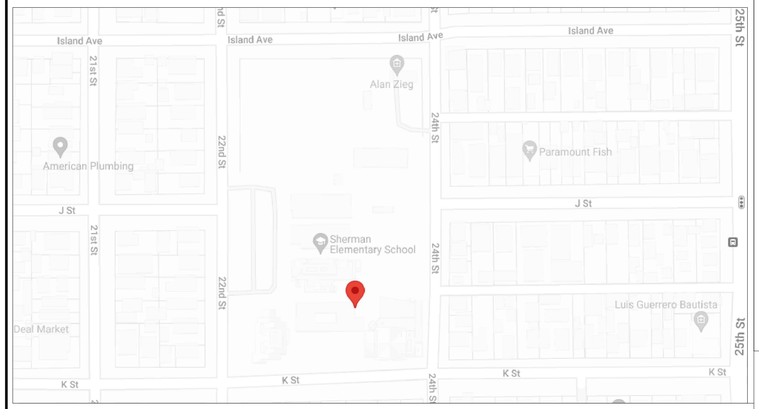
SAN DIEGO UNIFIED DISTRICT:
SHERMAN ELEMENTARY SCHOOL EV CHARGER & BATTERY STORAGE SYSTEM
301 22ND ST
SAN DIEGO, CA 92102

VICINITY MAP



GOVERNING CODES:

CALIFORNIA CODE OF REGULATIONS:
2022 CALIFORNIA ADMINISTRATIVE CODE (CAC) ..... (PART 1, TITLE 24, CCR)
2022 CALIFORNIA BUILDING CODE (CBC), VOLUMES 1, AND 2 (PART 2, TITLE 24, CCR)
(2021 EDITION INTERNATIONAL BUILDING CODE WITH 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ELECTRICAL CODE ..... (PART 3, TITLE 24, CCR)
(2020 NFPA 70)
2022 CALIFORNIA MECHANICAL CODE (CMC) ..... (PART 4, TITLE 24, CCR)
(2021 EDITION IAPMO UNIFORM MECHANICAL CODE WITH 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA PLUMBING CODE (CPC) ..... (PART 5, TITLE 24, CCR)
(2021 EDITION IAPMO UNIFORM PLUMBING CODE WITH 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ENERGY CODE ..... (PART 6, TITLE 24, CCR)
2022 CALIFORNIA FIRE CODE (CFC) ..... (PART 9, TITLE 24, CCR)
(2021 EDITION OF INTERNATIONAL FIRE CODE WITH 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA GREEN CODE ..... (PART 11, TITLE 24, CCR)
2022 CALIFORNIA REFERENCED STANDARDS CODE ..... (PART 12, TITLE 24, CCR)
NFPA 13 - 2022
NFPA 72 - 2022

REFERENCE CODE SECTIONS FOR APPLICABLE STANDARDS:

2022 CBC, CHAPTER 35
2022 CFC, CHAPTER 80

INSPECTIONS:

SAFETY DURING CONSTRUCTION TO COMPLY WITH 2022 CFC CHAPTER 33

ACCESSIBILITY NOTES:

1. ACCESSIBLE PATH OF TRAVEL AS INDICATED ON PLAN IS A BARRIER-FREE ACCESS ROUTE WITHOUT ANY ABRUPT LEVEL OF CHANGES EXCEEDING 1/2" IF BEVELED AT 1:2 MAX SLOPE, OR VERTICAL LEVEL CHANGES NOT EXCEEDING 1/4" MAX, AND AT LEAST 48" IN WIDTH. SURFACE IS STABLE, FIRM AND SLIP RESISTANT. CROSS SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVEL IS LESS THAN 5% UNLESS OTHERWISE INDICATED. ACCESSIBLE PATH OF TRAVEL SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM AND PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL AND ABOVE 27" AND LESS THAN 80". ARCHITECT OF RECORD SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE PATH OF TRAVEL.

2. SEE SITE PLAN FOR MORE INFORMATION ON PATH OF TRAVEL.

BATCH PLANT INSPECTION IS WAIVED PER DSA 103 EXPEMPTION:

PER 2019 CBC, SECTION 1705A.3.3, BATCH PLANT INSPECTION MAY BE WAIVED WHEN THE FOLLOWING REQUIREMENTS ARE MET:

A LICENSED WIGHMASTER SHALL POSITIVELY IDENTIFY QUANTITY OF MATERIALS AND CERTIFY EACH LOAD BY A BATCH TICKET.

BATCH TICKET, INCLUDING MATERIAL QUANTITIES AND WEIGHTS SHALL ACCOMPANY THE LOAD SHALL BE TRANSMITTED TO THE PROJECT INSPECTOR BY THE TRUCK DRIVER WITH LOAD IDENTIFIED THEREON. THE LOAD SHALL NOT BE PLACED WITHOUT A BATCH TICKET IDENTIFYING THE MIX. THE PROJECT INSPECTOR SHALL KEEP A DAILY RECORD OF PLACEMENTS, IDENTIFYING EACH TRUCK ITS LOAD AND TIME OF RECIEPT AT THE JOBSITE AND THE APPROXIMATE LOCATION OF DEPOSIT IN THE STRUCTURE AND SHALL MAINTAIN A COPY OF THE DAILY RECORD AS REQUIRED BY DSA.

PROJECT DIRECTORY

SYSTEM HOST:
SAN DIEGO USD
4100 NORMAL ST
SAN DIEGO, CA 92103
619.725.8000

DEVELOPER / GC
SITE LOGIQ
1512 SILICA AVENUE
SACRAMENTO, CA 95815
916.343.1557
PM: DARRELL HOM

ARCHITECT & DP
MMPV DESIGN, INC.
2261 MARKET STREET, #5998
SAN FRANCISO, CA 94114
619.632.2883
AOR: MARIANA MONCADA

STRUCTURAL ENGINEER
COFFMAN
1455 FRAZEE RD #600
SAN DIEGO CA 92108
619.232.4673
SEOR: TJ MCCANN

ELECTRICAL ENGINEER:
COFFMAN
1455 FRAZEE RD #600
SAN DIEGO CA 92108
619.232.4673
EEOR: BRIAN DERSCH

SCOPE OF WORK:

WORK CONSISTS OF INSTALLING THIRTEEN (13) EV SPACES ON (E) LOT 1 AND A BATTERY ENERGY STORAGE SYSTEM (BESS) (OUTDOOR INSTALLATION, UNDER 600KWH).

GENERAL RESPONSIBILITY OF CHARGE STATEMENT OF GENERAL CONFORMANCE:

THE DRAWINGS OR SHEETS LISTED IN THE DRAWING INDEX WITH AN ASTERISK HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND/OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THE STATE OF CALIFORNIA. THE DRAWINGS HAVE BEEN EXAMINED BY ME FOR:

1. DESIGN, INTENT AND APPEARS TO MEET APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND THE PROJECT SPECIFICATIONS PREPARED BY ME, AND

2. COORDINATION WITH MY PLANS AND SPECIFICATIONS AND IS ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT.

THE STATEMENT OF GENERAL CONFORMANCE "SHALL BE NOT BE CONSTRUED AS RELIEVING ME OF MY RIGHTS, DUTIES, AND RESPONSIBILITIES UNDER SECTIONS 17302 AND 81138 OF THE EDUCATION CODE AND SECTIONS 4-336, 4-341" OF TITLE 24, PART I (TITLE 24, PART 1, SECTION 4-317 (b))

I CERTIFY THAT : ALL DRAWINGS OR SHEETS LISTED ON THE INDEX WITH AN ASTERISK ARE IN GENERAL CONFORMANCE WITH THE PROJECT DESIGN INTENT AND HAVE BEEN COORDINATED WITH THE PROJECT PLANS AND SPECIFICATIONS.

SIGNATURE **DATE** 04/12/2024

ARCHITECT DESIGNATED TO BE GENERAL RESPONSIBLE CHARGE

MARIANA MONCADA
C37182 **LICENSE NUMBER**
9/31/2025 **EXPIRATION DATE**

SHEET INDEX

GENERAL NOTES:

ALL WORK SHALL CONFORM TO 2022 TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).

CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATION SHALL BE MADE BY ADDENDA OR CONSTRUCTION CHANGE DOCUMENTS APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.

A DSA CERTIFIED PROJECT INSPECTOR EMPLOYED BY THE DISTRICT AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24, CCR)

A DSA CERTIFIED INSPECTOR WITH CLASS 2 CERTIFICATION IS REQUIRED FOR THIS PROJECT.

A DSA CERTIFIED INSPECTOR WHO IS SPECIFICALLY QUALIFIED IN MECHANICAL AND ELECTRICAL WORK WILL BE REQUIRED FOR THIS PROJECT.

A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE SCHOOL BOARD SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THIS PROJECT.

WHENEVER DSA FINDS ANY CONSTRUCTION WORK IS BEING PERFORMED IN A MANNER CONTRARY TO THE PROVISIONS OF CALIFORNIA BUILDING CODE AND THAT WOULD COMPROMISE THE STRUCTURAL INTEGRITY OF THE BUILDING, THE DEPARTMENT OF GENERAL SERVICES, STATE OF CALIFORNIA, IS AUTHORIZED TO ISSUE A STOP WORK ORDER PER SECTION 4-334.1 CALIFORNIA ADMINISTRATIVE CODE (PART 1, TITLE 24, CCR).

GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTHCONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.

TITLE 24, PART1-5 AND 9 MUST BE KEPT ON SITE DURING CONSTRUCTION.

ALL STRUCTURAL, ARCHITECTURAL,, MECHANICAL, ELECTRICAL AND PLUMBING MATERIALS INSTALLATION TO COMPLY WITH APPLICABLE CODES, STANDARDS AND MANUFACTURERS RECOMMENDATIONS.

THE PROJECT INSPECTION (PI) SHALL WITNESS AND VERIFY GROUNDING.

DSA

CONSULTANT

CONSULTANT

ARCHITECT/CONSULTANT

SAN DIEGO UNIFIED SCHOOL DISTRICT

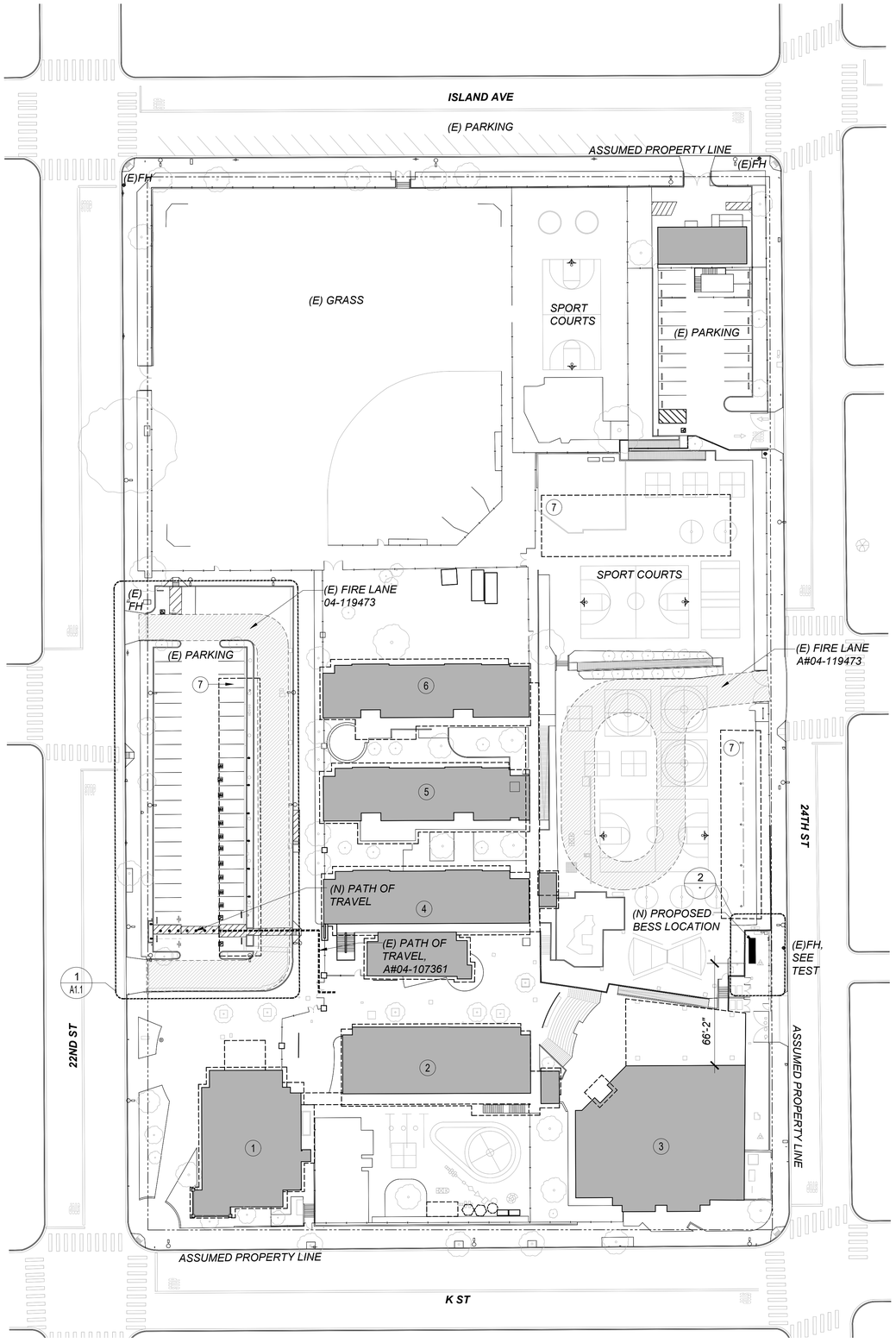
PREPARED FOR THE BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

PREPARED BY THE FACILITIES PLANNING AND CONSTRUCTION PROJECT MANAGEMENT DEPARTMENT

TITLE SHEET

SHERMAN ELEMENTARY SCHOOL
EV AND BATTERY STORAGE PROJECT
301 22ND STREET, SAN DIEGO, CA 92102
(619) 615-7000

PROJECT NO.
R.S. A.P.
FILE NAME
DATE 07/18/23 DRAWN JM CHECKED
SHEET NO.
A0.0



1 SITE + FIRE ACCESS PLAN
Scale: 1" = 40' (FOR 24X36 SHEETS)

20 40 80 N

BUILDING LEGEND	
1	(E) BLDG A - A#04-107361
2	(E) BLDG B - A#04-107361
3	(E) BLDG C - A#04-107361
4	(E) BLDG D - A#04-107361
5	(E) BLDG E - A#04-107361
6	(E) BLDG F - A#04-107361
7	(E) SOLAR ARRAY - A#04-119473

PARKING ANALYSIS - SHERMAN			
LOT	*TOTAL STD. STALLS	REQ'D ACCESSIBLE STALLS	PROVIDED ACCESSIBLE STALLS
1	27	2	2

EVCS ANALYSIS - SHERMAN				
EVCS STALLS PROVIDED	VAN ACC. EVCS REQ'D	VAN ACC. EVCS PROVIDED	STD ACC. EVCS REQ'D	STD. ACC. EVCS PROVIDED
13	1	1	1	1

City of San Diego
Development Services
Attention: Hydrant Flow Request
1222 First Ave., MS-401
San Diego, CA 92101
(619) 446-5000

Hydrant Flow Request — FORM DS-160 October 2016

Fill out the information below completely for all sprinkler system flow requests, including NFPA 13, 13D and 13R systems. E-mail form to: DSDHydrantFlow@sandiego.gov, or mail request to the above address.

Please print or type legibly.

Company Requesting Hydrant Flow: SitelogIQ, Inc.
Telephone No: 916-878-6683 | Fax No: 279-345-0530 | E-mail Address: jeff.dennis@sitelogIQ.com
Project Number for the Building Permits:
Location of Hydrants: 24th Street
Cross Street: Alley between J Street and K Steet | City: San Diego | State: CA | ZIP Code:

FOR CITY USE ONLY

Facility Sequence Number: (FSN): 530656
Static: 102.4 PSI | Elevation: 96.07 FEET
Pitot: -- PSI | Residual: 89.2 PSI
Date: 03.05.2024 | Flow: 1,546.34 GPM
Researched in database by:

The information provided above is based upon a water model. It is the contractor's responsibility to confirm the available static pressure at the system point of connection. If a discrepancy is noticed at that time, notify DSDHydrantFlow@sandiego.gov as soon as possible.

Please draw an accurate map for fire hydrant data

Printed on recycled paper. Visit our web site at www.sandiego.gov/development-services
Upon request, this information is available in alternative formats for persons with disabilities.
DS-160 (10-16)

DSA 810

FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

Division of the State Architect (DSA) documents referenced within this publication are available on the DSA Forms or DSA Publications webpages.

To facilitate the Division of the State Architect's (DSA) fire and life safety plan review of project site conditions, DSA requires the design professional to provide the following information at time of project submittal for projects consisting of construction of a new campus, construction of new building(s), additions to existing buildings, and for site alternate design means for fire department emergency vehicle access, and fire suppression water supply.

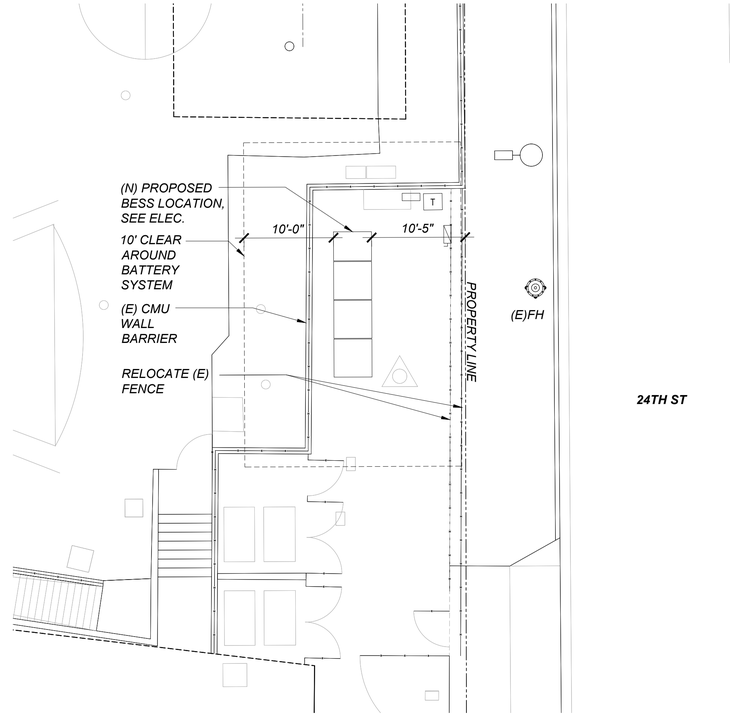
Information associated with compliance items 1 through 3 below is to be provided for all project types indicated above. Information associated with items 4 through 7 is to be completed when an alternate means is utilized. Acknowledgement by the school district and signature from the Local Fire Authority (LFA) is only required when an alternate design means is being requested.

The Project Information and Fire & Life Safety Information sections are to be completed for all projects and imaged onto the fire access site plan. When an alternate design/means is proposed, all sections on pages 1 and 2 are to be completed and imaged on the fire access site plan.

For additional information refer to the instructions at the end of this form and DSA Policy *PL 09-01: Fire Flow for Buildings*.

PROJECT INFORMATION	
School District/Owner:	SAN DIEGO UNIFIED DISTRICT
Project Name/School:	SHERMAN ELEMENTARY SCHOOL
Project Address:	301 22ND ST SAN DIEGO CA 92102

FIRE & LIFE SAFETY INFORMATION				
1.	Has a fire hydrant flow test been performed within the past 12 months? *(If yes, provide a copy of the test data.)*	Yes ☐		No ☑
2.	Was the fire hydrant water flow test performed as part of this LFA review?	Yes ☐		No ☑
3.	Is the project located within a designated fire hazard severity zone (FHSZ) as established by Cal-Fire? *(If yes, indicate FHSZ classification below.)*	Yes ☐		No ☑
	Refer to the following website for FHSZ locations: http://egis.fire.ca.gov/FHSZ/	Moderate ☐	High ☐	Very High ☐
	Wildland Interface Area (WIFA) *(If any designations are checked, project design must meet the requirements of CBC Chapter 7A.)*			WIFA ☐



2 ENLARGED BESS PLAN
Scale: 1/8" = 1' (FOR 24X36 SHEETS)

4 8 16 N

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CONSULTANT
CONSULTANT
ARCHITECT/CONSULTANT

SAN DIEGO UNIFIED SCHOOL DISTRICT

PREPARED FOR THE
BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

PREPARED BY THE
FACILITIES PLANNING AND CONSTRUCTION
PROJECT MANAGEMENT DEPARTMENT

SITE PLAN & FIRE ACCESS PLAN

SHERMAN ELEMENTARY SCHOOL
EV AND BATTERY STORAGE PROJECT
301 22ND STREET, SAN DIEGO, CA 92102
(619) 615-7000

PROJECT NO.
R.S. A.P.
FILE NAME
DATE 07/18/23 DRAWN JM CHECKED
SHEET NO.
A1.0

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT:

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT: THE POT IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS MEETS THE REQUIREMENTS OF THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE (CBC) ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE POT WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WERE DETERMINED TO BE NON-COMPLIANT WITH THE CBC HAVE BEEN IDENTIFIED AND THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NONCOMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE INDICATED IN THESE CONSTRUCTION DOCUMENTS. "

DURING CONSTRUCTION, IF POT ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEAN OF A CONSTRUCTION CHANGE DOCUMENT.

ACCESSIBILITY NOTES:

1. ACCESSIBLE PATH OF TRAVEL AS INDICATED ON PLAN IS A BARRIER-FREE ACCESS ROUTE WITHOUT ANY ABRUPT LEVEL OF CHANGES EXCEEDING 1/2" IF BEVELED AT 1:2 MAX SLOPE, OR VERTICAL LEVEL CHANGES NOT EXCEEDING 1/4" MAX, AND AT LEAST 48" IN WIDTH. SURFACE IS STABLE, FIRM AND SLIP RESISTANT. CROSS SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVEL IS LESS THAN 5%. ACCESSIBLE PATH OF TRAVEL SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM AND PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL AND ABOVE 27" AND LESS THAN 80". ARCHITECT OF RECORD SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE PATH OF TRAVEL.

2. SEE SITE PLAN FOR MORE INFORMATION ON PATH OF TRAVEL.

ACCESSIBLE PARKING AND PATH OF TRAVEL REQUIREMENTS:

1. (N) PATH OF TRAVEL INDICATED BY DOTS:

● ● ● ●

2. (E) PATH OF TRAVEL INDICATED BY DASHED LINE: A#04-107361 - #1 CERTIFIED AND CLOSED

– – – – – – –

3. BOTH (E) AND (N) POT REQUIRE:

5% DIRECTIONAL SLOPE MAX.
2% CROSS SLOPE MAXIMUM

4. STALLS AND ACCESS AISLES REQUIRE:

2% DIRECTIONAL SLOPE
2% CROSS SLOPE MAX

5. FOR STRIPING, COLOR, WHEEL STOP, AND ALL OTHER DIMENSIONS, REFER TO SHEET A1.2

KEYNOTES

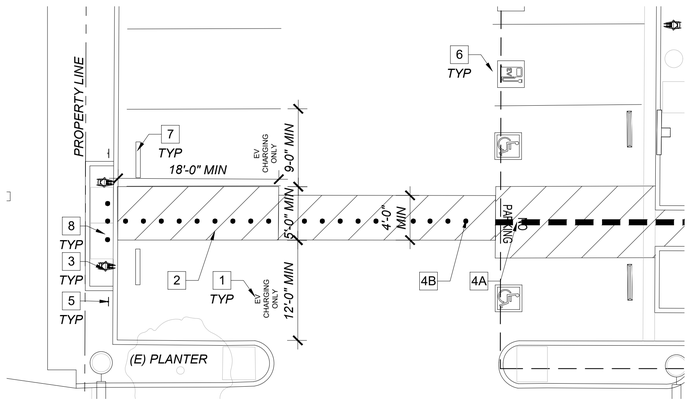
1	(N) TYPICAL VAN ACCESSIBLE PARKING STRIPING AND ISA SPECIFICATIONS PER 3/A1.2
2	(N) TYPICAL EV ACCESS AISLE STRIPING SPECIFICATIONS PER 2/A1.2
3	(N) EVCS CHARGER
4A	(E) ACCESSIBLE ROUTE, PER A#04-107361
4B	(N) ACCESSIBLE ROUTE
5	(N) EV ACCESSIBLE PARKING SIGN PER 1/A1.2
6	(N) TYPICAL EV STANDARD PARKING STRIPING AND MARKINGS SPECIFICATIONS PER 4/A1.2
7	(N) WHEELSTOP PER 5/A1.2
8	(N) 30"X48" EV CLEAR FLOOR SPACE

PARKING ANALYSIS - SHERMAN

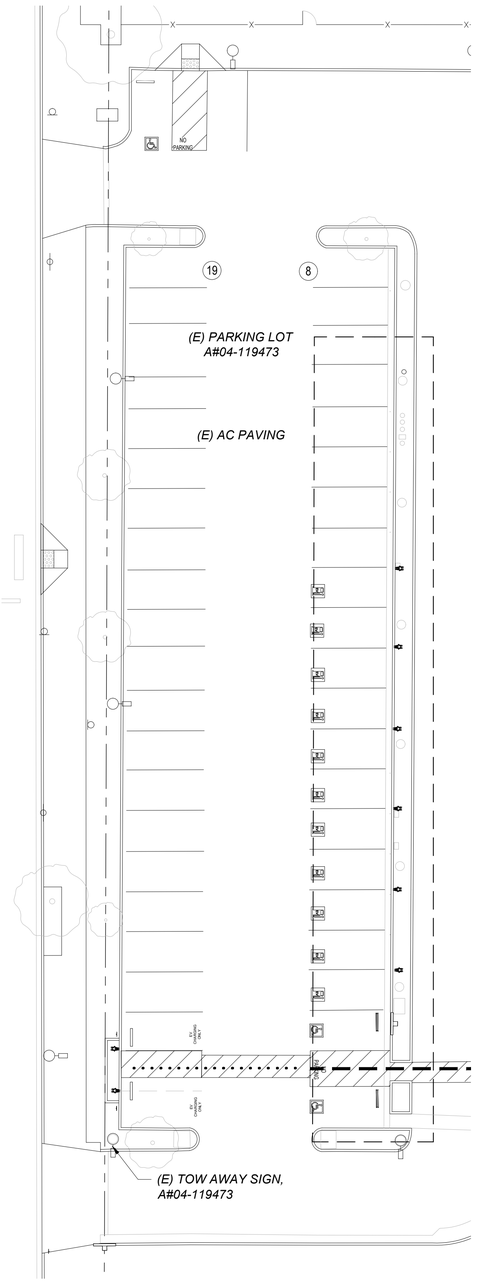
LOT	*TOTAL STD. STALLS	REQ'D ACCESSIBLE STALLS	PROVIDED ACCESSIBLE STALLS
1	27	2	2

EVCS ANALYSIS - SHERMAN

EVCS STALLS PROVIDED	VAN ACC. EVCS REQ'D	VAN ACC. EVCS PROVIDED	STD ACC. EVCS REQ'D	STD. ACC. EVCS PROVIDED
13	1	1	1	1



2 ACCESSIBLE EVCS PARKING
Scale: 1/8" = 1'-0" (FOR 24X36 SHEETS)



1 ENLARGED PARKING PLAN
Scale: 1/16" = 1'-0" (FOR 24X36 SHEETS)

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ARCHITECT/CONSULTANT

SAN DIEGO UNIFIED SCHOOL DISTRICT

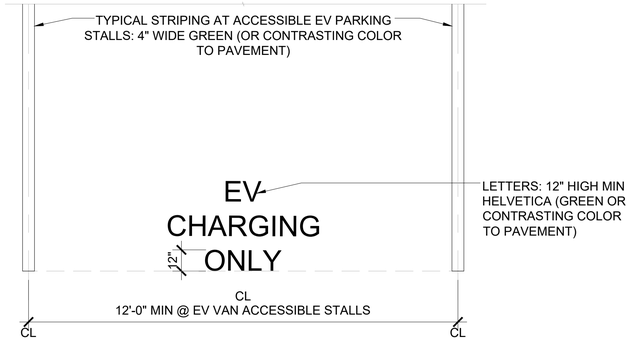
PREPARED FOR THE
BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

PREPARED BY THE
FACILITIES PLANNING AND CONSTRUCTION
PROJECT MANAGEMENT DEPARTMENT

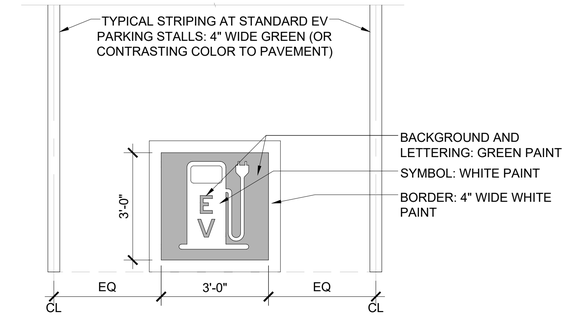
ENLARGED SITE PLANS

SHERMAN ELEMENTARY SCHOOL
EV AND BATTERY STORAGE PROJECT
301 22ND STREET, SAN DIEGO, CA 92102
(619) 615-7000

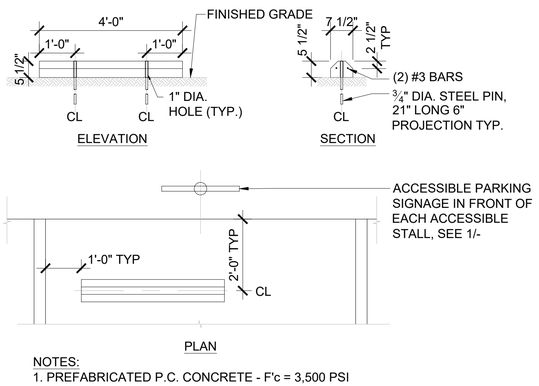
PROJECT NO.
R.S. A.P.
FILE NAME
DATE 07/18/23
DRAWN JM
CHECKED
SHEET NO.
A1.1



3 ACCESSIBLE PARKING STRIPING - EV
Scale: 1/2" = 1'

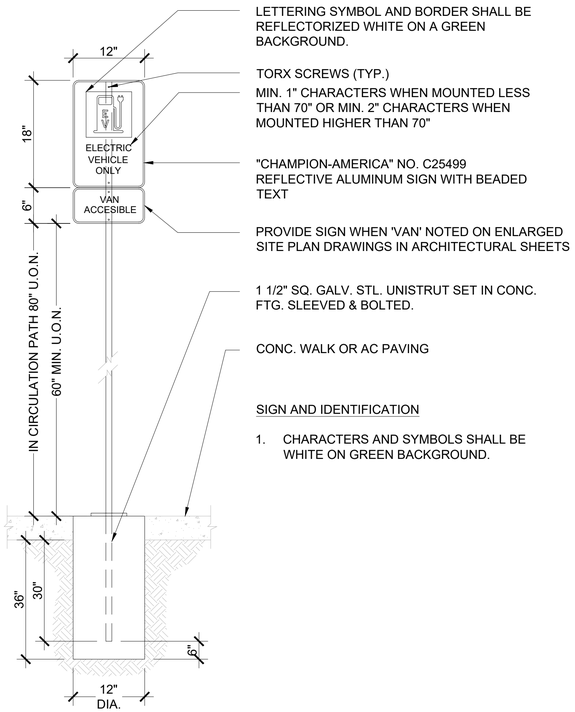


4 STANDARD (NON-ACCESS) PARKING STRIPING - EV
Scale: 1/2" = 1'



NOTES:
1. PREFABRICATED P.C. CONCRETE - F'c = 3,500 PSI

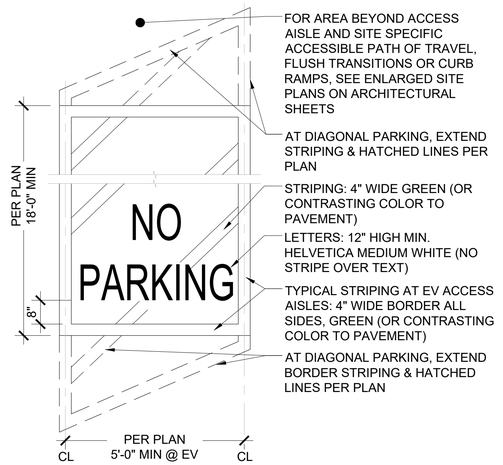
5 WHEEL STOP
Scale: 1/2" = 1'



SIGN AND IDENTIFICATION

1. CHARACTERS AND SYMBOLS SHALL BE WHITE ON GREEN BACKGROUND.

1 ACCESSIBLE PARKING SIGN - EV
Scale: 1" = 1'



2 ACCESSIBLE ACCESS AISLE STRIPING - EV
Scale: 1/2" = 1'

DSA
CONSULTANT
CONSULTANT
ARCHITECT/CONSULTANT

SAN DIEGO UNIFIED SCHOOL DISTRICT

PREPARED FOR THE BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

PREPARED BY THE FACILITIES PLANNING AND CONSTRUCTION PROJECT MANAGEMENT DEPARTMENT

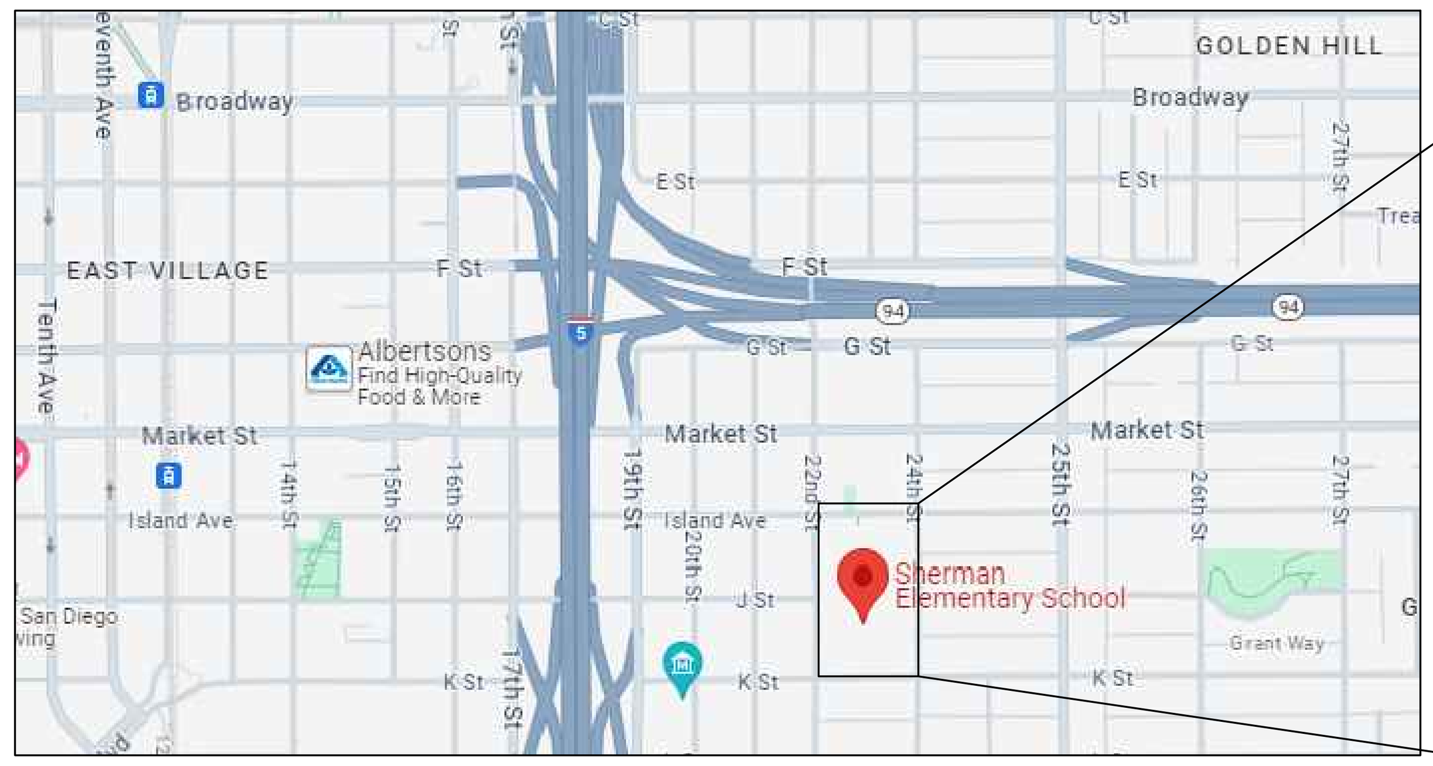
ACCESSIBLE PARKING STANDARDS - EV

SHERMAN ELEMENTARY SCHOOL
EV AND BATTERY STORAGE PROJECT
301 22ND STREET, SAN DIEGO, CA 92102
(619) 615-7000

PROJECT NO.
R.S. A.P.
FILE NAME
DATE 07/18/23
DRAWN JM
CHECKED

SHEET NO.
A1.2

VICINITY MAP



GOVERNING CODES

CALIFORNIA CODE OF REGULATIONS:
2022 CALIFORNIA ADMINISTRATIVE CODE (CAC)
2022 CALIFORNIA BUILDING CODE (CBC)
2022 CALIFORNIA ELECTRICAL CODE (CEC)
2022 CALIFORNIA ENERGY CODE
2022 CALIFORNIA FIRE CODE (CFC)
2022 CALIFORNIA GREEN CODE
2022 CALIFORNIA REFERENCED STANDARDS CODE

PROJECT/SITE INFORMATION

THIS PROJECT CONSISTS OF A NEW GRID CONNECTED, UTILITY INTERACTIVE, RENEWABLE POWER SYSTEM CONSISTING OF A NEW BATTERY ENERGY STORAGE SYSTEM (B.E.S.S.), MICROGRID, AND ELECTRIC VEHICLE CHARGING STATION (E.V.C.S.) INFRASTRUCTURE AT SHERMAN ELEMENTARY SCHOOL LOCATED IN SAN DIEGO, CA.

THIS BATTERY ENERGY STORAGE SYSTEM (B.E.S.S.) INSTALLATION CONSISTS OF CONTAINERIZED BATTERIES WITH ASSOCIATED CONTROLS AND METERING ACCESSORIES. THE TOTAL NAMEPLATE B.E.S.S. INVERTER CAPACITY IS 250KVA/558KWH.

THE ELECTRIC VEHICLE CHARGING STATIONS DESIGN CONSISTS OF INFRASTRUCTURE CAPABLE OF PROVIDING POWER TO (11) EV CAPABLE E.V.C.S. LOCATIONS.

THE EXISTING CANOPY MOUNTED PHOTOVOLTAIC (PV) SYSTEM CONSISTS OF (572) 415 LG ELECTRONICS MODULES, (2) 60KW STRING INVERTERS AND (1) 50KW STRING INVERTER WITH A TOTAL NAMEPLATE CAPACITY OF 170.0KWAC AND 237.38KWDC @ STC.

THE TOTAL POWER RATING OF ALL INVERTER NAMEPLATES INCLUDED AT THIS SITE (EXISTING + NEW): 420.0KVA

THIS ENTIRE SYSTEM IS INTENDED TO SET UP AN ISLANDED POWER SYSTEM (MICROGRID) THAT CAN OPERATE THE ENTIRE SCHOOL, INDEPENDENTLY OF THE ELECTRICAL GRID.

SHEET LIST

Sheet Number	Sheet Title
E001	SYMBOLS AND ABBREVIATIONS
E002	GENERAL NOTES
ED100	DEMO SINGLE LINE DIAGRAM
E101	PROPOSED SINGLE LINE DIAGRAM
E102	GROUNDING DIAGRAM
E201	OVERALL - ELECTRICAL SITE PLAN
E202	ENLARGED - ELECTRICAL PLANS
E203	ENLARGED - BESS SITE PLAN
E300	ELECTRICAL CALCULATIONS
E400	EQUIP. CUTSHEETS - BESS S.O.O.
E401	EQUIP. CUTSHEETS - BESS CONTROLS & WIRING
E402	EQUIP. CUTSHEETS - BESS CONTROLS & WIRING
E403	EQUIP. CUTSHEETS - BESS
E500	ELECTRICAL DETAILS
E600	PLACARD DETAILS

SYMBOLS AND ABBREVIATIONS

ELECTRICAL EQUIPMENT

Symbol	Description
	FLUSH MOUNTED PANELBOARD
	SURFACE MOUNTED PANELBOARD
	480V PANELBOARD - SEE PANEL SCHEDULE
	208V OR 240V PANELBOARD - SEE PANEL SCHEDULE
	EQUIPMENT CABINET - TYPE AS INDICATED
	MOTOR CONNECTION
	EQUIPMENT CONNECTION
	GROUND BAR
J J J	JUNCTION BOX (WALL / CEILING / FLOOR)
PB	PULLBOX
HH-1 HH	HANDHOLE WITH DESIGNATION
MH-1 MH	MANHOLE WITH DESIGNATION
T	TRANSFORMER
EV	ELECTRIC VEHICLE CHARGING STATION
$M	MOTOR RATED TOGGLE SWITCH (POLES TO MATCH VOLTAGE PHASE REQUIREMENTS)
	DISCONNECT SWITCH: 3-POLE UNLESS NOTED OTHERWISE- OVERCURRENT PROTECTION AS REQUIRED BY EQUIPMENT MANUFACTURER OR AS NOTED
	FUSED DISCONNECT SWITCH: 3-POLE UNLESS NOTED OTHERWISE- OVERCURRENT PROTECTION AS REQUIRED BY EQUIPMENT MANUFACTURER OR AS NOTED
	PHOTOVOLTAIC "PV" SOLAR PANEL MODULE
	PHOTOVOLTAIC (PV) AC/DC SOLAR INVERTER
	BATTERY ENERGY STORAGE SYSTEM (BESS)

WORK DEFINITION

Symbol	Description
1	KEYNOTE
1	DRAWING REVISION
	HEAVY LINEWORK INDICATES NEW WORK
	LIGHT LINEWORK INDICATES EXISTING TO REMAIN
— G —	GROUND WIRE
— SL —	SITE LIGHTING
— OH —	OVERHEAD POWER
— FO —	FIBER OPTIC
— UG —	CONDUIT: ROUTED UNDERGROUND
— T —	CONDUIT: TELECOMMUNICATIONS ROUTED UNDERGROUND
	CONDUIT: ROUTED BELOW FINISHED FLOOR LEVEL
	CROSS HATCHING INDICATES EXISTING DEVICE OR RACEWAY TO BE REMOVED - MAINTAIN CIRCUIT CONTINUITY
	CONDUIT UP
	CONDUIT DOWN
	CONDUIT/CABLE CAP
	CONDUIT/CABLE CONTINUATION
E-1	HOME RUN - RACEWAY MARKINGS INDICATES NUMBER OF CONDUCTORS - LETTER INDICATES PANEL - NUMBER(S) INDICATE CIRCUIT
	RACEWAY MARKING INDICATES QUANTITY OF CONDUCTORS IN CONDUIT - SMALL HASH MARKS INDICATE PHASE (HOT) CONDUCTOR - LARGER HASH MARK INDICATES NEUTRAL CONDUCTOR - DOT INDICATES GROUND CONDUCTOR - DOT WITH HASH INDICATES ISOLATED GROUND CONDUCTOR ALL UNMARKED CONDUIT RUNS ARE 1/2" CONDUIT WITH 2#12 UNLESS NOTED OTHERWISE. ALL CIRCUITS SHALL BE PROVIDED WITH GREEN EQUIPMENT GROUND CONDUCTOR

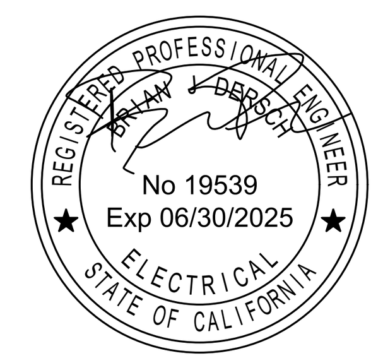
RISER DIAGRAM

Symbol	Description
XXX XXX XXX	PANELBOARD
	DELTA
	WYE
	OPEN DELTA
200/5 3	CURRENT TRANSFORMER: QUANTITY AND RATIO AS INDICATED
480V 120V 3	POTENTIAL TRANSFORMER: QUANTITY AND VOLTAVE RATING AS INDICATED
3-SA	3-SURGE ARRESTORS
	LIGHTNING ARRESTOR
	DISCONNECT SWITCH: 3-POLE UNLESS NOTED OTHERWISE- OVERCURRENT PROTECTION AS REQUIRED BY EQUIPMENT MANUFACTURER OR AS NOTED
	FUSED DISCONNECT SWITCH: 3-POLE UNLESS NOTED OTHERWISE- OVERCURRENT PROTECTION AS REQUIRED BY EQUIPMENT MANUFACTURER OR AS NOTED
	AUTOMATIC TRANSFER SWITCH (A.T.S)
	DRAWOUT AC TYPE CIRCUIT BREAKER (600V)
30A/3P CL	CIRCUIT BREAKER NUMBER INDICATES TRIP SETTING AND NUMBER OF POLES CL - CURRENT LIMITING ST - SHUNT TRIP
30A/3P M	MOTOR OPERATED CIRCUIT BREAKER NUMBER INDICATES TRIP SETTING AND NUMBER OF POLES
G ST	GENERATOR ST - INDICATES SHUNT TRIP
	GROUND CONNECTION
	CABLE TO BUS CONNECTION
30A	FUSE WITH RATING
M	INDICATING INSTRUMENT M - SELF ENCLOSED PM - KILOWATT HOUR DEMAND METER
	HIGH VOLTAGE CABLE TERMINATOR
R	RELAY
	CONTACT - NORMALLY OPEN NUMBER INDICATES REFERENCE LETTER INDICATES FUNCTION
	CONTACT - NORMALLY CLOSED NUMBER INDICATES REFERENCE LETTER INDICATES FUNCTION
	SEPARABLE CONNECTOR
	SPLICE
	GROUND ROD
M	METER WITH CT PROVISIONS
XXXX	FEEDER TAG
SPD	SURGE PROTECTION DEVICE
	TRANSFORMER

ABBREVIATIONS

A,AMP	AMPERE
AIC	AMPS INTERRUPTING CURRENT
AF	AMPS FUSE, AMPS FRAME
AS	AMPS SWITCH
AT	AMPS TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BESS	BATTERY ENERGY STORAGE SYSTEM
CB	CIRCUIT BREAKER
CEC	CALIFORNIA ELECTRICAL CODE
CEC	CALIFORNIA ENERGY COMMISSION
CKT	CIRCUIT
CLG	CEILING
COMM	COMMUNICATIONS
C	CONDUIT
CO	CONDUIT ONLY
CTRL	CONTROL
CU	COPPER
D	DATA, DEDICATED
DC	DIRECT CURRENT
DIST	DISTRIBUTION
EG	EQUIPMENT GROUND
EX,EXIST.	EXISTING
EV	ELECTRIC VEHICLE
EVCS	ELECTRIC VEHICLE CHARGING STATION
EMS	ENERGY MANAGEMENT SYSTEM
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FMC	FLEXIBLE METAL CONDUIT
G,GND	GROUND
GFI,GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HH	HAND HOLE
HP	HORSEPOWER
IDF	INTERMEDIATE DISTRIBUTION FRAME/FACILITY
J-BOX	JUNCTION BOX
KVA	KILO-VOLT-AMPERES
KW	KILOWATT
LSI	LONG SHORT INSTANTANEOUS
LSIG	LONG SHORT INSTANTANEOUS GROUND
LTG	LIGHTING
MDF	MAIN DISTRIBUTION FRAME/FACILITY
MH	MANHOLE
MTD	MOUNTED
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
PB	PULLBOX
PH	PHASE
PNL	PANEL, PANELBOARD
POC	POINT OF CONNECTION
PV	PHOTOVOLATIC
RECEPT	RECEPTACLE
RO	RACEWAY ONLY
SM	SINGLE MODE
STC	STANDARD TESTING CONDITIONS
ST	SHUNT TRIP
SWBD	SWITCHBOARD
TELECOM	TELECOMMUNICATIONS
TYP	TYPICAL
UG	UNDER GROUND
UON	UNLESS OTHERWISE NOTED
V	VOLT OR VOICE
W	WIRE, WATT, WALLPHONE
WP	WEATHERPROOF
XFMR	TRANSFORMER
XR	EXISTING RELOCATED
Y	WYE
Δ	DELTA
Ø	PHASE

sitelogiQ
Efficiency Powered by Intelligence



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MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO.	231488-02
DRAWN	DLR
CHECKED	BD
DATE	04/11/2024

SHEET TITLE:

SYMBOLS AND ABBREVIATIONS

SHEET NO:

E001

SHEET OF XXX

SYSTEMS PLANS

THE FOLLOWING GENERAL NOTES APPLY TO ALL SPECIAL SYSTEMS PLAN DRAWINGS

1. MINIMUM RACEWAY SIZE SHALL BE 1" FOR TELECOMMUNICATIONS CABLING AND 3/4" FOR ALL OTHER SYSTEMS.
2. ALL SPECIAL SYSTEMS WIRING SHALL BE RUN UTILIZING OPEN WIRING METHOD ABOVE ACCESSIBLE CEILINGS. PROVIDE METALLIC RACEWAYS FOR WIRING INSTALLED IN WALLS, ABOVE INACCESSIBLE CEILING, WHERE EXPOSED OR WHERE SUBJECT TO PHYSICAL DAMAGE. RACEWAY FILL SHALL NOT EXCEED 40%.
3. PROVIDE 3/4" A-C FIRE RETARDANT PLYWOOD ON ALL FOUR WALLS OF THE MDF AND EACH IDF. MOUNT 8' DIMENSION VERTICAL. PAINT FLAT WHITE.
4. PROVIDE 1" C. FROM EACH FLOOR BOX TO ACCESSIBLE CEILING LOCATION. THIS IS IN ADDITION TO THE RACEWAYS SHOWN ON THE DRAWINGS.
5. ALL EXTERIOR FIRE ALARM AND INTERCOM DEVICES SHALL BE WEATHERPROOF.
6. STAPLES SHALL NOT BE USED TO SECURE LOW VOLTAGE CABLING.
7. COMPLY WITH 2022 CALIFORNIA ELECTRICAL CODE (CEC), ALONG WITH ALL LOCAL AMENDMENTS.
8. LOCATIONS OF TECHNOLOGY DEVICES AND OUTLETS INDICATED ON THE ARCHITECTURAL INTERIOR ELEVATIONS PLANS TAKE PRECEDENCE OVER LOCATIONS INDICATED ON THE TECHNOLOGY DRAWINGS.
9. COMMUNICATION OUTLET HEIGHTS SHOWN ARE MEASURED FROM THE FINISHED FLOOR TO THE CENTERLINE OF THE OUTLET UNLESS OTHERWISE NOTED.
10. PROVIDE SLEEVES THROUGH ALL FIRE RATED WALLS PENETRATIONS, OCCUPANCY SEPARATION WALLS, AND SMOKE COMPARTMENT WALLS ABOVE SUSPENDED CEILING HEIGHT, TO ACCOMMODATE CABLES FROM IT ROOMS TO CONDUIT AND HORIZONTAL DISTRIBUTION. QUANTITY TO EQUAL CAPACITY OF ASSOCIATE HORIZONTAL DISTRIBUTION SYSTEM. REFER TO ARCHITECTURAL DRAWINGS FOR RATED WALLS LOCATIONS AND FIRE STOPPING PENETRATION DETAIL.
11. CONTRACTOR TO COORDINATE RISER SLEEVE PENETRATIONS WITH STRUCTURAL AND ELECTRICAL ENGINEERS PRIOR TO CONCRETE SLAB/DECK AND SHEAR WALL PENETRATION.
12. CONTRACTOR TO SIZE AND PROVIDE CONDUIT FOR CABLING DISTRIBUTION SPANNING ALL HARD CEILING AREAS AND SOFFITS TO ACCESSIBLE CEILINGS (WHERE NECESSARY). REFER TO ARCHITECTURAL REFLECTED CEILING PLANS PRIOR TO CONDUIT ROUTING AND PENETRATIONS.
13. NOT ALL SYMBOLS AND ABBREVIATIONS ON THIS SHEET ARE USED.
14. ALL HORIZONTAL DISTRIBUTION COPPER AND FIBER OPTIC CABLE TO BE PLENUM RATED CABLE.
15. ALL CONDUITS THAT RUN THOUGH THE RETURN AIR PLENUM MUST BE PLENUM RATED.
16. ALL CABINETS, RACKS, LADDER RACKING (CABLE RUNWAY) AND VERTICAL MANAGERS MUST BE "GLACIER WHITE" COLOR.
17. ALL ROUTERS, I.T. RACKS, CABINETS, VERTICAL WIRE MANAGERS AND PDU's AT MDF, IDF ROOMS AND REMOTE IDF ROOMS(T.E.) ARE OWNER FURNISHED OWNER INSTALLED.(OFOI)
18. ALL ELEC/COMMUNICATIONS PENETRATIONS IN STAIRWELLS AND EXIT PASSAGEWAYS TERMINATE AS REQUIRED PER CBC 1021.1.2 AND 1021.5.
19. ALL LOW VOLTAGE CABLING TO BE IN CONDUIT WHEN NOT IN CABLE TRAY.

DEMOLITION PLANS

THE FOLLOWING GENERAL NOTES APPLY TO ALL DEMOLITION PLAN DRAWINGS

1. THE CONTRACT DOCUMENTS DO NOT SHOW ALL REQUIRED DEMOLITION WORK. THE CONTRACTOR SHALL SURVEY THE EXISTING CONDITIONS AND ESTABLISH THE EXTENT OF DEMOLITION PRIOR TO BID.
2. WHERE "ALL ELECTRICAL SYSTEMS" ARE NOTED TO BE REMOVED FROM AN AREA REMOVE ALL FIXTURES, DEVICES, EQUIPMENT, RACEWAYS, AND WIRING UNLESS OTHERWISE NOTED.
3. REMOVE ALL ELECTRICAL DISTRIBUTION EQUIPMENT, RACEWAYS, AND CONDUCTORS AS SHOWN ON THE EXISTING ONE-LINE DIAGRAM.
4. REMOVE ALL TEMPORARY WORK INSTALLED DURING THE COURSE OF CONSTRUCTION.
5. FOR EXISTING DEVICES TO BE DEMOLISHED. REMOVE DEVICE, RACEWAY AND WIRING BACK TO SOURCE, UON.
6. WHERE EXISTING RECEPTACLES ARE REMOVED, MAINTAIN CONTINUITY TO RECEPTACLES ON THE SAME CIRCUIT TO REMAIN.
7. WHERE EXISTING LOW VOLTAGE DEVICES ARE REMOVED, MAINTAIN CONTINUITY TO OTHER DEVICES.
8. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE REMOVAL OF THE EXISTING ELECTRICAL EQUIPMENT WITH THE GENERAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE ALL PANELS AND SWITCHBOARDS AND SHALL VERIFY ALL POWER IS DEAD IN AREAS BEFORE THE DEMOLITION BEGINS. ALL ELECTRICAL EQUIPMENT FROM THE MAIN SERVICE TO AND INCLUDING THE BRANCH CIRCUIT PANELS SHALL BE DEMOLISHED BY THE ELECTRICAL CONTRACTOR. CIRCUITS AND EQUIPMENT FROM THE BRANCH PANELS ON OUT SHALL BE DEMOLISHED BY THE ELECTRICAL CONTRACTOR. ALL EXISTING CONDUITS, WIRE, PANELS, DEVICES, LIGHTING FIXTURES, EXCEPT WHERE NOTED, ARE TO BE REMOVED UNLESS OTHERWISE NOTED.
9. ALL CONDUCTORS WILL BE REMOVED FROM ABANDONED CONDUITS.
10. ALL ABANDONED SURFACE MOUNTED BOXES WILL BE FILLED IN TO MATCH EXISTING WALLS.
11. REFER TO ARCHITECTURAL DEMOLITION PLAN FOR EXISTING BUILDING LAY OUT.
12. ALL EXISTING ELECTRICAL EQUIPMENT REMOVED SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE STORED OR REMOVED FROM SITE AS DIRECTED.
13. EXACT LOCATION OF EXISTING EQUIPMENT MAY VERY FROM LOCATIONS AS INDICATED ON PLANS. CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS THAT MAY RESULT IN A CONFLICT WITH NEW EQUIPMENT AND REVISE EXISTING DEVICE TO ACCOMMODATE NEW INSTALLATION.
14. EVERY EFFORT HAS BEEN MADE TO COORDINATE EXISTING ELECTRICAL INFORMATION. HOWEVER, DISCREPANCIES MAY EXIST BETWEEN ACTUAL AND SHOWN CONDITIONS AND ELECTRICAL WORK. ELECTRICAL CONTRACTOR SHOULD EXPECT MINOR DEVIATIONS TO OCCUR AND IS EXPECTED TO WORK THROUGH THEM WITH ASSISTANCE FROM THE OWNER AND ELECTRICAL ENGINEER.
15. ALL ELECTRICAL EQUIPMENT SHALL BE DE-ENERGIZED PRIOR TO COMMENCING ANY DEMOLITION WORK.
16. FOLLOW ALL LOCKOUT/TAGOUT PROCEDURES PER NFPA 70E.
17. DEMOLISH ELECTRICAL CIRCUITS AS NECESSARY TO ACCOMMODATE RENOVATION WORK. REMOVE ALL ELECTRICAL DEVICES (DISCONNECTS, STARTERS, WIRING, CONDUIT, ETC.) ASSOCIATED WITH EQUIPMENT REMOVED BY OTHERS. EXISTING CIRCUITS SERVING LIGHTING FIXTURES AND/OR RECEPTACLES FOR A GIVEN AREA SHALL BE REUSED TO THE FULLEST EXTENT POSSIBLE AND SHALL SERVE THE NEW LAYOUT FOR THAT AREA. PROVIDE CIRCUIT MODIFICATIONS INDICATED OR AS OTHERWISE REQUIRED TO MAINTAIN THE CONTINUITY OF EXISTING CIRCUITS THAT REMAIN.
18. ALL EXISTING DEVICES SHOWN ARE BASED ON ENGINEER'S FIELD OBSERVATION ONLY. ALL DEVICES MAY NOT HAVE BEEN ABLE TO BE OBSERVED. VERIFY AND REMOVE ALL HIDDEN DEVICES AS REQUIRED.
19. REFER TO ARCHITECTURAL DEMOLITION PLANS FOR EXISTING WALLS, EQUIPMENT AND FURNITURE TO BE DEMOLISHED. ALL ELECTRICAL DEVICES, ASSOCIATED CONDUITS AND WIRES ON THESE WALLS SHALL BE DISCONNECTED AND REMOVED. IF DEVICES SHARING SAME CIRCUITS WITH DEMOLISHED DEVICES ON THEIR DOWNSTREAM SIDE ARE REQUIRED TO REMAIN ENERGIZED SUCH AS AT OCCUPIED AREAS, CONTRACTOR SHALL EXTEND CONDUITS AND WIRES FROM THESE REMAINING DEVICES BACK TO ORIGINAL BRANCH CIRCUITS.
20. EXISTING LIGHTING BALLASTS AND LAMPS MAY CONTAIN HAZARDOUS MATERIALS AND ELEMENTS. DISPOSE OF BALLASTS AND LAMPS IN ACCORDANCE WITH EPA REGULATIONS.
21. TRACE ALL CIRCUITS IN EXISTING PANELS TO REMAIN SERVING AREAS AFFECTED BY DEMOLITION. LABEL ALL LOADS AND UNUSED CIRCUIT BREAKERS AND TIGHTEN ALL CONNECTIONS. PROVIDE NEW TYPED DIRECTORY PROTECTED BY PLASTIC AND PLACE IN COVER OF PANELS CONSISTENT WITH NEW CONSTRUCTION.
22. TRACE AND DETERMINE THE PANELBOARD AND BRANCH CIRCUIT BREAKER ASSIGNMENT OF EACH EXISTING LIGHTING FIXTURE OUTLET, RECEPTACLE OUTLET, MOTOR CONNECTION, EQUIPMENT CONNECTIONS AND SIMILAR ITEMS. INCLUDING MECHANICAL AND PLUMBING EQUIPMENT AND EQUIPMENT ABOVE CEILINGS. ANNOTATE THE CORRECT CIRCUIT ASSIGNMENTS ON PANEL BOARD DIRECTORIES AND ON THE EXISTING CONDITION (RECORD / AS-BUILT) DRAWINGS PROVIDED BY THE OWNERS REPRESENTATIVE FOR THIS PURPOSE.
23. EXISTING CONDUITS CAN BE REUSED IF POSSIBLE. PULL IN ALL NEW WIRE.

ONE-LINE DIAGRAM

1. PROVIDE PULL BOXES AS REQUIRED BY THE CALIFORNIA ELECTRICAL CODE (CEC).
2. SHORT CIRCUIT CURRENTS LESS THAN 10,000 ASYM FOR 208V PANELS AND 14,000 ASYM FOR 480V PANELS ARE NOT SHOWN.
3. THE ONE-LINE DIAGRAM IS DIAGRAMMATIC AND DOES NOT SHOW THE ACTUAL ROUTING OF THE RACEWAYS.
4. FOR TWO SECTION PANELS PROVIDE FULL SIZE FEEDER CONNECTIONS FROM SECTION 1 TO SECTION 2.
5. ALL TRANSFORMERS ARE 480V 3 PHASE 3 WIRE PRIMARY: 208Y/120V 3 PHASE, 4 WIRE SECONDARY, NEMA TP-1 RATED, U.O.N.
6. ALL TRANSFORMERS SHALL BE K-4 RATED, U.O.N.
7. NOT ALL CIRCUIT BREAKERS ARE SHOWN. REFER TO PANEL AND SWITCHBOARD SCHEDULES FOR OTHER LOADS SERVED, AND SPARE CIRCUIT BREAKERS.
8. TEST ALL GROUND FAULT RELAYS AS REQUIRED BY THE CALIFORNIA ELECTRICAL CODE (CEC).

SITE PLANS

THE FOLLOWING GENERAL NOTES APPLY TO ALL SITE PLAN DRAWINGS

1. COORDINATE ROUTING OF UNDERGROUND RACEWAYS WITH ALL NEW AND EXISTING UTILITIES. REFER TO CIVIL DRAWINGS.
2. CONTRACT WITH A LOCATOR SERVICE TO MARK THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO EXCAVATION.
3. ALL SITE LIGHTING RACEWAYS SHALL BE 1" C. U.O.N.
4. ROUTE ALL SITE LIGHTING CIRCUITS VIA LIGHTING CONTROL PANEL.
5. PROVIDE ALL REQUIRED CUTTING, PATCHING, EXCAVATION, COMPACTION, AND PATCHING FOR INSTALLATION OF UNDERGROUND RACEWAYS AND UTILITY SERVICES.
6. BACKFILL ALL TRENCHES (INCLUDING THOSE FOR UTILITY SERVICES) WITH STRUCTURAL BACKFILL OR GRAVEL BORROW PER WSDOT STANDARDS.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL COORDINATION WITH THE SERVING UTILITY COMPANIES INCLUDING COMPLETING AND SUBMITTING ALL NECESSARY APPLICATIONS FOR SERVICE.
8. CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS AND EASEMENTS.

POWER PLANS

THE FOLLOWING GENERAL NOTES APPLY TO ALL POWER AND SYSTEMS PLAN DRAWINGS

1. CIRCUIT ALL FIRE/SMOKE DAMPERS AND SMOKE DAMPERS FROM NEAREST 120V EMERGENCY PANEL WITH 1/2"-3#12. UTILIZE SPARE 20A-1P BREAKER PROVIDED. RECORD CIRCUITING ON AS-BUILT DRAWINGS. REFER TO MECHANICAL DRAWINGS FOR DAMPER LOCATIONS.
2. COORDINATE LOCATIONS OF BAS CONTROL POWER WITH THE CONTROLS CONTRACTOR PRIOR TO ROUGH-IN.
3. PROVIDE DISCONNECT SWITCH OR COMBINATION STARTER FOR EACH PIECE OF EQUIPMENT AS SHOWN ON MECHANICAL EQUIPMENT COORDINATION SCHEDULE.
4. PRIOR TO ROUGH-IN OF ALL EQUIPMENT SPECIFIED BY OTHER DIVISIONS, COORDINATE WITH THE EQUIPMENT MANUFACTURER TO ESTABLISH ALL REQUIREMENTS FOR EACH PIECE OF EQUIPMENT.
5. ALL EXTERIOR RECEPTACLES SHALL BE WP/GFI.
6. ALL EXTERIOR DISCONNECTS/STARTERS SHALL BE NEMA 3R.
7. ALL HOMERUNS OVER 75' SHALL BE #10 AWG MINIMUM.
8. FEEDER ROUTING SHOWN IS APPROXIMATE. COORDINATE WITH MECHANICAL SYSTEMS AND BUILDING STRUCTURE. PROVIDE OFFSETS AS REQUIRED.
9. ALL RECEPTACLES WITHIN 6 FEET OF A SINK SHALL BE GFI TYPE.
10. PROVIDE COORDINATION STUDY PER SPECIFICATION 260573. PROVIDE PERMANENT LABELS IN ACCORDANCE WITH CALIFORNIA ELECTRICAL CODE (CEC) 110.24 TO LIST AVAILABLE FAULT BASED ON RESULTS OF COORDINATION STUDY.

EQUIPMENT CONNECTIONS

1. VERIFY ELECTRICAL REQUIREMENTS WITH MANUFACTURER SHOP DRAWINGS PRIOR TO ROUGH-IN.
2. INSTALL AND WIRE EQUIPMENT PER MANUFACTURER SHOP DRAWINGS.
3. PROVIDE ALL RACEWAYS, WIRING AND ANCILLARY EQUIPMENT AS SHOWN ON MANUFACTURER SHOP

CALIFORNIA STATE NONRESIDENTIAL ENERGY CODE COMPLIANCE

1. COMMISSIONING REQUIREMENTS: ALL LIGHTING CONTROLS INCLUDING DAYLIGHT OR OCCUPANT SENSING AUTOMATIC CONTROLS, AUTOMATIC SHUT OFF CONTROLS, OCCUPANCY SENSORS OR AUTOMATIC TIME SWITCHES, THE LIGHTING CONTROLS SHALL BE TESTED TO ENSURE THAT CONTROL DEVICES, COMPONENTS, EQUIPMENT AND SYSTEMS ARE CALIBRATED, ADJUSTED AND OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS. SEQUENCE OF OPERATIONS SHALL BE FUNCTIONALLY TESTED TO ENSURE THEY OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE A WRITTEN STATEMENT CERTIFYING ALL LIGHTING CONTROLS HAVE BEEN COMMISSIONED. INCLUDE CERTIFICATION IN O&M MANUAL.
2. TRANSFORMERS: THE MINIMUM EFFICIENCY OF ALL LOW VOLTAGE DRY-TYPE DISTRIBUTION TRANSFORMERS SHALL BE THE CLASS 1 EFFICIENCY LEVELS FOR DISTRIBUTION TRANSFORMERS SPECIFIED IN TABLE 4-2 OF THE "GUIDE FOR DETERMINING ENERGY EFFICIENCY FOR DISTRIBUTION TRANSFORMERS" PUBLISHED BY THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA TP-1, LATEST EDITION).

BRANCH CIRCUIT WIRING

THE FOLLOWING GENERAL NOTES APPLY TO ALL DRAWINGS

1. IN GENERAL ONLY CIRCUIT NUMBERS HAVE BEEN SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED RACEWAYS AND WIRING.
2. SHOW ALL RACEWAYS AND WIRING ON AS-BUILT DRAWINGS.
3. GENERAL:
   A. MINIMUM RACEWAY SIZE SHALL BE 1/2"
   B. NO MORE THAN 7#12 AWG CONDUCTORS SHALL BE INSTALLED IN A RACEWAY.
   C. HOMERUNS GREATER THAN 75 FEET TO THE FIRST DEVICE SHALL BE NO. 10 AWG MINIMUM.
   D. LIGHTING, POWER AND MECHANICAL EQUIPMENT CONDUCTORS SHALL NOT BE COMBINED IN THE SAME RACEWAY.
   E. PROVIDE A GROUND CONDUCTOR IN ALL RACEWAYS.
   F. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT.
4. LIGHTING:
   A. PROVIDE CONDUCTORS AS REQUIRED TO PROVIDE CIRCUITING AND SWITCHING DUTY AS SHOWN ON THE DRAWINGS.
   B. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT.
5. POWER
   A. PROVIDE CONDUCTORS AS REQUIRED TO PROVIDE CIRCUITING SHOWN.
   B. FOR OTHER THAN 15 OR 20 AMP SINGLE PHASE RECEPTACLE BRANCH CIRCUITS PROVIDE A DEDICATED HOMERUN TO THE PANEL.
   C. FOR 30 AMP BRANCH CIRCUITS PROVIDE #10 AWG CONDUCTORS.
   D. FOR 40 AMP AND LARGER BRANCH CIRCUITS PROVIDE RACEWAYS AND WIRING AS SHOWN ON THE DRAWINGS.
   E. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT.

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY TO ALL DRAWINGS

1. REFER TO SPECIFICATIONS AND ALL OTHER DIVISION DOCUMENTS FOR ADDITIONAL REQUIREMENTS.
2. ELECTRICAL CONTRACTOR SHALL COORDINATE WORK WITH OTHER TRADES.
3. ALL MATERIALS SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES, INC.
4. CATALOG NUMBERS USED IN SYMBOLS LIST AND FIXTURE SCHEDULE ARE TO BE AS NOTED OR APPROVED EQUALS. MAINTAIN SPECIFIED GRADE.
5. IT IS THE INTENT OF THE ELECTRICAL CONTRACT DOCUMENTS THAT ALL ELECTRICAL SYSTEMS ARE INSTALLED COMPLETE, TESTED AND READY FOR OPERATION, UNLESS SPECIFICALLY NOTED OTHERWISE AND WHETHER OR NOT EVERY ITEM OF EQUIPMENT, DEVICE, BOX, ETC. IS SHOWN ON THE PLANS. ELECTRICAL SUBCONTRACTOR SHALL BE ON THE PREMISES OPENING DAY.
6. LOCATIONS OF ALL DEVICES ARE SHOW SCHEMATICALLY. COORDINATE WITH THE ARCHITECTURAL DRAWINGS, REFLECTED CEILING PLANS, ELEVATIONS AND CASEWORK, SUPPLIER'S SHOP DRAWINGS FOR EXACT LOCATION PRIOR TO ROUGH-IN. WHERE OUTLET GROUPINGS OCCUR, MOUNT BOXES AS CLOSE TO EACH OTHER AS PRACTICAL. OUTLETS SHALL NOT BE MOUNTED BACK TO BACK ON THE SAME WALL, BUT WILL HAVE MINIMUM LATERAL SEPARATION OF 12" OR (1) STUD SPACE. CONNECT OUTLETS WITH FLEX STEEL CONDUIT. ON FIRE WALLS SEPARATION MUST BE 24".
7. SEAL ALL PENETRATIONS IN RATED WALLS, FLOORS AND CEILINGS WITH A UL APPROVED FIRE STOP SYSTEM.
8. PROVIDE A 220 LB NYLON JET PULL STRING IN ALL EMPTY RACEWAYS.
9. PROVIDE EMT RACEWAY FOR WIRING RUNNING THROUGH WALLS, FLOOR, AND CEILINGS.
10. ALL CONDUIT AND RACEWAY SHALL BE RUN CONCEALED UNLESS NOTED OTHERWISE AND SHALL BE RUN PARALLEL OR PERPENDICULAR TO STRUCTURAL MEMBERS, WALLS, CEILINGS, OR FLOORS. NO STRUCTURAL MEMBER SHALL BE CUT OR ALTERED WITHOUT PRIOR APPROVAL OF THE ARCHITECT AND STRUCTURAL ENGINEER.
11. ALL CONDUIT BELOW CONCRETE SLABS SHALL BE RIGID, HOT-DIPPED GALVANIZED STEEL CONDUIT OR RIGID, CODE APPROVED PVC.
12. THE INSTALLATION SHALL COMPLY WITH THE 2022 EDITION OF THE CALIFORNIA ELECTRICAL CODE (CEC), THE AUTHORITY HAVING JURISDICTION, AND UTILITY REQUIREMENTS.
13. THE CONTRACTOR SHALL ENSURE THAT THE ENTIRE ELECTRICAL SYSTEM FOR THIS BUILDING IS GROUNDED IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF ARTICLE 250 OF THE CALIFORNIA ELECTRICAL CODE (CEC).
14. WORKING SPACE ABOUT ELECTRICAL PANELS, SWITCHGEAR, ETC SHALL COMPLY WITH CALIFORNIA ELECTRICAL CODE (CEC) ARTICLE 110.26.
15. ALL MULTI-WIRE CIRCUITS SHALL BE WIRED SO DEVICES MAY BE REMOVED WITHOUT BREAKING CONTINUITY OF NEUTRAL CONDUCTOR OR ELSE BE ON A COMMON TRIP BREAKER.
16. PROVIDE ALL EXPANSION FITTINGS, PITCH POCKETS, EQUIPMENT SUPPORTS, AND ACCESS DOORS AS REQUIRED FOR ELECTRICAL WORK.
17. PROVIDE EQUIPMENT LABELS FOR DISCONNECT SWITCHES, SWITCHBOARDS, PANELBOARDS, WIRING TROUGHS, ETC. TO IDENTIFY EQUIPMENT OR EQUIPMENT SERVED, IDENTIFY THE UPSTREAM SOURCE OF THE EQUIPMENT. LABELS SHALL BE 1/8" THICK OF PHENOLIC MATERIAL, MACHINE ENGRAVED TO EXPOSE CONTRASTING INNER CORE.
18. ELECTRICAL CONTRACTOR SHALL ARRANGE ALL INSPECTIONS AND PAY ALL FEES. SUBMIT COPY OF FINAL INSPECTION REPORT TO THE OWNER.
19. NOT ALL LEGEND AND ABBREVIATIONS ARE NECESSARY OR REQUIRED FOR THIS DRAWING SET.
20. WHERE A CONFLICT EXISTS WITHIN THE DOCUMENTS, THE MOST EXPENSIVE OPTION SHALL GOVERN.
21. ELECTRICAL CONTRACTOR SHALL TOUR THE PROJECT SITE PRIOR TO BID TO ASSESS EXISTING CONDITIONS, WHICH MAY AFFECT HIS BID. LATER CLAIMS FOR WORK THAT WAS EVIDENT WILL NOT BE ALLOWED.
22. ITEMS NOTED AS "TYPICAL" ON ANY DRAWING REFERS TO ALL DRAWINGS.
23. NO STRUCTURAL MEMBERS SHALL BE CUT OR ALTERED WITHOUT PRIOR APPROVAL OF THE ARCHITECT AND STRUCTURAL ENGINEER.
24. ALL RACEWAYS WITHIN THE BUILDING SHALL BE RUN OVERHEAD U.O.N. RACEWAYS SHALL NOT BE RUN UNDER THE FLOOR SLAB UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS.
25. ALL RACEWAYS IN FINISHED SPACES SHALL BE CONCEALED.
26. MOUNT ALL DEVICES ABOVE COUNTERS 6" ABOVE BACKSPLASH UNLESS NOTED OTHERWISE.
27. CONDUITS GREATER THAN 2 INCHES TRADE SIZE AND ATTACH TO PANELS, CABINETS, OR OTHER EQUIPMENT SHALL BE PROVIDED WITH FLEXIBLE CONNECTIONS.
28. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COMPLETE SET OF DRAWINGS AND SPECIFICATIONS. HE/SHE SHALL CHECK THE DRAWINGS OF THE OTHER TRADES AND SHALL CAREFULLY READ THE ENTIRE SPECIFICATIONS AND DETERMINE HIS RESPONSIBILITIES. FAILURE TO DO SO, SHALL NOT RELEASE THE CONTRACTOR FROM DOING THE WORK IN COMPLETE ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
29. WHEREVER A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT DEVICES, CIRCUIT BREAKERS, TRANSFORMERS, GROUND FAULT PROTECTION SYSTEM, ETC. ARISES ON THE DRAWINGS AND/OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS NOTED ON DRAWINGS AND/OR IN THE SPECIFICATIONS TO ENSURE COMPLETE AND OPERABLE SYSTEMS AS REQUIRED BY THE OWNER OR ENGINEER.
30. UNLESS DIMENSIONED, CIRCUIT ROUTING INDICATED IS DIAGRAMMATIC.
31. ALL EXTERIOR ELECTRICAL EQUIPMENT SHALL BE NEMA 3R AND LISTED FOR EXTERIOR ENVIRONMENTS.
32. NO RACEWAYS SHALL BE RUN IN FLOOR SLABS.
33. PROVIDE 2" EMT SLEEVES FOR LOW VOLTAGE WIRING RUNNING THROUGH NON-RATED WALLS, FLOORS AND CEILINGS.
34. PROVIDE A COMPLETE DESIGN-BUILD PATHWAY SYSTEM FOR ALL SPECIAL SYSTEMS WIRING, SEE SPECIFICATIONS. QUANTITY AND SIZE OF RACEWAYS SHOWN ON SPECIAL SYSTEMS PLANS ARE THE MINIMUM TO BE PROVIDED. CONTRACTOR SHALL PROVIDE ALL RACEWAYS AS REQUIRED.
35. COMPLY WITH THE 2022 CALIFORNIA ELECTRICAL CODE (CEC) AS ADOPTED AND AMENDED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
36. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES AT THE SITE. ANY COST TO ROUTE CONDUIT OTHER THAN AS SHOWN ON THE PLANS SHALL BE INCURRED BY THE CONTRACTOR.

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MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO.	231488-02
DRAWN	DLR
CHECKED	BD
DATE	04/11/2024

SHEET TITLE:

GENERAL NOTES

SHEET NO:

E002

SHEET OF XXX

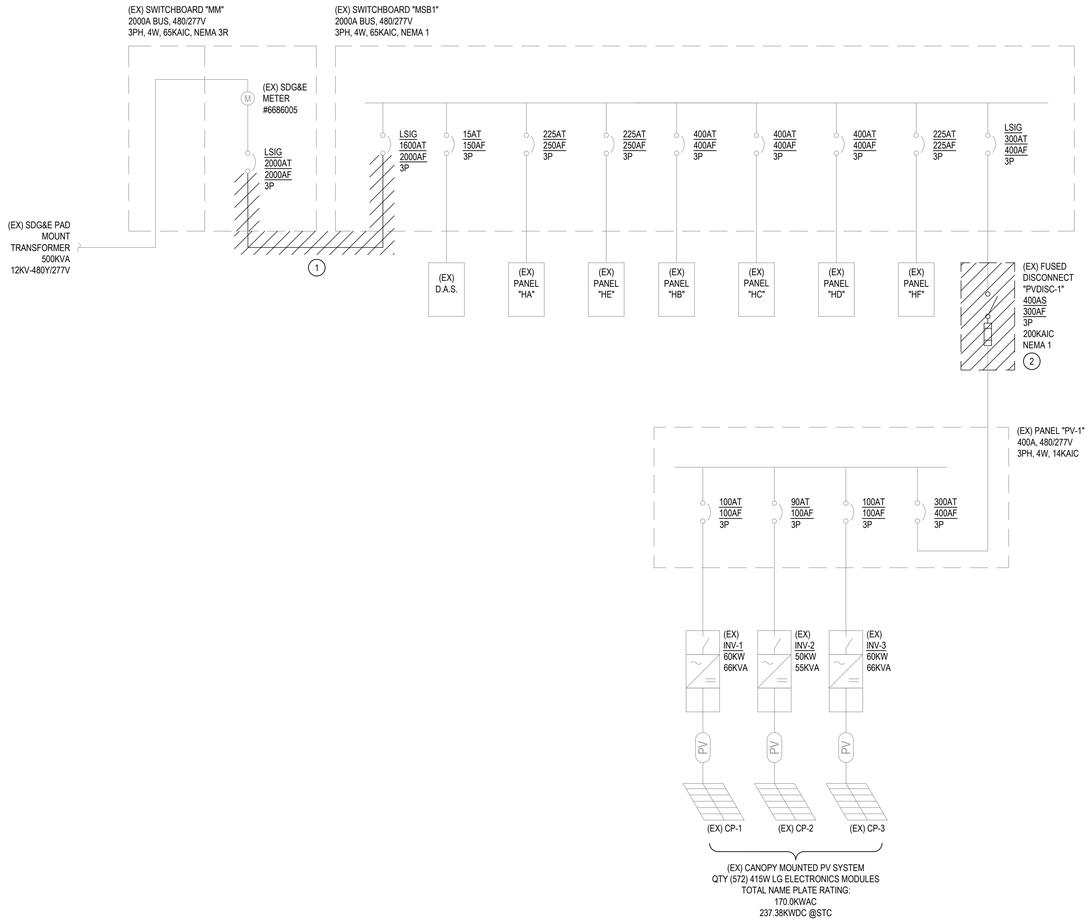
GENERAL NOTES

1. REFER TO SHEET E002 FOR GENERAL NOTES.

KEY NOTES

1. REMOVE EXISTING FEEDER. CAP AND ABANDON EXISTING CONDUIT IN PLACE. COORDINATE DISCONNECTION WITH SDG&E AND OWNER.

2. REMOVE EXISTING DISCONNECTS AND PREPARE FEEDER FOR REUSE. PRESERVE POWER AND GROUND CONDUCTORS FOR REUSE AND USE THE BELOW TESTING PROCEDURE UNDER THE NEW SCOPE OF WORK:
CABLES WILL BE CONSIDERED DEFECTIVE IF THEY DO NOT PASS TESTS AND INSPECTIONS AND WILL REQUIRE NEW CABLES TO BE PULLED IN EXISTING CONDUITS. TEST CABLES BEFORE AND AFTER WORK.
TESTING PROCEDURE PER LATEST NETA ATS STANDARDS:
- INSPECT EXPOSED SECTIONS OF CONDUCTOR AND CABLE FOR PHYSICAL DAMAGE AND CORRECT CONNECTION ACCORDING TO SINGLE LINE DIAGRAM.
- CONDUCT INSULATION RESISTANCE (MEGGER) TEST ON EACH CONDUCTOR WITH RESPECT TO GROUND AND ADJACENT CONDUCTORS.
- APPLY POTENTIAL OF 500VDC TO 300V RATED CABLE AND 1000VDC FOR 600V RATED CABLE FOR A ONE-MINUTE DURATION.
- ENSURE ALL POWER AND COMMUNICATIONS CONNECTIONS CONTAIN THE PROPER SIZE, TYPE AND LENGTH OF WIRE TO MEET THE PROPOSED PROJECT REQUIREMENTS.
- INSPECT AND TEST CABLES DURING EQUIPMENT DEMOLITION. INSPECT AND TEST A SECOND TIME PRIOR TO CONNECTING TO NEW EQUIPMENT.



1 ED100 DEMO SINGLE LINE DIAGRAM
SCALE: NONE

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DRAWN	DLR
CHECKED	BD
DATE	04/11/2024

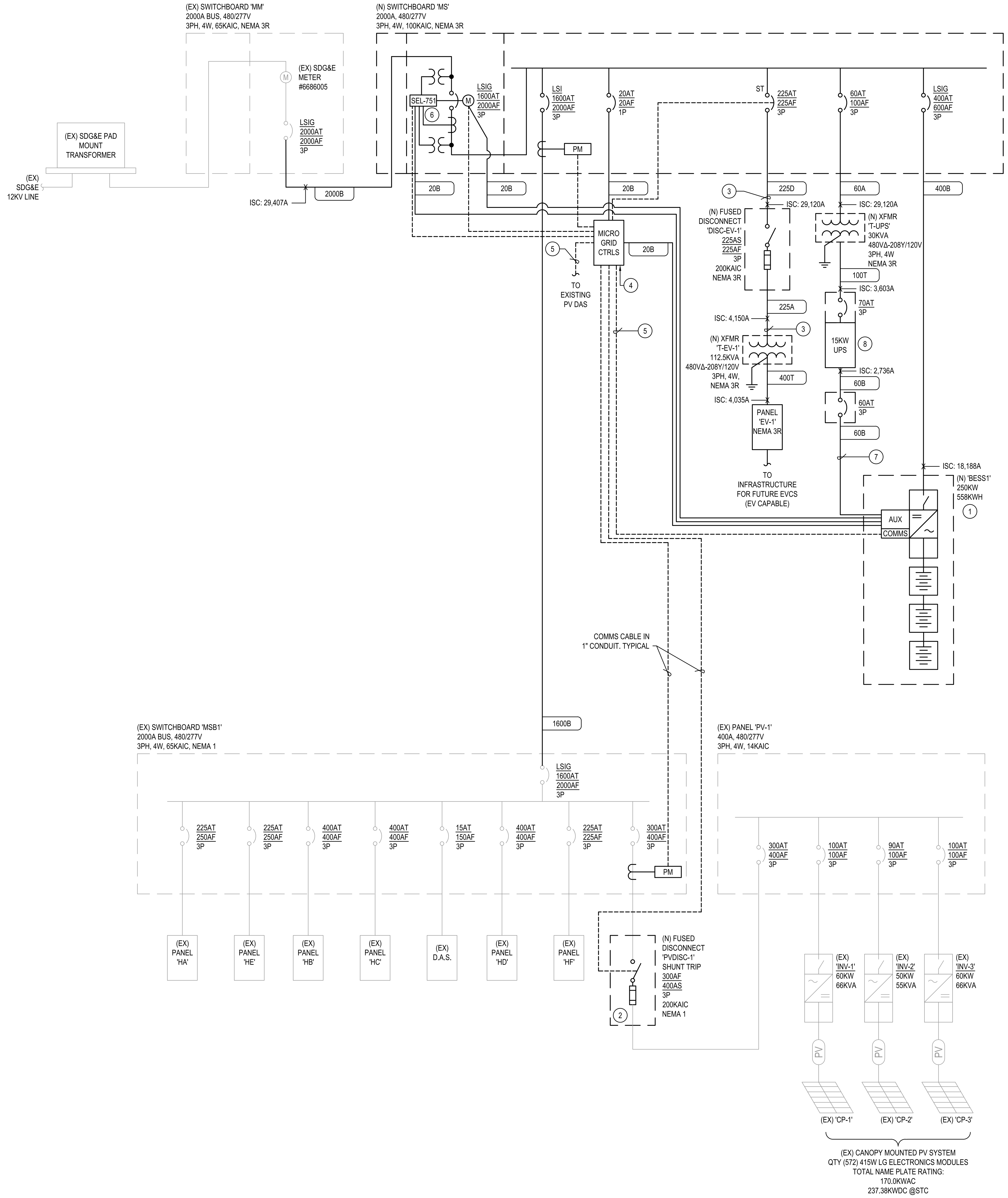
SHEET TITLE:

DEMO SINGLE LINE DIAGRAM

SHEET NO:

ED100

SHEET OF XXX



1 E101 **PROPOSED SINGLE LINE DIAGRAM**
SCALE: NONE

GENERAL NOTES

1. REFER TO SHEET E002 FOR GENERAL NOTES.
2. REFER TO SHEET 3/E300 FOR COPPER FEEDER SCHEDULE.
3. REFER TO SHEET 4/E300 FOR TRANSFORMER COPPER FEEDER SCHEDULE.

KEY NOTES

(1) BATTERY ENERGY STORAGE SYSTEM:
SOCOMEC: HES-250L-558, 250KW/558KWH, 480/277V, 3PH, NEMA 3R

(2) TEST CONDUCTORS AT DEMOLITION PHASE AND AFTER NEW WORK PHASE. IF THE CONDUCTORS DO PASS THE TESTING PROCEDURE, REUSE EXISTING FEEDER CONDUCTORS AND EQUIPMENT GROUND CONDUCTOR. IF FEEDER HAS INSUFFICIENT LENGTH FOR PROPOSED WORK, THEN PULL A NEW FEEDER.

(3) REUSE EXISTING SPARE CONDUIT LABELED "EV" FOR NEW EVCS SYSTEM. PROVIDE NEW CONDUCTORS.

(4) ENERGY MANAGEMENT SYSTEM:
ACUMEN EMS OR APPROVED EQUAL. THE CONTROLS WILL NOT HAVE ANY UTILITY INTERFACE. VOLTAGE REFERENCE FOR ALL CUSTOMER OWNED METERS WILL BE OBTAINED BY SEL RELAY. CONTRACTOR TO PROVIDE ALL EQUIPMENT REQUIRED BY THE ACUMEN SYSTEM INCLUDING DIGIBOXES, I35'S, ETC. FOR A FULLY FUNCTIONAL SYSTEM. I35 DIGITAL POWER METERS FEED THROUGH EMS CABINET TO THEIR TERMINATION INSIDE THE C-CAB.

(5) PROVIDE CONNECTION FOR MICROGRID CONTROLLER TO NEW BESS, EXISTING DAS, AND COORDINATE FINAL DATA CONNECTIONS IN IDF ROOM PER DAS REQUIREMENTS WITH DIRECTION FROM THE DISTRICT'S I.T. STAFF. EFFECTIVELY INTEGRATE MICROGRID CONTROLS WITH EXISTING METER FOR EXISTING PV OUTPUT. IF EXISTING METER CANNOT BE CONFIGURED AS SUCH, PROVIDE NEW PV METER ON THE EXISTING PV OUTPUT. PROVIDE INFRASTRUCTURE FOR LOAD SHEDDING CAPABILITY: PROVIDE A BACNET CARD AT THE BESS FOR FUTURE CONNECTION BY THE DISTRICT IF LOAD SHEDDING BECOMES A DESIRE IN THE FUTURE. ADDITIONALLY, PROVIDE A CONNECTION TO THE EXISTING FIRE ALARM PANEL TO REPORT TROUBLE/ALARM. PROVIDE A MONITORING MODULE AT THE FIRE ALARM PANEL AND COORDINATE SUPERVISORY MONITORING WITH THE FIRE ALARM PROVIDER (JCI FIRE PANEL - HONEYWELL XLS-1000 OR OLDER NOTIFIER).

(6) PROVIDE SEL-751 RELAY WITH 120V INTEGRAL CONTROL POWER AND PROGRAMMING. ENSURE SEL-751 RELAY EFFECTIVELY OPERATES AND CAN TRIP THE MAIN BREAKER PER A CONTRACTOR PROVIDED COORDINATION STUDY AND SIGNAL FROM MICROGRID CONTROLS. CONFIGURE FOR NON EXPORT CONTROL IN ACCORDANCE WITH UTILITY GUIDELINES. CONFIGURE MICROGRID CONTROLS SUCH THAT VOLTAGE SENSE ON THE LINE AND LOAD SIDE OF THE MAIN BREAKER CAN COMMUNICATE MAIN BREAKER STATUS. ENSURE COMMUNICATION WITH METERING INFORMATION. PROVIDE SEL MODEL NUMBER PER THE BESS MANUFACTURER SUPPLIED LITERATURE.

(7) PROVIDE CONNECTION FOR UPS TO C-CAB (1) AND EACH B-CAB (3) OF BESS PER SOCOMEC RESILIENCY REQUIREMENTS DOCUMENTATION.

(8) EATON 9355 UPS:
15KVA/13.5KW AT 0.9PF, 5-MINUTE RUNTIME, 208Y/120V, 3PH OR APPROVED EQUAL.

BATTERY ENERGY STORAGE SYSTEM NOTES

1. 528KWH USABLE CONFIGURATION: 5 POWER MODULES/INVERTERS, 3 BATTERY ENCLOSURES, INSTALL PER DSA REQUIREMENTS FOR LITHIUM IRON PHOSPHATE NEAR EXPOSURES.
2. BESS MUST HAVE A VALID UL1741 SB+CRD CERTIFICATE AND UL9540 CERTIFICATE WITH AN ACCEPTABLE UL9540A TEST. REFER TO SHEET E400 FOR MORE INFORMATION.
3. THE BESS IS CAPABLE OF MANY DIFFERENT OPERATING MODES IN TWO DIFFERENT CATAGORIES: ON GRID AND OFF-GRID.
4. WHEN IN ON-GRID MODE, IT IS INTENDED FOR THE BESS TO OPERATE AS TIME-OF-USE (T.O.U.) CONTROL PER THE REQUIREMENTS OF JA12.2.3.2: "THE BATTERY ENERGY STORAGE SYSTEM SHALL BE INSTALLED IN THE DEFAULT OPERATION MODE TO ALLOW CHARGING FROM AN ON-SITE PHOTOVOLTAIC SYSTEM. THE BATTERY STORAGE SYSTEM SHALL BEGIN DISCHARGING DURING THE HIGHEST PRICED T.O.U. HOURS OF THE DAY. THE OPERATION SCHEDULE SHALL BE PREPROGRAMMED FROM FACTORY, UPDATED REMOTELY, OR PROGRAMMED DURING THE INSTALLATION/COMMISSIONING OF THE SYSTEM. AT A MINIMUM, THE SYSTEM SHALL BE CAPABLE OF PROGRAMMING THREE SEPARATE SEASONAL T.O.U. SCHEDULES, SUCH AS SPRING, SUMMER AND WINTER"
5. WHEN IN OFF-GRID MODE, IT IS INTENDED TO OPERATE PER THE TABLE ON SHEET E400.
6. ADDITIONALLY, IT IS INTENDED THAT THE PV AND BESS WILL OPERATE IN A NON-EXPORT SCENARIO. AS A FAILSAFE FOR THIS, AN SEL-751 RELAY WITH CONTROLS SHOULD BE INTEGRATED AND PROGRAMMED BY THE CONTRACTOR SUCH THAT THE PV AND BESS WILL NEVER EXPORT TO THE UTILITY COMPANY. THE BESS CONTROLS SHOULD ALSO BE CAPABLE OF SENDING A SIGNAL TO THE RELAY TO EFFECTIVELY SHUNT TRIP THE MAIN BREAKER AND ACTUATE THE MOTORIZED BREAKER CLOSING MECHANISM.

LOAD SUMMARY:

POWER PRODUCTION LOAD SUMMARY (NEWLY ADDED LOADS - MS):

BESS1 TOTAL:	250.0KVA / 300.8A @ 480V
WITH 125% DEMAND:	312.5KVA / 376.0A @ 480V

POWER CONSUMPTION LOAD SUMMARY (NEWLY ADDED LOADS - MS):

BESS1 TOTAL:	250.0KVA / 300.8A @ 480V
MICROGRID CONTROLS:	16.6KVA / 20.0A @ 480V
UPS:	17.3KVA / 20.7A @ 480V
EV-1 TOTAL:	109.8KVA / 132.2A @ 480V
TOTAL LOAD:	393.7KVA / 473.7A @ 480V
WITH 125% DEMAND:	492.2KVA / 592.2A @ 480V

SERVICE LOAD CALCULATION (NEW PLUS EXISTING LOADS - MS):

(EX) MSB1:	59.3KVA / 71.4A @ 480V*
MS:	393.7KVA / 473.7A @ 480V
TOTAL LOAD:	453.0KVA / 545.1A @ 480V
WITH 125% DEMAND:	566.3KVA / 681.4A @ 480V

TOTAL EXISTING PV POWER PRODUCTION:

(EX) PV CANOPIES:	170.0KVA / 204.6A @ 480V
TOTAL LOAD:	170.0KVA / 204.6A @ 480V
WITH 125% DEMAND:	212.5KVA / 255.8A @ 480V

TOTAL EXISTING PV + NEW BESS INVERTER NAMEPLATE CAPACITY:

(EX) PV:	170.0KVA / 204.6A @ 480V
NEW BESS DISCHARGING:	250.0KVA / 300.8A @ 480V
TOTAL LOAD:	420.0KVA / 505.4A @ 480V
WITH 125% DEMAND:	525.0KVA / 631.8A @ 480V

*THIS DATA WAS OBTAINED FROM SDG&E METERING DATA PROVIDED BY SDUSD.

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MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO.	231488-02
DRAWN	DLR
CHECKED	BD
DATE	04/11/2024

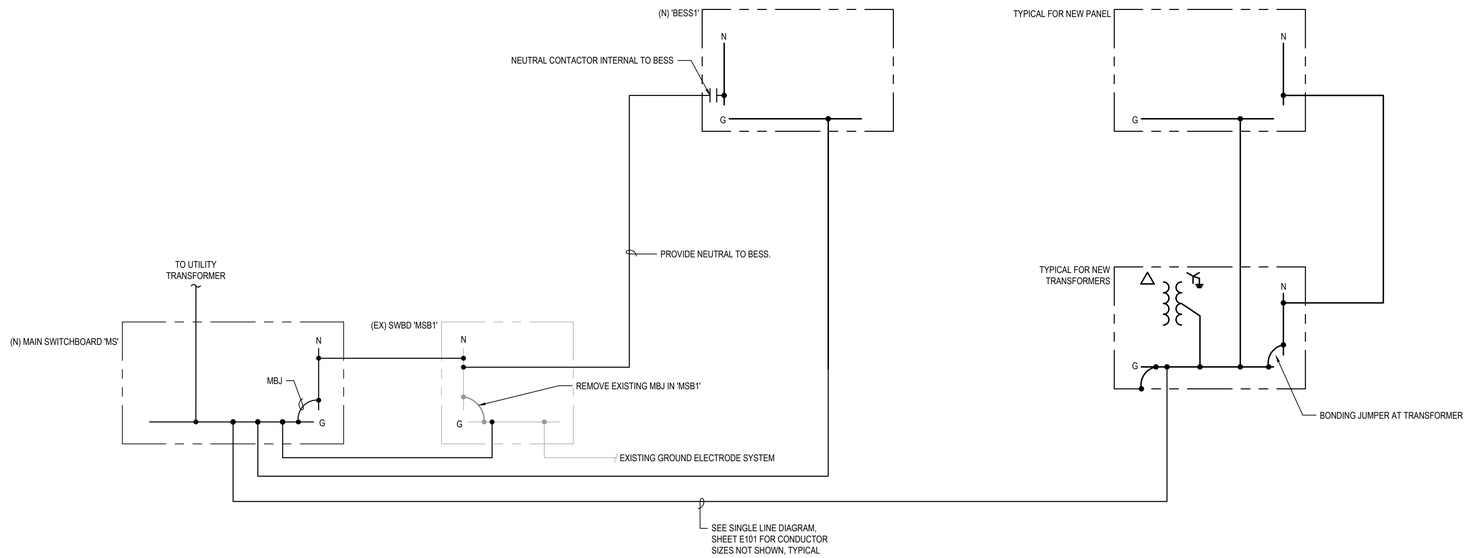
SHEET TITLE:
PROPOSED SINGLE LINE DIAGRAM

SHEET NO:
E101

SHEET OF XXX

GENERAL NOTES

1. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.
2. PER 690.43/250.134/250.110 PROVIDE CONTINUOUS PATH FOR EQUIPMENT GROUND (EG) CONDUCTOR(S) FROM THE SOLAR PV ARRAY TO THE INVERTER DC GROUND BUS BAR WITH ALL EXPOSED NON-CURRENT CARRYING METAL PARTS EQUIPMENT IN BETWEEN BONDED VIA NRTL LISTED EG BUS BAR(S)/TERMINAL BLOCK(S), GROUND BUSHINGS, ETC.
3. EACH MODULE TO BE BONDED TO EQUIPMENT GROUND AS CALLED OUT ON THE LINE DIAGRAM AND THESE NOTES. SEE MODULE MANUFACTURER INSTRUCTIONS OF RECOMMENDED GROUNDING COMPONENTS AND METHODS.
4. AVOID DIRECT CONTACT OF COPPER GROUND CONDUCTOR TO ALUMINUM FRAME VIA, WHERE REQUIRED THE USE OF STAINLESS STEEL ISOLATING WASHERS AND/OR TIN PLATED COPPER LUGS.
5. CONNECTION OF THE GROUNDING ELECTRODE TO CANOPY SHALL BE MADE WITH AN EXOTHERMIC WELD.
6. GROUND RESISTANCE MUST MEET CEC MINIMUM REQUIREMENTS OF BELOW 25 OHMS.
7. ALL GROUND CONDUCTORS AND BUSSING SHALL BE COPPER.



1 E102 GROUNDING DIAGRAM
SCALE: NONE

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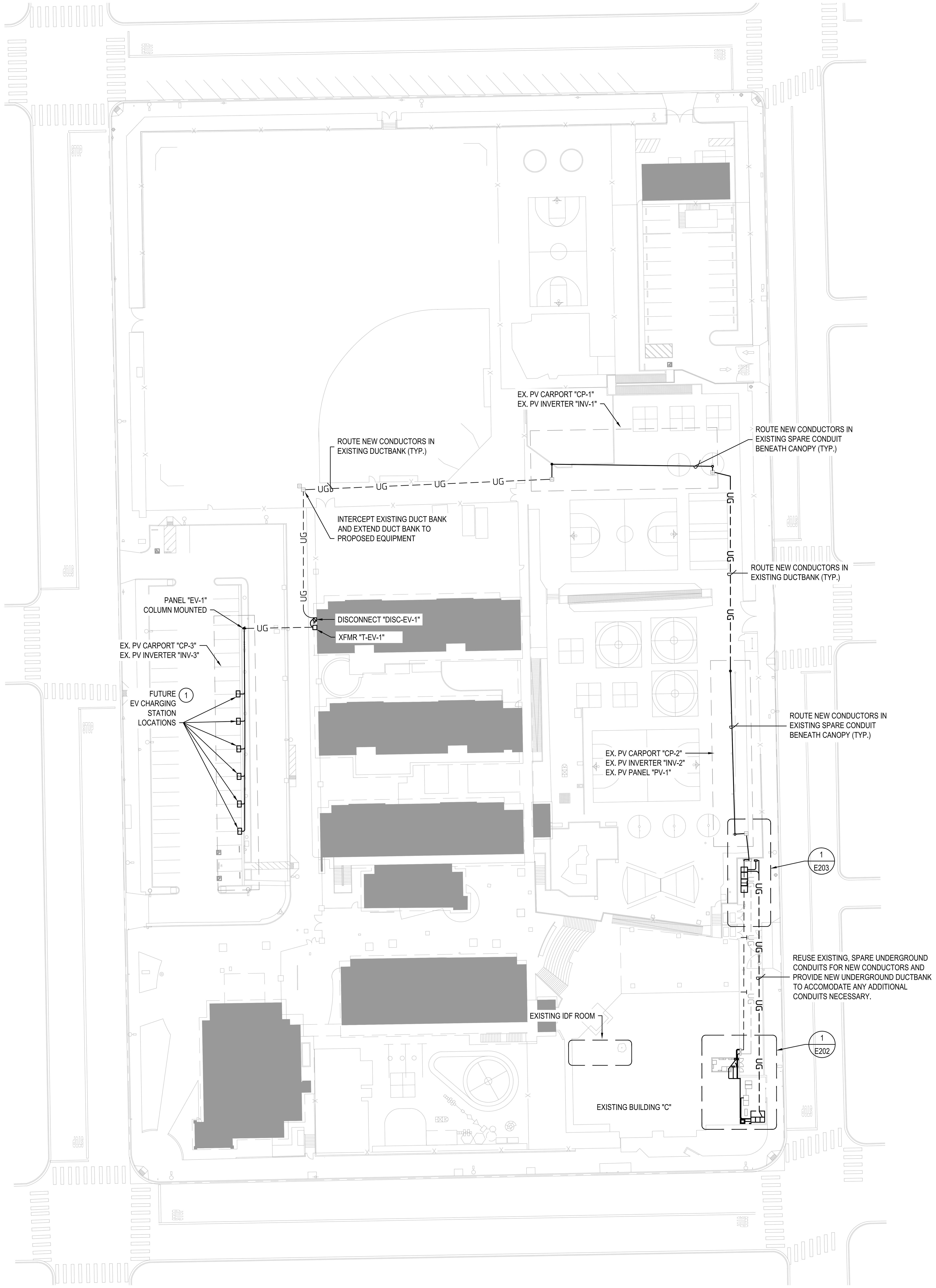
SHEET TITLE:

GROUNDING DIAGRAM

SHEET NO:

E102

SHEET OF XXX



1 E201 OVERALL - ELECTRICAL SITE PLAN
SCALE: 1" = 40'-0"

1"=40'-0" 0 20 40 80 120

GENERAL NOTES

1. THE EXISTING CONDITIONS DEPICTED ON THIS DRAWING ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE RECORD DRAWINGS AND LIMITED SITE OBSERVATIONS. CONTRACTOR SHALL FIELD VERIFY ACTUAL SIZE, LENGTH AND LOCATION OF ALL EQUIPMENT AND ASSOCIATED DEVICES PRIOR TO COMMENCEMENT OF WORK.
2. ALL ITEMS SHOWN IN GRAY ARE EXISTING TO REMAIN OR NOT WITHIN THE ELECTRICAL SCOPE, U.O.N. ALL ITEMS SHOWN IN BOLD/DARK LINEWEIGHT SHALL BE NEW AND PROVIDED BY THE CONTRACTOR U.O.N.
3. CONDUIT ROUTING SHOWN IS APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING AND COORDINATING ALL CONDUIT PLACEMENTS.
4. REFER TO SINGLE LINE DIAGRAM ON SHEET E002, FOR ALL CONDUITS, CONDUCTOR SIZES, AND INTERCONNECTION DETAILS.

KEY NOTES

(1) PROVIDE (1) 1-1/2" CONDUITS FROM PANEL 'EV-1' TO EACH FUTURE EV CHARGING STATION LOCATION. EACH FUTURE EV CHARGING STATION LOCATION IS INTENDED FOR DUAL PORT EV CHARGER CAPABLE OF SIMULTANEOUS OPERATION.

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CHECKED	BD
DATE	04/11/2024

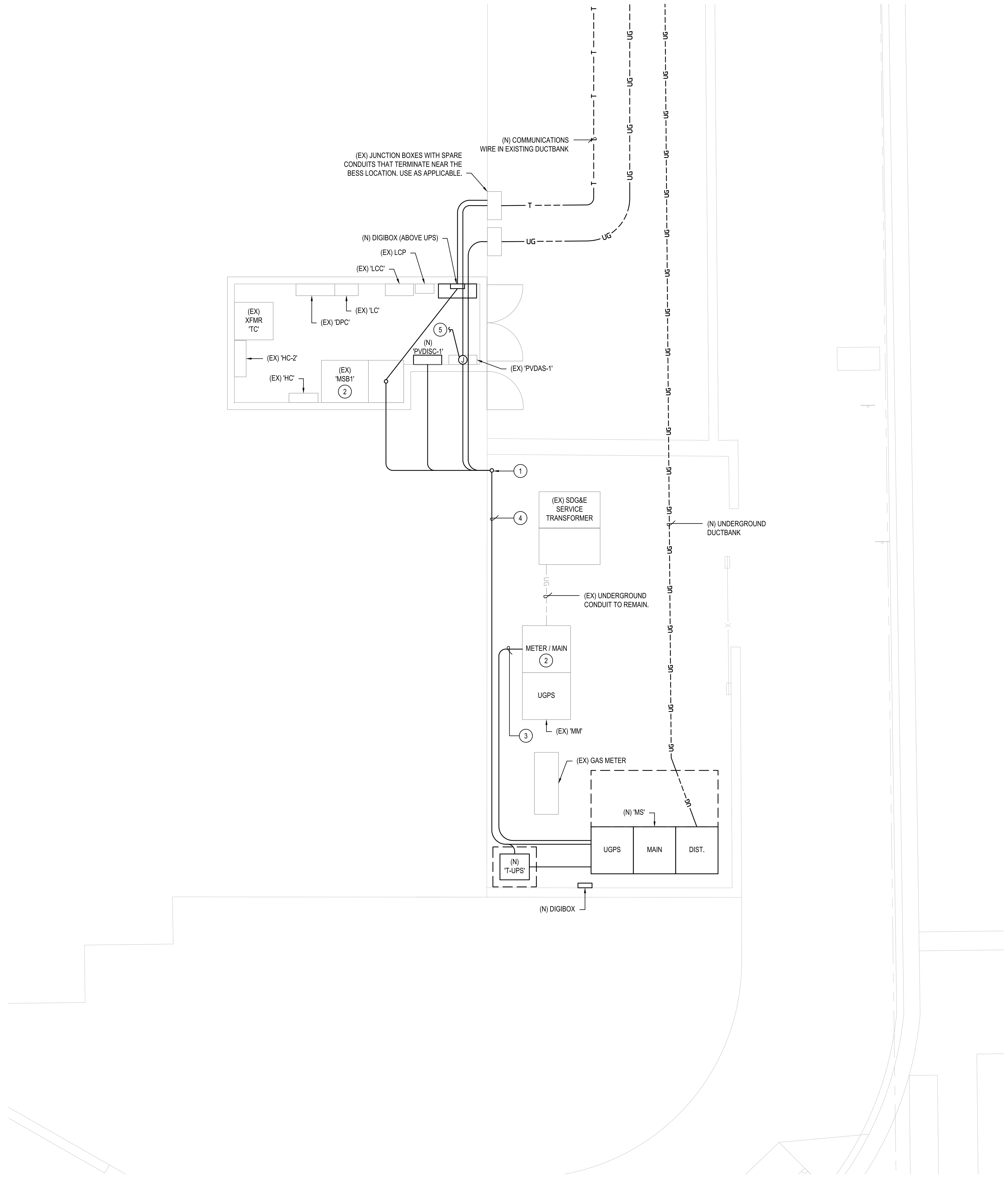
SHEET TITLE:

OVERALL - ELECTRICAL SITE PLAN

SHEET NO:

E201

SHEET OF XXX



1
E203

ENLARGED - ELECTRICAL PLANS

SCALE: 1/4" = 1'-0"

1/4"=1'-0" 0 1 2 3 4 6 8 12

GENERAL NOTES

1. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.
2. THE EXISTING CONDITIONS DEPICTED ON THIS DRAWING ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE RECORD DRAWINGS AND LIMITED SITE OBSERVATIONS. CONTRACTOR SHALL FIELD VERIFY ACTUAL SIZE, LENGTH AND LOCATION OF ALL EQUIPMENT AND ASSOCIATED DEVICES PRIOR TO COMMENCEMENT OF WORK.
3. ALL ITEMS SHOWN IN GRAY ARE EXISTING TO REMAIN OR NOT WITHIN THE ELECTRICAL SCOPE, U.O.N. ALL ITEMS SHOWN IN BOLD/DARK LINEWEIGHT SHALL BE NEW AND PROVIDED BY THE CONTRACTOR U.O.N.
4. CONDUIT ROUTING SHOWN IN APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING AND COORDINATING ALL CONDUIT PLACEMENTS.
5. REFER TO SINGLE LINE DIAGRAM ON SHEET E002, FOR ALL CONDUITS, CONDUCTOR SIZES, AND INTERCONNECTION DETAILS.

KEY NOTES

(1) ROUTE CONDUIT UP THE WALL AND STUB INTO THE BUILDING USING AN APPROVED FIRE BARRIER THROUGH EXISTING FIRE-RATED WALL AT A HEIGHT SUCH THAT THE CONDUIT WILL BE CONCEALED ABOVE THE CEILING AND ROUTED INTO THE EXISTING ELECTRICAL ROOM.

(2) REMOVE EXISTING SERVICE FEEDER FROM 'MM' TO 'MSB1'. COORDINATE SHUTDOWN WITH SDG&E AND THE DISTRICT. ABANDON EXISTING CONCEALED CONDUIT IN PLACE.

(3) PROVIDE NEW SURFACE MOUNTED CONDUIT AND NEW CONDUCTORS AND ROUTE FROM EXISTING SERVICE SWITCHBOARD 'MM' TO NEW SERVICE SWITCHBOARD 'MS'.

(4) PROVIDE SURFACE MOUNTED CONDUIT AND NEW CONDUCTORS AND ROUTE FROM NEW SWITCHBOARD 'MS' TO EXISTING SWITCHBOARD 'MSB1'. CONDUIT IN THIS AREA SHALL BE ROUTED AT AN ELEVATION NOT TO EXCEED THE HEIGHT OF THE SWITCHGEAR.

(5) CONNECT TO EXISTING HVAC CONTROLLER OR OTHER BUILDING EMS SYSTEM (FOR THE ABILITY TO SHED LOADS, IF DESIRED) AND FIRE ALARM PANEL. IF NETWORK CONNECTION IS NOT AVAILABLE AT DAS LOCATION, CONNECT TO NETWORK AT NEAREST IDF ROOM.

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DRAWN	DLR
CHECKED	BD
DATE	04/11/2024

SHEET TITLE:

ENLARGED - ELECTRICAL PLANS

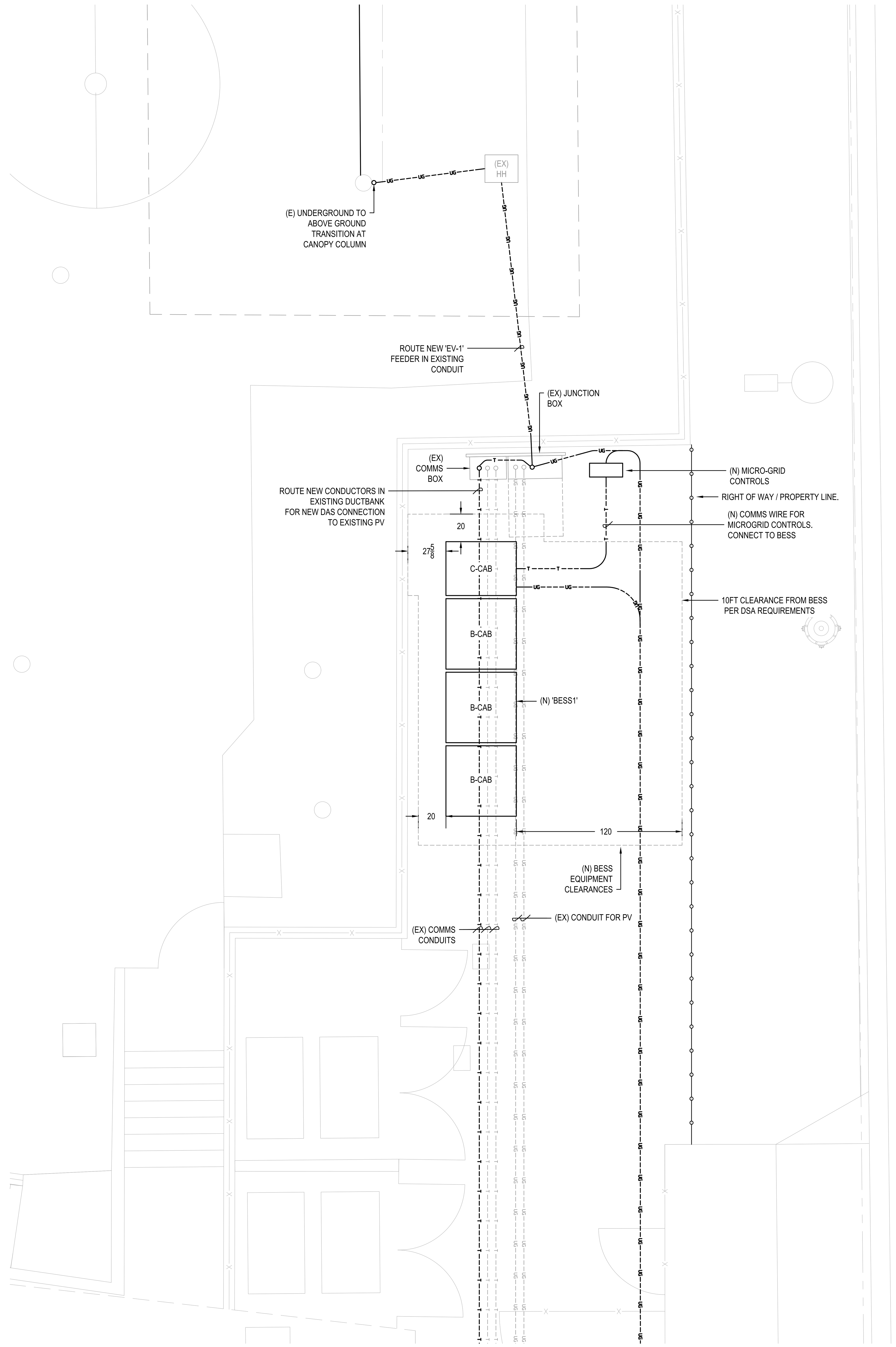
SHEET NO:

E202

SHEET OF XXX

GENERAL NOTES

1. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.
2. THE EXISTING CONDITIONS DEPICTED ON THIS DRAWING ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE RECORD DRAWINGS AND LIMITED SITE OBSERVATIONS. CONTRACTOR SHALL FIELD VERIFY ACTUAL SIZE, LENGTH AND LOCATION OF ALL EQUIPMENT AND ASSOCIATED DEVICES PRIOR TO COMMENCEMENT OF WORK.
3. ALL ITEMS SHOWN IN GRAY ARE EXISTING TO REMAIN OR NOT WITHIN THE ELECTRICAL SCOPE, U.O.N. ALL ITEMS SHOWN IN BOLD/DARK LINEWEIGHT SHALL BE NEW AND PROVIDED BY THE CONTRACTOR U.O.N.
4. CONDUIT ROUTING SHOWN IN APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING AND COORDINATING ALL CONDUIT PLACEMENTS.
5. REFER TO SINGLE LINE DIAGRAM ON SHEET E002, FOR ALL CONDUITS, CONDUCTOR SIZES, AND INTERCONNECTION DETAILS.



1 E202 ENLARGED - BESS SITE PLAN

SCALE: 1/4" = 1'-0"

1/4"=1'-0" 0 1 2 3 4 6 8 12

TABLE 1207.8 FROM 2022 CALIFORNIA FIRE CODE	
Section	**Feature**
1207.1.3 Construction Documents	The Sherman Elementary School Project plans detail the location, enclosure type, specifications, listings, signage, fire supression technologies and support arrangement as required.
1207.5.1 Size and Separation	BESS exceeds 50kWh per group. Please refer to attached UL9540A Cell Test Report for compliance per exceptions #2.
1207.5.2 Maximum Allowable Quantities	BESS technology utilizes Lithion-ion and the system is 558kWh, below the 600kWh Maximum Allowable Quantities. Please refer to the attached UL9540A Cell Test Report for more information.
1207.5.4 Smoke and Automatic Fire Detection	BESS has an integrated Fire Alarm System with smoke/heat detection, aerosol fire suppression system and thermal management. Please refer to the product specification for more information.
1207.5.5 Fire Supression Systems	BESS has an integraed Fire Alarm System with aerosol fire suppression system as indicated on the BESS cutsheets.
1207.5.6 Maximum Enclosure Size	BESS Enclosure is 195"L x 51"W x 90"H below the maximum enclosure size of 53'L x 8'W x 9.5'H
1207.5.7 Vegetation Control	BESS will have a concrete pad and is located in an area of no vegetation. Should some vegetation or planters be installed they will be 'cultivated' and trees, shrubs, or grass as permitted by 1207.5.7.
1207.5.8 Means of Egress Separation	BESS is not located in an open parking garage, nor 10 feet from the schools main ingress/egress area.
1207.6 Technology Specific Protection	BESS unit utilizes Lithium-ion technology per Table 1207.6. This technology employs explosion control and thermal runaway measures such as cooling, supression, and fire rated seperators.
1207.8.3 Clearance to Exposures	BESS maintains 10 feet from lot lines, public ways, buildings, combustible materials, hazardous materials, high-piled stock, and all other known exposures. It is 10'-7" from the closest building and 21'-1" from the property line.

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REGISTERED PROFESSIONAL ENGINEER
No 19539
Exp 06/30/2025
ELECTRICAL
STATE OF CALIFORNIA

COFFMAN ENGINEERS
1455 Frazee Rd., Suite 600
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San Diego Unified School District

Sherman Elementary School

301 22nd St, San Diego, CA 92102

MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO.	231488-02
DRAWN	DLR
CHECKED	BD
DATE	04/11/2024

SHEET TITLE:

ENLARGED - BESS SITE PLAN

SHEET NO:

E203

SHEET OF XXX

COPPER FEEDER SCHEDULE										
FEEDER TAG	FEEDER AMPS	PARALLEL SETS	CONDUIT		COPPER CONDUCTORS					
			EMT	PVC	PHASE		NEUTRAL		GROUND	
			IN	IN	QTY	SIZE	QTY	SIZE	QTY	SIZE
20A	20	-	1/2	1/2	3	12	-	-	1	12
20B	20	-	1/2	1/2	3	12	1	12	1	12
30A	30	-	1/2	1/2	3	10	-	-	1	10
30B	30	-	1/2	1/2	3	10	1	10	1	10
40A	40	-	3/4	3/4	3	8	-	-	1	10
40B	40	-	3/4	3/4	3	8	1	8	1	10
50A	55	-	3/4	3/4	3	6	-	-	1	10
50B	55	-	1	1	3	6	1	6	1	10
60A	55	-	3/4	3/4	3	6	-	-	1	10
60B	55	-	1	1	3	6	1	6	1	10
60D	55	-	1-1/4	1-1/4	3	2	1	2	1	4
70A	70	-	1	1	3	4	-	-	1	8
70B	70	-	1-1/4	1-1/4	3	4	1	4	1	8
80A	95	-	1-1/4	1-1/4	3	2	-	-	1	8
80B	95	-	1-1/4	1-1/4	3	2	1	2	1	8
90A	95	-	1-1/4	1-1/4	3	2	-	-	1	8
90B	95	-	1-1/4	1-1/4	3	2	1	2	1	8
100A	95	-	1-1/4	1-1/4	3	2	-	-	1	8
100B	95	-	1-1/4	1-1/4	3	2	1	2	1	8
125A	130	-	1-1/2	1-1/2	3	1	-	-	1	6
125B	130	-	2	2	3	1	1	1	1	6
150A	150	-	1-1/2	1-1/2	3	1/0	-	-	1	6
150B	150	-	2	2	3	1/0	1	1/0	1	6
175A	175	-	2	2	3	2/0	-	-	1	6
175B	175	-	2	2	3	2/0	1	2/0	1	6
200A	200	-	2	2	3	3/0	-	-	1	6
200B	200	-	2-1/2	2-1/2	3	3/0	1	3/0	1	6
225A	230	-	2	2	3	4/0	-	-	1	4
225B	230	-	2-1/2	2-1/2	3	4/0	1	4/0	1	4
225D	230	-	3	3	3	250	1	250	1	3
250A	255	-	2-1/2	2-1/2	3	250	-	-	1	4
250B	255	-	3	3	3	250	1	250	1	4
300A	310	-	3	3	3	350	-	-	1	4
300B	310	-	3	3	3	350	1	350	1	4
350A	380	-	3	3	3	500	-	-	1	2
350B	380	-	3-1/2	3-1/2	3	500	1	500	1	2
400A*	380	-	3	3	3	500	-	-	1	2
400B*	380	-	3-1/2	3-1/2	3	500	1	500	1	2
450A	460	2	2	2	3	4/0	-	-	1	2
450B	460	2	2-1/2	2-1/2	3	4/0	1	4/0	1	2
500A	510	2	2-1/2	2-1/2	3	250	-	-	1	2
500B	510	2	3	3	3	250	1	250	1	2
600A	620	2	3	3	3	350	-	-	1	1
600B	620	2	3	3	3	350	1	350	1	1
700A	760	2	3	3	3	500	-	-	1	1/0
700B	760	2	3-1/2	3-1/2	3	500	1	500	1	1/0
800A*	760	2	3	3	3	500	-	-	1	1/0
800B*	760	2	3-1/2	3-1/2	3	500	1	500	1	1/0
1000A	1140	3	3	3	3	500	-	-	1	2/0
1000B	1140	3	3-1/2	3-1/2	3	500	1	500	1	2/0
1200A	1260	3	3-1/2	3-1/2	3	600	-	-	1	3/0
1200B	1260	3	4	4	3	600	1	600	1	3/0
1600A	1680	4	3-1/2	3-1/2	3	600	-	-	1	4/0
1600B	1680	4	4	4	3	600	1	600	1	4/0
2000A	2100	5	3-1/2	3-1/2	3	600	-	-	1	250
2000B	2100	5	4	4	3	600	1	600	1	250
2500A	2520	6	3-1/2	3-1/2	3	600	-	-	1	350
2500B	2520	6	4	4	3	600	1	600	1	350
3000A	3040	8	3	3	3	500	-	-	1	500
3000B	3040	8	3-1/2	3-1/2	3	500	1	500	1	500
4000A	4200	10	3-1/2	3-1/2	3	600	-	-	1	500
4000B	4200	10	4	4	3	600	1	600	1	500

NOTES:

1. THE 60 DEG C COLUMN OF TABLE 310.16 SHALL BE USED FOR CONDUCTORS #1 AWG AND SMALLER.
2. THE 75 DEG C COLUMN OF TABLE 310.16 SHALL BE USED FOR CONDUCTORS LARGER THAN #1 AWG.
3. ALL CONDUCTORS SHALL BE COPPER TYPE WITH DUAL RATED THHN/THWN INSULATION.
4. FEEDERS FOR OVERCURRENT DEVICES RATED 800 AMPERES OR LESS WILL COMPLY WITH ARTICLE 240.4(B).
5. FEEDERS FOR OVERCURRENT DEVICES RATED OVER 800 AMPERES WILL COMPLY WITH ARTICLE 240.4(C).

3 / E300 — COPPER FEEDER SCHEDULE
SCALE: NONE

VOLTAGE DROP CALCULATION V1.02

PROJECT: SDUSD Sherman Elementary EV & BESS — SYSTEM VOLTAGE: 480
NUMBER: 231488 — SYSTEM PHASE: 3
VOLT DROP CALCULATION BASED ON CHAPTER 9 OF THE NATIONAL ELECTRICAL CODE; LENGTHS SHOWN ARE FOR CALCULATION PURPOSES ONLY, NOT FOR BIDDING.
PREPARED BY: Coffman, San Diego, CA — METRIC (Y/N): N — Date: 4/11/2024

LOAD DESCRIPTION	NOMINAL VOLTAGE	SYSTEM PHASE	STARTING VOLTAGE	POWER FACTOR	LENGTH OF CIRCUIT IN FEET	CURRENT IN AMPS	INITIAL WIRE SIZE	INITIAL WIRE RUNS	FINAL WIRE SIZE	FINAL WIRE RUNS	INITIAL EQ GND WIRE SIZE	REQ'D GND WIRE SIZE	FEEDER BRANCH F/B	MAGNETIC CONDUIT Y/N	WIRE TYPE COPPER ALUMINUM	VOLTS DROPPED	SINGLE RUN PERCENT	ADD % TO OTHER LOAD Y/N	ADD TO WHAT LOAD	ENDING VOLTAGE	TOTAL PERCENT DROPPED
UTILITY	480	3	480.0	85%	0.0	2,000.0	600	5	600	5	250	250	F	N	C	0.0	0.00%	N		480.0	0.00%
MM	480	3	480.0	85%	15.0	2,000.0	600	5	600	5	250	250	F	N	C	0.4	0.09%	Y	UTILITY	479.6	0.09%
MS	480	3	479.6	85%	30.0	2,000.0	600	5	600	5	250	250	F	N	C	0.8	0.17%	Y	MM	478.7	0.26%
MSB1	480	3	478.7	85%	65.0	1,600.0	600	4	600	4	4/0	4/0	F	N	C	1.8	0.38%	Y	MS	476.9	0.64%
DISC-EV-1	480	3	478.7	85%	860.0	200.0	4/0	1	350	2	2	250	F	N	C	7.9	1.66%	Y	MS	470.8	1.92%
T-EV-1	480	3	470.8	85%	20.0	200.0	4/0	1	4/0	1	2	2	F	N	C	0.5	0.11%	Y	DISC-EV-1	470.3	2.02%
PANEL 'EV-1'	208	3	208.0	85%	55.0	200.0	4/0	1	4/0	1	2	2	F	N	C	1.4	0.68%	N		206.6	0.68%
BESS1	480	3	478.7	85%	180.0	400.0	600	1	600	1	2	2	F	N	C	5.0	1.04%	Y	MS	473.7	1.30%
T-UPS	480	3	478.7	85%	15.0	60.0	6	1	6	1	10	10	F	N	C	0.7	0.14%	Y	MS	478.1	0.40%
UPS	208	3	208.0	85%	80.0	30.0	10	1	8	1	10	8	F	N	C	2.9	1.38%	N	T-UPS	205.1	1.38%

1 / E300 — VOLTAGE DROP CALCULATIONS
SCALE: NONE

Sherman ES — **PANEL SCHEDULE** — **NEW PANEL: EV-1** — 231488

Location: Parking Lot PV Canopy — Feed Through: — Source: T-EV-1

Ckt	Load Description	Phase	Amp	Poles	Notes	Rec.	Ltg.	Kit.	Mtr.	Htg.	Clg.	Cont.	Non.	Total
1	EV CAPABLE- 1	A	60	2								4.99		4.99
3	-	B	-	-								4.99		4.99
5	EV CAPABLE - 2	C	60	2								4.99		4.99
7	-	A	-	-								4.99		4.99
9	EV CAPABLE - 3	B	60	2								4.99		4.99
11	-	C	-	-								4.99		4.99
13	EV CAPABLE - 4	A	60	2								4.99		4.99
15	-	B	-	-								4.99		4.99
17	EV CAPABLE - 5	C	60	2								4.99		4.99
19	-	A	-	-								4.99		4.99
21	EV CAPABLE - 6	B	60	2								4.99		4.99
23	-	C	-	-								4.99		4.99
25	EV CAPABLE - 7	A	60	2								4.99		4.99
27	-	B	-	-								4.99		4.99
29	EV CAPABLE - 8	C	60	2								4.99		4.99
31	-	A	-	-								4.99		4.99
33	EV CAPABLE - 9	B	60	2								4.99		4.99
35	-	C	-	-								4.99		4.99
37	EV CAPABLE - 10	A	60	2								4.99		4.99
39	-	B	-	-								4.99		4.99
41	SPARE C.B.	C	20	1										
2	EV CAPABLE - 11	A	60	2								4.99		4.99
4	-	B	-	-								4.99		4.99
6	SPARE C.B.	C	20	1										
8	SPARE C.B.	A	20	1										
10	SPARE C.B.	B	20	1										
12	SPARE C.B.	C	20	1										
14	SPARE C.B.	A	20	1										
16	SPARE C.B.	B	20	1										
18	SPARE C.B.	C	20	1										
20	SPARE C.B.	A	20	1										
22	SPARE C.B.	B	20	1										
24	SPARE C.B.	C	20	1										
26	SPARE C.B.	A	20	1										
28	SPARE C.B.	B	20	1										
30	SPARE C.B.	C	20	1										
32	SPARE C.B.	A	20	1										
34	SPARE C.B.	B	20	1										
36	SPARE C.B.	C	20	1										
38	SPARE C.B.	A	20	1										
40	SPARE C.B.	B	20	1										
42	SPARE C.B.	C	20	1										

Specifications

Rating (Amps):	400
Voltage (L-L):	208
Phase:	3
Wire:	4
Bus Material:	Cu
Int. Rating:	14,000A
Main Lugs Only:	-
Main Ckt Brkr:	400 A
Surface Mtd:	-
Flush Mtd:	-
Bonded Gnd:	-
Isolated Gnd:	-
200% Neutral:	-
Feed Thru:	-
Double Lug:	-
Top Feed:	-
Bottom Feed	-
Feed Thru Load:	NONE
Phase A:	
Phase B:	
Phase C:	
Total Conn.:	
Load From This Panel:	
Phase A:	39.94
Phase B:	39.94
Phase C:	29.95
Total Conn.:	109.82
Total Connected Load:	
Phase A:	39.94
Phase B:	39.94
Phase C:	29.95
Total Conn.:	109.82
Total Feeder Demand Load:	
Total:	137.28 KVA
Avg. Amps/Phase:	381 A.

CATEGORY	TOTAL CONN. LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
Receptacles		50%>10KVA	
Lighting		125%	
Kitchen Equipment		NEC 220.56	
Motors (Largest)		125%	
Motors		100%	
Heating		NEC 220.60	
Cooling		NEC 220.60	
Continuous Load	109.82	125%	137.28
Non-Continuous Load		100%	
		100%	
		100%	
TOTAL	109.82		137.28

General Notes:

Keyed Notes:

COFFMAN ENGINEERS

2 / E300 — PANEL SCHEDULE - 'EV-1'
SCALE: NONE

TRANSFORMER OVERCURRENT PROTECTION & FEEDER SCHEDULE (COPPER)																				
XFMR KVA	PRIMARY (480D)									SECONDARY (208Y)										
	C.B. SIZE	FEEDER TAG	FEEDER AMPS	CONDUIT QTY	CONDUIT SIZE	PHASE QTY	PHASE SIZE	GROUND QTY	GROUND SIZE	C.B. SIZE	FEEDER TAG	FEEDER AMPS	CONDUIT QTY	CONDUIT SIZE	PHASE QTY	PHASE SIZE	NEUTRAL QTY	NEUTRAL SIZE	SSBJ QTY	SSBJ SIZE
15	30	30A	30	1	1/2	3	10	1	10	50	50T	55	1	1	3	6	1	6	1	8
30	60	60A	55	1	3/4	3	6	1	10	100	100T	110	1	1-1/2	3	1	1	1	1	6
45	90	90A	95	1	1-1/4	3	2	1	8	150	150T	150	1	2	3	1/0	1	1/0	1	6
75	150	150A	150	1	1-1/2	3	1/0	1	6	225	225T	230	1	2-1/2	3	4/0	1	4/0	1	2
112.5	225	225A	230	1	2	3	4/0	1	4	400	400T	400	2	2	3	3/0	1	3/0	1	1/0
150	300	300A	310	1	2-1/2	3	350	1	4	500	500T	510	2	2-1/2	3	250	1	250	1	1/0
225	450	450A	460	2	2	3	4/0	1	2	800	800T	840	2	3-1/2	3	600	1	600	1	2/0
300	600	600A	620	2	2-1/2	3	350	1	1	1000	1000T	1140	3	3	3	500	1	500	1	3/0
500	1000	1000A	1140	3	3	3	500	1	2/0	1600	1600T	1680	4	3-1/2	3	600	1	600	1	350

NOTES:

1. THE 60°C COLUMN OF TABLE 310.16 SHALL BE USED FOR CONDUCTORS #1 AWG AND SMALLER PER NEC 110.14(C)(1)(a).
2. THE 75°C COLUMN OF TABLE 310.16 SHALL BE USED FOR CONDUCTORS LARGER THAN #1 AWG PER NEC 110.14(C)(1)(a).
3. ALL CONDUCTORS SHALL BE COPPER TYPE WITH DUAL RATED THHN/THWN INSULATION FOR ABOVE GRADE INSTALLATION.
4. FEEDERS FOR OVERCCURENT DEVICES RATED 800 AMPERES OR LESS WILL COMPLY WITH ARTICLE 240.4(B).
5. FEEDERS FOR OVERCURRENT DEVICES RATED OVER 800 AMPERES WILL COMPLY WITH ARTICLE 240.4(C).
6. SUPPLY SIDE BONDING JUMPER (SSBJ) SIZED PER TABLE 250.102(C)(1).
7. TRANSFORMER PRIMARY AND SECONDARY OVERCURRENT PROTECTION IS SIZED PER TABLE 450.3(B).

4 / E300 — COPPER FEEDER SCHEDULE - TRANSFORMERS
SCALE: NONE

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MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

REV	DATE	DESCRIPTION
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2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO. 231488-02
DRAWN DLR
CHECKED BD
DATE 04/11/2024

SHEET TITLE:
ELECTRICAL CALCULATIONS

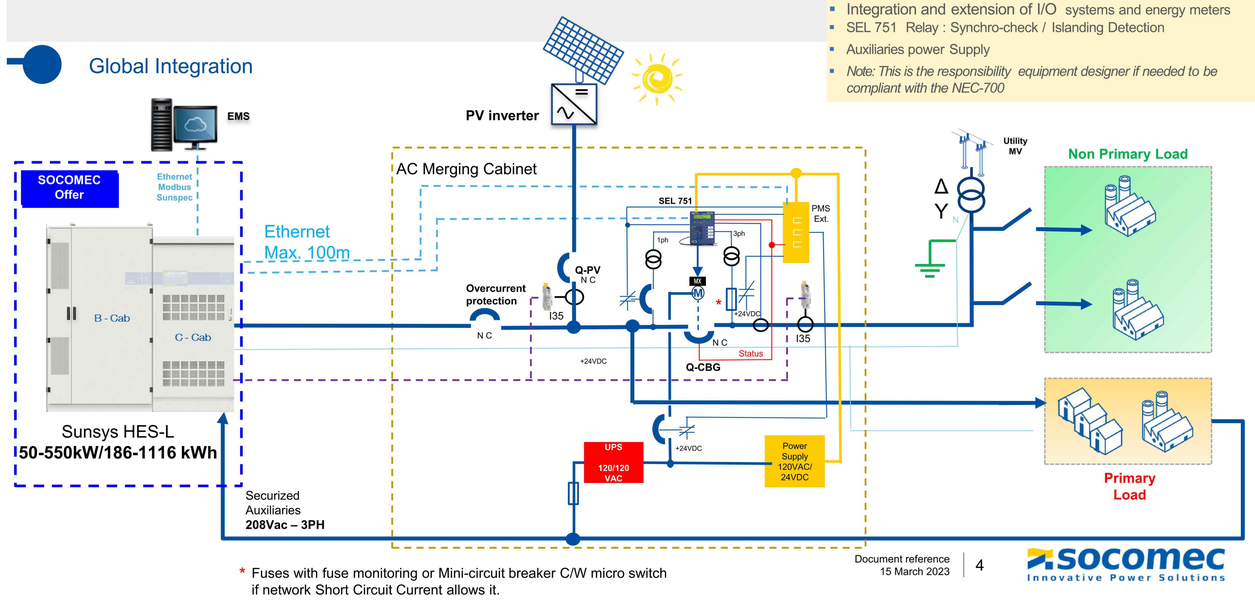
SHEET NO:
E300

SHEET OF XXX

Power Resiliency: ESS + PV

Function Included in AC Merging Cabinet:

- CBG (Grid) Motorized Breaker
- Additional Breaker for PV
- UPS for Blackstart
- Integration and extension of I/O systems and energy meters
- SEL 751 Relay : Synchro-check / Islanding Detection
- Auxiliaries power Supply
- *Note: This is the responsibility equipment designer if needed to be compliant with the NEC-700*



* Fuses with fuse monitoring or Mini-circuit breaker C/W micro switch if network Short Circuit Current allows it.

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Power Resiliency: ESS + PV - Operation Sequence

	Scénarios	Initial states of the installation: Main Grid – Breaker position	Main Grid – Operating Mode	Energy Storage System – Status	Energy Storage System – Operating Mode	PV Inverter – Status	PV Inverter – Operating Mode	External events	EMS	Final state of the installation: Main Grid – Breaker position	Main Grid – Operating Mode	Energy Storage System – Status	Energy Storage System – Operating Mode	PV Inverter – Status	PV Inverter – Operating Mode	Comments
Normal Grid Mode	1	CBG Main Breaker Closed	Grid-connected	ESS Off	Stops	PV Inv. On	Grid following	ESS Charging The EMS will be configured to charge the ESS from the solar PV output. When the solar PV system is generating, the ESS will be charging. ESS connects as grid-follower	Master	CBG Main Breaker Closed	Grid-connected	ESS On	Grid-following	PV Inv. On	Grid following	
	2	CBG Main Breaker Closed	Grid-connected	ESS On	Grid-following	PV Inv. On	Grid-following	ESS Charging - The EMS will be configured to charge the ESS from the solar PV output. When the solar PV system is generating, the ESS will be charging.	Master	CBG Main Breaker Closed	Grid-connected	ESS On	Grid-following	PV Inv. On	Grid following	EMS will control both ESS with specific set points for peak shaving
	3	CBG Main Breaker Closed	Grid-connected	ESS On	Grid-following	PV Inv. Off	Stops	ESS Discharging - The EMS will be configured to discharge the ESS during non-solar production hours	Master	CBG Main Breaker Closed	Grid-connected	ESS On	Grid-following	PV Inv. Off	Stops	EMS provide set point for Peak Shaving ESS will charge and discharge following these setpoints.
Short Term Outage	4	CBG Main Breaker Closed	Grid-connected	ESS On	Grid-following	PV Inv. On	Grid-following	Islanding Mode - Power outage has just occurred. ESS changes from normal mode to island mode.	Off	CBG Main Breaker Open	No Grid	ESS On	Grid-forming	PV Inv. On	Grid-following	SEL detect lost of grid and open CBG breaker ESS switch to Grid forming mode
	5	CBG Main Breaker Open	No Grid	ESS On	Grid-forming	PV Inv. On	Grid-following	Short term outage - grid comes back	Master	CBG Main Breaker Closed	Grid-connected	ESS On	Grid-following	PV Inv. On	Grid-following	EMS will control ESS with specific set points for peak shaving
Long Term Outage	6	CBG Main Breaker Closed	Grid-connected	ESS On	Grid-following	PV Inv. On	Grid-following	Islanding Mode - Power outage has just occurred. ESS changes from normal mode to island mode.	Off	CBG Main Breaker Open	No Grid	ESS On	Grid-forming	PV Inv. On	Grid-following	ESS will be grid forming in 1 minute or less ESS will provide load until SOC low
	7	CBG Main Breaker Open	No Grid	ESS On	Grid-forming	PV Inv. On	Grid-following	ESS Fails or SOC Low ESS stop 10% - 20% state of charge capacity. PV stop	Off	CBG Main Breaker Open	No Grid	ESS Off	Stops	PV Inv. Off	Stops	ESS close CBG breaker prior to shutdown General blackout
	8	CBG Main Breaker Open	No Grid	ESS Off	Stops	PV Inv. Off	Stops	Grid Comes Back CBG breaker closed ESS aux. Chillers startup process	Master	CBG Main Breaker Closed	Grid-connected	ESS On	Stops	PV Inv. On	Grid-following	ESS will complete aux chiller conditioning process prior to start Batteries charging
	9	CBG Main Breaker Closed	Grid Connected	ESS On	Stops	PV Inv. On	Grid following	Grid is Back ESS Start as grid follower	Master	CBG Main Breaker Closed	Grid-connected	ESS On	Grid-following	PV Inv. On	Grid-following	EMS provide set point for Peak Shaving ESS will charge and discharge following these setpoints.

CGB Main Breaker = Circuit Breaker Grid

ESS = Energy Storage System)

PMS = Power Management System

EMS = Energy Management System

Notes:

ESS do not communicate with PV inverter.

ESS provide P(f) function to regulate PV

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1 / E400 BATTERY ENERGY STORAGE SYSTEM CONTROLS AND SEQUENCE OF OPERATIONS

SCALE: NONE

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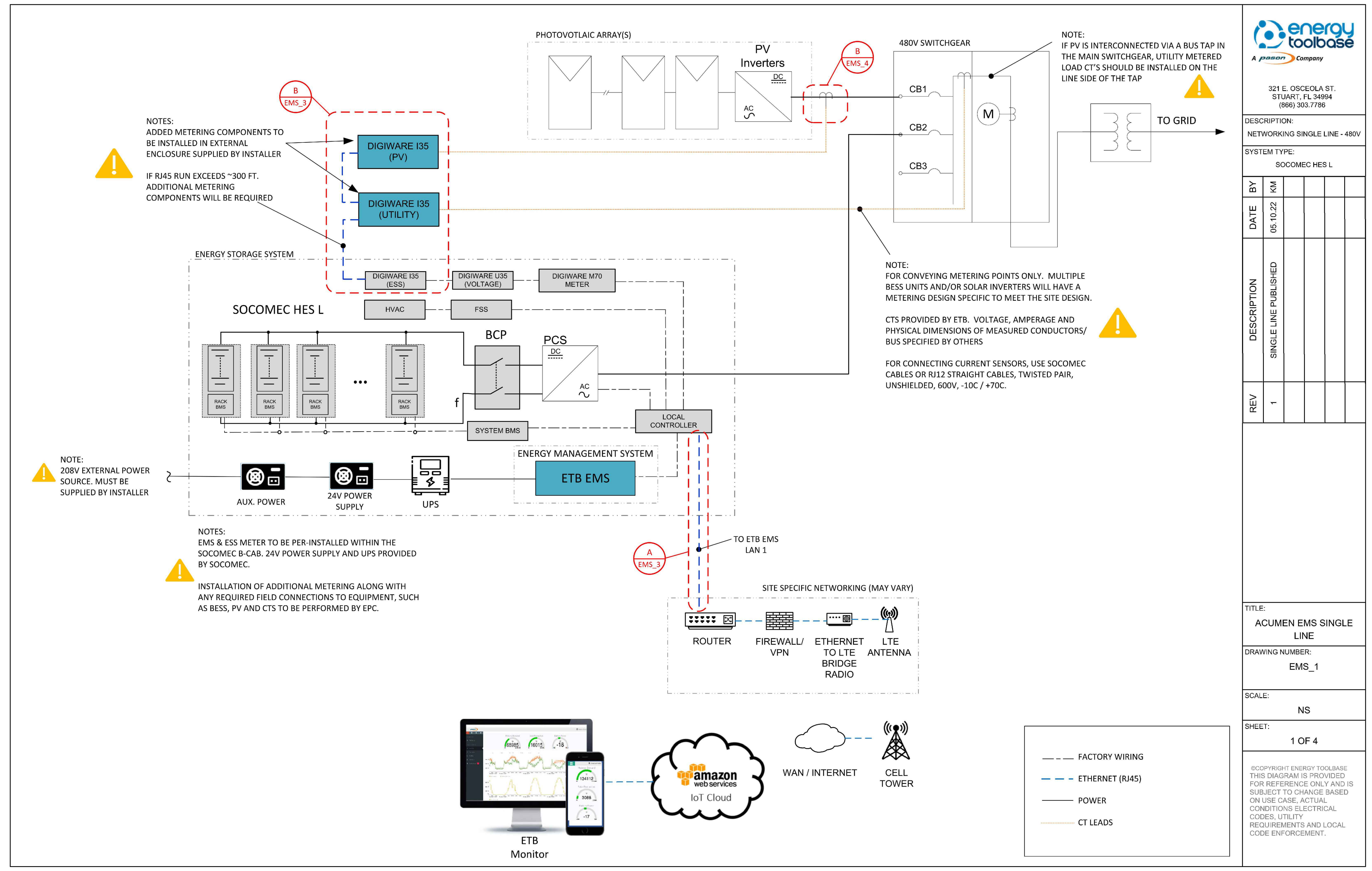
SHEET TITLE:

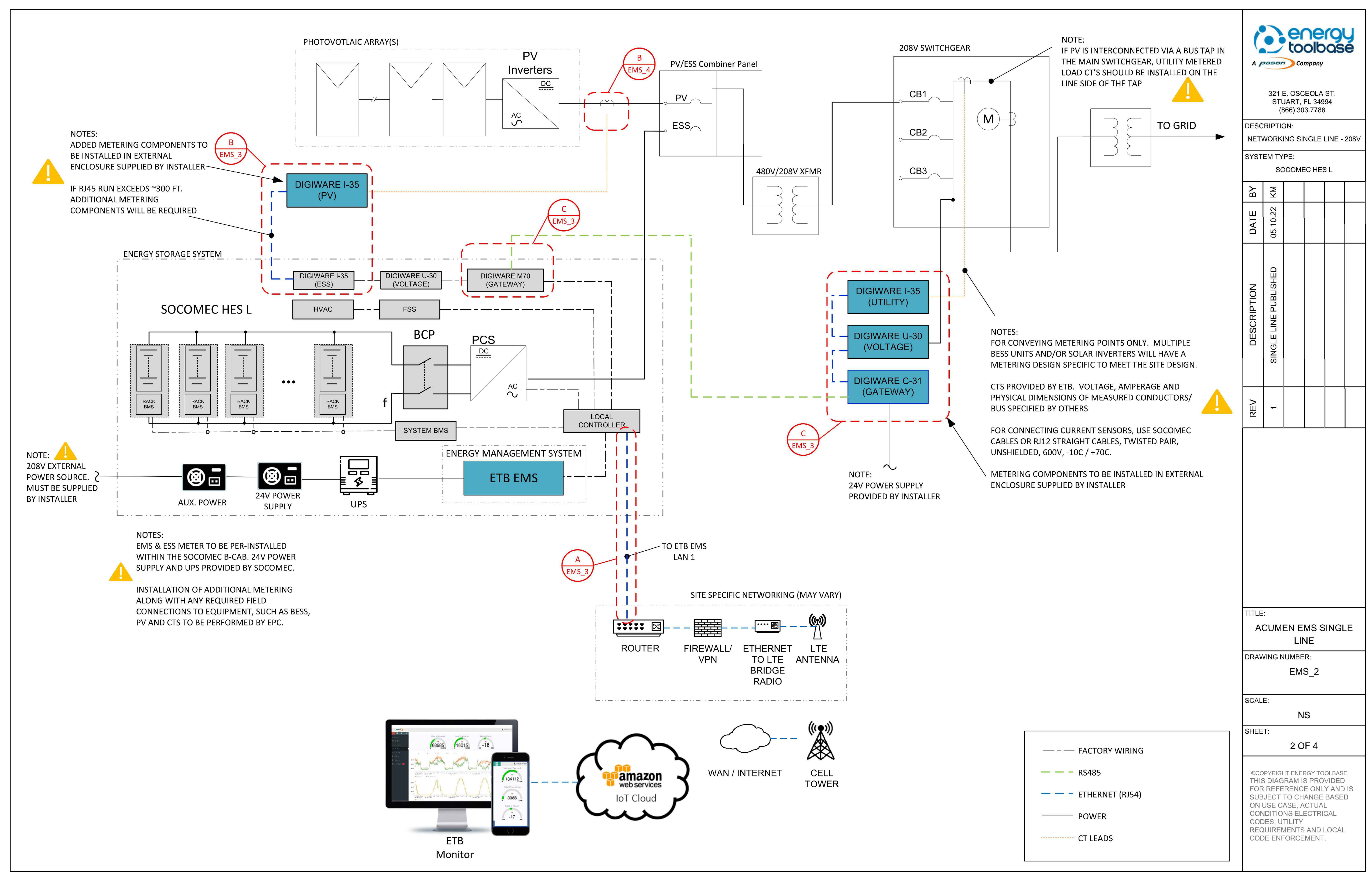
EQUIP. CUTSHEETS - BESS S.O.O.

SHEET NO:

E400

SHEET OF XXX





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No 19539
Exp 06/30/2025
ELECTRICAL
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San Diego, CA 92108
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San Diego Unified School District

Sherman Elementary School

301 22nd St, San Diego, CA 92102

MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO.	231488-02
DRAWN	DLR
CHECKED	BD
DATE	04/11/2024

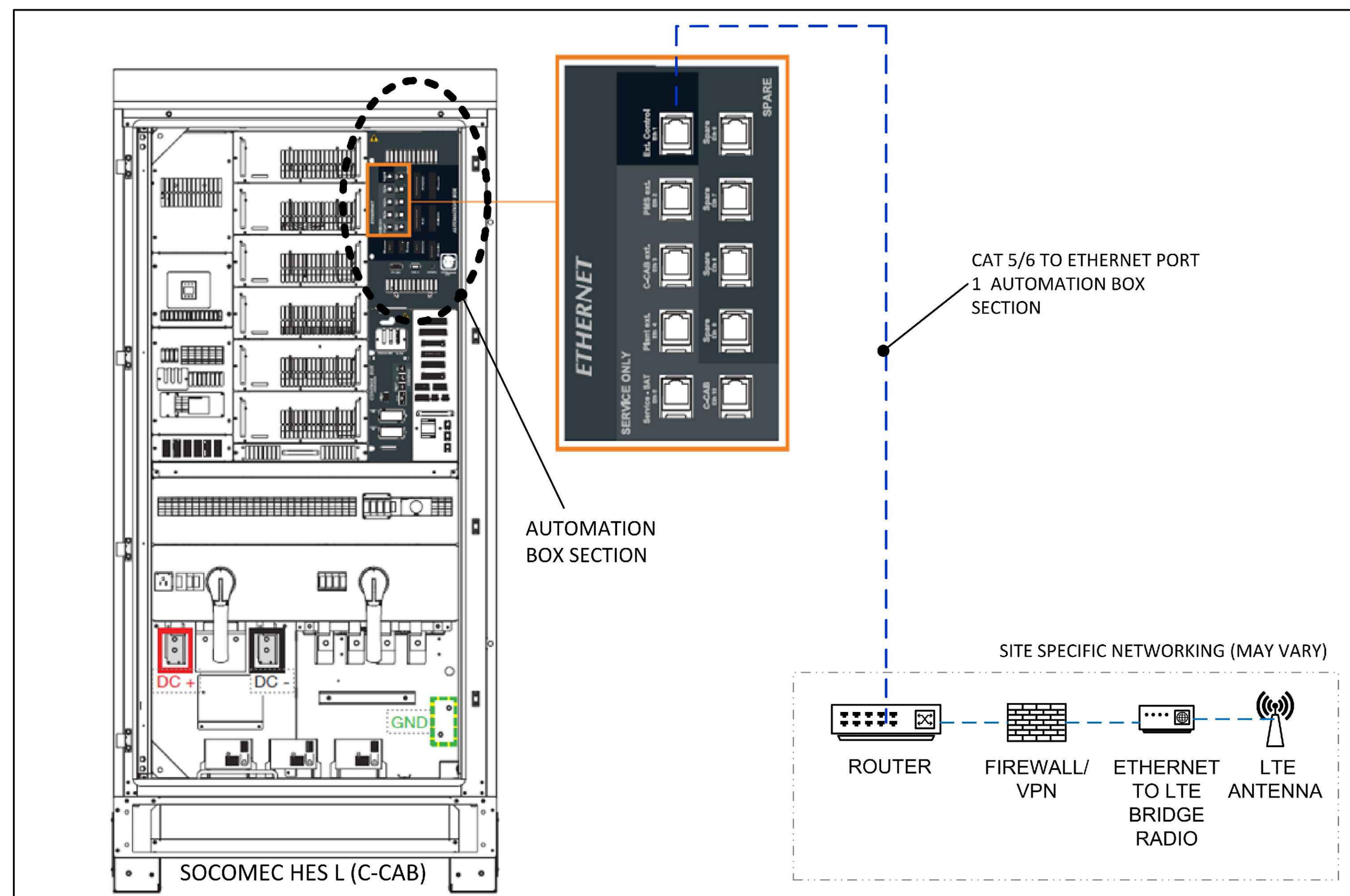
SHEET TITLE:

EQUIP. CUTSHEETS - BESS CONTROLS & WIRING

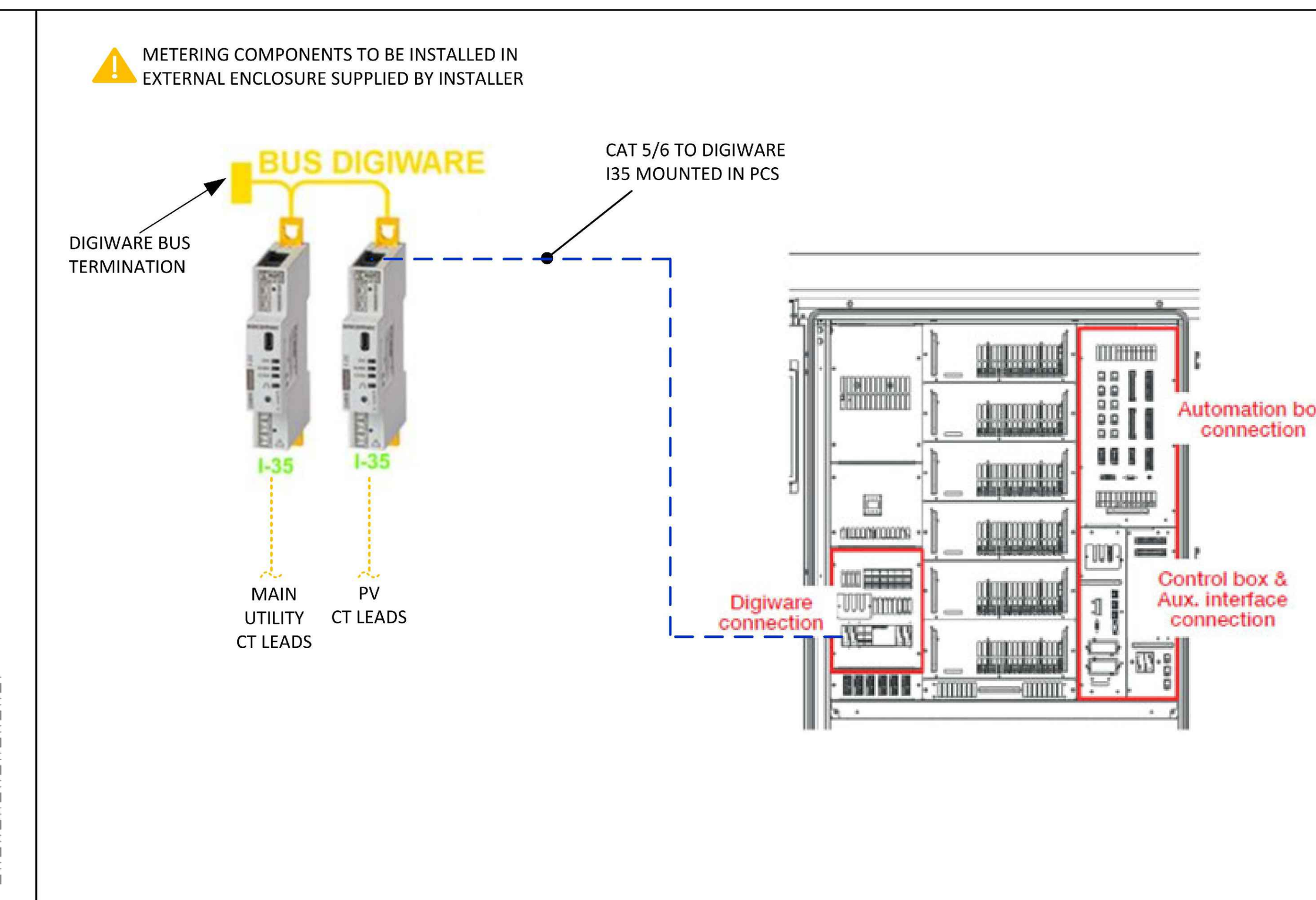
SHEET NO:

E401

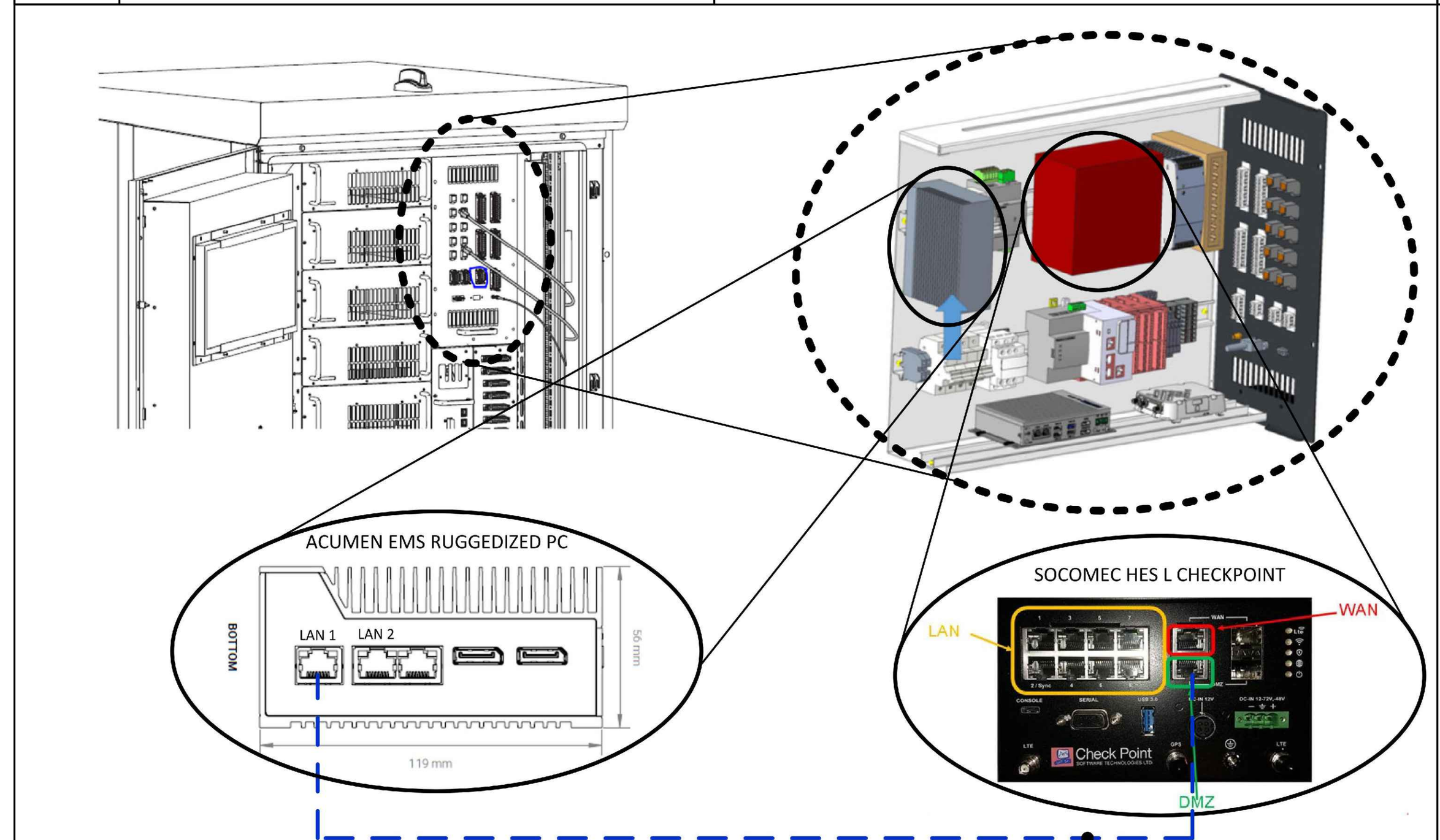
SHEET OF XXX



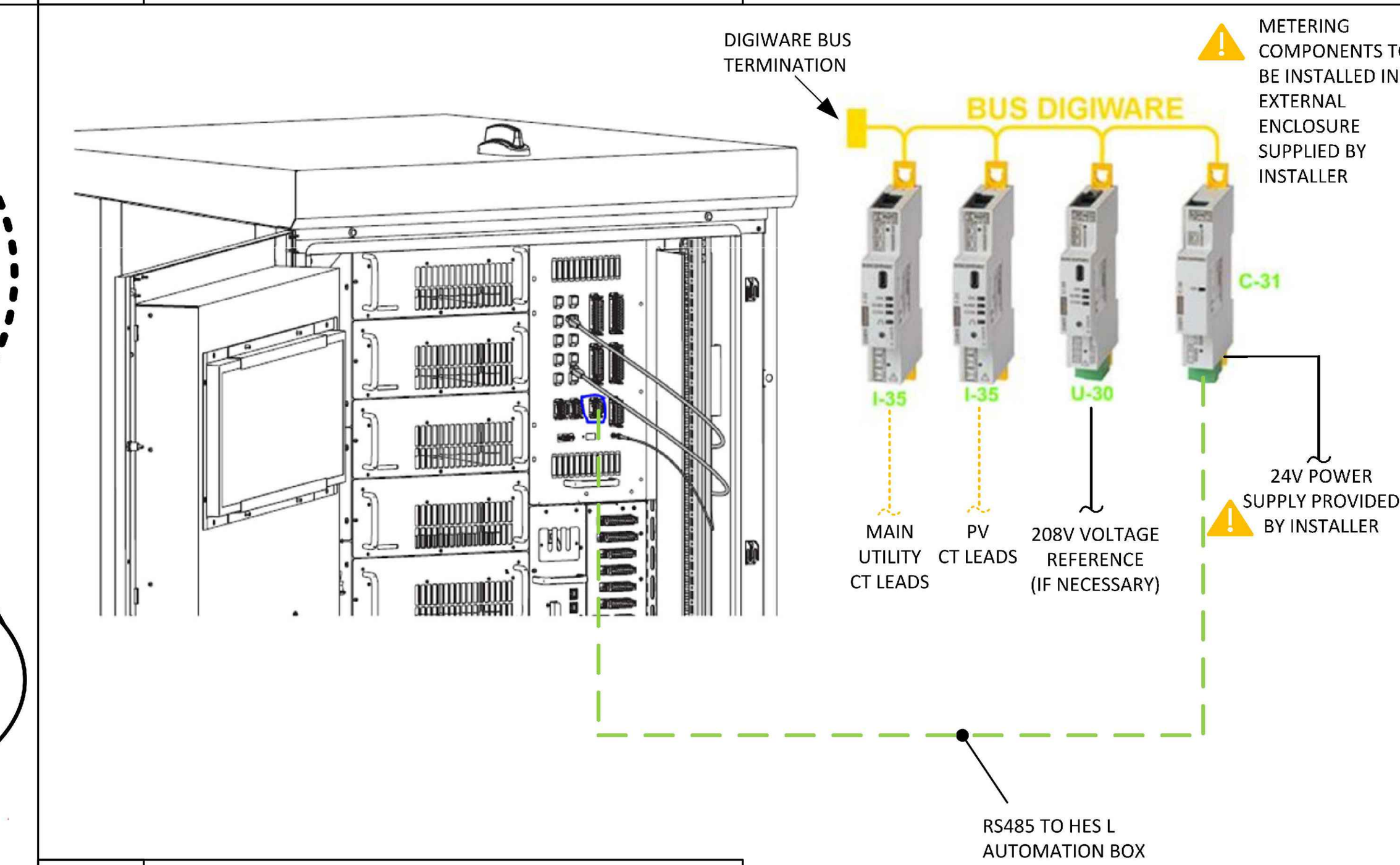
A INTERNET CONNECTION



B STANDARD METER CONNECTION



C ACUMEN CONNECTION TO PMS

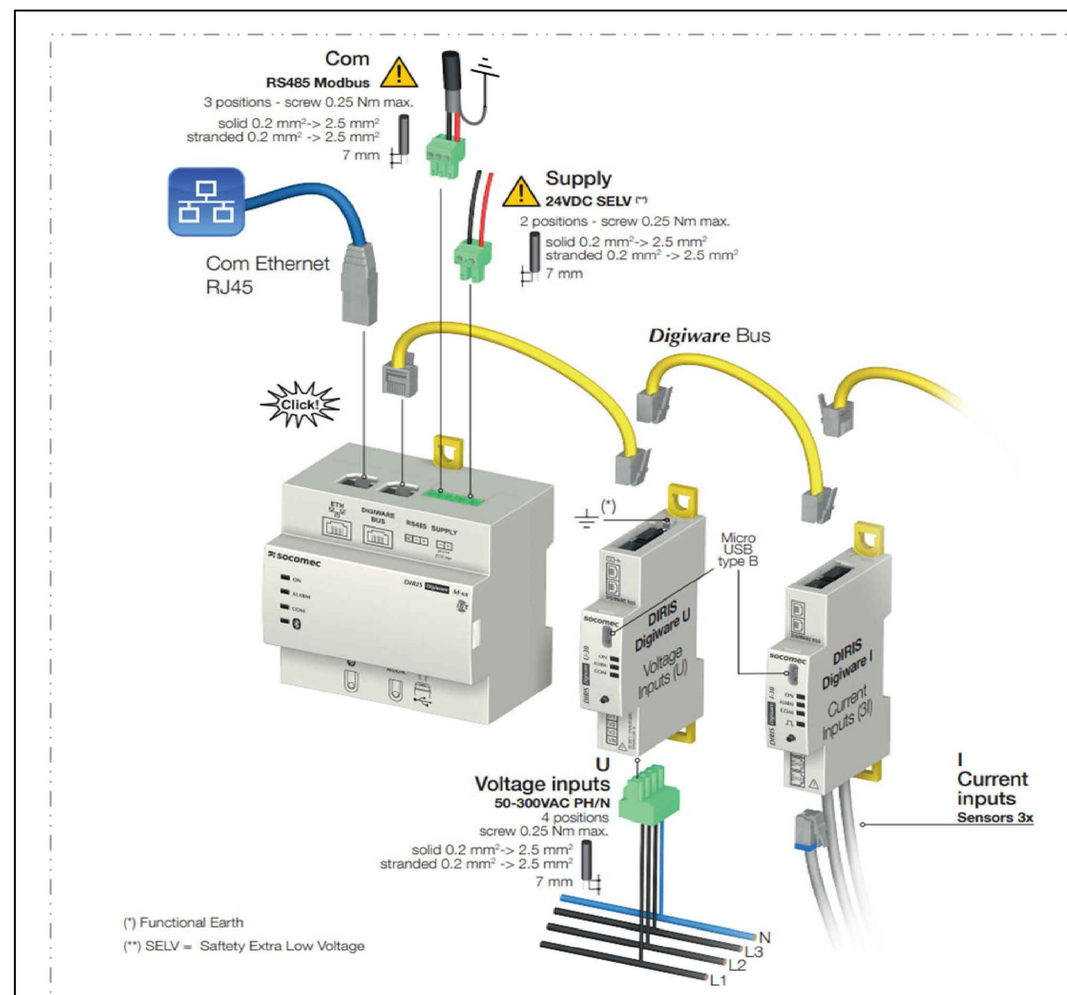


D 208V/>300'+ METER CONNECTION

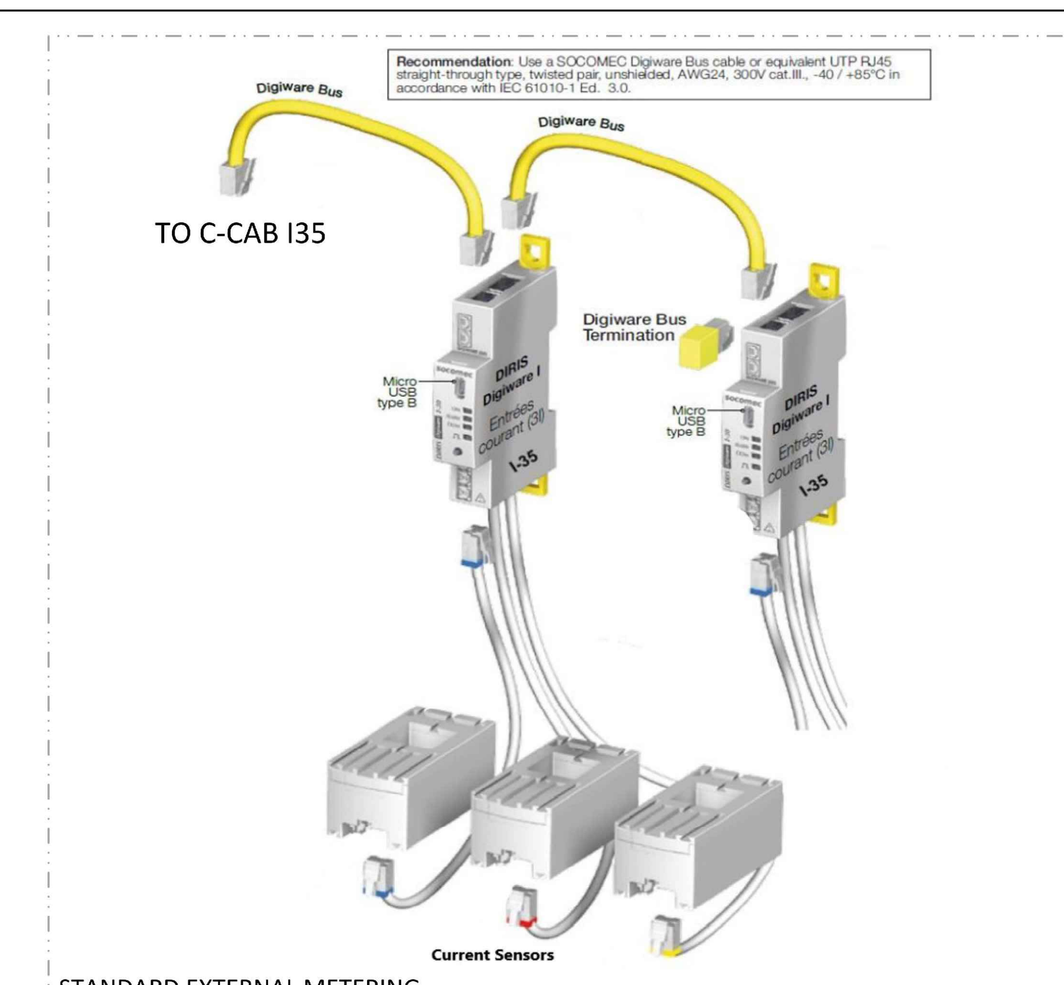
energy toolbase — A pason company	321 E. OSCEOLA ST. STUART, FL 34994 (866) 303.7786
DESCRIPTION:	INTERNET & METERING CONNECTION DETAILS
SYSTEM TYPE:	SOCOMEC HES L

REV	DESCRIPTION	DATE	BY
1	DETAILS PUBLISHED	05.10.22	KM

TITLE:	ACUMEN EMS SINGLE LINE
DRAWING NUMBER:	EMS_3
SCALE:	NS
SHEET:	3 OF 4



SOCOMEC C-CAB PRE-INSTALLED METERING



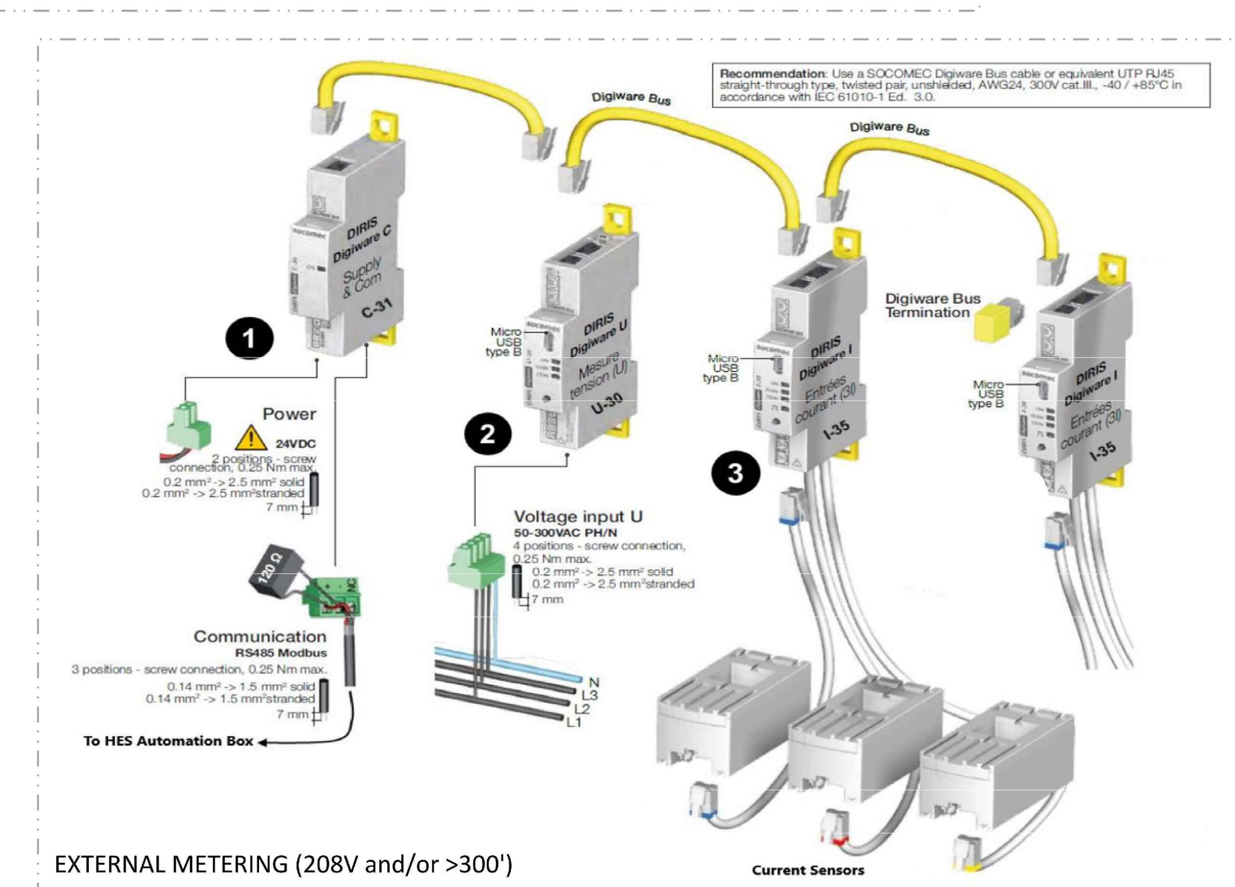
STANDARD EXTERNAL METERING

NOTE:
VOLTAGE REFERENCE CONDUCTORS MAY BE BROWN/ORANGE/YELLOW OR OTHER COLOR SCHEMES BASED ON CONNECTION VOLTAGE.

VOLTAGE TAPS **MUST** BE TAKEN AT THE SAME REFERENCE VOLTAGE (LOAD) THE CTS ARE MEASURING. IDEALLY THIS WOULD BE WITHIN THE SAME PANELBOARD THAT THE CTS ARE LOCATED.

DIGIWARE BUS TERMINATION MUST BE INSTALLED ON LST UNIT IN THE DIGIWARE BUS

1. DIGIWARE C-31 GATEWAY. REQUIRED WHEN ADDING ADDITIONAL VOLTAGE SENSORS OR IF DIGIWARE BUS EXCEEDS 300'
2. DIGIWARE U-30 VOLTAGE SENSOR. REQUIRED WHEN MEASURING VOLTAGE OTHER THAN 480V
3. DIGIWARE I-35 CURRENT SENSOR. USED TO MEASURE CURRENT AT ESS, PV, MAIN OR OTHER MEASURED POINTS

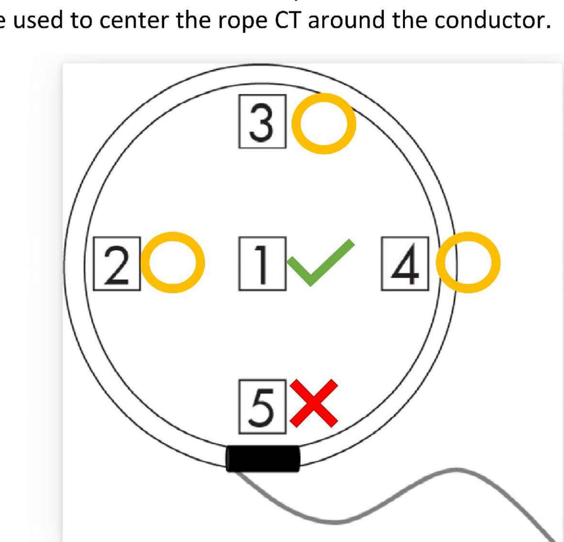


EXTERNAL METERING (208V and/or >300')

A METER DETAILS

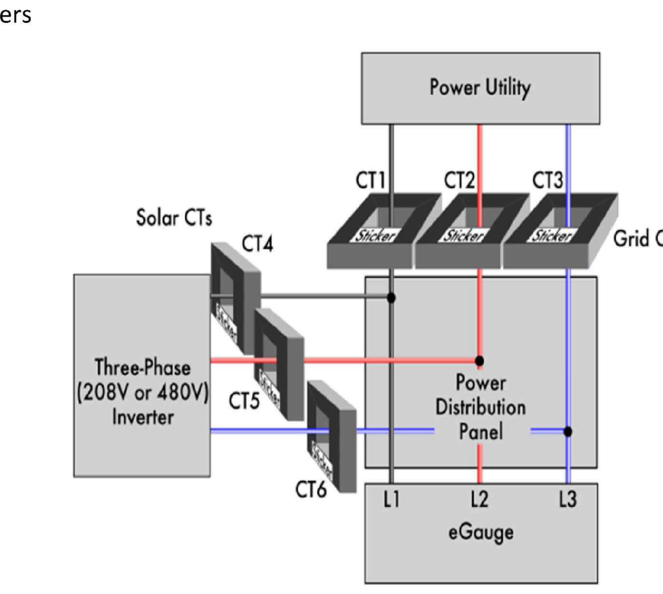
ROPE CT INSTALLATION

Rope CTs should be installed properly to reduce the maximum error based on positioning. Ideally the conductor being monitored will be perpendicular to the rope CT loop, and pass through the center of the rope CT as shown below. Tie-wraps or other non-conductive fasteners can be used to center the rope CT around the conductor.



Position Number	Position Description	Error
1	Centered	< 0.4%
2, 3, 4	Near outer edge	< 2.0%
5	Near connector	< 4.0%

SOLID & SPLIT CORE CT INSTALLATION



Spilt and solid core CT's should be installed with the sticker side facing the load being measured. Certain CT's may have an arrow, in which case ensure the arrow is pointing towards the load being measured.

B CT INSTALLATION INFORMATION

energy toolbase — A pason company	321 E. OSCEOLA ST. STUART, FL 34994 (866) 303.7786
DESCRIPTION:	METER DETAILS
SYSTEM TYPE:	SOCOMEC HES L

REV	DESCRIPTION	DATE	BY
1	DETAILS PUBLISHED	05.10.22	KM

TITLE:	ACUMEN EMS SINGLE LINE
DRAWING NUMBER:	EMS_4
SCALE:	NS
SHEET:	4 OF 4

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MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

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DRAWN	DLR
CHECKED	BD
DATE	04/11/2024

SHEET TITLE:

EQUIP. CUTSHEETS - BESS CONTROLS & WIRING

SHEET NO:

E402

SHEET OF XXX

SUNSYS HES L

SUNSYS HES L©

Scalable outdoor energy storage system
from 50 kVA / 186 kWh to 550 kVA / 1116 kWh

SUNSYS HES L is outdoor energy storage system designed for both on-grid and off-grid applications. It is available in a variety of configurations, to provide the ideal system size for a range of project requirements.
It supports dedicated applications such as optimization of photovoltaics with self consumption, peak shaving, backup power, and EV charging infrastructure.
Thanks to this, SUNSYS HES L combines the economic returns of on-grid operation with the security of a microgrid when the grid may fail.

High safety standards

SUNSYS HES L integrates advanced power conversion and LFP battery technologies to create a winning formula.
The B-Cab (battery storage cabinet) uses liquid-cooled, lithium iron phosphate chemistry, with an integrated fire protection system, and meets the requirements of the latest international fire code.
The complete system is certified to
UL 9540-2020, the safety standard for energy storage systems in both the Canada and the USA.

Extreme scalability

Based on 2 standard cabinets, SUNSYS HES L is a modular energy storage system that uses 2 standard cabinets to enable 32 UL certified configurations, providing ideal system sizing for a variety of projects. Based on standard equipment and pre-tested configurations, the design, quotation, installation and commissioning process is much faster as a result.

Fast and safe installation

SUNSYS HES L is supplied with all internal energy modules pre-assembled and plug and play power modules to guarantee maximum quality, the rapid installation and ease of transport.
It includes all cables and hardware to connect the B-Cabs and C-Cabs. The battery cabinets are delivered fully assembled, and include made-to measure cable kits for DC, communication and auxiliary power connections.

Combines the best technologies

Thanks to a co-design between CATL and Socomec, you can be assured of compatibility between products, and that the complete system has been validated and certified.
The C-Cab (power conversion cabinet) has been designed to include everything required for battery operation, including the management system as well as the power supply.

The solution for

- Commercial and industrial buildings
- EV charging infrastructure
- Isolated microgrids
- Resilient microgrids
- Renewable energy integration

Strong points

- High safety standards
- Extreme scalability
- Fast and safe installation
- Combines the best technologies

Conformity to standards

- **Safety:** UL 9540-2020; UL 9540A; UL 1973; NFPA 855; NFPA 68
- **EMC:** FCC part 15 Level A
- **Environment:** RoHS; REACH, IEC 61249
- **Communication protocol:** Modbus TCP; SunSpec 2.0
- **Grid code:** UL 1741 SB; UL 1741 PCS CRD; IEEE 1547-2018; IEEE 1547.1-2020; CA Rule 21; HECO Rule 14H
- CEC listed; HECO listed

Please consult us for additional ones.

Expert Services

An experienced and skilled team is at your service to make your project a success!

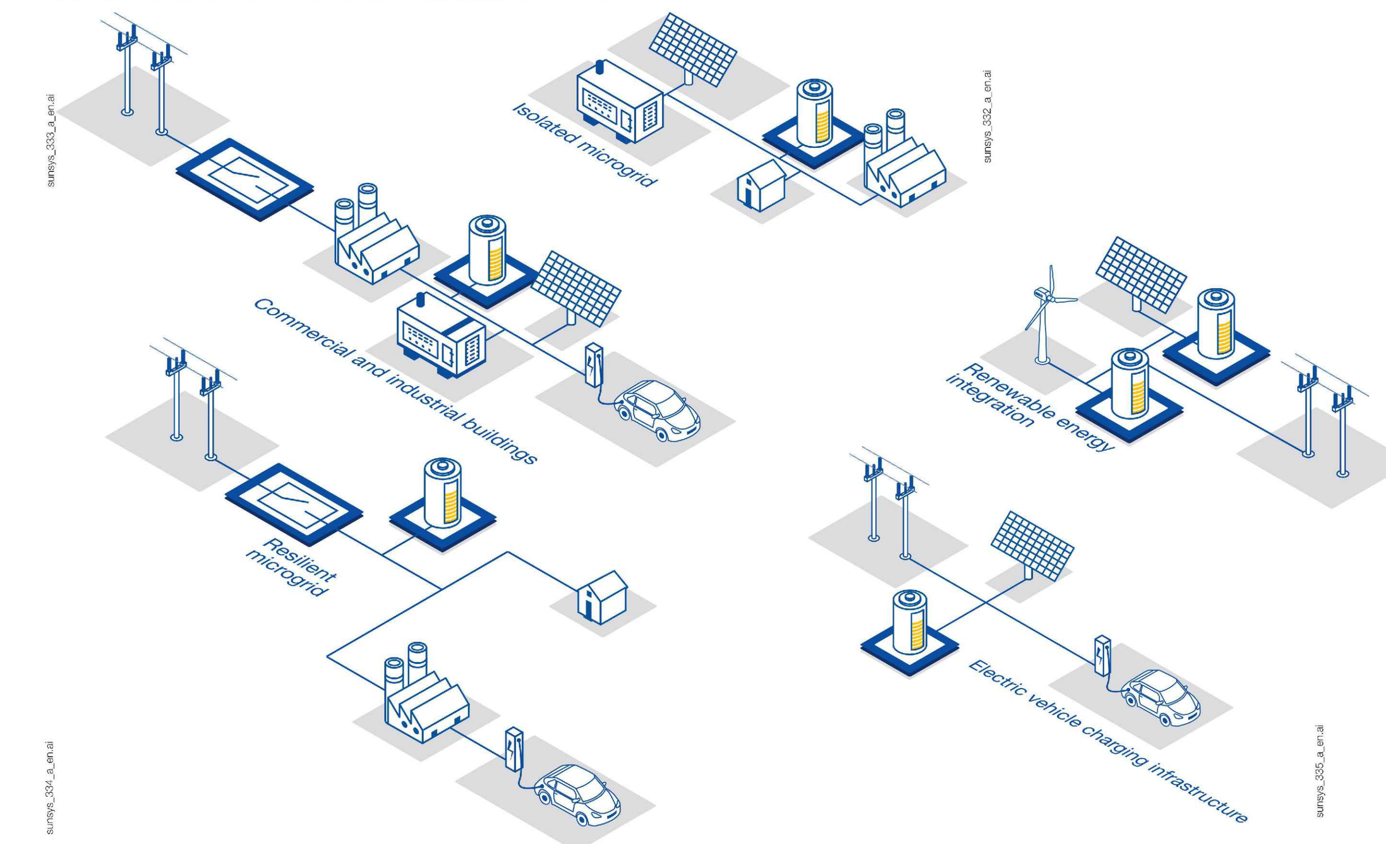
- **Project development:** pre-sales support, project design
- **Deployment:** training, field inspection, pre-commissioning, commissioning
- **Operation:** maintenance contracts, spare parts replacement, remote monitoring
- Cloud data storage
- Extended warranty on both product and performance

For more information, please contact us.

socomec Innovative Power Solutions

SUNSYS HES L©
Scalable outdoor energy storage system
from 50 kVA / 186 kWh to 550 kVA / 1116 kWh

Suitable for all of the following applications



2 modular units for maximum flexibility

Up to 1005 kg / 2215 lbs

2280 kg / 5026 lbs

C-Cab L - Converter Cabinet

- Bidirectional power converter
- 50 to 300 kVA / cabinet
- Automation functions
- AC/DC distribution and protection
- Battery management system
- IoT Ready

B-Cab L - Battery Cabinet

- Lithium ion battery
- LFP technology
- 186 kWh / rack
- Liquid cooling thermal management
- Integrated fire safety detection and suppression system
- Life cycle of up to 8000 cycles at 25°C; 0.5C

socomec Innovative Power Solutions

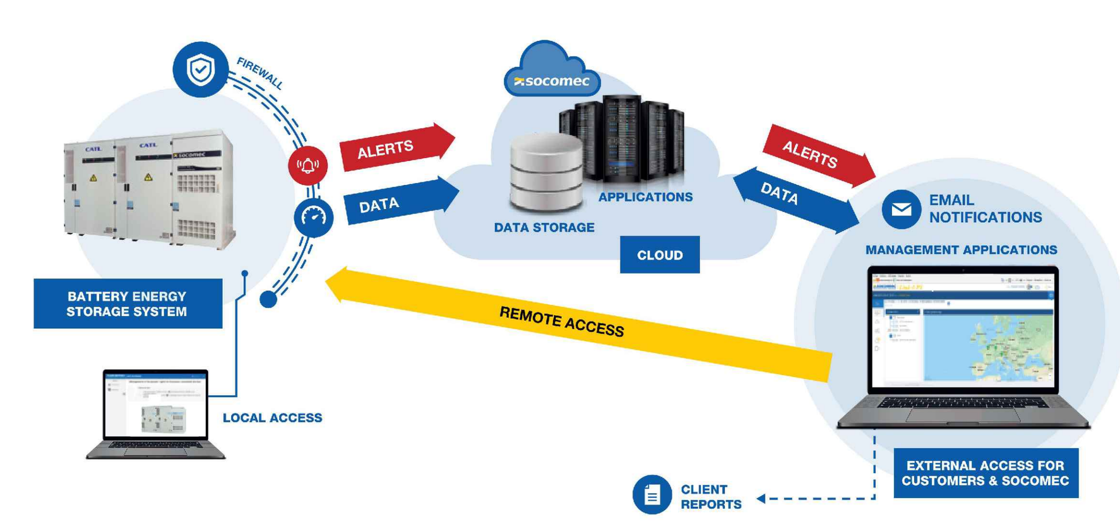
SUNSYS HES L©
Scalable outdoor energy storage system
from 50 kVA / 186 kWh to 550 kVA / 1116 kWh

Many system configurations are available to meet customer requirements

Power (kVA) \ Energy (kWh)	186	372	558	744	930	1116
50	3.4 h	7.0 h				
100	2.0 h*	3.4 h	5.3 h			
150		2.3 h	3.4 h	4.7 h	5.8 h	
200		2.0 h*	2.6 h	3.4 h	4.4 h	5.3 h
250			2.1 h	2.7 h	3.4 h	4.2 h
300			2.0 h*	2.3 h	2.9 h	3.4 h
350				2.0 h	2.5 h	2.9 h
400				2.0 h*	2.1 h	2.6 h
450					2.0 h*	2.3 h
500						2.1 h
550						2.0 h*

(*) Power derating to respect 0,5 C-RATE

Maximum savings and fast ROI



Local management

The Socomec Power Management System, coordinating the operation of all converter and battery components. It's capabilities include:
This open platform, integrated in the C-Cab, provides access to:

- peak shaving, energy shifting, self-consumption and fuel saving to maximise valuable savings,
- transitions between on-grid and microgrid operation,
- autonomous microgrid management,
- compatibility with 3rd party energy management software suites, through a Sunspec 2.0 or Modbus interface,
- SCADA integration through Modbus/TCP.

Remote monitoring

In addition, the C-Cab also integrates IoT devices that make it possible to continuously monitor the system remotely.
These devices enable the following, through 2 offers SoLive and SoLive Pro:

- web dashboard for on-line monitoring,
- web access to the system KPIs,
- smartphone app,
- remote firmware upgrade.

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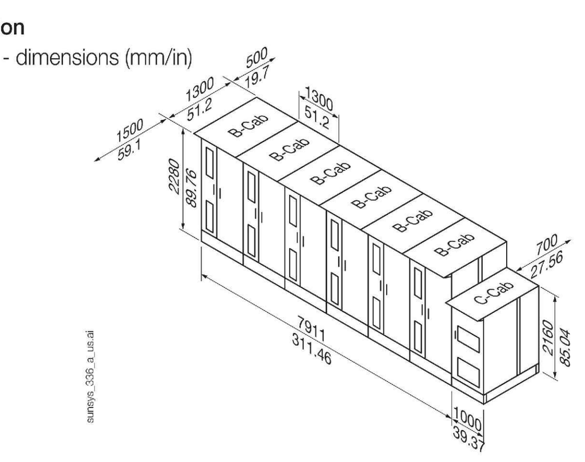
SUNSYS HES L©
Scalable outdoor energy storage system
from 50 kVA / 186 kWh to 550 kVA / 1116 kWh

Technical Data

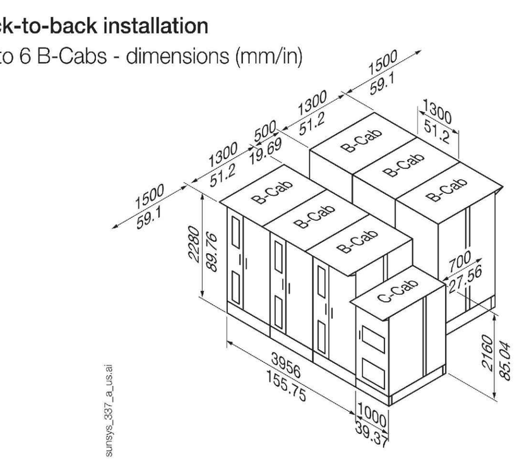
System information						
Power modularity	50 kVA power modules - up to 300 kVA					
Symmetrical overload	110% during 60 min - 125% during 20 min - 150% during 60 s					
Chemistry	LFP - Lithium Iron Phosphate					
Energy Nameplate	186 kWh per rack					
AC/AC Max Round Trip Efficiency	90%					
Maximum C-rate	0.5 C					
Maximum DC current	82 A charging / 87 A discharging per 50 kVA power module					
Power rating	50 kW	100 kW	150 kW	200 kW	250 kW	300 kW
AC rated current	60 A	120 A	180 A	241 A	301 A	361 A
AC max. temporary current (overload)	90 A	180 A	271 A	361 A	451 A	541 A
AC connections	Up to 4x95mm²/3/0AWG - 3x150mm²/300MCM - 2x185mm²/350MCM					
Rated voltage (Un)	480 Vac (3ph+N) ±20%					
Rated frequency	60 Hz ±5%					
Fire protection	Fire Safety System including smoke detectors, heat detectors and aerosol					
Environment						
Degree of protection	IP 55 / NEMA 3R (Outdoor)					
Operation temperature	-20 to +45 C° / -4 to +113°F without derating - up to +50°C / 122°F with derating					
Storage temperature	-20 to +60 C° / -4 to +140°F					
Acoustic level at 1 m	< 64.8 dB					
Maximum altitude	1000 m / 3280 ft. without derating (consult us for requirements above this)					

Two system installation options according to the space available on your site

In-line installation
Up to 6 B-Cabs - dimensions (mm/in)



Back-to-back installation
Up to 6 B-Cabs - dimensions (mm/in)



Also available

SUNSYS HES XXL
High power energy storage system
from 1 MVA / 2 MWh to 6 MVA / 26 MWh systems

socomec Innovative Power Solutions

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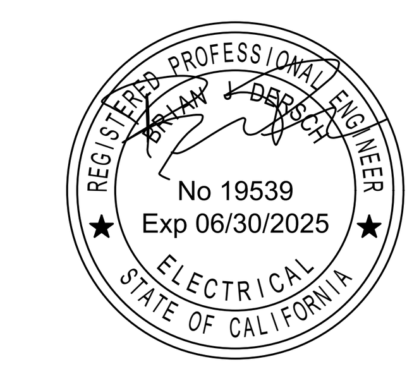

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MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

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0	08/04/23	CONCEPT

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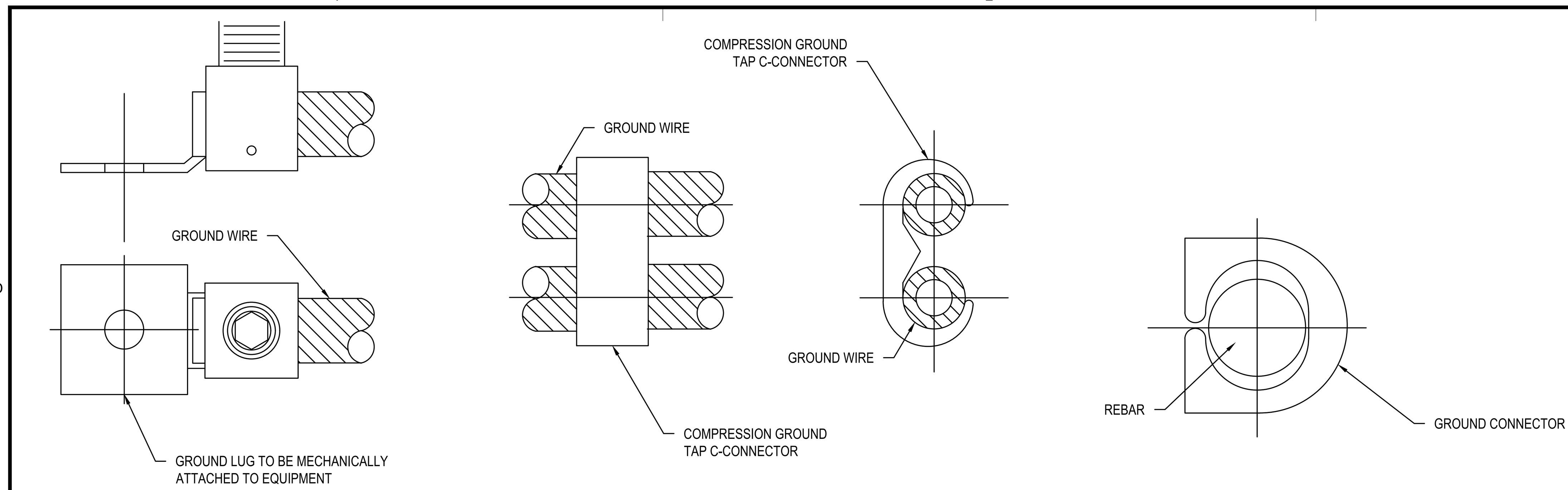
DRAWN	DLR
CHECKED	BD
DATE	04/11/2024

SHEET TITLE:
EQUIP. CUTSHEETS - BESS

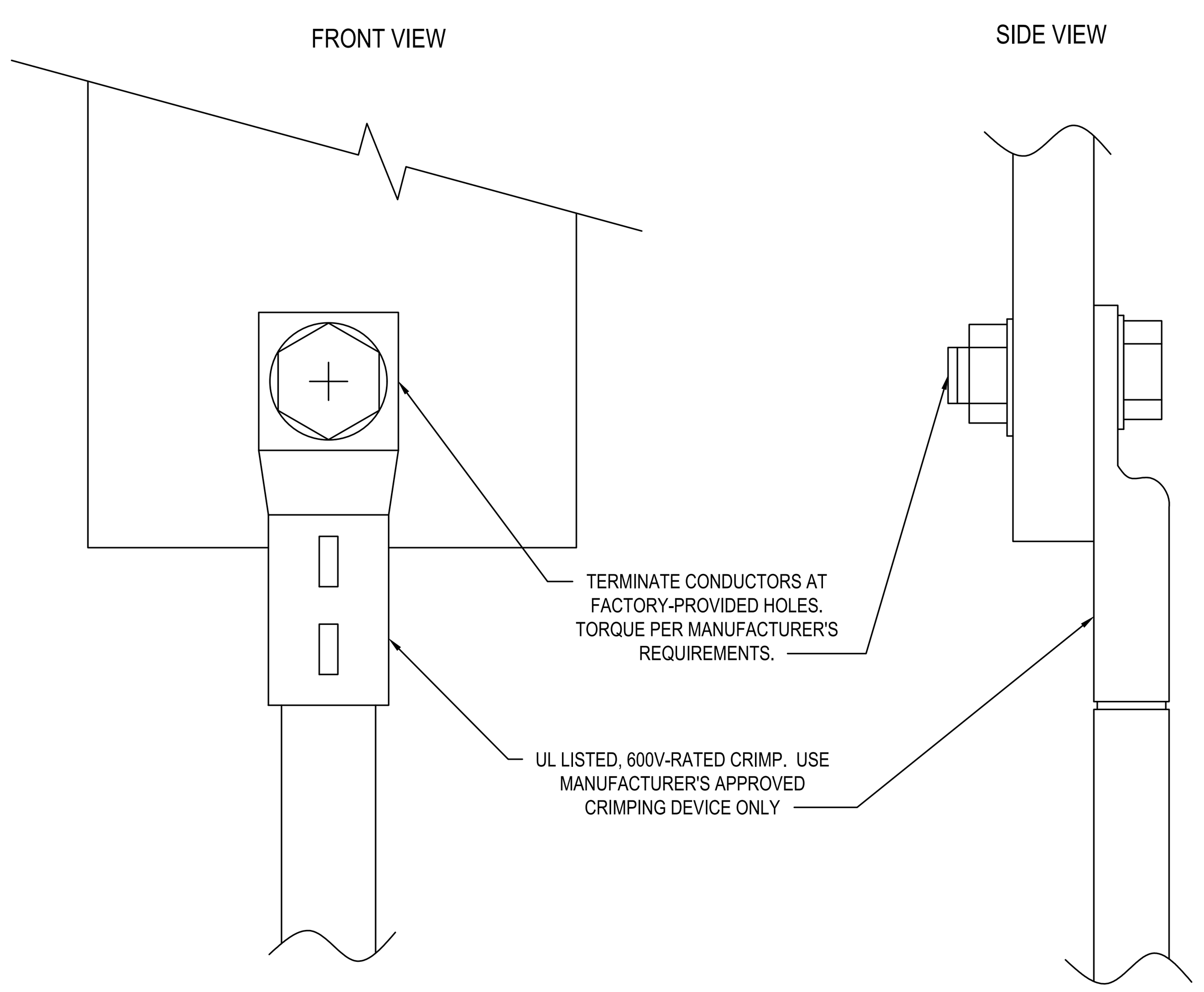
SHEET NO:
E403

SHEET OF XXX

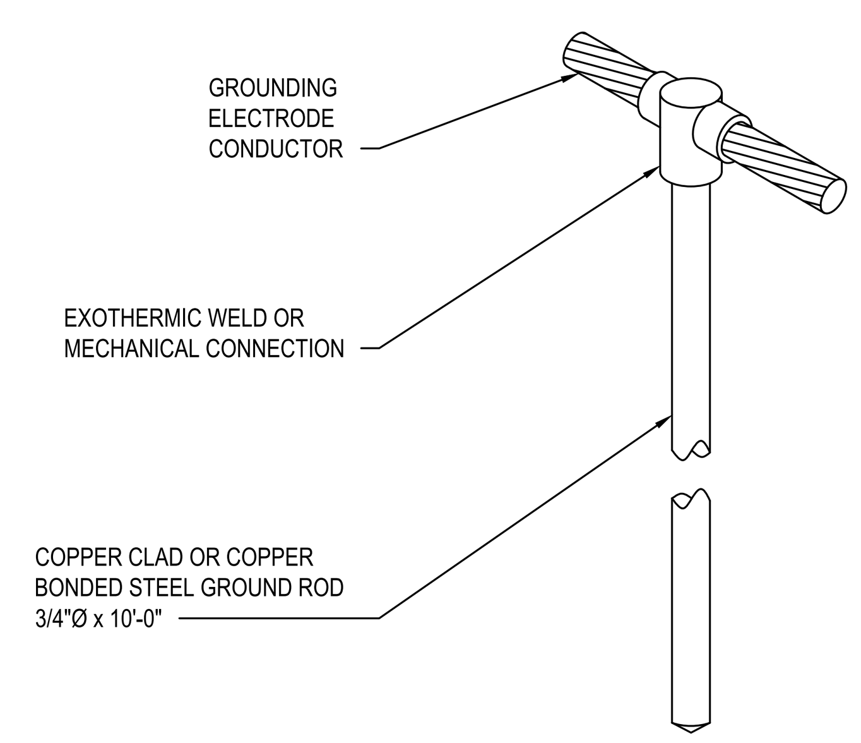


NOTE:
BURNDY HYGROUND FITTING OR SIMILAR

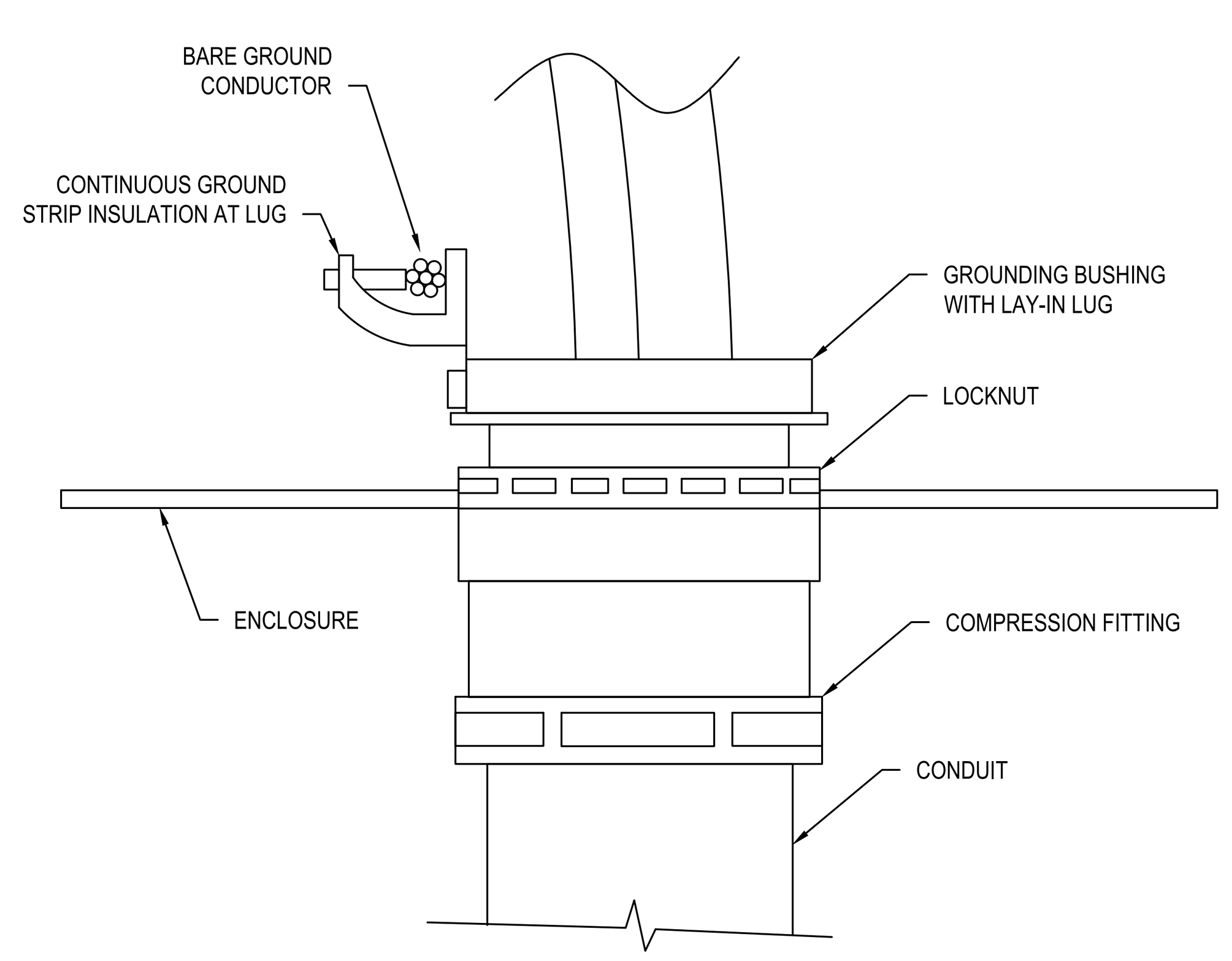
1 GROUNDING CONNECTIONS
SCALE: NO SCALE



3 ENCLOSURE CONDUIT GROUNDING
SCALE: NO SCALE



4 GROUNDING ROD DETAIL
SCALE: NO SCALE



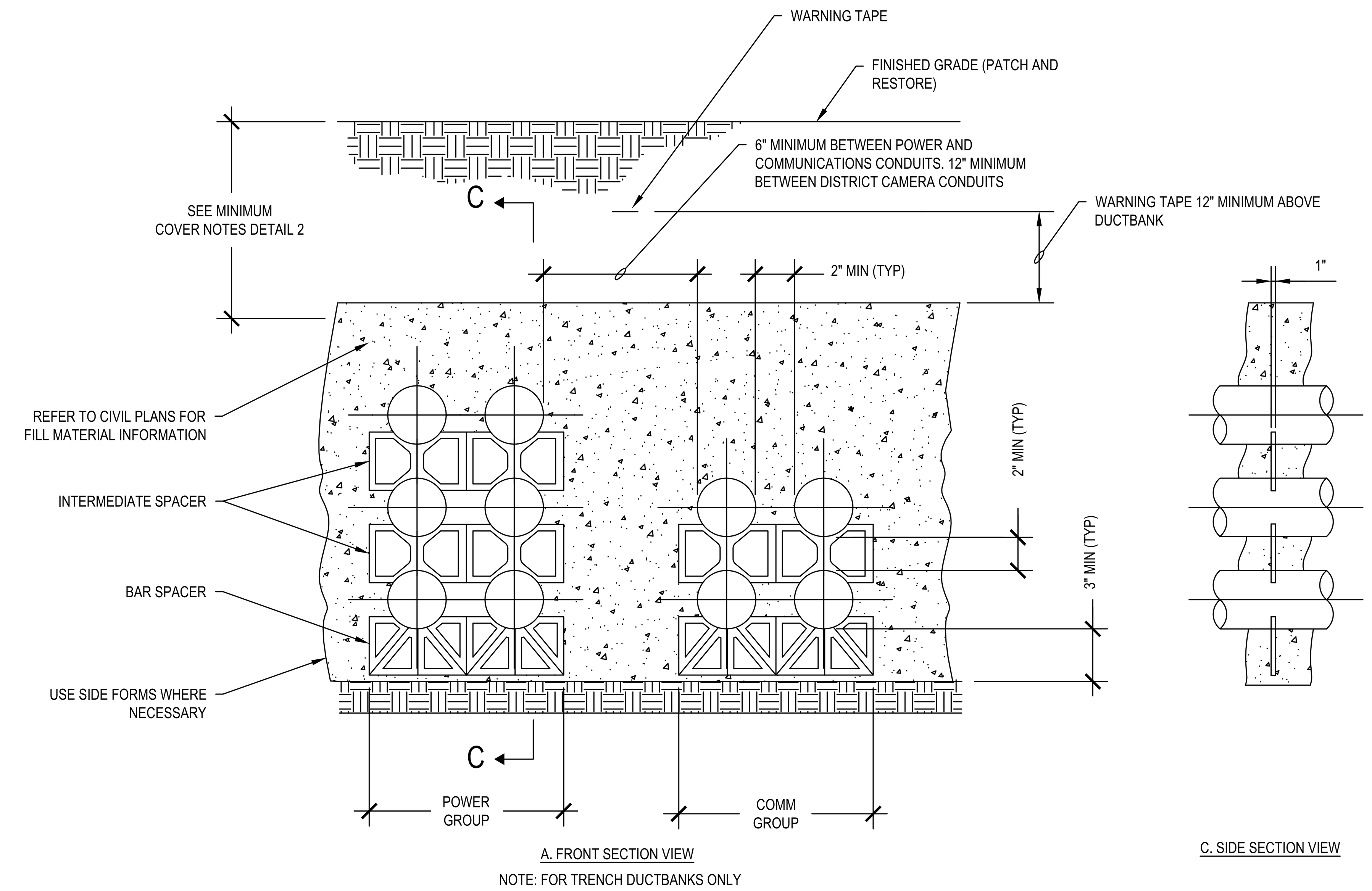
NOTES:

1. USE NO-OX ON ALL WIRE TERMINATIONS.
2. PROVIDE WATER TIGHT STAINLESS STEEL SEALING WASHER OR SEALING LOCKNUT WHERE CONDUIT ENTERS EQUIPMENT ENCLOSURE.

5 ENCLOSURE CONDUIT GROUNDING
SCALE: NO SCALE

NOTES:

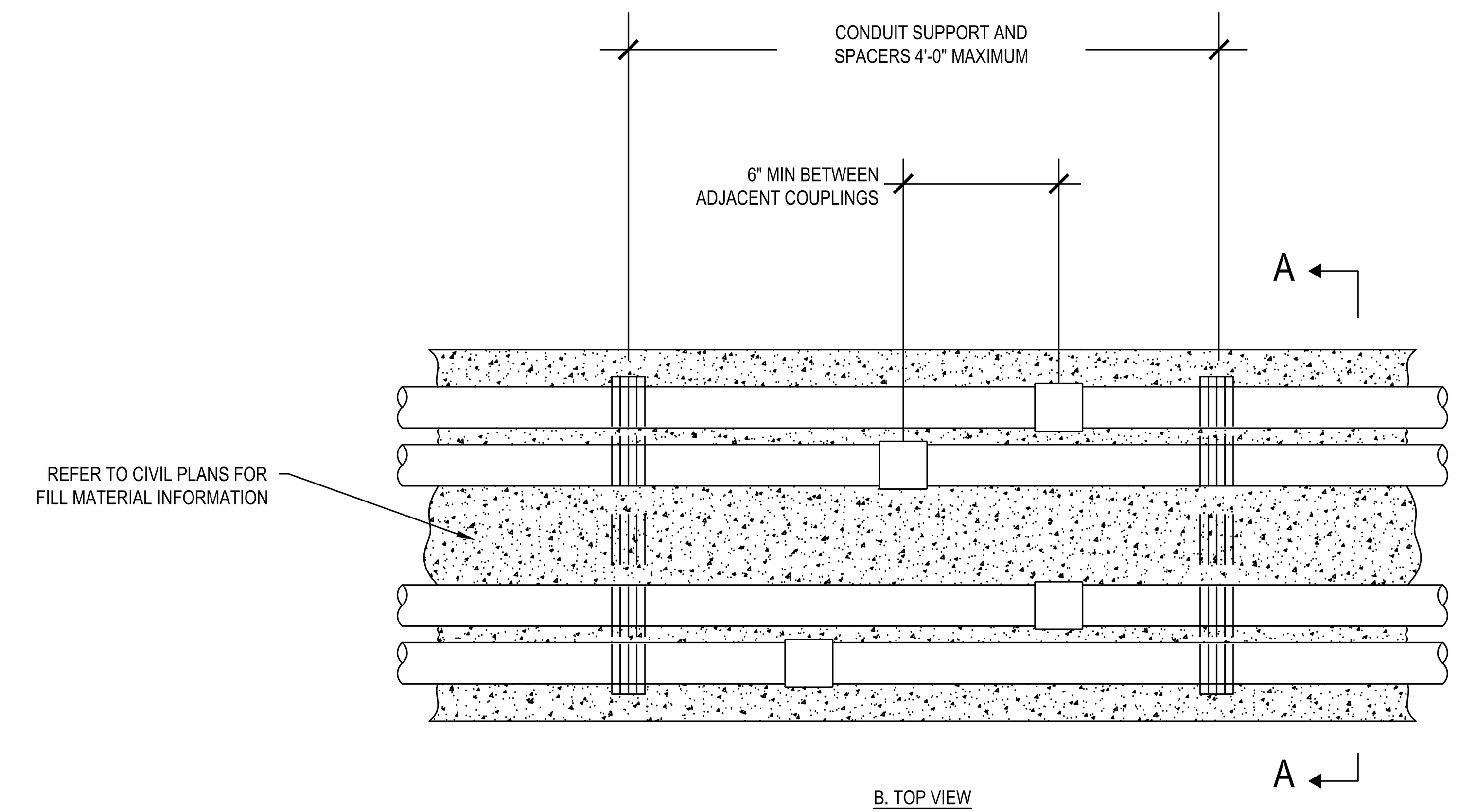
1. SEE PLAN DRAWINGS FOR SIZE AND NUMBER OF CONDUITS IN DUCTBANK.
2. COMMUNICATIONS CONDUIT GROUP SHALL BE SEPARATED FROM THE POWER GROUP ON EITHER LEFT OR RIGHT SIDE.
3. REFER TO SPECIFICATION SECTION 26 05 43 FOR ENCASEMENT AND BACKFILL INSTRUCTION.



2 DUCTBANK SECTION 'A-A'
SCALE: NO SCALE

MINIMUM COVER NOTES:

1. REFER TO SPECIFICATION SECTION 26 05 43 FOR COVER REQUIREMENTS.



6 MINIMUM COVER DETAIL
SCALE: NO SCALE

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SHEET TITLE:

ELECTRICAL DETAILS

SHEET NO:

E500

SHEET OF XXX

PLACARD DETAILS

PV SYSTEM PLACARD
6" X 3" RED WITH WHITE LETTERS

CAUTION:
SOLAR ELECTRIC SYSTEM CONNECTED

- PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM THE LOCATION WHERE THE LEVER IS OPERATED PER CODE

AC OUTPUT PLACARD
6" X 3" RED WITH WHITE LETTERS

RATED AC OUTPUT OPERATING CURRENT: **505.4** A
NOMINAL AC OPERATING VOLTAGE: **480** V

DANGER

AUTHORIZED PERSONNEL ONLY

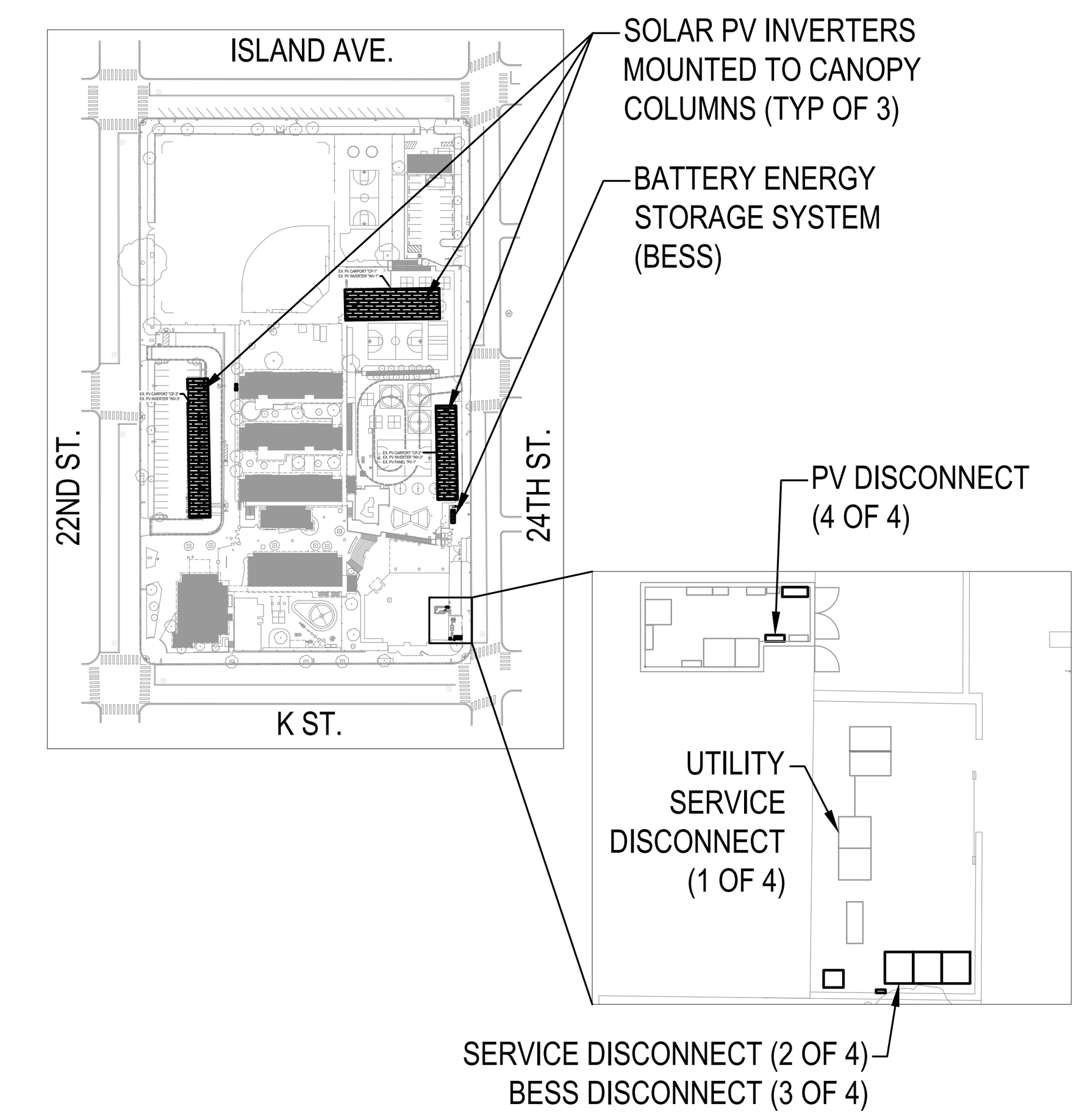
- WARNING -
ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS. TERMINALS ON BOTH LINE AND LOAD SIDE MAY BE ENERGIZED IN OPEN POSITION

- TO BE MOUNTED ON EACH SERVICE INTERCONNECTION POINT

CAUTION:

PHOTOVOLTAIC AND BATTERY STORAGE POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCE WITH DISCONNECTS AS SHOWN



SHERMAN ELEMENTARY SCHOOL
301 22ND STREET, SAN DIEGO, CA 92102
MAP OF ELECTRICAL POWER SOURCE DISCONNECTING MEANS

- MOUNT AT SWITCHBOARD 'MM', SWITCHBOARD 'MS', MAIN SWITCHBOARD 'MSB1', AND 'BESS1'

WARNING: PHOTOVOLTAIC POWER SOURCE

- APPLY LABEL AT VISIBLE LOCATIONS ON ALL RACEWAYS, BOXES, ENCLOSURES, AND CONDUIT BODIES WHERE ANY AVAILABLE CONDUIT OPENINGS ARE NOT IN USE CONTAINING PV POWER SOURCE (DIRECT CURRENT) CONDUCTORS. SPACING BETWEEN LABELS SHALL NOT EXCEED 10 FEET.

SOLAR DC CIRCUIT LABEL 6-1/2" X 1", RED WITH WHITE LETTERS
LABEL MUST BE REFLECTIVE AND SUITABLE FOR ENVIRONMENTAL CONDITIONS

BESS DISCONNECT PLACARD
5" X 2" RED WITH WHITE LETTERS

ENERGY STORAGE SYSTEM DISCONNECT

- WARNING -
ELECTRIC SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

NOMINAL AC VOLTAGE: 480VAC
MAXIMUM DC VOLTAGE: 860VDC

- MOUNT ON 'BESS1'

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DATE	04/11/2024

SHEET TITLE:
PLACARD DETAILS

SHEET NO:
E600

SHEET OF XXX

ABBREVIATIONS

A.B.	ANCHOR BOLT
ADDL.	ADDITIONAL
ALT.	ALTERNATE
ARCH.	ARCHITECTURAL
B.	BOTTOM
BLKG.	BLOCKING
B.O.F.	BOTTOM OF FOOTING
BRG.	BEARING
BTN.	BETWEEN
BOT.	BOTTOM
CBC	CALIFORNIA BUILDING CODE
C.G.	CENTER OF GRAVITY
C.I.P.	CAST-IN-PLACE
CL	CENTER LINE
CLR.	CLEAR
COL.	COLUMN
CONC.	CONCRETE
CONN.	CONNECTION
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
DBL.	DOUBLE
DBA.	DOWEL BAR ANCHOR
DL	DEAD LOAD
DP.	DEEP
DIA.	DIAMETER
DIM.	DIMENSION
DO	DITTO (REPEAT)
DWG.	DRAWING
DWL.	DOWEL
(E)	EXISTING
EA.	EACH
E.F.	EACH FACE
EL.	ELEVATION
ELEC.	ELECTRICAL
ELEV.	ELEVATOR
EMBED.	EMBEDMENT
EQ.	EQUAL OR EQUIVALENT
E.S.	EACH SIDE
E.W.	EACH WAY
EXT.	EXTERIOR
FDN.	FOUNDATION
F.F.	FINISHED FLOOR
F.O.C.	FACE OF CONCRETE
F.O.M.	FACE OF MASONRY
F.S.	FAR SIDE
FTG.	FOOTING
GA	GAUGE
GALV.	GALVANIZED
GR	GRADE
H.	HORIZONTAL
HT.	HEIGHT
HORIZ.	HORIZONTAL
H.S.H.	HORIZONTALLY SLOTTED HOLES
I.D.	INSIDE DIAMETER
I.F.	INSIDE FACE
INT.	INTERIOR
I.O.R.	INSPECTOR OF RECORD
JT.	JOINT
L.L.	LIVE LOAD
LT. WT.	LIGHT WEIGHT
MATL.	MATERIAL
MAX.	MAXIMUM
M.B.	MACHINE BOLT
MECH.	MECHANICAL
MFR.	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MTL.	METAL
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
N.S.	NEAR SIDE
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
O.F.	OUTSIDE FACE
O.H.	OPPOSITE HAND
OPNG.	OPENING
OPP.	OPPOSITE
ORIG.	ORIGINAL
PL	PLATE
PLCS.	PLACES
P.W.	PLATE WASHER
R	RADIUS
REF.	REFERENCE
REINF.	REINFORCEMENT
REQD.	REQUIRED
R.W.	RETAINING WALL
SCHED.	SCHEDULE
SECT.	SECTION
SEOR	STRUCTURAL ENGINEER OF RECORD
SEP.	SEPARATION
SIM.	SIMILAR
S.P.	SEE PLAN
SPEC.	SPECIFICATION
SQ.	SQUARE
S.S.	STAINLESS STEEL
STD.	STANDARD
STGR.	STAGGER
T.	TOP
T&B	TOP & BOTTOM
THK.	THICKNESS/THICK
THR.	THREADED
T.O.S.	TOP OF SLAB
T.O.W.	TOP OF WALL
TYP.	TYPICAL
UBC	UNIFORM BUILDING CODE
U.N.O.	UNLESS NOTED OTHERWISE
V	VERTICAL
VERT.	VERTICAL
V.S.H.	VERTICAL SLOTTED HOLES
WD.	WOOD
W.P.	WATERPROOF OR WORK POINT
W.P.J.	WEAKENED PLANE JOINT
WT.	WEIGHT
W.W.F.	WELDED WIRE FABRIC
W/	WITH
W/O	WITHOUT
W.O.	WHERE OCCURS
XS	EXTRA STRONG (STEEL PIPE)
XXS	DOUBLE EXTRA STRONG (STEEL PIPE)

CALIFORNIA GENERAL STRUCTURAL NOTES:

GENERAL:

THE STRUCTURAL CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE STRUCTURE IS DESIGNED TO BE A STABLE UNIT AS A COMPLETED WHOLE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DESIGN, ERECT AND INSPECT TEMPORARY SHORES, BRACES, ETC. TO SUPPORT THE STRUCTURE AGAINST ALL ANTICIPATED LOADS INCLUDING GRAVITY, WIND AND LATERAL EARTH PRESSURE UNTIL ITS COMPLETION. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THESE METHODS OF CONSTRUCTION. CONSTRUCTION MATERIAL SHALL BE PLACED ON FRAMED FLOORS AND ROOFS SUCH THAT THE DESIGN LIVE LOADS ARE NOT EXCEEDED.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND SITE CONDITIONS PRIOR TO STARTING CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH THE ARCHITECT.

WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE LATEST EDITIONS OF THE CALIFORNIA BUILDING CODE AND TESTING STANDARDS.

NOTES AND DETAILS ON THE DRAWINGS TAKE PRECEDENCE OVER THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO SPECIFIC DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT. "TYPICAL" DETAILS ARE NOT FLAGGED ON THE DRAWINGS, BUT APPLY UNLESS NOTED OTHERWISE.

COORDINATION:

ALL DRAWINGS ARE CONSIDERED TO BE PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE DRAWINGS AND SPECIFICATIONS AMONG THE SUBCONTRACTORS AND ARCHITECT PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES THAT ARE FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO START OF CONSTRUCTION. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ARCHITECT.

COORDINATION SHALL INCLUDE, BUT NOT BE LIMITED TO, VERIFYING THE LOCATION AND WEIGHT OF ALL MECHANICAL AND ELECTRICAL EQUIPMENT AS WELL AS THE SIZE AND LOCATION OF ALL MECHANICAL OPENINGS IN ROOFS, FLOORS AND WALLS. UNLESS OTHERWISE NOTED ON THE DRAWINGS, DO NOT PENETRATE ANY STRUCTURAL ELEMENTS SUCH AS BEAMS, COLUMNS, WALLS, SLABS, ETC. WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER THROUGH THE ARCHITECT.

ALL DEPRESSIONS, ELEVATIONS AND SLOPES SHOULD BE COORDINATED WITH THE ARCHITECT AND PLANNED FINISHES. ALL WEATHER EXPOSED SURFACES SHOULD BE SLOPED TO DRAIN PER ARCHITECTURAL OR OTHER DRAWINGS.

COORDINATION SHALL INCLUDE, BUT NOT BE LIMITED TO, DETERMINING THE LOCATION OF ALL EXISTING UTILITY LINES THAT MAY INTERFERE WITH THE INSTALLATION OF THE NEW STRUCTURAL ELEMENTS. THE CONTRACTOR SHALL INFORM THE OWNER IF INTERFERENCE IS ENCOUNTERED. THE OWNER WILL DETERMINE IF THE LINES ARE TO BE REMOVED OR RELOCATED.

SHOP DRAWINGS AND SUBMITTALS:

SHOP DRAWINGS AND SUBMITTALS TO THE ENGINEER ARE REQUIRED FOR ALL STRUCTURAL WORK, UNLESS OTHERWISE AGREED TO BY THE ARCHITECT/ENGINEER. NO WORK SHALL PROCEED WITHOUT THE REVIEW AND APPROVAL OF SHOP/ERECTION/LAYOUT DRAWINGS BY THE ARCHITECT AND ENGINEER. ALL SUBMITTALS SHALL BE MADE IN A TIMELY MANNER ALLOWING ADEQUATE TIME AS NEEDED BY THE ARCHITECT AND ENGINEER FOR REVIEW.

THE CONTRACTOR SHALL REVIEW AND APPROVE ALL SHOP DRAWINGS PRIOR TO ENGINEERING REVIEW. SUBMISSIONS FOR ENGINEERING REVIEW SHALL INCLUDE A REPRODUCIBLE AND ONE COPY; REPRODUCIBLE WILL BE MARKED AND RETURNED. ELECTRONIC SUBMITTALS MAY BE ACCEPTED.

ANY STRUCTURAL ENGINEERING DESIGN PROVIDED BY OTHERS SHALL BE SUBMITTED FOR REVIEW AND SHALL BEAR THE SEAL OF A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

TRADES PROVIDING SHOP DRAWINGS SHOULD PROPERLY COORDINATE WITH ALL OTHER ALL OTHER TRADES AND SHOW OTHER POSSIBLE CONFLICTS OR OVERLAPPING ELEMENTS FROM OTHER TRADES ON THEIR SUBMITTAL FOR REVIEW.

REQUIRED SHOP DRAWINGS AND SUBMITTALS:

CONCRETE REINFORCEMENT SHOP DRAWINGS AND MILL CERTS
EXPANSION ANCHORS AND EPOXY PRODUCTS
CONCRETE MIX DESIGNS AND GROUT PRODUCTS

INSPECTIONS AND SPECIAL INSPECTIONS:

THE OWNER SHALL EMPLOY A GENERAL INSPECTOR TO PROVIDE INSPECTION PER THE CBC AND LOCAL CODES. ALL INSPECTORS SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION.

THE OWNER WILL EMPLOY AN ICBO CERTIFIED SPECIAL INSPECTOR TO PROVIDE INSPECTION OF THE FOLLOWING ITEMS PER CBC SECTION 1701 AND THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION:

CONCRETE:
DURING THE PLACEMENT OF CONCRETE AND THE TAKING OF TEST SPECIMENS. SEE PROJECT SPECIFICATIONS FOR FREQUENCY OF TESTING.

REINFORCING STEEL:
DURING THE PLACEMENT OF REINFORCING STEEL IN REINFORCED CONCRETE.

POST-INSTALLED ANCHORS:
DURING PLACEMENT OF EPOXY ANCHORS.
PERIODIC INSPECTION OF MECHANICAL POST-INSTALLED ANCHORS

STRUCTURAL OBSERVATIONS:

STRUCTURAL OBSERVATION IS REQUIRED FOR THE STRUCTURAL SYSTEM IN ACCORDANCE WITH CBC CHAPTER 17A. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTURAL SYSTEMS AT SIGNIFICANT CONSTRUCTION STAGES AND THE COMPLETED STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED OF THE BUILDING INSPECTOR OR THE DEPUTY INSPECTOR.

THE STRUCTURAL OBSERVER SHALL PERFORM SITE VISITS AT THOSE STEPS IN THE PROGRESS OF THE WORK THAT ALLOW FOR CORRECTION OF DEFICIENCIES WITHOUT SUBSTANTIAL EFFORT OR UNCOVERING OF THE WORK INVOLVED. AT A MINIMUM, THE FOLLOWING SIGNIFICANT CONSTRUCTION STAGES REQUIRE A SITE VISIT AND AN OBSERVATION REPORT FROM THE STRUCTURAL OBSERVER.

CONSTRUCTION STAGES AND ELEMENTS TO BE OBSERVED

PRIOR TO CONCRETE PLACEMENT/FOUNDATION REINFORCEMENT AND ANCHOR BOLTS

CODE:

2022 CALIFORNIA BUILDING CODE

SEISMIC:

SITE CLASS	"D" DEFAULT
IMPORTANCE FACTOR	1.5
SEISMIC DESIGN CATEGORY	D
S_{DS}	1.175
S_{D1}	0.595

OTHER MECHANICAL OR ELECTRICAL EQUIPMENT:

a_p	1.0
R_p	1.5
Ω	2.0

SNOW LOADS DO NOT APPLY TO THIS SITE.
FLOOD LOADS DO NOT APPLY TO THIS SITE.
WIND LOADS DO NOT APPLY TO THIS PROJECT.

FOUNDATION:

1500 PSF ALLOWABLE BEARING ASSUMED.

SOIL BENEATH BOTTOM OF FOOTINGS AND SLAB SUB-BASE TO BE VERIFIED IN WRITING BY A FIELD SOILS ENGINEER AS MEETING THIS REQUIREMENT.

CONCRETE:

CONCRETE CONSTRUCTION SHALL CONFORM WITH THE LATEST EDITION OF ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" AND ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE". SUBMIT MIX DESIGNS FOR EACH CLASS OF CONCRETE. ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE UNLESS NOTED OTHERWISE. ALL LIGHTWEIGHT CONCRETE TO BE SAND LIGHTWEIGHT CONCRETE.

CONCRETE CONTAINING SUPERPLASTICIZING ADMIXTURE SHALL HAVE A SLUMP NOT EXCEEDING 3", TO BE FIELD VERIFIED, PRIOR TO ADDING ADMIXTURE, AND NOT EXCEEDING 8" AT PLACEMENT. CONCRETE NOT CONTAINING SUPERPLASTICIZING ADMIXTURE SHALL HAVE A SLUMP NOT EXCEEDING 5" AT PLACEMENT. ADDITION OF WATER TO A MIX WITH INSUFFICIENT SLUMP WILL NOT BE PERMITTED, EXCEPT AS ALLOWED PER ASTM C494.

MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED, EXCEPT THAT SLABS ON GRADE NEED BE VIBRATED ONLY AROUND UNDER-FLOOR DUCTS, ETC. CAST CLOSURE POUR AROUND COLUMNS AFTER DEAD LOAD IS APPLIED.

MINIMUM CONCRETE MIX DESIGN REQUIREMENTS SHALL BE AS FOLLOWS:

ITEM	28 DAY STRENGTH F'c (PSI)	MAX. SIZE AGGREGATE	DENSITY
FOUNDATIONS	3,000	1"	150 PCF

NOTE: A HIGHER GRADE OF CONCRETE MAY BE SUBSTITUTED FOR THOSE SHOWN ABOVE BUT WILL BE SUBJECT TO THE CODE REQUIREMENTS OF THE HIGHER GRADE.

AGGREGATE AND AGGREGATE GRADATION SHALL CONFORM TO ASTM C33.

AIR ENTRAINMENT IS OPTIONAL AND WILL BE REVIEWED IN MIX SUBMITTAL.

FLY ASH SHALL BE CLASS F ONLY AND IS OPTIONAL AND WILL BE REVIEWED IN MIX SUBMITTAL.

WET CURING IS RECOMMENDED SUBMIT METHOD FOR CURING TO SEOR.

CONCRETE COVER OVER REINFORCING SHALL BE AS FOLLOWS U.N.O.:

POURED AGAINST EARTH	3"
EXPOSED TO EARTH, BUT POURED AGAINST FORMS	2"
TYPICAL BARS IN COLUMNS WALLS AND BEAMS	1 1/2"
RAISED STRUCTURAL SLAB	3/4"

BEFORE CONCRETE IS POURED, CHECK WITH ALL TRADES TO INSURE PROPER PLACEMENT OF ALL OPENINGS, SLEEVES, CURBS, CONDUITS, BOLTS, INSERTS, ETC. RELATING TO WORK.

ALL SLEEVES NOT SPECIFICALLY SHOWN ON DRAWINGS SHALL BE LOCATED BY THE TRADES INVOLVED & SHALL BE APPROVED BY STRUCTURAL ENGINEER.

DRYPACK CONCRETE SHALL BE ONE PART PORTLAND CEMENT & ONE PART SAND WITH SUFFICIENT WATER TO ALLOW A SMALL AMOUNT OF PASTE TO COME TO THE SURFACE.

CONCRETE GROUT SHALL BE NON-SHRINKING WITH SUFFICIENT WATER TO ALLOW POURING. MINIMUM ULTIMATE COMPRESSIVE STRENGTH F'C AT 28 DAYS SHALL BE 4000 PSI.

REINFORCING STEEL:

DEFORMED BARS:

ASTM A615 GRADE 60 U.N.O. REINFORCING TO BE WELDED SHALL BE ASTM A706, GRADE 60, LOW ALLOY U.N.O.

WELDED WIRE FABRIC:

ASTM A82 AND ASTM A185. PROVIDE IN FLAT SHEETS.

WELDING:

UNLESS NOTED OTHERWISE, WELDING OF REINFORCING STEEL IS PROHIBITED. WHERE WELDING IS NOTED, WELD IN ACCORDANCE WITH AWS D1.4 USING E90 SERIES ELECTRODES. SUBMIT MILL TEST REPORTS ON THE REINFORCING TO BE WELDED AND THE PROPOSED WELDING PROCEDURE.

LAP SPLICES IN CONCRETE:

SEE TYPICAL DETAIL FOR LAP SPLICES IN CONCRETE BEAMS, WALLS, SLABS AND FOOTINGS. UNLESS NOTED OTHERWISE, LAP SPLICES IN CONCRETE BEAMS, WALLS, SLABS AND FOOTINGS SHALL BE CLASS "B" TENSION LAP SPLICES AND LAP SPLICES IN CONCRETE COLUMNS SHALL BE STANDARD COMPRESSION LAP SPLICES PER LATEST EDITION OF ACI 318. STAGGER ALTERNATE SPLICES A MINIMUM OF ONE LAP LENGTH. LAPS IN WELDED WIRE FABRIC SHALL BE MADE SO THAT THE OVERLAP MEASURED BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET IS NOT LESS THAN THE SPACING OF CROSS WIRES PLUS 2 INCHES. ALL SPLICE LOCATIONS SUBJECT TO APPROVAL.

PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OF FOOTINGS AND WALLS. SPACING SHOWN FOR REINFORCING BARS ARE MAXIMUM ON CENTERS. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. DOWEL ALL VERTICAL REINFORCING TO THE FOUNDATION. CONCRETE COLUMN DOWEL EMBEDMENT SHALL BE A STANDARD COMPRESSION DOWEL EMBEDMENT LENGTH ACCORDING TO THE LATEST EDITION OF ACI 318. SECURELY TIE ALL BARS IN POSITION PRIOR TO PLACING CONCRETE. SUPPORT SLAB REINFORCEMENT WITH CONCRETE BLOCKS OR SUPPORT CHAIRS. REINFORCING SHALL NOT BE SUPPORTED BY STAKES DRIVEN INTO THE GROUND.

STRUCTURAL STEEL:

ROLLED SHAPES OTHER THAN WIDE-FLANGE SHAPES, ALL PLATES, BARS AND RODS	ASTM A36, Fy = 36 KSI
ALL WIDE-FLANGE SHAPES	ASTM A992, Fy = 50 KSI
HSS STEEL	ASTM A500 GR. B
PIPE STEEL	ASTM A53, Fy = 35 KSI
BOLTS	ASTM A307
ANCHOR BOLTS	ASTM A36 ROD STOCK OR F1554 GR. 36

ALL STEEL EXPOSED TO WEATHER TO BE HOT-DIPPED GALVANIZED U.N.O.

FABRICATION AND ERECTION:

LATEST AISC AND AWS CODES APPLY. FABRICATE AND ERECT IN ACCORDANCE WITH LATEST EDITION OF AISC "SPECIFICATION FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS". SPLICING OF STRUCTURAL MEMBERS IS NOT PERMITTED UNLESS NOTED ON THE DRAWINGS. ALL BEAMS SHALL BE ERECTED WITH THE NATURAL CAMBER UPWARDS.

ALL SURFACES FOR SLIP-CRITICAL BOLTED CONNECTIONS SHALL BE FREE OF PAINT, INCLUDING ANY INADVERTENT OVERSPRAY, IN AREAS CLOSER THAN ONE BOLT DIAMETER, BUT NOT LESS THAN ONE INCH, FROM THE EDGE OF ANY HOLE AND AT ALL AREAS WITHIN THE BOLT PATTERN.

WELDING:

ALL WELDING SHALL BE BY CERTIFIED WELDERS HAVING CURRENT EXPERIENCE IN TYPE OF WELD SHOWN ON DRAWINGS OR NOTES. CERTIFICATES SHALL BE THOSE ISSUED BY AN ACCEPTED TESTING AGENCY. ALL WELDING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF AWS "CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION". USE E70 SERIES LOW HYDROGEN ELECTRODES. SHOP WELDS AND FIELD WELDS SHALL BE SHOWN ON SHOP DRAWINGS. ALL COMPLETE PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING AGENCY. ALL DEFORMED BAR ANCHORS, HEADED STUDS AND THREADED STUDS SHALL BE END WELDED PER MANUFACTURER'S RECOMMENDATIONS.

BOLTS:

ALL BOLTS, ANCHOR BOLTS, EXPANSION BOLTS, ETC., SHALL BE INSTALLED WITH STEEL WASHERS. USE TYPE X BOLTS U.N.O. PER LATEST EDITION OF AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" AND SHALL BE TIGHTENED TO THE SNUG-TIGHT CONDITION AS DEFINED BY AISC UNLESS NOTED OTHERWISE.

SNUG-TIGHT IS DEFINED AS THE TIGHTNESS ATTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A MAN USING AN ORDINARY SPUD WRENCH. SNUG TIGHTENING SHALL PROGRESS SYSTEMATICALLY FROM THE MOST RIGID PART OF THE CONNECTION TO THE FREE EDGES, AND THEN THE BOLTS OF THE CONNECTION SHALL BE RETIGHTENED IN A SIMILAR SYSTEMATIC MANNER AS NECESSARY UNTIL ALL BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED.

UNISTRUT FRAMING:

UNISTRUT MEMBERS NOTED IN PLAN SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF "SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" BY THE AMERICAN IRON AND STEEL INSTITUTE AND IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. ALL STRUT SYSTEM COMPONENTS SHALL BE MANUFACTURED BY UNISTRUT CORPORATION OR APPROVED EQUAL. FOR PRODUCT SUBSTITUTIONS, CONTRACTOR SHALL PROVIDE SUBMITTAL FOR REVIEW BY SEOR.

CHANNELS AND CONTINUOUS INSERTS SHALL COMPLY WITH ASTM A653 GR 33 TYP. STAINLESS STEEL CHANNELS SHALL COMPLY WITH ASTM A1011 SS GR 33.

UNISTRUT FITTINGS SHALL CONFORM TO ASTM A575, A576, A635 OR A36. PHYSICAL REQUIREMENTS OF UNISTRUT FITTINGS SHALL MEET ASTM A1011 SS GR 33.

WHEN INSTALLING BOLTS IN UNISTRUT CHANNEL/SPRING NUTS, THE FOLLOWING TORQUE REQUIREMENTS SHALL BE MET. TORQUE SHALL MEET RECOMMENDED TORQUE VALUES AND SHALL NOT EXCEED MAXIMUM TORQUE VALUES. BOLTS SHALL BE INSTALLED USING A PROPERLY CALIBRATED TORQUE WRENCH WITH A CLEAN DRY (NON-LUBRICATED) UNISTRUT FILLING, BOLT, AND NUT. INSTALLER SHALL ENSURE THAT PROPER BOLT TORQUE HAS BEEN ACHIEVED.

WHERE THREADED ROD IS INSTALLED TO SPRING NUTS, 1/4" PLATE WASHERS AND STANDARD NUTS SHALL BE USED TO SECURE SPRING NUT AND ACHIEVE PROPER TORQUE. VIBRATING EQUIPMENT MAY REQUIRE DOUBLE NUTS.

CHANNEL/SPRING NUT TORQUE REQUIREMENTS (FT-LBS)

BOLT DIAMETER	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
RECOMMENDED	6	11	19	50	100	125
MAXIMUM	7	15	25	70	125	135

SCOPE OF WORK:
1. FOUNDATIONS AND ANCHORAGE OF NEW EQUIPMENT.

DWG NUMBER	SHEET TITLE
S001	GENERAL NOTES
S002	GENERAL NOTES
S011	TYPICAL CONCRETE DETAILS
S201	OVERALL - SITE PLAN
S202	ENLARGED - PLAN
S203	ENLARGED - SITE PLAN
S501	DETAILS
S502	DETAILS
S701	GENERAL NOTES - CLASS 5 SOIL - FOR REFERENCE ONLY
S702	FOOTING SCHEDULE - CLASS 5 SOIL - FOR REFERENCE ONLY
S703	CHAIN LINK FENCE AND DETAILS - FOR REFERENCE ONLY
S704	ELEVATIONS - FOR REFERENCE ONLY
S705	DECORATIVE FENCE AND DETAILS - FOR REFERENCE ONLY
S706	HOLLOW METAL GATE & DETAILS - FOR REFERENCE ONLY

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04/11/2024

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San Diego Unified School District

Sherman Elementary School

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MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO.	231488-02
DRAWN	MBH
CHECKED	TM / JDW
DATE	04/11/2024

SHEET TITLE:

GENERAL NOTES

SHEET NO:

S001

SHEET OF XXX

SCREW ANCHORS - MASONRY:

SCREW ANCHORS NOTED IN DRAWINGS ARE HILTI KWIK HUS-EZ CRC AND SHALL BE DESIGNED AND INSTALLED PER ESR-3056 U.N.O. FOR ANY PRODUCT SUBSTITUTION, CONTRACTOR SHALL PROVIDE CALCULATION SUBMITTAL FOR REVIEW SHOWING CAPACITY EQUIVALENT TO OR BETTER THAN SPECIFIED ANCHORS. ANY PRODUCT SUBSTITUTION MUST HAVE AN ICC REPORT.

HILTI HUS-EZ CRC ANCHORS FOR MASONRY ARE FOR USE IN MASONRY HAVING A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 1500 PSI.

ALL DRILLED HOLES SHALL BE BLOWN OUT BRUSHED AND BLOWN OUT WITH COMPRESSED AIR COMPLETELY BEFORE BOLT INSTALLATION PER ESR REPORT. UNCLEAN HOLE INSTALLATIONS ARE NOT PERMITTED ON THIS PROJECT.

THE SCREW ANCHOR MAY BE LOOSENED BY A MAXIMUM OF ONE TURN AND RETIGHTENED BUT MAY NOT BE COMPLETELY REMOVED AND REINSTALLED.

WHEN INSTALLING ANCHORS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR.

PERIODIC SPECIAL INSPECTION IS REQUIRED DURING ANCHOR INSTALLATION TO VERIFY ANCHOR TYPE AND DIMENSIONS; CONCRETE TYPE AND COMPRESSIVE STRENGTH; GROUT AND MORTAR PROPERTIES; ANCHOR EMBEDMENT, SPACING, AND EDGE DISTANCE; CONCRETE THICKNESS; DRILL BIT DIAMETER; TIGHTENING TORQUE; HOLE DIMENSIONS; HOLE CLEANING PROCEDURES; IMPACT WRENCH POWER; AND ADHERENCE TO THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.

ALL ANCHORS SHALL BE TORQUED AS FOLLOWS FOR PROPER INSTALLATION:

BOLT DIAMETER (IN)	3/8"	1/2"	5/8"	3/4"
TORQUE (FT-LBS)	20	25	35	45

TENSION TEST NOTES:

TEST REQUIREMENTS AND FREQUENCY SHALL BE IN CONFORMANCE WITH IBC 1910.5.

REACTION LOADS FROM TEST FIXTURES MAY BE APPLIED CLOSE TO THE ANCHOR BEING TESTED, PROVIDED THE ANCHOR IS NOT RESTRAINED FROM WITHDRAWING BY THE FIXTURE(S).

TEST EQUIPMENT SHALL BE CALIBRATED BY AN APPROVED TESTING LABORATORY IN ACCORDANCE WITH STANDARD RECOGNIZED PROCEDURES.

TEST LOADS ARE PROVIDED ON DETAILS. PER IBC 1910A.5.4, TEST LOADS ARE 1.25 TIMES THE MAXIMUM DESIGN STRENGTH OF ANCHORS AND NEED NOT EXCEED 80 PERCENT OF THE NOMINAL YIELD STRENGTH OF THE ANCHOR ELEMENT.

THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS: HYDRAULIC RAM METHOD: THE ANCHOR SHOULD HAVE NO OBSERVABLE MOVEMENT AT THE APPLICABLE TEST LOAD. A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER BECOMES LOOSE.

IF ANY ANCHOR FAILS TESTING, NOTIFY THE SIOR FOR FURTHER TESTING FREQUENCY OR REVISED TEST LOADS.

SCREW ANCHORS - CONCRETE:

SCREW ANCHORS NOTED IN DRAWINGS ARE HILTI KH-EZ AND SHALL BE DESIGNED AND INSTALLED PER ESR-3027 U.N.O. FOR ANY PRODUCT SUBSTITUTION, CONTRACTOR SHALL PROVIDE CALCULATION SUBMITTAL FOR REVIEW BY SEOR SHOWING CAPACITY EQUIVALENT TO OR BETTER THAN SPECIFIED ANCHORS. ANY PRODUCT SUBSTITUTION MUST HAVE AN ICC REPORT.

HILTI KH-EZ ANCHORS FOR CONCRETE ARE FOR USE IN CONCRETE OR CONCRETE OVER STEEL DECK HAVING A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 3000 PSI.

ALL DRILLED HOLES SHALL BE BLOWN OUT BRUSHED AND BLOWN OUT WITH COMPRESSED AIR COMPLETELY BEFORE BOLT INSTALLATION PER ESR REPORT. UNCLEAN HOLE INSTALLATIONS ARE NOT PERMITTED ON THIS PROJECT.

THE SCREW ANCHOR MAY BE LOOSENED BY A MAXIMUM OF ONE TURN AND RETIGHTENED BUT MAY NOT BE COMPLETELY REMOVED AND REINSTALLED.

WHEN INSTALLING ANCHORS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING ANCHORS INTO EXISTING PRESTRESSED CONCRETE (PRE- OR POST-TENSIONED) LOCATE THE PRESTRESSED TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATIOIN. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR.

ANY PANEL JOINTS, COLD JOINTS, OR WALL ENDS THAT OCCUR WITHIN 1.5 X EMBEDMENT OF THE ANCHOR SHALL BE REPORTED TO THE SEOR UNLESS THE MINIMUM EDGE DISTANCE IS SPECIFICALLY SHOWN IN A DETAIL.

ALL WALL ANCHORS SHALL BE PROTECTED FROM WEATHER EXPOSURE. ANY EXPOSED EXTERIOR ANCHOR BOLTS SHALL BE STAINLESS STEEL. ANY STAINLESS STEEL SUBSTITUTIONS NOT SHOWN ON DRAWINGS SHALL BE APPROVED BY SEOR.

PERIODIC SPECIAL INSPECTION IS REQUIRED DURING ANCHOR INSTALLATION TO VERIFY ANCHOR TYPE AND DIMENSIONS; CONCRETE TYPE AND COMPRESSIVE STRENGTH; GROUT AND MORTAR PROPERTIES; ANCHOR EMBEDMENT, SPACING, AND EDGE DISTANCE; CONCRETE THICKNESS; DRILL BIT DIAMETER; TIGHTENING TORQUE; HOLE DIMENSIONS; HOLE CLEANING PROCEDURES; IMPACT WRENCH POWER; AND ADHERENCE TO THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.

ALL ANCHORS SHALL BE TORQUED AS FOLLOWS FOR PROPER INSTALLATION:

BOLT DIAMETER (IN)	3/8"	1/2"	5/8"	3/4"
TORQUE (FT-LBS)	40	45	85	95

TENSION TEST NOTES:

TEST REQUIREMENTS AND FREQUENCY SHALL BE IN CONFORMANCE WITH CBC 1910.5.

REACTION LOADS FROM TEST FIXTURES MAY BE APPLIED CLOSE TO THE ANCHOR BEING TESTED, PROVIDED THE ANCHOR IS NOT RESTRAINED FROM WITHDRAWING BY THE FIXTURE(S).

TEST EQUIPMENT SHALL BE CALIBRATED BY AN APPROVED TESTING LABORATORY IN ACCORDANCE WITH STANDARD RECOGNIZED PROCEDURES.

TEST LOADS SHALL FOLLOW THE INSTALLATION TORQUES LISTED ABOVE.

THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS: HYDRAULIC RAM METHOD: THE ANCHOR SHOULD HAVE NO OBSERVABLE MOVEMENT AT THE APPLICABLE TEST LOAD. A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER BECOMES LOOSE.

IF ANY ANCHOR FAILS TESTING, NOTIFY THE SEOR FOR FURTHER TESTING FREQUENCY OR REVISED TEST LOADS.

EXPANSION ANCHOR BOLTS - CONCRETE:

EXPANSION BOLTS NOTED IN DRAWINGS ARE HILTI KB-TZ2 AND SHALL BE DESIGNED AND INSTALLED PER ESR-4266 U.N.O. FOR ANY PRODUCT SUBSTITUTION, CONTRACTOR SHALL PROVIDE CALCULATION SUBMITTAL FOR REVIEW BY SEOR SHOWING CAPACITY EQUIVALENT TO OR BETTER THAN SPECIFIED ANCHORS. ANY PRODUCT SUBSTITUTION MUST HAVE AN ICC REPORT.

HILTI KB-TZ2 CONCRETE ANCHORS ARE FOR USE IN CONCRETE HAVING A COMPRESSIVE STRENGTH OF 2500 PSI TO 8500 PSI.

ALL DRILLED HOLES SHALL BE BLOWN OUT BRUSHED AND BLOWN OUT WITH COMPRESSED AIR COMPLETELY BEFORE BOLT INSTALLATION PER ESR REPORT. UNCLEAN HOLE INSTALLATIONS ARE NOT PERMITTED ON THIS PROJECT.

WHEN INSTALLING ANCHORS IN NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING ANCHORS INTO EXISTING PRESTRESSED CONCRETE (PRE- OR POST-TENSIONED) LOCATE THE PRESTRESSED TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATIOIN. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR.

ANY PANEL JOINTS, COLD JOINTS, OR WALL ENDS THAT OCCUR WITHIN 1.5 X EMBEDMENT OF THE ANCHOR SHALL BE REPORTED TO THE SEOR UNLESS THE MINIMUM EDGE DISTANCE IS SPECIFICALLY SHOWN IN A DETAIL.

ALL WALL ANCHOR TIES USING EXPANSION BOLT ANCHORS SHALL BE INSTALLED TIGHT TO THE WALL OR LEDGER. THERE SHALL BE NO GAP BETWEEN THE NUT AND STRAP OR STRAP AND WALL/LEDGER.

ALL WALL ANCHORS SHALL BE PROTECTED FROM WEATHER EXPOSURE. ANY EXPOSED EXTERIOR ANCHOR BOLTS SHALL BE STAINLESS STEEL. ANY STAINLESS STEEL SUBSTITUTIONS NOT SHOWN ON DRAWINGS SHALL BE APPROVED BY SEOR.

PERIODIC SPECIAL INSPECTION IS REQUIRED DURING ANCHOR INSTALLATION TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, DRILL BIT TYPE, HOLE DIMENSIONS, HOLE CLEANING, CONCRETE THICKNESS, ANCHOR SPACING, EDGE DISTANCE, ANCHOR EMBEDMENT, TIGHTENING TORQUE, HOLE DIMENSIONS AND ADHERENCE TO THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.

ALL ANCHORS SHALL BE TORQUED AS FOLLOWS FOR PROPER INSTALLATION: (HARDROCK OR LIGHTWEIGHT CONCRETE)

BOLT DIAMETER (IN)	1/4"	3/8"	1/2"	5/8"	3/4"	1"
INSTALLATION TORQUE CARBON STEEL (FT-LBS)	4	30	50	40	110	185
INSTALLATION TORQUE STAINLESS STEEL (FT-LBS)	6	30	40	60	125	185

TORQUE TEST NOTES:

TEST REQUIREMENTS AND FREQUENCY SHALL BE IN CONFORMANCE WITH CBC 1910A.5.

REACTION LOADS FROM TEST FIXTURES MAY BE APPLIED CLOSE TO THE ANCHOR BEING TESTED, PROVIDED THE ANCHOR IS NOT RESTRAINED FROM WITHDRAWING BY THE FIXTURE(S).

TEST EQUIPMENT SHALL BE CALIBRATED BY AN APPROVED TESTING LABORATORY IN ACCORDANCE WITH STANDARD RECOGNIZED PROCEDURES.

REQUIRED TEST LOADS SHALL BE EQUAL TO MANUFACTURER'S RECOMMENDED INSTALLATION TORQUE BASED ON AN APPROVED EVALUATION REPORT USING CRITERIA ADOPTED IN THIS CODE.

THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS: TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE REACHED WITHIN ONE-HALF (1/2) TURN OF THE NUT.

APPLY PROOF TEST LOADS TO ANCHORS WITHOUT REMOVING THE NUT IF POSSIBLE. IF NOT, REMOVE THE NUT AND INSTALL A THREADED COUPLER NUT TO THE SAME TIGHTNESS OF THE ORIGINAL NUT USING A TORQUE WRENCH AND APPLY LOAD.

IF ANY ANCHOR FAILS TESTING, NOTIFY THE SEOR FOR FURTHER TESTING FREQUENCY OR REVISED TEST LOADS.

EPOXY ANCHOR RODS - CONCRETE:

EPOXY ANCHORS NOTED IN DRAWINGS IN CONCRETE ARE HILTI HIT-HY 200 ANCHORS AND SHALL BE DESIGNED AND INSTALLED PER ESR-3187 U.N.O. FOR ANY PRODUCT SUBSTITUTION, CONTRACTOR SHALL PROVIDE CALCULATION SUBMITTAL FOR REVIEW BY SEOR SHOWING CAPACITY EQUIVALENT TO OR BETTER THAN SPECIFIED ANCHORS. ANY PRODUCT SUBSTITUTION MUST HAVE AN ICC REPORT.

WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING ANCHORS INTO EXISTING PRESTRESSED CONCRETE (PRE- OR POST-TENSIONED) LOCATE THE PRESTRESSED TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATIOIN. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR.

ALL DRILLED HOLES SHALL BE BLOWN OUT BRUSHED AND BLOWN OUT WITH COMPRESSED AIR COMPLETELY BEFORE BOLT INSTALLATION PER ESR REPORT. UNCLEAN HOLE INSTALLATIONS ARE NOT PERMITTED ON THIS PROJECT.

ANCHOR BOLTS SHALL NOT BE INSTALLED INTO CONCRETE PATCHES, GROUT POCKETS, OR OTHERWISE INADEQUATE CONCRETE SUBSTRATE. WHERE AN ANCHOR IS SHOWN INTO SUCH MATERIALS THE SEOR SHALL BE NOTIFIED AND CONSTRUCTION SHALL WAIT FOR FURTHER INSTRUCTION.

ASTM A-193 B7 ROD SHALL BE USED U.N.O. ASTM A-36 ROD MAY BE USED WITH APPROVAL FROM THE SEOR.

ALL WALL ANCHORS SHALL BE PROTECTED FROM WEATHER EXPOSURE. ANY WEATHER EXPOSED EXTERIOR ANCHOR RODS SHALL BE STAINLESS STEEL. ANY STAINLESS STEEL SUBSTITUTIONS NOT SHOWN ON DRAWINGS SHALL BE APPROVED BY SEOR.

INSTALLERS OF ANY ADHESIVE ANCHORS IN UPWARDLY INCLINED OR VERTICAL ORIENTATIONS SHALL BE CERTIFIED INSTALLERS, AND SHALL BE TRAINED ON-SITE BY THE MANUFACTURER. ON-SITE TRAINING SHALL OCCUR FOR THIS PROJECT IN ADDITION TO ANY PREVIOUS EXPERIENCE OR TRAINING.

PERIODIC SPECIAL INSPECTION IS REQUIRED DURING ANCHOR INSTALLATION TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, ADHESIVE IDENTIFICATION AND EXPIRATION DATE, HOLE DIMENSIONS, HOLE CLEANING PROCEDURES, ANCHOR SPACING, EDGE DISTANCE, CONCRETE THICKNESS, TIGHTENING TORQUE, ANCHOR EMBEDMENT, AND ADHERENCE TO THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. THE SPECIAL INSPECTOR MUST ALWAYS BE ON SITE FOR THE FIRST ANCHOR INSTALLATIONS. THE SPECIAL INSPECTOR MUST VERIFY THE INITIAL INSTALLATIONS OF EACH TYPE AND SIZE OF ADHESIVE ANCHOR BY CONSTRUCTION PERSONNEL ON-SITE. SUBSEQUENT INSTALLATIONS OF THE SAME ANCHOR TYPE AND SIZE BY THE SAME CONSTRUCTION PERSONNEL SHALL BE PERMITTED TO BE PERFORMED IN THE ABSENCE OF THE SPECIAL INSPECTOR. ANY CHANGE IN THE ANCHOR PRODUCT OR PERSONNEL REQUIRES AN INITIAL INSPECTION.

CONTINUOUS SPECIAL INSPECTION OF ADHESIVE ANCHORS INSTALLED IN HORIZONTAL, UPWARDLY INCLINED, OR VERTICAL ORIENTATIONS TO RESIST SUSTAINED TENSIONS LOADS SHALL BE PERFORMED IN ACCORDANCE WITH ACI 318-14 17.8.2.4.

ANY PANEL JOINTS, COLD JOINTS, OR WALL ENDS THAT OCCUR WITHIN 1.5 X EMBEDMENT OF THE ANCHOR SHALL BE REPORTED TO THE SEOR UNLESS THE MINIMUM EDGE DISTANCE IS SPECIFICALLY DETAILED AND SHOWN IN A DETAIL.

ADHESIVE ANCHORS WHICH MAY BE EXPOSED TO ABOVE 110 DEGREES F, SHALL BE BROUGHT TO THE ATTENTION OF THE SEOR.

TENSION TEST NOTES WHEN APPLICABLE:

TEST REQUIREMENTS AND FREQUENCY SHALL BE IN CONFORMANCE WITH CBC 1910.5.

REACTION LOADS FROM TEST FIXTURES MAY BE APPLIED CLOSE TO THE ANCHOR BEING TESTED, PROVIDED THE ANCHOR IS NOT RESTRAINED FROM WITHDRAWING BY THE FIXTURE(S).

TEST EQUIPMENT SHALL BE CALIBRATED BY AN APPROVED TESTING LABORATORY IN ACCORDANCE WITH STANDARD RECOGNIZED PROCEDURES.

TEST LOADS ARE PROVIDED ON DETAILS. PER CBC 1910A.5.4, TEST LOADS ARE 1.25 TIMES THE MAXIMUM DESIGN STRENGTH OF ANCHORS AND NEED NOT EXCEED 80 PERCENT OF THE NOMINAL YIELD STRENGTH OF THE ANCHOR ELEMENT.

THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS: HYDRAULIC RAM METHOD: THE ANCHOR SHOULD HAVE NO OBSERVABLE MOVEMENT AT THE APPLICABLE TEST LOAD. A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER BECOMES LOOSE.

IF ANY ANCHOR FAILS TESTING, NOTIFY THE SEOR FOR FURTHER TESTING FREQUENCY OR REVISED TEST LOADS.

EPOXY ANCHOR RODS - CMU MASONRY:

EPOXY ANCHORS NOTED IN DRAWINGS IN CMU MASONRY ARE HILTI HIT-HY 270 ANCHORS AND SHALL BE DESIGNED AND INSTALLED PER ESR-4143 U.N.O. FOR ANY PRODUCT SUBSTITUTION, CONTRACTOR SHALL PROVIDE CALCULATION SUBMITTAL FOR REVIEW BY SEOR SHOWING CAPACITY EQUIVALENT TO OR BETTER THAN SPECIFIED ANCHORS. ANY PRODUCT SUBSTITUTION MUST HAVE AN ICC REPORT.

WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING CONCRETE MASONRY UNITS (CMU), USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR.

ALL DRILLED HOLES SHALL BE BLOWN OUT BRUSHED AND BLOWN OUT WITH COMPRESSED AIR COMPLETELY BEFORE BOLT INSTALLATION PER ESR REPORT. UNCLEAN HOLE INSTALLATIONS ARE NOT PERMITTED ON THIS PROJECT.

ANCHOR BOLTS SHALL NOT BE INSTALLED INTO HEAD JOINTS OR OTHERWISE INADEQUATE CONCRETE SUBSTRATE. WHERE AN ANCHOR IS SHOWN INTO SUCH MATERIALS THE SEOR SHALL BE NOTIFIED AND CONSTRUCTION SHALL WAIT FOR FURTHER INSTRUCTION.

ASTM A-193 B7 ROD SHALL BE USED U.N.O.. ASTM A-36 ROD MAY BE USED WITH APPROVAL FROM THE SEOR.

ALL WALL ANCHORS SHALL BE PROTECTED FROM WEATHER EXPOSURE. ANY WEATHER EXPOSED EXTERIOR ANCHOR RODS SHALL BE STAINLESS STEEL. ANY STAINLESS STEEL SUBSTITUTIONS NOT SHOWN ON DRAWINGS SHALL BE APPROVED BY SEOR.

INSTALLERS OF ANY ADHESIVE ANCHORS IN UPWARDLY INCLINED OR VERTICAL ORIENTATIONS SHALL BE CERTIFIED INSTALLERS, AND SHALL BE TRAINED ON-SITE BY THE MANUFACTURER. ON-SITE TRAINING SHALL OCCUR FOR THIS PROJECT IN ADDITION TO ANY PREVIOUS EXPERIENCE OR TRAINING.

PERIODIC SPECIAL INSPECTION IN ACCORDANCE WITH THE CBC SECTION 1705 IS REQUIRED DURING ANCHOR INSTALLATION TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, MASONRY TYPE, MASONRY COMPRESSIVE STRENGTH, ADHESIVE IDENTIFICATION AND EXPIRATION DATE, HOLE DIMENSIONS, HOLE CLEANING PROCEDURES, ANCHOR SPACING, EDGE DISTANCE, WALL THICKNESS, TIGHTENING TORQUE, ANCHOR EMBEDMENT, AND ADHERENCE TO THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. THE SPECIAL INSPECTOR MUST ALWAYS BE ON SITE FOR THE FIRST ANCHOR INSTALLATIONS. THE SPECIAL INSPECTOR MUST VERIFY THE INITIAL INSTALLATIONS OF EACH TYPE AND SIZE OF ADHESIVE ANCHOR BY CONSTRUCTION PERSONNEL ON-SITE. SUBSEQUENT INSTALLATIONS OF THE SAME ANCHOR TYPE AND SIZE BY THE SAME CONSTRUCTION PERSONNEL SHALL BE PERMITTED TO BE PERFORMED IN THE ABSENCE OF THE SPECIAL INSPECTOR. ANY CHANGE IN THE ANCHOR PRODUCT OR PERSONNEL REQUIRES AN INITIAL INSPECTION.

ANY WALL ENDS THAT OCCUR WITHIN THE CRITICAL EDGE DISTANCE SHOWN IN THE ESR SHALL BE REPORTED TO THE SEOR UNLESS THE MINIMUM EDGE DISTANCE IS SPECIFICALLY DETAILED AND SHOWN IN A DETAIL.

ADHESIVE ANCHORS WHICH MAY BE EXPOSED TO ABOVE 110 DEGREES F, SHALL BE BROUGHT TO THE ATTENTION OF THE SEOR.

TENSION TEST NOTES WHEN APPLICABLE:

TEST REQUIREMENTS AND FREQUENCY SHALL BE IN CONFORMANCE WITH CBC 1910A.5.

REACTION LOADS FROM TEST FIXTURES MAY BE APPLIED CLOSE TO THE ANCHOR BEING TESTED, PROVIDED THE ANCHOR IS NOT RESTRAINED FROM WITHDRAWING BY THE FIXTURE(S).

TEST EQUIPMENT SHALL BE CALIBRATED BY AN APPROVED TESTING LABORATORY IN ACCORDANCE WITH STANDARD RECOGNIZED PROCEDURES.

TEST LOADS ARE PROVIDED ON DETAILS. PER CBC 1910A.5.4, TEST LOADS ARE 2 TIMES THE MAXIMUM ALLOWABLE LOAD OR 1.25 TIMES THE MAXIMUM DESIGN STRENGTH OF ANCHORS AND NEED NOT EXCEED 80 PERCENT OF THE NOMINAL YIELD STRENGTH OF THE ANCHOR ELEMENT.

THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS: HYDRAULIC RAM METHOD: THE ANCHOR SHOULD HAVE NO OBSERVABLE MOVEMENT AT THE APPLICABLE TEST LOAD. A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER BECOMES LOOSE.

TORQUE TESTING EPOXY ANCHORS IS NOT PERMITTED.

IF ANY ANCHOR FAILS TESTING, NOTIFY THE SEOR FOR FURTHER TESTING FREQUENCY OR REVISED TEST LOADS.

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REGISTERED PROFESSIONAL ENGINEER
TERRENCE J. McCANN
No. S-7112
Exp 06/30/2025
STRUCTURAL
STATE OF CALIFORNIA
04/11/2024

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Sherman Elementary School

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MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO. 231488-02
DRAWN MBH
CHECKED TM / JDW
DATE 04/11/2024

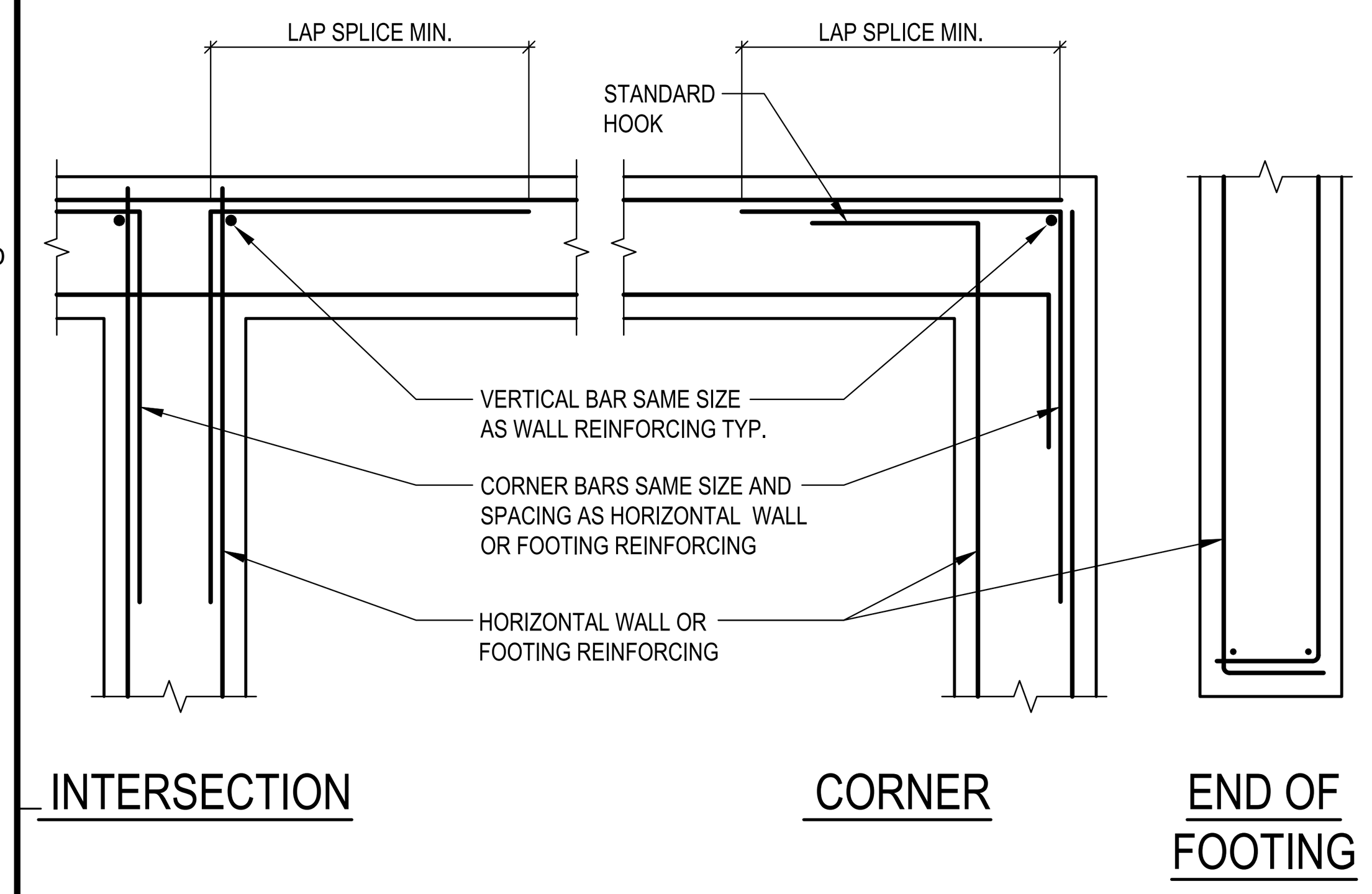
SHEET TITLE:

GENERAL NOTES

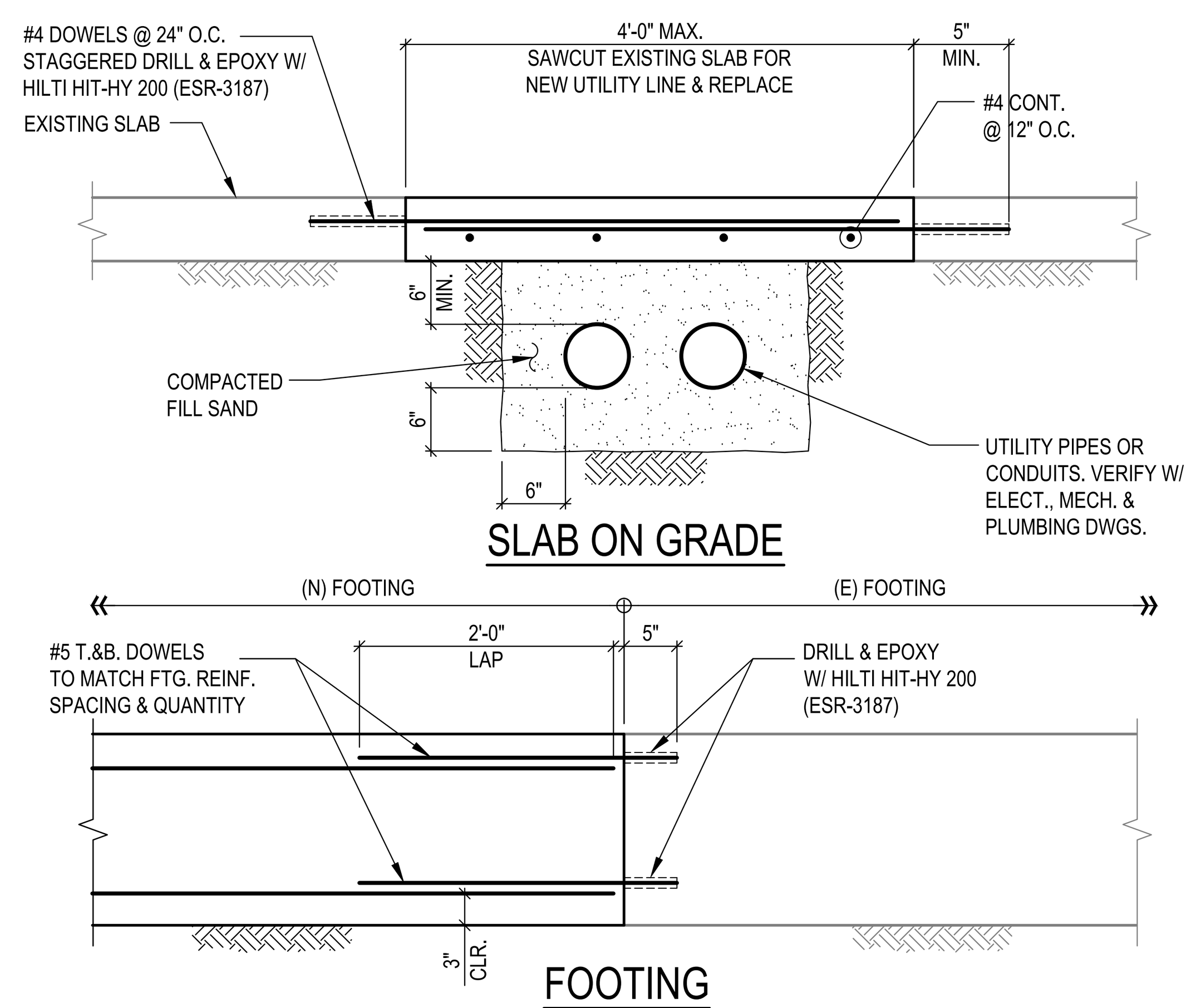
SHEET NO:

S002

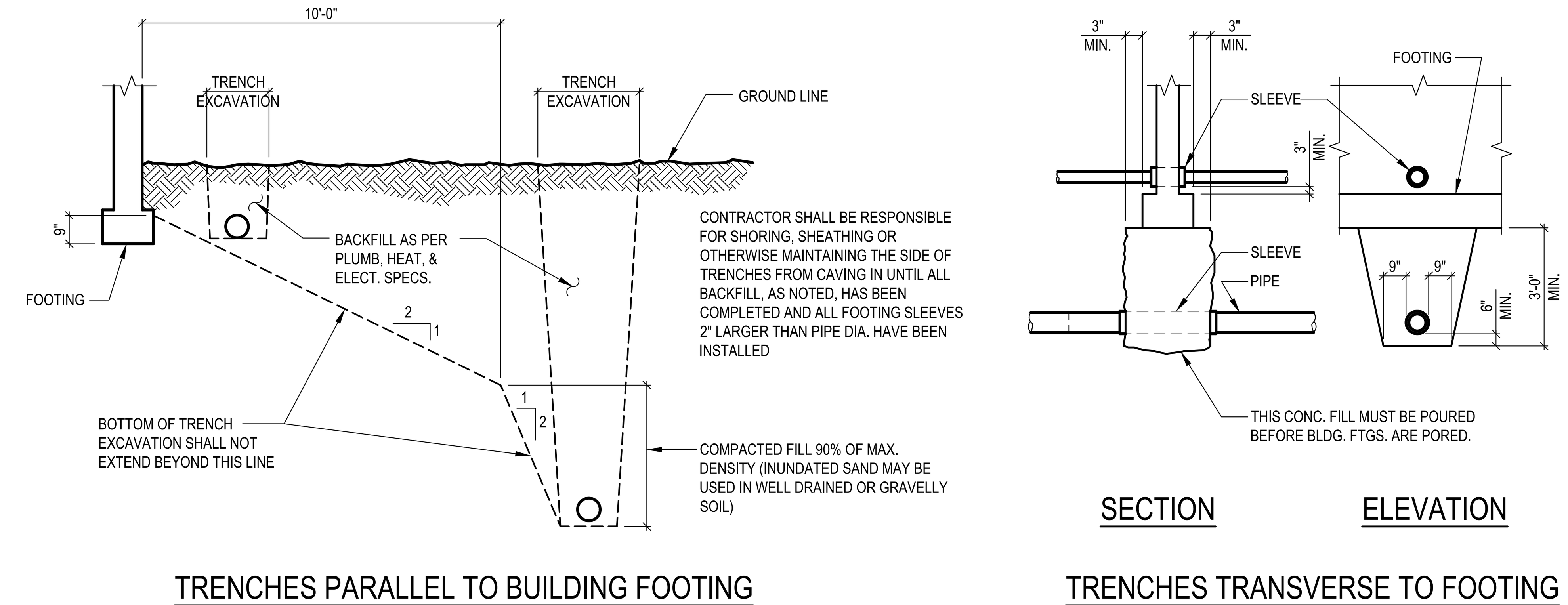
SHEET OF XXX



1 FOOTING REINFORCING AT CORNERS AND INTERSECTIONS



2 SAWCUT @ EXISTING SLAB ON GRADE/ FOOTING



3 TYPICAL PIPE TRENCH DETAIL

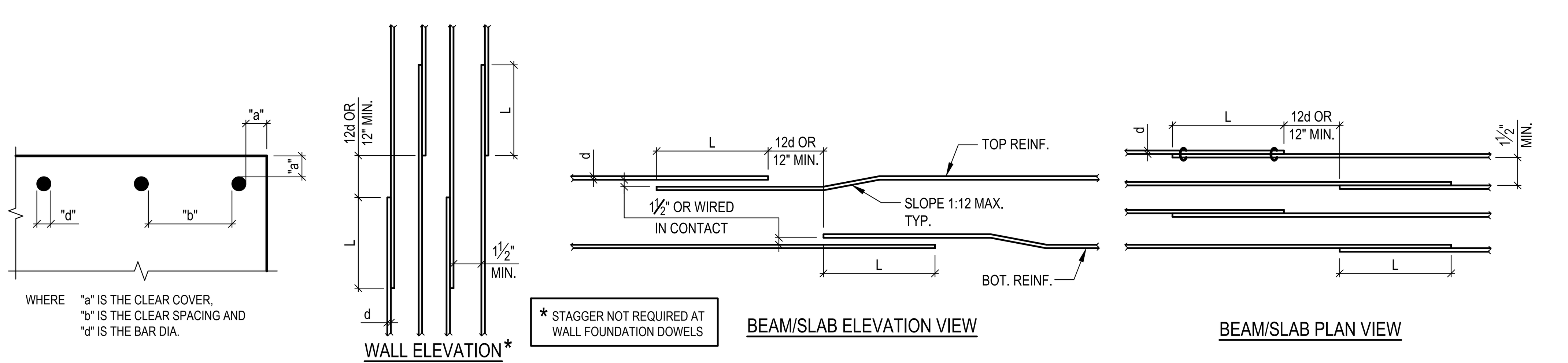
LAP SPLICE SCHEDULE "CLASS B" (STRAIGHT BARS)																	
	CONCRETE STRENGTH Fc'	BAR															
		#4		#5		#6		#7		#8		#9		#10		#11	
		TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER
CLEAR COVER ≥ d AND CLEAR SPACING ≥ 2d	3000 PSI	37	29	47	36	56	43	81	63	93	72	105	81	118	91	131	101
	4000 PSI	33	25	41	31	49	37	71	54	81	62	91	70	102	79	113	87
	5000 PSI	29	23	36	28	43	34	63	49	72	56	81	63	92	70	102	78
OTHER CASES	3000 PSI	56	43	70	54	84	65	122	94	139	107	157	121	177	136	196	151
	4000 PSI	49	37	61	47	73	56	106	81	121	93	136	105	153	118	170	131
	5000 PSI	43	32	54	42	65	50	95	73	108	83	122	94	137	106	152	117

DEVELOPMENT LENGTH SCHEDULE "CLASS A" (STRAIGHT & HOOKED BARS)																		
		CONCRETE STRENGTH Fc'	BAR															
			#4		#5		#6		#7		#8		#9		#10		#11	
			TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER
STRAIGHT	CLEAR COVER ≥ d AND CLEAR SPACING ≥ 2d	3000 PSI	29	22	36	28	43	33	63	48	72	55	81	62	91	70	101	78
		4000 PSI	25	19	31	24	37	29	54	42	62	48	70	54	79	61	87	67
		5000 PSI	23	17	28	22	34	26	49	38	56	43	63	48	70	54	78	60
	OTHER CASES	3000 PSI	43	33	54	42	65	50	94	72	107	83	121	93	136	105	151	116
		4000 PSI	37	29	47	36	56	43	81	63	93	72	105	81	118	91	131	101
		5000 PSI	34	26	42	32	50	39	73	56	83	64	94	72	106	81	117	90
HOOK	STANDARD	3000 PSI	11		14		17		20		22		25		28		31	
		4000 PSI	10		12		15		17		19		22		25		27	
		5000 PSI	9		11		13		15		17		20		22		24	

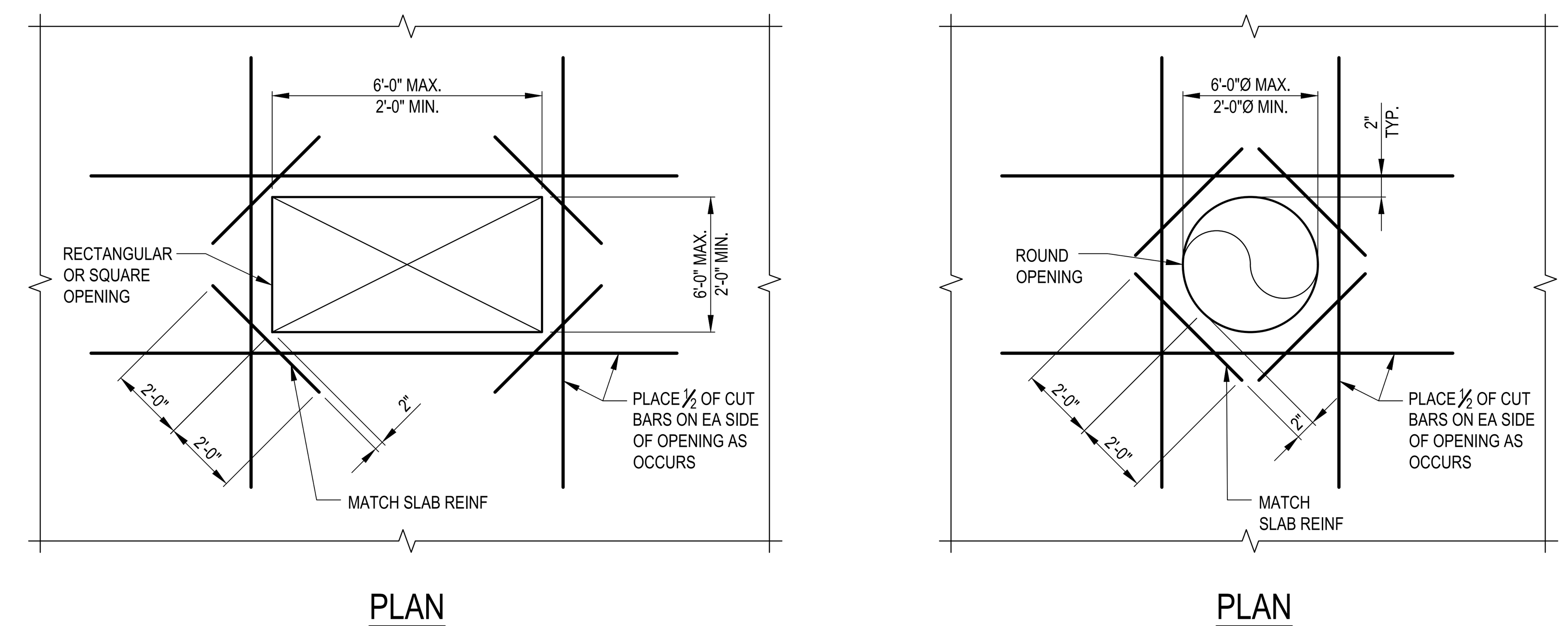
NOTE:
1. T=TOP BAR, L=LAP SPLICE LENGTH
2. "d" INDICATES BAR DIAMETER.
3. ALL DIMENSIONS SHOWN IN TABLE ABOVE ARE IN INCHES.

NOTES:
1. TABULATED VALUES AND NOTES ARE PER ACI318-14.
2. SPLICES SHALL BE CONTACT TENSION LAP SPLICES U.N.O.
3. LENGTHS SHOWN ARE FOR GRADE 60 UNCOATED BARS.
4. ALL LAP SPLICES SHALL BE CLASS B, UNLESS CLASS A IS SPECIFICALLY APPROVED BY THE ENGINEER.
5. THE SCHEDULES SHOWN ON THIS DETAIL APPLY TO NORMAL WEIGHT CONCRETE.
6. FOR LIGHTWEIGHT CONCRETE, INCREASE LAP SPLICE LENGTH BY 33%.
7. ALL HORIZONTAL AND VERITICAL SPLICES SHALL BE STAGGERED AS SHOWN BELOW WHERE POSSIBLE U.N.O. WHERE SPLICES ARE NOT STAGGERED THE LAP SPLICE LENGTH SHALL BE INCREASED BY 30%.
8. THE SMALLER BAR LAP LENGTH SHALL BE USED WHEN SPLICING BARS OF DIFFERENT SIZES.
9. TOP BARS ARE HORIZONTAL BARS PLACED SO THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.
10. LAP LENGTHS SPECIFICALLY DETAILED ON DRAWINGS SHALL GOVERN IN LIEU OF THE LAP LENGTHS SCHEDULED. OTHERWISE, ALL DETAILING AND PLACEMENT OF REINFORCING SHALL COMPLY WITH THE LAP SPLICE SCHEDULES AND DETAILS.
11. BUNDLED BAR SPLICES:
    a) INDIVIDUAL BAR SPLICES WITHIN THE BUNDLE SHALL NOT OVERLAP EACH OTHER.
    b) INCREASE LAP LENGTH 20% AT THREE BAR BUNDLES.
    c) INCREASE LAP LENGTH 33% AT FOUR BAR BUNDLES.
12. FOR #14 AND #18 BARS, USE MECHANICAL SPLICE IN ACCORDANCE WITH ACI-318 REQUIREMENTS.
13. EPOXY COATED BAR DEVELOPMENT & SPLICES:
    HOOKS: INCREASE DEVELOPMENT & LAP LENGTH 20%.

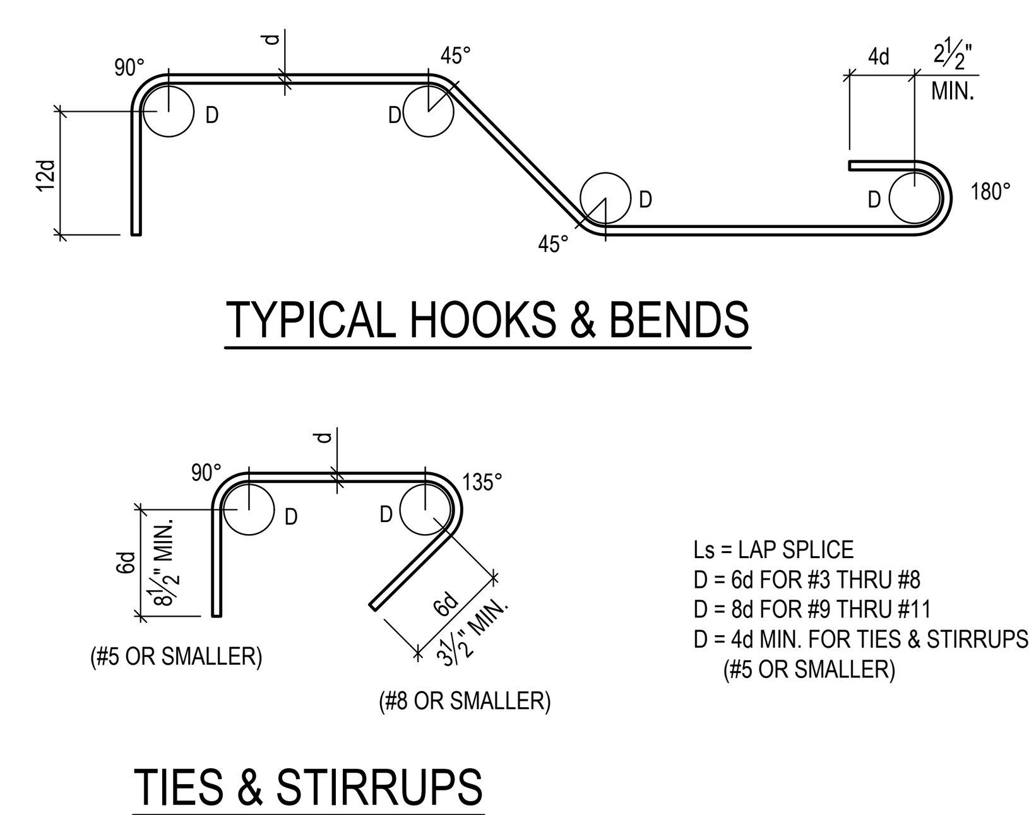
13. CONT.
    STRAIGHT BARS:
    a) WHEN CONCRETE COVER IS LESS THAN 3d OR CLEAR SPACING IS LESS THAN 6d, INCREASE DEVELOPMENT & LAP LENGTH 50%.
    b) FOR OTHER CASES, INCREASE LAP LENGTH 20%.
14. HOOK PORTION OF SCHEDULE ASSUMES A STANDARD 90° HOOK.
15. SEISMIC CONDITIONS:
    a) SEISMIC DIAPHRAGM AND COLLECTOR BARS REQUIRE NO INCREASE TO HOOK OR LAP SPLICE LENGTHS.
    b) VERTICAL BARS OF SPECIAL REINFORCED CONCRETE WALLS SHALL HAVE A BOTTOM BAR LAP SPLICE INCREASED BY 25%.
    c) DEVELOPMENT LENGTHS AND LAP SPLICES FOR CONCRETE SPECIAL MOMENT RESISTING FRAMES ARE NOT COVERED BY THIS DETAIL AND MUST MEET ALL ACI 318 CHAPTER 18 REQUIREMENTS.



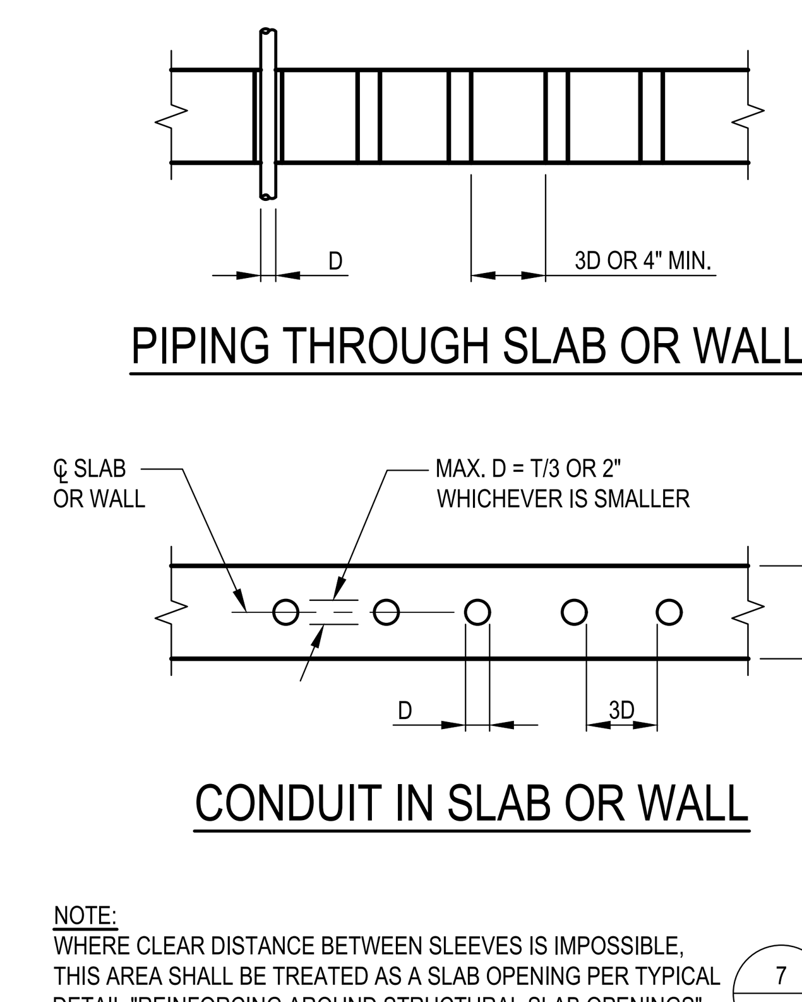
9 TYPICAL NORMAL WEIGHT CONCRETE REINFORCING LAP SPLICE SCHEDULE



7 CONCRETE SLAB OPENING



11 REINFORCING BAR DETAILS



12 PIPING OR CONDUIT IN OR THRU SLAB OR WALL

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04/11/2024

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San Diego Unified School District

Sherman Elementary School

301 22nd St, San Diego, CA 92102

MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

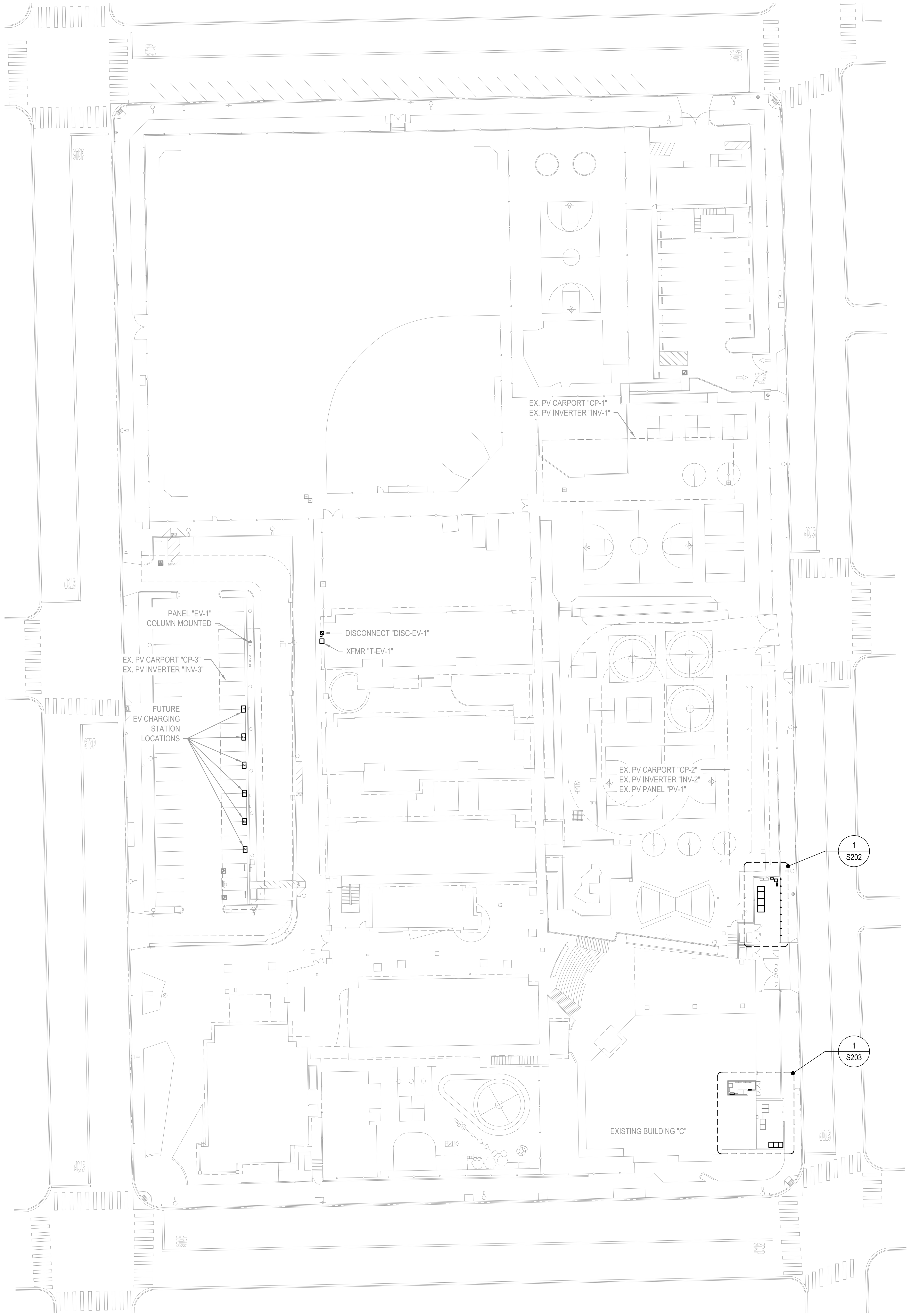
REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO.	231488-02
DRAWN	MBH
CHECKED	TM / JDW
DATE	04/11/2024

SHEET TITLE:
TYPICAL CONCRETE DETAILS

SHEET NO:
S011

SHEET OF XXX



1 S201 OVERALL - SITE PLAN

SCALE: 1" = 40'-0"

0 20 40 80 120
1"=40'-0"

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS.
2. ALL FOOTING EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE SOILS ENGINEER AND INSPECTOR PRIOR TO THE PLACEMENT OF REINFORCING.

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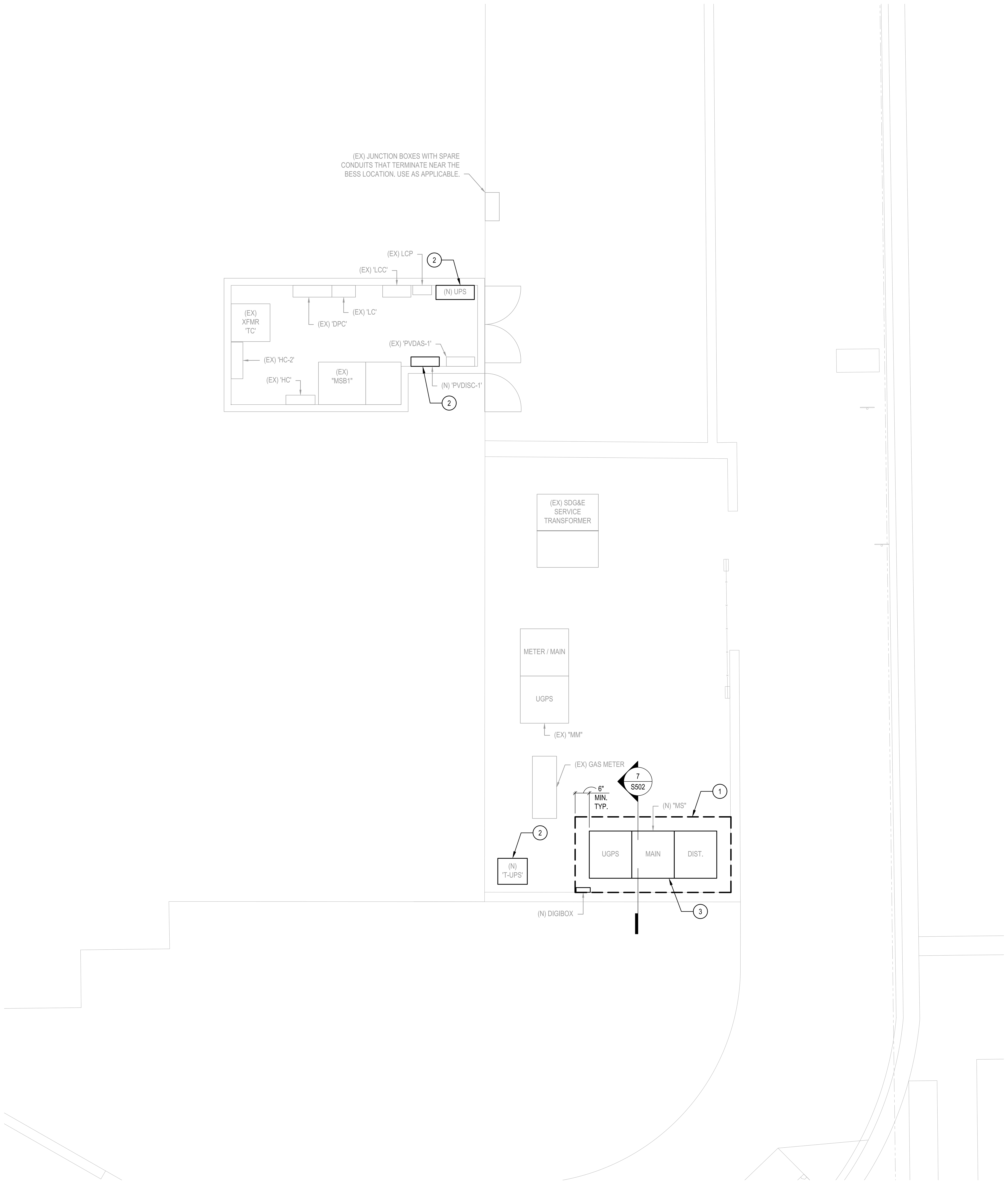
SHEET TITLE:

OVERALL - SITE PLAN

SHEET NO:

S201

SHEET OF XXX



1 / E203 ENLARGED - PLAN

SCALE: 1/4" = 1'-0"

0 1 2 3 4 6 8 12

1/4"=1'-0"

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS.
2. ALL FOOTING EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE SOILS ENGINEER AND INSPECTOR PRIOR TO THE PLACEMENT OF REINFORCING.

KEY NOTES

1. (N) 10" THK. EQUIPMENT CONC. PAD W/ #5 T.&B. @ 12" O.C. EA. WAY.
2. (N) UPS. FOR ANCHORAGE, USE (4) ½"Ø HILTI KB-TZ2 SS316 W/ 2.5" EFFECT. EMBED. (ICC ESR-4266).
3. (N) SWITCHBOARD. FOR ANCHORAGE, USE (4) ½"Ø HILTI KB-TZ2 SS316 W/ 2.5" EFFECT. EMBED. (ICC ESR-4266).

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No. S-7112
Exp 06/30/2025
STRUCTURAL
STATE OF CALIFORNIA
04/11/2024

COFFMAN ENGINEERS
1455 Frazee Rd., Suite 600
San Diego, CA 92108
ph 619.232.4673
www.coffman.com

San Diego Unified School District

Sherman Elementary School

301 22nd St, San Diego, CA 92102

MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO.	231488-02
DRAWN	MBH
CHECKED	TM / JDW
DATE	04/11/2024

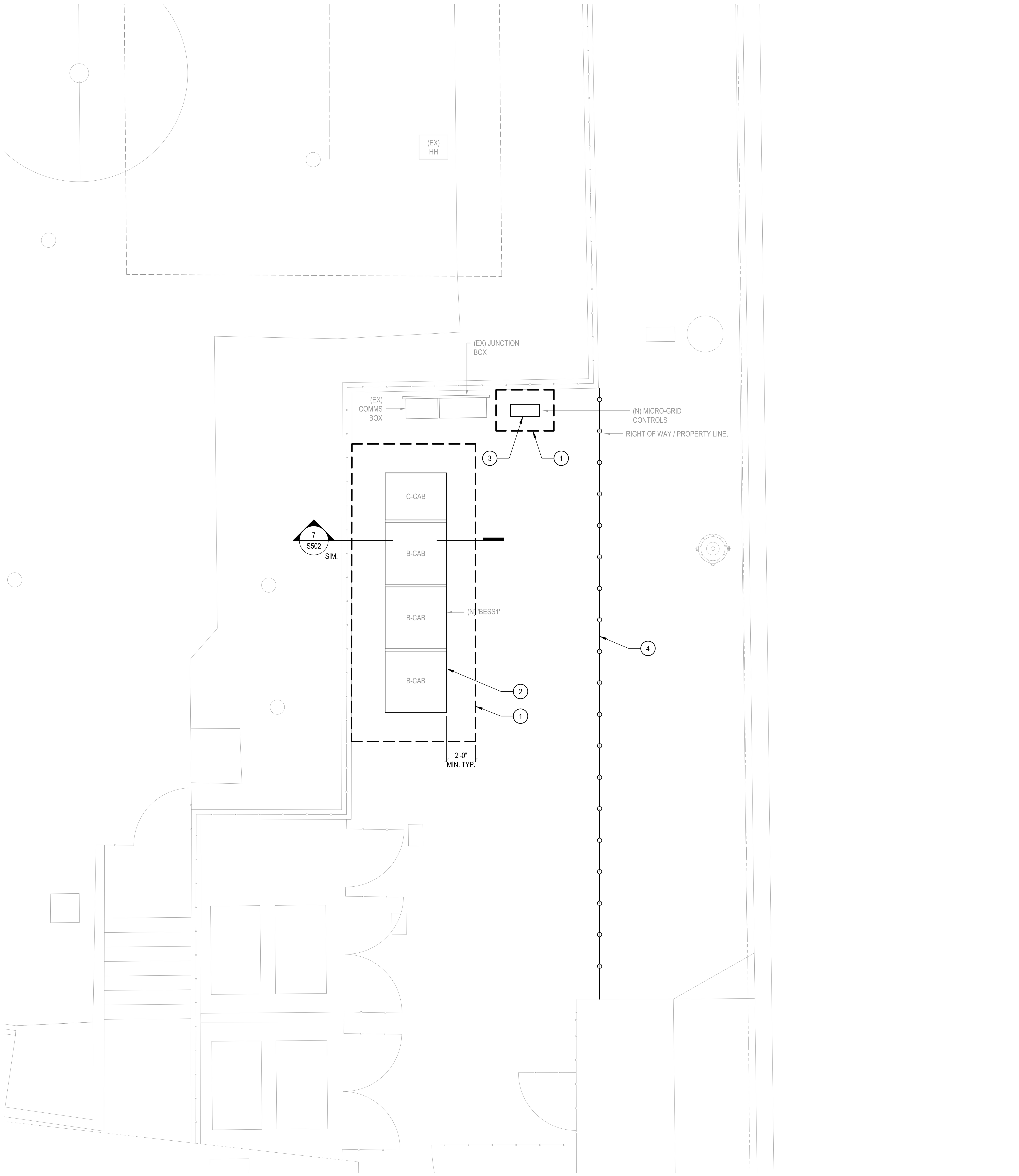
SHEET TITLE:

ENLARGED - PLAN

SHEET NO:

S202

SHEET OF XXX



1 / E202 ENLARGED - SITE PLAN

SCALE: 1/4" = 1'-0"

1/4"=1'-0" 0 1 2 3 4 6 8 12

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS.
2. ALL FOOTING EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE SOILS ENGINEER AND INSPECTOR PRIOR TO THE PLACEMENT OF REINFORCING.

KEY NOTES

1. (N) 10" THK. EQUIPMENT CONC. PAD W/ #5 T.&B. @ 12" O.C. EA. WAY.
2. (N) BESS, FOR ANCHORAGE SEE 5/S501
3. (N) ELECTRICAL PANEL. FOR ANCHORAGE SEE 7/S501
4. (N) FENCE PER SHEETS S701 THRU S706.

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04/11/2024

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DRAWN	MBH
CHECKED	TM / JDW
DATE	04/11/2024

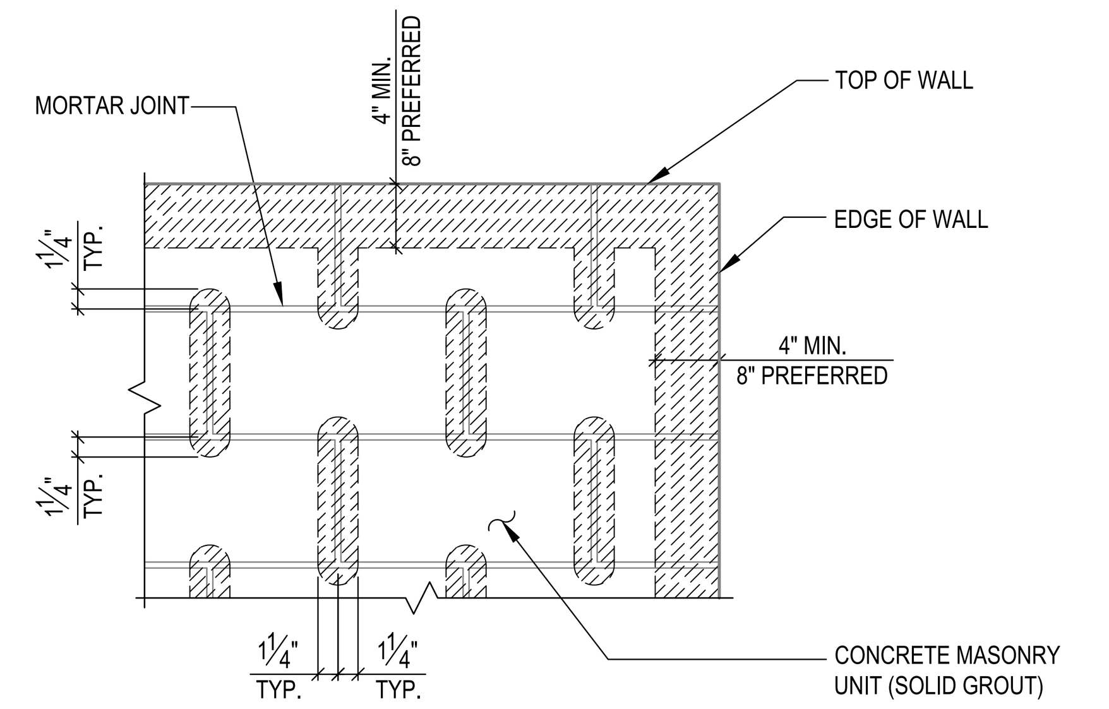
SHEET TITLE:

ENLARGED - SITE PLAN

SHEET NO:

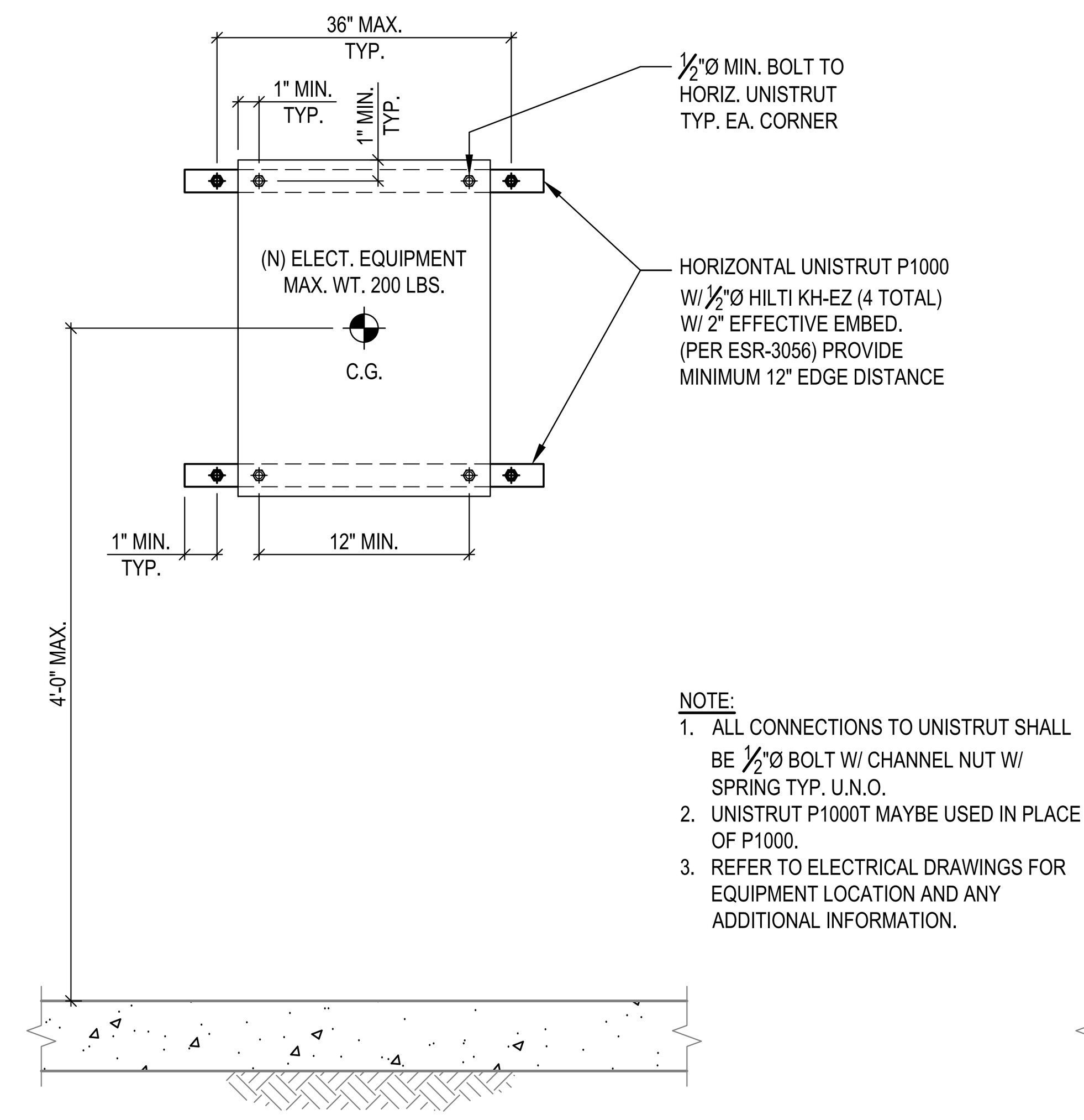
S203

SHEET OF XXX

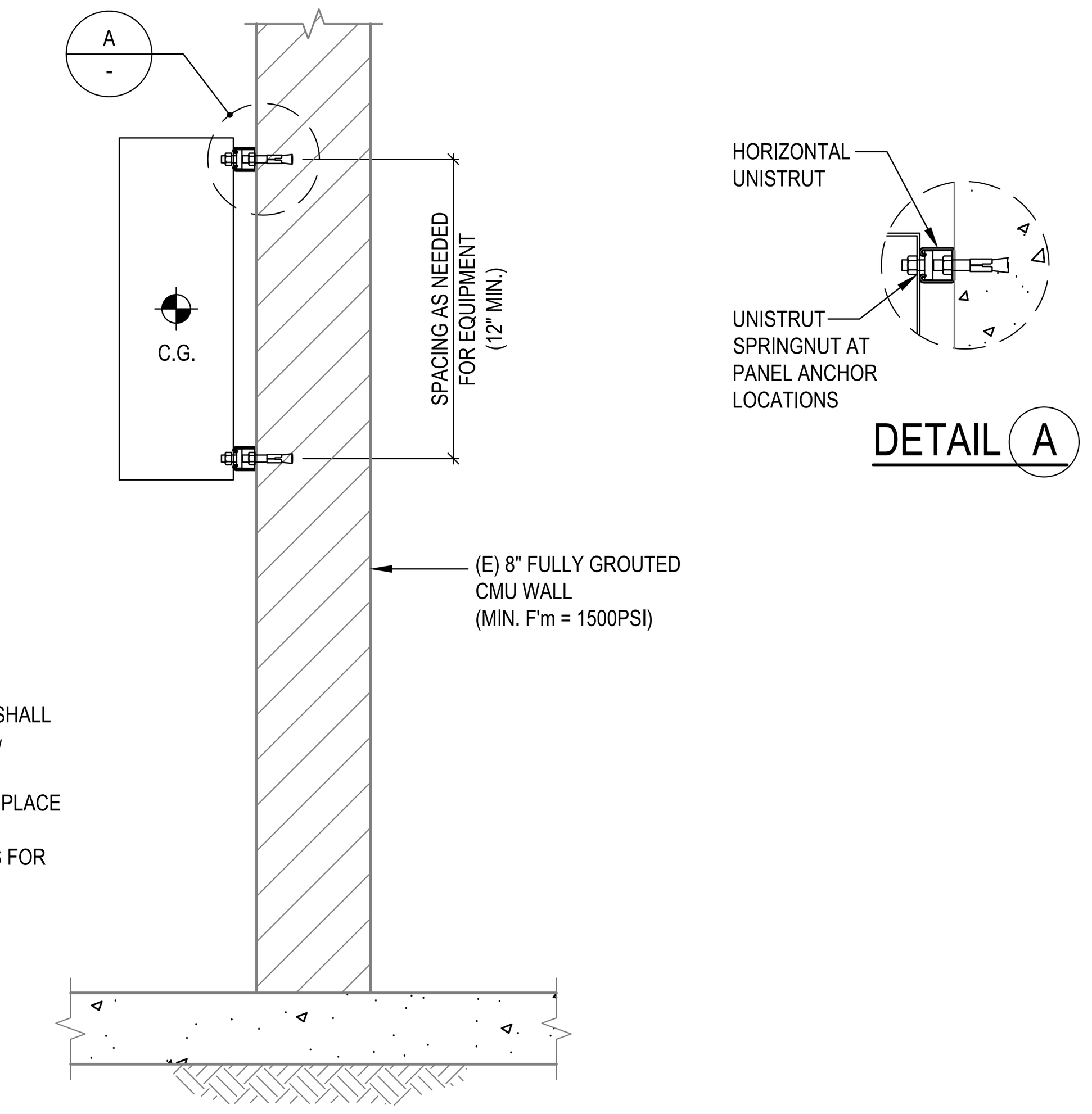


NOTE:
1. ANCHOR INSTALLATION IS RESTRICTED TO NON-SHADED AREAS.
2. DOES NOT OVERRIDE ESR REQUIREMENTS.
3. BOLTS MAY BE MOVED 2" MAX. ANY DIRECTION TO BE ACCEPTABLE. IF EXACT LOCATION OF BOLT IS DETAILED ON PLANS SUBMIT NEW LOCATION TO ENGINEER FOR REVIEW.
4. BOLTS IN END OF WALL TO BE CENTERED U.N.O.
5. BOLTS IN TOP OF WALL TO BE CENTERED U.N.O.

2 ACCEPTANCE LOCATIONS (NON-SHADED AREAS) FOR EPOXY/ HUS-EZ ANCHORS IN GROUT-FILLED CONCRETE MASONRY WALLS



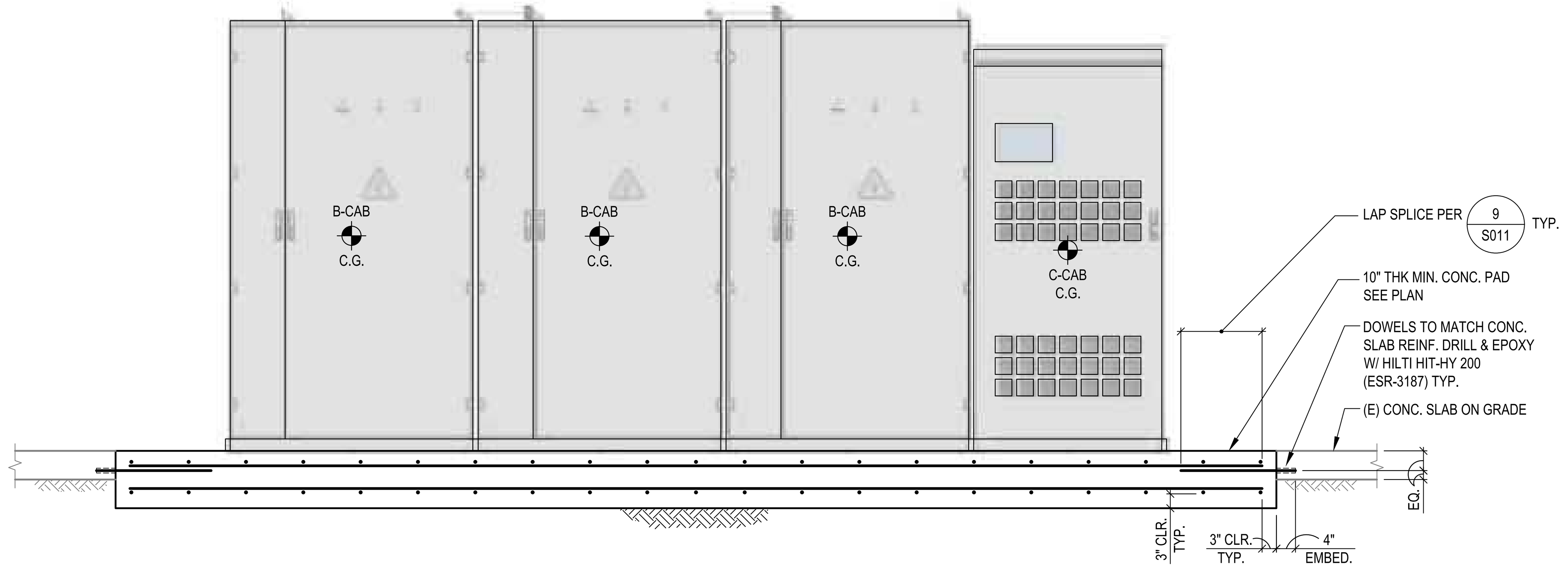
ELEVATION



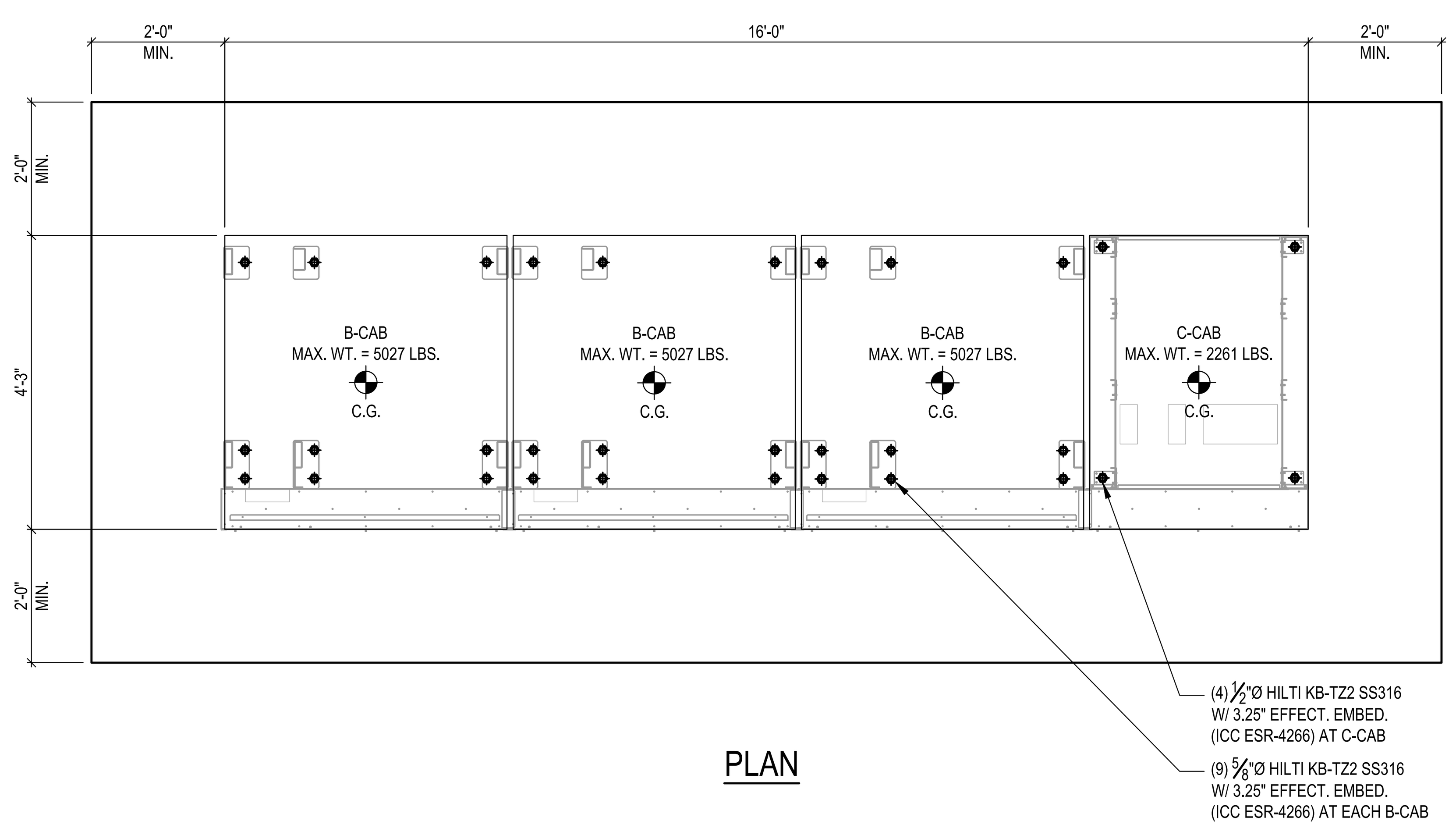
SECTION

NOTE:
1. ALL CONNECTIONS TO UNISTRUT SHALL BE ½"Ø BOLT W/ CHANNEL NUT W/ SPRING TYP. U.N.O.
2. UNISTRUT P1000T MAYBE USED IN PLACE OF P1000.
3. REFER TO ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATION AND ANY ADDITIONAL INFORMATION.

3 ELECT. PANEL SUPPORT DETAIL CMU WALL MOUNTED

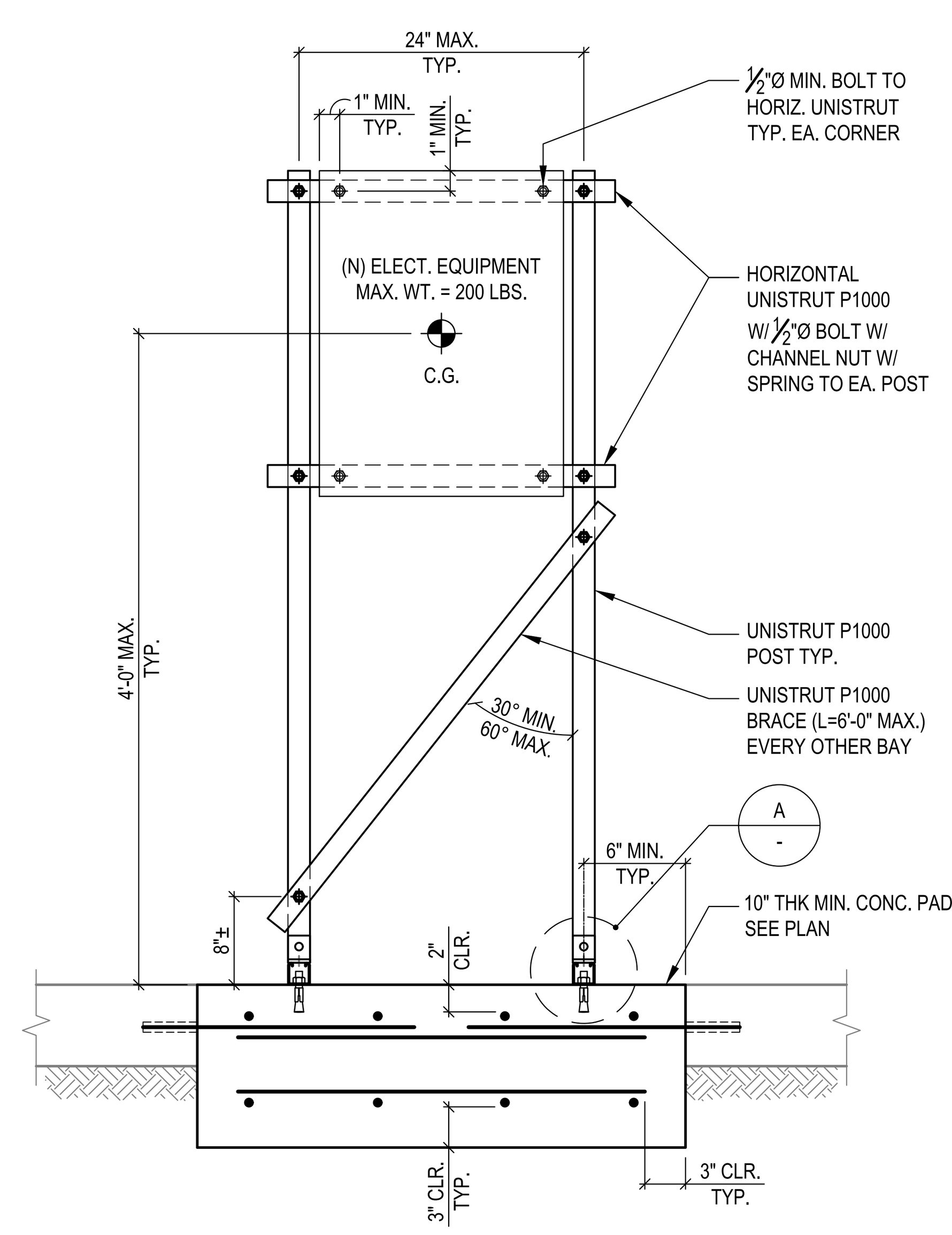


ELEVATION

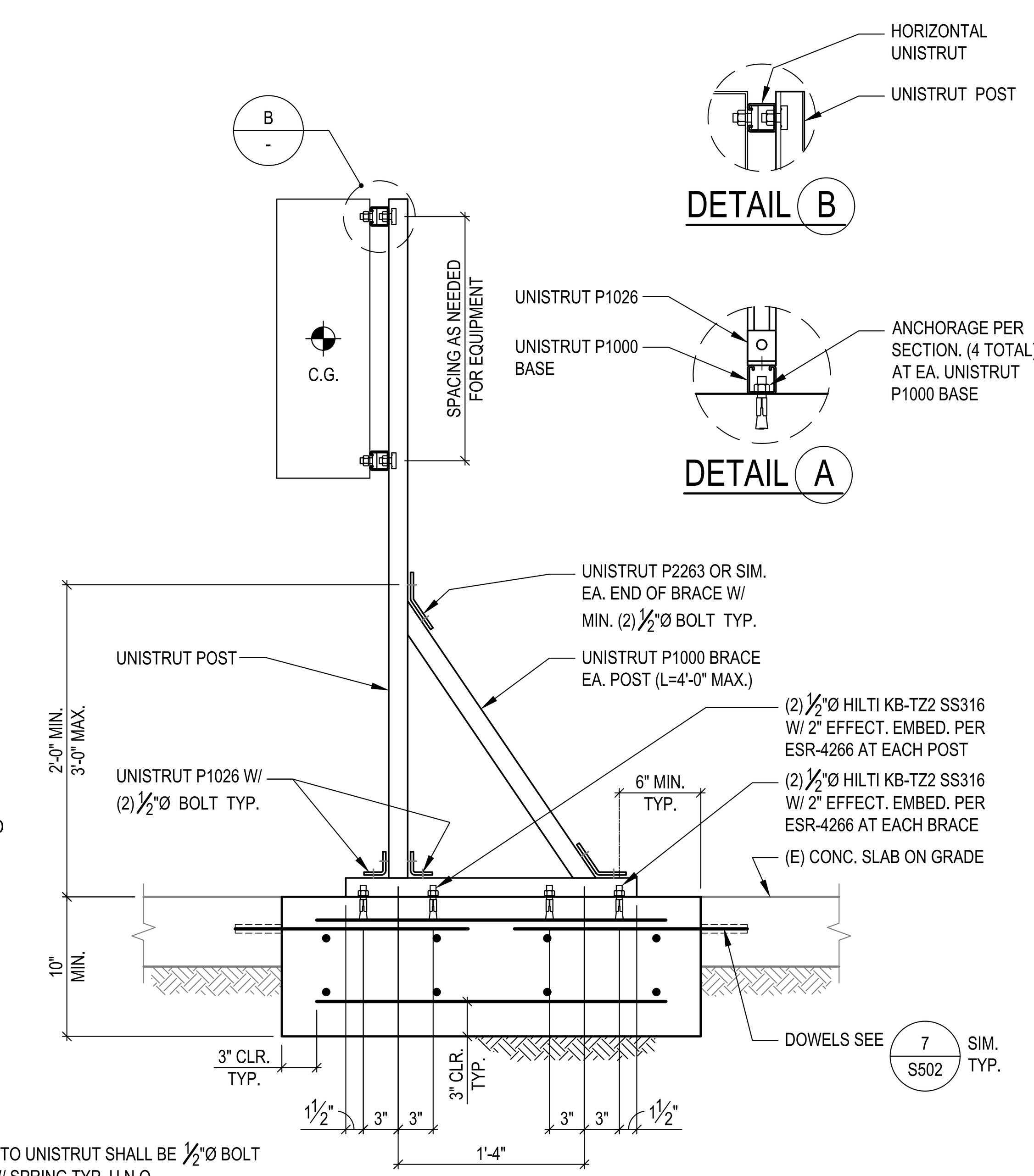


PLAN

5 BESS FOUNDATION



ELEVATION



SECTION

NOTE:
1. ALL CONNECTIONS TO UNISTRUT SHALL BE ½"Ø BOLT W/ CHANNEL NUT W/ SPRING TYP. U.N.O.
2. UNISTRUT P1000T MAYBE USED IN PLACE OF P1000.
3. REFER TO ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATION AN D ANY ADDITIONAL INFORMATION.
4. ALL COMPONENTS AND BOLTS TO BE GALVANIZED.

7 ELECT. PANEL SUPPORT DETAIL ON CONC. PAD

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REGISTERED PROFESSIONAL ENGINEER — No. S-7112 — Exp. 06/30/2025 — STRUCTURAL — STATE OF CALIFORNIA — 04/11/2024

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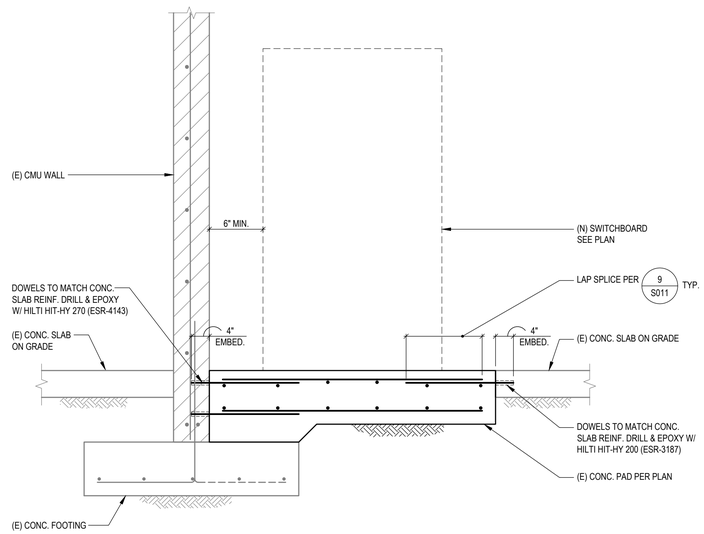
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO.	231488-02
DRAWN	MBH
CHECKED	TM / JDW
DATE	04/11/2024

SHEET TITLE:
DETAILS

SHEET NO:
S501



SECTION

NOTE:
DO NOT DAMAGE, DRILL, OR CUT
(E) CMU WALL REINFORCEMENT.

7 CONC. PAD TO CMU WALL

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Efficiency Powered by Intelligence

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER T. MAHAN
No. S7512
Exp. 06/30/2025
STRUCTURAL
STATE OF CALIFORNIA

04/11/2024

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CHECKED	TM / JDW
DATE	04/11/2024

SHEET TITLE:

DETAILS

SHEET NO:

S502

SHEET OF XXX

ABBREVIATIONS

@	AT
&	AND
ø	DIAMETER
#	NUMBER OR POUND
(N)	NEW
(E)	EXISTING
AB	ANCHOR BOLT
ADDL	ADDITIONAL
ARCH	ARCHITECT OR ARCHITECTURAL
BOF	BOTTOM OF FOOTING
BM	BEAM
BOTT	BOTTOM
BTWN	BETWEEN
CIDH	CAST IN DRILLED HOLE
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
DET	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DWG	DRAWING
EA	EACH
EE	EACH END
EL	ELEVATION
EOS	EDGE OF SLAB
EXT	EXTERIOR
FDN	FOUNDATION
FF	FINISH FLOOR
FIN	FINISH
FT	FEET
FTG	FOOTING
HDG	HOT-DIPPED GALVANIZED
HOR	HORIZONTAL
HT	HEIGHT
JT	JOINT
LG	LONG
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MTL	METAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEUOS
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
PERF	PERFORATED
PL	PLATE
PP	PARTIAL PENETRATION WELD
PROP	PROPERTY
PSF	POUNDS PER SQUARE FEET
PSI	POUNDS PER SQUARE INCH
REINF	REINFORCING
REQD	REQUIRED
RET WALL	RETAINING WALL
SA	STUD ANCHOR
SAD	SEE ARCHITECTURAL DRAWING OR SEE ARCHITECTURAL DETAIL
SCHED	SCHEDULE
SEC	SECTION
SIM	SIMILAR
SOG	SLAB ON GRADE
SPEC	SPECIFIACTION
SQ	SQUARE
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRUC	STRUCTURAL
SYM	SYMMETRICAL
T&B	TOP & BOTTOM
THK	THICK
THRU	THROUGH
TO	TOP OF
TOC	TOP OF CONCRETE
TOF	TOF OF FOOTING
TOS	TOP OF SLAB
TO STL	TOP OF STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/O	WITHOUT
WT	WEIGHT

GENERAL LEGEND

EARTH — GRAVEL

CONCRETE-POUTED IN PLACE — GROUT OR DRYPACK

STEEL — MASONRY

GENERAL SYMBOLS

DETAIL

SECTION

ELEVATION

BUILDING SECTION

WALL SECTION

FIELD WELD (BOTH SIDES)

BEVEL WELD (NEAR SIDE)

COMPLETE PENETRATION WELD — CP

PARTIAL PENETRATION WELD — PP

STEPPED FOOTING

SHEET NUMBER	SHEET TITLE
F-1A	GENERAL NOTES-CLASS 3 SOIL & SHT INDEX
F-1B	GENERAL NOTES - CLASS 4 SOIL
F-1C	GENERAL NOTES - CLASS 5 SOIL
F-2A	FOOTING SCHEDULE - CLASS 3 SOIL
F-2B	FOOTING SCHEDULE - CLASS 4 SOIL
F-2C	FOOTING SCHEDULE - CLASS 5 SOIL
F-03	CHAIN LINK FENCE AND DETAILS
F-04	ELEVATIONS
F-05	ELEVATIONS
F-06	DECORATIVE FENCE & ORNAMENTAL PANELS
F-07	DECORATIVE FENCE AND DETAILS
F-08	ARCHITECTURAL NOTES AND DETAILS
F-09	HOLLOW METAL GATE DETAILS
F-10	SAMPLE DSA 103 FORM (1 OF 3)
F-11	SAMPLE DSA 103 FORM (2 OF 3)
F-12	SAMPLE DSA 103 FORM (3 OF 3)
GRAND TOTAL: 16	

NOTES:

1. THE DISTRICT OR DESIGN PROFESSIONAL SHOULD GET APPROVAL FROM THE DSA INTAKE STRUCTURAL ENGINEER FOR A SPECIFIC PROJECT TO BE EXEMPT FROM DSA STRUCTURAL REVIEW WHEN FENCING IS 7'-11 1/2" IN HEIGHT OR LESS OR THE PROJECT COST MEETS THE EXEMPTION SET FORTH IN DSA IR-A-22.
2. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGED DOCUMENT (CCD) APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.
3. A "DSA CERTIFIED" PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DSA SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, PART 1, TITLE 24, CCR.
4. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THE PROJECT.
5. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CCR, SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR, A CONSTRUCTION CHANGE DOCUMENT (CCD), OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK. (SECTION 4-317(C), PART 1, TITLE 24, CCR).
6. SEE SHEETS F-10, F-11 AND F-12 FOR SAMPLE DSA 103 FORMS.
7. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.
8. FENCING SHALL NOT BE ATTACHED TO EXISTING BUILDINGS OR UNDERMINE EXISTING FOUNDATIONS IN ANY WAY.

GENERAL NOTES

A - GENERAL NOTES:

1. ALL ALL WORK SHALL COMPLY WITH 2019 CALIFORNIA BUILDING CODE VOLUME 2, CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2 VOLUME 2 OF 2 (INCLUDING ALL SUPPLEMENTS) AND ALL OTHER LOCAL OR STATE AGENCIES HAVING JURISDICTION OVER THIS PROJECT.
2. ALL DRAWINGS AND SPECIFICATIONS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES THAT OCCUR SHALL BE BROUGHT TO THE ATTENTION OF THE DISTRICT PRIOR TO THE START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR DISTRICT.
3. ALL SYMBOLS AND ABBREVIATIONS USED ON THE DRAWINGS ARE CONSIDERED TO BE CONSTRUCTION STANDARDS. IF CLARIFICATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE DISTRICT PRIOR TO PROCEEDING WITH THE WORK.
4. ALL DIMENSIONS AND THE SITE CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOB SITE PRIOR TO CONSTRUCTION, START OF SHOP DRAWINGS, START OF CONSTRUCTION, AND/OR FABRICATION OF MATERIALS. IF DISCREPANCIES ARE ENCOUNTERED, OR CONDITIONS DEVELOP THAT ARE NOT COVERED BY THE CONTRACT DOCUMENTS, THE AOR SHALL BE NOTIFIED FOR CLARIFICATION.
5. CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR THE PROTECTION AND REPAIR OF ADJACENT EXISTING SURFACES AND AREAS WHICH MAY BE DAMAGED AS A RESULT OF NEW WORK.
6. TYPICAL DETAILS SHALL APPLY IN GENERAL CONSTRUCTION UNLESS SPECIFICALLY DETAILED. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.
7. THE CONTRACT DOCUMENTS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE AND SAFETY OF WORKMEN DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER OF RECORD (SEOR) SHALL NOT INCLUDE INSPECTION OR APPROVAL OF THE ABOVE ITEMS AND DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES FOR THE ABOVE.
8. FOR TRENCHES OR EXCAVATIONS (5) FIVE FEET OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND, THE CONTRACTOR IS TO OBTAIN THE NECESSARY PERMITS FROM THE STATE OF CALIFORNIA, DIVISION OF INDUSTRIAL SAFETY, PRIOR TO THE START OF EXCAVATION.
9. NO HOLES, NOTCHES, BLOCKOUTS, ETC. ARE ALLOWED IN STRUCTURAL ELEMENTS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE SEOR.
10. CLASS 3 PROJECT INSPECTOR IS REQUIRED.
11. NO DEFERRED SUBMITTAL ITEMS FOR THE TYPE OF PROJECT COVERED BY THIS PC.
12. THIS PROJECT SHALL BE IN COMPLIANCE WITH CFC CHAPTER 33 DURING CONSTRUCTION.
13. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE FROM DATA SUPPLIED BY THE OWNER, BUT WITHOUT GUARANTEE OF ACCURACY. WHERE ACTUAL CONDITIONS CONFLICT WITH THE DRAWINGS, THEY SHALL BE REPORTED TO THE AOR OR SEOR SO THAT PROPER CLARIFICATION MAY BE MADE. MODIFICATION OF DETAILS OF CONSTRUCTION SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE AOR OR SEOR.
14. CONTRACTOR TO REVIEW AND PROVIDE TEMPORARY SHORING PRIOR TO AS WELL AS DURING CONSTRUCTION FOR ANY AREAS AS REQUIRED.

B - EARTHWORK:

1. FOUNDATION DESIGN BASED ON CBC PRESUMPTIVE SOIL CAPACITIES OF CLASS "5" MATERIALS.

   ALLOWABLE SOIL BEARING: 1,500 PSF
   PASSIVE EARTH PRESSURE (LATERAL BEARING): 100 PCF
   FOR DESIGN, PASSIVE EARTH PRESSURE VALUES ARE INCREASED BY 2 TIMES THE TABULAR VALUES AS PER CBC 2019, 1806A.3.4.
3. THE CONTRACTOR SHALL PROVIDE FOR DE-WATERING OF EXCAVATIONS FROM EITHER SURFACE WATER, GROUND WATER OR SEEPAGE.
4. THE CONTRACTOR SHALL PROVIDE FOR THE DESIGN, APPROVALS, PERMITS, INSTALLATION AND MONITORING OF ALL CRIBBING, SHEATHING AND SHORING REQUIRED TO SAFELY RETAIN TEMPORARY EXCAVATIONS.
5. EXCAVATIONS FOR FOOTINGS SHALL BE APPROVED BY THE DISTRICTS REPRESENTITIVE, PRIOR TO PLACING CONCRETE AND REINFORCING. THE CONTRACTOR SHALL NOTIFY THE DISTRICT 48 HRS PRIOR TO CONCRETE POUR.
6. ALL EXCAVATIONS SHALL BE PROPERLY BACKFILLED. DO NOT PLACE BACKFILL BEHIND RETAINING WALLS BEFORE CONCRETE HAS ATTAINED FULL DESIGN STRENGTH.
7. FOOTING BACKFILL AND UTILITY TRENCH BACKFILL WITHIN BUILDING AREA SHALL BE MECHANICALLY COMPACTED IN LAYERS, TO THE APPROVAL OF THE DISTRICT. FLOODING WILL NOT BE PERMITTED.
8. ALL ABANDONED FOOTINGS, UTILITIES, ETC., THAT INTERFERE WITH THE NEW CONSTRUCTION, SHALL BE REMOVED.
9. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE DISTRICT SHOULD ANY BURIED STRUCTURES, SUCH AS CESSPOOLS, CISTERNS, FOUNDATIONS, ETC., BE FOUND.

GENERAL NOTES

C - CONCRETE:

1. ALL CONCRETE WORK SHALL COMPLY WITH ACI318-14 AS MODIFIED BY CBC 2019, TITLE 24, PART 2, VOLUME 2 OF 2.
2. ALL CEMENT SHALL CONFORM AT ASTM C-150, TYPE I OR II U.N.O. (SEE NOTE 16).
3. FINE AND COARSE AGGREGATE SHALL CONFORM TO ASTM C-33.
4. CONCRETE SHALL HAVE THE FOLLOWING MINIMUM 28 DAY STRENGTH:
   a. ALL CONCRETE U.N.O. - 4000 PSI NORMAL WEIGHT.
   b. CONCRETE IN CONTACT WITH SOIL, SLAB ON GRADE OR EXPOSED TO WEATHER SHALL HAVE A WATER-TO-CEMENT RATIO OF NO MORE THAN 0.45.
5. CONCRETE DESIGN MIXES SHALL BE PREPARED BY THE APPROVED TESTING LAB USING ACI 318-14, SECTION 5.3 AND APPROVED BY THE STRUCTURAL ENGINEER.
6. PLACING OF ALL CONCRETE SHALL BE INSPECTED BY THE JOB INSPECTOR. INSPECTOR TO VERIFY THAT REINFORCING STEEL IS SECURELY SUPPORTED IN PLACE DURING THE POUR.
7. LOCATION OF CONSTRUCTION JOINTS OR POUR JOINTS SHALL BE AS SHOWN ON THE DRAWINGS OR AS APPROVED BY THE ENGINEER PRIOR TO POURING CONCRETE AND CONFORM TO ACI 318-14 AS MODIFIED BY CBC 2019, PART 2, VOLUME 2 OF 2.
8. ANCHOR BOLTS, DOWELS, REINFORCING STEEL, INSERTS, ETC., SHALL BE SECURELY TIED IN PLACE PRIOR TO POURING CONCRETE. CONCRETE BLOCKS ONLY SHALL BE USED TO SUPPORT REINFORCING OFF GRADE.
9. CONCRETE SLABS SHALL BE CURED BY KEEPING CONTINUOUSLY WET FOR 7 DAYS OR APPROVED CURING COMPOUNDS. FORMS FOR CONCRETE WALLS SHALL BE LEFT IN PLACE FOR 7 DAYS OR MAY BE STRIPPED AFTER 3 DAYS, AND THEN COVERED WITH BURLAP WHICH SHALL BE KEPT WET FOR AN ADDITIONAL 7 DAYS. NO CURING COMPOUNDS SHALL BE USED UNLESS APPROVED BY THE SEOR.
10. NOTIFY THE SEOR 48 HOURS MINIMUM PRIOR TO ALL POURS.
11. PROVIDE 3/4" CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
12. ALL CONCRETE SHALL BE VIBRATED IN PLACE DURING PLACING OF CONCRETE.
13. NO STAKES, STEEL OR WOOD, SHALL BE PERMITTED IN ANY CONCRETE POUR. SUSPEND FORMS FROM ABOVE GRADE.
14. DRYPACK SHALL BE 1:3-1/2 PORTLAND CEMENT TO SAND WITH A MINIMUM 28 DAY STRENGTH OF 3,000 PSI.
15. GROUT SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 7,000 PSI.
16. USE TYPE II CEMENT FOR HOT WEATHER CONCRETING. USE APPROVED RETARDING ADMIXTURE WHEN INGREDIENT MATERIALS CAUSE THE FRESH CONCRETE TEMPERATURE TO EXCEED 75 DEGREE F. HOT-WEATHER-CONCRETING TECHNIQUES SHALL BE STRICTLY EMPLOYED DURING PERIODS OF HOT WEATHER, CURING OF CONCRETE AS NOTED IN THE SPECIFICATIONS AND CONCRETE NOTE NO. 9 SHALL BE STRICTLY FOLLOWED.
17. CONCRETE MIX DESIGNS SHALL MEET EXPOSURE CATEGORIES S1, W1 AND C0 PER ACI 318 CH.19A.

D - REINFORCING:

1. ALL REINFORCING FOR WELDING SHALL CONFORM TO ASTM A-706 SPECIFICATIONS, GRADE 60 (EXPECT #3 BARS MAY BE GRADE 40). ALL OTHER REINFORCING SHALL CONFORM TO ASTM-A615, GRADE 60.
2. REINFORCING BARS SHALL BE SPLICED AND BENT IN STRICT ACCORDANCE WITH THE DRAWINGS AND DETAILS. NO KINKS ALLOWED. ALL BARS SHALL BE CLEAN PRIOR TO CONCRETE PLACEMENT.
3. FIELD WELDING OF BENDING OF REINFORCING IS NOT PERMITTED EXCEPT AS INDICATED ON THE DRAWINGS OR AS APPROVEDBY THE STRUCTURAL ENGINEER.
4. CONCRETE PROTECTION FOR REINFORCING STEEL:
   a. FOOTINGS POURED AGAINST EARTH - 3"
5. IN-PLANT FUSION WELDING OF REINFORCEMENT SHALL NOT BE USED.
6. PROVIDE DOWELS OF SAME SIZE AND NUMBER FROM ADJACENT POUR, BOTH VERTICALLY AND HORIZONTALLY TO MATCH TYPICAL REINFORCING SHOWN. LAPS TO BE IN ACCORDANCE WITH THE DRAWINGS AND DETAILS. DOWELS SHALL BE CLEANED AFTER POUR.
7. SHOP DRAWINGS AND WELDING PROCEDURE SPECIFICATIONS FOR REINFORCING STEEL SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION.

E - QUALITY CONTROL:

1. UNLESS NOTED OTHERWISE, MATERIALS SHALL CONFORM TO PROVISIONS OF THE 2019 CALIFORNIA BUILDING CODE AND TESTS AND INSPECTIONS SHALL BE PERFORMED BY THE APPROVED TESTING AGENCY AND/OR THE JOB INSPECTOR WHO IS APPROVED BY THE DSA. THE ARCHITECT AND THE STRUCTURAL ENGINEER, COORDINATE AND WORK WITH THE DSA TESTING, INSPECTION AND OBSERVATION (TIO) PROGRAM FOR THE PROJECT.

F - DESIGN CRITERIA:

1. STRUCTURE HAS BEEN DESIGNED TO COMPLY WITH ASCE/SEI 7-16 (MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES) AS MODIFIED BY 2019 CALIFORNIA BUILDING CODE AND SUPPLEMENTS.
2. WIND DESIGN LOADS:
   BASIC WIND SPEED (3-SECOND GUST), V_{ULT} - 105 MPH
   RISK CATEGORY - III
   WIND EXPOSURE - C
   DESIGN WIND LOAD - 28 PSF
   K_{ZT} - 1.0
3. THE CLASS 3,4, OR 5 DESIGNATION ON SHEETS F-1A, F-1B, F1-C, F-2A, F-2B & F-2C ARE FOR THE SOIL CLASS OF MATERIALS IN THE 2019 CBC TABLE 1806A.2.
4. A GEOTECHNICAL REPORT IS REQUIRED TO USE CLASS 3 OR 4 SOILS VALUES.
5. MAXIMUM VALUE OF SEISMIC PARAMETER Sds CONSIDERED FOR THIS PROJECT WAS 2.5.

DSA BACKCHECK — 04/08/2022

APPROVED
DIV. OF THE STATE ARCHITECT
APP: 04-120059 PC
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑ CG ☐
DATE: 07/26/2022

PREPARED FOR THE BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

PREPARED BY IMEG
10920 VIA FRONTERA, SUITE 200
SAN DIEGO, CALIFORNIA 92127
PHONE 858.268.3400 FAX 858.271.8808
www.imegcorp.com
Project No. 20004301.00

GENERAL NOTES - CLASS 5 SOIL
FACILITIES SERVICES DEPARTMENT
OFFICE OF THE SCHOOL DISTRICT ARCHITECT

PROJECT NO. 20004301.00
FILE NAME F-1C
DATE 4/29/2021
DRAWN AS
CHECKED GC
REVISIONS
SHEET NO. F-1C
OF SHEETS

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4/1/2022 4:28:32 PM

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REGISTERED PROFESSIONAL ENGINEER — No. S9382 — Exp. 06/30/2025 — STRUCTURAL — STATE OF CALIFORNIA
04/11/2024

COFFMAN ENGINEERS
1455 Frazee Rd., Suite 600
San Diego, CA 92108
ph 619.232.4673
www.coffman.com

San Diego Unified School District

Sherman Elementary School

301 22nd St, San Diego, CA 92102

MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO. 231488-02
DRAWN MBH
CHECKED TM / JDW
DATE 04/11/2024

SHEET TITLE:

GENERAL NOTES - CLASS 5 SOIL

SHEET NO:

S701

SHEET OF XXX

CHAIN LINK FENCE POSTS AND FOUNDATIONS (CLASS 5 SOIL)

FENCE POST/FOOTING SCHEDULE 1x1 / 2x2 FABRIC WITHOUT PRIVACY SLATS, 7'-11 1/2" HIGH FENCE

MAXIMUM SPACING	LINE POST O.D.	LINE POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	2.375"	12"Ø x 3'-9"	-
6'-0"	2.375"	12"Ø x 4'-3"	-
8'-0"	2.875"	12"Ø x 4'-9"	-
10'-0"	2.875"	12"Ø x 5'-0"	-
			-

FENCE POST/FOOTING SCHEDULE 1x1 / 2x2 FABRIC WITHOUT PRIVACY SLATS, 10'-0" HIGH FENCE

MAXIMUM SPACING	LINE POST O.D.	LINE POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	2.875"	14"Ø x 4'-0"	-
6'-0"	2.875"	14"Ø x 4'-9"	-
8'-0"	3.500"	16"Ø x 5'-0"	-
10'-0"	4.000"	16"Ø x 5'-3"	-
			-

FENCE POST/FOOTING SCHEDULE 1x1 / 2x2 FABRIC WITHOUT PRIVACY SLATS, 14'-0" HIGH FENCE

MAXIMUM SPACING	LINE POST O.D.	LINE POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	3.500"	14"Ø x 5'-0"	-
6'-0"	4.000"	14"Ø x 5'-9"	-
8'-0"	4.500"	16"Ø x 6'-0"	-
10'-0"	5.563"	16"Ø x 6'-6"	-
			-

FENCE POST/FOOTING SCHEDULE 1x1 / 2x2 FABRIC WITH PRIVACY SLATS, 7'-11 1/2" HIGH FENCE

MAXIMUM SPACING	LINE POST O.D.	LINE POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	3.500"	14"Ø x 5'-6"	-
6'-0"	4.000"	14"Ø x 6'-6"	-
8'-0"	4.500"	16"Ø x 7'-0"	24"Ø x 5'-9"
10'-0"	5.563"	16"Ø x 7'-6"	24"Ø x 6'-6"

FENCE POST/FOOTING SCHEDULE 1x1 / 2x2 FABRIC WITH PRIVACY SLATS, 10'-0" HIGH FENCE

MAXIMUM SPACING	LINE POST O.D.	LINE POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	4.500"	18"Ø x 5'-9"	-
6'-0"	5.563"	18"Ø x 6'-9"	-
8'-0"	5.563"	18"Ø x 7'-9"	24"Ø x 6'-9"
10'-0"	6.625"	18"Ø x 8'-3"	30"Ø x 6'-9"

FENCE POST/FOOTING SCHEDULE 1x1 / 2x2 FABRIC WITH PRIVACY SLATS, 12'-0" HIGH FENCE

MAXIMUM SPACING	LINE POST O.D.	LINE POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	4.500"	18"Ø x 6'-6"	-
6'-0"	5.563"	18"Ø x 7'-6"	24"Ø x 6'-9"
8'-0"	6.625"	24"Ø x 7'-6"	30"Ø x 7'-0"
10'-0"	6.625"	24"Ø x 8'-3"	-
			-

DECORATIVE METAL FENCE POSTS AND FOUNDATIONS (CLASS 5 SOIL)

FENCE POST/FOOTING SCHEDULE 1"x1"x0.120" TUBE PICKETS AT 5" OC WITHOUT PERFORATED METAL PLATE, 7'-11 1/2" HIGH FENCE

MAXIMUM SPACING	LINE POST O.D.	LINE POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	HSS2x2x3/16	12"Ø x 3'-3"	-
6'-0"	HSS2x2x1/4	12"Ø x 4'-0"	-
8'-0"	HSS3x3x1/8	12"Ø x 4'-3"	-
10'-0"	HSS3x3x3/16	12"Ø x 4'-6"	-
			-

FENCE POST/FOOTING SCHEDULE 1"x1"x0.120" TUBE PICKETS AT 5" OC WITHOUT PERFORATED METAL PLATE, 10'-0" HIGH FENCE

MAXIMUM SPACING	LINE POST O.D.	LINE POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	HSS2x2x3/16	14"Ø x 3'-6"	-
6'-0"	HSS2x2x1/4	14"Ø x 4'-3"	-
8'-0"	HSS3x3x1/8	16"Ø x 4'-6"	-
10'-0"	HSS3x3x3/16	16"Ø x 4'-9"	-
			-

FENCE POST/FOOTING SCHEDULE 1"x1"x0.120" TUBE PICKETS AT 5" OC WITHOUT PERFORATED METAL PLATE, 11'-0" HIGH FENCE

MAXIMUM SPACING	LINE POST O.D.	LINE POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	HSS2x2x3/16	14"Ø x 3'-9"	-
6'-0"	HSS3x3x1/8	14"Ø x 4'-6"	-
8'-0"	HSS3x3x3/16	16"Ø x 4'-9"	-
10'-0"	HSS3x3x1/4	16"Ø x 5'-0"	-
			-

FENCE POST/FOOTING SCHEDULE 1"x1"x0.120" TUBE PICKETS AT 5" OC WITH PERFORATED METAL PLATE, 7'-11 1/2" HIGH FENCE

MAXIMUM SPACING	LINE POST O.D.	LINE POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	HSS2.5x2.5x1/4	14"Ø x 5'-6"	-
6'-0"	HSS3x3x1/4	14"Ø x 6'-6"	-
8'-0"	HSS3x3x5/16	18"Ø x 6'-6"	-
10'-0"	HSS3x3x3/8	18"Ø x 7'-3"	24"Ø x 6'-6"

FENCE POST/FOOTING SCHEDULE 1"x1"x0.120" TUBE PICKETS AT 5" OC WITH PERFORATED METAL PLATE, 10'-0" HIGH FENCE

MAXIMUM SPACING	LINE POST O.D.	LINE POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	HSS3x3x3/8	18"Ø x 5'-9"	-
6'-0"	HSS3.5x3.5x3/8	18"Ø x 6'-9"	-
8'-0"	HSS4x4x3/8	18"Ø x 7'-9"	24"Ø x 6'-9"
10'-0"	HSS4x4x1/2	18"Ø x 8'-3"	30"Ø x 6'-9"
			-

FENCE POST/FOOTING SCHEDULE 1"x1"x0.120" TUBE PICKETS AT 5" OC WITH PERFORATED METAL PLATE, 11'-0" HIGH FENCE

MAXIMUM SPACING	LINE POST O.D.	LINE POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	HSS3.5x3.5x3/8	18"Ø x 6'-0"	-
6'-0"	HSS4.5x4.5x1/4	18"Ø x 7'-3"	24"Ø x 6'-6"
8'-0"	HSS4.5x4.5x3/8	18"Ø x 8'-0"	30"Ø x 6'-6"
10'-0"	HSS4.5x4.5x1/2	18"Ø x 8'-9"	-
			-

CHAIN LINK GATE POSTS AND FOUNDATIONS (CLASS 5 SOIL) (INCLUDES VEHICLE GATE)

GATE POST/FOOTING SCHEDULE 1x1 / 2x2 FABRIC WITHOUT PRIVACY SLATS, 4'-0" HIGH GATE

MAX. LEAF WIDTH	POST O.D.	POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	2.375"	12"Ø x 4'-0"	-

SCHEDULE INCLUDES AN ADDITIONAL 5'-0" WIDTH TO GATE POST FROM THE ADJACENT LINE POST SPACED AT 10'-0" O.C. MAXIMUM.

GATE POST/FOOTING SCHEDULE 1x1 / 2x2 FABRIC WITHOUT PRIVACY SLATS, 7'-11 1/2" HIGH GATE

MAX. LEAF WIDTH	POST O.D.	POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	2.875"	12"Ø x 5'-3"	-
6'-0"	3.500"	12"Ø x 6'-3"	-
8'-0"	4.000"	14"Ø x 6'-6"	-
10'-0"	4.500"	14"Ø x 7'-6"	24"Ø x 6'-0"
12'-0"	4.500"	14"Ø x 8'-3"	24"Ø x 6'-6"

GATE POST/FOOTING SCHEDULE 1x1 / 2x2 FABRIC WITHOUT PRIVACY SLATS, 10'-0" HIGH GATE

	POST O.D.	POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	3.500"	14"Ø x 5'-9"	-
6'-0"	4.000"	14"Ø x 6'-6"	-
8'-0"	4.500"	16"Ø x 7'-0"	-
10'-0"	4.500"	16"Ø x 7'-9"	24"Ø x 6'-9"
12'-0"	5.563"	16"Ø x 8'-6"	30"Ø x 6'-9"

GATE POST/FOOTING SCHEDULE 1x1 / 2x2 FABRIC WITH PRIVACY SLATS, 7'-11 1/2" HIGH GATE

MAX. LEAF WIDTH	POST O.D.	POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	4.500"	16"Ø x 6'-7"	24"Ø x 6'-3"
6'-0"	5.563"	18"Ø x 8'-0"	24"Ø x 7'-0"
8'-0"	5.563"	24"Ø x 7'-9"	30"Ø x 7'-0"
10'-0"	6.625"	24"Ø x 8'-6"	30"Ø x 7'-9"
12'-0"	6.625"	30"Ø x 8'-3"	-

GATE POST/FOOTING SCHEDULE 1x1 / 2x2 FABRIC WITH PRIVACY SLATS, 10'-0" HIGH GATE

MAX. LEAF WIDTH	POST O.D.	POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	5.563"	18"Ø x 8'-3"	30"Ø x 6'-9"
6'-0"	6.625"	18"Ø x 9'-0"	-
8'-0"	6.625"	24"Ø x 8'-9"	-
10'-0"	6.625"	24"Ø x 9'-6"	-
12'-0"	8.625"	30"Ø x 9'-3"	-

GATE POST/FOOTING SCHEDULE 1x1 / 2x2 FABRIC WITH PRIVACY SLATS, 12'-0" HIGH GATE

MAX. LEAF WIDTH	POST O.D.	POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	6.625"	18"Ø x 9'-0"	-
6'-0"	8.625"	24"Ø x 9'-0"	-
8'-0"	8.625"	24"Ø x 9'-9"	-
10'-0"	8.625"	30"Ø x 9'-6"	-
12'-0"	8.625"	30"Ø x 10'-0"	-

NOTE:
1. SCHEDULE INCLUDES AN ADDITIONAL 5'-0" WIDTH TO GATE POST FROM THE ADJACENT LINE POST SPACED AT 10'-0" O.C. MAXIMUM.
2. FOR GATES WITH MANDOORS SEE ELEVATIONS ON SHEETS F-04 AND F-05 FOR FOOTING DIMENSIONS AND REINFORCEMENT.

DECORATIVE METAL GATE POSTS AND FOUNDATIONS (CLASS 5 SOIL)

GATE POST/FOOTING SCHEDULE 1"x1"x0.120" TUBE PICKETS AT 5" OC WITHOUT PERFORATED METAL PLATE, 7'-11 1/2" HIGH GATE

MAX. LEAF WIDTH	POST O.D.	POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	HSS2x2x1/4	12"Ø x 4'-6"	-
6'-0"	HSS2.5x2.5x3/16	12"Ø x 5'-0"	-
8'-0"	HSS2.5x2.5x1/4	12"Ø x 5'-3"	-
10'-0"	HSS2.5x2.5x5/16	12"Ø x 5'-6"	-

GATE POST/FOOTING SCHEDULE 1"x1"x0.120" TUBE PICKETS AT 5" OC WITHOUT PERFORATED METAL PLATE, 11'-0" HIGH GATE

MAX. LEAF WIDTH	POST O.D.	POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	HSS3x3x3/16	14"Ø x 5'-3"	-
6'-0"	HSS3x3x1/4	14"Ø x 5'-6"	-
8'-0"	HSS3x3x1/4	16"Ø x 5'-6"	-
10'-0"	HSS3x3x5/16	16"Ø x 6'-0"	-

* 10'-0" TYPICAL HIGH 11' HIGH MAX.
SCHEDULE INCLUDES AN ADDITIONAL 5'-0" WIDTH TO GATE POST FROM THE ADJACENT LINE POST SPACED AT 10'-0" O.C. MAXIMUM.

GATE POST/FOOTING SCHEDULE 1"x1"x0.120" TUBE PICKETS AT 5" OC WITH PERFORATED METAL PLATE, 7'-11 1/2" HIGH GATE

MAX. LEAF WIDTH	POST O.D.	POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	HSS4x4x3/16	16"Ø x 7'-3"	24"Ø x 6'-3"
6'-0"	HSS4x4x1/4	18"Ø x 7'-6"	24"Ø x 6'-9"
8'-0"	HSS4x4x5/16	24"Ø x 7'-3"	30"Ø x 6'-6"
10'-0"	HSS4x4x3/8	24"Ø x 7'-6"	30"Ø x 7'-0"

GATE POST/FOOTING SCHEDULE 1"x1"x0.120" TUBE PICKETS AT 5" OC WITH PERFORATED METAL PLATE, 10'-0" HIGH GATE

MAX. LEAF WIDTH	POST O.D.	POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	HSS5x5x1/4	18"Ø x 8'-0"	30"Ø x 6'-6"
6'-0"	HSS6x6x3/16	18"Ø x 8'-9"	30"Ø x 7'-0"
8'-0"	HSS6x6x1/4	18"Ø x 9'-3"	-
10'-0"	HSS6x6x1/4	18"Ø x 9'-9"	-

SCHEDULE INCLUDES AN ADDITIONAL 5'-0" WIDTH TO GATE POST FROM THE ADJACENT LINE POST SPACED AT 10'-0" O.C. MAXIMUM.

GATE POST/FOOTING SCHEDULE 1"x1"x0.120" TUBE PICKETS AT 5" OC WITH PERFORATED METAL PLATE, 11'-0" HIGH GATE

MAX. LEAF WIDTH	POST O.D.	POST FOOTING DIMENSIONS	ALTERNATE FOOTING DIMENSION
4'-0"	HSS5.5x5.5x1/4	18"Ø x 8'-6"	30"Ø x 7'-0"
6'-0"	HSS6x6x1/4	18"Ø x 9'-3"	-
8'-0"	HSS6x6x1/4	18"Ø x 9'-9"	-
10'-0"	HSS6x6x1/2	24"Ø x 9'-3"	-

NOTE:
1. SCHEDULE INCLUDES AN ADDITIONAL 5'-0" WIDTH TO GATE POST FROM THE ADJACENT LINE POST SPACED AT 10'-0" O.C. MAXIMUM.
2. FOR GATES WITH MANDOORS SEE ELEVATIONS ON SHEETS F-04 AND F-05 FOR FOOTING DIMENSIONS AND REINFORCEMENT.

TYPICAL COMMENT FOR ALL SCHEDULE:
1. POST SECTIONS AND FOOTINGS IN SCHEDULE REPRESENT LINE POST, END POST AND CORNER POST CONDITIONS.
2. WHERE GEOTECHNICAL REPORTS REQUIRE THAT THE TOP 1 FOOT OF SOIL BE NEGLECTED FOR COUNTING TOWARD PASSIVE OR LATERAL SOIL BEARING VALUES THE VALUES IN THE SCHEDULE SHALL HAVE THE ADDITIONAL 1 FOOT DEPTH ADDED.

APPROVED
DIV. OF THE STATE ARCHITECT
APP: 04-120059 PC
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑ CG ☐
DATE: 07/26/2022

PREPARED FOR THE BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

PREPARED BY IMEG

FOOTING SCHEDULE - CLASS 5 SOIL

FACILITIES SERVICES DEPARTMENT
OFFICE OF THE SCHOOL DISTRICT ARCHITECT

PROJECT NO. 20004301.00
FILE NAME F-2C
DATE 4/29/2021 DRAWN AS CHECKED GC
SHEET NO. F-2C

6/1/2022 4:28:35 PM

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San Diego, CA 92108
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04/11/2024

San Diego Unified School District

Sherman Elementary School

301 22nd St, San Diego, CA 92102

MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

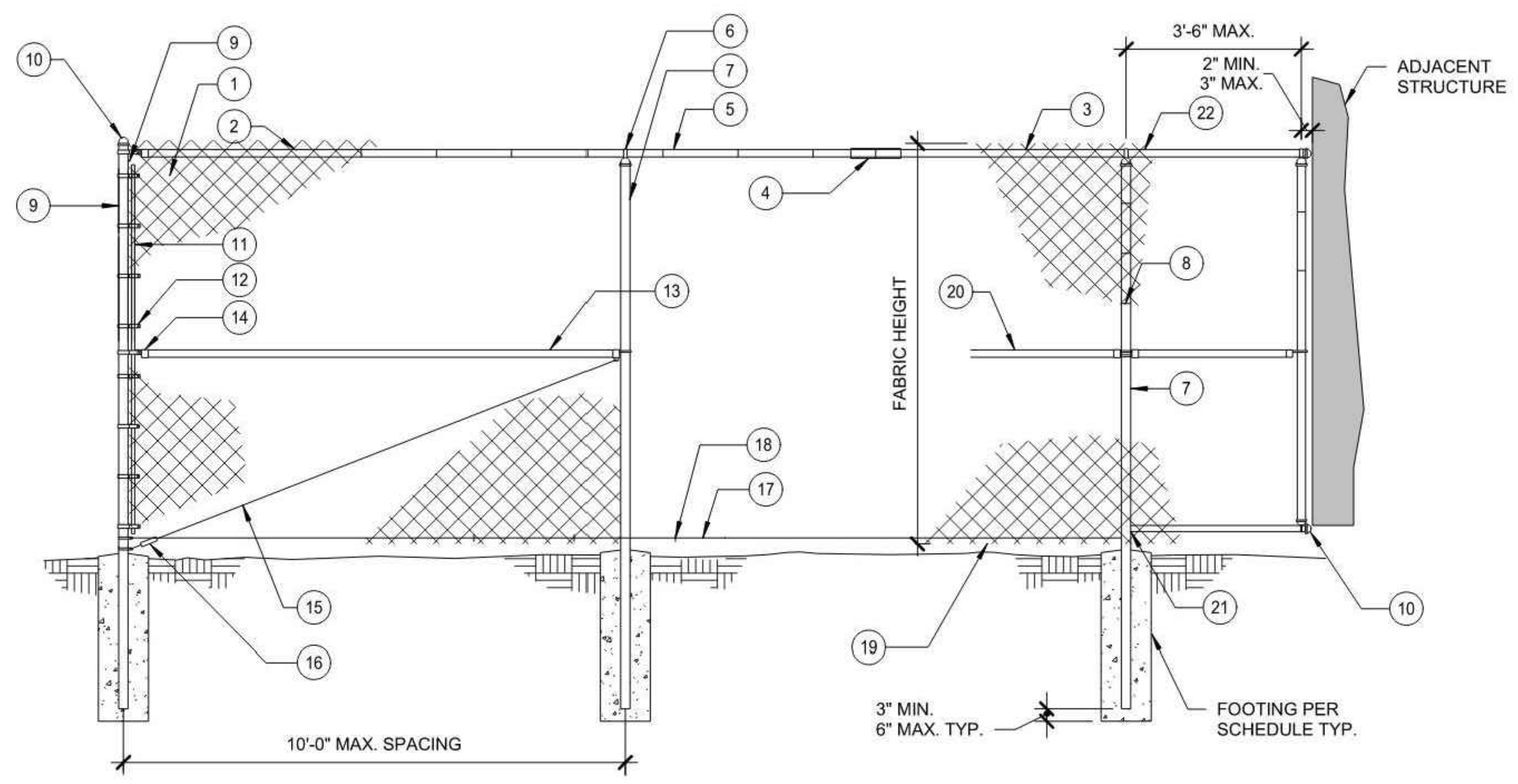
REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO.	231488-02
DRAWN	MBH
CHECKED	TM / JDW
DATE	04/11/2024

SHEET TITLE:
FOOTING SCHEDULE - CLASS 5 SOIL

SHEET NO:
S702

SHEET OF XXX

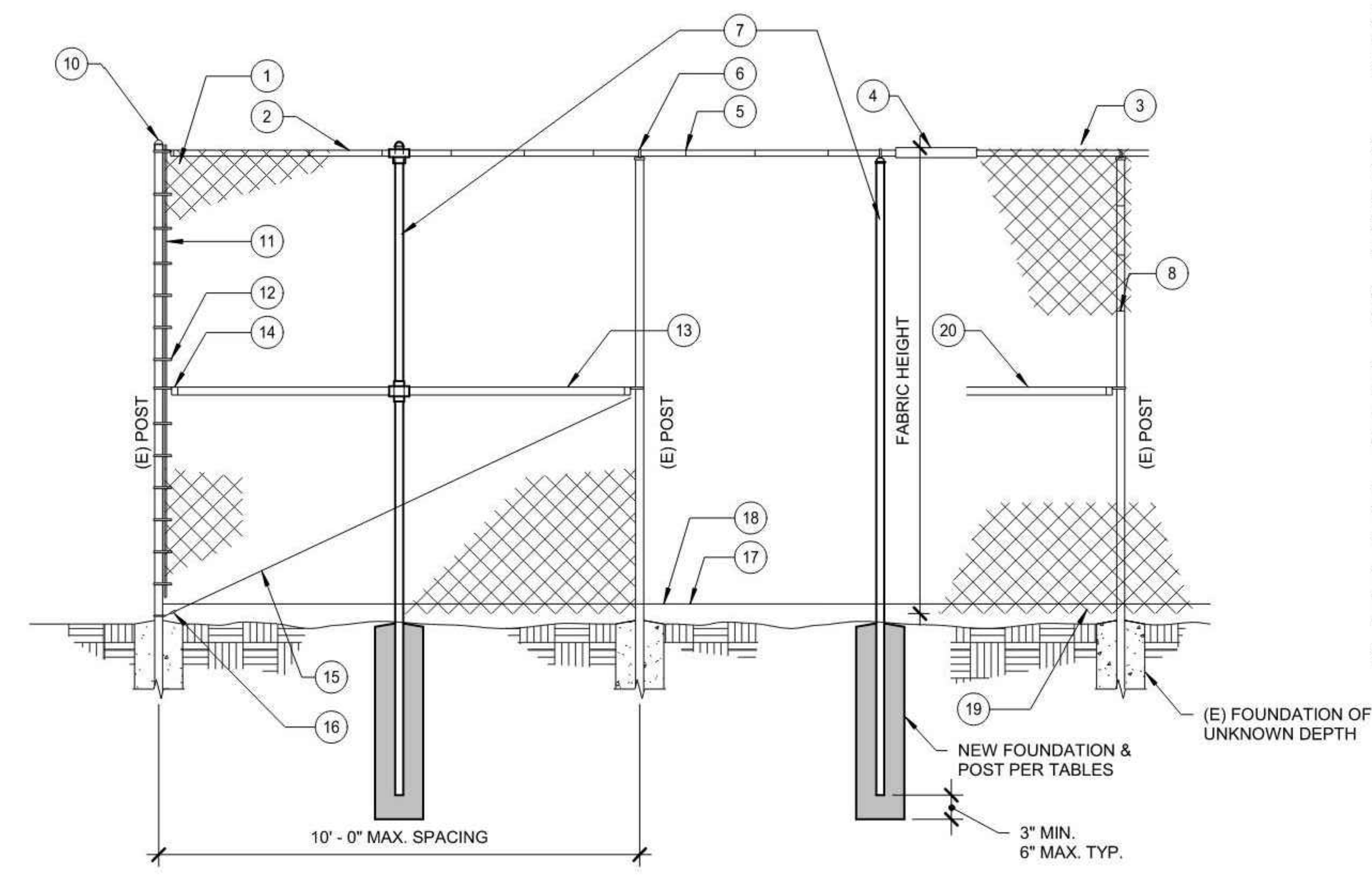


NOTES:

1. CHAIN LINK FABRIC.
2. 1.660" OD TOP RAIL FOR 2" x 2" CHAIN LINK FABRIC WITHOUT PRIVACY SLATS. 1.900" OD TOP RAIL FOR 2" x 2" CHAIN LINK FABRIC WITH PRIVACY SLATS AND FOR 1" x 1" CHAIN LINK FABRIC WITHOUT PRIVACY SLATS.
3. TOP SELVAGE.
4. SLEEVE CONNECTOR AS OCCURS.
5. RAIL TIE AT 18" OC.
6. LINE POST LOOP TOP.
7. LINE POST. SEE FENCE POST/FOOTING SCHEDULES, SHEETS F-2A, F-2B & F-2C FOR POST AND FOOTING SIZES.
8. LINE POST TIE AT 12" OC.
9. TERMINAL POST. SEE FENCE POST/FOOTING SCHEDULES, SHEETS F-2A, F-2B & F-2C FOR POST AND FOOTING SIZES.
10. TERMINAL POST DOME TOP.
11. TENSION BAR.
12. TENSION BAND AT 15" OC MAXIMUM.
13. BRACE RAIL AT ALL TERMINAL POSTS WHEN FENCE HEIGHT IS GREATER THAN 6'-0". MATCH OD OF TOP RAIL.
14. RAIL END.
15. 3/8" DIAMETER TRUSS ROD.
16. TRUSS ROD ADJUSTING UNIT.
17. 0.177" DIAMETER TENSION WIRE.
18. HOG RING AT 24" OC MAXIMUM.
19. BOTTOM SELVAGE.
20. MIDDLE RAIL AT ALL LINE POSTS WHEN FENCE HEIGHT IS 12'-0" MATCH OD OF TOP RAIL.
21. SHOP WELD PIPE TO VERTICAL, TRIM SAW CUT END IN FIELD AS REQ. SEE DETAIL 5/F-07.
22. TOP HORIZONTAL CONTINUOUS OVER TOP, NO SPLICE BTWN ADJ POSTS.

1 TYPICAL CHAIN LINK FENCE W/ SLATS

3/8" = 1'-0"

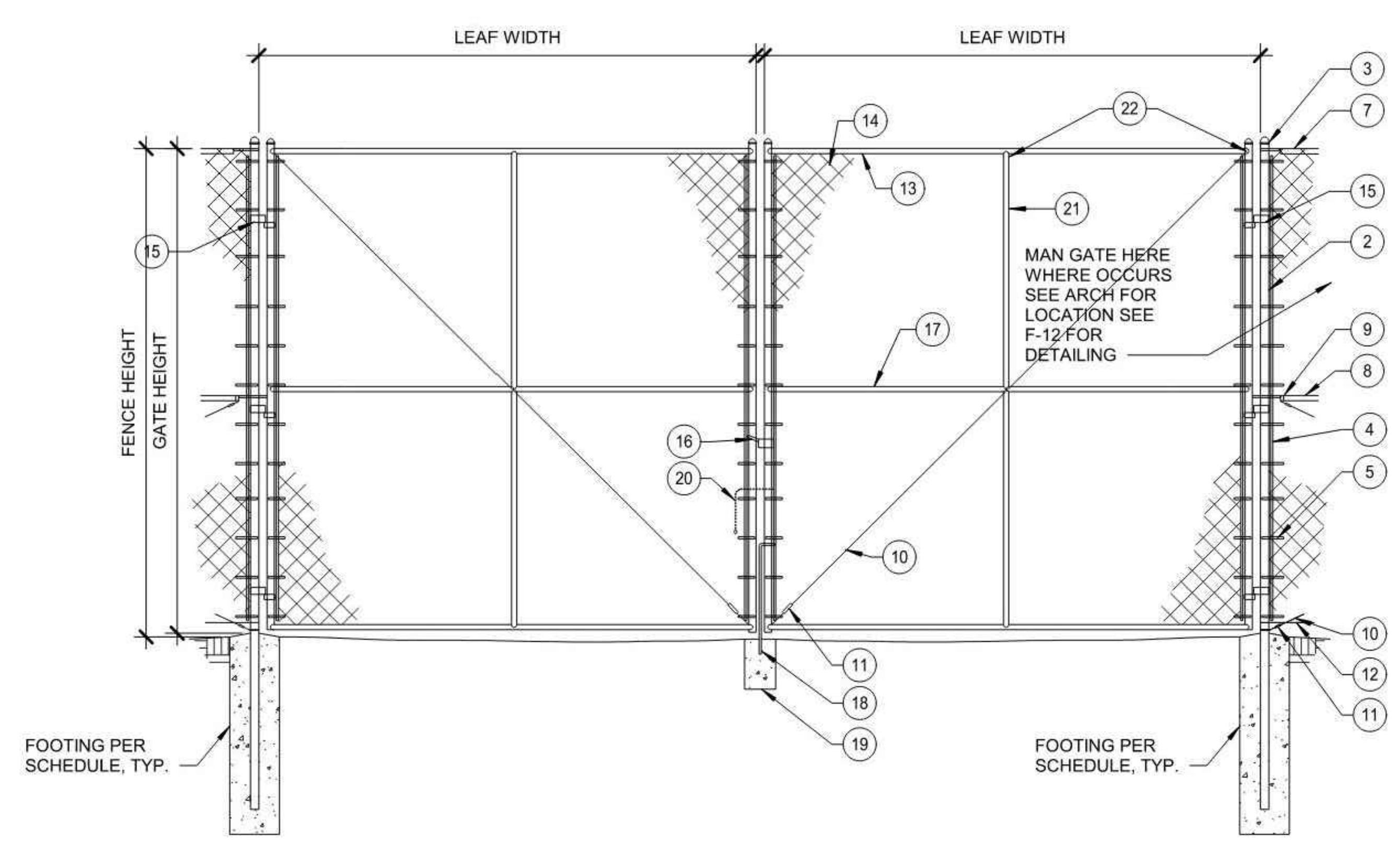


NOTES:

1. CHAIN LINK FABRIC.
2. 1.660" OD TOP RAIL FOR 2" x 2" CHAIN LINK FABRIC WITHOUT PRIVACY SLATS. 1.900" OD TOP RAIL FOR 2" x 2" CHAIN LINK FABRIC WITH PRIVACY SLATS AND FOR 1" x 1" CHAIN LINK FABRIC WITHOUT PRIVACY SLATS.
3. TOP SELVAGE.
4. SLEEVE CONNECTOR AS OCCURS.
5. RAIL TIE AT 18" OC.
6. LINE POST LOOP TOP.
7. LINE POST. SEE FENCE POST/FOOTING SCHEDULES, SHEET F-2A, F-2B & F-2C FOR POST AND FOOTING SIZES.
8. LINE POST TIE AT 12" OC.
9. TERMINAL POST. SEE FENCE POST/FOOTING SCHEDULES, SHEET F-2A, F-2B & F-2C FOR POST AND FOOTING SIZES.
10. TERMINAL POST DOME TOP.
11. TENSION BAR.
12. TENSION BAND AT 15" OC MAXIMUM.
13. BRACE RAIL AT ALL TERMINAL POSTS WHEN FENCE HEIGHT IS GREATER THAN 6'-0". MATCH OD OF TOP RAIL.
14. RAIL END.
15. 3/8" DIAMETER TRUSS ROD.
16. TRUSS ROD ADJUSTING UNIT.
17. 0.177" DIAMETER TENSION WIRE.
18. HOG RING AT 24" OC MAXIMUM.
19. BOTTOM SELVAGE.
20. MIDDLE RAIL AT ALL LINE POSTS WHEN FENCE HEIGHT IS 12'-0" MATCH OD OF TOP RAIL.

2 TYPICAL EXISTING CHAIN LINK FENCE TO RECEIVE SLATS

3/8" = 1'-0"



NOTES:

1. FOR MAINTENANCE ACCESS VEHICLE GATES IN FENCES OF ANY HEIGHT.
2. GATE POST. SEE GATE POST/FENCE SCHEDULES, SHEET F-2A, F-2B & F-2C FOR POST AND FOOTING SIZES.
3. DOME CAP.
4. TENSION BAR.
5. TENSION BAND AT 15" OC MAXIMUM.
6. CHAIN LINK FABRIC.
7. 1.660" OD TOP RAIL FOR 2" x 2" CHAIN LINK FABRIC WITHOUT PRIVACY SLATS. 1.900" OD TOP RAIL FOR 2" x 2" CHAIN LINK FABRIC WITH PRIVACY SLATS AND FOR 1" x 1" CHAIN LINK FABRIC.
8. BRACE RAIL AT GATE POST. MATCH OD OF TOP RAIL.
9. RAIL END.
10. 3/8" DIAMETER TRUSS ROD.
11. TRUSS ROD ADJUSTING UNIT.
12. .177" DIAMETER TENSION WIRE.
13. 1.660" OD GATE FRAME WORK FOR GATES 6'-0" IN HEIGHT OR LESS. 1.900" OD GATE FRAME WORK FOR GATES GREATER THAN 6'-0" IN HEIGHT WITH 2"x2" CHAIN LINK FABRICK WITHOUT PRIVACY SLATS. 2.375" OD GATE FRAME WORK FOR GATES WITH 2"x2" CHAIN LINK FABRIC WITH PRIVACY SLATS AND FOR GATES WITH 1"x1" CHAIN LINK FABRIC.
14. CHAIN LINK FABRIC TO MATCH FENCE.
15. GATE HINGE, 3 PER LEAF FOR GATES TO 8'-0" IN HEIGHT; 4 PER LEAF FOR GATES GREATER THAN 8'-0" IN HEIGHT.
16. GATE LATCH.
17. BRACE RAIL WHEN GATE IS 8'-0" OR GREATER MEMBER SECTION TO MATCH GATE FRAMEWORK.
18. DROP ROD AND SLEEVE SET IN CONCRETE.
19. 10" DIAMETER BY 18" DEEP CONCRETE FOOTING WHEN GATE IS OVER OTHER THAN CONCRETE SURFACE.
20. 3/8" x 36" LONG CHAIN WITH 3/4" HARNESS SNAP.
21. VERTICAL BRACE RAIL WHEN GATE WIDTH IS 8'-0" OR GREATER OD TO MATCH GATE FRAME WORK.
22. ALL GATE TUBE CONNECTION TO BE SHOP WELDED PRIOR TO GALVANIZING W/ FILLET TO MATCH SMALLEST TUBE WALL THICKNESS
23. LINE AND TERMINAL POST, SEE FENCE POST/FOOTING SCHEDULES, SHEET F-2A, F-2B & F-2C FOR POST AND FOOTING SIZES.

3 DOUBLE LEAF VEHICLE GATE

3/8" = 1'-0"

SHEET NOTES:
1. SEE SHEETS F-08 AND F-09 FOR ACCESSIBILITY AND ARCHITECTURAL INFORMATION.

CHAIN LINK FENCE AND DETAILS

PROJECT NO. 20004301.00 · FILE NAME F-03 · DATE 4/29/2021 · DRAWN AS · CHECKED GC · SHEET NO. F-03

FOR REREFENCE ONLY

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COFFMAN ENGINEERS
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ph 619.232.4673
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San Diego Unified School District

Sherman Elementary School

301 22nd St, San Diego, CA 92102

MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO. 231488-02
DRAWN MBH
CHECKED TM / JDW
DATE 04/11/2024

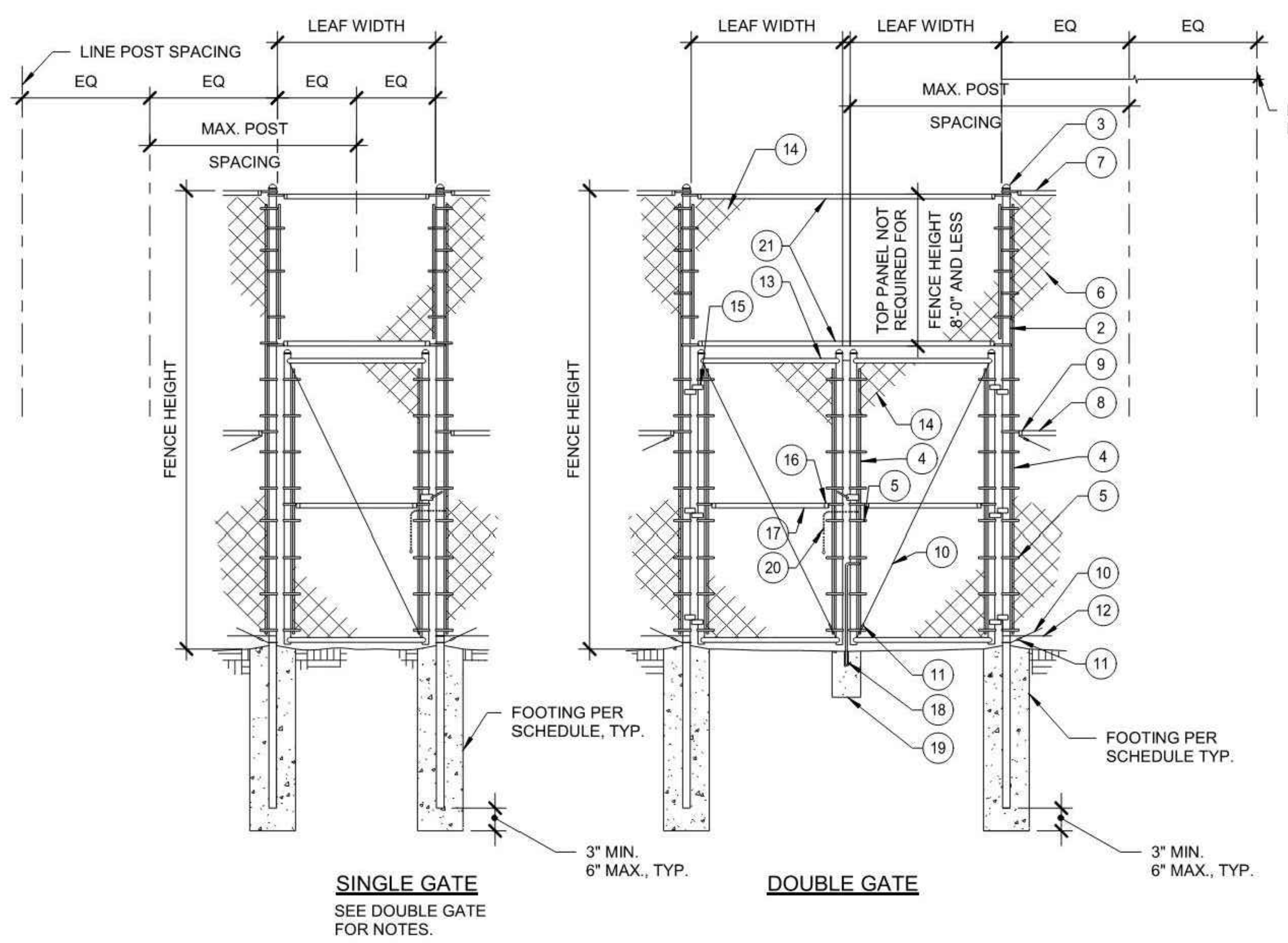
SHEET TITLE:

CHAIN LINK FENCE AND DETAILS

SHEET NO:

S703

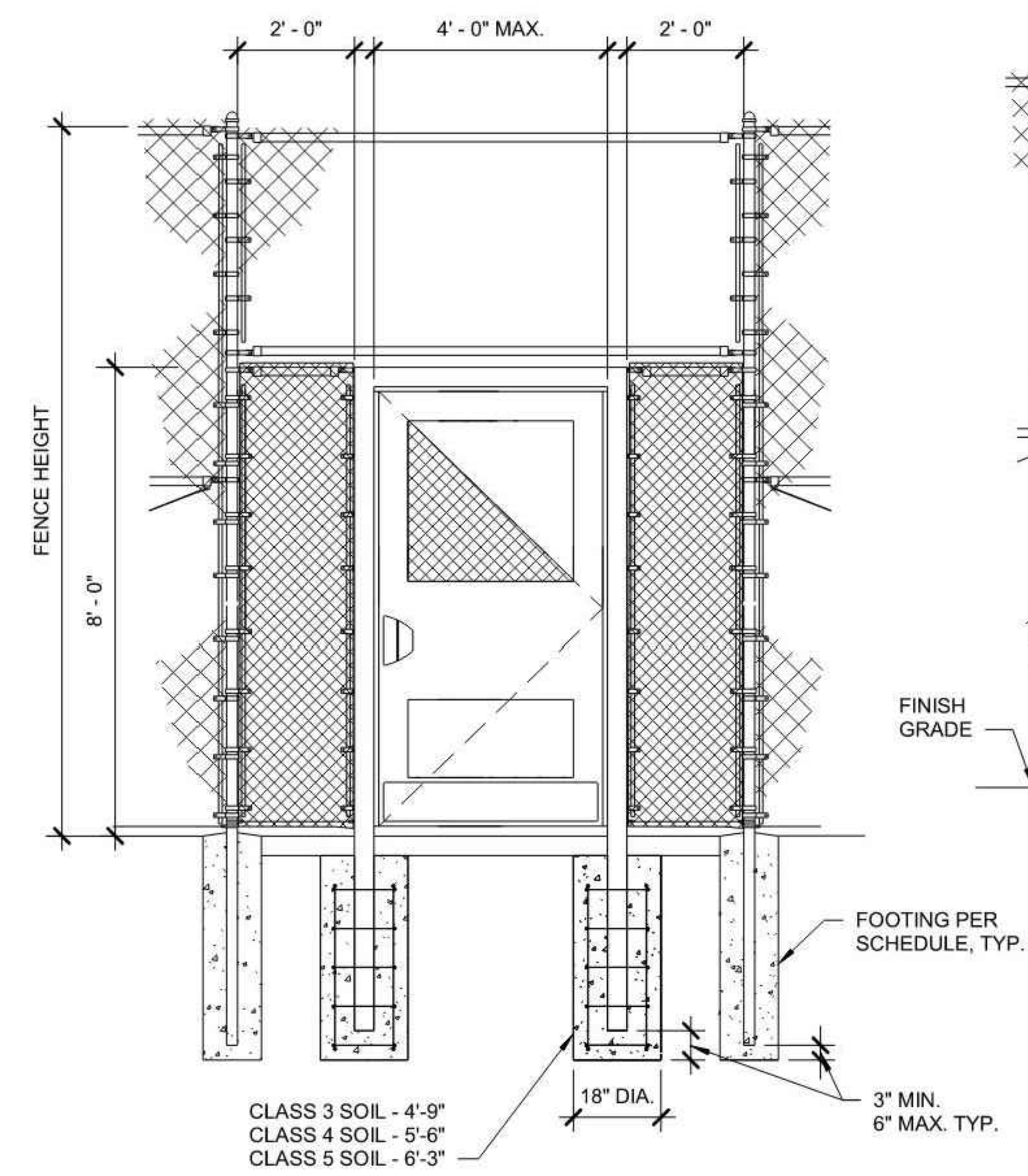
SHEET OF XXX



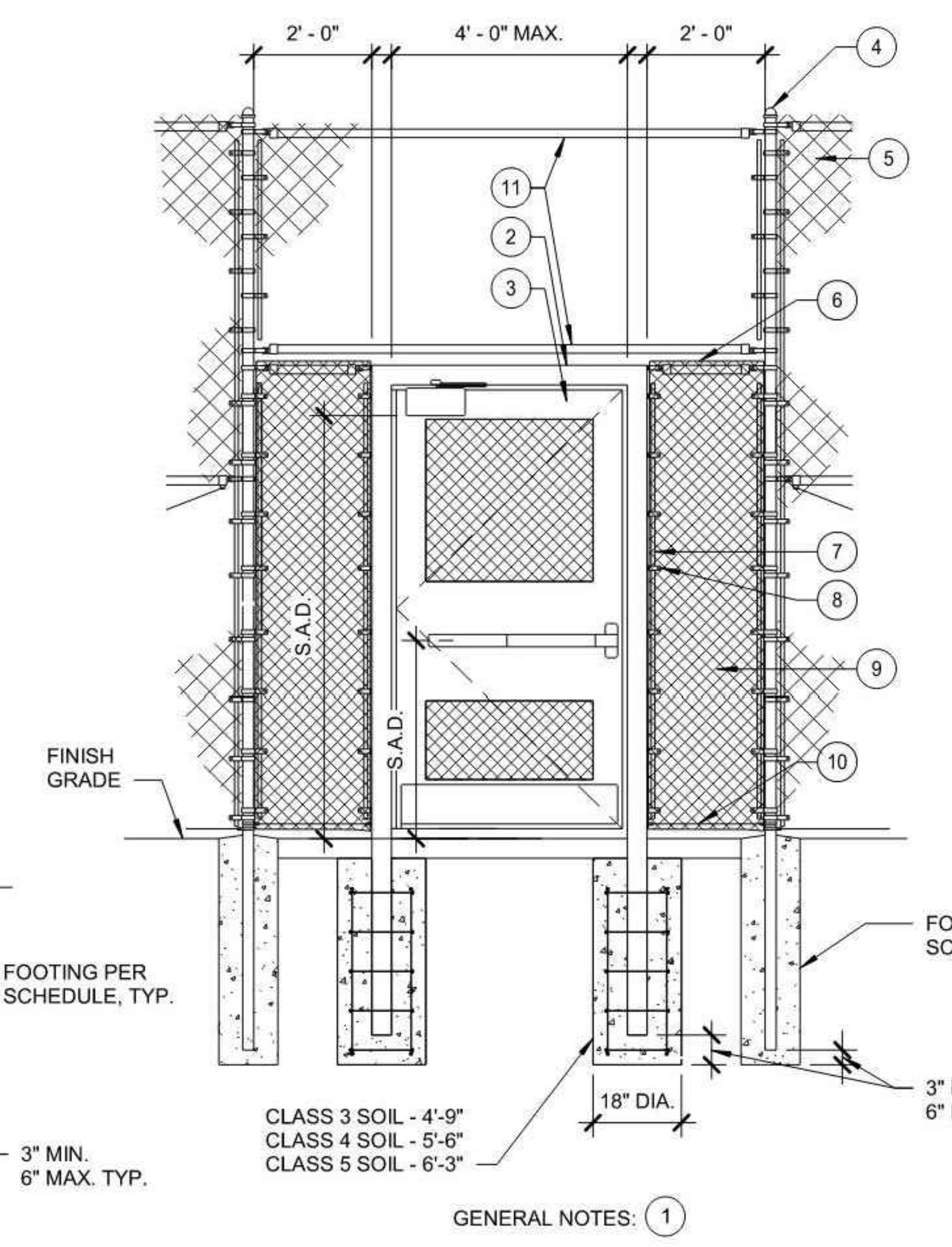
NOTES:

1. FOR MAINTENANCE ACCESS PEDESTRIAN GATES IN FENCES GREATER THAN 8'-0" IN HEIGHT.
2. GATE POST. SEE GATE POST/FENCE SCHEDULES, SHEETS F-2A, F-2B & F-2C FOR POST AND FOOTING
3. DOME CAP.
4. TENSION BAR.
5. TENSION BAND AT 15" OC MAXIMUM.
6. CHAIN LINK FABRIC. PANEL ADJACENT TO DOOR NOT TO EXCEED 8'-0" WIDTH.
7. 1.660" OD TOP RAIL FOR 2" x 2" CHAIN LINK FABRIC WITHOUT PRIVACY SLATS. 1.900" OD TOP RAIL FOR 2" x 2" CHAIN LINK FABRIC WITH PRIVACY SLATS AND FOR 1" x 1" CHAIN LINK FABRIC.
8. BRACE RAIL AT GATE POST. MATCH OD OF TOP RAIL.
9. RAIL END.
10. 3/8" DIAMETER TRUSS ROD.
11. TRUSS ROD ADJUSTING UNIT.
12. 0.177" DIAMETER TENSION WIRE.
13. 1.900" OD GATE FRAME WORK.
14. CHAIN LINK FABRIC TO MATCH FENCE.
15. GATE HINGE, 3 PER LEAF FOR GATES TO 8'-0" IN HEIGHT; 4 PER LEAF FOR GATES GREATER THAN 8'-0" IN HEIGHT.
16. GATE LATCH.
17. BRACE RAIL WHEN GATE IS 8'-0" IN HEIGHT. OD TO MATCH GATE FRAMEWORK.
18. DROP ROD AND SLEEVE SET IN CONCRETE.
19. 10" DIAMETER BY 18" DEEP CONCRETE FOOTING WHEN GATE IS OVER OTHER THAN CONCRETE SURFACE.
20. 3/8" x 36" LONG CHAIN WITH 3/4" HARNESS SNAP.
21. ADDITIONAL FENCE RAIL. MATCH OD OF FENCE RAILS.
22. OFTEN MAINTENANCE GATES HAVE ACTUALLY BEEN FOUND TO BE PEDESTRIAN ENTRY GATES OR REQUIRED TO BE PEDESTRIAN GATES. THIS WILL BE DETERMINED AT EACH SITE ON A CASE BY CASE BASIS.

1 CHAIN LINK MAINTENANCE GATES
3/8" = 1'-0"



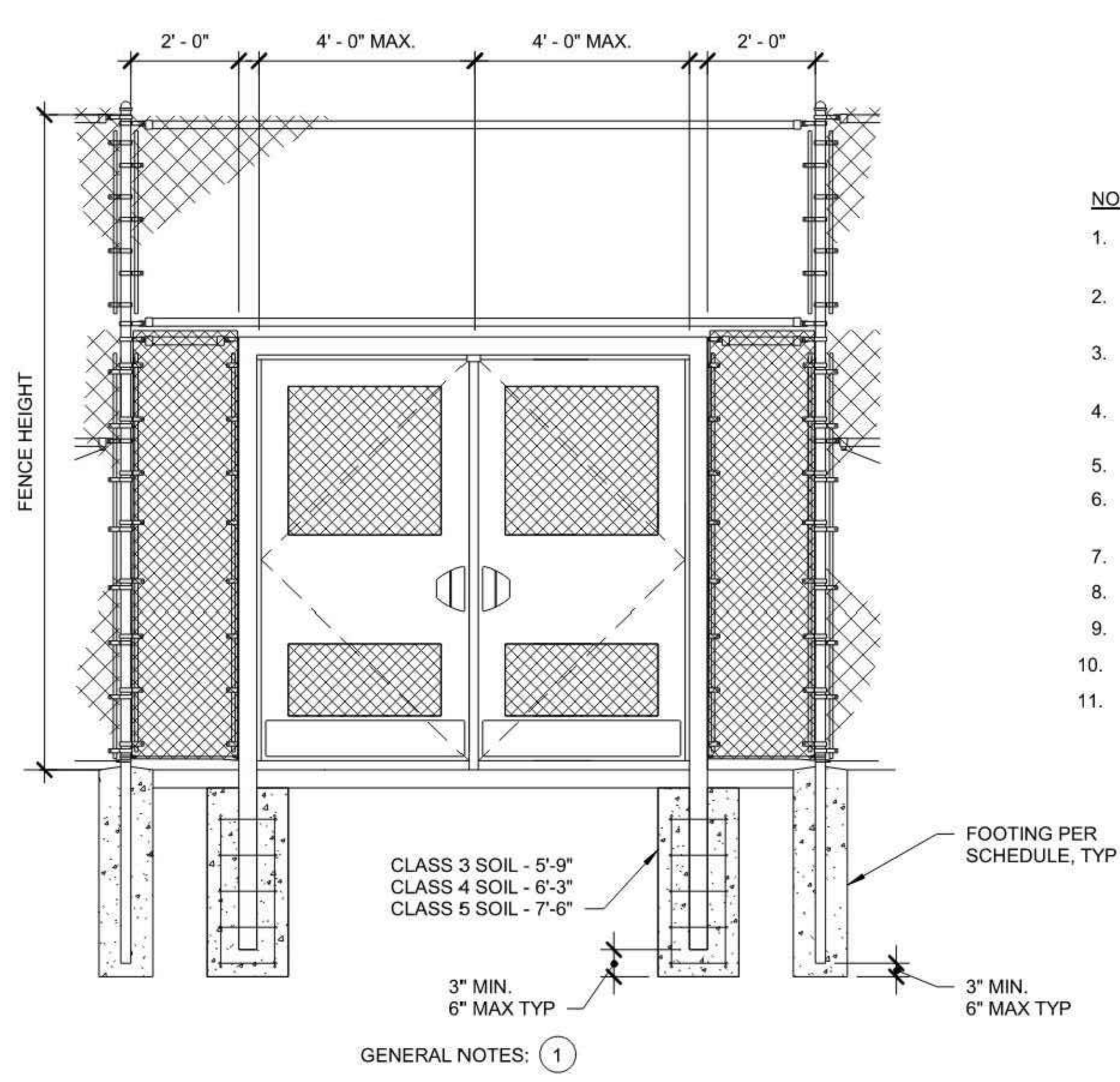
2 SINGLE FENCE GATE EXTERIOR ELEVATION
3/8" = 1'-0"



NOTES:

1. FOR ACCESSSIBLE MEANS OF EGRESS IN CHAIN LINK FENCES 10'-0" AND 12'-0" IN HEIGHT. FOR 8'-0" AND LESS IN HEIGHT, TOP PANEL NOT REQUIRED.
2. HSS4x4x1/4 STRUCTURAL STEEL DOOR FRAME AND CONCRETE FOOTING WITH 4 #5 VERTICAL AND #4 TIES AT 8" O.C.
3. CUSTOM HOLLOW METAL DOOR, STILE AND RAIL, WITH 1"x1" CHAIN LINK FENCE INSERTS.
4. TERMINAL POST. SEE GATE POST/ FOOTING SCHEDULES, SHEETS F-2A, F-2B & F-2C FOR POST AND FOOTING SIZES.
5. CHAIN LINK FENCE. PANEL ADJACENT TO DOOR NOT TO EXCEED 8'-0" WIDTH.
6. TOP RAIL OD TO MATCH TOP RAIL OF ADJACENT FENCE PANEL. WELD RAIL END TO DOOR FRAME.
7. TENSION BAR.
8. TENSION BAND AT 15" O.C. MAXIMUM. WELD TO DOOR FRAME.
9. 1"x1" CHAIN LINK FABRIC.
10. 0.177" DIAMETER TENSION WIRE.
11. ADDITIONAL FENCE RAIL. MATCH OD FENCE RAILS.

3 SINGLE FENCE GATE INTERIOR ELEVATION
3/8" = 1'-0"



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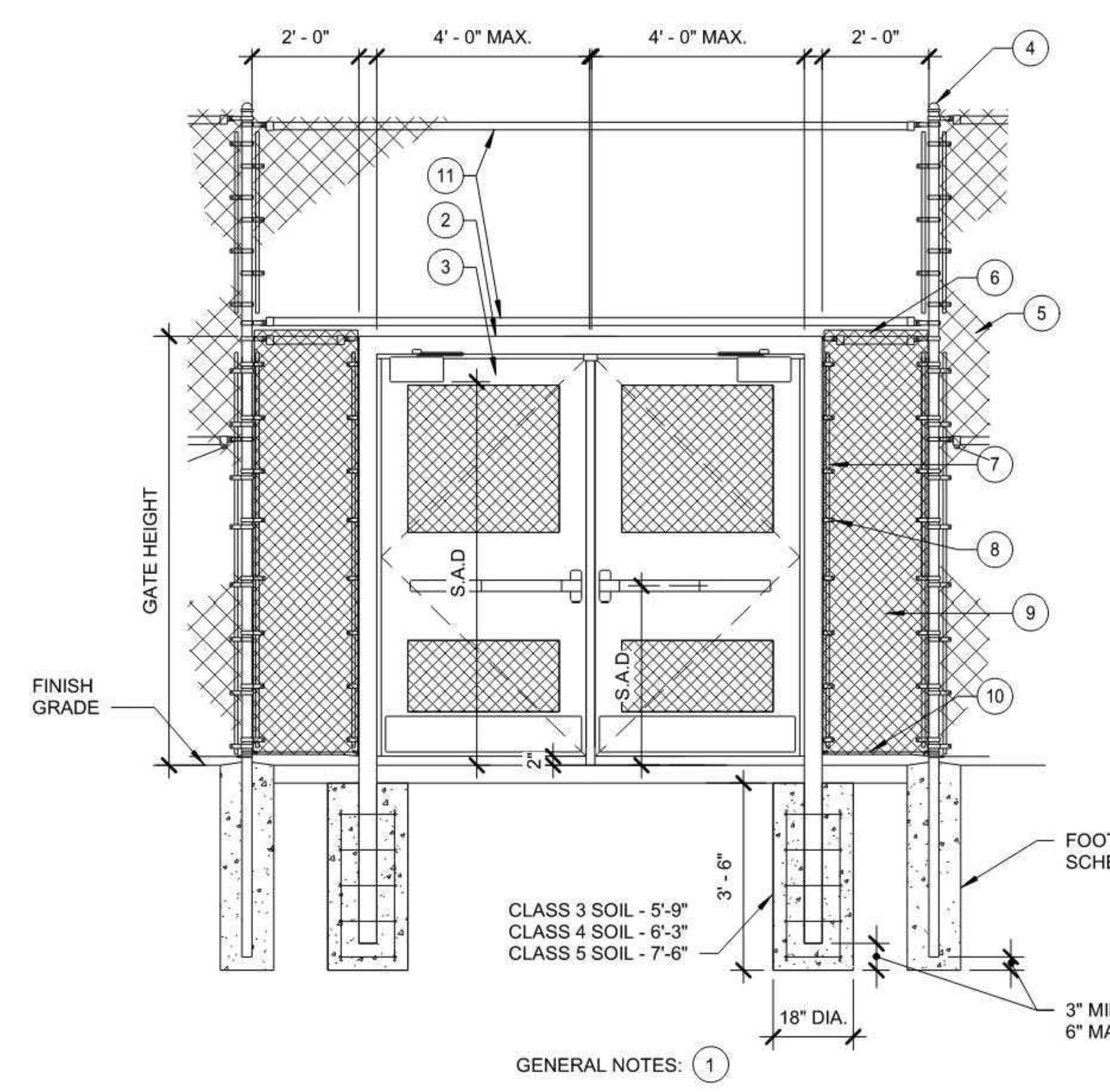
7. TENSION BAR.
8. TENSION BAND AT 15" O.C. MAXIMUM. WELD TO DOOR FRAME.
9. 1"x1" CHAIN LINK FABRIC.
10. 0.177" DIAMETER TENSION WIRE.
11. ADDITIONAL FENCE RAIL. MATCH OD OF FENCE RAIL.

4 DOUBLE FENCE GATE EXTERIOR ELEVATION
3/8" = 1'-0"



NOTES:

1. FOR ACCESSSIBLE MEANS OF EGRESS IN CHAIN LINK FENCES 10'-0" AND 12'-0" IN HEIGHT. FOR 8'-0" AND LESS IN HEIGHT, TOP PANEL NOT REQUIRED.
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3. CUSTOM HOLLOW METAL DOOR, STILE AND RAIL, WITH 1"x1" CHAIN LINK FENCE INSERTS.
4. TERMINAL POST. SEE GATE POST/ FOOTING SCHEDULES, SHEETS F-2A, F-2B & F-2C FOR POST AND FOOTING SIZES.
5. CHAIN LINK FABRIC. PANEL ADJACENT TO DOOR NOT TO EXCEED 8'-0" WIDTH.
6. TOP RAIL. OD TO MATCH TOP RAIL OF ADJACENT FENCE PANEL. WELD RAIL END TO DOOR FRAME.
7. TENSION BAR.
8. TENSION BAND AT 15" O.C. MAXIMUM. WELD TO DOOR FRAME.
9. 1"x1" CHAIN LINK FABRIC.
10. 0.177" DIAMETER TENSION WIRE.
11. ADDITIONAL FENCE RAIL. MATCH OD OF FENCE RAIL.

5 DOUBLE FENCE GATE INTERIOR ELEVATION
3/8" = 1'-0"

SHEET NOTES:
1. SEE SHEETS F-08 AND F-09 FOR ACCESSIBILITY AND ARCHITECTURAL INFORMATION.

APPROVED DIV. OF THE STATE ARCHITECT
APP: 04-120059 PC
REVIEWED FOR SS ☑ FLS ☑ ACS ☑ CG ☐
DATE: 07/26/2022

ELEVATIONS

FACILITIES SERVICES DEPARTMENT

OFFICE OF THE SCHOOL DISTRICT ARCHITECT

PREPARED FOR THE BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

PREPARED BY IMEG

PROJECT NO. 20004301.00
FILE NAME F-04
DATE 4/29/2021
DRAWN AS
CHECKED GC
SHEET NO. F-04

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04/11/2024

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MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

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3	04/11/24	100% DESIGN
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PROJ. NO.	231488-02
DRAWN	MBH
CHECKED	TM / JDW
DATE	04/11/2024

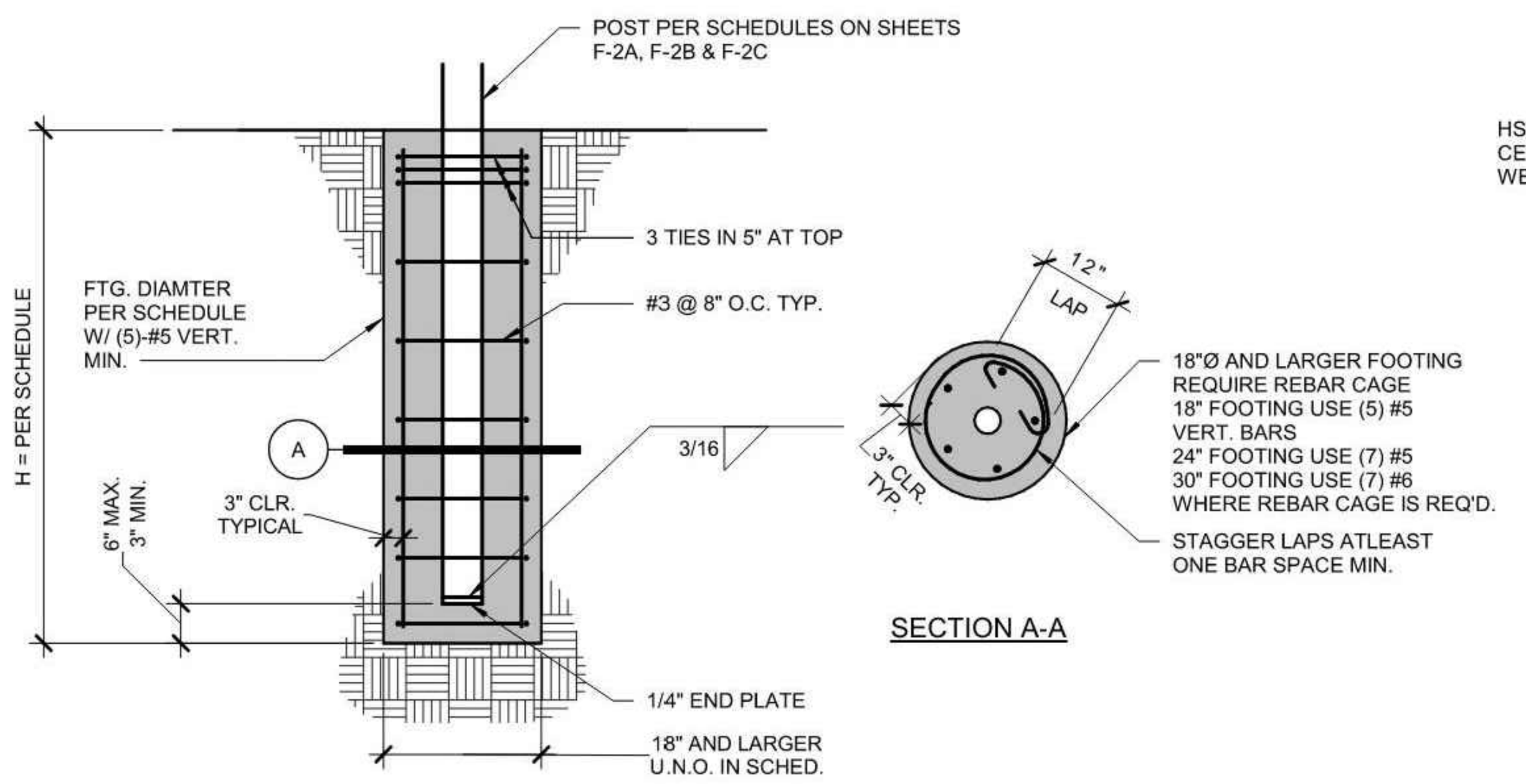
SHEET TITLE:

ELEVATIONS

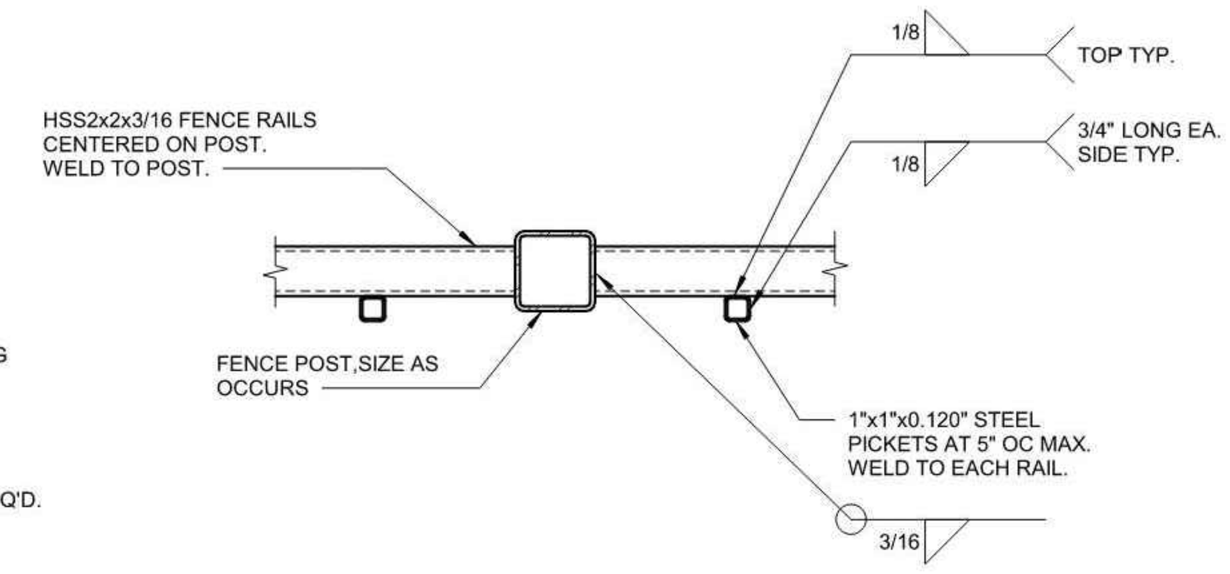
SHEET NO:

S704

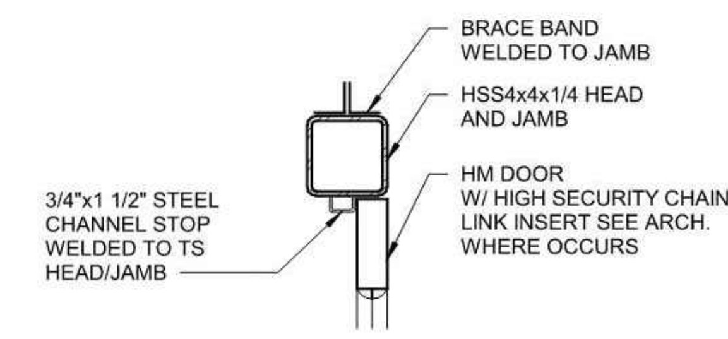
SHEET OF XXX



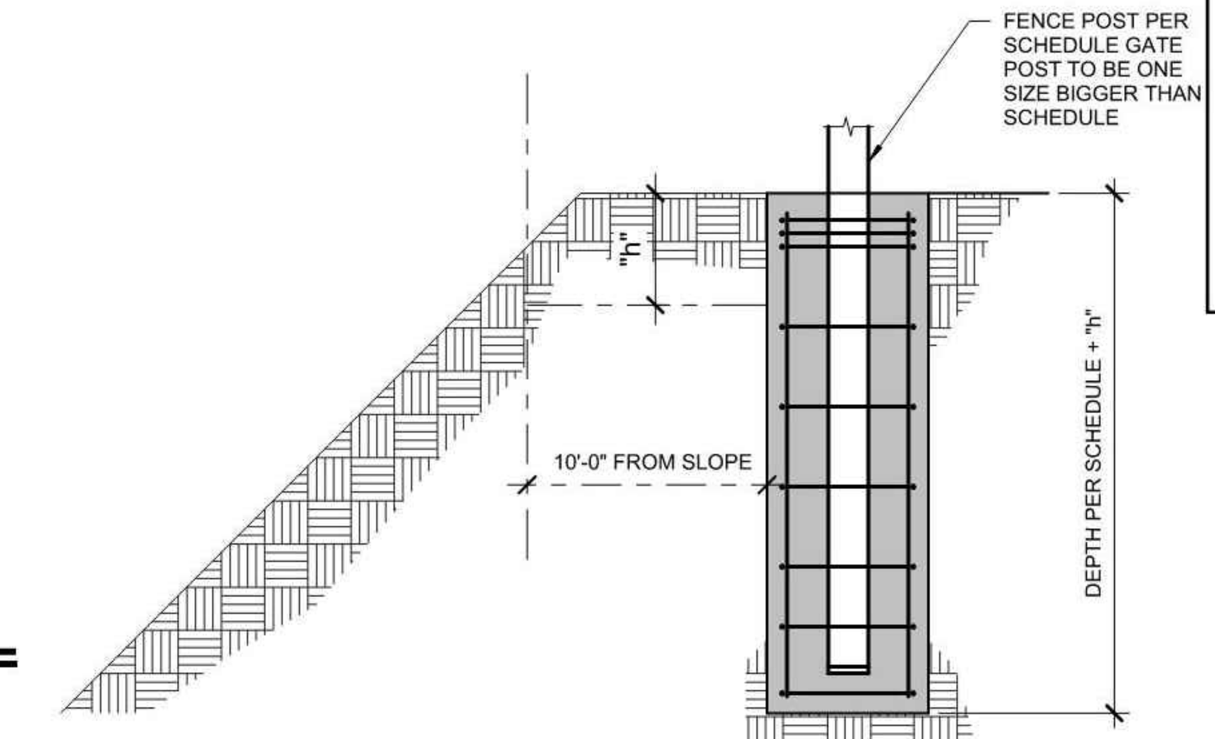
1 FOOTING DETAIL
1/2" = 1'-0"



2 STEEL FENCE POST DETAIL
1 1/2" = 1'-0"

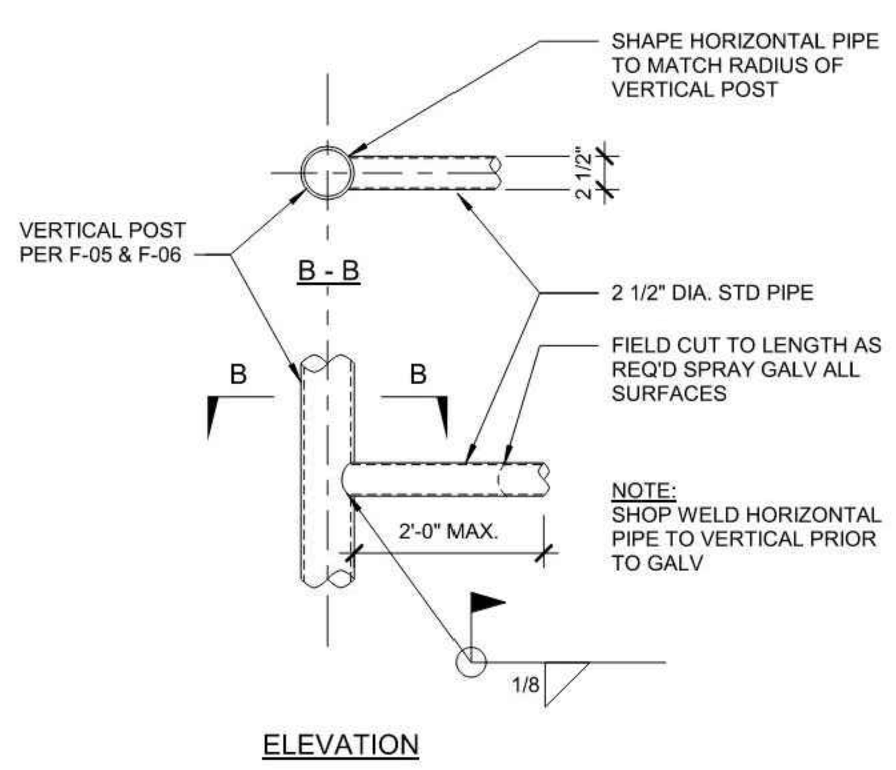


3 HOLLOW METAL HEAD/JAMB DETAIL
1 1/2" = 1'-0"

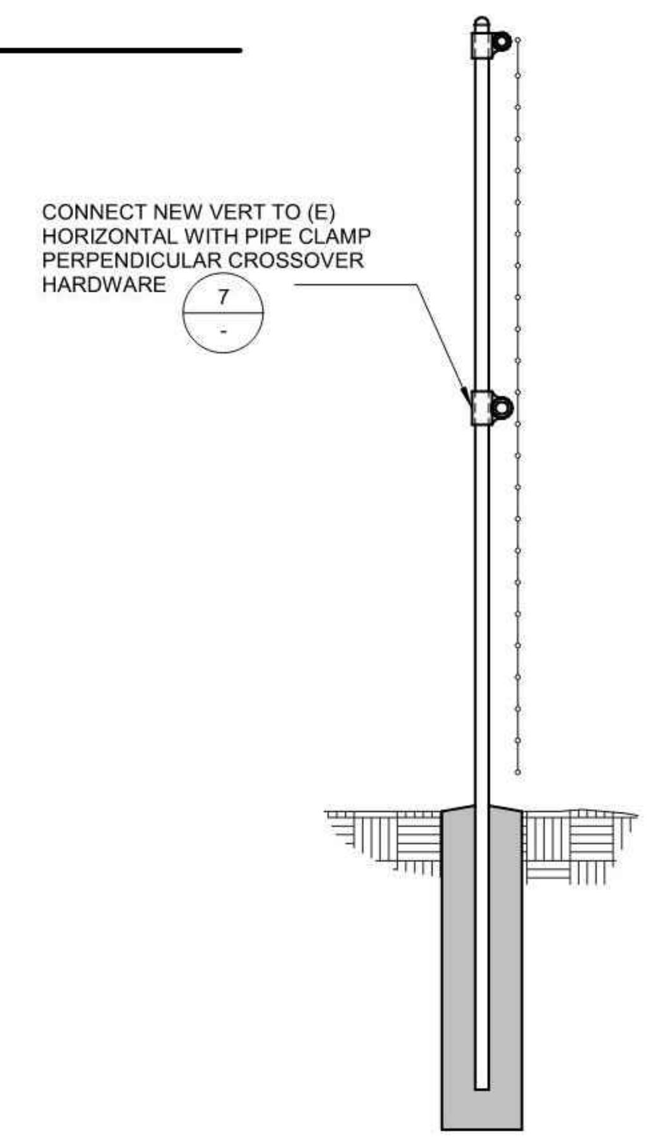


NOTES:
1. FOR INFO NOT SHOWN PLEASE REFER 1/F-07
2. AT TOP OF SLOPE, POST SPACING NOT TO EXCEED 8'-0" O.C.

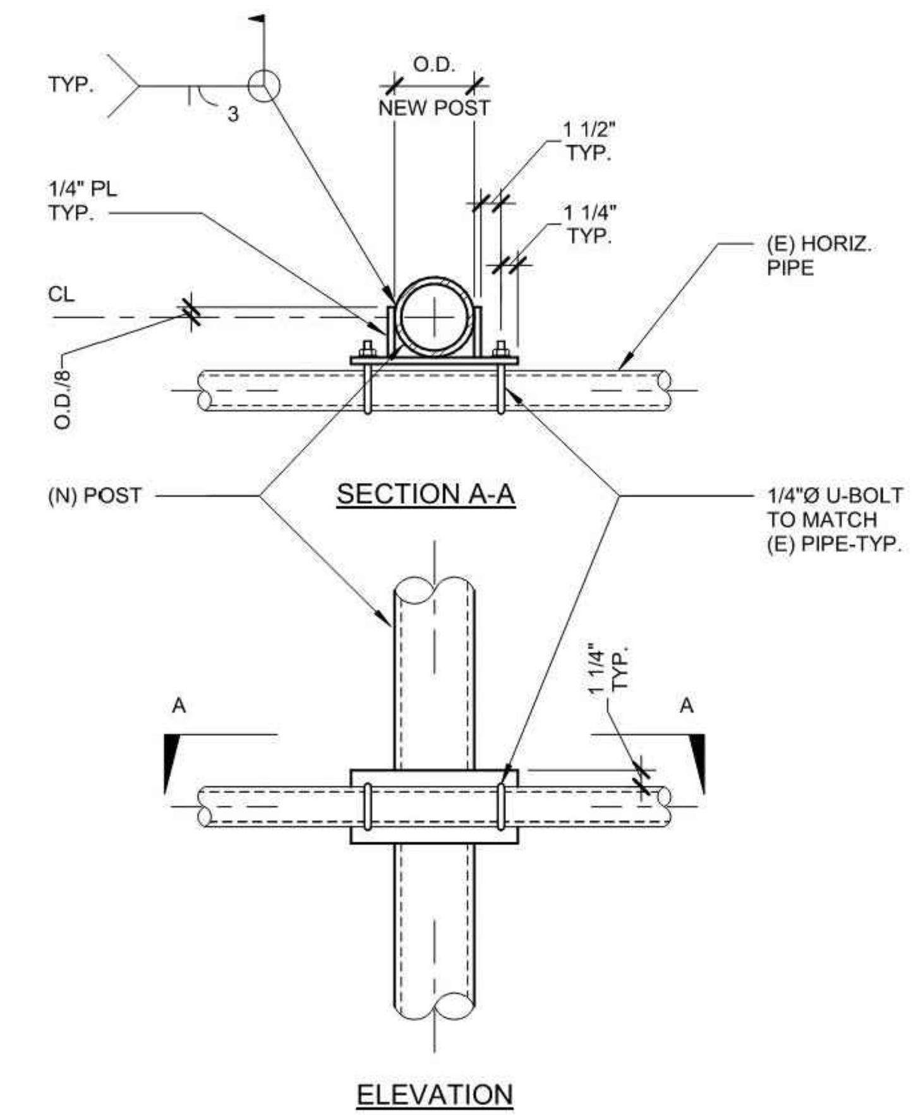
4 POST AT TOP OF SLOPE
1/2" = 1'-0"



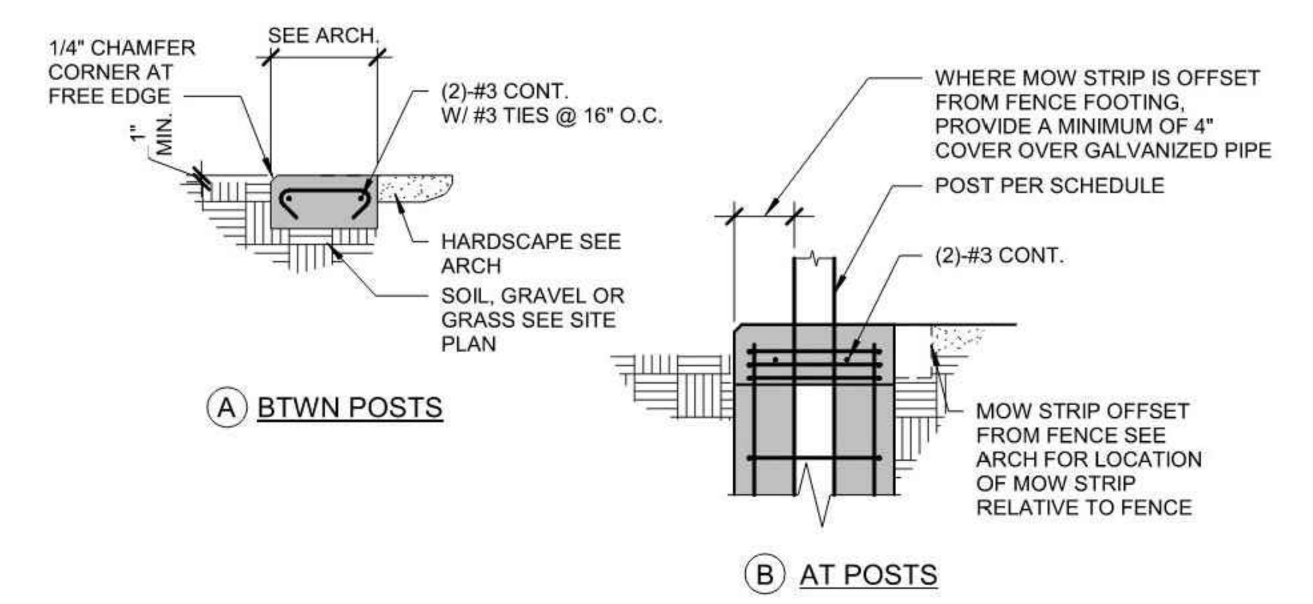
5 TYP. PIPE TO PIPE WELD CONN
1" = 1'-0"



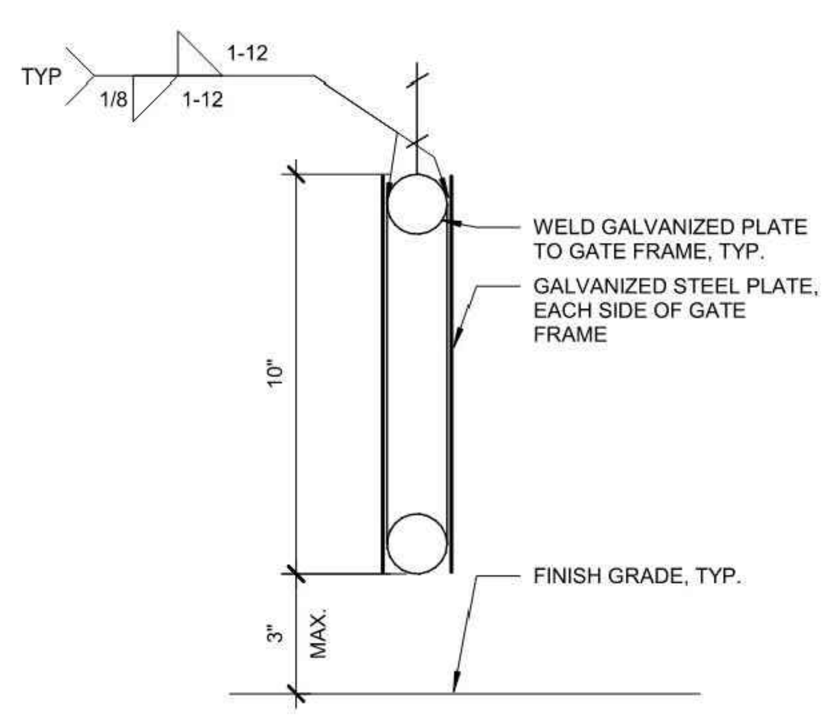
6 TYP. (N) VERT. TO (E) HORIZ. CONN.
1/2" = 1'-0"



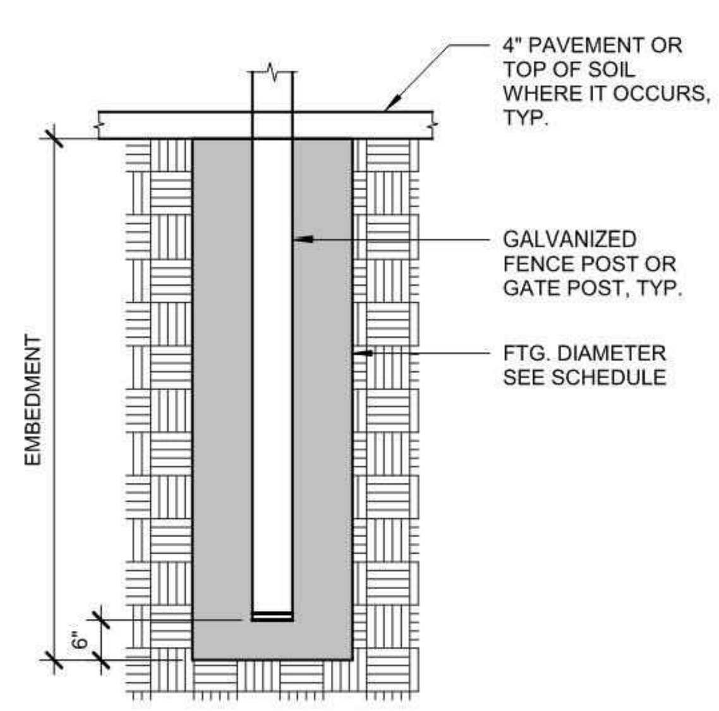
7 LARGE DIAMETER CROSSOVER CONNECTION
1" = 1'-0"



8 TYP. MOW STRIP
1/2" = 1'-0"

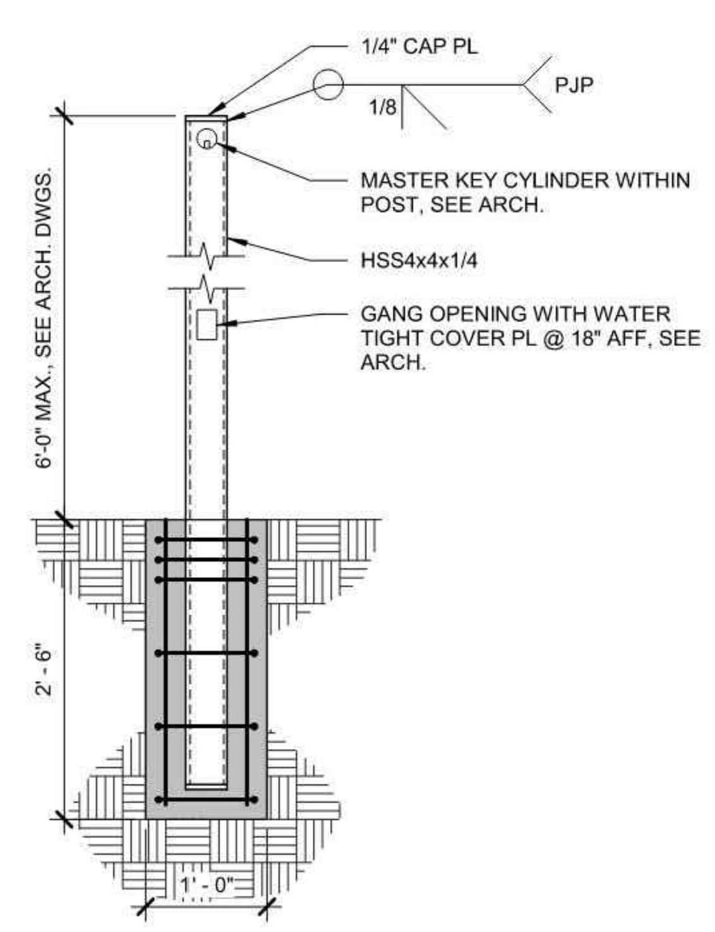


9 GATE BOTTOM RAIL DETAIL
3" = 1'-0"



NOTE:
SEE SHEET F-2A, F-2B OR F-2C FOR FOOTING DIMENSION AND EMBEDMENT

10 FENCE POST FOOTING TYP DETAIL
1/2" = 1'-0"



11 POST FOR MASTER KEY
3/4" = 1'-0"

SHEET NOTES:
1. SEE SHEETS F-08 AND F-09 FOR ACCESSIBILITY AND ARCHITECTURAL INFORMATION.

APPROVED
DIV. OF THE STATE ARCHITECT
APP: 04-120059 PC
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑ CG ☐
DATE: 07/26/2022

PREPARED FOR THE BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

PREPARED BY IMEG
10620 VIA FRONTERA, SUITE 200
SAN DIEGO, CALIFORNIA 92127

DECORATIVE FENCE AND DETAILS
FACILITIES SERVICES DEPARTMENT
OFFICE OF THE SCHOOL DISTRICT ARCHITECT

PROJECT NO. 20004301.00
FILE NAME F-07
DATE 4/29/2021 DRAWN AS CHECKED GC
SHEET NO. F-07

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04/11/2024

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MICROGRID, ELECTRIC VEHICLE CHARGING STATIONS & BATTERY ENERGY STORAGE SYSTEM

REV	DATE	DESCRIPTION
3	04/11/24	100% DESIGN
2	02/23/24	60% DESIGN
1	01/19/24	MICROGRID CONCEPT
0	08/04/23	CONCEPT

PROJ. NO.	231488-02
DRAWN	MBH
CHECKED	TM / JDW
DATE	04/11/2024

SHEET TITLE:
DECORATIVE FENCE AND DETAILS

SHEET NO:
S705

SHEET OF XXX

- HANDLES, PULLS, LATCHES, LOCKS, AND OTHER OPERABLE PARTS ON ACCESSIBLE DOORS SHALL COMPLY WITH CBC SECTION 11B-309.4 AND SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST, AND 5 POUNDS (22.2 N) MAXIMUM FORCE. OPERABLE PARTS OF SUCH HARDWARE SHALL BE 34" MINIMUM AND 44" MAXIMUM ABOVE FINISH FLOOR OR GROUND. CBC SECTION 11B-404.2.7
- THE FORCE FOR PUSHING OR PULLING OPEN A DOOR SHALL BE AS FOLLOWS: CBC SECTION 11B-404.2.9.
  - INTERIOR HINGED DOORS, SLIDING OR FOLDING DOORS, AND EXTERIOR HINGED DOORS: 5 POUNDS (22.2 N) MAXIMUM.
  - REQUIRED FIRE DOORS: THE MINIMUM OPENING FORCE ALLOWABLE BY THE DSA AUTHORITY, NOT TO EXCEED 15 POUNDS (66.7N). THESE FORCES DO NOT APPLY TO THE FORCE REQUIRED TO RETRACT LATCH BOLTS OR DISENGAGE OTHER DEVICES THAT HOLD THE DOOR IN A CLOSED POSITION.
  - THE FORCE REQUIRED FOR ACTIVATING ANY OPERABLE PARTS, SUCH AS LEVER HARDWARE, OR DISENGAGING OTHER DEVICES SHALL BE 5 POUNDS (22.2N) MAXIMUM TO COMPLY WITH CBC SECTION 11B-309.4.
- DOOR CLOSING SPEED SHALL BE AS FOLLOWS: CBC SECTION 11B-404.2.8
  - CLOSER SHALL BE ADJUSTED SO THAT THE REQUIRED TIME TO MOVE A DOOR FROM AN OPEN POSITION OF 90 DEGREES TO A POSITION OF 12 DEGREES FROM THE LATCH IS 5 SECONDS MINIMUM.
  - SPRING HINGES SHALL BE ADJUSTED SO THAT THE REQUIRED TIME TO MOVE A DOOR FROM AN OPEN POSITION OF 70 DEGREES TO THE CLOSED POSITION IS 1.5 SECONDS MINIMUM.

GATE HARDWARE SCHEDULE

Hardware Group No. G-01-180 (Hardware for single tube steel gate and frame w/ Locinox Mammoth-180 hinge)

Provide each SGL GATE(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	SET	HYDRAULIC GATE PIVOT	MAMMOTH-180	689	LOC
1	EA	PANIC HARDWARE	CDSI-PA-AX-99-NL-OP-110MD-WH	626	VON
1	EA	RIM CYLINDER	MATCH SITE STANDARD	626	TBD
1	EA	MORTISE CYLINDER	MATCH SITE STANDARD (FOR DOGGING)	626	TBD
1	EA	DOOR PULL	VR910 NL	630	IVE
1	EA	FLOOR STOP/HOLDER	FS40 SERIES	626	IVE
1	EA	RAIN DRIP	142AA (OMIT WHERE OVERHANG OCCURS)	AA	ZER

BALANCE OF HARDWARE BY GATE MANUFACTURER

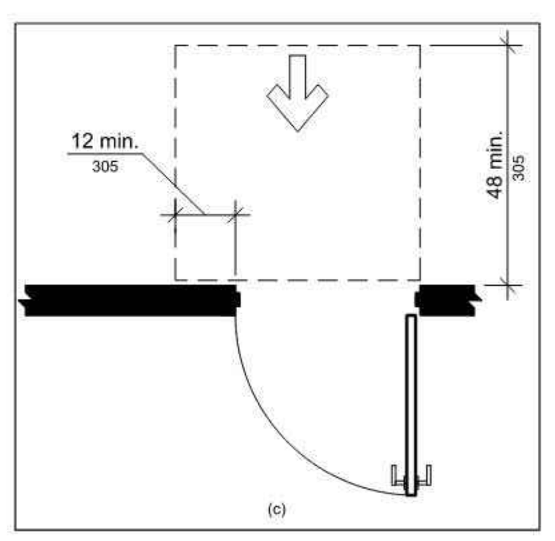
Hardware Group No. G-02-180 (Hardware for {Pair tube steel gates and frame w/ Locinox Mammoth-180 hinges)

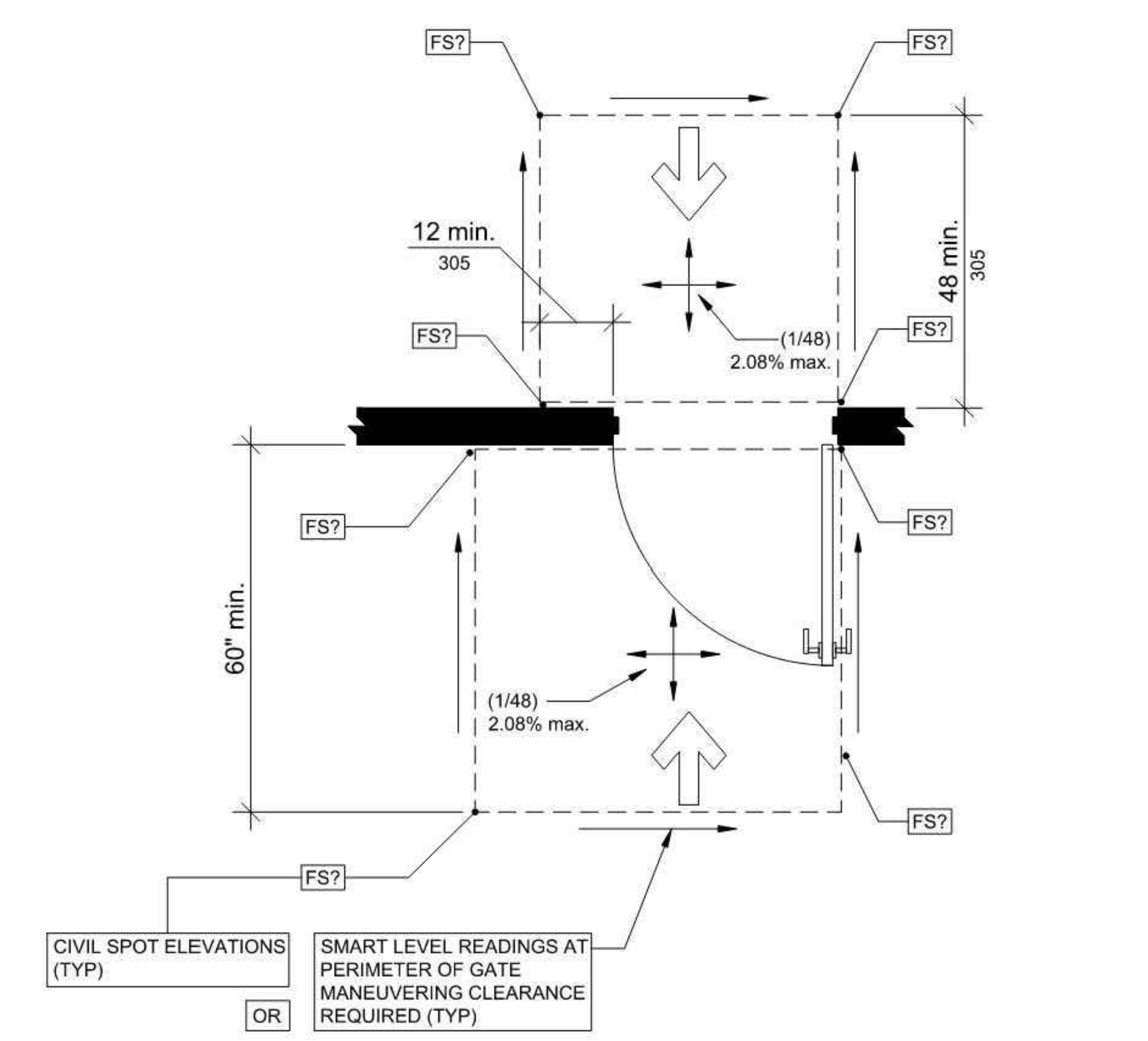
For use on Door #(s):
G-02-180

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	HYDRAULIC GATE PIVOT	MAMMOTH-180	689	LOC
1	EA	CENTER POST	BY GATE SUPPLIER		
1	EA	PANIC HARDWARE	CDSI-PA-AX-99-EO-WH	626	VON
1	EA	PANIC HARDWARE	CDSI-PA-AX-99-NL-OP-110MD-WH	626	VON
1	EA	RIM CYLINDER	MATCH SITE STANDARD	626	TBD
2	EA	MORTISE CYLINDER	MATCH SITE STANDARD (FOR DOGGING)	626	TBD
2	EA	GATE BOX	K-BXED SERIES AS REQUIRED	600	KEE
1	EA	DOOR PULL	VR910 DT	630	IVE
1	EA	DOOR PULL	VR910 NL	630	IVE
2	EA	FLOOR STOP/HOLDER	FS40 SERIES	626	IVE
1	EA	RAIN DRIP	142AA (OMIT WHERE OVERHANG OCCURS)	AA	ZER

BALANCE OF HARDWARE BY GATE MANUFACTURER





GATE MANEUVERING CLEARANCE AND LANDING REQUIREMENTS

APPROVED
DIV. OF THE STATE ARCHITECT
APP: 04-120059 PC
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑ CG ☐
DATE: 07/26/2022

PREPARED FOR THE BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

PREPARED BY FACILITIES PLANNING AND CONSTRUCTION
PROJECT MANAGEMENT DEPARTMENT

HOLLOW METAL GATE & DETAILS

FACILITIES SERVICES DEPARTMENT

OFFICE OF THE SCHOOL DISTRICT ARCHITECT

PROJECT NO. 200004301.00
FILE NAME F-08
DATE 1/13/2022
DRAWN HO
CHECKED KO
REVISIONS
SHEET NO. 12
F-08
OF 13 SHEETS

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04/11/2024

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DRAWN	MBH
CHECKED	TM / JDW
DATE	04/11/2024

SHEET TITLE:
HOLLOW METAL GATE & DETAILS

SHEET NO:
S706

SHEET OF XXX