

ENVIRONMENTAL WORK PLAN

for the

TRI-LAKES RELIABILITY PROJECT



November 2005

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1-1
1.1 Objectives of Project.....	1-1
1.2 Description of Route.....	1-2
1.3 Preparation of Environmental Work Plan.....	1-3
1.4 Location of Emergency Services	1-3
1.5 Regulatory Jurisdiction	1-3
1.5.1 Involved Agencies and Permits	1-3
1.5.1.1 Adirondack Park Agency (APA)	1-4
1.5.1.2 New York State Department of Transportation (NYSDOT).....	1-5
1.5.1.3 New York State Department of Environmental Conservation (NYSDEC).....	1-5
1.5.1.4 US Army Corps of Engineers (ACOE).....	1-6
1.6 Project Administration.....	1-6
1.6.1 Supervision “Chain of Command”	1-6
1.6.2 Field Construction Supervisor	1-7
1.6.3 Environmental Inspector.....	1-7
1.6.3.1 Qualifications of Environmental Inspector.....	1-8
1.6.4 Contractor	1-8
1.6.5 Contractor Training.....	1-8
2.0 SITE INFORMATION AND REGULATORY AGENCY JURISDICTION	2-1
2.1 Community Character.....	2-1
2.2 Public Services and Facilities	2-1
2.3 Rare and Endangered Species.....	2-3
2.4 Cultural Resources.....	2-3
2.5 Invasive and Nuisance Species.....	2-3
2.6 Streams, Rivers, Water Courses, and Waterbodies.....	2-4
2.7 Wetlands	2-9
2.8 Geology and Soils.....	2-17
2.8.1 Geology.....	2-17
2.8.2 Soils	2-17
3.0 CONSTRUCTION SEQUENCE.....	3-1
3.1 Pre-Construction Preparation.....	3-1
3.1.1 Pre-Construction Meeting.....	3-1
3.1.2 Safety Program.....	3-1
3.1.3 Equipment Washing.....	3-1
3.2 Construction Activities	3-1
3.3 Inspection Schedules.....	3-2

4.0	DETAILS OF ENVIRONMENTAL WORK PLAN.....	4-1
4.1	ROW Preparation.....	4-1
4.1.1	ROW Clearing Specifications.....	4-3
4.1.1.1	ROW Clearing Dimensions	4-12
4.1.1.2	Implementation of ROW Vegetation Clearing	4-12
4.1.1.3	Procedure for Utilization of the Wood Resources	4-12
4.1.2	Work Trail Construction	4-13
4.1.2.1	The Undeveloped Work Trail	4-14
4.1.2.2	Earthen Work Trail	4-15
4.1.2.3	Corduroy, Flotation Fabric, and Gravel Roads.....	4-16
4.1.2.4	Work Trail Erosion and Sediment Control Devices	4-17
4.1.2.5	Work Trail Construction Considerations	4-19
4.1.2.6	General Construction Requirements at Stream Crossings	4-23
4.1.2.7	General Construction Requirements in Wetlands.....	4-27
4.2	Transmission Line Construction	4-30
4.2.1	Powerline-Overhead and Underground Construction Description	4-30
4.2.1.1	Marshalling Yards.....	4-30
4.2.1.2	Pole Types and Installation Techniques	4-31
4.2.1.3	Stringing of Conductor	4-31
4.2.1.4	Line Cutover and Energization	4-31
4.2.1.5	Grounding of Power Pole Structures	4-32
4.2.1.6	Underground Construction.....	4-32
4.3	Post Construction Activities	4-33
4.3.1	Removal of Abandoned Poles.....	4-33
4.3.2	Restoration of Disturbed Areas.....	4-34
4.3.2.1	Stream Bank Stabilization.....	4-34
4.3.2.2	Wetland Restoration.....	4-35
4.3.2.3	ROW Restoration.....	4-38
4.3.3	NMPC ROW Management Techniques.....	4-38
4.3.3.1	Herbicide Treatment Methodologies	4-41
4.3.3.2	Buffer Zones	4-45
4.3.3.3	ROW Management for the Tri Lakes 46 kV Line	4-46
4.3.4	Maintenance of Existing Facilities.....	4-46
4.3.4.1	Maintenance of Existing Access Road and Routes.....	4-46
4.3.4.2	Maintenance of Existing Access Routes.....	4-46
4.3.4.3	Maintenance of Existing Gravel Roads	4-46
4.3.4.4	Maintenance of Existing Culverts.....	4-46
4.4	Construction Equipment, Time of Operation, and Noise Levels.....	4-47

5.0	STORMWATER CONTROLS	5-1
5.1	Objectives	5-1
5.2	Erosion and Sediment Controls Structural Practices	5-3
	5.2.1 Temporary Control Measures	5-3
	5.2.2 Permanent Control Measures	5-10
5.3	Stabilization Practice	5-11
	5.3.1 Permanent	5-12
	5.3.2 Additional Controls	5-12
	5.3.3 Conceptual Sediment Basin Sizing/Spacing Calculations	5-12
5.4	Stormwater Design Specifications	5-12
	5.4.1 Erosion Control Placement on Project	5-12
	5.4.2 Temporary Stabilization for Winter Construction/Frozen Conditions	5-12
	5.4.3 Construction Monitoring, Inspections, and Record Keeping	5-13
	5.4.4 Permanent Stormwater Management Maintenance Procedures	5-13
6.0	STANDARDS FOR RESTORATION, HANDLING OF CHEMICAL SUBSTANCES, AND SUPERVISION	6-1
6.1	Material Management/Debris Cleanup	6-1
	6.1.1 Removal of Existing Poles	6-1
6.2	Good Housekeeping and Material Management Practices	6-2
	6.2.1 Requirements for the Use of Pesticides	6-3
	6.2.2 Hazardous Material Spill Prevention Practices	6-4
	6.2.3 Management of Hazardous Material Spills/Releases	6-6
	6.2.4 Oil Spill Reporting	6-6
	6.2.5 Herbicide Spill Reporting	6-9
	6.2.6 Marshalling Yards	6-11
	6.2.7 Petroleum and Chemical Storage and Management	6-11
	6.2.8 Vehicle Maintenance Activities and Locations	6-12
	6.2.9 Sites with Deed Restrictions	6-13
6.3	Other Controls	6-14
	6.3.1 Sanitary Facilities (Portable Chemical Toilet)	6-14
	6.3.2 Off-Site Vehicle Tracking	6-14
	6.3.3 Site Cleanup and Restoration	6-14
	6.3.4 Unauthorized Dumping	6-16

LIST OF FIGURES

- Figure 1-1 Project Location Map
- Figure 2-1 Emergency Services
Figure 2-2 Stream Data Crossing Form
- Figure 3-1 Construction Schedule
- Figure 4-1 Firewood Permit Form
Figure 4-2 Marshalling Yard
Figure 4-3 Pole Types
- Figure 6-1 Spill Response Forms

EWP MAPS

Sheet 1	S1-S2
Sheet 2	S2-S3
Sheet 3	S3-S4
Sheet 4	S4-S5
Sheet 5	S5-S6
Sheet 6	S6-S7
Sheet 7	S7-S8
Sheet 8	S8-S9
Sheet 9	ALT1-ALT2
Sheet 10	ALT2-ALT3
Sheet 11	ALT3-ALT4
Sheet 12	ALT4-ALT5
Sheet 13	ALT5-ALT6
Sheet 14	ALT6-S13
Sheet 15	S13-S14
Sheet 16	P1-P2
Sheet 17	P2-P3
Sheet 18	P3-P4
Sheet 19	P4-P5
Sheet 20	P5-P6
Sheet 21	P6-P7
Sheet 22	P7-P8
Sheet 23	P8-P9
Sheet 24	P9-P10
Sheet 25	P10-P11
Sheet 26	P11
Sheet 27	N1-N2
Sheet 28	N2-N3
Sheet 29	N3-N4
Sheet 30	N4-N5
Sheet 31	N5-N6
Sheet 32	N6-N7
Sheet 33	N7-N8
Sheet 34a	N8-N9 (a)
Sheet 34b	N8-N9 (b)
Sheet 35	N9-N10
Sheet 36	N10-N11
Sheet 37	N11-N12
Sheet 38	N12-N13
Sheet 39	N13-N14
Sheet 40	N14-N15
Sheet 41	N15-N16
Sheet 42	N16-N17
Sheet 43	N17-N18

LIST OF DETAILS (Environmental Work Plan Sheets 1, 2, and 3)

Detail 1	Clearing Methods
Detail 2	Work Trail
Detail 3	Sidehill Cuts
Detail 4	Corduroy Road
Detail 5	Stabilized Construction Entrance
Detail 6	Typical Log Culvert
Detail 7	Typical French Drain
Detail 8	Stream Ford Without a Sill
Detail 9	Stream Ford With a Sill
Detail 10	Temporary Stream Crossing
Detail 11	Corrugated Steel Culvert
Detail 12	Stream Bank Stabilization
Detail 13	Silt Fence
Detail 14	Turbidity Curtain
Detail 15	Gravel and Sand Bag Check Dam
Detail 16	Rock Check Dam
Detail 17	Temporary Sediment Basin
Detail 18	Siltbag
Detail 19	Water Bar
Detail 20	Cellular Confinement System

LIST OF TABLES

Table 2-1	Regulated Watercourses – Preferred Route
Table 2-2	Regulated Watercourses – Alternate Route
Table 2-3	APA Navigable Waters
Table 2-4	Impacted Wetlands – Preferred Route
Table 2-5	Impacted Wetlands – Alternate Route
Table 2-6	Access Trail Wetland Fills – Alternate Route
Table 2-7	Access Trail Wetland Fills – Preferred Route
Table 4-1	Desirable Plant List
Table 4-2	Work Trail/Access Types
Table 4-3	Standard Product Sheet
Table 4-4	Shrubs for Planting on the Edges of Wetlands in the Project ROW
Table 4-5	Native Adirondack Plants for Landscaping
Table 5-1	Stormwater Pollution Prevention Plan Required Components

LIST OF ATTACHMENTS

Attachment 1-EWP Maps

EWP Maps

EWP Detail Sheets (1-3) for Specific Construction Activities

Attachment 2-Stormwater Pollution Prevention Plan

Notice of Intent (NOI)

Preparer Certification of Compliance

Contractor and Subcontractor Certification

SWPPP Inspection Form

SWPPP Plan Changes Authorization and Change Certification

Sediment Basin Sizing

Summary Tables of Basin Data

Attachment 3-Permits

Agency Correspondences

NYSDEC Stream Crossing Permit

APA Wetland Permit

ACOE Wetland Permit

NYSDEC SPDES Permit for Stormwater

Attachment 4-Other Documents

NYS Natural Heritage Program Letter

1.0 INTRODUCTION

On November 30, 2005, a Draft Environmental Impact Statement (DEIS) was filed with the Adirondack Park Agency (APA) and other involved agencies describing a proposed, approximately 26 mile, 46 (kilovolt) (kV) electric line needed to improve the electric reliability within the Tri Lakes region of Tupper Lake, Saranac Lake, and Lake Placid, New York. The DEIS was accompanied by the filing of required permits seeking authorization to construct the Project.

Upon completion of the State Environmental Quality Review (SEQR) process and the receipt of all required permits and approvals, Niagara Mohawk (now also known as National Grid), will construct and subsequently operate the new 46 kV facility. This document is the Environmental Work Plan (EWP) that Niagara Mohawk and its agents / contractors will follow to ensure that the 46 kV line is constructed in accordance with applicable permit and regulatory requirements to avoid, minimize, and mitigate the environmental impacts associated with construction. This EWP provides information, analysis, and drawings for both the Preferred and Alternate Routes.

This document contains descriptions of procedures to avoid or minimize the impacts of construction, which will allow the agencies to issue their respective permits. Therefore this document is a portion of the permit application and once issued will incorporate the permits as part of the overall environmental protection procedures. The document and the permits in **Attachment 3** will be used as the procedural manual for the construction of the Project. In the event of a conflict between this document and the issued permits in **Attachment 3**, the permit conditions are to be followed. This document will be appended to the contracts for construction of the 46 kV line. Any conflicts between this document and the contracts are to be addressed by the Project Engineer. Any issues or questions regarding this document or the permits are to be arbitrated by the Environmental Inspector.

1.1 Objectives of Project

In response to initiatives of elected and municipal officials and interested citizens in the Tri-Lakes Region, an Agreement was reached in September 2004 between the Villages of Lake Placid and Tupper Lake, and Niagara Mohawk and the New York Power Authority (NYPA) to help alleviate longstanding power problems in the Region through short-term and long term solutions. One of the long-term solutions required for this area, proposed by Niagara Mohawk and NYPA and included in the agreement, is an upgrade to the existing Tri-Lakes Region electric transmission facilities. This upgrade requires installing a new 46 kV line in the Adirondack Park in St. Lawrence County (see **Figure 1-1, "Project Location Map"**). The purpose of this proposal is to improve the reliability of the electric system in the region. This Project will improve reliability by tapping from the Niagara Mohawk electric grid either to the west or north but outside of the 115 kV Malone transmission system that is the current primary source for the Tri-Lakes Region. The components of this 46 kV line, which will terminate in Piercefield, include structures and right-of-way (ROW) clearing to support a reliable 46 kV line. These components meet the overall land use intensity requirements for the areas regulated by the APA.

1.2 Description of Route

The EWP has been prepared for two routes.

The proposed Project is approximately 26 miles long and consists of a combination of existing electric distribution and new 46 kV facilities sharing ROW in some locations and only new 46 kV facilities within new ROW in others. The Preferred Route begins in Parishville, NY, at a new substation that interconnects with the existing 115 kV system, and ends in Piercefield at the existing Piercefield substation (new regulator station). The Alternate Route begins in Newton Corners at a new substation and also ends at the Piercefield substation. The table below shows the length of different segments of the Preferred and Alternate Routes.

	Preferred Route	Alternate Route
Length	26.8 miles	28.2 miles
ROW with Overbuild Construction	15.6 miles	9.5 miles
Number of underground/underwater segments	0	1

The Tri-Lake Reliability Project is being built to remediate the primary deficiency in the existing transmission network which is the radial design. What this means is that the Tupper Lake area is supplied by a single 46kV circuit from the east while the entire Tri-Lakes region is served from the northeast via a single 115kV circuit supplied from the Malone Substation.

The idea of connecting to NYSEG's system further to the east does not remediate the problem for Tupper Lake and the western communities because although it is a different supply than the Malone Substation, the single 46kV circuit from Lake Colby does not change. This is why it is necessary to develop a transmission system from the north or west of Tupper Lake. A new, second 46kV supply from the west will remove the radial transmission limitations to Tupper Lake and has the added benefit of being sourced outside of the Willis & Malone substation system that already support the electrical power needs of the Tri-Lakes area.

Stream and wetland field data was collected along the Preferred and Alternate Routes and are shown in **Tables 2-1, 2-2, 2-3, and 2-4**. These data serve as documentation of stream characteristics and the basis for the selection of stream protection measures, crossing devices, methods of clearing and slash disposal, and location of access routes. The regulatory process will confirm these protective measures and modify the stream crossing techniques as part of the permitting process.

The Tri-Lakes Reliability Project is being developed in compliance with applicable state and federal environmental regulations including review under the State Environmental Quality Review Act (SEQRA) and the Adirondack Park Agency (APA) Act.

During the regulatory process, either the Preferred or Alternate Route will be chosen as the single selected route for the Project. Although the EWP and the stream and wetland tables discuss both the Preferred and Alternate Routes, the final permits will be for the single selected route.

1.3 Preparation of Environmental Work Plan

This EWP is generally based upon the Environmental Management and Construction Plan (EM&CP) practices of Niagara Mohawk. These EM&CP practices have evolved over 35 years and individually have been approved for use for other large transmission projects at voltages of 115 kV or greater including past Niagara Mohawk Projects certified pursuant to the New York State Public Service Commission's (NYSPSC) Article VII regulations. Additional methods of erosion and sedimentation control have been adapted from New York State Department of Transportation guidelines, the Adirondack Park Agency's (APA) development guide and Niagara Mohawk's experience with powerline construction Projects. This EWP will be incorporated by references into the various regulatory permits. Once approved by the regulatory agencies, this EWP will be integrated with the final construction plans and drawings and Project permits and serve as the basis for the environmental management of the construction of the Tri Lakes Transmission Line.

This EWP is based on the following key documents from Niagara Mohawk:

- Specification for Transmission ROW Access Road Construction
- Standard Environmental Management and Construction Plan for Electric Transmission Facilities
- Specifications for ROW Restoration

1.4 Location of Emergency Services

In the event of an oil spill or other chemical release at the construction site, certain emergency contacts must be made pursuant to applicable State and Federal regulations and Niagara Mohawk procedures. These contacts, which may include representatives from Niagara Mohawk, the NYSDEC, EPA, and local officials, are more fully described in Section 6.2.4. These contact numbers can also be used to report other emergency activities such as fires, vandalism, and similar events.

1.5 Regulatory Jurisdiction

1.5.1 Involved Agencies and Permits

Permits for this Project will be issued by New York State Department of Environmental Conservation (NYSDEC), New York State Department of Transportation (NYSDOT), Adirondack Park Agency (APA), and United States Army Corps of Engineers (USACOE).

In addition to the specific activity approvals, the permits include standard, regional, and site specific conditions which must be met to ensure compliance with applicable regulatory requirements.

Copies of the permits are found in **Attachment 3** of this document (if any permit has not yet been issued, it will be added to **Attachment 3** upon issuance). Niagara Mohawk and its contractors are responsible for compliance with all permit requirements and conditions and must read and understand all portions of the permit. With regard to the Stormwater Pollution Prevention Plan (SWPPP), the contractor must sign the applicable SWPPP forms and the required acknowledgment forms.

1.5.1.1 Adirondack Park Agency (APA)

The APA has regulatory control and jurisdiction over activities which may impact the following resources:

- All wetlands that are 1.0 acre or larger
- High quality wetlands
- Shorelines and shoreline clearing
- Scenic and recreational rivers
- Structures with a height over 40 feet
- Critical Environmental Areas (CEAs)

The APA has identified Critical Environmental Areas (“CEAs”) which are sensitive environmental features that are provided extra protection by the APA. These Critical Environmental Areas include wetlands, high elevations, areas around designated study rivers, State or Federal highways, and lands in proximity to certain classifications of State-owned lands such as wilderness, primitive and canoe areas.

The APA also administers protection to water quality and aesthetics of Adirondack shorelines by establishing setbacks and cutting restrictions in proximity to shoreline areas. Shoreline restrictions apply to all lakes and ponds, all rivers being studied for inclusion in the Wild, Scenic and Recreational Rivers System, and all other rivers and streams navigable by boat, including canoe. Along shorelines, cutting of trees and brush within six (6) feet of the shore is limited to up to 30 percent of the shorefront . Also, not more than 30 percent of trees in excess of six (6) inches in diameter at 4.5 feet above the ground may be cut over a 10-year period within 35 feet of the shore.

Implementation of Wild Scenic and Recreational River Act in the Adirondack Park is carried out by the APA. Rivers in the Adirondack Park classified within the Wild, Scenic or Recreational Rivers System that this Project will impact via crossing, or running parallel to the river, within the ¼ mile buffer zone include the South Branch Grasse (Alternate Route) and Raquette River (Preferred Route). The Oswegatchie River will also be crossed by the Alternate Route, and the corridor and the 46 kV line would run within a ¼ mile of this study river. Agency regulations apply to these designated rivers and lands adjoining them, up to ¼ mile from the edge of the river. The river regulations seek to protect water quality and aesthetics by:

- Establishing a 100-foot buffer strip along rivers in which vegetative cutting is highly restricted;
- Regulating bridge and road building;
- Prohibiting certain “noncompatible” uses; and
- Prohibiting new structures in Wild River areas.

The APA evaluates the visual effects of a proposed Project and also the erosion potential and control measures of a Project.

1.5.1.2 New York State Department of Transportation (NYSDOT)

The NYSDOT has jurisdiction over activities that could potentially impact State roadways and adjacent State-owned roadway rights-of-ways (ROWs). The appropriate highway occupancy permit for this Project will be issued and includes specific conditions for construction of the 46 kV line in the NYSDOT ROW and for ROW access. A single permit will be issued for all the construction activities in the NYSDOT ROW. This permit also requires specific traffic control procedures for construction in the ROW.

1.5.1.3 New York State Department of Environmental Conservation (NYSDEC)

The NYSDEC has jurisdiction over activities that impact State-protected waterbodies (stream and river crossings where the bed or banks of a regulated waterbody are impacted), State Forest Preserve lands, and USEPA Phase II Stormwater Control.

A. Stream Crossings

Regulated streams potentially impacted by Project construction of the proposed 46 kV line are identified in **Table 2-1**. Specific conditions as to the timing of crossing and stream crossing construction methods are identified in **Tables 2-1 and 2-2**. This document makes recommendations for stream crossing techniques that may be utilized at the individual streams which will be subject to specific permit conditions.

B. Environmental and Regulatory Requirements for Construction

The issued permits and this EWP set forth the environmental and regulatory requirements for the construction of the 46 kV line Project. This EWP also meets and fulfills the requirements associated with the NYSDEC’s SWPPP and General Permit 02-01 program.

In accordance with US Environmental Protection Agency (EPA) requirements, the NYSDEC has implemented a Phase II stormwater permitting program. The current program affects any electric, gas, or general construction Project with a total soil disturbance area of greater than one (1) acre and requires that such Projects obtain State Pollutant Discharge Elimination System (SPDES) coverage under NYSDEC’s SPDES General Permit for Stormwater Discharges from

Construction Activities, Permit No. GP-02-01. The Phase II GP-02-01 permit became effective on March 10, 2003 and expires January 8, 2008.

Pursuant to the NYSDEC General Permit, qualifying Projects are required to file a pre-construction Notice of Intent (NOI) form prior to the start of construction and obtain NYSDEC authorization of coverage under the General Permit. Also, the NYSDEC rules require that a SWPPP be prepared prior to the NOI filing. The SWPPP includes a detailed description of the measures to be implemented to control stormwater runoff and pollutants from the site during and after construction activities. Upon completion of construction, a Notice of Termination (NOT) form is to be filed with the NYSDEC to terminate coverage under the General Permit.

As noted above, this EWP is intended to provide both a comprehensive document for the overall management of the 46 kV line construction in accordance with the Project permits and applicable Niagara Mohawk guidance documents and procedures and to fully comply with the NYSDEC SPDES General Permit SWPPP requirements.

1.5.1.4 US Army Corps of Engineers (ACOE)

The ACOE has jurisdiction over activities that may affect waters of the United States. Waters of the United States include navigable watercourses (perennial and intermittent streams) and wetlands. The Project permit from the ACOE will authorize the crossing of waters of the United States by the 46 kV line. Existing resources and approved construction methods for work in the regulated areas are identified in **Tables 2-1 and 2-2 Regulated Watercourses** and **Tables 2-4 and 2-5 Impacted Wetlands**.

1.6 Project Administration

1.6.1 Supervision “Chain of Command”

The Niagara Mohawk Project Engineer will manage construction of the proposed 46 kV line. The Project Engineer will be supported by a Field Construction Supervisor, and an Environmental Inspector. The Environmental Inspector may be a Niagara Mohawk employee or a contracted employee. The Environmental Inspector will report both to the Niagara Mohawk Project Engineer and to Niagara Mohawk’s Environmental Compliance Licensing & Permitting Group.

These Project personnel will have the authority to direct the contractors on how work is to proceed to interpret environmental related aspects of the permits and specifications, and, for work which is not in compliance with the EWP, how to promptly bring that work into compliance. The Field Construction Supervisor and Environmental Inspector will have a direct comprehensive stop work authority. If stop work authority is implemented, the contractor will be directed to immediately suspend construction operations and secure the work in a safe and professional manner. Failure to suspend work, and/or to secure work in a safe and professional manner at any location when directed may result in dismissal of personnel or the contractor.

1.6.2 Field Construction Supervisor

A Field Construction Supervisor will report to the Niagara Mohawk Project Engineer. This individual will have overall responsibility for construction of the entire 46 kV line, the Piercefield regulator station and a new substation at Stark Falls (or Newton Falls). All construction progress reports and inspection efforts will be directed to the Project Engineer. A Project field office will be set up within the Project area.

1.6.3 Environmental Inspector

The Project will require a full-time Environmental Inspector to oversee all environmental activities including right-of way clearing and preparation, danger tree removal, construction of access roads / routes / trails as appropriate, installation and maintenance of sediment and erosion controls, permit monitoring and compliance, SWPPP monitoring and compliance, internal and external inspections and reporting, right-of way restoration and restoration of other areas disturbed by construction, landscaping (if required), and final Project close-out.

Also, the Environmental Inspector will be responsible for communicating information on the appropriateness of construction techniques as they relate to the EWP, to the Construction Supervisor, contractor crews, and all other necessary parties during all phases of construction. The Environmental Inspector will report through the Construction Supervisor to the Project Engineer and will also report indirectly to the Niagara Mohawk Forester and Niagara Mohawk Environmental Compliance, Licensing & Permitting Group's Environmental Analyst.

The Environmental Inspector will be responsible for monitoring compliance of construction activities with all environmental permits and interpretation of all environmental aspects of the Project. The Environmental Inspector and Field Construction Supervisor, as necessary, will communicate with State and Federal environmental regulators during site visits or offsite meetings regarding compliance activities. The Environmental Inspector will be responsible for documenting compliance with the EWP and permit conditions and providing required reports to the regulatory agencies.

Any construction activities that are within identified environmentally sensitive areas (stream and wetland crossings, protection of threatened and endangered species, Critical Environmental Areas, and construction in wetlands) will be directly supervised by the Environmental Inspector as determined by the Project Engineer.

The Project Environmental Inspector (or authorized representatives) will be responsible for aspects of this Project that involve the SWPPP, including site inspections. The designated individual(s) must meet the qualifications in GP-02-01 to administer and inspect sediment and erosion control facilities. A qualified individual must be a licensed professional engineer, landscape architect, soil scientist, Certified Professional in Erosion and Sediment Control (CPESC) or person whose background or experience renders them knowledgeable in the principals and practices of erosion and sediment controls. The designated individual will report to the Project Engineer.

1.6.3.1 Qualifications of Environmental Inspector

General qualifications required for the Environmental Inspector include the following:

1. A minimum of a (4) four-year degree in forestry, natural resources management, or related environmental discipline, or demonstrated equivalent knowledge and experience, including courses in ecological sciences.
2. A minimum of two (2) years experience in environmental construction management and inspection.
3. A thorough knowledge of the overall Project, documents and associated permits.
4. A thorough knowledge of Federal and State environmental laws and regulations as they pertain to this Project.

1.6.4 Contractor

One or more independent contractors will be involved in the construction of this 46 kV Project. All contractors will be required to implement this EWP and sign an SWPPP acknowledgment statement certifying that they will comply with all measures identified in the SWPPP and associated permits.

1.6.5 Contractor Training

The contractors selected to work on the Project will be required to attend a pre-construction training session prior to the start of Project construction. The session will cover construction permit compliance and will be required for, but not limited to, clearing contractors, site preparation contractors, electrical pole setting contractors and conductor stringing contractors. The contractors will be required to send the Project manager, foreman, supervisors, team leaders and erosion and sediment control superintendents, to a pre-construction meeting covering the following:

- Safety
- EWP
- Construction Plans and Drawings
- Permits
- Permit Conditions
- Chain of Command
- Project Participants
- Use of Sediment Control Measures
- Penalties for Permit Violations
- Spill Management and Reporting
- Training Schedule
- Regulatory Inspector Procedures
- Active Construction Archaeological Discovery Protocol
- Stop Work Directive

All workers involved in the Project will also have a short mandatory training meeting to cover issues related to environmental protection and compliance with permit topics including:

- Safety
- EWP
- Permits
- Permit Conditions
- Environmental Protection
- Chain of Command
- Regulatory Inspection Procedures
- Active Construction Archaeological Discovery Protocol
- Changes or Adjustments in Protocol
- Stop Work Procedures

Tailgate or lunchbox meetings will be held periodically to highlight permit compliance and safety issues.

2.0 SITE INFORMATION AND REGULATORY AGENCY JURISDICTION

Included in this section are data on both the Preferred and Alternate Routes. After completing the SEQRA and APA permitting process and either the Preferred or Alternate Route has been approved, then one or the other will be dropped from the Final EWP.

2.1 Community Character

The following section provides a brief overview of the community character along the Preferred and Alternate Routes. For additional, and more detailed information, refer to DEIS Section 3.14, Land Use.

The land use along the Preferred Route is primarily rural and forested with little residential, commercial, and industrial uses. State Routes 56 and 3 are the main roadways and there are a number of State Forest Preserves along and nearby to this route. Residential development is scattered including the small communities of Stark, Sevey Corners, Childwold, Gale, and Piercefield. Piercefield is the only community along the Preferred Route considered to be a hamlet by the APA. Along State Route 56, there are many hunting camps and a large sand and gravel operation. A small convenience store is located at Sevey Corners.

Along the Alternate Route, the majority of land is forested with pockets of residential development at Newton Falls, Cooks Corners, Sevey Corners, Childwold, Gale, and Piercefield. Newton Falls is the only community along the Alternate Route considered to be a hamlet by the APA. In Newton Falls, there is a hotel and a few small-scale commercial uses and the Newton Falls Paper Mill. Most of the land outside this community is held for timber production. State Route 3 is the primary highway along the Alternate Route.

2.2 Public Services and Facilities

As more fully described in DEIS Section 3.16, the new 46 kV line will be located within the Towns of Fine, Clifton, Colton, Parishville, and Piercefield. Public services and facilities within ten miles of the Project include the following:

Preferred Route

Colton

- Colton Pierrepont Central School, 4921 SH 56, Colton NY
- Colton Fire Department, 48 Riverside Drive, Colton
- Colton Town Hall, Wildwood Road, Colton
- Colton Museum and Historical Society, Waller Street, Colton
- Town of Colton Highway Garage, Route 56, South Colton
- Town of Colton Transfer Station, Lenny Road, Colton

Piercefield

Piercefield Town Hall, 48 Waller, Piercefield
Piercefield Highway Garage, 48 Waller, Piercefield
Piercefield Transfer Station, Route 3, Piercefield

Tupper Lake

Tupper Lake Central School, 294 Holsey Ave, Tupper Lake

Alternate Route

Clifton

Clifton-Fine Central School, 11 Hall Ave, Star Lake
Clifton-Fine Health Care Corp., 1014 Oswegatchie Trail, Star Lake
Clifton-Fine Arena, Route 3, Star Lake
Clifton-Fine Municipal Driving Range, Route 3, Star Lake

Cranberry Lake

Cranberry Lake Volunteer Fire Department, Route 3, Cranberry Lake
Cranberry Lake Community Center, Main Street, Cranberry Lake
Cranberry Lake State Park, 343 Lone Pine Road

Fine

Fine Fire Department, PO Box 4, Fine
Fine Town Hall, Star Lake
Town of Fine Highway Department, Star Lake

Newton Falls

Newton Falls Volunteer Fire Department, County Route 60, Newton Falls
Newton Falls Town Office, Newton Falls Road, Newton Falls

Star Lake

Star Lake Transfer Station, Star Lake
Star Lake Volunteer Fire Department, Route 3, Star Lake

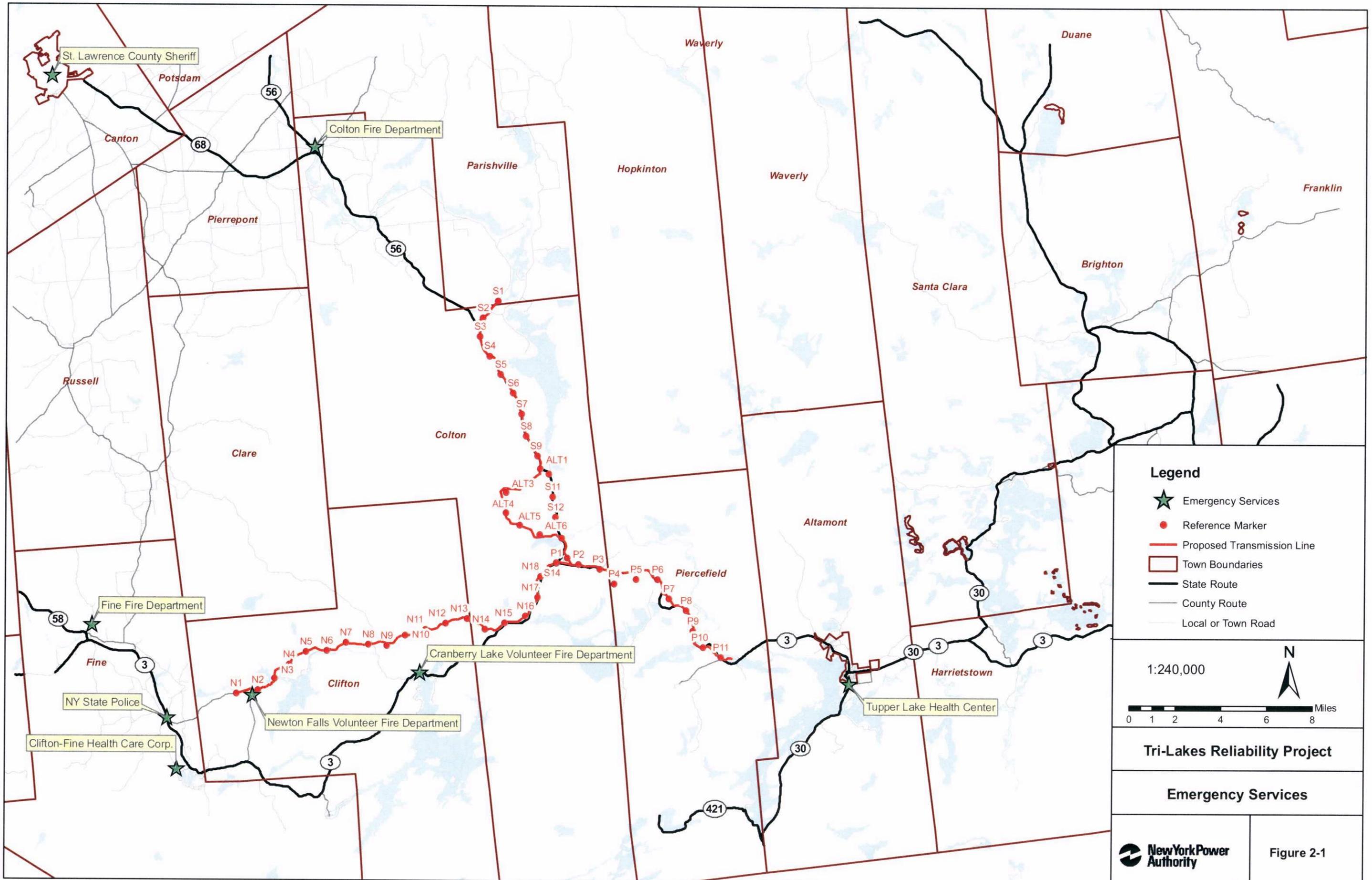
Wanakena

New York State Ranger School, 257 Ranger School Road, Wanakena

Other regional facilities include:

Franklin County Sheriff, 45 Bare Hill Road, Malone
St. Lawrence County Sheriff, 48 Court Street, Canton
Adirondack Medical Center, 2233 State Route 86, PO Box 471, Saranac Lake
Tupper Lake Health Center, 55 Church Street, Tupper Lake

Emergency services locations are shown in **Figure 2-1, “Emergency Services.”**



Legend

- ★ Emergency Services
- Reference Marker
- Proposed Transmission Line
- ▭ Town Boundaries
- State Route
- County Route
- Local or Town Road

1:240,000

0 1 2 4 6 8 Miles

N

Tri-Lakes Reliability Project

Emergency Services



Figure 2-1

2.3 Rare and Endangered Species

The DEIS for the Project includes the results of consultation with the New York Natural Heritage Program (NHP) of NYSDEC to determine the locations of known rare or endangered faunal and/or floral species along the Preferred and Alternate Routes. Locations that may be impacted are noted on the Project plans along with any required protection or avoidance measures. The Project's Environmental Inspector will advise the contractor of such information during the pre-construction meeting. The Environmental Inspector shall assure that all work affecting known active nests, dens, concentrations or individual rare or endangered species will be done in accordance with the recommendations of the appropriate State and/or Federal permitting agency. If a previously unknown nest, den, concentration or individual of a rare or endangered species is encountered, work shall be halted and the Environmental Inspector, in consultation with representatives of Niagara Mohawk, shall notify the appropriate permitting agency to determine what, if any, mitigation is required. To protect rare wildlife species, three areas have restricted work periods between May 1st-July 31st. No work may occur within the restricted areas during the identified time period. The location of the restricted access and time period for restricted activity are shown on the EWP Maps.

2.4 Cultural Resources

The DEIS also includes the results of consultation with NYS Office of Parks, Recreation and Historic Preservation (OPRHP) to determine the locations of known cultural resources along the Preferred and Alternate Routes. Locations that may be impacted are noted on the Project plans along with required protection or avoidance measures. The Project's Environmental Inspector will advise the contractor of such information during the pre-construction meeting. The Environmental Inspector shall assure that all work affecting any known cultural resources is done in accordance with SHPO recommendations. It is the responsibility of Niagara Mohawk to insure that the cultural resources investigation is complete or that SHPO approval to proceed is obtained in each area prior to construction.

If a site with archaeological significance is discovered, all work affecting the resource shall be stopped immediately and the archaeologist will be immediately contacted. After a review of the situation, the archaeologist will advise the Environmental Inspector as to the appropriate action required. Work will resume only after a proper resolution of the matter has been agreed upon by the Environmental Inspector, the Project Engineer, the archaeologist, and the OPRHP.

2.5 Invasive and Nuisance Species

The APA, NYSDOT, NYSDEC, and the Adirondack Nature Conservancy have worked together to inventory and control invasive species in the Park, especially purple loosestrife. Aquatic plant species that could potentially cause a problem are: Eurasian water milfoil, curly leaf pondweed and water chestnut. Terrestrial plant species that could potentially cause a problem are: garlic mustard, purple loosestrife, common reed grass and Japanese knotweed. Environmental construction management actions to prevent/mitigate the introduction and/or spread of invasive plant species in the Park from Project construction activities are described in Sections 5.2.1 and

5.4.2 of this EWP and are based on procedures found in the NYSDOT Environmental Procedures Manual, Section 4.8.4 (June 22, 2005).

2.6 Streams, Rivers, Water Courses, and Waterbodies

During the field site analysis survey, all stream crossings along the Preferred and Alternate Routes were inventoried. Perennial and intermittent streams and watercourses were surveyed. Where perennial streams are proposed to be crossed by the work trail, data is entered on the “Stream Crossing Data Form.” See **Figure 2-2, “Stream Data Crossing Form.”** Types of crossing devices are determined and are indicated on the spreadsheet and EWP Maps. Also noted on the EWP Maps are “Restricted Activities Areas,” “No Equipment Access Areas” and “Clearing and Slash Disposal Methods.” Information on EWP Maps will be transferred to the Project construction plans and will become part of the construction specification.

Stream characteristics that are recorded are as follows:

- Stream name and index number.
- Channel characteristics: width, water depth, stream cross-section, slope steepness, bank height.
- Stream gradient and flow.
- Channel bottom material.
- Stream bank vegetation.
- Surrounding land use.
- Stream Classification / Resource value-The resource value of a stream is initially determined by referring to the State of New York Official Compilation of Codes, Rules and Regulations, Title 6, Subchapter B: Classes and Standards of Quality and Purity Assigned to Fresh Surface and Tidal Salt Waters. Streams of high resource value, such as trout and water supply streams traversed by the 46 kV line ROW are identified in **Tables 2-1 and 2-2 Regulated Watercourses** which lists pertinent stream classification and identification information.
- Conceptual protection measures are identified in **Tables 2-1 and 2-2**, such as clearing method, slash disposal practice, restricted activities areas, equipment or no equipment access, type crossing installation, and other protection measures.

Consideration of the above data, in conjunction with a field review, is necessary to choose the appropriate stream crossing devices, methods of clearing and slash disposal, location of access routes and any special restoration measures. These data serve as documentation of stream characteristics and the basis for the selection of stream protection measures. The regulatory process will confirm these protective measures and modify the stream crossing techniques as part of the permitting process. Construction drawings, developed in conjunction with Niagara Mohawk, will finalize the position of the stream and wetland crossings.

In addition, Table 2-3, APA Navigable Waterways, shows the streams greater than 5 feet in width, and indicates whether or not the 30 percent clearing threshold is exceeded or not, according to the APA shoreline restrictions (see Section 1.5.1.1 of this document for more details).

Figure 2-2

STREAM CROSSING DATA FORM

Project: _____ Segment: _____
Observer: _____ Date: _____
Stream Name: _____
Crossing No. _____ DEC Class. _____
Between _____ and _____
Approximate date of crossing installation: _____

I. FIELD WORK

A. Channel Characteristics

1. Width, approx. _____ ft.
2. Water depth, approx. _____ ft.
3. Typical cross section (sketch)

4. Slope Steepness (both sides of stream)

_____ % slope
_____ % slope

5. Bank height (both sides of stream)

_____ ft.
_____ ft.

B. Stream Gradient and Flow

1. Gradient/Slope _____
2. Velocity:
Low ___ Med ___ High ___
3. Flow:
Small ___ Med ___ Large ___

C. Channel Bottom Material

1. Bedrock _____
2. Boulder & rubble _____
3. Gravel _____
4. Sand _____
5. Silt _____
6. Soil _____

D. Stream Bank Vegetation

(within 50' of either side of stream)

1. Hardwoods, approx. ___%
2. Softwoods, approx. ___%
3. Mixed, approx. ___%
4. Shrubs, approx. ___%
5. Crop farming ___%
6. Open field ___%
7. Impervious ___%

E. Downstream Drainage Basin Data

1. Land Use _____
2. Water bodies _____
3. Sensitive areas _____

F. Surrounding Land Use

1. Types _____
2. Aesthetics/Visibility _____

G. Resource Value

1. Recreation:
Fishing: _____
Swimming: _____
Canoeing: _____
2. Drinking water _____

	AREA NUMBER
	LOCATION
	ESTIMATED ACREAGE
	LAND USE
	COVER TYPE
	AGE CLASS
	UNDESIRABLE SPECIES
	DENSITY
	DESIRABLE SPECIES
	DENSITY
	MERCHANTABILITY
	SENSITIVE AREAS
	CLEARING TYPE
	SLASH DISPOSAL
	JUSTIFICATION
	REMARKS

SITE IDENTIFICATION

SITE ANALYSIS

SITE RECOMMENDATIONS

Table 2-1. Regulated Watercourses – Preferred Route.

Stream Identification Number	Channel Identifier ¹	Waterbody Name	Flow Regime	Legal Status ²	State Regulated (Y/N)	Stream Width (feet)	Bottom Type	Depth of Water (inches)	Flow Rate	Clearing Method	Slash Disposal Practice	Work Trail Crossing Type	Width of Protected Riparian Zone
Wild, Scenic and Recreational Regulated													
A15P910-445		Raquette River* (scenic/recreational)		B/C	Y	±350				N/A	N/A	N/A	
Article 15 Regulated													
A15P910-1061	P2-3F/G-ST	Trib. Jocks Pond Outlet	Perennial	C(T)	Y	1	-	4-8		CM-III	SD D	AT 1	100' from either side of bank
A15P910-1061	P3-1A-ST	Jocks Pond Outlet	Perennial	C(T)	Y	5-8	R	4			SD G	AT 6	
A15P910-488	S2-2D/E-ST	Cold Brook	Perennial	C(T)	Y	3-5	S	6	Moderate		SD G	AT 6	
A15P910-488	S3-3J/K-ST	Trib. Cold Brook	Perennial	C(T)	Y	6-10	S, M	12-24	Slow		SD G	AT 6	
A15P910-517	S5-3A-ST	Trib. Felton Brook	Perennial	C(T)	Y	3	S, G	12	Moderate		SD G	AT 6	
A15P910-517	S5-3D/E-ST	Felton Brook	Perennial	C(T)	Y	2-3	S, G	6-12	Moderate		SD G	AT 6	
A15P910-572	S9-2A/B-ST	Trib. Carry Falls Reservoir	Perennial	C(T)	Y	3-5	G, S	6	Moderate		SD G	AT 6	
A15P910-572	S9-2C/D-ST	Trib. Carry Falls Reservoir	Perennial	C(T)	Y	3-5	M	6			SD G	AT 6	
A15P910-572	S9-2G/H-ST	Trib. Carry Falls Reservoir	Perennial	C(T)	Y	10-15	G	36	Slow		SD G	AT 6	
A15P910-587	S13-3B/C-ST	Trib. Raquette River	Perennial	C(T)	Y	40	-	-			SD G	AT 1	
A15P910-1053	Alt4-2F/G-ST	Trib. Grasse River	Intermittent	C(T)	Y	4*	M, S	24			SD G	AT 4	
A15P910-1051	Alt 5-2A-ST	Trib. Windfall Brook	Perennial	C(T)	Y	3	S	2	Slow		SD G	AT 1	
A15P910-581	Alt2-6C/D-ST	Trib. Crooked Lake	Intermittent	C(T)	Y	1-4	C	2-5	Slow, Moderate		SD D	AT 1	
Clean Water Act Section 404 Regulated													
N/A	P3-1D-ST	Jocks Pond Outlet	Intermittent	N/A	N	3	C, G, S	Dry		CM-III	SD F	AT 6	50' from either side of bank
N/A	P7-1C-ST	Unnamed	Perennial	N/A	N	2	C, G, M	5			SD G	AT 6	
N/A	P8-1A-ST	Unnamed	Perennial	N/A	N	2-3	C, G	6			SD D	AT 6	
N/A	P8-1B-ST-A	Unnamed	Intermittent	N/A	N	1-2	M	3			SD G	AT 6	
A15P910-610	P9-2B-ST	Trib. Dead Creek	Perennial	C	N	5-6	M	6-12	Stagnant		SD G		
A15P910-610	P9-2C/D-ST	Trib. Dead Creek	Perennial	C	N	3-5	M	6	Stagnant		SD G		
A15P910-610	P9-2E-ST	Dead Creek	Perennial	C	N	30	M, S	36	Stagnant-Slow		SD G	AT 6	
N/A	P5-3A/B-ST	Unnamed	Perennial	N/A	N	2-3	M	8	Slow		SD G	AT 6	
N/A	P8-2C-ST	Unnamed	Perennial	N/A	N	1	M, B	3	Slow		SD G		
A15P910-608	P8-1B-ST	Unnamed	Perennial	D	N	2-3	S, C, G	6			SD G	AT 6	
N/A	S3-3C/D-ST	Trib. Cold Brook	Perennial	N/A	N	1-3	S, G, M	5-8	Moderate		SD G	AT 6	
N/A	S3-3F-ST	Trib. Cold Brook	Intermittent	N/A	N	1	-	4-6			SD G	AT 6	
N/A	S3-3I-ST	Trib. Cold Brook	Intermittent	N/A	N	4*	-	-			SD G	AT 6	
N/A	S4-3A-ST	Trib. Cold Brook	Intermittent	N/A	N	1-3	S, G, M	6-12	Slow	SD G	AT 6		
N/A	S5-3B/C-ST	Trib. Felton Brook	Perennial	N/A	N	1-2	S, G	4-12	Moderate	SD G	AT 6		
N/A	S9-2K-ST	Trib. Carry Falls Reservoir	Intermittent	N/A	N	2-3	M	Dry	Stagnant		AT 6		
N/A	S13-1A/B-ST	Unnamed	Intermittent	N/A	N	2-5	M	Dry		SD G	AT 1		
N/A	Alt 5-2T/U-ST	Trib. Windfall Brook	Perennial	N/A	N	2-5	M	3-6	Slow	SD G	AT 1		
N/A	Alt 5-2Q/R-ST	Trib. Windfall Brook	Perennial	N/A	N	4*	-	-		SD G	AT 1		
Photo Interpreted Streams													
N/A	P11-4B-ST	Trib. Raquette River	Intermittent	N/A	N	-	-	-		CM-III	SD G	AT 1	50' from either side of bank
N/A	P11-4A-ST	Trib. Raquette River	Perennial	N/A	N	-	-	-			SD G	AT 1	
A15P910-624	P11-4C-ST	Trib. Raquette River	Intermittent	D	N	10	S, G, B	12-24			SD G	AT 1	
A15P910-1053	Alt2-4B-ST	Unnamed	Perennial	C(T)	Y	-	-	-			SD D	AT 1	100' from either side of bank

*No datasheet, centerline taken, assumed <5 feet

Table 2-2. Regulated Watercourses – Alternate Route.

Stream Identification Number	Channel Identifier ¹	Waterbody Name	Flow Regime	Legal Status ²	State Regulated (Y/N)	Stream Width (feet)	Bottom Type	Depth of Water (inches)	Flow Rate	Clearing Method	Slash Disposal Practice	Work Trail Crossing Type	Width of Protected Riparian Zone
Wild, Scenic and Recreational Regulated													
A15P910-1091	N3-3A-ST	Oswegatchie River *^	Perennial	A(T); Study River	Y	230	S, C	-	Moderate	CM-III	SD D	AT 1	
A15P910-1034	N11-2E/F-ST	South Branch Grasse River	Perennial	C(T); Scenic	Y	4*	-				SD G	AT 1	
A15P910-1034	N11-2J/K-ST	South Branch Grasse River	Perennial	C(T); Scenic	Y	45	S, B	5	Moderate		SD G	AT 1	
Article 15 Regulated													
A15P910-1091	N2-1G/H-ST	Trib. Oswegatchie River	Perennial	A(T); Study River	Y	5	S, G, B	6-12	Moderate	CM-III	SD D	AT 1	100' from either side of bank
A15P910-1091	N6-2C-ST	Trib. Oswegatchie River	Perennial	A(T)	Y	3-4	S	6	Slow		SD D	AT 1	
A15P910-1091	N6-2D-ST	Trib. Oswegatchie River	Intermittent	A(T)	Y	1	M	6	Slow		SD D	AT 1	
A15P910-1049	Alt C-1A/B-ST	Dead Creek	Intermittent	C(T)	Y	2-4	S, G	2-6	Slow		SD G	AT 1	
A15P910-1049	N9-1B/C/D-ST	Trib. Dead Creek	Perennial	C(T)	Y	3-4	M, G	24-36	Slow		SD G	AT 1	
A15P910-1049	N10-1A/B-ST	Trib. Dead Creek	Perennial	C(T)	Y	13	-	-			SD G	AT 1	
A15P910-1049	N10-2A-ST	Trib. Dead Creek	Perennial	C(T)	Y	1-3	S, M	1-8	Slow		SD G	AT 1	
A15P910-1049	N12-3A-ST	Dead Creek	Perennial	C(T)	Y	15	S, G	3	Rapid		SD G	AT 1	
A15P910-1034	N13-3A/B-ST	Trib. South Branch Grasse River	Perennial	C(T)	Y	2-4	S, G	1-2	Moderate		SD G	AT 1	
Clean Water Act Section 404 Regulated													
N/A	N1-1B-ST	Trib. Oswegatchie River	Perennial	N/A	N	2-3	C, G, V	6		CM III	SD G	AT 6	50' from either side of bank
N/A	N1-1C/D-ST	Trib. Oswegatchie River	Perennial	N/A	N	2-3	C, G, V	6			SD G	AT 6	
N/A	N1-1J/K-ST	Trib. Oswegatchie River	Perennial	N/A	N	2-3	M	6			SD G	AT 6	
A15P910-1582	N5-2C/D-ST	Tooley Pond Outlet	Perennial	D	N	155	S, M	-			SD D	AT 1	
A15P910-1582	N5-2E/F-ST	Trib. Tooley Pond Outlet	Perennial	D	N	5-20	M	6	Slow		SD D	AT 1	
N/A	N2-1A/B-ST	Trib. Oswegatchie River	Intermittent	N/A	N	4*	-	-			SD D	AT 1	
N/A	N2-1C/D-ST	Trib. Oswegatchie River	Intermittent	N/A	N	1	S, G	6			SD D	AT 1	
N/A	N4-3A/B-ST	Trib. Moosehead Pond Outlet	Intermittent	N/A	N	2-4	G	6	Slow		SD D	Ford	
N/A	N4-3C-ST	Trib. Moosehead Pond Outlet	Intermittent	N/A	N	3	G	4	Slow		CM I	SD F	
N/A	N4-3D/E-ST	Trib. Moosehead Pond Outlet	Perennial	N/A	N	2-4	S, G	4	Slow	CM III	SD D	AT 1	
N/A	N6-2B-ST	Trib. Oswegatchie River	Intermittent	N/A	N	1-2	M	0	N/A		SD D	AT 1	
N/A	N6-2N-ST	Trib. Oswegatchie River	Intermittent	N/A	N	5	-	-			SD D	AT 1	
N/A	N7-1A/B-ST	Trib. Oswegatchie River	Intermittent	N/A	N	4*	-	-		SD D	AT 1		
N/A	N7-1C-ST	Trib. Oswegatchie River	Intermittent	N/A	N	1-3	G, S	0.5	Moderate	CM I	SD F	Ford	
N/A	N7-1D-ST	Trib. Oswegatchie River	Intermittent	N/A	N	2-3	G	1		CM I	SD F	Ford	
N/A	N7-1E/F/G-ST	Unnamed	Intermittent		N	1-3	S, M	12-36		CM III	SD D	AT 1	
N/A	Alt C-1G-ST	Trib. Dead Creek	Perennial	N/A	N	4*	-	-			SD G	AT 1	
N/A	N9-1F-ST	Trib. Dead Creek	Intermittent	N/A	N	1-2	S, G	-			SD G	AT 1	
N/A	N9-1G-ST	Trib. Dead Creek	Intermittent	N/A	N	4*	-	-			SD G	AT 1	
N/A	N11-2E/F-ST	Trib. South Branch Grasse River	Intermittent	N/A	N	4*	-	-			SD G	AT 1	
N/A	N14-3A-ST	Trib. South Branch Grasse River	Intermittent	N/A	N	4*	-	-			SD G	AT 1	
Photo Interpreted Streams													
A15P910-1090	N1-1G-ST	Trib. Oswegatchie River	Perennial	C	N	5	C, G	4		CM III	SD D	AT 1	50' from either side of bank
A15P910-1090	N1-1H/I-ST	Trib. Oswegatchie River	Perennial	C	N	3-4	S, G	6-12		CM III	SD G	At 6	
N/A	N1-1M-ST	Trib. Oswegatchie River	Perennial	N/A	N	4*	--	--		CM III	SD D	AT 1	
A15P910-1582	N7-4A-ST	Trib. Tooley Pond Outlet	Perennial	D	N	-	-	-		CM I	SD F	AT 6	
A15P910-1585	Alt C-1J/K	Trib. Oswegatchie River	Perennial	C(T)	Y	3-5	S, M	18-24		CM I	SD F	Ford	
A15P910-1051	N17-4B-ST	Windfall Brook	Perennial	C(T)	Y	-	-	-		CM III	SD D	AT 1	100' from either side of bank
A15P910-1051	N18-4B-ST	Windfall Brook	Perennial	C(T)	Y	-	-	-		CM III	SD D	AT 1	
A15P910-1051	N18-4C-ST	Windfall Brook	Perennial	C(T)	Y	-	-	-		CM III	SD D	AT 1	

*No datasheet, centerline taken, assumed <5 feet

1 Channel IDs are names arbitrarily assigned to streams that cross the proposed Project and indicate approximate locations along the transmission route.

2 Streams are classified according to best usage under 6 NYCRR Part 701 as follows:
Class A: waters are suitable for drinking, primary and secondary contact recreation and fishing, and for the survival and propagation of fish;
Class B: waters are suitable for primary and secondary contact recreation and fishing, and for the survival and propagation of fish;
Class C: waters are suitable for fishing, and for the survival and propagation of fish;
Class D: waters are suitable for fishing.
Stream classifications modified by the standard (T), as in C(T), indicate that it may support a trout population.

- * Section 10 Federally Navigable Waters
- ^ Pending Classification (Scenic and Recreational Rivers Act)
- U Underground
- A Above Ground
- B Boulders
- C Cobble
- G Gravel
- M Muck
- V Vegetation
- S Sand

PSS = Palustrine Shrub/Scrub
PFU = Palustrine Forested
PEM = Palustrine Emergent

A threshold of greater than 5 feet in width was set for streams to indicate that they are APA Navigable waterways.

Table 2-3. APA Navigable Waters.

Stream Identification Number	Channel Identifier	Waterbody Name	Stream Width (feet)	Bank Height (inches)	Notes
A15P910-610	P9-2B-ST	Trib. Dead Creek	5-6	6-12	Crossing in NYSDOT ROW already cleared
A15P910-610	P9-2E-ST	Dead Creek	30	36	Crossing in NYSDOT ROW
A15P910-488	S3-3K-ST	Trib. Cold Brook	6-10	12-24	Clerical Medical Forest (1,455 ac) 650' frontage
A15P910-572	S9-2G/H-ST	Trib. Carry Falls Reservoir	10-15	36	Lassiter Properties, Inc. (446.5 ac) North Crossing-470' frontage South Crossing-600' frontage
A15P910-582	S11-1E/F-ST	Trib. Raquette River	5	5	No crossing-out of study
A15P910-1091	N2-1G/H-ST	Trib. Oswegatchie River	5	6-12	Newstech NY, Inc. (1,515 ac) ±1,200 ft. frontage
A15P910-1091	N3-3A-ST	Oswegatchie River	300	?	Orion Power New York GP II, Inc. (667.3 ac) >250' frontage
A15P910-1582	N5-2E/F-ST	Trib. Tooley Pond Outlet	5-20	6	Orion Power New York GP II, Inc. (667.3 ac) >250' frontage
A15P910-1585	N8-1G-ST	Trib. Tooley Pond Outlet	60	3	Marc A. Thibert (1.5 ac) 115' frontage ±50' to be cleared = 43%
					Bruce Thompson (1.6 ac) 117' frontage 26' to be cleared = 22%
A15P910-1034	N11-2J/K-ST	South Branch Grasse River	40	5	Clerical Medical Forest (3,278.3 ac)
A15P910-1049	N12-3A-ST	Dead Creek	15	3	>250' frontage at both crossings

2.7 Wetlands

State and Federal wetlands potentially impacted by the Project are identified in **Section 3.8** of the DEIS and summarized in **Tables 2-4 and 2-5 Impacted Wetlands**. The table identifies each wetland by its assigned Project identification number and regulatory status. The width of the wetland, wetland type, clearing method, slash disposal practice and buffer zone are included on Tables 2-4 and 2-5, “Impacted Wetlands.” Wetlands were identified/delineated by utilizing the Army Corp of Engineers 1987 Wetland Identification Manual. If the wetland segment is larger than one acre or is connected to a previously identified State wetland, it is identified as both a State and a Federal wetland.

The Project’s wetland impacts are shown below. There are 0.18 acres of proposed wetland fills for the Preferred Route work trails in the ALT 2-3 section, and 0.32 acres anticipated for the Alternate Route. There are 13.7 acres of wetland clearing anticipated for the Preferred Route and 20.2 acres of wetland clearing anticipated for the Alternate Route.

Description	Route	
	Stark Falls to Piercefield	Newton Falls to Piercefield
Total ROW Length	26.8 miles	28.2 miles
Total ROW Acres Cleared	119.4 acres	173.5 acres
ROW Wetland Acres Cleared	13.7 acres	20.2 acres
Wetland Fills	0.18 acres	0.32 acres
Additional Off-ROW Work Trail Clearing	3.05 acres	12.15 acres

The jurisdictional status of delineated wetlands was determined by measuring the distance between APA wetlands and the delineated wetland. For delineated wetlands which touched, overlapped, or were within 165 feet (Article 24-0105.7) of an APA cover type wetland, they were determined to be an APA wetland. If a delineated wetland did not meet this criteria, it was determined to be an ACOE wetland. In addition to jurisdictional status, connection to waterways was determined. Regardless of jurisdictional status, if a delineated wetland was within 165 feet of a waterway, it was determined to be connected. See Tables 2-4 and 2-5.

Table 2-6 “Access Trail Wetland Fills – Alternate Route” quantifies the total wetland fills necessary to construct the access trails for transmission line access. The Alternate Route will require approximately 13,995 square feet (0.32 acres) of wetland fills for the access trails. **Table 2-7 “Access Trail Wetland Fills – Preferred Route”** quantifies the total wetland fills necessary to construct the access trails for transmission line access. The Preferred Route will impact only 8,256 square feet (0.18 acres) of wetlands in the location of the bump out along Route 56.

Table 2-4. Impacted Wetlands – Preferred Route.

Channel Identifier	Wetland Type	Connection to Other Waterways	APA or ACOE Jurisdictional Status	Wetland Clearing Impact (acres)	Wetland Length Along ROW (feet)	Access* Trail Type	Clearing* Method	Slash Disposal* Practice	Wetland Fill Impacts
P1-3A/B	PFO/PSS	N	APA	0.08	65	AT 1	CM III	SD D	
P1-3C/D	PSS	N	APA	0.09	80	AT 1	CM III	SD D	
P1-3E	PFO/PSS	N	APA	0.01	32	AT 1	CM III	SD D	
P2-3A/B/C	PFO/PSS	N	ACOE	0.01	30	AT 2	CM I	SD F	
P2-3F/G	PFO/PSS	N	APA	0.04	40	AT 1	CM III	SD D	
P2-3H/I/J	PSS	N	ACOE	0.22	181	AT 1	CM III	SD D	
P2-3K	PSS	N	APA	0.24	192	AT 1	CM III	SD G	
P3-1A/B/C	PSS	Y	APA	1.19	1,061	AT 6	CM III	SD G	
P5-3A/B	PSS/PEM	N	ACOE	0.01	11	AT 6	CM III	SD G	
P6-3A	Brush	N	ACOE	0.06	77	AT 6	CM III	SD G	
P6-3B/C	PFO	N	ACOE	0.30	448	AT 6	CM III	SD G	
P7-1A	PSS/PEM	N	APA	0.13	319	AT 6	CM III	SD G	
P7-1B	PSS/PEM	N	APA	0.00	2	AT 6	CM III	SD G	
P7-1C	PSS/PEM	N	APA	0.03	85	AT 6	CM III	SD G	
P8-1A	PEM	N	APA	0.04	141	AT 1	CM III	SD D	
P8-1B	PFO	Y	APA	0.30	451	AT 6	CM III	SD G	
P8-1C	PFO	Y	APA	0.02	57	AT 6	CM III	SD G	
P8-2A	PEM/PFO	N	ACOE	0.01	29	AT 6	CM III	SD G	
P8-2B	PEM	N	ACOE	0.05	62	AT 6	CM III	SD G	
P8-2C	PFO	N	ACOE	0.00	26	AT 6	CM III	SD G	
P8-2D	PEM/PSS	N	ACOE	0.01	19	AT 6	CM III	SD G	
P9-2A	PEM	N	ACOE	0.02	33	AT 6	CM III	SD G	
P9-2B/C/D	PSS	Y	APA	0.45	514	AT 6	CM III	SD G	
P9-2F	PSS	Y	APA	0.00	7	AT 6	CM III	SD G	
P9-2H	PSS	Y	APA	0.03	84	AT 6	CM III	SD G	
P9-2I	PFO/PSS	N	ACOE	0.06	104	AT 6	CM III	SD G	
P11-4A	PSS	Y	APA	0.15	171	AT 1	CM III	SD G	
P11-4C	PFO/PSS/PEM	Y	APA	0.09	57	AT 1	CM III	SD G	
S2-2A	PFO/PEM	N	ACOE	0.08	103	AT 1	CM III	SD D	
S2-2B	PFO/PSS	Y	APA	0.11	171	AT 6	CM III	SD G	
S2-2D/E	PSS	Y	APA	0.08	124	AT 6	CM III	SD G	
S2-3A	PFO/PEM	Y	APA	0.20	293	AT 6	CM III	SD G	
S2-3B	PFO	Y	APA	0.10	161	AT 6	CM III	SD G	
S3-3A/B	PFO	Y	APA	0.20	228	AT 6	CM III	SD G	
S3-3C/D	PFO	Y	APA	0.26	427	AT 6	CM III	SD G	
S3-3E	PFO	Y	APA	0.09	164	AT 6	CM III	SD G	
S3-3F	PFO	N	ACOE	0.19	273	AT 6	CM III	SD G	
S3-3G	PFO	N	ACOE			AT 6	CM I	SD F	
S3-3H	PFO/PEM	N	ACOE	0.02	36	AT 6	CM III	SD G	
S3-3I	PEM	N	ACOE	0.01	11	AT 6	CM III	SD G	
S3-3J/K	PFO/PSS	Y	APA	0.30	307	AT 6	CM III	SD G	
S3-3L	PEM	N	ACOE	0.00	10	AT 6	CM III	SD G	

*See Legend on Page 2-15.

Channel Identifier	Wetland Type	Connection to Other Waterways	APA or ACOE Jurisdictional Status	Wetland Clearing Impact (acres)	Wetland Length Along ROW (feet)	Access* Trail Type	Clearing* Method	Slash Disposal* Practice	Wetland Fill Impacts
S4-3A	PFO	Y	APA	0.09	160	AT 6	CM III	SD G	
S4-3B	PFO	N	ACOE	0.01	60	AT 6	CM III	SD G	
S5-3A	PSS	N	APA	0.19	241	AT 6	CM III	SD G	
S5-3B/C	PEM	N	APA	0.01	20	AT 6	CM III	SD G	
S5-3D/E	PFO	Y	APA	0.49	717	AT 6	CM III	SD G	
S5-3F/G	PFO/PEM	N	ACOE	0.17	357	AT 6	CM III	SD G	
S6-3A	PFO/PEM	Y	APA	0.11	162	AT 6	CM III	SD G	
S6-3B/C	PFO/PEM	Y	APA	0.27	353	AT 6	CM III	SD G	
S6-3D	PEM	Y	APA	0.07	138	AT 6	CM III	SD G	
S6-3E	PEM	N	ACOE	0.00	37	AT 6	CM III	SD G	
S7-3A/B	PEM	Y	APA	0.35	666	AT 6	CM III	SD G	
S7-3C	PEM	N	APA	0.11	202	AT 6	CM III	SD G	
S7-3D	PEM	N	ACOE	0.02	31	AT 6	CM III	SD G	
S7-3E	PEM	N	ACOE	0.09	117	AT 6	CM III	SD G	
S7-3F	PSS	N	ACOE	0.08	105	AT 6	CM III	SD G	
S7-3G	PEM	N	ACOE	0.08	92	AT 6	CM III	SD G	
S7-3H/I	PFO	N	ACOE	0.05	87	AT 6	CM III	SD G	
S7-3J/K	PEM	Y	APA	0.07	571	AT 6	CM III	SD G	
S8-3A	PEM	N	ACOE	0.16	202	AT 6	CM III	SD G	
S8-3B	PEM	N	ACOE	0.04	46	AT 6	CM III	SD G	
S8-3C	PFO/PEM	N	APA	0.08	125	AT 6	CM III	SD G	
S8-3D	PFO/PEM	N	APA	0.08	126	AT 6	CM III	SD G	
S8-3E/F	PFO/PEM	N	APA	0.60	816	AT 6	CM III	SD G	
S9-2E/F	PFO	Y	ACOE	0.08	122	AT 6	CM III	SD G	
S9-2J	PEM/PFO	Y	ACOE	0.06	84	AT 6	CM III	SD G	
S9-2L/M	PFO	N	ACOE	0.04	66	AT 6	CM III	SD G	
S13-1A/B	PFO	N	ACOE	0.14	84	AT 1	CM III	SD G	
S13-1C/D	PFO/PEM	N	ACOE	0.15	88	AT 1	CM III	SD D	
S13-1E/F	PFO/PEM	N	ACOE	0.15	88	AT 1	CM III	SD D	
S13-3A	PFO	N	ACOE	0.06	33	AT 1	CM III	SD G	
S13-3B/C/D	PFO	Y	APA	1.61	929	AT 1	CM III	SD G	
Alt1-2A/B	PFO/PEM	Y	APA	0.44	253	AT 1	CM III	SD D	
Alt1-2C	PEM	N	ACOE	0.00	11	AT 1	CM III	SD D	
Alt2-2A/B	PEM	N	ACOE	0.06	40	AT 1	CM III	SD D	
Alt2-6A/B	PFO/PEM	Y	APA	0.10	58	AT 1	CM III	SD D	0.02 acres
Alt2-6C/D	PFO/PEM	Y	APA	0.05	32	AT 1	CM III	SD D	0.01 acres
Alt2-6E/F	PFO/PEM	N	ACOE	0.34	195	AT 4	CM III	SD D	0.07 acres
Alt2-6G-Alt3-6A	PFO/PEM	N	ACOE	0.29	168	AT 4	CM III	SD D	0.06 acres
Alt3-6C/D	PEM	N	ACOE	0.11	63	AT 4	CM III	SD D	0.02 acres
Alt3-2A/B	PFO/PEM	N	APA	0.06	195	AT 1	CM III	SD D	
Alt3-4B	PFO/PSS	Y	APA	0.04	23	AT 1	CM III	SD D	
Alt3-4C	PFO/PSS	Y	APA	0.03	16	AT 1	CM III	SD D	
Alt4-2A	PEM/PFO	N	ACOE			AT 1	CM III	SD G	
Alt4-2B	PEM	N	ACOE	0.00	16	AT 1	CM III	SD G	
Alt4-2C	PEM/PFO	N	ACOE			AT 1	CM III	SD G	
Alt4-2D/E	PFO/PEM	Y	APA	0.01	89	AT 1	CM III	SD G	
Alt4-2F/G	PFO	Y	APA	0.63	394	AT 1	CM III	SD G	
Alt5-2A/B/C/D/E/F/G/H/I/J/K	PFO/PSS/PEM	Y	APA	0.01	18	AT 1	CM III	SD G	

*See Legend on Page 2-15.

Channel Identifier	Wetland Type	Connection to Other Waterways	APA or ACOE Jurisdictional Status	Wetland Clearing Impact (acres)	Wetland Length Along ROW (feet)	Access* Trail Type	Clearing* Method	Slash Disposal* Practice	Wetland Fill Impacts
Alt5-2M/N	PSS/PEM	N	ACOE	0.01	71	AT 1	CM III	SD G	
Alt5-2O/P	PFO/PEM	Y	APA	0.01	32	AT 1	CM III	SD G	
Alt5-2Q/R	PEM/PFO	Y	APA	0.00	22	AT 1	CM III	SD G	
Alt5-2S	PSS/PFO	Y	APA			AT 1	CM III	SD G	
Alt5-2T/U	POW	N	APA	0.03	43	AT 1	CM III	SD G	
Alt5-2V/W	PEM/PFO	N	ACOE	0.02	35	AT 1	CM III	SD G	
Alt5-2X/Y	PFO	N	ACOE	0.00	32	AT 1	CM III	SD G	
Alt5-3A/B	PFO	Y	APA	0.61	388	AT 1	CM III	SD G	
Alt6-3B	PSS	Y	APA	0.06	70	AT 1	CM III	SD G	

*See Legend on Page 2-15.

Table 2-5. Impacted Wetlands – Alternate Route.

Channel Identifier	Wetland Type	Connection to Other Waterways	APA or ACOE Jurisdictional Status	Wetland Clearing Impact (acres)	Wetland Length Along ROW (feet)	Access* Trail Type	Clearing* Method	Slash Disposal* Practice	Wetland Fill Impacts
N1-1B	PSS/PEM	N	ACOE	0.28	353	AT 6	CM III	SD G	0
N1-1C/D	PSS/PEM	Y	APA	0.66	568	AT 6	CM III	SD G	0
N1-1G	PSS	Y	ACOE	0.05	60	AT 1	CM III	SD D	0
N1-1H/I	PEM	Y	ACOE	0.09	127	AT 6	CM III	SD G	0
N1-1L	PFO/PEM	Y	ACOE	0.02	39	AT 1	CM III	SD D	0
N1-1M	PEM	Y	ACOE	0.04	53	AT 1	CM III	SD D	0
N2-1A/B	PFO	N	ACOE	0.01	9	AT 1	CM III	SD D	0
N2-1C/D	PFO	N	ACOE	0.07	41	AT 1	CM III	SD D	0
N2-1E/F	PFO	N	ACOE	0.03	21	AT 1	CM III	SD D	0
N2-1G/H	PSS	N	ACOE	0.05	28	AT 1	CM III	SD D	0
N2-1I/J	PFO	N	ACOE	0.09	61	AT 1	CM III	SD D	0
N2-1K	PSS	Y	ACOE	0.07	43	AT 1	CM III	SD D	0
N3-3A	PFO	Y	ACOE	0.02	10	AT 1	CM III	SD D	0
N3-3B/C	PFO	N	ACOE	0.15	90	AT 1	CM III	SD D	0
N3-3D/E	PFO	N	ACOE	0.07	45	AT 1	CM III	SD D	0
N3-3F/G	PFO	N	ACOE	0.51	301	AT 1	CM III	SD D	0
N3-3H/I/J/K	PFO/PEM	Y	APA	0.53	297	AT 4	CM III	SD D	0.10 acres
N4-2A/B	PFO	N	ACOE	0.02	12	AT 1	CM III	SD D	0
N4-2C/D	PFO/PEM	N	ACOE	0.24	198	AT 1	CM III	SD D	0
N4-3D/E	PFO	N	ACOE	0.11	67	AT 1	CM III	SD D	0
N4-3F/G	PFO	N	ACOE	0.13	78	AT 1	CM III	SD D	0
N5-2A/B	PFO/PEM	Y	ACOE	1.10	640	AT 1	CM III	SD D	0
N5-2D	PFO/PSS/PEM	Y	ACOE	0.06	32	AT 1	CM III	SD D	0
N5-2G/H	PSS/PFO	N	ACOE	0.16	88	AT 1	CM III	SD D	0
N5-2I/J	PFO	N	ACOE	0.38	223	AT 1	CM III	SD D	0
N5-2K/L	PFO/PEM	N	ACOE	0.11	63	AT 1	CM III	SD D	0
N6-2A/B	PFO	N	ACOE	0.57	347	AT 1	CM III	SD D	0
N6-2C/D	PEM/PSS	N	ACOE	0.12	65	AT 1	CM III	SD D	0
N6-2E/F	PEM/PSS	N	ACOE	0.30	208	AT 1	CM III	SD D	0
N6-2G/H	PFO	N	ACOE	0.15	83	AT 1	CM III	SD D	0
N6-2I/J	PSS	N	ACOE			AT 1	CM III	SD D	0
N6-2K/L	PSS	N	ACOE			AT 1	CM III	SD D	0
N6-2M	PEM	N	ACOE			AT 1	CM III	SD D	0
N6-2N	PFO/PSS	N	ACOE	0.06	29	AT 1	CM III	SD D	0
N7-1A/B	PFO	N	ACOE	0.08	47	AT 1	CM III	SD D	0
N7-1E/F/G	PFO/PSS/PEM	N	ACOE	0.41	223	AT 1	CM III	SD D	0
N7-4A	PSS/PEM	Y	ACOE	0.02	45	AT 6	CM I	SD F	0
AltC-1A/B	PFO	N	ACOE	0.02	16	AT 1	CM III	SD G	0
AltC-1C/D	PFO	N	ACOE	0.24	141	AT 1	CM III	SD G	0
AltC-1E/F	PSS	N	ACOE	0.44	257	AT 1	CM III	SD G	0
AltC-1G/H/I	PFO	N	ACOE	0.70	427	AT 1	CM III	SD G	0
AltC-1	PFO	N	ACOE	1.13	657	AT 2	CM I	SD F	0
N9-1A	PSS	N	ACOE	0.04	125	AT 1	CM III	SD G	0
N9-1B/C	PFO	Y	APA	0.02	26	AT 1	CM III	SD G	0

*See Legend on Page 2-15.

Channel Identifier	Wetland Type	Connection to Other Waterways	APA or ACOE Jurisdictional Status	Wetland Clearing Impact (acres)	Wetland Length Along ROW (feet)	Access* Trail Type	Clearing* Method	Slash Disposal* Practice	Wetland Fill Impacts
N9-1E	PSS/PEM	Y	APA	0.05	58	AT 1	CM III	SD G	0
N9-1F	PSS	Y	APA	0.11	123	AT 1	CM III	SD G	0
N9-1G	PSS	Y	APA	0.14	145	AT 1	CM III	SD G	0
N9-1H/I	PFO	Y	ACOE	0.03	18	AT 1	CM III	SD G	0
N10-1A/B	PFO/PSS/PEM	Y	APA	0.19	270	AT 1	CM III	SD G	0
N10-2A/B	PFO/PSS/PEM	N	APA	0.17	205	AT 1	CM III	SD G	0
N11-2A/B	PFO/PSS	Y	APA	0.11	129	AT 1	CM III	SD G	0
N11-2C/D	PFO/PSS	Y	APA	0.27	324	AT 1	CM III	SD G	0
N11-2E/F	PSS	Y	APA	0.01	19	AT 1	CM III	SD G	0
N11-2G	PFO	Y	ACOE			AT 1	CM III	SD G	0
N11-2H/I	PSS	N	ACOE	0.09	131	AT 1	CM III	SD G	0
N11-2J/K	PSS	Y	APA	0.60	705	AT 1	CM III	SD G	0
N12-3A/B	PSS/PEM	Y	APA	0.30	325	AT 1	CM III	SD G	0
N12-3C/D	PFO	Y	APA	0.18	227	AT 1	CM III	SD G	0
N12-3E	PFO	Y	APA	0.01	49	AT 1	CM III	SD G	0
N12-3F	PFO	Y	APA	0.01	34	AT 1	CM III	SD G	0
N12-3G/H	PFO	Y	APA	0.20	269	AT 1	CM III	SD G	0
N13-3A/B	PEM	Y	APA	0.09	102	AT 1	CM III	SD G	0
N14-3A	PEM	N	APA	0.25	181	AT 1	CM III	SD G	0
N14-3B	PEM	N	APA	0.07	110	AT 1	CM III	SD G	0
N14-3C/D	PFO/PSS	N	APA	0.69	355	AT 1	CM III	SD D	0
N15-4A	PEM	N	ACOE	0.24	158	AT 1	CM III	SD D	0
N15-4B	PSS	N	ACOE	0.18	106	AT 1	CM III	SD D	0
N15-4C	PSS	N	ACOE	0.40	236	AT 1	CM III	SD D	0
N16-4A	PFO/PSS	N	ACOE	0.42	243	AT 2	CM III	SD D	0
N16-4B	PSS	N	ACOE	0.18	109	AT 2	CM III	SD D	0
N17-4A	PFO	N	ACOE	0.44	256	AT 1	CM III	SD D	0
N17-4B	PEM	Y	ACOE	0.42	246	AT 1	CM III	SD D	0
N18-4A	PFO/PSS	N	ACOE	0.54	312	AT 1	CM III	SD D	0
N18-4B	PSS	Y	ACOE	0.28	162	AT 1	CM III	SD D	0
N18-4C	PEM	Y	ACOE	0.34	195	AT 1	CM III	SD D	0

*See Legend on Page 2-15.

Legend

Access Type 1 (AT-1)	Off ROW work trail in uplands on existing stone/gravel road, or new trail on firm level soils. Minor topdressing may be required.
Access Type 2 (AT-2)	Firm level soils with minor grading necessary, plus drainage devices. Locate within ROW along structure centerline, or new work trail as indicated on EWP maps.
Access Type 3 (AT-3)	Firm soils with steep slopes requiring 12 inches minimum of select borrow or crusher run, plus drainage devices, locate within ROW and switchback as necessary to negotiate steep slopes.
Access Type 4 (AT-4)	Soft soils requiring geofabric and 12 inches minimum of select borrow or crusher run, plus drainage devices.
Access Type 5 (AT-5)	Temporary fill atop geofabric, removed prior to restoration.
Access Type 6 (AT-6)	Existing paved roads and adjacent improved ROW, utilized during the construction of the Project, with minor improvement for pole access.

Clearing Method I (CM-I)	CM-I consists of clearing the designated areas of all woody plants, including desirable species. Herbicides may be applied to remaining stumps as directed by this EWP.
Clearing Method II (CM-II)	CM-II consists of clearing the designated areas of any woody plant species that have potential for growing into the wire security zone. All growth shall be cut as close to the ground as practicable. Reasonable care shall be taken, in as so far as practical, to retain desirable species found within CM-II zones. Herbicide may be applied to all remaining stumps within a designated CM-II as directed by this EWP.
Clearing Method III (CM-III)	CM-III shall consist of selectively clearing the designated areas, removing only those tall-growing species that have invaded or can be expected to invade the wire security zone within five years. As an adequate cover of desirable species is established on the site, the tall growing species will be removed.
Clearing Method IV (CM-IV)	CM-IV shall consist of selectively removing and/or trimming, in the designated areas, those tall growing species which have invaded or can be expected to invade, the wire security zone within five years. Trees with more than 25 percent of the crown within the wire security zone will be removed unless otherwise designated on the Project plans.

Slash Disposal Practice A (SD-A)	SD-A consists of separating, tree length skidding and yarding the merchantable timber in designated areas along the ROW. Where, in the opinion of the Environmental Inspector, a site may be damaged by the tree length skidding, the timber will be bucked into logs.
Slash Disposal Practice B (SD-B)	SD-B consists of collecting and piling the slash in designated areas. In this case, the slash consists of all unmerchantable wood (less than 6 inches in diameter at the large end), such as tops, limb wood and saplings.
Slash Disposal Practice C (SD-C)	SD-C consists of collecting and piling all unmerchantable wood larger than 6 inches in diameter at the small end, in designated areas. Unless otherwise directed by the Environmental Inspector, the logs will be piled adjacent to the work trail so as to avoid interference with construction activities.
Slash Disposal Practice D (SD-D)	SD-D consists of dropping and lopping all downed material so that it lies as close to the ground as practical and branches and limb wood would not exceed one-foot average depth.
Slash Disposal Practice E (SD-E)	SD-E consists of burning the slash within designated areas after collecting and piling. Slash larger than approximately 6 inches in diameter at the small end will be stacked along the access road for potential firewood utilization.
Slash Disposal Practice F (SD-F)	SD-F consists of chipping slash on site in designated areas.
Slash Disposal Practice G (SD-G)	SD-G consists of removing slash from the site which is less than 6 inches in diameter at the large end, including tops, limbwood and saplings. However, the large diameter wood (six inches or more in diameter) may be scattered or piled on the site. The small diameter slash may be removed to another portion of the right-of-way with a designated slash disposal practice of other than SD-G or SD-H.
Slash Disposal Practice H (SD-H)	SD-H consists of removing all slash from the site.

Table 2-6. Access Trail Wetland Fills – Alternate Route.

Channel ID	Impact Type	Wetland Length Along Woods Roads (feet)	Access Trail Type	Clearing Method	Slash Disposal Practice	Wetland Fill Impacts (square feet)
N3-WT1-1	Fill	60	AT 2	CM III	SD D	960 sq ft
N3-WT2	Stream Culvert	45	AT 3	CM III	SD D	720 sq ft
N4-WT1(N)	Fill	20	AT 3	CM III	SD D	320 sq ft
N4-WT1(S)	Fill	65	AT 3	CM III	SD D	1040 sq ft
N4-WT1-1-1	Fill	150	AT 3	CM III	SD D	2400 sq ft
N5-WT3	Culvert	30	AT 2	CM III	SD D	480 sq ft
N5-WT5A	Culvert	40	AT 4	CM III	SD D	640 sq ft
N8-WT2	TerraCell – fill high	200	AT 4	CM III	SD D	3200 sq ft
AltC-1G/H/I	TerraCell – fill	270	AT 4	CM III	SD D	4320 sq ft
					TOTAL	14080 sq ft

Table 2-7. Access Trail Wetland Fills – Preferred Route.

Channel ID	Impact Type	Wetland Length Along Woods Roads (feet)	Access Trail Type	Clearing Method	Slash Disposal Practice	Wetland Fill Impacts (square feet)
ALT2-6A	Fill	58	AT 3	CM III	SD D	928 sq ft
ALT2-6C	Fill	32	AT 3	CM III	SD D	512 sq ft
ALT2-6E	Fill	195	AT 3	CM III	SD D	3120 sq ft
ALT2-6G	Fill	168	AT 3	CM III	SD D	2688 sq ft
ALT3-6C	Fill	63	AT 3	CM III	SD D	1008 sq ft
					TOTAL	8256 sq ft

2.8 Geology and Soils

2.8.1 Geology

This area has a very complex geologic history that includes submergence beneath a sea, sedimentation, crustal sagging, volcanism, mountain building, metamorphism and re-submergence (Broughton, Fisher, Isachsen and Rickard 1981). The Project area is underlain by metamorphosed rock from the Precambrian era. In this area generally, the elevations range from 1,400 to 1,800 feet above mean sea level. Numerous iron ore mines were located in the Adirondacks but few are in operation today. There are none in the Project area. Many small sand pits are intermittently located in the Project area. A more detailed discussion of area geology is included in Section 3.1 of the DEIS.

2.8.2 Soils

Areas in the Adirondacks show some soil development and stratification, however some areas contain unconsolidated sediments overlying bedrock. Spodosols are the predominant soil order within the Project area according to the St. Lawrence County Soil Survey to be published by the USDA and is found in the DEIS. The soil series that are found within the proposed Project boundaries are Dawson, Loxley, Adams, Naumburg, Colton, Berkshire, Adirondack, Potsdam, Crary, Tunbridge, Duxbury, Croghan, and Tughill. A more detailed discussion of area soils is included in Section 5.3.3. of the DEIS and **Attachment 2** of this EWP.

3.0 CONSTRUCTION SEQUENCE

The 46 kV line construction will take approximately 10 months and be built in three segments.

To the extent that the permit process will allow, it is the applicant's desire to complete ROW preparation and some pole placement in the winter. Winter access to the area will limit soil disturbance and minimize the need for access trail construction. Following winter installation of poles and hardware, wire stringing will occur during warmer weather. However, to develop a reliable 46 kV system, it is necessary to have an adequate year-round access to the pole sites which may involve construction of permanent stream and wetland crossings. See **Figure 3-1, "Construction Schedule"** for construction sequencing.

3.1 Pre-Construction Preparation

3.1.1 Pre-Construction Meeting

As more fully described in Section 1.6.5 of this EWP, contractors selected to work on this Project will be required to attend a pre-construction meeting.

3.1.2 Safety Program

Niagara Mohawk places primary importance on maintaining a safe, injury-free work environment for its employees and all contractors who work on behalf of the company. To implement this program, the company's safety policy and procedures and potential safety issues associated with the 46 kV line construction will be reviewed during the pre-construction meeting. The company also has a Contractor Electrical Awareness safety video which will be required viewing for all contractors during the pre-construction meeting. All contractors will be required to comply with the Niagara Mohawk USA Companies Contractor Safety Requirements.

3.1.3 Equipment Washing

To prevent the introduction of exotic wetland weed species into the wetlands and waterbodies along the 46 kV line route, the work crews and contractors are required to wash construction equipment, cleaning it of mud, seeds, vegetation and debris, before deployment to the Project area. All equipment will be inspected by the Environmental Inspector at the contractor yard or other designated area or at a designated area outside of the Adirondack Park (NYSDOT 2002).

3.2 Construction Activities

It is anticipated that construction will be generally sequenced to first clear the ROW and develop required access trails and associated work areas. This activity will also include the installation of required erosion and sediment controls as prescribed by this EWP and applicable Project permits. Construction of the 46 kV line will follow and will include the construction of the new line, consolidation of existing and new lines where prescribed by the work plans, and removal of existing facilities that will no longer be utilized. The last phase of the Project will be to energize the newly constructed facilities and restore ROW and other areas disturbed by construction to

pre-construction conditions in accordance with this EWP and the Project permits. Additional details of the construction program are included in Section 4.0 of this EWP.

3.3 Inspection Schedules

Inspections of the stormwater pollution prevention system will be completed weekly and following rainfall of more than 0.5 inches. Post-rainfall inspections are to be completed within 24 hours following the end of a rain event. Inspection results are to be documented using SWPPP Inspection Forms provided in **Attachment 2** of this EWP. The SWPPP will be held at the field construction office along with copies of completed inspection reports.

Niagara Mohawk personnel will complete aerial inspection of the ROW annually and will, every five years, conduct ground patrols for vegetation management inventories and for structural/electrical integrity.

4.0 DETAILS OF ENVIRONMENTAL WORK PLAN

This section of the EWP provides details of the 46 kV line construction activities, construction techniques, and measures to be employed to avoid, minimize, control, and mitigate the associated construction-related impacts.

4.1 ROW Preparation

A ROW site analysis survey and vegetation inventory was conducted as part of the pre-construction Project planning process for the Project. This inventory, along with additional field reconnaissance, served as the basis for determining vegetation removal locations, slash disposal practices and other site descriptions. During the site analysis survey, vegetation cover types were identified. Due to the scale of the maps, additional refinement of the clearing pattern will be completed when the construction drawings are prepared. This information was utilized to prepare the EWP drawings.

The ROW inventory identifies both desirable and undesirable species along the ROW. A list of desirable species is included as **Table 4-1, “Desirable Plant List.”** Desirable species are low-growing tree and shrub species that do not have the potential of reaching the 46 kV line wire security zone. The wire security zone is defined as the air space around the conductor which must be free of all plant growth to insure reliable continuity of service. This area is a buffer zone to prevent the electrical faults between the 46 kV line and surrounding vegetation. The extent of the wire security zone is measured from the conductor at 257° final sag and at the 30° blowout position. For a 46 kV line, the recommended wire security zone is 15 feet. Desirable species are retained in all clearing methods (described in more detail below) with the exception of Clearing Method I, which is used at construction sites and on work trails. Undesirable species, which are tall-growing species that having the potential to interfere with the 46 kV line and the wire security zone, are typically removed from the ROW on danger trees. The NYS Public Safety Commission defines a “danger tree” as any tree rooted outside of a ROW that due to its proximity and physical condition (i.e., mortality, lean, decay, cavities, cracks, weak branching, root lifting, or other instability), poses a particular danger to a conductor or other key component of a transmission facility. National Grid will obtain rights from underlying property owners to selectively remove danger trees. In most locations, danger tree management rights will be obtained for a distance of 40-50 feet beyond the edge of the ROW.

“Danger tree” areas are located adjacent to the ROW to help ensure the safe and reliable operation of the proposed 46 kV line.

Table 4-1. Desirable Plant List.

Shrubs

<u>Common Name</u>	<u>Scientific Name</u>
1. Alder	<u>Alnus</u> spp.
2. Alternate-leaf Dogwood	<u>Cornus alternifolia</u>
3. American Yew	<u>Taxus canadensis</u>
4. Arrowwood	<u>Viburnum recognitum</u>
5. Barberry	<u>Berberis</u> spp.
6. Black Chokeberry	<u>Pyrus melanocarpa</u>
7. Blackberry	<u>Rubus</u> spp.
8. Black Viburnum	<u>Viburnum prunifolium</u>
9. Blueberry	<u>Vaccinium</u> spp.
10. Buttonbrush	<u>Cephalanthus occidentalis</u>
11. Choke Cherry	<u>Prunus virginiana</u>
12. Climbing Bittersweet	<u>Celastrus scandens</u>
13. Dewberry	<u>Rubus</u> spp.
14. Elderberry	<u>Sambucus canadensis</u>
15. Grape	<u>Vitis</u> spp.
16. Gray Dogwood	<u>Cornus racemosa</u>
17. Greenbrier	<u>Smilax</u> spp.
18. Ground Juniper	<u>Juniperis communis</u> (var. depress)
19. Hazelnut	<u>Corylus</u> spp.
20. Highbush Cranberry	<u>Viburnum trilobum</u>
21. Honeysuckle	<u>Lonicera</u> spp.
22. Hobblebush Viburnum (Witch Hobble)	<u>Viburnum alnifolium</u>
23. Huckleberry	<u>Gaylussacia</u> spp.
24. Lilac	<u>Syringa</u> spp.
25. Mapleleaf Viburnum	<u>Viburnum acerifolium</u>
26. Mountain Holly	<u>Nemopanthus mucronata</u>
27. Mountain Laurel	<u>Kalmia</u> spp.
28. Mountain Maple	<u>Acer spicatum</u>
29. Mock Orange	<u>Philadelphus</u> spp.
30. Multiflora Rose	<u>Rosa multiflora</u>
31. Nannyberry	<u>Viburnum lentago</u>
32. New Jersey Tea	<u>Ceanothus americanus</u>
33. Northern Prickly Ash	<u>Xanthoxylum americanum</u>
34. Pinxter Bloom (Pink Azalea)	<u>Rhododendron nudiflorum</u>
35. Poison Ivy	<u>Toxicodendron radicans</u>
36. Privet	<u>Ligustrum</u> spp.
37. Rhododendron	<u>Rhododendron</u> spp.
38. Ribes	<u>Ribes</u> spp.
39. Roundleaf Dogwood	<u>Cornus rugosa</u>
40. Red-osier Dogwood	<u>Cornus stolonifera</u>
41. Rose	<u>Rosa</u> spp.
42. Wild Raspberry	<u>Rubus</u> spp.
43. Silky Dogwood	<u>Cornus amomum</u>
44. Spicebush	<u>Lindera benzoin</u>
45. Spiraea	<u>Spiraea</u> spp.

Table 4-1. Desirable Plant List. Cont'd.

46. Sweet Fern	<u>Comptonia peregrine</u>
47. Witch Hazel	<u>Hamamelis virginiana</u>
48. Low Willow	<u>Salix</u> spp.
49. Winterberry	<u>Ilex verticillata</u>
50. Wild Raisin (Witherod)	<u>Viburnum cassinoides</u>
Small Trees	
1. Apple	<u>Malus</u> spp.
2. Buckthorn	<u>Rhamnus</u> spp.
3. Flowering Dogwood	<u>Cornus florida</u>
4. Hawthorne	<u>Crateagus</u> spp.
5. American Hop Hornbeam	<u>Ostrya virginiana</u>
6. American Hornbeam	<u>Carpinus caroliniana</u>
7. Wild Plum	<u>Prunus Americana</u>
8. Poison Sumac	<u>Rhus vernix</u>
9. Red Mulberry	<u>Morus rubra</u>
10. Scrub Oak	<u>Quercus ilicifolia</u>
11. Serviceberry	<u>Amelanchier</u> spp.
12. Smooth Sumac	<u>Rhus glabra</u>
13. Striped Maple	<u>Acer pennsylvanicum</u>
14. Staghorn Sumac	<u>Rhus typhina</u>

4.1.1 ROW Clearing Specifications

A. ROW Clearing Program

The following sections of this EWP describe, more fully, the Niagara Mohawk's ROW clearing program.

1. Niagara Mohawk Policy for Initial Clearing of Electric Transmission ROW

Niagara Mohawk shall employ selective clearing and slash disposal practices when clearing a new ROW, utilizing techniques which are consistent with the safe, reliable transmission of electric energy in an economic manner, and which are compatible with the environment.

2. Objectives of the Initial Clearing Program

- To clear the ROW in such a manner that it shall be free from interruptions from trees and brush, and so that the ROW is reasonably accessible for various line construction activities. This objective is accomplished through the utilization of sound clearing and slash management techniques, the utilization of sound vegetation control techniques, and by keeping abreast of new and improved techniques.
- To selectively retain compatible, native low-growing tree and shrub species, which tend to be self-sustaining over long periods of time and thereby tend to foster the natural development of "tight", relatively stable plant communities, wherever such species exist in sufficient quantity to economically warrant retention. This is accomplished through the proper

application of clearing and slash disposal practices, in a manner which is appropriately selective for a given site, so as to maximize the retention of desirable growth to the extent practicable.

As a secondary objective, to clear the ROW in a selective manner so as to maximize vegetation diversity on the ROW, thereby improving the total wildlife benefits of the ROW. This is accomplished through the selective retention of compatible low-growing species, as described above and where such retention is reasonably practicable.

- To clear the ROW in a manner which is compatible with environmentally sensitive areas, or areas of high visual sensitivity, so as to maintain ecological and aesthetic values to the extent practicable. This is accomplished through the selective retention of vegetative buffer zones at rivers, significant streams, other sensitive waterbodies including wetlands, high use road crossings, scenic areas, potential softwood shelters, etc., and through the application of selective slash management techniques designed to minimize environmental or aesthetic impacts.
- To clear the ROW in a manner which is harmonious with other allowable land uses, such as active agricultural, residential, recreational, and other allowable land use activities. This is accomplished through the application of selective clearing techniques designed to eradicate undesirable growth while retaining those low growing species which are compatible with the facility and ongoing land use activities, to the extent practicable. This objective is also achieved through the selective application of slash disposal practices in a manner which is harmonious with the ongoing approved uses.
- To utilize the wood resource generated by the clearing activities, to the extent practicable and in accordance with sound environmental techniques. This is accomplished through the application of appropriate slash disposal practices, through coordination with outside logging concerns, and through cooperation with the underlying easement landowners for this Project.

B. Procedure for Accomplishing the Objectives of Initial Clearing

Niagara Mohawk's procedure for selective clearing involves the utilization of sound clearing and slash disposal practices. For this Project, Niagara Mohawk recognizes and considers the use of four clearing and eight slash disposal practices, as defined below. Utilizing the potential combinations of these clearing and disposal methods, Niagara Mohawk conducts a detailed site-by-site analysis of the ROW, to select the appropriate management technique for each site. A set of detailed drawings has been prepared which shows the location and extent of work for each area of the ROW requiring clearing. See Drawing Sheets of EWP **Attachment 1**, and **Detail 1 "Clearing Methods."**

For this reliability Project, much of the ROW crosses commercial timber lands that have been logged and most large diameter timber thereon has been removed. Whole tree chipping may be the most practical technique for use by Niagara Mohawk to foster ROW conversion of plant communities conducive to the operational and maintenance conditions desired by Niagara

Mohawk. Elsewhere, site-specific determinations of the following techniques will be made by the Environmental Inspector.

- ***Clearing Method I (CM-I)***

CM-I consists of clearing the designated areas of all woody plants, including desirable species. All woody plants shall be cut as close to the ground as practicable, but not to exceed 6 inches above ground surface. CM-I shall be utilized where woody plants would hinder access and construction activities, i.e., for clearing work trails, structure work areas and wire pulling sites. Herbicides may be applied to remaining stumps as directed by this EWP and Niagara Mohawk and as authorized by the Project permits.

- ***Clearing Method II (CM-II)***

CM-II consists of clearing the designated areas of any woody plant species that have potential for growing into the wire security zone. All growth shall be cut as close to the ground as practicable, but not to exceed 6 inches above the ground surface, unless otherwise directed by the Environmental Inspector. Reasonable care shall be taken, in as so far as practical, to retain desirable species found within CM-II zones. Desirable species are those species of trees and shrubs that do not have the potential of growing into the wire security zone. A list of typical desirable species is included in **Table 4-1, “Desirable Plant List.”** The Environmental Inspector will make a field determination as to whether retention would impose an unreasonable burden on clearing and/or construction and maintenance activities. Herbicides may be applied to all remaining stumps within a designated CM-II as directed by this EWP and Niagara Mohawk and as authorized by the Project permits.

- ***Clearing Method III (CM-III)***

CM-III consists of selectively clearing the designated areas, removing only those tall-growing species that have invaded or can be expected to invade the wire security zone within five years. Additionally, based on conductor/ground clearance and species characteristics, “young” trees will be temporally retained, in the absence of sufficient densities of desired vegetation. As an adequate cover of desirable species is established on the site, the tall growing species will be removed. Those woody plants to be removed shall be cut as close to the ground as practical, but not to exceed 6 inches above the ground surface, unless otherwise directed by the Environmental Inspector.

- ***Clearing Method IV (CM-IV)***

CM-IV consists of selectively removing and/or trimming, in the designated areas, those tall growing species which have invaded or can be expected to invade, the wire security zone within five years. Trees with more than 25 percent of the crown within the wire security zone will be removed unless otherwise designated on the Project plans.

C. Trimming Procedures

When trees are specified to be topped or trimmed, the specified portions shall be removed in such a way to prevent excessive broken limbs or other serious damage to the trees left in place or adjacent to or nearby trees and shrubs. All trimming shall be done in accordance with recognized tree surgery practices. Limbs and branches shall be cut using the “Drop Crotch” technique. Cuts shall be “collar cuts” made at the union with the branch or limb, or with the trunk.

D. Vegetation Disposal Methods

Slash is the tops (leafy leaders, branches and twigs) of trees that have been cut down, and is generally the unmerchantable part of cut trees. The diameter of the wood of slash is less than 4-6 inches. Brush is the general term for vegetation (shrub and tree species) that is less than 20 feet in height and has a medium to heavy density. Brush is living and standing in its natural state. This ROW clearing operation results in brush and trees that must be disposed of or, in the case of merchantable timber, may be either sold or retained by the landowner.

Niagara Mohawk’s operational need is to have a ROW free of logs, slash, and other objects that represent an obstacle or hindrance during construction, operations, and maintenance of the Project.

Niagara Mohawk’s slash disposal program involves the use of any of eight methods (Slash Disposal A-Slash Disposal H) along the cleared ROW. These methods are confirmed during the detail/design review and, along with the clearing method, are noted on the Site Analysis forms and on the Project plans.

All logs from this Project will be removed from the ROW. Easements will be purchased and the value of the timber will be included in the purchase price. Niagara Mohawk’s operational need is to have a ROW free of logs, slash, and other objects that represent an obstacle or hindrance during construction operation or maintenance of this 46 kV line ROW. If ROW accessibility allows for removal of merchantable timber and market conditions are favorable, saw timber will be sold by Niagara Mohawk. Otherwise, in most instances, trees will be chipped and broadcast spread in the ROW.

Vehicle access, if any, is only permitted as noted in the EWP. If large logs are accessible from the wetland edge via a winch, these logs will be dragged out of the wetland on a winch line, as long as excessive damage from dragging or rutting will not occur. This will allow salvaging of timber while avoiding impacts to the wetland that would result from equipment access. If suitable access for mechanical equipment is not available, cutting will be performed manually, using chain saws and brush cutters.

In forested wetlands, woody vegetation that must be removed will be cut and dropped (“drop and lop” method), which involves cutting, dropping, and leaving the material generally where it falls. Here logs and limbs will be bucked up into pieces to lay close to the ground to facilitate decay.

No attempt will be made to stack timber in wetlands or to remove timber from wetlands except as previously described or approved by Project permits. Timber will be dropped, cut up, and moved by hand if necessary, so as to minimize interference with water flows, where applicable. If dropping timber appears to present an interference with water flows in a wetland, the contractor shall consult with the Environmental Inspector as to the most practical way to selectively remove timber from the flows. Trees that fall into a stream during clearing operations will be removed immediately. The slash disposal objective is to leave a clear clean path through the forest floor so that rubber tired equipment can easily access the 46 kV line both during construction and operation. Log piles will be limited or placed away from the centerline of the 46 kV line since they tend to interfere with access. In most areas, the slash will be chipped.

Slash that consists of small diameter limbs, tree tops, and brush with large end diameter not greater than 6 inches, or less than 8 foot in length, will be generally chipped and piled along the ROW edge or in the danger tree zone. Also, chips may be disposed of in accordance with landowner requests. Where chipping is not feasible or allowed, slash may be piled at the ROW edge or in the danger tree zone, as approved by the Environmental Inspector and the landowner. The piled material should not interfere with construction or maintenance activities. Slash will not be piled or spread in wetlands, within 50 feet of streams, or in active agricultural areas. If tree stumps located within the ROW need to be removed, they will be chipped, buried (except in cropland, residential property, wetland areas and other areas identified by the Environmental Inspector), or removed from the site and disposed of at an appropriate location.

Below are the descriptions of slash disposal practices. Those that are underlined are the primary practices which will be used for the proposed Project.

- ***Slash Disposal Practice A (SD-A)***

SD-A consists of separating, tree length skidding and yarding the merchantable timber in designated areas along the ROW. Where, in the opinion of the Environmental Inspector, a site may be damaged by the tree length skidding, the timber will be bucked into logs.

Niagara Mohawk will separate and yard merchantable logs along the ROW wherever the following conditions justify the use of this disposal type:

- Soil and terrain conditions will allow mechanized collection and skidding, without creating severe rutting or significantly increasing the erosion potential.
- Sufficient merchantable volume exists on a site to make economic utilization practicable.
- Adequate log hauling access roads exist between the nearest public road and the yarding area on the ROW or yarding directly to a highway is desirable and economically feasible. The load bearing capacity of the work trail and/or potential restoration costs may become limiting factors on merchantability.
- In general, logs will not be skidded for a distance in excess of 2 times the average distance between structures.

- ***Slash Disposal Practice B (SD-B)***

SD-B consists of collecting and piling the slash in designated areas. In this case, the slash consists of all unmerchantable wood (less than 6 inches in diameter at the large end), such as tops, limb wood and saplings.

- ***Slash Disposal Practice C (SD-C)***

SD-C consists of collecting and piling all unmerchantable wood larger than 6 inches in diameter at the small end, in designated areas. Unless otherwise directed by the Environmental Inspector, the logs will be piled adjacent to the work trail so as to avoid interference with construction activities. SD-B and SD-C (collect and pile) methods will generally be selected whenever the following conditions justify their use:

- The accumulation of slash would be sufficiently removed from public view so as to minimize visual impacts.
- Slash accumulations in areas designated SD-D would be greater than one foot in depth, thereby hindering construction and/or future maintenance operations.
- Soil and terrain conditions are such that merchantable collection could occur without creating a serious erosion potential.
- In general, logs will not be skidded for a distance in excess of 2 times the average distance between structures.

- ***Slash Disposal Practice D (SD-D) (Primary Method for Slash Disposal in Wetlands)***

SD-D consists of dropping and lopping all downed material so that it lies as close to the ground as practical and branches and limb wood would not exceed one-foot average depth. (Rare exceptions may occur as noted below). This disposal type will be selected whenever one or more of the following four site conditions justify its uses:

- Brush densities are such that this disposal type would result in an accumulation of slash less than one foot in depth over a significant area of the ROW and the accumulation of slash would be sufficiently removed from public view so as to minimize visual impact.
- Mechanized attempts to collect or remove slash would seriously damage or destroy large numbers of desirable species and the accumulation of slash would be sufficiently removed from public view so as to minimize visual impact.
- Soil and terrain conditions are such that removal of slash would create a serious rutting and/or erosion potential and the accumulation of slash would be sufficiently removed from public view so as to minimize visual impact
- Portions of a coniferous plantation must be clear-cut and the accumulation of slash would be sufficiently removed from public view so as to minimize visual impact.

- ***Slash Disposal Practice E (SD-E)***

SD-E consists of burning the slash within designated areas after collecting and piling. Slash larger than approximately 6 inches in diameter at the small end will be stacked along the access road for potential firewood utilization. A burn permit must be obtained from the local forest ranger. Niagara Mohawk will select this disposal type whenever one or more of the following site conditions justify its use:

- Slash accumulations of “pile and leave” would become so large that the pile would create an impediment to construction and/or future maintenance thereby escalating those costs beyond the initial cost of burning, and terrain conditions would permit mechanical collection without creating severe ruts or serious erosion risks.
- Slash piles would tend to form a continuous, 10-12 foot wall, or windrow of brush along a considerable length of the ROW, becoming a potential deterrent to wildlife movement, and terrain conditions would permit mechanical collection without creating severe ruts or a severe erosion risk.
- A significant fire hazard would exist as a result of selecting “pile and leave” or “drop and lop” methods, and terrain conditions would permit mechanical collection without creating severe ruts or a serious erosion risk.
- Slash accumulations, adjacent to a high use recreational area are such that removal for aesthetic reasons is a necessity and the impact of burning on potential receptors can be minimized by timing the burn to coincide with low use or non use periods, and terrain conditions would permit mechanical collection without creating severe ruts or a severe erosion risk.
- Slash accumulations at fencerows, hedgerows and edge of fields would require moving to another site.

- ***Slash Disposal Practice F (SD-F) (Primary Method for Slash Disposal in Uplands)***

SD-F consists of chipping slash on site in designated areas. Niagara Mohawk will select this disposal type where one or more of the following conditions justify its use:

- For aesthetic reasons, any slash accumulation would create a negative visual impact upon residents and/or travelers.
- The volume of slash to be disposed of is small and construction, environmental, or aesthetic constraints limit disposal to on-site.
- Chipping along the ROW will cost less than hauling away and disposal.
- Chips from selective clearing slash, and from whole tree chipping, will be blown across the ROW and into the danger tree zone as necessary. Chip accumulations after clearing operations are not to exceed 3 inches.

- ***Slash Disposal Practice G (SD-G)***

SD-G consists of removing slash from the site which is less than 6 inches in diameter at the large end, including tops, limbwood and saplings. However, the large diameter wood (six inches or more in diameter) may be scattered or piled on the site. The small diameter slash may be removed to another portion of the ROW with a designated slash disposal practice of other than SD-G or SD-H.

- ***Slash Disposal Practice H (SD-H)***

SD-H consists of removing all slash from the site. In certain designated instances, this slash may be removed to another portion of the ROW with a designated slash disposal practice of other than SD-G or SD-H. Niagara Mohawk will elect to remove slash from the site whenever one or more of the following conditions justify the use of SD-G or SD-H:

- Aesthetic considerations suggest that slash left on the site would create a negative visual impact.
- If the slash were chipped, more than four inches of chips would result over much of the site.
- On-site disposal would adversely impact existing agricultural uses.
- Species toxic to livestock must be removed from pastures in use.
- Slash piled in stream buffer zones could potentially wash into stream channel during high water flow.

E. Long Term ROW Management

To the extent that ROW vegetation can be managed to prevent interference with the conductors, shrubs and low growing tree species may be allowed to regrow in the ROW to create a tapered edge and visual buffer zones. Regrowth of vegetation in the ROW cannot interfere with meeting the reliability objectives of this Project and must not be in conflict with (NYSPSC) guidelines and regulations and PSC-approved company ROW management plans.

- ***The Tapered Edge***

The concept of “tapering” the edge of the ROW is based upon the principal that, while certain low-growing tree and shrub species may grow tall enough to intrude upon the wire security zone at mid-span, the same species may be retained along the edges of the ROW or near the structure without endangering the wire security. The selective retention of these taller shrub and small tree species near the structure and particularly towards the edge of the ROW, tends to taper this edge and effectively soften the visual impact of the 46 kV line. See **Detail 1 “Clearing Methods.”** To the extent practicable on this Project’s narrow ROW, clearing to a tapered edge will be limited to critical environmental areas near shorelines, designated streams, wetlands if any, and at the crossings of the state highways.

- ***Buffer Zone Screens***

Within areas with a potentially high environmental or visual sensitivity such as streams, high use road crossings, scenic areas, or viewpoints, etc., the density of the compatible vegetation may be too sparse, or too small to provide effective screening if all the tall growing trees are removed. Therefore, to minimize the potential adverse impacts which may be associated with ROW clearing of these sensitive areas, Niagara Mohawk shall utilize CM-III of CM-IV selective clearing techniques to retain an effective screen of small or topped undesirable species. Future maintenance activities shall be directed at thinning out and removing these tall growing species as compatible low growing vegetation invade the ROW.

- ***Procedures for Clearing in Harmony with Existing Land Use Activities***

Dependent upon the type and intensity of the land use activity encountered, Niagara Mohawk shall designate a clearing method which is appropriately selective so as to minimize potential impacts. All slash shall be disposed of in an economical manner, utilizing appropriate disposal techniques to prevent conflicts with such ongoing land uses such as agriculture, gardening, existing multiple use activities, etc. Where necessary, slash should be removed to another portion of the ROW to minimize adverse impacts.

- ***Danger (Hazard) Tree Removal***

A danger or hazard tree is a tree located outside the clearing limits of the ROW which represents a hazard to the normal operation of the 46 kV line. Outside of the ROW, and off the ROW itself, such trees that could jeopardize line reliability will be considered “hazard trees” and shall be removed. Trees whose branches extend into CM-I, CM-II, or CM-III clearing areas, but whose trunks are outside such areas shall be removed. Danger trees with branches extending into a CM-IV area shall be trimmed or removed as necessary to insure reliability. Any tree, based on the observed conditions of disease, lean, unstable soils, weak variety, or other conditions which may cause the tree to fall within the wire security zone shall also be removed. In so far as practical, all danger trees shall be removed at the time of initial clearing and as part of the normal clearing activities. The slash from these danger trees shall be disposed of in accordance with the slash disposal practice designated for the adjoining section of ROW.

- ***Slash Removal Procedures***

Dependant upon specific site conditions, slash shall be disposed of in an economical manner and in accordance with the recognized parameters of slash disposal so as to minimize visual or environmental impact. Large slash accumulations should not remain in areas of high visual sensitivity. Slash shall not remain in streambed areas. For this Project, most slash will be chipped. In wet areas or situations where chipping is not practical, a “drop and lop” may be prescribed. See **Section 4.1.1.3** for a more detailed description of slash disposal practices.

4.1.1.1 ROW Clearing Dimensions

Refer to **Detail 1, “Clearing Methods,”** for additional information. For this Project, a 75 foot wide cleared ROW (with additional danger tree removal as required) is the utility standard necessary to ensure safe and reliable 46 kV line operation based upon line voltage and heights of the conductors. See Detail 1, “Clearing Methods,” for additional information.

4.1.1.2 Implementation of ROW Vegetation Clearing

Clearing and slash disposal practices are determined based on field reviews conducted as part of wetland delineation and stream inventory and are also noted by area on field maps. This information has been transferred to Project plans, which are part of the EWP and construction bidding documents. Construction drawings will be a further refinement of the clearing and disposal methods as they relate to the preparation of the ROW due to the more precise scale and topography of the construction plans.

Based on the procedures described above, clearing techniques have been identified for the entire 46 kV line. The specific clearing techniques are shown on the EWP Maps in Attachment 1 of this document. Generally, the designated type of clearing operation will generally be based on land type. In upland areas, mechanized land clearing is permissible and will be utilized. In wetland and in-stream zones, clearing by hand tools (chainsaws, brush cutters) may be required if mechanized clearing is not appropriate or if permit conditions specify the use of manual clearing methods. The majority of the ROW is to be prepared as CM-I. Limited zones of CM-III and CM-IV clearing will be designated within the 50-foot buffer zone for regulated stream crossings and within 100 feet of a wetland edge. In upland areas, cut stumps will be treated with herbicides. Herbicides will be applied by backpack hand-held sprayers (National Grid, November 2003).

As part of construction plan development, a complete walkover inventory of the selected ROW will be completed by Niagara Mohawk or its authorized engineering environmental consultant. To date, much of the critical data has been collected as part of the resource inventory and the EWP reflects that data. Clearing methods and slash removal techniques will not change significantly when construction plans are prepared. The construction plans will fix the final position of the stream and wetland crossings.

Site and seasonally specific herbicides will be prescribed for clearing, conversion, and maintenance cycles, in accordance with Niagara Mohawk “Transmission Right-of-Way Management Program” (2003) and in accordance with this EWP.

4.1.1.3 Procedure for Utilization of the Wood Resources

Niagara Mohawk shall designate the locations on the ROW where sufficient volumes of merchantable timber exist. On fee-owned ROWs where the timber is reasonably accessible to logging equipment, the merchantable timber shall be separated and piled by tree length. The Environmental Inspector shall work with the Investment Recovery Department of Niagara

Mohawk to coordinate a timber sale if deemed feasible. On easement ROW, the merchantable timber value is included with easement purchase, therefore, the timber may be sold by Niagara Mohawk.

Where reasonable access exists, the Environmental Inspector shall also coordinate the salvage of unmerchantable timber. On fee-owned ROW, the sale of the material will be the first consideration, the second consideration will be to sell or give the unmerchantable timber to adjacent landowners and lastly to the general public. In all cases, firewood removal must be done in an environmentally acceptable manner. Firewood removal shall be coordinated through the revocable NM **Figure 4-1, “Firewood Permit Form,”** with a cover letter explaining the conditions of the permit.

All brush from the ROW that is chipped shall be blown into the danger tree zone and the ROW unless otherwise noted on the maps and approved by the Niagara Mohawk Environmental Inspector or removed from the ROW. No chips shall be stored or disposed of in wetlands, active agricultural fields, or in close proximity (50 feet) to streams or drainages.

4.1.2 Work Trail Construction

The primary goal of the work trail development is to provide an environmentally acceptable access route through the ROW and to each structure along the 46 kV line for the equipment necessary to construct and operate the line. To assure reliability of this 46 kV line, it is necessary to have a work trail system that provides stable year-round access to the structure sites. To gain access to the structure sites, a combination of on ROW and off ROW work trails will be utilized. For most clearing and construction activities, the travel surface of the work trail shall be a minimum of 12 feet wide, with greater widths at curves and turnouts, within a 20-foot roadway width. However, dependant upon the equipment to be used by the construction forces, it may be necessary to provide 14 feet nominal width for the travel surface of the work trail. See **Detail 2 “Work Trail.”** The Project anticipates having six types of access work trails. Two types of work trails utilize existing work trails (Access Type 1) or existing paved roads (Access Type 6). Two other work trails are developed on well-drained soils (Access Types 2 and 3), while the remaining work trail types are applicable to wet soils (Access Types 4 and 5). The following sections identify the general road types to be built, followed by identification of preferred methods to cross-streams and wetlands.

Figure 4-1

FIREWOOD PERMIT

Subject to the attached conditions and conditions hereinafter recited, NIAGARA MOHAWK POWER CORPORATION hereby grants permission to _____
_____ ("Grantee") to utilize the premises of Niagara Mohawk Power Corporation located at _____
transmission area(s) No. _____ formerly property of _____
_____ in the Town of _____,
_____ County, New York, for the sole purpose of removing designated downed wood at said location for firewood usage. Such permission is subject to revocation by Niagara Mohawk Power Corporation at any time by oral or written notice.

In consideration for the granting of this permission, Grantee agrees to utilize the subject premises at his own risk and agrees to indemnify, defend and hold harmless Niagara Mohawk Power Corporation from any and all claims or damages incurred by Niagara Mohawk Power Corporation due to his utilization of the subject premises.

Said permit expires on _____ unless terminated sooner as hereinabove provided.

Dated: _____

CORPORATION NIAGARA MOHAWK POWER

Street Address By _____
Forester

Town, State, Zip Code

Phone: _____

Table 4-2. Work Trail/Access Types

Access Type 1	Off ROW work trail in uplands on existing stone/gravel road, or new trail on firm level soils. Minor topdressing may be required.
Access Type 2	Firm level soils with minor grading necessary, plus drainage devices. Locate within ROW along structure centerline, or new work trail as indicated on EWP maps.
Access Type 3	Firm soils with steep slopes requiring 12 inches minimum of select borrow or crusher run, plus drainage devices, locate within ROW and switchback as necessary to negotiate steep slopes.
Access Type 4	Soft soils requiring geo-fabric and 12 inches minimum of select borrow or crusher run, plus drainage devices.
Access Type 5	Temporary fill atop geo-fabric, removed prior to restoration.
Access Type 6	Existing paved roads and adjacent improved ROW, utilized during the construction of the Project, with minor improvement for pole access.

4.1.2.1 The Undeveloped Work Trail (Access Type 4)

This method is primarily used in relatively flat to gentle sloping terrain with shallow to moderate topsoil with stable subsoil. If access is required during winter or summer construction periods, no work trail improvement should be required in most cases. Under wet soil conditions, as might be experienced during spring and fall construction seasons, it may be necessary to excavate the softer topsoil, enabling equipment to travel on the more stable subsoil. Note that the topsoil should not be excavated if proper drainage cannot be provided. Such excavation without adequate drainage can only result in impounding water in the work trail. In this situation of wet or saturated topsoil with stable subsoil, minor rutting is considered acceptable provided a continuing effort is made to prevent water from collecting in the ruts and causing further deterioration of the work trail.

In other areas, when due to seasonal conditions, the native soil will not support traffic and the topsoil must be excavated to subsoil, the soil should be spread beside the work trail and graded to blend with surrounding contours.

In flat terrain other than wetlands, it is often difficult, if not impracticable, to provide adequate drainage by constructing a ditch beside the work trail. In this situation, it is recommended that a minimal work trail construction effort be made, simply smoothing out rough spots. The use of tracked equipment and/or low ground pressure equipment to clear and construct might be advisable to avoid the cost of road gravel in areas of marginally stable soils or during wet construction seasons. However, since this is a reliability Project, adequate access will be required on a year-round basis.

4.1.2.2 Earthen Work Trail

Earthen work trails will be used in moderate to steep side slopes, and in gentle terrain during wetter seasons. Earthen roads should also be used where the soil is shallow to moderately deep with stable subsoil. The Project anticipates on having six types of earthen work trails.

A. Crowned Road in Gentle Terrain (Access Types 2 and 3)

In gentle sloping terrain (5-10 percent), the earthen work trail may frequently be oriented perpendicular to slope to facilitate construction. In woodland situations, where stumps must be grubbed, when the ground is rough to broken with numerous small “mounds or pockets,” and under seasonably unstable surface conditions, it will be necessary to remove the surface layer of topsoil, spoiling and dressing this material at the sides of the trail. In this way, the more stable subsoil can be crowned to provide a firm-driving surface. The road will be located near the centerline of the ROW. The necessary ditching and water bars should be installed at the time of initial work trail construction, if seasonably practical, so as to provide long-term stability. If, due to the seasonal conditions, ditching and water bar installation are not practicable, temporary stabilization measures shall be initiated to prevent erosion of the work trail surface and spoil. See **Detail 2 “Work Trail.”**

B. Work Trail in Moderate Terrain (Access Types 2 and 3)

In moderate to steep terrain (10-20 percent) side slopes, where it is necessary to cross the slope on a diagonal, thereby reducing the grade to improve accessibility, it will be necessary to create a side hill cut. The road may sweep from ROW edge to ROW edge in order to traverse the slopes. A side hill cut may also be necessary in gently sloping terrain when, due to the orientation of the ROW, the work trail may need to cross the slope parallel to the contours.

All stumps shall be grubbed from side hill cuts and the topsoil shall be excavated to the subsoil, creating a firm, stable work trail surface capable of supporting the construction equipment. All spoil shall be placed on the embankment at the low side of the work trail. Spoil shall not be used as fill material for the low side of the road surface unless bank run gravel or similar subsoils are encountered. Subsoils of high clay content may take a long time to settle into a drivable surface. Following a rain, rubber tired vehicles may sink into this material when it is used as fill, possibly leading to serious accidents should a vehicle on the low side of the work trail begin rolling over. Topsoil spoil shall not be used as fill in any portion of the driving surface.

The cut embankment shall be back bladed to a maximum of 45° slope in soils, unless a retaining wall is constructed to stabilize this embankment. Such enhancements may not be practicable on a 75 foot easement. In rock, the cut embankment may be left vertical, provided the rock is not easily erodible. A toe ditch should be installed on the cut embankment side of the work trail unless the work trail is out sloped, with frequent ditch relief through water bars, broad base dips, etc.

The fill embankment shall be bladed to a maximum slope of 45°. A toe ditch may also be created below the fill slope when this slope is extensive or unstable, to trap silt until vegetation can be established. Other techniques would include lining the base of the slope with stumps, logs, mulching the slope and/or rip-rapping the slope with a slash. See **Detail 3 “Sidehill Cuts.”**

The outsloping (downhill sloping) of side hill cuts will be done to provide cross drainage instead of installing a toe ditch. This technique, combined with appropriate water bar spacing will help to minimize sheet and rill erosion of the work trail surface during construction before it can be revegetated. When large rubber tire vehicles are used, such as rubber-tired cranes, outsloping cannot be used. Following a rain, there may be a tendency for these large pieces of equipment to slide sideways off the work trail if the work trail is outsloped. If the crane were to slide off the work trail into the soft spoil of the fill embankment, it might settle in this soft material and roll over. See **Detail 3 “Sidehill Cuts.”**

The insloping of side hill cuts is done in steeper slopes by sloping the work trail towards the cut embankment to facilitate the use of larger rubber tired vehicles. This tends to minimize sheet and rill erosion by confining runoff waters to the toe ditch at the base of the cut bank. Frequent ditch relief will be needed, as water bars or broad base dips, to provide cross drainage and divert water across the work trail and out of the ditches. Flow barriers will be required in the longer ditches, where cross drainage cannot be provided, to slow the force of runoff waters and prevent ditch erosion. In this case, if the crane were to slide off the work trail, it would slide into the cut embankment without the danger of rolling. See **Detail 3 “Sidehill Cuts.”**

4.1.2.3 Corduroy, Flotation Fabric, and Gravel Roads (Access Types 4 and 5)

The following sections describe types of work trails that are utilized in flat to gentle terrain with poorly drained and/or unstable subsoil. During wetter seasons gravel may also be required in steeper terrain where unstable soils result from poor drainage.

A. Corduroy Roads

Under wetter soil conditions where clearing is necessary and tracked vehicles will be used for construction, a corduroy road may be sufficient for access. Corduroy roads will also be constructed in cases where emergency access must be retained after construction is complete. The corduroy material shall include whatever material is available from the clearing operations, including the small diameter slash. Logs over four inches (but less than 8 inches at the large end) in diameter which are used for corduroy shall be oriented parallel to each other and across the work trail. When necessary, small diameter slash may be used as corduroy by randomly placing this small material in the roadway and crushing it with a bulldozer to create a dense mat of slash. All corduroy shall be placed in the undisturbed soil surface. Where stumps exist within a section requiring corduroy, they shall remain beneath the corduroy surface to provide additional road flotation. See **Detail 4 “Corduroy Road.”** Corduroy “brushmat” roads are permanent, permitted wetland installations but will be articulated to enable cross drainage.

B. Floatation Fabric and Gravel Roads (Access Type 5)

When corduroy material is not available, or when soil conditions do not warrant the flotation provided by corduroy, and the usage of commercial timber “swampmat” is impractical, either gravel work trails, or a flotation fabric and gravel work trail may be constructed. The purpose of the fabric is to provide flotation for a gravel work trail under slight to moderate soil moisture conditions, and to prevent the mixing of fine soil particles of the native soil with gravel. A minimum of 12 to 18 inches of gravel shall be spread over the fabric, so as to provide stable access for the type of construction equipment to be used. The fabric should not be used under conditions of high soil moisture and/or highly unstable soils since this material tends to sink under these conditions. The flotation fabric should not be used where clearing has resulted in numerous small stubs, since these tend to puncture the fabric, thereby decreasing its flotation properties and allowing fine soil particles to mix with gravel.

C. Cellular Confinement System

Cellular confinement systems, such as TerraCell, can be used at temporary and permanent wetland crossings as a stabilization method for vehicular access. The advantage to using the cellular confinement system over a typical fill is that the road base does not have to be as wide because no side slopes are necessary. A geotextile should be used to separate the grid and its fill from the subgrade. The confinement grid shall be filled with the required size stone and compacted. Cellular confinement systems should be used where indicated on the plans which is typically along access trails through wetlands.

4.1.2.4 Work Trail Erosion and Sediment Control Devices

- **Stabilized Construction Entrance**

Each entry to the ROW from State highways and all county and municipal roads will require a NYSDOT Occupancy Permit (State roads) and appropriate local highway department approvals. Most of the highway cuts will be existing logging roads to log landings, logging roads and camp driveways. A suitable (15 foot wide by 50 foot long and at least 6 inches deep) crushed stone ramp, placed on geotextile fabric, should be installed at the intersection of the ROW and at those locations where equipment could track mud onto public streets. Excessive or significant amounts of sediments spilled, dropped or tracked onto public roads will be cleaned up or removed and disposed of at an upland site or within the disturbed ROW or other disturbed area. Once work is complete, the crushed stone and geotextile fabric will be removed or left in place depending on landowner desire and future access considerations. Remaining disturbed areas will then be graded (if necessary), seeded and mulched. See **Detail 5 “Stabilized Construction Entrance.”**

- **Geotextiles**

Geotextiles will be used for temporary stabilization of disturbed slopes and other disturbed areas where seeding will not be sufficient stabilization. Also geotextiles will be used in the construction of various types of work trails. Geotextiles shall be the type appropriate for the intended use as shown on the Standard Product Sheet or any other product that is suitable to the Environmental Inspector. Geotextiles shall be protected from exposure to sunlight during transportation and storage.

- **Log Culverts**

The open top log culvert can be utilized for equalization of moderate flow, as well as for ditch relief when a higher or continuous ditch flow may be expected. Log culverts should be installed across the road on an oblique angle, utilizing available 10” to 14” diameter logs. The logs should be set into the road so that the top of the log is even or slightly below the road surface. The logs should be set about 8 to 10 inches apart, so as to provide easy traffic flow over the surface and yet allow for periodic cleaning with a shovel. The logs should be held apart by spacers of 2” x 4” dimension lumber or similar material (use pieces of small diameter, 3 to 4 inch slash if available). The logs should be notched so that the spacer material sets approximately even with the top of the log culvert. The spacers should be anchored to the logs using large spikes such as No. 20D. After the log culvert has been constructed, native soil and/or stone can be used to backfill around the outside of the culvert.

The log culvert may work best for construction during dry periods. During wetter times of the year the road surface approaches to the installation may rut and break up. When road failure occurs, the culvert may end up higher than the driving surface (i.e. the bottom of the ruts) becoming a barrier to access. A problem with this technique, for 46 kV line construction purposes, is often the use of backfill soils which, once excavated, will not easily compact and support heavy construction equipment. This problem becomes readily apparent in clay soils where all season access is required. The log culvert might prove more successful in gravelly type soils. See **Detail 6 “Typical Log Culvert.”**

- **French Drains as an Equalization Device**

French Drains can be successfully used for equalization of standing water levels across the work trail when the trail is built up and extends into a wetland, or for the relief of moderate spring seepage across a work trail in hilly terrain. To construct a French drain, a trench is excavated across the work trail to a depth matching the existing ground surface on each side of the work trail. The deep trench is then filled with gabion stone (6” to 12” stone), leaving a gentle swale or depression across the trail so as to contain possible overflow relief across the center of the stoned area. See **Detail 7 “Typical French Drain.”**

4.1.2.5 Work Trail Construction Considerations

The contractor shall construct work trails only where they are specifically noted on the construction drawings. The contractor shall not install work trails in any wetland unless such installation is authorized by the Project permits and specifically noted on the construction drawings. Periodic inspection of all work trails should be conducted during active construction. Road damage and erosion and sedimentation control devices should be repaired as soon as possible. Measures will be taken to ensure that airborne dust levels are minimized at all times where the dust raised may irritate or inconvenience residents, and as required by the permit. This shall be accomplished by methods such as: spraying water or an appropriate dust inhibitor (see **Table 4-3, “Standard Product Sheet”** for acceptable dust inhibitors) on affected areas, minimizing travel speed and travel frequency on access roads that are prone to the production of airborne dust.

Considerations which influence the type and location of the work trail include the following:

- **Environmental Sensitivity and Work Trail Location**

Priority must be given to construction needs and routing the work trail so as to provide adequate access to each work area. Unless there are over-riding environmental considerations (wetlands, streams, desirable plant communities, etc.) or work trail construction restoration problems (gradient, rock outcroppings, steep slopes, stumps which require grubbing, etc.) the work trail should stay as close to centerline of the ROW as practicable so as to facilitate wire stringing activities and future maintenance programs.

- **Stream Crossings**

When access to either side of a large stream can be gained by use of local roads or off ROW access, it is the preferred method, rather than constructing a complicated river crossing, and the stream area shall be designated “No Equipment Access.” A significant stream is defined as one which carries a year round flow and/or supports aquatic life.

In crossing an intermittent stream, or a significant stream where alternate access is not available, the work trail crossing should be made perpendicular to the stream channel, at a point which will cause minimum disturbance to the stream bottom, banks, and stream bank vegetation. The appropriate crossing device shall be installed prior to moving equipment across the stream. All access through the stream and its associated stream buffer zone shall be restricted to the designated access roadway.

- **Wetlands**

When it is reasonably practicable, access through a wetland will be avoided by routing the work trail to higher ground around the wetland, or terminating access on one side of the wetland and coming back along the ROW to the other side of the wetland. Access into or through a wetland generally entails more sophisticated work trail construction techniques than are required in drier soils, including the use of corduroy (if appropriate and material is available), or a floatation geofiber such as geo-fabric if corduroy is not available. A corduroy road may serve as adequate work trail on certain lines if tracked equipment is used for construction. When access is required to reach a structure in a wetland, the route should enter from the edge of the wetland closest to the structure to provide the shortest distance of work trail. If corduroy is to be used, the work trail should be as close to centerline as practicable so as to minimize the winching distance required to get corduroy material from the edges of the ROW to the work trail. After use, the corduroy material may be left in place or removed as specified by the Project permits. Wetland areas where access is to be avoided or restricted will be designated as “no equipment access” or “restricted access” on the Project work plans. The amount and extent of allowed wetland impacts will be minimized to the extent practicable and will be dictated by the applicable APA, NYSDEC, and ACOE permits for the Project.

- **Desirable Plant Communities**

Given a condition of scattered or light brush along the ROW, and within the constraints of acceptable soil and terrain conditions, the work trail should be routed around the edges of desirable plant communities as much as practicable. When the ROW contains moderately dense species over much of the area, the work trail should be routed through those portions of the ROW where the desirable growth is somewhat lighter, attempting to maintain the denser growth areas.

- **Slope**

The maximum grade of the work trail may vary greatly, depending on topography, soil conditions and the type of equipment necessary to construct the line. As a rule of thumb, the work trail grade should be kept to 20 percent or less wherever practicable, however when alternative access, or off ROW access, are unavailable, it may be necessary to exceed the 20 percent guideline in order to gain access. Those grades in excess of 20 percent should be kept as short as practicable so as to minimize the added stabilization and erosion control costs.

Ideally, given the alternative of routing the work trail on flat terrain (0-5 percent slope) or a side slope, when both conditions exist on the ROW, and assuming comparable soil conditions with each capable of supporting construction equipment, the access road should be routed on the flatter terrain to minimize construction costs. In gentle terrain (5-10 percent slope) the work trail can be constructed as close to centerline as practicable after considering any environmental factors, such as those discussed above.

Under moderate terrain (10-20 percent slope) it may be necessary to sweep the work trail gradually from one edge of the ROW to another in order to minimize the trail grade, cutting diagonally across the slope rather than traveling straight up the slope.

In steep terrain, where the slope exceeds 20 percent, it may be necessary to sweep onto other property for short distances in order to utilize gentler terrain and provide viable access. When laying out and constructing trails in such terrain, curves should be made on naturally occurring terraces, whenever such terrace conditions exist. The turning radius of curves in the work trail should be gradual enough to enable hauling or skidding poles into the designated work areas.

The diagonal crossing of slopes, as described above, will facilitate the erosion control effort by enabling easy cross ditching or water barring. The gentler grade created by this diagonal crossing will also require fewer water bars than would the steeper route of traversing straight up the slope.

- **Stumps**

Grubbing stumps from the work trail area can be a costly, time-consuming job which causes major disruption of existing soils. Therefore, when laying out and constructing earthen trails, the trails should be routed so as to minimize the amount of stump grubbing required. This can be accomplished by staying along the edge of fields when they are present, or routing the work trail along the edge of the existing ROW, if the line is being built parallel to another line. Where it is necessary to grub stumps, they may be turned upside down and used to stabilize the low side of a sidehill cut.

Table 4-3. Standard Product Sheet

Erosion Control Type	Components	Manufacturer/Distributor
Mulches		
Straw (avoided when ever possible)		
Wood chips or shavings		
Washed Stone 2B or 3A		
Sawdust (green or composted)		
Hydromulch		
Soil Guard	bonded fiber matrix	Mat, Inc.
Mat-Blend	wood fiber and paper fiber	Mat, Inc.
Ameri-Fibers	corn fiber	Mat, Inc.
Hydro-Spray Mulch	cellulose fiber	National Fiber
Eco-Matrix	wood fibers and bonding agents	Canadian Forest Products LTD.
Eco-Fibre	wood fiber and organic tackifier	Canadian Forest Products LTD.
Eco-Aegis	wood fibers, guar gum tackifier and crosslinking agent	Canadian Forest Products LTD.
Aspen Fiber Turbo Mulch	wood fiber	Western Excelsior
Mats		
TerraGuard	degradable ECB	WebTec Inc. Geosynthetics
TerraGuard	polypropylene geotextile	WebTec Inc. Geosynthetics
FibreNet	wood fiber	American Excelsoir Co.
Recyclex-Trm	recycled soda bottles	American Excelsoir Co.
Sc150	degradable ECB	North American Green
Mat-Blend	wood fiber/newsprint	Mat, Inc.
Mat-Fiber	wood fiber	Mat, Inc.
GeoTex	polypropylene geotextile	SI GeoSolutions
GeoTex	polypropylene monofilament	SI GeoSolutions
Landlok BonTerra Cs2	degradable ECB/straw	SI Geosolutions
Landlok	degradable ECB/straw	SI Geosolutions
Landlok	polypropylene fiber and nets	SI GeoSolutions
Pyramat	polypropylene geotextile	SI GeoSolutions
GeoFibers	polypropylene resin	SI GeoSolutions
Dust Inhibitors		
Soil Cement	combination of compacted soil and cement	
LDC (liquid dust control)	polymer diluted with water	
Soiltac	co-polymer emulsion	
Soil Sement	acrylic and vinyl acetate polymer	
DirtGlue	polymer	

4.1.2.6 General Construction Requirements at Stream Crossings

The plan sheets designate a preferred crossing technique that is approved by the regulatory agencies. These techniques are selected based on the characteristics of the individual stream and, where appropriate, field review with regulatory agency personnel. If conditions of the stream change such that the approved crossing technique needs to be modified or changed, it will be necessary to notify the Environmental Inspector who will process the necessary permit revisions.

During the preparation of the EIS, and this document, all streams were examined to determine the measures to be taken, including crossing techniques, to protect stream habitat and water quality. This Project was designed to avoid and minimize the impact of stream crossings by locating 46 kV wood pole structures on either side of the streams. To the extent possible, access to the structures will be made from the uplands on either side of the stream via local roads, State highways, and a series of permanent and temporary work trails. Streams that are to be crossed are designated as part of the construction plan. These streams will be crossed by use of approved techniques and crossing structures as specified on the plans and approved Project permits. Some basic guidelines to follow in crossing streams are as follows (the “suite” is broadly stated to reflect intent, although some e.g.; concrete, appear of remote applicability to this Project):

- Do not disturb, grub or grade the soil in adjacent areas designated as State or Federal wetlands or regulated stream banks on these plans, except for the minimum necessary to grub the pole, anchor and guy wire locations, or stream crossing sites or as provided in approved Project permits.
- Do not fill stream beds or bank areas or areas designated as State or Federal wetlands with gravel or fill from offsite or onsite except as provided in approved Project permits.
- Prior to construction of stream crossings, all necessary equipment and materials are to be mobilized to the site. Environmental protection measures and stabilization are to be reviewed with the Environmental Inspector and implemented prior to start of work.
- In wet areas, as needed, the contractor is to install corduroy or brush mat crossings using slash or brush with no greater than 4 inches in diameter or logs 4 to 8 inches in diameter for a minimum width of 12 feet to a depth that will provide adequate support for equipment. This material will be retained or removed when construction is complete as provided in the approved Project permits.
- Seed and mulch disturbed areas within 100 feet of regulated wetlands or streams as soon as practicable (within 14 days) after of completion of construction. Acceptable mulches and bonded fiber matrixes are shown in **Table 4-3, “Standard Product Sheet.”**
- If required, mud bags or temporary dewatering basins or other approved control measures will be used to contain discharge water from excavation.
- Minimize grading and preserve low growing vegetation and ground cover along streams on the ROW.
- Do not allow wet or fresh concrete or leachate to escape into the waters and/or wetlands, nor shall washings from redi-mix trucks, mixers, or other devices be allowed to enter wetlands or waters during construction.
- Where concrete is to be discharged into wetlands (e.g. pier foundations for electric 46 kV pole foundations), the concrete shall be poured into a tightly sealed form. This form can include a removable casing that is normally used during the drilling and subsequent

concrete pour, and would prevent the movement of concrete into the groundwater. Excess concrete will not be discharged into the wetland area.

- Do not mix concrete within 100 feet of any wetland area.
- Do not allow any refueling or storage of any petroleum or chemical materials within or adjacent to identified streams or wetlands.
- Prohibit washing of tools, equipment and machinery in or within 100 feet of any watercourse along the construction corridor, and install sediment traps approved by the Environmental Inspector to filter runoff from washing operations that will enter any watercourse.
- Hand carry (or utilize low ground pressure ATV) conductor stringing lead lines across streams and wet areas in areas designated as “No Equipment Access” on the drawings, as these areas are not crossed by the work trail. The contractor will also hand carry lead lines where required by the Environmental Inspector.

A. Construction Techniques at Stream Crossings

Where no existing roads are available for access across a stream, and where excessive back tracking would cause long travel distances along the work trail and it is not feasible to directly cross a stream with construction equipment, one of the following techniques may be employed, that can be accomplished with minimal environmental impacts.

- **Temporary Mats**

Steel meshing, fiberglass, marsden, or aluminum landing mats or any one of numerous commercially available or improvised matting materials (as per the discretion of the Environmental Inspector) may be placed in the channel bottom to provide a firm foundation to support construction equipment as long as these mats are removed when construction is complete. A relatively smooth, uniform surface is normally required for installation of mats and approaches.

- **Permanent Stream Fords Without a Sill**

The use of stream fords may be appropriate where the stream bottom at the point of crossing consists of bedrock or cobble-dominated hard substrate and improvement of the stream bottom to support construction equipment is negligible or not necessary. The only required improvement will be stream bank stabilization. The stream banks will be excavated to an acceptable grade, pushing the spoil up and away from the stream. This regrading will minimize water movement towards the watercourse and prevent erosion along the road. Special attention should be given to stabilizing of cut banks and blending excess soil beside the access road, outside the immediate stream area in order to maintain the stream bank vegetation, so as not to disturb vegetation compatible with construction activity. This out of bank work is generally important in bedrock and cobble bottom streams indicative of erosive high discharge/energy river segments. Depending upon soil stability, the approaches shall then be covered with 4 to 6 inches of No. 3 or 4 crushed stone, or wire mesh and 4 to 6 inches of stone. Placing of stone should continue far enough to provide an effective “filter strip”, to trap sediments. As a minimum, the filter strip

should normally extend 25 feet on either side of the stream. See **Detail 8, “Stream Ford Without a Sill.”**

- **Stream Fords With a Sill**

This technique may be appropriate where the stream bottom consists of relatively firm, stable, native soil, and/or cobble size rock. It will not be necessary to excavate the stream bottom material, however, a sill shall be installed and filled behind with No. 3 or 4 crushed stone. The sill shall consist of a log, preferably hemlock, which is set into the streambed and anchored by burying the ends into either bank. The sill should be recessed into the stream bottom so as not to change the bottom elevation more than 6 inches, where practicable. After burying the ends of the sill in the embankment, the sill shall be further reinforced by driving 6 foot long, 5/8-inch steel reinforcing rods through the sill, into the streambed at 2-foot intervals. The ends of the reinforcing rods shall be bent over towards the downstream side of the sill, see **Detail 9, “Stream Ford With a Sill.”** When backfill (which is placed over the buried ends of the sill) may be subject to erosion during flood conditions, this material should be further stabilized by rip-rapping with a foot or more of gabion stone (6” to 12” stone). Wire mesh or Geogrid approved by the Environmental Inspector, shall then be securely fastened to the sill. When more than one section of wire mesh is required, it shall be placed so as to overlap other sections approximately 12 to 18 inches. If required for approach stabilization, the wire mesh should be run continuously across the stream and up the embankments. No. 3 or 4 crushed stone is then spread 4 to 6 inches thick through the stream ford and up the access approaches. Larger stone may be required if discharge or traffic dislodges smaller stone in significant quantity from the installation. The approach filter strip should be long enough to effectively separate silt from runoff waters. Where available, native stone may be substituted for No. 3 or 4 crushed stone in fords with gravel or stony bottoms. This native stone should be placed so as to create a continuous layer of stone 4 to 6 inches deep in the traveled portion of the roads. At the time of ford construction, the embankments outside the traveled portion will be seeded and mulched as directed by the Environmental Inspector.

In areas where the stream bottom consists of soft unstable soil, this soil shall be excavated to firm subsoil or to such a depth as to provide a stable bed once filled with stone. The spoil from this excavation shall be removed from the immediate stream area and spread on an upland area. Once excavated, the stream bottom shall be brought back to contour by filling with gabion stone (6” to 12” stone). The sill shall then be set and the wire mesh attached to the sill. A floatation or filter fabric shall then be spread through the stream and up embankments, and the No. 3 and 4 crushed stone shall be spread through the stream and over the approaches. The filter strip in this approach should be long enough to provide effective separation of silt from runoff waters.

- **Temporary Bridging with Planks, Runners, or Crane Pads**

This technique may be appropriate where stream approaches are steep or the stream is channelized. The Environmental Inspector may direct that this technique be utilized in crossing protected streams (classified C(t) or higher by the NYSDEC) where a minimum disturbance to the stream substrate is recommended by the NYSDEC. Depending upon the channel width and the size (weight) of equipment to cross, temporary bridging may consist of large wood timbers

bolted or cabled together or a steel runner placed on the banks to span the channel. It may be necessary to place one or more steel pipes of heights greater than or equal to the stream banks in the channel to provide support to such planking or runners. These pipes should be sized to accommodate the stream's normal flow and be of heavy enough gauge to adequately support equipment and may require temporary stone fill to support the pipe deformation load. See **Detail 10, "Temporary Stream Crossings."**

- **Corrugated Culverts**

Corrugated metal or plastic (CMP or CPP) culverts may be used to cross creeks, drainage ways, and significant streams where access is required and prior field review has determined that a culvert is the appropriate crossing technique. Permanent culverts shall be installed with flared end sections as directed by the Environmental Inspector and as indicated on the plan set. The proper culvert size will be determined based on a particular stream's volume, velocity and channel characteristics and the size of the existing culverts being used in the vicinity. To the extent practicable, the crossing shall be made at a point where satisfactory approaches to the stream can be constructed so as to cause minimum stream and stream bank disturbance, and the outlet configuration will not abnormally induce scour and erosion. As best as practicable, the road shall cross the stream at a right angle to the direction of stream flow, and the pipe shall be aligned so that water enters and exits at the existing stream channel.

In hard bottom streams, the bottom of the culvert shall be set slightly below flush with the bottom of the stream with a minimum of excavation, so as to not impair fish passage. This will prevent water impoundment above the culvert and low hydraulic jump, or "waterfall" effect, as the water exits the culvert. In soft bottom channels, the soft material shall be excavated and replaced with stone to the extent necessary to provide a firm bed for the culvert and stable access once constructed. The bottom of the culvert shall be set as noted above, so as to maintain existing stream elevation at the inlet and outlet of the culvert. The culvert shall be backfilled with select borrow which is free of large rocks, hard lumps, frozen particles, sod, cinders or earth with a high percentage of organic materials. Culverts 12 inches or less in diameter shall be covered with 12 inches of stone, 18 to 24 inch culverts shall be covered with 18 inches of stone, and culverts 30 inches and greater covered with 24 inches of stone.

CMP/ CPP installations designed as "temporary" shall be installed as permanent, without end sections, and shall be removed during site restoration, with the channel bed banks and approaches stabilized.

At the intake and outlet sides of the culvert end sections, the streambed shall be lined with stone (size of which will be determined by the Engineer) for a distance of up to 5 feet above and below the culvert, as required to maintain a stable channel. Additionally, the soils around the intake and outlet of the pipe shall be lined with a protective layer of stone, to create stable head walls and minimize the potential of erosion at peak flow periods. Cobblestone, or large flat stones which are available onsite should be used whenever possible to minimize these costs.

Culverts twenty feet long are normally installed in order to maintain proper driving surface width. Due to the depth of fill associated with culverts of 30 inches and larger, it is often difficult to maintain stable road shoulders at an acceptable embankment grade and still maintain the minimum driving surface of 12 feet. In order to provide the necessary road width, without greatly escalating culvert costs, a log may be placed over each end of the pipe, in the shoulder of the road, to retain the embankment. These logs should be oriented parallel to the road, and they should be long enough so that they can be anchored into the stream bank at each end. Except where protected by stone, all embankments associated with the stream crossing and culvert installation should be seeded and mulched at the time of installation. See **Detail 11, “Corrugated Steel Culvert.”**

When access through or across streams cannot be avoided, stream crossings will be scheduled for the driest months as much as possible. Access through streams shall be limited to tracked equipment as much as possible and in accordance with permit specified dates. Where water levels are high, but temporary, as a result of a recent rain event, the crossing device should be installed after water levels drop to normal. During installation, care should be taken to avoid damaging bank vegetation that does not require removal or modification. Vehicular traffic through all streams shall be kept to a minimum and limited to designated crossings.

4.1.2.7 General Construction Requirements in Wetlands

The following construction techniques will avoid or minimize impacts to wetlands and will comply with acceptable State (including APA) and Federal standards for construction in wetlands. Each wetland crossing technique is designated on the EWP Maps. It is the contractor’s responsibility to conduct the work on this Project in a manner which is consistent with the associated drawings and approved Project permits. The contractor’s work will be observed and monitored by an Environmental Inspector who has authority, if necessary, to stop work.

General construction techniques for work in wetland areas should be followed at all times and include the following (the list below is broadly stated to reflect intent, although some examples appear to be of little applicability to this Project):

- Except as provided in approved Project permits, do not disturb, grub or grade the soil in areas designated as State or Federally regulated wetlands on the EWP Maps, except for the minimum necessary to grub the pole, anchor and guy wire sites or provide for required work trails.
- Except as provided in approved Project permits, do not fill areas designated as State/APA or Federally regulated wetlands with gravel or fill from offsite or onsite.
- In wetland areas, as needed, the contractor is to install corduroy or brush mat crossings using slash or brush no greater than 4 inches in diameter for a width of 12 feet to a depth that will provide adequate support for equipment. Swamp mats or other approved methods may also be used to provide temporary access through wetlands. Swamp mats are an approved Niagara Mohawk construction management technique and ensure that

impacts to accessed wetlands are minimized. These devices may also be used to construct temporary work pads if work in wetlands is unavoidable.

- Evenly seed and mulch disturbed areas within 10 feet of regulated wetlands as soon as practicable (within 14 days). Mulch shall be applied evenly at a depth of 1 1/2 inches (loose). Acceptable mulches are listed in **Table 4-3, “Standard Product Sheet.”**
- Minimize grading and preserve low-growing vegetation and ground cover along wetlands on the ROW.
- Do not allow wet or fresh concrete or leachate to escape into waters and/or wetlands, nor shall washings from redi-mix trucks, mixers, or other devices be allowed to enter wetlands or waters during construction.

Whenever working in and around wetlands certain construction Best Management Practices (BMPs) should be implemented to minimize impact to the environment. The practices may vary according to the area and scope of the work but generally include:

- **Minimizing soil and vegetation disturbance**

Soil disturbance should be limited only to that necessary to safely operate equipment, excavate for structures and anchors, temporarily stockpile soils, and conduct necessary repair or maintenance work. It may be necessary to use low bearing pressure or track vehicles if access through a wetland is required. Wooden timber mats or similar load-distributing materials – “crane pads” – are generally used to cross wetlands or streams and to provide an equipment work surface at structures in wetlands. This method is generally used when the water surface is less than 12 inches deep. Removal of the swamp mats is required upon completion of the work. Most work conducted by distribution crews will not require the use of special vehicles or swamp mats as long as wetland contours are maintained and rutting is prevented.

- **Sedimentation control**

Wood chip mulch, and/or siltation fence should be installed between the work area and the wetland/waterway when the nature of the work could result in erosion and sedimentation caused by soil disturbance.

- **Restoring and Stabilizing the Area**

When the work is completed the disturbed vegetation and soil must be restored and stabilized by:

- Regrading the area to pre-existing conditions;
- Seeding and mulching the exposed soil;
- Removing siltation fencing and stakes and returning it to a district facility for disposal as ordinary waste.

The following information provides a description of the general wetlands avoidance and protection measures that will be followed for this Project.

- **No Equipment Access Areas**

The first consideration is to avoid the crossing of wetlands by surveying potential alternate access. If available and practical, alternate access is used and the wetland is designated “No Equipment Access.” This designation prohibits motorized equipment from entering these areas. These areas are delineated on Project plans and are identified as “No Equipment Areas” See EWP Maps.

- **Restricted Activity Areas**

Wetlands traversed by the ROW are identified and protection measures are initiated. Wetlands designated as “Restricted Activity Areas” are noted on EWP Maps, and are identified on site-by-site analysis tabular forms. Within wetlands, the following apply:

- No deposition of slash within identifiable stream channels
- No accumulation of construction debris within restricted areas
- No degradation of stream banks
- No equipment washing or refueling within the 100 foot restricted area
- No storage of any petroleum or chemical materials within 100 foot restricted areas
- Applications of herbicides in wetlands is prohibited by NYSPSC orders

All construction personnel will be required to consult this EWP and any regulatory permit associated with the work in question and the Environmental Inspector will assure compliance during and after Project construction.

A. Construction Techniques in Wetlands

An original design concept for this job is to avoid siting poles in wetlands, minimize fill therein.

Access to structures should be obtained utilizing existing gravel or logging roads whenever present. However, in some cases there are no existing gravel access routes, and other means of access to structures are required as discussed below.

- **Structures With Gravel Pads**

Many electric powerline structures built in wetlands are constructed with gravel pads or mud shoes. A gravel pad is a deposit of fill material, generally gravel, that is placed in the wetland to support the structure. In most cases the area around the structure is filled to a distance of 15 to 20 feet beyond the structure. This provides room for a construction crew to install and maintain the structures. In most cases, if the structures are built with a gravel pad, there would also be a gravel access road out to it.

- **Structures without Gravel Pads (Shallow Wetlands)**

There are cases where structures may be built in a wetland without a gravel pad. This case would be a shallow wetland with a hard bottom. The wetland will probably be one or two feet deep. In this case there may or may not be an access road out to it. Access for maintenance of the structure could be by driving through the wetland on the hard bottom, under frozen or completely dry conditions such that there is no rutting, or by installing swamp mats or similar weight-distributing bedding. The use of low-bearing or tracked vehicles may also be appropriate. The method of access will depend on the time of year and the weather conditions.

The Environmental Inspectors will determine which method should be used.

4.2 Transmission Line Construction

4.2.1 Powerline-Overhead and Underground Construction Description

4.2.1.1 Marshalling Yards

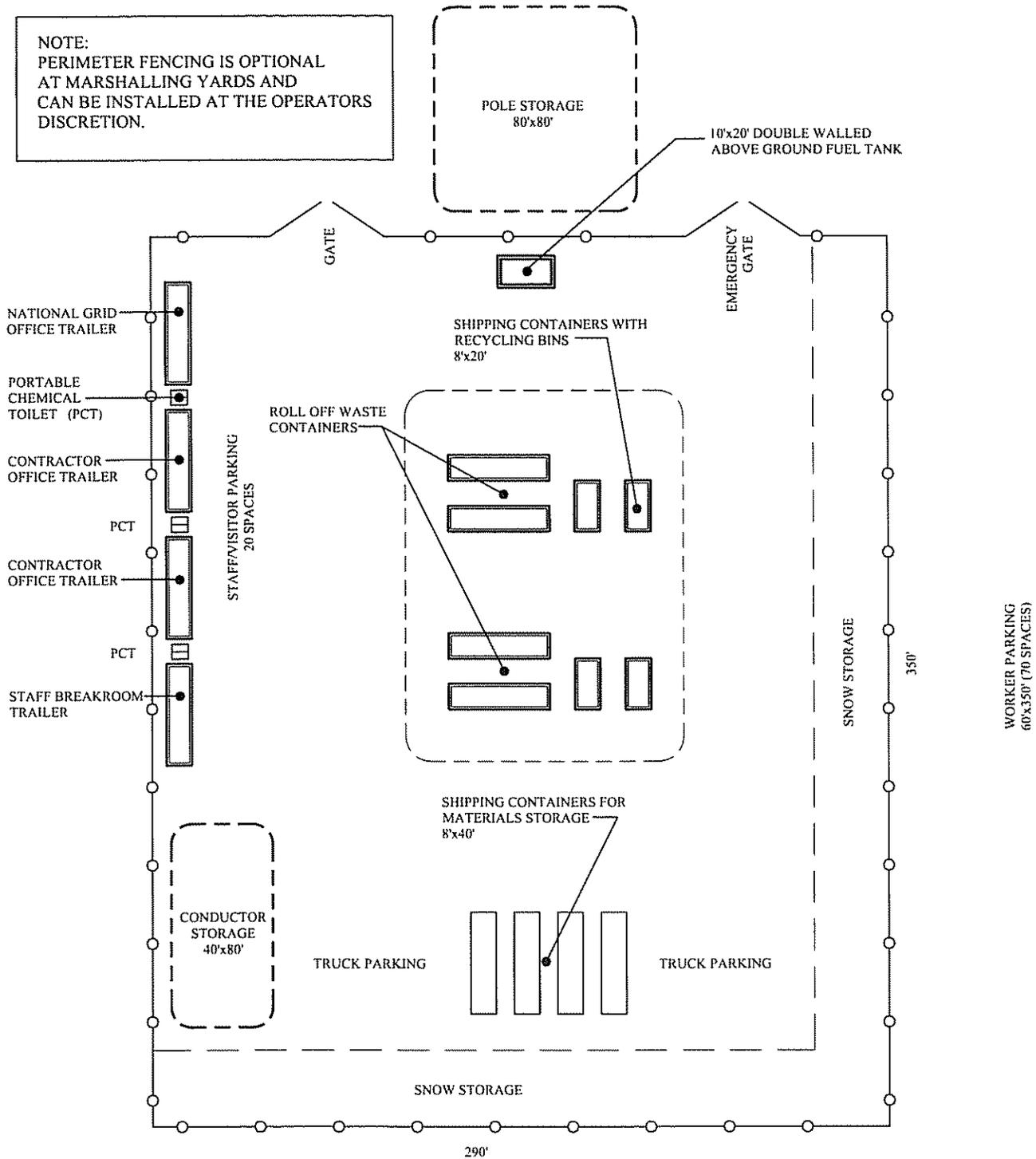
To prepare for and facilitate the construction of the 46 kV line, poles, crossarms, and other related materials will be transported to the general construction area by truck and trailer. These materials will be stockpiled at one or more locations along or close to the 46 kV line. Temporary offices may be set at the marshalling yards and routine equipment maintenance will occur at the marshalling yard. A complete emergency petroleum spill kit will be kept at the yard. These marshalling yards are expected to be about 2-3 acres in size. Ideally, these areas will be flat and relatively free of vegetation and easily accessible and have been located to avoid impacts to regulated wetlands, waterbodies, or other sensitive resources. See **Figure 4-2, “Marshalling Yard”** for a typical layout. Three marshalling yards have been identified and each yard is within an active sand and gravel mine.

- Newstech Sand and Gravel on River Road.
- Kayem Partners Sand and Gravel on NYS Route 56.
- Town of Altamont on NYS Route 3.

All of the above sites are large and well separated from water resources. Both the Kayem Partners and Town of Altamont sites have telephone and electrical distribution at the road frontage at each site.

Marshalling yards will include perimeter erosion and sedimentation controls to protect adjacent areas from stormwater runoff. Once construction is completed, these areas will be returned to their pre-construction use. Any areas disturbed by the pole laydown and material storage operation will be appropriately restored. The marshalling yards that will be utilized for this Project have been reviewed by the APA and are designated on the Project plans.

NOTE:
PERIMETER FENCING IS OPTIONAL
AT MARSHALLING YARDS AND
CAN BE INSTALLED AT THE OPERATORS
DISCRETION.



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MARSHALLING YARD TYPICAL SITE LAYOUT

Scale: 1"=60'

Figure 4-2

4.2.1.2 Pole Types and Installation Techniques

The wood pole structures to be used on this Project are shown on **Figure 4-3, “Pole Types.”** This figure shows the pole types to be used for only the 46 kV line including the pole types to be used where existing distribution and new 46 kV line facilities will be consolidated onto a set of wood pole structures.

The pole locations will be augured using a core driller where rock is encountered and/or a pole digger. The poles will be transported to the specific pole locations by line truck and trailer, or flextrack. Where the proposed line will be overbuilt with an existing line that must remain energized, the new poles will be set on centerline approximately 2 to 3 feet from the existing structures (“pole-for-pole”), the new pole prepared for distribution (and phone, if extant), transferred, and the old pole removed.

Where existing poles are located in wetlands, and the placement of new poles in wetlands can be avoided Niagara Mohawk will attempt to engineer relocations of spans to avoid impacts to wetland areas. Whenever possible, poles will be located outside of wetlands. In roadside wetlands, existing pole locations may not be relied upon for location of new poles. Existing poles to be replaced will be removed entirely and disposed of outside of the Adirondack Park. In specific instances where directed by APA, poles may be cut at ground level. Leaving pole butts in place minimizes disturbance because vehicles do not have to be redeployed. Pole placement and removal may be separate specialty actions/crews. All pole locations for the Project are shown on the EWP Maps and are anticipated to be located within ± 10 feet of the point indicated on those plans. Poles will require 6-8 foot deep holes for installation. Ten percent of pole length, plus two feet is the Niagara Mohawk standard design depth. Hardware will be installed on poles as they are constructed.

4.2.1.3 Stringing of Conductor

Pole installation will include the attachment of crossarms or stand-off insulators and hardware necessary to hold the 46 kV conductor in place. The stringing of conductors on the in-place poles will be done with the use of a wirepuller and tensioner. Where wirepulling is necessary, a pull site of 75' x 100' additional clearing in uplands will be needed for the wire pulling winch setup. Typically a pull site is at the end of a straight tangent section prior to a significant turn or angle structure. Multiple pull sites will be required. The pull sites will generally only require clearing as described by Type CM-1, unless unavoidably set in terrain such that grading is required.

4.2.1.4 Line Cutover and Energization

Once the structure and conductor installation for the specified area is complete, Niagara Mohawk must carefully plan any required electric distribution service outages to energize the new line or, where consolidation of existing and new lines is occurring, cut the old line out of service, converting the flow of electricity to the rebuilt line. If an extended outage is required, as is planned for this Project, it is best taken during the off-season to minimize the impact on

Figure 4-3. Pole Types.

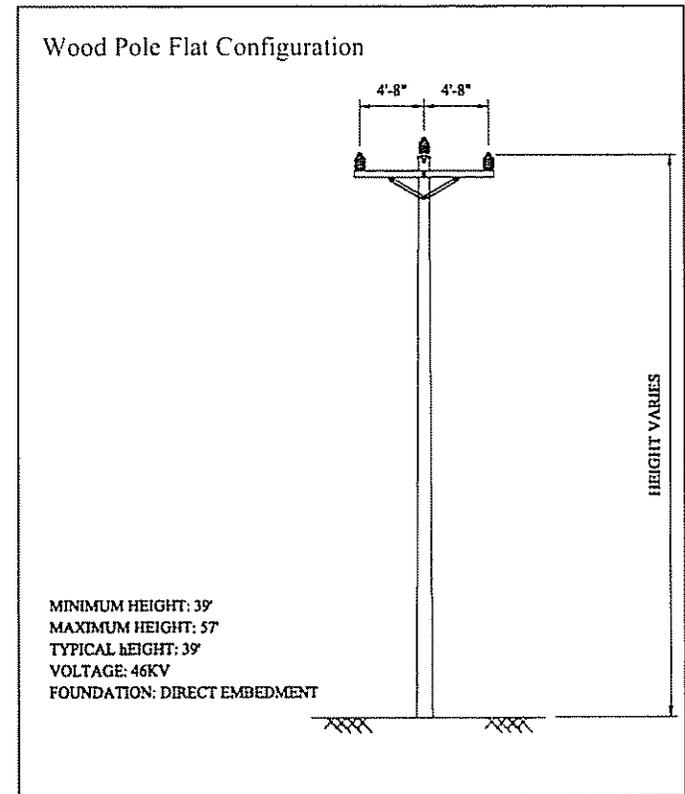
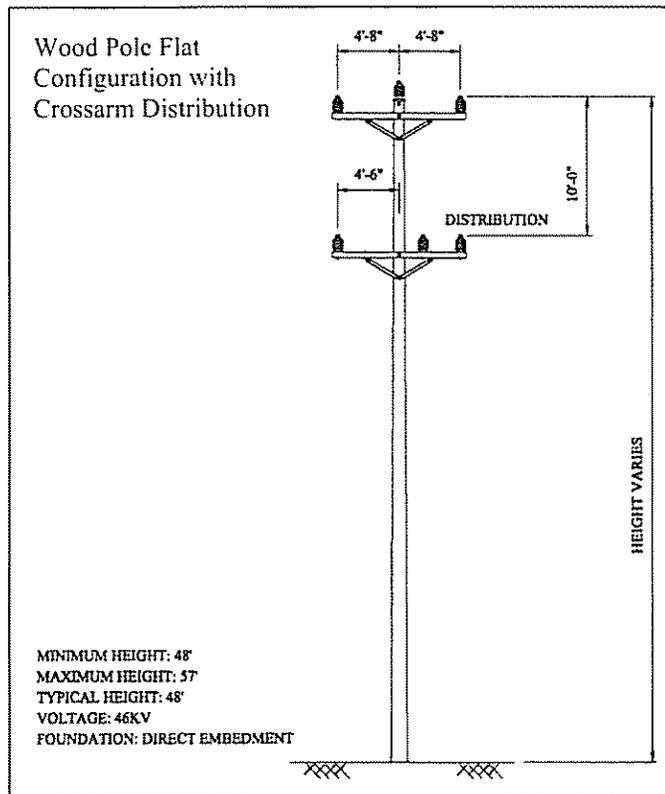
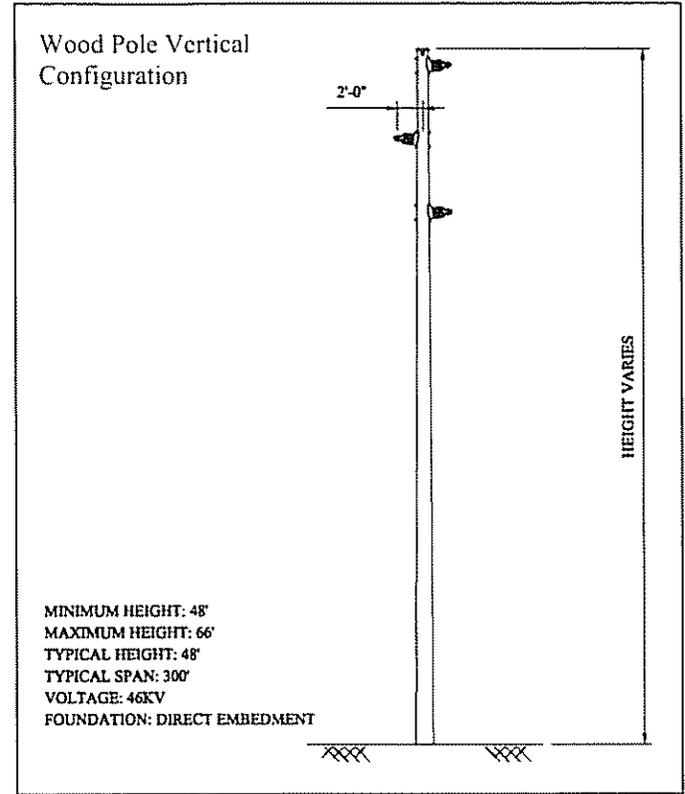
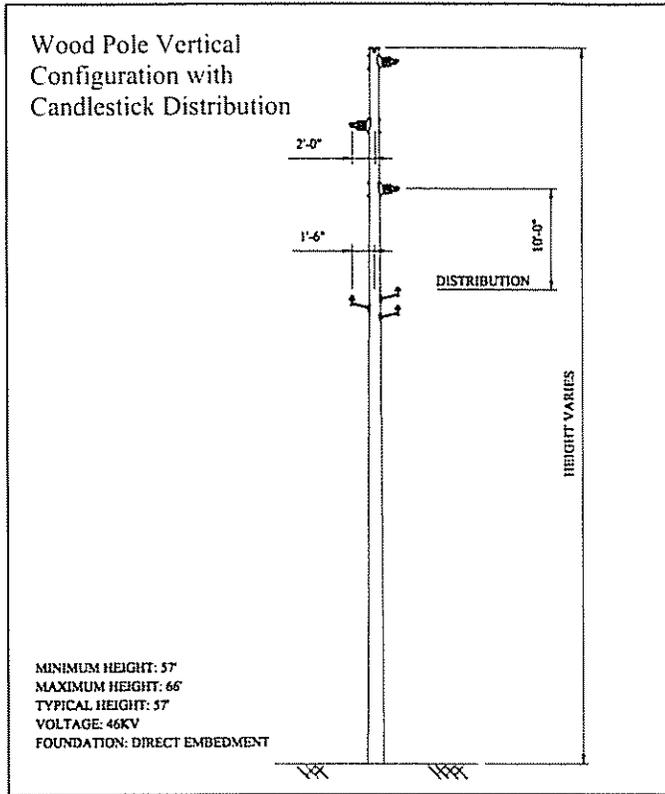
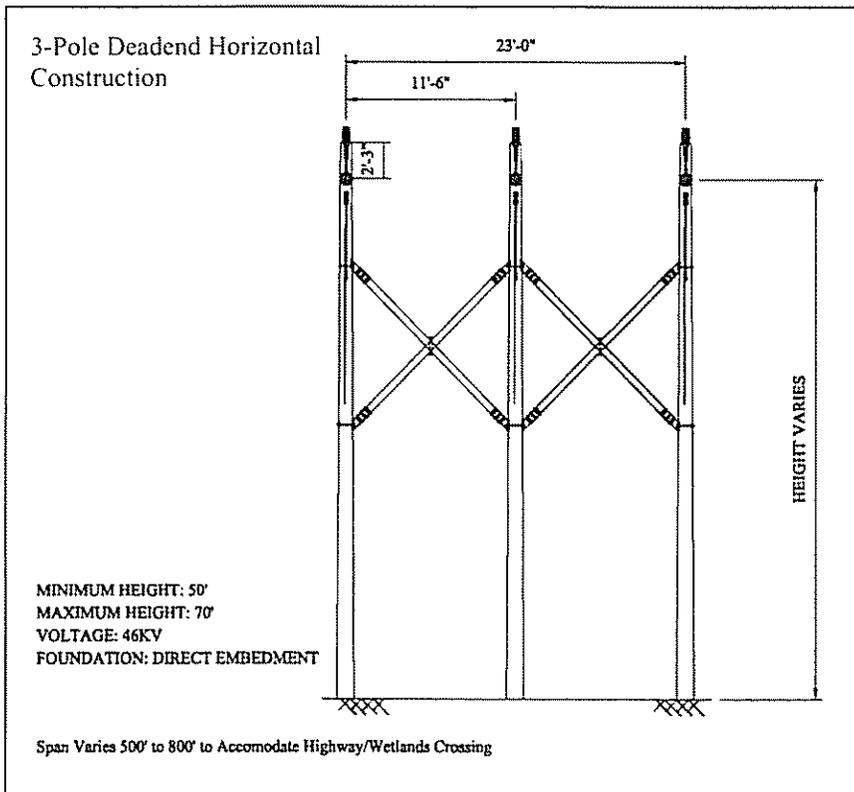
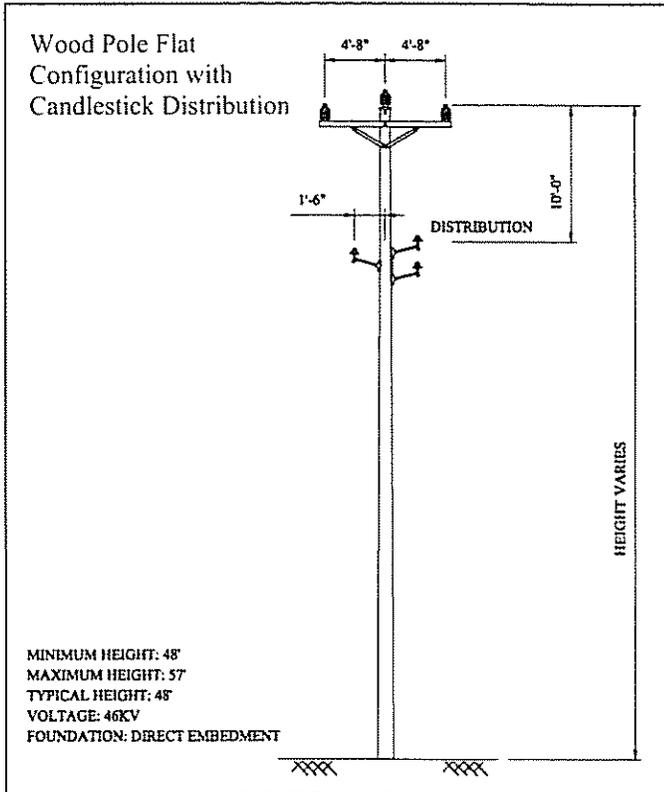


Figure 4-3. Pole Types.



residences and area businesses. Currently, the planned outage is for the tourist off-season (winter/spring) and when schools, which are supplied by this line, are not in session (vacations or weekends). The proposed window for an extended outage is sometime between April and June.

4.2.1.5 Grounding of Power Pole Structures

The power pole structures will be grounded as per Niagara Mohawk requirements and the requirements of applicable electric safety codes. In general, poles will have a single ground rod and a ground grid if there is a disconnect on the pole. Structures with disconnects/fuses/switches require permanent access pads.

4.2.1.6 Underground Construction

Underground construction, where required and approved by applicable regulatory agency permits, will be via trenching, or via directional drilling.

Directional drilling is an increasingly common means of utility construction for natural gas and communication system development. The capability of the equipment to precisely bore a location is improving, however, in areas of mixed glacial tills precision is difficult. Depending on the length, depth, and earth material to be bored, the amounts and types of equipment changes. All horizontal bores require a bore pit and a receiving pit. A bore pit is normally a trench that is 5-10 feet wide and 10-20 feet long for large drilling operations. The receiving pit will generally be approximately half the size of the bore pit.

Short bores are those under 300 feet, which require a small trailer mobile drilling machine and a single support truck. The support truck carries the water and slurry pumps to provide the lubricating drilling muds. The drilling muds are a natural material consisting of clay that supports the cutter head and floats away bore detritus. In soft materials, less drilling muds are required than in tills or bedrock which require larger volumes of drilling muds circulated at high pressures. The bore unit has directional detection equipment that tracks the progress and position of the drilling head. By tracking the position of the cutting head, the depth and direction of the bore is controlled which allows for avoiding obstacles and surfacing at desired locations.

Drilling for long distances (over 300 feet) in complex geology and long distances requires more equipment and space for equipment setup. Long distance drilling will require a bore machine that is the size of a semi-trailer (7' x 40'), a similar sized mud pump, a slurry recycling truck, a pipe truck, an equipment truck and a backhoe. The pump slurry equipment platform may also need a large flat area in which to excavate temporary slurry pits. At a minimum, complex drilling operations will require an area that is 50' x 200' to accommodate all of the equipment and allow only for very tight maneuvering of equipment. Critical to bore success is an understanding of the geology and use of smart bore head location equipment. Drilling in tills is extremely difficult since large boulders can be encountered which will stop the bore, and small boulders will spin when contacted by the drill head. In either case, the bore has to withdraw and reposition around the obstacle. Tills do not provide a tight seal bore hole, so drill mud leakage is a frequent problem. These "frac-outs" can cause turbidity, issues at river crossings, but research

has shown no substantive adverse affects on invertebrates. In rocky tills larger volumes of mud and higher pressure of mud is necessary which causes greater leakage.

Smart bore heads are radio tracked by either internal components or by means of signal wires laid on the ground along the bore path. The bore path is the anticipated bore direction between the bore and receiving pits. The smart head tracks the position both horizontally and vertically along the path.

Most bores are 4-8 inches in diameter and can be back reamed to larger sizes. Back reaming occurs during the head withdrawal and pulling back the conduit that will stabilize the hole.

Successful directional bores of wetlands and waterways obviate the need for elaborate and protracted site protection and restriction efforts that are typical of permitted trench cuts.

Trenching, which is an alternate underground construction technique, may be used in upland areas where sensitive environmental resources have been identified and may also be used to cross wetlands and streams. The technique involves the excavation of an open trench into which the conductor is placed. Typically, fill material is placed in the trench bottom before the conductor is installed. Once installed, the trench is backfilled with suitable cover material to ensure the long-term stability of the conductor.

Trench excavation across streams generally requires that the stream flow be diverted to dewater the construction area. In wetlands, it may be necessary to isolate the construction area to allow appropriate dewatering. Trenching activities are closely regulated by the NYSDEC, APA, and ACOE and permits are generally required before these activities can proceed. Close attention must be paid to permit conditions and associated environmental construction management requirements to ensure that trenching activities in streams and wetlands minimize environmental impacts to the extent possible and are in full compliance with permit requirements.

The Alternate Route includes an underground crossing of the south branch of the Grasse River. This crossing will require directional drilling of 800' and trench excavation in an upland causeway to construct the crossing. Trenching will require portable trench walls and necessary trench shoring to prevent collapse of the trench walls.

4.3 Post Construction Activities

4.3.1 Removal of Abandoned Poles

Once the new wood poles and conductors are in place, then the local distribution lines where appropriate can be moved to the new poles. New support hardware will be attached to the new poles to carry the distribution lines. In some areas, the old distribution conductor will be moved to the poles or entirely replaced. The abandoned distribution poles will be cut off near ground level and in upland areas the pole butts will be removed. In wetlands, the pole butts may remain in order to avoid mobilization of equipment into the wetland. The wood poles and pulled pole butts will be taken to the marshalling yard. Dumpsters will be used to store the poles until

disposal outside of the Adirondack Park can occur. Where poles owned by Verizon are replaced, they will be properly disposed of in a New York State permitted facility.

Niagara Mohawk Asset Recovery Group will oversee the disposal of poles and recovery of hardware or conductor.

4.3.2 Restoration of Disturbed Areas

4.3.2.1 Stream Bank Stabilization

The restoration of stream banks disturbed during construction will be accomplished, to the greatest extent practicable, to pre-construction contours and adequately stabilized. Procedures to ensure proper stabilization will include:

- Restoring topsoil to original horizon (topsoil is not to be used as backfill material).
- Revegetating disturbed areas with indigenous vegetation or conservation grasses and legumes.
- Installing erosion control fabric on all waterbody banks at the time of final bank recontouring unless otherwise authorized by the Environmental Inspector or appropriate regulatory agency representative
- Transplanting wild plantings to provide additional bank stabilization.
- Utilizing rip-rap to stabilize stream banks that exhibit chronic erosion problems.
- Installing of geotextile fabric will be determined by the Environmental Inspector. Stormwater control plans may stipulate whether or not geotextile fabric is required.

Rip-rap to stabilize stream banks will be installed to the following specifications. See **Detail 12 “Stream Bank Stabilization.”**

- All rip-rap activities must comply with the conditions of the permits for this Project.
- Limit use of rip-rap to areas where flow conditions preempt vegetative stabilization, unless otherwise specifically required by approved Project permits.
- The Environmental Inspector shall determine the size of the clean rock rip-rap.

If geotextile fabric is required, it will be installed to the following specifications:

- U.S. standard sieve #100 or less.
- 20 mil thickness.
- 90 lbs. Grab strength.
- If geotextile fabric is needed, use 6 inch long by 1 inch wide wooden pegs to secure geotextile fabric.
- Restore stream bank to 1 to 1 maximum slope.
 - Excavate area 3 feet by 18 inches deep at the base of the streambank to provide a lock in trench to secure the edge of the geotextile.
 - Remove brush and stumps, if necessary.
- Compact subgrade above water level with multiple passes of bulldozer.

- If needed, install geotextile fabric over subgrade material.
 - Bury upslope end of fabric in a 6 inch deep trench, or as specified by manufacturer.
 - Secure fabric with wooden pegs driven 12 inches on-center or as per manufacturer's recommendations.
- Immediately following subgrade compaction and installation of geotextile fabric, if any, place rip-rap material.
 - 18 inches thick at the base of the slope.
 - Grade to 12 inches thick at the top of the slope.
 - Place rip-rap so that it forms a dense, well graded mass of stone with a minimum of voids. Take care not to dislodge geotextile fabric when placing rip-rap. Repair any damage in fabric before proceeding.
 - The toe of the rip-rap will be keyed into the base of the slope.
- Seed and mulch area above and along each side of rip-rap installation.

4.3.2.2 Wetland Restoration

Wetlands that are disturbed during construction shall be returned to their natural state after construction is complete. Temporary structures which may have been placed in the wetland shall be removed, any temporary fills shall be removed and preexisting grades, and original drainage patterns shall be restored. If plants have been disturbed, they shall be replaced with native species.

Two types of wetland impacts are anticipated during the Project, clearing, and filling. Short-term impacts will occur in wetlands that are spanned by the conductors will be cleared of tall wetland vegetation that may intrude in the wire security zone of 15 feet around the conductors. Also clearing or removal of large trees (danger trees) in the 75-foot ROW that may endanger the powerline by falling into the conductors or falling into a pole will also be removed. Temporary fills for access into a wetland or to cross a wetland in order to construct the 46 kV line may occur on a limited basis.

Permanent impacts will occur in a limited number of wetlands in order to insure adequate operational maintenance access to the ROW for emergency repairs under all weather conditions. A stabilized roadway of 10-12 foot gravel, travel course with culverts on a geo-grid or geo-fabric may be required to support conventional over-the-road powerline maintenance trucks. Permanent impacts will be mitigated by replacing and preserving wetlands or making contributions to commensurate wetland preservation Projects such as invasive species control programs.

To repair or remediate wetland damages associated with construction clearing operations, the following steps may be taken as appropriate based on site specific conditions:

- Removal of tree or brush clearing debris from the wetlands that may interfere with plant regrowth.
- Repair any ruts or soil disturbance to insure natural drainage patterns are maintained.
- Repair any areas of soil disturbance and overseed with Adirondack Grass seed mixture, at edges of wetlands on transition slope to upland.
- Plant shrubs at edge of wetlands to further stabilize the area. The shrubs listed in **Table 4-4** may be utilized. **Table 4-4, “Shrubs for Planting on the Edges of Wetlands in the Project ROW.”**
- Monitor wetland regrowth at close of construction season and during the following growing season to insure that wetland areas are stable and recovered.
- Remove temporary fills and follow above steps to remediate the area.
- Fill width will be minimized at any improved wetland crossing by use of large stone rip-rap and edges will be planted with a mix of shrubs indigenous to the wetland.

Table 4-4. Shrubs for Planting on the Edges of Wetlands in the Project ROW

Species	Characteristics ¹	Water Depth and/or Regime	Suppliers ²
Shadbush (<i>Amelanchier canadensis</i>)	Fall clumped shrub, sometimes treelike, to 20+ ft tall; white flrs. emerge before lvs. unfold; deciduous, on hummocks.	Irregularly, seasonally, regularly, or permanently saturated; some inundation.	NEWP, C&W, PLN
Black chokeberry (<i>Aronia melanocarpa</i>)	Medium shrub (3-8 ft tall); white flrs. (May), black berries; deciduous, in wooded and open wetlands.	Irregularly to seasonally saturated; some inundation.	NEWP, STC, PLN
Winterberry holly (<i>Ilex verticillata</i>)	Med. to tall shrub (5-15 ft); inconspicuous flrs., red berries that stay into the winter; deciduous, in wooded and shrubby wetlands; prefers some shade.	Irregularly to seasonally inundated or saturated.	STC, C&W, NEWP, PLN
Pussy willow (<i>Salix discolor</i>)	Med. to tall shrub (6-16 ft); fuzzy catkins early in spring; in open and shrub-dominated wetlands.	Irregularly to seasonally inundated or saturated.	NEWP, STC, PLN
Narrow-leaf meadowsweet (<i>Spiraea alba</i>)	Low shrub (2-4 ft); pyramidal clusters of white flrs. (June - Aug.); wet meadows, swamp edges.	Irregularly to seasonally inundated or saturated.	STC
Wild raisin (<i>Viburnum cassinoides</i> ; = <i>V. nudum</i> var. <i>cassinoides</i>)	Med. To tall shrub (6-10 ft); small white flrs in flat-topped clusters (May-July), blue-black berries; shrub swamps, wet woods and swamps.	Seasonally inundated or saturated.	NEWP, STC
Northern arrowwood (<i>Viburnum dentatum</i> var. <i>lucidum</i> , <i>V. recognitum</i>)	Med. shrub (6-12 ft); small white flrs in flat-topped clusters (May - June), blue-black berries; wet meadows and swamp edges.	Seasonally inundated or saturated.	STC, NEWP, C&W, PLN
American cranberrybush (<i>Viburnum trilobum</i> , <i>V. opulus</i> var. <i>trilobum</i>)	Med. to tall shrub (6-15 ft); small white flrs in flat-topped clusters (May - June), red berries, often persisting into winter; wet meadows and open swamps.	Irregularly or seasonally inundated or saturated.	STC, NEWP, C&W, PLN
<p>¹Persistence refers to the tendency of the plant's remains to be visible after the growing season. At the end of the growing season, a persistent plant remains standing as dry, upright stems. Semi-persistent plants may remain standing for a portion of the dormant season, or do fall over but remain as dry clumps. The above-ground portion of nonpersistent plants break down or wash away at the end of each growing season.</p>			
<p>²Suppliers of plants: NEWP = New England Wetland Plants, STC = Southern Tier Consulting, Inc., C&W = Congdon & Weller Wholesale Nursery, Inc., PLN = Pinelands Nursery & Supply</p>			

4.3.2.3 ROW Restoration

Any disturbed soils will be replanted with the seed mixes specified in Section 5.2.1 of this EWP. Any ruts or irregularities in grade produced during construction will be smoothed.

4.3.3 NMPC ROW Management Techniques

Niagara Mohawk has specific requirements in reference to ROW management/maintenance. The following information, which summarizes the Niagara Mohawk ROW Management Program, was taken directly from the PSC-approved Niagara Mohawk ROW Management Program, revised as of November 2003. This program requires a Niagara Mohawk Division Forester inspection, completed on a 5-year cycle, to monitor ROW conditions including on-ROW vegetation and “hazard trees” that, if left uncontrolled, could interrupt service of the lines. The purposes of the Forester’s inspection are as follows:

1. Review the previous years work and check for vegetation and herbicide treatment effectiveness.
2. Review the ROW about mid-cycle to assure timely rescheduling of the next treatment and look for “escapes” or “misses”.
3. Confirm maintenance priorities of lines scheduled for next year.
4. Assure that trouble spots, identified by other sources, are reviewed by a qualified vegetation manager.
5. Assure that ROWs requiring spot work or danger tree removal are also reviewed and prioritized.

The NYSPSC issued an order to New York State utilities (NYSPSC Case. 04-E-0822. June 20, 2005. NYSPSC Order Requiring Enhanced Transmission ROW Management Practices by Electric Utilities) to increase the level of vegetation management of tall growing or undesirable species in utility ROW. This order applies to danger trees, wire security zones, and an undefined priority zone around or near the conductors. The substance of the order is to increase the frequency of maintenance clearing, emphasize the importance of danger tree management, clarify the need for vegetation management for the entire width of the ROW, and the need for qualified personnel to provide consistent oversight on ROW vegetation management. The long-term effect of the order will be that the overall height of vegetation in the ROW will be lower than has been previously tolerated. The NYSPSC’s objective, as a result of this case and conditions placed on the transmission operating utility, is to eliminate outages as a result of vegetation contacting the conductors (NYSPSC Case 04-E-0822, Page 16).

The following are the conditions and/or discussion the NYSPSC has developed regarding the above topics.

- Danger Trees

All undesirable vegetation within a ROW should be tracked and removed in accordance with the degree of threat it poses to the transmission facilities. No tree having the characteristics of what has been called a “danger tree” should be permitted to remain on a ROW, including buffer areas. Side trees, trees outside the ROW (that due to their condition or location) pose a particular danger to the transmission facility, are what the utilities should designate and track as “danger trees.” For consistency sake, the Commission defines a “danger tree” as any tree rooted outside of a ROW that due to its proximity and physical condition (i.e., mortality, lean, decay, cavities, cracks, weak branching, root lifting, or other instability), poses a particular danger to a conductor or other key components of a transmission facility (NYSPSC Case 04-E-0822, Page 13).

- ROW Maintenance

“It is untenable for a utility to have only minimally adequate ROW widths or tree removal rights, particularly on bulk and other critical transmission ROW.” (NYSPSC Case 04-E-0822, Page 23).

“As a general rule, ROW should be sufficiently wide not merely to trim, but to remove completely to the ground-level, any undesirable vegetation that in any way encroaches into a utility-established priority zone.” (NYSPSC Case 04-E-0822, Page 24.)

“As a general rule, for clarification, any undesirable vegetation rooted within the ROW that in any way encroaches into a priority zone is to be completely removed to the floor or ground-level of the ROW. Mere trimming of such undesirable vegetation rooted within the ROW so that it no longer encroaches into a priority zone is not an acceptable or cost-effective practice. Any undesirable vegetation rooted outside of the ROW that in any way encroaches into a priority zone is to be trimmed to the edge of the ROW consistent with industry standards in effect at the time of trimming.” (NYSPSC Case 04-E-0822, Page 21).

“Vegetative buffers on the ROW are the exception to the general rule described in the discussion above regarding Recommendation No. 12. Buffers are maintained at high use road crossings and other areas of high visual sensitivity, primarily for visual amelioration or unique environment preservation. In many cases, they were established as mitigation measures during the construction of new lines, often as a condition of approval, or over time based on the concerns of adjacent landowners. In some cases, the buffers consist of undesirable tree species that must be constantly trimmed. Buffers of tall growing trees are a known area where vegetation-caused outages can occur, as was the case in the widespread 2003 blackout.” (NYSPSC Case 04-E-0822, Page 26).

The full impact of the order will evolve over the next maintenance cycle which is now on a five-year vegetation management plan. The lack of guidance from the NYSPSC on the new priority zone clearing zone will have to be resolved during the coming years. However, given that the intent is clear, in that outages from in-ROW vegetation are no longer acceptable to the NYSPSC,

the outcome will be lower height vegetation as the only acceptable cover in an electric utility ROW.

The 46 kV line at the lowest sag in a long wetland crossing will be 22-28 feet above grade. The wire security zone is 15 feet around the conductor and a 15° swing zone. The center of the ROW in the sag area will be allowed to regrow with vegetation that is no taller than 7-13 feet. The priority zone will create additional areas outside of the wire security zone where only slightly taller vegetation is tolerated in order to meet the reliability requirements.

The narrow width of the 75 foot ROW and the above order will cause increased visibility of the ROW at the crossing of the State roads. The use of tall growing species at road ROW crossings cannot be considered an option that will meet the reliability requirements. At road crossings, the shrubs listed in **Table 4-5** will be preserved or planted. Low berms that will provide planting bed areas may also be considered as a means to reduce visibility along the ROW.

The existing forest cover of even aged deciduous trees has been created by repeated cycles of logging. Heavy shading of the forest floor by the overhead even age tree cover results in limited shrub species growth. The preparation of the ROW will eliminate the trees since these are undesirable species and the clearing impacts will be highly visible due to the lack of natural existing shrub growth.

The ROW will be stabilized by the post-construction seeding program that consists of hardy drought tolerant grasses. The natural regrowth with trees and shrubs will take place over a period of years.

However, where the ROW crosses some stream and wetland crossings that contain only tall growing trees, there may not be a sufficient number of desirable species (less than 8-13 feet in height) left when the trees are removed using CM-III (meeting APA expectations). Also, because there are long spans to cross wetlands and streams, the sag at midpoint between the poles will not leave enough clearance to tolerate anything taller than 8-13 feet. Therefore, some desirable species that may grow taller than that height will have to be removed in those areas since they will violate the PSC “priority zone”. This is the trade-off for spanning sensitive areas, making the ROW look cleared “edge to edge”. The maximum height of vegetation near the poles and in the immediate area of the stream or wetland crossing at the transition from uplands to the water resource shall be 20 feet. **Table 4-5** shows native Adirondack plants which are appropriate for landscaping. These plants shall be used to replant any areas where desirable species are necessary.

Table 4-5. Native Adirondack Plants for Landscaping

Maximum Height	Upland Shrubs	Wetland Shrubs
8 to 15 feet	<ul style="list-style-type: none"> • Alternate-leaf Dogwood – <i>Cornus alternifolia</i> • American Yew – <i>Taxus canadensis</i> • Witch-hazel – <i>Hamamelis virginiana</i> • Maple-leaf viburnum – <i>Viburnum acerifolium</i> • Hobblebush Viburnum – <i>Viburnum alnifolium</i> (= <i>V. lantanoides</i>) • Beaked Hazel-nut – <i>Corylus cornuta</i> 	<ul style="list-style-type: none"> • Black Chokeberry – <i>Aronia melanocarpa</i> (= <i>Pyrus melanocarpa</i>) • Highbush Cranberry – <i>Viburnum trilobum</i> • Arrowwood – <i>Viburnum recognitum</i> • Winterberry Holly – <i>Ilex verticillata</i> • Highbush Blueberry – <i>Vaccinium corymbosum</i> • Black Elderberry – <i>Sambucus canadensis</i>
20 feet	<ul style="list-style-type: none"> • Striped Maple – <i>Acer pensylvanicum</i> • Serviceberry – <i>Amelanchier canadensis</i> • American Hop-hornbeam – <i>Ostrya caroliniana</i> • American Hornbeam – <i>Carpinus caroliniana</i> • Hawthorn – <i>Crataegus</i> spp. • Staghorn Sumac – <i>Rhus typhina</i> 	<ul style="list-style-type: none"> • Speckled Alder – <i>Alnus incana</i> ssp. <i>rugosa</i> • Pussy Willow – <i>Salix discolor</i> • Bebb Willow – <i>Salix bebbiana</i> • Mountain Maple – <i>Acer spicatum</i>

4.3.3.1 Herbicide Treatment Methodologies

Herbicide use is critical for long term reliability of the 46 kV line, safety and economy. Niagara Mohawk currently recognizes eight vegetation management techniques, with variations thereof, to prescribe maintenance based on specific site conditions. In the Adirondack Park, aerial applications of any herbicide are prohibited.

Niagara Mohawk requires all vegetation management personnel to comply with Article 33 of the New York Environmental Conservation Law related to herbicide notification and posting requirements for landowners and the general public. These requirements are directly incorporated into the transmission ROW Maintenance Specifications. In addition, informational brochures have been developed to help the public understand the program and the role of herbicides in vegetation management.

According to the NYSPSC Case 27605 Ordering Clause 1.e. “Herbicides shall not be used within a minimum horizontal distance of 100 feet of a potable water supply or regulated wetlands [NYS DEC wetland] or protected waters. Buffer zones shall be maintained around other wetlands [APA and ACOE wetlands], perennial and intermittent streams, and waterbodies as follows:”

Herbicide Application Technique	Minimum Approach Distance
Stem Foliar	50 feet
Basal	30 feet
Cut and Stump	30 feet

The APA has no jurisdictional buffers, therefore, the lesser buffer zone requirements can be used.

The APA regulations require a permit if herbicides are applied within a wetland or if used adjacent to a wetland such that herbicide residue might drain or otherwise be carried into the wetland. The NYS PSC Order minimum buffer widths are based on findings from the Empire State Electric Energy Research Corporation’s “Determination of the Effectiveness of Herbicide Buffer Zones in Protecting Water Quality on New York State Powerline Rights-of-Way” 1991. Therefore, by using these buffers the Applicant will be in compliance with the APA regulations as the prescribed buffers prevent application within wetlands and application where herbicide residue might drain into a wetland. APA jurisdiction would include wetlands which are one acre in size or larger, or wetlands (with no size limitation) adjacent to a body of water with which there is a free interchange of water.

Once the transmission line construction is completed and the line is energized and placed into service, National Grid will assume responsibility for the vegetation management of the right-of-way in accordance with their PSC approved Right-of Way Management Plan and any required wetland permits relating to such right-of-way management will be obtained at the appropriate time from the appropriate authorities.

Discussions have occurred in which revisions to the above NYS PSC Order buffer widths may be warranted. These are as follows:

Herbicide Application Technique	Minimum Approach Distance
High Volume Stem Foliar	50 feet
Low Volume Stem Foliar	25 feet
Low Volume Backpack	15 feet
Cut and Stump	5 feet

At this time, the Applicant intends to use the materials and applications in accordance with the NYS PSC Order, and the label specifications. If the NYS PSC Order were changed, then the Applicant would expect to be authorized these lesser buffer width restrictions.

1. High Volume Hydraulic Stem Foliar

This method utilizes an all terrain vehicle, hydraulic tank, pump hoses and a spray gun to deliver a high pressure (not more than 150 psi) high volume of herbicide product over large areas. This method is most effective to target high-density vegetation. Per APA guidelines, this method cannot be used unless vegetation treated is less than 10 feet tall and wind speed is less than 10 mph. This method (along with any other method that applies herbicide) cannot result in “brown

out” more than 1 week prior to Labor Day within 100 feet of the shoulder of highway ROWs of State Routes 3 and 56 within the boundaries of the Project.

2. Low Volume Hydraulic StemFoliar

This method also utilizes an all terrain vehicle, hydraulic tank, pump hoses and a spray gun. This application method utilizes a lower pressure (not more than 50 psi.) to deliver a lower volume of pesticide (when compared to high volume method) product to the leaves and terminal growing points of vegetation over selectively specified areas. This method is most effective to target medium to high density vegetation sites. This method cannot be used unless vegetation treated is less than 10 feet tall and wind speed is less than 10 mph. This method (along with any other method that applies herbicide) cannot result in “brown out” more than 1 week prior to Labor Day within 100 feet of the shoulder of highway ROW of State Routes 3 and 56 within the boundaries of the Project.

3. Low Volume Backpack Stem Foliar

This method utilizes a hand powered or motorized backpack tank and spray gun with a two-way nozzle to apply either a cone or stream pattern. The operation pressure of the backpack should not exceed 50 psi and is used for selective vegetation control. This method is best used to target light to very light density vegetated narrow ROWs that can be traversed on foot. Per APA guidelines, this method cannot be used unless vegetation treated is less than 10 feet tall and wind speed is less than 10 mph. This method (along with any other method that applies herbicide) cannot result in “brown out” more than 1 week prior to Labor Day within 100 feet of the shoulder of highway ROWs of State Routes 3 and 56 within the boundaries of the Project.

4. Cut and Stump Treatment

This method is conducted by spraying an application of herbicide to a stump immediately after cutting. Tools required are a chain saw and a small squirt bottle or backpack sprayer. This method is used for selective control of tall vegetative species in the ROWs and is a good method in environmentally sensitive areas when herbicide drift is a concern. This method (along with any other method that applies herbicide) cannot result in “brown out” more than 1 week prior to Labor Day within 100 feet of the shoulder of State Highways 3 and 56 ROWs within the boundaries of the Project.

5. Basal Application

This method is a target specific method used to deliver a spray application to the lower portion of individual standing woody stems. Typically, the equipment used is a 1 to 5 gallon, hand held or backpack sprayer equipped with a hand pump or a spray wand. Other equipment such as a squirt bottle or a large hydraulic spray unit using low pressure can be used. This method is most effective when used in small areas during the active growing season. Per APA guidelines, this method cannot be used unless vegetation treated is less than 10 feet tall and wind speed is less than 10 mph. This method (along with any other method that applies herbicide) cannot result in

“brown out” more than 1 week prior to Labor Day within 100 feet of the shoulder of highway ROWs of State Routes 3 and 56 within the boundaries of the Project.

6. Cutting and Trimming, No Herbicide Treatment

This method consists of selectively cutting vegetation as close to the ground as possible with a chainsaw, without applying any herbicides. In the absence of sufficient desirable vegetation, some tall growing species can be temporarily retained and pruned as necessary. This method is very labor intensive. However, it is the most thorough method and is most often used in sensitive areas near streams, lawns, parks or other highly sensitive areas. ROW crossings of State highways may be considered as sensitive areas and this vegetation management technique may be utilized to create a tapered edge in conjunction with Clearing Methods III and IV.

7. Mowing

This method utilizes all terrain vehicles with specialized mowing attachments or a heavy-duty 4x4 tractor with rear mounted brush hog type mower to physically mow the small woody and vegetative species on the ROW. This is a non-selective method that can be utilized in highly sloped areas and sensitive areas near (but not within) streams, lawns, parks or other highly sensitive areas. A Hydro-axe can be utilized for mowing to remove larger vegetation as long as care is taken to prevent contact with overhead electrical wires and or causing vegetation to fall into the wires, during the clearing process. Mowing itself does not incorporate herbicide application unless with a specialized piece of equipment, i.e.; Brown Brush Monitor; rather a follow-up herbicide treatment (e.g.; #2) is made a year later to eliminate coppice regrowth of undesirable stems.

8. Mowing and Cut Stubble Herbicide Treatment

This method utilizes a heavy-duty 4x4 tractor with rear mounted Brown Brush Monitor mower unit. This unit is used to physically mow the small woody and vegetative species on the ROW and apply herbicide to the freshly cut stubble for treatment. This method is effective in ROWs that have smaller (less than 3 inch) diameter vegetation and reasonable slopes where equipment can be driven in. This method can be used in areas that have high potential for drift because the herbicide application is done under the mowing deck. This method (along with any other method that applies herbicide) cannot result in “brown out” more than 1 week prior to Labor Day within 100 feet of the shoulder of highway ROW of State Highways 3 and 56 within the boundaries of the Project.

4.3.3.2 Buffer Zones

Buffer zones are required to prevent activities on the ROW from impacting resources located in proximity to the ROW. Some required buffer zones for herbicide treatment methods in relation to surface waters and wetlands located within the Adirondack Park are as follows:

- 5 feet for cut/stump treatments
- 15 feet for low-volume backpack foliar
- 25 feet for low volume hydraulic foliar
- 50 feet for high volume hydraulic stem foliar

Note: Certain herbicide product label restrictions and natural resource areas require a larger buffer to surface waters and wetlands. The more restrictive requirements are always followed.

Herbicides shall not be used within any wetland and will follow the buffer requirements in Section 4.3.3.1 of this document, unless otherwise allowed by permit, rule or regulation. Buffer zones or no treatment zones also incorporate sensitive land uses such as active residential, active cropland, orchards, organic farms, active public parks, schools and public recreational areas including golf courses and athletic fields.

- For all foliar techniques a buffer zone of reasonable size, generally 25-100 feet is maintained around active residential areas depending on site specifics. When herbicide treatment is required within these buffer zones for active residences, cut and stump treatment methods are used.
- For active parks, schools and athletic fields, the buffer zones for foliar applications range from 10-25 feet for low volume backpack operations to 10-50 feet for low volume hydraulic, and 25-100 feet for high volume hydraulic foliar applications. Note that no work may be completed on the property of public or private schools, or registered day care facilities without advanced pre-notification under the NYSDEC herbicide notification regulations.
- Per APA guidelines, herbicides that have the ability to cause “brown out” cannot be applied by any method of application that could result in “brown out” more than one week prior to Labor Day within 100 feet of the shoulder of a highway ROW identified as a highway travel corridor (Routes 3 and 56) and within areas classified as State land, identified in the 2001 APA State Land Master Plan.

In all cases, the Environmental Inspector can require greater buffer distances due to specific site conditions.

4.3.3.3 ROW Management for the Tri Lakes 46 kV Line

It is anticipated by the Applicant that during the construction phase of the project cut and stump practices will occur outside the 30 foot buffer zone listed in Section 4.3.3.1 of this document. During the initial clearing required to establish the ROW and remove adjacent danger trees, cut stumps will be treated, as provided by the approved Project permits, with a NYSDEC approved herbicide to prevent sprouting and regrowth which, if left untreated, could ultimately grow to a height that would interfere with the 46 kV line conductor and wire security zone.

During the first and second years following construction, stem foliar and basal treatments are anticipated in accordance with the guidelines listed in Section 4.3.3.1 of this document. The ROW and adjacent area would typically be reviewed in the field to determine the effectiveness of the initial ROW clearing activity. Any stumps and/or sprouts that were missed during the initial ROW preparation activity will be managed and/or treated accordingly. The above sections include the approved conditions for use of herbicides in utility ROW maintenance as approved by the PSC and APA.

4.3.4 Maintenance of Existing Facilities

4.3.4.1 Maintenance of Existing Access Road and Routes

In many cases existing work trails will be utilized but may need to be improved to allow passage of the heavy equipment needed for the scheduled maintenance work. The improvements may include adding gravel fill or crushed stone to fill depressions and washed out areas. In all cases the fill to be used should be clean and free of contamination or construction debris. Processed gravel, including reprocessed concrete (crushed concrete), may be approved by the Environmental Inspector on a case-by-case basis.

4.3.4.2 Maintenance of Existing Access Routes

Ruts and depressions along existing access routes within existing corridors will be leveled and graded as necessary.

4.3.4.3 Maintenance of Existing Gravel Roads

Existing gravel roads will be restored or maintained at their pre-existing width and elevation with clean gravel or crushed stone.

4.3.4.4 Maintenance of Existing Culverts

Damaged culverts will only be replaced at the direction of the Environmental Inspector. Care must be taken to protect adjacent wetlands and watercourses by installing straw bales or silt fencing around the downstream end of the culvert. If at the time of anticipated replacement there is heavy flow through the culvert, the Environmental Inspector should consult with the Niagara

Mohawk Division Environmental Engineer, Environmental Analyst, and/or Project Engineer to verify whether the culvert should be replaced at that time.

4.4 Construction Equipment, Time of Operation, and Noise Levels

Time of construction will be restricted to Monday – Friday, during the daylight hours from 6:00 AM to 8:00 PM. No Sunday construction is anticipated to occur and construction on Saturdays is unlikely unless an emergency situation exists or such construction is approved by the appropriate regulatory agencies.

All construction equipment will be required to be equipped with properly operating noise muffling devices and operated in accordance with equipment manufacturer's instructions. Construction equipment noise impacts will also be minimized by limiting the hours of construction to daylight hours and avoiding, to the extent possible, construction on weekends and holidays.

None of the operations should result in significant or long term noise impacts in a given area.

The largest number of heavy equipment will be mobilized during the ROW preparation phase of the Project. This will include use of normal tree harvesting equipment including trucks, skidders, tree shears, and whole tree chippers. The clearing process will progress in a logical fashion and at a steady pace which will minimize disturbance in any given neighborhood area. Clearing operations with all the above equipment will occur in overhead cross country and offset sections of the ROW. In these areas, distance to residences are significant, which will lessen the overall disturbance. The land clearing operations are similar to the everyday logging activity that occurs in the region. Sound from the land clearing portion of the Project site preparation will not be an unusual noise.

5.0 STORMWATER CONTROLS

5.1 Objectives

During construction activities, efforts will be made to minimize impacts to local water quality and the surrounding environment. This will be accomplished by minimizing the amount of ground cover and soil disturbed at each construction site, following the construction techniques described in this EWP, and complying with the provisions of the approved Project permits. Where impacts are unavoidable, engineering controls will be used to limit, control, and mitigate construction-related impacts.

If not properly controlled, impacts from stormwater runoff can have significant environmental impacts. Stormwater runoff can cause soil erosion and soil and sediment transport within the Project work area as well as offsite into downslope and low lying areas such as wetlands and waterbodies. Both the EPA and the NYSDEC have recognized the potential for stormwater-related impacts from construction activities with the implementation of requirements that construction Projects disturbing areas larger than one acre prepare, and retain on site, a SWPPP and obtain State Pollutant Discharge Elimination System (SPDES) coverage under the NYSDEC's Stormwater General Permit GP 02-01.

The information included in this EWP is intended to satisfy the NYSDEC SPDES requirements for SWPPP preparation. These requirements are summarized in **Table 5-1**. The table also identifies the sections of this EWP where the information required by the SWPPP can be found.

Water quality and quantity calculations are not required for this Project and were not included in this EWP because there are no new impervious surfaces as a result of the Project.

The Project as a whole, will not create a change in pre to post development hydrology, therefore, post construction stormwater management practices are not required. However, in some locations, post construction management practices may be installed to ensure proper protection of water resources.

Table 5-1. Stormwater Pollution Prevention Plan Required Components

SWPPP Components	Reference to EWP Location
Background Information Location, scope of Project, size	Section 1.0, 1.1, and 1.2
Site map/Construction drawings Site area Disturbance limits Existing/proposed conditions Wetlands/surface waters/drainage Grading Stormwater discharges	Attachment 1, Plan Sheets
Description of the Soils	Attachment 2
Construction Phasing Plan	Section 3
Pollution Prevention Measures Litter, chemicals, construction debris	Section 6
Spill Prevention Construction and waste to be stored onsite	Section 6.2.2
Temporary and Permanent Structural and Vegetative Measures Location, size, length, of each practice	Section 5 EWP Maps
Details of Erosion and Sediment Control Practices	Attachment 1, Detail Sheets
Identify Temporary Practices to be Converted to Permanent	Sediment basins (to be determined in field), seeding, water bars, culverts, rock check dams
Implementation Schedule for Temporary Practices	Section 5.2.1
Maintenance Schedule During construction Post Construction	Annual Inspection for functionality by NIMO.
Names of Receiving Waters	Tables 2-1, 2-2, 2-3, and 2-4
SWPPP Implementation Responsibilities Contractor certification, etc.	Attachment 2
Existing Data that Describes Stormwater Runoff	Attachment 2

The following sections summarize the stormwater controls that will be utilized for this Project, pursuant to the NYSDEC SWPPP requirements.

5.2 Erosion and Sediment Controls Structural Practices

Erosion and sediment control devices shall be installed in accordance with permit conditions and/or regulatory approvals, and as otherwise necessary or directed by the Environmental Inspector to prevent adverse impacts to environmentally sensitive areas.

5.2.1 Temporary Control Measures

The intention of temporary erosion and sediment control measures is to provide interim control of erosion and sedimentation during construction by minimizing unintended soil disturbance and the transportation and unwanted deposition of sediment. The work shall consist of furnishing, installing, maintaining, and removing temporary erosion and sediment control measures as shown on the Project plans or as directed by the Project Engineer or Environmental Inspector for the duration of Project construction to control erosion, sedimentation, and water pollution. This objective will be accomplished through the use of temporary mulching, seeding, check dams, sediment traps, turbidity curtains, silt fences, or other such devices.

The temporary erosion and sediment control provisions contained herein are in accordance with the requirements of the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities, Permit No. GP-02-01.

The retention of erosion and sediment controls after completion of the 46 kV line will be coordinated with the permanent erosion and sediment control features. To the extent practical the coordination of these controls will assure economic, effective and continuous erosion, sedimentation and water pollution control throughout the construction and post construction period.

Unless otherwise stated elsewhere in the contract documents, the materials used to construct temporary erosion and sediment control measures shall be as identified on the EWP Maps, the SWPPP, and as stated herein.

- **Silt Fence**

It is anticipated that much of the erosion and sedimentation controls associated with the construction of the 46 kV line will consist of silt fence installations. Silt fences are typically used to control sediment transport and stormwater runoff into downslope areas adjacent to the ROW and into nearby and lower-lying wetlands and streams.

Field constructed silt fence assemblies shall consist of a geotextile (woven type) fabric, posts, mesh reinforced backing, and fasteners (**See Detail 13 “Silt Fence”**). Prefabricated silt fence systems may be used provided that all requirements of this specification are met and they are approved for Project use.

- **Posts.** Posts shall be wood or synthetic. Softwood posts shall be 1.5 in. x 3.5 in. and 4.3 ft. in length.
- **Mesh Reinforcement.** Mesh reinforcement (supersilt fence) shall be polypropylene with a maximum of 0.2 in. x 1.9 in. openings or 14 gauge (minimum) welded wire mesh with a maximum of 3.9 in. x 3.9 in. openings. Either mesh shall be a minimum 29.9 in. wide.
- **Fasteners.** Fasteners shall be heavy duty staples, hog rings, tie wires, or any other fastener compatible with the post material and approved by the Environmental Inspector.

Installation of a silt fence involves the following:

1. Posts shall be driven into the ground, or adequately anchored if in rock.
2. Geotextile and mesh reinforcement shall be placed on the up flow side of the posts.
3. The geotextile shall be attached to each post in no less than 4 locations with approved fasteners.
4. The mesh reinforcement shall be attached to each post at the top, bottom and two additional evenly spaced locations, or by a continuous corded attachment along the top of the assembly.
5. Any geotextile or mesh splices necessary for fence erection shall be continuous between two post sections.
6. Geotextile at the bottom of the fence shall be buried in a trench to a depth of 6 in (150 mm.) The trench shall be back filled with the excavated soil and the soil compacted by tamping.

The silt fencing should generally be placed at the following locations (see EWP Maps):

1. Across the full construction ROW at all waterbody and wetland crossings.
2. Along the edge of construction ROW if a waterbody or wetland is near the construction, or if a wetland is within the ROW.
3. At the base of slopes adjacent to road crossings where vegetation has been disturbed within the following distances from the road:

Slope	Vegetation Strip Required
<5%	25'
5-15%	50'
15-30%	75'
>30%	100'

4. In locations that have steep slopes and require extra strength silt barriers, use mesh-reinforced silt fence due to the potential for higher water flow and sediment loads.
5. Around spoil piles in the vicinity of waterbodies and wetlands.
6. Other areas as designated by the Environmental Inspector
7. Not in areas of concentrated flow such as ditches, swales, channels, etc.

Care of Fence During Construction:

1. The contractor shall continuously maintain the integrity of the silt fence, and shall provide all necessary labor, equipment and materials, until earthwork construction is completed and permanent erosion control measures are in place. The Environmental Inspector shall inspect all silt fences immediately after each storm and at least daily during prolonged rainfall to determine if the structure is functioning as designed. Any deficiencies shall be immediately corrected by the contractor. Should the silt fence become damaged or otherwise ineffective while the barrier is still necessary, it shall be repaired or replaced promptly.
2. Sediment deposits shall be removed whenever the deposit or debris buildup creates “breaches” or “bulges” in the fence or more than 1/3 of the height of the fence is filled with accumulated sediment. All sediment deposits shall be considered unsuitable material and shall be disposed of on upland areas away from wetlands, watercourses or other bodies of water.
3. The contractor shall immediately repair or replace defective or damaged portions of the fence assembly. Torn or punctured fabric shall be repaired by the placement of a patch, on the upslope side, consisting of an additional layer of fabric over the damaged area. Maintenance should continue until permanent erosion and sedimentation control measures are in place, established or stabilized to the satisfaction of the Engineer.

Fence Removal:

The silt fence shall remain in place until the area is permanently stabilized as shown in the EWP Maps and the Project Engineer (or Environmental Inspector) directs that it be removed. The fence materials shall become the property of the contractor and be removed from the site. The contractor shall remove and dispose of any sediment accumulations and restore the area as directed by the Project Engineer (or Environmental Inspector).

- **Mulch**

Mulch shall be as listed in **Table 4-3, “Standard Product Sheet”** or other suitable material acceptable to the Environmental Inspector. Other than for winter stabilization, the use of straw should be minimized, if used at all possible, per APA preference. When mulching is used in conjunction with temporary seeding, the mulch shall be spread uniformly in a continuous blanket of sufficient thickness to hold the soil in place. Mulch may be spread by hand, mechanical spreaders or blowers. The use of blowers to spread straw should not be done on excessively windy days. On windy days, a hydroseeding machine may be used to spread mulch and grass seed, along with tackifiers to hold the mulch in place. If the temperature is below freezing and temporary stabilization needs to occur, a hydroseeding machine can be used to spread mulch as long as the slurry to be applied is constantly agitated, all of the slurry material is completely used up and the equipment is thoroughly cleaned up immediately after use. This application of mulch will be left to the discretion of the hydroseeding machine operator. If at any time it is determined that the mulch has not stabilized the slope, the contractor shall be responsible for stabilizing the area.

- **Seed**

Seed not otherwise specified in the contract documents shall be quick growing (such as annual rye grass) suitable to the area as a temporary cover, which will not compete with the grasses sown for permanent cover. Blends of different types of seed such as trefoil, vetch, red top, rye, bluegrass, tall fescue and short fescue are recommended because the diversified blend can do well in many different soil and sun exposure conditions. If any legumes are to be used in a seed blend, they must be inoculated with the bacterium that is required for their growth. As preferred by APA, the grass varieties selected for use shall not be invasive (such as reed canary grass or switch grass).

The Agway Adirondack seed mix, DOT mix, and Niagara Mohawk mix were reviewed and were determined to conform to the guidance provided by the St. Lawrence County Natural Resource Conservation Service (NRCS) staff. The APA development guide recommends that individual county NRCS offices be contacted for seed recommendations. The Adirondack mix is a combination of 43.65% Boreal creeping red fescue, 34.3% perennial rye grass and 17% Canadian bluegrass. Prior to the application of the seed, the contractor shall scarify all areas where compaction has occurred. The seedbed shall be loose and friable for positive seed retention. Seed shall be spread uniformly to cover the ground by any method of sowing that does not injure the seeds in the process of spreading (broadcast, by hand, hydroseeding etc.). Mulch shall be spread immediately following application of seed. Mulch and seed shall not be placed simultaneously, except in the case of hydroseeding.

Other suggested seed blends that can be used when temporary seed and mulch is specified for late summer and fall seasons (unless otherwise specified in contract documents) include:

DOT late summer and fall:

Ryegrass (annual or perennial)	20 lbs/acre or 0.45 lbs/ 1000 ft ²
Cereal or Winter Rye	112 lbs/acre or 2.5 lbs/ 1000 ft ²
Winter Wheat	120 lbs/acre or 2.75 lbs/ 1000 ft ²

Niagara Mohawk Gas:

Red Fescue	20 lbs/acre
Redtop	2 lbs/acre
Tall Fescue	20 lbs/acre

- **Rolled Erosion Control Products (RECP)**

RECP's (blankets and mats) can be effective in minimizing the erosive effect of rainfall when used to cover bare or newly planted soil. Their use stabilizes the soil to protect new plantings and reduces the potential for introducing sediment into storm water run-off. RECP's shall be specified by the Environmental Inspector of Niagara Mohawk Engineer for protection of newly graded slopes, open areas, or drainage swales to allow germination of seed mixes and plantings. When determined to be necessary by the Environmental Inspector, RECP can be used for temporary erosion control on highly erodible areas, specifically streambank pullbacks and at entrances of wetlands.

RECP's are biodegradable materials that can be used to protect disturbed slope and channel areas from wind and water erosion. The blanket materials are natural materials such as straw, wood excelsior, coconut, or are geotextile synthetic woven materials such as polypropylene.

RECP's, when installed properly will:

- Increase water infiltration into the soil.
- When used with a seed mix, protect the mix from being eroded during heavy rainfall or wind.
- Increase the retention of soil moisture to promote seed germination.
- Reduce soil erosion.

Proper soil surface preparation is critical to the effectiveness of the installation of RECP's:

- All rocks, clods, debris, and vegetation should be removed to ensure full contact between the blanket and the soil surface.
- Follow the manufacturers' recommendations for seed application requirements when used with blanket installation.
- Staple according to manufacturers' recommendation.
- Prepare lock-in trench in accordance with manufacturers' recommendation.
- The blanket should be anchored to the soil using metal wire staples as recommended by the manufacturer.
- The staples should be driven through the blanket and into the soil, flush with the soil surface.
- Erosion Control Blankets should not be used where final vegetation will be mowed, because material and staples may be caught in the mowers.

Inspection and maintenance of RECP's should be conducted as follows:

- Inspect the site during installation.
- Inspect the installation before, during and after significant rain events.
- Repair or replace all damaged materials.
- Recompact all soil washout areas.

• **Turbidity Curtain**

The turbidity curtain is installed in a waterbody when work is required in or near a waterbody. Its purpose is to catch sediment and runoff that may enter into a waterbody from a work area preventing the sediment from reaching the rest of the waterbody and, therefore, maintaining downstream water quality. Turbidity curtain assemblies consist of a geotextile and a flotation, securing and anchoring system (See **Detail 14, "Turbidity Curtain"**). Prefabricated turbidity curtain systems may be used provided that all requirements of these specifications are met. The flotation, anchoring and securing system shall be fabricated to hold the curtain in place and keep it on the bottom and shall be as shown on the plans and meet approval of the Environmental Inspector. The geotextile shall be of the woven type. Turbidity curtains will be used in stream channels when directional drilling is used. This will protect the waterway from ancillary siltation.

Installation details, unless otherwise specified, require that the turbidity curtain:

1. Be “anchored” and secured to prevent any material from passing beneath, over, around or through the barrier.
2. Have a flotation system that will float if punctured or cut.
3. Have sufficient slack to permit the curtain to rise to the maximum expected high water level including wave action without being overtopped and still be in continuous contact with the bottom.
4. Have adjacent portions of the curtain secured so that suspended soil will not pass between the sections. Where the Environmental Inspector requires sewn seams, the fabric will be overlapped 3.95 in (100 mm) and be stitched with two rows of thread that is rot and ultraviolet resistant.
5. Not be placed across a flowing stream.

Care of the turbidity curtain during its operation includes the following measures:

1. The contractor shall immediately repair or replace defective or damaged portions of the turbidity curtain.
2. The turbidity curtain shall remain in place until such time that the water contained within is free from turbidity. The curtain shall be removed within 72 hours after this determination has been made.
3. The area behind the turbidity curtain shall be cleaned prior to removal. All sediment deposits shall be considered unsuitable material and shall be deposited on upland areas away from wetlands, watercourses or other bodies of water.

Curtain Removal:

1. At the completion of the applicable construction work, the turbidity curtain shall be removed in such a manner so as to minimize release of sediment adhering to the turbidity curtain.
2. After removal, the turbidity curtain shall become the property of the contractor and shall be removed from the site and disposed of properly.

- **Gravel Bag and Sand Bag Check Dams**

Gravel bags may be used to form check dams along a ditchline or to construct a temporary sediment basin to receive a muddy water discharge.

Bags shall be fabricated from reinforced woven geotextile and shall include ties (**See Detail 15, “Gravel and Sand Bag Check Dam”**). No burlap bags are allowed. Sand or gravel shall be used as the fill material. All material for gravel/sand bags shall be double bagged, inversely inserted and each bag tied to prevent leakage. Temporary erosion and sediment control measures shall be inspected by the contractor and maintained during the life of the Project, including winter shutdown, etc. and such maintenance and inspection shall continue after the permanent stabilization measures are in place and the temporary control measures are ordered to be removed by the Environmental Inspector, and the disturbed area is returned to its original

condition. The remaining disturbed areas shall be permanently stabilized consistent with the adjacent permanently stabilized area.

Unless otherwise authorized by regulatory agency personnel or approved Project permits, under no conditions shall any area of unprotected erodible earth material exposed by clearing and grubbing, excavation, borrow or fill or other work within the ROW be left in an unprotected condition for a period of greater than 14 days.

- **Rock Check Dams**

Rock check dams are constructed in a ditch line to control stormwater runoff velocity.

Rock check dams shall be constructed as shown and located on the plans and as directed by the Environmental Inspector (**See Detail 16, “Rock Check Dam”**). A bedding type geotextile and/or stone scour protection shall be placed as directed on the plans. Dams shall be inspected by the Environmental Inspector after each storm event, or if no storm occurs, at the end of each week. At the time of inspection the contractor shall:

1. Repair the dams as necessary.
2. Remove any sediment deposits that exceed one half the height of the dam.
3. All sediment deposits shall be considered unsuitable material and shall be deposited on upland areas away from wetlands, watercourses or other bodies of water.

- **Sediment Basins**

Temporary sediment basins will be used to protect surface water resources from runoff produced during the course of a Project. The purpose of the sediment basins is to intercept sediment laden runoff to reduce the amount of sediment leaving the disturbed area in order to protect downstream resources. Locations of temporary sediment basins will be determined prior to construction and their locations will be designated on the Project plans. The basins will be spaced using the Revised Universal Soil Loss Equation (RUSLE). Details regarding the design and spacing of sediment basins for this Project are included in **Attachment 2**.

Temporary sediment basins shall be constructed as directed by the Environmental Inspector (**See Detail 17, “Temporary Sediment Basins”**). The contractor or Environmental Inspector shall inspect the sediment basin after each storm event, or at the end of each week. At the time of inspection the contractor shall:

1. Repair the sediment trap as necessary due to water or other damage.
2. Remove any sediment deposits whenever the capacity has been reduced by fifty percent from the design capacity.
3. All sediment deposits shall be disposed of on the upland areas away from wetlands, watercourses or other bodies of water.

After the surface area draining into the sediment basin has been satisfactorily stabilized, the contractor shall remove the installation (accumulated sediment, etc.) and properly dispose of any waste materials.

- **Siltbag Dewatering Device**

Siltbags, or equivalent, will be used for dewatering at bore site bore pits and receiving pits, as necessary to protect surface water resources from sediment laden runoff. See **Detail 18, "Siltbag."** Siltbag pads will be set at least 150 feet from a designated water resource and approved by the Environmental Inspector. Siltbags can be connected directly to a 4 inch discharge pipe and may be installed on a slope. Efficiency can be increased by placing the Siltbag on an aggregate or straw bale bed to maximize water flow through the surface area of the bag. Siltbags are full when they no longer efficiently filter sediment or pass water at a reasonable rate. Under most circumstances Siltbags will accommodate flow rates of 1100 gallons per minute. The contractor shall not use excessive flow rates or overfill the Siltbags as they may rupture or fail at the discharge hose connection. When a Siltbag is full, it shall be cut open and rolled with a backhoe or other appropriate equipment already onsite. Sediment will be removed from the Siltbag onsite and graded or used as bore pit/receiving pit fill, whichever is appropriate. The Siltbag fabric must be removed from the site and disposed of properly along with construction debris.

5.2.2 Permanent Control Measures

- **Water Bars**

The use and placement of water bars is highly variable, and influenced by such factors as the height of surrounding embankments, natural topography, the presence of desirable vegetation, the road surface material and it's tendency to erode, and man-made features such as structure or pole locations. See **Detail 19, "Water Bar."** Water bars are usually placed on a diagonal, across the road at a preferred 60 degree angle, in order to gradually turn the water out of the up gradient ditch and across the road. Water bars will be excavated below the original road grade and the spoil bladed to blend with the surrounding contours beside the road. A settling basin may be excavated at the end of the water bar to trap sediments carried by runoff before the runoff can enter any sensitive stream or wetland areas. The water bar can empty into a slash pile or into an area that has rip-rap, logs, or stone. These may be particularly effective prior to the revegetation of an embankment.

The design height of the water bar shall be a minimum of 18 inches measured from the channel bottom to ridge top. The side slopes shall be 2:1 or flatter, a minimum of 4:1 where vehicles cross. The base width of the ridge shall be six feet minimum. The positive grade shall not exceed 2%. A crossing angle of approximately 60 degrees is preferred. Water bars must also have a stable outlet. The spacing of the water bars shall be as follows.

Slope (%)	Spacing (feet)
< 5	125
5 to 10	100
10 to 20	75
20 to 35	50
> 35	25

Level spreaders may be installed at the end of the water bar to capture sediments and spread the runoff over a larger area. The level spreader is installed by ditching parallel to the natural contour and the spoil should be spread on the uphill side of the level spreader so as to create an undisturbed outflow area. The length of the level spreader will vary dependant upon the terrain conditions, vegetation, and soil erodibility. The following table can be used as a guide to level spreader length:

Length of Level Spreader (feet)	Drainage Area (acres)
15	1.5
20	1.5 to 4
26	4 to 6
34	6 to 9
44	9 to 14

The low side of the level spreaders will have rock check dams to further trap and filter out sediments. Field adjustments and actual implementation of each water bar will be directed by the Environmental Inspector for each site-specific condition or as shown on the EWP Maps.

- **Culverts**

Existing flow patterns of watercourses will be maintained where permanent crossings must be installed. The Project Engineer or Environmental Inspector will size the culverts according to existing site conditions.

- **Rock Check Dams**

Rock check dams will be installed according to **Section 5.2.1, “Temporary Control Measures”** of this document and will remain in place after construction is completed.

5.3 Stabilization Practice

The work site shall not be graded unless absolutely necessary to complete the work at each site. Grading outside of a regulated area shall be kept to the minimum extent necessary for safe and efficient operations. The work site shall be promptly re-graded, re-seeded, and mulched to reduce erosion and visual impacts as soon as possible following the work at the site. Grading within a regulated area shall be subject to the review and approval of the Environmental Inspector or the Project Engineer and conditions of approved Project permits.

When the work site requires excavation and grading, the top soil shall be stockpiled separately from the material excavated and this top soil shall be spread as a top dressing over the disturbed area during restoration of the site.

5.3.1 Permanent

Any areas which are disturbed shall be stabilized using permanent seed mix of native grasses as specified in Section 5.2.1. In addition, native plants will be used to reclaim slopes, underbrush areas, etc. Native plants may be used in areas where a specified cover story must be maintained.

5.3.2 Additional Controls

All temporary erosion control devices will be removed after site stabilization is complete. Devices will be removed in accordance with Section 5.2.1 of this document.

5.3.3 Conceptual Sediment Basin Sizing/Spacing Calculations

The final construction plans will utilize the table in **Attachment 2** to place the initial sediment basins. The Environmental Inspector shall place additional basins during construction where necessary.

5.4 Stormwater Design Specifications

5.4.1 Erosion Control Placement on Project

The EWP and accompanying drawing set identify the preferred erosion and sedimentation control practices that will be implemented and the approximate location of the selected controls. These locations will be field-adjusted based on the direction of Environmental Inspector and the contractor's experience.

5.4.2 Temporary Stabilization for Winter Construction/Frozen Conditions

To reduce the frequency of the weekly site inspections to monthly for SWPPP compliance, the operator must complete stabilization activities (perimeter controls, traps, barriers, etc.) before proper installation is precluded by snow cover or frozen ground (inspections must still be done at least 24 hours after a 0.5 inch rainfall). If a vegetative groundcover stabilization cover is desired, seeding, or planting must be scheduled to avoid die-off from fall frosts and allow for proper germination and establishment. The latest that plantings can occur and still establish before fall frosts is September 30. All erosion and sediment controls must be installed and maintained according to the NYS Standards (Blue Book). The main items to consider are:

1. Site Stabilization - All bare/exposed soils must be stabilized using vegetation, mulch, matting, rock or other approved products such as rolled erosion control product. To avoid accidental introduction of invasive species, no haybales (grass forage) are to be used for mulch or sediment barriers. In limited circumstances, straw may be approved for use. Seeding of areas along with mulching is encouraged; however, seeding alone is not considered acceptable for proper stabilization.
2. Sediment Barriers - Barriers must be properly installed at all necessary perimeter and sensitive locations.
3. Slopes - All slopes and grades must be properly stabilized with approved methods. Rolled erosion control products must be used on all slopes greater than 3:1, or where conditions for erosion dictate such measures.
4. Soil Stockpiles - Stockpiled soils must be protected by the use of established vegetation, an anchored-down mulch rolled erosion control product or other durable covering. A silt fence must be installed around the pile to prevent erosion and sedimentation away from that location.
5. Construction Entrance - All entrance and exit locations to the site must be properly stabilized and must be maintained to accommodate snow management as set forth in the NYS Standards and Specifications for Erosion and Sediment Control.
6. Snow Management - Snow management must not destroy or degrade erosion and sediment control practices, for instance, in planning a substation so that crushed stone accumulates at drain pipes.

Frozen ground, winter conditions and equipment can affect erosion and sediment control practices. Erosion and sediment control devices must be checked for damage during monthly inspections and repairs made as necessary. This is especially important during thaws and prior to spring rain events. Weekly inspections must resume no later than March 15 or as directed by the NYSDEC (SPDES General Permit info GP-02-01).

5.4.3 Construction Monitoring, Inspections, and Record Keeping

Inspections of the stormwater pollution prevention system will be completed weekly and following rainfall of more than 0.5 inches. Post-rainfall inspections are to be completed within 24 hours following the end of the rain event. Inspection results are to be documented using standard inspection report forms found in **Attachment 2** of this EWP.

The SWPPP will be held at the field construction office along with copies of completed inspection reports.

During construction and until site restoration has been completed, the ROW will be periodically inspected by the Environmental Inspector.

5.4.4 Permanent Stormwater Management Maintenance Procedures

Permanent stormwater management controls are identified on the Project work plans and will be installed as specified. These will be subject to periodic inspection by the Niagara Mohawk Forester and other personnel during routine ROW management follow up inspections, line inspections, and line maintenance activities. Should situations occur where maintenance is required to ensure proper stormwater management (e.g. plugged culverts, access road erosion, storm damage, etc.), appropriate measures will be taken to correct the situation.

6.0 STANDARDS FOR RESTORATION, HANDLING OF CHEMICAL SUBSTANCES, AND SUPERVISION

6.1 Material Management/Debris Cleanup

6.1.1 Removal of Existing Poles

During the construction of the Tri Lakes Project, there will be areas where old wood poles are removed and replaced with new poles. Wood disposal (poles, pole butts, crossarms, braces, etc.) will be handled in a manner consistent with Niagara Mohawk policy.

During production, wood poles are preserved by pressure-treatment methods using US EPA registered pesticides. The pesticides - creosote, pentachlorophenol (“penta” or PCP), chromated copper arsenates (CCA), or copper naphthenate - are not currently regulated as hazardous waste under State or Federal regulations at the levels present in treated wood. For disposal purposes, discarded treated wood is classified as a “construction and demolition” (C&D) solid waste according to NYSDEC guidance.

All discarded treated wood must be returned to the marshalling yard for proper disposal.

Treated wood wastes should be handled as non-hazardous solid wastes. Treated wood wastes can be stored in open-topped containers, or in storage yards, preferably on a paved area at company facilities. However, due to the nature of the operations for 46 kV line and cross-country distribution activities, treated-wood wastes may be temporarily stored on the ground surface. Transmission and Distribution Projects may require that waste poles be stored on the ground in field locations for short periods of time prior to off-site shipment for disposal.

Niagara Mohawk personnel should take the following precautions when handling used treated wood:

- Avoid frequent or prolonged contact (with skin); and,
- Wash hands thoroughly prior to eating, drinking, or use of tobacco products.

C&D wastes such as treated wood are exempt from the waste transporter permit requirements.

Treated wood shall be placed in the appropriate container for proper disposal. Discarded treated wood poles may only be disposed of at a location outside of Adirondack Park. Treated wood products are not accepted at the St. Lawrence County transfer station in Star Lake.

6.2 Good Housekeeping and Material Management Practices

A. Debris Clean Up

During clearing, construction, and restoration activities, work crews will be required to promptly clean up debris and trash as they move from one work location to the next. The clearing, construction, and restoration contractors shall continually remove and properly dispose, at an approved site, all refuse from the ROW during all phases of the construction process to ensure that no refuse remains on the ROW at Project completion. The contractor is reminded that there is to be no burning of crates or other refuse on the Project ROW. The contractor will notify the Environmental Inspector of all proposed refuse disposal locations. When construction and restoration are complete, the site will be free of all construction debris, with temporary structures, material, equipment and all other items specified to be removed. The Environmental Inspector will review debris removal on a continual basis during construction and will conduct a follow up ROW review after completion of each phase of work with the contractor to assure that all debris is removed.

B. Debris Disposal

The St. Lawrence County Solid Waste Department provides solid waste disposal and recycling services at four locations, Ogdensburg, Massena, Gouverneur, and Star Lake. The Star Lake facility is operated Wednesday, Friday and Saturday. Based on a conversation with the Star Lake facility Director, it is noted that with advance notice the Star Lake facility hours could be modified to provide more flexible hours for this Project.

Construction and demolition materials must be separated into metal and cardboard. All construction and demolition materials must be smaller than four (4) feet long. The current fee for waste is \$92 per ton, however a rate reduction is provided with a three-day advance notice of the Project and establishing a credit account with St. Lawrence County. The County cannot provide any receptacles for Project site waste storage. These must be provided by private contractors, and dumpsters will be used to store the poles for disposal.

C. Recycling

Finally, Niagara Mohawk maintains an Investment Recovery facility in Liverpool, New York. This facility has the capability to recycle wire (i.e. used conductor) and other waste materials resulting from retired or rehabilitated electric facilities. Investment Recovery will provide bins and tubs to be placed on the contractor's storage yard(s) for receipt of materials to be recovered on this job. Hardware will also be taken to Investment Recovery for disposal or repair.

6.2.1 Requirements for the Use of Pesticides

As noted in Section 4.3.3.3, pesticides (herbicides) will be used during the initial clearing of the ROW to treat cut stumps in upland areas. Pesticides are to be used only if approved by the NYSDEC and in accordance with Niagara Mohawk's PSC-approved "Transmission ROW Management Plan", October 1989, revised November 2003, any APA regulations, label directions, and permit requirements. In accordance with Niagara Mohawk's Plan, herbicide use will be in such a manner and under such wind and other conditions as to prevent contamination of people, pets, fish, wildlife, crops, property, structures, lands, pasturage or waters adjacent to the construction area. During pesticide use, the State-certified applicator, certified technician or commercial pesticide apprentice must have access to a copy of the label for each pesticide being used and must make each label available for inspection upon request of any New York State regulatory agency.

A. Cleansing and Disposal of Pesticides and Containers

Generally, empty pesticide containers may be disposed of in an approved sanitary landfill after they are properly rinsed and cleansed and made unusable. Returnable containers must be tightly closed to prevent leakage, the exterior cleaned, and the containers returned to the supplier. Unwanted or unusable pesticides may be subject to more stringent disposal requirements including EPA and DEC hazardous waste disposal regulations. The Niagara Mohawk Environmental Inspector or the Niagara Mohawk Environmental Department should be contacted to coordinate the removal and disposal of any unwanted or unused pesticides. The pesticide label also contains container disposal guidance information.

B. Training and Safety

Prior to any pesticide application, a State-certified pesticide applicator must provide safety information and training to individuals using pesticides.

C. Applicator Certification Requirements

The application of pesticides must be accomplished by, or under the supervision of, a certified commercial pesticide applicator certified pursuant to NYSDEC requirements. The certified commercial pesticide applicator must possess a valid identification card issued by the NYSDEC and make such card available upon request. Full certification is not required for "technicians" and "apprentices" who meet the requirements set forth in 6 NYCRR, Part 325 and are using pesticides under the on-site or off-site direct supervision of a certified commercial pesticide applicator as defined in the Part 325 regulations.

D. Pesticide Product Registration

All pesticides used by Niagara Mohawk, or those under contract to Niagara Mohawk, must be registered by both the EPA and the NYSDEC. Any such pesticide will contain the EPA registration number on the label.

E. Spills

Pesticide spills of any quantity should be reported to the Niagara Mohawk Environmental Department immediately to determine if a reportable quantity spill threshold has been exceeded. Depending on the specific pesticide spilled, regulatory agency notification may also be required. Refer to the pesticide spill section of this EWP for detailed guidance on pesticide spill reporting and additional guidance on pesticide spill cleanup requirements.

F. APA Permit Requirements

In addition to the requirements noted above, the APA regulates the application of pesticides within State-regulated wetlands and the 100-foot buffer zone surrounding such wetlands. Any such application of pesticides to wetland and wetland buffer zone areas requires a Freshwater Wetlands Permit from the APA and pesticide applications must conform to the conditions of the APA permit. A copy of a valid permit must be maintained in the field by the supervising certified applicator and must be available for inspection if requested. The Niagara Mohawk's Environmental Department is responsible for obtaining such permits and should be consulted with any questions relating to the need for permits.

6.2.2 Hazardous Material Spill Prevention Practices

Other than the use of the NYSDEC and EPA approved herbicides as noted above, it is not anticipated that any hazardous materials will be used during the construction of the 46 kV line nor will such materials be stored at the construction site.

A. Hazardous Products

These practices are used to reduce the risks associated with hazardous materials.

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data sheets will be retained; they contain important product information.
- If surplus product must be disposed of, Niagara Mohawk Environmental Procedures and/or manufacturers' or local and State recommended methods for proper disposal will be followed as prescribed by the Environmental Inspector or the Niagara Mohawk Division Environmental Engineer.

B. Spill Prevention – Product Specific Practices

The following product specific practices will be followed on site.

Petroleum Products:

- Construction personnel should be made aware that emergency telephone numbers are located in this EWP.
- The contractor shall immediately contact the Environmental Inspector and, as appropriate, the NYSDEC in the event of a spill, and shall take all appropriate steps to contain the spill, including construction of a dike around the spill and placing absorbent material over this spill.
- The contractor shall instruct personnel that spillage of fuels, oils, and similar chemicals must be avoided and will have arranged with a qualified spill remediation company to serve the site.
- Fuels, oils, and chemicals will be stored in appropriate and tightly capped containers. Containers shall not be disposed of on the Project site.
- Fuels, oils, chemicals, material, equipment, and sanitary facilities will be stored/located away from trees and at least 100 feet from streams, wells, wet areas, and other environmentally sensitive sites.
- Chemical containers and surplus chemicals will be disposed of off the Project site in accordance with label directions.
- Connections and hoses will be used with appropriate nozzles in all operations involving fuels, lubricating materials or chemicals.
- Funnels will be used when pouring fuels, lubricating materials or chemicals.
- Construction equipment will be refueled and cleaned in parking areas to provide rapid response to emergency situations.
- On-site vehicles will be monitored for leaks and provided with regular preventative maintenance to reduce the chance of leakage. Any vehicle leaking fuel or hydraulic fluid will be immediately scheduled for repairs and its use will be discontinued until repairs are made.

Fertilizers:

- Fertilizer will be stored in its original containers on pallets with water resistant coverings.
- Proper delivery scheduling will minimize storage time.
- Any damaged containers will be repaired immediately upon discovery and any released fertilizer will be recovered to the fullest extent practicable.

Paints:

- All containers will be tightly sealed and stored when not required for use.
- Excess paint will not be discharged to the storm water system or wastewater system, but will be properly disposed of according to Niagara Mohawk Environmental Procedures and manufacturers' instructions or State and local regulations.

Concrete Trucks:

- Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water only at designated locations on site.

Asphalt Trucks:

- Asphalt trucks shall not discharge surplus asphalt on the site.

C. Spill Control Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup. The Environmental Inspector, or in the Environmental Inspector's absence the Field Construction Supervisor responsible for the day-to-day site operations, will be the spill prevention and cleanup coordinator. The Environmental Inspector or Field Construction Supervisor will designate at least three other site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention, reporting, and response. The names of responsible spill personnel will be posted in the material storage area and in the onsite construction office or trailer.

- Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies. Any spill in excess or suspected to be in excess of two gallons will be reported to the NYSDEC Regional Spill Response Unit. Notification to the NYSDEC (1-800-457-7362) must be completed within two hours of the discovery of the spill.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials will include but not be limited to absorbent pads, brooms, dust pans, mops, rags, gloves, goggles, activate clay, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with spilled substance.
- Spills of toxic or hazardous material will be reported to the appropriate State or local government agency, regardless of the size.

6.2.3 Management of Hazardous Material Spills/Releases

Should a hazardous material spill occur, it must be promptly reported to the Niagara Mohawk Division Environmental Engineer and the Project Environmental Inspector and cleaned-up in accordance with applicable Niagara Mohawk Environmental Procedures and the specific work instructions as applicable.

6.2.4 Oil Spill Reporting

With the operation of construction and other vehicles at the construction site, there is a potential for oil spills to occur. The following information summarizes Niagara Mohawk's procedure for the reporting of oil and petroleum spills.

Materials and substances constituting an oil spill include:

- Breaker oil
- Fuel oil
- Hydraulic oil
- Lubricating oil
- Motor oil
- Cable oil
- Mineral oil
- Diesel fuel
- Gasoline
- Any other oil product

- Niagara Mohawk’s Environmental Inspector or Construction Manager for this Project shall be promptly advised by the prime contractor of any spill of the aforementioned products.
- All oil spills are to be reported to the regulatory agencies by the Niagara Mohawk Regional Shift Supervisors, or designee, immediately (within 2 hours of discovery).
- All oil spills shall be followed up with an internal written spill report-refer to the **Figure 6-1, “Spill Response Forms.”**
- Contractors shall not sign any forms from governmental agencies on the scene. If necessary, indicate to officials that forms must be reviewed by Niagara Mohawk’s Law Department and contact the Environmental Inspector immediately.

A. Notification Criteria

All oil spills are to be reported regardless of quantity spilled. Notification to regulatory agencies must be made within 2 hours of discovery.

B. Procedure (Regional Field Personnel Reporting of Spill)

Notification shall be made immediately to the Regional Control Center or Trouble Office after discovery of the spill. The notification will include all information listed on the Spill Report Form, and will be provided to the appropriate office listed below:

Central Regional Operations Syracuse (315) 460-2796

Contact the Divisional Environmental Engineer for assistance with clean-up as considered necessary, and for any technical assistance.

Figure 6-1. Spill Response Form

<p>Niagara Mohawk A National Grid Company</p> <p style="text-align: center;">ENVIRONMENTAL GUIDANCE</p>	DOC NO. EG-201	Rev. No. 5
	PAGE 5 OF 6	
	DATE 05/22/03	

SUBJECT Oil Spill Reporting	SECTION Spill Reporting and Cleanup Procedures
---------------------------------------	--

OIL, HAZARDOUS SUBSTANCES AND PCB RELEASE REPORT FORM
NATIONAL GRID

Notify Manager Environmental Affairs NY/NJ of Category 1 incidents within 24 Hours

Forward copy of form to Manager of Env. Affairs NY/NJ or update database within 15 days

Others only _____

INCIDENT INFORMATION

Location of Incident _____
 Date of Incident _____
 Time of Incident _____
 Duration of Incident _____
 Co. Employee Reporting Incident _____
 Telephone Number _____
 Date of Report _____ Amended _____
 Material Released _____
 Quantity Released _____
 Source of Release _____
 Cause and Brief Description of Incident _____

DIELECTRIC FLUID RELEASES

Check all that apply

PCB CONCENTRATION OF FLUID:		BASED ON:	
<input type="checkbox"/> No PCB	< 2 ppm	<input type="checkbox"/> Noncapacitor	
<input type="checkbox"/> Non PCB	< 50 ppm	<input type="checkbox"/> Assemblies	
<input type="checkbox"/> PCB Contaminated	50-499 ppm	<input type="checkbox"/> Test Lead or Service Kit	
<input type="checkbox"/> PCB	≥ 500 ppm	Test No. _____	
		Lab Results _____	

Note: If transformer is not labeled, the oil must be screened with a Clean-Check® before cleanup can commence. If a CR is not available, the oil must be considered PCB Contaminated.

RESPONSE ACTIONS TAKEN

Nature of Cleanup Performed _____

Date and Time Cleanup Started _____ Date and Time Cleanup Ended _____

Cleanup Contractor Used _____

Date and Time Contracted _____ Date and Time Arrived _____

Environmental Consultant Used _____

Date and Time Contracted _____ Date and Time Arrived _____

ENVIRONMENTAL MEDIUM RELEASE INFORMATION

Check all that apply

<p>Air</p> <p><input type="checkbox"/> Equipped Fire</p> <p><input type="checkbox"/> Other _____</p> <p>Water</p> <p><input type="checkbox"/> Wetlands <input type="checkbox"/> Pond/Lake</p> <p><input type="checkbox"/> Stream/River</p> <p><input type="checkbox"/> Public Water Supply</p> <p><input type="checkbox"/> Storm/Sanitary Sewer</p> <p>Asphalt/Concrete</p> <p><input type="checkbox"/> Street <input type="checkbox"/> Sidewalk <input type="checkbox"/> Pad <input type="checkbox"/> Driveway</p>	<p>Soil</p> <p><input type="checkbox"/> Private Tract</p> <p><input type="checkbox"/> Farmland/Grassy Land</p> <p><input type="checkbox"/> Vegetable Garden</p> <p><input type="checkbox"/> Substation</p> <p><input type="checkbox"/> Other _____</p>
--	---

Comments _____

ITEMS FOR DISPOSAL

<input type="checkbox"/> Transformer	Mfg. _____	Apparatus Desc. _____	Serial/ID No. _____
<input type="checkbox"/> PCB Capacitor	Size _____		
<input type="checkbox"/> Non-PCB Capacitor	Voltage _____		
<input type="checkbox"/> Other _____	Serial No. _____		
<input type="checkbox"/> Other _____	Badge No. _____		

Was Facility Evacuated? Yes _____ No _____

Was Local Area Evacuated? Yes _____ No _____

Did Any Personal Injuries Occur? Yes _____ No _____

If Yes, Please Describe _____

CLEANUP CONTRACTORS

MA	Clean Harbors	1 800 663-6222	NY Western	Franklin & Partners Expense
MA	Moyle-Han Tech	1 413 499-2525	Primary	Environmental Products
RI	Clean Harbors	1 401 441-5200		& Services
NH & VT	Clean Harbors	1 802 844-3232	Secondary	GP Tech Environmental
	Maxmillian Tech	1 413 482-2050		1 315 871 7400
NY (Central)	Central & Mechanical Valley Region		NY Eastern	Capital & Architectural Expense
Primary	Mason Environmental	1 315 451-8041	Primary	Environmental Products
Secondary	AAA Environmental	1 315 434-2200		& Services
	Nortonne			1 518 463-4200
	GP Tech Environmental	1 315 244 1017	Secondary	North America
				Environmental

Revision Date: 5-02 OVER

APPROVED BY: VICE PRESIDENT - ENVIRONMENTAL

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ENVIRONMENTAL GUIDANCE

DOC NO. EG-201 Rev. No. 5

PAGE 6 OF 6

DATE 05/22/03

SUBJECT

Oil Spill Reporting

SECTION

Spill Reporting and Cleanup Procedures

AGENCY NOTIFIED (Check All That Apply)		PERSON CONTACTED	DATE REPORTED	TIME REPORTED	AGENCY REPORT#
<input type="checkbox"/>	State Environmental Agency				
<input type="checkbox"/>	State Emergency Response Commission (SERC)				
<input type="checkbox"/>	Local Emergency Planning Committee (LEPC)				
<input type="checkbox"/>	Local Sewer/Water Authority				
<input type="checkbox"/>	National Response Center (NRC)				
<input type="checkbox"/>	Environmental Protection Agency (EPA)				
<input type="checkbox"/>	Other				
<input type="checkbox"/>	Other				

Check One	Chemical Name	ID No (CASRN)	Health Risks	Special Medical Attention	Extremely Hot Substance
<input type="checkbox"/>	Asbestos	123214	Acute: Low oral toxicity; dermatitis Chronic: Asbestosis, mesothelioma and lung cancer.	Consult doctor for dermatitis and shortness of breath; cough. If eyes exposed, flush with water. If necessary, seek medical help.	NO
<input type="checkbox"/>	Gasoline	NA	Vapors harmful - irritating to skin, eyes and respiratory system. Acute: Headaches, dizziness, irritant Chronic: Liver & Kidney Damage; Sensitizer	Flush exposed areas with water for 15 minutes. If ingested, do not induce vomiting. If necessary, seek medical help.	NO
<input type="checkbox"/>	Oil	NA	Irritating to skin, eyes and respiratory system. Acute: Nausea, irritant Chronic: Skin Damage, sensitizer	Flush exposed areas with water for 15 minutes. If ingested, do not induce vomiting. If necessary, seek medical help.	NO
<input type="checkbox"/>	Mercury	543976	Severe cumulative poison to brain, liver and kidneys; corrosive Acute: Irritant, nausea, inflammation of mouth, salivation and metallic taste Chronic: Severe cumulative poison	Provide ventilation. If necessary, seek medical help.	NO
<input type="checkbox"/>	PCB Oil	133263	Irritating to eyes and mucous membranes, carcinogen. Acute: Irritant, corrosive Chronic: Liver damage, carcinogen embryotoxic	Flush exposed areas with water for 15 minutes. If ingested, give salt water and induce vomiting. If necessary, seek medical help.	NO
<input type="checkbox"/>	Sulfuric Acid	766493	Fermentant; eye irritant; severe harm to skin, eyes, mucous membranes. Acute: Severe burns Chronic: Lung/respiratory damage; erosion of dental enamel	Flush exposed areas with water for 15 minutes. If ingested, give milk of magnesia; do not induce vomiting. If necessary, seek medical help.	YES
<input type="checkbox"/>	1,1,1-Trichloroethane	71556	Inhalation of vapors; depression of Central Nervous System (CNS). Acute: Depression of CNS, dizziness, headache, nausea, vomiting and/or respiratory depression, unconsciousness and death, in extreme cases. Chronic: Liver, kidney or CNS damage	Move to fresh air. Flush exposed areas with water for 15 minutes. If ingested, do not induce vomiting; give plenty of water. If necessary, seek medical help.	NO
<input type="checkbox"/>	OTHER				

INCIDENT NOTIFICATION STATUS
<input type="checkbox"/> Reported to House Only
<input type="checkbox"/> Reported as a PCB Spill NY, MA, NH, VT: 1 pound or more PCB entered the general environment RI: Any amount of materials with a PCB concentration > 50 ppm entered the general environment
<input type="checkbox"/> Reported as a PCB Spill. An amount to air, water, grazing land, farmland, or a vegetable garden
<input type="checkbox"/> Reported as an Oil Spill: 2 in state PG of Oil entered the general environment
<input type="checkbox"/> Reported as a Release to Water: PCB, Oil, Hazardous Waste, or Hazardous Substance
<input type="checkbox"/> Reported as a Hazardous Substance Release

CERTIFICATION
I certify that the cleanup requirements of this spill (incident) have been met as applicable and that the information contained in this report is true to the best of my knowledge.
Signature: _____
Title: _____

To be Completed by Company Environmental Engineer

INDICATE CATEGORY OF INCIDENT
 (Refer to 57-13 Reporting of Environmental Incidents)

Category 1 - Significant Incident

Category 2 - Non-Significant Incident

Near Miss Incident

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AGENCY NOTIFIED (Check All That Apply)	PERSON CONTACTED	DATE REPORTED	TIME REPORTED	AGENCY REPORT#
<input type="checkbox"/> State Environmental Agency				
<input type="checkbox"/> State Emergency Response Commission (SERC)				
<input type="checkbox"/> Local Emergency Planning Committee (LEPC)				
<input type="checkbox"/> Local Sewer/Water Authority				
<input type="checkbox"/> National Response Center (NRC)				
<input type="checkbox"/> Environmental Protection Agency (EPA)				
<input type="checkbox"/> Other				
<input type="checkbox"/> Other				

Check One:	Chemical Name	ID No. (CASRN)	Health Risks	Special Medical Attention	Extremely Haz. Substance
<input type="checkbox"/>	Asbestos	1332214	Acute: Low oral toxicity, dermatitis Chronic: Asbestosis, mesothelioma and lung cancer.	Consult doctor for dermatitis and shortness of breath, cough. If eyes exposed, flush with water. If necessary, seek medical help.	NO
<input type="checkbox"/>	Gasoline	NA	Vapors harmful - Irritating to skin, eyes and respiratory system. Acute: Headaches, dizziness, Irritant Chronic: Liver & Kidney Damage Sensitizer	Flush exposed areas with water for 15 minutes If ingested, do not induce vomiting. If necessary, seek medical help.	NO
<input type="checkbox"/>	Oil	NA	Irritating to skin, eyes and respiratory system. Acute: Nausea, Irritant. Chronic: Skin damage, sensitizer.	Flush exposed areas with water for 15 minutes If ingested, do not induce vomiting. If necessary, seek medical help.	NO
<input type="checkbox"/>	Mercury	7439976	Severe cumulative poison to brain, liver and kidneys, corrosive. Acute: Irritant, nausea, Inflammation of mouth, salivation and metallic taste. Chronic: Severe cumulative poison	Provide ventilation. If necessary, seek medical help.	NO
<input type="checkbox"/>	PCB Oil	1336363	Irritating to eyes and mucous membranes, carcinogen. Acute: Irritant, chloracne Chronic: Liver damage, carcinogen embryotoxic.	Flush exposed areas with water for 15 minutes. If ingested, give salt water and induce vomiting. If necessary, seek medical help.	NO
<input type="checkbox"/>	Sulfuric Acid	7664939	Permanent eye injury, severe burns to skin, eyes, mucous membranes. Acute: Severe burns Chronic: Lung/respiratory damage, erosion of dental enamel.	Flush exposed areas with water for 15 minutes. If ingested, give milk of magnesia; do not induce vomiting. If necessary, seek medical help.	YES
<input type="checkbox"/>	1, 1, 1 Trichloroethane	71556	Inhalation of vapors; depression of Central Nervous System (CNS). Acute: Depression of CNS - dizziness, headache, nausea, cardiac and/or respiratory depression, unconsciousness and death, in extreme cases. Chronic: Liver, kidney or CNS damage.	Move to fresh air. Flush exposed areas with water for 15 minutes. If ingested, do not induce vomiting, give plenty of water. If necessary, seek medical help.	NO
<input type="checkbox"/>	OTHER				

INCIDENT NOTIFICATION STATUS

Reported In-House Only

Reported as a PCB Spill:
 NY, MA, NH, VT - 1 Pound or more PCB entered the general environment
 RI - Any amount of material with a PCB concentration \geq 50 ppm entered the general environment

Reported as a PCB Spill: Any amount to air, water, grazing land, farmland, or a vegetable garden

Reported as an Oil Spill: \geq to state RQ of Oil entered the general environment.

Reported as a Release to Water: PCB, Oil, Hazardous Waste, or Hazardous Substance

Reported as a Hazardous Substance Release

CERTIFICATION

I certify that the cleanup requirements of this spill (incident) have been met as applicable and that the information contained in this report is true to the best of my knowledge.

Signature _____

Date _____

To be Completed by Company Environmental Engineer

INDICATE CATEGORY OF INCIDENT
 (Refer to EP 15, Reporting of Environmental Incidents)

Category 1 - Significant Incident

Category 2 - Non Significant Incident

Near Miss Incident

C. Regional Control Shift Supervisor-Reporting of Spill

The regional control shift supervisor shall notify the following agencies immediately in the event of a spill:

- *New York State Department of Environmental Conservation at 1-800-457-7362.*
- *National Response Center at 1-800-424-8802 (Oil spills to water)*
- *Environmental Protection Agency Region II, Office of Pesticides & Toxic Substance Branch at (908) 321-6669 (If applicable)*

The following emergency telephone numbers are provided for any type of emergency including a fuel or chemical spill in the ROW.

St. Lawrence County Sheriff	(315) 379-2222
NY State Police (Ray Brook)	(518) 897-2000
St. Lawrence County EMS Coordinator	(315) 379-2240
Cranberry Lake Volunteer Fire Department	(315) 848-2937
Newton Falls Volunteer Fire Department	(315) 848-3573
Colton Fire Department	(315) 262-2333
Tupper Lake Fire Department (covers Piercefield)	(518) 359-2376
NYSDEC Spill Response (Business Hours)	(800) 457-7362
NYSDEC Region 6	(315) 785-2231
Adirondack Park Agency-Skip Outcalt	(518) 891-4050
NYSDEC Environmental Conservation Officers (ECO)	
Headquarters (Watertown)	(315) 785-2532
St. Lawrence County Zone 3	(315) 785-2231
NYSDEC Forest Rangers, Region 6	
Capt. Drew Cavanagh, Regional Forest Ranger, Watertown Office	(315) 785-2558
Lt. Robert Barstow, Zone Supervisor, Canton	(315) 265-3090
Joseph Kennedy, Piercefield	(518) 359-7030
Will Benzel, Wanakena	(315) 848-3710
NYSDEC Forester, Region 6, John Gibbs	(315) 265-3090
Spill Response Contractors	TBD
Niagara Mohawk Construction Office/Supervisor	TBD
Niagara Mohawk Project Engineer – Mike King	TBD
Niagara Mohawk Environmental Inspector - TBD	TBD
Niagara Mohawk Division Environmental Engineer - TBD	(315) 439-0712 (cell)
Niagara Mohawk Environmental Analyst – Scott Shupe	(315) 428-6616 (office)

If requested, the above agencies should be provided with the information they request from the Spill Report Form. See **Figure 6 1, “Spill Response Forms.”**

The Niagara Mohawk Regional Shift Supervisor shall use his best judgment on deciding whether or not a spill is of a highly sensitive or serious nature (from a possible public exposure, environmental, or public relations point-of-view) such as those involving surface waterbodies and/or public highway corridor. The Regional Shift Supervisor shall also notify Company Personnel as appropriate that are listed below:

- Manager–Media Relations-Notify respective Regional Directors
- Safety and Health Services Department-Notify respective divisional Safety Managers
- Legal and External Relations-Notify respective environmental Attorney and Public Affairs personnel
- Security-Notify Director, Security-New York
- Facilities Operations-NY-Notify the Manager, Facilities Operations-New York

Fax a copy of Spill Report form to:

Environmental Department (Fax No.: (315) 428-3549)
Divisional Environmental Engineer

Note: In the event a spill is reported at a substation on land owned by another entity, the Control Center will notify the party owning the property and the appropriate regulatory agencies

6.2.5 Herbicide Spill Reporting

Herbicide spills shall be reported to the regulatory agencies immediately within 2 hours of discovery, based on the established notification criteria summarized below.

Do not sign any forms from governmental agencies at the scene. If necessary, indicate to officials that forms must be reviewed by Niagara Mohawk's Law Department.

A. Notification Criteria

A spill is considered a herbicide spill whenever any of the following herbicide concentrates or mixtures (mixed spray as opposed to concentrate) are spilled either into water or onto land in a quantity exceeding the amounts shown below:

Herbicide	Concentrate Amount (Gallons)	Amount of Mixture (Gallons)	Reportable Hazardous Substances (RQ)
Garlon 3A	30	6,500	Triethylamine (100 lbs.)
Pathway*	50	*	2,4,D (100 lbs.)
Tordon RTU*	50	*	2,4,D (100 lbs.)
Tordon 101	50	10,000	2,4,D (100 lbs.)
Tordon 101R*	50	*	2,4,D (100 lbs.)
Weedone CB	150	168	2,4,D (100 lbs.)

* Ready Mixed

Note: The above list is subject to revision. If there is an herbicide spill of any quantity, you should call the Environmental Inspector and the Niagara Mohawk Environmental Department to determine if a reportable quantity has been exceeded.

B. Procedure (Regional Field Personnel Reporting Spill)

Notification shall be made immediately to the Niagara Mohawk Regional Control Center of Trouble Office after discovery of spill. The notification will include all information listed on the Report on Spills (EG-201), and will be provided to the appropriate offices listed below:

Central Region Operations-Syracuse (315) 460-2796

The Niagara Mohawk Shift Supervisor shall take the following action and notify the following agencies immediately:

- New York State Department of Environmental Conservation at 1-800-457-7362
- National Response Center at 1-800-424-8802
- If the Reportable Quantity is exceeded, the Local Emergency Planning Committee (LEPC) has to be notified (see Section 6.2.4 for contact information)

The Regional Shift Supervisor shall use his best judgment on deciding whether or not a spill is of a highly sensitive or serious nature (from a possible public exposure, environmental, or public relations point-of-view) such as those involving surface waterbodies and/or public highway corridors. The Regional Shift Supervisor shall also notify Company personnel as appropriate that are listed below:

- Manager of Media Relations. Notify respective regional directors.
- Safety and Health Services Department. Notify respective divisional Safety Managers.
- Legal and External Relations. Notify respective environmental Attorney and Public Affairs personnel.
- Security. Notify director security, New York
- Facilities Operations. Notify the Manager of Facilities Operations, New York.

If an outside cleanup contractor is necessary, contact the Environmental Inspector and Divisional Environmental Engineer.

Log and document the spill on the Spill Report Form. Include all pertinent information and include a photograph if possible. Send or fax copy of Spill Report Form to:

- Environmental Department
- Divisional Environmental Engineer
- Electric Operations
- Forestry Department

6.2.6 Marshalling Yards

Prior to start of construction, material such as poles, arms, and insulators may be placed along the ROW as part of the Project. Marshalling yards can be designated on or adjacent to the ROW to offload/stockpile construction material. These marshalling yards can not be within 50' of streams or wetlands, beneath trees or in the vicinity of other environmentally sensitive areas. The size of the marshalling yards should be minimal and the boundary of the marshalling yard should be clearly protected with fencing such as orange construction fencing. No refueling or vehicle maintenance should be conducted in marshalling yards within 100' of a wetland or waterway. The storage of refueling equipment, fuel, lubrication oil, chemicals or any other hazardous material shall not be in a marshalling yard that is within 100' of a stream or waterway. Temporary erosion and sediment control measures will be implemented in accordance with the appropriate procedures in regards to disturbed areas. As soon as the structure work has been completed, all un-used parts are to be picked up and removed from the ROW. In some cases, the used material from structure work may be temporarily stored at the work area by placing it out of wetlands or other sensitive areas. If work is discontinued for an extended period, all material must be removed from the ROW. Contact the Environmental Inspector for guidance on whether the work site must be restored.

6.2.7 Petroleum and Chemical Storage and Management

A. Fuel

Extreme caution should be exercised when handling fuel and while refueling to avoid spillage. No equipment refueling shall be done in the vicinity of streams or wetlands, beneath trees or in the vicinity of any other environmentally sensitive areas. If areas frequented by children are

identified in the ROW, the Environmental Inspector shall prohibit the storage of fuel, oil, chemicals, etc. and shall not permit refueling to take place in such areas. The contractor will notify the Environmental Inspector immediately if such areas are determined during construction, so that Niagara Mohawk may contact the appropriate landowner(s) and implement necessary safeguards.

In addition to these safeguards, the contractor shall:

1. Instruct personnel that spillage of fuels, oil, herbicides and similar chemicals must be avoided.
2. Store fuels, oils, and chemicals in appropriate and tightly capped containers. Containers shall not be disposed of on the ROW. Containers must be disposed of at appropriate facilities consistent with State and Federal laws and regulations.
3. Store fuels, oils, chemicals, material and equipment and locate sanitary facilities away from trees and at least one hundred (100) feet from streams, ponds, wells, springs and wet areas used as potable water supplies and other environmentally sensitive sites.
4. Dispose of chemical containers and surplus chemicals off the ROW in accordance with label directions, and applicable State and Federal laws and regulations.
5. Use tight connections and hoses with appropriate nozzles in all operations involving fuels, lubrication materials or chemicals.
6. Use funnels when pouring fuels, lubricating materials or chemicals.
7. Refuel and clean construction equipment away from access roads, in staging areas or along roadside areas whenever practical to provide rapid response to emergency situations, should a spill develop. All equipment will have an individual petroleum vehicle spill kit consisting of absorbent towels and pillows.
8. Dispose of any pesticide container in accordance with Federal and State rules and regulations. The contractor will not store pesticides on the ROW during clearing operations or construction. The contractor will take appropriate precautions to protect equipment and materials from vandalism and unauthorized use when left unattended on the ROW or on property not within a locked fence.

B. Aboveground Storage Tanks

Above ground petroleum storage tanks will either be concrete encased or have integral spill containment. Tanks are to be protected from collision impact by large barriers. Above ground storage tanks will be located at the marshalling yards or at other approved locations. Above ground tanks will not be sited on the ROW.

6.2.8 Vehicle Maintenance Activities and Locations

A. Grease, Oil, and Filter Change

When a routine maintenance lubrication or oil change is scheduled on vehicles or equipment in the field, Niagara Mohawk personnel or contractors at field locations are to bring vehicles or equipment to an access area away from environmentally sensitive areas (such as wetlands or

drinking water sources) if at all possible. A paved area such as a parking lot or roadway is preferred, to minimize the possibility of spill or release to the environment.

The driver is to take all usual and reasonable environmental and safety precautions during lubrication and oil/filter changes. It is especially important to wipe up all minor drips or spills of grease and oil at field locations.

If oil filters are taken out of service at the construction site, they shall be handled as follows:

- As each filter is taken out of service, it shall be gravity hot drained by
 - Either puncturing the filter dome ends or crushing the entire filter
 - Placing the filter on a funnel or drain screen which drains into a DOT approved steel closed head drum for the accumulation of oil
 - Allow filter to drain all remaining oil into the drum
- The punctured and drained oil filters shall either be accumulated in a DOT approved open head steel drum or discarded in a trash dumpster.
- If the drained oil filters are accumulated in a drum, the drum shall be labeled with a “Non-Hazardous Waste” label and marked to indicate that it contains “Drained Oil Filters”

B. Other Field Maintenance Operations

When other vehicle or equipment maintenance operations (such as emergency repairs) occur, Company personnel or contractors at field locations are to bring vehicles or equipment to an access area away from environmentally sensitive areas (such as wetlands or drinking water sources) if at all possible. A paved area such as a parking lot or roadway is preferred, to minimize the possibility of spill or release to the environment.

Take all usual and reasonable environment precautions during repair or maintenance operations. It is sometimes not feasible to move the affected vehicle or equipment from an environmentally sensitive area to a suitable access area. When this occurs, precautions should be employed to prevent oil or hazardous material release to the environment. These precautions include (but are not limited to) deployment of portable basins or similar secondary containment devices, use of ground covers, such as plastic tarpaulins, and precautionary placement of floating booms on nearby surface waterbodies.

6.2.9 Sites with Deed Restrictions

Properties where there has been a release of oil and/or hazardous materials may be “closed out” by placing a deed restriction on the property. The property is subject to restrictions on its use and on how work activities may be conducted in order to ensure that human health, safety and the environment are properly protected. If any such properties are identified along the ROW or in other work areas, appropriate information will be included on the Project plans. To determine if a deed restriction is in place or if there are questions about an area where you will be working, contact the Environmental Inspector who will coordinate with the appropriate Niagara Mohawk Divisional Environmental Engineer.

6.3 Other Controls

6.3.1 Sanitary Facilities (Portable Chemical Toilet)

Portable chemical toilets (PCT) will be available at various locations along the ROW. Also, PCT's will be available at storage yards and at current construction locations. PCT's will be pumped out and recharged with deodorant solution by a PCT contractor on a weekly basis. The construction contractor will also make available adequate supplies of potable water.

6.3.2 Off-Site Vehicle Tracking

During construction and maintenance of the ROW, construction vehicles will stay on the ROW or other designated and approved areas and refrain from any tracking off of the ROW and remain on work trail areas as much as possible.

6.3.3 Site Cleanup and Restoration

A. Clean-up and Restoration Standards

After construction has been completed, refer to the applicable Project permit requirements to determine if the site must be reviewed and/or inspected prior to removal of erosion controls.

B. Disturbed Areas

Unless otherwise specified in permits, all disturbed areas, including wetlands and access routes, shall be returned to original grade, seeded with a Conservation Seed Mix, and mulched.

C. Improved Areas

Yards, lawns, agricultural areas, and other improved areas shall be returned to a condition at least equal to that which existed at the start of the Project. Alternately, if requested, the property owner may be reimbursed to perform their own restoration, after the site has been left in an environmentally sound manner. If this option is requested, it should be documented in a written release signed by the property owner.

D. Access Routes (Cross Country Routes)

Cross country access routes shall be returned to pre-construction grade, seeded and mulched.

E. Work Trails (Constructed Gravel Roads)

Constructed gravel work trails shall be returned to a condition at least equal to that which existed at the start of the Project except that the work trail shall, at a minimum, be serviceable for four-

wheel drive vehicles. Seeding and/or mulching of work trails is not required unless necessary to prevent erosion.

F. Property Damage

All damage to property occurring as a result of a Project shall be immediately repaired or replaced. In some locations, it may be desirable to document pre-existing damage prior to the Project in order to demonstrate afterwards that the damage did not result from the Project.

G. Swamp Mats/Temporary Structures

After all work is completed, swamp mats, corduroy roads and temporary bridges shall be removed unless otherwise directed by the permit(s).

H. Siltation Controls

After all work has been satisfactorily completed and vegetation has been re-established, and upon approval by the Environmental Inspector and Niagara Mohawk Division Environmental Engineer, siltation fence and stakes from straw bales shall be removed, and the strings on the straw bales cut in accordance with any pertinent permit requirements. Siltation fence shall be disposed of properly off site.

I. Stonewalls

Removal or alteration of stonewalls shall be avoided whenever possible. Any stonewall removed or breached by construction activities shall be repaired or rebuilt. Rebuilt stone walls shall be placed on the same alignment that existed prior to temporary removal.

J. Work Site

Upon satisfactory completion of work, the construction personnel shall remove all work-related trailers, buildings, rubbish, waste soil, temporary structures, and unused materials belonging to them or used under their direction during construction, or waste materials from previous construction and maintenance operations. All areas shall be left clean and restored to a stable condition and where feasible, as near as possible to its original condition.

K. Material Staging Areas

Upon completion of all work, all material staging areas, shall be completely cleared of all waste and debris. Unless otherwise directed or unless other arrangements have been made with an off ROW land owner, material staging areas shall be returned to the condition that existed prior to the installation of the material staging area. Whether or not arrangements have been made with a landowner, all areas shall be left in an environmentally sound condition. Also any temporary structure erected by the construction personnel, including fences, shall be removed and the area restored as near as possible to its original condition, including possibly seeding and mulching.

6.3.4 Unauthorized Dumping

From time to time unauthorized dumping of materials may be identified along the ROW, easements and/or substations. This discarded material may constitute a threat of release and could result in an adverse environmental impact. Notifications to regulatory agencies may be required. Contact the Environmental Inspector and/or Niagara Mohawk Division Environmental Engineer for guidance.

Evidence of dumping will be reported by the Niagara Mohawk Environmental Inspector and/or Niagara Mohawk Division Environmental Engineer to the Niagara Mohawk Property Assets Department and applicable Community Relations Department Representative and documented. The Niagara Mohawk Security Department in New York will also be notified so that an investigation can be performed to identify the responsible party.

If the responsible party is not identified, the property will be cleaned up and positive measures taken to prevent future activities from occurring by constructing the property barriers, and a cast-by-case basis. Property owners of easement are responsible for the removal or cleanup of any dumping of debris, hazardous waste, or abandoned vehicles on their property.

If it is discovered that any unauthorized material was dumped on the Niagara Mohawk ROW, the following steps should be taken:

1. Gather Information- Note the time, day and location of the incident; a description of the problem; type of material or contamination found and any immediate action taken. A sketch map and photos of the affected area would be beneficial.
2. Immediately call the Environmental Inspector who will contact the Niagara Mohawk Regional Security Representative and Report the Situation.
3. The Environmental Inspector will follow up in accordance with company procedures.
4. Use caution if the unauthorized material looks suspicious or may present an immediate hazard.

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ATTACHMENT 1

ENVIRONMENTAL WORK PLAN SHEETS

[Link to Scanned Stormwater Pollution Prevention Plan Components](#)

ATTACHMENT 2

STORMWATER POLLUTION PREVENTION PLAN

COMPONENTS AND ADDITIONAL INFORMATION

[Link to Scanned Stormwater Pollution Prevention Plan Components](#)

ATTACHMENT 3

PERMITS

[Link to Scanned Permits](#)

ATTACHMENT 4
OTHER DOCUMENTS