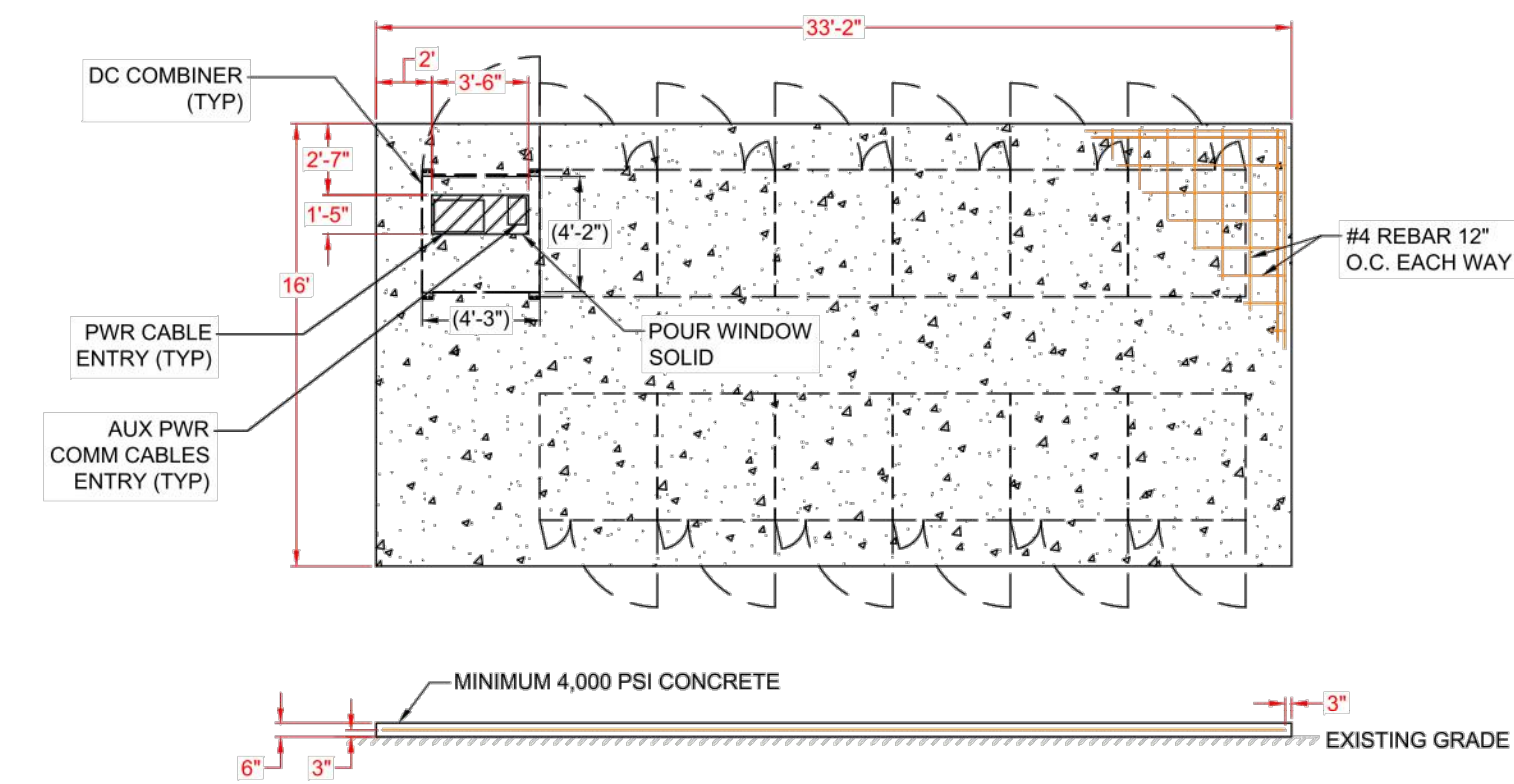
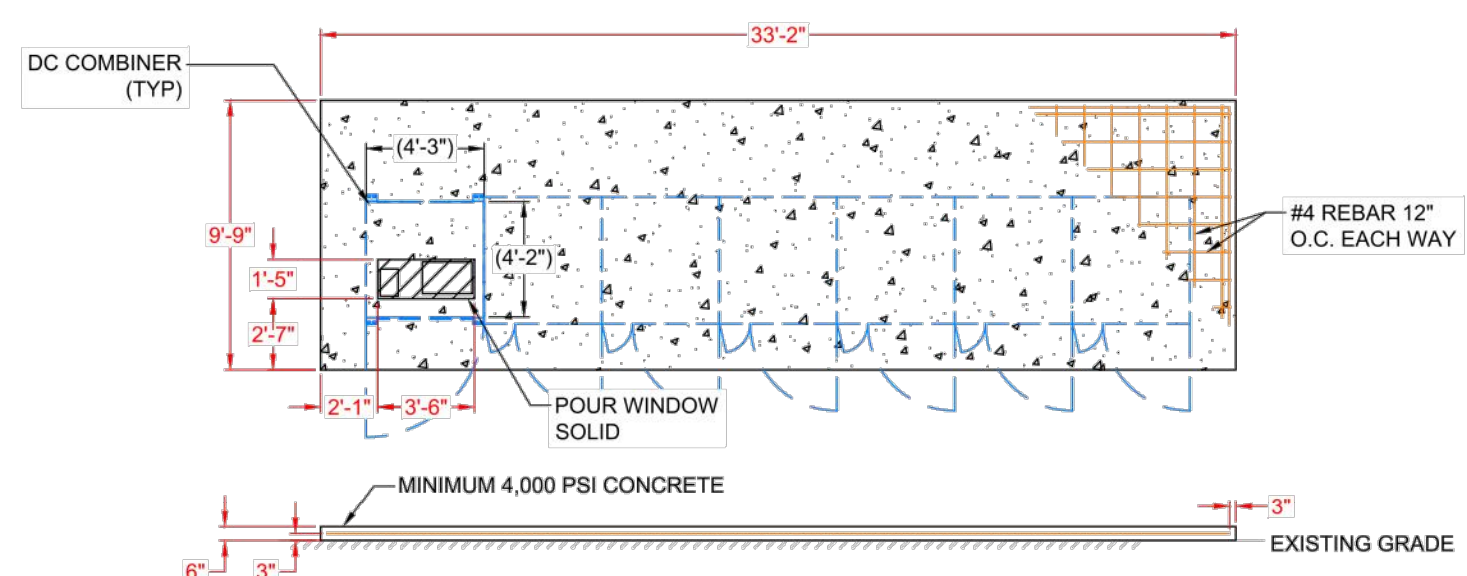


Plotted By: Casillo, Armando Date: March 07, 2023 08:56:06am File Path: K:\DAL\Civil\068932900--RavenVot--BESS Coppel\Cad\PlanSheets\C--Standard Details.dwg  
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

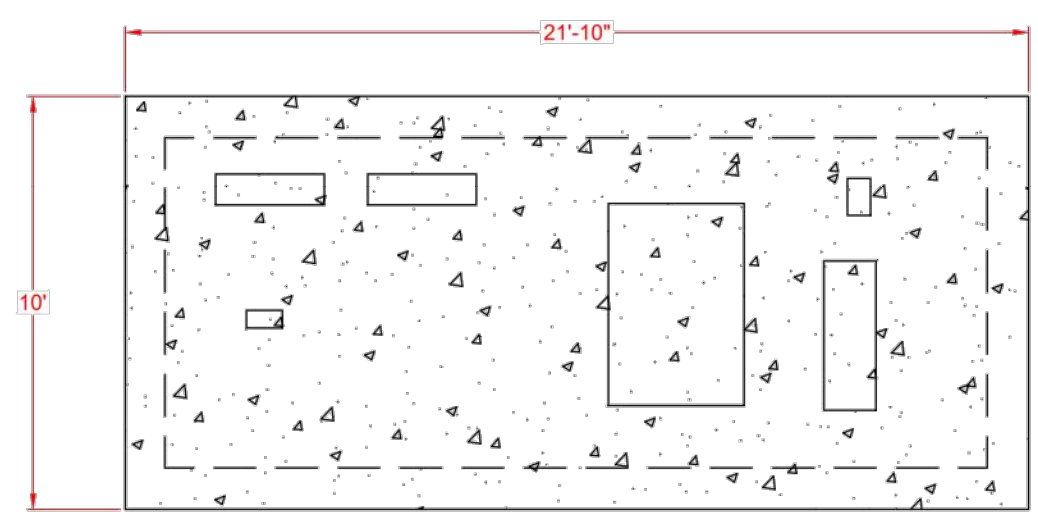
DocuSign Envelope ID: BA769243-CF11-4805-A463-A6E3E486F5E



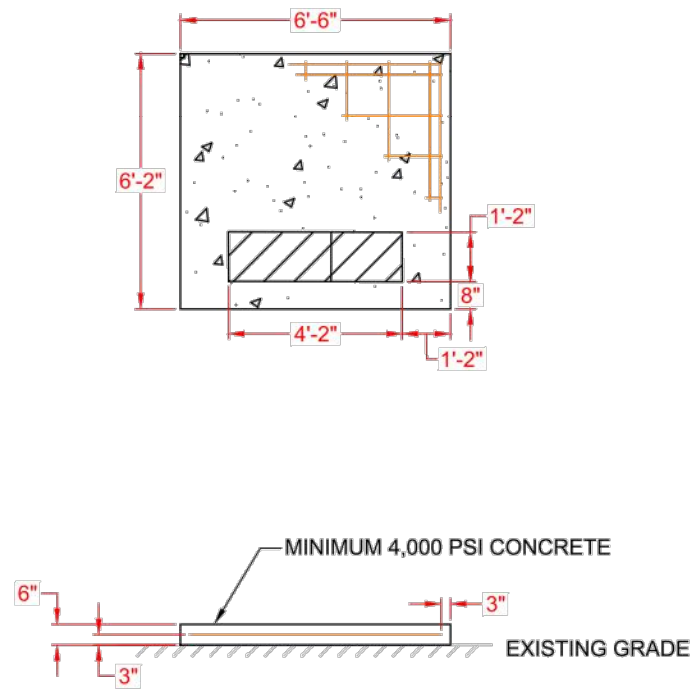
**BESS PAD #1**  
SCALE: 1" = 6' - 0"  
E7



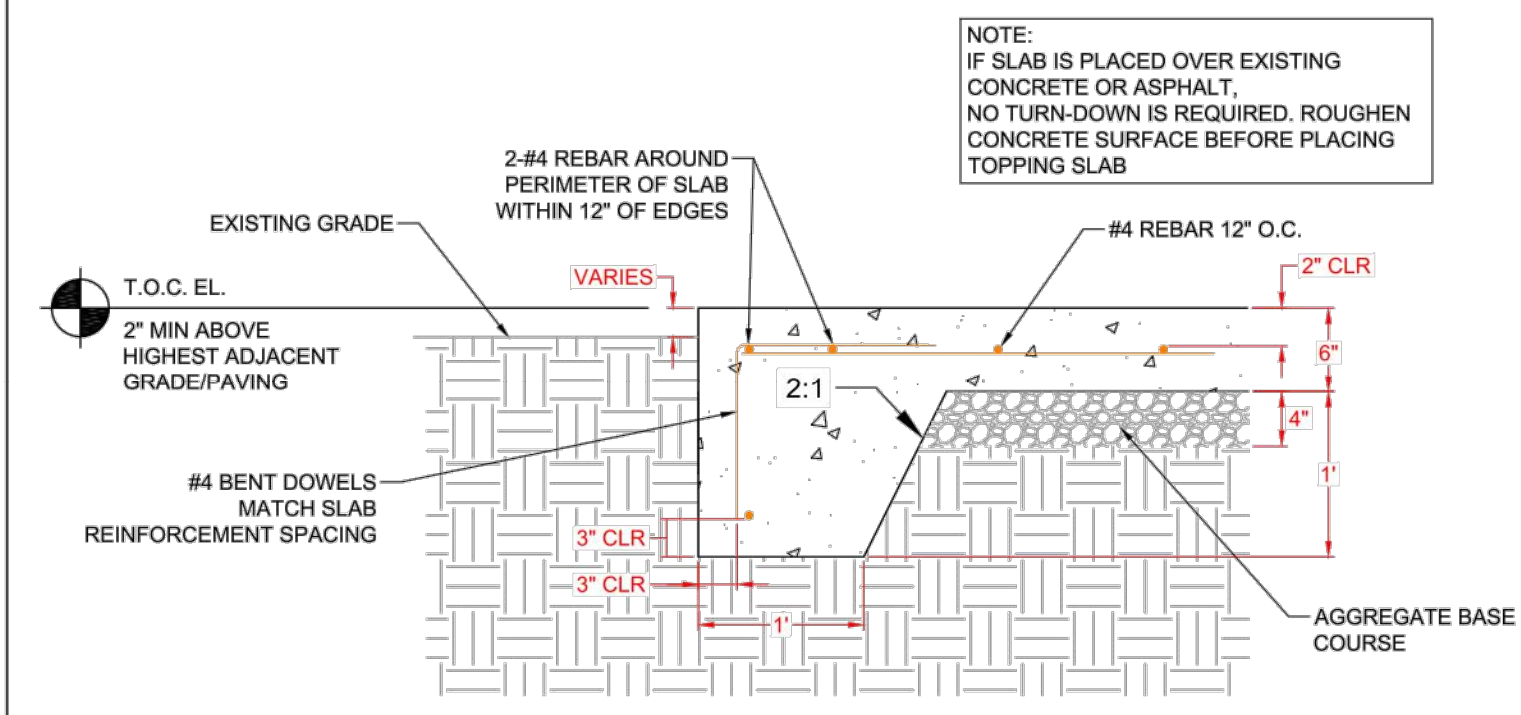
**BESS PAD #2 (FUTURE EQUIPMENT)**  
SCALE: 1" = 6' - 0"  
E7



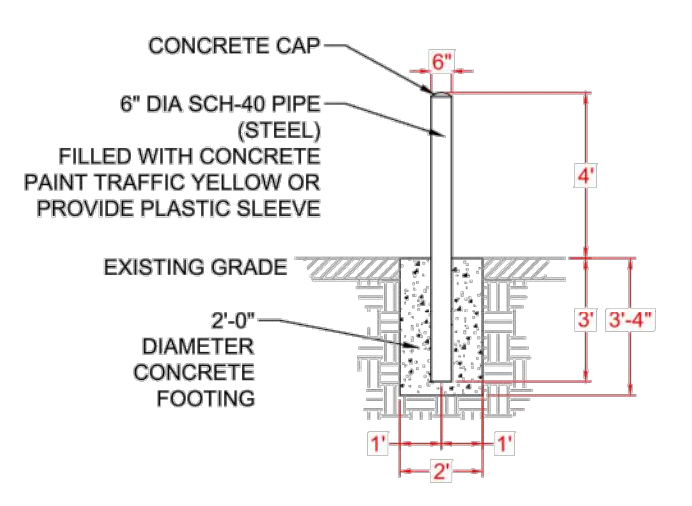
**INVERTER PAD (TYP OF 3)**  
SCALE: 1" = 4' - 0"  
E7



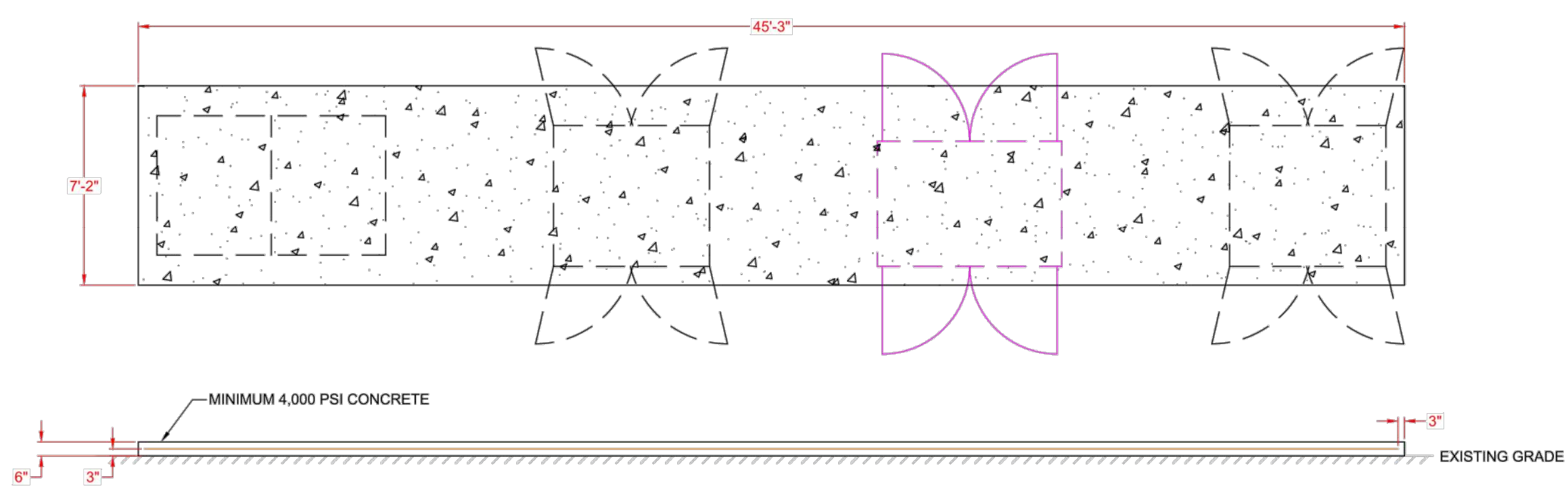
**AUXILIARY POWER TRANSFORMER PAD**  
SCALE: 1" = 4' - 0"  
E7



**PAD TURNDOWN DETAIL**  
SCALE: 1" = 1' - 0"  
E7



**BOLLARD DETAIL**  
SCALE: 1" = 4' - 0"  
E7



**MV BESS PAD**  
SCALE: 1" = 4' - 0"  
E7

- GENERAL NOTES**
- PAD LAYOUT DIMENSIONS ARE MINIMUMS AND CAN BE INCREASED BASED ON SITE CONDITIONS OR CONTRACTOR PREFERENCE.
  - CONTRACTOR CAN CHOOSE TO JOIN MULTIPLE PADS TOGETHER.
  - ALL PADS TO BE MINIMUM 6 INCHES ABOVE FINISHED GRADE. PADS LOCATED WITHIN FLOOD ZONES, EXCLUDING ZONE X AND ZONE X SHADED, TO BE MINIMUM 18 INCHES ABOVE BASE FLOOD ELEVATION.
  - ALL FILL SHALL BE COMPACTED TO A MINIMUM OF 95%.
  - MAXIMUM ALLOWABLE SOIL BEARING PRESSURE: 1500PSF



This document has been electronically signed and sealed by Eduardo-Royce Hidalgo, PE on the date and time shown on the signature using a SHA authentication code. Printed copies of this document are not considered signed and sealed, and the SHA authentication code must be verified on any electronic copies.

**PERMITTING**



SYSTEM SIZE:	10MW/10MWhr
UTILITY VOLTAGE:	24.9 kV
BUILDING NAME:	PARK 121 BLDG 4
PROJECT SITE:	360 N FREEPORT PKWY COPPELL, TX 75019-3801

DESIGNED BY:	RAVENVOLT	REVIEWED BY:	ERH
DRAWN BY:	JJM	ASSISTED BY:	JJM
PROJECT MANAGER:	DYLAN JACKSON	ELECTRIC UTILITY:	ONCOR
AHJ:	CITY OF COPPELL		

REV	REVISION DESCRIPTION	DATE
0	PERMITTING	02/22/2023

SHEET TITLE	PAD DETAILS
DRAWING NUMBER	<b>E7</b>
THIS DRAWING IS 24" X 36" AT FULL SIZE	
SITE ID: DAL 05406	

No.	REVISIONS	DATE	BY

**Kimley»Horn**  
 © 2023 KIMLEY-HORN AND ASSOCIATES, INC.  
 13455 NOEL ROAD, SUITE 700, DALLAS, TX 75240  
 PHONE: 972-770-1300 FAX: 972-239-3820  
 WWW.KIMLEY-HORN.COM  
 TEXAS REGISTERED ENGINEERING FIRM F-928

FOR REVIEW ONLY  
 Not for construction or permit purposes.  
**Kimley»Horn**  
 Prepared: CHRISTOPHER HERNANDEZ  
 P.E. No. 132280 Date: 03/07/2023

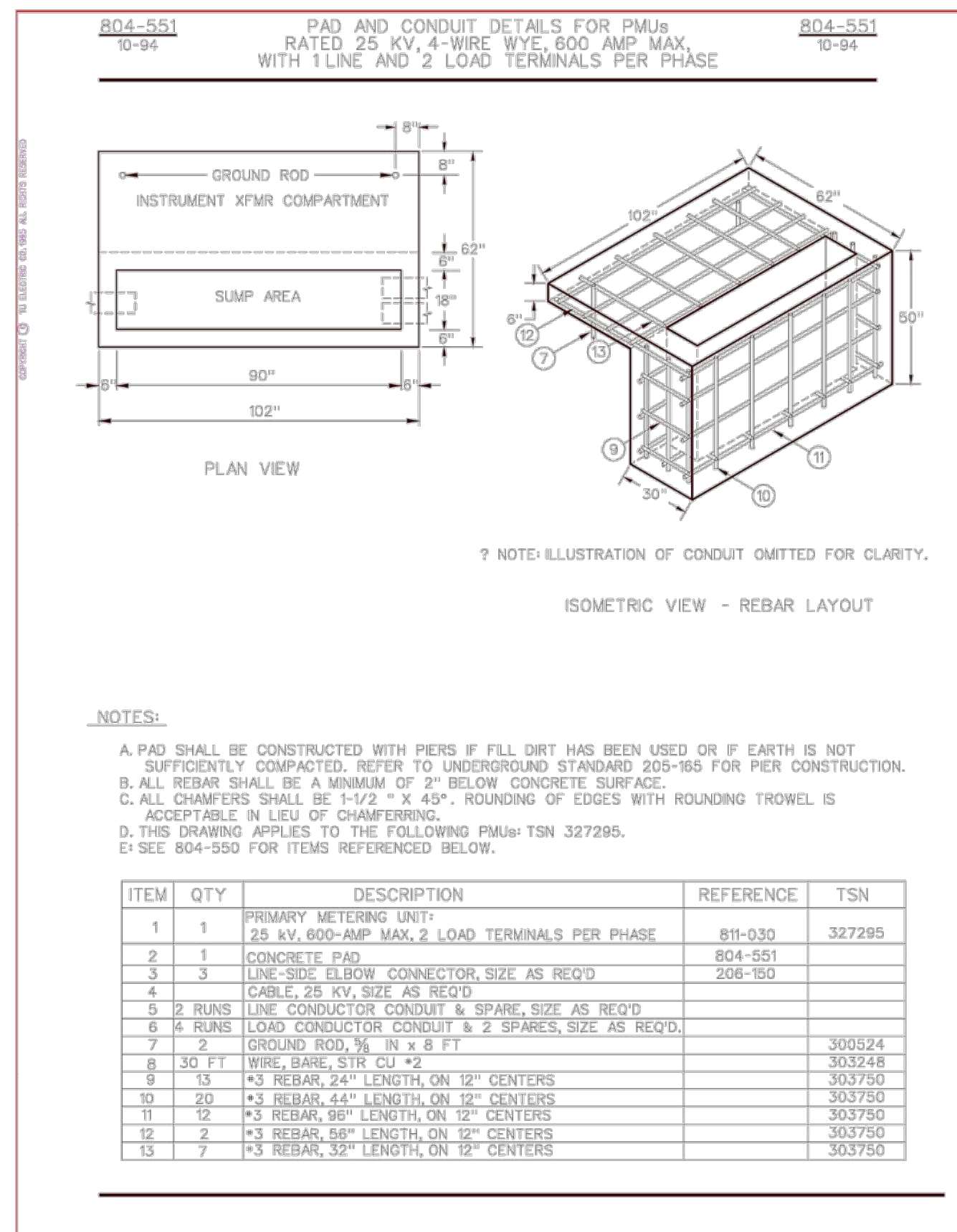
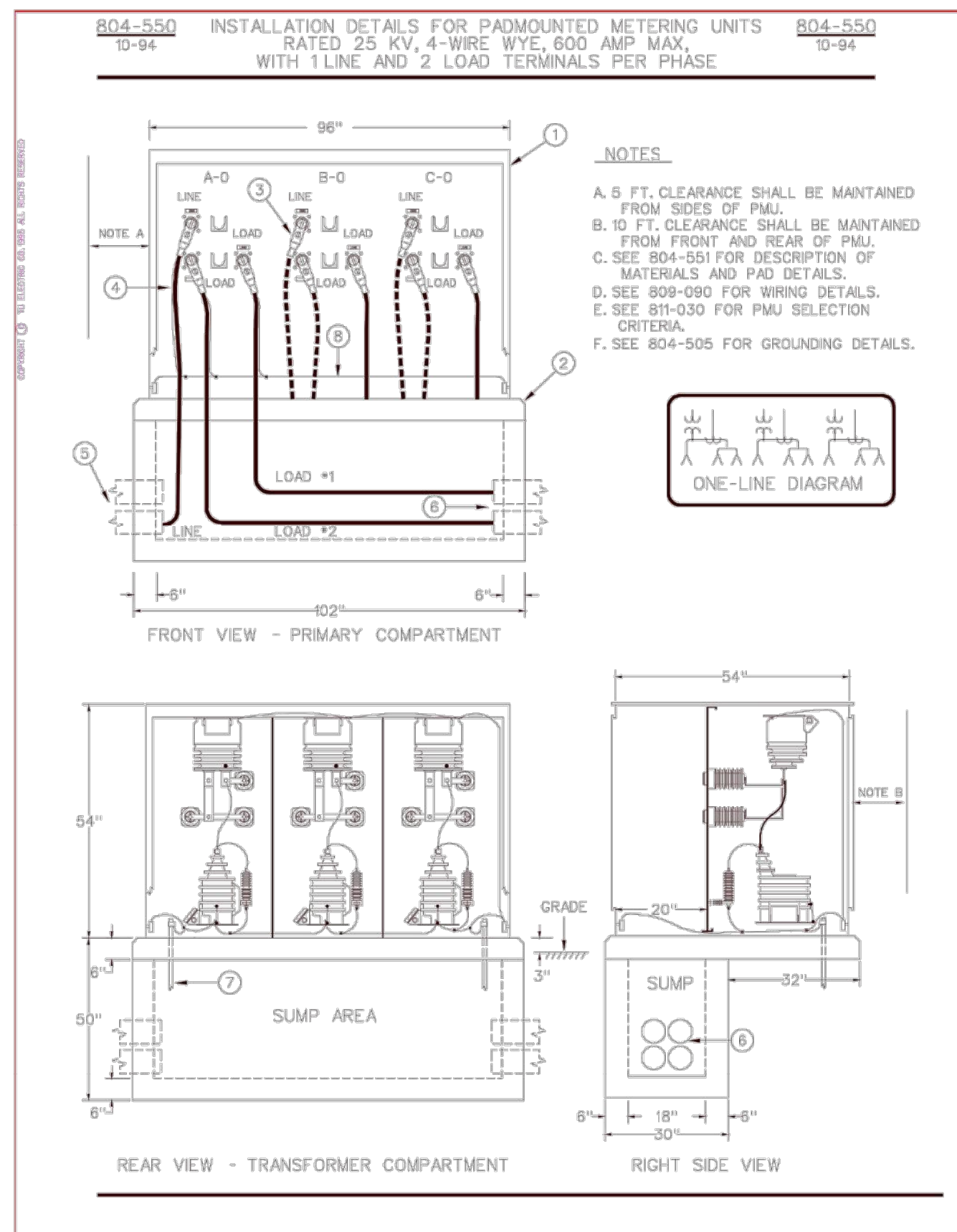
KHA PROJECT	068932900
DATE	MARCH 2023
SCALE	AS SHOWN
DESIGNED BY:	CDH
DRAWN BY:	AC
CHECKED BY:	CDH

**CONSTRUCTION DETAILS**

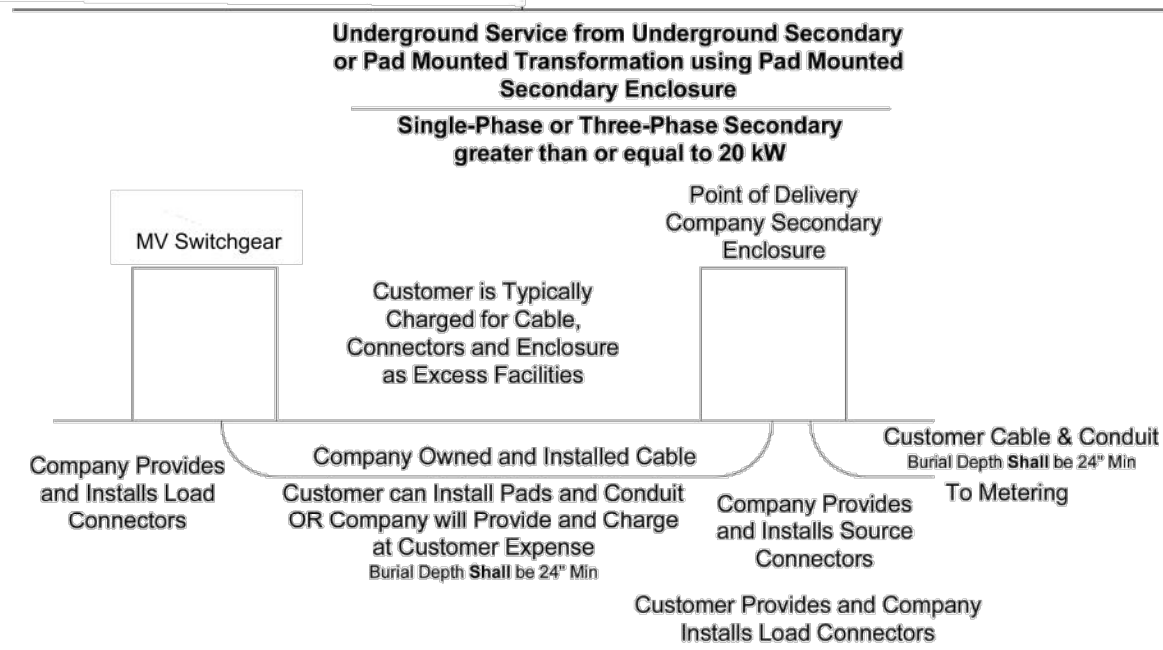
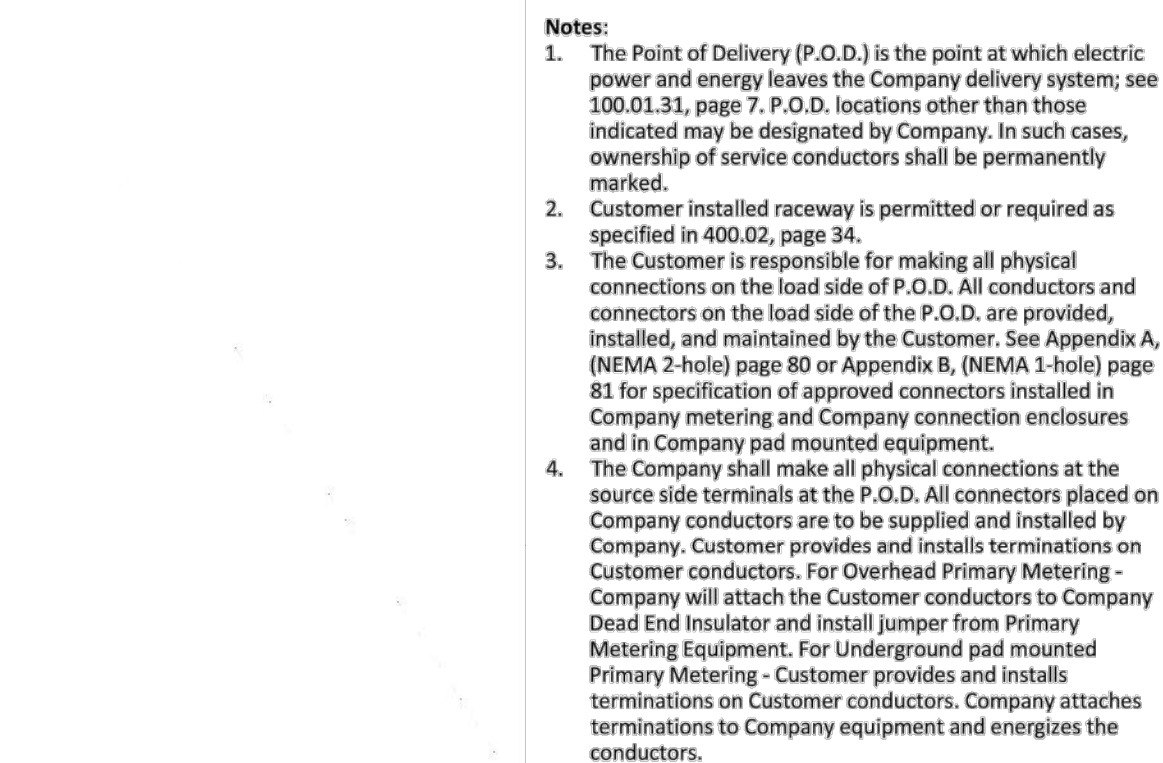
**RAVENVOLT BESS COPPELL**  
 CITY OF COPPELL  
 DALLAS COUNTY, TEXAS

Plotted By: Casillas, Armando Date: March 07, 2023 08:56:11am File Path: K:\DAL\_CIVIL\068932900-RavenVot\_BEES Coppel\Cad\PlanSheets\C-Standards Details.dwg  
 This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

DocuSign Envelope ID: BA769243-CF11-4805-A463-A6E3E486F5E



**COMPANY - CUSTOMER RESPONSIBILITY**  
**SINGLE METER LOCATIONS - UNDERGROUND SERVICE FROM UNDERGROUND SECONDARY OR PAD MOUNTED TRANSFORMATION**



Copyright 2021 Oncor Electric Delivery Company. All rights reserved. Page 49



This document has been electronically signed and sealed by Eduardo Arbalaz-Reyes, PE on the date and time shown on the signature using a SHA authentication code. Printed copies of this document are not considered signed and sealed, and the SHA authentication code must be verified on any electronic copies.

**PERMITTING**



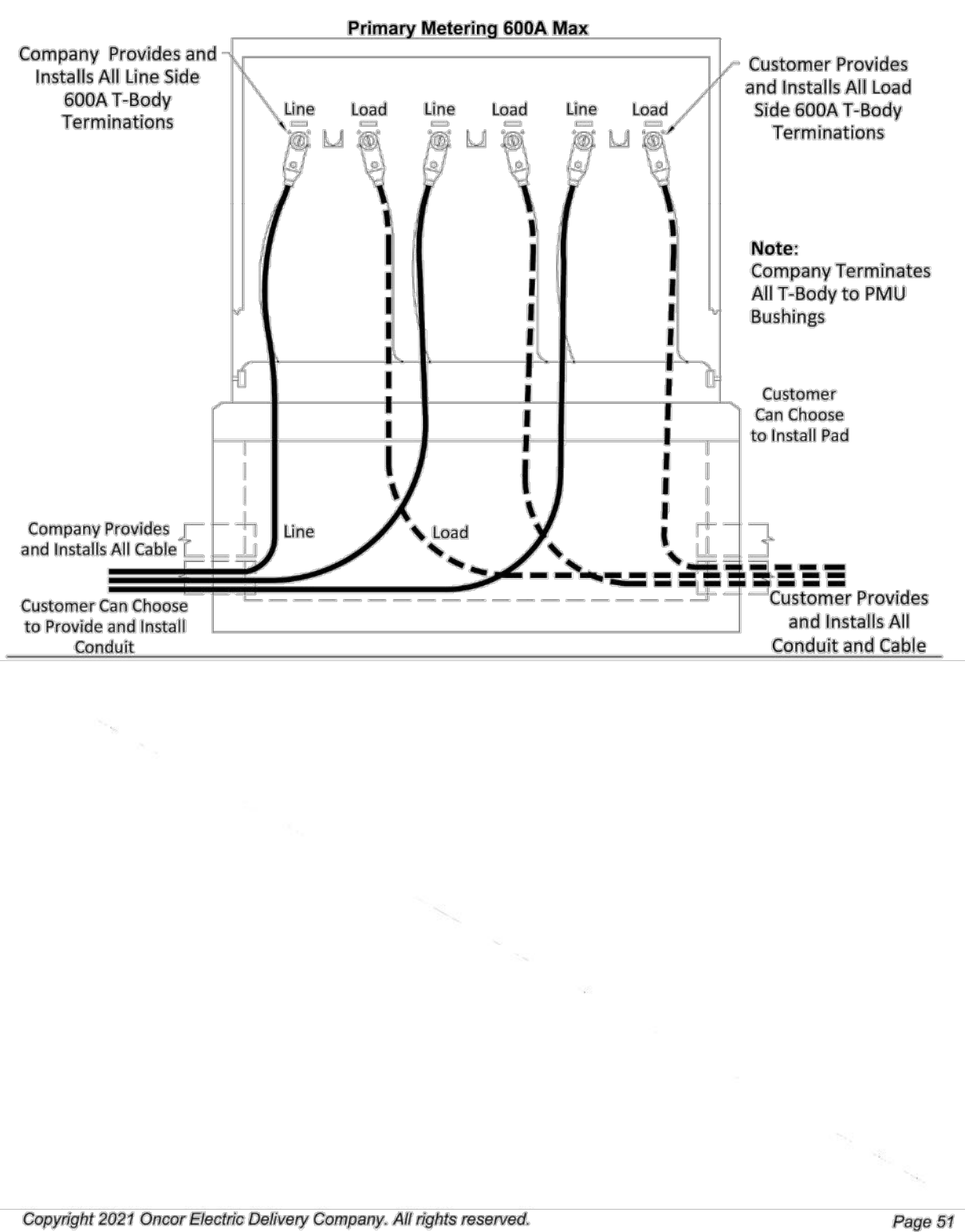
SYSTEM SIZE: 10MW/10MWhr  
 UTILITY VOLTAGE: 24.9 kV  
 BUILDING NAME: PARK 121 BLDG 4  
 PROJECT SITE: 360 N FREEPORT PKWY COPPELL, TX 75019-3801

DESIGNED BY: RAVENVOLT  
 DRAWN BY: JBM  
 PROJECT MANAGER: DYLAN JACKSON  
 ELECTRIC UTILITY: ONCOR  
 AHJ: CITY OF COPPELL

REV	REVISION DESCRIPTION	DATE
0	PERMITTING	02/22/2023

SHEET TITLE: UTILITY SCOPE INTERCONNECT DESIGN  
 DRAWING NUMBER: E8  
 THIS DRAWING IS 24" X 36" AT FULL SIZE  
 SITE ID: DAL 05406

**COMPANY - CUSTOMER RESPONSIBILITY**  
**SINGLE METER LOCATIONS - OVERHEAD AND UNDERGROUND PRIMARY VOLTAGE SERVICE**



NO.	REVISIONS	DATE	BY

**Kimley»Horn**  
 © 2023 KIMLEY-HORN AND ASSOCIATES, INC.  
 13455 NOEL ROAD, SUITE 700, DALLAS, TX 75240  
 PHONE: 972-770-1300 FAX: 972-239-3820  
 WWW.KIMLEY-HORN.COM  
 TEXAS REGISTERED ENGINEERING FIRM F-928

FOR REVIEW ONLY  
 Not for construction or permit purposes.  
**Kimley»Horn**  
 Prepared: CHRISTOPHER HERNANDEZ  
 P.E. No. 132280 Date: 03/07/2023

KHA PROJECT	068932900
DATE	MARCH 2023
SCALE	AS SHOWN
DESIGNED BY:	CDH
DRAWN BY:	AC
CHECKED BY:	CDH

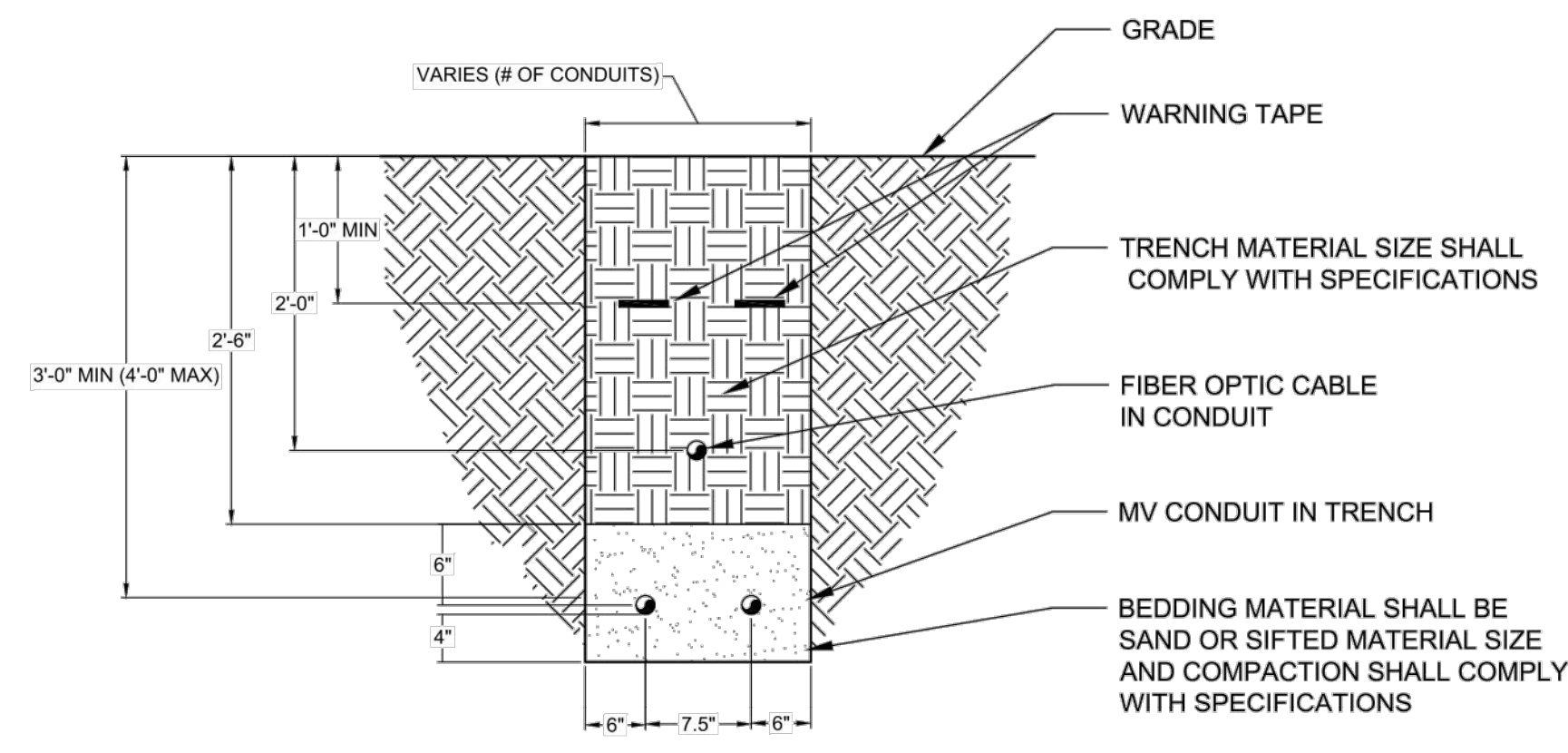
**CONSTRUCTION DETAILS**

**RAVENVOLT BESS**  
**COPPELL**  
 CITY OF COPPELL  
 DALLAS COUNTY, TEXAS

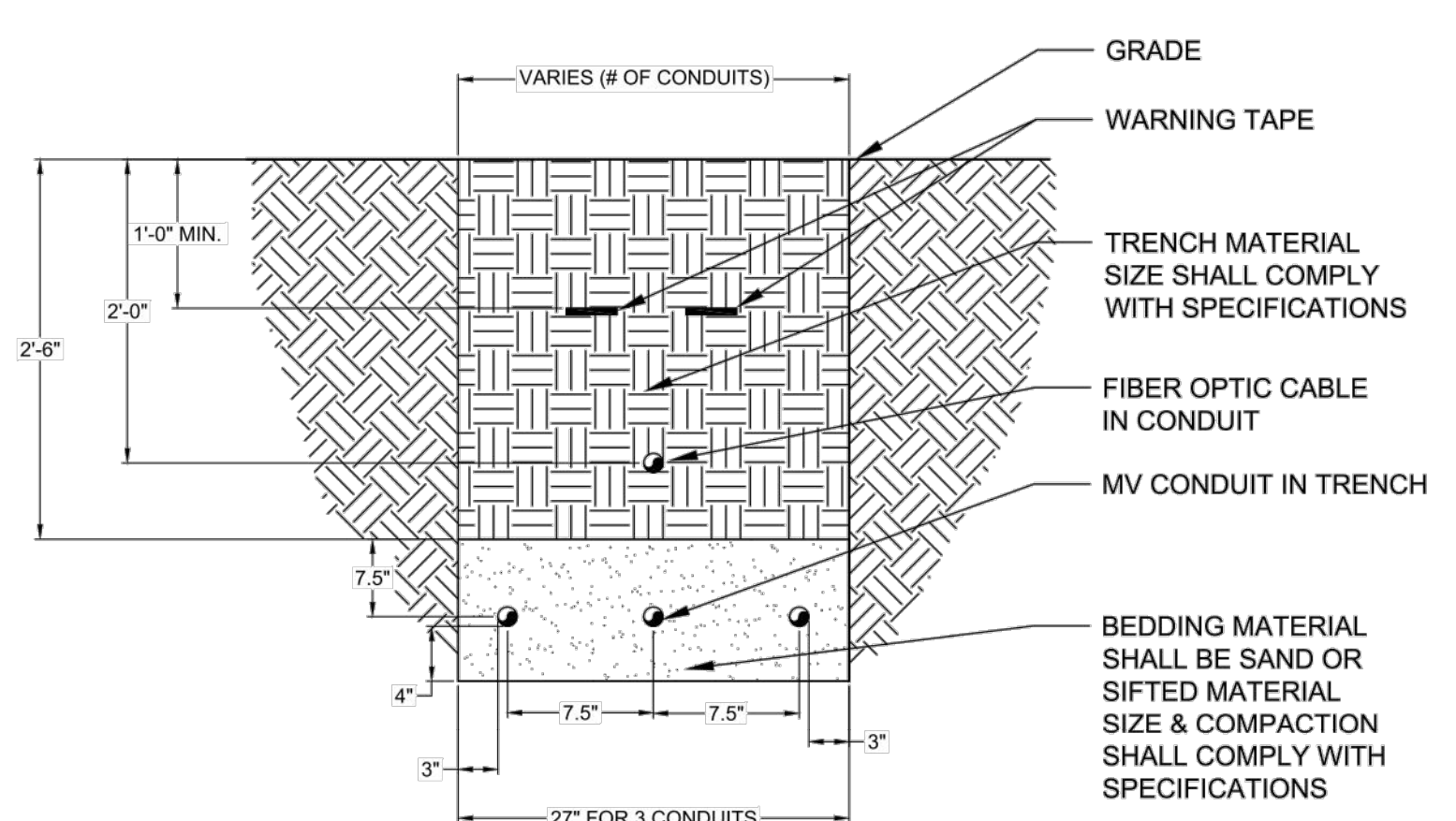
SHEET NUMBER  
**C-07**

Plotted By: Castillo, Armando Date: March 07, 2023 08:56:16am File Path: \\DAL\_CVA\068932900-RavenVolt\_BESS\_Coppell\Cad\PlanSheets\C-Standard\_Details.dwg  
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

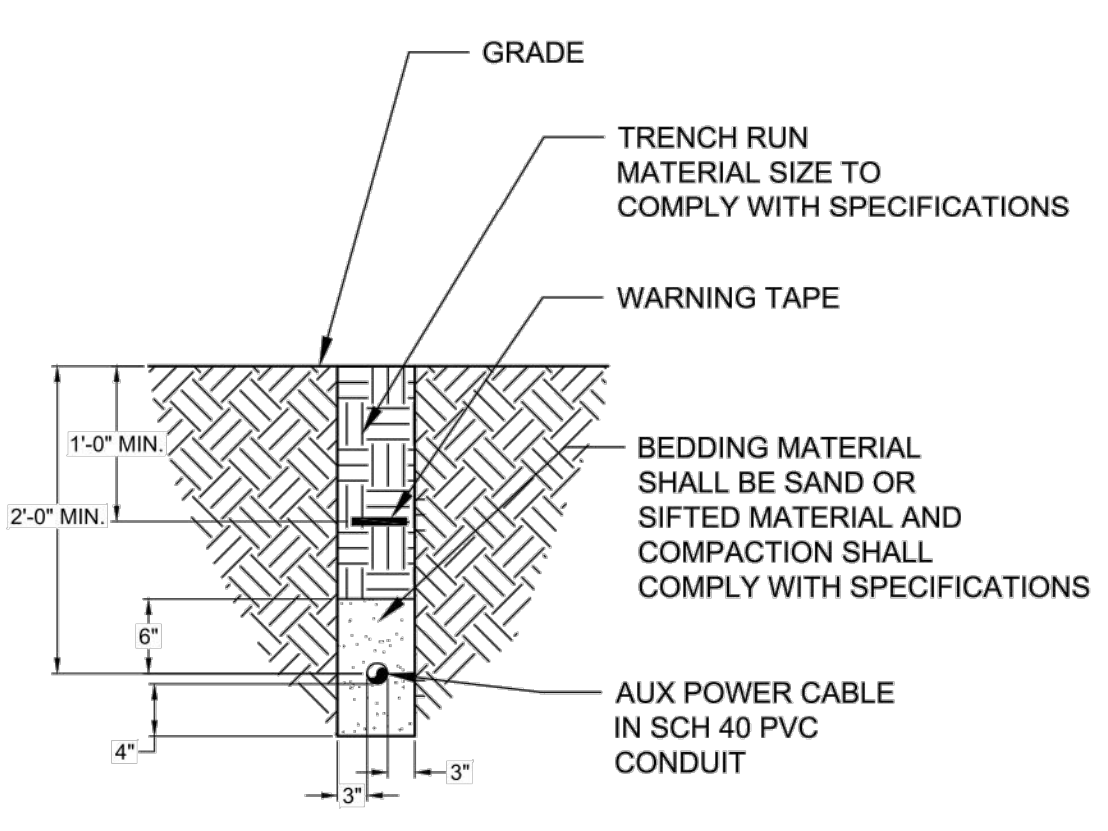
DocuSign Envelope ID: BA769243-CF11-4805-A463-A6E3E4866F5E



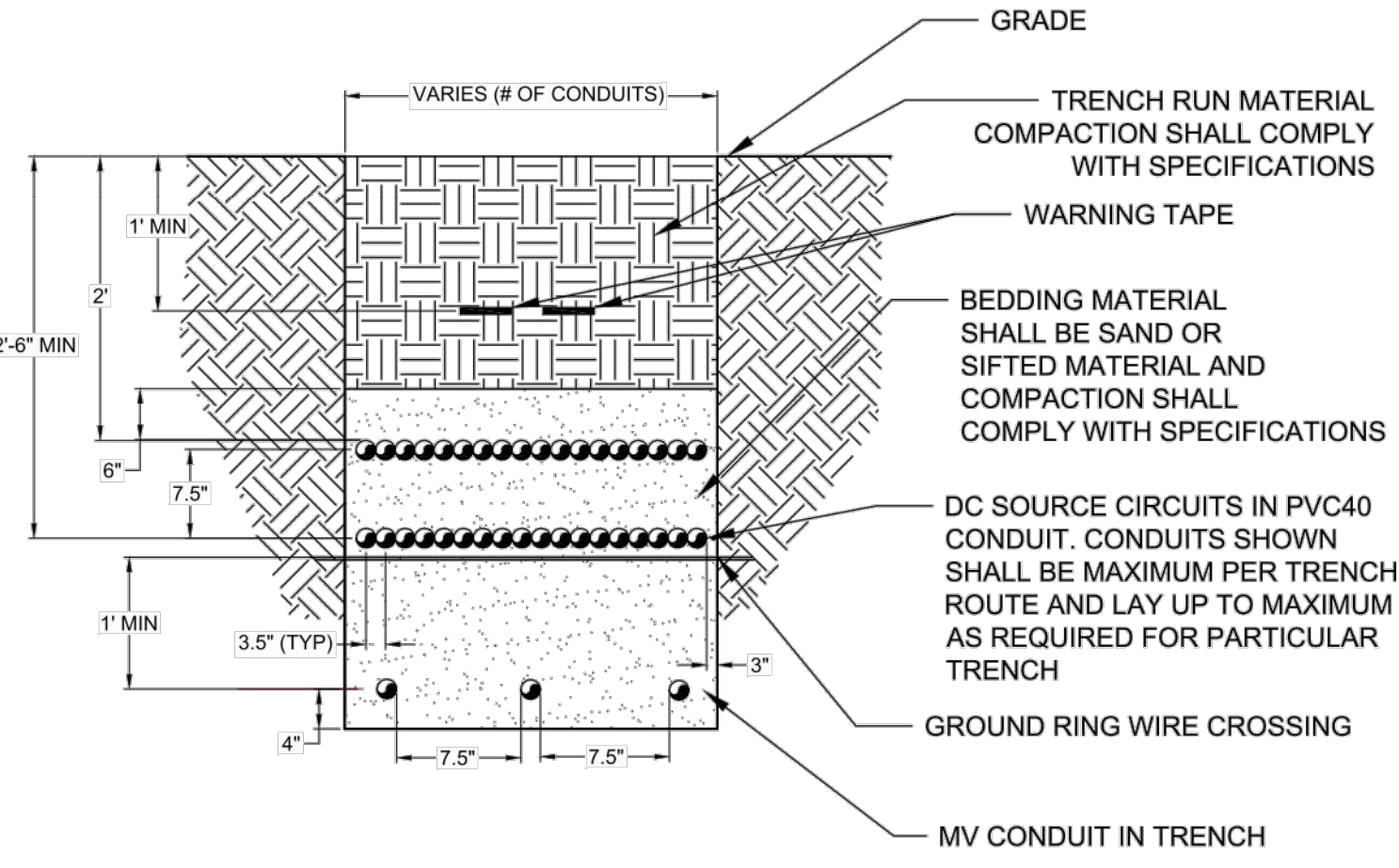
1  
RANDOM LAY MV/FO CABLES (DUAL CIRCUIT)  
SCALE: NTS  
E9



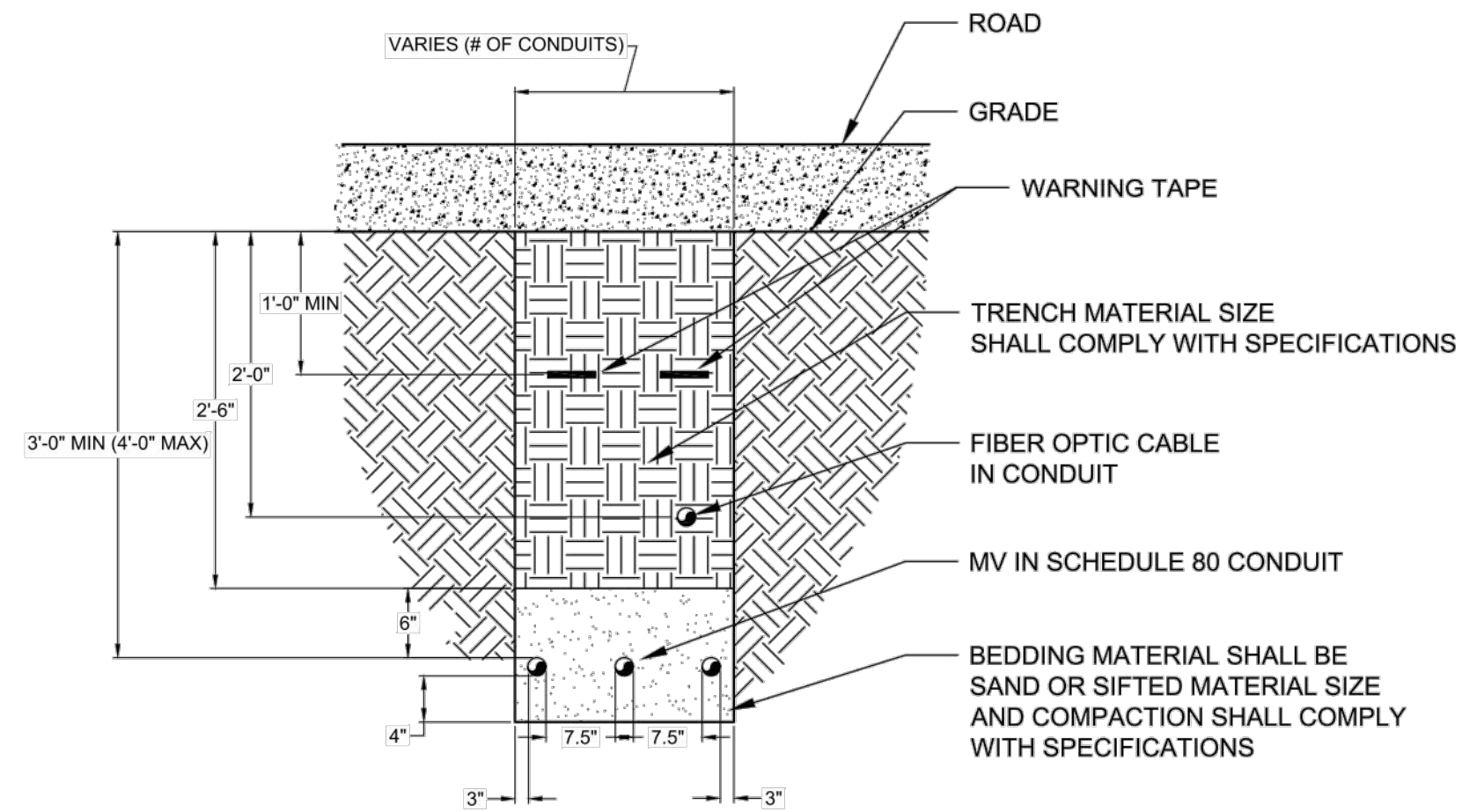
2  
RANDOM LAY MV/FO CABLES (TRIPLE CIRCUIT)  
SCALE: NTS  
E9



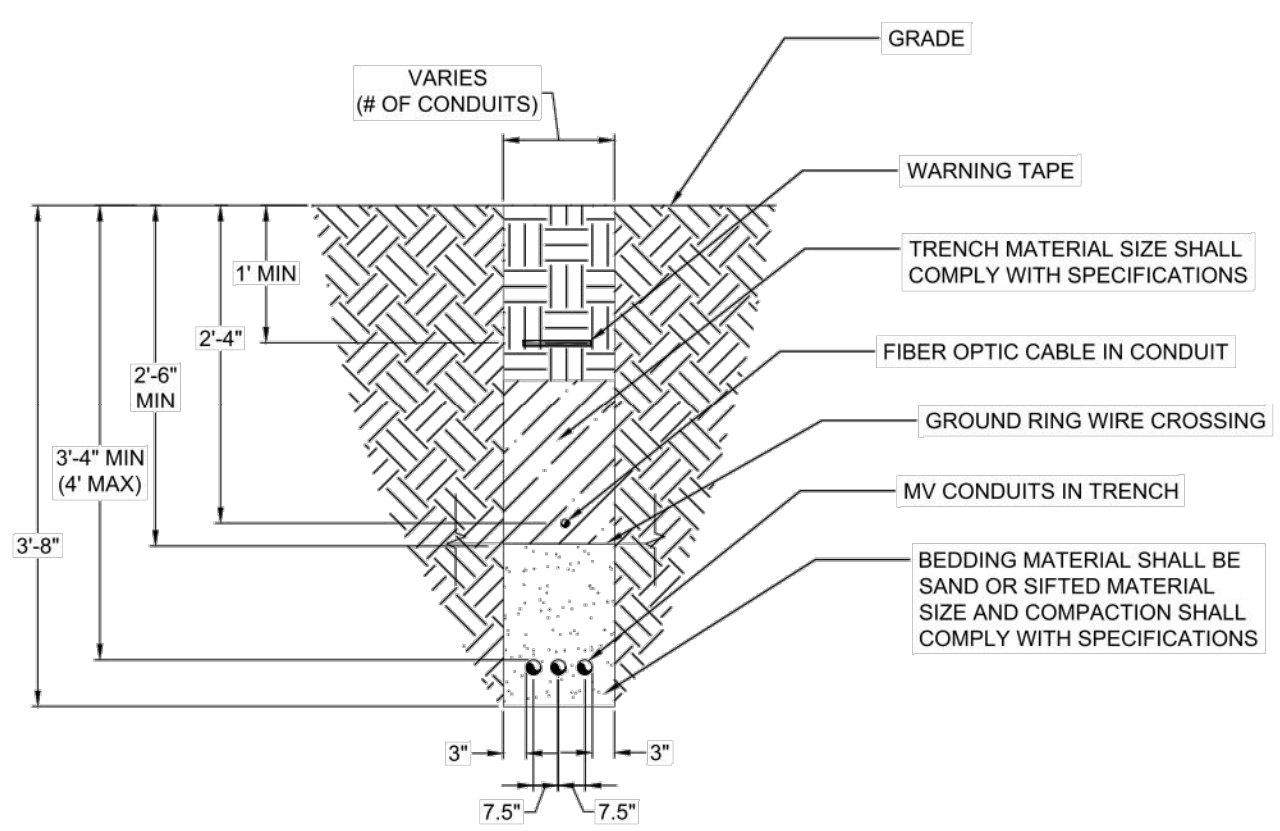
3  
AUX POWER CABLE TRENCH  
SCALE: NTS  
E9



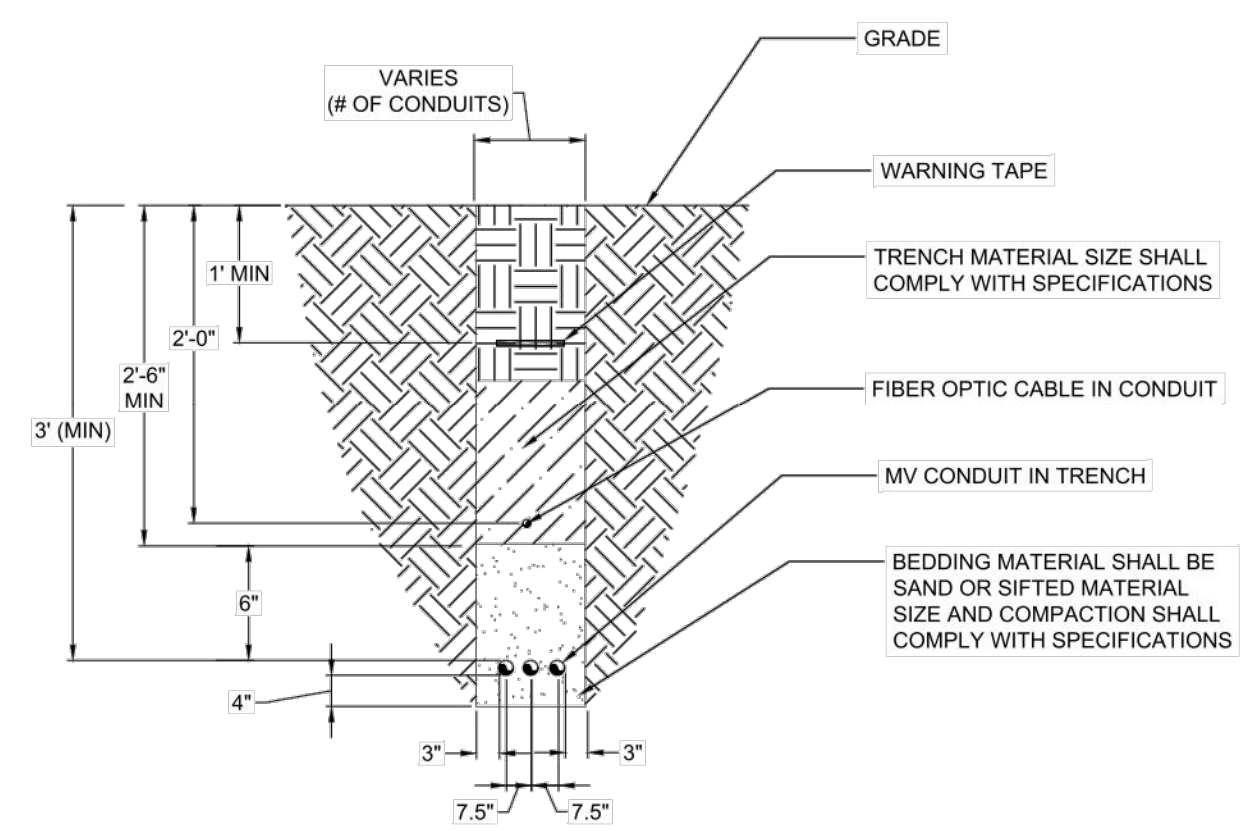
4  
MV AND DC CIRCUIT TRENCH  
SCALE: NTS  
E9



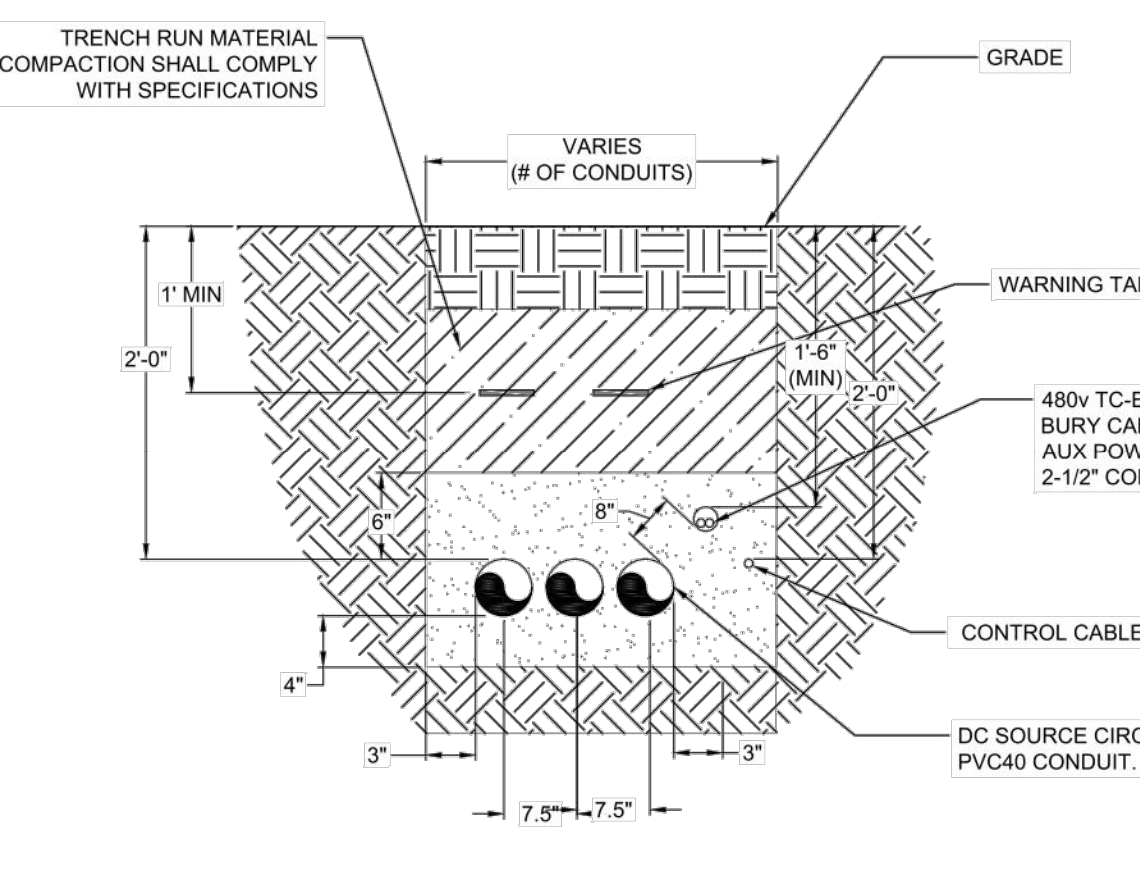
5  
ROAD CROSSING MV/FO CABLES (SINGLE CIRCUIT)  
SCALE: NTS  
E9



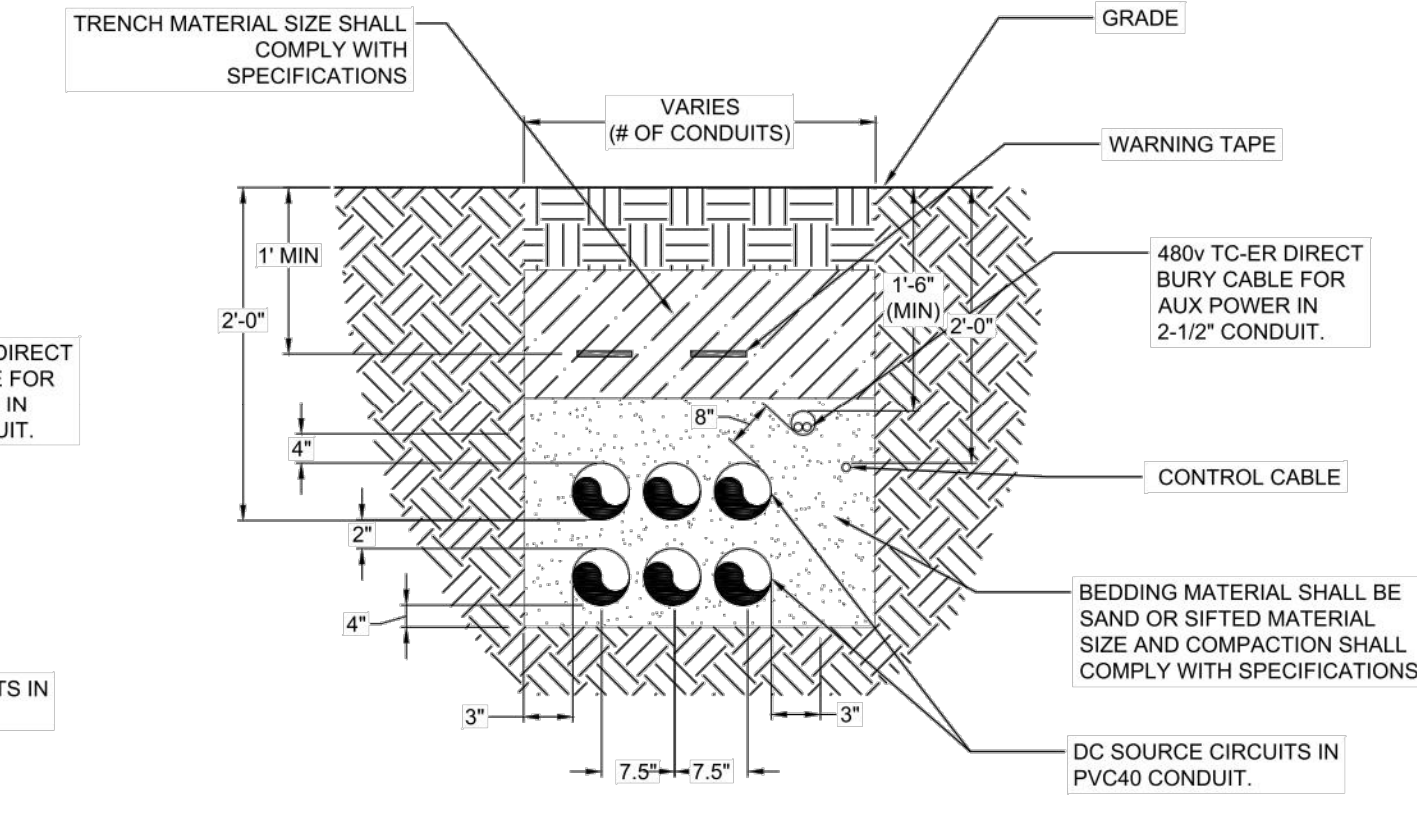
6  
MV / FO CROSSING GROUND RING  
SCALE: NTS  
E9



7  
RANDOM LAY MV / FO CABLES  
SCALE: NTS  
E9



8  
DC CIRCUIT TRENCH  
SCALE: NTS  
E9



9  
DC CIRCUIT & INTER ROW CONDUIT TRENCH  
SCALE: NTS  
E9

**LEGEND:**

TYPE 1: INITIAL FILL PER SPEC TO BE PROVIDED

TYPE 2: FINAL FILL PER SPEC TO BE PROVIDED (ONLY 12\"/>

NOTE: OTHER BACKFILL IS PERMISSIBLE IF APPROVED BY OWNER. BOTTOM OF TRENCH CAN BE SCARIFIED IN LIEU OF BEDDING IF APPROVED BY OWNER.

- TRENCHING NOTES:**
- BACKFILL MATERIAL SHALL BE PER SPECIFICATIONS.
  - THE DISTANCE BETWEEN EDGE OF TRENCH AND RACKING SUPPORT PILE SHALL BE 3' OR PER RACKING MANUFACTURER SPECIFICATIONS, WHICHEVER IS GREATER.
  - 12" MIN. CLEARANCE SHALL BE MAINTAINED BETWEEN POWER AND CONTROL / COMMUNICATION WIRING.
  - NECESSARY COMPACTION OF TRENCHING SHALL OCCUR AFTER A MAXIMUM OF BACKFILL (TYPICALLY 8"-12") HAS BEEN APPLIED AND SHALL BE COMPACTED AND TESTED PER GEOTECH REQUIREMENTS.
  - THE NUMBER OF CABLES/CONDUITS SHOWN IS REPRESENTATIVE AND MAY VARY PER THE SITE TRENCHING PLAN.
  - EDGE OF TRENCH SHALL BE MIN. OF 36" OFF THE EDGE OF ANY PAD UNLESS APPROVED BY E.O.R.
  - FOR BURIAL DEPTH UNDER ACCESS ROADWAYS, CONDUIT SHALL BE SCHEDULE 80 PVC AND EXTEND 6' PAST EDGE OF ROADWAY.
  - SOIL COMPACTION AND MATERIAL SIZE SHALL COMPLY WITH SPECIFICATIONS.
  - TRENCH BACKFILL MATERIAL REQUIREMENTS (SEE SPECIFICATION FOR FULL DESCRIPTION):
    - INITIAL BACKFILL: PLACE AND COMPACT INITIAL BACKFILL FREE OF ANY ANGULAR PARTICLES OF ANY SIZE, ORGANIC OR DELETERIOUS MATERIALS, AND ANY NON-ANGULAR PARTICLES LARGER THAN 3/4-INCH IN ANY DIMENSION FOR UNDERGROUND CONDUIT AND 1/2-INCH IN ANY DIMENSION FOR DIRECT BURIED CONDUCTORS, TO A HEIGHT OF 12-INCHES OVER THE CONDUIT OR CONDUCTORS
    - FINAL BACKFILL: PLACE AND COMPACT FINAL BACKFILL FREE OF ORGANIC OR DELETERIOUS MATERIALS, AND OF ANY PARTICLES LARGER THAN 1" TO FINAL SUBGRADE ELEVATION.
  - TRENCH COMPACTION REQUIREMENTS: (SEE SPECIFICATION FOR FULL DESCRIPTION):
    - COMPACT SOIL MATERIALS TO BE NOT LESS THAN THE PERCENTAGE OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO STANDARD PROCTOR.
    - FOR UTILITY TRENCHES, COMPACT EACH LAYER OF INITIAL AND FINAL BACKFILL SOIL MATERIAL AT 85%.
  - WARNING TAPE SHALL BE METAL DETECTABLE AND MIN. 6" WIDTH (SEE SPECIFICATIONS FOR FULL DESCRIPTION).
  - HANDHOLES SHALL BE PROVIDED BY CONTRACTOR. QUANTITY, SIZE AND LOCATION SHALL BE DETERMINED BY CONTRACTOR PER NEC REQUIREMENTS, VENDOR SPECIFICATIONS, AND BEST PRACTICES.



This document has been electronically signed and sealed by Eduardo Reyes Hidalgo, PE on the date and time shown on the signature using a SHA authentication code. Printed copies of this document are not considered signed and sealed, and the SHA authentication code must be verified on any electronic copies.

**PERMITTING**



SYSTEM SIZE: 10MW/10MWhr  
 UTILITY VOLTAGE: 24.9 kV  
 BUILDING NAME: PARK 121 BLDG 4  
 PROJECT SITE: 360 N FREEPORT PKWY COPPELL, TX 75019-3801

DESIGNED BY: RAVENVOLT  
 DRAWN BY: JBM  
 PROJECT MANAGER: DYLAN JACKSON  
 ELECTRIC UTILITY: ONCOR  
 AHJ: CITY OF COPPELL

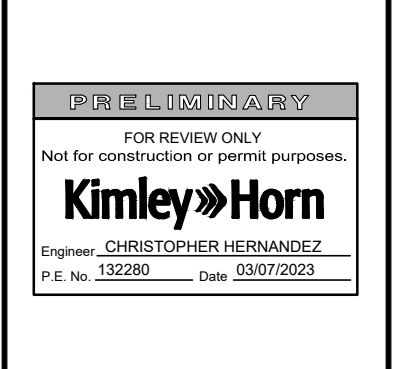
REVIEWED BY: ERH  
 ASSISTED BY: JMH

REVISION HISTORY		
REV	REVISION DESCRIPTION	DATE
0	PERMITTING	02/22/2023

SHEET TITLE: ELECTRICAL CONSTRUCTION DETAILS I  
 DRAWING NUMBER: E9  
 THIS DRAWING IS 24" X 36" AT FULL SIZE  
 SITE ID: DAL 05406

NO.	REVISIONS	DATE	BY

**Kimley»Horn**  
 © 2023 KIMLEY-HORN AND ASSOCIATES, INC.  
 13455 NOEL ROAD, SUITE 700, DALLAS, TX 75240  
 PHONE: 972-770-1300 FAX: 972-239-3820  
 WWW.KIMLEY-HORN.COM  
 TEXAS REGISTERED ENGINEERING FIRM F-928



KHA PROJECT	068932900
DATE	MARCH 2023
SCALE	AS SHOWN
DESIGNED BY:	CDH
DRAWN BY:	AC
CHECKED BY:	CDH

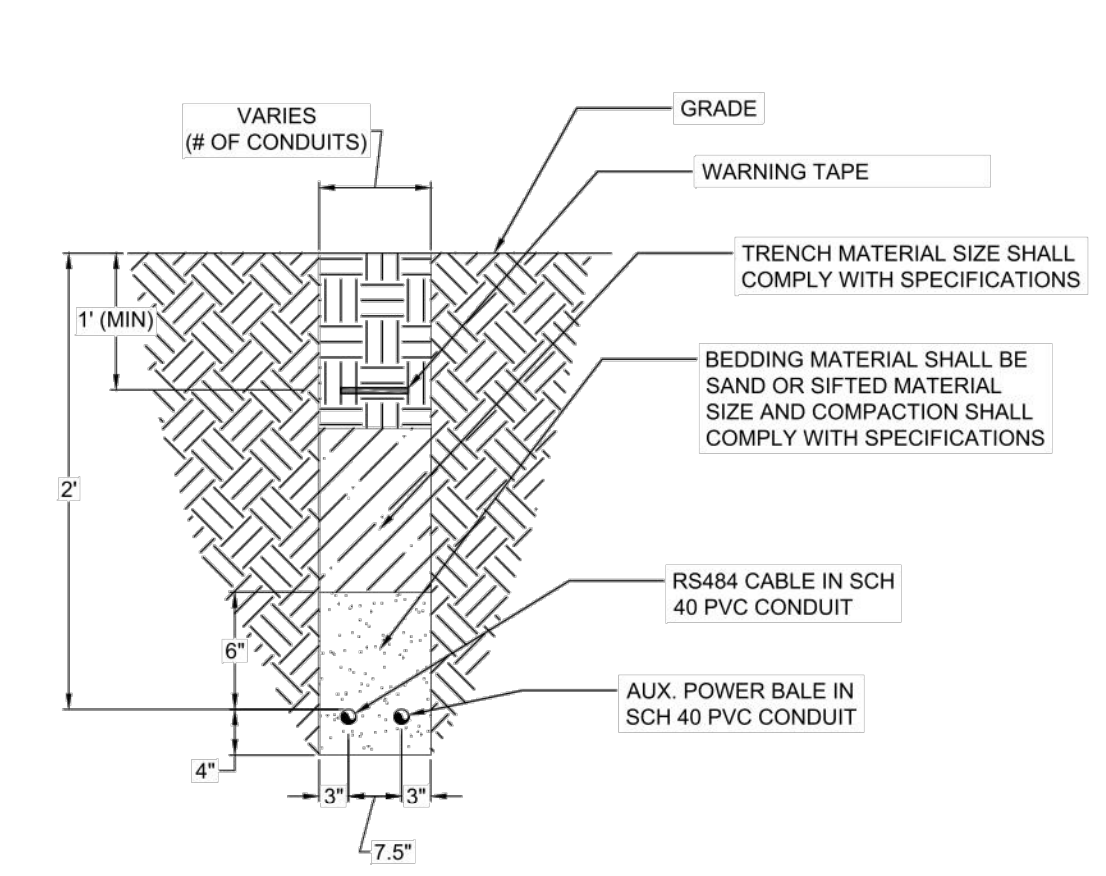
**CONSTRUCTION DETAILS**

**RAVENVOLT BESS COPPELL**  
 CITY OF COPPELL  
 DALLAS COUNTY, TEXAS

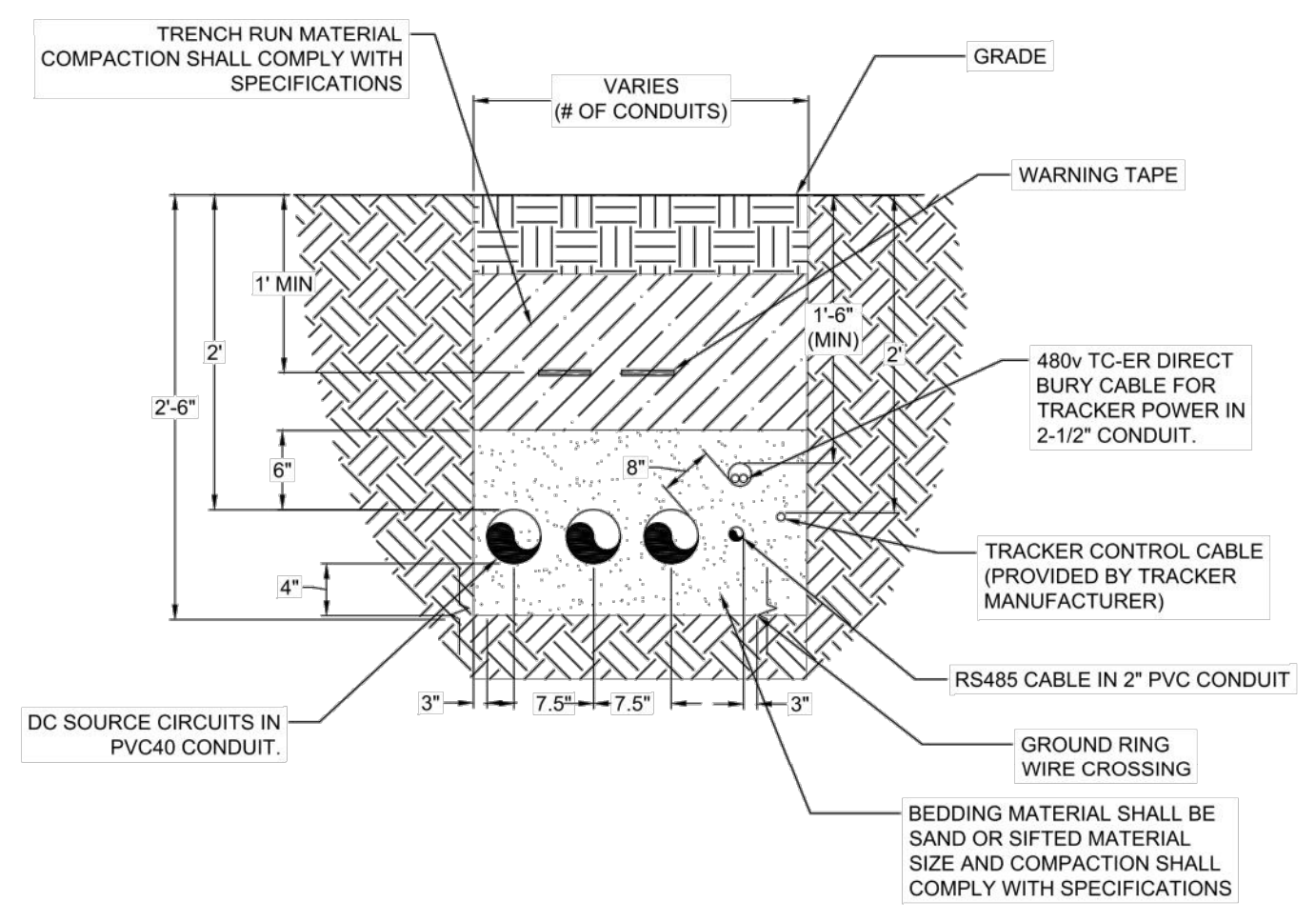
SHEET NUMBER  
**C-08**

Plotted By: Castillo, Armando Date: March 07, 2023 08:56:19am File Path: \\DAL\_CVA\068932900-RavenVot\_BESS\_Coppel\Cad\PlanSheets\C-Standart Details.dwg  
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

DocuSign Envelope ID: BA769243-CF11-4805-A463-A6E3E486F5E



RS485 AND AUX POWER CABLE TRENCH  
SCALE: NTS  
E9.1



DC CIRCUIT CROSSING GROUND RING  
SCALE: NTS  
E9.1

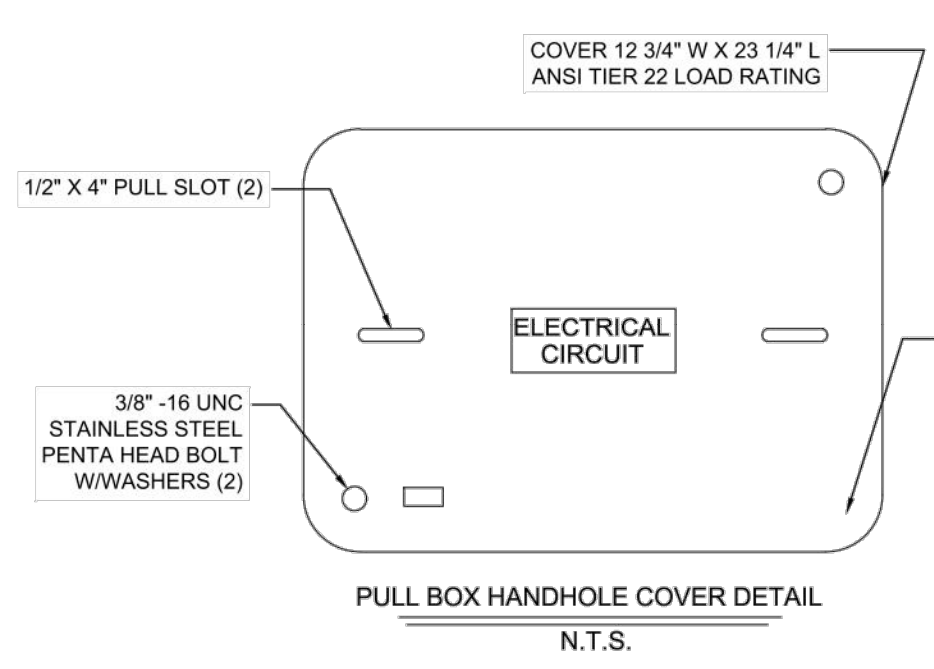
**LEGEND:**

TYPE 1: INITIAL FILL PER SPEC TO BE PROVIDED

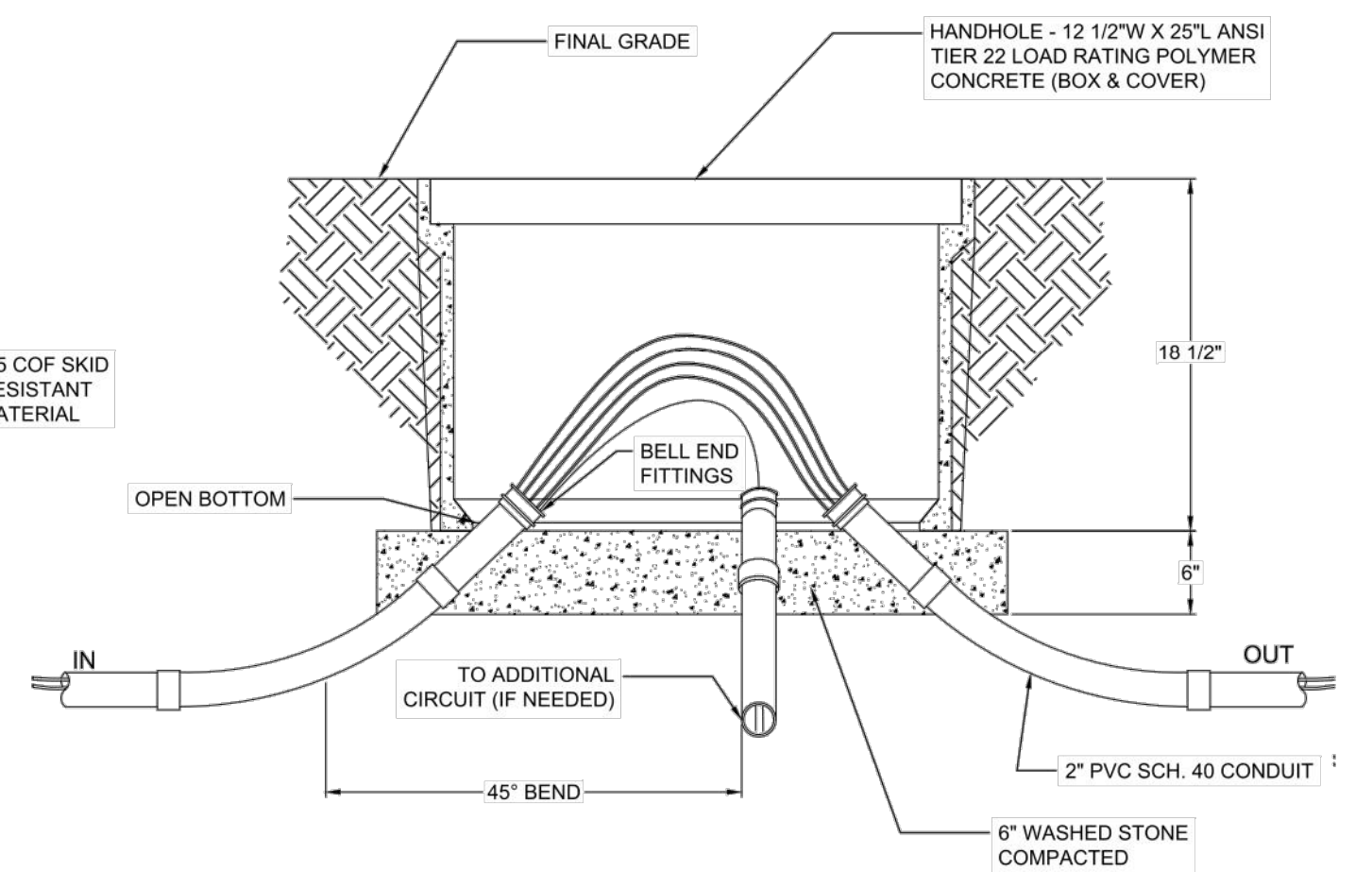
TYPE 2: FINAL FILL PER SPEC TO BE PROVIDED (ONLY 12" BELOW GRADE AND ABOVE)

NOTE: OTHER BACKFILL IS PERMISSIBLE IF APPROVED BY OWNER. BOTTOM OF TRENCH CAN BE SCARIFIED IN LIEU OF BEDDING IF APPROVED BY OWNER.

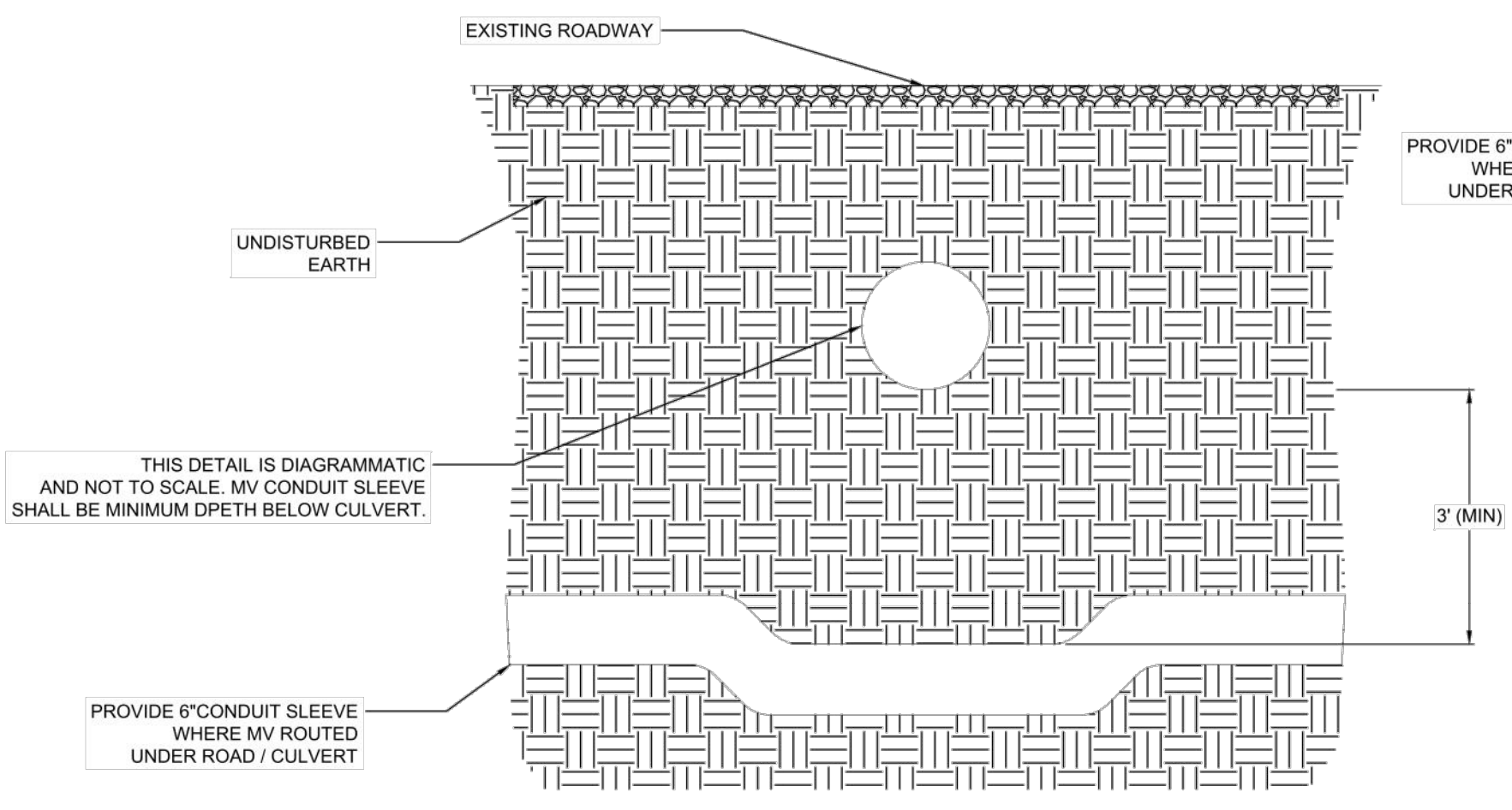
- TRENCHING NOTES:**
- BACKFILL MATERIAL SHALL BE PER SPECIFICATION.
  - THE DISTANCE BETWEEN EDGE OF TRENCH AND RACKING SUPPORT PILE SHALL BE 3' OR PER RACKING MANUFACTURER SPECIFICATIONS, WHICHEVER IS GREATER.
  - 12" MIN. CLEARANCE SHALL BE MAINTAINED BETWEEN POWER AND CONTROL / COMMUNICATION WIRING.
  - NECESSARY COMPACTION OF TRENCHING SHALL OCCUR AFTER A MAXIMUM OF BACKFILL (TYPICALLY 8"-12") HAS BEEN APPLIED AND SHALL BE COMPACTED AND TESTED PER GEOTECH REQUIREMENTS.
  - THE NUMBER OF CABLES/CONDUITS SHOWN IS REPRESENTATIVE AND MAY VARY PER THE SITE TRENCHING PLAN.
  - EDGE OF TRENCH SHALL BE MIN. OF 36" OFF THE EDGE OF ANY PAD UNLESS APPROVED BY E.O.R.
  - SEE GEOTECH REPORT FOR BURIAL DEPTH UNDER ACCESS ROADWAYS. CONDUIT SHALL BE SCHEDULE 80 PVC AND EXTEND 6' PAST EDGE OF ROADWAY.
  - SOIL COMPACTION AND MATERIAL SIZE SHALL COMPLY WITH SPECIFICATIONS.
  - TRENCH BACKFILL MATERIAL REQUIREMENTS (SEE SPECIFICATION FOR FULL DESCRIPTION):
    - INITIAL BACKFILL: PLACE AND COMPACT INITIAL BACKFILL FREE OF ANY ANGULAR PARTICLES OF ANY SIZE, ORGANIC OR DELETERIOUS MATERIALS, AND ANY NON-ANGULAR PARTICLES LARGER THAN 3/4-INCH IN ANY DIMENSION FOR UNDERGROUND CONDUIT AND 1/2-INCH IN ANY DIMENSION FOR DIRECT BURIED CONDUCTORS, TO A HEIGHT OF 12-INCHES OVER THE CONDUIT OR CONDUCTORS
    - FINAL BACKFILL: PLACE AND COMPACT FINAL BACKFILL FREE OF ORGANIC OR DELETERIOUS MATERIALS, AND OF ANY PARTICLES LARGER THAN 1" TO FINAL SUBGRADE ELEVATION.
  - TRENCH COMPACTION REQUIREMENTS: (SEE SPECIFICATION FOR FULL DESCRIPTION):
    - COMPACT SOIL MATERIALS TO BE NOT LESS THAN THE PERCENTAGE OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO STANDARD PROCTOR.
    - FOR UTILITY TRENCHES, COMPACT EACH LAYER OF INITIAL AND FINAL BACKFILL SOIL MATERIAL AT 85%.
  - WARNING TAPE SHALL BE METAL DETECTABLE AND MIN. 6" WIDTH (SEE SPECIFICATIONS FOR FULL DESCRIPTION).
  - HANDHOLES SHALL BE PROVIDED BY CONTRACTOR. QUANTITY, SIZE AND LOCATION SHALL BE DETERMINED BY CONTRACTOR PER NEC REQUIREMENTS, VENDOR SPECIFICATIONS, AND BEST PRACTICES.



PULL BOX HANDHOLE DETAIL (AS NEEDED)  
SCALE: NTS  
E9.1

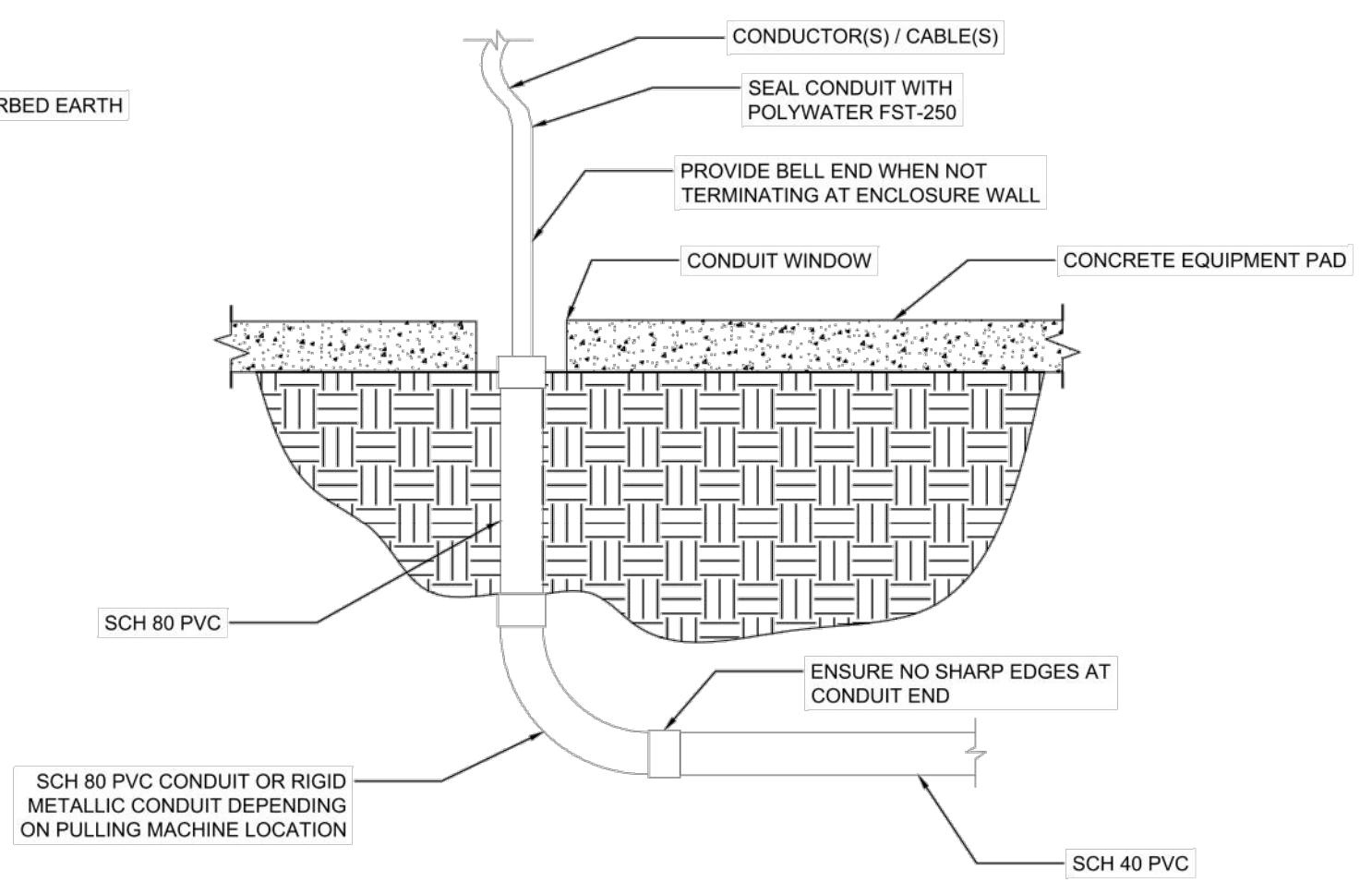


MV WHERE CROSSES ACCESS ROAD  
SCALE: NTS  
E9.1



NOTE: CONDUIT SLEEVE LOCATION WHERE ABOVE OR UNDER CULVERT TO BE FIELD DETERMINED. THIS DETAIL IS DIAGRAMMATIC AND SHOWS MINIMUM DISTANCE FROM CULVERT EITHER ABOVE OR BELOW AS MINIMUM.

MV AND CULVERT AT ROAD  
SCALE: NTS  
E9.1



TYPICAL EQUIPMENT PAD CONDUIT STUB-UP  
SCALE: NTS  
E9.1



This document has been electronically signed and sealed by Eduardo Reyes Hidalgo, PE on the date and time shown on the signature using a SHA authentication code. Printed copies of this document are not considered signed and sealed, and the SHA authentication code must be verified on any electronic copies.

PERMITTING



SYSTEM SIZE: 10MW/10MWhr  
UTILITY VOLTAGE: 24.9 kV  
BUILDING NAME: PARK 121 BLDG 4  
PROJECT SITE: 360 N FREEPORT PKWY COPPELL, TX 75019-3801

DESIGNED BY: RAVENVOLT  
DRAWN BY: JBM  
PROJECT MANAGER: DYLAN JACKSON  
ELECTRIC UTILITY: ONCOR  
AHJ: CITY OF COPPELL

REV	REVISION DESCRIPTION	DATE
0	PERMITTING	02/22/2023

SHEET TITLE: ELECTRICAL CONSTRUCTION DETAILS II  
DRAWING NUMBER: E9.1  
THIS DRAWING IS 24" X 36" AT FULL SIZE  
SITE ID: DAL 05406

NO.	REVISIONS	DATE	BY

**Kimley»Horn**

© 2023 KIMLEY-HORN AND ASSOCIATES, INC.  
13455 NOEL ROAD, SUITE 700, DALLAS, TX 75240  
PHONE: 972-770-1300 FAX: 972-239-3820  
WWW.KIMLEY-HORN.COM  
TEXAS REGISTERED ENGINEERING FIRM E-928

FOR REVIEW ONLY  
Not for construction or permit purposes.  
**Kimley»Horn**  
Professional Engineer  
Eduardo Reyes Hidalgo  
P.E. No. 132280 Date: 03/07/2023

KHA PROJECT: 068932900	DATE: MARCH 2023
SCALE: AS SHOWN	DESIGNED BY: CDH
DRAWN BY: AC	CHECKED BY: CDH

CONSTRUCTION DETAILS

RAVENVOLT BESS  
COPPELL  
CITY OF COPPELL  
DALLAS COUNTY, TEXAS

SHEET NUMBER  
C-09

Plotted By: Castillo, Armando Date: March 07, 2023 08:56:38am File Path: K:\DAL\_Civil\068932900--RavenVOLT BESS Coppel\Cad\PlanSheets\C--Standard Details(2).dwg  
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

PRELIMINARY



- HIGHLIGHT**
- Low Capex
  - Plug and Play
  - Low Field Labor Cost
  - Pre-Populated with Batteries
  - Flexible Deployment According to The Site Layout

## Golden Sigma

Outdoor Liquid-Cooling Cabinet BESS

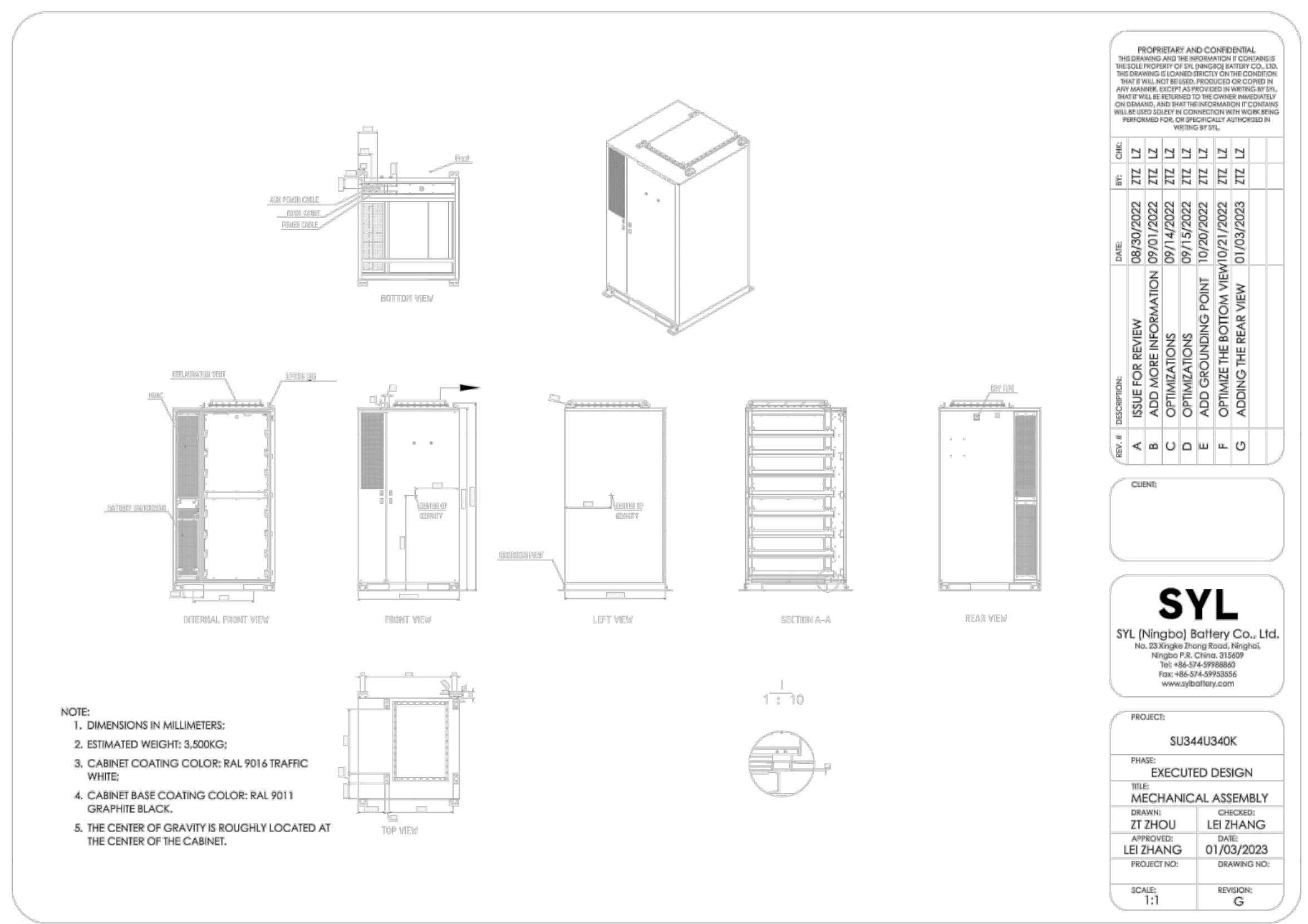
### Technical Specification

Item	Specification
System Model	SU344U170K   <b>SU344U340K</b>
<b>System Information</b>	
Nominal Power	172kW   344kW
Nameplate Capacity	344kWh
<b>Battery Information</b>	
Battery Chemistry	LFP
Capacity	280Ah
Configuration	384S1P
Nominal Voltage	1228.8V
Voltage Range	1075.2-1382.4V
<b>Working Conditions</b>	
Degree of Protection	NEMA 3R / IP54
Noise Emission	< 65dB @1M
Operating Temperature Range	-22°F ~ 113°F / -30°C ~ 45°C
Relative Humidity	0~95% (Non-Condensing)
Max. Working Altitude	6,500/2,000m
<b>System Information</b>	
Dimensions(W×H×D)	1,300×2,335×1,400
Weight	5,500kg
Cooling	HVAC
Fire Suppression System	Aerosol
Certificate	IEC62619, UL1973, UL9540A (Pending)

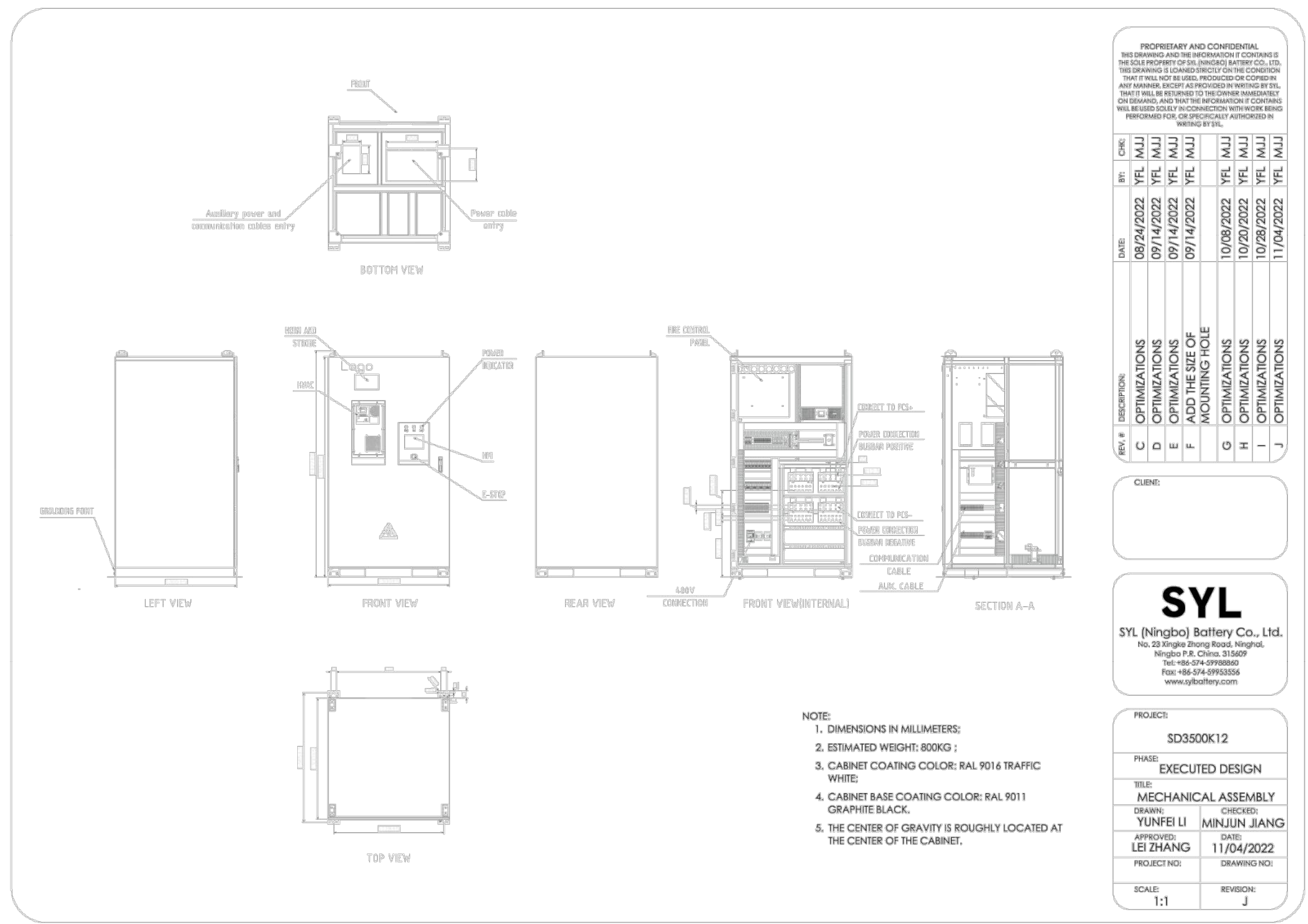
- System Controller
- Short Circuit Protection
- Rack Level Lockable Disconnect
- Water-based suppression System
- Intrusion Detect System
- Fire Detection and Suppression

Tel: +(0086)400-101-8585 | Web: www.sybattery.com | E-mail: Service@sybattery.com  
 Add: No.23 Xingke Middle Road, Melin Street, Ninghai County, Ningbo City, Zhejiang Province, China

BATTERY CABINET SPECIFICATIONS 1  
SCALE: N/A



BATTERY CABINET MECHANICAL DESIGN 2  
SCALE: N/A



BCP (BATTERY CONTROL PANEL) MECHANICAL DESIGN 3  
SCALE: N/A



This document has been electronically signed and sealed by Eduardo-Royce Hidalgo, PE on the date and time shown on the signature using a SHA authentication code. Printed copies of this document are not considered signed and sealed, and the SHA authentication code must be verified on any electronic copies.

PRELIMINARY



SYSTEM SIZE: 10MW/10MWhr  
 UTILITY VOLTAGE: 24.9 kV  
 BUILDING NAME: PARK 121 BLDG 4  
 PROJECT SITE: 360 N FREEPORT PKWY COPPELL, TX 75019-3801

DESIGNED BY: RAVENVOLT  
 DRAWN BY: JSM  
 PROJECT MANAGER: DYLAN JACKSON  
 ELECTRIC UTILITY: ONCOR  
 AHJ: CITY OF COPPELL

REV	REVISION DESCRIPTION	DATE
0	PERMITTING	02/23/2023

SHEET TITLE: EQUIPMENT SPECIFICATIONS I  
 DRAWING NUMBER: **E10**  
 THIS DRAWING IS 24" X 36" AT FULL SIZE  
 SITE ID: DAL 05406

No.	REVISIONS	DATE

**Kimley»Horn**  
 © 2023 KIMLEY-HORN AND ASSOCIATES, INC.  
 13455 NOEL ROAD, SUITE 700, DALLAS, TX 75240  
 PHONE: 972-770-1300 FAX: 972-239-3820  
 WWW.KIMLEY-HORN.COM  
 TEXAS REGISTERED ENGINEERING FIRM F-928

For REVIEW ONLY  
 Not for construction or permit purposes.  
**Kimley»Horn**  
 Prepared: CHRISTOPHER HERNANDEZ  
 P.E. No. 132280 Date: 03/07/2023

KHA PROJECT: 068932900  
 DATE: MARCH 2023  
 SCALE: AS SHOWN  
 DESIGNED BY: CDH  
 DRAWN BY: AC  
 CHECKED BY: CDH

CONSTRUCTION DETAILS

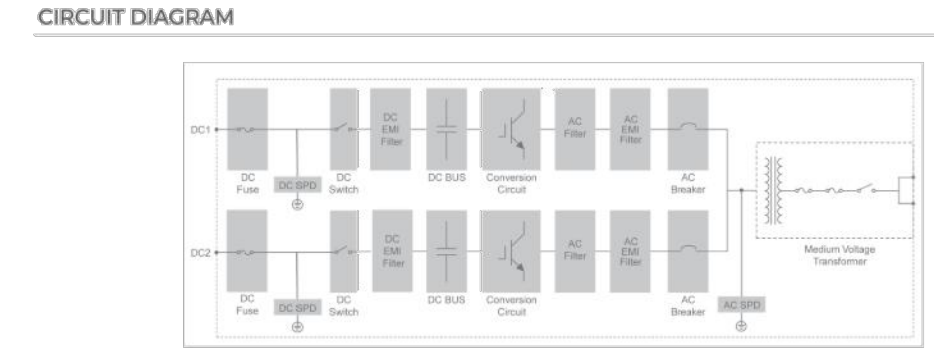
RAVENVOLT BESS  
 COPPELL  
 CITY OF COPPELL  
 DALLAS COUNTY, TEXAS

SHEET NUMBER  
**C-10**

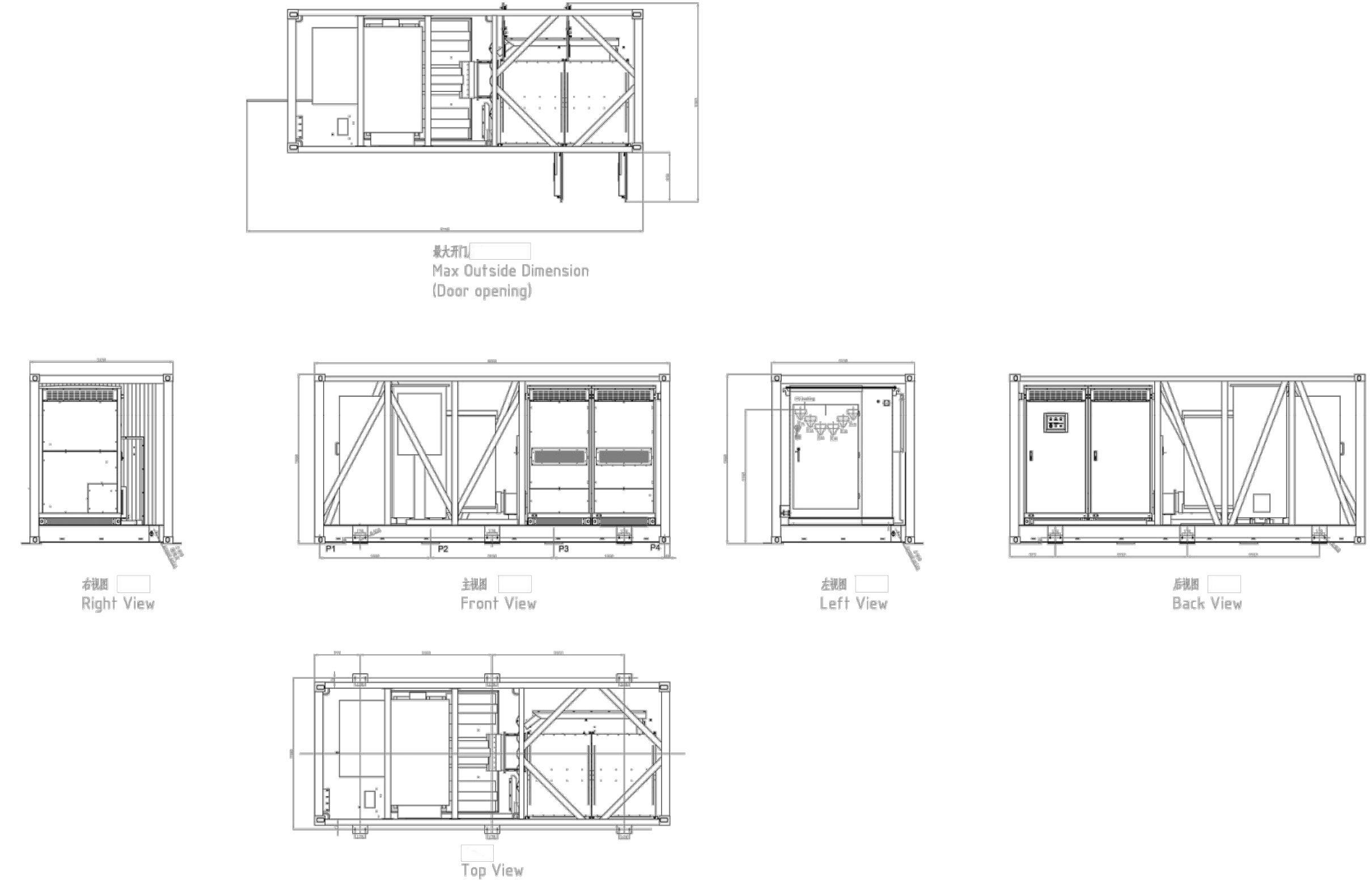
Plotted By: Castillo, Armando Date: March 07, 2023 08:56:45am File Path: K:\DAL\Civil\06892290--RavenVot BESS Coppel\Cad\PlanSheets\C-Standard Details(2).dwg  
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



- HIGH YIELD**
  - Advanced three-level technology, max. efficiency 99%
  - Effective forced air cooling, no derating up to 45°C (113°F)
  - Wide DC voltage operation window, full power operation at 1500 V
- FLEXIBLE APPLICATION**
  - Bidirectional power conversion system with full four-quadrant operation
  - Compatible with high voltage battery system, low system cost
  - Battery charge & discharge management and black start function integrated
- SMART O&M**
  - Modular design, easy for maintenance
  - High protection degree, easy for outdoor installation
  - Optional CS anti-corrosion degree, adjust to applications close to the sea
- GRID SUPPORT**
  - Compliant with UL774, IEEE1547, UL1741 SA, IEEE 1547 and HECO 14H
  - Fast active/reactive power response
  - L/HVRT, FRT, soft start/stop, specified power factor control and reactive power support



System Type	SC2750UD-MV-US	SC3150UD-MV-US	SC3450UD-MV-US
<b>DC Side</b>			
Max. DC voltage	800 V	900 V	1000 V
Min. DC voltage	480 V	550 V	600 V
DC voltage range	800 - 1500 V	900 - 1500 V	1000 - 1500 V
Max. DC current	1760 A * 2	1760 A * 2	1760 A * 2
No. of DC inputs	2	2	2
<b>AC Side (Grid)</b>			
AC output power	2750 kVA @ 45 °C (113 °F)	3150 kVA @ 45 °C (113 °F)	3450 kVA @ 45 °C (113 °F)
Converter port max. AC output current	1640 A	1640 A	1640 A
Converter port nominal AC voltage	550 V	630 V	690 V
Converter port AC voltage range	484 - 605 V	554 - 693 V	607 - 759 V
Nominal grid frequency / Grid frequency range	60 Hz / 50-65 Hz	60 Hz / 50-65 Hz	60 Hz / 50-65 Hz
Harmonic (THD)	< 3% (at nominal power)		
Power factor at nominal power / Adjustable power factor	+ 0.99 / 1 leading - 1 lagging		
Adjustable reactive power range	-100% - 100%		
Feed in phases / AC connection	3 / 3		
<b>AC Side (BESS)</b>			
Converter port nominal AC voltage	600 V	630 V	690 V
Converter port AC voltage range	484 - 605 V	554 - 693 V	607 - 759 V
AC voltage fluctuation	< 1% (linear load)		
DC voltage component	< 0.5 % Un (linear balance load)		
Unbalance load Capacity	100%		
Nominal voltage frequency / Voltage frequency range	60 Hz / 50 - 65 Hz		
<b>Efficiency</b>			
Inverter Max. efficiency	99 %		
<b>Transformer</b>			
Transformer rated power	2750 kVA	3150 kVA	3450 kVA
Transformer max. power	2750 kVA	3150 kVA	3450 kVA
LV / MV voltage	0.55 kV / (12 - 34.5) kV	0.63 kV / (12 - 34.5) kV	0.69 kV / (12 - 34.5) kV
Transformer vector	Dy1 or Dy11		
Transformer cooling type	ONAN (optional: ONAF)		
Oil type	Mineral oil (PCB free) or degradable oil on request		
<b>Protection</b>			
DC input protection	Load break switch + fuse		
Converter output protection	Circuit breaker		
AC output protection	Load break switch + fuse		
Surge protection	DC Type II AC Type II		
Grid monitoring / Ground fault monitoring	Yes / Yes		
Insulation monitoring	Yes		
Overheat protection	Yes		
<b>General Data</b>			
Dimensions (W*H*D)	6050*2890*2430mm / 238.1" * 114.0" * 96.0"		
Weight	36000kg / 35274 lbs.		
Degree of protection	TYPE 3E		
Operating ambient temperature range	-35 ~ 60°C (-31 ~ 143°F derating) / -35 ~ 40°F (-31 ~ 104°F derating)		
Allowable relative humidity range	0 - 100%		
Cooling method	Temperature controlled forced air cooling		
Max. operating altitude	3300m (standard) / 10000m (optional) / 3280.8 ft (standard) / 3280.8 ft (optional)		
Display	LED, WEB HMI		
Communication	RS485, CAN, Ethernet		
Compliance	UL774, UL1741 SA, IEEE 1547, IEEE 1547-21, HECO 14H, CSA C22.2 No.107.1-16, L/HVRT, FRT, active & reactive power control and power ramp rate control, soft start, soft stop, frequency, etc.		
Grid support	L/HVRT, FRT, active & reactive power control and power ramp rate control, soft start, soft stop, frequency, etc.		



PCS (POWER CONVERSION SKID) SPECIFICATIONS 1  
SCALE: N/A E10.1

PCS MECHANICAL DESIGN 2  
SCALE: N/A E10.1



This document has been electronically signed and sealed by Eduardo-Royce Hidalgo, PE on the date and time shown on the signature using a SHA authentication code. Printed copies of this document are not considered signed and sealed, and the SHA authentication code must be verified on any electronic copies.

PRELIMINARY



SYSTEM SIZE:	10MW/10MWhr	
UTILITY VOLTAGE:	24.9 kV	
BUILDING NAME:	PARK 121 BLDG 4	
PROJECT SITE:	360 N FREEPORT PKWY COPPELL, TX 75019-3801	
DESIGNED BY:	RAVENVOLT	
REVIEWED BY:	ERH	
DRAWN BY:	JJM	
ASSISTED BY:	JJM	
PROJECT MANAGER:	DYLAN JACKSON	
ELECTRIC UTILITY:	ONCOR	
AHJ:	CITY OF COPPELL	
REVISION HISTORY		
REV	REVISION DESCRIPTION	DATE
0	PERMITTING	12/22/2022
SHEET TITLE		EQUIPMENT SPECIFICATIONS II
DRAWING NUMBER		E10.1
THIS DRAWING IS 24" X 36" AT FULL SIZE		
SITE ID: DAL 05406		

No.	REVISIONS	DATE	BY

**Kimley»Horn**

© 2023 KIMLEY-HORN AND ASSOCIATES, INC.  
 13455 NOEL ROAD, SUITE 700, DALLAS, TX 75240  
 PHONE: 972-770-1300 FAX: 972-239-3820  
 WWW.KIMLEY-HORN.COM

TEXAS REGISTERED ENGINEERING FIRM # 928

FOR REVIEW ONLY  
 Not for construction or permit purposes.

**Kimley»Horn**

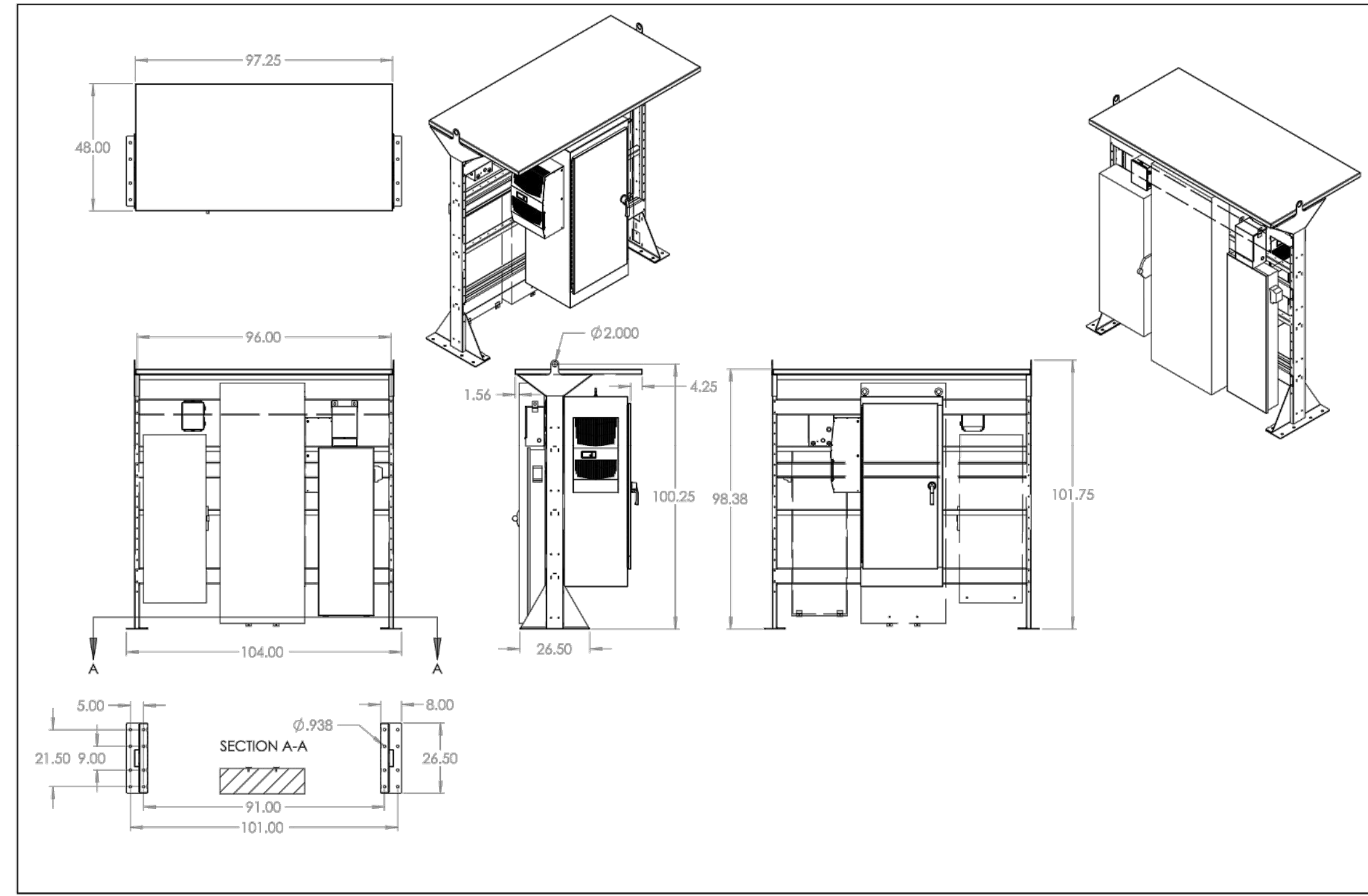
Prepared: CHRISTOPHER HERNANDEZ  
 P.E. No. 132280 Date: 03/07/2023

KHA PROJECT	068922900
DATE	MARCH 2023
SCALE	AS SHOWN
DESIGNED BY:	CDH
DRAWN BY:	AC
CHECKED BY:	CDH

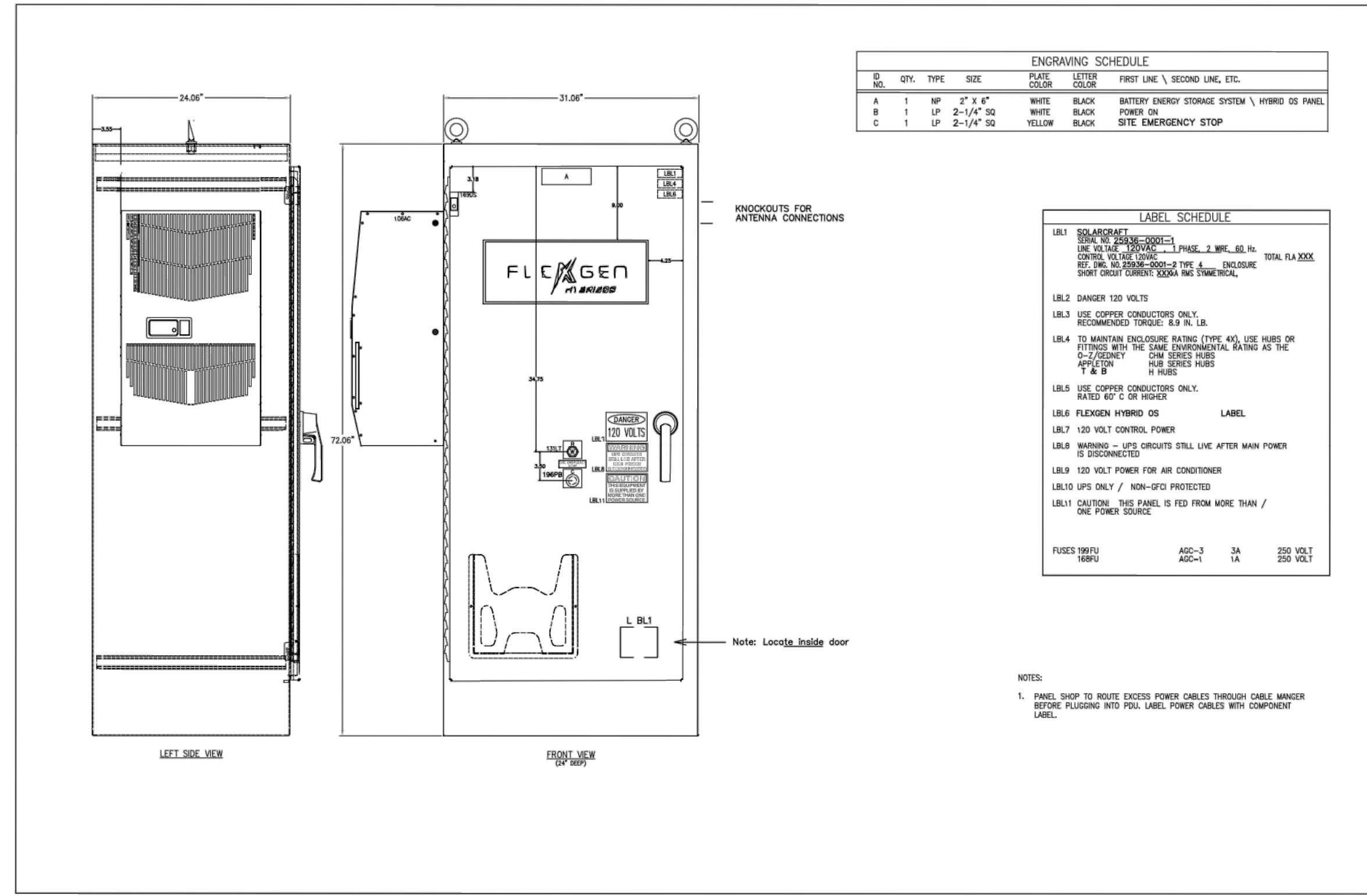
CONSTRUCTION DETAILS

RAVENVOLT BESS  
 COPPELL  
 CITY OF COPPELL  
 DALLAS COUNTY, TEXAS

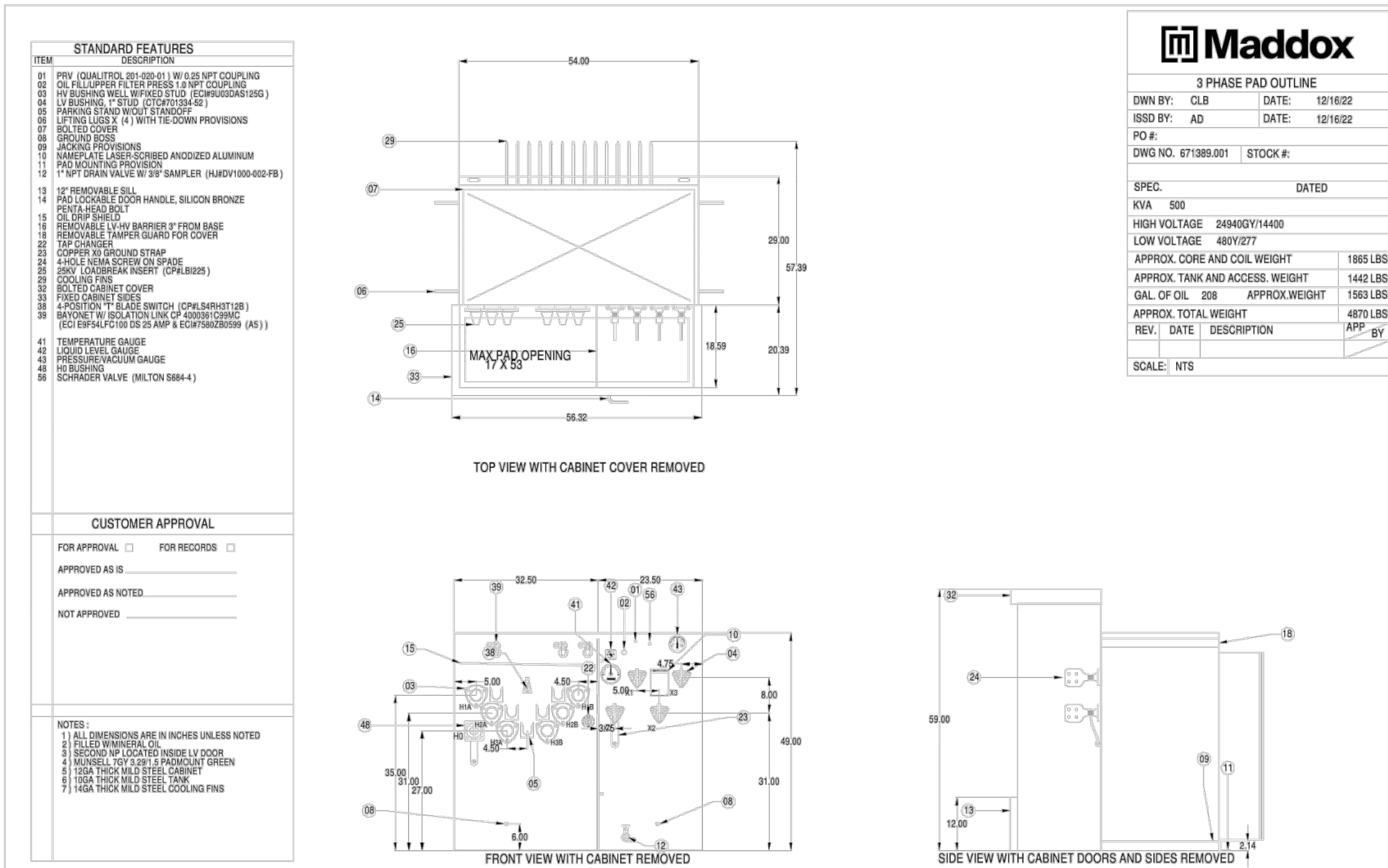
Plotted By: Castillo, Armando Date: March 07, 2023 08:56:51am File Path: \\DAL\_CVA\068932900-RavenVOLT-BESS\Coppel\Cad\PlanSheets\C-Standart Details(2).dwg  
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



AUXILIARY PWR AND SYSTEM CONTROL ELEVATION  
 SCALE: NTS  
 1  
 E10.2



HYBRID OS ELEVATION  
 SCALE: NTS  
 2  
 E10.2



AUX PWR TRANSFORMER SPECS  
 SCALE: NTS  
 3  
 E10.2



This document has been electronically signed and sealed by Eduardo Arbalgo-Reyes, PE on the date and time shown on the signature using a SHA authentication code. Printed copies of this document are not considered signed and sealed, and the SHA authentication code must be verified on any electronic copies.

PRELIMINARY



SYSTEM SIZE: 10MW/10MWhr  
 UTILITY VOLTAGE: 24.9 kV  
 BUILDING NAME: PARK 121 BLDG 4  
 PROJECT SITE: 360 N FREEPORT PKWY COPPELL, TX 75019-3801

DESIGNED BY: RAVENVOLT  
 DRAWN BY: JSM  
 PROJECT MANAGER: DYLAN JACKSON  
 ELECTRIC UTILITY: ONCOR  
 AHJ: CITY OF COPPELL

REV	REVISION DESCRIPTION	DATE
0	PERMITTING	12/22/2022

SHEET TITLE: EQUIPMENT SPECIFICATIONS III  
 DRAWING NUMBER: E10.2  
 THIS DRAWING IS 24" X 36" AT FULL SIZE  
 SITE ID: DAL 05406

**Kimley»Horn**  
 © 2023 KIMLEY-HORN AND ASSOCIATES, INC.  
 13455 NOEL ROAD, SUITE 700, DALLAS, TX 75240  
 PHONE: 972-770-1300 FAX: 972-239-3820  
 WWW.KIMLEY-HORN.COM  
 TEXAS REGISTERED ENGINEERING FIRM F-928

KHA PROJECT 068932900  
 DATE MARCH 2023  
 SCALE AS SHOWN  
 DESIGNED BY: CDH  
 DRAWN BY: AC  
 CHECKED BY: CDH

CONSTRUCTION DETAILS

RAVENVOLT BESS  
 COPPELL  
 CITY OF COPPELL  
 DALLAS COUNTY, TEXAS

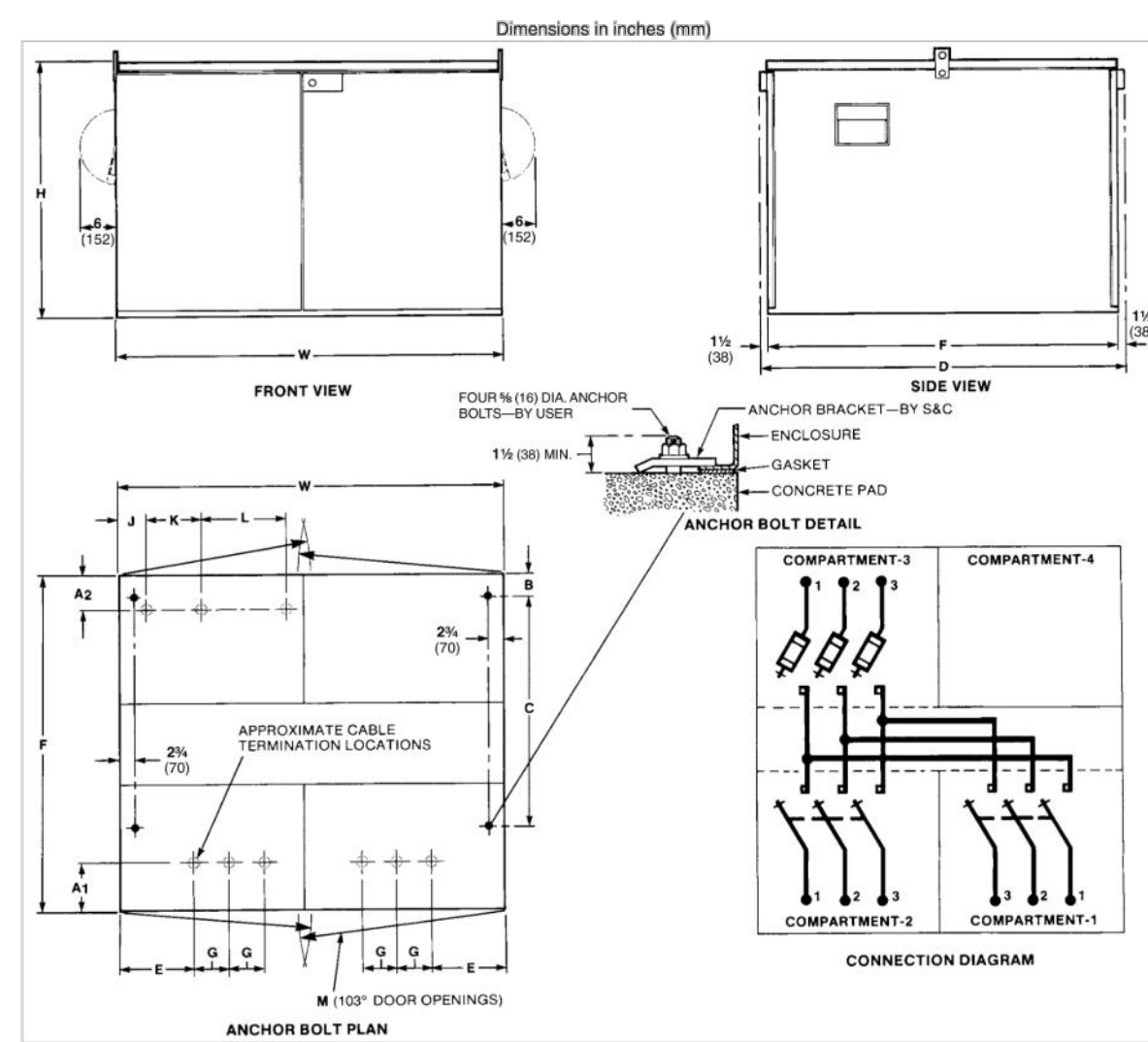
SHEET NUMBER C-12

NO.	REVISIONS	DATE	BY

Plotted By: Castillo, Armando Date: March 07, 2023 08:56:55am File Path: K:\DAL\Civil\068922900--RavenVot BESS Coppel\PlanSheets\C-Standard Details(2).dwg  
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

S&C Manual PMH Pad-Mounted Gear

Model PMH-6  
14.4 kV and 25 kV Nominal



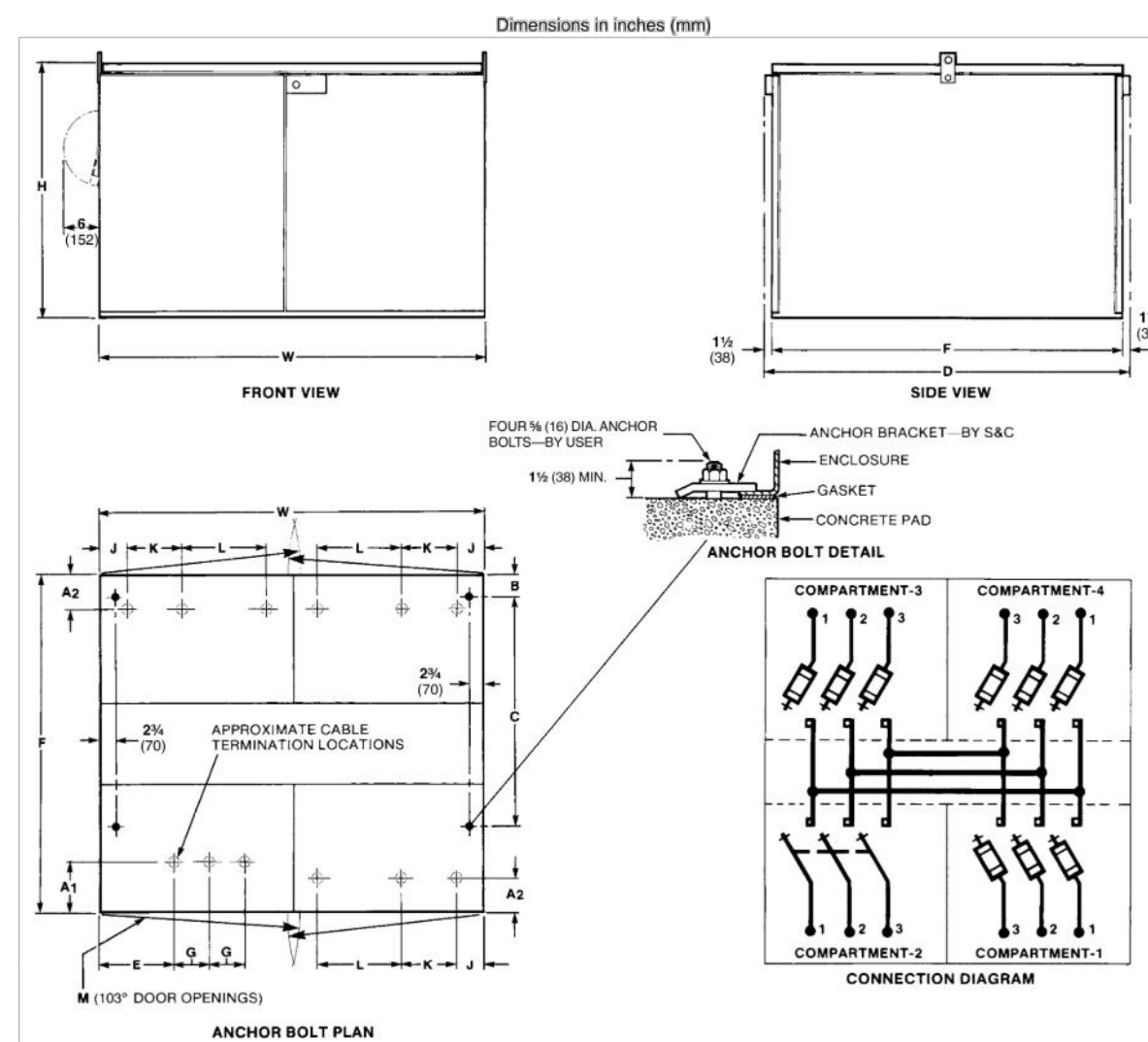
kV Nominal	A*	B	C	D	E	F	G	H	J	K	L	M	W
14.4	9 1/2 (251)	7 (178)	5 1/8 (130)	40 (1016)	63 1/2 (1619)	12 1/2 (327)	60 1/2 (1543)	6 (152)	44 (1118)	4 1/2 (114)	9 1/2 (241)	14 1/2 (375)	34 (864)
25	14 1/2 (368)	11 1/2 (293)	7 1/2 (193)	62 1/2 (1588)	79 1/2 (2020)	13 1/2 (343)	76 1/2 (1949)	7 1/2 (191)	55 (1397)	6 (152)	12 1/2 (318)	16 1/2 (419)	41 1/2 (1054)

\* When Catalog Number Suffix "M1" "L2" or "L3" is specified, cable termination locations will be slightly affected. Consult your nearest S&C Sales Office for details.

24 S&C Specification Bulletin 662A-31

S&C Manual PMH Pad-Mounted Gear

Model PMH-12  
14.4 kV and 25 kV Nominal

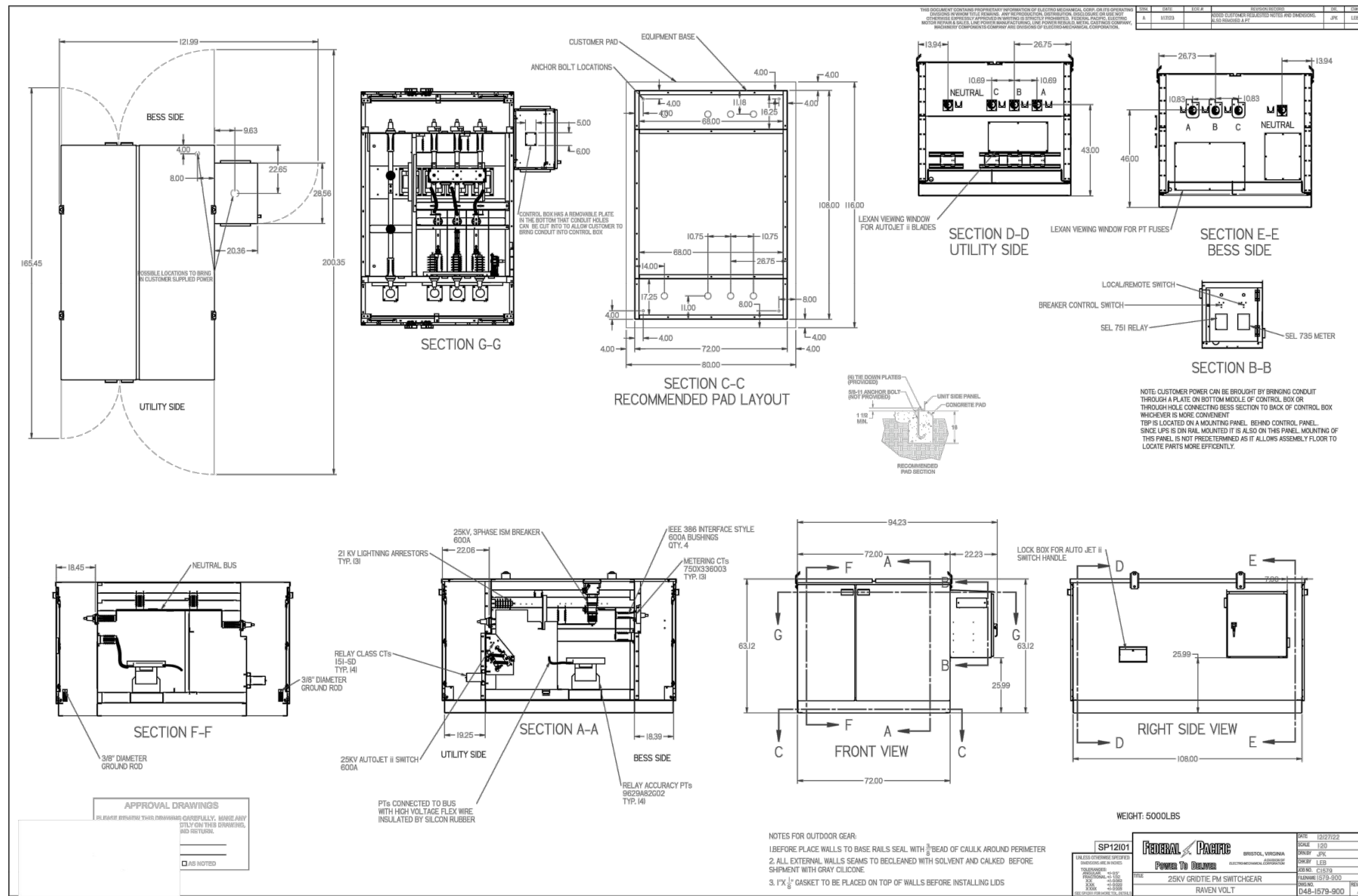


kV Nominal	A*	B	C	D	E	F	G	H	J	K	L	M	W
14.4	9 1/2 (251)	7 (178)	5 1/8 (130)	40 (1016)	63 1/2 (1619)	12 1/2 (327)	60 1/2 (1543)	6 (152)	44 (1118)	4 1/2 (114)	9 1/2 (241)	14 1/2 (375)	34 (864)
25	14 1/2 (368)	11 1/2 (293)	7 1/2 (193)	62 1/2 (1588)	79 1/2 (2020)	13 1/2 (343)	76 1/2 (1949)	7 1/2 (191)	55 (1397)	6 (152)	12 1/2 (318)	16 1/2 (419)	41 1/2 (1054)

\* When Catalog Number Suffix "M1" "L2" or "L3" is specified, cable termination locations will be slightly affected. Consult your nearest S&C Sales Office for details.

30 S&C Specification Bulletin 662A-31

DISTRIBUTION SWITCHGEAR SPECIFICATIONS 1  
SCALE: NTS E10.3



MV SWITCHGEAR PRELIMINARY DESIGN 2  
SCALE: NTS E10.3



This document has been electronically signed and sealed by Eduardo Reyes-Hidalgo, PE on the date and time shown on the signature using a SHA authentication code. Printed copies of this document are not considered signed and sealed, and the SHA authentication code must be verified on any electronic copies.

PRELIMINARY



SYSTEM SIZE: 10MW/10MWhr

UTILITY VOLTAGE: 24.9 kV

BUILDING NAME: PARK 121 BLDG 4

PROJECT SITE: 360 N FREEPORT PKWY COPPELL, TX 75019-3801

DESIGNED BY: RAVENVOLT  
 DRAWN BY: JSM  
 PROJECT MANAGER: DYLAN JACKSON  
 ELECTRIC UTILITY: ONCOR  
 AHJ: CITY OF COPPELL

REV	REVISION DESCRIPTION	DATE
0	PERMITTING	02/22/2023

SHEET TITLE: EQUIPMENT SPECIFICATIONS III  
 DRAWING NUMBER: E10.3  
 THIS DRAWING IS 24" X 36" AT FULL SIZE  
 SITE ID: DAL 05406

No.	REVISIONS	DATE	BY

**Kimley-Horn**  
 © 2023 KIMLEY-HORN AND ASSOCIATES, INC.  
 13455 NOEL ROAD, SUITE 700, DALLAS, TX 75240  
 PHONE: 972-770-1300 FAX: 972-239-3820  
 WWW.KIMLEY-HORN.COM  
 TEXAS REGISTERED ENGINEERING FIRM F-928

FOR REVIEW ONLY  
 Not for construction or permit purposes.  
**Kimley-Horn**  
 Prepared: CHRISTOPHER HERNANDEZ  
 P.E. No. 132280 Date: 03/07/2023

KHA PROJECT: 068922900  
 DATE: MARCH 2023  
 SCALE: AS SHOWN  
 DESIGNED BY: CDH  
 DRAWN BY: AC  
 CHECKED BY: CDH

CONSTRUCTION DETAILS

RAVENVOLT BESS  
 COPPELL  
 CITY OF COPPELL  
 DALLAS COUNTY, TEXAS

SHEET NUMBER  
 C-13