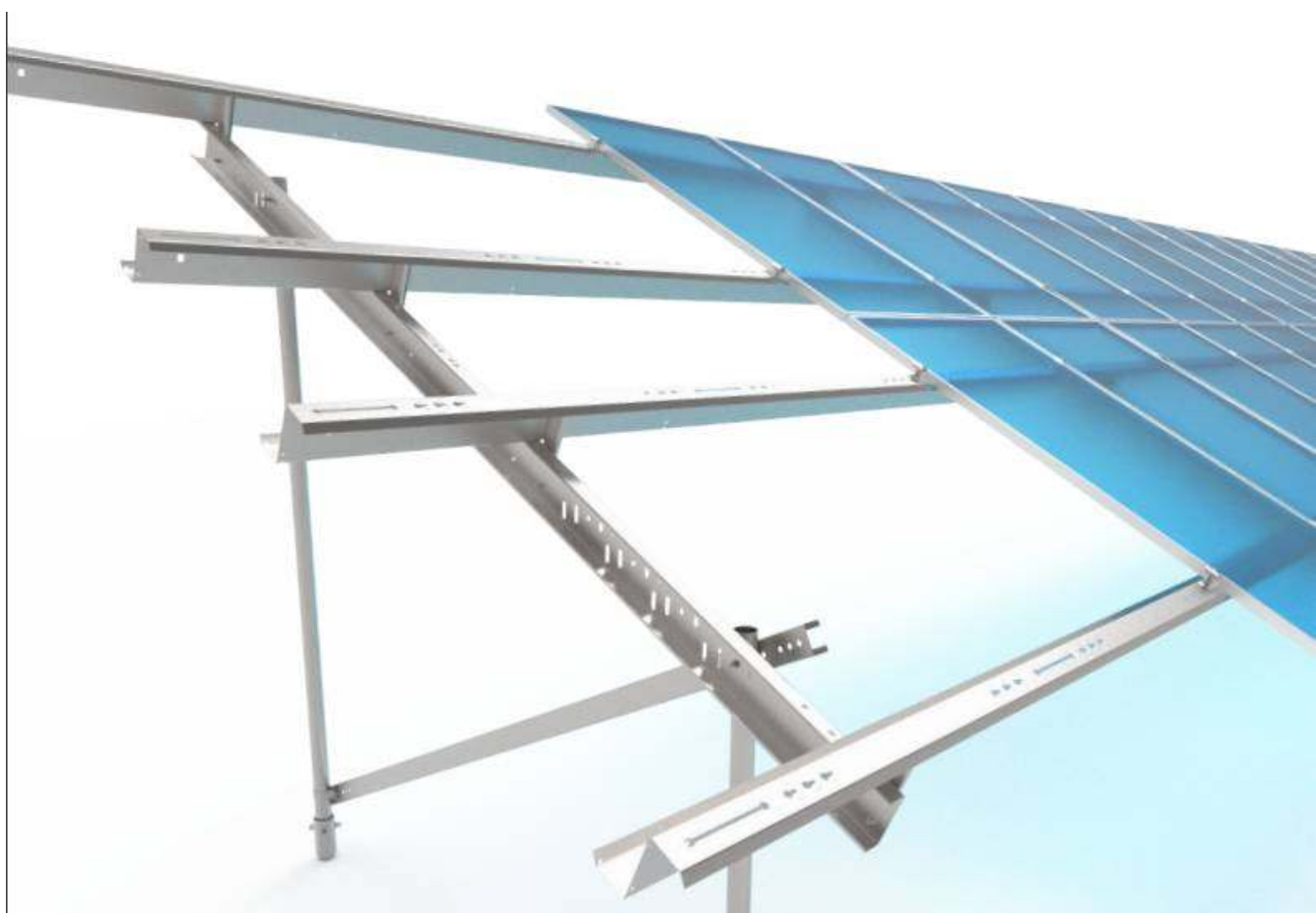


PHOTOVOLTAIC SYSTEM FOR FORTUNA (WEST END ST. THOMAS) FORTUNA ROAD, FORTUNA ESTATE, US VI STT.



2 LOCUS MAP



3 SAMPLE GROUND-MOUNT APA ARRAY

20° FIXED TILT PV ARRAY AZIMUTH: 15° WEST OF TRUE SOUTH						
SYSTEM PHASE	MODULES	DC POWER	TOTAL PV AC POWER	TOTAL BESS ENERGY	TOTAL BESS AC POWER	MAX EXPORT AC POWER*
1	42,666/465W	19.84 MWdc	18 MWac	36.8 MW-hrs	12.8 MWac	20 MWac SITE TOTAL
2	TBD	~30 MWdc	26 MWac	27.6 MW-hrs	9.6 MWac	
TOTAL	TBD	~50 MWdc	44 MWac	64.4 MW-hrs	22.4 MWac	

* SYSTEMS ARE CONTROLLED TO LIMIT EXPORT POWER TO THE VALUES ABOVE

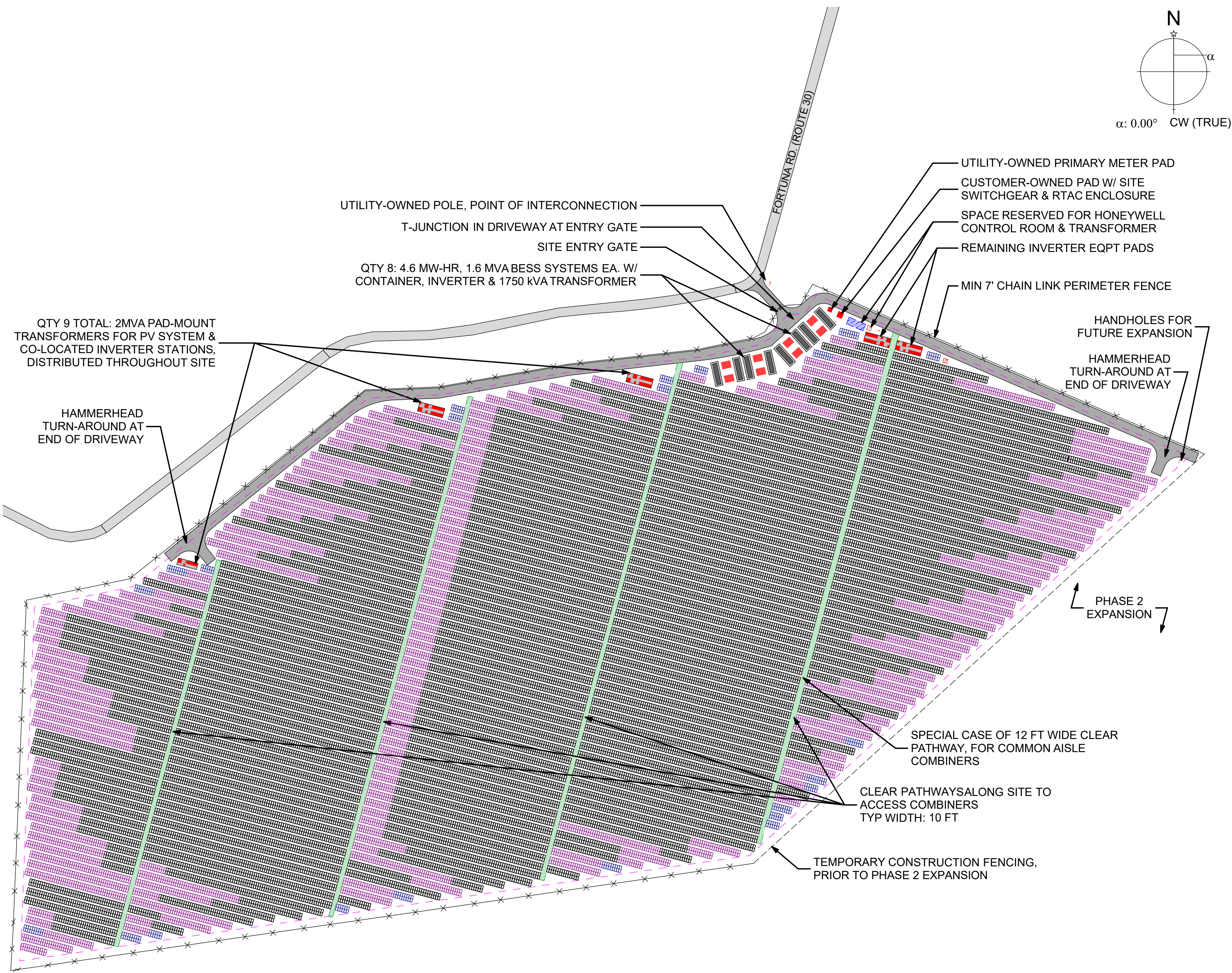
APPLICABLE STANDARDS

- 2023 NATIONAL ELECTRIC CODE
- 2023 NATIONAL ELECTRICAL SAFETY CODE
- 2019 US VIRGIN ISLANDS BUILDING CODE
- 2018 INTERNATIONAL BUILDING CODE
- ASCE 7-16
- VIRGIN ISLANDS WATER & POWER AUTHORITY (WAPA) CONSTRUCTION STANDARDS
- PETRONELLA BUILDING & ELECTRICAL INSPECTORS (AHJs)
- INSTALLING CONTRACTOR AND ALL PERSONNEL ON SITE SHALL FOLLOW APPROPRIATE LOTO PROCEDURES BEFORE SERVICING EQUIPMENT AND SHALL BE EQUIPPED WITH THE APPROPRIATE PPE.

NOTE: ALL STRUCTURAL DETAILS AND CALCULATIONS WILL BE PROVIDED BY OTHERS

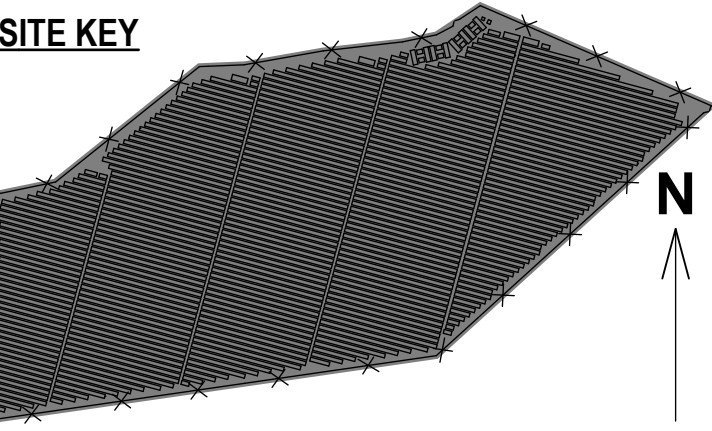
SHEET INDEX		
ID	Name	Published
PV001	PV SITE PLAN - PHASE 1	☒
PV002	PV SYSTEM NOTES	☒
PV101	SITE PLAN - FULL SITE	☒
PV102	CLOSE-UP OF EQPT PADS	☒
PV103	FENCE DETAIL	☒
PV104	FENCE GROUNDING LAYOUT	☒
PV105	FENCE GROUNDING DETAIL	☒
PV201	TRANSFORMER ZONE LAYOUT	☒
PV202	INV. & COMBINER SOURCE: ZONES 1-5	☒
PV203	INV. & COMBINER SOURCE: ZONES 6-9	☒
PV204	BRANCH CIRCUIT LAYOUT: ZONE 1	☒
PV205	BRANCH CIRCUIT LAYOUT: ZONES 2 & 3	☒
PV206	BRANCH CIRCUIT LAYOUT: ZONES 4 & 5	☒
PV207	BRANCH CIRCUIT LAYOUT: ZONES 6 & 7	☒
PV208	BRANCH CIRCUIT LAYOUT: ZONES 8 & 9	☒
PV209	WIRING DETAILS	☒
PV210	WIRE HARNESS DETAILS	☒
PV211	MODULE DETAILS	☒
PV212	E-W WIRING & GAP DETAILS	☒

SHEET INDEX		
ID	Name	Published
PV301	CONDUIT LAYOUT (OVERVIEW)	☒
PV302	CONDUIT LAYOUT - BESS & MV EQPT PADS	☒
PV303	CONDUIT LAYOUT - PV PADS	☒
PV304	TRENCH PROFILES - SHEET 1	☒
PV305	TRENCH PROFILES - SHEET 2	☒
PV306	MSGR. CABLE LAYOUT - SHEET 1 (ZONE 1)	☒
PV307	MSGR. CABLE LAYOUT - SHEET 2 (ZONES 2 & 3)	☒
PV308	MSGR. CABLE LAYOUT - SHEET 3 (ZONES 4 & 5)	☒
PV309	MSGR. CABLE LAYOUT - SHEET 4 (ZONES 6 & 7)	☒
PV310	MSGR. CABLE LAYOUT - SHEET 5 (ZONES 8 & 9)	☒
PV311	MESSENGER CABLE DETAILS - SHEET 1	☒
PV312	MESSENGER CABLE DETAILS - SHEET 2	☒
PV313	MESSENGER CABLE DETAILS - SHEET 3	☒
PV314	CONDUIT BETW RACK & INV. STATIONS	☒
PV315	MESSENGER CABLE CUTSHEETS	☒
PV316	DC COMBINER STATION	☒
PV317	DC COMBINER STATION FRAMING	☒
PV401	RACKING SECTION VIEW	☒
PV501	TYP INV. STATIONS - INV. LAYOUT	☒
PV502	TYP INV. STATIONS - XFMR LAYOUT	☒
PV503	TYP INV. STATIONS - DC CONNECTIONS	☒
PV504	TYP INV. STATIONS - AC & DATA CONDUIT	☒
PV505	TYP INV. STATIONS - REBAR WEST	☒
PV506	TYP INV. STATIONS - REBAR EAST	☒
PV507	INV. STATION SECTION VIEWS	☒
PV508	INVERTER STATION ELEVATION VIEW	☒
PV509	INV. STATION 1 - INVERTER LAYOUT	☒
PV510	INV. STATION 1 - CONDUIT	☒
PV511	INV. STATION 1 - REBAR & GROUNDING	☒
PV512	BESS EQPT PAD - LAYOUT	☒
PV513	BESS EQPT PAD - REBAR & GROUND	☒
PV514	BESS EQPT PAD - CONDUIT	☒
PV515	BESS EQPT PAD - ELEVATION VIEW 1	☒
PV516	BESS EQPT PAD - ELEVATION VIEW 2	☒
PV517	BESS EQPT PAD - INVERTER SECTION	☒
PV518	BESS CONTAINER - LAYOUT, REBAR, & GROUNDING	☒
PV519	BESS CONTAINER - CONDUIT LAYOUT	☒
PV520	SWITCHGEAR & RTAC PAD	☒
PV601	SINGLE LINE	☒
PV602	DAS SINGLE LINE - SIMPLIFIED	☒
PV603	DAS SINGLE LINE - DETAILED	☒
PV604	DC COMBINER & INVERTER SCHEDULE	☒
PV605	DC WIRING SCHEDULE - PV ZONES 1 THRU 5	☒
PV606	DC WIRING SCHEDULE - PV ZONES 6 THRU 9	☒
PV607	AC WIRING SCHEDULE (PV & MV)	☒
PV608	BESS WIRING SCHEDULE	☒
PV609	DATASHEETS	☒
PV701	LABELS - SHEET 1	☒
PV702	LABELS - SHEET 2	☒
PV703	GATE LABELS & SYSTEM MAP	☒
PV704	COMBINER MAP LABELS	☒



1 FORTUNA PHASE 1 SITE PLAN: 20.16 MWdc (18 MWac)

SITE KEY

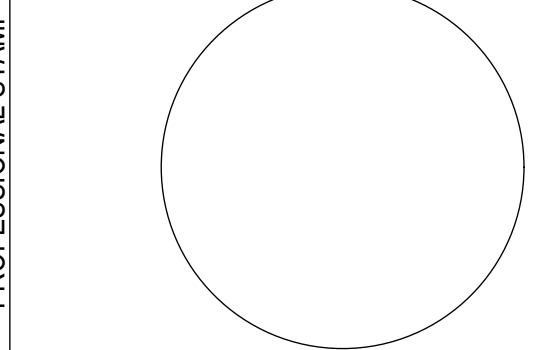


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED
DRAWN BY	CH
CHECKED BY	RE
DRAWING NO.	PV001
DRAWING TITLE	PV SITE PLAN - PHASE 1

SHEET 1 OF 70

1. PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES NOTED TO EXISTING CONDITIONS, STRUCTURE, ELECTRICAL RUNS (SPECIFY EXISTING ITEMS), AMONG SITE CONDITIONS, MANUFACTURER RECOMMENDATIONS OR CODES, REGULATIONS OR RULES OF JURISDICTIONS HAVING AUTHORITY.
2. ALL DISCREPANCIES OF EXISTING CONDITIONS MUST BE VERIFIED PRIOR TO COMMENCING WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL BRACING AND SHORING OF EQUIPMENT DURING INSTALLATION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS, OSHA REQUIREMENTS AND SAFETY MEASURES ON SITE. THE ENGINEER HAS NO OVERALL SUPERVISORY AUTHORITY AND NO DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS OR FOR POSSIBLE EXISTING HAZARDS.
5. CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO MAKING ANY CHANGES.
6. APPROVED CHANGES SHALL REQUIRE A DRAWING REVISION TO MAINTAIN CONTROL OVER THE ENGINEER APPROVED DESIGN. DEVIATION FROM THESE PLANS PRIOR TO ENGINEER APPROVAL PLACES ALL LIABILITY ON THE CONTRACTOR.

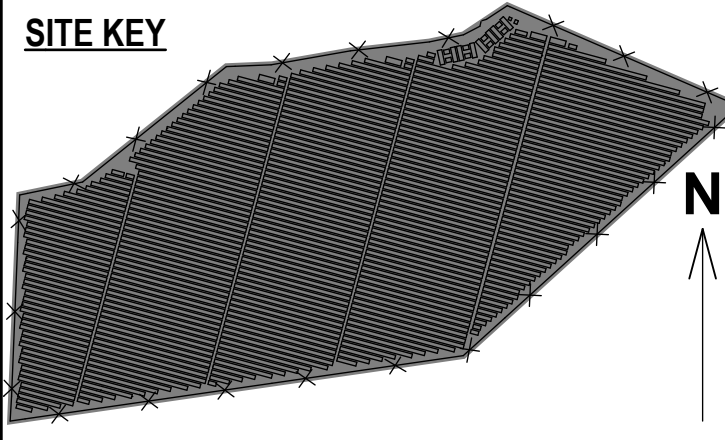
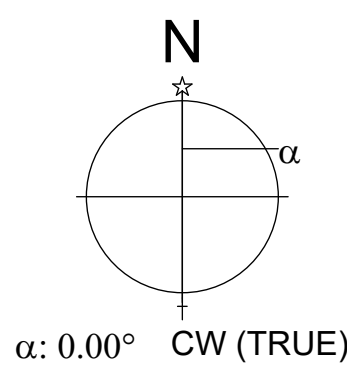
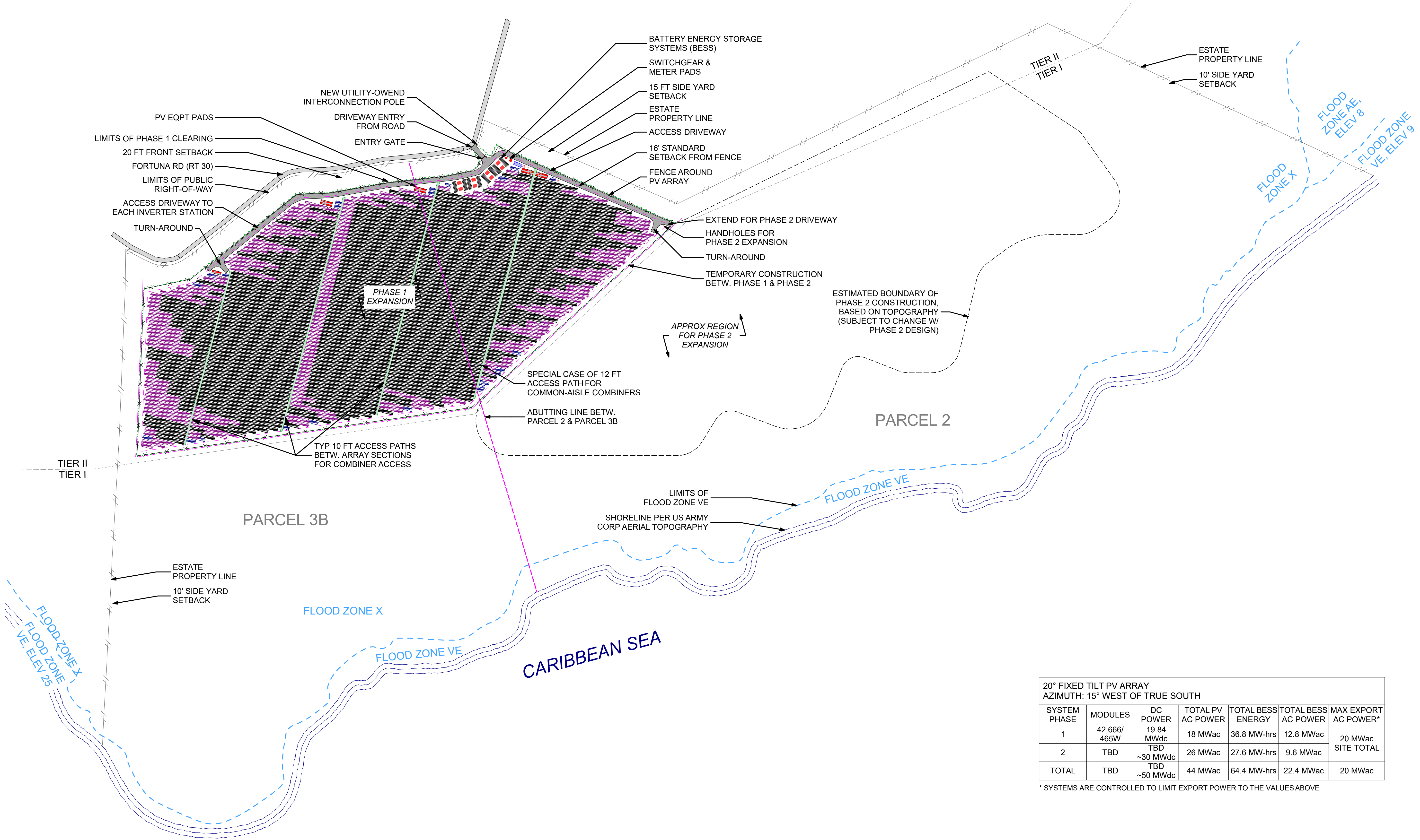
1. STRUCTURAL FIELD CONDITIONS ARE TO BE DETERMINED BY OTHERS, AND PLANS ARE TO BE MODIFIED AS NEEDED/IF APPROPRIATE. DEFICIENCIES SHOULD BE NOTED AND CORRECTED PRIOR TO THE START OF CONSTRUCTION.
2. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL MANUFACTURER'S OR ENGINEER'S DIRECTIONS AND INSTRUCTIONS SHOWN ON CONSTRUCTION DOCUMENTS.
3. THE ELECTRICAL CONTRACTOR IS ADVISED THAT UTILITY INTERCONNECTION REQUIREMENTS AND ALL DRAWINGS, COMPONENT MANUALS, ESPECIALLY THE INVERTER MANUALS, ARE TO BE READ AND UNDERSTOOD PRIOR TO INSTALLATION OR ENERGIZING OF ANY EQUIPMENT.
4. THE CONTRACTOR IS ALSO ADVISED TO HAVE ALL COMPONENT & SWITCHES IN THE OFF (OPEN) POSITION AND FUSES REMOVED PRIOR TO INSTALLATION OF FUSE-BEARING COMPONENTS.
5. THIS SOLAR PHOTOVOLTAIC SYSTEM IS TO BE INSTALLED FOLLOWING THE CONVENTIONS OF THE NATIONAL ELECTRIC CODE, MASSACHUSETTS ELECTRICAL CODE, AND ANY LOCAL CODE WHICH MAY SUPERSEDE THE NEC SHALL GOVERN.
6. ALL COMPONENTS TO BE INSTALLED WITH THIS SYSTEM ARE TO BE LISTED BY A THIRD PARTY TESTING AGENCY (UL, ETL, ETC.). EQUIPMENT SHALL BE NEMA 3R OUTDOOR RATED OR BETTER, UNLESS LOCATED INDOORS. EQUIPMENT INSTALLED INDOORS MAY BE RATED NEMA 1.
7. DC VOLTAGE FROM THE ARRAY IS ALWAYS PRESENT AT THE DC COMBINER ENCLOSURES AND THE DC TERMINALS OF THE INVERTER DURING DAYLIGHT HOURS. ALL PERSONS WORKING ON OR INVOLVED WITH THIS PHOTOVOLTAIC SYSTEM MUST BE WARNED THAT SOLAR MODULES ARE ENERGIZED WHEN EXPOSED TO DAYLIGHT. THE LINE AND LOAD TERMINALS ON THE DC DISCONNECTS MAY BE ENERGIZED IN THE OFF (OPEN) POSITION AND THE SWITCH IS TO BE LABELED TO COMPLY WITH ARTICLE 690.17 OF THE NEC REFLECTING THIS.
8. ALL PORTIONS OF THIS SOLAR ELECTRIC SYSTEM SHALL BE CLEARLY MARKED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ARTICLE 690.
9. THE ELECTRICAL CONTRACTOR SHALL PERFORM INITIAL HARDWARE CHECKS AND PV WIRING CONDUCTIVITY CHECKS PRIOR TO TERMINATING WIRES. ALL AC AND DC WIRE RUNS SHALL BE MEGGER TESTED AT 1000 VDC TO DEMONSTRATE A MINIMUM OF 5 MEGAOHMS INSULATION RESISTANCE.
10. **DO NOT MEGGER THE SOLAR MODULES, AS THIS WILL LIKELY DAMAGE THEIR INTERNAL DIODES. MEGGERING IS INTENDED FOR ALL CONDUCTORS INSTALLED BY THE ELECTRICAL CONTRACTOR. RESTRICT MEGGER TO 1000V**
11. FOR PROPER MAINTENANCE AND ISOLATION OF INVERTERS, REFER TO ISOLATION PROCEDURE IN INVERTER OPERATION MANUAL. CONTRACTOR PERFORMING THE MAINTENANCE IS RESPONSIBLE TO FOLLOW ALL LOCKOUT TAGOUT PROCEDURES.
12. THIS PHOTOVOLTAIC SYSTEM'S UTILITY INTERCONNECTION POINT SHALL MEET THE SPECIFIC REQUIREMENTS OF ARTICLE 690.64, NATIONAL ELECTRIC CODE. PLEASE FOLLOW THE SPECIFIC INSTRUCTIONS IN THIS DRAWING SET TO MEET THIS CODE REQUIREMENT.
13. THE GROUNDING OF THE PHOTOVOLTAIC SYSTEM SHALL COMPLY WITH NEC 690.45 AND NEC 690.47. IF THE REQUIREMENTS DESCRIBED IN THIS DRAWING SET ARE CLOSELY FOLLOWED, THE GROUNDING REQUIREMENT WILL BE MET. ANY CHANGES WILL NEED TO BE REVIEWED AND DEEMED ACCEPTABLE BY THE ENGINEER, MANUFACTURER AND LISTING AGENCY FOR PRODUCT SAFETY.
14. THE ELECTRICAL CONTRACTOR IS NOT TO START OR COMMISSION THE PV OR INVERTER SYSTEM AT ANY TIME, UNLESS NOTIFIED OTHERWISE IN WRITING. THIS WILL BE DONE BY OTHERS.
15. THE CONTRACTOR IS RESPONSIBLE FOR MOUNTING ALL EQUIPMENT PER THE ENGINEER'S INPUT OR MANUFACTURER'S SPECIFICATIONS. IF SPECIFICATIONS ARE NOT APPARENT, THE CONTRACTOR SHALL USE DILIGENT EFFORTS TO MOUNT EQUIPMENT SUCH THAT IT WILL BE CLEAN, LEVEL AND SOLID IN ORDER TO LAST THE LIFETIME OF THIS SOLAR ELECTRIC SYSTEM.
16. ANY METAL SHAVINGS RESULTING FROM SITE WORK SHALL BE CLEANED FROM ENCLOSURE INTERIORS, TOP SURFACES OF ENCLOSURES, ROOF SURFACE, GROUND SURFACE AND ANY ADDITIONAL AREAS WHERE OXIDIZED OR CONDUCTIVE METAL SHAVINGS MAY CAUSE RUST, ELECTRICAL SHORT CIRCUITS OR OTHER DAMAGE.
17. ALL EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, RECTILINEAR TO THE STRUCTURE.
18. ALL COMPONENTS SHOWN ON THE SINGLE LINE DIAGRAM, BUT NOT ON THE PLAN OR VICE VERSA, SHALL BE INCLUDED AS IF SHOWN ON BOTH.
19. CONTRACTOR SHALL REVIEW ALL TRADES' CONTRACT DOCUMENTS TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR ELECTRICAL EQUIPMENT. COORDINATE EXACT MOUNTING LOCATIONS.
20. THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL AND MECHANICAL DRAWINGS AND COORDINATE THE ELECTRICAL WORK WITH THE OTHER CONTRACTORS. SHOULD CONFLICTS, DISCREPANCIES, OR DEFICIENCIES, ARISE WHICH REQUIRE CHANGES IN THE CONTRACT DOCUMENTS, IMMEDIATELY NOTIFY THE ENGINEER. OBTAIN WRITTEN DIRECTION ON NECESSARY ADJUSTMENTS BEFORE THE INSTALLATION IS MODIFIED.
21. ALL COMPONENTS SHOWN ON THE RISER DIAGRAMS, BUT NOT ON THE PLAN OR VICE VERSA, SHALL BE INCLUDED AS IF SHOWN ON BOTH.
22. THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF NEW CIRCUITS, NUMBERS OF CIRCUITS, LOCATIONS OF OUTLETS, AND THE INTERCONNECTION. THE CONTRACTOR MAY MODIFY THE RACEWAY ARRANGEMENT TO ACCOMMODATE FIELD CONDITIONS.
23. ALL NEW CIRCUITRY SHALL BE ACCURATELY RECORDED BY THE CONTRACTOR TO BE INCORPORATED IN TO A RECORD SET OF AS-BUILT DRAWINGS ISSUED UPON COMPLETION OF INSTALLATION PRIOR TO START UP.
24. PROVIDE COMPLETE, ACCURATE, LAMINATED AND TYPED PANELBOARD CIRCUIT DIRECTORIES AT THE COMPLETION OF WORK FOR ALL PANELS IN THIS PROJECT.
25. LAYOUT ALL WORK IN ADVANCE. WHERE CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS PARTITIONS, CEILINGS OR OTHER SURFACES IS NECESSARY FOR SUPPORT OR ANCHORAGE OF RACEWAYS, OUTLETS OR ELECTRICAL EQUIPMENT, THIS WORK SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR. ANY DAMAGE TO PIPING, EQUIPMENT OR DEFACED FINISH, OR METALWORK SHALL BE REPAIRED BY SKILLED CRAFTSMEN OF TRADES INVOLVED AT NO ADDITIONAL COST TO THE OWNER. DO NO CUTTING, CHANNELING, DRILLING, WELDING OF STRUCTURAL MEMBERS OF THE BUILDING WITHOUT OBTAINING APPROVAL FROM THE ENGINEER.
26. PLUGS, SWITCHES, AND LIGHTS SHALL BE MARKED AND IDENTIFIED WITH E-Z MARKERS OR DYMO TAPED AND PEN-MARKED (WITH PERMANENT MARKER) INSIDE COVER TO SHOW PANEL AND CIRCUIT BREAKER NUMBER. WIRES SHALL BE MARKED WITH CIRCUIT NUMBERS USING BRADY MARKS (OR EQUAL) AT PANEL.
27. ALL ARRAY WIRING MAY BE RUN EXPOSED UNLESS SPECIFIED OTHERWISE.
28. DO NOT INSTALL DC FEEDER CONDUITS IN A CONCEALED MANNER. AC CONDUITS MAY BE INSTALLED IN A CONCEALED MANNER UNLESS OTHERWISE NOTED.
29. MINIMUM SIZE BRANCH CIRCUIT CONDUIT SHALL BE 3/4 IN.
30. EMPTY CONDUITS SHALL BE PROVIDED WITH NYLON PULL STRING.
31. PROVIDE INSULATED GROUND WIRE (THHN/THWN) FOR ALL BRANCH CIRCUITS AND FEEDER CIRCUITS.
32. PROVIDE SEPARATE INSULATED EQUIPMENT GROUNDING CONDUCTOR WITH ALL BRANCH CIRCUITS. TERMINATE EACH END ON A GROUNDING LUG, BUS, OR BUSHING.
33. PROVIDE CIRCUIT NUMBER IDENTIFICATION MARKERS ON ALL CONDUCTORS, NEUTRALS, AND GROUNDS IN ALL PANELBOARDS, BOXES, AND OUTLETS.
34. THE CONTRACTOR SHALL INFORM THE ENGINEER OF ALL DISCREPANCIES BETWEEN DRAWINGS OF DIFFERENT TRADES, PRIOR TO INITIATION OF ANY WORK.
35. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ON-SITE SAFETY OF THE SITE WORKERS AND THE GENERAL PUBLIC DURING CONSTRUCTION.
36. THE CONTRACTOR WILL FURNISH AND INSTALL ALL ANCHOR BOLTS, NUTS, WASHERS, GROUT, CONCRETE PADS, AND REINFORCING STEEL REQUIRED FOR PROPER INSTALLATION OF ANY EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
37. ALL CONTRACTORS ARE REQUIRED TO EXAMINE THE DRAWINGS AND SPECIFICATIONS CAREFULLY, TO VISIT THE SITE AND FULLY INFORM THEMSELVES AS TO ALL EXISTING CONDITIONS AND LIMITATIONS, PRIOR TO SUBMITTING THE PROPOSAL. FAILURE TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND LIMITATIONS WILL IN NO WAY RELIEVE CONTRACTOR FROM FURNISHING ANY MATERIALS OR PERFORMING ANY WORK IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS. NO ADDITIONAL COST SHALL BE PASSED ON TO THE OWNER FOR FAILURE TO COMPLY WITH THIS REQUIREMENT.

ELECTRICAL NOTES:

1. ALL NEW CIRCUITRY SHALL BE ACCURATELY RECORDED BY THE CONTRACTOR TO BE INCORPORATED IN TO A RECORD SET OF AS-BUILT DRAWINGS COMPLETED UPON COMPLETION OF WORK.
2. IN EVERY PULL BOX, TERMINAL BOX, AND AT ALL PLACES WHERE WIRES MAY NOT BE READILY IDENTIFIED BY NAMEPLATE MARKINGS ON THE EQUIPMENT TO WHICH THEY CONNECT, IDENTIFY EACH WIRE WITH A LABEL OR TAG FOR CIRCUIT ID NUMBER, AS WELL AS POLARITY OR PHASE.
3. THE LAYOUT OF CONDUIT SHOWN IN THESE PLANS IS SCHEMATIC ONLY. CONTRACTOR SHALL ROUTE AND LOCATE THE CONDUITS TO SUIT SITE CONDITIONS, BUT SHALL NOT EXCEED THE MAXIMUM CONDUCTOR LENGTHS IDENTIFIED ON THE WIRE SCHEDULE. CONTRACTOR WILL COORDINATE ALL CHANGES IN WIRING AND CONDUIT WITH THE ENGINEER.
4. WHERE WIRE AND CABLE ROUTING IS NOT SHOWN, AND DESTINATION ONLY IS INDICATED, CONTRACTOR SHALL DETERMINE EXACT ROUTING AND LENGTHS REQUIRED. A SHOP DRAWING OF PROPOSED INSTALLATION SHALL BE SUPPLIED TO ENGINEER OF RECORD PRIOR TO INSTALLATION.
5. BENDS SHALL NOT DAMAGE THE CONDUIT, OR SIGNIFICANTLY CHANGE THE INTERNAL DIAMETER OF CONDUITS (NO KINKS).
6. SUPPORT CONDUCTORS IN VERTICAL CONDUITS IN ACCORDANCE WITH REQUIREMENTS IN NEC 300.19
7. INSTALL ALL WIRING MATERIALS IN A NEAT WORKMANLIKE MANNER. USE GOOD TRADE PRACTICES AS REQUIRED BY CHAPTER 3 OF THE NEC. ALL EXPOSED CABLES, SUCH AS MODULAR LEADS, TO BE SECURED WITH UNRATED MECHANICAL OR OTHER APPROVED MEANS WITH A 25 YEAR LIFE.
8. INSTALL CONDUIT TO MAINTAIN PROPER CLEARANCES AND IN A NEAT, UNUSPICIIOUS MANNER. RUN PARALLEL AND AT RIGHT ANGLES TO STRUCTURAL MEMBERS OR OTHER CONDUITS. PROVIDE BOXES, FITTINGS AND BENDS FOR CHANGES IN DIRECTION. FASTEN CONDUIT SECURELY IN PLACE. SUPPORT CONDUIT USING STEEL PIPE STRAPS, LAY-IN ADJUSTABLE HANGERS, CLEVIS HANGERS OR SPLIT-HANGERS. HANGER SPACING SHALL BE INSTALLED PER NEC REQUIREMENTS FOR THE TYPE OF CONDUIT BEING INSTALLED. USE APPROVED BEAM CLAMPS FOR CONNECTION TO STRUCTURAL MEMBERS.
9. PROVIDE PULL OR JUNCTION BOXES, WHERE REQUIRED TO FACILITATE THE INSTALLATION OF WIRING, IN ADDITION TO THOSE SHOWN ON THE DRAWINGS. TOTAL BENDS IN CONDUITS BETWEEN BOXES FOR WIRE ACCESS **SHALL NOT EXCEED THE EQUIVALENT OF FOUR 90° BENDS.**

1. ONLY ONE CONNECTION TO DC CIRCUITS (GROUNDED CONDUCTOR) AND ONE CONNECTION TO AC CIRCUITS WILL BE USED FOR SYSTEM GROUNDING (NEC 250-21) REFERENCED TO THE SAME POINT
2. EQUIPMENT GROUNDING CONDUCTORS AND SYSTEM GROUNDING CONDUCTORS WILL HAVE AS SHORT A DISTANCE TO GROUND AS POSSIBLE AND A MINIMUM NUMBER OF BENDS

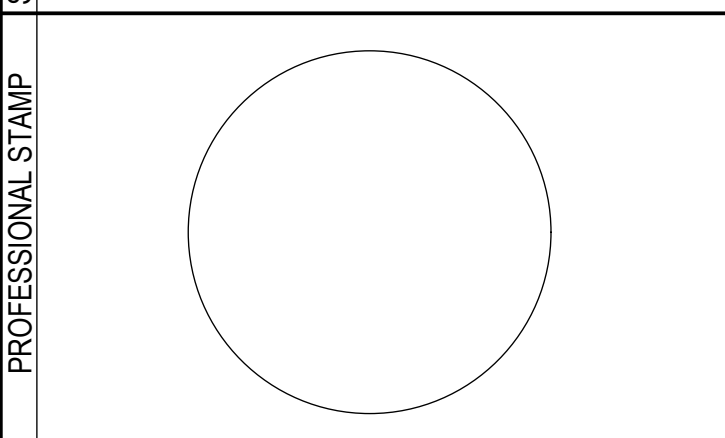
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| | Monday, January 13, 2025 | | |
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| CONTRACTOR | NAME | | |
| | STREET | | |
| | CITY/ST/ZIP | | |
| | NOTES | | |
| SITE | NAME | FORTUNA (WEST END ST. THOMAS) | |
| | STREET | FORTUNA ROAD | |
| | CITY/ST/ZIP | FORTUNA ESTATE, US VI, STT. | |
| | NOTES | | |
| DRAWING | FILE NAME | St.Tom - Fortuna.pln | |
| | SCALE | AS NOTED | |
| | DRAWN BY | CH | DATE DRAFTED: 1/13/2025 |
| | CHECKED BY | RE | SHEET SIZE: ARCH D |
| | DRAWING NO. | PV002 | |
| | DRAWING TITLE | PV SYSTEM NOTES | |
| | SHEET 2 OF 70 | | |



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FORTUNA (WEST END ST. THOMAS)

PERMIT SET
Monday, January 13, 2025

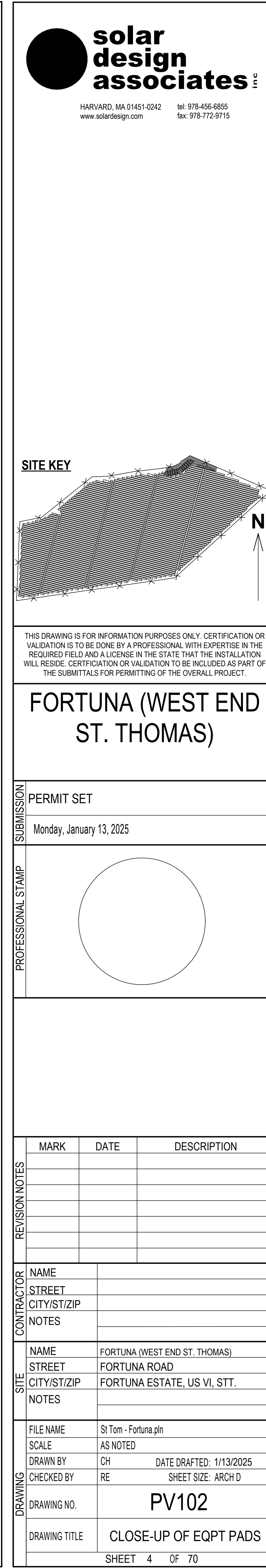


20° FIXED TILT PV ARRAY AZIMUTH: 15° WEST OF TRUE SOUTH						
SYSTEM PHASE	MODULES	DC POWER	TOTAL PV AC POWER	TOTAL BESS ENERGY	TOTAL BESS AC POWER	MAX EXPORT AC POWER*
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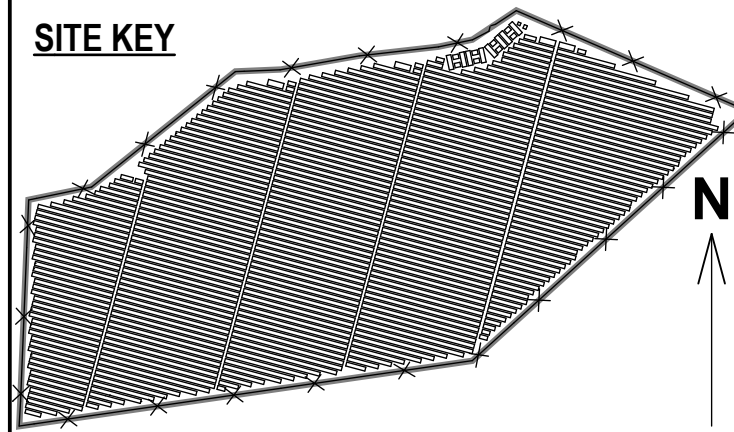
* SYSTEMS ARE CONTROLLED TO LIMIT EXPORT POWER TO THE VALUES ABOVE



REVISION NOTES	MARK	DATE	DESCRIPTION
CONTRACTOR	NAME		
	STREET		
	CITY/ST/ZIP		
	NOTES		
SITE	NAME	FORTUNA (WEST END ST. THOMAS)	
	STREET	FORTUNA ROAD	
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.	
	NOTES		
DRAWING	FILE NAME	St Tom - Fortuna.pln	
	SCALE	AS NOTED	
	DRAWN BY	CH	DATE DRAFTED: 1/13/2025
	CHECKED BY	RE	SHEET SIZE: ARCH D
DRAWING NO.		PV101	
DRAWING TITLE		SITE PLAN - FULL SITE	
SHEET 3 OF 70			



SITE KEY

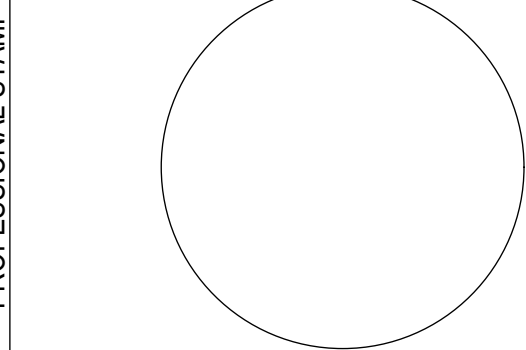


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

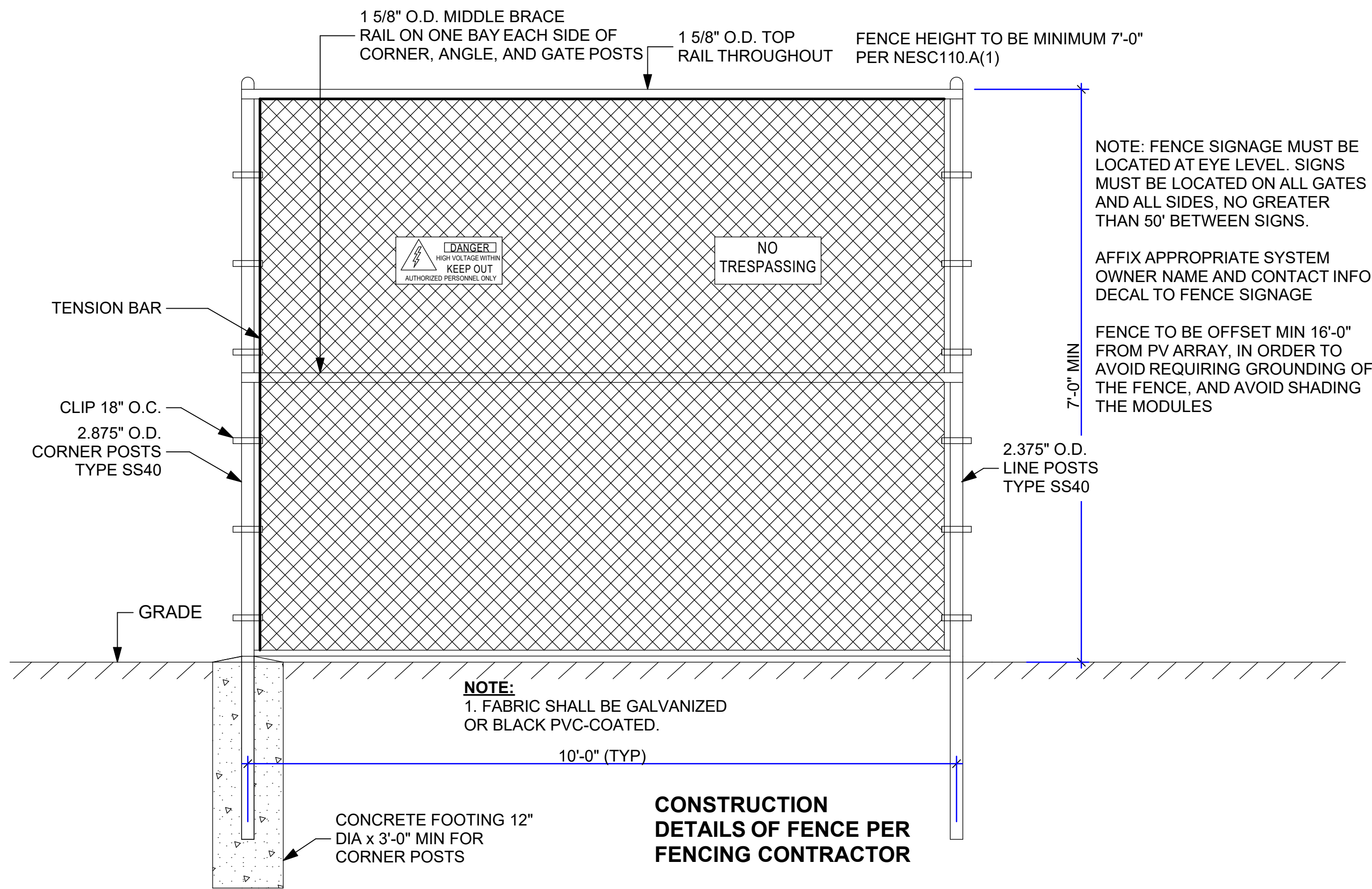
NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED

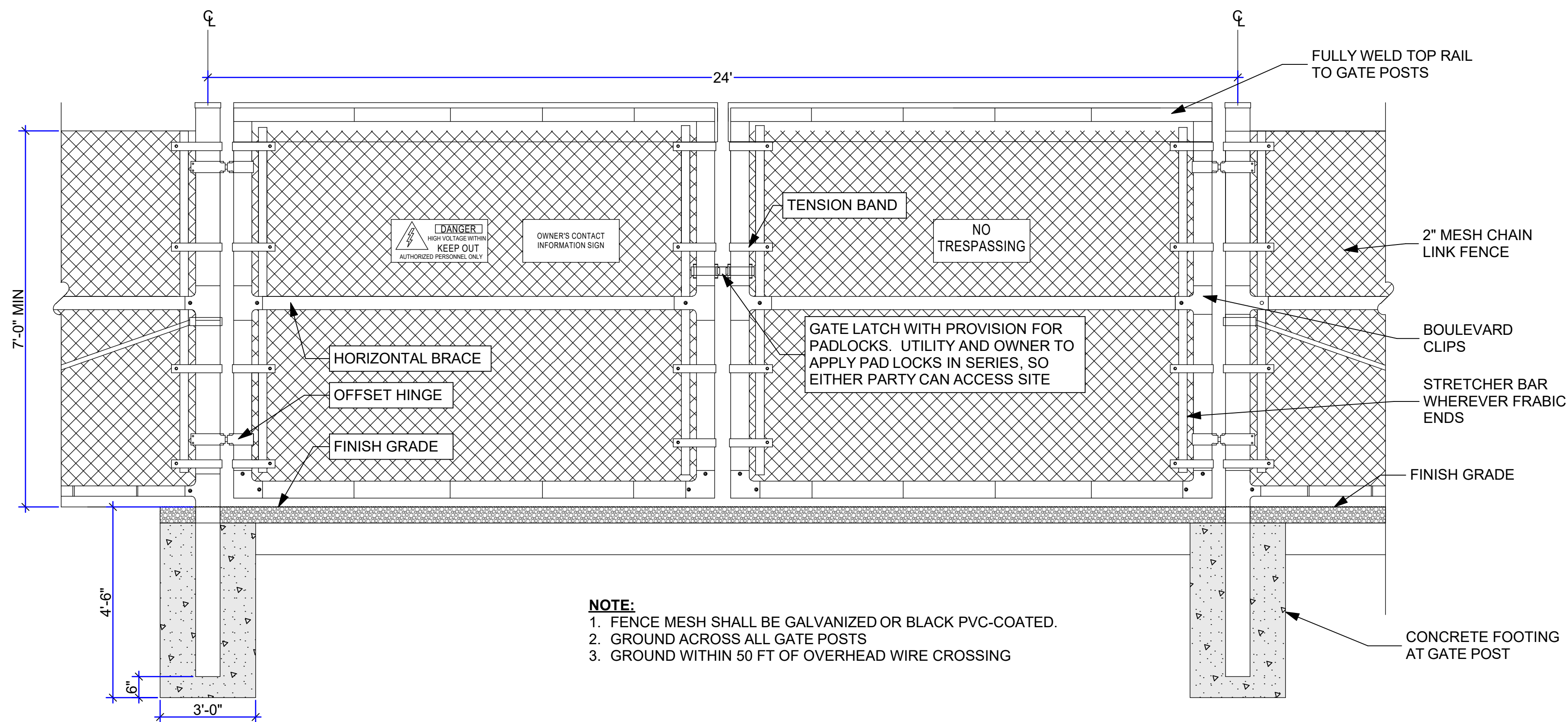
DRAWN BY	CH	DATE DRAFTED:	1/13/2025
CHECKED BY	RE	SHEET SIZE:	ARCH D

DRAWING NO.	PV103
-------------	-------

DRAWING TITLE	FENCE DETAIL
---------------	--------------



1 FENCE DETAILS



2 FENCE DETAILS



SIZE: 14"x10
MATERIAL: ALUMINUM

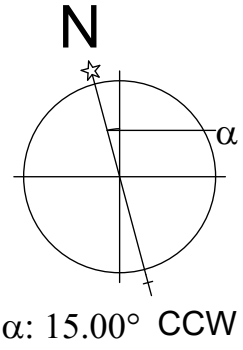
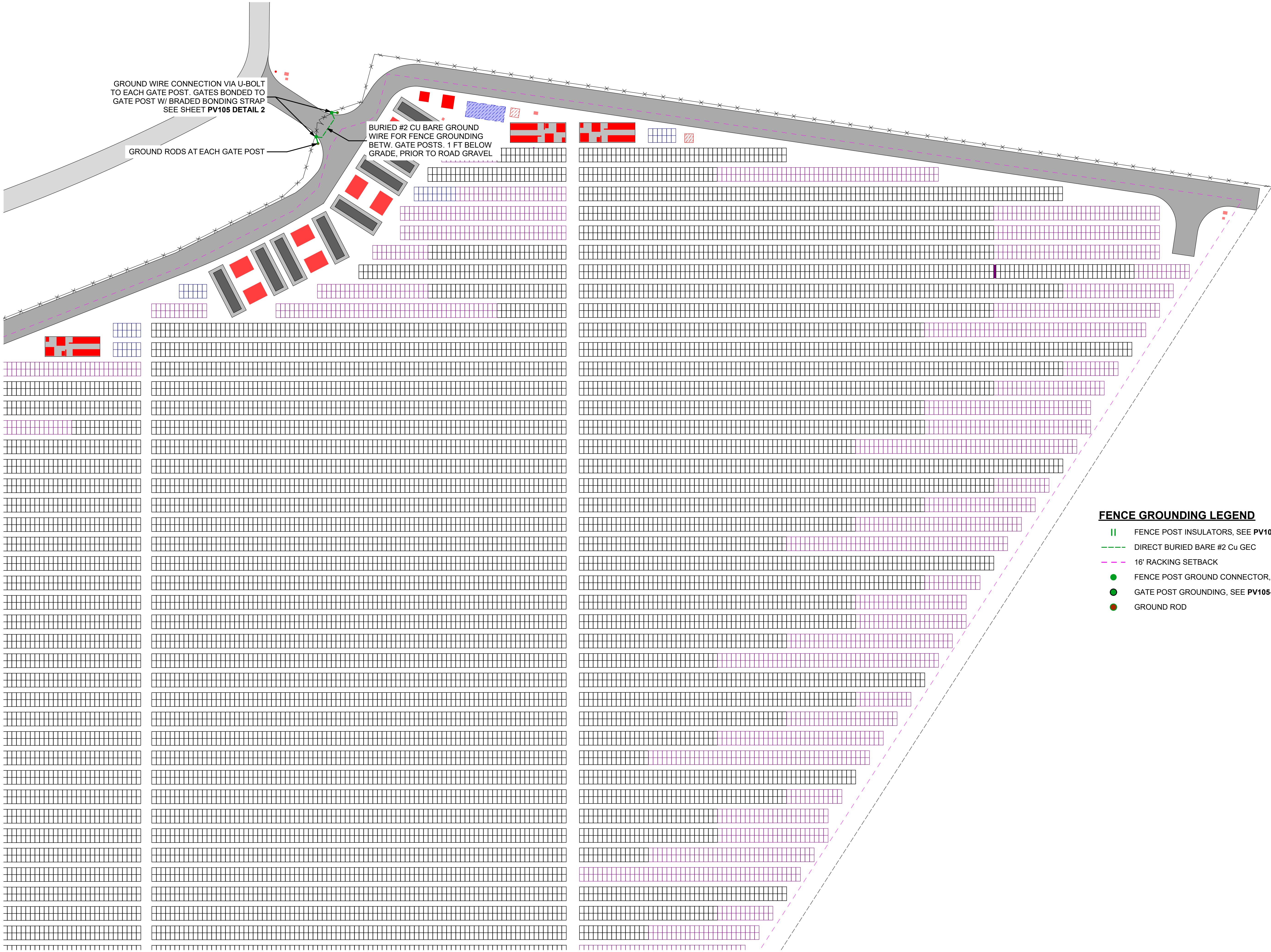


SIZE: 14"x10
MATERIAL: ALUMINUM

LOCATE BOTH SIGNS ON GATES
LOCATE ONE SIGN EVERY 50 FT,
ALTERNATING BETWEEN THE TWO SIGNS

TYP OF EACH SIGN: MIDDLE OF FENCE
SECTION, ~ 5 FT ABOVE FINISHED GRADE

SECURE TO FENCE WITH 1/16" DIAMETER
STAINLESS WIRE OR HEYCO SUNBUNDLERS



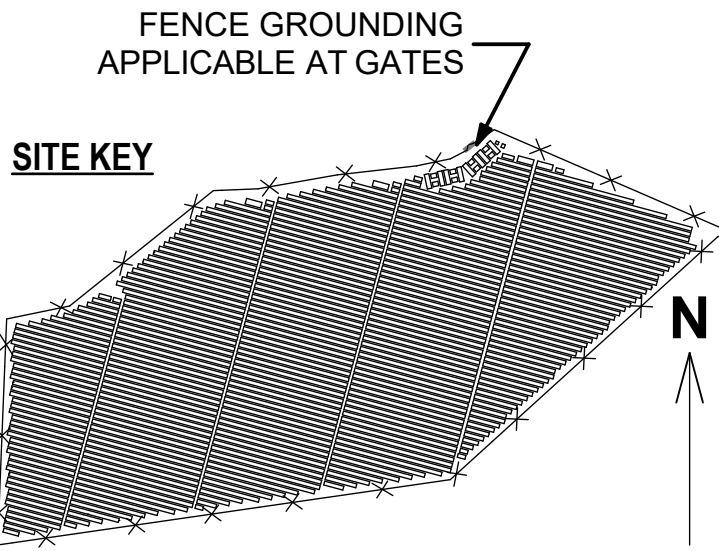
GROUND WIRE CONNECTION VIA U-BOLT
TO EACH GATE POST. GATES BONDED TO
GATE POST W/ BRADED BONDING STRAP
SEE SHEET **PV105 DETAIL 2**

GROUND RODS AT EACH GATE POST

BURIED #2 CU BARE GROUND
WIRE FOR FENCE GROUNDING
BETW. GATE POSTS. 1 FT BELOW
GRADE, PRIOR TO ROAD GRAVEL

FENCE GROUNDING LEGEND

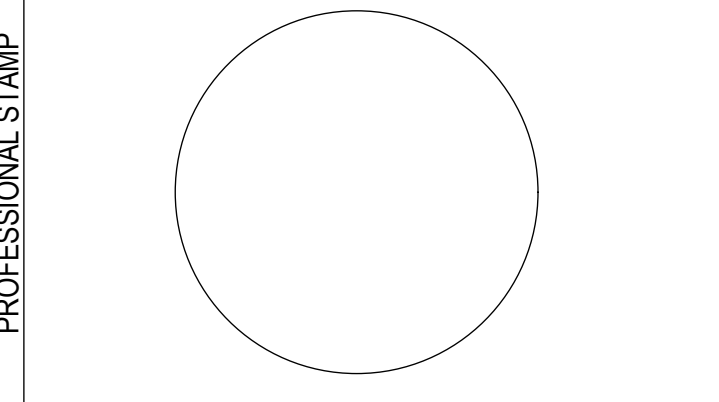
- || FENCE POST INSULATORS, SEE **PV105-3**
- DIRECT BURIED BARE #2 Cu GEC
- - - 16' RACKING SETBACK
- FENCE POST GROUND CONNECTOR, SEE **PV105-1**
- GATE POST GROUNDING, SEE **PV105-2**
- GROUND ROD



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VALIDATION IS TO BE DONE BY A PROFESSIONAL WITH EXPERTISE IN THE
REQUIRED FIELD AND A LICENSE IN THE STATE THAT THE INSTALLATION
WILL RESIDE. CERTIFICATION OR VALIDATION TO BE INCLUDED AS PART OF
THE SUBMITTALS FOR PERMITTING OF THE OVERALL PROJECT.

**FORTUNA (WEST END
ST. THOMAS)**

SUBMISSION	PERMIT SET	
	Monday, January 13, 2025	



REVISION NOTES	MARK	DATE	DESCRIPTION

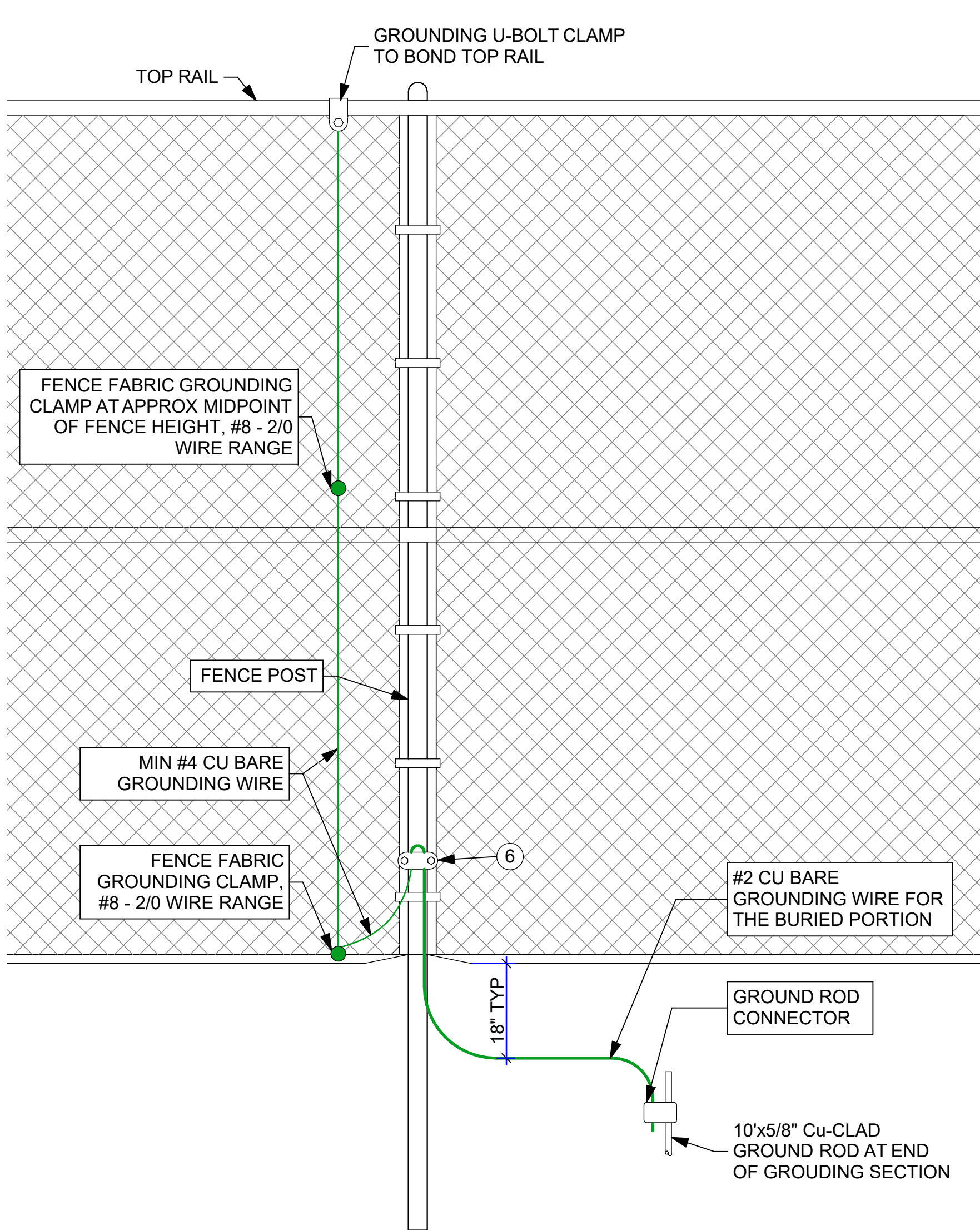
CONTRACTOR	NAME	
	STREET	
	CITY/ST/ZIP	
	NOTES	

SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	

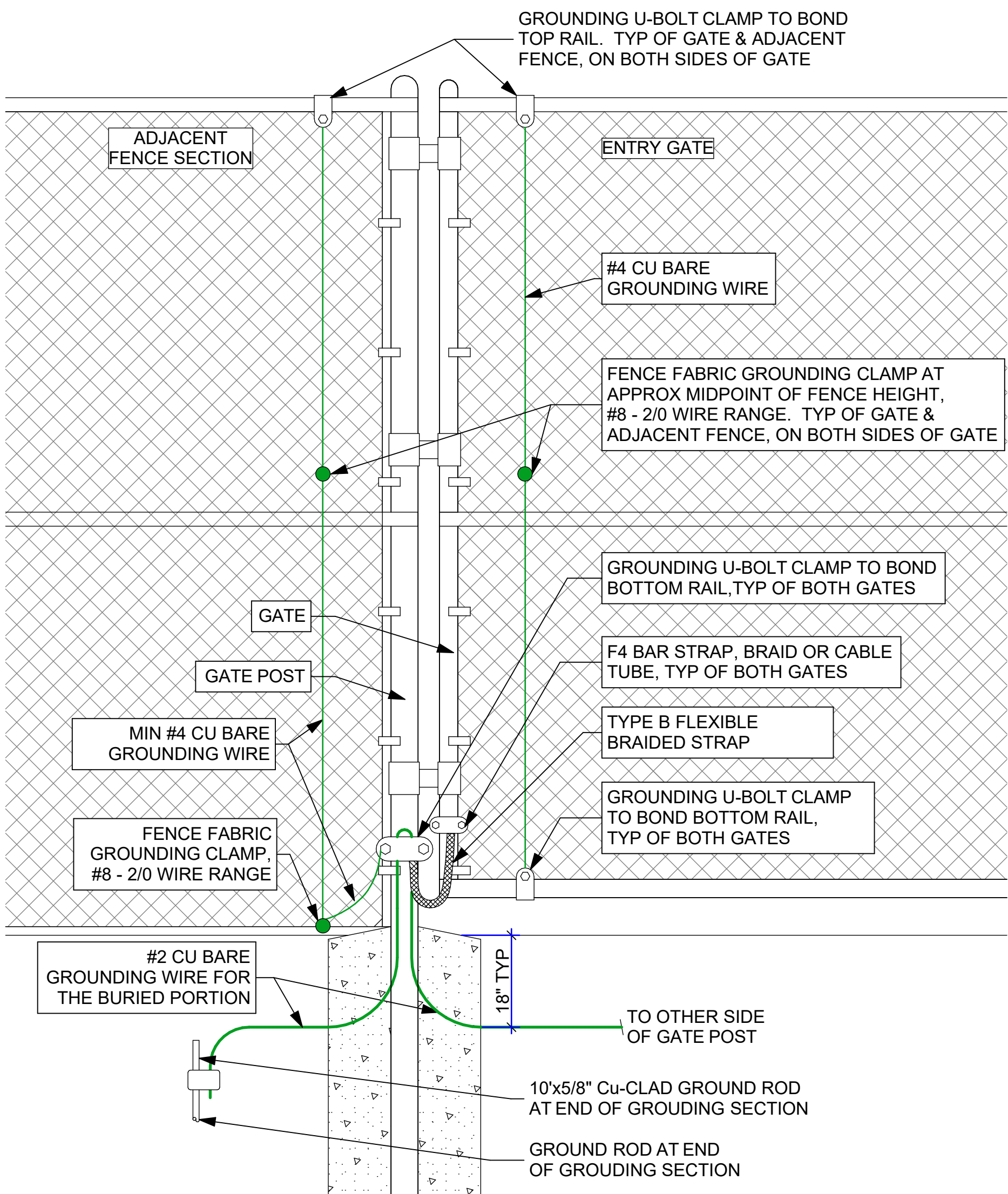
DRAWING	FILE NAME	St Tom - Fortuna.pln
	SCALE	AS NOTED
	DRAWN BY	CH
	CHECKED BY	RE

DRAWING NO.	PV104
DRAWING TITLE	FENCE GROUNDING LAYOUT
SHEET 6 OF 70	

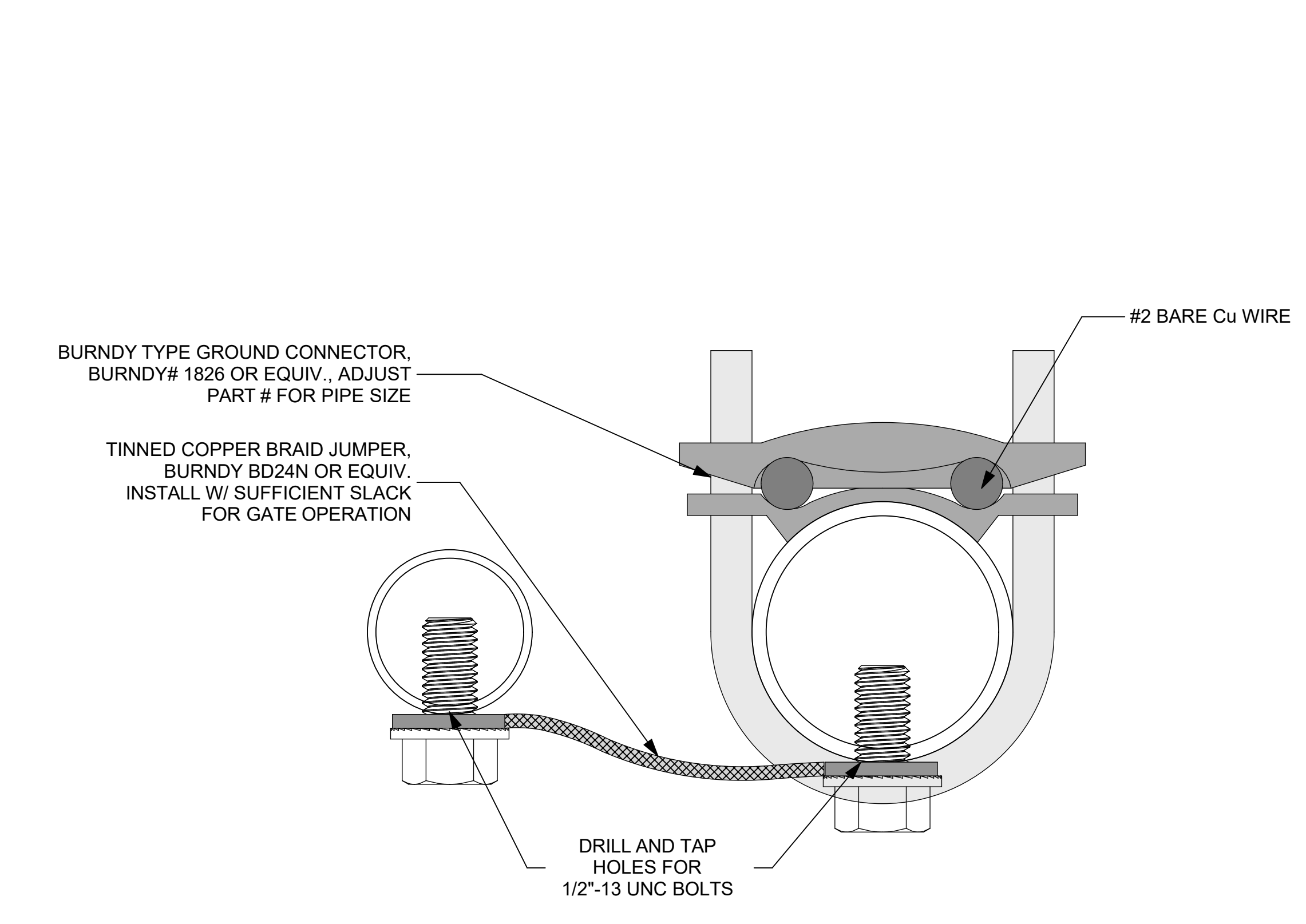




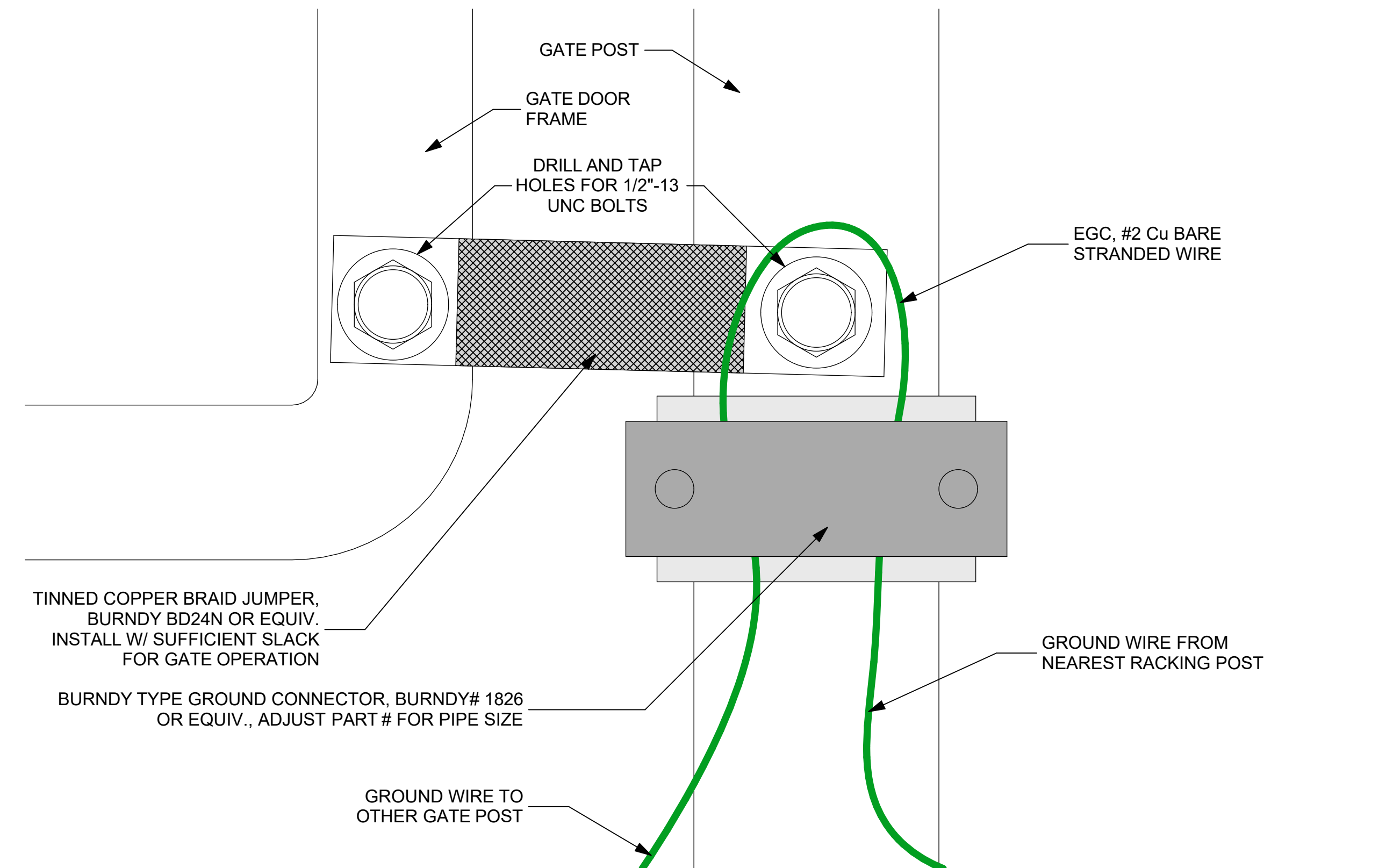
1 TYP. FENCE GROUNDING DETAIL 0 6" 1' 2'



2 GATE GROUNDING DETAILS 0 6" 1' 2'



5 GATE POST BONDING DETAILS (VIEW 1) 0 1/2" 1" 2"



6 GATE POST BONDING DETAILS (VIEW 2) 0 1/2" 1" 2"

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FENCE GROUNDING APPLICABLE AT GATES

SITE KEY

N

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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025

PROFESSIONAL STAMP

REVISION NOTES

MARK	DATE	DESCRIPTION

CONTRACTOR

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

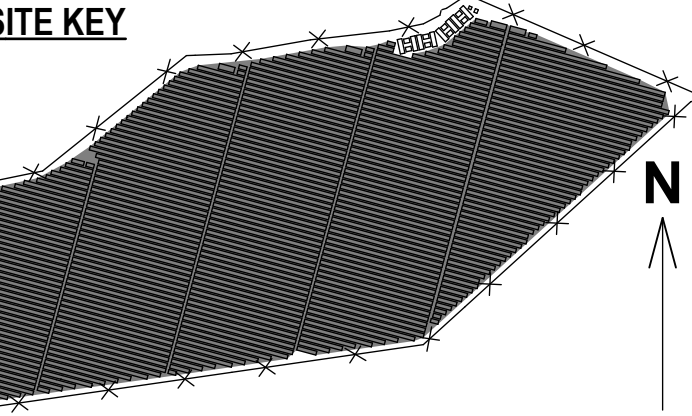
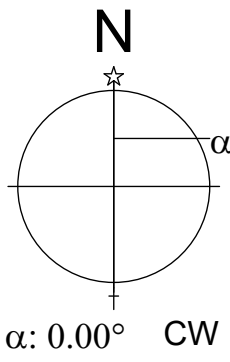
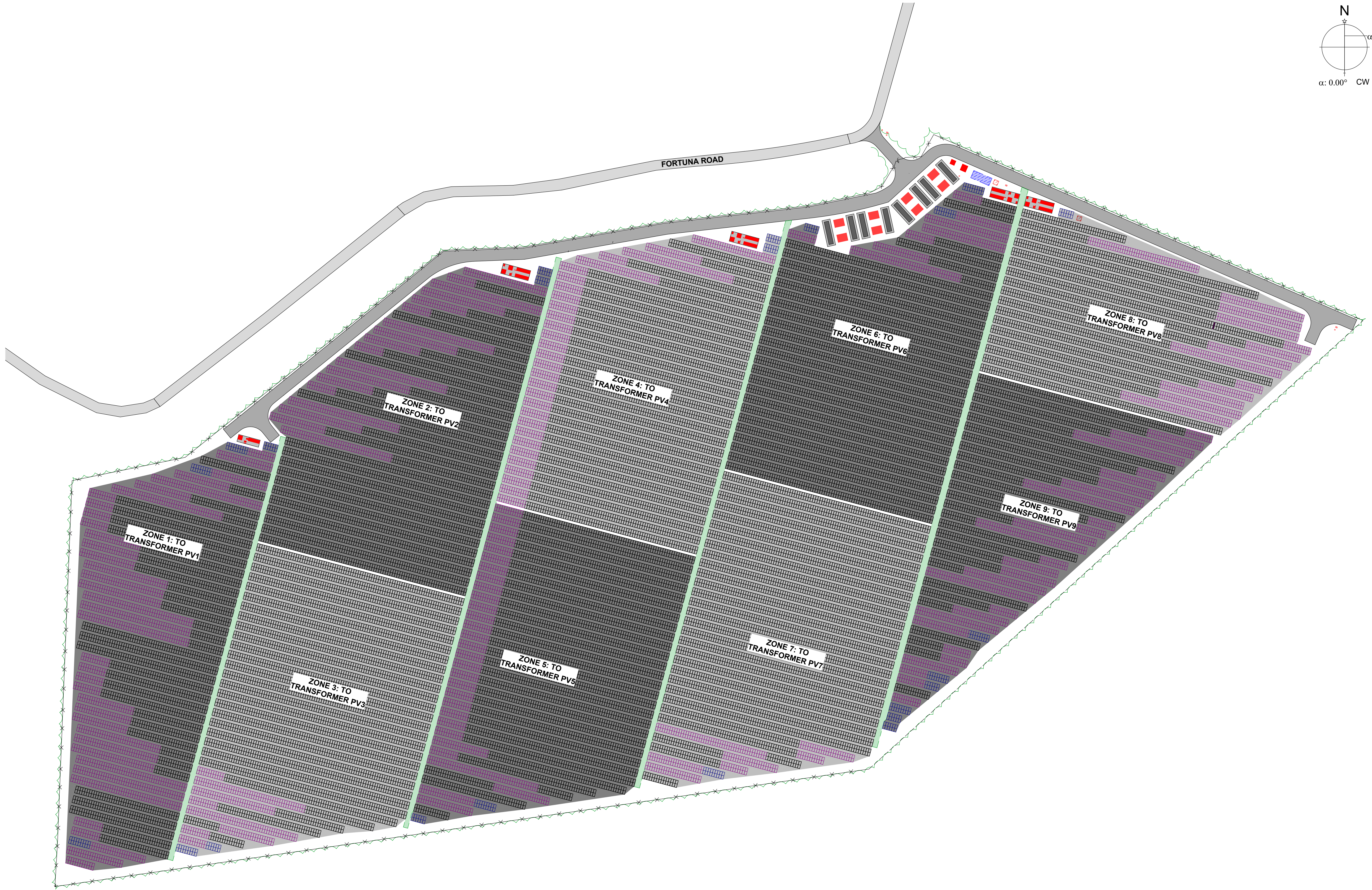
SITE

NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

DRAWING

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED
DRAWN BY	CH
CHECKED BY	RE
DATE DRAFTED	1/13/2025
SHEET SIZE	ARCH D
DRAWING NO.	PV105
DRAWING TITLE	FENCE GROUNDING DETAIL

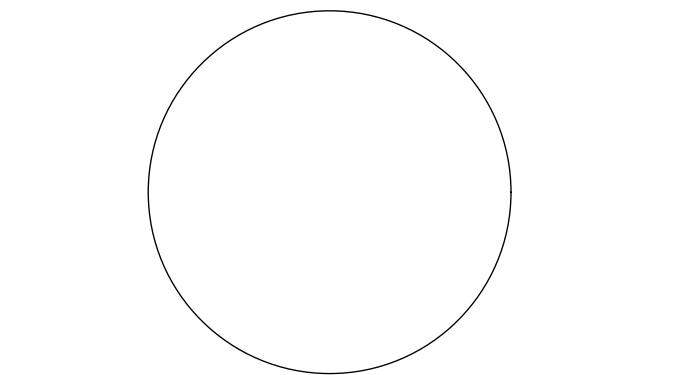
SHEET 7 OF 70



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FORTUNA (WEST END ST. THOMAS)

PERMIT SET
Monday, January 13, 2025



MARK	DATE	DESCRIPTION

CONTRACTOR	NAME	
	STREET	
	CITY/ST/ZIP	
	NOTES	

SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED

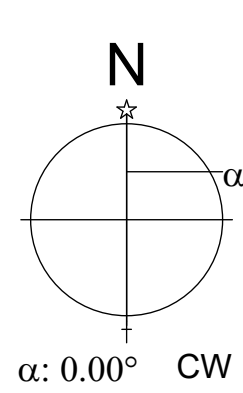
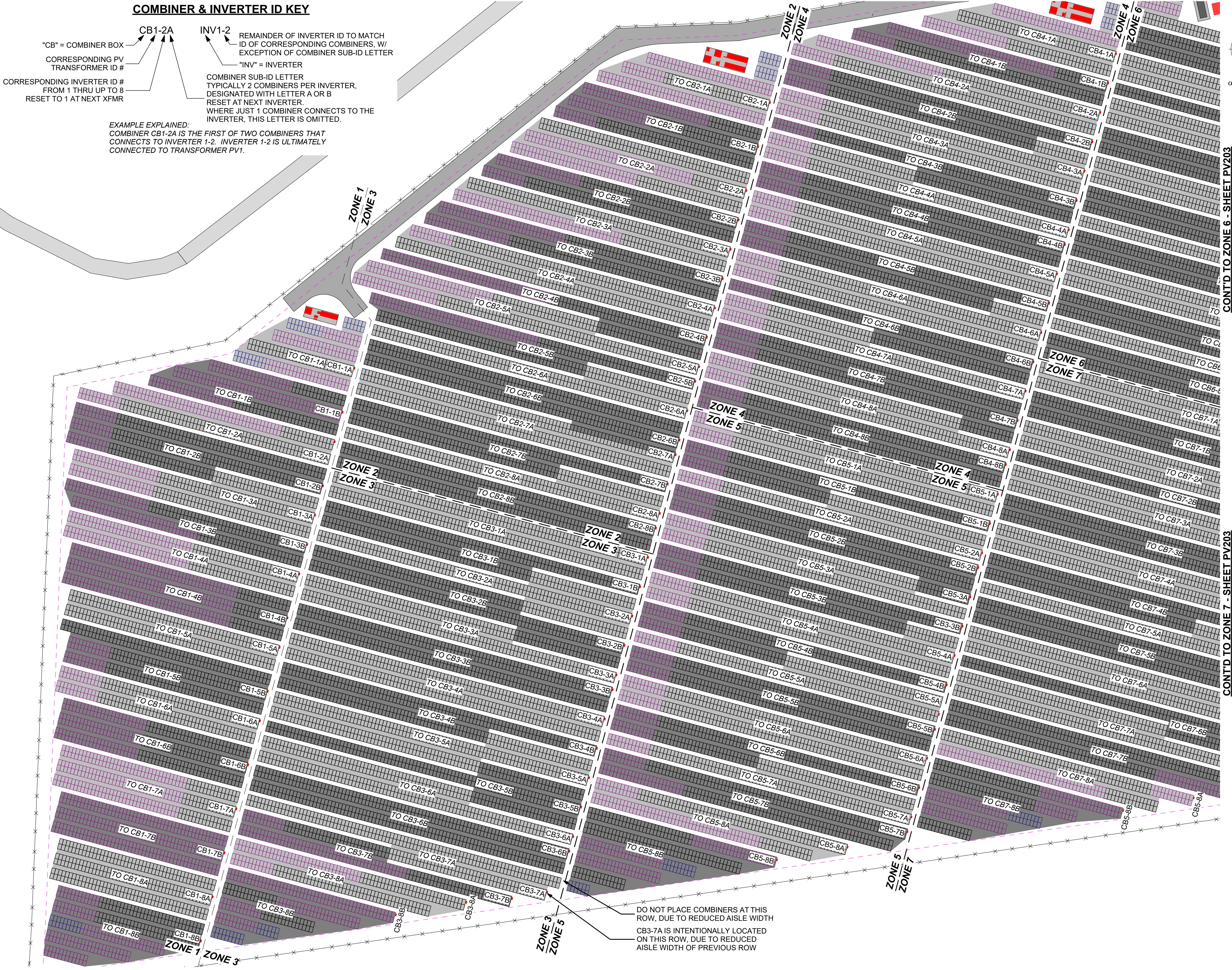
DRAWN BY	CH	DATE DRAFTED: 1/13/2025
CHECKED BY	RE	SHEET SIZE: ARCH D
DRAWING NO.	PV201	
DRAWING TITLE	TRANSFORMER ZONE LAYOUT	
SHEET 8 OF 70		

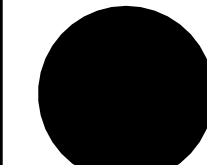
COMBINER & INVERTER ID KEY

"CB" = COMBINER BOX
CORRESPONDING PV TRANSFORMER ID #
CORRESPONDING INVERTER ID # FROM 1 THRU UP TO 8 RESET TO 1 AT NEXT XFMR

INV1-2
REMAINDER OF INVERTER ID TO MATCH ID OF CORRESPONDING COMBINERS, W/ EXCEPTION OF COMBINER SUB-ID LETTER
"INV" = INVERTER
COMBINER SUB-ID LETTER TYPICALLY 2 COMBINERS PER INVERTER, DESIGNATED WITH LETTER A OR B RESET AT NEXT INVERTER. WHERE JUST 1 COMBINER CONNECTS TO THE INVERTER, THIS LETTER IS OMITTED.

EXAMPLE EXPLAINED:
COMBINER CB1-2A IS THE FIRST OF TWO COMBINERS THAT CONNECTS TO INVERTER 1-2. INVERTER 1-2 IS ULTIMATELY CONNECTED TO TRANSFORMER PV1.

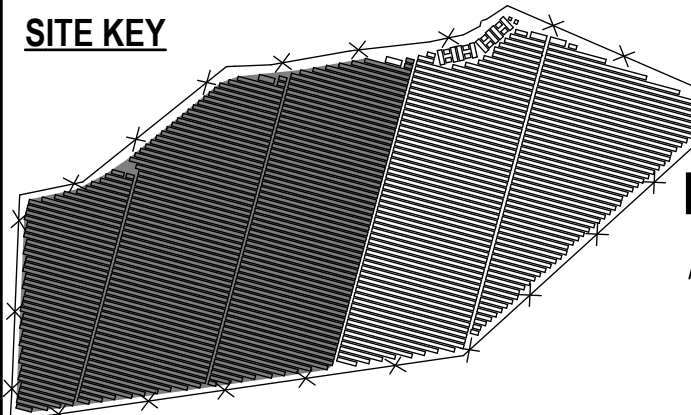




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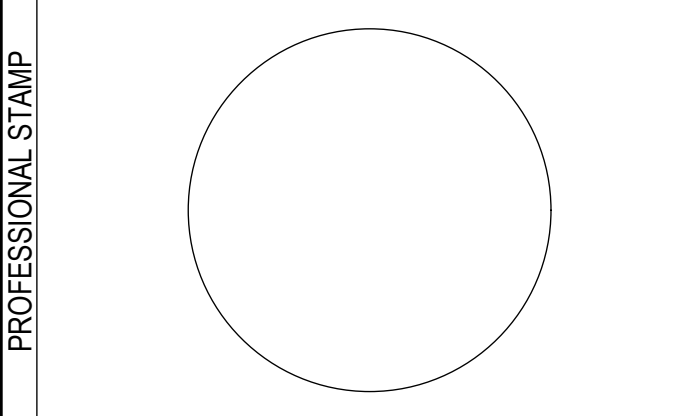
tel: 978-456-6555
fax: 978-772-9715



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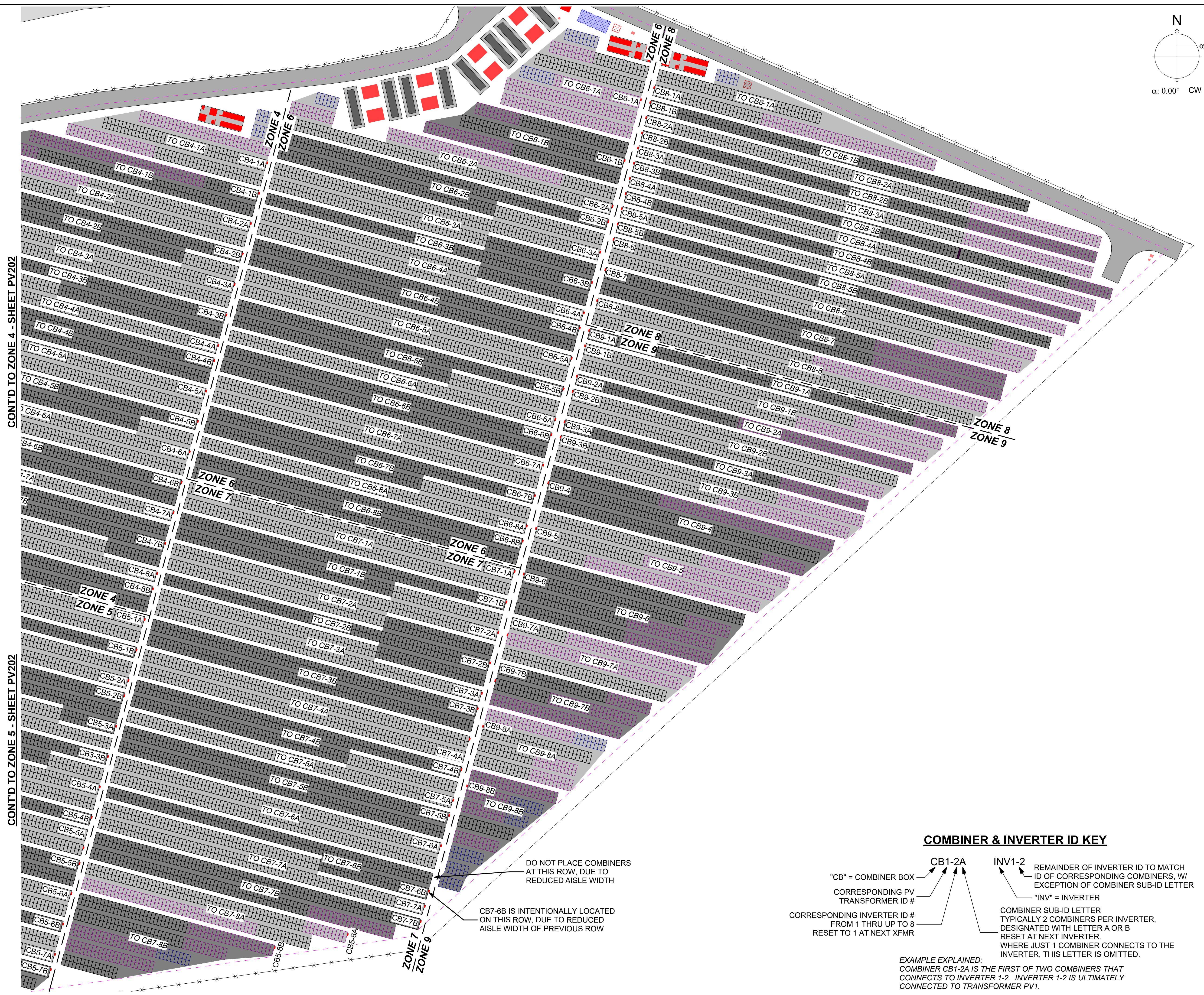
FORTUNA (WEST END ST. THOMAS)

PERMIT SET
Monday, January 13, 2025



MARK	DATE	DESCRIPTION

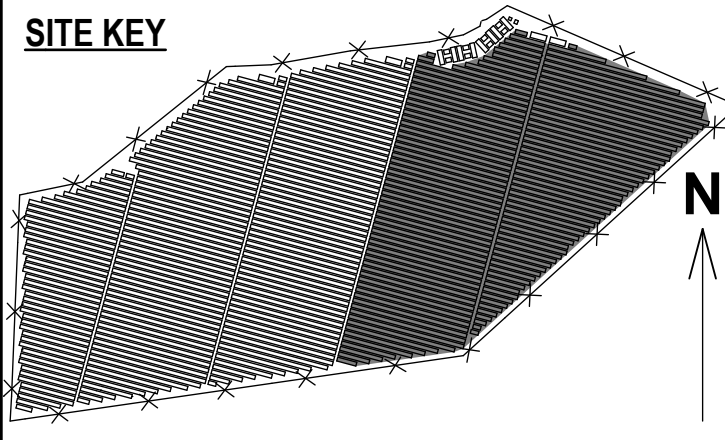
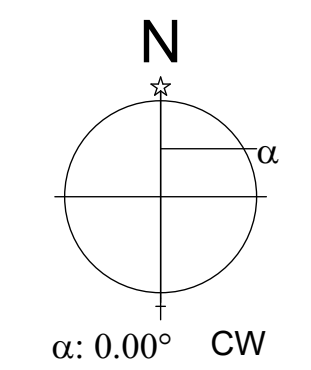
CONTRACTOR	NAME	
	STREET	
	CITY/ST/ZIP	
SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
DRAWING	FILE NAME	St Tom - Fortuna.pln
	SCALE	AS NOTED
	DRAWN BY	CH
DRAWING	CHECKED BY	RE
	DRAWING NO.	PV202
	DRAWING TITLE	INV. & COMBINER SOURCE: ZONES 1-5
SHEET 9 OF 70		



CONT'D TO ZONE 4 - SHEET PV202

CONT'D TO ZONE 5 - SHEET PV202

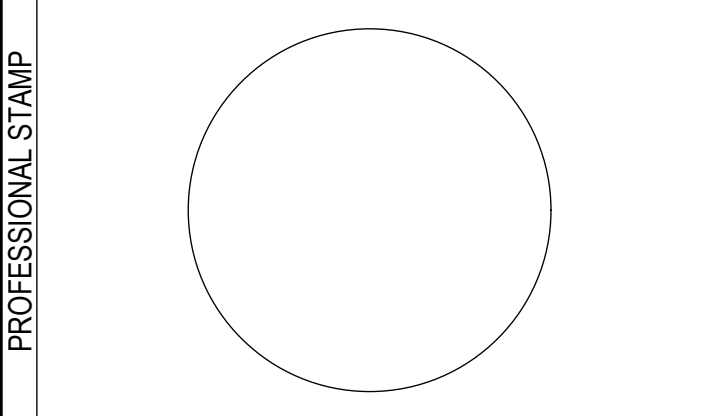
1 ZONES 1 THRU 5 - INVERTER SOURCE & COMBINER LAYOUT



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FORTUNA (WEST END ST. THOMAS)

PERMIT SET
Monday, January 13, 2025



MARK	DATE	DESCRIPTION

CONTRACTOR	NAME	
	STREET	
	CITY/ST/ZIP	
SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
DRAWING	FILE NAME	St Tom - Fortuna.pln
	SCALE	AS NOTED
	DRAWN BY	CH DATE DRAFTED: 1/13/2025
	CHECKED BY	RE SHEET SIZE: ARCH D
	DRAWING NO.	PV203
	DRAWING TITLE	INV. & COMBINER SOURCE: ZONES 6-9
		SHEET 10 OF 70

BRANCH CIRCUIT ID KEY

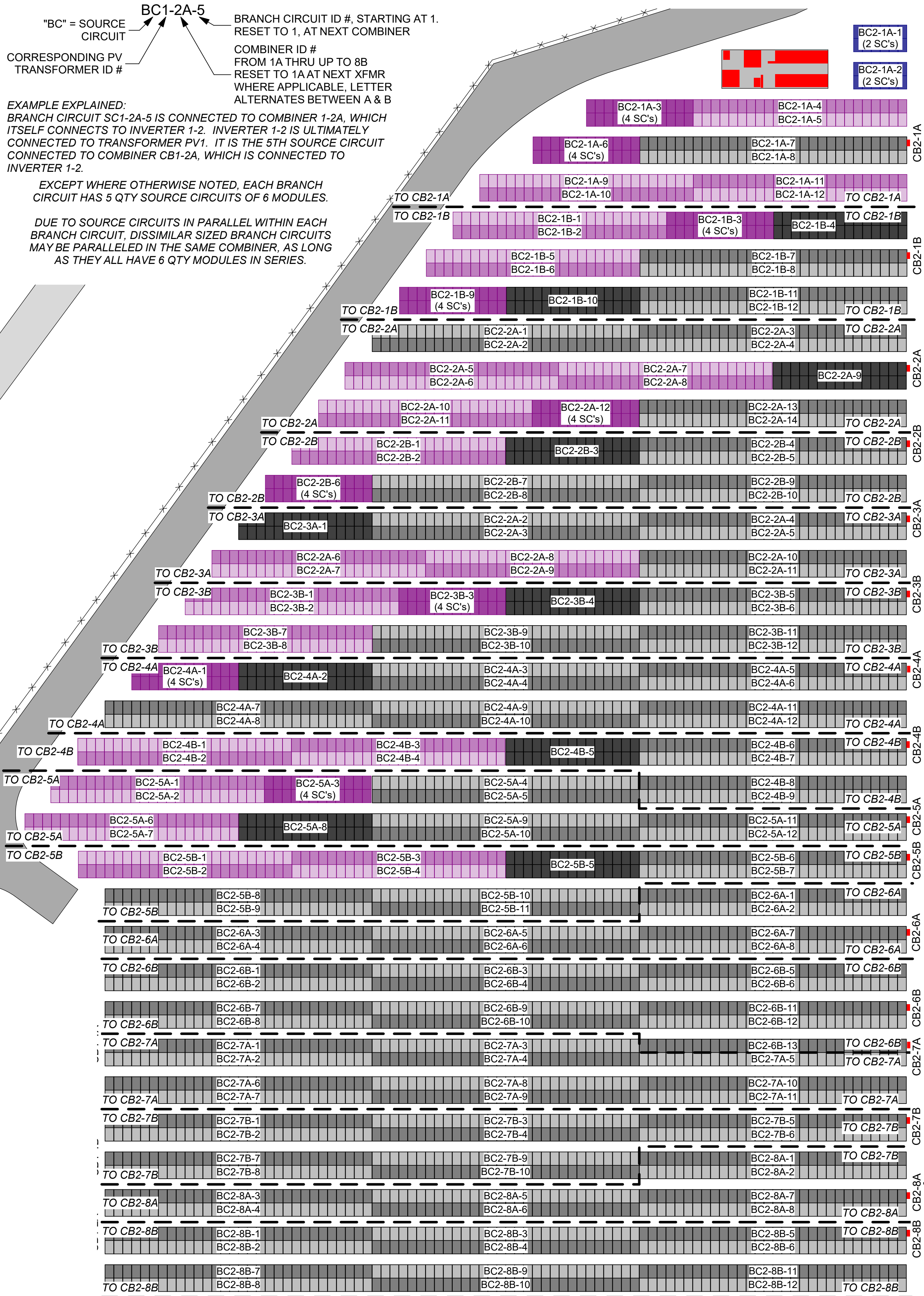
"BC" = SOURCE CIRCUIT
CORRESPONDING PV TRANSFORMER ID #

BC1-2A-5
BRANCH CIRCUIT ID #, STARTING AT 1. RESET TO 1, AT NEXT COMBINER
COMBINER ID # FROM 1A THRU UP TO 8B
RESET TO 1A AT NEXT XFMR WHERE APPLICABLE, LETTER ALTERNATES BETWEEN A & B

EXAMPLE EXPLAINED:
BRANCH CIRCUIT SC1-2A-5 IS CONNECTED TO COMBINER 1-2A, WHICH ITSELF CONNECTS TO INVERTER 1-2. INVERTER 1-2 IS ULTIMATELY CONNECTED TO TRANSFORMER PV1. IT IS THE 5TH SOURCE CIRCUIT CONNECTED TO COMBINER CB1-2A, WHICH IS CONNECTED TO INVERTER 1-2.

EXCEPT WHERE OTHERWISE NOTED, EACH BRANCH CIRCUIT HAS 5 QTY SOURCE CIRCUITS OF 6 MODULES.

DUE TO SOURCE CIRCUITS IN PARALLEL WITHIN EACH BRANCH CIRCUIT, DISSIMILAR SIZED BRANCH CIRCUITS MAY BE PARALLELED IN THE SAME COMBINER, AS LONG AS THEY ALL HAVE 6 QTY MODULES IN SERIES.



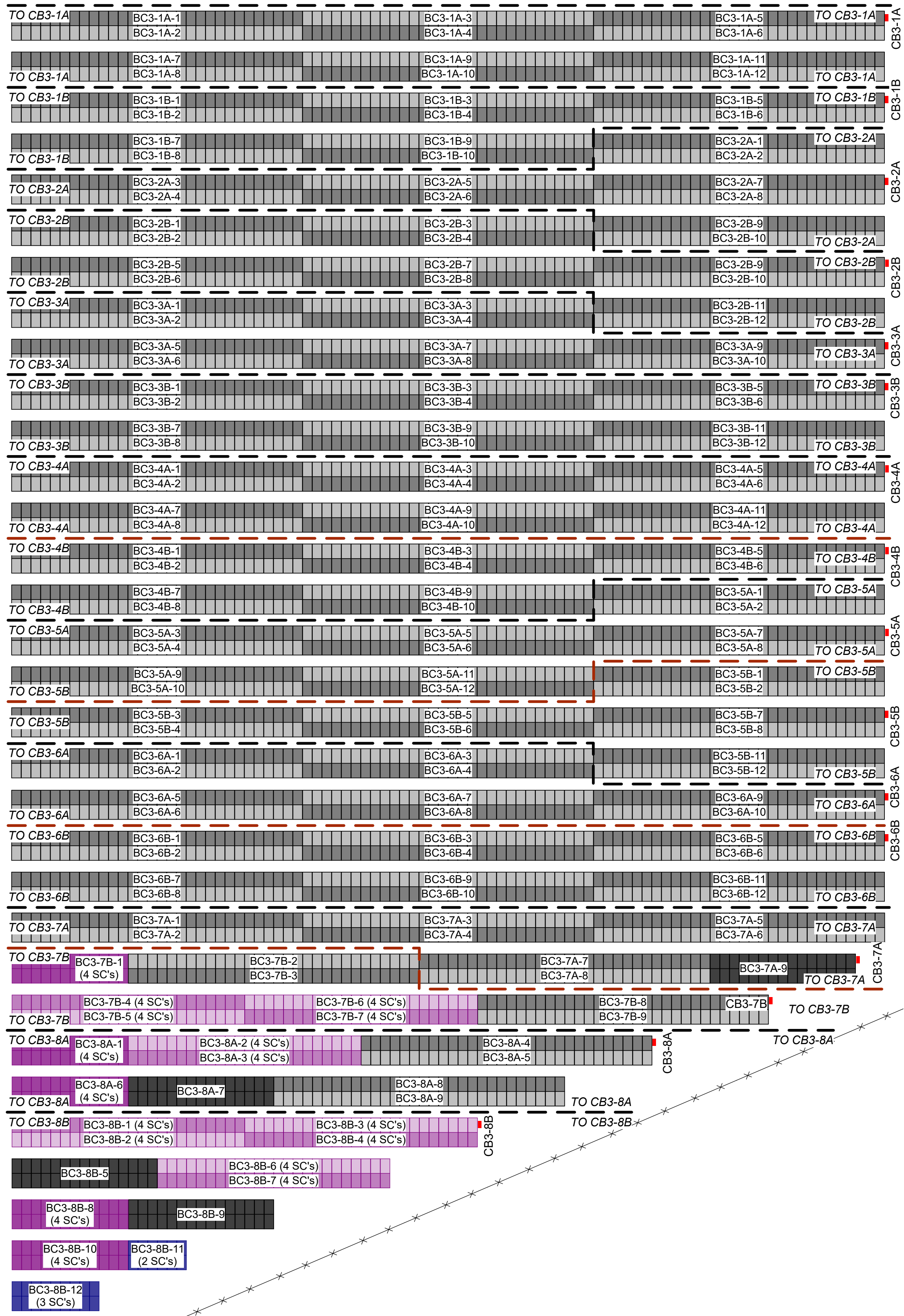
CONT'D IN DETAIL 2

1

ZONE 2: BRANCH CIRCUIT LAYOUT, CB2-1A THRU 2-8B

0 30' 60'

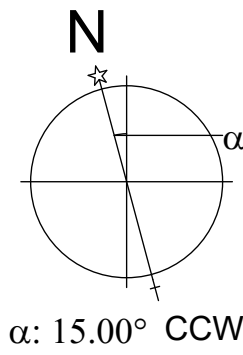
CONT'D IN DETAIL 1



2

ZONE 3: BRANCH CIRCUIT LAYOUT, CB3-1A THRU 3-8B

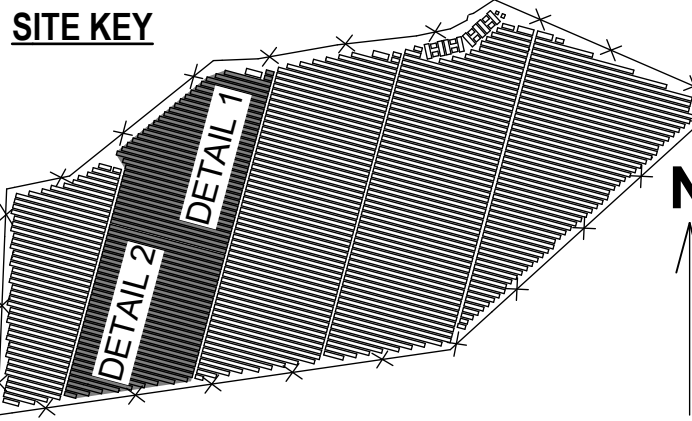
0 30' 60'



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www.solar-design.com fax: 978-772-9715

SITE KEY

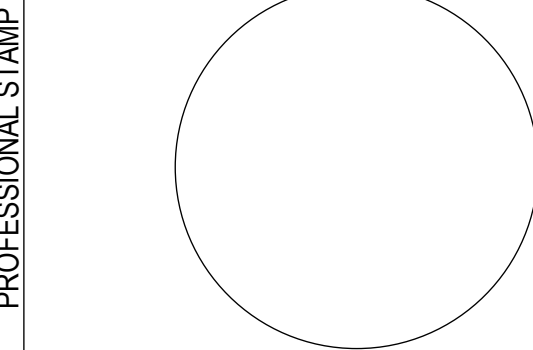


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

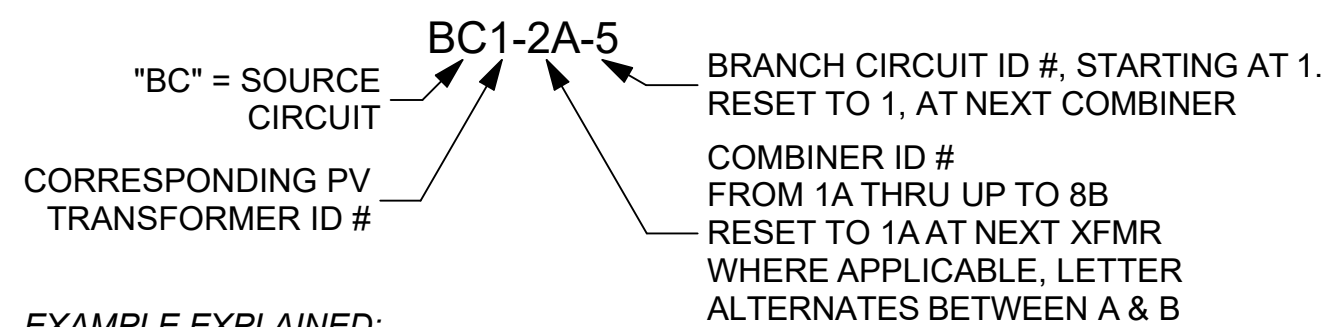
CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

SITE	NAME
	STREET
	CITY/ST/ZIP
	NOTES

DRAWING	FILE NAME
	SCALE
	DRAWN BY
	CHECKED BY
	DATE DRAFTED: 1/13/2025
	SHEET SIZE: ARCH D

DRAWING NO.	PV205
DRAWING TITLE	BRANCH CIRCUIT LAYOUT: ZONES 2 & 3
	SHEET 12 OF 70

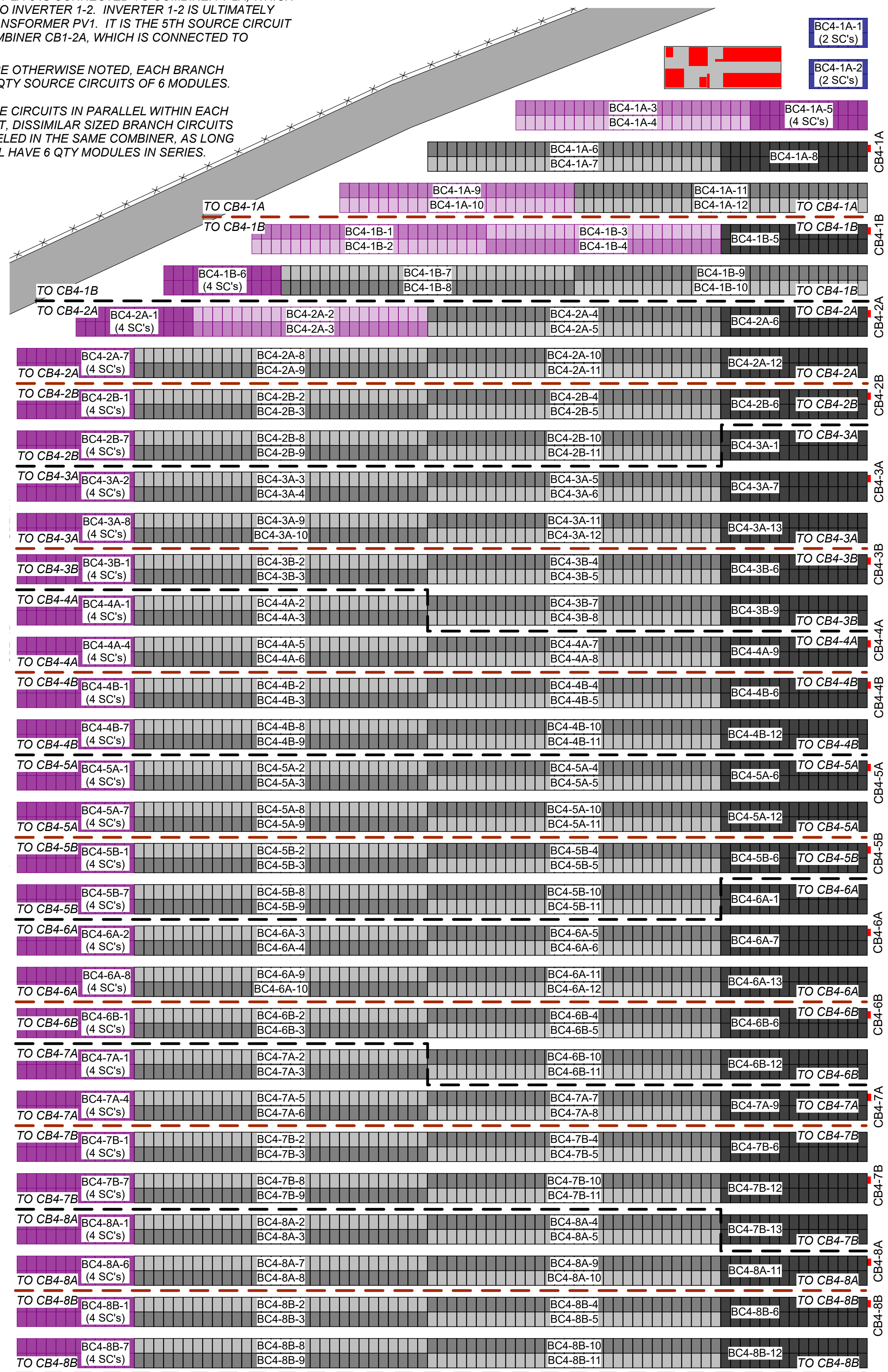
BRANCH CIRCUIT ID KEY



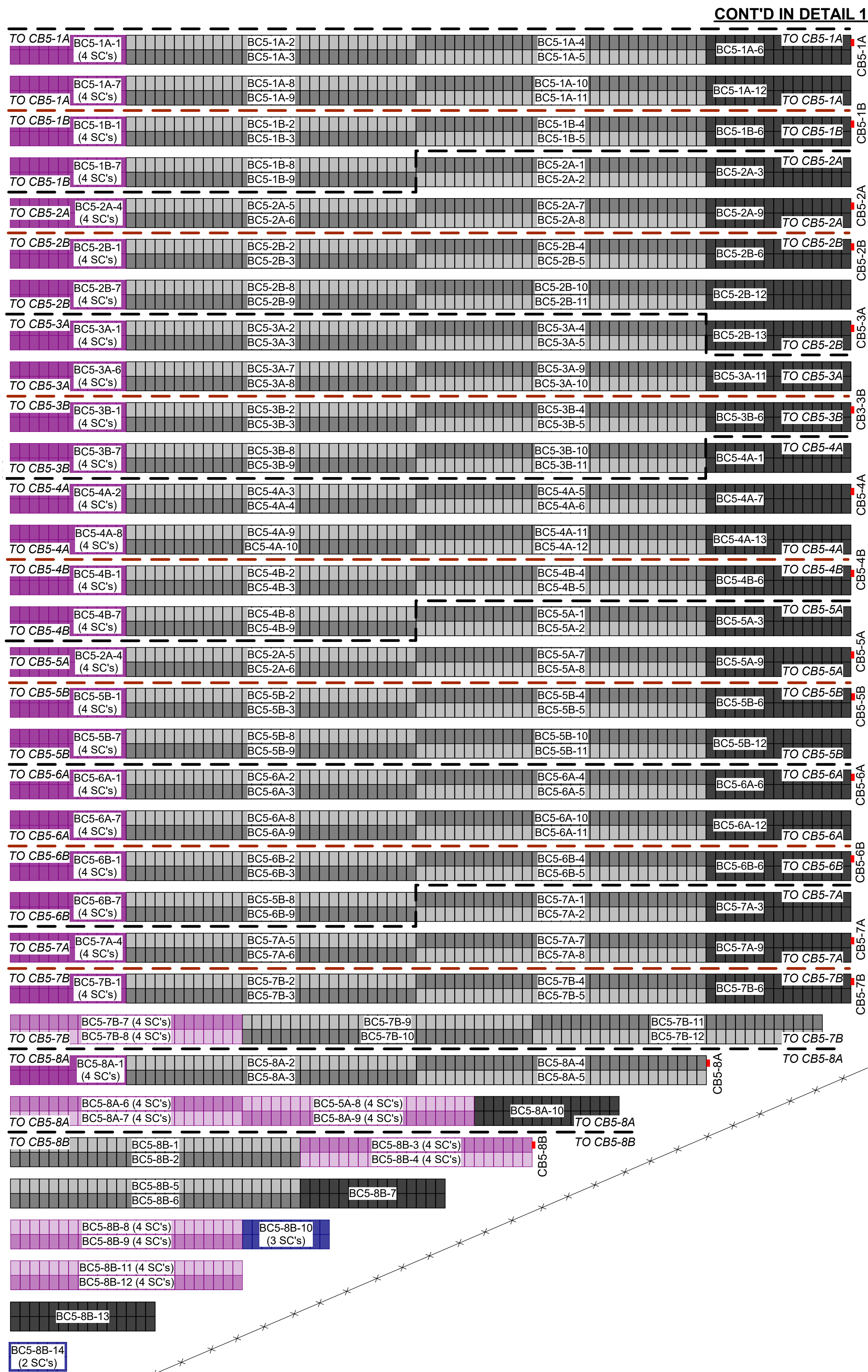
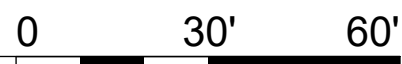
EXAMPLE EXPLAINED:
BRANCH CIRCUIT SC1-2A-5 IS CONNECTED TO COMBINER 1-2A, WHICH ITSELF CONNECTS TO INVERTER 1-2. INVERTER 1-2 IS ULTIMATELY CONNECTED TO TRANSFORMER PV1. IT IS THE 5TH SOURCE CIRCUIT CONNECTED TO COMBINER CB1-2A, WHICH IS CONNECTED TO INVERTER 1-2.

EXCEPT WHERE OTHERWISE NOTED, EACH BRANCH CIRCUIT HAS 5 QTY SOURCE CIRCUITS OF 6 MODULES.

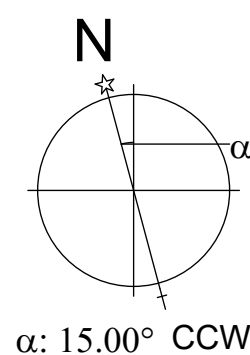
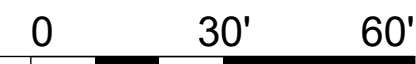
DUE TO SOURCE CIRCUITS IN PARALLEL WITHIN EACH BRANCH CIRCUIT, DISSIMILAR SIZED BRANCH CIRCUITS MAY BE PARALLELED IN THE SAME COMBINER, AS LONG AS THEY ALL HAVE 6 QTY MODULES IN SERIES.



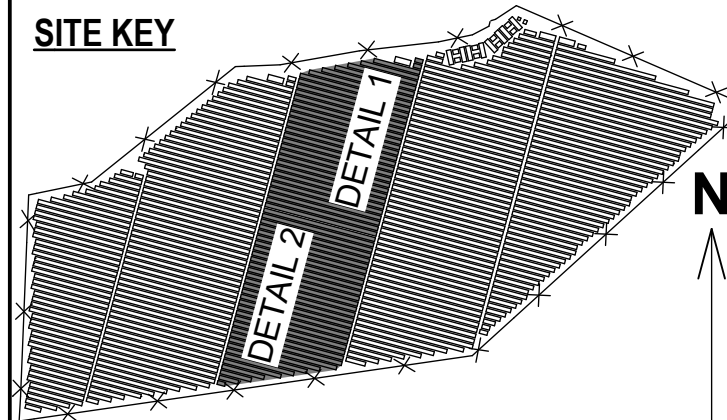
1 ZONE 4: BRANCH CIRCUIT LAYOUT, CB4-1A THRU 4-8B



2 ZONE 5: BRANCH CIRCUIT LAYOUT, CB5-1A THRU 5-8B



SITE KEY

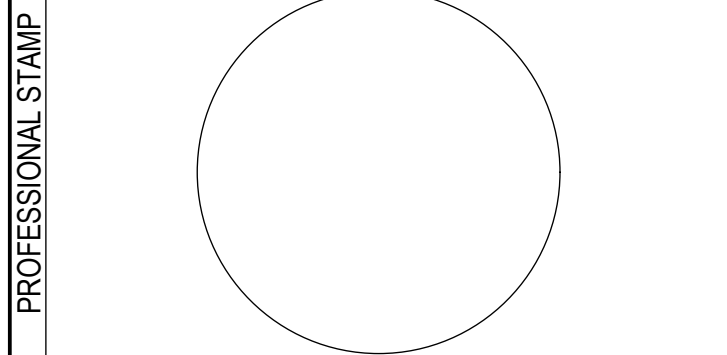


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

SITE	NAME
	STREET
	CITY/ST/ZIP
	NOTES

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED
DRAWN BY	CH
CHECKED BY	RE
	DATE DRAFTED: 1/13/2025
	SHEET SIZE: ARCH D

DRAWING NO.	PV206
DRAWING TITLE	BRANCH CIRCUIT LAYOUT: ZONES 4 & 5
	SHEET 13 OF 70

BRANCH CIRCUIT ID KEY

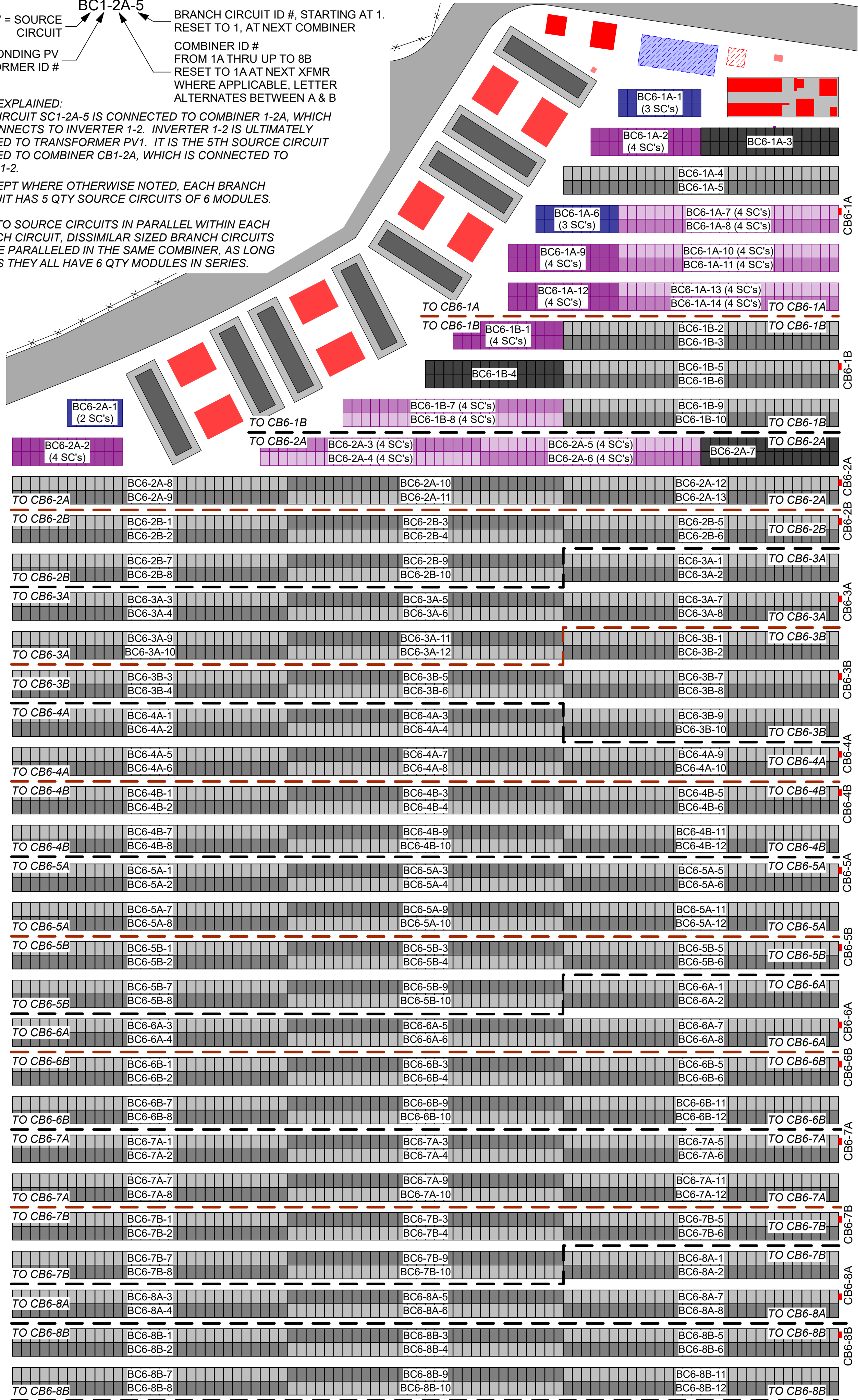
"BC" = SOURCE CIRCUIT
CORRESPONDING PV TRANSFORMER ID #

BC1-2A-5
BRANCH CIRCUIT ID #, STARTING AT 1.
RESET TO 1, AT NEXT COMBINER
COMBINER ID #
FROM 1A THRU UP TO 8B
RESET TO 1A AT NEXT XFMR
WHERE APPLICABLE, LETTER
ALTERNATES BETWEEN A & B

EXAMPLE EXPLAINED:
BRANCH CIRCUIT SC1-2A-5 IS CONNECTED TO COMBINER 1-2A, WHICH
ITSELF CONNECTS TO INVERTER 1-2. INVERTER 1-2 IS ULTIMATELY
CONNECTED TO TRANSFORMER PV1. IT IS THE 5TH SOURCE CIRCUIT
CONNECTED TO COMBINER CB1-2A, WHICH IS CONNECTED TO
INVERTER 1-2.

EXCEPT WHERE OTHERWISE NOTED, EACH BRANCH
CIRCUIT HAS 5 QTY SOURCE CIRCUITS OF 6 MODULES.

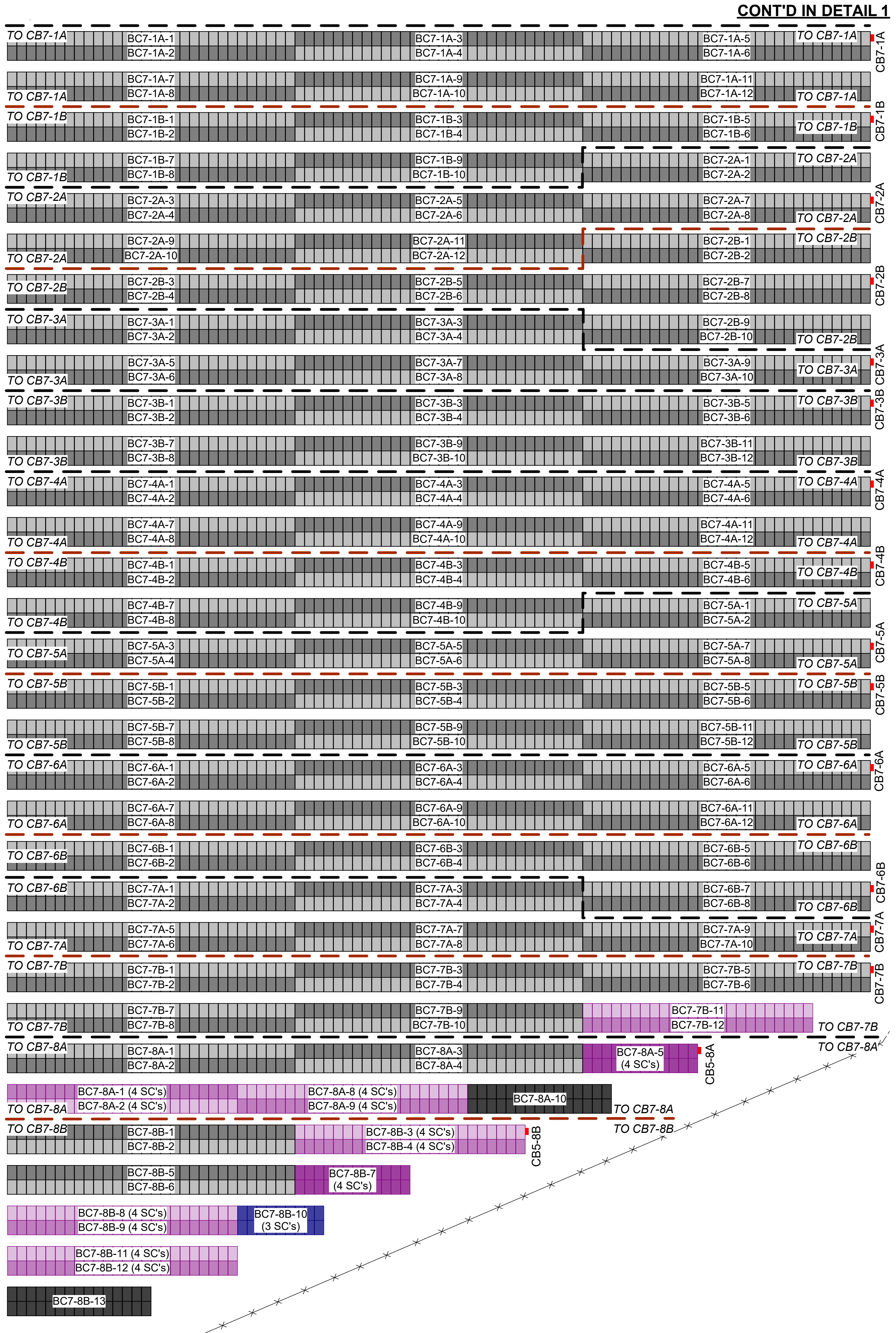
DUE TO SOURCE CIRCUITS IN PARALLEL WITHIN EACH
BRANCH CIRCUIT, DISSIMILAR SIZED BRANCH CIRCUITS
MAY BE PARALLELED IN THE SAME COMBINER, AS LONG
AS THEY ALL HAVE 6 QTY MODULES IN SERIES.



CONT'D IN DETAIL 2

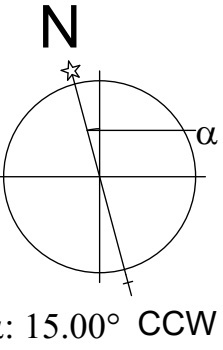
1 ZONE 6: BRANCH CIRCUIT LAYOUT, CB6-1A THRU 6-8B

0 30' 60'

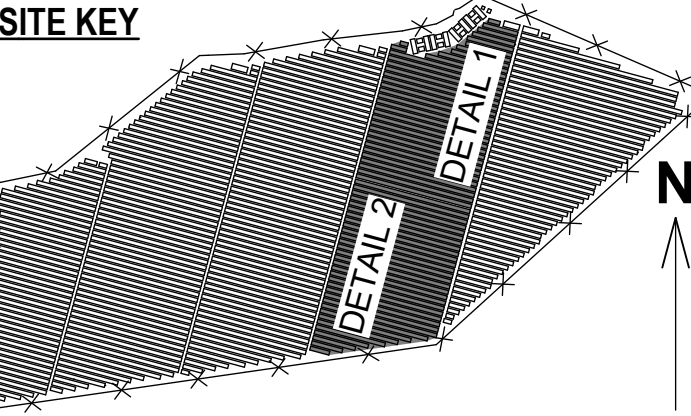


2 ZONE 7: BRANCH CIRCUIT LAYOUT, CB7-1A THRU 7-8B

0 30' 60'



SITE KEY

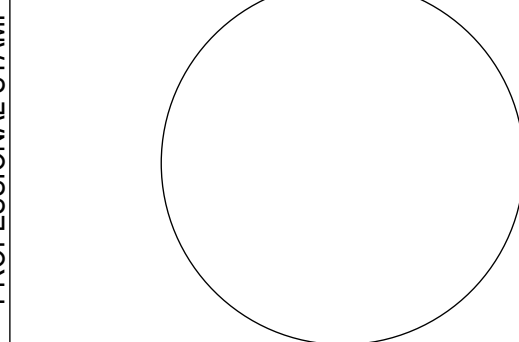


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THE SUBMITTALS FOR PERMITTING OF THE OVERALL PROJECT.

FORTUNA (WEST END
ST. THOMAS)

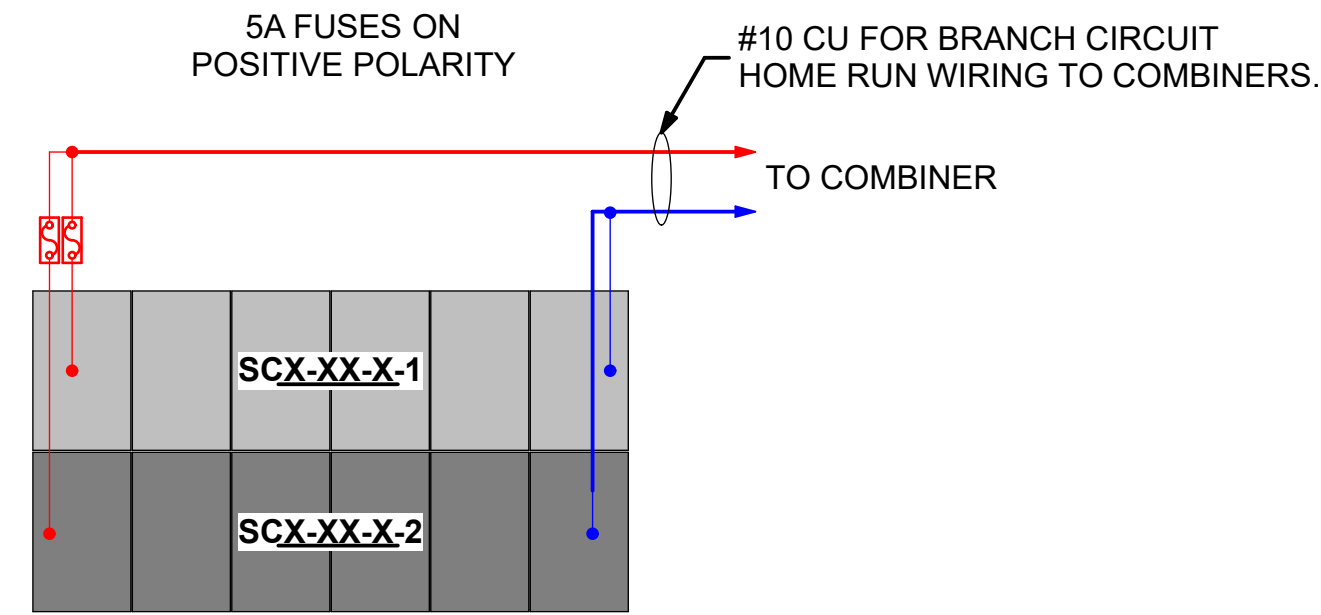
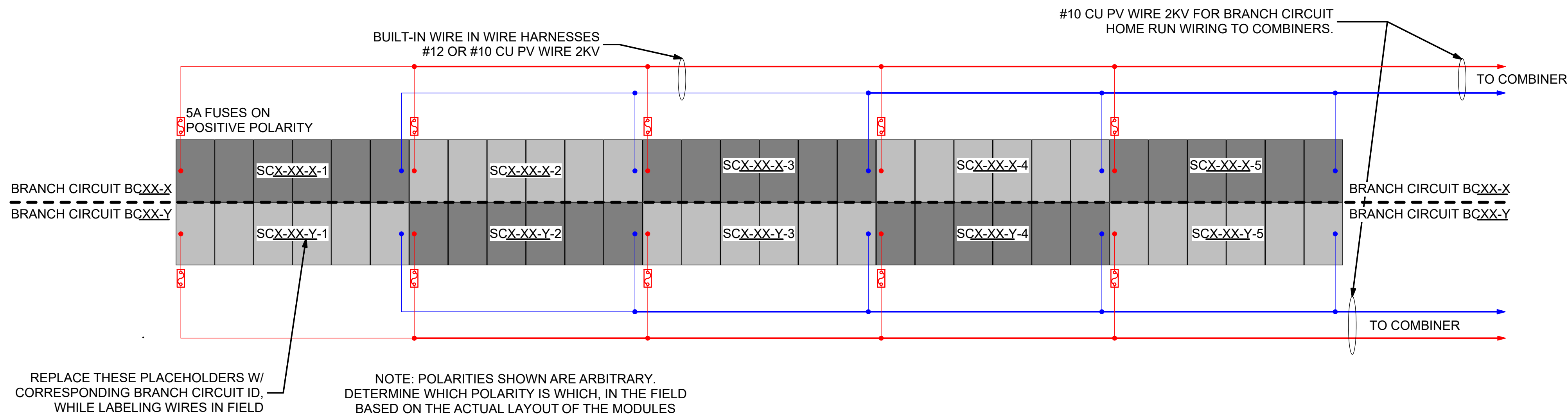
PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

CONTRACTOR	NAME	
	STREET	
	CITY/ST/ZIP	
NOTES		
SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES		
DRAWING	FILE NAME	St Tom - Fortuna.pln
	SCALE	AS NOTED
	DRAWN BY	CH
	CHECKED BY	RE
	DATE DRAFTED	1/13/2025
	SHEET SIZE	ARCH D
DRAWING NO.		PV207
DRAWING TITLE		BRANCH CIRCUIT LAYOUT: ZONES 6 & 7
		SHEET 14 OF 70



1 MOST COMMON CASE OF 5-STRING BRANCH CIRCUITS (2 SHOWN)

0 4' 8' 16'

6 2-STRING BC - SPECIAL CASE

0 4' 8' 16'

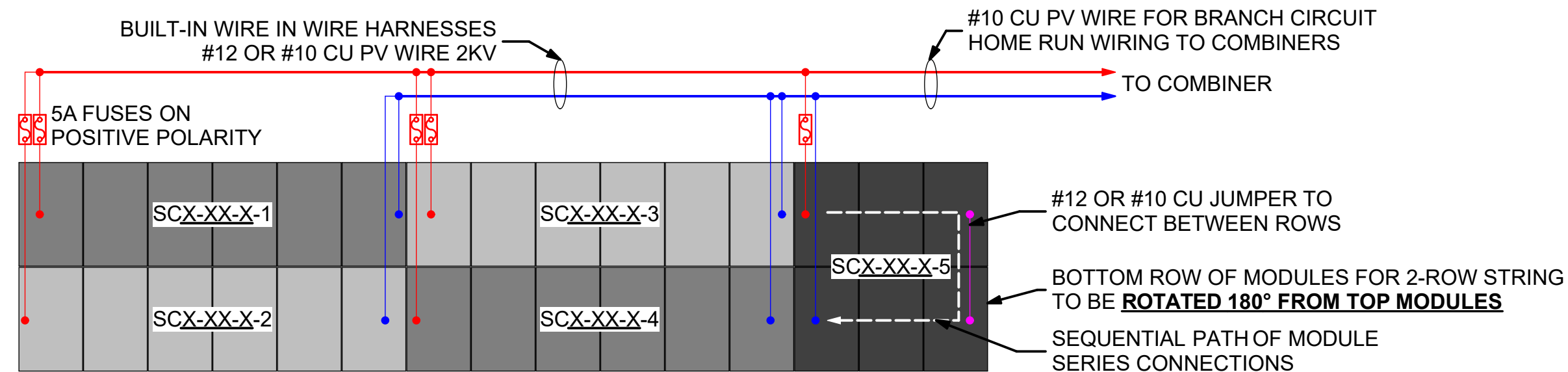
SOURCE CIRCUIT ID KEY

"SC" = SOURCE CIRCUIT
COMPOSITE ID OF CORRESPONDING BRANCH CIRCUIT

SC1-2A-5-1

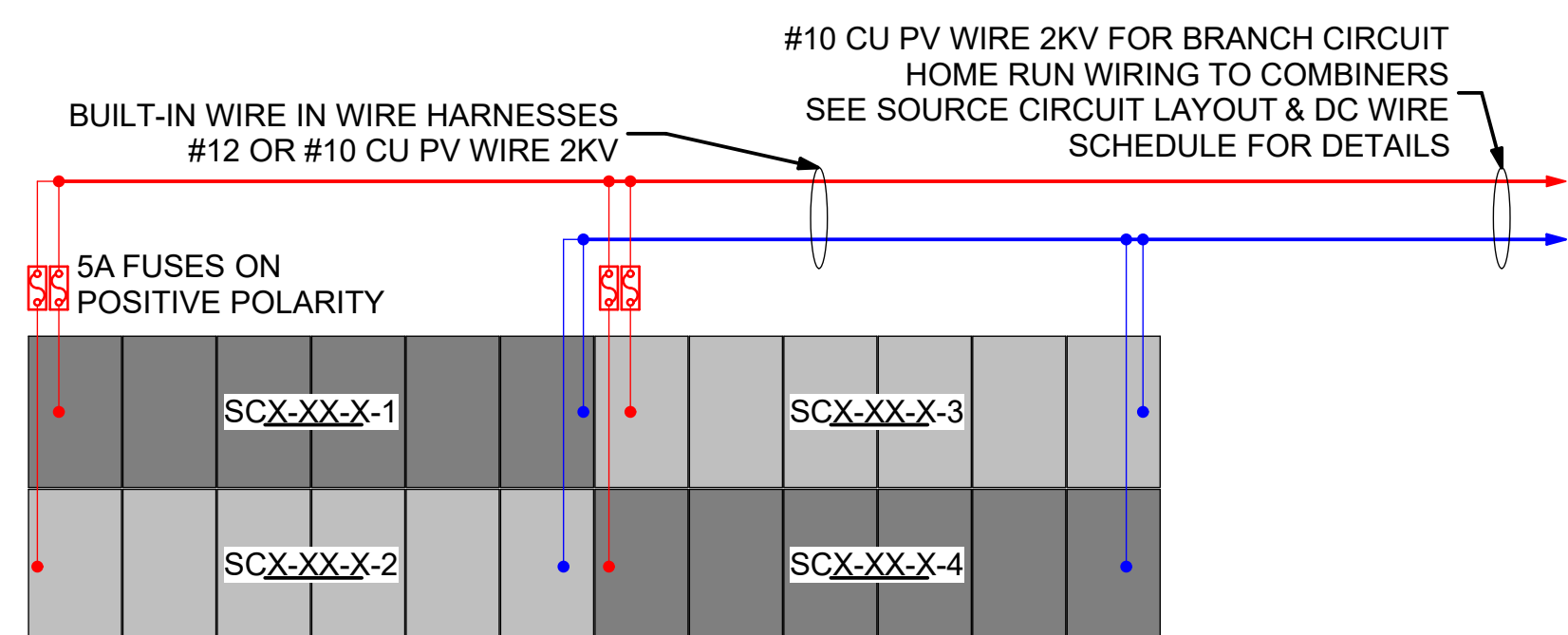
LETTER FROM 1 THRU 5, TO IDENTIFY SOURCE CIRCUIT WITHIN BRANCH CIRCUIT

EXAMPLE EXPLAINED:
SOURCE CIRCUIT SC1-2A-5-1 IS CONNECTED TO COMBINER 1-2A, WHICH ITSELF CONNECTS TO INVERTER 1-2. INVERTER 1-2 IS ULTIMATELY CONNECTED TO TRANSFORMER PV1. IT IS THE 1ST SOURCE CIRCUIT IN THE 5TH BRANCH CIRCUIT CONNECTED TO COMBINER CB1-2, WHICH IS CONNECTED TO INVERTER 1-2. IT HAS 6 MODULES WIRED IN SERIES



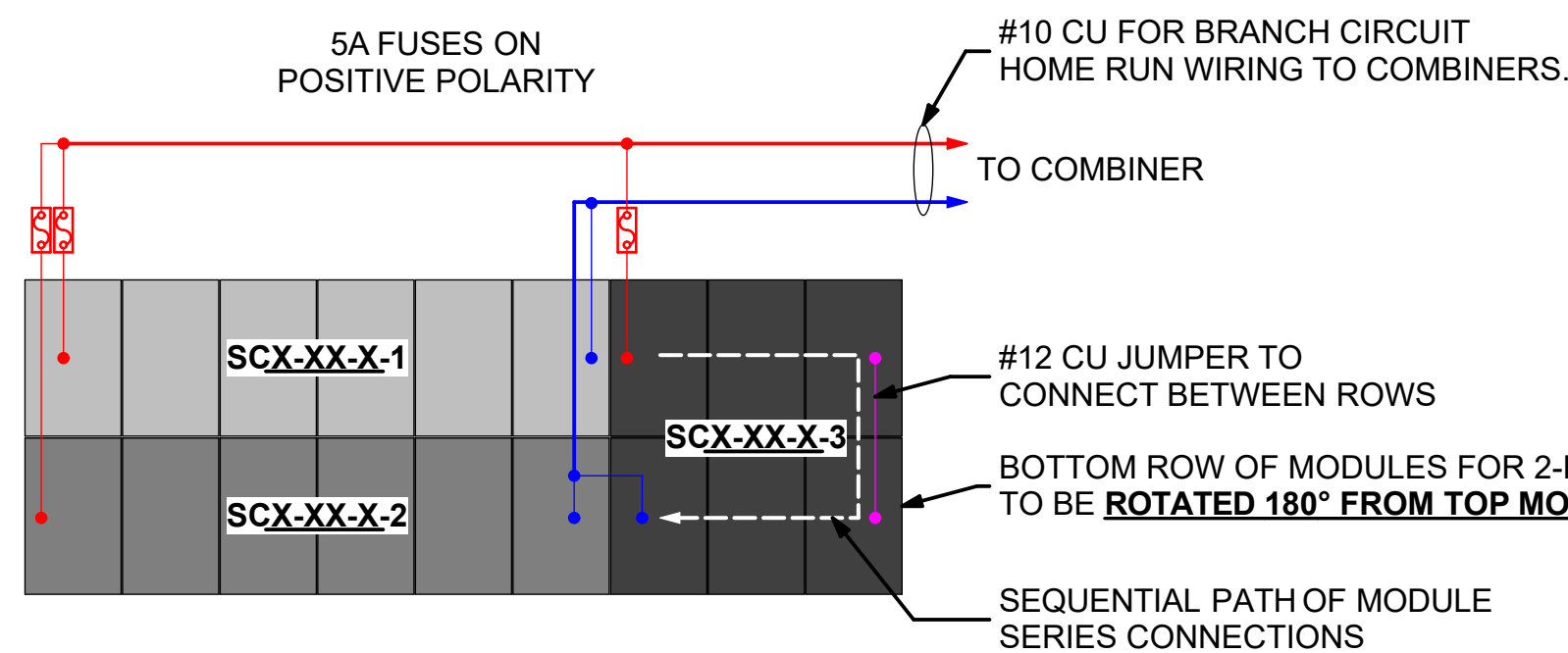
2 5-STRING BRANCH CIRCUITS - W/ 1 JUMPER CIRCUIT

0 4' 8' 16'



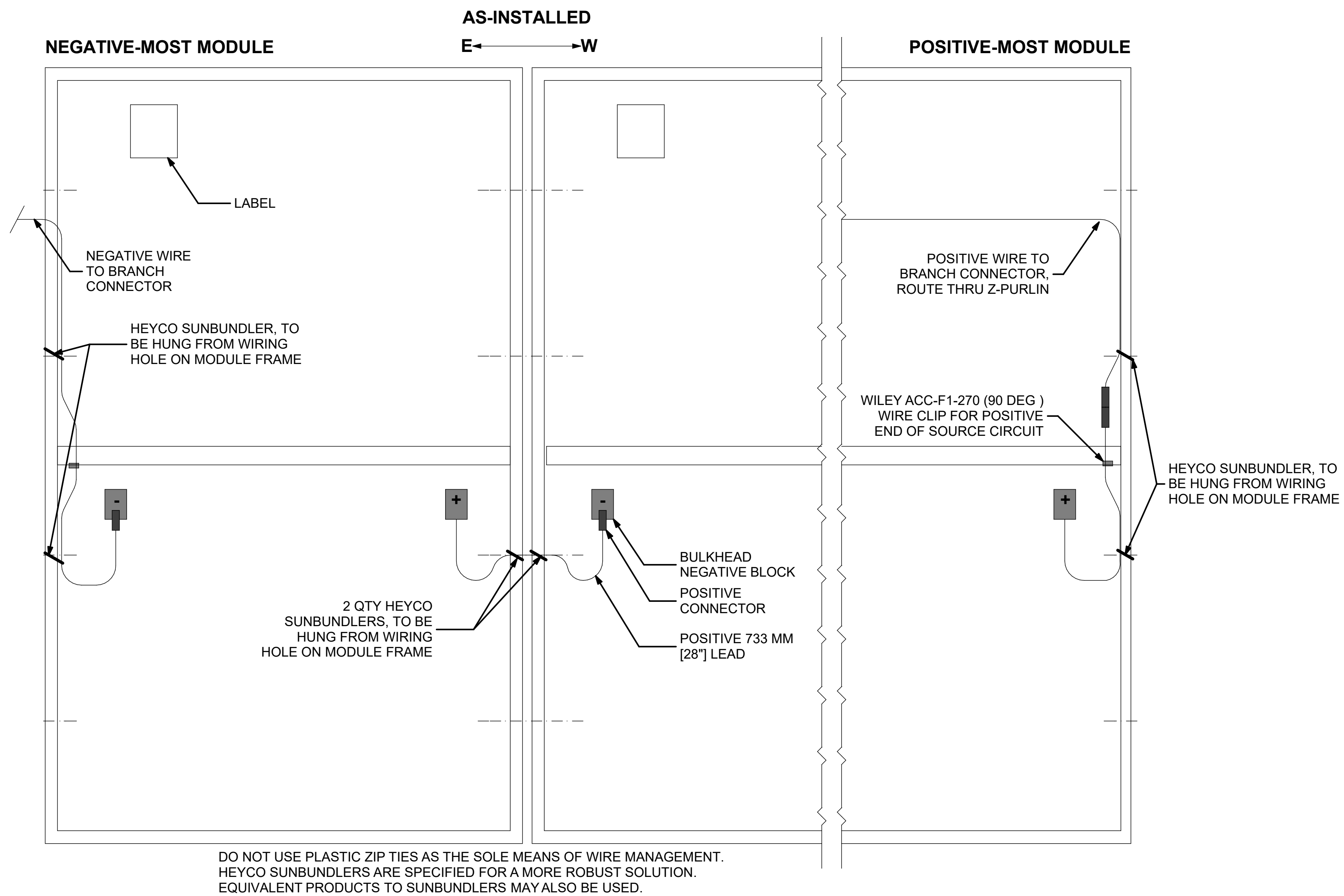
4 4-STRING BRANCH CIRCUITS

0 4' 8' 16'



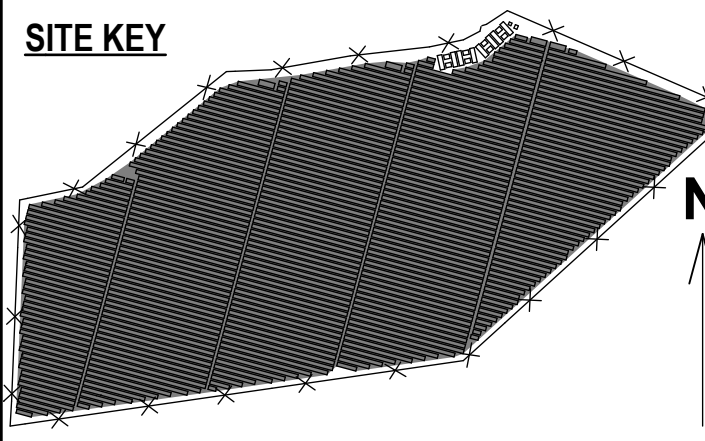
5 3-STRING BRANCH CIRCUIT - SPECIAL CASE

0 4' 8' 16'



7 MODULE WIRING DETAILS - MOST COMMON SETUP

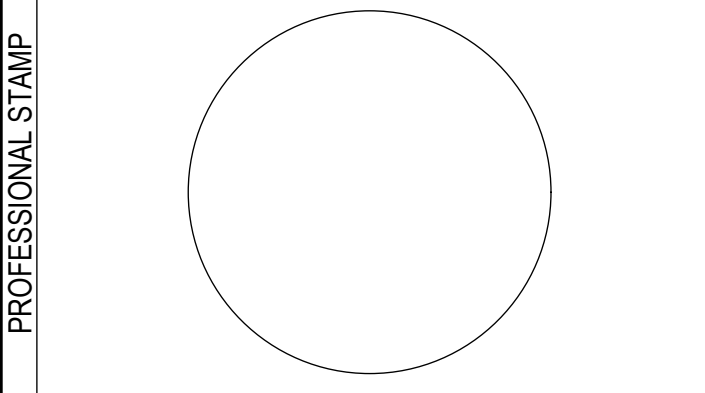
0 6" 12" 18"



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FORTUNA (WEST END ST. THOMAS)

PERMIT SET
Monday, January 13, 2025



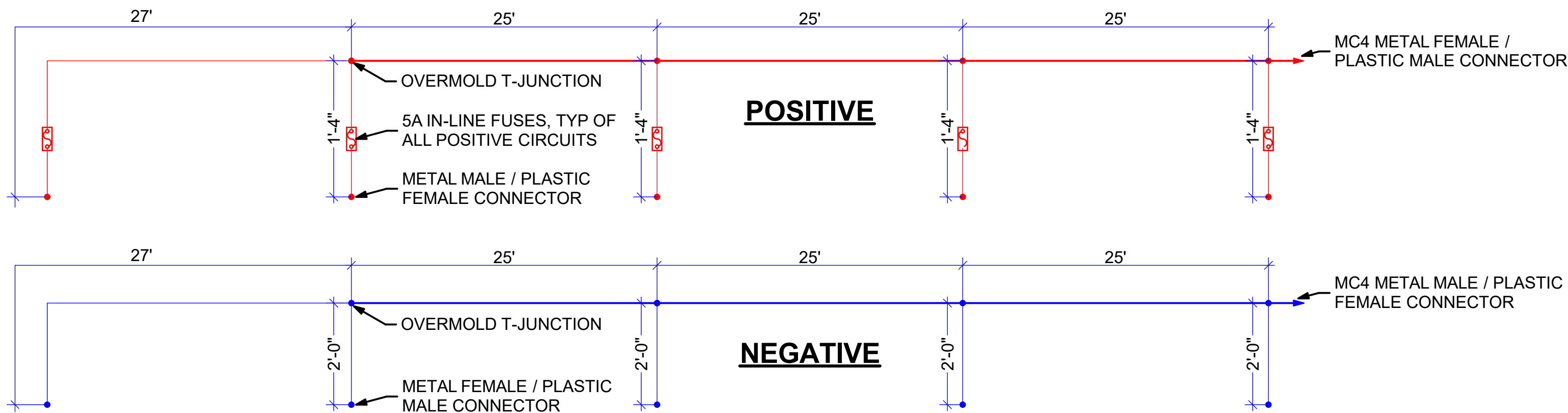
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CONTRACTOR
NAME
STREET
CITY/ST/ZIP
NOTES

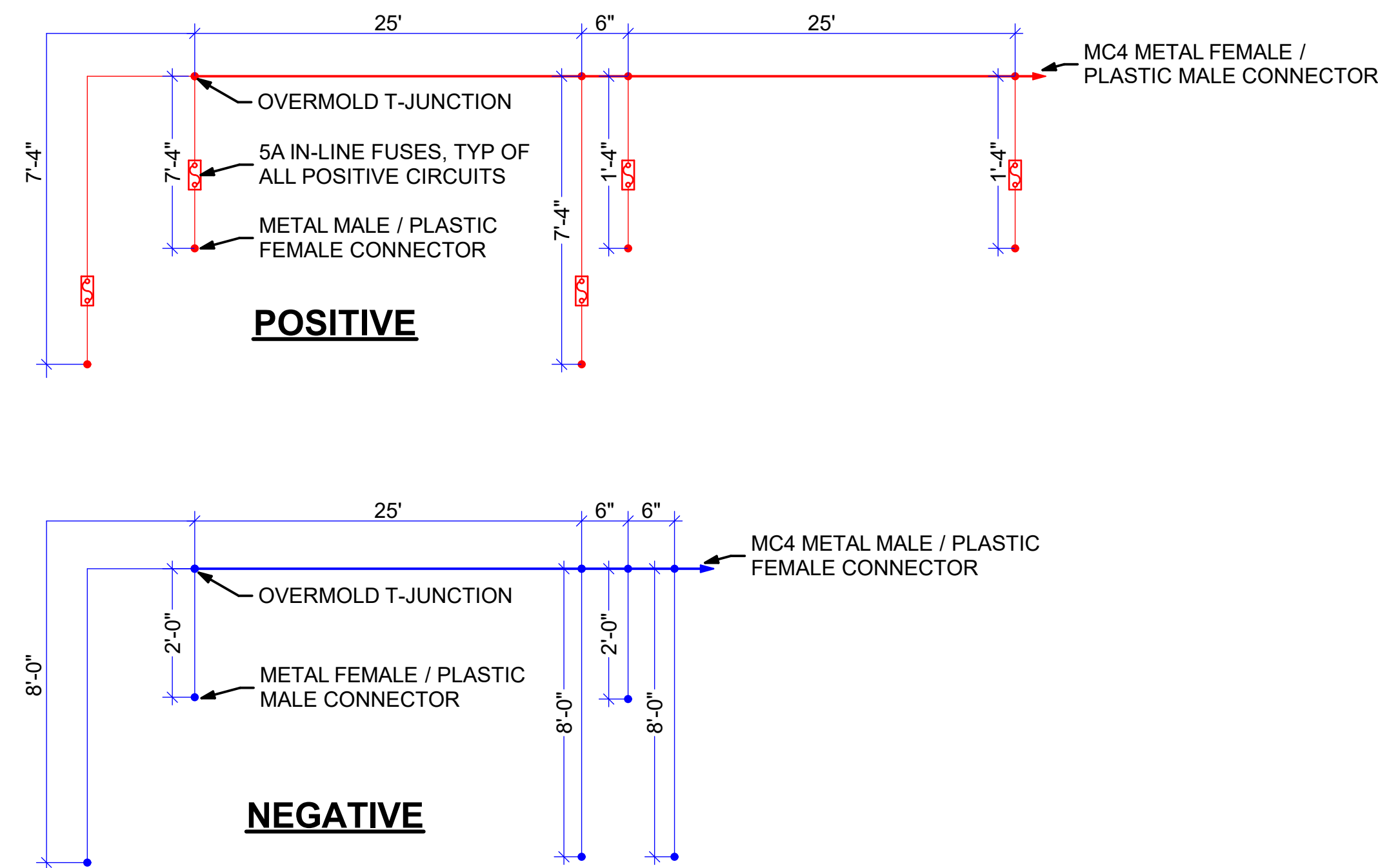
SITE
NAME
STREET
CITY/ST/ZIP
NOTES

FILE NAME
SCALE
DRAWN BY
CHECKED BY

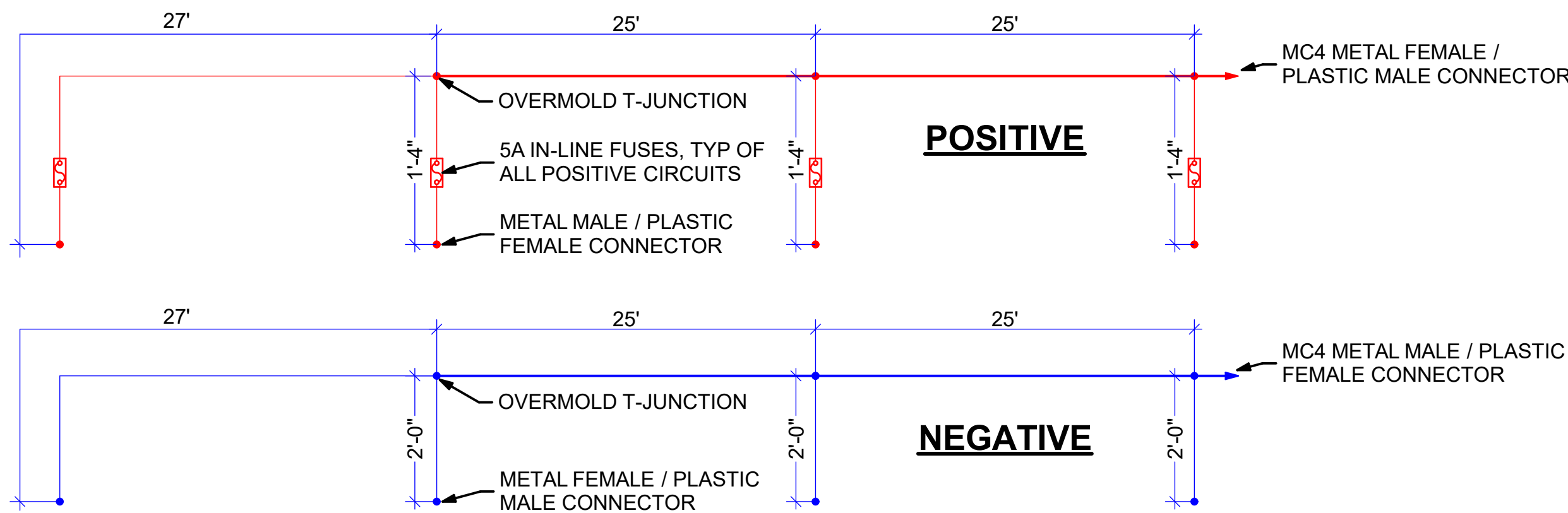
DATE DRAFTED: 1/13/2025
SHEET SIZE: ARCH D
DRAWING NO.
DRAWING TITLE



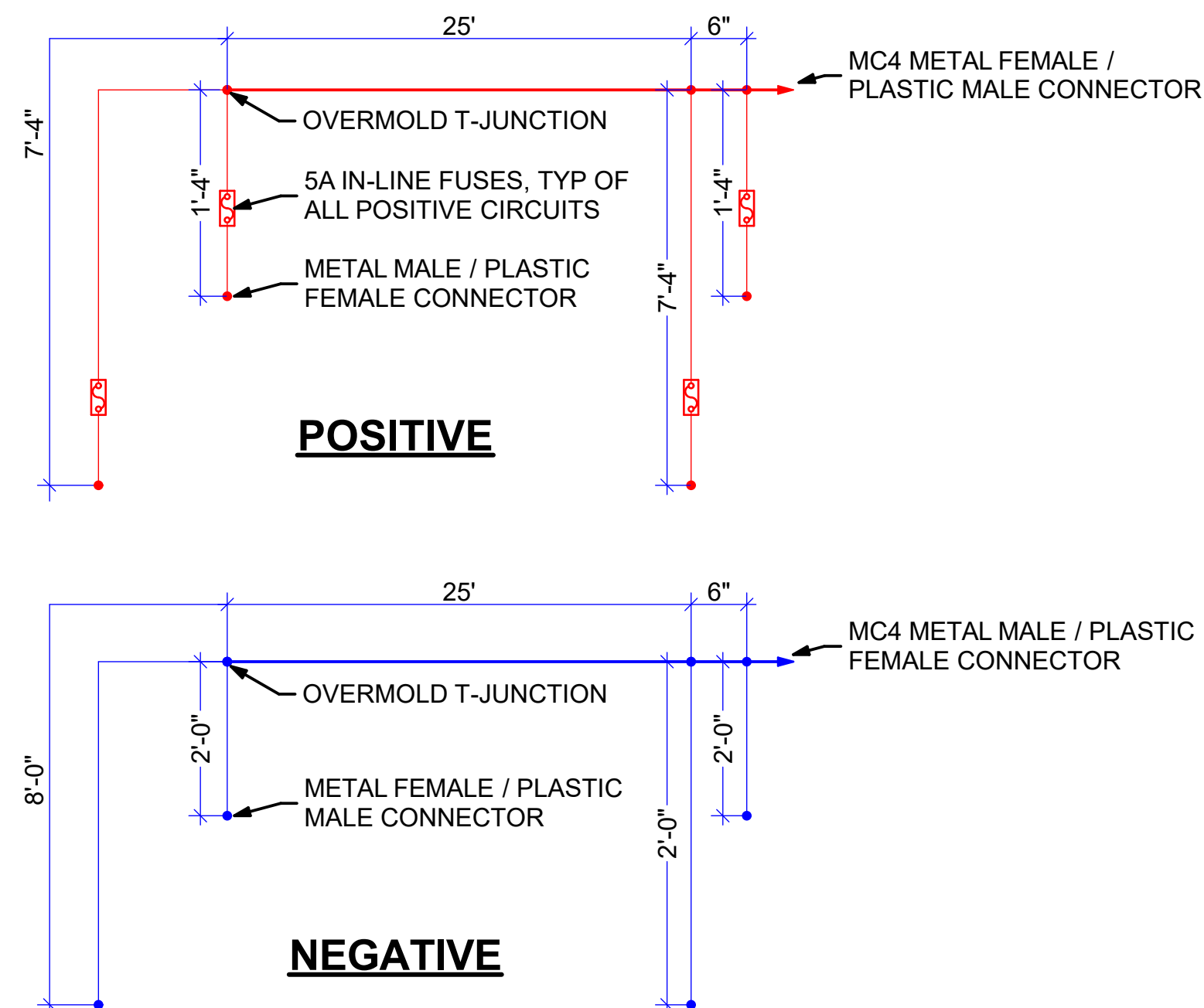
1 WIRE HARNESS DETAIL - 5-STRING LINEAR BRANCH CIRCUITS (MOST COMMON)
QTY: 1016



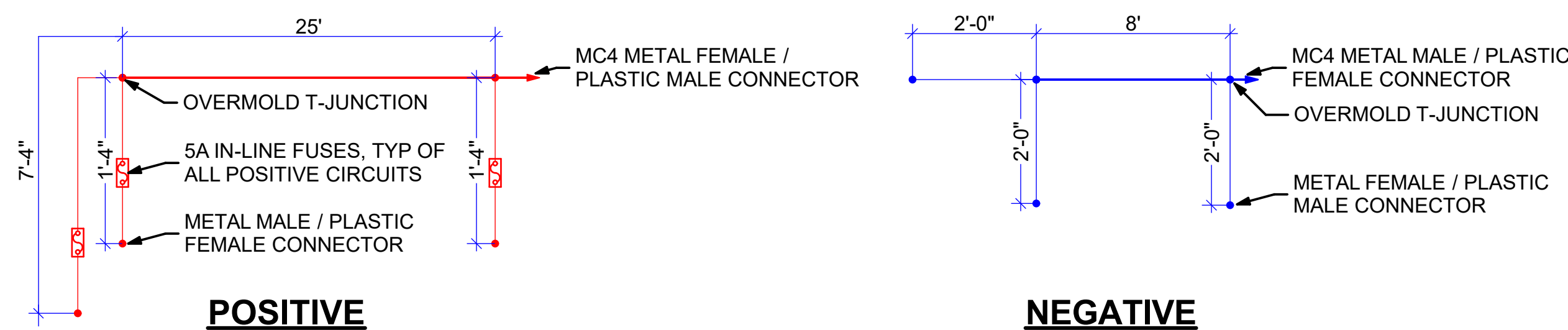
2 WIRE HARNESS DETAIL - 5-STRING/2-ROW BRANCH CIRCUITS
QTY: 114



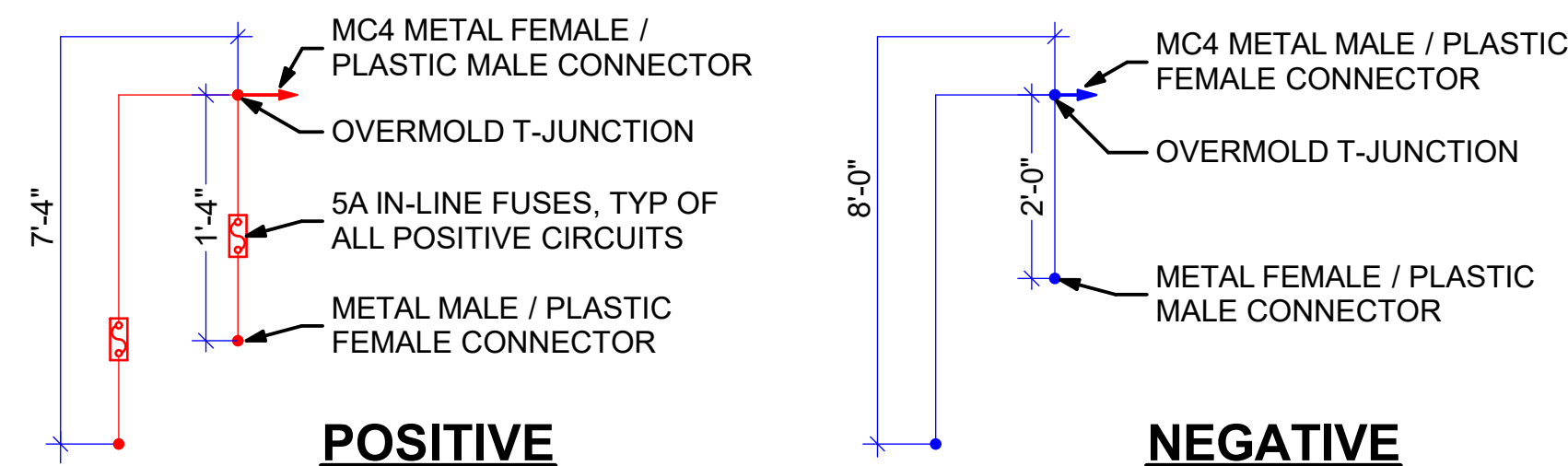
3 WIRE HARNESS DETAIL - 4-STRING LINEAR BRANCH CIRCUITS
QTY: 236



4 WIRE HARNESS DETAILS - 4-STRING/2-ROW BRANCH CIRCUITS
QTY: 115

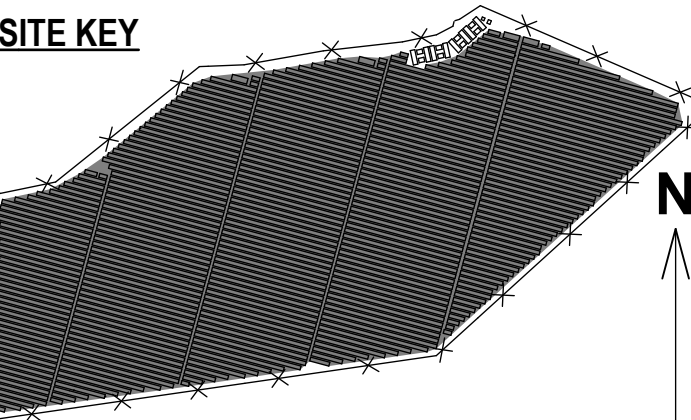


5 WIRE HARNESS DETAIL - 3-STRING BRANCH CIRCUITS
QTY: 11



6 WIRE HARNESS DETAIL - 2-STRING BRANCH CIRCUITS
QTY: 12

SITE KEY

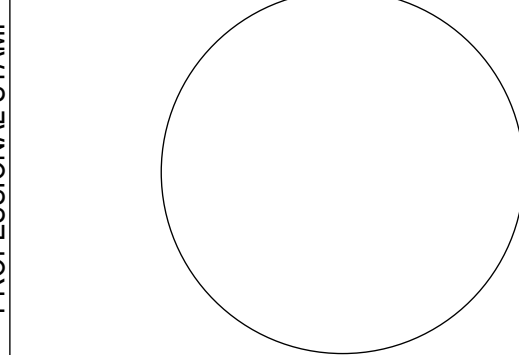


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



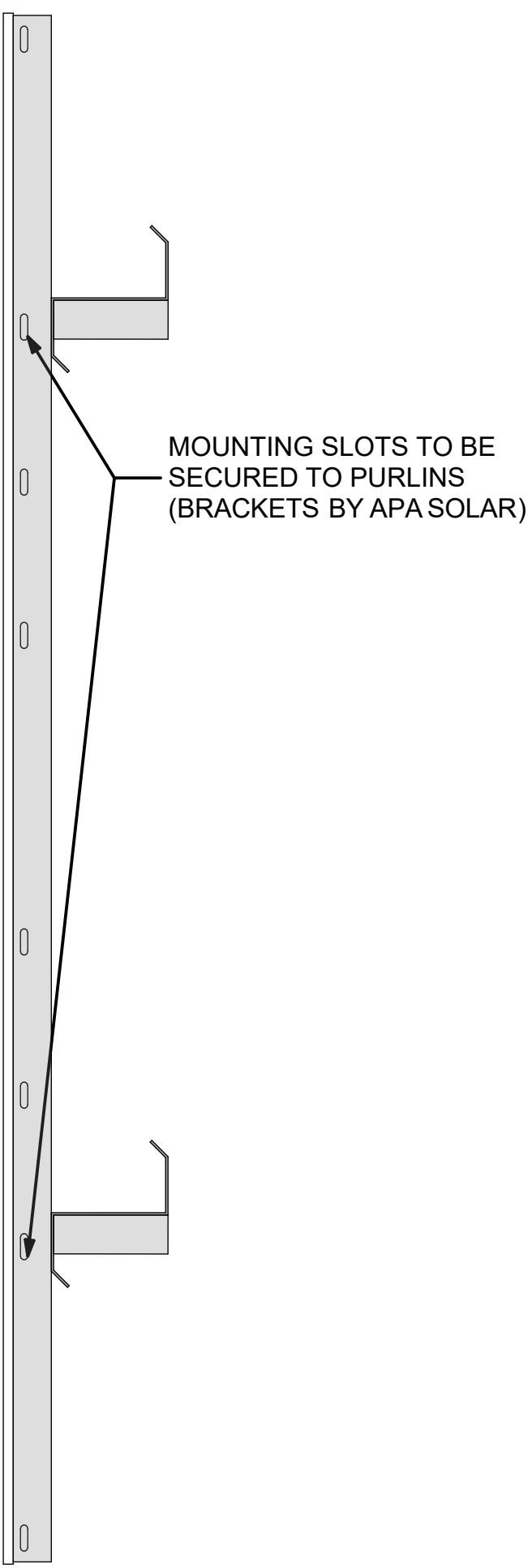
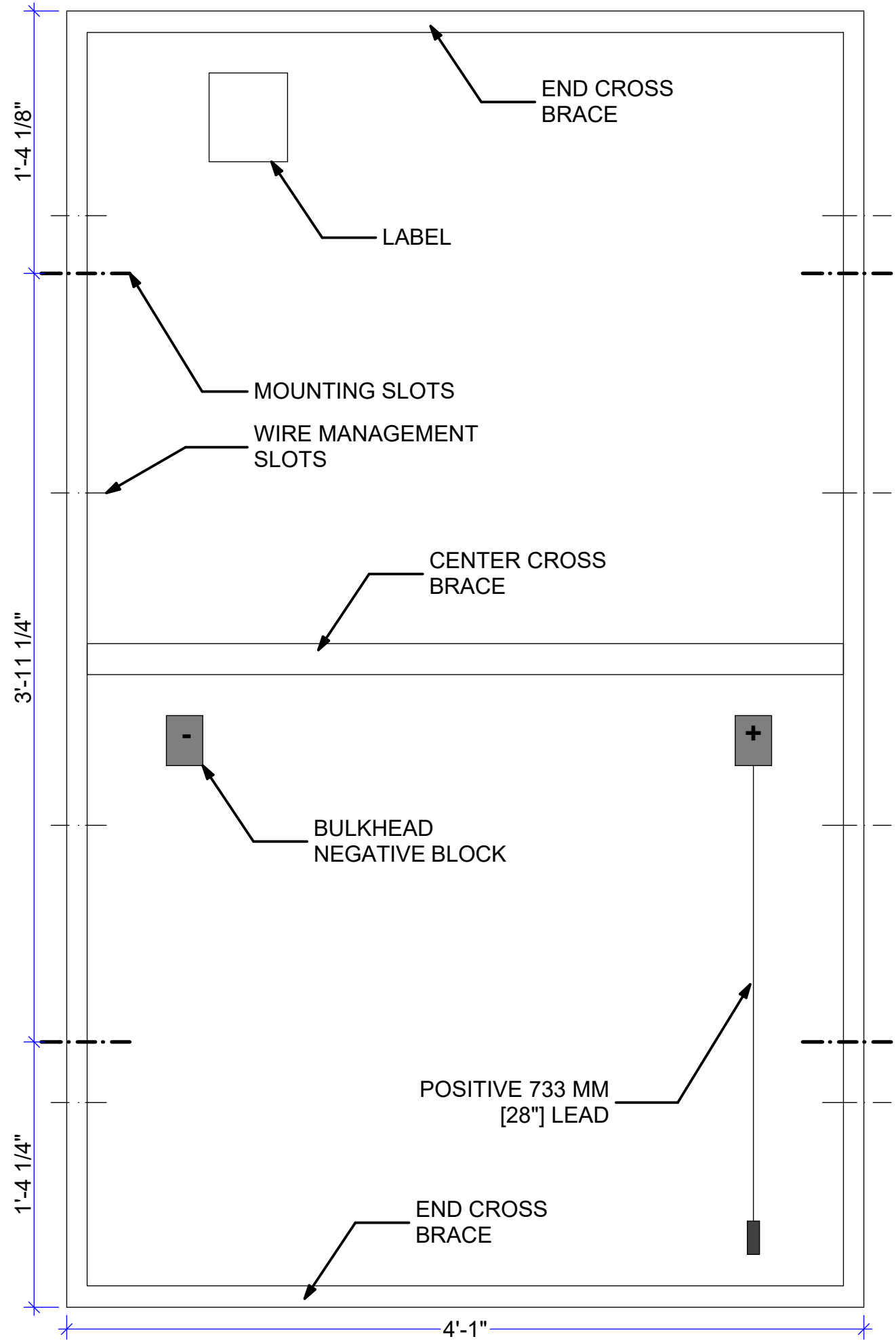
MARK	DATE	DESCRIPTION

CONTRACTOR	NAME

SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	

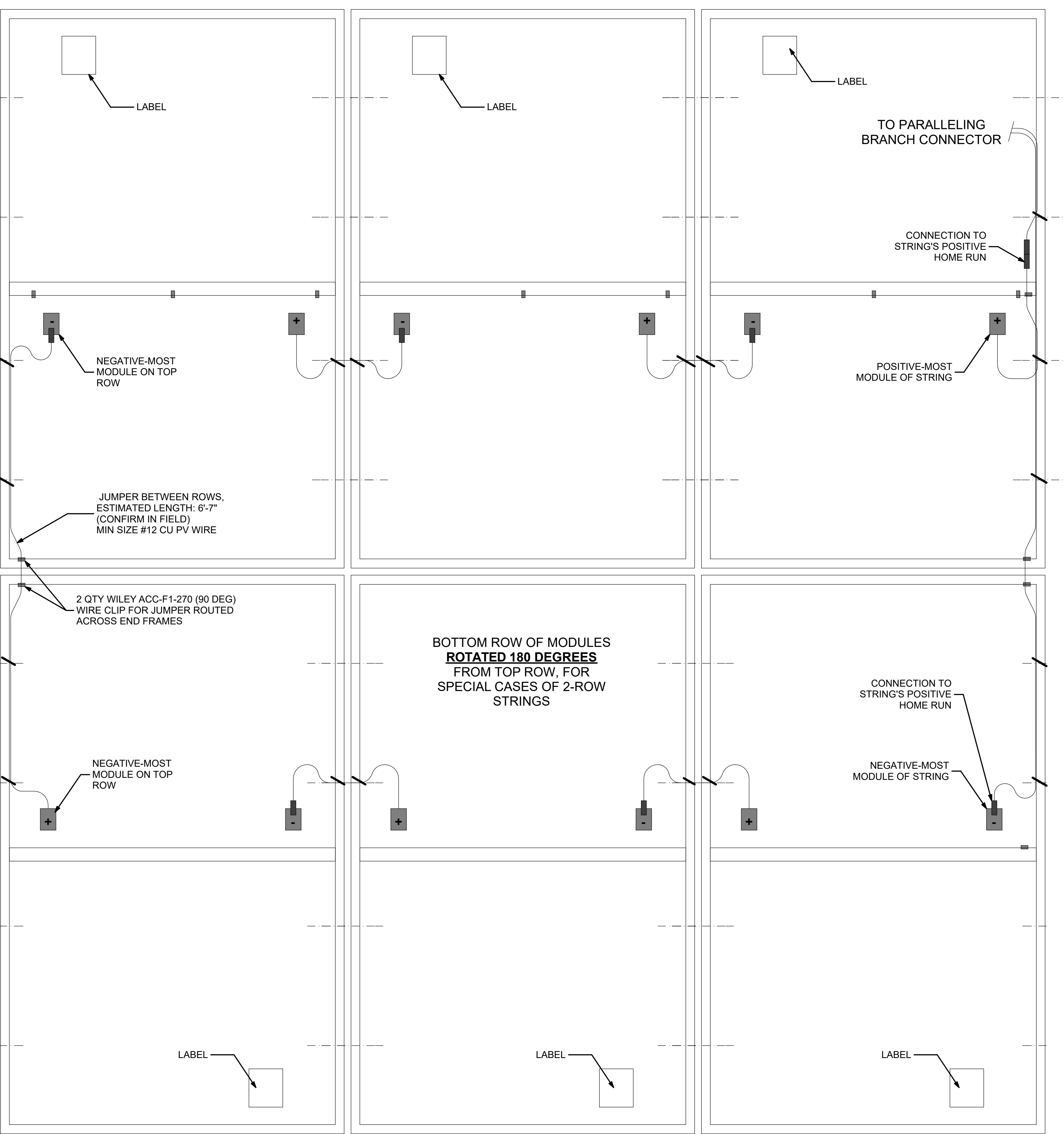
FILE NAME	St Tom - Fortuna.pln		
SCALE	AS NOTED		
DRAWN BY	CH	DATE DRAFTED: 1/13/2025	
CHECKED BY	RE	SHEET SIZE: ARCH D	

DRAWING NO.	PV210
DRAWING TITLE	WIRE HARNESS DETAILS



1 MODULE DETAILS - FIRST SOLAR SERIES 6

0 6" 12" 18"



2 MODULE DETAILS - FIRST SOLAR SERIES 6

0 6" 12" 18"

solar design associates inc

HARVARD, MA 01451-0242
www.solar design.com

tel: 978-456-6855
fax: 978-772-9715

SITE KEY

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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025

PROFESSIONAL STAMP

MARK	DATE	DESCRIPTION

CONTRACTOR

NAME

CITY/ST/ZIP

NOTES

NAME

STREET

CITY/ST/ZIP

NOTES

SITE

NAME

STREET

CITY/ST/ZIP

NOTES

FILE NAME

SCALE

DRAWN BY

CHECKED BY

DRAWING NO.

DRAWING TITLE

St Tom - Fortuna.pln

AS NOTED

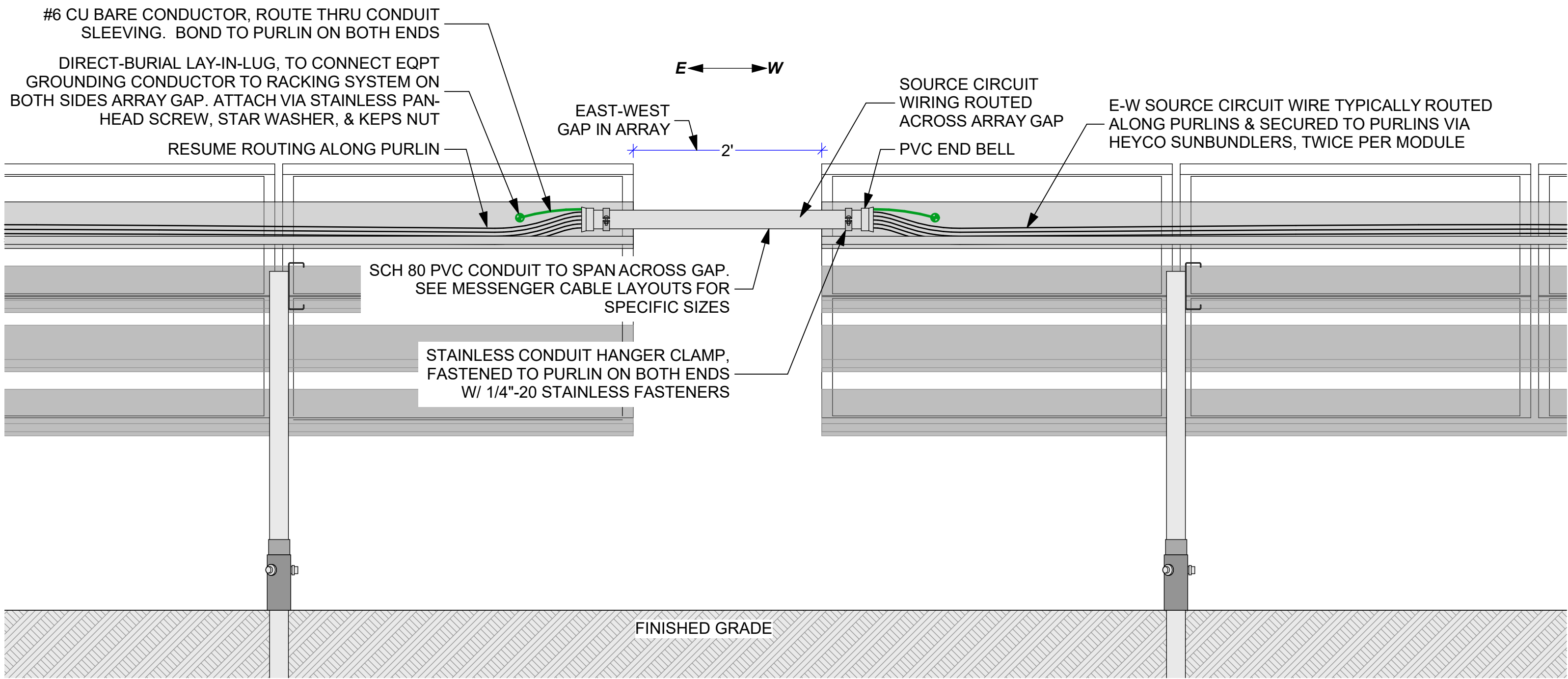
CH

RE

PV211

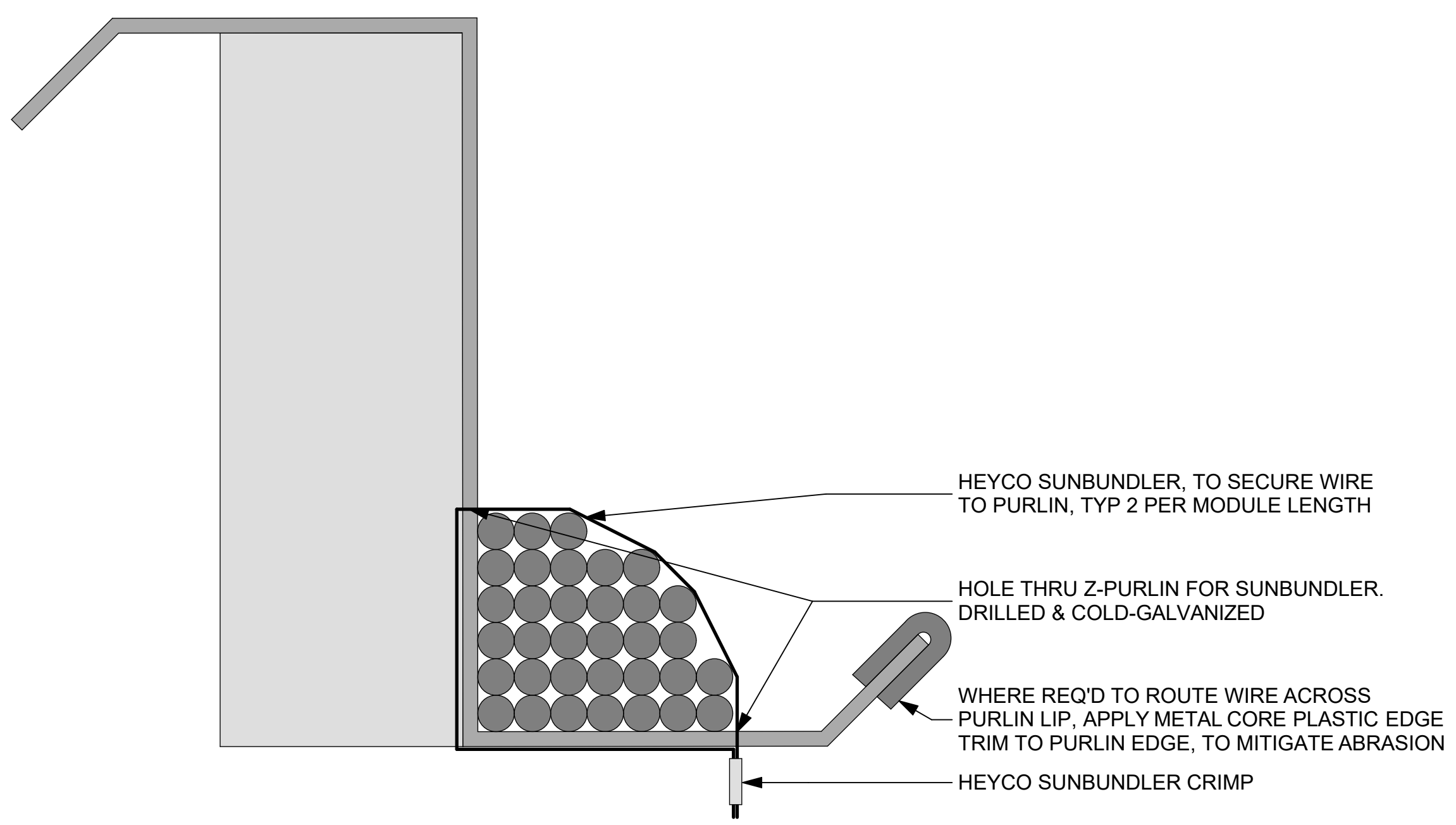
MODULE DETAILS

SHEET 18 OF 70



1 GAP CROSSING CONDUIT DETAILS

0 6" 1' 2'

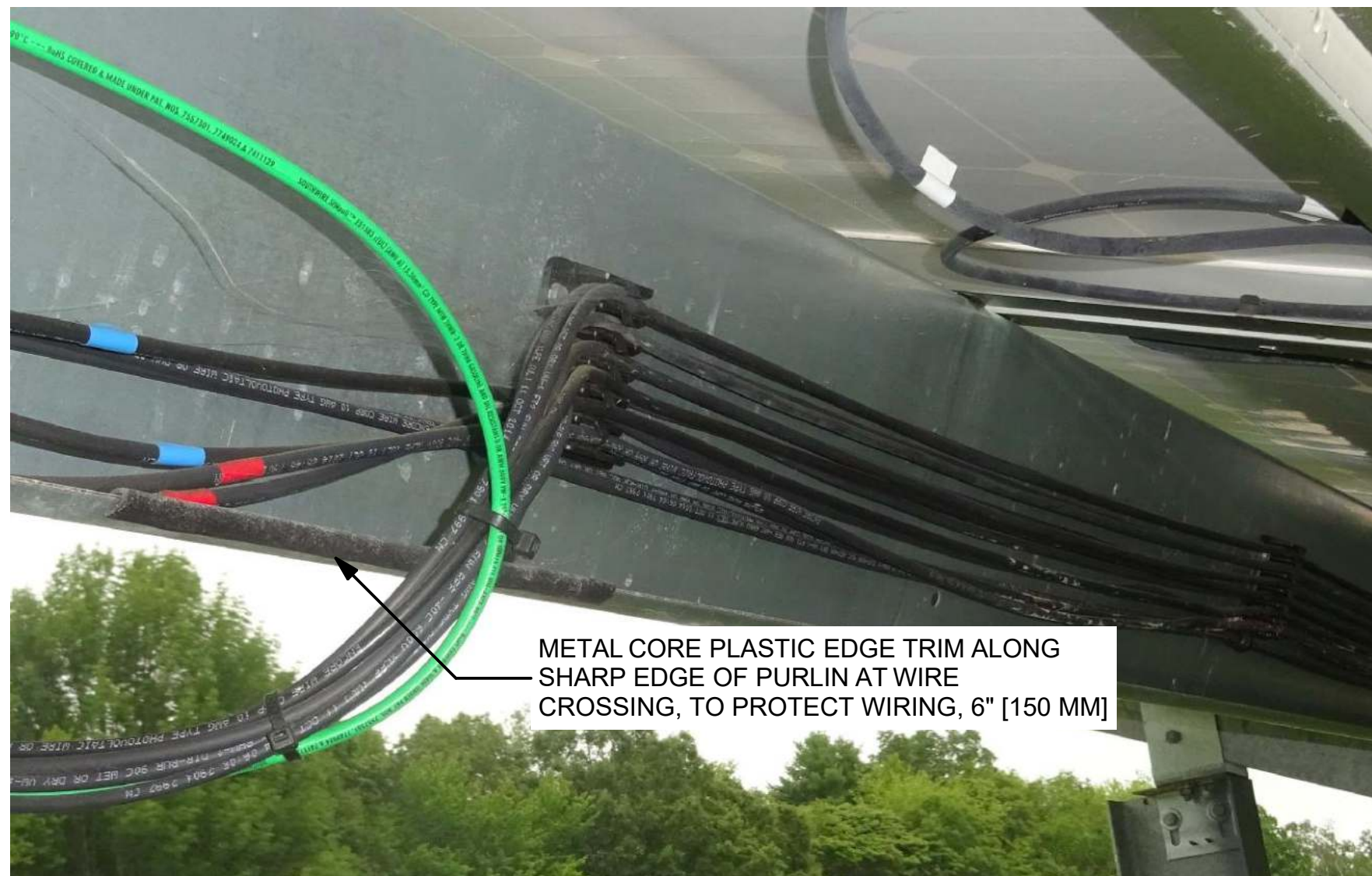


2 E-W WIRING DETAILS

0 1/2" 1" 2"

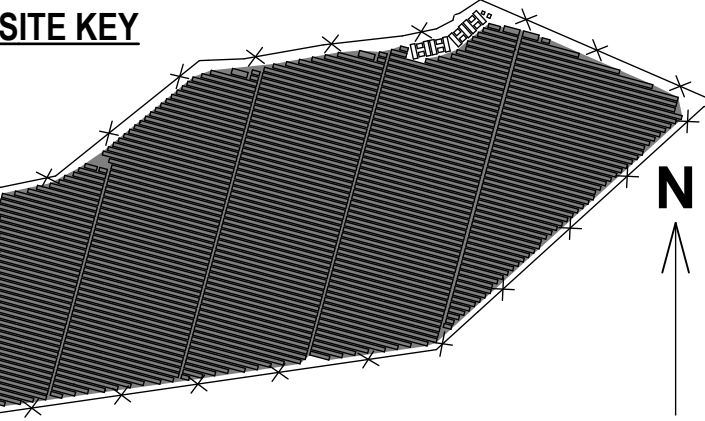


4 SAMPLE PHOTO OF WIRE MGMT FOR 1 OR 2 WIRES
SCALE: NOT TO SCALE



5 SAMPLE PHOTO OF EDGE TRIM
SCALE: NOT TO SCALE

SITE KEY



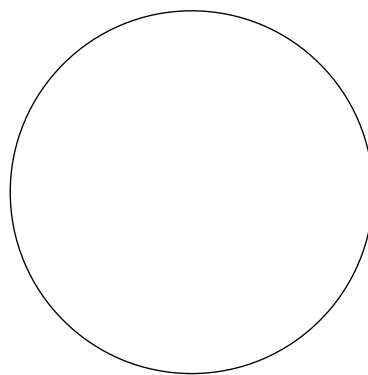
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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025

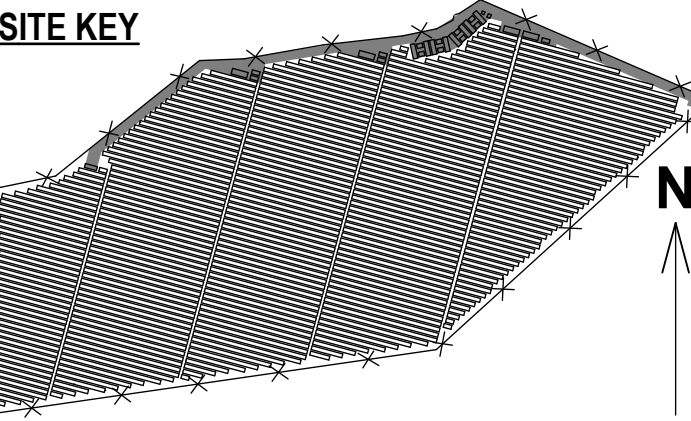
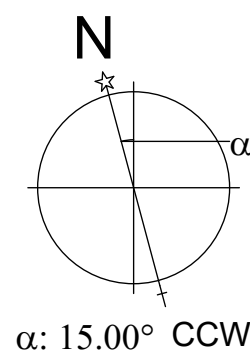
PROFESSIONAL STAMP



MARK	DATE	DESCRIPTION

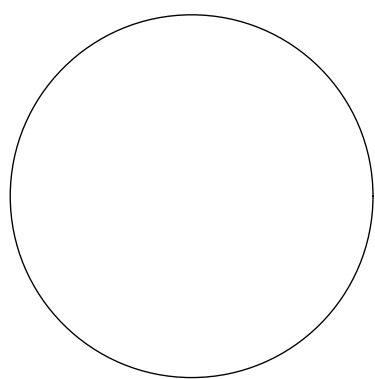
CONTRACTOR	NAME	
	STREET	
	CITY/ST/ZIP	
	NOTES	
SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	
DRAWING	FILE NAME	St Tom - Fortuna.pln
	SCALE	AS NOTED
	DRAWN BY	CH DATE DRAFTED: 1/13/2025
	CHECKED BY	RE SHEET SIZE: ARCH D
DRAWING NO.		PV212
DRAWING TITLE		E-W WIRING & GAP DETAILS
SHEET 19 OF 70		

1. CONDUIT TO BE PVC SCHEDULE 40 UNDERGROUND, AND SCHEDULE 80 FOR THE BENDS & ALL PORTIONS ABOVE GRADE.
2. CONDUIT AT THE RISER POLE TO TRANSITION TO RMC FOR THE PORTION ABOVE GRADE.
3. CONDUIT ROUTING SHOWN IS DIAGRAMMATIC. ACTUAL ROUTING TO BE DETERMINED IN THE FIELD
4. DO NOT EXCEED THE EQUIVALENT OF 4x 90 DEGREE BENDS TOTAL, BETWEEN PULLING POINTS, AS REQ'D BY **NEC352.26** OR OTHER APPLICABLE SECTION. INSTALL HANDHOLES WHERE MORE THAN THE EQUIVALENT OF 2x 90-DEGREE BENDS OCCUR BELOW GRADE IN PLAN VIEW. THIS IS DUE TO THE FACT THAT 2 MORE 90-DEGREE BENDS ARE REQ'D FOR STUB-UPS.
5. CONTRACTOR TO DETERMINE FACTORY LENGTHS OF WIRE, AND PLAN HANDHOLES WHERE NEEDED FOR SPLICING
6. ALL CONDUIT TERMINATING ON THE BOTTOM OF ENCLOSURES SHALL USE EXPANSION FITTINGS, TO ALLOW GROUND MOVEMENT PER 300.5(J). ALL CONDUIT PASSING THRU CONCRETE SLABS SHALL BE WRAPPED IN A FOAM SHEET TO ALLOW IT TO MOVE VERTICALLY.
7. ALL CONDUIT TERMINATIONS TO BE EQUIPPED WITH BUSHINGS OR END BELLS, TO MITIGATE WIRE ABRASION.
8. WHERE APPLICABLE, CONDUIT SHALL BE BONDED TO THE EQPT GROUNDING CONDUCTOR.

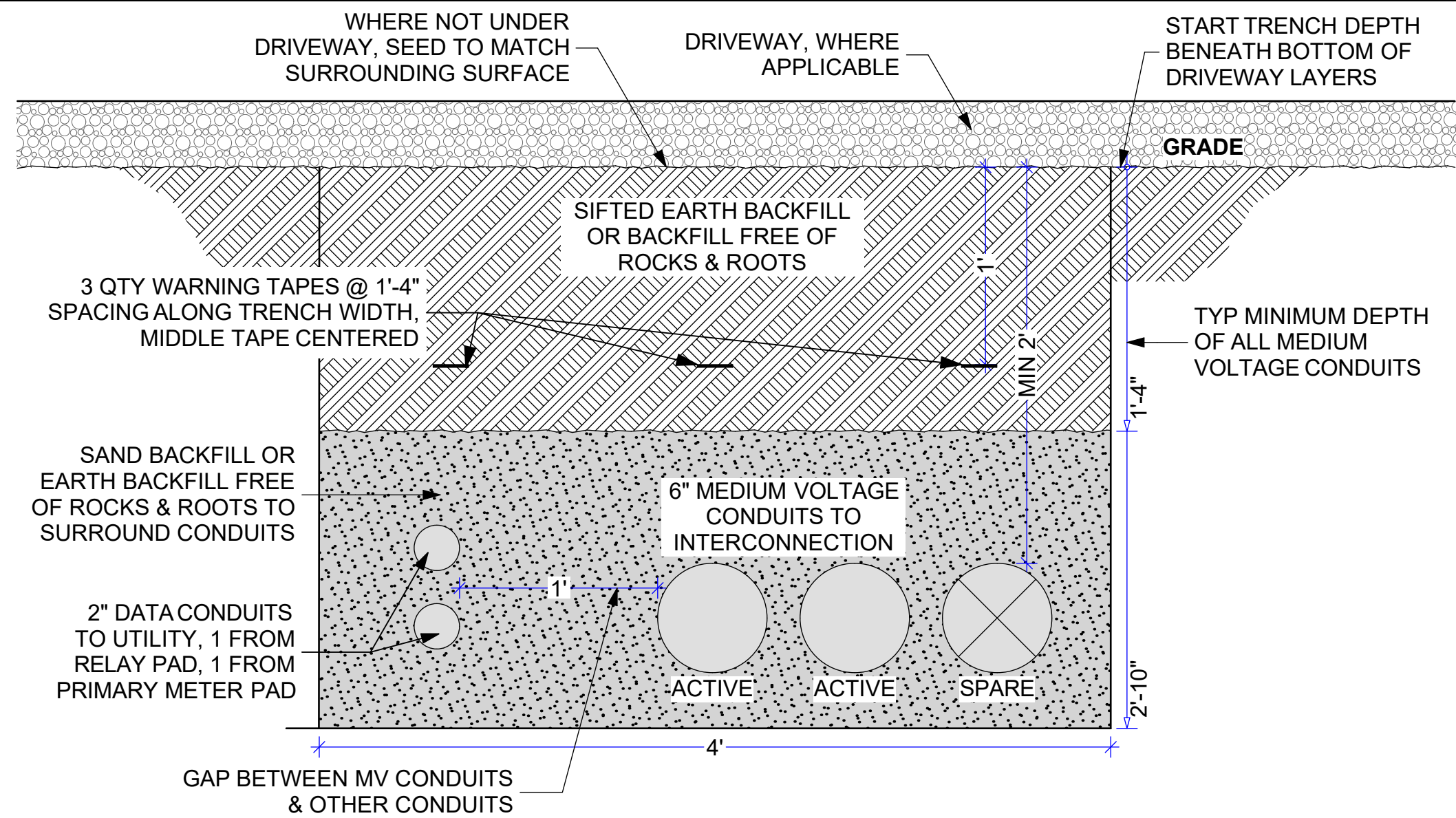


FORTUNA (WEST END
ST. THOMAS)

Monday, January 13, 2025

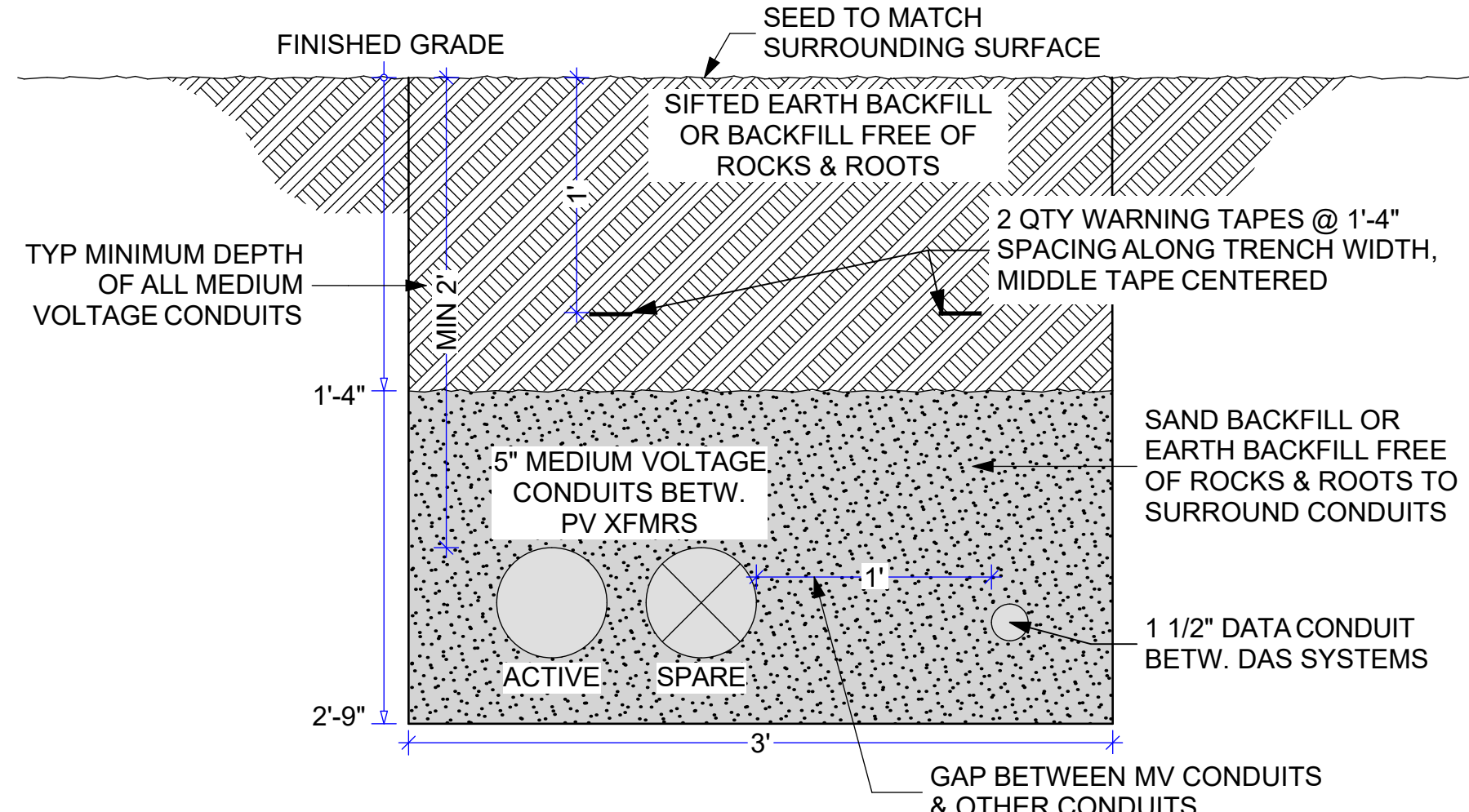


DRAWING NO.	PV301
DRAWING TITLE	CONDUIT LAYOUT (OVERVIEW)
SHEET 20 OF 70	



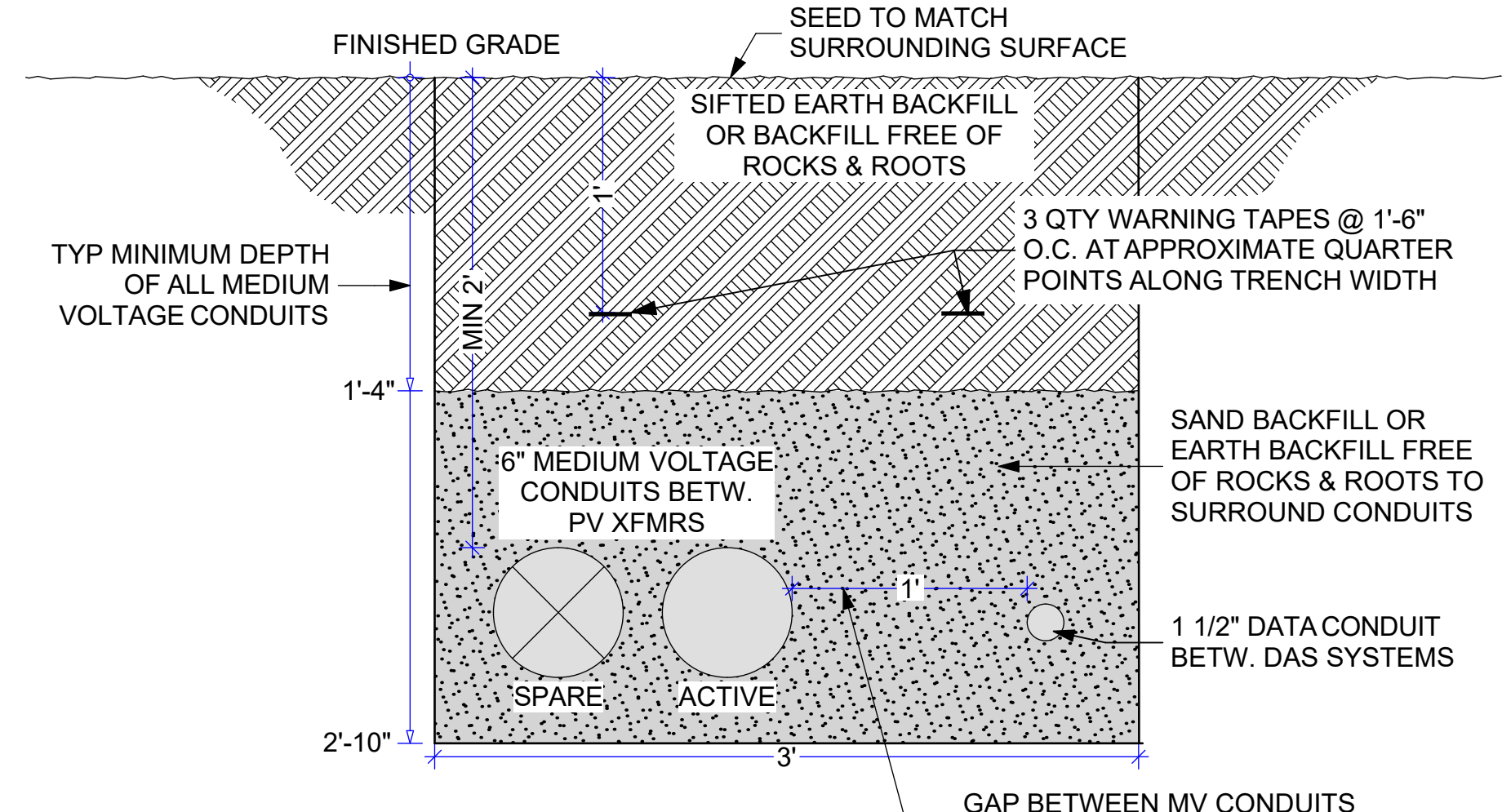
1 MV TRENCH TO INTERCONNECTION

0 6" 12" 18"



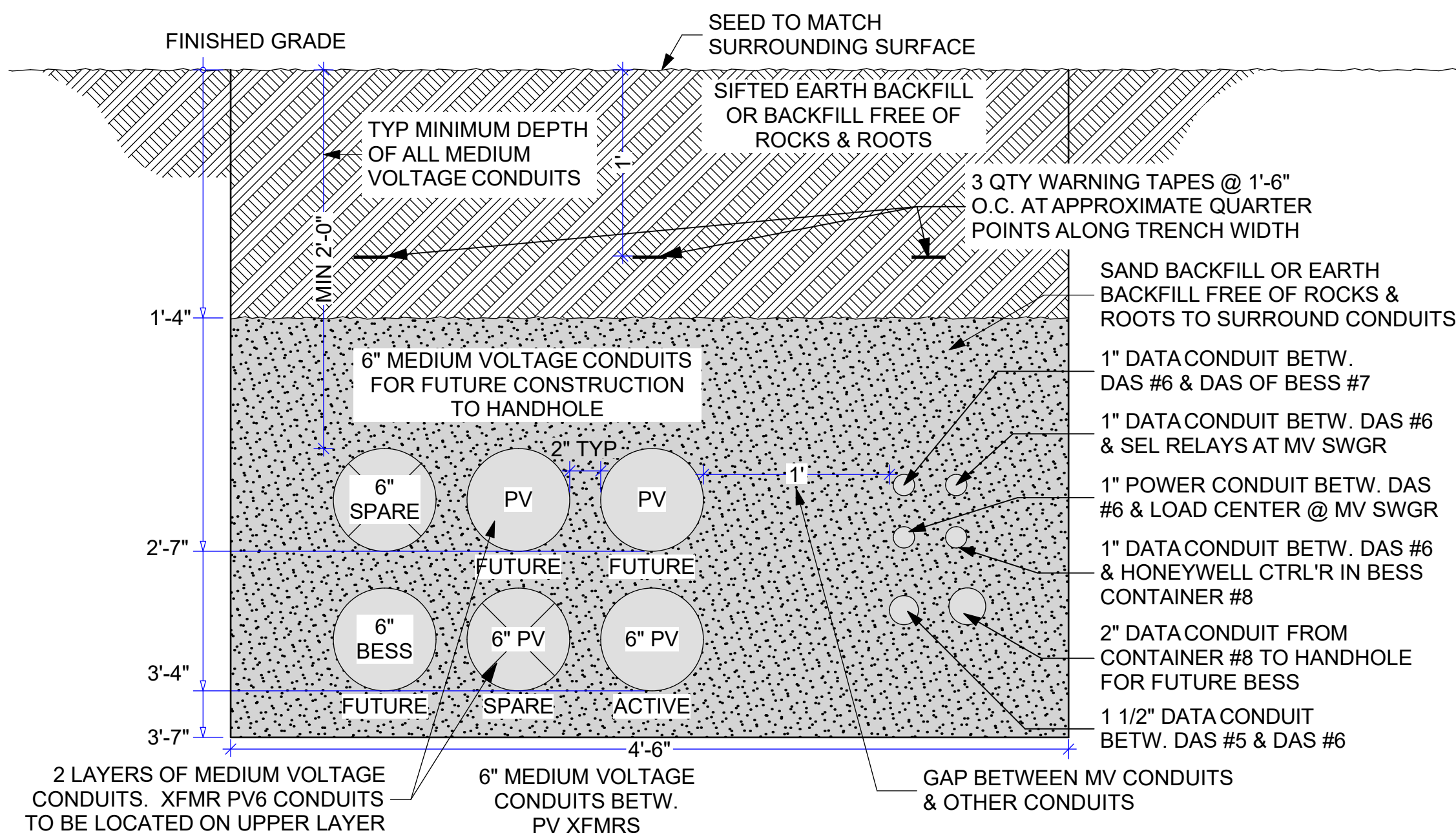
2 TYP MV TRENCH BETW PV PADS

0 6" 12" 18"



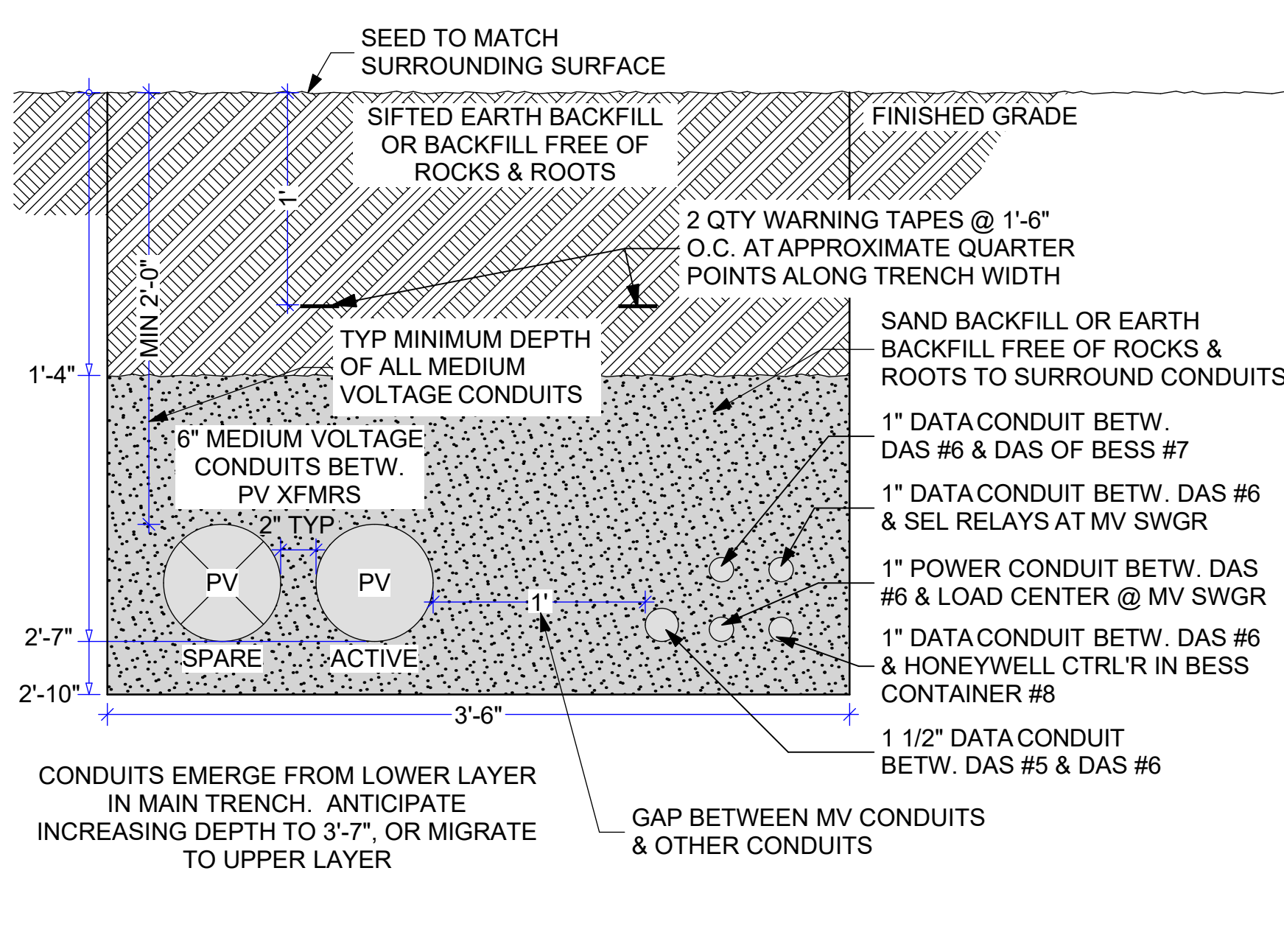
3 MV TRENCH, PV5 TO SWGR

0 6" 12" 18"



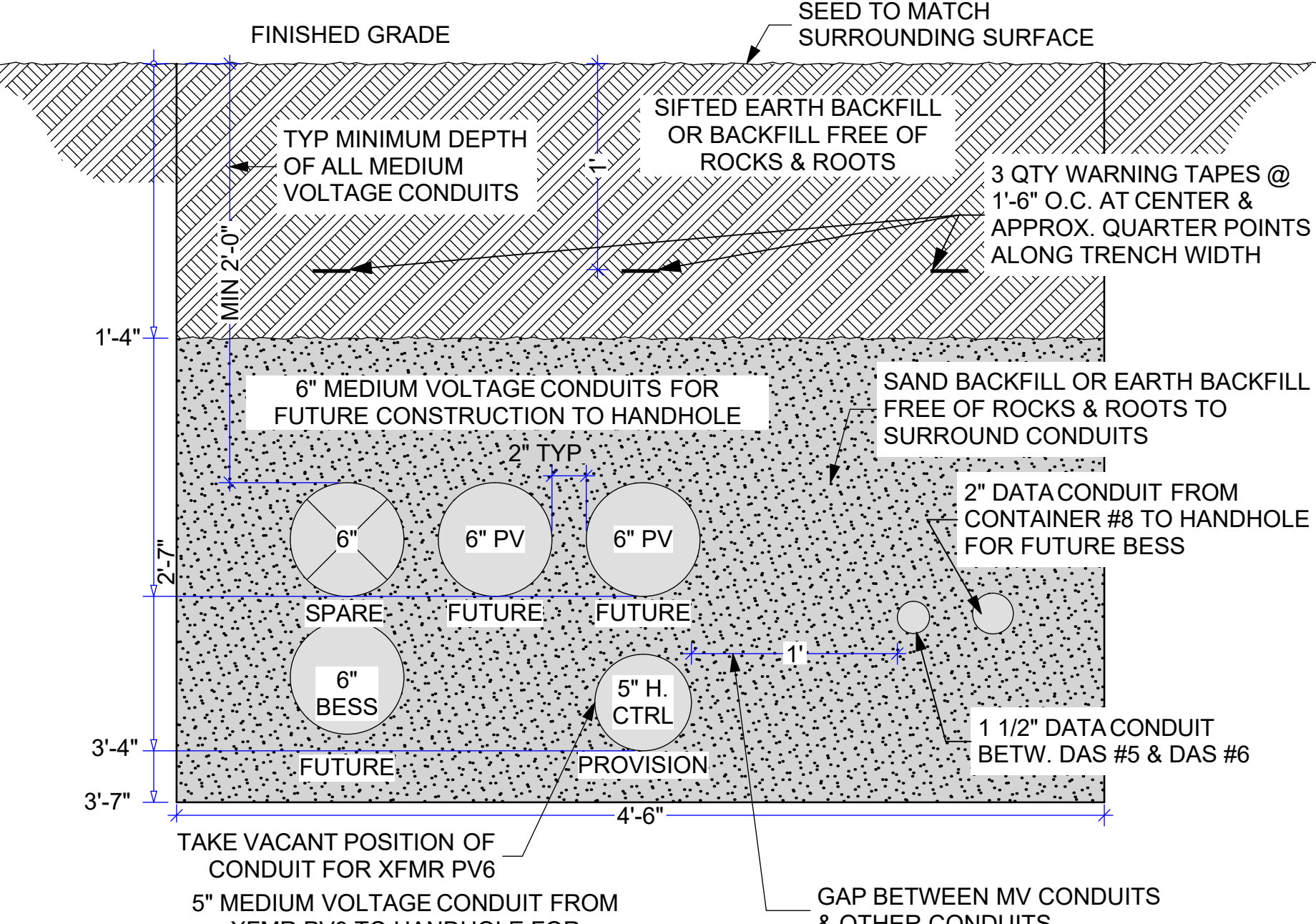
4 MV TRENCH, PV6 TO SWGR W/ FUTURE CONDUITS

0 6" 12" 18"



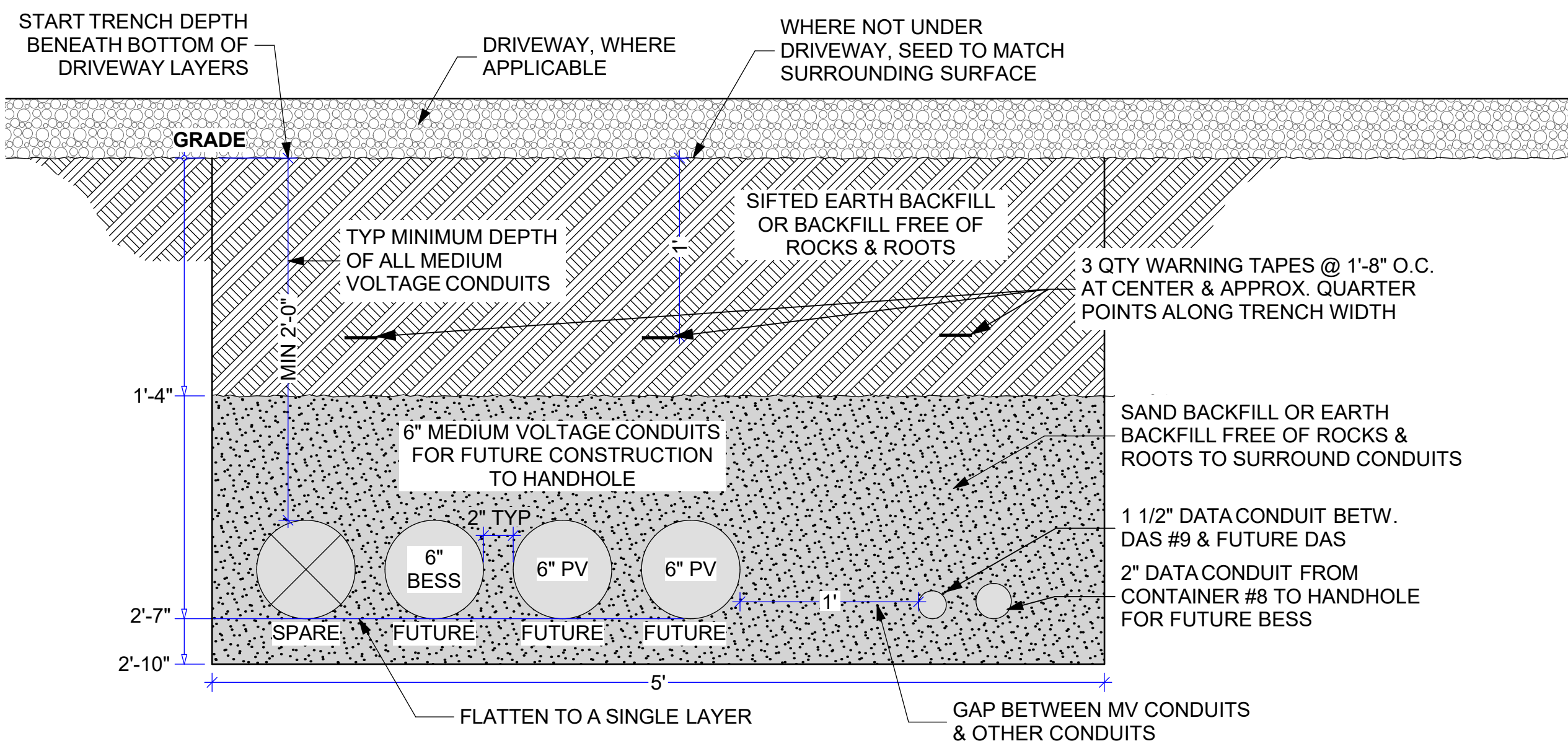
5 MV TRENCH, TO XFMR PV6

0 6" 12" 18"



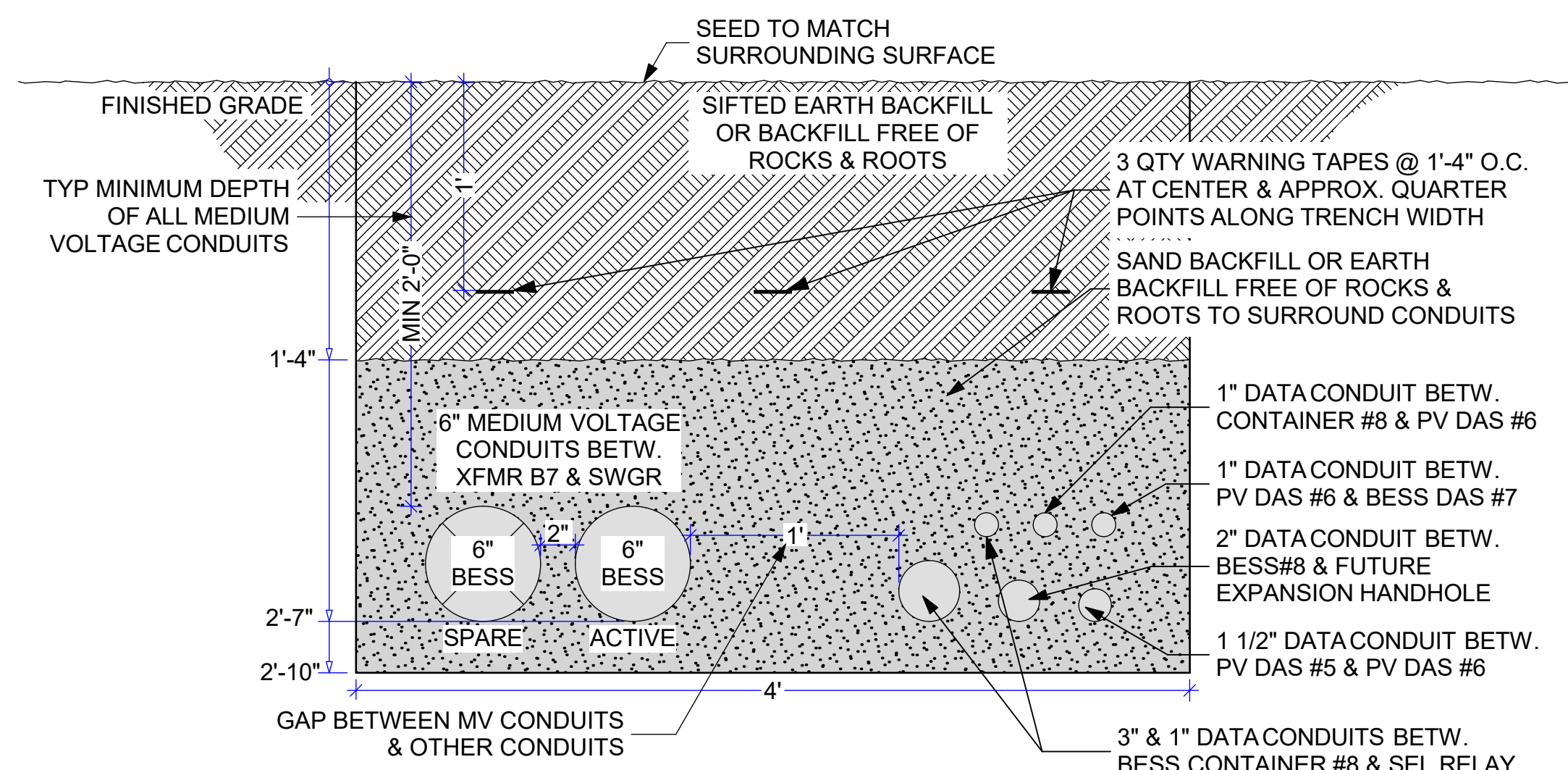
6 MV: FUTURE & H.W. CTRL ROOM POWER

0 6" 12" 18"



7 MV TRENCH, FUTURE CONDUITS

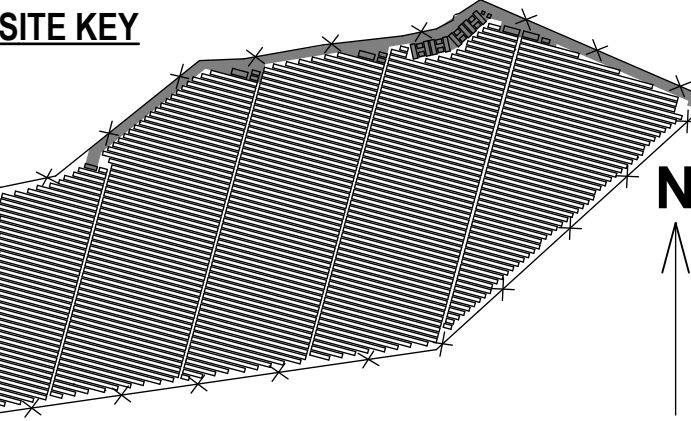
0 6" 12" 18"



8 MV TRENCH, BESS TO SWGR PAD & MISC COMS

0 6" 12" 18"

SITE KEY

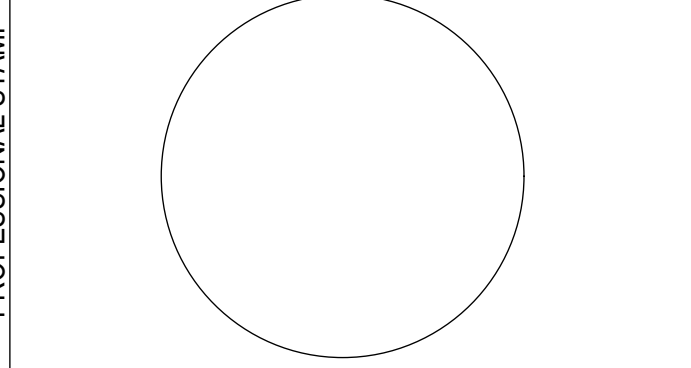


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



REVISION NOTES

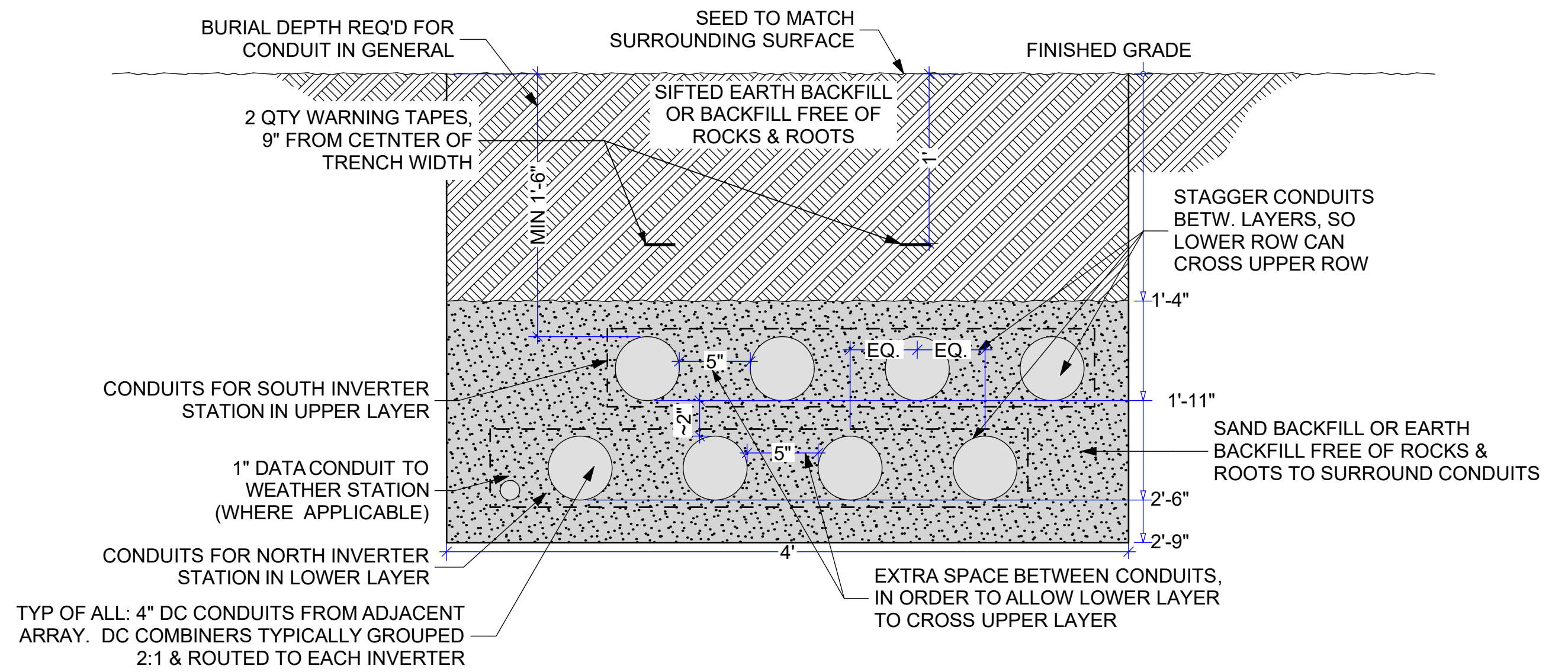
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CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

SITE	NAME
	STREET
	CITY/ST/ZIP
	NOTES

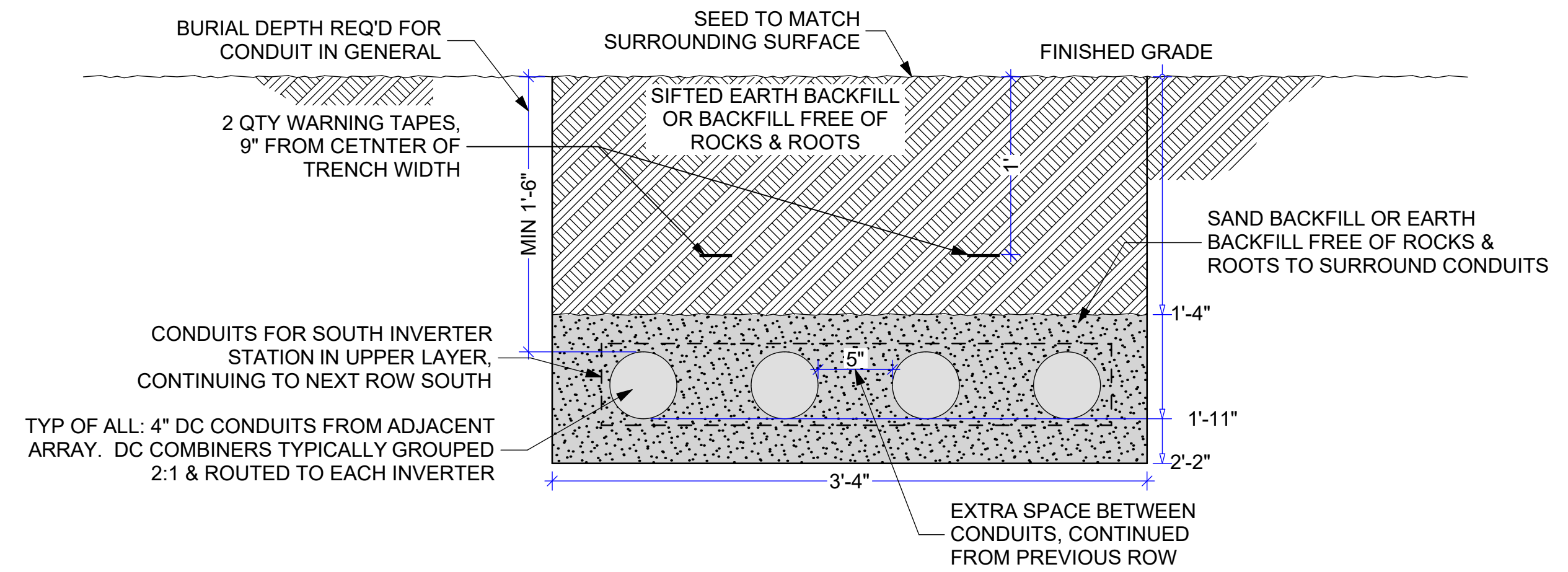
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	DRAWN BY
	CHECKED BY

	DATE DRAFTED: 1/13/2025
	SHEET SIZE: ARCH D
	DRAWING NO. PV304
	DRAWING TITLE TRENCH PROFILES - SHEET 1
	SHEET 23 OF 70



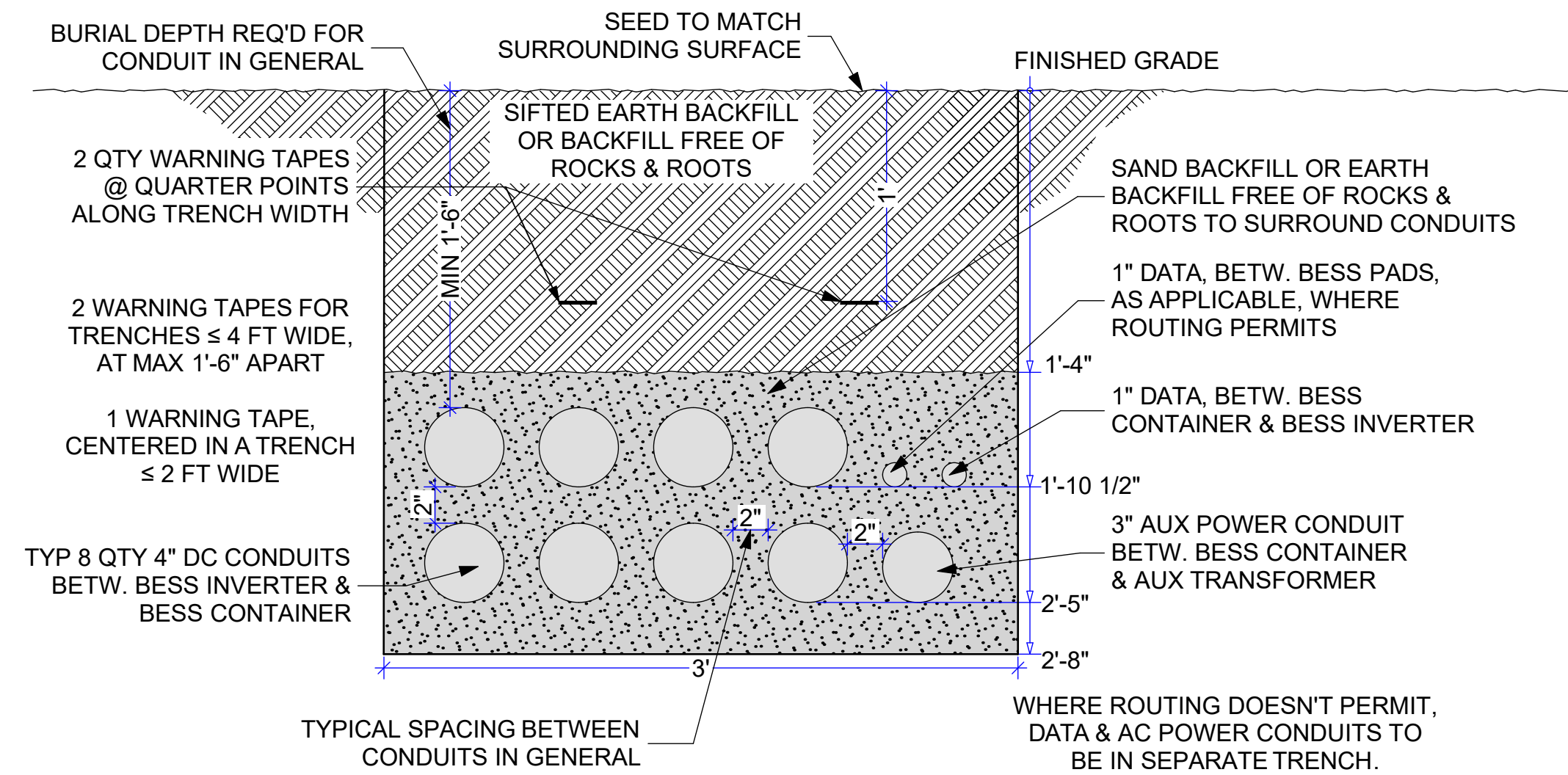
1 TYPICAL PV DC CONDUIT TRENCH

0 6" 12" 18"



2 PV DC CONDUIT TRENCH W/ SINGLE LAYER

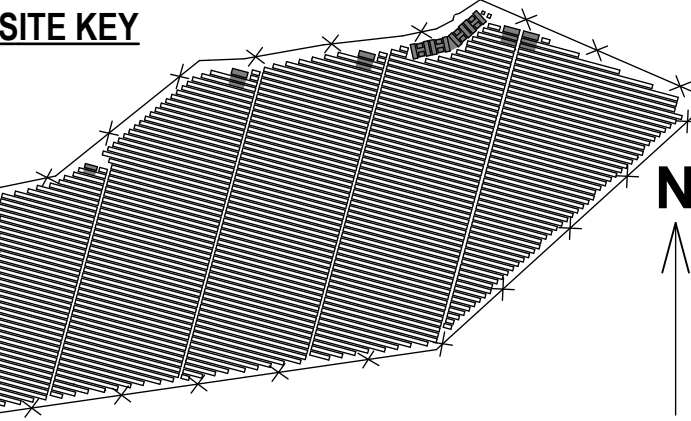
0 6" 12" 18"



3 TYPICAL BESS DC CONDUIT TRENCH

0 6" 12" 18"

SITE KEY

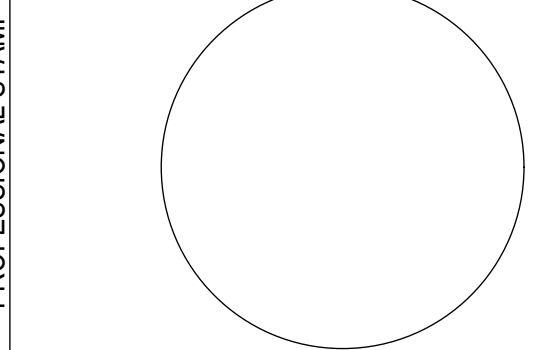


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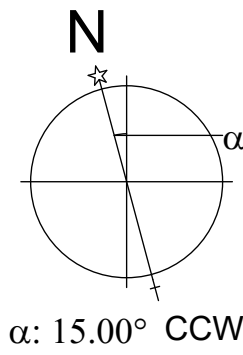
MARK	DATE	DESCRIPTION

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED
DRAWN BY	CH
CHECKED BY	RE
DATE DRAFTED	1/13/2025
SHEET SIZE	ARCH D

DRAWING NO.	PV305
DRAWING TITLE	TRENCH PROFILES - SHEET 2
SHEET 24	OF 70



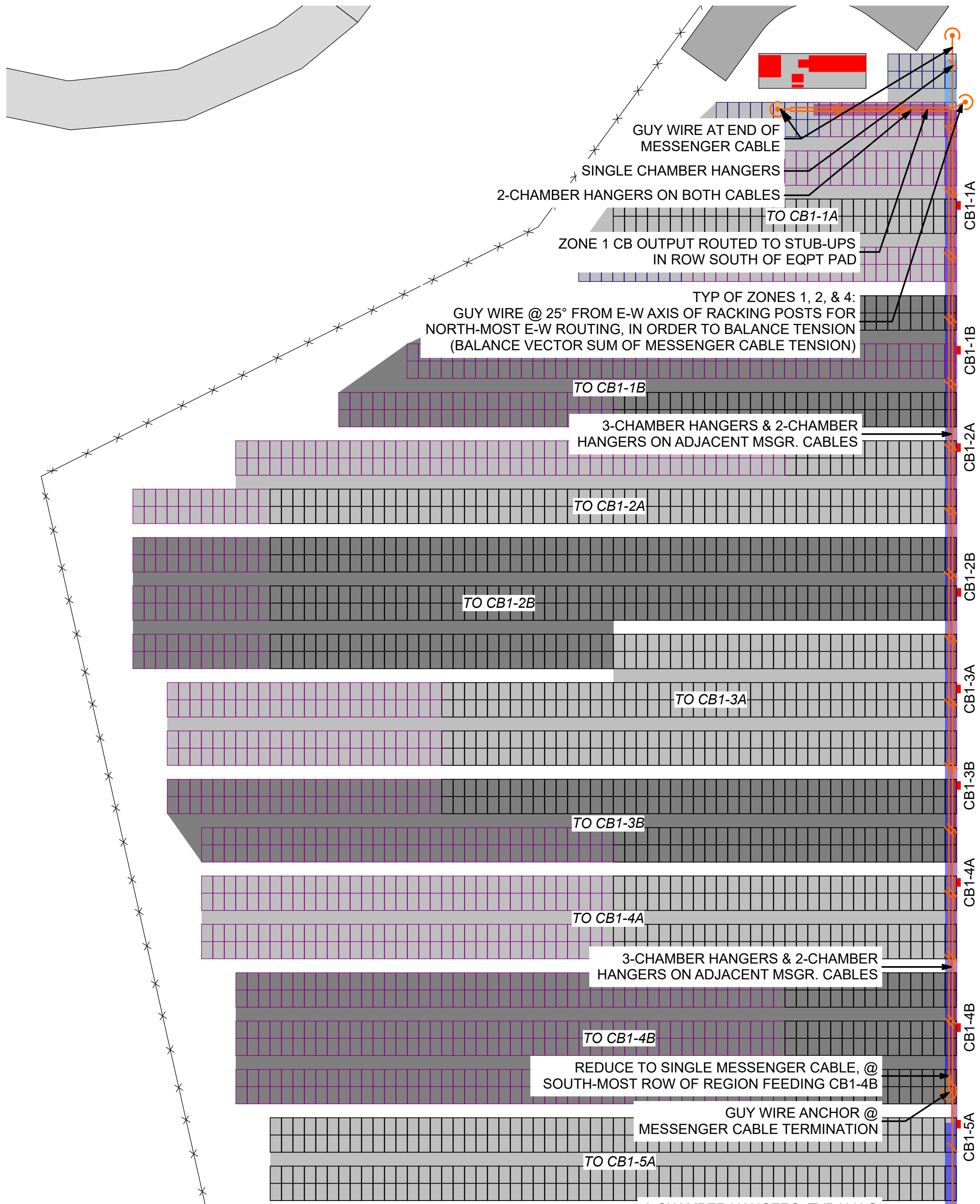
MESSENGER CABLE LAYOUT LEGEND

- MESSENGER WIRE PATH
- SIDE-BY-SIDE MESSENGER CABLES ON OPPOSITE SIDES OF POSTS
- GUY WIRE ANCHOR AT END OF MESSENGER CABLE RUN, OR MAJOR DIRECTION CHANGE. ICON SIZE IS EXAGGERATED.
- DC COMBINER BOX
- SINGLE CHAMBER HANGERS ON MESSENGER CABLE AT 1'-0" O.C., CARRYING ONLY BRANCH CIRCUIT WIRING TO COMBINER
- 3-CHAMBER CAB HANGERS ON MESSENGER CABLE AT 2'-0" O.C., CARRYING A MIX OF BRANCH CIRCUIT WIRING & COMBINER OUTPUTS
- 2-CHAMBER CAB HANGERS ON MESSENGER CABLE AT 2'-0" O.C., CARRYING ONLY COMBINER OUTPUT WIRING

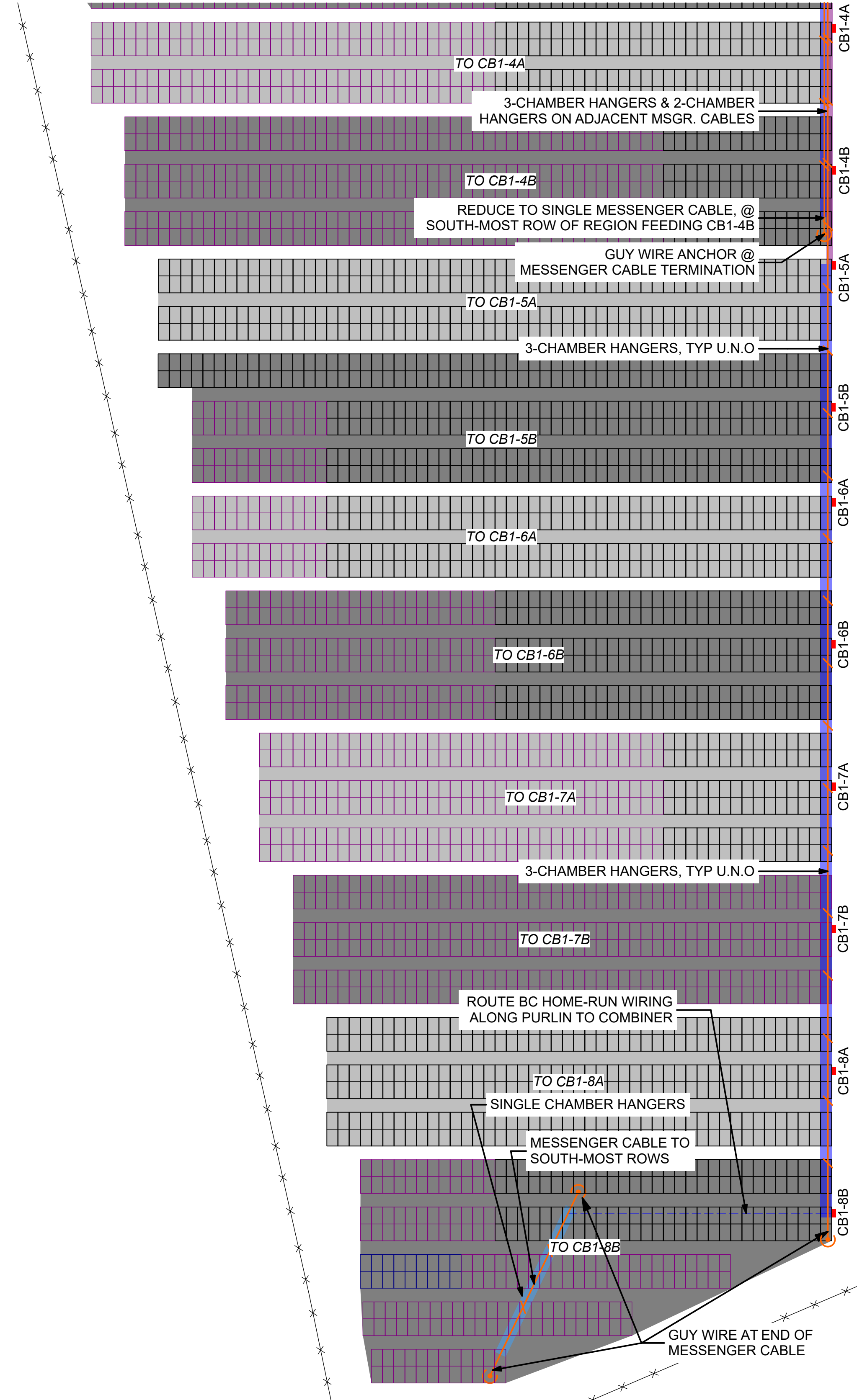
MESSENGER CABLES FOLLOW THE PATH OF RACKING SYSTEM POSTS, AND ARE ATTACHED TO NORTH SIDE POSTS ON EVERY ROW

TYP OF ALL GUY WIRE ANCHORS:

1. LOCATE AT END OF MESSENGER CABLE RUN OR MAJOR CHANGE IN DIRECTION TO BALANCE TENSION.
2. WHERE CABLE TERMINATES, GUY ANCHOR IS OPPOSITE MESSENGER CABLE.
3. WHERE SAME QTY OF MESSENGER CABLES CHANGES DIRECTION, BISECT THE REFLEX ANGLE OF THE DIRECTION CHANGE. E.G. A 90° TURN WILL BISECT THE 270° ANGLE, AND BE 135° FROM BOTH RUNS.
4. IN GENERAL, THE ANCHOR IS OPPOSITE THE VECTOR SUM OF TENSIONS ASSUMING EQUAL TENSIONS IN EACH CABLE. WHERE NOT BISECTING A REFLEX ANGLE OR OPPOSITE A TERMINATION, THE ANGLE WILL BE SPECIFIED AS A SPECIAL CASE.

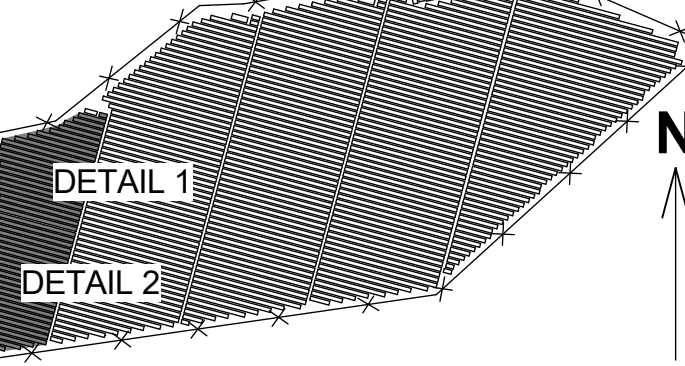


1 MESSENGER CABLE LAYOUT - ZONE 1 (NORTH HALF) 0 30' 60'



2 MESSENGER CABLE LAYOUT - ZONE 1 (SOUTH HALF) 0 30' 60'

SITE KEY

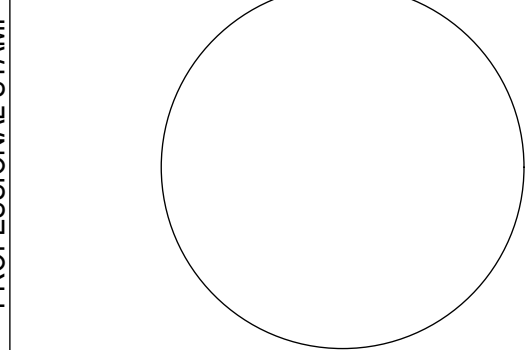


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PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED

DRAWN BY	CH	DATE DRAFTED:	1/13/2025
CHECKED BY	RE	SHEET SIZE:	ARCH D

DRAWING NO.	PV306
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DRAWING TITLE	MSGR. CABLE LAYOUT - SHEET 1 (ZONE 1)
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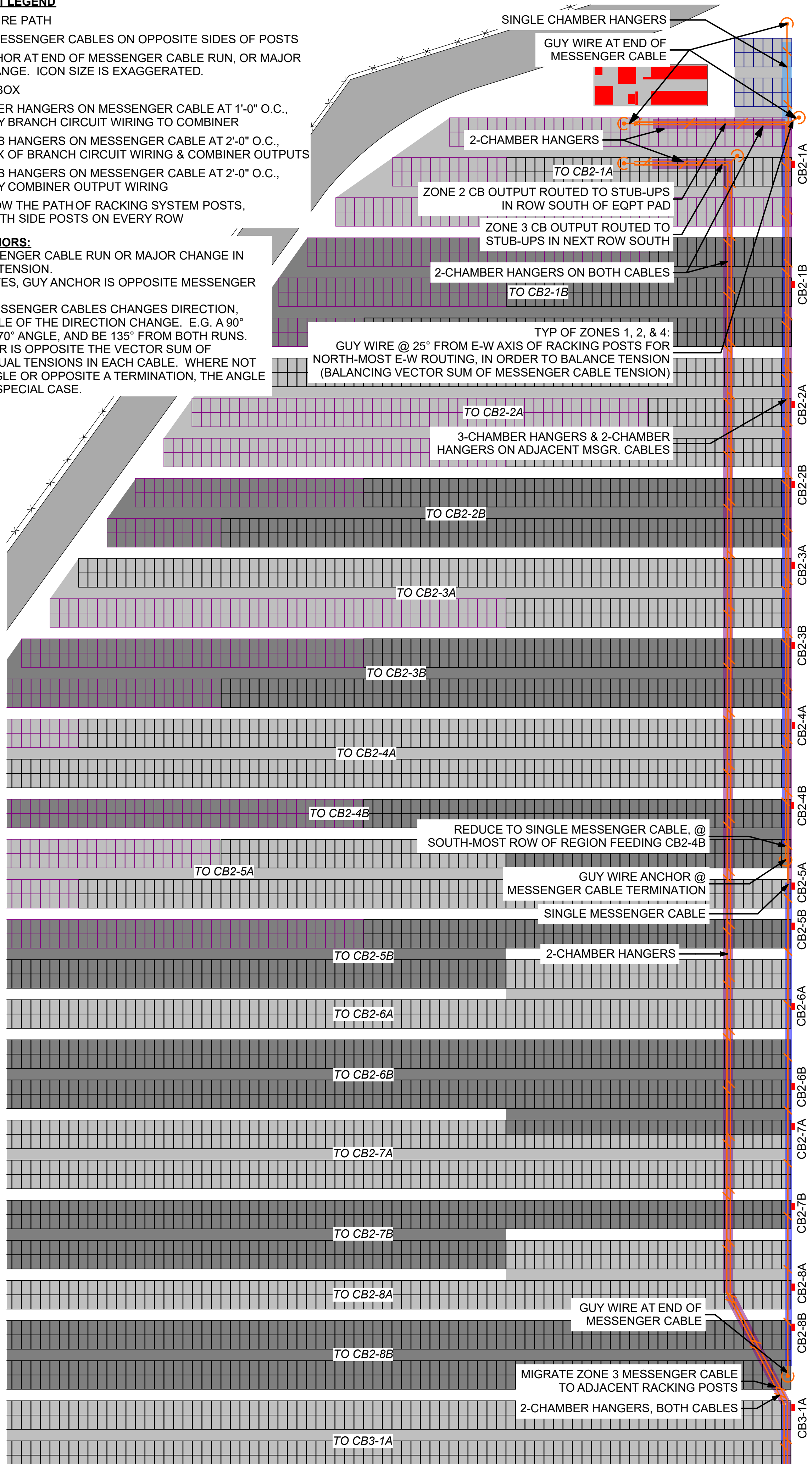
MESSANGER CABLE LAYOUT LEGEND

- MESSANGER WIRE PATH
- SIDE-BY-SIDE MESSENGER CABLES ON OPPOSITE SIDES OF POSTS
- GUY WIRE ANCHOR AT END OF MESSENGER CABLE RUN, OR MAJOR DIRECTION CHANGE. ICON SIZE IS EXAGGERATED.
- DC COMBINER BOX
- SINGLE CHAMBER HANGERS ON MESSENGER CABLE AT 1'-0" O.C., CARRYING ONLY BRANCH CIRCUIT WIRING TO COMBINER
- 3-CHAMBER CAB HANGERS ON MESSENGER CABLE AT 2'-0" O.C., CARRYING A MIX OF BRANCH CIRCUIT WIRING & COMBINER OUTPUTS
- 2-CHAMBER CAB HANGERS ON MESSENGER CABLE AT 2'-0" O.C., CARRYING ONLY COMBINER OUTPUT WIRING

MESSANGER CABLES FOLLOW THE PATH OF RACKING SYSTEM POSTS, AND ARE ATTACHED TO NORTH SIDE POSTS ON EVERY ROW

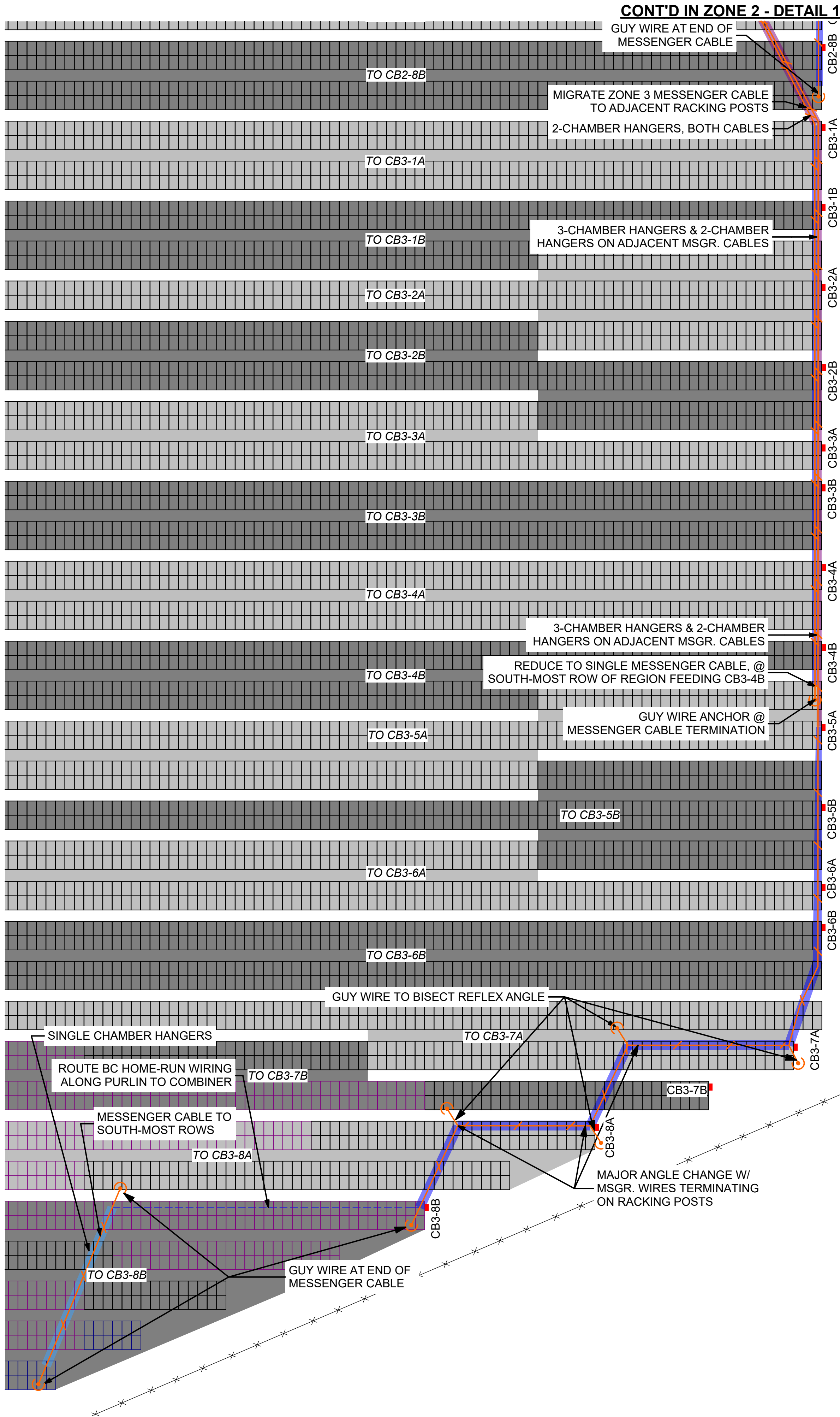
TYP OF ALL GUY WIRE ANCHORS:

- LOCATE AT END OF MESSENGER CABLE RUN OR MAJOR CHANGE IN DIRECTION TO BALANCE TENSION.
- WHERE CABLE TERMINATES, GUY ANCHOR IS OPPOSITE MESSENGER CABLE.
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1 MSGR. CABLE LAYOUT - ZONE 2

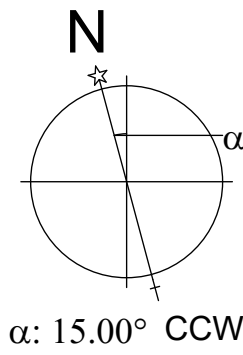
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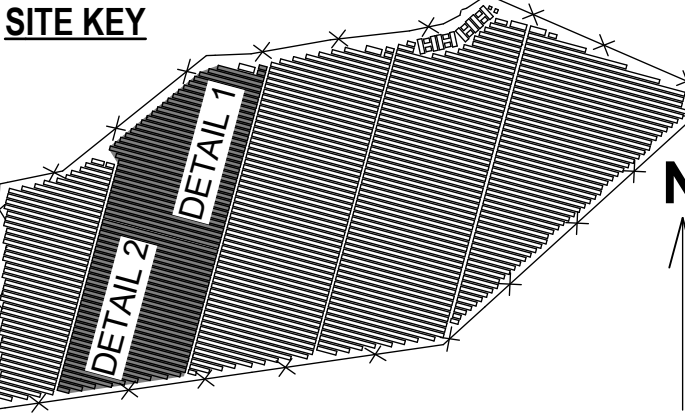
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CONT'D IN ZONE 2 - DETAIL 1



SITE KEY

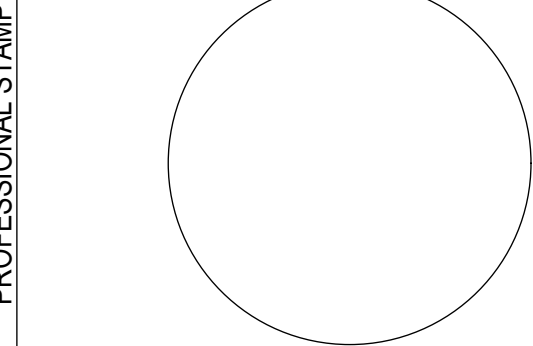


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED
DRAWN BY	CH
CHECKED BY	RE
DATE DRAFTED	1/13/2025
SHEET SIZE	ARCH D

DRAWING NO.	PV307
DRAWING TITLE	MSGR. CABLE LAYOUT - SHEET 2 (ZONES 2 & 3)
SHEET	26 OF 70

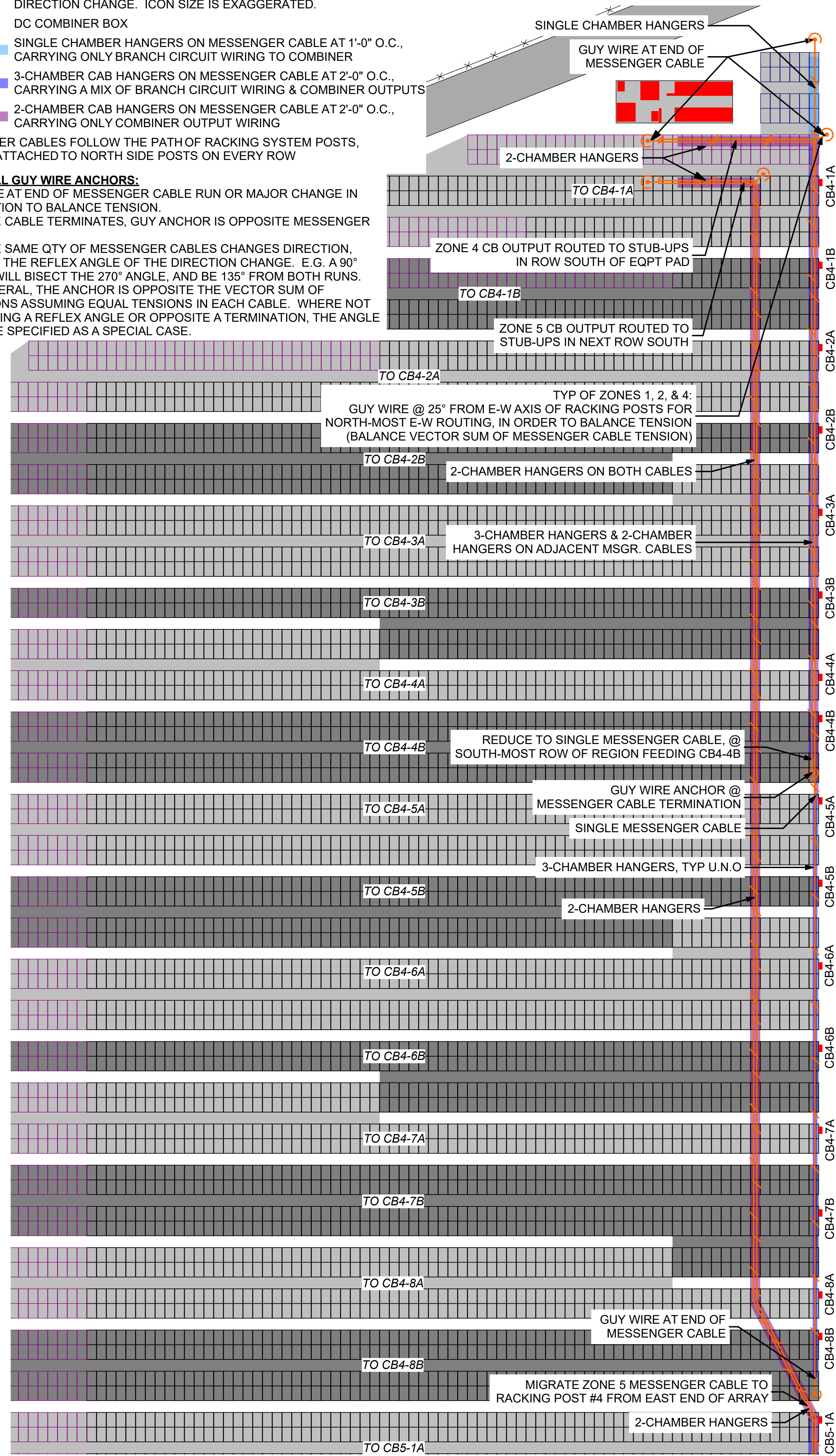
MESSANGER CABLE LAYOUT LEGEND

- MESSANGER WIRE PATH
- SIDE-BY-SIDE MESSENGER CABLES ON OPPOSITE SIDES OF POSTS
- GUY WIRE ANCHOR AT END OF MESSENGER CABLE RUN, OR MAJOR DIRECTION CHANGE. ICON SIZE IS EXAGGERATED.
- DC COMBINER BOX
- SINGLE CHAMBER HANGERS ON MESSENGER CABLE AT 1'-0" O.C., CARRYING ONLY BRANCH CIRCUIT WIRING TO COMBINER
- 3-CHAMBER CAB HANGERS ON MESSENGER CABLE AT 2'-0" O.C., CARRYING A MIX OF BRANCH CIRCUIT WIRING & COMBINER OUTPUTS
- 2-CHAMBER CAB HANGERS ON MESSENGER CABLE AT 2'-0" O.C., CARRYING ONLY COMBINER OUTPUT WIRING

MESSENGER CABLES FOLLOW THE PATH OF RACKING SYSTEM POSTS, AND ARE ATTACHED TO NORTH SIDE POSTS ON EVERY ROW

TYP OF ALL GUY WIRE ANCHORS:

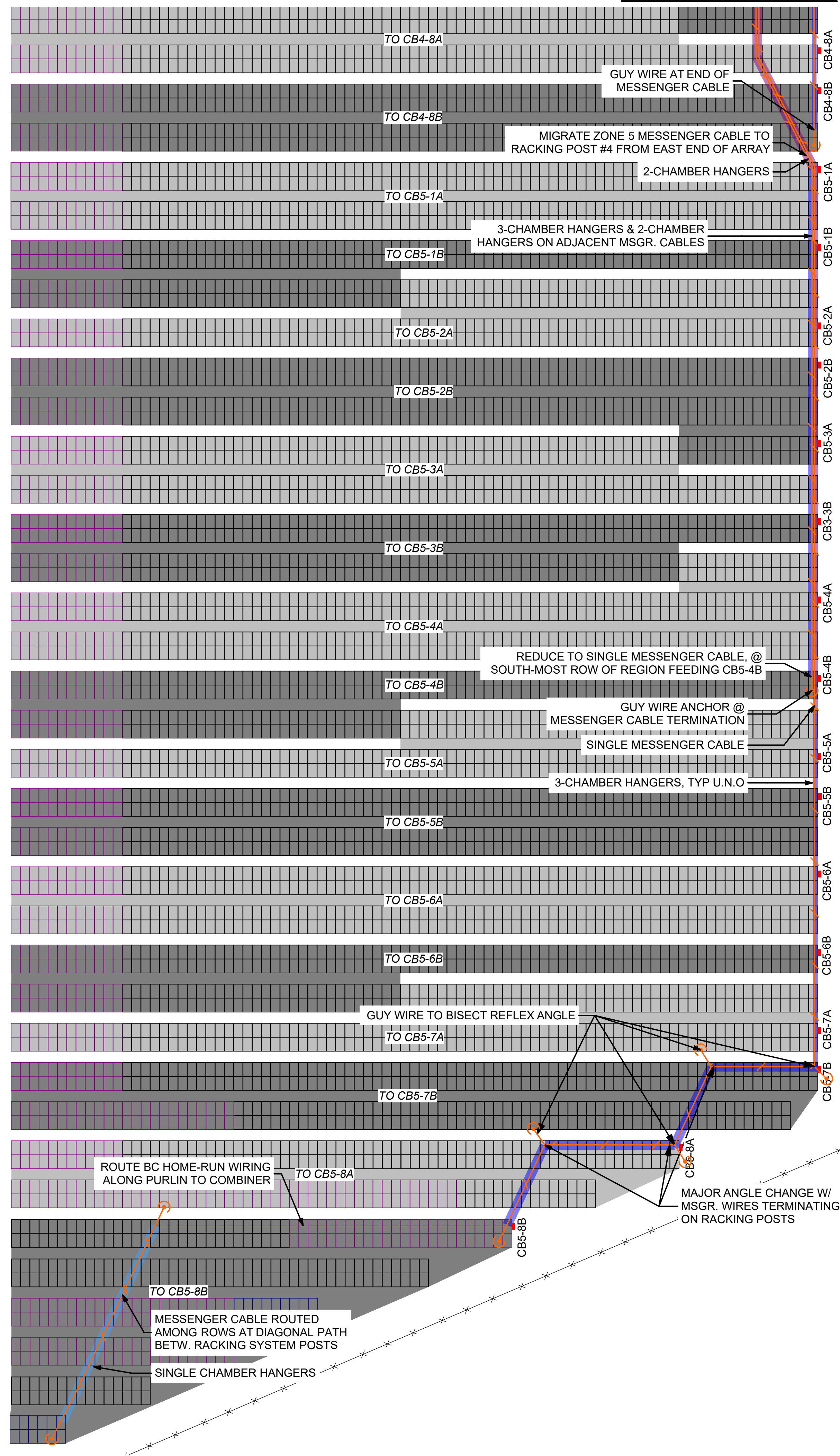
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1 MSGR. CABLE LAYOUT - ZONE 4

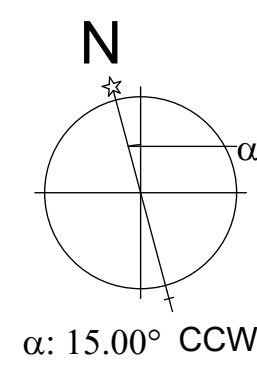
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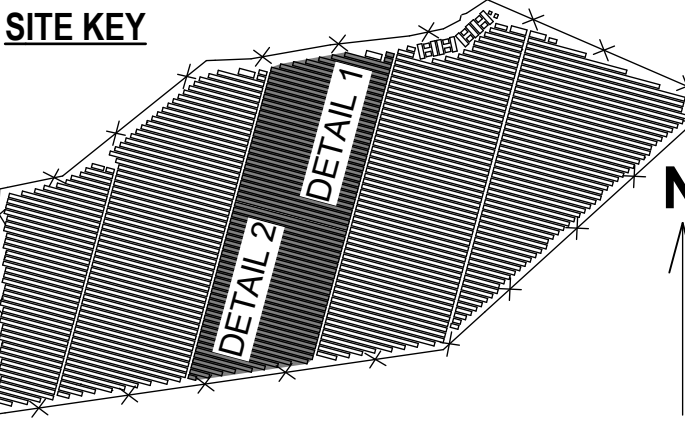


2 MSGR. CABLE LAYOUT - ZONE 5

0 30' 60'



SITE KEY

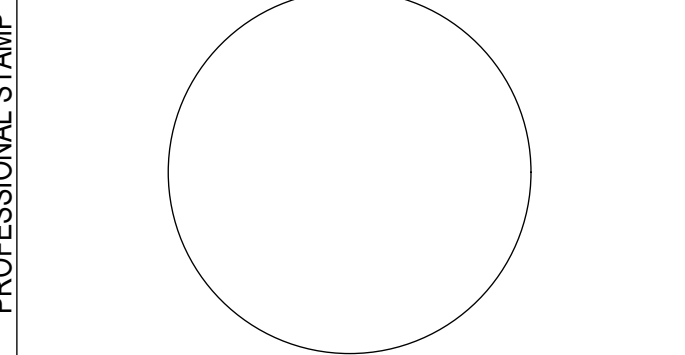


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

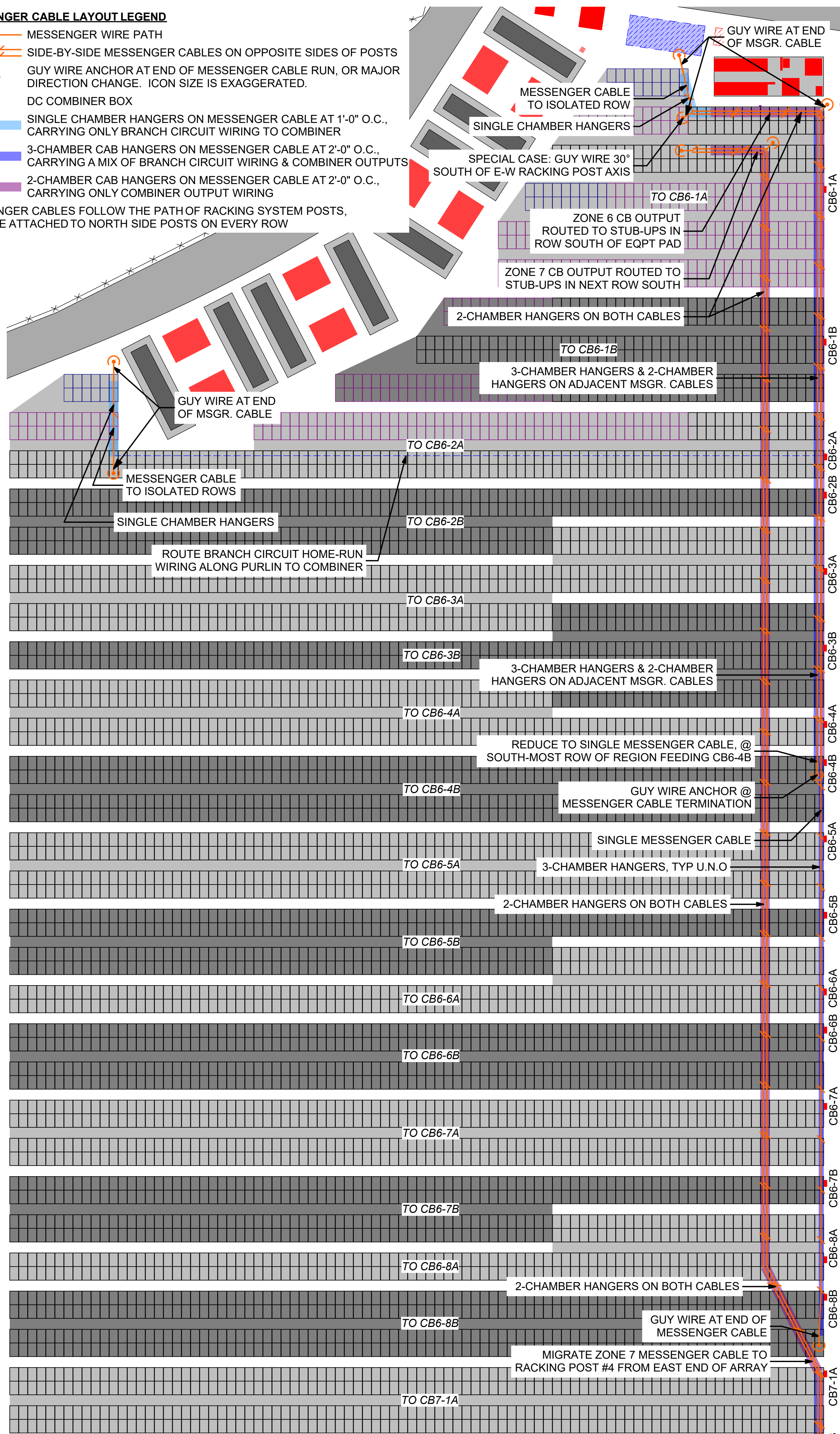
SITE	NAME
	STREET
	CITY/ST/ZIP
	NOTES

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED
DRAWN BY	CH
CHECKED BY	RE
	DATE DRAFTED: 1/13/2025
	SHEET SIZE: ARCH D

DRAWING NO.	PV308
DRAWING TITLE	MSGR. CABLE LAYOUT - SHEET 3 (ZONES 4 & 5)
	SHEET 27 OF 70

MESSANGER CABLE LAYOUT LEGEND

- MESSANGER WIRE PATH
 - SIDE-BY-SIDE MESSANGER CABLES ON OPPOSITE SIDES OF POSTS
 - GUY WIRE ANCHOR AT END OF MESSANGER CABLE RUN, OR MAJOR DIRECTION CHANGE. ICON SIZE IS EXAGGERATED.
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 - SINGLE CHAMBER HANGERS ON MESSANGER CABLE AT 1'-0" O.C., CARRYING ONLY BRANCH CIRCUIT WIRING TO COMBINER
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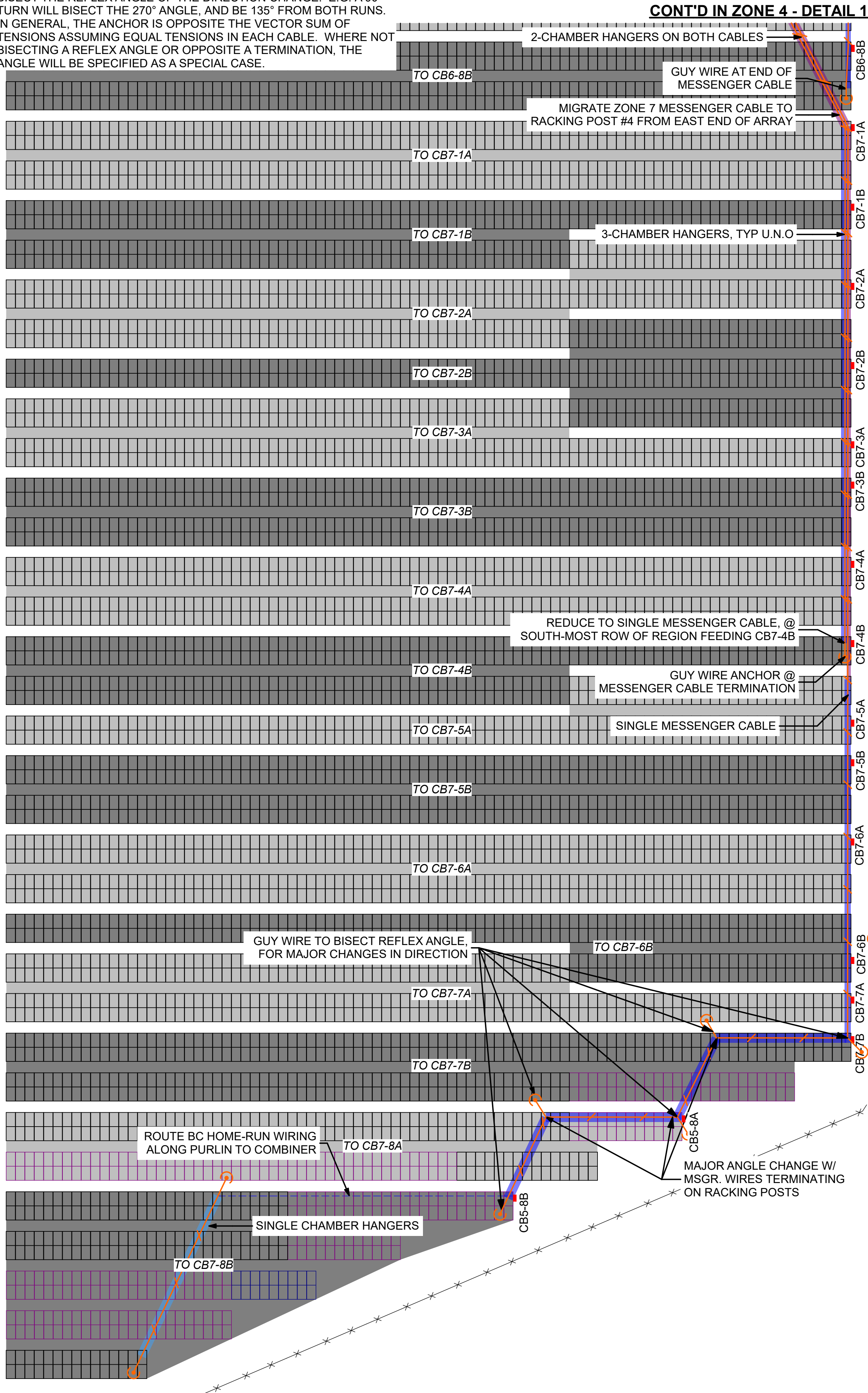


1 MSGR. CABLE LAYOUT - ZONE 6

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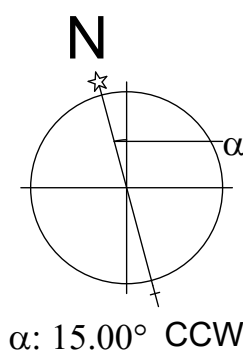
GUY WIRE ANCHOR NOTES:

1. LOCATE AT END OF MESSANGER CABLE RUN OR MAJOR CHANGE IN DIRECTION TO BALANCE TENSION.
2. WHERE CABLE TERMINATES, GUY ANCHOR IS OPPOSITE MESSANGER CABLE.
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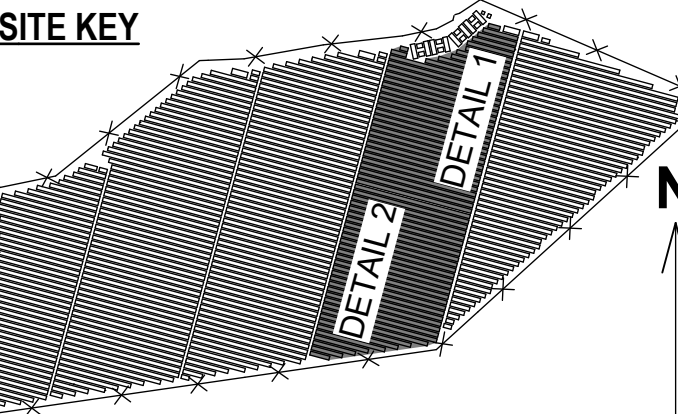


2 MSGR. CABLE LAYOUT - ZONE 7

0 30' 60'



SITE KEY

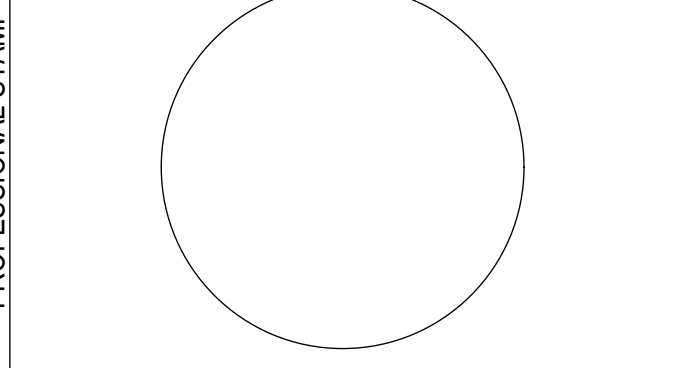


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

CONTRACTOR	NAME

SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED

DRAWN BY	CH	DATE DRAFTED:	1/13/2025
CHECKED BY	RE	SHEET SIZE:	ARCH D

DRAWING NO.	PV309
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DRAWING TITLE	MSGR. CABLE LAYOUT - SHEET 4 (ZONES 6 & 7)
	SHEET 28 OF 70

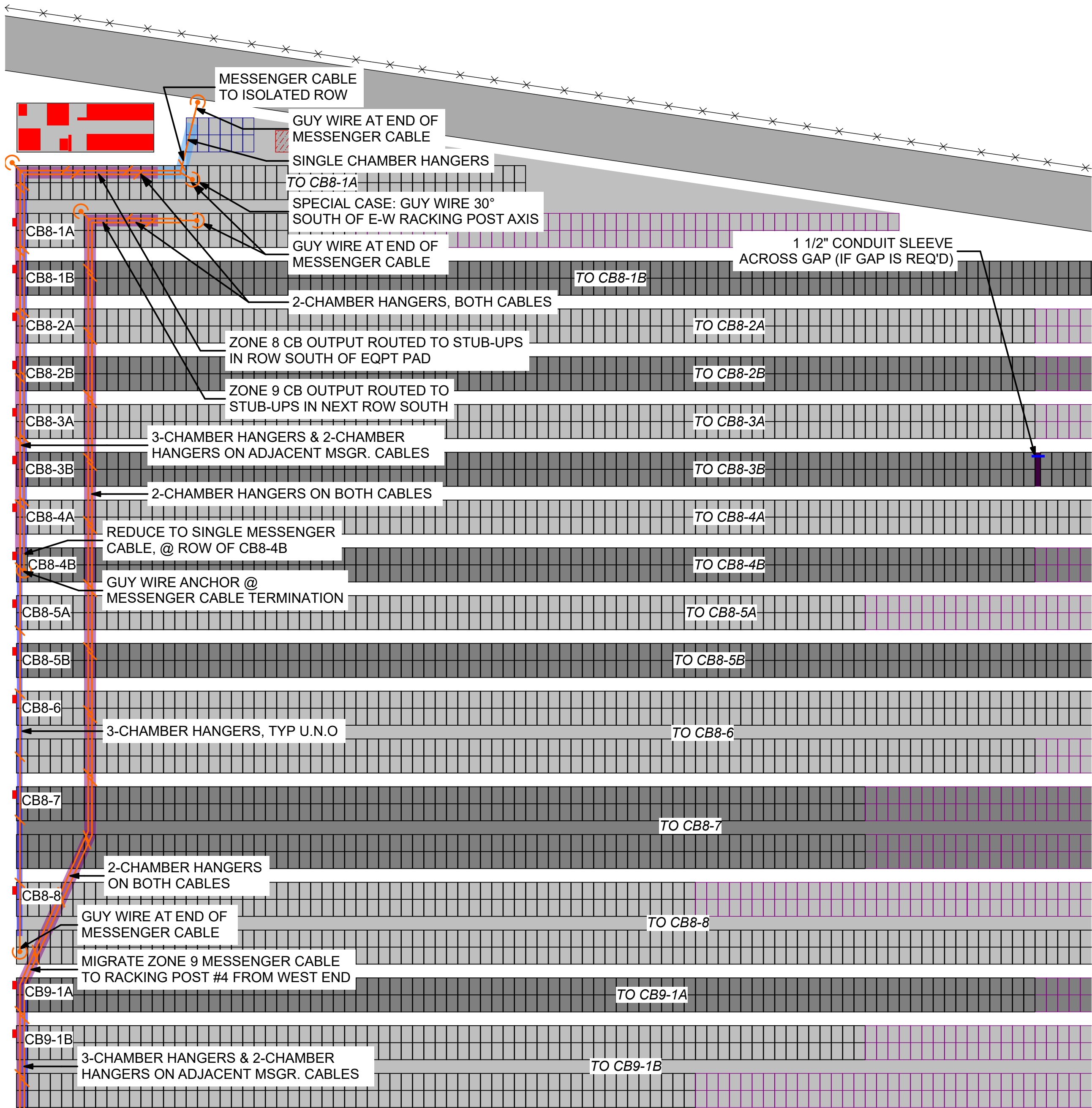
MESSANGER CABLE LAYOUT LEGEND

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- GUY WIRE ANCHOR AT END OF MESSENGER CABLE RUN, OR MAJOR DIRECTION CHANGE. ICON SIZE IS EXAGGERATED.
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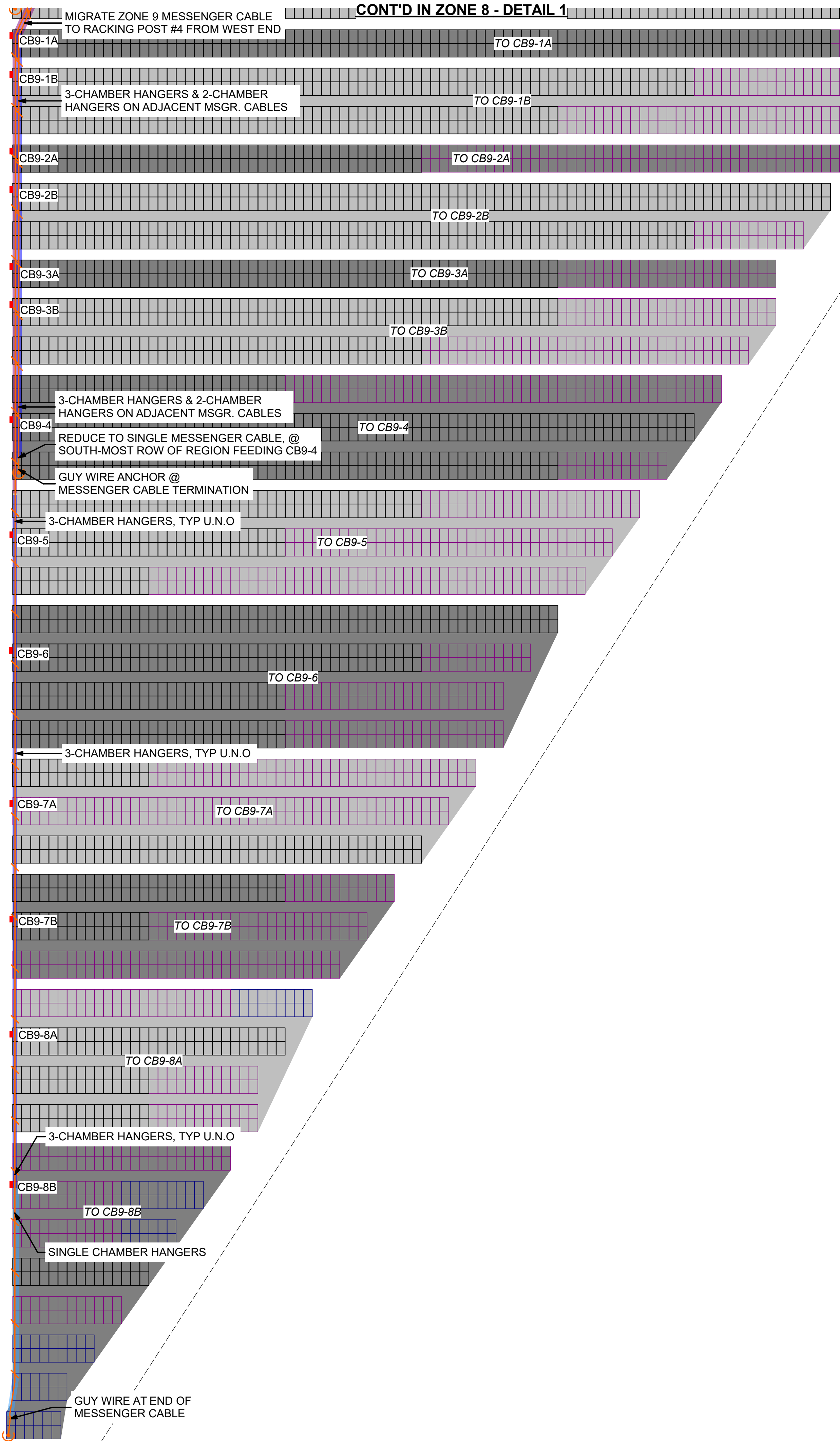
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CONT'D IN ZONE 9 - DETAIL 2

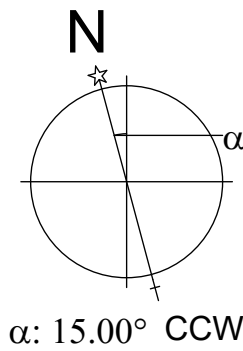
1 MSGR. CABLE LAYOUT - ZONE 8

0 30' 60'



2 MSGR. CABLE LAYOUT - ZONE 9

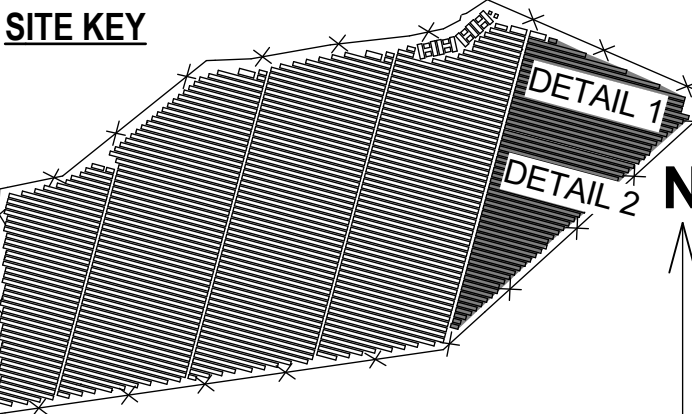
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α: 15.00° CCW



SITE KEY

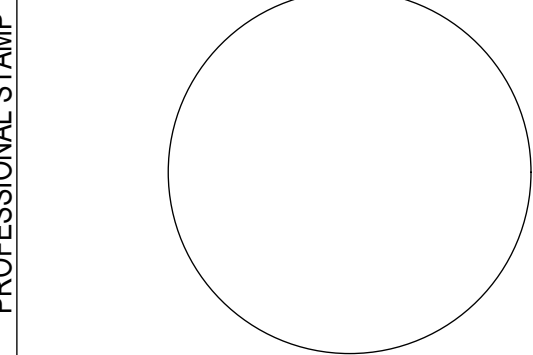


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

CONTRACTOR	NAME

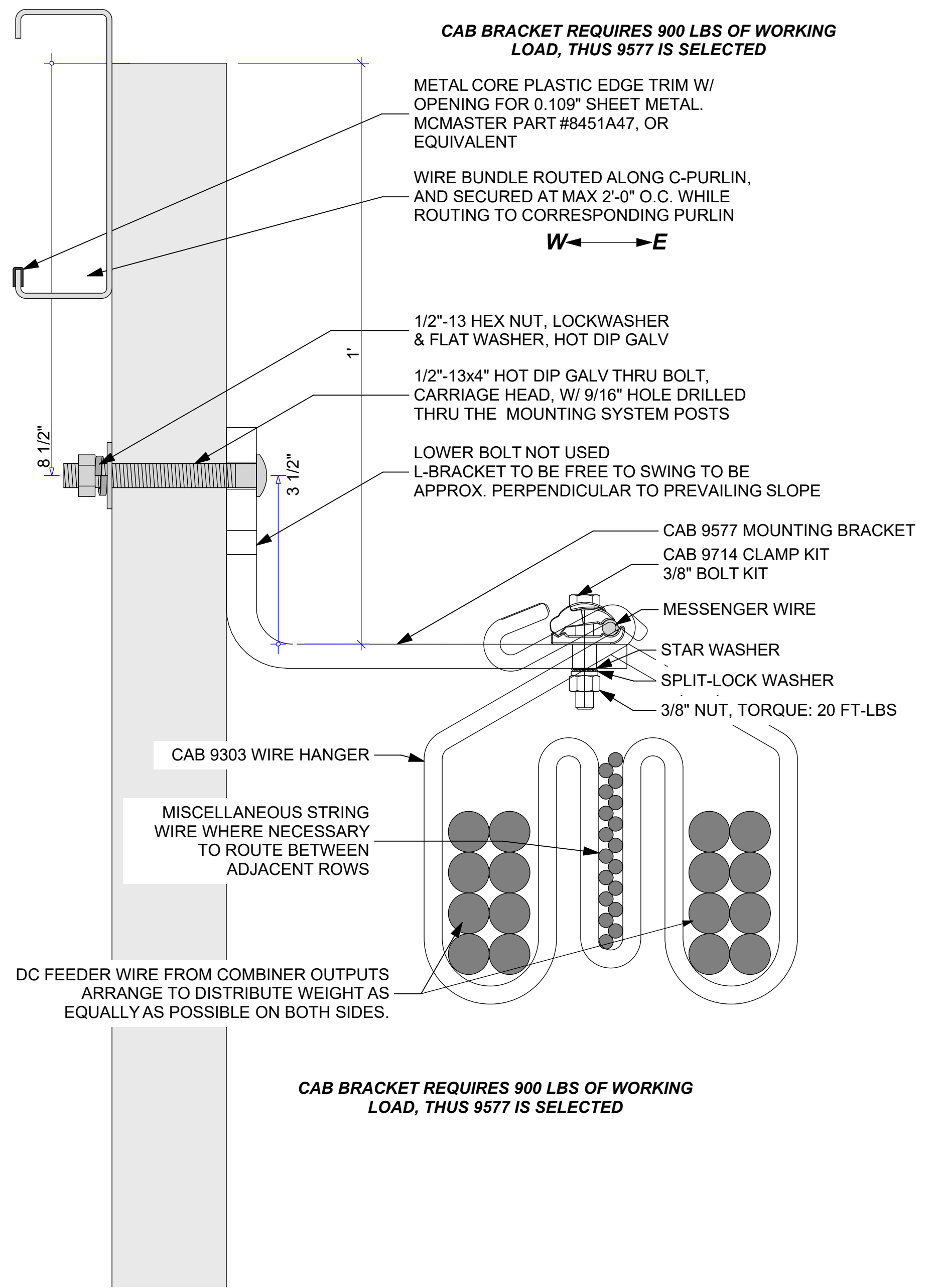
SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED

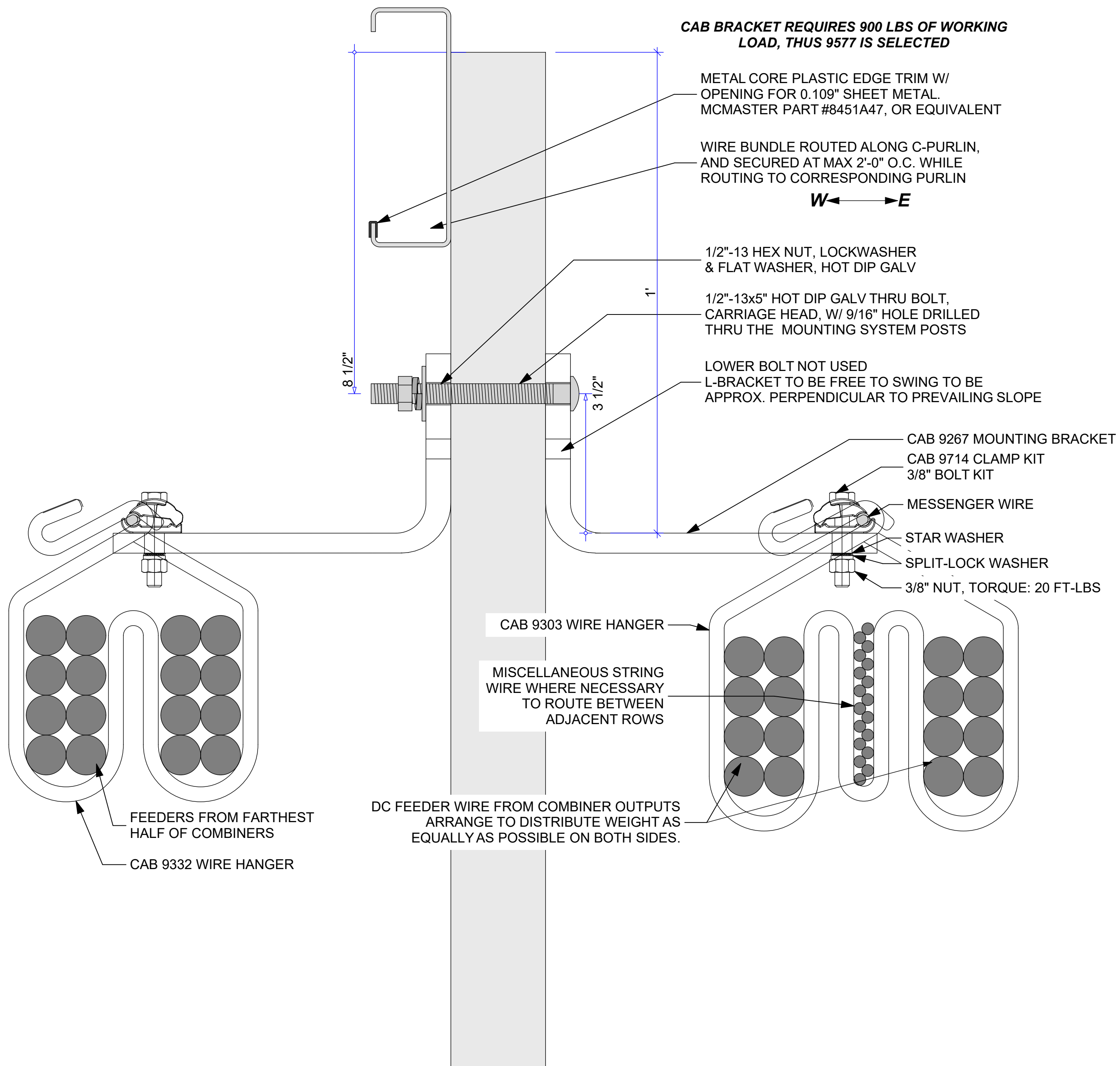
DRAWN BY	CH	DATE DRAFTED:	1/13/2025
CHECKED BY	RE	SHEET SIZE:	ARCH D

DRAWING NO.	PV310
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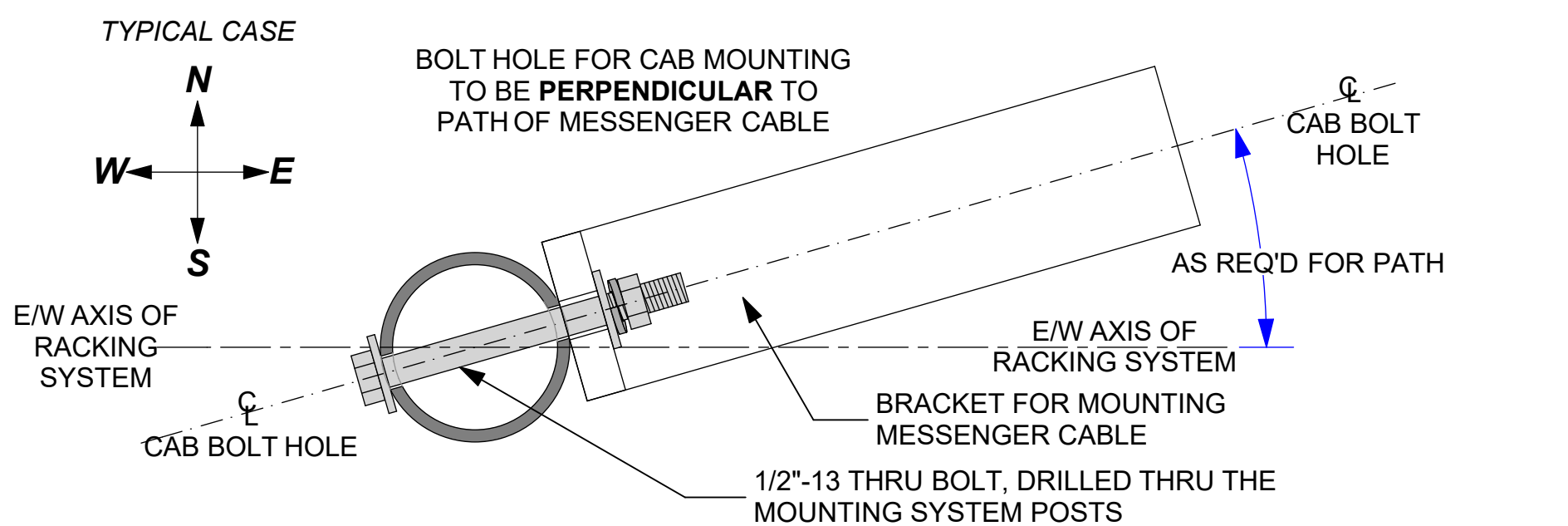
DRAWING TITLE	MSGR. CABLE LAYOUT - SHEET 5 (ZONES 8 & 9)
	SHEET 29 OF 70



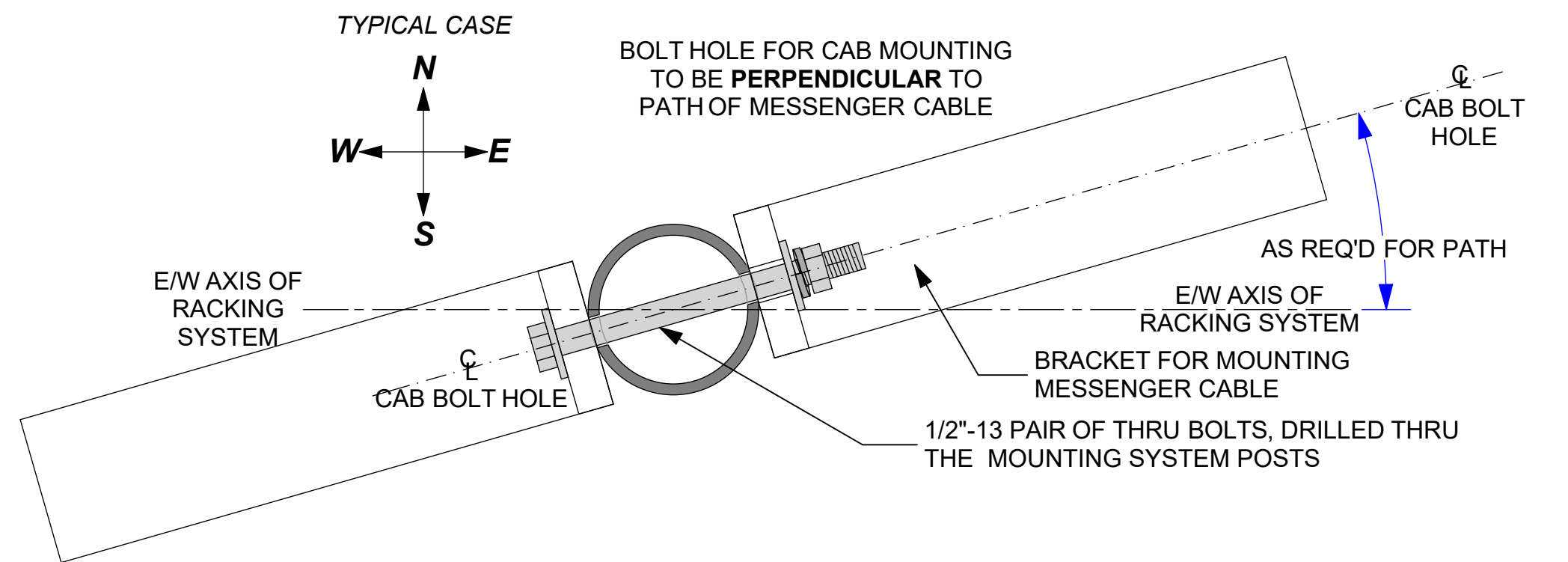
1 MESSENGER CABLE MOUNTING DETAILS 0 1" 2" 4"



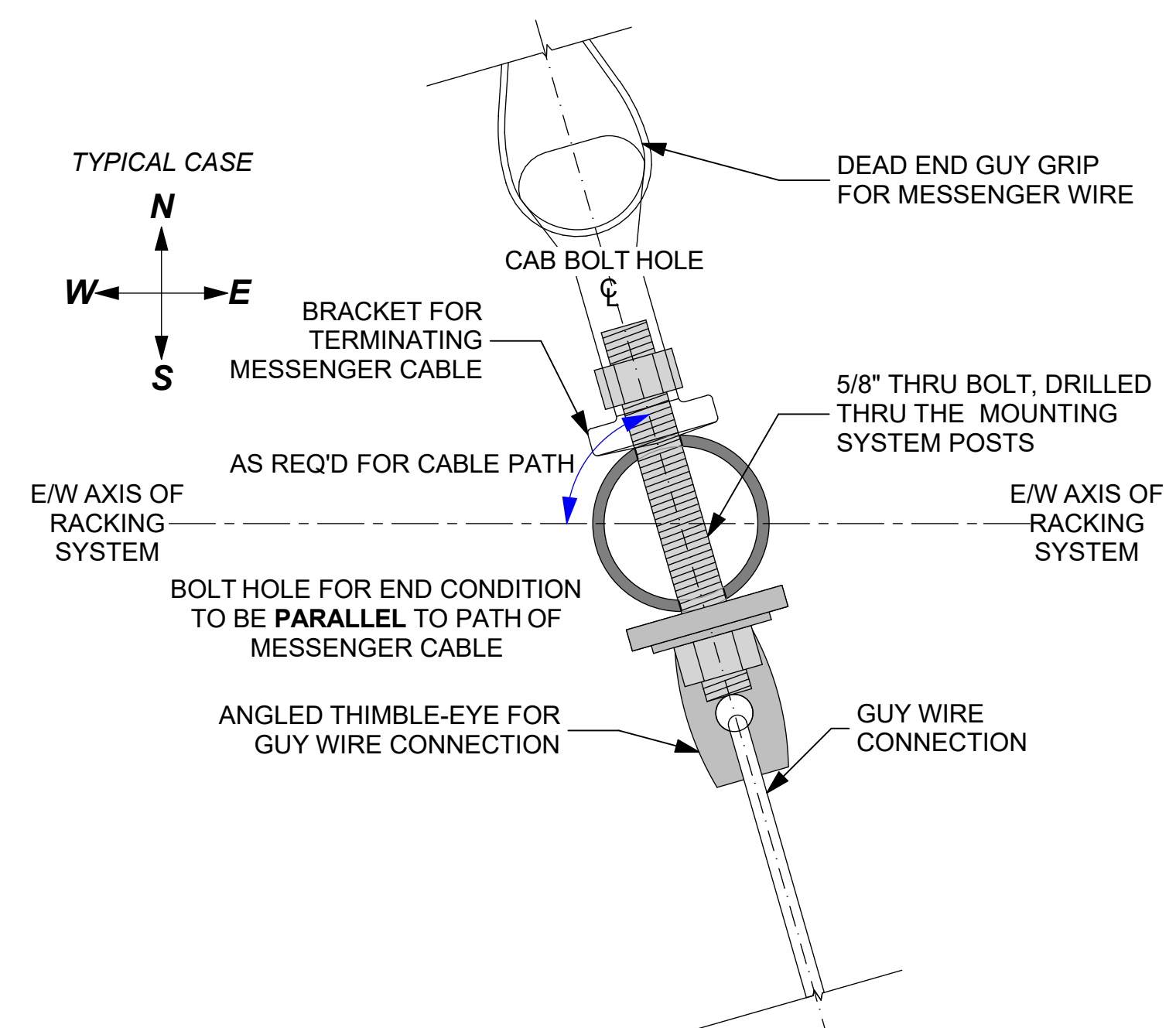
2 MESSENGER CABLE DETAILS - DOUBLE CABLE 0 1" 2" 4"



3 MESSENGER CABLE MOUNT - PLAN VIEW 0 1" 2" 4"



4 DOUBLE MESSENGER CABLE MOUNT - PLAN VIEW 0 1" 2" 4"



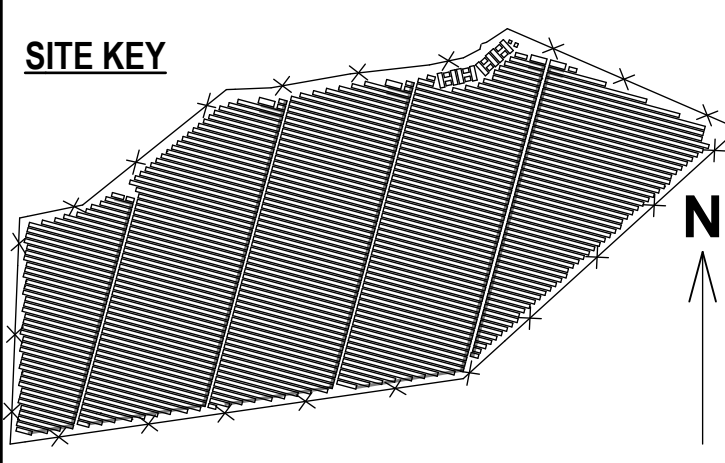
5 MESSENGER CABLE TERMINATION 0 1" 2" 4"



HARVARD, MA 01451-0242
www.solar design.com

tel: 978-456-6555
fax: 978-772-9715

SITE KEY



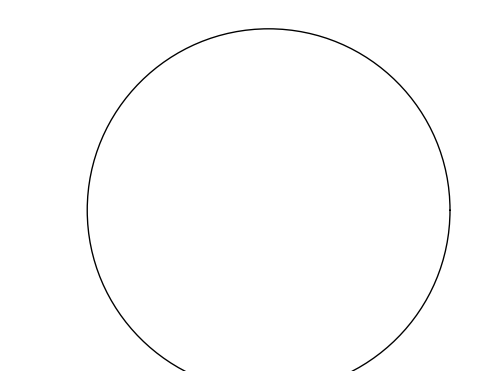
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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025

PROFESSIONAL STAMP



MARK	DATE	DESCRIPTION

CONTRACTOR

NAME

STREET

CITY/ST/ZIP

NOTES

NAME

FORTUNA (WEST END ST. THOMAS)

STREET

FORTUNA ROAD

CITY/ST/ZIP

FORTUNA ESTATE, US VI, STT.

NOTES

SITE

FILE NAME

SCALE

DRAWN BY

CHECKED BY

DRAWING NO.

DRAWING TITLE

St Tom - Fortuna.pln

AS NOTED

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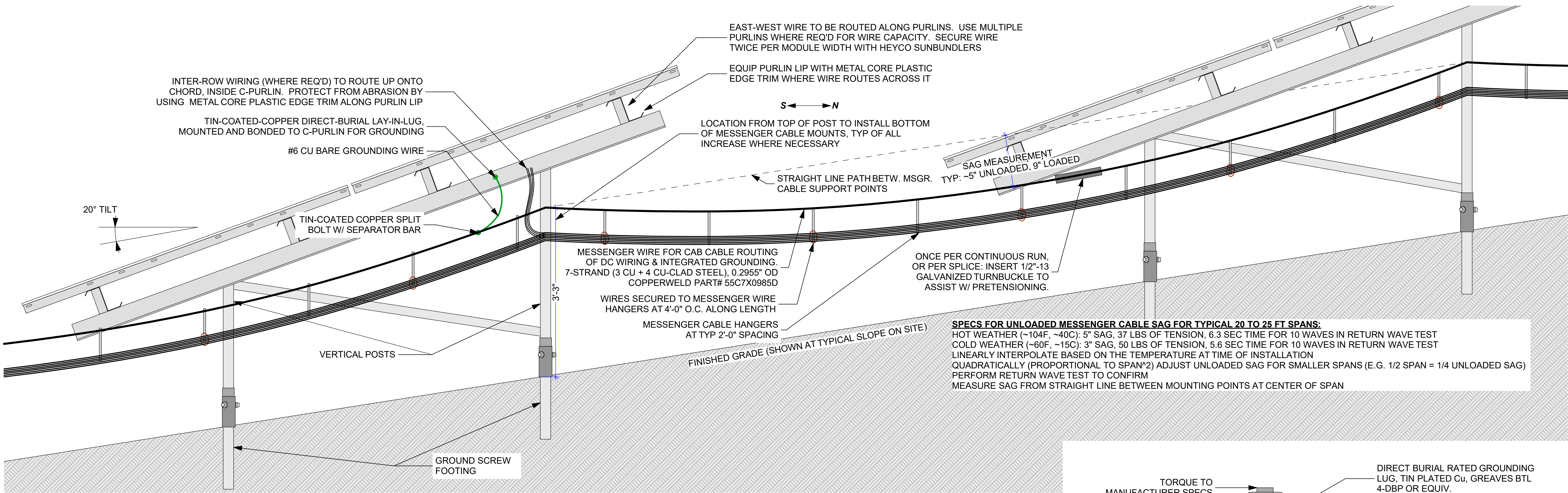
DATE DRAFTED: 1/13/2025

SHEET SIZE: ARCH D

PV311

MESSENGER CABLE DETAILS - SHEET 1

SHEET 30 OF 70



1 MESSENGER CABLE SYSTEM - TYPICAL SECTION VIEW

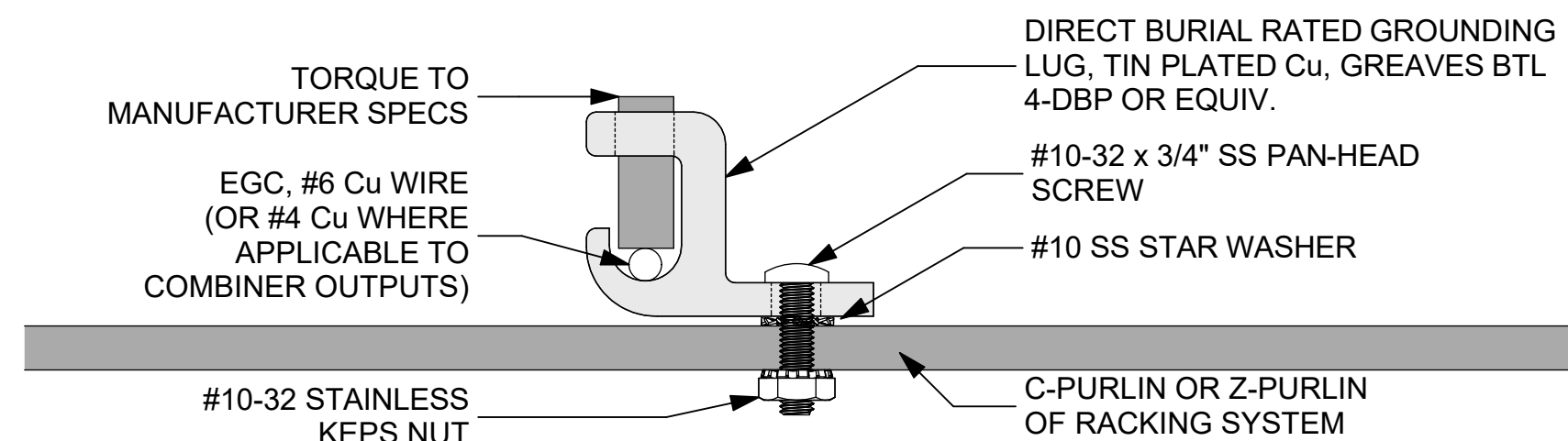
CAB Products - EHS and Copperweld® CCS Messenger Wire Evaluation
HDR Project No: 164-274775 / 10106792



CAB Products - EHS and Copperweld® CCS Messenger Wire Evaluation
HDR Project No: 164-274775 / 10106792



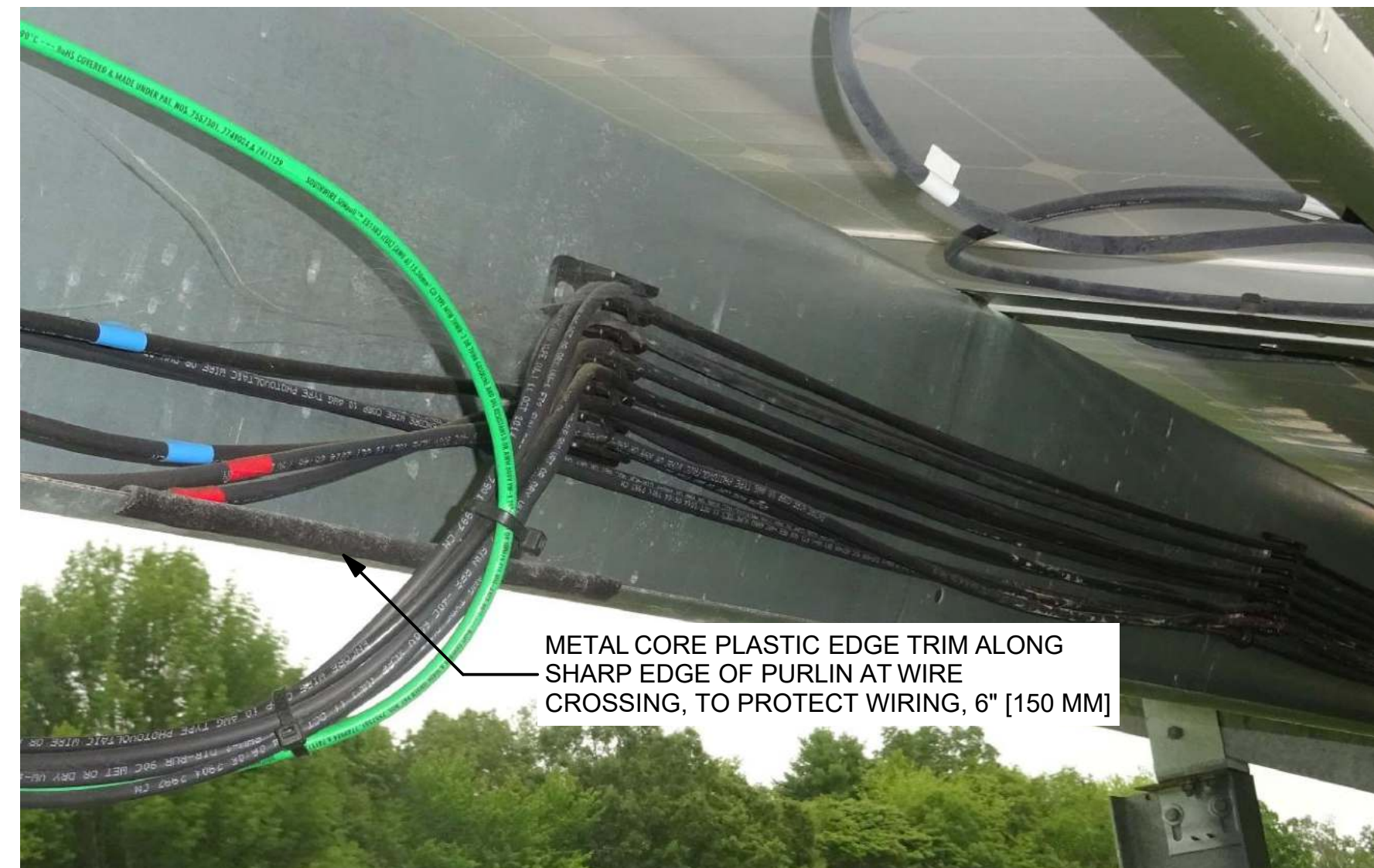
SPECS FOR UNLOADED MESSENGER CABLE SAG FOR TYPICAL 20 TO 25 FT SPANS:
HOT WEATHER (~104F, ~40C): 5" SAG, 37 LBS OF TENSION, 6.3 SEC TIME FOR 10 WAVES IN RETURN WAVE TEST
COLD WEATHER (~60F, ~15C): 3" SAG, 50 LBS OF TENSION, 5.6 SEC TIME FOR 10 WAVES IN RETURN WAVE TEST
LINEARLY INTERPOLATE BASED ON THE TEMPERATURE AT TIME OF INSTALLATION
QUADRATICALLY (PROPORTIONAL TO SPAN^2) ADJUST UNLOADED SAG FOR SMALLER SPANS (E.G. 1/2 SPAN = 1/4 UNLOADED SAG)
PERFORM RETURN WAVE TEST TO CONFIRM
MEASURE SAG FROM STRAIGHT LINE BETWEEN MOUNTING POINTS AT CENTER OF SPAN



2 GROUND LUG DETAIL



3 SAMPLE PHOTO OF WIRE MGMT FOR 1 OR 2 WIRES
SCALE: NOT TO SCALE



4 SAMPLE PHOTO OF EDGE TRIM
SCALE: NOT TO SCALE

4 CCS Messenger Wire Evaluation

The following tables summarize the results of the CCS messenger wire evaluation. Table 1 and Table 2 provide the tension and sag values at typical installation temperatures. Either table can be used by the installation contractor as they will result in the same condition of the messenger wire. Note that the temperature is of the messenger wire proper and not the air temperature.

Table 5: CCS Messenger Wire Stringing Tension Chart															
	Span	Temperature (Degrees F)													
		-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	90
Longitudinal Tension (lbs)	0ft – 15ft	578	516	454	390	327	263	201	142	94	65	50	41	36	32
	15ft – 20ft	489	426	365	301	240	180	130	93	71	58	50	44	40	37
	20ft – 25ft	376	314	254	197	147	111	87	72	62	55	50	46	43	40
	25ft – 30ft	244	191	147	115	94	81	71	63	58	54	50	47	45	42
	30ft – 35ft	136	112	95	84	75	69	64	59	56	53	50	48	46	44
	35ft – 40ft	93	84	77	71	67	63	59	57	54	52	50	48	47	45

Note: Tension values in Table 5 are what the CCS messenger wire shall be pulled to before any electrical cables or cable supports are hung from the CCS messenger wire (i.e. only the bare CCS messenger wire).

Table 6: CCS Messenger Wire Stringing Sag Chart															
	Span	Temperature (Degrees F)													
		-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	90
Sag (inches)	0ft – 15ft	0.12	0.12	0.12	0.12	0.24	0.24	0.36	0.48	0.72	1.08	1.32	1.68	1.92	2.16
	15ft – 20ft	0.24	0.24	0.36	0.36	0.48	0.72	0.96	1.32	1.68	2.04	2.40	2.76	3.00	3.24
	20ft – 25ft	0.48	0.60	0.72	0.96	1.32	1.68	2.16	2.64	3.00	3.36	3.72	4.08	4.32	4.68
	25ft – 30ft	1.08	1.44	1.80	2.28	2.88	3.36	3.84	4.20	4.68	5.04	5.40	5.76	6.00	6.36
	30ft – 35ft	2.64	3.24	3.84	4.32	4.92	5.28	5.76	6.24	6.60	6.96	7.32	7.68	8.04	8.28
	35ft – 40ft	5.16	5.76	6.24	6.72	7.20	7.68	8.04	8.40	8.88	9.24	9.60	9.96	10.2	10.6

Note: Mid-span sag of the CCS messenger wire shall be per Table 6. This sag occurs before any electrical cables or cable supports are hung from the CCS messenger wire (i.e. only the bare CCS messenger wire).

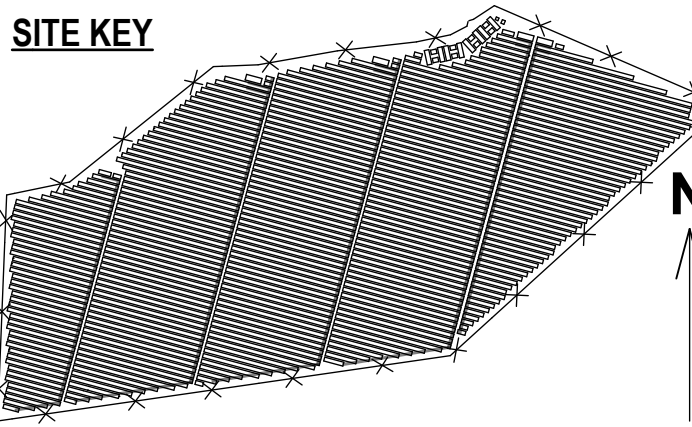
Table 7 provides the maximum sag that is expected in the CCS messenger wire system after the hangers and cables have been hung. Three temperature ranges have been provided since there is not a large difference in sag when the temperature changes by 10 F. This sag only occurs when the maximum vertical load is as listed in the table and is not of just the CCS messenger wire self-weight.

Table 7: CCS Messenger Wire Sag with Maximum Vertical ASD Load											
Temperature (Degrees F)	Span	TYPICAL WEIGHT PER FOOT OF CABLING									
		1	2	5	10	15	20	25	30	Maximum Vertical ASD Load (lb/ft)	
0	0ft – 15ft	0.8	1.4	2.4	3.4	4.0	4.4	4.9	5.4		
	15ft – 20ft	1.7	2.5	3.8	5.2	6.1	6.8	7.6	8.2		
	20ft – 25ft	2.9	3.8	5.6	7.3	8.5	9.6	10.6	11.4		
	25ft – 30ft	4.3	5.5	7.6	9.7	11.3	12.7	13.9	15.1		
	30ft – 35ft	6.2	7.4	9.8	12.5	14.3	16.1	17.6	19.1		
	35ft – 40ft	8.4	9.7	12.4	15.4	17.6	19.7	21.6	23.5		
60	0ft – 15ft	1.9	2.3	3.0	3.8	4.4	4.9	5.3	5.6		
	15ft – 20ft	3.0	3.6	4.7	5.8	6.6	7.3	7.9	8.5		
	20ft – 25ft	4.4	5.2	6.5	8.0	9.1	10.1	11.0	11.9		
	25ft – 30ft	6.1	7.0	8.6	10.6	12.0	13.2	14.4	15.5		
	30ft – 35ft	8.0	9.0	10.9	13.3	15.0	16.7	18.1	19.6		
	35ft – 40ft	10.3	11.3	13.6	16.3	18.4	20.3	22.2	24.0		
120	0ft – 15ft	3.0	3.2	3.7	4.4	4.9	5.3	5.6	6.0		
	15ft – 20ft	4.3	4.7	5.5	6.5	7.2	7.9	8.4	8.9		
	20ft – 25ft	5.9	6.4	7.4	8.8	9.8	10.8	11.5	12.2		
	25ft – 30ft	7.7	8.3	9.7	11.4	12.7	13.9	14.9	16.0		
	30ft – 35ft	9.7	10.4	12.1	14.3	15.8	17.4	18.7	20.0		
	35ft – 40ft	12.0	12.8	14.8	17.3	19.3	21.1	22.8	24.5		

Note: Reported sag values include initial sag when no load is hanging from the CCS messenger wire + the sag that will occur when the reported Maximum Vertical ASD Load is hung from the CCS messenger wire.

Table 8 provides the Allowable Strength Design (ASD) level design loads that are expected to occur in each principle direction at the dead end pier. Note that these values can also be used to determine the expected loads on the mid-support piers. However, to do this the reported loads shall be multiplied by two in the transverse and vertical direction. Longitudinal loads at the mid-support piers are considered negligible.

SITE KEY

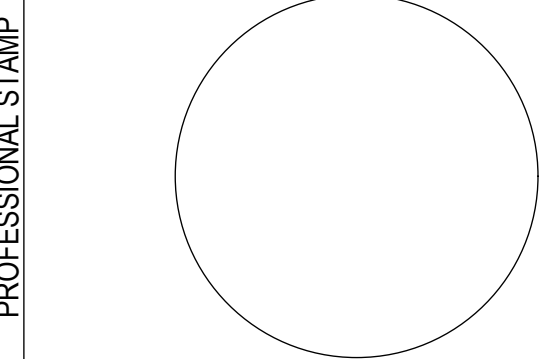


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



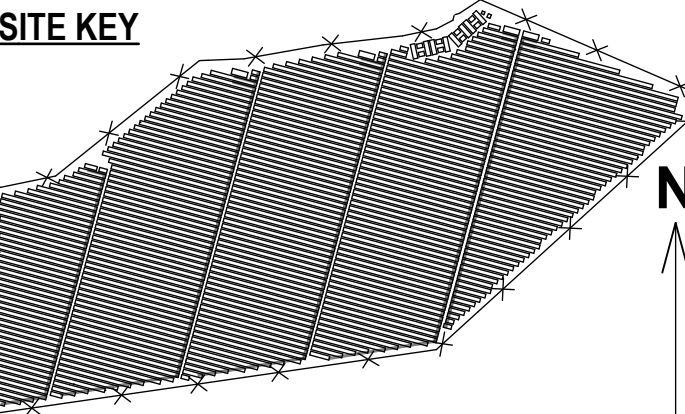
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CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

SITE	NAME
	STREET
	CITY/ST/ZIP
	NOTES

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	DRAWN BY
	CHECKED BY
	DRAWING NO.
	DRAWING TITLE

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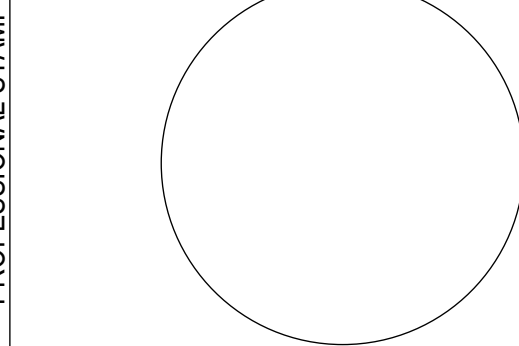


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



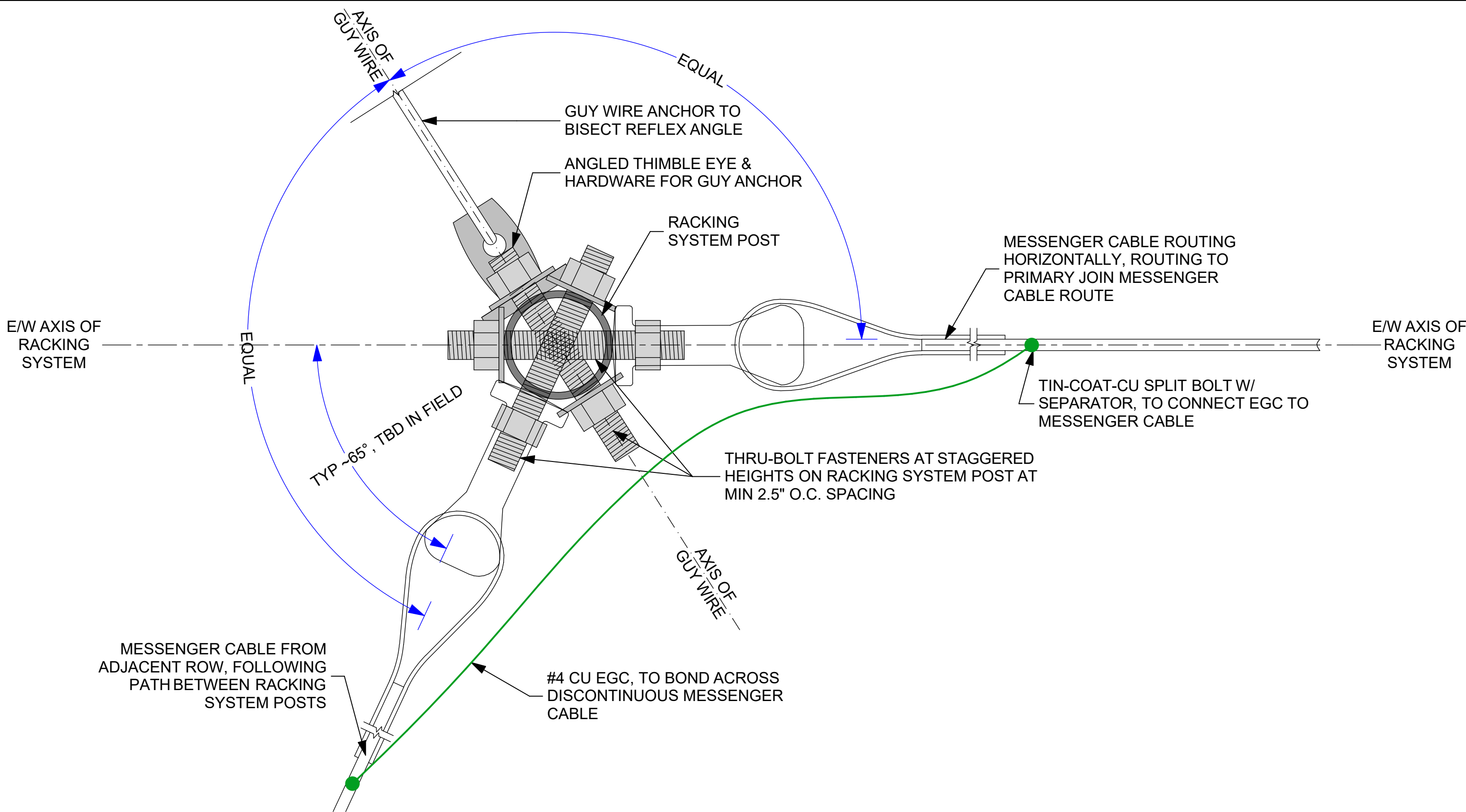
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NAME	
STREET	
CITY/ST/ZIP	
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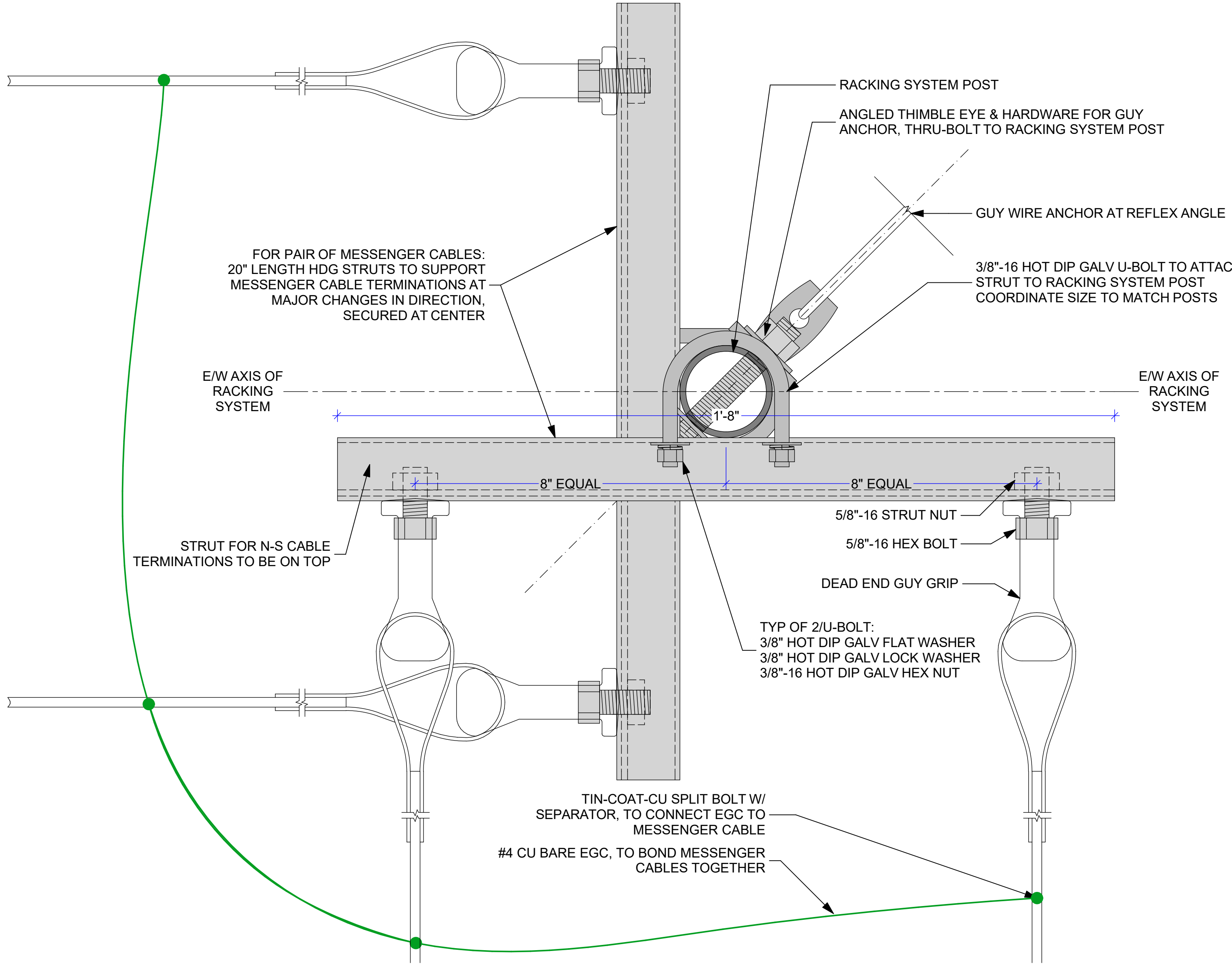
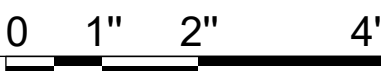
NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

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CHECKED BY	RE
DATE DRAFTED	1/13/2025
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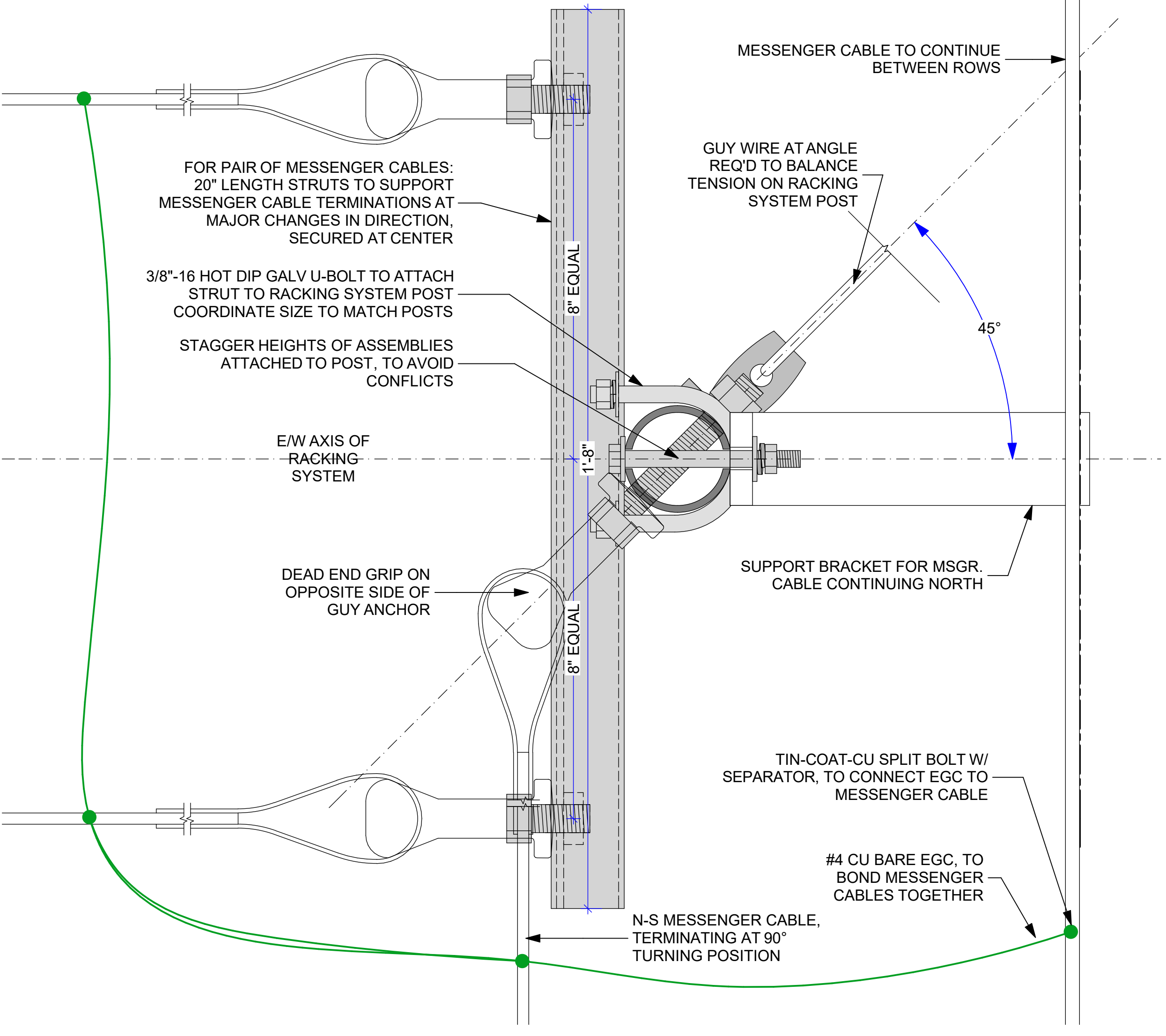
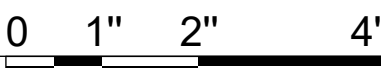
DRAWING NO.	PV313
DRAWING TITLE	MESSENGER CABLE DETAILS - SHEET 3
SHEET	32 OF 70



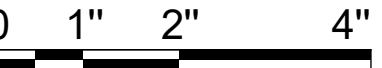
1 MSGR CABLE DETAILS - MAJOR ANGLE CHANGE (TYP OF SOUTH END ARRAY)

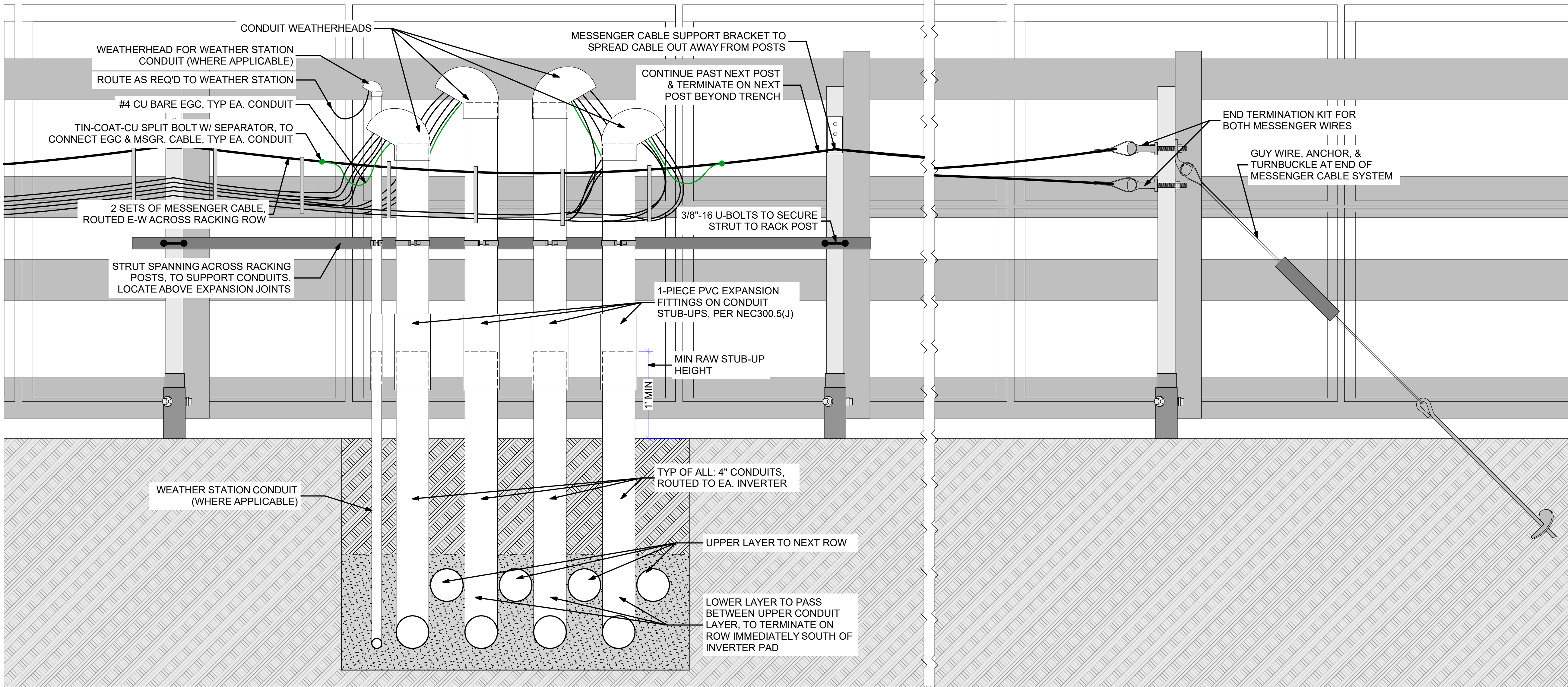


2 SIDE-BY-SIDE MSGR. CABLES - 90 DEG ANGLE CHANGE



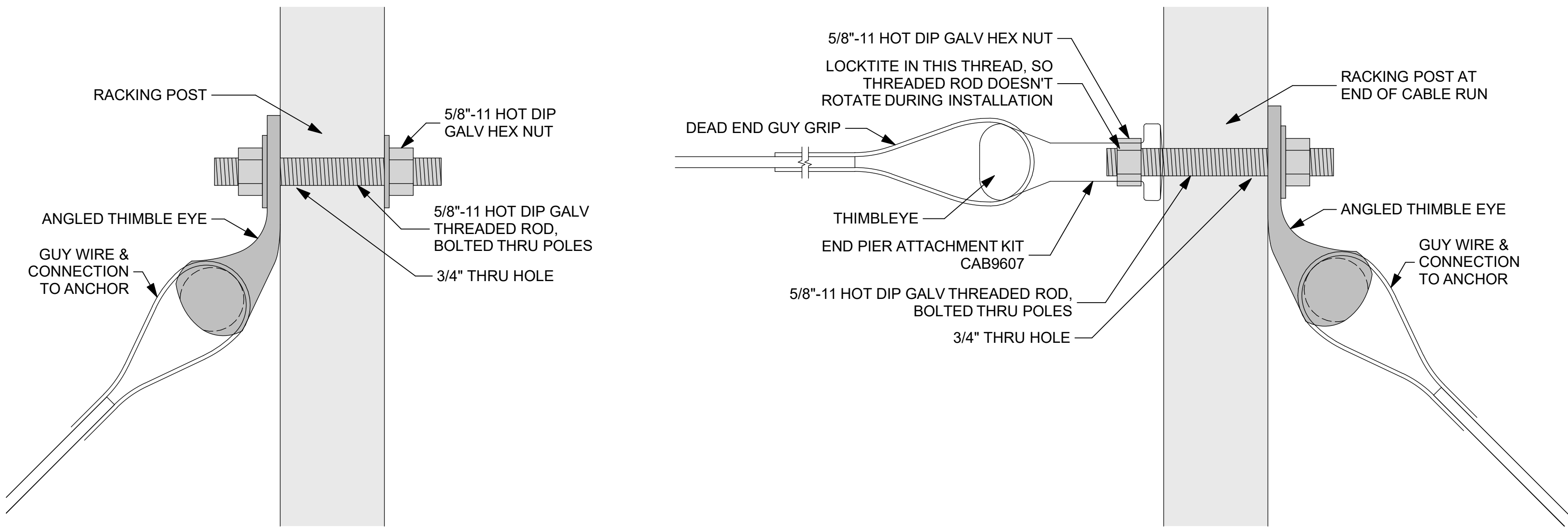
3 SIDE-BY-SIDE MESSENGER CABLES - 90 DEG ANGLE CHANGE





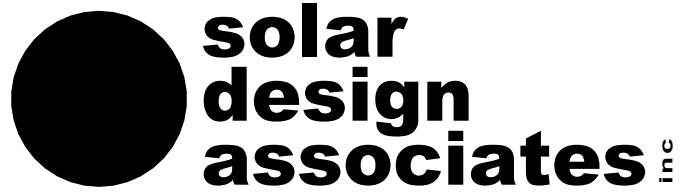
1 DC CONDUIT FROM MSGR. CABLE TO INVERTER STATIONS

0 6" 12" 18"



2 GUY WIRE CONNECTION 0 1" 2" 4"

3 GUY WIRE & CABLE TERMINATION 0 1" 2" 4"



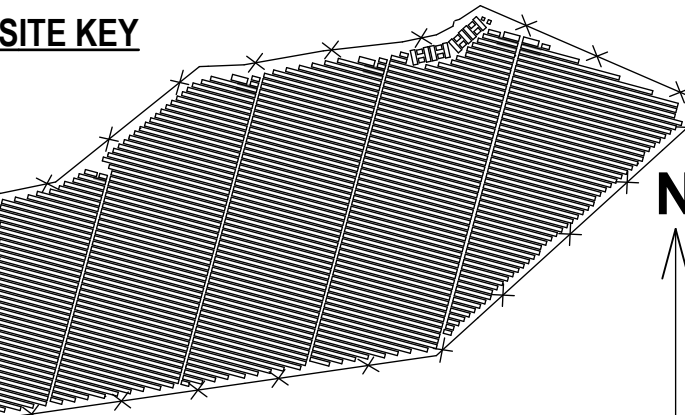
HARVARD, MA 01451-0242

www.solar design associates.com

tel: 978-456-6855

fax: 978-772-9715

SITE KEY



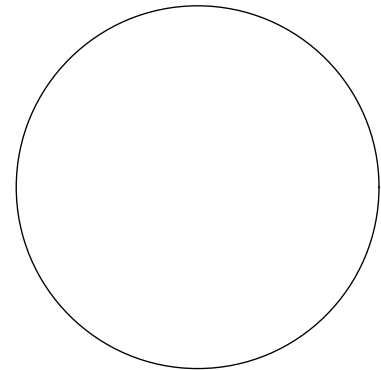
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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025

PROFESSIONAL STAMP



MARK	DATE	DESCRIPTION

CONTRACTOR

NAME

STREET

CITY/ST/ZIP

NOTES

SITE

NAME

STREET

CITY/ST/ZIP

NOTES

FILE NAME

SCALE

DRAWN BY

CHECKED BY

DRAWING NO.

DRAWING TITLE

St Tom - Fortuna.pln

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DATE DRAFTED: 1/13/2025

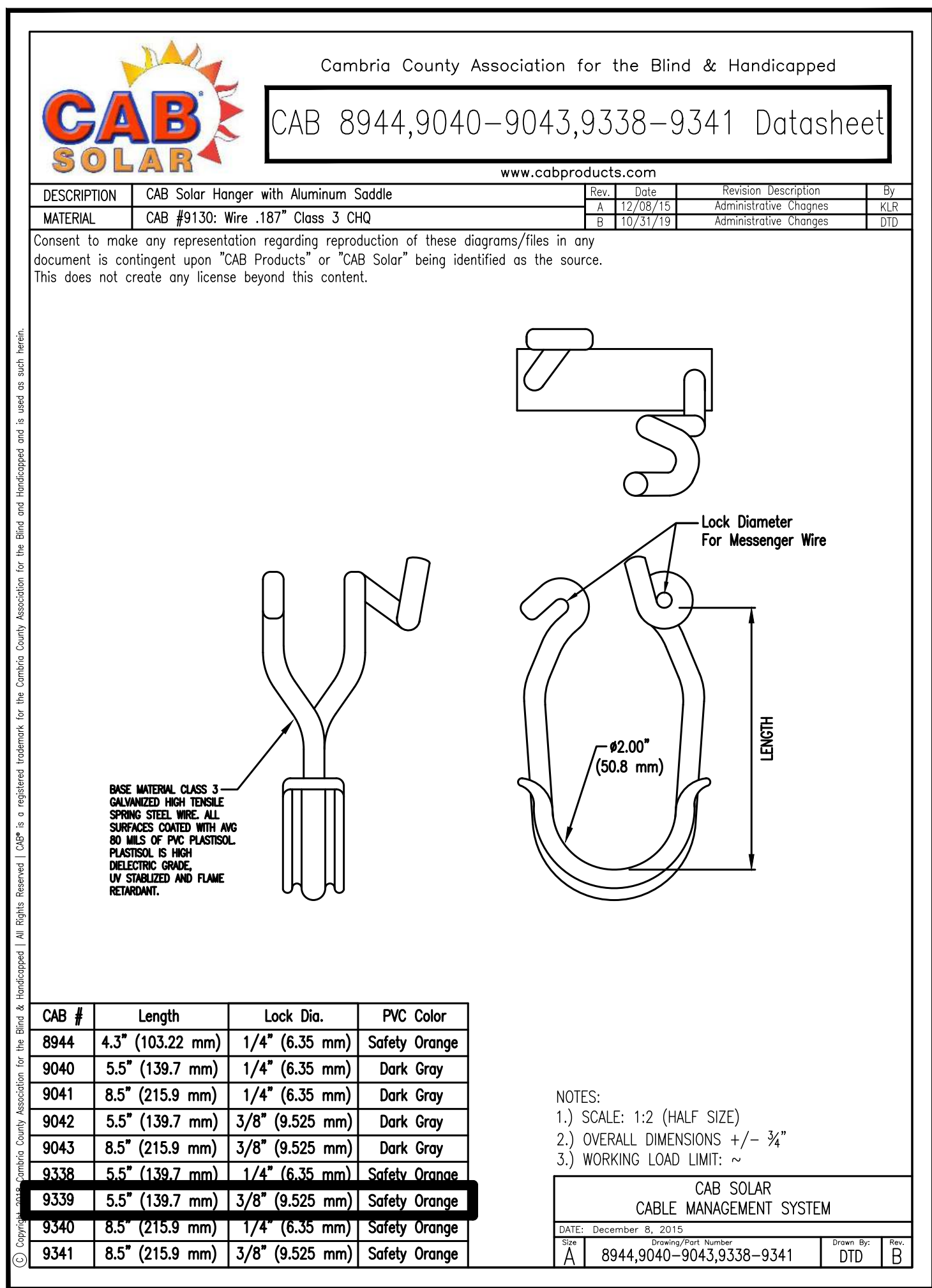
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PV314

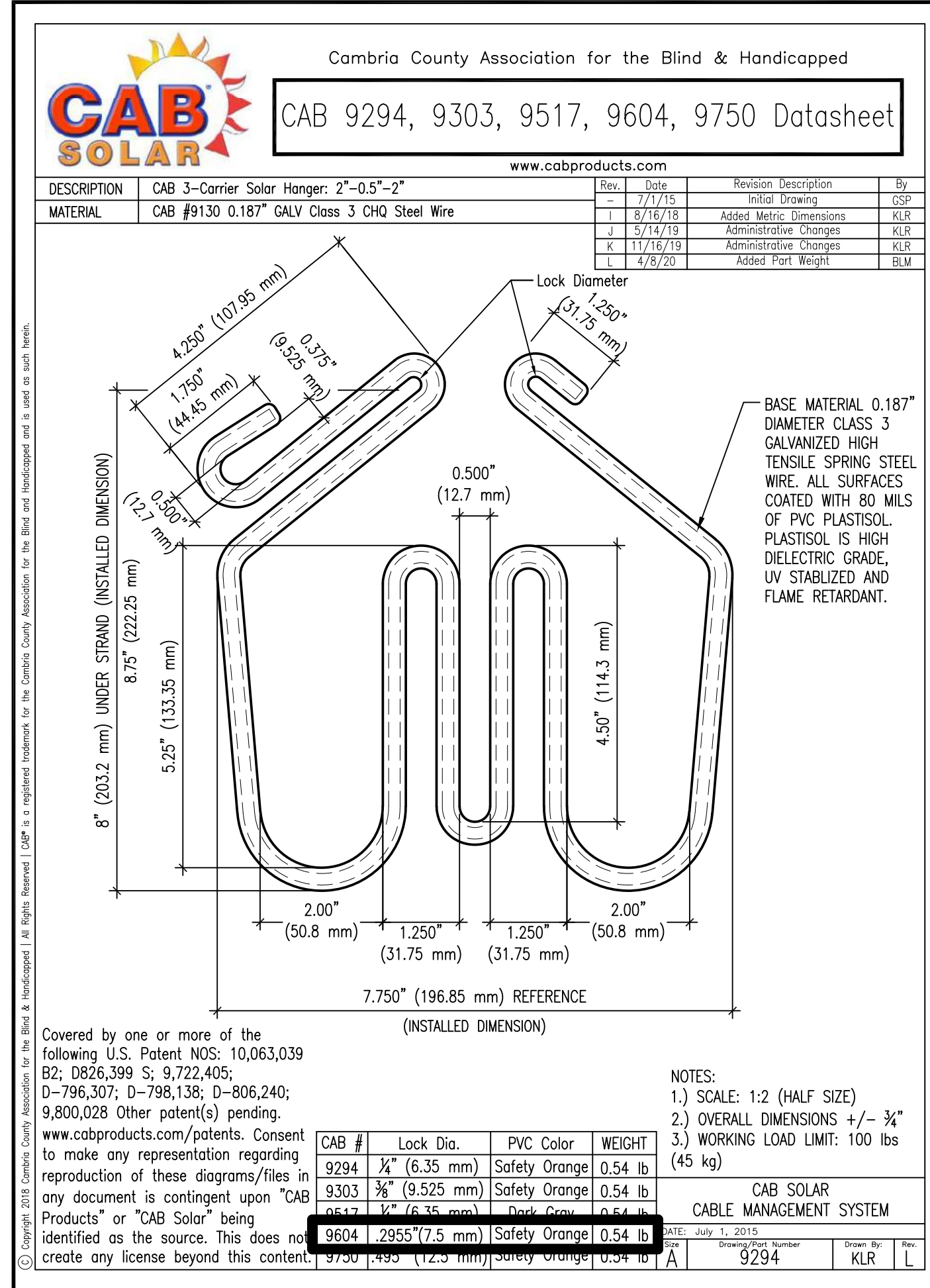
CONDUIT BETW RACK & INV. STATIONS

SHEET 33 OF 70

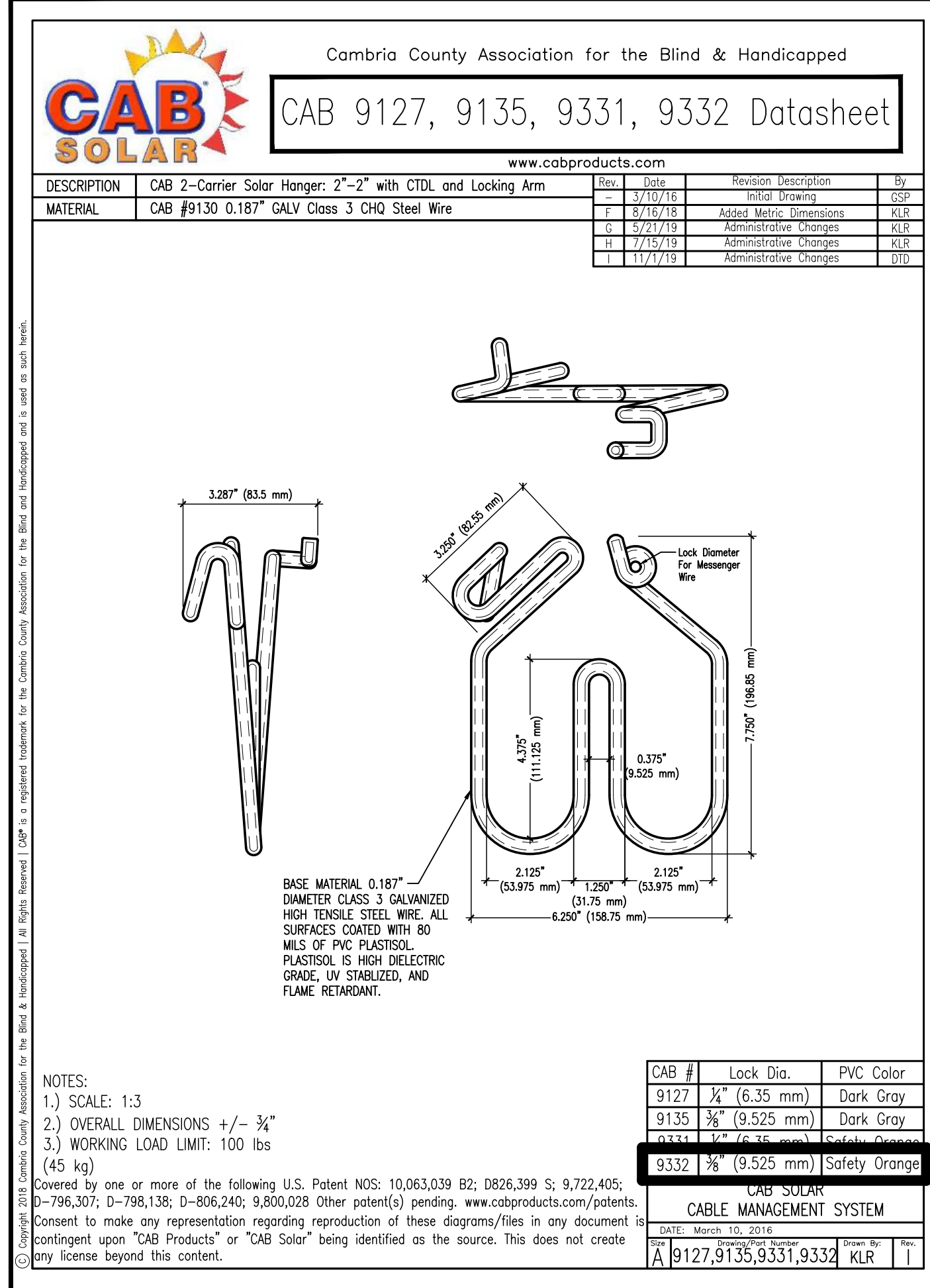
FOR CARRYING ONLY SOURCE CIRCUIT WIRING



FOR ALL MESSENGER CABLE RUNS, CARRYING BOTH DC COMBINER OUTPUTS & SOME HOME RUN WIRING



FOR MESSENGER CABLE RUNS, CARRYING ONLY DC COMBINER OUTPUTS. TYP OF ALL MESSENGER CABLE RUNS TO THE INVERTER STATIONS



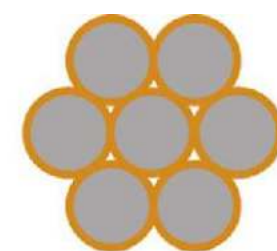
MESSENGER WIRE DATASHEET

CAB 10011

5141 Virginia Way, Suite 410 • Brentwood, TN 37027 • USA
<http://www.copperweld.com>
Office: +1.615.377.4200
Fax: +1.615.377.4167

MESSENGER WIRE WITH INTEGRATED GROUNDING, TYP OF ALL

Cable Description	COPPERWELD® COPPER CLAD STEEL 40% EHS 7X0985, (Equivalent fault current of 3 AWG copper at 30 cycles)
Cable Specifications	ASTM B227 – Standard Specification for Hard-Drawn Copper-Clad Steel Wire ASTM B228 – Standard Specification for Concentric-Lay-Stranded Copper-Clad Steel Conductors
Catalog Number	55C7X0985D

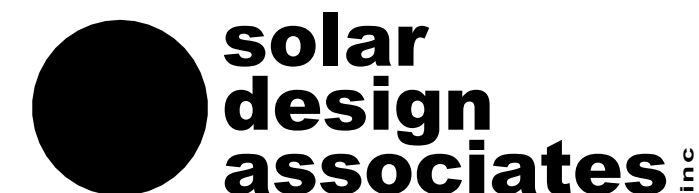


7-Wire Strand

PHYSICAL DATA	Diameter of Individual Wires	0.0985	inch
	Number of Wires	7	
	Overall diameter	0.2955	inch
	Cross Section of Area	67.92	Kcmil
	Linear Weight	192.33	lb/1000 ft
	Minimum Break Load	7,489	lbf
ELECTRICAL DATA	Max. Conductor DC Resistance at 20°C	0.4013	Ω/1000 ft
	Conductivity – CCS wire	40	% IACS
	Fusing current @ 30 cycles	10	kA

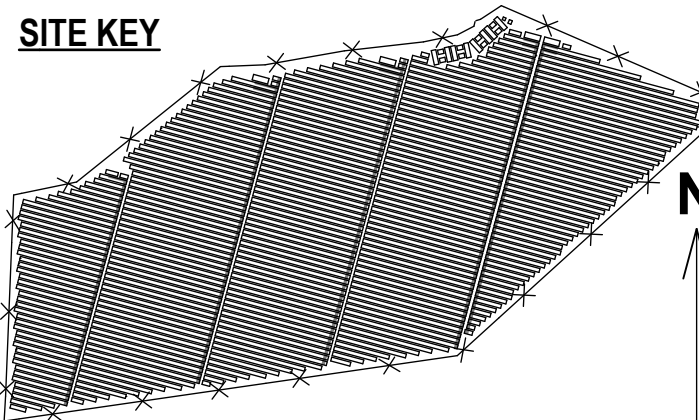
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Note: Min Tensile 40% CCS EHS = 156,000 psi (ASTM B227)

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fax: 978-772-9715

SITE KEY



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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025

PROFESSIONAL STAMP

REVISION NOTES

CONTRACTOR

CITY/ST/ZIP

NOTES

FILE NAME

SCALE

DRAWN BY

CHECKED BY

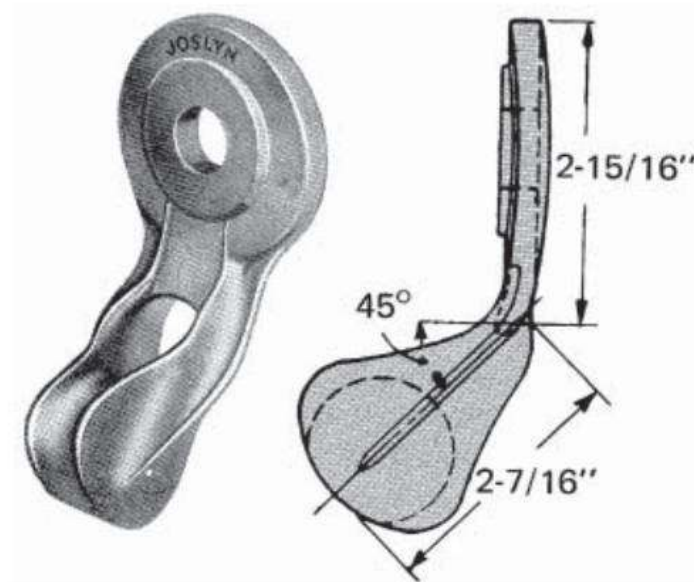
DRAWING NO.

DRAWING TITLE

SHEET 34 OF 70

MESSENGER WIRE MANAGEMENT INSTALLATION NOTES:

1. TYPICALLY SUPPORT ON EVERY POST FOR THE MOUNTING SYSTEM. MAX 30 FT SPANS BETWEEN POSTS
2. INSTALL GUY WIRES WHERE THE WIRE RUN TERMINATES, TURNS, OR FORMS A T-JUNCTION
3. TIGHTEN UNLOADED MESSENGER WIRE PER CHART, BASED ON AMBIENT TEMPERATURE.
4. END SUPPORTS TO BE INSTALLED WHERE MESSENGER WIRE TERMINATES.
5. MESSENGER WIRE TO BE SPLICED WITH CAB PART NUMBER 9754. MESSENGER WIRE SPLICE KIT. INSTALL 2 QTY SPLIT BOLTS & #4 CU BONDING JUMPER TO ESTABLISH ELECTRICAL CONTINUITY.
6. CAB MESSENGER CABLE HANGERS TO BE INSTALLED AT TYP 1 FT INTERVALS
7. INSTALLED SETTLING POSITION OF ASSEMBLY MUST CLEAR THE LOW END OF THE MODULE FRAMES



Catalog Number	Bolt Dia.	Max Strand	Weight /100 (lbs)
J6500	5/8	1/2	127

MULTICOM® www.multicominc.com

Description

5/8 in. x 36 in. Earth Ground Anchor with 6" auger. 4000 pounds product failure load. Pull-Out load will be lower and depend on soil type. Hot dipped galvanized for additional corrosion resistance over painted models.

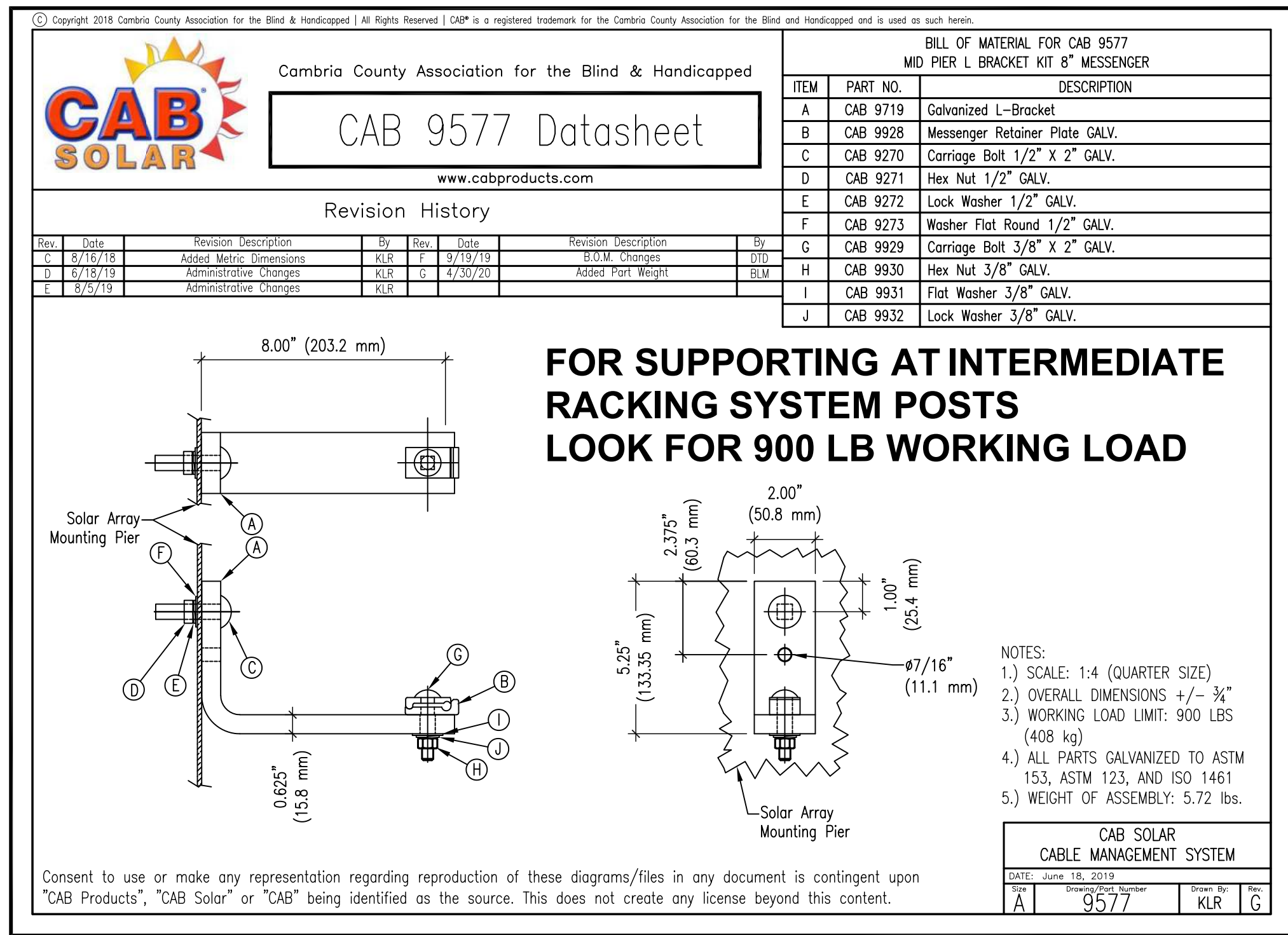
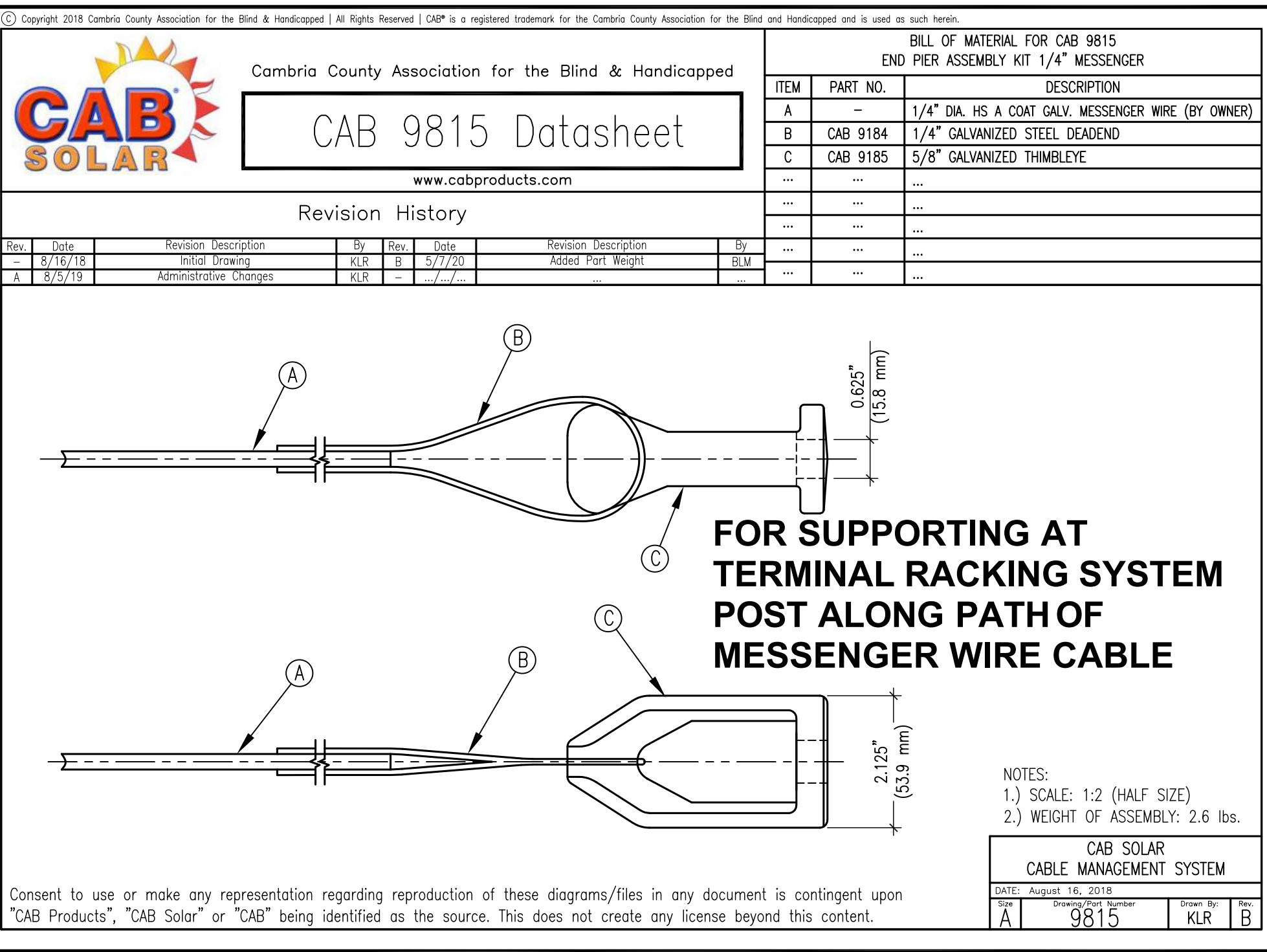
Product Manual and Certifications

[Earth Ground Anchor Guide](#)

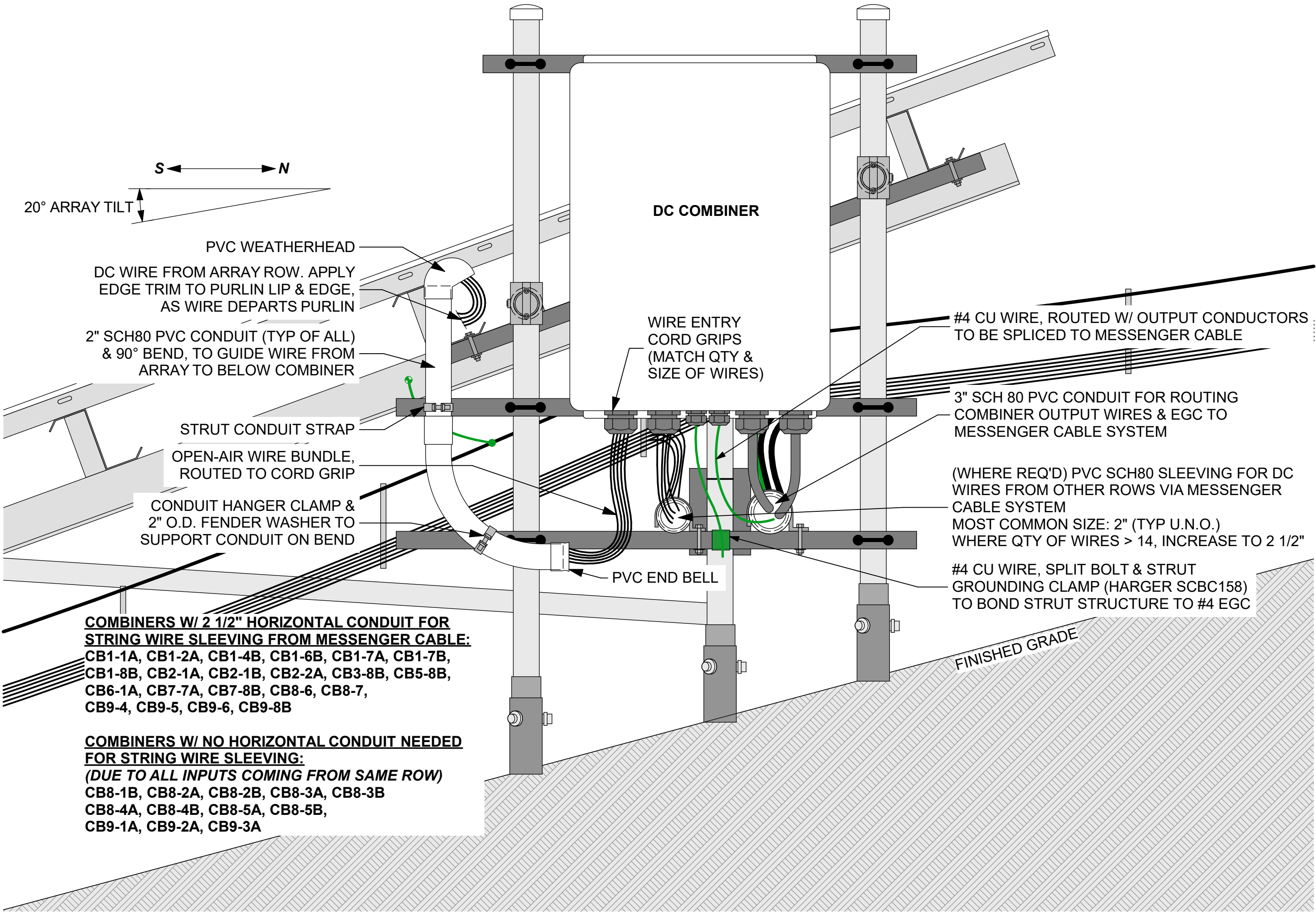
Product Family Specifications

Diameter x Length	Auger Diameter	Breaking Load (lbs)	Weight (lbs)
1/2" x 15"	4"	800	1.58
1/2" x 30"	4"	2400	2.42
5/8" x 36"	6"	3000	5.00

<https://ie-rigging.com/products/ground-eye-anchors?variant=39745763049545>

FOR SUPPORTING AT INTERMEDIATE RACKING SYSTEM POSTS
LOOK FOR 900 LB WORKING LOADFOR SUPPORTING AT
TERMINAL RACKING SYSTEM
POST ALONG PATH OF
MESSENGER WIRE CABLE

NOTE: DO NOT DRILL MODULES. IF DRILLING NEAR MODULES OR OTHER EQUIPMENT, USE SACRIFICIAL LUMBER BEHIND WORKPIECE TO CATCH THE DRILL BIT AFTER FORMING HOLE.

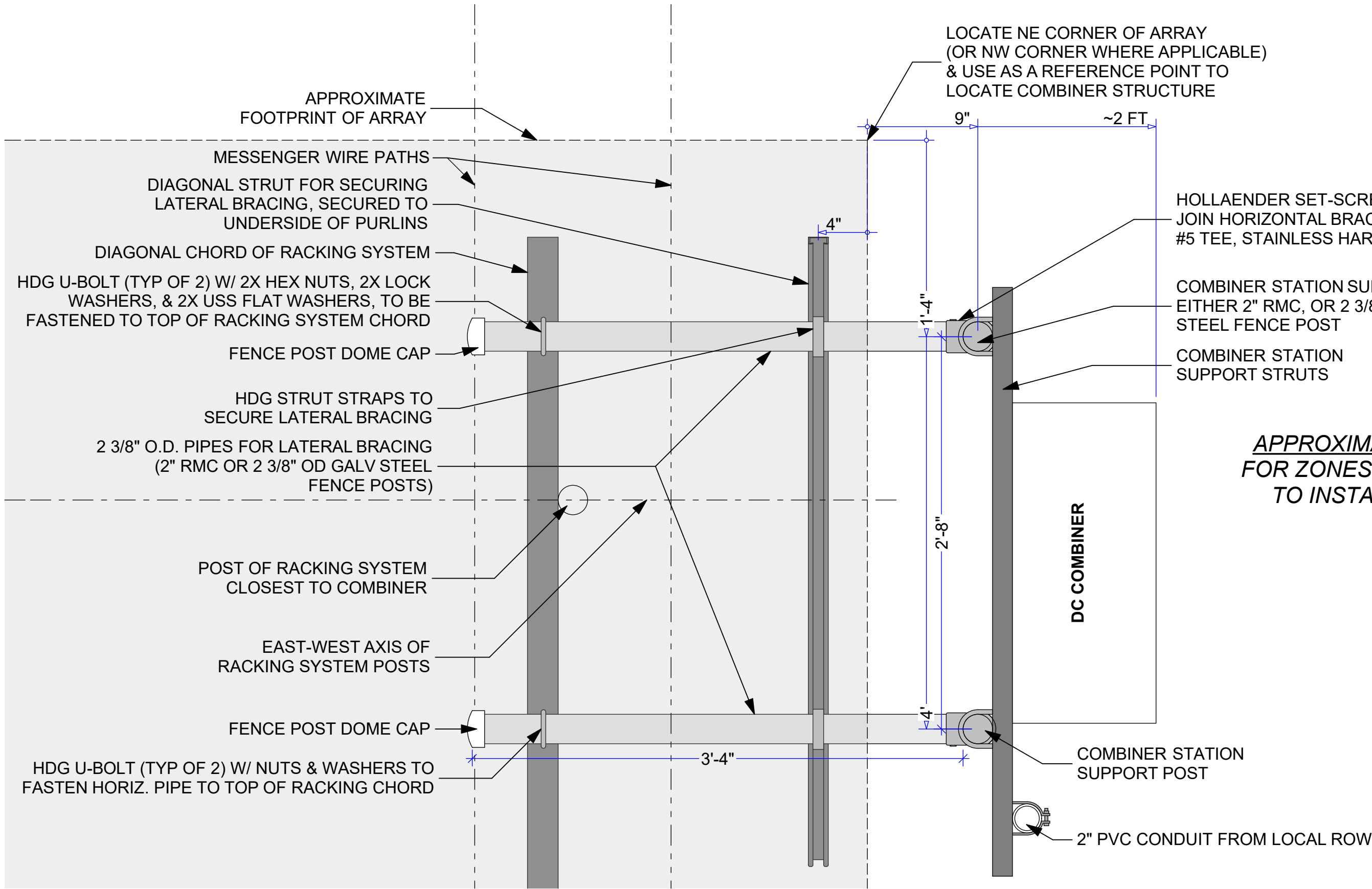


1 DC COMBINER STATION (VIEW FROM AISLE)

0 6" 12" 18"

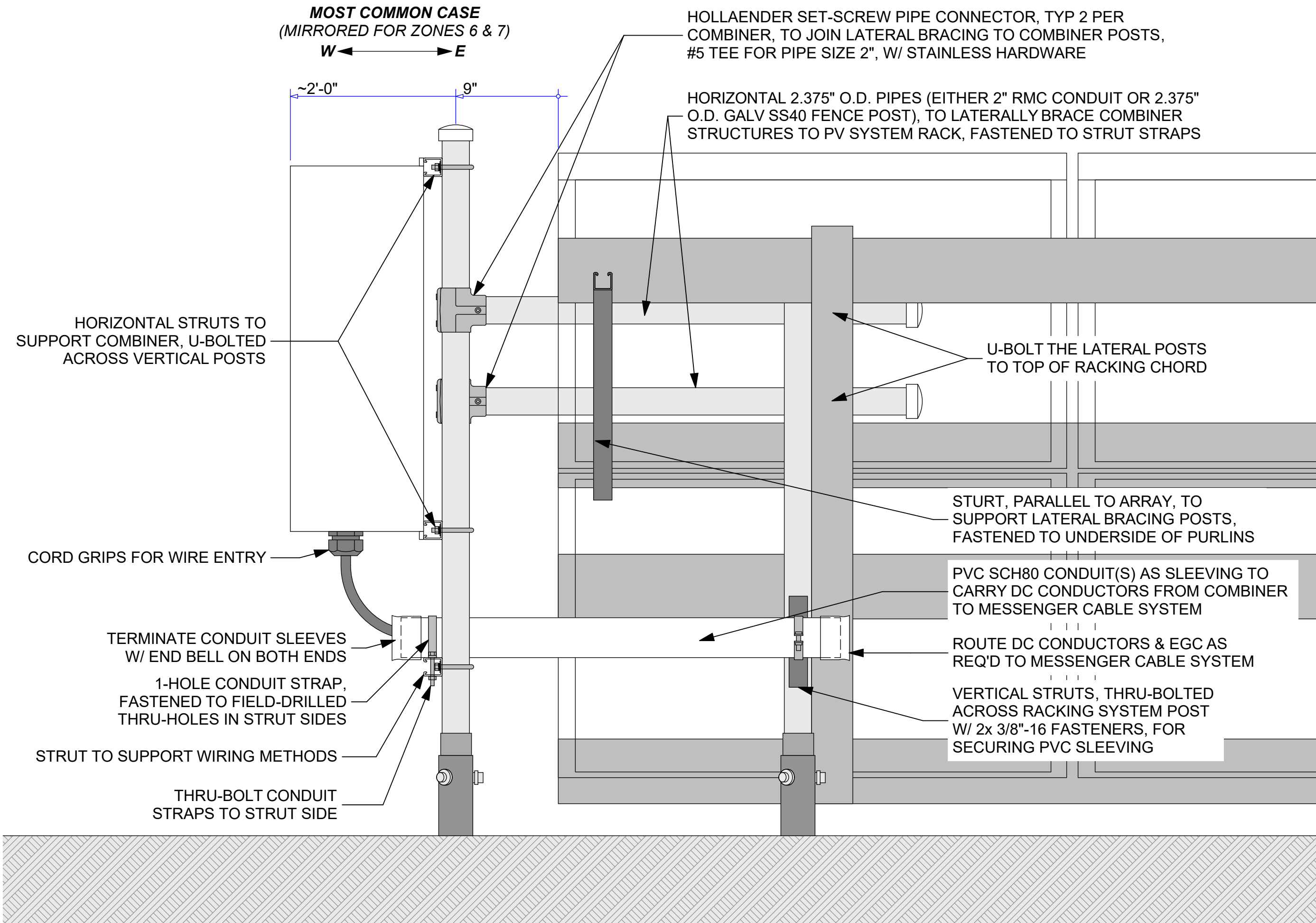
2 DC COMBINER STATION - VIEW FROM NORTH

0 6" 12" 18"



3 DC COMBINER STATIONS - TOP DOWN VIEW

0 6" 12" 18"



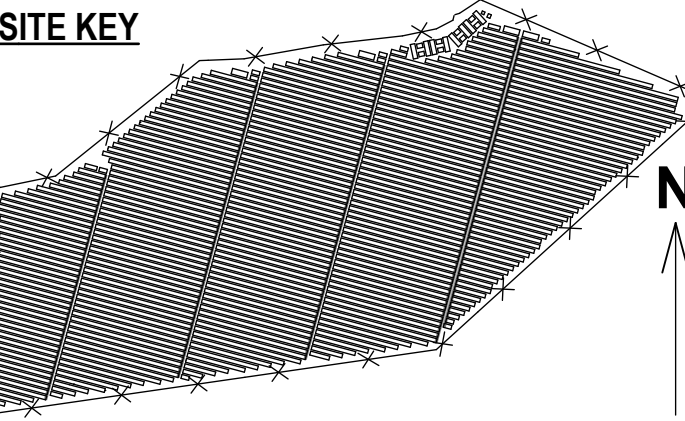
STRUT CONSTRUCTION NOTES

1. ALL STRUT & STRUT FITTINGS TO BE HOT DIP GALVANIZED STEEL
2. STRUT SIZE TO BE 12 GA, 1 5/8" x 1 5/8"
3. STANDARD HALF-SLOT PATTERN (1 1/8" LONG x 9/16" WIDE AT 2" O.C.)
4. APPLY COLD-GALVANIZING SPRAY TO ALL CUT ENDS
5. EQUIP STRUT ENDS WITH PLASTIC END CAPS
6. ALL FASTNERS TO BE HOT DIP GALVANIZED, STAINLESS OR STALGARD COATED STEEL, AND CONSISTENT WITHIN AN ASSEMBLY. DO NOT USE ZINC PLATED FASTENERS.

CONDUIT CONSTRUCTION NOTES:

1. CONDUIT TYPES ALLOWED FOR ABOVE-GRADE WORK:
PVC SCH80, RMC, IMC, LFMC
2. UNDERGROUND CONDUIT: PVC SCH40 W/ SCH80 BENDS & RISERS
3. ALL THREADED CONDUIT TERMINATIONS SHALL INCLUDE LOCKNUT & PLASTIC BUSHING. IF REQ'D BY NEC, USE BONDING BUSHING IN PLACE OF PLASTIC BUSHING.
4. CONDUIT TERMINATIONS ON TOP/SIDES OF TROUGH REQUIRE WATERPROOFING, SUCH AS HEYCO SEALING WASHERS, O-RING GASKET OR SILICONE SEALANT FOR PVC; SEALING LOCKNUTS FOR RMC/IMC; SEALING RING FROM CONNECTORS FOR LFMC ON TERMINATIONS
5. TROUGH (WHERE SPECIFIED) REQUIRES ELECTRICAL CONTINUITY WITH EGC. EITHER THRU RMC/IMC NIPPLES TO METAL ENCLOSURES, OR A SEPARATE BONDING JUMPER

SITE KEY

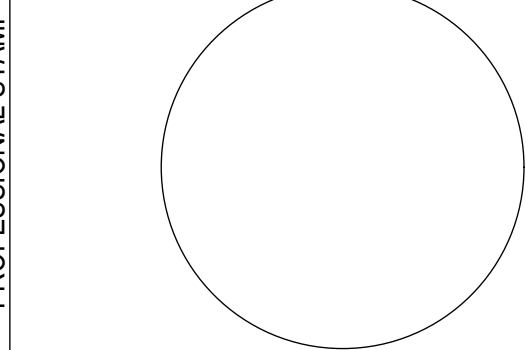


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

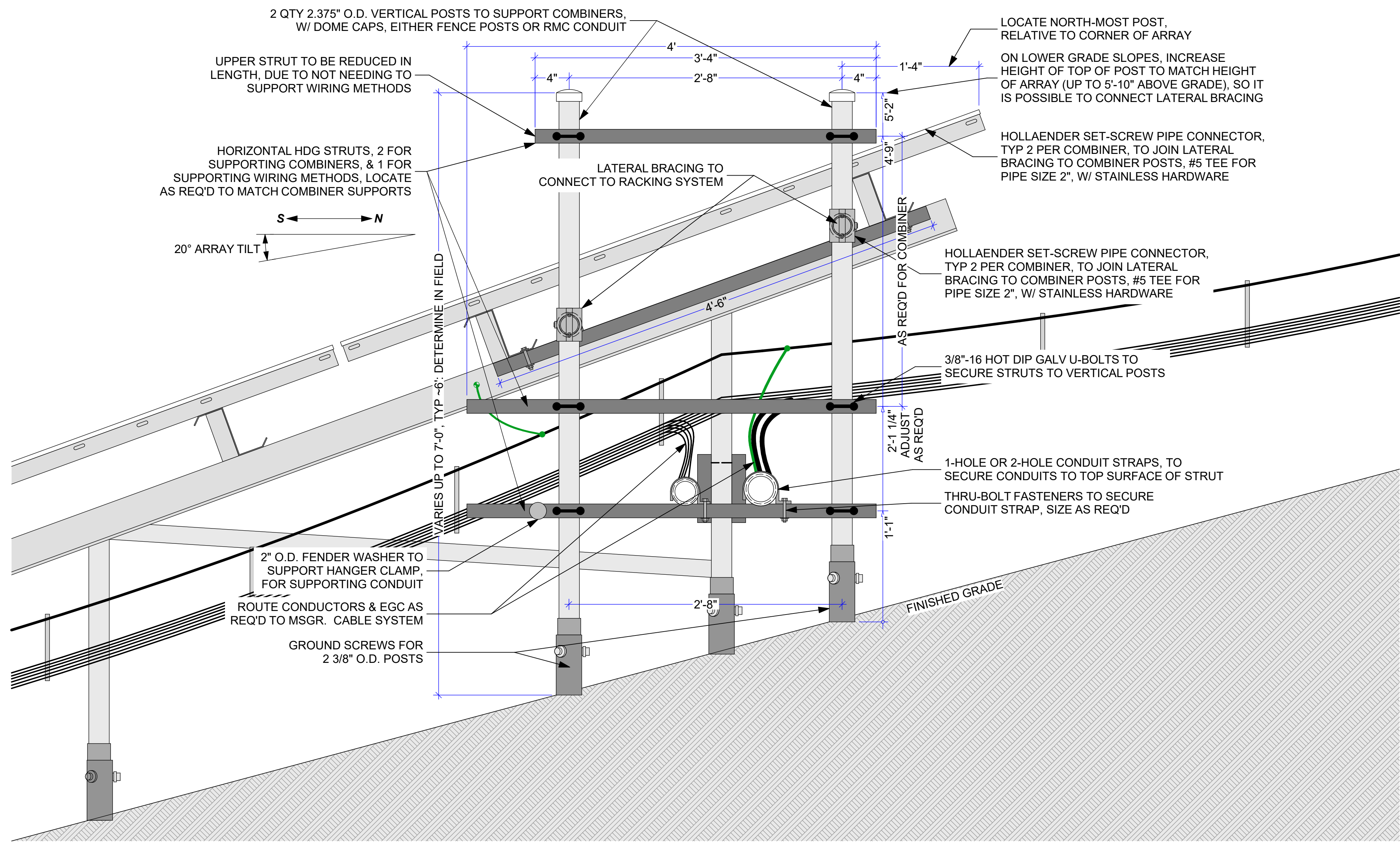
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	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	

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CHECKED BY	RE	SHEET SIZE: ARCH D

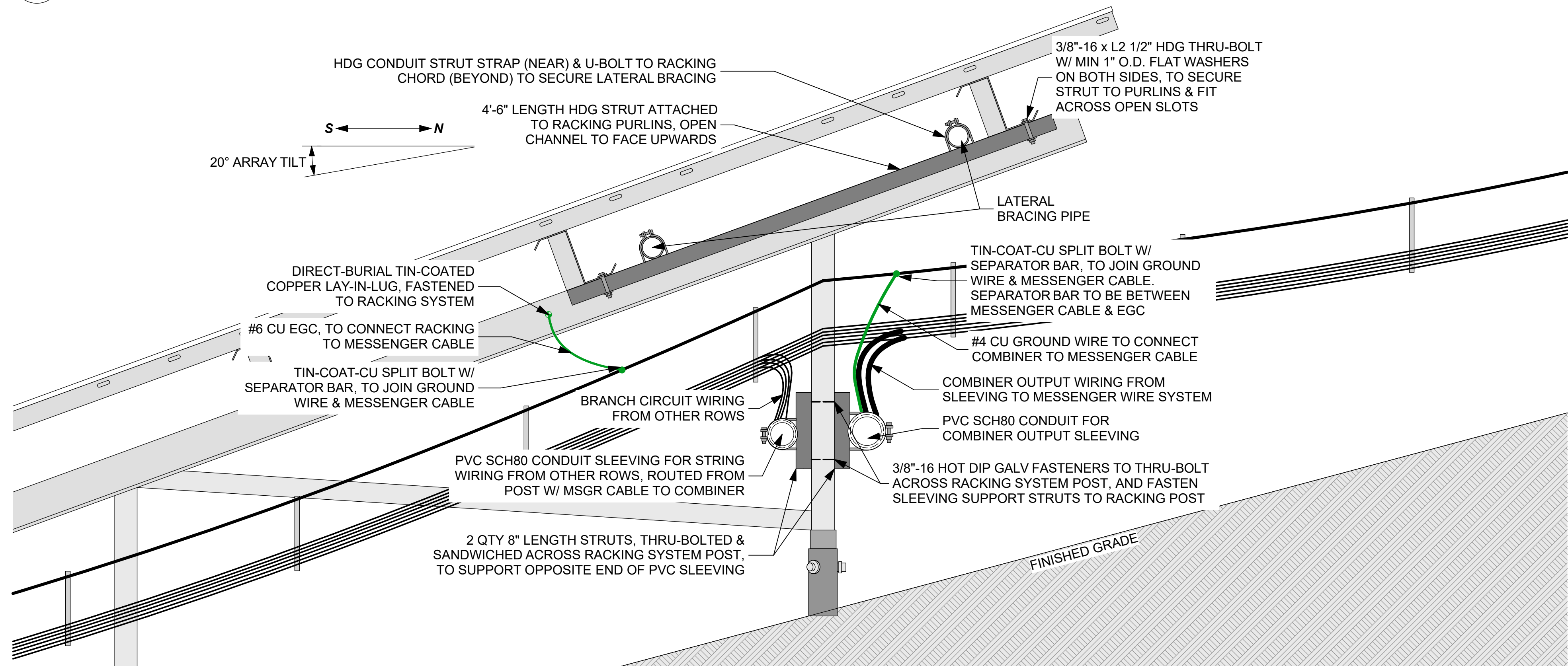
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DRAWING TITLE	DC COMBINER STATION
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1 DC COMBINER FRAMING

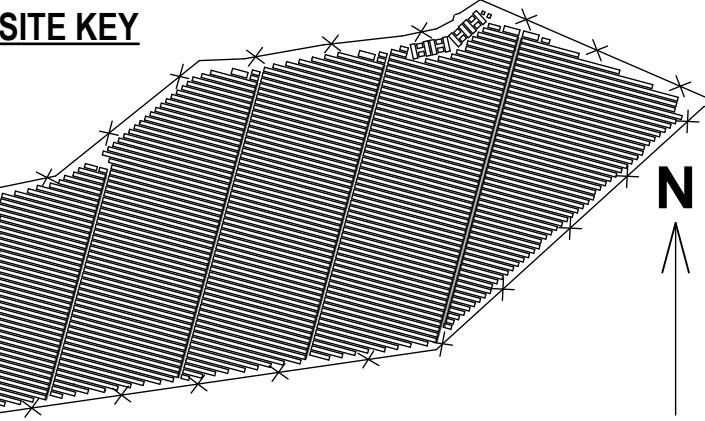
0 6" 12" 18"



2 DC COMBINER CONNECTIONS TO ARRAY

0 6" 12" 18"

SITE KEY

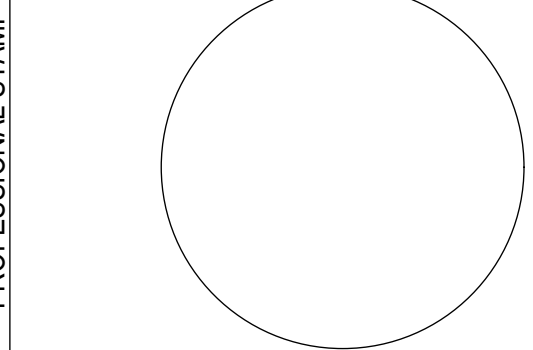


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FORTUNA (WEST END ST. THOMAS)

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CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

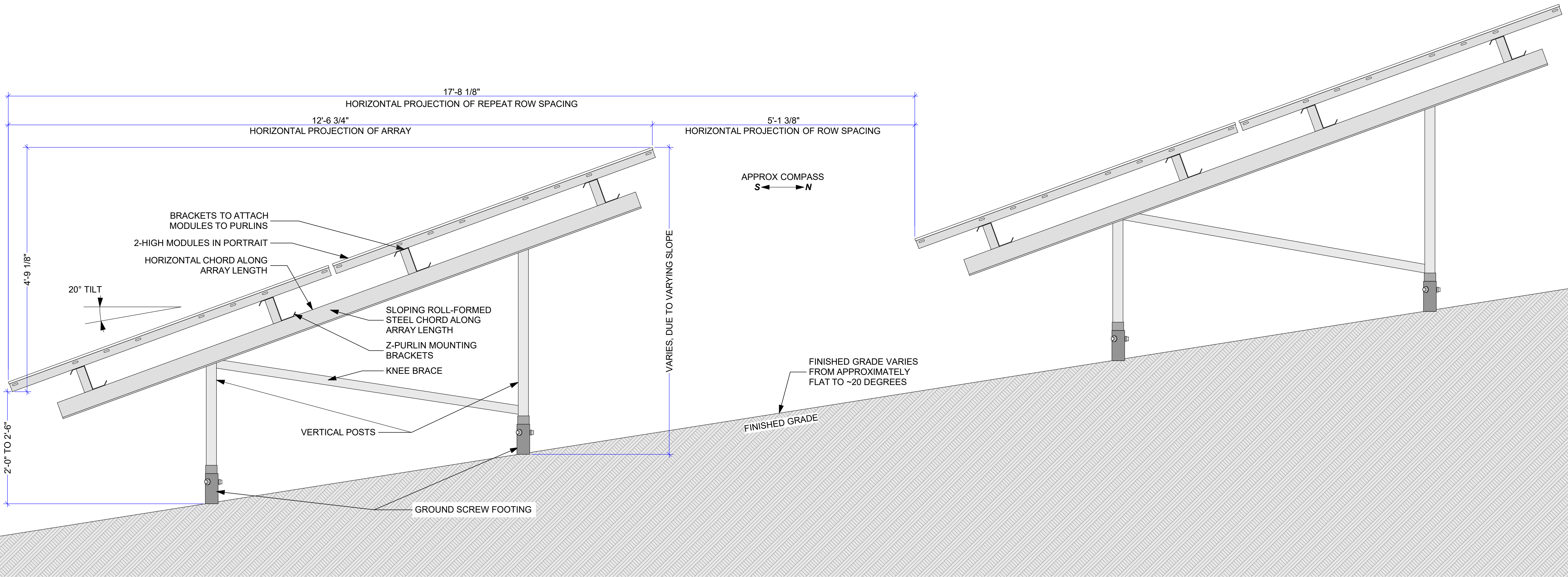
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	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	

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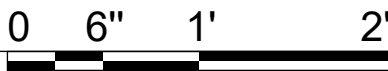
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DRAWING NO.	PV317
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DRAWING TITLE	DC COMBINER STATION FRAMING
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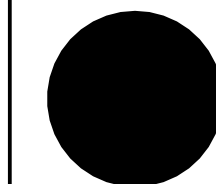


1 RACKING DETAILS



SEE APA DRAWING SET FOR FURTHER INFORMATION ON RACKING SYSTEM

VERTICAL POST POSITIONS ARE ESTIMATES. COORDINATE W/ RACKING SYSTEM DRAWINGS FOR SPECIFICS



solar design associates inc

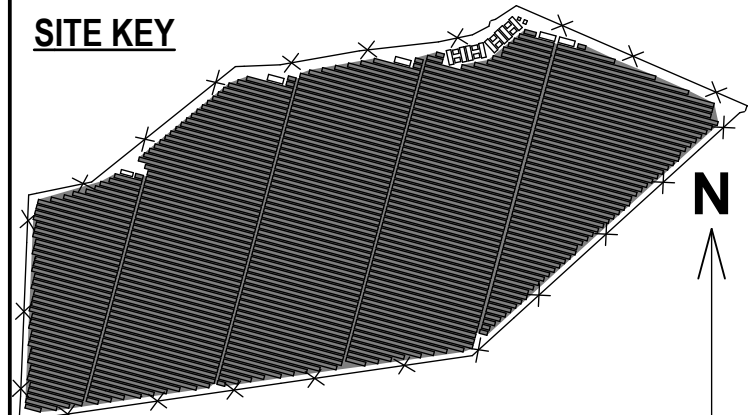
HARVARD, MA 01461-0242

tel: 978-456-6855

www.solar design.com

fax: 978-772-8715

SITE KEY



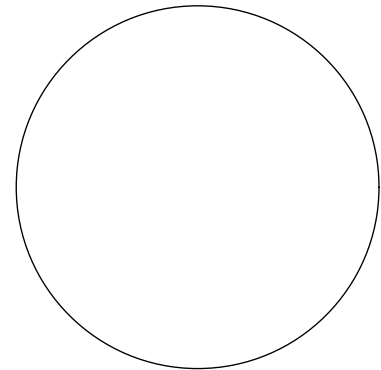
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NOTES

SITE

NAME

STREET

CITY/ST/ZIP

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DRAWING

FILE NAME

SCALE

DRAWN BY

CHECKED BY

DRAWING NO.

DRAWING TITLE

St Tom - Fortuna.pln

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RE

DATE DRAFTED: 1/13/2025

SHEET SIZE: ARCH D

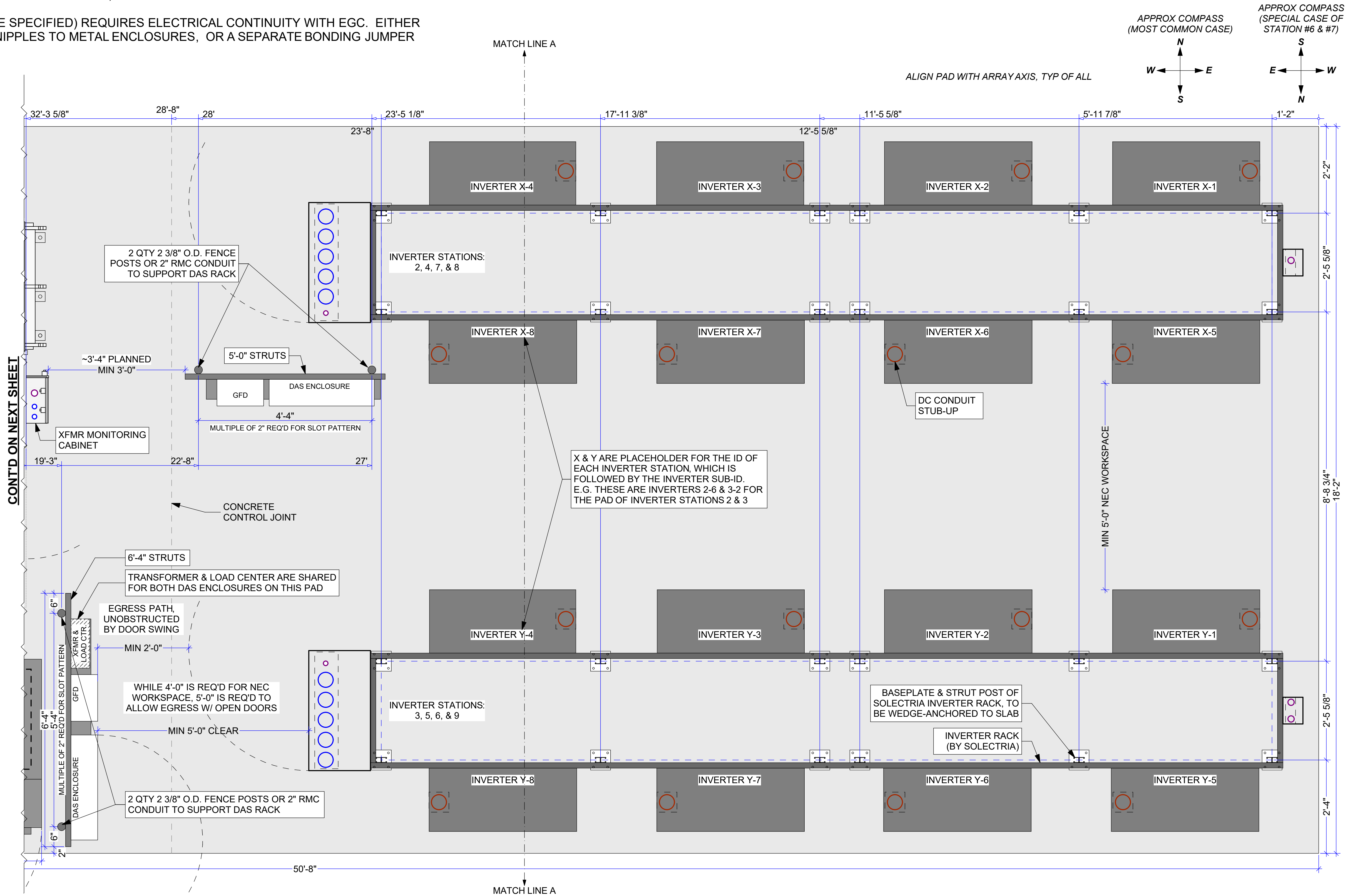
PV401

RACKING SECTION VIEW

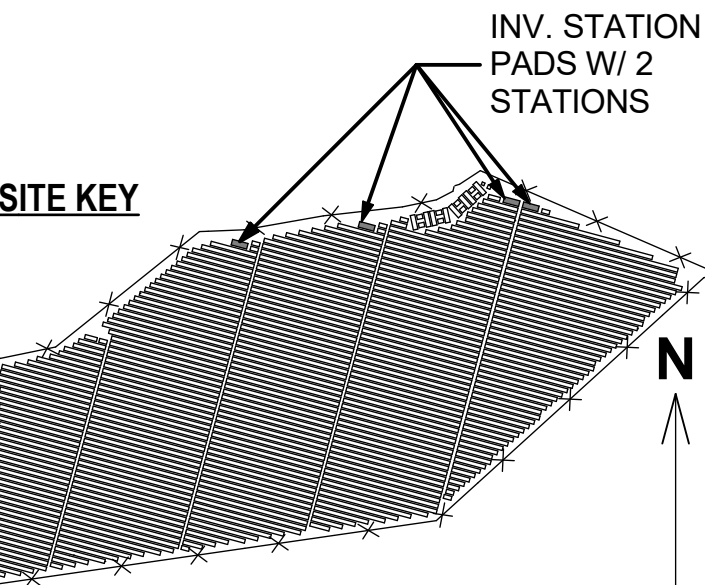
SHEET 37 OF 70

- STRUT CONSTRUCTION NOTES**
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 - 3. ALL THREADED CONDUIT TERMINATIONS SHALL INCLUDE LOCKNUT & PLASTIC BUSHING. IF REQ'D BY NEC, USE BONDING BUSHING IN PLACE OF PLASTIC BUSHING.
 - 4. CONDUIT TERMINATIONS ON TOP/SIDES OF TROUGH REQUIRE WATERPROOFING, SUCH AS HEYCO SEALING WASHERS, O-RING GASKET OR SILICONE SEALANT FOR PVC; SEALING LOCKNUTS FOR RMC/IMC; SEALING RING FROM CONNECTORS FOR LFMC ON TERMINATIONS
 - 5. TROUGH (WHERE SPECIFIED) REQUIRES ELECTRICAL CONTINUITY WITH EGC. EITHER THRU RMC/IMC NIPPLES TO METAL ENCLOSURES, OR A SEPARATE BONDING JUMPER



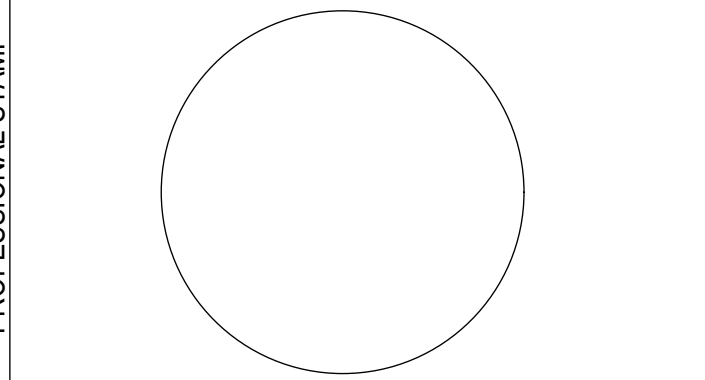
1 TYPICAL DUAL INVERTER STATION PAD LAYOUT (INVERTER STATION SIDE)



THIS DRAWING IS FOR INFORMATION PURPOSES ONLY. CERTIFICATION OR VALIDATION IS TO BE DONE BY A PROFESSIONAL WITH EXPERTISE IN THE REQUIRED FIELD AND A LICENSE IN THE STATE THAT THE INSTALLATION WILL RESIDE. CERTIFICATION OR VALIDATION TO BE INCLUDED AS PART OF THE SUBMITTALS FOR PERMITTING OF THE OVERALL PROJECT.

FORTUNA (WEST END ST. THOMAS)

PERMIT SET
Monday, January 13, 2025



MARK	DATE	DESCRIPTION

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED

DRAWN BY	CH	DATE DRAFTED:	1/13/2025
CHECKED BY	RE	SHEET SIZE:	ARCH D

DRAWING NO.	PV501
DRAWING TITLE	TYP INV. STATIONS - INV. LAYOUT

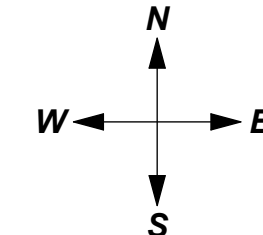
CONDUIT CONSTRUCTION NOTES:

1. CONDUIT TYPES ALLOWED FOR ABOVE-GRADE WORK:
PVC SCH80, RMC, IMC, LFMC
2. UNDERGROUND CONDUIT: PVC SCH40 W/ SCH80 BENDS & RISERS
3. ALL THREADED CONDUIT TERMINATIONS SHALL INCLUDE LOCKNUT & PLASTIC BUSHING.
IF REQ'D BY NEC, USE BONDING BUSHING IN PLACE OF PLASTIC BUSHING.
4. CONDUIT TERMINATIONS ON TOP/SIDES OF TROUGH REQUIRE WATERPROOFING, SUCH AS HEYCO SEALING WASHERS, O-RING GASKET OR SILICONE SEALANT FOR PVC; SEALING LOCKNUTS FOR RMC/IMC; SEALING RING FROM CONNECTORS FOR LFMC ON TERMINATIONS
5. TROUGH (WHERE SPECIFIED) REQUIRES ELECTRICAL CONTINUITY WITH EGC. EITHER THRU RMC/IMC NIPPLES TO METAL ENCLOSURES, OR A SEPARATE BONDING JUMPER

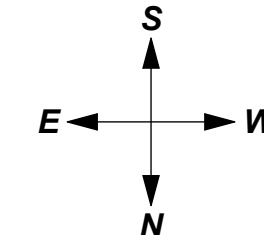
STRUT CONSTRUCTION NOTES

1. ALL STRUT & STRUT FITTINGS TO BE HOT DIP GALVANIZED STEEL
2. STRUT SIZE TO BE 12 GA, 1 5/8" x 1 5/8"
3. STANDARD HALF-SLOT PATTERN (1 1/8" LONG x 9/16" WIDE AT 2" O.C.)
4. APPLY COLD-GALVANIZING SPRAY TO ALL CUT ENDS
5. EQUIP STRUT ENDS WITH PLASTIC END CAPS
6. ALL FASTNERS TO BE HOT DIP GALVANIZED, STAINLESS OR STALGARD COATED STEEL, AND CONSISTENT WITHIN AN ASSEMBLY. DO NOT USE ZINC PLATED FASTENERS.

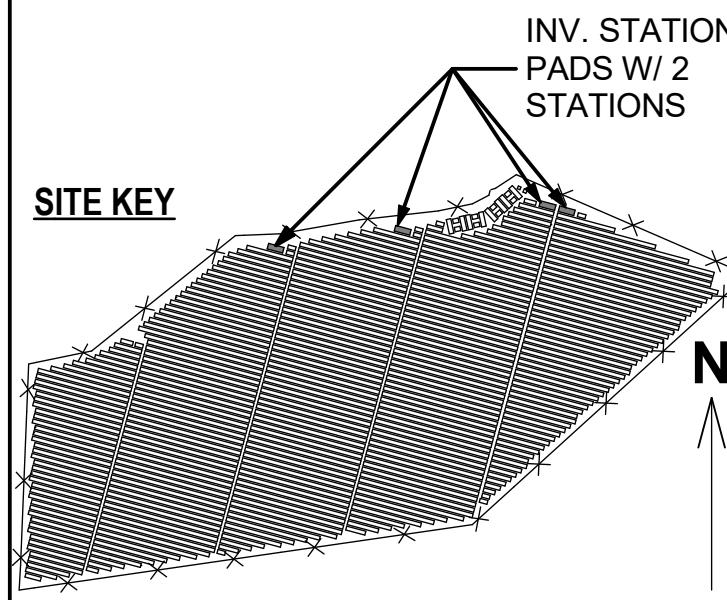
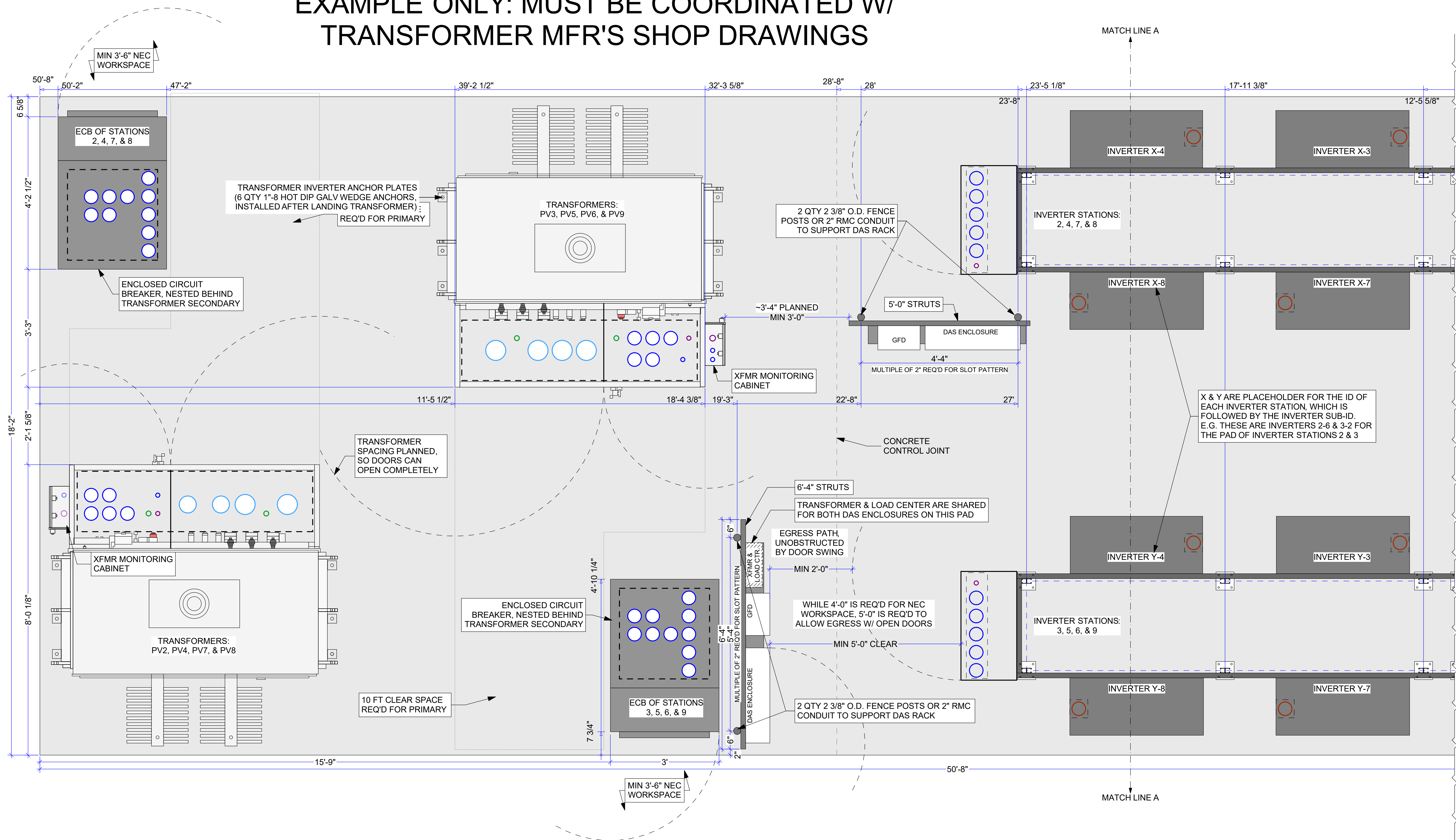
APPROX COMPASS
(MOST COMMON CASE)



APPROX COMPASS
(SPECIAL CASE OF
STATION #6 & #7)



EXAMPLE ONLY: MUST BE COORDINATED W/
TRANSFORMER MFR'S SHOP DRAWINGS

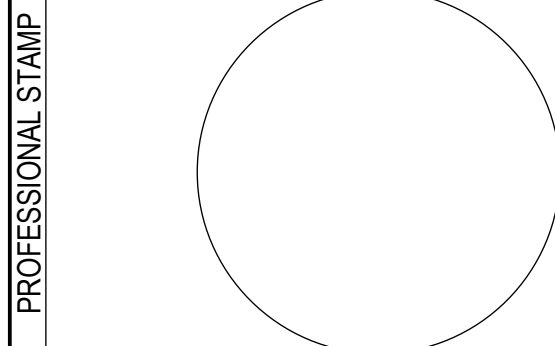


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FORTUNA (WEST END
ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

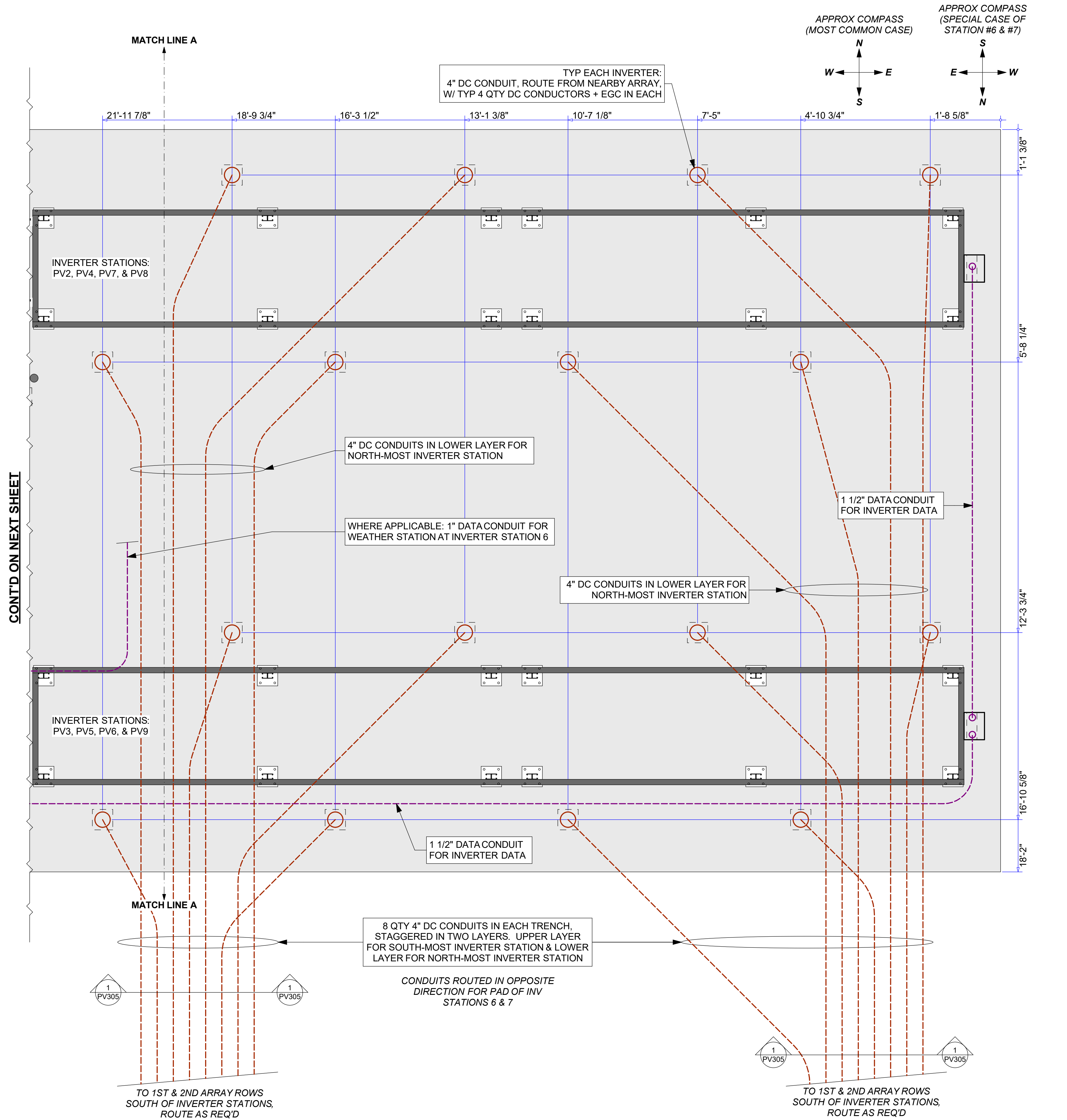
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SCALE	AS NOTED

DRAWN BY	CH	DATE DRAFTED:	1/13/2025
CHECKED BY	RE	SHEET SIZE:	ARCH D

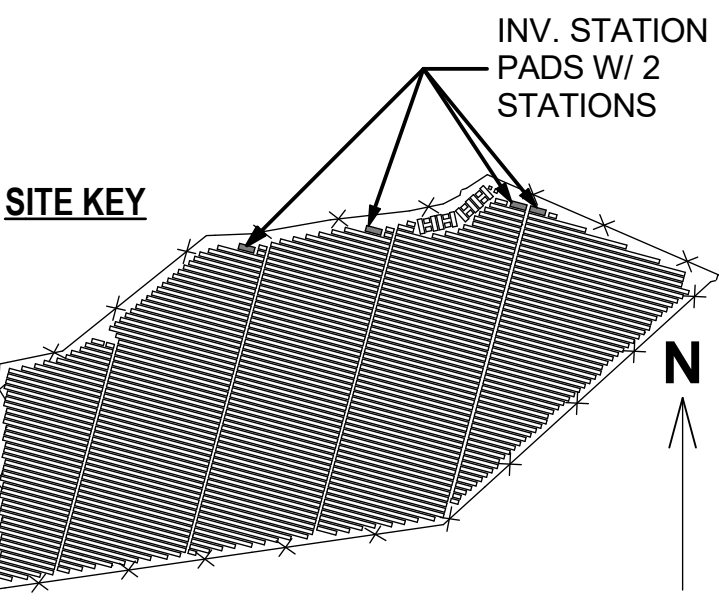
DRAWING NO.	PV502
DRAWING TITLE	TYP INV. STATIONS - XFMR LAYOUT

1 TYPICAL DUAL INVERTER STATION PAD LAYOUT (TRANSFORMER SIDE)





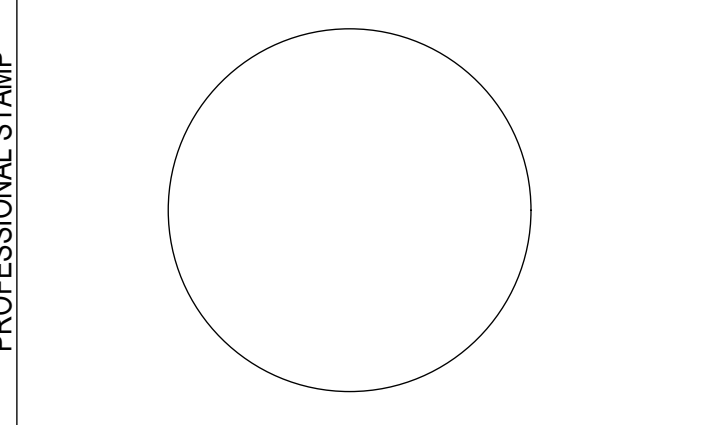
1 TYPICAL DUAL INVERTER STATIONS - DC MESSENGER CABLE ROUTE



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FORTUNA (WEST END ST. THOMAS)

PERMIT SET
Monday, January 13, 2025

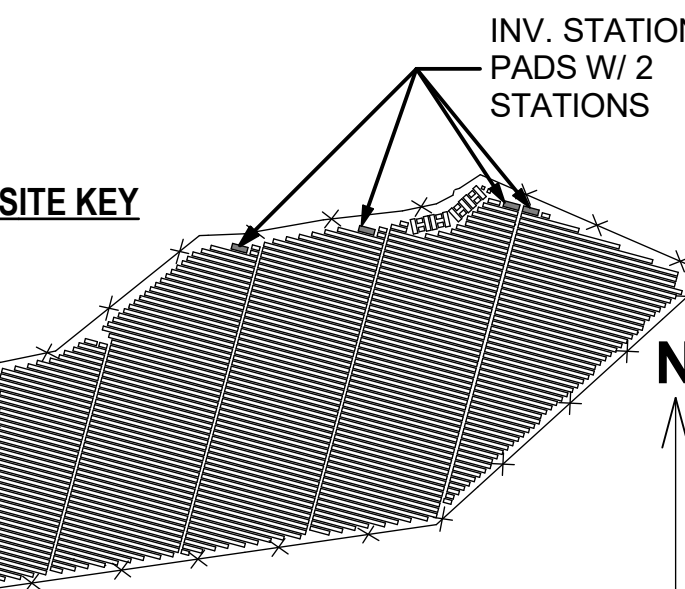


MARK	DATE	DESCRIPTION

CONTRACTOR	NAME	
	STREET	
	CITY/ST/ZIP	
SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
DRAWING	FILE NAME	St Tom - Fortuna.pln
	SCALE	AS NOTED
	DRAWN BY	CH
DRAWING	CHECKED BY	RE
	DRAWING NO.	PV503
	DRAWING TITLE	TYP INV. STATIONS - DC CONNECTIONS

**solar
design
associates** inc

HARVARD, MA 01451-0242 tel: 978-456-6855
www.solardesign.com fax: 978-772-9715

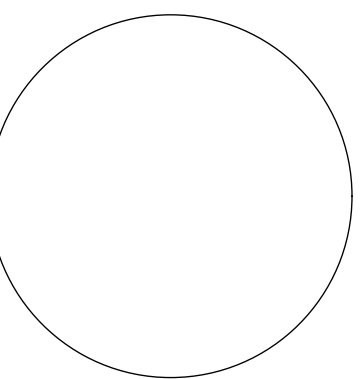


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FORTUNA (WEST END
ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



	MARK	DATE	DESCRIPTION
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NAME	
STREET	
CITY/ST/ZIP	
NOTES	

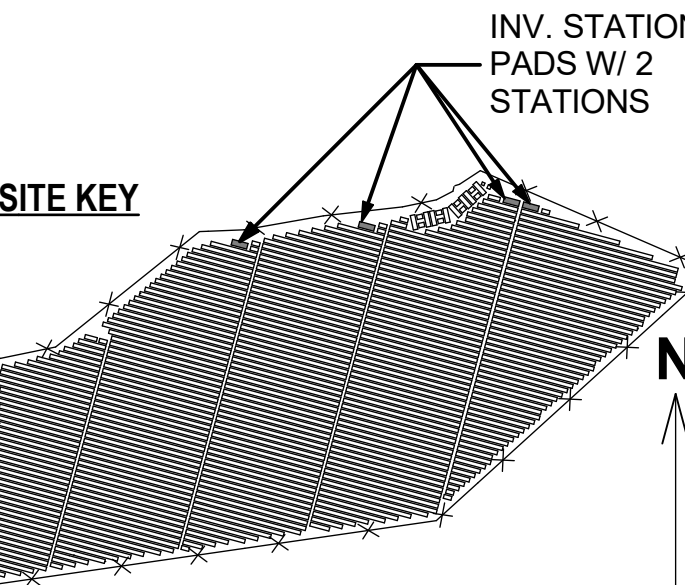
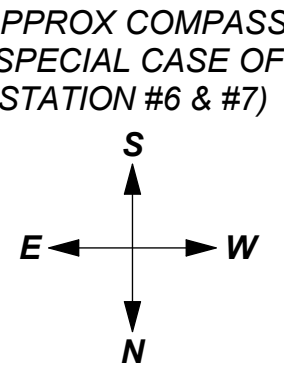
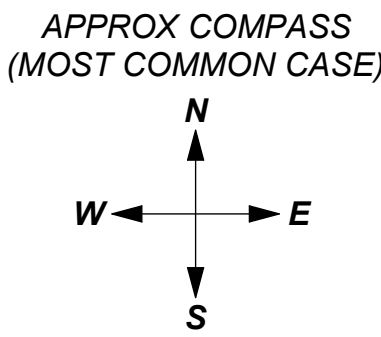
NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED
DRAWN BY	CH DATE DRAFTED: 1/13/2025
CHECKED BY	RE SHEET SIZE: ARCH D

DRAWING NO.	PV504
DRAWING TITLE	TYP INV. STATIONS - AC & DATA CONDUIT
SHEET 41 OF 70	

1 TYPICAL DUAL INVERTER STATION - CONDUIT LAYOUT

EXAMPLE ONLY: MUST BE COORDINATED W/ TRANSFORMER MFR'S SHOP DRAWINGS

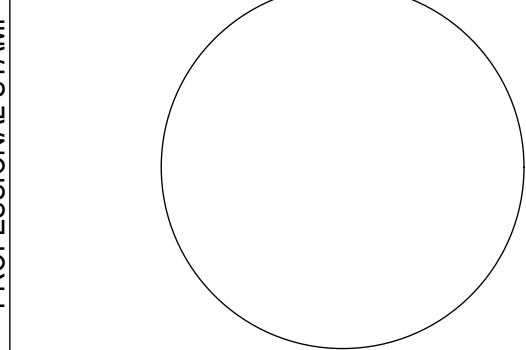


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

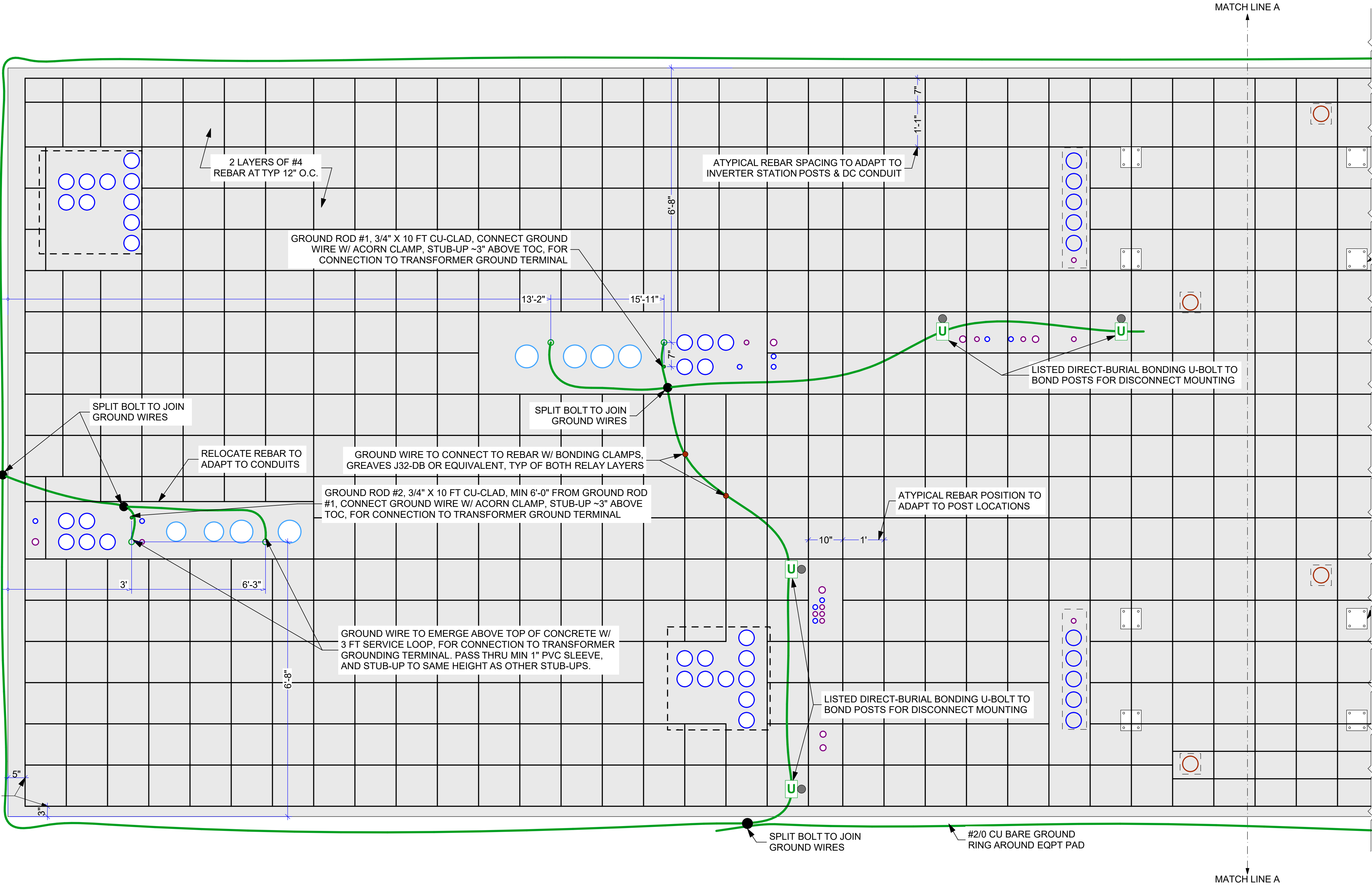
NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED

DRAWN BY	CH	DATE DRAFTED:	1/13/2025
CHECKED BY	RE	SHEET SIZE:	ARCH D

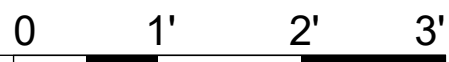
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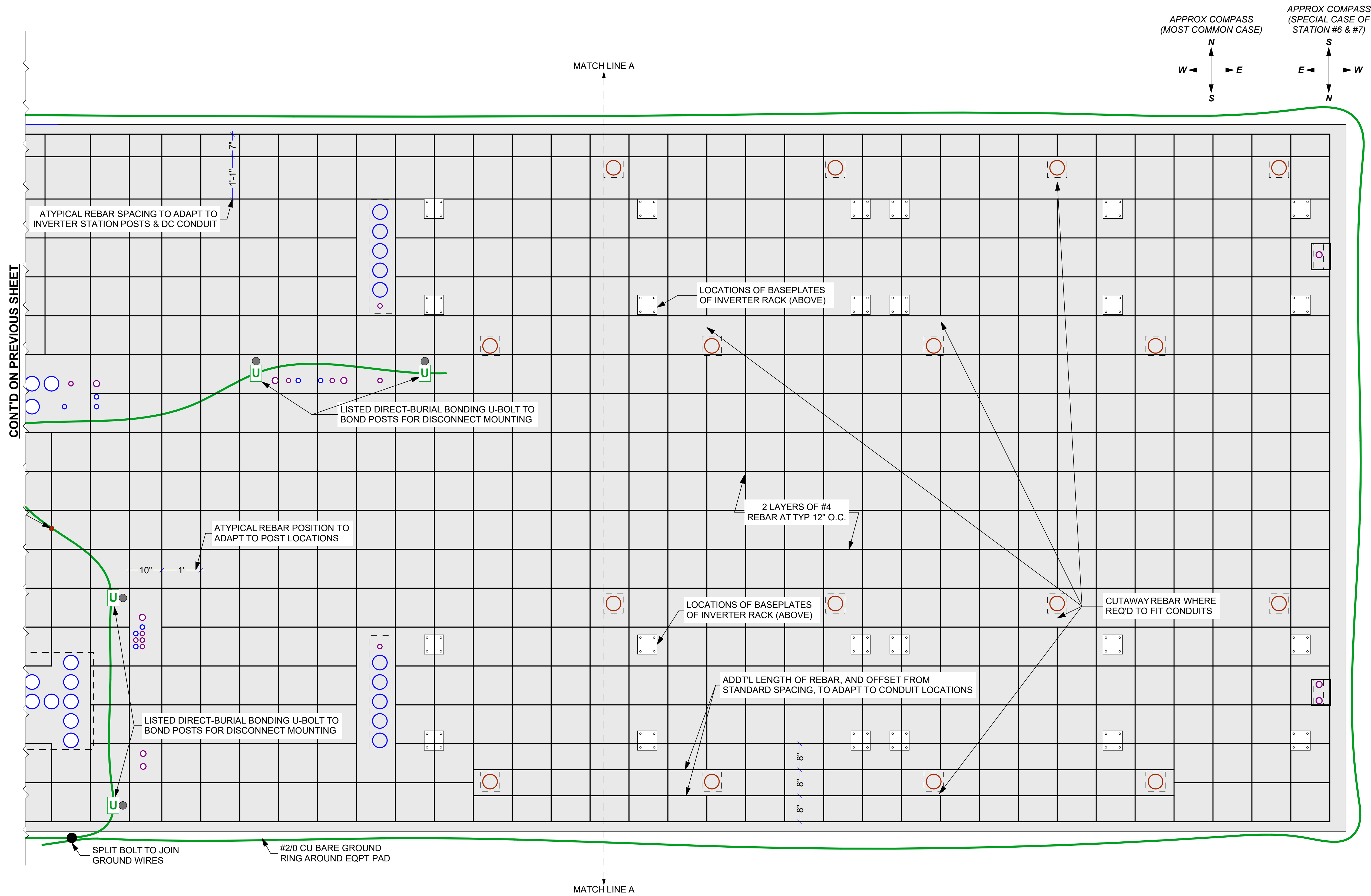
DRAWING TITLE	TYP INV. STATIONS - REBAR WEST
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MIN 3" MAX 6" REBAR COVER FROM EDGE OF SLAB

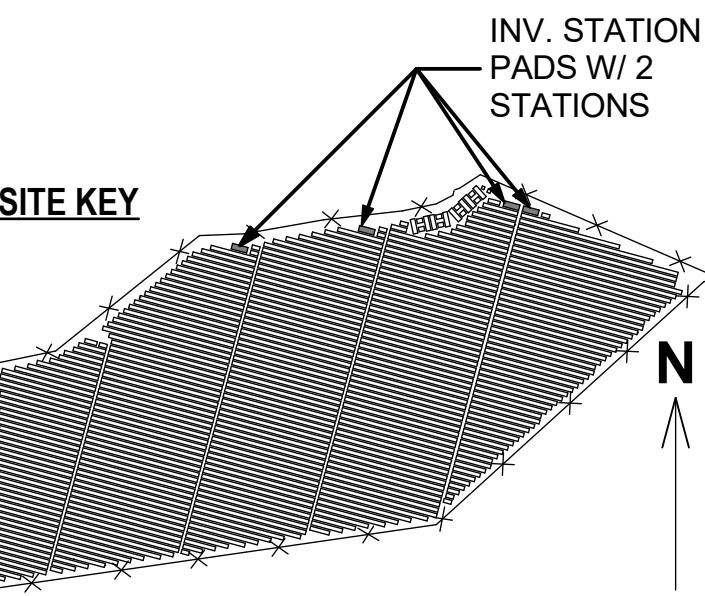
1 TYP. DUAL INVERTER STATION PAD - REBAR & GROUNDING (XFMR SIDE)





CONT'D ON PREVIOUS SHEET

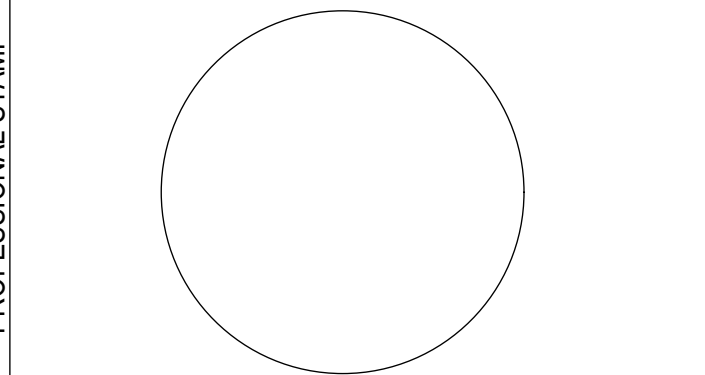
1 TYP. DUAL INVERTER STATION PAD - REBAR & GROUNDING (INVERTER SIDE)



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FORTUNA (WEST END ST. THOMAS)

PERMIT SET
Monday, January 13, 2025



MARK	DATE	DESCRIPTION

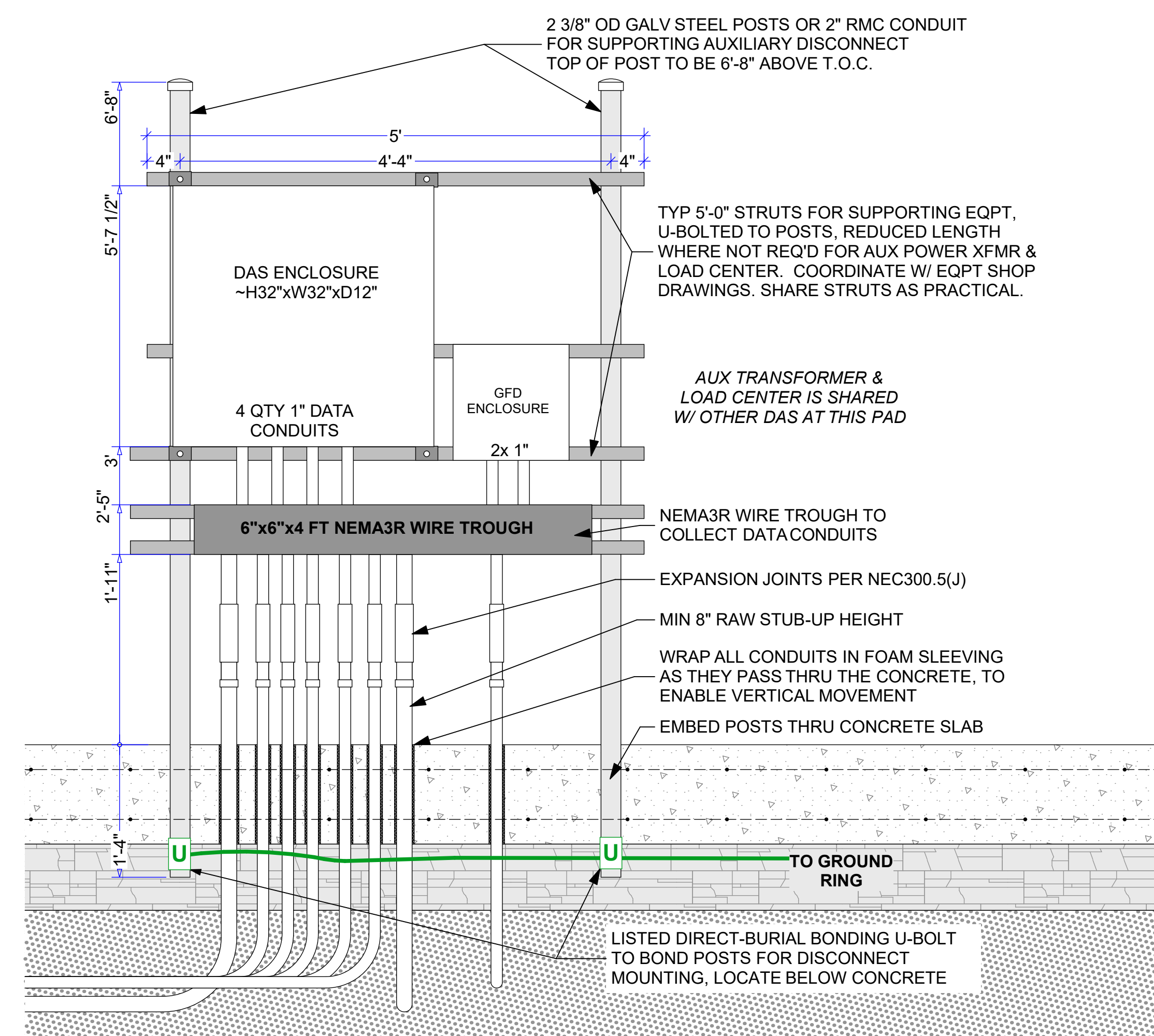
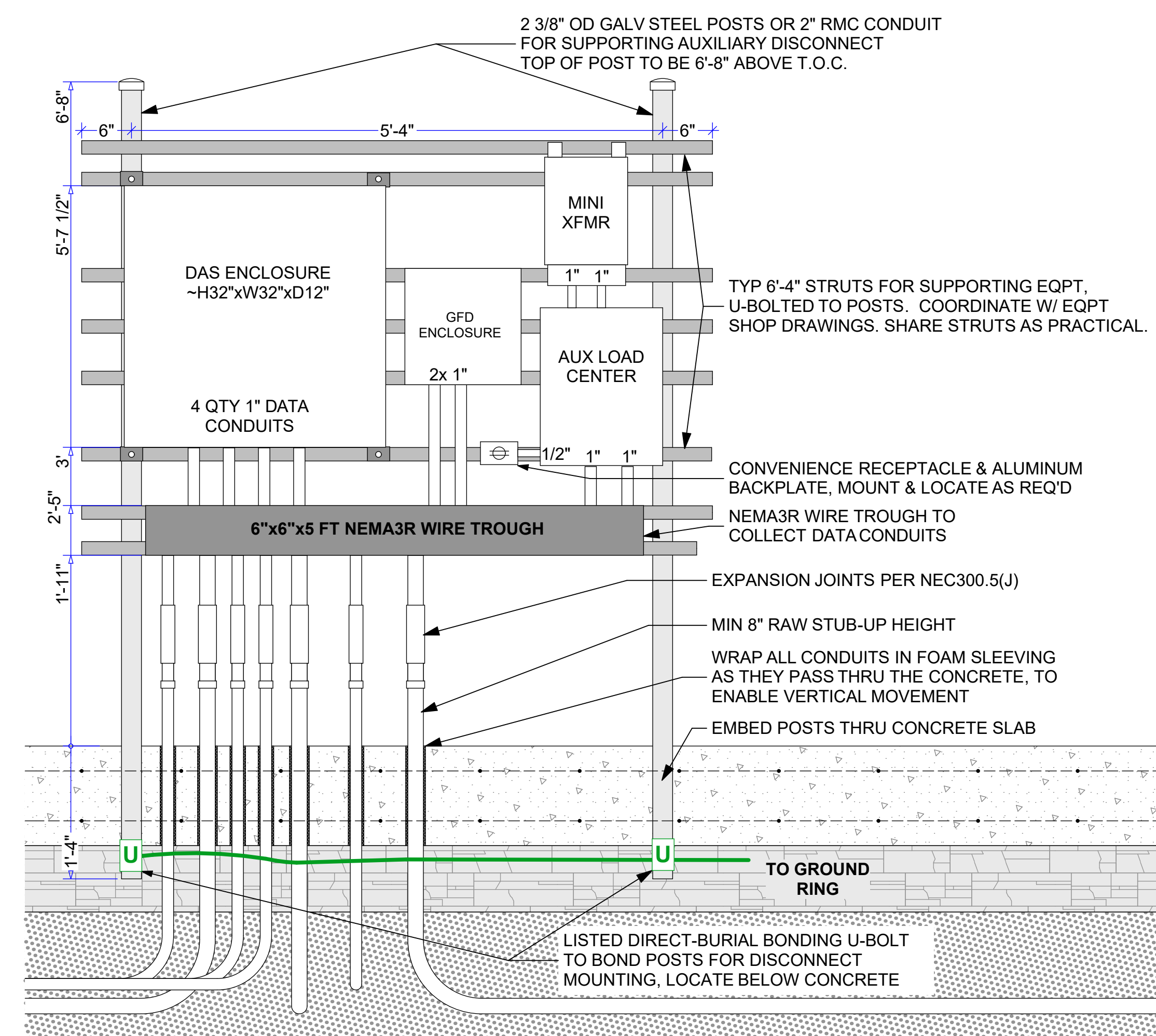
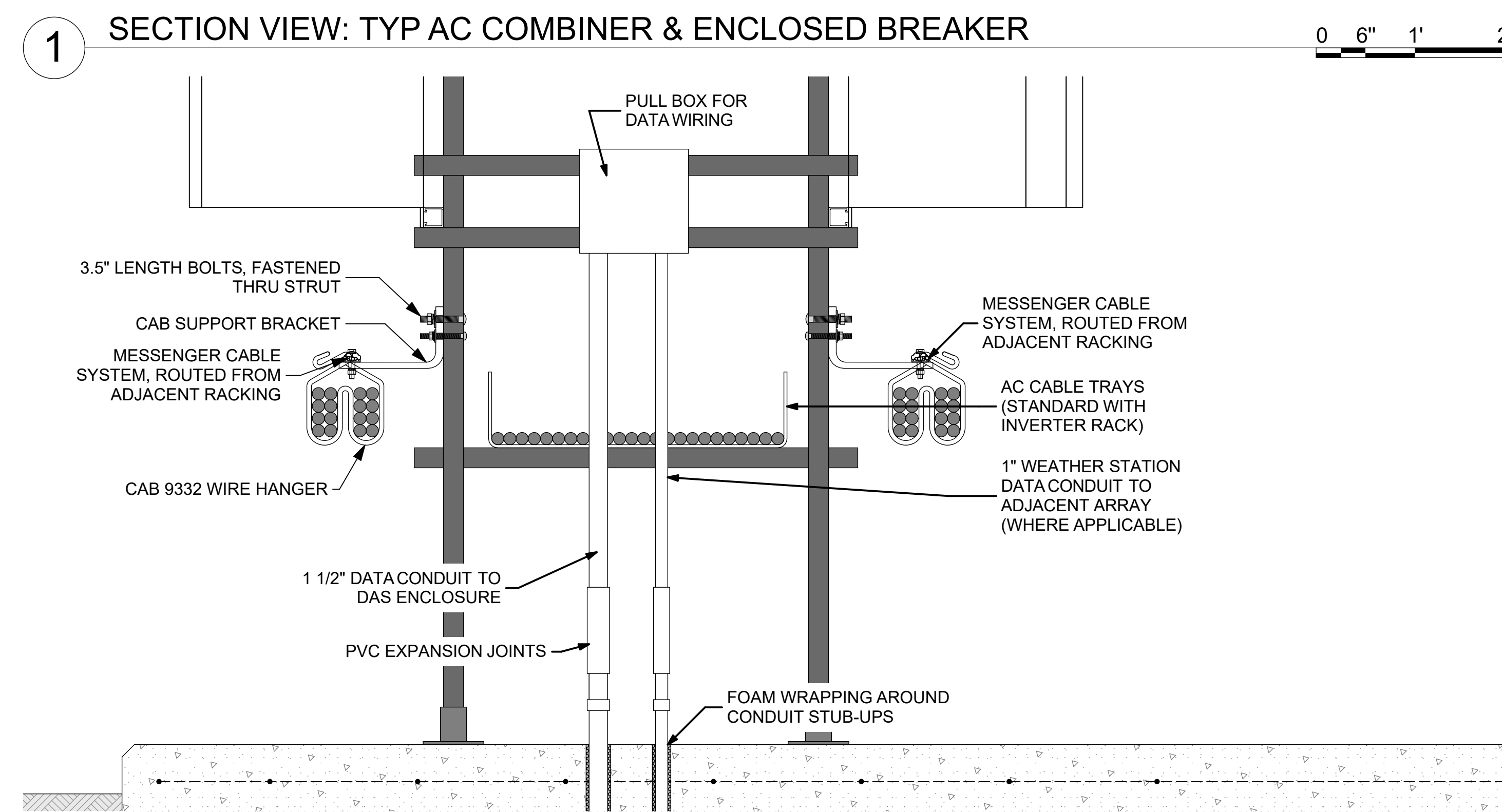
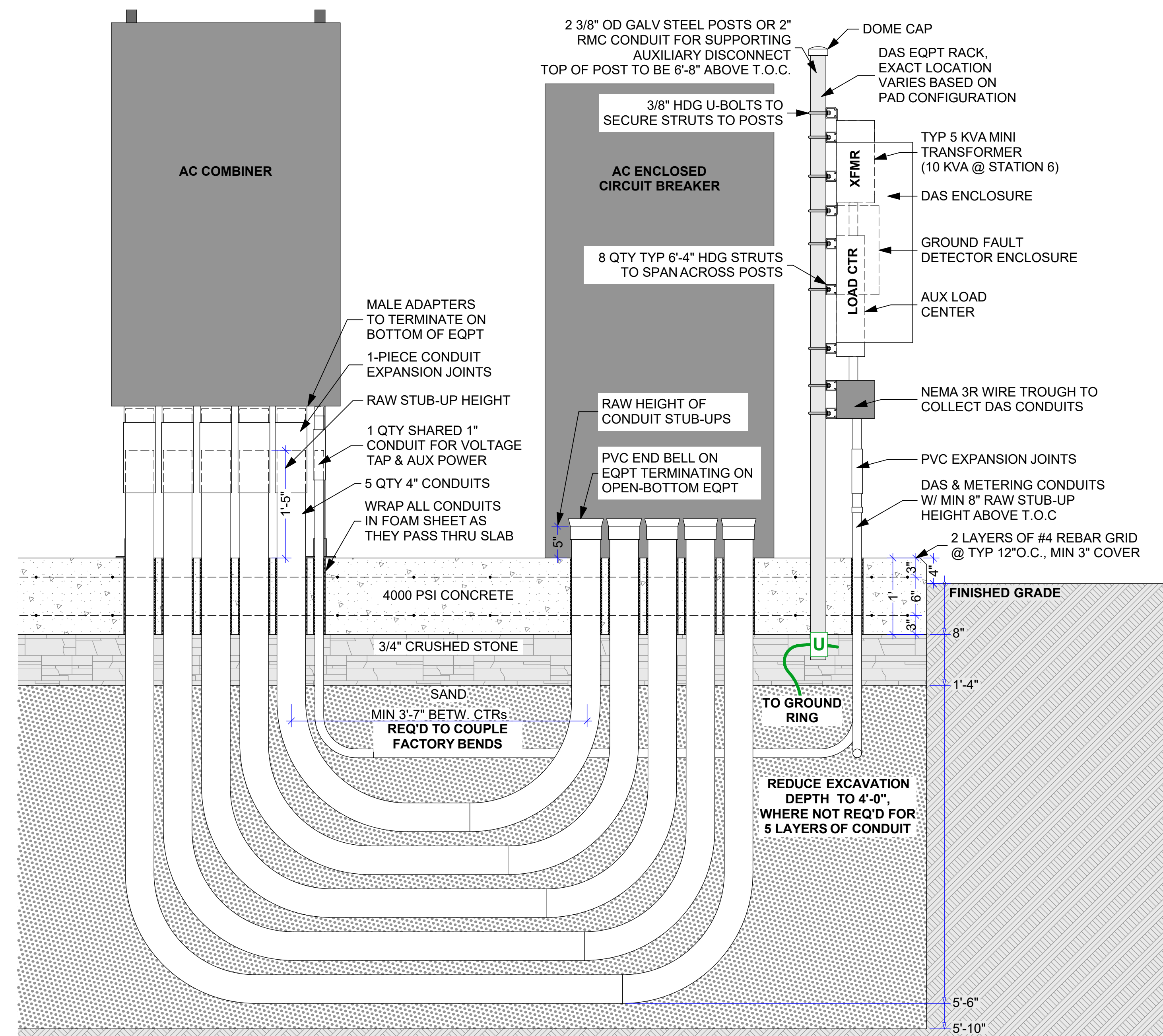
CONTRACTOR	NAME	
	STREET	
	CITY/ST/ZIP	
	NOTES	

SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	

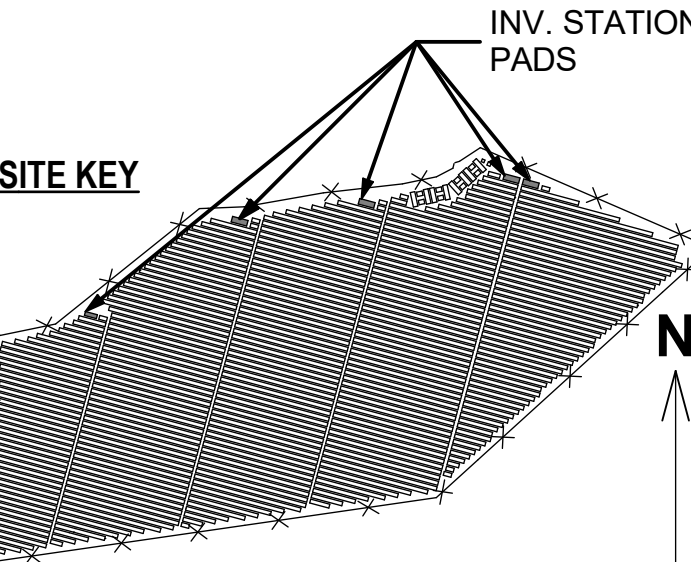
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	SCALE	AS NOTED

DRAWING	DRAWN BY	CH	DATE DRAFTED:	1/13/2025
	CHECKED BY	RE	SHEET SIZE:	ARCH D

DRAWING	DRAWING NO.	PV506
	DRAWING TITLE	TYP INV. STATIONS - REBAR EAST



tel: 978-456-6855
fax: 978-772-9715

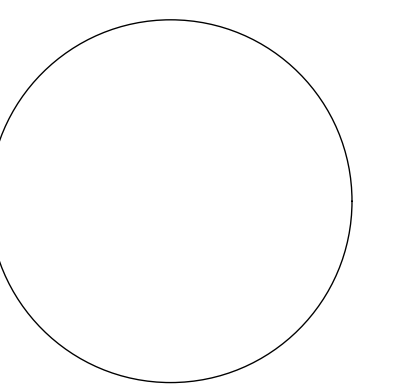


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FORTUNA (WEST END
ST. THOMAS)

PERMIT SET

Monday, January 13, 2025

[illegible]

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

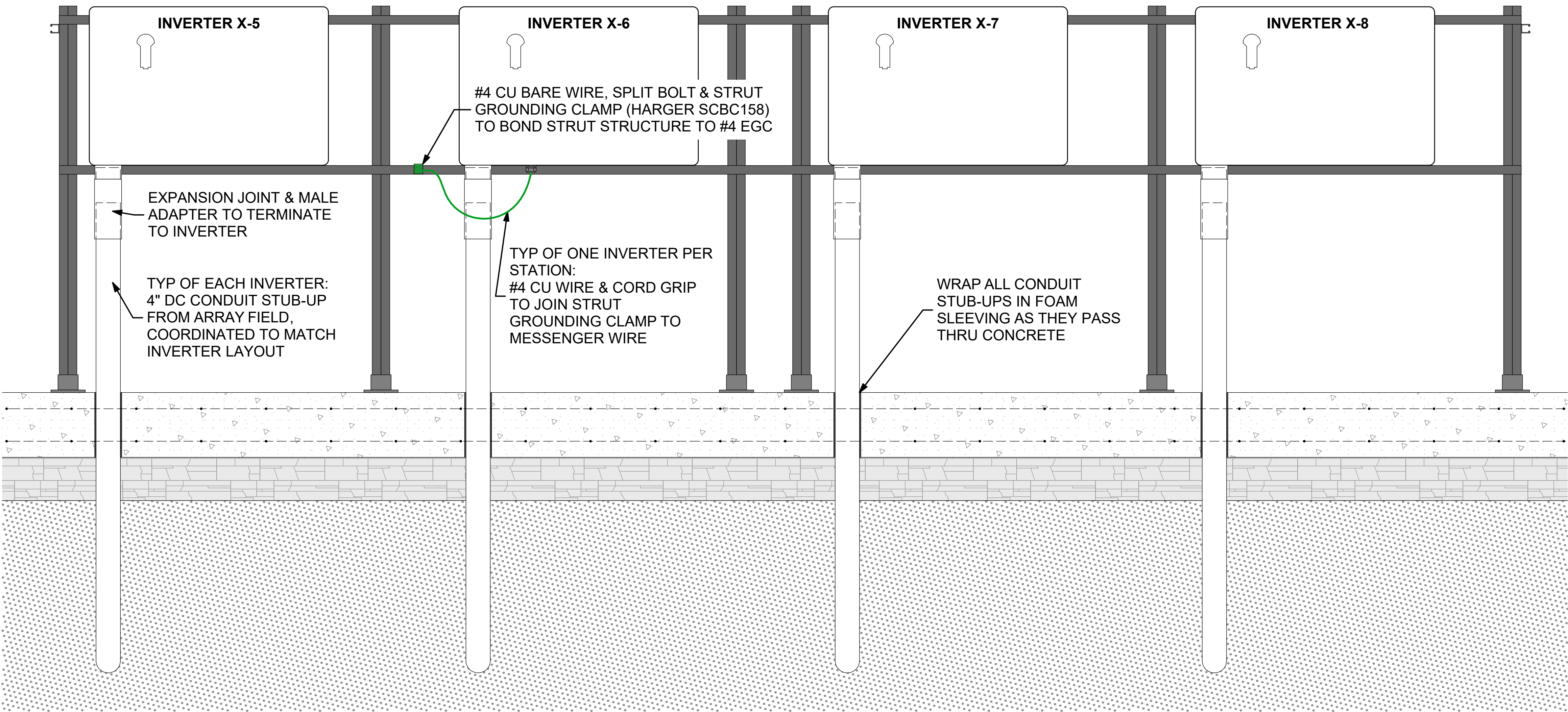
NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

FILE NAME	St Tom - Fortuna.pln	
SCALE	AS NOTED	
DRAWN BY	CH	DATE DRAFTED: 1/13/2025
CHECKED BY	RE	SHEET SIZE: ARCH D

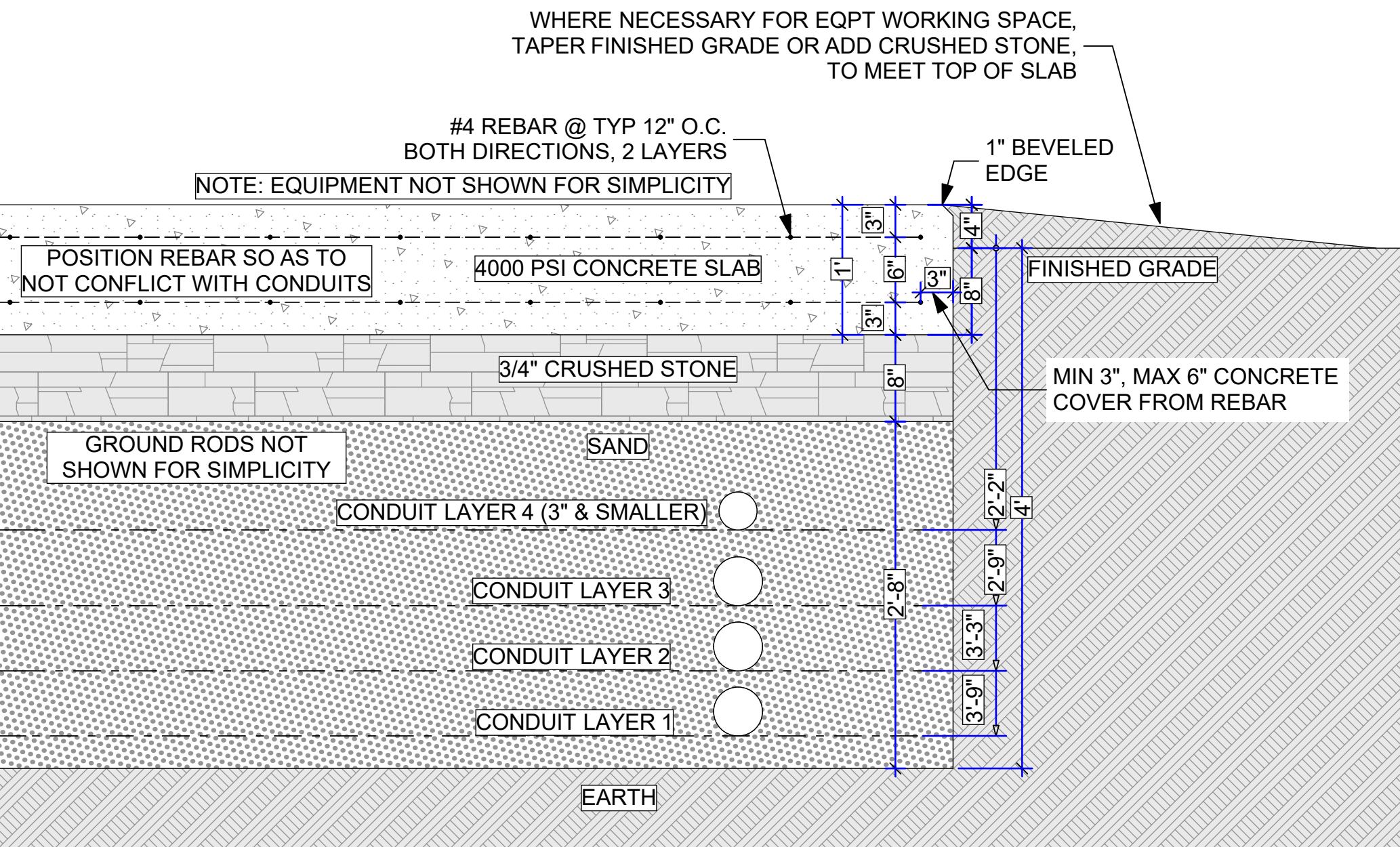
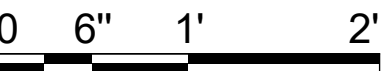
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EXTENDING TO:	1999

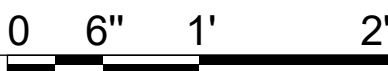
V. STATION SECTION VIEW



1 INVERTER RACK ELEVATION VIEW



2 EQPT PAD - GENERAL DETAIL

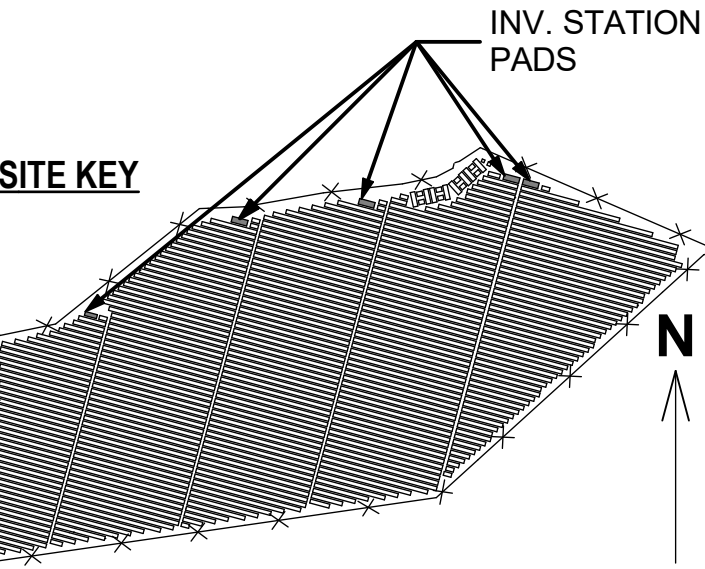


STRUT CONSTRUCTION NOTES

1. ALL STRUT & STRUT FITTINGS TO BE HOT DIP GALVANIZED STEEL
2. STRUT SIZE TO BE 12 GA, 1 5/8" x 1 5/8"
3. STANDARD HALF-SLOT PATTERN (1 1/8" LONG x 9/16" WIDE AT 2" O.C.)
4. APPLY COLD-GALVANIZING SPRAY TO ALL CUT ENDS
5. EQUIP STRUT ENDS WITH PLASTIC END CAPS
6. ALL FASTNERS TO BE HOT DIP GALVANIZED, STAINLESS OR STALGARD COATED STEEL, AND CONSISTENT WITHIN AN ASSEMBLY. DO NOT USE ZINC PLATED FASTENERS.

CONDUIT CONSTRUCTION NOTES:

1. CONDUIT TYPES ALLOWED FOR ABOVE-GRADE WORK: PVC SCH80, RMC, IMC, LFMC
2. UNDERGROUND CONDUIT: PVC SCH40 W/ SCH80 BENDS & RISERS
3. ALL THREADED CONDUIT TERMINATIONS SHALL INCLUDE LOCKNUT & PLASTIC BUSHING. IF REQ'D BY NEC, USE BONDING BUSHING IN PLACE OF PLASTIC BUSHING.
4. CONDUIT TERMINATIONS ON TOP/SIDES OF TROUGH REQUIRE WATERPROOFING, SUCH AS HEYCO SEALING WASHERS, O-RING GASKET OR SILICONE SEALANT FOR PVC; SEALING LOCKNUTS FOR RMC/IMC; SEALING RING FROM CONNECTORS FOR LFMC ON TERMINATIONS
5. TROUGH (WHERE SPECIFIED) REQUIRES ELECTRICAL CONTINUITY WITH EGC. EITHER THRU RMC/IMC NIPPLES TO METAL ENCLOSURES, OR A SEPARATE BONDING JUMPER

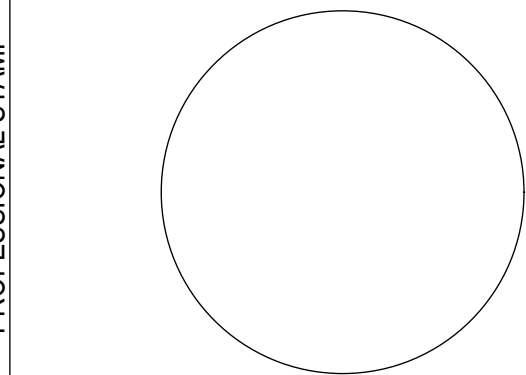


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

CONTRACTOR	NAME

SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	

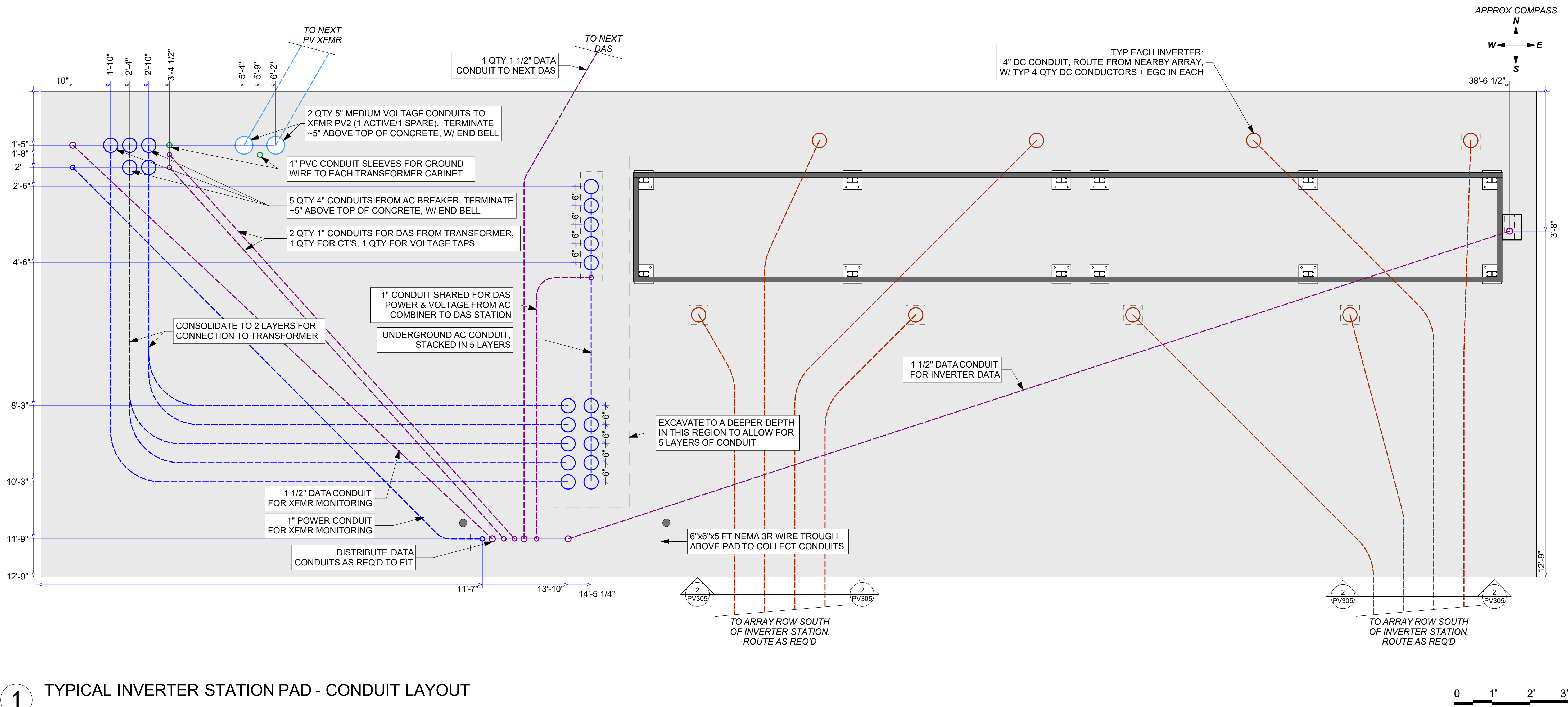
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SCALE	AS NOTED

DRAWN BY	CH	DATE DRAFTED: 1/13/2025
CHECKED BY	RE	SHEET SIZE: ARCH D

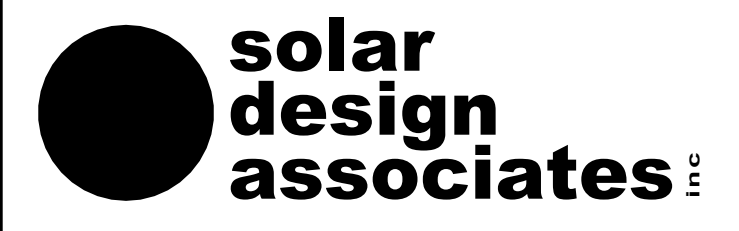
DRAWING NO.	PV508
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DRAWING TITLE	INVERTER STATION ELEVATION VIEW
	SHEET 45 OF 70

EXAMPLE ONLY: MUST BE COORDINATED W/
TRANSFORMER MFR'S SHOP DRAWINGS



1 TYPICAL INVERTER STATION PAD - CONDUIT LAYOUT



HARVARD, MA 01461-0242

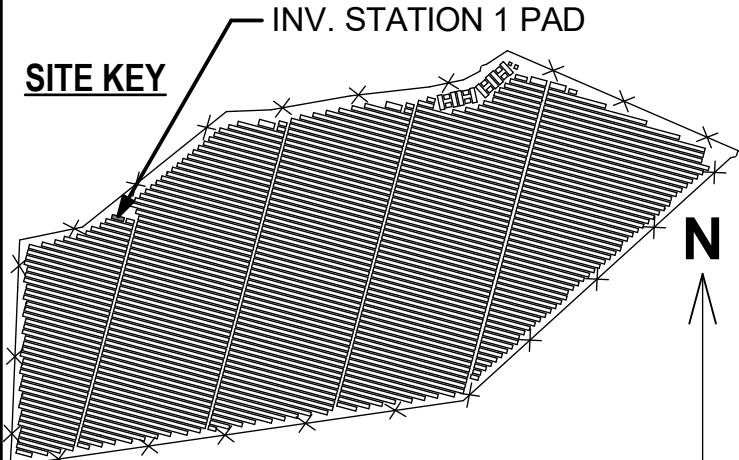
tel: 978-456-6855

www.solar design.com

fax: 978-772-8715

SITE KEY

INV. STATION 1 PAD



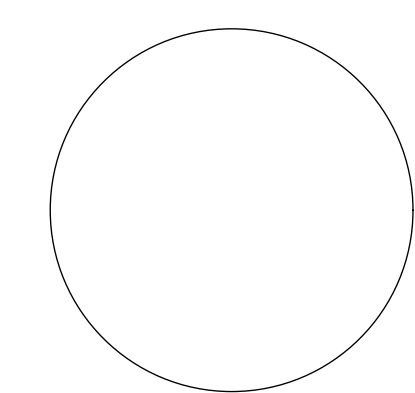
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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025

PROFESSIONAL STAMP



MARK	DATE	DESCRIPTION

CONTRACTOR

NAME

CITY/ST/ZIP

NOTES

SITE

NAME

STREET

CITY/ST/ZIP

NOTES

DRAWING

FILE NAME

SCALE

DRAWN BY

CHECKED BY

DRAWING NO.

DRAWING TITLE

Fortuna (West End St. Thomas)

Fortuna Road

Fortuna Estate, US VI, STT.

St Tom - Fortuna.pln

AS NOTED

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DATE DRAFTED: 1/13/2025

SHEET SIZE: ARCH D

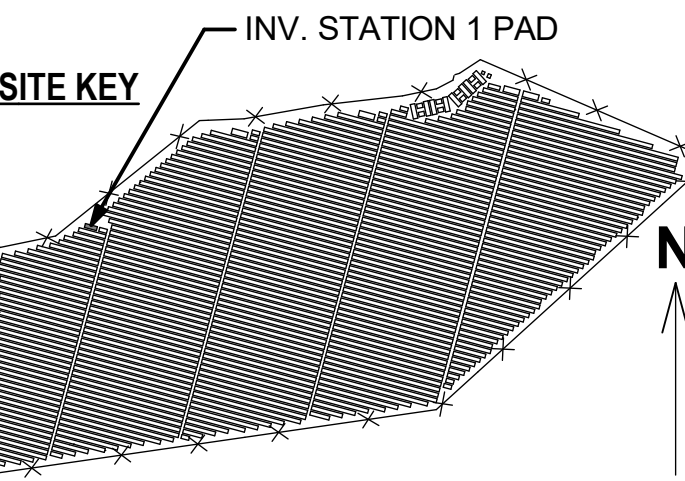
PV510

INV. STATION 1 - CONDUIT

SHEET 47 OF 70

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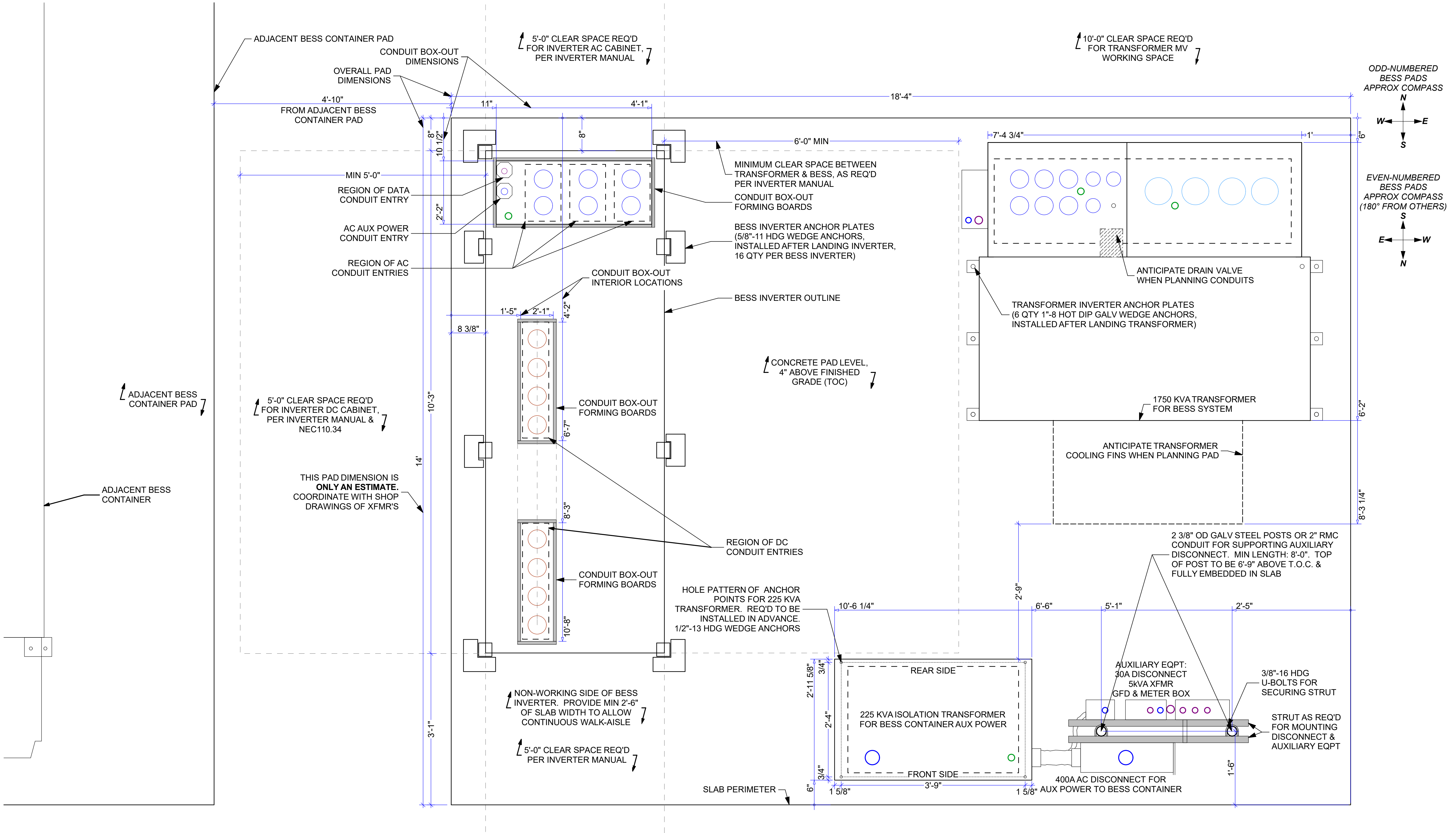
FORTUNA (WEST END
ST. THOMAS)

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

FILE NAME	St Tom - Fortuna.pln		
SCALE	AS NOTED		
DRAWN BY	CH	DATE DRAFTED: 1/13/2025	
CHECKED BY	RE	SHEET SIZE: ARCH D	
DRAWING NO.	PV511		
DRAWING TITLE	INV. STATION 1 - REBAR & GROUNDING		
	SHEET 48 OF 70		

EXAMPLE ONLY:
MUST BE COORDINATED W/ TRANSFORMER MFR'S SHOP DRAWINGS FOR **BOTH** TRANSFORMER TYPES



1 BESS EQPT PADS W/ BESS INVERTER & BESS TRANSFORMER



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fax: 978-772-8715

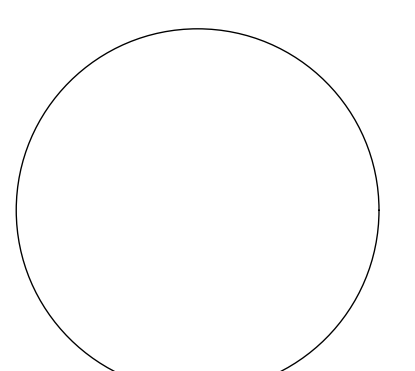
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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025

PROFESSIONAL STAMP



REVISION NOTES

MARK	DATE	DESCRIPTION

CONTRACTOR

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

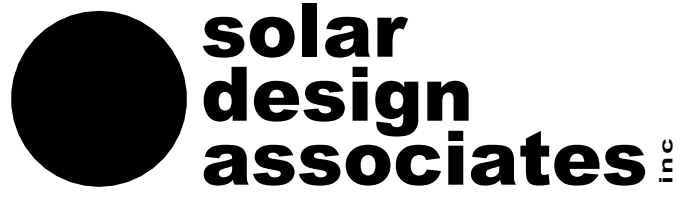
SITE

NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

DRAWING

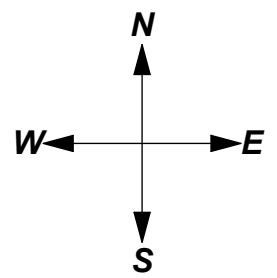
FILE NAME	St Tom - Fortuna.pln		
SCALE	AS NOTED		
DRAWN BY	CH	DATE DRAFTED:	1/13/2025
CHECKED BY	RE	SHEET SIZE:	ARCH D
DRAWING NO.	PV512		
DRAWING TITLE	BESS EQPT PAD - LAYOUT		
SHEET 49 OF 70			

EXAMPLE ONLY:
MUST BE COORDINATED W/ TRANSFORMER MFR'S SHOP DRAWINGS FOR **BOTH** TRANSFORMER TYPES

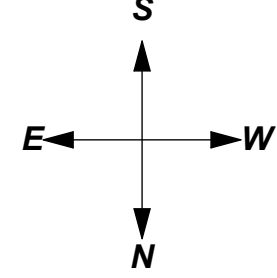


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ODD-NUMBERED
BESS PADS
APPROX COMPASS

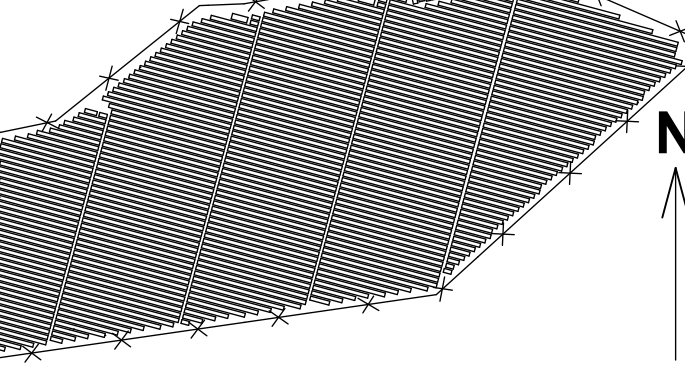


EVEN-NUMBERED
BESS PADS
APPROX COMPASS
(180° FROM OTHERS)



BESS INVERTER
PADS

SITE KEY

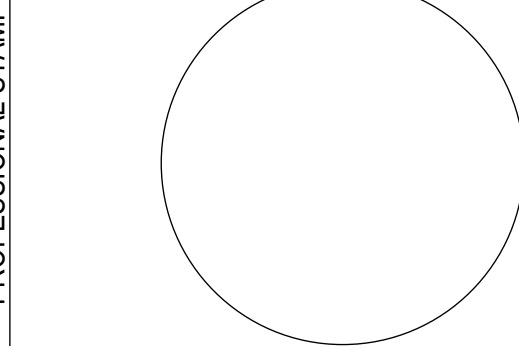


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REQUIRED FIELD AND A LICENSE IN THE STATE THAT THE INSTALLATION
WILL RESIDE. CERTIFICATION OR VALIDATION TO BE INCLUDED AS PART OF
THE SUBMITTALS FOR PERMITTING OF THE OVERALL PROJECT.

FORTUNA (WEST END
ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

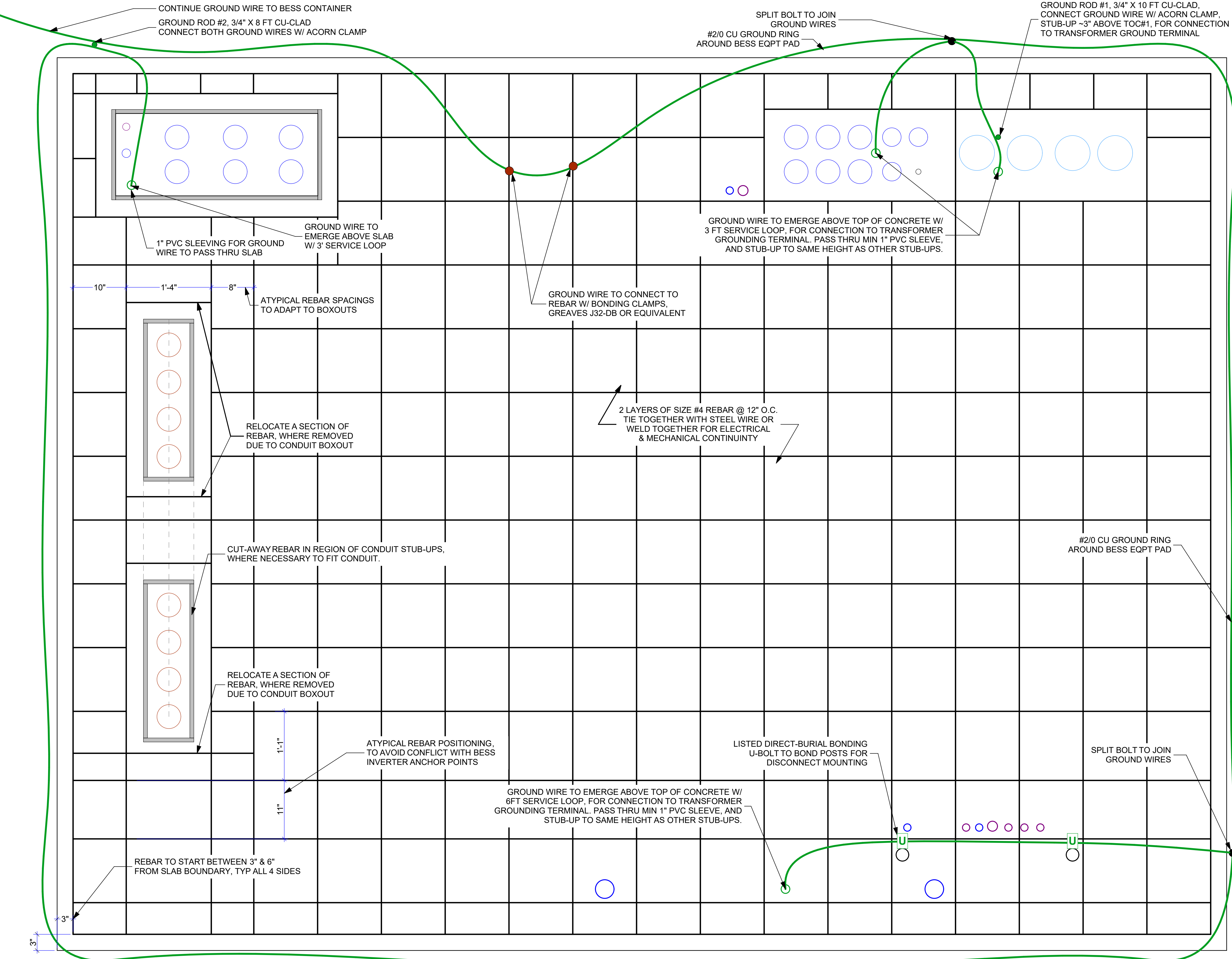
NAME	
STREET	
CITY/ST/ZIP	
NOTES	

NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

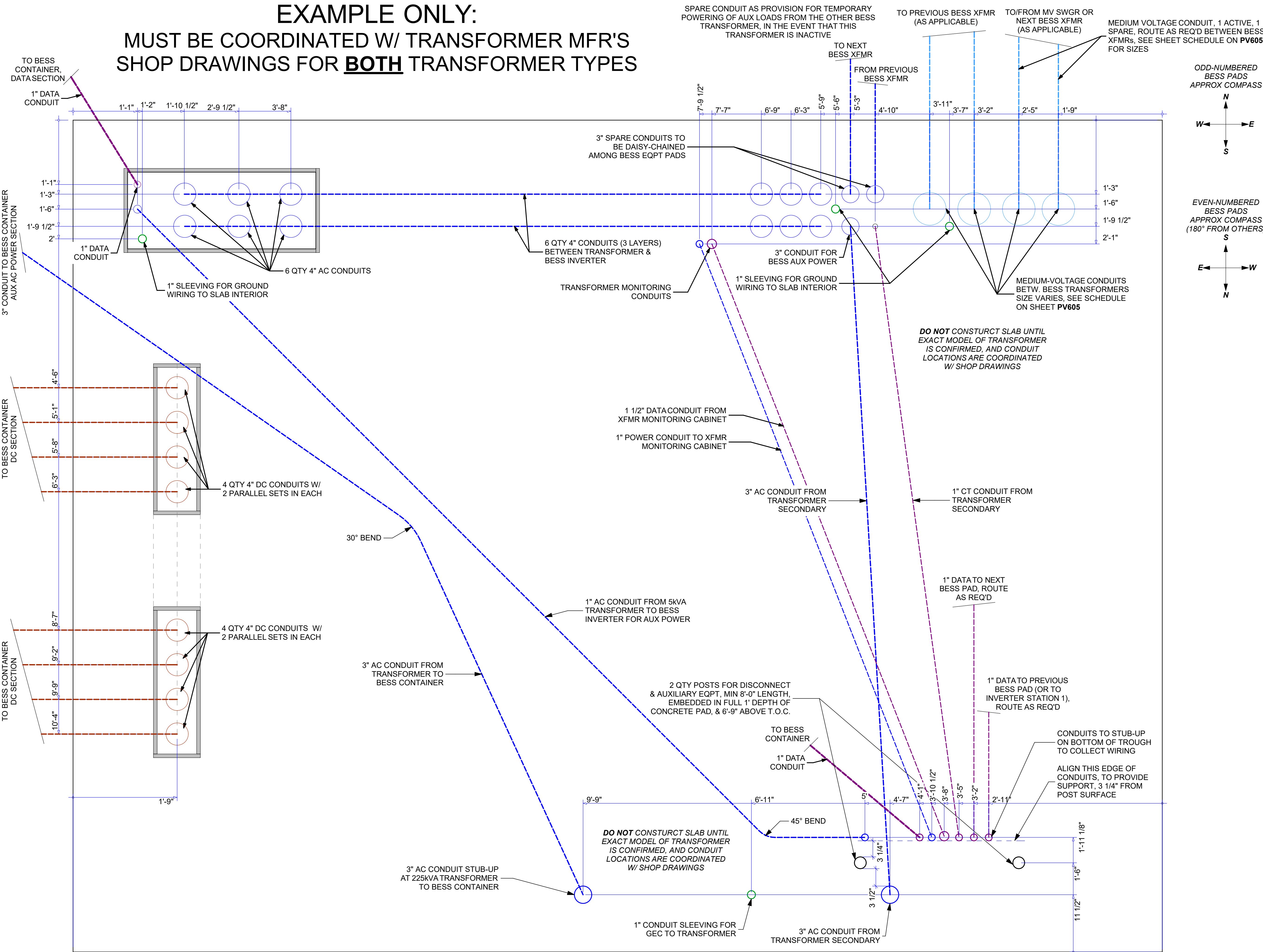
FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED
DRAWN BY	CH
CHECKED BY	RE
DATE DRAFTED	1/13/2025
SHEET SIZE	ARCH D

DRAWING NO.	PV513
DRAWING TITLE	BESS EQPT PAD - REBAR & GROUND

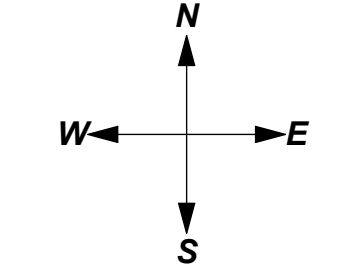
SHEET 50 OF 70



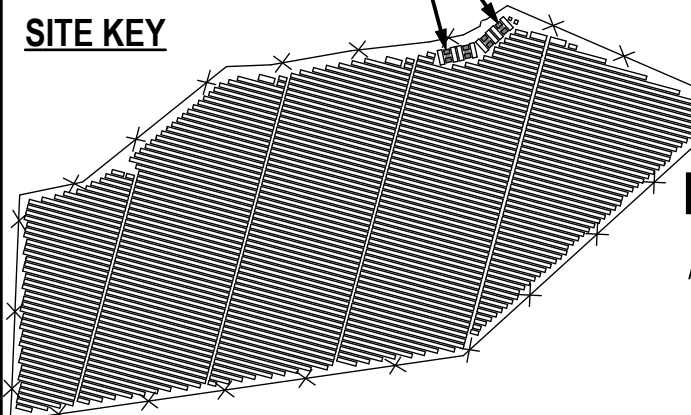
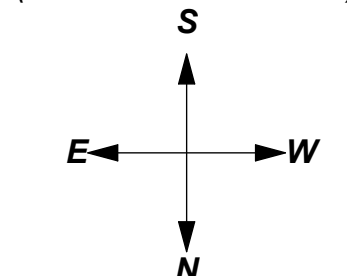
EXAMPLE ONLY:
MUST BE COORDINATED W/ TRANSFORMER MFR'S
SHOP DRAWINGS FOR **BOTH** TRANSFORMER TYPES



ODD-NUMBERED
BESS PADS
APPROX COMPASS



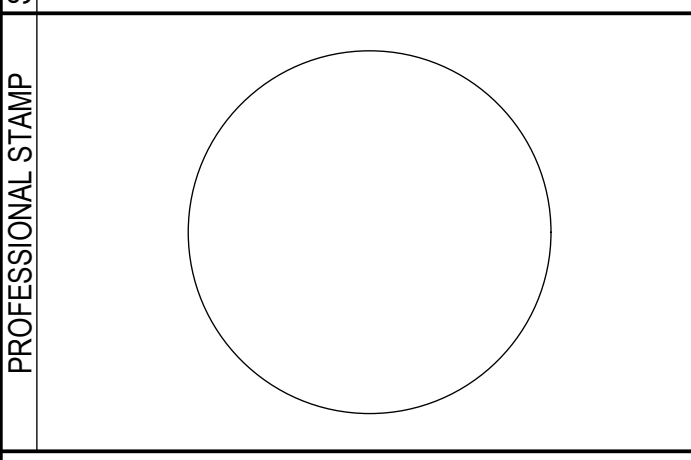
EVEN-NUMBERED
BESS PADS
APPROX COMPASS
(180° FROM OTHERS)



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FORTUNA (WEST END ST. THOMAS)

PERMIT SET
SUBMISSION
Monday, January 13, 2025

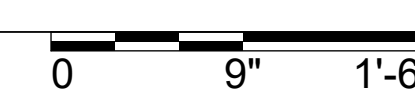


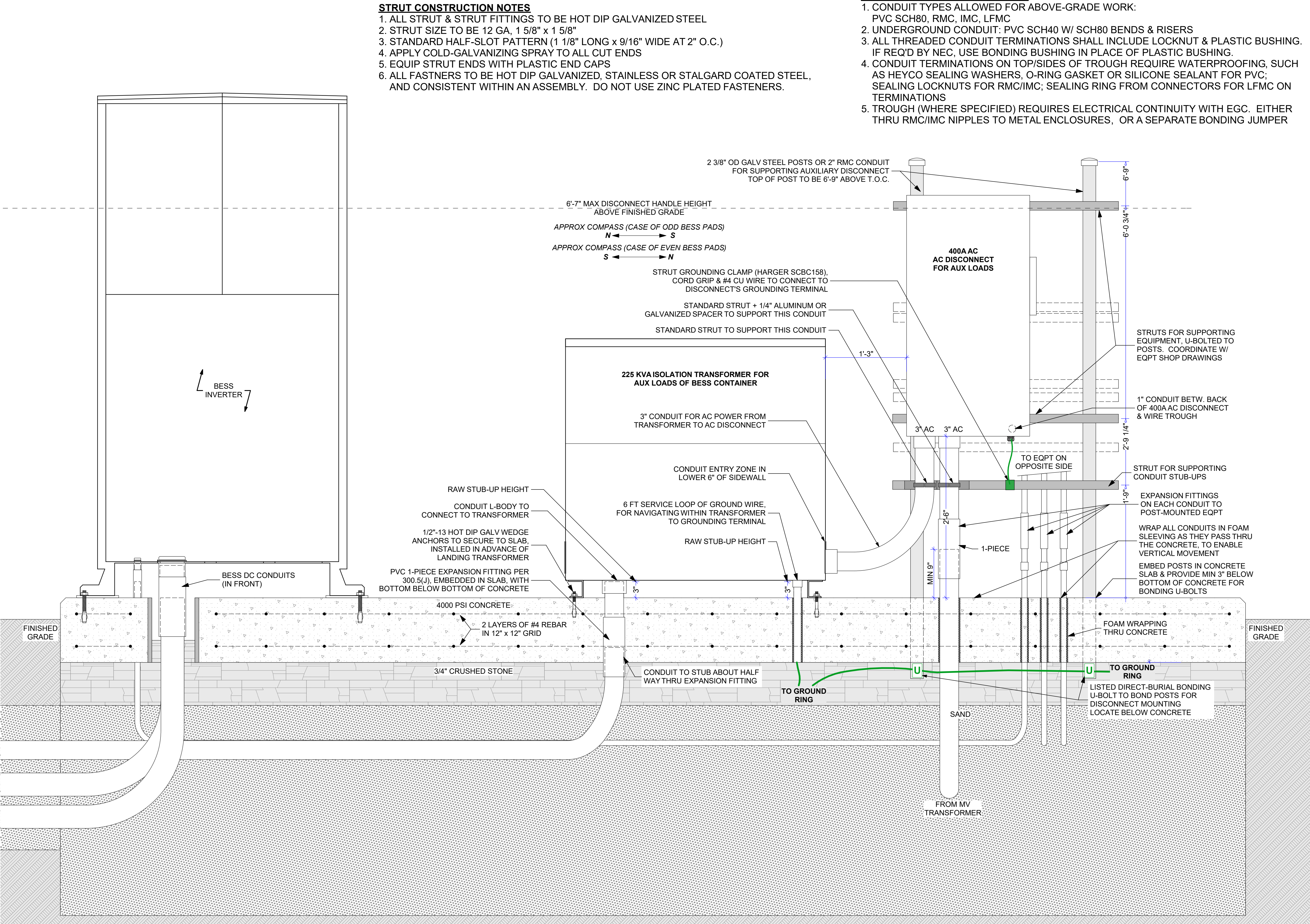
MARK	DATE	DESCRIPTION

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED
DRAWN BY	CH
CHECKED BY	RE
DRAWING NO.	PV514
DRAWING TITLE	BESS EQPT PAD - CONDUIT
SHEET	51 OF 70

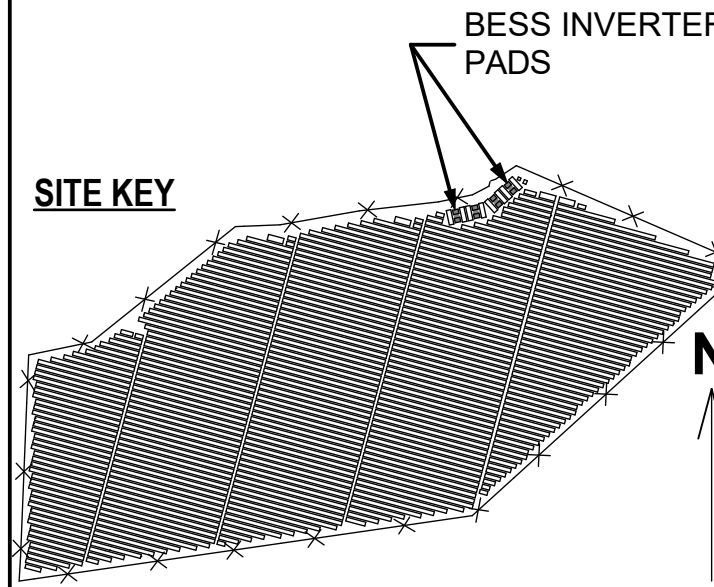




1 BESS EQPT PAD - ELEVATION VIEW OF AUXILIARY EQPT (DISCONNECT SIDE)

0 6" 12" 18"

SITE KEY

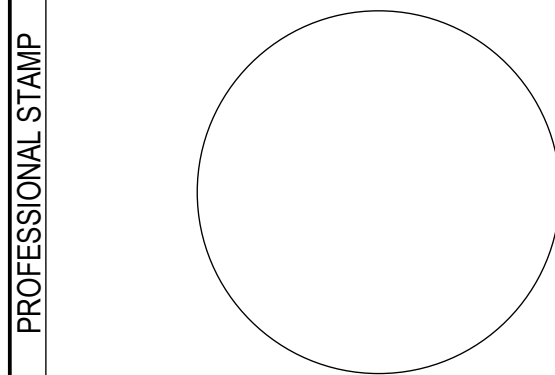


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION

CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED

DRAWN BY	CH	DATE DRAFTED: 1/13/2025
CHECKED BY	RE	SHEET SIZE: ARCH D

DRAWING NO.	PV515
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DRAWING TITLE	BESS EQPT PAD - ELEVATION VIEW 1
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FORTUNA (WEST END
ST. THOMAS)

PERMIT SET

Monday, January 13, 2025

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MARK	DATE	DESCRIPTION
9		
8		
7		
6		
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4		
3		
2		
1		

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

NAME	FORTUNA (WEST END ST. THOMAS)
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
NOTES	

FILE NAME	St Tom - Fortuna.pln
SCALE	AS NOTED

DRAWN BY	CH	DATE DRAFTED: 1/13/2025
CHECKED BY	RE	SHEET SIZE: ARCH D

DRAWING NO.	PV516
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DRAWING TITLE	BESS EQPT PAD - ELEVATION VIEW 2
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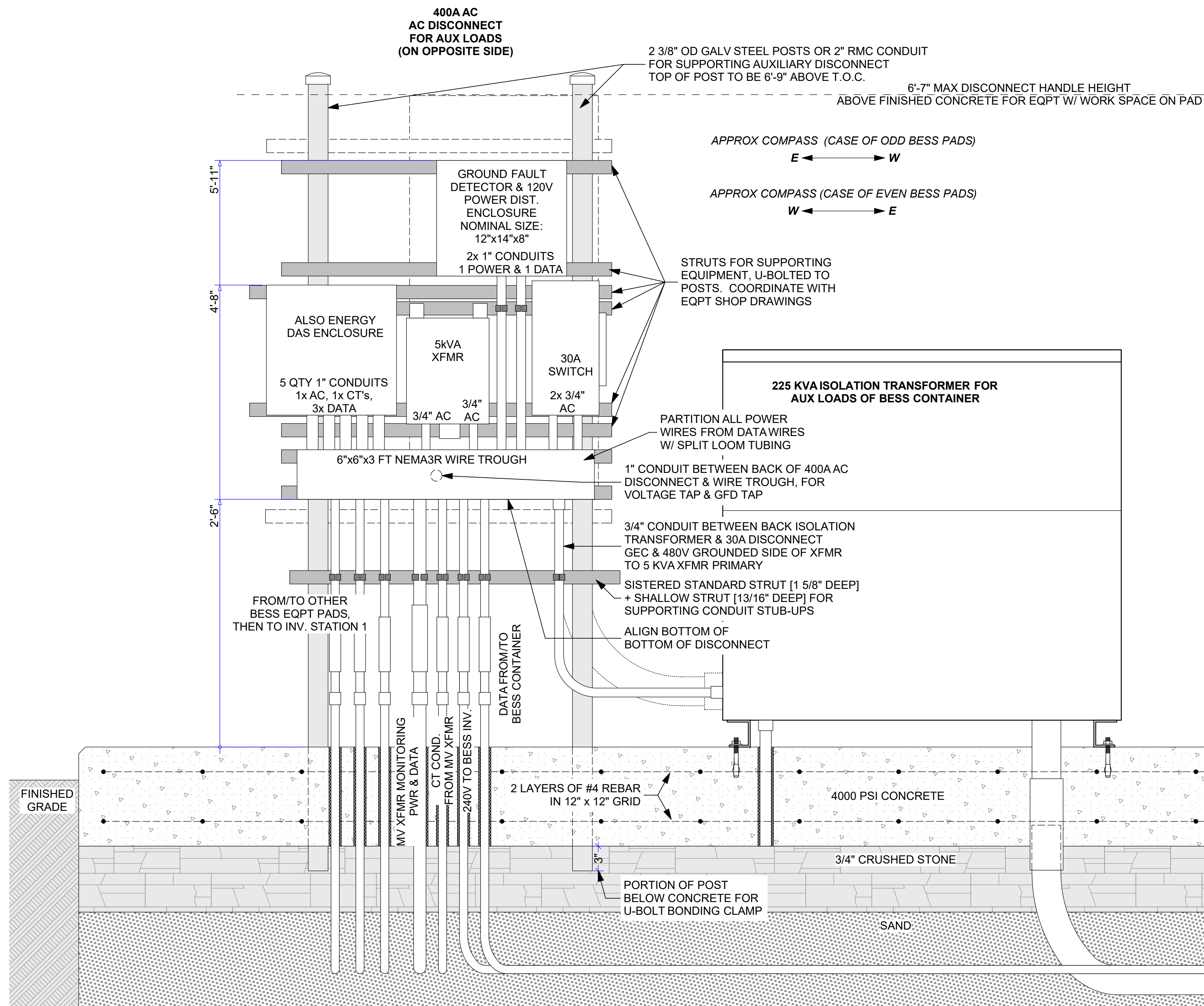
SHEET 53 OF 70

STRUT CONSTRUCTION NOTES

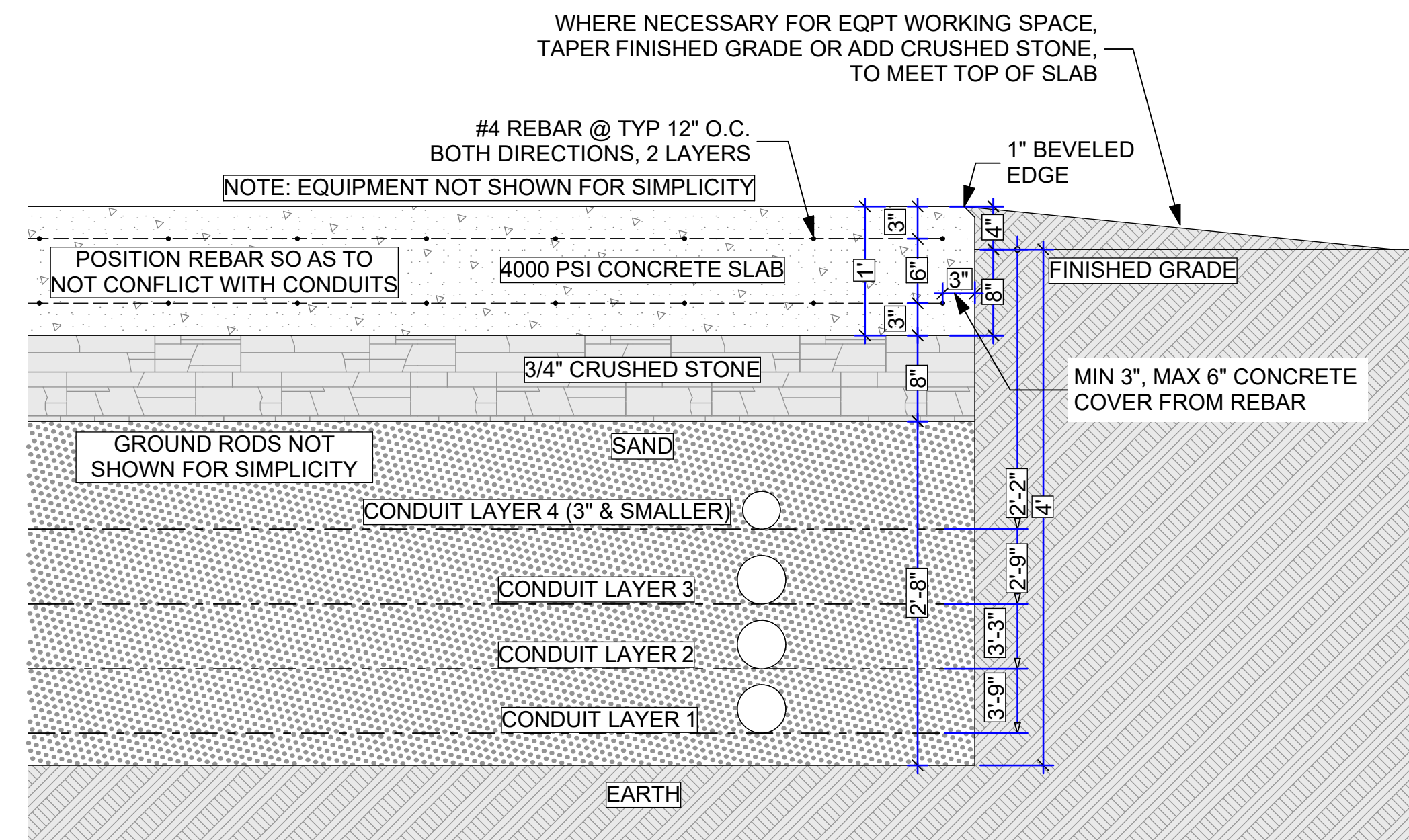
1. ALL STRUT & STRUT FITTINGS TO BE HOT DIP GALVANIZED STEEL
2. STRUT SIZE TO BE 12 GA, 1 5/8" x 1 5/8"
3. STANDARD HALF-SLOT PATTERN (1 1/8" LONG x 9/16" WIDE AT 2" O.C.)
4. APPLY COLD-GALVANIZING SPRAY TO ALL CUT ENDS
5. EQUIP STRUT ENDS WITH PLASTIC END CAPS
6. ALL FASTNERS TO BE HOT DIP GALVANIZED, STAINLESS OR STALGARD COATED STEEL, AND CONSISTENT WITHIN AN ASSEMBLY. DO NOT USE ZINC PLATED FASTENERS.

CONDUIT CONSTRUCTION NOTES:

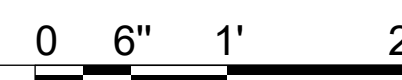
1. CONDUIT TYPES ALLOWED FOR ABOVE-GRADE WORK:
PVC SCH80, RMC, IMC, LFMC
2. UNDERGROUND CONDUIT: PVC SCH40 W/ SCH80 BENDS & RISERS
3. ALL THREADED CONDUIT TERMINATIONS SHALL INCLUDE LOCKNUT & PLASTIC BUSHING.
IF REQ'D BY NEC, USE BONDING BUSHING IN PLACE OF PLASTIC BUSHING.
4. CONDUIT TERMINATIONS ON TOP/SIDES OF TROUGH REQUIRE WATERPROOFING, SUCH
AS HEYCO SEALING WASHERS, O-RING GASKET OR SILICONE SEALANT FOR PVC;
SEALING LOCKNUTS FOR RMC/IMC; SEALING RING FROM CONNECTORS FOR LFMC ON
TERMINATIONS
5. TROUGH (WHERE SPECIFIED) REQUIRES ELECTRICAL CONTINUITY WITH EGC. EITHER
THRU RMC/IMC NIPPLES TO METAL ENCLOSURES, OR A SEPARATE BONDING JUMPER

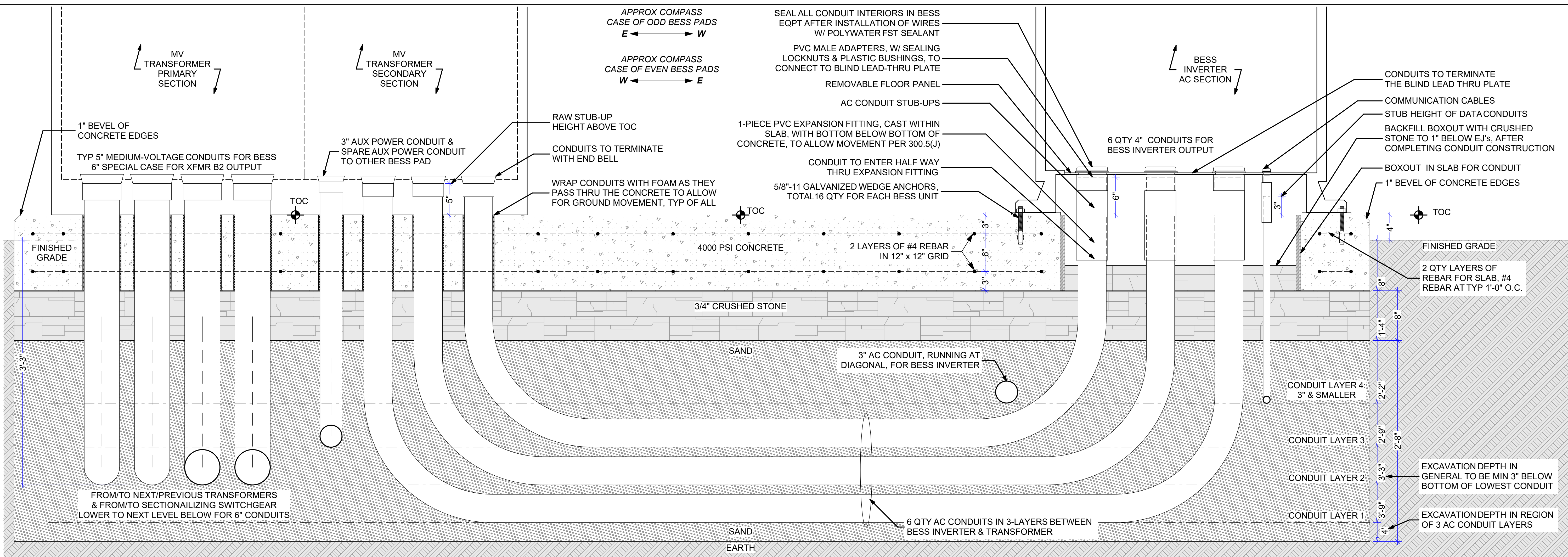


1 BESS EQPT PAD - ELEVATION VIEW OF AUXILIARY EQPT (DAS SIDE)



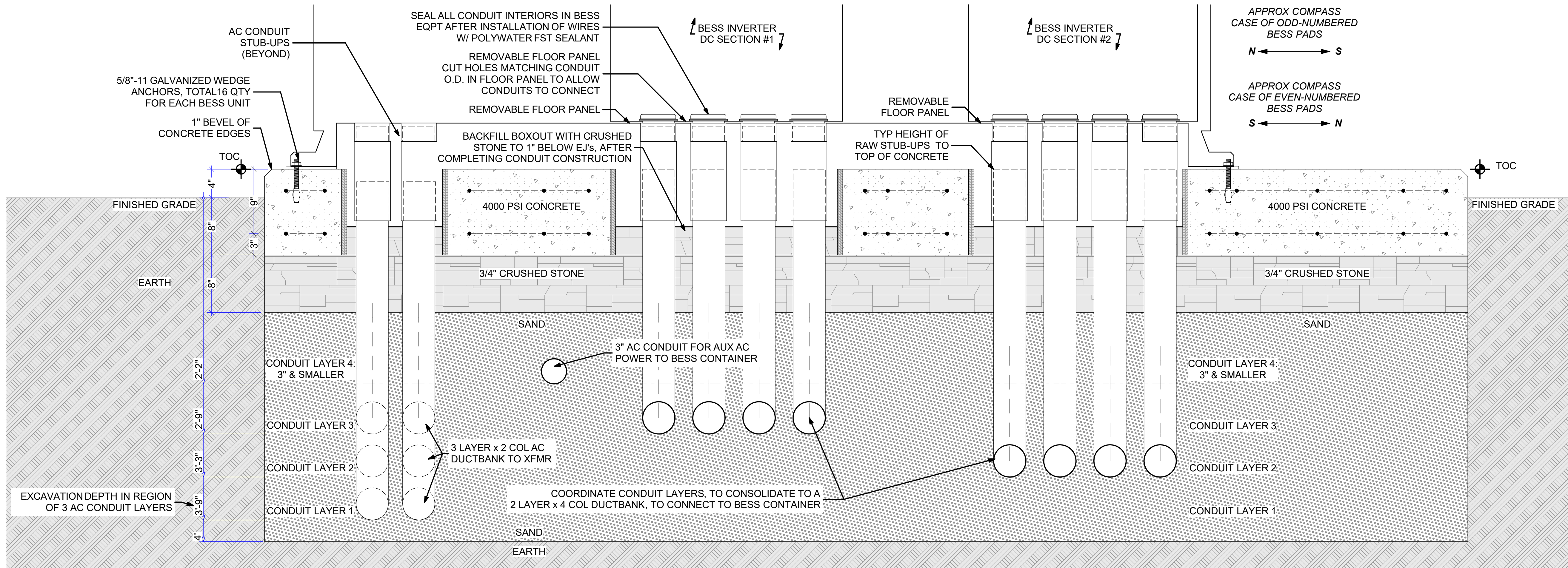
2 EQPT PAD - GENERAL DETAIL





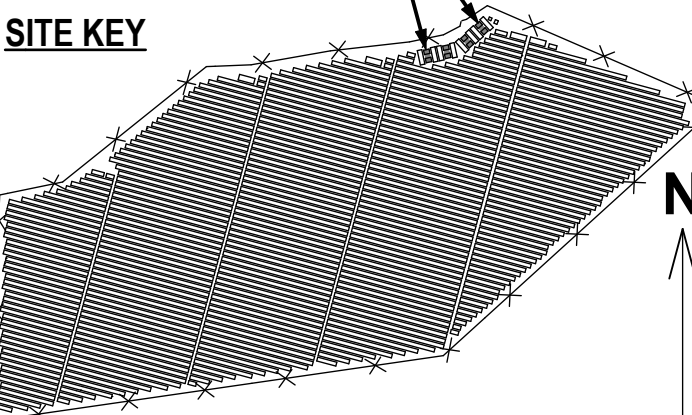
1 BESS INVERTER & TRANSFORMER SECTION VIEW (FROM MV TRANSFORMER SIDE)

0 6" 12" 18"



2 BESS INVERTER SECTION VIEW (FROM CONTAINER SIDE)

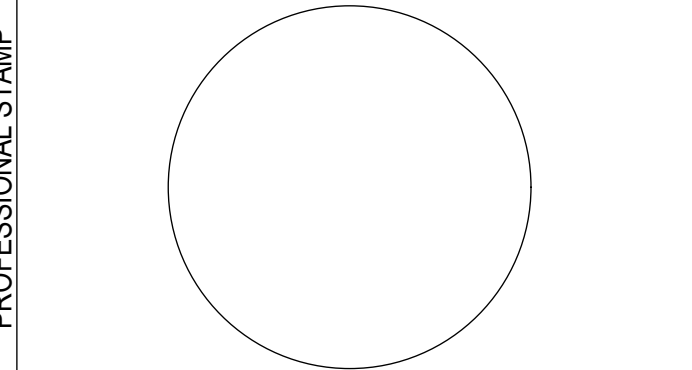
0 6" 12" 18"



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FORTUNA (WEST END ST. THOMAS)

PERMIT SET
Monday, January 13, 2025



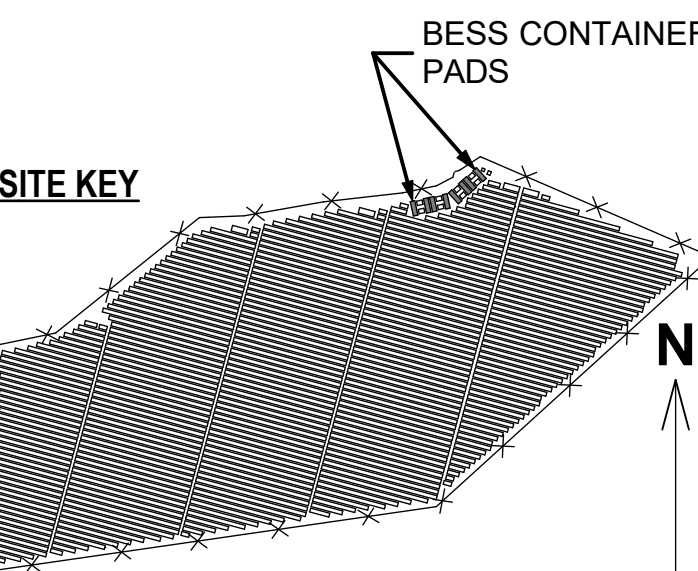
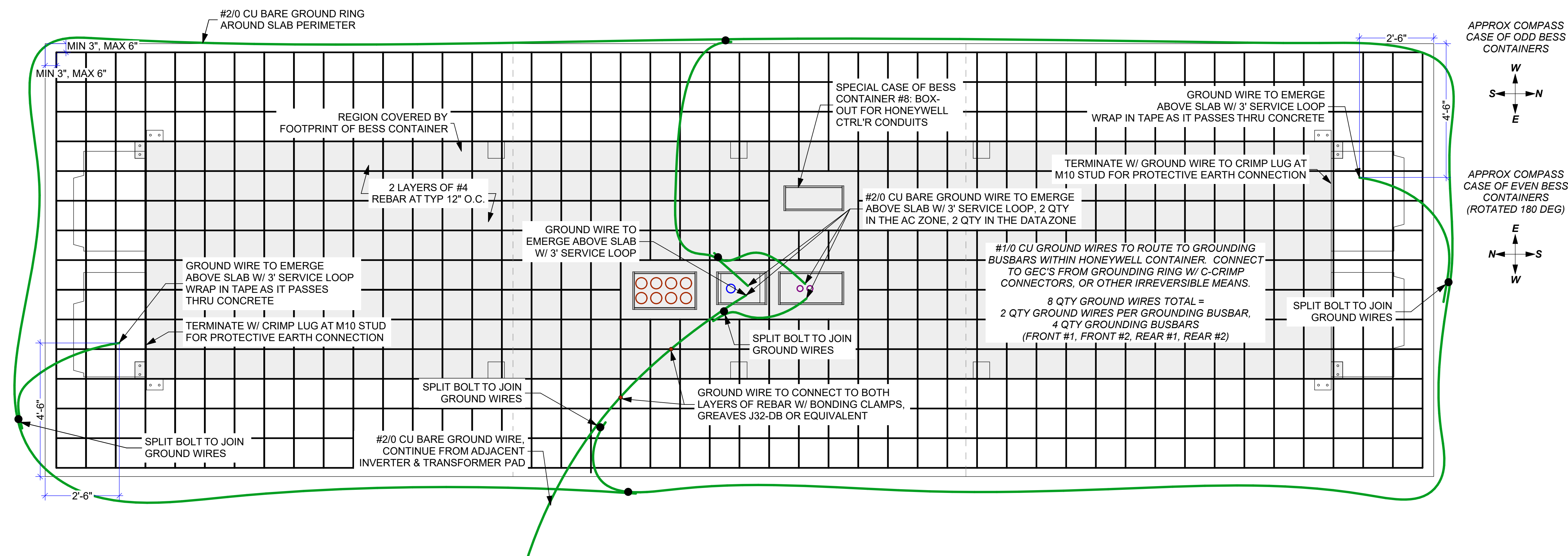
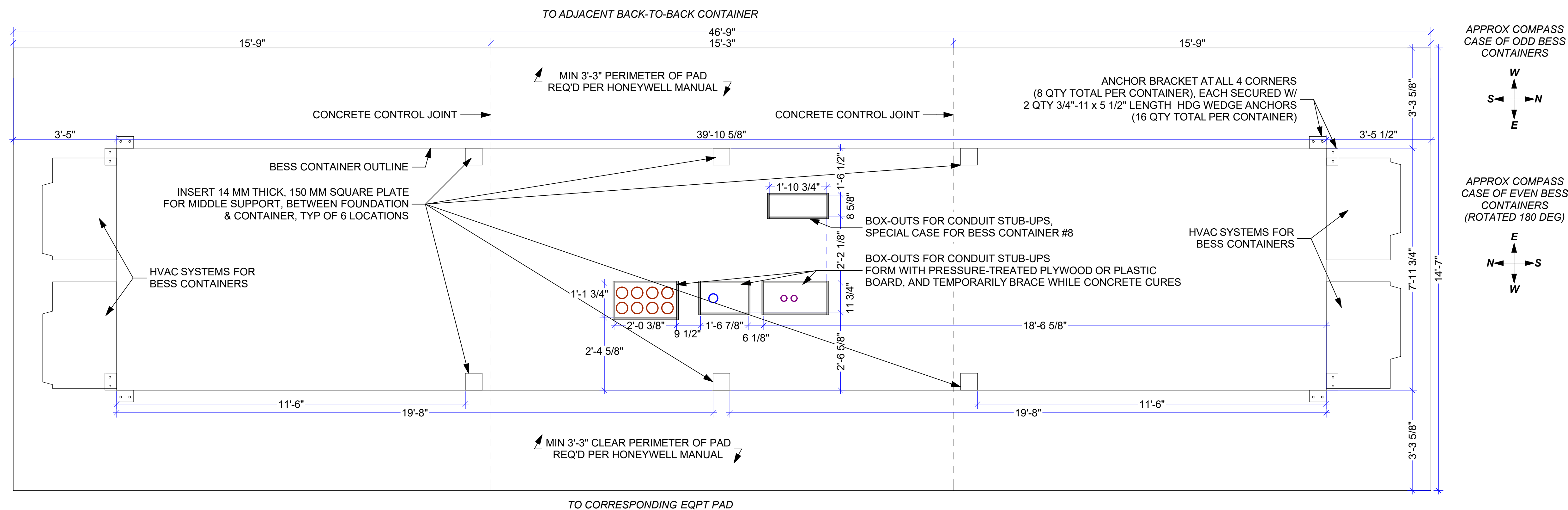
MARK	DATE	DESCRIPTION

CONTRACTOR
NAME
STREET
CITY/ST/ZIP
NOTES

SITE
NAME
STREET
CITY/ST/ZIP
NOTES

FILE NAME
SCALE
DRAWN BY
CHECKED BY

DRAWING NO.
DRAWING TITLE
SHEET 54 OF 70

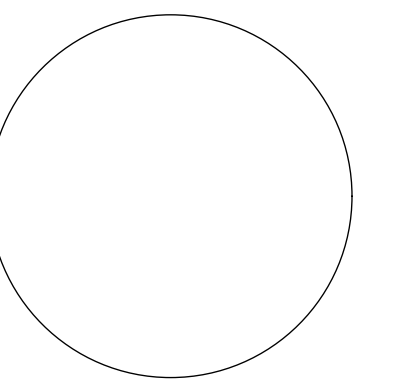


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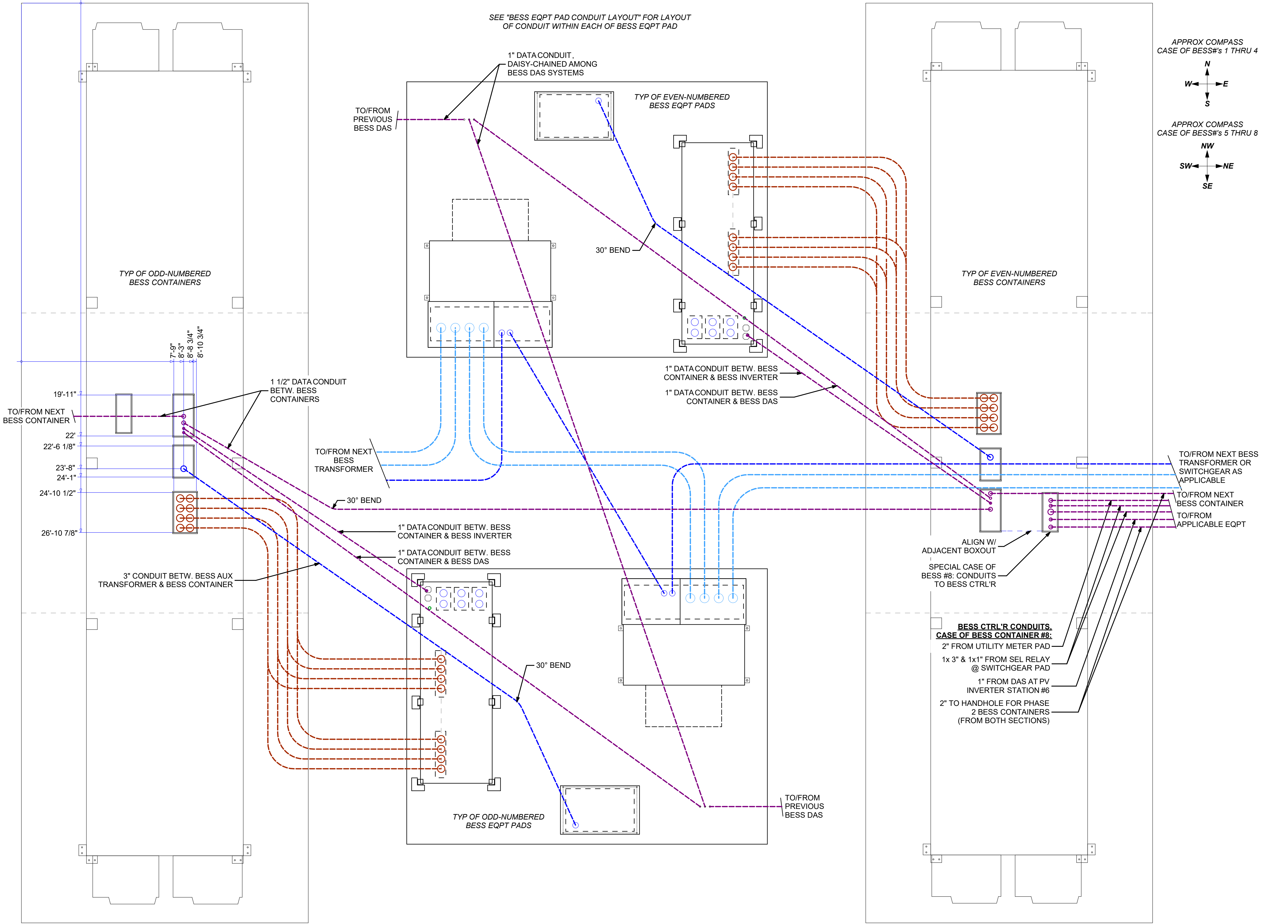
FORTUNA (WEST END
ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



MARK	DATE	DESCRIPTION
NAME		
STREET		
CITY/ST/ZIP		
NOTES		
NAME	FORTUNA (WEST END ST. THOMAS)	
STREET	FORTUNA ROAD	
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.	
NOTES		
FILE NAME	St Tom - Fortuna.pln	
SCALE	AS NOTED	
DRAWN BY	CH	DATE DRAFTED: 1/13/2025
CHECKED BY	RE	SHEET SIZE: ARCH D
DRAWING NO.	PV518	
DRAWING TITLE	BESS CONTAINER - LAYOUT REBAR, & GROUNDING	
	SHEET 55 OF 70	



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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025

PROFESSIONAL STAMP

MARK	DATE	DESCRIPTION

CONTRACTOR

NAME

STREET

CITY/ST/ZIP

NOTES

SITE

NAME

STREET

CITY/ST/ZIP

NOTES

DRAWING

FILE NAME

SCALE

DRAWN BY

CHECKED BY

DRAWING NO.

DRAWING TITLE

St Tom - Fortuna.pln

AS NOTED

CH

RE

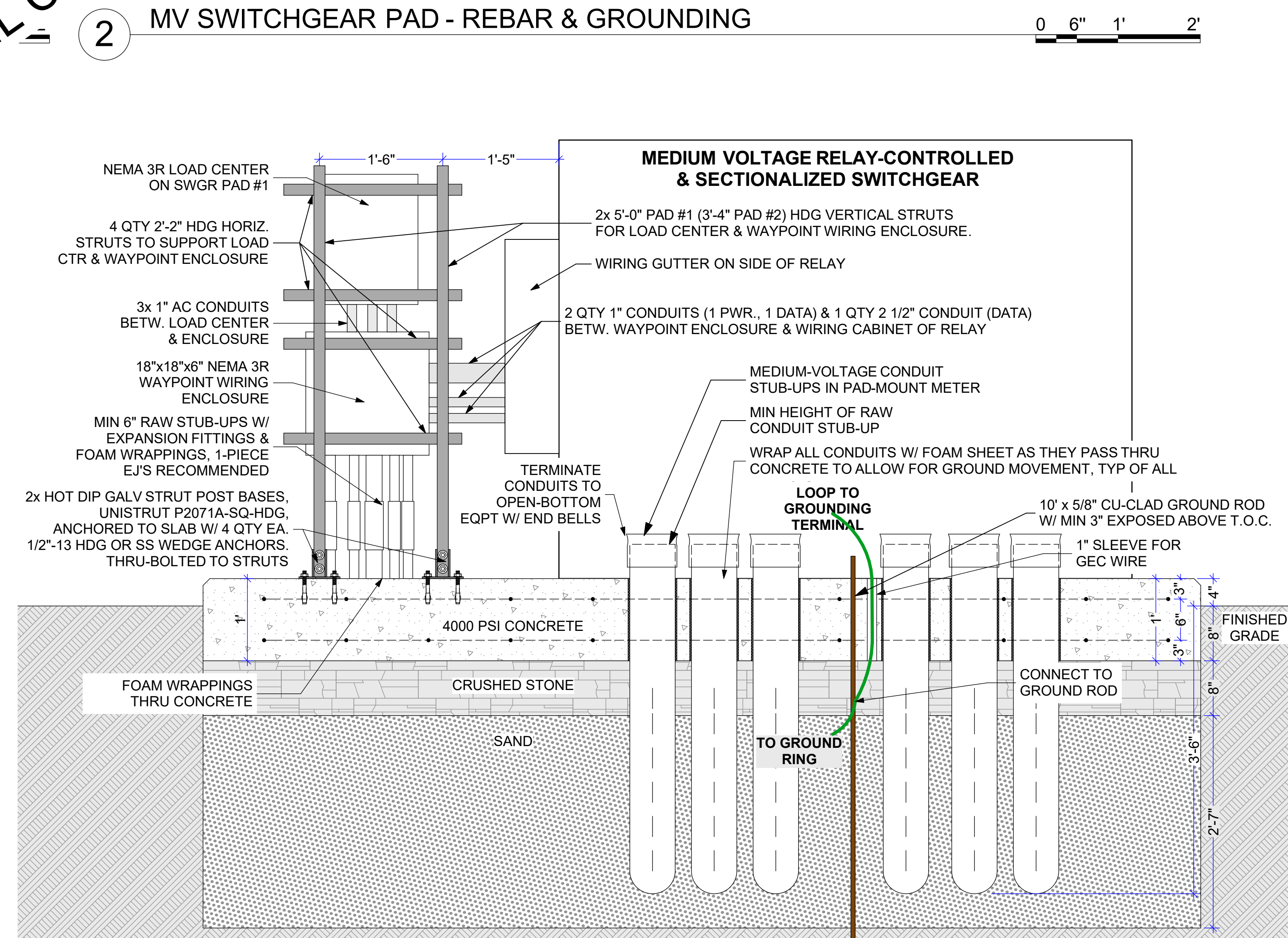
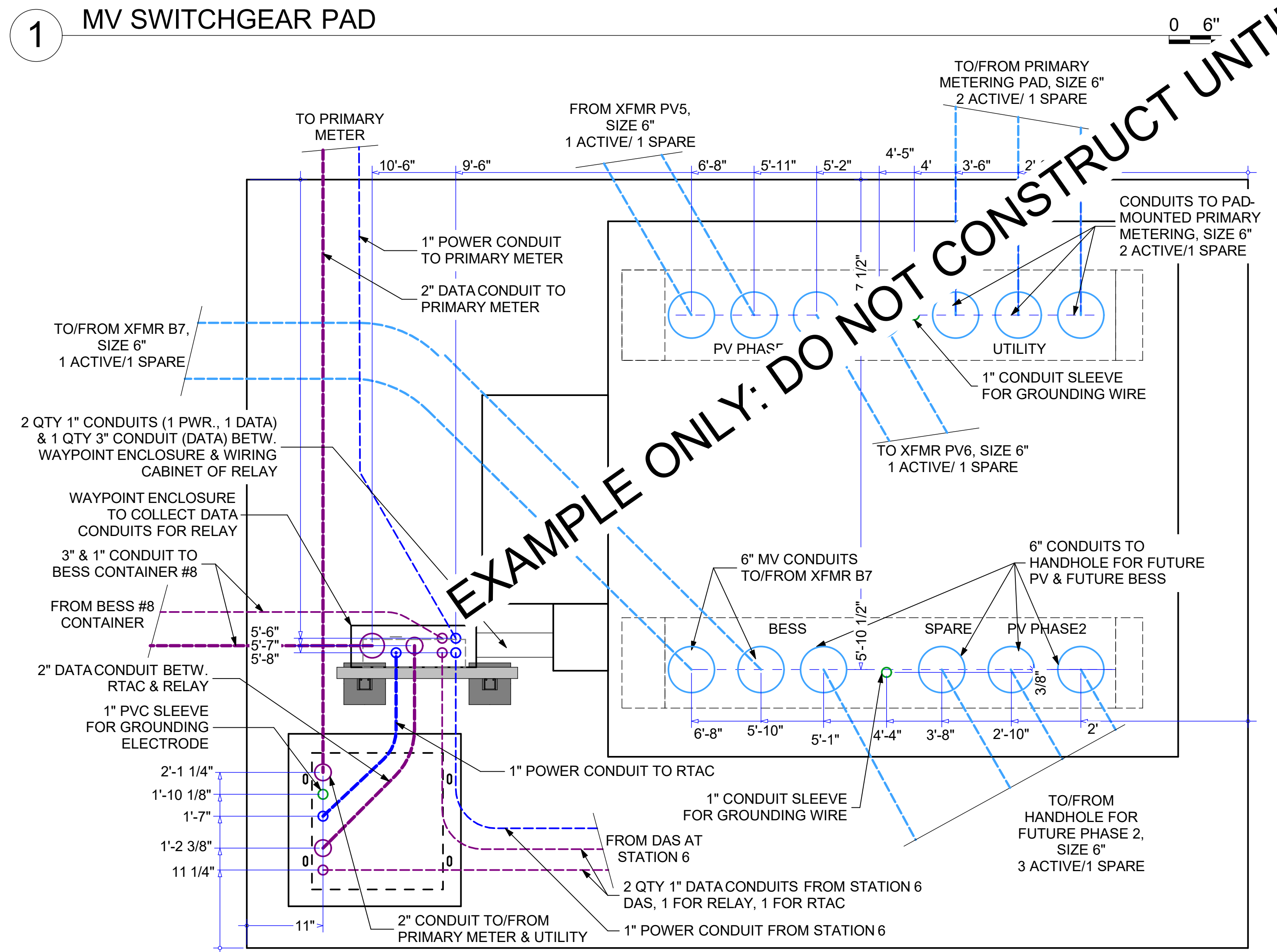
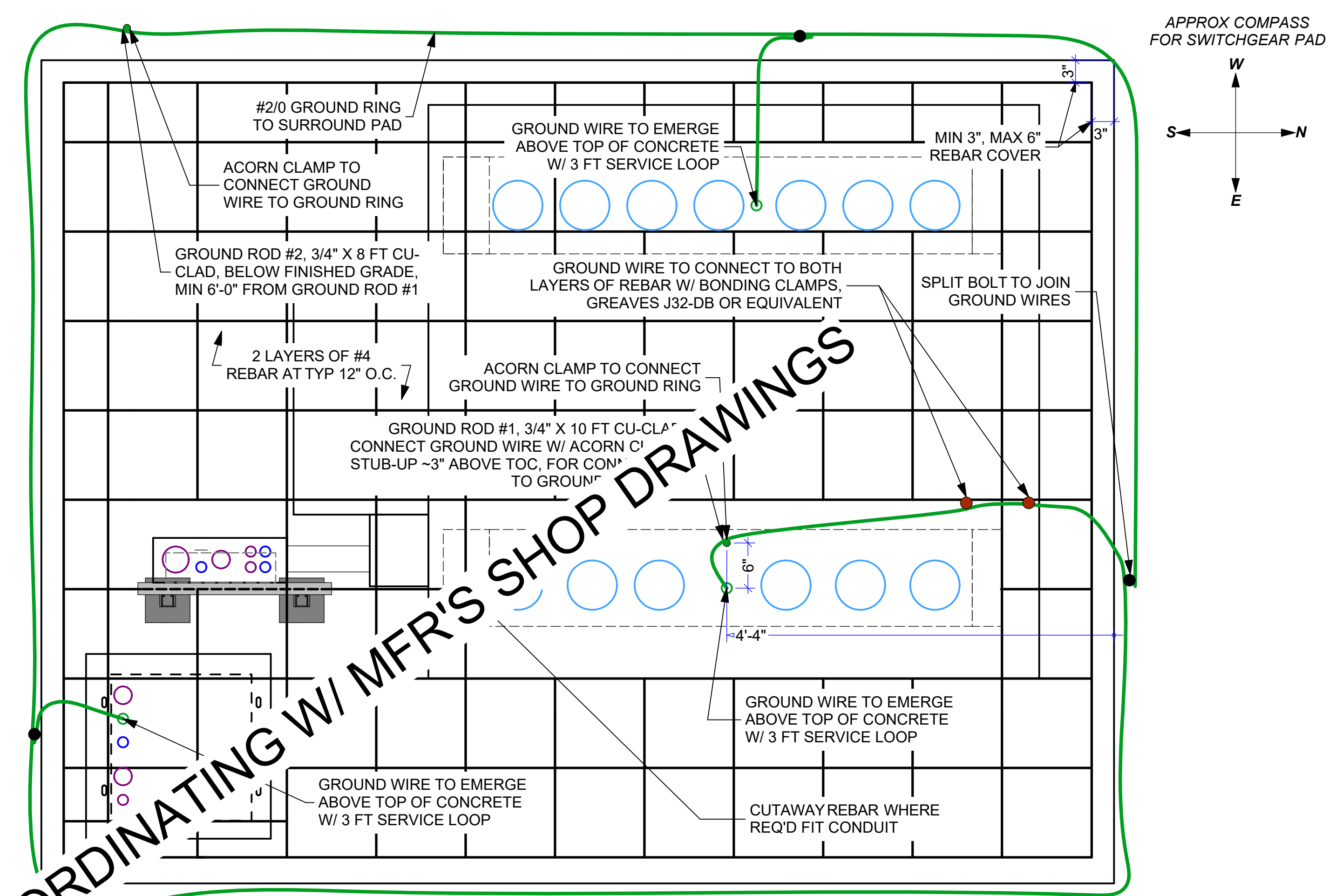
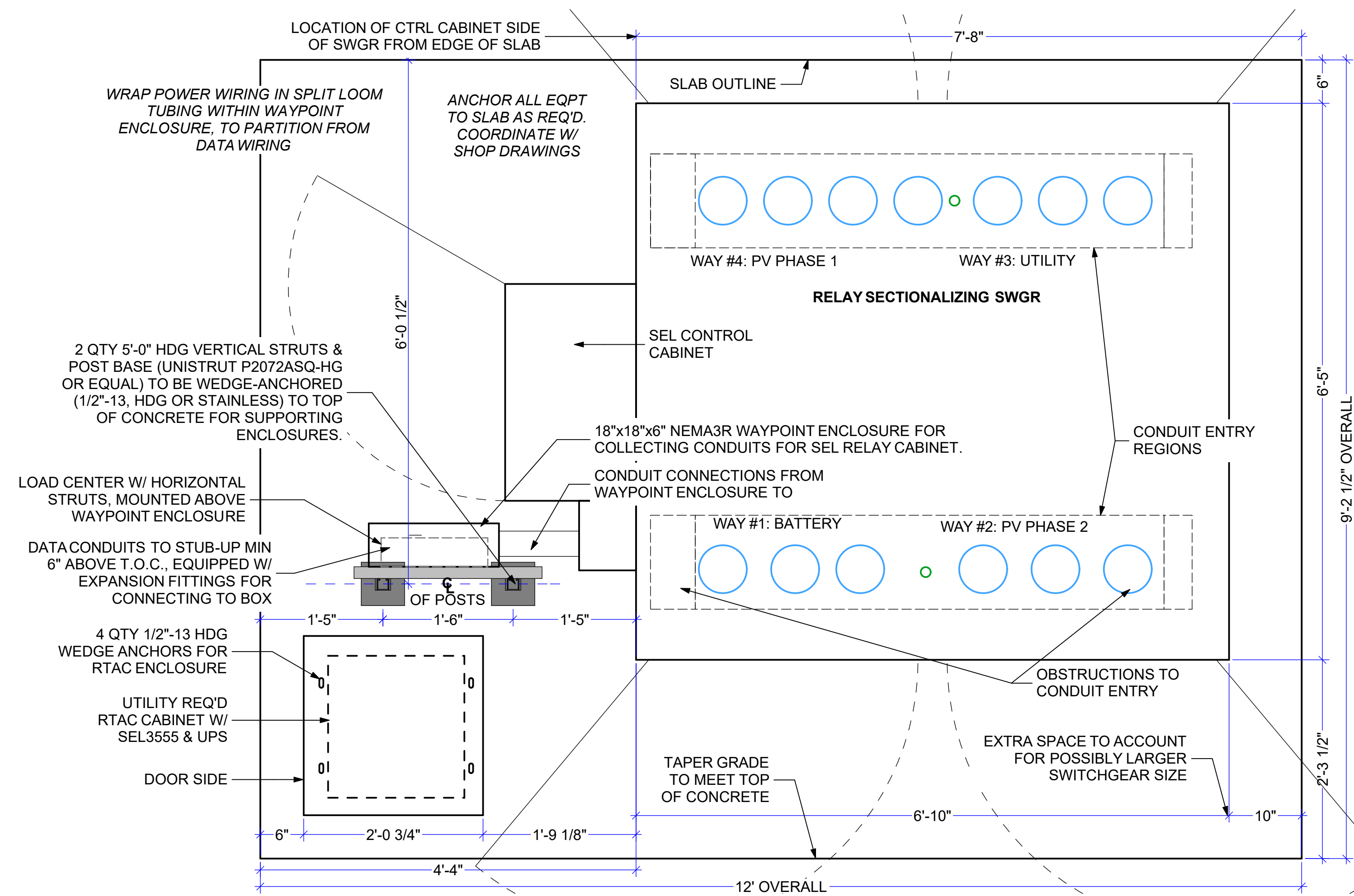
DATE DRAFTED: 1/13/2025

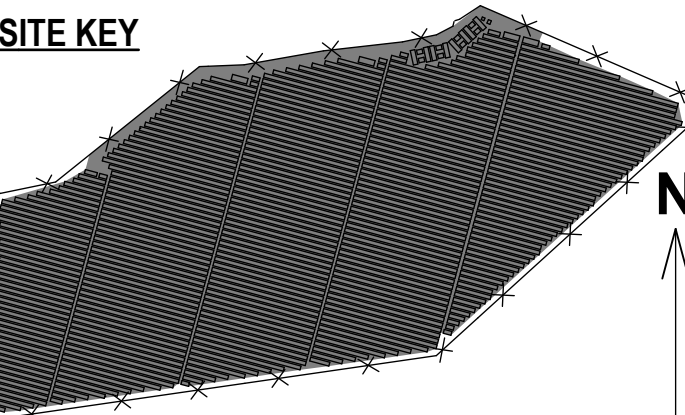
SHEET SIZE: ARCH D

PV519

BESS CONTAINER - CONDUIT LAYOUT

SHEET 56 OF 70





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FORTUNA (WEST END
ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



ID	DESCRIPTION	SETPOINT	TOTAL CLEAR TIME
1	LINE UNDER VOLTAGE (FAST)	320.0 V	1.1 SEC
2	LINE UNDER VOLTAGE (SLOW)	520.0 V	2.0 SEC
3	LINE OVER VOLTAGE (SLOW)	660.0 V	2.0 SEC
4	LINE OVER VOLTAGE (FAST)	720.0 V	0.16 SEC
5	LINE UNDER FREQUENCY (FAST)	56.5 Hz	0.16 SEC
6	LINE UNDER FREQUENCY (SLOW)	58.5 Hz	300 SEC
7	LINE OVER FREQUENCY (SLOW)	61.2 Hz	300 SEC
8	LINE OVER FREQUENCY (FAST)	62.0 Hz	0.16 SEC
9	RETURN TO SERVICE, V_{min}	570.0 V	300 SEC
10	RETURN TO SERVICE, V_{max}	630.0 V	300 SEC
11	RETURN TO SERVICE, f_{min}	59.5 Hz	300 SEC
12	RETURN TO SERVICE, f_{max}	60.5 Hz	300 SEC

INVERTER RELAY NOTES:

1. INVERTER TOTAL CLEARING TIME INCLUDES MECHANICAL OPERATION TIME OF 3 CYCLES (0.05s).
2. UTILITY RESTORATION DETECTION WILL USE THE FACTORY SETTINGS FOR

ELEMENT	RELATION TO NOMINAL	PRI. PICKUP	NOMINAL PRIMARY CURRENT	NOMINAL SECONDARY CURRENT
UNDERVOLTAGE (27-1)	50% V_{nom}	10.075 V		608 V
UNDERVOLTAGE (27-2)	88% V_{nom}	17.732 V		1050 V
OVERVOLTAGE (58-1)	110% V_{nom}	22.165 V		1369 V
OVERVOLTAGE (58-2)	120% V_{nom}	24.180 V		1443 V
UNDERFREQUENCY (81U-1)	3.5 Hz		56.5 Hz	
UNDERFREQUENCY (81U-2)	1.5 Hz		61.2 Hz	
OVERFREQUENCY (81O-1)	1.2 Hz		61.2 Hz	
OVERFREQUENCY (81O-2)	2 Hz		62.0 Hz	
OVERCURRENT (51P)		989.24 A		4.91 A
OVERCURRENT (51G)	62.5% I_{nom}	294.6A ¹		2.46 A
DIRECTIONAL POWER (32)	V_{nom}	20.000 kV ¹		992 V
RETURN TO SERVICE (79)	95% $S \leq 105\%$	19.142V $\leq S \leq 21.157V$	114kV ¹ $\leq S$	
SUPERSERVED BY WAPACSA	$f_{nom} \pm 0.5$ Hz	59.5 Hz $\leq f \leq 60.5$ Hz		
ALARM (RELAY TROUBLE)				

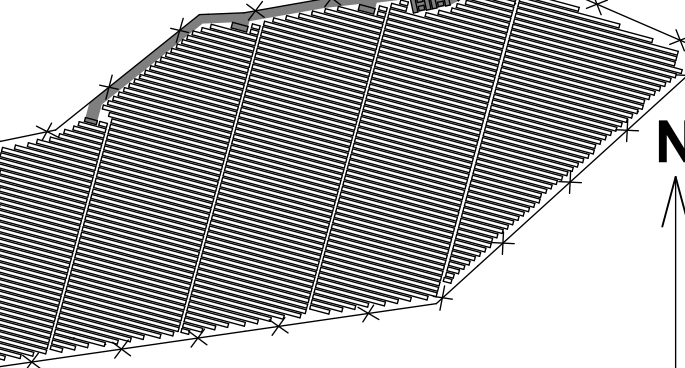
RELIABLE FOOTNOTES:

1. THE RANGE OF PICKUP SETTINGS WILL DEPEND ON THE ACTUAL RATIO OF THE PT. THE VALUES SHOWN IN THIS TABLE ARE REPRESENTATIVE VALUES BASED ON ASSUMED PT RATIOS.
2. SECONDARY CURRENT SETTINGS WILL DEPEND ON THE CT RATIO
3. VOLTAGES TO MATCH INFRASTRUCTURE OF SITES. VALUES ASSOCIATED WITH 34.5KV SHOWN FOR REFERENCE. PROPOSED ON THE BASIS OF THE DATA PROVIDED TO DETERMINE FINAL SETTINGS.
4. CURRENT SETTINGS & DIRECTIONAL POWER ARE BASED ON SITE'S POWER LIMIT AT NOMINAL VOLTAGE & UNITY POWER FACTOR. UNLESS WAPACADA SPECIFIES OTHERS. CIRCUITS TO HAVE EXTRA AMPLITUDE. IN CASE WAPACADA SPECIFIES REACTIVE POWER SUPPORT. THE EXTRA AMPLITUDE SHALL EITHER BE BASED ON FULL LOAD OR ON THE COMING IN OF THE LOAD. THE AMPLITUDE OF A 600A BREAKER DIVIDED BY THE 125% CONTINUOUS LOAD FACTOR, WHICHEVER IS LESS

[illegible]

NAME	FORTUNA (WEST END ST. THOMAS)		
STREET	FORTUNA ROAD		
CITY/ST/ZIP	FORTUNA ESTATE, US, VI, STT.		
NOTES			
FILE NAME	St Tom - Fortuna.pln		
SCALE	AS NOTED		
DRAWN BY	CH	DATE DRAFTED: 1/13/2025	
CHECKED BY	RE	SHEET SIZE: ARCH D	
DRAWING NO.	PV601		
DRAWING TITLE	SINGLE LINE		
SHEET 58 OF 70			

SITE KEY

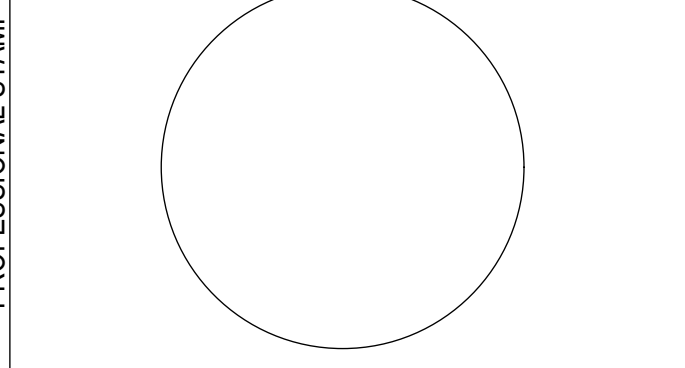


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FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025



REVISION NOTES

MARK	DATE	DESCRIPTION

CONTRACTOR	NAME
STREET	FORTUNA ROAD
CITY/ST/ZIP	FORTUNA ESTATE, US, VI, STT.
NOTES	

NAME	FORTUNA (WEST END ST. THOMAS)		
STREET	FORTUNA ROAD		
CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.		
NOTES			
FILE NAME	St Tom - Fortuna.pln		
SCALE	AS NOTED		
DRAWN BY	CH	DATE DRAFTED: 1/13/2025	
CHECKED BY	RE	SHEET SIZE: ARCH D	
DRAWING NO.	PV603		
DRAWING TITLE	DAS SINGLE LINE - DETAIL		
	SHEET 60 OF 70		

TYPICAL OF ALL DAS SYSTEMS; COORDINATE W/ DAS SUPPLIER FOR WHETHER A 2-POLE 240V BREAKER IS REQ'D FOR THE POWER SUPPLY, INSTEAD OF THE 120V 1-POLE BREAKERS SHOWN. BASED ON ALSO ENERGY'S PREVIOUS DESIGNS. ONLY A 120V POWER SUPPLY INPUT CIRCUIT IS REQ'D.

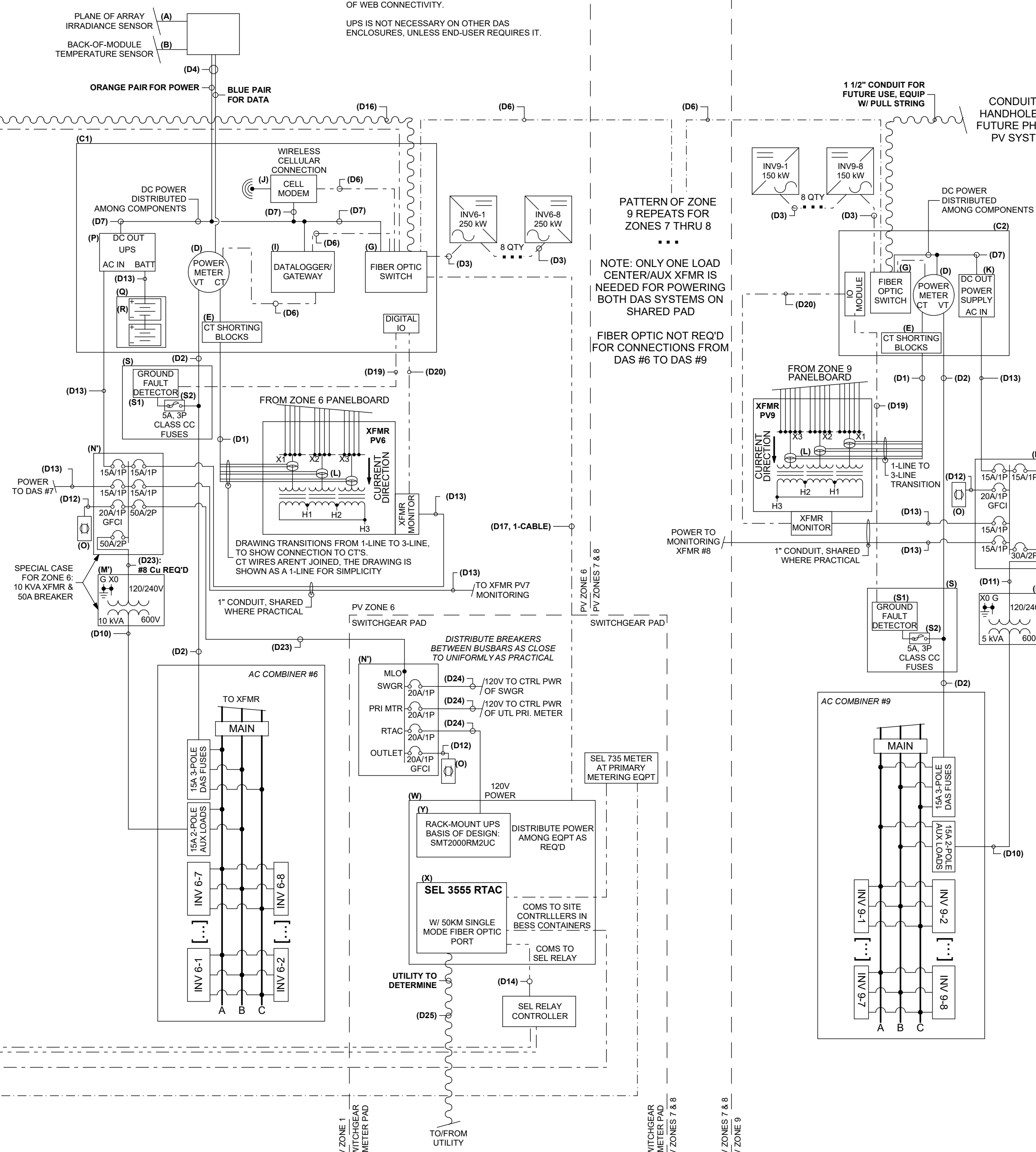
RECEPTACLES ARE AVAILABLE INSIDE BESS CONTAINERS. NO SEPARATE RECEPTACLES NEEDED FOR BESS DAS SYSTEMS.

DAS #6 IS THE MASTER DAS ENCLOSURE, HOSTING WEATHER STATION, DATALOGGER, UPS, CELLULAR CONNECTION, & CONNECTION TO UTILITY/BESS EQPT

IRRADIANCE SENSOR MOUNTED IN-PLANE WITH MODULE, ADJACENT TO MODULE WITH MODULE TEMPERATURE SENSOR ADHERED TO BACK-OF-MODULE, CENTERED WITHIN A CELL

UPS SPECIFIED AT STATION #6, IN ORDER FOR MONITORING SYSTEM TO DIFFERENTIATE A LOSS OF UTILITY POWER/RELAY OUTAGE FROM A LOSS OF WEB CONNECTIVITY.

UPS IS NOT NECESSARY ON OTHER DAS ENCLOSURES, UNLESS END-USER REQUIRES IT.

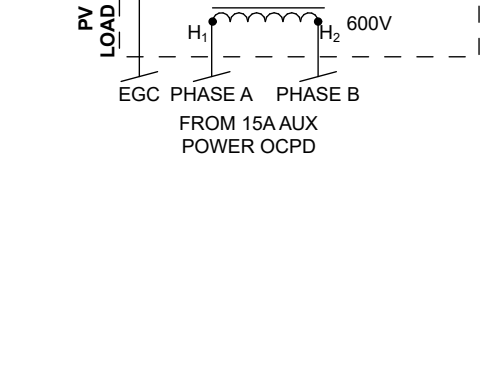
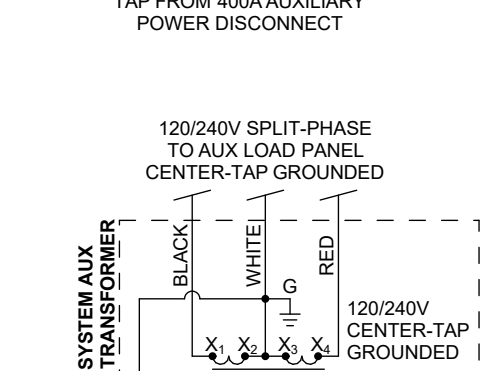
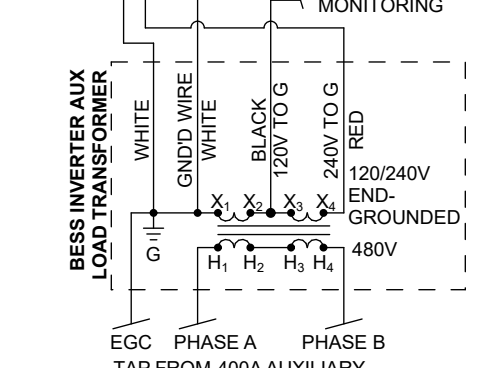


ID	DESCRIPTION	QTY	SUPPLIER
(A)	IRRADIANCE SENSOR WITH RS485-MODBUS COMMUNICATION	1	ALSO ENERGY
(B)	MODULE TEMPERATURE SENSOR, COMPATIBLE WITH ABOVE IRRADIANCE SENSOR	1	ALSO ENERGY
(C)	DAS ENCLOSURE & BACKPLATE, NEMA4X, FOR STATION 6. TO CONTAIN ITEMS D THRU J, AS WELL AS O THRU R, SIZED AS REQ'D. NON-METALLIC ENCLOSURE REQ'D AT STATION 6, FOR CELLULAR CONNECTION	1	ALSO ENERGY
(D)	DAS ENCLOSURE & BACKPLATE, NEMA4 OR NEMA4X, TO CONTAIN ITEMS D THRU G, SIZED AS REQ'D.	8	ALSO ENERGY
(E)	BESS METER ENCLOSURE, BACKPLATE, AND INTERIOR SWING PANEL NEMA4 OR NEMA4X, TO CONTAIN ITEMS D, E, & K, SIZED AS REQ'D.	5	ALSO ENERGY
(F)	REVENUE GRADE POWER METER, ELKOR WATTSOM MARK II (OR EQUIVALENT), FOR 5A CT% ETHERNET/MODBUS TCP	17	ALSO ENERGY
(G)	SHORTING BLOCKS FOR CURRENT TRANSFORMERS, 3-PAIRS FOR 3-PHASES EACH SET CONSISTING OF: PHOENIX CONTACT 3047491 (QTY 1), 3035759 & 3035755 (QTY 3), 3047492 (QTY 6). ALTERNATIVE: ELKOR I-BLOCK-CT	17	ALSO ENERGY
(H)	DIGITAL IO MODULE FOR TRANSFORMER MONITORING	17	ALSO ENERGY
(I)	INDUSTRIAL UNMANNED FIBER OPTIC SWITCH - 2x FIBER PORT PAIRS, 6 ETHERNET PORTS - AT PV INVERTER STATIONS	9	ALSO ENERGY
(J)	NOT USED		
(K)	OBVIOUS ACQUISITION GATEWAY AND DATALOGGER (ONLY IN DAS ENCLOSURE AT STATION 6)	1	ALSO ENERGY
(L)	CELLULAR MODEM IN DAS ENCLOSURE #6	1	ALSO ENERGY
(M)	24 VDC x 120W POWER SUPPLY FOR TYPICAL DAS ENCLOSURE	8	ALSO ENERGY
(N)	REVENUE-GRADE 2000A 5A HIGH TEMP CURRENT TRANSFORMERS FOR 1.75 & 2 MVA TRANSFORMERS, RATED FOR USE ON TRANSFORMER BUSBARS, 488 PART #B20A2310209 OR ACQUENERGY AduCT-3183-200015	51	VI ELECTRON
(O)	5 KVA TRANSFORMER, 600V TO 120/240V FOR AUXILIARY POWER, HAMMOND POWER C1F00SPES OR EQUIVALENT	4	VI ELECTRON
(P)	SPECIAL CASE W/ 2 INVERTER STATIONS TO SHARE SAME AUX TRANSFORMER & LOAD CENTER. LOCATE AT STATIONS 1, 3, 5, & 9. STATION 6 IS A SPECIAL CASE	1	VI ELECTRON
(Q)	120/240V NEMA3R LOAD CENTER FOR, 50A BRANCH BREAKER AS MAIN, OTHER BRANCH BREAKERS AS NOTED	4	VI ELECTRON
(R)	120/240V NEMA3R LOAD CENTER FOR, 50A BRANCH BREAKER AS MAIN, OTHER BRANCH BREAKERS AS NOTED	2	VI ELECTRON
(S)	120V, 20A DUPLEX RECEPTACLE (CONVENIENCE OUTLET) IN OUTDOOR-RATED ENCLOSURE	5	VI ELECTRON
(T)	UNINTERRUPTIBLE POWER SUPPLY, 120VAC INPUT, 24Vdc x 5A OUT, PHOENIX CONTACT PART# 2207160 OR EQUIVALENT	1	ALSO ENERGY
(U)	BATTERY MODULE FOR UPS BATTERIES, PHOENIX CONTACT PART# 2320319 OR EQUIVALENT / COMPATIBLE W/ UPS POWER SUPPLY SETUP	1	ALSO ENERGY
(V)	BATTERY KIT FOR UPS, PHOENIX CONTACT PART# 2908234 (OR EQUIVALENT/COMPATIBLE), EACH CONTAINS 2 QTY 12V, 7.2A-HR	1	ALSO ENERGY
(W)	NEMA 4X ENCLOSURES W/ BACKPLATES FOR GROUND FAULT DETECTORS - SIZE: 12"x14"x8"	13	VI ELECTRON
(X)	GROUND FAULT DETECTOR (BENDER ISOMETER PART #501688)	13	VI ELECTRON
(Y)	3-POLE CLASS CC FUSED DISCONNECT W/ 5A FUSES, 600VAC, EATON COP-3-30CC OR EQUIVALENT	13	VI ELECTRON
(Z)	NEMA4 FLOOR-MOUNT ENCLOSURE FOR RTAC, NAVEPOINT 0000916 OUTDOOR NETWORK CABINET, OR EQUIVALENT ENCLOSURE FOR 10" WIDE x 8U RACK, EQUIP WITH DIN RAIL ON BACK PANEL, FOR POWER SUPPLY & NETWORK SWITCH	1	VI ELECTRON
(AA)	SEL 3555 RTAC - COORDINATE DETAILS WITH UTILITY	1	VI ELECTRON
(AB)	3U Horizontal Rack Mount, SFP SINGLE MODE FIBER OPTICS	1	VI ELECTRON
(AC)	APSMART UPS FOR RTAC, SMT2000RM2UC, OR EQUIVALENT 2KVA UPS	1	VI ELECTRON
(AD)	SINGLE MODE FIBER OPTIC SWITCH & POWER SUPPLY. COORDINATE PRODUCT SELECTION WITH UTILITY	1	VI ELECTRON

ID	SUPPLIER	CABLE TYPE	EST. 1-WAY LENGTH (EACH INSTANCE U.N.O.)	LENGTH CONSTRAINTS	CONDUIT SIZE (MIN)	CABLE QTY	FUNCTION
(D1)	VI ELECTRON	FACTORY WIRING, TWIST EACH CT WIRE PAIR EXTEND W/ TWISTED #14 CU	50 FT EACH LEAD OF EACH CT GROUP	N/A	3/4" PVC	6	DATAACQUISITION SYSTEM CT WIRES
(D2)	VI ELECTRON	#14 AWG THWN-2 + #14G	10 FT	N/A	3/4" PVC	3+G	DATAACQUISITION SYSTEM VOLTAGE TAP (METERS USE VECTOR MATH TO INFER THE NEUTRAL)
(D3)	VI ELECTRON	CATSE DIRECT BURIAL UV RESISTANT SHIELDED	400 FT SITE TOTAL FOR VI ELECTRON	MAX 330 FT BETW NODES	OPEN AIR / 3/4" PVC	1	INVERTER DATA CONNECTION - SMA SPEEDWIRE
(D4)	VI ELECTRON	CATSE DIRECT BURIAL UV RESISTANT SHIELDED	40 FT	N/A	OPEN AIR / 3/4" PVC	1	WEATHER STATION POWER & DATA
(D5)	VI ELECTRON	CATSE SHIELDED	1 FT	MAX 330 FT	N/A	1	ETHERNET CONNECTION WITHIN DAS
(D6)	VI ELECTRON	CATSE SHIELDED	25 FT	MAX 330 FT BETW NODES	3/4" PVC	1	ETHERNET CONNECTION BETW. DAS ENCLOSURES OF STATIONS SHARING A PAD
(D7)	ALSO ENERGY	#14 AWG CU THWN-2 + #14 CU G	5 FT	N/A	3/4" PVC (AS APPLICABLE)	2+G	DATAACQUISITION SYSTEM - DC POWER WITHIN OR BETWEEN ENCLOSURES
(D8)	VI ELECTRON	7-CONDUCTOR SHIELDED, #16 AWG CU, LAPP #2216070	50 FT EACH BESS	N/A	SHARE 1" PVC W/ (D9)	1 + (D9)	BESS - INPUT/OUTPUT WIRING BETWEEN CONTAINER & INVERTER
(D9)	VI ELECTRON	CATSE SHIELDED	50 FT EACH BESS 60 FT BETW BESS'S 260 FT FOR CLOSED LOOP	MAX 330 FT BETW NODES	MIN 1" PVC SHARE 1" PVC W/ (D8) WHERE APPLICABLE	1 + (D8)	BESS - DATA CABLE BETWEEN CONTAINER & INVERTER & BETW BESS CONTAINERS & FROM HONEYWELL SITE CTRL'R IN CONTAINER 8 TO SEL RELAY
(D10)	VI ELECTRON	#14 CU THWN-2 + #8 CU COMBINED EGC/GEC	5 FT	N/A	3/4" PVC	2+G	AUX POWER MAIN CIRCUIT - 600V SIDE
(D11)	VI ELECTRON	#10 CU THWN-2 + #10G	5 FT	N/A	3/4" PVC	3+G	AUX POWER MAIN CIRCUIT - 120/240V SIDE - TYPICAL CASE W/ 5KVA XFMR'S & 30A BRK'S
(D12)	VI ELECTRON	#12 CU THWN-2 + #12G	5 FT	N/A	1/2" PVC	2+G	20A CONVENIENCE OUTLET
(D13)	VI ELECTRON	#14 CU THWN-2 + #14G	3 FT TYP, 50 FT CTRL'R	N/A	3/4" PVC	2+G	15A BRANCH CIRCUITS FOR DAS POWER
(D14)	VI ELECTRON	CATSE SHIELDED	60 FT	MAX 330 FT	3/4" PVC	2+G	SEL RELAY COMMUNICATION
(D15)	ALSO ENERGY	#8 AWG CU THWN-2 + #14 CU G	1 FT	N/A	N/A	2+G	UPS - BATTERY
(D16)	VI ELECTRON	MULTI-MODE FIBER OPTIC CABLE 2-FIBER INDOOR/OUTDOOR - B2.5/125 OM1	2000 FT - PHASE 1 SITE TOTAL	N/A	1 1/2" PVC	1 CABLE 2 STRANDS TOTAL	INVERTER DATA CONNECTION - FIBER OPTICS BETWEEN DAS STATIONS
(D17)	VI ELECTRON	CATSE SHIELDED	500 FT - SITE TOTAL	N/A	3/4" PVC	1	ETHERNET CONNECTIONS BETWEEN BESS DAS ENCLOSURES
(D18)	VI ELECTRON	#14 CU THWN-2 + #8 CU COMBINED EGC/GEC	5 FT	N/A	3/4" PVC	2+G	AUX POWER MAIN CIRCUIT - 600V SIDE
(D19)	VI ELECTRON	3X #14 CU THWN-2 (1x RED, 1x BLK, 0 VDC, 1x VIOLET OR BLUE, DIGITAL IO Q1)	5 FT	N/A	3/4" PVC	3	GPD MONITORING DIGITAL SIGNAL CIRCUIT
(D20)	VI ELECTRON	10-PAIR SHIELDED, #16 AWG CU, LAPP #2216250	30 FT BESS XFMR'S 50 FT TYP PV XFMR	N/A	1 1/2" PVC	1	TRANSFORMER MONITORING CABLE, 10 PAIRS USED FOR DIGITAL INPUTS USED FOR EACH DIGITAL ANALOG. COORDINATE DETAILS W/ XFMR MFR & ALSO ENERGY
(D21)	VI ELECTRON	10-PAIR SHIELDED, #16 AWG CU, LAPP #2216250	60 FT	N/A	3" PVC, SHARE W/ ETHERNET CABLE	3	SEL RELAY TO HONEYWELL CTRL'R
(D22)	VI ELECTRON	CATSE CABLE OR FIBER OPTIC CABLE - COORDINATE W/ CONFIG. OF SEL 735 METER, AND W/ DETAILS OF HONEYWELL CONTROLLER	60 FT	N/A	1" PVC	1	UTILITY METER DATA
(D23)	VI ELECTRON	#8 CU THWN-2 + #12 CU EGC	125 FT	N/A	1" PVC	3+G	AUX POWER CIRCUIT TO LOAD CENTER AT SWGR PAD
(D24)	VI ELECTRON	#12 CU THWN-2 + #12 CU EGC	10 FT - TO LOCAL EQPT 50 FT TO PRI. MTR.	N/A	1" PVC	2+G	AUX POWER CIRCUIT TO SEL RELAY EQPT, & PRIMARY METERING
(D25)	VI ELECTRON & WPA	UTILITY TO DETERMINE, COORDINATE SCOPE W/ UTILITY	TBD	N/A	2" PVC TO RISER + MISCR CABLE ON OHW	1	COMMUNICATION TO/FROM UTILITY - UTILITY TO DETERMINE SPECIFICS

NOTES
1. TYP OF ALL ETHERNET CABLES; DO NOT USE COPPER-CLAD ALUMINUM (CCA OR CCE). ALL NON-FIBER OPTIC CABLES TO USE PURE COPPER CONDUCTORS, UNLESS OTHERWISE SPECIFIED.
2. LENGTHS IN THE ABOVE TABLE MAY NOT BE ACCURATE. CONFIRM IN FIELD. ALSO CROSS REFERENCE FUNCTION WITH ID, AND CONFIRM THAT THE FUNCTION MATCHES THE ORIGIN & DESTINATION.

BESS SKVA AUX POWER TRANSFORMER SECONDARIES ARE END-GROUNDED, AS OPPOSED TO CENTER-TAP GROUNDED



DAS SINGLE LINE - DETAILED

Inverter & Combiner DC Distribution Schedule

PV ZONES 1 THRU 5

Inverter ID	Inverter Model	Rated Power (kW)	Combiner ID	QTY of each Branch Circuit Size	Total Branch Circuits (BC's) per Combiner	Source Circuits (SC's) per Combiner	# of Modules per SC	Modules per CB	Modules per INV	kW per INV	DC/AC Ratio
INV1-1	SOLECTRIA XGI 1500-250DCG	250	CB1-1A	1x 2-SC, 2x 3-SC, 5x 4-SC, 2x 5-SC	10	38	6	228	510	237.15	0.95
			CB1-1B	8x 4-SC, 3x 5-SC	11	47	6	282			
INV1-2	SOLECTRIA XGI 1500-250DCG	250	CB1-2A	5x 4-SC, 5x 5-SC	10	45	6	270	642	298.53	1.19
			CB1-2B	3x 4-SC, 10x 5-SC	13	62	6	372			
INV1-3	SOLECTRIA XGI 1500-250DCG	250	CB1-3A	4x 4-SC, 8x 5-SC	12	56	6	336	606	281.79	1.13
			CB1-3B	5x 4-SC, 5x 5-SC	10	45	6	270			
INV1-4	SOLECTRIA XGI 1500-250DCG	250	CB1-4A	6x 4-SC, 4x 5-SC	10	44	6	264	642	298.53	1.19
			CB1-4B	12x 4-SC, 3x 5-SC	15	63	6	378			
INV1-5	SOLECTRIA XGI 1500-250DCG	250	CB1-5A	10x 5-SC	10	50	6	300	588	273.42	1.09
			CB1-5B	2x 4-SC, 8x 5-SC	10	48	6	288			
INV1-6	SOLECTRIA XGI 1500-250DCG	250	CB1-6A	2x 4-SC, 6x 5-SC	8	38	6	228	552	256.68	1.03
			CB1-6B	6x 4-SC, 6x 5-SC	12	54	6	324			
INV1-7	SOLECTRIA XGI 1500-250DCG	250	CB1-7A	9x 4-SC, 3x 5-SC	12	51	6	306	594	276.21	1.10
			CB1-7B	12x 4-SC, 0x 5-SC	12	48	6	288			
INV1-8	SOLECTRIA XGI 1500-250DCG	250	CB1-8A	9x 5-SC	9	45	6	270	576	267.84	1.07
			CB1-8B	1x 3-SC, 7x 4-SC, 4x 5-SC	12	51	6	306			
INV2-1	SOLECTRIA XGI 1500-250DCG	250	CB2-1A	2x 2-SC, 8x 4-SC, 2x 5-SC	12	46	6	276	600	279.00	1.12
			CB2-1B	6x 4-SC, 6x 5-SC	12	54	6	324			
INV2-2	SOLECTRIA XGI 1500-250DCG	250	CB2-2A	7x 4-SC, 7x 5-SC	14	63	6	378	660	306.90	1.23
			CB2-2B	3x 4-SC, 7x 5-SC	10	47	6	282			
INV2-3	SOLECTRIA XGI 1500-250DCG	250	CB2-3A	4x 4-SC, 7x 5-SC	11	51	6	306	636	295.74	1.18
			CB2-3B	5x 4-SC, 7x 5-SC	12	55	6	330			
INV2-4	SOLECTRIA XGI 1500-250DCG	250	CB2-4A	1x 4-SC, 11x 5-SC	12	59	6	354	600	279.00	1.12
			CB2-4B	4x 4-SC, 5x 5-SC	9	41	6	246			
INV2-5	SOLECTRIA XGI 1500-250DCG	250	CB2-5A	5x 4-SC, 7x 5-SC	12	55	6	330	636	295.74	1.18
			CB2-5B	4x 4-SC, 7x 5-SC	11	51	6	306			
INV2-6	SOLECTRIA XGI 1500-250DCG	250	CB2-6A	8x 5-SC	8	40	6	240	630	292.95	1.17
			CB2-6B	13x 5-SC	13	65	6	390			
INV2-7	SOLECTRIA XGI 1500-250DCG	250	CB2-7A	11x 5-SC	11	55	6	330	630	292.95	1.17
			CB2-7B	10x 5-SC	10	50	6	300			
INV2-8	SOLECTRIA XGI 1500-250DCG	250	CB2-8A	8x 5-SC	8	40	6	240	600	279.00	1.12
			CB2-8B	12x 5-SC	12	60	6	360			
INV3-1	SOLECTRIA XGI 1500-250DCG	250	CB3-1A	12x 5-SC	12	60	6	360	660	306.90	1.23
			CB3-1B	10x 5-SC	10	50	6	300			
INV3-2	SOLECTRIA XGI 1500-250DCG	250	CB3-2A	10x 5-SC	10	50	6	300	660	306.90	1.23
			CB3-2B	12x 5-SC	12	60	6	360			
INV3-3	SOLECTRIA XGI 1500-250DCG	250	CB3-3A	10x 5-SC	10	50	6	300	660	306.90	1.23
			CB3-3B	12x 5-SC	12	60	6	360			
INV3-4	SOLECTRIA XGI 1500-250DCG	250	CB3-4A	12x 5-SC	12	60	6	360	660	306.90	1.23
			CB3-4B	10x 5-SC	10	50	6	300			
INV3-5	SOLECTRIA XGI 1500-250DCG	250	CB3-5A	12x 5-SC	12	60	6	360	660	306.90	1.23
			CB3-5B	10x 5-SC	10	50	6	300			
INV3-6	SOLECTRIA XGI 1500-250DCG	250	CB3-6A	10x 5-SC	10	50	6	300	660	306.90	1.23
			CB3-6B	12x 5-SC	12	60	6	360			
INV3-7	SOLECTRIA XGI 1500-250DCG	250	CB3-7A	9x 5-SC	9	45	6	270	510	237.15	0.95
			CB3-7B	5x 4-SC, 4x 5-SC	9	40	6	240			
INV3-8	SOLECTRIA XGI 1500-250DCG	250	CB3-8A	4x 4-SC, 5x 5-SC	9	41	6	246	528	245.52	0.98
			CB3-8B	1x 2-SC, 1x 3-SC, 8x 4-SC, 2x 5-SC	12	47	6	282			
INV4-1	SOLECTRIA XGI 1500-250DCG	250	CB4-1A	2x 2-SC, 5x 4-SC, 5x 5-SC	12	49	6	294	564	262.26	1.05
			CB4-1B	5x 4-SC, 5x 5-SC	10	45	6	270			
INV4-2	SOLECTRIA XGI 1500-250DCG	250	CB4-2A	4x 4-SC, 8x 5-SC	12	56	6	336	654	304.11	1.22
			CB4-2B	2x 4-SC, 9x 5-SC	11	53	6	318			
INV4-3	SOLECTRIA XGI 1500-250DCG	250	CB4-3A	2x 4-SC, 11x 5-SC	13	63	6	378	642	298.53	1.19
			CB4-3B	1x 4-SC, 8x 5-SC	9	44	6	264			
INV4-4	SOLECTRIA XGI 1500-250DCG	250	CB4-4A	2x 4-SC, 7x 5-SC	9	43	6	258	606	281.79	1.13
			CB4-4B	2x 4-SC, 10x 5-SC	12	58	6	348			
INV4-5	SOLECTRIA XGI 1500-250DCG	250	CB4-5A	2x 4-SC, 10x 5-SC	12	58	6	348	666	309.69	1.24
			CB4-5B	2x 4-SC, 9x 5-SC	11	53	6	318			
INV4-6	SOLECTRIA XGI 1500-250DCG	250	CB4-6A	2x 4-SC, 11x 5-SC	13	63	6	378	642	298.53	1.19
			CB4-6B	1x 4-SC, 8x 5-SC	9	44	6	264			
INV4-7	SOLECTRIA XGI 1500-250DCG	250	CB4-7A	2x 4-SC, 7x 5-SC	9	43	6	258	636	295.74	1.18
			CB4-7B	2x 4-SC, 11x 5-SC	13	63	6	378			
INV4-8	SOLECTRIA XGI 1500-250DCG	250	CB4-8A	2x 4-SC, 9x 5-SC	11	53	6	318	666	309.69	1.24
			CB4-8B	2x 4-SC, 10x 5-SC	12	58	6	348			
INV5-1	SOLECTRIA XGI 1500-250DCG	250	CB5-1A	2x 4-SC, 10x 5-SC	12	58	6	348	606	281.79	1.13
			CB5-1B	2x 4-SC, 7x 5-SC	9	43	6	258			
INV5-2	SOLECTRIA XGI 1500-250DCG	250	CB5-2A	1x 4-SC, 8x 5-SC	9	44	6	264	642	298.53	1.19
			CB5-2B	2x 4-SC, 11x 5-SC	13	63	6	378			
INV5-3	SOLECTRIA XGI 1500-250DCG	250	CB5-3A	2x 4-SC, 9x 5-SC	11	53	6	318	636	295.74	1.18
			CB5-3B	2x 4-SC, 9x 5-SC	11	53	6	318			
INV5-4	SOLECTRIA XGI 1500-250DCG	250	CB5-4A	2x 4-SC, 11x 5-SC	13	63	6	378	636	295.74	1.18
			CB5-4B	2x 4-SC, 7x 5-SC	9	43	6	258			
INV5-5	SOLECTRIA XGI 1500-250DCG	250	CB5-5A	1x 4-SC, 8x 5-SC	9	44	6	264	612	284.58	1.14
			CB5-5B	2x 4-SC, 10x 5-SC	12	58	6	348			
INV5-6	SOLECTRIA XGI 1500-250DCG	250	CB5-6A	2x 4-SC, 10x 5-SC	12	58	6	348	606	281.79	1.13
			CB5-6B	2x 4-SC, 7x 5-SC	9	43	6	258			
INV5-7	SOLECTRIA XGI 1500-250DCG	250	CB5-7A	1x 4-SC, 8x 5-SC	9	44	6	264	606	281.79	1.13
			CB5-7B	3x 4-SC, 9x 5-SC	12	57	6	342			
INV5-8	SOLECTRIA XGI 1500-250DCG	250	CB5-8A	5x 4-SC, 5x 5-SC	10	45	6	270	624	290.16	1.16
			CB5-8B	1x 2-SC, 1x 3-SC, 6x 4-SC, 6x 5-SC	14	59	6	354			

Inverter & Combiner DC Distribution Schedule

PV ZONES 6 THRU 9

Inverter ID	Inverter Model	Rated Power (kW)	Combiner ID	QTY of each Branch Circuit Size	Total Branch Circuits (BC's) per Combiner	Source Circuits (SC's) per Combiner	# of Modules per SC	Modules per CB	Modules per INV	kW per INV	DC/AC Ratio
INV6-1	SOLECTRIA XGI 1500-250DCG	250	CB6-1A	2x 3-SC, 9x 4-SC, 3x 5-SC	14	57	6	342	624	290.16	1.16
			CB6-1B	3x 4-SC, 7x 5-SC	10	47	6	282			
INV6-2	SOLECTRIA XGI 1500-250DCG	250	CB6-2A	1x 2-SC, 5x 4-SC, 7x 5-SC	13	57	6	342	642	298.53	1.19
			CB6-2B	10x 5-SC	10	50	6	300			
INV6-3	SOLECTRIA XGI 1500-250DCG	250	CB6-3A	12x 5-SC	12	60	6	360	660	306.90	1.23
			CB6-3B	10x 5-SC	10	50	6	300			
INV6-4	SOLECTRIA XGI 1500-250DCG	250	CB6-4A	10x 5-SC	10	50	6	300	660	306.90	1.23
			CB6-4B	12x 5-SC	12	60	6	360			
INV6-5	SOLECTRIA XGI 1500-250DCG	250	CB6-5A	12x 5-SC	12	60	6	360	660	306.90	1.23
			CB6-5B	10x 5-SC	10	50	6	300			
INV6-6	SOLECTRIA XGI 1500-250DCG	250	CB6-6A	8x 5-SC	8	40	6	240	600	279.00	1.12
			CB6-6B	12x 5-SC	12	60	6	360			
INV6-7	SOLECTRIA XGI 1500-250DCG	250	CB6-7A	12x 5-SC	12	60	6	360	660	306.90	1.23
			CB6-7B	10x 5-SC	10	50	6	300			
INV6-8	SOLECTRIA XGI 1500-250DCG	250	CB6-8A	8x 5-SC	8	40	6	240	600	279.00	1.12
			CB6-8B	12x 5-SC	12	60	6	360			
INV7-1	SOLECTRIA XGI 1500-250DCG	250	CB7-1A	12x 5-SC	12	60	6	360	660	306.90	1.23
			CB7-1B	10x 5-SC	10	50	6	300			
INV7-2	SOLECTRIA XGI 1500-250DCG	250	CB7-2A	12x 5-SC	12	60	6	360	660	306.90	1.23
			CB7-2B	10x 5-SC	10	50	6	300			
INV7-3	SOLECTRIA XGI 1500-250DCG	250	CB7-3A	10x 5-SC	10	50	6	300	660	306.90	1.23
			CB7-3B	12x 5-SC	12	60	6	360			
INV7-4	SOLECTRIA XGI 1500-250DCG	250	CB7-4A	12x 5-SC	12	60	6	360	660	306.90	1.23
			CB7-4B	10x 5-SC	10	50	6	300			
INV7-5	SOLECTRIA XGI 1500-250DCG	250	CB7-5A	8x 5-SC	8	40	6	240	600	279.00	1.12
			CB7-5B	12x 5-SC	12	60	6	360			
INV7-6	SOLECTRIA XGI 1500-250DCG	250	CB7-6A	12x 5-SC	12	60	6	360	600	279.00	1.12
			CB7-6B	8x 5-SC	8	40	6	240			
INV7-7	SOLECTRIA XGI 1500-250DCG	250	CB7-7A	10x 5-SC	10	50	6	300	648	301.32	1.21
			CB7-7B	2x 4-SC, 10x 5-SC	12	58	6	348			
INV7-8	SOLECTRIA XGI 1500-250DCG	250	CB7-8A	5x 4-SC, 5x 5-SC	10	45	6	270	606	281.79	1.13
			CB7-8B	1x 3-SC, 7x 4-SC, 5x 5-SC	13	56	6	336			
INV8-1	SOLECTRIA XGI 1500-250DCG	250	CB8-1A	1x 2-SC, 4x 4-SC, 5x 5-SC	10	43	6	258	468	217.62	0.87
			CB8-1B	7x 5-SC	7	35	6	210			
INV8-2	SOLECTRIA XGI 1500-250DCG	250	CB8-2A	3x 4-SC, 6x 5-SC	9	42	6	252	504	234.36	0.94
			CB8-2B	3x 4-SC, 6x 5-SC	9	42	6	252			
INV8-3	SOLECTRIA XGI 1500-250DCG	250	CB8-3A	3x 4-SC, 6x 5-SC	9	42	6	252	516	239.94	0.96
			CB8-3B	1x 4-SC, 8x 5-SC	9	44	6	264			
INV8-4	SOLECTRIA XGI 1500-250DCG	250	CB8-4A	2x 4-SC, 7x 5-SC	9	43	6	258	510	237.15	0.95
			CB8-4B	3x 4-SC, 6x 5-SC	9	42	6	252			
INV8-5	SOLECTRIA XGI 1500-250DCG	250	CB8-5A	4x 4-SC, 5x 5-SC	9	41	6	246	486	225.99	0.90
			CB8-5B	8x 5-SC	8	40	6	240			
INV8-6	SOLECTRIA XGI 1500-250DCG	250	CB8-6	3x 4-SC, 13x 5-SC	16	77	6	462	462	214.83	0.86
INV8-7	SOLECTRIA XGI 1500-250DCG	250	CB8-7	6x 4-SC, 10x 5-SC	16	74	6	444	444	206.46	0.83
INV8-8	SOLECTRIA XGI 1500-250DCG	250	CB8-8	4x 4-SC, 11x 5-SC	15	71	6	426	426	198.09	0.79
INV9-1	SOLECTRIA XGI 1500-250DCG	250	CB9-1A	1x 4-SC, 6x 5-SC	7	34	6	204	594	276.21	1.10
			CB9-1B	5x 4-SC, 9x 5-SC	14	65	6	390			
INV9-2	SOLECTRIA XGI 1500-250DCG	250	CB9-2A	4x 4-SC, 3x 5-SC	7	31	6	186	540	251.10	1.00
			CB9-2B	1x 4-SC, 11x 5-SC	12	59	6	354			
INV9-3	SOLECTRIA XGI 1500-250DCG	250	CB9-3A	2x 4-SC, 4x 5-SC	6	28	6	168	498	231.57	0.93
			CB9-3B	5x 4-SC, 7x 5-SC	12	55	6	330			
INV9-4	SOLECTRIA XGI 1500-250DCG	250	CB9-4	5x 4-SC, 11x 5-SC	16	75	6	450	450	209.25	0.84
INV9-5	SOLECTRIA XGI 1500-250DCG	250	CB9-5	9x 4-SC, 6x 5-SC	15	66	6	396	396	184.14	0.74
INV9-6	SOLECTRIA XGI 1500-250DCG	250	CB9-6	5x 4-SC, 11x 5-SC	16	75	6	450	450	209.25	0.84
INV9-7	SOLECTRIA XGI 1500-250DCG	250	CB9-7A	7x 4-SC, 4x 5-SC	11	48	6	288	522	242.73	0.97
			CB9-7B	6x 4-SC, 3x 5-SC	9	39	6	234			
INV9-8	SOLECTRIA XGI 1500-250DCG	250	CB9-8A	1x 3-SC, 4x 4-SC, 4x 5-SC	9	39	6	234	456	212.04	0.85
			CB9-8B	3x 2-SC, 2x 3-SC, 5x 4-SC, 1x 5-SC	11	37	6	222			
Totals		kWac		BC QTY by Type	Total BC'S	Total SC's			Modules	kWdc	Avg Ratio
		18000		11x 3-SC, 351x 4-SC, 1130x 5-SC	1504	7111			42666	19839.69	1.10

DC Feeder Wire Schedule (PV System)

PV ZONES 1 THRU 5

1-Line ID	Combiner ID	DC Operating Voltage (V)	Source Circuit Qty	Branch Circuit Qty	Operating Current (A)	Short Circuit Current w/ 1.25 safety factor (A)	Short Circuit Current w/ 1.56 safety factor (A)	1-Way Distance to Combiner (ft)	OCPD (A)	EGC (Cu) ***	Output Conductor Size	Wire Type	Set QTY	# of Wires Per Set	# of Current Carrying Conductors Per Conduit	Temp Derate	Bundling Derate**	75C Terminal Ampacity (A) (req'd ≥ 1.56*Isc)	Cum. 90C Wire Capacity (A) (req'd ≥ 1.25*Isc)	Resistivity (Ω/1000ft)	DC Feeder % Voltage Drop	Estimated Total Length of Input #10 Cu PV Wire 2kV	Pre-Combiner Max % Voltage Drop	Total DC % Voltage Drop	Wiring Method
DCCB	CB1-1A	1138.8	38	10	95.00	125.88	157.09	135	N/A	#4 Cu & MSGR WIRE	250 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	205	192.14	0.0865	0.195%	5000	0.50%	0.691%	Messenger cable
DCCB	CB1-1B	1138.8	47	11	117.50	155.69	194.30	188	N/A	#4 Cu & MSGR WIRE	250 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	205	192.14	0.0865	0.336%	4400	0.653%	0.989%	Messenger cable
DCCB	CB1-2A	1138.8	45	10	112.50	149.06	186.03	224	N/A	#4 Cu & MSGR WIRE	400 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.244%	4500	0.915%	1.159%	Messenger cable
DCCB	CB1-2B	1138.8	62	13	155.00	205.38	256.31	260	N/A	#4 Cu & MSGR WIRE	400 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.391%	5850	0.915%	1.305%	Messenger cable
DCCB	CB1-3A	1138.8	56	12	140.00	185.50	231.50	296	N/A	#4 Cu & MSGR WIRE	350 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.453%	4800	0.915%	1.368%	Messenger cable
DCCB	CB1-3B	1138.8	45	10	112.50	149.06	186.03	349	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.430%	5500	1.307%	1.736%	Messenger cable
DCCB	CB1-4A	1138.8	44	10	110.00	145.75	181.90	385	N/A	#4 Cu & MSGR WIRE	400 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.411%	5500	1.241%	1.652%	Messenger cable
DCCB	CB1-4B	1138.8	63	15	157.50	208.69	260.44	438	N/A	#4 Cu & MSGR WIRE	400 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.669%	9000	1.176%	1.845%	Messenger cable
DCCB	CB1-5A	1138.8	40	8	100.00	132.50	165.36	474	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.519%	5200	1.078%	1.597%	Messenger cable
DCCB	CB1-5B	1138.8	58	12	145.00	192.13	239.77	510	N/A	#4 Cu & MSGR WIRE	400 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.717%	11400	1.470%	2.187%	Messenger cable
DCCB	CB1-6A	1138.8	38	8	95.00	125.88	157.09	563	N/A	#4 Cu & MSGR WIRE	300 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	0.676%	7200	1.307%	1.983%	Messenger cable
DCCB	CB1-6B	1138.8	54	12	135.00	178.88	223.24	616	N/A	#4 Cu & MSGR WIRE	350 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.910%	10800	1.143%	2.053%	Messenger cable
DCCB	CB1-7A	1138.8	51	12	127.50	168.94	210.83	669	N/A	#4 Cu & MSGR WIRE	300 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	1.079%	9600	1.013%	2.091%	Messenger cable
DCCB	CB1-7B	1138.8	48	12	120.00	159.00	198.43	722	N/A	#4 Cu & MSGR WIRE	300 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	1.096%	8400	0.849%	1.945%	Messenger cable
DCCB	CB1-8A	1138.8	45	9	112.50	149.06	186.03	775	N/A	#4 Cu & MSGR WIRE	300 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	1.102%	5400	0.719%	1.821%	Messenger cable
DCCB	CB1-8B	1138.8	51	12	127.50	168.94	210.83	828	N/A	#4 Cu & MSGR WIRE	300 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	1.335%	3600	0.425%	1.760%	Messenger cable
DCCB	CB2-1A	1138.8	46	12	115.00	152.38	190.16	130	N/A	#4 Cu & MSGR WIRE	300 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	0.189%	3600	0.686%	0.875%	Messenger cable
DCCB	CB2-1B	1138.8	54	12	135.00	178.88	223.24	183	N/A	#4 Cu & MSGR WIRE	300 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	0.312%	3600	0.69%	0.998%	Messenger cable
DCCB	CB2-2A	1138.8	63	14	157.50	208.69	260.44	236	N/A	#4 Cu & MSGR WIRE	400 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.360%	4200	0.686%	1.046%	Messenger cable
DCCB	CB2-2B	1138.8	47	10	117.50	155.69	194.30	272	N/A	#4 Cu & MSGR WIRE	400 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.310%	5000	1.176%	1.486%	Messenger cable
DCCB	CB2-3A	1138.8	51	11	127.50	168.94	210.83	308	N/A	#4 Cu & MSGR WIRE	300 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	0.497%	5500	1.176%	1.673%	Messenger cable
DCCB	CB2-3B	1138.8	55	12	137.50	182.19	227.37	344	N/A	#4 Cu & MSGR WIRE	300 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	0.598%	6000	1.24%	1.839%	Messenger cable
DCCB	CB2-4A	1138.8	59	12	147.50	195.44	243.91	380	N/A	#4 Cu & MSGR WIRE	350 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.613%	7200	1.339%	1.953%	Messenger cable
DCCB	CB2-4B	1138.8	41	9	102.50	135.81	169.49	416	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.467%	4950	1.405%	1.871%	Messenger cable
DCCB	CB2-5A	1138.8	55	12	137.50	182.19	227.37	452	N/A	#4 Cu & MSGR WIRE	350 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.680%	7200	1.470%	2.150%	Messenger cable
DCCB	CB2-5B	1138.8	51	11	127.50	168.94	210.83	470	N/A	#4 Cu & MSGR WIRE	300 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	0.758%	6050	1.14%	1.901%	Messenger cable
DCCB	CB2-6A	1138.8	40	8	100.00	132.50	165.36	506	N/A	#4 Cu & MSGR WIRE	400 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.491%	4400	1.143%	1.634%	Messenger cable
DCCB	CB2-6B	1138.8	65	13	162.50	215.31	268.71	542	N/A	#4 Cu & MSGR WIRE	400 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.854%	7150	1.143%	1.997%	Messenger cable
DCCB	CB2-7A	1138.8	55	11	137.50	182.19	227.37	560	N/A	#4 Cu & MSGR WIRE	300 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	0.974%	6050	1.143%	2.117%	Messenger cable
DCCB	CB2-7B	1138.8	50	10	125.00	165.63	206.70	596	N/A	#4 Cu & MSGR WIRE	300 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	0.942%	5500	1.14%	2.085%	Messenger cable
DCCB	CB2-8A	1138.8	40	8	100.00	132.50	165.36	632	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.691%	4400	1.143%	1.835%	Messenger cable
DCCB	CB2-8B	1138.8	60	12	150.00	198.75	248.04	650	N/A	#4 Cu & MSGR WIRE	350 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	1.067%	6600	1.143%	2.210%	Messenger cable
DCCB	CB3-1A	1138.8	60	12	150.00	198.75	248.04	703	N/A	#4 Cu & MSGR WIRE	400 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	1.022%	6600	1.14%	2.166%	Messenger cable
DCCB	CB3-1B	1138.8	50	10	125.00	165.63	206.70	739	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	1.011%	5500	1.143%	2.154%	Messenger cable
DCCB	CB3-2A	1138.8	50	10	125.00	165.63	206.70	775	N/A	#4 Cu & MSGR WIRE	400 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.939%	5500	1.143%	2.082%	Messenger cable
DCCB	CB3-2B	1138.8	60	12	150.00	198.75	248.04	811	N/A	#4 Cu & MSGR WIRE	500 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	0.961%	6600	1.143%	2.105%	Messenger cable
DCCB	CB3-3A	1138.8	50	10	125.00	165.63	206.70	847	N/A	#4 Cu & MSGR WIRE	400 kcmil AL†*	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	1.026%	5500	1.143%	2.170%	Messenger cable
DCCB	CB3-3B	1138.8	60	12	150.00	198.75	248.04	865	N/A	#4 Cu & MSGR WIRE	500 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	1.025%	6600	1.143%	2.169%	Messenger cable
DCCB	CB3-4A	1138.8	60	12	150.00	198.75	248.04	901	N/A	#4 Cu & MSGR WIRE	500 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	1.068%	6600	1.143%	2.211%	Messenger cable
DCCB	CB3-4B	1138.8	50	10	125.00	165.63	206.70	937	N/A	#4 Cu & MSGR WIRE	500 kcmil AL†*	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	0.926%	5500	1.143%	2.069%	Messenger cable
DCCB	CB3-5A	1138.8	60	12	150.00	198.75	248.04	973	N/A	#4 Cu & MSGR WIRE	600 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	340	338.21	0.0381	0.977%	6600	1.143%	2.120%	Messenger cable
DCCB	CB3-5B	1138.8	50	10	125.00	165.63	206.70	1009	N/A	#4 Cu & MSGR WIRE	500 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	0.997%	5500	1.143%	2.140%	Messenger cable
DCCB	CB3-6A	1138.8	50	10	125.00	165.63	206.70	1045	N/A	#4 Cu & MSGR WIRE	500 kcmil AL†*	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	1.032%	5500	1.143%	2.176%	Messenger cable
DCCB	CB3-6B	1138.8	60	12	150.00	198.75	248.04	1063	N/A	#4 Cu & MSGR WIRE	600 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	340	338.21	0.0381	1.067%	6000	1.045%	2.112%	Messenger cable
DCCB	CB3-7A	1138.8	45	9	112.50	149.06	186.03	1099	N/A	#4 Cu & MSGR WIRE	350 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	1.353%	3600	0.817%	2.169%	Messenger cable
DCCB	CB3-7B	1138.8	40	9	100.00	132.50	165.36	1159	N/A	#4 Cu & MSGR WIRE	400 kcmil AL†*	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	1.124%	4950	1.143%	2.267%	Messenger cable
DCCB	CB3-8A	1138.8	41	9	102.50	135.81	169.49	1234	N/A	#4 Cu & MSGR WIRE	350 kcmil AL†*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	1.384%	4050	0.915%	2.299%	Messenger cable
DCCB	CB3-8B	1138.8	47	12	117.50	155.69	194.30	1338	N/A	#4 Cu & MSGR WIRE	400 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	1.524%	4800	0.751%	2.275%	Messenger cable
DCCB	CB4-1A	1138.8	49	12	122.50	162.31	202.57	130	N/A	#4 Cu & MSGR WIRE	250 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	205	192.14	0.0865	0.242%	4200	0.653%	0.895%	Messenger cable
DCCB	CB4-1B	1138.8	45	10	112.50	149.06	186.03	166	N/A	#4 Cu & MSGR WIRE	250 kcmil AL*	2 kV PV Wire	1	2	2	0.94									

DC Feeder Wire Schedule (PV System)

PV ZONES 6 THRU 9

1-Line ID	Combiner ID	DC Operating Voltage (V)	Source Circuit Qty	Branch Circuit Qty	Operating Current (A)	Short Circuit Current w/ 1.25 safety factor (A)	Short Circuit Current w/ 1.56 safety factor (A)	1-Way Distance to Combiner (ft)	OCPD (A)	EGC (Cu) ***	Output Conductor Size	Wire Type	Set QTY	# of Wires Per Set	# of Current Carrying Conductors Per Conduit	Temp Derate	Bundling Derate**	75C Terminal Ampacity (A) (req'd ≥ 1.56*Isc)	Cum. 90C Wire Capacity (A) (req'd ≥ 1.25*Isc)	Resistivity (Ω/1000ft)	DC Feeder % Voltage Drop	Estimated Total Length of Input #10 Cu PV Wire 2kV	Pre-Combiner Max % Voltage Drop	Total DC % Voltage Drop	Wiring Method
DCCB	CB6-1A	1138.8	57	14	142.50	188.81	235.64	135	N/A	#4 Cu & MSGR WIRE	350 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.210%	4900	0.849%	1.060%	Messenger cable
DCCB	CB6-1B	1138.8	47	10	117.50	155.69	194.30	207	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.266%	3000	0.56%	0.821%	Messenger cable
DCCB	CB6-2A	1138.8	57	13	142.50	188.81	235.64	260	N/A	#4 Cu & MSGR WIRE	350 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.405%	7150	1.307%	1.712%	Messenger cable
DCCB	CB6-2B	1138.8	50	10	125.00	165.63	206.70	278	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.380%	5500	1.143%	1.524%	Messenger cable
DCCB	CB6-3A	1138.8	60	12	150.00	198.75	248.04	313	N/A	#4 Cu & MSGR WIRE	400 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.455%	6600	1.143%	1.598%	Messenger cable
DCCB	CB6-3B	1138.8	50	10	125.00	165.63	206.70	348	N/A	#4 Cu & MSGR WIRE	400 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.422%	5500	1.14%	1.565%	Messenger cable
DCCB	CB6-4A	1138.8	50	10	125.00	165.63	206.70	383	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.524%	5500	1.143%	1.667%	Messenger cable
DCCB	CB6-4B	1138.8	60	12	150.00	198.75	248.04	401	N/A	#4 Cu & MSGR WIRE	350 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.658%	6600	1.143%	1.801%	Messenger cable
DCCB	CB6-5A	1138.8	60	12	150.00	198.75	248.04	436	N/A	#4 Cu & MSGR WIRE	350 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.716%	6600	1.143%	1.859%	Messenger cable
DCCB	CB6-5B	1138.8	50	10	125.00	165.63	206.70	471	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.644%	5500	1.14%	1.787%	Messenger cable
DCCB	CB6-6A	1138.8	40	8	100.00	132.50	165.36	506	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.554%	4400	1.143%	1.697%	Messenger cable
DCCB	CB6-6B	1138.8	60	12	150.00	198.75	248.04	524	N/A	#4 Cu & MSGR WIRE	350 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.860%	6600	1.143%	2.003%	Messenger cable
DCCB	CB6-7A	1138.8	60	12	150.00	198.75	248.04	559	N/A	#4 Cu & MSGR WIRE	350 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.917%	6600	1.143%	2.061%	Messenger cable
DCCB	CB6-7B	1138.8	50	10	125.00	165.63	206.70	594	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.812%	5500	1.14%	1.956%	Messenger cable
DCCB	CB6-8A	1138.8	40	8	100.00	132.50	165.36	629	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.688%	4400	1.143%	1.832%	Messenger cable
DCCB	CB6-8B	1138.8	60	12	150.00	198.75	248.04	647	N/A	#4 Cu & MSGR WIRE	400 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.941%	6600	1.143%	2.084%	Messenger cable
DCCB	CB7-1A	1138.8	60	12	150.00	198.75	248.04	682	N/A	#4 Cu & MSGR WIRE	350 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	1.119%	6600	1.14%	2.263%	Messenger cable
DCCB	CB7-1B	1138.8	50	10	125.00	165.63	206.70	717	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.981%	5500	1.143%	2.124%	Messenger cable
DCCB	CB7-2A	1138.8	60	12	150.00	198.75	248.04	752	N/A	#4 Cu & MSGR WIRE	350 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	1.094%	6600	1.143%	2.237%	Messenger cable
DCCB	CB7-2B	1138.8	50	10	125.00	165.63	206.70	787	N/A	#4 Cu & MSGR WIRE	400 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.954%	5500	1.143%	2.097%	Messenger cable
DCCB	CB7-3A	1138.8	50	10	125.00	165.63	206.70	822	N/A	#4 Cu & MSGR WIRE	400 kcmil AL*†	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.996%	5500	1.143%	2.139%	Messenger cable
DCCB	CB7-3B	1138.8	60	12	150.00	198.75	248.04	840	N/A	#4 Cu & MSGR WIRE	500 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	0.996%	6600	1.143%	2.139%	Messenger cable
DCCB	CB7-4A	1138.8	60	12	150.00	198.75	248.04	875	N/A	#4 Cu & MSGR WIRE	500 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	1.037%	6600	1.143%	2.181%	Messenger cable
DCCB	CB7-4B	1138.8	50	10	125.00	165.63	206.70	910	N/A	#4 Cu & MSGR WIRE	400 kcmil AL*†	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	1.103%	5500	1.143%	2.246%	Messenger cable
DCCB	CB7-5A	1138.8	40	8	100.00	132.50	165.36	945	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	1.034%	4400	1.143%	2.177%	Messenger cable
DCCB	CB7-5B	1138.8	60	12	150.00	198.75	248.04	963	N/A	#4 Cu & MSGR WIRE	600 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	340	338.21	0.0381	0.967%	6600	1.143%	2.110%	Messenger cable
DCCB	CB7-6A	1138.8	60	12	150.00	198.75	248.04	998	N/A	#4 Cu & MSGR WIRE	600 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	340	338.21	0.0381	1.002%	6600	1.143%	2.145%	Messenger cable
DCCB	CB7-6B	1138.8	40	8	100.00	132.50	165.36	1051	N/A	#4 Cu & MSGR WIRE	400 kcmil AL*†	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	1.019%	4400	1.143%	2.162%	Messenger cable
DCCB	CB7-7A	1138.8	50	10	125.00	165.63	206.70	1069	N/A	#4 Cu & MSGR WIRE	500 kcmil AL*†	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	1.056%	5500	1.143%	2.199%	Messenger cable
DCCB	CB7-7B	1138.8	58	12	145.00	192.13	239.77	1087	N/A	#4 Cu & MSGR WIRE	600 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	340	338.21	0.0381	1.055%	6600	1.143%	2.198%	Messenger cable
DCCB	CB7-8A	1138.8	45	10	112.50	149.06	186.03	1207	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	1.486%	3500	0.784%	2.270%	Messenger cable
DCCB	CB7-8B	1138.8	56	13	140.00	185.50	231.50	1327	N/A	#4 Cu & MSGR WIRE	500 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	1.468%	5200	0.849%	2.318%	Messenger cable
DCCB	CB8-1A	1138.8	43	10	107.50	142.44	177.76	130	N/A	#4 Cu & MSGR WIRE	250 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	205	192.14	0.0865	0.212%	4000	0.849%	1.062%	Messenger cable
DCCB	CB8-1B	1138.8	35	7	87.50	115.94	144.69	148	N/A	#4 Cu & MSGR WIRE	250 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	205	192.14	0.0865	0.197%	4200	1.31%	1.503%	Messenger cable
DCCB	CB8-2A	1138.8	42	9	105.00	139.13	173.63	166	N/A	#4 Cu & MSGR WIRE	250 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	205	192.14	0.0865	0.265%	6300	1.633%	1.898%	Messenger cable
DCCB	CB8-2B	1138.8	42	9	105.00	139.13	173.63	184	N/A	#4 Cu & MSGR WIRE	250 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	205	192.14	0.0865	0.293%	6300	1.633%	1.927%	Messenger cable
DCCB	CB8-3A	1138.8	42	9	105.00	139.13	173.63	202	N/A	#4 Cu & MSGR WIRE	300 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	0.268%	6300	1.633%	1.901%	Messenger cable
DCCB	CB8-3B	1138.8	44	9	110.00	145.75	181.90	220	N/A	#4 Cu & MSGR WIRE	300 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	0.306%	6750	1.73%	2.037%	Messenger cable
DCCB	CB8-4A	1138.8	43	9	107.50	142.44	177.76	238	N/A	#4 Cu & MSGR WIRE	300 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	230	215.82	0.072	0.324%	6750	1.699%	2.022%	Messenger cable
DCCB	CB8-4B	1138.8	42	9	105.00	139.13	173.63	256	N/A	#4 Cu & MSGR WIRE	250 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	205	192.14	0.0865	0.408%	6300	1.666%	2.074%	Messenger cable
DCCB	CB8-5A	1138.8	41	9	102.50	135.81	169.49	274	N/A	#4 Cu & MSGR WIRE	250 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	205	192.14	0.0865	0.427%	6300	1.633%	2.060%	Messenger cable
DCCB	CB8-5B	1138.8	40	8	100.00	132.50	165.36	292	N/A	#4 Cu & MSGR WIRE	250 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	205	192.14	0.0865	0.444%	5600	1.60%	2.044%	Messenger cable
DCCB	CB8-6	1138.8	77	16	192.50	255.06	318.32	310	N/A	#4 Cu & MSGR WIRE	500 kcmil AL†	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	0.472%	9600	1.405%	1.876%	Messenger cable
DCCB	CB8-7	1138.8	74	16	185.00	245.13	305.92	345	N/A	#4 Cu & MSGR WIRE	500 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	0.504%	9600	1.372%	1.876%	Messenger cable
DCCB	CB8-8	1138.8	71	15	177.50	235.19	293.51	380	N/A	#4 Cu & MSGR WIRE	500 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	310	301.36	0.045	0.533%	9000	1.372%	1.905%	Messenger cable
DCCB	CB9-1A	1138.8	34	7	85.00	112.63	140.56	415	N/A	#4 Cu & MSGR WIRE	400 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.342%	4200	1.31%	1.649%	Messenger cable
DCCB	CB9-1B	1138.8	65	14	162.50	215.31	268.71	433	N/A	#4 Cu & MSGR WIRE	400 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	270	259.91	0.0552	0.682%	8400	1.307%	1.989%	Messenger cable
DCCB	CB9-2A	1138.8	31	7	77.50	102.69	128.15	468	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.397%	3500	1.045%	1.442%	Messenger cable
DCCB	CB9-2B	1138.8	59	12	147.50	195.44	243.91	486	N/A	#4 Cu & MSGR WIRE	350 kcmil AL	2 kV PV Wire	1	2	2	0.94	0.70	250	239.51	0.0623	0.784%	6600	1.176%	1.960%	Messenger cable
DCCB	CB9-3A	1138.8	28	6	70.00	92.75	115.75	521	N/A	#4 Cu & MSGR WIRE	350 kcmil AL*	2 kV PV Wire	1	2	2	0.94	0.70								

AC Wire and Conduit Schedule

Inverters to AC Combiners (Solectria-provided)																					
1-Line ID	Inverter Designation (Pattern Repeats for each station, replace X with zone ID)	AC Voltage (V)	Max Output Current (A)	125% Current (A)	Total 1-Way Length to AC Combiner (ft)	OCPD (A)	EGC (THWN-2)	Neutral	Phase Conductor Size	Wire Type	Set QTY	# of Wires Per Inverter Circuit	# of Current Carrying Wires/Conduit Affecting Derate	Temp Derate	Bundling Derate*	75C Terminal Capacity (A)	Cum. 90C Wire Capacity (A)	Resistivity (Ω/kft)	Current Per Set (A)	% Voltage Drop	Conduit Type
AC1	INV X-1	600	240.6	300.8	25	400	#3 Cu	N/A	500 kcmil	Cu THWN-2	1	3+G	3	0.94	1.00	230.00	244.4	0.0708	241	0.123%	Cable tray
AC1	INV X-2	600	240.6	300.8	15	400	#3 Cu	N/A	500 kcmil	Cu THWN-2	1	3+G	3	0.94	1.00	230.00	244.4	0.0708	241	0.074%	Cable tray
AC1	INV X-3	600	240.6	300.8	20	400	#3 Cu	N/A	500 kcmil	Cu THWN-2	1	3+G	3	0.94	1.00	230.00	244.4	0.0708	241	0.098%	Cable tray
AC1	INV X-4	600	240.6	300.8	15	400	#3 Cu	N/A	500 kcmil	Cu THWN-2	1	3+G	3	0.94	1.00	230.00	244.4	0.0708	241	0.074%	Cable tray
AC1	INV X-5	600	240.6	300.8	25	400	#3 Cu	N/A	500 kcmil	Cu THWN-2	1	3+G	3	0.94	1.00	230.00	244.4	0.0708	241	0.123%	Cable tray
AC1	INV X-6	600	240.6	300.8	15	400	#3 Cu	N/A	500 kcmil	Cu THWN-2	1	3+G	3	0.94	1.00	230.00	244.4	0.0708	241	0.074%	Cable tray
AC1	INV X-7	600	240.6	300.8	20	400	#3 Cu	N/A	500 kcmil	Cu THWN-2	1	3+G	3	0.94	1.00	230.00	244.4	0.0708	241	0.098%	Cable tray
AC1	INV X-8	600	240.6	300.8	15	400	#3 Cu	N/A	500 kcmil	Cu THWN-2	1	3+G	3	0.94	1.00	230.00	244.4	0.0708	241	0.074%	Cable tray

XHHW-2 is an acceptable alternative to THWN-2, Typical of all.
* EGC to be shared for multiple inverters, and an EGC is req'd for each raceway. Splice within cable tray, to produce a single EGC to each inverter

AC Combiners to Breakers																								
1-Line ID	Output Designation	AC Voltage (V)	Max Output Current (A)	125% Current (A)	1-Way Distance (ft)	OCPD Cont. Duty (A)	Ground, G THWN-2	Neutral	Phase Conductor Size	Wire Type	Set QTY	# of Wires Per Conduit	# of Current Carrying Conductors / Conduit	Temp Derate	Bundling Derate*	75C Terminal Capacity (A)	Cum. 90C Wire Capacity (A)	Resistivity (Ω/kft)	Current Per Set (A)	% Voltage Drop	Conduit Type	Conduit QTY	Conduit Size	Conduit Fill
AC2	STATION 1: AC Combiner to ECB	600	1925	N/A*	25	1925	250 kcmil Cu	N/A	600 kcmil	Cu THWN-2	5	3+G	3	0.94	1.00	2100.00	2209.0	0.0249	385.00	0.069%	SCH 40 & 80 PVC	5	4"	26.64%
AC2	STATION 2: AC Combiner to ECB	600	1925	N/A*	50	1925	250 kcmil Cu	N/A	600 kcmil	Cu THWN-2	5	3+G	3	0.94	1.00	2100.00	2209.0	0.0249	385.00	0.138%	SCH 40 & 80 PVC	5	4"	26.64%
AC2	STATION 3: AC Combiner to ECB	600	1925	N/A*	25	1925	250 kcmil Cu	N/A	600 kcmil	Cu THWN-2	5	3+G	3	0.94	1.00	2100.00	2209.0	0.0249	385.00	0.069%	SCH 40 & 80 PVC	5	4"	26.64%
AC2	STATION 4: AC Combiner to ECB	600	1925	N/A*	50	1925	250 kcmil Cu	N/A	600 kcmil	Cu THWN-2	5	3+G	3	0.94	1.00	2100.00	2209.0	0.0249	385.00	0.138%	SCH 40 & 80 PVC	5	4"	26.64%
AC2	STATION 5: AC Combiner to ECB	600	1925	N/A*	25	1925	250 kcmil Cu	N/A	600 kcmil	Cu THWN-2	5	3+G	3	0.94	1.00	2100.00	2209.0	0.0249	385.00	0.069%	SCH 40 & 80 PVC	5	4"	26.64%
AC2	STATION 6: AC Combiner to ECB	600	1925	N/A*	25	1925	250 kcmil Cu	N/A	600 kcmil	Cu THWN-2	5	3+G	3	0.94	1.00	2100.00	2209.0	0.0249	385.00	0.069%	SCH 40 & 80 PVC	5	4"	26.64%
AC2	STATION 7: AC Combiner to ECB	600	1925	N/A*	50	1925	250 kcmil Cu	N/A	600 kcmil	Cu THWN-2	5	3+G	3	0.94	1.00	2100.00	2209.0	0.0249	385.00	0.138%	SCH 40 & 80 PVC	5	4"	26.64%
AC2	STATION 8: AC Combiner to ECB	600	1925	N/A*	50	1925	250 kcmil Cu	N/A	600 kcmil	Cu THWN-2	5	3+G	3	0.94	1.00	2100.00	2209.0	0.0249	385.00	0.138%	SCH 40 & 80 PVC	5	4"	26.64%
AC2	STATION 9: AC Combiner to ECB	600	1925	N/A*	25	1925	250 kcmil Cu	N/A	600 kcmil	Cu THWN-2	5	3+G	3	0.94	1.00	2100.00	2209.0	0.0249	385.00	0.069%	SCH 40 & 80 PVC	5	4"	26.64%

XHHW-2 is an acceptable alternative to THWN-2, Typical of all.
* Since OCPD is continuous-duty rated

AC Breakers to Transformers (Governed by 240.21(C)(4), Outside-unlimited Transformer Secondary Conductors)																								
1-Line ID	Output Designation	AC Voltage (V)	Max Output Current (A)	125% Current (A)	1-Way Distance to XFMR (ft)	OCPD Cont. Duty (A)	SSBJ per 250.102(C) THWN-2	Neutral	Phase Conductor Size	Wire Type	Set QTY	# of Wires Per Conduit	# of Current Carrying Conductors / Conduit	Temp Derate	Bundling Derate*	75C Terminal Capacity (A)	Cum. 90C Wire Capacity (A)	Resistivity (Ω/kft)	Current Per Set (A)	% Voltage Drop	Conduit Type	Conduit QTY	Conduit Size	Conduit Fill
AC3	ECB To XFMR PV1	600	1925	N/A*	35	1925	#3/0 AL	N/A	750 kcmil	AL THWN-2	5	3+G	3	0.94	1.00	1925.00	2044.5	0.0288	385.00	0.112%	SCH 40 & 80 PVC	5	4"	26.64%
AC3	ECB To XFMR PV2	600	1925	N/A*	50	1925	#3/0 AL	N/A	750 kcmil	AL THWN-2	5	3+G	3	0.94	1.00	1925.00	2044.5	0.0288	385.00	0.160%	SCH 40 & 80 PVC	5	4"	26.64%
AC3	ECB To XFMR PV3	600	1925	N/A*	60	1925	#3/0 AL	N/A	750 kcmil	AL THWN-2	5	3+G	3	0.94	1.00	1925.00	2044.5	0.0288	385.00	0.192%	SCH 40 & 80 PVC	5	4"	26.64%
AC3	ECB To XFMR PV4	600	1925	N/A*	50	1925	#3/0 AL	N/A	750 kcmil	AL THWN-2	5	3+G	3	0.94	1.00	1925.00	2044.5	0.0288	385.00	0.160%	SCH 40 & 80 PVC	5	4"	26.64%
AC3	ECB To XFMR PV5	600	1925	N/A*	60	1925	#3/0 AL	N/A	750 kcmil	AL THWN-2	5	3+G	3	0.94	1.00	1925.00	2044.5	0.0288	385.00	0.192%	SCH 40 & 80 PVC	5	4"	26.64%
AC3	ECB To XFMR PV6	600	1925	N/A*	50	1925	#3/0 AL	N/A	750 kcmil	AL THWN-2	5	3+G	3	0.94	1.00	1925.00	2044.5	0.0288	385.00	0.160%	SCH 40 & 80 PVC	5	4"	26.64%
AC3	ECB To XFMR PV7	600	1925	N/A*	60	1925	#3/0 AL	N/A	750 kcmil	AL THWN-2	5	3+G	3	0.94	1.00	1925.00	2044.5	0.0288	385.00	0.192%	SCH 40 & 80 PVC	5	4"	26.64%
AC3	ECB To XFMR PV8	600	1925	N/A*	50	1925	#3/0 AL	N/A	750 kcmil	AL THWN-2	5	3+G	3	0.94	1.00	1925.00	2044.5	0.0288	385.00	0.160%	SCH 40 & 80 PVC	5	4"	26.64%
AC3	ECB To XFMR PV9	600	1925	N/A*	60	1925	#3/0 AL	N/A	750 kcmil	AL THWN-2	5	3+G	3	0.94	1.00	1925.00	2044.5	0.0288	385.00	0.192%	SCH 40 & 80 PVC	5	4"	26.64%

XHHW-2 is an acceptable alternative to THWN-2, Typical of all.
* Since OCPD is continuous-duty rated

Max	0.192%
Average	0.169%
Max Cumulative	0.453%
Average Cumulative	0.295%

MEDIUM-VOLTAGE WIRING																								
1-Line ID	Origin & Destination	AC Voltage (V)	Max Current (A)	125% Current (A)	Applicable 1-Way Distance (ft)	OCPD (A)	EGC	Neutral	Phase Conductor Size	Wire Type	Set QTY	# of Cables Per Set	# of Current Carrying Conductors Per Conduit	Temp Derate ***	Bundling Derate*	75C Terminal Capacity (A)	Cum. 105C Wire Capacity (A)	Resistivity (Ω/kft)	Current Per Set (A)	% Voltage Drop	Conduit Type	Conduit QTY	Conduit Size	Conduit Fill
MVC1	XFMR PV1 TO PV2	34900	33.09	41.4	610	N/A	N/A	Concentric 1/3 Ntrl	#1/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	155.1	0.2010	33.09	0.020%	SCH 40 & 80 PVC	1 active/1 spare	5"	31.70%
MVC2	XFMR PV2 TO PV3	34900	66.18	82.7	20	N/A	N/A	Concentric 1/3 Ntrl	#1/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	155.1	0.2010	66.18	0.001%	SCH 40 & 80 PVC	1 active/1 spare	5"	31.70%
MVC3	XFMR PV3 TO PV4	34900	99.27	124.1	440	N/A	N/A	Concentric 1/3 Ntrl	#1/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	155.1	0.2010	99.27	0.044%	SCH 40 & 80 PVC	1 active/1 spare	5"	31.70%
MVC4	XFMR PV4 TO PV5	34900	132.36	165.5	20	N/A	N/A	Concentric 1/3 Ntrl	#3/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	202.1	0.1260	132.36	0.002%	SCH 40 & 80 PVC	1 active/1 spare	6"	27.87%
MVC5	XFMR PV5 TO Pad SWGR	34900	165.45	206.8	460	N/A	N/A	Concentric 1/3 Ntrl	#4/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	230.3	0.1010	165.45	0.038%	SCH 40 & 80 PVC	1 active/1 spare	6"	29.80%
MVC6	XFMR PV6 TO Pad SWGR	34900	132.36	165.5	150	N/A	N/A	Concentric 1/3 Ntrl	#3/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	202.1	0.1260	132.36	0.012%	SCH 40 & 80 PVC	1 active/1 spare	6"	27.87%
MVC7	XFMR PV7 TO PV6	34900	99.27	124.1	20	N/A	N/A	Concentric 1/3 Ntrl	#1/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	155.1	0.2010	99.27	0.002%	SCH 40 & 80 PVC	1 active/1 spare	5"	31.70%
MVC8	XFMR PV8 TO PV7	34900	66.18	82.7	50	N/A	N/A	Concentric 1/3 Ntrl	#1/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	155.1	0.2010	66.18	0.003%	SCH 40 & 80 PVC	1 active/1 spare	5"	31.70%
MVC9	XFMR PV9 TO PV8	34900	33.09	41.4	20	N/A	N/A	Concentric 1/3 Ntrl	#1/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	155.1	0.2010	33.09	0.001%	SCH 40 & 80 PVC	1 active/1 spare	5"	31.70%
MVCHC	XFMR PV9 TO HANDHOLE (Provision for Honeywell CTRL Room)	34900	TBD	TBD	100	N/A	N/A	Concentric 1/3 Ntrl	#1/0 AL (Future+)	35kV Cu MV-105 EPR, 133% insl	1	2	2	0.94	1.00	N/A	155.1	0.2010	TBD	TBD	SCH 40 & 80 PVC	1 future	5"	21.14%
MVC10	Future PV to Pad SWGR (Based on 50 MW PV Goal)	34900	430.17	537.7	730	N/A	N/A	Concentric 1/3 Ntrl	350 kcmil AL (Future+, 2 sets)	35kV Cu MV-105 EPR, 133% insl	2	3	3	0.94	1.00	N/A	620.4	0.0608	215.09	0.047%	SCH 40 & 80 PVC	2 active/1 spare	6"	36.10%
MVCB1	XFMR B1 TO XFMR B4	34900	58.45	73.1	65	N/A	N/A	Concentric 1/3 Ntrl	#1/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	155.1	0.2010	58.45	0.004%	SCH 40 & 80 PVC	1 active/1 spare	5"	31.70%
MVCB2	XFMR B2 TO XFMR B1	34900	29.23	36.5	35	N/A	N/A	Concentric 1/3 Ntrl	#1/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	155.1	0.2010	29.23	0.001%	SCH 40 & 80 PVC	1 active/1 spare	5"	31.70%
MVCB3	XFMR B3 TO XFMR B6	34900	116.91	146.1	75	N/A	N/A	Concentric 1/3 Ntrl	#1/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	155.1	0.2010	116.91	0.009%	SCH 40 & 80 PVC	1 active/1 spare	5"	31.70%
MVCB4	XFMR B4 TO XFMR B3	34900	87.68	109.6	35	N/A	N/A	Concentric 1/3 Ntrl	#1/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	155.1	0.2010	87.68	0.003%	SCH 40 & 80 PVC	1 active/1 spare	5"	31.70%
MVCB5	XFMR B5 TO XFMR B8	34900	175.36	219.2	65	N/A	N/A	Concentric 1/3 Ntrl	#4/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	230.3	0.1010	175.36	0.006%	SCH 40 & 80 PVC	1 active/1 spare	6"	29.80%
MVCB6	XFMR B6 TO XFMR B5	34900	146.13	182.7	35	N/A	N/A	Concentric 1/3 Ntrl	#3/0 AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	202.1	0.1260	146.13	0.003%	SCH 40 & 80 PVC	1 active/1 spare	6"	27.87%
MVCB7	XFMR B7 TO Pad SWGR	34900	233.81	292.3	60	N/A	N/A	Concentric 1/3 Ntrl	350 kcmil AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	310.2	0.0608	233.81	0.004%	SCH 40 & 80 PVC	1 active/1 spare	6"	36.10%
MVCB8	XFMR B8 TO XFMR B7	34900	204.58	255.7	35	N/A	N/A	Concentric 1/3 Ntrl	350 kcmil AL	35kV Al MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	310.2	0.0608	204.58	0.002%	SCH 40 & 80 PVC	1 active/1 spare	6"	36.10%
MVCB9	Future BESS's to Pad SWGR (Based on MAX QTY of BESS's ON 600A Bkr)	34900	233.81	292.3	730	N/A	N/A	Concentric 1/3 Ntrl	350 kcmil AL (Future+)	35kV Cu MV-105 EPR, 133% insl	1	3	3	0.94	1.00	N/A	310.2	0.0608	233.81	0.052%	SCH 40 & 80 PVC	1 active/1 spare	6"	36.10%
MVC0	Pad SWGR to POI (Rated for full site capacity)	34900	471.32	589.2	200	N/A	N/A	Concentric 1/3 Ntrl	350 kcmil AL (2 Parallel Sets)	35kV Cu MV-105 EPR, 133% insl	2	3	3	0.94	1.00	N/A	620.4	0.0608	235.66	0.014%	SCH 40 & 80 PVC	2 active/1 spare	6"	36.10%
OHW	OVERHEAD (if applicable)	34900	471.32	589.2	As req'd	N/A	N/A	Separate Wire	477 kcmil AL	AAC (Cosmos or Syringa)	1	4	3	0.94	1.00	N/A	600.7	0.0535	471.32	TBD	N/A	N/A	N/A	N/A

BESS AC Wire and Conduit Schedule

BESS INVERTER & AUX POWER WIRING																								
1-Line ID	Circuit Description	AC Voltage (V)	Max Current (A)	125% Current (A)	Applicable 1-Way Distance (ft)	OCPD (A)	Ground, G [or SSB] per 250.102[C]	Neutral	Phase Conductor Size	Wire Type	Set QTY	# of Wires Per Set	# of Current Carrying Conductors Per Conduit	Temp Derate	Bundling Derate	75C Terminal Capacity (A)	Cum. 90C Wire Capacity (A)	Resistivity (Ω/kft)	Current Per Set (A)	% Voltage Drop	Conduit Type	Conduit QTY	Conduit Size	Conduit Fill
B1	BESS Inverter to XFMR	480	1925	2406	25	2500	#3/0 AL**	N/A	900 kcmil	AL THWN-2	6	3+G	3	0.94	1.00	2550.00	2707.2	0.0216	320.83	0.063%	SCH 40 & 80 PVC	6	4"	35.18%
BA1	BESS XFMR To 400A Disconnect	480	200	250	20	250	#1/0 AL**	N/A	350 kcmil	AL THWN-2	1	3+G	3	0.94	1.00	250.00	263.2	0.0623	200.00	0.090%	SCH 40 & 80 PVC	1	3"	26.78%
BA2	400A Disconnect to Isolation Xfmr	480	200	250	10	250	#2 AL	N/A	350 kcmil	AL THWN-2	1	3+G	3	0.94	1.00	250.00	263.2	0.0608	200.00	0.044%	SCH 40 & 80 PVC	1	3"	26.21%
BA3	BESS Aux Power (To Containers)	480	200	250	50	250	#2 AL	350 kcmil AL	350 kcmil	AL THWN-2	1	3+N+G	3	0.94	1.00	250.00	263.2	0.0608	200.00	0.219%	SCH 40 & 80 PVC	1	3"	34.35%
BGM	BESS Gnd fault Indicator & Meter	480	1	1	10	1	#14 Cu‡	N/A	#14 Cu	Cu THWN-2	1	3+G	3	0.94	1.00	15.00	15.0	3.1400	0.80	0.009%	SCH 40 & 80 PVC	1	3/4"	9.50%
BI480	BESS Inverter Aux Power 480V	480	8	10	10	15	#8 Cu EGC/GEC††	N/A	#14 Cu	Cu THWN-2	1	2+G	3	0.94	1.00	15.00	15.0	3.1400	8.33	0.094%	SCH 40 & 80 PVC	1	3/4"	12.93%
BI240	BESS Inverter Aux Power 240V	240	16.67	20.8	25	30†	#8 Cu**	N/A	#10 Cu	Cu THWN-2	1	2+G	3	0.94	1.00	30.00	30.0	1.2400	16.67	0.373%	SCH 40 & 80 PVC	1	3/4"	33.74%

* per NEC 310.15(C)(1)

** SSB] per NEC 250.102(C), instead of an EGC per 250.122

*** EGC With tap conductors to be the size needed for the upstream feeder

† This is the effective OCPD per 240.21(C)(1), based on the transformer voltage ratio

‡ EGC not req'd to be larger than the ungrounded conductors

Max Cumulative BESS0.063%

Avg Cumulative0.066%

Max Cumulative AUX0.387%

BESS DC Feeder Wire Schedule

1-Line ID	Output Designation	DC Operating Voltage (V)	Operating Current (A)	Current w/ 1.25 Safety Factor (A)	Distance to Inverter (ft)	OCPD (A)	EGC (Cu)	Conductor Size	Wire Type	Set QTY	# of Wires Per Conduit	# of Current Carrying Conductors Per Conduit	Temp Derate	Bundling Derate*	75C Terminal Ampacity (A) (req'd ≥ 1.25*I)	Cum. 90C Wire Capacity (A) (req'd ≥ I)	Resistivity (Ohms/1000ft)	% Voltage Drop	Conduit type	Conduit size & QTY	Conduit Fill
BDC	BESS #1, DC #1-8	1500	660	825	65.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.356%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #1, DC #9-16	1500	660	825	65.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.356%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #2, DC #1-8	1500	660	825	65.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.356%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #2, DC #9-16	1500	660	825	65.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.356%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #3, DC #1-8	1500	660	825	56.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.307%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #3, DC #9-16	1500	660	825	60.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.329%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #4, DC #1-8	1500	660	825	56.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.307%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #4, DC #9-16	1500	660	825	56.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.307%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #5, DC #1-8	1500	660	825	56.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.307%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #5, DC #9-16	1500	660	825	60.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.329%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #6, DC #1-8	1500	660	825	0.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.000%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #6, DC #9-16	1500	660	825	0.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.000%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #7, DC #1-8	1500	660	825	56.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.307%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #7, DC #9-16	1500	660	825	60.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.329%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #8, DC #1-8	1500	660	825	56.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.307%	PVC Sch 40	4 qty 4"	23.93%
BDC	BESS #8, DC #9-16	1500	660	825	56.0	8x 315A	N/A*	350 kcmil AL	2 kV PV Wire	8	4+G	4	0.94	0.80	2000	1684.48	0.0623	0.307%	PVC Sch 40	4 qty 4"	23.93%

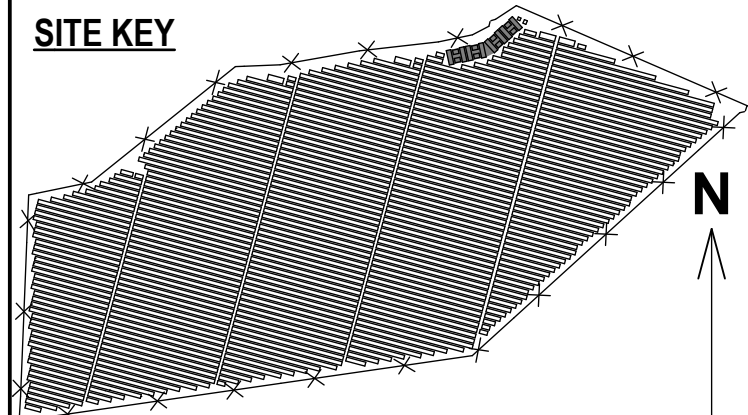
* Per Honeywell's documentation, an EGC isn't required to be routed with the conductors. The container grounding is accomplished externally to the equipment pad, see Honeywell's I&C Manual, Page 43.

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SITE KEY



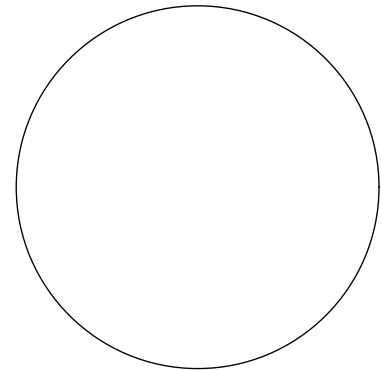
THIS DRAWING IS FOR INFORMATION PURPOSES ONLY. CERTIFICATION OR VALIDATION IS TO BE DONE BY A PROFESSIONAL WITH EXPERTISE IN THE REQUIRED FIELD AND A LICENSE IN THE STATE THAT THE INSTALLATION WILL RESIDE. CERTIFICATION OR VALIDATION TO BE INCLUDED AS PART OF THE SUBMITTALS FOR PERMITTING OF THE OVERALL PROJECT.

FORTUNA (WEST END ST. THOMAS)

PERMIT SET

Monday, January 13, 2025

PROFESSIONAL STAMP



MARK

DATE

DESCRIPTION

CONTRACTOR

NAME

STREET

CITY/ST/ZIP

NOTES

SITE

NAME

STREET

CITY/ST/ZIP

NOTES

FORTUNA (WEST END ST. THOMAS)

FORTUNA ROAD

FORTUNA ESTATE, US VI, STT.

DRAWING

FILE NAME

SCALE

DRAWN BY

CHECKED BY

DRAWING NO.

DRAWING TITLE

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PV608

BESS WIRING SCHEDULE

SHEET 65 OF 70

CONTRACTOR TO ADAPT ALL DATA IN RED TO THE SPECIFICS OF EACH DEVICE				TYP OF ALL LABELS (U.N.O.): LABELS TO BE 1/16" UV RESISTANT ENGRAVED PLASTIC WITH 3M F9460 VHB ADHESIVE		
NEC ARTICLE	690.54	690.14(C)(2) & 690.17 & 690.35	690.53	690.53	690.53	690.53
SPECIFICATION	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS
LOCATION	COMBINERS (138)	DC DISCONNECT SWITCH ON DC COMBINERS (138)	DC COMBINERS (138)	SELECT DC COMBINERS W/ SMALLER BRANCH CIRCUITS (AS APPLICABLE), SEE DC DISTRIBUTION SCHEDULE	DC COMBINERS (138)	INVERTERS (72)
SIGN SIZE AND TEXT	1 1/4" DC COMBINER CB#-## AUTHORIZED PERSONNEL ONLY FEEDS INVERTER ##, LOCATED AT INVERTER STATION # 4" HOW TO DETERMINE DATA FOR EACH UNIT: REPLACE ### WITH ID NUMBER OF EACH COMBINER REPLACE ## WITH CORRESPONDING INVERTER AND # WITH STATION ID	1 3/4" PHOTOVOLTAIC SYSTEM DC DISCONNECT AUTHORIZED PERSONNEL ONLY WARNING! ELECTRIC SHOCK HAZARD DO NOT TOUCH TERMINALS TERMINALS ON BOTH LINE & LOAD SIDES MAY BE ENERGIZED IN OPEN POSITION 1 3/4" WARNING! DO NOT DISCONNECT FUSES OR CONNECTORS UNDER LOAD WARNING! ELECTRIC SHOCK HAZARD THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUND AND MAY BE ENERGIZED 4"	1 1/4" EACH 6-MODULE SOURCE CIRCUIT: MAX POWER-POINT CURRENT: 2.5 Adc MAX POWER-POINT VOLTAGE: 1139 Vdc MAX SYSTEM VOLTAGE (ADJ): 1377 Vdc SHORT CIRCUIT CURRENT (ADJ): 3.31 Adc 4" EACH 5-STRING BRANCH CIRCUIT: MAX POWER-POINT CURRENT: 12.5 Adc MAX POWER-POINT VOLTAGE: 1139 Vdc MAX SYSTEM VOLTAGE (ADJ): 1377 Vdc SHORT CIRCUIT CURRENT (ADJ): 16.6 Adc 4"	1 1/4" EACH 4-STRING BRANCH CIRCUIT: MAX POWER-POINT CURRENT: 10 Adc MAX POWER-POINT VOLTAGE: 1139 Vdc MAX SYSTEM VOLTAGE (ADJ): 1377 Vdc SHORT CIRCUIT CURRENT (ADJ): 13.3 Adc 1 1/4" EACH 3-STRING BRANCH CIRCUIT: MAX POWER-POINT CURRENT: 7.5 Adc MAX POWER-POINT VOLTAGE: 1139 Vdc MAX SYSTEM VOLTAGE (ADJ): 1377 Vdc SHORT CIRCUIT CURRENT (ADJ): 9.94 Adc 1 1/4" EACH 2-STRING BRANCH CIRCUIT: MAX POWER-POINT CURRENT: 5.0 Adc MAX POWER-POINT VOLTAGE: 1139 Vdc MAX SYSTEM VOLTAGE (ADJ): 1377 Vdc SHORT CIRCUIT CURRENT (ADJ): 6.62 Adc 4" INSTALL MULTIPLE ON EACH COMBINER WHERE MULTIPLE BRANCH CIRCUIT SIZES ARE PRESENT	1 1/2" COMBINED DC SPECIFICATIONS FOR CB#-##: CONFIGURATION: 38 SC OF 6 BRANCH CIRCUITS: 8x 4 SC, 3x 5 SC MAX POWER-POINT CURRENT: 117.5 Adc MAX POWER-POINT VOLTAGE: 1139 Vdc MAX SYSTEM VOLTAGE (ADJ): 1377 Vdc SHORT CIRCUIT CURRENT (ADJ): 194.5 Adc 4" HOW TO DETERMINE DATA FOR EACH UNIT MAX POWER-POINT CURRENT: SC QTY * 2.5 Adc MAX POWER-POINT VOLTAGE: SC SIZE * 189.8 Vdc MAX SYSTEM VOLTAGE (ADJ): SC SIZE * 229.4 Vdc SHORT CIRCUIT CURRENT: SC QTY * 1.25 * 2.65 Adc DATA IN RED IS SUBJECT TO SPECIFICS OF EACH COMBINER. ADAPT ACCORDINGLY ALL DATA ON THESE LABELS IS SUBJECT TO MODULE SELECTION.	1 1/2" TOTAL DC INPUT OF INVERTER #-##: CONFIGURATION: 85 SC OF 6 MAX POWER-POINT CURRENT: 265.6 Adc MAX POWER-POINT VOLTAGE: 1139 Vdc MAX SYSTEM VOLTAGE (ADJ): 1377 Vdc SHORT CIRCUIT CURRENT (ADJ): 351.7 Adc 4" HOW TO DETERMINE DATA FOR EACH UNIT DATA IN RED IS SUBJECT TO SPECIFICS OF EACH INVERTER. ADAPT ACCORDINGLY ALL DATA ON THESE LABELS IS SUBJECT TO MODULE SELECTION.
QUANTITY	138	138 OF EACH	138	89 OF TOP, 8 OF MIDDLE, 8 OF BOTTOM	138	72

NEC ARTICLE	690.54	690.15, 690.54	SDA RECOMMENDED, 110.24	SDA RECOMMENDED, 110.24	SDA RECOMMENDED
SPECIFICATION	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS
LOCATION	PV INVERTERS (72)	AC COMBINING PANELBOARDS (9)	PV SYSTEM TRANSFORMERS (9) LABEL CONTENT VARIES, SEE SCHEDULE BELOW	BESS SYSTEM TRANSFORMERS (2) LABEL CONTENT VARIES, SEE SCHEDULE BELOW OMIT THE LINE IN BLUE, FOR XFMR B1	PV MEDIUM VOLTAGE TRANSFORMERS (9) DAS AUX LOADS TRANSFORMERS (9)
SIGN SIZE AND TEXT	1 1/4" INVERTER ## AUTHORIZED PERSONNEL ONLY OPERATING AC VOLTAGE: 600 Vac 3 PHASE RATED AC OUTPUT CURRENT: 240.6 Aac 3/4" FED BY DC COMBINERS CB#-##A & CB#-##B LOCATED IN THE ARRAY FIELD SEE MAP ON AC COMBINER 1" WARNING! ELECTRIC SHOCK HAZARD THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUND AND MAY BE ENERGIZED 4" TYP UNO HOW TO DETERMINE DATA FOR EACH UNIT: REPLACE ### WITH ID NUMBER OF EACH INVERTER EACH AC COMBINER TO BE LABELED WITH A MAP TO IDENTIFY DC COMBINER LOCATIONS, SEE SHEET PV611	1 1/4" AC COMBINER ## AUTHORIZED PERSONNEL ONLY OPERATING AC VOLTAGE: 600 Vac 3 PHASE RATED AC OUTPUT CURRENT: 1925 Aac 1 1/4" PHOTOVOLTAIC SYSTEM AC DISCONNECT WARNING! ELECTRIC SHOCK HAZARD DO NOT TOUCH TERMINALS TERMINALS ON BOTH LINE & LOAD SIDES MAY BE ENERGIZED IN OPEN POSITION 1 1/4" THIS SYSTEM IS UNGROUNDED NEUTRAL CONDUCTOR IS NOT CONNECTED TO GROUND, AND MAY BE ENERGIZED. IF A GROUND FAULT IS INDICATED, PHASE CONDUCTORS MAY BE AT 600V TO GROUND 4"	2 1/4" TRANSFORMER PV# AUTHORIZED PERSONNEL ONLY APPARENT POWER RATING: 2000 KVA PRIMARY AC VOLTAGE: 34.9 kVac 3 PHASE PRIMARY AC OUTPUT CURRENT: 33.09 Aac COMBINED PRIMARY CURRENT: XXX.X Aac SECONDARY AC VOLTAGE: 600 Vac 3 PHASE SECONDARY AC INPUT CURRENT: 1925 Aac AVAILABLE FAULT CURRENT: 34 kA CALCULATED ON 5/28/2024 4" REPLACE # WITH ID NUMBER OF EACH TRANSFORMER FILL IN VARIABLE VALUES (XXX.X) TO MATCH SYSTEM SPECS, ACCORDING TO THE SPECIFICATIONS BELOW. SCHEDULE OF VARIABLE VALUES: XFMR # XXX.X XFMR # XXX.X PV1 33.1 PV6 132.4 PV2 66.2 PV7 99.3 PV3 99.3 PV8 66.2 PV4 132.4 PV9 33.3 PV5 165.5 MEANING OF VARIABLES: XXX.X = CUMULATIVE OUTPUT PRIMARY CURRENT	2 1/4" TRANSFORMER B# AUTHORIZED PERSONNEL ONLY APPARENT POWER RATING: 2600 KVA PRIMARY AC VOLTAGE: 34.9 kVac 3 PHASE PRIMARY AC CURRENT: 29.23 Aac COMBINED PRIMARY CURRENT: XXX.X Aac SECONDARY AC VOLTAGE: 480 Vac 3 PHASE SECONDARY AC CURRENT: 2880 Aac AVAILABLE FAULT CURRENT: 62.8 kA CALCULATED ON 1/3/2024 4" REPLACE # WITH ID NUMBER OF EACH TRANSFORMER FILL IN VARIABLE VALUES (XXX.X) TO MATCH SYSTEM SPECS, ACCORDING TO THE SPECIFICATIONS BELOW. SCHEDULE OF VARIABLE VALUES: XFMR # XXX.X XFMR # XXX.X B1 58.5 B5 175.4 B2 23.2 B6 146.1 B3 116.9 B7 233.8 B4 87.7 B8 204.6 MEANING OF VARIABLES: XXX.X = CUMULATIVE PRIMARY CURRENT APPLICABLE TO XFMRs B1 THRU B8	2 3/4" WIRING COLOR CODES: GREEN OR BARE: GROUND, TYP OF ALL 600/347V THREE PHASE SYSTEM: PHASE A: BROWN WITH VIOLET TAPE PHASE B: ORANGE WITH VIOLET TAPE PHASE C: YELLOW WITH VIOLET TAPE NEUTRAL: NOT USED 120/240V SINGLE PHASE SYSTEM: LINE 1: BLACK LINE 2: RED NEUTRAL: WHITE 4" THE ABOVE SHOWS SDA's RECOMMENDED COLOR CODE FOR THE 600/347V SYSTEM. IF CONTRACTOR USES ANOTHER COLOR CODE, ADAPT THE COLOR SPECIFICATION TO THE ACTUAL COLORS USED
QUANTITY	72 OF EACH	9 OF EACH	9	8	18

NEC ARTICLE	705.12(D)(3)	SDA RECOMMENDED	SDA RECOMMENDED	690.31(4)	110.16(B)	110.16(B)
SPECIFICATION	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS		BLACK LETTERS WITH PART ORANGE BACKGROUND	RED WITH WHITE LETTERS
LOCATION	AC PANELBOARDS (9) 3-PHASE TRANSFORMERS (17) BOTH SIDES OF SITE SECTIONALIZING SWITCHGEAR (2)	DAS ENCLOSURES (17)	AUXILIARY LOAD CENTERS (5) & TRANSFORMERS OF AUX LOAD CTRS (5)	INSTALL LABEL ON EXPOSED DC CONDUIT, EVERY 10 FT REFLECTIVE WHITE TEXT ON RED, FLEXIBLE LABEL HELLERMANN TYTON 596-00206 OR EQUIVALENT WARNING: PHOTOVOLTAIC POWER SOURCE SIZE NOT TO SCALE LETTERS TO BE MIN 3/8" TALL	DC COMBINERS (138), EACH ENCLOSURE DOOR OF BESS INVERTERS (12) BESS MAIN CONTAINER DOORS (4), AC ECB'S (9), AC PANELBOARDS (9), ALL 3-PHASE TRANSFORMERS (17), 400A AC DISCONNECT FOR BESS POWER (4), BOTH SIDES OF MV SWITCHGEAR (2)	ALL EQUIPMENT CONTAINING THE ARC FLASH LABEL (TO THE LEFT)
SIGN SIZE AND TEXT	1" THIS UNIT IS FED BY MULTIPLE SOURCES: THE UTILITY, THE BATTERY ENERGY STORAGE SYSTEM (BESS) AND THE PHOTOVOLTAIC (PV) SYSTEM 4"	1" PHOTOVOLTAIC SYSTEM DATA ACQUISITION SYSTEM POWER METER ENCLOSURE AUTHORIZED PERSONNEL ONLY 4"	1" PHOTOVOLTAIC SYSTEM AUXILIARY LOAD CENTER AUTHORIZED PERSONNEL ONLY 4" PHOTOVOLTAIC SYSTEM 600V TO 120/240V TRANSFORMER FOR AUXILIARY LOAD CENTER AUTHORIZED PERSONNEL ONLY 4"		SIZE NOT TO SCALE. SIZE PER INDUSTRY STANDARD ! WARNING ARC FLASH HAZARD Appropriate PPE Required FAILURE TO COMPLY CAN RESULT IN DEATH OR INJURY. REFER TO NFPA 70E HELLERMAN TYTON #596-00905 OR EQUIVALENT	SIZE NOT TO SCALE. SIZE TO MATCH ARC FLASH LABEL ALL EQUIPMENT SHALL BE DE-ENERGIZED PRIOR TO MAINTENANCE OR INSEPTION. IF NOT POSSIBLE OR PRACTICAL, CONTRACTOR IS TO PERFORM A HAZARD ANALYSIS INCLUDING AN ARC FLASH STUDY TO DETERMINE THE ARC FLASH BOUNDARY AND APPROPRIATE LEVEL OF PPE FOR THE PIECE OF EQUIPMENT REQUIRING WORK. 5"
QUANTITY	28	9	9 OF EACH	TBD IN FIELD	195	195

NEC ARTICLE	408.4	408.4	408.4	408.4	408.4	408.4	408.4	408.4	408.4	408.4	408.4
SPECIFICATION	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS
LOCATION	FUSES IN AC PANELBOARDS ON INTERIOR, 1 FOR EACH PHASE (72*3 = 216)	MAIN BREAKERS IN AUX LOAD CENTERS (9)	FUSE HOLDER IN AUX LOAD CENTER (9)	FUSE HOLDER IN AC PANELBOARDS (9)	BREAKERS IN AUX LOAD CENTER (9)	BREAKERS IN AUX LOAD CENTER (9)	BREAKER IN AUX LOAD CENTER (1)	BREAKER IN AUX LOAD CENTER (1)	BREAKER IN AUX LOAD CENTER (1)	BREAKER IN AUX LOAD CENTER (1)	BREAKERS IN AUX LOAD CENTER (6)
SIGN SIZE AND TEXT	1/2" INVERTER ## 2" REPLACE ## WITH ID OF EACH INVERTER	1/2" MAIN BREAKER 2"	1/2" DAS VOLTAGE 2"	1/2" AUXILIARY POWER 2 1/2"	1/2" DAS #X POWER 2"	1/2" TRANSFORMER X MONITORING 2"	1/2" LOAD CENTER @ SWITCHGEAR PAD 2"	1/2" SEL RELAY BACKUP POWER 2"	1/2" PRIMARY METER BACKUP POWER 2"	1/2" SEL 3555 RTAC 2"	1/2" CONVENIENCE OUTLET 2"
QUANTITY	216	9	9	9	9	9	1	1	1	1	6

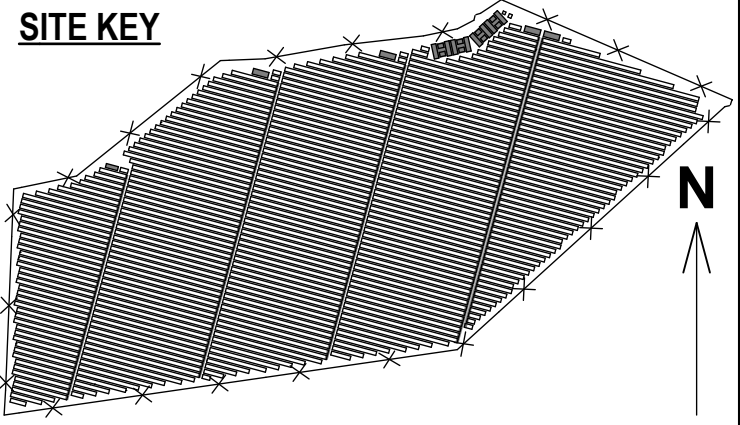
ALL ADDITIONAL LOADS TO BE PROPERLY LABELED & IDENTIFIED PER NEC 408.4



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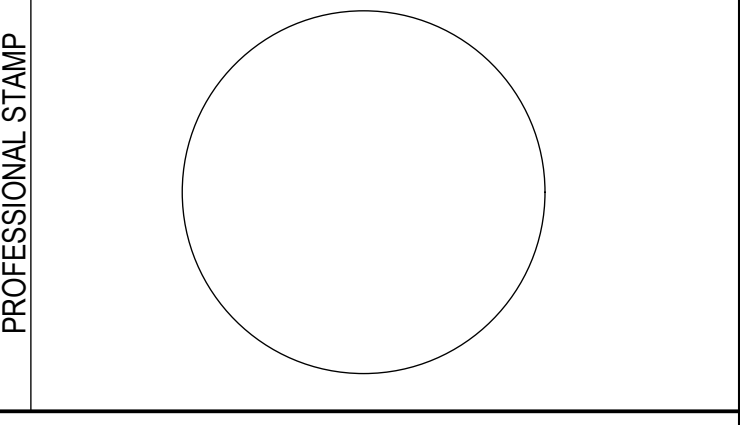
**FORTUNA (WEST END
ST. THOMAS)**

PERMIT SET

Monday, January 13, 2025

SUBMISSION

PROFESSIONAL STAMP



REVISION NOTES

MARK	DATE	DESCRIPTION

CONTRACTOR

SITE

DRAWING

NAME

STREET

CITY/ST/ZIP

NOTES

NAME

STREET

CITY/ST/ZIP

NOTES

FILE NAME

SCALE

DRAWN BY

CHECKED BY

DRAWING NO.

DRAWING TITLE

St Tom - Fortuna.pln

AS NOTED

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RE

DATE DRAFTED: 1/13/2025

SHEET SIZE: ARCH D

PV701

LABELS - SHEET 1

SHEET 67 OF 70

1

LABELS - SHEET 1

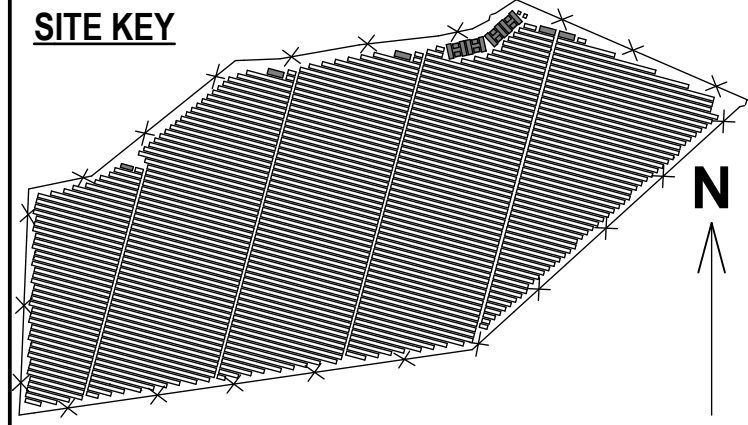
0 1/2" 1" 2"

CONTRACTOR TO ADAPT ALL DATAIN RED TO THE SPECIFICS OF EACH DEVICE

NEC ARTICLE	SDA RECOMMENDED	SDA RECOMMENDED	408.4	SDA RECOMMENDED	SDA RECOMMENDED
SPECIFICATION	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS
LOCATION	SITE SECTIONALIZING SWITCHGEAR EXTERIOR (1)	BOTH SIDES OF SITE SECTIONALIZING SWITCHGEAR EXTERIOR (2)	BREAKERS & SWITCHES WITHIN SITE SECTIONALIZING SWITCHGEAR EXTERIOR (1)	BESS 3-PHASE TRANSFORMER (5, UPPER LABEL) BESS 5kVA TRANSFORMER (5, LOWER LABEL)	BESS 30A DISCONNECT (8)
SIGN SIZE AND TEXT	1 1/2" PHOTOVOLTAIC SYSTEM EXTERNAL GRID SETTINGS RELAY AUTHORIZED PERSONNEL ONLY OPERATING VOLTAGE: 34.9 kV 3-PHASE MAXIMUM OPERATING CURRENT: 362.3 Aac 4" 1 1/4" PHOTOVOLTAIC SYSTEM AC DISCONNECT WARNING! ELECTRIC SHOCK HAZARD DO NOT TOUCH TERMINALS TERMINALS ON BOTH LINE & LOAD SIDES MAY BE ENERGIZED IN OPEN POSITION 4"	2" SITE SECTIONALIZING SWITCHGEAR AUTHORIZED PERSONNEL ONLY OPERATING VOLTAGE: 34.9 kV 3-PHASE MAXIMUM OUTPUT CURRENT: 362.3 Aac MAX. CURRENT FROM PV SYSTEM: 417.4 Aac MAX. CURRENT TO/FROM BESS: 163.8 Aac FUTURE BESS CAPACITY: 245.8 Aac 4" 1 1/4" PHOTOVOLTAIC SYSTEM AC DISCONNECT WARNING! ELECTRIC SHOCK HAZARD DO NOT TOUCH TERMINALS TERMINALS ON BOTH LINE & LOAD SIDES MAY BE ENERGIZED IN OPEN POSITION 4"	1 1/4" PV SYSTEM #1 TRANSFORMERS PV1 THRU PV9 OPERATING VOLTAGE: 34.9 kV 3-PHASE MAXIMUM OPERATING CURRENT: 297.8 Aac 1 1/4" BATTERY SYSTEM OPERATING VOLTAGE: 34.9 kV 3-PHASE MAXIMUM OPERATING CURRENT: 233.8 Aac FUTURE CAPACITY OF CURRENT: 467.6 Aac 1" UTILITY INTERCONNECTION OPERATING VOLTAGE: 34.9 kV 3-PHASE MAXIMUM OPERATING CURRENT: 362.3 Aac 4" (TYP)	2" BATTERY ENERGY STORAGE SYSTEM ISOLATION TRANSFORMER FOR BESS AUXILIARY POWER AUTHORIZED PERSONNEL ONLY PRIMARY AC VOLTAGE: 480 Vac 3 PHASE UNGROUNDED SECONDARY AC VOLTAGE: 277/480 Vac 3 PHASE GROUNDED WYE 4" 1 1/2" BATTERY ENERGY STORAGE SYSTEM STEP-DOWN TRANSFORMER FOR BESS INVERTER AUXILIARY POWER AUTHORIZED PERSONNEL ONLY PRIMARY AC VOLTAGE: 480 Vac 1-PHASE SECONDARY AC VOLTAGE: 120 Vac 1 PHASE 4"	1 1/4" BATTERY ENERGY STORAGE SYSTEM AC DISCONNECT FOR BESS INVERTER AUXILIARY POWER AUTHORIZED PERSONNEL ONLY AC VOLTAGE: 480 Vac 4"
QUANTITY	1 OF EACH	1 OF EACH	1 OF EACH	8 OF EACH	8

NEC ARTICLE	SDA RECOMMENDED, 706.15(C)	690.15	690.15, 690.54	SDA RECOMMENDED, 706.15(C)
SPECIFICATION	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS
LOCATION	BESS CONTAINER DC DISCONNECT (5)	BESS CONTAINER DC DISCONNECT (5)	BESS CONTAINER DC DISCONNECT (8) BESS INVERTER DC DOORS (8)	ONE OF EACH DOOR WITHIN A PAIR OF DOUBLE DOORS OF BESS CONTAINER DOORS (40), NEAR THE LATCHES
SIGN SIZE AND TEXT	2" BATTERY SYSTEM DC DISCONNECT AUTHORIZED PERSONNEL ONLY NOMINAL ESS VOLTAGE: 1296V MAXIMUM ESS VOLTAGE: 1500Vdc AVAILABLE ESS FAULT CURRENT: 197 kA DATE OF CALCULATION: JUNE 2023 4"	2" DO NOT DISCONNECT UNDER LOAD SHUT OFF ADJACENT INVERTER BEFORE OPENING THIS DISCONNECT 4"	1" WARNING! ELECTRIC SHOCK HAZARD DO NOT TOUCH TERMINALS TERMINALS ON BOTH LINE & LOAD SIDES MAY BE ENERGIZED IN OPEN POSITION 4" 1" WARNING! ELECTRIC SHOCK HAZARD THE DC CONDUCTORS OF THIS BATTERY ENERGY STORAGE SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED 4"	2" BATTERY CONTAINER # AUTHORIZED PERSONNEL ONLY NOMINAL ESS VOLTAGE: 1296V MAXIMUM ESS VOLTAGE: 1500Vdc AVAILABLE ESS FAULT CURRENT: 197 kA DATE OF CALCULATION: JUNE 2024 AUXILIARY AC POWER VOLTAGE: 277/480V 4" HOW TO DETERMINE DATA FOR EACH UNIT: REPLACE # WITH ID NUMBER OF EACH BESS CONTAINER
QUANTITY	8	5	12 OF EACH	40

NEC ARTICLE	706.15(C)	690.5	SDA RECOMMENDED
SPECIFICATION	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS	RED WITH WHITE LETTERS
LOCATION	EXTERIOR DOOR OF BESS INVERTER AC DISCONNECT (8)	EXTERIOR DOOR OF BESS INVERTER AC DISCONNECT (2)	BESS MEDIUM VOLTAGE TRANSFORMERS (8) AUX LOADS TRANSFORMERS (8)
SIGN SIZE AND TEXT	1 1/4" BESS INVERTER # AUTHORIZED PERSONNEL ONLY OPERATING AC VOLTAGE: 480 Vac 3 PHASE RATED AC OUTPUT CURRENT: 1925 Aac 4" 1" WARNING! ELECTRIC SHOCK HAZARD DO NOT TOUCH TERMINALS TERMINALS ON BOTH LINE & LOAD SIDES MAY BE ENERGIZED IN OPEN POSITION 4" HOW TO DETERMINE DATA FOR EACH UNIT: REPLACE # WITH ID NUMBER OF EACH BESS CONTAINER	1 1/2" WARNING! ELECTRIC SHOCK HAZARD THIS SYSTEM IS UNGROUNDED NEUTRAL CONDUCTOR IS NOT CONNECTED TO GROUND, AND MAY BE ENERGIZED. IF A GROUND FAULT IS INDICATED, PHASE CONDUCTORS MAY BE AT 480V TO GROUND 4"	2 1/2" WIRING COLOR CODES: GREEN OR BARE: GROUND, TYP OF ALL 277/480V THREE PHASE SYSTEM: PHASE A: BROWN PHASE B: ORANGE PHASE C: YELLOW NEUTRAL: GRAY 120/240V END-GROUNDED SINGLE PHASE: LINE 1 (120V TO NEUTRAL): BLACK LINE 2 (240V TO NEUTRAL): RED NEUTRAL: WHITE 4"
QUANTITY	8 OF EACH	8 OF EACH	16



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FORTUNA (WEST END ST. THOMAS)

SUBMISSION	PERMIT SET
	Monday, January 13, 2025
PROFESSIONAL STAMP	

MARK	DATE	DESCRIPTION

CONTRACTOR	NAME	
	STREET	
	CITY/ST/ZIP	
	NOTES	

SITE	NAME	FORTUNA (WEST END ST. THOMAS)
	STREET	FORTUNA ROAD
	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	

DRAWING	FILE NAME	St Tom - Fortuna.pln
	SCALE	AS NOTED
	DRAWN BY	CH
	CHECKED BY	RE
	DRAWING NO.	PV702
	DRAWING TITLE	LABELS - SHEET 2

SHEET 68 OF 70

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NOTES	

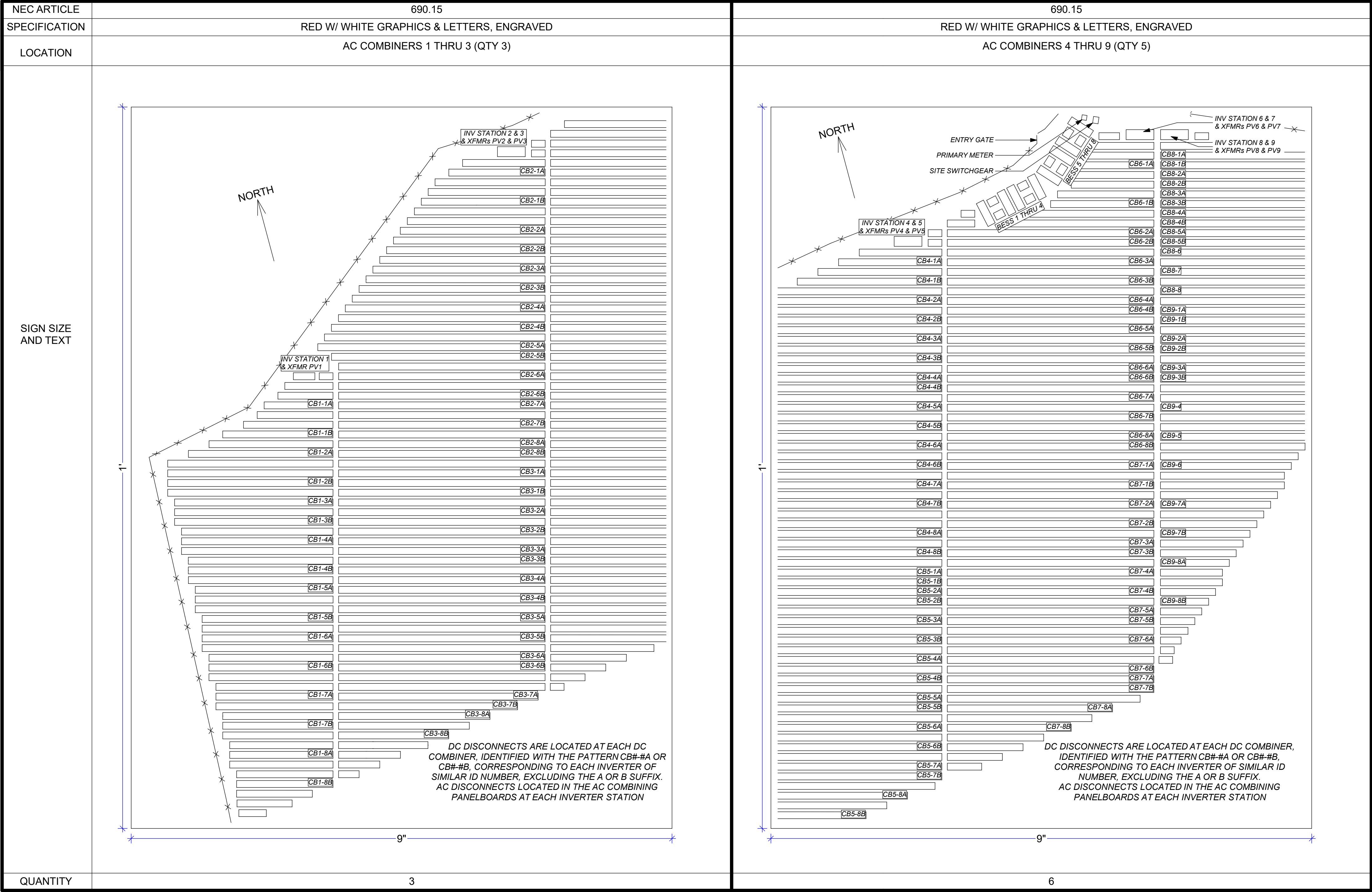
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FILE NAME	St Tom - Fortuna.pln		
SCALE	AS NOTED		
DRAWN BY	CH	DATE DRAFTED:	1/13/2025
CHECKED BY	RE	SHEET SIZE:	ARCH D
DRAWING NO.	PV703		
DRAWING TITLE	GATE LABELS & SYSTEM MAP		
SHEET 69 OF 70			

NEC ARTICLE	705.10, 706.11
SPECIFICATION	RED W/ WHITE GRAPHICS & LETTERS, ENGRAVED
LOCATION	ALL GATES (2) - NEC REQUIRED, SDA'S RECOMMENDATION: ONE PV TRANSFORMER PER PAD (5), ARRANGE FOR VISIBILITY FROM DRIVEWAY, OK TO OMIT CORNER HOLES FOR MOUNTING ON TRANSFORMERS
SIGN SIZE AND TEXT	
QUANTITY	13

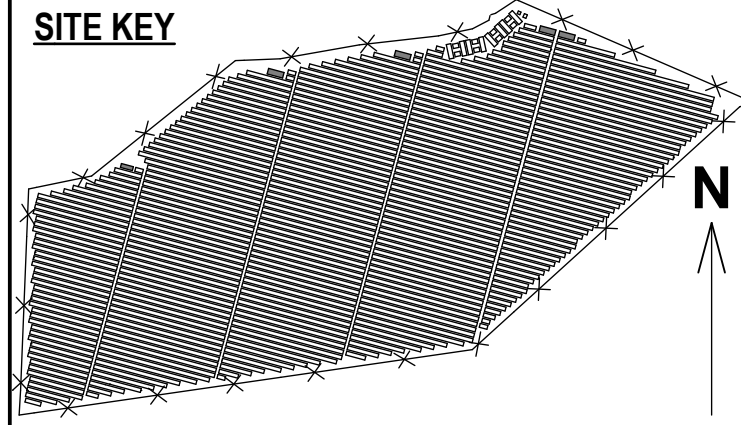
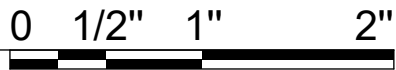
QTY 1: WHITE TEXT ON RED BACKGROUND, APPLY TO ENTRY GATES. COORDINATE INFORMATION IN RED W/ SYSTEM OWNER

1 GATE LABELS & SYSTEM MAP



1

DC COMBINER MAPS - LOCATE APPLICABLE LABEL ON EACH AC COMBINER

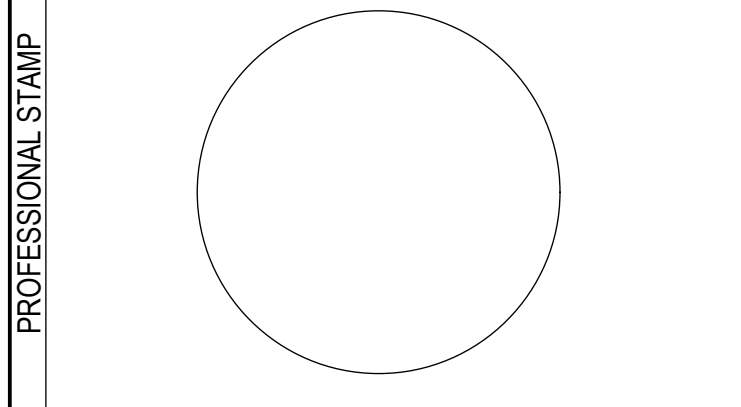


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Monday, January 13, 2025



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DRAWING	CITY/ST/ZIP	FORTUNA ESTATE, US VI, STT.
	NOTES	
	FILE NAME	St Tom - Fortuna.pln
	SCALE	AS NOTED
	DRAWN BY	CH
	CHECKED BY	RE
	DRAWING NO.	PV704
	DRAWING TITLE	COMBINER MAP LABELS
		SHEET 70 OF 70