

Mohawk Solar

Case No. 17-F-0182

1001.12 Exhibit 12

Construction

EXHIBIT 12 CONSTRUCTION

The methods that will be used to construct the Facility are much less invasive than construction methods associated with more conventional energy generating facilities. The primary steps for Facility construction include the following: (1) securing the perimeter of the areas in which construction will occur; (2) installation of storm-water and erosion control measures; (3) clearing vegetation where necessary; (4) minor earthwork / grading where necessary; (5) construction of access roads; and (6) installation of equipment (piers, racking, panels, buried electric and communication lines, inverters, pyranometers, the substation and fencing to secure the site).

The PV panels will be secured on a racking system supported by metal piers driven, screwed or secured in the ground by pre-drilling and the use of concrete / grout to a depth of between 6 and 15 feet, depending on the soil type (see Appendix 11-F for typical details). The installation method is dependent on the final geotechnical report and conditions determined on site. Since the majority of the site is relatively flat with gently rolling hills, no grading is anticipated in the PV arrays. It is anticipated that grading will be limited to access road and substation construction. PV panels will be mounted on a single-axis tracking system. Single-axis tracker designs vary by manufacturer, but generally consist of a series of mechanically linked horizontal steel support beams known as torque tubes, with a drive train system usually located in the center of the rows, dividing the array into two sides. The number of rows within a tracker block is typically limited by the drive system's ability to move multiple torque tube assemblies. This row design is also determined by the amount of the desired solar output to the inverters. The preliminary design specifies that the distance between rows of solar panels would be between 15 and 25 feet on-center, and the length of a given row would range from 180 to 280 feet. Rows would be aligned north to south and the PV panels would pivot, tracking the sun's motion from east to west throughout the day. The PV panels would have a typical height of 10-15 feet above the ground at their highest point when tracking fully-east or fully-west due to differences in terrain.

Within each solar field, a network of electric lines and associated communication lines will collect the electric power from different groups of arrays and transmit it to a central location ("DC Collector System"). Solar panels will be grouped into series of circuits that are routed, through cable trays on the racking, to combiner boxes. Power from one or more of the combiner boxes then will be transmitted to a group of related components: a DC-to-AC inverter, a medium voltage transformer that increases the voltage to 34.5 kV, and a cabinet containing power control electronics. The medium voltage transformer and power control electronics will be mounted on a skid or concrete pad.

Medium voltage (34.5 kV) collection lines will then be installed, which will carry the power from the inverters to the collection substation. The collection system lines will be buried to a depth of at least 36 inches in non-agricultural areas, and to a depth of at least 48 inches in agricultural areas utilizing a trenching method.

The collection substation will be located on a parcel of land immediately north of the interconnection switchyard. The collection substation will include standard electrical, control, and protective equipment, such as: collection line feeders and breakers, a 34.5 kV and 115 kV bus, a main power transformer (to increase the voltage from 34.5 kV to 115 kV), a high-voltage breaker, metering/relaying transformers, disconnect switches, an equipment enclosure containing power control electronics, and a lightning mast. The exact equipment for the collection substation will be constructed on a concrete foundation and will be finalized during the Facilities Study Phase with National Grid. Typical details of the collection substation can be found in Appendix 5-F.

The components of the interconnection switchyard will likewise be determined by National Grid.

The Facility will also involve the construction of a network of access roads, which will allow for delivery of Facility components during construction, and access to the Facility for maintenance purposes during operation. The access roads for the Facility are anticipated to be surfaced with gravel and will be approximately 20 feet wide. The access roads have been designed to meet requirements to bring relevant construction vehicles onto the site for material delivery but may be reclaimed in order to fit with the requirements for long-term maintenance.

(a) Preliminary Quality Assurance and Quality Control Plan

The Applicant has developed a preliminary construction-related Quality Assurance and Quality Control Plan (Preliminary QA/QC Plan) based on prior experience with quality assurance and quality control plans developed for construction of existing solar projects. See Appendix 12-A for a copy of the Preliminary QA/QC Plan, which is designed to provide a framework for QA/QC procedures, guidelines, and instructions that must be followed by all employees, consultants, and contractors involved in construction of the Facility. The construction contractor selected will be responsible to implement and adhere to the requirements of the Preliminary QA/QC Plan. Further the contractor will be responsible for producing and implementing a final construction QA/QC plan.

The key components of the QA/QC Plan are summarized below.

(1) Responsibility

The contractor is responsible for the quality of work performed under contract as well as goods received for construction of the Facility, including work performed by subcontractors and goods provided by suppliers / vendors. Prior to beginning construction activities, the contractor and their subcontractors will establish QA/QC procedures, which will form the final QA/QC Plan and will be submitted to the Owner for review and approval.

On-site documentation will be managed by the contractor, who will ensure that all documents are up-to-date and readily available. If work is not meeting the standards outlined in the final QA/QC plan, it is the responsibility of the contractor to notify the Owner. Owner personnel are responsible for weekly monitoring and periodically auditing contractor activities to verify compliance to standards defined by the final QA/QC Plan. The Owner has the authority to issue a Stop Work Order if activities pose a threat to worker safety or quality of the Project.

(2) Quality Assurance/Quality Control (QA/QC) Plan

The final QA/QC Plan, established by the contractor, will include QC procedures, checklists, and forms, such as drawings, specifications, procedures, policies, contractors, regulatory codes, standards and agreements applicable to the contractor's scope of work. The Quality Control Plan will include the following key components:

- Documentation of all Project elements requiring QA/QC verification by crew performing the work;
- Implementation of a Measuring and Test Equipment Calibration and Control procedure by the contractor. When calibrated tools or equipment are used, the name of the tool, serial number, and calibration date will be documented on a QA/QC form;
- An Inspection and Test Plan provided by the contractor to the Owner highlighting critical work processes that require observation from Owner personnel;
- Inspection of items delivered to the Project Site to ensure compliance with purchasing documentation and no shipping damage. Equipment requiring special storage or maintenance will be stored accordingly. All equipment will be stored in a manner that avoids weather impacts, damage, or theft;
- Utilization of a Nonconformance Report (NCR) to provide recording, resolution or disposition when issues regarding equipment, materials, or workmanship are identified. An NCR log will be maintained and updated weekly, or as needed; and
- Utilization of a request for information (RFI) procedure when resolving questions regarding discrepancies or to provide clarification. An RFI log will be maintained and updated weekly, or as needed.

(3) Documentation

Contractor design and quality documents will be compiled and available on site and electronically for review by the Owner of the Project. Such documentation includes, but is not limited to, quality inspection reports, test reports, calibration records, redline drawings, as-built drawings, RFIs and NCR resolution logs. Additionally, clear photographs of the serial numbers of any permanently installed component or equipment will be included in inspection documents and will be available on site.

To assure compliance with various environmental protection commitments and permit conditions, the Applicant will provide funding for an independent third party Environmental Monitor to oversee Facility construction and to ensure compliance with all applicable environmental conditions. The Environmental Monitor will identify any concerns caused by Facility construction and report them to the Project Manager and contractor. See Exhibit 22 for additional details on the environmental compliance monitoring plan.

With respect to construction codes applicable to the solar projects, please see Exhibit 11(i) for a list of engineering codes, standards, guidelines and practices that the Applicant intends to conform with.

Prior to commencement of construction, the Applicant will communicate with neighboring residents, the Towns, the DPS and other permitting agencies the contact name and address of the Facility Development Manager and the Project Manager (and, prior to the end of construction, the Operations Manager) through mailings and/or notice in local newspapers. The Applicant will also post and publish in the local newspapers of record its 1-800 number and/or email address. In addition to contact information, the Applicant will post Facility information, such as the Facility construction milestone schedule, the transportation routes, and traffic control measures, at various locations that may include the respective Town Halls, Facility website, and Facility construction trailers/offices. Project information will also be posted on the Project website.

(b) Conformance with Public Service Commission Requirements

(1) Protection of Underground Facilities

The Applicant affirms its intent and obligation of its contractors to conform to the requirements of the New York Public Service Commission's regulations regarding the protection of underground facilities contained in Public Service Law § 119-b, as implemented by 16 NYCRR Part 753. In keeping with that obligation, the Applicant will become a member of Dig Safely New York and will require all contractors, excavators and operators associated with its facilities to comply with these requirements.

All Facility construction and maintenance work that requires excavation will follow the One Call process with Dig Safely New York, Inc. This process helps prevent damage by alerting the excavator to the locations of underground utilities, including electric, gas, oil, steam, water, sewer, and communication lines. The process starts by the excavator flagging the area to be excavated. The excavator will then provide information to Dig Safe New York about the company performing the excavation, the duration of the job, the locations of digging, the depth of the excavation, and other information. Dig Safely New York members, who are utility operators, respond to the request either by noting that the area is clear, or by providing the locations of their facilities.

These facilities are then marked above ground, and either avoided or protected during the excavation. If an underground facility is unable to be avoided and needs to be exposed, the excavator will provide proper support and protection so that the facility is not damaged. Upon completion of work, the excavator backfills around any exposed utilities.

(2) Pole Numbering and Marking Requirements

Although the construction of poles is unanticipated for collection lines, the Applicant affirms its intent to require all contractors to comply with pole number and marking requirements, as implemented by 16 NYCRR Part 217, for the gen-tie line from the Facility collection substation to the National Grid substation.

(c) Plans to Avoid Interference with Existing Utility Systems

The occurrence of natural gas wells and pipelines and electrical and communications transmission infrastructure within the Facility Site is summarized below.

According to the database maintained by the New York State Department of Environmental Conservation (NYSDEC) Division of Mineral Resources, there are no natural gas or oil wells within the Facility Site or the larger Facility Area. The nearest oil or gas well is located approximately 3.8 miles from the Facility Area (NYSDEC, 2018). In addition, based on the various on-site studies and surveys that have been conducted by the Applicant and its representatives, no oil or gas wells were observed within the Facility Site. Therefore, the Facility will not interfere with any oil or gas wells, its utilities and any underground collection lines are registered so that they are not impacted by future earth work.

The Dominion and Iroquois Gas Pipelines both cross the Facility Site for a distance of approximately 0.5 miles each. The pipelines will be crossed by an access road and multiple underground collection line circuits. Requirements for crossing the Dominion and Iroquois pipelines are included as Appendix 12-B.

Locations of pipelines were initially obtained from publicly available data sources, including historic and current U.S. Geographical Survey (USGS) topographic maps (National Geographic Society, 2013), U.S. Energy Information Administration (USEIA) dataset of major pipelines in the United States (EIA, 2018), and the National Pipeline Mapping System (NPMS) (USDOT, 2018). In addition, pipeline locations were field-verified by Dominion and Iroquois Gas personnel. No additional pipelines located within the Facility Site were identified through those data sources.

Based on a review of the above described data, construction of the proposed Facility will require the crossing of overhead distribution and transmission level electrical lines by access roads and buried collection line. The lines are owned by National Grid. The Applicant is coordinating with National Grid on crossing procedures which will be shared with the contractor for implementation during construction. Crossing agreements will be executed with all applicable utilities prior to construction. Typical details of utility crossings are included in Appendix 11-E.

Prior to construction, the contractor will be required to conduct a public and private utility mark-out to verify the extent and known location of all utilities. The contractor will also be required to field mark any locations of planned excavation to determine any conflicts. Should conflicts be identified, the Applicant will microsite Facility components in order to avoid and minimize any potential impact on existing utilities and/or work with the utility to ensure there are no impacts to existing utilities (i.e., install mats, dirt pads, or other protective materials for gas line crossings). Post-construction the Applicant will register with one-call to ensure that its utilities and any underground collection lines are registered so that they are not impacted by future earth work.

The Facility Site contains existing electrical utility infrastructure, as well as cable and fiber optic communication lines. Information on the location of both overhead and underground electrical utility lines, and existing substations, were acquired from publicly available data sources, including historic and current USGS topographic maps (National Geographic Society, 2013), USDOT planimetric maps (USGS, 1996), and satellite and aerial imagery (Earthstar Geographics, 1999). The St. Johnsville-Marshville 115kV transmission line and various overhead distribution lines were identified in and around the Facility Site. The Facility will connect to the St. Johnsville-Marshville 115kV transmission line, which traverses the eastern portion of the Facility Site. Information on the location of existing cable and fiber optic communication lines was acquired from GeoTel, a company that maintains data on existing telecom infrastructure. GeoTel identified one fiber optic line that traverses the center of the Facility Site, running along Clinton Road. This fiber optic line is owned and operated by Spectrum. The Facility's buried collection lines will cross this cable, and the Applicant's O&M building will tie into this existing telecom service line.

The Applicant has sited PV panels at minimum setback distances from various existing utilities. Adherence to these setbacks will ensure interference between Facility components and existing utilities is avoided. The setbacks used in the preparation of the Preliminary Design Drawings (see Appendix 11-A) and the Solar Panel Array Details (see Appendix 11-B) in relation to relevant utility infrastructure Right-of-Way (ROW) are provided below.

- Transmission line: 25 feet
- Natural gas pipelines:
 - Dominion Pipeline - 65 feet from pipeline centerline;
 - Iroquois Pipeline - 25 feet from the ROW

(d) Procedures for Addressing Public Complaints and Disputes

The Applicant has developed a Complaint Resolution Plan (see Appendix 12-C) to establish a process for receiving, documenting, and responding to public complaints during construction and operation of the Facility. The Complaint Resolution Plan includes protocols for notifying the public of the complaint procedures as well as steps to be taken when complaints cannot be resolved by the Applicant. In addition, the Complaint Resolution Plan includes a procedure for review and transmittal of complaints, updates, and plans for resolution to DPS Staff. This Plan, when fully implemented, will ensure that public complaints about the Facility are handled in a consistent and respectful manner.

(1) Facility Communications

Prior to construction, the Applicant will meet with participating land owners, neighbors, Town officials, and highway superintendents to discuss the transportation and construction plans, as well as the proposed schedule as it applies to affected parties. The Applicant will hold an open house to provide information to the community and interested stakeholders regarding the start of construction and the timing of various phases of the Project. The Applicant will also meet with emergency responders to review its Emergency Action Plan.

(2) Registering a Complaint

Complaints can be registered by the local or toll-free number, a written letter or email to the appropriate contacts identified in Appendix 12-C.

(3) Complaint Response Program

The complaint response program is made up of four phases; complaint identification, investigation, response, and documentation. A summary of each phase is provided below.

Complaint Identification- The Applicant will monitor the toll-free number and email address regularly to check for complaints. If a complaint is received, to include written or in-person notifications, the Applicant will reach out to the complainant within 48 hours to obtain additional information about the complaint.

Complaint Investigation- After communicating with the complainant, the Applicant will investigate the complaint and determine its merit. Investigation will include characterizing the subject of the complaint (e.g. construction noise, dust, etc.) and, if possible, the source (e.g. construction equipment, environmental conditions, etc.).

Response- Following investigation, the Applicant will work with the appropriate personnel to best address the complaint. The Applicant will maintain communication with the complainant regarding the status of the investigation and actions taken and will follow up after a reasonable amount of time to ensure the complaint was resolved. If complaints remain unresolved, and a formal plan for addressing the problem has not been developed within 30 days, the agencies authorizing the Project may get involved to help remedy the situation.

Documentation- A log will be kept detailing the name and contact information of complainants, as well as the actions taken to resolve the problem. This log will be made available to Town Boards and to the NYSDPS upon request. If complaints of the Facility are made to the Towns or NYSDPS, it is assumed that these entities will notify the Applicant as soon as practicable so the complaint can be thoroughly investigated.

REFERENCES

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