

# INSTALL SOLAR ARRAY AND FMS BATTERY STORAGE CAMP CROWDER TRAINING SITE NEOSHO, MISSOURI

OWNER: STATE OF MISSOURI  
MICHAEL L. PARSON, GOVERNOR

MISSOURI NATIONAL GUARD  
OFFICE OF THE ADJUTANT GENERAL  
FACILITIES MANAGEMENT OFFICE

PROJECT MANAGEMENT: OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES MANAGEMENT  
DESIGN AND CONSTRUCTION



## APPLICABLE CODES/DESIGN CONSIDERATIONS

INTERNATIONAL BUILDING CODE (IBC) 2018  
THE AMERICAN WITH DISABILITIES ACT (ADAAG) 2010  
INTERNATIONAL MECHANICAL CODE (IMC) 2018  
INTERNATIONAL PLUMBING CODE (IPC) 2018  
ASHRAE 90.1 - 2016 ENERGY STANDARD FOR BUILDINGS  
NATIONAL ELECTRIC CODE (NEC) 2017

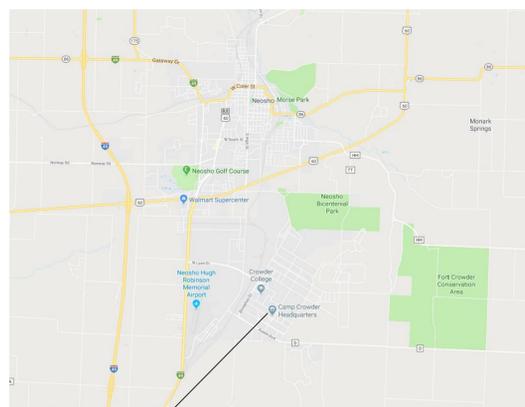
DESIGNER: **CROSSED SWORDS ENGINEERING**

PROJECT NUMBER: T1922-01

SITE NUMBER: 6260

ASSET NUMBER: 8136260001

## SITE LOCATION MAP



CAMP CROWDER  
TRAINING SITE  
Neosho, Missouri  
Site: 4106



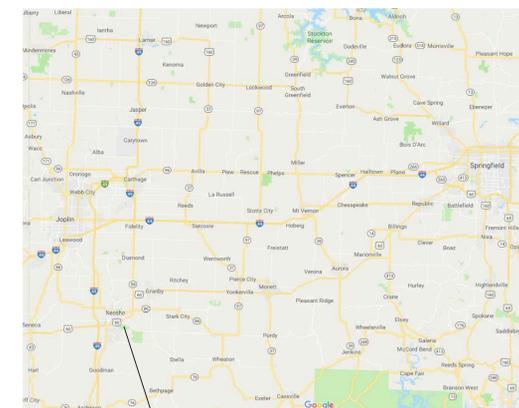
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## REGIONAL LOCATION MAP



CAMP CROWDER  
TRAINING SITE  
Neosho, Missouri  
Site: 4106



ISSUED FOR  
CONSTRUCTION  
3/12/2020

SHEET NUMBER:

**G-001**

1 OF 47 SHEETS  
MARCH 12, 2020

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47 DRAWINGS

STATE OF MISSOURI  
 MICHAEL L. PARSON  
 GOVERNOR



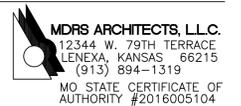
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CONSULTANTS



INSTALL SOLAR  
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CAMP CROWDER  
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 890 RAY A. CARVER AVE.  
 NEOSHO MO 64850

PROJECT # T1922-01  
 SITE # 6260  
 ASSET # 8136260001

REVISION: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
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 REVISION: \_\_\_\_\_  
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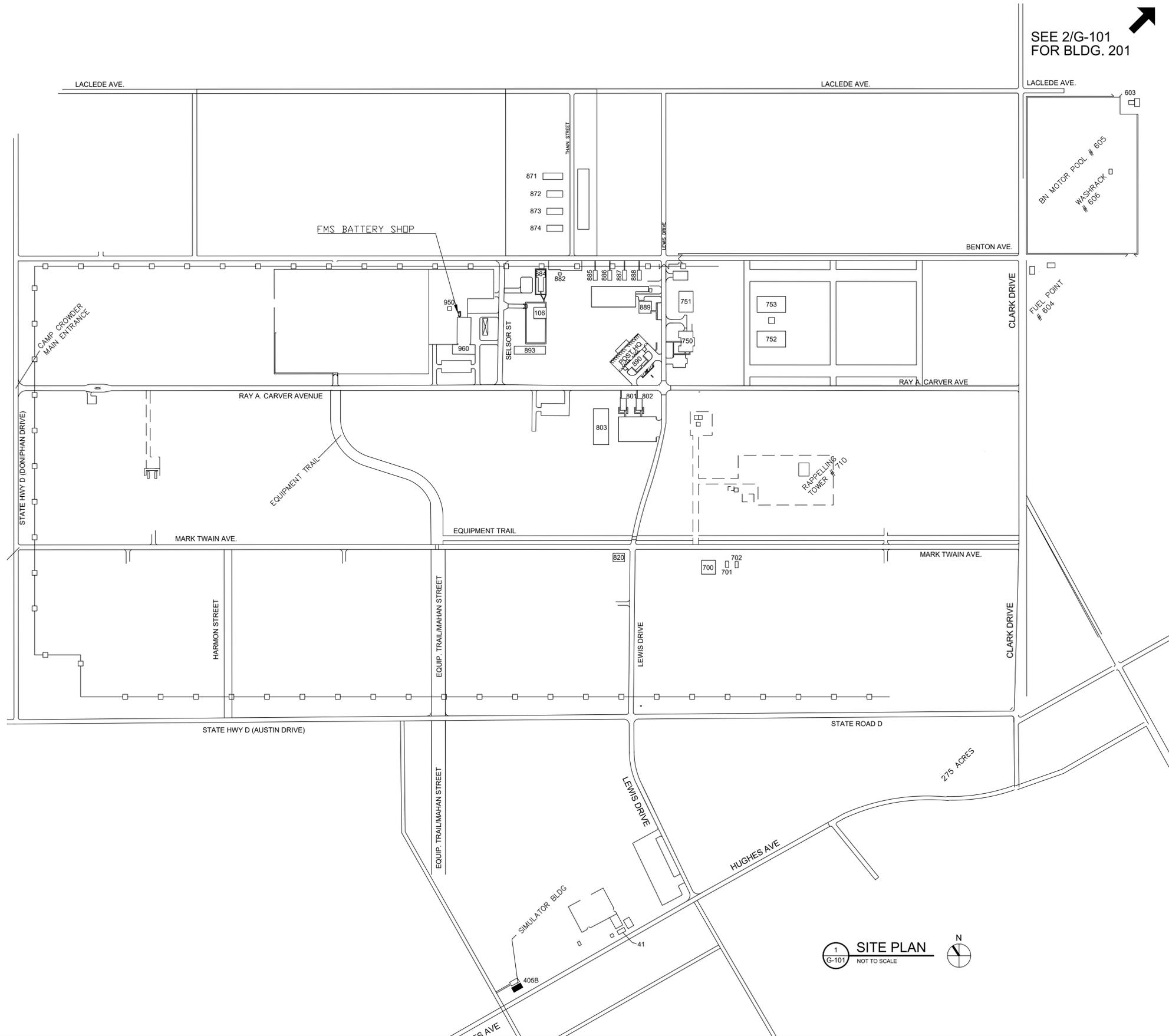
**G-002**

SHEET 2 OF 47  
 3/12/2020

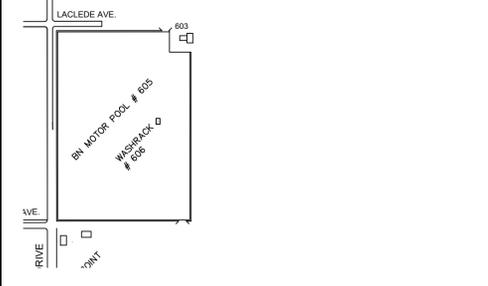
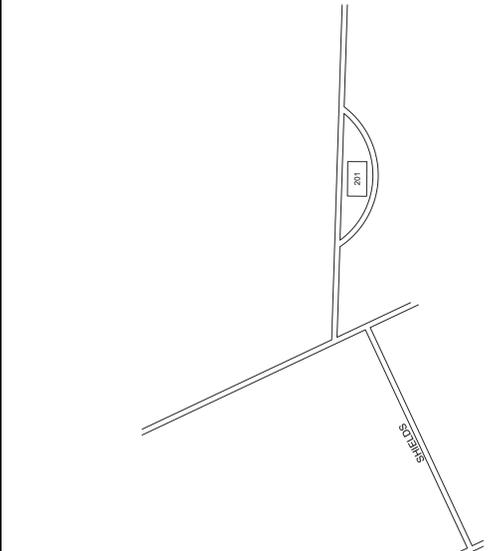
GENERAL NOTES

- LAY DOWN AREAS, AND STORAGE AREAS FOR THE CONTRACTOR TO BE DETERMINED DURING PRE-CONSTRUCTION CONFERENCE WITH OWNER.

SEE 2/G-101  
FOR BLDG. 201



1 SITE PLAN  
G-101 NOT TO SCALE



2 SITE PLAN  
G-101 NOT TO SCALE

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SHEET TITLE:  
**GENERAL  
ARRANGEMENT  
SITE PLAN**

SHEET NUMBER:

**G-101**



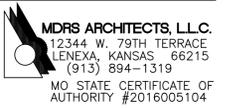
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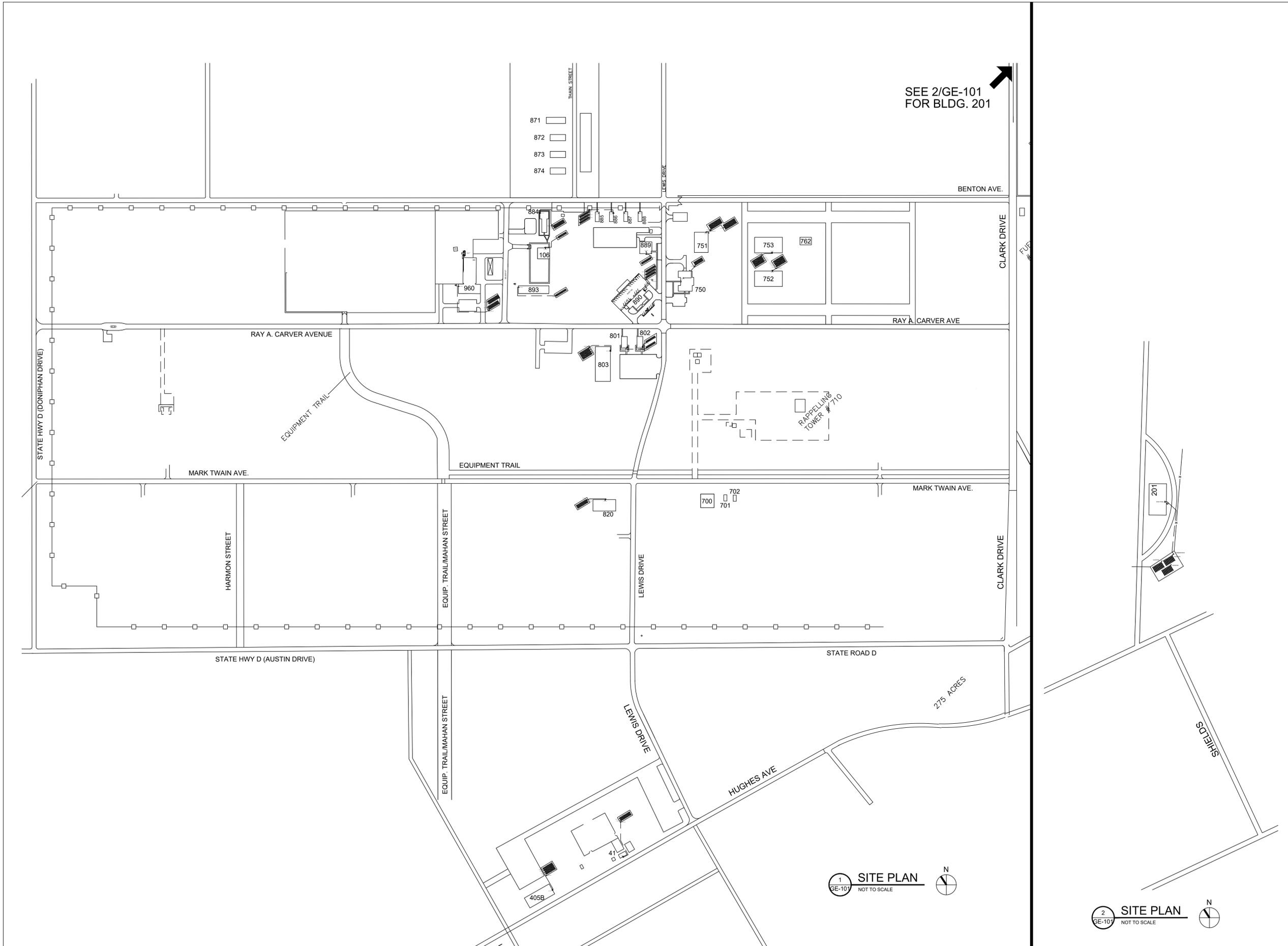
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ELECTRICAL PLAN**

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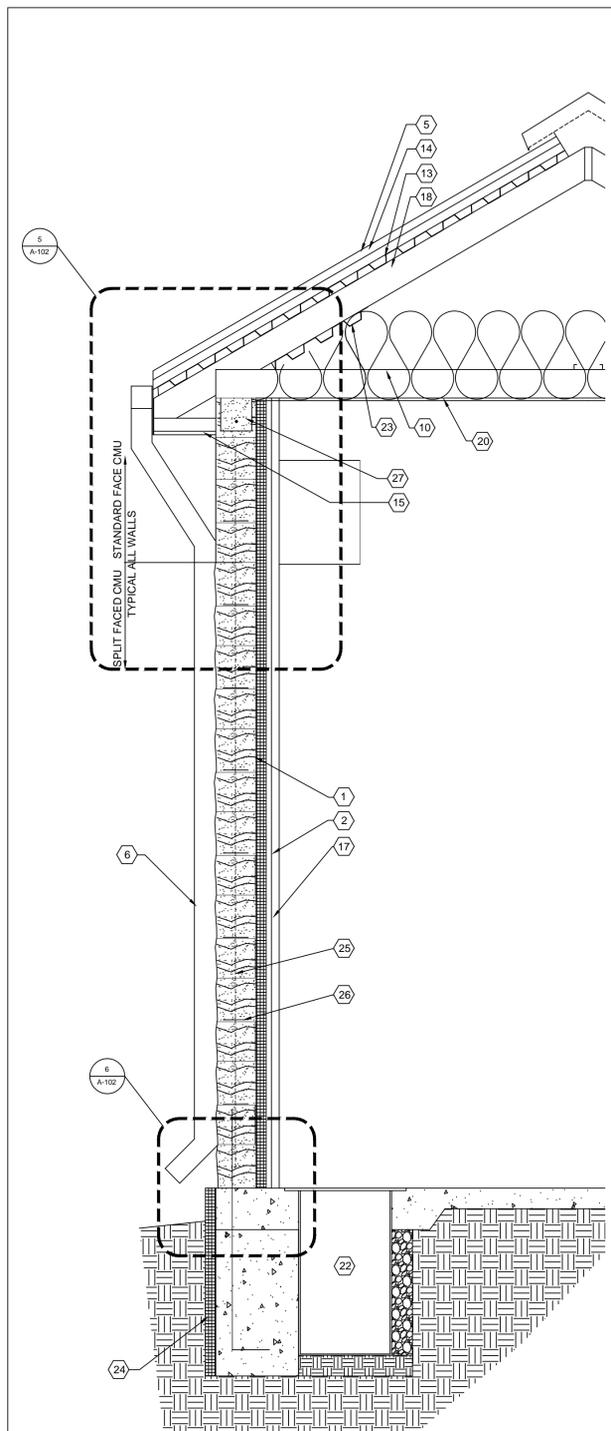
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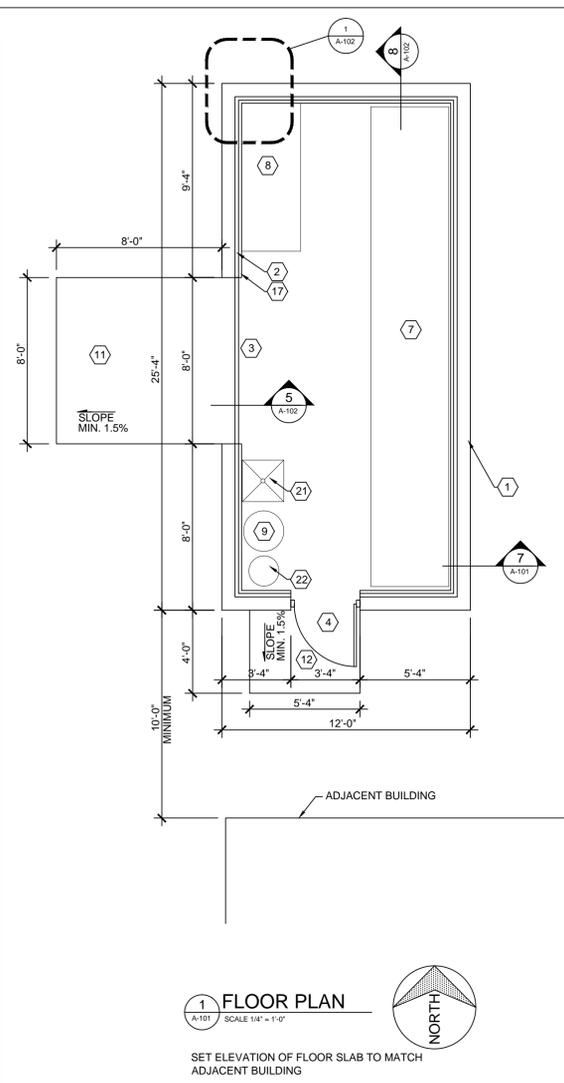
SEE 2/GE-101  
FOR BLDG. 201

1 SITE PLAN  
GE-101 NOT TO SCALE

2 SITE PLAN  
GE-101 NOT TO SCALE



**6 WALL SECTION**  
A-101 SCALE 3/4" = 1'-0"



**1 FLOOR PLAN**  
A-101 SCALE 1/4" = 1'-0"  
NORTH  
SET ELEVATION OF FLOOR SLAB TO MATCH ADJACENT BUILDING

**PLAN NOTES**

- 1 8" CONCRETE MASONRY UNIT WALLS. SPLIT FACE AND STANDARD FACE.
- 2 2" FOIL FACED POLYISO INSULATION
- 3 8'X10' OVERHEAD COILING DOOR. REFER JAMB/HEAD DETAILS SHEET A-102
- 4 3'X7' METAL MAN DOOR W/LOUVER ABOVE. REFER JAMB/HEAD DETAILS SHEET A-102. REFER MECH. DWGS. FOR BACKDRAFT.
- 5 STANDING METAL SEAM ROOF.
- 6 GUTTERS WITH DOWNSPOUTS AT EACH END.
- 7 MAX. 4' WIDE THREE STEP BATTERY RACKS. EPOXY COATED ELECTROLITE PROTECTED WITH POLYINSULATED RAILS- BY CONTRACTOR. SBS STORAGE BATTERY SYSTEMS OR EQUAL.
- 8 WORK TABLE - BY OWNER
- 9 EYE WASH.
- 10 R49 ATTIC FIBERGLASS BATT INSULATION
- 11 CONCRETE OH. DOOR APPROACH PAD
- 12 CONCRETE PAD DOOR ENTRY.
- 13 STEEL DECKING
- 14 POLYISO WITH NAILABLE SURFACE ROOF INSULATION
- 15 METAL SOFFIT PANELS - PERFORATED.
- 16 ATTIC RIDGE VENT.
- 17 STEEL WALL LINER PANELS ON FURRING STRIPS.
- 18 LIGHT GAGE STEEL ROOF RAFTERS AND CEILING JOISTS.
- 19 WALL MOUNTED EXHAUST FAN. PROVIDE CMU LINTEL OVER OPENING WITH #5 BAR REINFORCEMENT.
- 20 CEILING - METAL PANELS ON SUBGIRTS OVER 1/2" GYPSUM SHEATHING.
- 21 FLOOR JANITOR SINK
- 22 SUMP AND SUMP PIT - REFER MECH. AND STRUCTURAL DRAWINGS. INSTALL IN ACCORDANCE TO MANUFACTURERS RECOMMENDATIONS.
- 23 STEEL DECKING ATTIC VENT BAFFLE.
- 24 FOAM PLASTIC BOARD FOUNDATION INSULATION
- 25 #5 VERTICAL BAR @ 4' O.C. REFER DETAIL 1/A-102 FOR WALL CORNER REINFORCEMENT. REFER DOOR DETAILS FOR JAMB REINFORCEMENT. DOWELS INTO CONCRETE GRADE BEAM AT EA. VERTICAL BAR.
- 26 HORIZONTAL LADDER REINFORCEMENT - EVERY OTHER COURSE.
- 27 8" BOND BEAM W/#5 BAR GROUT FULL TOP OF WALL CONTINUOUS.

**CODE INFORMATION 2018 IBC**

BUILDING CONSTRUCTION TYPE TABLE 601 - TYPE IIB  
NON COMBUSTIBLE - NOT RATED.

BELIEVED TYPE OF ADJACENT BUILDING ALSO IIB. - NO EXTERIOR WALL RATINGS REQUIRED IF NEW BATTERY BUILDING IS PLACED MIN. 10' FROM THE EXISTING BUILDING. TABLE 602.

CONSTRUCTION TYPE IIB - RATINGS OF EXTERIOR BEARING WALLS, STRUCTURAL FRAME, AND ROOF NOT REQUIRED. TABLE 601.

COMBUSTIBLE MATERIALS ALLOWED IN TYPE IIB LISTED IN SECTION 603. COMBUSTIBLE MATERIALS ALLOWED IN FOLLOWING APPLICATIONS. PARAGRAPH 3 - FOAM PLASTICS IN ACCORDANCE TO CHAPTER 26 PARAGRAPH 4 - ROOF COVERINGS THAT HAVE AN A, B, OR C CLASSIFICATION

BUILDING OCCUPANT LOAD INTERNATIONAL BUILDING CODE TABLE 104.1.2. BUILDING SIZE 304 SQ. FT. OCCUPANT LOAD FOR STORAGE OCCUPANCY 1 PER 300 SQ. FT. OCCUPANT LOAD 2.

BUILDING OCCUPANCY TYPE S1  
INTERNATIONAL BUILDING CODE SECTION 311.2 MODERATE HAZARD STORAGE

**CODE INFORMATION 2018 IFC**

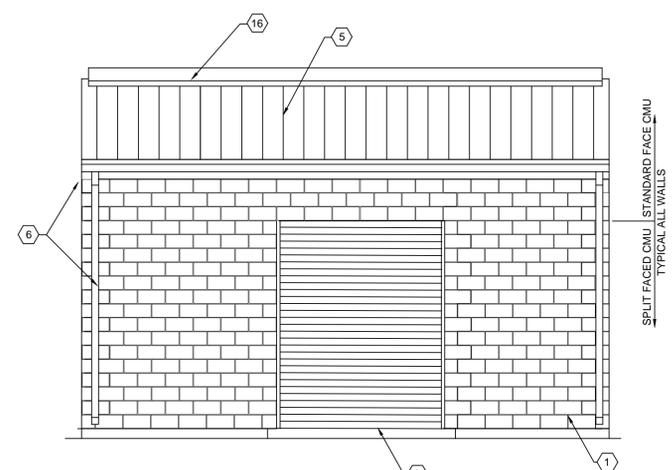
SECTION 1206.2  
STORAGE FACILITIES EXCEEDING THE AMOUNTS LISTED IN TABLE 1206.2 MUST MEET THE REQUIREMENTS OF SECTIONS 1206.2.1 THROUGH 1206.2.12.6.

TABLE 1206.2	
FLOW BATTERIES	- 20KWH
LEAD ACID	- 70KWH
LITHIUM	- 20KWH
NICKEL CADMIUM	- 70KWH
SODIUM	- 20KWH
OTHER BATTERY TYPES	- 10KWH

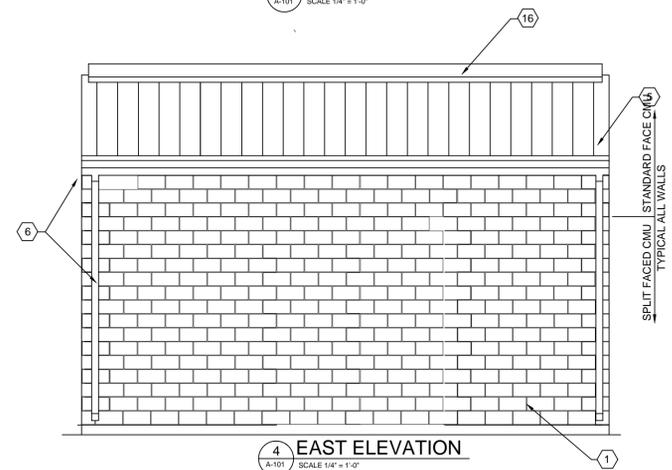
INTERNATIONAL FIRE CODE CHAPTER 12  
SECTION 1206.2.8.7 - OUTSIDE BUILDINGS USED FOR SERVICING, TESTING MAINTENANCE AND OTHER FUNCTIONS SHALL BE TREATED AS BATTERY STORAGE ROOMS.

BUILDING OCCUPANCY TYPE PROPOSED IS S1  
TO MEET THIS OCCUPANCY CLASSIFICATION MATERIALS MUST BE UNDER AMOUNTS LISTED IN TABLE 1206.2.9 OF THE INTERNATIONAL FIRE CODE WHICH WOULD OTHERWISE PLACE THE BUILDING IN A HAZARDOUS OCCUPANCY CLASSIFICATION.

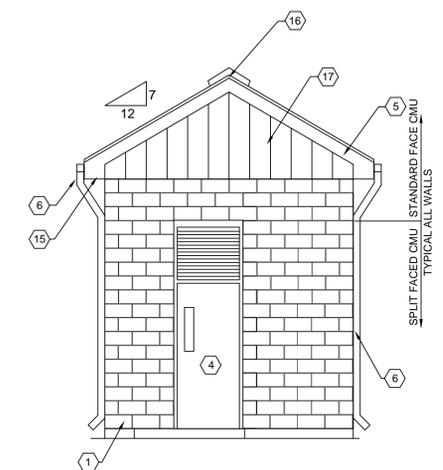
TABLE 1206.2.9 QUANTITIES	
FLOW BATTERIES	- MUST BE UNDER 600KWH
LEAD ACID	- UNLIMITED - NOT APPLICABLE
LITHIUM ALL TYPES	- MUST BE UNDER 600KWH
NICKEL CADMIUM	- UNLIMITED - NOT APPLICABLE
SODIUM ALL TYPES	- MUST BE UNDER 600KWH
OTHER BATTERY TYPES	- MUST BE UNDER 200KWH



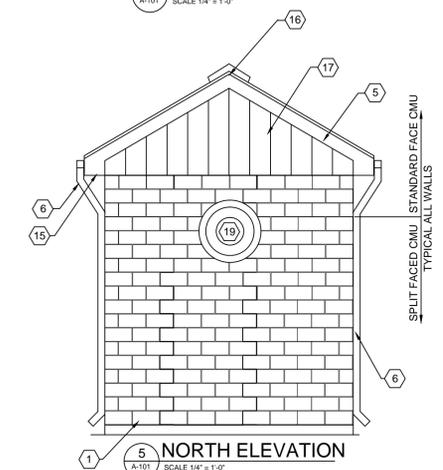
**2 WEST ELEVATION**  
A-101 SCALE 1/4" = 1'-0"



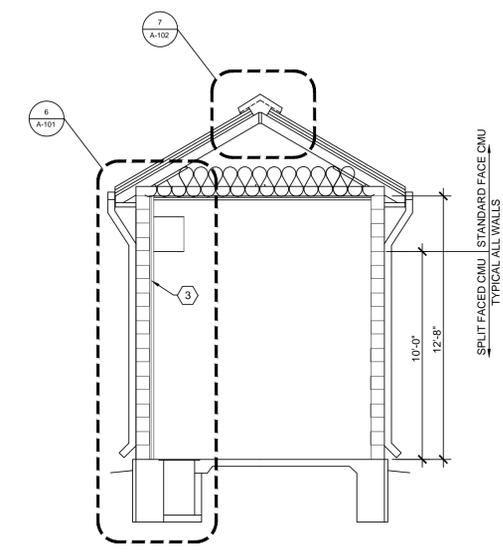
**4 EAST ELEVATION**  
A-101 SCALE 1/4" = 1'-0"



**3 SOUTH ELEVATION**  
A-101 SCALE 1/4" = 1'-0"



**5 NORTH ELEVATION**  
A-101 SCALE 1/4" = 1'-0"



**7 BUILDING SECTION**  
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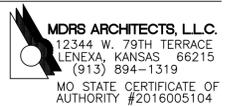
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DRAWN BY: MMR  
CHECKED BY: MMR  
DESIGNED BY: MMR

**SHEET TITLE:  
ARCHITECTURAL PLAN  
AND ELEVATIONS  
FMS BATTERY SHOP**

SHEET NUMBER:

**A-101**



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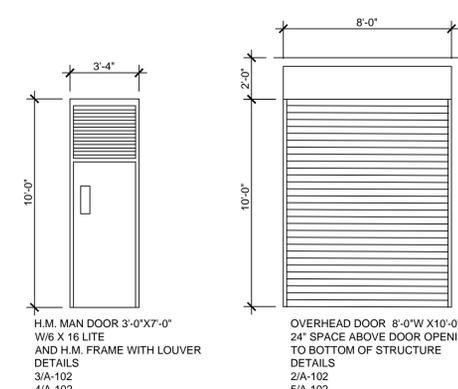
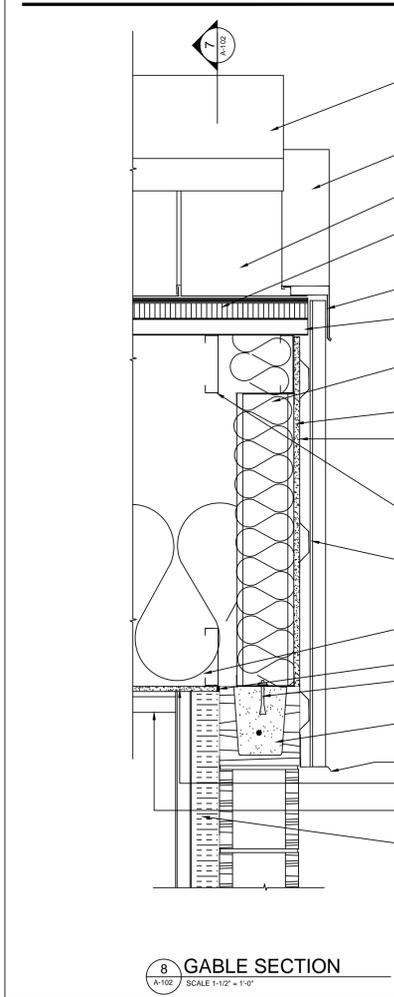
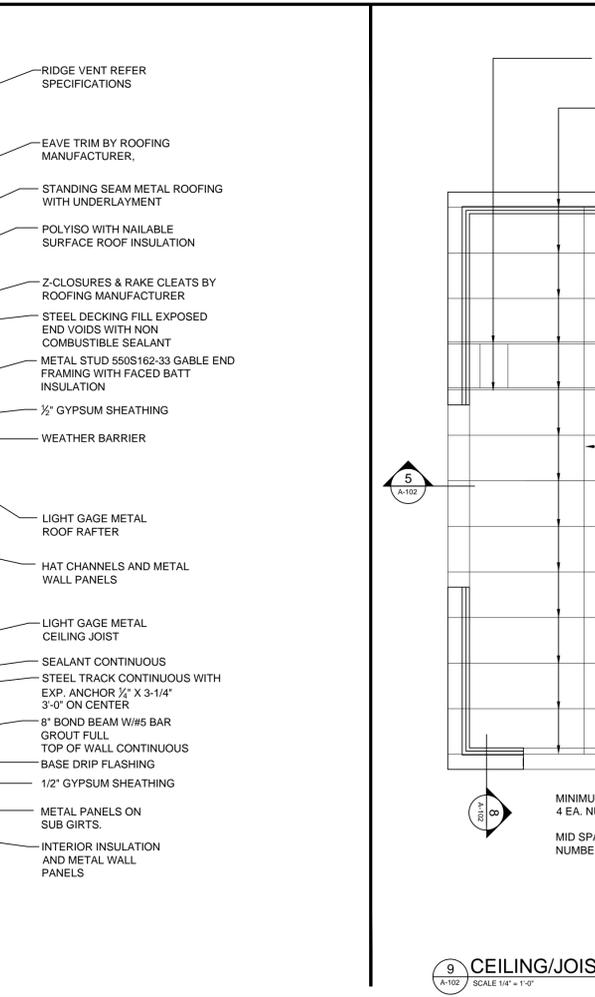
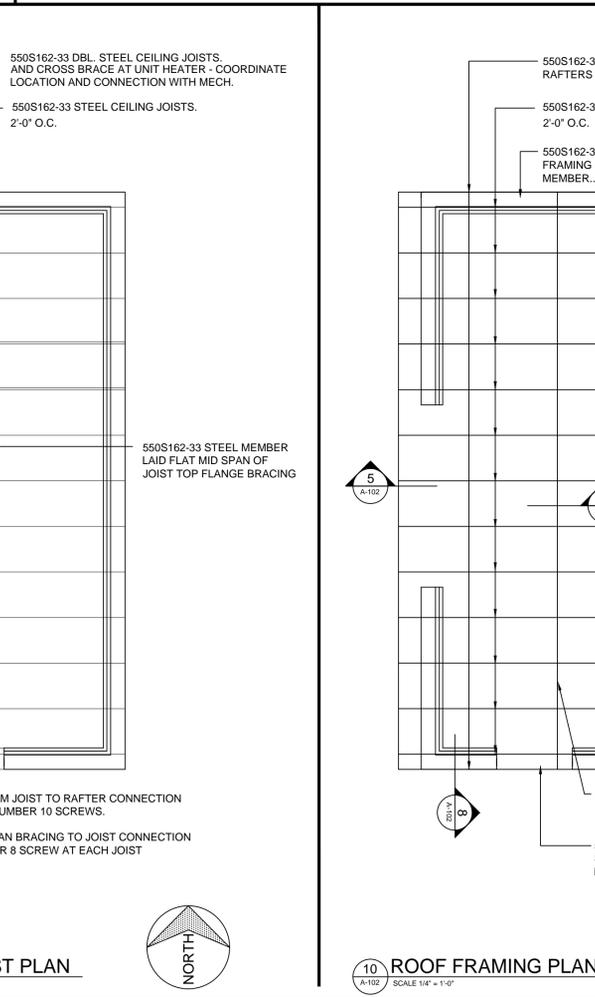
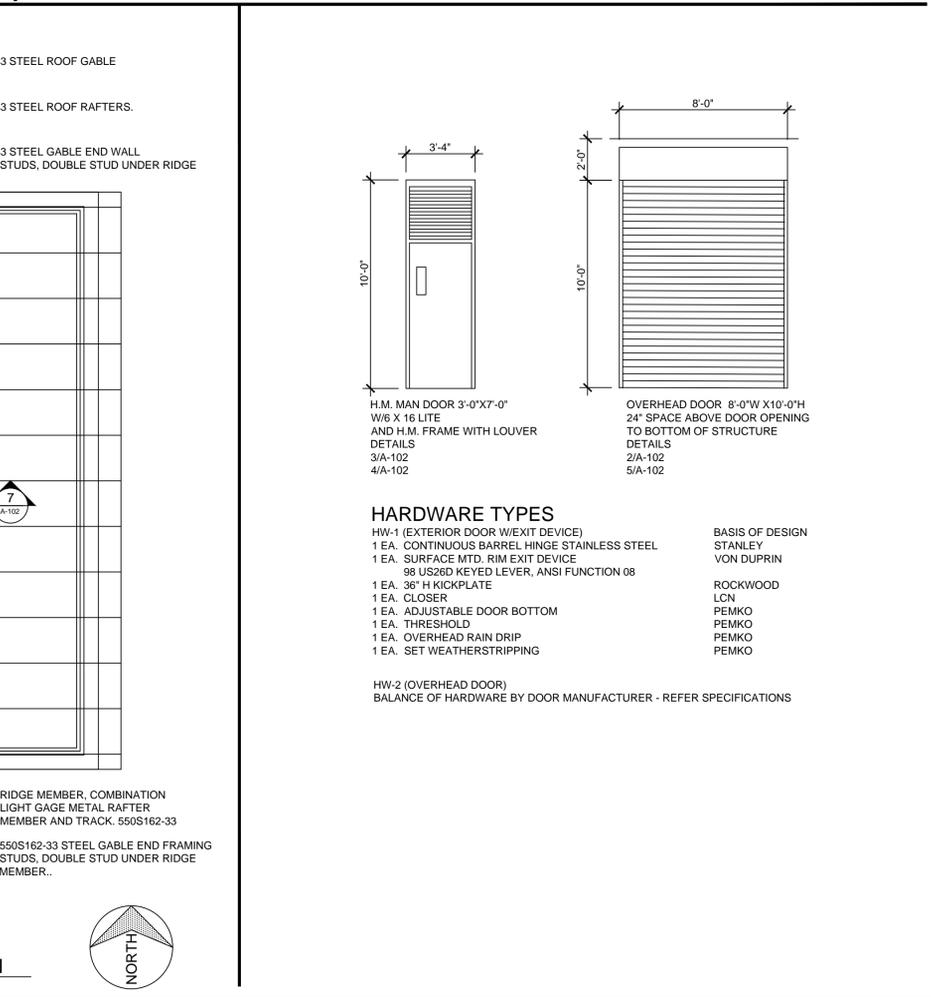
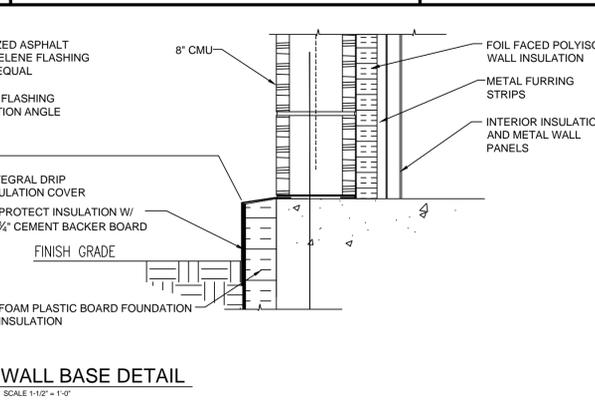
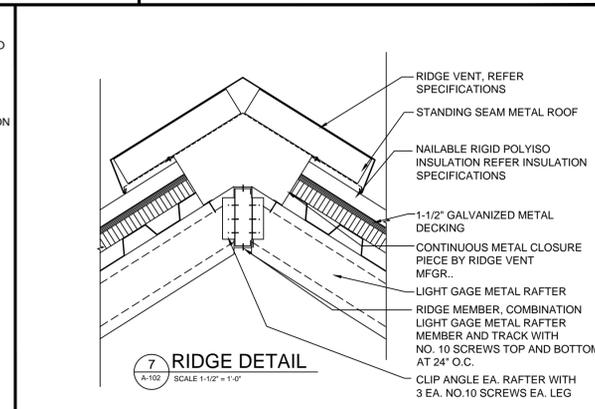
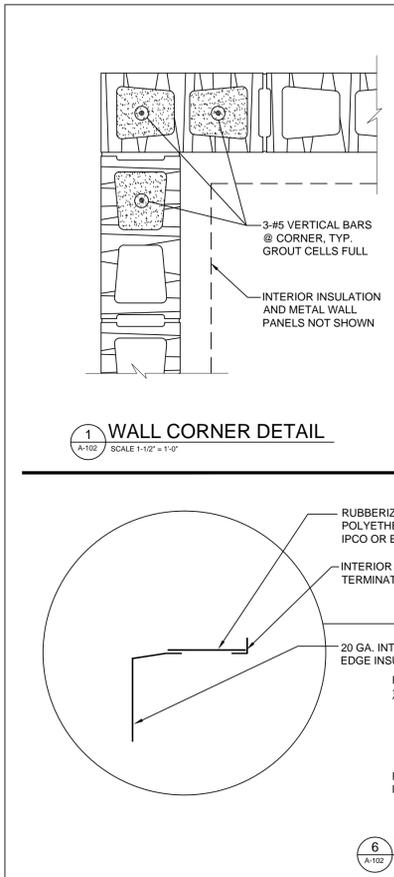
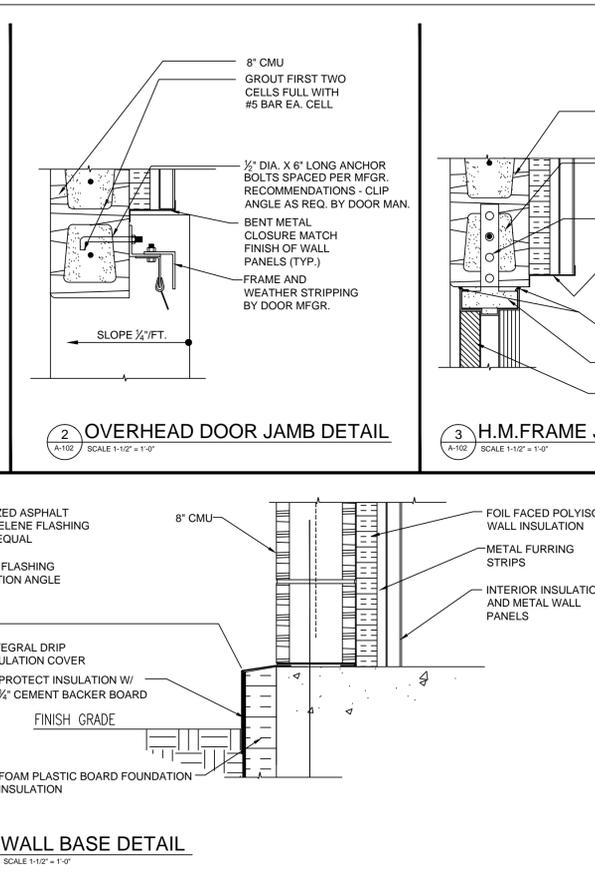
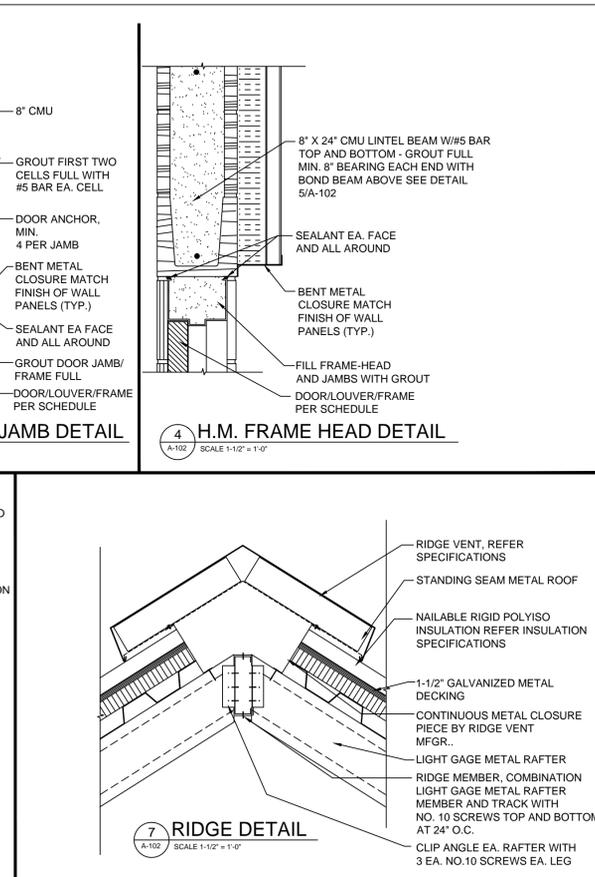
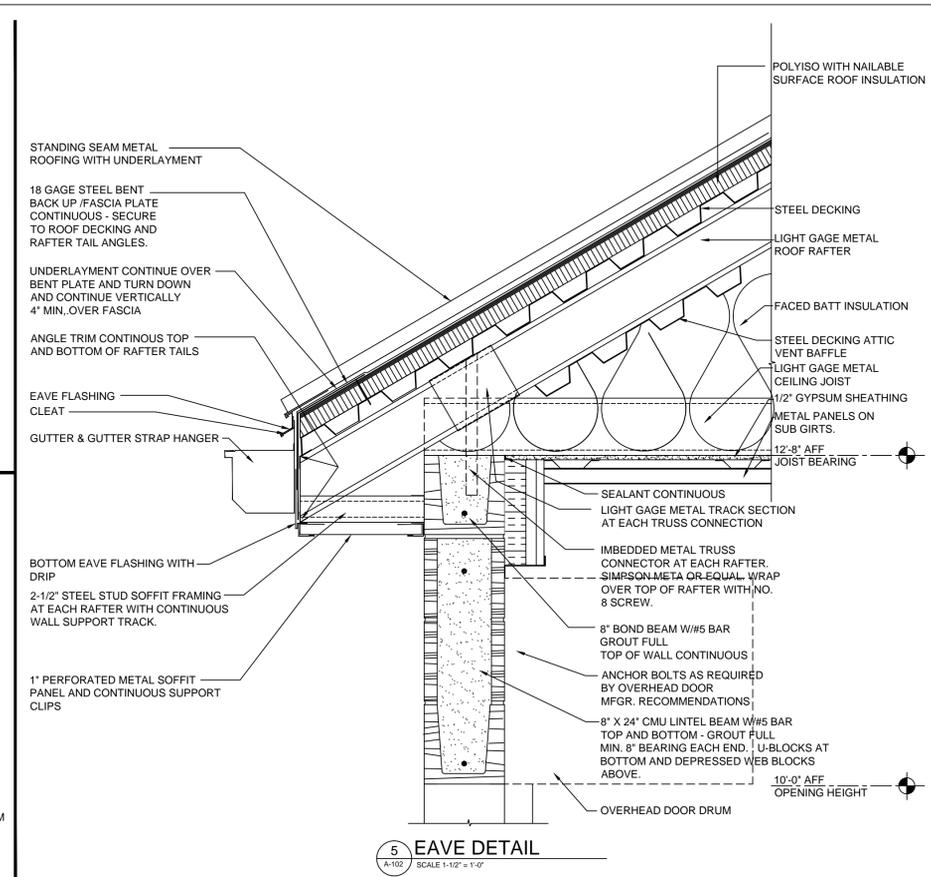
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CAD DWG FILE: A-101.DWG  
DRAWN BY: MMR  
CHECKED BY: MMR  
DESIGNED BY: MMR

SHEET TITLE:  
ARCHITECTURAL  
ROOF/JOIST FRAME  
DETAILS/SECTIONS  
DOOR/HARDWARE

SHEET NUMBER:

**A-102**



**HARDWARE TYPES**

HW-1 (EXTERIOR DOOR W/EXIT DEVICE)	BASIS OF DESIGN
1 EA. CONTINUOUS BARREL HINGE STAINLESS STEEL	STANLEY
1 EA. SURFACE MTD. RIM EXIT DEVICE	VON DUPRIN
1 EA. 36" H KICKPLATE	ROCKWOOD
98 US26D KEYPED LEVER, ANSI FUNCTION 08	LCN
1 EA. CLOSER	PEMCO
1 EA. ADJUSTABLE DOOR BOTTOM	PEMCO
1 EA. THRESHOLD	PEMCO
1 EA. OVERHEAD RAIN DRIP	PEMCO
1 EA. SET WEATHERSTRIPPING	PEMCO

HW-2 (OVERHEAD DOOR)  
BALANCE OF HARDWARE BY DOOR MANUFACTURER - REFER SPECIFICATIONS



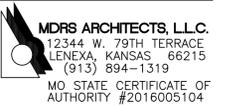
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SHEET TITLE:  
MECHANICAL AND  
PLUMBING PLAN  
FMS BATTERY  
STORAGE

SHEET NUMBER:

MP-101

FMS BATTERY  
STORAGE

960

GENERAL NOTES

1. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH INTERNATIONAL PLUMBING CODE (IPC) 2018 AND LOCAL CODES.
2. ALL MECHANICAL WORK SHALL BE IN ACCORDANCE WITH INTERNATIONAL MECHANICAL CODE (IMC) 2018 AND LOCAL CODES.
3. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LOCAL CODES.

PLAN NOTES

1. EXTEND EXISTING HOT WATER AND HOT WATER RE-CIRCULATION PIPING FROM THIS LOCATION TO NEW FMS BATTERY STORAGE. PIPING ROUTED EXTERIOR TO BUILDING SHALL BE HEAT TRACED AND INSULATED. MINIMUM SIZE 3/4" PIPING. MINIMUM 1" INSULATION ON PIPING INSIDE BUILDING. MINIMUM 2" INSULATION ON PIPING OUTDOORS.
2. INSTALL NEW 3/4" HOT WATER DROP WITH BALL SHUT OFF VALVE AND COMBINE WITH EXISTING 3/4" COLD WATER DROP USING NEW "LEONARD" BLENDER MIXING VALVE WITH 1" HOSE OUTLET CONNECTION.
3. INSTALL NEW JANITORS SINK, EYE WASH STATION, SUMP BASIN, AND SUMP PUMP. EXTEND HW AND CW PIPING FROM BUILDING 960 TO NEW FIXTURES. RUN WASTE FROM NEW FIXTURES TO SUMP BASIN. SUMP PUMP 2" DISCHARGE TO CONNECT TO EXISTING TRENCH DRAIN IN BUILDING 960.
4. ELECTRICAL PANEL SWA AND SWB 208V, 3 PH. TO BE USED FOR ELECTRICAL POWER TO FMS BATTERY STORAGE. SEE ELECTRICAL DRAWING E-117.
5. INSTALL NEW ELECTRIC UNIT HEATER
6. INSTALL NEW EXHAUST FAN. EXHAUST FAN TO OPERATE WITH BATTERY CHARGER AND/OR BUILDING LIGHT SWITCH. FAN TO BE PROVIDED WITH FLOW SWITCH AND EXTERIOR ALARM LIGHT. WHEN FAN IS COMMANDED ON AND FLOW SWITCH DOES NOT DETECT AIR FLOW, LIGHT SHALL ALARM
7. EXISTING BURIED ELECTRICAL CONDUIT.
8. PROVIDE 36" WIDE X 30" HEIGHT GRAVITY BACKDRAFT DAMPER MATCHED TO ARCH LOUVER.

EQUIPMENT SCHEDULE

- ES COMBINATION EMERGENCY SHOWER AND EYE WASH STATION. HAWS MODEL 8300CRP OR APPROVED EQUAL. CORROSION RESISTANT UNIT PROVIDED WITH OPTIONAL THERMOSTATIC MIXING VALVE AND EMERGENCY ALARM SYSTEM. ALARM SYSTEM SHALL BE INSTALLED ON OUTSIDE OF THE BATTERY BUILDING, 120 VAC, FLASHING LIGHT AND BUZZER ALARM.
- EF EXHAUST FAN. COOK MODEL ACWD 100W10DL OR APPROVED EQUAL. 300 CFM EXHAUST, 1/2 HP MOTOR. PROVIDE WITH CORROSION RESISTANT EPOXY POWER COATED FINISH, DISCONNECT, BACKDRAFT DAMPER, BIRD SCREEN AND FAN CONTROLLER. FLOW SWITCH AND EXTERIOR LIGHT ALARM.
- UH UNIT HEATER. TRANE MODEL UHRA 5KW OR APPROVED EQUAL. 5 KW ELECTRIC HEATING, CORROSION PROOF CONSTRUCTION, 208 VOLT, 1 PHASE. PROVIDE WITH INTEGRAL THERMOSTAT.
- JS JANITOR SINK. AMERICAN STANDARD FIAT MSB2424100 OR APPROVED EQUAL. MOLDED STONE BASIN. PROVIDE WITH STAINLESS STEEL GRID STRAINER AND CHROME PLATED WALL MOUNTED FAUCET.
- SP SUMP PUMP. ZOELLER MODEL 260 OR APPROVED EQUAL BY LITTLE GIANT OF DAYTON. CHEMICAL RESISTANT SUMP PUMP. 2" DISCHARGE, 1/2 HP MOTOR, 120V 1 PH. POWDER COATED EPOXY FINISH, PLASTIC IMPELLER. PROVIDE WITH ZOELLER POLYETHYLENE BASIN OR APPROVED EQUAL BY LITTLE GIANT, ADS, OR EVERBILT. 18" DIAMETER WITH 22" MINIMUM HEIGHT.

MECHANICAL SYMBOLS PIPING SPECIALTIES

- ┐ ELBOW TURNED UP OR TOWARDS.
- └ ELBOW TURNED DOWN OR AWAY.
- ┌─┴─ TEE TURNED UP OR TOWARDS.
- └─┬─ TEE TURNED DOWN OR AWAY.
- BALL VALVE.
- || UNION.
- S— SANITARY DRAIN LINE.
- PLUMBING VENT. V=VENT, VTR=VENT THRU ROOF, AV=ACID VENT.
- DOMESTIC COLD WATER—CW.
- DOMESTIC HOT WATER—HW. AND HOT WATER RECIRCULATION LINE
- CW— COLD WATER
- HW— HOT WATER
- POINT OF NEW CONNECTION TO EXISTING.

1 FMS BATTERY STORAGE  
MP-101 3/32"=1"



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AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: MP-601.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**MECHANICAL/PLUMBING  
DIAGRAMS AND DETAILS  
FMS BATTERY STORAGE**

SHEET NUMBER:

**MP-601**

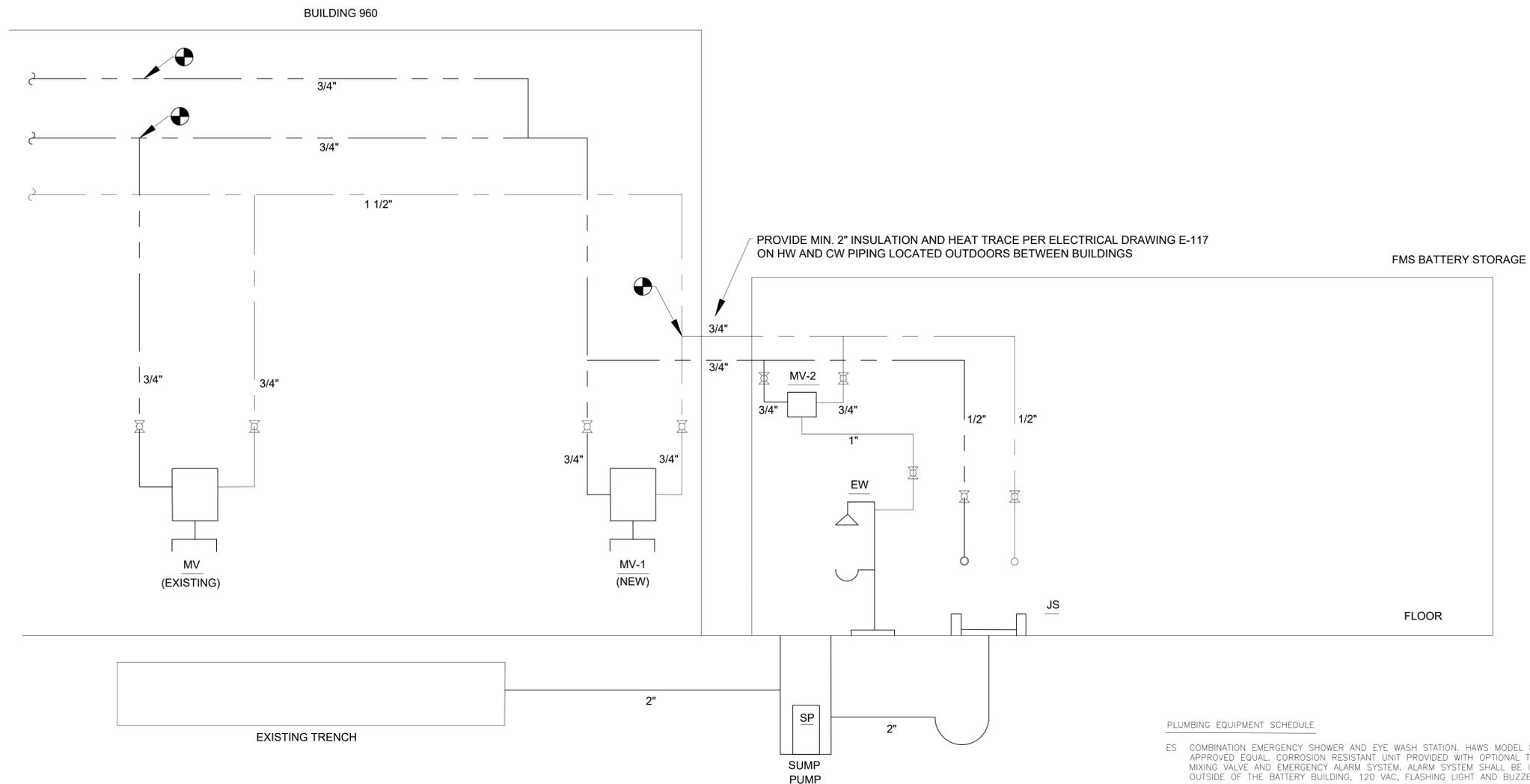
SHEET 8 OF 47  
3/12/2020

MECHANICAL SYMBOLS PIPING SPECIALTIES

- — ELBOW TURNED UP OR TOWARDS.
- ⊕ — ELBOW TURNED DOWN OR AWAY.
- ⊕ — TEE TURNED UP OR TOWARDS.
- ⊕ — TEE TURNED DOWN OR AWAY.
- — BALL VALVE.
- || — UNION.
- S — SANITARY DRAIN LINE.
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- — AND HOT WATER RECIRCULATION LINE
- CW — COLD WATER
- HW — HOT WATER
- — POINT OF NEW CONNECTION TO EXISTING.

GENERAL NOTES

- ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH INTERNATIONAL PLUMBING CODE (IPC) 2018 AND LOCAL CODES.



PROVIDE MIN. 2" INSULATION AND HEAT TRACE PER ELECTRICAL DRAWING E-117 ON HW AND CW PIPING LOCATED OUTDOORS BETWEEN BUILDINGS

PLUMBING EQUIPMENT SCHEDULE

- ES COMBINATION EMERGENCY SHOWER AND EYE WASH STATION, HAWS MODEL 8300CRP OR APPROVED EQUAL. CORROSION RESISTANT UNIT PROVIDED WITH OPTIONAL THERMOSTATIC MIXING VALVE AND EMERGENCY ALARM SYSTEM. ALARM SYSTEM SHALL BE INSTALLED ON OUTSIDE OF THE BATTERY BUILDING, 120 VAC, FLASHING LIGHT AND BUZZER ALARM.
- MV-1 LEONARD MODEL SW 75, 3/4" INLETS AND OUTLETS, OR EQUAL BY HONEYWELL, WATTS OR KOHLER.
- MV-2 LEONARD MODEL TM - 600 - LF 3/4" INLETS AND 1" OUTLET, OR EQUAL BY HONEYWELL, WATTS OR KOHLER.
- JS JANITOR SINK, AMERICAN STANDARD FIAT MSB2424100 OR APPROVED EQUAL. MOLDED STONE BASIN. PROVIDE WITH STAINLESS STEEL GRID STRAINER AND CHROME PLATED WALL MOUNTED FAUCET.
- SP SUMP PUMP, ZOELLER MODEL 260 OR APPROVED EQUAL BY LITTLE GIANT OF DAYTON. CHEMICAL RESISTANT SUMP PUMP. 2" DISCHARGE, 1/2 HP MOTOR, 120V 1 PH. POWDER COATED EPOXY FINISH, PLASTIC IMPELLER. PROVIDE WITH ZOELLER POLYETHYLENE BASIN OR APPROVED EQUAL BY LITTLE GIANT, ADS, OR EVERBILT. 18" DIAMETER WITH 22" MINIMUM HEIGHT.

**1 FMS BATTERY STORAGE PLUMBING RISER**  
MP-601 NOT TO SCALE

# SOLAR ARRAY BUILDING LIST

SOLAR ARRAY BUILDING LIST

	BLDG NUMBER	BLDG DESCRIPTION	MDP CONN VOLTAGE	BLDG MDP AMP SIZE	SOLAR ARRAY KW SIZE	SOLAR ARRAY LOCATION	ONE LINE DWG	PLAN DWG
1	41	HUGHES ST BLDG 41 AND RANGE	240/ 1 PH	200	12	GROUND NORTH EAST OF BLDG	E-601	E-101
2	106	BLDG 106	240/ 1 PH	225	5	GROUND EAST OF BLDG	E-602	E-102
3	201	BLDG 201	208/3 PH	800	45	GROUND SOUTH OF BLDG (PARKING AREA)	E-603	E-103
4	405	HUGHES AVE RIFLE RANGE AND BLDG 405B	240/1 PH	600	24	GROUND NORTH EAST OF BLDG	E-604	E-104
5	750	BLDG 750	208/3 PH	400	10	GROUND NORTH EAST OF BLDG	E-605	E-105
6	751	BLDG 751 DFAC	480/3 PH	400	48	GROUND NORTH EAST OF BLDG	E-606	E-106
7	752	BLDG 752 RAY CARVER ROAD	240/1 PH	800	24	GROUND NORTH EAST OF BLDG	E-607	E-107
8	753	BLDG 753 BENTON AVE	240/1 PH	600	24	GROUND SOUTH WEST OF BLDG	E-608	E-107
9	801	BLDG 801	240/ 1 PH	200	6	GROUND EAST OF BLDG	E-609	E-108
10	802	BLDG 802	240/ 1 PH	200	6	GROUND EAST OF BLDG	E-610	E-108
11	803	BLDG 803 CARVER ROAD	240/ 1 PH	800	24	GROUND WEST OF BLDG	E-611	E-109
12	820	SW CRNR MARK T AND LEWIS (BLDG 820)	240/1 PH	1250	12	GROUND WEST OF BLDG	E-612	E-110
13	884	BLDG 884	240/ 1 PH	200	12	GROUND EAST OF BLDG	E-613	E-111
14	886	BLDG 885-888	240/ 1 PH	800	18	GROUND WEST OF BLDG	E-614	E-112
15	889	BLDG 889 TMC	240/ 1 PH	400	6	GROUND SOUTH OF BLDG	E-615	E-113
16	890	BLDG 890	240/1 PH	400	18	GROUND NORTH OF BUILDING	E-616	E-114
17	893	BLDG 893	208/3 PH	600	6	GROUND EAST OF BLDG	E-617	E-115
18	960	BLDG 960 (OMS 13)	208/3 PH	2225	26	GROUND EAST OF BLDG	E-618	E-116

326.00

## GENERAL ELECTRICAL NOTES

- PHOTOVOLTAIC (PV) SYSTEMS SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 690.
- ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.
- THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION
- LOAD-SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH [NEC 690.64 (B)]
- ALL PV SYSTEM COMPONENTS, MODULES, UTILITY-INTERACTIVE INVERTERS, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY [NEC 690.4] & [NEC 690.60]
- PV MODULES:UL 1703 CERTIFIED, NFPA 70 CLASS C FIRE INVERTER(S):UL 1741 CERTIFIED, IEEE 1547, 929, 519 COMBINER BOX(S):UL 1703 OR UL 1741 ACCESSORY
- PV STRING HOME RUNS MUST BE LABELED AT ALL TERMINATIONS. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, ACCESSORIES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATION AS INDICATED ON THE DRAWINGS
- SUPPORT CONDUCTORS IN VERTICAL CONDUIT IN ACCORDANCE WITH THE REQUIREMENTS OF NEC 300.19.

## GROUNDING NOTES

- ONLY ONE CONNECTION TO AC CIRCUITS WILL BE USED FOR SYSTEM GROUNDING (NEC 690.42).
- RACKING AND STRUCTURAL COMPONENTS MUST BE ELECTRICALLY BONDED TOGETHER BY AN ACCEPTABLE MEANS. RACKING SYSTEM SHALL BE LISTED UL2703.
- MODULES SHALL BE GROUNDED WITH EQUIPMENT GROUNDING CONDUCTORS BONDED TO A LOCATION MEETING MANUFACTURER REQUIREMENTS WITH A MEANS OF BONDING LISTED FOR THIS PURPOSE.
- A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC 690.47 AND NEC 250.50 THROUGH NEC 250.166 SHALL BE PROVIDED.
- PV SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH NEC 250.21 AND ALL METAL PARTS OR MODULE FRAMES ACCORDING TO NEC 690.43.
- ALL CONDUIT BETWEEN THE UTILITY AC DISCONNECT AND THE POINT OF CONNECTION IN THE MDP SHALL HAVE GROUNDED BUSHINGS AT BOTH ENDS.

ABBREVIATIONS	SYMBOLS LEGEND	SYSTEM NOTES	CONSTRUCTION GENERAL NOTES
<p>A AMPERE</p> <p>AC ALTERNATING CURRENT</p> <p>AFCI ARC-FAULT CIRCUIT INTERRUPTER</p> <p>AHJ AUTHORITY HAVING JURISDICTION</p> <p>AIC AMERAGE INTERRUPTION CAPACITY</p> <p>ATS AUTOMATIC TRANSFER SWITCH</p> <p>AWG AMERICAN WIRE GAUGE</p> <p>CB-# CIRCUIT BREAKER</p> <p>BLDG BUILDING</p> <p>DC DIRECT CURRENT</p> <p>DWG DRAWING</p> <p>EMT ELECTRICAL METALLIC TUBE</p> <p>GFCI GROUND FAULT CIRCUIT INTERRUPTER</p> <p>GFP GROUND FAULT PROTECTION</p> <p>GND GROUND</p> <p>GEC GROUNDING ELECTRODE CONDUCTOR</p> <p>IBC INTERNATIONAL BUILDING CODE</p> <p>IFC INTERNATIONAL FIRE CODE</p> <p>KW KILOWATT</p> <p>MCB MAIN CIRCUIT BREAKER</p> <p>MDP MAIN DISTRIBUTION PANEL</p> <p>MLO MAIN LUG ONLY</p> <p>MTS MANUAL TRANSFER SWITCH</p> <p>N NEUTRAL</p> <p>NEC NATIONAL ELECTRICAL CODE</p> <p>NTS NOT TO SCALE</p> <p>OC ON CENTER</p> <p>OCPD OVERCURRENT PROTECTION DEVICE</p> <p>P POLE</p> <p>PH PHASE</p> <p>POC POINT OF CONNECTION</p> <p>PV PHOTOVOLTAIC</p> <p>RMC RIGID METALLIC CONDUIT</p> <p>SC SOURCE CIRCUIT</p> <p>TYP TYPICAL</p> <p>UL UNDERWRITERS LABORATORY</p> <p>V VOLT OR VOLTAGE</p> <p>W WATT</p> <p>XFMR TRANSFORMER</p>	<p> ELECTRICAL BREAKER</p> <p> ELECTRICAL DISCONNECT SWITCH</p> <p> ELECTRICAL FUSE</p> <p> ELECTRICAL FUSED DISCONNECT SWITCH</p> <p> METER</p> <p> SYSTEM OR EQUIPMENT GROUND</p> <p> CONDUIT DOWN</p> <p> CONTINUATION OF CONDUIT</p> <p> PHOTOVOLTAIC (PV) MODULE</p> <p> DC/AC INVERTER</p> <p> POWER TRANSFORMER</p> <p> CONNECTED CONDUCTOR</p>	<p>1. SOLAR ARRAY CONSISTS OF PV MODULES, CONNECTED IN SERIES.</p> <p>2. ARRAYS HAVE BEEN PLACED TO MINIMIZE OR ELIMINATE SHADING IMPACT FROM ADJACENT STRUCTURES AND/OR OBSTRUCTIONS.</p> <p>3. INVERTERS SHALL BE TRANSFORMERLESS STRING INVERTERS, LOCATED PER PLAN.</p>	<p>1. ALL ELECTRICAL WORK SHALL BE PERFORMED BY A QUALIFIED LICENSED ELECTRICIAN AND/OR APPRENTICES WORKING UNDER THE DIRECT SUPERVISION OF THE LICENSED CONTRACTOR.</p> <p>2. ALL WORK CARRIED OUT SHALL COMPLY WITH THE SPECIFICATIONS, APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.</p> <p>3. PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES NOTED AMONG SITE CONDITIONS, MANUFACTURER RECOMMENDATIONS, OR AUTHORITY HAVING JURISDICTION. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD A WRITTEN "RFI"(REQUEST FOR INFORMATION) PROPOSING AN ALTERNATIVE OR SEEKING CLARIFICATION.</p> <p>4. THE CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.</p> <p>5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, ACCESSORIES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.</p> <p>6. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.</p> <p>7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.</p> <p>8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.</p> <p>9. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION. ALL DEBRIS AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER PER SPECIFICATIONS.</p> <p>10. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES NOT PART OF THE SCOPE OF WORK AS IDENTIFIED IN THESE PLANS.</p> <p>11. DUE TO THE FACT THAT PV MODULES ARE ENERGIZED WHENEVER THEY ARE EXPOSED TO LIGHT, CONTRACTOR SHALL DISABLE THE ARRAY DURING INSTALLATION AND SERVICE BY SHORT CIRCUITING, OPEN CIRCUITING, OR COVERING ARRAY WITH AN OPAQUE COVER ACCORDING TO MANUFACTURER'S INSTRUCTION.</p>
		<h3>SITE INFORMATION</h3> <p>UTILITY COMPANY: LIBERTY UTILITIES</p>	
	<h3>APPLICABLE CODES</h3> <p>NATIONAL ELECTRIC CODE (NEC), 2017 INTERNATIONAL BUILDING CODE (IBC), 2018 INTERNATIONAL FIRE CODE (IFC), 2018 LIBERTY UTILITY REQUIREMENTS FOR NET METERING</p>		<h3>MONITORING AND CONTROLS</h3> <p>CONTRACTOR SHALL PROVIDE A WIRELESS MONITORING AND CONTROLS NETWORK. THE SOLAR INVERTERS SHALL BE PROVIDED WITH MANUFACTURER STANDARD WIRELESS ACCESS CAPABILITY. CONTRACTOR SHALL PROVIDE WIRELESS REPEATERS AT EACH SOLAR ARRAY. CONTRACTOR SHALL PROVIDE CELLULAR HOTSPOTS THAT WILL UPLOAD AND ALLOW CONTROL FROM A PASSWORD PROTECTED WEB ACCESS SYSTEM. THE NUMBER OF HOT SPOTS SHALL BE AS DETERMINED BY THE INSTALLATION CONTRACTOR. AT A MINIMUM, THREE WILL BE REQUIRED, ONE FOR THE MAIN POST AREA, ONE FOR THE RANGE AREA, ONE FOR BUILDING 201. A CONTROLS/MONITORING STATION SHALL BE SET UP AT POST HEADQUARTERS BUILDING 890. THE CONTRACTOR SHALL INSTALL THE WEB MONITORING SOFTWARE ON AN EXISTING COMPUTER AS DESIGNATED BY THE STATE PROJECT MANAGER. SEE SPECIFICAITON 263100 FOR ADDITIONAL INFORMATION.</p>

STATE OF MISSOURI  
MICHAEL L. PARSON  
GOVERNOR



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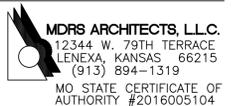
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Charles G. Tharp  
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INSTALL SOLAR  
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BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
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ISSUE DATE: 3/12/2020

CAD DWG FILE: E-001.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL SOLAR  
ARRAY BUILDING LIST  
LEGEND AND NOTES

SHEET NUMBER:

E-001

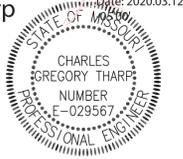
SHEET 9 OF 47  
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ISSUE DATE: 3/12/2020

CAD DWG FILE: E-101.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL PLAN  
BUILDING 41**

SHEET NUMBER:

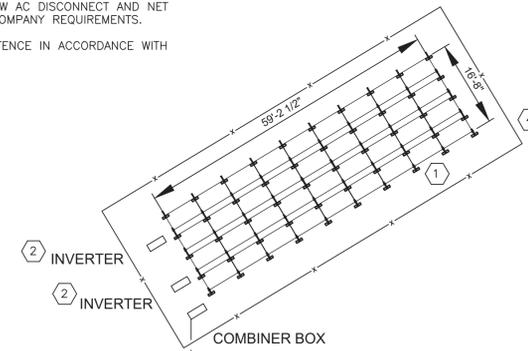
**E-101**

GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"X38.97"X1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

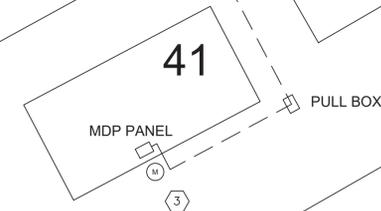
PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-601 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.



2 INVERTER  
2 INVERTER

COMBINER BOX



41

MDP PANEL

PULL BOX

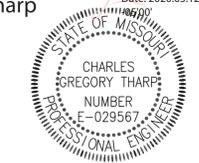
1 BUILDING 41 ELECTRICAL PLAN  
E-101 1/16"=1'



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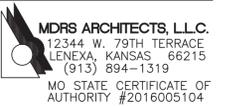
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CONSULTANTS



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BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

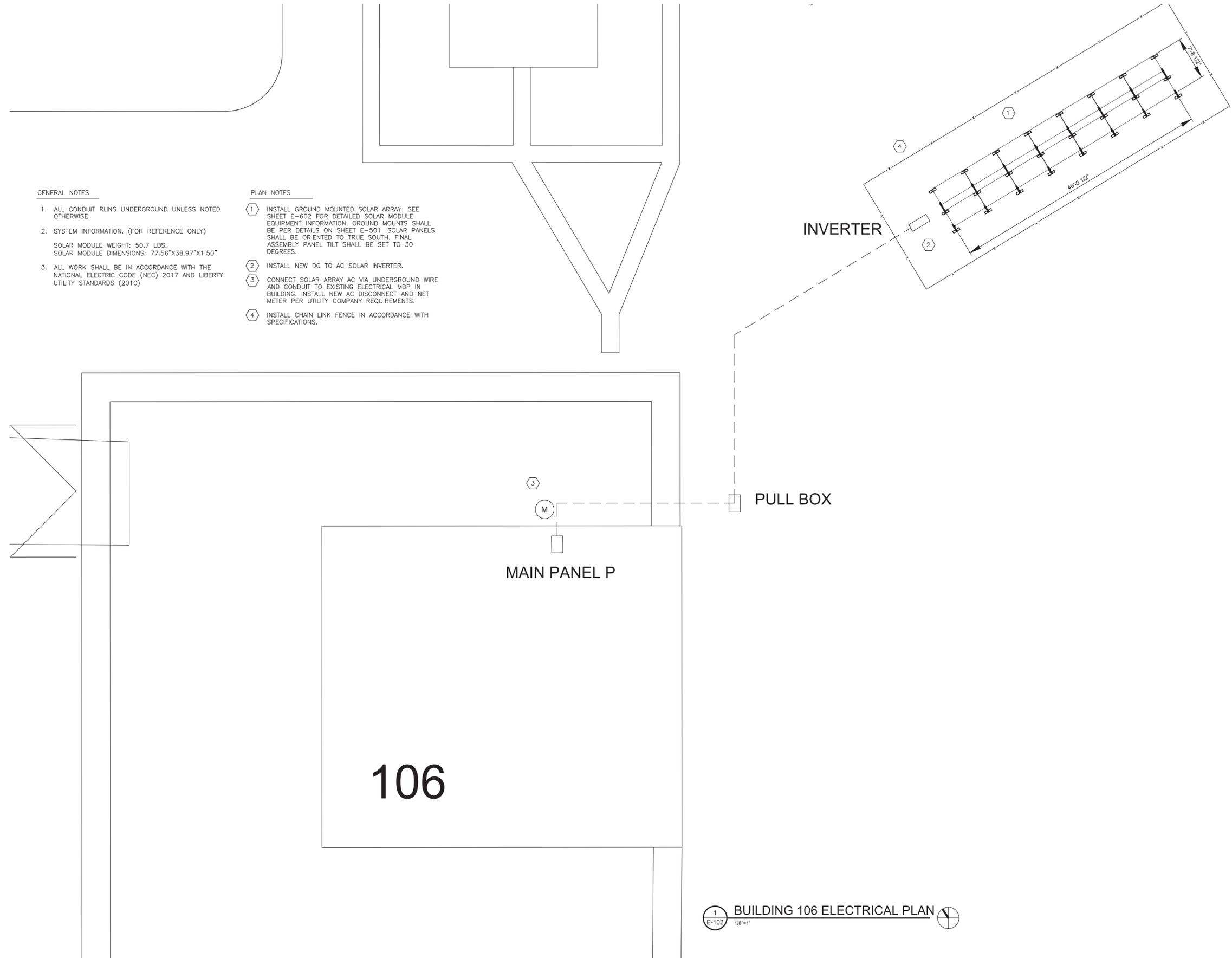
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REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-102.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL PLAN  
BUILDING 106

SHEET NUMBER:

E-102



GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"X38.97"X1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-602 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.

1 E-102 BUILDING 106 ELECTRICAL PLAN 1/8"=1'



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Charles G Tharp  
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1279 W 71st Terr.  
KANSAS CITY MO 64114  
(816) 309-0099 Robert7721@aol.com  
MO STATE CERTIFICATE OF  
AUTHORITY#2016003099

CONSULTANTS

**MDRS ARCHITECTS, L.L.C.**  
12344 W. 79TH TERRACE  
LENEWA, KANSAS 66215  
(913) 894-1319  
MO STATE CERTIFICATE OF  
AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-103.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL PLAN  
BUILDING 201

SHEET NUMBER:

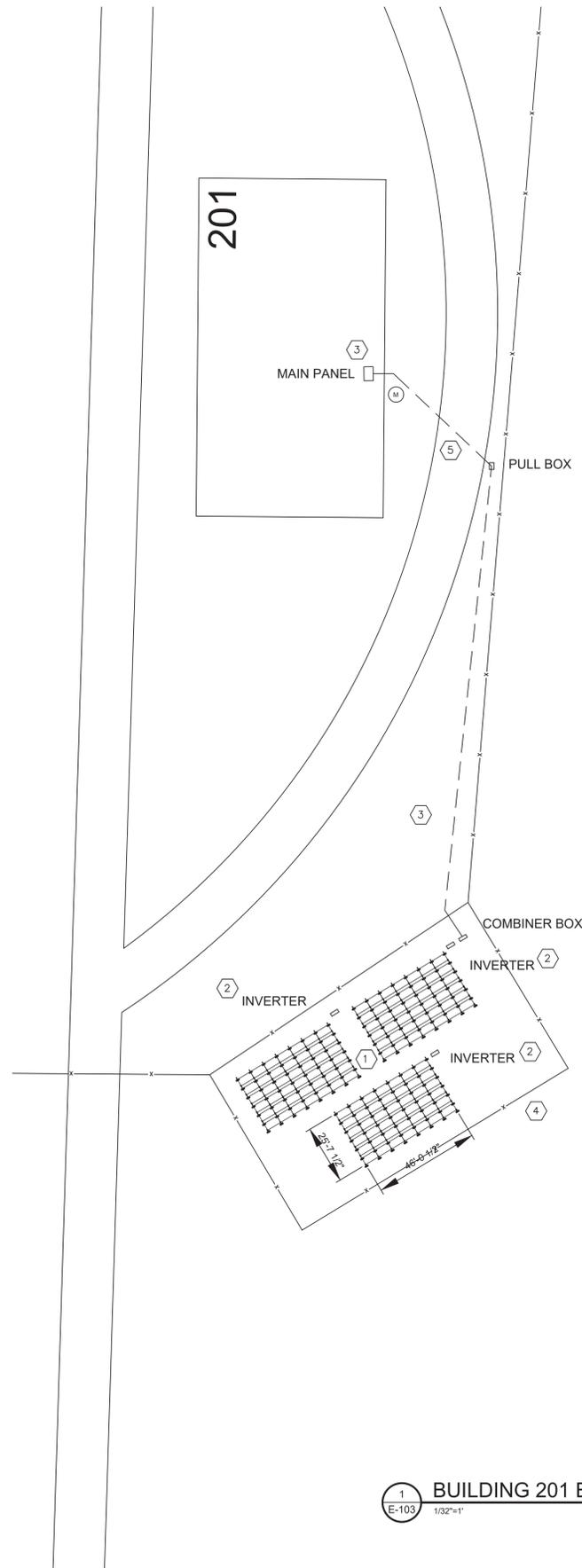
**E-103**

GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"X38.97"X1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-603 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.
5. ROUTE WIRE OVER ROAD USING EXISTING USING POWER POLES.



1 BUILDING 201 ELECTRICAL PLAN  
E-103 1/32"=1'



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AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-104.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL PLAN  
BUILDING 405B**

SHEET NUMBER:

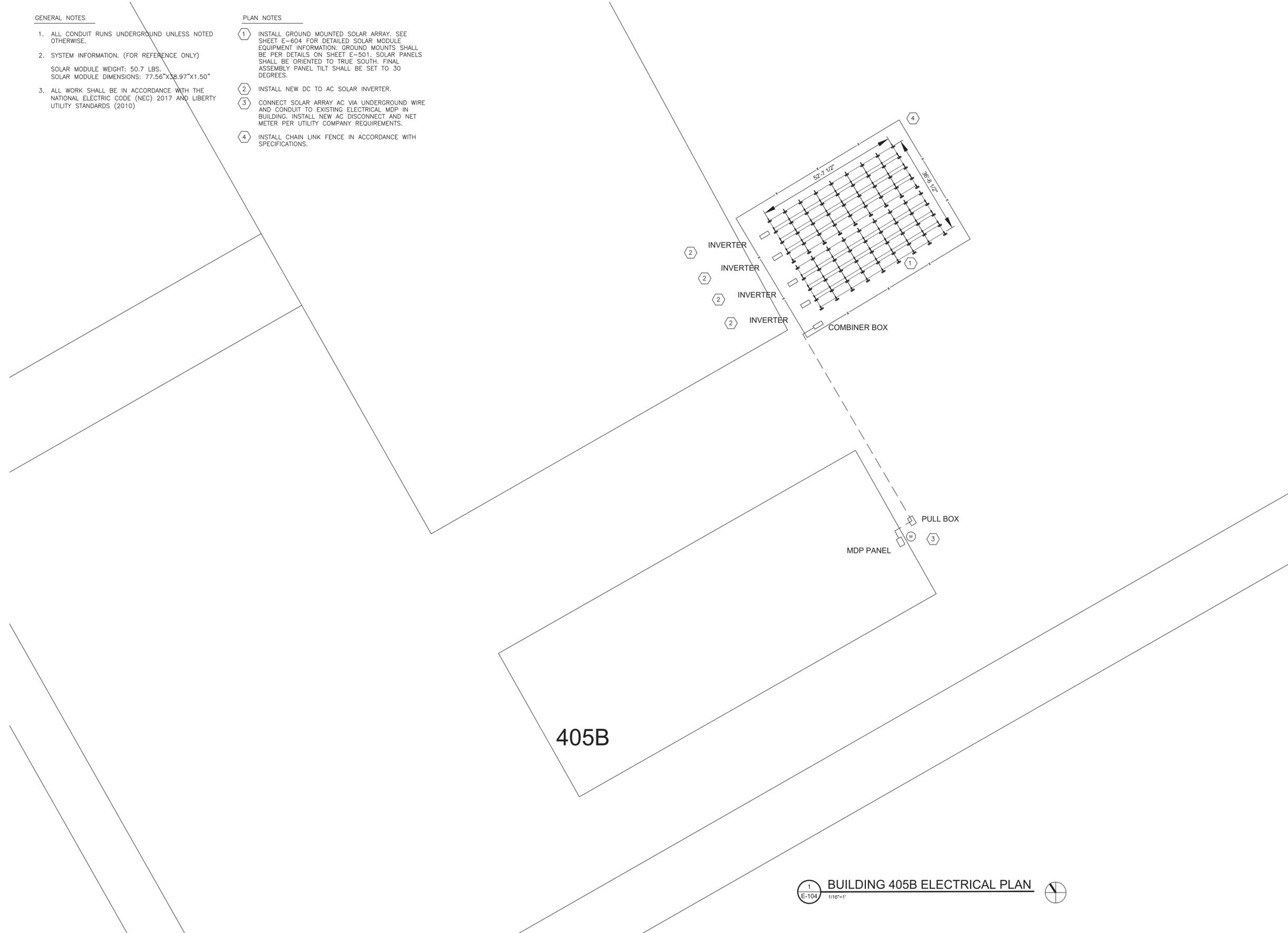
**E-104**

GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"X38.97"X1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-604 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.



**1** BUILDING 405B ELECTRICAL PLAN  
E-104 1/16"=1'



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INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

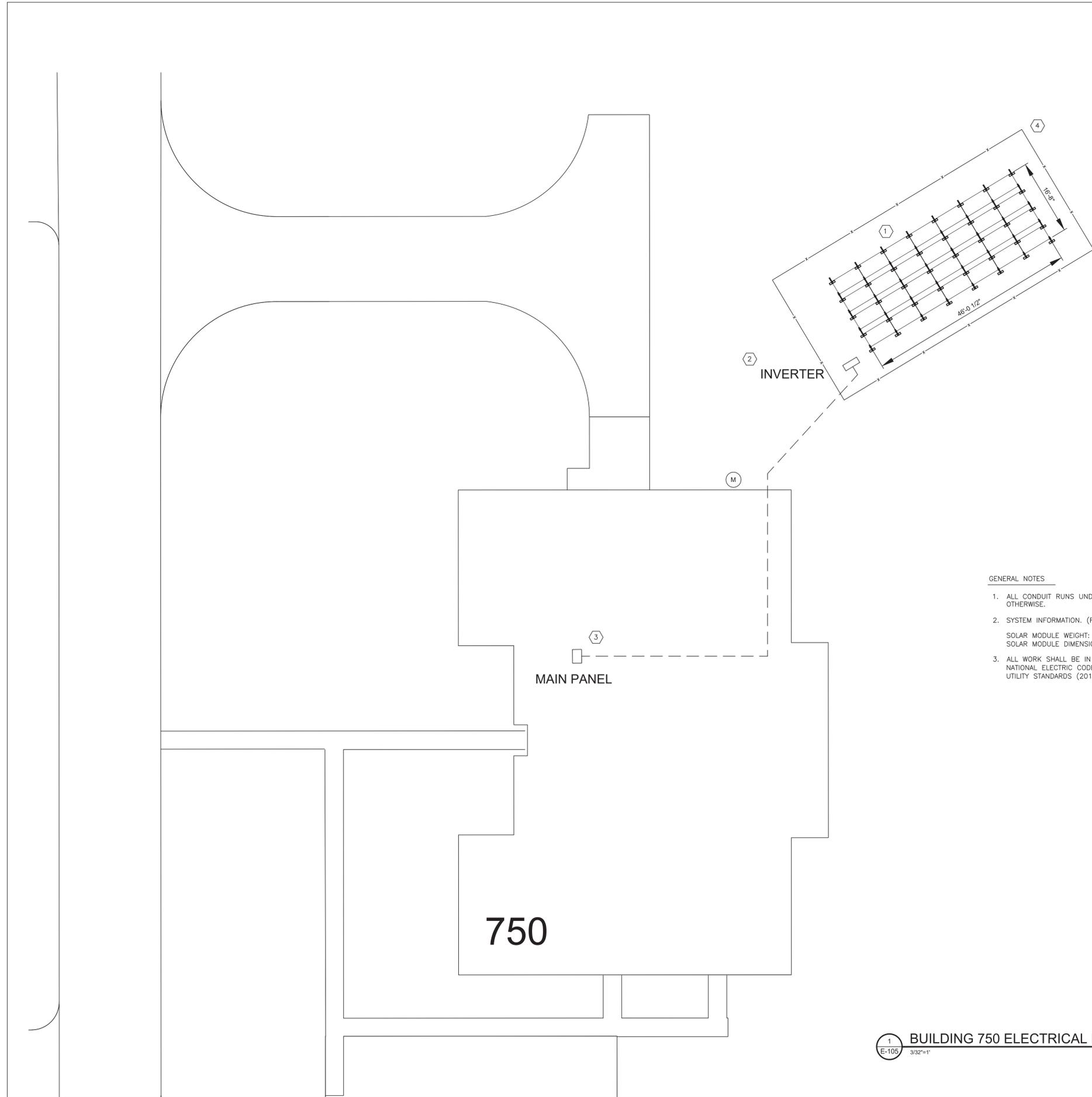
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DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-105.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL PLAN  
BUILDING 750

SHEET NUMBER:

**E-105**



GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"X38.97"X1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-605 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.



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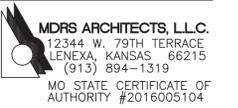
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BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
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REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-106.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL PLAN  
BUILDING 751

SHEET NUMBER:

E-106

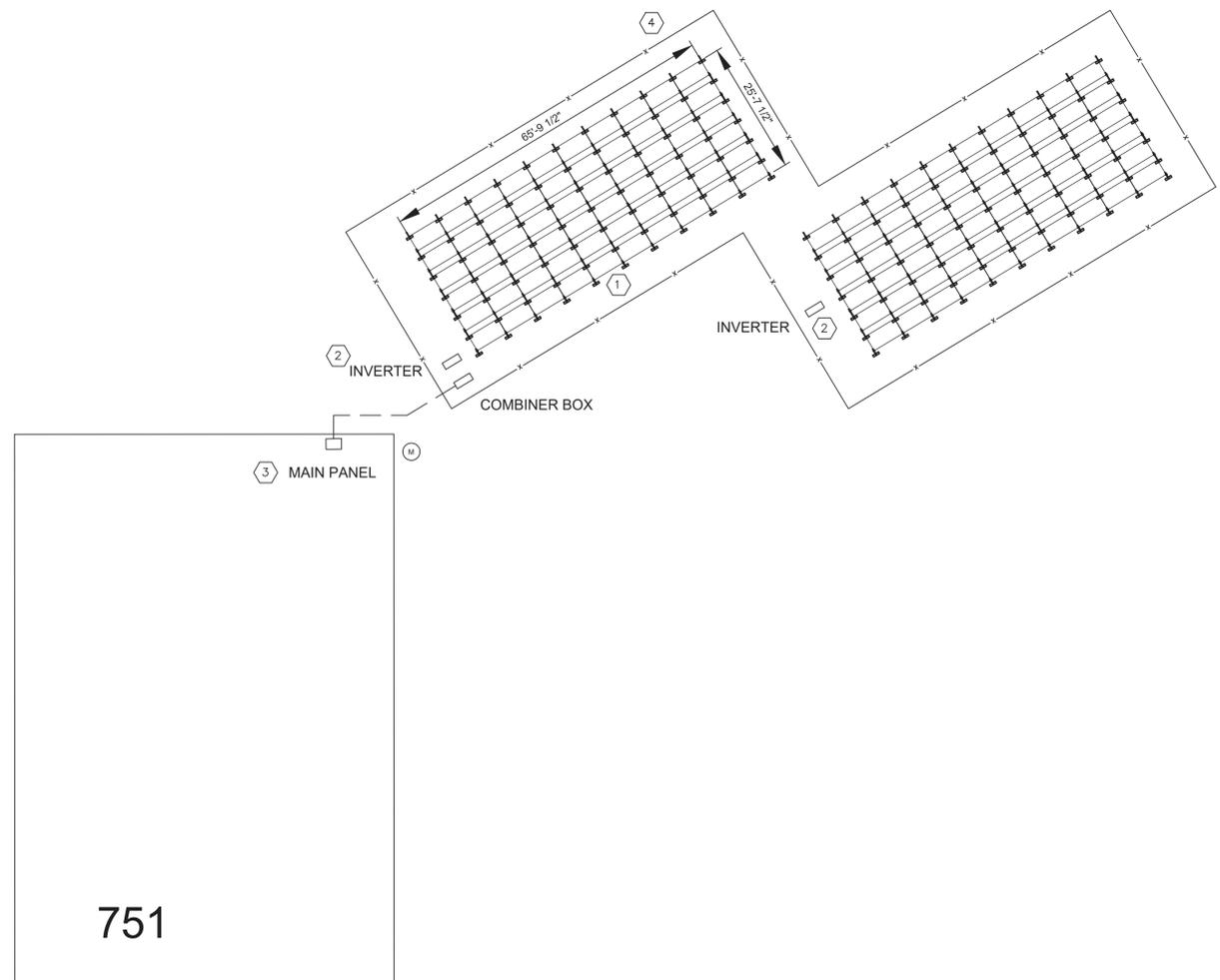
SHEET 15 OF 47  
3/12/2020

GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"x38.97"x1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-606 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.



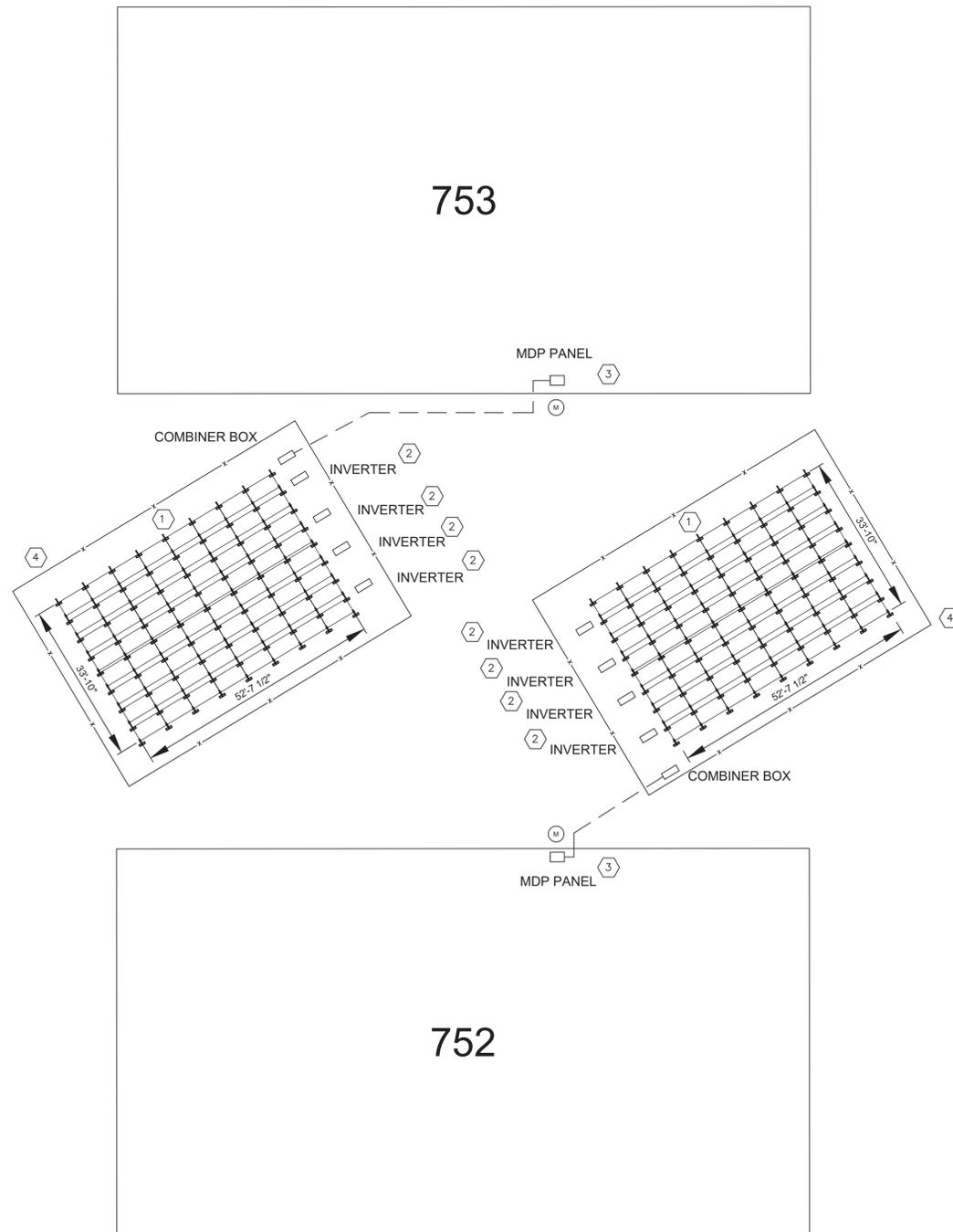
1 BUILDING 751 ELECTRICAL PLAN  
E-106 1/16"=1'

**GENERAL NOTES**

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"x38.97"x1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

**PLAN NOTES**

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-607 and E-608 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.



762

STATE OF MISSOURI  
MICHAEL L. PARSON  
GOVERNOR



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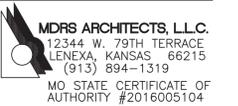
Charles G Tharp

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MO STATE CERTIFICATE OF  
AUTHORITY#2016003099

**CONSULTANTS**



INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-107.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL PLAN  
BUILDING 752 AND  
BUILDING 753**

SHEET NUMBER:

E-107

SHEET 16 OF 47  
3/12/2020

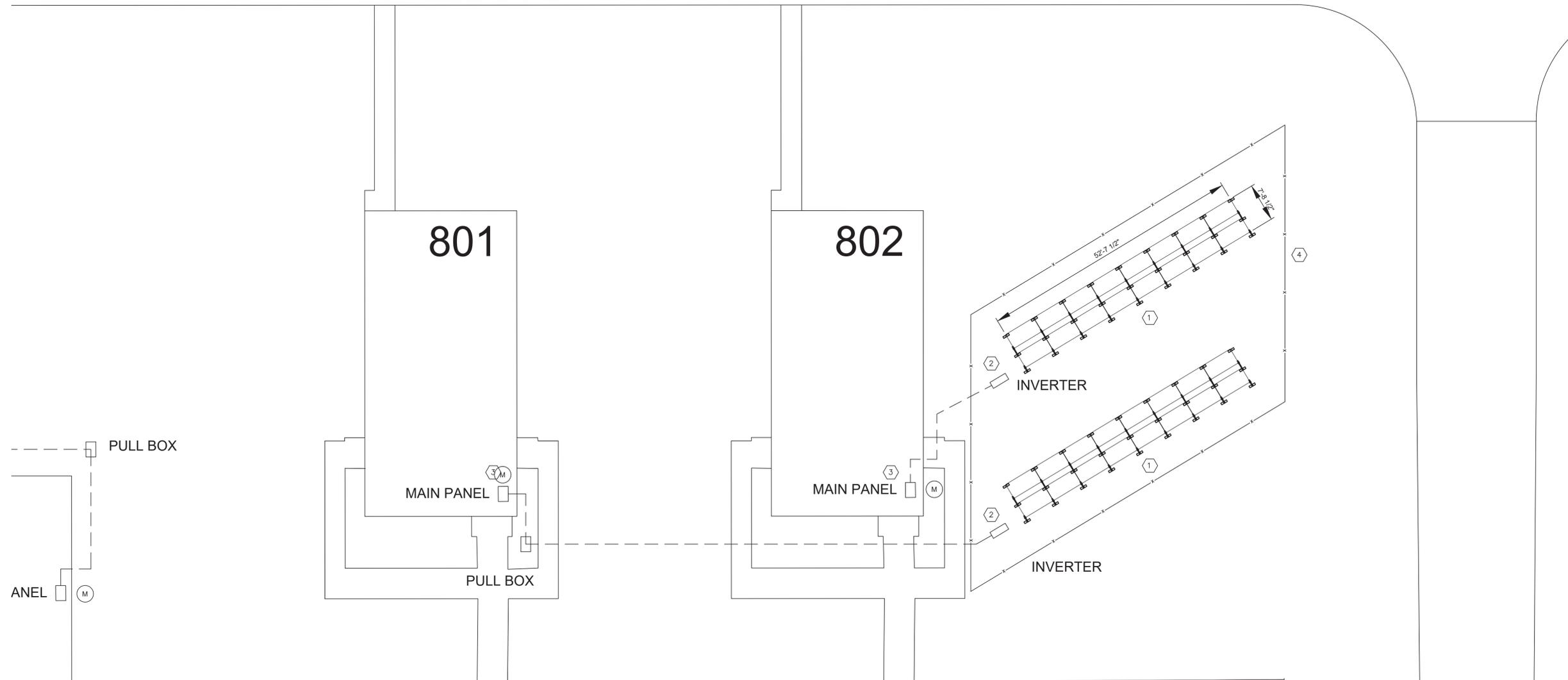


GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"x38.97"x1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-609 AND E-610 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.



1 BUILDING 801 AND 802 ELECTRICAL PLAN  
E-108 3/32"=1'

STATE OF MISSOURI  
MICHAEL L. PARSON  
GOVERNOR



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(913) 894-1319  
MO STATE CERTIFICATE OF  
AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-108.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL PLAN  
BUILDING 801 AND  
BUILDING 802

SHEET NUMBER:

E-108

SHEET 17 OF 47  
3/12/2020



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AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

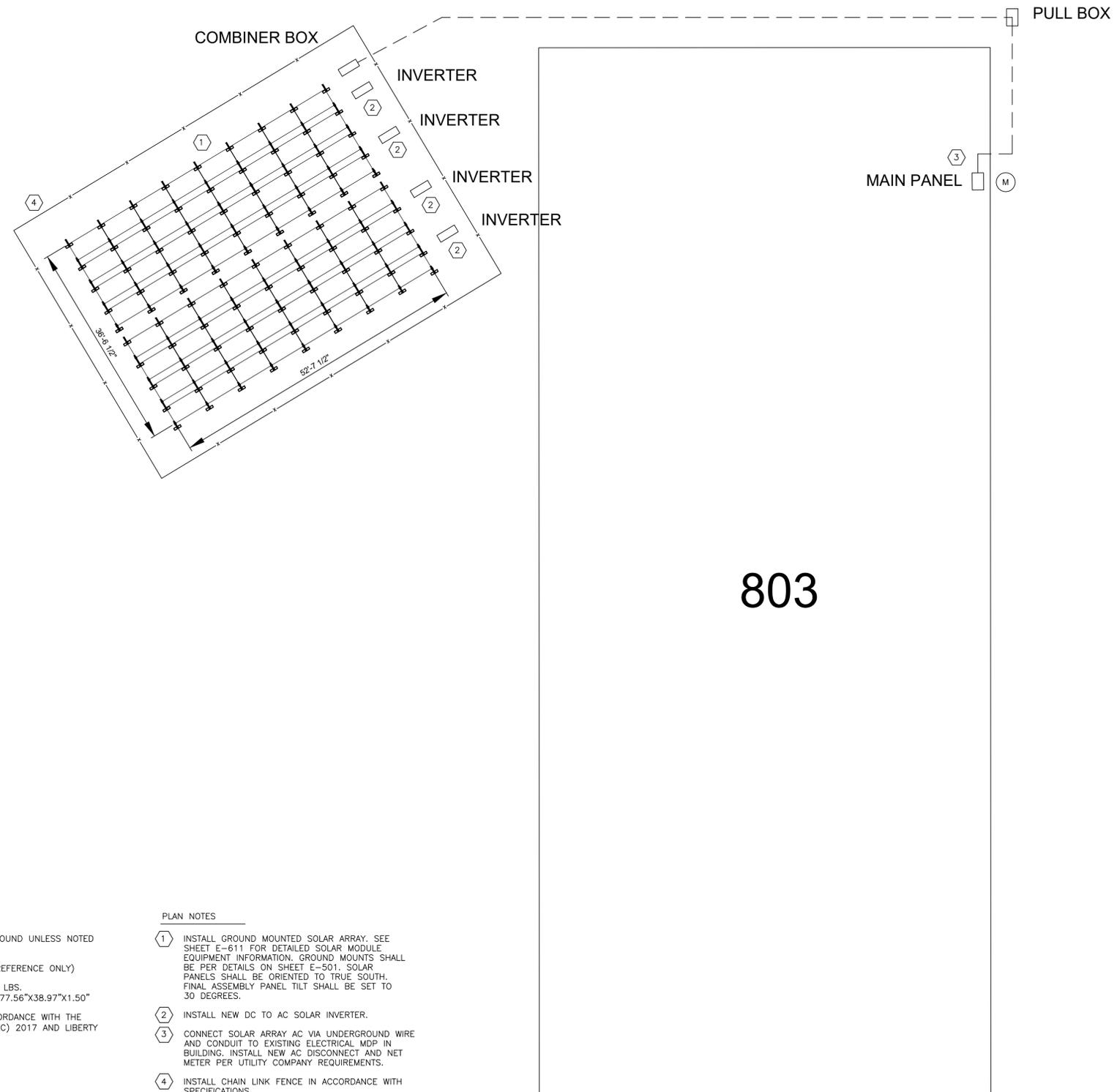
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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-109.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL PLAN  
BUILDING 803**

SHEET NUMBER:

**E-109**



803

GENERAL NOTES

- ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
- SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"x38.97"x1.50"
- ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

- INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-611 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
- INSTALL NEW DC TO AC SOLAR INVERTER.
- CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
- INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.





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LENEUA, KANSAS 66215  
(913) 894-1319  
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AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-110.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL PLAN  
BUILDING 820

SHEET NUMBER:

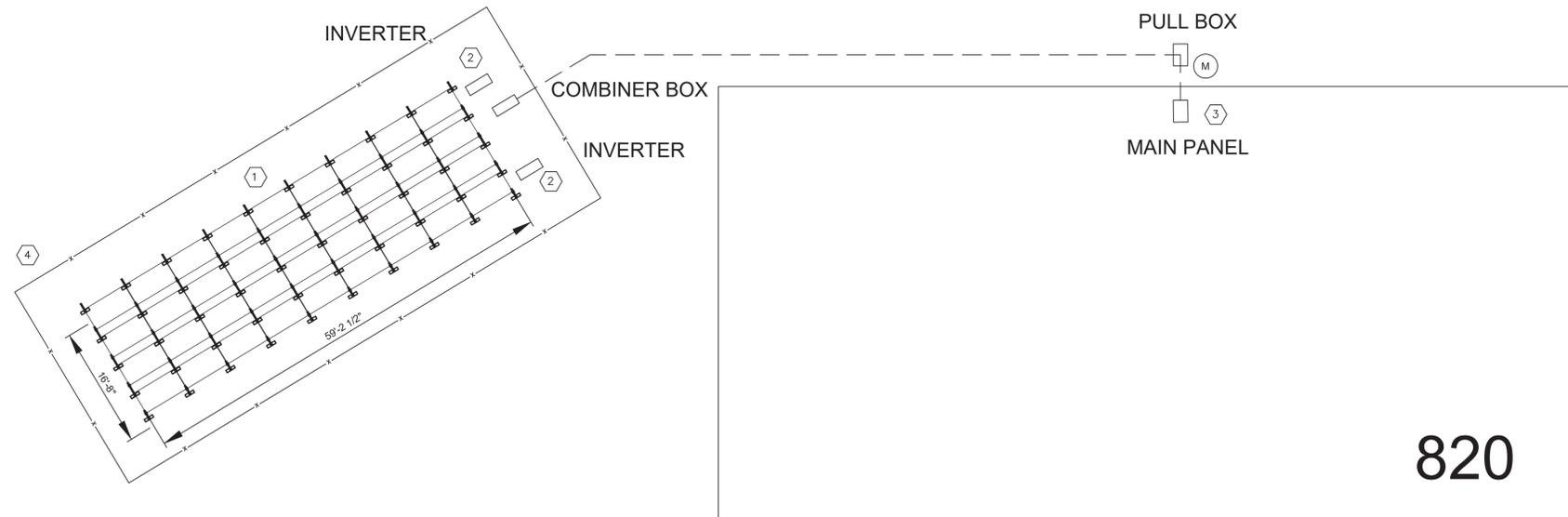
**E-110**

GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"X38.97"X1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-612 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.





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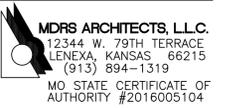
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CONSULTANTS



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BATTERY STORAGE

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TRAINING SITE  
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NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-111.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL PLAN  
BUILDING 884

SHEET NUMBER:

E-111

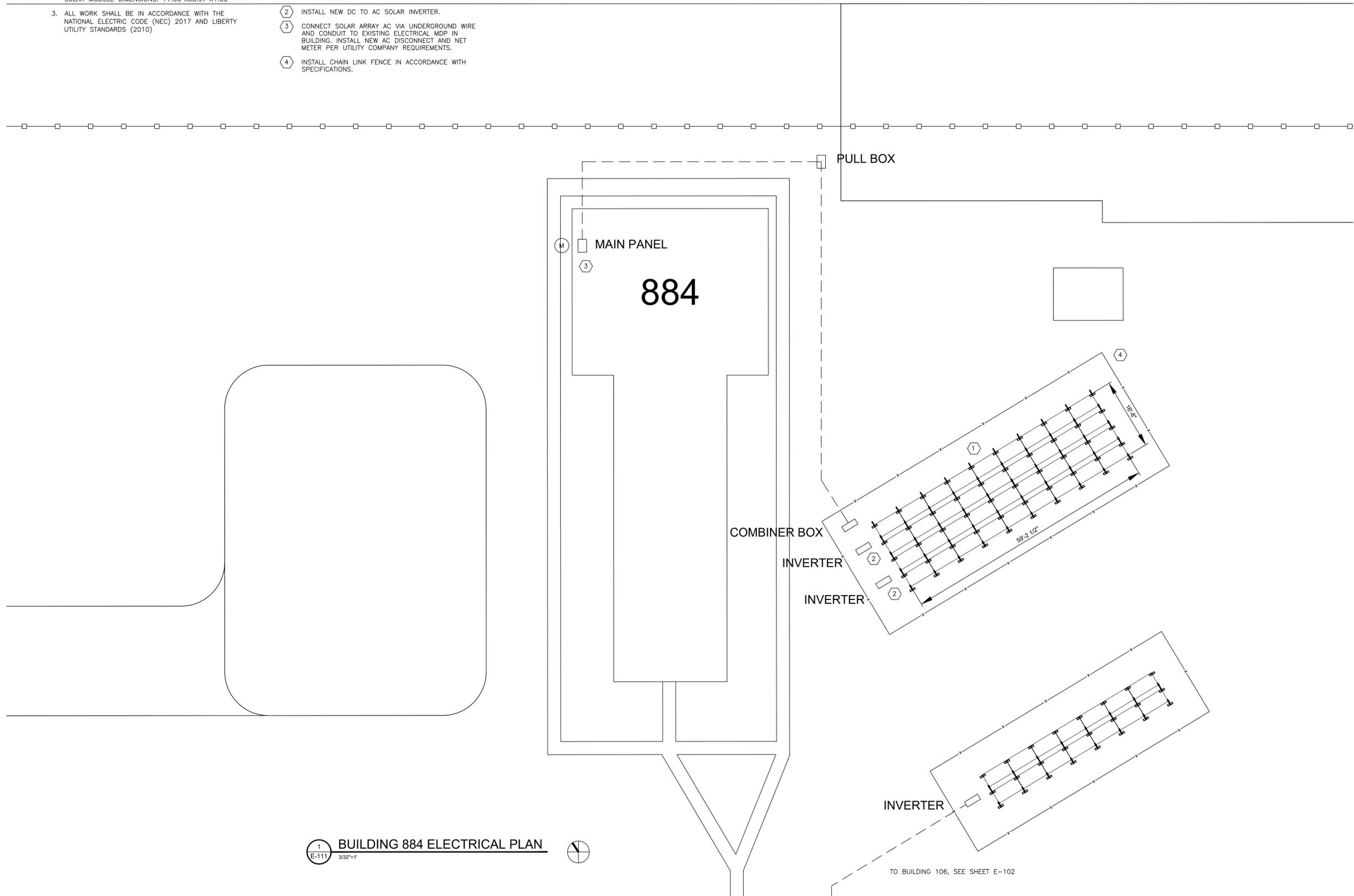
SHEET 20 OF 47  
3/12/2020

GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"X38.97"X1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-613 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.



1 BUILDING 884 ELECTRICAL PLAN  
E-111 3/32"=1'



TO BUILDING 106, SEE SHEET E-102



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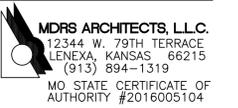
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CONSULTANTS



INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
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REVISION: \_\_\_\_\_  
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ISSUE DATE: 3/12/2020

CAD DWG FILE: E-112.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL PLAN  
BUILDINGS 885-888

SHEET NUMBER:

E-112

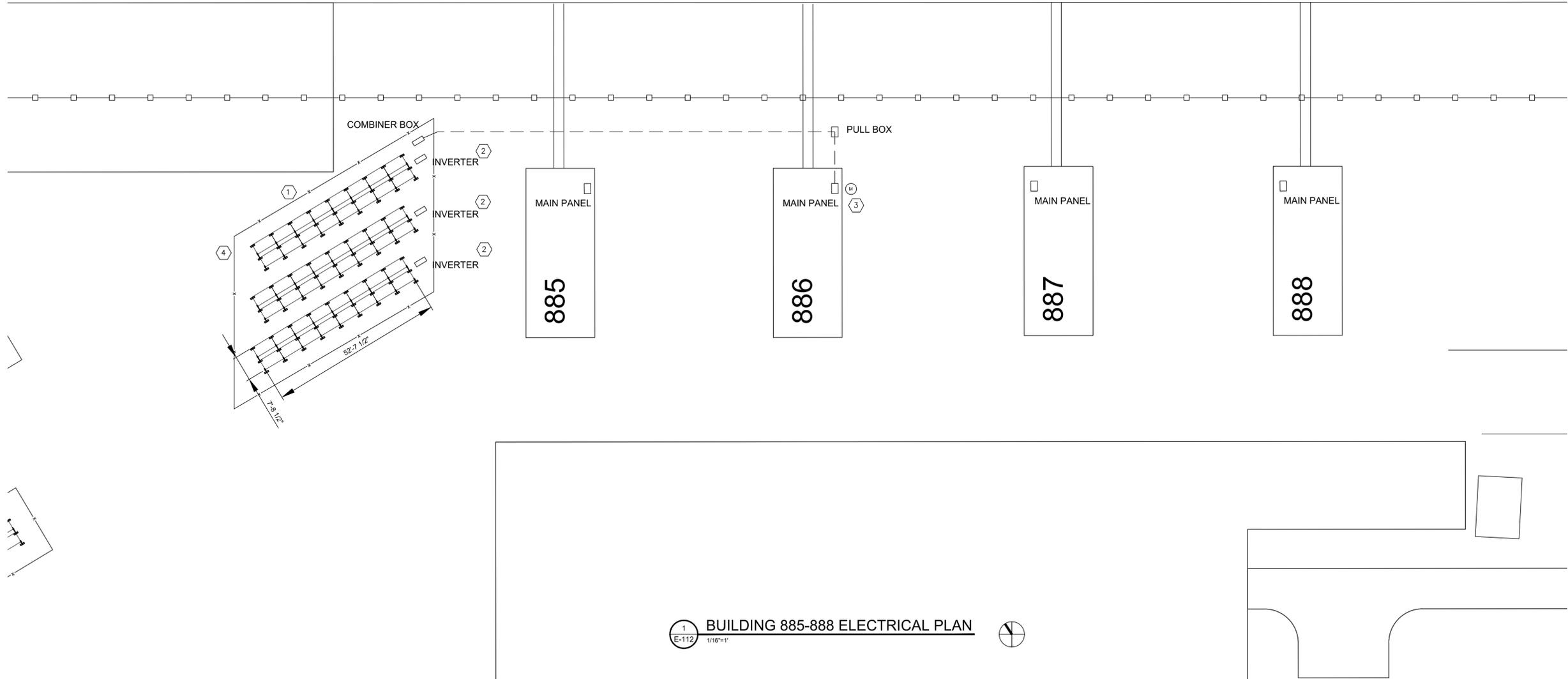
SHEET 21 OF 47  
3/12/2020

GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"x38.97"x1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-614 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP ON OUTSIDE OF BUILDING 886. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS. THE MDP ON THE OUTSIDE OF BUILDING 886 PROVIDES THE ELECTRICAL FEED FOR BUILDINGS 885, 886, 887, AND 888.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.



1 BUILDING 885-888 ELECTRICAL PLAN  
E-112 1/16"=1'

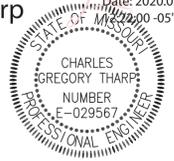




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INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-113.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL PLAN  
BUILDINGS 889**

SHEET NUMBER:

**E-113**

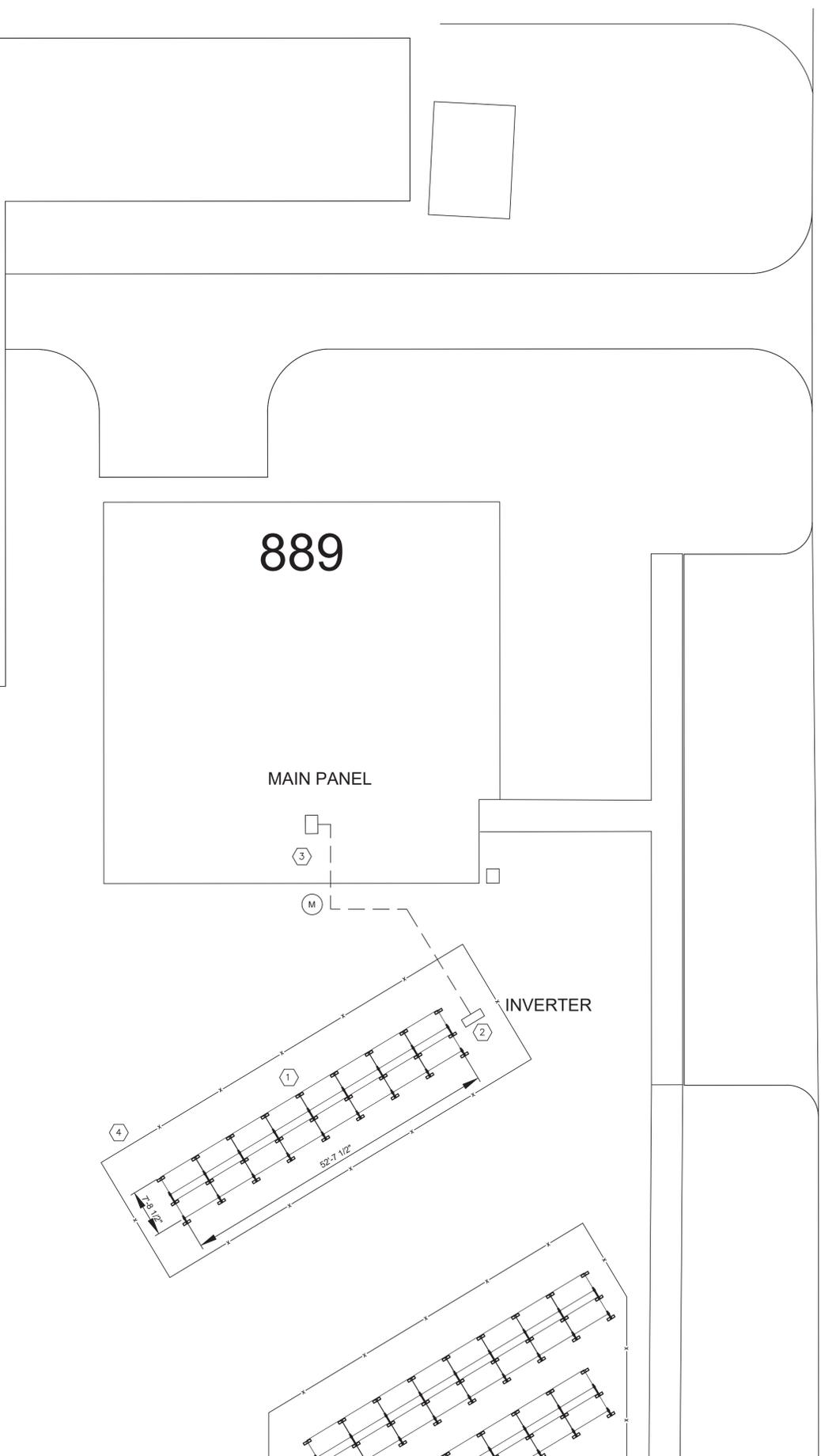
SHEET 22 OF 47  
3/12/2020

GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"X38.97"X1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-615 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.





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PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

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DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL PLAN  
BUILDINGS 890**

SHEET NUMBER:

**E-114**

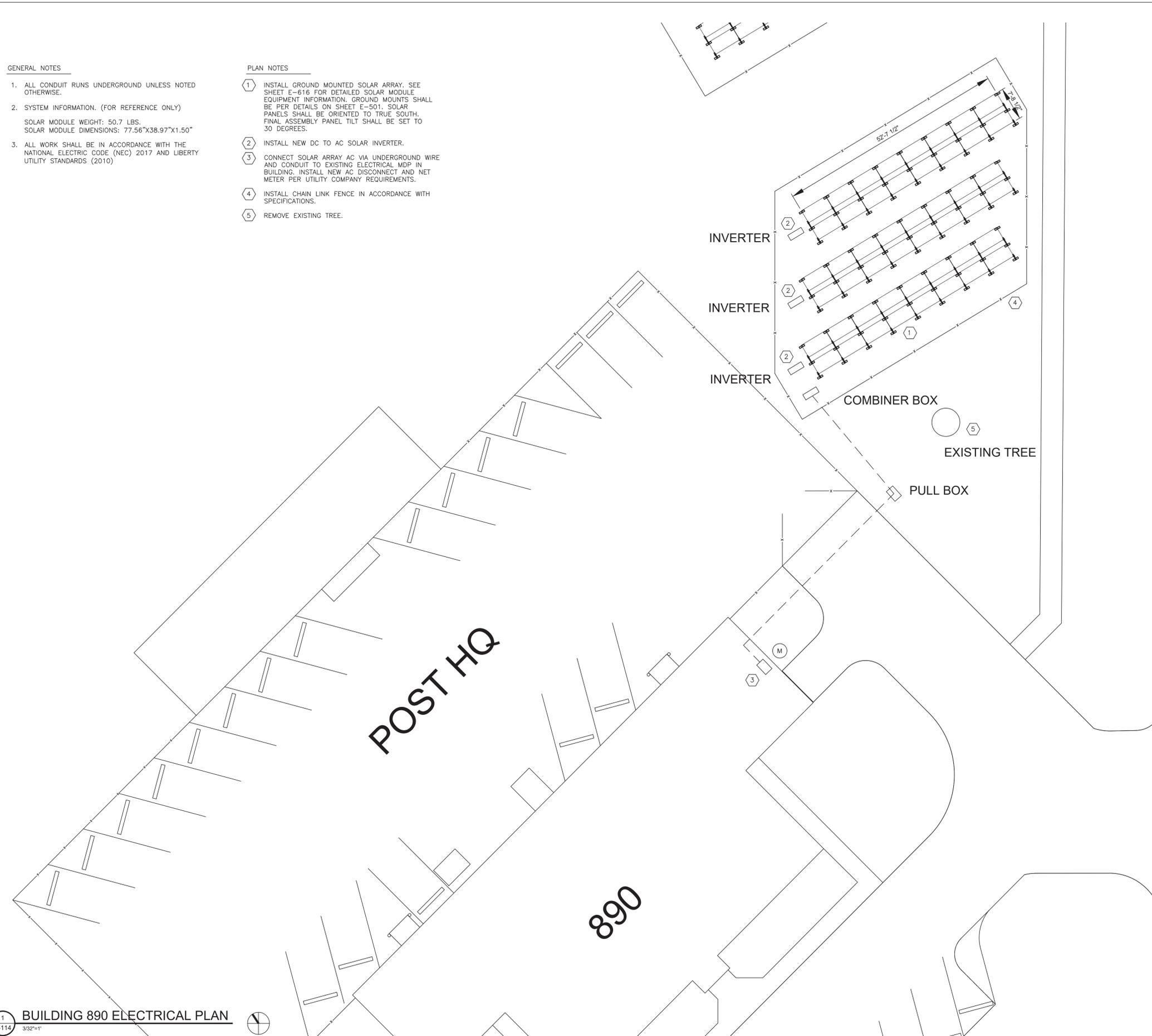
SHEET 23 OF 47  
3/12/2020

GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"X38.97"X1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-616 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.
5. REMOVE EXISTING TREE.





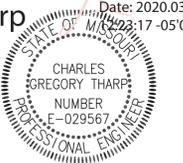
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AUTHORITY #2016005104

INSTALL SOLAR  
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BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
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NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-115.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL PLAN  
BUILDINGS 893

SHEET NUMBER:

**E-115**

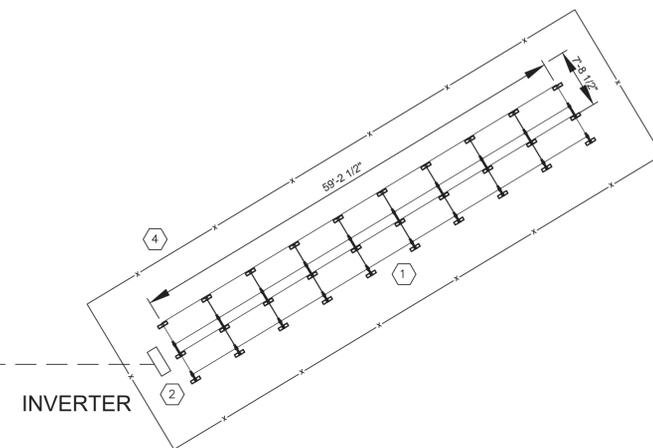
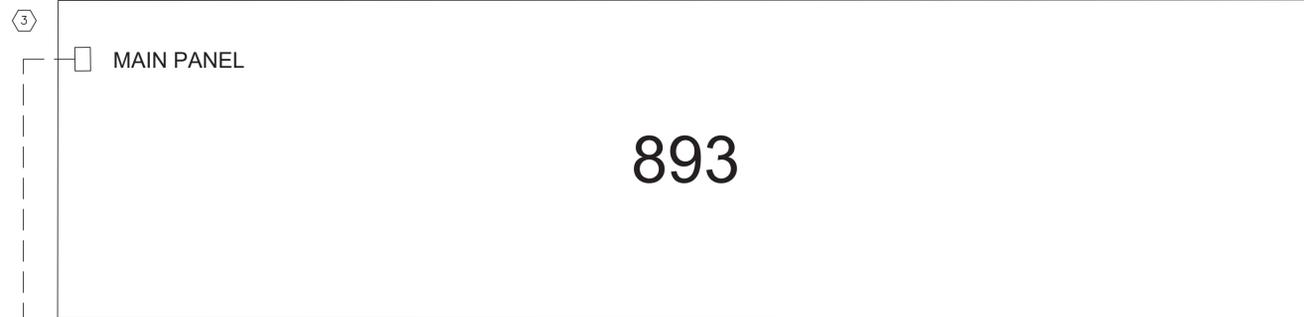
SHEET 24 OF 47  
3/12/2020

GENERAL NOTES

1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"x38.97"x1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

PLAN NOTES

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-617 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.

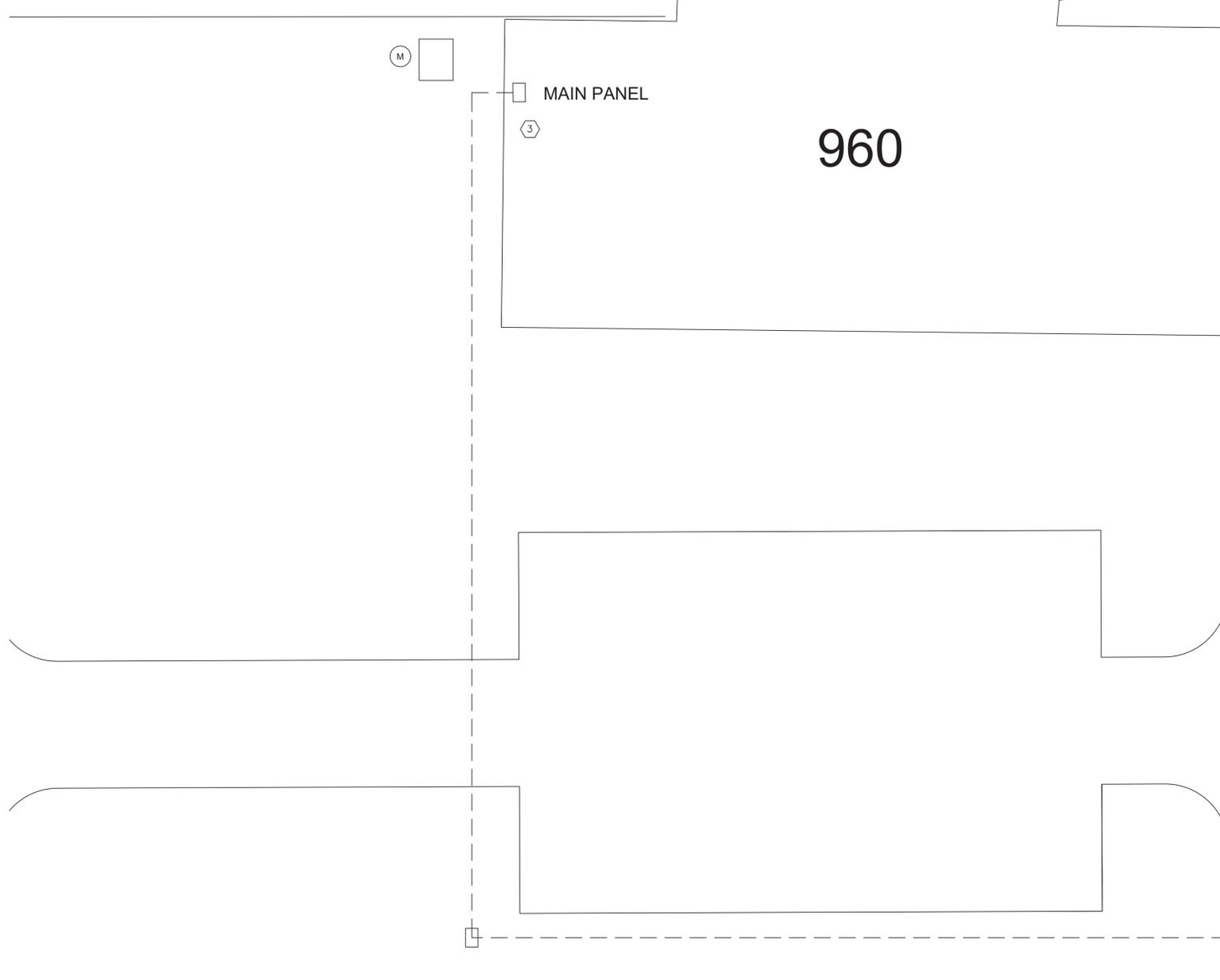


**GENERAL NOTES**

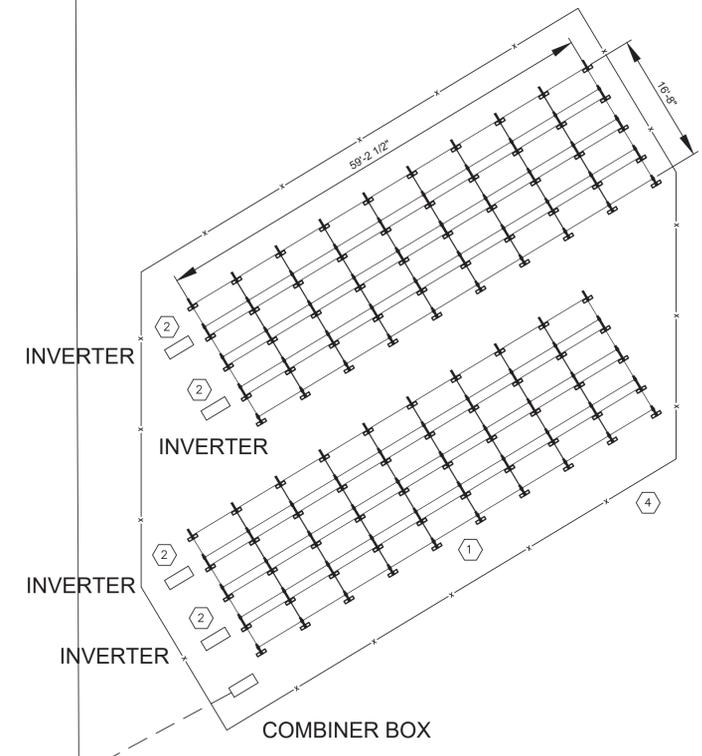
1. ALL CONDUIT RUNS UNDERGROUND UNLESS NOTED OTHERWISE.
2. SYSTEM INFORMATION. (FOR REFERENCE ONLY)  
SOLAR MODULE WEIGHT: 50.7 LBS.  
SOLAR MODULE DIMENSIONS: 77.56"X38.97"X1.50"
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 2017 AND LIBERTY UTILITY STANDARDS (2010)

**PLAN NOTES**

1. INSTALL GROUND MOUNTED SOLAR ARRAY. SEE SHEET E-618 FOR DETAILED SOLAR MODULE EQUIPMENT INFORMATION. GROUND MOUNTS SHALL BE PER DETAILS ON SHEET E-501. SOLAR PANELS SHALL BE ORIENTED TO TRUE SOUTH. FINAL ASSEMBLY PANEL TILT SHALL BE SET TO 30 DEGREES.
2. INSTALL NEW DC TO AC SOLAR INVERTER.
3. CONNECT SOLAR ARRAY AC VIA UNDERGROUND WIRE AND CONDUIT TO EXISTING ELECTRICAL MDP IN BUILDING. INSTALL NEW AC DISCONNECT AND NET METER PER UTILITY COMPANY REQUIREMENTS.
4. INSTALL CHAIN LINK FENCE IN ACCORDANCE WITH SPECIFICATIONS.



960



1 E-116 BUILDING 960 ELECTRICAL PLAN 3/32"=1'

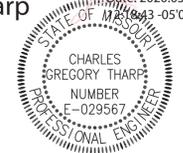
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MICHAEL L. PARSON  
GOVERNOR



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LENEXA, KANSAS 66215  
(913) 894-1319  
MO STATE CERTIFICATE OF AUTHORITY #2016005104

**INSTALL SOLAR ARRAY AND FMS BATTERY STORAGE**

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

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DATE:	_____
REVISION:	_____
DATE:	_____
REVISION:	_____
DATE:	_____
ISSUE DATE:	3/12/2020

CAD DWG FILE: E-116.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL PLAN  
BUILDINGS 960**

SHEET NUMBER:  
**E-116**





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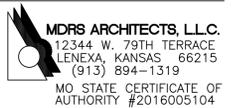
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SITE # 6260  
ASSET # 8136260001

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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_

ISSUE DATE: 3/12/2020

CAD DWG FILE: E-601.DWG  
DRAWN BY: RFS  
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SHEET TITLE:  
ELECTRICAL  
DETAILS

SHEET NUMBER:

E-501

SHEET 27 OF 47  
3/12/2020

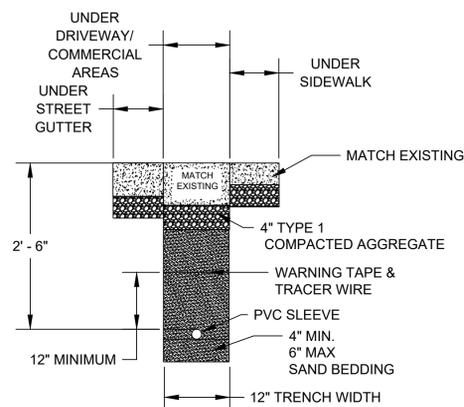


NOTES

- SOLAR MODULES SUPPORTS SHALL BE BEAM SERIES TOP OF POLE MOUNTS BY MT SOLAR OR APPROVED EQUAL. BEAM SUPPORT POLES SHALL BE 8" SCHEDULE 40 GALVANIZED STEEL.

1 SOLAR PANEL SUPPORT DETAIL

E-501 NOT TO SCALE

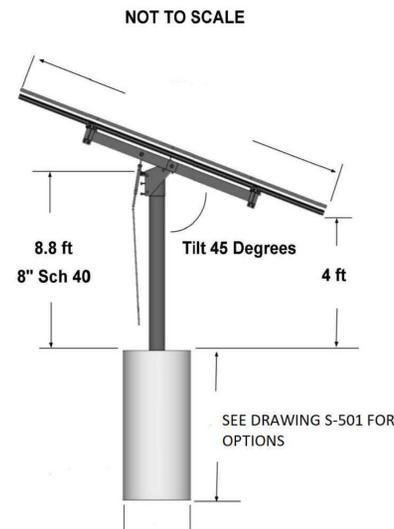


NOTES

- CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY AND ENSURE ALL UTILITY VERTICAL AND HORIZONTAL SEPARATION REQUIREMENTS ARE MET PRIOR TO DIGGING AND INSTALLATION.

4 PVC SLEEVE DETAIL

E-501 NOT TO SCALE

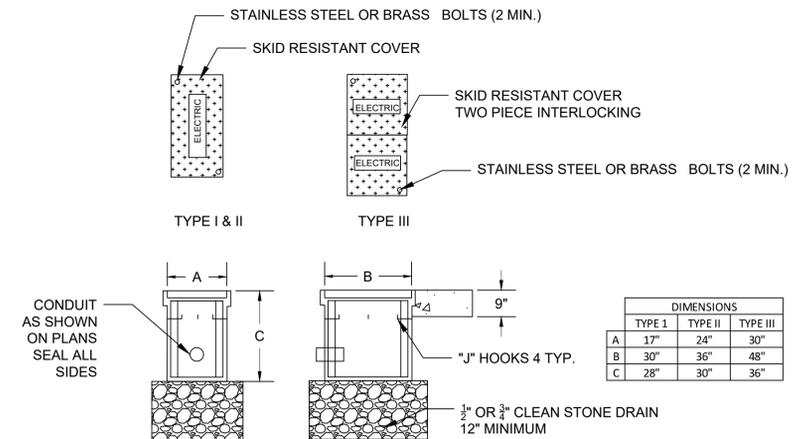


NOTES

- CONCRETE BASE AND REINFORCEMENT SHALL BE PER DRAWING S-502 AND CONCRETE SPECIFICATIONS.
- WHEN INSTALLING MULTIPLE POLES, CONFIRM ALIGNMENT BEFORE POUR.
- ALLOW CONCRETE CURE BEFORE FINAL ASSEMBLY.
- INITIAL TILT FOR ASSEMBLY SHALL BE 45 DEGREES. FINAL TILT ANGLE SHALL BE SET TO 30 DEGREES.

2 CONCRETE BASE SUPPORT DETAIL

E-501 NOT TO SCALE



NOTES

- PREFORMED PULL BOXES SHALL BE USED UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- LIFT OPENING IS REQUIRED ON ALL COVERS.
- ALL DIMENSIONS ARE NOMINAL.
- IF EXTENSION ARE NEEDED, THEY SHALL BE COMPATIBLE AND FROM THE SAME MANUFACTURER.

3 POLYMER LOCK PULL BOX DETAIL

E-501 NOT TO SCALE

DIMENSIONS			
	TYPE I	TYPE II	TYPE III
A	17"	24"	30"
B	30"	36"	48"
C	28"	30"	36"

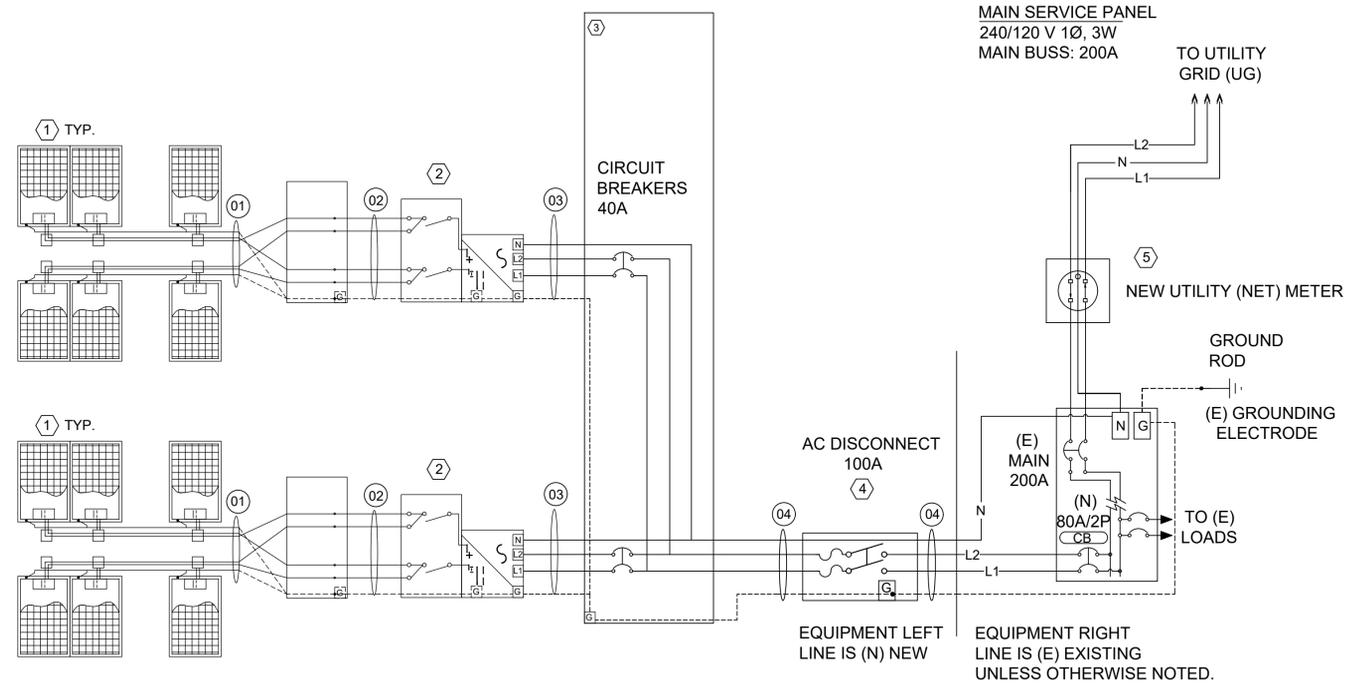
BUILDING 41 - 12 KW NOMINAL SOLAR ARRAY

SHEET NOTES

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER #1  
MPPT1: 1 STRING OF 9 MODULES IN SERIES  
MPPT2: 1 STRING OF 9 MODULES IN SERIES

INVERTER #2  
MPPT1: 1 STRING OF 9 MODULES IN SERIES  
MPPT2: 1 STRING OF 9 MODULES IN SERIES



PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	36	SILFAB-M 380 WP, SOLAR MODULE
2	2	6 KW STRING INVERTER, 2 MPPTS WITH 1 INPUT PAIRS PER MPPT, 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3	1	AC COMBINING PANEL, 1P, WITH (2) 40 A CIRCUIT BREAKERS, NEMA 3R.
4	1	PV AC DISCONNECT, 60A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D223NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	6 AWG THWN-2	6 AWG	3/4"	2	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	9
TEMPERATURE ADJUSTED VOC	544.5
SHORT CIRCUIT CURRENT	9.98



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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-601.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 41

SHEET NUMBER:

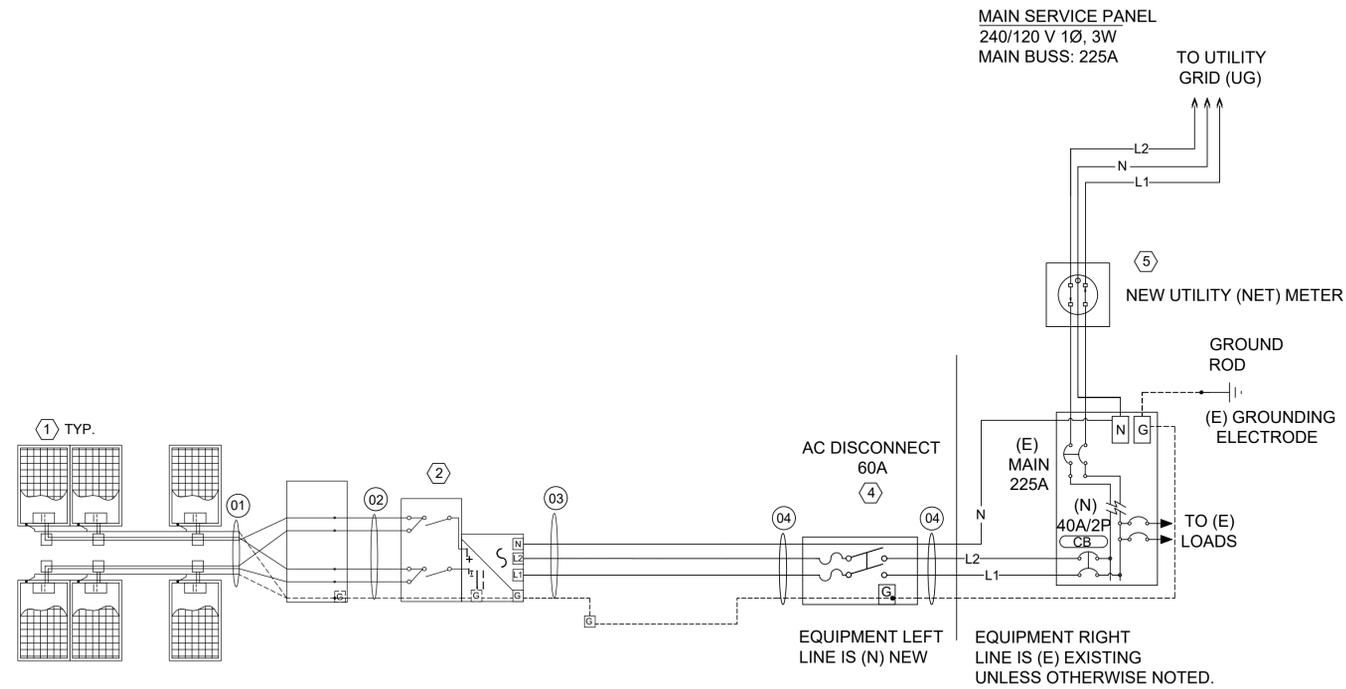
E-601

BUILDING 106 - 5 KW NOMINAL SOLAR ARRAY

SHEET NOTES

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER #2  
MPPT1: 1 STRING OF 7 MODULES IN SERIES  
MPPT2: 1 STRING OF 7 MODULES IN SERIES



PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	14	SILFAB-M 380 WP, SOLAR MODULE
2	1	6 KW STRING INVERTER, 2 MPPTS WITH 1 INPUT PAIRS PER MPPT, 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3		NOT USED
4	1	PV AC DISCONNECT, 60A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D223NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	8 AWG THWN-2	8 AWG	3/4"	2	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	7
TEMPERATURE ADJUSTED VOC	423.5
SHORT CIRCUIT CURRENT	9.98



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12344 W. 79TH TERRACE  
LENEXA, KANSAS 66215  
(913) 894-1319  
MO STATE CERTIFICATE OF  
AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-602.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 106

SHEET NUMBER:

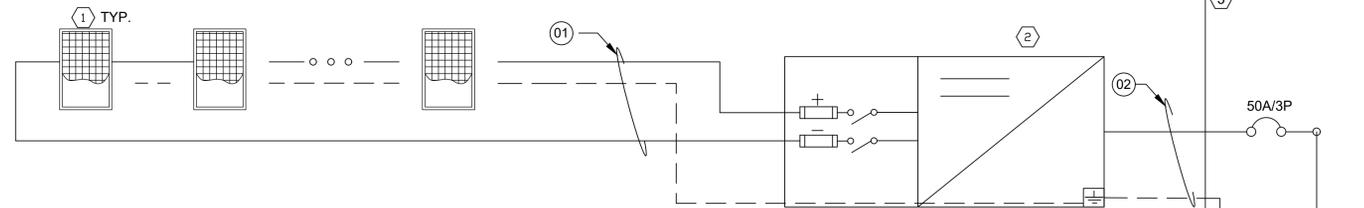
E-602

**BUILDING 201 - 45 KW NOMINAL SOLAR ARRAY**

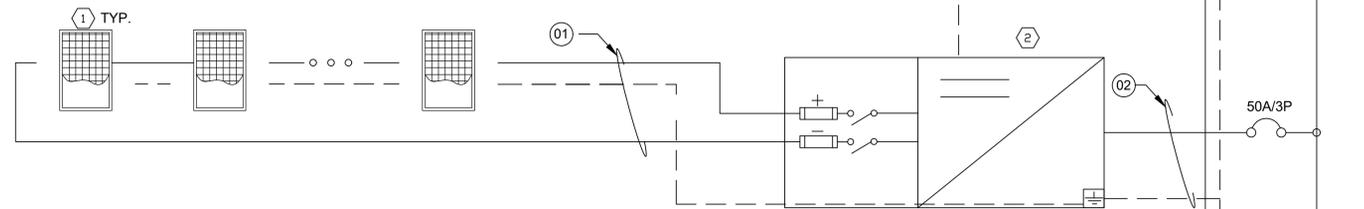
**SHEET NOTES**

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

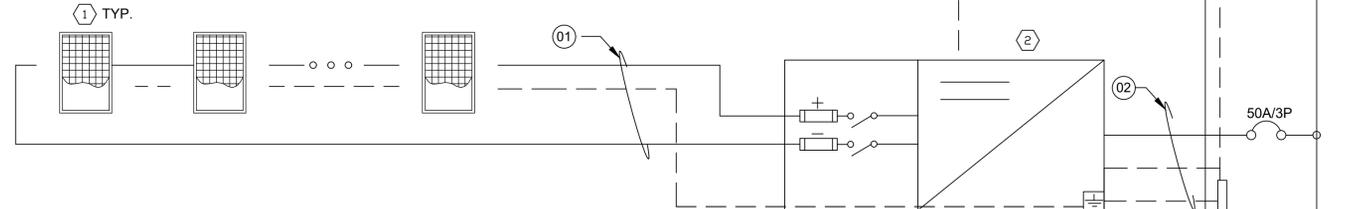
**INVERTER #1**  
MPPT1: 6 STRINGS OF 7 MODULES IN SERIES



**INVERTER #2**  
MPPT1: 6 STRINGS OF 7 MODULES IN SERIES

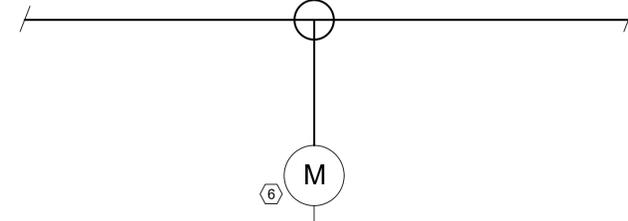


**INVERTERS #3**  
MPPT1: 6 STRINGS OF 7 MODULES IN SERIES

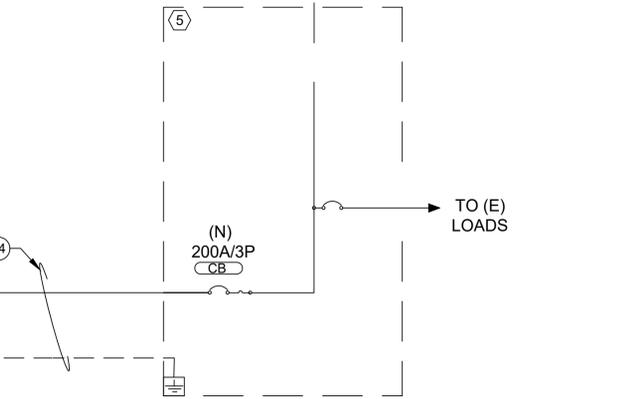


TO CONTROLS MONITORING SYSTEM

**EXISTING ELECTRICAL UTILITY SERVICE**



**EXISTING MAIN SERVICE PANEL**  
208V 3Ø, 4W  
MAIN BUSS: 800A



(E) GROUNDING ELECTRODE

PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	126	SILFAB-M 380 WP, SOLAR MODULE
2	3	15 kW STRING INVERTER. 1 MPPT WITH 6 INPUT PAIRS PER MPPT. 208V, 3 PHASE OUTPUT, 60 HZ. FRONIUS SYMO MODEL 15.0-3 208
3	1	AC COMBINING PANEL, 150A, 3P, 4 W, WITH (3) 50 A CIRCUIT BREAKERS, NEMA 3R
4	1	PV AC DISCONNECT, 200A, 3 PHASE, NEMA 3R, SQUARE D324NRB
5	1	EXISTING MAIN DISTRIBUTION PANEL. 208V, 3PH, 4 WIRE, 800A
6	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	4 AWG THWN-2	4 AWG	1 1/2"	4	75C
03	250 KCMILTHWN-2	250 KCMIL	2 1/2"	4	75C
04	250 AWG THWN-2	250 KCMIL	2 1/2"	4	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	15.0
OUTPUT VOLTAGE (V)	208
OUTPUT CURRENT (A)	50
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	7
TEMPERATURE ADJUSTED VOC	423.5
SHORT CIRCUIT CURRENT	9.98



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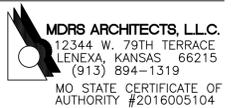
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Date: 2020.03.12 16:22:05-0500



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CONSULTANTS



INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-603.DWG  
DRAWN BY: RFS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 201**

SHEET NUMBER:

**E-603**

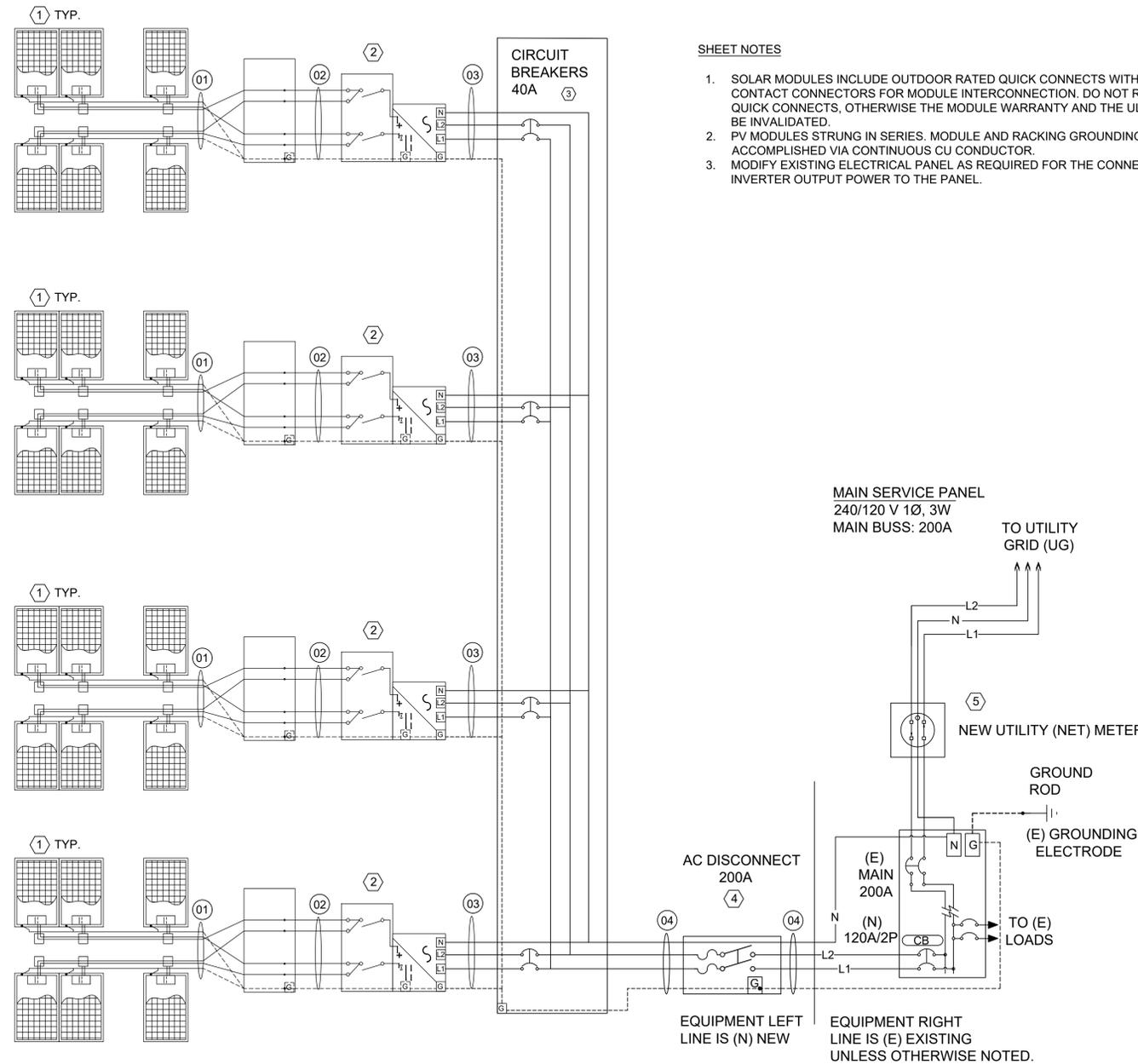
**BUILDING 405B - 24 KW NOMINAL SOLAR ARRAY**

**INVERTER #1**  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

**INVERTER #2**  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

**INVERTER #3**  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

**INVERTER #4**  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES



**SHEET NOTES**

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	64	SILFAB-M 380 WP, SOLAR MODULE
2	4	6 KW STRING INVERTER, 2 MPPTS WITH 1 INPUT PAIRS PER MPPT, 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3	1	AC COMBINING PANEL, 1P, WITH (4) 40 A CIRCUIT BREAKERS, NEMA 3R.
4	1	PV AC DISCONNECT, 200A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D324NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	2 AWG THWN-2	2 AWG	1 1/4"	2	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	8
TEMPERATURE ADJUSTED VOC	484
SHORT CIRCUIT CURRENT	9.98



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**CONSULTANTS**

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LENEXA, KANSAS 66215  
(913) 894-1319  
MO STATE CERTIFICATE OF  
AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-604.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 405B**

SHEET NUMBER:

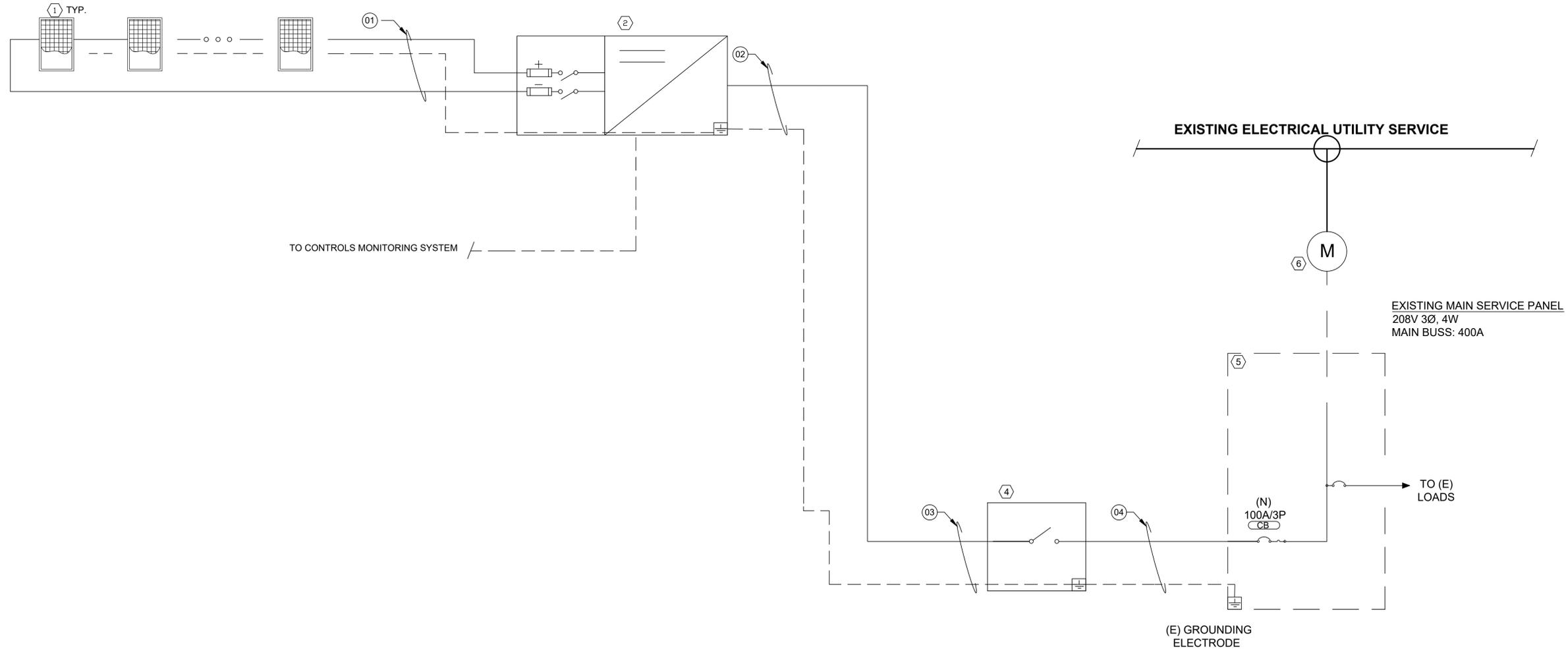
**E-604**

**BUILDING 750 - 10 KW NOMINAL SOLAR ARRAY**

**SHEET NOTES**

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER #1  
MPPT1: 4 STRINGS OF 7 MODULES IN SERIES



PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	28	SILFAB-M 380 WP, SOLAR MODULE
2	1	15 kW STRING INVERTER. 1 MPPT WITH 6 INPUT PAIRS PER MPPT. 208V, 3 PHASE OUTPUT, 60 HZ. FRONIUS SYMO MODEL 15.0-3 208
3	1	NOT USED
4	1	PV AC DISCONNECT, 100A, 3 PHASE, NEMA 3R, SQUARE D323NRB
5	1	EXISTING MAIN DISTRIBUTION PANEL. 208V, 3PH, 4 WIRE, 400A
6	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	6 AWG THWN-2	6 AWG	1"	4	75C
03	6 AWG THWN-2	6 AWG	1"	4	75C
04	6 AWG THWN-2	6 AWG	1"	4	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	15.0
OUTPUT VOLTAGE (V)	208
OUTPUT CURRENT (A)	50
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	7
TEMPERATURE ADJUSTED VOC	423.5
SHORT CIRCUIT CURRENT	9.98



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12344 W. 79TH TERRACE  
LENEXA, KANSAS 66215  
(913) 894-1319  
MO STATE CERTIFICATE OF  
AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-605.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 750**

SHEET NUMBER:

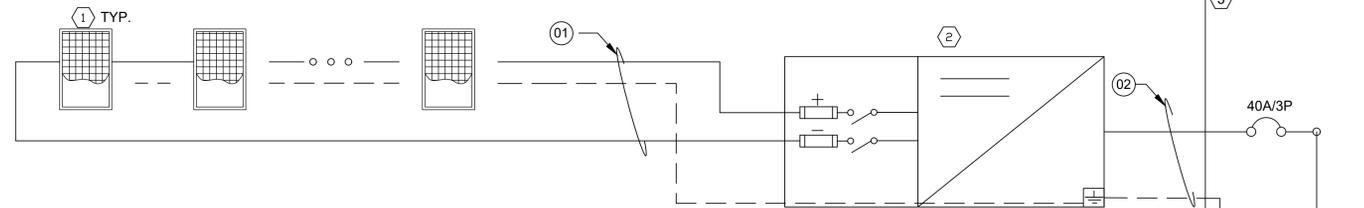
**E-605**

**BUILDING 751 - 48 KW NOMINAL SOLAR ARRAY**

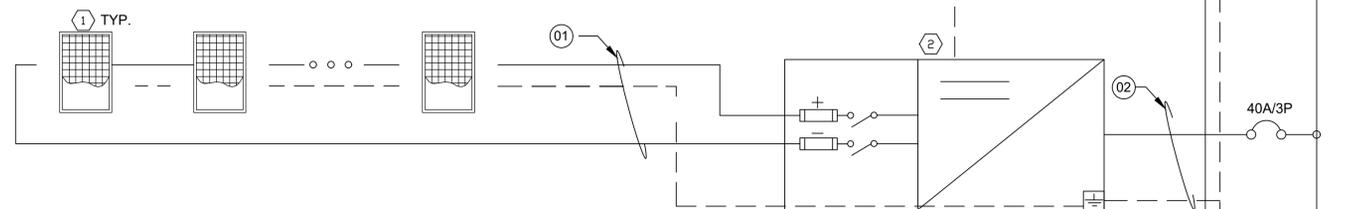
**SHEET NOTES**

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

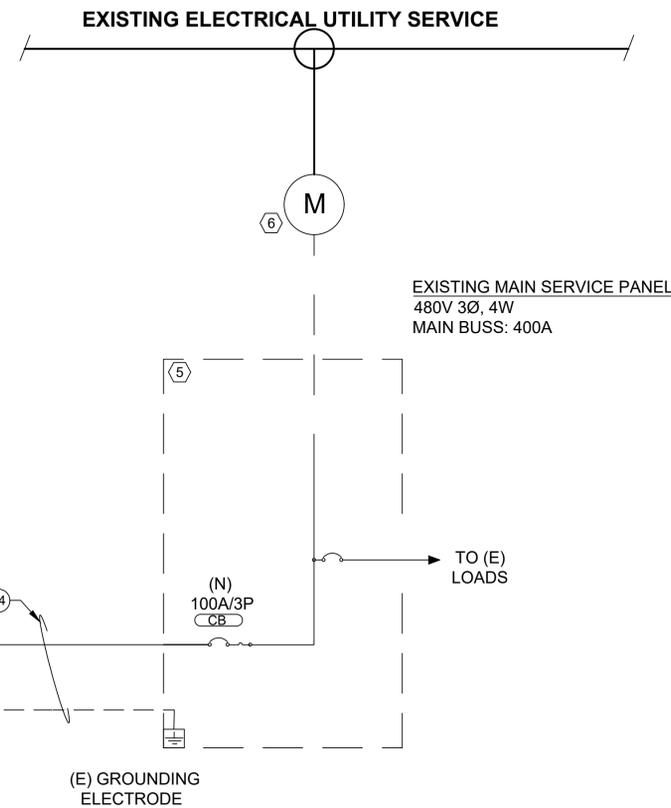
**INVERTER #1**  
 MPPT1: 3 STRINGS OF 11 MODULES IN SERIES  
 MPPT2: 3 STRINGS OF 11 MODULES IN SERIES



**INVERTER #2**  
 MPPT1: 3 STRINGS OF 11 MODULES IN SERIES  
 MPPT2: 3 STRINGS OF 11 MODULES IN SERIES



TO CONTROLS MONITORING SYSTEM



PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	132	SILFAB-M 380 WP, SOLAR MODULE
2	2	24 kW STRING INVERTER, 2 MPPT WITH 6 INPUT PAIRS PER MPPT, 480V, 3 PHASE OUTPUT, 60 HZ, FRONIUS SYMO MODEL 24.0-3 400
3	1	AC COMBINING PANEL, 150A, 3P, 4 W, WITH (3) 50 A CIRCUIT BREAKERS, NEMA 3R
4	1	PV AC DISCONNECT, 100A, 3 PHASE, NEMA 3R, SQUARE D323NRB
5	1	EXISTING MAIN DISTRIBUTION PANEL, 208V, 3PH, 4 WIRE, 400A
6	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	6 AWG THWN-2	6 AWG	1"	4	75C
03	2 AWG	2 AWG	1 1/4"	4	75C
04	2 AWG	2 AWG	1 1/4"	4	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	24
OUTPUT VOLTAGE (V)	480
OUTPUT CURRENT (A)	50
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	11
TEMPERATURE ADJUSTED VOC	665.5
SHORT CIRCUIT CURRENT	9.98

STATE OF MISSOURI  
 MICHAEL L. PARSON  
 GOVERNOR



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 AUTHORITY #2016005104

INSTALL SOLAR  
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 BATTERY STORAGE

CAMP CROWDER  
 TRAINING SITE  
 890 RAY A. CARVER AVE.  
 NEOSHO MO 64850

PROJECT # T1922-01  
 SITE # 6260  
 ASSET # 8136260001

REVISION:  
 DATE:  
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 DATE:  
 REVISION:  
 DATE:  
 ISSUE DATE: 3/12/2020

CAD DWG FILE:E-606.DWG  
 DRAWN BY: SAS  
 CHECKED BY: CT  
 DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL  
 ONE LINE DIAGRAM  
 BUILDING 751**

SHEET NUMBER:

**E-606**

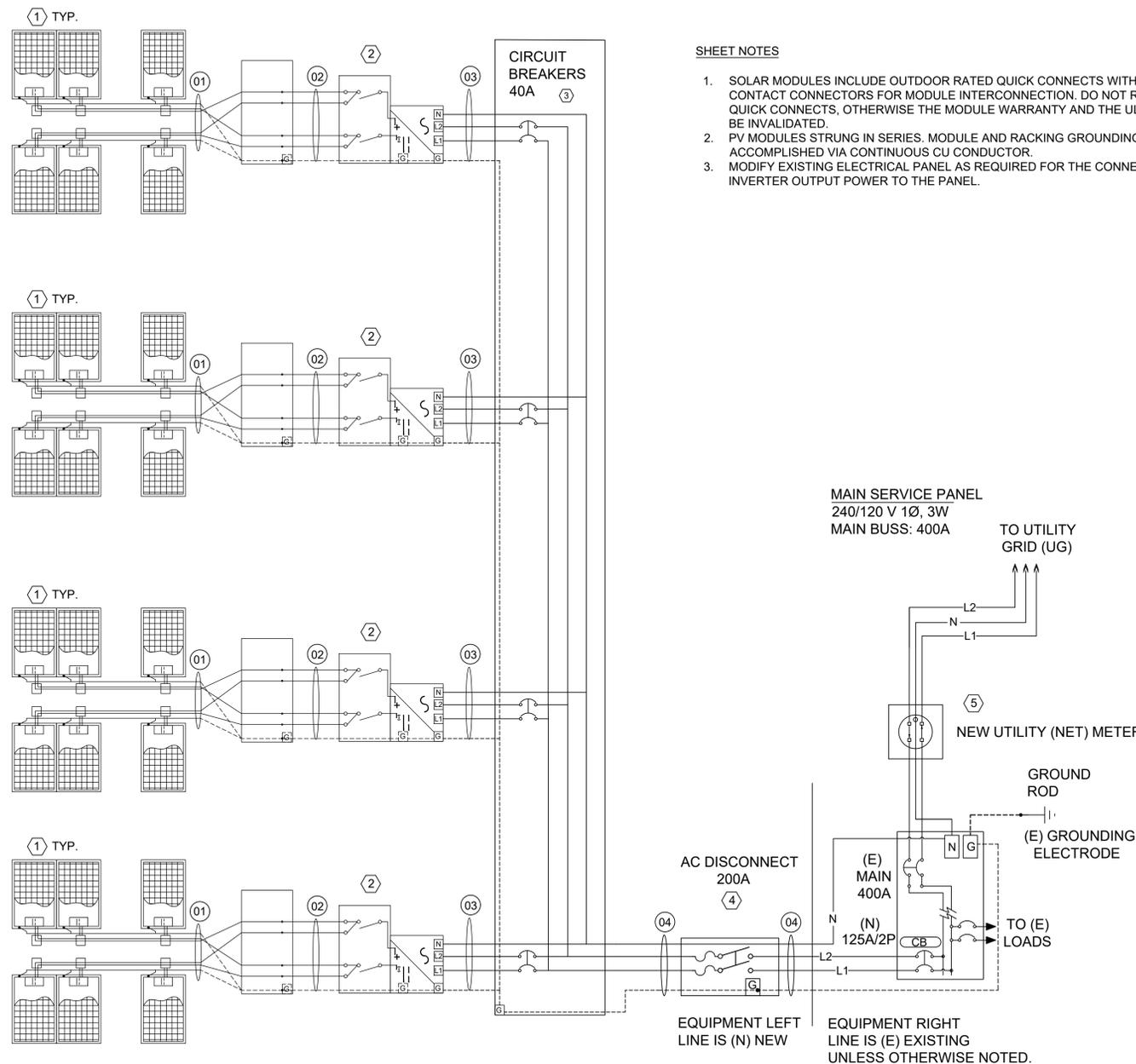
**BUILDING 752 - 24 KW NOMINAL SOLAR ARRAY**

**INVERTER #1**  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

**INVERTER #2**  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

**INVERTER #3**  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

**INVERTER #4**  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES



**SHEET NOTES**

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	64	SILFAB-M 380 WP, SOLAR MODULE
2	4	6 KW STRING INVERTER. 2 MPPTS WITH 1 INPUT PAIRS PER MPPT. 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3	1	AC COMBINING PANEL, 1P, WITH (4) 40 A CIRCUIT BREAKERS, NEMA 3R.
4	1	PV AC DISCONNECT, 200A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D224NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	1 AWG THWN-2	1 AWG	1 1/4"	2	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	8
TEMPERATURE ADJUSTED VOC	484
SHORT CIRCUIT CURRENT	9.98



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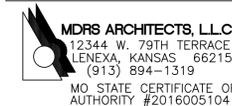
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CONSULTANTS



INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-607.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 752**

SHEET NUMBER:

**E-607**

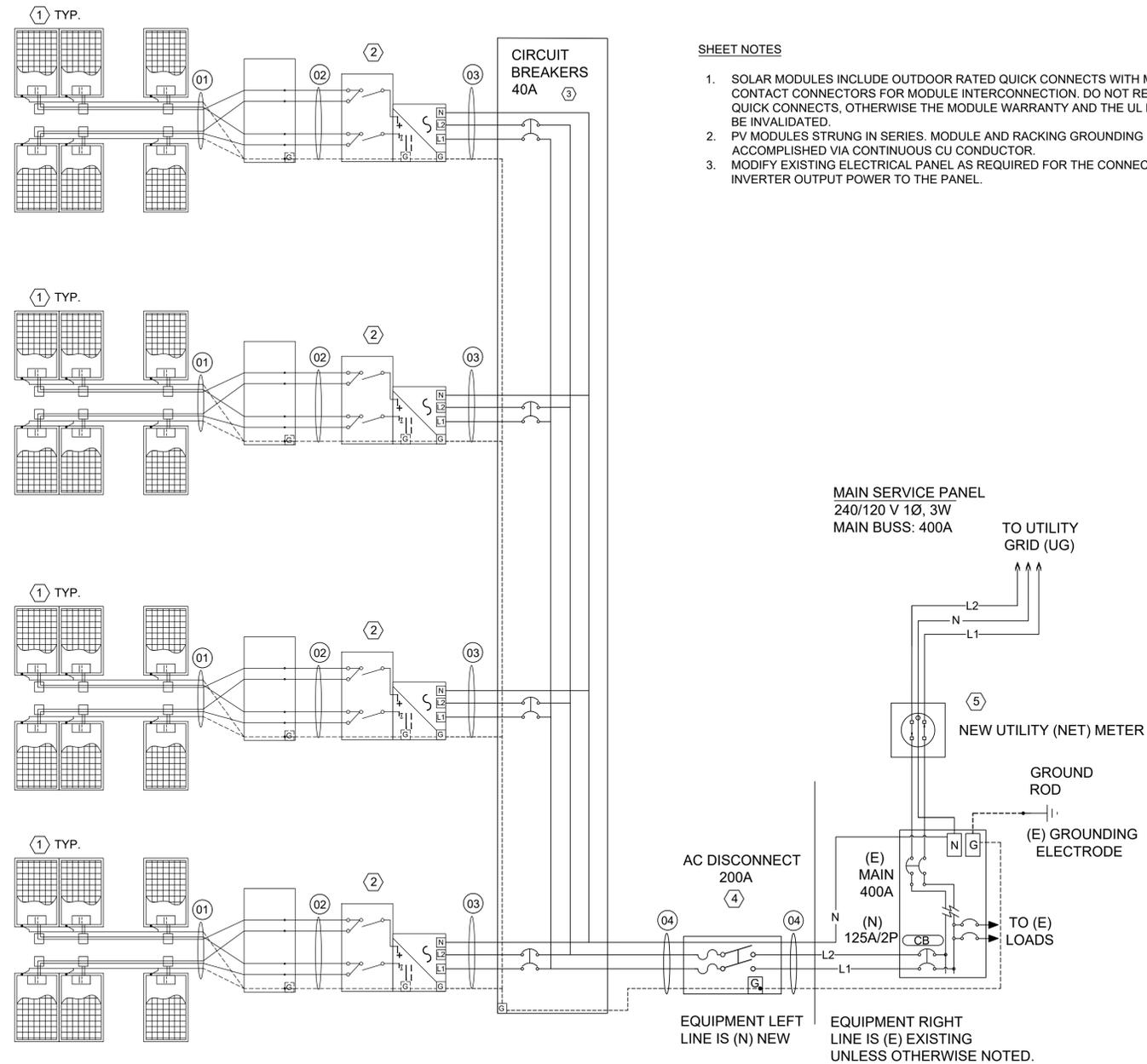
**BUILDING 753 - 24 KW NOMINAL SOLAR ARRAY**

**INVERTER #1**  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

**INVERTER #2**  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

**INVERTER #3**  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

**INVERTER #4**  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES



**SHEET NOTES**

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	64	SILFAB-M 380 WP, SOLAR MODULE
2	4	6 KW STRING INVERTER, 2 MPPTS WITH 1 INPUT PAIRS PER MPPT, 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3	1	AC COMBINING PANEL, 1P, WITH (4) 40 A CIRCUIT BREAKERS, NEMA 3R.
4	1	PV AC DISCONNECT, 200A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D224NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	1 AWG THWN-2	1 AWG	1 1/4"	2	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	8
TEMPERATURE ADJUSTED VOC	484
SHORT CIRCUIT CURRENT	9.98



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**CONSULTANTS**

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LENEXA, KANSAS 66215  
(913) 894-1319  
MO STATE CERTIFICATE OF  
AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-608.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 753**

SHEET NUMBER:

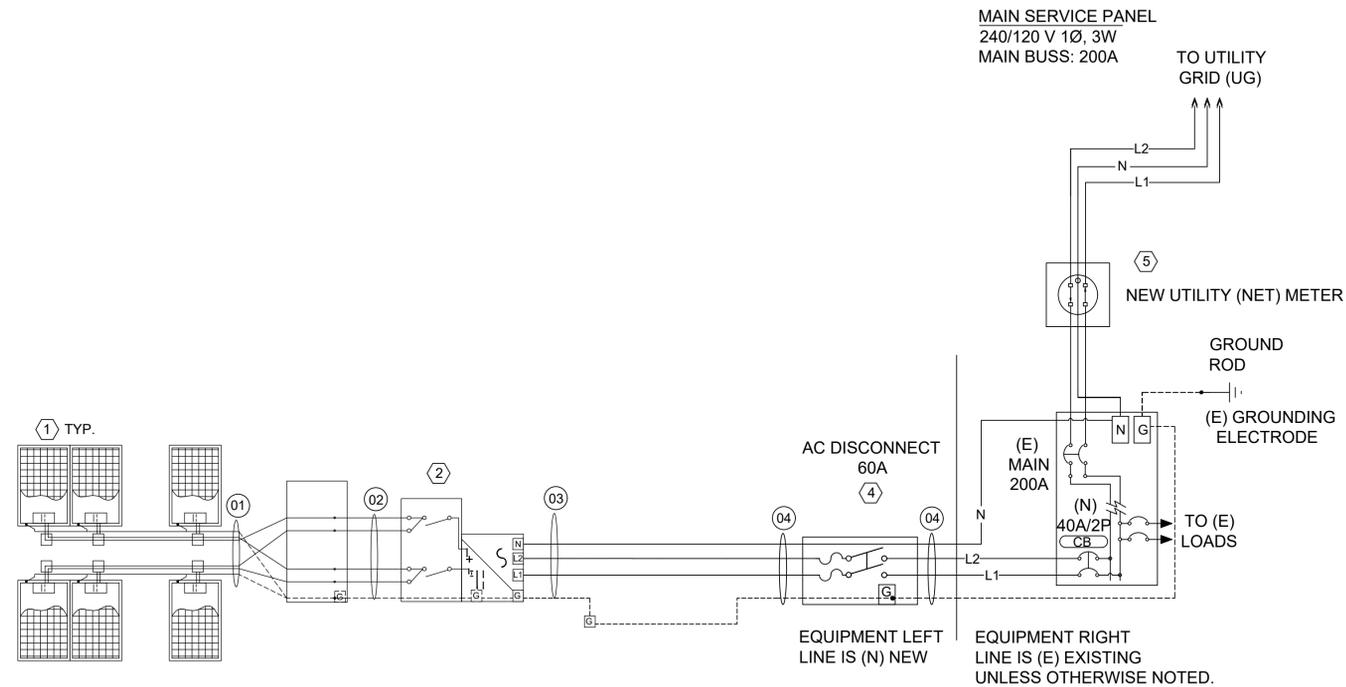
**E-608**

**BUILDING 801 - 6 KW NOMINAL SOLAR ARRAY**

**SHEET NOTES**

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER #2  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES



PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	16	SILFAB-M 380 WP, SOLAR MODULE
2	1	6 KW STRING INVERTER, 2 MPPTS WITH 1 INPUT PAIRS PER MPPT, 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3	-	NOT USED
4	1	PV AC DISCONNECT, 60A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D223NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	8 AWG THWN-2	8 AWG	3/4"	2	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	8
TEMPERATURE ADJUSTED VOC	484
SHORT CIRCUIT CURRENT	9.98



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**CONSULTANTS**

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LENEXA, KANSAS 66215  
(913) 894-1319  
MO STATE CERTIFICATE OF  
AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_

ISSUE DATE: 3/12/2020

CAD DWG FILE: E-609.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 801**

SHEET NUMBER:

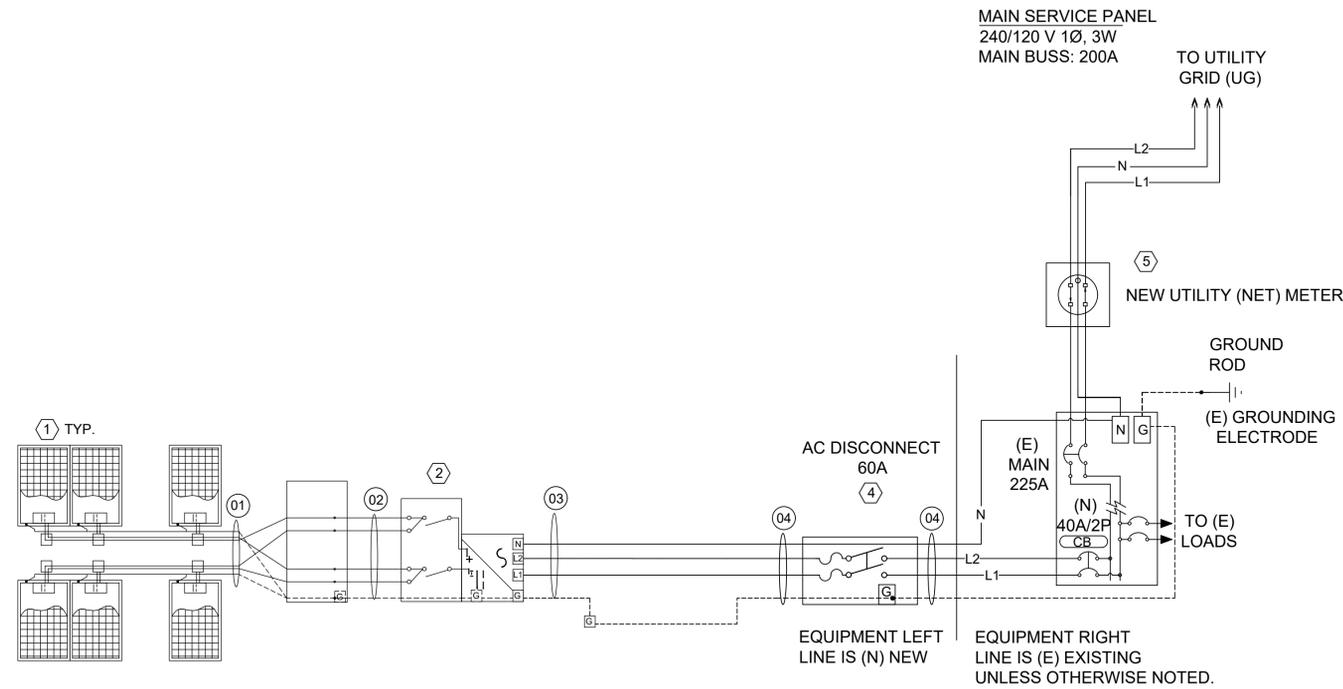
**E-609**

**BUILDING 802 - 6 KW NOMINAL SOLAR ARRAY**

**SHEET NOTES**

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER #2  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES



PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	16	SILFAB-M 380 WP, SOLAR MODULE
2	1	6 KW STRING INVERTER, 2 MPPTS WITH 1 INPUT PAIRS PER MPPT, 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3	-	NOT USED
4	1	PV AC DISCONNECT, 60A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D223NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	8 AWG THWN-2	8 AWG	3/4"	2	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	8
TEMPERATURE ADJUSTED VOC	484
SHORT CIRCUIT CURRENT	9.98



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INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-610.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 802**

SHEET NUMBER:

**E-610**



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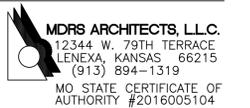
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Tharp  
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PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-611.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

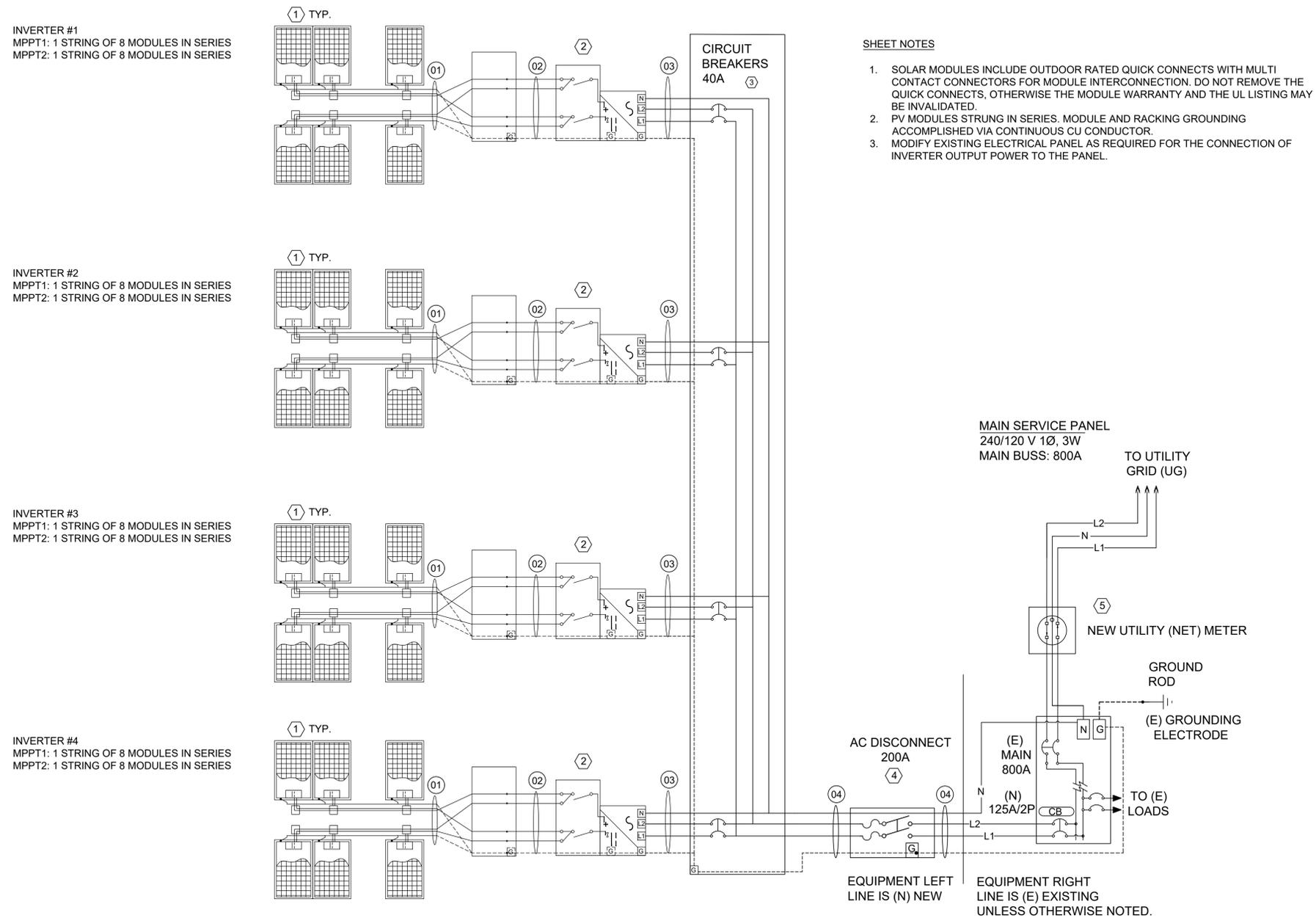
SHEET TITLE:  
ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 803

SHEET NUMBER:

E-611

SHEET 38 OF 47  
3/12/2020

BUILDING 803 - 24 KW NOMINAL SOLAR ARRAY



SHEET NOTES

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	64	SILFAB-M 380 WP, SOLAR MODULE
2	4	6 KW STRING INVERTER. 2 MPPTS WITH 1 INPUT PAIRS PER MPPT. 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3	1	AC COMBINING PANEL, 1P, WITH (4) 40 A CIRCUIT BREAKERS, NEMA 3R.
4	1	PV AC DISCONNECT, 200A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D224NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	1 AWG THWN-2	1 AWG	1 1/4"	2	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	8
TEMPERATURE ADJUSTED VOC	484
SHORT CIRCUIT CURRENT	9.98

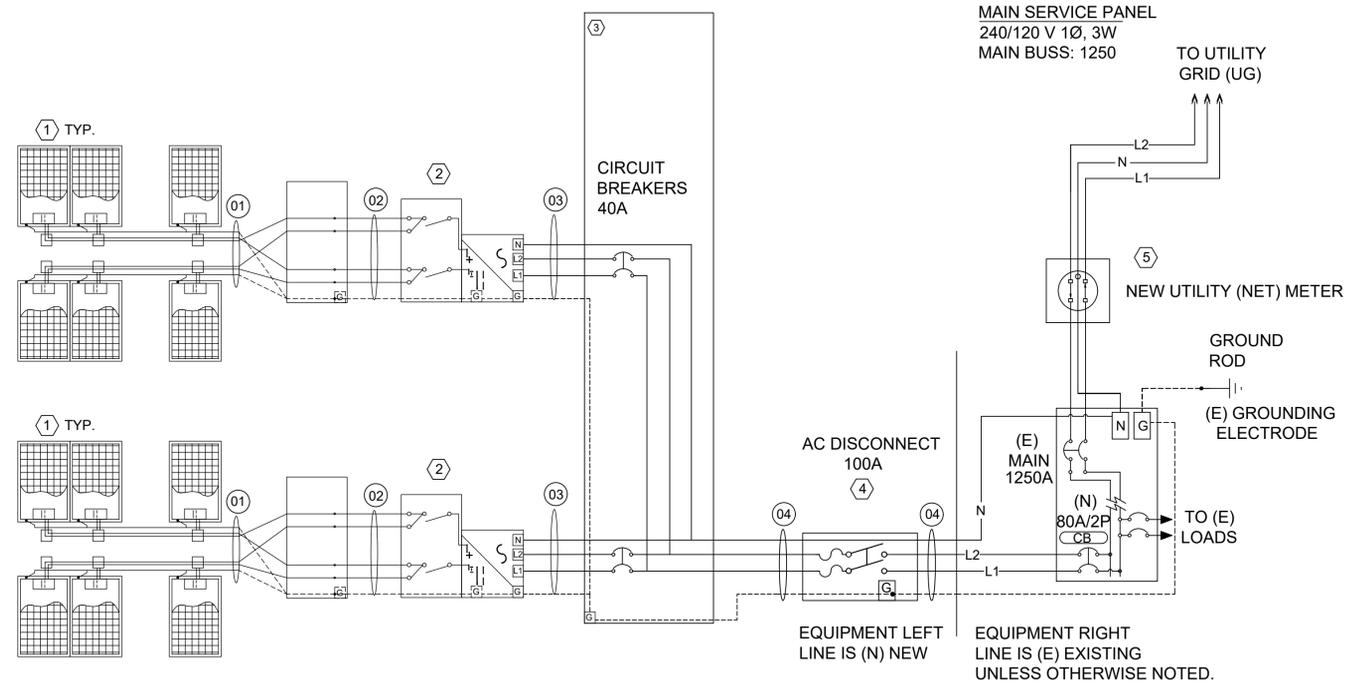
**BUILDING 820 - 12 KW NOMINAL SOLAR ARRAY**

**SHEET NOTES**

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER #1  
MPPT1: 1 STRING OF 9 MODULES IN SERIES  
MPPT2: 1 STRING OF 9 MODULES IN SERIES

INVERTER #2  
MPPT1: 1 STRING OF 9 MODULES IN SERIES  
MPPT2: 1 STRING OF 9 MODULES IN SERIES



PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	36	SILFAB-M 380 WP, SOLAR MODULE
2	2	6 KW STRING INVERTER, 2 MPPTS WITH 1 INPUT PAIRS PER MPPT, 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3	1	AC COMBINING PANEL, 1P, WITH (2) 40 A CIRCUIT BREAKERS, NEMA 3R.
4	1	PV AC DISCONNECT, 60A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D223NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	6 AWG THWN-2	6 AWG	3/4"	2	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATION UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	9
TEMPERATURE ADJUSTED VOC	544.5
SHORT CIRCUIT CURRENT	9.98



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MO STATE CERTIFICATE OF AUTHORITY #2016003099

**CONSULTANTS**

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12344 W. 79TH TERRACE  
LENEXA, KANSAS 66215  
(913) 894-1319  
MO STATE CERTIFICATE OF AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-612.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 820**

SHEET NUMBER:

**E-612**

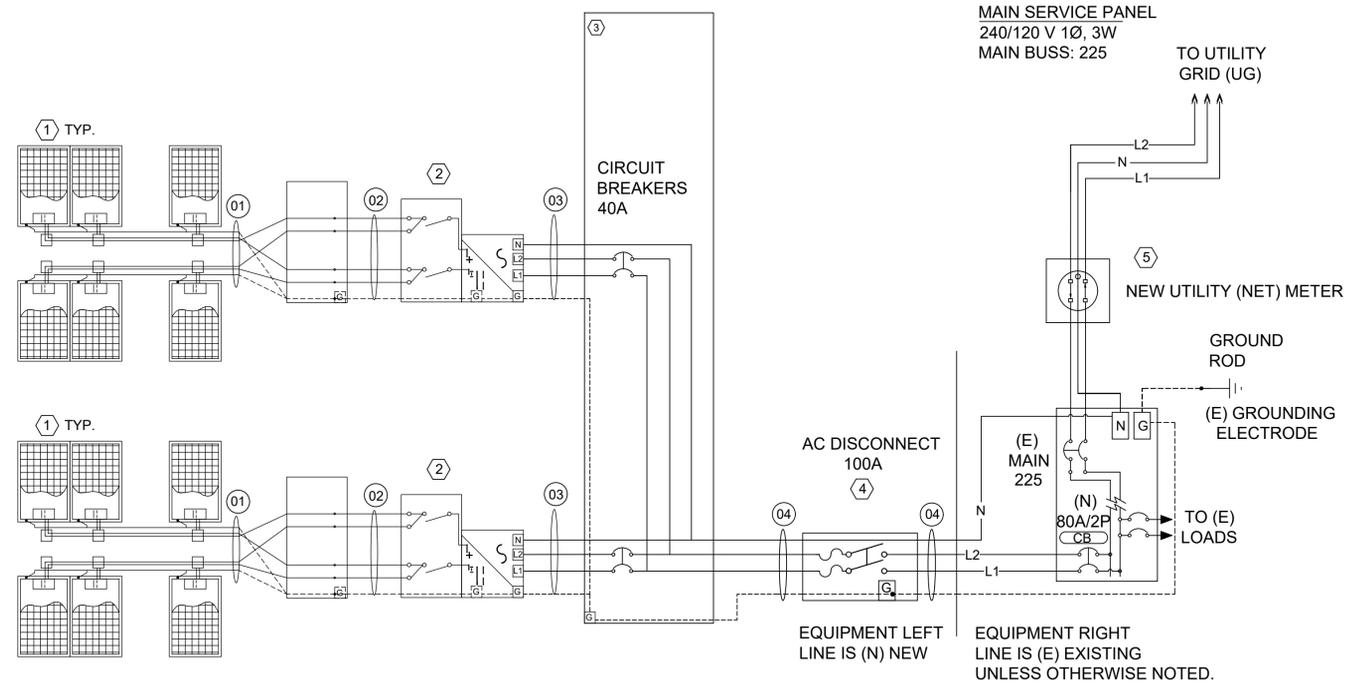
**BUILDING 884 - 12 KW NOMINAL SOLAR ARRAY**

**SHEET NOTES**

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER #1  
MPPT1: 1 STRING OF 9 MODULES IN SERIES  
MPPT2: 1 STRING OF 9 MODULES IN SERIES

INVERTER #2  
MPPT1: 1 STRING OF 9 MODULES IN SERIES  
MPPT2: 1 STRING OF 9 MODULES IN SERIES



PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	36	SILFAB-M 380 WP, SOLAR MODULE
2	2	6 KW STRING INVERTER, 2 MPPTS WITH 1 INPUT PAIRS PER MPPT, 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3	1	AC COMBINING PANEL, 1P, WITH (2) 40 A CIRCUIT BREAKERS, NEMA 3R.
4	1	PV AC DISCONNECT, 60A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D223NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	6 AWG THWN-2	6 AWG	3/4"	2	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATION UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	9
TEMPERATURE ADJUSTED VOC	544.5
SHORT CIRCUIT CURRENT	9.98



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MO STATE CERTIFICATE OF  
AUTHORITY #2016005104

INSTALL SOLAR  
ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-613.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 884**

SHEET NUMBER:

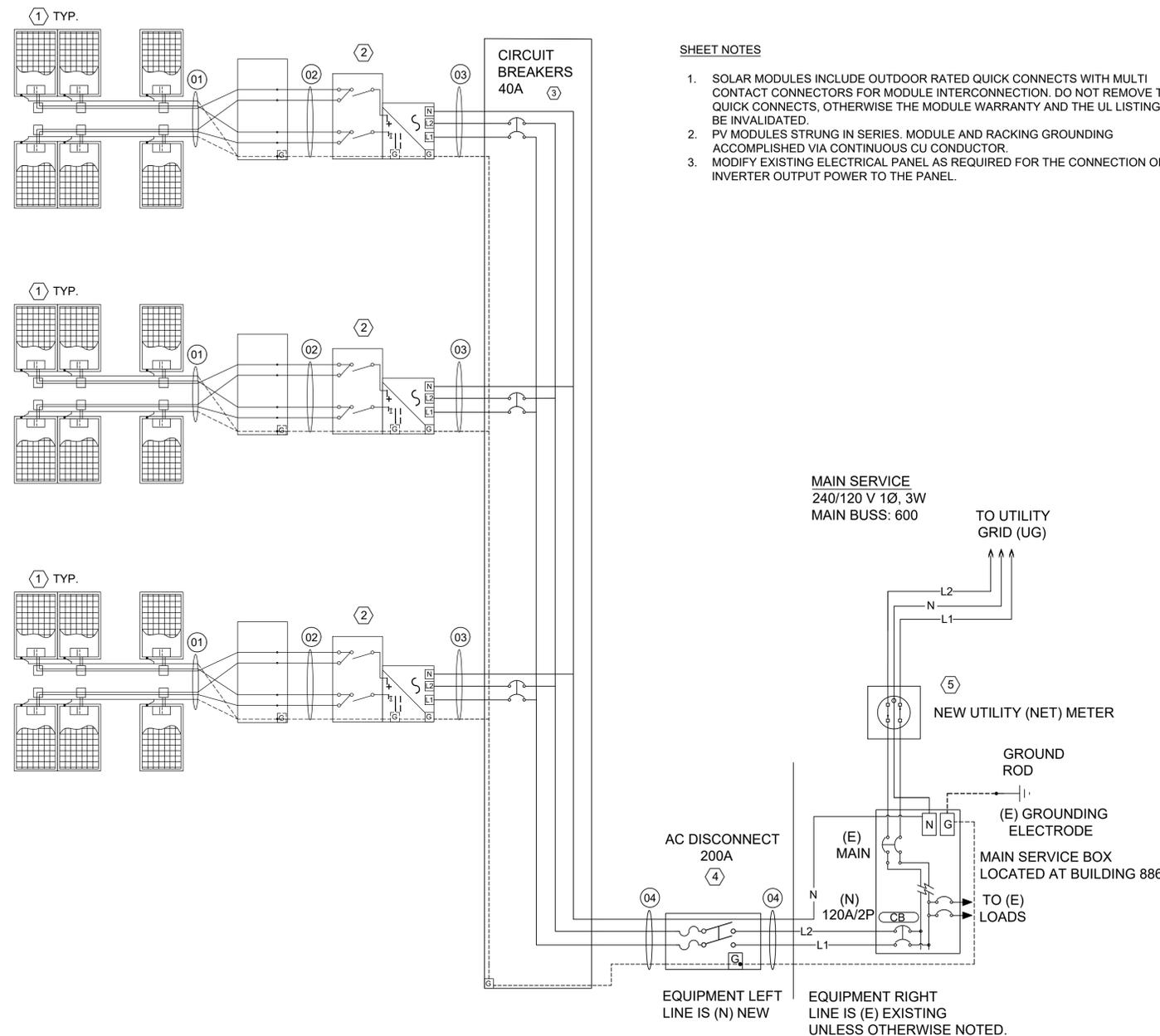
**E-613**

BUILDING 885- 888 - 18 KW NOMINAL SOLAR ARRAY

INVERTER #1  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #2  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #3  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES



SHEET NOTES

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	48	SILFAB-M 380 WP, SOLAR MODULE
2	3	6 KW STRING INVERTER, 2 MPPTS WITH 1 INPUT PAIRS PER MPPT, 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3	1	AC COMBINING PANEL, 1P, WITH (4) 40 A CIRCUIT BREAKERS, NEMA 3R.
4	1	PV AC DISCONNECT, 200A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D324NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	4 AWG THWN-2	4 AWG	1"	2	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	8
TEMPERATURE ADJUSTED VOC	484
SHORT CIRCUIT CURRENT	9.98



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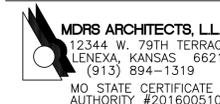
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TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_

ISSUE DATE: 3/12/2020

CAD DWG FILE: E-614.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 885-888

SHEET NUMBER:

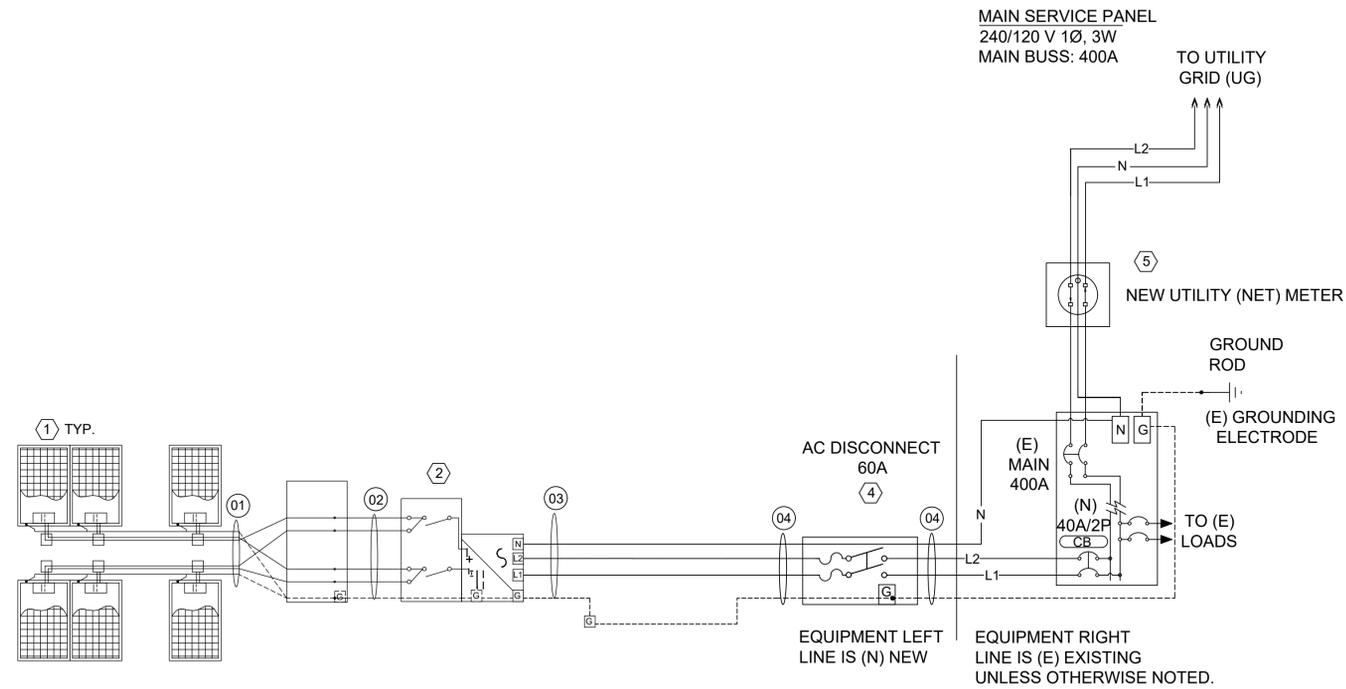
E-614

BUILDING 889 - 6 KW NOMINAL SOLAR ARRAY

SHEET NOTES

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER #2  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES



PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	16	SILFAB-M 380 WP, SOLAR MODULE
2	1	6 KW STRING INVERTER, 2 MPPTS WITH 1 INPUT PAIRS PER MPPT, 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3	-	NOT USED
4	1	PV AC DISCONNECT, 60A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D223NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	8 AWG THWN-2	8 AWG	3/4"	2	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	8
TEMPERATURE ADJUSTED VOC	484
SHORT CIRCUIT CURRENT	9.98



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BATTERY STORAGE

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TRAINING SITE  
890 RAY A. CARVER AVE.  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_

ISSUE DATE: 3/12/2020

CAD DWG FILE: E-615.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 889

SHEET NUMBER:

E-615



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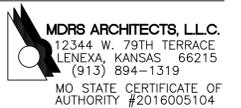
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PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_

ISSUE DATE: 3/12/2020

CAD DWG FILE: E-616.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

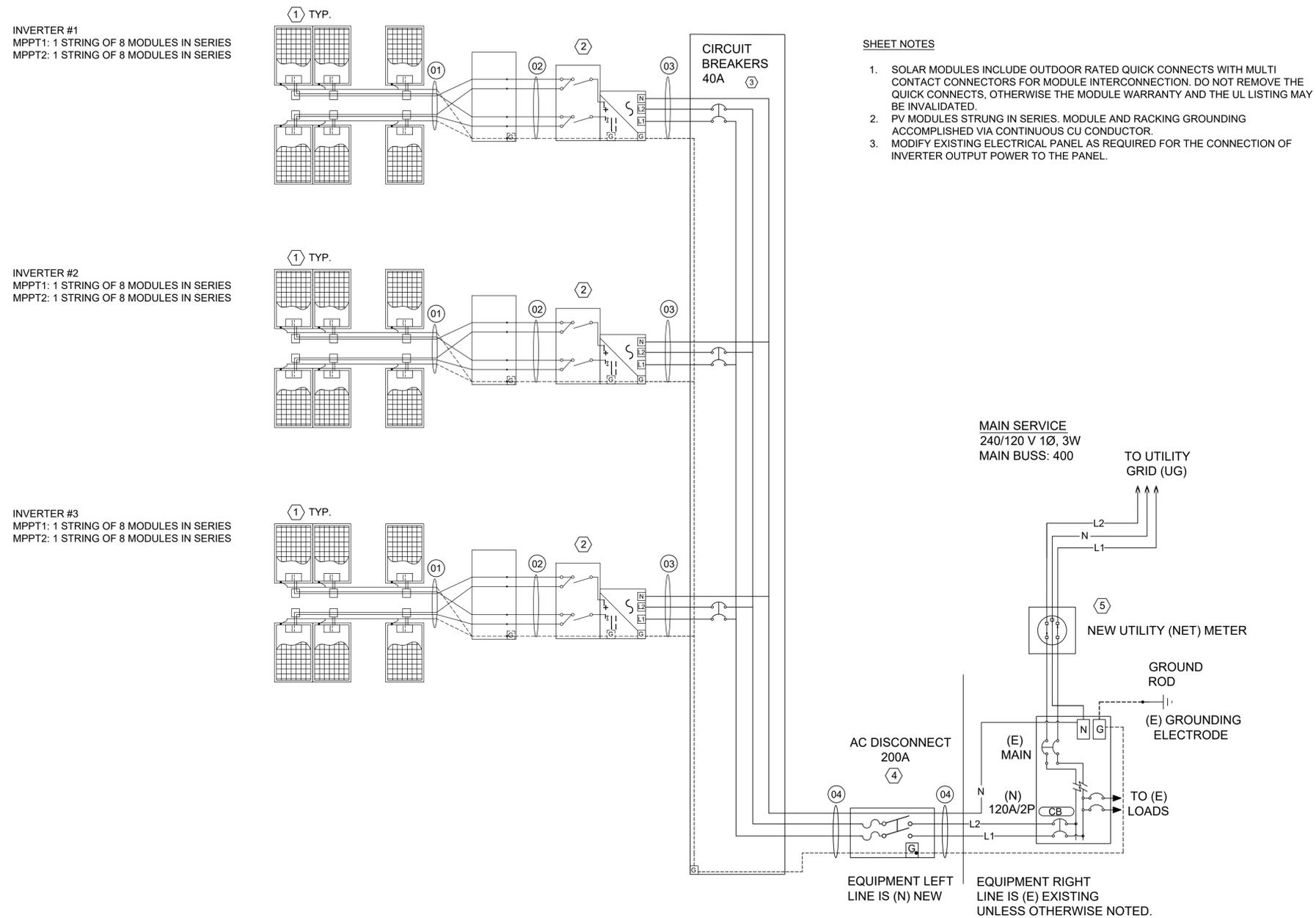
SHEET TITLE:  
ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 890

SHEET NUMBER:

E-616

SHEET 43 OF 47  
3/12/2020

BUILDING 890 - 18 KW NOMINAL SOLAR ARRAY



SHEET NOTES

1. SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
2. PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
3. MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER #1  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #2  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

INVERTER #3  
MPPT1: 1 STRING OF 8 MODULES IN SERIES  
MPPT2: 1 STRING OF 8 MODULES IN SERIES

PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	48	SILFAB-M 380 WP, SOLAR MODULE
2	3	6 KW STRING INVERTER, 2 MPPTS WITH 1 INPUT PAIRS PER MPPT, 240V, 1 PHASE OUTPUT, 60 HZ. MODEL ABB UNO-DM-6.0-TL-PLUS-US
3	1	AC COMBINING PANEL, 1P, WITH (4) 40 A CIRCUIT BREAKERS, NEMA 3R.
4	1	PV AC DISCONNECT, 200A, 240V, 1 PHASE, NEMA 3R. SQUARE D MODEL D324NRB.
5	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	10 AWG THWN-2	10 AWG	1/2"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	2	75C
04	4 AWG THWN-2	4 AWG	1"	2	75C

1. ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
2. ALL CONDUIT TO BE PER SCHEDULE UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
3. ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
4. WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	6
OUTPUT VOLTAGE (V)	240
OUTPUT CURRENT MAX (A)	30
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	8
TEMPERATURE ADJUSTED VOC	484
SHORT CIRCUIT CURRENT	9.98

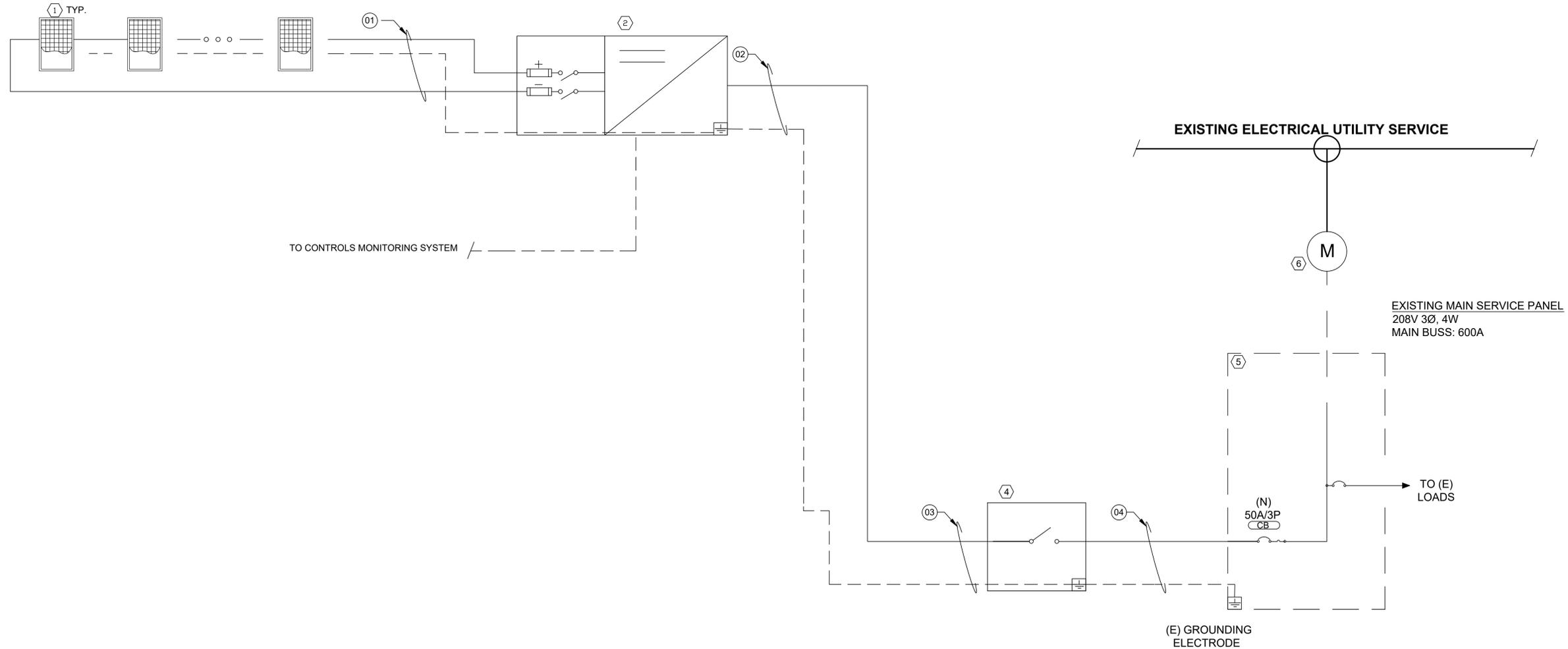
**BUILDING 893 - 6 KW NOMINAL SOLAR ARRAY**

**SHEET NOTES**

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING GROUNDING ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

**INVERTER #1**

MPPT1: 1 STRINGS OF 9 MODULES IN SERIES  
MPPT2: 1 STRINGS OF 9 MODULES IN SERIES



PV EQUIPMENT LIST		
ID	QTY	DESCRIPTION
1	18	SILFAB-M 380 WP, SOLAR MODULE
2	1	10 kW STRING INVERTER, 2 MPPT WITH 1 INPUT PAIRS PER MPPT, 208V, 3 PHASE OUTPUT, 60 HZ, FRONIUS SYMO MODEL D322NRB
3	1	NOT USED
4	1	PV AC DISCONNECT, 60, 3 PHASE, NEMA 3R, SQUARE D322NRB
5	1	EXISTING MAIN DISTRIBUTION PANEL. 208V, 3PH, 4 WIRE, 600
6	1	NEW UTILITY NET METER

WIRE AND CONDUIT SCHEDULE					
ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
01	10 AWG PV WIRE	6 AWG	--	--	75C
02	8 AWG THWN-2	8 AWG	3/4"	4	75C
03	8 AWG THWN-2	8 AWG	3/4"	4	75C
04	8 AWG THWN-2	8 AWG	3/4"	4	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 600V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATION UNLESS OTHERWISE REQUIRED BY LOCAL AHJ.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP:	96.6°F
ASHRAE EXTREME MIN TEMP	8.5°F
PV MODULE OUTPUT	
VOC:	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	9.98 Adc
VMP	39.9 Vdc
IMP	9.54 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	10.0
OUTPUT VOLTAGE (V)	208
OUTPUT CURRENT (A)	35
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	9
TEMPERATURE ADJUSTED VOC	544.5
SHORT CIRCUIT CURRENT	9.98



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PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 3/12/2020

CAD DWG FILE: E-617.DWG  
DRAWN BY: SAS  
CHECKED BY: CT  
DESIGNED BY: RFS

SHEET TITLE:  
**ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 893**

SHEET NUMBER:

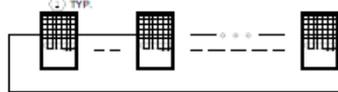
**E-617**

BUILDING 960 - 26 KW NOMINAL SOLAR ARRAY

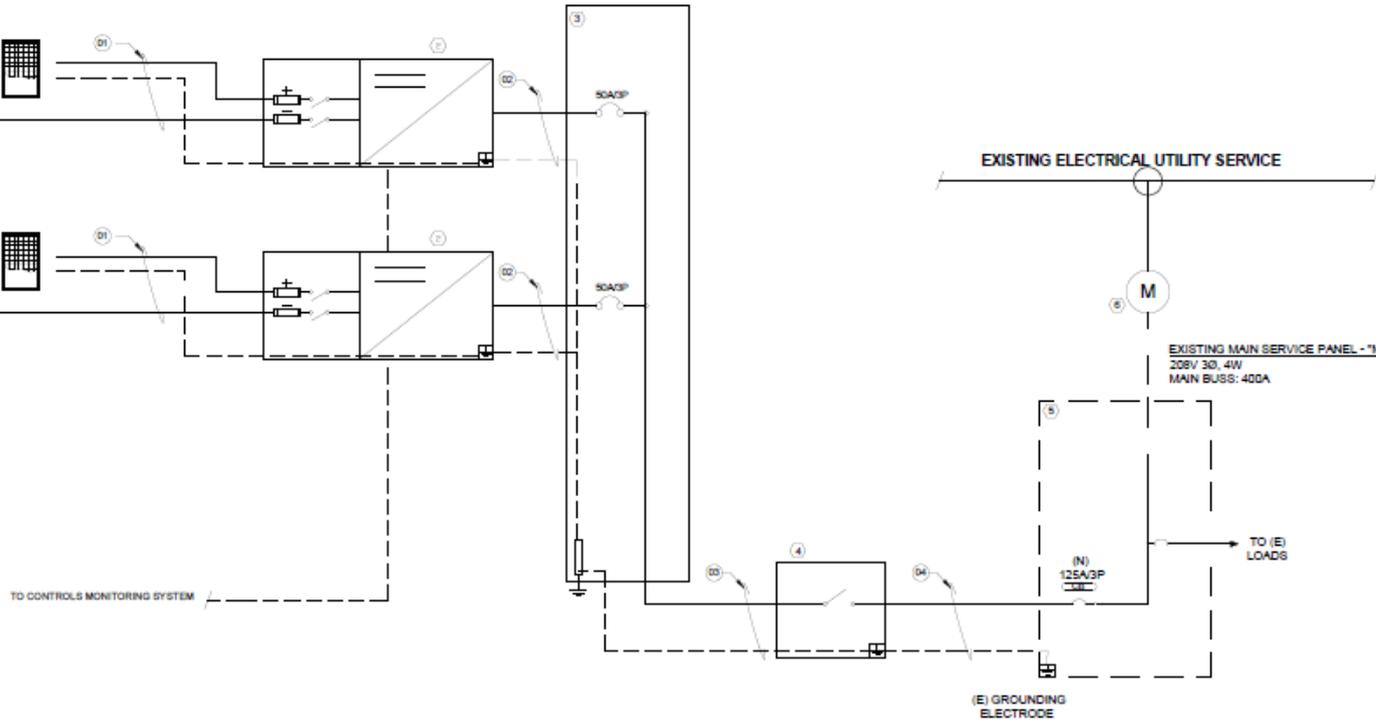
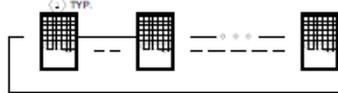
SHEET NOTES

- SOLAR MODULES INCLUDE OUTDOOR RATED QUICK CONNECTS WITH MULTI CONTACT CONNECTORS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND THE UL LISTING MAY BE INVALIDATED.
- PV MODULES STRUNG IN SERIES. MODULE AND RACKING SYSTEM SHALL BE ACCOMPLISHED VIA CONTINUOUS CU CONDUCTOR.
- MODIFY EXISTING ELECTRICAL PANEL AS REQUIRED FOR THE CONNECTION OF INVERTER OUTPUT POWER TO THE PANEL.

INVERTER #1  
MPPT: 4 STRINGS OF 9 MODULES IN SERIES



INVERTER #2  
MPPT: 4 STRINGS OF 9 MODULES IN SERIES



ID	QTY	DESCRIPTION
1	72	SILFAS-M 300 WP, SOLAR MODULE
2	2	15 KW STRING INVERTER, 1 MPPT WITH 8 INPUT PAIRS PER MPPT, 208V, 3 PHASE OUTPUT, 60HZ, FRONZUS SYMO MODEL 15-S-3-008
3	1	AC COMBINING PANEL, 125A, 3P, 4 W, WITH (2) 50 A CIRCUIT BREAKERS, NEMA 3R
4	1	PV AC DISCONNECT, 200A, 3 PHASE, NEMA 3R, SQUARE D324NRB
5	1	EXISTING MAIN DISTRIBUTION PANEL, 208V, 3PH, 4 WIRE, 400A
6	1	NEW UTILITY NET METER

ID	CONDUCTOR	EGC	CONDUIT	CONDUCTORS IN CONDUIT	TEMPERATURE RATING
D1	10 AWG PV WIRE	6 AWG	-	-	75C
D2	6 AWG THWN-2	6 AWG	1"	4	75C
D3	3 AWG THWN-2	3 AWG	1 1/2"	4	75C
D4	4 AWG THWN-2	4 AWG	1 1/2"	4	75C

- ALL EXPOSED SOURCE CIRCUIT CONDUCTORS SHALL BE 800V RATED PV-WIRE SUITABLE FOR USE WITH TRANSFORMLESS INVERTERS.
- ALL CONDUIT TO BE PER SPECIFICATIONS UNLESS OTHERWISE REQUIRED BY LOCAL A.H.J.
- ALL CONDUIT SIZES ARE BASED ON MINIMUM PER NEC CODE REQUIREMENTS.
- WIRE AMPACITY IS BASED ON NUMBER OF WIRES PER CONDUIT. IF CONDUITS ARE INSTALLED DIFFERENTLY THAN SHOWN, WIRE SIZES MAY BE AFFECTED.

SITE CONDITIONS:	
ASHRAE MAX AVG. TEMP.	96.8°F
ASHRAE EXTREME MIN TEMP.	8.5°F
PV MODULE OUTPUT	
VOC	48.4 Vdc
TEMP. COEFFICIENT OF Voc	-0.30 %/°C
ISC	0.96 Adc
VMP	38.9 Vdc
IMP	0.94 Adc
INVERTER DETAILS	
RATED POWER OUTPUT (kW)	15.0
OUTPUT VOLTAGE (V)	208
OUTPUT CURRENT (A)	90
SOURCE CIRCUIT DETAILS	
MODULES PER STRING	9
TEMPERATURE ADJUSTED VOC	54.5
SHORT CIRCUIT CURRENT	0.98



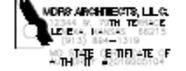
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Digitally signed by  
Charles G. Tharp  
Date: 2020.03.12  
10:05:07



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ARRAY AND FMS  
BATTERY STORAGE

CAMP CROWDER  
TRAINING SITE  
890 RAY A. CARVER AVE  
NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION:	DATE:
ISSUE DATE:	3/12/2020

CAD DWG FILE: E-618.DWG  
DRAWN BY: [Signature]  
CHECKED BY: [Signature]  
DESIGNED BY: [Signature]

SHEET TITLE:  
ELECTRICAL  
ONE LINE DIAGRAM  
BUILDING 960

SHEET NUMBER:

E-618

1. GENERAL REQUIREMENTS:
- A. BUILDING CODE: 2018 INTERNATIONAL BUILDING CODE
  - B. WIND LOADS
    - a. BASIC WIND SPEED (3 SECOND GUST) 105 MPH
    - c. RISK CATEGORY I
    - d. WIND EXPOSURE C
    - e. INTERNAL PRESSURE COEFFICIENT (GCpi) +/- 0.18
    - f. COMPONENTS AND CLADDING PER CODE
  - C. DEAD LOADS
    - a. STRUCTURE ACTUAL WEIGHT
  - D. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND SITE CONDITIONS PRIOR TO FABRICATION/CONSTRUCTION. CONTRACTOR SHALL REPORT ANY INCONSISTENCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
  - E. CONTRACTOR SHALL REVIEW AND COMPARE THE STRUCTURAL DRAWINGS WITH ALL OTHER CONTRACT DOCUMENTS, VERIFYING ALL DIMENSIONS AND ELEVATIONS, AND REPORT ANY INCONSISTENCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
  - F. FURNISH ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO COMPLETE THE WORK SHOWN OR INFERRED BY THESE DRAWINGS.
  - G. REFERENCE THE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
2. FOUNDATIONS (NO SOILS REPORT)
- A. FOUNDATIONS AND STRIP FOOTINGS ARE DESIGNED TO BEAR ON NON-EXPANSIVE SOIL CAPABLE OF SUSTAINING 1500 PSF. THE FINISH EXCAVATION SHALL BE INSPECTED BY A REGISTERED SOILS ENGINEER TO VERIFY THE BEARING CAPACITY.
3. CONCRETE:
- A. CAST-IN-PLACE CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST AMERICAN CONCRETE INSTITUTE DOCUMENTS, ACI-301, 305, 306, 315, 318 AND 347 AND CONCRETE REINFORCING STEEL INSTITUTE MANUAL OF STANDARD PRACTICE UNLESS OTHERWISE NOTED IN THESE CONTRACT DOCUMENTS.
  - B. ALL CONCRETE, UNLESS OTHERWISE NOTED, SHALL DEVELOP A 28 DAY COMPRESSIVE STRENGTH AND HAVE MAXIMUM WATER/CEMENT RATIOS AS FOLLOWS:
 

SPREAD FOOTINGS, PIERS, GRADE BEAMS	4500 PSI (w/c<0.45)
SLABS-ON-GRADE:	4000 PSI (w/c<0.44)
  - C. IT IS THE INTENT OF THESE CONCRETE SPECIFICATIONS THAT THE CONTRACTOR SUPPLY CONCRETE MIXES WITH A MINIMUM AMOUNT OF WATER IN ORDER TO LIMIT PLASTIC SHRINKAGE CRACKING IN FRESHLY PLACED CONCRETE. IT IS EXPECTED THAT WORKABILITY FOR CONCRETE MIXES WILL REQUIRE THE ADDITION OF WATER-REDUCING AND/OR SUPER-PLASTICIZING CHEMICAL ADMIXTURES. WATER SHALL NOT BE ADDED TO THE CONCRETE MIX ON SITE.
  - D. CONCRETE SLUMP SHALL BE A MAXIMUM OF 4" +/- 1" (ASTM C-143) AS DELIVERED IN THE FIELD. CONTRACTOR MAY USE CHEMICAL ADMIXTURES TO ATTAIN A MAXIMUM SLUMP OF 8" FOR WORKABILITY.
  - E. FLY ASH MAY BE USED AT A RATE NOT TO EXCEED 15% OF THE TOTAL CEMENT CONTENT.
  - F. CONCRETE EXPOSED TO WEATHER, PARKED VEHICLES, AND/OR DEICING CHEMICAL SHALL CONTAIN 6% (+/- 1 1/2%) ENTRAINED AIR BY VOLUME FOR 3/4" AGGREGATE.
  - G. CHAMFER ALL EXPOSED CORNERS OF CONCRETE WALLS, BEAMS, AND COLUMNS 3/4".
  - H. ALL CONTRACTION JOINTS IN CONCRETE SLABS-ON-GRADE SHALL BE CUT TO 1/3 THE DEPTH. CUT JOINTS AS SOON AS POSSIBLE AFTER CONCRETE HAS BEEN PLACED WITHOUT DISLODGING AGGREGATE, OR USE KEYED COLD JOINT. CONTRACTION JOINTS IN SLAB-ON-GRADE SHALL BE AS SHOWN ON PLANS, WHERE NOT SHOWN, LIMIT CONTROLLED AREAS TO NOT MORE THAN 144 SQUARE FEET NOR GREATER THAN 12 FEET ON ANY SIDE. CONTRACTION JOINTS MAY BE SUBSTITUTED FOR CONTRACTION JOINTS AT CONTRACTOR'S OPTION.
  - I. THE UNIT POUR FOR FOUNDATION WALLS, FOOTINGS AND GRADE BEAMS SHALL NOT EXCEED 80 LINEAL FEET IN ANY ONE DIRECTION. CONSTRUCTION JOINTS SHALL BE DOWELED AND KEYED.
  - K. PRIOR TO PLACING CONCRETE IN ANY LOCATION, IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO HAVE THOROUGHLY CHECKED AND COORDINATED ALL DIMENSIONS, ELEVATIONS, OPENINGS, RECESSES, AND BLOCKOUTS SHOWN ON THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS. IN THE EVENT ERRORS, CONFLICTS, OR OMISSIONS EXIST, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE ARCHITECT OR ENGINEER FOR NECESSARY CORRECTIVE ACTION.
  - L. EMBEDDED ITEMS ARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR PRIOR TO PLACING CONCRETE. ANCHOR RODS SHALL BE HELD IN PLACE WITH A RIGID TEMPLATE.
  - M. ANCHOR RODS SHALL BE HELD IN PLACE WITH A RIGID TEMPLATE.

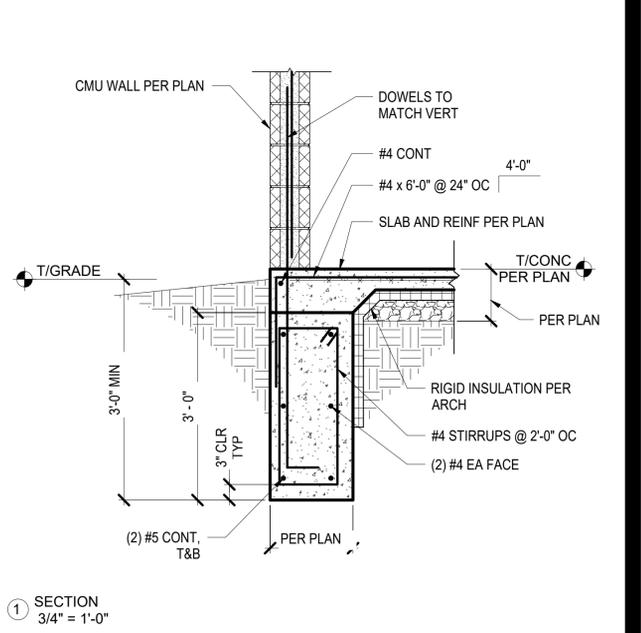
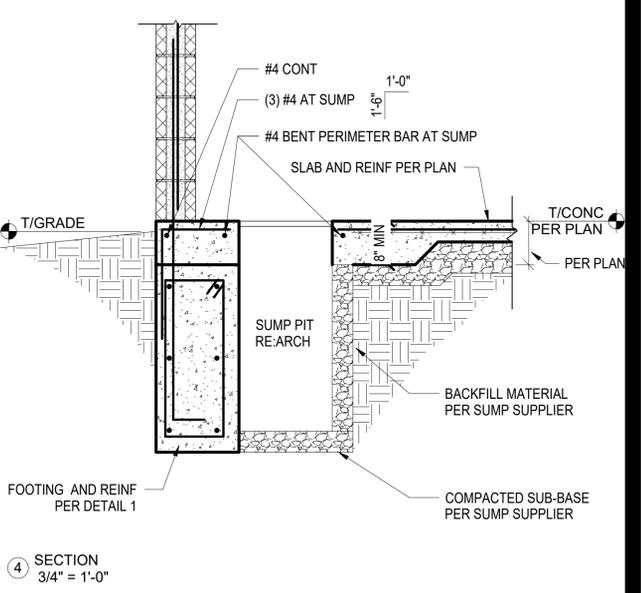
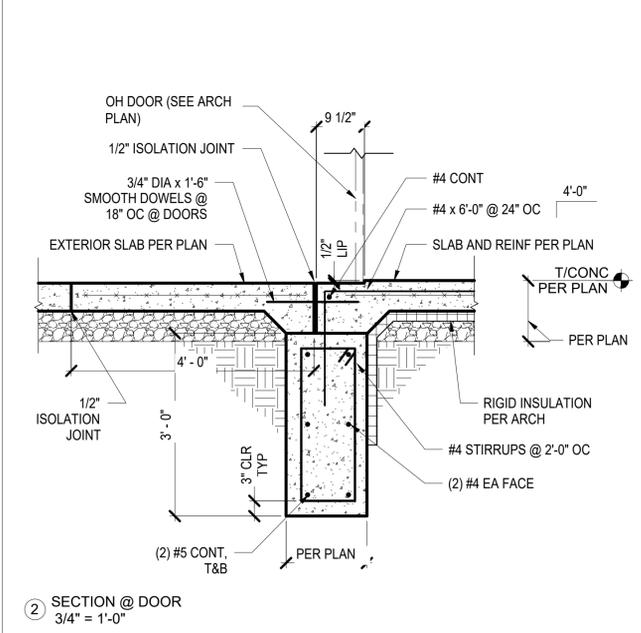
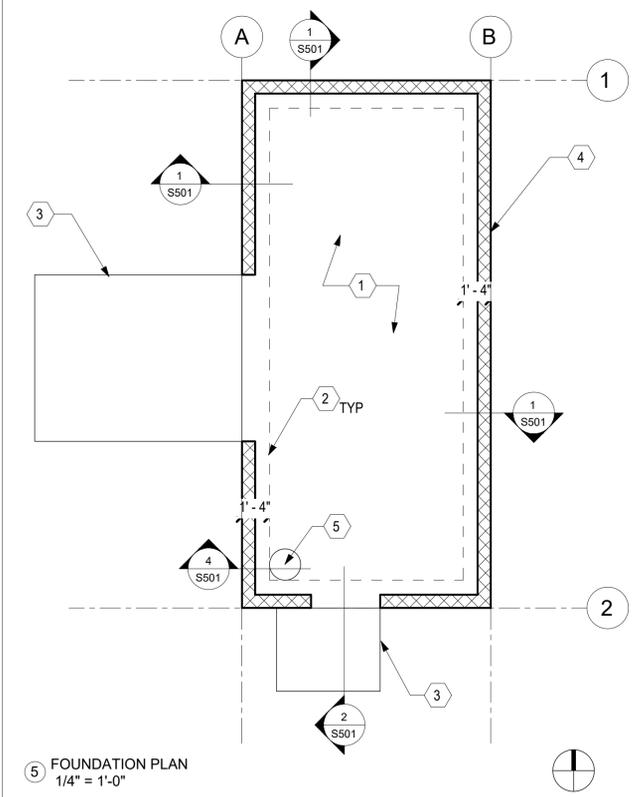
4. REINFORCING STEEL
- A. REINFORCING SHALL BE DETAILED, FABRICATED, PLACED, AND SUPPORTED IN ACCORDANCE WITH ACI 315, LATEST EDITION.
  - B. ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60, EXCEPT WELDED REINFORCING WHICH SHALL BE ASTM A706 GRADE 60.
  - C. ALL WELDED WIRE FABRIC SHALL BE ASTM A185. ALL COLD DRAWN WIRE SHALL BE ASTM A82.
  - D. ALL ACCESSORIES FOR SUPPORTING REINFORCING SHALL BE GALVANIZED OR HAVE PLASTIC-COATED FEET. WHERE CONCRETE IS SAND BLASTED OR BUSH HAMMERED PROVIDE ACCESSORIES OF STAINLESS STEEL.
  - E. PROVIDE CORNER BARS AT THE EXTERIOR FACE OF ALL WALL AND GRADE BEAM CORNERS AND INTERSECTIONS EQUAL TO HORIZONTAL BARS.
  - F. PROVIDE AT LEAST TWO VERTICAL #5 BARS AT ALL STEPS IN FOUNDATION WALLS, FOOTINGS, AND GRADE BEAMS.
  - G. STANDARD COVERAGE OF REINFORCING, UNLESS OTHERWISE SHOWN, SHALL BE AS FOLLOWS:
 

CAST AGAINST EARTH, PERMANENTLY EXPOSED TO WEATHER.....	3"
EXPOSED TO EARTH & WEATHER (FORMED).....	2"
NOT EXPOSED TO EARTH OR WEATHER: SLABS, WALLS.....	3/4"
BEAMS AND COLUMNS.....	1-1/2"
  - H. WELDED WIRE FABRIC SHALL BE LAPPED ONE FULL MESH SPACING.
  - I. AT ALL OPENINGS IN CONCRETE WALLS AND SLABS, ADD (2) #5 (OPENING DIMENSION PLUS 5'-0") AT EACH OF THE FOUR SIDES AND ADD (2) #5 x 5'-0" DIAGONALLY AT EACH OF FOUR CORNERS.
  - J. ALL SPLICES SHALL BE CLASS "B" TENSION LAP SPLICE, UNLESS NOTED.
  - K. CORNER BARS ARE REQUIRED AT ALL HORIZONTAL REINFORCEMENT IN GRADE BEAMS AND WALLS.
  - L. LAP TOP BARS AT MID-SPAN AND BOTTOM BARS AT SUPPORTS, UNO. STAGGER LAP LOCATIONS.
5. STRUCTURAL STEEL:
- A. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH AISC, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND AISC, "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
  - B. STEEL MATERIALS, UNLESS NOTED OTHERWISE ON THE PLANS:
 

a. WIDE FLANGE SHAPES	ASTM A992
b. ANGLES, PLATES, CHANNELS AND WT SECTIONS	ASTM A36
c. MOMENT CONNECTION PLATES	ASTM A992
d. RECTANGULAR HSS SHAPES	ASTM A500, GRADE B
e. ROUND HSS SHAPES	ASTM A500, GRADE B
f. PIPE	ASTM A53, GRADE B
g. ANCHOR RODS	ASTM F1554, GRADE 36
h. HIGH-STRENGTH BOLTS	ASTM A325, TYPE 1
i. HEADED STUDS	ASTM A108, GRADE 1015-1020
j. WELDED CONNECTIONS	E70XX ELECTRODES
  - C. ALL STRUCTURAL STEEL WELDS IN THE SHOP OR THE FIELD SHALL BE PERFORMED BY A CERTIFIED WELDER AND SHALL CONFORM TO THE CURRENT REQUIREMENTS OF A.W.S.
  - D. FILLET WELDS NOT SPECIFICALLY SIZED IN THESE DOCUMENTS SHALL BE THE MINIMUM SIZE IN ACCORDANCE WITH AWS D1.1 LATEST EDITION, DEPENDENT ON THE THINNER PART JOINED, BUT NO LESS THAN 3/16".
  - E. PROVIDE HOT-DIPPED GALVANIZED STEEL IN ACCORDANCE WITH ASTM A123 AT ALL EXTERIOR EXPOSED STRUCTURAL STEEL, AND ASSOCIATED CONNECTIONS, AND AT ALL LINTELS AND SHELF ANGLES ATTACHED TO STRUCTURAL STEEL FRAME AND LOCATED IN EXTERIOR WALLS. CLEAN AREAS WHERE GALVANIZING IS DAMAGED OR MISSING AND REPAIR GALVANIZING TO COMPLY WITH ASTM A780.
  - F. PROVIDE GALVANIZED BOLTS AND ANCHORS AT ALL EXTERIOR EXPOSED LOCATIONS AND AT ALL LOCATIONS WHERE ANCHORS COME INTO CONTACT WITH MASONRY OR CONCRETE. CLEAN AREAS WHERE GALVANIZING IS DAMAGED OR MISSING AND REPAIR.
6. SUBMITTALS:
- A. ALL SHOP DRAWINGS AND SUBMITTALS MUST BE REVIEWED AND APPROVED BY THE CONTRACTOR PRIOR TO SUBMITTAL. ENGINEER'S REVIEW OF SHOP DRAWINGS IS LIMITED TO CHECKING FOR GENERAL CONFORMANCE WITH DESIGN DRAWINGS AND STRENGTH OF COMPONENTS AND MATERIALS. CONTRACTOR IS RESPONSIBLE FOR ANY CHANGES FROM THE DESIGN DRAWINGS, QUANTITIES, DIMENSIONAL ERRORS OR OMISSIONS ON THE SHOP DRAWINGS.
  - B. ALL SHOP DRAWINGS MUST BE ORIGINAL DOCUMENTS AND SHALL NOT BE REPRODUCTIONS OF THESE CONTRACT DOCUMENTS.
  - C. CONTRACTOR SHALL SUBMIT STRUCTURAL SHOP DRAWINGS FOR THE FOLLOWING:
    - a. CONCRETE MIX DESIGN AND MATERIALS
    - b. CONCRETE AND MASONRY REINFORCING STEEL
    - c. STRUCTURAL STEEL

- PLAN NOTES:
- ① 4" CONCRETE SLAB-ON-GRADE w/ 6x6-W1.4xW1.4 WWF CTRD IN SLAB ON 15 MIL VAPOR BARRIER ON 4" CLEAN GRAVEL FILL ON PROPERLY COMPACTED SUB-GRADE. T/CONC = RE:ARCH
  - ② 1'-4" WIDE x 3'-0" DEEP CONTINUOUS FOOTING w/ 2#5 TOP & BOTTOM CONT & 2#4 @ 18" OC MAX EA SIDE w/ #4 TIES @ 24" OC
  - ③ 4" CONCRETE STOOP w/ 6x6-W1.4xW1.4 WWF CTRD IN SLAB. RE: ARCH FOR STOOP AND APRON DIMENSIONS AND SLOPE AWAY FROM BUILDING
  - ④ CMU WALL, RE:ARCH
  - ⑤ SUMP PIT, RE:ARCH FOR LOCATION AND DIMENSIONS

NOTES:  
 CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND SITE CONDITIONS PRIOR TO FABRICATION/CONSTRUCTION. CONTRACTOR SHALL REPORT AN INCONSISTENCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.



③ PROJECT\_GENERAL NOTES  
12" = 1'-0"

STATE OF MISSOURI  
MICHAEL L. PARSON  
GOVERNOR



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INSTALL SOLAR  
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BATTERY STORAGE

CAMP CROWDER  
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NEOSHO MO 64850

PROJECT # T1922-01  
SITE # 6260  
ASSET # 8136260001

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE:  
ISSUE DATE: 3/12/2020

CAD DWG FILE: S-501.DWG  
DRAWN BY: JT  
CHECKED BY: KH  
DESIGNED BY: JT

SHEET TITLE:  
STRUCTURAL  
FOUNDATION PLAN  
FMS BATTERY STORAGE

SHEET NUMBER:  
**S-501**

SHEET 46 OF 47  
3/12/2020



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DRAWN BY: JT  
CHECKED BY: KH  
DESIGNED BY: JT

SHEET TITLE:  
STRUCTURAL DETAILS  
FOUNDATIONS  
SOLAR PANEL

SHEET NUMBER:

**S-502**

