# nationalgrid

## Lockport–Batavia Line 112 Rebuild Project

Exhibit 2

**Location of Facilities** 

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#### 2.1 GENERAL DESCRIPTION OF FACILITIES LOCATION

The project ("Project") proposed by the Applicant<sup>1</sup> is the reconstruction and selective relocation of one 115kV transmission line, the Lockport – Batavia Line 112, from existing Structure 1-2 to existing Structure 211, for a total of approximately 21.7 miles. Existing Line 112 is a 115kV circuit that originates at the Lockport Substation and terminates at the Batavia Substation, extending a distance of approximately 35.0 miles. The Project is located in the City of Lockport, Towns of Lockport and Royalton in Niagara County and Town of Alabama in Genesee County (Frontier and Genesee Regions of National Grid's Western New York Service Territory).

For clarity and consistency, the Applicant developed a Master Glossary of Terms used throughout the Application to refer to the relevant components and definitions of the Project.

#### 2.1.1 Project Segments

The Project consists of a number of activities on six (6) Segments<sup>2</sup> of Existing Line 112, the details of which are provided below.

The Project proposes to replace the existing single-circuit steel tri-leg "aeromotor" towers with new single-circuit galvanized tubular steel pole structures. Single-circuit suspension structures will be directly embedded into native soils and single-circuit dead-end structures will be set upon foundations. In certain locations, Existing Line 112 shares double-circuit towers with Existing Line 111. In these locations, the existing double-circuit lattice tower structures will be replaced with galvanized tubular steel pole double-circuit structures set upon foundations.

Existing Line 112 features a number of conductor types including 428 kcmil all aluminum conductor ("AAC") (19 strands), 795 kcmil Aluminum Conductor Steel Reinforced ("ACSR") (36/1), and 636 kcmil AAC (37 strands) "Orchid" conductors. All conductors on Rebuilt Line 112

<sup>&</sup>lt;sup>1</sup> In this exhibit, the term "Applicant" and numerous other capitalized terms are defined in the Glossary included in this Application.

<sup>&</sup>lt;sup>2</sup> Another segment of Existing Line 112, designated as Segment 6, extends approximately 1.9 miles on the site of the Western New York Science and Technology Advanced Manufacturing Park being developed by the Genesee County Economic Development Center, from new Structure 173 ½ to new Structure 184 ½. Segment 6 is not part of the Project. It was the subject of a report to the Commission under 16 NYCCR Part 102 (Case 22-T-0502). The Applicant intends to include as-built drawings of Segment 6 in the EM&CP.

will be replaced with 795 kcmil ACSR (27/6) "Drake" conductor. The Applicant also proposes to install one fiber optic ground wire ("OPGW") from structure 2 to structure 211, and one 3/8" EHS Steel shield wire in locations where a second shield wire is necessary.

2.1.1.1 Segment 1 – Structure 1-2 (Mile 0.1) to Structure 6 (Mile 0.5)

Segment 1 of the Project begins at Structure 1-2, outside of the Lockport Substation, and extends in a generally easterly direction to Structure 6 on Existing Line 112. Structure 1-2 is an existing wood three pole dead-end structure. Extending from Structure 1-2, the width of the feeowned Project right-of-way ("ROW") expands to 200 feet at Mile 0.3 and expands further to 440 feet at Mile 0.5 where Structure 6 is located. Segment 1 contains six (6) 115kV circuits, including Existing Line 112. These circuits are (listed south to north across the width of the Project ROW):

- Existing Lines 114 & 113
- Existing Line 112
- Existing Line 111
- Existing Line 107
- Existing Line 108

In Segment 1, Existing Line 112 is supported by a combination of wood pole and doublecircuit lattice towers. The structure replacements associated with Rebuilt Line 112 begin with new intermediate Structure 1, which will be a galvanized tubular steel three-pole dead-end structure installed to maintain the appropriate clearances between Rebuilt Line 112 and the 115kV Lockport – Batavia Line 107 (Existing Line 107) and 115kV Lockport – Batavia Line 108 (Existing Line 108), which cross under Rebuilt Line 112 in the span between Structure 1-2 and Structure 1, along with the 115kV Lockport – Mortimer Line 111 (Existing Line 111), which crosses under Rebuilt Line 112. Rebuilt Line 112 then transitions to galvanized tubular steel double-circuit davit arm structures that it will share with Existing Line 111 between Structures 2 and 4. Rebuilt Line 112 will be supported by galvanized tubular steel single circuit braced post insulator structures for Structures 5 and 6.

The conductor associated with Rebuilt Line 112 in Segment 1 will be 795 kcmil ACSR "Drake" (26/7) and the proposed shield wire will be OPGW.

2.1.1.2 Segment 2 – Structure 6 (Mile 0.5) to Structure 119 (Mile 11.4)

Segment 2 begins at Structure 6 and extends in an easterly direction over approximately 10.9 miles to Structure 119. The property rights associated with the Existing ROW vary in width

from 200 to 440 feet in Segment 2, but the Existing ROW is consistently maintained at a 200 foot cleared width. Segment 2 contains six 115kV circuits, including Existing Line 112. These circuits are (listed south to north across the width of the Project ROW):

- Existing Lines 114 & 113
- Existing Line 112
- Existing Line 111
- Existing Line 107
- Existing Line 108

Existing Line 112 is supported primarily by vintage steel tri-leg "aeromotor" single-circuit lattice towers that are used in both suspension and dead-end applications. Over the life of Existing Line 112 a small number of the original lattice towers have been replaced with wood pole single circuit delta davit arm structures. The replacement structures on Rebuilt Line 112 will consist of galvanized steel pole single-circuit braced post structures between Structure 6 and Structure 14, located at Mile 1.3 of the Project. Structure 15 on Existing Line 112 is a double- circuit square based lattice tower dead-end that also supports Existing Line 111. Due to right-of-way constraints and the need to support Existing Line 111, Structure 15 will be replaced with a galvanized steel pole double-circuit davit arm dead-end structure.

Rebuilt Line 112 will continue on galvanized steel pole single-circuit braced post structures from Structure 16 to Structure 91, Mile 1.4 to Mile 8.9. In this portion of Segment 2, Rebuilt Line 112 will cross under two existing 345kV New York State Electric and Gas Corporation circuits. This crossing currently is located between existing Structures 81 and 82. In order to ensure the appropriate clearances are maintained between circuits and above ground, a new intermediate Structure 81-1 will be installed on Rebuilt Line 112. Structure 81 and Structure 81-1 on Rebuilt Line 112 will be galvanized steel single-circuit, single pole dead-end structures.

Structure 92 on Existing Line 112, located at Mile 8.9, is a double-circuit square based lattice tower dead-end that also supports Existing Line 111. Due to right-of-way constraints and the need to support Existing Line 111, Structure 92 will be replaced with a galvanized steel pole double-circuit davit arm dead-end structure.

Rebuilt Line 112 will extend from Structure 93 to Structure 119 on galvanized steel pole single-circuit braced post structures, over a distance of approximately 2.4 miles, to the end of Segment 2. At the end of Segment 2 multiple circuits diverge from the Project ROW. Existing Line 107 crosses under Existing Line 112 and departs the Project ROW and continues in a generally southerly direction between Structures 116 and 116-1. Existing Line 112 crosses under

the double-circuit Existing Lines 113 & 114 in the span between Structures 117 and 118. Existing Line 108 crosses under Existing Line 112 in this span and rejoins with Existing Line 112 on the Project ROW extending in a southeasterly direction. Existing Line 111, Existing Lines 113 & 114, and a tap of the T1490 Lockport – Batavia Line 107 (Alabama Switch Station Tap) all depart the Project ROW and extend along a separate ROW in a generally northeast direction.

In order to provide sufficient clearance between Rebuilt Line 112 and Existing Lines 113 & 114, Structure 117 on Rebuilt Line 112 will be a galvanized tubular steel three pole dead-end structure and Structure 118 will be a galvanized tubular steel pole H-Frame dead-end structure. Both Structures 117 and 118 will be set on foundations.

The conductor associated with Rebuilt Line 112 in Segment 2 will be 795 kcmil ACSR "Drake" (26/7) and the proposed shield wire will be OPGW.

2.1.1.3 Segment 3 – Structure 119 (Mile 11.4) to Structure 141 (Mile 13.6)

Segment 3 commences at Structure 119 and extends in a generally southeast direction over a distance of approximately 2.2 miles to Structure 141. The Existing ROW in Segment 3 varies in width between 40 and 80 feet. Existing Line 112 is supported primarily by vintage steel "tri-leg" aeromotor single-circuit towers with the exception of a small number of replacement structures. These replacement structures are single-circuit wood pole delta davit arm structures.

From Structure 119 (Mile 11.4) to Mile 11.8, the Existing ROW is 80 feet wide and contains Existing Line 112 and Existing Line 108. From Mile 11.8 to Structure 141 (Mile 13.6), the Existing ROW is 40 feet wide and contains Existing Line 112.

The Applicant proposes to acquire an additional 45 feet of permanent easement rights between Structure 119 and Mile 11.8 on both sides of the Project ROW. These additional rights are required to ensure proposed facilities are located on land with Applicant-owned rights, to ensure conformance with the Commission's electric and magnetic field guidelines and to bring the corridor into conformance with the Applicant's Transmission Right-of-Way Maintenance Plan ("TROWMP"). From Mile 11.8 to Structure 141 (Mile 13.6), the Applicant proposes to acquire an additional 60 feet of permanent easement rights, expanding the Project ROW to a total of 100 feet in width. The additional rights from Mile 11.8 to Structure 141 (Mile 13.6) will be acquired such that the centerline of Rebuilt Line 112 is centered on the Project ROW.

In Segment 3, Rebuilt Line 112 will be supported by galvanized steel single-circuit delta davit arm suspension structures, galvanized steel single-circuit delta davit arm dead-end structures, and galvanized steel single pole dead-end structures. The conductor associated with Rebuilt Line 112 in Segment 3 will be 795 kcmil ACSR "Drake" (26/7) and the proposed shield wire will be OPGW.

#### 2.1.1.4 Segment 4 Existing – Structure 141 to Structure 159-1

Segment 4 Existing is comprised of the portion of Existing Line 112 that extends generally southeasterly from Structure 141 to Structure 159-1, over a distance of approximately 1.8 miles. The Existing ROW in Segment 4 is 40 feet in width and crosses through the Tonawanda Wildlife Management Area ("TWMA"). This area is managed by the New York State Department of Environmental Conservations ("NYSDEC") Division of Fish and Wildlife.

The Applicant proposed to remove all conductor and hardware and most structures associated with Existing Line 112 in Existing Segment 4. At the NYSDEC Region 8's request, the Applicant will retire select existing steel tri-leg towers in-place to allow for avian nesting.

2.1.1.5 Segment 4 Relocated – Structure 141 (Mile 13.6) to Structure 159-1 (Mile 15.8)

The Applicant proposes to relocate Rebuilt Line 112 as part of the Project. The proposed relocated Rebuilt Line 112 would be centered on a new 100 foot wide easement, generally paralleling Lewiston Road (State Highway 77) to the intersection of Lewiston Road and Feeder Road, at which point Rebuilt Line 112 would turn approximately ninety degrees and proceed south to reconnect with the Existing ROW. The length of Rebuilt Line 112 in Segment 4 along the relocated centerline would be approximately 2.2 miles. Segment 4 Relocated will be located approximately 0.2 miles to the north of Segment 4 Existing in the Town of Alabama within portions of the TWMA.

In Segment 4, Rebuilt Line 112 will be supported by galvanized steel single-circuit delta davit arm suspension structures, galvanized steel single-circuit delta davit arm dead-end structures, and galvanized steel single pole dead-end structures. The conductor associated with Rebuilt Line 112 in Segment 4 will be 795 kcmil ACSR "Drake" (26/7) and the proposed shield wire will be OPGW.

#### 2.1.1.6 Segment 5 – Structure 159-1 (Mile 15.8) to new Structure 173 ½ (Mile 17.2)

Segment 5 begins at Structure 159-1 (Mile 15.8) and extends southeast approximately 1.4 miles along Existing ROW to new Structure 173 <sup>1</sup>/<sub>2</sub>. The Existing ROW is 40 feet in width for the full length of Segment 5. In this Segment, Existing Line 112 is supported primarily by vintage steel "tri-leg" aeromotor single-circuit towers, with the exception of a small number of replacement structures. These replacement structures are single-circuit wood pole delta davit arm structures.

The Applicant proposes to acquire an additional 60 feet of permanent easement rights in Segment 5. These additional rights will increase the Project ROW width to 100 feet, ensuring proposed facilities are located on land with Applicant-owned rights and bringing the corridor into conformance with the Applicant's TROWMP. The centerline of Rebuilt Line 112 is proposed to be located at the center of the Project ROW, with additional rights being secured on both sides of the Existing ROW.

Rebuilt Line 112 will be supported by galvanized steel single circuit delta davit arm suspension structures, galvanized steel single circuit delta davit arm dead-end structures, and galvanized steel single pole dead-end structures in Segment 5, with the exception of one location. Between Mile 17.0 and 17.1, Existing Line 112 crosses under two New York Power Authority 345kV lines: Niagara-Rochester Line 2 and Somerset-Rochester Line 1-39. The Applicant proposes to support Rebuilt Line 112 on single-circuit galvanized tubular steel H-frame suspension structures in this location to ensure that proper clearances are maintained to the overhead 345kV Lines and to underlying features. The conductor associated with Rebuilt Line 112 in Segment 5 will be 795 kcmil ACSR "Drake" (26/7) and the proposed shield wire will be OPGW.

2.1.1.7 Segment 7 – New Structure 184 <sup>1</sup>/<sub>2</sub> (Mile 19.1) to Structure 211 (Mile 21.7)

Segment 7 begins at new Structure 184 <sup>1</sup>/<sub>2</sub> on Existing Line 112, extending southeasterly then easterly approximately 2.6 miles to Structure 211. The Existing ROW in Segment 7 is generally 40 feet in width, with Existing Line 112 located approximately 10 feet from the edge of Existing ROW. Existing Line 112 is supported primarily by vintage steel "tri-leg" aeromotor single-circuit towers, with the exception of a small number of replacement structures. These replacement structures are single-circuit wood pole delta davit arm structures, guyed wood single pole dead-end structures, and guyed wood three pole dead-end structures.

The Applicant proposes to acquire an additional 60 feet of permanent easement rights in Segment 7. These additional rights will increase the Project ROW width to 100 feet, ensuring proposed facilities are located on land with Applicant-owned rights and bringing the corridor into conformance with the Applicant's TROWMP. The centerline of Rebuilt Line 112 is proposed to be located at the center of the Project ROW, with additional rights being secured on both sides of the Existing ROW except for a short portion located between Structures 195 and 200. This minor re-alignment consists of shifting the centerline of Rebuild Line 112 southwest starting in the span between Structures 195 and 196. Structure 196 is proposed to be relocated approximately 20 feet southwest of the centerline of Existing Line 112. The locations of Structures 197 and 198 are proposed to be 40 feet southwest of the centerline of Existing Line 112. Rebuilt Line 112 will then jog back towards the existing centerline, with Structure 199 located approximately 20 feet from the centerline of Existing Line 112 and Structure 200 being located on the existing centerline. This re-alignment will allow for the northeastern edge of ROW to be retained as Rebuilt Line 112 crosses Judge Road, adjacent to an existing residence, with right-of-way expansion occurring solely on the southwestern edge of ROW.

Rebuilt Line 112 will be supported by galvanized steel single-circuit delta davit arm suspension structures, galvanized steel single-circuit delta davit arm dead-end structures, and galvanized steel single pole dead-end structures in Segment 7, with the exception of one location. The final structure in Segment 7, Structure 211, will be a galvanized steel H-Frame dead-end structure to allow Rebuilt Line 112 to transition to Existing Line 112 without further modification to Existing Line 112 beyond the scope of the Project. The conductor associated with Rebuilt Line 112 in Segment 7 will be 795 kcmil ACSR "Drake" (26/7) and the proposed shield wire will be OPGW.

Structures 190 to Structure 197, of Segment 7, are located within the John White Wildlife Management Area ("JWWMA") managed by the NYSDEC's Division of Fish and Wildlife.

#### 2.2 LOCATION MAPS

#### 2.2.1 NYSDOT Location Map

The general location of the Project is shown in Figure 2-3, Sheets 1 through 8, which is based on New York State Department of Transportation ("NYSDOT") 1:24,000 topographic maps. Figure 2-3 shows the proposed ROW covering an area of five (5) miles on either side of the proposed facility location. In addition, Figure 2-3 depicts the location of any known geologic, scenic, or untouched wilderness, within three miles of the Project ROW. The Project crosses over the Erie Canal, which is National Registered Land, and passes through the TWMA.

#### 2.2.2 Overall Transmission System Map

Figure 2-4, Regional Transmission System Map, is a 1:250,000 scale map showing the relationship of the Project to the Applicant's overall system.

#### 2.3 AERIAL PHOTOGRAPHY

Figure 2-5 provides aerial photographs showing 1,200 feet on either side of the Project. The ortho-photography in this figure was taken by "Cooper Aerial Survey Co." on April 14, 2019 for National Grid and reflects the current situation.

#### 2.4 **PROPOSED ADDITIONAL ROW**

National Grid owns a combination of fee and easement rights over the length of the Project. New easements of the following types will be required:

- 1. Operational (Gross) Easement: The perpetual right, privilege and easement to construct, reconstruct, relocate, extend, repair, maintain, operate, inspect, patrol, and, at National Grid's pleasure, remove any poles or lines of poles or both, supporting structures, cables, cross-arms, overhead and underground wires, guys, guy stubs, insulators, transformers, braces, fittings, foundations, anchors, lateral service lines, communications facilities, and other fixtures and appurtenances, with rights for ingress and egress, clearing and trimming.
- 2. Danger Tree Easement: The perpetual right to remove trees (all or any portion thereof) which are adjacent to an existing easement area or fee property that, in the opinion of National Grid, may jeopardize the integrity or safe and reliable operation of the National Grid Facilities.

Additional ROW in the form of Operational (Gross) Easements will be required as follows:

- Segment 3 Operational Easement Rights
  - 5' and 40' from Mile 11.4 to Mile 11.8
  - 22' and 38' on either side from Mile 11.8 to Mile 13.6
- Segment 4 Relocated Operational Easement Rights 0 100' from Mile 13.6 to Mile 15.8
- Segment 5 Operational Easement Rights
  - 20' and 40' on either side from Mile 15.8 to Mile 17.2
- Segment 7 Operational Easement Rights
  - 20' and 40' on either side from Mile 19.1 to Mile 20.1
  - Tapered from 20' to 60' and 40' to 0' on either side from Mile 20.1 to Mile 20.6
  - $\circ~$  20' and 40' on either side from Mile 20.6 to Mile 21.7.

There also is a need for Danger Tree Easements in certain areas.

#### 2.5 ROADWAYS, RAILROADS, AND AIRPORTS

An assessment of roadway and railroad corridors crossed by the Project and the proximity of the Project to local airports is presented in Exhibit E-6.

#### 2.5.1 Roadways Traversed by the Project

Roadway crossings provide access to the Project ROW and will be utilized in conjunction with permanent, unpaved, and temporary access roads to construct the Proposed Lines. Of the thirty (30) roadways crossed by the Project ROW in Niagara and Genesee Counties, six (6) are state highways (Route 93, Route 78, Route 77 (twice), and Route 63 (twice)). No interstates or US routes are crossed by the Project ROW. Additional detail about these road crossings is provided in Exhibit E-6.

#### 2.5.2 Railroad Corridors Traversed by the Project

There are no railroad crossings over the length of the Project. Generally, the Applicant incorporates appropriate transmission facility design criteria, line clearance requirements, and railroad safety clearances into the design when railroad corridors are crossed.

#### 2.5.3 Airports Near the Project

There are two (2) airports listed in the 2009-2010 New York State ("NYS") Airport Directory and derived from the Federal Aviation Administration ("FAA") National Airspace System Resource Aeronautical Data Product that are within 20,000 feet of the Project ROW. The Project ROW is approximately 14,520 feet (2.75 miles) north of the North Buffalo Suburban Airport (FAA id: 0G0) in the Town of Lockport, Niagara County. Gasport Royalton Airport (FAA id: 9G5) is in the Town of Royalton in Niagara County and is approximately 15,312 feet (2.9 miles) north of the Project ROW. In addition, the Bassett Field Airport (FAA id: 61NY), a privately-owned airport in the town of Lockport in Niagara County (and thus not listed in the NYS Airport Directory), is located approximately 18,480 feet (3.5 miles) west of the Lockport substation (FAA information effective December 2019). The locations of the airports are shown in Exhibit 2, Figure 2-3.

#### **EXHIBIT 2 – LOCATION OF FACILITIES**

#### FIGURES

#### FIGURE 2-1 PROJECT SCHEMATIC

#### (2 SHEETS)



EXISTING						
SEGMENT	STRUCTURE RANGE	STRUCTURE CONDUCTOR SIZE				
1	1-2 TO 3	636 ACSR ORCHID				
1	3 TO 4	795 ACSR COOT				
1	4 TO 6	428 AAC NON—STANDARD				
2	6 TO 119	428 AAC NON—STANDARD				
3	119 TO 141	428 AAC NON—STANDARD				
4	141 TO 159	428 AAC NON-STANDARD				
5	159 TO 173	428 AAC NON-STANDARD				
6	173 TO 184	428 AAC NON-STANDARD				
7	184 TO 212	428 AAC NON-STANDARD				

INCH	ES ON ORI	GINAL	



INCHES ON ORIGINAL	

#### FIGURE 2-2 PROJECT LOCUS MAP

#### (SHEETS 1 TO 4)









## FIGURE 2-3 PROJECT LOCATION – NYSDOT 1:24000 TOPO (SHEETS 1 TO 4)







![](_page_27_Figure_0.jpeg)

## FIGURE 2-4 NATIONAL GRID PROJECT AREA SYSTEM MAP (1 SHEET)

![](_page_29_Figure_0.jpeg)