# A. INTRODUCTION

This attachment considers the potential impacts of the Proposed Action with regards to Noise and Electromagnetic Fields (EMFs).

A detailed Noise Impact Assessment Study was completed to evaluate the potential sound-level impact of future operational noise levels at the Proposed Substation. The Noise Impact Assessment Study is included as **Appendix G**. The off-site transmission circuits and distribution exit feeders do not include any operational-phase noise-generating equipment and are not applicable to the analysis below. Potential impacts from construction related noise are addressed in Attachment G, "Construction".

A detailed Electric and Magnetic Field Assessment prepared by Exponent for the Berry Street Substation, dated August 28, 2016, was evaluated for reference purposes in order to assess potential EMF impacts associated with the Proposed Action. The Electric and Magnetic Field Assessment for the Berry Street Substation is provided in **Appendix H**.

### **B. NOISE STUDY**

The Noise Impact Assessment Study includes: 1) measurements of existing sound levels collected at the closest commercial property line and also at the property lines of the of the Proposed Substation property on September 19, 2018; 2) Computer propagation modeling was based on the proposed installation of two 69/13 kV 33 MVA transformers, two HVAC units and one PTAC unit operating at maximum capacity, and; 3) an evaluation of the results of the assessment to applicable noise standards, guidelines and limits.

### **EXISTING CONDITIONS**

Existing ambient background noise levels were measured at two locations along the boundaries of the Proposed Substation (Locations 4 and 5) and four locations at the Proposed Substation parcel boundaries (Locations 1, 2, 3, and 6). Daytime ambient noise levels ranged from a minimum of 54 dBA to a maximum of 78 dBA (Location 2 located along the eastern parcel boundary). Nighttime ambient noise levels ranged from 57 dBA to a maximum of 72 dBA (Location 1 located along the eastern parcel boundary near Old Country Road/Round Swamp Road).

The monitoring points located closest to the Proposed Substation (Locations 4 and 5), had existing daytime ambient noise levels between 54 dBA and 58 dBA at Location 4 (western property line) and between 61 dBA and 66 dBA at Location 5 (northern property line). Nighttime ambient noise levels varied between 61 dBA and 64 dBA at Location 4 and between 61 dBA and 67 dBA at Location 5.

#### POTENTIAL IMPACTS OF THE PROPOSED ACTION

The NYSDEC noise guidelines are defined in their publication "Assessing and Mitigating Noise Impacts"<sup>1</sup> ("NYSDEC Noise Guidance"). This document states that sound pressure level ("SPL") increases from zero to three decibels should have no appreciable effect on receptors; increases of three to six decibels may have the potential for adverse impact only in cases where the most sensitive of receptors are present; and increases of more than six decibels may require a closer analysis of impact potential depending on existing noise levels and character of surrounding land use. NYSDEC Noise Guidance also indicates that the addition of any permanent noise source should not raise ambient levels above 65 dBA in any non-industrial setting, or that noise sources should not exceed ambient levels when ambient levels already exceed 65 dBA.

NYSDEC Noise Guidance states that in cases of additional noise, the new source will contribute no greater than 3 decibels to the existing noise environment unless the newly added noise source is louder than the predominant existing noise source. If the noise levels from the new source are less than the existing noise levels by 10 dBA or more, the projected noise level increase will be not be recordable (<0.1 dB increase) or perceptible.

The projected (modeled) future noise impact levels for the Proposed Substation were evaluated based on worst-case future noise levels from the simultaneous operation of the proposed two new 69kV transformers operating at maximum capacity. The modeled worst-case noise impact level from the Proposed Substation was modeled to reflect noise only generated by the substation. Modeling was performed for two separate locations along the boundaries of the Proposed Substation and four separate locations along the Proposed Substation parcel boundaries. The modeled noise levels at the two property lines closest to the Proposed Substation (Location 4, at the northwestern Proposed Substation boundary, and Location 5, at the northern Proposed Substation boundary), were 32.5 dBA and 47.0 dBA, respectively, and modeled noise levels around the parcel varied between 24.5 dBA and 28.6 dBA.

Existing daytime and nighttime ambient noise levels at Location 4 varied between 54 dBA and 64 dBA, compared to a modeled noise level of 34.8 dBA. The ambient noise levels at Location 5 varied between 61 and 67 dBA, compared to a modeled noise level of 45.4 dBA. Existing daytime and nighttime ambient noise levels around the rest of the parcel varied between 57 and 78 dBA, compared to modeled noise levels varied between 24.5 and 28.6 dBA. Given that the existing ambient noise levels exceed the modeled substation noise levels by more than 10 dBA, the future noise level (ambient noise level plus the noise level from the substation) at these locations will not result in any recordable or perceptible noise increase (<0.1 dB) when compared to existing ambient noise levels at the boundaries of the Proposed Substation, and that the nearest residential receptors are located greater than 1,000 feet from the Proposed Substation, the operation of the Proposed Substation will not result in significant adverse noise impacts to nearby receptors.

<sup>&</sup>lt;sup>1</sup> NYSDEC. "Assessing and Mitigating Noise Impacts". October 6, 2000. Revised February 2, 2001. http://www.dec.ny.gov/docs/permits\_ej\_operations\_pdf/noise2000.pdf (Accessed September 5, 2017).

## C. ELECTROMAGNETIC FIELD STUDY

The potential EMF impact of the Proposed Action has been evaluated based on a comparison of the EMF levels calculated for the Berry Street Substation project. According to the NYSPSC's Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities (issued and effective September 11, 1990), the prudence avoidance health standard for magnetic field is 200 milligauss (mG) at the edges of major transmission facility rights-of-way (100 feet for circuits with voltage less than 230kV, with the transmission line centered). Major transmission facilities are defined as transmission line facilities that are subject to Article VII of the Public Service Law. Although the Proposed Action is not subject to Article VII, the NYSPSC standard will be used for EMF evaluation purposes.

For comparison purposes, the Berry Street Substation project is a 69kV substation containing two 69/13kV transformers, two 13kV switchgears and connections to UG 13kV distribution exit feeders. The Berry Street Substation project also includes two underground 69kV transmission interconnections to existing overhead 69kV transmission lines. Similarly, the Proposed Action will include the construction of a 69kV substation consisting of two 69/13kV transformers, two 13kV switchgears, and connections to UG 13kV distribution exit feeders. In addition, the Proposed Action consists of two UG 69kV transmission circuits that will connect to the Proposed Substation. Thus, the Berry Street Substation project and Proposed Substation will operate at comparable capacities and voltages and will result in comparable EMF levels.

The EMF study that was undertaken for the Berry Street Substation project included calculating average and peak-load magnetic fields for post-project conditions. Peak-load conditions represent the highest anticipated load conditions during summer months, when power demand is highest. The EMF Study calculated post-project magnetic fields at four profile locations from the Berry Street Substation fence (located at approximate distances ranging from 10 feet to 50 feet from various substation equipment/structures). The maximum magnetic field measured at the substation fence line was 72.2 mG (under peak-load conditions). EMF levels extending to distances of 150 feet from the fence line were all well below 72.2 mG. Thus, all measurements from the four profile locations were well below the NYSPSC's prudence avoidance health standard of 200 mG.

For the Proposed Substation, the substation equipment/structures are located at approximate distances ranging from 10 feet to 35 feet from the substation fence line. The closest residential dwellings are located approximately 1,000 feet from the Proposed Substation fence, and the closest commercial buildings are located approximately 100 feet from the Proposed Substation fence. Therefore, given the magnetic field levels calculated along the Berry Street Substation fence, calculated magnetic field levels at the closest residences and commercial buildings will be below the NYSPSC's prudence avoidance health standard of 200 mG.

Post-project magnetic field levels were measured for the Berry Street Substation project underground 69kV transmission circuit interconnections for average and peak-load conditions. The maximum calculated magnetic field along the underground circuit interconnections was 28.6 mG (under peak-load conditions). Calculated magnetic field levels rapidly decreased with distance from the circuit, and EMF levels extending to distances of 100 feet from the circuit centerline did not exceed 28.6 mG. Thus, all measurements from the profile locations were well below the NYSPSC's prudence avoidance health standard of 200 mG.

The two underground distribution exit feeders to be installed as part of the Proposed Action will operate at voltages of 13kV (significantly lower voltage than 69kV). As magnetic field levels associated with higher voltage equipment installations for the Berry Street Substation project were below the NYSPSC standard of 200 mG, the magnetic field levels for the Proposed Action will be well below the NYSPSC standard at the edge of the distribution right-of-way.

Based on a comparative analysis of the Berry Street Substation project, the predicted EMF levels from of the Proposed Action will be below the 200 mG prudence avoidance health standard established by the NYSPSC and will not result in significant adverse impacts.