implemented by 36 CFR Part 800. The NHPA defines a historic property as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register."

Requirements for review include the identification of significant cultural resources that may be impacted by the undertaking. Cultural resources are defined as prehistoric and historic sites, structures, districts, buildings, objects, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons.

In order to be considered significant under Section 106, a cultural resource must meet one or more of the criteria established by the National Park Service that would make that resource eligible for inclusion in the National Register of Historic Places (NRHP). These criteria are specified in the Department of Interior regulations Title 36, Part 60.4 and NRHP Bulletin 15.

In order to identify cultural resources that may be affected by the undertaking, FEMA consulted with the Maine State Historic Preservation Officer, the National Park Service, National Historic Landmarks Program, the Advisory Council on Historic Preservation, the Aroostook Band of Micmacs, the Houlton Band of Maliseet Indians, the Penobscot Nation (Federally recognized Tribes), local historic preservation groups, adjacent property owners, and residents, including the owners and operators of the S.W. Collin's Lumber Yard, and the local Boy Scout Troop that helps maintain the Blockhouse. FEMA also conducted multiple public meetings in order to solicit public comment on the potential effects to historic properties associated with the preferred alternative.

5.1.13 Historic Properties

Architectural resources, also referred to as aboveground resources, are a type of historic property defined by the National Park Service (NPS) in National Register Bulletin 15, and include resources such as buildings, structures, objects, and districts (National Park Service, 1991). These property types may be affected by direct activities (physical alteration), as well as indirect activities (visual or vibrational) resulting from construction and/or operational activities.

5.1.13.1 Existing Conditions

For this undertaking, the direct area of potential effect (APE) includes all areas of ground disturbance, including the areas to be disturbed during floodwall construction. elevation of both

Island Road and Blockhouse Road, as well as areas to be used for staging activities, additional easements, and rights of way. The introduction of a new feature on the landscape, namely the construction of the floodwall, as well as the removal of mature trees necessitates assessment of the undertaking's visual impacts. The APE for visual effects is limited to an area encompassing the S.W. Collins Lumberyard to the northwest and the residential and commercial properties immediately adjacent to the project area along West Main Street (U.S. Route 1) and Blockhouse Road.

Three (3) properties within the APE were determined to be over 50 years of age and therefore assessed for historic/cultural significance. These properties include the Fort Kent Blockhouse, the S.W. Collins Lumber Yard, and the West Main Street/US Route 1 Bridge FEMA Historic Preservation Specialists determined that the Fort Kent Blockhouse, already individually listed on the National Register of Historic Places and a designated National Historic Landmark, to be a significant resource. Neither the S.W. Collins Lumber Yard nor the U.S. Route 1 Bridge were determined to possess historic significance.

The Fort Kent Blockhouse, constructed 1838-1840, is the last remaining standing military fortification from the Aroostook War with Great Britain. It was built on a high point of land at the confluence of the St. John and Fish Rivers in a location that would have allowed musket fire from the blockhouse to reach both ends of booms constructed on the rivers, controlling the transportation of logs to sawmills downriver. After Major General Winfield Scott mediated the conflict between the Maine and New Brunswick in March 1839, a group of U.S. soldiers remained at Fort Kent in the fall of that year, completing the blockhouse, as well as constructing a barracks, officers' quarters, and other buildings. The military occupation of the blockhouse ended with the signing of the Webster-Ashburton Treaty in 1842. Formerly known as Fort Jarvis, it was renamed the Fort Kent Blockhouse in 1842, and designated as a National Historic Landmark in 1973. (Scott, 1992)

In addition to the Fort Kent Blockhouse, there are two (2) other properties in Fort Kent included on the NRHP. These properties include the Fort Kent Railroad Station and the Jean-Baptiste Daigle House. The railroad station is located at the junction of East Main Street and Market Street. The Daigle House is located at 4 Dube Street. Both properties are located approximately 0.4 miles to the northeast of the project location, well outside the APE.

5.1.13.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no Federal action. Construction activities would not be undertaken and no improvements would be made. Property, infrastructure and the Fort Kent Blockhouse a National Historic Landmark, would continue to face risk during flood events and could suffer damage or be destroyed. Based on these factors, the No Action Alternative would have a **moderate** impact to historic properties.

Alternative 2: Proposed Action

Through consultation with the SHPO, ACHP, NPS, and other consulting parties, FEMA determined that the proposed action would have an "Adverse Effect" to the Fort Kent Blockhouse National Historic Landmark. To mitigate the adverse effects, FEMA developed a Memorandum of Agreement (MOA) with the SHPO, ACHP, NPS and other consulting parties to reach a consensus on how to mitigate the adverse effects. These mitigating activities include the completion of a Historic American Buildings Survey (HABS) and the installation of interpretive panels at the Blockhouse property detailing the history and development of the Blockhouse. (Appendix B-3). Based on these factors, the Proposed Action will have a **major** impact on historic resources, specifically the Fort Kent Blockhouse. Mitigation measures were established in the MOA to resolve this adverse effect. These mitigation measures must be included in the project as project conditions.

The mitigation measures memorialized in the MOA are included as grant conditions as follows (See Appendix B-3 for details);

A. Historic American Building Survey (HABS) Recordation

1. Before the start of any building/site alteration, the Town shall oversee the successful delivery of a recordation package prepared by staff or contractors meeting the Professional Qualifications for Architectural History, History, Architecture, or Historic Architecture, as appropriate.

2. The Town shall ensure that their contractor prepare the recordation package in accordance with the National Historic Park Service's HABS standards. NPS will assign the HABS numbers and will write the specific Schedule of Documentation (SOD) for each project. The Town shall provide the following hard copy and digital products to the SHPO and NPS and shall provide an electronic copy to FEMA and MEMA, and DACF.

B. Public Interpretation

1. The Town shall install an interpretive exhibit in the visitors' area adjacent to the Fort Kent Blockhouse NHL. This will be a permanent, all weather exhibit containing two or three panels providing an overview of the history and development of the Fort Kent Blockhouse NHL and the surrounding community that accounts for the historic and modern alterations to the Blockhouse's setting, including the building of the levee. The interpretive exhibit will be developed using the HABS documentation developed in Stipulation II.A. and incorporate previous studies, including archaeological survey reports.

5.1.14 Archaeological Resources

5.1.14.1 Existing Conditions

As part of the Section 106 consultation process with the SHPO, an archaeological survey was required for this project. In September 2016, Phase II archaeological testing was conducted in the areas around the Fort Kent Blockhouse that would be impacted by the proposed undertaking by Northeast Archaeology Research Center (NEARC).

The survey did not identify any intact archaeological deposits. Extensive fill deposits were found throughout the APE, up to 1 meter in depth. While intact soils were identified, no archaeological resources were uncovered from the natural sediments. As a result, in November 2016, it was determined that no archaeological resources would be impacted by the proposed action and that no further archaeological surveys would be required.

5.1.14.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, conditions at the project location would not change and the area would still be subject to flooding and erosion. Given the disturbed nature of the soils in this area, impacts would be **negligible** to archaeological resources.

Alternative 2: Proposed Action

No culturally significant archaeological resources were identified during the archaeological survey of the project area. Therefore, the Proposed Action will have **negligible** impacts to archaeological resources.

Socioeconomic Resources

5.1.15 Environmental Justice (EO 12898)

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires each Federal agency to identify and address, as appropriate, "disproportionately high and adverse human health or environmental effects" its activities may have on minority or low-income populations. In considering environmental justice in the NEPA process, guidance released by CEQ following publication of the EO makes clear that environmental effects include economic and social effects.

The CEQ guidance also provides criteria for identifying minority and low-income populations. Specifically, low-income populations are identified based on the annual statistical poverty income thresholds of the U.S. Census Bureau, and minority populations are defined as persons in the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black,

not of Hispanic origin; or Hispanic. Any area where the minority population exceeds 50 percent is considered to have an environmental justice population, based on the CEQ guidance.

5.1.15.1 Existing Conditions

There are minority and low-income populations in the Action Area based on the economic indicators – the 2011-2015 five-year estimates of the American Community Survey. In addition, poverty and median household income data suggests that there may be people living in poverty within the community. (US Census Bureau, 2017)

In addition, the Town of Fort Kent completed an assessment of the downtown area which led to a declaration of slum and blight area. Accepted by the Maine Department of Economic and Community Development, this designation allows Fort Kent to apply for Federal Community Development Block Grant (CDBG) program funding for activities including physical improvements to buildings, surrounding properties, and public rights-of-way. (Maine Economic and Community Development, 2016)

5.1.15.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no Federal action and conditions in the project area would remain unchanged. The community, including minority and low-income populations, would continue to face risk of damage to property and infrastructure and threats to human life and safety during flood events. Based on these factors, the No Action Alternative would have a **negligible** impact to the community, including minority and low-income populations.

Alternative 2: Proposed Action

The community, including minority and low-income populations would experience localized and short-term impacts during construction (e.g., noise, traffic, and local access disruptions). However, it is highly unlikely that such impacts would be disproportionate or would fall mainly or more strongly on minority and low income populations compared to the community at large. Therefore, the Proposed Action would have a **negligible** impact on the community including minority and low income populations.

5.1.16 Transportation

5.1.14.1 Existing Conditions

The project area is a State park, and as such, traffic in and out of the park is frequent. According to estimates from the DACF, the park on average sees forty-five (45) visitors a day during the warm weather months during which the park has a ranger present. A boat launch at the bottom of Blockhouse Road near the designated picnic area increases traffic during warm summer months as well. The boat launch is primarily used for canoes and small row boats, but can accommodate

larger crafts which would require large vehicles with tow to access. Existing infrastructure configuration and general space constraints can make maneuvering of larger vehicles difficult even in times of no construction. The lumberyard traffic traveling Island Road consists of large 18-wheel semi-trailers suited for logging and transportation of lumber goods.

5.1.16.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no Federal action and conditions in the project area would remain unchanged. Transportation routes and infrastructure in the project area would remain at current risk levels for flood events which could result in periodic road closures and disruption of traffic flows during flood events. Based on these factors, the No Action alternative would result in **negligible** impacts to transportation.

Alternative 2: Proposed Action

Alternative 2 would cause localized, short-term minor impacts during construction due to increased traffic and local access disruptions. Parking for visitors to the Fort Kent Blockhouse and surrounding area could also be disrupted and reduced during construction activities. Access to the picnic area would continue to be available. Post construction, parking would be impacted by the elimination of seven (7) parking spots that currently run at an angle facing the Fish River along Blockhouse Road. Two (2) parking spaces will be added for buses or other large vehicles near the access point where Blockhouse Road ends and the access into the picnic area begins. The five (5) original parking spaces will be retained.

The elevation of Island Road has the potential to impact the ability of the vehicles wishing to gain access to the lumberyard property safely. The proposed grade during icy conditions may result in vehicles to skid and cause damage to property and vehicles. The original proposal for the elevation of Island Road involved raising the road to an 8% slope for 50 feet and 15% slope for 75 feet closer to the lumberyard property. After further consideration, the design will instead run the block wall from the blockhouse toward Island Road, then run alongside the road away from the lumberyard for approximately 40 feet where the road height will serve as the flood barrier. At this point on the southwest side of Island Road, the block wall will pick up again and continue to the existing levee. This will avoid need for of dramatic elevation of Island Road. The road will not exceed a slope of greater than 10% over greater length to allow for safer passage of large vehicles. Based on these factors, the Proposed Action will have a **moderate** impact on traffic.

5.1.17 Noise

The Noise Control Act of 1972 required the EPA to create a set of noise criteria. In response, the EPA published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* in 1974 which explains the impact of noise on

humans. The EPA report found that keeping the maximum 24-hour Day-Night Noise Level (Ldn) value below 70 decibels (dBA) would protect the majority of people from hearing loss. The EPA recommends an outdoor Ldn of 55 dBA. According to published lists of noise sources, sound levels, and their effects, sound causes pain starting at approximately 120 to 125 dBA (depending on the individual) and can cause immediate irreparable damage at 140 dBA. OSHA has adopted a standard of 140 dBA for maximum impulse noise exposure.

5.1.17.1 Existing Conditions

The project area is subject to typical residential and park-setting noise generated by vehicular, pedestrian, recreational activities. Considering the project area includes a state park, main meeting location for boy scouts, and activity from the adjacent lumber yard operation it is likely that typical noise levels reach 75-100 dBA.

5.1.17.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no Federal action and conditions in the Action Area would remain unchanged. Noise incidental to residential neighborhoods and traffic patterns would remain consistent with existing conditions. As such, there would be **negligible** impacts from noise under the No Action Alternative.

Alternative 2: Proposed Action

Under the Proposed Action, construction would potentially increase noise levels at least temporarily during construction activities. Heavy construction equipment would produce sound levels from 80 to 120 dBA; power tools typically used in construction would produce sound levels up to 115 dBA (NIOSH, 2008). To minimize noise impacts, construction and installation activities would comply with Maine DEP noise control regulations (06-096 Chapter 375.10) limiting sound from construction activities between 7 AM and 7 PM based on the duration of the activity. Heavy equipment, machinery, and vehicles utilized at the project site would meet all Federal, State, and local noise requirements. Based on the current use and levels of regular noise, the Proposed Action would have **minor** impacts from noise that would only be during construction activity.

5.1.18 Public Health and Safety

The Town provides public health and safety services for Fort Kent residents. These services consist of public infrastructure, health and medical services, and emergency management.

5.1.18.1 Existing Conditions

Health Services

Fort Kent has multiple health facilities and medical centers. The Northern Maine Medical Center (NMMC), the largest medical center in the town, provides health care services to residents of Northern Maine and the Upper St. John Valley and includes a hospital, nursing and rehab facility, and seven health centers located in various service area. Fish River Rural Health (FRRH) also provides primary care, dental care, and other services. Both the NMMC and FRRH are located within 1.5 miles of the Action Area.

Emergency Management

Hazard mitigation planning is developed and coordinated at the County level by Aroostook Emergency Management Agency. Fort Kent has an Emergency Management Agency Director that participates in the County level hazard mitigation planning and coordination. The Aroostook County Hazard Mitigation Plan received final FEMA approval in 2016 for its recent update and identifies hazards and risks throughout the county with participating towns, including Fort Kent, and outlines strategies for addressing and mitigating hazards. The plan describes past flooding events in Fort Kent and prioritizes hazard mitigation projects for Fort Kent. (Aroostook County, 2016)

Fort Kent's emergency management and response system includes police, fire, public works, water/wastewater, and ambulance. The Fort Kent Police Department, as well as the Fort Kent Fire Department and ambulance, is located approximately 0.5 miles south of the Action Area. The police department also serves as the dispatching authority for the fire department and Saint Francis Fire Department, as well as police dispatch for the towns of St. John Plantation, Wallagrass, and New Canada. Although ambulance services are provided by a quasi-municipal organization consisting of sixteen (16) towns (including unorganized territories), all ambulance service is dispatched through the Fort Kent Police Department. Average response time for emergency/rescue or police calls ranges from six (6) to nine (9) minutes. (Town of Fort Kent, 2017a)

The fire department is volunteer-run and serves as the main regional fire emergency service to the adjoining communities of Saint John Plantation, Wallagrass, and New Canada (all of which do not have fire departments). The fire department's response area consists of 184 square miles and 6,600 residents, and has many several automatic and mutual aid agreements with neighboring communities (Town of Fort Kent, 2017b).

During the 2008 flood, about seventy (70) firefighters, along with other Federal, State, and volunteer organizations, responded immediately to provide evacuation assistance. Firefighters washed mud and debris from East Main Street using pump trucks, while the Public Works Department removed a temporary gravel berm along the Fish River. The Water and Wastewater Department responded to offline sewer collection pumps.

5.1.18.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no Federal action and conditions in the Action Area would remain unchanged. The risk for flood events would remain at current levels which could result in periodic disruption of public health and safety services during flood events and the dedication of additional emergency management resources and personnel. Based on these factors, the No Action alternative would have a **moderate** impact to public health and safety.

Alternative 2: Proposed Action

Following construction, the block wall would reduce the risk of future flood events as well as the potential for disruption of public health and safety public services and dedication of additional emergency management resources and personnel. Personnel and equipment that would otherwise respond to a flood event would be available to assist with critical situations at other locations. To ensure that citizens kept out of the project area during construction activity, fencing and signage would be posted. Based on these factors and the positive effects of a lessening to disruptions in public services, the Proposed Action would have a **minor** impact to public health and safety.

Cumulative Impacts

In accordance with NEPA, this EA considers the overall cumulative impact of the Proposed Alternative and other actions that are related in terms of time or proximity. According to CEQ regulations, cumulative impacts represent the "impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or Non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR § 1508.7).

Cumulative impacts are those impacts "… which result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions…" (40 CFR § 1508.7). In the context of evaluating the scope of a proposed action, direct, indirect and cumulative impacts must be considered. In addition to NEPA, other statutes require Federal agencies to consider cumulative impacts, such as the Section 404 of the CWA, conformity provisions of the Clean Air Act, Section 106 of the NHPA, and Section 7 of the ESA.

Improvements have been made to the levee on the St. John River. Recommendations have been made to the Town to buy out flood prone areas for use as municipal parking, outdoor recreation, and green space. The Town also plans to prioritize acquisition of off-street parking in the downtown area, and the development of a Downtown Parking Master Plan has been recommended. There are no Federal, State, or local projects near or adjacent to the project area that could impact or be impacted by the alternatives. The Proposed Action does not appear to impact any other current or proposed projects, either Federally and non-Federally funded.

6 COMPLIANCE WITH FEDERAL ENVIRONMENTAL STATUTES, EXECUTIVE ORDERS AND EXECUTIVE MEMORANDA

Federal Statutes

1. *Archaeological Resources Protection Act of 1979, as amended, 16 U.S.C. 470 et seq.*

   Compliance: A Phase 2 level Archaeological Survey was conducted through coordination with Maine Historic Preservation Commission (MHPC). The results of the Phase 2 survey concluded that archaeological deposits within the project area are unlikely due to extensive ground disturbance. Additional details can be found in Section 5.1.13 of this document.

2. *Preservation of Historic and Archaeological Data Act of 1974, as amended, 16 U.S.C. 469 et seq.*

   Compliance: As indicated, archaeological testing has taken place within the project location. Close coordination with MHPC, NPS, ACHP and regional Native American tribes has occurred. An MOA was created to resolve the adverse effect this project has on the Blockhouse. Additional details can be found in Section 5.1.12 and 5.1.13 of this document.

3. *American Indian Religious Freedom Act of 1978, 42 U.S.C. 1996.*

   Compliance: There are three (3) Federally recognized Native American tribes in the State of Maine with cultural interests in the region of the project location. These tribes are; Aroostook Band of Micmacs, Houlton Band of the Maliseet Indians, and the Penobscot Nation. Each of these tribes were sent notice of this undertaking, the archaeological survey, and the determination of adverse effects associated with the impact of this project. FEMA allowed ample time and opportunity for these tribes to respond indicating interest in consulting on the project. Additional details can be found in Section 5.1.13 of this document.

4. *Clean Air Act, as amended, 42 U.S.C. 7401 et seq.*

   Compliance: Aroostook County, which includes the entire Town of Fort Kent is in attainment for all NAAQS criteria pollutants. Therefore, FEMA is not required to conduct air quality modeling or analysis for compliance with the CAA. Additional details can be found in Section 5.1.2 of this document.

5. *Clean Water Act of 1977 (Federal Water Pollution Control Act Amendments of 1972) 33 U.S.C. 1251 et seq.*

Compliance: There are no requirements for Section 401 or 404 permits based on the project undertaking and location.

6. *Coastal Zone Management Act of 1972, as amended, 16 U.S.C. 1451 et seq.*

   Compliance: Not applicable, as this project does not occur in a coastal zone.

7. *Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq.*

   Compliance: Coordination with USFWS was completed to satisfy Section 7 requirements on consultation for the Northern Long-eared Bat. Consultation was completed on January 11, 2017, at which time FEMA determined that the proposed action was "Not Likely to Adversely Affect" the Northern Long-eared Bat. Additional details can be found in Section 5.1.8 of this document.

8. *Estuarine Areas Act, 16 U.S.C. 1221 et seq.*

   Compliance: Not applicable, as this document is not being submitted to Congress.

9. *Federal Water Project Recreation Act, as amended, 16 U.S.C. 4601-12 et seq.*

   Compliance: Public notice of this EA and FONSI signifies compliance with this act.

10. *Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661 et seq.*

    Compliance: Review through the USFWS online Information, Planning and Conservation (IPaC) decision-making tool was completed to identify listed species, and critical habitat. Consultation was completed with the USFWS Maine Field Office in November 2017. Additional details can be found in Section 5.1.8 of this document.

11. *Land and Water Conservation Fund Act of 1965, as amended, 16 U.S.C. 4601-4 et seq.*

    Compliance: Public notice of this EA and FONSI signifies compliance with this act.

12. *Marine Protection, Research, and Sanctuaries Act of 1971, as amended, 33 U.S.C. 1401 et seq.*

    Compliance: Not applicable. This project does not include the transportation or disposal of dredged materials in ocean water (pursuant to Sections 102 and 103 of the Act).

13. *National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq.*

Compliance: Coordination with MHPC, NPS, and ACHP was completed for this undertaking. Additional details can be found in Section 5.1.12 and 5.1.13 of this document.

14. *Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S.C. 3000-3013, 18 U.S.C. 1170*

    Compliance: Regulations implementing NAGPRA will be followed in the event that human remains and/or cultural funerary materials are discovered upon implementation of this undertaking.

15. *National Environmental Policy Act of 1969, as amended, 42 U.S.C 4321 et seq.*

    Compliance: Completion of this EA with the FONSI signifies compliance with NEPA.

16. *Rivers and Harbors Act of 1899, as amended, 33 U.S.C. 401 et seq.*

    Compliance: Not Applicable. The extension of the St. John River Levee System does not extend into a traditional navigable waterway. There are no impacts to navigation as a result of the undertaking.

17. *Watershed Protection and Flood Prevention Act as amended, 16 U.S.C 1001 et seq.*

    Compliance: Floodplain impacts were evaluated as part of this project. Based on the construction activity within the floodway, a no-rise certificate or equivalent technical analysis from an engineer to prove there is no rise to the BFE is required. This analysis completed on May 22, 2018 confirmed that the project would result in no-rise to the BFE. In addition to a no-rise certificate or similar analysis, a LOMR is required to show the changes this levee will have on the floodplain. Additional details can be found in Section 5.1.5 of this document.

18. *Wild and Scenic Rivers Act, as amended, 16 U.S.C 1271 et seq.*

    Compliance: Not applicable, as neither the St. John nor the Fish River is a designated Wild and Scenic River.

19. *Magnuson-Stevens Act, as amended, 16 U.S.C. 1801 et seq.*

    Compliance: Not applicable, as this project is not located in or near any essential fish habitat.

Executive Orders

1. *Executive Order 11593, Protection and Enhancement of the Cultural Environment, 13 May 1971*

    Compliance: Coordination with MHPC, NPS, and ACHP was completed for this undertaking. Additional details can be found in Section 5.1.12 and 5.1.13 of this document.

2. *Executive Order 11988, Floodplain Management, 24 May 1977 amended by Executive Order 12148, 20 July 1979.*

   Compliance: Floodplain impacts were evaluated as part of this project. Based on the construction activity within the floodway a no-rise certificate or equivalent technical analysis from an engineer to prove there is no rise to the BFE is required. This analysis completed on May 22, 2018 confirmed that the project would result in no-rise to the BFE. In addition to a no-rise certificate or similar analysis, a LOMR is required to show the changes this levee will have on the floodplain. Additional details can be found in Section 5.1.5 of this document.

3. *Executive Order 11990, Protection of Wetlands, 24 May 1977.*

   Compliance: This project does not occur in any jurisdictional waters or wetland areas. There are no permitting requirements under this executive order for this project. Additional details can be found in Section 5.1.6 of this document.

4. *Executive Order 12114, Environmental Effects Abroad of Major Federal Actions, 4 January 1979.*

   Compliance: Not applicable, as this project is located within the boundaries of the United States.

5. *Executive Order 12898, Environmental Justice, 11 February 1994.*

   Compliance: Environmental Justice was analyzed as part of this EA. This project will not have any disproportionate impact on low-income or minority populations. Additional details can be found in Section 5.1.14 of this document.

6. *Executive 13007, Accommodation of Sacred Sites, 24 May 1996*

   Compliance: A Phase 2 level Archaeological Survey was conducted through coordination with MHPC. No sacred sites were identified during the survey. Additional details can be found in Section 5.1.13 of this document.

7. *Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. 21 April 1997*

   Compliance: Not applicable, as this project would not create a disproportionate environmental health or safety risk for children.

8. *Executive Order 13061, and Amendments – Federal Support of Community Efforts along American Heritage Rivers*

   Compliance: Not applicable, as the St. John and the Fish Rivers are not designated American Heritage Rivers.

9. *Executive Order 13122, Federal Agencies may not authorize, fund, or carry out actions likely to cause or promote the introduction or spread of invasive species.*

   Compliance: Invasive species are analyzed in this EA. Any regulated materials found in the project area must follow the USDA guidelines for proper disposal. If quarantine zones exist for any regulated materials within the project area then proper procedures for disposal will be followed. Additional details can be found in Section 5.1.11 of this document.

10. *Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, 6 November 2000.*

    Compliance: There are three (3) Native American tribes recognized in the State of Maine with cultural interests in the region of the project location. These tribes are; Aroostook Band of Micmacs, Houlton Band of the Maliseet Indians, and the Penobscot Nation. Each of these tribes were sent notice of this undertaking, the archaeological survey, and the determination of adverse effects associated with the impact of this project. FEMA allowed ample time and opportunity for these tribes to respond indicating interest in consulting on the project. Additional details can be found in Section 5.1.13 of this document.

11. *Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance*

    Compliance: Not applicable, as this project is not related to Federal leadership in environmental, energy, and economic performance.

Executive Memorandum

1. *Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing NEPA, 11 August 1980.*

   Compliance: Not applicable, as this project does not involve prime or unique agricultural lands.

2. *White House Memorandum, Government-to-Government Relations with Indian Tribes, 29 April 1994.*

   Compliance: There are three (3) Native American tribes recognized in the State of Maine with cultural interests in the region of the project location. These tribes are; Aroostook Band of Micmacs, Houlton Band of the Maliseet Indians, and the Penobscot Nation. Each of these tribes were sent notice of this undertaking, the archaeological survey, and the determination of adverse effects associated with the impact of this project. FEMA allowed ample time and opportunity for these tribes to respond indicating interest in consulting on the project. Additional details can be found in Section 5.1.13 of this document.

7 PERMITS AND PROJECT CONDITIONS

The Town of Fort Kent is responsible for obtaining all applicable Federal, State, and local permits and other authorizations for project implementation prior to construction and adherence to all permit conditions. Any substantive change to the approved scope of work will require re-evaluations by FEMA for compliance with NEPA and other laws and EOs. The following permits were or will be obtained by the Town of Fort Kent prior to initiating this project;

- U.S. Army Corp Section 408 Authorization for extension or modification of an existing levee
- No-rise Certificate/Analysis for construction in floodway
- Letter of Map Revision (LOMR)
- Revision to the levee certification
- Maine Department of Environmental Protection Regulation-Natural Resources Protection Act-Permit By Rule Standards, Chapter 305 (Section 2-Actions Adjacent to Protected Natural Resources)

In addition to conditions imposed by permits referenced immediately above, the Town of Fort Kent must also adhere to the following conditions during project implementations and consider the below conservation recommendations. Failure to comply with grant conditions may jeopardize Federal funds:

- Maine DEPs BMPs for soil erosion
- Maine DEP BMPs for emissions of construction vehicles
- DEP Noise Control Regulations
- Erosion and Sediment Control Plan requirements
- Monitoring during construction for existing sewage pipe identified along northeast side of Blockhouse
- Easement between the Town of Fort Kent and the DACF and any conditions therein
- Easement between the Town of Fort Kent and the S.W. Collins Lumberyard and any conditions therein
- Historic American Building Survey (HABS) Recordation
    - Before the start of any building/site alteration, the Town shall oversee the successful delivery of a recordation package prepared by staff or contractors meeting the Professional Qualifications for Architectural History, History, Architecture, or Historic Architecture, as appropriate.
    - The Town shall ensure that their contractor prepare the recordation package in accordance with the National Historic Park Service's HABS standards. NPS will assign the HABS numbers and will write the specific Schedule of Documentation

(SOD) for each project. The Town shall provide the following hard copy and digital products to the SHPO and NPS and shall provide an electronic copy to FEMA and MEMA, and DACF.

- Public Interpretation
  - The Town shall install an interpretive exhibit in the visitors' area adjacent to the Fort Kent Blockhouse NHL. This will be a permanent, all weather exhibit containing two or three panels providing an overview of the history and development of the Fort Kent Blockhouse NHL and the surrounding community that accounts for the historic and modern alterations to the Blockhouse's setting, including the building of the levee. The interpretive exhibit will be developed using the HABS documentation developed in Stipulation II.A. and incorporate previous studies, including archaeological survey reports.

8 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

DHS Directive 108-1 requires FEMA to involve environmental agencies, applicants, and the public to the extent practicable in preparing the final EA. An internal scoping meeting was held at the Fort Kent Town Office at 111 West Main Street in Fort Kent, Maine on November 9, 2017. The scoping meeting was held prior to drafting the EA to educate partner agencies; identify FEMA as the lead agency; explore the range of alternatives, permits needed, and other NEPA compliance issues; determine the level of public involvement; and identify relevant data sources. The agencies included in the scoping process included:

- **Federal:** FEMA, USACE, and USFWS
- **State:** Maine Historic Preservation Commission; Maine Department of Agriculture, Conservation, and Forestry; Maine DOT; MEMA; and Maine DEP
- **Local:** Town of Fort Kent and contracted engineers (Sevee and Maher Engineers), Fort Kent Town Manager, Fort Kent Public Works Department, Fort Kent Water and Sewer, Fort Kent Community Development, and FKFD
- **Other:** Fort Kent landowners, a representative from the local Boy Scout Troop, and representatives from S.W. Collins Lumberyard (neighboring landowner)

The following is a list of dates of further calls and meetings open to the public;

- December 8, 2017: Discussion on EA status
- January 10, 2018:Discussion on MOA development
- February 7, 2018: Discussion on MOA development
- February 20, 2018: Discussion on EA status
- February 26, 2018:Discussion on EA and MOA development
- February 28, 2018:Discussion on EA and MOA development
- March 5, 2018: Floodplain and Flood Mapping Requirements

This Draft EA will be made available for agency and public review and comment for a period of 15 days. The public information process will include a public notice with information about the Proposed Alternative in both the *St. John Valley Times* and the (online) *Fiddlehead Focus* newspapers. The Draft EA will also be made available for download on Town's website at: http://www.fortkent.org/visitors/index.php

A hard copy of the EA will be available for review at the following locations:

- Fort Kent Town Office
  111 W Main Street
  Fort Kent, ME 04743

Interested parties may request an electronic copy of the EA by e-mailing Fema-r1ehppubliccomments@fema.dhs.gov. This EA reflects the evaluation and assessment of the Federal government, the decision maker for the Federal action; however, FEMA will take into consideration any substantive comments received during the public review period to inform the final decision regarding grant approval and project implementation. The public is invited to submit written comments by e-mailing Fema-r1ehppubliccomments@fema.dhs.gov or via mail to:

FEMA Region I
99 High Street, Sixth Floor
Boston, MA 02110
Attn: Fort Kent Blockhouse Hazard Mitigation Levee Extension Project EA Comments.

If no substantive comments are received from the public and/or agency reviewers, the EA will be adopted as final, and FEMA will issue a FONSI. If FEMA receives substantive comments, it will evaluate and address comments as part of the FONSI documentation or in a final EA.

9 LIST OF PREPARERS

Booz Allen Hamilton

Erik Anderson – NEPA Specialist – Air Quality, Climate Change, Socioeconomic Resources

David Cohen – Cultural Resources Specialist – Cultural Resources

Elizabeth Ducey – GIS Specialist

Pamela Middleton – Water Resources Specialist – Aquatic Resources

Marshall Popkin – Environmental Scientist – Soils

Jennifer Salerno – NEPA Program Manager

Lindsey Veas – EA Manager / Biologist – Biological Resources

Federal Agencies

Kathryn Emmitt – FEMA Environmental Specialist

David E. Robbins – FEMA Region 1 Regional Environmental Officer

Mary Shanks – FEMA Region I Deputy Regional Environmental Officer

Marcus Tate – FEMA Environmental Specialist

Michael Narcisi – USACE Biologist

Brandon Webb-FEMA Environmental Specialist

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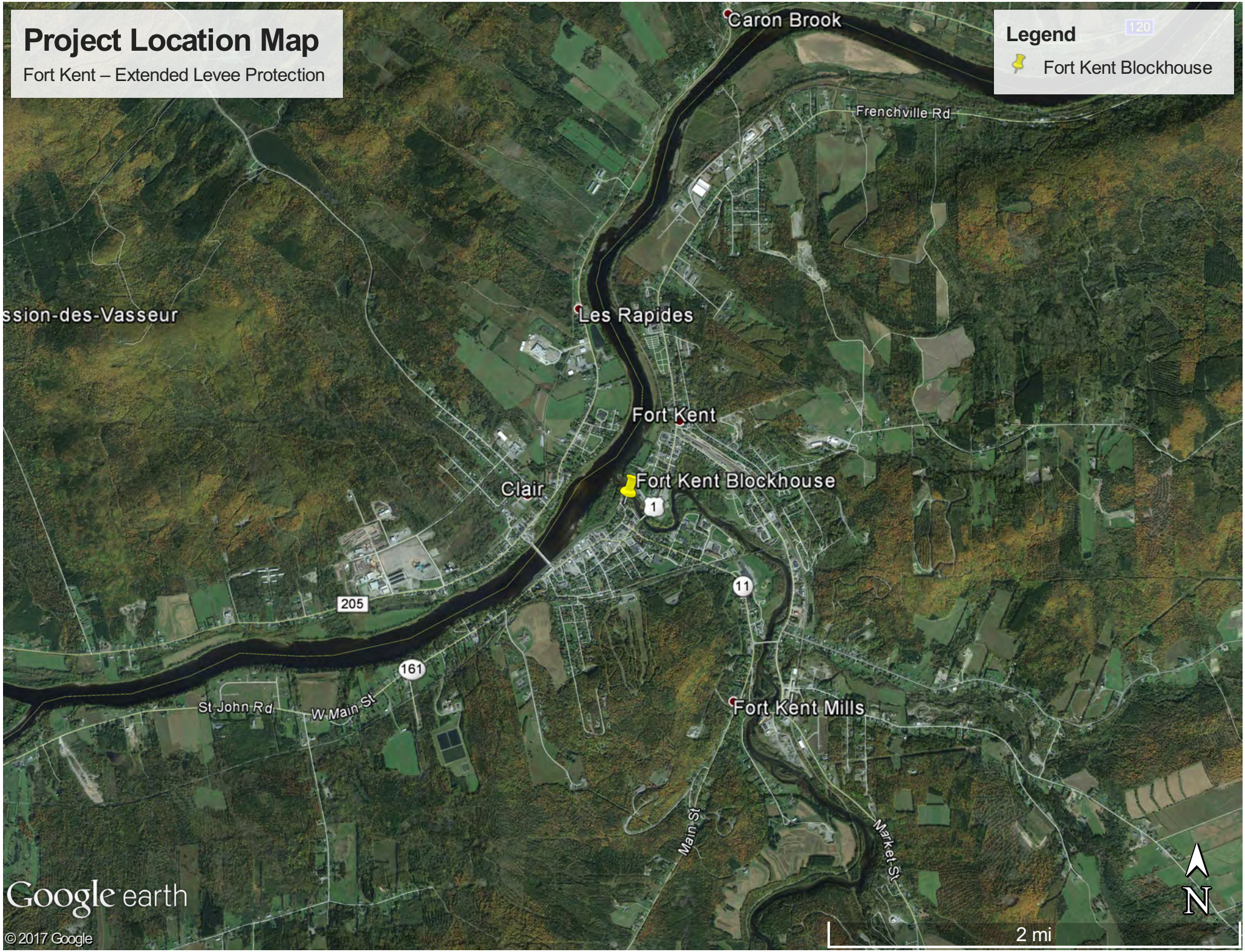
Environmental Assessment
Fort Kent Blockhouse Levee Extension Project
Fort Kent, Aroostook County, ME

Appendix A: Supporting Documentation

Appendix A-1:

Action Area Map


Project Location Map
Fort Kent – Extended Levee Protection
Legend
Fort Kent Blockhouse
Caron Brook
Frenchville Rd
ssion-des-Vasseur
Les Rapides
Fort Kent
Clair
Fort Kent Blockhouse
1
11
205
161
St John Rd
W Main St
Fort Kent Mills
Main St
Market St
N
2 mi
Google earth
© 2017 Google

Appendix A-2: Photographs and Photo Location Key

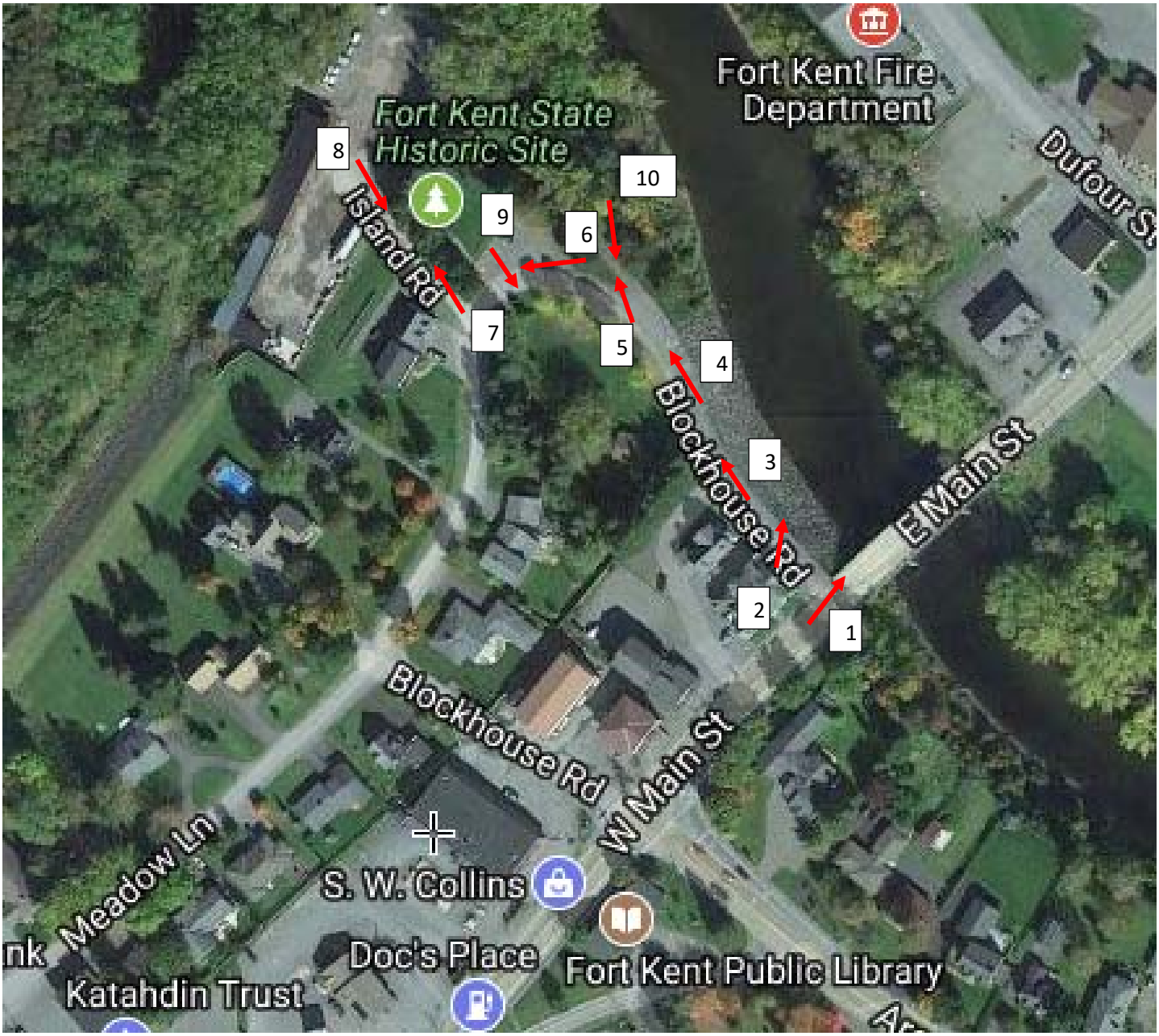


Photo Key-arrows represent direction photo was taken, numbers represent photo number listed below.

Photo 1: Fish River Bridge - Main Street at the mouth of Block House Road looking northeast

Photo 2: Block House Road looking north

Photo 3: Block House Road adjacent to Old Fire House apartments looking northwest.

Photo 4: Block House Road adjacent to rip rap descending to river looking northwest

Photo 5: Block House Road and Driveway to picnic area looking northwest

Photo 6: Block House Road and neighboring home and lumberyard driveway looking west

Photo 7: Island Road to lumberyard looking northwest

Photo 8: From lumberyard looking southeast

Photo 9: From Block House looking southeast

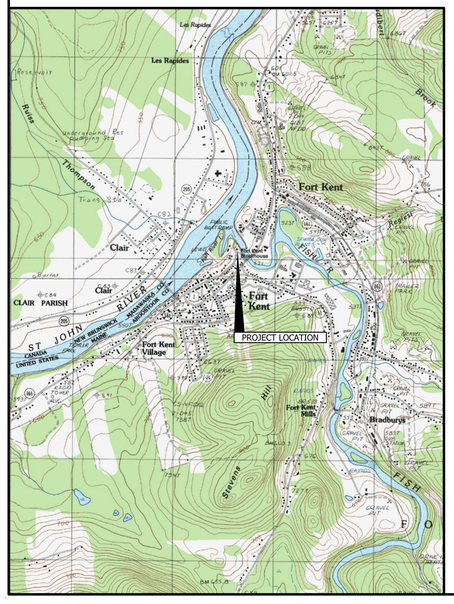
Photo 10: Mouth of picnic area access looking south

Appendix A-3: Design Plans

FREEBOARD MODIFICATION
FLOOD DAMAGE REDUCTION SYSTEM
FISH RIVER SECTION
FORT KENT, MAINE

TITLE	DWG NO
COVER SHEET	
GENERAL NOTES, ABBREVIATIONS, AND LEGEND	C-100
EXISTING CONDITIONS PLAN	C-101
SITE AND EROSION CONTROL PLAN	C-102
GEOMETRIC LAYOUT, STRIPING, AND SIGNAGE PLAN	C-103
PROFILE LOCATION PLAN	C-104
BLOCK WALL PROFILE STA 0+00 TO STA 5+55	C-200
BLOCK WALL PROFILE STA 6+00 TO STA 9+80	C-201
SECTIONS AND DETAILS	C-300
SECTIONS AND DETAILS	C-301
EROSION CONTROL NOTES AND DETAILS	C-302
WING WALL EXTENSION AND ADDITION	S-100

LOCATION MAP



SME
SEVEE & MAHER ENGINEERS
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE
4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021
Phone 207.829.5016 • Fax 207.829.5692 • smemaine.com

GENERAL SITE NOTES:

1. BASE MAP FROM SURVEY PERFORMED BY MATTHEW MACDONALD PROFESSIONAL LAND SURVEYOR #1250, OF MADAWASKA, MAINE, DATED DECEMBER 21 2016, REVISED OCTOBER 11, 2017.
2. STANDARD PRACTICE DICTATES THAT PLANS COMPILED IN THIS MANNER SHOULD BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO ENGINEER. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION IS NOT GUARANTEED. VERIFY SITE CONDITIONS INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING WITH THAT PORTION OF THE WORK.
3. PAVEMENT EDGES SHALL BE TRUE TO LINE. SAWCUT EXISTING PAVEMENT IN SMOOTH STRAIGHT LINE WHERE NEW PAVEMENT JOINS. PROVIDE TACK COAT LAYER AS SPECIFIED.

GRADING NOTES:

1. ADD 4" LOAM, SEED AND MULCH TO DISTURBED AREAS UNLESS OTHERWISE NOTED. PROVIDE EROSION CONTROL MESH ON ALL DISTURBED SLOPES 3:1 OR STEEPER, AND ALONG DITCH CHANNELS.
2. GRADE SURFACES TO DRAIN AWAY FROM BUILDING. PUDDLING OF WATER IN PAVED OR UNPAVED AREAS WILL NOT BE ACCEPTABLE, EXCEPT FOR AREAS DESIGNATED AS PONDS.
3. MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE FULL DURATION OF CONSTRUCTION. INSPECT WEEKLY AND AFTER EACH STORM AND REPAIR AS NEEDED. REMOVE SEDIMENTS FROM THE SITE. PLACE IN AREA OF LOW EROSION POTENTIAL, AND STABILIZE WITH SEED AND MULCH.
4. DISTURBED AREAS WILL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING. DISTURBED AREAS NOT TO BE WORKED UPON WITHIN 14 DAYS OF DISTURBANCE WILL BE TEMPORARILY STABILIZED WITHIN 7 DAYS OF THE DISTURBANCE.
5. TOPSOIL ON SITE SHALL REMAIN THE PROPERTY OF THE OWNER AND REMAIN ON-SITE FOR THE DURATION OF CONSTRUCTION. EXCESS TOPSOIL SHALL BE REMOVED FROM THE SITE AFTER FINAL LOAM IS PLACED.

UTILITY NOTES:

1. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION IS NOT GUARANTEED. VERIFY SITE CONDITIONS INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING WITH THAT PORTION OF THE WORK.
2. PLACE 4 FOOT WIDE BY 2 INCH THICK TRENCH INSULATION CENTERED OVER SEWER LINES WHERE DEPTH OF COVER OVER TOP OF PIPE IS LESS THAN 5 FEET.
3. CLEAN SEDIMENTS FROM EXISTING STORM DRAIN PIPES AND CATCH BASINS.
4. COORDINATE WORK ON UTILITY LINES OR WITHIN ROAD RIGHT-OF-WAY WITH THE UTILITY COMPANIES AND CITY ROAD DEPARTMENT AND STATE MDOT.
5. SLOPE CONDUITS AWAY FROM BUILDING TO HANDHOLE OR UTILITY POLE TO AVOID GROUND WATER SEEPAGE INTO BUILDING.
6. RESET RIMS OF EXISTING UTILITY STRUCTURES, MANHOLES AND CATCH BASINS TO PROPOSED GRADE.

DIG SAFE NOTES:

PRIOR TO EXCAVATION, VERIFY THE UNDERGROUND UTILITIES, PIPES, STRUCTURES AND FACILITIES. PROVIDE THE FOLLOWING MINIMUM MEASURES:

1. PRE-MARK THE BOUNDARIES OF YOUR PLANNED EXCAVATION WITH WHITE PAINT, FLAGS OR STAKES, SO UTILITY CREWS KNOW WHERE TO MARK THEIR LINES.
2. CALL DIG SAFE, AT 811, AT LEAST THREE BUSINESS DAYS - BUT NO MORE THAN 30 CALENDAR DAYS - BEFORE STARTING WORK. DO NOT ASSUME SOMEONE ELSE WILL MAKE THE CALL.
3. IF BLASTING, NOTIFY DIG SAFE AT LEAST ONE BUSINESS DAY IN ADVANCE.
4. WAIT THREE BUSINESS DAYS FOR LINES TO BE LOCATED AND MARKED WITH COLOR-CODED PAINT, FLAGS OR STAKES. NOTE THE COLOR OF THE MARKS AND THE TYPE OF UTILITIES THEY INDICATE. SURVEY MARKED UTILITIES AND RECORD ON THE AS-BUILT DRAWINGS.
5. CONTACT THE LANDOWNER AND OTHER "NON-MEMBER" UTILITIES (WATER, SEWER, GAS, ETC.). FOR THEM TO MARK THE LOCATIONS OF THEIR UNDERGROUND FACILITIES. SURVEY MARKED UTILITIES AND RECORD ON THE AS-BUILT DRAWINGS.
6. RE-NOTIFY DIG SAFE AND THE NON-MEMBER UTILITIES IF THE DIGGING, DRILLING OR BLASTING DOES NOT OCCUR WITHIN 30 CALENDAR DAYS, OR IF THE MARKS ARE LOST DUE TO WEATHER CONDITIONS, SITE WORK ACTIVITY OR ANY OTHER REASON.
7. HAND DIG WITHIN 18 INCHES IN ANY DIRECTION OF ANY UNDERGROUND LINE UNTIL THE LINE IS EXPOSED. MECHANICAL METHODS MAY BE USED FOR INITIAL SITE PENETRATION, SUCH AS REMOVAL OF PAVEMENT OR ROCK.
8. DIG SAFE REQUIREMENTS ARE IN ADDITION TO TOWN, CITY AND/OR STATE DOT STREET OPENING PERMIT REQUIREMENTS.
9. FOR COMPLETE DIG SAFE REQUIREMENTS, CALL THE PUBLIC UTILITIES COMMISSION (PUC) AT 1-800-452-4699 OR VISIT WWW.STATE.ME.US/MPUC
10. IF YOU DAMAGE, DISLOCATE OR DISTURB ANY UNDERGROUND UTILITY LINE, IMMEDIATELY NOTIFY THE AFFECTED UTILITY. IF DAMAGE CREATES SAFETY CONCERNS, CALL THE FIRE DEPARTMENT AND TAKE IMMEDIATE STEPS TO SAFEGUARD HEALTH AND PROPERTY.
11. ANY TIME AN UNDERGROUND LINE IS DAMAGED OR DISTURBED OR IF LINES ARE IMPROPERLY MARKED, YOU MUST FILE AN INCIDENT REPORT WITH THE PUC FOR AN INCIDENT REPORT FORM VISIT WWW.STATE.ME.US/MPUC OR CALL THE PUC AT 1-800-452-4699.

GENERAL SURVEY NOTES:

GENERAL SURVEY NOTES FROM MATTHEW MACDONALD PROFESSIONAL LAND SURVEYOR #1250, OF MADAWASKA, MAINE.

THESE COORDINATES EMANATE FROM THE M.D.O.T. MON.#3261-19, LOCATED IN FRONT OF THE KEYBANK BUILDING (ABOUT 900' TO THE SOUTHWEST) N-1306661.725, E-960055.621, H-514.48, WITH A GRID AZIMUTH OF 238°-57'-13", 633.54' TO MON.#3261-18.

1) THIS PLAN USES QUASI-STATE PLANE COORDINATES, THAT IS, COORDINATES USING GROUND DISTANCES, NOT GRID (SEA LEVEL) DISTANCES.

2) THE ELEVATIONS ARE NAVD1988 USING A 2011 TRIGONOMETRIC TRAVERSE FROM NGS PT#S-196 NEAR THE POST OFFICE, ELEV. 514.74.

3) POINTS 1 - 600 ARE NEW NOVEMBER 2016 TOPO PTS, PTS 800 THRU 8000 ARE OLD VARIOUS MISC. POINTS.

LEGENDS

EXISTING

- PROPERTY LINE
- BUILDING
- EDGE OF PAVEMENT
- GRAVEL WALKWAY
- CURB
- EDGE OF WATER
- CONTOUR (100)
- PLASTIC FENCE
- WOOD FENCE
- CATCH BASIN
- DRAINAGE MANHOLE (MH)
- STORM DRAIN (SD)
- SANITARY SEWER LINE (SS)
- SANITARY SEWER MANHOLE (SMH)
- UTILITY POLE
- FLAG POLE
- OVERHEAD UTILITY (OH)
- UNDERGROUND COMMUNICATION (UCC)
- BLOCK
- LIGHT POLE
- WATER (W)
- WATER GATE/SERVICE VALVE
- HYDRANT
- GAS MAIN (G)
- SIGN
- TREE
- SHRUB
- CONTROL POINT (△ #101)
- RAILROAD
- RIPRAP
- BORING (B)

PROPOSED

- PROPERTY LINE
- BUILDING
- DOOR/PERSONNEL ENTRY
- VEHICLE ENTRANCE/OVERHEAD DOOR
- EDGE OF PAVEMENT
- SLIPFORM CONCRETE CURB
- VERTICAL GRANITE CURB
- SLOPED GRANITE CURB
- FLUSH GRANITE CURB
- CONCRETE
- PAVERS
- BOLLARD
- RETAINING WALL
- CONTOUR (100)
- SPOT GRADE FINISHED SURFACE (114.23)
- FINISH GRADE AT BASE OF WALL (BW 114.27)
- FENCE (X)
- ORNAMENTAL FENCE
- CATCH BASIN
- DRAINAGE MANHOLE
- STORM DRAIN (SD)
- ROOF DRAIN (RD)
- FOUNDATION DRAIN (FD)
- UNDERDRAIN (UD)
- SANITARY SEWER MAIN/SERVICE (SS)
- SANITARY SEWER MANHOLE
- UTILITY POLE
- LIGHT POLE
- UNDERGROUND UTILITY (UGU)
- UNDERGROUND ELECTRIC (UGE)
- WATER MAIN/SERVICE (W)
- GAS MAIN/SERVICE (G)
- SILT FENCE OR EROSION CONTROL MIX SEDIMENT BARRIER (SF)
- SILT SACK CATCH BASIN PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE/EXIT
- CLEARING LIMIT LINE/LIMIT OF WORK (CLL)

TYPICAL ABBREVIATIONS:

ACCMP	ASPHALT COATED CMP
ACP	ASBESTOS CEMENT PIPE
AC	ACRE
AGG	AGGREGATE
ALUM	ALUMINUM
APPD	APPROVED
APPROX	APPROXIMATE
ARMH	AIR RELEASE MANHOLE
ASB	ASBESTOS
ASP	ASPHALT
AUTO	AUTOMATIC
AUX	AUXILIARY
AVE	AVENUE
AZ	AZIMUTH
BCCMP	BITUMINOUS COATED CMP
BM	BENCH MARK
BIT	BITUMINOUS
BLDG	BUILDING
BOT	BOTTOM
BRG	BEARING
BV	BALL VALVE
CB	CATCH BASIN
CEN	CENTER
CEM LIN	CEMENT LINED
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CL	CLASS
CLL	CLEARING LIMIT LINE
CONC	CONCRETE
CONST	CONSTRUCTION
CONTR	CONTRACTOR
CS	CURB STOP
CTR	CENTER
CU	COPPER
CY	CUBIC YARD
D	DEGREE OF CURVE
DBL	DOUBLE
DEG OR °	DEGREE
DEPT	DEPARTMENT
DI	DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DIST	DISTANCE
DN	DOWN
DR	DRAIN
DWG	DRAWING
EA	EACH
EG	EXISTING GROUND OR GRADE
ELEC	ELECTRIC
EL	ELEVATION
ELB	ELBOW
EOP	EDGE OF PAVEMENT
EQUIP	EQUIPMENT
EST	ESTIMATED
EXC	EXCAVATE
EXIST	EXISTING
FI	FIELD INLET
FG	FINISH GRADE
FBRGL	FIBERGLASS
FDN	FOUNDATION
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
FPS	FEET PER SECOND
FT OR '	FEET
FTG	FOOTING
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
HDPE	HIGH DENSITY POLYETHYLENE
HORIZ	HORIZONTAL
HP	HORSEPOWER
HYD	HYDRANT
ID	INSIDE DIAMETER
IN OR "	INCHES
INV	INVERT
INV EL	INVERT ELEVATION
LB	POUND
LC	LEACHATE COLLECTION
LD	LEAK DETECTION
LF	LINEAR FEET
LOC	LOCATION
LT	LEACHATE TRANSPORT
MH	MANHOLE
MJ	MECHANICAL JOINT
MATL	MATERIAL
MAX	MAXIMUM
MFR	MANUFACTURE
MIN	MINIMUM
MISC	MISCELLANEOUS
MON	MONUMENT
NITC	NOT IN THIS CONTRACT
NTS	NOT TO SCALE
N/F	NOW OR FORMERLY
NO OR #	NUMBER
OC	ON CENTER
OD	OUTSIDE DIAMETER
PC	POINT OF CURVE
PD	PERIMETER DRAIN
PI	POINT OF INTERSECTION
PVI	POINT OF VERTICAL INTERSECTION
PIV	POST INDICATOR VALVE
PT	POINT OF TANGENT
PERF	PERFORATED
PP	POWER POLE
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
QTY	QUANTITY
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT OF WAY
RAD	RADIUS
REQD	REQUIRED
RT	RIGHT
RTE	ROUTE
S	SLOPE
SCH	SCHEDULE
SF	SQUARE FEET
SHT	SHEET
SMH	SANITARY MANHOLE
ST	STREET
STA	STATION
SY	SQUARE YARD
TAN	TANGENT
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPORARY
TYP	TYPICAL
UD	UNDERDRAIN
V	VOLTS
VA TEE	VALVE ANCHORING TEE
VERT	VERTICAL
WG	WATER GATE
W/	WITH
W/O	WITHOUT
YD	YARD

REV.	BY	DATE	STATUS
	BDP	4/2018	ISSUED FOR CONSTRUCTION
	BDP	3/2018	PRELIMINARY DESIGN SUBMITTAL TO THE TOWN OF FORT KENT

FREEBOARD MODIFICATION
FLOOD DAMAGE REDUCTION SYSTEM
FISH RIVER SECTION
FORT KENT, MAINE

SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES

SME
SEVEE & MAHER ENGINEERS
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE
4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021
Phone 207.829.5016 • Fax 207.829.5692 • smemaine.com

DESIGN BY: BDP
DRAWN BY: SJM
DATE: 12/27/2017
CHECKED BY: MWM
LMN:
CTB: SME-STD

JOB NO. 15138.00 DWG FILE SYMSHT

C-100

CONTROL POINTS			
NUMBER	NORTHING	EASTING	ELEVATION
100	1307465.7	960665.9	517.5
101	1307436.1	960659.1	518.2
102	1307501.2	960573.0	518.4
103	1307446.8	960559.2	518.6
104	1307443.8	960581.0	518.4
105	1307557.0	960680.3	503.7
106	1307396.4	960824.0	517.7
107	1307245.5	960893.7	517.8
108	1307121.2	960997.6	518.8

NOTES

1. EXISTING TOPOGRAPHY FROM SURVEY ENTITLED "TOPOGRAPHIC SURVEY PLAT PREPARED FOR THE TOWN OF FORT KENT OF THE BLOCKHOUSE LOT, FORT KENT, MAINE," PREPARED BY MATTHEW MACDONALD PROFESSIONAL LAND SURVEYOR, OF MADAWASKA, MAINE, DATED, DECEMBER 21, 2016, REVISED OCTOBER 11, 2017.

2. SURVEYOR'S NOTES:

   THIS PLAN USES QUASI-STATE PLANE COORDINATES, THAT IS, COORDINATES USING GROUND DISTANCES, NOT GRID (SEA LEVEL) DISTANCES. THESE COORDINATES EMANATE FROM THE M.D.O.T. MON.#3261-19, LOCATED IN FRONT OF THE KEYBANK BUILDING (ABOUT 900' TO THE SOUTHWEST) N-1306661.725, E-960055.621, H-514.48, WITH A GRID AZIMUTH OF 238°-57'-13", 633.54' TO MON.#3261-18.

   A. THE ELEVATIONS ARE NAVD1988 USING A 2011 TRIGONOMETRIC TRAVERSE FROM NGS PT#S-196 NEAR THE POST OFFICE, ELEV. 514.74.

3. BORINGS PERFORMED BY SEVEE & MAHER ENGINEERS, INC ON NOVEMBER 6, 7 AND 8, 2017. LOCATIONS WERE FIELD MEASURED AND ARE APPROXIMATE

4. BELOW GROUND UTILITIES AREA APPROXIMATE AND LOCATIONS AND ELEVATIONS SHOULD BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. UTILITIES SHOWN IN THE AREA OF THE BLOCK HOUSE ARE APPROXIMATE AND WERE BASED ON FIELD LOCATION BY TONY THERIAULT, PUBLIC WORKS DIRECTOR FOR FORK KENT, DATED NOVEMBER 14, 2017.

5. STATIONING SHOWN IS APPROXIMATE AND IS FROM PLAN TITLED PROTECTION PROJECT FOR ST. JOHN RIVER IN FORT KENT, MAINE, BY LOCAL DEPARTMENT OF THE ARMY, NEW ENGLAND DIVISION, CORPS OF ENGINEERS DRAWING NO FOR-1, SHEET 5. STATIONING FROM 39+00 TO 41+68 WAS ADJUSTED TO MEET SITE CONDITIONS.

6. CONTRACTOR SHALL SURVEY ALL CATCH BASIN RIMS AND INVERTS AND REPORT THEM TO ENGINEER PRIOR TO CONSTRUCTION.

7. ESTIMATED INVERTS OF OBSERVATION RISER AND CATCH BASIN ELEVATIONS CONVERTED FROM DIKE CONSTRUCTION RECORD DRAWINGS (NGVD 1929) TO NAVD 1988. NAVD ELEVATIONS ARE 0.5 FEET HIGHER THAN NGVD.

8. ALL SITE AND CONSTRUCTION ACTIVITIES SHALL BE IN COMPLIANCE WITH MEDEP BEST MANAGEMENT PRACTICES AND EXISTING FEDERAL, STATE, AND LOCAL PERMITS AND PERMITTING REQUIREMENTS FOR THE SITE.

REV.	BY	DATE	STATUS
	BDP	4/2018	ISSUED FOR CONSTRUCTION
	BDP	3/2018	PRELIMINARY DESIGN SUBMITTAL TO THE TOWN OF FORT KENT

FREEBOARD MODIFICATION
FLOOD DAMAGE REDUCTION SYSTEM
FISH RIVER SECTION
FORT KENT, MAINE

EXISTING CONDITIONS PLAN

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DESIGN BY: BDP
DRAWN BY: SJM
DATE: 12/27/2017
CHECKED BY: MWM
LMN: EXCON
CTB: SME-STD

JOB NO. 15138.00 DWG FILE BASE

C-101

NOTES

1. EXISTING TOPOGRAPHY FROM SURVEY ENTITLED "TOPOGRAPHIC SURVEY PLAT PREPARED FOR THE TOWN OF FORT KENT OF THE BLOCKHOUSE LOT, FORT KENT, MAINE," PREPARED BY MATTHEW MACDONALD PROFESSIONAL LAND SURVEYOR, OF MADAWASKA, MAINE, DATED, DECEMBER 21, 2016, REVISED OCTOBER 11, 2017.

2. SURVEYOR'S NOTES:

   THIS PLAN USES QUASI-STATE PLANE COORDINATES, THAT IS, COORDINATES USING GROUND DISTANCES, NOT GRID (SEA LEVEL) DISTANCES. THESE COORDINATES EMANATE FROM THE M.D.O.T. MON.#3261-19, LOCATED IN FRONT OF THE KEYBANK BUILDING (ABOUT 900' TO THE SOUTHWEST) N-1306661.725, E-960055.621, H-514.48, WITH A GRID AZIMUTH OF 238°-57'-13", 633.54' TO MON.#3261-18.

   A. THE ELEVATIONS ARE NAVD1988 USING A 2011 TRIGONOMETRIC TRAVERSE FROM NGS PT#S-196 NEAR THE POST OFFICE, ELEV. 514.74.

3. TEST PITS PERFORMED BY SEVEE & MAHER ENGINEERS, INC ON NOVEMBER 6, 7 AND 8, 2017. LOCATIONS WERE FIELD MEASURED AND ARE APPROXIMATE

4. BELOW GROUND UTILITIES AREA APPROXIMATE AND LOCATIONS AND ELEVATIONS SHOULD BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. UTILITIES SHOWN IN THE AREA OF THE BLOCK HOUSE ARE APPROXIMATE AND WERE BASED ON FIELD LOCATION BY TONY THERIAULT, PUBLIC WORKS DIRECTOR FOR FORK KENT, DATED NOVEMBER 14, 2017.

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8. EASEMENT INFORMATION IS APPROXIMATE AND WAS DIGITIZED FROM PLAN TITLED THE BLOCKHOUSE LOT DIKE PERMANENT EASEMENT SURVEY PLAT PREPARED FOR THE TOWN OF FORT KENT, FORT KENT, MAINE. PLAN PREPARED BY MATTHEW MACDONALD, PROFESSIONAL LAND SURVEYOR #1250 OF MADAWASKA, MAINE.

9. SPOT ELEVATIONS REPRESENT TOP SURFACE.

REV.	BY	DATE	STATUS
	BDP	4/2018	ISSUED FOR CONSTRUCTION
	BDP	3/2018	PRELIMINARY DESIGN SUBMITTAL TO THE TOWN OF FORT KENT

FREEBOARD MODIFICATION
FLOOD DAMAGE REDUCTION SYSTEM
FISH RIVER SECTION
FORT KENT, MAINE

SITE AND EROSION CONTROL PLAN

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DRAWN BY:	SJM
DATE:	12/27/2017
CHECKED BY:	MWM
LMN:	SITEPLAN
CTB:	SME-STD
JOB NO. 15138.00	DWG FILE BASE
	C-102

NOTES

1. EXISTING TOPOGRAPHY FROM SURVEY ENTITLED "TOPOGRAPHIC SURVEY PLAT PREPARED FOR THE TOWN OF FORT KENT OF THE BLOCKHOUSE LOT, FORT KENT, MAINE," PREPARED BY MATTHEW MACDONALD PROFESSIONAL LAND SURVEYOR, OF MADAWASKA, MAINE, DATED, DECEMBER 21, 2016, REVISED OCTOBER 11, 2017.

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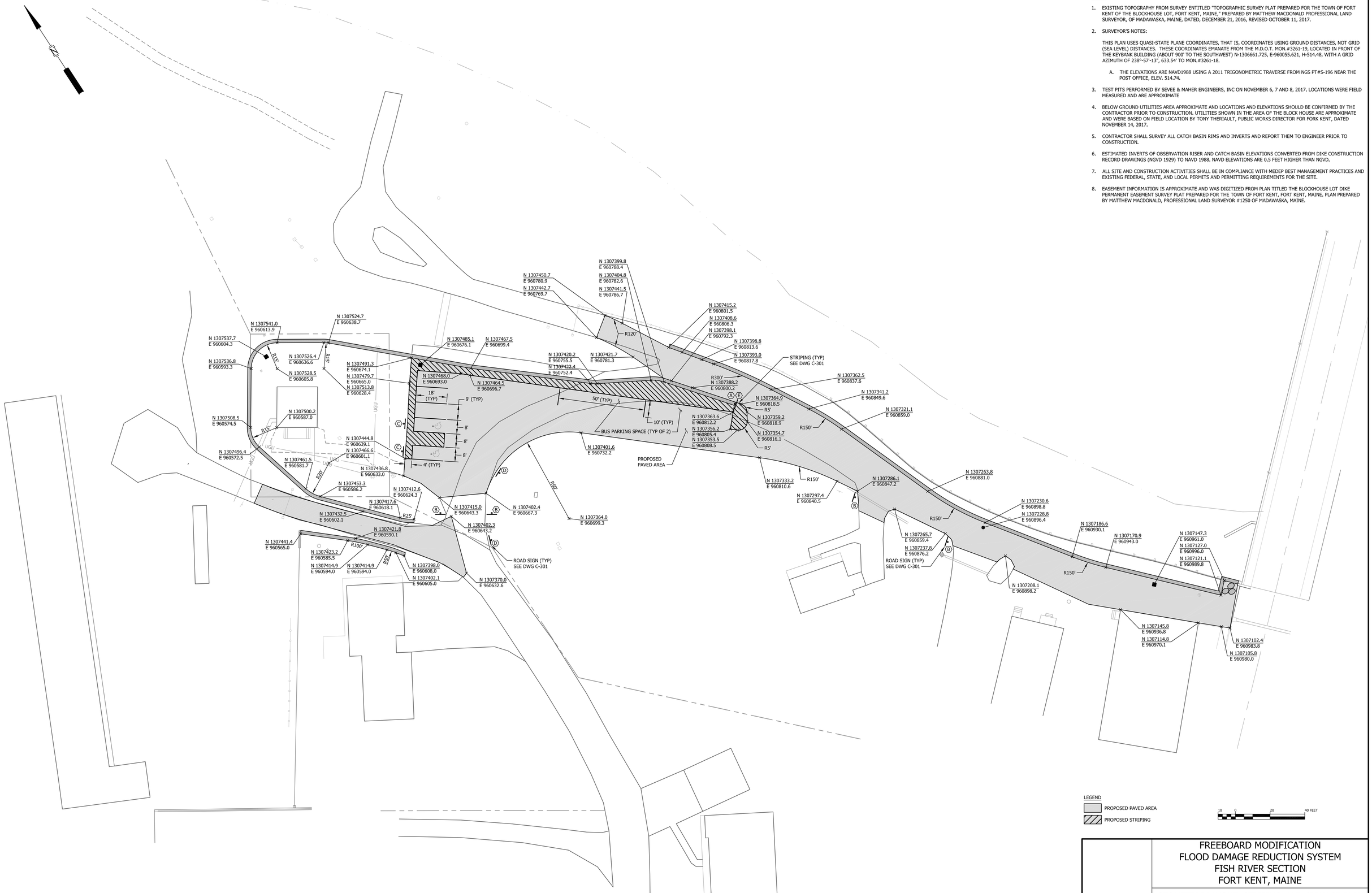

REV.	BY	DATE	STATUS
	BDP	4/2018	ISSUED FOR CONSTRUCTION
	BDP	3/2018	PRELIMINARY DESIGN SUBMITTAL TO THE TOWN OF FORT KENT

FREEBOARD MODIFICATION
FLOOD DAMAGE REDUCTION SYSTEM
FISH RIVER SECTION
FORT KENT, MAINE

GEOMETRIC LAYOUT, STRIPING, AND SIGNAGE PLAN

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CHECKED BY:	MWM
LMN:	GEOSTRIPING
CTB:	SME-STD
JOB NO. 15138.00	DWG FILE BASE
	C-103

NOTES

1. EXISTING TOPOGRAPHY FROM SURVEY ENTITLED "TOPOGRAPHIC SURVEY PLAT PREPARED FOR THE TOWN OF FORT KENT OF THE BLOCKHOUSE LOT, FORT KENT, MAINE," PREPARED BY MATTHEW MACDONALD PROFESSIONAL LAND SURVEYOR, OF MADAWASKA, MAINE, DATED, DECEMBER 21, 2016, REVISED OCTOBER 11, 2017.

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REV.	BY	DATE	STATUS
	BDP	4/2018	ISSUED FOR CONSTRUCTION
	BDP	3/2018	PRELIMINARY DESIGN SUBMITTAL TO THE TOWN OF FORT KENT

FREEBOARD MODIFICATION
FLOOD DAMAGE REDUCTION SYSTEM
FISH RIVER SECTION
FORT KENT, MAINE

PROFILE LOCATION PLAN

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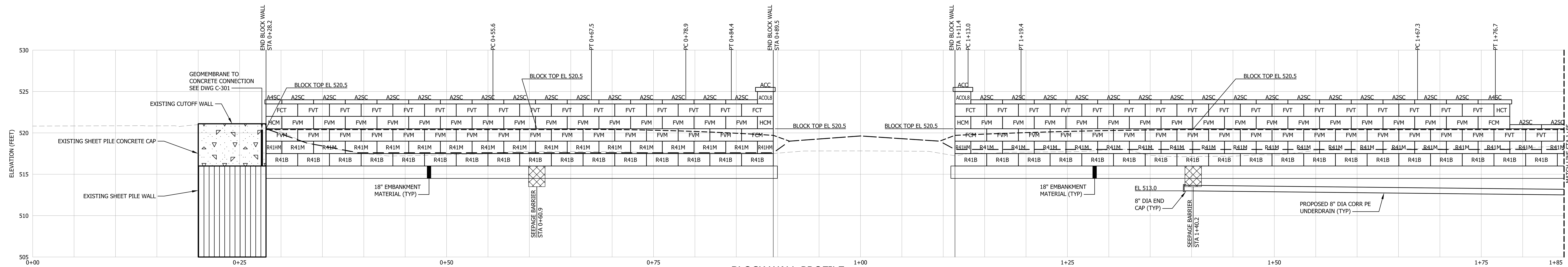
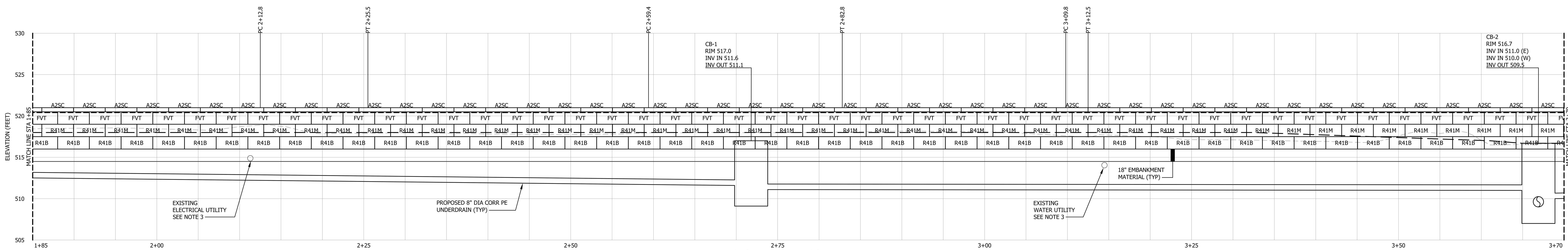
DRAWN BY:	SJM
DATE:	12/27/2017
CHECKED BY:	MWM
LMN:	PRO-LOC
CTB:	SME-STD

JOB NO. 15138.00 DWG FILE BASE

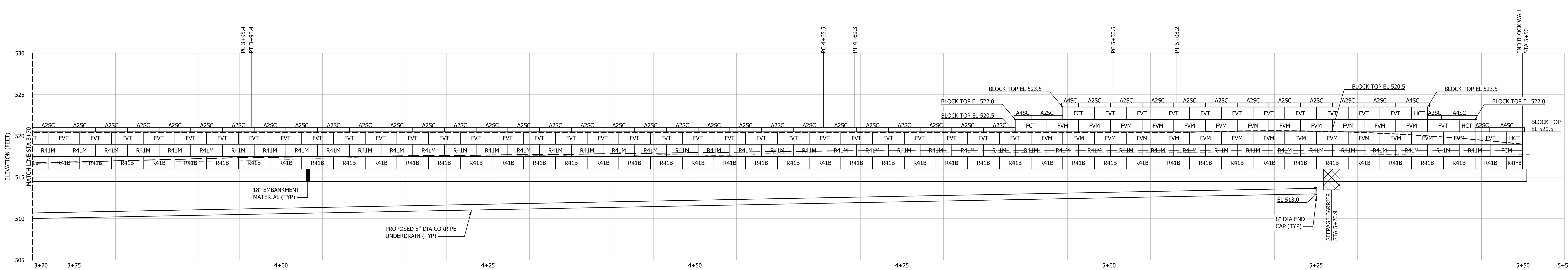
C-104



BLOCK WALL PROFILE
STA 0+00 TO STA 1+85



BLOCK WALL PROFILE
STA 1+85 TO STA 3+70



BLOCK WALL PROFILE
STA 3+70 TO STA 5+55

LEGEND

(solid line)	PROPOSED GRADE ADJACENT TO BLOCKS ON THE EXTERIOR OF THE WALL
(dashed line)	PROPOSED GRADE AT THE INTERIOR FACE OF THE BLOCKS
(light dashed line)	EXISTING GRADE AT THE FACE OF BLOCKS
A2SC	TWO SIDED CAP
A4SC	FOUR SIDED CAP
ACC	COLUMN CAP
ACOL8	ACCESS COLUMN
FCM	FREE CORNER MIDDLE
FCT	FREE CORNER TOP
FVM	FREE STANDING MIDDLE
FVT	FREE VARIABLE TOP
HCM	HALF CORNER MIDDLE
HCT	HALF CORNER TOP
R41B	BOTTOM
R41HB	HALF BOTTOM
R41M	MIDDLE
R41HM	HALF MIDDLE

NOTES:

1. ALL BLOCKS SHALL BE REDI-ROCK LIMESTONE BLOCK SYSTEM AS PER SPECIFICATION.
2. CONTRACTOR SHALL SUBMIT WALL LAYOUT PRIOR TO ORDERING BLOCKS AND AT LEAST 14 DAYS PRIOR TO THE START OF THE BLOCK WALL CONSTRUCTION.
3. EXACT LOCATION OF UTILITIES TO BE DETERMINED BY CONTRACTOR DURING CONSTRUCTION.
4. UNDERDRAIN OFFSET 3' TO THE INTERIOR (RIGHT) OF PROFILE.

REV.	BY	DATE	STATUS
	BDP	4/2018	ISSUED FOR CONSTRUCTION
	BDP	3/2018	PRELIMINARY DESIGN SUBMITTAL TO THE TOWN OF FORT KENT

FREEBOARD MODIFICATION
FLOOD DAMAGE REDUCTION SYSTEM
FISH RIVER SECTION
FORT KENT, MAINE

BLOCK WALL PROFILE
STA 0+00 TO STA 5+55

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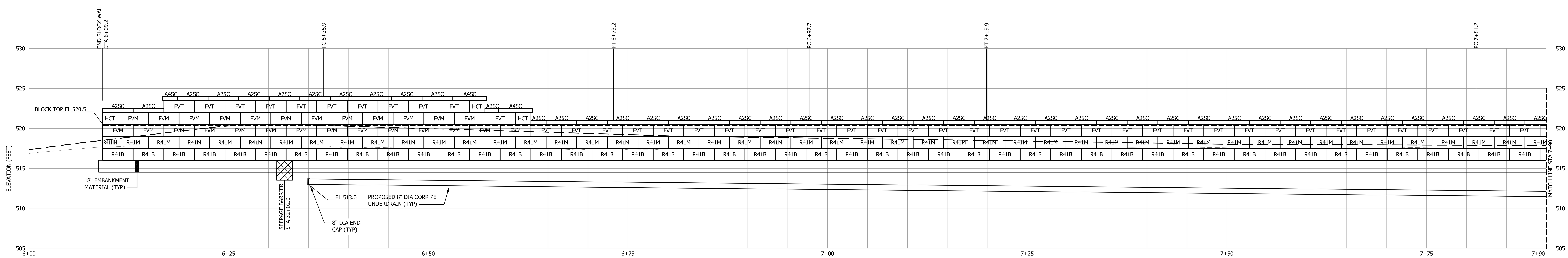
LMN:	PRO-LOC
CTB:	SME-STD

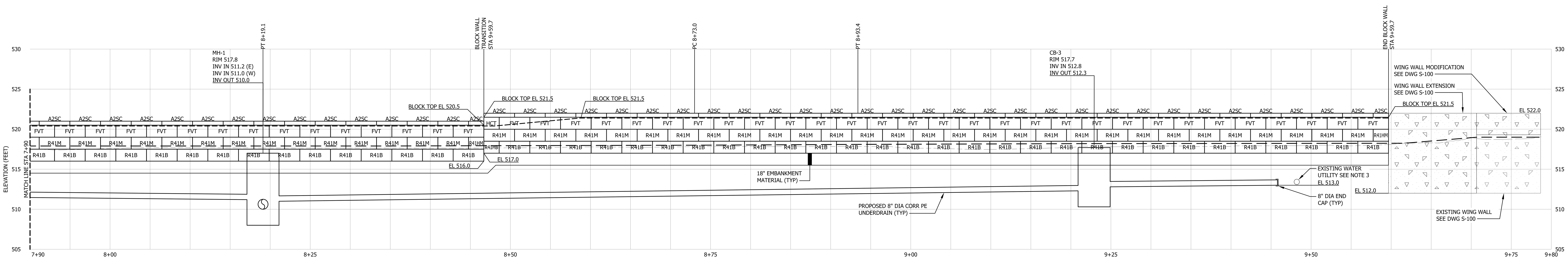
JOB NO. 15138.00 DWG FILE BASE

C-200



BLOCK WALL PROFILE
STA 6+00 TO STA 7+90

10 FEET (HORZ)
10 FEET (VERT)



BLOCK WALL PROFILE
STA 7+90 TO STA 9+80

10 FEET (HORZ)
10 FEET (VERT)

LEGEND

— — — —	PROPOSED GRADE ADJACENT TO BLOCKS ON THE EXTERIOR OF THE WALL
—— ——	PROPOSED GRADE AT THE INTERIOR FACE OF THE BLOCKS
- - - -	EXISTING GRADE AT THE FACE OF BLOCKS
A2SC	TWO SIDED CAP
A4SC	FOUR SIDED CAP
ACC	COLUMN CAP
ACOL8	ACCESS COLUMN
FCM	FREE CORNER MIDDLE
FCT	FREE CORNER TOP
FVM	FREE STANDING MIDDLE
FVT	FREE VARIABLE TOP
HCM	HALF CORNER MIDDLE
HCT	HALF CORNER TOP
R41B	BOTTOM
R41HB	HALF BOTTOM
R41M	MIDDLE
R41HM	HALF MIDDLE

NOTES:

1. ALL BLOCKS SHALL BE REDI-ROCK LIMESTONE BLOCK SYSTEM AS PER SPECIFICATION.
2. CONTRACTOR SHALL SUBMIT WALL LAYOUT PRIOR TO ORDERING BLOCKS AND AT LEAST 14 DAYS PRIOR TO THE START OF THE BLOCK WALL CONSTRUCTION.
3. EXACT LOCATION OF UTILITIES TO BE DETERMINED BY CONTRACTOR DURING CONSTRUCTION.
4. UNDERDRAIN OFFSET 3' TO THE INTERIOR (RIGHT) OF PROFILE.

REV.	BY	DATE	STATUS
	BDP	4/2018	ISSUED FOR CONSTRUCTION
	BDP	3/2018	PRELIMINARY DESIGN SUBMITTAL TO THE TOWN OF FORT KENT

FREEBOARD MODIFICATION
FLOOD DAMAGE REDUCTION SYSTEM
FISH RIVER SECTION
FORT KENT, MAINE

BLOCK WALL PROFILE
STA 6+00 TO STA 9+80

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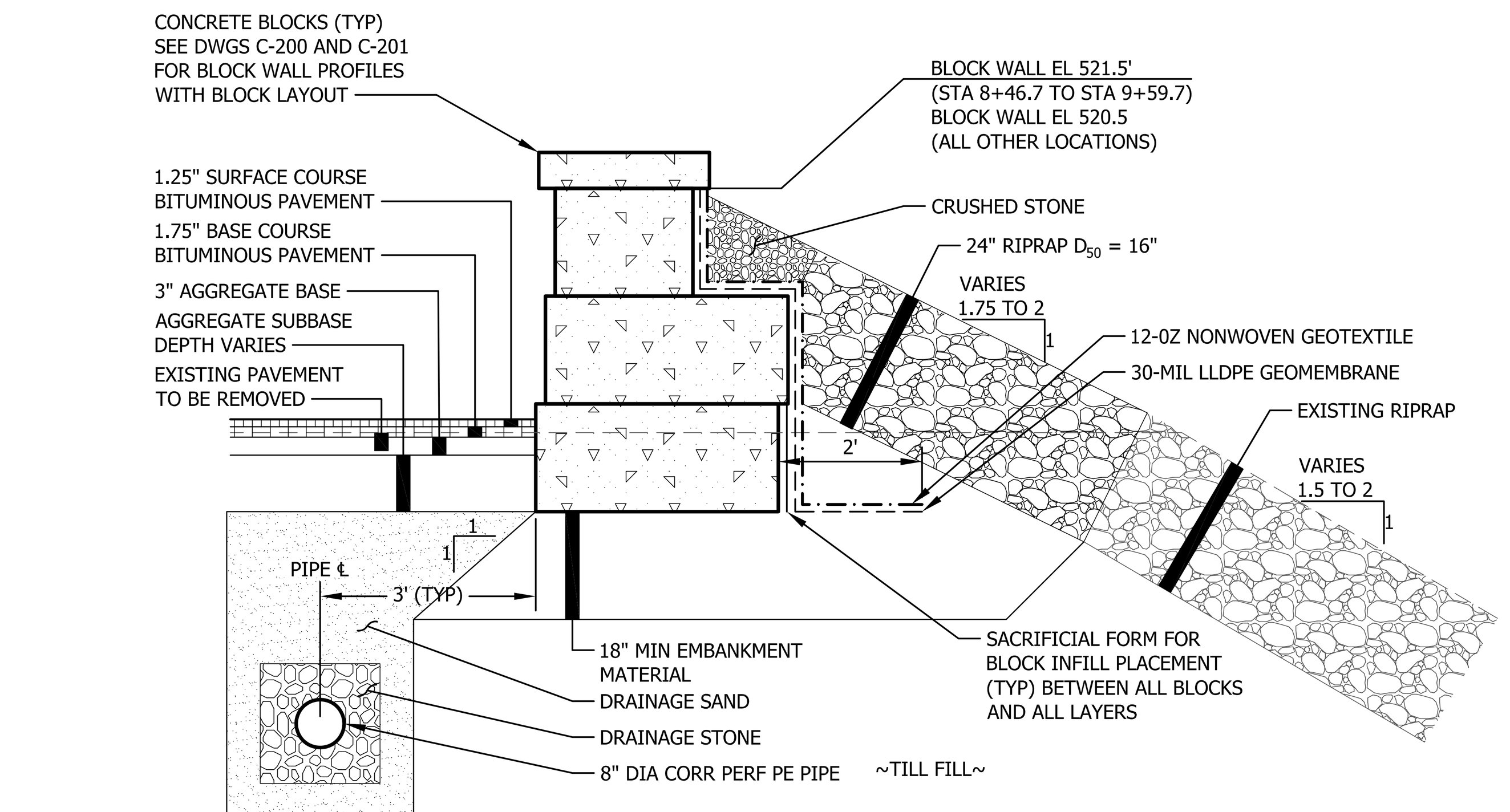
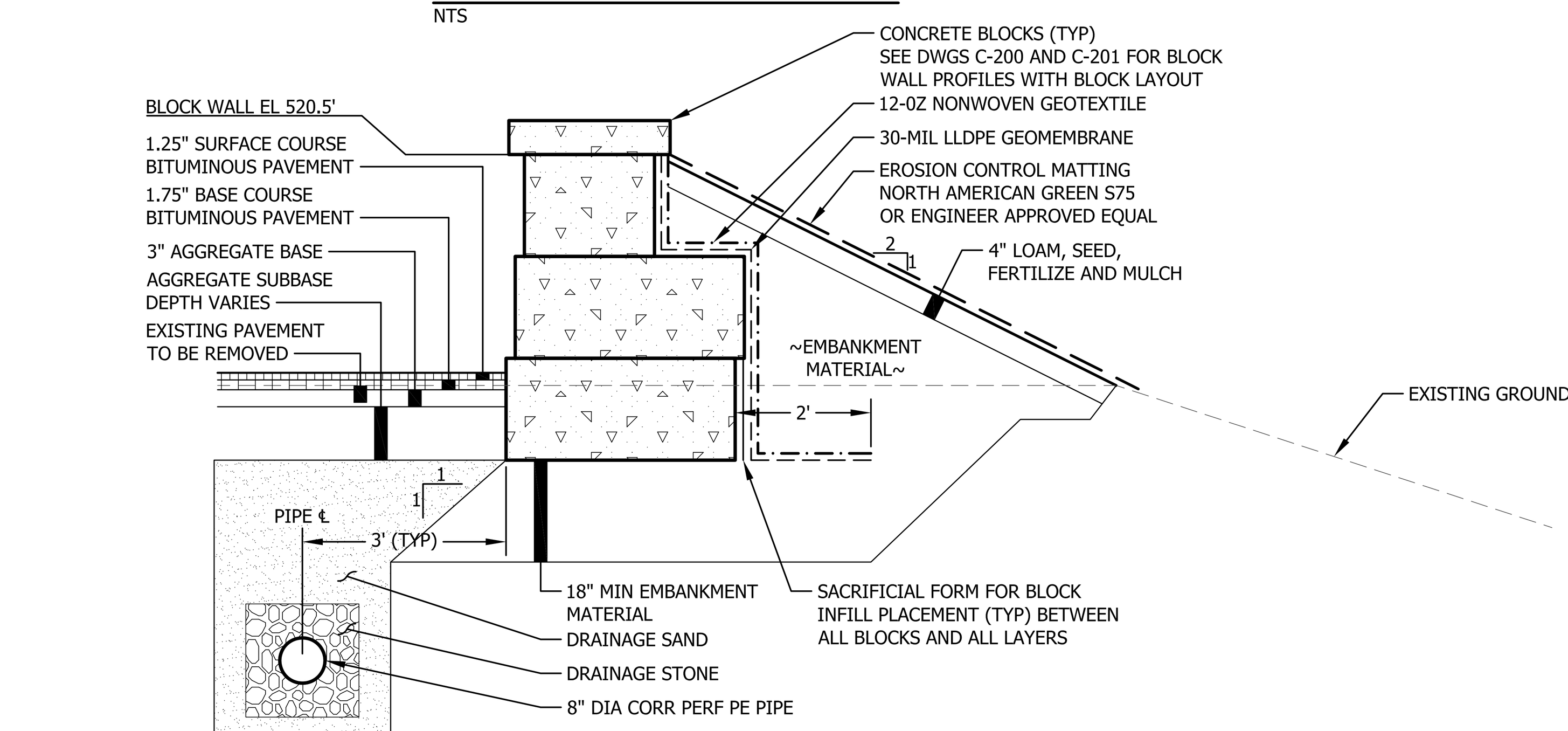
DRAWN BY:	SJM
DATE:	12/27/2017
CHECKED BY:	MWM
LMN:	PRO-LOC
CTB:	SME-STD

JOB NO. 15138.00 DWG FILE BASE

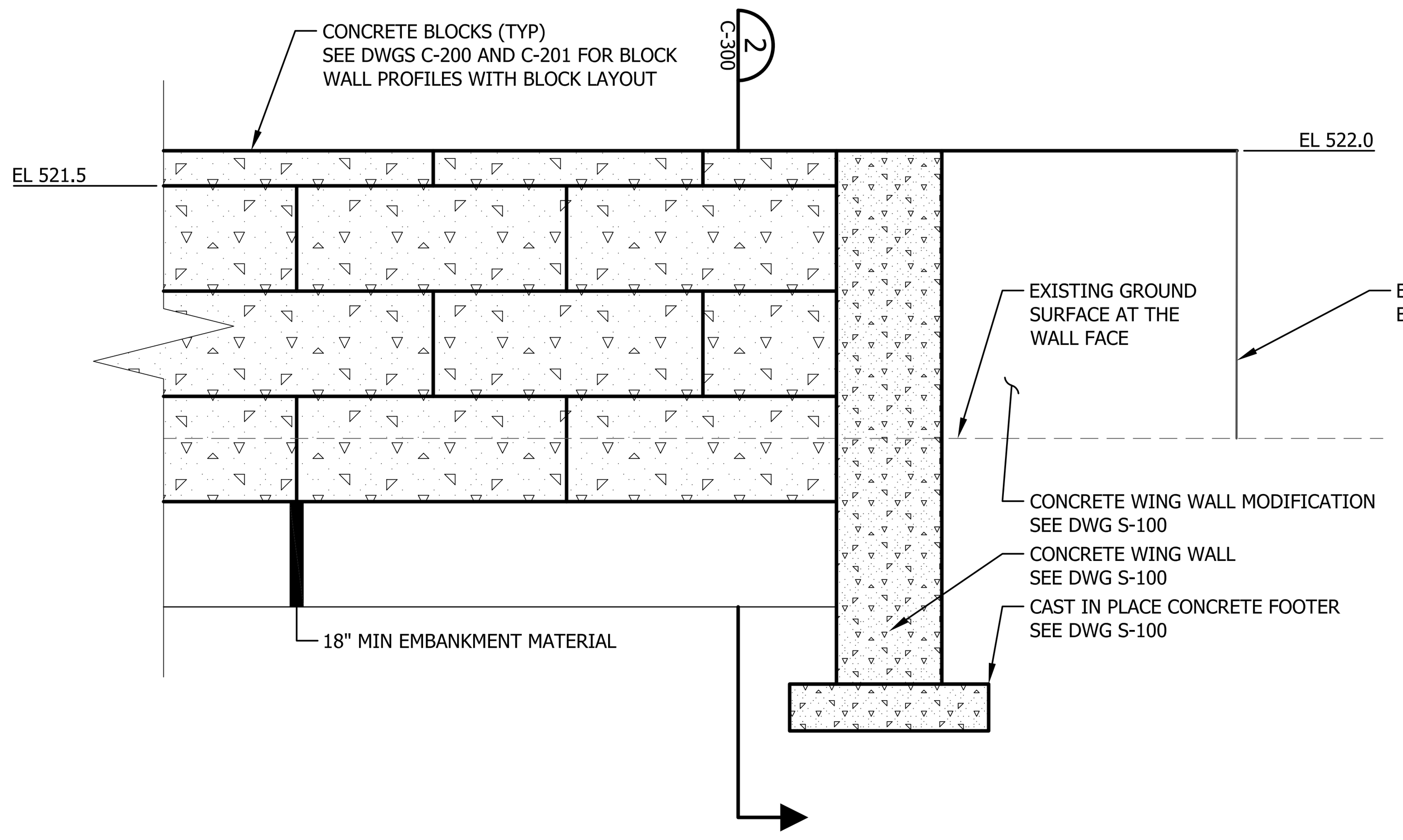
C-201



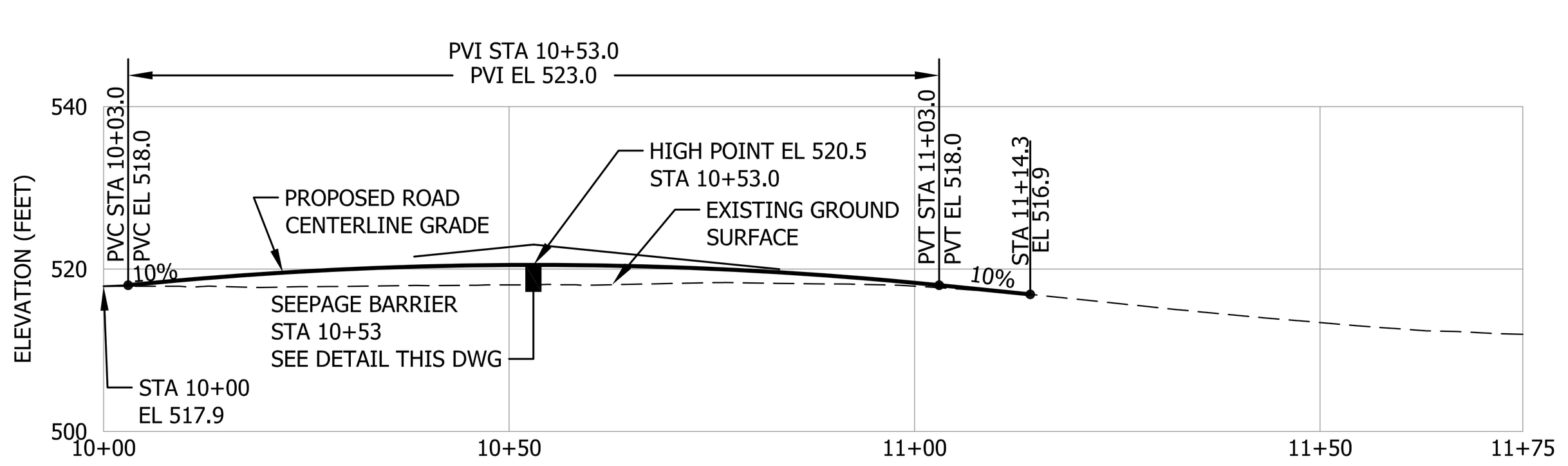
BLOCK WALL WITH RIPRAP BACKSLOPE
STA 6+64.4 TO STA 9+70.7
NTS



BLOCK WALL WITH GRASS BACKSLOPE
STA 0+28.2 TO STA 0+89.5
STA 1+11.4 TO STA 507.9
STA 6+00 TO STA 6+64.4
NTS

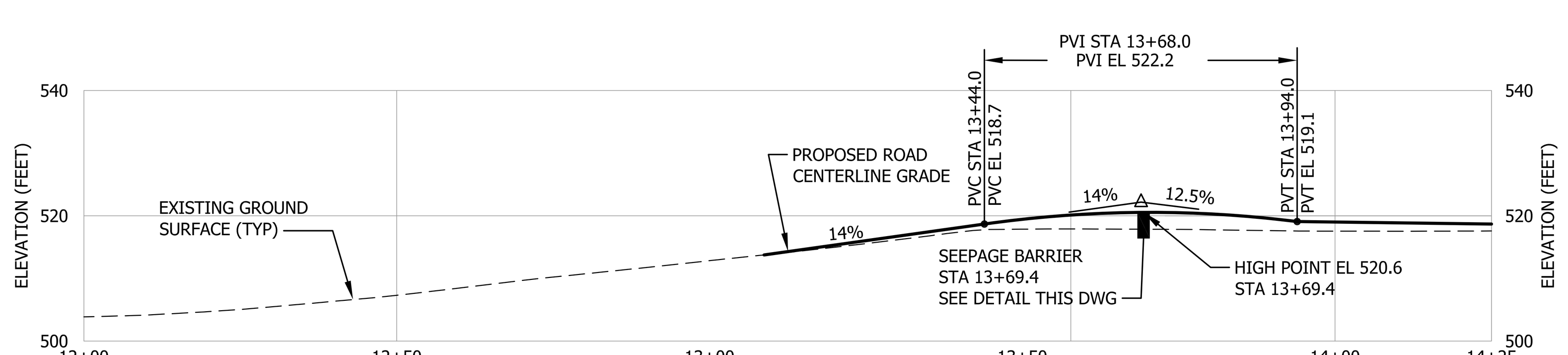


CONCRETE WING WALL EXTENSION (1 / C-102)
NTS



LUMBER YARD ACCESS ROAD PROFILE

10 0 20 40 FEET (HORZ)
10 0 20 40 FEET (VERT)



PICNIC AREA ACCESS ROAD PROFILE

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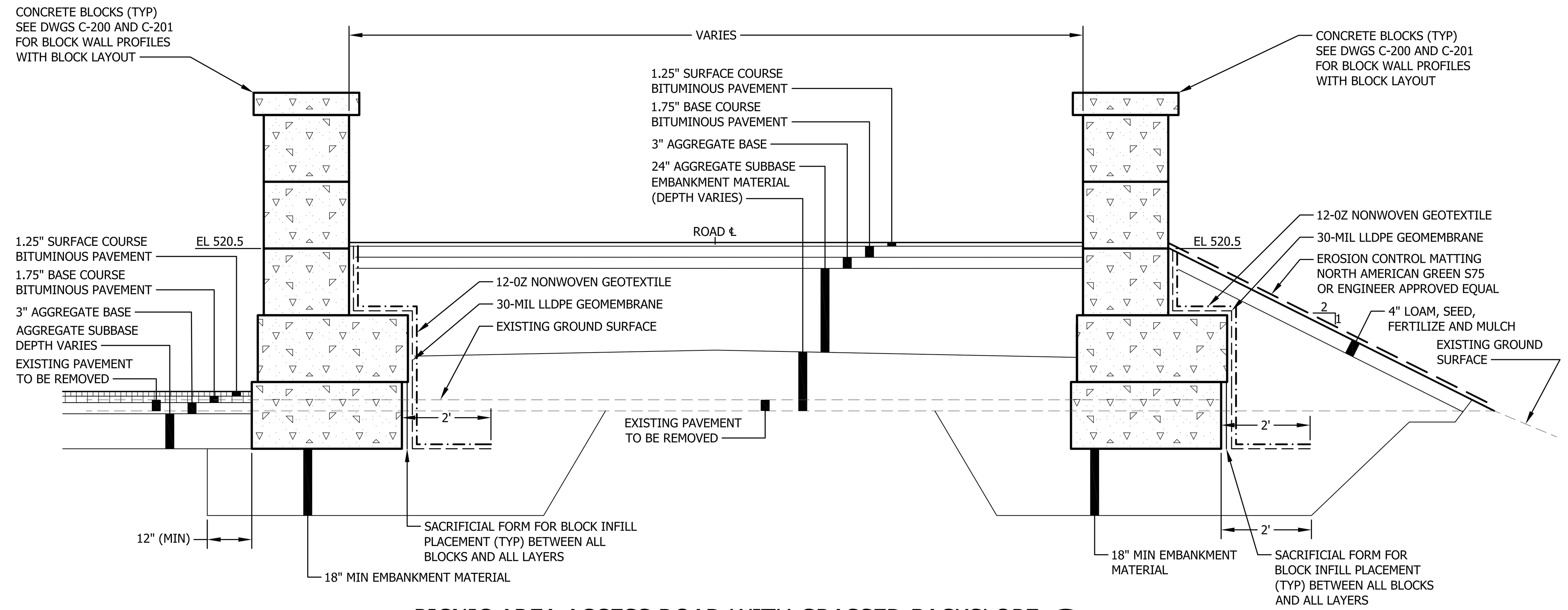
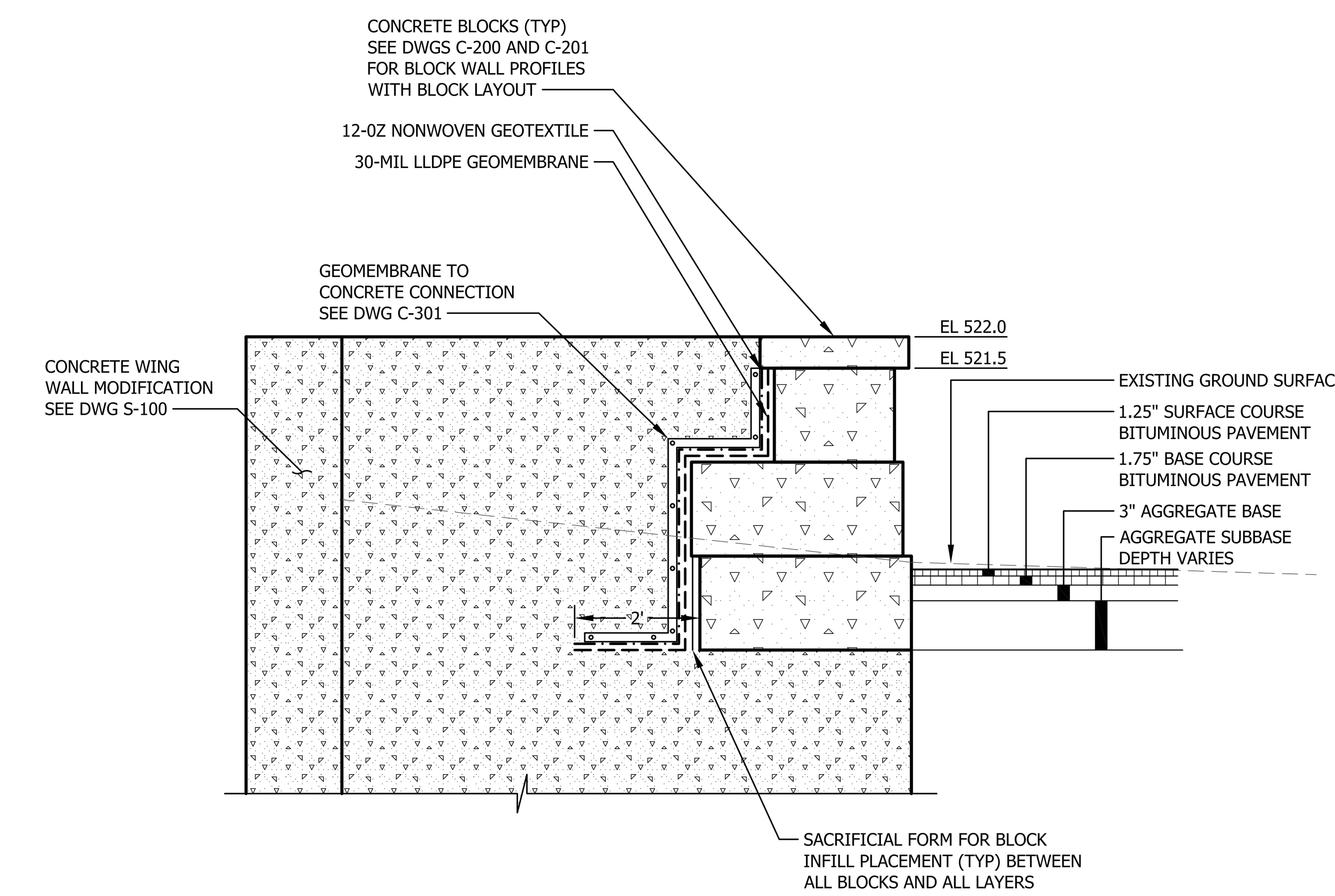
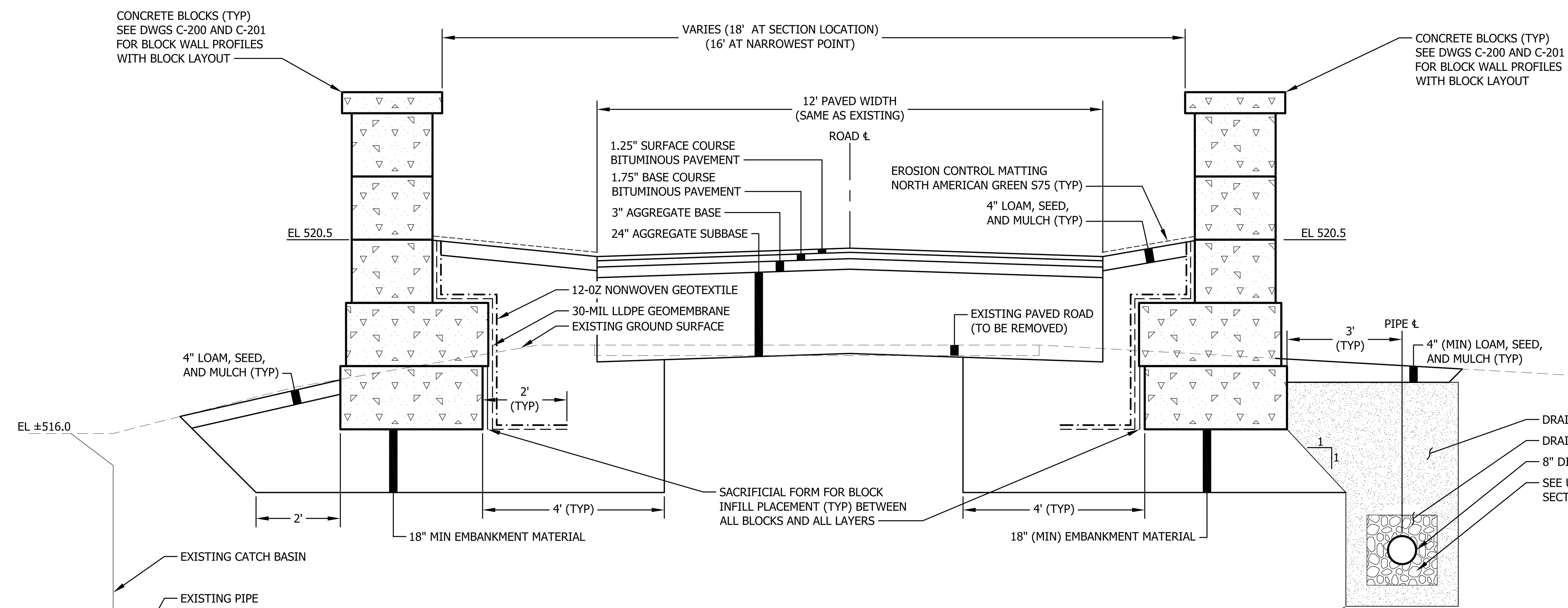


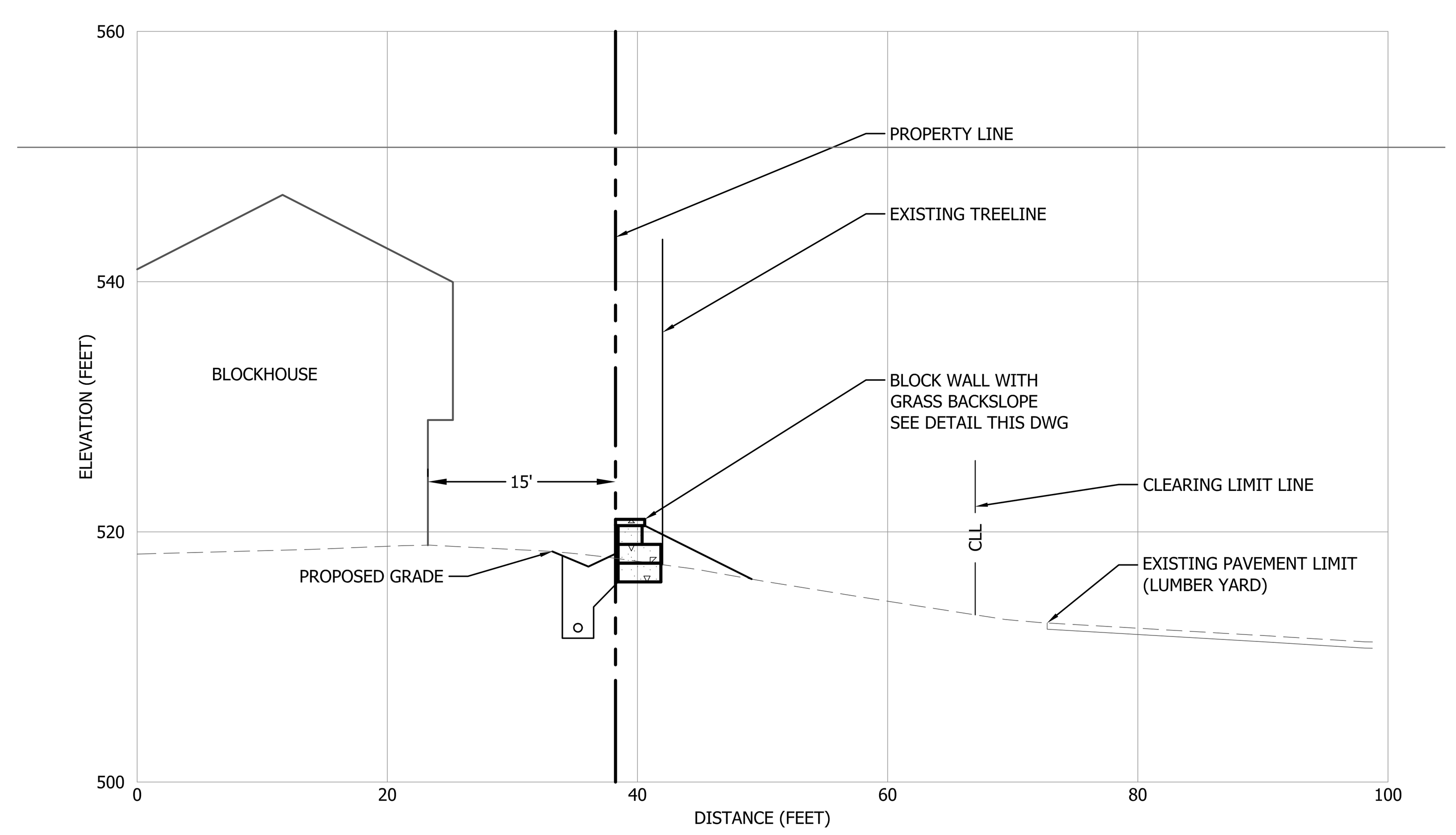
PICNIC AREA ACCESS ROAD WITH GRASSED BACKSLOPE (4 / C-102)
NTS



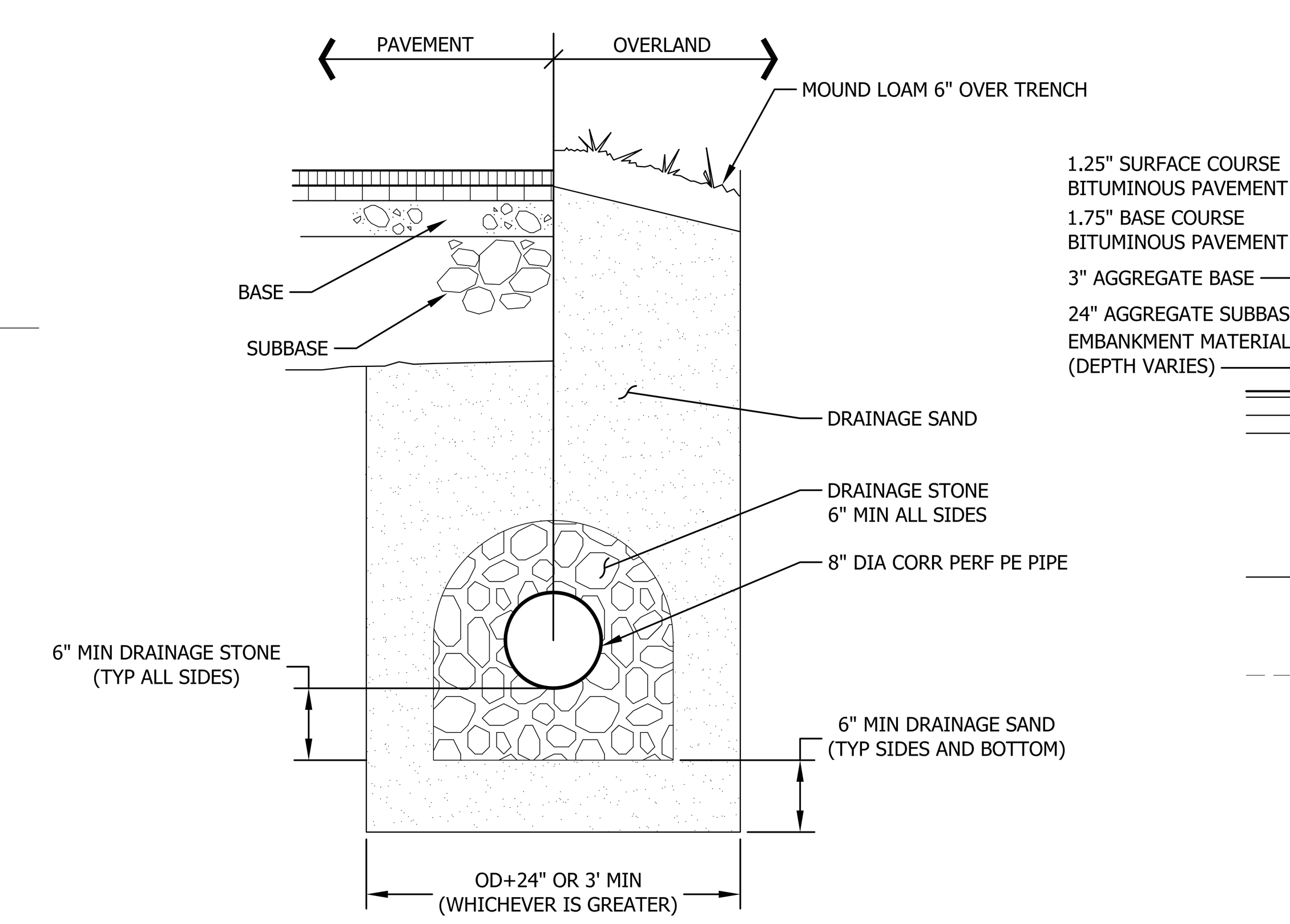
BLOCK WALL TO WING WALL TIE-IN (2 / C-102)
NTS



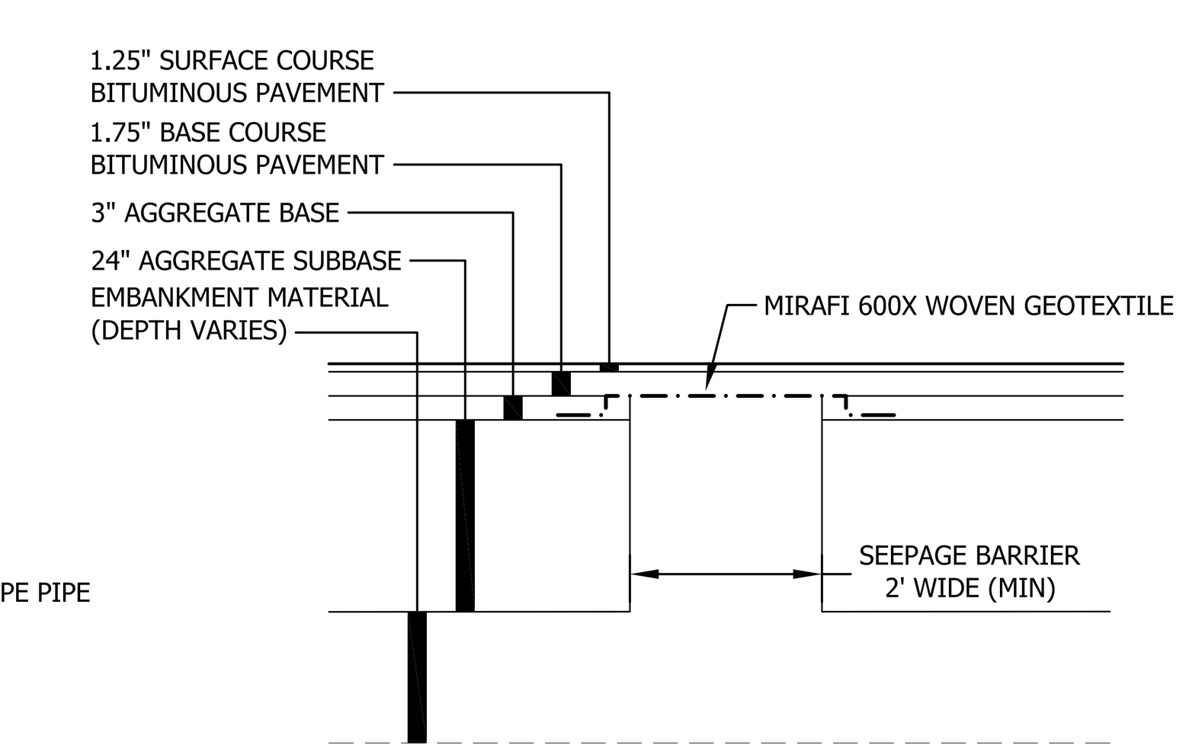
LUMBER YARD ACCESS ROAD (5 / C-102)
NTS



BLOCKHOUSE PROFILE (3 / C-102)
1" = 20'



UNDERDRAIN TRENCH SECTION
NTS



SEEPAGE BARRIER
NTS

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FREEBOARD MODIFICATION
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FISH RIVER SECTION
FORT KENT, MAINE

SECTIONS AND DETAILS

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SEVEE & MAHER ENGINEERS
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE
4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021
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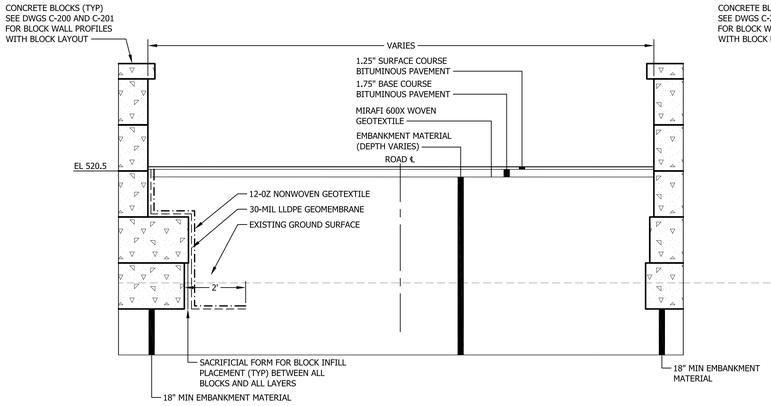
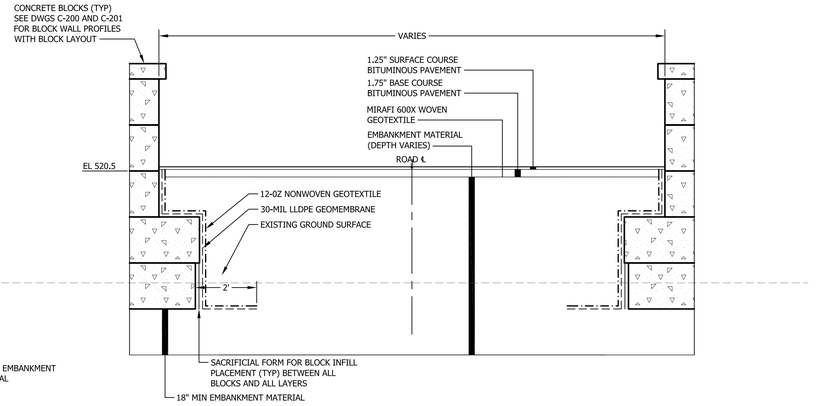
DESIGN BY:	BDP
DRAWN BY:	SJM
DATE:	12/27/2017
CHECKED BY:	MWM
LMN:	NONE
CTB:	SME-STD

JOB NO. 15138.00 DWG FILE BASE C-300



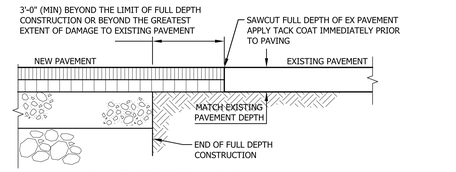
SEEPAGE BARRIER AT PICNIC AREA ACCESS ROAD 6 C-102

NTS



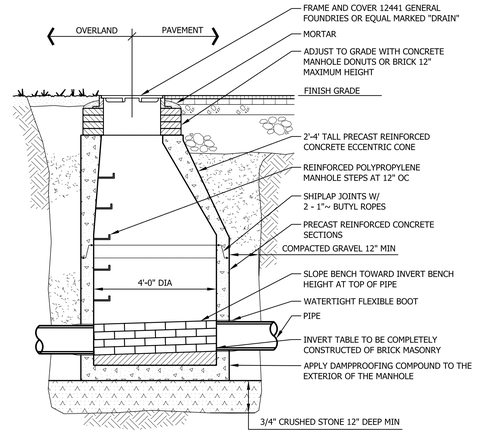
SEEPAGE BARRIER AT LUMBER YARD ACCESS ROAD 7 C-102

NTS



PAVEMENT SAWCUT

NTS



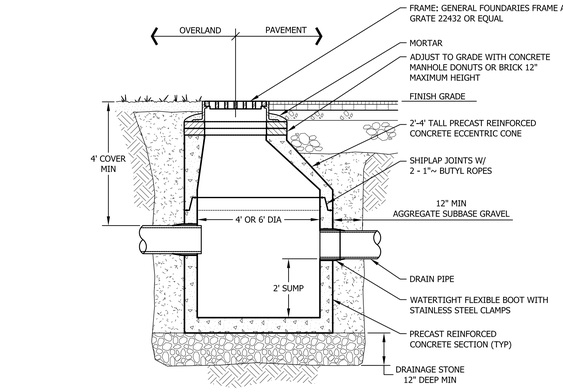
DRAINAGE MANHOLE

NTS

CONSTRUCTION	USE
1.25" SURFACE COURSE BITUMINOUS PAVEMENT 1.75" BASE COURSE BITUMINOUS PAVEMENT 3" COMPACTED AGGREGATE BASE COMPACTED AGGREGATE SUBBASE DEPTH AS NEEDED TO OBTAIN GRADES COMPACTED SUBGRADE	BITUMINOUS EXISTING ROAD ACCESS
1.25" SURFACE COURSE BITUMINOUS PAVEMENT 1.75" BASE COURSE BITUMINOUS PAVEMENT 3" COMPACTED AGGREGATE BASE 24" COMPACTED AGGREGATE SUBBASE COMPACTED EMBANKMENT MATERIAL COMPACTED SUBGRADE	BITUMINOUS NEW PAVED AREAS

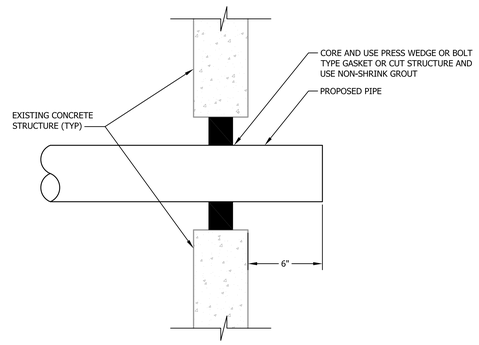
SCHEDULE OF SURFACE FINISHES

NTS



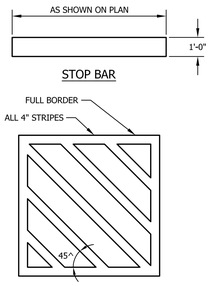
CATCH BASIN

NTS



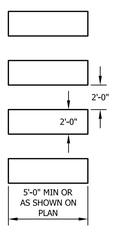
PIPE PENETRATIONS

NTS

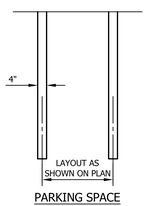


STOP BAR

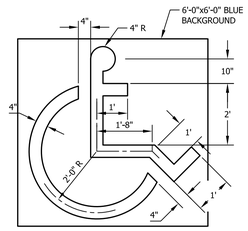
NO PARKING



CROSSWALK



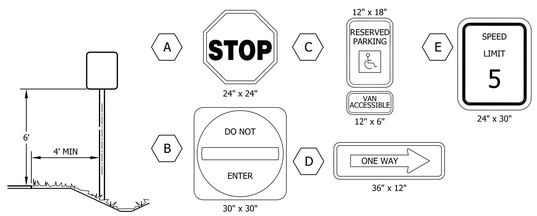
PARKING SPACE



ADA ACCESSIBLE PARKING

STRIPING DETAILS

NTS

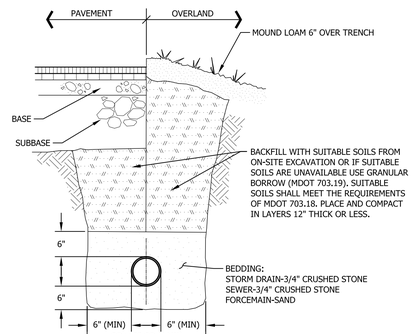


NOTES:

1. SIGNS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, HIGHWAYS AND BRIDGES REVISION OF DECEMBER 2002, SECTION 645.
2. ALL PERMANENT SIGNS ON THIS PROJECT ARE CLASSIFIED UNDER SECTION 645.03(b) TYPE 1 REGULATORY WARNING AND ROUTE MARKER ASSEMBLY SIGNS.
3. SIGN MATERIAL SHALL BE AS SPECIFIED IN SECTION 719 OF THE MDOT STANDARD SPECIFICATIONS.
4. POSTS SHALL BE METAL CHANNELS AS SPECIFIED IN SECTION 720.08. ALTERNATE POSTS MAY BE 4"x6" WOOD AS SPECIFIED IN SECTION 720.12, AS APPROVED BY ENGINEER.
5. POSTS IN THE PUBLIC RIGHT-OF-WAY TO BE ON BREAKAWAY POSTS AS SPECIFIED IN SECTION 720 OF THE MDOT STANDARD SPECIFICATIONS.

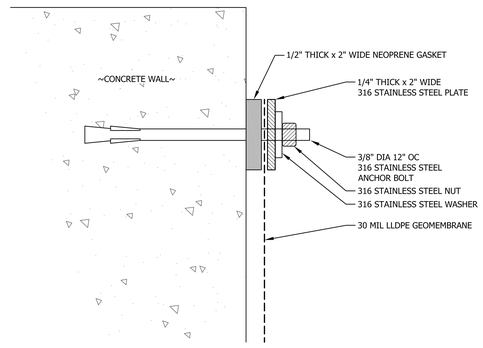
ROAD SIGN

NTS



TYPICAL TRENCH SECTION

NTS



GEOMEMBRANE TO CONCRETE CONNECTION

NTS

MANHOLE AND CATCH BASIN NOTES:

THE CONTRACTOR SHALL PROVIDE SUBMITTALS TO THE ENGINEER FOR APPROVAL. SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO THE FOLLOWING:

PRODUCT DATA: SUBMIT PRODUCT DATA FOR ALL MATERIALS USED ON THE JOB FOR REVIEW FOR LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH INFORMATION GIVEN AND DESIGN CONCEPT EXPRESSED IN CONTRACT DOCUMENTS.

SHOP DRAWINGS: SUBMIT FOR REVIEW SHOP DRAWINGS OF ALL PRECAST UNITS. MANUFACTURER'S INFORMATION SHALL BE SUBMITTED FOR JOINT SEALANTS AND WATERPROOFING. MANUFACTURER SHALL PROVIDE ANTI-FLOTATION DESIGN SHOP DRAWINGS AND CALCULATIONS, INCLUDING ANY EXTENDED BASE SLABS AS NECESSARY, FOR PROPOSED MANHOLES. MANUFACTURER SHALL ASSUME GROUNDWATER LEVELS EQUAL TO TOP OF GROUND ELEVATIONS AND PROVIDE FOR A 1.2 FACTOR OF SAFETY AGAINST FLOTATION.

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DESIGN BY:	BDP
DRAWN BY:	SJM
DATE:	12/27/2017
CHECKED BY:	MWM
LMN:	NONE
CTB:	SME-STD

JOB NO. 15138.00 DWG FILE BASE

C-301

A. GENERAL

1. All soil erosion and sediment control will be done in accordance with: (1) the Maine Erosion and Sediment Control Handbook: Best Management Practices, Maine Department of Environmental Protection (MEDEP), October 2016.

2. The site Contractor (to be determined) will be responsible for the repair/replacement/maintenance of all erosion control measures until all disturbed areas are stabilized.

3. Disturbed areas will be permanently stabilized within 7 days of final grading. Disturbed areas not to be worked upon within 14 days of disturbance will be temporarily stabilized within 7 days of the disturbance.

4. In all areas, removal of trees, bushes and other vegetation, as well as disturbance of topsoil will be kept to a minimum while allowing proper site operations.

5. Any suitable topsoil will be stripped and stockpiled for reuse as directed by the Owner. Topsoil will be stockpiled in a manner such that natural drainage is not obstructed and no off-site sediment damage will result. In any event, stockpiles will not be located within 100 feet of wetlands and will be at least 50 feet upgradient of the stockpile's perimeter silt fence. The sideslopes of the topsoil stockpile will not exceed 2:1. Silt fence will be installed around the perimeter of all topsoil stockpiles. Topsoil stockpiles will be surrounded with siltation fencing and will be temporarily seeded with Aroostook rye, annual or perennial ryegrass within 7 days of formation, or temporarily mulched.

B. TEMPORARY MEASURES

1. STABILIZED CONSTRUCTION ENTRANCE/EXIT

A crushed stone stabilized construction entrance/exit will be placed at any point of vehicular access to the site, in accordance with the detail shown on this sheet.

2. SILT FENCE

a. Silt fence will be installed prior to all construction activity, where soil disturbance may result in erosion. Silt fence will be erected at locations shown on the plans and/or downgradient of all construction activity.

b. Silt fences will be removed when they have served their useful purpose, but not before the upgradient areas have been permanently stabilized.

c. Silt fences will be inspected immediately after each rainfall and at least daily during prolonged rainfall. They will be inspected if there are any signs of erosion or sedimentation below them. Any required repairs will be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind them, they will be replaced with a temporary crushed stone check dam.

d. Sediment deposits will be removed after each storm event if significant build-up has occurred or if deposits exceed half the height of the barrier.

3. STONE CHECK DAMS

Stone check dams will be installed in grass-lined swales and ditches during construction.

4. BARK MULCH SEDIMENT BARRIER

a. Where approved, bark mulch sediment barriers may be used as a substitute for silt fence. See the details in this drawing set for specifications.

b. Rock Filter Berms: To provide more filtering capacity or to act as a velocity check dam, a berm's center can be composed of clean crushed rock ranging in size from the french drain stone to riprap.

5. TEMPORARY SEEDING

Stabilize disturbed areas that will not be brought to final grade for a year or less and reduce problems associated with mud and dust production from exposed soil surface during construction with temporary vegetation.

6. TEMPORARY MULCHING

Use temporary mulch in the following locations and/or circumstances:

- In sensitive areas (within 100 feet of streams, wetlands and in lake watersheds) temporary mulch will be applied within 7 days of exposing spill or prior to any storm event.
- Apply temporary mulch within 14 days of disturbance or prior to any storm event in all other areas.
- Areas which have been temporarily or permanently seeded will be mulched immediately following seeding.
- Areas which cannot be seeded within the growing season will be mulched for over-winter protection and the area will be seeded at the beginning of the growing season.
- Mulch can be used in conjunction with tree, shrub, vine, and ground cover plantings.
- Mulch anchoring will be used on slopes greater than 5 percent in late fall (past October 15), and over-winter (October 15 - April 15).

The following materials may be used for temporary mulch:

a. Hay or Straw material shall be air-dried, free of seeds and coarse material. Apply 2 bales/1,000 sf or 2 to 3 tons/acre to cover the ground surface.

b. Erosion Control Mix: It can be used as a stand-alone reinforcement:

- on slopes 2 horizontal to 1 vertical or less;
- on frozen ground or forested areas; and
- at the edge of gravel parking areas and areas under construction.

c. Erosion control mix alone is not suitable:

- on slopes with groundwater seepage;
- at low points with concentrated flows and in gullies;
- at the bottom of steep perimeter slopes exceeding 100 feet in length;
- below culvert outlet aprons; and
  around catch basins and closed storm systems.

d. Chemical Mulches and Soil Binders: Wide ranges of synthetic spray-on materials are marketed to protect the soil surface. These are emulsions that are mixed with water and applied to the soil. They may be used alone, but most often are used to hold wood fiber, hydro-mulches or straw to the soil surface.

e. Erosion Control Blankets and Mats: Mats are manufactured combinations of mulch and netting designed to retain soil moisture and modify soil temperature. During the growing season (April 15 to October 15) use mats indicated on drawings or North American Green (NAG) S75 (or mulch and netting) on:

- the base of grassed waterways;
- steep slopes (15 percent or greater); and
- any disturbed soil within 100 feet of lakes, streams, or wetlands.

During the late fall and winter (October 15 to April 15) use heavy grade mats indicated on drawings for NAG SC250 on all areas noted above plus use lighter grade mats NAG S75 (or mulch and netting) on:

- sideslopes of grassed waterways; and moderate slopes (between 8 and 15 percent).

7. TEMPORARY DUST CONTROL

To prevent the blowing and movement of dust from exposed soil surfaces, and reduce the presence of dust, use water or calcium chloride to control dusting by preserving the moisture level in the road surface materials.

8. CONSTRUCTION DE-WATERING

a. Water from construction de-watering operations shall be cleaned of sediment before reaching wetlands, water bodies, streams or site boundaries. Utilize temporary sediment basins, erosion control soil filter berms backed by staked hay bales, A Dirt Bag 55" sediment filter bag by ACF Environmental, or other approved Best Management Practices (BMP's).

b. In sensitive areas near streams or ponds, discharge the water from the de-watering operation into a temporary sediment basin created by a surrounding filter berm of uncompacted erosion control mix immediately backed by staked hay bales (see the site details). Locate the temporary sediment basin at lease 100 feet from the nearest water body, such that the filtered water will flow through undisturbed vegetated soil areas prior to reaching the water body or property line.

C. PERMANENT MEASURES

1. Riprapped Aprons: All storm drain pipe outlets and the inlet and outlet of culverts will have riprap aprons to protect against scour and deterioration.

2. Topsoil, Seed, and Mulch: All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized, seeded, and mulched.

a. Seeded Preparation: Use stockpiled materials spread to the depths shown on the plans, if available. Approved topsoil substitutes may be used. Grade the site as needed.

b. Seeding will be completed by August 15 of each year. Late season seeding may be done between August 15 and October 15. Areas not seeded or which do not obtain satisfactory growth by October 15, will be seeded with Aroostook Rye or mulched. After November 1, or the first killing frost, disturbed areas will be seeded at double the specified application rates, mulched, and anchored.

PERMANENT SEEDING SPECIFICATIONS

Mixture:	Roadside (lbs/acre)	Lawn (lbs/acre)
Kentucky Bluegrass	20	55
White Clover	5	0
Creeping Red Fescue	20	55
Perennial Ryegrass	5	15

c. Mulch in accordance with specifications for temporary mulching.

d. If permanent vegetated stabilization cannot be established due to the season of the year, all exposed and disturbed areas not to undergo further disturbance are to have dormant seeding applied and be temporarily mulched to protect the site.

3. Ditches and Channels: All ditches on-site will be lined with North American Green S75 erosion control mesh (or an approved equal) upon installation of loam and seed.

D. WINTER CONSTRUCTION AND STABILIZATION

1. Winter excavation and earthwork will be completed so as to minimize exposed areas while satisfactorily completing the project. Limit exposed areas to those areas in which work is to occur during the following 15 days and that can be mulched in one day prior to any snow event. All areas will be considered denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded, and mulched.

Install any added measures necessary to control erosion/sedimentation. The particular measure used will be dependent upon site conditions, the size of the area to be protected, and weather conditions.

To minimize areas without erosion control protection, continuation of earthwork operations on additional areas will not begin until the exposed soil surface on the area being worked has been stabilized.

2. Natural Resource Protection: During winter construction, a double-row of sediment barriers (i.e., silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area. Projects crossing the natural resource will be protected a minimum distance of 100 feet on either side from the resource.

3. 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.

4. Mulching: All areas will be considered to be denuded until seeded and mulched. Hay and straw mulch will be applied at a rate of twice the normal accepted rate.

Mulch will not be spread on top of snow.

After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.

Between the dates of November 1 and April 15, all mulch will be anchored by either mulch netting, emulsion chemical, tracking or wood cellulose fiber.

5. Soil Stockpiling: Stockpiles of soil or subsoil will be mulched for over-winter protection with hay or straw at twice the normal rate or with a 4-inch layer of erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpiles shall not be placed (even covered with mulch) within 100 feet from any natural resources.

6. Seeding: 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 will receive 4 inches of loam and seed at an application rate of three times the rate for permanent seeding. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75 percent catch) will be revegetated by replacing loam, seed, and mulch.

If dormant seeding is not used for the site, all disturbed areas will be revegetated in the spring.

7. Maintenance: Maintenance measures will be applied as needed during the entire construction season. After each rainfall, snow storm, or period of thawing and runoff, the site Contractor will perform a visual inspection of all installed erosion control measures and perform repairs as needed to ensure their continuous function.

Following the temporary and/or final seeding and mulching, the Contractor will, in the spring, inspect and repair any damages and/or bare spots. An established vegetative cover means a minimum of 85 to 90 percent of areas vegetated with vigorous growth.

E. OVER-WINTER CONSTRUCTION EROSION CONTROL MEASURES

1. Stabilization of Disturbed Soil: By October 15, all disturbed soils on areas having a slope less than 15 percent will be seeded and mulched. If the Contractor fails to stabilize these soils by this date, then the Contractor shall stabilize the soil for late fall and winter, by using either temporary seeding or mulching.

2. Stabilization of Disturbed Slopes: All slopes to be vegetated will be completed by October 15. The Owner will consider any area having a grade greater than 15 percent (6.5H:1V) to be a slope. Slopes not vegetated by October 15 will receive one of the following actions to stabilize the slope for late fall and winter:

a. Stabilize the soil with temporary vegetation and erosion control mesh.
b. Stabilize the slope with erosion control mix.
c. Stabilize the slope with stone riprap.

3. Stabilization of Ditches and Channels: All stone-lined ditches and channels to be used to convey runoff through the winter will be constructed and stabilized by November 15. Grass-lined ditches and channels will be complete by September 15. Grass-lined ditches not stabilized by September 15 shall be lined with either sod or riprap.

F. MAINTENANCE PLAN

1. Routine Maintenance: Inspection will be performed as outlined in the project's Erosion Control Plan. Inspection will be by a qualified person during wet weather to ensure that the facility performs as intended. Inspection priorities will include checking erosion controls for accumulation of sediments.

G. Housekeeping

1. Spill prevention. Controls must be used to prevent pollutants from being discharged from materials on site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

2. Groundwater protection. During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

3. Fugitive sediment and dust. Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.

4. Debris and other materials. Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

5. Trench or foundation de-watering. Trench de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the department.

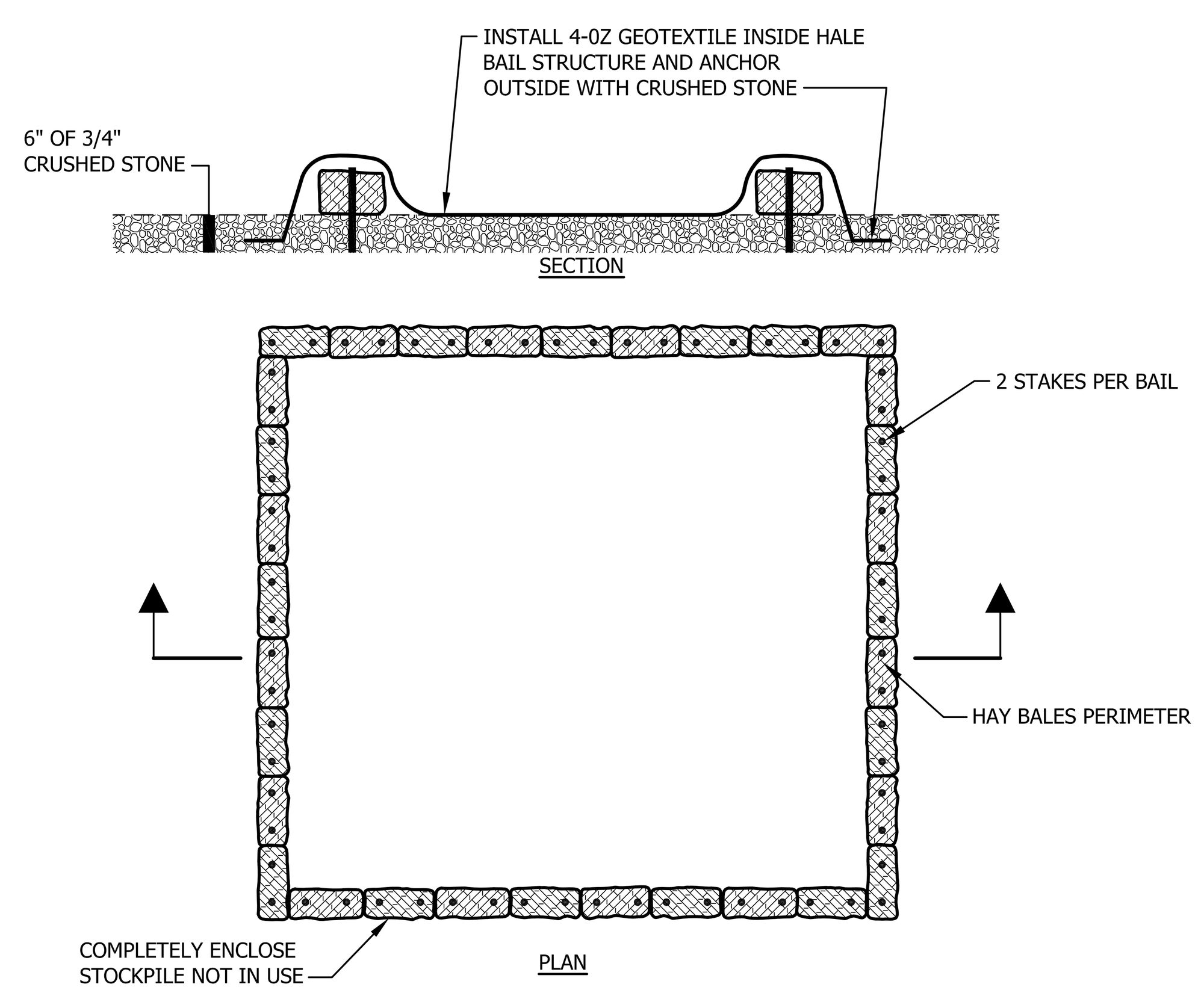
6. Non-stormwater discharges. Identify and prevent contamination by non-stormwater discharges.

7. Additional requirements. Additional requirements may be applied on a site-specific basis.

H. CONSTRUCTION SEQUENCE

In general, the expected sequence of construction for each phase is provided below. Construction is proposed to start in Summer 2018 and be complete in Fall 2018.

- Mobilization
- Install temporary erosion control measures
- Clearing and grubbing
- Site Grading
- Construct storm drains
- Install retaining walls
- Construct access drive, parking and plaza areas
- Site stabilization, pavement, loam and seed, and landscaping
- Remove temporary erosion control measures

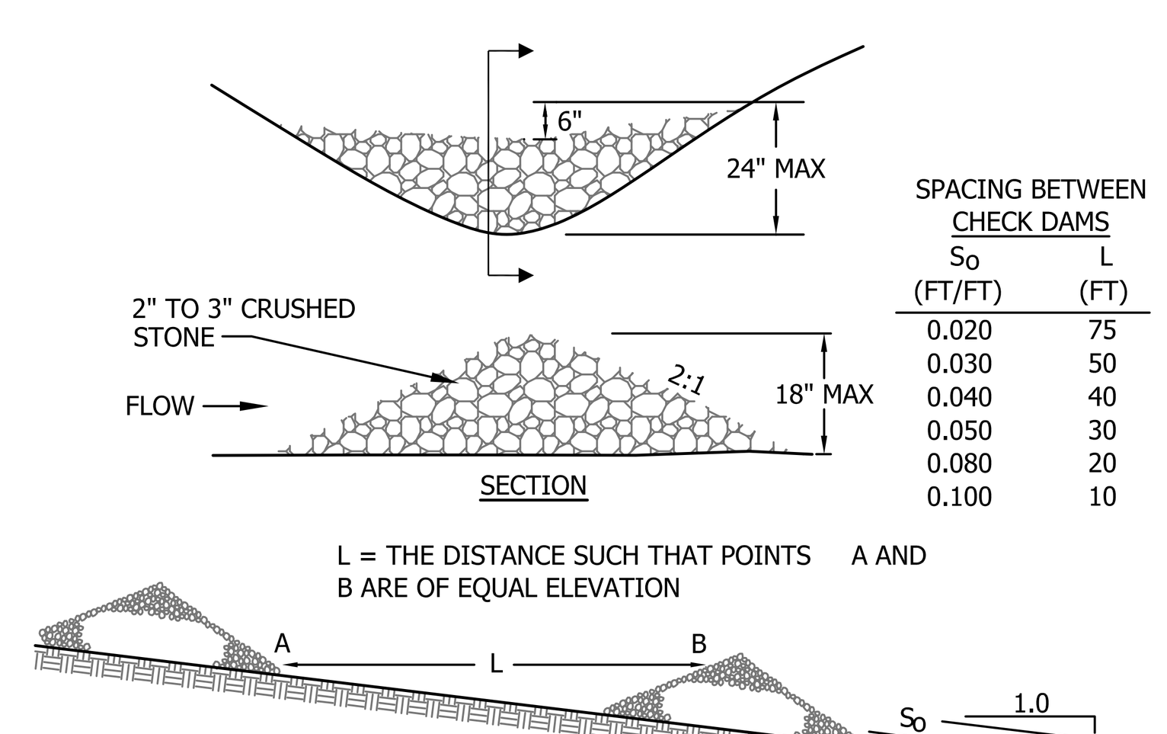


NOTES:

1. SOIL STOCKPILES WILL BE CONSTRUCTED TO CONTAIN A MAXIMUM VOLUME OF 500 CUBIC YARDS.
2. STOCKPILE WILL BE CONSTRUCTED WITH HAY BALES OR 8" DIA SILT SOCKS.
3. COVER STOCKPILES WITH 6MIL PLASTIC WHEN NOT IN USE AND AT THE END OF EACH DAY.
4. INSPECT STOCKPILE AND COVER DAILY FOR AREAS OF RUN-OFF POTENTIAL ON SOIL. REPAIR IMMEDIATELY.

HAYBALE SEDIMENT TRAP

NTS



SPACING BETWEEN CHECK DAMS

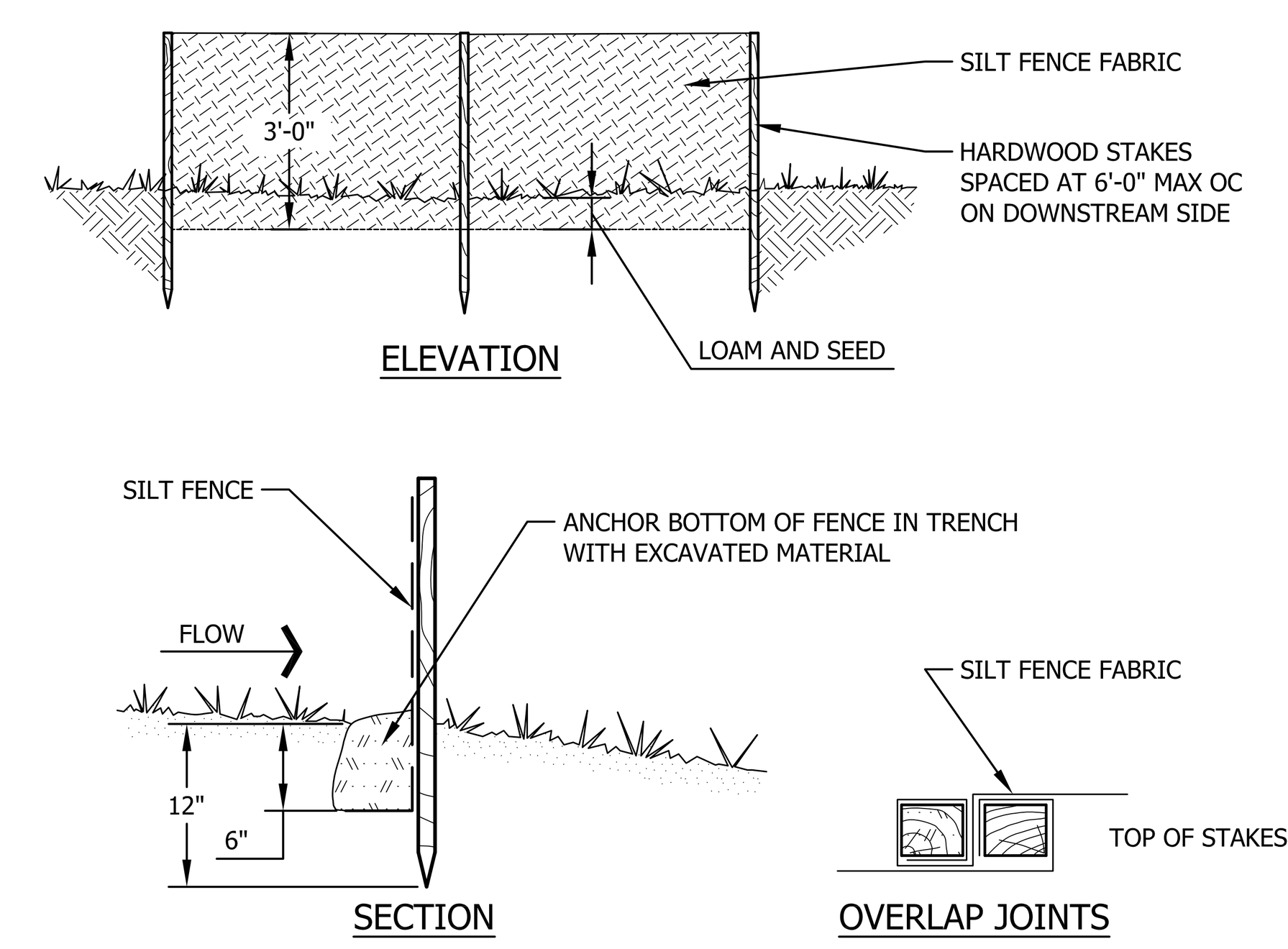
S_0 (FT/FT)	L (FT)
0.020	75
0.030	50
0.040	40
0.050	30
0.080	20
0.100	10

L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

NOTE:
USE AT ALL NEWLY CONSTRUCTED GRASS LINED DITCHES AS A TEMPORARY EROSION CONTROL MEASURE AND WHERE OTHERWISE NOTED ON PLANS.

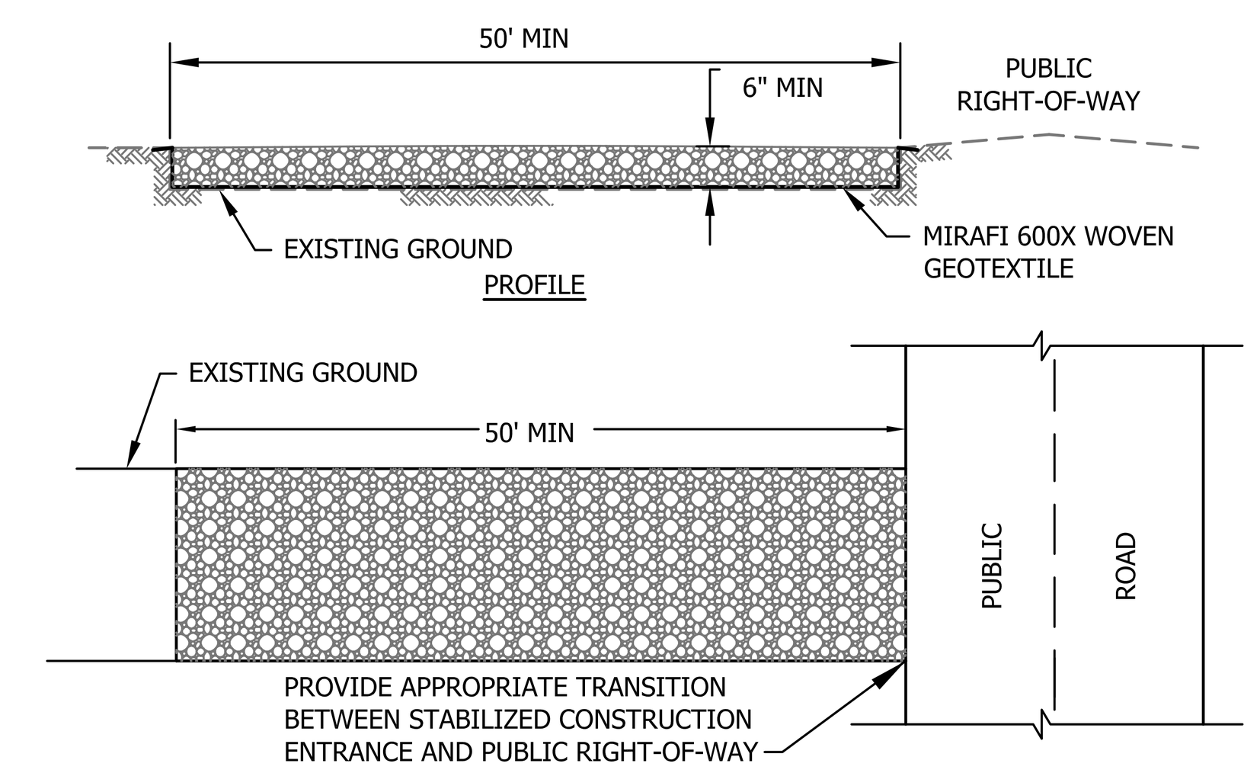
STONE CHECK DAM

NTS



SILT FENCE

NTS



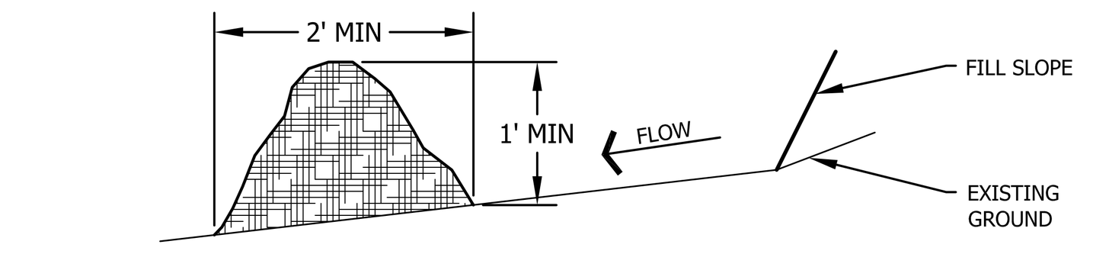
CONSTRUCTION SPECIFICATIONS

NOTES:

1. STONE SIZE - 2" TO 3" STONE OR RECLAIMED OR RECYCLED CONCRETE,
2. OR EQUIVALENT.
3. LENGTH - AS EFFECTIVE, BUT NOT LESS THAN 50 FEET.
4. THICKNESS - NOT LESS THAN SIX (6) INCHES.
5. WIDTH - 10 FEET MINIMUM, OR NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
6. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC REPAIR AND TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE/EXIT

NTS

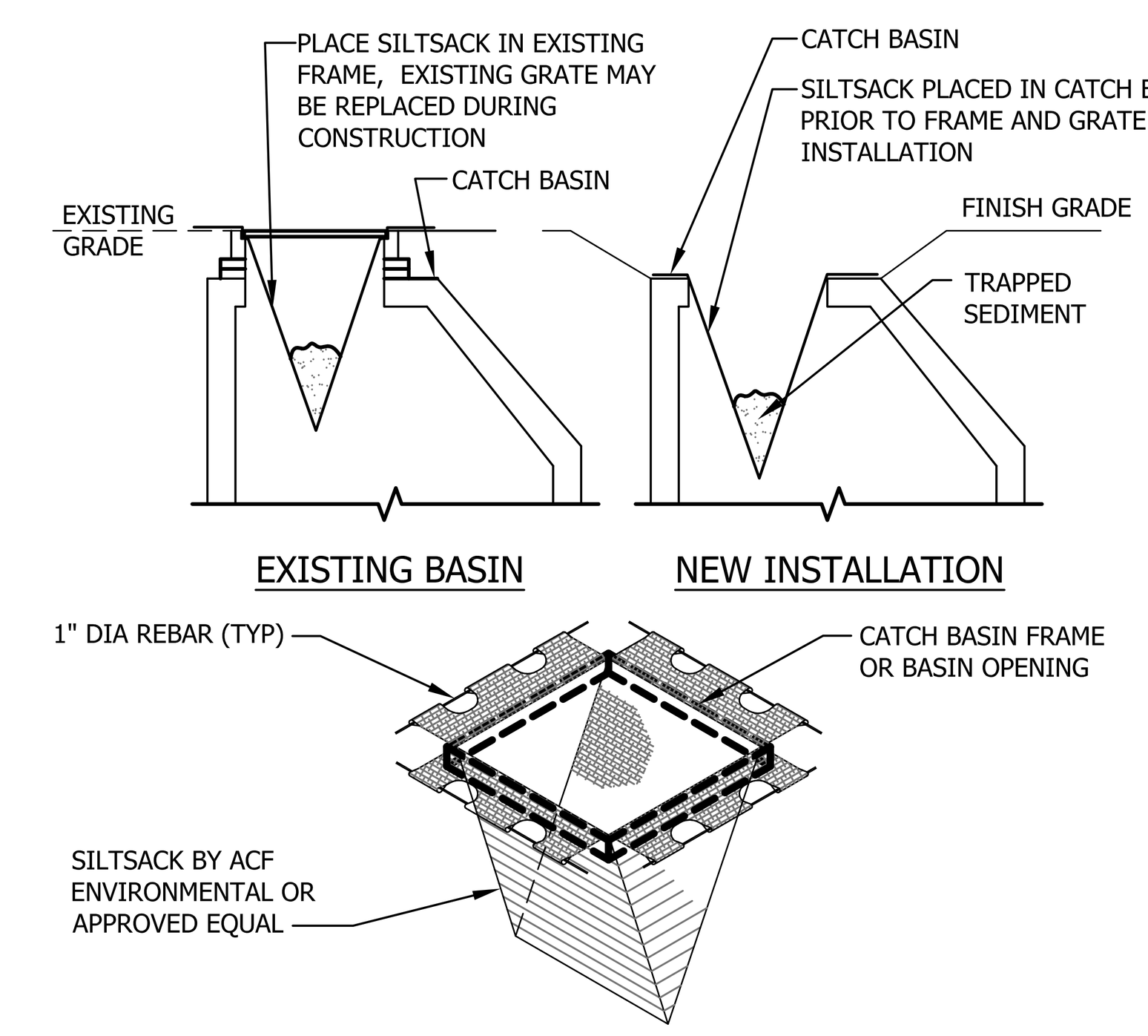


NOTES:

1. EROSION CONTROL MIX CAN BE MANUFACTURED ON OR OFF THE SITE. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR FLUME GRIT AND FRAGMENTED WOOD GENERATED FROM WATER-FLUME LOG HANDLING SYSTEMS.
   WOOD CHIPS, GROUND CONSTRUCTION DEBRIS, REPROCESSED WOOD PRODUCTS OR BARK CHIPS WILL NOT BE ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX.
   EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER.
   EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH.
   THE MIX COMPOSITION SHALL MEET THE FOLLOWING STANDARDS:
   A. ORGANIC MATERIAL: BETWEEN 20% - 100% (DRY WEIGHT BASIS)
   B. PARTICLE SIZE: BY WEIGHT, 100% PASSING 6" SCREEN, 70-85% PASSING 0.75" SCREEN
   C. THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
   D. LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
   E. SOLUBLE SALTS CONTENT SHALL BE LESS THAN 4.0 MMHOS/CM.
   F. PH: 5.0 - 8.0
2. ON SLOPES LESS THAN 5% OR AT THE BOTTOM OF SLOPES 2:1 OR LESS UP TO 20 FEET LONG, THE BARRIER MUST CONFORM TO THE ABOVE DIMENSIONS. ON THE LONGER OR STEEPER SLOPES, THE BARRIER SHOULD BE WIDER TO ACCOMMODATE THE ADDITIONAL FLOW.
3. THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL ELEVATION. IT MAY BE NECESSARY TO CUT TALL GRASSES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES THAT WOULD ENABLE FINES TO WASH UNDER THE BARRIER THROUGH THE GRASS BLADES OR PLANT STEMS.
4. LOCATIONS WHERE OTHER BMP'S SHOULD BE USED:
   A. AT LOW POINTS OF CONCENTRATED FLOW
   B. BELOW CULVERT OUTLET APRONS
   C. WHERE A PREVIOUS STAND-ALONE EROSION CONTROL MIX APPLICATION HAS FAILED
   D. AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM (LARGE UPGRADIENT WATERSHED)
   E. AROUND CATCH BASINS AND CLOSED STORM DRAIN SYSTEMS.
5. THE EROSION CONTROL MIX BARRIERS SHOULD BE INSPECTED REGULARLY AND AFTER EACH LARGE RAINFALL. REPAIR ALL DAMAGED SECTIONS OF BERM IMMEDIATELY BY REPLACING OR ADDING ADDITIONAL MATERIAL PLACED ON THE BERM TO THE DESIRED HEIGHT AND WIDTH.
6. IT MAY BE NECESSARY TO REINFORCE THE BARRIER WITH SILT FENCE OR STONE CHECK DAMS IF THERE ARE SIGNS OF UNDERCUTTING OR THE IMPOUNDMENT OF LARGE VOLUMES OF WATER.
7. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
8. REPLACE SECTIONS OF BERM THAT DECOMPOSE, BECOME CLOGGED WITH SEDIMENT OR OTHERWISE BECOME INEFFECTIVE. THE BARRIER SHOULD BE RESHAPED AS NEEDED.
9. EROSION CONTROL MIX BARRIERS CAN BE LEFT IN PLACE AFTER CONSTRUCTION. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER BARRIER IS NO LONGER REQUIRED SHOULD BE SPREAD TO CONFORM TO THE EXISTING GRADE AND BE SEEDED AND MULCHED. WOODY VEGETATION CAN BE PLANTED INTO THE BARRIERS, OR THEY CAN BE OVER-SEEDED WITH LEGUMES. IF THE BARRIER NEEDS TO BE REMOVED, IT CAN BE SPREAD OUT INTO THE LANDSCAPE.

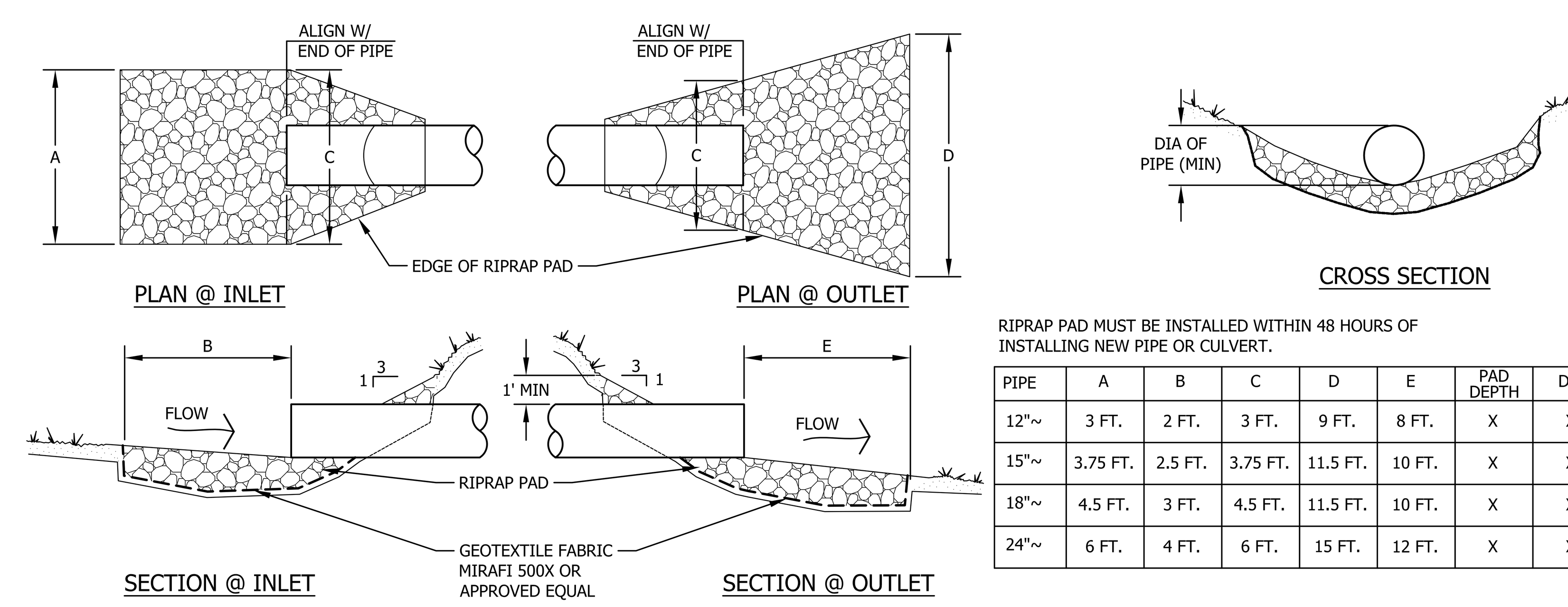
EROSION CONTROL MIX SEDIMENT BARRIER

NTS



SILTSACK CATCH BASIN PROTECTION

NTS



RIPRAP PAD MUST BE INSTALLED WITHIN 48 HOURS OF INSTALLING NEW PIPE OR CULVERT.

PIPE	A	B	C	D	E	PAD DEPTH	D_{50}
12"~	3 FT.	2 FT.	3 FT.	9 FT.	8 FT.	X	X
15"~	3.75 FT.	2.5 FT.	3.75 FT.	11.5 FT.	10 FT.	X	X
18"~	4.5 FT.	3 FT.	4.5 FT.	11.5 FT.	10 FT.	X	X
24"~	6 FT.	4 FT.	6 FT.	15 FT.	12 FT.	X	X

PIPE INLET/OUTLET PROTECTION

NTS

REV.	BY	DATE	STATUS
	BDP	4/2018	ISSUED FOR CONSTRUCTION
	BDP	3/2018	PRELIMINARY DESIGN SUBMITTAL TO THE TOWN OF FORT KENT

FREEBOARD MODIFICATION
FLOOD DAMAGE REDUCTION SYSTEM
FISH RIVER SECTION
FORT KENT, MAINE

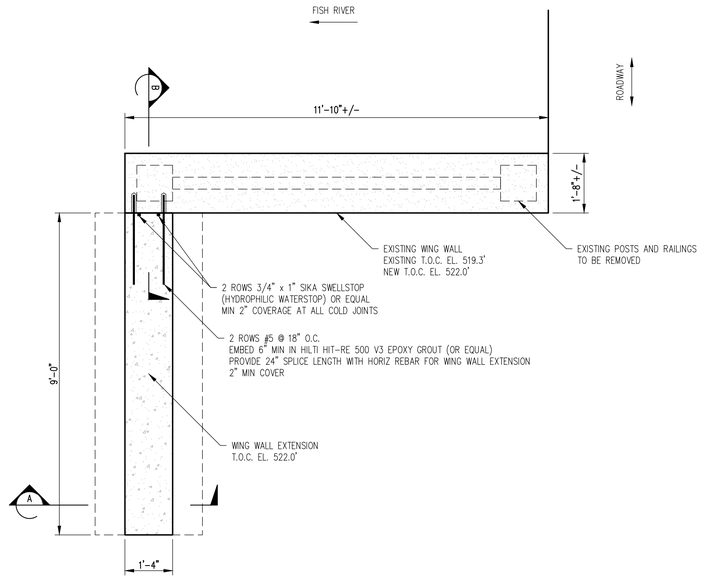
EROSION CONTROL NOTES AND DETAILS

SME
SEVEE & MAHER ENGINEERS
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE
4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021
Phone 207.829.5016 • Fax 207.829.5692 • smemaine.com

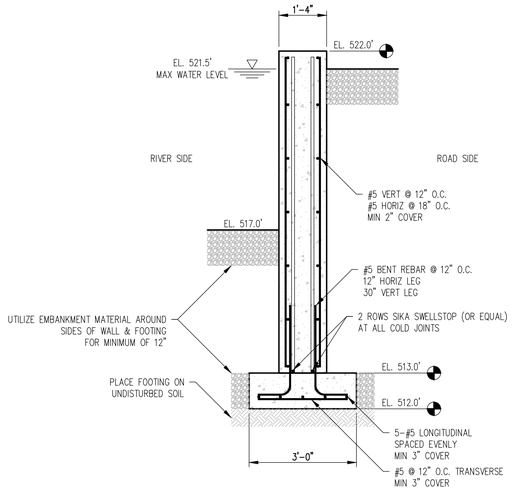
DESIGN BY: BDP
DRAWN BY: SJM
DATE: 12/27/2017
CHECKED BY: MWM
LMN: NONE
CTB: SME-STD

JOB NO. 15138.00 DWG FILE BASE

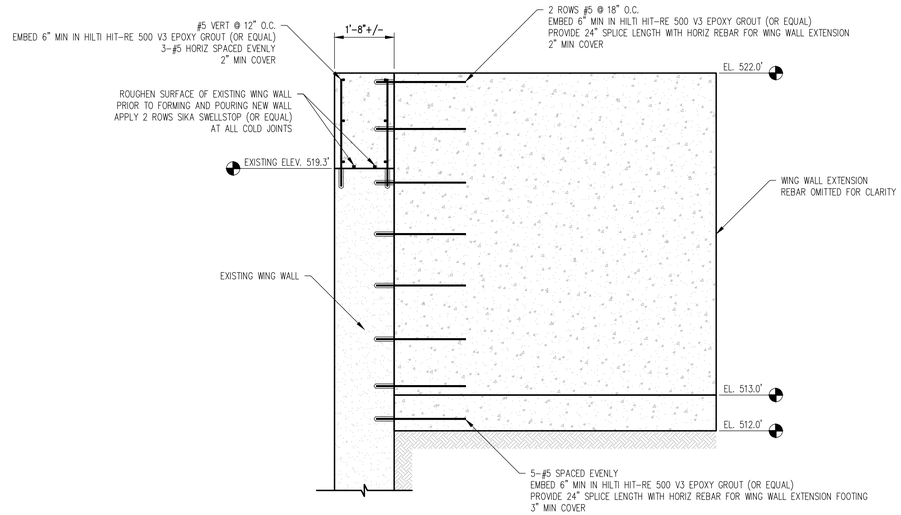
C-302



PLAN VIEW



SECTION A



SECTION B

GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO THE START OF WORK. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
2. ALL STRUCTURES ARE DESIGNED TO BE STABLE AND SELF SUPPORTING AT THE COMPLETION OF CONSTRUCTION. TEMPORARY BRACES, GUYS, TIE-DOWNS, SHORING, ETC. DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. UNDERGROUND UTILITIES HAVE NOT BEEN LOCATED TO THE EXTENT KNOWN. THE CONTRACTOR SHALL PROCEED WITH CAUTION DURING EXCAVATION ACTIVITIES.

CONCRETE NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 301 – SPECIFICATIONS FOR STRUCTURAL CONCRETE AND ACI 318 – BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE".
2. CONCRETE DESIGN MIX: PROVIDE NORMAL WEIGHT CONCRETE WITH A DESIGN COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
3. NO CONCRETE SHALL BE PLACED UNTIL CONCRETE DESIGN MIXES HAVE BEEN SUBMITTED AND APPROVED BY THE ENGINEER.
4. MAXIMUM WATER/CEMENT RATIO TO BE 0.45.
5. SLUMP AT TIME OF PLACEMENT TO BE 3 TO 5 INCHES.
6. NO HIGH RANGE WATER REDUCING AGENTS OR PLASTICIZING ALLOWED IN CONCRETE MIXTURE.
7. PROVIDE AIR CONTENT OF 5% +/- 1.5%.
8. REINFORCING STEEL SHALL BE DEFORMED BARS OF NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. NO WELDING OF REBAR IS ANTICIPATED IN THIS PROJECT. ANY WELDING OF REBAR SHALL BE APPROVED BY ENGINEER. REBAR TO BE WELDED SHALL BE DEFORMED BARS CONFORMING TO ASTM A706.
9. REINFORCING BARS TO BE PLACED IN ACCORDANCE WITH THE LATEST EDITION OF THE CRSI RECOMMENDED PRACTICE FOR REINFORCING BARS .
10. ALL LAP SPLICES SHALL BE ACI CLASS B SPLICES.
11. CONCRETE COVER OVER REINFORCING STEEL TO BE MINIMUM 2 INCHES.
12. ALL STRUCTURAL MEMBERS SHALL BE POURED FOR THEIR FULL DEPTHS IN ONE OPERATION. NO HORIZONTAL JOINTS SHALL BE PLACED IN WALLS EXCEPT AS SHOWN ON THE DRAWINGS WITHOUT APPROVAL OF THE ENGINEER.
13. ALL OUTSIDE CONCRETE WEARING SURFACES SHALL RECEIVE A STEEL TROWEL AND A MEDIUM BROOM FINISH.
14. PROVIDE A CHAMFER TO ALL EXPOSED CONCRETE EDGES.

FOUNDATION NOTES:

1. DESIGN OF FOUNDATION IS BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 2500 POUNDS PER SQUARE FOOT.
2. ALL DELETERIOUS MATERIALS FOUND WITHIN THE LIMITS OF THE STRUCTURE SHALL BE REMOVED AND REPLACED WITH EMBANKMENT MATERIAL. FILL SHALL BE UTILIZED AROUND THE PERIMETER OF THE WALL FOR A MINIMUM DISTANCE OF 1'-0 AND BROUGHT TO THE APPROPRIATE GRADE.
3. FOUNDATION WALL SHALL BE CURED FOR A MINIMUM OF 7 DAYS PRIOR TO BACKFILLING. THE BACKFILL MATERIAL SHALL BE BROUGHT UP TO GRADE EQUALLY ON BOTH SIDES OF RETAINING WALL, WHERE REQUIRED.
4. ON SITE MATERIALS GENERATED DURING EXCAVATION SHALL NOT BE USED AS BACKFILL MATERIAL.
5. FILTER FABRIC PLACED BENEATH FOUNDATIONS AND ALONG THE RETAINING WALL SHALL BE NONWOVEN GEOTEXTILE (MIRAFI 140N OR EQUAL).

SEVEE & MAHER ENGINEERS, INC.
DRAWING NUMBER S-100

NOT FOR CONSTRUCTION

ISSUED FOR REVIEW

NO.	DATE	BY	DESCRIPTION
B	03/02/2018	RJB	ISSUED FOR REVIEW

CURRENT REVISION

MID-SOUTH ENGINEERING
1658 Malvern Ave.
Hot Springs, Arkansas 71901
200 Mackenan Drive
Cary, North Carolina 27511
70 Spring Street, Suite 3
Millinocket, Maine 04462
WWW. MSECO.COM

WING WALL EXTENSION AND ADDITION
FREEBOARD MODIFICATION
FLOOD DAMAGE REDUCTION SYSTEM
FISH RIVER SECTION – FORT KENT, MAINE

SEVEE & MAHER ENGINEERS, INC.
FORT KENT

STATE: ME

SCALE			
1/2" = 1'-0"	DRN.	RJB	03/01/2018
	CKD.	RS	03/01/2018
	APP.	RS	03/01/2018

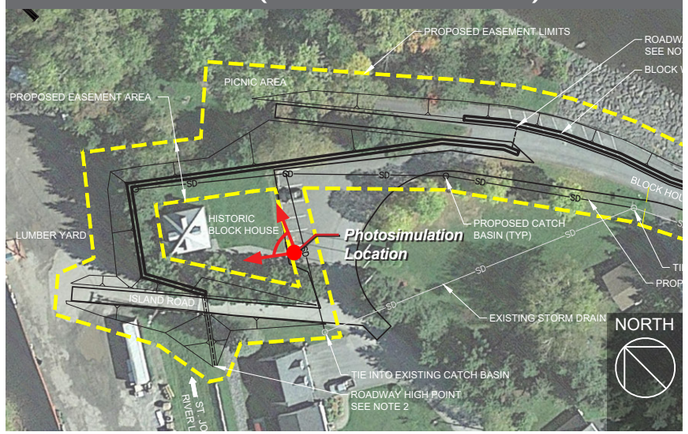
DRAWING NO. 7791-0000-06-CN001

Appendix A-4: Architect's Simulation Pre and Post Project

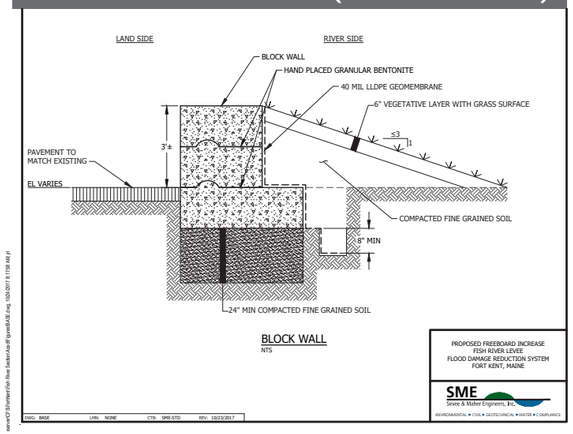
Existing Conditions: Panoramic view looking northwest to northeast toward the Fort Kent Blockhouse from the parking lot.

Photosimulation Prepared 10.24.17

LOCATION MAP (Sevee & Maher Plan)



BLOCK WALL DETAIL (Sevee & Maher)



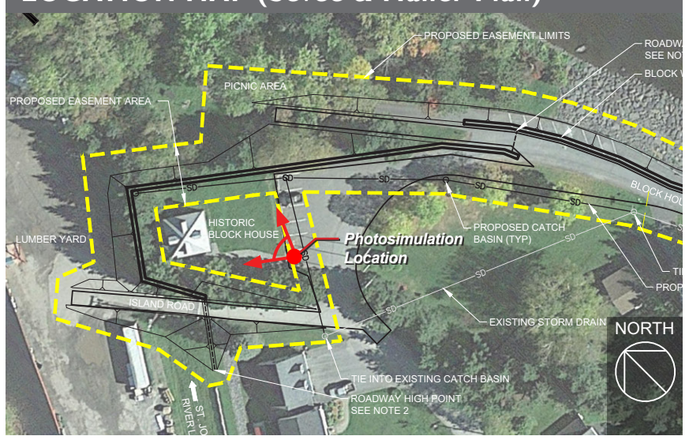
tjd&a

FORT KENT BLOCKHOUSE, Fort Kent, Maine

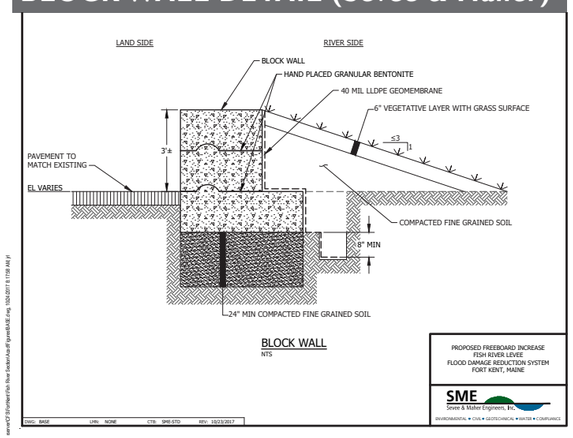
Proposed Conditions A: Panoramic view looking northwest to northeast toward the Fort Kent Blockhouse showing tree removal and the new 3 foot high block wall.

Photosimulation Prepared 10.24.17

LOCATION MAP (Sevee & Maher Plan)



BLOCK WALL DETAIL (Sevee & Maher)



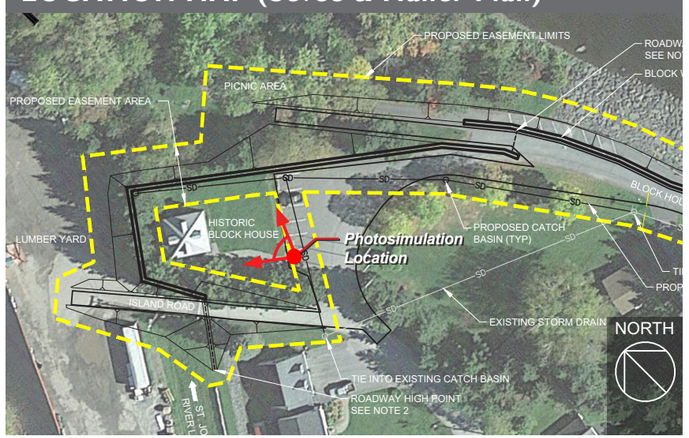
tjd&a

FORT KENT BLOCKHOUSE, Fort Kent, Maine

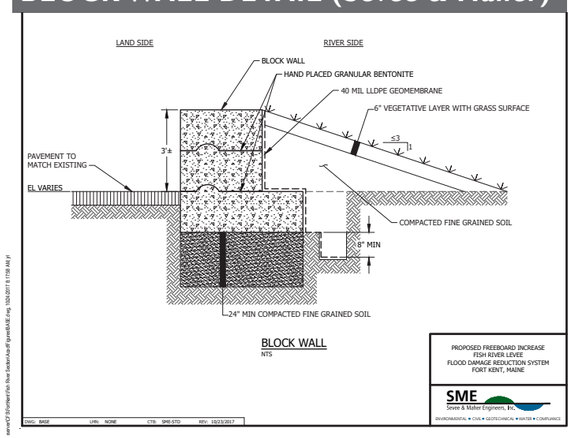
Proposed Conditions B: Panoramic view looking northwest to northeast toward the Fort Kent Blockhouse showing tree removal and the new 3 foot high new block wall with cap.

Photosimulation Prepared 10.24.17

LOCATION MAP (Sevee & Maher Plan)

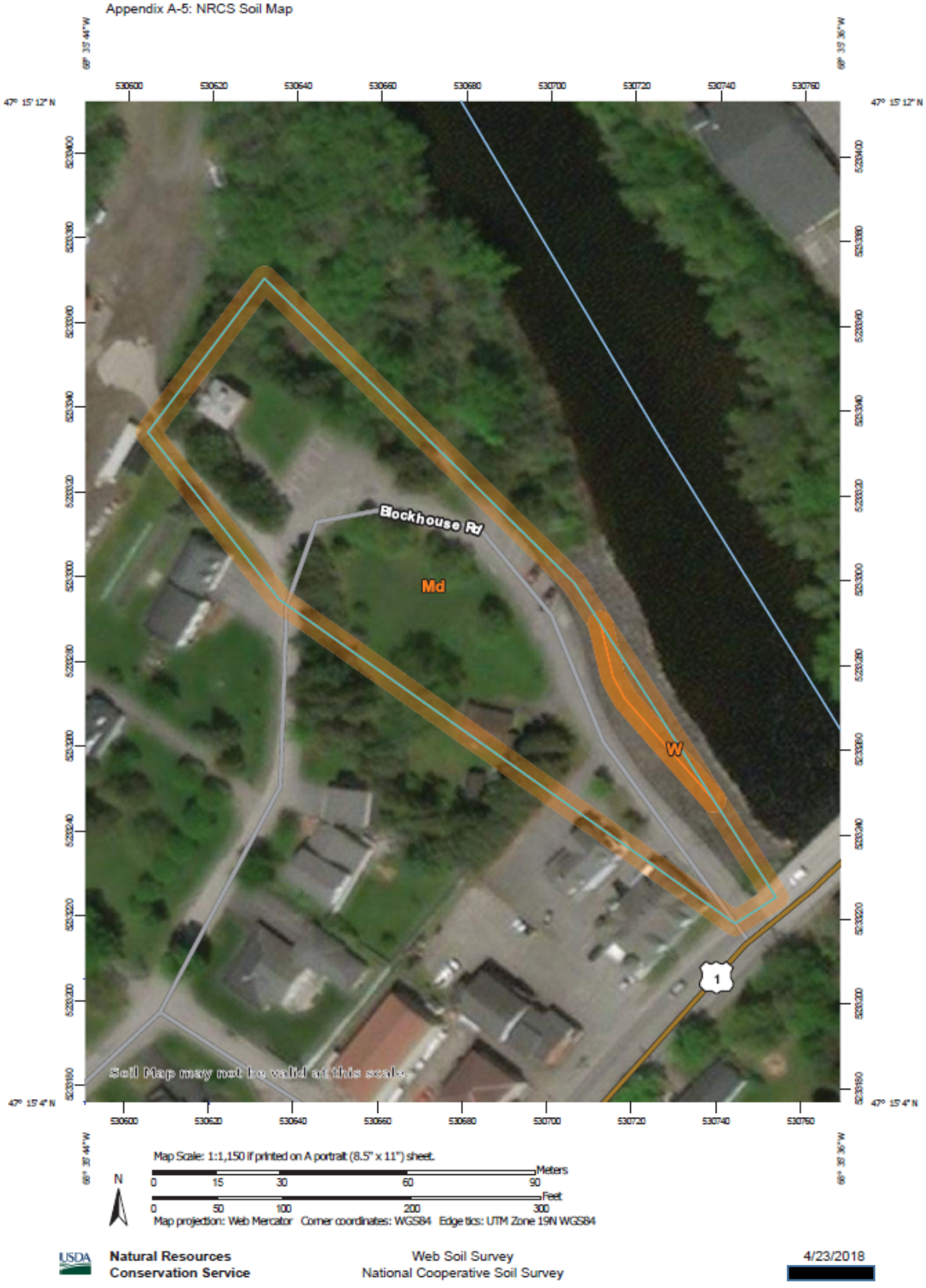


BLOCK WALL DETAIL (Sevee & Maher)



tjd&a

Appendix A-5: NRCS Soil Map

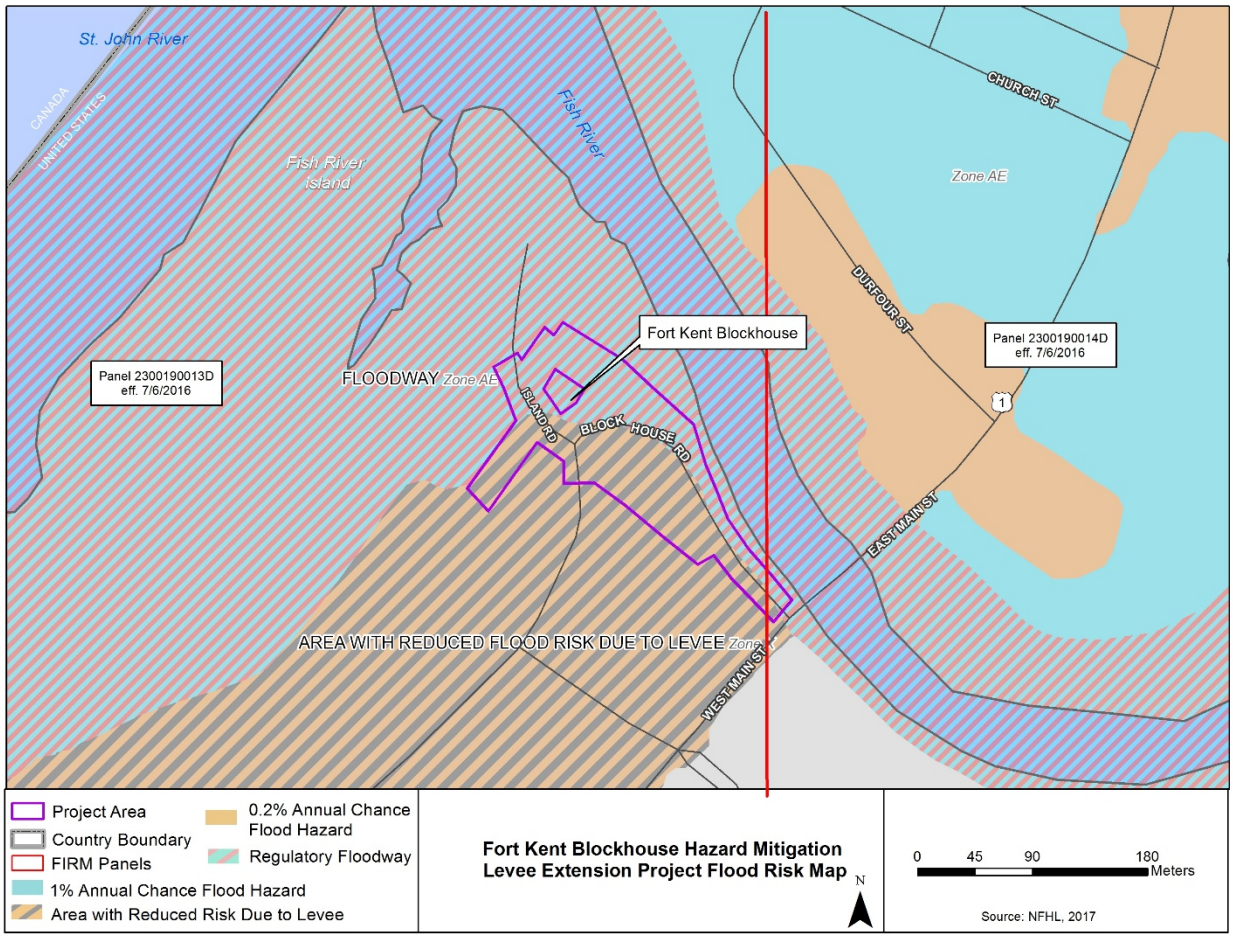


USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

4/23/2018

Appendix A-6: Flood Rate Insurance Map



Appendix A-7: Fort Kent No-rise Analysis

No-Rise Analysis for Levee Extension Project in Fort Kent, Maine

OBJECTIVE

The objective of this file is to document the hydraulic analysis performed by the U.S. Army Corps of Engineers New England District (USACE) requested by the Federal Emergency Management Agency (FEMA) to evaluate the potential hydraulic impact of the proposed levee extension project along the left overbank of the Fish River on the 100-year (one-percent annual chance) and regulatory floodway elevations on the Fish river. The scope of the project involves adding approximately 800 linear feet of concrete block from the Fish River Bridge on West Main Street to the concrete levee adjacent to the road descending to the lumberyard. Limited grading associated with the proposed levee extension is proposed; however, re-grading below the base flow elevation (i.e., one-percent annual chance) is anticipated to be limited.

MODEL INPUTS AND APPROACH #1

Effective Hydraulic Models

FEMA submitted to the USACE the effective hydraulic models in HEC-RAS format (version 4.0) for the Fish and St. John Rivers that support the Flood Insurance Study (FIS) Number 230019V000A for the Town of Fort Kent, Maine, Aroostook County revised on July 6, 2016. FEMA submitted two effective HEC-RAS models including:

- "FortKent": Includes the results for the 10-year (10-percent annual chance), 50-year (two-percent annual chance), 100-year (one-percent annual chance) and 500-year flood (0.2-percent annual chance) flood elevations; and
- "FortKentFloodway": Includes the results for the floodway analysis.

Design Plans

SME Sevee & Maher Engineers submitted to the USACE on behalf of the Town of Fort Kent design plans for the proposed levee extension project "Freeboard Modification Flood Damage Reduction System Fish River Section Fort Kent, Maine," prepared by SME Sevee & Maher Engineers of Cumberland, Maine, dated December 27, 2017. The set of design plans includes 12 sheets.

Topographic Information

The USACE obtained through the National Oceanic and Atmospheric Administration (NOAA) Data Access Viewer https://coast.noaa.gov/dataviewer/ the Digital Elevation Model (DEM) for the Fish River land areas (i.e., no bathymetry included) between the bridge on West Main Street and the confluence or the Fish and St. John Rivers. The title of the DEM is "2009 Federal Emergency Management Agency (FEMA) Topographic LiDAR: Fort Kent, Maine" and an excerpt of the description is as follows:

> *"The data set was extracted from a larger classified data set and only includes points classified as Ground within the requested geographic bounds. Camp Dresser McKee Inc. contracted with Sanborn Map Company to provide LiDAR mapping services for Fort Kent, Maine. Utilizing multi-return systems, Light Detection and Ranging (LiDAR) data in the form of 3-dimensional positions*

of a dense set of mass points was collected in spring 2009 for 187 square miles along the St. Johns River and the Fish River."

Based on the FEMA FIS for the Town of Fort Kent, the above DEM was based on the same topographic information used to develop the effective hydraulic models that support the FEMA FIS for the Town of Fort Kent.

GENERAL APPROACH

The USACE followed the procedures included in the FEMA "Instructions for Completing the Riverine Hydrology & Hydraulics Form (Form 2)" to perform the "no-rise" analysis. Three configuration plans were developed for each hydraulic model (regular and floodway), which were run in HEC-RAS version 4.1:

- Duplicate Effective Model: "*The duplicate effective model is a copy of the hydraulic analysis used in the effective FIS, referred to as the effective model. The effective model should be obtained and then reproduced on the requester's equipment to produce the duplicate effective model*."
- Corrected Effective Model: "*The Corrected Effective Model is the model that corrects any errors that occur in the Duplicate Effective Model, adds any additional cross sections to the Duplicate Effective Model, or incorporates more detailed topographic information than that used in the current effective model.*"
- *Post-Project Conditions Model: "The Existing or Pre-Project Conditions Model (or Duplicate Effective Model or Corrected Effective Model, as appropriate) is modified to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for a proposed project, this model must reflect proposed conditions.*"

The Duplicate Effective Model, Corrected Effective Model and Post-Project Conditions Model were included as specific plans in each HEC-RAS model obtained from FEMA (i.e., regular and floodway).

<u>Duplicate Effective Models</u>

The USACE successfully duplicated the 100-year flood elevations for the Fish River near the project area based on the output that came with the effective HEC-RAS model and the results published in the FEMA FIS for the Town of Fort Kent.

The USACE successfully duplicated the floodway elevations and encroachment stations for the Fish River near the project area based on the output that came with the Effective HEC-RAS Floodway Model; however, these results diverge from the values presented in the Floodway Table 3 published in the FEMA FIS for the Town of Fort Kent. The USACE notified FEMA about the divergence and FEMA acknowledged about the issue and indicated that the final values were in the HEC-RAS effective floodway model instead of Table 3 in the FIS (see Attached).

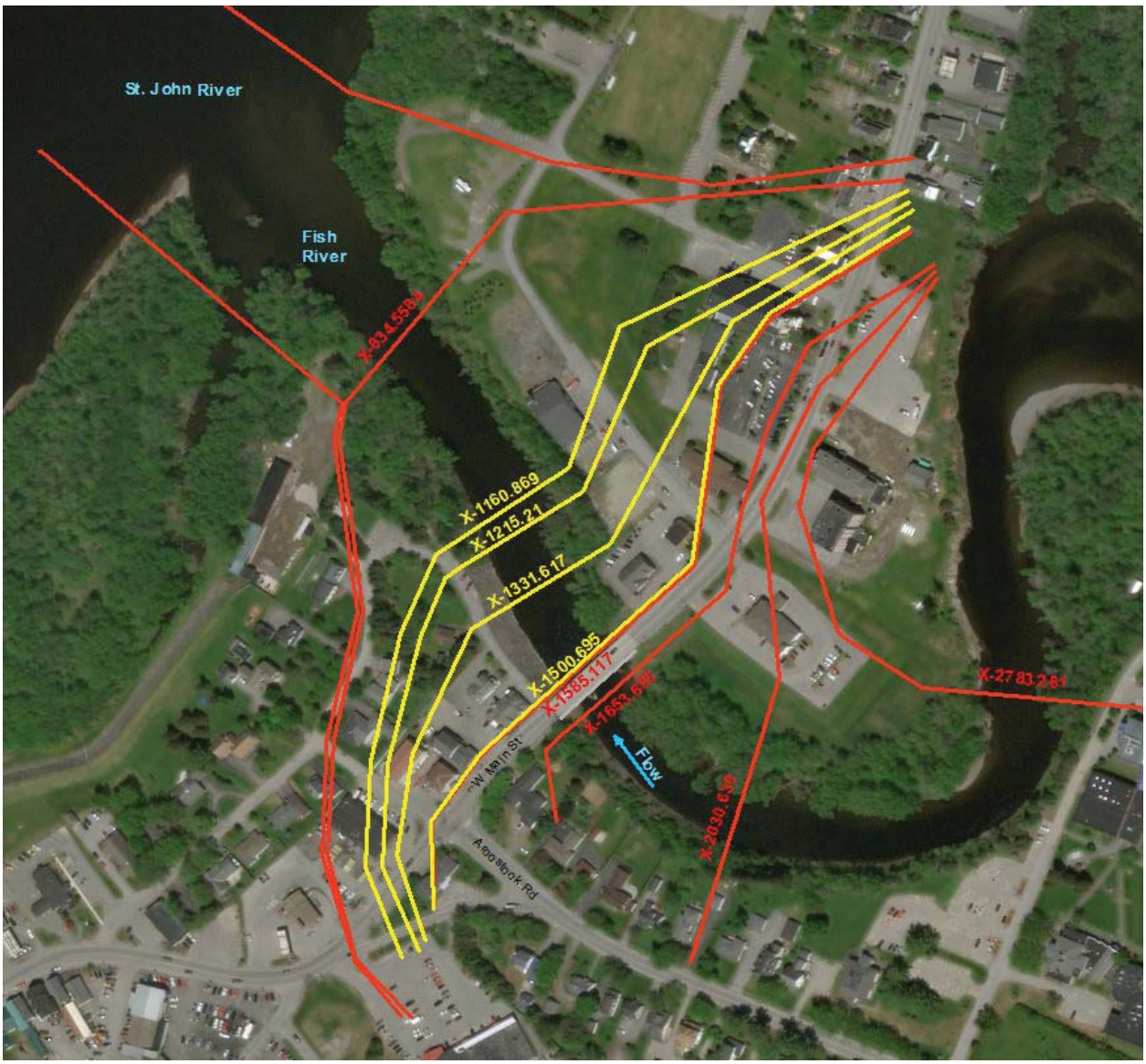
<u>Corrected Effective Model</u>

The Corrected Effective Plan consists of the Duplicate Effective Plan with the addition of four new cross sections in key locations to capture the differences between the existing and proposed conditions. The cross sections locations were drawn in AutoCAD using the proposed conditions design plans as the basemap to better locate the changes. The additional cross sections alignment were exported to

ArcMap with the same horizontal coordinate system used in the effective HEC-RAS model obtained from FEMA (i.e., State Plane NAD 1983 (2011) Maine East Zone, meters). Refer to Figure 1 below for the locations of the four additional cross sections.

The land areas (i.e., bank and overbank areas) for the four additional cross sections were cut using HEC-GeoRAS version 10.2 based on the 2009 LiDAR information developed for the Effective HEC-RAS model as described above. The bathymetry for the additional cross sections were estimated based on "dummy" interpolated sections created in the Duplicate Model that approximate the locations of the additional cross sections. The design plans for the project were used to refine the actual width of the bathymetry. Note that the most upstream additional cross section (X-1500.695) was a duplicate of the adjacent cross section X-1585.117 due to its close proximity.

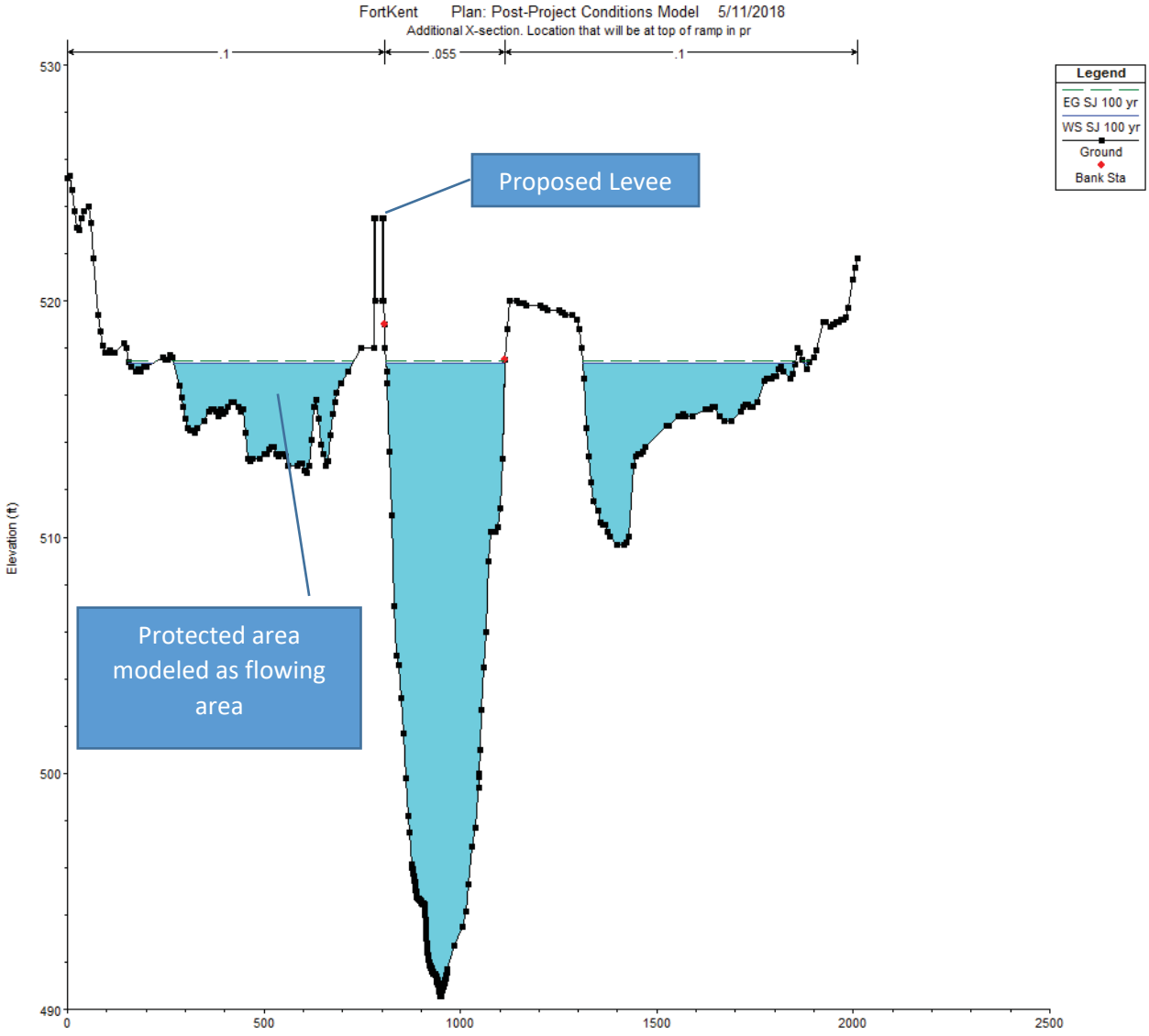
Figure 1: Cross Sections Locations (Additional Cross Sections in Yellow)



Post-Project Conditions Model

The Post-Project Conditions Plan is based on the Corrected Effective Plan with modifications on the four new additional cross sections to capture the proposed levee extension. The levee extension was modeled using ground surface to represent the top of the levee to mimic the approach used in the effective HEC-RAS model, which allowed active flow on the low areas of the left overbank as displayed in Figure 2 below. An alternative Post Project Conditions Plan that does not allow active flow on the low areas of the left overbank was evaluated and is depicted herein. This approach appears to be more realistic based on the topography of the project area.

Figure 2: Example of Post-Project Conditions Model



RESULTS FOR APPROACH #1 HEC-RAS “FORTKENT” MODEL

The results comparison output table from HEC-RAS for the Corrected Effective Plan and the Post-Project Conditions Plan is presented in Figure 3 below. The difference in water surface elevation between the Corrected Effective and Post-Project plans were 0.00 ft for three additional cross sections and the downstream bounding cross section X-834.5584, and-0.01 for the additional cross section X-1331.617 and the upstream bounding cross section X-1585.117.

Figure 3: Regular Model Results Comparison Table for Approach #1

Profile Output Table - Standard Table 1

File Options Std. Tables Locations Help

HEC-RAS River: Fish Reach: Fort Kent Profile: SJ 100 yr

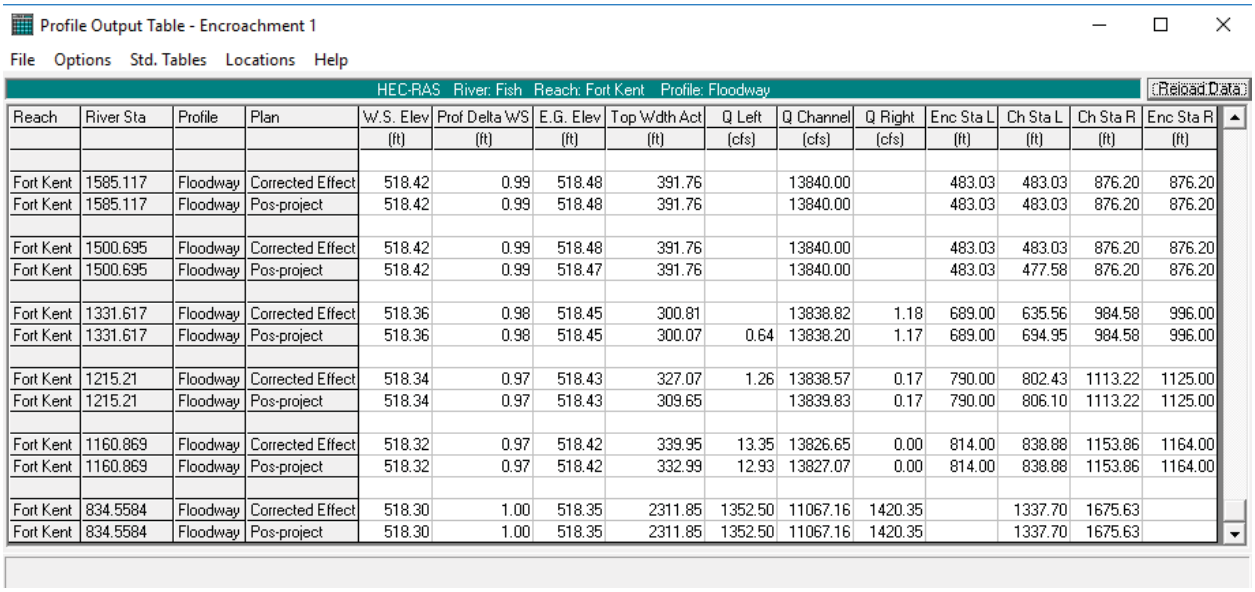
Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Fort Kent	1600			Bridge									
Fort Kent	1585.117	SJ 100 yr	Post-Project Conditions	13840.00	490.97	517.43		517.49	0.000113	1.93	7807.83	903.71	0.08
Fort Kent	1585.117	SJ 100 yr	Corrected Effect	13840.00	490.97	517.44		517.49	0.000113	1.93	7809.87	904.08	0.08
Fort Kent	1500.695	SJ 100 yr	Post-Project Conditions	13840.00	490.90	517.43		517.49	0.000114	1.93	7809.13	902.61	0.08
Fort Kent	1500.695	SJ 100 yr	Corrected Effect	13840.00	490.90	517.43		517.49	0.000112	1.93	7811.29	903.96	0.08
Fort Kent	1331.617	SJ 100 yr	Post-Project Conditions	13840.00	490.65	517.38		517.47	0.000155	2.36	7783.15	1230.73	0.09
Fort Kent	1331.617	SJ 100 yr	Corrected Effect	13840.00	490.65	517.39		517.47	0.000179	2.34	7797.07	1267.79	0.10
Fort Kent	1215.21	SJ 100 yr	Post-Project Conditions	13840.00	490.53	517.37		517.45	0.000167	2.34	8336.52	1374.38	0.10
Fort Kent	1215.21	SJ 100 yr	Corrected Effect	13840.00	490.53	517.37		517.45	0.000169	2.35	8351.24	1420.85	0.10
Fort Kent	1160.869	SJ 100 yr	Post-Project Conditions	13840.00	490.28	517.36		517.44	0.000199	2.41	8565.94	1541.18	0.11
Fort Kent	1160.869	SJ 100 yr	Corrected Effect	13840.00	490.28	517.36		517.44	0.000199	2.41	8572.57	1559.37	0.11
Fort Kent	834.5584	SJ 100 yr	Post-Project Conditions	13840.00	489.98	517.30	498.85	517.36	0.000162	2.16	10625.83	2195.01	0.09
Fort Kent	834.5584	SJ 100 yr	Corrected Effect	13840.00	489.98	517.30	498.85	517.36	0.000162	2.16	10625.83	2195.01	0.09

APPROACH #1 FLOODWAY INPUTS AND RESULTS

A Separate HEC-RAS model for the floodway analysis was obtained from FEMA. The already developed HEC-RAS Corrected Effective plan and Post-Project Conditions plan were used in the floodway analysis. The floodway inputs included in the effective HEC-RAS model were used in the previous developed cross sections for both plans Corrected and Post-Project Conditions. For the additional cross sections, encroachment stations were estimated in ArcMap based on published FEMA floodway boundaries and they were used as floodway input.

The floodway results comparison output table from HEC-RAS for the Corrected Effective Plan and the Post-Project Conditions Plan is presented in Figure 4 below. The results show no difference (i.e., 0.00) between the water surface elevations and encroachment right and left stations for the compared plans.

Figure 4: Floodway Model Results Comparison Table


Profile Output Table - Encroachment 1

File Options Std. Tables Locations Help

HEC-RAS River: Fish Reach: Fort Kent Profile: Floodway

Reload Data

Reach	River Sta	Profile	Plan	W.S. Elev (ft)	Prof Delta WS (ft)	E.G. Elev (ft)	Top Wdth Act (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Enc Sta L (ft)	Ch Sta L (ft)	Ch Sta R (ft)	Enc Sta R (ft)
Fort Kent	1585.117	Floodway	Corrected Effect	518.42	0.99	518.48	391.76		13840.00		483.03	483.03	876.20	876.20
Fort Kent	1585.117	Floodway	Pos-project	518.42	0.99	518.48	391.76		13840.00		483.03	483.03	876.20	876.20
Fort Kent	1500.695	Floodway	Corrected Effect	518.42	0.99	518.48	391.76		13840.00		483.03	483.03	876.20	876.20
Fort Kent	1500.695	Floodway	Pos-project	518.42	0.99	518.47	391.76		13840.00		483.03	477.58	876.20	876.20
Fort Kent	1331.617	Floodway	Corrected Effect	518.36	0.98	518.45	300.81		13838.82	1.18	689.00	635.56	984.58	996.00
Fort Kent	1331.617	Floodway	Pos-project	518.36	0.98	518.45	300.07	0.64	13838.20	1.17	689.00	694.95	984.58	996.00
Fort Kent	1215.21	Floodway	Corrected Effect	518.34	0.97	518.43	327.07	1.26	13838.57	0.17	790.00	802.43	1113.22	1125.00
Fort Kent	1215.21	Floodway	Pos-project	518.34	0.97	518.43	309.65		13839.83	0.17	790.00	806.10	1113.22	1125.00
Fort Kent	1160.869	Floodway	Corrected Effect	518.32	0.97	518.42	339.95	13.35	13826.65	0.00	814.00	838.88	1153.86	1164.00
Fort Kent	1160.869	Floodway	Pos-project	518.32	0.97	518.42	332.99	12.93	13827.07	0.00	814.00	838.88	1153.86	1164.00
Fort Kent	834.5584	Floodway	Corrected Effect	518.30	1.00	518.35	2311.85	1352.50	11067.16	1420.35		1337.70	1675.63	
Fort Kent	834.5584	Floodway	Pos-project	518.30	1.00	518.35	2311.85	1352.50	11067.16	1420.35		1337.70	1675.63	

APPROACH #2 METHODOLOGY

The USACE used a second modeling approach to evaluate the “No-Rise” analysis. This new approach was used to eliminate the active flow area shown in Approach #1 on the low areas of the left overbank (Figure 2). To avoid the active flow areas of the low areas of the left overbank that are protected by high ground, ineffective flow areas were set for the Corrected Effective Plan and the levee option was used in the Post-Project Conditions Plan as shown in Figure 5 and Figure 6, respectively below.

Figure 5: Ineffective Flow Used in Corrected Effective Plan

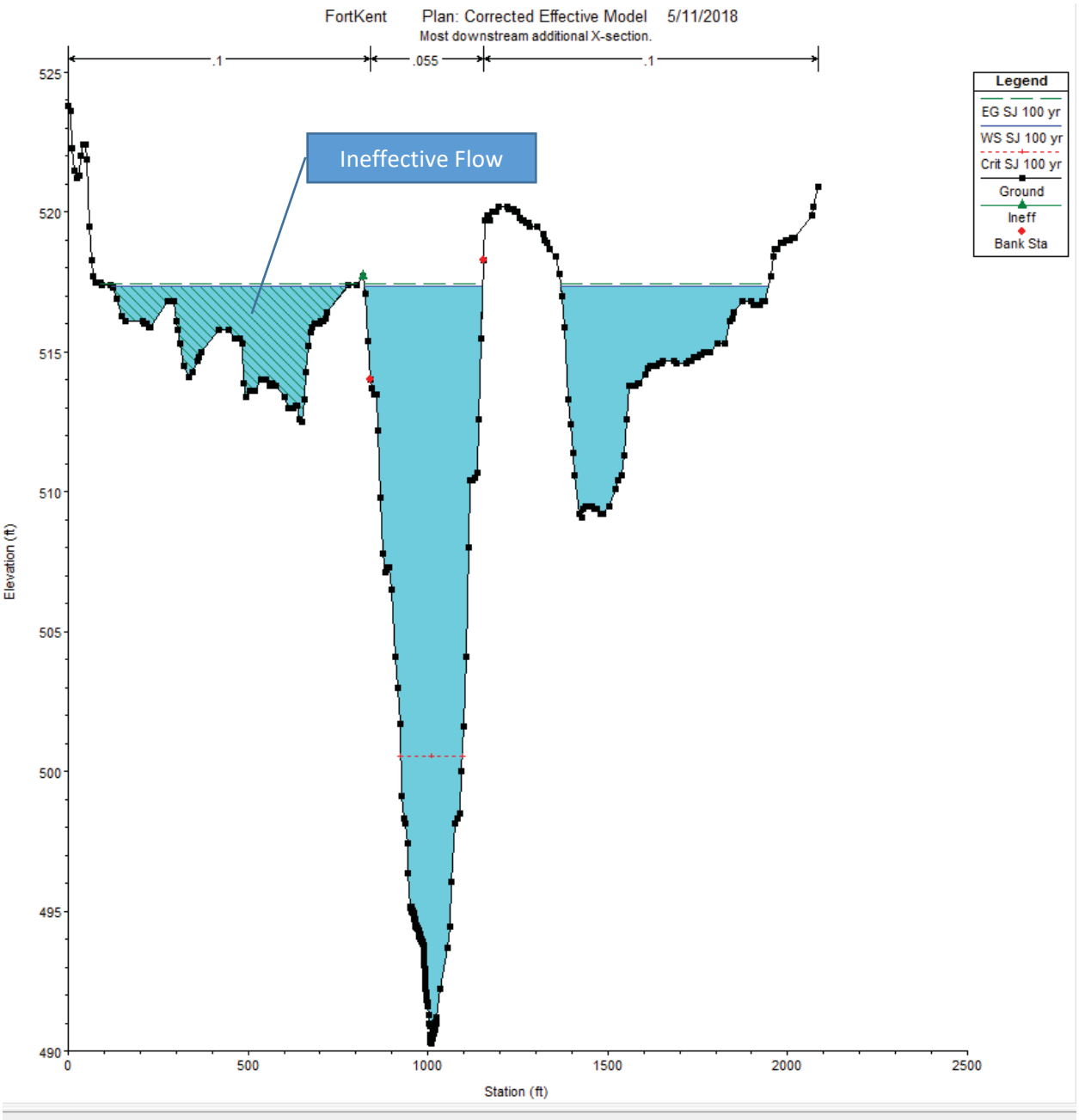
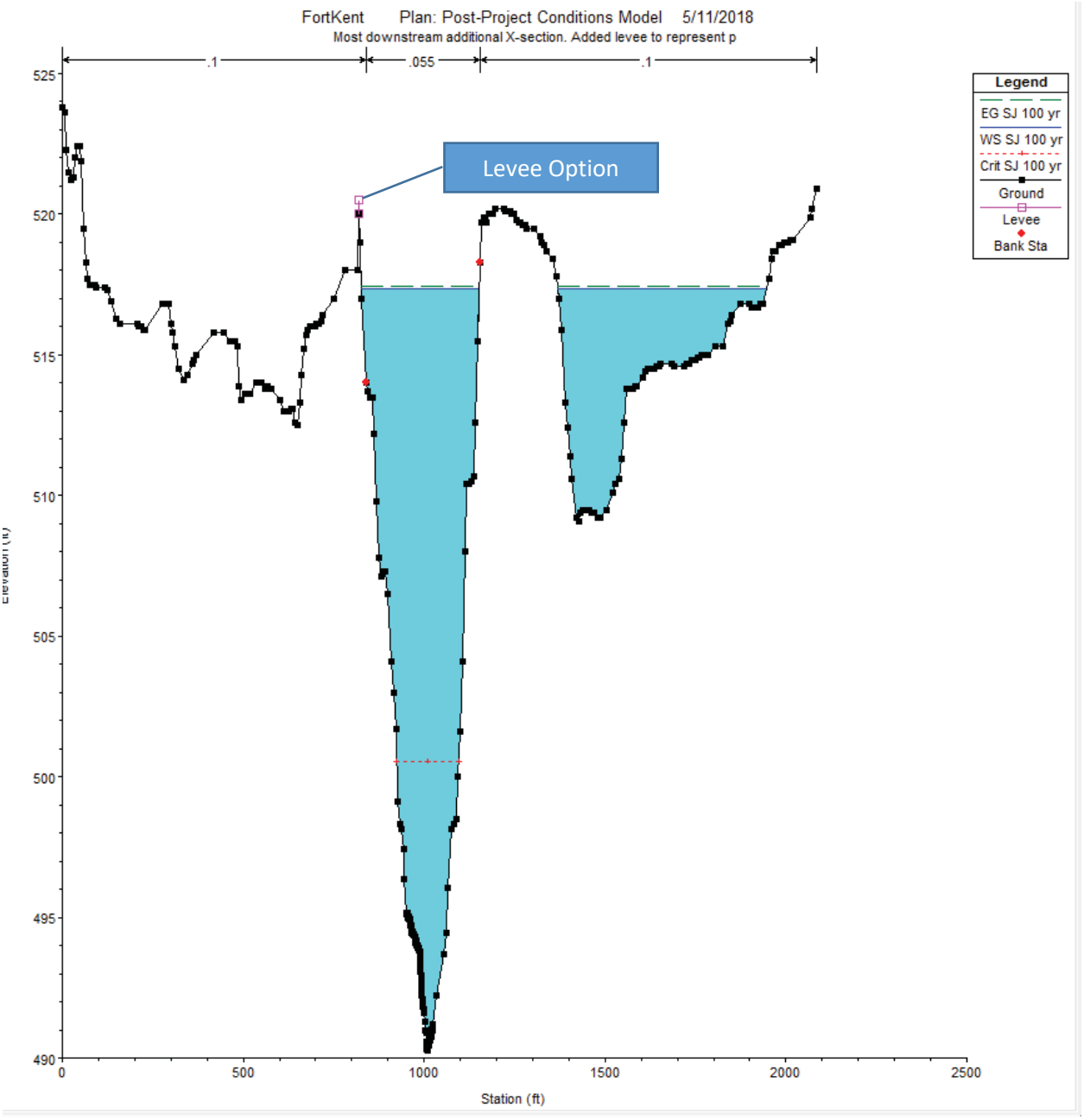


Figure 6: Levee Option Used in Corrected Effective Plan



RESULTS FOR APPROACH #2 HEC-RAS REGULAR MODEL

The results comparison output table from HEC-RAS for the Corrected Effective Plan and the Post-Project Conditions Model is presented in Figure 7 below. The difference in water surface elevation between the Corrected Effective and Post-Project models was 0.00 ft for the four additional cross sections and the upstream and downstream bounding cross sections.

Figure 7: Regular Model Results Comparison Table for Approach #2

Profile Output Table - Standard Table 1

File Options Std. Tables Locations Help

HEC-RAS River: Fish Reach: Fort Kent Profile: SJ 100 yr Reload Data

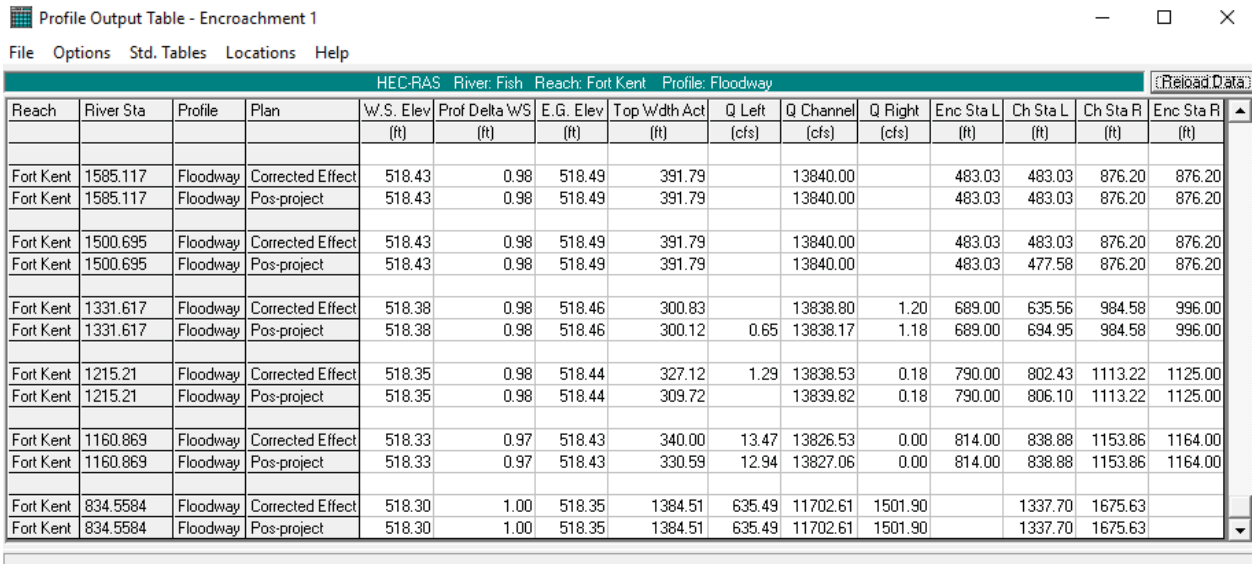
Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Fort Kent	1585.117	SJ 100 yr	Post-Project Conditions	13840.00	490.97	517.45	499.57	517.51	0.000112	1.93	7815.17	906.50	0.08
Fort Kent	1585.117	SJ 100 yr	Corrected Effect	13840.00	490.97	517.45	499.57	517.51	0.000112	1.93	7817.47	906.94	0.08
Fort Kent	1500.695	SJ 100 yr	Post-Project Conditions	13840.00	490.90	517.45	499.53	517.51	0.000114	1.93	7819.13	862.38	0.08
Fort Kent	1500.695	SJ 100 yr	Corrected Effect	13840.00	490.90	517.45	499.53	517.51	0.000112	1.93	7818.87	906.81	0.08
Fort Kent	1331.617	SJ 100 yr	Post-Project Conditions	13840.00	490.65	517.39	499.88	517.48	0.000163	2.42	6753.15	857.11	0.10
Fort Kent	1331.617	SJ 100 yr	Corrected Effect	13840.00	490.65	517.39	499.88	517.48	0.000190	2.41	6766.27	1268.29	0.10
Fort Kent	1215.21	SJ 100 yr	Post-Project Conditions	13840.00	490.53	517.37	499.48	517.46	0.000179	2.43	7068.52	854.50	0.10
Fort Kent	1215.21	SJ 100 yr	Corrected Effect	13840.00	490.53	517.37	499.48	517.46	0.000180	2.43	7069.91	1422.64	0.10
Fort Kent	1160.869	SJ 100 yr	Post-Project Conditions	13840.00	490.28	517.36	500.54	517.45	0.000213	2.50	7213.98	901.16	0.11
Fort Kent	1160.869	SJ 100 yr	Corrected Effect	13840.00	490.28	517.36	500.55	517.45	0.000213	2.50	7214.71	1560.19	0.11
Fort Kent	834.5584	SJ 100 yr	Post-Project Conditions	13840.00	489.98	517.30	498.84	517.37	0.000173	2.23	9070.70	2195.01	0.10
Fort Kent	834.5584	SJ 100 yr	Corrected Effect	13840.00	489.98	517.30	498.85	517.37	0.000173	2.23	9070.70	2195.01	0.10

APPROACH #2 FLOODWAY INPUTS AND RESULTS

The Approach #2 floodway inputs were the same used in Approach #1 and are described above.

The floodway results comparison output table from HEC-RAS for the Corrected Effective Plan and the Post-Project Conditions Plan for Approach #2 is presented in Figure 8 below. The results show no difference (i.e., 0.00) between the water surface elevations and encroachment right and left stations for the compared plans.

Figure 8: Floodway Model Results Comparison Table for Approach #2



Profile Output Table - Encroachment 1

File Options Std. Tables Locations Help

HEC-RAS River: Fish Reach: Fort Kent Profile: Floodway — Reload Data

Reach	River Sta	Profile	Plan	W.S. Elev (ft)	Prof Delta WS (ft)	E.G. Elev (ft)	Top Wdth Act (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Enc Sta L (ft)	Ch Sta L (ft)	Ch Sta R (ft)	Enc Sta R (ft)
Fort Kent	1585.117	Floodway	Corrected Effect	518.43	0.98	518.49	391.79		13840.00		483.03	483.03	876.20	876.20
Fort Kent	1585.117	Floodway	Pos-project	518.43	0.98	518.49	391.79		13840.00		483.03	483.03	876.20	876.20
Fort Kent	1500.695	Floodway	Corrected Effect	518.43	0.98	518.49	391.79		13840.00		483.03	483.03	876.20	876.20
Fort Kent	1500.695	Floodway	Pos-project	518.43	0.98	518.49	391.79		13840.00		483.03	477.58	876.20	876.20
Fort Kent	1331.617	Floodway	Corrected Effect	518.38	0.98	518.46	300.83		13838.80	1.20	689.00	635.56	984.58	996.00
Fort Kent	1331.617	Floodway	Pos-project	518.38	0.98	518.46	300.12	0.65	13838.17	1.18	689.00	694.95	984.58	996.00
Fort Kent	1215.21	Floodway	Corrected Effect	518.35	0.98	518.44	327.12	1.29	13838.53	0.18	790.00	802.43	1113.22	1125.00
Fort Kent	1215.21	Floodway	Pos-project	518.35	0.98	518.44	309.72		13839.82	0.18	790.00	806.10	1113.22	1125.00
Fort Kent	1160.869	Floodway	Corrected Effect	518.33	0.97	518.43	340.00	13.47	13826.53	0.00	814.00	838.88	1153.86	1164.00
Fort Kent	1160.869	Floodway	Pos-project	518.33	0.97	518.43	330.59	12.94	13827.06	0.00	814.00	838.88	1153.86	1164.00
Fort Kent	834.5584	Floodway	Corrected Effect	518.30	1.00	518.35	1384.51	635.49	11702.61	1501.90		1337.70	1675.63	
Fort Kent	834.5584	Floodway	Pos-project	518.30	1.00	518.35	1384.51	635.49	11702.61	1501.90		1337.70	1675.63	

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Digitally signed by FURTADO.BRYANT.BRAGA.1544671231
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=FURTADO.BRYANT.BRAGA.1544671231
Date: 2018.05.21 16:47:19 -04'00'

Bryant B. Furtado
Hydraulic Engineer

EKHOLM.KRISTINA.DIANE.1530355922

Digitally signed by EKHOLM.KRISTINA.DIANE.1530355922
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=EKHOLM.KRISTINA.DIANE.1530355922
Date: 2018.05.21 17:35:34 -04'00'

Kristina D. Ekholm
Chief of Water Management

Z:\WATER RESOURCES\Project Files\Local Protection Projects\New England\ME\Fort Kent\Report\Fort Kent-No Rise_21May2018.docx

Attachment:

USACE-FEMA Email Correspondence

From: Stewart, Gregory
To: Sirotek, Alex
Cc: Bogdan, Kerry
Subject: Re: [EXTERNAL] FW: Fort Kent No Rise
Date: Tuesday, May 1, 2018 5:03:37 PM
Attachments: image.png

Alex,
Answering the 2 questions.

The Fish River and St. John River interaction is very complicated. There is a writeup in the Hydraulic analysis section, but basically we have 2 rivers flooding at the same time. When we did the hydrology analysis we found the peaks very statically linked. Typically when you have tributary, Fish River, coming into a larger river, St. John, that is 5 times as big you don't worry about coincidental flooding. In this case the USGS operate streamflow gages on both sites and we did an analysis and the peaks occur very close to the same time. This creates issues with both the flood plain and floodway. Specifically the starting floodway encroachment values. Here is some info from Pam with the actual numbers.

the 517.3 regulatory is the 100-yr elev of the St. John at the mouth of the fish
515.6 without floodway is the 100-yr at the Fish if you disregard the St. John.
516.6 is the floodway of the fish if you disregard the St. John. NOTE: this elevation does not actually occur in the final model because we overwrote it with the St. John 100-yr flow for the FW as this is the correct elevation to use.

For the GIS coordinate system this is from Luther:
Based on the coordinates listed at the top of the .g01 file (X-values around 2.1 million, Y-values around 1.2 million), there's only one local projection that puts the features in Fort Kent. It is the "new" Maine state plane, East Zone. This projection isn't even available in the latest versions of ArcMap. This projection was available in earlier versions, not sure why it is not available now.

The parameters for this projection are defined here, at the top of page 2:

http://www.maine.gov/mdot/surveyinfo/docs/SPCZoneDefinitionsUsedinMaine11-2015.pdf
<http://www.maine.gov/mdot/surveyinfo/docs/SPCZoneDefinitionsUsedinMaine11-2015.pdf>

The USACE folks should be able to use the parameter information to project the HEC-RAS files as needed.

This projection is 1 of 3 "new" state plane zones that Maine defined recently, but the old 2-zone system is still most common. Based on Arc's decision to remove the 3-zone options from recent versions, I'm guessing the 3-zone system is not catching on.

Please let us know if you have additional questions.

Greg

<https://ssl.gstatic.com/ui/v1/icons/mail/images/cleardot.gif>

On Fri, Apr 27, 2018 at 9:00 AM, Sirotek, Alex <SirotekAR@cdmsmith.com <mailto:SirotekAR@cdmsmith.com>>

> wrote:

Hello Greg,

USACE is working on the upgrades to the Fort Kent levee system, and had an issue with the models available on the MIP. I confirmed that the models on the MIP are the same ones referenced below - FortKent.prj and FortKentFloodway.prj (K:/R01/MAINE_23/AROOSTOOK_23003/FORT_KENT_230019/11-01-1047S/SubmissionRepository/Hydraulics/2144342/Hydraulic Models/Fort Kent/Simulations). I downloaded and ran them, and am seeing the same results. The 100 year runs match, but the floodway for Fish River seems off. The width at XS A is likely off because it is basically within the floodway of the larger St John river, but the "With Floodway" elevations don't seem to match.

Can you look into this, and verify if this is the proper model, or if another is available?

Thank you,

Alex

Alex Sirotek, GISP, CFM | GIS Specialist | CDM Smith | 75 State Street, Boston, MA 02109 | T: 617.452.6345 | sirotekar@cdmsmith.com <mailto:sirotekar@cdmsmith.com> | cdmsmith.com <http://cdmsmith.com>

-----Original Message-----
From: Furtado, Bryant B NAE [mailto:Bryant.B.Furtado@usace.army.mil <mailto:Bryant.B.Furtado@usace.army.mil>]
Sent: Wednesday, April 25, 2018 12:16 PM
To: Bogdan, Kerry <Kerry.Bogdan@fema.dhs.gov <mailto:Kerry.Bogdan@fema.dhs.gov> >
Cc: Tate, Marcus <Marcus.Tate@fema.dhs.gov <mailto:Marcus.Tate@fema.dhs.gov> >; Ekholm, Kristina D CIV USARMY CENAE (US) <Kristina.D.Ekholm@usace.army.mil <mailto:Kristina.D.Ekholm@usace.army.mil> >; Gay, Dara E CIV USARMY CENAE (US) <Dara.Gay@usace.army.mil <mailto:Dara.Gay@usace.army.mil> >
Subject: Fort Kent No Rise

Hi Kerry,

I am working on the "no-rise" analysis for the levee extension at Fort Kent in Maine. We obtained from FEMA two HEC-RAS models that support the Flood Insurance Study (FIS) for the Town of Fort Kent including:

1) "FortKent": Includes the results for the 10-year, 50-year, 100-year and 500-year flood elevations; and
2) "FortKentFloodway": Includes the results for the floodway analyses.

The first step of our "no-rise" analysis was to run the Duplicate Effective Models to confirm that we can reproduce the same results that are published in the effective FEMA FIS 230019V000A. We successfully duplicated the 100-year flood elevations for the Fish River near the project area, but we were not able to duplicate the floodway results (e.g., elevations, top width). We compared the floodway results that came included (without running the model) in the floodway model with the information published in Table 3 of the FEMA FIS (see attached), and we noted that the floodway results near the project area (Sections A and B of the Fish River) diverge.

Could you please check if there is another floodway model available that matches the information published in the FEMA FIS?

Feel free to call my direct number shown below if you want to discuss.

Thanks,

Bryant

Bryant Furtado, P.E.
Hydraulic Engineer
New England District
U.S. Army Corps of Engineers

Tel: 978-318-8356
Email: Bryant.B.Furtado@USACE.army.mil <mailto:Bryant.B.Furtado@USACE.army.mil>

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Gregory J. Stewart P.E.
Chief, Surface Water Hydrology Studies Section
U.S. Geological Survey, New England Water Science Center
196 Whitten Road
Augusta ME 04330
tel: 207-626-6618
fax: 207-622-8204
gstewart@usgs.gov <mailto:gstewart@usgs.gov>

Appendix A-8: 8-Step Analysis

Disaster/Program: HMGP-DR-4208-ME
Reviewer: Marcus Tate

Date: 4/5/18

EXECUTIVE ORDER 11988 FLOODPLAIN MANAGEMENT AND 11990 WETLANDS PROTECTION

TITLE: Fort Kent Blockhouse Hazard Mitigation Levee Extension Project

DESCRIPTION OF PROJECT: Construct an approximate 800-foot block wall levee extending from the existing St. John Levee to the west, north, and east sides of the Fort Kent Blockhouse and along the Fish River riverbank to the US-1 Bridge.

STEP 1 Determine whether the proposed action is located in the 100-year floodplain (500-year floodplain for critical actions)

YES the project is located in the 100 Year floodplain as mapped by FIRM Panel No. 2300190013D and 2300190014D; (both) dated: July 6, 2016. This project is located within the AE Zone (100-year storm). Along with being located in the floodway, this project is also partly located within the Zone X, which in this case is an Area of Reduced Risk due to Levee.

STEP 2 Notify the public at the earliest possible time of the intent to carry out an action in a floodplain and involve the affected and interested public in the decision-making process.

The public notice was provided by FEMA of projects by cumulative public notice after the major disaster declaration. In addition to the initial disaster notice, members of the public that live in adjacent property to the project location were invited to multiple project meetings to discuss the project.

STEP 3 Identify and evaluate practicable alternatives to locating the proposed action in a floodplain (including alternatives sites, actions and the "no action" option). If a practicable alternative exists outside the floodplain FEMA must locate the action at the alternative site.

Alternative Options

1. **No Action Alternative –** Under the No Action Alternative, no Federal funding would be made available to elevate the existing Fish River levee at the Fort Kent Blockhouse. The existing Fish River levee would remain at its existing height and no additional flood protection would be provided. Surrounding areas in Fort Kent would remain at current risk levels for flood events.
2. **Proposed Alternative –** The Proposed Action would provide flood protection at 3 feet above the Base Flood Elevation and reduce the impacts from flooding events to the downtown Fort Kent area.
3. **Alternative within the floodplain** – *Extend the Block Wall along the St. John River*. This alternative would protect more of the floodplain area as well as the SW Collins Lumberyard. This alternative was dismissed due to the drastic increase in cost for extending the wall to only include one extra property from flood protection.
4. **Alternative outside the floodplain** – *Relocate the Blockhouse*. This alternative would provide protection to the Blockhouse but it would not serve the purpose and need of the project.

STEP 4 Identify the potential direct and indirect impacts associated with the occupancy or modification of floodplains and the potential direct and indirect support of floodplain development that could result from the proposed action. 44CFR Part 9.10

Alternative Options

1. **No Action Alternative** – There would continue to be direct impacts from flooding events discouraging development in the floodplain. The area would continue to be damaged from flooding events.
2. **Proposed Alternative** – The extension and block wall levee would prevent Fish River flood events from reaching the Fort Kent Blockhouse, businesses, and residents within and beyond the Action Area. The Proposed Action would prevent damage, loss of property, displacement of residents, disruption of traffic, and loss of Fort Kent Fire Department services. A no-rise analysis was conducted by US Army Corp of Engineers to gauge the impact of construction within the floodway, the result was the project would result in no-rise to the BFE. A summary of this analysis and the results was provided to FEMA on 5/22/18. The area within the floodplain is already completely developed so the project would not support additional development in the floodplain.
3. **Alternative within the floodplain** – *Extend the Block Wall along the St. John River*. The project would provide the same impacts as the proposed alternative as this impact would only provide protection to one additional property.
4. **Alternative outside the floodplain** – *Relocate the Blockhouse*. This alternative would only serve to protect the Blockhouse, the rest of the area would still be vulnerable to flooding events and consequent damage.

STEP 5 Minimize the potential adverse impacts and support to or within floodplains to be identified under Step 4, restore and preserve the natural and beneficial values served by floodplains.

Alternative Options

1. **No Action Alternative** – There would be no minimizing activity associated with this action. Flooding events would continue to negatively impact the Blockhouse, existing residences and businesses.
2. **Proposed Alternative** –New construction in the floodway is offset by the finding of no-rise which indicates that the floodplain would continue to act as it would currently and the project would provide protection from diverting the water away from the residential and commercial areas of the Town.
3. **Alternative within the floodplain** – *Extend the Block Wall along the St. John River*. This alternative would provide the same value as the Proposed Action although it cannot be guaranteed that the construction in the floodway for this alternative would result in no-rise considering there is much more construction and the construction would be at a lower elevation requiring a higher block wall to be constructed to reach the BFE plus 3 feet.
4. **Alternative outside the floodplain** – *Relocate the Blockhouse.* Removing a structure within the floodway is a positive act but there still would be vulnerability through the area from flooding events. Flooding events would continue to impact the floodplain and natural environment from severe flooding damage.

STEP 6 Reevaluate the proposed action to determine first, if it is still practicable in light of its exposure to flood hazards or impacts on wetlands, the extent to which it will

aggravate the hazards to others, and its potential to disrupt floodplain and wetland resources and second, if alternatives preliminarily rejected at Step 3 are practicable in light of the information gained in Steps 4 and 5. FEMA shall not act in a floodplain unless it is the only practicable location.

Alternative Options

1. **No Action Alternative –**This alternative will not minimize flooding impacts to the community.
2. **Proposed Alternative –** There would be a no-rise from the construction, so the impacts to the floodplains would be negligible. There would be no impacts from the construction within the floodway, only protection of the surrounding resources from flooding events and minimization of further impacts to the floodplains due to less damages from flooding events.
3. **Alternative within the floodplain** – *Extend the Block Wall along the St. John River*. This alternative may cause a rise to the BFE and the filling in of the floodplain at this lower elevation could exasperate impacts to the floodplain by creating flooding elsewhere.
4. **Alternative outside the floodplain** – *Relocate the Blockhouse*. This alternative would protect the Blockhouse but it would not eliminate the threat of flooding and the impacts to the floodplain from future damages from flooding events.

STEP 7 Prepare and provide the public with a finding and public explanation of any final decision that the floodplain is the only practicable alternative.

A public notice was placed in the local newspaper of record (Saint John Valley Times and the Fiddlehead Focus-online only) in June 2018. An Environmental Assessment which included this floodplain decision making process and additional analysis was made available to the public for 15 days at the Town website at http://www.fortkent.org/visitors/index.php and at the Town offices located at 111 W Main Street Fort Kent, ME 04743.

STEP 8 Review the implementation and post - implementation phases of the proposed action to ensure that the requirements stated in Section 9.11 are fully implemented.

It has been determined by FEMA that the Proposed Alternative is the most practicable Alternative available. A FONSI to the EA was provided that includes consideration of 44 CFR Part 9.11.

CONDITIONS TO BE PLACED ON ACTION: See FONSI and EA for all project conditions.

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Aroostook County, Maine

Local office

Maine Ecological Services Field Office

(207) 469-7300
(207) 902-1588

MAILING ADDRESS

P. O. Box A
East Orland, ME 04431

PHYSICAL ADDRESS
306 Hatchery Road
East Orland, ME 04431

http://www.fws.gov/mainefieldoffice/index.html

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Canada Lynx Lynx canadensis There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3652	Threatened
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

NAME	STATUS
Furbish Lousewort Pedicularis furbishiae No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5212	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php

- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see maps of where birders and the general public have sighted birds in and around your project area, visit E-bird tools such as the E-bird data mapping tool (search for the name of a bird on your list to see specific locations where that bird has been reported to occur within your project area over a certain timeframe) and the E-bird Explore Data Tool (perform a query to see a list of all birds sighted in your county or region and within a certain timeframe). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Cape May Warbler Setophaga tigrina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Jul 31
Evening Grosbeak Coccothraustes vespertinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Hudsonian Godwit Limosa haemastica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Long-eared Owl asio otus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15
Olive-sided Flycatcher Contopus cooperi This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Red-throated Loon Gavia stellata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Jul 20

Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Whimbrel Numenius phaeopus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9483	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in your project's counties during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

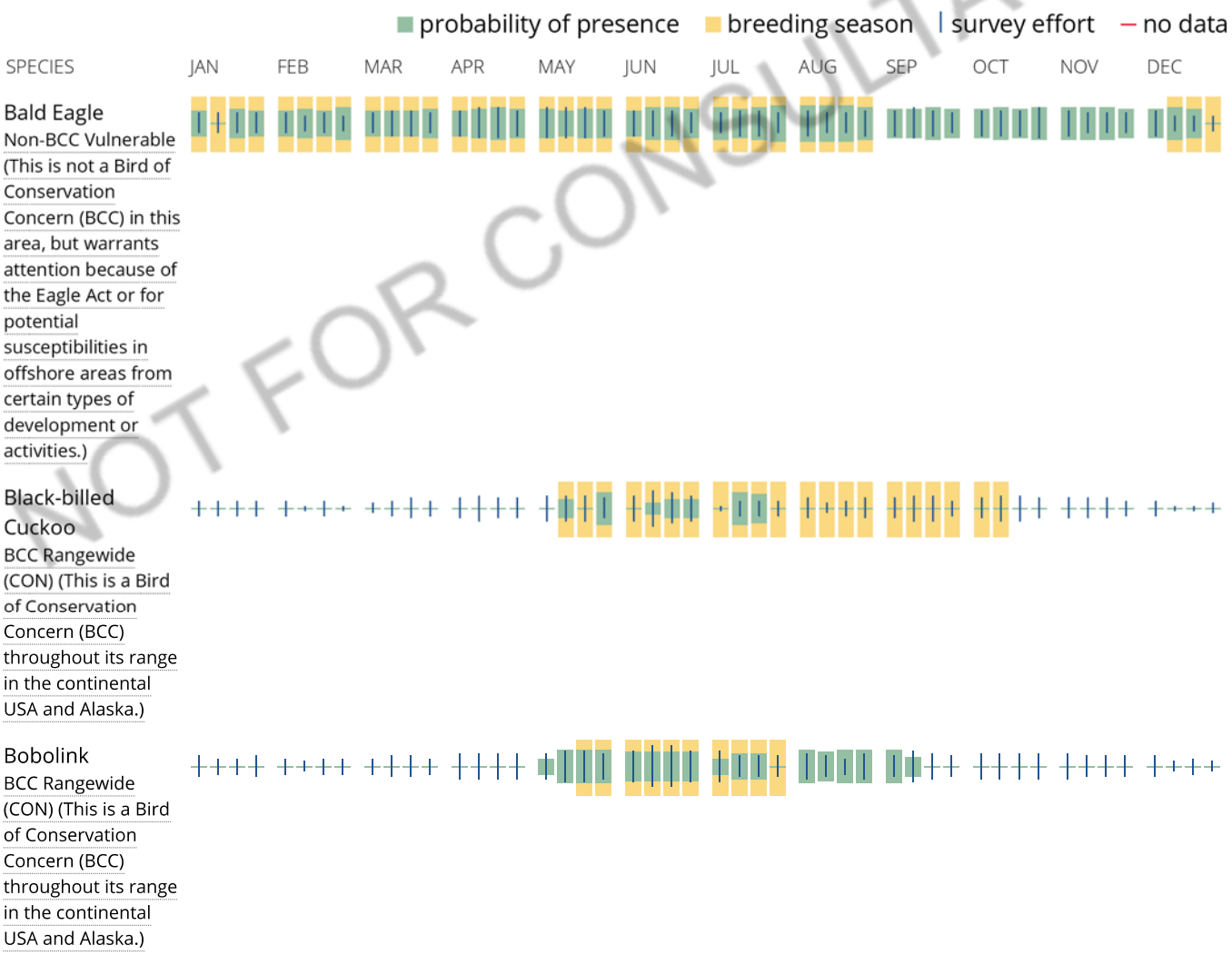
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the counties of your project area. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

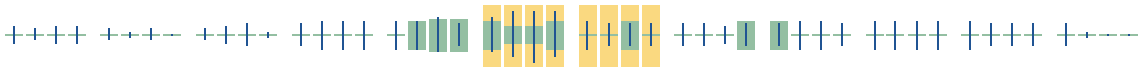
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information.



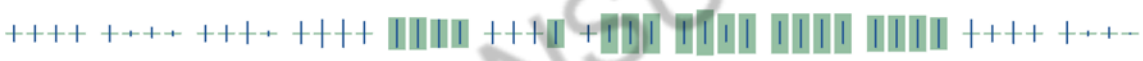
Cape May Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Evening Grosbeak
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Hudsonian Godwit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Lesser Yellowlegs
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



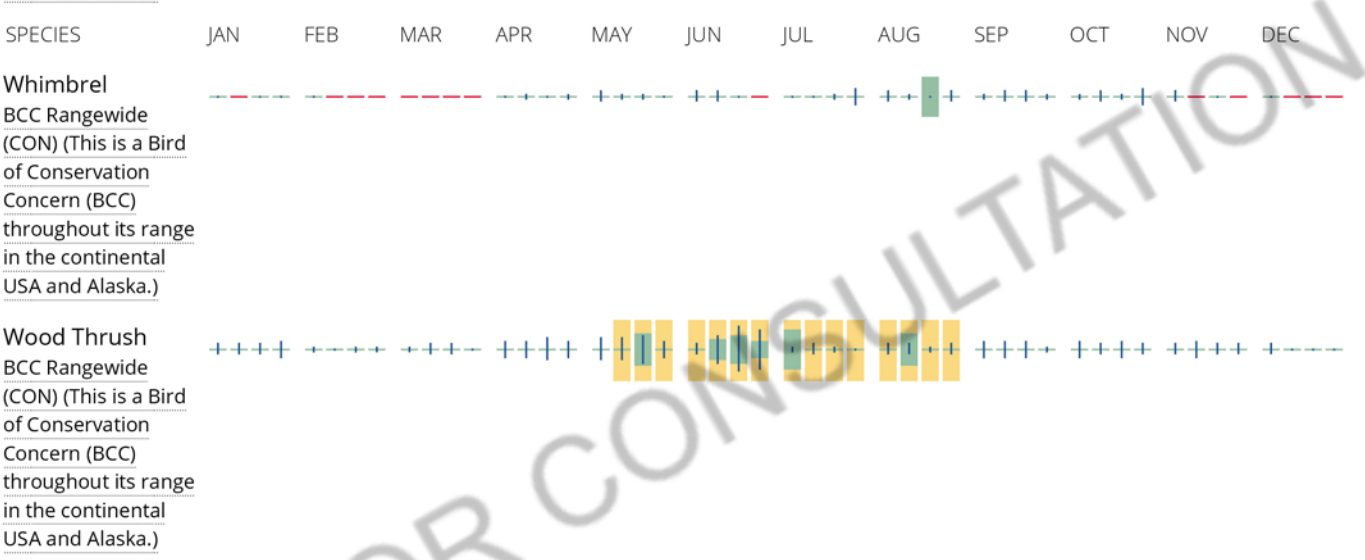
Long-eared Owl
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Olive-sided Flycatcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Red-throated Loon
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Rusty Blackbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Semipalmated Sandpiper
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Whimbrel
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wood Thrush
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the counties which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular

vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird entry on your migratory bird species list indicates a breeding season, it is probable that the bird breeds in your project's counties at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the BGEPA should such impacts occur.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

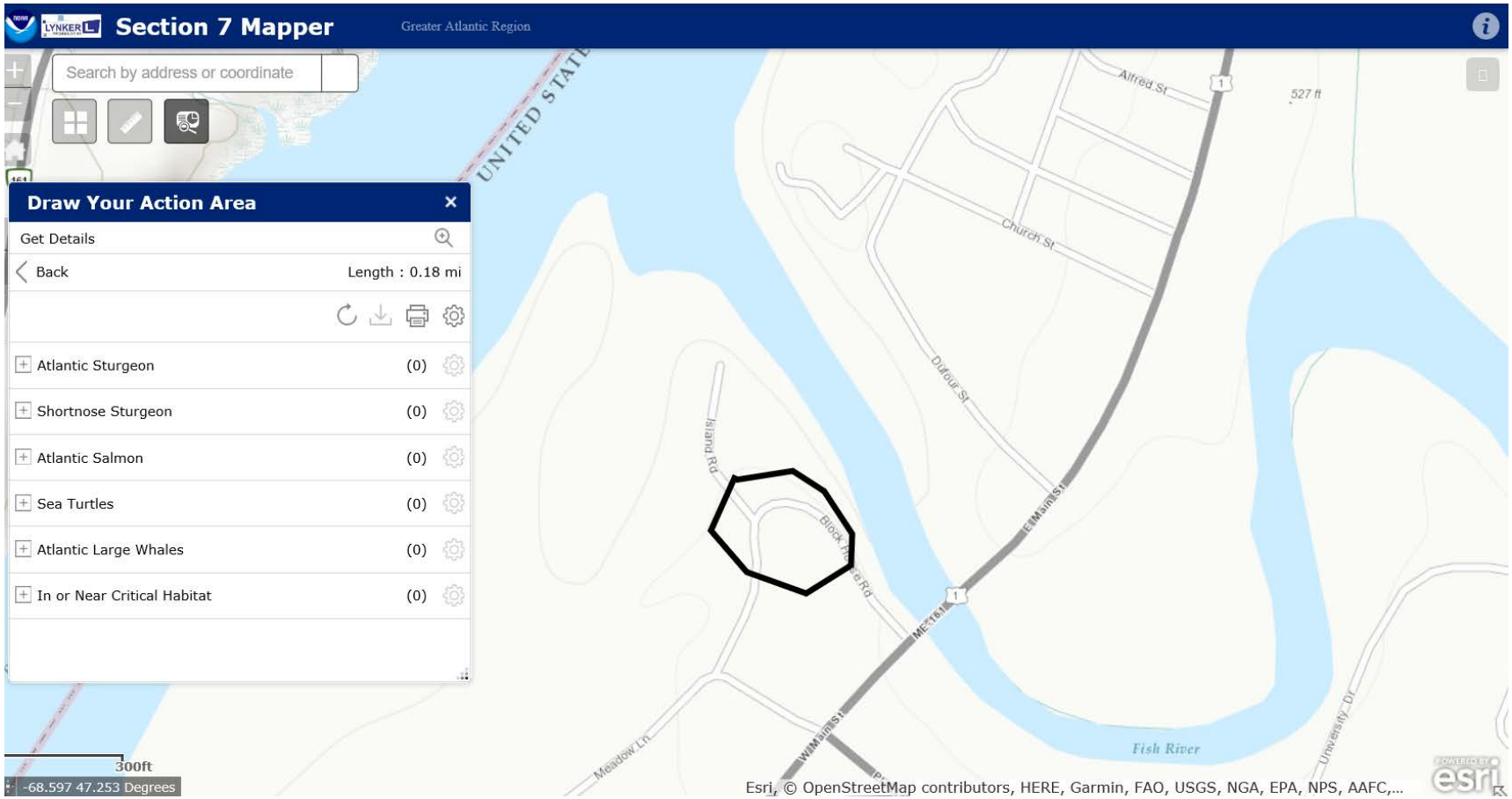
Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix A-10: NOAA ESA Section 7 Map



Accessed 5/14/2018

http://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27

MIGRATORY BIRDS WITH NESTING POTENTIAL IN ACTION AREA

Nine species of migratory birds are listed in the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) report for the Fort Kent Blockhouse (Action Area) as potentially breeding and/or nesting within the Action Area. An analysis was conducted to determine the nearest occurrence of nesting migratory birds to the Action Area. Documents from the USFWS's Environmental Online Conservation System (ECOS), the National Audubon Society, and the Cornell Lab of Ornithology's All About Birds were used to determine bird descriptions and nesting habitat. Breeding and nesting times were obtained from the IPaC generated report.

Each species was mapped for occurrence during the breeding and nesting season listed on the IPaC report using eBird, an online database run by the National Audubon Society and the Cornell Lab of Ornithology. eBird is a dynamic mapping program that uses data recorded by researchers and birders (and reviewed for integrity by conservation organizations) to track bird sightings and occurrences. Each map shows the Action Area as a red star and blue teardrops are locations where the species was observed. Blue teardrops signify single observations and blue teardrops with a flame icon signify public locations where researchers and/or birders visit regularly. These icons are not necessarily evidence that multiple occurrences of a particular species were reported at that location.

Only one of the seven species identified by IPaC, the wood thrush (*Hylocichla mustelina*), was reported to occur during its nesting season within a 5-mile radius of the Action Area. Due to this information, Migratory Bird Treaty Act (MBTA) consultation with the USFWS on migratory birds identified with the potential to occur in the Action Area during their respective nesting seasons by IPaC is not warranted.

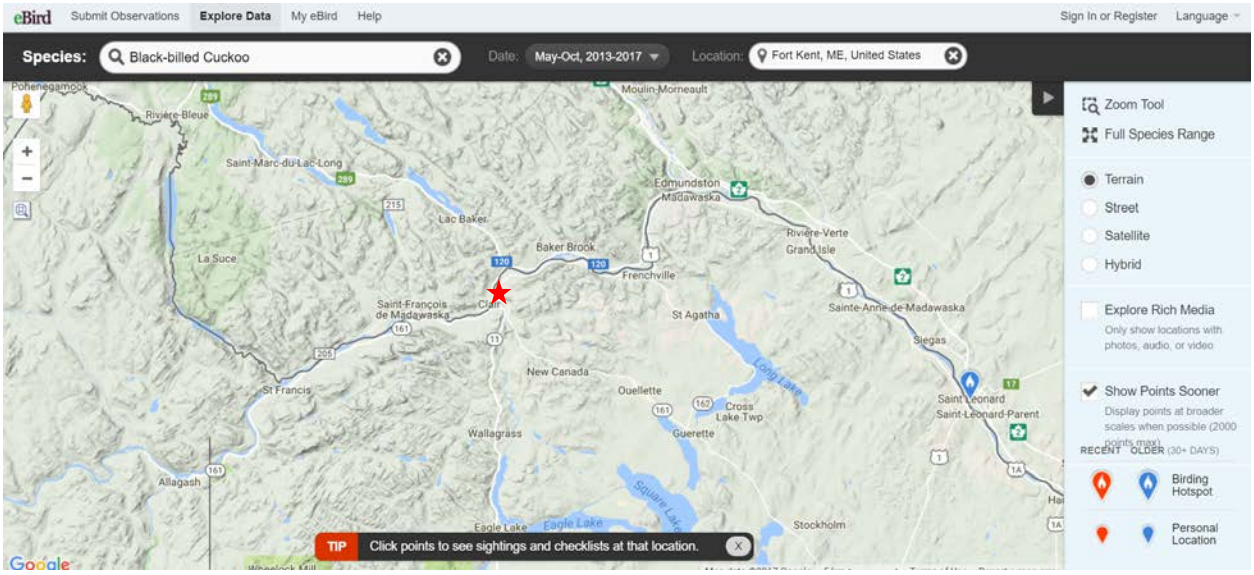
1. Black-billed Cuckoo (Coccyzus erythropthalmus)

The black-billed cuckoo is a slim bird with a yellow tail, tan upper parts, pale belly, and a red ring around the pupil. The black-billed cuckoo ranges in length from 11" to 12". It nests in shrubs or low trees, usually <10' high, among dense branches. It is dependent on high volume of caterpillars for foraging. The black-billed cuckoo is found at the edges of deciduous or mixed forests, wetlands with adler and willow, or open areas such as parks and golf courses.

Breeding in Northern Maine: Common
Nesting time: May – October
Nearest observation point during nesting time: >30 miles (Figure 1)

Sources: http://www.audubon.org/field-guide/bird/black-billed-cuckoo https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B0HI

Figure 1: Black-billed Cuckoo Map from eBird



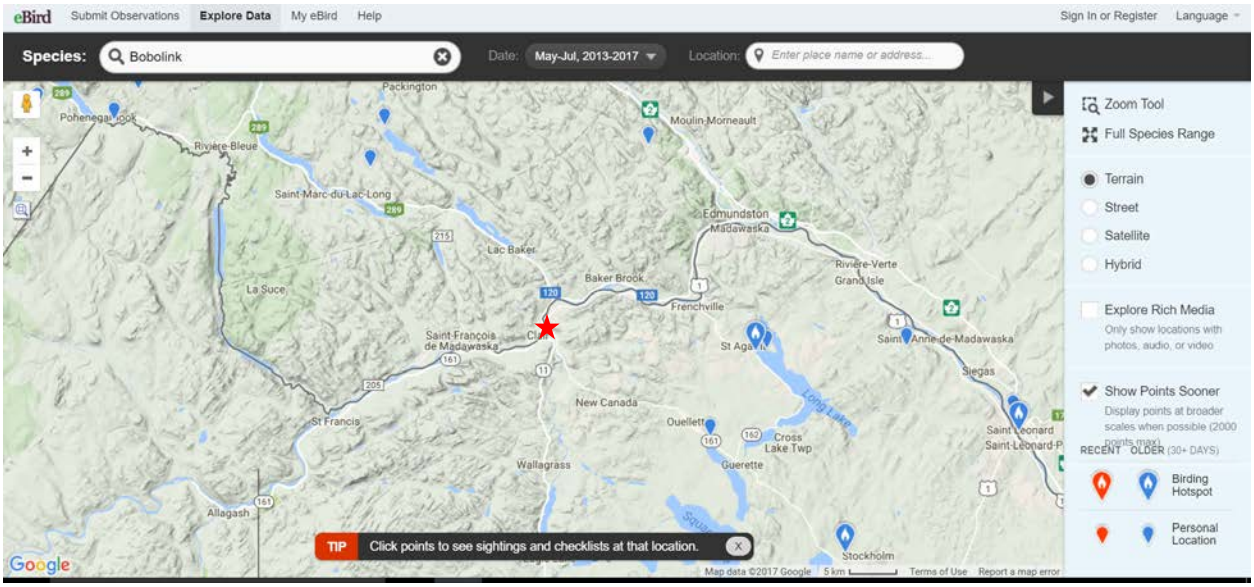
2. Bobolink (Dolichonyx oryzivorus)

The bobolink molts twice annually, completely changing all feathers from the summer breeding to wintering. During the summer, the male bobolink has a white back with black underparts and a yellow patch on its head. Winter males and year-round females have tan feathers. The bobolink ranges in length from 5.9" to 8.3". Bobolinks feed young exclusively invertebrates although adults also feed on seeds and grains. It nests in hayfields, damp meadows, and natural prairies with dense growths of grasses and weeds. Nests are on the ground or just above it, well-hidden within dense grasses and weeds.

Breeding in Northern Maine: Common
Nesting time: May – July
Nearest observation point during nesting time: >13 miles (Figure 2)

Sources: http://www.audubon.org/field-guide/bird/bobolink https://www.allaboutbirds.org/guide/Bobolink/id

Figure 2: Bobolink Map from eBird



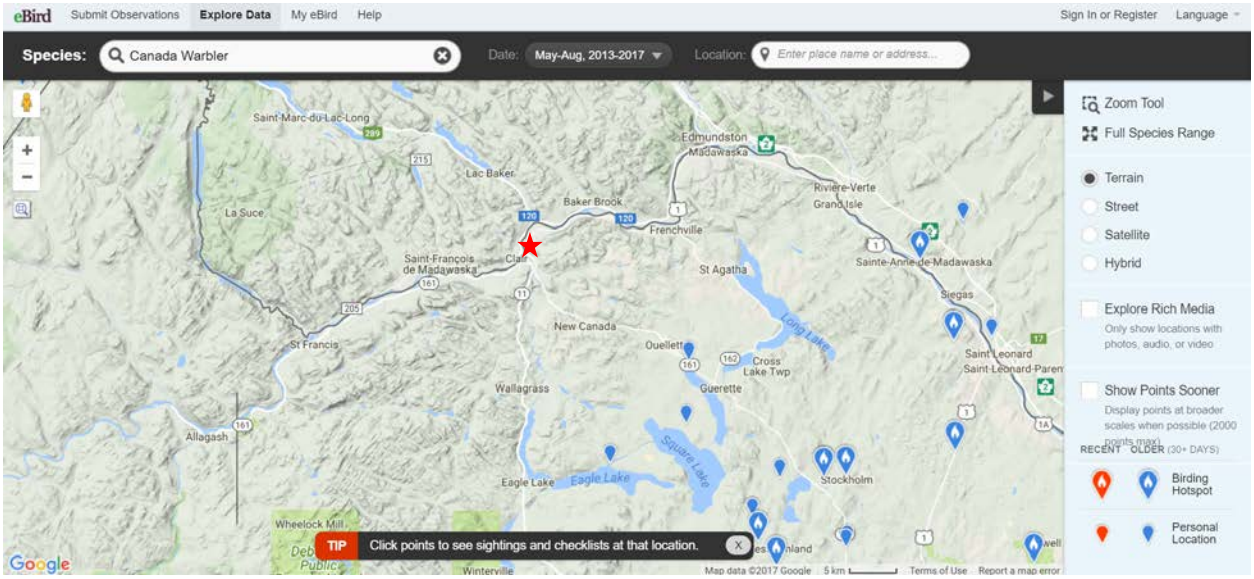
3. Canada Warbler (Cardellina canadensis)

The Canada warbler is a small songbird with a yellow throat, chest, and belly and a dark gray back. The Canada warbler ranges in length from 4.7" to 5.9". The Canada warbler hunts insects, flushing insects from foliage and catching insects while flying. It nests in moist habitat near swamps, stream banks, thickets, or deep, rocky ravines. Nests are placed on or <6" from the ground or in logs or roots of upturned trees.

Breeding in Northern Maine: Common
Nesting time: May – August
Nearest observation point during nesting time: >11 miles (Figure 3)

Sources: http://www.audubon.org/field-guide/bird/canada-warbler https://www.allaboutbirds.org/guide/Canada_Warbler/id

Figure 3: Canada Warbler Map from eBird



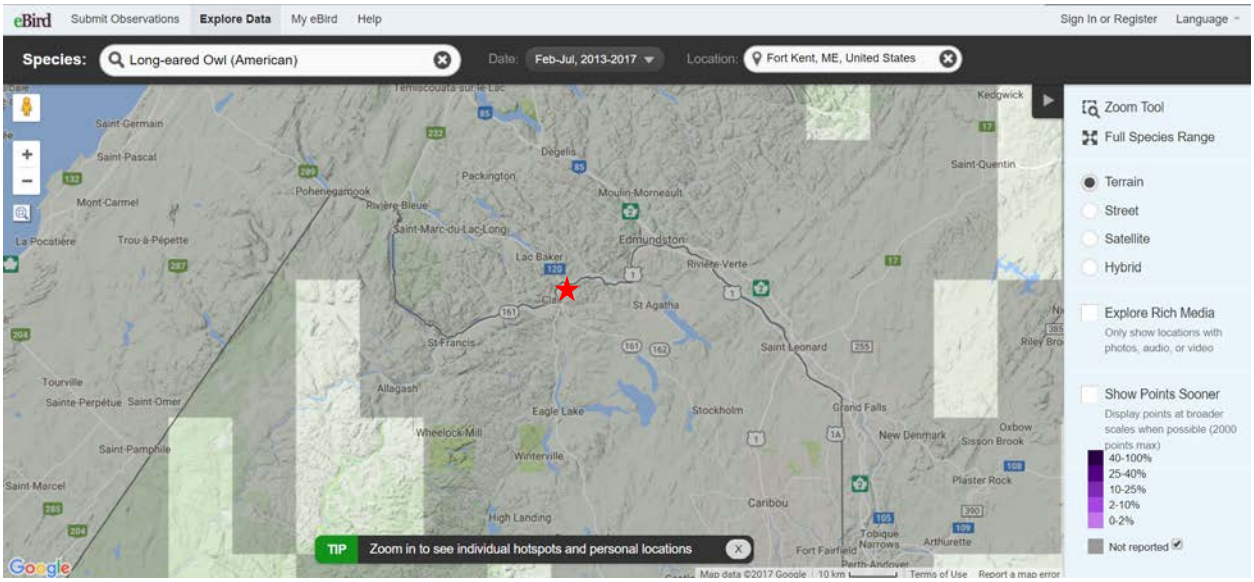
4. Long-eared Owl (*Asio otus*)

Long-eared owls are medium-sized (13.8” to 15.7”) with a squarish head and long ear tufts. Faces are beige or orange, and their feathers have an intricate black, brown, and beige pattern. Long-eared owls forage on small mammals: voles, mice, shrews, gophers, etc. Uses abandoned nests built by other bird species such as hawks, magpies, and crows. Nests are typically found mid-level in a tree, 4’ to 30’ above the ground.

Breeding in Northern Maine: Uncommon
Nesting time: March – July
Nearest observation point during nesting time: >40 miles (Figure 4)

Source: http://www.audubon.org/field-guide/bird/long-eared-owl
https://www.allaboutbirds.org/guide/Long-eared_Owl/id

Figure 4: Long-eared Owl Map from eBird



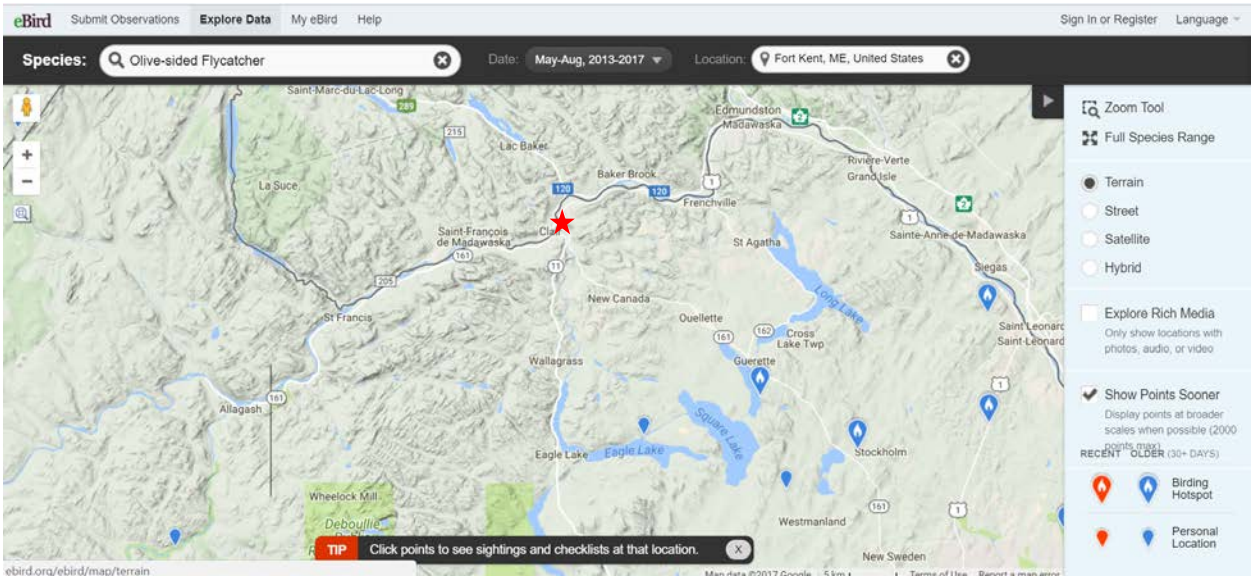
5. Olive-sided Flycatcher (*Contopus cooperi*)

The olive-sided flycatcher has a white breast and gray sides, and appears vested. It is large and stocky for a flycatcher (7.1" to 7.9") with a large head and short tail. The olive-sided flycatcher forages on flying insects, and is noted for returning to the same perch after catching prey. It prefers to nest in conifers, <70' above the ground.

Breeding in Northern Maine: Common
Nesting time: May – August
Nearest observation point during nesting time: >15 miles (Figure 5)

Source: http://www.audubon.org/field-guide/bird/olive-sided-flycatcher
https://www.allaboutbirds.org/guide/Olive-sided_Flycatcher/id

Figure 5: Olive-sided Flycatcher Map from eBird



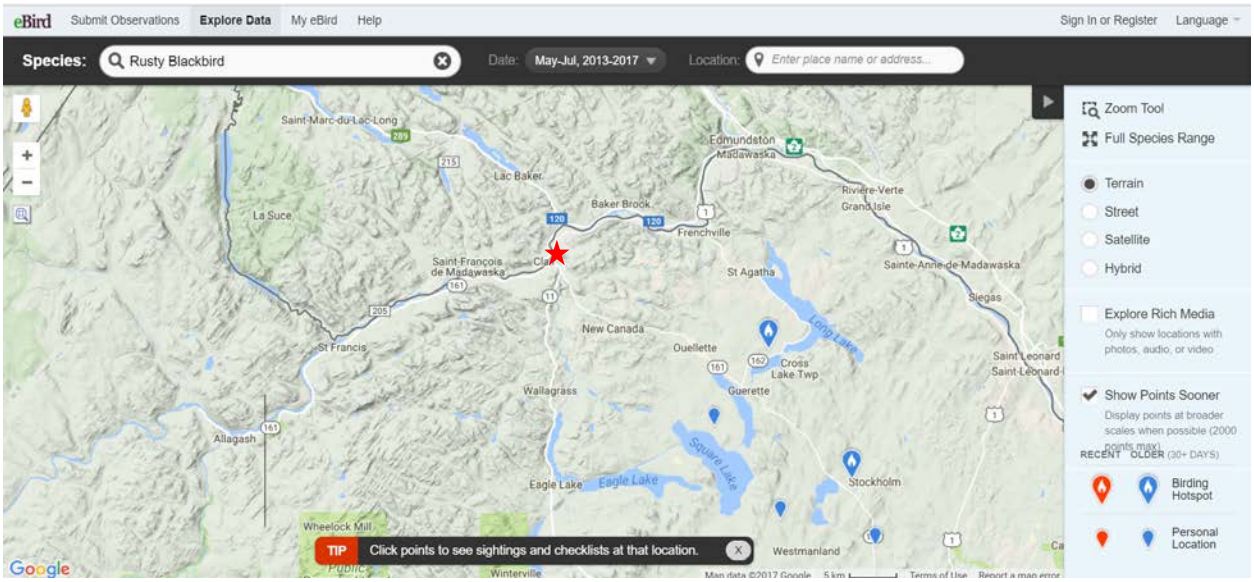
6. Rusty Blackbird (*Euphagus carolinus*)

Male rusty blackbirds have rust-colored feather edges with a pale-yellow eye and a beige eyebrow, and breeding males are a dark glossy black. Females are gray-brown. The rusty blackbird ranges in length from 8.3" to 9.8". Rusty blackbirds feed on insects during the summer and acorns, seeds, and fruit in the winter. Nests in dense cover in conifer trees or shrubs above water.

Breeding in Northern Maine: Uncommon
Nesting time: May – July
Nearest observation point during nesting time: >17 miles (Figure 6)

Sources: http://www.audubon.org/field-guide/bird/rusty-blackbird https://www.allaboutbirds.org/guide/Rusty_Blackbird/id

Figure 6: Rusty Blackbird Map from eBird



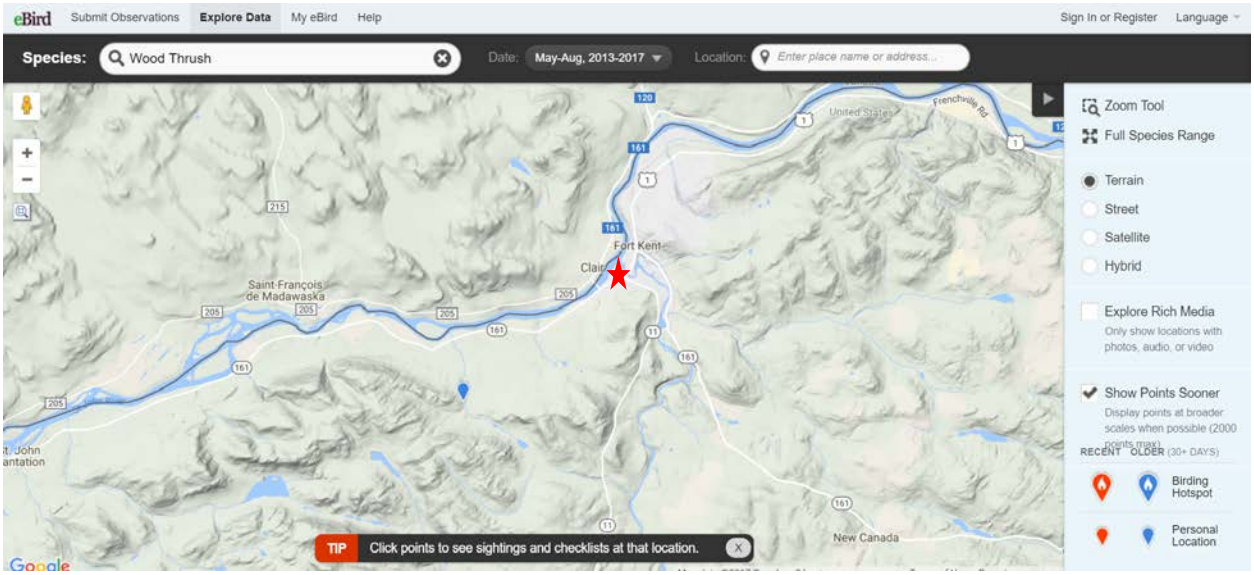
7. Wood Thrush (Hylocichla mustelina)

The wood thrush has reddish-brown upperparts and its underparts are white with black spots. The wood thrush ranges in length from 7.5" o 8.3". It is dependent on high volume of calcium-rich snail shells during the breeding season. It nests in deciduous trees about 10' to 15' off the ground. Wood thrushes are particularly vulnerable to nest parasitism by brown-headed cowbirds (*Molothrus ater*).

Breeding in Northern Maine: Common
Nesting time: May – August
Nearest observation point during nesting time: approximately 4 miles (Figure 7)

Sources: http://www.audubon.org/field-guide/bird/wood-thrush
https://www.allaboutbirds.org/guide/Wood_Thrush/id

Figure 7: Wood thrush Map from eBird



8. Cape May Warbler (Setophaga tigrina)

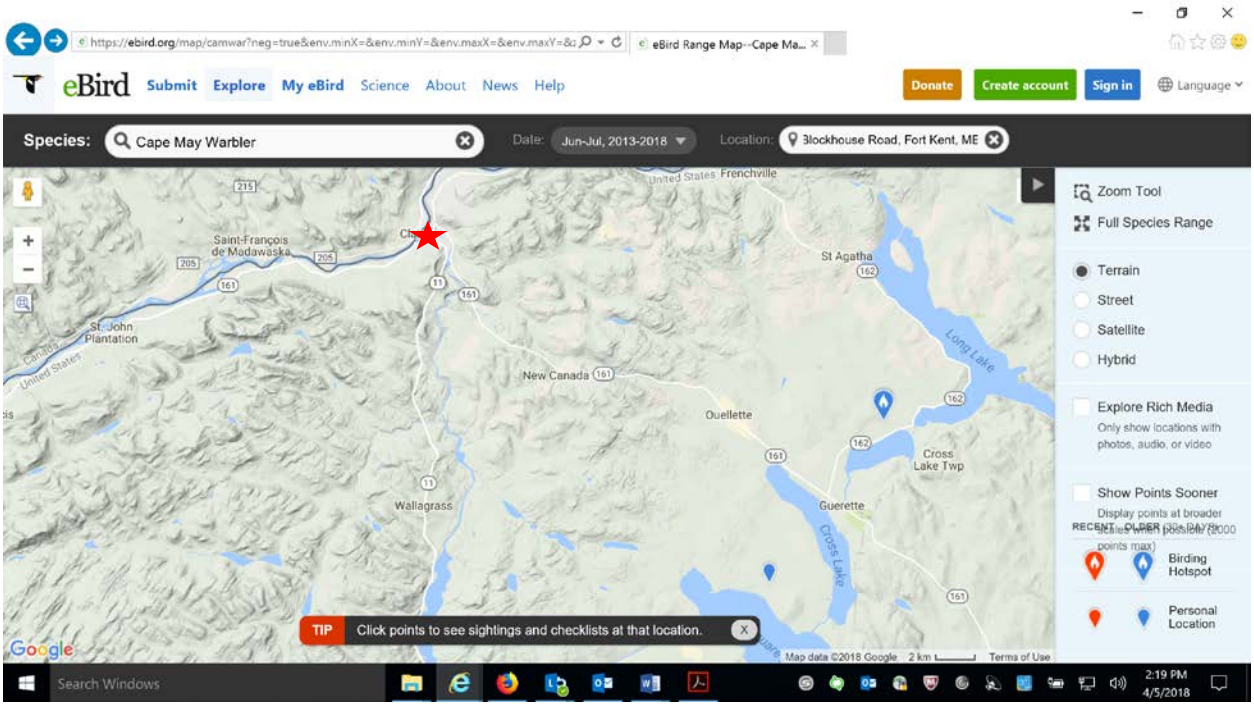
Adult males have a distinctive chestnut cheek patch and yellow collar. Black streaks mark a yellow breast. Females have a grayish cheek patch, an olive-gray crown, and a paler yellow collar and breast. The Cape May Warbler ranges in length from 4.5" to 6.3". Cape May Warblers feed mostly on insects, some fruit, and nectar. Diet may also include spruce budworms, parasitic wasps and flies, ants, bees, small moths, beetles, leafhoppers, also spiders. Nests are placed very close to the top of a 35-60' spruce or fir, in thick foliage against trunk.

Breeding in Northern Maine: Common
Nesting time: June – July
Nearest observation point during nesting time: >17 miles (Figure 8)

Sources: http://www.audubon.org/field-guide/bird/cape-may-warbler

https://www.allaboutbirds.org/guide/Cape_May_Warbler

Figure 8: Cape May Warbler Map from eBird



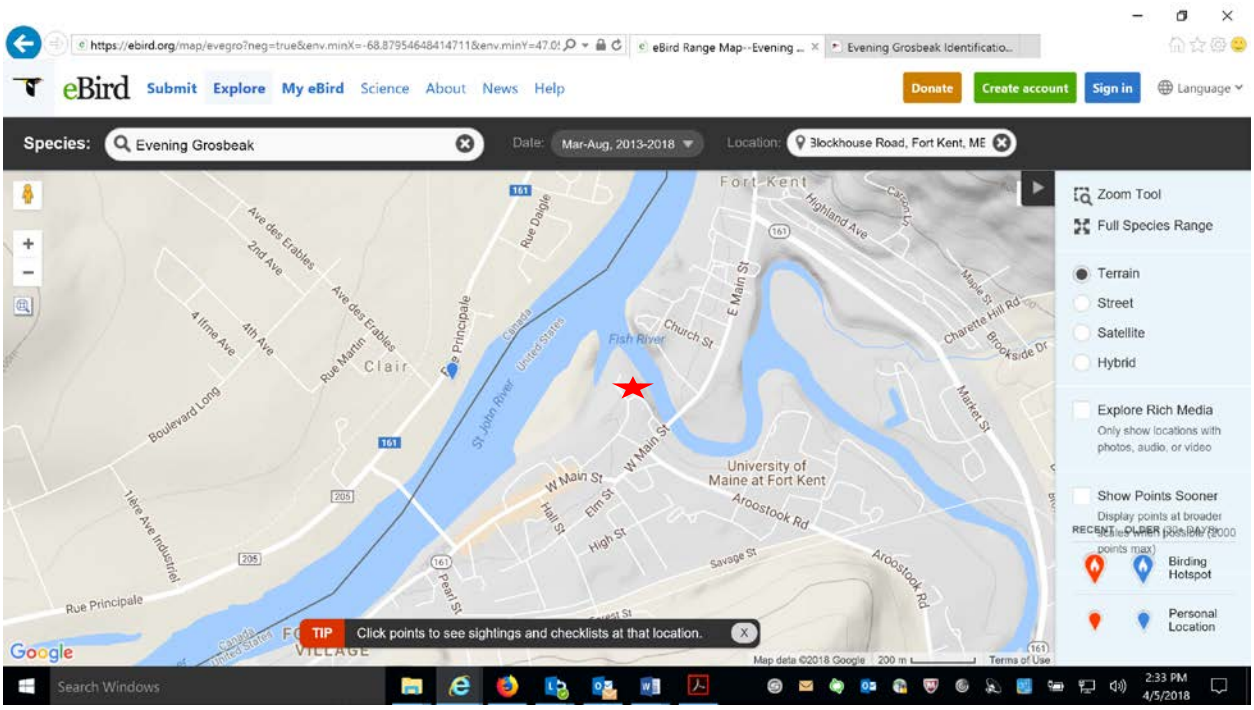
9. Evening Grosbeak (Coccothraustes vespertinus)

Adult males are yellow and black with a prominent patch in the wings and a distinct yellow stripe over the eye. Females are mostly gray with white and black wings and a greenish yellow tinge to the neck and flank. The Evening Grosbeak ranges in length from 4.0" to 6.0". Evening Grosbeaks feed mostly on seeds, some berries and insects. Usual site for nests are on horizontal branch (often well out from trunk) or in vertical fork of tree. Height varies, usually 20-60' above ground, can be 10-100' up.

Breeding in Northern Maine: Common
Nesting time: May – August
Nearest observation point during nesting time: approximately 0.5 miles (Figure 9)

Sources: http://www.audubon.org/field-guide/bird/evening-grosbeak

https://www.allaboutbirds.org/guide/Evening_Grosbeak



Environmental Assessment
Fort Kent Blockhouse Levee Extension Project
Fort Kent, Aroostook County, ME

Appendix B: Correspondences and Consultations

Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service's (USFWS) January 5, 2016, intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

Information to Determine 4(d) Rule Compliance:	**YES**	**NO**
1. Does the project occur wholly outside of the WNS Zone[1]?	☐	☒
2. Have you contacted the appropriate agency[2] to determine if your project is near known hibernacula or maternity roost trees?	☒	☐
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	☐	☒
4. Could the project alter the entrance or interior environment of a known hibernaculum?	☐	☒
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	☐	☒
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	☐	☒

You are eligible to use this form if you have answered yes to question #1 **or** yes to question #2 **and** no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

Agency and Applicant[3] (Name, Email, Phone No.):
Federal Emergency Management Agency Region I
99 High Street, 6th Floor, Boston, MA 02110

Project Name:
Fort Kent Blockhouse Hazard Mitigation Levee Extension Project

Project Location (include coordinates if known):
Fort Kent Blockhouse, Fort Kent, ME 04743
47°15'7.61"N, 68°35'39.99"W

Basic Project Description (provide narrative below or attach additional information):
The proposed project would construct an 800-foot block wall levee on top of an existing levee on three sides of the Fort Kent Blockhouse. The levee would connect to and complete the existing levee and flood control system. Approximately 30 existing trees on the north and east sides of the Fort Kent

[1] http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/WNSZone.pdf
[2] See http://www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html
[3] If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

Blockhouse would be removed. Exhibit A provides a panoramic view of the existing trees surrounding the Fort Kent Blockhouse and an architect's rendering of project completion.

General Project Information	**YES**	**NO**
Does the project occur within 0.25 miles of a known hibernaculum?	☐	☒
Does the project occur within 150 feet of a known maternity roost tree?	☐	☒
Does the project include forest conversion?[4] (if yes, report acreage below)	☒	☐
Estimated total acres of forest conversion	0.3 acre	
If known, estimated acres[5] of forest conversion from April 1 to October 31		
If known, estimated acres of forest conversion from June 1 to July 31[6]		
Does the project include timber harvest? (if yes, report acreage below)	☐	☒
Estimated total acres of timber harvest		
If known, estimated acres of timber harvest from April 1 to October 31		
If known, estimated acres of timber harvest from June 1 to July 31		
Does the project include prescribed fire? (if yes, report acreage below)	☐	☒
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	☐	☒
Estimated wind capacity (MW)		

Agency Determination:

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLEB.

Signature: _____ Date Submitted: 12/13/2017

[4] Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 48 of the BO).
[5] If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.
[6] If the activity includes tree clearing in June and July, also include those acreage in April to October.

Exhibit A: Photo Simulation of Proposed Project

Current panoramic view looking northwest to northeast showing the existing trees from the parking lot.

Architect's rendering of proposed panoramic view looking northwest to northeast showing tree removal.

Tate, Marcus

From: Harris, Anna <anna_harris@fws.gov>
Sent: Sunday, November 5, 2017 6:56 PM
To: Tate, Marcus
Subject: Re: Fort Kent EA Scoping Meeting

Thanks Marcus,

I will plan to attend via webex and I look forward to a future visit in person if needed.

Thanks for organizing and having multiple meeting options available,

On Fri, Nov 3, 2017 at 9:19 AM, Tate, Marcus <Marcus.Tate@fema.dhs.gov> wrote:

> Anna,
>
> I appreciate the response. It is totally up to you, I agree that the consultation appears limited to NLEB. The one other consideration was potential nesting grounds for migratory birds. The National Audubon Society has designated the area as Northern Maine Forest Block Important Bird Area, truthfully I am not sure of this includes nesting areas for migratory birds but it was something else we were going to explore.
>
> Even with that being said, that coordination would play out in weeks to come and still would be straight-forward if at all necessary. Do not feel compelled that you have to be at the meeting in-person. We are still at the initial stages and there will be plenty of opportunity to coordinate.
>
> Thanks for reaching out,
>
> Marcus Tate
>
> Environmental and Historic Preservation Manager
>
> Hazard Mitigation Assistance Branch
>
> FEMA Region 1, 6th Floor
>
> Boston MA, 02110

Desk: (617) 956-7675

Cell: (617) 784-4712

From: Harris, Anna [mailto:anna_harris@fws.gov]
Sent: Friday, November 03, 2017 9:10 AM
To: Tate, Marcus <Marcus.Tate@fema.dhs.gov>
Subject: Fort Kent EA Scoping Meeting

Hi Marcus,

Originally I had planned to travel to Fort Kent for the site visit and scoping meeting. After reviewing the materials you sent it looks like ESA Section 7 consultation with our office will be limited to bats and there is a very streamlined consultation form for this process.

I hope it doesn't cause a big issue if I call-in for this meeting next week, instead of being there in person. If you were planning on me to attend and that makes more sense, I am willing to make the drive.

Thanks,

Anna

--

Anna Harris

ES Project Leader

Maine Field Office

Maine Fish and Wildlife Service Complex

(207) 902-1567

(207) 949-0561 (cell)

Maine Fish and Wildlife Service Complex

--

Anna Harris
ES Project Leader
Maine Field Office
Maine Fish and Wildlife Service Complex
(207) 902-1567
(207) 949-0561 (cell)

Maine Fish and Wildlife Service Complex

Tate, Marcus

From: Tate, Marcus
Sent: Tuesday, November 28, 2017 9:02 AM
To: Mooney, Joann E (Joann.E.Mooney@maine.gov); Redstone, Thomas; Steve Pelletier; donald.guimond@fortkent.org; david.rodrigues@maine.gov; mmuzzy@smemaine.com; tony.theriault@fortkent.org; theriaultcpa@fairpoint.net; Curran, Martha A; aouellette@nmdc.org; Bachand, Michael L CIV USARMY CENAE (US); Gay, Dara E CIV USARMY CENAE (US); Michael.J.Narcisi@usace.army.mil; Catherine_Turton@nps.gov; Bonnie_Halda@nps.gov; nps_nhl_nereview@nps.gov; jloichinger@achp.gov; Mohney, Kirk; Megan.M.Hopkin@maine.gov; Anna_Harris@fws.gov; Wende Mahaney (wende_mahaney@fws.gov); Clement, Jay L CIV USARMY CENAE (US); Mahaney, Shawn B CIV USARMY CENAE (US); sue.baker@maine.gov; Belair, Scott; Frost, Frank; Robbins, David; Kuns, Eric; Emmitt, Kathryn; Shanks, Mary; Verville, Richard; Bardsley, Stephanie; Juszczyk, Stephen; Webb, Brandon; Veas, Lindsey [USA]; Popkin, Marshall [USA]; Salerno, Jennifer [USA]; Anderson, Erik [USA]
Subject: Fort Kent Levee Extension EA Check-in Call
Attachments: FEMA R1_Fort Kent On Site Visit Summary 2017.11.15.pdf; Preliminary-Sketch.pdf

Importance: High

Good Morning,

I wanted to reach out to you all to share the notes that were taken during the site visit from Wednesday 11/8 and the EA scoping meeting from Thursday 11/9. Also attached is a preliminary sketch for the road design and alignment, this was provided by the engineer Matt Muzzy Monday 11/6 and included in the presentation last minute.

The other purpose of this email is to schedule a check-in call to discuss the status of the project and address some of the questions that arose from the site visit and scoping meeting. Based on the holiday season and propensity to take (well earned) leave, I provided quite a few options during the week of 12/4 and 12/11. Please use the link below to participate in the poll and identify the dates and times you are available for the check-in call. I will select the time that is best for the majority.

https://doodle.com/poll/g5qan8pz8cn3taph

Thanks and Happy Holidays,

Marcus Tate
Environmental & Historic Preservation Manager
Hazard Mitigation Assistance Branch
FEMA-Region 1
99 High St, 6th Floor
Boston, MA 02110
Cell: (617) 784-4712
Desk: (617) 956-7675

Appendix B-3: Memorandum of Agreement

MEMORANDUM OF AGREEMENT
AMONG THE
FEDERAL EMERGENCY MANAGEMENT AGENCY,
MAINE HISTORIC PRESERVATION COMMISSION, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE FORT KENT LEVEE EXTENSION PROJECT

WHEREAS, the President declared a major disaster pursuant to Section 401 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Pub. L. No. 93-288 (1974) (codified as amended at 42 U.S.C. § 5170) (Stafford Act) for the State of Maine on March 12, 2015, as a result of the severe winter storm, snowstorm, and flooding (Disaster) impacting the area between January 26-29, 2015; and

WHEREAS, this declaration (numbered FEMA-4208-DR-ME) and its subsequent amendments authorized the Federal Emergency Management Agency (FEMA) of the Department of Homeland Security (DHS) to provide assistance under the FEMA Hazard Mitigation Grant Program (Program) for Maine pursuant to Section 404 of the Stafford Act (codified as amended at 42 U.S.C. § 5170c) and its implementing regulations at 44 C.F.R. Part 206, Subpart N; and

WHEREAS, the Town of Fort Kent (Town or Subapplicant) proposes to use Program funds administered through the Maine Emergency Management Agency (MEMA or Applicant) to extend the Fort Kent Levee along the banks of the St. John and Fish Rivers around the Fort Kent Blockhouse National Historic Landmark (NHL) (Undertaking); and

WHEREAS, FEMA, MEMA, and the Maine Historic Preservation Commission (SHPO) executed a Programmatic Agreement (Statewide PA) on December 12, 2016, to satisfy FEMA's responsibilities pursuant to 36 C.F.R. Part 800, the regulations implementing Sections 106 of the National Historic Preservation Act (54 U.S.C. §§ 306108 and 306114) (NHPA) and Section 110(f) of NHPA (54 U.S.C. § 306107), for all undertakings funded through various FEMA assistance programs, including the Program; and

WHEREAS, FEMA has determined that the Fort Kent Blockhouse property in its entirety is within the Area of Potential Effect (APE) (Attachment 1) for the Undertaking and acknowledges that it is listed on the National Register of Historic Places (NRHP), designated an NHL for its association with the Aroostook War, and is, therefore, a historic property; and

WHEREAS, on April 11, 2016, FEMA, consulted with SHPO recommending an Archaeological Survey, SHPO concurred on April 21, 2016 and determined that a Phase II Archaeological Survey would be needed within the APE; and

WHEREAS, although the Phase II archaeological testing did not identify any intact archaeological resources or recover any artifacts from the natural context, it did identify a small area of intact soils in the northeastern portion of the Blockhouse parcel (the picnic area); however, no work is proposed in this vicinity and the SHPO concurred on November 16, 2016

that no further archaeological work was required unless there was change to the proposed scope of work; and

WHEREAS, FEMA has determined that the extension of the Fort Kent Levee will result in an adverse effect to the Fort Kent Blockhouse because the Undertaking will have visual impacts caused by the introduction of a new permanent element within the immediate vicinity of the Blockhouse, and by the removal of trees that currently provide an obstructing visual buffer between the Blockhouse property and modern development located to the northwest of the property, and the SHPO concurred with the adverse effect determination on December 13, 2017; and

WHEREAS, through consultation with FEMA, the Town, and interested parties, including S.W. Collins/Quigley's Lumber Yard, the Town altered the design of the Undertaking to ensure access to the local business will not be impeded as a result of the Undertaking; and

WHEREAS, the alterations to the design did not change the adverse effects to the Fort Kent Blockhouse NHL; and

WHEREAS, FEMA notified the Advisory Council on Historic Preservation (ACHP) of the adverse effect to the Fort Kent Blockhouse NHL on December 1, 2017, in accordance with 36 C.F.R. § 800.6(a)(1), and the ACHP accepted FEMA's invitation to participate in this Memorandum of Agreement (MOA) on December 22, 2017; and

WHEREAS, FEMA notified the National Park Service (NPS) NHLs Program Manager of the Undertaking on October 12, 2017, pursuant to Stipulation II.C.3.(b) of the Statewide PA and invited them to participate in this MOA on December 8, 2017; and the NPS accepted FEMA's invitation to participate in this MOA as a Concurring Party on January 10, 2018; and

WHEREAS, MEMA, as the Applicant for FEMA funds, has accepted FEMA's invitation to participate in this MOA as an Invited Signatory; and

WHEREAS, the Town, as the Subapplicant for FEMA funds, has accepted FEMA's invitation to participate in this MOA as an Invited Signatory; and

WHEREAS, the Maine Department of Agriculture, Conservation, and Forestry's Bureau of Parks and Lands (DACF), the owner and manager of the Blockhouse property, has accepted FEMA's invitation to participate in this MOA as an Invited Signatory; and

WHEREAS, in compliance with 36 C.F.R. § 800.2(d), FEMA invited the Fort Kent Historical Society, Maine Preservation, Ms. Karen Ouellette, Mr. Justin Dubois, and Mr. Travis Levesque (adjacent property owners/operators of S.W. Collins lumber yard with an interest in the undertaking) to participate in the consultation of this MOA as concurring parties and received no response from these parties; and

WHEREAS, in compliance with 36 C.F.R. § 800.2(d), FEMA invited Mr. Lee Theriault (a local Boy Scout leader) to participate in the consultation of this MOA as a concurring party (Concurring Party) and he agreed;

WHEREAS, in compliance with 36 C.F.R. § 800.2(c)(ii), the Aroostook Band of Micmacs, the Houlton Band of Maliseet Indians, and the Penobscot Nation, each being federally-recognized, non-resident Indian tribes with traditional cultural interests in Aroostook County, Maine, were invited to participate in the consultation of this MOA as concurring parties, but the Penobscot Nation has declined to participate and FEMA received no response from the Aroostook Band of Micmacs and the Houlton Band of Maliseet Indians; and

WHEREAS, FEMA conducted public outreach in the form of a public meeting on February 26, 2018, an interactive forum at the Fort Kent Town Offices on February 27, 2018, and solicitation of public comment via web posting describing the Undertaking on the Town website, and received no public comments regarding effects to historic properties; and

NOW, THEREFORE, FEMA, SHPO, and ACHP, as Signatories, and MEMA, the Town, NPS, and DACF as Invited Signatories, agree that the Undertaking shall be implemented in accordance with the following Stipulations to satisfy FEMA's Section 106 responsibilities and the Concurring Party concurs in these Stipulations:

STIPULATIONS

FEMA, SHPO, ACHP, MEMA, the Town, DACF and Concurring Parties agree to and/or will carry out the following:

I. APPLICABILITY

A. This MOA only applies to FEMA's Section 106 review of the Undertaking under the Program for major disaster FEMA-4208-DR-ME.

B. All time designations are in calendar days. If any Signatory or Invited Signatory does not respond to a request per timelines defined within the MOA, FEMA may assume a Signatory or Invited Signatory's concurrence.

II. TREATMENT MEASURES

A. Historic American Building Survey (HABS) Recordation

1. Before the start of any building/site alteration, the Town shall oversee the successful delivery of a recordation package prepared by staff or contractors meeting the Professional Qualifications for Architectural History, History, Architecture, or Historic Architecture, as appropriate.

2. The Town shall ensure that their contractor prepares the recordation package in accordance with the National Historic Park Service's HABS standards. NPS will assign the HABS numbers and will write the specific Schedule of Documentation (SOD) for the project. The Town shall provide the following hard copy and digital products to the SHPO and NPS and shall provide an electronic copy to FEMA and MEMA, and DACF. (Note: The exact scope of work and products noted below will

be specified by the NPS in the SOD but the HABS shall document both the primary structure and the surrounding landscape, with attention to the Blockhouse's historical and geographic relationship to the Fish and St John's Rivers, and including historic and modern alterations to the blockhouse setting Attachment 2):

i. Written Documentation: Outline Format report

ii. Graphic Documentation: Site plan; sketch plans

iii. Photographic Documentation:

a. Index and Key to Photographs

b. Views: Two sets of 4" x 5" black and white, archivally stable negatives and one set of 4" x 5" black and white archivally stable contact prints for all views.

c. Historic Plans

d. Historic Photos

e. Color digital images

f. Packaging Requirements

B. Public Interpretation

1. The Town shall install an interpretive exhibit in the visitors' area adjacent to the Fort Kent Blockhouse NHL. This will be a permanent, all weather exhibit containing two or three panels providing an overview of the history and development of the Fort Kent Blockhouse NHL and the surrounding community that accounts for the historic and modern alterations to the Blockhouse's setting, including the building of the levee. The interpretive exhibit will be developed using the HABS documentation developed in Stipulation II.A. and incorporate previous studies, including archaeological survey reports, and aerial images and/or topographic maps as appropriate to convey the Blockhouse's historical and geographic relationship to the Fish and St John's Rivers.

2. With technical assistance provided by SHPO, NPS, DACF, MEMA, and FEMA, the Town will develop a scope of work and issue a Request for Proposal (RFP) within six (6) months of the execution of this MOA to solicit a consultant qualified under the Professional Qualifications for Architectural History, History, or Historic Architecture (36 C.F.R. Part 61) (https://www.nps.gov/history/local-law/arch_stnds_9.htm), as appropriate, to design, print, and install the interpretive exhibit. If the Town sources the costs of the procurement with any Program funding, the procurement must comport with the federal procurement standards at 2 C.F.R. pt. 200.

3. The Town, within one (1) year of issuing the solicitation, will award a contract with a qualified consultant and direct the qualified consultant to develop and submit the draft interpretative materials to FEMA.

4. FEMA will transmit the draft interpretive materials to the Signatories, Invited Signatories, and Concurring Parties for a fifteen (15) day comment period.

5. FEMA will review and consolidate comments received and transmit those comments to the Town for incorporation into the draft interpretive materials.

6. Upon receipt of consolidated comments from FEMA, the Town will, through its qualified consultant, create a revised draft of the interpretive materials that incorporates the consolidated comments and submit the revised draft to FEMA within 30 days.

7. FEMA will transmit this revised draft to SHPO, NPS, DACF, MEMA, and the Concurring Party for a fifteen (15) day comment period.

8. FEMA will review and consolidate comments received and transmit those comments to the Town for incorporation into a final draft of the interpretive materials.

9. Within eighteen (18) months of receipt of final consolidated comments, the Town will direct its Contractor to create a final version of the panels, manufacture the panels, and install the interpretative panels in the location(s) designated by SHPO, DACF, MEMA, FEMA and the Concurring Parties.

10. FEMA may call a meeting to seek resolution and consensus among the Signatories, Invited Signatories, and Consulting Parties to facilitate design review process and to resolve comments received during the review of draft interpretive materials.

III. EMERGENCY SITUATIONS

A. In the event that a natural or manmade emergency occurs in the vicinity of the Undertaking and any Signatory or Invited Signatory is unable to comply with the terms of this MOA, that Signatory or Invited Signatory will notify the other Signatories and Invited Signatories immediately in writing.

B. Should the scope for the Undertaking need to be modified to accommodate any damage resulting from the natural or manmade emergency, FEMA will amend the MOA in accordance with Stipulation V.

IV. ANNUAL REPORTING

A. Preparation of Report. The Town will provide the Signatories, Invited Signatories, and Concurring Parties with an annual treatment measure status report for the duration of the MOA by June 30th of each year. The annual treatment measure status report will include the following information:

1. Status of treatment measure completion, including completion dates;

2. Anticipated schedule for completion of remaining treatment measures; and

3. Maintenance of products or protocols developed under the MOA

B. Review of Annual Report: The Signatories, Invited Signatories, and Concurring Parties may provide written feedback to the annual treatment measure status report within thirty (30) calendar days of receipt. The Signatories, Invited Signatories, and Concurring Parties may request a conference call to discuss the report content and discuss the implementation of this MOA. If the concern cannot be resolved, the Signatory or Invited Signatory can seek resolution as specified in Stipulation V.B.

V. IMPLEMENTATION OF THE MOA

A. Amendments

1. If any Signatory or Invited Signatory seeks an amendment to a term of this MOA, the Signatories and Invited Signatories shall consult for no more than sixty (60) calendar days to seek the amendment. If agreement cannot be reached within sixty (60) days, the dispute resolution process shall be utilized as outlined in Stipulation V.B.

2. An amendment to this MOA shall be effective when it has been signed by the Signatories and Invited Signatories.

B. Dispute Resolution

1. Should any disagreement or objection arise on the interpretation of the provisions of this MOA or any proposed amendments, the Signatory or Invited Signatory may state in writing the area of disagreement or objection and present it to FEMA.

2. FEMA shall consult with the objecting party for not more than thirty (30) calendar days to resolve the objection or disagreement.

3. If the objection or disagreement is resolved within thirty (30) calendar days, FEMA shall proceed in accordance with the agreed upon resolution.

4. If FEMA determines within thirty (30) calendar days that the objection or disagreement cannot be resolved, FEMA shall forward to ACHP all documentation relevant to the objection or disagreement, including FEMA's proposed resolution.

5. Within thirty (30) calendar days of receipt, ACHP will:

   a. Concur with FEMA's proposed resolution; or

   b. Provide FEMA with recommendations, which FEMA shall take into account in reaching a final decision regarding the objection; or

c. Notify FEMA that the objection will be referred for comment in accordance with 36 C.F.R. § 800.7(a)(4), and proceed to do so.

6. FEMA shall take into account any ACHP recommendations or comments and any comments from the other Signatories or Invited Signatories in reaching a final decision regarding the objection or disagreement. FEMA shall provide in writing to the Signatories and Invited Signatories a summary of its final decision before authorizing any disputed action to proceed. The Signatories and Invited Signatories shall continue to implement all other terms of this MOA that are not subject to the objection or disagreement.

7. Should ACHP not respond within thirty (30) calendar days, FEMA may assume ACHP has no comment and proceed with its proposed resolution to the objection or disagreement after providing the ACHP and other Signatories and Invited Signatories a written summary of its final decision.

C. Termination. The Signatories and Invited Signatories may terminate this MOA by providing thirty (30) calendar days written notice, provided that the Signatories and Invited Signatories consult during this period to seek amendments or other actions that would prevent termination. Upon such termination, FEMA shall provide the Signatories and Invited Signatories with written notice of the termination of this MOA. If this MOA is terminated, FEMA will comply with Section 106 through other applicable means pursuant to the Statewide PA.

D. Duration and Extension

1. This MOA shall remain in effect from the date of execution of the last Signatory or Invited Signatory for a period not to exceed five (5) years unless otherwise extended pursuant to Stipulation V.A. or terminated pursuant to Stipulation V.C.

2. The Signatories and Invited Signatories may collectively agree to extend this MOA to cover additional calendar years, or portions thereof, through an amendment per Stipulation V.A., provided that the original MOA has not expired.

E. Execution and Implementation

1. This MOA may be executed in counterparts, with a separate page for each Signatory, Invited Signatory, and Concurring Party and shall become effective on the date of the signature of the ACHP.

2. FEMA shall provide each Signatory, Invited Signatory, and Concurring Parties with a complete copy of the MOA.

3. Execution and implementation of this MOA evidence that FEMA has afforded ACHP a reasonable opportunity to comment on this Undertaking and that FEMA has satisfied its Section 106 responsibilities for this Undertaking.

F. Other Provisions

1. This MOA does not confer or create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity, by any third person or party (public or private) against the United States, its agencies its officers, or any person; or against the Signatories and Invited Signatories, their officers or employees or any other person.

2. Nothing in this MOA is intended to conflict with current law, regulations, or the directives of FEMA. If a term of this MOA is inconsistent with any such authority, then that term shall be invalid, but the remaining terms and conditions of this MOA shall remain in full force and effect.

3. This MOA is not a fiscal or funds obligation document. Any specific work or activity that involves the transfer of funds, services, or property among the parties will require execution of a separate agreement and will be contingent upon the availability of appropriated funds. Such activities must be independently authorized by appropriate statutory or other authority. This MOA does not provide such authority.

4. Nothing in this MOA is intended to restrict the authority of any Signatory or Invited Signatory to act as provided by statute or regulation.

MEMORANDUM OF AGREEMENT
AMONG THE
FEDERAL EMERGENCY MANAGEMENT AGENCY,
MAINE HISTORIC PRESERVATION COMMISSION, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE FORT KENT LEVEE EXTENSION PROJECT

SIGNATORY

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), REGION 1

By: _____ Date: 5/10/18
Paul Ford, Acting Regional Administrator

By: _____ Date: 5/7/18
David Robbins, Regional Environmental Officer

MEMORANDUM OF AGREEMENT
AMONG THE
FEDERAL EMERGENCY MANAGEMENT AGENCY,
MAINE HISTORIC PRESERVATION COMMISSION, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE FORT KENT LEVEE EXTENSION PROJECT

SIGNATORY

MAINE HISTORIC PRESERVATION COMMISSION

By: Kirk F. Mohney Date: 5/8/2018
Kirk F. Mohney, State Historic Preservation Officer

MEMORANDUM OF AGREEMENT
AMONG THE
FEDERAL EMERGENCY MANAGEMENT AGENCY,
MAINE HISTORIC PRESERVATION COMMISSION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE FORT KENT LEVEE EXTENSION PROJECT

SIGNATORY

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: 5/21/14
John M. Fowler, Executive Director

MEMORANDUM OF AGREEMENT
AMONG THE
FEDERAL EMERGENCY MANAGEMENT AGENCY,
MAINE HISTORIC PRESERVATION COMMISSION, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE FORT KENT LEVEE EXTENSION PROJECT

INVITED SIGNATORY

MAINE EMERGENCY MANAGEMENT AGENCY

By: _____ Date: May 8, 2018
Suzanne Krauss, Director

MEMORANDUM OF AGREEMENT
AMONG THE
FEDERAL EMERGENCY MANAGEMENT AGENCY,
MAINE HISTORIC PRESERVATION COMMISSION, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE FORT KENT LEVEE EXTENSION PROJECT

INVITED SIGNATORY

TOWN OF FORT KENT

By: Steve Pelletier Date: 5-7-18

Steve Pelletier, Director of Planning and Economic Development, Town of Fort Kent

MEMORANDUM OF AGREEMENT
AMONG THE
FEDERAL EMERGENCY MANAGEMENT AGENCY,
MAINE HISTORIC PRESERVATION COMMISSION, AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE FORT KENT LEVEE EXTENSION PROJECT

INVITED SIGNATORY

MAINE DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY'S BUREAU OF PARKS AND LANDS

By: Walter E. Whitcomb
Walter E. Whitcomb, Commissioner

Date: 5/17/18

5-14-2018

MEMORANDUM OF AGREEMENT
AMONG THE
FEDERAL EMERGENCY MANAGEMENT AGENCY,
MAINE HISTORIC PRESERVATION COMMISSION,
AND ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE FORT KENT LEVEE EXTENSION PROJECT

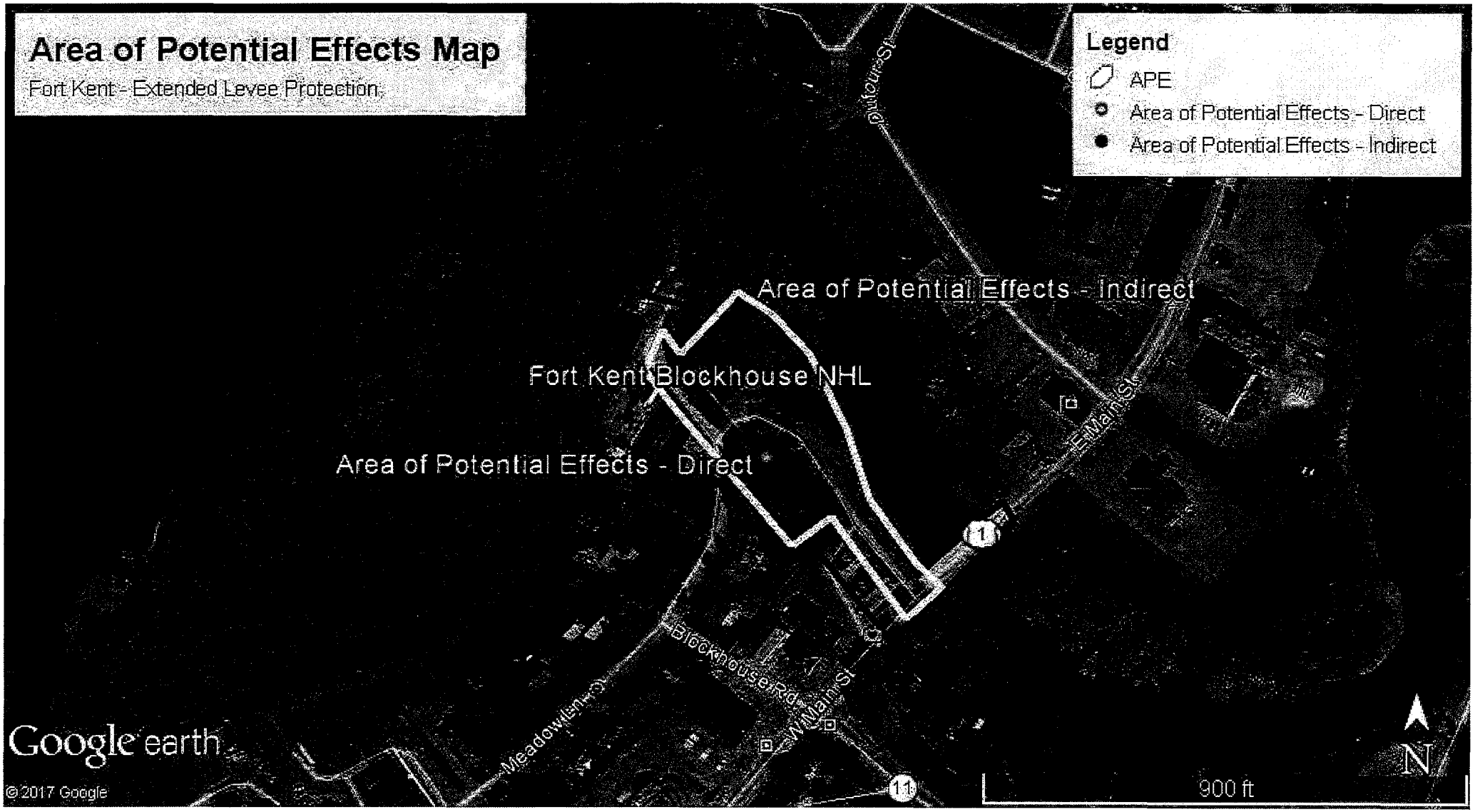
CONCURRING PARTY

NATIONAL PARK SERVICE

By: Shaun Eyring Date: 5.7.2018

Shaun Eyring, Chief, Cultural Resources
National Park Service, Northeast Region

ATTACHMENT 1:
APE Map


Area of Potential Effects Map
Fort Kent - Extended Levee Protection
Legend
APE
Area of Potential Effects - Direct
Area of Potential Effects - Indirect
Area of Potential Effects - Indirect
Fort Kent Blockhouse NHL
Area of Potential Effects - Direct
Dufour St
E Main St
W Main St
Blockhouse Rd
Meadowview Dr
1
11
Google earth
© 2017 Google
900 ft
N

ATTACHMENT 2:
Schedule of Documentation

United States Department of the Interior

NATIONAL PARK SERVICE
Northeast Region
200 Chestnut Street
Philadelphia, PA 19106

IN REPLY REFER TO:
A.1.2. (NER-RSS)

October 5, 2017

Bruce G. Harvey
4948 Limehill Drive
Syracuse, NY 13215

Dear Mr. Harvey:

Thank you for your inquiry to the National Park Service (NPS) concerning the level of Historic American Building Survey (HABS) documentation required for Fort Kent, in Fort Kent, Aroostock County, Maine; **NPS project #1761.** To expedite our review, please refer to this name and **NPS project number** in all correspondence. We will request a HABS number from our Washington office to be used on all documentation.

The list in the enclosed Schedule of Documentation will meet the standards of mitigation documentation generally required by an MOA, but may be subject to change based on stipulations identified in the final signed agreement. Please send a copy of the final agreement directly to this office once it has been signed. Documentation must be prepared in accordance with Historic American Building Survey (HABS) guidelines which can be found at: https://www.nps.gov/hdp/standards/HABS/HABSHistoryGuidelines.pdf and https://www.nps.gov/hdp/standards/PhotoGuidelines.pdf.

Please be advised that records in the HABS/HAER collection are created for the U.S. Government and are considered to be in the public domain. Preparers of HABS/HAER Documentation, both written and photographic, are reminded that it is their responsibility to secure any necessary permissions for further desired use or reproduction of copyrighted materials included within the HABS/HAER documentation. For this reason, all preparers are required to complete and return **one copy of the enclosed "Release and Assignment" form for each repository,** which transfers and assigns to the National Park Service all rights included but not limited to copyrights in the HABS/HAER materials being submitted. Please note that should these releases not be obtained, the written and/or photographic documentation may not include this material.

When the documentation is completed, it must be submitted to this office for review. Incomplete or incorrect reports will be returned for revision. When the documentation is accepted, we will transmit the material to the Library of Congress for inclusion in the HABS/HAER collection.

Please contact this office at (215) 597-1726, if you have any questions.

Sincerely,

Catherine Turton
HABS/HAER Coordinator

Enclosures

cc:
Steve Pelletier, Office of Planning and Economic Development, Fort Kent, Maine
ME Historic Preservation Commission
HABS/HAER, WASO
USDHS/FEMA Region 1, Environmental and Historic Preservation Program

SCHEDULE OF DOCUMENTATION
FOR THE RECORDING OF
Fort Kent
NPS project #1761

I. WRITTEN DOCUMENTATION

A HABS "Outline Format" written report regarding the structure is required. This should be as thorough as possible, stressing architectural and cultural significance at the national level. Please follow the guidance provided here, beginning on bottom half of page 4: https://www.nps.gov/hdp/standards/HABS/HABSHistoryGuidelines.pdf. All materials submitted as documentation must follow the requirements outlined in "Historic American Buildings Survey Guidelines for Historical Reports."

II. GRAPHIC DOCUMENTATION

All graphic pages follow the written documentation and have one-inch margins and a header on each page, with pagination following that of the written documentation. All of the information on graphic pages, including headers, must fit within the one-inch margins.

A. An 8½" x 11" site plan, clearly locating the structure in its setting, is required. The source and date of the plan must be noted. The plan **must be copyright-free.**

III. PHOTOGRAPHIC DOCUMENTATION

All photographic materials submitted as documentation must follow the requirements outlined in: "Heritage Documentation Programs HABS/HAER/HALS Photography Guidelines November 2011, updated June 2015," found here: https://www.nps.gov/hdp/standards/PhotoGuidelines.pdf

This will include:

A. Index and Key to Photographs: Every set of photographs submitted to HABS, HAER, or HALS is accompanied by a list of captions. These should be submitted in both hard-copy and electronic format as outlined in the Transmittal Guidelines. The captions should include appropriate directional information and any significant details. Site plans or maps with locations of photographs denoted are encouraged, particularly on complex sites or those with several buildings. Please see the "Preparing HABS/HAER/HALS Documentation for Transmittal" guidelines for additional information on the Index and Key to Photographs, available at: http://www.nps.gov/hdp/standards/Transmittal.pdf.

B. Exterior Views

1. General or environmental view(s) to illustrate setting, including landscaping, adjacent building(s), and roadways.
2. Front facade, with and without a scale stick.
3. Architectural details not adequately shown in the overall views
4. Perspective view, front and one side.
5. Perspective view, rear and opposing side.
6. Detail, front entrance and/or typical doorway.
7. Typical window.
8. Exterior details, such as chimney, rifle and cannon ports, etc., indicative of era of construction or of historic and architectural interest.
9. Views of setting from the second story

C. Interior views

1. Typical spaces
2. Interior architectural details not adequately shown in the overall views, such as rifle and cannon ports, fixtures, doors
3. Views showing offices/corridors/exhibit areas
4. Views showing typical mechanical rooms
5. Views showing typical rest rooms
6. Interior views to capture spatial relationships, structural evidence, a typical room, and any decorative elements; these include hallways, stairways, attic and basement framing, fireplaces and mantels, moldings, interior shutters, kitchen (especially if original), and mechanicals.

D. Historic views

A thorough search should be undertaken and photographic copies made of existing historic photographs, **if they are copyright-free.** The source and approximate date of the copied photograph should be stated in the caption in the Index to Photographs. If a collection of historic photos is housed and preserved in an accessible archival collection, their reproduction for HABS/HAER/HALS may not be necessary. If the historic images are necessary to illustrate the significance of the structure, its original design and construction, for example, an image showing the original wood deck, or to illustrate changes over time, then they should be included, *if the copyright release form can be obtained.* Noting their existence in an appropriate footnote or as a bibliographic entry is also important, particularly if the images remain copyrighted. If historical views cannot be found, please list in the bibliography all the repositories searched.

E. Photographic copies of original drawings, as either 4" x .5", 5" x 7" or 8" x 10" archivally stable negatives and contact prints, are required if available **and if copyrightfree.** Please choose an appropriate size of photograph based on the legibility of the information in the end product. Illegible plans will be required to be re-photographed in a larger format. A source and date for each of the original drawings should be stated in

the Index to Photographs. If a sizable collection of plans, details and sections exist in an accessible archive, please consult with the NPS regarding the size of the sample to be reproduced. **Reproduction of original drawings that are accessible to the public may not be necessary.** In such a case, a reference to the collection need only be cited in the bibliography. If original drawings cannot be found, please list in the bibliography all the repositories searched.

IV. MEASURED DRAWINGS

Measured drawings shall be produced from recorded, accurate measurements. Portions of the building that are not accessible for measurement should not be drawn on the measured drawings, but clearly labeled as not accessible or drawn from available construction drawings and other sources and so identified. No part of the measured drawings shall be produced from hypothesis or non-measurement related activities. Please see the guidelines for HABS drawings at: https://www.nps.gov/hdp/standards/HABS/HABSDrawings.pdf

The set of measured drawings should include:

A. Title Sheet
B. Site Plan
C. Plans for each level, including roof
D. Elevations (North, South, East, and West)
E. Sections
F. Exterior Details
G. Interior Details
H. Construction History

V. ELECTRONIC COPY

All historical reports are to be prepared using Microsoft Word software and submitted in hard copy and electronic forms. An archival gold CD/DVD containing a .PDF of the FINAL historical report must be submitted. The PDF and the paper copy must exactly match each other. The conversion *to* PDF may alter the page layout so printing the paper copy from the PDF rather than the word processing document is recommended. All electronic copies (photo index, historical report, drawings, and field notes) may be submitted on the same CD/DVD. Please do not submit the CD/DVD until you have received final verification that all revisions are accepted.

VI. PACKAGING REQUIREMENTS

We will request a HAER number for this project from our Washington office. Please contact our office to obtain this number before submitting the documentation. When the number of photographic views is known, please call our office to request preprinted photo mount cards for presentation. All materials submitted as documentation must follow the requirements outlined in:

A. "Historic American Building Survey Guidelines for Historical Reports (2008, updated May 2017)," found here: https://www.nps.gov/hdp/standards/HABS/HABSHistoryGuidelines.pdf
B. "Heritage Documentation Programs HABS/HAER/HALS Photography Guidelines November 2011, updated June 2015," found here: https://www.nps.gov/hdp/standards/PhotoGuidelines.pdf
C. "Recording Historic Structures and Sites With HABS Measured Drawings," found here: https://www.nps.gov/hdp/standards/HABS/HABSDrawings.pdf
D. "Preparing HABS/HAER/HALS Documentation for Transmittal (Updated June 2015)," found here: https://www.nps.gov/hdp/standards/Transmittal.pdf