STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

DOCKET NO. 2015-06

JOINT APPLICATION OF NORTHERN PASS TRANSMISSION, LLC AND PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE D/B/A EVERSOURCE ENERGY FOR A CERTIFICATE OF SITE AND FACILITY

PREFILED DIRECT TESTIMONY OF

DAVID L. TAYLOR, JR., RLA

ON BEHALF OF
COUNSEL FOR THE PUBLIC

November 15, 2016

Qualifications and Purpose of Testimony

Q. Please state your name, position and your employer.

A. My name is David L. Taylor, Jr. I am an Associate Vice President of Dewberry, which is a multi-disciplinary engineering firm with offices in 18 states and headquartered in Fairfax, Virginia.

Q. Please summarize your education background and work experience.

A. I have a Bachelor of Science degree in Landscape Architecture from West Virginia University and a Master of Science degree in Real Estate from Johns Hopkins University. I am a Registered Landscape Architect in Maryland, Pennsylvania, and Ohio.

I have 22 years of experience. I have worked in the energy industry for five years. I have been the project manager for the planning and construction of underground and aboveground utility transmission lines and energy related facilities in the Mid-Atlantic area. In my current position with Dewberry, I am responsible for business and operational development for surveying, engineering, landscape architecture and consulting services in the firm's Baltimore office and throughout the Mid-Atlantic. I work directly with clients in all aspects of program development, feasibility, entitlements, zoning, planning, engineering and permitting. I also coordinate professional resources across many Dewberry offices providing surveying, geospatial, civil engineering, landscape architecture, MEP engineering, structural engineering, planning, zoning and permitting for power/energy, infrastructure, institutional and commercial clients. See my resume attached as Exhibit A.

Q. Have you testified previously before the New Hampshire Site Evaluation Committee or other regulatory bodies?

A. I have not testified before the New Hampshire Site Evaluation Committee. I have testified previously before the Baltimore County, Maryland Hearing Officer and the Baltimore County, Maryland Board of Appeals.

Q. What is the purpose of your testimony?

A. My testimony discusses the short-term and long-term impact on New Hampshire’s communities and natural resources from the construction and maintenance of the overhead portion of the proposed Northern Pass transmission line project (the “Project”).

Q. Please describe the types of impacts that construction of the overhead portion of the Project will have on communities and natural resources?

A. The construction of the overhead portion of the Project will have several impacts. The rights-of-way in which the Project will be constructed will require the clearing of vegetation. Construction of the transmission line towers will result in increased traffic on public and private roads, including access points to the rights-of-way, to laydown areas and to staging areas from these roads. Construction also will cause increased noise and dust/dirt on roads and along the route of the Project. Construction activity and the increased traffic volume will cause traffic delays and potentially damage roads, particularly local roads that are not designed for high numbers of heavy vehicles. Construction of the transmission towers will cause soil erosion and sediment runoff if Best Management Practices are not properly utilized and monitored. Construction of transmission towers in wetlands and water bodies will adversely affect those areas if precautions are not taken. Construction in the Pine Barrens in Concord will adversely impact the habitat area for the Karner blue butterfly, a federally listed endangered species.

Access Roads

Q. Please describe how the rights-of-way will be accessed for the construction of the overhead transmission line.

A. The overhead transmission line right-of-way ("ROW") will be accessed (1) directly from public roads; (2) from private roads or access routes; and (3) within the right-of-way.

Q. Was Dewberry able to fully assess the impacts from the use of public roads to access the ROW?

A. No. For the vast majority of the Project, it is expected that the right-of-way will be accessed from public roads. Some of the in right-of-way access roads will be needed only during construction while others will be required permanently for long-term operation and maintenance of the transmission lines. Grading may be required to develop or improve in right-of-way access roads and their access from public roads. The Applicants' plans do not identify in right-of-way access routes that would be temporary versus permanent. Insufficient information is provided to fully assess impacts on New

Hampshire communities and natural resources by the Applicants' use of these access roads.

Q. Was Dewberry able to fully assess the impacts from the use of private roads to access the ROW?

A. No. Along the Project route there are approximately 84 private access routes, with 80 of them in the northern section of the Project between Pittsburg and Dummer. Some of these access routes already exist while others need to be built. While these 84 access routes are shown on the Applicants' plans, the extent of widening, vegetation clearing, grading and final disposition are not clarified. Insufficient information is provided to fully assess impacts on New Hampshire communities and natural resources by the use of these access routes.

Q. Was Dewberry able to fully assess the impacts from improvements to access routes within the ROW?

A. No. Right-of-way access routes within the ROW are proposed for the majority of the overhead transmission line route. While these are shown on the Applicants' plans, the extent of widening, vegetation clearing, grading and final disposition are not clarified. Insufficient information is provided to fully assess impacts on New Hampshire communities and natural resources from the work on access routes within the ROW.

<u>Construction in Rights-of-Way</u>

Q. Please describe some of the impacts along the proposed route of the Project from construction activity within the rights-of-way.

A. The Project consists of approximately 23.8 miles of overhead construction from the Canadian border in Pittsburg to Dummer, which includes 32 miles of new rights-of way, and approximately 99.8 miles of overhead construction within existing rights-of-way from Dummer to the Deerfield substation.

Within the new right-of-way corridor approximately 280 new transmission line lattice tower structures and 9 monopole structures, varying in height between 60 feet and 120 feet, will be constructed. The construction of each of the 280 lattice towers will require a temporary construction pad of at least 100 by 120 feet in size, and will require four to five concrete truck deliveries per lattice tower, or 1,120 to 1,400 concrete truck deliveries. Concrete trucks will pick up concrete from existing concrete batch plants located along the route, travel to access points along the rights-of-way to deliver the concrete, and then return to the batch plants. In addition, there will be vehicle trips to deliver materials to the laydown areas and from the laydown areas to the rights-of-way; the delivery and movement of construction equipment along the propose route; and daily vehicle trips for work staff.

From Dummer south to the Deerfield substation, there will be approximately 897 structures, including a mixture of lattice towers, monopole and h-pole structures that range in height from 45 feet to 160 feet. Similar to the northern section of the Project, construction along the route south of Dummer will require significant volumes of concrete trucks traveling from batch plants to rights-of-way access points and returning to batch plants, material delivery trucks, construction equipment trucks, and construction worker vehicles.

Q. Was Dewberry able to assess the full impact of this increased traffic during construction?

A. No. The location of existing concrete batch plants that will service the Project were not identified so we could not assess the capacity of the batch plants or all of the travel impacts associated with them.

Laydown Areas and Staging Areas

Q. Please describe the proposed laydown areas and staging areas.

A. The Applicants' pre-filed testimony (Mr. John Kayser) states that laydown areas are typically previously disturbed large paved or gravel surface lots 5 to 50 acres in size, and are used for the long-term storage of construction materials and equipment. Staging areas are much smaller in size, typically less than two acres, and are used to stage construction material for the upcoming weeks. The Applicants propose three construction laydown areas. One laydown area is in Clarksville and is 4.95 acres. Two laydown areas are located in Millsfield and are 0.96 acres and 1.57 acres.

Q. Was Dewberry able to fully assess the impact of laydown areas and staging areas?

A. No. The Project will need additional laydown areas and staging areas between Millsfield and the Deerfield substation. There is insufficient information on the size and location of these laydown and staging areas to fully assess their impacts on New Hampshire communities and natural resources.

Traffic Impacts

Q. Please describe some of the vehicles and equipment that will be required for construction of the Project.

A. Construction of the Project will require a substantial number of vehicles and heavy equipment, including bulldozers, excavators, graders, logging trucks, dump body trucks, concrete mixers, flatbed trucks, equipment and material delivery trucks, cranes, and work staff vehicles. Construction also will require fuel trucks, maintenance trucks, repair vehicles, and water trucks for dust control.

Q. Please describe some of the impacts these vehicles will have on the public roads and access points to the ROW.

A. All of these vehicles will impact the public roads by substantially increasing traffic. In the highly developed urban areas along the route, the existing infrastructure has the capacity to accommodate these additional vehicles. However, many of the public roads to be used for construction, particularly in smaller communities, are local roads that are meant primarily for personal vehicles and the occasional larger truck. There is the potential for local traffic delays at places where vehicles access the ROW, and at staging areas and laydown areas.

Road Damage

Q. Will the construction have any impact on the roads themselves?

A. Yes. Construction vehicles inflict a higher level of stress on the pavement. Higher capacity roads that are designed to accommodate higher traffic volumes and their associated loads should be able to handle the increased stress. Many local roads, however, are not designed to handle high numbers of heavy vehicles, particularly at the interface points between the road surface and the road shoulder. Repeated stress from large vehicles at these interface points will cause the road to begin to crumble and break apart. This can cause large problems with the paved road in a short time if not repaired timely.

Q. Have the Applicants indicated how they will monitor and address this problem?

A. No. The Applicants have not indicated the method to monitor these interface areas or what will be done to repair problems that arise from construction vehicles on roads.

Soil Tracking

Q. Is there an issue with soil tracking?

A. Yes. All vehicles that travel onto or within the ROW will collect dust and/or soil and/or rocks that must be removed or it will be tracked onto public roads. The Application indicates that there will be 109 public road access points from the ROW.

Q. What problem does soil tracking create?

A. Soil that is tracked onto pavement can become slippery when it becomes wet, which creates a driving hazard. Rocks can be flung from the pavement onto other vehicles, damaging them. They also can pose a safety hazard to motorcyclists.

Q. Do the Applicants address this issue?

A. Partially. The Applicants have indicated that they will use Best Management Practices to pressure wash the dirt off vehicles, but they have not indicated specific methods of treating the wash water that will be used to pressure wash vehicles before they enter the public roadways.

Construction Noise

Q. Will the construction of the Project generate an increase in noise along the route?

A. Yes. In urban areas, the temporary increase in noise levels due to construction or other disruptive factors may be seen as a relatively minor increase in the overall noise level, although early morning mobilization and evening work may cause annoyance. However, much of the proposed route passes through rural or lightly developed areas where the ambient noise level is quite low. The increase in the noise level in these areas will be much more noticeable and will cause annoyance. This will affect residents, deter tourists, and may disrupt wildlife, changing their travel patterns to avoid the construction. High noise levels that occur during breeding season also may have an impact on wildlife.

Erosion and Sedimentation Control

Q. Will construction of the Project have any impact on soil erosion?

A. Potentially. The Applicants' draft Stormwater Pollution Prevention Plan (SWPPP) lists different types of Best Management Practices to be used, but the maps in the Application only indicate some proposed locations for BMPs and appear to be lacking BMPs in many areas, particularly in areas of steep slopes. It takes very little rainfall to begin the erosion process on a steep slope, which erosion can quickly accelerate. There are several statements in the SWPPP that need clarification, as discussed in our report.

Construction in Wetlands and Water Bodies

Q. Will the Project require construction of structures within wetlands and water bodies?

A. Yes.

Q. Where you able to able to access the level of impact from this work?

A. No. Foundation requirements for typical structures are described in the Application in general terms, but specific requirements and foundation types are to be determined during the final design phase of the Project. Consequently, we cannot access the level of impact since the impacts can vary widely depending upon the specific foundation to be installed, the method and time of year foundations are installed, and the equipment required. Our report describes the general impacts that will occur with this of work.

Q. Please summarize your findings on the impact from construction of the Project.

A. Construction of the overhead portion of the Project will have the following impacts on New Hampshire communities and natural resources:

(1) Construction related vehicles will cause increased traffic on public and private roads along the route;

(2) Access points to the ROW and access routes within the ROW will require work, the extent of which is not now known;

(3) The use of laydown areas and staging areas will impact traffic along the route, the extent of which is not now known;

(4) Construction related traffic will cause traffic delays, particularly on local roads and at places where the ROW will be accessed;

(5) Construction vehicles may damage local roads;

(6) Construction vehicles will cause soil tracking onto public and private roads if BMPs are not implemented;

(7) Construction will increase noise levels and cause annoyance along the route particularly in rural or lightly developed areas;

(8) Construction will cause soil erosion if BMPs are not implemented;

(9) Construction within wetlands and water bodies may adversely impact these areas; and

(10) Construction in the Pine Barrens in Concord will adversely impact the habitat of the Karner blue butterfly.

Q. Does this conclude your testimony?

A. Yes.

Exhibits

A. Resume of David L. Taylor, Jr., RLA

B. Resume of Brenden Alexander, PE

C. Resume of Adam Zysk, PE

D. *Northern Pass Transmission Line: Overhead Line Review* report submitted by Dewberry

E. Spreadsheet identifying access routes and laydown areas, cross referenced to Applicant Appendix 47 and Dewberry Aerial Maps, along with color coded impacts

F. Aerial maps showing the route, access routes, laydown areas, access points to public roads, fire, police, schools, hospitals, and structures in wetlands/waterbodies

Exhibit A

David L. Taylor, Jr. RLA

Associate Vice President

EXPERIENCE HIGHLIGHTS:

Practices Total Project Consulting

Client Manager for all of Dewberry's Exelon/Pepco/BGE commissions

Client Manager and Project Manager for Dewberry's power commissions in Maryland and Washington, DC

EDUCATION:

MS, Real Estate, Johns Hopkins University

BS, Landscape Architecture, West Virginia University

REGISTRATIONS:

Landscape Architect: MD, PA, OH

YEARS OF EXPERIENCE:

Dewberry: 8

Prior: 14

AFFILIATIONS:

Leadership Baltimore County

Maryland Building Industry Association

PUBLICATIONS:

" *Land Development Handbook 3rd ed.;* Chapter 8*"Subdivision Ordinanaces, Site Plan Regulations, and Building Codes"* Published by McGraw-Hill; 2008

Mr. Taylor provides multi-discipline team management/leadership enterprise wide with an emphasis on Total Project Consulting. He is responsible for business and operational development for surveying, engineering, landscape architecture and consulting services in the firm's Baltimore office and throughout the Mid-Atlantic.

As a manager he has a hands-on approach and enjoys working directly with clients in all aspects of program development, feasibility, entitlements, zoning, planning, engineering and permitting. In addition to his core team in Baltimore, David coordinates professional resources across many Dewberry offices providing surveying, geospatial, civil engineering, landscape architecture, MEP engineering, strucutral engineering, planning, zoning and permitting for power/energy, infrastructure, institutional and commerical clients.

RELEVANT EXPERIENCE

Pepco-Buzzard Point/Waterfront Substation Route Study, Washington, D.C.; Project Manager. Project is in SE Washington, DC. Dewberry is exploring potential underground utility corridors for four proposed 138kV transmission line feeders (1,700 LF± each) between an existing substation and proposed substation. This work is being driven, in part, by the potential relocation of a professional soccer stadium. Dewberry is providing base mapping, route surveying, utility data gathering, Level A utility locating, Phase 1 & 2 Environmental Site Assessments, route layouts and analysis, civil engineering, maintenance of traffic plans, conduit plan and profiles, erosion and sediment control, exhibits, DDOT permit processing and general consulting services.

Pepco-Blue Plains Advanced Waste Water Treatment Plant/Naval Research Laboratory/Joint Base Anacostia-Bolling Route Study, Washington, D.C.; Project Manager. Project area includes Blue Plains Advanced Waste Water Treatment Plant, Naval Research Laboratory (NRL) and Joint Base Anacostia-Bolling. To increase reliability and provide redundant power supply to all three facilities Pepco proposes to construct two 69kV underground transmission lines (2,000 LF±) between substation 83 and 168 in SW Washington, DC. Dewberry services inlcude field surveying potential route alignments and assembling existing utility data for water, sewer, storm drain, gas, electric, communications and steam lines, base mapping, analyze potential route alignments, prepare plan and profiles, cross sections, 3D utility visulaization model, traffic control plans, erosion and sediment control, predicitive anylysis for construction equipment vibrations, establishing test pit locations, and permit/approvals coordination with CSX Railroad, Blue Plains, NRL, Joint Base, DC Department of Regulatory and Consumer Affairs (DCRA) and DC Department of the Environment (DDOE).

Pepco-Takoma to Georgetown Route Study, Prince George's County, Maryland and Washington, D.C.; Project Manager. Dewberry is exploring potential underground utility corridors for four proposed 69,000 volt transmission line feeders (41,500 LF± each) routing between four existing substations. Dewberry provided base mapping, route alternatives and recommendations, horizontal alignment plans and client and subconsultant coordination relative to property rights and access, substation and intersection surveys.

Pepco-Capital Crossing Route Realignment, Washington, D.C.; Project Manager. Due to a developer need Dewberry is realigning a 138,000 volt pipe type underground transmission line feeder (450 LF ±) along Massachusetts Ave. Dewberry is responsible for base mapping, route layouts and analysis, civil engineering, pipe-type plans and profiles, exhibits, and client and developer coordination relative to developer design drawings and proposed and existing utilities, and test pitting.

Pepco Champlain Substation MOT, Washington, D.C.; Project Manager. As part of their planned infrastructure upgrades Pepco is replacing older pressurzation plants. In support of this effort at the Champlain substation in NE Washington DC Dewberry prepared maintenance of traffic plans (MOT) for temporary parking restrictions, detours, the closing of a neigborhood road and permitting through DDOT. MOT was necessary for the removal, by crain, and replacement of an existing 8,000 gallon pressurization plant within the substation.

Pepco E. Capitol Street 138kV PTL Repair, Wahsington, DC.; Project Manager. In response to third party contractor damage to an existing pipe-type line, Dewberry provided emergency support services for Pepco in suport of their reparing the line. Services included surveying, collecting geotechnincal samples for testing and exhibit preparation.

Baltimore Gas & Electric LiDAR Specifications & QA/QC, Baltimore, MD.; Client Manager. Dewberry developed specifications and provided independent QA/QC of LiDAR (Light Detection and Ranging) and Imagery collected as part of BGE's ongoing efforts to evaluate and demonstrate compliance of their 800 linear miles of above ground electric transmission lines with the North American Electric Reliability Corporation (NERC). Our services inlcuded review their existing LiDAR acquisition and product deliverables specifications, develop new specifications, review their third party LiDAR vendor qualifications, participate in third party LiDAR vendor interviews and evaluate and rank the potential vendors, check point surveys, general geospatial consulting, quality assessment of LiDAR tiles, completeness check of LiDAR data, quantitative and qualitative assessment of LiDAR data, classified point cloud review, metadata inspection and review of imagery and planimetric maps.

Baltimore Gas & Electric TLCCP, Multiple Counties, MD.; Client/Project Manager. In support of NERC compliance efforts Dewberry is providing above ground transmission line topographic, tower and conductor surveys along with preparing grading, sediment and erosion control plans, and permit expediting for 20 sites in Baltimore, Harford, Frederick and Anne Arundel County.

Potomac River Station C Substation, Arlington County, VA.; Client/Project Manager. In response to Dominion Virginia Power (DVP) connecting a 230kV interconnection to Pepco's system, they will construct a new high side bus to the existing substation at Potomac River Station C, add additional equipment and reconfigure the four existing 230kV underground transmission feeders leading into Station C. The proposed relocation totals approximately 850 linear feet and connects the feeder to the new high side bus. Dewberry is providing routing plans and profiles, laser scanning of substation equipment, boundary and topographic survey, utility designating, test pits, permitting and as-built services.

Pepco- Buzzard to War Substation Survey – Washington D.C. and Arlington County, Virginia; Project Manager. In response to the retirement of two undergound 69,000 volt transmission feeders from Buzzard Point substation within Washington D.C to a termination point in the War substation in Virginia (2 miles LF±) Dewberry located and surveyed 27 manholes so Pepco can remove the cables. Our services included base mapping of manholes, preparing plans showing access points to each manhole, permitting for National Park Service access, subconsultant coordination for utility designation, and client coordination for overall project advancement.

Pepco-Takoma to Burtonsville Permiting, Prince George's County, Maryland; Project Manager. Dewberry provided permitting support for the installation of a 230,000 volt overhead transmission line across 27 road crossings. Our services included base mapping, maintenance of traffic plans, and client coordination relative to permit agencies, contractor and overall project advancement.

Pepco- Substation Decommissioning Surveys, Prince George's County Maryland and Washington, D.C.; Project Manager. Due to the decommissioning of seven (7) substations within Washington, D.C and Maryland Dewberry surveyed each substation to be used as a base for the subquent razing of each facility. Our services included base mapping and survey and client coordination for overall project advancement.

Mattawoman Energy 230kV Generator Lead Line and Switch Yard, Prince George's County MD; Project Director/Manager. In support of Mattawoman's proposed 839-megawatt combined cycle power plant Dewberry is providing surveying, civil engineering, electrical engineering, geotechnical engineering, structural engineering, routing, land acquisition, easements, forest conservation, exhibits, permitting and consulting services for 2.5 miles of 230kV overhead transmission line on mono-poles and associated switch station which will connect to Pepco's existing Burches Hill Substation. Coordiantion with SMECO is also required for the relocation of existing overhead distribution lines along the existing CSX railroad.

Pepco Wye Mills Substation, Queenstown, MD.; Client/Project Manager. Pepco constructed a new 138kV underground transmission line within the Wye Mills substation. Dewberry provided survey and mapping, routing plans, profiles, utility designating, test pits, erosion and sediment control, TL drawings, permitting, as-builts, construction stakeout and general consulting services.

Pepco Indian River Substation, Dagsboro, DE.; Client/Project Manager. Pepco constructed a new 138kV underground transmission line within the Indian River substation. Dewberry provided survey and mapping, routing plans, profiles, utility designating, test pits, erosion and sediment control, TL drawings, permitting, as-builts, construction stakeout and general consulting services.

Pepco Easton Substation, Easton, MD.; Client/Project Manager. Pepco constructed a new 138kV underground transmission line within the Easton substation. Dewberry provided survey and mapping, routing plans, profiles, utility designating, test pits, erosion and sediment control, TL drawings, permitting, as-builts, construction stakeout and general consulting services.

Pepco Takom to Sligo Substation 69kV Underground TL, Prince George's County and Montgomery County, MD and Washington, DC.; Pepco is planning to construct four (4) new 69kV transmission lines in two (2) 8-way duct banks approximately 3.5 miles traveling from the existing Takoma Substation #27 in Prince George's County, MD to Sligo Substation #9 in downtown Silver Spring, MD. Dewberry is providing survey/mapping, route planning, plan and profiles, geotechnical engineering, community outreach, traffic control plans, erosion and sediment control, permitting, construction stakeout, as-builts and construction administration/RFI services.

Exhibit B

Brenden Alexander PE

Senior Structural Engineer

EDUCATION:

MS, Structural Engineering, Tufts University

BS, Civil Engineering, Merrimack College

REGISTRATIONS:

Professional Engineer, Structural: MA, CT, ME, NH, FL, TX

National Council of Examiners for Engineering and Surveying

YEARS OF EXPERIENCE:

Dewberry: 12

Total: 12

AFFILIATIONS:

American Society of Civil Engineers

CoreNET Global

Mr. Alexander is a licensed structural engineer and senior project manager with extensive experience in the design of new structures and the modification and retrofit of existing structures including the design of transportation facilities, water/wastewater facilities, healthcare facilities, HVAC support framing, and telecommunication structures. His background also includes bridges, tunnels, parking garages and boat basins. His building design work has consisted of a variety of structures and systems including steel frame, reinforced concrete foundations, vaults and floor systemss, and light gauge construction.

SELECTED EXPERIENCE

713 Tremont Control Center Expansion, NSTAR (now Eversource), Wareham, MA. Structural Engineer for the expansion of 713 Tremont Station necessary for the installation of additional high voltage distribution switch gear equipment. The single-story expansion structure includes a brick veneer exterior and roof shape and finish materials consistent with the existing structure.

MassDOT General Engineering Consultant (GEC), Various locations, MA. Structural Engineer. This MassDOT contract was ongoing for over 10 years and included a variety of work order assignments including: the triennial inspection of bridges, highways, drainage systems, buildings, electrical and mechanical systems and toll collection systems; building study, evaluation, design and contract documents; structural and geotechnical engineering, design and contract documents; bridge and highway engineering studies, rehabilitation, design, contract documents, and construction phase services; and construction administration and resident engineering and inspection.

Neponset River Bridge Rehabilitation, MassDOT, Boston and Quincy, MA. Structural Engineer for the $54 million award-winning rehabilitation of this 23 span viaduct which included complete reconstruction of deteriorated hammerhead pier caps, seismic retrofit with isolation bearings, complete roadway deck reconstruction, widening the sidewalks and adding pedestrian ramps, and installation of new lighting and railings. The two-phase project addressed serious structural deterioration while integrating a workable traffic management scheme to maintain daily traffic on this major roadway connecting Quincy and Boston.

Replacement of Needham Street Bridge over Great Ditch Bridge, MassDOT, Dedham, MA. Structural Engineer for this Accelerated Bridge Project assignment that includes preliminary through final design and construction phase services for the replacement of the Needham Street over Great Ditch bridge in Dedham. Drainage improvements included the design of two new level spreaders to mitigate stormwater runoff to adjacent resource areas. Detailed construction phasing plans and traffic management details were required due to proposed elevation changes for the new bridge.

I-93 Fast 14 Rapid Bridge Replacement Project, MassDOT, Medford, MA. Structural Engineer responsible for bridge design for the replacement of four of the 14 deteriorated bridge deck superstructures along a high volume section of I-93. The superstructure replacements used Accelerated Bridge Construction through the use of prefabricated modular units to accomplish complete replacement over the course of 55-hour weekend traffic shutdowns.

Various Telecommunication Installations, New England. Structural Engineer responsible for design and construction documents for numerous cellular communication sites throughout New England. Services comprise design of telecommunication buildings such as sheds, lean-tos and other non-prefabricated structures for the development of telecommunication sites; field inspections and analysis of existing structures for installation of equipment shelters and antennas; development of site plans in conjunction with Township zoning requirements; evaluation of potential raw land sites; design of equipment building and monopole foundations; new electrical and telephone services; field surveying and engineering support services during construction; testimony for zoning and planning board hearings. Structural design performed in accordance with the Local Building Code and the EIA/TIA 222 Structural Standards for Steel Antenna Towers and Antenna Supporting Structures.

Replacement of Wyoming Bridges No. 43 and 44, RIDOT, Hopkinton and Richmond, RI. Structural Engineer for this $2-million bridge replacement of two bridges on stone abutments and piers in an environmentally sensitive and historic mill area.

Section 4 Webster Avenue Evaluation, MWRA, Somerville, MA. Structural Engineer responsible for an in-depth bridge inspection and report to assess overall condition rating and structural analysis to evaluate several alternatives to repair or replace the steel truss utility bridge. Final design of the bridge replacement included analysis and impact to local roadway access restrictions, crane access requirements, foundation impact to adjacent structures, etc.

Wachusett Aqueduct Emergency Connection, MWRA, Clinton, MA. Structural Engineer for final design of two 120-inch butterfly valves to provide the MWRA with the ability to deliver water from one aqueduct to the other during emergency situations. After detailed analysis, Dewberry proposed installing both valves in the existing vault, potentially saving the Authority significant construction costs. Contract documents will include structural, mechanical, security, SCADA and site/civil aspects in addition to the valves design. Structural modifications include reconfiguring the removable slabs of the valve vault roof structure.

Exhibit C

Adam Zysk PE

Senior Site/Civil Engineer

EDUCATION:

BS, Civil Engineering, University of Rhode Island, 1985

REGISTRATIONS:

Professional Engineer - Civil: MA, CT, RI

YEARS OF EXPERIENCE:

Dewberry: 8

Prior: 23

AFFILIATIONS:

American Society of Civil Engineers

Boston Society of Civil Engineers

Mr. Zysk has over 31 years of diverse experience on projects located throughout the New England states. These projects have covered the spectrum from interstate highway and interchange designs to site plans for telecom installations. Throughout his careeer he has completed projects for federal and state agencies, multiple municipalities and private clients. His project responsibilities have included project management, transportation and civil/site design, traffic engineering, construction phasing and traffic management design, drainage, water and wastewater system design and pre-construction and construction inspections. In addition, he has led and/or participated in the public information process in many of the projects he has been involved with through presentations to clients and outside groups and the development of informational materials.

SELECTED EXPERIENCE

Route 1A (Rantoul Street and Cabot Street) Reconstruction, City of Beverly, MA, Project Manager. Responsible for leading the design process and presenting the proposed design concepts to the local business organization, City officials and the general public as the design progressed. Detailed traffic management plans were required to maintain access to numerous abutters and existing traffic volumes throughout construction. Project right of way requirements included preparing plans and legal descriptions for nearly 200 temporary and 70 permanent easements and 3 takings. This $20-million reconstruction project included rehabilitation of deteriorated roadway and pedestrian sidewalks, traffic signal upgrades, ADA accessibility, permitting and extensive improvements to the existing storm drainage system. The design requires that traffic be maintained throughout construction with minimal detouring allowed.

Neponset River Bridge Rehabilitation, Boston and Quincy MA. Civil Engineer for the $54 million rehabilitation of this 23 span viaduct which included complete reconstruction of deteriorated hammerhead pier caps; seismic retrofit with isolation bearings; complete roadway deck reconstruction; widening the sidewalks and adding pedestrian ramps; installation of new lighting and railings; minor realignment and grading of surface streets; modifications to the surface drainage system and optimization of traffic signals. The two-phase project integrated a workable traffic management scheme to maintain daily traffic on this major arterial roadway connecting Quincy and Boston.

Replacement of Needham Street Bridge over Great Ditch Bridge, MassDOT, Dedham, MA, Roadway Project Manager for this Accelerated Bridge Project assignment that includes preliminary through final design and construction phase services for the replacement of the Needham Street over Great Ditch bridge in Dedham. Drainage improvements included the design of two new level spreaders to mitigate stormwater runoff to adjacent resource areas. Temporary easements were identified as required for construction access and placement of erosion and sedimentation control elements. Detailed construction phasing plans and traffic management details were required for the new bridge.

Section 4 Webster Avenue Evaluation, MWRA, Somerville, MA, Civil Engineer. Responsible for providing assessment of necessary traffic restrictions/ management to allow the project to be constructed for replacement and rehabilitation alternatives analysis for a 48" water main on a utility bridge over the MBTA railroad. Details included ADA compliant wheelchair ramps and detailed traffic management plans and details. Final design of the bridge replacement included analysis and impact to local roadway access restrictions, crane access requirements, foundation impact to adjacent structures, etc.

Telecom Sites, New England. Project Engineer for the design of access roads for numerous telecommunication sites in each of the New England states. Project requirements included geometric design and grading, drainage design, and development of erosion and sediment control and other site specific details. At a number of locations, infiltration systems were designed to maintain a zero net increase in site stormwater runoff in accordance with local regulations. Sites located on private property required the delineation of permanent easements for site access and occasionally supplemental temporary easements for construction.

Northern Intermediate High Short Term Improvements, MWRA, Civil/Traffic Engineer for design of 2,500 linear feet of 36" water main connecting the Towns of Stoneham and Reading. Dewberry was responsible for survey, wetland delineation, hazardous materials assessment, subsurface investigation, permitting, design, bidding, resident inspection and construction administration services. Mr. Zysk oversaw the designs for traffic management including detours, construction zone safety plan (CZSP), intersection phasing and incorporating blasting requirements. He was also responsible for presenting the proposed traffic management schemes to the officials and police forces of both municipalities and coordinating their respective requirements to gain acceptance of the work.

Callahan Tunnel Roadway Rehabilitation, MassDOT, Boston, MA. Civil Engineer for design of the $30 million rehabilitation of the Callahan Tunnel, which carries two lanes of traffic of Route 1A NB under Boston Harbor and serves as a major highway transportation link between downtown Boston to Logan Airport and points north. The project featured concrete reconstruction of the roadway deck, curb reconstruction, and new bituminous concrete pavement. The work involved closing one of the primary access points to Logan Airport. Extensive traffic management plans were required that varied from local detour plans and site access details to regional notification signs and electronic messaging. To assist travelers unfamiliar with Boston, interactive maps were created for posting to the project website.

Exhibit D

Dewberry

Northern Pass Transmission Line: Overhead Line Review

SUBMITTED TO:

State of New Hampshire
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Purpose of Review

Dewberry has been retained to provide Consulting and Technical Analysis to Counsel for the Public in the Attorney General Office of New Hampshire for the Northern Pass Transmission Line Site Evaluation Committee (SEC) (Docket No. 2015-06) (the "Application"). The Application entails 192 miles of 320kV HVDC and 345kV AC overhead and underground transmission line (and related facilities) extending from the international border between Canada and Pittsburg, NH to Deerfield, NH, essentially bisecting the state (see Figure 1). Review and technical analysis of the Application is necessary to determine soundness of design, and determine impacts of construction on New Hampshire communities and natural resources.

The purpose of this report is to review the Overhead Transmission Line segments Northern Pass Project and identify short term and long-term impacts on New Hampshire communities and natural resources. In order to understand the Application Dewberry has reviewed the following documents provided by the Applicants.

Figure 1: Project Route

Documents Reviewed

1. Application of Northern Pass Transmission LLC and Public Service Company of new Hampshire D/B/A Eversource Energy, (the "Applicants") for a Certificate of Site and Facility to Construct a new High Voltage Transmission Line and Related Facilities in New Hampshire;
2. The pre-filed testimony of (a) James Muntz; (b) William Quinlan; (c) Samuel Johnson; (d) Jerry Fortier; (e) Derrick Bradstreet; (f) Nathan Scott; (g) John Kayser; (h) Lynn Farrington; (i) Jacob Tinus (j) Lee Carbonneau; and (k) Douglas Bell;
3. Appendixes 1-10, 31, 32, 34, 39 and 47;
4. Project Maps, February 2016 Revision;
5. The Applicants' Responses to Council for Public's Expert-Assisted Data Requests and interrogatories-Set1;
6. An Evaluation of All UG Alternatives for the Northern Pass Transmission Project; and
7. Documents produced by the Applicants in response to data requests, requests made at technical sessions, and informal requests.

Site Visits

In addition to documents reviewed, four Dewberry team members – Brenden Alexander, PE, Chris Petrocelli, PE, David Taylor, RLA and Adam Zysk, PE - visited the project area on August 3, 2016 and August 4, 2016. During the first day Dewberry was accompanied by members of the Applicants' team, Primmer Piper Eggleston & Cramer and the Attorney Generals' office. Field reviews started at the northern end near the Canadian border in Pittsburg and continued south to the Deerfield substation. For overhead segments of the proposed transmission line route, field review was limited to public road access where overhead line crossings are proposed and at various substation, and transition station locations. The entire length of the underground transmission line route was driven and included numerous field walks. On August 17, 2017, Adam Zysk, PE made a field visit to observe ongoing geotechnical work being performed by the Applicants in multiple locations. On

September 13, 2016, David Taylor, RLA revisited numerous areas along the Northern Pass route from Plymouth south to the Deerfield Substation. During each field visit existing condition photos were taken for both overhead and underground segments of the project area.

<u>Technical Information Sessions</u>
Three Dewberry team members – Brenden Alexander, PE, David Taylor, RLA and Adam Zysk, PE – attended a construction technical session with the Applicants' team on September 12, 2016 and two team members – David Taylor, RLA and Adam Zysk, PE – attended a second technical session on September 14, 2016.

Many points of clarification were shared by the Applicants' team regarding the project including a breakdown of the construction and engineering/design team going forward. This is relevant as new firms will be involved with advancing the project design and engineering beyond the 30%+/- stage submitted as part of the SEC Application filing, particularly for the underground segments. Burns & McDonnell will remain the lead engineer for all overhead transmission line segments.

John Kayser advised that his role as manager for construction will transition to Quanta Services (Quanta) who will be General Contractor for the Northern Pass Project. PAR Electrical Contractors (PAR), a subsidiary of Quanta will serve as overhead transmission line contractor for the project and underground items such as open trench and trenchless construction. PAR will also subcontract separate firms for underground open trench design (SGC Engineering), underground trenchless design (Brierley Associates), and overhead transmission line design (Burns & McDonnell). ABB, a specialty contractor, will be retained directly by Northern Pass for construction of the underground transmission line.

It was noted that Quanta is currently doing preliminary analysis for staging areas, laydown areas and access routes necessary to construct the project, which may include additional areas beyond those shown on the SEC Application documents, especially in the southern half of the project. The potential for additional staging and storage areas is also noted in the Applicants' responses 1-57 of Applicants' Responses to Council for Public's Expert-Assisted Data Requests and interrogatories-Set1.

Per Mr. Kayser's pre-filed direct testimony "temporary storage areas/construction laydown yards are typically previously disturbed large paved or gravel surface lots 5 to 50 acres in size. These areas are used for the long term storage of construction materials such as structural steel, conductor and any other major type of equipment. Staging areas are much smaller in size and are used to stage construction material for the upcoming weeks. Typical staging areas are less than two acres in size." Given the potential need for additional staging and laydown areas beyond those submitted with the SEC Application there is insufficient information to fully assess the impacts these areas, which can be quite large, may have on New Hampshire communities and natural resources.

Construction sequencing for overhead transmission lines was described as seven general steps (see below). It was estimated that on average one mile of overhead transmission line can be constructed every two weeks, with 6-10 foundation crews and 5-10 structure erection crews working concurrently. Applicants have indicated that work crews are anticipated to work six days per week, from 7:00 a.m. to 7:00 p.m. Helicopters will be used during construction to pull line, transport personnel to the top of structures and transport equipment for the entire length of the overhead transmission line. Five or fewer helicopters may be in use at any given time and are expected to be in an area for approximately five days in a row as work progresses along the route. The Applicants noted that they would alert communities in advance, although the timing for advance notice and methodology was not described.

Overhead Transmission Line Construction Sequence

1. Logging
2. Road build
3. Pad installation
4. Foundations (28 day cure)

5. Tower erection
6. Conductor pulling
7. Post conductor pulling work (final structure hardware)

Construction sequencing along the project was not provided and was noted as being heavily dependent on Contractor means and methods, however, the Applicants noted that construction of the Converter Terminal in Franklin is a critical path item and will start first. Due to FAA permit time limits, construction of overhead transmission lines in the Concord area were also described as important for construction scheduling in that area.

The Applicants noted that the construction of temporary concrete batch plants are not currently being considered. Concrete trucks will pick up and deliver concrete from existing concrete batch plants located along the project route. Locations of the existing concrete batch plants were not identified so we could not assess the capacity of the batch plants or all of the travel impacts associated with them.

Overhead Transmission Lines

Rights-of-way for the overhead transmission line segments of Northern Pass varies from 120 feet to 392.5 feet and entail both existing and new right-of-way. New right-of-way corridors are 120 feet wide in all instances and existing right-of-way varies from 150' to 392.5 feet.

New Rights-of-Way in Northern Section

New overhead transmission line right-of-way is proposed from the Canadian border at Pittsburg to Transition Station 1 (Clarksville), from Transition Station 2 (Clarksville) to Transition Station 3 (Clarksville), and Transition Station 4 (Stewartstown) to structure DC-354B in Dummer. Within this corridor vegetation clearing is proposed as noted by limits on the NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans.

Pre-filed direct testimony by Jerry Fortier notes that "overhead portions of the HVDC line will consist of a 32 mile section where new rights have been secured," with "twenty four miles of the 32 mile section" within the Wagner forest. Additional pre-filed testimony by John Kayser outlines the vegetation removal and maintenance practices to be used by Northern Pass and its selected contractors. "Vegetation will be typically removed from the Project's construction workspace (including the areas to be managed in the vicinity of the new line) using mechanical methods." We understand that others will address any impact on the forest, exemplary natural communities, and rare plant and wildlife habitats. It should be noted that the extent and continuous nature of vegetation management and clearing within the proposed transmission line right-of-way will be a permanent impact.

Within the new right-of-way corridor approximately 280 new transmission line lattice tower structures and 9 monopole structures varying in height between 60 feet and 120 feet will be constructed, and centered within the right-of-way. Construction of each lattice tower structure will require a temporary construction pad approximately 120 feet by 100 feet (or larger in some instances) and temporary area of disturbance as shown on the NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans. These plans also identify erosion and sedimentation control BMPs, and erosion and sedimentation control BMPs for steep slopes, although these measures are not shown at all construction pad locations (for example structures DC-5, DC-7, DC17 among others) or areas designated for disturbance. We note that these plans are not final or detailed erosion and sedimentation control plans, but they do bring to light the importance of applying these best practices consistently to minimizing short-term impacts to New Hampshire natural resources. We will expand on this topic in more detail below.

Per Appendix 4, page 2-2 each lattice tower will be set on four footings, which may be either a "grillage" or overburden foundation (no concrete required, but set on steel) or caisson foundations which would require concrete. It is estimated that

9.3 cubic yards of concrete would be required per lattice tower foundation if caissons are used, which equates to 4-5 concrete truck delivers per lattice tower, depending on the size of concrete truck. By extrapolating this out (280 lattice tower structures x 4 to 5 concrete truck deliveries = 1,120 to 1,400 concrete truck deliveries) the general order of magnitude for concrete truck deliveries only can be seen for the northern most sections of the overhead transmission line lattice tower construction. Additional trips will be required for other materials delivery, construction equipment or work staff vehicle trips needed. Increased heavy truck and other traffic on public roads should be expected and will be a short-term impact on New Hampshire communities and public road systems.

<u>Existing Rights-of-Way in Central and Southern Sections</u>

Existing right-of-way for proposed overhead transmission lines and, relocated overhead transmission and distribution line segments will be used from structure DC-354B (Dummer) south to the Deerfield Substation for approximately 99.8 miles (excluding the underground transmission line segment between Transition Station 5 and 6). A mixture of lattice tower, monopole and h-pole structures are proposed with heights ranging from 45 feet to 160 feet. Approximately 891 proposed 320kV DC and 345kV AC structures are proposed for construction within the corridor. Additional structures will be removed and/or relocated within the existing right-of-way.

Similar to the northern segments of overhead transmission lines there will be a need for significant volumes of concrete trucks, materials delivery trucks, construction equipment and construction worker vehicles. The general order of magnitude for concrete truck deliveries in the central and southern segments is 2,800 to 3,500 (485 lattice towers and 221 mono poles needing concrete foundations - Appendix 4 and 2). Increased heavy truck and other traffic on public roads should be expected and will be an impact on New Hampshire communities and public road systems.

In addition to the current vegetation management and clearing program administered by Eversource along the existing transmission line right-of-way (see pre-filed testimony by John Kayser, page 17-19), which will continue, the project proposes grading modifications to an existing berm which abuts the rear property line of McKenna's Purchase, in Concord. A review of Project Maps, dated February 16, 2016, sheets 162 of 189 show a relocated berm between structures 3132-142 and 3132-146. During information exchange at the construction technical session on September 12, 2016, the location and final disposition of the berm behind McKenna's Purchase was discussed. The Applicants indicated the berm will be relocated to the opposite side of the right-of-way versus what is indicated on the Project Maps. Given the close proximity of transmission line development to the rear yards of residences in McKenna's Purchase additional clarity on berm location is needed. Relocating the berm and vegetation clearing will be a permanent or long-term impact on residents in this area.

<u>Access Roads and Laydown Areas</u>

For ease of viewing and tracking by the SEC, Dewberry has assembled a set of maps which compile the location of off right-of-way access routes and proposed laydown areas identified on the NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans along with an accompanying spreadsheet which cross references the Applicants' plans.

Three types of overhead transmission line right-of-way access are proposed by the Applicants: (1) on right-of-way, (2) off right-of-way, and (3) direct public right-of-way access. Along the project route there are approximately 84 private access routes proposed for construction that are off right-of-way (outside of the transmission line right-of-way) as shown on NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans. Some access routes are existing while others are proposed.

These access routes will be used for materials delivery, construction equipment movement, and work force mobilization from public roads and along the right-of-way corridor itself. Eighty (80) of the off right-of-way access routes are in the northern part of the project between Pittsburg and structure 354-B in Dummer, where the overhead transmission line transitions from new right-of-way to existing right-of-way corridor. These access routes will consist of approximately 67.2miles of roads. Four off right-of-way access routes are in the southern portions of the overhead transmission line route. While off right-of-way access routes are shown on the Applicants' plans, the extent of widening, vegetation clearing, grading and final disposition are not clarified. Insufficient information is provided to fully assess impacts on New Hampshire communities and natural resources.

Pre-filed direct testimony by John Kayser states "NPT performed an initial review of existing access roads leading to the transmission line ROW for the project. Based on this initial review, an inventory of possible access roads was prepared. For the vast majority of the Project, it is expected access to the ROW will be obtained from the points where public roads intersect the ROW. The contractor will be allowed to propose additional on-ROW and off-ROW access ways during the construction phase of the Project with the review of Applicants. NPT requests that the SEC delegate any required approvals on additional access ways to the NHDES, in accordance with delegation request contained in (d)(2) and (g)(8) of the Application."

On right-of-way access routes (within the NPT right-of-way) are proposed for the significant majority of the overhead transmission line route in both existing and proposed right-of-way corridors. While on right-of-way access routes are shown on the Applicants' plans the extent of widening, vegetation clearing, grading and final disposition are not clarified. Insufficient information is provided to fully assess impacts on New Hampshire communities and natural resources.

Pre-filed direct testimony by John Kayser states "access roads typically include clearing adjacent vegetation and widening roads as needed to provide a minimal travel surface approximately 12 to 16 feet wide (additional width would be needed at turning or passing locations). Access roads may be graveled. Where access roads traverse streams or wetlands, culverts and timber mats (or equivalent) may be used." Mr. Kayser's pre-filed direct testimony also states "NPT requests that the SEC delegate any required approvals of additional access ways to NHDES, in accordance with the delegation request contained in (d)(2) and (g)(8) of the Application."

Existing and proposed private access routes will be used during construction to access the overhead transmission line right-of-way corridor and to travel between construction pads. In many instances temporary disturbances to wetlands and stream buffers are shown on the NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans.

Direct transmission line right-of-way access from public roads is also proposed in most cases where there are overhead road crossing proposed along the route. The pre-filed direct testimony by John Kayser states "depending on site-specific conditions, grading may be required to develop or to improve access roads. Some access roads would be needed only during construction and thus would be used temporarily, whereas other access roads may be required permanently for the long-term operation and maintenance of the new transmission lines. For those roads that are temporarily in nature, the access roads will be removed and the land will be restored to its original condition. For those roads that may be permanent in nature, NPT requests that the SEC delegate any required approvals for permanent access ways to NHDES, in accordance with the delegation request contained in (d)(2) and (g)(8) of the Application." The plans as submitted do not identify access routes that would be temporary versus permanent. Insufficient information is provided to fully assess impacts on New Hampshire communities and natural resources.

Three construction laydown areas are proposed by the Applicants and are shown on the NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans. One is located in Clarksville (215,615 SF / 4.95 acres), and two are located in Millsfield (42,180 SF / 0.96 acres and 68,515 SF / 1.57 acres). The laydown area in Clarksville is adjacent to Transition Station 2 and will have access to NH Route 3. Both laydown areas in Millsfield are located adjacent to the proposed transmission line right-of-way. Laydown area two is also accessible from NH Route 26.

The Applicants will require additional laydown areas for the approximately 162 miles of the transmission line that is located south of Millsfield. Until these additional laydown areas are identified we cannot assess their impacts on New Hampshire communities and natural resources.

Traffic Impacts

This section discusses the impacts that the numerous construction vehicles will have on the existing road infrastructure.

The construction of the proposed project will require a substantial number of vehicles of many types to complete the work. These types of vehicles are all well above average size in terms of overall length, width and weight. They are difficult to maneuver and are slow to start and stop. A partial listing of the types of vehicles required and their function includes:

- Bulldozers, excavators, and graders: Excavation and earth moving to create the access roads and level areas near each proposed tower for the temporary work pads. These vehicles may also be used to place the mats proposed for use in sensitive areas.
- Logging trucks: Haul away trees that are to be removed from the ROW
- Dump body trucks: Hauling and disposal of any surplus, unusable or unneeded soil materials. Also delivery of material to construct the access roads and tower work pads.
- Drilled shaft excavators: Excavation of the cylindrical holes and installation of the forms needed to construct the tower footings.
- Dump body trucks and concrete mixers: Hauling and placement of the materials that will be used to construct the access roads and provide the concrete for the tower footings.
- Flatbed trucks: Hauling and delivery of the tower framing materials and reinforcing steel for the tower footings. Flatbed trucks will also deliver the materials for the transition stations and substations.
- Large foot print cranes: For installation of the tower sections onto the footings.

Supplementing these primary vehicles will be fuel trucks, maintenance and repair vehicles, watering trucks for dust control, special flatbed trucks to haul tracked equipment to and from the project site, workers personal vehicles and others.

All of these vehicles will have a number of impacts on the existing public road system and also the access road system within the ROW. Impacts that are pertinent to the public roadway system include increased traffic on public roads, potential for damage to the road surface, the potential to track soil onto the roadway, and noise from use during the construction process. In addition other considerations may include impacts to school bus routes, timing of work during tourist seasons and winter work and the impact on emergency response vehicles such as police, fire and ambulance services. It is likely that flagging crews stopping traffic will be required in numerous locations.

Traffic Volumes

As described in the testimony of Jerry Fortier, John Kayser and further expanded upon during the technical sessions, the approach to the construction of this project will be to divide the overall project into a number of smaller construction efforts, each overseen by a general contractor. This will serve to reduce the total number of vehicles travelling across the state and help speed the work. Despite this approach, a great number of vehicles will still be required at any given location within the overall project. A potential listing of vehicles required at each tower location includes: several earth moving machines along any given portion of the ROW to construct new or improve existing access roads, three to four dump body trucks making multiple trips to haul away spoils, additional dump body trucks to deliver gravel for the access road and work pads at each tower location, drilled shaft excavators that will be used to excavate the tower foundations, several flatbed trucks to deliver the tower foundation reinforcing, three to four concrete mixers per tower to deliver concrete for the foundations, three to four flatbed trucks to deliver the tower sections and a crane to install the tower.

It should be acknowledged that not all of the vehicles identified above will be entering or exiting the public road system every day and that many will remain within the ROW as they progress from tower site to tower site. However, the hauling and delivery vehicles will be much more likely to make multiple trips per day as they remove and deliver materials to and from the work areas. Also, as noted above this does not include the multiple support vehicles that will travel to each tower site on a regular basis.

In the more highly developed urban areas, the existing infrastructure has the capacity to accommodate these additional vehicles. Therefore, the additional traffic due to the construction vehicles should not pose a great deal of disturbance due to their presence and movement. However, it is clear from the routes planned to be used to access the ROW as indicated on the maps provided as part of Appendix 47, that many of the public roads proposed to be used are local roads that are meant primarily for personal vehicles and the occasional larger truck. As construction vehicles enter or exit the access roads they will, naturally, be traveling slowly. There is potential to cause localized traffic delays at these access points due to several factors such as difficult terrain or limited sight distance which may impose difficulty to the vehicle entering or exiting the access road. It may be necessary to station uniformed police officers or flagging crews at the various access points to provide traffic control for these large vehicles. This will help to minimize delays to the local users and to maintain a safe environment for all users.

Additional traffic impacts will occur at the locations of contractor staging areas and material storage areas. There are three (3) laydown areas formally identified on the plans included in Appendix 47. All of these laydown areas are located along the northern portion of the route. Pre-filed testimony of John Kayser indicates that the locations of additional storage areas will left to the various contractors who will work on the project. While the intent is to use previously disturbed, but currently unused, areas for these storage and laydown areas, each will certainly contribute to the traffic volumes due to the numerous vehicles accessing these areas during each work day which may cause traffic delays.

Road Damage

Construction vehicles are similar to other large trucks in that they inflict a higher level of stress on the pavement structure than smaller personal vehicles do. This stress is caused by two factors. The weight of the vehicle applies a vertical load to the pavement which may affect the top and middle layers of the pavement structure causing low spots and rutting. The friction forces of the vehicle starting and stopping impose a horizontal load on the pavement which may cause the top layer of pavement to ripple or create a hump. These combined loads are substantial compared to those posed by smaller vehicles. As noted above, higher capacity roads are designed to accommodate the higher traffic volumes and their associated loads imposed on the pavement structure.

Many local roads, however, are not designed for high numbers of heavy vehicles. This is especially true at interface points between differing types of road surface materials such as the intersection of a bituminous concrete pavement (i.e. road shoulders) and gravel or dirt roads. Due to a lack of structural support at the interface point, repeated stress from large vehicles onto the edge of a bituminous road will cause it to begin to crumble and break apart. Once this process begins it can create large problems with the paved road in a short time if not identified and repaired in a timely fashion. There are several best management practices that may be used to address these situations. As of this time the project has not indicated the proposed method to monitor these interface areas and what will be done to rectify problems that may arise.

Soil Tracking

Regardless of the material used to construct or upgrade the access roads within the ROW, all vehicles that travel along them will collect dust and/or soil and/or rocks on their wheels and undercarriages. Typically this is fine material that is easily airborne or disturbed by a vehicle driving over it. Should there be wet weather, this fine material clumps and can easily adhere to passing vehicles. It is critical to remove as much of this accumulated soil as possible from the vehicle prior to its exiting the ROW and entering the public travel way. Soil that is tracked onto pavement can become slippery when liquid is applied to it. Drivers travelling along the public road that encounter this slippery material may lose control of their vehicles with unfavorable results.

Among the Best Management Practices (BMPs) used at construction sites, it has become commonplace to construct a gravel pad and catchment area at each entrance to a construction site. Just prior to entering the public road, each vehicle parks on the gravel pad and pressurized water is used to wash the vehicle to remove the soil and/or dust before they are allowed to exit onto the road. The wash water is collected and treated to prevent suspended soils from entering the drainage system. The stormwater pollution prevention plan submitted as part of Appendix 4 describes a pad having typical dimensions of 50 ft. in length x 15 ft. in width with a minimum depth of 4 inches. As of this time the project has generically indicated the locations of these proposed gravel wash pads at the beginning of each access road. Specific methods of treating the wash water have not been identified.

Another BMP that is often used is regular sweeping of any paved road where some soil may be tracked onto it to further reduce the risk to vehicles. This is also described in pre-filed testimony by John Kayser but is only mentioned as a possibility.

It is important to note that, in order for both of these BMPs to work properly, regular inspection and, when required, appropriate actions need to be taken to maintain their proper function. The gravel pads require periodic inspection and removal of any accumulated sediments and paved surfaces need to be regularly inspected to determine if they require sweeping.

Noise

This section discusses, in general terms, the potential impacts of the noise levels generated by the proposed construction activities. In an urban environment noise is caused by a number of factors such as motor vehicle traffic, passing airplanes, and machinery. Each of these contribute to what is known as background or ambient noise. In the urban environment, the intensity of the background noise may be referred to as a baseline noise level. Over time residents who dwell in urban environments often grow accustomed to the background noise levels and learn to live with them or ignore them. As one moves away from the urban environment the ambient noise levels tend to decrease.

The proposed project will affect a wide range of areas ranging from rural areas typical of the northern and central portions to urban centers such as Concord. In urban areas, the temporary increase in noise levels due to construction or other disruptive factors may be seen as a relatively minor increase in the overall noise level and may be ignored or generally tolerated as long as the impact is understood to be short term.

Along much of the proposed route, however, the project is routed to pass through rural or lightly developed areas where the ambient noise level is quite low. In these areas the impact of the proposed construction will be significant. The relative increase in noise will be much more noticeable in these areas regardless of the projected duration of work in any given area and will cause annoyance.

This increase will affect not only the residents, but has the potential to disrupt wildlife in several ways such as changing travel patterns to avoid the construction. High noise levels that occur during breeding season may have an impact as well. See write up elsewhere.

Work During Tourist Seasons

Different areas of New Hampshire experience high volumes of tourist traffic at different times of the year. The impact of the project on the tourist industry is discussed in greater detail by others. This section is included to reinforce the fact that the various tourist seasons bring large volumes of people and vehicles to various areas of the state. Due to these higher traffic volumes, it is more likely that a slow moving construction vehicle will cause delays should it conflict with the higher volumes of tourist traffic. Consideration should be given to scheduling the work of the different project areas to minimize impacts to tourists.

Work in Winter

Discussions during the technical sessions indicated that there will be consideration given to performing some of the construction of the tower foundations and associated infrastructure during winter to reduce impacts to wetland areas within the ROW. In addition, winter conditions introduce the need to remove and store accumulated snow and treat paved surfaces to minimize slippery conditions. As was noted previously, construction vehicles move slowly and are difficult to maneuver. Adding in potentially limited visibility due to piled snow and the aforementioned slippery conditions will require extra care on the part of the construction vehicle operators and possibly extra personnel to control traffic as construction vehicles enter and exit public roadways.

Erosion and Sedimentation Control

Included with Appendix 4, NHDES Section 401 Water Quality Certification Application is a draft Stormwater Pollution Prevention Plan (SWPPP). This is a required document for any project that proposes to disturb one or more acres of land. This plan lists the project proponent, describes the proposed construction activities and details a number of potential Best Management Practices (BMPs) that may be utilized to reduce or control the disturbance to the project site due to the removal of material via erosion. This erosion is typically due to rainfall on exposed ground that suspends fine grained material in the water and transports it away from the project site with the runoff.

Section 2.0 of the SWPPP document lists the types of resources to be protected and details a number of receiving water bodies, impaired water bodies, several specific locations, listed plant species, and listed wildlife where BMPs will be used.

Section 3.0 describes twenty-one (21) different types of BMPs. Some of these are only generally described as they tend to be applied on a location specific basis. Other types are described in more detail as they remain the same regardless of where they are used. This section also describes procedures used to restore the work sites following the completion of construction.

There are a number of State of New Hampshire documents that pertain to Erosion Control and BMPs along with Eversource's own BMP manual. All of these documents are relevant to this work. These are referenced in several locations in the documents and will be applied to the work of this project.

To supplement the SWPPP document, the maps included in Appendix 47 were reviewed as to the locations of proposed BMPs. Typical details of many of the BMPs described are shown at the end of Appendix 47. It is noted that the maps in this appendix do not provide specific detail as to the proposed BMP type by location.

BMPs only work if they are (1) correctly installed, (2) installed in the necessary locations, and (3) properly maintained during their use. If not correctly installed and/or not installed in the appropriate locations they will not work properly from the beginning and will not protect the resources that they were placed to protect. Once installed, proper maintenance is critical to the ongoing effectiveness of the BMP.

We are concerned that the maps in Appendix 47, while indicating some proposed locations for BMPs, appear to be lacking them in many areas. Possibly the most critical locations to be protected are areas of steep slopes. It takes very little rainfall flowing down a steep slope to begin the erosion process and, once the beginnings of a channel are defined, the erosion process can quickly accelerate. During prolonged periods of rainfall unchecked erosion can cause roads and slopes to become washed out and temporarily or permanently impassable. Other impacts include the potential introduction of large amounts of sediments into existing drainage systems of nearby water bodies which may impose a number of negative consequences, such as damage to aquatic habitat, damage to wetland resource areas or flooding.

Along the access roads, flow control BMPs are indicated approximately every 100 feet. This is probably the maximum spacing that should be used and, potentially, closer spacing should be considered depending on the actual conditions.

At the end of Section 3 of the SWPPP, there is a section that describes the proposed schedule of inspections and corrective actions to be taken with regard to the BMPs. It is critical that regular inspections of all installed BMPs be performed to verify their proper function and to identify any issues with the BMPs so they may be promptly addressed.

Another aspect of the erosion control process is what actions are taken once construction is complete. The SWPPP generally refers to establishing stands of ground cover over all disturbed areas at the end of construction. Section 3.2.2 also states that no permanent BMPs will be left in place, however, Section 3.2 notes that some of the temporary BMPs may be left in place as permanent BMPs. It should be verified early in the work, which, if any of the temporary BMPs are planned to remain or if all will be removed prior to leaving the site. Additionally, consideration should be given to including supplemental plantings in areas of high visibility.

We have identified several statements within the SWPPP that we believe need additional clarification.

1. Section 1 describes how the SWPPP should be modified as construction progresses to account for various differing situations as they are encountered. It is unclear who will be responsible for review of the updated SWPPP as it is updated for conformance with applicable requirements.
2. The proposed BMPs to be used for specific locations or situations need to be identified before the work is approved. As of this time there is no indication of which BMPs are planned to be used in any specific location.
3. Any temporary BMPs that are proposed to be used as permanent BMPs must be approved. The person or persons responsible for this review and approval need to be identified.
4. For some of the proposed BMPs such as silt fencing, the effects of lack of maintenance or failure of the BMP are more severe than others. Specific steps should be identified to address failures of these BMPs.
5. Section 4.6 discusses allowable non-stormwater discharges. One or more examples of this item should be provided.

<u>Construction in Wetlands / Water Bodies</u>

As shown in Appendix 47 NHDES Project Wetland Maps the Applicants propose constructing approximately 265 structures in wetlands or water bodies, including structure DC-152 in Dixville (sheet 61), structure 3132-114 in Turtle Pond (sheet 599) and structure 3132-311 in the unnamed pond in Deerfield (sheet 674) to name a few. Foundation requirements for the typical structures are described in general terms throughout the Application with the caveat that specific requirements and foundation types are to be determined during the final design phase of the project. This makes the amount and type of impact difficult to determine as these impacts can vary widely depending on the specific foundation to be installed and equipment required. Given the current information provided we are unable to assess the level of impact expected. Included herein are typical considerations, constraints, and general impacts that will occur with this type of work.

In general the Applicants describe two main types of foundations to be used; a smaller spread footing for lattice towers and a deep drilled shaft/caisson foundation for the monopole structures. Construction practices for the installation of the foundations has not been explicitly defined at this time. Throughout the Application and pre-filed testimony the Applicants refer to the use of Best Management Practices "BMP" from both internal Eversource sources and external documents such as "Best Management Practices for Utility Maintenance in and Adjacent to Wetland and Waterbodies in New Hampshire" by NH Department of Resources and Economic Development. These documents appear to provide good standard practices for work within wetland and water bodies.

As shown in Appendix 47 and described in the pre-filed testimony of John Kayser installation of these foundations within wetlands will involve temporary modifications to the existing terrain in order to support the construction equipment loads through the installation of access roads and crane pads. For the installation of crane pads Mr. Kayser testimony states, "In areas where crane pads must unavoidably be located in wetlands, layers of removable timber mats are typically used to construct the pad." While this typical method may work and be applicable to some locations throughout the route there are several locations that will most likely require an alternative means of construction support due to the depth of the water, specifically Turtle Pond in Concord, Dewberry Map Sheet #60 and the unnamed pond in Deerfield, Dewberry Map Sheet #66. Please see the attached Dewberry maps for all locations where foundations will be installed within water bodies. Should built up crane pads and access roads be implemented within these deeper water bodies the amount of fill required will be significant as well as the impact to the water body itself. Given the information provided the exact impact is unknown at this time.

Utilizing the Applicants' described methodology for access to these structures Dewberry has assembled a sample photo simulation of what access road and construction pads at the unnamed pond in Deerfield might resemble. See Exhibit A (3 photos).

In instances where the depth of water makes timber matting insufficient for construction support the use of a construction barge would be the typical means of support and access. Construction barges are large flat floating structures from which construction equipment, material, and personnel can be supported. The size of the barge will vary based on the specific construction activity and equipment requirements. Barges are typically brought to a site through existing waterways, but can also be transported via roadways and deployed at the local water body. Once in the water the construction barge will position itself at the appropriate location through the use of traditional boat motors and lock this position with the use of corner vertical steel columns or "spuds" that are driven into the soil layer of the water body to prevent movement of the barge. These spuds will disturb the soil layer at the bottom of the water body. The construction equipment will then extend beyond the edge of the barge to work within the water body itself. Some construction considerations with regard to placement of foundations within water that were not identified in the Application are as follows:

- How are the spoils from the drilled shaft handled?
- Will the casings for the shaft be left in place or removed?
- How will access to these locations for inspection and maintenance be handled?
- What season are they anticipating the installation of these foundations?

During the site visits the Applicants' team referenced work in these wetland areas occurring during the winter months to facilitate access and minimize installation of timber matting. Should the Applicants determine that the winter season is the best time to complete the installation of the foundations within the wetland area there other challenges that arise. When installing concrete foundations during frozen soil/water conditions different mixtures of concrete are required to meet the performance requirements of structure and be placed during cold weather conditions. These mixtures are typically available at all concrete batch plants. However, given the often remote locations of the transmission line it may be challenging to obtain and deliver a quality concrete product to the site. Once the concrete has been placed special requirements, per ACI 306, for curing are required to prevent premature deterioration of the concrete. Following the completion of the placement and curing load testing should be required to be performed on the foundation elements to verify their capacity. This load testing cannot be completed with frozen material surrounding the foundation element as this will provide inaccurate capacity results due to the increase restraint condition that the frozen soil provides. Therefore access to the foundation location will still be required outside of the winter months to allow for testing of these foundation elements.

Karner blue Butterfly

Several of the documents that are included with the Application contain summaries of rare, threatened or endangered plant and wildlife species that have been identified within or adjacent to the proposed Project limits. In addition, these documents also discuss potential impacts to these species by the Project and some possible remedial measures. Each of the noted species, both plant and animal, require thorough review and verification of the Project impacts by experts in the appropriate fields. We observe, however, that construction activities will take place in these areas that can have adverse consequences on the habitat, plants, and animals, including listed species.

One of the listed animal species is the Karner blue butterfly population that occurs within the existing right-of-way in Concord. Appendix 3 shows this insect species is included on both Federal and State endangered species lists. Its habitat is identified as a relatively small area of approximately 300 acres known as the Concord Pine Barrens. This is its only known habitat throughout the entire state. The proposed Project passes through the Pine Barrens along an existing right of way. This is indicated on NPT Project Maps 163 and 164 of 189. Section 4.7 in this same appendix, describes a number of general steps that will be taken to protect or minimize impacts to each of the listed impacted species during construction.

We expect that construction impacts on the Karner blue habitat will occur by the construction of temporary access road, construction pads, and pole/structure placements. These activities will require excavation, moving heavy equipment over the sensitive areas, potentially placement of materials, including gravel and timber mats, and permanent placement of pole structures in places where they are not currently found. We would expect that these activities will cause some disturbance to and destruction of existing plant and animal life in those places, including the wild lupines and Karner blue butterflies and others. It is understood that a more detailed description of this habitat and its inhabitants along with potential Project impacts will be performed by others.

It may be possible, however, to reengineer the lines in the most valuable Karner blue location and avoid impacts. For C_LP12 (map 163) where the poles are inline, meaning they are not at a turn in the line, there is a possibility that the poles could be moved up or down the line some distance and be out of the area of interest. In addition, construction in these areas could be conducted on top of snow cover and with timber mats to provide protection to existing plants and eggs. Such might reduce the impacts, but would not avoid them altogether.

Table 20. Risk of Impact to Special Status Wildlife Species as a Result of Project Construction and Operations*

	Construction			Operations and Maintenance		
Species	Habitat Loss (Temporary)	Direct Mortality	Avoidance/ Behavioral	Habitat Loss (Permanent)	Direct Mortality	Avoidance/ Behavioral
Insects						
Karner blue butterfly	High	High	Low	High	Moderate	Lowest
Frosted elfin	High	High	Low	High	Moderate	Lowest
Persius duskywing skipper	High	High	Low	High	Moderate	Lowest
Pine pinion moth	Low	Moderate	Lowest	Lowest	Lowest	Lowest

High — Locally to regionally important effect; Demographic changes leading to local population decline possible
Moderate — Limited and local effect; Effects to multiple individuals likely; No demographic changes or population-level effects
Low — Effect limited to individuals, no population-level effects; Low exposure to species
Lowest — Limited effects if any, to individuals; Very limited or no exposure of species

Summary of Findings

<u>Short-Term Impacts</u>

1. Staging and Laydown Areas - Given the potential need for additional staging and laydown areas beyond those submitted with the SEC Application there is insufficient information to fully assess the impacts these areas, which can be quite large, will have on New Hampshire communities and natural resources.

2. Increased traffic and traffic delays on public roads should be expected and will be a short-term impact on New Hampshire communities and public road systems throughout construction. Increased traffic will be caused by

construction vehicles, increased traffic accessing the right-of-way at numerous locations along the route and accessing laydown and staging areas along the route.

3. Potential road damage to local roads from heavy construction vehicles.
4. Soil tracking onto public roads as vehicles exit the right-of-way.
5. The increase of noise above the ambient noise level through rural or lightly developed areas along much of the proposed route.
6. Potential sediment erosion.
7. Potential impact on wetlands and water bodies.

Long-Term Impacts

1. Long-term Maintenance – Once the proposed construction is complete, all locations where access roads intersect with the public roadway system need to be left in a condition which will minimize the potential for long-term erosion due to stormwater runoff and winter snow clearing activities. While it is assumed that NH DOT driveway standards will be followed wherever access roads intersect with State owned roads, the same standards should be applied to intersections between these access roads and municipal roads as well. In this way the potential for long-term disruption of the public road and access driveway is reduced. In addition, regular inspection and preventative maintenance will be necessary maintain these driveways in good order.

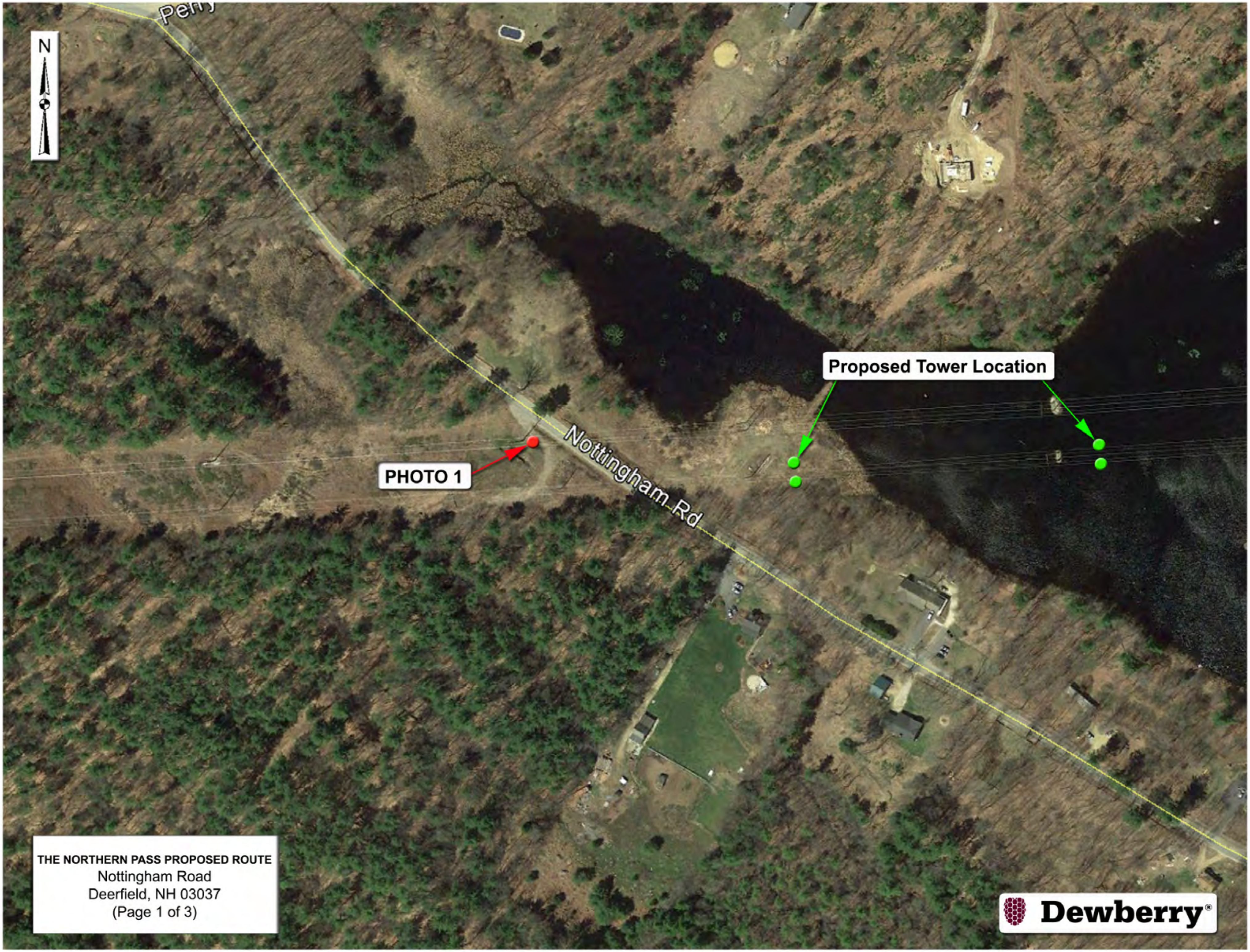
2. Access Control – Re-establishment of an existing ROW, along with the creation of new ROW, provides the potential for new or expanded usage of these areas for recreational activities. There are a number of potential recreational uses for the ROW including walking, mountain biking and ATV riding in warmer weather and cross country skiing and snowmobile riding in winter. Each of these activities will impose a different level of impact on the environment within the ROW and, depending on the type of activity that is performed, it may be viewed as a positive or negative with regards to its long-term impact on the environment. Consideration needs to be given toward what access, if any, is allowed within the ROW and the activities that may be permitted therein.

3. Vegetation Clearing - It should be noted that the extent and continuous nature of vegetation management and clearing within the proposed transmission line right-of-way will be a long-term impact.

4. Berm Relocation at McKenna's Purchase - Relocating the berm and vegetation clearing will be a long-term impact on residents in this area.

5. Karner blue butterfly habitat impacts.

Exhibit A


N
Perry
Proposed Tower Location
PHOTO 1
Nottingham Rd
THE NORTHERN PASS PROPOSED ROUTE
Nottingham Road
Deerfield, NH 03037
(Page 1 of 3)
Dewberry®


Actual View
THE NORTHERN PASS PROPOSED ROUTE
Photo 1A
View East
From Nottingham Road
(Page 2 of 3)
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Proposed View
THE NORTHERN PASS PROPOSED ROUTE
Photo 1B
View East
From Nottingham Road
(Page 3 of 3)
Dewberry®

Exhibit E

Access Route Lengths by Town

Town	Access Route (Dewberry Map)	Linear Feet*	Miles*	Total Length (Miles)
Clarksville, NH	AR-4	5,197	0.98	**1.85**
	AR-5	2,680	0.51	
	AR-6	1,880	0.36	
Deerfield, NH	AR-84	5,881	1.11	**1.11**
Dixville, NH	AR-12	3,994	0.76	**24.85**
	AR-13	59,060	11.19	
	AR-14	9,211	1.74	
	AR-15	3,931	0.74	
	AR-16	1,916	0.36	
	AR-17	6,308	1.19	
	AR-18	20,482	3.88	
	AR-19	2,307	0.44	
	AR-20	612	0.12	
	AR-21	5,644	1.07	
	AR-22	548	0.10	
	AR-23	3,999	0.76	
	AR-24	858	0.16	
	AR-25	1,178	0.22	
	AR-26	575	0.11	
	AR-27	6,552	1.24	
	AR-28	4,040	0.77	
Dummer,NH	AR-55	19,002	3.60	**12.40**
	AR-66	2,812	0.53	
	AR-68	276	0.05	
	AR-69	979	0.19	
	AR-70	24,579	4.66	
	AR-71	534	0.10	
	AR-72	1,367	0.26	
	AR-73	1,203	0.23	
	AR-74	1,947	0.37	
	AR-75	1,295	0.25	
	AR-76	1,786	0.34	
	AR-77	4,627	0.88	
	AR-78	370	0.07	
	AR-79	1,247	0.24	
	AR-80	3,456	0.65	
Errol, NH	AR-13	9,141	1.73	**4.23**
	AR-27	790	0.15	
	AR-50	12,407	2.35	
Franklin, NH	AR-83	1,222	0.23	**0.23**

Northern Pass Tranmission Line | **Access Route Lengths by Town** | November 15, 2016

Town	Access Route (Dewberry Map)	Linear Feet*	Miles*	Total Length (Miles)
Millsfield, NH	AR-29	1,441	0.27	**20.52**
	AR-30	3,081	0.58	
	AR-31	467	0.09	
	AR-32	5,123	0.97	
	AR-33	1,175	0.22	
	AR-34	1,200	0.23	
	AR-35	414	0.08	
	AR-36	1,439	0.27	
	AR-37	153	0.03	
	AR-38	190	0.04	
	AR-39	4,984	0.94	
	AR-40	1,403	0.27	
	AR-41	956	0.18	
	AR-42	1,346	0.25	
	AR-43	4,471	0.85	
	AR-44	953	0.18	
	AR-45	646	0.12	
	AR-46	2,019	0.38	
	AR-47	373	0.07	
	AR-48	14,806	2.80	
	AR-49	850	0.16	
	AR-50	14,840	2.81	
	AR-51	2,880	0.55	
	AR-52	1,628	0.31	
	AR-53	255	0.05	
	AR-54	650	0.12	
	AR-55	14,551	2.76	
	AR-56	2,435	0.46	
	AR-57	3,382	0.64	
	AR-58	796	0.15	
	AR-59	835	0.16	
	AR-60	651	0.12	
	AR-61	3,283	0.62	
	AR-62	410	0.08	
	AR-63	1,277	0.24	
	AR-64	118	0.02	
	AR-65	9,223	1.75	
	AR-66	2,229	0.42	
	AR-67	498	0.09	
	AR-68	941	0.18	
New Hampton, NH	AR-81	1,101	0.21	**0.30**
	AR-82	481	0.09	

Northern Pass Tranmission Line

Access Route Lengths by Town

November 15, 2016

Town	Access Route (Dewberry Map)	Linear Feet*	Miles*	Total Length (Miles)
Pittsburg, NH	AR-1	676	0.13	
	AR-2	1,417	0.27	
	AR-3	468	0.09	**0.49**
Stewartstown,NH	AR-10	425	0.08	**1.21**
	AR-11	4,677	0.89	
	AR-7	395	0.07	
	AR-8	367	0.07	
	AR-9	530	0.10	
Total				**67.20**

*Based upon approximate lengths as drawn in to Google Earth.

Dewberry Item No.	Transmission Line Type	Applicant (NPT) NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans (Sealed 8/7/2015): Sheet No.	Dewberry Map No.	Town	Nearest Structure	IMPACTS: Vegetation Clearing	Construction Traffic on Public Traveled Road	Construction Traffic Noise	Construction Traffic Dust	Access to Public Road	Residence or Business within 2,600 Feet	Approximate Area of Impact (SF)
Laydown Areas												
LD-1	Overhead	009, 010	1	Clarksville	DC-23, Transition Station 2		●	●	●	RT 3	●	215,615
LD-2	Overhead	092,	12	Dixville, Millsfield	DC-232		●	●	●	RT 26	●	42,180
LD-3	Overhead	105,	14, 15	Millsfield	DC-266, DCc267						●	68,515
Access Routes (Outside of Transmission Line Right-of-Way)												
AR-1	Overhead	003, 004	1	Pittsburg	DC-9, DC-10							NA
AR-2	Overhead	006, 006A	1, 2	Pittsburg	DC-17	●	●	●	●	Beecher Falls Road	●	NA
AR-3	Overhead	8	1, 2	Pittsburg	DC-21, Transition Station 1	●	●	●	●	Beecher Falls Road	●	NA
AR-4	Overhead	009, 009A, 010	1, 2	Pittsburg	DC-23, Transition Station 2		●	●	●	RT 3		NA
AR-5	Overhead	012, 012A, 012B	2	Clarksville	DC-28, DC-29		●	●	●	Haynes Road	●	NA
AR-6	Overhead	015, 015A	2	Clarksville	DC-37		●	●	●	Wiswell Road	●	NA
AR-7	Underground	044,	5, 6	Stewartstown	Transition Station 4	●	●	●	●	Heath Road	●	NA
AR-8	Overhead	044,	5, 6	Stewartstown	Transition Station 4	●	●	●	●	Heath Road	●	NA
AR-9	Overhead	046,	6	Stewartstown	DC-4C-6		●	●	●	Heath Road		NA
AR-10	Overhead	047,	6	Stewartstown	DC-118, DC-119						●	NA
AR-11	Overhead	053, 053A, 053B, 054	6	Stewartstown	DC-113, DC-134, DC-136	●						NA
AR-12	Overhead	059, 059A, 059B, 059C, 060	7	Dixville	DC-147, DC-149, DC-150	●						NA
AR-13	Overhead		7,8,11,12,13		N/A		●	●	●	RT 26	●	NA
AR-14	Overhead	067, 067A, 067B, 067C, 067D, 067E, 067F	7, 8	Dixville	DC-167	●				Greenough Pond Road(Private)		NA
AR-15	Overhead	067A, 069, 069A, 069B, 069C	8	Dixville	DC-172, DC-173	●						NA
AR-16	Overhead	068, 068A, 069	8	Dixville	DC-169, DC-170, DC-172	●						NA
AR-17	Overhead	070, 070A, 070B, 070C, 070D, 072(1)	8	Dixville	DC-175, DC-176, DC-181	●						NA

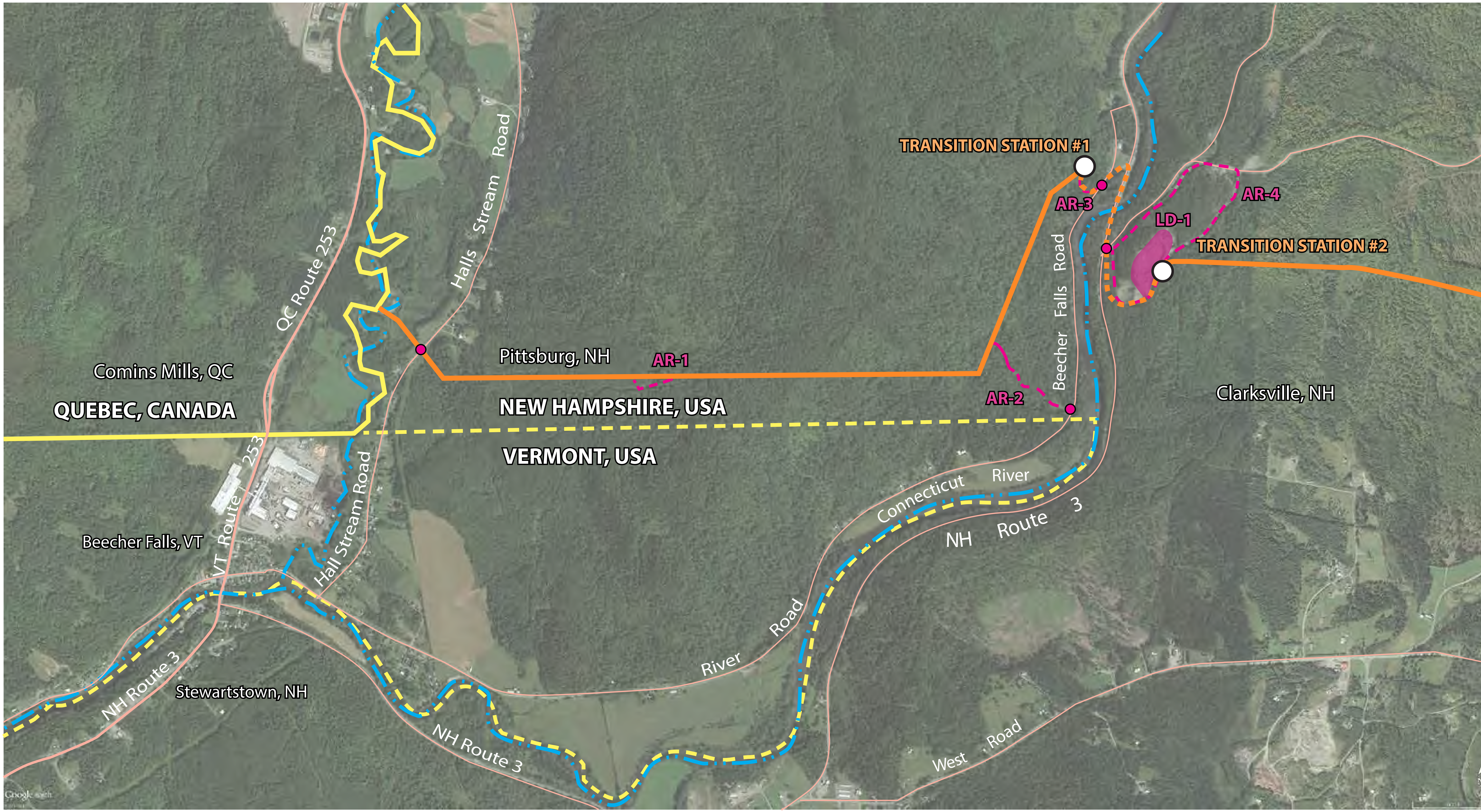
Dewberry Item No.	Transmission Line Type	Applicant (NPT) NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans (Sealed 8/7/2015): Sheet No.	Dewberry Map No.	Town	Nearest Structure	IMPACTS: Vegetation Clearing	Construction Traffic on Public Traveled Road	Construction Traffic Noise	Construction Traffic Dust	Access to Public Road	Residence or Business within 2,600 Feet	Approximate Area of Impact (SF)
AR-18	Overhead	070D, 072, 72A, 72B, 72C, 72D, 72E, 72F, 72G, 72H, 72I, 72J, 72K, 72L, 72M	8, 9,10	Dixville			●	●	●	RT 26		NA
AR-19	Overhead	073 (1)	8, 11	Dixville	DC-182							NA
AR-20	Overhead	073 (1)	8, 11	Dixville	DC-182, DC-183	●					●	NA
AR-21	Overhead	073 (1). 073A, 073B, 073C, 073D, 076	8, 11	Dixville	DC-182, DC-183, DC, 190					Reservoir Road (Private)	●	NA
AR-22	Overhead	077, 077A	8, 11	Dixville	DC-192					Reservoir Road (Private)		NA
AR-23	Overhead	076, 077, 077A, 077B, 077C	8, 11	Dixville	DC-191					Reservoir Road (Private)		NA
AR-24	Overhead	081 (1),	11	Dixville	DC-203, DC-204							NA
AR-25	Overhead	081 (1), 082 (1)	11,13	Dixville	DC-205, DC-206							NA
AR-26	Overhead	082 (1)	11,13	Dixville	DC-206, DC-207	●						NA
AR-27	Overhead	83F, 085, 085A, 085B, 085C, 086D,	13	Dixville	DC-214	●				Greenough Pond Road(Private)		NA
AR-28	Overhead	085, 086A, 086B, 085B	13	Dixville	DC-215, DC-216	●						NA
AR-29	Overhead	091, 092	13	Dixville	DC-231, DC-232	●	●	●	●	RT 26	●	NA
AR-30	Overhead	092, 092A, 093	12,14	Millsfield	DC-233, DC-237		●	●	●	RT 26	●	NA
AR-31	Overhead	092A, 093	12,14	Millsfield	DC-236	●						NA
AR-32	Overhead	095, 095A, 095B, 095C, 095D,096, 097	14	Millsfield	DC-242, DC-247							NA
AR-33	Overhead	096,	14	Millsfield	DC-244							NA
AR-34	Overhead	096,	14	Millsfield	DC-245							NA
AR-35	Overhead	096,	14	Millsfield	DC-246							NA
AR-36	Overhead	097, 098	14	Millsfield	DC-248							NA
AR-37	Overhead	097,	14	Millsfield	DC-248	●						NA
AR-38	Overhead	097,	14	Millsfield	DC-249	●						NA
AR-39	Overhead	099, 099A, 099B, 099C, 101	14	Millsfield	DC-252 DC-257					Signal Mountain Road (Private)	●	NA
AR-40	Overhead	099C, 100	14	Millsfield	DC-256					Signal Mountain Road (Private)	●	NA
AR-41	Overhead	099C, 100	14	Millsfield	DC-255							NA
AR-42	Overhead	099, 100	14	Millsfield	DC-253, DC-255							NA

Dewberry Item No.	Transmission Line Type	Applicant (NPT) NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans (Sealed 8/7/2015): Sheet No.	Dewberry Map No.	Town	Nearest Structure	IMPACTS						
						Vegetation Clearing	Construction Traffic on Public Traveled Road	Construction Traffic Noise	Construction Traffic Dust	Access to Public Road	Residence or Business within 2,600 Feet	Approximate Area of Impact (SF)
AR-43	Overhead	101, 102, 102A, 102B, 102C, 104	15	Millsfield	DC-257, DC-264					Signal Mountain Road (Private)	●	NA
AR-44	Overhead	102, 102A	15	Millsfield	DC-259							NA
AR-45	Overhead	102B, 103	15	Millsfield	DC-262					Signal Mountain Road (Private)		NA
AR-46	Overhead	104, 105	15	Millsfield	DC-264, DC-266						●	NA
AR-47	Overhead	105	15	Millsfield	DC-267	●					●	NA
AR-48	Overhead	105, 105A, 105B, 105C, 105D, 105E, 105F, 105G, 105H, 105I, 111	15	Millsfield	DC-267, DC-281					Millsfield Pond Road (Private)	●	NA
AR-49	Overhead	105A, 106	15	Millsfield	DC-265					Millsfield Pond Road (Private)	●	NA
AR-50	Overhead	106, 106A, 106B, 106C, 106D, 106E, 106F, 106G, 106H, 106I 106J, 106K, 106L, 106M, 106N, 106O, 106P, 106Q, 106R, 106S, 106T, 106U,	16,17,18	Millsfield, Dixville	DC-268		●	●	●	RT 16	●	NA
AR-51	Overhead	106, 106A, 106B, 106C, 106D	15	Millsfield	DC-269					Millsfield Pond Road (Private)	●	NA
AR-52	Overhead	110,	15	Millsfield	DC-278, DC-280							NA
AR-53	Overhead	110,	15	Millsfield	DC-279	●						NA
AR-54	Overhead	110, 111	15	Millsfield	DC-280, DC-281					Newell Brook Road (Private)		NA
AR-55	Overhead	111, 111A, 111B, 111C, 111D, 111E, 111F, 111G, 111H, 111I, 111J, 111K, 111L, 111M, 111N, 111O, 111P, 111Q, 111R, 111S, 111A, 111T, 111U, 111V, 111W	15, 16, 17, 18, 19,20	Millsfield, Dixville, Dummer	DC-281		●	●	●	RT 16	●	NA
AR-56	Overhead	111B, 112, 112A	15	Millsfield	DC-283					Newell Brook Road (Private)		NA
AR-57	Overhead	116 (2), 116A, 116B, 111E	15, 20	Millsfield	DC-292					Newell Brook Road (Private)		NA
AR-58	Overhead	116 (2)	15, 20	Millsfield	DC-293	●						NA

Dewberry Item No.	Transmission Line Type	Applicant (NPT) NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans (Sealed 8/7/2015): Sheet No.	Dewberry Map No.	Town	Nearest Structure	IMPACTS						
						Vegetation Clearing	Construction Traffic on Public Traveled Road	Construction Traffic Noise	Construction Traffic Dust	Access to Public Road	Residence or Business within 2,600 Feet	Approximate Area of Impact (SF)
AR-59	Overhead	116 (2) , 117	15, 20	Millsfield	DC-293, DC294, DC295	●						NA
AR-60	Overhead	117, 117A	15, 20	Millsfield	DC-296							NA
AR-61	Overhead	117, 117A, 117B	15, 20	Millsfield	DC-297					Grass Road (Private)	●	NA
AR-62	Overhead	117B	15, 20	Millsfield	N/A							NA
AR-63	Overhead	118	15, 20	Millsfield	DC-298							NA
AR-64	Overhead	118	15, 20	Millsfield	DC-299	●						NA
AR-65	Overhead	119, 119A, 119B, 119C, 119D, 119E, 119F, 111I	15, 20	Millsfield	DC-300					Grass Road (Private)	●	NA
AR-66	Overhead	119, 119A, 120A, 120B, 121	15, 20	Millsfield	DC-306							NA
AR-67	Overhead	119, 119A	15, 20	Millsfield	DC-301	●						NA
AR-68	Overhead	120, 120A	20	Millsfield	DC-302							NA
AR-69	Overhead	121, 122	20	Millsfield, Dummer	DC-306, DC-307					Dummer Pond Road (Private)		NA
AR-70	Overhead	122, 122A, 122B, 122C, 122D, 122E, 122F, 122G, 122H, 122I, 122J, 131B, 131C, 131D, 131E, 131F, 131G, 131H, 138	20, 21, 22	Millsfield, Dummer	DC-307		●	●	●	RT 16	●	NA
AR-71	Overhead	122, 122A, 123	21	Millsfield, Dummer	DC-309	●				Dummer Pond Road (Private)		NA
AR-72	Overhead	122h, 122i, 130	21	Dummer	DC-328					Dummer Pond Road (Private)		NA
AR-73	Overhead	122J, 131, 131A	21	Dummer	DC-330, DC-331					Dummer Pond Road (Private)		NA
AR-74	Overhead	134, 135	21, 22	Dummer	DC-339, DC-341					Dummer Pond Road (Private)		NA
AR-75	Overhead	131F, 135	21, 22	Dummer	DC-341					Dummer Pond Road (Private)		NA
AR-76	Overhead	138, 139	22	Dummer	DC-348, DC-351					Dummer Pond Road (Private)		NA
AR-77	Overhead	140, 140A, 140B, 140C	22	Dummer	DC-351					Dummer Pond Road (Private)		NA
AR-78	Overhead	140	22	Dummer	DC-352	●				Dummer Pond Road (Private)		NA

Dewberry Item No.	Transmission Line Type	Applicant (NPT) NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans (Sealed 8/7/2015): Sheet No.	Dewberry Map No.	Town	Nearest Structure	IMPACTS						
						Vegetation Clearing	Construction Traffic on Public Traveled Road	Construction Traffic Noise	Construction Traffic Dust	Access to Public Road	Residence or Business within 2,600 Feet	Approximate Area of Impact (SF)
AR-79	Overhead	140, 140A, 104B, 141	22	Dummer	DC-353, DC-354					Dummer Pond Road (Private)		NA
AR-80	Overhead	141, 141A, 141B, 143	22	Dummer	DC-353, DC-358					Cedar Pond Hill (Private)		NA
AR-81	Overhead	486A	20	New Hampton	E115-169		●	●	●	RT 132	●	NA
AR-82	Overhead	502	52	New Hampton	Pemigewasett Substation		●	●	●	Old Bristol Road	●	NA
AR-83	Overhead	540, 540A	55	Franklin	Webster Substation		●	●	●	Carr Street	●	NA
AR-84	Overhead	676,677,678,679	66	Deerfield	Deerfield Substation		●	●	●	Cate Road	●	

Exhibit F



LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

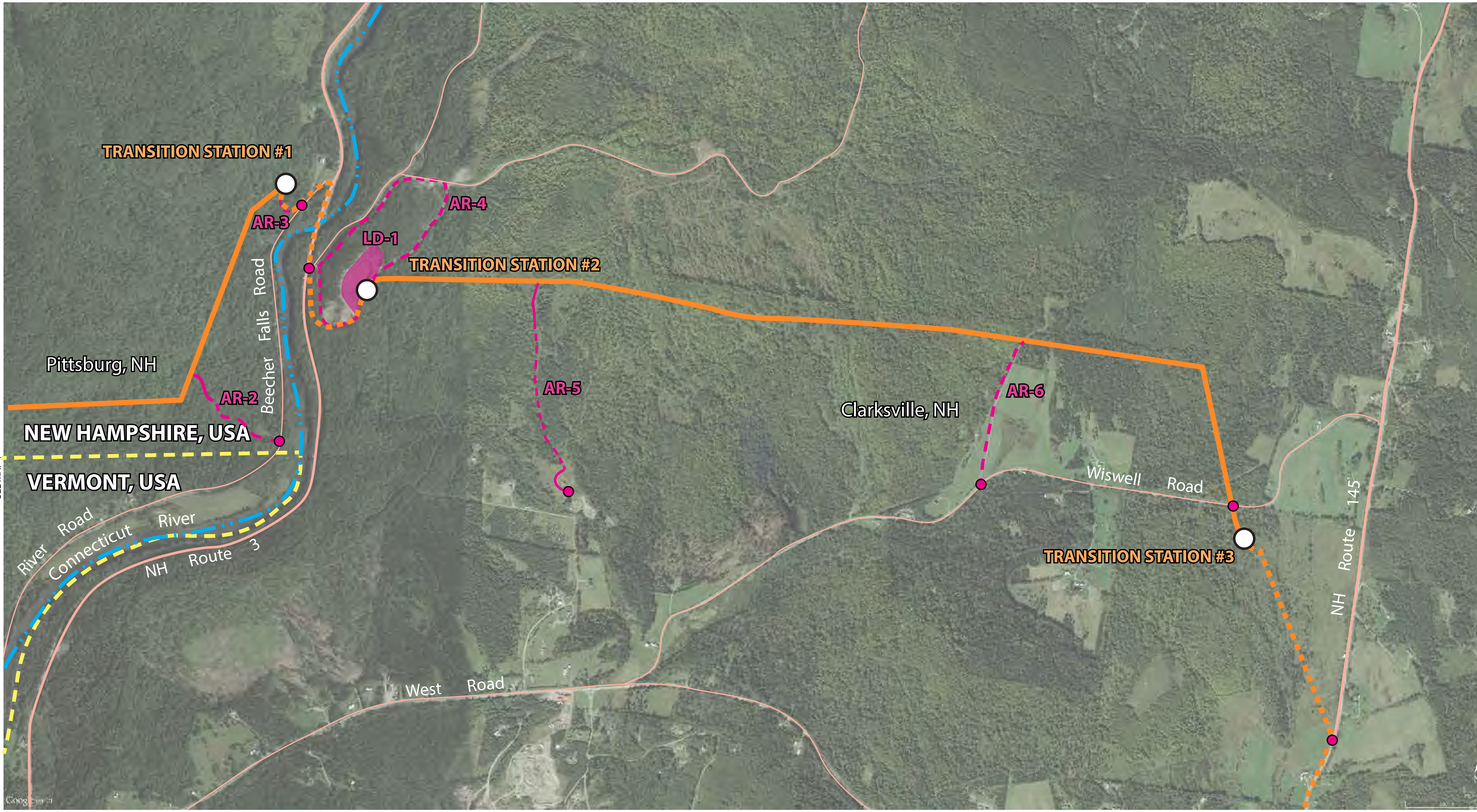
Canada to Transition Station #2

Canada, Pittsburg, Clarksville

Map 1

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′



LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

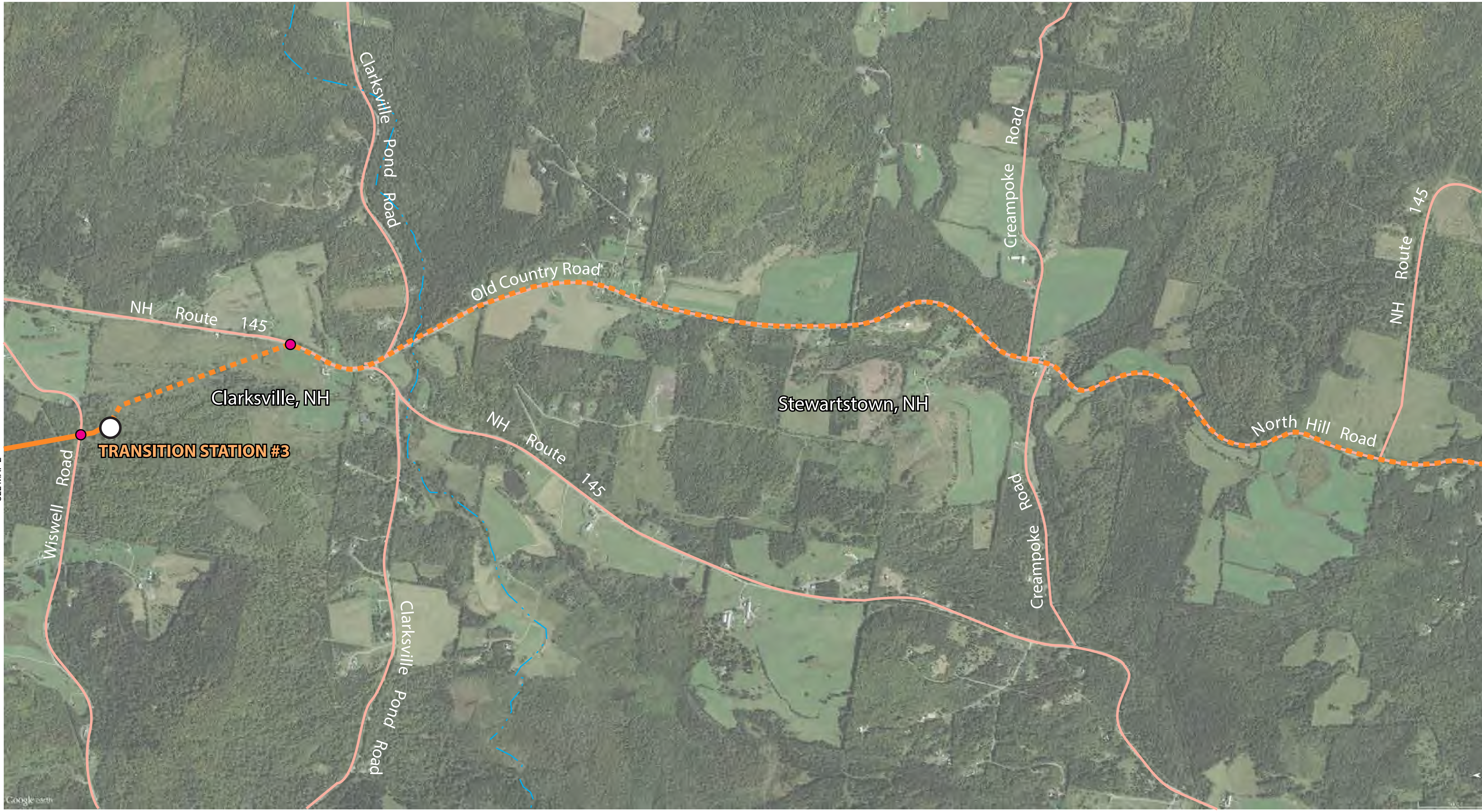
Transition Station #2 to Transition Station #3

Pittsburg, Clarksville

Map 2

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′



LEGEND

Transition Station	Converter Station	Fire Station	School	Public Road Access Point	AR-# Access Route Label	State Divide	HVDC Underground Line	345kV Line
Substation	Police Station	Hospital	Structure in Wetland/ Waterway	Lay Down Area	LD-# Lay Down Area Label	Country Divide	HVDC Overhead Line	Rivers/ Streams
						Existing Access Route	Proposed Access Route	

November 15, 2016

Dewberry®

Transition Station #3 to Transition Station #4

Clarksville, Stewartstown

Scale: 1" = 1200'

1200' 600' 0' 1200' 2400'

Map 3

SEE MAP 5

SEE MAP 3

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #3 to Transition Station #4

Stewartstown

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 4

SEE MAP 4

SEE MAP 6

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

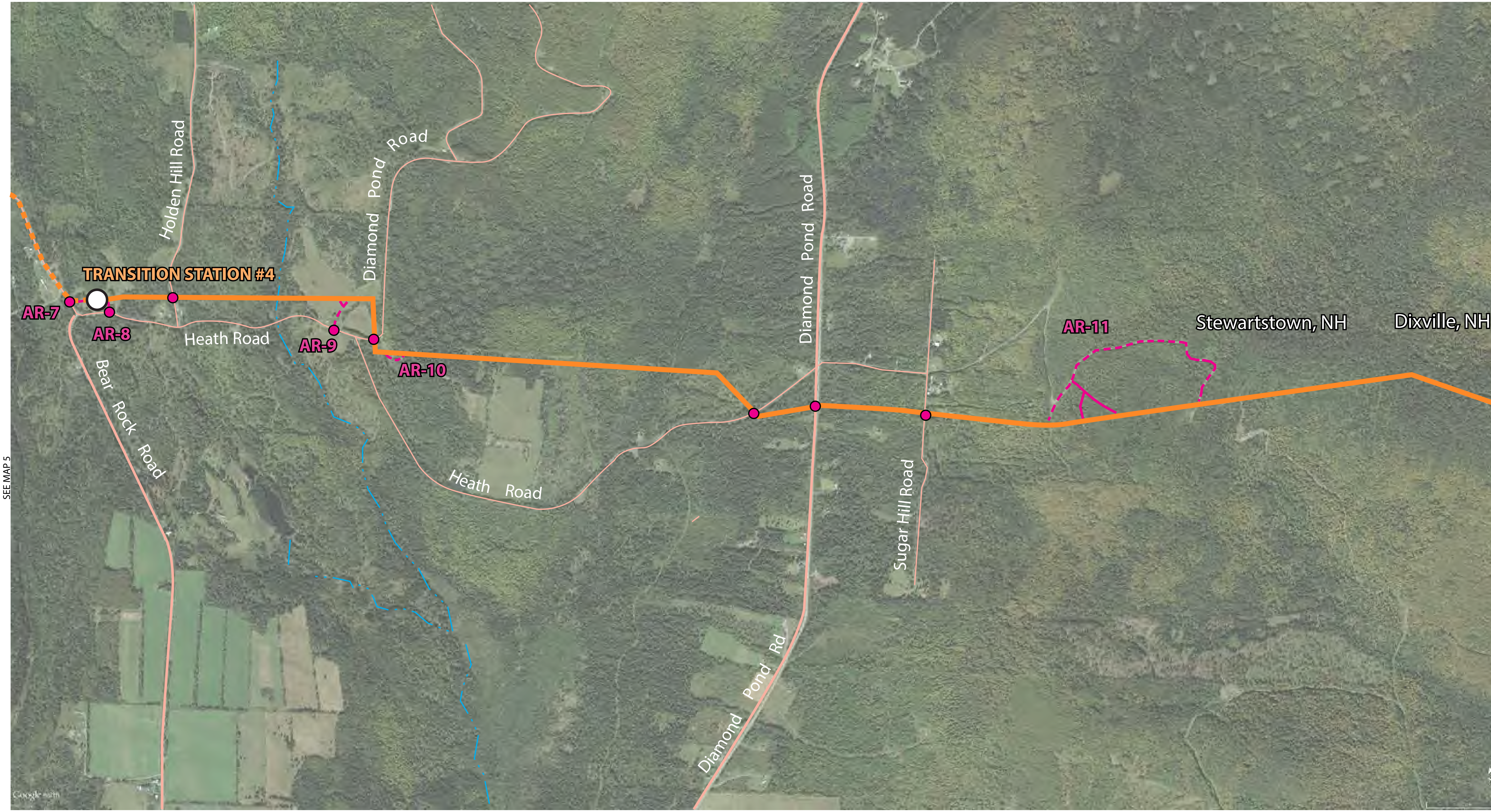
Transition Station #3 to Transition Station #4

Stewartstown

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 5



LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry

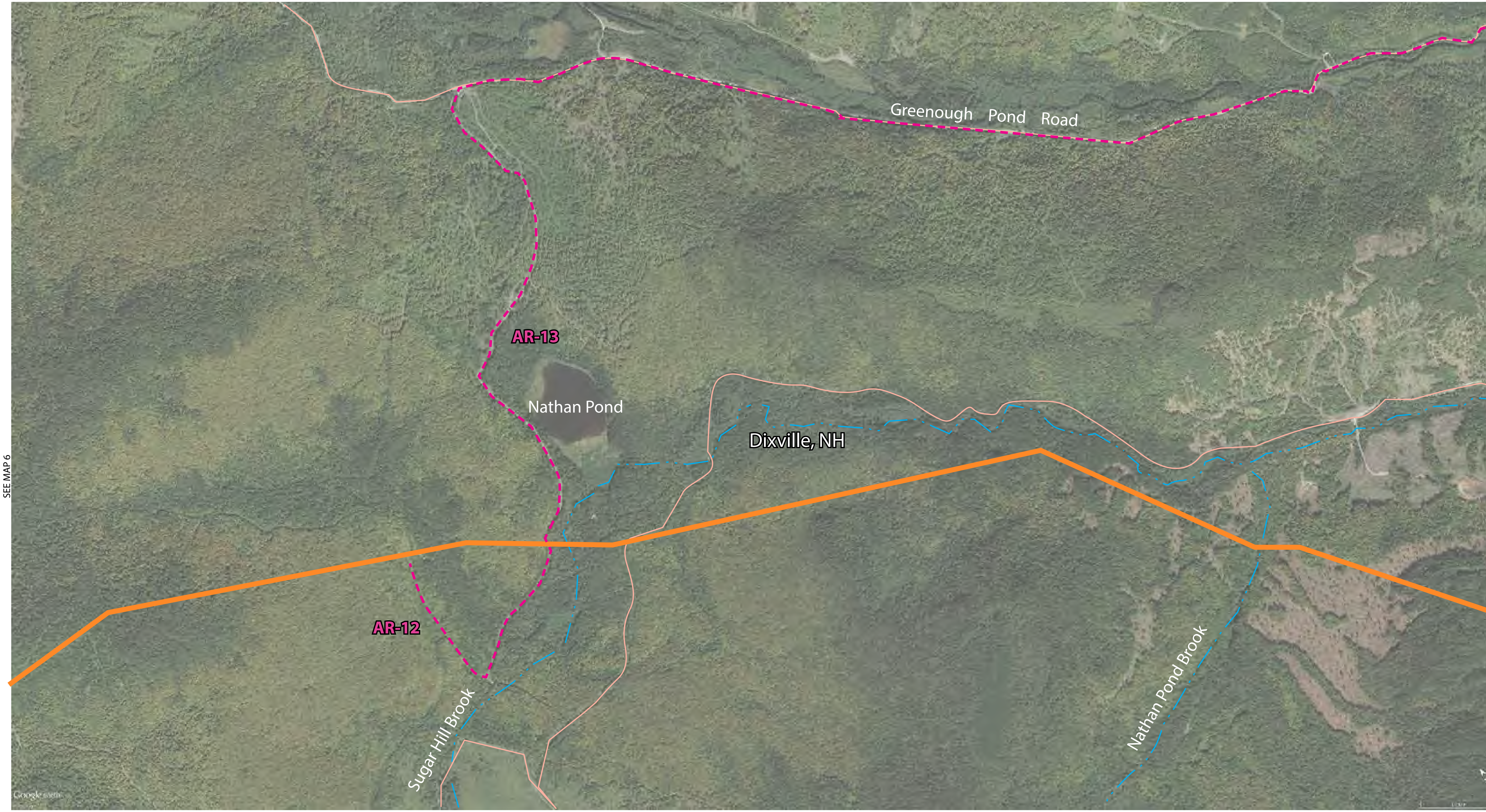
Transition Station #4 to Transition Station #5

Stewartstown, Dixville

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 6



LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

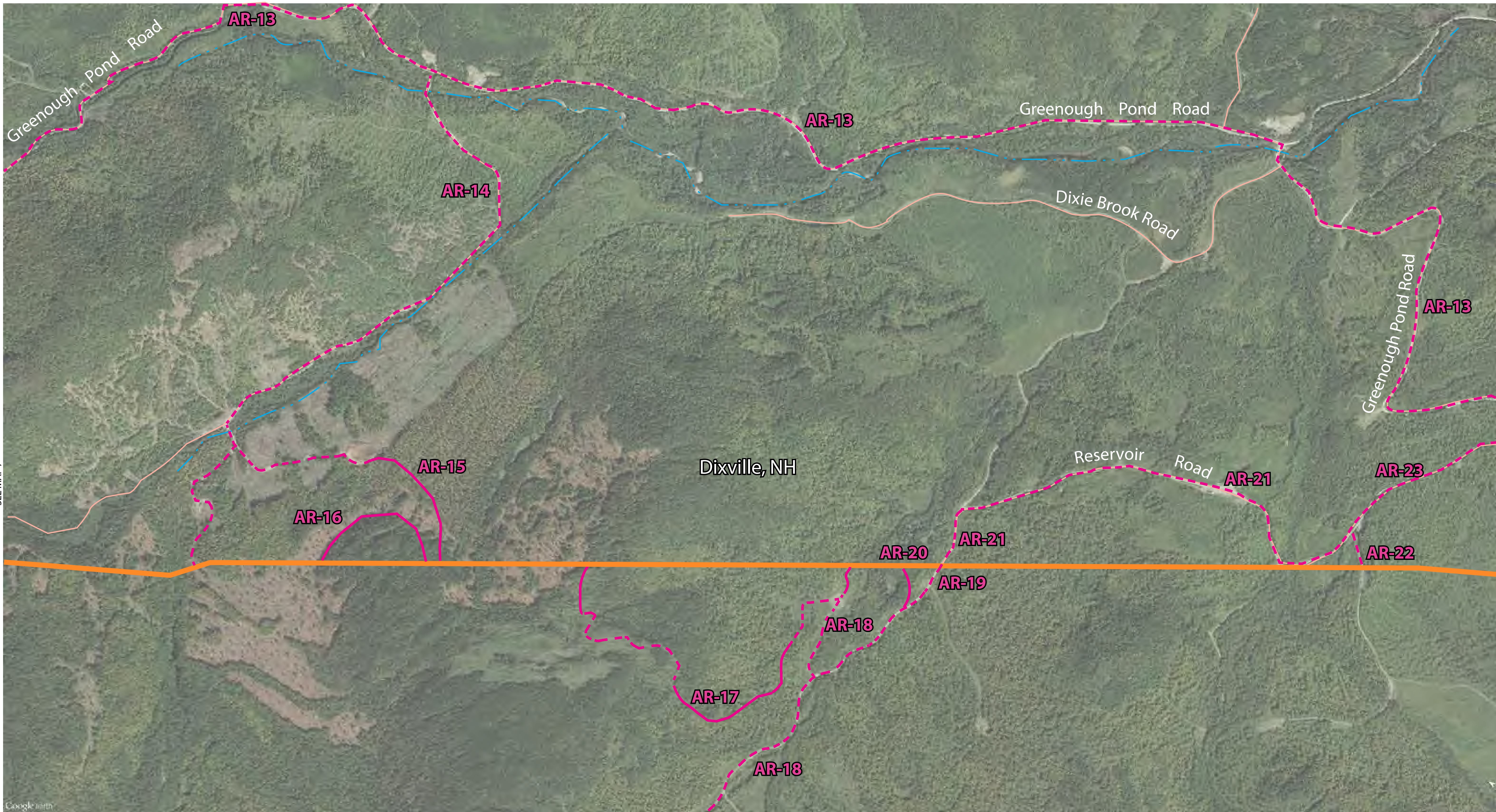
Transition Station #4 to Transition Station #5

Dixville

Map 7

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′



SEE MAP 9

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #4 to Transition Station #5

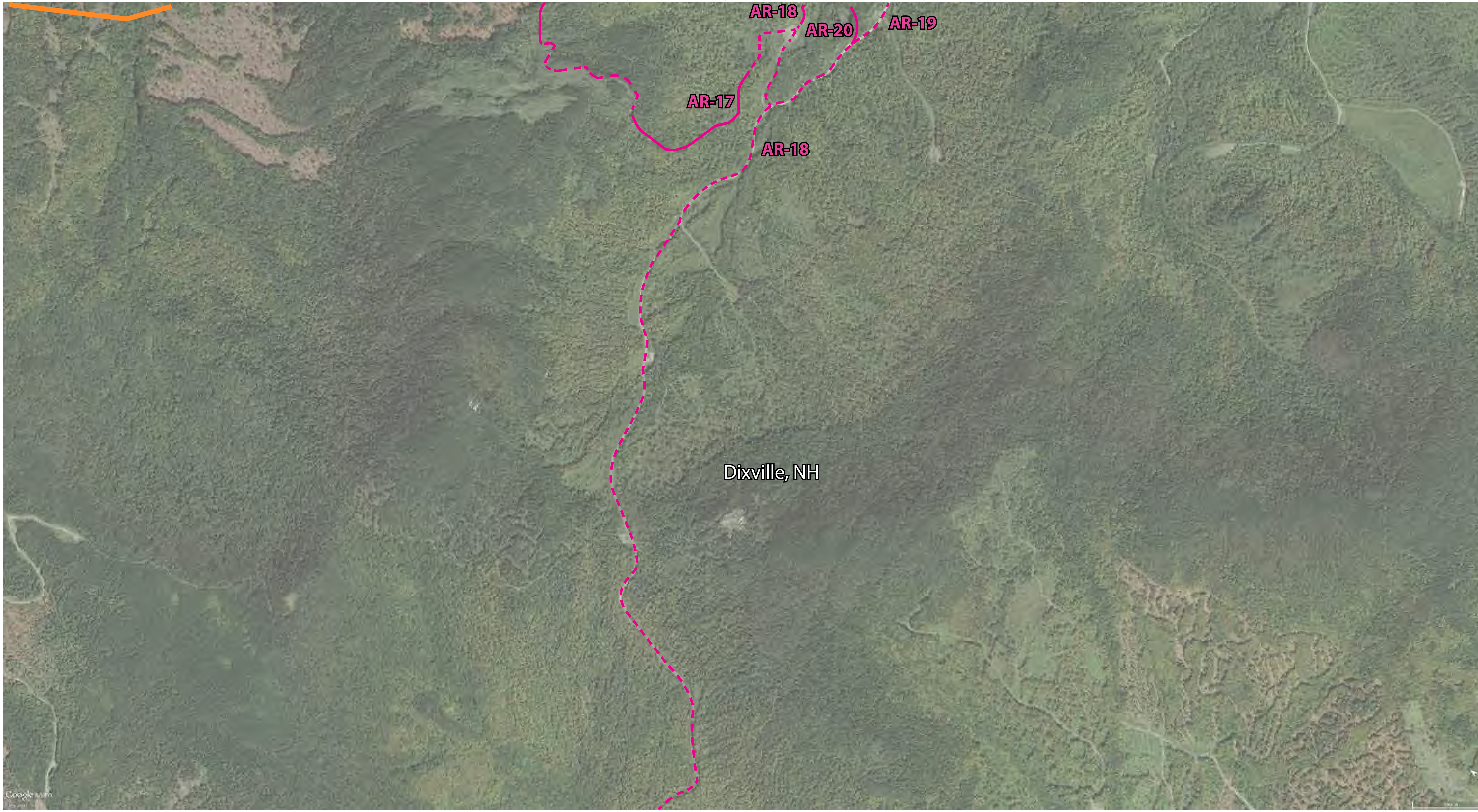
Dixville

Scale: 1″= 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 8

SEE MAP 8



SEE MAP 10

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #4 to Transition Station #5

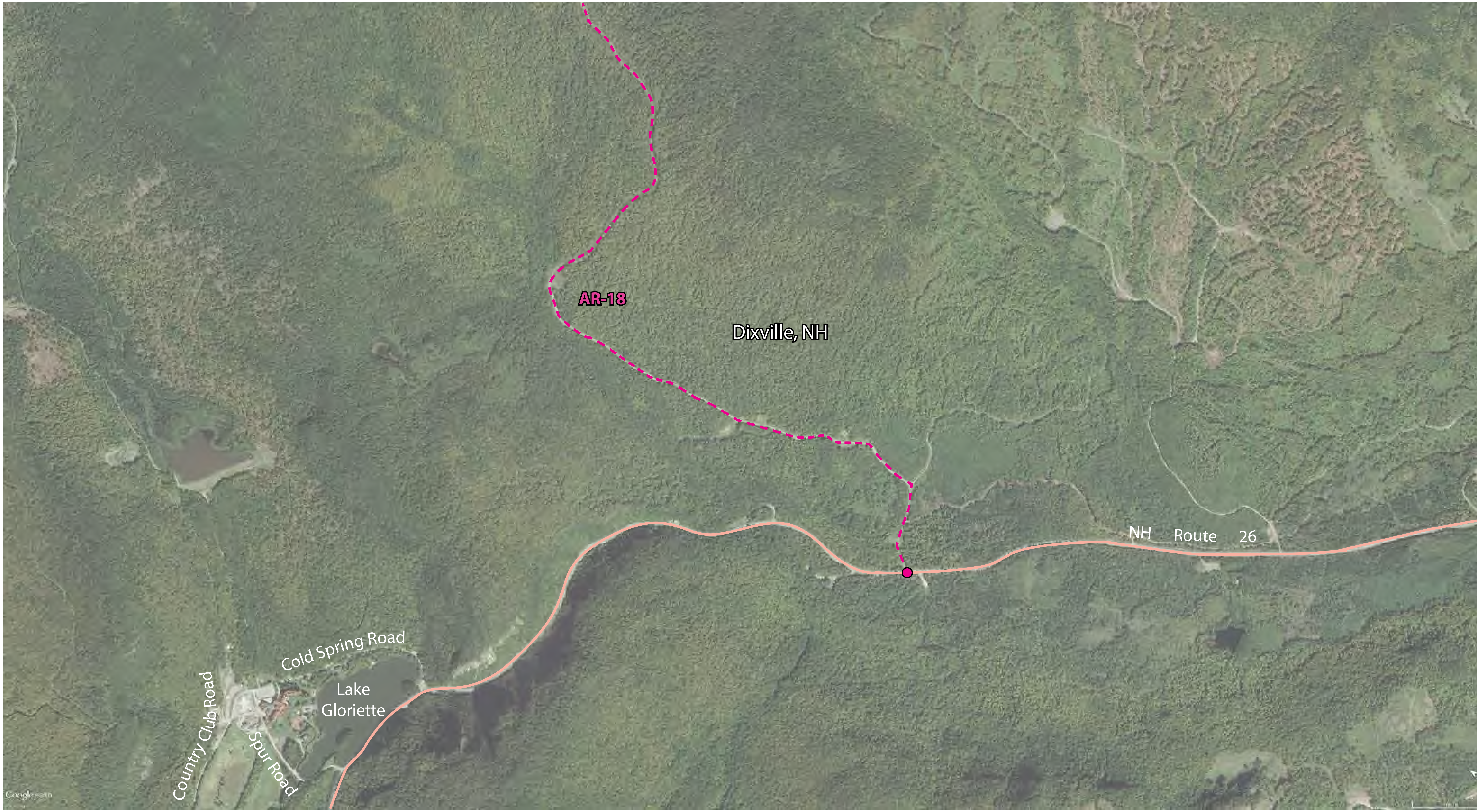
Dixville

Scale: 1" = 1200'

1200' 600' 0' 1200' 2400'

Map 9

SEE MAP 9



LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry

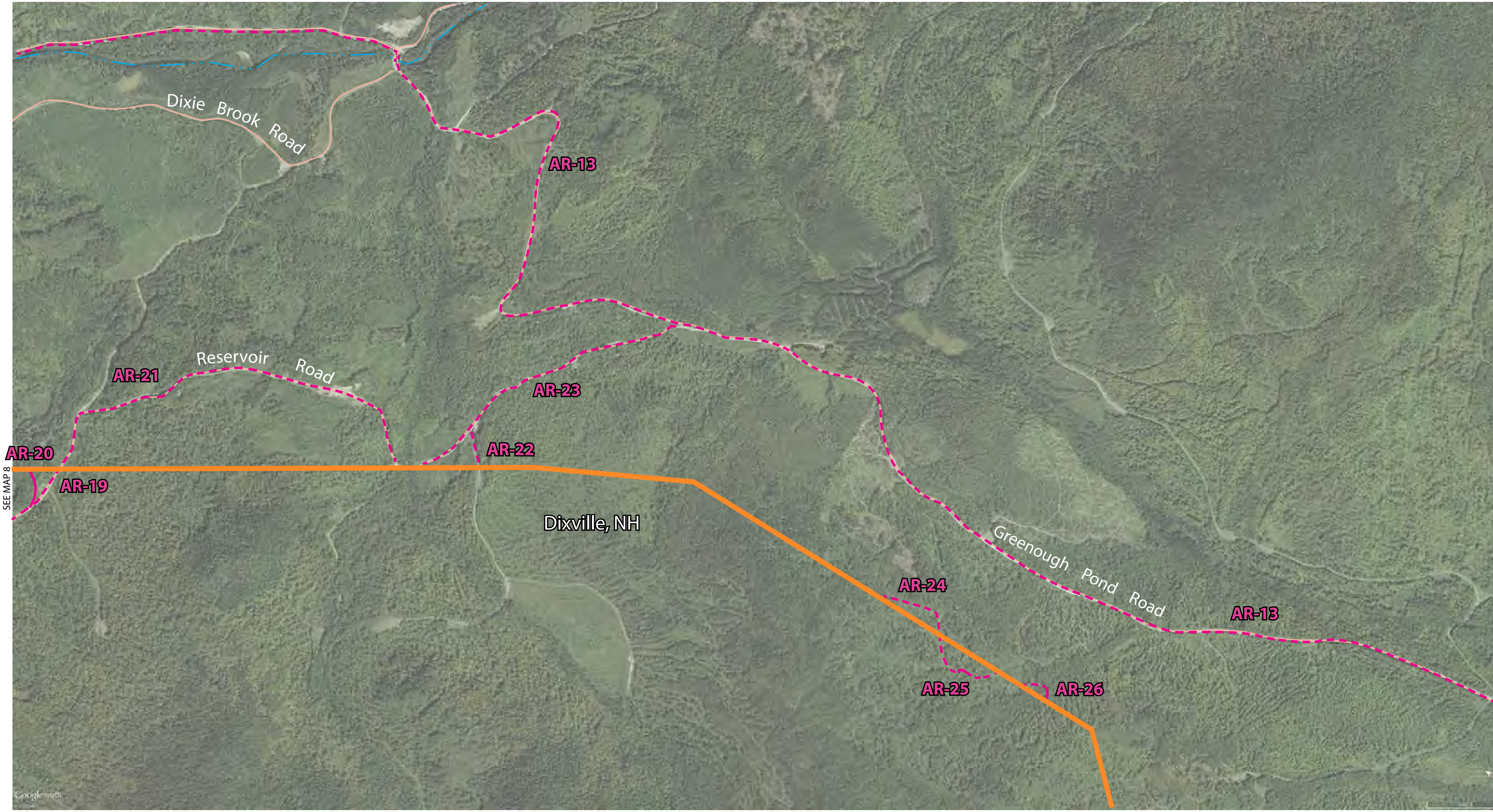
Transition Station #4 to Transition Station #5

Dixville

Scale: 1″= 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 10



LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry

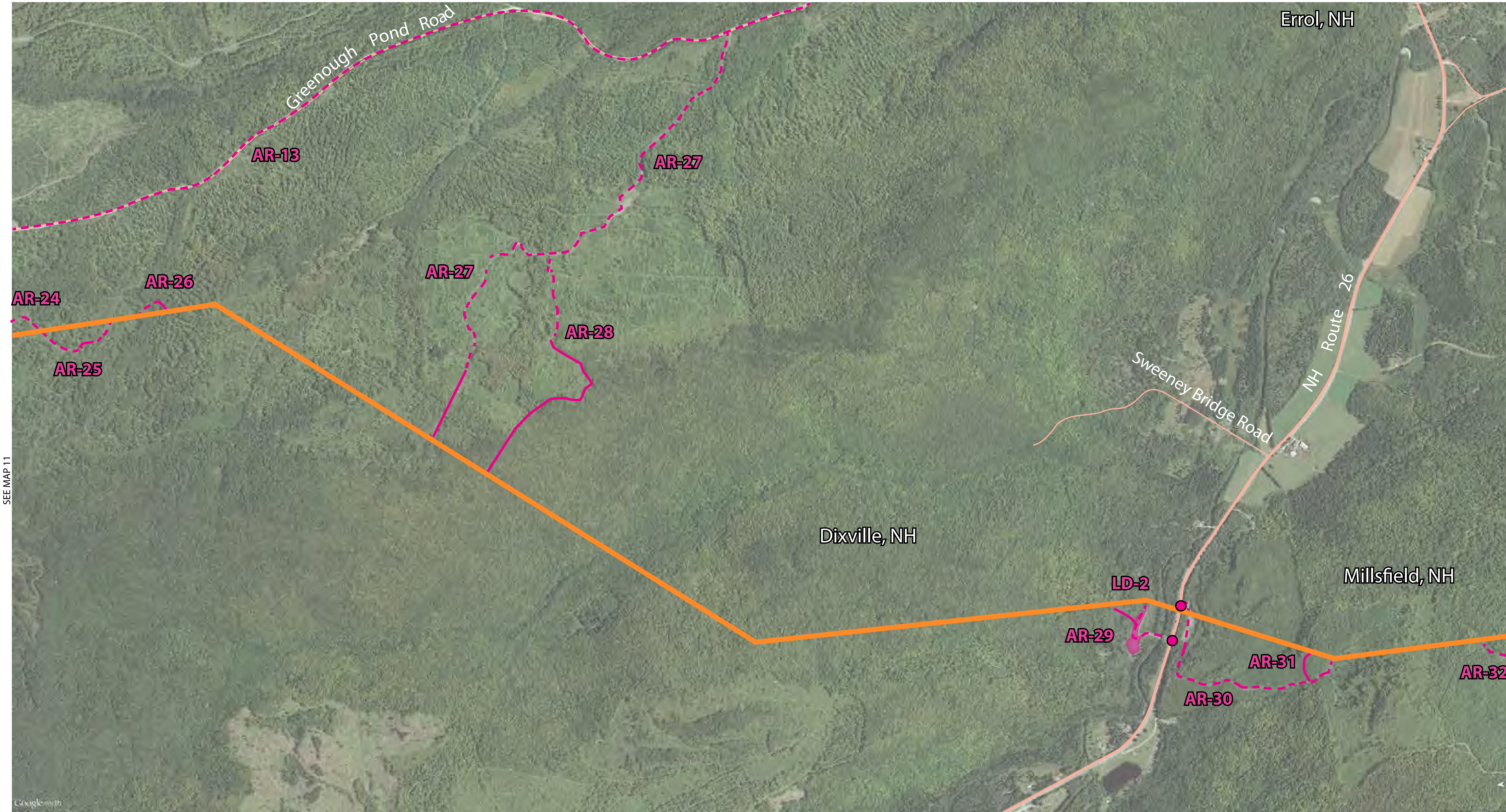
Transition Station #4 to Transition Station #5

Dixville

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 11



November 15, 2016

Dewberry®

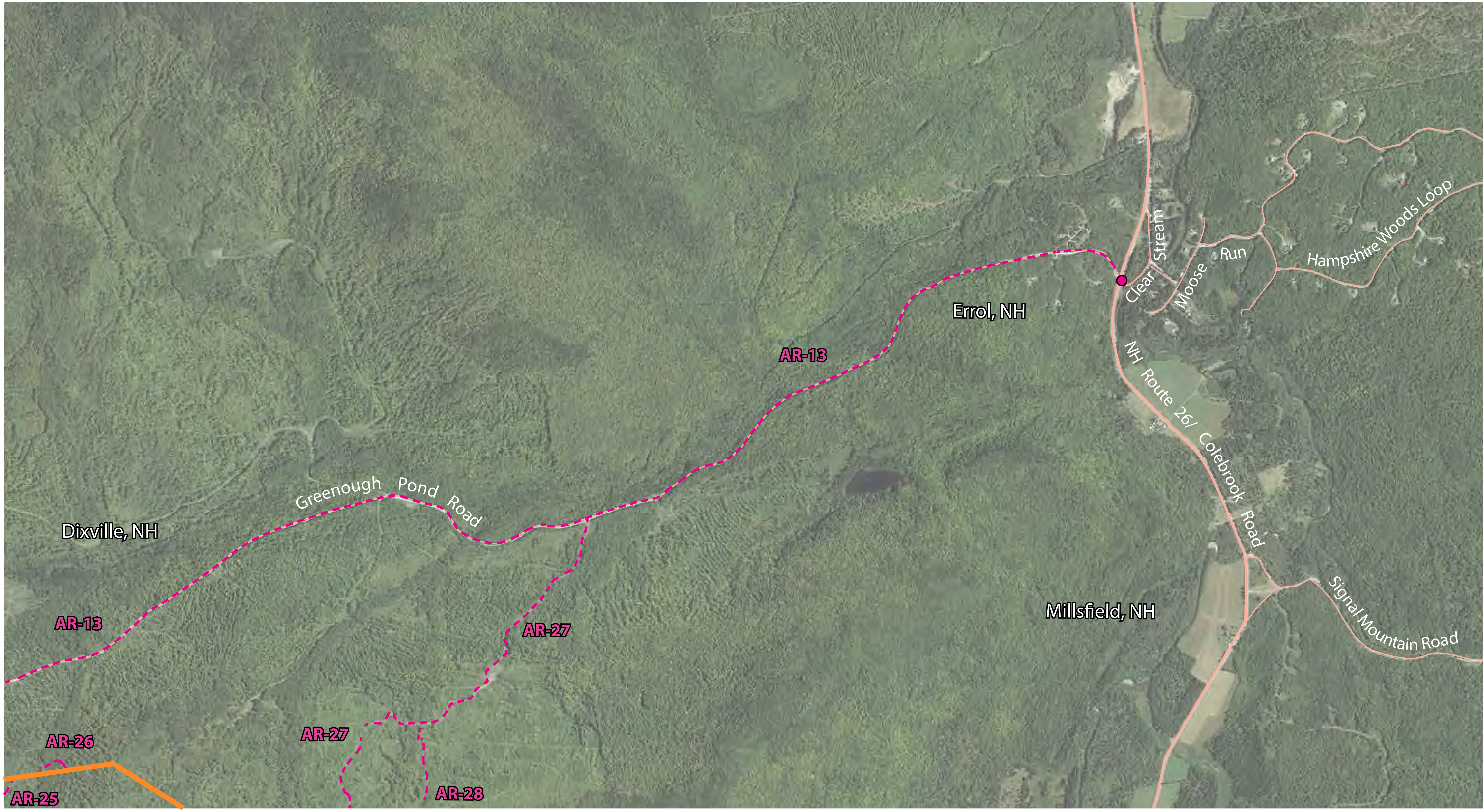
Transition Station #4 to Transition Station #5

Dixville, Millsfield

Scale: 1" = 1200'

1200' 600' 0' 1200' 2400'

Map 12



SEE MAP 12

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry

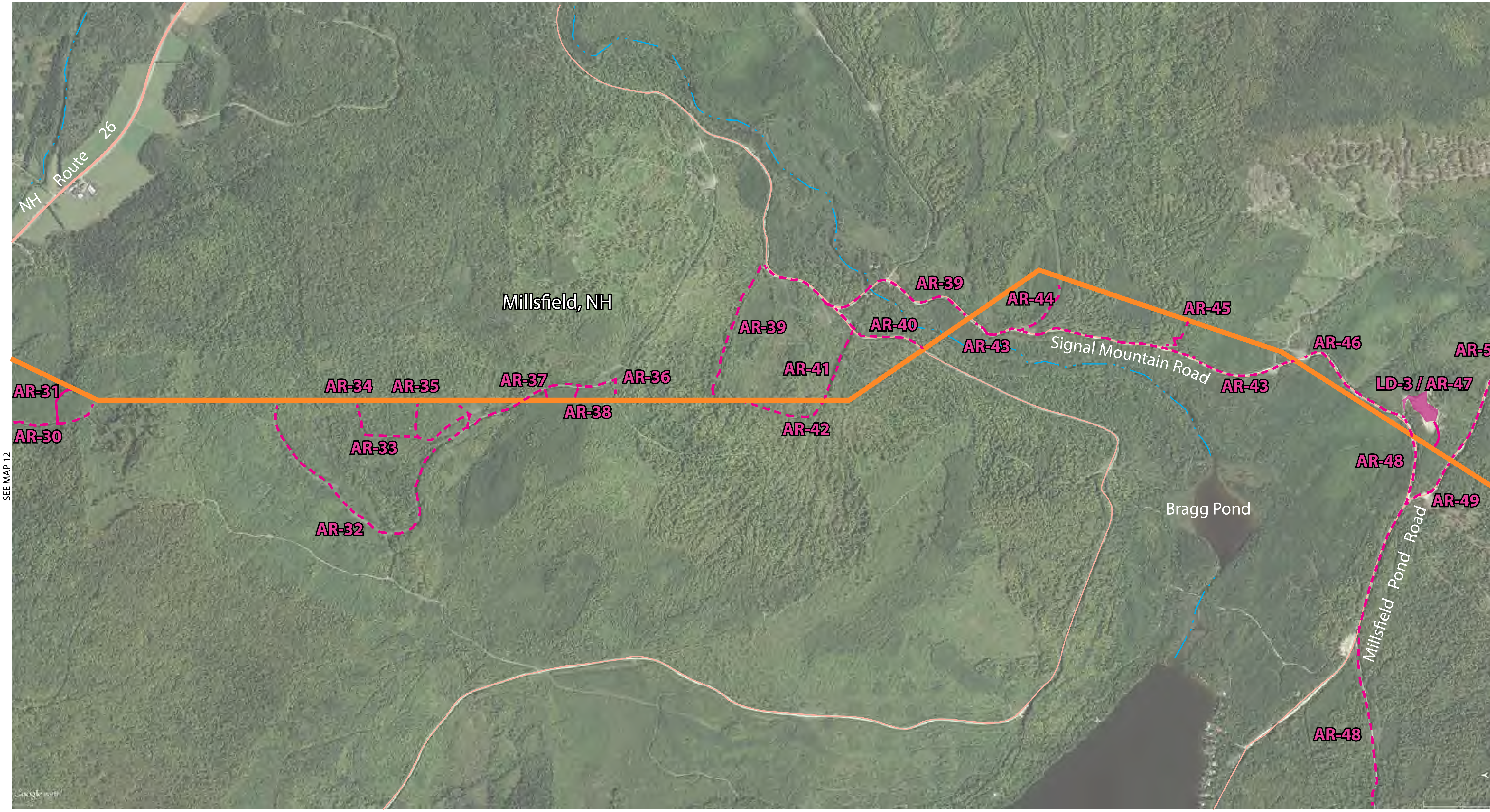
Transition Station #4 to Transition Station #5

Dixville, Millsfield, Errol

Map 13

Scale: 1″= 1200′

1200′ 600′ 0′ 1200′ 2400′



LEGEND

Transition Station	Converter Station	Fire Station	School	Public Road Access Point	AR-# Access Route Label	State Divide	HVDC Underground Line	345kV Line
Substation	Police Station	Hospital	Structure in Wetland/ Waterway	Lay Down Area	LD-# Lay Down Area Label	Country Divide	HVDC Overhead Line	Rivers/ Streams
						Existing Access Route	Proposed Access Route	

November 15, 2016

Dewberry

Transition Station #4 to Transition Station #5

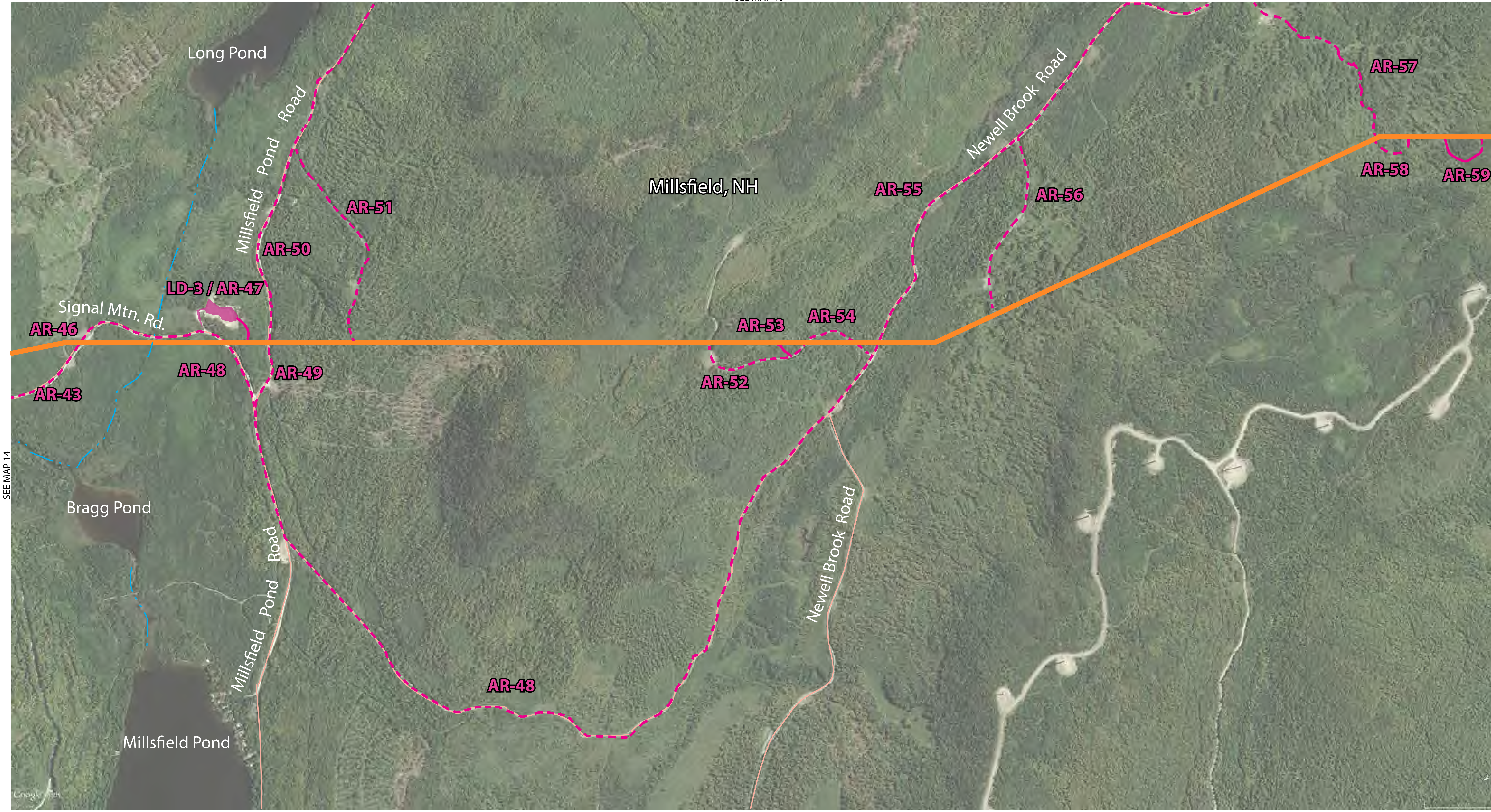
Millsfield

Map 14

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

SEE MAP 16



SEE MAP 14

SEE MAP 20

LEGEND

Transition Station	Converter Station	Fire Station	School	Public Road Access Point	AR-# Access Route Label	State Divide
Substation	Police Station	Hospital	Structure in Wetland/ Waterway	Lay Down Area	LD-# Lay Down Area Label	Country Divide
						Existing Access Route

HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #4 to Transition Station #5

Millsfield

Scale: 1" = 1200'

1200' 600' 0' 1200' 2400'

Map 15

SEE MAP 17

SEE MAP 20

SEE MAP 15

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #4 to Transition Station #5

Dixville

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 16

SEE MAP 18

SEE MAP 16

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #4 to Transition Station #5

Dixville

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 17

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #4 to Transition Station #5

Dummer

Scale: 1″= 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 18

SEE MAP 18

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #4 to Transition Station #5

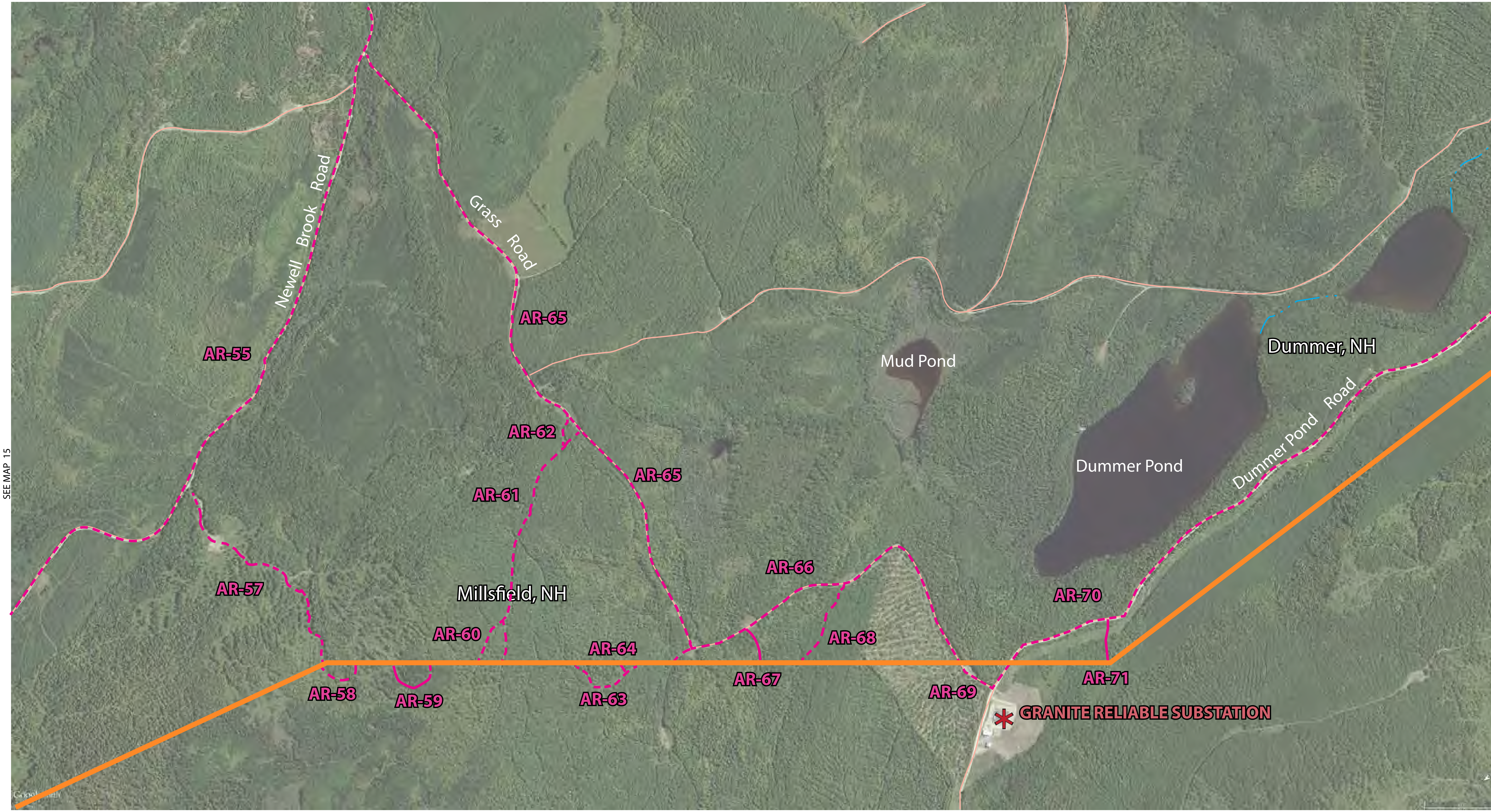
Dummer

Scale: 1″= 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 19

SEE MAP 16



SEE MAP 15

SEE MAP 21

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

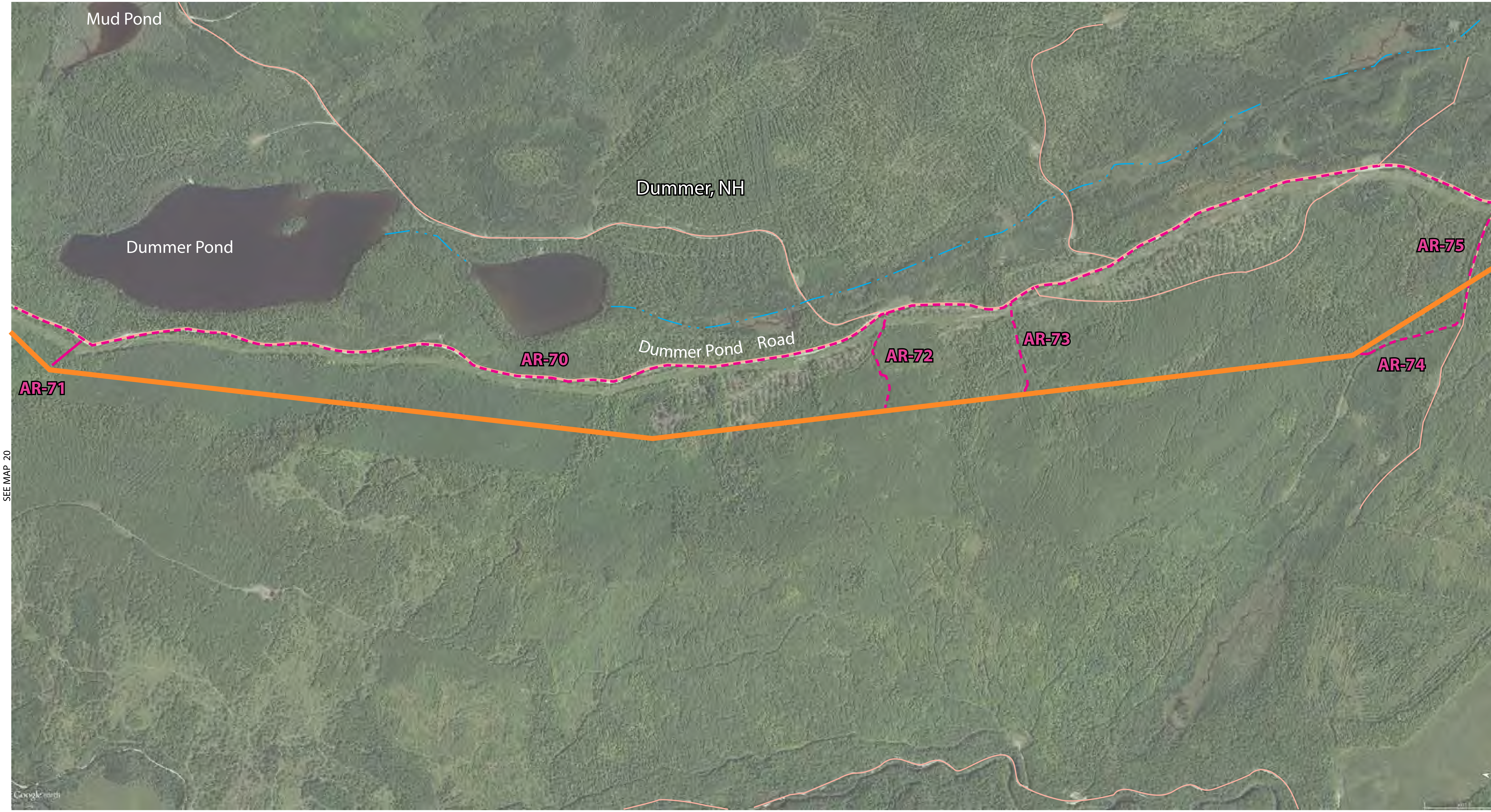
Transition Station #4 to Transition Station #5

Millsfield, Dummer

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 20



LEGEND

Transition Station	Converter Station	Fire Station	School	Public Road Access Point	AR-# Access Route Label	State Divide	HVDC Underground Line	345kV Line
Substation	Police Station	Hospital	Structure in Wetland/ Waterway	Lay Down Area	LD-# Lay Down Area Label	Country Divide	HVDC Overhead Line	Rivers/ Streams
						Existing Access Route	Proposed Access Route	

November 15, 2016

Dewberry®

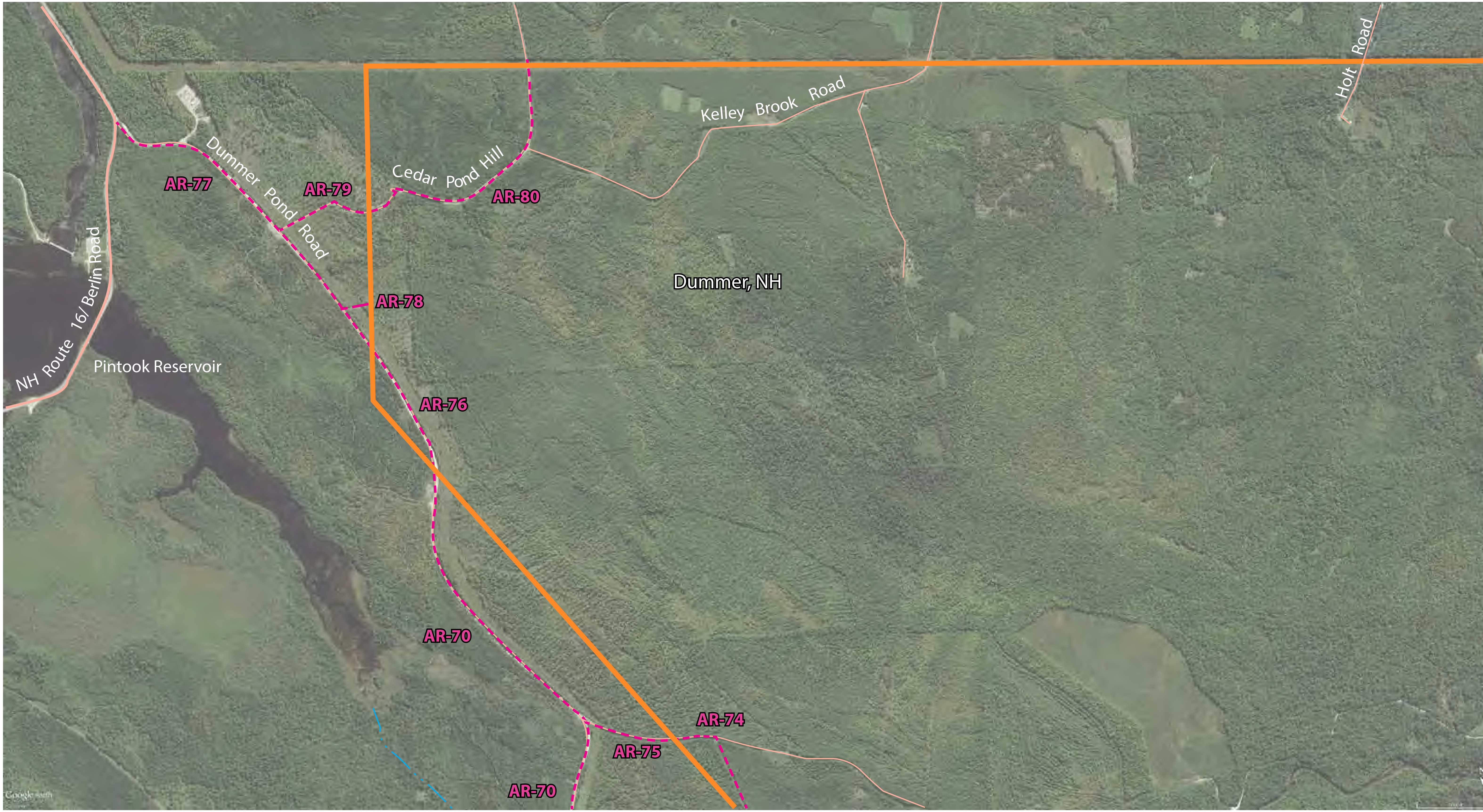
Transition Station #4 to Transition Station #5

Dummer

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 21



SEE MAP 21

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #4 to Transition Station #5

Dummer

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 22

SEE MAP 22

SEE MAP 24

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #4 to Transition Station #5

Dummer, Stark

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 23

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry

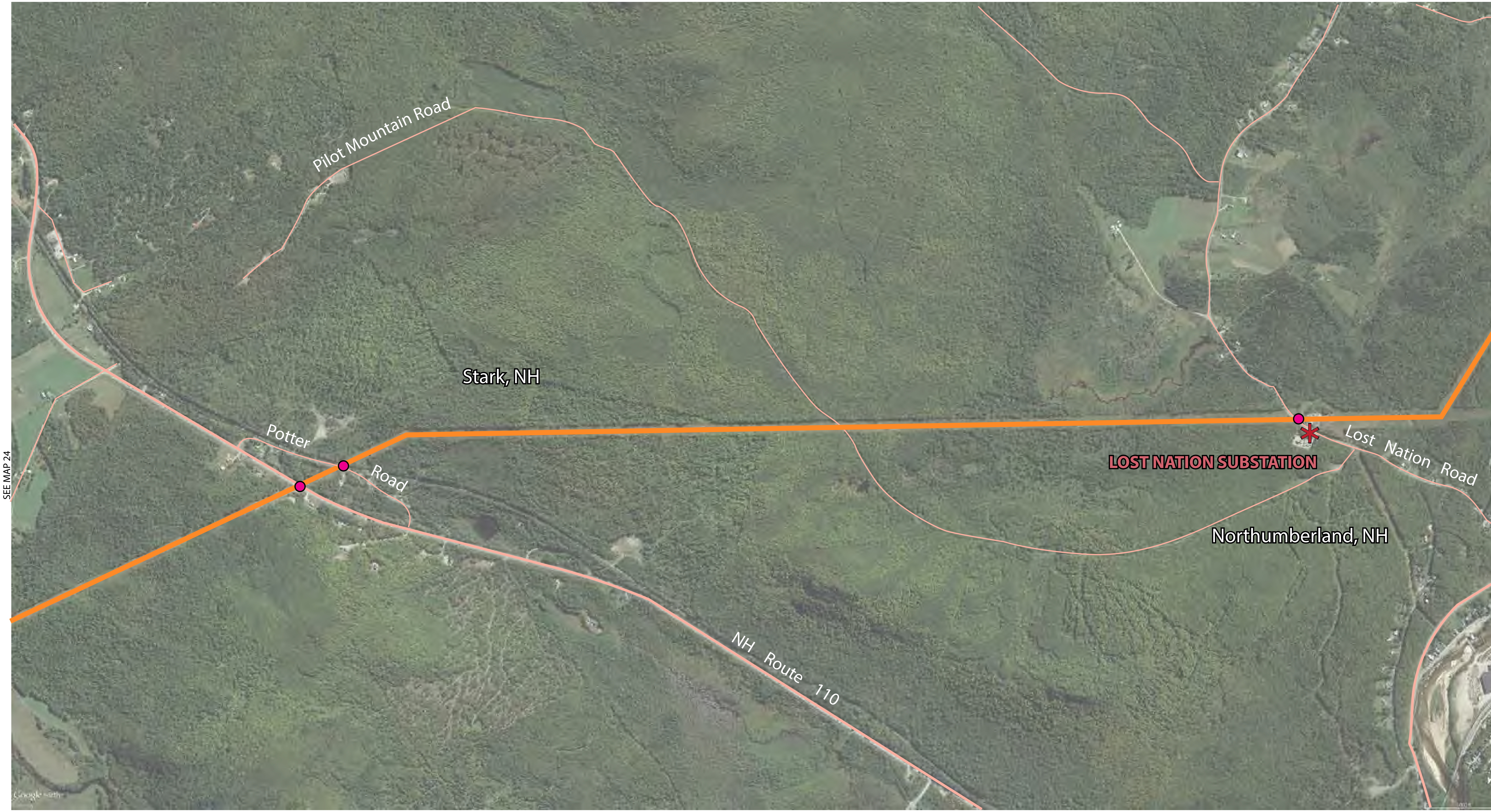
Transition Station #4 to Transition Station #5

Stark

Scale: 1" = 1200'

1200' 600' 0' 1200' 2400'

Map 24



LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #4 to Transition Station #5

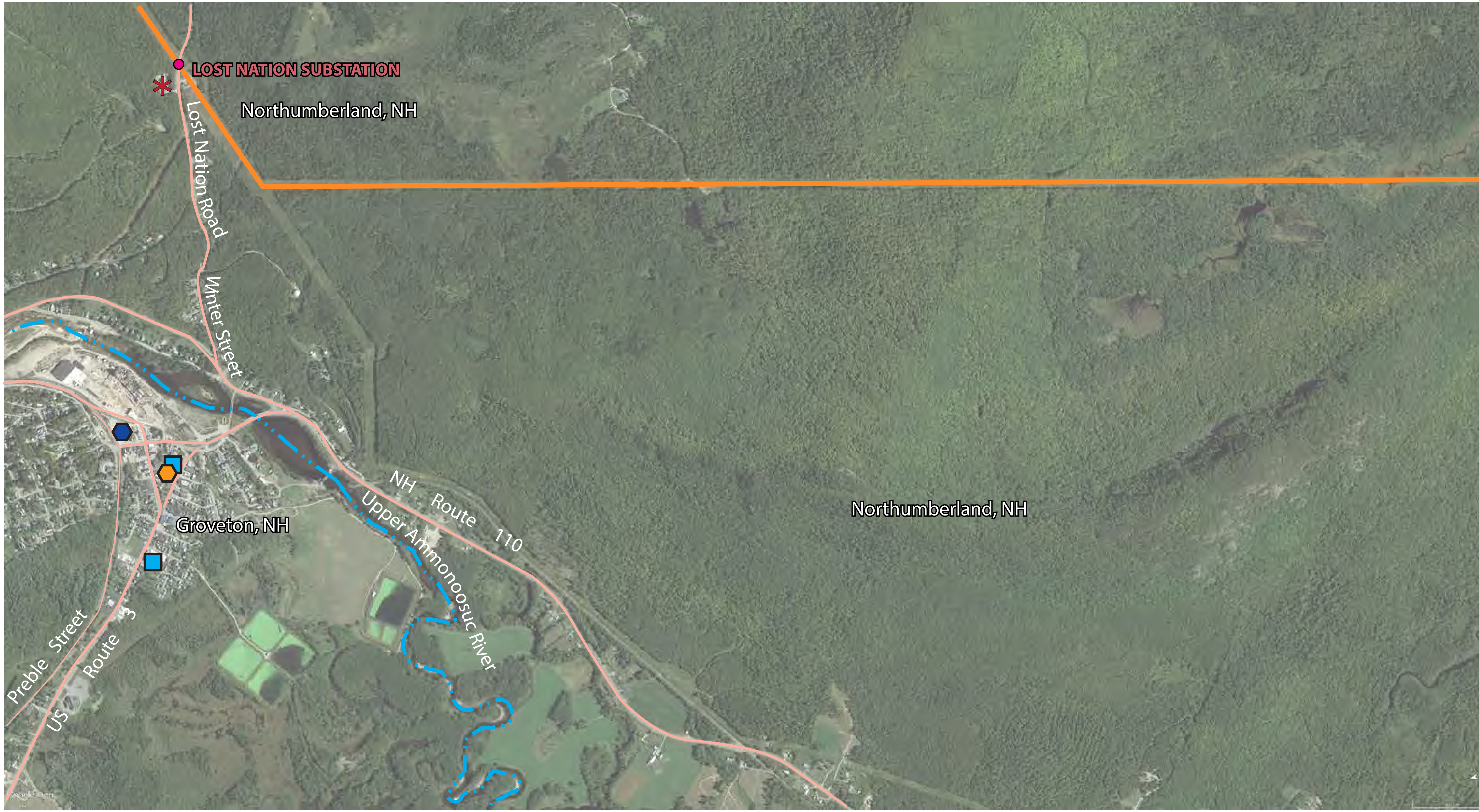
Stark, Northumberland

Map 25

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

SEE MAP 25



SEE MAP 27

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

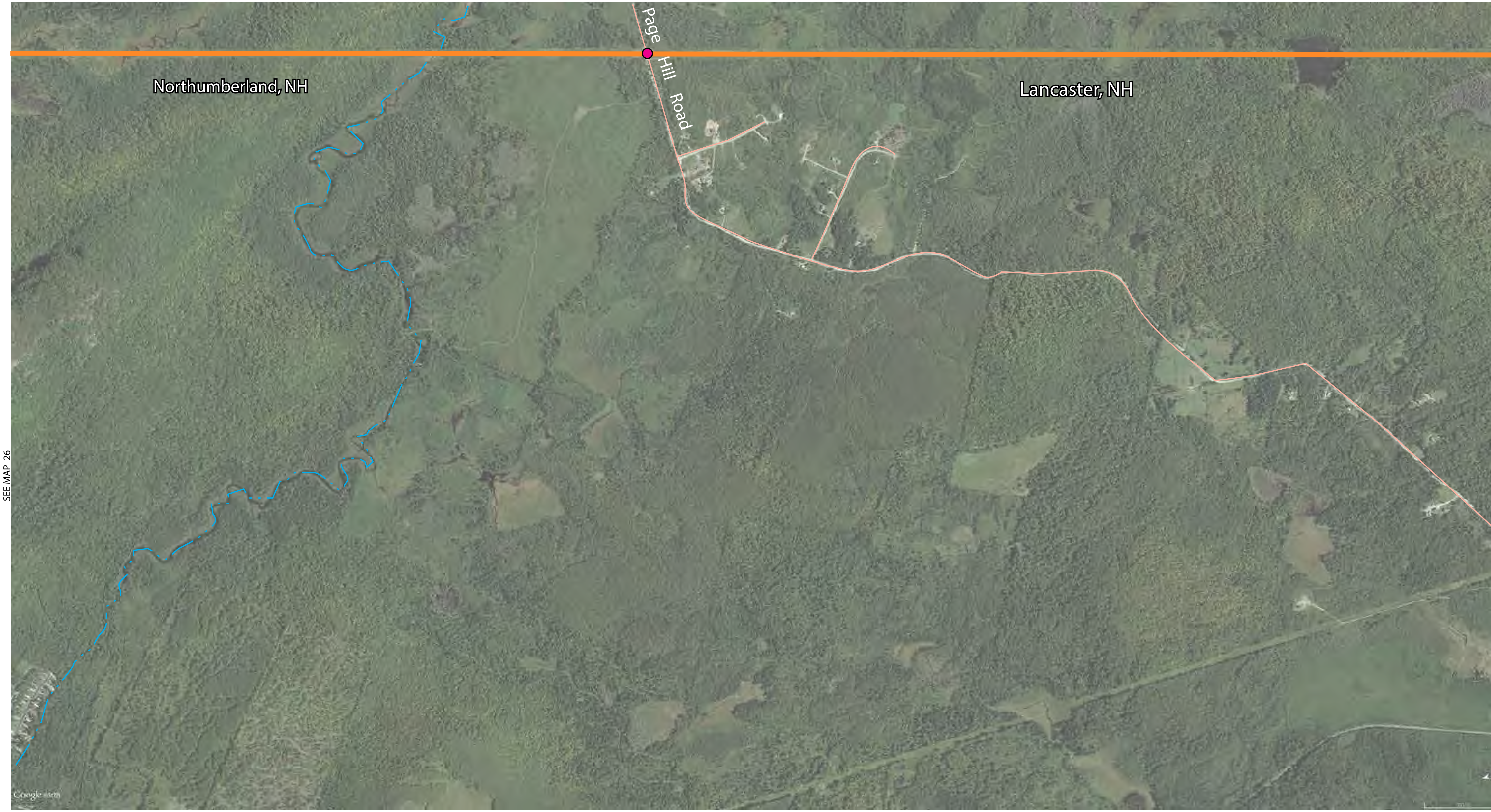
Transition Station #4 to Transition Station #5

Groveton, Northumberland

Map 26

Scale: 1″= 1200′

1200′ 600′ 0′ 1200′ 2400′



LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

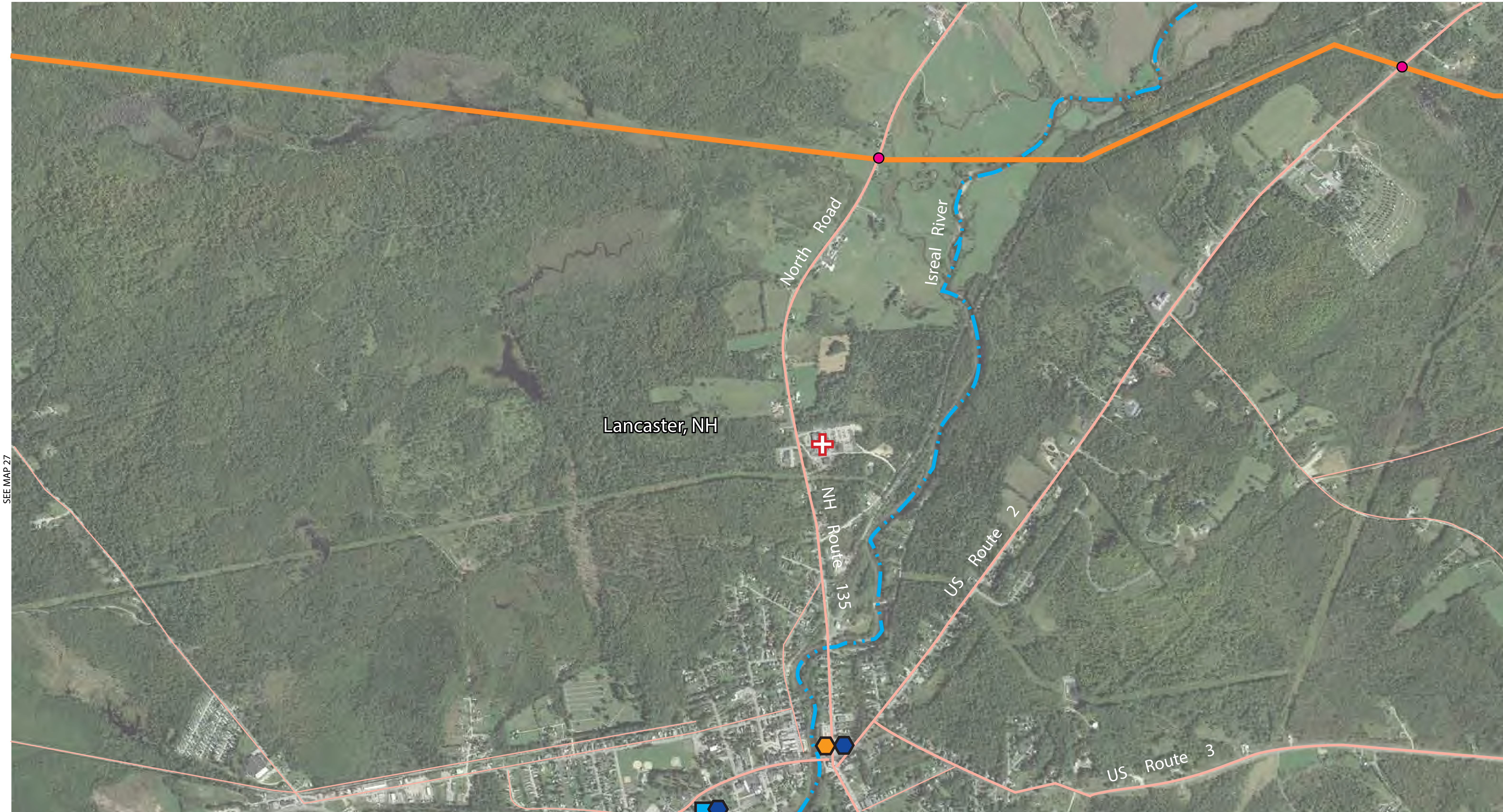
Transition Station #4 to Transition Station #5

Northumberland, Lancaster

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 27



LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #4 to Transition Station #5

Lancaster

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 28

LEGEND

Transition Station	Converter Station	Fire Station	School	Public Road Access Point	AR-# Access Route Label	State Divide	HVDC Underground Line	345kV Line
Substation	Police Station	Hospital	Structure in Wetland/ Waterway	Lay Down Area	LD-# Lay Down Area Label	Country Divide	HVDC Overhead Line	Rivers/ Streams
						Existing Access Route	Proposed Access Route	

November 15, 2016

Dewberry®

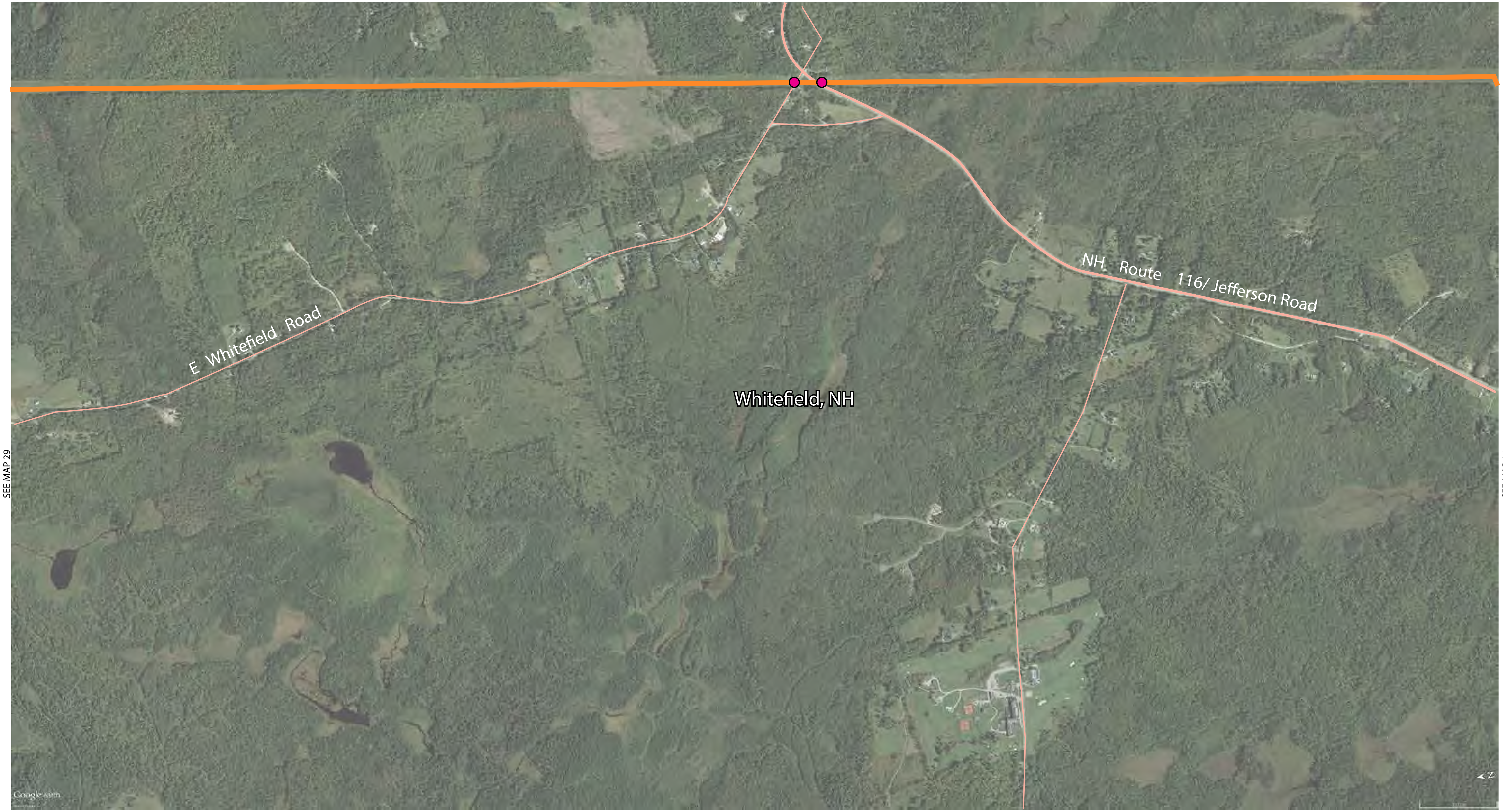
Transition Station #4 to Transition Station #5

Lancaster, Whitefield

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 29



LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #4 to Transition Station #5

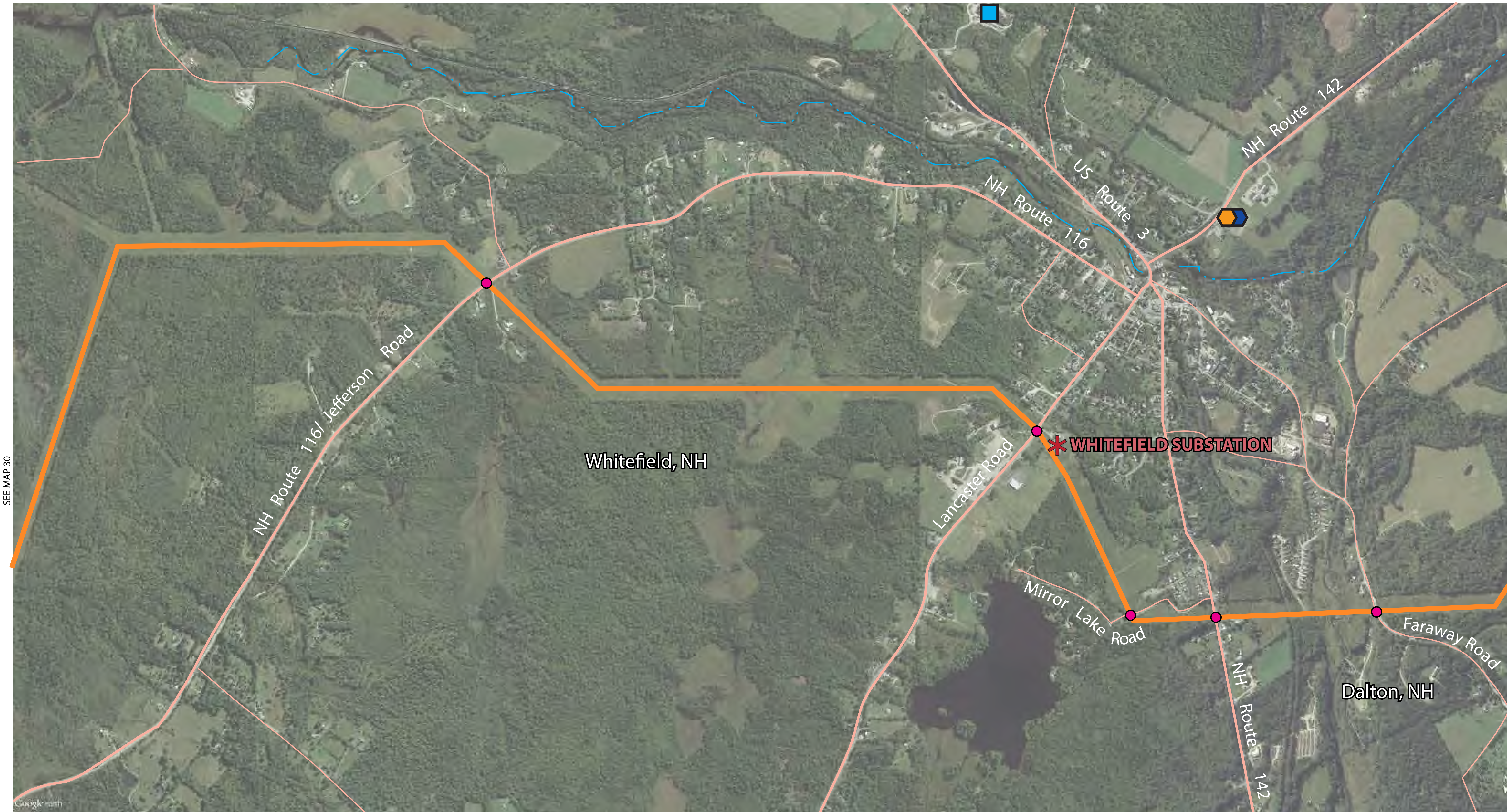
Whitefield

Scale: 1" = 1200'

1200' 600' 0' 1200' 2400'

Map 30

SEE MAP 30



SEE MAP 32

LEGEND

Transition Station	Converter Station	Fire Station	School	Public Road Access Point	AR-# Access Route Label	State Divide
Substation	Police Station	Hospital	Structure in Wetland/ Waterway	Lay Down Area	LD-# Lay Down Area Label	Country Divide
						Existing Access Route

HVDC Underground Line	345kV Line
HVDC Overhead Line	Rivers/ Streams
Proposed Access Route	

November 15, 2016

Dewberry®

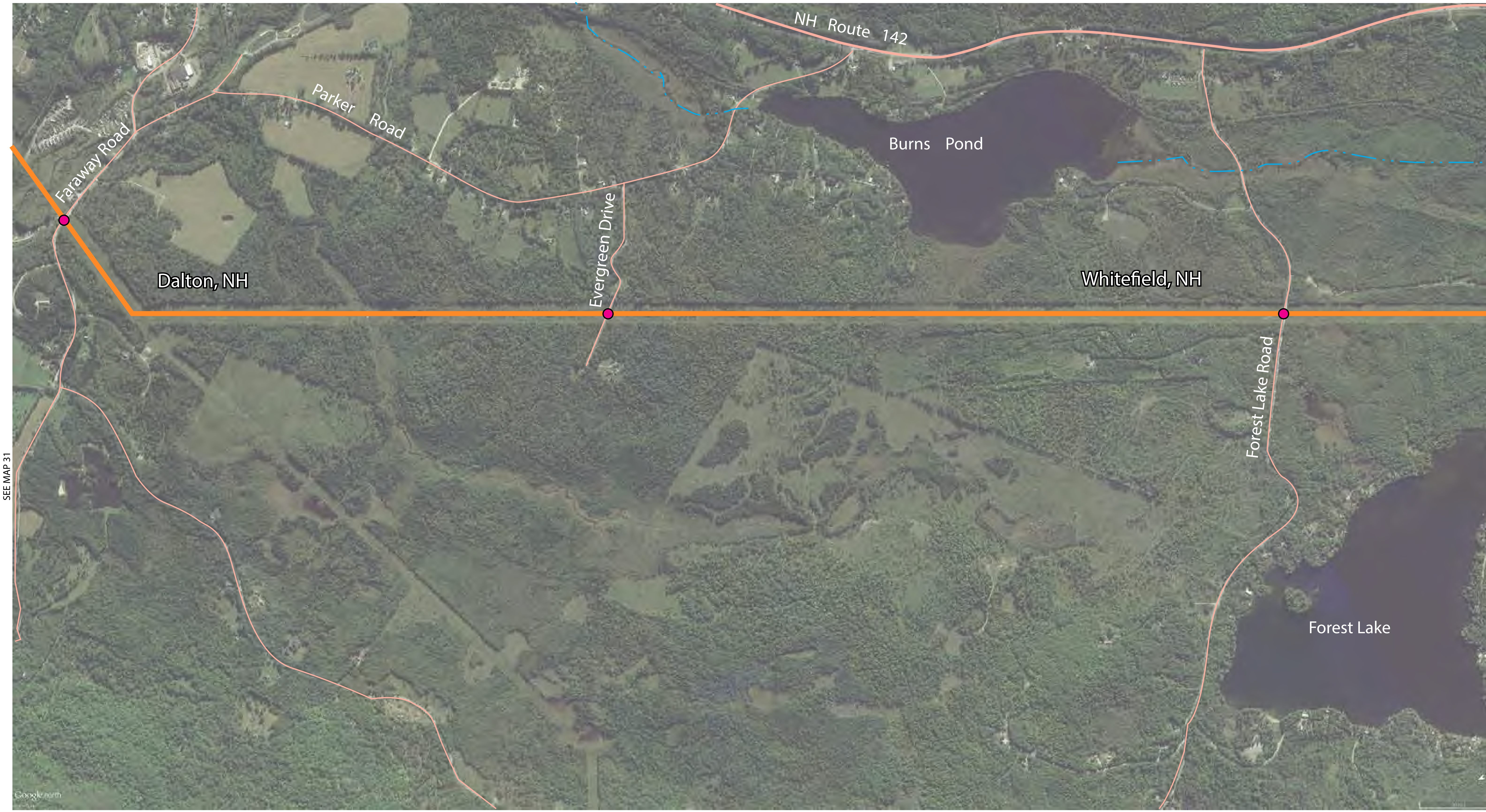
Transition Station #4 to Transition Station #5

Whitefield, Dalton

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 31



LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #4 to Transition Station #5

Dalton, Whitefield

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 32

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

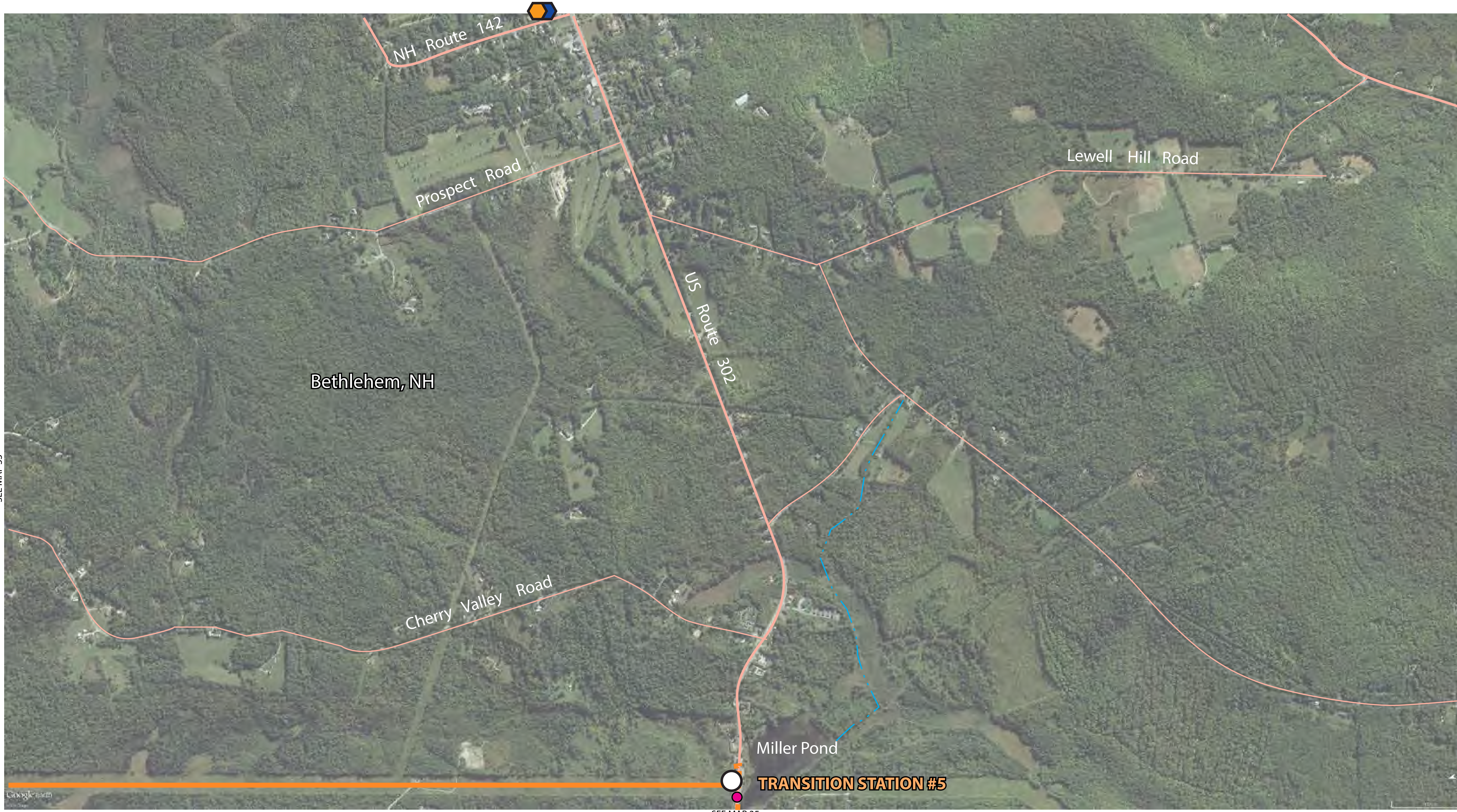
Transition Station #4 to Transition Station #5

Whitefield, Bethlehem

Scale: 1" = 1200'

1200' 600' 0' 1200' 2400'

Map 33



SEE MAP 33

SEE MAP 35

LEGEND

Transition Station; Substation; Converter Station; Police Station; Fire Station; Hospital; School; Structure in Wetland/ Waterway; Public Road Access Point; Lay Down Area; AR-# Access Route Label; LD-# Lay Down Area Label; State Divide; Country Divide; Existing Access Route; HVDC Underground Line; HVDC Overhead Line; Proposed Access Route; 345kV Line; Rivers/ Streams

November 15, 2016

Dewberry

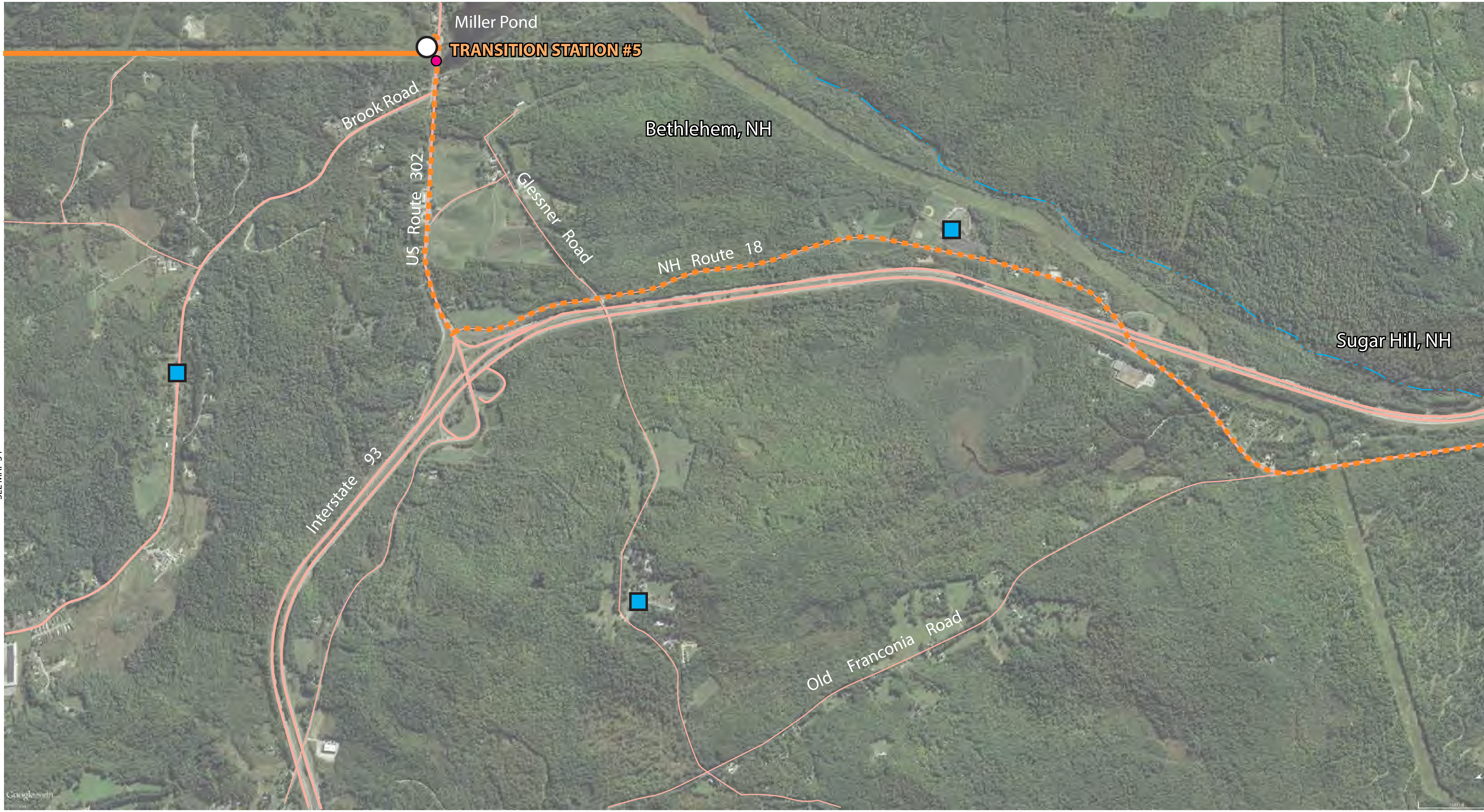
Transition Station #5 to Transition Station #6

Bethlehem

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 34



LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #5 to Transition Station #6

Bethlehem, Sugar Hill

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 35

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry

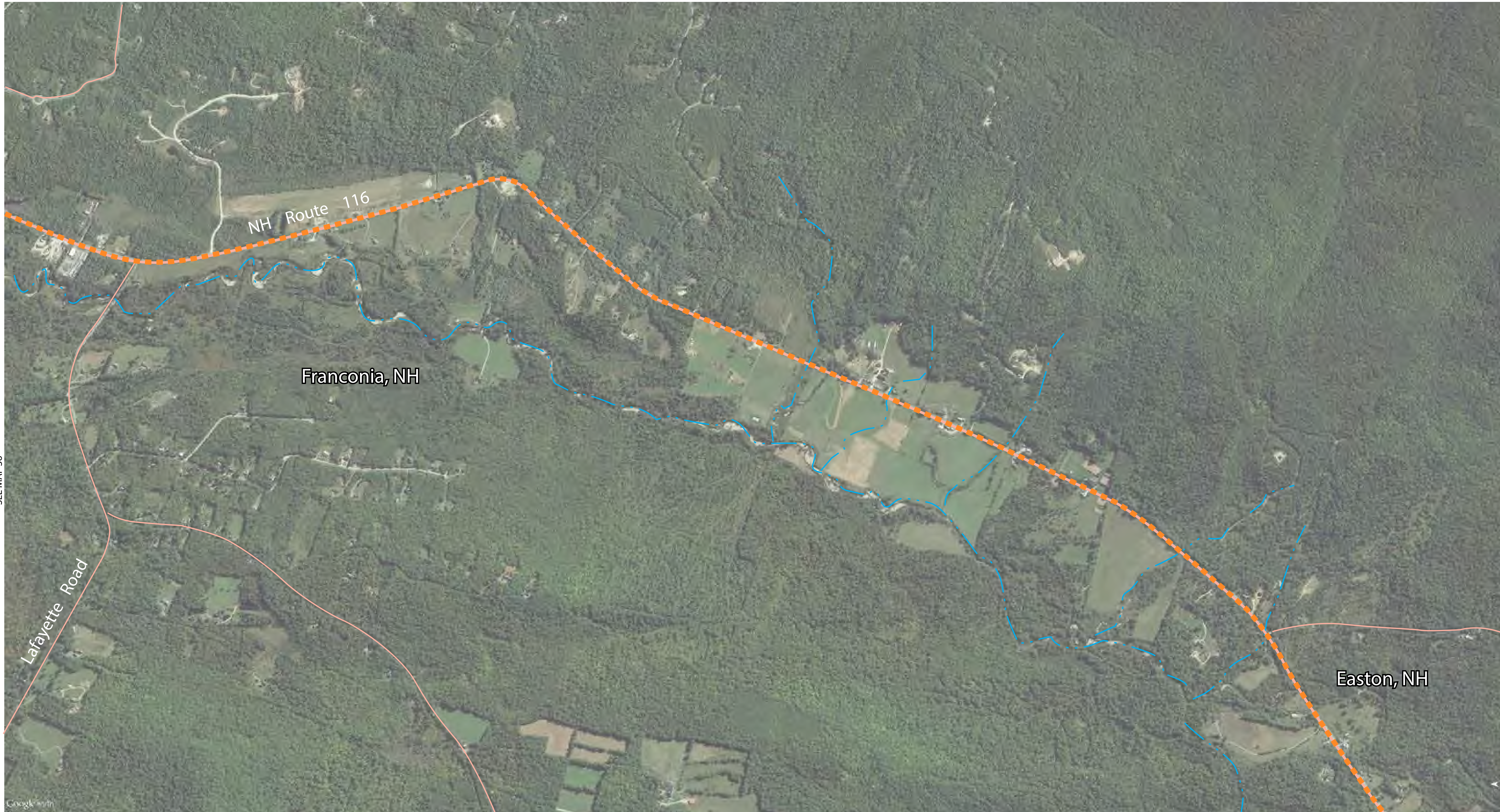
Transition Station #5 to Transition Station #6

Sugar Hill, Franconia

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 36



LEGEND

Transition Station	Converter Station	Fire Station	School	Public Road Access Point	AR-# Access Route Label	State Divide	HVDC Underground Line	345kV Line
Substation	Police Station	Hospital	Structure in Wetland/ Waterway	Lay Down Area	LD-# Lay Down Area Label	Country Divide	HVDC Overhead Line	Rivers/ Streams
						Existing Access Route	Proposed Access Route	

November 15, 2016

Dewberry

Transition Station #5 to Transition Station #6

Franconia, Easton

Scale: 1" = 1200'

1200' 600' 0' 1200' 2400'

Map 37

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #5 to Transition Station #6

Easton

Scale: 1" = 1200'

1200' 600' 0' 1200' 2400'

Map 38

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #5 to Transition Station #6

Benton, Easton

Map 39

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

LEGEND

Transition Station	Substation
Converter Station	Police Station
Fire Station	Hospital
School	Structure in Wetland/ Waterway
Public Road Access Point	Lay Down Area
AR-# Access Route Label	LD-# Lay Down Area Label
State Divide	Country Divide
Existing Access Route	HVDC Underground Line
HVDC Overhead Line	Proposed Access Route
345kV Line	Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #5 to Transition Station #6

Woodstock

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 40

November 15, 2016

Dewberry®

Transition Station #5 to Transition Station #6

Woodstock

Map 41

SEE MAP 41

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #5 to Transition Station #6

Lincoln, Woodstock, Thornton

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 42

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #5 to Transition Station #6

Woodstock, Thornton

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 43

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

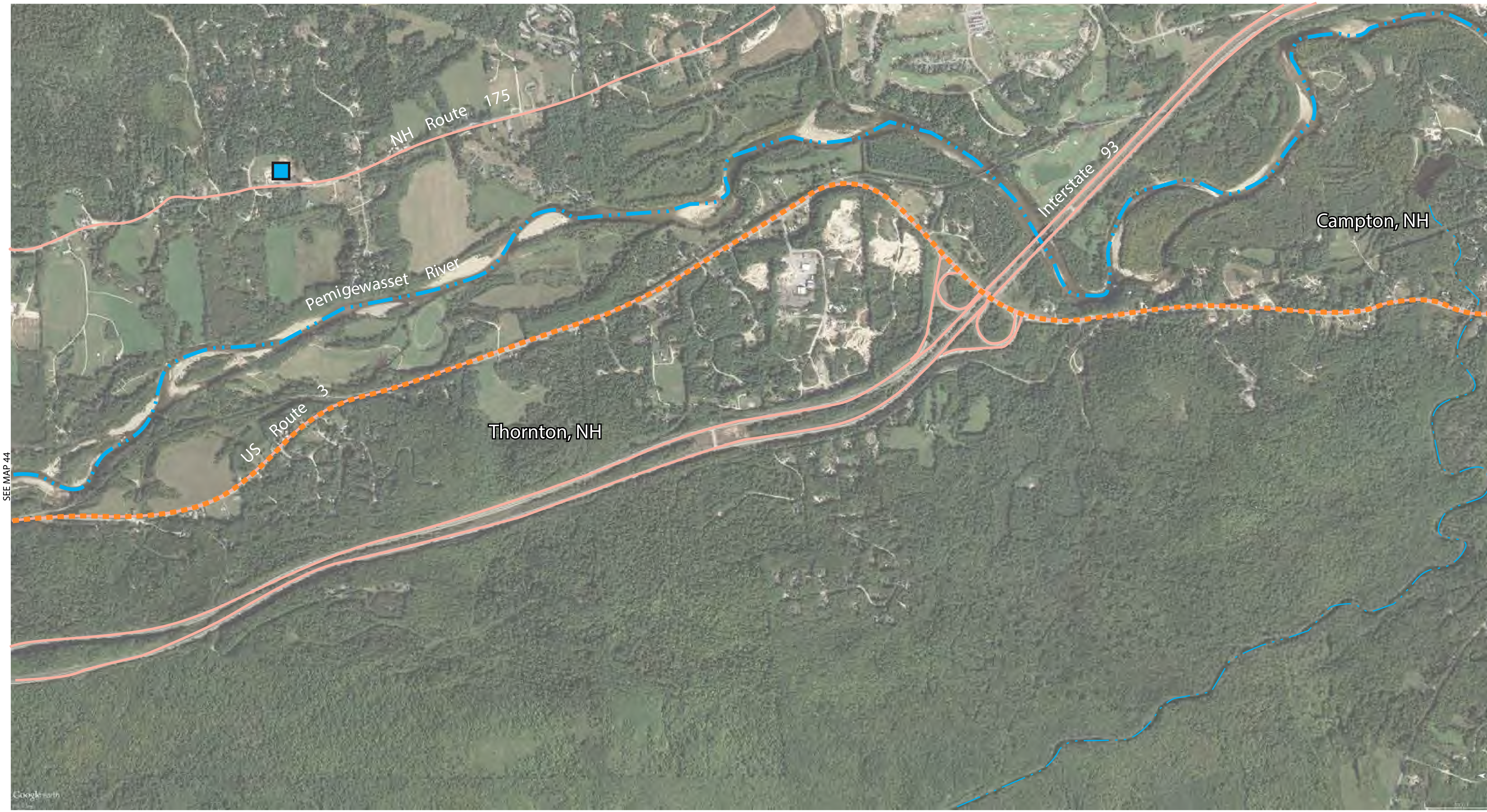
Transition Station #5 to Transition Station #6

Thornton

Scale: 1" = 1200'

1200' 600' 0' 1200' 2400'

Map 44



SEE MAP 44

SEE MAP 46

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #5 to Transition Station #6

Thornton, Campton

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 45

SEE MAP 45

SEE MAP 47

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

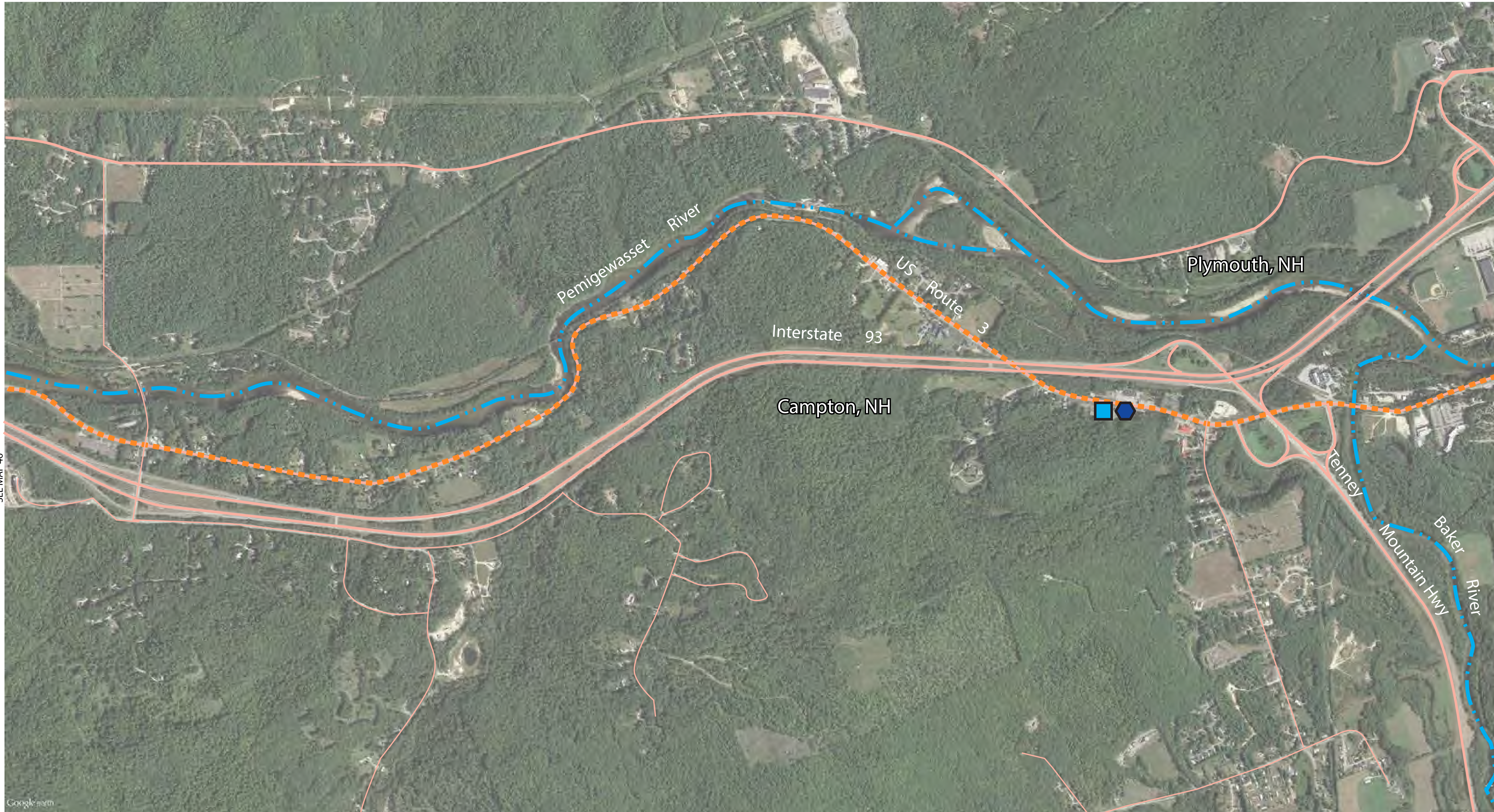
Transition Station #5 to Transition Station #6

Campton

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 46



SEE MAP 46
SEE MAP 48

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

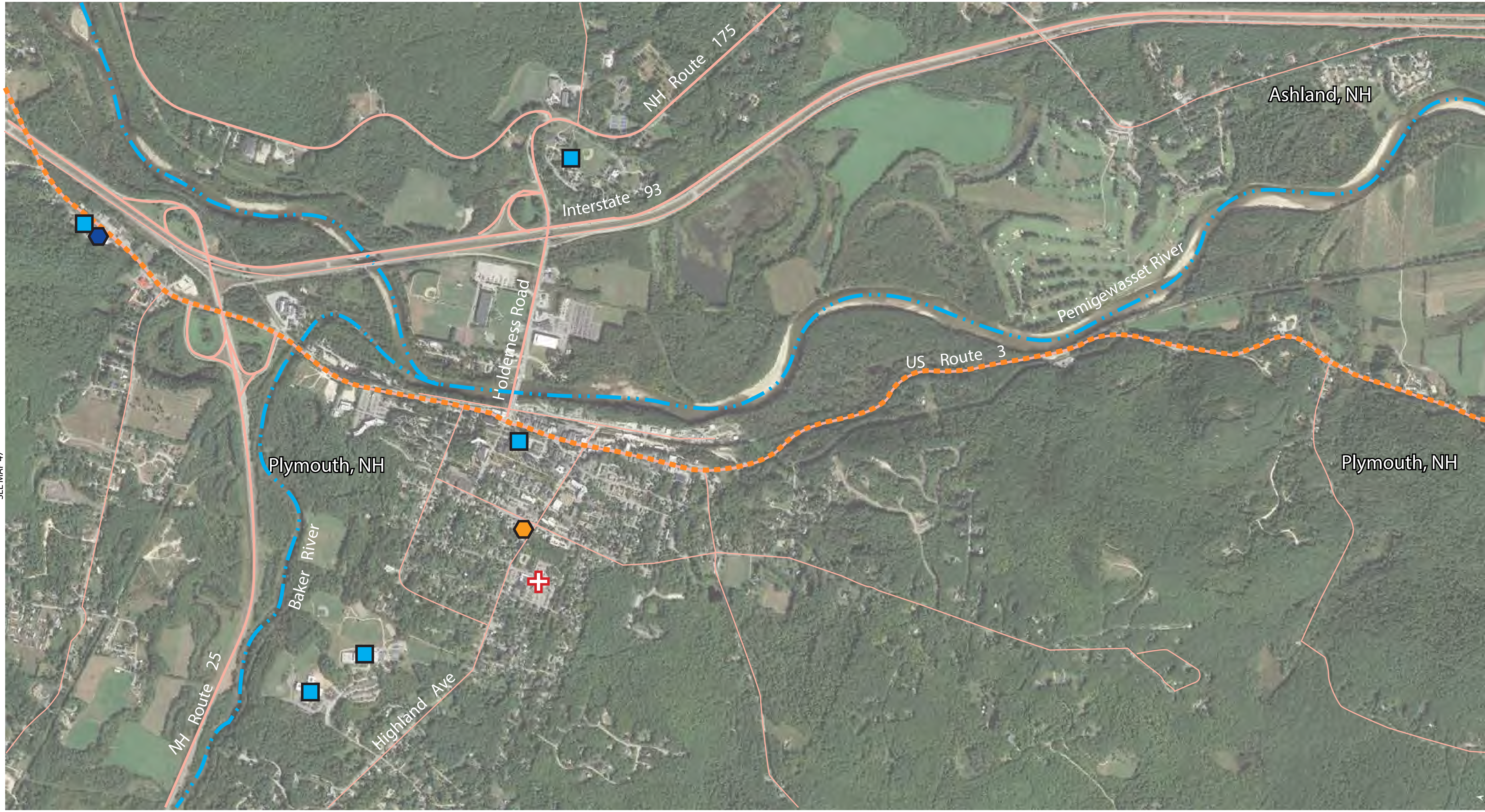
Transition Station #5 to Transition Station #6

Campton, Plymouth

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 47



LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

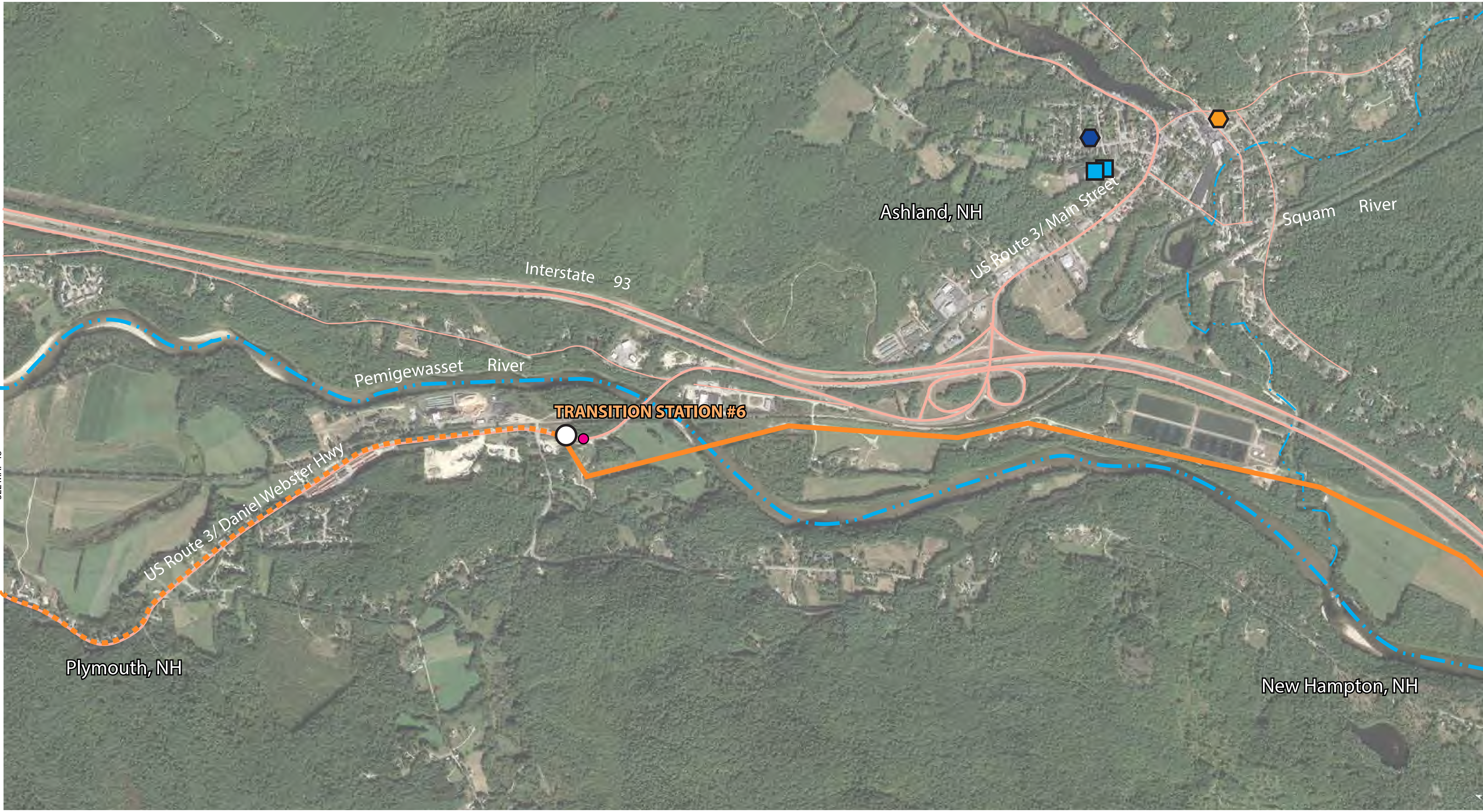
Transition Station #5 to Transition Station #6

Plymouth

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 48



LEGEND

Transition Station	Converter Station	Fire Station	School	Public Road Access Point	AR-# Access Route Label	State Divide	HVDC Underground Line	345kV Line
Substation	Police Station	Hospital	Structure in Wetland/ Waterway	Lay Down Area	LD-# Lay Down Area Label	Country Divide	HVDC Overhead Line	Rivers/ Streams
						Existing Access Route	Proposed Access Route	

November 15, 2016

Dewberry

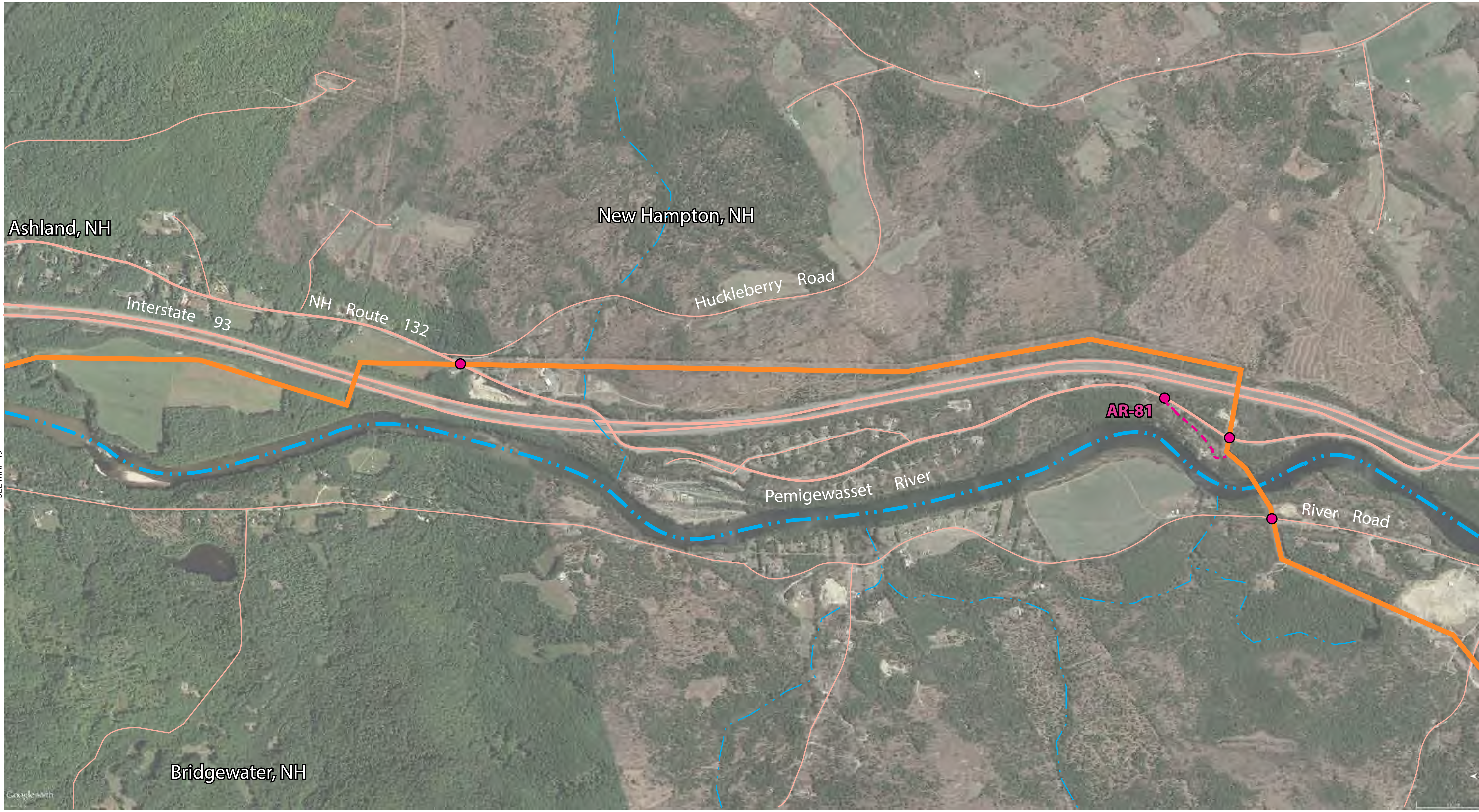
Transition Station #6 to Deerfield Substation

Plymouth, Ashland, New Hampton

Scale: 1″= 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 49



LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

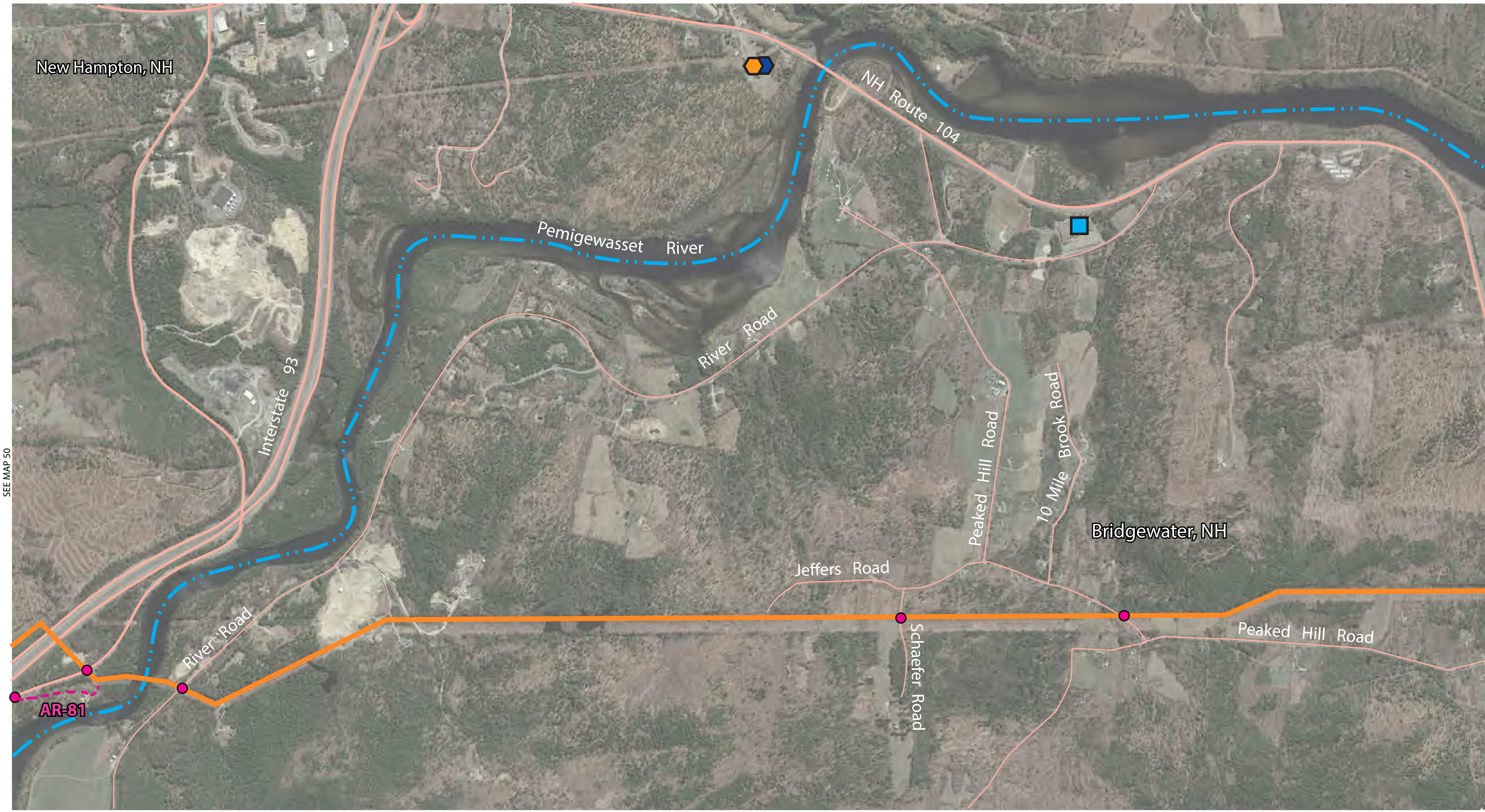
Transition Station #6 to Deerfield Substation

Ashland, Bridgewater, New Hampton

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 50



LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #6 to Deerfield Substation

New Hampton, Bridgewater

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 51

LEGEND

Transition Station	Converter Station	Fire Station	School	Public Road Access Point	AR-# Access Route Label	State Divide	HVDC Underground Line	345kV Line
Substation	Police Station	Hospital	Structure in Wetland/ Waterway	Lay Down Area	LD-# Lay Down Area Label	Country Divide	HVDC Overhead Line	Rivers/ Streams
						Existing Access Route	Proposed Access Route	

November 15, 2016

Dewberry

Transition Station #6 to Deerfield Substation

Bristol, New Hampton

Scale: 1″= 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 52

SEE MAP 52

SEE MAP 54

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #6 to Deerfield Substation

New Hampton, Sandbornton, Hill, Franklin

Scale: 1″= 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 53

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry

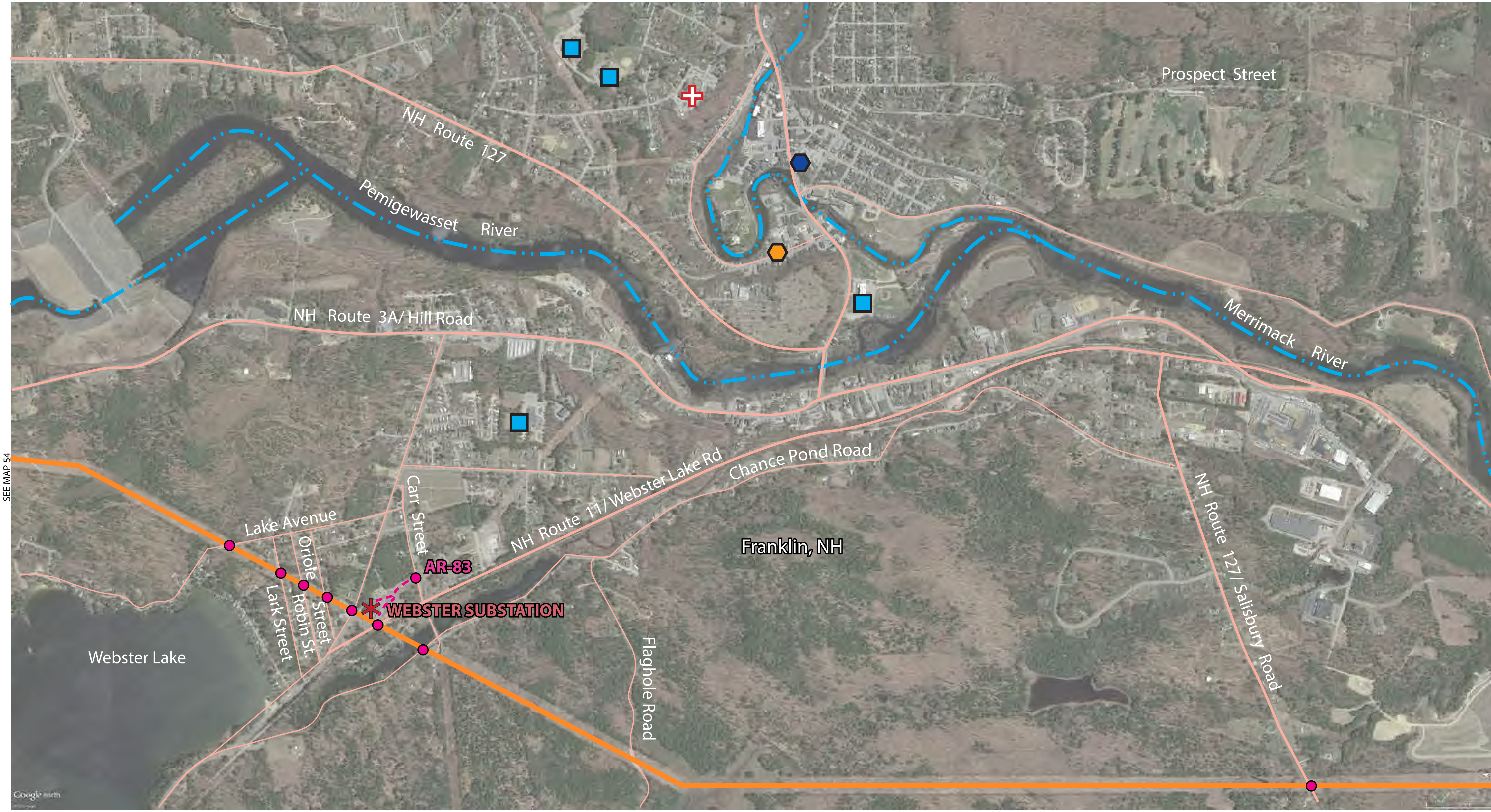
Transition Station #6 to Deerfield Substation

Franklin

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 54



LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry

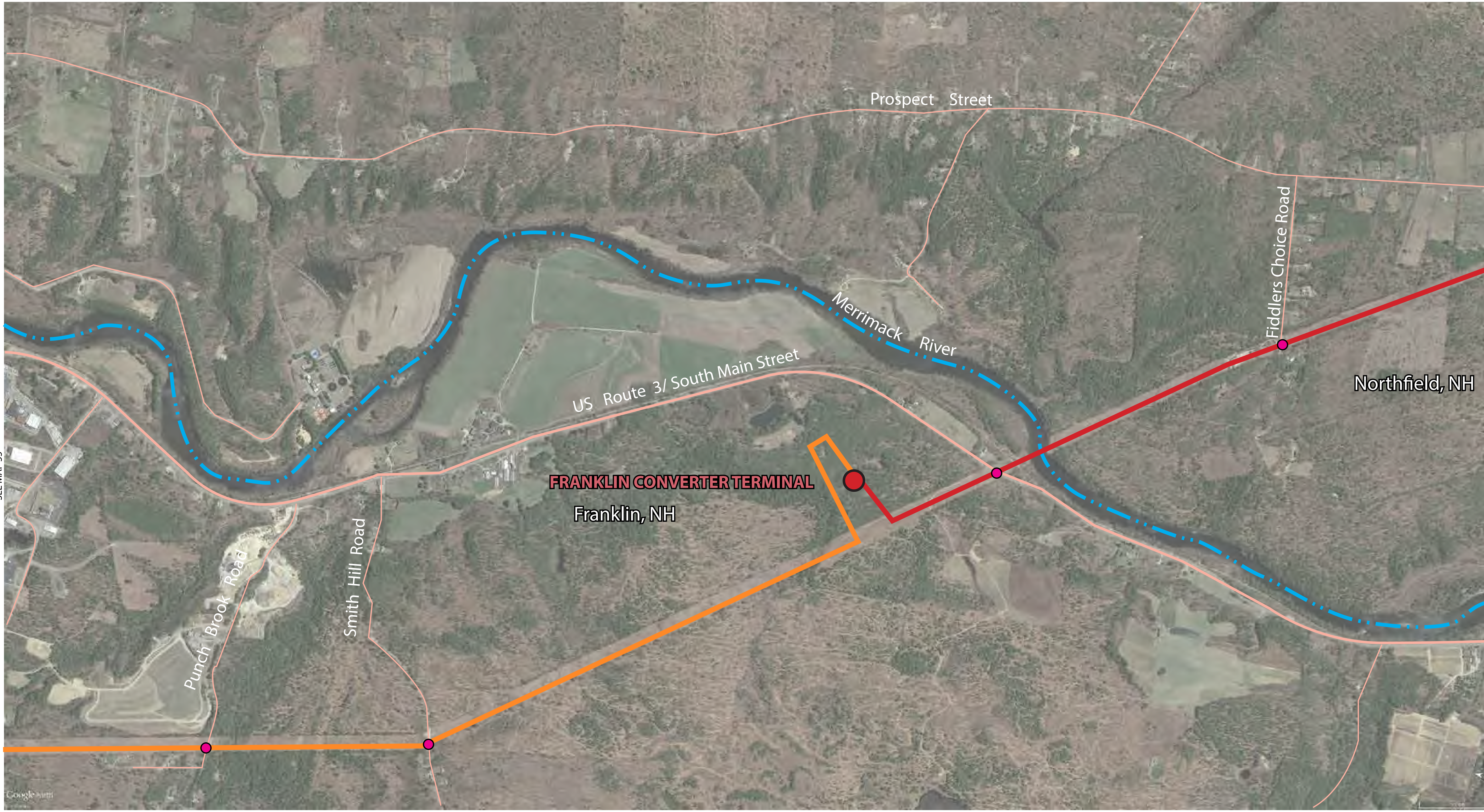
Transition Station #6 to Deerfield Substation

Franklin

Scale: 1" = 1200'

1200' 600' 0' 1200' 2400'

Map 55



LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry

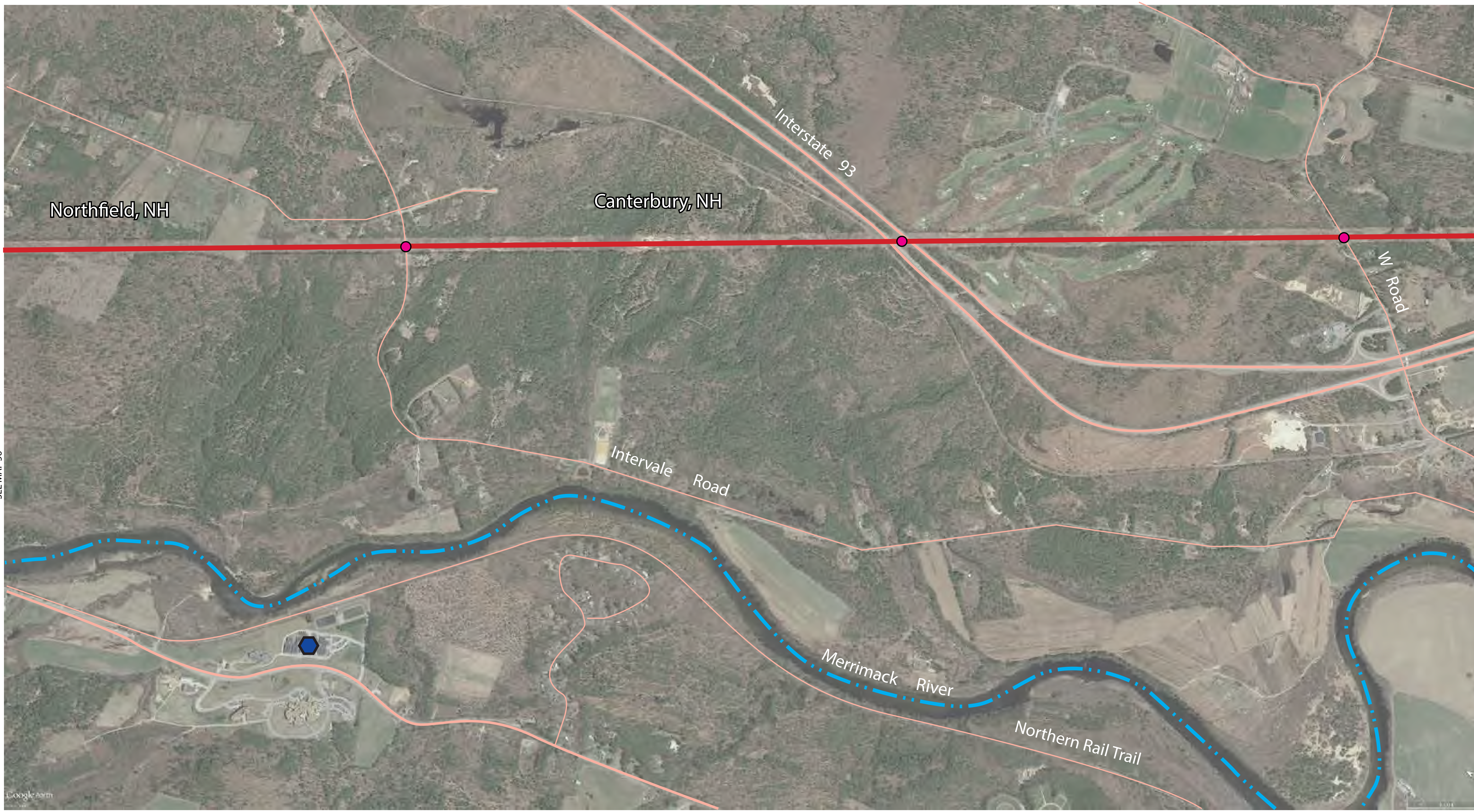
Transition Station #6 to Deerfield Substation

Franklin, Northfield

Scale: 1" = 1200'

1200' 600' 0' 1200' 2400'

Map 56



LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

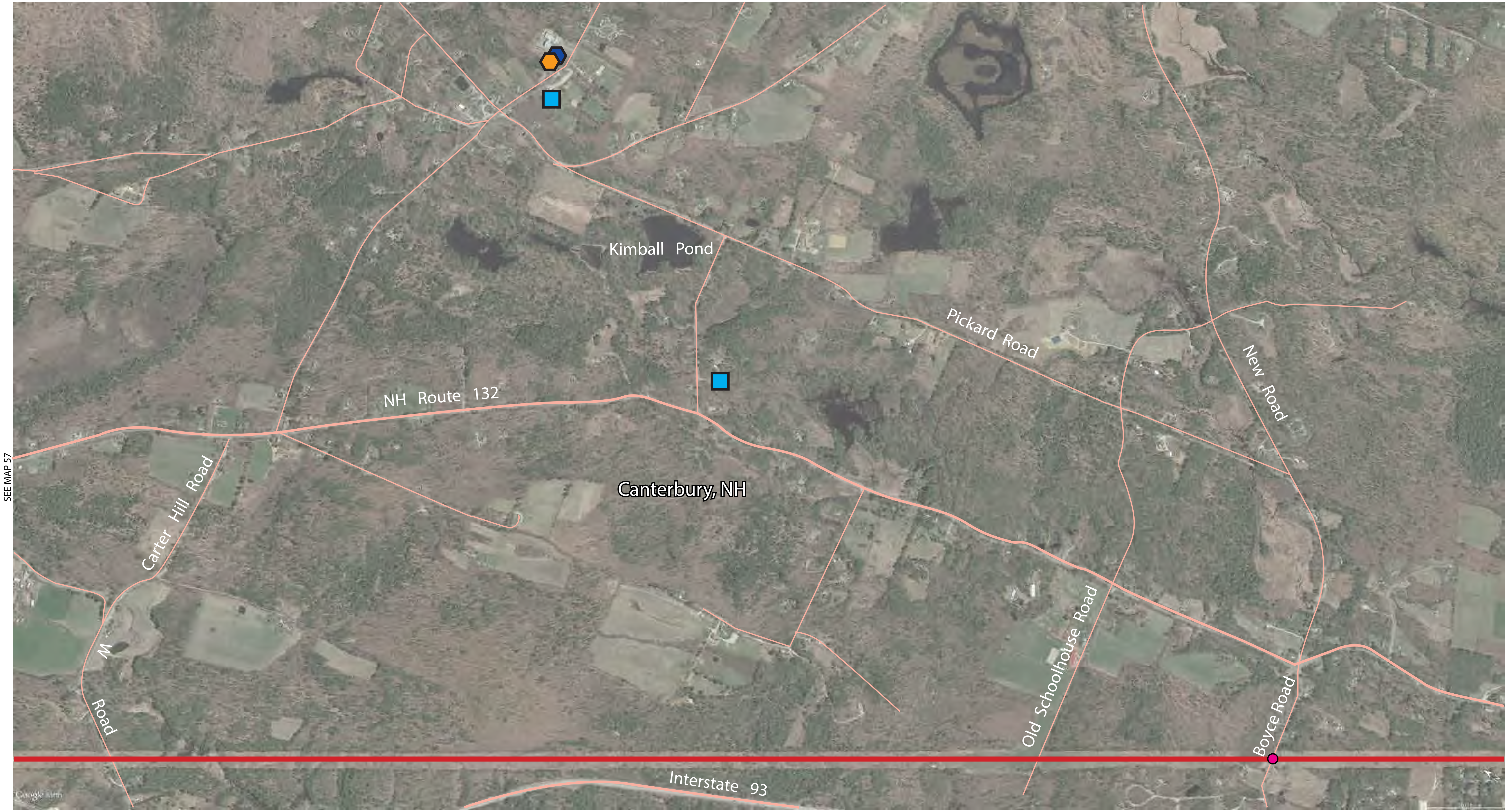
Transition Station #6 to Deerfield Substation

Northfield, Canterbury

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 57



LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #6 to Deerfield Substation

Canterbury

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 58

LEGEND

Transition Station	Converter Station	Fire Station	School	Public Road Access Point	AR-# Access Route Label	State Divide
Substation	Police Station	Hospital	Structure in Wetland/ Waterway	Lay Down Area	LD-# Lay Down Area Label	Country Divide
						Existing Access Route
HVDC Underground Line	HVDC Overhead Line	Proposed Access Route	345kV Line	Rivers/ Streams		

November 15, 2016

Dewberry®

Transition Station #6 to Deerfield Substation

Canterbury, Concord

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 59

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #6 to Deerfield Substation

Concord

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 60

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry

Transition Station #6 to Deerfield Substation

Concord, Pembroke

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 61

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

November 15, 2016

Dewberry®

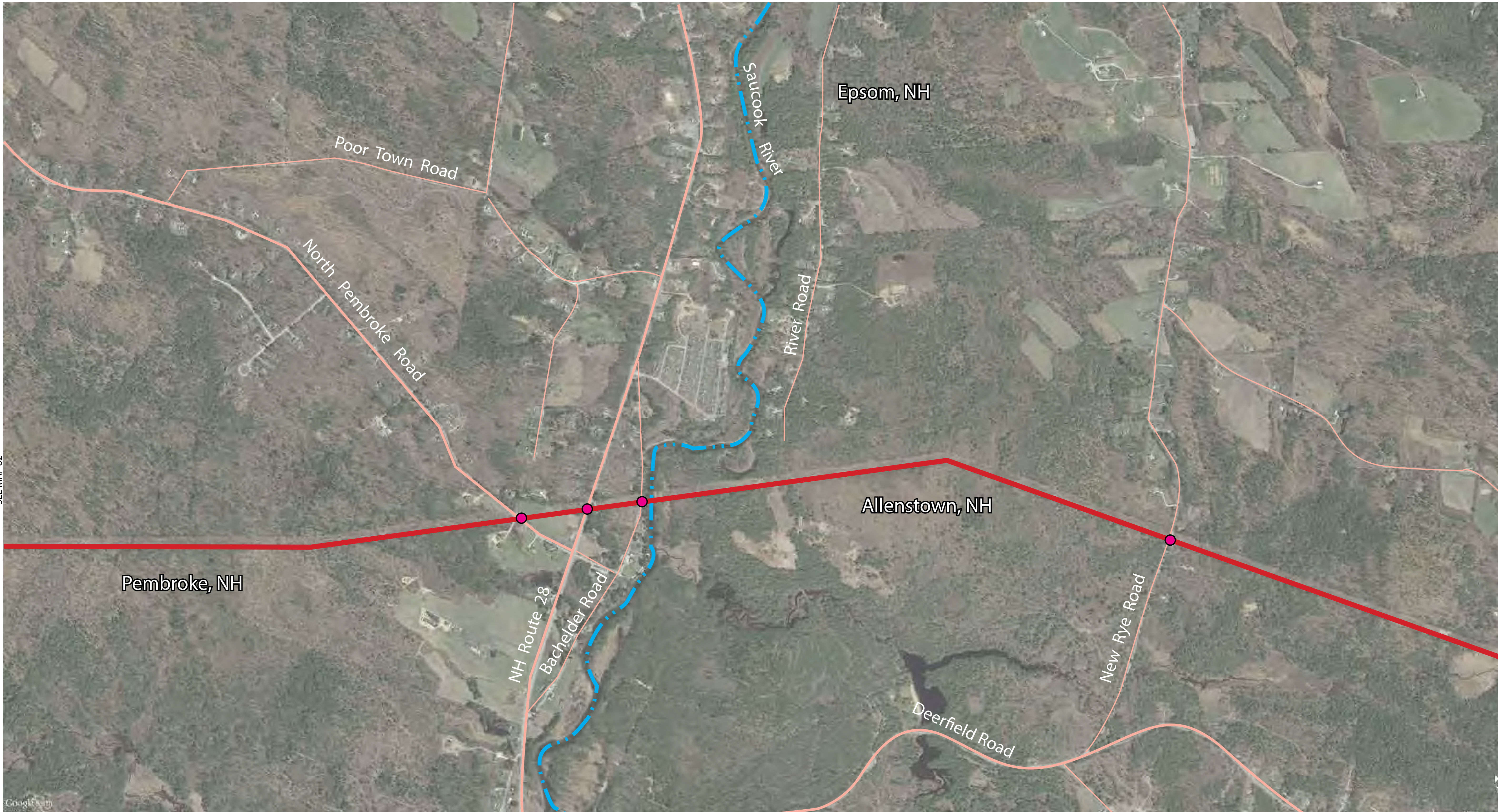
Transition Station #6 to Deerfield Substation

Pembroke

Scale: 1″= 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 62



LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #6 to Deerfield Substation

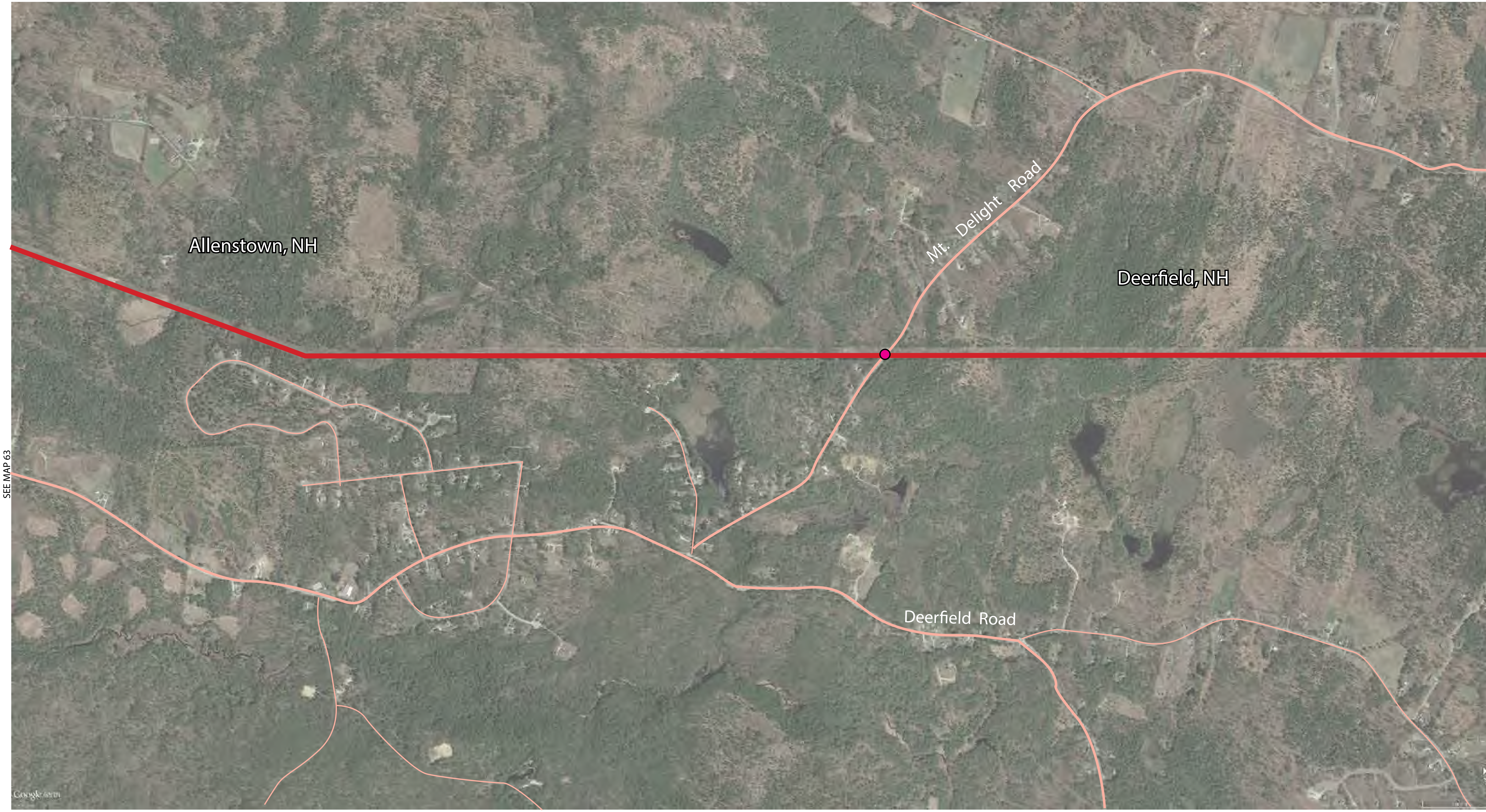
Pembroke, Allenstown, Epsom

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 63

SEE MAP 63



SEE MAP 65

LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry

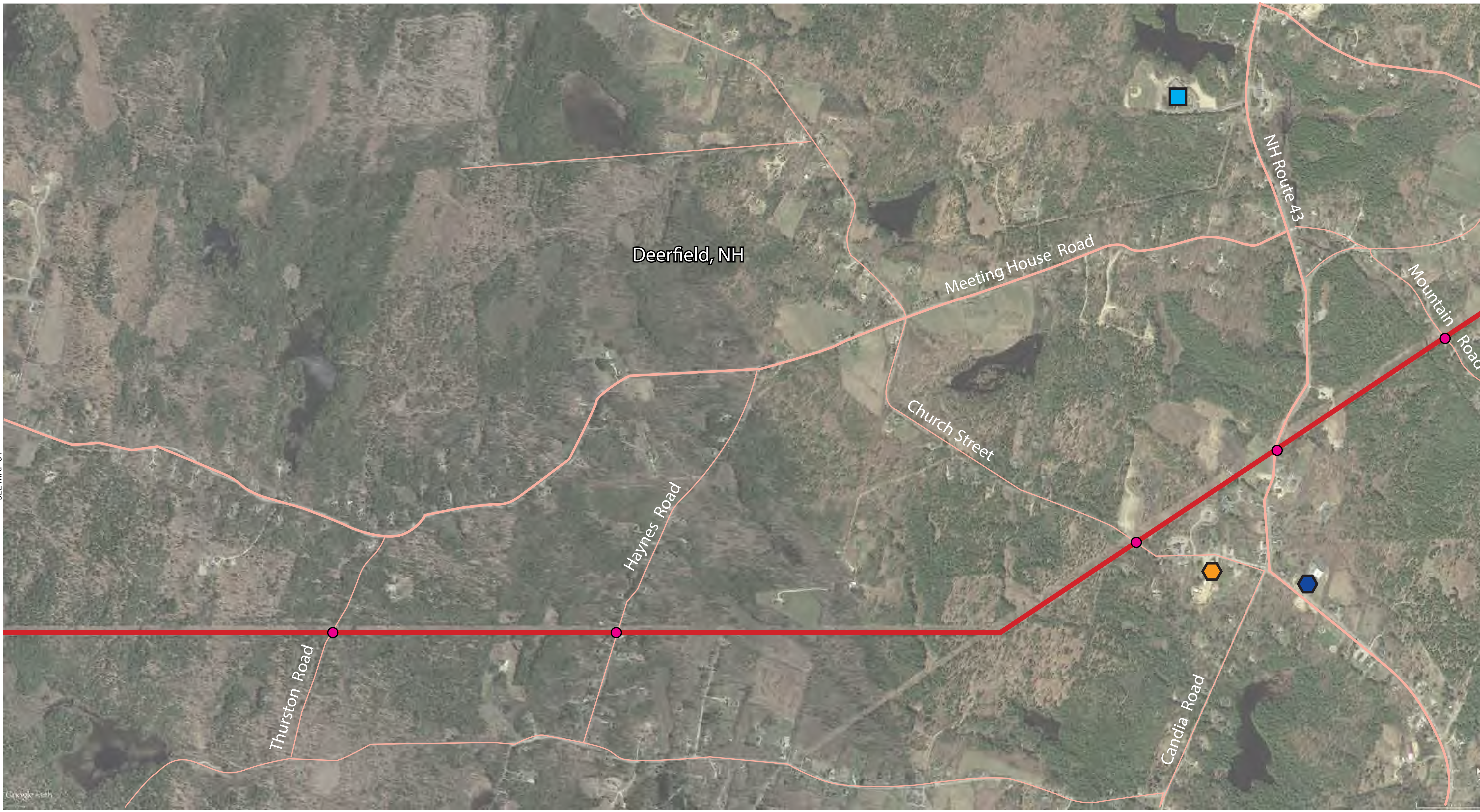
Transition Station #6 to Deerfield Substation

Allenstown, Deerfield

Scale: 1″= 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 64



LEGEND

- Transition Station
- Substation
- Converter Station
- Police Station
- Fire Station
- Hospital
- School
- Structure in Wetland/ Waterway
- Public Road Access Point
- Lay Down Area
- AR-# Access Route Label
- LD-# Lay Down Area Label
- State Divide
- Country Divide
- Existing Access Route
- HVDC Underground Line
- HVDC Overhead Line
- Proposed Access Route
- 345kV Line
- Rivers/ Streams

November 15, 2016

Dewberry®

Transition Station #6 to Deerfield Substation

Deerfield

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 65

November 15, 2016

Dewberry

Transition Station #6 to Deerfield Substation

Deerfield

Scale: 1″ = 1200′

1200′ 600′ 0′ 1200′ 2400′

Map 66

LEGEND

Transition Station
Substation
Converter Station
Police Station
Fire Station
Hospital
School
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-# Access Route Label
LD-# Lay Down Area Label
State Divide
Country Divide
Existing Access Route
HVDC Underground Line
HVDC Overhead Line
Proposed Access Route
345kV Line
Rivers/ Streams

1200’ 600’ 0’ 1200’ 2400’

LEGEND

Transition Station	Converter Station	Fire Station	School	Public Road Access Point	AR-# Access Route Label	State Divide
Substation	Police Station	Hospital	Structure in Wetland/ Waterway	Lay Down Area	LD-# Lay Down Area Label	Country Divide
						Existing Access Route

HVDC Underground Line	345kV Line
HVDC Overhead Line	Rivers/ Streams
Proposed Access Route	

November 15, 2016

Dewberry

Transition Station #5 to Transition Station #6 - 1 of 2

Bethlehem, Sugar Hill, Franconia, Easton, Lincoln, Woodstock

Map 68

1200' 600' 0' 1200' 2400'


Lafayette
93
18
Academy St
St
Easton Rd
116
Styles Bridges Hwy
Main St
Converter Station
Structure in Wetland/ Waterway
Public Road Access Point
Lay Down Area
AR-#
Access Route Label
LD-#
Lay Down Area Label
Existing Access Route
Proposed Access Route
Rivers/ Streams