

range from 300 to more than 3,000 feet. The Lakes Region is bordered to the south by the Merrimack River Valley.

The new NPT line reaches its southern terminus in the Merrimack River Valley, in the town of Deerfield; however, some work on existing transmission infrastructure will take place south of this location in the towns of Deerfield, Raymond, and Londonderry, Rockingham County. The Merrimack River Valley is characterized by low hilly terrain and lowlands with elevations ranging from less than 500 feet near the river to 1,000 feet on hilltops.

2.5.2 Soils

The Project area traverses areas with surficial geology dominated by glacial tills and stratified drift. Soil types vary widely within the glacial tills and stratified drifts, ranging from excessively drained gravel to very poorly drained organic soils. Organic soils of the Project area generally occur in depressions and lowlands within glacial till, glaciofluvial, and glaciomarine deposits. Thin drift is usually associated with higher elevations occurring in areas of outcrops and bedrock. A description of common soil types within the Project area is provided in the Table 2-2 below.

Table 2-2: Common Soil Types

Soil Type	Description
Glacial till	A mixture of sand, silt, clay, and stones forming sandy loam, stony loam, or stony silty loam. Found on hills, ridges, and till plains. e.g., Marlow
Glaciomarine sediments	Silt, clay, and local sand, forming silty loam, fine sandy loam. Found mainly on coastal lowlands and major river valleys. e.g., deposition in the low flow underwater environment
Thin drift	Thin surficial deposits overlying bedrock or outcrops; soil may contain a high percentage of bedrock fragments or stone.
Glaciofluvial materials	Near previous drainage channels and eskers, composed of sand and gravel. e.g., out-wash sand and gravel; delta deposits
Organic soils	Peat, muck, clay, and silt in swamps, marshes, bogs, and floodplains along rivers and streams. e.g., anoxic soils

2.5.3 Wetlands

Approximately 2,000 wetlands, 200 vernal pools, and almost 1,000 streams and rivers were delineated, classified, and assessed during project field work on the proposed and alternate transmission line routes, facility locations, and off-ROW access roads. Field surveys for these resources followed standardized methods accepted by New Hampshire and federal regulatory agencies, and were completed by, or under

the supervision of, New Hampshire Certified Wetland Scientists (NH CWS), consistent with State requirements. Selected delineations were reviewed and accepted by the US Army Corps of Engineers (USACE). Most wetlands in the project area are emergent or shrub dominated, as they are within an existing transmission or road ROW and are regularly mowed or selectively cut. Forested wetlands dominate in the proposed new ROW. The project route crosses several main rivers (Connecticut, Pemigewasset, and Merrimack) and many other perennial, intermittent and ephemeral streams.

Route selection, project design, and construction management plans all included efforts to avoid and minimize impacts to wetlands and water resources. Applications for state and federal wetland permits were submitted for unavoidable impacts to wetlands and waterbodies in accordance with RSA 482:A and Env WT 100-900; and Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act as administered by the US Army Corps of Engineers. Permit applications for work in the 250-ft protected shoreland of the 21 waterbodies in the project area that are regulated under the NH Shoreland Water Quality Protection Act (SWQPA, RSA 483-B) and its regulations (Env-Wq 1400), were also submitted to NHDES.

2.5.4 Vegetation

The Project traverses seven ecoregion subsections between the US border with Canada and the Scobie Pond substation in Londonderry. Spruce-fir and northern hardwood forests dominate in the White Mountains and northward; mixes of hardwoods, hemlock, and white pine dominate in central areas; and pitch pine and oaks appear in forests in the southern section where they are locally abundant on the extensive sand plains of the Merrimack River valley. The vast majority of vegetation in the project area consists of native species (in the forested portion of the ROW) or non-invasive, non-native species (such as common pasture grasses) in the existing ROW maintained by mowing. Invasive species are generally present at low frequencies, near roads in developed areas and agricultural fields. Much of the northern section of the project has been intensively logged, although it does include some areas of intact forest that has not been disturbed in recent decades.

Rare plant survey methods were developed through consultation with the USFWS, USFS, and NHNHB. Qualified botanists subsequently surveyed for target species and NHNHB reporting protocols were followed in the event that rare plants were encountered. To protect these sensitive resources, the boundaries of rare plant populations and communities were surveyed, but not flagged, and these are not shown on most project maps. Seven state-listed threatened or endangered species, eight state-watch species, four state indeterminate species, and one potential state exemplary natural community were observed within the proposed project area. No federally-listed threatened or endangered plant species were observed. Most of the documented rare plant species within the existing transmission ROW are dependent upon open (non-forested) conditions, which are partially or entirely maintained by mowing, disturbance associated with recreational activities, or both.

2.6 Potential Pollutants

This section identifies the potential sources of sediment, and pollution sources other than sediment, to stormwater runoff.

2.6.1 Sediment to Stormwater

Potential sources of sediment to stormwater runoff:

- a. Clearing operations
- b. Grading and site excavation operations
- c. Access road building
- d. Foundation hole excavation
- e. Vehicle tracking
- f. Topsoil stripping and stockpiling
- g. Landscaping operations

Sufficient and appropriate BMP's will be installed and maintained where necessary when surface water is located within 50 feet of the project activity, and where there is a lack of a natural vegetated buffer.

2.6.2 Sources other than Sediment to Stormwater

Potential pollutants and sources, other than sediment, to stormwater runoff:

- a. Combined Staging Area: small fueling activities and or minor equipment maintenance
- b. Materials Storage Area: general building materials, poles, cross-arms, framing material, construction debris, trash, etc.
- c. Construction Activity: pole installation, structure framing, and concrete pouring
- d. Concrete Washout Area

The Environmental Monitor and Contractor's supervisor shall both be notified immediately in the event of a chemical or petroleum spill. Spillage of any chemicals or petroleum products shall be cleaned up and removed immediately upon detection.

2.7 Site Maps and Drawings

The General Vicinity Map, outlining the Project area, is located in Appendix D. The Erosion Control Plan and BMP details are located in Appendix F.

2.8 Waterbodies

This section list the receiving waterbodies and impaired waterbodies found within the ROW of the Project.

2.8.1 Receiving Waterbodies

There are 313 perennial streams, 350 intermittent streams, 438 ephemeral streams and two ponds within the proposed project limits, which include the proposed and existing transmission ROW, nine site developments (six transition stations, two substation expansions, and one converter terminal), and the off-ROW access roads. These were delineated in the field, and in most cases will have at least a temporary access road within 200 feet or be crossed by one. The list of named streams within the project limits is included in the table below.

Table 2-3: Receiving Waterbodies

Abel Brook	Gale River	Pettingill Brook
Ames Brook	Glove Hollow Brook	Phillips Brook
Ammonoosuc River	Glover Brook	Pond Brook
Bagley Brook	Gordon Pond Brook	Preston Brook
Baker Brook	Haines Brook	Punch Brook
Baker River	Halls Stream	Reel Brook
Barrett Brook	Ham Branch	Roaring Brook
Beaver Brook	Hartford Brook	Rowells Brook
Bennett Brook	Hayward Brook	Shaw Brook
Bishop Brook	Hubbard Brook	Shields Brook
Black Brook	Indian Brook	Slide Brook
Blake Brook	Israel River	Smith Brook
Bog Brook	Johns River	Soucook River
Bryant Brook	Kendall Brook	South Valley Brook
Burleigh Brook	Lamprey River	Squam River
Burnham Brook	Leemans Brook	Stark Falls Brook
Chance Pond Branch	Little Bear Brook	Stony Brook
Chase Brook	Lost River	Sugar Hill Brook
Clay Brook	Merrimack River	Suncook River
Clear Stream	Mill Brook	Tenmile Brook
Cold Brook	Miller Pond	Turtle Pond
Connecticut River	Millsfield Pond Brook	Underhill Brook
Coppermine Brook	Needle Shop Brook	Upper Ammonoosuc River
Dean Brook	Newell Brook	Wallace Brook
Dixie Brook	Nicholls Brook	Welch Brook
Dry Brook	North Branch River	West Branch Brook
East Branch Mohawk River	Otter Brook	Wild Ammonoosuc River
Favreau Brook	Pease Brook	
Fordway Brook	Pemigewasset River	
*Names based on public NH NHD GIS data stream/waterbody names (2014). Local names not included.		

Impacts to the above listed waterbodies will be avoided during Project activities and will be protected through the use of BMPs, including but not limited to, silt fence, as depicted on the Erosion Control Plan in Appendix F.

2.8.2 Impaired Waterbodies

The proposed project is approximately 192 miles long, and therefore crosses many streams and watersheds. The project will be taking many steps to protect water quality and insure that no further impact will occur to impaired waters.

All project-related work will follow the Erosion and Sedimentation Measures and Maintenance guidelines outlined in this SWPPP, and the supporting reference manuals.

A list of impaired waters within one mile of the Project would be expansive, and given the efforts to avoid and minimize water resources impacts, and the erosion control and construction BMPs that will be enforced during construction, additional detrimental effects to already impaired downstream waters are not anticipated. The list of impaired waters crossed by the project area is included in the Table 2-4 below.

Table 2-4: Impaired Waterbodies

Name	Town	Impairment
Halls Stream	Pittsburg	Lead
Connecticut River	Pittsburg	Lead
Bishop Brook - Pond Brook	Clarksville	Escherichia coli
Burnside Brook - Unnamed Brook	Lancaster	pH
Indian Brook	Lancaster	pH
Otter Brook - Unnamed Brook	Lancaster	Fishes Bioassessments (Streams)
Israel River	Lancaster	pH
Johns River - Unnamed Brook	Dalton	pH
Unnamed Brooks - From Forest Lake to Burns Pond	Whitefield	pH
Ammonoosuc River	Bethlehem	pH
Baker Brook - Unnamed Brook	Bethlehem	Fishes Bioassessments (Streams)
Wild Ammonoosuc River	Easton/Woodstock	pH
Pemigewasset River	Woodstock, Bridgewater, New Hampton, Bristol, Hill	Aluminum, pH, Dissolved Oxygen, Saturation
West Branch Brook	Campton	Aluminum
Unnamed Brook to Beebe River	Campton	Escherichia coli
Bog Brook	Campton	Aluminum
Baker River	Plymouth	Escherichia coli
Squam River	Ashland	Benthic-Macroinvertebrate Bioassessments (Streams)
Hayward Brook	Concord	Fishes Bioassessments (Streams)
Turtle Pond	Concord	pH
Bear Brook - Pease Brook	Allenstown	pH
Lamprey River	Deerfield	Dissolved Oxygen Saturation
Back Creek - Unnamed Brook	Deerfield	pH
North Branch River	Raymond	pH
Unnamed Brook - Onway Lake	Raymond	Benthic-Macroinvertebrate Bioassessments (Streams)
Shields Brook	Londonderry/Derry	Chloride

2.9 Sensitive Areas to be Protected

The proposed route crosses four major federal natural resource areas; the White Mountain National Forest (WMNF), the Appalachian National Scenic Trail (Appalachian Trail), the Pondicherry Division of the Silvio O. Conte National Fish and Wildlife Refuge, and the Franklin Falls Flood Control Project.

2.9.1 White Mountain National Forest

The proposed overhead transmission line crosses the WMNF in one location for a distance of approximately 1 mile within an existing transmission line ROW. The underground portion of the proposed line passes through the WMNF area in existing road ROW.

2.9.2 Appalachian Trail

The Appalachian Trail crosses the proposed route within the WMNF. The policies of both the USFS and the National Park Service specify that any new crossings of these lands should be at already disturbed locations, and the proposed route is consistent with those policies. The Appalachian Trail will be crossed underground within an existing road ROW.

2.9.3 Silvio O. Conte National Fish and Wildlife Refuge

The Silvio O. Conte National Fish and Wildlife Refuge was established to conserve native plants and animals and their habitats in the approximately seven million acre Connecticut River watershed. The proposed route crosses approximately one mile of the Pondicherry Division of the Silvio O. Conte National Fish and Wildlife Refuge, on existing ROW.

2.9.4 Franklin Falls Dam

The Franklin Falls Dam was constructed by the USACE in 1943 on the Pemigewasset River to protect cities and towns along the Merrimack River from flood damage. The proposed route crosses approximately one mile of Franklin Falls Reservoir lands in Franklin and Hill, New Hampshire in an existing transmission corridor.

2.10 Protected Species and Natural Communities

This section describes the review process and lists the plant and wildlife species found within the ROW of the Project.

2.10.1 Plants

The Project alignment was thoroughly reviewed to document existing vegetation and ecological

communities, rare, threatened or endangered (RTE) plant species, and exemplary natural communities. Field surveys were performed for RTE plant species and exemplary natural communities within the Project study area during from 2010 to 2015.

Eight state-listed threatened or endangered plant species, 12 state watch plant species, four state indeterminate plant species, two state exemplary natural community systems, and six natural community types ranked as S2 or S3, including four communities that are potentially state exemplary occur within the proposed Project area (Table 10). No federally listed threatened or endangered plant species were observed within the Project area based on desktop and field inventory efforts.

Table 2-5: Listed Plant Species and Exemplary Natural Communities

RTE Species or Exemplary Natural Community	State Status	Towns
Plants		
Swamp Buttercup (<i>Ranunculus caricetorum</i>)	State Indeterminate	Pittsburg, Clarksville, Stewartstown, Dixville, Millsfield
Wild Leek (<i>Allium tricoccum</i> var. <i>tricoccum</i>)	State Watch	Pittsburg, Clarksville, Stewartstown, Dixville
Canada Violet (<i>Viola canadensis</i>)	State Watch	Stewartstown, Dixville
Northern Wild Licorice (<i>Galium kamtschaticum</i>)	State Watch	Stewartstown, Dixville
Goldie's Fern (<i>Dryopteris goldiana</i>)	State Watch	Dixville
Pale Jewelweed (<i>Impatiens pallida</i>)	State Watch	Dixville, Millsfield
Squirrel Corn (<i>Dicentra canadensis</i>)	State Watch	Dixville
Millet Grass (<i>Milium effusum</i>)	State Watch	Pittsburg, Clarksville, Stewartstown, Dixville
Dwarf Scouring-rush (<i>Equisetum scirpoides</i>)	State Watch	Stewartstown
White-tinged Sedge (<i>Carex albicans</i> var. <i>albicans</i>)	State Watch	Stewartstown
Narrowleaf Sedge (<i>Carex grisea</i>)	State Indeterminate	Lancaster
Wild Lupine (<i>Lupinus perennis</i>)	State Threatened	Concord, Pembroke
Blunt-leaved Milkweed (<i>Asclepias amplexicaulis</i>)	State Threatened	Concord, Pembroke
Spiked Needle Grass (<i>Aristida longespica</i> var. <i>geniculata</i>)	State Endangered	Concord, Pembroke, Raymond
Branching Needle Grass (<i>Aristida basiramea</i>)	State Indeterminate	Canterbury, Concord, Pembroke, Raymond
Fall Witch-grass (<i>Digitaria cognata</i>)	State Indeterminate	Canterbury, Concord, Pembroke
Licorice Goldenrod (<i>Solidago odora</i>)	State Endangered	Pembroke, Derry
Butterfly Milkweed (<i>Asclepias tuberosa</i>)	State Endangered	Concord
Toothed White-topped Aster (<i>Sericocarpus asteroides</i>)	State Watch	Concord
Sensitive species	State Endangered	Chester
Hairy Thoroughwort (<i>Eupatorium</i> cf. <i>pubescens</i>)	State Endangered	Derry
Sensitive species	State Endangered	Derry
American Chestnut (<i>Castanea dentata</i>)	State Watch	Derry
Early Azalea (<i>Rhododendron prinophyllum</i>)	State Watch	Derry

RTE Species or Exemplary Natural Community	State Status	Towns
Communities		
Moderate-gradient Sandy-cobbly Riverbank System	S3S4 State Exemplary	Dixville, Dix Grant
High-gradient Rocky Riverbank System	S3 – State Exemplary	Easton
Northern Hardwood Seepage Forest*	S3 (Vulnerable)/Potential Exemplary natural community	Dixville
Northern White Cedar – Balsam Fir Swamp	S2– Potential Exemplary natural communities	Stewartstown, Dummer
Northern Hardwood – Black Ash —Conifer Swamp	S3	Clarksville, Stewartstown
Boulder-cobble River Channel	S3	Dixville
Lowland Spruce-fir Forest	S3	Clarksville, Stewartstown, Dixville, Millsfield, Dummer
Rich Mesic Forest	S3	Pittsburg, Clarksville

2.10.2 Wildlife

The Project alignment was reviewed to evaluate common wildlife and existing wildlife habitat along with targeted studies aimed at important or RTE animals and their significant habitats. There is currently no federally-designated critical wildlife habitat in New Hampshire.

Based on the results of desktop assessment and field surveys, the species listed in the table below were determined to be present within the project area, or to have suitable habitat within the Project Area and therefor have potential to be present. Based on habitat affinity and known distribution, 12 of the 26 species with state status were determined to have no possibility of being present in the proposed Project Area. Of these 12 species, 10 have habitat requirements that are not provided in the Project Area. The gray wolf and the eastern cougar are currently believed to be extirpated from the state and so were excluded from further consideration. Similarly, seven of the 17 (Forest Service Sensitive) FSS species and 29 of the 50 (Species of Special Concern) SSC were also determined to have no potential to be present within the Project Area.

Table 2-6: Listed Wildlife Species and Their Distribution

Species	Status ¹	Habitat Requirements	Known Distribution	Assessment Result	Notes
Insects					
Frosted Elfin	SE	Pine barrens habitats	Concord	Confirmed via NHB data	Co-occurs with Kerner blue butterfly
Kerner Blue Butterfly	FE, SE	Pine barrens habitats	Concord	Confirmed via NHB data	Concord Pine barrens only known location in NH
Persius Dusky Wing Skipper	SE	Pine barrens habitats	Concord	Confirmed via NHB data	Co-occurs with Kerner blue butterfly
Pine Pinion Moth	ST	Pine barrens habitats	Concord	Confirmed via NHB data	May co-occur with Kerner blue butterfly

Species	Status ¹	Habitat Requirements	Known Distribution	Assessment Result	Notes
Ringed Bog Haunter	SE	Fens and Sphagnum bogs surrounded by woodlands; Southern NH only	Auburn	Habitat is marginal; not observed	This species is noted as "potential" for Auburn by NHFG, not confirmed
Amphibians and Reptiles					
Jefferson/Blue-spotted Salamander	SSC	Vernal pools and surrounding upland buffers	Primarily, but not exclusively south of the White Mts	Observed in three locations within Project area	All observations were egg masses in vernal pools
Blanding's turtle	SE	A variety of upland and wetland habitat types; sandy or gravelly soils for nesting	Holderness; Canterbury south	Confirmed via direct observation	Adults present during nesting season only
Eastern Hognose Snake	SE	Pine barrens and other similar open habitats, especially with sandy soils	Concord, Pembroke	Confirmed via NHFG and NHB data	Potentially present year-round as hibernacula may be located in ROW
Northern Black Racer	ST	A variety of upland and wetland habitat types; sandy or gravelly soils for nesting	Concord, southward	Confirmed via direct observation	Potentially present year-round as hibernacula may be located in ROW
Smooth Green Snake	SSC	Grassy upland fields, blueberry barrens, forest openings	Statewide	NHB records from Concord, Pembroke	NHB records are from 2005, 2009
Spotted Turtle	ST	A variety of upland and wetland habitat types; sandy or gravelly soils for nesting	Bridgewater, southward	Suitable habitat present, but this species was not observed	Adults present during nesting season only
Wood Turtle	SSC, FSS	Large, slow moving streams, wooded areas; open sandy or gravelly areas for nesting	Statewide	Suitable habitat present, but this species was not observed	Adults present during nesting season only
Birds					
American Kestrel	SSC	Open habitats for hunting, cavities or nest boxes for nesting	Statewide	Confirmed via direct observation	Active nest in nest box on structure in New Hampton in 2013, hunting adult observed on line in Stark
American Three-toed Woodpecker	ST	Mature spruce-fir forests	White Mountains and northward	Habitat is marginal; not observed	Potentially present in highest elevations only
Bald Eagle	ST, FSS	Shoreline habitats for foraging; tall perches for hunting and nesting	Statewide, near larger waterbodies	Suitable habitat present, but this species was not observed	No nests currently known within 1/4 mile of ROW but active along the Merrimack and Pemi
Bicknell's Thrush	SSC, FSS	Spruce-fir, birch, and krummholz above 2,700 ft.	High elevation habitats	Habitat is marginal; not observed	Potentially present in highest elevations only
Common Gallinule	SSC	Marshes dominated by grass-like species	Potentially Statewide	Habitat is marginal; not observed	No NHB records in Project area

Species	Status ¹	Habitat Requirements	Known Distribution	Assessment Result	Notes
Common Loon	ST, FSS	Lakes, ponds at least 1/4 mile long with suitable nest sites, adequate prey base	Franklin North	Not observed	No nests currently known within 1/4 mile of ROW
Common Nighthawk	SE	Pine barrens and other similar open habitats	Statewide	Confirmed via direct observation	Known to nest within Project footprint.
Eastern Meadowlark	SSC	Mature fields at least 5 ha in size, with a thick layer of dead grass	Potentially Statewide	Habitat is marginal; not observed	Regularly observed at Concord Airport
Eastern Whip-poor-will	SSC	Sparse woodlands	Statewide	Confirmed via direct observation	Observed at Concord Pine Barrens
Forest-nesting birds	MBTA	Various forest types	Statewide	Confirmed via direct observation	Suitable nesting habitat is widespread and common throughout NH
Golden Eagle	SE	Various	Statewide	Not observed	Only present during migration
Grasshopper Sparrow	ST	Grasslands at least 10 hectares (ha) in size	Concord	Habitat is marginal; not observed	Regularly observed at Concord Airport
Horned Lark	SSC	Open habitats with low, sparse plant growth	Southern New Hampshire	Habitat is marginal; not observed	Regularly observed at Concord Airport
Least Bittern	SSC	Marshes dominated by grass-like species	Potentially Statewide	Habitat is marginal; not observed	No NHB records in Project area
Northern harrier	SE	Grasslands at least 10 ha in size for nesting	Primarily Coös County	Habitat is marginal; not observed	Project area is adjacent to known occupied habitat
Olive-sided flycatcher	SSC	Northern forests	Coös County	Some suitable habitat present; not observed	No NHB records in Project area
Osprey	SSC, FSS	Large water bodies for foraging with nearby trees/ structures for nesting	Statewide, near larger waterbodies	Suitable habitat present, not observed	Commonly nest on power line structures; no nests currently known in ROW
Peregrine Falcon	ST, FSS	Cliff faces for nesting, with adequate prey base nearby; preys on birds	Statewide	Suitable foraging habitat present, not observed	Two known nests within 1.5 miles of existing the ROW
Pied-billed Grebe	ST, FSS	Wetlands with intricate shorelines: ~50:50 open water /vegetation mix	Statewide	Habitat is marginal; not observed	No NHB records in Project area
Rusty blackbird	SSC	Forested wetlands with regenerating spruce-fir	Woodstock north, especially Coös County	Observed in ROW in Millsfield	Also reported near Project area in Dixville
Sedge Wren	SE	Emergent wetlands, wet meadows	Southern New Hampshire	Habitat is marginal; not observed	No NHB records in Project area
Spruce Grouse	SSC	Boreal forest types dominated by spruce	Coös County	Habitat is marginal; not observed	No NHB records in Project area

Species	Status ¹	Habitat Requirements	Known Distribution	Assessment Result	Notes
Sora	SSC	Marshes dominated by grass-like species	Potentially Statewide	Habitat is marginal; not observed	No NHB records in Project area
Vesper Sparrow	SSC	Grasslands at least 15 ha in size for nesting	Potentially Statewide	Habitat is marginal; not observed	Regularly observed at Concord Airport
Mammals					
American Marten	ST	Coniferous or mixed forests with high structure	Coös County	Confirmed via tracking	Tracks observed in multiple locations from Whitefield north
Canada Lynx	FT, SE, FSS	Coniferous or mixed forests with abundant snowshoe hare	Coös County, WMNF	Confirmed via tracking	Tracks observed in Whitfield
Eastern Red Bat	SSC	Foliage-roosting bat, migratory	Probably Statewide	Detected during acoustic surveys	Data regarding distribution and habitat use in NH is limited
Eastern Small-footed Bat	SE, FSS	Rocky ridge tops, outcrops, cliff faces, buildings and bridges for roosting	Statewide	Detected at one location during acoustic surveys	Limited acoustic surveys in 2014 did not detect this species
Hoary Bat	SSC	Foliage-roosting bat, migratory	Probably Statewide	Detected during acoustic surveys	Data regarding distribution and habitat use in NH is limited
Northern Long-eared Bat	FT, ST, FSS	Roosts in mature trees under exfoliating bark, in crevices and hollows	Statewide	Detected at 13 locations during acoustic surveys	No acoustic or mist netting surveys conducted as of 2014
Silver-haired Bat	SSC	Roosts in tree hollows, migratory	Probably Statewide	Detected during acoustic surveys	Data regarding distribution and habitat use in NH is limited
Tri-colored Bat	none	Thought to roost in hollow trees and buildings	Foothills, White Mountains	Detected during acoustic surveys	Data regarding distribution and habitat use in NH is limited

¹ FE = Federally Endangered, FSS = Forest Service Sensitive, FT = Federally Threatened, MBTA= Migratory Bird Treaty Act, SE = State Endangered, ST = State Threatened, SSC = State Special Concern

² Proposed for Federal listing as Endangered

3.0 BEST MANAGEMENT PRACTICES

The following sections include information regarding the proposed erosion and sediment control measures and best management practices (BMPs) to be used on the Project site during construction activities until final stabilization is achieved.

3.1 Erosion and Sediment Controls

The installation of temporary erosion and sedimentation controls is an important aspect of project construction, and will coincide with the initiation of nearly every form of construction. All work performed by NPT contractor(s) and subcontractor(s) in New Hampshire must follow the New Hampshire Department of Environmental Service (NHDES) Best Management Practices Manual For Utility Maintenance In And Adjacent To Wetlands And Waterbodies In New Hampshire, which is published by the New Hampshire Department of Resources and Economic Development (NHDRED). For items not addressed in the NHDES/NHDRED manual, a supplemental BMP manual will be created for the project. Additionally, Eversource requires that all employees and contractor(s) and subcontractor(s) are trained on wetland BMP that must be followed during construction activities.

NPT contractors and subcontractors are required to follow all appropriate procedures specified by state law and all permit conditions when they are issued for the project. Land clearing (forestry) contractors are required to comply with New Hampshire Department of Resources and Economic Development (DRED), Best Management Practices for Erosion Control on Timber Harvesting Operations in New Hampshire. Blasting contractors are required to adhere to the conditions specified in the Certificate of Site and Facility to be issued by the NH Site Evaluation Committee (SEC) will also observe local municipal ordinances. NHDES has produced technical publication WD-10-12 Rock Blasting and Water Quality Measures That Can Be Taken to Protect Water Quality and Mitigate Impacts which outlines best management practices to protect water quality before and during blasting activities.

With respect to managing stormwater to protect sensitive wetlands and habitats during site preparation activities, NPT contractors are required to follow BMPs detailed in the NH Stormwater Manual (NHDES, 2008) and adhere to the conditions specified in the Certificate of Site and Facility to be issued by the NH SEC.

Soil erosion and sediment controls are used to reduce the amount of soil particles carried from a land area and deposited in receiving waters. The construction contractors and subcontractor(s) are responsible for amending the erosion and sediment controls in the SWPPP for their portion(s) of the Project. These changes must be approved by the Environmental Monitor. Based on field conditions at the time of construction, the authorized contractors and subcontractor(s) may adjust the locations and types of BMPs so that erosion and sedimentation are controlled to the extent practicable. However, in no case will modifications to the SWPPP result in less stringent erosion and sedimentation control measures than specified herein. Revisions to the SWPPP must be recorded on the Record of Revisions form (Appendix G).

Several factors should be considered when selecting appropriate erosion and sediment control measures:

- a. Size of the affected area
- b. Type of proposed construction activities
- c. Soil type and texture
- d. Amount of rock
- e. Steepness and length of slope
- f. Amount of vegetative cover
- g. Proximity to watercourses or wetlands, particularly downslope from construction activities
- h. Date and intensity of the last major rain event
- i. Anticipated weather conditions and frozen ground

Several, but not all BMPs that will be implemented on the Project are described below. Actual measures implemented will vary dependent on site conditions (e.g. topography), time of activity (e.g. seasonal weather), and at the discretion of the selected contractor.

Applicable soil erosion and sediment control measures must be implemented in accordance with this SWPPP and the Permit prior to commencing field construction activities. Measures must be maintained during and after the construction activity until final stabilization of the soil is achieved. Upon final stabilization of disturbed areas, temporary structural erosion and sediment control measures must be removed.

3.2 Structural Control Practices

Structural control practices divert flows from exposed soils, store water flows, or otherwise limit runoff from exposed areas of a site. Such practices may include silt fence, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe-slope drains, level spreaders, storm drain inlet protection, rock outlet protection (riprap), reinforced soil-retaining systems, gabions, and sediment basins. Some of these practices may be used as both temporary and permanent control measures. Structural control practices should be placed in upland areas to the degree practicable to prevent erosion and reduce sedimentation in lower elevation areas.

3.2.1 Temporary Erosion and Sediment Control Practices

Temporary erosion and sediment control measures must be in place prior to soil-disturbing activities and must be maintained throughout construction. As work progresses, contractors and subcontractors may need control measures in other locations of the Project to keep sediment from leaving the construction site. These measures will be determined in the field. If measures are changed in the field, then the SWPPP must be modified accordingly. Temporary erosion controls must be removed after the protected area is finally stabilized. The minimum temporary erosion and sediment control practices that will be used for the Project are discussed in the following sections.

3.2.1.1 Construction Entrance Stabilization

A stabilized construction entrances (via sediment track out pad or rock apron) must be in place at all access points to a public road from a ROW where sediment may be tracked onto the public road. Rock aprons will be installed as part of constructing temporary access road to the ROW. The entrance shall be maintained in a condition which shall prevent tracking or flowing of sediment onto public ROW. This may require periodic top dressing with additional stone as conditions demand and repair or cleanout any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public access ways must be removed immediately.

Rock apron are located directly adjacent to public access road, constructed at the beginning of an access way to the ROW. They are typically >50' long, 15' in width, and 4"+ thick. Stone size is 2" to 6".

3.2.1.2 Silt Fence

A silt fence is a geotextile fabric sediment barrier intended for temporary use to intercept sediment-laden water. A silt fence is designed to trap water from small watersheds of less than 2 acres; it is not a filter. Some silt fences used at substation will have woven wire backing. Silt fences will be installed before construction begins at high erosion risk sites and around topsoil stockpiles once they have been established. Silt fence will be inspected weekly and immediately after storm events to ensure it is intact and that there are no gaps where the fence meets the ground or tears along the length of the fence. If gaps or tears are found during the inspection, the fabric will be repaired or replaced immediately. The bottom of silt fencing shall be keyed-in a minimum of 6 inches. The trench shall not be excavated wider and deeper than necessary for proper installation of the temporary linear sediment barriers. Silt fence shall be placed at least 3 feet off the toe of slope where appropriate. Silt fences shall not be used in areas of concentrated flow.

3.2.1.3 Fiber Rolls and Wattles

Fiber rolls and wattles are tight tubular rolls containing straw, flax, coconut fiber, rice straw, or aspen excelsior. These devices are installed on slopes to intercept sheet flow down a slope, in a ditch or swale to slow down the velocity of stormwater, or can be used around an inlet. When installed around an inlet, it is recommended that they are weighted without putting the weight on top of the roll. This is typically accomplished by placing a concrete block or similar object on the downslope side of the roll/wattle. Installation, maintenance, and sizing will follow the manufacturer's instructions.

3.2.1.4 Weed Free Barrier(s)

A weed free bale barrier (bale barrier) is a temporary perimeter sediment barrier consisting of a trench and staked bales. The bale barrier is designed to intercept and trap sediment present in surface water runoff. Bale barriers allow sediment to settle from runoff before water leaves the construction site. Weed free bales (straw or weed free hay) must be used due to the high potential for standard hay bales to contain invasive species. This perimeter control is an alternative to silt fence. It will be installed before construction begins at the high erosion risk sites. Appropriate applications include along the edge of

access ways and along the perimeter of work zones adjacent to wetlands or waterbodies. If sediment has built up more than 8 inches, the contractor will remove sediment and dispose of outside of wetlands or waterbodies. The contractor will replace or repair bales as needed (e.g. washouts, damaged bales, etc.), remove bales when no longer needed, remove sediment accumulation, and clean, regrade, and stabilize the area. Removed bales can be used as mulch for restoration efforts. Bales will be installed in a shallow trench, will tightly abut adjacent bales, and will be staked. The contractor will construct bale barriers with a setback of at least 3 feet from wetlands and waterbodies where practical.

3.2.1.5 Erosion Control Mix Berms

Erosion control mix berms are made up of shredded bark, stump grindings, and composted bark. These will be installed before construction begins at the high erosion risk sites. As with other barriers, inspection will be performed after each rainfall or daily during prolonged periods of rain. Accumulations of sediment will be removed when they reach half the height of the barrier, and the berms will be reshaped and new material will be added as needed. In most cases, erosion control mix berms will not need to be removed. They can continue to function as they decompose, become part of the soil on the site and will naturally re-vegetate. If synthetic socks are used, the erosion control mix will be emptied from the sock and the socks will be disposed of off-site.

Erosion control mix berms are placed on the surface of the ground and do not require any soil disturbance. The berm will be located in a similar manner to other sediment control barriers along contour, downslope of disturbed soils. Similar to other sediment barriers, they should not be placed in areas of concentrated runoff, below culvert outlets, around catch basins, or at the bottom of a large contributing sub-watershed. At the toe of shallow slopes less than 20 feet long, berms should be, at minimum, 12 inches high and 2 feet wide at their base. Erosion control mix can also be placed in a synthetic “sock” to create a contained stable sediment barrier.

3.2.1.6 Waterbars

A waterbar is an above-ground structure used to divert water out of travel ways and work areas in order to prevent subsequent runoff and erosion. The purpose is to redirect water moving down a slope into adjacent vegetated areas (filter strips) or sediment basin. Waterbars will be installed during the construction of temporary access roads and as part of final restoration. The interval for installing these diversion structures depends on the slope, as well as the nature of the ground or road surface, soils, and wetness. Steeper slopes (15% or greater) generally, but not always, require shorter distances between diversion structures. Due to repeated travel over these structures, maintenance is critical to their effective functioning. As the structure becomes flattened or rutted, the contractor will be responsible to re-excavated or graded to ensure the interception and redirection of water runoff. These structures will be installed immediately above and along steep pitches in the road and below seepage areas on natural or cut banks, and installed at 30-degrees angled down grade. The shape of the backside portion of the structure will have a reverse slope of about 3 percent. Structures will be constructed with rounded (not vertical) mounds and dips to allow for firm compaction and to allow re-vegetation.

3.2.1.7 Stone Check Dam(s)

Check dams are stone structures designed for placement in swales and ditches where concentrated flows occur. They are used to reduce water velocity as it travels down slope. By slowing the water, the check dam helps to reduce scouring and helps to maintain a stable channel. Stone check dams will be installed at the beginning of the construction of access road process, or as soon as an excess flow issue becomes noticeable. Frequent inspection and maintenance are necessary for the check dams to remain effective. Repairs will be performed immediately when a control measure is found to be deficient. It may be necessary to remove sediment when depth reaches one-third of the check dam height. The check dam(s) and accumulated sediment will be removed when they are no longer needed. Check dams will be placed at a distance and height to allow small pools to form behind them. Use 2 to 3" stone. The spacing will be such that the toe of the upper dam is at the same elevation as the top of the next check dam downslope.

3.2.1.8 Dewatering

Dewatering is used to either lower the water level in the immediate work zone or used to remove water that is flowing into the work zone. A dewatering structure will be installed prior to excavation activity in an expected area where ground water levels need to be temporarily lowered to allow construction work. It will be necessary to monitor the discharge to ensure that no turbid water is reaching a wetland or waterbody. In the event that turbid water is reaching a wetland or water body, the contractor will immediately shut down the operation and relocate the discharge point further from the resource area. No direct discharge point shall be within 20 feet of a wetland or 50 feet of a waterbody. Sumps may be constructed either by creating shallow depressions or by using a perforated vertical pipe surrounded by stone. The contractor will be responsible for ensuring that discharge occurs onto a non-erosive surface such as rocks (either natural or processed), wood debris, plastic liners, or sections of larger pipes. If additional settling is needed for the discharge, a ring of bales or silt fence to discharge into will be created. Within the ring or corral of hay bales, the discharge hose will need to be connected to a geotextile filter fabric bag.

3.2.1.9 Sedimentation Basin

A sediment basin is a water impoundment constructed to capture and store sediment and/or debris. Sediment is removed by temporarily storing sediment-laden runoff, allowing time for the sediment particles to settle. Sediment basins may be made by constructing a dam or embankment or by excavating a depression. Sediment basins, temporary or permanent, should be constructed prior to earth disturbance and or excavations of a work area. Sediment basins should be inspected at least weekly during construction and after every storm (or daily during prolonged rainfall periods), to insure that they are functioning properly and are not damaged. Repairs should be made immediately. Sediment basins should, ideally and where space permits, consist of a fore bay where debris and some sediment begins to settle out of the water; a check dam constructed of stone or hay bales which water must flow through, filtering out more sediments; and the actual sediment basin, which is a pool with a slow enough velocity that sediments have time to settle out of the water column before the water flows over the dam at the outlet and is released. Sediment basins should be sized to provide a minimum of 12 to 24 hours of detention to maximum expected runoff amounts for the duration of the basin's use.

3.2.1.10 Inlet Protection

Culvert and drain inlets that have the potential of receiving stormwater runoff from the construction site will have a temporary sediment control barrier placed around the opening to prevent sediment from entering the culvert or drain and being deposited offsite. Timely inspection and maintenance allows for frequent removal and adequate disposal of accumulated sediment for proper BMP performance. At minimum, inlets must be cleaned weekly or following a rainfall event that generates runoff. It is up to the contractor or subcontractor to determine which types of inlet protection are most suitable for the site based on type and construction activities. It may be necessary to switch types of protection based on activities being performed onsite.

3.2.1.11 Outlet Protection

Riprap will be used at stormwater outlets on the Project site to protect soil from eroding in areas of concentrated flow. The riprap material should be durable to withstand freeze-thaw cycles and should be a mixture of different rock sizes. Additionally, a synthetic filter fabric should be installed before applying the riprap to prevent underlying soil from moving through the riprap. Riprap should be inspected annually and after major storms.

3.2.1.12 Soil Stockpiles

If soil is stockpiled onsite, then it must be stabilized or covered. Stabilization should consist of vegetation or covering with a layer of mulch. The stockpile can also be covered with a tarp and secured to the ground with controls around the pile so sediment does not migrate.

3.2.1.13 Dust Control

In areas where bare soil is exposed, water or other dust palliatives should be applied to the soil to prevent wind erosion. Precautions should be taken not to over-water and erode soils. In addition, appropriate speed limits should be established at the Project site to minimize dust generation.

3.2.1.14 Treatment Chemicals

The Project does not currently plan to use treatment chemicals (such as polymers and flocculants) as a means of stormwater control. If the use of treatment chemicals is warranted, this SWPPP will be revised to summarize its use.

3.2.2 Permanent Erosion and Sediment Control Practices

Permanent erosion and sediment control practices are those that will be left in place after construction is finished, and the site is stabilized. No permanent erosion and sediment control practices will be installed as part of the Project.

3.3 Stabilization Practices

Stabilization practices for disturbed soils are extremely important while conducting construction activities. The time period for soil areas to be without vegetative cover or an alternative cover must be minimized to the extent practicable. Stabilization measures must be initiated immediately whenever soil-disturbing activities have permanently ceased in any portion of the Project site or have temporarily ceased and will not resume for more than 14 days. Initial stabilization activities must be completed within 21 days.

3.3.1 Seeding

A temporary or permanent establishment of vegetation will reduce the erosion potential of an area by over 90%. The goal of the seeding mix is to stabilize the area while allowing the native seed stock to re-establish in the area. The Contractor will seed all disturbed areas as soon as possible. When possible, seed as soon as the ground can be worked in early spring and in the late summer/early fall. Include 10-20 lbs. /ac. of winter rye when seeding after Sept. 15th. On critical areas or droughty sites, mulch at the rate of 90 lbs. /1,000 sq. ft. Anchor mulch on steep slopes or where subjected to concentrated flow. Inoculate legumes separately with appropriate seed specific inoculants. If seeding after October 15th, use either winter rye or a 50/50 blend of annual and perennial rye grass. Final restoration and re-vegetation efforts will be routinely inspected for effectiveness. In the event that seed mix does not germinate properly, a soils test may be necessary for nutrients and pH. If soil test recommends a fertilizer, apply at rate recommended in test. Seeding will be done on any disturbed area over 100 sq. ft. in and immediately adjacent to wetlands. A layer of mulch will be applied over all seeded areas. Seed mix will be applied at the rate specified by the manufacturer. Seed mixtures and application rates are references on page 42 of *Best Management Practices Manual for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire*.

3.3.2 Erosion Control Blanket

Erosion control blankets are generally composed of biodegradable or synthetic materials and are used as a temporary or permanent aid in the stabilization of disturbed soil on slopes. These blankets are used to prevent erosion, stabilize soils, and protect seeds from foragers while vegetation is re-established. Once final restoration work has been completed the blanket will be installed on moderate (greater than 8%) and steep (15% or greater) slopes. Blanketed areas should be inspected weekly and after each runoff event until perennial vegetation is established to a minimum uniform 70% coverage throughout the blanketed area. Damaged or displaced blankets shall be restored or replaced within 4 calendar days. Slope surfaces shall be free of rocks, clods, sticks, and grass. Blankets should be rolled out in a downward direction starting at the highest point of installation and should be secured above the crest of the slope by a berm tamped down along the top of the disturbed area. Blankets shall have good continuous contact with the underlying soil throughout the entire length. Blankets should be tacked down with stakes or staples every 11-12 inches (or closer) horizontally and every 3 feet (or closer) vertically. Biodegradable staples are preferred. Each section of the blanket should overlap the next section horizontally by approximately 2-3 inches. Vertical overlaps should be approximately 6 inches, with the upslope section overlaying that of the down-slope section.

3.3.3 Mulching

Mulch is applied to cover any exposed or recently seeded soil. Mulch at a rate of 2,000 lbs. /acre has been shown to reduce erosion potential by 90% when properly applied. Mulching materials include but are not limited to straw, weed free hay (salt marsh hay), coconut matting/fiber matting, or filter fabric. Mulch is used as a temporary cover that will protect an area as the site is re-vegetating. Mulch is used in conjunction with temporary or permanent seeding to facilitate plant growth. Mulch is generally applied once soils become exposed. Inspect and add additional mulch as necessary until the permanent erosion control objectives have been reached. Mulch needs to last long enough to achieve erosion control objectives, either over winter protection or protection until vegetation becomes established. If mulch has been blown or washed away, additional applications may be required. Mulch should provide a uniform, 2-inch cover over exposed soils.

3.4 Erosion and Sediment Control Maintenance

All erosion and sediment control devices must be installed pursuant to the specifications provided in this SWPPP. To remain effective, these control devices must be maintained.

As referenced in the NHDES Stormwater Manual, Vol. 3: Maintenance measures for all BMP's should continue as needed throughout construction, including the over-winter period. After each rainfall, snowstorm, or period of thawing and runoff, the designated site contractor should conduct an inspection of all installed erosion control measures and perform repairs as needed to insure their continuing function. For any areas stabilized by temporary or permanent seeding prior to the onset of the winter season, the Contractor should conduct an inspection in the spring to ascertain the condition of vegetation cover, and repair any damage areas or bare spots and reseed as required to achieve an established vegetative cover (at least 85% of area vegetated with healthy, vigorous growth).

3.5 Buffer Documentation

NPT is a linear construction project, as defined in Appendix A of the CGP, with a limited ROW width, and engineering design constraints that may make it infeasible to always meet any of the CGP Part 2.1.2.1.a compliance alternatives. Where possible, construction activity will be outside the 50-foot undisturbed vegetative natural buffer from surface water. However, in situations where the natural buffer is less than 50 feet, additional erosion and sediment controls will be installed that achieves a sediment load reduction equivalent to a 50-foot undisturbed buffer. In certain instances when and where it becomes infeasible to provide and or maintain an undisturbed natural buffer of any size, sufficient erosion and sediment controls will be installed to achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

As a means of compliance under the 50-foot natural buffer alternative, the project will ensure that all discharges from the area of earth disturbance to the natural buffer, if any, are first treated by the site's erosion and sediment controls, with the use of velocity dissipation devices if necessary to prevent erosion caused by stormwater within the buffer.

Supplemental erosion and sediment control measures used in conjunction with or as an alternative to the 50-foot natural buffer, are outlined in the Erosion and Sedimentation Controls Measure and Maintenance section of this SWPPP, and are documented on the site map(s).

3.6 Clean up and Site Restoration

Following completion of the construction work, the Contractor will be responsible for conducting site restoration work. The following guidelines will apply to all activities, including temporary and permanent roads, stream/wetland crossings, staging and work areas, and substation and transition sites.

3.6.1 Procedure

At the completion of project construction in an area or at the end of the construction, NPT or their designated representative, the Contractor and any 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. A restoration "walk-through" is strongly recommended.

In many cases a site can and should be restored within hours of when the soil disturbance occurred. Oftentimes, re-accessing a site that needs to be restored only creates more disturbed area to restore. It is important to "restore as you go" to reduce the equipment travel on temporary access roads. It can be particularly difficult to restore an area that was disturbed during winter construction activities during the following spring or summer.

Likely areas of restoration will include, but are not limited to:

- a. Around substation construction areas.
- b. Around pole and anchor pole placement.
- c. At all wetland, stream, or brook crossings, particularly the approaches and any stream banks.
- d. Drainage ways or ditches.
- e. All temporary or permanent constructed roads, yarding, and staging areas.
- f. Cut banks.
- g. Steep slopes.

3.6.2 Methods for Restoration

There are several methods of restoration for different areas.

1. All soil that is excavated, mounded, or deposited during construction will be re-graded or removed from the site as directed by NPT or their designated representative. All re-grading and redistribution of soil will be done to match existing grade. Wherever practicable, to facilitate the regeneration of natural vegetation within and adjacent to protected natural resources, during the construction of substations, pull sites, and roads that causes soil disturbance, topsoil will be separated from the

mineral soil when excavating and stockpiled outside areas of concentrated flow and areas prone to flooding, and handled in accordance with the New Hampshire Department of Environmental Service (NHDES) Best Management Practices Manual For Utility Maintenance In And Adjacent To Wetlands And Waterbodies In New Hampshire (NHDRED 2010). The excavated topsoil will be replaced in close proximity to its origin and to a depth sufficient to support vegetative growth.

2. The banks and bottoms of brooks, streams, and rivers will be restored to natural conditions. In general, any material or structure used at temporary crossings will be removed, and the bank and bottoms restored to their original depth and contour.
3. On permanent access roads, stream culverts and bridges will be left intact and in good repair to remain available for maintenance operations and/or public access (woods roads, camp roads, etc.).
4. On those construction roads to be closed to future vehicle traffic (as determined by NPT or their designated representative), bridges, culverts, and other temporary crossing or water diversion structures will be removed and the banks and bottoms restored to original conditions.
5. Previously installed waterbars may remain or new ones will be installed at locations designated by NPT or their designated representative. To prevent accelerated soil erosion, waterbars will be installed on all access and construction roads to be closed to vehicle traffic and on steep sections of permanent roads. Permanent waterbars will be constructed to a sufficient height and width to divert the amount of water anticipated at each location as well as to provide some post-project permanence to the site. Waterbars on permanent roads will be constructed in such a manner that they will remain effective and require minimal maintenance, and will be permanently seeded to ensure their long-term stability.
6. All areas severely rutted by construction equipment will be re-graded and permanently revegetated.
7. Upon completion of the project, all disturbed areas will be permanently revegetated or otherwise permanently stabilized. This includes the restoration of all areas disturbed by pole installation efforts, temporary access roadways, permanent access roadways, substation construction efforts, and resource crossings. Restoration is generally assumed to be to a well-established vegetative cover. All cut and fill slopes must be revegetated, stabilized with riprap, or stabilized with erosion control mix, as appropriate to the slope conditions.
8. Liming, fertilizing, and seeding requirements for permanent re-vegetation will depend upon the soil type and drainage condition of the site. In the absence of soil tests, permanent seeding will generally be done in accordance with the "Permanent Vegetation" standards found in chapter 4 of the New Hampshire Stormwater Manual, Volume 3.
9. The contractor will be responsible for the proper maintenance of all revegetated areas until the project has been completed and accepted. Where seed areas have become eroded or damaged by construction operations, the affected areas will be promptly regraded, limed, fertilized, and re-seeded as originally required.

10. The contractor will perform all erosion control work to the complete satisfaction of NPT or their designated representative before the work is accepted. NPT or their designated representative will base acceptance of the erosion control and stabilization work on a final inspection.

3.7 Inspections and Corrective Actions

An environmental representative for the contractor and the designated Environmental Monitor will be responsible for regular and routine inspections of all areas of the ROW during all phases of construction and restoration. Inspections will be done on a regular basis across the ROW to maintain compliance with this SWPPP and the EPA's Construction General Permit (CGP). Inspections will be conducted on all construction related work areas, specifically where BMPs have been installed. Most of the erosion and sedimentation BMPs employed are temporary in nature and will require frequent inspection and maintenance to remain effective. Repairs will be performed immediately by the contractor or subcontractor when a control measure is found to be deficient.

The CGP requires inspections at least once every seven calendar days, or at least once every 14 calendar days and within 24 hours at the end of a storm event of 0.25 inch or greater. However, since the acting contractor's environmental agent and the owner's acting environmental field inspector will be on-site frequently, inspection of all high risk sites will be done on a weekly basis, and within 24 hours after each major storm event of 0.5 inch or greater, as stated in the New Hampshire Stormwater Manual, Volume 3. Inspections will verify that all required BMP's are installed correctly, maintained, and effectively minimizing pollutants in stormwater runoff from the project site(s). Further, the contractor's environmental agent will routinely evaluate general site conditions, to assess whether additional measures are needed to prevent erosion and sedimentation.

If compliance issues are identified by either the Contractor or the NPT environmental field inspector during the course of an inspection, the issue will be immediately reported to the Contractor's environmental team for corrective action. NPT's environmental field inspector will photograph and document the issues and the associated corrective action in a weekly report. If the environmental concern is determined to be a major issue, either by negligence or a repeatable offence, then the Contractor will be held in non-conformance; subject to an inquiry, and a follow up corrective action plan that outlines how the issue will not be repeated.

If inspection results indicate a need to modify the SWPPP, then the plan must be revised and implemented, as appropriate, following the inspection. All modifications must be noted on the Record of Revisions form provided in Appendix G. The inspection reports must identify any incidents of non-compliance with the Permit.

Following the completion of construction and stabilization activities, the construction inspector must conduct periodic site reviews to check that vegetation establishment is satisfactory. If vegetative cover is not adequate, then special steps to correct problems must be implemented, such as overseeding, mulching, sodding, or the use of erosion control blankets.

4.0 GOOD HOUSEKEEPING

The following practices must be followed by the project contractor(s) and subcontractor(s) to protect stormwater and surrounding surface waters from contamination. NPT contractor(s) and subcontractor(s) are responsible for the proper clean-up and removal of any and all excess construction materials, hardware, demolition debris, sediment removed from site(s), sanitary waste (portable toilets), and construction and domestic waste generated as part of the construction process.

All waste materials will be collected and properly disposed of off-site in accordance with federal, state, and municipal regulations. All personnel will be instructed, during tailgate training sessions, regarding the correct procedure for disposal of trash and construction debris.

4.1 Material Handling

Construction materials that pose a potential contamination threat (e.g., petroleum products, solvents) must be managed to minimize exposure to stormwater. Materials must be kept in secure containers and be properly labeled. Copies of the Safety Data Sheets (SDSs) must be maintained onsite.

4.2 Solid and Liquid Waste Disposal

Solid and liquid wastes, including sediment, asphalt, concrete millings, floating debris, paper, plastic, fabric, and construction and demolition debris, must be removed from the ROW and disposed of properly and in accordance with applicable Federal, State, and local disposal requirements. Waste material must be collected and stored in a secure container and removed from the Project site. Waste containers must be inspected regularly. No materials or debris will be burned or buried on the Project ROW.

4.3 Concrete Containment

Concrete washout must be contained and stored away from drainage ditches, swales, and drainage swales. A depressed area will be lined with plastic and secured with weight to prevent the plastic from moving. The contractor(s) and subcontractor(s) will coordinate with the Burns & McDonnell Site Manager on the location of the concrete containment area. The area should be periodically cleaned out and the plastic replaced. Once concrete operations are complete, all material must be removed from the site. Burial of any material on site is prohibited.

4.4 Hazardous Material

All hazardous waste materials such as oil filters, petroleum products, and equipment maintenance fluids will be store and segregated from other non-waste materials in accordance with the Spill Prevention and Response Procedures outlined in this SWPPP. All hazardous waste materials will be stored and disposed of in accordance with federal, state and municipal regulations. All personnel will be instructed, during tailgate training sessions, regarding proper procedures for hazardous waste disposal.

4.5 Sanitary Waste

Contractors and subcontractors must comply with Federal, State, and local portable toilet regulations. Each contractor and subcontractor must provide sanitary facilities for its crew(s) at the Project site(s) throughout construction. The sanitary facilities must be serviced regularly, and portable toilets should not be placed near drainage courses or in low areas. Contractors and subcontractors are responsible for having sufficient facilities to serve the number of workers onsite.

4.6 Non-Stormwater Discharges

There are a few allowable non-stormwater discharges that may be derived from the project site. NPT contractor(s) and subcontractor(s) are responsible for ensuring that these activities do not generate any unapproved discharges to stormwater. Any changes in construction activities that produce other allowable non-stormwater discharges will be identified, and the SWPPP will be amended and the appropriate erosion and sediment control will be implemented.

4.6.1 Dust Control

Dust control will be implemented as needed by the NTP contractor once site grading has been initiated and during windy conditions (forecasted or actual wind conditions of 20-mph or greater) while site grading is occurring. Spraying of potable water at a rate of 300 gallons/acre or less will be performed by a mobile pressure-type distributor truck no more than three times per day during the months of May-September, and once per day during the months of October-April, or whenever the dryness of the soil warrants.

4.6.2 Uncontaminated Air Conditioning or Compressor Condensate

Where possible, any equipment or machinery that has the potential to create uncontaminated condensate will be positioned in upland. If such equipment is necessary for work in a wetland or directly adjacent to a waterbody, it will be stationed on timber mats to allow for absorption and energy dissipation.

4.6.3 Uncontaminated Excavation Dewatering

Dewatering activities will likely be necessary at many locations during foundation work, and or as part of the structure installation process. Any necessary dewatering will be done based on site conditions at time of construction activity, and be compliant with the appropriate BMP. If the use of a typical dewatering structure (e.g. hay bale corral with filter bag or upland sediment basin) is not practical due to location (e.g. within or adjacent to a wetland), then the NPT contractor may opt for using a pre-fabricated self-contained unit (i.e. frac tank) to contain and control silt-laden water.

4.7 Vehicle Washing

Vehicle washing must not be conducted at sites of active construction. If vehicle washing is required, a designated area must be selected where runoff can be contained and disposed of properly. Concrete trucks

are not allowed to wash out or discharge surplus concrete or drum wash to waters of New Hampshire.

4.8 Water Source

Water used to establish and maintain grass, control dust, or for other construction purposes must originate from a public water supply or private well approved by the State of New Hampshire or local health department. Potable water must adhere to local and State regulations for water standards.

5.0 SPILL PREVENTION AND CONTROL

This section describes measures to prevent, control, and minimize impacts from a spill of a hazardous, toxic, or petroleum substance during construction of the proposed Project.

5.1 Material Management Practices

The proper use and storage of materials and equipment along with the use of common sense greatly reduce the potential for contaminating stormwater runoff. The following list of good housekeeping practices should be implemented during the Project:

- a. Hazardous materials, chemicals, fuels, and oils should not be stored within 100 feet of a stream bank, wetland, water supply well, spring, or other waterbody.
- b. Fueling of construction equipment should not be conducted within 100 feet of a stream bank, wetland, water supply well, spring, or other waterbody.
- c. Effort should be made to store the minimum amount of hazardous or toxic materials onsite.
- d. Onsite materials should be stored in a neat, orderly manner in appropriate containers and under a roof or other enclosure.
- e. Products should be kept in original containers with the original manufacturer's label.
- f. Substances should not be mixed with one another unless recommended by the manufacturer.
- g. Whenever possible, all of a product should be used before disposing of the container.
- h. If surplus product must be disposed of, the manufacturer's or local- and State-recommended methods for proper disposal should be followed.
- i. Open or expired surplus liquid materials (opened paint cans, partially used containers of solvent, expired epoxy materials, etc.) are the responsibility of the contractor or subcontractor to remove from the Project site.

5.1.1 Non-Petroleum Products

Due to the chemical makeup of specific products, certain handling and storage procedures are required to promote the safety of handlers and prevent the possibility of pollution. Care should be taken to follow directions and warnings for products used on the Project site. Pertinent information can be found on the SDS for each product. The SDS must be kept onsite.

5.1.2 Petroleum Products

Onsite vehicles should be monitored for leaks and receive regular maintenance to reduce the chance of leaks. Inspections for leaks or spills should occur during the weekly inspection of BMPs. Petroleum products must be stored in tightly sealed, clearly labeled containers. Preferably, the containers should be stored in a covered truck or trailer that provides secondary containment.

Bulk storage tanks having a capacity of greater than 55 gallons must be provided with secondary containment. Containment can be provided by a temporary earthen berm or other means. After each rainfall event, the site inspector must inspect the contents of the secondary containment area for excess water. If no sheen is visible, then the collected water can be pumped to the ground in a manner that does not cause scouring. If sheen is present, then the water must be treated prior to discharge. Otherwise, the contaminated water must be transported and disposed of offsite in accordance with local, State, and Federal requirements.

Bulk fuel or lubricating oil dispensers should not have a self-locking mechanism that allows for unsupervised fueling. Fueling operations should be observed to immediately detect and contain spills. No waste oil or other petroleum-based products will be disposed of onsite (e.g., buried, poured), but must be taken offsite for proper disposal.

5.2 Spill Control and Cleanup

In addition to the material management practices discussed previously, the following spill control and cleanup practices must be used to prevent stormwater pollution in the event of a spill:

1. Onsite personnel must be made aware of cleanup procedures and the location of spill equipment.
2. Spills must be reported to contractor supervisor and NPT EM immediately, contained and cleaned up immediately after discovery.
3. Manufacturer methods for spill cleanup of a material must be followed as described on the material's SDS.
4. Materials and equipment needed for cleanup procedures must be kept readily available onsite, either at an equipment storage area or on the contractors' trucks; equipment to be kept onsite should include, but not be limited to, brooms, dust pans, shovels, granular absorbents, sand, sawdust, absorbent pads and booms, plastic and metal trash containers, gloves, and goggles.

5. Toxic, hazardous, or petroleum product spills required to be reported by regulation must be documented to the appropriate Federal, State, and local agencies.
6. Spills must be documented, and a record of spills must be kept with this SWPPP.

The Federal reportable spill quantities for hazardous materials are listed in 40 CFR Part 302.4, *List of Hazardous Substances and Reportable Quantities*. A procedure for determining a reportable spill is included in Appendix H, along with a copy of the Spill Report Form to be completed as the result of a reportable spill.

Any discharge or escape of sewage, substances, materials, or wastes must immediately be reported to NHDES if it contaminates or alters, or threatens to contaminate or alter, any of the properties of the waters of the State of New Hampshire; pollute soil in a detrimental, harmful, or injurious manner; or create a nuisance.

Federal

National Response Center: 800-424-8802

EPA (Region 1) Customer Call Center: 888-372-7341

ACOE: 978-318-8335

State

NHDES Spill Response and Complaint Investigation Section (“SRCIS”)

Monday-Friday, 8 am to 4 pm 603-271-3899

Weekend and Evenings 603-223-4381 (State Police Dispatch)

6.0 ENVIRONMENTAL TRAINING

Environmental training will be required for all personnel prior to entering the Project site. There are two levels of training for environmental compliance based on supervision responsibilities. Additionally, a pre-construction walk-over of the construction site with supervisory contractor staff will be required. Training will be conducted by BMcD. (Dates, times, and locations of these trainings will be provided once training curriculum is developed and finalized.)

6.1 Level 1

Level 1 Environmental Training will be required for all personnel that will be on-site during construction. This training must be completed prior to performing work on-site and will be an overview of all environmental conditions with which trainees must comply. During the training, there will be an opportunity for the trainees to ask questions and get clarification on any items presented to them. This training will educate all field personnel on what is considered to be compliance, and what is considered to be non-compliance with environmental conditions.

6.2 Level 2

Level 2 Environmental Training will be required for personnel who will be responsible for oversight of environmental compliance, such as installation of erosion and sedimentation controls. These personnel must be identified by the contractor/sub-contractor and must attend training prior to start of work. This training will focus on detailed permit requirements and conditions, as well as site-specific aspects of the Project. The pre-construction walk-over (described below) is an integral component of Level 2 Environmental Training. Copies of permit conditions will be provided to these trainees. The contractor will provide a Level 2 Environmental Trainee for each construction area within which they or their sub-contractors are working.

6.3 Refresher Training

Yearly Environmental "Interactive" Refresher Training courses among project management staff and contractor supervisory personnel will be conducted. This will help minimize the frequency and number of environmental non-conformances, and serves as an effective mitigation measure.

6.4 Pre-construction Meetings & Walk-overs

Prior to the start of construction on any portion of the ROW and at any substation, BMcD will conduct a pre-construction meeting attended by state environmental staff, project design engineer(s), NPT environmental inspector, contractor, and the state 3rd Party Inspector.

BMcD will perform a pre-construction walk-over of the Project components with supervisory contractor staff responsible for environmental compliance, NPT environmental inspector, and the state 3rd Party Inspector. The purpose of the walk-over is to identify all sites that have potential compliance concerns

and to discuss with contractor staff their proposed strategy for addressing the issues while Project personnel are in the field and can view the information first-hand. Pre-construction walk-overs will be an ongoing process as Project components are initiated. Supervisory personnel who are hired after the start of construction are still required to do a walk-over with BMcD-approved personnel for the areas of construction they are responsible for.

7.0 OTHER STATE AND FEDERAL REQUIREMENTS

US EPA

- Construction General Permit Notice of Intent

US DOE

- Presidential Permit
- Environmental Impact Statement

USFS

- Special Use Permit (White Mountain National Forest)

US ACOE

- 404 Clean Water Act permit

NHDES

- Shoreland Permit
- 401 Water Quality Certification
- Alteration of Terrain Permit
- Standard Dredge & Fill Permit

APPENDIX A – SWPPP CERTIFICATE

APPENDIX B – GENERAL PERMIT

APPENDIX C – NOTICE OF INTENT

APPENDIX D – GENERAL VICINITY MAP

APPENDIX E – NOTICE OF TERMINATION

APPENDIX F – EROSION CONTROL DRAWINGS AND DETAILS

APPENDIX G – INSPECTION AND MAINTENANCE REPORT FORM



NORTHERN PASS TRANSMISSION LINE PROJECT

Stormwater Pollution Prevention Plan

INSPECTION AND MAINTENANCE REPORT FORM

(Permit No. _____)

Name of Permittee: _____

Construction Site Name: _____

Inspector: _____ Date: _____ Time: _____

Present Phase of Construction: _____

Site Conditions: _____

Inspection Event:

- ☐ ROUTINE EVERY 7 CALENDAR DAYS
☐ RAIN EVENT RAINFALL (record all events causing stormwater runoff): _____ inches
☐ OTHER EXPLANATION: _____

Measures & Controls	Location	In Conformance with Typical Standard	Effective Pollutant Control Practice
Construction Access		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
Silt Fence		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
Concrete Washout		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
Stabilization Measures		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
Other		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO

NON-CONFORMANCE/INEFFECTIVE POLLUTANT CONTROL PRACTICES NOTED DURING INSPECTION: (Explain each "NO" circled above)

RECOMMENDED REMEDIAL ACTIONS AND SCHEDULE OF THOSE EVENTS:

LIST OF AREAS WHERE LAND DISTURBANCE OPERATIONS HAVE PERMANENTLY OR TEMPORARILY STOPPED:

ADDITIONAL COMMENTS:

Signature: _____ Printed Name: _____

APPENDIX H – RECORD OF REVISION AND CORRECTIVE ACTION LOG

Date	Sections Modified	Description of Modification	Approval Signatures

APPENDIX I – SPILL FORMS



NORTHERN PASS TRANSMISSION LINE PROJECT

Stormwater Pollution Prevention Plan

SPILL REPORT FORM

Spill Reported By: _____
Name Phone Number

Date Reported: _____ Time: _____

Date of Spill: _____ Time: _____

Name of Facility: _____

Address or Location (e.g. structure number): _____

Town: _____ County: _____

Describe Spill Location and Events Leading to Spill: _____

Material Spilled: _____

Source of Spill: _____

Amount Spilled (Gallons or Pounds): _____

Amount Spilled to Waterway (Gallons or Pounds): _____

Nearest Municipality: _____

Containment or Cleanup Action: _____

List Environmental Damage (fish kill, etc.): _____

(OVER)

List Injuries or Personal Contamination: _____

Date and Time Cleanup Completed or Terminated: _____

If Cleanup Delayed, Nature and Duration of Delay: _____

Description of Materials Contaminated: _____

Approximate Depth of Soil Excavation: _____

Action To Be Taken to Prevent Future Spills: _____

Agencies Notified:

Local: _____

Date: _____

State: _____

Date: _____

Federal: _____

Date: _____

Notes:

Signed: _____
(Environmental Inspector or Site Superintendent)



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