

EXHIBIT C – Application for Site Certificate

FACILITY LOCATION

OAR 345-021-0010(1)(c)

REVIEWER CHECKLIST

(c) Exhibit C. Information about the location of the proposed facility, including:

Rule Sections	Section	✓
(A) A map or maps showing the proposed locations of the energy facility site, all related or supporting facility sites and all areas that might be temporarily disturbed during construction of the facility in relation to major roads, water bodies, cities and towns, important landmarks and topographic features, using a scale of 1 inch = 2000 feet or smaller when necessary to show detail.	C.2	
(B) A description of the location of the proposed energy facility site, the proposed site of each related or supporting facility and areas of temporary disturbance, including the total land area (in acres) within the proposed site boundary, the total area of permanent disturbance, and the total area of temporary disturbance. If a proposed pipeline or transmission line is to follow an existing road, pipeline or transmission line, the applicant shall state to which side of the existing road, pipeline or transmission line the proposed facility will run, to the extent this is known.	C.3	
(C) For energy generation facilities, a map showing the approximate locations of any other energy generation facilities that are known to the applicant to be permitted at the state or local level within the study area as defined in OAR 345-001-0010 for impacts to public services.	NA	

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C.1 INTRODUCTION

Obsidian Solar Center LLC (Applicant) proposes to construct the Obsidian Solar Center (Facility) in Lake County, Oregon, with an alternating current generating capacity of up to 400 megawatts. Please refer to Exhibit B for Facility description and layout information.

Exhibit C addresses the requirements of Oregon Administrative Records (OAR) 345-021-0010(1)(c): *Information about the location of the proposed facility.*

As described in Exhibit B, this Application for Site Certificate analyzes the potential impacts from two design scenarios: a stand-alone photovoltaic (PV) solar power generation build-out, and a PV solar power generation plus battery storage build-out. This exhibit provides location information for the Facility that applies to both design scenarios.

Executive Summary

This exhibit describes proposed locations of the Facility site, including related or supporting Facility locations and areas that will be permanently or temporarily disturbed during Facility construction and operation. This exhibit also depicts the approximate locations of other energy generation facilities permitted at the state or local level within 15 miles of the Facility site boundary.

C.2 FACILITY SITE MAP(S)

OAR 345-021-0010(1)(c)(A) *A map or maps showing the proposed locations of the energy facility site, all related or supporting facility sites and all areas that might be temporarily disturbed during construction of the facility in relation to major roads, water bodies, cities and towns, important landmarks and topographic features, using a scale of 1 inch = 2000 feet or smaller when necessary to show detail.*

Response: Figure C-1a provides an overview of the Facility site boundary within the region (i.e., greater Fort Rock-Christmas Valley area of Oregon), and Figure C-1b provides the approximate locations of other permitted energy generation facilities within 15 miles of the Facility site boundary (refer to Section C.4). Figure C-2 depicts a more detailed view of the Facility and indicates areas of permanent and temporary disturbances with yellow and blue shading, respectively. Areas within the site boundary that are not identified with either yellow or blue shading are avoidance areas within which no disturbances will occur. Figure C-3 shows a close-up view of the generation tie (gen-tie) transmission line corridor and its proposed temporary and permanent disturbance areas, which are centered on the proposed pole locations on the northern edge of the corridor. Figures C-4, C-5, and C-6 depict more detailed site layout options, including representative locations of individual Facility components, such as solar module

blocks, inverter pads, battery storage enclosures, and substations. Figure C-4 represents a PV only layout, Figure C-5 represents a PV with dispersed battery storage layout, and Figure C-6 represents a PV with centralized layout. Refer to Exhibit B, Section B.1, for further details about Facility layout.

C.3 LOCATION DESCRIPTION

OAR 345-021-0010(1)(c)(B) *A description of the location of the proposed energy facility site, the proposed site of each related or supporting facility and areas of temporary disturbance, including the total land area (in acres) within the proposed site boundary, the total area of permanent disturbance, and the total area of temporary disturbance. If a proposed pipeline or transmission line is to follow an existing road, pipeline or transmission line, the applicant shall state to which side of the existing road, pipeline or transmission line the proposed facility will run, to the extent this is known.*

Response: The Facility site boundary is composed of Area A, Area D, and the gen-tie transmission line corridor and encompasses about 3,921 acres (refer to Figure C-2). The Facility's total area of permanent disturbance will be about 3,590 acres.

The solar PV module blocks, battery storage enclosures, inverter pads, collector substations, aboveground and underground cabling, operations and maintenance buildings, and other associated components will be located in Area A (as further described in Exhibit B, Section B.2). Refer to Figures C-4, C-5, and C-6. Area A is about 10 miles east of Fort Rock and 6 miles northwest of Christmas Valley (refer to Figure C-1a), which are both unincorporated communities in northern Lake County. Area A will be located in Township 26 south, Range 16 east, Sections 5, 8, 9, 15, 16, 17, 20, 21, and 22. Area A is mostly on private land and some public land (about 640 acres) managed by the Oregon Department of State Lands (refer to Exhibit F for more details on land ownership). The land within Area A is mostly sagebrush shrubland, but also contains relatively small areas of sand dunes and playas (refer to Exhibit P for more details about habitat types). The primary existing land use in Area A is cattle grazing. The areas adjacent to Area A are mostly pivot-irrigated crop circles and some sagebrush shrubland (refer to Figure C-2). Oil Dri North Road runs along the eastern border of Area A as well as a portion of the northern border.

The total area of permanent disturbance within Area A will be about 3,545 acres, accounting for avoidance areas where there will be no disturbance (refer to Figure C-2). Permanent disturbance areas refer to those locations where Facility impacts on resources will not return to pre-construction conditions during the life of the Facility (i.e., for 30 years). A perimeter fence will be installed around most of Area A. Permanent aboveground structures will cover only a fraction of the entire 3,545 acres. The preliminary layout indicates that the area occupied by the panels (when tilted horizontally) will be 34 percent of the total area inside the fence. Applicant will

mow, brushbeat, or drive over the vegetation inside the fence. Most of Area A is covered by sagebrush shrubland, which would not likely return to pre-construction conditions during the life of the Facility (refer to Exhibit P, Section P.7.1); therefore, all areas inside the Facility fence are considered permanent disturbance. No temporary disturbance areas will occur within Area A.

The 115/500 kilovolt step-up substation¹ will be constructed in Area D, which is about 2 miles west of Area A (refer to Figure C-2), in Township 26 south, Range 15 east, Sections 13. Area D is on private land (refer to Exhibit F) and is mostly covered by non-native forb habitats except for a small portion of pivot-irrigated crop circle in the northeastern corner (refer to Exhibit P). Connley Road runs east-west to the immediate south of Area D. The lands adjacent to Area D consist of pivot-irrigated crop circles to the east, south, and west, and sagebrush shrublands to the north. The total area of permanent disturbance within Area D will be up to 44 acres.

The gen-tie transmission line will be constructed within the 2-mile-long, 60-foot-wide corridor between Area A and Area D (refer to Figures C-2 and C-3), in Township 26 south, Range 15 east, Sections 13 and 24, and in Township 26 south, Range 16 east, Sections 18 and 19. The easternmost 0.5 miles of the gen-tie transmission line will be centered within the corridor. As the gen-tie transmission line approaches the eastern terminus of Connley Road (about 0.5 miles west of Area A) it will shift to within 5 feet of the northern edge of the corridor and run parallel to the north side of Connley Road, within the existing county road right-of-way, for the remaining 1.5 miles to Area D. The gen-tie transmission line will use steel monopoles installed about 300 feet apart, resulting in about 36 poles between Areas A and D. The gen-tie transmission line will result in about 0.03 acres of permanent disturbance associated with the installation of 36 monopoles in the corridor. Construction of the gen-tie transmission line will require an additional 1.2 acres of temporary disturbances for workspaces to construct the monopoles. About 13.5 acres within the gen-tie transmission line site boundary will not be disturbed during construction or operation.

C.4 LOCATIONS OF OTHER ENERGY GENERATION FACILITIES

OAR 345-021-0010(1)(c)(C) *For energy generation facilities, a map showing the approximate locations of any other energy generation facilities that are known to the applicant to be permitted at the state or local level within the study area as defined in OAR 345-001-0010 for impacts to public services.*

Response: Figure C-1b shows the approximate locations of 14 energy generation facilities within or near the 15-mile study area (i.e., analysis area) defined by the Project Order for impacts on public services. All 14 energy generation facilities are solar projects that have been approved at the county level and are in various development stages (Lake County Planning Department 2018;

¹ Final specifications for the gen-tie line will not be available until completion of final engineering and design.

Johnson 2018). The Oregon Department of Energy website does not list any energy facilities permitted at the state level within the 15-mile study area (ODOE 2018). There are no operational energy generation facilities within 15 miles of the site boundary.

C.5 REFERENCES

Esri. 2019. "World Imagery" [basemap]. Scale Not Given.

<https://www.arcgis.com/home/item.html?id=10df2279f9684e4a9f6a7f08febac2a9>.

Accessed October 10, 2019.

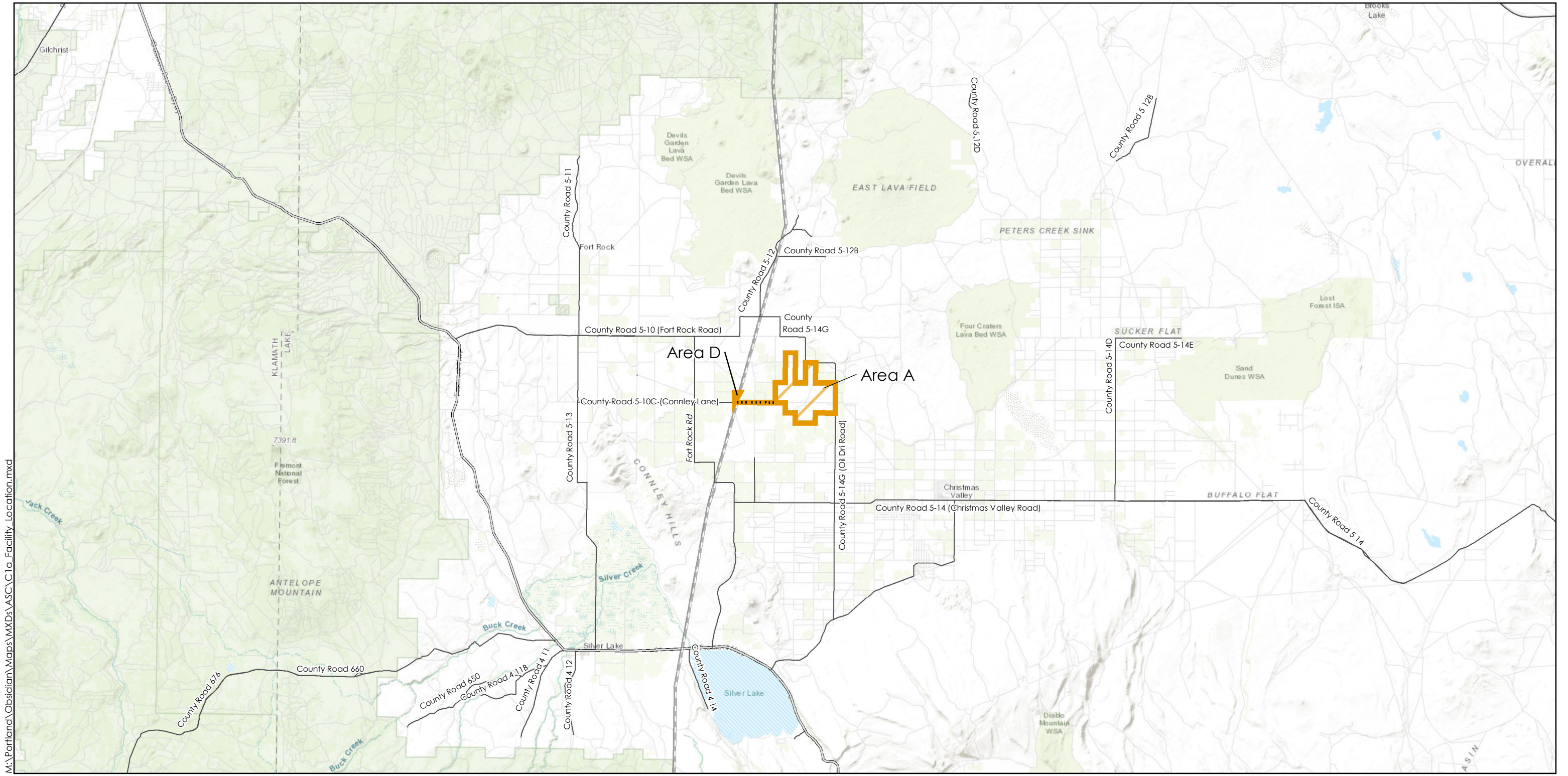
Johnson, D. 2018. Personal Communication. Planning Director, Lake County Planning Department. Electronic mail sent to Ilja Nieuwenhuizen, Senior Environmental Scientist, Ecology and Environment, Inc., Portland, Oregon. August 23, 2018.

Lake County Planning Department. 2018. Solar Projects in Lake County, Oregon.

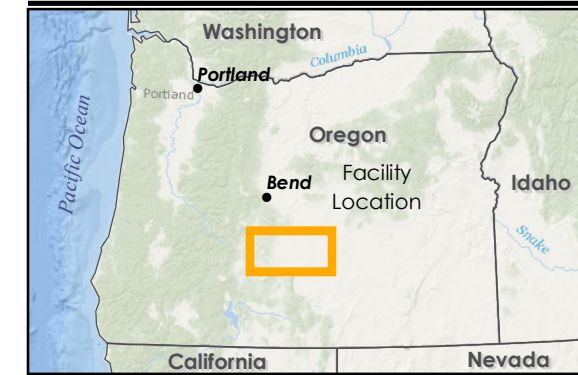
<http://www.lakecountyor.org/Solar%20Projects%20as%20of%20Jan%2012,%202018.pdf>. Accessed August 24, 2018.

ODOE (Oregon Department of Energy). 2018. *Oregon Energy Facilities*. ODOE webpage with interactive map title.

<https://geo.maps.arcgis.com/apps/MapSeries/index.html?appid=64e4d4f78c0c42e99d05e46754122ad3>. Accessed September 5, 2018.



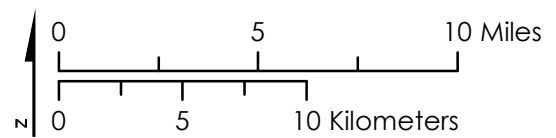
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- Site Boundary
- Facility
- Gen-tie Transmission Line
- Bonneville Power Administration Transmission Line (500kV)
- PGE Transmission Line (500kV)

Figure C-1a
Facility Location within the Region

Obsidian Solar Center

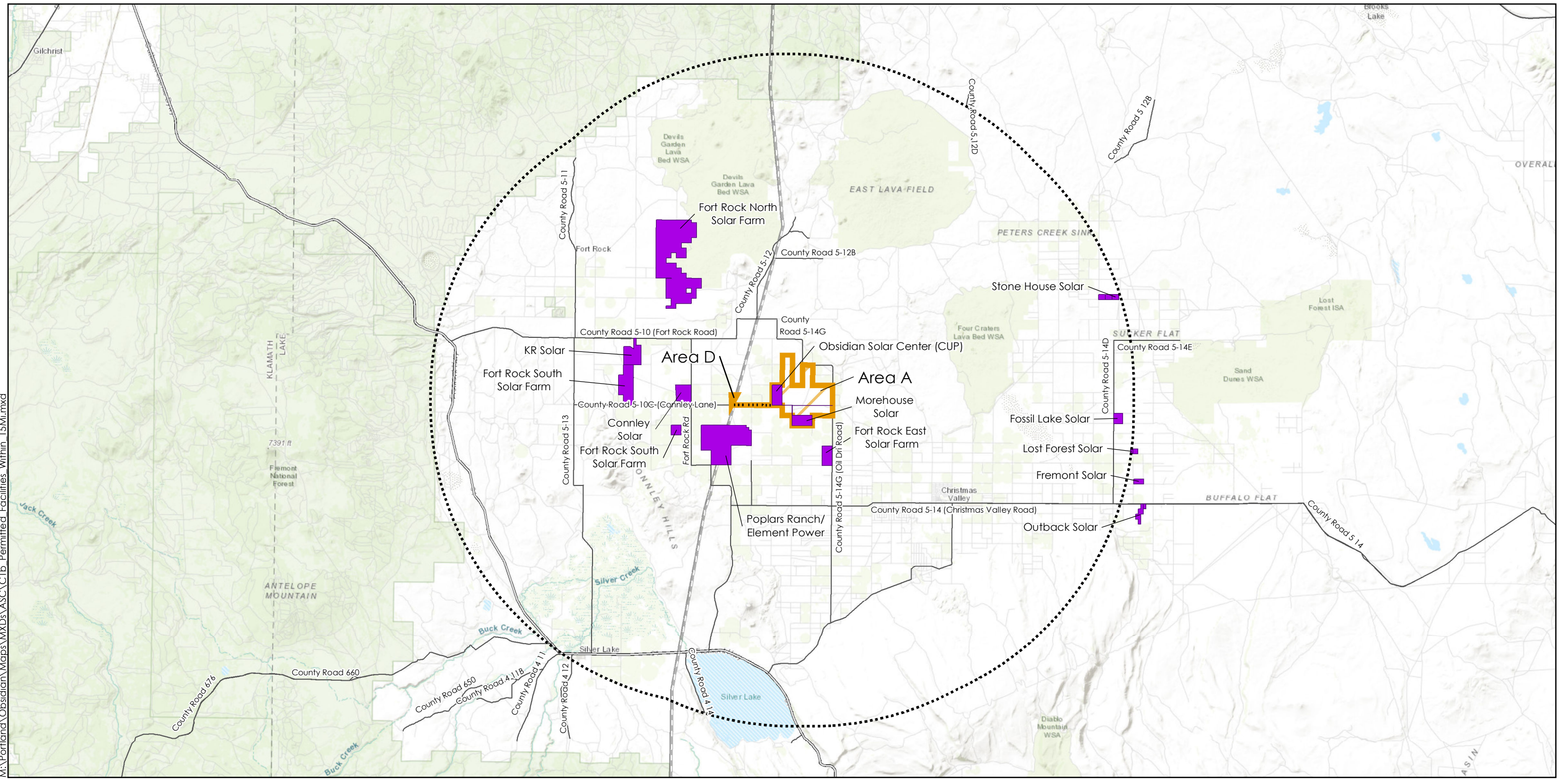


October 2019

Obsidian Solar Center LLC

Sources: Esri 2019, Johnson 2019, Lake County Planning Department 2019

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- Site Boundary
- Facility
- 15-Mile Study Area
- Permitted Energy Generating Facilities
- Gen-tie Transmission Line
- Bonneville Power Administration Transmission Line (500kV)
- PGE Transmission Line (500kV)

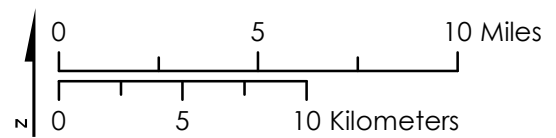
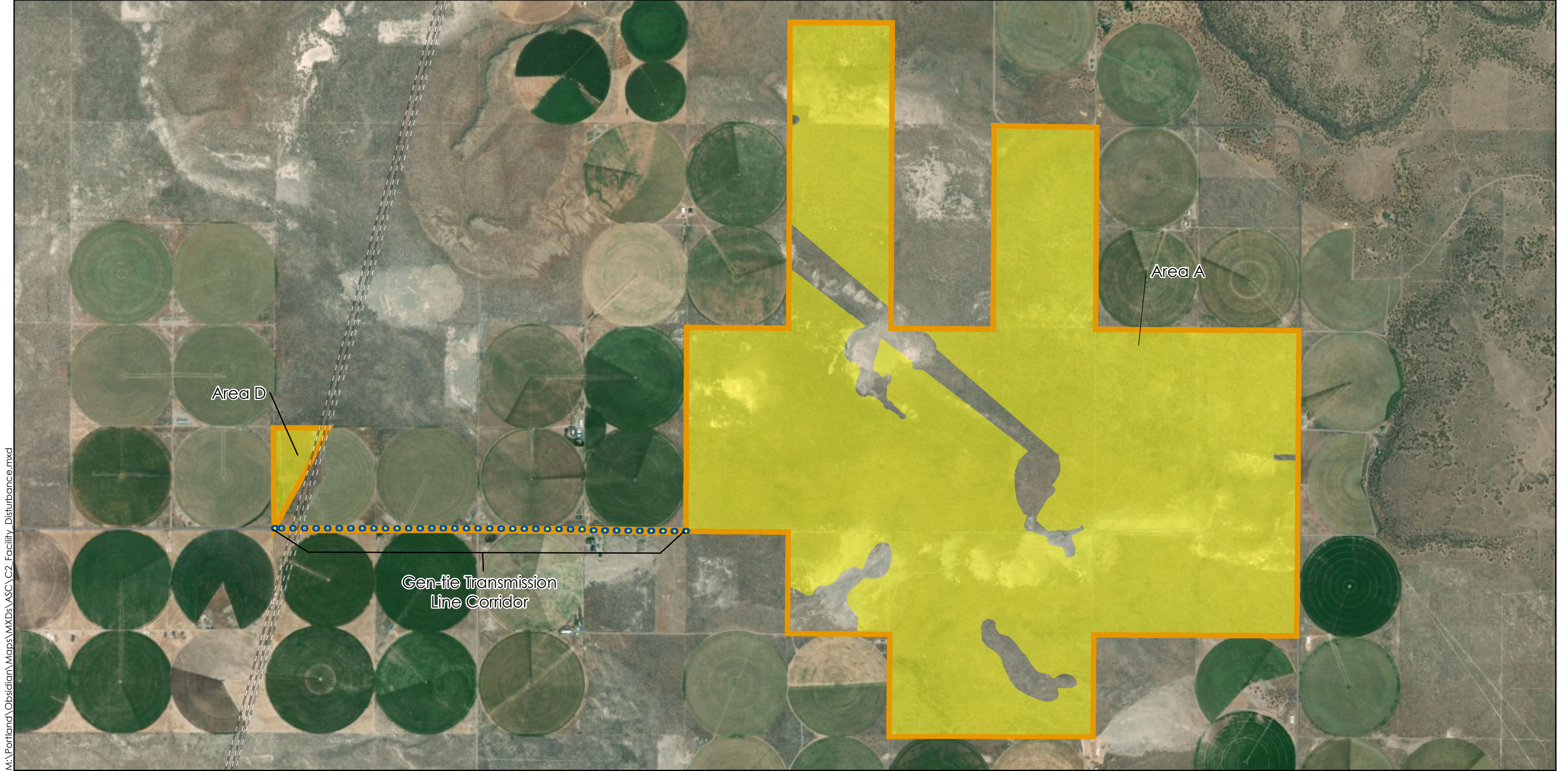


Figure C-1b
Permitted Energy Generating
Facilities within 15 Miles

Obsidian Solar Center
October 2019
Obsidian Solar Center LLC

Sources: Esri 2019, Johnson 2019, Lake County Planning Department 2019



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- Site Boundary
- Disturbance Type**
- Permanent
- Temporary
- Bonneville Power Administration Transmission Line (500kV)
- PGE Transmission Line (500kV)

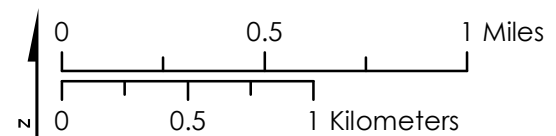
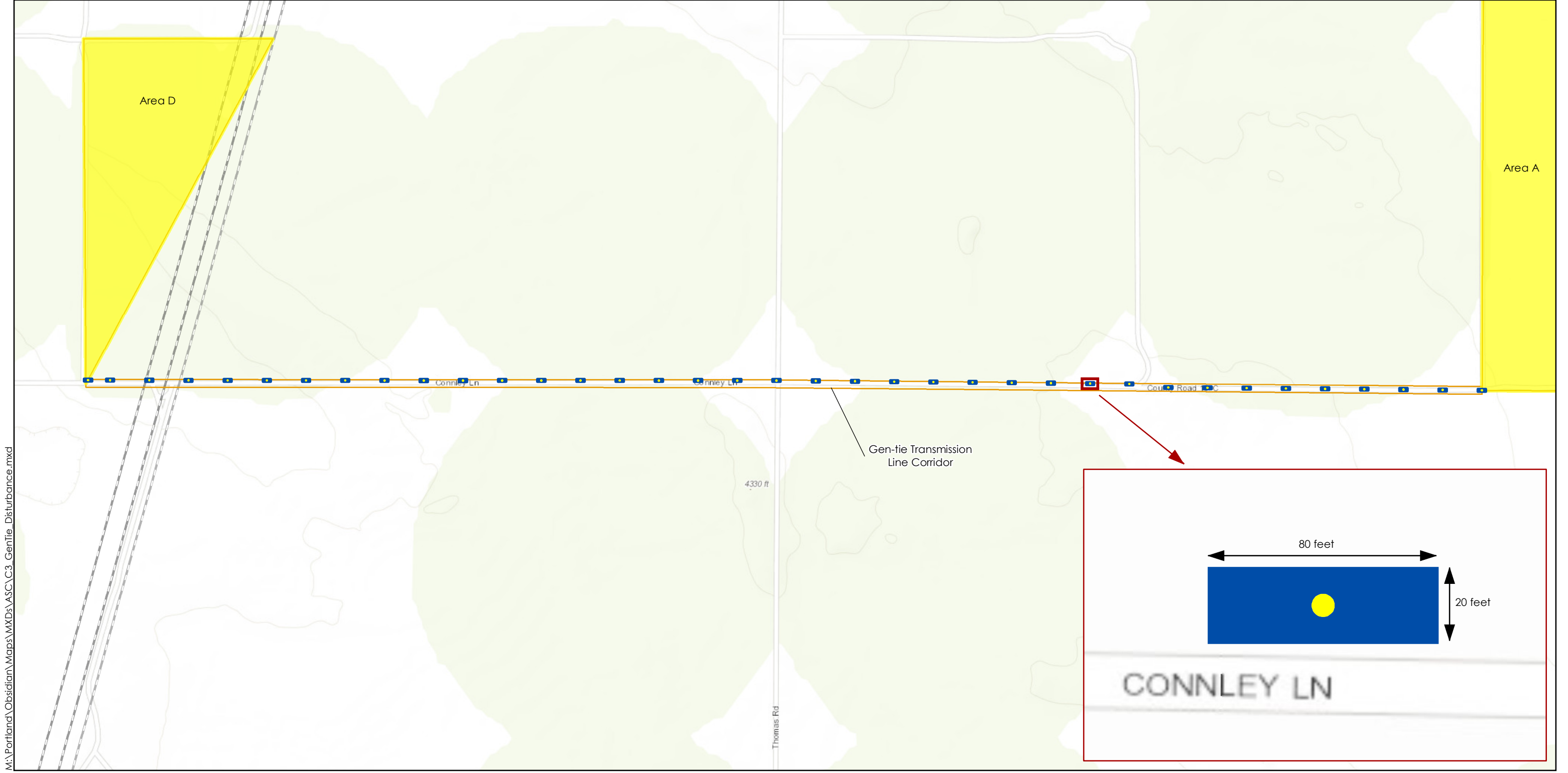


Figure C-2
Facility Disturbance Locations

Obsidian Solar Center

October 2019

Obsidian Solar Center LLC



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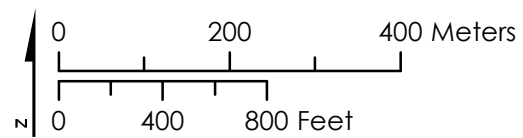
- Site Boundary
- Disturbance Type**
- Permanent
- Temporary
- Bonneville Power Administration Transmission Line (500kV)
- PGE Transmission Line (500kV)

Figure C-3
Gen-tie Transmission Line Disturbance Areas

Obsidian Solar Center

October 2019

Obsidian Solar Center LLC





SWINERTON
RENEWABLE ENERGY

CONSULTANT



BLYMYER
ENGINEERS
1101 MARINA VILLAGE PARKWAY # 100
ALAMEDA, CA 94501 510.521.3773

STAMP/SEAL

REV # DESCRIPTION DATE
FOR CLIENT REVIEW

PROJECT TITLE:
**FORT ROCK SOLAR
SINGLE-AXIS TRACKER
PHOTOVOLTAIC ARRAYS
400 MWAC
LAKE COUNTY, OR**

SHEET TITLE:

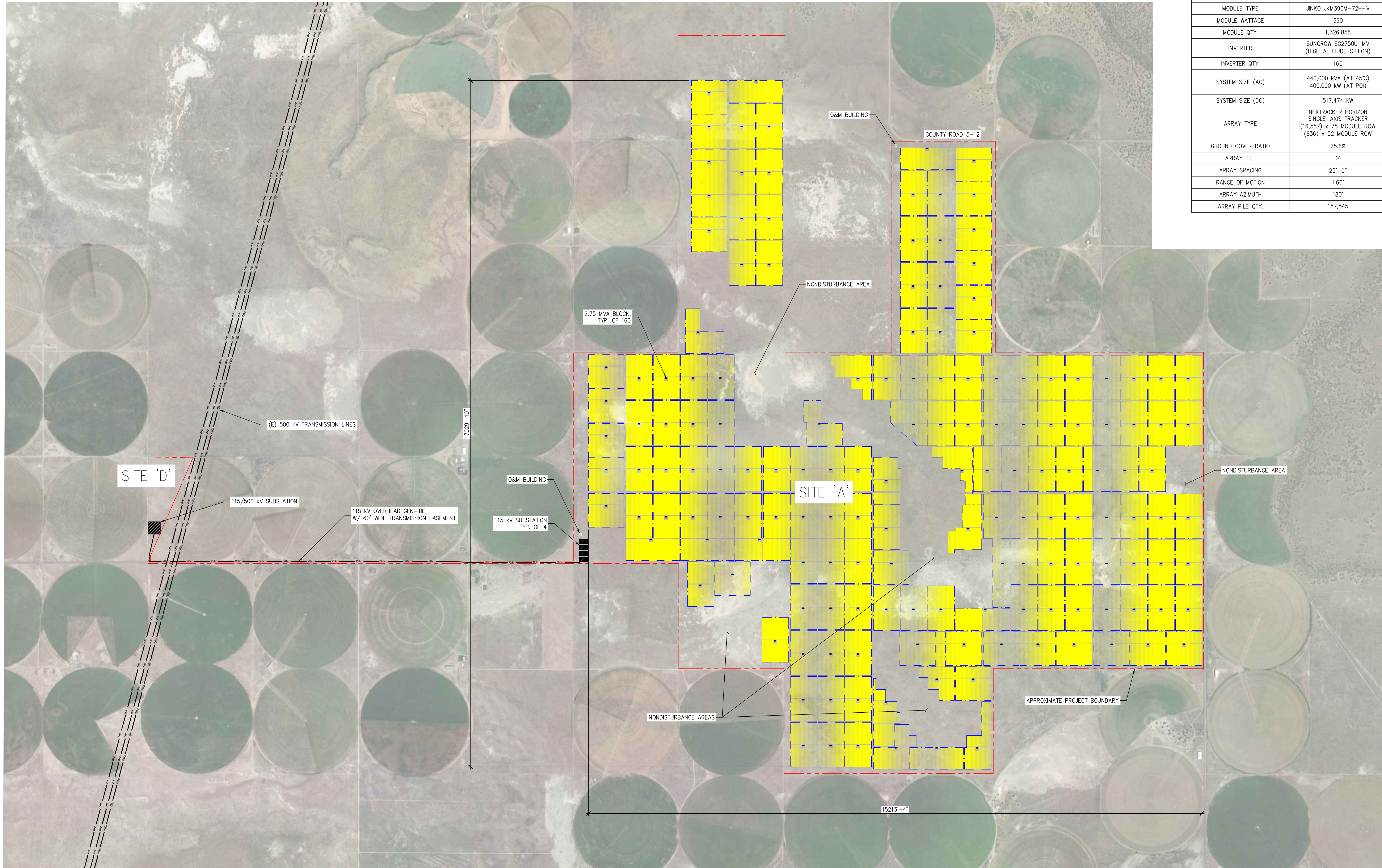
**PHOTOVOLTAIC ARRAY
SITE PLAN**

Figure C-4

JOB NO.: 2180XX PROJECT MGR: CG
DRAWN: BA SCALE: 1" = 1000'-0"
SHEET NUMBER

G-100.0

PART B SYSTEM SUMMARY	
PROJECT LOCATION	LAKE COUNTY, OR
ALTITUDE	4,735'
DESIGN TEMPERATURE (MIN.)	-23°C
STRING SIZE	26
MODULE TYPE	JINKO JK6390M-72H-V
MODULE WATTAGE	390
MODULE QTY.	1,326,858
INVERTER	SUNGROW SG2750U-MV (HIGH ALTITUDE OPTION)
INVERTER QTY.	160
SYSTEM SIZE (AC)	440,000 kVA (AT 45°C) 400,000 kW (AT PO)
SYSTEM SIZE (DC)	517,474 kW
ARRAY TYPE	NEXTRACKER HORIZON SINGLE-AXIS TRACKER (16,587) x 78 MODULE ROW (6.36) x 52 MODULE ROW
GROUND COVER RATIO	25.6%
ARRAY TILT	0°
ARRAY SPACING	25'-0"
RANGE OF MOTION	±60°
ARRAY AZIMUTH	180°
ARRAY PILE QTY.	187,545



PHOTOVOLTAIC ARRAY SITE PLAN

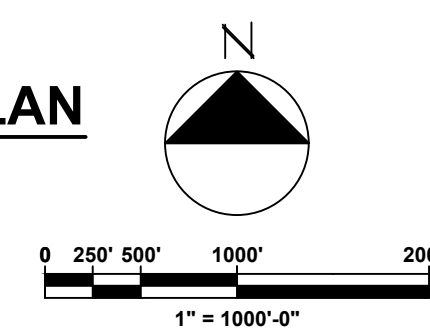
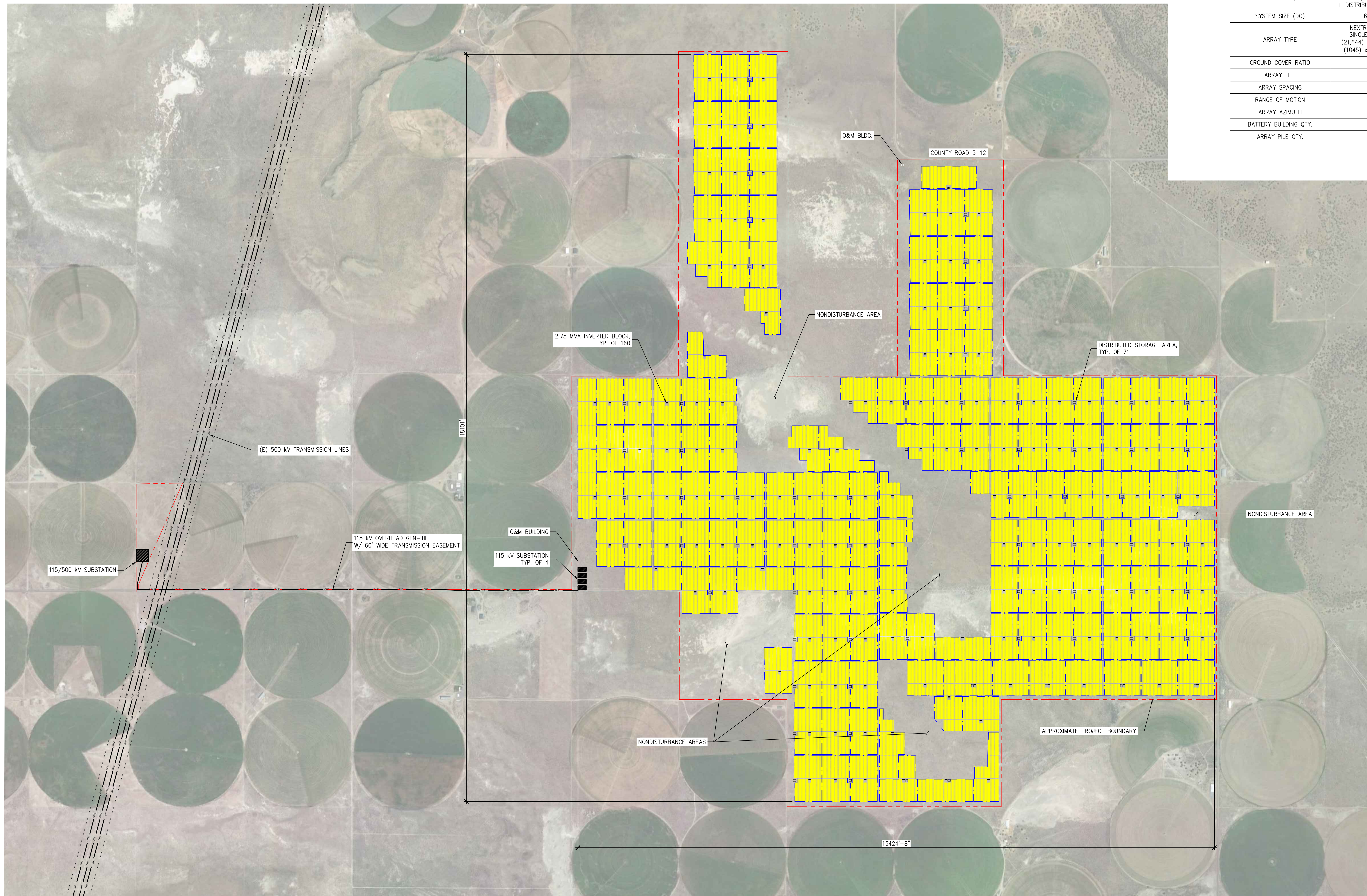


Figure C-4
PRELIMINARY

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SYSTEM SUMMARY	
PROJECT LOCATION	LAKE COUNTY, OR
ALTITUDE	4,735'
DESIGN TEMPERATURE (MIN.)	-23°C
STRING SIZE	26
MODULE TYPE	JINKO JKM390M-72H-V
MODULE WATTAGE	390
MODULE QTY.	1,742,572
INVERTER	SUNGROW SG2750U-MV (HIGH ALTITUDE OPTION)
INVERTER QTY.	160
SYSTEM SIZE (AC)	440,000 kVA (AT 45°C) 400,000 kW (AT POI) + DISTRIBUTED STORAGE BESS
SYSTEM SIZE (DC)	679,603 kW
ARRAY TYPE	NEXTRACKER HORIZON SINGLE-AXIS TRACKER (21,644) x 78 MODULE ROW (1045) x 52 MODULE ROW
GROUND COVER RATIO	33.7%
ARRAY TILT	0°
ARRAY SPACING	19'-0"
RANGE OF MOTION	±60°
ARRAY AZIMUTH	180°
BATTERY BUILDING QTY.	80
ARRAY PILE QTY.	246,444

SWINERTON
RENEWABLE ENERGY
CONSULTANT

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1101 MARINA VILLAGE PARKWAY # 100
ALAMEDA, CA 94501 510.521.3773

STAMP/SEAL

REV #	DESCRIPTION	DATE

PROJECT TITLE:
**OBSDIAN SOLAR CENTER
SINGLE-AXIS TRACKER
PHOTOVOLTAIC ARRAYS
400 MWAC
LAKE COUNTY, OR**

SHEET TITLE:
**PHOTOVOLTAIC ARRAY
SITE PLAN**

Figure C-5

JOB NO.: 2180XX	PROJECT MGR: CG
DRAWN: BA	SCALE: 1" = 1000'-0"
SHEET NUMBER	

G-100.0

PHOTOVOLTAIC ARRAY SITE PLAN
SCALE: 1" = 1000'-0"

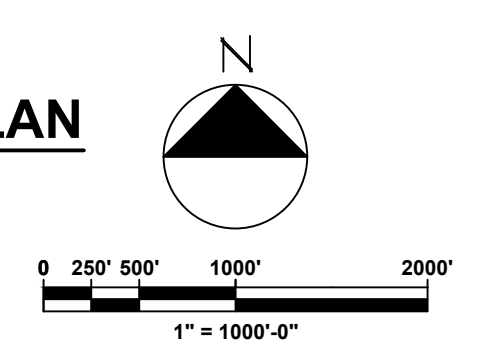


Figure C-5
PRELIMINARY



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1101 MARINA VILLAGE PARKWAY # 100
ALAMEDA, CA 94501 510.521.3773

STAMP/SEAL

REV # DESCRIPTION DATE
FOR CLIENT REVIEW

PROJECT TITLE:
FORT ROCK SOLAR
SINGLE-AXIS TRACKER
PHOTOVOLTAIC ARRAYS
400 MWAC
LAKE COUNTY, OR

SHEET TITLE:

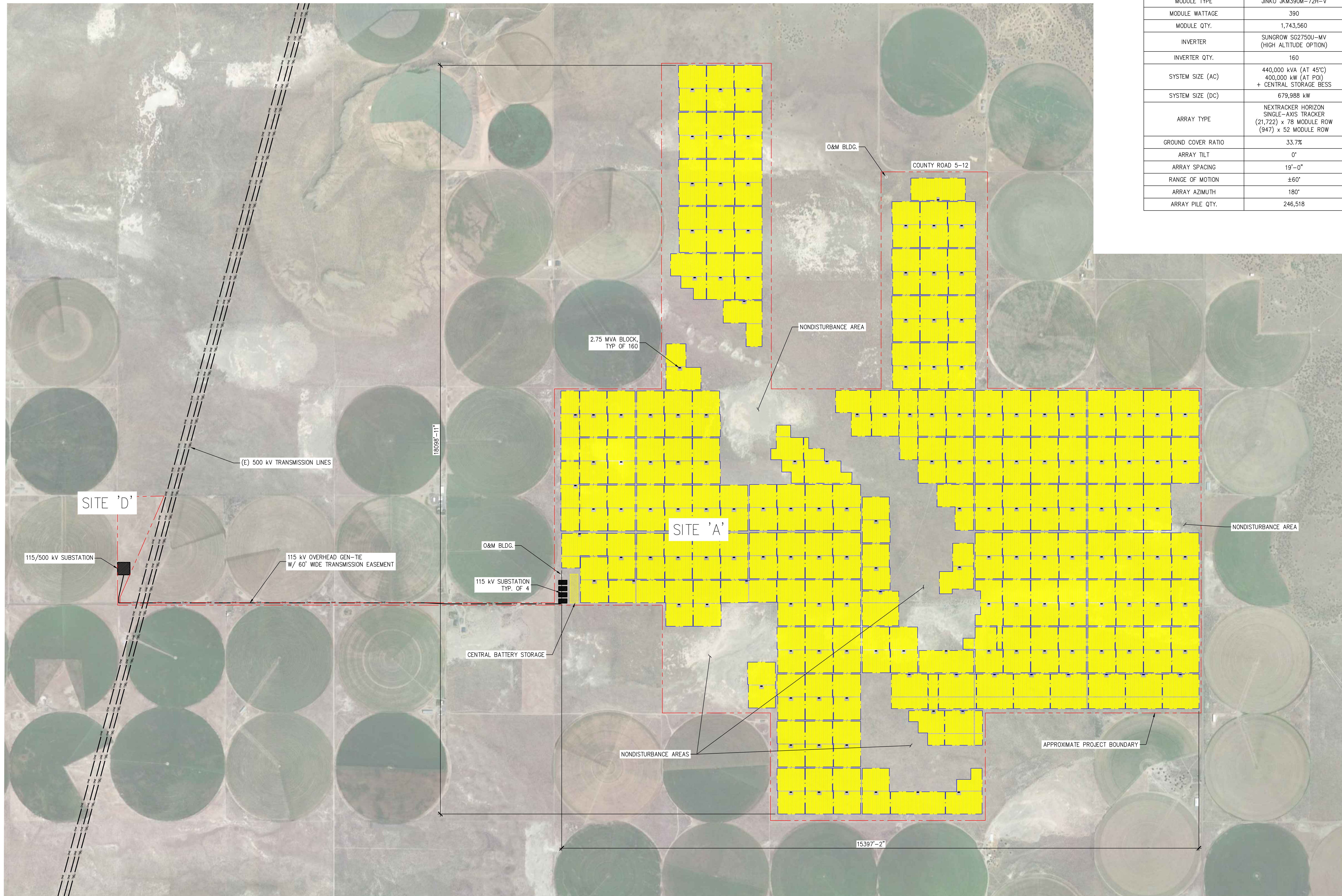
**PHOTOVOLTAIC ARRAY
SITE PLAN**

Figure C-6

JOB NO.: 2180XX PROJECT MGR: CG
DRAWN: BA SCALE: 1" = 1000'-0"
SHEET NUMBER

G-100.0

SYSTEM SUMMARY	
PROJECT LOCATION	LAKE COUNTY, OR
ALTITUDE	4,735'
DESIGN TEMPERATURE (MIN.)	-23°C
STRING SIZE	26
MODULE TYPE	JINKO JKM390M-72H-V
MODULE WATTAGE	390
MODULE QTY.	1,743,560
INVERTER	SUNGROW SG2750U-MV (HIGH ALTITUDE OPTION)
INVERTER QTY.	160
SYSTEM SIZE (AC)	440,000 kVA (AT 45°C) 400,000 kW (AT PO) + CENTRAL STORAGE BESS
SYSTEM SIZE (DC)	679,988 kW
ARRAY TYPE	NEXTRACKER HORIZON SINGLE-AXIS TRACKER (21,722) x 78 MODULE ROW (947) x 52 MODULE ROW
GROUND COVER RATIO	33.7%
ARRAY TILT	0°
ARRAY SPACING	19'-0"
RANGE OF MOTION	±60°
ARRAY AZIMUTH	180°
ARRAY PILE QTY.	246,518



PHOTOVOLTAIC ARRAY SITE PLAN
SCALE: 1" = 1000'-0"

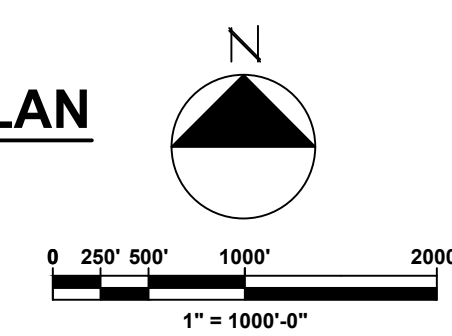


Figure C-6
PRELIMINARY

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