DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

Regulatory Division
CENAE-RDC

June 23, 2020

Ms. Anna Harris
Maine Fish & Wildlife Service Complex
PO Box A
306 Hatchery Road
East Orland, Maine 04431

RE: Request for **Informal** Section 7 Consultation: Central Maine Power Company; New England Clean Energy Connect; Beattie Township to Lewiston, Maine; Corps File No. NAE-2017-01342

Dear Ms. Harris:

The Army Corps of Engineers ("Corps") requests informal consultation pursuant to Section 7 of the Endangered Species Act ("ESA") as amended (16 U.S.C. 1531et seq.), for a proposal by Central Maine Power Company (CMP) to place temporary and permanent fill in numerous waterways and wetlands between Beattie Township and Lewiston, Maine in order to construct and maintain an aerial electrical transmission line.

This project is known as the New England Clean Energy Connect (NECEC) and will deliver up to 1,200 megawatts of electrical power from hydroelectric sources in Quebec to the New England Control Area, specifically in response to a Request for Proposals for Long-Term Contracts for Clean Energy Projects from the State of Massachusetts. The project will also require a Presidential Permit from the Department of Energy (DOE) for the border crossing at Beattie Township. As such, consider this a joint consultation request by the Corps and DOE.

The following listed species and critical habitats are known to occur within the Action Area of the NECEC project: Atlantic salmon (*Salmo salar*), Atlantic salmon critical habitat, small whorled pogonia (*Isotria medeoloides*), Canada lynx (*Lynx canadensis*), Canada lynx critical habitat, and the northern long-eared bat (*Myotis septentrionalis*). The applicant's most recent Official Species List is dated January 15, 2020 (Consultation Code 05E1ME00-2017-SLI-0579).

Attached is a Biological Assessment (BA) detailing the effects of the proposed project on listed species and critical habitats. We greatly appreciate the contributions of your staff to date in their reviews of multiple draft documents and attendance at various coordination meetings. Based upon the information presented in the BA, the Corps has made the following determinations:

- **Atlantic salmon – May affect, but not likely to adversely affect.** There is no proposed instream activity related to the clearing and installation of transmission line structures and substation site development. Access across streams will be entirely spanned with temporary stream crossings constructed and maintained in a manner to minimize the potential for sedimentation and turbidity. Environmental controls will be implemented to avoid and minimize the potential for water quality degradation associated with soil erosion and sedimentation and other pollutants. Replacements of culverts, either in support of construction or as part of DEP mandated compensation will not occur within the designated critical habitat. Post construction operations and maintenance will avoid and minimize fording and other actions to the maximum extent practicable.

- **Small whorled pogonia – No Effect**. An engineering solution proposed by the applicant has eliminated the need for tree clearing and associated impacts in the vicinity of the SWP occurrence. The proposed shifting of the transmission line and elimination of tree clearing in the vicinity of the occurrence, and prohibition on herbicide application adjacent to (i.e., within 100 feet of) the 174-acre tract containing the occurrence, will avoid any direct or indirect impact to the species. Proposed activities are all located downgradient of the occurrence; therefore, habitat degradation associated with potential soil erosion and sedimentation will not occur.

- **Canada lynx – May affect, but not likely to adversely affect.** Habitat loss, habitat fragmentation, and reductions in habitat connectivity have been avoided and minimized through the proposed maintenance of early successional vegetation within the corridor. Modification of habitat associated with the maintenance of the corridor in early successional cover will not degrade habitat for snowshoe hare, the Canada lynx's primary food source. Increases in traffic volume will be minimal and temporary and project personnel will be instructed to obey posted speed limits, as well as the 30 MPH restrictions on logging roads, to minimize potential impacts to Canada lynx.

- **Northern Long-Eared Bat - May affect.** Known hibernacula occur from approximately 21 to 64 miles away from the Project area. Tree clearing will be avoided during the maternity roost season of June 1 to July 31.

- **Atlantic salmon Critical Habitat – May affect, but not likely to adversely affect.** No in-stream construction is proposed within any stream located within Atlantic salmon critical habitat. The removal of forest cover within the riparian areas of streams located in designated critical habitat has been minimized through the maintenance of early successional vegetation, which will reduce the impact of increased insolation. Effects on water quality within critical habitat will be avoided and minimized through the implementation of environmental control requirements and erosion and sedimentation control by the applicant. Post construction operations and maintenance will be restricted to avoid and minimize fording to the maximum extent practicable.

- **Canada lynx Critical Habitat – May affect, but not likely to adversely affect.** The quantity and quality of habitat, within the designated critical habitat, available for Canada lynx and its primary food source, the snowshoe hare, will not be adversely modified by the project.

This letter serves as the Corps' request to initiate informal consultation under Section 7 of the ESA. The attached BA includes all information as required under Section 7(a)(2) of the ESA and 50 CFR 402.14(c). Per 50 CFR 402.12(j), the Corps is requesting informal consultation be immediately initiated concurrently with the submission of this BA.

Any future Corps permit for the work is likely to contain conditions to avoid or minimize potential impacts to the listed species and critical habitats. Attached are suggested conditions for you to consider as part of this consultation request. Please note that they are based on formal and informal consultations with your agency pursuant to previous proposals from this and many other applicants. The Corps stands ready to incorporate these conditions or others you may recommend.

If you have any questions concerning this matter, please contact Jay Clement of my Regulatory Division staff at our Augusta, Maine Project Office (207-623-8367 ext. 1).

Sincerely,

For Frank J. Del Giudice
Chief, Permits & Enforcement Section
Regulatory Division

Attachment
Copies Furnished:
Wende Mahaney & Mark McCollough – USFWS
Melissa Pauley & Julie Smith – DOE
Gerry Mirabile – CMP
Mark Goodwin – B&M

US Army Corps of Engineer's Proposed Permit Conditions for the
NECEC Project; Beattie Township - Lewiston, ME
(Corps Application: NAE-2017-01342)

Provided below are the conditions that the US Army Corps of Engineers proposes as a complement to our June 23, 2020 informal consultation initiation request filed with the US Fish & Wildlife Service.

- The permittee shall assure that a copy of this permit is at the work site whenever work is being performed and that all personnel performing work at the site of the work authorized by this permit are fully aware of the terms and conditions of the permit. This permit, including its drawings and any appendices and other attachments, shall be made a part of any and all contracts and sub-contracts for work which affects areas of Corps of Engineers' jurisdiction at the site of the work authorized by this permit. This shall be done by including the entire permit in the specifications for the work. If the permit is issued after construction specifications but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. The term "entire permit" includes permit amendments. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions of the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps of Engineers jurisdiction.

- Adequate sedimentation and erosion control devices, such as geo-textile silt fences or other devices capable of filtering the fines involved, shall be installed and properly maintained to minimize impacts during construction. These devices must be removed upon completion of work but not before stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to a waterway or wetland. Erosion controls, temporary access ways, and crane mats will be installed in accordance with CMP's Environmental Guidelines for Construction and Maintenance Activities on Transmission Line and Substation Projects ("Environmental Guidelines"), included in Exhibit B of the BA.

- Prior to tree clearing or construction activities, the NECEC team will walk the length of the transmission line with the construction contractors to identify critical areas where construction and construction access may be difficult due to terrain, wetlands, and water course conditions, or the location of protected or sensitive natural resources. Erosion control placement, access road layout, wetlands, and stream crossing locations will be addressed with the construction contractors, with avoidance and minimization of wetland and waterbody impacts a priority. The type and location of erosion controls as well as the approach to wetlands, stream crossings and other protected or sensitive natural resources, will be communicated to the construction contractors during the initial walk-through. Access areas and environmental resources will be flagged with a specified color of surveyor tape, and "no-access or special restriction" areas (such as certain stream

buffers) will also be marked using appropriate color-coded tape.

- The permittee shall implement all terms and conditions contained in the water quality certification from the Maine Dept. of Environmental Protection dated "May 11, 2020" and subsequent revisions. Copies of all required submittals shall also be provided to the Corps and DOE.

- For unavoidable stream crossings, crane mats or other means will be used to span the streams. (See Section 4.0 Installation of Crossings within Exhibit B). Appropriate erosion controls will be installed at each stream crossing including water bars used in conjunction with sediment traps in addition to sediment barriers located upstream and downstream on both sides of the crossing. (See Figure 2-5 of the BA) Where necessary, construction mats will be placed on the upland, parallel to the ordinary high water line as abutments to further protect stream banks and to establish stability. Streams that are too wide to cross by spanning with crane mats will be avoided. Under no circumstances (including in Atlantic salmon streams within the GOM DPS and those that provide critical habitat for Atlantic salmon), will any stream crossing technique be used that involves in-stream work or the discharge of temporary or permanent fills.

- All wetland and waterbody crossings will be restored to natural conditions; any material or structure used at temporary crossings will be removed; and the banks will be stabilized and revegetated consistent with the NECEC Environmental Guidelines.

- No in-stream construction work is authorized within any stream that might currently support Atlantic salmon. This includes both temporary and permanent work. The permittee shall implement protections within a 100-foot riparian buffer of these water bodies, further discussed in Section 5.1, page 82 of the BA.

- Any span structures on streams identified as having "restricted access" shall be installed and maintained to prevent soil and other material from washing into the stream. This shall include cleaning the travel surface of the span to prevent accumulated material from washing into the stream. At each of these crossings, clearing of non-capable woody vegetation shall be minimized to the maximum extent practicable and the roots allowed to remain in order to reduce indirect impacts and to promote natural re-vegetation.

- To minimize the spread of noxious weeds into the riparian zone, all off-road equipment and vehicles (operating off of existing open and maintained roads) must be cleaned prior to entering the construction site to remove all soil, seeds, vegetation, or other debris that could contain seeds or reproductive portions of plants. All equipment will be inspected prior to off-loading to ensure that they are clean.

- Disturbed areas adjacent to the stream will be stabilized and re-vegetated with a seed mix appropriate for riparian areas in Maine. If the root stock of the removed vegetation is minimally disturbed, the site may be allowed to naturally re-vegetate.

- All areas of wetlands which are disturbed during construction shall be restored to their

approximate original elevation (but not higher) and condition by careful protection, and/or removal and replacement, of existing soil and vegetation. In addition, if upland clearing, grubbing, or other construction activity results in, or may result in, soil erosion with transport and deposition into wetlands or waterways, devices such as geotextile silt fences, sediment trenches, etc., shall be installed and properly maintained to minimize such impacts during construction. These devices, with the exception of erosion control mix, must be removed upon completion of work but not before stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to waterway or wetland.

- No temporary fill (e.g., access roads, cofferdams) may be placed in waters or wetlands unless specifically authorized by this permit. If temporary fill is used, it shall be disposed of at an upland site and suitably contained to prevent its subsequent erosion into a water of the U.S., and the area shall be restored to its original contours (but not higher) and character upon completion of the project. During use, such temporary fill must be stabilized to prevent erosion or, in the case of flowing water (rivers or streams), clean washed stone should be used.

- All construction areas shall be open for inspection by the permitting agency(ies) as well as federal resource agency personnel during working hours.

- The permittee shall take all reasonable and prudent measures to minimize the risk of accidental spills of petroleum or other hazardous contaminants from construction equipment at waterway and wetland crossings. Minimum specific spill management measures are contained in Exhibit B entitled "Environmental Guidelines For Construction and Maintenance Activities on Transmission Line And Substation Projects" last revised "June 29, 2018" which is contained in the administrative record.

- Initial tree clearing and long-term vegetation maintenance, which will be performed in accordance with the NECEC Construction Vegetation Clearing Plan ("VCP") and Post-Construction Vegetation Maintenance Plan ("VMP") provided in Exhibit C and D of the BA, respectively.

- Clearing and maintenance of Segment 1 will include a 39.02-mile-long, 54-foot-wide, cleared, scrub-shrub maintained portion of the ROW, with tapered vegetation beyond at 16-foot intervals. The forested intervals will have height steps of 15 feet, 25 feet and 35 feet as one moves from the edge of the 54-foot-wide area to the edge of the 150-foot corridor, except in specific areas where the Project will maintain either full height canopy vegetation, vegetation with a minimum height of 35 feet, or taller vegetation managed for deer travel corridors. The MDEP has established several Wildlife Areas where vegetation will be maintained in a forest condition for the full width of the ROW over the 14.08 miles of the 53.1-mile Segment 1. The identified areas with a required minimum vegetation height of 35 feet are listed in Exhibit C and identified as Wildlife Areas 1 through 5 and 7 through 10 in Table 2-1 of the BA.

- The permittee shall conduct all tree cutting shall between October 16 and April 19 of any year to the maximum extent practicable and **no tree cutting shall occur between June 1 and July 31 of any year** in order to minimize potential impacts to federally threatened northern long-eared bats.

- For each successive year of construction beyond 2020 until project completion, the permittee shall submit to the Corps and the US Fish & Wildlife Service an updated Official Species List from the IPaC website: https://ecos.fws.gov/ipac/ The Corps shall re-initiate Section 7 consultation with the Service as necessary for any construction not completed.

- In accordance with Exhibit B entitled "Environmental Guidelines For Construction and Maintenance Activities on Transmission Line And Substation Projects" last revised "June 29, 2018", application of herbicides within 75' of any waterbody is prohibited. In streams supporting Atlantic salmon or salmon critical habitat herbicide application is prohibited within 100'. No herbicides shall be applied within Section 1 as a whole.

- In order to minimize the potential for secondary impacts to federally threatened small whorled pogonia, the permittee is prohibited from herbicide application adjacent to (i.e., within 100 feet of) the 174-acre tract containing the occurrence of the plant or potential habitat at Greene, Maine.

- Prior to the start of construction, the permittee shall conduct environmental training for all contractors, sub-contractors, and inspectors. Federal and state resource and regulatory staff shall be invited to attend and/or assist in the presentations. At a minimum, this training shall include actions to be taken to avoid and minimize direct and indirect impacts to aquatic resources such as wetlands, streams, Atlantic salmon streams, small whorled pogonia habitat, and vernal pools.

- ATV usage for operations and maintenance activities by CMP, will be limited to the maximum extent practicable and potential ground or resource disturbance will be minimized by utilizing existing upland access ways and snowmobile trail bridges. To avoid or minimize effects to Atlantic salmon and its listed Critical Habitat from ATV usage for operations and maintenance activities, CMP will adopt the following procedures:

  1. No fording of streams within the Sheepscot River and Sandy River watersheds or within 1,000 feet of these watersheds will occur unless under frozen conditions. Within these watersheds, mechanized equipment may only cross unfrozen streams using mats or bridges that completely span the waterway.

  2. Within mapped Critical Habitat outside the Sheepscot River and Sandy River watersheds, fording of unfrozen streams may occur under the following conditions:
     - To the maximum extent practicable, the crossing is dry, shallow, or exhibits low flows (note - low flows typically occur from July 15 to September 30 of any year)

- To the maximum extent practicable, the substrate at the crossing consists exclusively of coarse grained gravel, cobbles, rocks or ledge.
- Destruction of riparian vegetation is avoided to the maximum extent practicable.
- The stream is crossed at the narrowest practicable location.
- The crossing frequency is limited to one to two transits, or to the minimum number required.
- Erosion and sedimentation controls will be installed in areas of soil disturbance and any disturbed banks are promptly stabilized to prevent secondary effects.

3. Within the GOM DPS but outside mapped Critical Habitat, CMP operations and maintenance personnel will still make every effort to cross streams under frozen conditions, to avoid the crossing, or to utilize mats or bridges (temporary or permanent) that span the waterway. For crossings that cannot be avoided during unfrozen conditions, CMP will still generally apply the best management practices listed above, but they are no longer prescriptive unless the crossing is within 1,000 feet of mapped Critical Habitat.

4. CMP will take reasonable measures to discourage impact to sensitive resources from public ATV use during and after construction of the project including:

- Communication with local organized clubs through the State of Maine Department of Agriculture, Conservation and Forestry's Bureau of Parks and Lands, Off-Road Recreational Vehicle Office.
- Use of signage and deterrents (e.g., boulders, gates, etc.) in areas of high ATV activity with noted associated environmental impacts.
- Reporting of unauthorized ATV travel to law enforcement (e.g. Maine Warden Service) as needed to halt excessive disturbance of recently restored and stabilized areas or in instances Final Biological Assessment Potential Impacts on Listed Species and Critical Habitats where environmental impact associated with public use persists following the implementation of deterrents.

- For any inadvertent release of drilling mud during the directional drill beneath the Kennebec River, the permittee shall comply with "Requirements for Inadvertent Fluid Release Prevention, Monitoring, and Contingency Plan for HDD Operations" (Exhibit F of the BA). In the event that an inadvertent release occurs, the USACE, USFWS, and the MDEP will be notified, as specified in Exhibit F.

- To minimize the project's potential impact to the federally threatened Canada lynx and its Critical Habitat, the permittee shall implement the following measures:

  - Traffic speeds on unimproved access roads during construction shall be kept less than 30 mph (road design speed) to minimize chance of collisions with lynx and other wildlife.

  - To the maximum extent practicable, the permittee shall gate roads under their control to vehicle traffic (not foot traffic) with approval from the landowner during the fall trapping and hunting seasons to further reduce the likelihood of incidental take of lynx.

- Any Canada lynx road collisions or mortalities will be reported to the U.S. Fish & Wildlife Service's Ecological Services Maine Field Office and the Corps of Engineers, Maine Project Office within 48 hours. Points of contact are Mark McCollough at mark_mccollough@fws.gov; 207-902-1570 and Jay Clement at jay.l.clement@usace.army.mil; 207-623-8367 respectively.

- Should Canada lynx be observed during construction within the right-of-way, contractors and subcontractors will immediately suspend all activity in the vicinity of the occurrence, immediately leave the area unless it poses a safety concern and notify project supervisors and environmental inspector(s). Environmental inspector(s) will notify state wildlife officials, as well as the DOE, USFWS, and USACE prior to proceeding with construction. The environmental training provided to all project personnel will include a discussion of these measures and any other specific protocols determined necessary for the protection of Canada lynx.

- For any period of time where drilled or excavated holes for pole installation will remain open pending the sequential installation of the pole(s), the holes shall be completely covered by any means in order to minimize the risk of entrapment to lynx and other wildlife.

- To the maximum extent practicable, cleared areas beneath the transmission line shall be allowed/encouraged to develop a dense growth of low ground cover, shrub, and conifer tree species.

- Routine vegetation management of the transmission line corridor shall be in accordance with the applicant's post-construction vegetation management plan.

- The permittee shall permanently record all natural resource buffers upon completion of construction (e.g. GPS coordinates) and shall further highlight them with flagging prior to any future maintenance activities.

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

Regulatory Division
CENAE-RDC

September 22, 2020

Ms. Anna Harris
Maine Fish & Wildlife Service Complex
PO Box A
306 Hatchery Road
East Orland, Maine 04431

RE: **Re-initiation** of Informal Section 7 Consultation - Central Maine Power Company; New England Clean Energy Connect; Beattie Township to Lewiston, Maine; Corps File No. NAE-2017-01342

Dear Ms. Harris:

The Army Corps of Engineers (USACE) is re-initiating informal consultation pursuant to Section 7 of the Endangered Species Act (ESA) as amended (16 U.S.C. 1531et seq.), for the proposal by Central Maine Power Company (CMP) to place temporary and permanent fill in numerous waterways and wetlands between Beattie Township and Lewiston, Maine in order to construct and maintain an aerial electrical transmission line. This project is known as the New England Clean Energy Connect (NECEC).

Informal consultation was initiated by the USACE on June 23, 2020. The Service responded with a concurrence letter on July 7, 2020. The purpose of this re-initiation request is to advise the Service of proposed changes to draft permit special conditions.

Attached are revised permit conditions with changes indicated in red. It is the Corps determination that these changes do not alter the effects determination in our Biological Assessment or your analysis thereof. More specifically and in accordance with recent coordination with your staff:

- ESA Condition 4. We have added a reference to stream crossings using I-beams covered with timber construction mats at the applicant's request. Such crossings were discussed in our pre-consultation coordination but were not specifically called out in the original condition. We believe such crossings were captured sufficiently by the original condition and your analysis of effects, but have added them for greater clarity.

- ESA Condition 26. We acknowledge that CMP only has direct control over its employees, contractors, and subcontractors relative to traffic speeds on unimproved roads in the project area during construction and maintenance of the project. The Corps has no authority to restrict other property owners or recreationalists using these lands with owner

permission, nor can we require CMP to enforce restrictions on those entities. The condition has been modified to better reflect this.

- ESA Condition 35. We acknowledge that our permit does not convey any property rights or rights of trespass on to lands that CMP does not own or control. The condition has been modified to better focus future monitoring for potential secondary effects to small whorled pogonia on to lands that CMP controls. The monitoring provisions do not otherwise change.

- Corps Condition 8. This is a new condition, added at the applicant's request, to address the process by which future project changes will be processed. While this condition does not affect our previous Section 7 consultation per se, the Corps is fully aware that if such changes result in unanticipated new effects to listed species or critical habitat, we have an obligation to re-initiate consultation with the Service.

- Former Corps Condition 3. Please note that former condition 3, pertaining to the need for the Presidential Permit, has been removed based on coordination between the USACE, the applicant's team, and DOE.

The USACE requests your concurrence with the above determination. If you have any questions concerning this matter, please contact Jay Clement of my Regulatory Division staff at our Augusta, Maine Project Office (207-623-8367 ext. 1).

Sincerely,

For Frank J. Del Giudice
Chief, Permits & Enforcement Section
Regulatory Division

Attachment
Copies Furnished:
Wende Mahaney & Mark McCollough – USFWS
Melissa Pauley – DOE
Gerry Mirabile – CMP
Mark Goodwin – B&M

Revised Draft Permit Special Conditions

1. The permittee shall ensure that a copy of this permit is at the work site (and the project office) authorized by this permit whenever work is being performed, and that all personnel with operational control of the site ensure that all appropriate personnel performing work are fully aware of its terms and conditions. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions contained within the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of USACE jurisdiction.

If the permit is issued after the construction specifications but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. If the permit is issued after receipt of bids or quotes, the entire permit shall be included in the contract or sub-contract as a change order. The term "entire permit" includes permit amendments. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions of the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps jurisdiction.

2. This authorization requires you to 1) notify us before beginning work so we may inspect the project, and 2) submit a Compliance Certification Form. You must complete and return the enclosed Work Start Notification Form(s) to this office at least two weeks before the anticipated starting date. You must complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work and any required mitigation (but not mitigation monitoring, which requires separate submittals).

3. The permittee shall implement all terms and conditions contained in the attached water quality certification from the Maine Dept. of Environmental Protection dated "May 11, 2020" and the Maine Land Use Regulation Commission Final Development Plan Permit dated "January 8, 2020". Copies of all required submittals shall also be provided to the USACE.

4. In order to fulfill the requirements of Section 106 of the National Historic Preservation Act of 1966, the permittee shall implement the stipulations contained in the attached Memorandum of Agreement signed "June 19, 2020".

5. The permittee shall generate 17.263 wetland credits by means of preservation in accordance with the attached mitigation plan entitled, "Compensation Plan" and upated "July 2020". Prior to any work commencing, for each Corps mitigation site, the permittee shall provide a Corps approved: site protective instrument; and long-term management plan. The long-term management plan will identify the long-term steward and provide evidence that an escrow has been established or a letter from the long-term steward stating that stewardship fund is not required to provide the long-term management as outlined in the long-term management agreement.

6. In addition to the permittee responsible mitigation the permittee shall purchase 13.361 In-Lieu Fee credits from the Maine Natural Resource Conservation Fund. As of the date of this permit, the current cost to purchase these credits is $ $3,046,648.37. The permittee must send a cashier's check or bank draft for this amount to: ME DEP, Attn: ILF Program Administrator, State House Station 17, Augusta, ME 04333. The check must include the USACE file number "NAE-2017-01342" and the statement: "For ILF account only". **No impacts authorized by this permit shall begin until the USACE receives a copy of the letter from the Maine Department of Environmental Protection (ME DEP) to the permittee stating that the ME DEP has received the check and accepts responsibility for mitigation.** The in-lieu fee amount is valid for one year from the date of this permit and is subject to change.

7. Prior to being onsite, the contractor(s) shall thoroughly inspect and remove seeds, plant material, soil, mud, insects, and other invertebrates on all equipment, including construction mats, to be used on the project site to prohibit introduction of invasive organisms. At a minimum, the following shall be inspected and cleaned on terrestrial vehicles where applicable:

Rubber Tired Vehicles - Crevices in upper surface and panels, tires, rims, and fender wells, spare tire mounting area, bumpers, front and rear quarter panels, around and behind grills, bottom of radiator vent openings, brake mechanisms, transmission, stabilizer bar, shock absorbers, front and rear axles, beds, suspension units, exhaust systems, light casings, and mirrors.

Tracked Land Vehicles - Crevices in upper surface and panels, top of axles and tensioners, support rollers, between rubber or gridded areas, beneath fenders, hatches, under casings, and grills.

Interiors of All Vehicles - Beneath seats, beneath floor mats, upholstery, beneath foot pedals, inside folds of gear shift cover.

8. Prior to construction in any areas in which the final design plans deviate from the approved design plans, the permittee shall submit the final design plans to the Corps for review and approval.

9. Except where stated otherwise, reports, drawings, correspondence and any other submittals required by this permit shall be marked with the words "Permit No. (NAE-2017-01342)" and submitted via: a) MAIL: PATS Branch - Regulatory Division, Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751; b) EMAIL: jay.l.clement@usace.army.mil and cenae-r@usace.army.mil; or c) FAX: (978) 318-8303. Documents which are not marked and addressed in this manner may not reach their intended destination and do not comply with the requirements of this permit. Requirements for immediate notification to the Corps shall be done by telephone to (978) 318-8338.

Corps of Engineers Permit No. NAE-2017-01342
Revised Permit Special Conditions Resulting From
Informal Endangered Species Act Consultation
Between the US Army Corps of Engineers and
the US Fish & Wildlife Service (USFWS)
(Reference USACE Biological Assessment (BA) dated "June 23, 2020")

Provided below are the conditions based on informal consultation with the US Fish & Wildlife Service to minimize effects to threatened and endangered species and their critical habitat within the Action Area as defined by the USACE.

1. Adequate sedimentation and erosion control devices, such as geo-textile silt fences or other devices capable of filtering the fines involved, shall be installed and properly maintained to minimize impacts during construction. These devices must be removed upon completion of work but not before stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to a waterway or wetland. Erosion controls, temporary access ways, and crane mats will be installed in accordance with CMP's Environmental Guidelines for Construction and Maintenance Activities on Transmission Line and Substation Projects ("Environmental Guidelines"), included in Exhibit B entitled "Environmental Guidelines For Construction and Maintenance Activities on Transmission Line And Substation Projects" last revised "June 29, 2018" which is contained in the administrative record.

2. Prior to any tree clearing or construction activities, the NECEC team shall walk the length of the transmission line with the construction contractors to identify critical areas where construction and construction access may be difficult due to terrain, wetlands, and water course conditions, or the location of protected or sensitive natural resources. Erosion control placement, access road layout, wetlands, and stream crossing locations shall be addressed with the construction contractors, with avoidance and minimization of wetland and waterbody impacts a priority. The type and location of erosion controls as well as the approach to wetlands, stream crossings and other protected or sensitive natural resources, shall be communicated to the construction contractors during the initial walk-through. Access areas and environmental resources shall be flagged with a specified color of surveyor tape as identified in Table 2-4 of the BA , and "no-access or special restriction" areas (such as certain stream buffers) will also be marked using appropriate color-coded tape. Flagging and any special management or protection requirements associated with federally-listed species shall be highlighted during the pre-construction walk through.

3. The permittee shall implement all terms and conditions contained in the water quality certification from the Maine Dept. of Environmental Protection dated "May 11, 2020" and subsequent revisions. Copies of all required submittals shall also be provided to the Corps and DOE.

4. For unavoidable stream crossings, crane mats or other means shall be used to span the streams. (See Section 4.0 Installation of Crossings within Exhibit B). Appropriate erosion

controls will be installed at each stream crossing including water bars used in conjunction with sediment traps in addition to sediment barriers located upstream and downstream on both sides of the crossing. (See Figure 2-5 of the BA) Where necessary, construction mats will be placed on the upland, parallel to the ordinary high water line as abutments to further protect stream banks and to establish stability. Streams that are too wide to cross by spanning with crane mats or I-beams combined with crane mats will be avoided. Under no circumstances (including in all intermittent and perennial streams within the Atlantic salmon GOM DPS and those that provide critical habitat for Atlantic salmon), will any stream crossing technique be used that involves in-stream work or the discharge of temporary or permanent fills.

5. All wetland and waterbody crossings will be restored to preconstruction conditions; any material or structure used at temporary crossings will be removed; and the banks will be stabilized and revegetated consistent with the NECEC Environmental Guidelines. Stream crossings shall be removed as soon as they are no longer needed for construction activities. All restored stream crossings will be inspected, either as part of the final project inspection or earlier, with particular attention paid to erosion and sedimentation issues and regrowth of riparian vegetation.

6. No in-water construction work is authorized within any stream, either intermittent or perennial. This includes both temporary and permanent work. Furthermore, the permittee shall implement protections within a 100-foot riparian buffer of all intermittent and perennial streams within the GOM DPS. This is further discussed in Section 5.1, page 82 of the BA.

7. Any span structures on all intermittent and perennial streams shall be installed and maintained to prevent soil and other material from washing into the stream. This shall include cleaning the travel surface of the span to prevent accumulated material from washing into the stream. At each of these crossings, clearing of non-capable woody vegetation shall be minimized to the maximum extent practicable and the roots allowed to remain in order to reduce indirect impacts and to promote natural re-vegetation.

8. For all transmission line poles located within the 100-foot buffer of all streams within the GOM DPS, a site specific erosion and sediment control plan, designed to minimize the potential for secondary impacts to the stream, shall be submitted to the Corps for review and approval prior to installation of poles.

9. To minimize the spread of invasive plant species within the Project, all off-road equipment and vehicles (operating off of existing open and maintained roads) must be cleaned prior to entering the construction site to remove all soil, seeds, vegetation, or other debris that could contain seeds or reproductive portions of plants. All equipment will be inspected prior to off-loading to ensure that they are clean.

10. All areas of wetlands which are disturbed during construction shall be restored to their approximate preconstruction elevation (but not higher) and condition by careful protection, and/or removal and replacement, of existing soil and vegetation. In addition, if upland clearing, grubbing, or other construction activity results in, or may result in, soil erosion with transport and deposition into wetlands or waterways, devices such as geotextile silt fences, sediment

trenches, etc., shall be installed and properly maintained to minimize such impacts during construction. These devices, with the exception of erosion control mix, must be removed upon completion of work but not before stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to waterway or wetland.

11. No temporary fill (e.g., access roads, cofferdams) may be placed in waters or wetlands unless specifically authorized by this permit. If temporary fill is used, it shall be disposed of at an upland site and suitably contained to prevent its subsequent erosion into a water of the U.S., and the area shall be restored to its preconstruction contours (but not higher) and character upon completion of the project. During use, such temporary fill must be stabilized to prevent erosion.

12. Pull-pads for conductor installation shall only be located in Atlantic salmon 100-foot stream buffer zones when there is no practicable alternative. Grubbing and grading within the stream buffer will be kept to the minimum necessary and will only occur after installation of an additional row of erosion and sedimentation controls between the area of disturbance and the stream. After removal of the pull-pad, the stream buffer will be restored to its original grade and stabilized to prevent erosion while the riparian zone becomes revegetated. Plantings will be installed as necessary to ensure the riparian zone vegetation is adequately restored.

13. All construction areas shall be open for inspection by the permitting agency(ies) as well as federal resource agency personnel during working hours.

14. The permittee shall take all reasonable and prudent measures to minimize the risk of accidental spills of petroleum or other hazardous contaminants from construction equipment at waterway and wetland crossings. Minimum specific spill management measures are contained in Exhibit B.

15. Initial tree clearing and long-term vegetation maintenance, which will be performed in accordance with the NECEC Construction Vegetation Clearing Plan (VCP) and Post-Construction Vegetation Maintenance Plan (VMP) provided in Exhibit C and D of the BA, respectively and updated on June 25, 2020.

16. Clearing and maintenance of Segment 1 shall include a 39.02-mile-long, 54-foot-wide, cleared, scrub-shrub maintained portion of the ROW, with tapered vegetation beyond at 16-foot intervals. The forested intervals shall have height steps of 15 feet, 25 feet and 35 feet as one moves from the edge of the 54-foot-wide area to the edge of the 150-foot corridor, except in specific areas where the Project will maintain either full height canopy vegetation, vegetation with a minimum height of 35 feet, or taller vegetation managed for deer travel corridors. The Maine DEP has established several Wildlife Areas where vegetation will be maintained in a forest condition for the full width of the Right of Way (ROW) over the 14.08 miles of the 53.1-mile Segment 1. The identified areas with a required minimum vegetation height of 35 feet are listed in Exhibit C.

17. The permittee shall conduct all tree cutting between October 16 and April 19 of any year to the maximum extent practicable and **no tree cutting shall occur between June 1 and July 31 of any year** to minimize potential impacts to federally threatened northern long-eared bats.

18. For each successive year of construction beyond 2020 until project completion, the permittee shall submit to the Corps and the US Fish & Wildlife Service an updated Official Species List from the IPaC website: https://ecos.fws.gov/ipac/ The updated species list shall be obtained and submitted between January 1 and January 31 of each year. Concurrently, the permittee shall update and resubmit the streamlined consultation form for NLEB to the Corps and the Fish and Wildlife Service. If any new species are federally listed before the NECEC project is completed, the Corps shall re-initiate Section 7 consultation with the Service as necessary to evaluate, avoid, and minimize effects from any construction not completed.

19. In accordance with Exhibit B entitled "Environmental Guidelines For Construction and Maintenance Activities on Transmission Line And Substation Projects" last revised "June 29, 2018", application of herbicides within 75' of any waterbody is prohibited. In all intermittent or perennial streams within the GOM DPS, herbicide application is prohibited within 100'. No herbicides shall be applied within Section 1 as a whole.

20. To minimize the potential for impacts to federally threatened small whorled pogonia, the permittee is prohibited from herbicide application within 100 feet of the 174-acre tract containing the occurrence of the plant at Greene, Maine. (The No Herbicide Zone is depicted in Figure 3-3, p. 69 of the BA).

21. Prior to the start of construction, the permittee shall conduct environmental training for all contractors, sub-contractors, and inspectors. Federal and state resource and regulatory staff shall be invited to attend and/or assist in the presentations. At a minimum, this training shall include actions to be taken to avoid and minimize direct and indirect impacts to aquatic resources such as wetlands, streams, Atlantic salmon streams, and vernal pools; small whorled pogonia habitat; and actions to be taken relative to interactions with Canada lynx.

22. Construction equipment that needs to access the transmission line during operations for repair or maintenance activities will follow the same procedures regarding stream crossings as employed during construction. No instream work is allowed in any intermittent or perennial stream within the GOM DPS. Temporary stream crossings may only use crane mats or bridges that completely span the waterway.

23. ATV usage for operations and maintenance activities by CMP, will be limited to the maximum extent practicable and potential ground or resource disturbance will be minimized by utilizing existing upland access ways and snowmobile trail bridges. To avoid or minimize effects to Atlantic salmon and its listed Critical Habitat from ATV usage for operations and maintenance activities, CMP will adopt the following procedures:

a. No fording of streams within the Sheepscot River and Sandy River watersheds or within 1,000 feet upstream of these watersheds will occur unless under frozen conditions. Within

these watersheds, ATVs may only cross unfrozen streams using mats or bridges that completely span the waterway.

b. Within mapped Critical Habitat but outside the Sheepscot River and Sandy River watersheds, fording of unfrozen streams may only occur under the following conditions:

1) To the maximum extent practicable, the crossing is dry, shallow, or exhibits low flows (note - low flows typically occur from July 15 to September 30 of any year). To the maximum extent practicable, the substrate at the crossing consists exclusively of coarse grained gravel, cobbles, rocks or ledge.

2) Destruction of riparian vegetation is avoided to the maximum extent practicable.

3) The stream is crossed at the narrowest practicable location.

4) The crossing frequency is limited to one to two transits per maintenance cycle, or to the minimum number required.

5) Erosion and sedimentation controls will be installed in areas of soil disturbance and any disturbed banks are promptly stabilized and revegetated as necessary.

c. Within the GOM DPS but outside mapped Critical Habitat, CMP operations and maintenance personnel shall still make every effort to cross streams under frozen conditions, to avoid the crossing, or to utilize mats or bridges (temporary or permanent) that span the waterway. For crossings that cannot be avoided during unfrozen conditions, CMP will still generally apply the best management practices listed above, but they are no longer prescriptive unless the crossing is within 1,000 feet upstream of mapped Critical Habitat.

d. CMP shall take all available and practicable measures to discourage impacts to sensitive resources from public ATV and snowmobile use during and after construction of the project including:

1) Communication and coordination with landowners, ATV and snowmobile clubs, sporting camps, and others that maintain recreational trails on or near the NECEC ROW, especially forest landowners in segments 1, 2, and 3.

2) Communication with local organized clubs through the State of Maine Department of Agriculture, Conservation and Forestry's Bureau of Parks and Lands, Off-Road Recreational Vehicle Office.

3) Use of signage and deterrents (e.g., boulders, gates, etc.) in areas of ATV activity with noted associated environmental impacts. At a minimum, the permittee shall install advisory signage on all identified trail crossings of perennial and intermittent streams within the ROW in the Sheepscot River and Sandy River watersheds or within 1,000 feet upstream of these watersheds.

4) Reporting of unauthorized ATV and snowmobile travel to law enforcement (e.g. Maine Warden Service) as needed to halt excessive disturbance of recently restored and stabilized areas or in instances where environmental impact associated with public use persists following the implementation of deterrents. Excessive disturbance and damage to streams and riparian areas within the GOM DPS must be reported to the USFWS Maine Field Office.

24. For any inadvertent release of drilling mud during the directional drill beneath the Kennebec River, the permittee shall comply with "Requirements for Inadvertent Fluid Release Prevention, Monitoring, and Contingency Plan for HDD Operations" (Exhibit F of the BA). In the event that an inadvertent release occurs, the USACE and the MDEP will be notified, as specified in Exhibit

F. The USFWS Maine Field Office will also be notified (Wende Mahaney at 207-902-1569 or wende_mahaney@fws.gov)

25. To minimize the project's potential impact to the federally threatened Canada lynx and its Critical Habitat between Starks to Beattie Township, the permittee shall implement the following measures:

26. CMP and CMP contractor/subcontractor vehicle traffic speeds on unimproved access roads during construction shall be kept less than 30 mph (road design speed) to minimize chance of collisions with lynx and other wildlife.

27. To the maximum extent practicable, the permittee shall gate access roads under CMP's direct control to vehicle traffic (not foot traffic) with approval from the landowner during the fall trapping and hunting seasons to further reduce the likelihood of incidental take of lynx.

28. Any Canada lynx road collisions or mortalities will be reported to the U.S. Fish & Wildlife Service's Ecological Services Maine Field Office and the USACE, Maine Project Office within 48 hours. Points of contact are Mark McCollough at mark_mccollough@fws.gov; 207-902-1570 and Jay Clement at jay.l.clement@usace.army.mil; 207-623-8367 respectively. Carcasses shall be collected, tagged with location and date found and by whom (with contact information), and frozen immediately and transferred to the Service. The Corps will immediately reinitiate consultation with the Service if there is any take of Canada lynx.

29. Should Canada lynx be observed during construction within the right-of-way during the denning season May1 to July 15, contractors and subcontractors will immediately suspend all activity in the vicinity of the occurrence, immediately leave the area unless it poses a safety concern, and notify project supervisors and environmental inspector(s). Environmental inspector(s) will consult with state wildlife officials, as well as the DOE, USFWS, and the USACE prior to proceeding with construction. The environmental training provided to all project personnel will include a discussion of these measures and any other specific protocols determined necessary for the protection of Canada lynx.

30. In the absence of active human activity, for any period of time where drilled or excavated holes for pole installation will remain open pending the sequential installation of the pole(s), the holes shall be completely covered by any means to minimize the risk of entrapment to lynx and other wildlife.

31. To avoid entrapment of lynx in fenced areas (e.g., substations in Segments 1, 2, and northern part of 3), fencing mesh size will be less than 2 inches by 2 inches (i.e. standard chain link fencing). Lynx escaping devices consisting of two leaning poles (trees with bark or rough surface greater than 5 inches in diameter) will be placed at a shallow angle (less than 35 degrees) in each corner of the fenced area. Any lynx found alive in fenced areas will be released immediately and reported to the Service within 48 hours. Any lynx found dead will be reported within 48 hours to the U.S. Fish & Wildlife Service's Ecological Services Maine Field Office and the Corps of Engineers, Maine Project Office within 48 hours. Points of contact are Mark McCollough at mark_mccollough@fws.gov; 207-902-1570 and Jay Clement at jay.l.clement@usace.army.mil; 207-623-8367 respectively.

32. To the maximum extent practicable, cleared areas beneath the transmission line shall beallowed/encouraged to develop a dense growth of low ground cover, shrub, and conifer tree species.

33. Routine vegetation management of the transmission line corridor shall be in accordance with the applicant's post-construction vegetation management plan in Exhibit D, updated June 25, 2020.

34. Future commitments by CMP (Maine DEP order, p. 81) to mitigate wildlife and fisheries impacts of the NECEC include a Conservation Plan and management plans for 40,000 acres to be conserved by conservation easement or fee title acquisition in the vicinity of Segment 1. To ensure that these plans do not adversely affect or take federally listed species and to promote the conservation of Canada lynx, northern long-eared bats, and other federally listed species, the permittee shall furnish the USFWS with copies of all submittals required by the Maine DEP to solicit Service review and comment and participation in future interagency discussions.

35. To assess impact to the small whorled pogonia, the permittee shall monitor small whorled pogonia within the property owned by CMP adjacent to the 174-acre tract in Greene each year during construction, for the three consecutive years following completion of the NECEC, and every third year thereafter until such time that the Service and Maine Natural Areas Program deem monitoring no longer necessary.

36. The permittee shall permanently record all natural resource buffers, including those related to Atlantic salmon and small whorled pogonia, upon completion of construction (e.g. GPS coordinates) and shall further highlight them with flagging prior to any future maintenance activities.

United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Maine-New Hampshire Fish and Wildlife Service Complex
Ecological Services
Maine Field Office
P.O. Box A
306 Hatchery Road
East Orland, Maine 04431
207/469-7300 Fax: 207/902-1588

September 30, 2020

Frank J. Del Giudice
US Army Corps of Engineers
New England District
696 Virginia Road
Concord, Massachusetts 01742-2751

RE: New England Clean Energy Connect project 05EME00-2017-I-0579

Dear Mr. Del Giudice:

Thank you for your letter dated September 22, 2020 seeking to re-initiate consultation with the U.S. Fish and Wildlife Service (Service) concerning the Central Maine Power Company, New England Energy Connect project (NECEC) pursuant to Section 7 of the Endangered Species Act (ESA) as amended (16 U.S.C. 1531et seq.). The Army Corps of Engineers (Corps) provided the Service with revised permit conditions for this project. The Corps determined that these revised permit conditions do not alter the determination of effects to any federally listed species as previously provided in the Corps' June 2020 Biological Assessment for the NECEC project.

The Service reviewed these revised permit conditions and discussed them with the Corps and the Department of Energy (DOE). We agree with these proposed revisions to your permit conditions. As previously discussed with the Corps and the DOE on September 15, 2020, these revisions do not alter our analysis of effects to federally listed species as presented in our July 07, 2020 ESA section 7 consultation concurrence letter. Therefore, we do not need to re-initiate informal consultation pursuant to the section 7 of the ESA. If you have any questions, please contact me by email at *Anna_Harris @fws.gov* or by telephone at 207/902-1567.

Sincerely,

Anna Harris
Project Leader
Maine Field Office
Maine-NH Fish and Wildlife Complex

cc: Jay Clement USACE Maine Project Office
Melissa Pauley – Department of Energy
Gerry Mirabile – Central Maine Power

FINAL BIOLOGICAL ASSESSMENT

For the Proposed

New England Clean Energy Connect (NECEC)

Project

Prepared by:

Central Maine Power Company and

Burns & McDonnell Engineering Company, Inc.

for:

Department of the Army

New England District, Corps of Engineers

Application No. NAE-2017-01342

United States Department of Energy

Office of Electricity

1000 Independence Avenue, SW

Washington, DC 20585

Presidential Permit Docket # PP-438

June 2020

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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
4(d) rule	Section 4(d) of the ESA
AADT	Annual Average Daily Traffic
BA	Biological Assessment
BMPs	Best Management Practices
BO	Biological Opinion
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
CFR	Code of Federal Regulations
CMP	Central Maine Power Company
DOE	United States Department of Energy
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	U.S. Endangered Species Act
GOM DPS	Gulf of Maine Distinct Population Segment
HDD	Horizontal Directional Drill
HQT	Hydro Québec TransEnergie, Inc.
HRE	Hydro Renewable Energy, Inc.
HUC	Hydrologic Unit Code
HVDC	High Voltage Direct Current
MBPC	Maine Board of Pesticides Control
MDEP	Maine Department of Environmental Protection

Abbreviation	Term/Phrase/Name
MDIFW	Maine Department of Inland Fisheries and Wildlife
MDOT	Maine Department of Transportation
MESA	Maine Endangered Species Act
MNAP	Maine Natural Areas Program
MVCD	Minimum Vegetation Clearing Distance
MW	Megawatt
NECEC	New England Clean Energy Connect
NEPA	National Environmental Policy Act of 1969
NERC	North American Electric Reliability Corporation
NLEB	Northern long-eared bat
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OHWM	Ordinary High Water Mark
Plt	Plantation
PBO	Programmatic Biological Opinion
ROW	Right-of-Way
RTE	Rare, Threatened, and Endangered
SWP	Small whorled pogonia
T&E Species	Federally listed threatened and endangered species
Twp	Township
US	United States
USACE	United States Army Corps of Engineers

Abbreviation	Term/Phrase/Name
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
VCP	CMP's Construction Vegetation Clearing Plan
VMP	CMP's Post-Construction Vegetation Management Plan
WNS	White-Nose Syndrome
WNSZ	White-Nose Syndrome Zone

This document is intended to act as a stand-alone information package for Central Maine Power Company's ("CMP's" or the "Applicant's") New England Clean Energy Connect ("NECEC") Project ("NECEC Project" or the "Project") to assist the United States ("US") Army Corps of Engineers ("USACE"), U.S. Department of Energy ("DOE"), and U.S. Fish and Wildlife Service ("USFWS") with the Endangered Species Act ("ESA") Section 7 consultation for the Atlantic salmon, small whorled pogonia ("SWP"), Canada lynx, and northern long-eared bat ("NLEB"). The Atlantic salmon designated critical habitat and Canada lynx designated critical habitat will also be addressed in this Biological Assessment ("BA").

PROJECT SUMMARY

CMP, as the Applicant, proposes to construct the NECEC Project, a High Voltage Direct Current ("HVDC") transmission line and related facilities capable of delivering up to 1,200 megawatts ("MW") of electric generation from the Québec-Maine border to the point of first interconnection with the New England Transmission System at CMP's existing Larrabee Road Substation in Lewiston, Maine ("Larrabee Road Substation"). CMP is the developer of the portion of the NECEC Project from the Québec-Maine border to the Lewiston, Maine area and all transmission upgrades on the U.S. side of the border. The facilities on the U.S. side of the border are entirely located in Maine. The NECEC Project will cross the Québec-Maine border in Beattie Township ("Twp"). The Québec portion of the NECEC Project will be constructed, owned, and operated by Hydro Québec TransEnergie, Inc. ("HQT"), an affiliate of Hydro Québec and Hydro Renewable Energy, Inc. ("HRE").

This BA has been prepared to assist the USACE, the lead federal Action Agency, and DOE, a cooperating agency, in assessing the effects of the proposed Project on federally endangered and/or threatened species and any associated critical habitat.

The findings of this BA include:

- Atlantic salmon (*Salmo solar)* – May affect, but not likely to adversely affect.
- Small whorled pogonia (*Isotria medeoloides*) – No effect.
- Canada lynx (*Lynx canadensis*) – May affect, but not likely to adversely affect.
- Northern long-eared bat (*Myotis septentrionalis*) – May affect.
- Critical Habitat for the Atlantic salmon – May affect, but not likely to adversely affect.
- Critical Habitat for the Canada lynx – May affect, but not likely to adversely affect.

1.0 INTRODUCTION

1.1 Purpose of the BA

BAs may serve many purposes, but the primary purpose, as stated in 50 CFR §402.12, is to "evaluate the potential effects of the action on listed and proposed species and designated and proposed critical habitat and determine whether any such species or habitat are likely to be adversely affected by the action," and the BA "is used in determining whether formal consultation or a conference is necessary." The "action" or "Major Federal action" (40 CFR § 1508.18) to be undertaken for the NECEC Project, is the issuance of a permit under Section 404 of the Clean Water Act and Section 10 of the Rivers & Harbors Act (Individual Permit) by the USACE and the issuance of a Presidential permit by the DOE.

When there is a project where more than one federal agency is involved, the agencies will determine which agency will be the "lead federal action agency." The lead federal action agency will conduct Section 7 consultation, a requirement of the ESA (16 U.S.C. §§ 1531 et seq.). The USACE and DOE determined that the USACE would be the lead action agency for the NECEC Project and will conduct consultation with the USFWS under Section 7 of the ESA. This BA will also serve to fulfill the DOE's responsibilities as a cooperating agency. This BA will serve to evaluate the potential impacts of the NECEC Project on federally listed threatened and endangered species ("T&E Species"), for consultation with the USFWS.

Additionally, the National Environmental Policy Act of 1969 ("NEPA") (42 U.S.C. § 4321 et seq.) process is triggered when a major federal action is to be undertaken. Under NEPA, the federal action agency will prepare an Environmental Assessment ("EA") or an Environmental Impact Statement ("EIS"), and the findings of this BA will assist the USACE and DOE in preparation of that document. A thorough analysis of alternate actions considered by the USACE for the proposed action will be included in the EA or EIS prepared for the Project and is incorporated herein by reference.

1.2 Requirements of ESA

The ESA, enacted in 1973, gave federal authority for the purposes of providing "a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved" (16 U.S.C. §§ 1531 et seq.). Under the ESA, federal agencies are required to "utilize their authorities….to carry out programs for the conservation of endangered species and threatened species" and to "insure that any action authorized, funded or carried out…is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species." 16 U.S.C. §§ 1531, 7(a)(1) and 7(a)(2). The USFWS and the National Oceanic and

Atmospheric Administration ("NOAA") are the federal agencies that are responsible for administering the ESA. Typically, the USFWS is the lead agency in issues dealing with inland wildlife species and habitat, while NOAA takes the lead with marine fish species and habitat.

Section 7 of the ESA, "Interagency Cooperation," is the instrument or process by which federal agencies execute consultation with other federal agencies to insure they do not harm endangered or threatened species by undertaking a "Major Federal action." For the NECEC Project, consultation under Section 7 occurs between the USACE, the lead federal action agency; DOE, the cooperating agency; and the USFWS. The preparation and findings of this BA serve as the groundwork of the consultation process.

1.3 Agency Consultation

The Applicant contacted federal natural resource agencies to obtain existing data on wildlife and fisheries resources near the NECEC Project components. The Official Species List obtained through the ECOS-IPaC website fulfills the requirement for federal agencies to "request of the Secretary of the Interior whether any species which is listed or proposed to be listed may be present in the area of the proposed action, under 7(c) of the ESA, as amended (16 U.S.C. §§ 1531 et seq.).

The Official Species List, provided by the USFWS on January 15, 2020 did not identify any candidate or proposed species or proposed critical habitats as occurring within the boundary of the proposed action or potentially affected by the proposed action. The Official Species List identifies four (4) threatened or endangered species that may be present in the area of the proposed action, as follows:

- Atlantic salmon (*Salmo salar*) – Endangered
- Small whorled pogonia (*Isotria medeoloides*) – Threatened
- Canada lynx (*Lynx canadensis*) – Threatened
- Northern long-eared bat (*Myotis septentrionalis*) – Threatened

The list also identifies two (2) final designated, critical habitats:

- Critical Habitat for the Atlantic salmon (*Salmo salar*)
- Critical Habitat for the Canada lynx (*Lynx canadensis*)

Prior to filing applications for approval under the Maine Site Law and Natural Resources Protection Act ("NRPA") (September 2017), the Applicant consulted several times with the USFWS regarding federally listed species and their designated critical habitats. Additionally, CMP, USFWS, USACE, and DOE held a *NECEC Project Update and Section 7 Process Meeting* on June 1, 2018 to discuss the requirements of

the BA. In that meeting the USACE asked the Applicant to assist it in providing a draft of the BA, which would be submitted by the USACE to the USFWS.

The Applicant also consulted with the Maine Department of Inland Fisheries and Wildlife ("MDIFW") central office and regional biologists, and the Maine Natural Areas Program ("MNAP"), and participated in consultation meetings held jointly with multiple resource agencies, for those species that are also state listed under the Maine Endangered Species Act ("MESA"). Those state resource agencies provided relevant occurrence data previously gathered through research initiatives or permit applicant-funded studies.

A summary of consultations with the USACE, DOE, USFWS, MDIFW, and MNAP is provided below. Copies of the correspondence and meeting notes are located in Exhibit A of the BA.

- **May 9, 2017 –** Initial ECOS-IPAC Official Species List from USFWS. An up to date ECOS-IPAC Official Species List, dated January 15, 2020, is included in Exhibit A.

- **June 6, 2017 -** Memo of conversation with attendees Lauren Johnston (Burns & McDonnell), Wende Mahaney (USFWS), and Mark McCollough (USFWS) to discuss how to best prepare for the Interagency Resource Consultation Meeting on June 7, 2017. Topics included Canada lynx, SWP, bald eagle, NLEB, Atlantic salmon, rusty patch bumblebee, and yellow banded bumblebee.

- **June 7, 2017** - Interagency Resource Consultation Meeting (minutes prepared by Burns & McDonnell), with representatives from MDIFW, Wende Mahaney/USFWS and Mark McCollough/USFWS, CMP, and Burns & McDonnell, to discuss wildlife, rare plants, and fishery resources in the Project area.

- **June 23, 2017** - Email from Wende Mahaney/USFWS to Lauren Johnston/BMcD. Subject: QMI Canada lynx Section 7 review area shapefile. Email originated from Lauren Johnston to Mark McCollough on June 22, 2017 requesting a shapefile from USFWS for the Canada lynx Section 7 review area.

- **August 14, 2017 –** Email from Wende Mahaney/USFWS to Lauren Johnston/BMcD. Subject: Northern Long-eared Bat Hibernacula. Email chain originated from Mark Goodwin (Burns & McDonnell) and sent to Cory Mosby (MDIFW) on February 27, 2017 to discuss locations of the

hibernacula, seven other bat species identified in MDIFW letter dated 6/5/2017, and maternity roost trees for the bats.

- **September 12, 2017 -** Email forwarded from James Morin/BMcD to Lauren Johnston/BMcD. Subject: Canada Lynx Habitat. Includes discussion in email originating from James Morin and sent to Jennifer Vashon (MDIFW) on June 27, 2017 to discuss the Canada lynx habitat along proposed Project corridor.

- **April 24, 2018** NECEC MNAP Working Session Meeting with Gerry Mirabile/CMP, Mark Goodwin/BMcD, Lauren Johnston/BMcD, Kristen Puryear/MNAP, Mark McCollough/USFWS (phone), Melissa Pauley/USDOE (phone)

- **May 22, 2018 -** Email response from Mark McCollough/USFWS to Mark Goodwin/BMcD. Subject: NECEC Draft Landscape Analysis and Field Survey Protocol- Rare, Threatened, and Endangered ("RTE") Plant and Exemplary Natural Communities. Email originated on May 21, 2018 by Mark Goodwin with an attachment of the draft landscape analysis which Mark McCollough responded to with comments on May 22, 2018.

- **May 31, 2018 -** Email from Mark McCollough/USFWS to Wende Mahaney/USFWS forwarded to Mark Goodwin/BMcD and Gerry Mirabile (CMP) by Jay Clement (USACE) on June 4, 2018. Subject: Metrics for lynx assessment NECEC Project. Email discussed the proposed Project corridor and Canada lynx critical habitat and Section 7 review area. It was requested that the effects of the NECEC Project on the lynx be documented in the USACE Biological Assessment and to include evaluation of 5 metrics and 4 best management practices to minimize impacts to lynx.
- **June 1, 2018 -** USFWS Update and Section 7 Process Meeting with Gerry Mirabile/CMP, Mark Goodwin/BMcD, Lauren Johnston/BMcD, Jay Clement/USACE, Wendy Mahaney/USFWS, Melissa Pauley/USDOE (via phone) (minutes prepared by Burns & McDonnell).

- **June 4, 2018** NECEC State-listed species working session with Gerry Mirabile/CMP, Mark Goodwin/BMcD, Lauren Johnston/BMcD, John Perry/MDIFW, Robert Stratton/MDIFW, Charlie Todd/MDIFW, Phillip deMaynadier/MDIFW

- **June 19, 2018 -** Email response from Mark McCollough/USFWS to Mark Goodwin/BMcD. Subject: NECEC Landscape Analysis Shapefiles. Email originated on June 15, 2018 from Mark Goodwin attaching the zip file containing the data sources for unique habitat features as well as survey blocks proposed for rare plant surveys for review, which Mark McCollough affirmed was adequate on June 19, 2018.

- **September 6, 2018** - Email from Wende Mahaney/USFWS to Jay Clement/USACE. Subject: NECEC Biological Assessment Draft TOC. Email originated from Mark Goodwin providing the draft TOC for the NECEC Biological Assessment for review and comment to the USACE and DOE. Comments from both agencies were relayed back to Mark Goodwin.

- **October 3, 2018 -** Meeting with CMP, BMcD, MNAP, MDEP and Mark McCollough/USFWS to discuss rare plant locations, including SWP, and unusual natural communities and avoidance and minimization measures (minutes prepared by Burns & McDonnell).

- **November 16, 2018 -** Memo of Conversation by Mark McCollough/USFWS to Jim Morin/BMcD to discuss Canada lynx and determine the southern extent of habitat analysis. USFWS requested that CMP request any new track data from MDIFW for the last few years in the towns south of the Section 7 review area.

- **December 7, 2018** - Response letter from Kristen Puryear/MNAP to Gerry Mirabile/CMP and Mark Goodwin/BMcD regarding MNAP's receipt and review of CMP's summary of proposed avoidance, minimization, and mitigation measures for rare plants and natural communities within the NECEC project, as well as the Compensation Plan submitted to the Maine Department of Environmental Protection and U.S. Army Corps of Engineers on October 19, 2018.

- **December 27, 2018** - Email from Jennifer Vashon/MDIFW to Jim Morin/BMcD, cc: John Perry, Mark Goodwin, Robert Stratton, and Amy Meehan. Subject: Guidance and protocols for the Canada Lynx habitat desktop analysis.

- **March 19, 2019 -** Federal Agency Coordination, Project Status, and Section 7 Consultation Meeting (minutes prepared by Burns & McDonnell).

- **March 20, 2019 -** Email from Mark McCollough/USFWS to Lauren Johnston/BMcD, Mark Goodwin/BMcD, and Don Cameron (MNAP). Subject: Small whorled pogonia survey timing.

- **March 21, 2019** - Conference call with the CMP team, USFWS, ACOE, MNAP to discuss small whorled pogonia with an emphasis on CMP's engineered solution to avoiding impacts to the one occurrence and exploring other options for returning to the original alignment including mitigation in the form of land preservation where known populations exist. Discussed upcoming presence/absence surveys on the parcel adjacent to the occurrence.

- **April 5, 2019 -** Email response from Mark McCollough/USFWS to Jim Morin/BMcD. Subject: Guidance and protocols for the Canada lynx habitat desktop analysis. On March 25, 2019, Jim Morin responded to Mark McCollough's November 6, 2018 email with delineation of the forest into stand types along the NECEC Project corridor in the Critical Habitat area and Section 7 review area giving a foundation of the lynx/hare habitat analysis. Mark responded on April 5, 2019 stating Jim's data will form the basis of the BA and offered a few request/suggestions.

- **May 29, 2019 -** Letter from USFWS Subject: Updated list (Official Species List) of threatened and endangered species that may occur in the proposed Project location, and/or may be affected by the proposed Project. No new listed or proposed species or critical habitats were identified beyond those considered in this draft BA.

- **December 17, 2019** - Teleconference with Wende Mahaney/USFWS, Jay Clement/USACE, Julie Smith (DOE), Melissa Pauley (DOE), Burns & McDonnell and CMP to discuss edits and comments on the draft BA (minutes prepared by Burns & McDonnell).
- **January 6, 2020** - Email from Mark McCollough/USFWS to Jay Clement/USACE. Subject: [Non-DoD Source] Re: [External] FW: examples in other BA's. The email references an agreement between Mark and Jay that a 1-mile buffer for the action area would be adequate for the Canada lynx in Maine.

- **January 15, 2020 -** Letter from USFWS Subject: Updated list (Official Species List) of threatened and endangered species that may occur in the proposed Project location, and/or may be affected by the proposed Project. No new listed or proposed species or critical habitats were identified beyond those considered in this draft BA.

- **April 2, 2020** - Email from Mark McCollough/USFWS to Jim Morin/BMcD, cc: Wende Mahaney/USFWS, Gerry Mirabile/CMP, Mark Goodwin/BMcD, and Lauren Johnston/USFWS. Subject: Reducing speed limits on logging road to avoid impacts to lynx.
- **May 29, 2020 -** Letter from USFWS Subject: Updated list (Official Species List) of threatened and endangered species that may occur in the proposed Project location, and/or may be affected by the proposed Project. No new listed or proposed species or critical habitats were identified beyond those considered in this draft BA.

- **May 29, 2020** Letter from USFWS Subject: Verification letter for the 'New England Clean Energy Connect' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Expected from the Take Prohibition.

2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 Overview of Project Segments and Transmission Line Route

The NECEC Project consists of a HVDC electric transmission line from the Québec-Maine border to the point of first interconnection with the New England Transmission System at CMP's existing Larrabee Road Substation in Lewiston, Maine and related facilities and modifications to existing facilities. The new facilities and modifications to existing facilities are further described below.

Segments 1, 2, & 3 – HVDC Components and Associated Upgrades

- New 145.1-mile +/-320kV HVDC transmission line from the Canadian border to a new converter substation located north of Merrill Road in Lewiston, with 53.1 miles of the 145.1 miles in a new corridor from the Canadian border to The Forks Plantation ("Plt") (Segment 1). The HVDC transmission line will also pass beneath the Kennebec River via a horizontal directional drill ("HDD"), which will require termination stations on both sides of the river in Moxie Gore and West Forks, as discussed further in Section 2.2.3, pages 20-21 of the BA);
- New 1.2-mile 345kV HVAC transmission line from the new Merrill Road Converter Station to the existing Larrabee Road Substation;
- Partial rebuild of 0.8 mile of 34.5kV Section 72 AC transmission line outside of the Larrabee Road Substation to make room in the corridor for the 1.2-mile, 345kV Transmission Line;
- New +/-320kV HVDC to 345kV HVAC 1200MW Merrill Road Converter Station;
- Addition of 345kV transmission line terminal at the existing Larrabee Road Substation.

Segment 4 – 345kV STATCOM Substation and 115kV Rebuilds

- New 345kV +/-200MVAR STATCOM Fickett Road Substation;
- New 0.3-mile 345kV AC transmission line from the existing Surowiec Substation in Pownal to the new STATCOM Substation on Fickett Road in Pownal;
- Rebuild 16.1 miles of 115kV Section 64 AC transmission line from the existing Larrabee Road Substation to the existing Surowiec Substation;
- Rebuild 9.3 miles of 115kV Section 62 AC transmission line from the existing Crowley Road Substation in Lewiston to the existing Surowiec Substation.

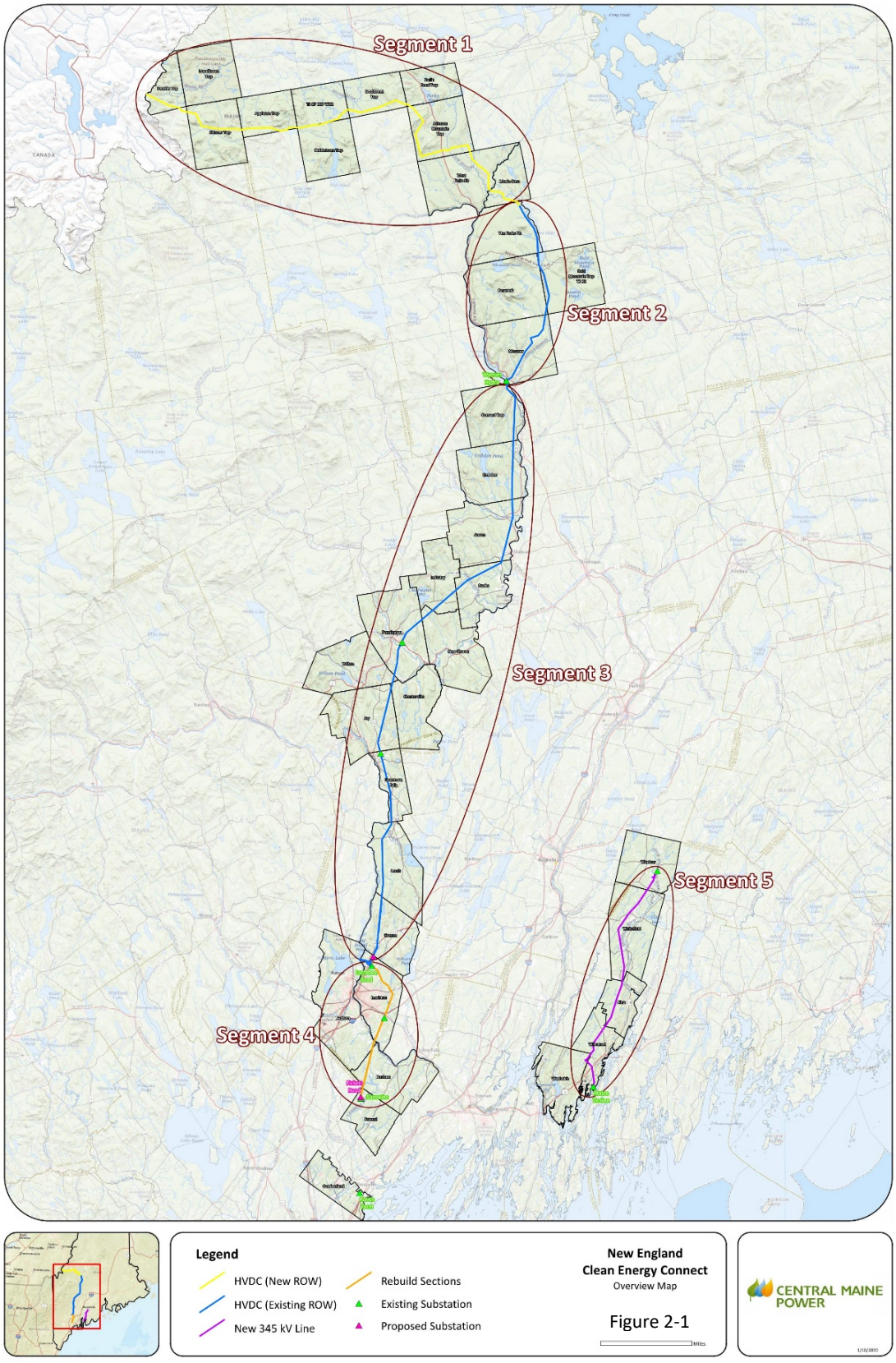
Segment 5 – New 345kV Transmission Line and Associated Rebuilds

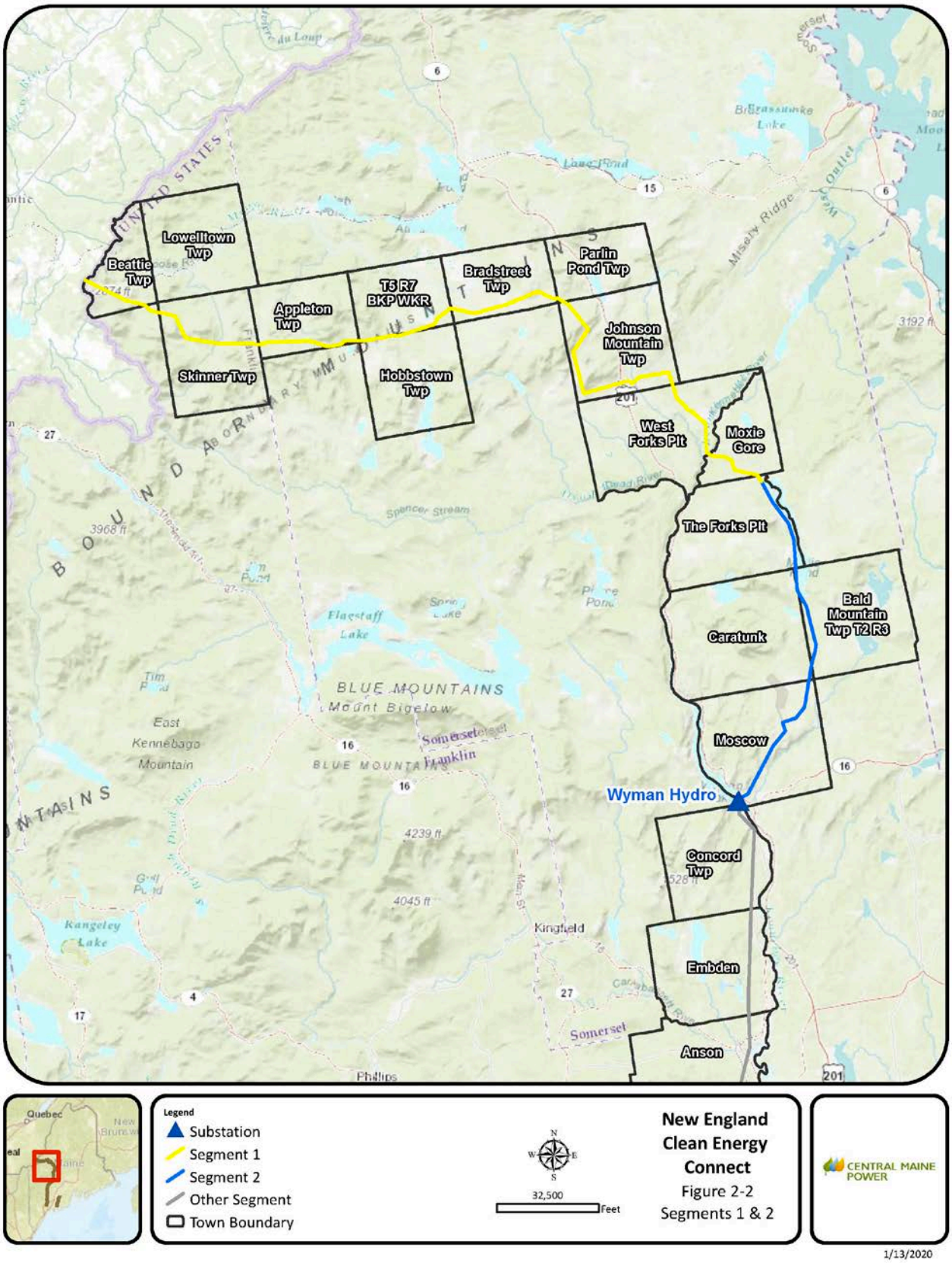
- New 26.5-mile 345kV AC transmission line from the existing Coopers Mills Substation in Windsor to the existing Maine Yankee Substation in Wiscasset;

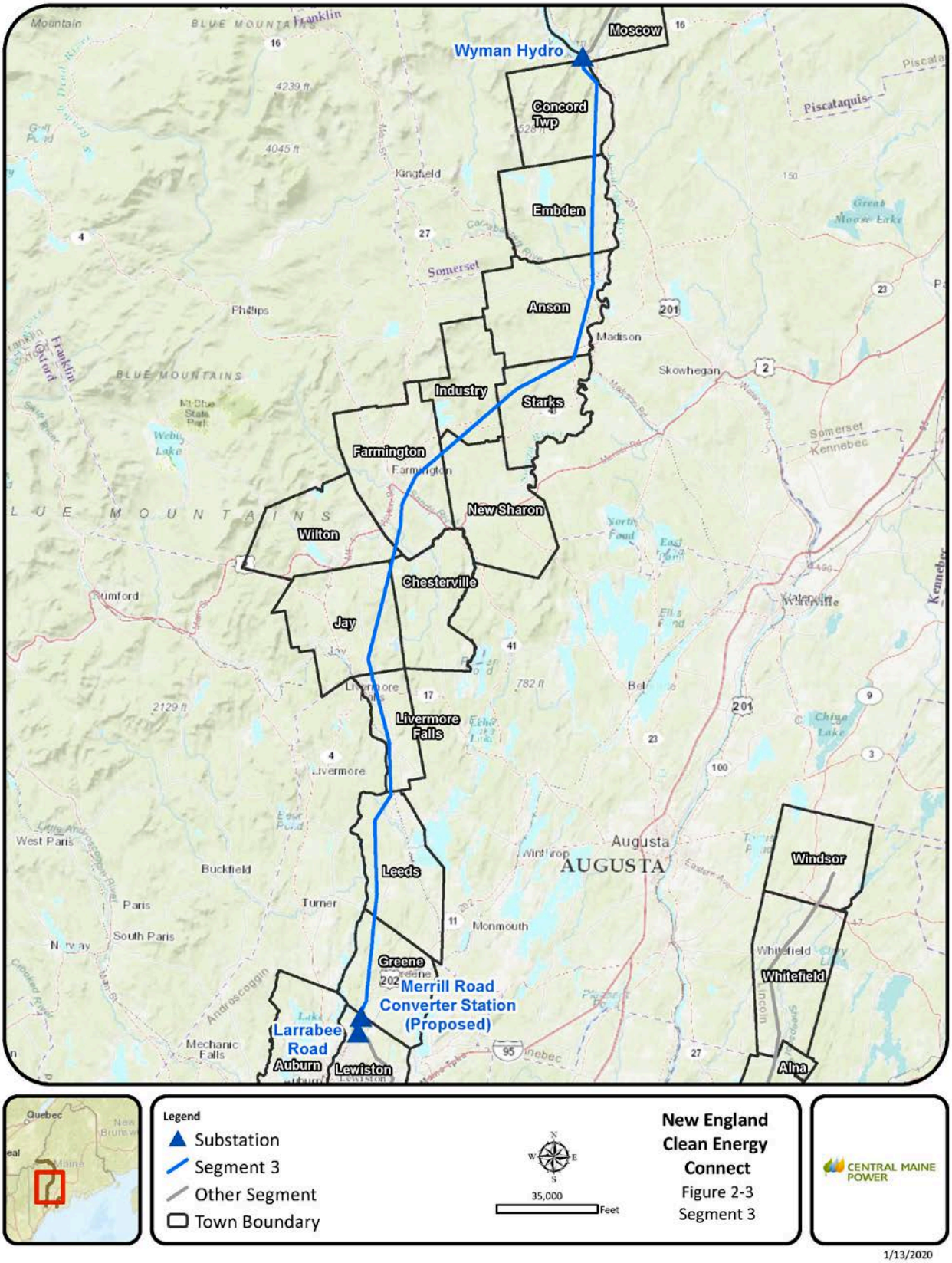
- Partial rebuild of 0.3 mile of 345kV Section 3025 between Larrabee Road Substation and Coopers Mills Substation;
- Partial rebuild of 0.8 mile of 345kV Section 392 between Maine Yankee Substation and Coopers Mills Substation; and
- Partial rebuild of 0.8 mile each of 115kV Section 60/88 outside of Coopers Mills Substation.

Additional equipment installation and upgrades will be required at Larrabee Road Substation (Lewiston), Crowley's Substation (Lewiston), Surowiec Substation (Pownal), Raven Farm Substation (Cumberland), Coopers Mills Substation (Windsor), and Maine Yankee Substation (Wiscasset), as detailed in Section 2.2. Substations, termination stations, and the converter station facilities are collectively referenced herein as "substations."

Maps dividing the Project into segments for ease of reference are provided in Figures 2-1 to 2-4 on pages 11-14 within the BA. Table 2-1, pages 15-19 within the BA, provides specific attributes by Project segment. Additionally, Section 4.0, pages 74-81 of the BA provides the environmental baseline conditions per segment.


Segment 1
Segment 2
Segment 3
Segment 4
Segment 5
Legend
HVDC (New ROW)
HVDC (Existing ROW)
New 345 kV Line
Rebuild Sections
Existing Substation
Proposed Substation
New England
Clean Energy Connect
Overview Map
Figure 2-1
CENTRAL MAINE POWER


Lowelltown Twp
Beattie Twp
Appleton Twp
T5 R7 BKP WKR
Bradstreet Twp
Parlin Pond Twp
Johnson Mountain Twp
Skinner Twp
Hobbstown Twp
West Forks Plt
Moxie Gore
The Forks Plt
Caratunk
Bald Mountain Twp T2 R3
Moscow
Wyman Hydro
Concord Twp
Embden
Anson
BLUE MOUNTAINS
Mount Bigelow
East Kennebago Mountain
Flagstaff Lake
Kingfield
Somerset
Franklin
Phillips
Rangeley Lake
Spencer Stream
Legend
Substation
Segment 1
Segment 2
Other Segment
Town Boundary
32,500
Feet
New England Clean Energy Connect
Figure 2-2
Segments 1 & 2
CENTRAL MAINE POWER
1/13/2020


Wyman Hydro
Moscow
Concord Twp
Embden
Anson
Madison
Skowhegan
Industry
Starks
Farmington
New Sharon
Wilton
Chesterville
Jay
Livermore Falls
Leeds
Greene
Merrill Road Converter Station (Proposed)
Larrabee Road
Auburn
Lewiston
Windsor
Whitefield
Alna
AUGUSTA
Augusta
Piscataquis
Somerset
Kennebec
BLUE MOUNTAINS
Legend
Substation
Segment 3
Other Segment
Town Boundary
35,000
Feet
New England Clean Energy Connect
Figure 2-3
Segment 3
CENTRAL MAINE POWER
1/13/2020

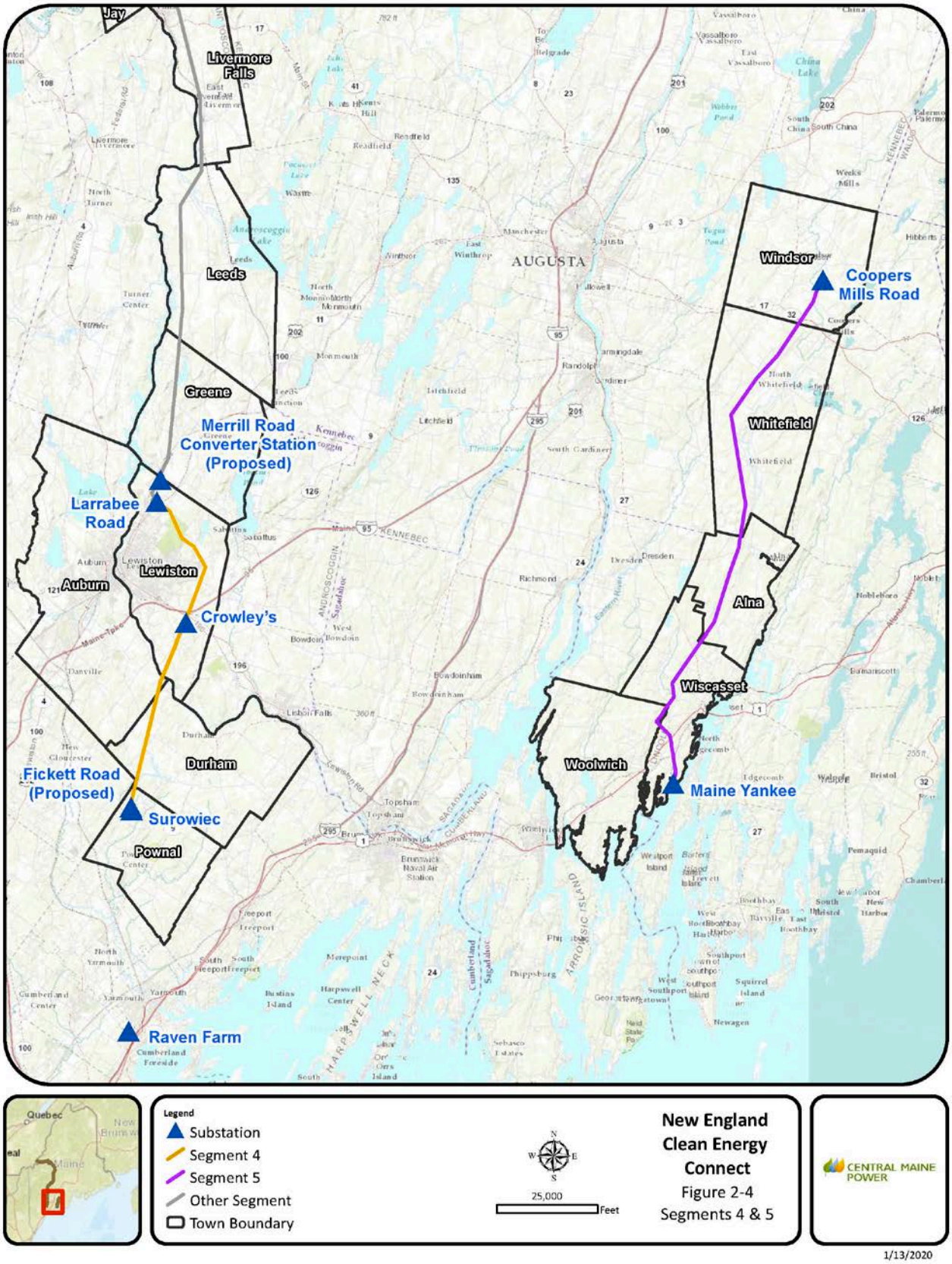

Jay
Livermore Falls
Leeds
Greene
Merrill Road Converter Station (Proposed)
Larrabee Road
Lewiston
Auburn
Crowley's
Fickett Road (Proposed)
Durham
Surowiec
Pownal
Raven Farm
AUGUSTA
Windsor
Coopers Mills Road
Whitefield
Alna
Wiscasset
Woolwich
Maine Yankee
Legend
Substation
Segment 4
Segment 5
Other Segment
Town Boundary
25,000
Feet
New England Clean Energy Connect
Figure 2-4
Segments 4 & 5
CENTRAL MAINE POWER
1/13/2020

Table 2-1: Specific Attributes by Project Segment

Segment	Segment Length (miles)	Corridor Type	Municipalities	CMP Section #	Voltage (kV)	New/ Rebuild	Section Length (miles)	Location	Existing Cleared ROW Width (Typical/feet)	Additional Clearing Width required (Typical/feet)	Clearing Acres
1	53.1	New	Beattie Twp, Merrill Strip Twp, Skinner Twp, Appleton Twp, T5 R7 BKP WKR, Hobbstown Twp, Bradstreet Twp, Parlin Pond Twp, Johnston Mountain Twp, West Forks Plt, Moxie Gore, The Forks Plt	3006	320kV	New	53.1	From the Canadian Border within Beattie Twp to an intersect with the existing Section 222 corridor in The Forks Plt	0	54	303.5
2	21.9	Existing	The Forks Plt, Caratunk, Bald Mtn Twp T2 R3, Moscow	3006	320kV	New	21.9	From the intersect with the Section 222 corridor to Wyman	150	75	176.8

Segment	Segment Length (miles)	Corridor Type	Municipalities	CMP Section #	Voltage (kV)	New/ Rebuild	Section Length (miles)	Location	Existing Cleared ROW Width (Typical/feet)	Additional Clearing Width required (Typical/feet)	Clearing Acres
								Hydro Substation in Moscow			
3	71.1	Existing	Concord Twp, Embden, Anson, Starks, Industry, Farmington, New Sharon, Chesterville, Wilton, Jay, Livermore Falls, Leeds, Greene, Lewiston	3006	320kV	New	69.9	Wyman Hydro Substation in Moscow to the new Merrill Road Converter Substation in Lewiston	150 to 200	75	537
				3007	345kV	New	1.2	Merrill Road Converter Substation to the existing Larrabee Road Substation			

Segment	Segment Length (miles)	Corridor Type	Municipalities	CMP Section #	Voltage (kV)	New/ Rebuild	Section Length (miles)	Location	Existing Cleared ROW Width (Typical/feet)	Additional Clearing Width required (Typical/feet)	Clearing Acres
				72	34.5kV	Rebuild	0.8	Rebuild outside of the Larrabee Road Substation			
4	16.4	Existing	Lewiston, Auburn, Durham, Pownal	62	115kV	Rebuild	9.3	Crowley Road Substation in Lewiston to the existing Surowiec Substation	350 to 400	0	1.4
				64	115kV	Rebuild	16.1	Larrabee Road Substation to the existing Surowiec Substation in Pownal			

Segment	Segment Length (miles)	Corridor Type	Municipalities	CMP Section #	Voltage (kV)	New/ Rebuild	Section Length (miles)	Location	Existing Cleared ROW Width (Typical/feet)	Additional Clearing Width required (Typical/feet)	Clearing Acres
				3005	345kV	New	0.3	Adjacent to Surowiec Substation in Pownal			
5	26.5	Existing	Windsor, Whitefield, Alna, Wiscasset, Woolwich	3027	345kV	New	26.5	From the existing Coopers Mills Substation in Windsor to the existing Maine Yankee Substation in Wiscasset	300	0 to 75	19.3
				3025	345kV	Rebuild	0.3	Partial rebuild near Coopers			

Segment	Segment Length (miles)	Corridor Type	Municipalities	CMP Section #	Voltage (kV)	New/ Rebuild	Section Length (miles)	Location	Existing Cleared ROW Width (Typical/feet)	Additional Clearing Width required (Typical/feet)	Clearing Acres
								Mills Substation			
				392	345kV	Rebuild	0.8	Partial rebuild near Coopers Mills Substation			
				60/88	115kV	Rebuild	0.8	Rebuild outside of Coopers Mills Substation			

2.2 Overview of Project Substations

The NECEC Project will require new substation facilities and modifications and upgrades to existing facilities. Modifications to six existing CMP substation facilities, as follows, will occur within the existing substation footprints, with no site expansion or tree clearing required:

- Coopers Mills Substation in Windsor;
- Crowley's Substation in Lewiston;
- Larrabee Road Substation in Lewiston;
- Maine Yankee Substation in Wiscasset;
- Surowiec Substation in Pownal; and
- Raven Farm Substation in Cumberland.

The following subsections discuss the new substation facilities. Table 2-2 on page 21 of the BA summarizes those new facilities.

2.2.1 Merrill Road Converter Station: +/-320kV HVDC to 345kV HVAC 1200MW

A new DC to AC converter substation is proposed north of Merrill Road in Lewiston, approximately 1.2 miles north of Larrabee Road Substation. The substation will sit on a 54.2-acre parcel of mostly wooded land that is a mix of somewhat steep terrain and low-lying wetlands and includes an existing electric transmission line corridor. The substation footprint will be approximately 7.10 acres and will be fenced and finished with a crushed stone surface. The yard will consist of electrical equipment and associated foundations. The access road will consist of gravel. The site will consist of 10.71 acres of developed area, including the fenced substation yard and access road.

2.2.2 Fickett Road Substation: 345kV +/-200 MVAR STATCOM

The proposed Fickett Road Substation will be located directly across Allen Road from the existing Surowiec Substation and will occupy a footprint of approximately 3.75 acres on a 19.61-acre parcel that is occupied by existing 345kV and 115kV transmission lines. The substation will be fenced and finished with crushed stone and will include the installation of a 345kV +/-200MVAR STATCOM, three 345kV 100MVAR capacitor banks, and related bus and site work. The total developed area, which includes a gravel access road and substation yard, will be 4.87 acres.

2.2.3 Moxie Gore and West Forks Termination Stations

As part of the HDD to install the transmission line under the Upper Kennebec River, termination stations will be required on each side of the river to transition the transmission line from below ground to overhead. The Moxie Gore Termination Station (east side) and the West Forks Termination Station (west side) will be nearly identical in size and structure, each designed with a minimal footprint of 135 feet by

135 feet. The yards will be fenced and finished with a crushed stone surface, typical of CMP's substation yards. The yards will consist of electrical equipment and associated foundations (conduit riser, bus support, equipment support, transmission dead-end structures, etc.) arranged to perform the required functionality in a compact footprint. The termination stations will be passive and will contain no sound producing or light emitting equipment. A gravel access road will be constructed at each termination station, which will connect to existing logging roads.

The West Forks Termination Station will occupy approximately 0.77 acre. Approximately 2.48 acres will be disturbed during construction. The land disturbance will be required for the access road, termination station, and the temporary working platform/laydown for the HDD receiving site. Following construction, approximately 1.03 acres will remain as a permanently developed area and will contain the new termination station, access road, and associated impervious areas (foundations and steel structures).

The Moxie Gore Termination Station will occupy approximately 0.72 acre. Approximately 2.30 acres will be disturbed during construction. The land disturbance will be required for the access road, termination station and the temporary working platform for the HDD drilling operations site. Following construction, approximately 1.44 acres of the disturbed area will be restored and revegetated. Approximately 0.86 acre will remain as a permanently developed area and will contain the new termination station, access road, and associated impervious areas (foundations and steel structures).

Table 2-2: Substation Facility Development

NECEC Project Substation Facilities					
Facility	**Municipality**	**Megawatt/Voltage**	**Proposed Tree Clearing (acres)**	**Substation Footprint (acres)**	**Total Development Area (acres)**
Merrill Road Converter Station	Lewiston	1200MW	11.42	7.10	10.71
Fickett Road STATCOM	Pownal	345kV	1.41	3.75	4.87
Moxie Gore Termination Station	Moxie Gore	1200MW	1.79	0.77	1.03
West Forks Termination Station	West Forks	1200MW	1.13	0.72	0.86

2.3 Overview of the Action Area

The Action Area is defined in 50 CFR Part 402.02 as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The Action Area for the proposed Project includes both the aquatic and terrestrial habitats for the ESA-listed species for those segments that are affected. The Action Area includes not only the actual footprint of the proposed Project, but also the area within which a species or community might occur and experience the effects from a Project activity that extends beyond the footprint of the proposed Project, such as noise or downstream sedimentation.

For the purposes of this BA, the term Project Area, which is included within the Action Area, refers to the area within which construction activities will occur for the Proposed Action within the six Maine counties and 38 municipalities or townships. The Project Area does not contain any marine species; however, Atlantic salmon habitat exists within the Project Area.

For this BA, the Action Area includes designated critical habitat for Atlantic salmon and Canada lynx beyond the Project Area associated with protected terrestrial and aquatic species. The Action Area for aquatic and terrestrial species includes the footprint of the proposed Project Area; access roads used for ingress and egress to the Project right-of-way ("ROW"), substation development footprints and planned laydown areas for equipment storage; and the areas adjacent to the ROW, Laydown areas would be located within non-jurisdictional upland locations within the Project ROW and existing developed areas associated with logging yards and commercial uses. Through email correspondence on January 6, 2020, between the USACE and the USFWS (Exhibit A), it was agreed that the Action Area also includes a 1-mile buffer for the lynx.

The Action Area also includes the distance that sediment plumes can travel within a waterbody resource. In comments made by the USFWS to the draft version of this BA, it was requested that an area 1,000 feet downstream of waterbodies in the Project Area be included in the Action Area as it relates to Atlantic salmon and sediment plumes, as this is "generally what we use for salmon consultation".

2.4 Description of Construction Plan and Phases

The following construction plan provides an overview of the transmission line and substation construction techniques that will be implemented during construction of the NECEC Project. This plan is based on established transmission line and substation construction methods and is designed to minimize impacts to natural resources and expedite restoration after completion of construction activities. Construction will be performed in such a manner that: 1) natural resources are protected to the greatest extent practicable, 2)

construction crews safely construct the transmission lines and substations, 3) erosion and sedimentation is minimized, and 4) areas temporarily disturbed by construction are restored to original contours, to the extent practicable, and permanently stabilized.

The Project will not unreasonably interfere with natural water flow, violate any water quality law, or unreasonably cause or increase flooding (Ref. Maine DEP Permit/WQC). In addition, this plan minimizes the potential for long-term adverse harm to wildlife habitats, including fisheries.

This plan focuses on the established transmission line and substation construction methods that will be employed when traversing uplands, waterbodies, and wetlands; when clearing; and when constructing Project components. This plan also provides for flexibility to allow application of the most appropriate construction methods based on site-specific conditions; however, such flexibility will not result in any new or damaging effects to the listed species or their habitat as described in this BA. Additionally, the flexibility to allow application of the most appropriate construction methods will not involve, under any circumstances, instream work of any kind, at any location, at any time or for any size stream, unless otherwise approved by the USACE and MDEP.

It is estimated that construction of the NECEC transmission lines and substations will take place over 24 months as shown on Table 2-3. Construction activities are described in Section 2.4.1.

Table 2-3: NECEC Project Construction Schedule

CMP's Proposed Construction Schedule by Segment		
Segment	**Approximate Start Date**	**Approximate Finish Date**
1	August 2020	March 2022
2	February 2021	March 2022
3	August 2020	July 2022
4	December 2021	May 2022
5	May 2021	May 2022

2.4.1 Transmission Line Construction Sequence

The construction contractors will generally follow the conventional transmission line construction sequence listed below. Each item listed is independently discussed in the following subsections.

- Establish construction yards and on-site staging areas[3];
- Flag environmental resources and buffers, including the use of distinct colors and/or patterns to identify rare, threatened, and endangered species habitats;
- Complete the initial Project "walk-through" with the NECEC environmental inspector and construction superintendent, MDEP third party inspector, and construction contractor(s);
- Plan and install erosion and sedimentation controls and access at protected resources such as water bodies, wetlands, areas of saturated soils, and areas susceptible to erosion;
- Establish temporary short-term (typically eighteen months or less) construction access ways[4] including installation of crane mats (also known as construction or timber mats) to cross streams;
- Clear capable vegetation, i.e., species and specimens that are capable of growing into the conductor safety zone, as necessary (note: clearing activities are often concurrent with erosion and sedimentation control installation and access way establishment);
- Perform grading as necessary to accommodate construction equipment access roads and install erosion and sedimentation controls;
- Move poles and materials to structure installation and laydown locations;
- Complete test digging/drilling at various pole locations;
- Install erosion and sedimentation controls at structure locations;
- Excavate structure holes;
- Install structures;
- Complete restoration and grading around the structures;
- Establish "pull-pad" locations and move tensioning and pulling equipment into place;
- Thread and install pull ropes, conductor, and fiber optic wire;
- Clip conductor and remove blocks;
- Complete the construction inspection, clean-up, and restoration, and energize the line;
- Complete the final Project "walk-through" and restoration;

2.4.1.1 Establishing Construction Yards and On-Site Staging Areas

CMP will establish two principal working construction yards, both of which are existing developed lots, one of which is located in the Town of Madison and the other in the Town of Bingham. The construction yards will include temporary facilities such as an office trailer and portable toilet. Primary use of the

[3] Construction yards and on-site staging areas will be located in previously cleared locations and will not involve additional tree clearing.
[4] Construction access ways will be located within the ROW and are included in tree clearing calculations. If access is necessary from off-ROW locations, only locations that were previously cleared will be utilized.

laydown yards will be for steel pole staging. Equipment used would include tractor trailer combos, forklifts, cranes, box trucks, etc. for receipt, off-load, laydown, inventory, and distribution to the field. The construction yards will be sized at approximately 350,000 square feet and will be used year-round. Additionally, site-specific staging areas, utilized for temporary storage of construction equipment, materials and supplies, will be established by the contractors at strategic locations along the ROW, often where the transmission line crosses roads. The quantity, size, and location of the staging areas is currently unknown, but CMP estimates that 10 staging areas will be in use at the height of construction. Staging areas will be predeveloped sites where no additional clearing or site grading will be necessary (e.g., gravel pits, logging yards, etc.) and located away from protected natural resources and required riparian buffers. Staging areas will be used year-round. Staging areas may also be sited in cleared upland portions of the ROW. All contractor yards and staging areas will be restored to their original condition or better. Any staging area sited within the ROW will be restored per the requirements of CMP's Environmental Guidelines (Refer to Section 9 of Exhibit B).

2.4.1.2 Completing the Initial "Walk-Through" and Planning ROW Access

Prior to tree clearing or construction activities, the NECEC team will walk the length of the transmission line with the construction contractors to identify critical areas where construction and construction access may be difficult due to terrain (i.e., steep slopes, unstable soils), wetlands, and water course conditions, or the location of protected or sensitive natural resources. Available logging, farm, or access roads, as well as other existing rights-of-way, will be utilized for access to and from transmission line rights-of-way with permission of the respective landowners. In order to minimize ground disturbance, existing roads within the right-of-way and existing wetland/stream crossings will be used whenever possible for travel during construction, unless a route with less environmental impacts is identified and agreed upon during the walk-through. The movement of equipment and materials within the transmission line right-of-way will be confined as much as possible to a single road or travel path.

Erosion control placement, access road layout, wetlands, and stream crossing locations will be addressed with the construction contractors, with avoidance and minimization of wetland and waterbody impacts a priority. The type and location of erosion controls as well as the approach to wetlands and stream crossings, will be communicated to the construction contractors during the initial walk-through. Access areas and environmental resources will be flagged with a specified color of surveyor tape, and "no-access or special restriction" areas (such as certain stream buffers) will also be marked using appropriate color-coded tape. See Table 2-4.

Table 2-4: NECEC Project Resource Flagging Convention

Resources To Be Flagged	**Recommended Color/Pattern[1]**
Wetlands	Pink glow marked "wetland delineation"
Stream edge	Blue
75’ Riparian buffer (outside of GOM DPS)	Glow pink w/black stripe
100’ Riparian buffer for: all perennial streams in Segment 1; all Atlantic salmon streams in the GOM DPS; waterbodies located within designated critical habitat for Atlantic salmon; all streams containing RTEs; all brook trout habitat; all steams with the designation of an outstanding river segment, and all steams west of Moxie Pond	**Glow pink w/black stripe and white flagging**
Rusty blackbird or Bicknell’s thrush habitat	Yellow w/red dot
Maine significant vernal pool depressions	Yellow
Maine significant vernal pool 250-foot zone	Yellow w/black stripe
USACE vernal pool depression	Yellow w/black checkered
Inland wading bird & waterfowl habitats	Blue w/black stripe
Deer wintering areas	Green w/white stripe
Bald eagle	White w/black stripe
Mapped significant sand & gravel aquifers	White w/green dot
Rare plants[2]	Yellow w/black dot
No entry areas	Red
Wood turtle	Red w/black stripe
Tapered vegetation area	Red w/black dot
No clearing areas	Red/black checkered
Invasive plants	Green/black checkered
Other Flagging Types Used	
Edge of right of way	Orange
Edge of travel way/access road	White w/red stripe
Clearing limit	White w/blue stripe
Centerline of access road	White

[1]: Flagging colors and patterns subject to change depending on availability. Flagging in bold highlight indicates an ESA resource.

[2]: Rare plants include state listed species and the state and federally listed small-whorled pogonia..

2.4.1.3 Planning the Installation of Erosion Controls and Access

Installation of erosion controls and construction of temporary access ways including installation of crane mats to cross streams and wetlands, will be the first tasks completed. Erosion controls, temporary access

ways, and crane mats will be installed in accordance with CMP's Environmental Guidelines for Construction and Maintenance Activities on Transmission Line and Substation Projects ("Environmental Guidelines"), included in Exhibit B of the BA. CMP's guidelines include detailed erosion and sedimentation control measures, resource identification procedures, access road and equipment travel impact minimization measures, and restoration and stabilization measures that will reduce potential impacts to waterbody resources.

2.4.1.4 Establishing Temporary Construction Access Ways

Temporary Shorter-term Access Ways (typically eighteen months or less)

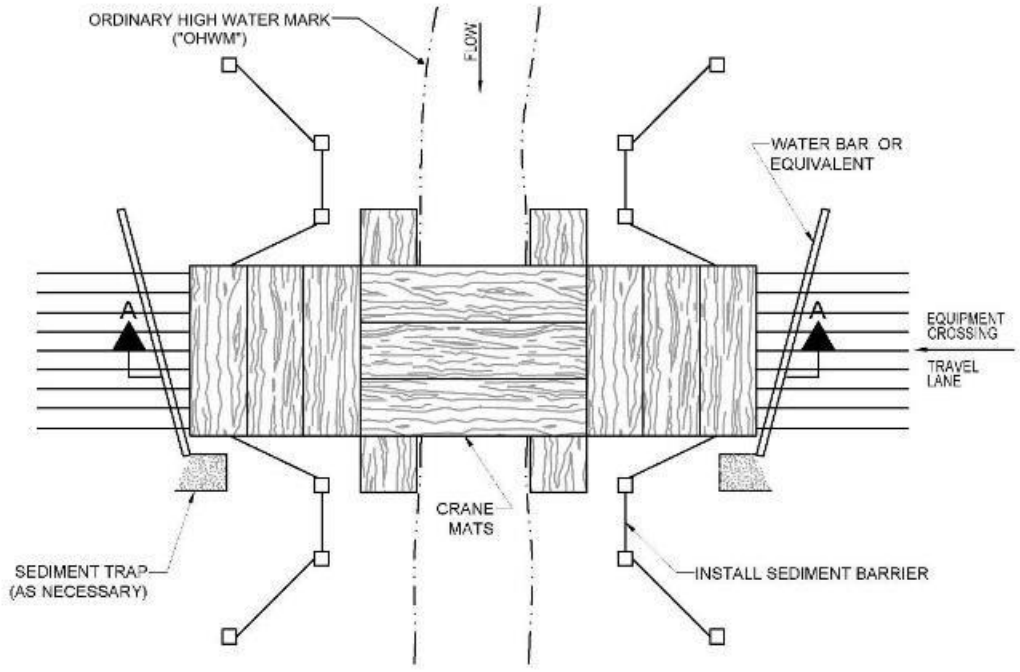
Temporary access ways will be established within the ROW to provide construction equipment access to the structure locations. This will be an ongoing process as access will be established to areas undergoing immediate construction. As construction progresses, new access ways will be established, and obsolete ones will be discontinued and restored as specified in CMP's application and regulatory approvals.

During frozen ground conditions without snow, paths will be designated, and crane mats will be installed in order to fully span streams. Crane mat spans will typically not exceed 20 feet in width. Stream spans greater than 20 feet will be avoided. Streams that cannot be safely spanned and/or whose crossing cannot minimize sedimentation will be avoided. In a situation where a wider stream is an impediment to safe crossing, access to structures on the opposite side of the stream would be accomplished from other directions on the ROW, rather than attempting to span the stream. During frozen ground conditions, access through most wetlands can be completed without the use of mats. Crane mats, either timber or fiberglass composite, will be used in wetland areas where the ground is not sufficiently frozen to support equipment. During winter construction with snow cover, packed snow paths ("snow roads") and ice paths may be created to provide a solid surface for heavy equipment to traverse. The need for crane mats to cross wetlands will be evaluated and discussed among CMP's environmental inspectors, the Maine Department of Environmental Protection ("MDEP") third party inspectors, and the construction contractors, on a location-specific basis. The role, responsibilities, skills, education, and experience required to be an environmental inspector for CMP are detailed in Exhibit K.

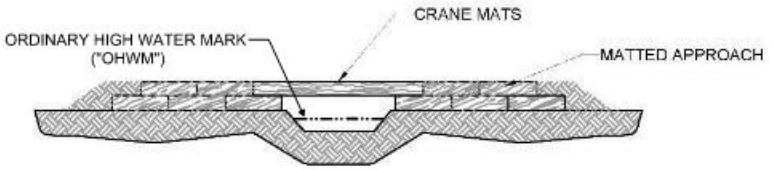
During non-frozen ground conditions, crane mats will be utilized to cross wetlands with standing water and/or organic soils, as well as streams and other areas particularly susceptible to rutting and erosion. This may require extensive utilization of crane mats. There may be instances where CMP's environmental inspectors, the MDEP third party inspectors, and the construction contractors conclude that crane mat installation, use, and removal would cause more disturbance than if no crane mats were used; in these cases, construction mats may not be used. No in water work will occur in streams, including those providing habitat for Atlantic salmon. No construction mats will be placed within these streams.

The typical use of crane mats to cross wetlands is depicted in the Environmental Guidelines. Cutting of non-capable vegetation, such as shrubs, in wetlands will be limited to those areas necessary for safe access. In these areas cutting will be selective. It is a priority to lay construction mats on top of shrub vegetation. No extensive grubbing (grading to remove root systems) within wetland crossing areas will be done prior to mat placement. However, some minor grading may be required to ensure mat stability and construction access safety. Such grading will be limited and only with prior approval from a CMP environmental inspector.

Stream crossings will be avoided to the maximum extent practicable. For crossings that cannot be avoided, stream width will be evaluated. Streams that can be spanned will be done so using either crane mats or steel I-beams overlain with crane mats. (See Section 4.0 Installation of Crossings within Exhibit B). Streams that are too wide to cross by spanning will be avoided. No in-stream work is proposed. At all stream crossings, crane mats and I-beams would be placed outside the stream, on uplands landward of the Ordinary High Water Mark ("OHWM") such that the mats will be elevated over the stream. Appropriate erosion controls will be installed at each stream crossing including water bars used in conjunction with sediment traps, as necessary, in addition to sediment barriers located upstream and downstream on both sides of the crossing (See Figure 2-5.). If necessary, crane mats will be placed parallel to the upland edge as abutments to further protect stream banks and to establish stability. Under no circumstances (including in Atlantic salmon streams within the GOM DPS and those that provide critical habitat for Atlantic salmon), will any stream crossing technique be used that involves in-stream work or the discharge of temporary or permanent fill.



PLAN VIEW
SCALE: N.T.S.



SECTION A-A
SCALE: N.T.S.

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TYPICAL STREAM CROSSING
FIGURE 2-5

Temporary Longer-term Access Ways (typically more than eighteen months)

Construction of the NECEC Project is scheduled to take place over 34 months. Project construction will not require leaving longer-term access roads, including crane mats as a means of crossing streams, in place for longer than 18 consecutive months.

2.4.1.5 Clearing Canopy Vegetation and Grading

Some of the NECEC transmission line corridor will require initial tree clearing and long-term vegetation maintenance, which will be performed in accordance with the NECEC Construction Vegetation Clearing Plan ("VCP") and Post-Construction Vegetation Maintenance Plan ("VMP") provided in Exhibit C and D of the BA, respectively. At the time of the writing of this BA (April 2020), and as a result of the anticipated timing of permit decisions and the construction schedule in relation to the NECEC in-service date, it is estimated that approximately 45% of tree clearing will occur during winter conditions, specifically within the December to March timeframe. However, tree clearing may occur at any location regardless of the time of year, with the exception of the June 1 to July 31 time of year restriction for the NLEB and subject to the timing of state, federal, and local permit issuance, and the construction schedule. Equipment used for tree clearing may include chainsaws, feller bunchers, timber forwarders, skidders, hydro-axes, and excavators. Trees and shrubs will be disposed of or chipped on site, consistent with the Maine Slash Law (12 M.R.S. §9333).

As required by the MDEP Final Permit issued for the NECEC Project on May 11, 2020, the standards for clearing in Segment 1 are significantly different than the other segments. Segment 1 will include a 39.02-mile-long, 54-foot-wide, cleared, scrub-shrub maintained portion of the ROW, with tapered vegetation beyond at 16-foot intervals. The forested intervals will have height steps of 15 feet, 25 feet and 35 feet as one moves from the edge of the 54-foot-wide area to the edge of the 150-foot corridor, except in specific areas where the Project will maintain either full height canopy vegetation, vegetation with a minimum height of 35 feet, or taller vegetation managed for deer travel corridors. The MDEP has established several Wildlife Areas where vegetation will be maintained in a forest condition for the full width of the ROW over the 14.08 miles of the 53.1-mile Segment 1. The identified areas with a required minimum vegetation height of 35 feet are listed in Exhibit C and identified as Wildlife Areas 1 through 5 and 7 through 10 in Table 2-1.

A tapered corridor, as presented in Exhibit C, includes a 54-foot wide area under the conductors (the wire zone) that is cleared during construction and maintained as scrub-shrub habitat during operation of the project. Outside the 54-foot wire zone, taller vegetation will be maintained within the 150-foot wide

ROW. This taller vegetation increases from 15 feet to 35 feet in height as the distance from the wire zone toward the edges of the ROW increases.

Initial clearing may be necessary in the tapered portions of the corridor, beyond the 54-foot wide area under the conductors, if tree heights exceed the various height steps discussed above or are anticipated to exceed these heights before the next maintenance cycle, or in Wildlife Areas 1 through 5 where even-aged stands are at a height that pose a danger to the line and warrants removal. After this initial clearing, trees will be allowed to grow into the long-term tapered and wildlife configurations described above and in Exhibit C.

Per the book Forest Trees of Maine, Centennial Edition 1908 - 2008, written in collaboration with the Maine Forest Service, a tree is defined as "a woody plant, generally single-stemmed, that reaches a height of more than 15 feet at maturity and a diameter of 3 inches or more measured at 4½ feet above the ground." Additionally, the US Forest Service defines forest land as "Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest uses. Lands developed for non-forest use include areas for crops, improved pasture, residential or administrative areas, improved roads of any width and adjoining road clearing, and power line clearings of any width." (36 CFR Part 219, Section 219.19). Therefore, any area beyond the 54-foot cleared and maintained portion of the 150-wide ROW, containing trees occupying at least 10 percent of the land cover, is considered forest land.

Danger trees will also be identified and cut down during tree clearing activity. "Danger trees" are standing dead, damaged, or dying trees located adjacent to the right-of-way itself that, due to their location, pose a risk of contact with the transmission line. Some danger trees may be within or adjacent to protected natural resources. Danger trees will be removed in accordance with the VCP and VMP (Exhibit C and D, respectively).

Construction of the NECEC Project will be performed in a wide array of vegetative cover types. As in past CMP projects, the height of cover will dictate the extent of transmission structure site preparation needed. In general, vegetation less than approximately 30 inches high will require little structure site preparation. Typically, construction personnel will drive over the vegetation and perform their work. However, in wet areas where moderate to severe rutting could occur, construction mats will be needed to minimize or avoid unnecessary environmental impacts. In these areas, some vegetation treatment will be necessary in order to set the construction mats in place so that they are flat and provide a safe work

platform. Vegetative treatment will remove vegetation to near ground level, but typically will not impact the plant's roots. Vegetative material removal may be performed using a mulching head, commonly referred to as a "brontosaurus," attached to a small, tracked, low-ground-pressure equipment, such as a Caterpillar Bobcat, or may be removed by hand, typically with a chainsaw. This approach allows for a safe work platform and is preferred because it causes less environmental damage and promotes a more rapid regrowth than uprooting woody growth by driving over it, a danger that is exacerbated by wet soils.

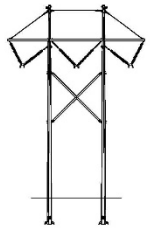
Areas that have vegetation higher than 30 inches will require more significant transmission structure site preparation. In these areas, the use of heavy equipment including excavators, bulldozers, and dump trucks to grub the area and place clean fill, may be required. Stumps in these areas will be removed if they are within the structure installation footprint, present an unsafe working condition or prohibit the establishment of a level working area. Grinding with a brontosaurus attachment or cutting stumps with a chainsaw so that they are flush with the ground surface will be the preferred method in wetland areas and adjacent to waterbodies.

The area requiring site preparation will vary by structure type. Basically, there will be six categories of structure types used on the NECEC Project: wood H-frame, wood monopole, steel monopole, steel H-frame, and three-pole dead-end and angle structures. Figure 2-6 depicts the typical transmission structure types. Figures 2-7A, B and C depicts the necessary structure preparation areas with the respective square footage for each type. Note that the shapes depicted are representative. The construction contractor(s) will be restricted to the square footage depicted, but the shape may vary based on need. The designs in Figures 2-7A, B and C consider the equipment needed to perform the work. As the structure members get larger, larger equipment is needed to perform the work. Also, larger structures require greater clearances. For example, a typical three pole wooden structure (EBR-2 in Figure 2-6) requires bucket trucks (approximately 50 feet long), cranes (approximately 40 feet long) and/or an excavator (approximately 20 feet long) for pole installation with clearance between outer conductors of 28 feet. Steel monopoles require much larger equipment, and some require the use of concrete trucks (for pouring foundations), requiring stable roads and larger work pads.

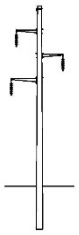
In addition to structure site preparation, vegetation removal will be required for installation of guy wires for some structure types. Guy wires are used to provide additional support for the poles in high stress conditions. In most cases, the distance the guy wire anchors are set from the base of the pole is equal to the height of the lowest conductor arm above the ground surface, which typically will be approximately 60 feet. On heavy angle (greater than 75 degrees) steel monopole structures, the distance the guy wire

anchors are set from the base of the pole is equal to the height of the static (topmost) wire above the ground surface, which typically will be approximately 100 to 120 feet. This additional workspace will normally only be needed on one of the two outer poles. The guy wire anchor for the remaining structures will be located in the work area prepared for the pole installation. Electric code requires the construction mats to be set in place so that they are flat and provide a safe work platform. Guy wires must be grounded, so a narrow lane between the guy wire anchor locations will require vegetative treatment to allow for installation of the counterpoise, or grounding wire.

In general, grading may be required, where terrain is uneven, for developing and stabilizing access roads and at excavation and pull-pad sites to establish safe access and working conditions. Conductor pull-pad setup locations may require leveling by limited grading in an approximately 175-foot by 100-foot area to assure equipment stability. These sites will typically be located in uplands; if absolutely necessary, however, sites may be set up in wetlands using construction mats.

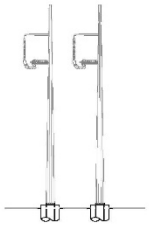


TYPE EAR-3
ROUNDWOOD H-FRAME
COMPACT TANGENT
982-T345R-3

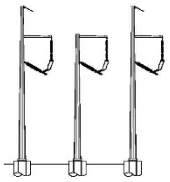


TYPE SCT
ROUNDWOOD SINGLE POLE
TANGENT
982-T115SCR-2

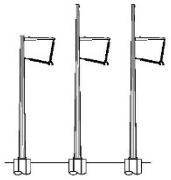
TYPE HVDC-TAN
STEEL SINGLE POLE
TANGENT



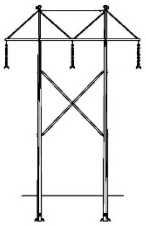
TYPE HVDC-DE
SELF-SUPPORTING
STEEL TWO-POLE
DEADEND



TYPE SEDR
STEEL H-FRAME STRUCTURE
0° - 100° ANGLE DEADEND
982-T345RS-4

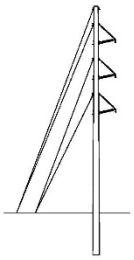


TYPE SEBR
STEEL H-FRAME STRUCTURE
3° - 20° ANGLE
982-T345RS-2



TYPE EAR-1
ROUNDWOOD H-FRAME
TANGENT
982-T345R-1

TYPE SCPB
ROUNDWOOD SINGLE POLE
BRACED-POST TANGENT
982-T115SCR-3



TYPE SCLA
ROUNDWOOD SINGLE POLE
BRACED-POST 0° - 10° ANGLE
982-T115SCR-9

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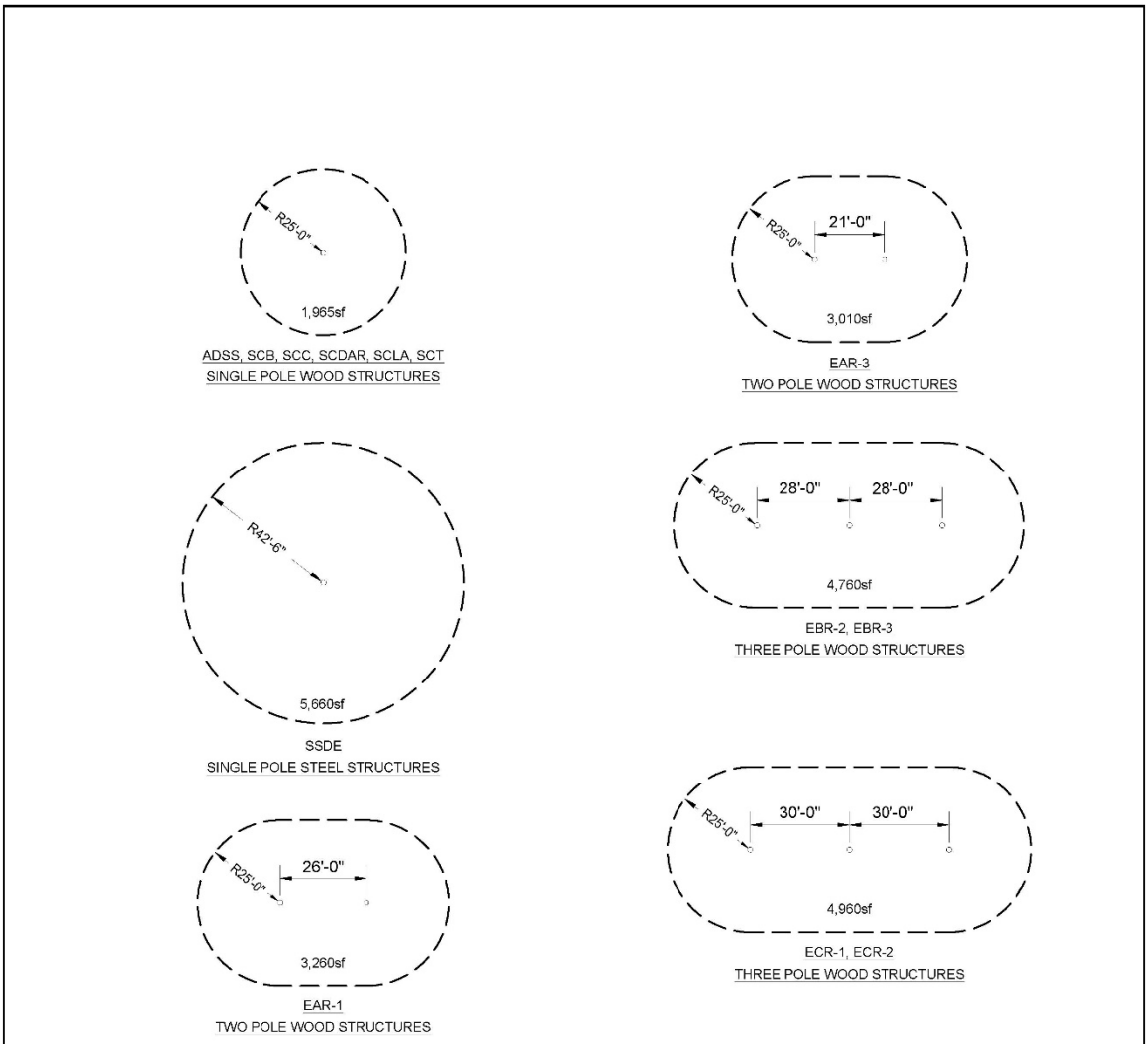
TYPICAL TRANSMISSION LINE
STRUCTURE TYPES
FIGURE 2-6



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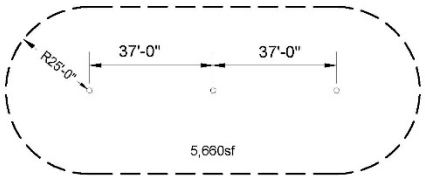
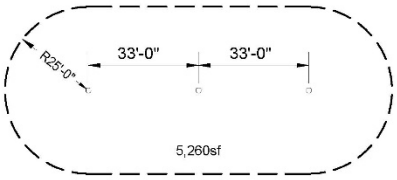
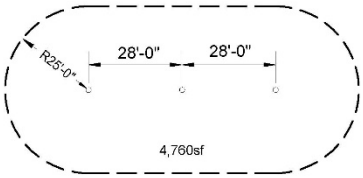
Temporary Impact Areas
Figure 2-6, Page 1



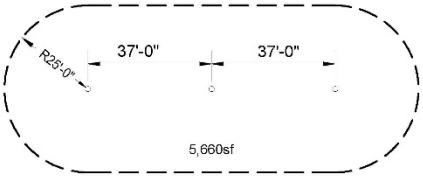
EDR-3
THREE POLE STEEL STRUCTURES



SEDR-1
THREE POLE STEEL STRUCTURES



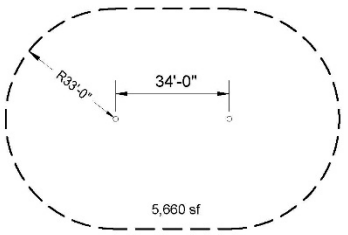
SEDR
THREE POLE STEEL STRUCTURES



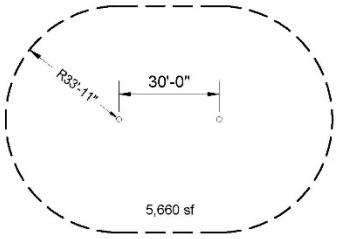
SEDR-2
THREE POLE STEEL STRUCTURES

CENTRAL MAINE POWER COMPANY

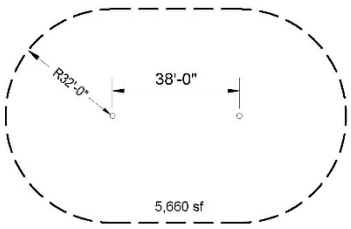
Temporary Impact Areas
Figure 2-6, Page 2



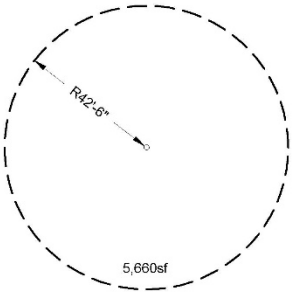
320HVDC DE 0-30
TWO POLE STEEL STRUCTURES



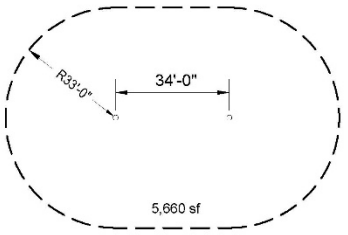
320HVDC RA 2-10
TWO POLE STEEL STRUCTURES



320HVDC DE 30-90
TWO POLE STEEL STRUCTURES



320HVDC TAN 0-2
SINGLE POLE STEEL STRUCTURES



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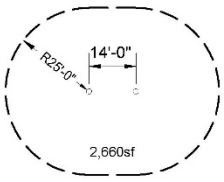
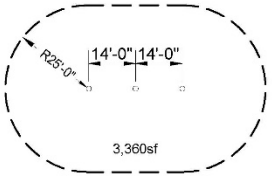


AR, DR
TYPE D SPECIAL
TWO POLE STEEL STRUCTURES



DAR
THREE POLE WOOD STRUCTURES

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Temporary Impact Areas
Figure 2-6, Page 3

2.4.1.6 Moving Construction Materials in Place

Poles will either be hauled in by truck or skidder or flown in via helicopter. In areas where access is suitable (*e.g.*, level uplands near roads), trucks may be used. In areas with more difficult access, skidders or forwarders may be used to bring the poles to the proposed pole locations. In very remote areas or areas with extreme terrain, or during time-constrained construction, helicopter transportation may be used.

2.4.1.7 Completing Test Drilling

Proposed pole placement locations may be pre-dug or drilled prior to a pole setting crew mobilizing to the area in order to determine if blasting will be required to set the poles. Holes must be dug to a depth of 10 percent of the pole length plus two feet. For example, an 85-foot pole requires a hole 8.5 feet plus 2 feet deep, or 10.5 feet total in depth. Blasting may be necessary if bedrock is encountered before the required depth for the placement of a specified pole is reached. To avoid the potential for wildlife mortality and to prevent personnel injury, a cover will be placed over any excavated hole left unattended overnight, and will remain in place until the pole(s) are set and the excavation has been backfilled.

2.4.1.8 Establishing Erosion Controls

As access to each structure site is completed and prior to the construction contractor(s) commencing excavation, erosion controls will be installed per the direction of the CMP environmental inspector(s) and will adhere to standards as described in the Environmental Guidelines. These controls are in addition to the controls established during the initial site walk. The locations of erosion control devices will be marked using flagging tape or spray paint.

2.4.1.9 Excavating Structure Holes

Excavation for the structure holes will be completed using an excavator with a bucket or an auger attachment or drilled in the ground using a truck- or track-mounted auger. Depending on the volume and suitability, excavated materials may be transferred to a dump truck for reuse or disposal elsewhere. There is a predetermined size and depth and location for each structure. In locations where rock is encountered, the structure hole is excavated to the rock depth and the contractor will use other approved methods to remove the rock including ripping, hoe ramming, or blasting (discussed more below), to achieve the required depth. De-watering of the hole during excavation may be necessary in areas with a high-water table. Pole placement will permanently disturb an area ranging from 30 square feet to 195 square feet depending on the structure type required. Grubbing, if needed, will generally be done with an excavator bucket and will temporarily disturb an additional area of approximately 60 square feet. Disturbance will be slightly greater in areas where angle poles are installed, due to the need to excavate for one or more guy wire anchors. Topsoil will be set aside for use during restoration. Following backfill with spoils or

select materials to fill the void around the structure, the topsoil will be replaced around the base of the pole and spread out evenly by an excavator. Excavation operations typically occur for two to five days at each structure location. To avoid the potential for wildlife mortality and to prevent personnel injury, if an excavated structure hole will be unattended prior to structure installation and backfill, a cover will be placed over the hole overnight and will remain in place until crews return to set the poles in place.

Some controlled blasting may be required if bedrock is encountered. Blasting activity will be limited to the small volume of material needed to be removed to fit and plumb the pole structures. Only small charges are required for the installation of transmission structures. If blasting is required, proper safeguards will be employed to protect personnel and property in the vicinity of the blasting. Blasting mats will be used to prevent shot rock from scattering. Blasting for transmission line construction, if required, will use relatively small charges, and will be limited to the small volume of material needed to be removed to fit and plumb pole structures. When encountering hard rock, the preferred methods of removal will be hoe-ramming and core drilling, followed by blasting, when these methods are not feasible. Of this, CMP estimates that blasting will account for 5% of hard rock removal. Blasting precautions will be the contractual responsibility of the construction contractors.

2.4.1.10 Installing Structures

Once a hole is prepared to the proper depth to direct-embed a structure, a crane, sometimes assisted by an excavator, is used to place the pole in proper alignment. The construction crew aligns and plumbs each pole before filling the hole using an excavator. The hole is filled with the spoil and is mounded up at the base of the pole and compacted. In wet areas, crushed rock is used to replace some of the soil. The spoil is removed and disposed of in an upland site, spread out, and mulched.

In areas where more than one pole is required (*e.g.*, specific transmission line designs and certain angle structures), the area of disturbance for the poles will overlap. Angle poles require guy wire anchor placement, which may slightly increase the area of disturbance around these locations.

For single pole structures, davit arms, i.e., the arms supporting insulators to which the conductor is connected, are attached before the pole is set in place. For structures with multiple poles, cross braces are hoisted into place using a crane; the braces are then affixed by workers climbing each pole. In each case, the insulators and blocks are subsequently attached.

Structures that require concrete caisson foundations will require excavation to the appropriate depth based on soil conditions, insertion of a rebar and anchor bolt cage, and pouring of concrete. Concrete will be mobilized to the site through the use of concrete trucks, which may be assisted by concrete pumping trucks for pouring of concrete into the excavation. Large cranes, concrete trucks, concrete pumping trucks and any other associated equipment will travel to the appropriate structure sites on the same access roads built for construction, as they are built to accommodate the heaviest of equipment. Concrete foundation installation that will be avoided during the mud season which usually occurs in the month of April. Concrete wash out stations will be established in non-jurisdictional upland areas and excess concrete will be removed and disposed of at an approved facility (e.g., Casella Waste Systems, Inc.). When the water table is shallow relative to the excavation, or in the event that stormwater fills an excavation, a dewatering system will be installed to reduce the risk of water being displaced allowing for concrete or turbid water to flow from the excavation. The NECEC Project dewatering plan is included as Exhibit E of the BA. Once the concrete has cured, the steel pole will be bolted in sections onto the foundation.

The transmission line has been designed and sited to locate poles outside of wetlands and riparian buffers to the maximum extent possible, but engineering limitations necessitate that 83 poles will be placed within the 100-foot buffer of streams within the GOM DPS. Forty-five (45) poles will be placed within the 100-foot buffer of streams within the Atlantic salmon designated critical habitat. Site-specific erosion and sedimentation control plans, required by the MDEP Final Permit for all structures located within a riparian buffer, will be prepared by CMP and provided to the MDEP and USACE for review and approval prior to installation of these poles. In these cases, erosion control measures will be used, grubbing will be kept to a minimum, and the disturbed areas will be restored to the original contour in order to maintain the original drainage and vegetation patterns. Depending on the foundation type required (i.e. direct-embed or concrete caisson foundation) pole placement is expected to be completed within a number of hours or up to a few days.

2.4.1.11 Restoration of Transmission Structure Locations

Once poles are installed, construction crews will grade any disturbed areas around the pole and apply temporary erosion controls. Disturbed areas in uplands are typically restored with permanent grass and legume seeding and/or mulched with hay or straw as described in the VMP (Exhibit D). Areas in wetlands are not seeded and are mulched with straw for permanent restoration. Temporary erosion control in wetlands may also be provided by applying straw over the exposed soil.

2.4.1.12 Establish Pull-pad Locations, Move Equipment into Place

Pull-pads, typically 175 feet by 100 feet, serve as level staging areas for installing pull ropes and conductor (see discussion below). Pull-pad sites vary in size and location and are normally aligned with the conductors being pulled. Suitable locations and anticipated durations for pull-pads will be determined by construction contractor(s) during pre-construction walkovers. Pulling angles, the length of the conductor on the reels, the type of equipment required, protected and sensitive natural resources, topography, and access restrictions determine the locations and sizes of the pull-pads. These sites must be level to support the weight of the equipment; as such, some grading may be needed, as described in Section 2.4.1.5. Where soils are saturated or soft, construction mats will be used for stability. Should unusual site conditions (e.g., steep slopes) be encountered, on-site consultation will be performed with CMP's environmental inspector(s) and/or MDEP third-party inspector(s) prior to locating any portion of a pulling set-up in or near a protected natural resource, including within the riparian buffer of any stream containing threatened or endangered species (e.g., Atlantic salmon). Pull-pads will be established in upland non-jurisdictional areas whenever possible. If there is no practicable alternative and the pull-pad must be installed within an Atlantic salmon stream riparian buffer due to site, property rights, or engineering constraints, CMP will minimize grubbing and grading to the extent practicable and will install an additional row of erosion and sedimentation controls between the area of disturbance and adjacent undisturbed areas including Atlantic salmon streams. Additionally, secondary containment will be established around all pull-pad equipment parked overnight within these riparian buffers to prevent accidental deposition of any spilled fuels or lubricants into Atlantic salmon streams.

The pullers and tensioners are typically mounted on large, flat bed-type tractor-trailer rigs, and can weigh in excess of 80,000 pounds. They frequently need to be anchored by a large bulldozer.

Pull-pads can be used during any time of the year and, on average, pull pads may take approximately one week to set up, two months of use for pulling/clipping, and one week to remove and restore. The use of pull-pads will follow all time of year restriction requirements.

2.4.1.13 Installing Pull Ropes, Conductor and Tensioning

The conductor installation process involves three basic steps. A polypropylene line is first pulled through blocks on the insulators by using a helicopter almost 100% of the time and in rare instances by workers on ATVs and/or bucket equipped vehicles. Construction contractors prefer to install this pull line with a helicopter instead of installing via ground vehicles. However, ground vehicles will still be required as part of the wire stringing, sagging, and clipping of wire process. Next, a steel pulling wire is connected to the

polypropylene line and is pulled from the conductor puller. The conductor puller then pulls the conductor through the blocks and the tension is set on the far end of the pull by equipment called tensioners. Typical conductor pulls are between 5,500 and 11,000 feet in length. Conductor pullers and tensioners require a large, level area for their setup as discussed in Section 2.4.1.12. There is a schedule advantage to using helicopters for installation of the pull line due to the topography and distance of the overall project. This type of installation procedure will likely occur year-round, assuming safe weather parameters are accounted for, e.g., cloud cover, visibility, and wind speed and direction.

2.4.1.14 Clipping Conductor and Removing Blocks

Clipping the conductor involves removing the wire from the blocks and permanently clipping it in place at the bottoms of the insulators. There are three approaches applied: workers access each pole on foot and climb the poles to clip the wires; workers clip wires from bucket trucks; or workers access the poles from a helicopter. The bucket truck access requires that crane mats remain in place or are repositioned to support the equipment. There is a temporal lag, ranging from several weeks to a few months, between pole installation and clipping. The amount of time between pole installation and clipping varies but is typically dictated by the length of the conductor pull, which is determined by the running angle structures and the locations of dead-end structures within the section being pulled. During this time, crane mats will be left in place until the entire length of wire has been pulled-in and clipped. Use of the bucket truck is the preferred method because it is generally more efficient for clipping than climbing the poles. Depending on the Project schedule and access difficulties, workers can be flown in by helicopter, eliminating the need for access by bucket trucks.

2.4.1.15 Completing the Construction Inspection and Energizing the Line

After wire is pulled and clipped into place, a utility inspector checks the newly installed line for construction deficiencies. Any deficiencies that are found during the final construction inspection will be fixed by a construction “clean-up” crew. These crews typically require limited use of heavy equipment and reach the Project poles from the construction access road on foot. Impacts from these crews will be minimal to none. Once engineers have determined that the transmission line is in place and conductor is connected at each substation, the line is energized and brought into service.

2.4.1.16 Completing the Final Restoration and Walk-Through

The construction access travel paths and conductor-pulling setup locations within wetlands will be restored as closely as possible to pre-construction conditions. Contours and drainages will be restored. Disturbed wetland soils will be mulched with straw for final restoration in accordance with the CMP Environmental Guidelines (Exhibit B). Upland areas not adjacent to wetlands and streams are sometimes

seeded with a suitable annual seed mix and mulched with hay. Seeding of wetlands will typically not be necessary, but the need for this activity will be determined by the environmental inspector and third party inspector. Wetland areas will have minimal disturbance since crossing occurs during frozen conditions or with construction mats. As a result, plant roots and seed banks remain intact, and typically, wetland vegetation is quickly reestablished. In wetland areas requiring reseeding, native wetland seed mixes, approved by resource agencies (MDEP, USACE) will be used. Excess construction debris (litter, hardware, bracing) will be removed from the ROW and properly disposed of at a licensed recycling or solid waste disposal facility. Erosion and sedimentation controls will be installed as needed and maintained through the duration of the restoration efforts. These devices will be removed and properly disposed of once the area has adequately revegetated. Adequate revegetation will be determined by CMP environmental inspector(s) in consultation with the MDEP and USACE.

CMP personnel and/or qualified representative(s), including the CMP environmental inspector(s), will walk through the completed Project site and check for any potential erosion problems or areas that require further restoration work. Any identified problem areas will be permanently stabilized as soon as possible.

2.4.2 Substation Construction Sequence

Construction of the substation and equipment installation will generally consist of the steps listed below.

- Installation of erosion and sedimentation controls;
- Construction of the stormwater management areas;
- Clearing and rough earthwork to prepare the construction area;
- Establishment of the construction pad to include the grounding mat, gravel, and crushed stone base;
- Establishment of the new entrance road, if needed, and completion of final grading for the site footprint;
- Placement of concrete foundations;
- Construction of structures and electric equipment;
- Installation of the perimeter fence;
- Final electrical installation and testing;
- Connection of electrical lines to new equipment, and energizing of the new equipment (commissioning); and
- Completion of site stabilization and permanent restoration.

2.4.2.1 Installation of Erosion and Sedimentation Controls

Erosion control measures will be installed prior to the initiation of any construction or grading activities. Sediment barriers (i.e., erosion control mix, hay bales, and/or silt fences) will be installed between wetlands/waterbodies and all disturbed areas unless land contour conditions slope away from these resources. All erosion control measures will be routinely inspected and maintained throughout the duration of construction to verify that they are functioning properly. Any measures that appear to be failing will promptly be corrected and/or replaced.

2.4.2.2 Construct Stormwater Management Areas

Components of the stormwater management system will be graded and established as site grading is completed. Drainage will be maintained, and culverts installed as needed. Equipment generally used for site development including the construction of stormwater management systems will be excavators, dump trucks, and bulldozers. CMP will establish sediment detention basins prior to full site development at proposed substations for use as temporary sediment traps. The use of sediment basins as temporary sediment traps will be discontinued when the site is determined to be stabilized by a CMP environmental inspector in consultation with MDEP and/or a MDEP third party inspector. All grade cuts, whether in a transmission line ROW or a proposed substation site, will be temporarily or permanently stabilized within 48 hours of initial soil disturbance, or before any predicted storm event, whichever occurs first. To the extent practicable, CMP will limit the extent and duration of exposed soils during site development at proposed substations and during the construction of temporary access roads within transmission line corridors. The extent of soil disturbance at transmission line structure locations will be the minimum required to safely install the structures as depicted in Figure 2-6, on pages 34-37 of the BA.

2.4.2.3 Clearing and Earthwork

Clearing and earthwork at substations sites can begin after construction roads are established to the sites. New substations will require new access roads, and existing entrance roads will be used as appropriate at existing substation sites. New roads will be graded and filled, and drainage will be established, prior to being put into service.

Clearing will include the establishment of 16-foot-wide travel lanes, located within the clearing limits of the ROW, to facilitate the removal of timber while providing the smallest footprint of disturbance. Construction access roads will act as the primary haul road for removing timber from the ROW. Equipment used during clearing will include feller bunchers, skidders, forwarders, mowers, and excavators. Clearing will generally entail the removal of capable species and in some instances will

require mowing of the access roads to provide safe ingress and egress. Clearing activities will not require grubbing or removal of stumps. Clearing is generally preferred within winter months during frozen ground conditions but may occur at any time of the year, except in June and July to avoid impacts to NLEB.

Earthwork will be required to accommodate the proposed new substation construction. This will require the use of heavy equipment including excavators, bulldozers, concrete trucks, and dump trucks to grub the proposed substation yards and place clean fill. The limits of the proposed work zone will be clearly staked before the commencement of earthwork activities. Although blasting is not anticipated, some controlled blasting may be required if bedrock is encountered. If blasting is required, proper safeguards will be employed to protect personnel and property in the vicinity of the blasting. Blasting mats will be used to prevent shot rock from scattering. Vegetated areas will be cleared and grubbed. Trees and shrubs will be disposed of or chipped on site, consistent with the Maine Slash Law (12 M.R.S. §9333). The sites will be graded and filled as needed to build the sites up to the necessary elevations to establish drainage and a level building surface. Ground disturbance associated with the Project may occur during all seasons.

2.4.2.4 Concrete Foundation Placement

Concrete foundations (either precast or cast in place) will be installed to create pads for the new substations' equipment. These concrete pads will be constructed to engineering specifications and will not cause erosion or sedimentation.

2.4.2.5 Fence Installation

Following the completion of earthwork and placement of the concrete pads, a new chain-link fence will be installed around the perimeter of each new substation. This fence will be the standard fencing (eight feet tall with three strand barbed wire pitched at a 45-degree angle) installed at other CMP substations.

2.4.2.6 Electrical Equipment Installation and Energizing

The bulk of the electrical equipment, including transformers, termination structures, switchgear, circuit switchers, regulators, reclosers, and the control building, will be installed after the main footings and structures are in place. All of this work will be completed within the substation footprint (fenced area).

2.4.2.7 Site Stabilization and Permanent Restoration

In accordance with the CMP Environmental Guidelines (Exhibit B), at the completion of project construction in an area, CMP personnel and/or qualified representatives, including the CMP environmental inspector(s) and MDEP third party inspector, will review the project's restoration needs

and prioritize the areas. This prioritization should consider time of year, ground conditions, re-vegetation probabilities, and equipment availability. In many cases, a site can and will be restored within hours of when the soil disturbance originally occurred. Temporary stabilization measures may be installed if a contractor needs to return at a later date to perform final stabilization measures. Disturbed soils in sensitive areas, i.e., within 100 feet of wetlands or water bodies, will be restored to pre-existing contours and stabilized through mulching and establishing native vegetation within 7 days.

Upland areas will be seeded and mulched and/or stabilized with an approved erosion control fabric or erosion control mulch. Areas of exposed soils in uplands will be mulched with hay and those in wetlands will be mulched with straw. Any construction debris (litter, hardware, and bracing) will be removed from the site and properly disposed of at a licensed disposal or recycling facility. Erosion and sedimentation controls will be installed as needed and maintained through the duration of the restoration efforts. These devices will be removed once the area has adequately revegetated.

The contractor will be responsible for the proper maintenance of all revegetated areas until the Project has been completed and accepted. Where seeded areas have become eroded or damaged by construction operations, the affected areas will be promptly regraded, limed, fertilized, and re-seeded as originally required.

At the end of the project, CMP personnel and/or qualified representatives, including the CMP environmental inspector(s) and MDEP third party environmental inspector, will walk through the completed project site and check for any potential erosion problems or areas that require further restoration work. Any problem areas identified during the final inspection will be permanently stabilized in accordance with the CMP Environmental Guidelines (Exhibit B).

2.4.3 HDD Construction Sequence

The following construction plan provides an overview of the process and techniques that will be implemented during construction of the transmission line to be installed beneath the Kennebec River utilizing HDD. This plan is based on established HDD construction methods and is designed to minimize impacts to natural resources and expedite restoration after construction activities are completed.

Generally, the construction sequence for the HDD will be conducted in the following steps:

- Installation of erosion control devices
- Initial clearing and grubbing
- Access road improvements and construction;

- Grading of temporary drilling sites;
- HDD boring & conduit installation;
- Termination yard grading;
- Trench excavation and direct buried conduit installation;
- Termination station foundation, conduit, and ground grid installation;
- Termination station structure and equipment installation;
- Cable installation;
- Restoration and revegetation of temporary construction areas;
- Removal of erosion control devices upon permanent stabilization.

It is estimated that construction using HDD will occur spring of 2021 through fall of 2021. See Figure 2-8 which shows the Kennebec River HDD crossing. Cable installation is estimated to occur during the summer of 2022. Construction of the termination stations will require approximately 6 months. It is preferred to avoid the winter timeframe for HDD drilling and cable installation[5].

Tree clearing to accommodate the termination stations and temporary work areas will occur during transmission line clearing activities, as described in Section 2.4.1.5, pages 30-33 of the BA. Road improvements and extensions needed to gain access to the corridor will also occur during this time. Once clearing has been completed, access roads and temporary laydown areas established, erosion controls installed, and the temporary drill pads established, the construction process for the HDD boring and conduit installation will consist of four main steps: (1) pre-site planning; (2) boring a pilot hole; (3) expanding the pilot hole by reaming; and (4) pull-back of drill rig with simultaneous installation of casing (casing may or may not be required based on geotechnical study results). These four steps are discussed below.

[5] HDD construction during winter can be challenging for the following reasons: 1) operations rely on water and water based drilling mud; 2) handling, cleaning and recycling the mud in below freezing weather is difficult and would most likely require the use of additives, some of which may be considered hazardous, to prevent freezing; 3) without electrical power supplied to the construction site, the use of immersion and blanket heaters is not possible; 4) performing HDD installations in the winter could also hinder implementation of the inadvertent fluid release contingency plan (Exhibit F in the BA), in that an inadvertent release could be obscured by snow and ice.

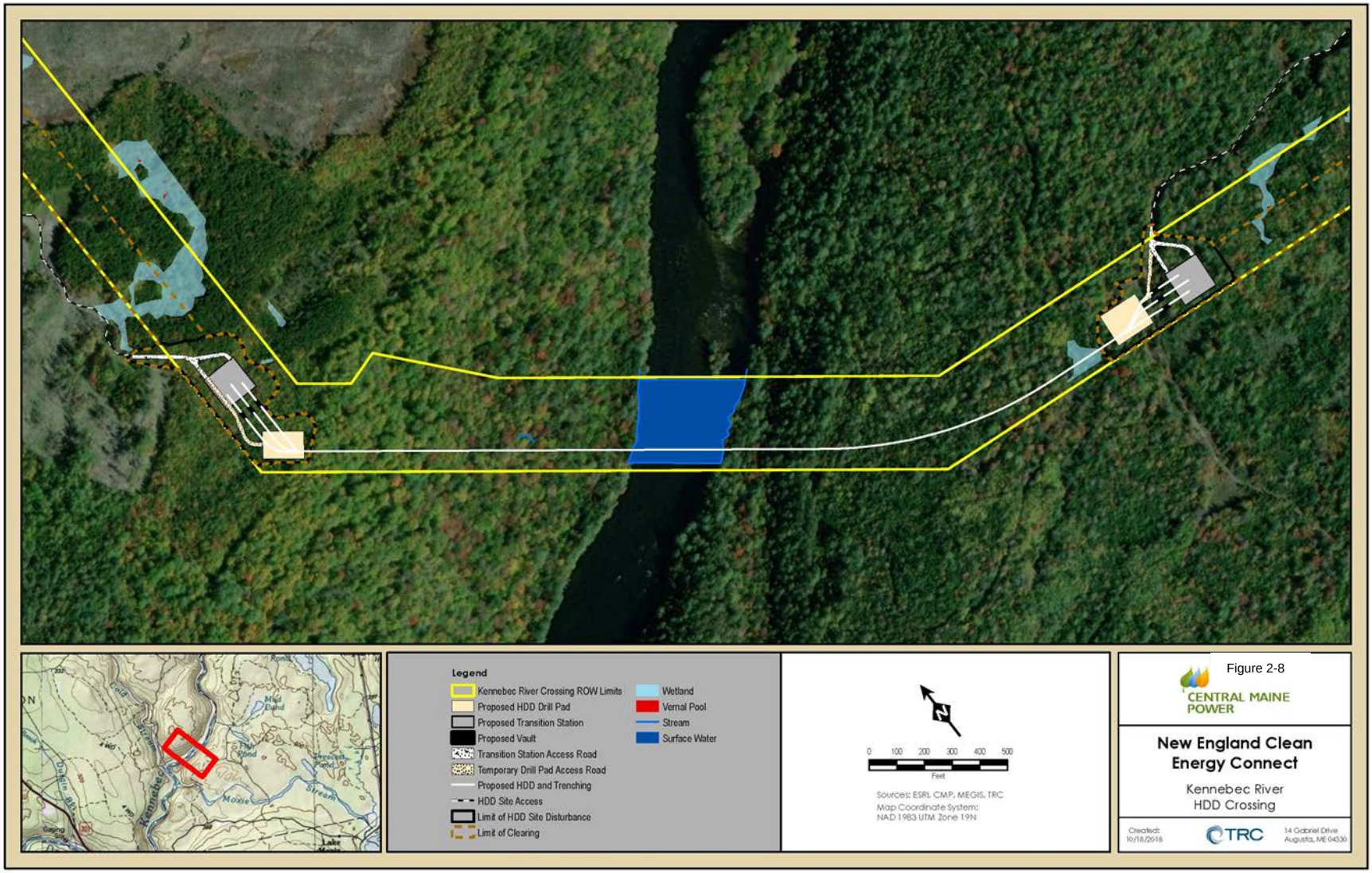

Legend
Kennebec River Crossing ROW Limits
Proposed HDD Drill Pad
Proposed Transition Station
Proposed Vault
Transition Station Access Road
Temporary Drill Pad Access Road
Proposed HDD and Trenching
HDD Site Access
Limit of HDD Site Disturbance
Limit of Clearing
Wetland
Vernal Pool
Stream
Surface Water
0 100 200 300 400 500
Feet
Sources: ESRI, CMP, MEGIS, TRC
Map Coordinate System:
NAD 1983 UTM Zone 19N
CENTRAL MAINE POWER
New England Clean Energy Connect
Kennebec River HDD Crossing
Created: 10/18/2018
TRC
14 Gabriel Drive Augusta, ME 04330

Figure 2-8

2.4.3.1 Pre-Site Planning

The HDD process begins with conceptual engineering and a variety of data gathering activities including, but not limited to area topographic survey, wetland and protected natural resource surveys and mapping, and geotechnical borings. Once the necessary data are accumulated, a conceptual bore hole alignment is defined. With the conceptual bore alignment defined, conceptual design is performed for the temporary construction areas and adjacent termination stations. Conceptual design of the construction areas and termination stations includes grading and drainage design, erosion and sedimentation control design, pre- and post-construction storm water management design, and site restoration design. The conceptual engineering phase has emphasized avoidance and impact minimization to wetlands, vernal pools, forested communities, and sensitive wildlife areas. Conceptual engineering design will continue to be performed by engineering firm Black and Veatch in conjunction with the HDD contractor to ensure that the proposed bore alignment is achievable given geotechnical conditions as well as available equipment. The results of the pre-site planning phase will be used to determine the required size of drill rig, the number of drill head extensions, the conduit material, and the length and size of the conduit.

2.4.3.2 Drilling Pilot Hole

Upon completion of the pre-site planning phase HDD construction activities will begin with the drilling of the pilot hole. This is accomplished using a drill rig fitted with a steel drill pipe and cutting head. The drill rig will be set on a level working area behind a temporary fluid return pit and will be anchored. The drill rig will elevate itself to achieve the required entrance angle in accordance with the design bore alignment. As the drilling commences, a slurry composed of primarily water (95%) and a small amount of bentonite (approximately 5%), commonly called drilling mud, is pumped down the drill steel to the cutting head. Bentonite in the mud is a non-hazardous shrink-swell clay material which helps keep the borehole stable and helps lubricate the drilling operations. The pressurized mud drives the cutting head through a device called a “mud motor,” then it is expelled in front of the drill. By injecting the mud at the drill head, the drill cuttings are suspended within the mud and pushed back out of the bore hole to the fluid return pit adjacent to the HDD drill rig. Once the drill head has bored the full length of the drill steel segment into the earth, another segment of drill steel is added, and drilling commences; this process is repeated until the full length of the pilot hole is achieved.

Given the anticipated subgrade material at this site, it is expected that the bore process will advance between 150 feet and 200 feet per day. For the length of the proposed bore (approximately 3,000 feet), the HDD operation will take approximately 6 months to complete the pilot hole and reaming operation. The duration of the operation could increase if very hard rock is encountered.

As described above, HDD requires the use of drilling mud. CMP has considered that during the HDD activity, there is a small possibility of drilling fluids reaching the ground surface by following vertical bedrock fractures, which could occur during the various phases of the HDD process, including pilot hole drilling, expanding the pilot hole, and subsequent drilling phases. This is also known as an inadvertent release. CMP has developed a Requirements for Inadvertent Fluid Release Prevention, Monitoring, and Contingency Plan for HDD Operations (Exhibit F of the BA). The HDD plan document outlines the details of the HDD process, the monitoring and prevention procedures, and the measures that would be in place to respond to an inadvertent release of drilling fluids during all HDD phases. In the event that an inadvertent release occurs, the USACE, USFWS, and the MDEP will be notified, as specified in Exhibit F.

The Plan includes:

- typical scenarios under which inadvertent release of drilling fluid could occur, and measures to prevent it (as specified in Exhibit F);
- the required reporting process to Project personnel, CMP, and Federal and state regulatory agencies;
- procedural measures that would be taken to mitigate for a release;
- the type of drilling operation adjustments that could be made to minimize or prevent any additional releases; and
- equipment or supplies available to contain an inadvertent release, and the disposal process for all collected directional drilling fluids.

MDEP approved CMP's application on May 11, 2020, which included the contingency plan for HDD operations. CMP will work with MDEP and the USACE to ensure that all permit requirements are satisfied.

2.4.3.3 Expanding the Pilot Hole

Once the drill head emerges at the far end of the planned bore (i.e., at the exit point), the drill head will be removed, and a reamer head will be attached to the drill steel. The reamer head is a device that is a larger diameter than the drill head with similar cutting teeth. The reamer head is pulled back through the length of the bore hole to the original entry point. This operation incrementally increases the diameter of the bore. Depending on the final bore diameter, multiple push/pull passes may be taken with reamer heads of increasing diameter.

2.4.3.4 Installation of Conduit

Usually during the final reaming pass, when the bore hole is almost at its final diameter, a casing, duct, or sometimes the cable is pulled into the bore hole by attaching it to a swivel behind the reamer. In this way the final reaming pass also pulls the casing, conduit, or cable into the borehole. The need for casing is a function of the geological formation and construction schedule. If the hole is cased, it can be left open for some time, which will provide some level of flexibility in the construction schedule. Additionally, in the event that a cable fails, a cased hole will allow the old cable to be pulled out and a new cable to be installed. For this project, the HDD bore hole will be cased to act as an electrical conduit for the HVDC transmission cables. Casings usually consist of thick-walled, high-density polyethylene, fusible PVC, or steel pipe. The selection of the casing material, and required strength of such material, is a function of the bore geometry, length, geology, and intended function. The final selection of the casing material is made when the geotechnical borings have been analyzed and the final bore geometry designed. For this application, it is assumed a steel pipe or similar casing will be required.

With the drill rig completely extended to the end of the bore hole, sticking out of the earth at the receiving end, a pulling head is attached, as previously stated, sometimes directly behind the reaming head. The conduit is attached to a swivel at the pulling head, and the drilling rig retracts back through the boring hole, pulling the conduit. An area approximately equal to the length of the bore path and approximately 50 feet wide will be required in-line with the bore entry hole. This area is required for the fabrication of the casing and equipment used to suspend it as it is pulled into the HDD bore. The casing fabrication area will be within the transmission ROW as currently proposed, and no additional land will be impacted. In addition, since the casing will be under considerable strain during the pulling operation, it is necessary that a significant length of pipe be exposed above ground at each end of the completed bore when the pulling operation is complete. Once the stress is removed the casing will begin to relax and shrink back into the bore hole.

After the conduit is completely installed and allowed to relax, the transmission cables are pulled through using common cable pulling techniques. The conduit remains in place permanently to protect the transmission cables.

2.4.3.5 Trenching and Drilling Work Plan

The HDD drill rig will be set on a level graded working area. This temporary working area will be arranged in conjunction with the contractor to promote a safe and efficient workflow. The drill rig will be set behind an excavated pit that will collect and retain the drilling fluid (mud). The pit is estimated to be approximately 15 feet wide by 25 feet long and 5 feet deep. The drill fluid and cuttings will be collected

in this pit and removed as necessary to keep drilling operations active. A system will be established to retain, process, and recirculate drilling fluids throughout HDD activities. Cuttings from the boring will be removed from the drilling fluid through gravity separation, cyclonic separation, or with a shaker table. The cuttings will be temporarily stored on site in a cutting pit, or a dumpster. The cuttings will be removed from the site and disposed of at an approved location. The receiving pit will be a similar but slightly smaller pit. Both pits must be installed before drilling operations begin.

In an effort to minimize the length of the HDD bore, buried conduit will be used to carry the transmission cables from the HDD bore to the termination structures in the termination station. Less than 400 feet of temporary, open trenching is anticipated between each termination station and the HDD points of entry. Trenching required to install conduit will be performed by a wheeled or tracked excavator to the greatest extent possible. Typical trench dimensions will be 4 to 8 feet wide by 5 to 10 feet deep. If rock is encountered, it will be removed by the most suitable technique (e.g. hydraulic rock hammer or blasting) given the material characteristics of the rock. The preferred method for rock removal will be rock hammer. Trenches will be temporary and will be backfilled and revegetated after construction according to the VMP (Exhibit D).

2.4.4 Long Term Operation and Maintenance Activities

Long term post-construction maintenance of the NECEC Project facilities will be necessary to ensure safe and reliable operation throughout its lifespan (a minimum of 40 years). Maintenance includes conducting routine inspection of structures and facilities, completing repairs when necessary, and performing vegetation management in the transmission line corridor, which is fully detailed in CMP's Post-Construction Vegetation Maintenance Plan ("VMP") (Exhibit D). The goal of the VMP is to provide maintenance personnel and contractors a cohesive set of vegetation maintenance specifications for transmission line corridors. Below is an outline of the VMP included as Exhibit D:

- Right-Of-Way Vegetation Maintenance Procedures
- Vegetation Management – Segment 1 Specific
- Vegetation Maintenance
    - Methods for All Transmission Line Corridor Areas
    - Freshwater Wetlands
    - Stream Buffers (including Atlantic salmon streams)
    - Significant Vernal Pool Buffers
    - Inland Waterfowl and Wading Bird Habitat
    - Mapped Deer Wintering Areas
    - State Mapped Rusty Blackbird Habitat

    - Rare Plant Locations
    - Procedures for Mapped Significant Sand and Gravel Aquifers
    - Procedures in Tapered Vegetation Management Areas
- Locating and Marking Buffers and Habitats
- Maintenance Personnel Training

CMP's general practices for maintenance and inspection of transmission lines are as follows:

- Groundline Inspection: wood poles are inspected up to six feet above the ground for any damage or issues on a ten-year cycle. This inspection determines a rating of good, fair, reject, or damage for the pole. Poles identified as a fair rating are inspected every five years. For steel poles, groundline inspection includes detailed visual documenting of deterioration of steel or damage to concrete foundations.
- Crossarm Inspection: wood poles are inspected from six feet above the ground to the top of the structure to determine the depth of rot. This inspection is performed on a ten-year cycle partnered with the Groundline Inspection. A rating of good, fair, reject, or danger is given to the arm(s) or structure. Arms and structures identified as a fair rating are inspected every five years. Crossarm inspection for steel poles includes a detailed visual inspection of the pole and documentation of any issues with the steel, conductors, and insulators.
- 345kV Foot Patrol: annually, a visual inspection is done on the entire 345kV system in Maine. Wood poles will be inspected for woodpecker damage, large cracks in poles or arms, insulator damage, repair of down grounds that are broken or any other issue identified that needs to be corrected. Any deterioration of steel poles would be documented as well.
- Helicopter Inspection: every spring and fall, the entire CMP's transmission system is visually inspected by helicopter.
- Transmission Infrared: on a four-year cycle, transmission infrared inspections are conducted on all transmission lines.

Following any of the above long term operations and maintenance inspections, identified issues are repaired or replaced immediately.

CMP also will incorporate construction best management practices into CMP's operations plans to avoid and minimize potential impacts associated with inspection and maintenance activities. Inspection and maintenance activities may utilize all-terrain vehicles ("ATVs"). Natural resource mapping, including Atlantic salmon habitat, will be incorporated into CMP Smart Map System, such that CMP's maintenance

and operations activities will avoid crossing Atlantic streams within the Atlantic salmon DPS and that support Atlantic salmon critical habitat with ATVs (see Section 5.1.6 of the BA for additional information related to ATV use). The CMP Smart Map System is a utility geodata model (geodatabase) hosted on a web map application. The geodatabase and web mapping application is used to provide a geographic representation of CMP's electric utility information for electric distribution and transmission systems. It is an Esri-based GIS platform that supports various activities, including O&M, storm response, emergency preparedness, and utility management.

The USACE is consulting with the USFWS on permit conditions and conservation measures to avoid or minimize potential direct, indirect and cumulative effects on listed species and critical habitats. All permit conditions required by the USACE will be followed by CMP maintenance and operations personnel to ensure that all conservation measures related to federally-listed species are properly implemented throughout the life of the Project.

3.0 FEDERALLY LISTED SPECIES AND DESIGNATED CRITICAL HABITAT

The Applicant received the Official Species List in a letter dated May 9, 2017 from the USFWS online system (See Exhibit A of the BA), of threatened and endangered species that may occur in the proposed Project location, and/or may be affected by the proposed Project. In the letter, the following ESA-listed species are listed as potentially occurring within or near the proposed Project: Atlantic salmon (*Salmo salar*), small whorled pogonia (*Isotria medeoloides*), Canada lynx (*Lynx canadensis*), and the northern long-eared bat (*Myotis septentrionalis*). The Applicant requested the most recent Official Species List, which was provided by the USFWS on January 15, 2020. The species and habitats originally identified by the USFWS in 2017 have remain unchanged.

3.1 Aquatic Species

3.1.1 Atlantic Salmon

The Atlantic salmon (*Salmo salar*) is an anadromous fish which was once present in most major rivers north of the Hudson River. The Atlantic salmon is federally listed as endangered. Remnant populations are now known to exist in a limited number of rivers across the state of Maine. Atlantic salmon typically spend two to three years in freshwater and then migrate to the ocean where they spend an additional two to three years before returning to their natal river to spawn. While at sea the salmon grow very quickly. Those that return to spawn after one year at sea are called grilse, whereas those that return after two or more years are called salmon. After spawning in the fall, the spent adults (known as kelts or black salmon) may overwinter in the river or return immediately to sea.

3.1.1.1 Designated Critical Habitat

The Gulf of Maine Distinct Population Segment (GOM DPS) of Atlantic salmon is listed as federally endangered under the joint jurisdiction of the USFWS and the National Marine Fisheries Service ("NMFS") (74 FR 29344; June 19, 2009); however, the USFWS has lead agency status for ESA Section 7 consultations for those projects and activities that occur within the freshwater habitat of Atlantic salmon (except those related to dams). See Figure 3-1 on page 58.

The Atlantic salmon GOM DPS encompasses all naturally spawned and conservation hatchery populations of anadromous Atlantic salmon whose freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River and wherever these fish occur in the estuarine and marine environment. The upstream extent of the freshwater range of the GOM DPS is delimited by seven impassable natural falls located within the Androscoggin, Kennebec, and Penobscot

drainages[7]. Also included in the GOM DPS are all associated conservation hatchery populations used to supplement natural populations. Excluded are landlocked Atlantic salmon (also *Salmo salar*) and those Atlantic salmon raised in commercial hatcheries for aquaculture purposes.

On June 19, 2009, the NMFS designated critical habitat for listed Atlantic salmon pursuant to section 4(b)(2) of the ESA[8]. The critical habitat designation for the GOM DPS includes 45 specific areas occupied by Atlantic salmon at the time of listing that include approximately 12,161 miles of perennial river, stream, and estuary habitat and 308 square miles of lake habitat within the range of the GOM DPS and within which are found those physical and biological features essential to the conservation of the species. At the time that critical habitat for Atlantic salmon was designated, these essential features of critical habitat were described using two terms, *primary constituent elements* (PCEs) and *physical and biological features* (PBFs). Since that time, new critical habitat regulations (81 FR 7414; February 11, 2016) eliminate use of the term PCE but retain and define the term PBF. In this BA, however, we continue to use the term PCE for consistency sake and because there is no implication for any conclusions in this BA by doing so.

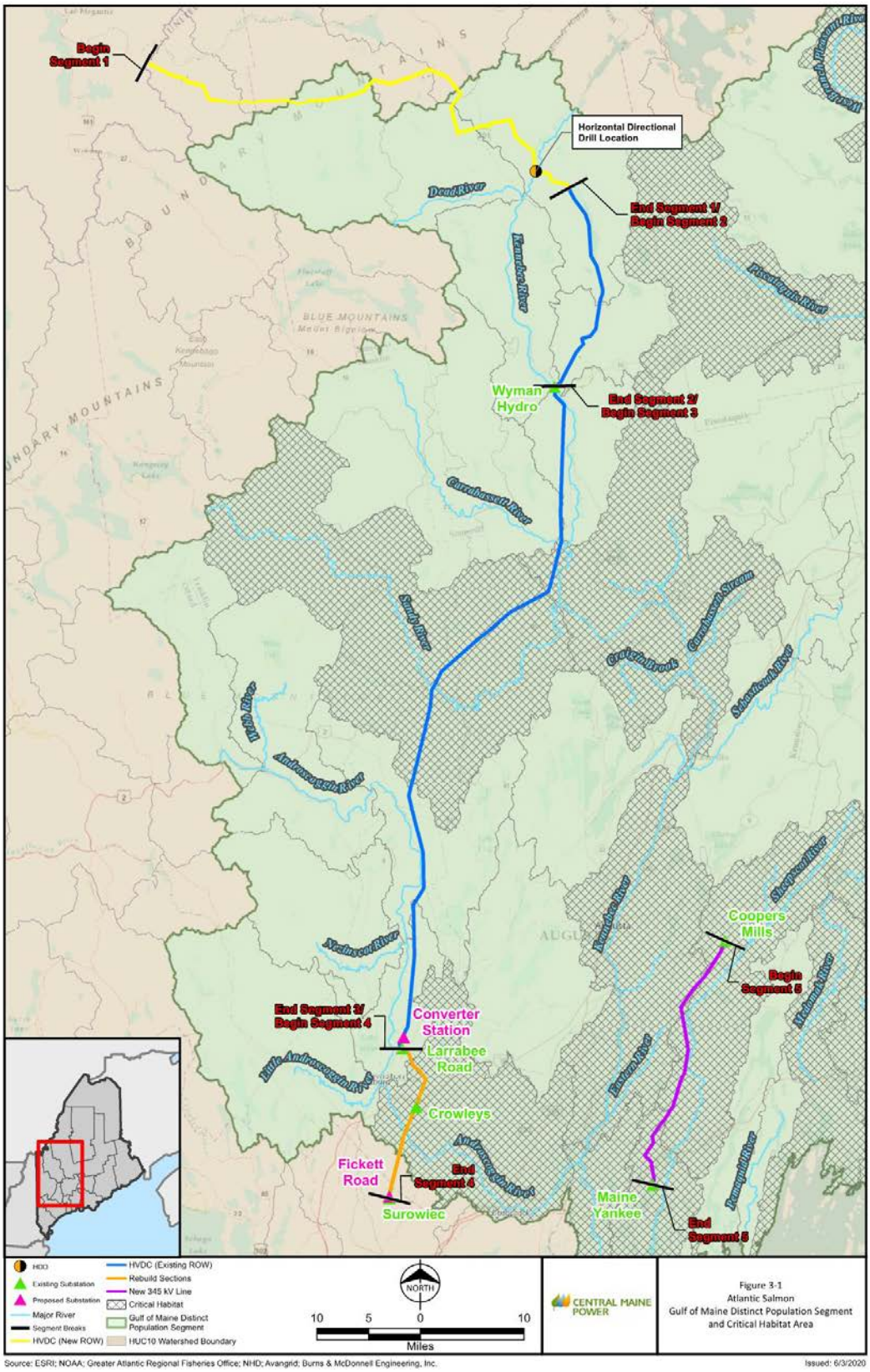
Critical habitat for Atlantic salmon includes two PCEs as follows: 1) sites for spawning and rearing and 2) sites for migration, both of which include several PBFs. All designated critical habitat is considered occupied by endangered Atlantic salmon at the HUC-10 watershed level, although not all water bodies within a given watershed are necessarily occupied by Atlantic salmon at any given time. Approximately 31% of the 743 waterbodies intersected by the transmission line corridor in Segments 3, 4 and 5 of the Project have been identified as NOAA designated Atlantic salmon critical habitat . Additionally, portions of Segments 1 and 4, and all of Segments 2, 3 and 5 of the Project cross a total of 575 waterbodies located within the geographic range of the GOM DPS (of which 233 are within designated critical habitat). However, no waterbodies in Segments 1 or 2 of the Project are located in NOAA-designated Atlantic salmon critical habitat. See Figure 3-1 on the following page.

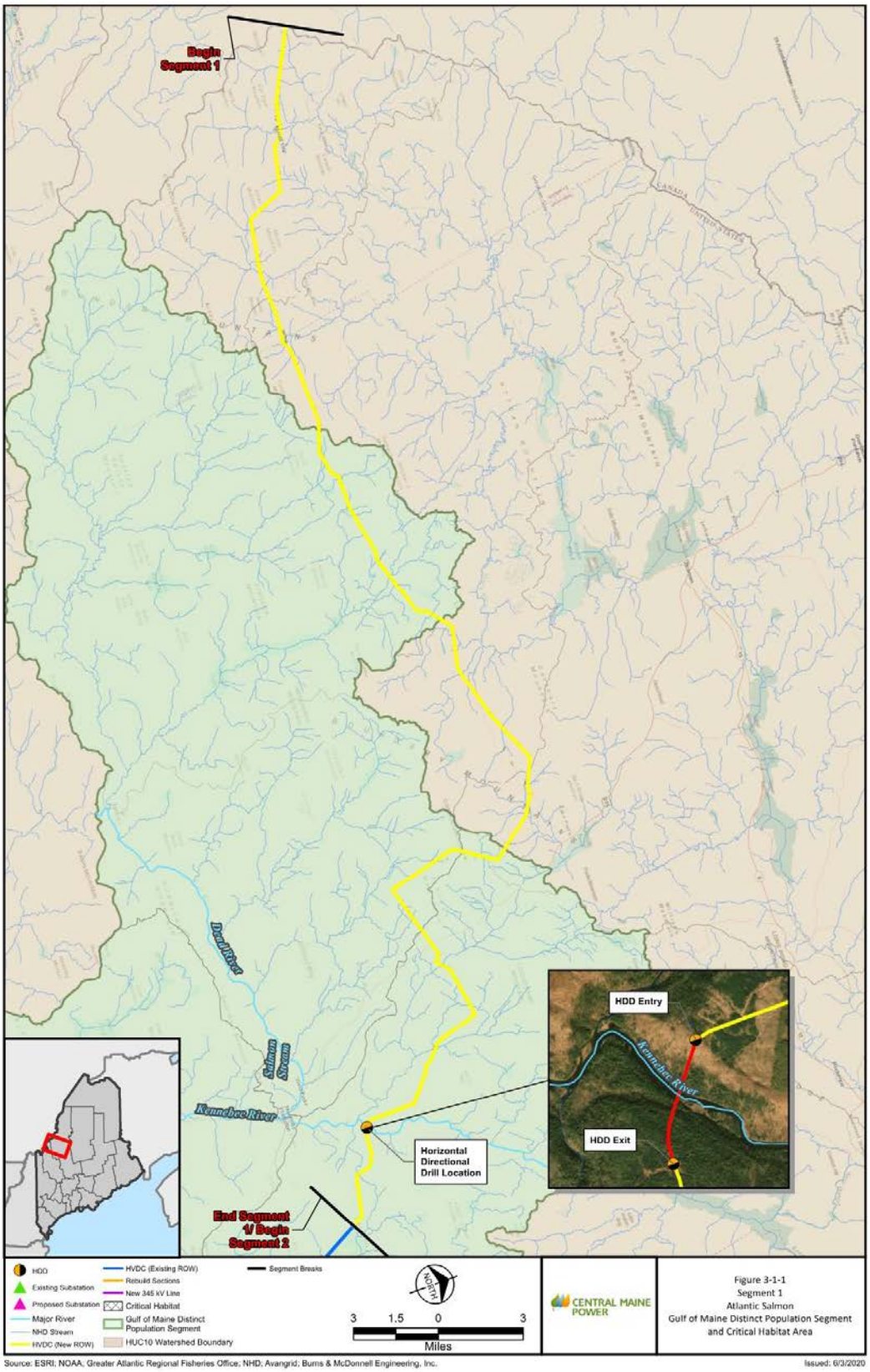
The NECEC Project corridor crosses the following watersheds within the GOM DPS: Upper and Lower Kennebec, St. George/Sheepscot, and the Lower Androscoggin. However, upstream fish passage on the Kennebec River system is limited, as salmon cannot get above the dams in Anson/Madison, and therefore are unable to get to Segments 1, 2 and portions of Segment 3. Smaller rivers crossed by the Project within the GOM DPS include: the West Branch of the Sheepscot River and the Sandy River, a drainage to the

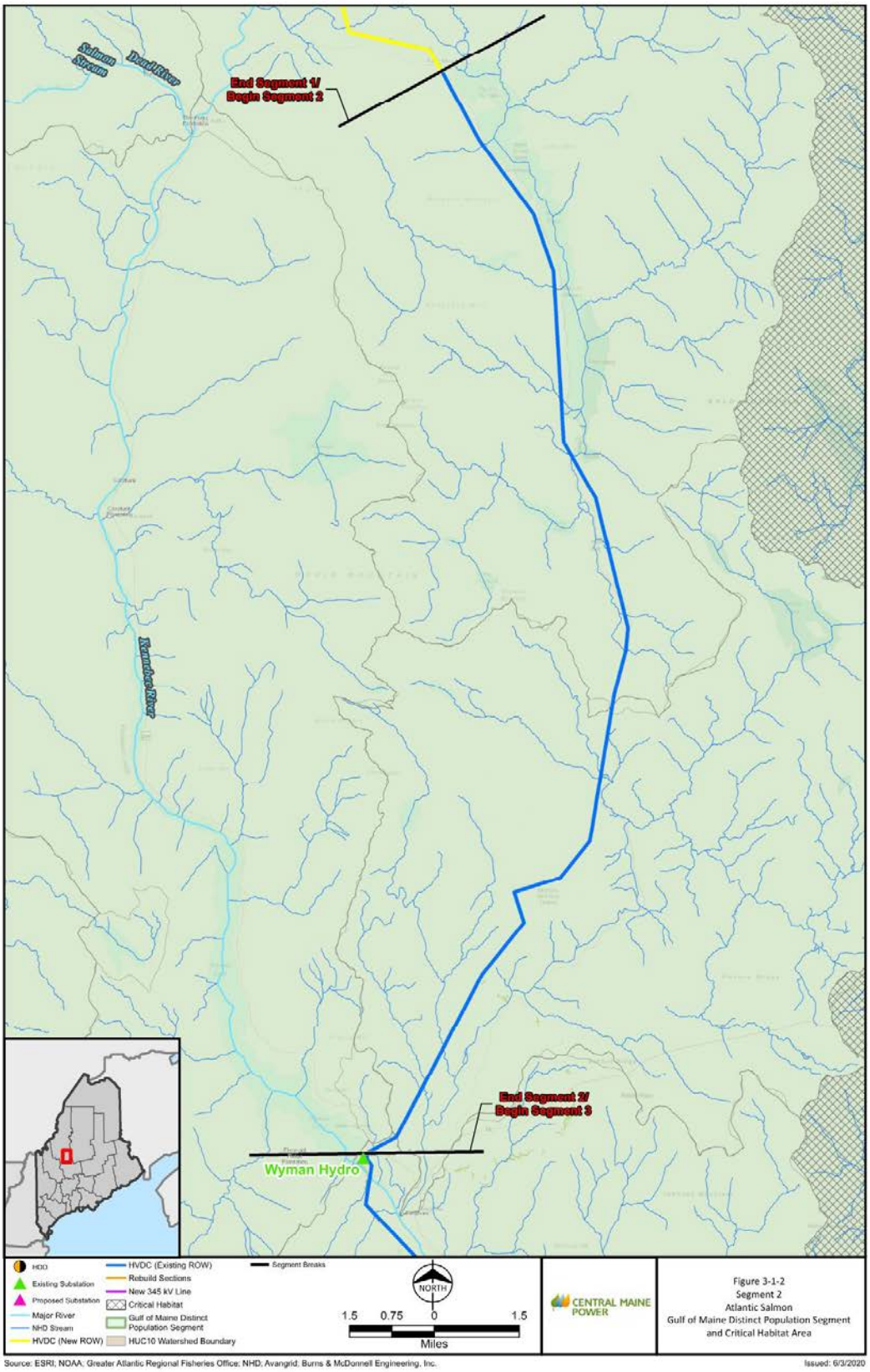
[7] See the final rule listing the Gulf of Maine Distinct Population Segment as an endangered species for the specific locations of the seven impassable falls (74 FR 29346; June 19, 2009).
[8] The designation of critical habitat for Atlantic salmon was revised on August 10, 2009 (74 FR 39903).

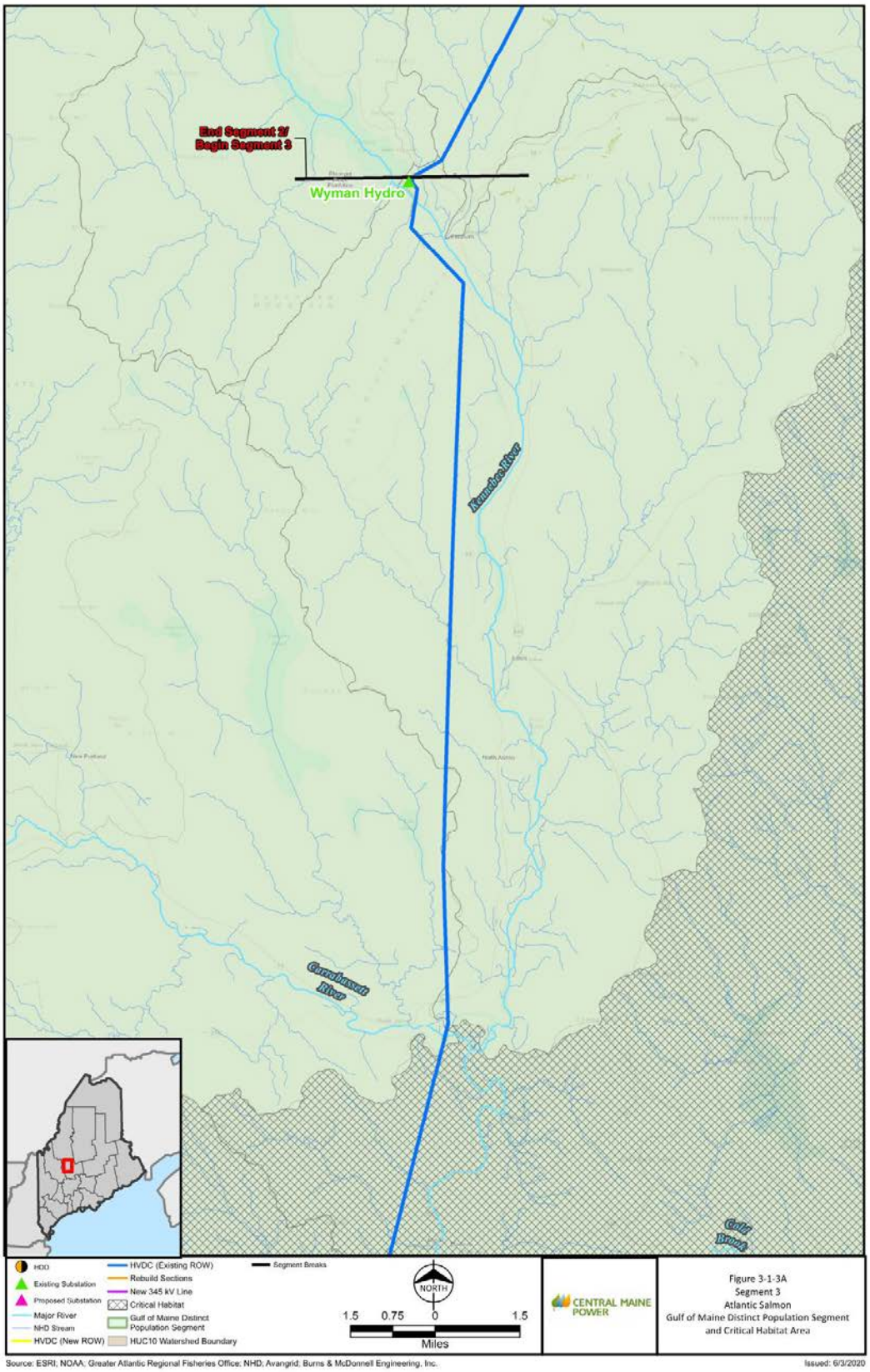
Lower Kennebec. In addition, critical habitat within the designated HUC-10 watersheds include all perennial streams. However, even intermittent stream can sometimes provide habitat, particularly for juvenile salmon in wet years. The NECEC Project Atlantic salmon Waterbody Table, included as Exhibit G of the BA, provides a comprehensive list and information regarding the water bodies intersected by the Project, including whether they are located within the GOM DPS or the designated critical habitat.

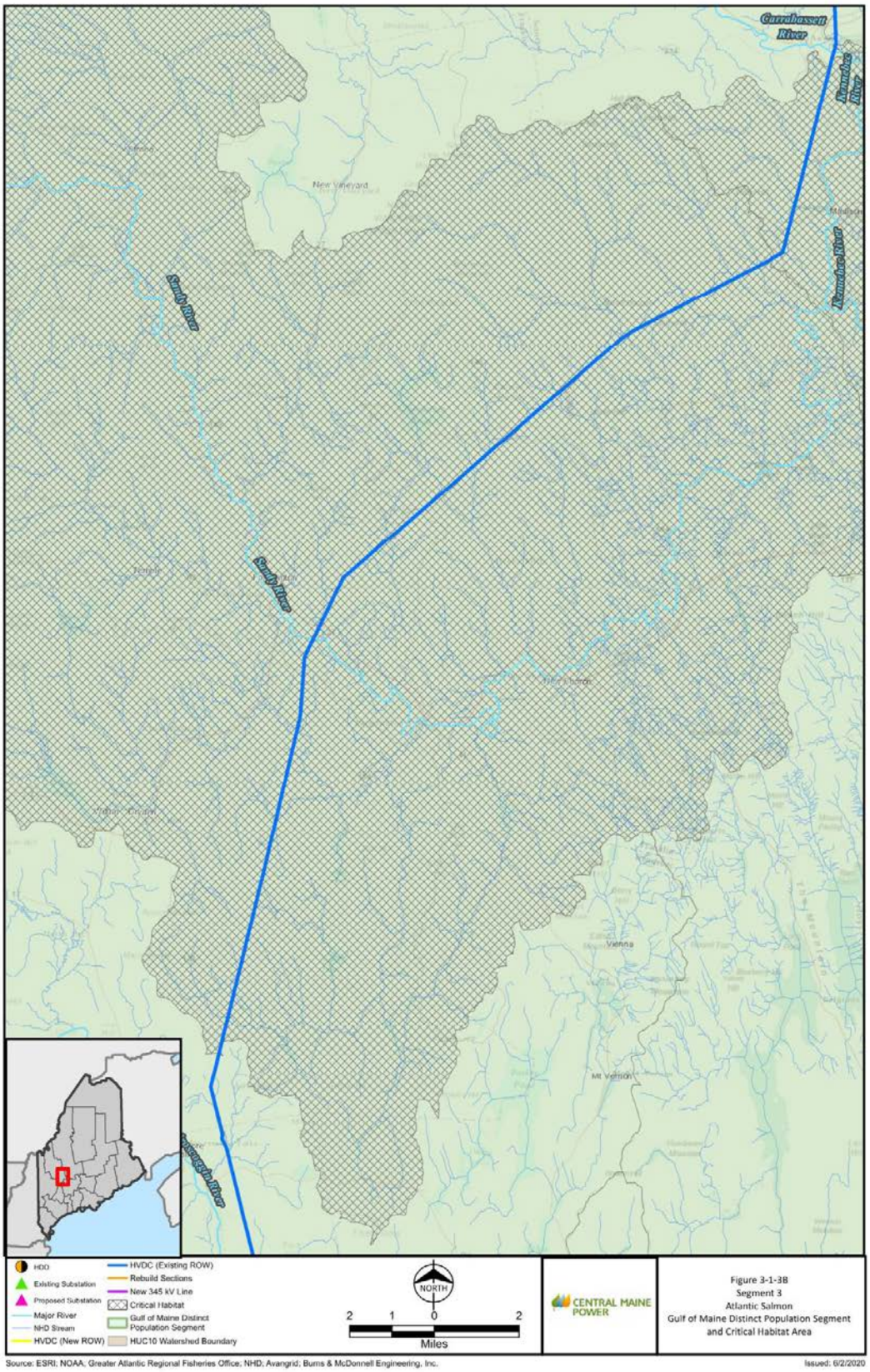
No in-stream construction work is proposed within any stream located within Atlantic salmon designated critical habitat. With respect to streams that might support Atlantic salmon. CMP has proposed protections within a 100-foot riparian buffer. This applies to any stream within the GOM DPS, including all streams designated as critical habitat, as further discussed in Section 5.1, page 82. CMP has proposed a Culvert Replacement Program as part of the NECEC Project Compensation Plan, which will enhance coldwater fishery habitat through the removal and/or replacement of non-functional, damaged, undersized, and improperly installed culverts in the vicinity of Segments 1 and 2; however, no culvert replacements would occur in existing Atlantic salmon streams or designated critical habitat. This plan is described in more detail in Section 5.1.2, pages 89-91 within the BA. Summary tables of the compensation plan are provided in Exhibit L.

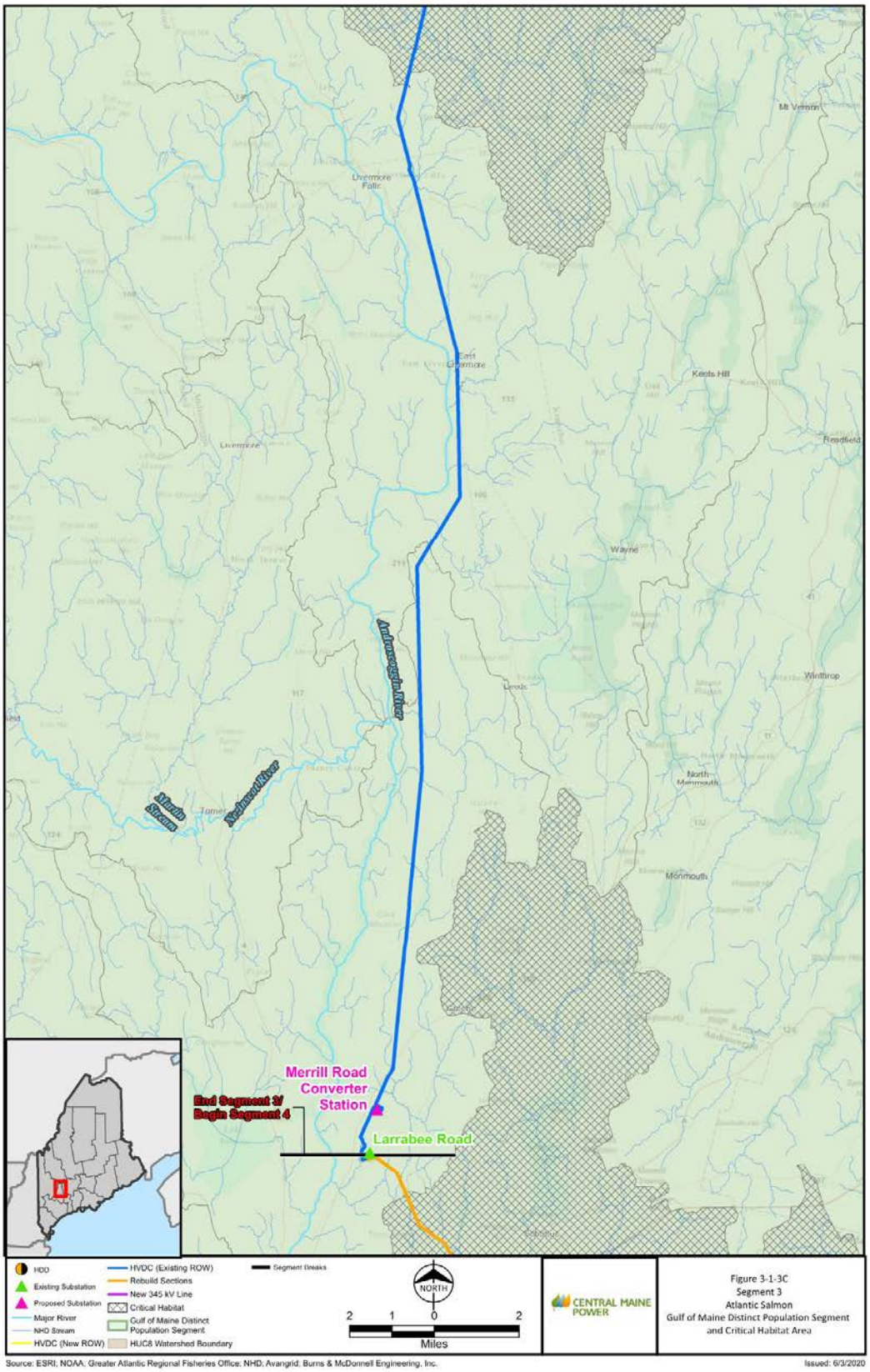

Begin Segment 1
Horizontal Directional Drill Location
End Segment 1/ Begin Segment 2
Dead River
Kennebec River
Wyman Hydro
End Segment 2/ Begin Segment 3
Carrabassett River
Sandy River
Orbeton Brook
Carrabassett Stream
Schoodwood River
Webb River
Androscoggin River
Sheepscot River
Kennebec River
Coopers Mills
Begin Segment 5
Weskeag River
End Segment 3/ Begin Segment 4
Converter Station
Larrabee Road
Little Androscoggin River
Crowleys
Fickett Road
End Segment 4
Surowiec
Androscoggin River
Eastern River
Passagassawaukeag River
Maine Yankee
End Segment 5
HDD
Existing Substation
Proposed Substation
Major River
Segment Breaks
HVDC (New ROW)
HVDC (Existing ROW)
Rebuild Sections
New 345 kV Line
Critical Habitat
Gulf of Maine Distinct Population Segment
HUC10 Watershed Boundary
NORTH
10 5 0 10
Miles
CENTRAL MAINE POWER
Figure 3-1
Atlantic Salmon
Gulf of Maine Distinct Population Segment and Critical Habitat Area
Source: ESRI; NOAA; Greater Atlantic Regional Fisheries Office; NHD; Avangrid; Burns & McDonnell Engineering, Inc.
Issued: 6/3/2020

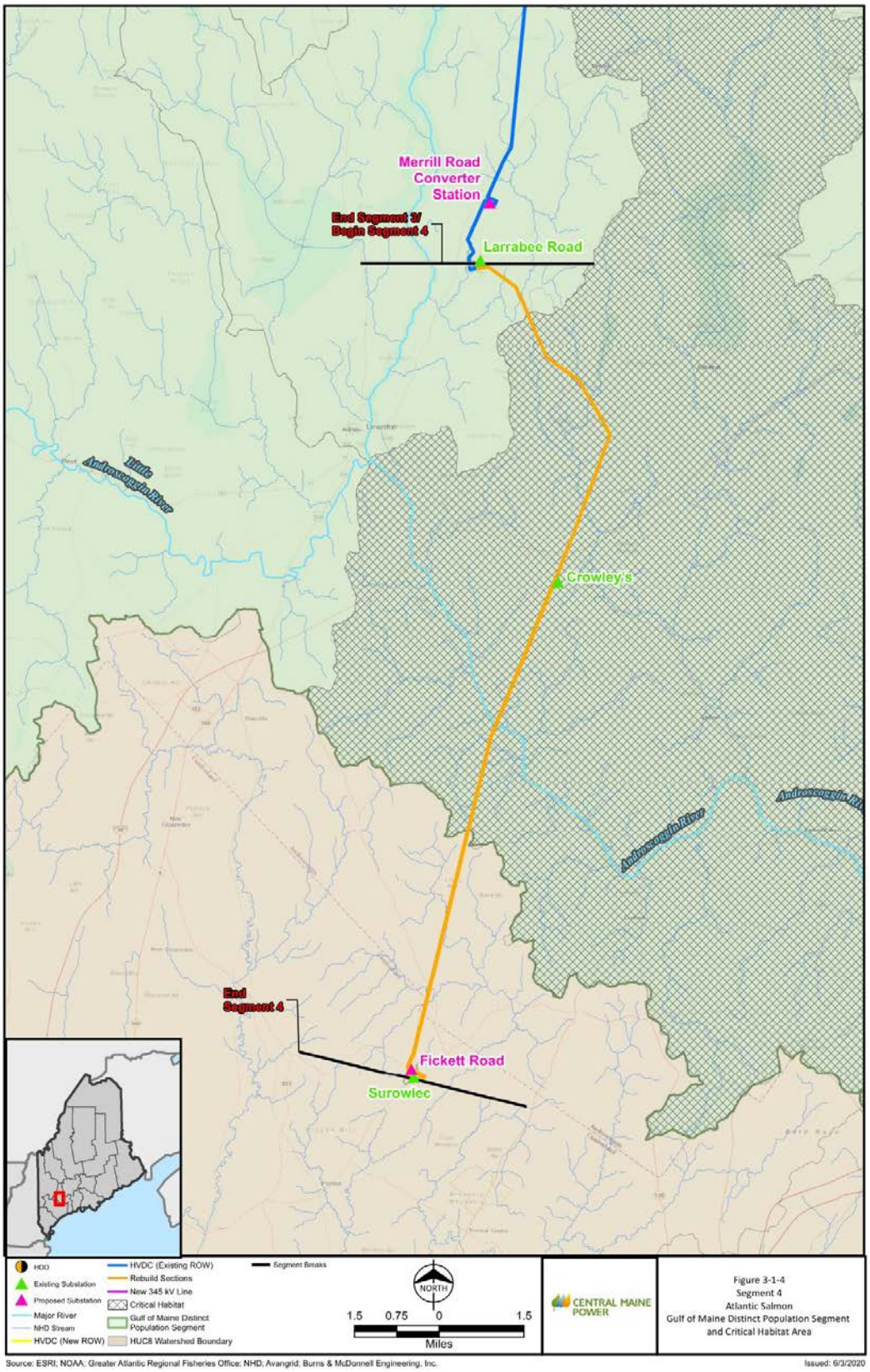

Begin Segment 1
Dead River
Salmon Stream
Kennebec River
HDD Entry
Kennebec River
HDD Exit
Horizontal Directional Drill Location
End Segment 1/ Begin Segment 2
HDD
Existing Substation
Proposed Substation
Major River
NHD Stream
HVDC (New ROW)
HVDC (Existing ROW)
Rebuild Sections
New 345 kV Line
Critical Habitat
Gulf of Maine Distinct Population Segment
HUC10 Watershed Boundary
Segment Breaks
North
3 1.5 0 3
Miles
CENTRAL MAINE POWER
Figure 3-1-1
Segment 1
Atlantic Salmon
Gulf of Maine Distinct Population Segment
and Critical Habitat Area
Source: ESRI; NOAA; Greater Atlantic Regional Fisheries Office; NHD; Avangrid; Burns & McDonnell Engineering, Inc.
Issued: 6/3/2020

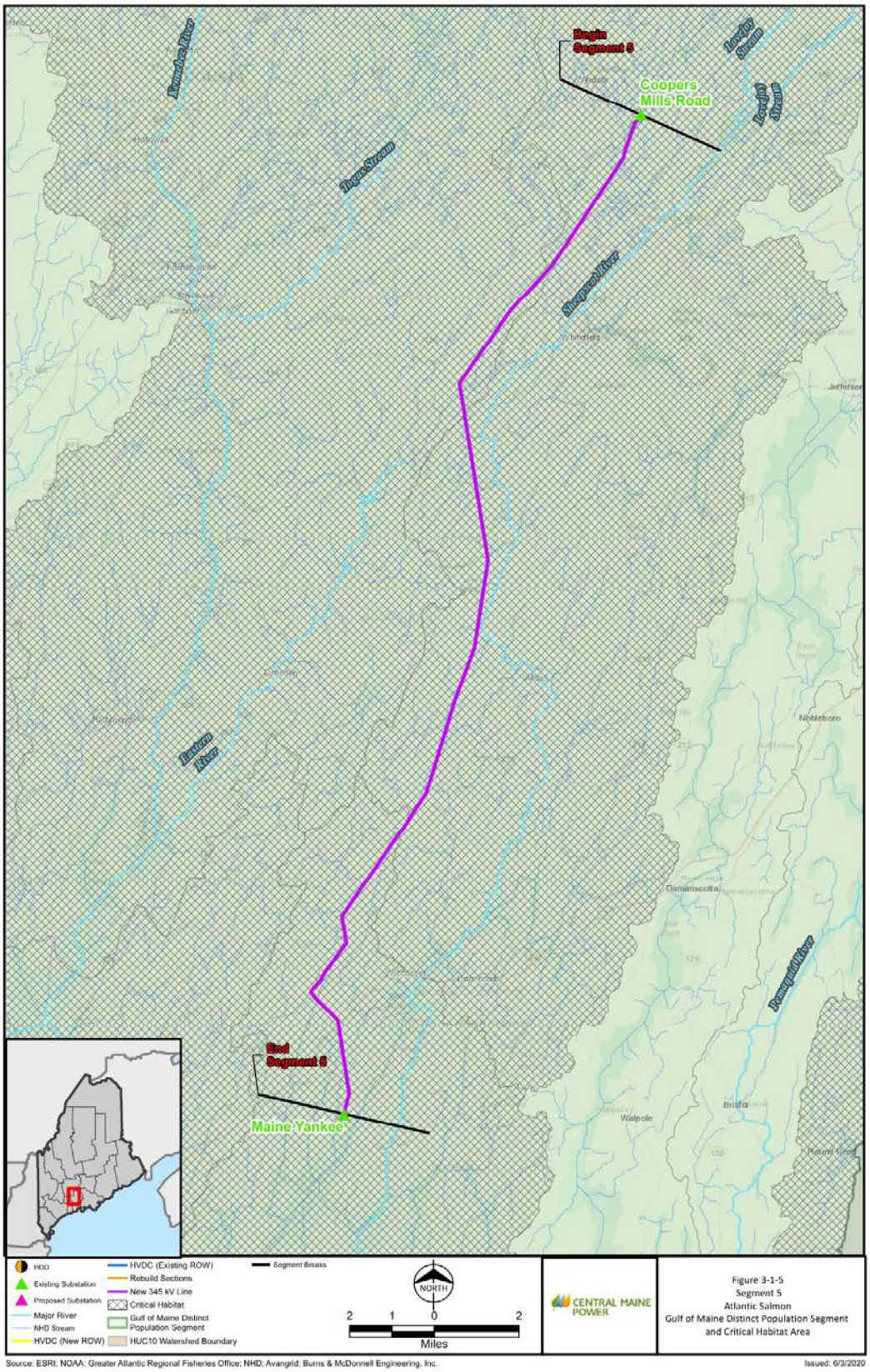

Salmon Stream
Dead River
End Segment 1/
Begin Segment 2
Kennebec River
End Segment 2/
Begin Segment 3
Wyman Hydro
HDD
Existing Substation
Proposed Substation
Major River
NHD Stream
HVDC (New ROW)
HVDC (Existing ROW)
Rebuild Sections
New 345 kV Line
Critical Habitat
Gulf of Maine Distinct Population Segment
HUC10 Watershed Boundary
Segment Breaks
NORTH
1.5 0.75 0 1.5
Miles
CENTRAL MAINE POWER
Figure 3-1-2
Segment 2
Atlantic Salmon
Gulf of Maine Distinct Population Segment
and Critical Habitat Area
Source: ESRI, NOAA, Greater Atlantic Regional Fisheries Office; NHD; Avangrid, Burns & McDonnell Engineering, Inc.
Issued: 6/3/2020


End Segment 2/
Begin Segment 3
Wyman Hydro
Kennebec River
Carrabassett River
Gulf of Maine
HDD
Existing Substation
Proposed Substation
Major River
NHD Stream
HVDC (New ROW)
HVDC (Existing ROW)
Rebuild Sections
New 345 kV Line
Critical Habitat
Gulf of Maine Distinct Population Segment
HUC10 Watershed Boundary
Segment Breaks
NORTH
1.5 0.75 0 1.5
Miles
CENTRAL MAINE POWER
Figure 3-1-3A
Segment 3
Atlantic Salmon
Gulf of Maine Distinct Population Segment
and Critical Habitat Area
Source: ESRI, NOAA, Greater Atlantic Regional Fisheries Office; NHD; Avangrid, Burns & McDonnell Engineering, Inc.
Issued: 6/3/2020


Carrabassett River
Kennebec River
Sandy River
Sandy River
New Vineyard
Mercer
Vienna
Mt Vernon
HDD
Existing Substation
Proposed Substation
Major River
NHD Stream
HVDC (New ROW)
HVDC (Existing ROW)
Rebuild Sections
New 345 kV Line
Critical Habitat
Gulf of Maine Distinct Population Segment
HUC10 Watershed Boundary
NORTH
2 1 0 2
Miles
CENTRAL MAINE POWER
Figure 3-1-38
Segment 3
Atlantic Salmon
Gulf of Maine Distinct Population Segment and Critical Habitat Area
Source: ESRI; NOAA; Greater Atlantic Regional Fisheries Office; NHD; Avangrid; Burns & McDonnell Engineering, Inc.
Issued: 6/2/2020


Mt Vernon
Livermore Falls
East Livermore
Livermore
Kents Hill
Readfield
Wayne
Androscoggin River
Winthrop
North Monmouth
Monmouth
North Stream
Merrill Road Converter Station
End Segment 3/ Begin Segment 4
Larrabee Road
HDD
Existing Substation
Proposed Substation
Major River
NHD Stream
HVDC (New ROW)
HVDC (Existing ROW)
Rebuild Sections
New 345 kV Line
Critical Habitat
Gulf of Maine Distinct Population Segment
HUC8 Watershed Boundary
Segment Breaks
NORTH
2 1 0 2
Miles
CENTRAL MAINE POWER
Figure 3-1-3C
Segment 3
Atlantic Salmon
Gulf of Maine Distinct Population Segment
and Critical Habitat Area
Source: ESRI, NOAA, Greater Atlantic Regional Fisheries Office; NHD; Avangrid; Burns & McDonnell Engineering, Inc.
Issued: 6/3/2020


Merrill Road Converter Station
End Segment 3/ Begin Segment 4
Larrabee Road
Little Androscoggin River
Crowley's
Androscoggin River
End Segment 4
Fickett Road
Surowiec
HDD
Existing Substation
Proposed Substation
Major River
NHD Stream
HVDC (New ROW)
HVDC (Existing ROW)
Rebuild Sections
New 345 kV Line
Critical Habitat
Gulf of Maine Distinct Population Segment
HUC8 Watershed Boundary
Segment Breaks
NORTH
1.5 0.75 0 1.5
Miles
CENTRAL MAINE POWER
Figure 3-1-4
Segment 4
Atlantic Salmon
Gulf of Maine Distinct Population Segment and Critical Habitat Area
Source: ESRI, NOAA, Greater Atlantic Regional Fisheries Office, NHD, Avangrid, Burns & McDonnell Engineering, Inc.
Issued: 6/3/2020


Begin Segment 5
Coopers Mills Road
End Segment 5
Maine Yankee
Kennebec River
Togus Stream
Sheepscot River
Lovejoy Stream
Eastern River
Androscoggin River
Jefferson
Whitefield
Damariscotta
Walpole
Bristol
Newcastle
HDD
Existing Substation
Proposed Substation
Major River
NHD Stream
HVDC (New ROW)
HVDC (Existing ROW)
Rebuild Sections
New 345 kV Line
Critical Habitat
Gulf of Maine Distinct Population Segment
HUC10 Watershed Boundary
Segment Breaks
NORTH
2 1 0 2
Miles
CENTRAL MAINE POWER
Figure 3-1-5
Segment 5
Atlantic Salmon
Gulf of Maine Distinct Population Segment
and Critical Habitat Area
Source: ESRI; NOAA; Greater Atlantic Regional Fisheries Office; NHD; Avangrid; Burns & McDonnell Engineering, Inc.
Issued: 6/3/2020

3.2 Terrestrial Species

3.2.1 Small Whorled Pogonia

Numerous plant species in Maine are considered rare, threatened, or endangered ("RTE"), and are protected under the ESA and/or the MNAP through statute (12 M.R.S. §§ 544, 544-B & 544- C). The Official Species List, obtained through the ECOS-IPaC website, identifies the SWP (federally threatened) and its possible presence within the boundaries of the NECEC Project.

SWP is a long-lived, perennial orchid, having an appearance similar to Indian cucumber (*Medeola virginiana*), with a fleshy, glabrous stem, approximately 10 to 15 inches tall and with typically 5 (though possibly also 4 or 6) elliptical leaves arranged in a pseudo whorl at the top of the stem. Flowering individuals have a single (rarely two) pale, greenish-yellow flower on a very short stalk arising from the center of the leaf whorl. It occurs in mid-successional forests, often with little groundcover, and often in areas near small seasonal streams on soil with a hardpan layer. It has been documented in five counties in Maine: Androscoggin, Cumberland, Kennebec, Oxford, and York (MNAP 2018b).

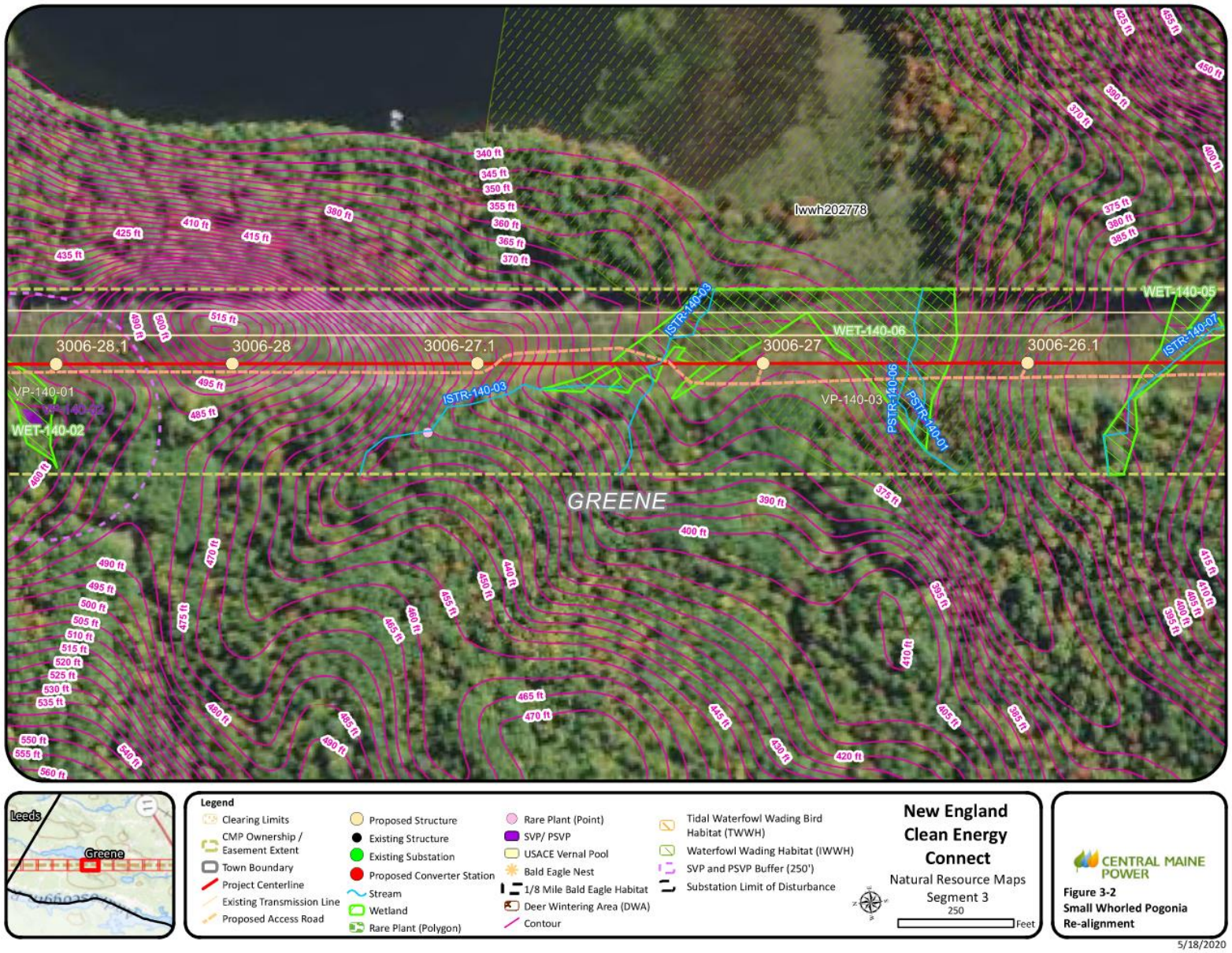
As further discussed in Section 5.2, pages 99-102 of the BA and in the NECEC Project Rare Plants Survey Narrative Report (Exhibit H of the BA), the Applicant conducted targeted surveys for the SWP on Segment 3, between Jay and Lewiston, where MNAP modeling results[10] from a landscape analysis predicted the potential presence of this species. Surveyors performed targeted detailed searches within these search areas. The general forest communities consisted of sparse overstory and relatively closed forest canopy. The model sometimes included open ROW habitat, covered in juniper, and other open habitats. These habitats are unsuitable for small-whorled pogonia, so surveys focused on the forested habitats, though a walk-through was also conducted through the open ROW, where the model indicated potential occurrence. Refer to the email between Mark McCollough/USFWS and Mark Goodwin/BMcD, dated 06/19/2018, in Exhibit A.

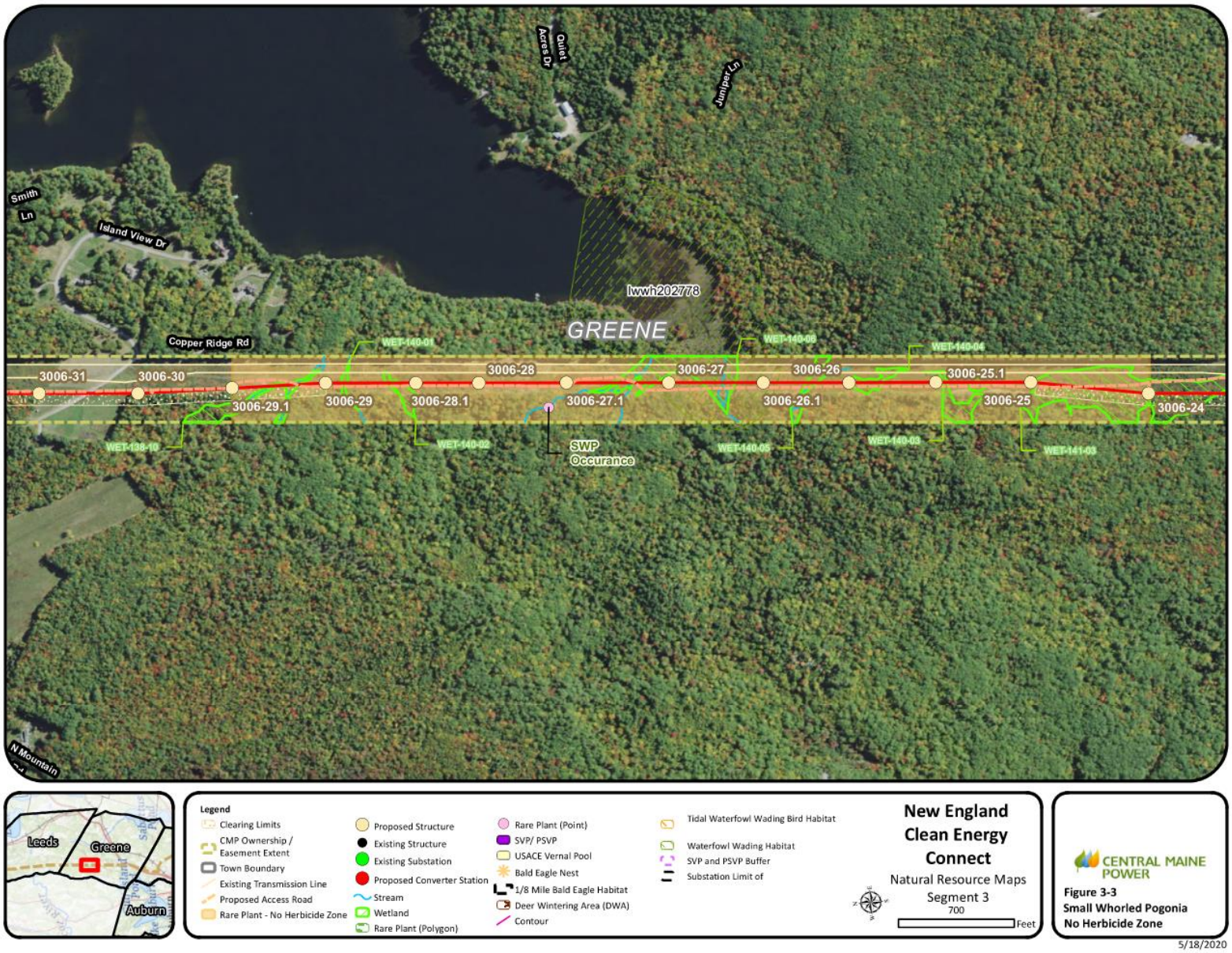
Surveys were conducted in July 2018 utilizing the survey[11] protocol provided by MNAP. A non-flowering, but quite robust individual SWP was identified within the 8 miles of the targeted search area. The occurrence was located west of the south end of Allen Pond, in Greene, approximately 87 feet, and upgradient, from the existing transmission line clearing (see Figure 3-2 on page 68 of the BA). Additionally, to further evaluate potential options for avoidance and/or mitigation, CMP conducted

[10] The MNAP model and field survey methods are described further in Exhibit A of the BA in the notes from the June 7, 2017 meeting between USFWS, USACE, MNAP, MDIFW, CMP and BMcD. DOE was not present at this meeting.
[11] Survey protocol are described in Exhibit H of the BA.

surveys on the 174-acre parcel to the west of the corridor in 2019 and found no additional specimens, but portions of this parcel contained suitable habitat for SWP.

Dormancy studies were not part of the survey effort because, as noted later in the BA in Section 5.1.2, on page 89, no clearing activity will occur within the search area of the identified SWP occurrence and CMP will prohibit the use of herbicides within the entire width of the transmission line corridor adjacent to the 174-acre parcel adjacent to Allen Pond in Greene, i.e., the portion of the corridor containing transmission line structures 3006-24 to 3006-29.1 (see Figure 3-3 on page 69 of the BA), to prevent any potential effect to the known occurrence or any dormant occurrences of the SWP. The western edge of the Project corridor in this area between 3006-24 and 3006-29.1 will be flagged with red/black checkered tape indicating a “No Clearing Area” in accordance with Table 2-4: NECEC Project Resource Flagging Convention.


lwwh202778
3006-28.1
3006-28
3006-27.1
3006-27
3006-26.1
WET-140-05
WET-140-06
WET-140-02
VP-140-01
VP-140-02
VP-140-03
ISTR-140-03
ISTR-140-07
PSTR-140-06
PSTR-140-01
GREENE
Leeds
Greene
Legend
Clearing Limits
CMP Ownership / Easement Extent
Town Boundary
Project Centerline
Existing Transmission Line
Proposed Access Road
Proposed Structure
Existing Structure
Existing Substation
Proposed Converter Station
Stream
Wetland
Rare Plant (Polygon)
Rare Plant (Point)
SVP/ PSVP
USACE Vernal Pool
Bald Eagle Nest
1/8 Mile Bald Eagle Habitat
Deer Wintering Area (DWA)
Contour
Tidal Waterfowl Wading Bird Habitat (TWWH)
Waterfowl Wading Habitat (IWWH)
SVP and PSVP Buffer (250')
Substation Limit of Disturbance
New England Clean Energy Connect
Natural Resource Maps
Segment 3
250
Feet
CENTRAL MAINE POWER
Figure 3-2
Small Whorled Pogonia
Re-alignment
5/18/2020


Quiet Acres Dr
Juniper Ln
Smith Ln
Island View Dr
lwwh202778
GREENE
Copper Ridge Rd
WET-140-01
WET-140-06
WET-140-04
3006-31
3006-30
3006-29.1
3006-29
3006-28.1
3006-28
3006-27.1
3006-27
3006-26.1
3006-26
3006-25.1
3006-25
3006-24
WET-138-10
WET-140-02
SWP Occurance
WET-140-05
WET-140-03
WET-141-03
N Mountain
Leeds
Greene
Auburn
Legend
Clearing Limits
CMP Ownership / Easement Extent
Town Boundary
Existing Transmission Line
Proposed Access Road
Rare Plant - No Herbicide Zone
Proposed Structure
Existing Structure
Existing Substation
Proposed Converter Station
Stream
Wetland
Rare Plant (Polygon)
Rare Plant (Point)
SVP/ PSVP
USACE Vernal Pool
Bald Eagle Nest
1/8 Mile Bald Eagle Habitat
Deer Wintering Area (DWA)
Contour
Tidal Waterfowl Wading Bird Habitat
Waterfowl Wading Habitat
SVP and PSVP Buffer
Substation Limit of
New England Clean Energy Connect
Natural Resource Maps
Segment 3
700
Feet
CENTRAL MAINE POWER
Figure 3-3
Small Whorled Pogonia
No Herbicide Zone
5/18/2020

3.2.2 Canada Lynx

The Canada lynx was listed in 2000 as threatened under the ESA and is also a State Species of Special Concern in Maine. The Canada lynx in the contiguous U.S. was designated a DPS, qualifying portions of northern Maine, northeastern Minnesota, northwestern Montana/northern Idaho, and north-central Washington as federally listed critical habitat under the ESA. Species-specific details are discussed in Section 3.2.2.1, pages 70-71 within the BA.

A January 11, 2018 news release by the U.S. Fish & Wildlife Service states that the agency "is announcing the completion of a scientific review of the Canada lynx in the contiguous United States. The review concludes that the Canada lynx may no longer warrant protection under the Endangered Species Act (ESA) and should be considered for delisting due to recovery." The news release goes on to say that the "recommendations does not remove or negate the Endangered Species Act protection currently in place for the Canada lynx. To delist a species, the Service must follow a process similar to what is used in considering whether to list a species. The next step is for the Service to publish a proposed rule in the Federal Register, receive public comment, review and analyze those comments, conduct a peer review, and then announce a final decision." (USFWS, Jan. 2018)

Thus, the Canada lynx remains federally threatened under the ESA. Consultation with USFWS and MDIFW has supported CMP's efforts to assess the presence of the Canada lynx within the Project area and to develop a plan to minimize impacts during construction.

3.2.2.1 Designated Critical Habitat and Expanded Section 7 Review Area

The critical habitat for the Canada lynx DPS is federally designated under the ESA. Critical habitat is defined as a specific geographic area that contains features essential to the conservation of an endangered or threatened species and may require special management and protection. Critical habitat may include areas that are not currently occupied by the species, but whose protection is essential to the species recovery. Canada lynx habitat covers northwestern portions of the State of Maine and includes Aroostook and Piscataquis counties and northern Penobscot, Somerset, and Franklin counties, where snow depths are highest in the state (MDIFW 2017).

During an interagency meeting held with the Applicant on June 7, 2017, the USFWS requested that the BA also include an expanded review area extending the lynx area of review in Segments 1 & 2 south into Segment 3 of the Project to a point near Across Town Road in Embden. Figure 3-4 on page 72 of the BA depicts the limits of the critical habitat and the expanded Section 7 Review Area in relation to the NECEC transmission corridor (USFWS Shapefile 2017).

Lynx are common throughout the boreal forests of Alaska and Canada and the southern portion of their range once extended into the Rocky Mountains, Great Lakes states, and the northeast U.S. Breeding populations are strongly correlated to the abundance of snowshoe hare (*Lepus americanus*), their primary food source. Dense conifer forest understory in a regenerating sapling spruce-fir forest (15-35 years old) is preferred by both the snowshoe hare and the lynx. Today, resident breeding populations of lynx are found in Maine. The NECEC Project corridor enters the Canada lynx critical habitat at the southern border of Johnson Mountain Twp., extending to the Canadian border in Beattie Twp. Based on information provided by MDIFW, documented occurrences of the Canada lynx have been reported near the Project corridor.

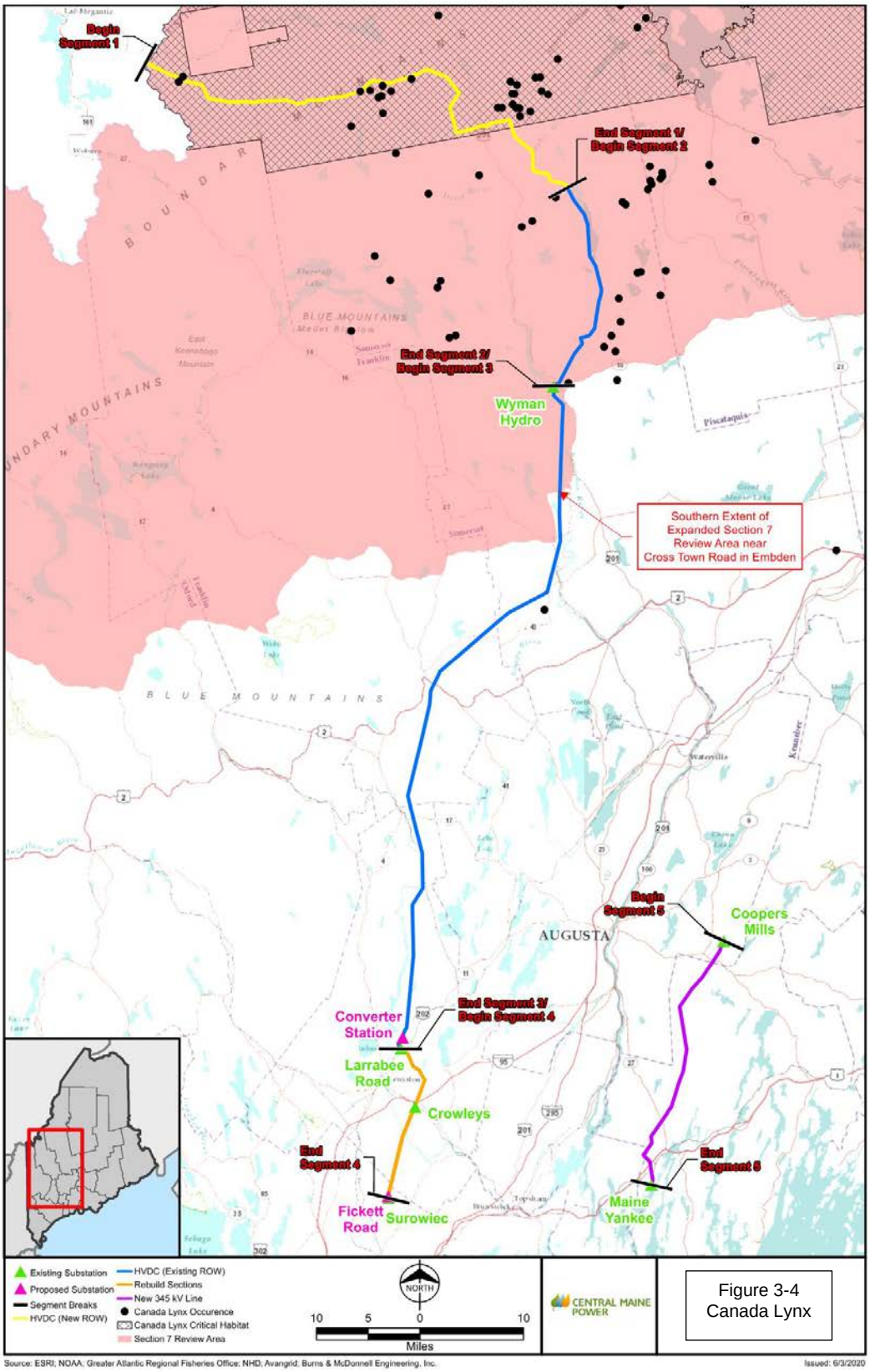


Figure 3-4
Canada Lynx

3.2.3 Northern Long-Eared Bat

Of the eight species of myotis bats that occur in Maine, only the NLEB is listed as threatened under the ESA. The overarching threat to the listed species of myotis bats is the invasive fungus that is the causal agent for the White-Nose Syndrome ("WNS"), which is known to predominantly affect hibernating bats.

Because of the rapid population decline due to WNS, this species was federally listed as threatened in 2015. Section 4(d) of the ESA ("4(d) rule") was finalized in January of 2016. The 4(d) rule, while it does not designate a critical habitat, prohibits "purposeful take," unless authorized by a permit, except under specific circumstances. "Take" is defined by the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect." "Purposeful take" is when the reason for some activity or action is to conduct some form of take. "Incidental take" is take that is incidental to, and not the purpose of an otherwise lawful activity. The White Nose Syndrome Zone ("WNSZ"), established by the Final 4(d) Rule, includes the entire State of Maine and most areas of the eastern and midwestern United States. Inside the WNSZ, which includes the NECEC Project, all "take" within known hibernacula is prohibited and incidental take caused by tree removal is prohibited (without a permit) if: the tree removal occurs within ¼ mile of a known hibernacula at any time of year and tree removal cuts or destroys a known occupied maternity roost tree or any other trees within a 150-foot radius of the maternity roost tree during pup-season (June 1 through July 31) (81 FR 1900, January 14, 2016).

NLEB is found across much of the eastern and north central United States and all Canadian provinces from the Atlantic coast west to southern Northwest Territory and eastern British Columbia. This species hibernates during the winter in caves and mines called hibernacula. In the spring and summer, they are forest-dwelling and roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. Breeding begins in late summer or early fall when males swarm the hibernacula. After a hibernation period, females establish "maternity roost" trees in the spring and pups are generally born between late May and late July (USFWS 2017). According to Cory Mosby, MDIFW Furbearer and Small Mammal Biologist, there are three known hibernacula sites in the State of Maine; two in Oxford County and one in Piscataquis County, all well outside of the Project area. MDIFW reported that the only known maternity roost trees for the NLEB in Maine are located on Mount Desert Island within Acadia National Park in Hancock County (Mosby, C., personal communication, July 18, 2017). Since the location of maternity roost trees is largely unstudied, there is presumed occurrence of roosting bats in the northern hardwood and conifer forests consistent with areas found along the NECEC Project route[12].

[12]The location of maternity roost trees in Maine for the Northern long-eared bat are largely unknown because of the lack of appropriate research being done in the State of Maine to track reproductive females to roost trees.

4.0 ENVIRONMENTAL BASELINE CONDITIONS

As discussed above in Section 2.1, pages 9-10 within the BA, the proposed Project was divided into five segments. To assess the effects of an action on listed species, an analysis of how the proposed action would affect the environmental baseline is required. The environmental baseline for the action area was established as defined in 50 CFR 402.02 and "includes the past and present impacts of all Federal, State, or private actions and other human activities in the action areas, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early Section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process."

4.1 Segment 1 (Beattie Twp to The Forks Plt)

Segment 1 is 53.1 miles and extends from the border of Québec, Canada in Beattie Twp, Maine to The Forks Plt, Maine. Part of Segment 1 will be located within a proposed 54-foot wide cleared and maintained portion of the right-of-way, with tapered vegetation beyond the 54-foot cleared area, to 48 feet beyond the edges of the 54-foot area in each direction, in a previously undeveloped transmission line corridor. This 54-foot wide cleared area for 39.02 miles equals 303.5 acres. The remaining 14.08 miles will include 35-foot tall or full height vegetation, as stated in Section 2.4.1.5 and presented in Exhibit C. Townships and towns traversed by Segment 1 include: Beattie Twp, Merrill Strip Twp, Skinner Twp, Appleton Twp, T5 R6 BKP WKR, T5 R7 BKP WKR, Hobbstown Twp, Bradstreet Twp, Parlin Pond Twp, Johnson Mountain Twp, West Forks Plt, Moxie Gore, and The Forks Plt. This new corridor segment includes previously undeveloped land, historically and currently extensively used for commercial timber production with typical cutting cycles of 30 to 50 years, depending on the silvicultural prescription. Managed forest stands range from landscape scale clear-cuts and regenerating forest of planted and naturally occurring species to well-stocked mature stands of softwood and hardwood. Segment 1 is near the impoundment on the Kennebec River associated with the Indian Pond Hydroelectric Project, Federal Energy Regulatory Commission (FERC) Project No. 2142. There are no other known ongoing or previous projects requiring Federal or state actions in this portion of the action area. However, it is expected that private logging activities will continue on private lands adjacent to the corridor.

Segment 1 is located within the Upper Kennebec River Watershed and the Dead River Watershed Hydrologic Unit Code 10 (HUC10) and crosses 85 perennial and 214 intermittent waterbodies. Segment 1 is generally characterized as a mountainous area that is located within a transitional region between boreal spruce-fir forests to the north and broadleaf deciduous forests to the south. Forest vegetation includes spruce-fir, maple-beech-birch, and aspen-birch cover types.

The following provides a brief status of the federally listed species and designated critical habitat in Segment 1.

Atlantic Salmon and its Designated Critical Habitat

The GOM DPS extends into portions of Segment 1, as shown on Figure 3-1 on page 58 of the BA. However, of the 300 streams in Segment 1, none are located within the area designated as critical habitat of the Atlantic salmon. Presently, fish passage on the Kennebec River to the upper reaches of the GOM DPS is restricted by the dams in Anson and Madison. There are currently two other dams on the Kennebec River that also restrict salmon passage: the Shawmut Dam north of Fairfield and the Weston Dam in Skowhegan. The Hydro-Kennebec dam has a fish passage, but it is not being used at this time, and the Lockwood Dam in Winslow has a fish lift that is aided by a trap-and-truck process to facilitate salmon passage. Some of the salmon caught from the Lockwood Dam have been transported to the Sandy River (2020 DPS-SHRU Annual Report). Based on Maine Inland Fisheries and Wildlife fish stocking reports, there is no stocking of Atlantic salmon upstream of the dams in Anson and Madison. (Maine.gov/ifw)

Small Whorled Pogonia

There is no documented occurrence of the SWP in Segment 1. Additionally, as noted by MNAP, this section of the Project in not in an area that has a high occurrence of documented rare plant species, and the undeveloped portion of the corridor is in a working commercial forest that is routinely disturbed by timber harvesting activities[13], such as multi-acre clear-cuts on a +/- 30 to 50 year cutting cycle. Segment 1 is located within Somerset and Franklin counties. As noted earlier in this BA on pages 66-67 in Section 3.2.1, in Maine the SWP has only been documented in Androscoggin, Cumberland, Kennebec, Oxford and York counties.

Canada Lynx and its Designated Critical Habitat

As stated earlier on page 70 in Section 3.2.2 of this BA, the first 44.1 miles of Segment 1 is located in the designated critical habitat area and completely located in the Section 7 Review Area. The last nine-mile section of Segment 1 south of Johnson Mountain Twp is outside the designated critical habitat. Segment 1 is located in the most remote area compared to other segments of the Project and, based on annual snow depths and forest conditions that support snowshoe hare, provides the most suitable habitat for the Canada lynx. Based on information provided by Jennifer Vashon, biologist with the MDIFW, Segment 1 has the

[13] A review of Google Earth imagery from 2016 of the Segment 1 area, including public reserved lands, clearly shows harvest activities estimated to have occurred within the last +/- 20 years.

most point occurrence data within the vicinity of the Project corridor. Refer to the email between Jennifer Vashon/MDIFW and James Morin/BMcD, dated 12/27/2018, in Exhibit A.

4.2 Segment 2 (The Forks Plt to Moscow)

Segment 2 extends from The Forks Plt, Maine to the Wyman hydropower station in Moscow, Maine, from Project mile 53.6 to 75.5, for a total of 21.9 miles and will require 176.76 acres of clearing. Towns associated with Segment 2 include The Forks Plt, Bald Mountain Twp T2 R3, Caratunk, and Moscow. This segment will be co-located within an existing 300-foot-wide transmission line ROW that currently is cleared to a width of 150 feet and contains a 115kV H-frame transmission line. Clearing width in most locations is approximately 75 feet depending on current conditions. Segment 2 is adjacent to hundreds of acres of undeveloped land, historically and currently used for commercial timber production. Commercial timber production generally involves the process of managing stands of trees to maximize woody output and harvesting those stands of trees for sale, generally to pulp and paper mills or other wood buyers. Timber harvesting activity generally occurs on a 20+ year cutting cycle, depending on the silvicultural prescription. A portion of Segment 2 abuts the former Moscow Air Force Station, which was deactivated in 2002. There are no other known ongoing or previous projects in this portion of the action area that require State or Federal actions. However, it is expected that private logging activities will continue on private lands adjacent to the corridor.

Segment 2 is located within the Upper Kennebec and Lower Kennebec River watersheds (HUC 10) and crosses 29 perennial and 42 intermittent waterbodies. Segment 2 is similar in topography and vegetation to Segment 1.

The following provides a brief status of the federally listed species and designated critical habitat in Segment 2.

Atlantic Salmon and its Designated Critical Habitat

Segment 2 is wholly within the GOM DPS, as shown on Figure 3-1 on page 58 of the BA. Of the 71 streams in Segment 2, none is located within the area designated as critical habitat.. As noted earlier in Section 4.1, fish passage on the Kennebec River to the upper reaches of the GOM DPS is restricted by the dams in Anson and Madison. Based on MDIFW fish stocking reports, there is no stocking of Atlantic salmon upstream of the dams in Anson and Madison.(Maine.gov/ifw)

Small Whorled Pogonia

Modeling results that predict the potential presence of this species, there is no documented occurrence of the SWP in Segment 2. Segment 2 is located in Somerset County. As noted earlier on page 66 of the BA in Section 3.2.1, in Maine, the SWP has only been documented in Androscoggin, Cumberland, Kennebec, Oxford, and York counties. Refer to the email between Mark McCollough/USFWS and Mark Goodwin/BMcD, dated 06/19/2018, in Exhibit A.

Canada Lynx and its Designated Critical Habitat

Segment 2 is located outside of the designated critical habitat area but within the Section 7 Review Area. This segment of the Project offers suitable habitat for the Canada lynx but has less MDIFW point occurrence data than Segment 1.

4.3 Segment 3 (Concord Twp to Lewiston)

Segment 3, approximately 71.1 miles in length, extends from the terminus of Segment 2 near the Wyman hydropower station (FERC Project No. 2329) in Moscow, Maine to the proposed Merrill Road Converter Station in Lewiston, Maine. Segment 3 will be co-located within an existing 400-foot-wide transmission line ROW. Clearing width in most locations is proposed to be approximately 75 feet, depending on current conditions. This 75-foot width for 71.1 miles will result of 536.98 acres of clearing. Towns associated with NECEC Project Segment 3 include Moscow, Concord, Embden, Anson, Starks, Industry, New Sharon, Farmington, Wilton, Chesterville, Jay, Livermore Falls, Leeds, Greene, and Lewiston. There are no other known ongoing or previous State or Federal jurisdictional projects within this portion of the action area.

Segment 3 is located within the Lower Kennebec River and Lower Androscoggin River Watersheds (HUC 10) and crosses 92 perennial and 142 intermittent streams. Topography in Segment 3 is generally characterized as ranging from flat to gently rolling with higher hills. Vegetation is transitional between boreal forests to the north and deciduous forest to the south and includes spruce-fir, oak, and maple-beech-birch cover types.

The following provides a brief status of the federally listed species and designated critical habitat in Segment 3.

Atlantic Salmon and its Designated Critical Habitat

Segment 3 is wholly within the GOM DPS, as shown on Figure 3-1 on page 58 of the BA. Of the 234 streams in Segment 3, 113 streams (approximately 48 percent), are in areas mapped as designated critical habitat for Atlantic salmon. As noted earlier in Sections 4.1 and 4.2, fish passage on the Kennebec River to the upper reaches of the GOM DPS is restricted by the dams in Anson and Madison. There are two other dams on the Kennebec River that also restrict salmon passage: the Shawmut Dam north of Fairfield and the Weston Dam in Skowhegan. The Hydro-Kennebec has a fish passage, but it is not being used at this time, and the Lockwood Dam in Winslow has a fish lift that is aided by a trap-and-truck process to facilitate salmon passage. Some of the salmon caught from the Lockwood Dam have been transported to the Sandy River (2020 DPS-SHRU Annual Report). The Maine Inland Fisheries and Wildlife is not actively stocking Atlantic salmon in the Sandy River, as noted in the current and historic stocking reports (Maine.gov/ifw). However, recently in 2019 the Maine Department of Marine Resources, with support from students from the University of Maine at Farmington, deposited eggs of Atlantic Salmon into a tributary of the Sandy River (Pakulski, April 5, 2019).

Small Whorled Pogonia

Segment 3 traverses three counties; Androscoggin, Franklin, and Somerset. There is no documented occurrence of the SWP in Franklin or Somerset county. However, based on MNAP modeling results that predicts the potential presence of the SWP, the Applicant conducted targeted surveys in July 2018 between Jay and Lewiston. As noted on page 66 in Section 3.2.1 of this BA, the July 2018 surveys identified a single, non-flowering SWP. The occurrence was located in the town of Greene, west of the south end of Allen Pond. Other than this occurrence, no other SWP was noted across the Project corridor.

Canada Lynx and its Designated Critical Habitat

Segment 3 does not contain any portion of the designated critical habitat for the Canada lynx and only the northern portion of this segment, north of Across Town Road in Embden, is within the Section 7 Review Areas, as shown on Figure 3-4 on page 72 of the BA. Data provided by the MDIFW show very low point occurrence data, which may correlate to less suitable habitat for the Canada lynx. Refer to the email between Jennifer Vashon/MDIFW and James Morin/BMcD, dated 12/27/2018, in Exhibit A.

4.4 Segment 4 (Lewiston to Pownal)

Segment 4, approximately 16.4 miles in length, extends from Larrabee Road Substation in Lewiston, Maine to Surowiec Substation in Pownal, Maine and will require 1.4 acres of additional clearing. Towns associated with NECEC Project Segment 4 include Lewiston, Auburn, Durham, and Pownal. Segment 4 includes the rebuilding of the existing Section 62 and Section 64 115kV transmission lines between Crowley's Substation in Lewiston and Surowiec Substation in Pownal and between Larrabee Road Substation in Lewiston and Surowiec Substation, respectively. Segment 4 also includes the proposed Fickett Road Substation opposite Surowiec Substation on Allen Road. A small group of white pine adjacent to Fickett Road will be cleared to facilitate the construction of the substation. No tree clearing is proposed on the transmission line portions of Segment 4. There are no other known ongoing or previous projects within this portion of the action area that would require State or Federal action.

Segment 4 is located within the Lower Androscoggin River and Presumpscot River Watersheds (HUC 10) and crosses 23 perennial and 10 intermittent streams. Topography in Segment 4 ranges from flat to gently rolling with small hills. Vegetation is characterized as a transition from boreal forest to the north to broadleaf deciduous forest to the south and includes spruce-fir, oak, and maple-beech-birch cover types.

The following provides a brief status of the federally listed species and designated critical habitat in Segment 4.

Atlantic Salmon and its Designated Critical Habitat

Of the 33 streams located in Segment 4, 24 streams are within the GOM DPS. Of those 24 streams, 21 streams (approximately 64 percent of the total), are within the area of designated critical habitat for the Atlantic salmon. Fish passage on the Androscoggin is supported by a fishway at the Brunswick dam, as well as at the dams between Brunswick and Lewiston. However, the dam at Lewiston Falls does not support fish passage. Additionally, the Maine Dept. of Marine Resources does not consider the Androscoggin River suitable for Atlantic salmon restoration (Mainerivers.org), and Atlantic salmon is not stocked in the Androscoggin by MDIFW (Maine.gov/ifw).

Small Whorled Pogonia

SWP has been previously documented in Androscoggin and Cumberland counties, as noted on page 66 of in Section 3.2.1 of this BA. However, the Project in Segment 4 will only occur in the middle of the existing cleared transmission line corridor and, therefore, there is limited or no potential habitat for forest

species such as the SWP. Additionally, there are no previously documented occurrences of the SWP in this section of the Project corridor.

Canada Lynx and its Designated Critical Habitat

Segment 4 is outside the designated critical habitat and outside the Section 7 Review Area. There is no MDIFW point occurrence data within the vicinity of this segment of the Project.

4.5 Segment 5 (Windsor to Woolwich)

Segment 5, approximately 26.5 miles, extends from Coopers Mills Substation in Windsor, Maine to Maine Yankee Substation in Wiscasset, Maine, near the site of the former Maine Yankee Nuclear Power Plant. Towns associated with NECEC Project Segment 5 include Windsor, Whitefield, Alna, Wiscasset, and Woolwich. Segment 5 will be co-located within an existing 270-foot-wide transmission line corridor that is mostly cleared. Approximately 19.3 acres of tree clearing will be required, ranging from 75 to100 feet wide in various locations, over a total of 1.62 miles of the Segment 5 corridor.

Segment 5 includes the West Branch of the Sheepscot River and Montsweag Brook. The Coopers Mills Dam on the nearby Sheepscot River was removed by the Town of Whitefield in 2018 to restore riparian habitat and diadromous fish passage. The modification of the Head of Tide Dam on the Sheepscot River in Alna to improve fish passage is proposed for 2020. Both projects are being funded by the Atlantic salmon Federation, partnered with The Nature Conservancy, Midcoast Conservancy, the National Oceanic and Atmospheric Administration, the USFWS, and the ME DMR, along with other smaller entities. Additionally, the Lower Montsweag Brook Dam was removed in 2010 by the Chewonki Foundation as part of the Montsweag Brook Restoration Project, restoring riparian habitat and making approximately three miles of free-flowing stream accessible to diadromous fish. That project received funding and support from federal and state agencies. Key partners included: the Gulf of Maine Council/NOAA Habitat Restoration Program, USDA Natural Resources Conservation Service, Maine Natural Resource Conservation Program, and the American Rivers/NOAA Community-Based Restoration Program.

Segment 5 is located within the Lower Kennebec River and St. George-Sheepscot River Watersheds (HUC 10) and crosses 33 perennial and 71 intermittent streams. Topography in Segment 5 is generally flat to gently rolling. Vegetation is characterized as a transition from boreal forest to the north to broadleaf deciduous forest to the south and includes spruce-fir, oak, and maple-beech-birch cover types.

The following provides a brief status of the federally listed species and designated critical habitat in Segment 5.

Atlantic Salmon and its Designated Critical Habitat

All of the 104 streams in Segment 5 crossed by the Project are located within the GOM DPS and are within the area designated as critical habitat for Atlantic salmon. The Sheepscot River is the southernmost river in the United States where endangered Atlantic salmon consistently spawn in the wild. Fish passage barriers have been removed at the two lowermost dams on the river. The Coopers Mills dam in Whitefield was fully removed in 2018. The Head Tide dam in Alna was partially removed and fish passage rebuilt in 2019. In the fall 2019, biologists from the Maine Department of Marine Resources confirmed that adult salmon were freely swimming upstream of both the Head Tide and Coopers Mills dams. (fisheries.noaa.gov)

Small Whorled Pogonia

There are no documented occurrences of the SWP in Segment 5. The majority of the transmission line proposed within Segment 5 is located within existing maintained corridor where there is no suitable habitat for SWP. Clearing is limited to a few forested areas (approximately 25.67 acres) on Segment 5, none of which was identified by MNAP habitat modeling as potential habitat for SWP. Refer to the email between Mark McCollough/USFWS and Mark Goodwin/BMcD, dated 06/19/2018, in Exhibit A.

Canada Lynx and its Designated Critical Habitat

Segment 5 is outside the designated critical habitat and outside the Section 7 Review Area. There is no MDIFW point occurrence data within the vicinity of this segment of the Project.

5.0 POTENTIAL IMPACTS ON LISTED SPECIES AND CRITICAL HABITATS

5.1 Atlantic Salmon

Impacts to Atlantic salmon populations, and fishery resources in general, will be minimal for the NECEC Project. Atlantic salmon critical habitat occurs within a number of water bodies crossed by the NECEC Project, primarily located in Segments 3, 4, and 5. However, no waterbodies in Segments 1 or 2 of the Project are located in NOAA-designated Atlantic salmon critical habitat. See Exhibit G of the BA.

As designed, construction of the Project will not involve any in-stream construction work, including within all streams in the GOM DPS, unless otherwise allowed as a special permit condition by the USACE, and overseen by CMP and MDEP third party environmental inspectors. Potential effects to Atlantic salmon and their critical habitat include stream insolation due to tree removal, sedimentation and turbidity, and the introduction of pollutants from construction-related activities. All are factors that could negatively impact biological communities in Atlantic salmon critical habitat.

The following Sections of the BA (5.1.1 to 5.1.5, pages 82-96) provide a descriptive overview of each activity and the possible effects to the Atlantic salmon and their habitat, including the physical and biological features of critical habitat. This section also describes the avoidance, minimization, and conservation measures that will be implemented to reduce or eliminate potential impacts and demonstrate a finding of "may affect, but not likely to adversely affect."

5.1.1 Clearing

All riparian buffers, including those for Atlantic salmon streams, will be flagged with distinct flagging prior to the commencement of clearing. See Table 2-4 of this BA. Capable vegetation (those woody plant species and individual specimens are capable of impacting transmission infrastructure) will be removed and controlled within the NECEC Project area. As stated earlier in Section 2.4.1.5, a new 54-foot-wide cleared and maintained portion of the 150' transmission line corridor, with varying degrees of tapered vegetation beyond the 54 feet, will be established in Segment 1 (See Figure 5-1), and vegetation will be cleared in accordance with CMP's VCP. Segments 2 through 5 will be co-located within an existing transmission line corridor and necessary clearing (those species capable of impacting transmission infrastructure) has been minimized to generally 75 feet of additional corridor width and, in some locations (primarily Segments 4 and 5), there will be minimal or no clearing necessary. Tree clearing will occur for the site development of the substations. However, none of them are within 100 feet of any Atlantic salmon habitat streams. Potential effects related to tree clearing adjacent to Atlantic salmon habitat

include sedimentation and turbidity; introduction of pollutants; increased stream insolation; and reduction of woody debris (potential instream habitat) input into streams.

Sun exposure on smaller water bodies can result in a negative impact due to an increase in water temperature (insolation), which can pose problems for cold water fisheries. A.M. Peterson (1993) has reported that the removal of tree canopy (on new transmission line corridors) increases stream insolation during the short term, but within two years the areas are bordered by dense shrubs and emergent vegetation and water temperatures are not significantly higher than upstream forested reaches. The VCP requires that capable species, or trees within the corridor that have the potential to grow up into the conductor safety zone be removed. However, throughout clearing and construction, shrub and herbaceous vegetation will remain in place to the extent practicable. The VCP also establishes a 100-foot riparian buffer, as measured from the top of each bank, for all streams in the GOM DPS crossed by the transmission line corridor. In Segments 2 through 5, to further mitigate the potential impacts of insolation and provide shading, CMP will allow non-capable species[14] exceeding 10 feet in height to remain within the stream buffer and outside the wire zone (as shown on Figure 5-2), unless it is determined that they may encroach into the conductor safety zone prior to the next maintenance cycle. Inside the wire zone (but not including Segment 1) all woody vegetation over 10 feet in height, whether capable or non-capable, will be cut to ground level to maintain the Minimum Vegetation Clearing Distance ("MVCD" or conductor safety zone), as well as safety and reliability of the transmission line. See Figure 5-2 on page 88 of the BA for Typical Vegetation Maintenance Detail. As noted earlier in Section 2.4.1.5, Segment 1 will incorporate a 54-foot-wide cleared corridor with tapered vegetation 48 feet beyond each side of the 54 feet, with exceptions referenced in Exhibit C.

Potential sedimentation associated with soil disturbance from equipment use and vehicle access can result in temporary short-term impacts to fishery resources. Sedimentation can result in reduced light penetration; smothering of aquatic feeding and spawning areas; and impairment of aquatic respiration. Sedimentation can also impact the quality of fish habitat in water bodies by increasing the level of substrate embeddedness,[15] reducing habitat complexity and altering stream channels. To avoid these problems, CMP will implement its Environmental Guidelines during the construction of the NECEC Project to minimize the potential for sedimentation and to protect fishery resources.

[14] Non-capable species are defined as those species and specimens that are not capable of growing tall enough to violate the required clearance between the conductors and vegetation established by NERC.
[15] Substrate embeddedness is defined as the extent to which larger particles are buried by finer sediments (MacDonald et al. 1991).

The Environmental Guidelines contain standards and methods used to protect soil and water resources during the construction and maintenance of transmission lines and substations. They are based on practical methods developed for construction in utility corridors and their use is enforced by both State of Maine and Federal regulatory agencies. The construction practices, i.e., BMPs, described in the Environmental Guidelines are required by the regulatory agencies for all projects, including the NECEC. Illustrations are provided as part of this document which demonstrate both the proper and improper techniques used for the more common construction activities. All contracts for work performed on CMP transmission line rights-of-way and substation sites, including for NECEC, include these specific guidelines to ensure the project is constructed in an environmentally conscious manner. CMP personnel or their designated representatives (environmental inspectors and third party inspectors) will ensure that the guidelines are followed by inspecting all work and prescribing corrective steps to be taken where necessary.

Additionally, more stringent restrictions apply to certain activities, such as vegetation clearing within 100-foot stream buffers to minimize erosion and sedimentation and impacts to water quality, also described in more detail in Section 5.1, pages 9-10 within the VCP (Exhibit C). Initial clearing will occur during frozen ground conditions whenever practicable to minimize soil disturbance and to preserve non-capable vegetation. If not practicable, the recommendations of the CMP environmental inspector(s) will be followed regarding the appropriate techniques to minimize disturbance, such as the use of selectively placed travel lanes within the stream buffer. Removal of capable vegetation and dead or hazard trees within the buffer will typically be accomplished by hand cutting. However, if necessary, mechanized timber harvesting equipment if supported by construction matting will be used. To further minimize these potential sedimentation impacts from clearing activities, CMP will install appropriate sedimentation controls as described in the Environmental Guidelines.

To protect water quality, foliar herbicide will not be used within the 100-foot buffer. Additionally, all refueling/maintenance of equipment will be excluded from the buffer, unless it occurs on an existing paved road or if secondary containment is used with oversight from CMP's environmental inspector(s). Refueling on an existing paved road is safer since it avoids having the fuel truck travel down the ROW, for potentially long distances on uneven surfaces, to find a location outside of the buffer. In addition, it is easier for a spill to be cleaned up on an existing paved road. Secondary containment is often required in instances where stationary equipment (e.g. dewatering pumps) cannot be located outside of the riparian buffer due to the presence of transmission line structures and associated excavations that cannot be sited outside of the buffer. Secondary containment is not required if fueling is performed on a paved road

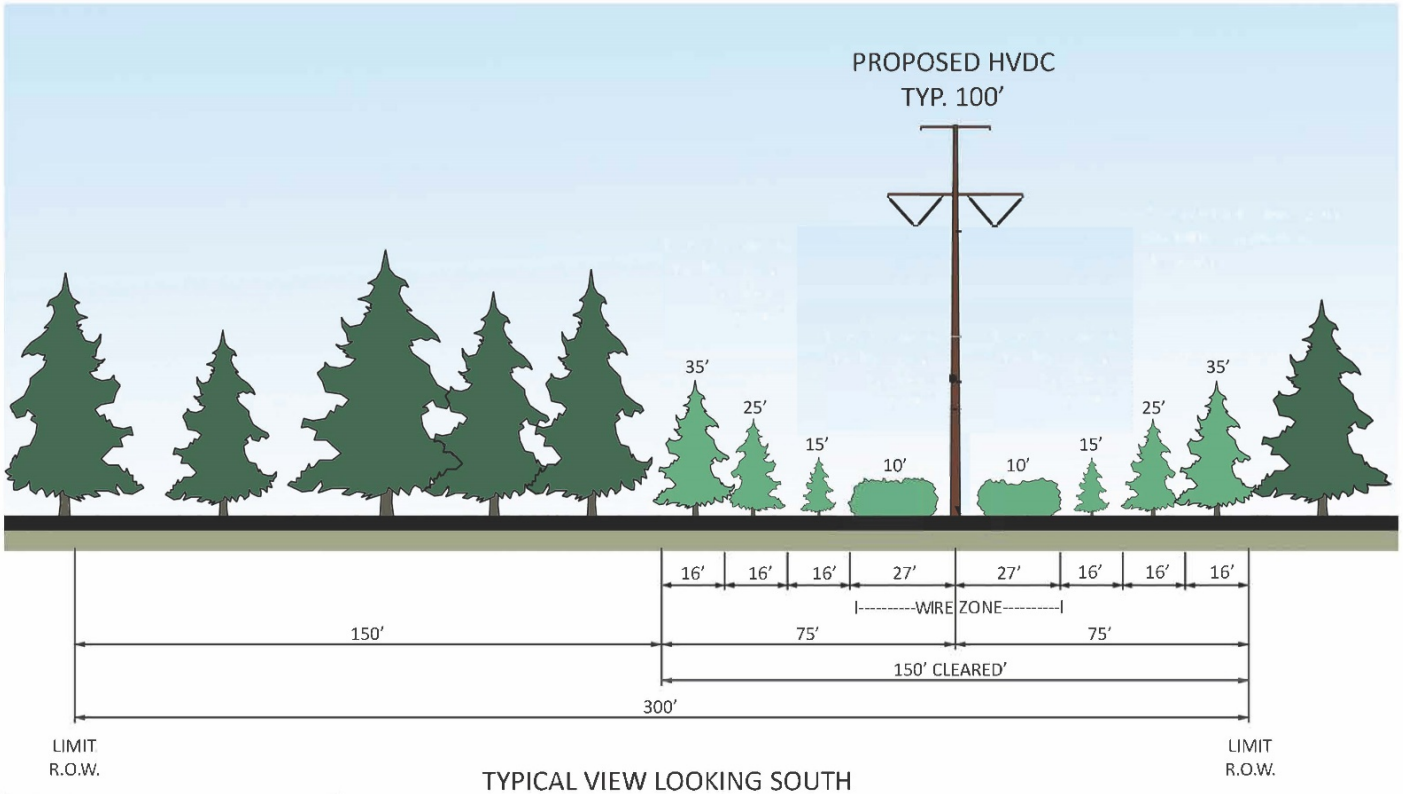
because spills can be more easily contained and cleaned up on paved surfaces due to their impervious nature.

Effects to Atlantic salmon and its designated critical habitat have been minimized through siting much of the Project within existing corridors; establishing more stringent restrictions and protections within 100-foot riparian buffers associated with Atlantic salmon habitat; and the implementation of erosion and sedimentation controls to protect these water bodies. Therefore, the impacts associated with tree clearing activities will be minimal.

Rivers and streams adjacent to areas of clearing will have reduced woody and leaf debris input. Woody debris can create microhabitat for Atlantic salmon. The benefits of woody debris include the deflection of stream flow which scours stream pools, creates river and stream meanders, and anchors banks when high flows occur by fixing sediment which reduces erosion and sedimentation downstream (Zimmer, 2008). Woody debris also creates attachment sites for benthic macroinvertebrates, such as caddisflies and mayflies (Brown et al. 2005), that are an important food source for Atlantic salmon. A lack of large woody debris as a result of the long history of timber harvest near many salmon streams in Maine is a recognized factor contributing to the reduced quality of salmon habitat, including the lack of habitat complexity. Leaves that fall into streams are an important component of the aquatic food web and also provide habitat as “leaf packs” that can be particularly important for a stream’s macroinvertebrate community.

The designated critical habitat only occurs within certain portions of Segments 3, 4, and 5. Clearing within these segments will be limited to a width of 75 feet of the transmission line corridor, including those areas containing designated critical habitat.. This is a minimal distance compared to total stream length. The loss of wood and leaf debris from this small area of stream bank will be limited overall considering these streams will retain a healthy forest along most of their banks outside the cleared transmission line corridor. The scrub-shrub vegetation that will be allowed to grow within the stream buffers of the transmission line corridor will also continue to provide cover, shade, and leaf litter. Therefore, effects associated with the reduction of woody debris input are expected to be minimal. In addition, A.M. Peterson (1993) concluded that trout were more abundant in stream reaches within ROWs and that the increase in incident sunshine resulted in a denser forb and shrub root mass, which further stabilized stream banks, resulting in less stream bank erosion, deeper channels, and higher populations of trout. These positive impacts may help to offset the minimal negative impacts that the loss of woody

debris input creates in these areas for the Atlantic salmon, as trout belong to the same taxonomic family (*Salmonidae*).

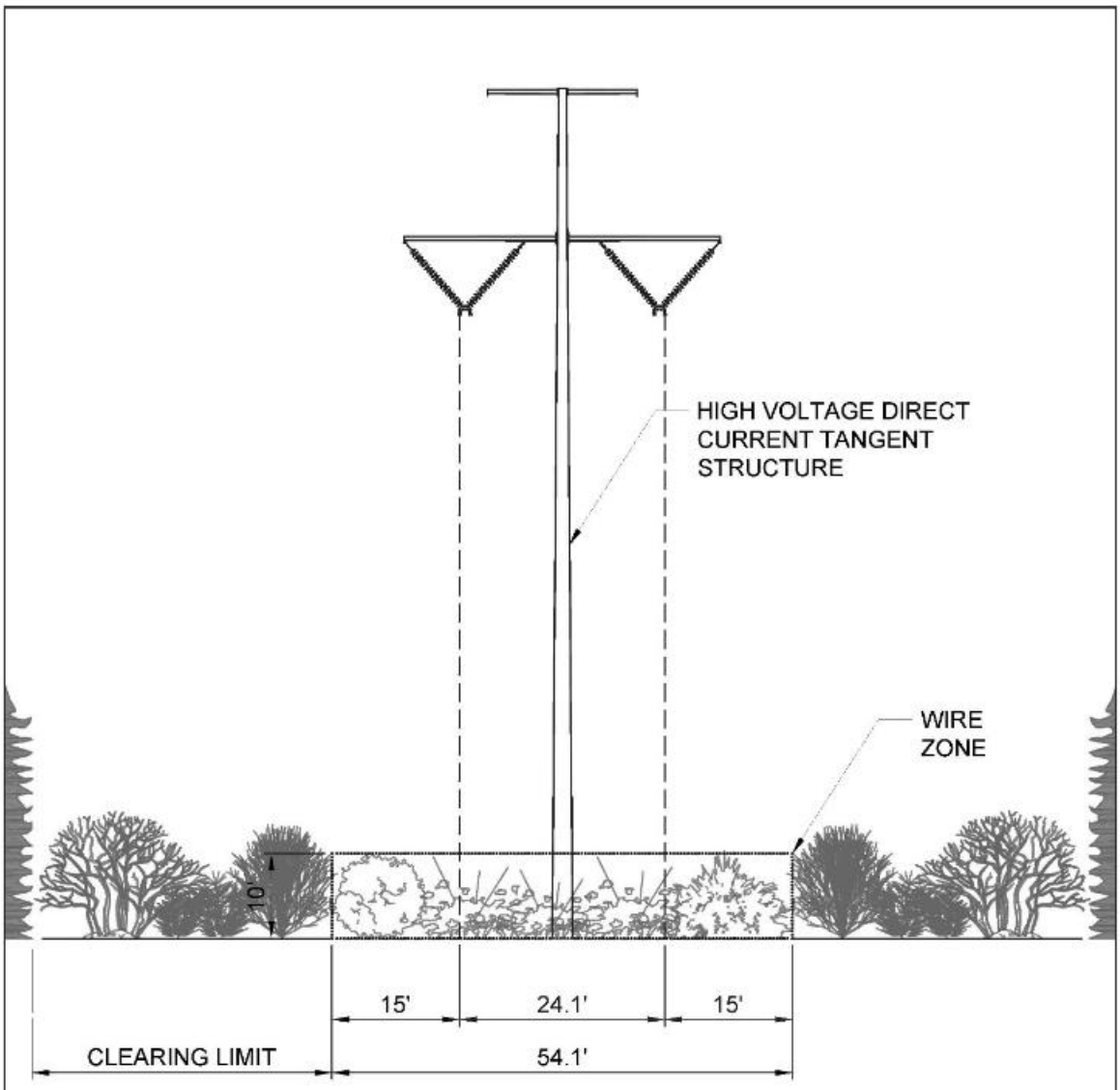


TYPICAL VIEW LOOKING SOUTH

CENTRAL MAINE POWER

Figure 5-1

Vegetation Maintenance
Segment 1



SCALE: N.T.S. *This figure shows clearing of 75 feet that is needed for Segments 2, 3, and 4.

CENTRAL MAINE POWER COMPANY

CENTRAL MAINE POWER

Figure 5-2

VEGETATION MAINTENANCE - HIGH VOLTAGE DIRECT CURRENT TANGENT STRUCTURE DETAIL

5.1.2 Equipment Access

All equipment crossings are temporary, will completely span each stream, and will be constructed and maintained in a manner that will significantly minimize sediment from entering water bodies. Additionally, CMP will follow its Environmental Guidelines, which contains effective and proven erosion and sedimentation control best management practices that will be used to protect soil and water resources during construction of the various NECEC Project components. As documented during the construction of CMP's Maine Power Reliability Program (MPRP), USACE No. Permit NAE-2008-03017, which resulted in no violations of the Clean Water Act, the establishment of temporary access roads and stream crossings using the methods described below will significantly minimize potential impacts to Atlantic salmon and its habitat.

Construction of the NECEC Project will require temporary equipment access across certain water bodies to perform the necessary clearing and to reach pole locations and site developments associated with new substation construction. CMP has designed access routes to minimize the number of crossings that will be required. Exhibit G identifies the waterbodies requiring temporary crossings and those proposed for avoidance. Seventy-eight (78) perennial and 75 intermittent streams within the GOM DPS will require temporary crossings. Thirty-one (31) perennial and 26 intermittent streams within the Atlantic salmon designated critical habitat will require temporary crossings. Where crossing a water body or stream is unavoidable, CMP has committed to detailed measures that minimize potential sedimentation and turbidity associated with equipment crossings, which are explained in detail in the Environmental Guidelines. CMP will utilize existing access roads where it has access rights. Where CMP does not have access rights, access road approaches and temporary equipment spans have been designed to cross water bodies at the narrowest point, in a perpendicular fashion, to limit the disturbance of vegetation and soils immediately adjacent to water bodies.

Stream crossings (see Figure 2-5 on page 29), also known as equipment spans, will be utilized when it is necessary to cross waterbodies or streams. Bridge construction minimizes potential disturbance to the waterbody bed and banks. Stream crossings can be quickly removed and reused without affecting the stream or its banks and without interfering with fish migration or spawning areas. The guidance for positioning and installing stream crossings outlines three factors: (1) access roads will cross streams at right angles to the channel at a location with firm banks and level approaches (whenever possible)[16]; (2)

[16] When crossing a stream at a right angle is not possible, additional mats and or longer mats will be utilized to structure the stream crossing to create a level, firm, and safe passage.

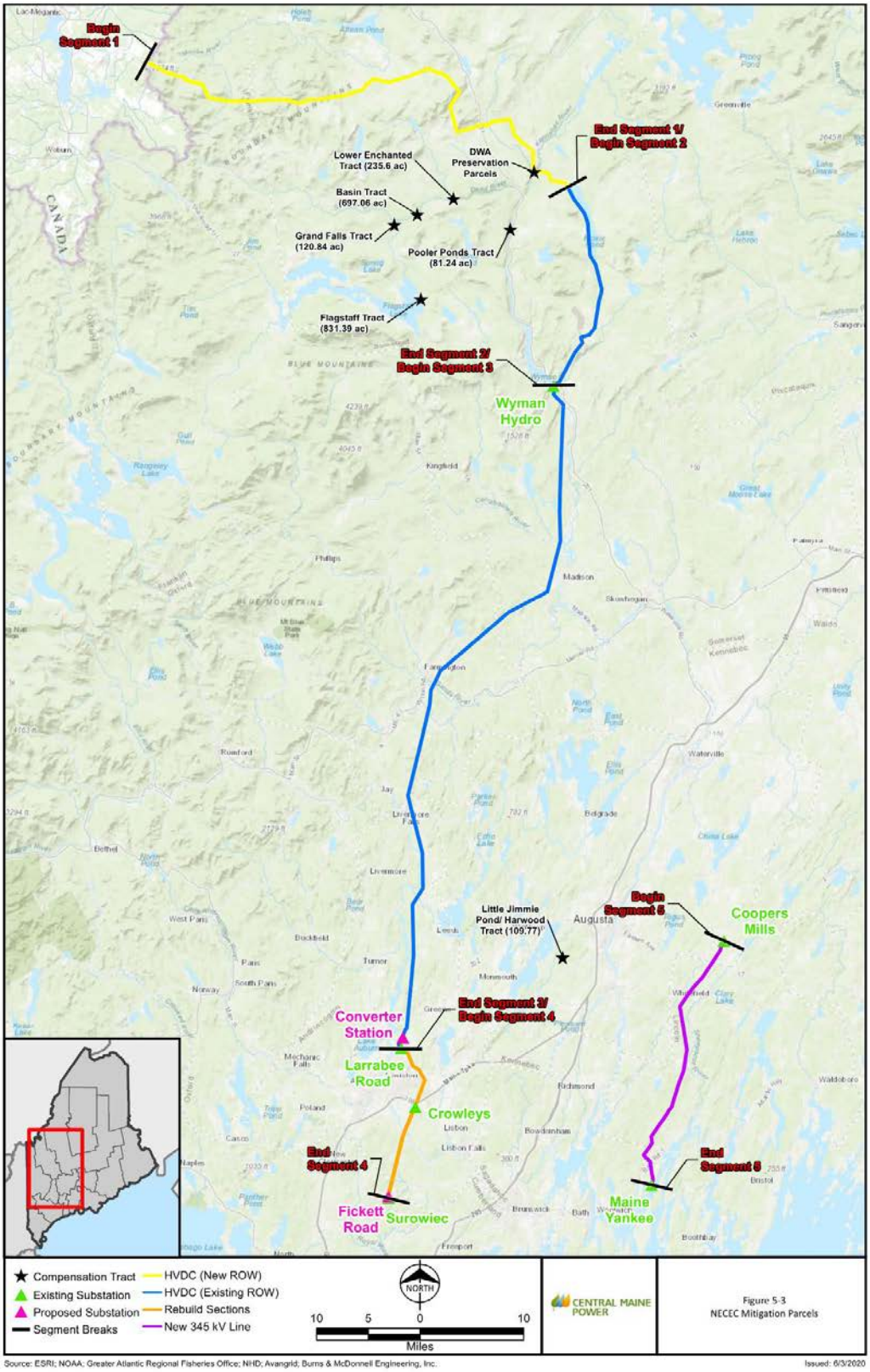
abutments will be placed at an appropriate grade on firm ground such that existing stream banks do not become compromised; and (3) the temporary access road approach to all stream crossings will be stabilized with construction mats or large angular stone, and runoff will be directed away from the equipment bridge/waterbody into appropriate erosion and sedimentation controls as identified in the CMP Environmental Guidelines. All equipment stream crossings and approaches will be routinely cleaned of accumulated sediment deposited by construction traffic, and removed sediment will be placed in an upland area to prevent its introduction into a waterbody. Sedimentation and erosion control methods will also be implemented where ground disturbance is adjacent to wetlands and waterbodies.

Culvert Removals and Replacements

Temporary access road construction will not require the use of temporary or permanent culverts for crossing streams during construction. However, as part of the NECEC Project Compensation Plan, CMP has proposed a Culvert Replacement Program (Exhibit I of the BA), in order to improve the habitat connectivity of coldwater fisheries in a number of locations with improperly installed, undersized, or damaged culverts. (Summary tables of the compensation plan are provided in Exhibit L), The proposed Culvert Replacement Program consists of two primary components: 1) during construction activities, within the Project right-of-way and along unimproved project access roads (e.g. off-corridor logging roads to be used for construction access) within the vicinity of Segments 1 and 2, CMP will replace existing culverts found to be damaged, installed improperly, or non-functioning, consistent with Stream Smart Principles to improve or maintain habitat connectivity and, 2) CMP will dedicate $1,875,000 to replace culverts on lands outside of CMP's ownership, also in the vicinity of Segments 1 or 2, which is outside the designated Atlantic salmon critical habitat, as required by the MDEP. CMP proposes to work with MDEP, MDIFW, and interested environmental non-governmental organizations to grant this money to appropriate entities that can identify those culverts most beneficial to replace, and to manage and oversee their replacement. Culvert projects and the entities that will utilize the funding have not been identified at this time. However, entities that utilize the funding will not be allowed to do so in streams that occur within watersheds that are designated as Atlantic Salmon critical habitat or in any streams within the GOM DPS.

For culvert replacements on CMP-controlled lands or along unimproved access roads used for construction access, CMP will replace or remove all culverts that are deemed to be barriers to fish passage, including within transmission line corridors; mitigation parcels (see Figure 5-3); and access easements held by CMP, within the vicinity of Segments 1 and 2 where there is no Atlantic salmon habitat. Currently, CMP has only identified twelve (12) culverts requiring replacement, all of which are within Segment 1 of the Project and outside of the designated critical habitat of the Atlantic salmon. All

projects completed under the Culvert Replacement Program are subject to independent USACE and Maine DEP permitting and must have no effect on endangered Atlantic salmon and their critical habitat.


Begin Segment 1
End Segment 1/ Begin Segment 2
Lower Enchanted Tract (235.6 ac)
DWA Preservation Parcels
Basin Tract (697.06 ac)
Grand Falls Tract (120.84 ac)
Pooler Ponds Tract (81.24 ac)
Flagstaff Tract (831.39 ac)
End Segment 2/ Begin Segment 3
Wyman Hydro
Little Jimmie Pond/ Harwood Tract (109.77)
Begin Segment 5
Coopers Mills
End Segment 3/ Begin Segment 4
Converter Station
Larrabee Road
Crowleys
End Segment 4
Fickett Road
Surowiec
End Segment 5
Maine Yankee
Compensation Tract
Existing Substation
Proposed Substation
Segment Breaks
HVDC (New ROW)
HVDC (Existing ROW)
Rebuild Sections
New 345 kV Line
NORTH
10 5 0 10
Miles
CENTRAL MAINE POWER
Figure 5-3
NECEC Mitigation Parcels
Source: ESRI; NOAA; Greater Atlantic Regional Fisheries Office; NHD; Avangrid; Burns & McDonnell Engineering, Inc.
Issued: 6/3/2020

5.1.3 Impacts from Structure and Underground Installation

The transmission line has been designed to site structures outside of stream buffers to the maximum extent practicable. For known or potential Atlantic salmon streams, no new poles will be installed in or within 100 feet of a stream crossing, unless specifically authorized by the MDEP and USACE. Eighty-three (83) new poles will be installed within 100 feet of a stream crossing and will be accompanied by a site-specific erosion and sedimentation control plan that will be developed after pre-construction site walks. The 100' protective buffers will minimize the potential for erosion or sedimentation to occur during structure installation. The installation of erosion and sedimentation controls at structure locations adjacent to Atlantic salmon waterbodies will proceed prior to site disturbance associated with structure installation. Environmental inspector(s) will routinely monitor the erosion and sedimentation controls[17]. Erosion and sedimentation controls will be maintained and not removed until the environmental inspector(s) has confirmed that the area has been revegetated or otherwise stabilized. Through proper installation and maintenance of site-specific erosion and sedimentation controls and a vegetated riparian buffer strip, adverse effects to Atlantic salmon from sedimentation associated with structure installation will be avoided. Identical measures implemented on CMP's MPRP project were highly successful at reducing sediment discharges to rare events and insignificant levels.

The NECEC Project includes an HDD crossing beneath the Upper Kennebec River, between West Forks Plt. and Moxie Gore. The HDD bore will extend underground approximately 3,000 feet from the Moxie Gore Termination Station on the east side of the Kennebec River to the West Forks Termination Station on the west side of the river. Approximately 1,450 feet of forested buffer on the east side and 1,160 feet of forested buffer on the west side riverbanks and adjacent uplands will be retained. The depth of the HDD bore beneath the riverbed will range from approximately 55 to 75 feet and will follow the construction plan and phases as described in Section 2.4.3, pages 46-47 of the BA.

As discussed in Section 2.4.3.2, pages 49-50 within the BA, the HDD process uses a drilling fluid (mud) composed of water and clay particles consisting of bentonite. The main component of bentonite is montmorillonite clay, which has a high shrink-swell capacity. The bentonite and water work together to lubricate and cool the drill head; seal and fill pore spaces surrounding the hole; and prevent the drill hole from collapsing. It also suspends the cuttings of the native material and removes them. Additives are sometimes used in the drilling fluid to adjust the viscosity, improve hole integrity, and to prevent, or reduce fluid release. Additionally, handling, cleaning, and recycling the drilling mud in below freezing

[17] The contractor is responsible for inspecting all temporary erosion and sedimentation control barriers at least once per week, or after rainstorms producing at least ½ inch of rainfall, whichever is more frequent in accordance with the CMP Environmental Guidelines and resource agency requirements. In addition, the environmental inspectors and third party inspectors will be conducting frequent (at least weekly) inspections of erosion and sedimentation controls.

weather is difficult and would most likely require the use of additives, some of which may be considered hazardous, to prevent freezing. Petroleum-based additives shall not be used. (See Section 4.1 of Exhibit F.) During the HDD process, there is a potential for drilling fluids to reach the ground surface by following a vertical bedrock fracture, and thereby the potential of a release to the Upper Kennebec. The Requirements for Inadvertent Fluid Release Prevention, Monitoring, and Contingency Plan (Exhibit F of the BA) outlines the details of the HDD process; the monitoring and prevention procedures; and the measures that would be in place to respond to an inadvertent release of drilling fluids for both land and aquatic scenarios.

The Upper Kennebec River at the point of the HDD crossing is not within the Atlantic salmon critical habitat. However, because the Biological Assessment looks at the Action Area, defined in 50 CFR Part 402.02 as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action,” it provides inaccessible salmon habitat until existing downstream dams were removed or retrofitted to allow for fish passage. The Action Area also includes the distance that sediment plumes can travel within a waterbody resource, and the distance that each fish species can travel through the entire body of water associated with a segment.

As described in Exhibit F of the BA, the Plan includes monitoring along and downstream of the drilling path, including along the river. The Plan includes procedures for continuous monitoring of loss or reduction of circulation of drilling fluid and response procedures in the event that a problem is detected. The Plan also describes river low-flow and high-flow conditions and how release monitoring will be coordinated with and shall occur during low river flow conditions. Actual drilling is scheduled to occur from May through November 2021 and cable installation is scheduled to occur from May through November 2022. The Plan is designed to reflect the variable flow conditions present during these construction time frames. The Plan documents the communication process, including chain of command; responsible parties; and reporting and remediation time frames.

Drilling fluid is heavier than water and is typically released at low velocities and settles in low areas. The Plan details how to place barriers around a release in the river; how to divert the river flow away from the release site; how to create a sump within the river diversion; how to pump the release fluid out of the sump; how to collect and transport fluid for disposal; how the inadvertent fluid release site is restored; and how the river diversion is removed. The Plan also includes an inspection of the riverbed a minimum of 500 feet downstream from the fluid release site to look for pockets of slower moving water where drilling fluid may have been collected.

The nearest location where Atlantic salmon critical habitat is mapped for this waterbody segment is upstream of the confluence of the Kennebec and Carrabassett Rivers in Anson, approximately 41 miles downriver of the HDD site. It is unlikely that with the close monitoring and timely response procedures in place, along with the low-velocity physical properties of the drilling fluid, and the significant distance any remaining sediment must travel downstream before reaching potential Atlantic salmon habitat, that there will be an impact to Atlantic salmon or their critical habitat. Additionally, the Wyman dam impoundment is located approximately 25 miles downstream of the HDD site and if any measurable suspended sediment were not captured by the response efforts, the dam would block any remaining sediment transport. For these reasons, in the unlikely event of a drilling fluid release from the HDD activity, it is not likely to affect Atlantic salmon or its critical habitat.

5.1.4 Restoration

Upon the completion of construction in either a given area or for the entire Project, CMP or a designated representative, the construction contractor(s), or a third-party inspector will review the Project's restoration needs and prioritize areas in accordance with the CMP Environmental Guidelines (Exhibit B). All wetland and waterbody crossings will be restored to natural conditions; any material or structure used at temporary crossings will be removed when no longer needed; and the banks will be stabilized and revegetated consistent with the Environmental Guidelines. Final stabilization measures will be monitored for compliance by CMP and MDEP. (See Section 9 of Exhibit B)

5.1.5 Long Term Operation and Maintenance

Long term post-construction maintenance of the NECEC Project facilities will be necessary to ensure safe and reliable operation throughout its lifespan (40 years minimum). Maintenance includes conducting routine inspection of structures and facilities; completing repairs when necessary; and performing vegetation management in the transmission line corridor.

CMP's VMP, provided in Exhibit D of the BA, outlines parameters for vegetation maintenance within stream buffers. A 100-foot buffer, as measured from the top of each stream bank, will be established for vegetation maintenance for designated cold-water streams, including all streams that provide Atlantic salmon habitat and are located within the GOM DPS. Vegetation maintenance in the stream buffer areas will consist of cutting back to ground level those vegetative species that are capable of growing into the conductor safety zone before the next maintenance cycle (not to exceed 3 years for Segment 1 and four years for the other segments). No other vegetation, other than dead or hazard trees, will be removed. The vegetation removal will decrease woody debris input into surrounding streams, which serves as instream habitat to Atlantic salmon. Any capable, dead, or hazard trees within the stream buffer will be removed by

hand-cutting methods only, and no slash will be left within 50 feet of any stream edge. Otherwise, stream-side vegetation will not be disturbed during future vegetation maintenance activities.

Other potential impacts can occur through the use of herbicide in close proximity to Atlantic salmon habitat. Introducing herbicides directly to salmon waters could negatively impact fish, aquatic organisms and vegetation found within the salmon habitat. However, for streams containing threatened or endangered species (including those containing and/or providing habitat for Atlantic salmon), herbicides will not be applied within a 100-foot buffer. See Exhibit D, Section 3.2 Herbicide Application for more information regarding the procedures and restrictions that will be implemented during herbicide applications.

Potential effects to Atlantic salmon habitat that can occur from operation and maintenance activities, although minimal and infrequent in nature, are primarily associated with access along the existing corridor. CMP workers use ATVs to aid with inspection and maintenance of the transmission lines along the corridor. ATVs are used periodically to transport equipment and crews for vegetative maintenance and inspection of the transmission lines. ATVs have the potential to cause soil disturbance if used during non-frozen ground conditions. ATV's that ford streams could potentially displace Atlantic salmon within the waterbody and could temporarily affect the physical and biological features of the habitat. ATV's can disturb the stream banks and bottom causing short term, localized sedimentation that can disturb salmon and potentially effect spawning habitat. Depending on the time of year the crossing is conducted, ATV's could directly impact redds (salmon egg laying depressions) within the localized crossing area.

Atlantic salmon and designated critical habitat does not exist outside of the GOM DPS. Similarly, streams within the GOM DPS but outside designated critical habitat or greater than 1,000 feet upstream of designated critical habitat are not likely to contain Atlantic salmon. Therefore, there will be no effect to Atlantic salmon or designated critical habitat resulting from the fording of streams in these areas. Avoidance and minimization measures associated with ATV travel and Atlantic salmon and its designated critical habitat is provided in Section 5.1.6.

5.1.6 Avoidance and Minimization Measures

CMP will apply a 100-foot riparian buffer to all perennial streams in Segment 1, all streams west of Moxie Pond in Segment 2, all project-wide coldwater fishery habitats, outstanding river segments, RTE waterbodies (e.g., Atlantic Salmon), and all streams within the GOM DPS, which also includes the Atlantic salmon critical habitat. All other streams that do not meet these criteria will have a riparian buffer

of 75 feet. Segments 2 through 5 will be co-located within an existing transmission line corridor and necessary clearing has been minimized to generally 75 feet of additional corridor width and, in some locations (primarily Segments 4 and 5), minimal or no additional clearing will be necessary. To further mitigate the potential impacts of increased insolation and to provide shading, CMP will allow non-capable species exceeding 10 feet in height to remain within all stream buffer and outside the wire zone, unless it is determined that they may encroach into the conductor safety zone prior to the next maintenance cycle. Refer to Exhibit D.

To protect water quality and minimize potential impact to Atlantic salmon, foliar herbicide use will be prohibited in all areas within Segment 1 and will not be used within riparian buffers in Segments 2 through 5. See Section 2.5 in Exhibit D. Herbicide usage will be compliant with all label requirements and standards established by the Maine Board of Pesticides Control (MBPC). Herbicides will be selectively applied (using a low-pressure backpack applicator) to capable species to prevent growth of individual plants (or re-growth of a cut plant). No broadcast application will be used, and CMP will not use herbicides within riparian buffers or in areas of standing water. Furthermore, CMP will not store, mix, or load any herbicide within 100 feet of any surface water, including wetlands. Only trained applicators working under the supervision of MBPC licensed supervisors will apply herbicides. Finally, herbicides will be applied only during periods when potential for rain wash off is minimal, and only when wind speeds are 15 miles per hour or lower, to prevent and minimize off-corridor drift.

Additionally, all refueling/maintenance of equipment will be excluded from the buffer zone unless it occurs on an existing paved road or if secondary containment is used with oversight from CMP's environmental inspector(s). Furthermore, the implementation of erosion and sedimentation controls will protect water quality during tree clearing activities, access road construction, structure installation, and restoration.

ATV usage for operations and maintenance activities by CMP, will be limited to the greatest extent practicable and potential ground or resource disturbance will be significantly minimized by utilizing existing upland access ways and snowmobile trail bridges. CMP will maintain the project corridors on a two to four year cycle, so travel along the corridor will be infrequent, and generally moves sequentially along the length of the corridor, and therefore does not create disturbance sometimes found along frequently and well-traveled pathways.

To avoid or minimize effects to Atlantic salmon and its listed Critical Habitat, CMP will adopt the following procedures:

1. No fording of streams within the Sheepscot River and Sandy River watersheds or within 1,000 feet of these watersheds will occur unless under frozen conditions. Within these watersheds, mechanized equipment may only cross unfrozen streams using mats or bridges that completely span the waterway.

2. Within mapped Critical Habitat outside the Sheepscot River and Sandy River watersheds, fording of unfrozen streams may occur under the following conditions:

- To the maximum extent practicable, the crossing is dry, shallow, or exhibits low flows (note - low flows typically occur from July 15 to September 30 of any year) .
- To the maximum extent practicable, the substrate at the crossing consists exclusively of coarse-grained gravel, cobbles, rocks or ledge.
- Destruction of riparian vegetation is avoided to the maximum extent practicable.
- The stream is crossed at the narrowest practicable location.
- The crossing frequency is limited to one to two transits, or to the minimum number required.
- Erosion and sedimentation controls will be installed in areas of soil disturbance and any disturbed banks are promptly stabilized to prevent secondary effects.

3. Within the GOM DPS but outside mapped Critical Habitat, CMP operations and maintenance personnel will still make every effort to cross streams under frozen conditions, to avoid the crossing, or to utilize mats or bridges (temporary or permanent) that span the waterway. For crossings that cannot be avoided during unfrozen conditions, CMP will still generally apply the best management practices listed above, but they are no longer prescriptive unless the crossing is within 1,000 feet of mapped Critical Habitat.

4. CMP will take reasonable measures to discourage impact to sensitive resources from public ATV use during and after construction of the project including:

- Communication with local organized clubs through the State of Maine Department of Agriculture, Conservation and Forestry's Bureau of Parks and Lands, Off-Road Recreational Vehicle Office.
- Use of signage and deterrents (e.g., boulders, gates, etc.) in areas of high ATV activity with noted associated environmental impacts.

- Reporting of unauthorized ATV travel to law enforcement (e.g. Maine Warden Service) as needed to halt excessive disturbance of recently restored and stabilized areas or in instances

where environmental impact associated with public use persists following the implementation of deterrents.

Implementation of the above procedures is expected to avoid adverse impacts to listed Critical Habitat, particularly within watersheds deemed most sensitive to Atlantic salmon recovery efforts in the State of Maine. Outside mapped Critical Habitat but within affected portions of the GOM DPS, no effect to the species is expected because neither salmon nor Critical Habitat are present and potential direct and indirect impacts are insignificant and discountable.

5.2 Small Whorled Pogonia

Most of the NECEC Project involves work within existing cleared transmission line corridors, and therefore, there is limited potential habitat along the Project route for forest species, such as the federally threatened SWP. The forested portion of Segment 1 had not been previously surveyed by CMP for rare, threatened, or endangered plants. However, during a June 7, 2017 consultation meeting with CMP, USFWS, and MNAP, Don Cameron (MNAP) suggested that the northern portion of the Project is not an area that has a high occurrence of documented rare plant species and that the undeveloped portion of the HVDC transmission line is a working commercial forest that is routinely disturbed by timber harvesting activities. Further, CMP and the consulting agencies agreed that previous survey efforts were sufficient for general rare plant surveys. However, new targeted surveys should be performed in areas in Segment 3, between Jay and Lewiston, where habitat modeling completed by MNAP predicted the potential presence of SWP (*Isotria medeoloides*). Refer to the email between Mark McCollough/USFWS and Mark Goodwin/BMcD, dated 06/19/2018, in Exhibit A of the BA.

Surveys were conducted per the MNAP protocol to account for potential SWP habitat areas (Appendix E of the NECEC Rare Plant Survey Narrative Report [Exhibit H of the BA]). A single non-flowering, but quite robust individual was identified within a total of 8 miles of targeted search areas. The occurrence was located west of the south end of Allen Pond in Greene, Maine. The plant was growing on a relatively steep northeast-facing embankment of a small intermittent stream within an Oak-Pine Forest community in an area adjacent to the existing transmission line corridor. As shown on Figure 3-2 on page 68 of the BA, the occurrence is located 87 feet west of the existing cleared transmission line ROW. Because there will be no tree clearing or herbicide application adjacent to the entire 174-acre tract containing the known occurrence and the suitable habitat containing potentially dormant individuals, the NECEC Project will have no effect on the SWP. (See Figure 3-3 on page 69 of the BA)

5.2.1 Clearing

As originally proposed in the 2017 draft state and federal permit applications, tree clearing would occur within approximately 12 feet of this SWP occurrence. There would be no direct impact to the single plant located outside of the clearing limits.. However, indirect impact from tree clearing is possible due to the potential additional sunlight intrusion. In an October 3, 2018 meeting between CMP, USFWS, and MNAP, Don Cameron (MNAP) indicated that any amount of tree clearing could potentially imperil the SWP occurrence due to the altered habitat conditions, i.e., edge effects, when the tree canopy is removed. He also noted that transplanting was not a practical solution due to the existing microclimate, and because the SWP is dependent on site-specific soil conditions, fungus, and association with adjacent trees.

CMP proposed an engineering solution, re-aligning the transmission line within the existing corridor to eliminate the need for tree clearing and associated impacts on the SWP occurrence (January 30, 2019 Compensation Plan.) See Figure 3-3 on page 69 of the BA. Shifting the transmission line and eliminating clearing in the vicinity of the occurrence will avoid any direct or indirect impact to the species. This position is further supported in a December 7, 2018 letter from Kristen Puryear/Ecologist MNAP to Gerry Mirabile/CMP and Mark Goodwin/BMcD where she writes “It appears that the realignment of the Project Centerline and elimination of associated clearing will avoid any project-related impacts to the documented small whorled pogonia occurrence.” In the same letter, MNAP recommends a yearly SWP presence/absence survey for the first three years following construction and every three years thereafter, or until no SWP plants are found for three consecutive surveys. CMP has committed to this effort as referenced on page 7-15 in Section 7.7.1.1 of the July 1, 2019 NECEC USACE Updated Section 404 Clean Water Act Application Package.

5.2.2 Equipment Access

Temporary access roads will be used to gain access to the structure locations and will be constructed in accordance with the Environmental Guidelines. If necessary, timber mats will be used in wetlands or saturated areas, and erosion and sedimentation controls will also be maintained consistent with these guidelines. The SWP occurrence is located outside the proposed clearing area in a wooded portion of CMP’s transmission line corridor. The closest temporary access road is located in the existing cleared corridor, approximately 130 feet from the occurrence. No vegetation removal will be required for construction access in this location and equipment access will therefore not impact the SWP occurrence.

5.2.3 Impacts from Structure Installation

The nearest structure is located approximately 185 feet from this SWP occurrence. No vegetation clearing will be required for the installation of this new structure. Temporary impacts from installation of this steel

monopole structure is approximately 7,854 square feet. Permanent impacts associated with the structure will be approximately 40 square feet. Erosion and sedimentation controls will be installed in accordance with the Environmental Guidelines to minimize the potential for soil movement or stormwater runoff from exposed areas. Additionally, the point location data and the surrounding topography for the SWP occurrence shows that its location is either on the opposite side of a small stream or upslope from the project corridor and any proposed project activities, so the risk of impacts from runoff or sedimentation is virtually nonexistent (see Figure 3-2). Structure installation in this location will also not have an impact on this SWP occurrence.

5.2.4 Restoration

Once construction is complete, construction related materials will be removed, access roads will be restored, and disturbed areas will be graded to pre-construction contours. Temporary erosion controls will remain in place until the disturbed site(s) are fully stabilized with vegetation. The right-of-way will be maintained in an early successional scrub-shrub condition, as it currently is. Restoration activities will not impact this SWP occurrence.

5.2.5 Long Term Operation and Maintenance

CMP's transmission line corridor maintenance practices will encourage the growth of herbaceous and scrub-shrub vegetation that will not present safety or electrical reliability problems. The corridor near this SWP occurrence will be maintained in its current condition, location, and configuration, consistent with the requirements described in the VMP (Exhibit D of the BA).

Vegetation within the corridor that has the potential to grow up into the conductor safety zone (e.g. capable species and specimens) will be removed for safety and reliability reasons. CMP will use a selective herbicide and mechanical maintenance program to treat areas once every four years (once every two years, mechanical only, in Segment 1, where no herbicides will be used) to maintain an early successional (i.e. scrub-shrub and herbaceous) stage of vegetation. All herbicide usage will comply with all label requirements and standards established by the Maine Board of Pesticides Control ("MBPC"). Herbicides will be selectively applied to capable species, using low-pressure (hand-pressurized) backpack applicators, to prevent growth of individual capable specimens and to prevent regrowth of cut capable specimens. Individual capable specimens will be treated with herbicides, and no broadcast application will be done. Applications of herbicide will be prohibited when wind speeds exceed 15 MPH to minimize drift. CMP will not use herbicides in areas adjacent to the known occurrence of SWP and suitable habitat potentially containing dormant individuals (Figure 3-3), or within the riparian buffers of any waterbody or in areas of standing water. Only trained applicators working under the supervision of MBPC-licensed supervisors

will apply herbicides. Herbicides will be applied only during periods when potential for rain wash off is minimal.

The continued management of capable vegetation and selective use of herbicides on the adjacent existing transmission line corridor outside of the herbicide prohibition buffer will not pose a threat to this SWP occurrence.

5.2.6 Avoidance and Minimization Measures

CMP has developed and proposed an engineering solution that results in no impact outside of the existing maintained corridor. To ensure that construction activities avoid any disturbance outside of the existing maintained corridor, and consequently to the SWP, CMP will install flagging (yellow with black dots) along the edge of the corridor adjacent to the documented SWP occurrence in the Town of Greene. In addition, CMP will employ best management practices during construction to minimize potential impacts from pollution or herbicide application resulting from construction or operation of the Project, including the prohibition on herbicide application adjacent to the 174-acre tract containing the known occurrence of SWP.

5.3 Canada Lynx

Construction of the NECEC Project may affect, but is not likely to adversely affect, the Canada lynx, its critical habitat, or the expanded Section 7 review area. The proposed transmission corridor in the northern section of the NECEC Project between Beattie Twp and Johnson Mountain Twp is located in the critical habitat area, a very remote, predominantly forested area, which is heavily managed for commercial timber production. As noted earlier in Section 4.2, commercial timber production generally involves growing trees for harvest and sale, generally to pulp and paper mills or other wood buyers, with a 20+/- year cutting cycle. As shown on Figure 3-4 in Section 3.2.2.1, page 72 of the BA, the USFWS has identified a Section 7 review area that includes the Canada lynx designated critical habitat and most of northern Maine. The Section 7 review area, beyond the boundary of the designated critical habitat, includes Segments 1, 2, and portions of Segment 3 of the Project between Johnson Mountain Twp and the Town of Embden. The southern limit of the Section 7 review area extends to a location near Town Road in Embden, see Figure 3-4 on page 72 of the BA.

Jennifer Vashon, Black Bear and Canada Lynx Biologist from the MDIFW, provided lynx occurrence data that included 197 observation points for the MDIFW (email between Jennifer Vashon/MDIFW and James Morin/BMcD 12/27/2018). The northernmost data point includes a January 2012 sighting approximately 34 miles north of the Project corridor located along the Golden Road. The southernmost

data point, which occurred within 1.5 miles of the Project corridor, includes a February 2010 sighting in the Town of Starks. An "incidental take" by vehicle collision was also recorded in September 2007 along Route 2 in Palmyra, approximately 27 miles east of the Project corridor. As shown on Figure 3-4 on page 72, within the designated critical habitat area, two sightings were noted in 2005 within one-half mile of the Project corridor approximately three miles from the Canadian border, 10 sightings (one recorded in 1975) were recorded within five miles of the middle section of the northern portion of the Project corridor (south and east of Whipple Pond), and 15 sightings were recorded within five miles of the Project corridor east of Route 201. There are 14 occurrence data points within five miles of the Project corridor, located beyond the critical habitat, within the Section 7 review area extending to the southernmost occurrence in Starks.

Over the past 100+ years a majority of the landscape directly adjacent to and including the northern sections of the NECEC Project have undergone repeated timber harvest operations, which directly affects the habitat of many wildlife species. A recent study suggested that habitat suitability for the Canada lynx is more affected by habitat loss, which is defined as a reduction in the amount of suitable habitat, than habitat fragmentation, which involves the breaking apart of habitat independent of habitat loss, and that the instances of use are flexible and dependent on landscape conditions (Hornseth et al., 2014). The study further states that lynx may modify their choice of habitat depending on local conditions, thus lowering their sensitivity to habitat alterations caused by humans.

According to the Canada Lynx Conservation Assessment and Strategy report (Interagency Lynx Biology Team, 2013), utility corridors can have both short and long-term impacts to lynx habitats. One effect is the disturbance to the connectivity of lynx habitat. When located adjacent to highways and railroads, utility corridors can further widen the right-of-way, thus increasing the likelihood of impeding lynx movement. However, remote narrow utility corridors may have little or no effect on lynx and may enhance habitat in certain vegetation types and conditions. The NECEC Project corridor, which will be cleared to a width of 54 feet within Canada lynx habitat of Segment 1, with some areas having 35-foot tall vegetation or full vegetation as presented in Exhibit C, is not directly abutting other linear features. Once constructed, the 54-foot-wide cleared corridor centered under the conductor will be allowed to revegetate to early successional (scrub/shrub) habitat, therefore making it unlikely to impede lynx movements.

The lynx ability to survive and thrive in this region is also heavily dependent on the availability of their primary food source, the snowshoe hare. The USFWS October 2017 Species Status Assessment for the Canada Lynx Continuous United States Distinct Population Segment (DPS) states that "although forest types and the effects of forest (vegetation) management vary geographically, hare abundance throughout

the DPS range is strongly correlated with a single common denominator – dense horizontal cover at ground and snow level. Such cover provides hares with a source of browse, protects them from predation, and is the most important structure characteristic for hares throughout their range" (USFWS 2017). CMP manages vegetation in its corridors in a manner that promotes early successional growth that would typically be found in the Project corridor shortly following construction of the Project.

A study completed by Brocke et al. (1993) for the United States Department of Agriculture ("USDA") Forest Service indicated that the causes of lynx extirpation in the White Mountain National Forest in New Hampshire was the result of losses from highway kills, along with trapping and loss of habitat. Recent studies have not been conducted to assess traffic volume, and their effect on lynx mortality and dispersal. However, recent research on other carnivores on highways in Canada suggests that highway traffic volumes of 2,000 to 3,000 vehicles per day may be problematic due to a higher incidence of animal collisions. Traffic volumes of 4,000 vehicles or more per day create more serious impacts in terms of mortality and effective fragmentation (Ruediger, et al., 2000).

The Canada Lynx Assessment by Vashon et al. (2012) states that 27 lynx were killed when struck by vehicles in Maine between 2000 and 2011, of which approximately fifteen were struck on dirt roads used for logging activity. The report continues to state that "although roads do not appear to limit the core lynx population in Maine, high speed/traffic roads may limit the lynx ability to colonize new area. Future construction or improvements to existing roads that increase traffic volumes and speeds (i.e., paved and maintained roads) in lynx range could result in increased vehicle collision with lynx." It is important to note that any increases in traffic volumes caused by the Project will be minimal and temporary in nature, and that speeds on logging roads will not increase as a result of the Project. All Project personal will be instructed during CMP-conducted training to obey posted speed limits and reduce speeds to 30 mph or less when driving on logging roads to minimize potential impacts to Canada lynx and other wildlife (Mark McCollough/USFWS email to James Morin/BMcD 04/02/2020). On those roads heavily used by logging companies (e.g., Spencer Road) CMP will consult with the land management companies to ensure that the reduced speed limits will not pose unsafe conditions associated with logging traffic and will adjust the speed limit accordingly.

The Maine Department of Transportation ("MDOT") 2017 Traffic Volume Annual Report shows Annual Average Daily Traffic ("AADT") counts from years 2012 to 2017. In years 2012 and 2015 the AADT count for U.S. Route 201 at Parlin Pond Twp. Town line was 1,660. This monitoring station is located within the Canada lynx designated critical habitat area and within one mile of where the Project corridor

crosses U.S. Route 201. The traffic count numbers reported by the MDOT for this monitoring location are well below the numbers stated as "problematic" in the Ruediger article. It is reasonable to assume that traffic counts along secondary roads and logging roads would be considerably less than what is reported by the MDOT for this U.S. Route 201 monitoring location (MDOT 2017), and thus the slight and temporary increase in traffic generated by the construction and operation of the Project would have no additional effect on lynx mortality.

5.3.1 Clearing

As shown in Figure 3-4 on page 72 of the BA, the USFWS Section 7 review area is a much broader area than the designated critical habitat. Approximately 3,375 acres of the Project area is in the Canada lynx expanded Section 7 review area, of which 1,586 acres are located in designated critical habitat. Of the 3,375 acres of Project corridor in the Section 7 review area, 630.1 acres will be cleared, 283.3 acres of which are in the designated critical habitat. The cleared ROW from the Canada border in Beattie Twp to just south of Lake Moxie Road in East Moxie Twp will be 54 feet wide in most areas with tapered vegetation beyond the 54 feet, as discussed in Section 2.4.1.5 and referenced in Exhibit C. Once the Project enters the existing corridor just south of Lake Moxie Road, the additional clearing will be 75 feet wide.

To further quantify the impacts of clearing on snowshoe hare/Canada lynx habitat, the forested corridor in both the designated critical habitat and the Section 7 review area were delineated based on forest stand types. Forest stand maps provided by Weyerhaeuser, a private forest and land management company, and 3D color aerial photo interpretation were used to delineate and map the forest into stand types. Determination of the forest stands was based on evidence of hardwood species verses softwood species, evidence of forest management practices, and visual observations of tree size, structure, and forest densities. Table 5-1 defines how the forest stand types were categorized and quality groups assigned.

Table 5-1: Forest Stand Code Characterization

Forest Stand Types		
S	Softwood	>75%
H	Hardwood	>75%
SH	Mixed (heavy to softwood)	>50% Softwood
HS	Mixed (heavy to hardwood)	>50% Hardwood
NP	Non-Productive	water, open wetlands, woodyard, gravel pit, rock slope, roads, agricultural field, utility lines, etc.
Forest Stand Age		
1	Clear Cut/Open Productive	0 years old
2	Seedling/New Stock	<12 years old
3	Sapling/Young Stock	12-26 years old
4	Pole Timber/Growing Stock	26-40 years old
5	Saw Timber/Mature Stock	>40 years old
Forest Stand Structure/Density/Crown Closure		
A	Open/No-Stocking	<20%
B	Semi-Open/Low Stocking	20-50%
C	Medium/Moderate Stocking	50-80%
D	Dense/High Stocking	>80%
Quality Groups (categories) for lynx and their critical habitat		
Current	High Quality Snowshoe Hare Habitat	S3C, S3D, S4C, S4D, SH3C, SH3D, SH4C, SH4D
Future	High Quality Snowshoe Hare Habitat	S1A, S2A, S2B, S2C, S2D, S5C, S5D, SH2C, SH2D, SH5C, SH5D
Matrix	Low Quality or Not Ideal Snowshoe Hare Habitat	All H and HS, and remaining low stocking A & B stands
Other	Non-Productive Land	NP

Based on consultation with Mark McCollough/USFWS (email between Mark McCollough/USFWS and James Morin/BMcD, 11/6/2018), current high-quality snowshoe hare habitat consists of dense, young (12 - 40-year-old), predominantly mixed wood (>50% softwood) or pure softwood stands (>75%), primarily spruce-fir types. These stand codes include S3C, S3D, S4C, S4D, SH3C, SH3D, SH4C, and SH4D. Future high-quality snowshoe hare habitat would be all other predominantly (>50%) mixed wood or pure softwood (spruce/fir types) stands <12 years old (new clear-cuts, formerly softwood, expected to regenerate to softwood), and >40 years old (mature softwood stands that may also include cedar-dominated forest). These stand codes include S1A, S2A, S2B, S2C, S2D, S5C, S5D, SH2C, SH2D, SH5C, and SH5D. Matrix forest, which would be low quality or not ideal snowshoe hare habitat would include mixed forest (<50% softwood) and pure hardwood stands, regardless of age and structure. These stand codes would include all H and HS, and any other low stocking stands (A and B). Non-productive stands are coded as NP, and include roads, open wetlands, gravel pits, and woodyards.

In addition, point location data for lynx occurrence provided by Jennifer Vashon/MDIFW helped determine the southernmost town to map forest stands and conduct the lynx habitat analysis beyond the limits of the Section 7 review area. The data provided by the MDIFW show that the southernmost town where a lynx sighting occurred was Starks in 2010. The notes for the data point state that it "crossed Route 43 in Starks and headed across a hayfield to a patch of woods." There is no point location data south of Starks.

Using the forest stand data, current and future high-quality snowshoe hare habitat to be cleared and converted to scrub shrub habitat comprise 34% of the Project corridor (approximately 257.9 acres of 768.3 acres) from the Canada border to the Town of Starks. The breakdown of current and future high-quality snowshoe hare habitat acreage to be cleared within the critical habitat, the portion of Section 7 review area located outside of the critical habitat area, and the area south of the Section 7 review area are shown in the Table 5-2 on page 108 of the BA.

Table 5-2: Summary Of Acres To Be Cleared In Snowshoe Hare Habitat

	Current High Quality Hare Habitat	Future High Quality Hare Habitat	Total Hare Habitat (current + future)	Matrix Habitat (all other forested habitat)	Non-Habitat (roads, gravel pits, open wetlands, etc.)	Total
Critical Habitat	56.1	36.8	92.9	179.7	10.7	283.3
Section 7 Review Area (outside Critical Habitat Area)	79.8	63.9	143.7	190.4	13.1	347.2
South of Section 7 Review Area to Starks	16.1	5.2	21.3	98.8	17.7	137.8
Total	152.0	105.9	257.9	468.9	41.5	768.3[18]

Research indicates it is unlikely that the creation of a cleared and maintained scrub-shrub 54-foot wide transmission corridor with tapered vegetation beyond will negatively affect Canada lynx or snowshoe hare habitat. Both species may benefit from the creation of a varied successional landscape and an edge effect for hunting or foraging (Ruediger, et al., 2000). South of Segment 1, outside the critical habitat in Segments 2 and 3, the additional clearing width of 75 feet will occur adjacent to a pre-existing cleared and maintained scrub-shrub corridor, so the expanded ROW in these areas will not fragment the lynx habitat any more than what already exists.

In an email dated 5/31/2018 to Wende Mahaney/USFWS and Jay Clement/USACE, Mark McCollough/USFWS stated, “Typically, we consider the construction (clearing of the rights of way and potential access roads) and existence of a cleared (revegetated) right of way to not have adverse effects on lynx themselves. The noise and activity associated with construction may have short-term, temporary effects on lynx behavior, possibly causing them to avoid some feeding areas, but they have large home ranges (as much as a township for males and 1/3 township for females) that provide alternate locations for feeding, sheltering, etc. while construction occurs. There may be a slight chance that construction during May and early June could affect female lynx and their dens. Lynx are known to relocate kittens when there is human activity, such as forest cutting. Project plans should specify whether construction will

[18]As required by the MDEP Final Permit issued for the NECEC Project on May 11, 2020, the reduced clearing width, taller vegetation to 48 feet beyond the clearing, and tapering of vegetation in Segment 1 will substantially minimize visual impacts as well as effects on protected listed species. Segment 1 will also include 12 Wildlife Management Areas within 14.08 miles that will be maintained with taller vegetation in accordance with Table C-1 of Appendix C of the MDEP Order.

occur during May or June in the aforementioned townships and what contingencies will be taken if female lynx acting unusually tame (typical behavior when around a den) or lynx kittens are encountered."

As noted in Section 2.4.1.5 of this BA, the Project will not include tree clearing in June and July which will benefit the NLEB. This will also benefit the Canada lynx as part of the lynx denning season occurs in June when kittens are relatively immobile.

Clearing and construction activities may occur within the designated critical habitat and the extended Section 7 review area at any time of the year. As a conservative measure, and in an effort to protect the lynx should an occurrence within the ROW be observed, contractors and subcontractors will immediately suspend all activity in the vicinity of the occurrence, immediately leave the area unless it poses a safety concern and notify Project supervisors and environmental inspector(s). Environmental inspector(s) will notify state wildlife officials, as well as the USFWS, and USACE prior to proceeding with construction. The environmental training provided to all Project personnel will include a discussion of these measures and any other specific protocols determined necessary for the protection of Canada lynx.

5.3.2 Equipment Access

Access to structure locations for the Project in the critical habitat area and structure locations south to Lake Moxie Road in The Forks Plt will be in the newly cleared ROW. South of Lake Moxie Road all new structures will be co-located within an existing CMP transmission line ROW.

The NECEC Project corridor within the lynx critical habitat area and the Section 7 review area are in remote areas of the state with no major interstate highways or heavy vehicular traffic. The road network in this area consists of two-lane state or county roads and gravel logging roads. Construction of the NECEC Project will temporarily increase local traffic during construction, but construction activity will not be concentrated in a particular area for extended durations. The likelihood of an impact to lynx mortality due to vehicular traffic is low however, the Project will reduce this potential risk by minimizing night travel, as well as travel at dusk and dawn, when lynx are most active. All Project personal will be instructed during CMP-conducted training to travel at appropriate speed limits and improve general awareness of the potential presence of this protected species.

5.3.3 Potential Impacts from Structure Installation

Once the clearing activity is complete and the temporary access roads are in place for structure installation, the risk for interaction with the Canada lynx would be relatively low considering that the lynx is an elusive species that would likely avoid the noise and activity associated with structure installation.

5.3.4 Restoration

Once construction is complete and the wire is clipped into the poles, the restoration process will primarily include removing all construction related debris, removing mats from the access road, restoring any disturbed areas, and installing temporary erosion controls. The temporary erosion controls will remain in place until the disturbed site(s) are fully stabilized with vegetation. CMP's objective is to allow the ROW to revegetate to a natural, early successional state of scrub/shrub habitat that benefits a wide array of wildlife, while not interfering with the transmission line infrastructure. It is anticipated that it will take one to two years for the natural vegetation to fill in, thus having a short-term effect on the snowshoe hare's preferred dense scrub/shrub habitat. However, over the long-term, as the natural vegetation fills in and become denser, it will provide forage and cover that will benefit the snowshoe hare, which is directly correlated to the Canada lynx's ability to survive and thrive in the region.

5.3.5 Long Term Operation and Maintenance

In an email dated 5/31/2018 to Wende Mahaney/USFWS and Jay Clement/USACE, Mark McCollough/USFWS stated "Most rights of way are kept in a shrubby or young forest condition. This forest condition would facilitate the dispersal and movement of lynx across the right of way and may provide minimal value for feeding habitat."

CMP's plan is to maintain its transmission line corridors in a manner that encourages growth of non-capable, early successional, shrub and herbaceous vegetation that will provide important habitat and forage for a wide variety of wildlife species and be in accordance with the CMP Post-Construction Vegetation Management Plan and Environmental Guidelines.

5.3.6 Avoidance and Minimization Measures

Of the 3,375 acres of Project corridor in the Section 7 review area, 630.1 acres will be cleared, 283.3 acres of which are in the designated critical habitat. The cleared ROW from the Canada border in Beattie Twp to just south of Lake Moxie Road in East Moxie Twp will be 54 feet wide in most locations, as indicated earlier in this document in Section 2.4.1.5. This clearing width is a significant reduction from what was originally proposed (150 feet), which will result in fewer forested acres being converted to cleared and maintained scrub-shrub acres. This further minimizes the potential impacts by leaving more dense cover for the lynx and its primary food source, the snowshoe hare. Once the Project enters the existing corridor just south of Lake Moxie Road, the additional clearing will be 75 feet wide.

As required by the MDEP Order issued to NECEC on May 11, 2020, CMP has significantly reduced the clearing width in Segment 1 from 150 feet to 54 feet for approximately 39 miles, with taller tapered

vegetation to 48 feet beyond. Segment 1 will also include 12 Wildlife Management Areas within 14.08 miles that will be maintained with taller vegetation in accordance with Table C-1 of Appendix C of the MDEP Order. As a result, approximately 698.23 acres in the NECEC Project corridor in Segment 1 will be managed in a tapered configuration or selectively cut in order to minimize wildlife and visual impacts. These areas include areas near Coburn Mountain, Rock Pond/Three Slide Mountain, the Upper Kennebec Deer Wintering Area, and the rusty blackbird habitat. As described in the VMP, vegetation outside of the wire zone in these areas will be managed such that capable vegetation will be maintained in a tapered configuration to the extent practicable, with heights ranging from 15 feet (from the outer edges of the wire zone toward the corridor edges for a distance of approximately 16 feet on each side), to 25 feet (from the outer edges of the 15-foot tall areas, for a distance of approximately 16 feet on each side), to 35 feet (from the outer edges of the 25 foot tall areas to the edges of the maintained right of way, for a distance of approximately 16 feet on each side). Vegetation tapering and taller vegetation within 12 Wildlife Management Area will result in vegetation retention, positively affecting the Canada lynx.

Through consultation with MDIFW, CMP agreed to modify its project design to include taller structures near Mountain Brook in Johnson Mountain Twp and Gold Brook in Appleton Twp to avoid and minimize impacts by allowing full height canopy to be retained within the conservation management areas associated with species, including the Roaring brook mayfly (state threatened) and the northern spring salamander (state species of special concern) in these locations, which will ultimately benefit the Canada lynx as well through vegetation retention.

5.4 Northern Long-Eared Bat

The NECEC Project may affect the NLEB that could be present along the Project route. As discussed in Section 3.2.3, the primary threat to bats is WNS, particularly in the northeast where some bat species populations have declined up to 99 percent (USFWS 2017). As described previously in this BA, the WNSZ includes the entire State of Maine and most areas of the eastern and midwestern United States. In 2011, it was discovered that bats at the three known hibernacula sites in Maine have visible signs of the WNS fungus on their wings and muzzles. This disease has been reported to cause 90 to 100-percent mortality in hibernaculum in other areas of the country.

The USFWS, under the 4(d) rule, has offered a streamlined consultation framework for the NLEB. This optional framework allows federal agencies to rely upon the USFSW January 5, 2016 intra-Service Programmatic Biological Opinion (“PBO”) in 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 re-initiation of consultation is required per 50 C.F.R. § 402.16.

The NECEC Project obtained a Verification Letter dated May 29, 2020, through the IPAC submission. The letter determined that "the Action is consistent with the activities analyzed in the PBO." The letter concluded, that "Unless the Service advises you within 30 days of the date of this letter that your IPAC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under the ESA Section 7(a)(2 with respect to the NLEB." The verification letter is attached to this BA in Exhibit J.

6.0 CONCLUSION

6.1 Effects Determination for Listed Species

The findings of this BA include:

- **Atlantic salmon – May affect, but not likely to adversely affect.** There is no proposed instream activity for any stream, at any time, at any location related to clearing activity, installation of transmission line structures, or for substation site development. Construction access across any stream (when needed) will be provided by a temporary crossing that entirely spans the stream, and is constructed and maintained in a manner to minimize the potential for sedimentation and turbidity. Access to the transmission line corridor for maintenance and operational activities after construction is complete will be infrequent will utilize existing upland access ways and snowmobile trail bridges to the greatest extent possible, and will only ford streams following the best management practices prescribed in Section 5.1.6. Environmental controls will be implemented and maintained before, during construction to avoid and minimize the potential for water quality degradation associated with soil erosion and sedimentation and other pollutants. Environmental controls will remain in place until the site is fully stabilized per CMP guidelines and MDEP inspections. Herbicide application will be precluded from 100 feet of all streams within the GOM DPS, which includes the designated critical habitat. Replacements of culverts will not occur within the designated critical habitat. All replacement of culverts outside the project area will only be in the vicinity of Segments 1 and 2. Since impacts to Atlantic salmon streams are completely avoided or minimized to the point of insignificance as described herein, construction of the Project as proposed is not likely to have adverse effects on Atlantic salmon.

- **Small whorled pogonia – No Effect**. An engineering solution proposed by the Applicant has eliminated the need for tree clearing and associated impacts in the vicinity of the SWP occurrence. The proposed shifting of the transmission line and elimination of tree clearing in the vicinity of the occurrence, and prohibition on herbicide application from structure 3006-24 to 3006-29.1 will avoid any effect to the known specimen. Additionally, all proposed construction activities are located downgradient of the occurrence; therefore, habitat degradation associated with potential soil erosion and sedimentation will not occur. As a result, no adverse effects to SWP are expected.

- **Canada lynx – May affect, but not likely to adversely affect.** Total Forest cover removal has been minimized through the reduced clearing width in Segment 1 which will significantly

minimize the Project's effect on the Canada lynx. Project construction will be short term and construction activities in the critical habitat and the Section 7 review area will be less than 24 months. Increases in traffic volume will be minimal and temporary and Project personnel will be instructed to obey posted speed limits, as well as reduced speed limits on logging roads. CMP will closely coordinate speed limit reductions with the land management companies who own and or operate these roads to facilitate safe travel and minimize potential impacts to Canada lynx. For these reasons, the proposed action is not expected to have adverse effects on Canada lynx.

- **Northern Long-Eared Bat- May affect.** The USACE and DOE are proposing to use the streamlined consultation process which allows for adverse effects and authorizes take. Although tree clearing will be avoided during the maternity roost season of June 1 to July 31 as a conservation measure, NLEB could occur anywhere in the Action Area where there is forested habitat. Tree clearing will affect habitat, and to the extent that NLEB are present, it may adversely affect roosting NLEB. expected.

6.2 Effects Determination for Critical Habitats

The findings of this BA include:

- **Atlantic salmon – May affect, but not likely to adversely affect.** No in-stream construction is proposed within any stream, at any time, in any location within the Atlantic salmon critical habitat area and the GOM DPS. Culvert replacements will take place outside of Atlantic salmon critical habitat and the GOM DPS, therefore the destruction of habitat will not take place. The removal of forest cover within the 100-foot riparian areas of streams located in designated critical habitat and the GOM DPS has been minimized through the maintenance of early successional vegetation, which will reduce the impact of increased insolation. Effects on water quality within critical habitat and the GOM DPS will be avoided and minimized through temporary stream crossing procedures (when needed) with timber mats and the implementation of environmental control requirements and erosion and sedimentation control by the Applicant. Additionally, herbicide application will not occur within 100 feet of any stream within the GOM DPS. As a result, adverse modifications to substrate, water quality and quantity, cover, forage, and biological communities in Atlantic salmon critical habitat are not likely. Therefore, the effects of the Project on the Atlantic salmon's critical habitat will likely not preclude or significantly delay the development of the physical or biological features that support the life-history needs of this species for recovery.

- **Canada lynx – May affect, but not likely to adversely affect.** Habitat loss, habitat fragmentation, and reductions in habitat connectivity have been avoided and minimized through the proposed tapered vegetation and limited clearing width in Segment 1, and the maintenance of early successional scrub-shrub vegetation within the cleared portion of the corridor for all segments. Modification of habitat associated with the maintenance of the corridor in early successional cover will not degrade habitat for snowshoe hare, the Canada lynx's primary food source. Additionally, the effects of the Project on the Canada lynx's critical habitat will likely not preclude or significantly delay the development of the physical or biological features that support the life-history needs of this species for recovery. Therefore, the quantity and quality of habitat, within the designated critical habitat, available for Canada lynx and its primary food source, the snowshoe hare, will not likely be destroyed or adversely modified by the Project.

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