



Lockport-Batavia Line #112 Rebuild Project

Appendix E

Noise Mitigation

NOISE

Appendix E provides a description of the project ROW and the measures to avoid or minimize the potential for noise disturbance during the construction of the Project. The locations of residences within 100 feet of the Project ROW and areas identified as “sensitive land uses” are identified in Tables E3 and E4, respectively.

1) Existing Noise Quality Conditions

Transmission ROW

The lands adjacent to the Project ROW are a mix of undeveloped forest and shrub lands, residential areas, agricultural areas, and areas of commercial/industrial development. In addition, the Project ROW crosses several highways (including Route 93 and Route 78). The primary background noise sources in these areas are traffic from the surrounding roadways and parking areas, local vehicular operation, agricultural operations, lawn mowing and other residential home activities, aircraft traffic, and natural sounds (e.g., birds, insects). Literature indicates that typical daytime noise levels in nonurban residential areas can be within the range of 46 A-weighted decibels (“dBA”) for quiet residential areas to 52 dBA for suburban areas (NYSDEC, 2001; Section V.B.3). Residential homes are found at varying distances and densities along the Project ROW.

The existing operational noise within the Existing ROW is associated with transmission line electro-static or “corona” effect, which occurs during humid days and precipitation events. Existing residences directly adjacent to the ROW may experience this effect depending on the relative distance to the Existing ROW and background noise levels. The noise resulting from the corona effect, as compared to the background noise level such as a rainfall event, would be nearly indiscernible. Because the Project is primarily a rebuild of Existing Line 112 within the Existing ROW, no significant increase in operational noise is anticipated as a result of Rebuilt Line 112. Thus, the operation of Rebuilt Line 112 will not result in any new permanent or long-term significant adverse noise impacts. The minimal corona noise, which could be generated during rainy weather, will be masked by the sound of the falling rain itself.

Moreover, no work or new installation of equipment or other appurtenance is proposed within the fence line at any substation for this Project. Thus, there will be no change in existing operational noise, or visual changes, at the substations to be connected to Rebuilt Line 112.

2) Potential Impacts and Mitigation

This section identifies the Project construction activities and operation that could affect noise levels in the vicinity of the Project ROW. Sensitive receptor, noise attenuation factors, and conditions are described in relation to mitigating any potential noise disturbance during construction and operation of the Project.

The construction of overhead transmission lines typically includes the following activities:

- Site and vegetation clearing;
- Foundation form installation;
- Excavation/concrete placement (as needed);
- Structure installation; and
- Wire stringing.

Noise generated during construction is primarily from two sources: diesel engines, which power construction vehicles; and the noise generated from rock drills and jack hammers (if needed). Neither helicopters nor blasting is anticipated to be used for construction of this Project. Exhaust and engine noise are typically the predominant sources of noise from equipment operation. Contractors will be required to maintain functional mufflers on all relevant equipment. Maximum sound levels associated with the construction equipment typically used in overhead transmission line construction projects are provided in Table E-1. Each piece of equipment presented in Table E-1, however, is not used in every phase of construction, and equipment used is generally not operated continuously.

A variety of construction equipment noise sources will be associated with each phase of construction. Table E-2 contains a list of sound levels typically associated with each major construction phase. The values provided in Table E-2 represent the maximum sound levels associated with each anticipated construction equipment source. Sound levels are presented for standard distances of 50, 100, 400, 1,000, and 2,000 linear feet.

Residential homes are found at varying distances and densities along the Project ROW. The most densely populated residential areas crossed by the Project ROW are in the Towns of Lockport and Royalton (Segment 2). Because this Segment is comprised of two (2) State roads crossed by the Project and land uses are predominately Public Service and Residential, it is likely that existing ambient noise levels are higher than in other Segments comprised of relatively fewer noise sensitive receptors or greater undeveloped areas, such as Agricultural areas. Some of these areas have large

numbers of residential addresses within 100 feet of the Existing ROW. Table E-3 presents the number of residential addresses within 100 feet of the Project ROW.

The data presented in Table E-2 indicates that for the nearest residences, construction sound levels will temporarily exceed ambient levels for short-term periods, depending upon the intensity of work activity and the type of equipment or noise source. For the majority of residences located further from the ROW, construction noise will be much lower and will generally be below ambient levels.

As demonstrated in Table E-2, construction noise will be attenuated with distance. Other factors, such as dense vegetation, terrain and obstacles such as buildings will act to further reduce noise levels. It is also noted that the noise levels presented in Table E-2 are those that would be experienced by people outdoors. A building will provide significant attenuation of associated construction noise. For instance, sound levels can be expected to be up to 27 dB lower indoors with windows closed (USEPA, 1978). Even in homes with open windows, indoor sound levels can be reduced by up to 17 dB.

Noise level changes resulting from the proposed construction activity associated with the Project are expected to be short term and minimal. Construction noise will be temporary and vary according to the construction equipment in use and existing background or ambient noise. Generally, temporary noise levels are mitigated by the attenuating effects of distance, the intermittent and short-lived character of the noise, the presence of existing vegetation, the presence of homes and buildings (particularly in the more suburban areas), and the use of functional mufflers on all construction equipment. Transmission line construction is of short duration in the sense that equipment is generally located at a structure site for only three to five days, and then shifted to the next pole structure site in the Project ROW. No one residence will be exposed to significant noise levels for an extended period of time. Comparable work activity and the associated magnitude of noise level change include public works projects and tree service activity.

To minimize noise impacts during construction, National Grid will limit construction activities on the Project to the hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday. If due to safety or continuous operation requirements, construction activities are required to occur on Sundays or after 7:00 p.m., National Grid will notify the Department of Public Services (“DPS”) Staff, the affected municipality, and potentially affected area residents, at least 48 hours in advance

with the reasons justifying the extension of construction hours, unless safety considerations prohibit making such advance notice.

The Project will include vegetation mowing in areas of varying widths on either side of the ROW between residential areas. The vegetation generally consists of mostly tall grass, small shrubs, and some small to mature trees. The maximum width of vegetation to be removed in any one contiguous area is less than 60 feet within the Project ROW. However, in Segment 4 Relocated where a new ROW will be established, the width of the ROW easement will be 100 feet, and although most of this area is already cleared for agricultural purposes, there are a few sections of trees that will need to be removed, but they do not span the entire width of the Project ROW.

None of the areas identified for tree and vegetation removal for the Project consist of a contiguous section of more than 100 feet of vegetation. The widest vegetation that will be removed for the Project is approximately 100 feet and does not primarily consist of dense coniferous trees. As a conservative estimate of noise impact, assuming the vegetation were dense at 100 feet wide, the increase in sound level at the receiver over existing ambient noise would be about 1 dBA, using the International Standards Organization Standard 9613-2: 1996 algorithm for estimating the attenuation achieved by dense foliage. The NYSDEC program policy identifies a change in sound pressure less than 6 dBA to be considered “unnoticed to tolerable” for humans (NYSDEC, 2001). As such, based on the width of the vegetation to be removed and the light to moderate density of vegetation, there should not be perceptible noise increase as a result of the vegetation cleared for the Project. Thus, clearing activities for the Project are anticipated to have no significant impact on noise.

Table E-1. Typical Maximum Noise Levels of Major Construction Equipment	
Equipment Type	Construction Equipment Noise Levels at 50 Feet (dBA)
Industrial Mower	88
Crane	83
Dump Trucks	90
Chainsaw	85
Roller	89

Table E-1. Typical Maximum Noise Levels of Major Construction Equipment	
Equipment Type	Construction Equipment Noise Levels at 50 Feet (dBA)
Grader	86
Concrete Mixer	85
Bulldozers	85
Pickup Trucks	65
Backhoes	85
Vibratory Hammer	92
Wire Tensioning Equipment	80
Pavement Saw	77
Water Pump	75
Welder	70
Compactor	80
Cable Pulling Machine	80
Splicing Trailer	50
Oil Pump	75
Asphalt Roller	75
Pavement Saw	85
Asphalt Paver	75
<i>Source:</i> BBN, 1971; JCP&L, 1989.	

Table E-2. Typical Range of Sound Levels by Construction Phase – Overhead Lines					
Construction Phase	Typical Range of Sound Levels (dBA)				
	50 Feet	100 Feet	400 Feet	1,000 Feet	2,000 Feet
Site and vegetation clearing	60-88	54-82	42-70	34-62	28-56
Foundation form installation	60-92	54-86	42-74	34-66	28-60
Excavation/Concrete placement	60-88	54-82	42-70	34-62	28-56
Structure installation	60-75	54-69	42-57	34-49	28-43
Wire Stringing	60-80	54-74	42-62	34-54	28-48
<i>Source: JCP&L, 1989.</i>					

Table E-3. Residences Within 100 Feet of Project ROW				
Town/Village/ Hamlet¹	Project Segment	Street Name	Nearest Structure	Parcel ID
Gasport	2	Ernest Rd	STR 91	126.00-1-25
Gasport	2	Royalton Center Rd	STR 96	126.00-1-31
Gasport	2	Ernest Rd	STR 89	126.00-1-33.1
Gasport	2	Ernest Rd	STR 87	126.00-1-35.112
Gasport	2	Ernest Rd	STR 89	126.00-1-35.12
Gasport	2	Ernest Rd	STR 86	126.00-1-36.1
Gasport	2	Ernest Rd	STR 85	126.00-1-37.11
Gasport	2	Ernest Rd	STR 85	126.00-1-37.12
Gasport	2	Ward Rd	STR 82	126.00-1-39
Gasport	2	Royalton Center Rd	STR 99	126.00-2-29.11
Gasport	2	Royalton Center Rd	STR 97	126.00-2-29.2
Gasport	2	Royalton Center Rd	STR 98	126.00-2-31
Gasport	2	Royalton Center Rd	STR 97	126.00-2-32
Gasport	2	Royalton Center Rd	STR 96	126.00-2-33
Gasport	2	Ward Rd	STR 84	141.00-1-12.2
Lockport	2	Glendale Dr	STR 8.1	122.04-2-1
Lockport	2	Glendale Dr	STR 8.1	122.04-2-2
Lockport	2	Glendale Dr	STR 9	122.04-2-3
Lockport	2	Glendale Dr	STR 9	122.04-2-4
Lockport	2	Glendale Dr	STR 9	122.04-2-5
Lockport	2	Glendale Dr	STR 9	122.04-2-6
Lockport	2	Glendale Dr	STR 9	122.04-2-7
Lockport	2	Glendale Dr	STR 10	122.04-2-8
Lockport	2	Glendale Dr	STR 10	122.04-2-9
Lockport	2	Bowmiller Rd	STR 36	123.00-1-20
Lockport	2	Bowmiller Rd	STR 34	123.00-1-22
Lockport	2	Amy Ln	STR 25	123.04-1-57
Lockport	2	Amy Ln	STR 25	123.04-1-58
Lockport	2	Amy Ln	STR 25	123.04-1-59
Lockport	2	Amy Ln	STR 25	123.04-1-60
Lockport	2	Amy Ln	STR 25	123.04-1-61
Lockport	2	Amy Ln	STR 25	123.04-1-62
Lockport	2	Amy Ln	STR 26	123.04-1-63
Lockport	2	Amy Ln	STR 26	123.04-1-64
Lockport	2	Amy Ln	STR 26	123.04-1-65
Lockport	2	Amy Ln	STR 26	123.04-1-66
Lockport	2	Amy Ln	STR 26	123.04-1-67
Lockport	2	Amy Ln	STR 26	123.04-1-68

Table E-3. Residences Within 100 Feet of Project ROW				
Town/Village/ Hamlet¹	Project Segment	Street Name	Nearest Structure	Parcel ID
Lockport	2	Amy Ln	STR 27	123.04-1-69
Lockport	2	Amy Ln	STR 27	123.04-1-70
Lockport	2	Amy Ln	STR 27	123.04-1-71
Lockport	2	Amy Ln	STR 27	123.04-1-72
Lockport	2	Amy Ln	STR 27	123.04-1-73
Lockport	2	Amy Ln	STR 27	123.04-1-74
Lockport	2	Amy Ln	STR 28	123.04-1-75
Lockport	2	Amy Ln	STR 28	123.04-1-76
Lockport	2	Amy Ln	STR 28	123.04-1-77
Lockport	2	Beattie Ave	STR 24	123.04-1-78
Lockport	2	Beattie Ave	STR 23	123.18-2-28
Lockport	2	O'Connor Dr	STR 23	123.18-2-29
Lockport	2	O'Connor Dr	STR 23	123.18-2-30
Lockport	2	O'Connor Dr	STR 22	123.18-2-31
Lockport	2	O'Connor Dr	STR 22	123.18-2-32
Lockport	2	O'Connor Dr	STR 22	123.18-2-33
Lockport	2	O'Connor Dr	STR 22	123.18-2-34
Lockport	2	O'Connor Dr	STR 21	123.18-2-35
Lockport	2	O'Connor Dr	STR 21	123.18-2-36
Lockport	2	O'Connor Dr	STR 21	123.18-2-37
Lockport	2	O'Connor Dr	STR 21	123.18-2-38
Lockport	2	O'Connor Dr	STR 21	123.18-2-39
Lockport	2	O'Connor Dr	STR 20	123.18-2-40
Lockport	2	O'Connor Dr	STR 20	123.18-2-41
Lockport	2	Locust St Ext	STR 20	123.18-2-42
Lockport	2	Locust St Ext	STR 20	123.18-2-43
Lockport	2	Locust St Ext	STR 20	123.18-3-1
Lockport	2	Sherman Dr	STR 22	123.18-3-10
Lockport	2	Sherman Dr	STR 22	123.18-3-11
Lockport	2	Sherman Dr	STR 22	123.18-3-12
Lockport	2	Sherman Dr	STR 22	123.18-3-13
Lockport	2	Sherman Dr	STR 23	123.18-3-14
Lockport	2	Sherman Dr	STR 23	123.18-3-15
Lockport	2	Sherman Dr	STR 23	123.18-3-16
Lockport	2	Sherman Dr	STR 23	123.18-3-17
Lockport	2	Sherman Dr	STR 23	123.18-3-18
Lockport	2	Sherman Dr	STR 24	123.18-3-19

Table E-3. Residences Within 100 Feet of Project ROW				
Town/Village/ Hamlet¹	Project Segment	Street Name	Nearest Structure	Parcel ID
Lockport	2	Locust St Ext	STR 20	123.18-3-3
Lockport	2	Sherman Dr	STR 20	123.18-3-4
Lockport	2	Sherman Dr	STR 21	123.18-3-5
Lockport	2	Sherman Dr	STR 21	123.18-3-6
Lockport	2	Sherman Dr	STR 21	123.18-3-7
Lockport	2	Sherman Dr	STR 21	123.18-3-8
Lockport	2	Sherman Dr	STR 22	123.18-3-9
Lockport	2	Wynkoop Rd	STR 43	124.03-2-71
Lockport	2	Akron Rd	STR 41	124.03-2-77
Lockport	2	Akron Rd	STR 40	124.03-2-78
Lockport	2	Akron Rd	STR 55	124.04-3-33
Lockport	2	Akron Rd	STR 54	124.04-3-34.2
Lockport	2	Akron Rd	STR 53	124.04-3-36
Lockport	2	Akron Rd	STR 52	124.04-3-37
Lockport	2	Oak Ln	STR 51	124.04-3-42.112
Lockport	2	Oak Ln	STR 50	124.04-3-44
Lockport	2	Oak Ln	STR 50	124.04-3-45.12
Lockport	2	Akron Rd	STR 49	124.04-3-53
Lockport	2	Akron Rd	STR 49	124.04-3-54
Lockport	2	Akron Rd	STR 48	124.04-3-55.1
Lockport	2	Singer Rd	STR 66	125.00-1-47.12
Lockport	2	Dysinger Rd	STR 34	138.00-2-2.11
Lockport	2	Bowmiller Rd	STR 36	138.00-2-3
Lockport	2	Royal Pkwy N	STR 25	138.02-1-10
Lockport	2	Royal Pkwy N	STR 25	138.02-1-11
Lockport	2	Royal Pkwy N	STR 25	138.02-1-12
Lockport	2	Royal Pkwy N	STR 26	138.02-1-13
Lockport	2	Royal Pkwy N	STR 26	138.02-1-14
Lockport	2	Royal Pkwy N	STR 26	138.02-1-15
Lockport	2	Royal Pkwy N	STR 26	138.02-1-16
Lockport	2	Royal Pkwy N	STR 26	138.02-1-17
Lockport	2	Royal Pkwy N	STR 26	138.02-1-18
Lockport	2	Royal Pkwy N	STR 27	138.02-1-19
Lockport	2	Royal Pkwy N	STR 27	138.02-1-20
Lockport	2	Royal Pkwy N	STR 27	138.02-1-21
Lockport	2	Royal Pkwy N	STR 27	138.02-1-22
Lockport	2	Royal Pkwy N	STR 27	138.02-1-23

Table E-3. Residences Within 100 Feet of Project ROW				
Town/Village/ Hamlet¹	Project Segment	Street Name	Nearest Structure	Parcel ID
Lockport	2	Royal Pkwy N	STR 27	138.02-1-24
Lockport	2	Royal Pkwy N	STR 28	138.02-1-25
Lockport	2	Royal Pkwy N	STR 28	138.02-1-26
Lockport	2	Royal Pkwy N	STR 28	138.02-1-27
Lockport	2	Royal Pkwy N	STR 28	138.02-1-28
Lockport	2	Royal Pkwy N	STR 28	138.02-1-29
Lockport	2	Royal Pkwy N	STR 28	138.02-1-30
Lockport	2	Royal Pkwy N	STR 28	138.02-1-31
Lockport	2	Royal Pkwy N	STR 29	138.02-1-32
Lockport	2	Royal Pkwy N	STR 29	138.02-1-33
Lockport	2	Royal Pkwy N	STR 29	138.02-1-34
Lockport	2	Royal Pkwy N	STR 29	138.02-1-35
Lockport	2	Royal Pkwy N	STR 29	138.02-1-36
Lockport	2	Royal Pkwy N	STR 29	138.02-1-37
Lockport	2	Royal Pkwy N	STR 29	138.02-1-38
Lockport	2	Royal Pkwy N	STR 30	138.02-1-39
Lockport	2	Royal Pkwy N	STR 30	138.02-1-40
Lockport	2	Royal Pkwy N	STR 30	138.02-1-42
Lockport	2	Royal Pkwy N	STR 30	138.02-1-43
Lockport	2	Royal Pkwy N	STR 31	138.02-1-44
Lockport	2	Royal Pkwy N	STR 31	138.02-1-45
Lockport	2	Royal Pkwy N	STR 31	138.02-1-46
Lockport	2	Royal Pkwy N	STR 31	138.02-1-47
Lockport	2	Royal Pkwy N	STR 31	138.02-1-48
Lockport	2	Royal Pkwy N	STR 31	138.02-1-49
Lockport	2	Royal Pkwy N	STR 24	138.02-1-5
Lockport	2	Royal Pkwy N	STR 31	138.02-1-50
Lockport	2	Royal Pkwy N	STR 32	138.02-1-51
Lockport	2	Royal Pkwy N	STR 32	138.02-1-52
Lockport	2	Royal Pkwy N	STR 24	138.02-1-6
Lockport	2	Royal Pkwy N	STR 25	138.02-1-7
Lockport	2	Royal Pkwy N	STR 25	138.02-1-8
Lockport	2	Royal Pkwy N	STR 25	138.02-1-9
Lockport	2	Wynkoop Rd	STR 46	139.00-2-1.112
Lockport	2	Akron Rd	STR 52	139.00-2-4
Lockport	2	Akron Rd	STR 53	139.00-2-6
Middleport	2	Ernest Rd	STR 102	126.00-2-27.111

Table E-3. Residences Within 100 Feet of Project ROW				
Town/Village/ Hamlet ¹	Project Segment	Street Name	Nearest Structure	Parcel ID
Middleport	2	Ernest Rd	STR 101	126.00-2-27.3
Middleport	2	Ernest Rd	STR 100	126.00-2-28
Middleport	2	Johnson Rd	STR 118	127.00-1-29.2
Middleport	2	Johnson Rd	STR 119	127.00-1-29.2
Middleport	2	Johnson Rd	STR 117	127.00-1-33
Middleport	2	Johnson Rd	STR 116.1	127.00-1-34
Middleport	2	Lewiston Rd	STR 111	127.00-1-40.111
Middleport	2	Johnson Rd	STR 111	127.00-1-40.112
Middleport	2	Johnson Rd	STR 111	127.00-1-40.12
Middleport	2	Johnson Rd	STR 109	127.00-1-40.3
Middleport	2	Lewiston Rd	STR 108	127.00-1-41.111
Middleport	2	Ernest Rd	STR 105	127.00-1-47
Middleport	2	Ernest Rd	STR 106	127.00-1-48
Middleport	2	Lewiston Rd	STR 114	127.00-1-76
Middleport	2	Lewiston Rd	STR 109	127.00-1-88
Middleport	2	Lewiston Rd	STR 112	127.00-1-89
Middleport	3	Johnson Rd	STR 124	127.00-1-27.21
Middleport	3	Johnson Rd	STR 123	127.00-1-27.22
Middleport	3	Johnson Rd	STR 121	127.00-1-28.111
Middleport	3	Johnson Rd	STR 119	127.00-1-29.2
Middleport	3	Johnson Rd	STR 119	127.00-1-29.2
Middleport	3	Lewiston Rd	STR 139	143.00-1-6.1
Alabama	4	Lewiston Rd	STR 142	1.-1-1
Alabama	5	Lewiston Rd	STR 173	6.-1-73
Alabama	5	Lewiston Rd	STR 171	6.-1-74
Alabama	7	Alleghany Rd	STR 190	10.-1-33.1
Alabama	7	Alleghany Rd	STR 197	11.-1-71
Alabama	7	Judge Rd	STR 197	15.-1-17
Alabama	7	Judge Rd	STR 198	15.-1-18
Alabama	7	Judge Rd	STR 200	15.-1-19.1
Note: ¹ The Villages of Gasport and Middleport are located in the Town of Royalton.				

Table E-4 The location of sensitive land uses and resources that may be affected by construction of the Facility or by construction-related traffic (e.g., hospitals, emergency services, sanctuaries, schools, and residential areas) are shown and annotated on the EM&CP Drawings in Appendix A. The areas identified include the following:

Table E-4 Sensitive Land Uses			
Structure Number	Segment	Land Use	Name
5,6,7	1,2	Vacant/Commercial	Lockport Memorial Hospital
8-1, 9	2	Residential	Glendale Dr
52,53	2	Residential	Akron Rd
20	2	Residential	Locust St
24-32	2	Residential	Royal Parkway North
9,10	2	Residential	Glendale Dr
34-36	2	Rural Residential	Dysigner Rd, Bowmiller Rd
21-24	2	Residential	Sherman Dr
139	3	Rural Residential	Lewiston Rd
84-132	2	Residential	Ward Rd, Royalton Center Rd, Lewiston Rd, Johnson Rd
121-132	3	Residential	Johnson Rd
142	4 Proposed	Subdivision	Lewiston Rd
170-172	5	Residential	Lewiston Rd
185-198	7	Residential	Judge Rd
211	7	Residential	Gorton Rd