

**STATE OF MINNESOTA  
BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION**

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*In the Matter of the Application of* )  
*Marshall Solar for A Site Permit* )  
*For the Marshall Solar Energy* )  
*Project and Associated Facilities* )  
*In Lyon County, Minnesota* )

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**Docket No. IP-6941/GS-14-1052**

**MARSHALL SOLAR, LLC's  
APPLICATION FOR A MINOR ALTERATION**

**By:**

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**Dated: September 26, 2017**

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**MARSHALL SOLAR, LLC's  
APPLICATION FOR MINOR ALTERATION**

**I. Introduction**

On May 5, 2016, the Minnesota Public Utilities Commission (“Commission”) issued a Site Permit to Marshall Solar, LLC (“Marshall Solar” or “Project”) to construct a 62.5 megawatt solar plant and associated facilities. Currently, the Marshall Solar facility is operational. As part of its on-going maintenance activities, however, Marshall Solar has identified the need to construct a shed to store and protect maintenance tools and equipment from the elements. Because the shed was not included as an associated facility of the Project, pursuant to Minn. R. 7850.4800, Marshall Solar respectfully requests a minor alternation to the Project to authorize the construction of the shed within the Project area.

The shed is proposed to be constructed on land that Marshall Solar owns, is within the fenced in Project area and is currently covered with gravel. The dimensions of the shed would be no larger than 30 feet by 50 feet. The shed is made of steel and supported by four wood poles. The shed does not need a foundation; however, if a foundation is used it would be a concrete floor that would be the size of the inside of the building 30 x 50 feet and 4 inches thick. The concrete floor would be a floating floor, and, thus, not anchored. Further, while the addition of the shed does not include a need for water or sewer services, a single-phase circuit

would be constructed from the Marshall Solar substation to the shed to power lights. This circuit will be buried at a depth of two feet. Representative photos of the proposed shed are attached as Attachment A, and a revised Site Plan is attached as Attachment B.

## **II. Standard of Review**

Under Minn. R. 7850.4800, Subp. 1 and 2:

A minor alteration is a change in a large electric power generating plant or high voltage transmission line that does not result in significant changes in the human or environmental impact of the facility. . . . A person seeking authorization to make a minor alteration in a large electric power generating plant or high voltage transmission line shall apply to the commission. The application shall be in writing and shall describe the alteration in the large electric power generating plant or high voltage transmission line to be made and the explanation why the alteration is minor. The commission shall mail notice of receipt of the application to those persons on the general list and to those persons on the project contact list if such a list exists. The commission shall provide at least a ten-day period for interested persons to submit comments on the application or to request that the matter be brought to the commission for consideration.

Consistent with this standard, this Application shows that the minor alteration proposed by Marshall Solar does not result in a significant change in the human or environmental impact of the Marshall Solar facility.

## **III. Impact to Humans and the Environment**

The following provides an analysis of the shed's impact on humans and the environment using the same criteria employed to evaluate the Marshall Solar facility.<sup>1</sup> The analysis shows the construction and use of the shed does not result in a significant change in the impact of the Marshall Solar facility.

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<sup>1</sup> *In the Matter of the Application of Marshall Solar, LLC for a Site Permit for the Marshall Solar Energy Project and Associated Facilities in Lyon County*, Docket No. GS-14-1052, Order Issuing Site Permit (May 5, 2016).

<b>Siting Factors</b> <b>(Minn. R. 7850.4100)</b>	<b>Comments</b>
A. Effects on Human Settlements	The proposed shed is within the Project area. There are no emissions, noise or toxins associated with the shed. Aesthetically, the shed is consistent with the viewshed associated with the solar facility. Further, the shed has no impact on recreational or cultural values as it is within the Project area. The shed has no water or sewer requirements. Thus, the shed poses no significant change to the impact to humans.
B. Effects on Public Health and Safety	The construction and use of the shed does not pose a significant impact on public health and safety in that: (1) it will be located within the Project area that is enclosed by an 8-foot chain-link fence; and (2) it will be constructed and used in accordance with local, state and federal safety laws. Thus, the shed poses no significant change to the impact on public health and safety.
C. Effects on Land-based Economics	As the shed is within the Project area, and will be constructed on ground that is already covered with gravel, the construction and use of the shed results in no additional impact to land-based economics. After the life of the facility, the shed will be decommissioned consistent with the on-file Decommissioning Plan, and, therefore, the shed does not pose a significant change in the impact to land-based economics.
D. Effects on Archaeological and Historic Resources	The shed will be constructed and located within the Project area, which was already reviewed for archaeological and historical resources. Based on this review, no mitigation measures were required for the facility's impact on archaeological and historical resources. Therefore, the construction and use of the shed within the Project area poses no significant change to the impact on these resources.

<p>E. Effects on the Natural Environment</p>	<p>The construction of the shed will not require additional disturbance of the land, with the exception of minimal disturbance resulting from the placing the supporting poles 4 feet deep in an area covered with gravel. When the facility is decommissioned, the land the shed resides on will be restored consistent with the on-file Decommissioning Plan. Thus, the construction and use of the shed does not result in a significant change in the Marshall Solar facility's impact on the natural environment.</p>
<p>F. Effects on Rare and Unique Natural Resources</p>	<p>The construction and use of the shed within the Project area presents no significant change in the impact on rare and unique natural resources in that it does not require tree removal or any other land or resource disturbances that would affect rare and unique natural resources.</p>
<p>G. Design Options that Maximize Energy Efficiencies, Mitigate Adverse Environmental Impacts, and Accommodate Expansion</p>	<p>The construction and use of the shed does not affect the energy efficiencies of the solar facility nor the ability to accommodate expansion. As already explained, it does not pose a significant change to the environmental impact of the Marshall Solar facility. Therefore, the application of these criteria are either not applicable to the shed or show that it does not pose a significant change in the impact of the facility.</p>
<p>H. Use or Paralleling Existing Right-of-Way</p>	<p>The construction and use of the shed has no impact on Marshall Solar's use or paralleling of existing right-of-way.</p>
<p>I. Use of Existing Large Electric Power Generating Plant Sites</p>	<p>The construction and use of the shed has no impact on Marshall Solar's use of large electric power generating plant sites.</p>
<p>J. Use of Existing Transportation Pipeline, and Electrical Transmission Right-of-Way</p>	<p>The construction and use of the shed has no impact on the Marshall Solar facility's use of existing transportation, pipeline and electrical right-of-way.</p>

K. Electric System Reliability	The construction and use of the shed as no impact on the electric system reliability.
L. Costs	The approximate cost of the shed (construction and material) is approximately \$50,000.
M. Adverse Human and Natural Environmental Effects which Cannot be Avoided	The construction and use of the shed poses no adverse human and environmental effects that cannot be avoided.
N. Irreversible and Irretrievable Commitment of Resources	The construction and use of the shed does not result in an irreversible and irretrievable commitment of resources.

#### **IV. Conclusion**

Based on the above analysis, Marshall Solar respectfully requests that the Commission approve its Application for a minor alternation.

**Dated: September 26, 2017**

**Respectfully submitted,**

/s/ **Brian M. Meloy**  
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**ATTACHMENT A – REPRESENTATIVE PHOTOS**

**ATTACHMENT A**  
**REPRESENTATIVE PHOTOS**





**ATTACHMENT B – SITE PLAN**





RRC POWER & ENERGY, LLC  
 7662 SW MOHAWK ST,  
 TUALATIN, OR 97062  
 PHONE: (503) 342-4064  
 www.RRCcompanies.com

PREPARED FOR:



# MARSHALL SOLAR, LLC

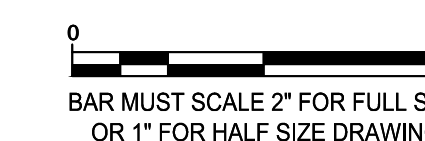
## RECORD DRAWING

THIS AS-RECORDED DRAWING WAS PRODUCED BASED ON FIELD CHANGES MADE AND RECORDED BY THE CONTRACTOR. THIS DRAWING RELIES ON THE INFORMATION PROVIDED BY THE CONTRACTOR AND IT HAS NOT BEEN VERIFIED BY THE ENGINEER-OF-RECORD.

REV	DATE	ISSUE DESCRIPTION
7	09/07/2017	AS-RECORDED
6	08/30/2017	AS RECORDED
5	12/19/2016	AS-RECORDED
4	08/17/2016	ISSUED FOR CONSTRUCTION
3	04/29/2016	ISSUED FOR CONSTRUCTION
2	04/12/2016	ISSUED FOR CONSTRUCTION
1	03/02/2016	ISSUED FOR CONSTRUCTION
0	01/11/2016	ISSUED FOR CONSTRUCTION

PROJECT MGR: S. MOSER  
 CHECKED BY: R. BALYON  
 DESIGNED BY: J. MOFFIT  
 DRAWN BY: M. SUDUL

SCALE: AS NOTED



PROJECT NUMBER: MD1502008

DRAWING NAME:

## MARSHALL SOLAR PROJECT SITE PLAN

DATE ISSUED: 12/19/2016

DRAWING No. SHEET: REVISION

E-101-01 1 of 1 7

CADFILE: MMSP-E-101-01

PROJECT SITE INFORMATION	
SYSTEM DESIGN VOLTAGE	1,500 V
ASHRAE LOCATION	MARSHALL/RYAN (AWOS)
ASHRAE 0.4%	35 °C
ASHRAE 2%	32 °C
ASHRAE MINIMUM TEMPERATURE	-27 °C
PROJECT DC OUTPUT POWER	93.16 MW DC
PROJECT AC OUTPUT POWER	62.25 MW AC
PROJECT DC/AC RATIO	1.4965
ARRAY GCR	53%
SITE ACREAGE (PARCEL 1, 2, & 3)	433.9 ACRES
FENCED AREA	353.3 ACRES
FENCE LENGTH	22,820 FT
ACCESS ROAD LENGTH	20,973 FT

<b>MODULE</b>	Q-CELLS-Q.PLUS L-G4 330
MODULE POWER	330 W
CELLS	72
FRAME	ALUMINUM
MODULE QUANTITY	282,296
STRING SIZE	28

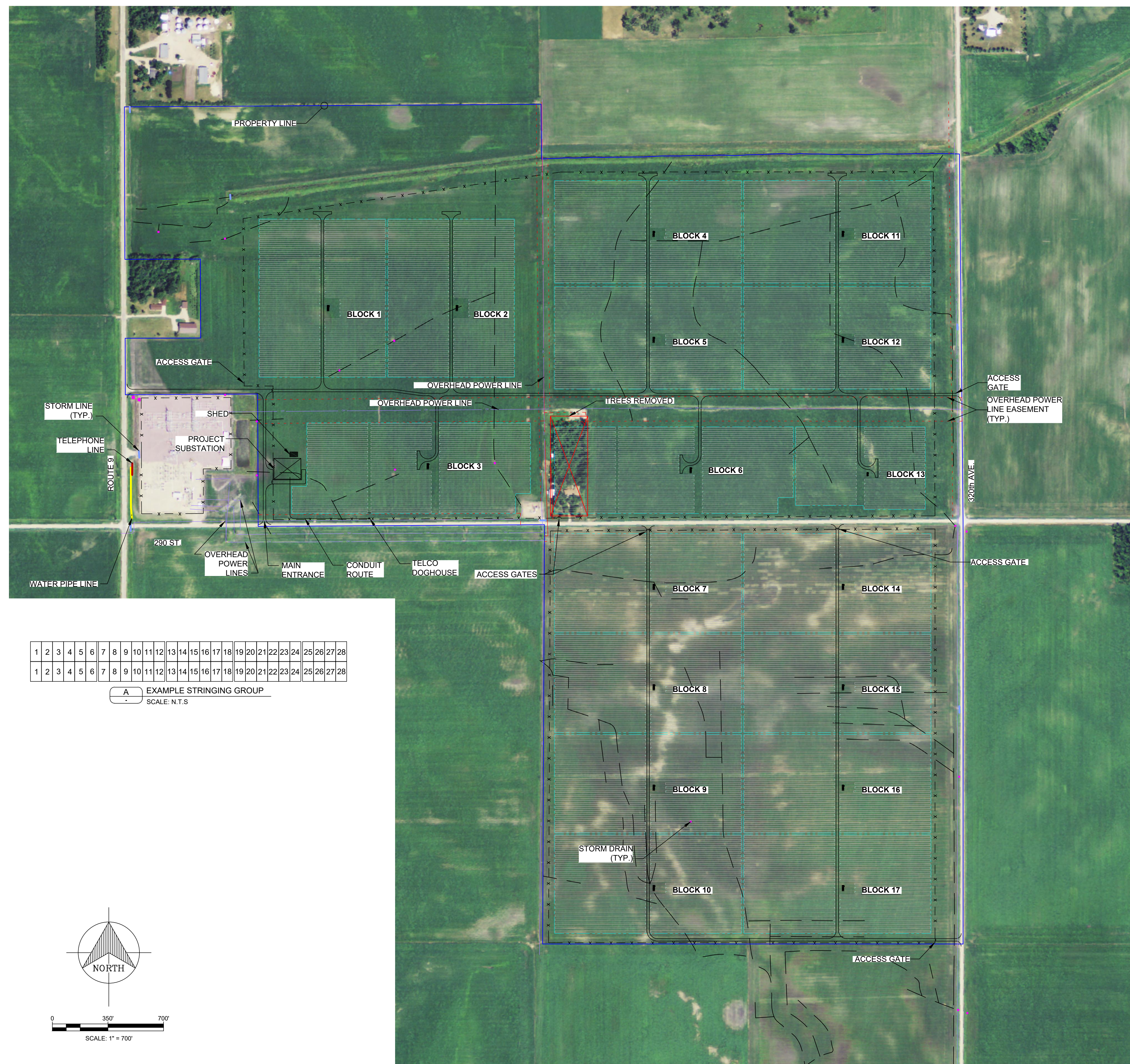
<b>RACKING/TRACKER</b>	FIXED TILT
MANUFACTURER	SUNLINK
MODULE ORIENTATION	PORTRAIT
TABLE CONFIGURATION	2X6 / 2X4
TOTAL NO. 2X6 TABLES	23,270
TOTAL NO. 2X4 TABLES	383
MODULES PER STRING TABLE	56
TILT ANGLE	25 °
AZIMUTH	180 °N
AISLE SPACING	13.10 FT
TABLE PITCH	25.00 FT

<b>INVERTER STATION</b>	
MANUFACTURER	GE
INVERTER MODEL	GE 1500V 4 MVA
NO. OF INVERTER BLOCKS	16
CEC EFFICIENCY	98.2%
MAXIMUM VOLTAGE	1,500 V
RATED MPPT RANGE	835 - 1300 V
DC OPERATING VOLTAGE RANGE	835 - 1500 V
MAX. CONT. DC CURRENT	5,000 A
MAX. POWER OUTPUT	4,000 kVA
AC VOLTAGE	550 V
CERTIFICATION	UL

<b>INVERTER STATION (BLOCK 13)</b>	
MANUFACTURER	GE
INVERTER MODEL	GE 1500V 1 MVA
NO. OF INVERTERS PER SKID	2
NO. OF INVERTER BLOCKS	1
CEC EFFICIENCY	98.2%
MAXIMUM VOLTAGE	1,500 V
RATED MPPT RANGE	835 - 1300 V
DC OPERATING VOLTAGE RANGE	835 - 1500 V
MAX. CONT. DC CURRENT	1,250 A
MAX. POWER OUTPUT PER SKID	2,000 kVA
AC VOLTAGE	550 V
CERTIFICATION	UL

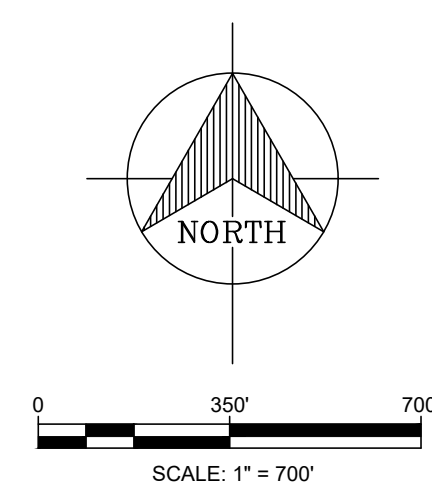
### LEGEND

- OVERHEAD POWER LINE
- SOLAR BLOCK BOUNDARY
- FENCE
- DRAINAGE TILES
- ROAD
- INVERTER
- EASEMENTS
- PROPERTY LINE
- STORM LINE
- TELCO DOGHOUSE  
W/ GATED FENCE (2' ALL AROUND,  
PROJECT FENCE FOR BACK SIDE)

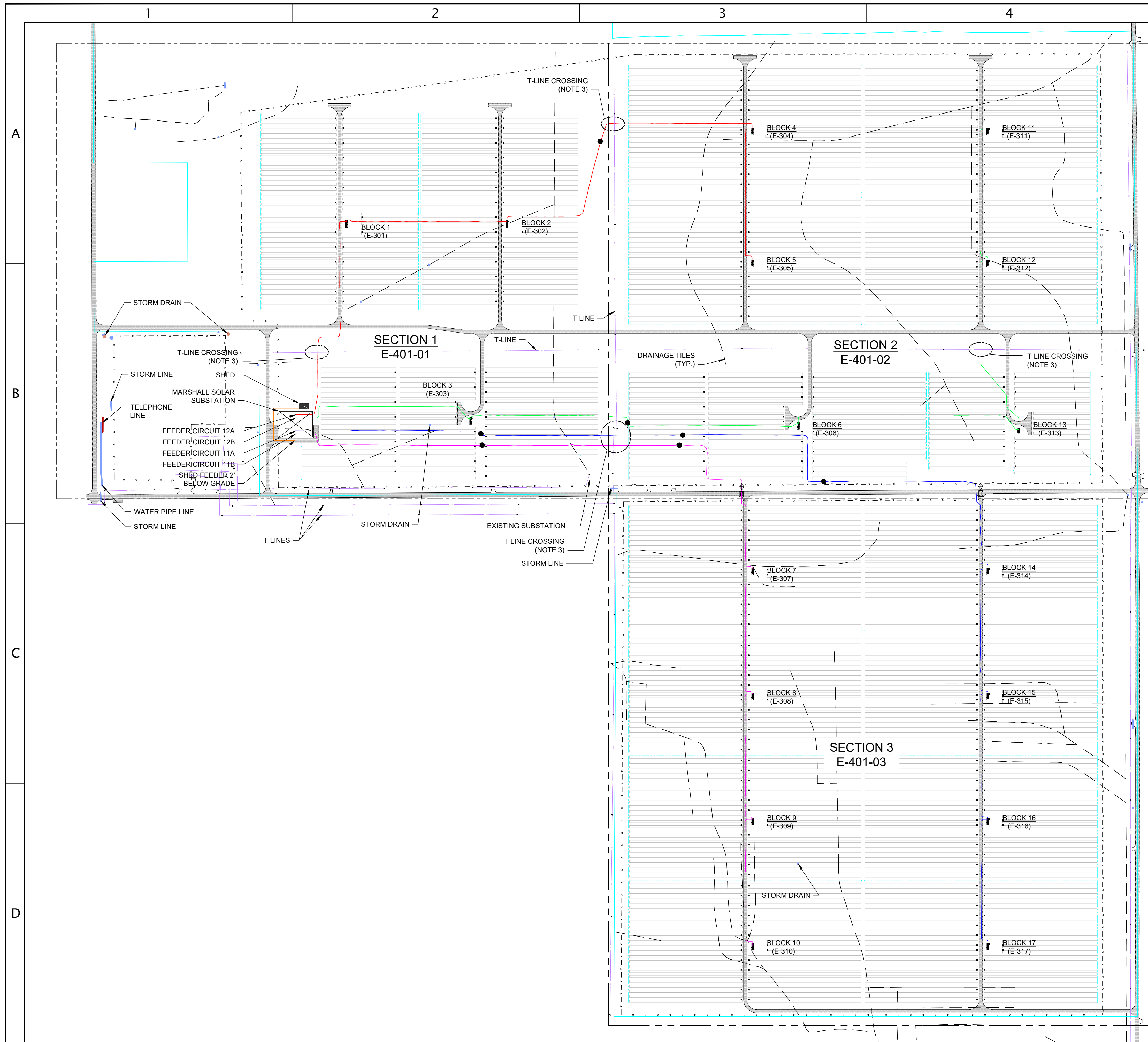


1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28

**A** EXAMPLE STRINGING GROUP  
 SCALE: N.T.S







**LEGEND**

- PROJECT BOUNDARY
- FEEDER CIRCUIT 12A AS RECORDED TRENCHING
- FEEDER CIRCUIT 12B AS RECORDED TRENCHING
- FEEDER CIRCUIT 11A AS RECORDED TRENCHING
- FEEDER CIRCUIT 11B AS RECORDED TRENCHING
- SOLAR BLOCK BOUNDARY
- FENCE
- ROAD
- DRAINAGE TILES
- OH TRANSMISSION LINE
- INVERTER
- COUNTY / STATE ROAD BORING
- ◇ UNDER GROUND SPLICE (SEE DRAWING E-421-01)
- GROUND POINT

- NOTES**
- USE 811 "ONE CALL" TO LOCATE ALL UNDERGROUND UTILITY.
  - UTILITIES LOCATED WITHIN CONSTRUCTION AREA NEEDS TO BE VERIFIED THEY ARE ABANDONED.
  - ALL TRANSMISSION LINE EASEMENT CROSSINGS ARE DIRECT BURIED AND INSTALLED PERPENDICULAR TO T-LINE.

**RRC**  
 RRC POWER & ENERGY, LLC  
 7662 SW MOHAWK ST,  
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 PHONE: (503) 342-4064  
 www.RRCcompanies.com

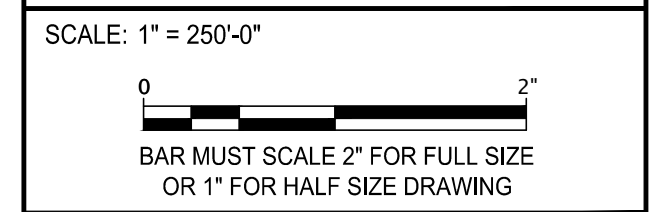
PREPARED FOR:  
**BLATTNER ENERGY**

**MARSHALL SOLAR, LLC**

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PROJECT MGR: S. MOSER  
 CHECKED BY: R. BALYON  
 DESIGNED BY: N. WEHNER  
 DRAWN BY: J. MOFFIT

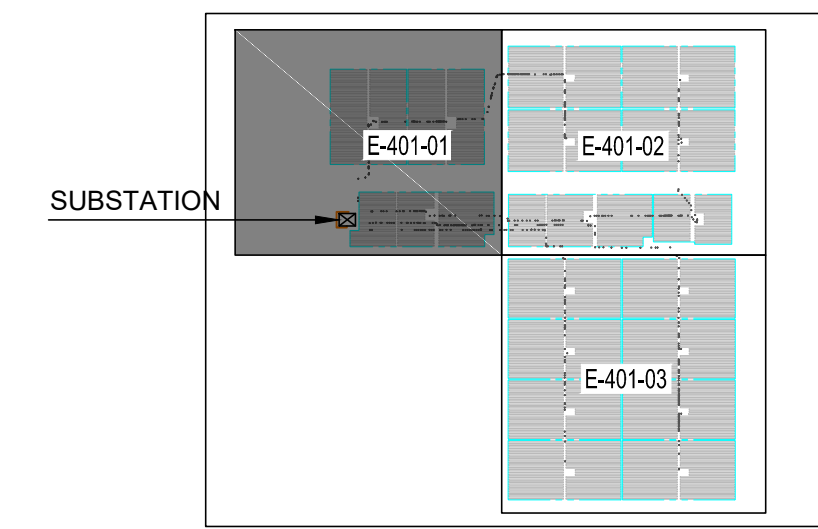
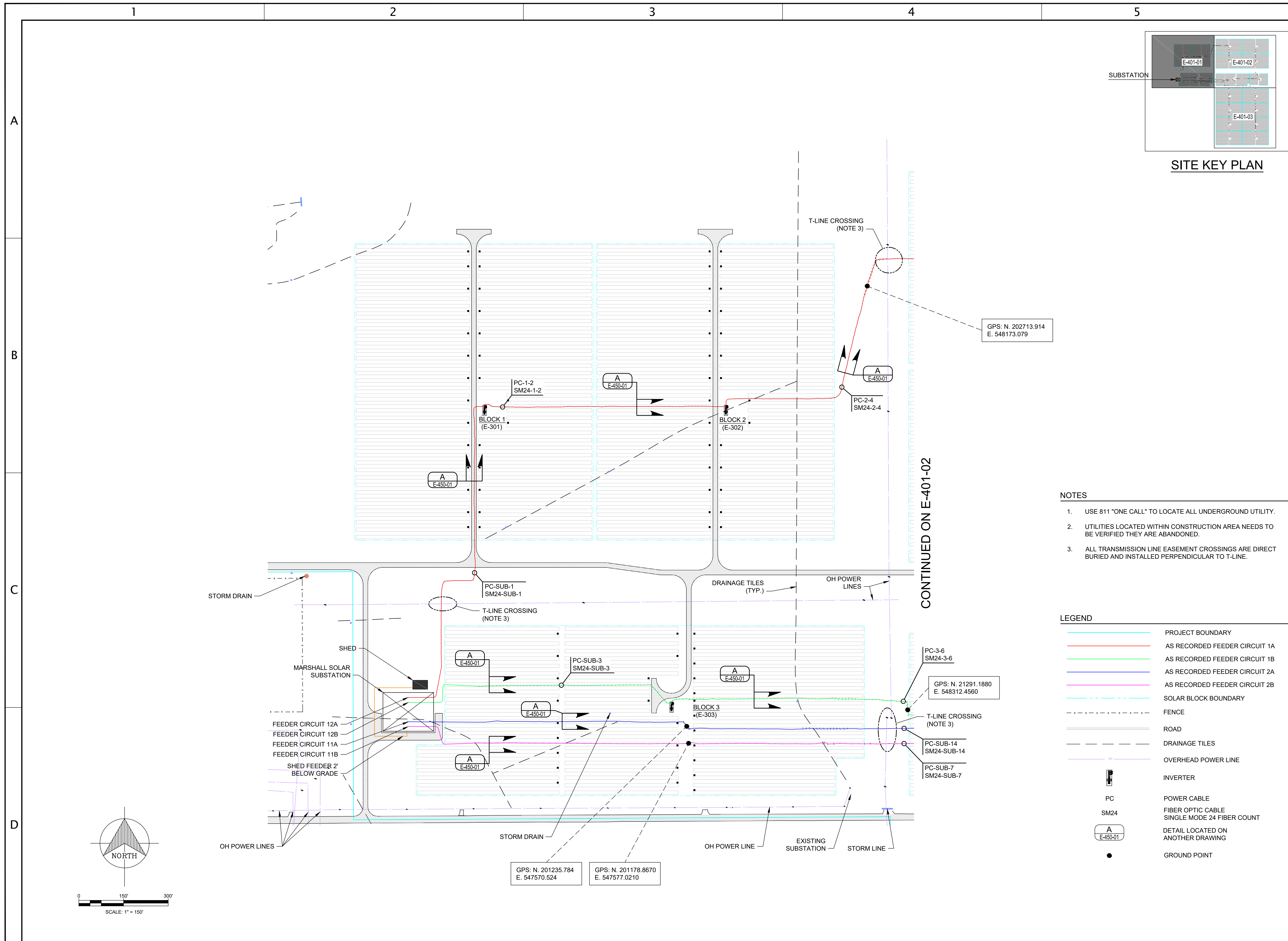


PROJECT NUMBER: MD1502008  
 DRAWING NAME:

**MARSHALL SOLAR PROJECT AC CABLE LAYOUT**

DATE ISSUED: 12/19/2016	SHEET: REVISION
DRAWING No. E-400-01	1 of 2 4

CADFILE: MMSP-E-400-01



SITE KEY PLAN

CONTINUED ON E-401-02

NOTES

- USE 811 "ONE CALL" TO LOCATE ALL UNDERGROUND UTILITY.
- UTILITIES LOCATED WITHIN CONSTRUCTION AREA NEEDS TO BE VERIFIED THEY ARE ABANDONED.
- ALL TRANSMISSION LINE EASEMENT CROSSINGS ARE DIRECT BURIED AND INSTALLED PERPENDICULAR TO T-LINE.

LEGEND

- PROJECT BOUNDARY
- AS RECORDED FEEDER CIRCUIT 1A
- AS RECORDED FEEDER CIRCUIT 1B
- AS RECORDED FEEDER CIRCUIT 2A
- AS RECORDED FEEDER CIRCUIT 2B
- - - SOLAR BLOCK BOUNDARY
- - - FENCE
- ROAD
- - - DRAINAGE TILES
- OVERHEAD POWER LINE
- INVERTER
- PC POWER CABLE
- SM24 FIBER OPTIC CABLE SINGLE MODE 24 FIBER COUNT
- A E-450-01 DETAIL LOCATED ON ANOTHER DRAWING
- GROUND POINT

**RRC**  
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 PHONE: (503) 342-4064  
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PREPARED FOR:  
**BLATTNER ENERGY**

**MARSHALL SOLAR, LLC**

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PROJECT MGR: S. MOSER  
 CHECKED BY: R. BALYON  
 DESIGNED BY: N. WEHNER  
 DRAWN BY: J. MOFFIT

SCALE: 1" = 150'-0"  
  
 BAR MUST SCALE 2" FOR FULL SIZE OR 1" FOR HALF SIZE DRAWING

PROJECT NUMBER: MD1502008

DRAWING NAME:  
**MARSHALL SOLAR PROJECT  
 AC CABLE LAYOUT  
 DETAIL SECTION 1**

DATE ISSUED: 12/19/2016	SHEET: REVISION
DRAWING No. E-401-01	1 of 3 4
CADFILE: MMSP-E-401-01	



**STATE OF MINNESOTA  
BEFORE THE  
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<i>In the Matter of the Application of Marshall Solar, LLC for a Site Permit for the Marshall Solar Energy Project and Associated Facilities in Lyon County, Minnesota)</i>	) ) ) ) )	<p style="text-align: center;"><b>CERTIFICATE OF SERVICE</b></p> <p>OAH Docket No.: 82-25000-32499 MPUC Docket No.: IP-6941/GS-14-1052</p>
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The undersigned hereby certifies that a true and correct copy of the **Marshall Solar, LLC's Application for Minor Alteration** has been served on this day by e-mail and/or U.S. Mail to the following:

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Daniel P. Wolf	<a href="mailto:dan.wolf@state.mn.us">dan.wolf@state.mn.us</a>	Public Utilities Commission 121 – 7 <sup>th</sup> Place East, Ste. 350 St. Paul, MN 55101-2147	Electronic

Dated this 26th day of September 2017

/s/ Dylan M. Stanek  
Dylan M. Stanek