



EXCELSIOR ENERGY CENTER

Case No. 19-F-0299

1001.11 Exhibit 11

Preliminary Design Drawings

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Appendices

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Exhibit 11: Preliminary Design Drawings

This Exhibit will track the requirements of Stipulation 11, dated July 6, 2020, and therefore, the requirements of 16 New York Codes, Rules and Regulations (NYCRR) § 1001.11.

This Exhibit contains Preliminary Design Drawings (Civil Construction Plans) and supporting documentation which were developed under the direction of a licensed Professional Engineer in the State of New York. The plans were prepared using AutoCAD Civil 3D design software and are generally presented at a scale of 1-inch equals 100 feet, with the exception of those intended to provide an overview of the Project Area. The drawings are labeled appropriately as “Preliminary – Not for Construction.”

The Project proposes to install fixed or tracker racking systems. As the technology is rapidly evolving for solar panel technology, and market conditions at the time procurement decisions need to be made are unknown at this time, the Applicant is proposing in this Application to evaluate both types of racking systems, with the final decision to be made and detailed in the Compliance Filing. Only selected elements of the Project would change based upon the type of array racking system used, but all changes would be within the Facility Component fence line and to the same land uses shown in the Proposed Layout. Using one racking system versus the other, therefore, would not cause any new, significant, adverse environmental impacts. The location of interior access roads and inverters, depending upon the final locations, could differ from that shown in Appendix 11-1. Land coverage ratios will also be adjusted but they are not expected to be substantial or significant.

Accordingly, the drawings, plan and maps provided as Appendix 11-1 depict the use of tracker racking systems, which require a similar Project footprint as the fixed-tilt racking.

11(a) Site Plan

The Project design include a Site Plan for the Project (Appendix 11-1), a Landscaping Plan (Appendix 11-2), and an Electrical Design (Appendix 11-3), which all together depict the following Project Components:

- (1) Solar panels and associated mounting features (any concrete pads, foundations, etc), energy storage systems, low-medium transformers, inverters, and any proposed meteorological stations;

- (2) Access road travel lanes, including estimated linear distances;
- (3) Proposed grading (temporary grading for construction purposes and permanent contours for final grading);
- (4) Electric collection lines, including estimated linear distances (number of circuits per route is indicated on the Civil Details drawings, and overhead and underground cable routes will be differentiated with specific line-types);
- (5) The existing electric transmission line (which the Project will interconnect to) and any known existing utilities and associated rights-of-way within the Project Area;
- (6) Approximate Limit of Disturbance (LOD) for all Project Components (panels, access roads, buildings, electric lines, substations and energy storage systems);
- (7) Clearing limits for all Project Components (including panels, access roads, buildings, electric lines, and shading vegetation);
- (8) Indication of road crossings for electric cable installations. No off-site permanent ROW is proposed;
- (9) Outline of collection substation and interconnection switchyard, including access driveway, setbacks, and fence line;
- (10) Proposed locations of electric cable installations for crossing of streams, waterbodies, roads, and other relevant resource features; as well as proposed locations of such crossings that will use trenchless methods of installation, including the approximate laydown area (outline of approximate work space needed), and approximate trenchless installation distances;
- (11) Laydown staging, and equipment storage areas including designated parking areas;
- (12) O&M facilities (if applicable) including access, parking areas, equipment storage areas, and the location of any proposed water supply and septic system(s);
- (13) Fencing and gates, including clearing associated with fencing;
- (14) Property lines and zoning setbacks;
- (15) Existing utility equipment locations and easement limits of those existing locations, including electric transmission and distribution lines, cable and telecommunication lines, gas pipelines, municipal water, municipal sewer lines, and other features as applicable; and
- (16) Site security features, including perimeter fencing; and
- (17) Proposed screening locations, if applicable.

The “Overall Site Layout and Key Sheet” included as part of the Civil Construction Plans depicts the proposed locations of the solar arrays, inverters, energy storage locations, access roads, collection lines, collection substation, laydown and staging areas, and other features as outlined above. The detailed Site Plan and Grading & Drainage Plan drawings (1” = 100’) show the proposed locations of Project Components relative to mapped streams and wetlands. Soil types and bedrock are depicted on Figures 21-2 and 21-3 in Exhibit 21 relative to Project Components.

The Applicant intends to deploy a module similar to the Jinko Solar Eagle 72HM G2 380-400 Watt Mono Perc Half Cell Module. A specification sheet for the modules has been included in Appendix 2-1. The Applicant is proposing the use of tracking or fixed tilt array systems, both of which will be installed with minimal ground disturbance via driven posts. The drawings, plan and maps provided as Appendix 11-1 depict the use of tracker racking systems. Aside from driven posts, the only foundations proposed for the Project will be concrete for select Components of the collection substation, the switchyard, inverter pads, and energy storage systems.

11(b) Construction Operations Plan

Specific details relating to construction and operation elements of the Project, such as Project laydown areas, which includes staging, equipment storage, and parking areas, are included in the Civil Construction Plans included as Appendix 11-1. Material staging areas, construction equipment and worker parking areas (all included as part of designated laydown areas), and points of ingress and egress are shown on Sheets C.300 through C.348. Grading limits, grade breaks, silt fences, conceptual drainage tiles, and filtration basins are indicated on the Grading & Drainage Plan also shown on Sheets C.300 through C.448. Construction details and typical drawings are shown on Sheets C.600 through C.604. Final details relating to Project construction, including final locations of construction trailers/offices and any concrete batch plant locations, as necessary, are not certain at this time as an Engineering, Procurement, and Construction (EPC) Contractor has not yet been selected for the Project. The construction trailers/offices will be located entirely within the currently indicated laydown areas for the Project. Though not anticipated to be required, if necessary for Project construction, concrete batch plants will be located within either the indicated laydown areas or the substation yard.

During construction, the EPC will hire a contractor to plow snow off construction access roads as needed. Snow will be pushed off the access roads and windrowed at each respective edge of the road. The EPC will determine where to push and store snow based upon safety considerations and conditions encountered at that time.

11(c) Grading and Erosion Control Plan

Soils information, site grading, stormwater management, and erosion control measures for both the construction phase and permanent installations are shown on the Grading & Drainage Plans on Sheets C.300 through C.448 and described on Sheet C.609 through C.610. Erosion control details and typical drawings are shown on Sheets C.605 through C.608. These plans depict existing and proposed topography at 1-foot contour intervals. Existing topography was derived from a Light Detection and Ranging (LiDAR) survey contracted by the Applicant and completed in the Spring of 2019. Soil types and boundaries were obtained from the Natural Resources Conservation Service (NRCS) Web Soil Survey database for Genesee County, New York. Refer to Exhibit 21 for more detailed geotechnical information including boring reports, depth to bedrock, earthwork volume calculation, etc. Exhibit 21 also references a copy of the Geotechnical Engineering Report prepared by Terracon Consultants, which is also included as Appendix 21-1.

General areas of cut and fill are indicated on Grading & Drainage Plans and estimated cut and fill quantities have been detailed on in the Civil Construction Plans. Topsoil will be segregated from common fill (subsoils) and an Environmental Monitor, with credentials equivalent to those provided in the guidelines noted below, will be on-site during construction to oversee topsoil separation, as necessary. Additionally, the Applicant will comply with the New York State Department of Agriculture and Markets (NYSDAM) guidance document “Guidelines for Solar Energy Projects – Construction Mitigation for Agricultural Lands” (dated October 18, 2019), to the maximum extent practicable for requirements specific to construction, restoration, monitoring, and decommissioning. Thus, topsoil anticipated to be stripped will be stripped, graded, replaced, and revegetated to further minimize impacts to agricultural areas. No retaining walls will be necessary during construction.

A Preliminary Stormwater Pollution Prevention Plan (SWPPP) has been included in Appendix 23-3. The preliminary design conforms to the requirements of the New York State Stormwater Management Design Manual (2015). The erosion and sediment control measures shown on the site plans have been designed in conformance with the New York State Standards and Specifications for Erosion and Sediment Control (2016). No stormwater impacts are anticipated to occur as a result of the Project and construction activities will comply with the requirements of the New York State Pollution Discharges Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-020-001, or that are in effect at time of construction). Anticipated erosion and sediment controls and stormwater management practices

(SMPs) have been detailed in the SWPPP and the Civil Construction Plans. A Final SWPPP will be prepared to detail the proposed post-construction stormwater control practices and the stormwater design calculations.

11(d) Landscaping Plan

Preliminary Landscape Plans including drawings depicting proposed landscaping, including areas of trees to be planted, berms, walls, fences, and other landscaping improvements is provided in Appendix 11-2. Areas of trees to be retained or removed are shown on Preliminary Design Drawing Sheet C.400 through C.448 (Tree Clearing Plans) and described on Sheet C.610. The Preliminary Landscape Plans indicate the location of proposed vegetative screening in relation to Project components and adjacent sensitive receptors and includes general landscape and seeding notes showing planting details, identifying and quantifying the types of tree and shrub species that are proposed, and showing a seed mix for the grass type to be planted within the solar array. The Preliminary Landscape Plans will also show location of fencing and other landscaping improvements related to fencing.

The limits of clearing existing trees are shown on the Site Plan and Grading & Drainage Plan drawings. Clearing is kept to the minimum needed for construction and to prevent shading.

Similar to other projects in New York and in regions that receive snow accumulations, the Applicant intends to hire a local contractor to plow access roads across the Project. Snow will be pushed off the permanent access roads and windrowed at each respective edge of the road. The Operation & Maintenance personnel will determine where to push and store snow based upon safety considerations and conditions encountered at that time.

11(e) Lighting Plan

The collection substation and switchyard outdoor lighting systems will be designed to provide adequate illumination for security, emergency egress within the POI facilities, and an indication of the position of disconnect switch blades. The illumination levels shall meet levels identified in the National Electric Safety Codes (NESC).

Lighting is only proposed at the Project interconnection facilities and is only for security, safety, and maintenance purposes; no lighting is proposed within the solar arrays. Nor is lighting proposed outside the energy storage facility. Lighting plans for the collection substation and switchyard are provided in Appendix 11-3 and include the type, number, and location of exterior

lighting fixtures and indicated measures to prevent or mitigate, to the maximum extent practicable, unnecessary light trespass beyond the Project property line. The lighting plans include photometrics and manufacturer cut sheets for proposed fixtures. The collection substation and switchyard will normally be unoccupied. All lighting will be activated manually turned on by a switch. Lighting will be installed facing downward to minimize potential impacts to the surrounding public. Lighting has been designed to eliminate light trespass beyond the substation and switchyard, will be equipment or pole structure mounted, and will not exceed a 3.4 foot-candle average. During unoccupied periods, lighting will not be illuminated. The collection substation and switchyard will use full cut-off fixtures, no drop-down optics, and task lighting wherever feasible, specified in the Lighting Plans.

11(f) Architectural Drawings

There are no habitable buildings proposed as part of the Project. Cross sections of the collection substation and POI switchyard interconnection equipment, as well as fencing and relevant site security features are provided in site plan drawings included in Appendix 11-3. These drawings identify the arrangement of the previously noted features, as well as the length, width, height, material of construction, color and finish of relevant Components, and the type of fencing to be installed around Project Components. Additionally, a floor plan and interior lighting plan for the proposed collection substation control room is included. As noted above, the control rooms are not habitable structures and they do not require running water and are not meant for human occupation.

11(g) Design Detail Drawings of Underground and Overhead Facilities

The Civil Construction Plans in Appendices 11-1 and 11-3 contain typical design details associated with the Project, including the proposed depth and level of cover for buried collection lines and overhead interconnection facilities indicating height above grade, descriptions and preliminary specifications of all major Components. The following information is also included, as applicable:

- (1) Collection lines for the Project will be installed underground. The Civil Construction Plans include the following Components regarding underground installations:
 - (i) Single and multiple-circuit layouts;
 - (ii) Co-located installations with dimensions of proposed depth and level of cover;
 - (iii) Separation requirements between circuits;

- (iv) Clearing width limits for construction; and
 - (v) Operation of the facility, limits of disturbance, and required permanent ROW.
- (2) The only overhead lines proposed for the Project are the two approximately 160-foot transmission lines connecting the POI switchyard to the existing NYPA transmission line. The Civil Construction Plans (Appendix 11-1) and/or Collector Substation and Switchyard Design (Appendix 11-3) include the following Components regarding overhead line installations:
- (i) Elevation plans for overhead facilities (transmission lines) including height above grade, structure layouts, clearing width limits for construction and operation of the facility, and permanent ROW widths;
 - (ii) Average span lengths for each proposed layout; and
 - (iii) Structure separation requirements (for installations containing more than one pole, etc.) for all single and multiple-circuit layouts.
- (3) The solar arrays will be fastened to posts driven into the ground. Typical details of the post installation have been provided on Sheet C.603 of the Civil Drawing Set within the Civil Construction Plans.
- (4) A circuit map indicating overhead and underground installations, and number of required circuits proposed per collection line run is included in the Civil Construction Plans in Appendix 11-1.
- (5) A typical collector trench and typical details associated with trenchless installations including typical staging areas, construction machinery arrangements, and bore pits are identified on the Civil Construction Plans in Appendix 11-1.
- (6) Technical data sheets associated with solar panels representative of those to be used for this Project have been provided in Appendix 2-1.
- (7) Elevation plans, including foundation details, for any energy storage system(s), including length, width, and height details will be provided in the Civil Construction Plans in Appendix 11-1.
- (8) Preliminary typical details of seismic protection for energy storage systems are not available at this time. However, each battery rack is equipped with bracing points that secure the racks to the floor and to adjacent racks. Seismic calculations per Section 1613 of the NY Building Code 2014 will be performed to determine how many bracing points are required to stay within the limitations. Additionally, the Project will undergo UL9540 testing which requires further validation that the energy storage system design is well-suited for the seismic activity of the site.

11(h) Interconnection Facilities

For the interconnection facilities, the plans and drawings required by subsections (a) through (g) have been included in Appendix 11-1 and 11-3 of this Exhibit, as well as a profile of the centerline of the overhead interconnection line at an exaggerated vertical scale.

11(i) Engineering Codes, Standards, and Guidelines

Below is a detailed list of engineering codes, standards, guidelines, and practices that the Applicant intends to conform to during the planning, designing, construction, and operation of the Project electric collection substation, POI switchyard, and associated structures, as applicable. This also includes code references and descriptions for any proposed electrical energy storage system(s):

- American National Standards Institute (ANSI)
- Institute of Electrical and Electronics Engineers (IEEE)
- Insulated Cable Engineers Association (ICEA)
- American Society of Mechanical Engineers
- National Electric Code (NEC)
- National Electrical Safety Code (NESC)
- National Electric Manufacturers Association
- National Fire Protection Association (NFPA)
- Uniform Fire Prevention and Building Code (Uniform Code)
- United Laboratories
- American Iron and Steel Institute
- American Institute of Steel Construction
- International Building Code 2006
- American Association of State Highway and Transportation Officials (AASHTO) Standard for Aggregates
- American Society of Civil Engineers (ASCE) 7-10 Minimum Design Loads for Buildings and Other Structures
- Federal Occupational Safety and Health Administration (OSHA) 1910.269
- American Concrete Institute (ACI) New York State Energy Conservation Construction Code (Energy Code)

The Applicant hosted an initial meeting on February 24, 2020, to meet with local emergency services providers, to inform them of the potential Project, seek input, and answer questions regarding the Project and specifically the energy storage systems. Firefighters and other emergency response personnel from the following local providers and communities attended the meeting: Byron, South Byron, Batavia, Elba, Le Roy, Bethany, Corfu, Darien, York and Genesee County. In addition, the Byron and South Byron Fire Departments will receive a copy of the Emergency Response Plan submitted with this Application and will have an opportunity to provide comments and ask questions. The Applicant will review the responses received from the local emergency first responders and adjust the plan if warranted. The Applicant has conducted additional ongoing outreach to the local fire departments to discuss design access to the Project Site that will accommodate emergency vehicles.

11(j) Wetland Boundaries

Wetlands identified within the Project Area are referred to as “delineated wetlands.” The Applicant is coordinating with the NYSDEC and USACE for boundary verification, but this verification has not yet occurred prior to Application filing. The boundaries of delineated wetlands were recorded with a Trimble Geo 7000 XH Global Positioning System (GPS) unit with reported sub-meter accuracy. See Section 22(i)(1) and Appendix 22-6 for a detailed description of how these delineated wetlands were identified within the Project Area. Wetlands in inaccessible areas within 100 feet of the limits of disturbance were estimated and are referred to as “predicted wetlands.”

The Civil Construction Plans in Appendix 11-1 depict all delineated wetlands. See Figure 22-3 depicting delineated wetlands within the Project Area and subsequent 100-foot area from the limits of disturbance. Shapefiles provided to the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Public Service (NYSDPS) with the Application include delineated wetlands and predicted wetlands.

11(k) Site Plans including Vegetation, Ground Disturbance, and Wetlands

As referenced above, the Civil Construction Plans depict all Project Components; proposed grade changes and conceptual locations for stockpile areas; the limits of ground disturbance and vegetative clearing; and all field-delineated wetlands, predicted wetland boundaries and New York State (NYS) regulated mapped 100-foot adjacent areas and NYS regulated, mapped wetlands located within 100 feet of all areas to be disturbed by construction at a scale of 1-inch equals 100 feet.