V-1.0 PROJECT DESCRIPTION

V-1.1 Introduction

In support of the proposed 132 megawatt (MW) Kibby Wind Power Project located in Franklin County, Maine, TransCanada is proposing the construction of a 27.6-mile-long, 115 kilovolt (kV) electrical transmission line. The proposed transmission corridor passes through Kibby Township, Jim Pond Township, Eustis, Coplin Plantation, Wyman Township, and Carrabassett Valley. Of the 27.7 miles, 17.84 miles are in unorganized territory within Land Use Regulation Commission (LURC) jurisdiction, and 9.83 miles are located within the jurisdiction of the Maine Department of Environmental Protection (DEP), in Eustis and Carrabassett Valley.

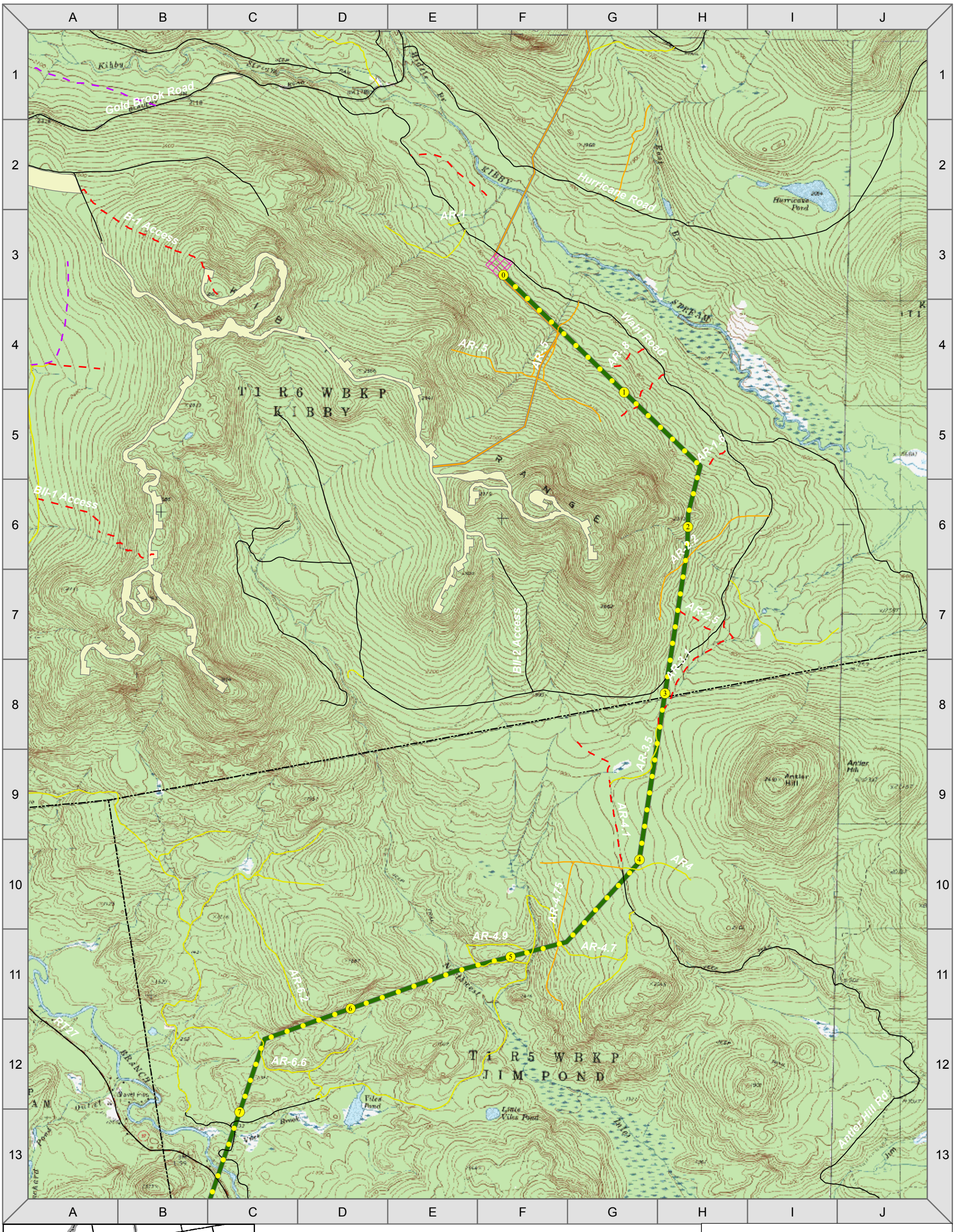
This volume addresses the entire 115 kV transmission line, with a focus on areas within LURC jurisdiction. A separate application will be filed with DEP in accordance with the Natural Resources Protection Act (NRPA) and the Maine Site Location of Development Act (Site Law) for the 9.7 miles within its jurisdiction. An application will also be prepared for review by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act that will comprehensively address potential wetland issues associated with wind power project elements and the 115 kV transmission line.

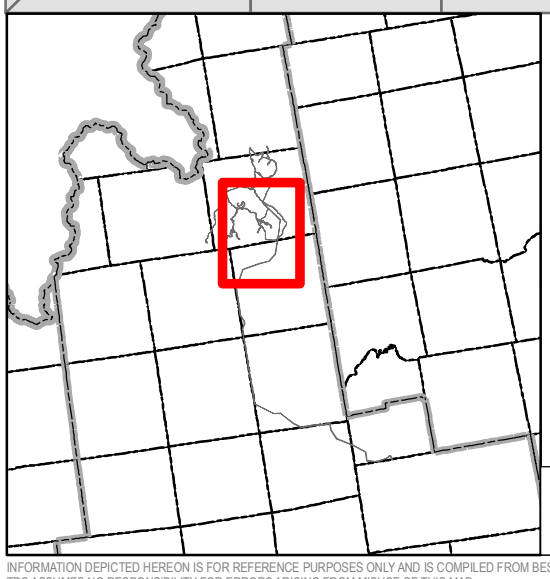
V-1.2 Transmission Line Element Summary

The purpose of the 115 kV transmission line is to provide the necessary electric transmission system interconnection between the newly proposed Kibby Substation in Kibby Township and the existing Central Maine Power (CMP) Bigelow Substation located in Carrabassett Valley (Figure V-1-1 A through D). This proposed transmission line will connect the Kibby Wind Power Project with Maine and New England's electric power grid. The proposed transmission line is a generator lead, and no other connections are proposed. A more detailed discussion of the project need is presented in Exhibit G and Section 2.1 of this application.

Major components of the proposed 115 kV transmission line include cleared right-of-way (ROW), pole structures, conductor (wire), insulators, guy wires and anchors. Access to the ROW will utilize existing roads and trails. During construction, staging areas will be located within existing cleared areas that have been recently used by the Maine Department of Transportation (MDOT) for Route 27 construction staging or other similar areas.

The majority of the proposed transmission line route will require a new ROW, from its origin at the Kibby Substation in Kibby Township to Mile 21.7 in Coplin Plantation. The area through which the proposed transmission line will extend is currently managed as working forest. In order to accommodate the proposed Kibby Wind Power Project transmission line, a ROW width of 150 feet will be cleared through forest. This width is required to maintain a sufficient separation distance between the conductors and tree growth for line safety. From Mile 21.7 to the interconnection point with the existing electric transmission system (also known as the "grid") at the existing CMP Bigelow Substation (Mile 27.7), the proposed transmission line





Legend

- Mile Marker
- Road
- GRAVEL ACCESS
- UNCONFIRMED ACCESS
- DORMANT LOGGING RD
- SKIDDER TRAIL
- ATV ACCESS
- Series A Road Alignment
- Series B Road Alignment
- Proposed Substation
- Transmission Line
- Collector Line
- Turbines
- Town Boundary
- County Boundary
- State Boundary

Notes: *Base Map: 24k USGS Topographic Map. Municipal Boundaries courtesy of Maine OGIS*

N

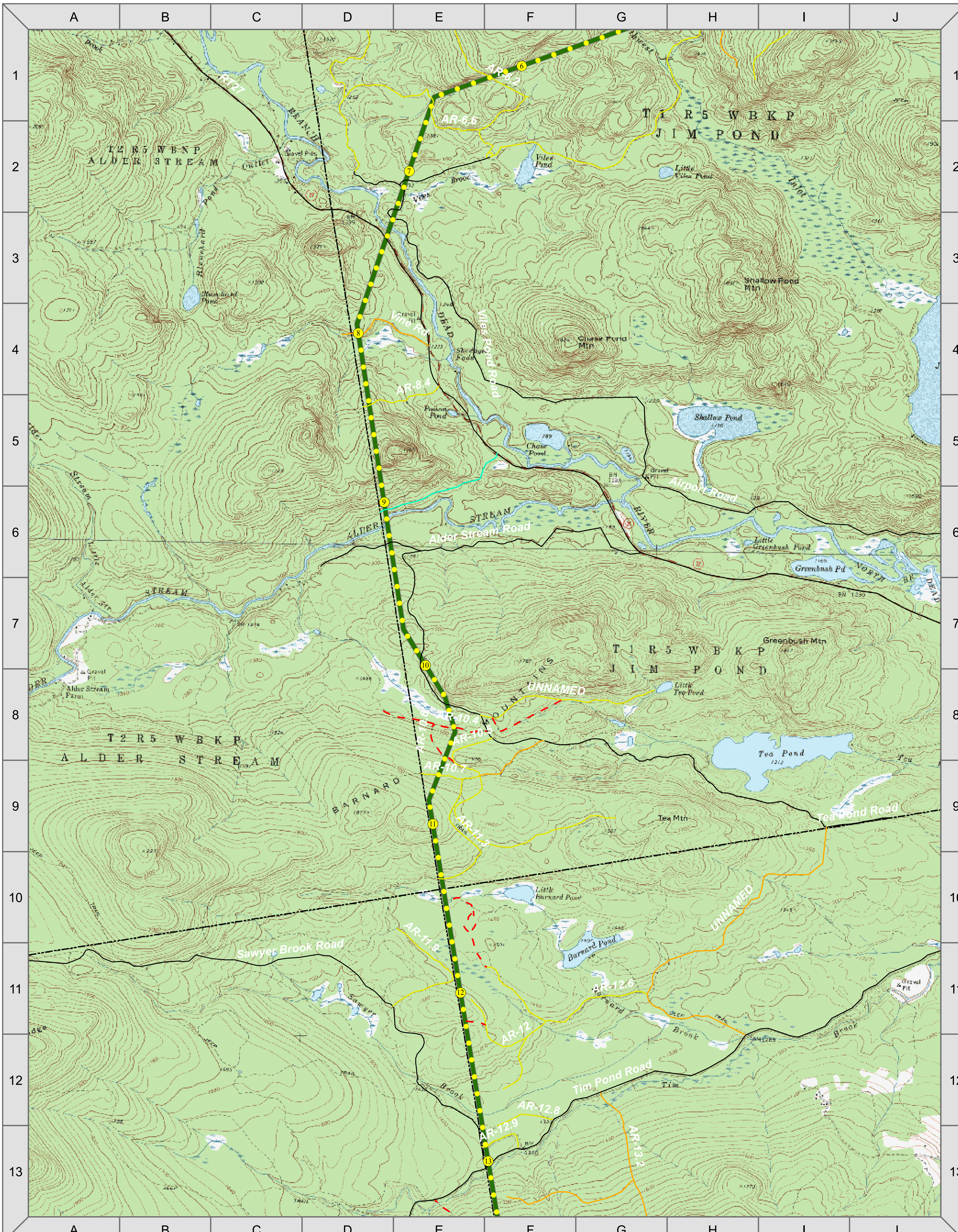
0.5

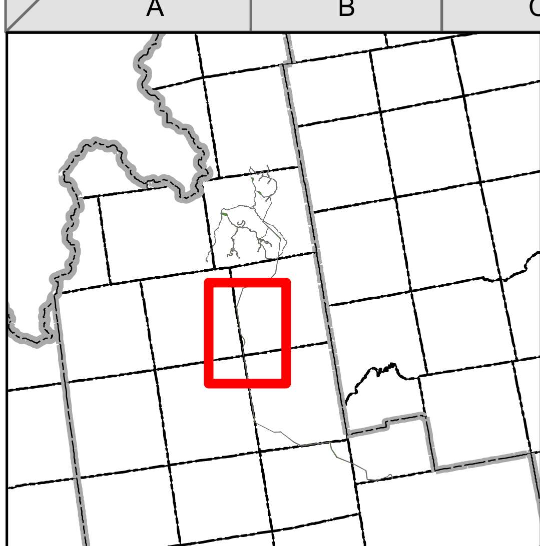
Miles

Figure V-1-A

Kibby Wind Power Project

Proposed Transmission Line and Access Roads





Legend

- Mile Marker
- Road
- GRAVEL ACCESS
- UNCONFIRMED ACCESS
- DORMANT LOGGING RD
- SKIDDER TRAIL
- ATV ACCESS
- Series A Road Alignment
- Series B Road Alignment
- Proposed Substation
- Transmission Line
- Collector Line
- Turbines
- Town Boundary
- County Boundary
- State Boundary

Notes: *Base Map: 24k USGS Topographic Map. Municipal Boundaries courtesy of Maine OGIS*

0.5

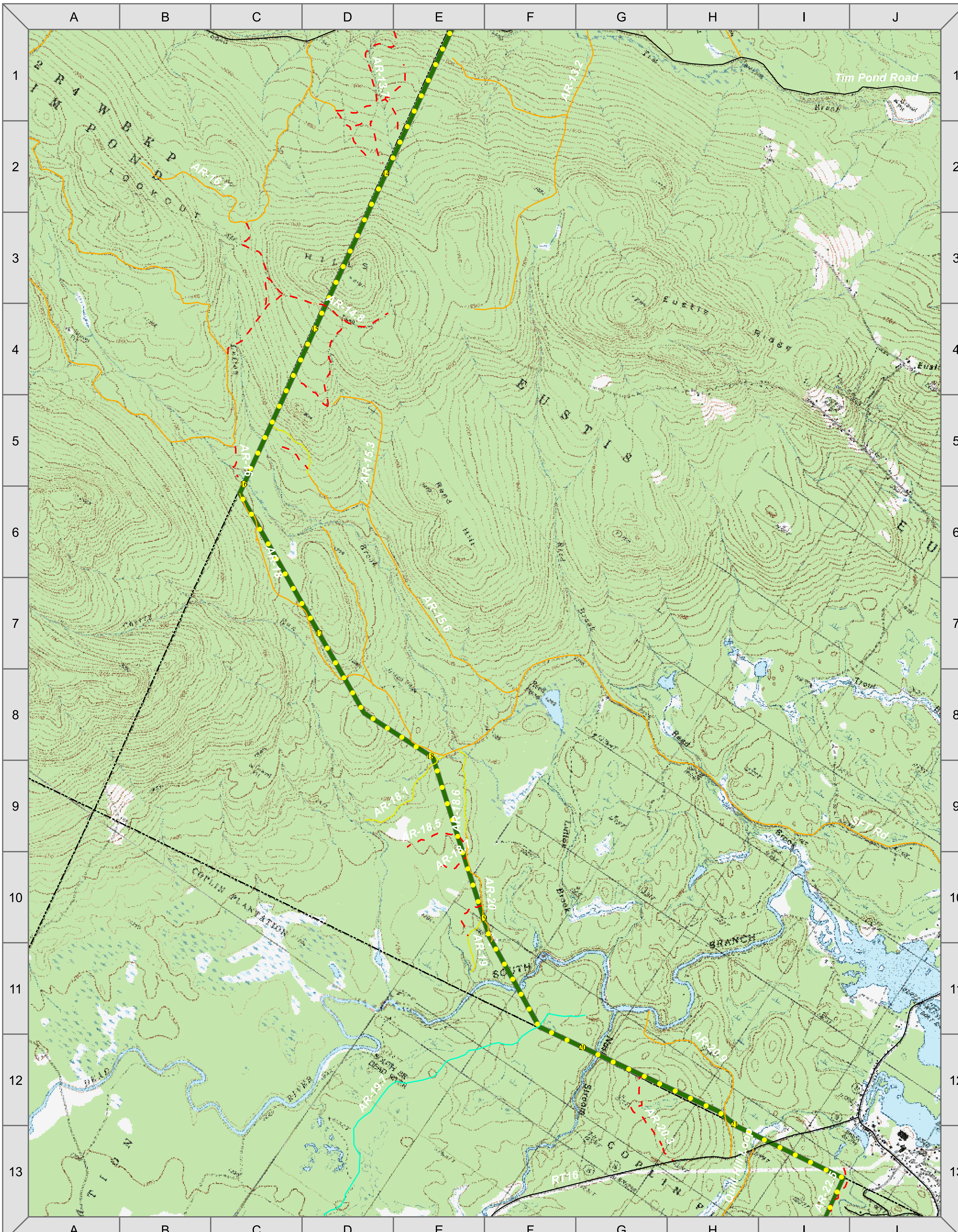
Miles

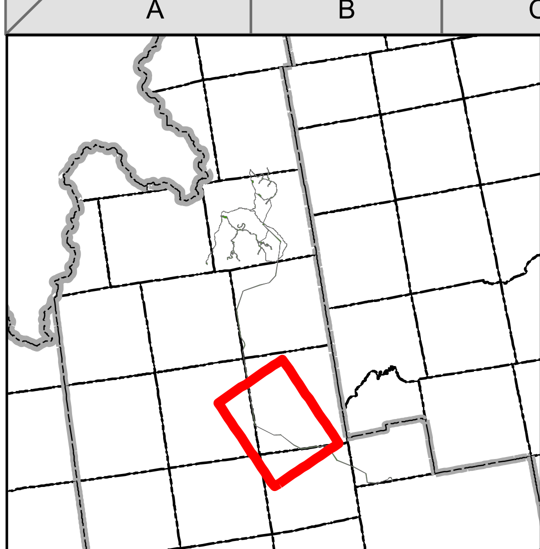
Figure V-1-B

Kibby Wind Power Project

Proposed Transmission Line and Access Roads

S:\Projects\TRCAugusta\10654-Kibby\MXD\Reports_and_Application_Docs\Reports\T-Line\E_and_S_Control_Plan\Figure1-A_1-D\Figure1-B.mxd





Legend

Mile Marker		Proposed Substation	
Road		Transmission Line	
GRAVEL ACCESS		Collector Line	
UNCONFIRMED ACCESS		Turbines	
DORMANT LOGGING RD		Town Boundary	
SKIDDER TRAIL		County Boundary	
ATV ACCESS		State Boundary	
Series A Road Alignment			
Series B Road Alignment			

Notes: *Base Map: 24k USGS Topographic Map. Municipal Boundaries courtesy of Maine OGIS*

0.5

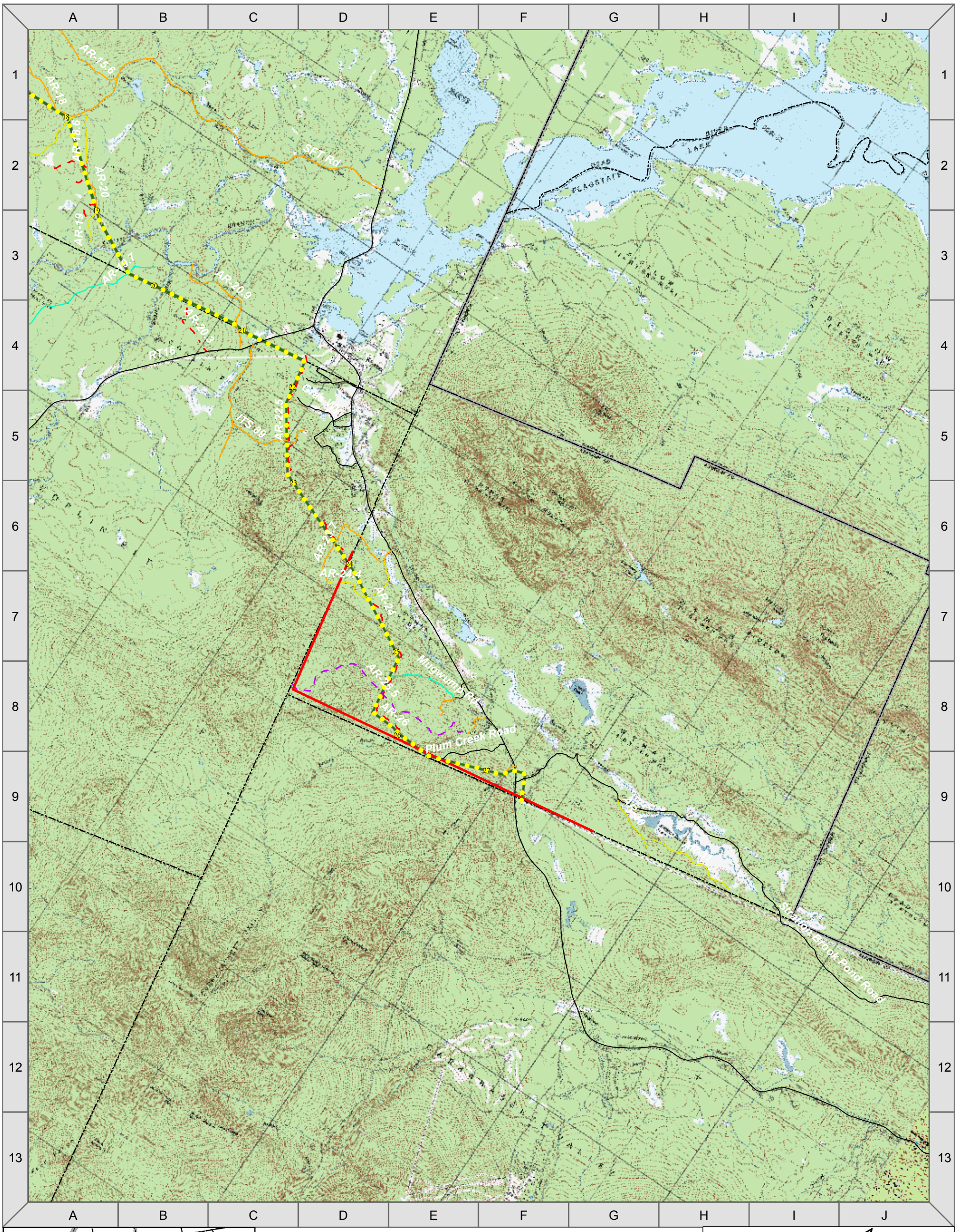
Miles

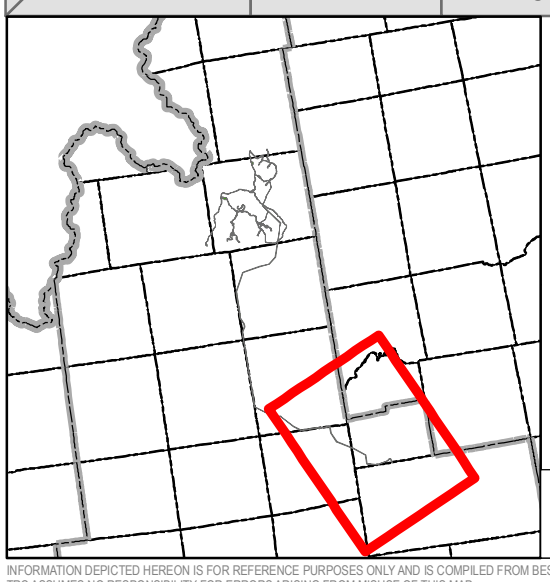
Figure V-1-C

Kibby Wind Power Project

Proposed Transmission Line and Access Roads

S:\Projects\TRCAugusta\10654-Kibby\MXD\Reports_and_Application_Docs\Reports\T-Line\E_and_S_Control_Plan\Figure1-A_1-D\Figure1-C.mxd





Legend

- Mile Marker
- Road
- GRAVEL ACCESS
- UNCONFIRMED ACCESS
- DORMANT LOGGING RD
- SKIDDER TRAIL
- ATV ACCESS
- Series A Road Alignment
- Series B Road Alignment
- Proposed Substation
- Transmission Line
- Collector Line
- Turbines
- Town Boundary
- County Boundary
- State Boundary
- Surveyed Town Line

Notes: *Base Map: 24k USGS Topographic Map. Municipal Boundaries courtesy of Maine OGIS*

N

1

Miles

Figure V-1-D

Kibby Wind Power Project

Proposed Transmission Line and Access Roads

S:\Projects\TRCAugusta\10654-Kibby\MXD\Reports_and_Application_Docs\Reports\T-Line\E_and_S_Control_Plan\Figure1-A_1-D\Figure1-D.mxd

corridor is adjacent to an existing 150-foot-wide transmission line ROW. Along this adjacent stretch, where separate from tall trees exists on one side of the ROW, the proposed line will require approximately 125 feet of clearing. Both clearing configurations are illustrated in Figure V-1-2. Because the poles can be installed with minimal ground disturbance, little impact beyond the necessary clearing is anticipated to result from the proposed 115 kV transmission line ROW.

Limited permanent direct wetland impact is proposed for the 115 kV transmission line. Where possible, wetlands have been avoided or completely spanned and pole placement located outside of wetland. Several poles and anchors are located in wetlands; however, these impacts are relatively small. The ROW will also traverse wetlands which are located within the corridor. This will generally not result in loss of wetlands, but rather conversion of wetlands to shrub and emergent wetlands typically associated with transmission lines. Temporary wetland impacts will be associated with travel through the ROW by construction equipment in order to access new pole installation locations. Access for the construction of the project will also require temporary crossings of small streams using equipment mats, and avoiding equipment crossings of larger streams using alternate access. No permanent impacts to streams are anticipated to result from construction of the transmission line. Details with regard to wetlands and streams are provided in Section V-6.

V-1.3 Construction Plan

The following construction plan has been prepared to describe the techniques that will be implemented during construction of the Kibby Wind Power Project 115 kV electric transmission line.

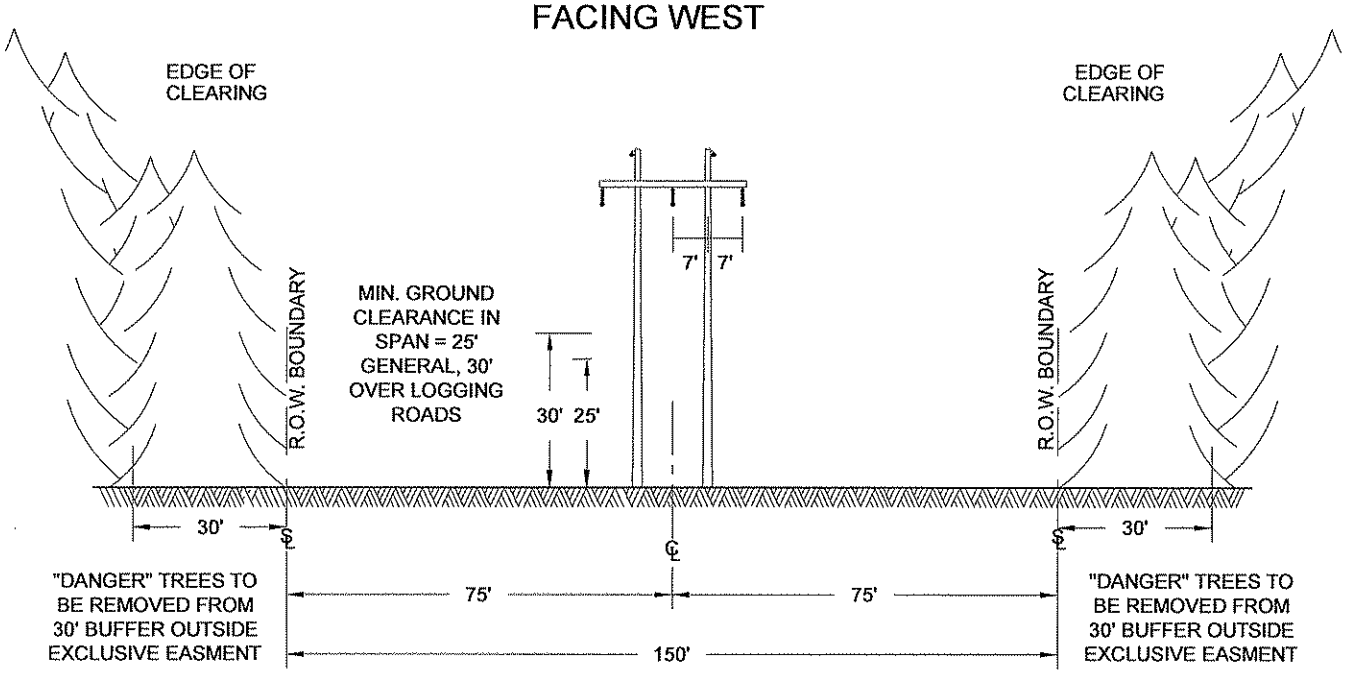
The construction plan is based on established transmission line construction methods and is designed to minimize impacts to natural resources. Construction will be performed in such a manner that: 1) natural resources will be protected to the greatest extent possible; 2) construction crews can safely install the transmission line; and 3) erosion will be minimized (specific erosion control methods are discussed in the Erosion and Sedimentation Control Plan [E&S Plan] located in Appendix V-A).

The construction plan focuses on the established transmission line construction methods that will be employed during this project when traversing uplands, water bodies, and wetlands. The plan also provides for flexibility to allow application of the most appropriate construction methods based on site-specific conditions at the time of construction.

Information regarding construction at the Kibby Substation is included in Volume I of this application. Any upgrades required at the Bigelow Substation will be addressed by CMP. Therefore, Volume V focuses solely on the 115 kV transmission line itself, as outlined in the following sections.

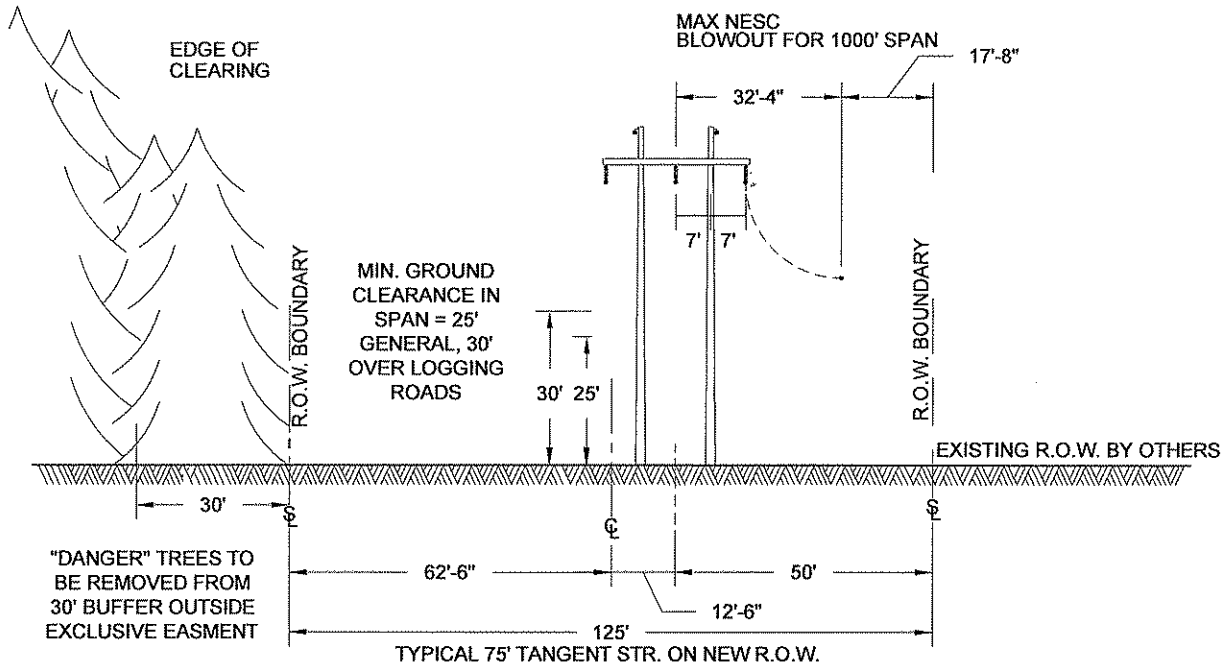
PROPOSED R.O.W

CROSS SECTION VIEW #1
FACING WEST



TYPICAL 75' TANGENT STR. ON NEW R.O.W.

CROSS SECTION VIEW #2
FACING WEST



TYPICAL 75' TANGENT STR. ON NEW R.O.W.
ADJACENT TO EXISTING R.O.W. BY OTHERS

THIS DRAWING SHALL BE REVISED ON THE CADD SYSTEM ONLY

SCALE 1" = 37.5'

NO.	REV.	DATE	BY
A	--------	-/-/-	---

CLIENT APPROVAL
APPROVED BY
COMPANY
DATE -/-/-

KIBBY WIND POWER PROJECT
PROPOSED R.O.W.
CROSS SECTIONS

DESIGNED —
DRAWN RDW
CHCK. —
APPR. —
DATE -/-/-
REVIEWED

E·PRO
Engineering & Environmental Consulting, LLC
249 Western Avenue
Augusta, Maine 04330

13340-T0001

CONTRACT DWG NO. 13340-T0001.DWG
PROJECT NO. 13340

V-1.3.1 Pre-Construction Environmental and Construction Review

TransCanada personnel and/or a qualified representative will walk the length of the 115 kV transmission line with the construction contractor and the lead field inspector to identify critical areas where construction commitments have been made or construction and construction access may be difficult due to terrain or wetland and watercourse conditions. Access road issues, erosion control placement, and wetland and stream crossing siting will be addressed, with avoidance and minimization of wetland impact prioritized. Planned access areas will be flagged with a specified color of surveyor's tape, and "no-access" areas will also be marked. The specific type and location of erosion controls as well as the type of crossing will be confirmed during this pre-construction walk-through. The walk-through ensures that the contractor and field inspectors have a complete understanding of environmental commitments prior to commencing the work.

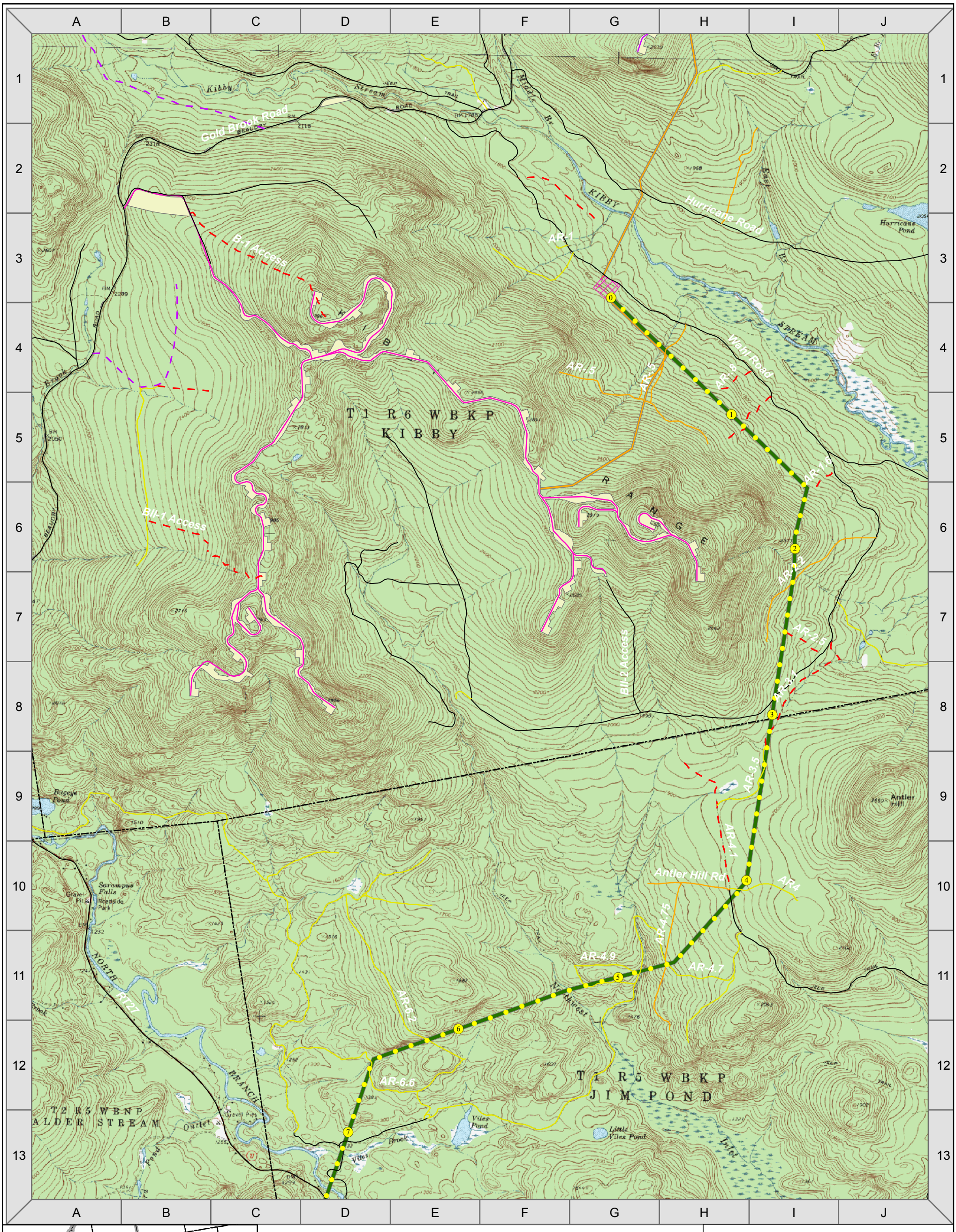
V-1.3.2 Access to the ROW

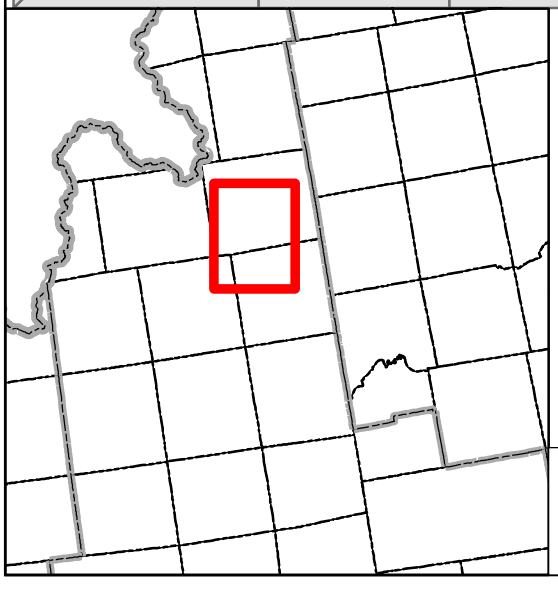
Access for construction of the proposed 115 kV transmission line is over existing roads (see Figures V-1-3, V-1-4, V-1-5, and V-1-6). Use of existing roads and the ROW itself will allow the installation to be completed without constructing any new access roads. Minor improvements to existing access roads may be required, and will be identified by the construction contractor during the pre-construction environmental and construction review, based on their equipment access needs. If required, improvements will be limited to such activities as trimming overhanging vegetation, minor grading, replacing culverts, and installing temporary bridges.

Three types of existing access roads will be used for transmission line construction: paved roads, gravel roads, and dormant logging roads. The specific roads planned for use are listed in Table V-1-1. Note that other existing access roads not listed in the table may be used, at the option of the contractor. Landowner permission will be obtained by TransCanada prior to such use. The use of each roadway type is discussed in additional detail below.

The proposed transmission line route crosses paved roads in three areas. State Route 27 is crossed near Mile 7.4 of the 115 kV transmission line and again near Mile 27.3. State Route 16 is crossed near Mile 21.3. These roads will be used for construction access to work areas proximate to the crossings, to the extent permissible by MDOT. A traffic control plan for construction work requiring access from these points will be developed in consultation with MDOT prior to construction. No improvements will need to be made to the roads themselves at these access points, although improvements to allow for safe access to the proposed transmission line ROW within the MDOT right-of-way may be necessary (e.g., grading). No work will take place within the highway right-of-way without prior MDOT approval.

The majority of access roads to the 115 kV transmission line ROW are gravel roads associated with the land management and logging activities that are widespread in the area. These gravel roads are constructed to be suitable for logging traffic, including heavy equipment and tractor trailers loaded with logs or chips. These roads are generally suitable for transmission line





Legend

- Mile Marker
- Road
- GRAVEL ACCESS
- UNCONFIRMED ACCESS
- DORMANT LOGGING RD
- SKIDDER TRAIL
- ATV ACCESS
- Series A Road Alignment
- Series B Road Alignment
- Proposed Substation
- Transmission Line
- Collector Line
- Turbines
- Town Boundary
- County Boundary
- State Boundary

510

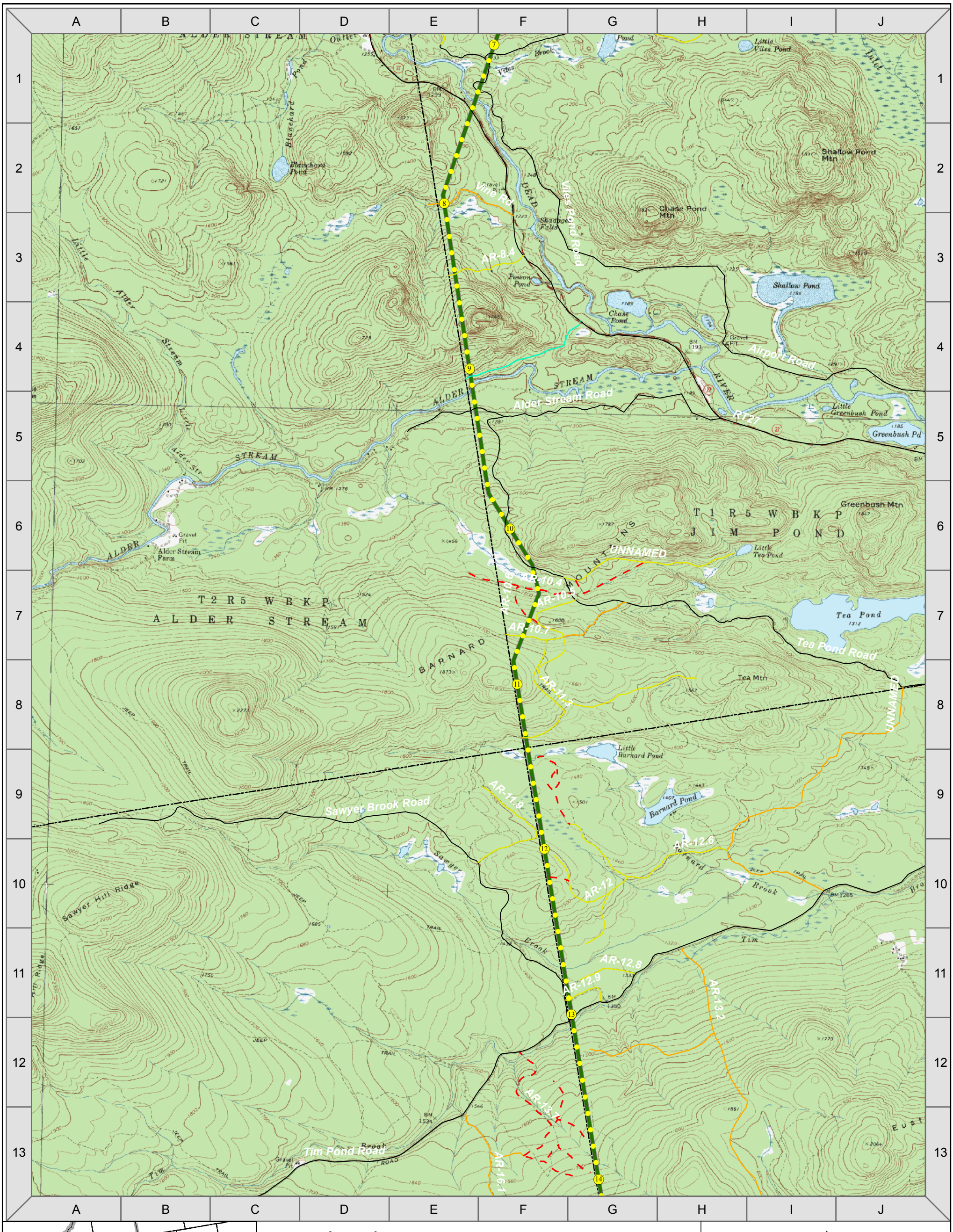
Meters

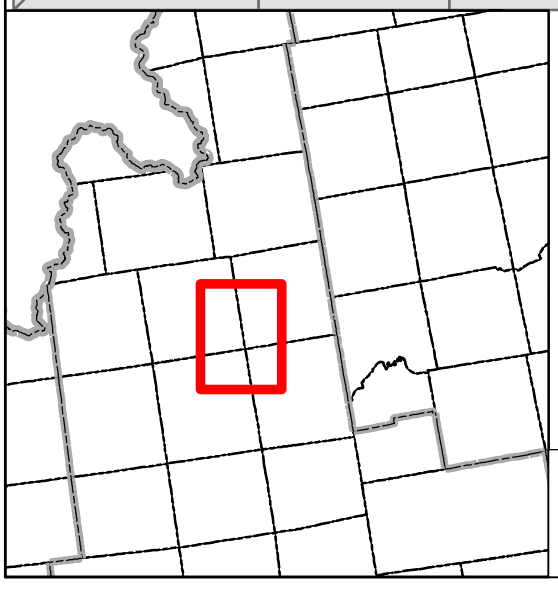
Figure V-1-3

Kibby Wind Power Project

Proposed Transmission Line and Access Roads

S:\Projects\10654-Kibby\MXD\Reports\T-Line\Section1\Figure_V-1-3.mxd





Legend

- Mile Marker
- Road
- GRAVEL ACCESS
- UNCONFIRMED ACCESS
- DORMANT LOGGING RD
- SKIDDER TRAIL
- ATV ACCESS
- Series A Road Alignment
- Series B Road Alignment
- Proposed Substation
- Transmission Line
- Collector Line
- Turbines
- Town Boundary
- County Boundary
- State Boundary

N

510

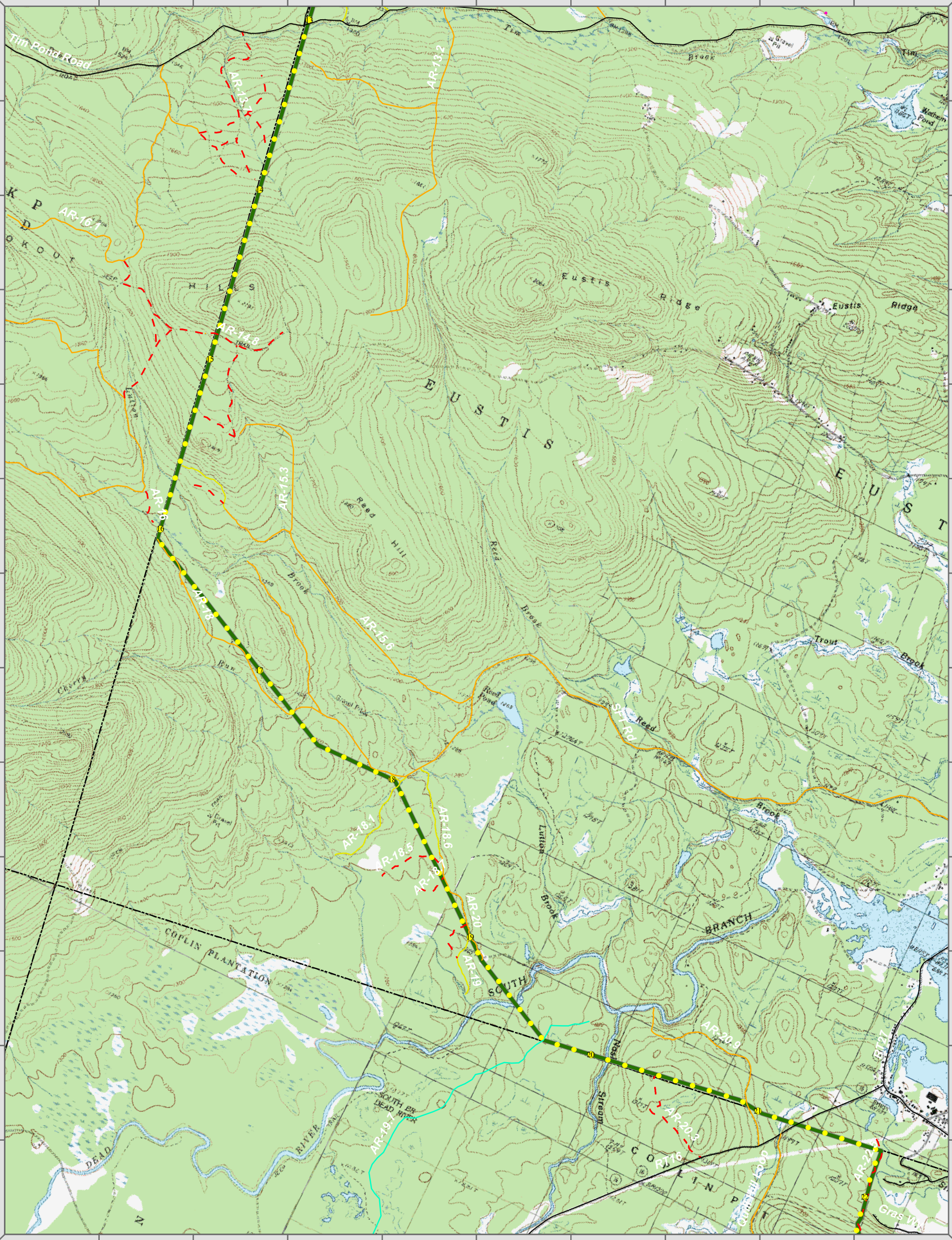
Meters

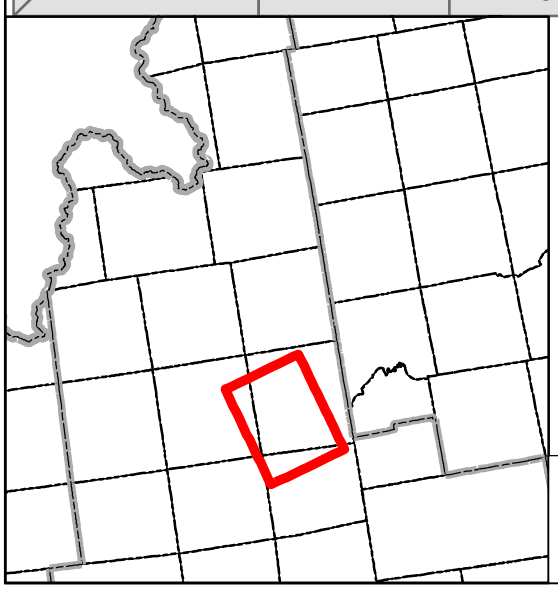
Figure V-1-4

Kibby Wind Power Project

Proposed Transmission Line and Access Roads

S:\Projects\10654-Kibby\MXD\Reports\T-Line\Section1\Figure_V-1-4.mxd





Legend

- Mile Marker
- Road
- GRAVEL ACCESS
- UNCONFIRMED ACCESS
- DORMANT LOGGING RD
- SKIDDER TRAIL
- ATV ACCESS
- Series A Road Alignment
- Series B Road Alignment
- Proposed Substation
- Transmission Line
- Collector Line
- Turbines
- Town Boundary
- County Boundary
- State Boundary

510

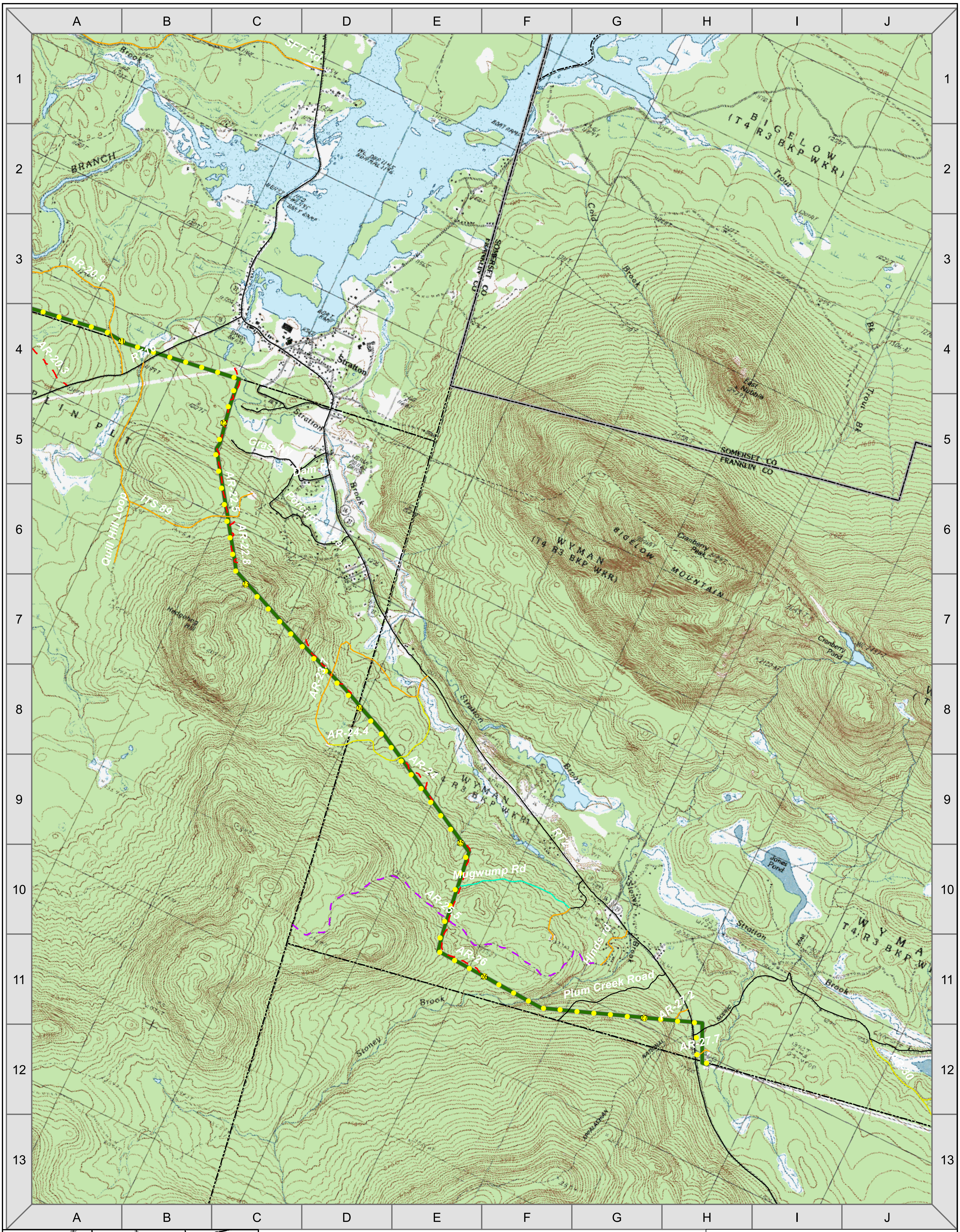
Meters

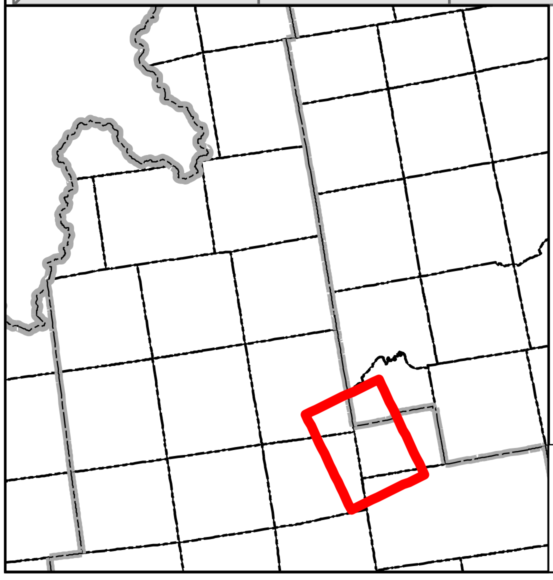
Figure V-1-5

Kibby Wind Power Project

Proposed Transmission Line and Access Roads

S:\Projects\10654-Kibby\MXD\Reports\T-Line\Section1\Figure_V-1-5.mxd





Legend

●	Mile Marker	▨	Proposed Substation
—	Road	■	Transmission Line
—	GRAVEL ACCESS	■	Collector Line
—	UNCONFIRMED ACCESS	□	Turbines
—	DORMANT LOGGING RD	-·-	Town Boundary
- -	SKIDDER TRAIL	—	County Boundary
- -	ATV ACCESS	—	State Boundary
—	Series A Road Alignment		
—	Series B Road Alignment		

510

Meters

Figure V-1-6

Kibby Wind Power Project

Proposed Transmission Line and Access Roads

S:\Projects\10654-Kibby\MXD\Reports\T-Line\Section1\Figure_V-1-6.mxd

Table V-1-1: Access Road Crossings

Milepost	Town	Jurisdiction	Road Name	Road Type
0.5	Kibby Twp.	LURC	AR-0.5	Gravel road
2.2	Kibby Twp.	LURC	AR-2.2	Gravel road
2.9	Kibby Twp.	LURC	Wahl Road	Gravel road
4.0	Jim Pond Twp.	LURC	Antler Hill Road	Gravel road
4.8	Jim Pond Twp.	LURC	AR-4.75	Gravel road
7.0	Jim Pond Twp.	LURC	Viles Pond Road	Gravel road
7.1	Jim Pond Twp.	LURC	Viles Pond Road	Gravel road
7.2	Jim Pond Twp.	LURC	Viles Pond Road	Gravel road
7.3	Jim Pond Twp.	LURC	Viles Pond Road	Gravel road
7.4	Jim Pond Twp.	LURC	Route 27	Paved road
8.0	Jim Pond Twp.	LURC	Vine Road	Gravel road
9.0	Jim Pond Twp.	LURC	AR-9	Dormant logging road
9.2	Jim Pond Twp.	LURC	Alder Stream Road	Gravel road
9.9	Jim Pond Twp.	LURC	Tea Pond Road	Gravel road
10.2	Jim Pond Twp.	LURC	Tea Pond Road	Gravel road
12.8	Tim Pond Twp.	LURC	Sawyer Brook Road	Gravel road
13.0	Eustis	DEP	Tim Pond Road	Gravel road
13.2	Eustis	DEP	AR-13.2	Gravel road
16.8	Eustis	DEP	AR-18	Gravel road
17.3	Eustis	DEP	AR-18	Gravel road
17.9	Eustis	DEP	AR-18	Gravel road
18.6	Eustis	DEP	AR-20	Gravel road
18.9	Eustis	DEP	AR-20	Gravel road
19.7	Coplin Plt./Eustis	LURC/DEP	AR-19.7	Dormant logging road
20.9	Eustis	DEP	AR-20.9	Gravel road
21.2	Eustis/Coplin Plt.	DEP/LURC	Route 16	Paved road
22.5	Coplin Plt.	LURC	AR-22.5	Gravel road
22.6	Coplin Plt.	LURC	ITS-89	Gravel road
23.7	Coplin Plt.	LURC	AR-23.7	Gravel road
25.3	Wyman Twp.	LURC	Spur off Hinds Road	Dormant logging road
26.5	Wyman Twp.	LURC	Plum Creek Road	Gravel road
27.2	Wyman Twp.	LURC	AR-27.2	Dormant logging road
27.3	Wyman Twp.	LURC	Route 27	Paved road
27.5	Wyman Twp.	LURC	AR-27.5	Dormant logging road
27.6	Carrabassett Valley	DEP	Bigelow Substation Road	Gravel road

construction access, and need little if any improvement. The only likely improvements to this type of road are trimming overhanging vegetation, placement of additional gravel in limited areas, and possible bridge or culvert replacement.

There are several access points to the proposed transmission line that are dormant logging roads, which are closed to vehicle access at this time, and have not been used recently by logging trucks or equipment. These roads have been "put to bed," and have a good growth of herbaceous plants on their surfaces, with some small woody vegetation encroaching into the road in places. One of the roads, AR-9, has water bars to prevent erosion of the road bed. Due to the current condition of these roads, construction vehicles will not be able to utilize them for access without some improvement. Improvements that will be necessary to these roads would be primarily brush and tree trimming, but may include replacing bridges or culverts and grading the road surface as necessary to create a safe travel route. If any bridges or culverts have been removed from these roads, a temporary mat crossing will be used to span such gaps. These mat crossings will be removed after completion of the project, and these roads will be returned to "put to bed" conditions when their use is no longer necessary for construction purposes. If any water bars are smoothed as part of road improvement, they will be reinstalled when the project is complete as well. In some cases, seed and mulch will be applied to stabilize this type of road.

Note that in some areas poles may be flown in to the ROW, however, construction crews will still need to access these areas for pole placement, framing, stringing wire, and other construction activities.

Access roads are also discussed in the E&S Plan (Appendix V-A).

V-1.3.3 Access within the ROW

Temporary access roads and paths will be established to provide clearing and construction equipment access throughout the ROW and to the proposed new pole locations. If portions of the ROW are saturated or inundated during construction, timber equipment mats will be installed to prevent extensive rutting and subsequent sedimentation of soil particles into adjacent water resources. Construction of this type of road will require occasional clearing of heavy shrub growth and grading for safe access.

Equipment mats will be utilized to cross wetlands with standing water and/or organic soils (see the E&S Plan in Appendix V-A, Appendix C, Figures 7 and 8). Also, equipment mats will be used to cross small streams (see the E&S Plan in Appendix V-A, Appendix C, Figures 2 and 3). Where possible, construction will take place during winter months to minimize impacts to wetlands and waterbodies. During frozen ground winter conditions, mats would not be used in saturated areas.

Matted wetland and stream areas will likely include access to individual pole locations in the limited areas where poles are located in wetlands. Mats will also be used to protect the bank

stability of streams. If necessary, mats will be placed parallel to the upland edge as abutments to further protect bank stability. Mats placed in wetland areas will be laid on top of existing vegetation. No grubbing within wetland crossing areas will be done prior to mat placement. Stream crossings that are too wide for equipment mats or temporary bridges will be avoided.

V-1.3.4 Clearing, Grading, and Erosion Control

The majority of the proposed transmission line route is currently forested and will require some clearing in connection with construction. Following construction, a shrub, sapling, or herbaceous cover state will be maintained throughout the 115 kV transmission line ROW. From Kibby Substation (Mile 0.0) to Mile 21.7, just south of Route 16, the ROW will be approximately 150 feet wide. From Mile 21.7 until the Bigelow Substation, a distance of 5.9 miles, the proposed ROW will be adjacent and parallel to an existing 115 kV transmission line and therefore will be approximately 125 feet wide. Any merchantable timber removed from the ROW may be sold, dependent upon landowner and contractor agreements. All other cleared plant materials including logs and slash will be chipped and spread on or off-site, burned on or off-site, or removed from the ROW immediately following the completion of the clearing operation. Stumps will not be removed unless required for access grading or pole placement. All plant materials resulting from the clearing operation will be disposed of in accordance with LURC Standards 10.27, E; Maine Solid Waste Regulations, 38 Maine Revised Statute Annotated (MRSA) §1301, et seq. (as appropriate); and Maine Slash Law, 12 MRSA §9333.

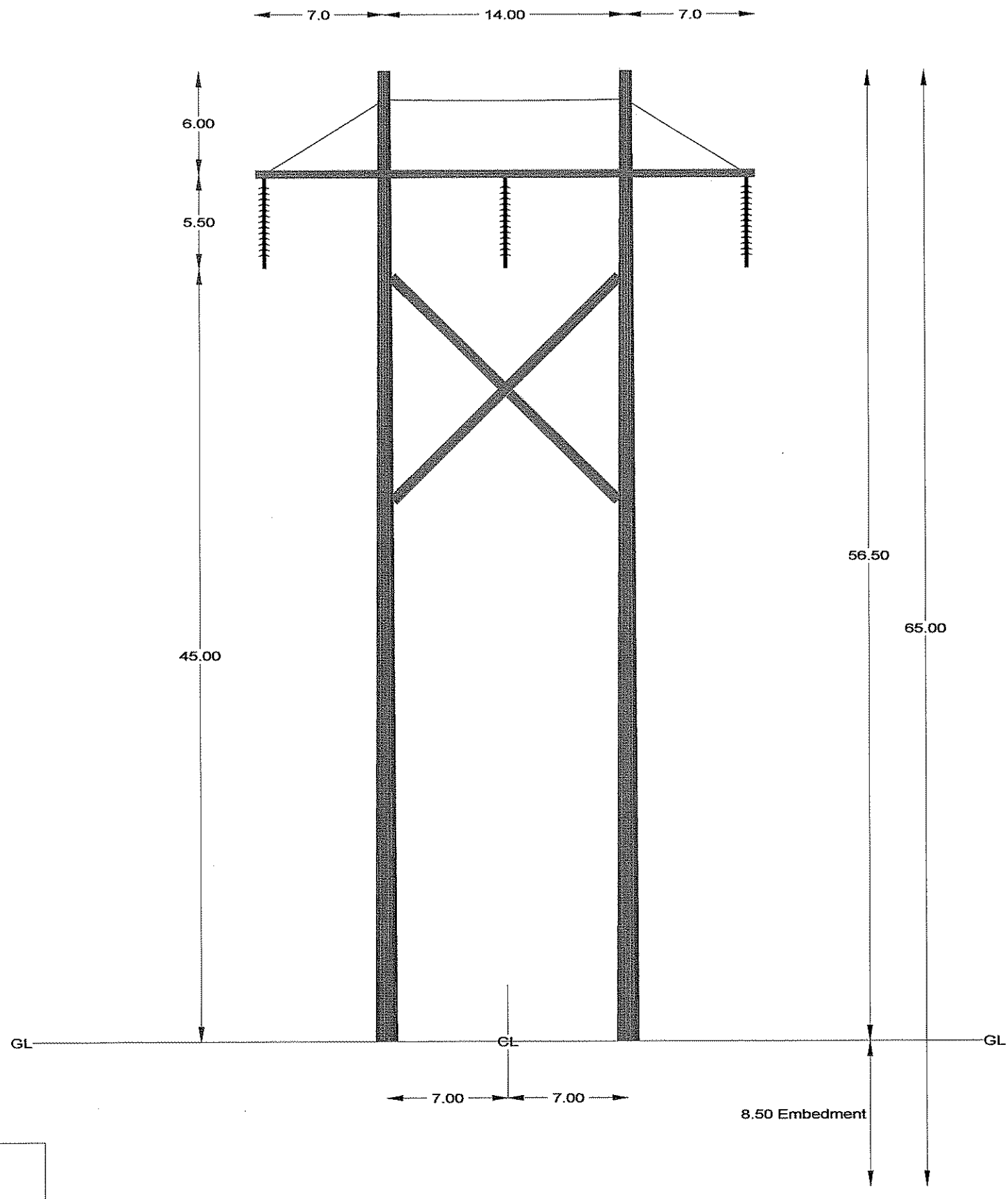
The majority of grading will only occur only to upgrade existing access roads, and only in those areas where uneven terrain does not allow safe operation of construction equipment. Generally, the selected access routes are stable gravel roads with gently sloping grades; therefore, it is unlikely that extensive grading will be necessary. The conductor-pulling setup locations may require leveling by limited grading within an approximately 100-foot by 75-foot area in each location to assure equipment stability. In addition, there may be minor grading in the immediate area surrounding installation of the pole.

Erosion control devices will be installed prior to the initiation of grading activities. Sediment barriers (i.e., silt fences and/or hay bales) will be installed between wetlands/waterbodies and all disturbed areas unless land contour conditions slope away from these resources. Temporary water bars will also be installed in graded areas with slopes to divert run-off from disturbed soils into vegetated areas. Additional information regarding erosion control is provided in the E&S Plan (Appendix V-A).

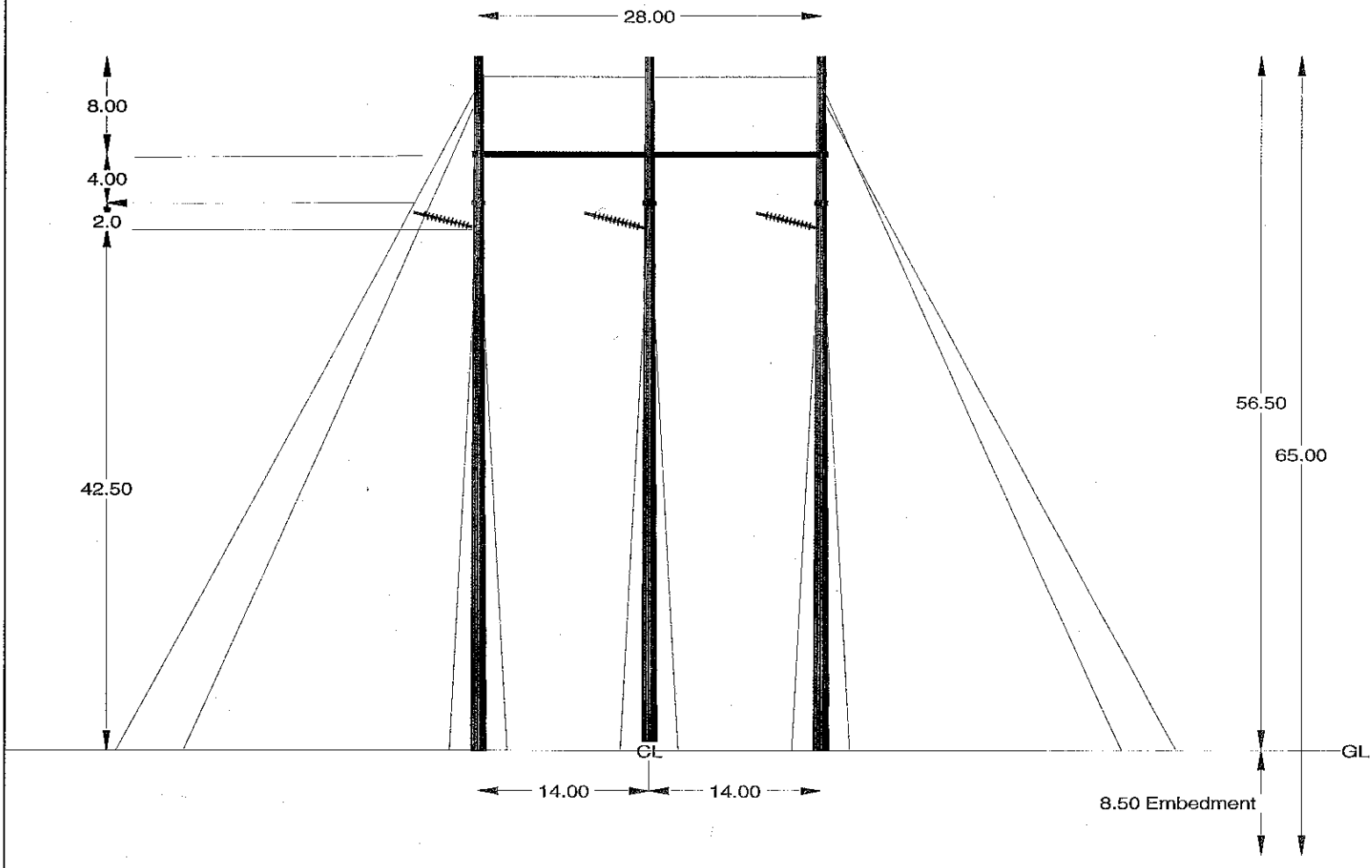
V-1.3.5 General Construction Details

The transmission line will be constructed of wooden structures, typical of those used by major electric utilities in New England. A two-pole H-Frame style structure will be used for all tangent suspension locations and three-pole structures with multiple guy wires will be used for all angle, terminal and in-line dead end structures (see Figures V-1-7 and V-1-8 for typical structures).

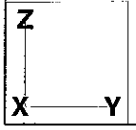
Novak Engineering, Project: "115kv ar"
PLS-POLE Version 8.00, 4:15:36 PM Friday, January 19, 2007
Undeformed geometry displayed



Novak Engineering, Project: "deadend(in line)"
PLS-POLE Version 8.00, 8:18:47 AM Friday, January 26, 2007
Undeformed geometry displayed



DeadEnd POLE (In Line)



These structures will have wooden or steel X-braces between the poles and a steel cross-arm for reliability and longer performance without maintenance.

The pole heights range from approximately 55 feet to 90 feet, with 7 to 12 feet of each pole directly buried in the ground. The average structure height above ground will be approximately 60 to 65 feet. If ledge is encountered, blasting or boring may be required to reach an adequate depth to support the pole. If the pole holes are below the water table, a large steel culvert may be required to restrain the sidewalls of the hole during the excavation process. Once the poles are installed inside the culvert, the void between the pole and the culvert can be filled with compacted crushed stone or processed fill. The poles will be spaced approximately 14 feet apart in each structure, proportionately further apart for sharp angles to maintain the 14 foot phase (conductor) spacing. The average span length will be approximately 700 feet, with a range of 220 feet to 1,111 feet. In the current design, four spans exceed 1,000 feet. Drawings that illustrate pole placement and plan and profile are provided in Exhibit V-D.

The proposed conductors will be 795 thousand circular mil (kcmil) (wire size) steel reinforced aluminum (ACSR) with one conductor per phase. They will be conservatively designed for a maximum operating temperature of 212 degrees Fahrenheit (°F), a much higher temperature than anticipated from the planned electrical load. There will be two lightning protection wires at the top of the structures. One will be a 7#9 or 7#8 Alumoweld and the other will be of similar size with the addition of 12 optical fibers built into it for purposes of relaying, metering and communication between the substations at each end. The design is intended to ensure that the minimum conductor height above ground will be 25 feet (30 feet at all road crossings, including logging roads). Each structure will be grounded, but ground wires will not be buried longitudinally along the corridor, or under any stream or bed. The insulators are proposed to be all polymer.

The ROW and transmission line design has focused on avoiding impacts to streams and wetlands as much as possible and, therefore, where possible, wetlands and waterbodies are spanned by the transmission line. In addition, with the exception of a few locations that include extensive wetland systems, structures (including both the poles and anchors) are located at least 100 feet from the upland edge of brooks and streams, and 25 feet from the upland edge of wetlands. Based on the preliminary design, there are only three structures (two 2-pole structures and one 3-pole structures) located in wetlands. Four additional structures are located within 25 feet of wetlands. Additionally, there are 18 anchors in wetlands. No structures are within 100 feet of perennial streams, and only 4 anchors are within 100 feet of a stream. In this case, anchors are approximately 50 feet from the stream. There is high ground between the stream and the anchors so soil disturbance at this location will have little potential to cause sedimentation in the stream. There may be some adjustment of pole and anchor locations based on the final detailed design and structural strength analysis, however, it is not anticipated that wetland or stream impacts will be greater than those presented in the current design. A variety of pole line construction equipment may be used during construction, depending on difficulty of access and seasonal conditions including: tire mounted vehicles, track mounted

equipment, light trucks, excavators or backhoes, helicopters or other equipment normally used for transmission construction.

V-1.3.6 Moving Poles to Structure Locations

Poles will be hauled in to each pole location by truck or skidder using the access locations identified in Section V-1.1.1, or flown by helicopter at the option of the transmission contractor. In areas where access is suitable (e.g., level uplands near roads), trucks may be used. In areas with tougher access, skidders may be used to bring the poles to the proposed pole locations.

V-1.3.7 Blasting of Small Holes for Poles

Blasting for pole installation and trenching conduit will be performed in limited areas, and only where required. Whether or not blasting will be required will not be determined until the final design is finished and selected test borings are done, if necessary. Possible blasting locations would be for poles that need to be set in ledge. Any blasting would be done by licensed personnel. The debris from pole hole blasting would be spread around the pole during the backfill process. If required, some gravel may be used for backfill instead of the blast rock.

V-1.3.8 Pole Installation

All poles will be wood. Wood pole installation requires the use of an excavator to dig the hole to the proper depth, and a crane to place the pole in proper alignment. There are approximately 180 two-pole (H-Frame) structures and approximately 40 three-pole angle and dead end structures proposed.

Pole placement may require grubbing an area of approximately 20 feet in radius, per pole. The grubbed area is necessary for equipment to safely and efficiently dig and set the pole. The radii of disturbance will overlap for the two poles on each H-frame structure for a total impact area of 160 square feet. Angle poles also require anchor placement, which may increase the area of disturbance around the pole location. Backfilled soil around the poles will be compacted to enhance pole stability and will be filled against the pole to a height greater than the original ground level to allow for settlement and avoid water collection around the base of the pole. The transmission line has been designed to site poles outside of wetlands to the maximum extent possible, but engineering requirements have necessitated some pole placement in or near wetlands. In these cases, erosion controls will be used, grubbing will be kept to a minimum, and the disturbed areas will be restored to original contours in order to maintain the original drainage patterns.

Access to some points may be by tracked vehicles or other means, including the potential use of helicopters, if the normal access route is too steep, too sloped or too lengthy for access in the contractor's judgment. These other means may be more practical and more environmentally suitable in isolated cases.

V-1.3.9 Structure Framing

Poles requiring framing work (insulators, cross-bracing, etc.) will be accessed via the ROW. Multiple pole structures are generally framed in conjunction with the pole setting process. Framing crews typically use the same equipment to install the arms and braces that is used to set the poles. The structures may be pre-framed and set, or the poles may be individually set and then framed in place. It will be the contractor's choice, depending on the site and what size and type of equipment can access the site.

V-1.3.10 Rider Poles

Where the new line will cross accessible roads, overhead wires or other obstacles needing protection from contact, temporary rider structures will be installed prior to installing pulling lines and the conductors. The rider structures will be installed as close as practical to the object being crossed to protect the pulling ropes or cables and the conductors from any possible contact to vehicles or wires below the new installation. The rider structure may consist of temporarily set poles with cross poles or arms covering the width of the conductor corridor crossing the obstacle, or the rider structure may be a piece of construction equipment rigged to prevent the pulling cables and conductors from sagging into the area being protected. All rider structures will be removed shortly after the conductors are installed and completely secured.

In the event that the obstacle being crossed is an electrical or communication circuit, the owner of the wire(s) being crossed will be contacted and proper measures shall be taken, such as insulated wire covers, to protect the circuit being crossed until all ropes, cables, conductors and shield wires have been installed and secured. After being secured, the other owner will be notified to remove any temporary coverings or other protection.

V-1.3.11 Wire Installation

A polypropylene line is first pulled through blocks on the insulators by hand or by all-terrain vehicle (ATV). A steel pulling wire connected to the polypropylene line is pulled from the conductor puller. Occasionally, it is more cost effective to install the pulling line or steel pulling cable with a helicopter. The conductor puller then pulls in the conductor and it is tension controlled on the far end of the pull by a tensioner. Conductor pullers and tensioners require a large, level area for their setup. The pullers and tensioners are typically mounted on large, flat bed-type tractor-trailer rigs, and can weigh in excess of 80,000 pounds. They frequently also need to be anchored by large bulldozers. Conductor-pulling setup locations depend on access availability and spacing, topography at the project access points, and the "pull length" that a particular contractor can accomplish with their available equipment. Pulling locations will be selected for ease of access and to minimize environmental impact.

After the wire is pulled and tensioned, it will be clipped into place. Crews that clip wire typically do not use heavy equipment; rather, light duty bucket trucks will be used where the structures are reasonably accessible. Foot or helicopter access may be required in some locations to prevent environmental damage if a structure is not readily (or seasonally) accessible.

V-1.3.12 Final Construction Inspection and Construction Clean-up

After wire is pulled to initial sag and clipped into place, a construction inspector checks the newly installed line for compliance with construction specifications and codes. Any deficiencies that are found during the final construction inspection will be corrected by a construction "clean-up" crew. These crews typically do not use any heavy equipment. Light duty backhoes, bucket, flatbed or pick-ups may be used to reach the structures along the construction access roads. As a result, impacts from these crews will be minimal.

V-1.3.13 Restoration

Disturbed soils will be seeded with a conservation seed mix and mulched with hay in accordance with the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices (BMP Manual) and the project E&S Plan (provided in Appendix V-A). Disturbed upland areas not adjacent to protected resources will also be seeded with a conservation seed mix and mulched with hay in accordance with the BMP Manual. Any construction debris (litter, hardware, and bracing) will be removed from the ROW and disposed of at an approved location or a licensed disposal facility. No construction debris or any other materials will be burned or buried on the ROW. Erosion and sedimentation control devices will be installed as needed and maintained through the duration of the restoration efforts. These devices will be removed once the area has a good catch of vegetation and is stable. A detailed site restoration plan is provided in Section 10.0 of the E&S Plan (Appendix V-A).

V-1.3.14 Project Compliance Inspections

Contractor training and compliance inspections are described in the E&S Plan (Appendix V-A). TransCanada personnel and/or qualified environmental professionals will monitor the work area to inspect erosion control devices and ensure that work practices meet project commitments. Following completion of construction, a formal inspection will also be undertaken to identify any potential erosion problems or areas that require further restoration work. Any identified problem areas will be permanently stabilized as soon as possible. Follow-up inspections to confirm appropriate stabilization will also be conducted.

V-1.4 Construction Schedule

TransCanada anticipates beginning work on the transmission line during the late fall/early winter of 2007, pending permit issuance. Construction of the transmission line is expected to take about 8 months to complete. To the extent possible, construction will occur during winter conditions to minimize potential for wetland and overall impacts due to disturbance.

The construction contractor will generally follow the established transmission line construction sequence listed below.

- Pre-construction environmental and construction review (initial "walk-through" with environmental, engineering, and construction personnel)

- Improvements to access roads, as required
- Tree and shrub clearing, grading and installation of erosion controls, as required
- Light duty access construction on ROW, including placement of mats and erosion controls, as required
- Test pits at proposed wood pole locations
- Movement of poles and framing materials to proposed locations
- Blasting of small holes for poles, only where required
- Excavation of pole holes
- Wood pole installation and framing
- Wire installation
- Final construction inspection and construction clean-up
- Restoration
- Final compliance “walk-through”

V-1.5 Maintenance and Operation

V-1.5.1 Structure Maintenance and Operation

The transmission line will be examined at least one time per year by aerial inspections, and one detailed ground-based inspection will be completed every five years. The ground-based inspection will include a full climbing inspection of about 10 percent of the structures. General maintenance on wood pole structures consists of guy adjustments and bolt tightening. Steel portions of the structures may get spot-painted at damaged or rusted areas.

Wooden H-Frame structures are considered to have a 30-year service life. After 30 years, it is not likely that the entire line would be dismantled and rebuilt, but rather, it is likely that additional assessment of the soundness of the poles and cross-arms would be undertaken. Repairs to defective or questionable structure components will be completed soon after discovered, thereby extending the service life of the structure.

V-1.5.2 Vegetation Maintenance

The ROW will need vegetation management in order to maintain safe clearances from electric conductors. There are two distinct types of vegetation management that will be utilized:

- Selective clearing in buffers and wetlands; and
- Clearing in other areas within the ROW.

Vegetation maintenance is discussed in detail in the Vegetation Management Plan, provided in Appendix V-B.

V-1.5.3 Emergency Restoration of Interconnection

During emergencies, work to restore failures of the electrical interconnection with the grid will be performed in accordance with permit conditions and best management practices (BMPs), and in consultation with the appropriate agencies.