

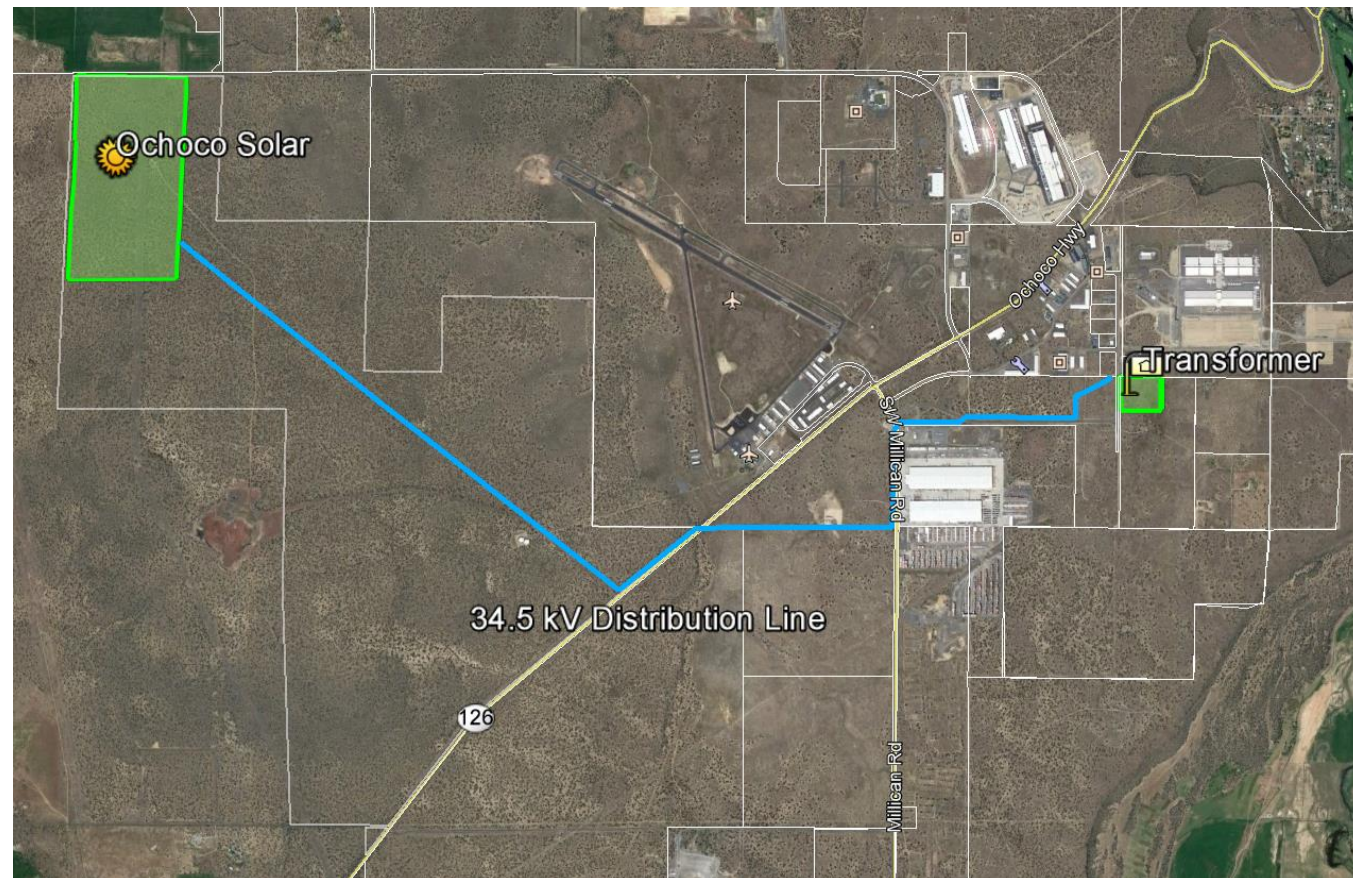
# Ochoco Development Overview

## Solar Array & Gen-tie

- 20 MWac, 29 MWdc
- Site Control: 180 acres – executed on 1/26/2016
- 4 mile gen-tie
- 75 poles

## Diligence completed

- FAA coordination
- Prineville Airport coordination
- Environmental analysis
- County zoning
- Geotech & Push/Pull testing
- Engineering constraints analysis
- Utility permitting & contracting





Ochoco



Preference 4

126

Ochoco Hwy

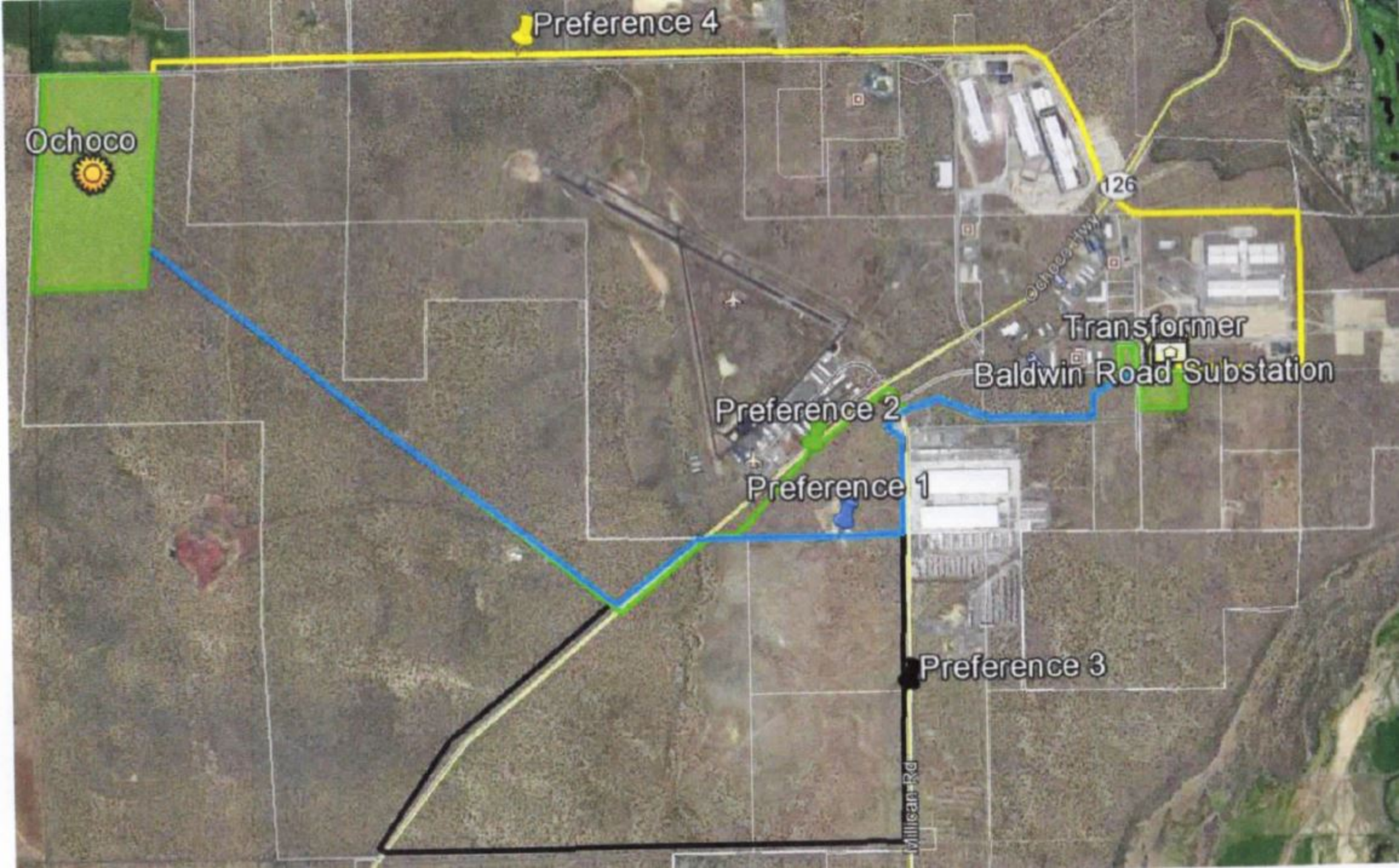
Transformer  
Baldwin Road Substation

Preference 2

Preference 1

Preference 3

Willcan Rd





Ochoco



Baldwin Road Substation

Hunter

County

Legacy Ranches

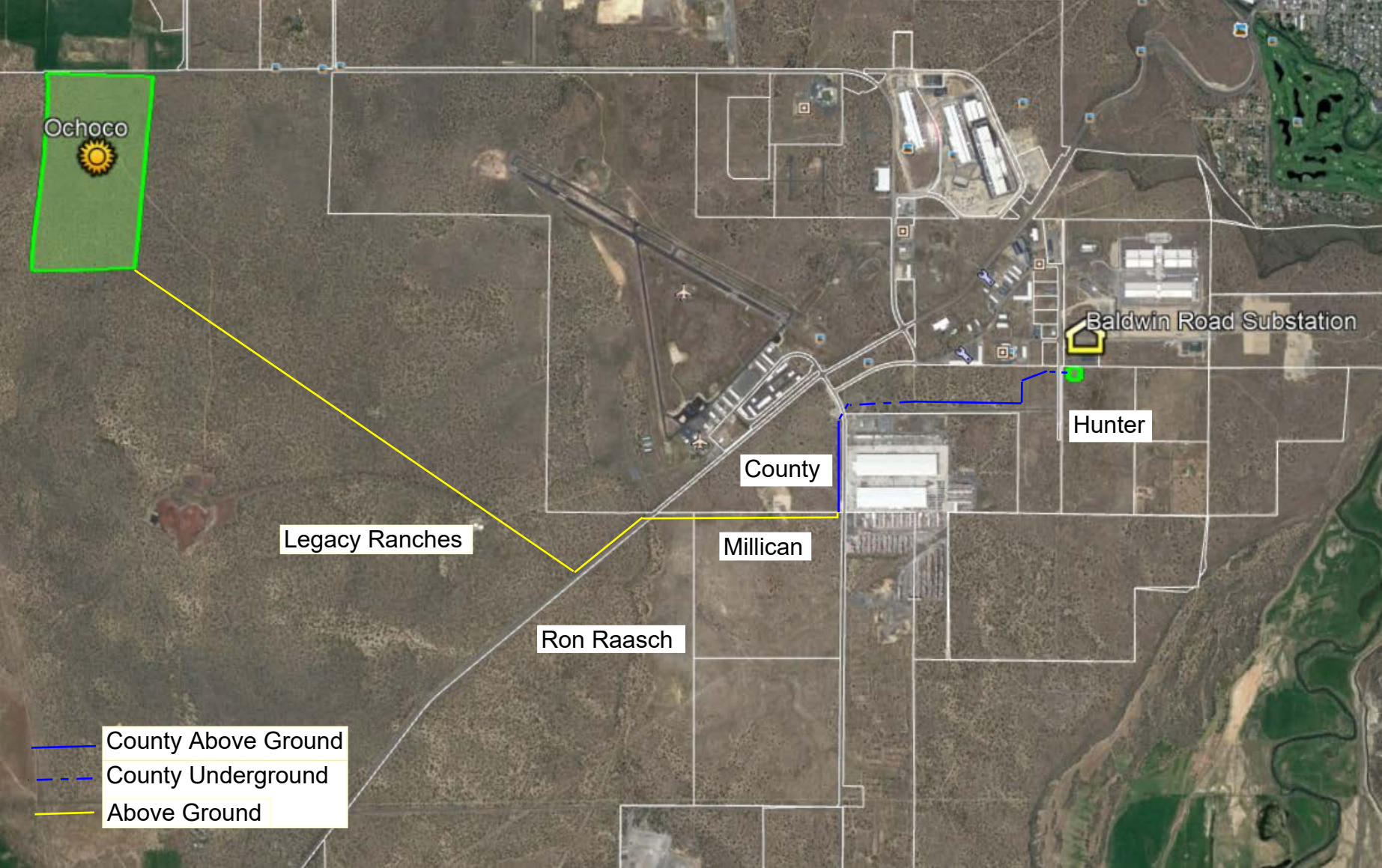
Millican

Ron Raasch

County Above Ground

County Underground

Above Ground



Baldwin Road Substation



----- Underground Easement 40'  
—— Above Ground Easement 40'



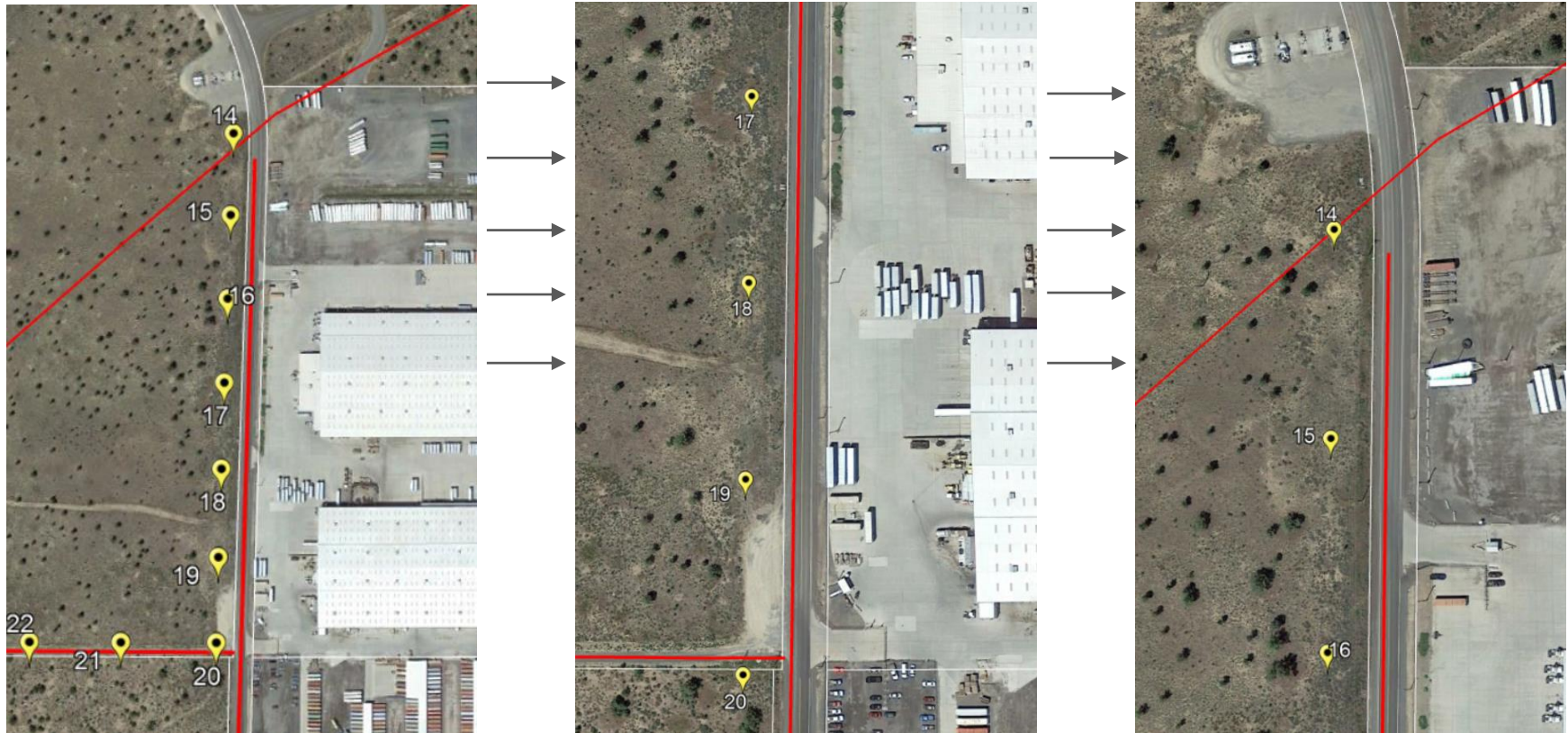




# Ochoco Development Overview

## Transmission Line

- Poles 20-14 are in City jurisdiction run parallel to existing PAC line (in red)
- Poles 20-19 cross existing PAC distribution line
- Poles 15-14 cross existing PAC distribution line
  - Working with PAC to obtain crossing agreement
- Line runs along existing transmission lines, along parcel boundaries, and along SW Millican Rd





# Ochoco Development Overview

## Transmission Line

- Between poles 14-13 the transmission line will go underground
  - UG line will bore underneath Millican, the private driveway, and the private road, and will not impact any pavement
  - UG line mitigates impact to airport activity and does not impact roundabout plans (see next slide)

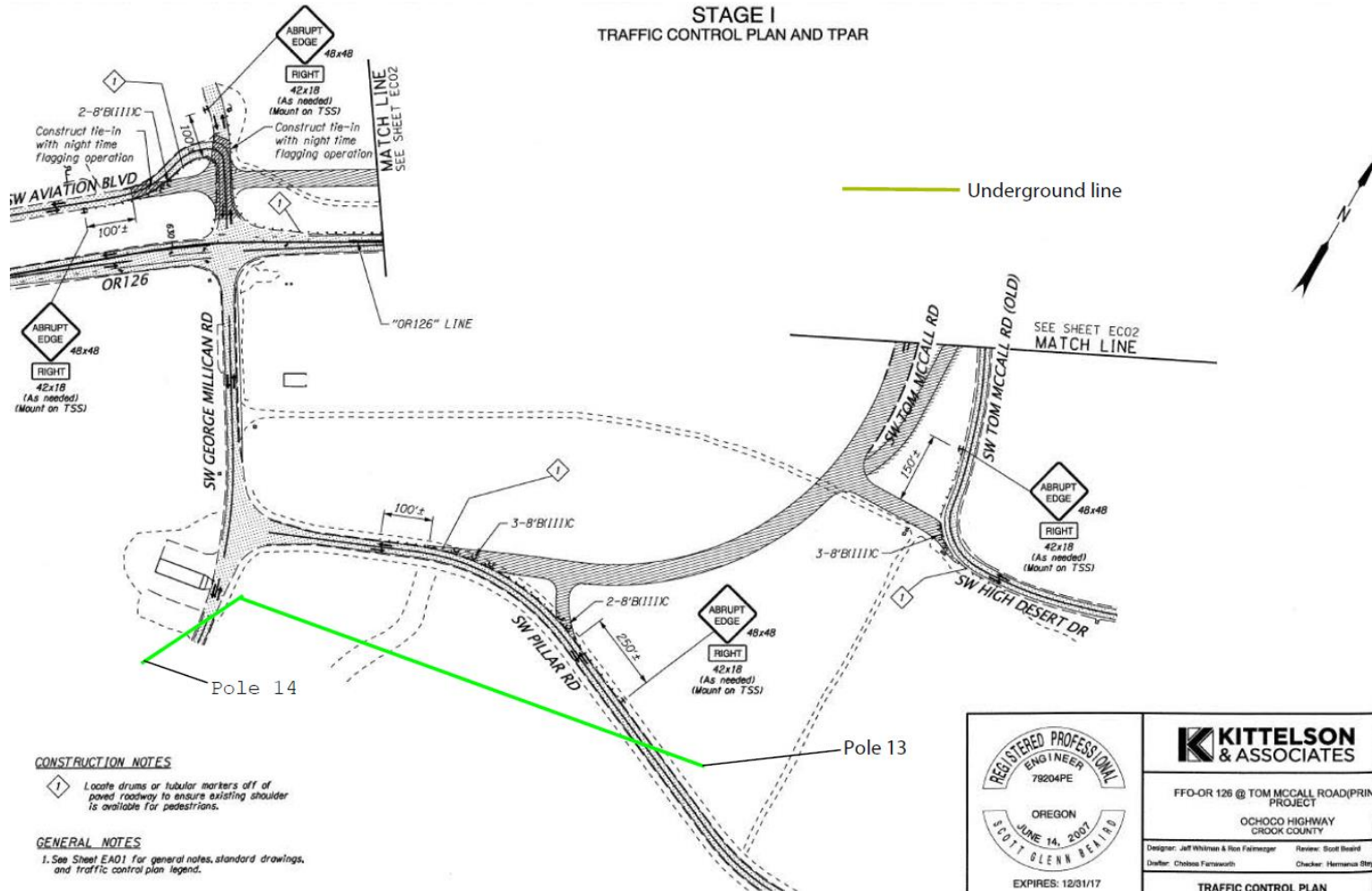




# Ochoco Development Overview

## Transmission Line

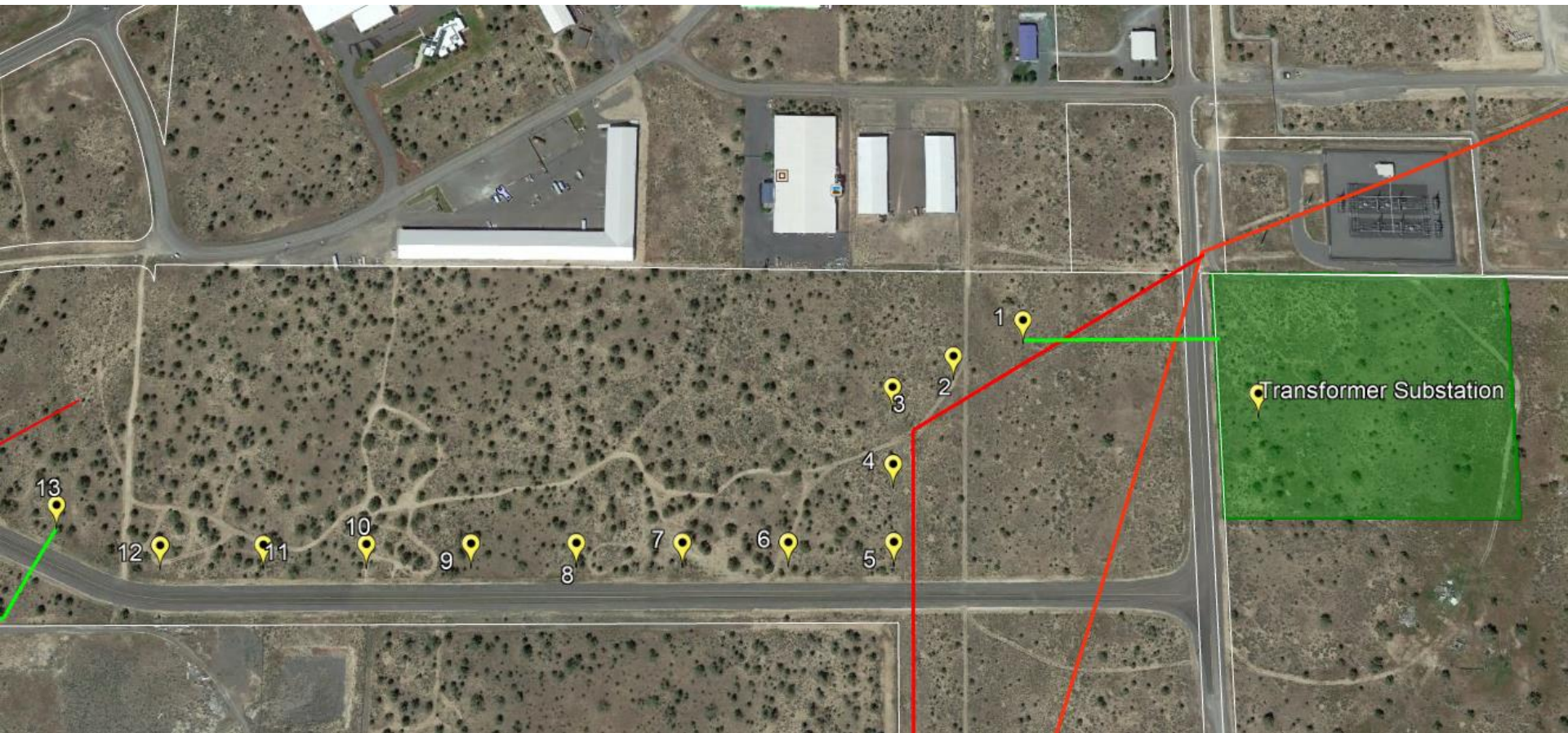
- Between poles 14-13 the transmission line will go underground





# Ochoco Development Overview

- Poles 13-1 are above ground
  - Line follows existing road and existing PAC distribution line
  - We will be going underground from Pole 1 to the transformer substation
  - Transformer substation will have a 2-acre footprint





# CYPRESS CREEK

RENEWABLES

Pole Number	Lat	Long	Pole Height
1	44°16'58.97	120°52'43.14	36.5
2	44°16'58.10	120°52'45.51	34
3	44°16'57.33	120°52'47.58	37.5
4	44°16'55.49	120°52'47.60	34
5	44°16'53.66	120°52'47.62	37.5
6	44°16'53.65	120°52'51.07	34
7	44°16'53.64	120°52'54.51	34
8	44°16'53.63	120°52'57.95	34
9	44°16'53.62	120°53'01.40	34
10	44°16'53.61	120°53'04.84	34
11	44°16'53.61	120°53'04.84	34
12	44°16'53.59	120°53'11.72	37.5
13	44°16'54.55	120°53'15.30	36.5
UG Route	NA	NA	NA
UG Route	NA	NA	NA
UG Route	NA	NA	NA
14	44°16'49.96	120°53'31.43	38.5
15	44°16'47.40	120°53'31.46	37.5
16	44°16'44.81	120°53'31.49	37.5
17	44°16'42.25	120°53'31.52	37.5
18	44°16'39.67	120°53'31.55	43
19	44°16'37.06	120°53'31.58	47.5
20	44°16'34.5642	120°53'31.61	60
21	44°16'34.55	120°53'35.61	43
22	44°16'34.54	120°53'39.46	37.5
23	44°16'34.53	120°53'43.01	37.5
24	44°16'34.52	120°53'46.56	37.5
25	44°16'34.51	120°53'50.11	37.5
26	44°16'34.50	120°53'53.67	37.5
27	44°16'34.49	120°53'57.22	37.5
28	44°16'34.48	120°54'00.77	37.5
29	44°16'34.48	120°54'04.29	37.5

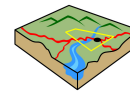


# Crook County, Oregon



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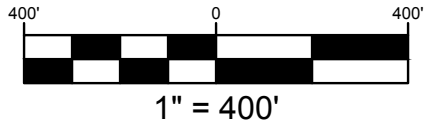
0 800 1,600 Feet



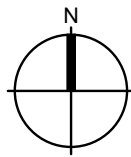
**Crook County GIS**  
GEOGRAPHIC INFORMATION SYSTEMS



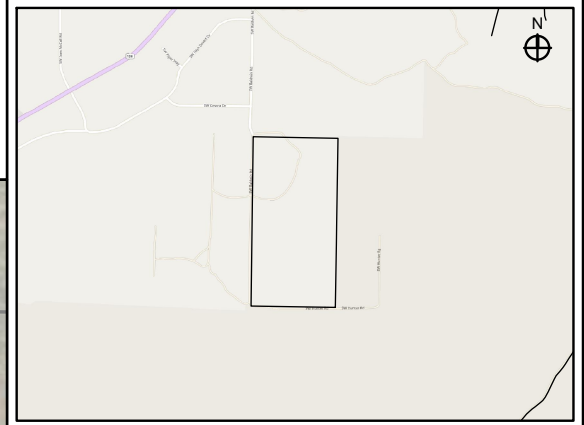
# GRAPHIC SCALE



# NORTH



# VICINITY MAP



SCALE 1" = 3000'

SITE ACCESS

BALDWIN COUNTY ROAD

PARCEL A  
2 ACRES

PARCEL B  
78 ACRES

SW Hunter Rd

SW Hunter Rd

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# OCHOCO SOLAR, LLC

## PARTITION MAP

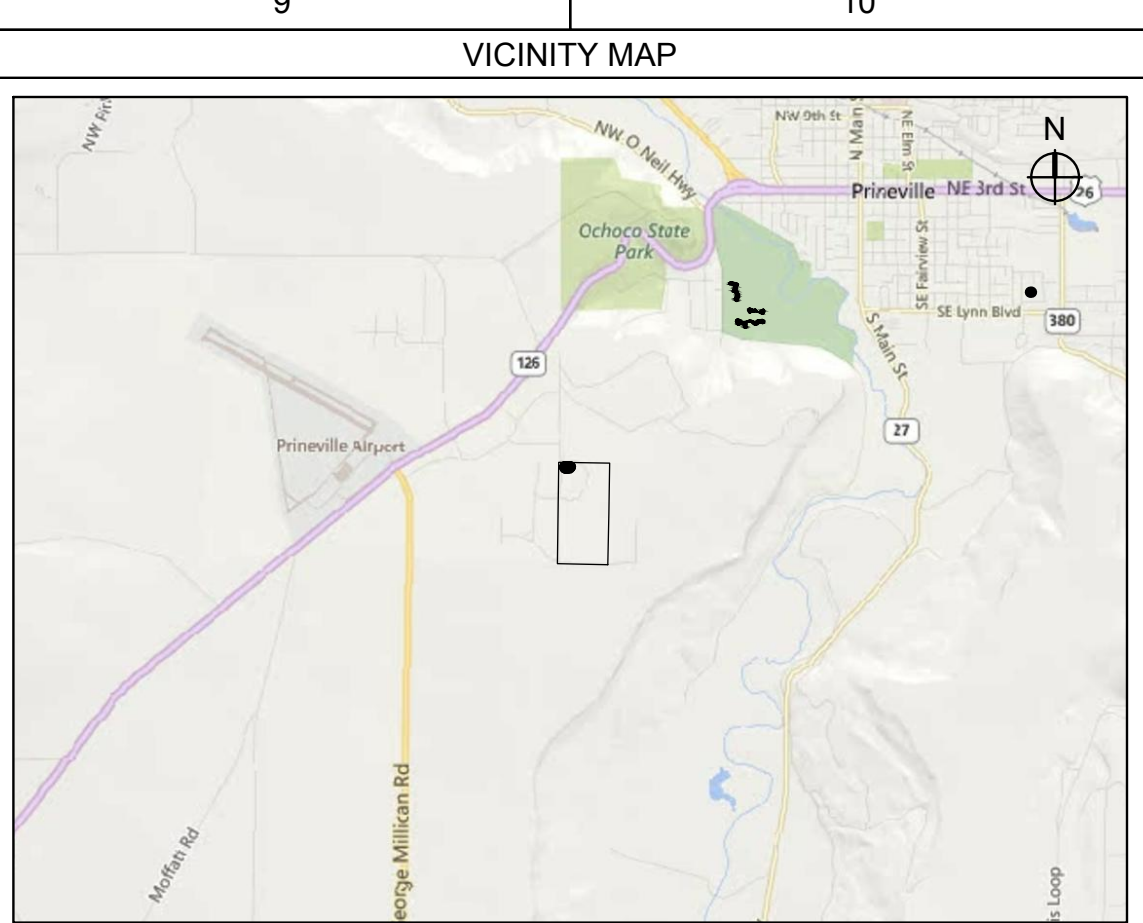
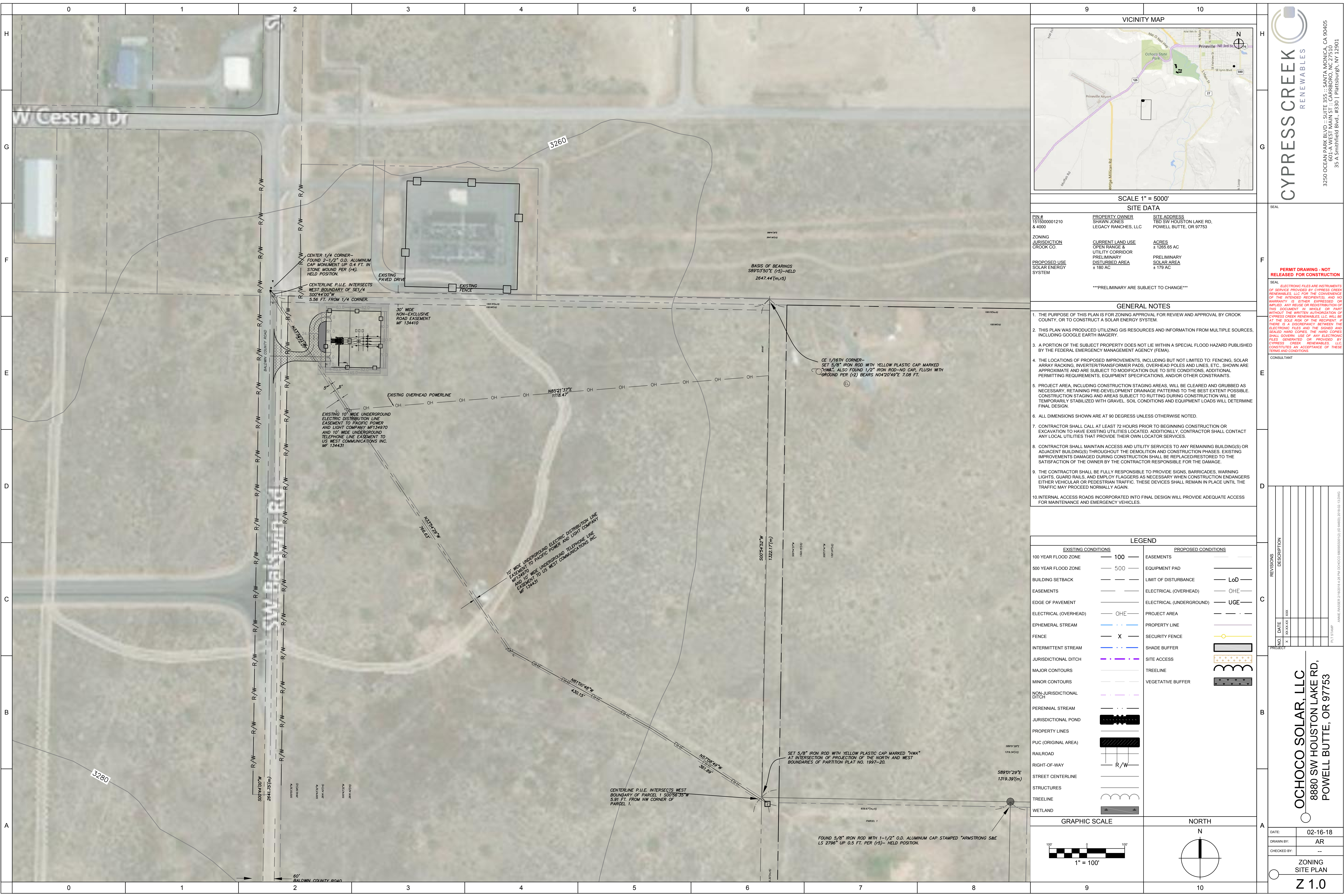
DATE:	02-21-18
DRAWN BY:	AR
CHECKED BY:	--

**CYPRESS CREEK**  
RENEWABLES



3250 OCEAN PARK BLVD :: SUITE 355 :: SANTA MONICA, CA 90405  
601-A WEST MAIN ST :: CARRBORO, NC 27510  
35 A SMITHFIELD BLVD :: #330 :: PLATTSBURGH, NY 12901

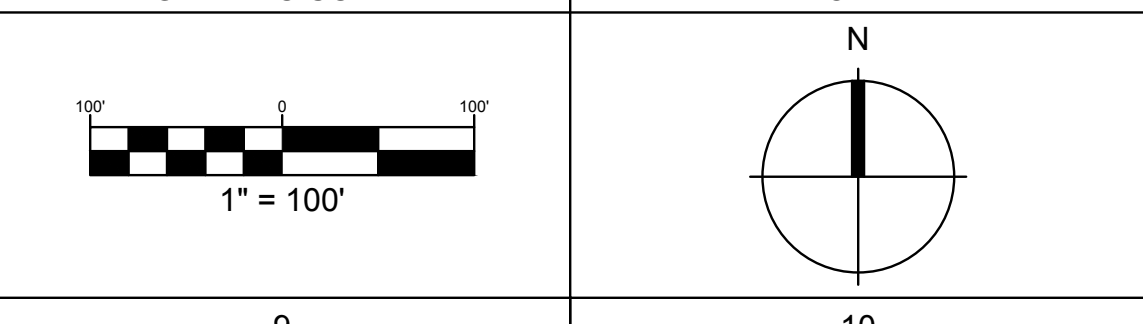




SITE DATA		
PIN #	PROPERTY OWNER	SITE ADDRESS
1515000001210 & 4000	SHAWN JONES LEGACY RANCHES, LLC	TBD SW HOUSTON LAKE RD, POWELL BUTTE, OR 97753
ZONING	CURRENT LAND USE	ACRES
JURISDICTION	UTILITY CORRIDOR	± 1265.65 AC
CROOK CO.	PRELIMINARY	PRELIMINARY
PROPOSED USE	SOLAR ENERGY	± 180 AC
SYSTEM		± 179 AC
***PRELIMINARY ARE SUBJECT TO CHANGE***		

- ### GENERAL NOTES
- THE PURPOSE OF THIS PLAN IS FOR ZONING APPROVAL FOR REVIEW AND APPROVAL BY CROOK COUNTY, OR TO CONSTRUCT A SOLAR ENERGY SYSTEM.
  - THIS PLAN WAS PRODUCED UTILIZING GIS RESOURCES AND INFORMATION FROM MULTIPLE SOURCES, INCLUDING GOOGLE EARTH IMAGERY.
  - A PORTION OF THE SUBJECT PROPERTY DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).
  - THE LOCATIONS OF PROPOSED IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO: FENCING, SOLAR ARRAY RACKING, INVERTER/TRANSFORMER PADS, OVERHEAD POLES AND LINES, ETC., SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MODIFICATION DUE TO SITE CONDITIONS, ADDITIONAL PERMITTING REQUIREMENTS, EQUIPMENT SPECIFICATIONS, AND/OR OTHER CONSTRAINTS.
  - PROJECT AREA, INCLUDING CONSTRUCTION STAGING AREAS, WILL BE CLEARED AND GRUBBED AS NECESSARY, RETAINING PRE-DEVELOPMENT DRAINAGE PATTERNS TO THE BEST EXTENT POSSIBLE. CONSTRUCTION STAGING AND AREAS SUBJECT TO RUTTING DURING CONSTRUCTION WILL BE TEMPORARILY STABILIZED WITH GRAVEL. SOIL CONDITIONS AND EQUIPMENT LOADS WILL DETERMINE FINAL DESIGN.
  - ALL DIMENSIONS SHOWN ARE AT 90 DEGREE UNLESS OTHERWISE NOTED.
  - CONTRACTOR SHALL CALL AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. ADDITIONALLY, CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES.
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  - INTERNAL ACCESS ROADS INCORPORATED INTO FINAL DESIGN WILL PROVIDE ADEQUATE ACCESS FOR MAINTENANCE AND EMERGENCY VEHICLES.

LEGEND	
EXISTING CONDITIONS	PROPOSED CONDITIONS
100 YEAR FLOOD ZONE	EASEMENTS
500 YEAR FLOOD ZONE	EQUIPMENT PAD
BUILDING SETBACK	LIMIT OF DISTURBANCE
EASEMENTS	ELECTRICAL (OVERHEAD)
EDGE OF PAVEMENT	ELECTRICAL (UNDERGROUND)
ELECTRICAL (OVERHEAD)	PROJECT AREA
EPHEMERAL STREAM	PROPERTY LINE
FENCE	SECURITY FENCE
INTERMITTENT STREAM	SHADE BUFFER
JURISDICTIONAL DITCH	SITE ACCESS
MAJOR CONTOURS	TREELINE
MINOR CONTOURS	VEGETATIVE BUFFER
NON-JURISDICTIONAL DITCH	
PERENNIAL STREAM	
JURISDICTIONAL POND	
PROPERTY LINES	
PUC (ORIGINAL AREA)	
RAILROAD	
RIGHT-OF-WAY	
STREET CENTERLINE	
STRUCTURES	
TREELINE	
WETLAND	



3250 OCEAN PARK BLVD :: SUITE 355 :: SANTA MONICA, CA 90405  
601-A WEST MAIN ST :: CARBORO, NC 27510  
35-A Smithfield Blvd., #350 | Patsburg, NY 12501

**PERMIT DRAWING - NOT RELEASED FOR CONSTRUCTION**

SEAL

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CONSULTANT

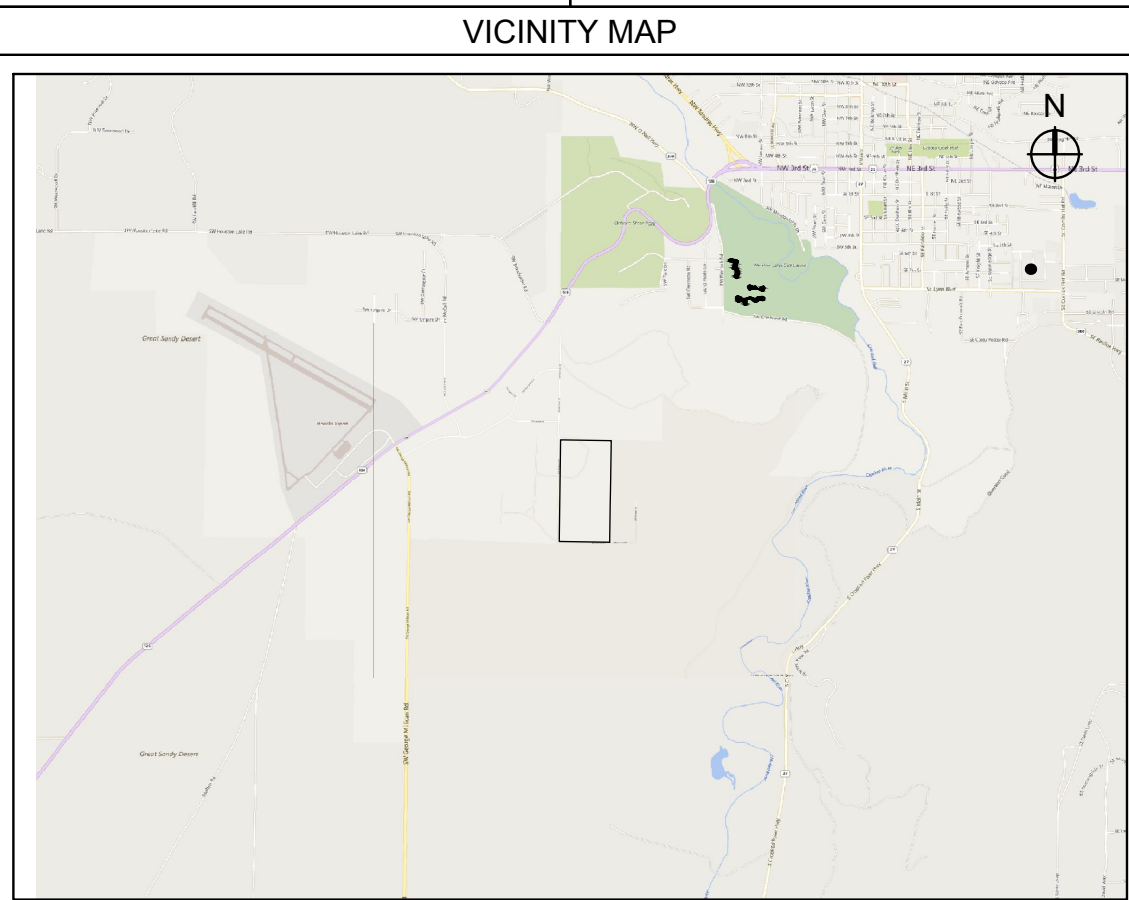
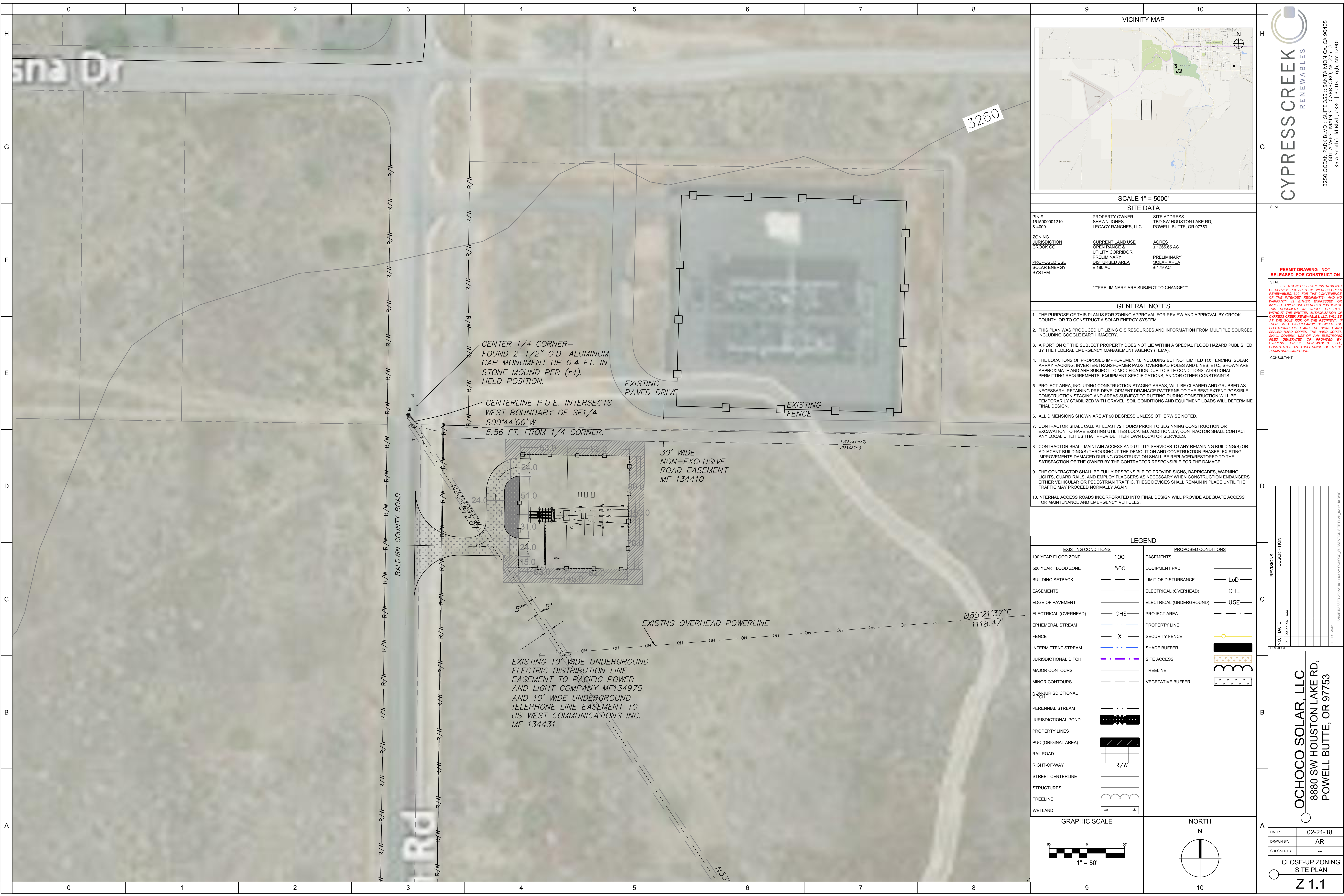
NO.	DATE	DESCRIPTION
1	02-16-18	ISSUED FOR PERMIT

PROJECT: OCHOCO SOLAR, LLC  
8880 SW HOUSTON LAKE RD,  
POWELL BUTTE, OR 97753

DATE: 02-16-18  
DRAWN BY: AR  
CHECKED BY: --

ZONING  
SITE PLAN  
Z 1.0

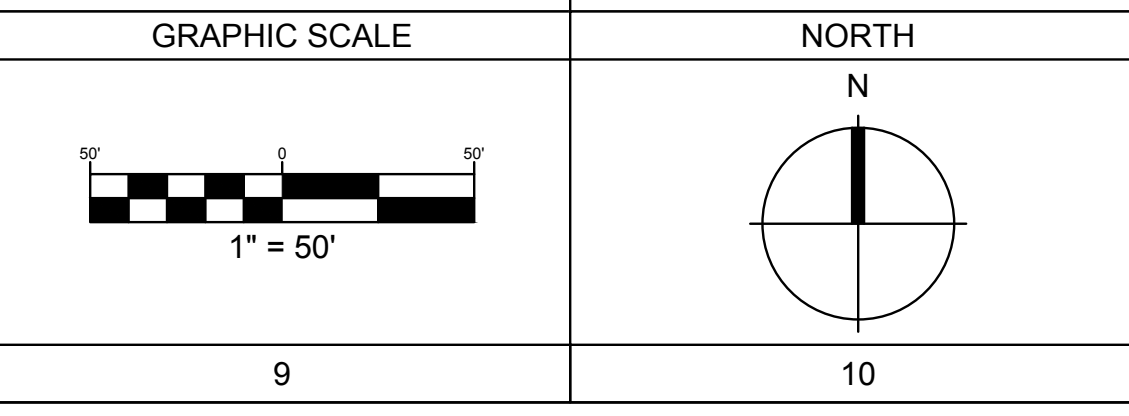




SITE DATA		
PIN # 151500001210 & 4000	PROPERTY OWNER SHAWN JONES LEGACY RANCHES, LLC	SITE ADDRESS TBD SW HOUSTON LAKE RD, POWELL BUTTE, OR 97753
ZONING JURISDICTION CROOK CO.	CURRENT LAND USE OPEN RANGE & UTILITY CORRIDOR PRELIMINARY	ACRES ± 1265.65 AC  PRELIMINARY SOLAR AREA ± 179 AC
PROPOSED USE SOLAR ENERGY SYSTEM		
***PRELIMINARY ARE SUBJECT TO CHANGE***		

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500 YEAR FLOOD ZONE	EQUIPMENT PAD
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ELECTRICAL (OVERHEAD)	PROJECT AREA
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NON-JURISDICTIONAL DITCH	
PERENNIAL STREAM	
JURISDICTIONAL POND	
PROPERTY LINES	
PUC (ORIGINAL AREA)	
RAILROAD	
RIGHT-OF-WAY	
STREET CENTERLINE	
STRUCTURES	
TREELINE	
WETLAND	



CYPRESS CREEK RENEWABLES

3250 OCEAN PARK BLVD. SUITE 355 SANTA MONICA, CA 90405  
601-A WEST MAIN ST. CARBORO, NC 27510  
35 A Smithfield Blvd., #301 Pattsburgh, NY 12501

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NO.	DATE	DESCRIPTION
1	02/21/18	ISSUED FOR PERMITTING
2	03/01/18	REVISED TO ADD COMMENTS
3	03/15/18	REVISED TO ADD COMMENTS
4	03/22/18	REVISED TO ADD COMMENTS
5	04/05/18	REVISED TO ADD COMMENTS
6	04/12/18	REVISED TO ADD COMMENTS
7	04/19/18	REVISED TO ADD COMMENTS
8	04/26/18	REVISED TO ADD COMMENTS
9	05/03/18	REVISED TO ADD COMMENTS
10	05/10/18	REVISED TO ADD COMMENTS
11	05/17/18	REVISED TO ADD COMMENTS
12	05/24/18	REVISED TO ADD COMMENTS
13	06/01/18	REVISED TO ADD COMMENTS
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19	07/13/18	REVISED TO ADD COMMENTS
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42	12/21/18	REVISED TO ADD COMMENTS
43	12/28/18	REVISED TO ADD COMMENTS
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45	01/11/19	REVISED TO ADD COMMENTS
46	01/18/19	REVISED TO ADD COMMENTS
47	01/25/19	REVISED TO ADD COMMENTS
48	02/01/19	REVISED TO ADD COMMENTS
49	02/08/19	REVISED TO ADD COMMENTS
50	02/15/19	REVISED TO ADD COMMENTS

OCHOCO SOLAR, LLC  
8880 SW HOUSTON LAKE RD,  
POWELL BUTTE, OR 97753

DATE:	02-21-18
DRAWN BY:	AR
CHECKED BY:	--

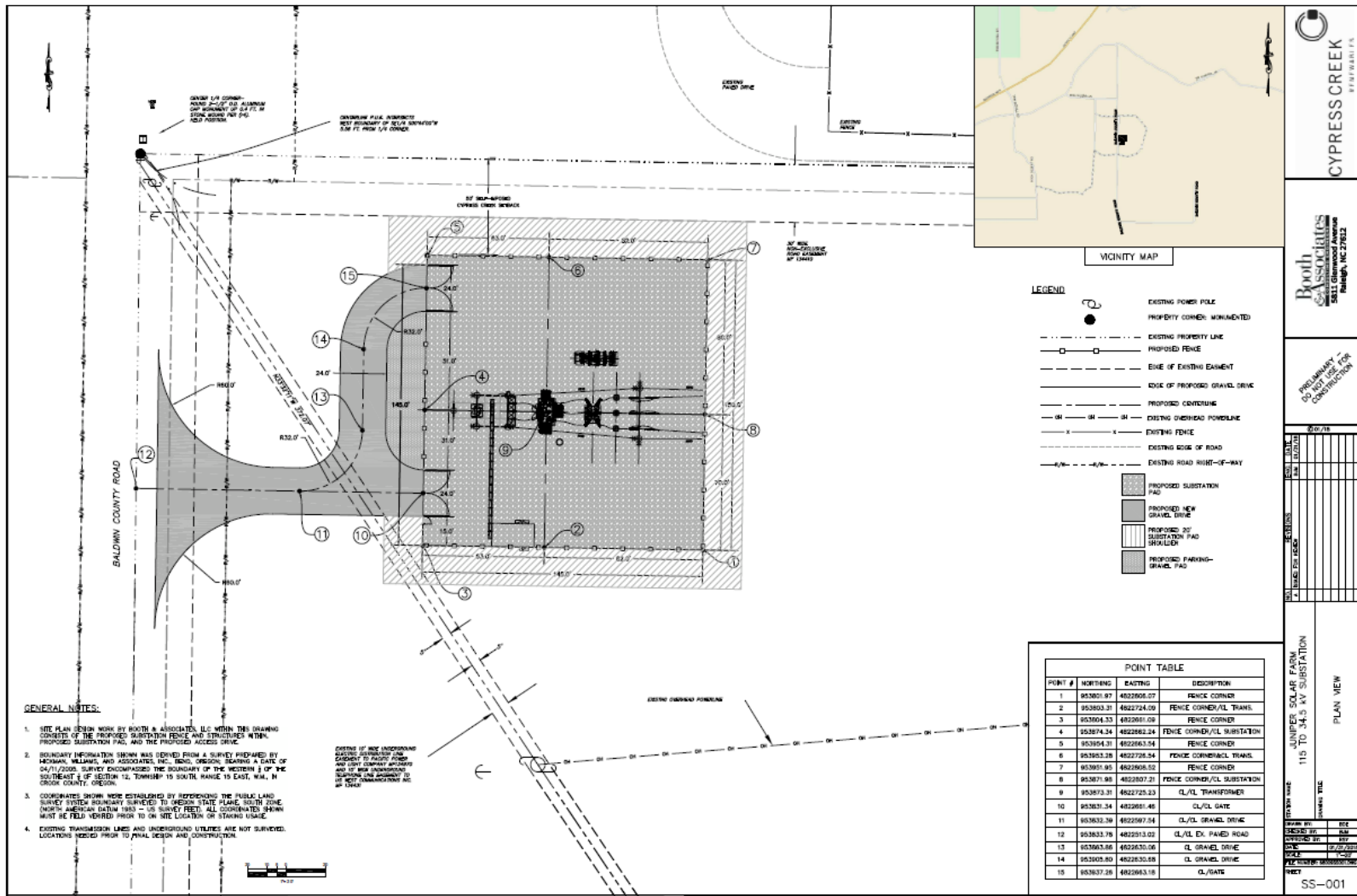
CLOSE-UP ZONING SITE PLAN

Z 1.1



# Ochoco Development Overview

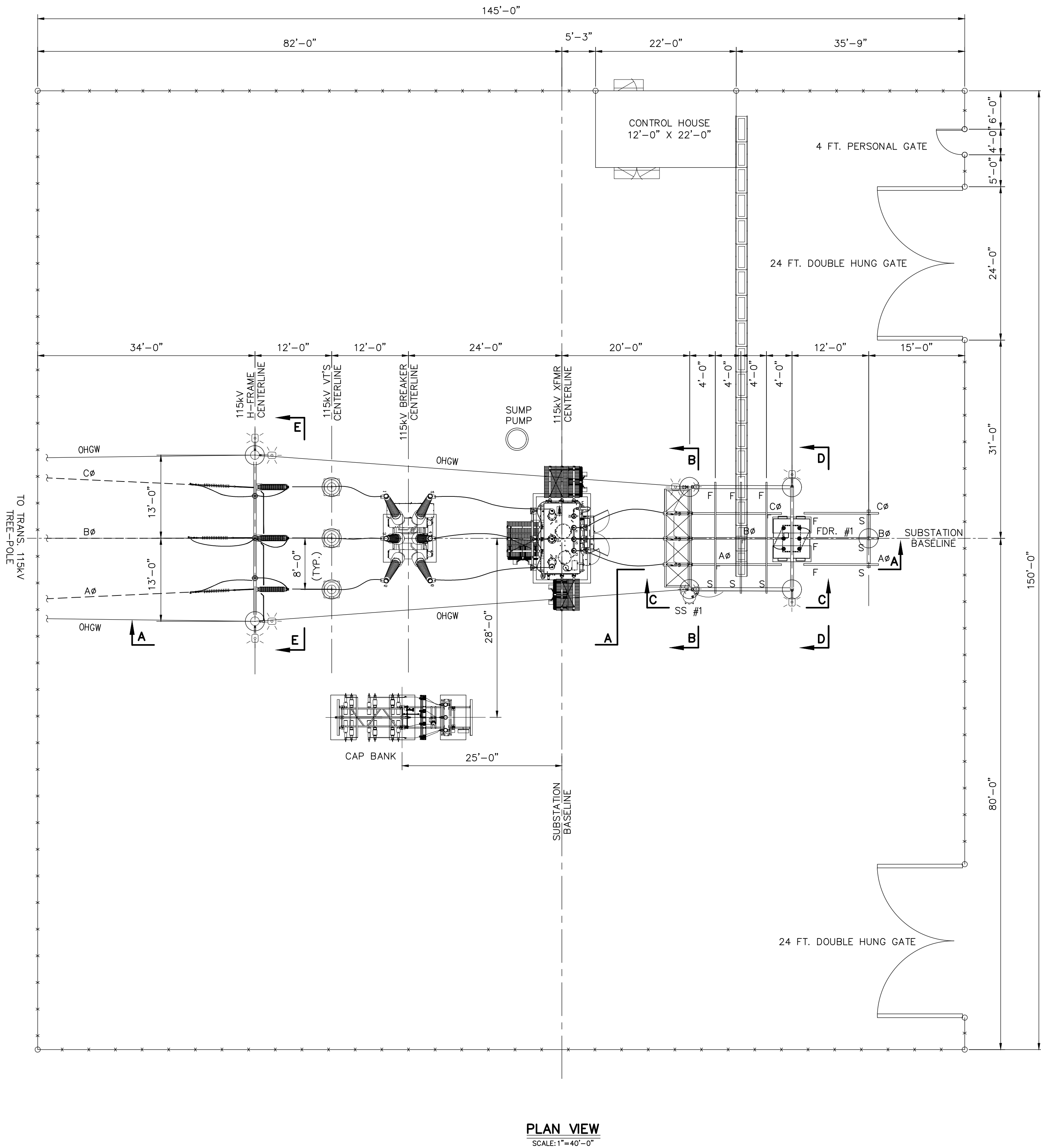
- Transformer substation 30% complete engineering drawing











PLAN VIEW  
 SCALE: 1"=40'-0"

CONDUCTOR/BUS AMPACITIES

CONDUCTOR	APPROX. CURRENT CARRYING CAPACITY*
TUBING, 4" NPS SCH. 80 AL.	3720 AMPS.
TUBING, 3" NPS SCH. 80 AL.	2760
TUBING, 2" NPS SCH. 80 AL.	1700
TUBING, 4" NPS SCH. 40 AL.	3165
TUBING, 3" NPS SCH. 40 AL.	2425
TUBING, 2" NPS SCH. 40 AL.	1465
ACSR, 1272 MCM, 26/7	1200
ACSR, 954 MCM, 26/7	1010
ACSR, 795 MCM, 26/7	900
ACSR, 336.4 MCM, 18/1	530
ACSR, 2/0 AWG, 6/1	340
ACSR, 1/0 AWG, 6/1	230
COPPER, 1000 MCM, 61 STD.	1285
COPPER, 750 MCM, 61 STD.	1075
COPPER, 500 MCM, 37 STD.	830
COPPER, 4/0 AWG, 7 STD.	480
COPPER, 2/0 AWG, 7 STD.	355
COPPER, #2 AWG, SOLID	231
UABC, 4" x 4" x 3/8"	3125
UABC, 4" x 4" x 1/4"	2625
UABC, 3 1/4" x 3 1/4" x 1/4"	2340
AL, BAR 3" x 1/2"	1350
AL, BAR 3" x 1/4"	938

\* AC, 60 HZ, 40° C AMBIENT, 50' C RISE, HORIZONTAL ORIENTATION, OUTDOORS, WIND = 2 FPS

BOLT TORQUING TABLE

DIAMETER BOLT (INCHES)	RECOMMENDED TORQUE NON-LUBRICATED STEEL & SILICON BRONZE HARDWARE (FOOT*LB)	RECOMMENDED TORQUE LUBRICATED HARDWARE & ALUMINUM HARDWARE (FOOT*LB)
1/2"	40	25
5/8"	55	40
3/4"	70	60

STATION DESIGN DATA

STRUCTURE, APPARATUS AND LIGHTNING ARRESTERS ARE ALL GROUNDED TO THE SAME GROUNDING SYSTEM. STATION DESIGNED FOR THE FOLLOWING ELECTRICAL CLEARANCES/SPACINGS:

RATED KV	BIL KV	RIGID BUS CONDUCTORS (IEEE, NEMA, NESC)				GROUP-OPERATED SWITCHES (NEMA)		
		SPACING (2)	CLEARANCE (1)			ø TO ø SPACING (2)		
		PHASE TO PHASE, ø TO ø (3)	METAL TO METAL (4)	PHASE TO GROUND (5)	CLEARANCE ABOVE GRADE (6)	HORN CAP VERT./HOR. BREAK	DISCONNECT VERTICAL BREAK	DISCONNECT HORIZONTAL BREAK
115	550	7'-0"	4'-5"	3'-9"	12'-0"	10'-0"	7'-0"	9'-0"
34.5	200	3'-6"	18"	18"	10'-0"	5'-0"	3'-0"	4'-0"

- NOTES:
- "CLEARANCE" IS DEFINED AS A SURFACE-TO-SURFACE MEASUREMENT.
  - "SPACING" IS DEFINED AS A ø TO ø MEASUREMENT.
  - INTENDED FOR PHASES ORIENTED IN PARALLEL RUNS.
  - INTENDED FOR NON-PARALLEL POINTS OF CROSSING.
  - EXCEEDS MINIMUM CLEARANCES TO MATCH NEMA STANDARD POST INSULATOR DIMENSIONS.
  - ROUNDED UP TO THE NEAREST EVEN FOOT, PER NESC (2017). MEASURED FROM TOP OF EQUIPMENT FOUNDATIONS, IF SUITABLE FOR PEDESTRIAN ACCESS.

DEADEND STRUCTURE(S) SHALL WITHSTAND 0' TO 15' LINE TAKE-OFF IN ANY DIRECTION WITH A DESIGN LINE TENSION OF 2500 POUNDS PER PHASE CONDUCTOR/1500 POUNDS STATIC OR NEUTRAL CONDUCTOR. A MINIMUM VERTICAL CLEARANCE OF 8'-6" SHALL BE MAINTAINED FOR ANY SURFACE OF INDETERMINATE POTENTIAL SUCH AS LIGHTNING ARRESTERS, UNGROUNDED SURFACES, BUSHINGS, AS PER NESC RULE 124.A.3.

LEGEND

F	FIXED CONNECTION	— — — — —	PROPOSED OVERHEAD ELECTRIC
S	SLIP FIT		
EX	EXPANSION JOINT	* * * * *	PROPOSED SUBSTATION FENCE
HB	HIGH BUS		
LB	LOW BUS		
HLB	HIGH-LOW BUS		

INSTALLATION NOTES:

- MATERIALMAN/FABRICATOR TO VERIFY THAT CONDUCTOR TERMINAL PADS MATCH AND FIT ONTO SWITCH TERMINAL PADS (SIZE, NEMA RATING AND SHOULDER).

REFERENCES

SITE PLAN	68009	SS-001 OF 1
PLAN VIEW	68009	SS-002 OF 1
SECTIONS	68009	SS-101, SS-102
DETAILS	68009	SS-103 OF 1
FOUNDING PLAN	68009	SE-401 OF 5
GROUNDING PLAN & DETAILS	68009	SE-501, SE-502
CONDUIT PLAN & DETAILS	68009	SE-601, SE-602

CYPRESS CREEK  
RENEWABLES

Booth & Associates  
CONSULTING ENGINEERS  
5811 Glenwood Avenue  
Raleigh, NC 27612

PRELIMINARY -  
DO NOT USE FOR  
CONSTRUCTION

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NO.	REVISIONS	ENG.	DATE
A	ISSUED FOR REVIEW	BJM	07/31/18

STATION NAME: JUNIPER SOLAR FARM  
115 TO 34.5 kV SUBSTATION

DRAWING TITLE: PLAN VIEW

DRAWN BY:	AVS
CHECKED BY:	BJM
APPROVED BY:	MLC
DATE:	12/07/17
SCALE:	3/32"=1'-0"
FILE NUMBER:	68009-SS-002

SHEET:

SS-002





PRELIMINARY -  
DO NOT USE FOR  
CONSTRUCTION

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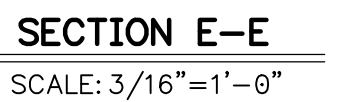
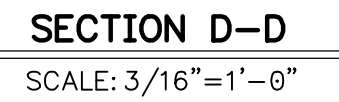
[illegible]

JUNIPER SOLAR FARM  
115 TO 34.5 kV SUBSTATION

## SECTIONS D-D & E-E

DRAWN BY:	AVS
CHECKED BY:	BJM
APPROVED BY:	MLC
DATE:	01/30/18
SCALE:	3/16"=1'
FILE NUMBER: 68009-SS-102	

SS-102



### INSTALLATION NOTES:

1. MATERIALMAN/FABRICATOR TO VERIFY THAT CONDUCTOR TERMINAL PADS MATCH AND FIT ON TO SWITCH TERMINAL PADS (SIZE, NEMA RATING AND SHOULDER).

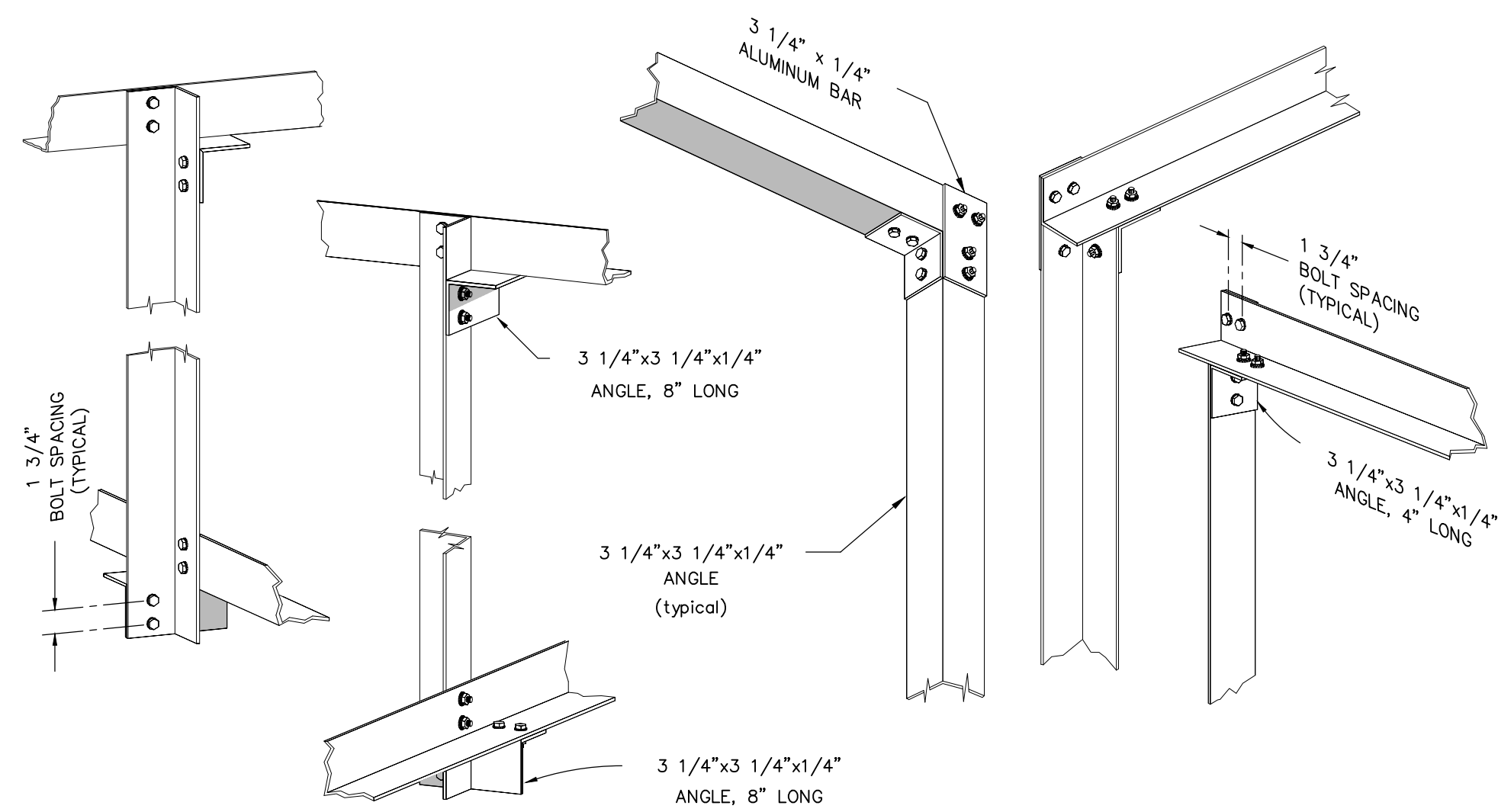
## REFERENCES

SITE PLAN	68009	SS-001 OF 5
PLAN VIEW	68009	SS-002 OF 5
SECTIONS	68009	SS-101, SS-102
DETAILS	68009	SS-103 OF 5
FOUNDATION PLAN	68009	SE-401 OF 5
GROUNDING PLAN & DETAILS	68009	SE-501, SE-502
CONDUIT PLAN & DETAILS	68009	SE-601, SE-602



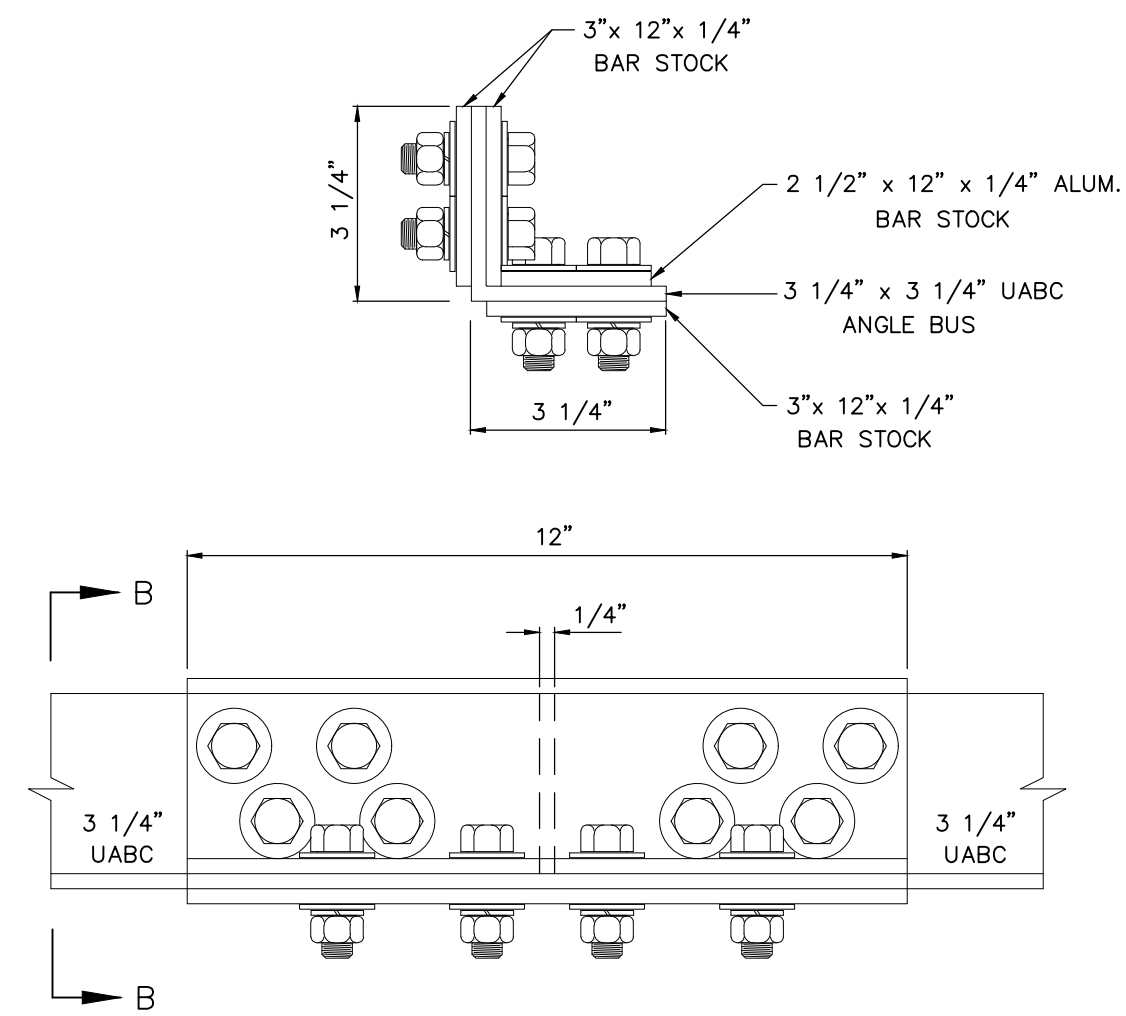
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<div>JUNIPER SOLAR FARM 115 TO 34.5 kV SUBSTATION</div>		<div>DETAILS</div>			
				STATION NAME:	
				DRAWING TITLE:	
				DRAWN BY: AVS	
				CHECKED BY: BJM	
APPROVED BY: MLC		DATE: 01/30/18			
SCALE: NONE		FILE NUMBER: 68009--SS--103			
SHEET:					
SS-103					



## ANGLE TO ANGLE CONNECTIONS

N.T.S

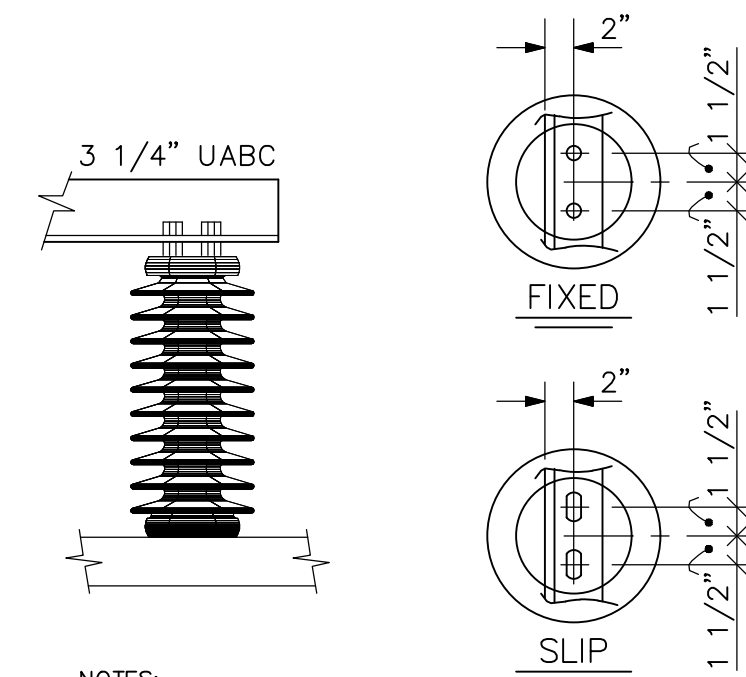


NOTE:

SCRATCH BRUSH ALL CONTACT SURFACES, REMOVE ALL BURR'S, CLEAN THOROUGHLY AND APPLY INHIBITOR COMPOUND

ANGLE SPLICE DETAIL  
AS REQUIRED

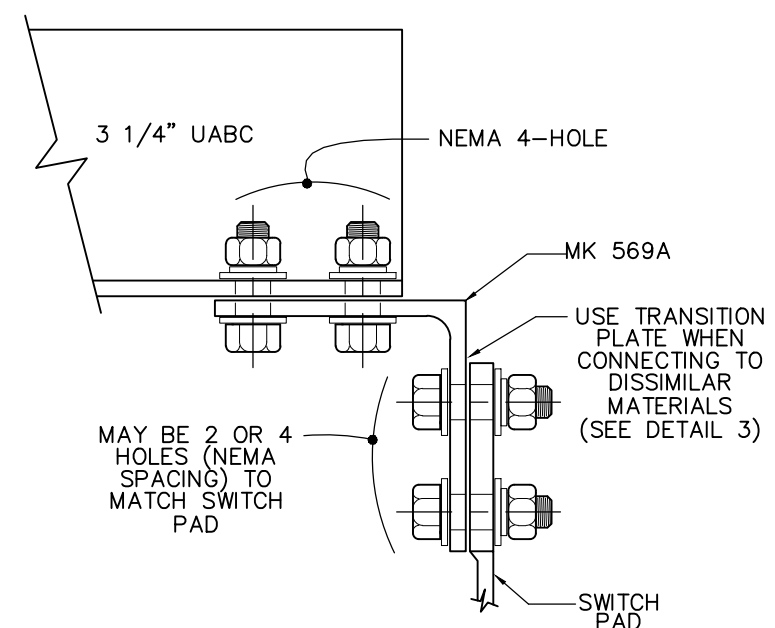
N.T.S



## DETAIL

N.T.S

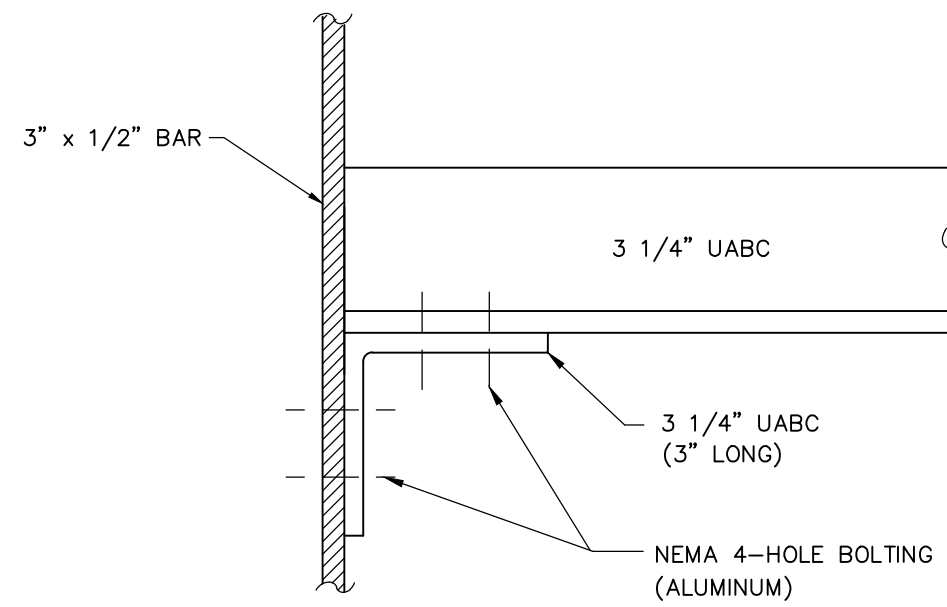
- NOTES:**
- 1) INSTALL ONE STAINLESS STEEL FLAT AND ONE STAINLESS STEEL SPLIT WASHER BETWEEN BOLT HEAD AND ANGLE BUS, AND ONE STAINLESS STEEL FLAT WASHER BETWEEN NUT AND BOTTOM OF ANGLE BUS.
  - 2) TIGHTEN  $1/2"$  Ø BOLT TO 50% OF FULL COMPRESSION ON STAINLESS STEEL SPLIT LOCK WASHER.
  - 3) TIGHTEN LOCK NUT HARD AGAINST TOP OF INSULATOR.



ANGLE TO SWITCH PAD

(FIXED

N.T.S.

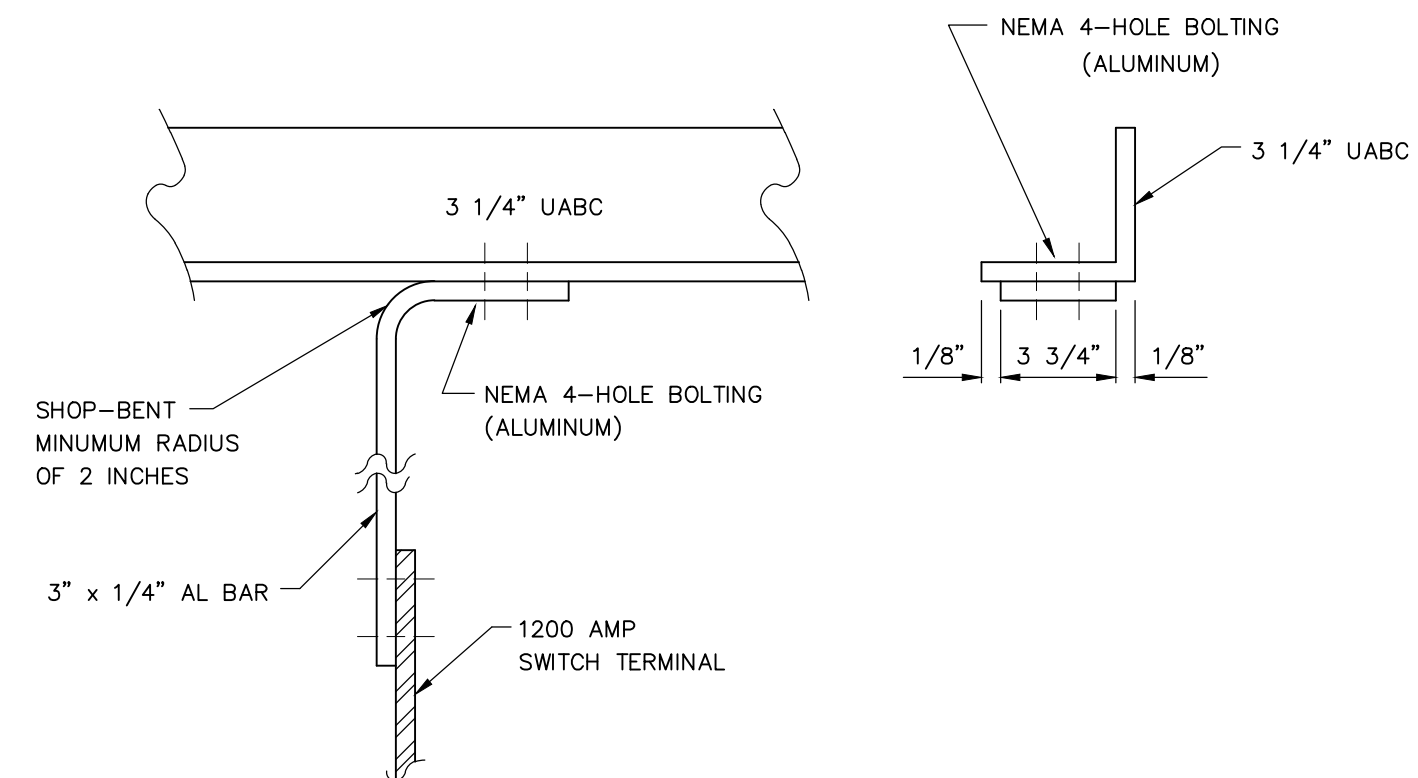
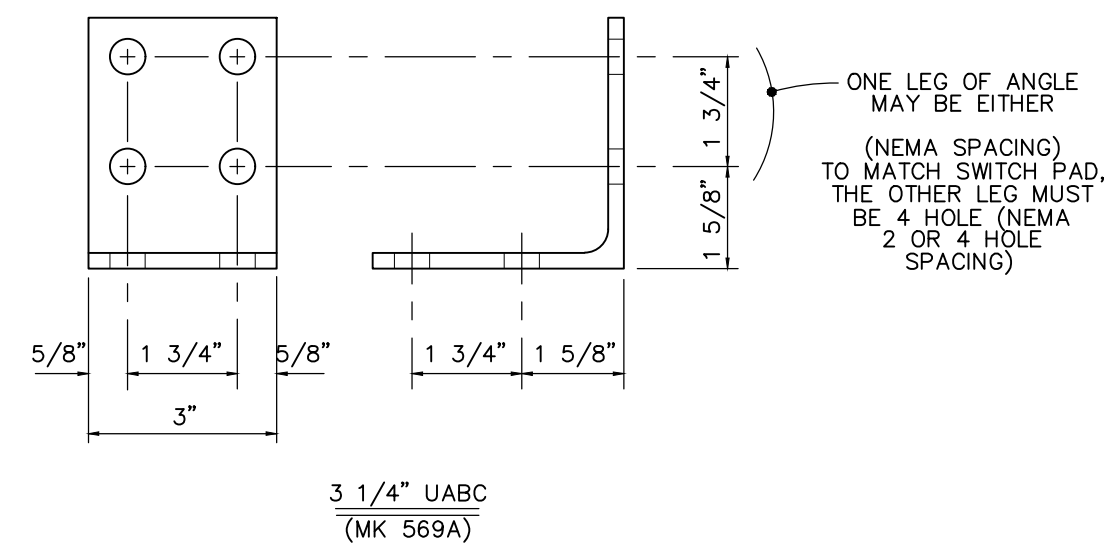


NOTE:

SCRATCH BRUSH ALL CONTACT SURFACES  
AND APPLY INHIBITOR COMPOUND

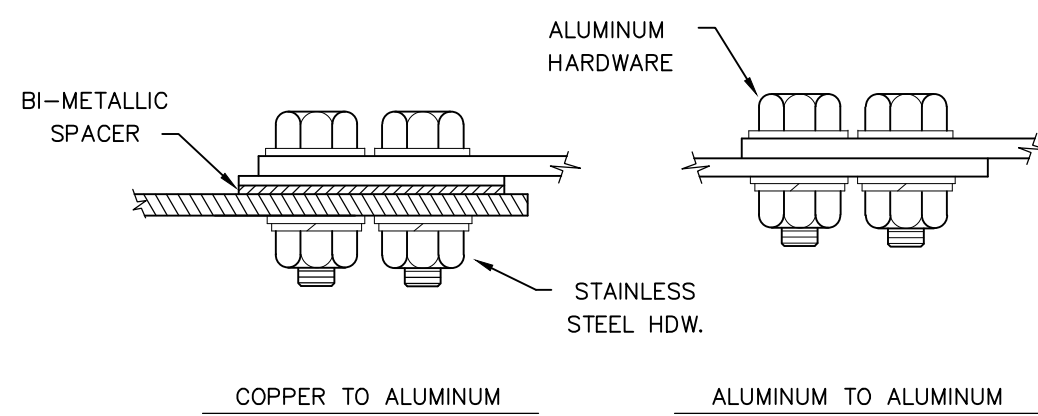
### FIXED CONNECTION FOR BAR-TO-ANGLE BUS

N.T.S



### ANGLE DETAIL

N.T.S



NOTE: APPLY ELECTRICAL JOINT COMPOUND TO BOTH CONNECTIONS

## ELECTRICAL CONNECTIONS

N.T.S