

TESLA SUPERCHARGER FERGUS FALLS, MN - 623 FRONTIER DR

8 SUPERCHARGERS

APN: 71003991442000

TRT: 18662

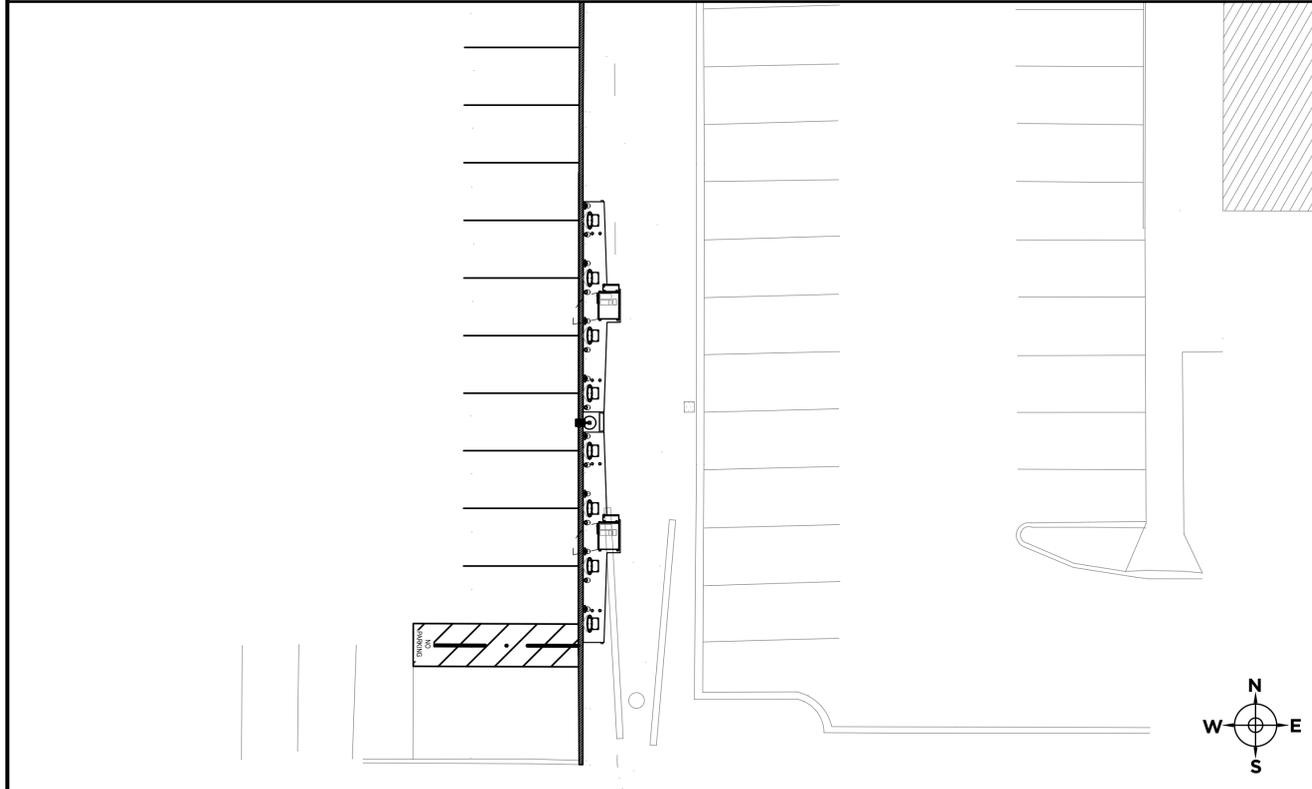


3500 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

ORIGINAL SIZE 24"x36"
SHEET SIZE ARCH "D"




SITE LAYOUT



AERIAL MAP



TESLA SUPERCHARGER_FERGUS FALLS
 8 SUPERCHARGERS
 623 FRONTIER DR,
 FERGUS FALLS, MN, UNITED STATES

NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

COVER PAGE

G-001

JB-565055-00

REV: C IFC

ABBREVIATIONS

AC	ALTERNATING CURRENT	LSIG	LONG TIME, SHORT TIME, INSTANTANEOUS GROUND
ADA	AMERICANS WITH DISABILITIES ACT	LV	LOW-VOLTAGE
BLDG	BUILDING	MAX	MAXIMUM
CLR	CLEAR	MIN	MINIMUM
COMM	COMMUNICATION	MV	MEDIUM-VOLTAGE
CONC	CONCRETE	(N)	NEW
DC	DIRECT CURRENT	NEC	NATIONAL ELECTRIC CODE
DIA	DIAMETER	NIC	NOT IN CONTRACT
DIST	DISTANCE	NRTL	NATIONALLY-RECOGNIZED TESTING LABORATORY
(E)	EXISTING	NTS	NOT TO SCALE
EA	EACH	OC	ON CENTER
EGC	EQUIPMENT GROUNDING CONDUCTOR	PCC	POINT OF COMMON COUPLING
EMT	ELECTRICAL METALLIC TUBING	PL	PROPERTY LINES
EQ	EQUAL	PLC	POWER LINE COMMUNICATION
ERMS	ENERGY REDUCTION MAINTENANCE SETTINGS	PP	POWERPACK
ESS	ENERGY STORAGE SYSTEM	PSU	PRE-ASSEMBLED SUPERCHARGER UNIT
EV	ELECTRIC VEHICLE	PV	PHOTOVOLTAIC
GAB	GRADED AGGREGATE BASE	PVC	POLYVINYL CHLORIDE
GALV	GALVANIZED	RSD	RAPID SHUTDOWN
GEC	GROUNDING ELECTRODE CONDUCTOR	SCCR	SHORT CIRCUIT CURRENT RATING
GFP	GROUND FAULT PROTECTOR	SCH	SCHEDULE
GND	GROUND	SQ. IN.	SQUARE INCHES
HVAC	HEATING, VENTILATION, & AIR CONDITIONING	SS	STAINLESS STEEL
I	CURRENT	SSD	SEE STRUCTURAL DRAWINGS
IMP	CURRENT AT MAX POWER	STC	STANDARD TESTING CONDITIONS
INV	INVERTER	TYP	TYPICAL
ISC	SHORT CIRCUIT CURRENT	UON	UNLESS OTHERWISE NOTED
KVA	KILOVOLT AMPERE	VIF	VERIFY IN FIELD
KW	KILOWATT	W	WATT
KWH	KILOWATT-HOUR		

PROJECT TEAM

STRUCTURAL ENGINEER OF RECORD: KIRILL VORONOV TESLA, INC. 721 FERNCREST RD., TRINIDAD, CA 95570 (818) 943-7621 KVORONOV@TESLA.COM	ELECTRICAL ENGINEER OF RECORD: BILL LOU, PE, PH, D PAULICON CORPORATION 3463 ASHTON COURT PALO ALTO, CA 94306 (650) 269-6888 PAULICONEE@GMAIL.COM
PROJECT DESIGNER: DUSTIN REINHART TESLA, INC. 12832 S. FRONTRUNNER BLVD. DRAPER, UT 84020 (567) 230-3082 DREINHART@TESLA.COM	CIVIL ENGINEER OF RECORD: MICHAEL P. HENDERSON TESLA, INC. 45500 FREMONT BOULEVARD, FREMONT, CA 94538 M:(678) 687-1976 MIHENDERSON@TESLA.COM

DESIGN CRITERIA

- WIND DESIGN
 - DESIGN WIND SPEED = 111 MPH (ULTIMATE)
 - RISK CATEGORY = II
 - WIND EXPOSURE = C
- SEISMIC DESIGN
 - RISK CATEGORY = II
 - SEISMIC IMPORTANCE FACTOR = 1.0
 - SITE CLASS = D
 - S_s = 0.071 / S₁ = 0.021
 - S_{ds} = 0.076 / S_{d1} = 0.033
 - SEISMIC DESIGN CATEGORY = A
 - BASIC SEISMIC-FORCE-RESISTING SYSTEM = NON-STRUCTURAL COMPONENT
 - R = 2.5 / a_p = 1.0
- GROUND SNOW LOAD = 50 PSF

APPLICABLE CODES

2020 MNBC WITH 2018 IBC AMENDMENTS
2020 NATIONAL ELECTRICAL CODE

REFERENCED DOCUMENTS

PRE-ASSEMBLED SUPERCHARGER UNIT INSTALLATION MANUAL
TOPOGRAPHIC SURVEY
UTILITY DESIGN

PROJECT SCOPE

INSTALLATION OF NEW PRE-ASSEMBLED SUPERCHARGER UNITS AND ASSOCIATED AC AND DC EQUIPMENT.

INSTALLATION OF NEW PARKING STRIPING, SIGNAGE AND ADA ACCESS FEATURES.

ASPHALT OVERLAY FOR PROPOSED EV ADA STALLS.

INSTALLATION OF NEW LED LIGHTING.

SYSTEM SUMMARY

SUPERCHARGER SYSTEM SUMMARY	
EQUIPMENT	QTY
PRE-ASSEMBLED SUPERCHARGER UNITS 2.0	2
UTILITY TRANSFORMER	1
CT CABINET	1

SHEET INDEX

SHEET #	SHEET TITLE
G-001	COVER PAGE
G-002	NOTES
G-101	DEMOLITION PLAN
E-101	SITE PLAN
E-201	SINGLE LINE DIAGRAM
E-501	ELECTRICAL DETAILS
S-301	ENLARGED SITE PLAN
S-302	ENLARGED SITE PLAN 2
S-501	STRUCTURAL DETAILS
S-502	STRUCTURAL DETAILS 2
C-101	GRADING PLAN

GENERAL NOTES

ALL WORK SHALL COMPLY WITH ALL STATE AND LOCAL CODES AND ANY OTHER REGULATING AUTHORITIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK.

PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND NOTIFY THE DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FROM TESLA OF ANY DISCREPANCIES. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED AT THE SUBCONTRACTORS SOLE EXPENSE.

SUBCONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO TESLA FOR APPROVAL BEFORE MAKING ANY CHANGES. DEVIATION FROM PLANS BEFORE WRITTEN APPROVAL FROM TESLA PLACES LIABILITY ON THE SUBCONTRACTOR.

ALL EQUIPMENT SHALL BE MOUNTED AS SHOWN, WHERE DETAILS ARE NOT PROVIDED, CONTRACTOR SHALL USE STANDARD CONSTRUCTION PRACTICES.

ALL SURFACES SHALL BE PATCHED AND PAINTED AROUND NEW DEVICES AND EQUIPMENT TO MATCH EXISTING FINISHES.

ANY METAL SHAVINGS FROM SITE WORK SHALL BE CLEANED FROM ALL SURFACES WHERE OXIDIZED OR CONDUCTIVE METAL SHAVINGS MY CAUSE RUST, ELECTRICAL SHORT CIRCUITS, OR OTHER DAMAGE.

APPROVALS FROM BUILDING INSPECTORS SHALL NOT CONSTITUTE AUTHORITY TO DEVIATE FROM THE DRAWINGS.

NEW PAVEMENT INSTALLED AS PART OF THIS PROJECT SHALL MATCH EXISTING PAVEMENT SECTION. ASPHALT AND GAB DEPTHS SHALL BE MAINTAINED.

ELECTRICAL NOTES

GENERAL NOTES

- ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AS AMENDED BY APPLICABLE STATE AND LOCAL CODES.
- ALL WIRING SHALL BE MANAGED IN A PROFESSIONAL, WORKMAN-LIKE MANNER AND MUST BE SUPPORTED, SECURED, AND PROTECTED TO PREVENT DAMAGE.
- AC CIRCUIT CONDUCTORS SHALL BE IDENTIFIED BY PHASE AND SYSTEM PER ART 210.5 OR 215.12. UNLESS OTHERWISE REQUIRED BY ART 210.5(1) OR AHJ, COLOR-CODING OF POWER CONDUCTORS SHALL BE AS FOLLOWS:

CONDUCTOR	277/480V	120/208V
PHASE A	BROWN	BLACK
PHASE B	ORANGE	RED
PHASE C	YELLOW	BLUE
NEUTRAL	GRAY	WHITE

- DC CIRCUIT CONDUCTORS SHALL BE IDENTIFIED PER ART 210.5 OR 215.12:
- | CONDUCTOR | STD COLOR | ALT COLOR |
|-----------|-----------|---------------|
| DC+ | RED | RED-STRIPED |
| DC- | BLACK | BLACK-STRIPED |

- TERMINATIONS OF AC, DC, AND COMMUNICATIONS CONDUCTORS SHALL BE PROFESSIONALLY AND LEGIBLY LABELED WITH CIRCUIT SCHEDULE IDENTIFIER, CONDUCTOR SIZE (AS APPLICABLE) AND TERMINATION TORQUE.
- ALL EQUIPMENT SHALL BE LISTED BY A NRTL IN COMPLIANCE WITH ART 110.3. WHERE EXISTING NRTL LISTING CANNOT BE MAINTAINED, ENGINEERING APPROVAL SHALL BE OBTAINED PRIOR TO EQUIPMENT MODIFICATION, AND THE EQUIPMENT SHALL BE RELISTED BY A SUITABLE NRTL.
- UNDERGROUND CONDUCTORS & CABLES TO BE INSTALLED IN CONDUIT UON.
- ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY NRTL LISTING.
- REFER TO MANUFACTURER'S CURRENT PLANNING AND INSTALLATION MANUAL FOR TORQUE SPECS FOR ALL BOLTS AND TERMINAL CONNECTIONS.
- ALL CONDUCTOR TERMINATIONS ON BUSSING OR TRANSFORMER SPADES SHALL BE MADE WITH HIGH-PRESS CRIMP LUGS UON.
- ALL TERMINATIONS OF ALUMINUM CONDUCTORS SHALL BE PROPERLY INSTALLED WITH BEST PRACTICES INCLUDING BUT NOT LIMITED TO:
 - USE OF TERMINATION EQUIPMENT RATED FOR ALUMINUM AT THE CONDUCTOR TEMPERATURE, CURRENT, AND VOLTAGE
 - ALLOWANCE FOR MOVEMENT DUE TO THERMAL EXPANSION/CONTRACTION
 - PROPER COATING OF EXPOSED ALUMINUM WITH ANTI-OXIDIZATION COMPOUND
 - USE OF CALIBRATED DEVICES TO TORQUE AND MARK TERMINALS TO REQUIRED SETTINGS
- DUCT SEAL COMPOUND SHALL BE APPLIED WHEREVER CONDUITS TRANSITION INDOOR/OUTDOOR OR UNDERGROUND/ABOVEGROUND. REFER TO EQUIPMENT NOTES FOR ADDITIONAL DUCT SEAL REQUIREMENTS.
- BELL ENDS SHALL BE INSTALLED WHEREVER CONDUIT ENTERS EQUIPMENT FROM UNDERGROUND AND WHEREVER POTENTIAL FOR DAMAGE TO CONDUCTORS IS PRESENT AT ANY POINT. BELL ENDS SHALL NOT PREVENT THE USE OF GROUNDING FITTINGS OR COUPLERS WHEN REQUIRED.
- ALL STUB-UPS WITHIN FLOOR-MOUNTED EQUIPMENT SHALL BE 3-5" ABOVE FINISHED GRADE.
- ALL CONDUITS EXPOSED TO VEHICULAR OR EQUIVALENT PHYSICAL DAMAGE SHALL BE RIGID GALVANIZED STEEL.
- GROUND LUGS SHALL BE RATED FOR THEIR ENVIRONMENT AND CONDITION OF USE.

SUPERCHARGER NOTES

- NEUTRAL MUST BE INCLUDED FOR PROPER OPERATION OF TESLA SUPERCHARGERS.
- ALL CONDUIT FURNISHED AND INSTALLED BY CONTRACTOR. ALL WIRING FURNISHED BY TESLA AND INSTALLED BY CONTRACTOR.
- ALL BUSHINGS AND WIRING INTERNAL OF PROPOSED SERVICE EQUIPMENT PROVIDED BY MANUFACTURER. ANY MODIFICATIONS SHALL REQUIRE ENGINEERING APPROVAL PRIOR TO ANY CHANGES BEING MADE.
- ALL ALUMINUM(AI) CONDUCTORS TO RECEIVE ANTI-OXIDATION COATING DURING INSTALLATION. ALL OTHER CONDUCTORS ARE COPPER UNLESS OTHERWISE NOTED.
- THE FOLLOWING CHARGING CABINETS AND THE CHARGING POSTS USED ON THIS PROJECT COMPLY WITH THE FOLLOWING STANDARDS:
 - IEC 61851-23: 2014 / EN 61851-23: 2014
 - UL 2202: 2009(R2012)
 - CAN CSA C22.2 NO. 107.1-01(R2011)
- THE AFOREMENTIONED STANDARDS IDENTIFY THE REQUIREMENTS MET BY THE EQUIPMENT, INCLUDING BUT NOT LIMITED TO:
 - PROTECTION AGAINST ELECTRIC SHOCK
 - OVERLOAD AND SHORT CIRCUIT PROTECTION
 - FAULT PROTECTION
 - DEGREES OF PROTECTION AGAINST ACCESS TO HAZARDOUS LIVE PARTS
 - THE INTERNAL COMPONENTS OF THE SYSTEM ARE PROPRIETARY. ANY QUESTIONS CONCERNING ACTUAL INTERNAL PROTECTIVE DEVICES MUST BE COORDINATED DIRECTLY WITH TESLA.
- TESLA SUPERCHARGER SIGNAL WIRING RATED 1000V AND USED FOR POWER LIMITED CLASS 1 CIRCUITS SHALL BE PERMITTED TO RUN IN CONDUITS, CABLE TRAYS, WIRE WAYS, OR RACEWAYS ALONG WITH ASSOCIATED DC CONDUCTORS AS ALLOWED PER NEC 725.48(B)(1) AND 620.36.
- SUPERCHARGER CABINET AC CONDUCTORS SIZED UNDER ENGINEERING SUPERVISION USING THERMAL MODELING SOFTWARE. SPECIFICATIONS ABOUT THE TRENCHING REQUIREMENTS ARE SHOWN IN E-501
- FOR DC RUNS IN EXCESS OF 330 FEET, CONTACT TESLA.
- UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC OR UL LISTED HDPE. THE ABOVEGROUND PORTION OF AN UNDERGROUND/ABOVEGROUND TRANSITION SHALL BE SCHEDULE 80 PVC OR UL LISTED HDPE.
- ABOVEGROUND CONDUITS EXPOSED TO VEHICULAR OR EQUIVALENT PHYSICAL DAMAGE SHALL BE RMC. ABOVEGROUND CONDUITS NOT EXPOSED TO VEHICULAR OR EQUIVALENT DAMAGE SHALL BE PERMITTED TO BE EMT.
- IF APPROVED BY TESLA CONSTRUCTION MANAGER, ALTERNATIVE CONDUIT MATERIALS SUCH AS FLEXIBLE OR FIBERGLASS ARE PERMISSIBLE IF INSTALLED PER MANUFACTURER INSTALLATION GUIDELINES AND LOCAL CODES.
- WIRE SPLICES ARE NOT PERMITTED TO EXTEND WIRE RUN LENGTH. CONTRACTOR IS RESPONSIBLE FOR RERUNNING FULL LENGTH OF WIRE IF RUN LENGTH IS MISCALCULATED.
- SPECIAL INSPECTION IS REQUIRED FOR ALL POST-INSTALLED CONCRETE ANCHORS.
- PLANT GUARANTEE: CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF PROJECT ACCEPTANCE BY THE OWNER. CONTRACTOR IS RESPONSIBLE FOR PLANT MAINTENANCE FOR THE FIRST GROWING SEASON.
- IF EXISTING GRASS IS DAMAGED/REMOVED DURING CONSTRUCTION, CONTRACTOR SHALL APPLY SEED PER HYDROSEED METHOD. RATING OF SEED SHALL BE PER DISTRIBUTOR BASED ON SPECIES TYPE.
- CONTRACTOR SHALL MATCH EXISTING LANDSCAPE; USE GRASS, RIVER ROCK, MULCH ETC. TO MATCH EXISTING LANDSCAPE AROUND EQUIPMENT, UNLESS OTHERWISE NOTED.
- CONTRACTOR TO INSTALL WEED BARRIER IN FRONT OF SUPERCHARGER CABINETS AND SWITCHBOARD. BARRIER TO EXTEND FULL WIDTH AND DEPTH OF NEC REQUIRED WORKING CLEARANCES.

SCOPE OF WORK

UTILITY ITEMS	OTTER TAIL POWER CO	
	TESLA	UTILITY
PROVIDE PRIMARY SIDE TRENCHING		X
PROVIDE & INSTALL PRIMARY SIDE CONDUITS		X
PROVIDE AND INSTALL PRIMARY SIDE CONDUCTORS		X
PROVIDE AND INSTALL UTILITY TRANSFORMER PAD	X	
PROVIDE UTILITY TRANSFORMER		X
INSTALL UTILITY TRANSFORMER		X
INSTALL CONNECTIONS AT UTILITY TRANSFORMER (PRIMARY)		X
INSTALL CONNECTIONS AT UTILITY TRANSFORMER (SECONDARY)		X
PROVIDE METER BASE (UTILITY TO PROVIDE SPECS)		X
INSTALL METER BASE		X
PROVIDE METER		X
INSTALL METER		X
PROVIDE CTs		X
INSTALL CTs (INSIDE CT CABINET)		X
PROVIDE SECONDARY SIDE TRENCHING	X	
PROVIDE SECONDARY SIDE CONDUITS W/ PULL WIRE	X	
PROVIDE & INSTALL SECONDARY SIDE CONDUCTORS		X
PROVIDE ROAD CUTS/ROAD BORES/PAVEMENT REPLACEMENT		X
PROVIDE & INSTALL LANDSCAPE REMEDIATION		X

SITE LEGEND

- (E) ACCESSIBLE PARKING SPACE
- (E) TREE
- (E) LIGHT POLE
- (E) FIRE HYDRANT
- (E) ELECTRIC MANHOLE
- (E) GAS MANHOLE
- (E) SANITARY SEWER MANHOLE
- (E) STORM MANHOLE
- (E) TELEPHONE MANHOLE
- (E) TELEVISION MANHOLE
- (E) UNKNOWN MANHOLE
- (E) POTABLE WATER MANHOLE
- (E) FIRE HYDRANT
- (E) CLEANOUT
- (E) GUY WIRE - ELECTRIC
- (E) UTILITY POLE - ELECTRIC
- (E) GUY WIRE
- (E) UTILITY POLE - TELEPHONE
- (E) SPRINKLER HEAD
- (E) WATER RISER
- (E) GAS VALVE
- (E) HOSE BIB
- (E) IRRIGATION VALVE
- (E) CATCH BASIN
- (E) WATER VALVE

- UGE — UNDERGROUND ELECTRIC LINE
- S — UNDERGROUND STORM DRAIN LINE
- WL — UNDERGROUND WATER LINE
- G — UNDERGROUND GAS LINE
- OE — OVERHEAD ELECTRIC LINE
- UT — UNDERGROUND TELEPHONE LINE
- S — UNDERGROUND SANITARY SEWER LINE

3500 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

ORIGINAL SIZE 24"x36"
SHEET SIZE ARCH "D"

TESLA SUPERCHARGER_FERGUS FALLS
 8 SUPERCHARGERS
 623 FRONTIER DR,
 FERGUS FALLS, MN, UNITED STATES

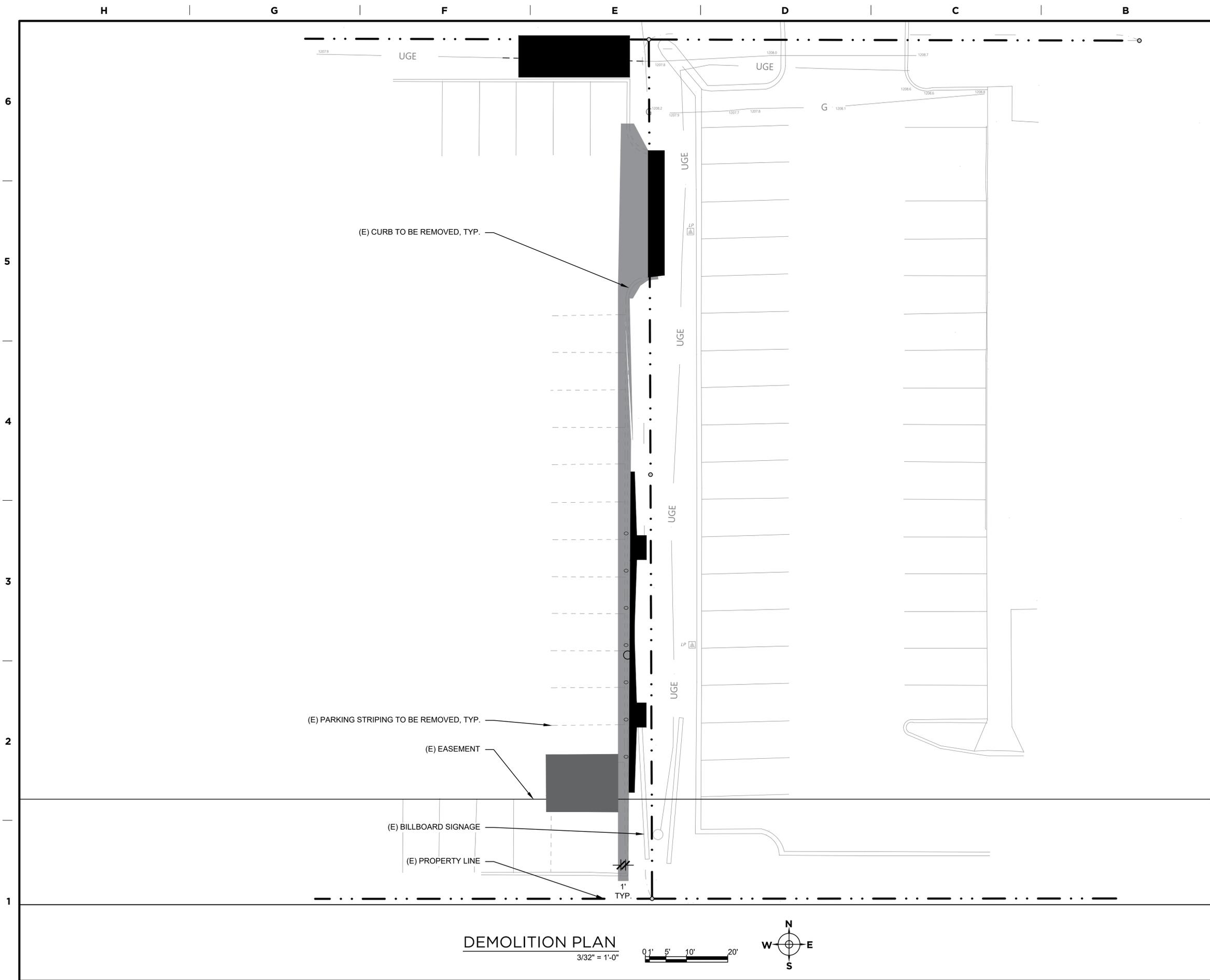
NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

NOTES

G-002

JB-565055-00

REV: C	IFC
--------	-----



NOTES

THE CONTRACTOR SHALL REFER TO THE TRENCHING DETAILS ON THE ELECTRICAL DETAILS SHEET.

THE LIMITS OF HARDSCAPE REMOVAL ARE SHOWN AS FOR INFORMATION ONLY AND IT SHALL BE UP TO THE CONTRACTOR TO DETERMINE THE EXACT LIMITS.

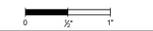
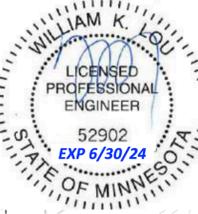
SITE LEGEND

-  ANY (E) OBJECT TO BE DEMOLISHED
-  ANY (E) ELEMENT TO BE REMOVED
-  HARDSCAPED AREA TO BE MODIFIED
-  SOFTSCAPED AREA TO BE MODIFIED

TESLA

3500 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

ORIGINAL SIZE 24"x36"
SHEET SIZE ARCH "D"

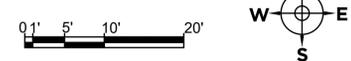



TESLA SUPERCHARGER_FERGUS FALLS
8 SUPERCHARGERS

623 FRONTIER DR,
FERGUS FALLS, MN, UNITED STATES

NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

DEMOLITION PLAN
3/32" = 1'-0"

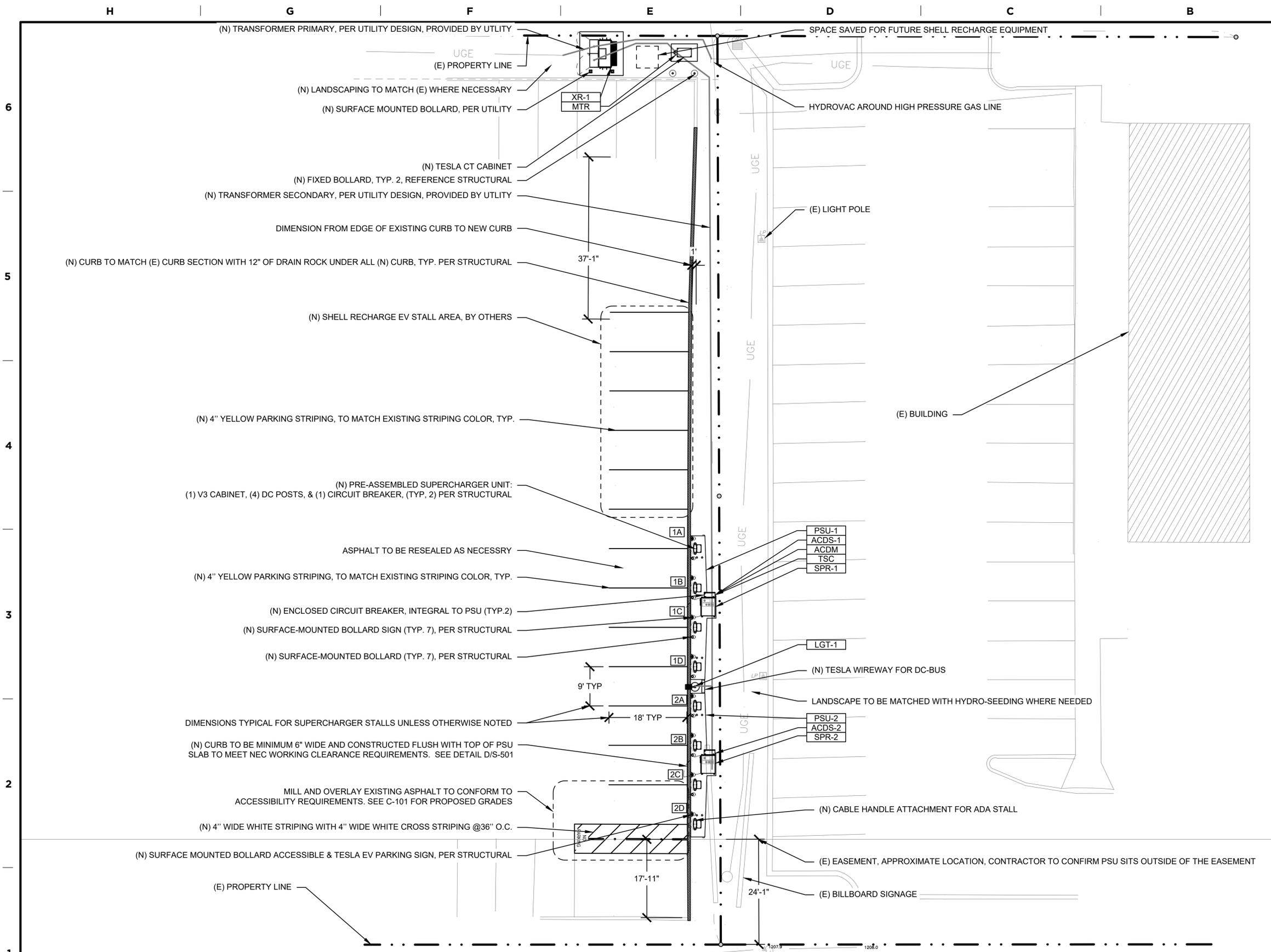


DEMO PLAN

G-101

JB-565055-00

REV: C IFC



SITE LEGEND

- (N) CONDUIT ROUTE, SHOWN FOR DIAGRAMMATIC PURPOSES ONLY.
- (N) FIXED BOLLARD
- (N) REMOVABLE BOLLARD
- (N) SIGN
- (N) BOLLARD SIGN
- (N) CONCRETE CURB
- (N) ASPHALT SEAL COAT

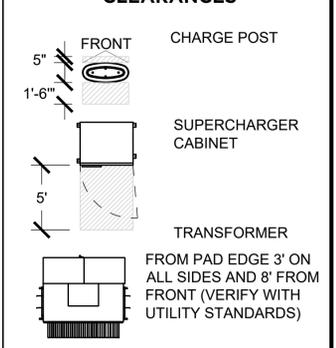
PARKING STALL SCHEDULE

EXISTING STANDARD STALLS UTILIZED AS A RESULT OF THIS PROJECT	9
PROPOSED TESLA STALLS	8
PROPOSED STANDARD STALLS	0
NET STALL COUNT	-1

CHARGING STALLS SCHEDULE

SUPERCHARGER CABINET	POST TAG	SIGN TYPE
1	1A	DEDICATED
	1B	DEDICATED
	1C	DEDICATED
	1D	DEDICATED
2	2A	DEDICATED
	2B	DEDICATED
	2C	DEDICATED
	2D	DEDICATED & ACCESSIBLE

MINIMUM SERVICE CLEARANCES



NOTES:

- UTILITY EQUIPMENT/FOUNDATION DIMENSIONS AND LOCATIONS PER UTILITY. CONTRACTOR TO VERIFY AGAINST EXECUTED UTILITY DESIGN.
- UTILITY BOLLARDS PER UTILITY REQUIREMENTS. CONTRACTOR TO VERIFY AND COORDINATE WITH UTILITY ON LOCATION, QUANTITY, AND SPECS.
- CONTRACTOR TO REFER TO EXECUTED UTILITY DESIGN FOR PRIMARY AND POINT OF CONNECTION DETAILS.
- FOR (N) ACCESSIBLE EV CHARGING AREA(S), CONTRACTOR TO FIELD VERIFY SLOPES ARE COMPLIANT PER ACCESSIBLE STALL DETAIL (REF. ARCHITECTURAL OR STRUCTURAL SHEETS). REGRADE AND ADD ASPHALT OVERLAY, NEW FULL DEPTH ASPHALT, AND/OR ASPHALT MILLING IF REQUIRED. EXISTING SPOT ELEVATIONS ARE APPROXIMATE PER SURVEY DATA AND ARE TO BE FIELD VERIFIED BY CONTRACTOR.

TESLA

3500 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

ORIGINAL SIZE 24"x36"
SHEET SIZE ARCH "D"

WILLIAM K. LOU
LICENSED PROFESSIONAL ENGINEER
52902
EXP 6/30/24
STATE OF MINNESOTA

TESLA SUPERCHARGER_FERGUS FALLS
 8 SUPERCHARGERS
 623 FRONTIER DR,
 FERGUS FALLS, MN, UNITED STATES

NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

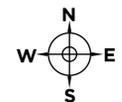
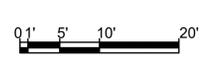
SITE PLAN

E-101

JB-565055-00

REV: C IFC

ELECTRICAL SITE PLAN
3/32" = 1'-0"



ACDM MONITORING EQUIPMENT DISCONNECT

PSU-# PRE-ASSEMBLED SUPERCHARGER UNIT

ACDS-# AC SERVICE DISCONNECT

XR-# TRANSFORMER (PROVIDED BY UTILITY PER UTILITY DESIGN)

SPR-# SUPERCHARGER CABINET

TSC TESLA SITE CONTROLLER UTILITY METER (PROVIDED BY UTILITY PER UTILITY DESIGN)

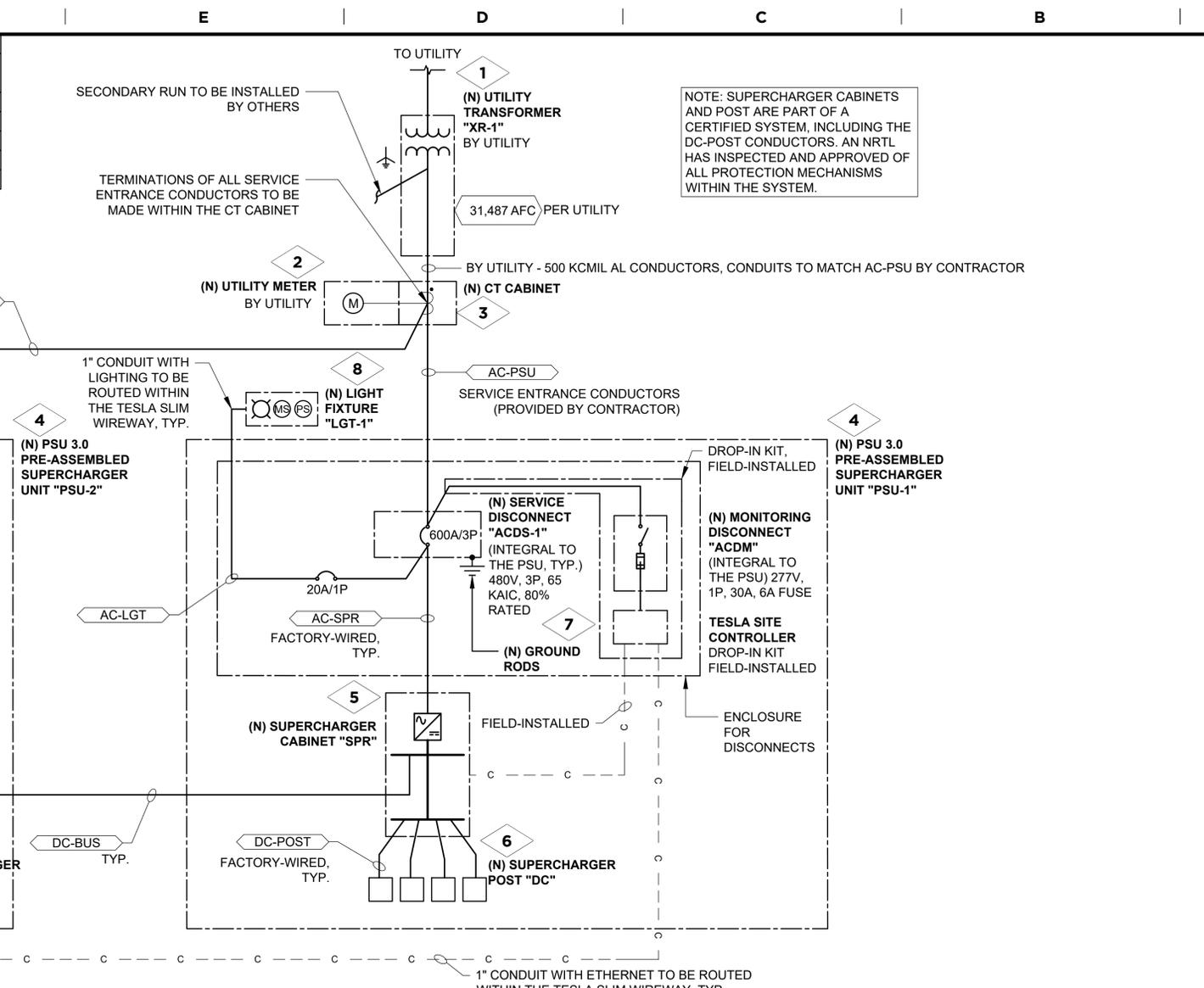
MTR SUPERCHARGER POST

#X DEDICATED

PARKING SIGNS, REF A-501



LOAD SCHEDULE				
TRIP AMPS	DESCRIPTION	VOLT-AMPS		
		A	B	C
600	SUPERCHARGER #1	129,000	-	-
"	"	-	129,000	-
"	"	-	-	129,000
-	LIGHTING	75	-	-
-	MONITORING	-	100	-
TOTALS		258 kVA	258 kVA	258 kVA
		931 A	931 A	931 A



BREAKER SETTINGS

NOTE: CONTRACTOR TO VERIFY BREAKER MODEL IN FIELD AND USE THE CORRESPONDING BREAKER SETTINGS TABLE IF THE BREAKER MODEL DOES NOT MATCH EITHER TABLE. VERIFY SETTINGS WITH ELECTRICAL ENGINEER OF RECORD.

PSU INTEGRAL BREAKER	
EATON PD-3 THERMAL-MAG TRIP UNIT (600A TRIP)	SQUARE D LJ W/ U31 TRIP UNIT (600A TRIP)
INSTANTANEOUS (I): 5 (3000A)	LONG DELAY PICKUP (L): 1 (600A) LONG TIME DELAY (L): 0.5s INSTANTANEOUS (I): 5 (3000A)

SYSTEM PLACARDS

SERVICE DISCONNECT 1 OF 2. 2ND DISCONNECT LOCATED AT PSU-2	SERVICE DISCONNECT 2 OF 2. 1ST DISCONNECT LOCATED AT PSU-1	TESLA EV SYSTEM DISCONNECT
ATTACH AT PSU #1 SERVICE DISCONNECT	ATTACH AT PSU #2 SERVICE DISCONNECT	ATTACH AT ALL PSU DISCONNECTS

WARNING
TESLA EV SITE CONTROLLER (TSC) IS STILL LIVE WHEN EV SYSTEM DISCONNECT IS IN THE "OFF" POSITION. TSC DISCONNECT LOCATED BEHIND PANEL

ATTACH ON EXTERIOR OF TESLA SITE CONTROLLER PANEL AT PSU SERVICE DISCONNECT

TESLA SUPERCHARGER
623 FRONTIER DR
1-877-798-3752

PLACARD NOTES:
ATTACH AT ALL PSU DISCONNECTS

AC CIRCUIT SCHEDULE

CIRCUIT #	CONDUCTOR METAL UON	# OF CONDUITS	# PHASE CONDUCTORS PER CONDUIT	PHASE CONDUCTOR SIZE	NEUTRAL CONDUCTOR SIZE	EGC	GEC SIZE (CU)	MAX CIRCUIT LENGTH	WIRE TYPE	CONDUIT TYPES	MIN CONDUIT SIZE (IN)
AC-PSU (PROVIDED BY CONTRACTOR)	AL	2	3	500 KCMIL	500 KCMIL	-	-	300'-0"	XHHW-2	PVC, RMC, EMT	4
AC-SPR (FACTORY WIRED)	AL	2	3	500 KCMIL	500 KCMIL	1 AWG (CU)	-	600'-0"	XHHW-2	PVC, RMC, EMT	4
AC-LGT	CU	1	1	12 AWG	12 AWG	12 AWG	-	150'-0"	THWN-2	PVC, RMC, EMT	1

DC CIRCUIT SCHEDULE

CIRCUIT #	CONDUCTOR METAL UON	# OF CONDUITS	# PHASE CONDUCTORS PER CONDUIT	PHASE CONDUCTOR SIZE	EGC	SIGNAL WIRE	DC MID	MAX CIRCUIT LENGTH	WIRE TYPE	CONDUIT TYPES	MIN CONDUIT SIZE (IN)	WIREWAY
DC-POST (FACTORY WIRED)	AL	1	4	350 KCMIL	1 AWG (CU)	TESLA PROVIDED	-	330'	XHHW-2 (1000V)	PVC, RMC, EMT	4	-
DC-BUS	AL	2	2	600 KCMIL	1/0 AWG (CU)	-	3/0 AWG	900'	XHHW-2 (1000V)	PVC, RMC, EMT	3.5	TESLA SLIM 6' x 8.25"

EQUIPMENT NOTES

- (N) UTILITY TRANSFORMER "XR-1"
 - SIZE & PRIMARY VOLTAGE PER UTILITY
 - SECONDARY 480Y/277V
- (N) UTILITY METER
 - METER # TBD
- (N) CT CABINET
 - AMERICAN MIDWEST POWER #SCC10-16T
 - ACCEPTS 2-HOLE BAR TYPE CTS
 - NEMA 3R, 1000A, 600V, 85 KAIC
 - 39"X24"X60"
- (N) PSU 3.0 PRE-ASSEMBLED SUPERCHARGER UNIT "PSU"
 - (1) SUPERCHARGER CABINET "SPR" PER UNIT
 - (4) SUPERCHARGER POSTS "DC" PER UNIT
 - INTEGRAL 600A CIRCUIT BREAKER SERVICE ENTRANCE RATED
 - FACTORY PRE-WIRED DC-POST CIRCUIT
 - FACTORY PRE-WIRED AC-SPR CIRCUIT
 - (2) PSU's TOTAL
- (N) SUPERCHARGER CABINET "SPR"
 - (2) SUPERCHARGER CABINETS
 - 480VAC, 3PH, 4W
 - 465A MAX AC INPUT
 - DC OUTPUT TO 4 CHARGE POSTS MAX EACH SUPERCHARGER CABINET
 - 85 kA SCCR
- (N) SUPERCHARGER POST "DC"
 - 250KW
 - (8) SUPERCHARGER POSTS
 - 0 VDC - 500 VDC
- (N) GROUND RODS
 - COPPER
 - SEE E-501 FOR MORE DETAILS

LEGEND

	BUSSING
	CONDUCTORS
	SHIELDED CAT6 CABLE
	CIRCUIT BREAKER
	SWITCH
	FUSE
	CURRENT TRANSFORMER
	POWER TRANSFORMER
	DELTA TRANSFORMER WINDING
	WYE TRANSFORMER WINDING
	GROUND WYE TRANSFORMER WINDING
	EQPT. ENCLOSURES
	METER
	AC-DC OR DC-AC CONVERTER
	LIGHT WITH MOTION AND PHOTO SENSOR

3500 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

ORIGINAL SIZE 24"X36"
SHEET SIZE ARCH "D"

TESLA SUPERCHARGER_FERGUS FALLS
8 SUPERCHARGERS

623 FRONTIER DR,
FERGUS FALLS, MN, UNITED STATES

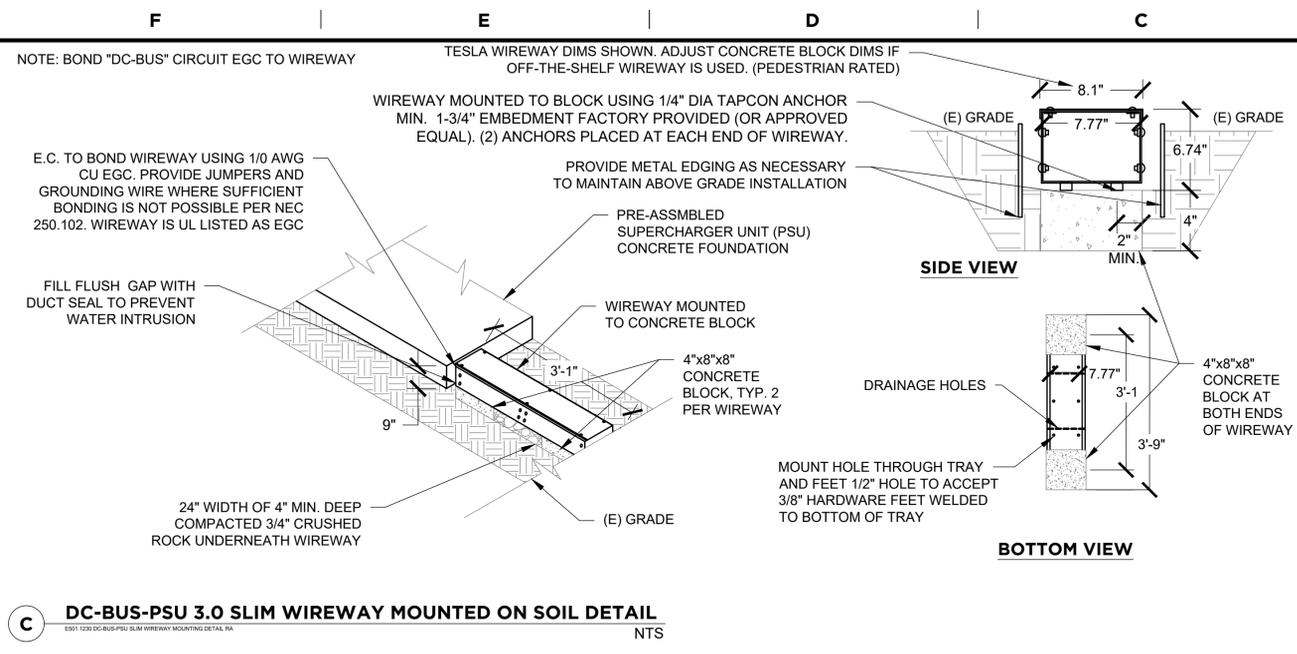
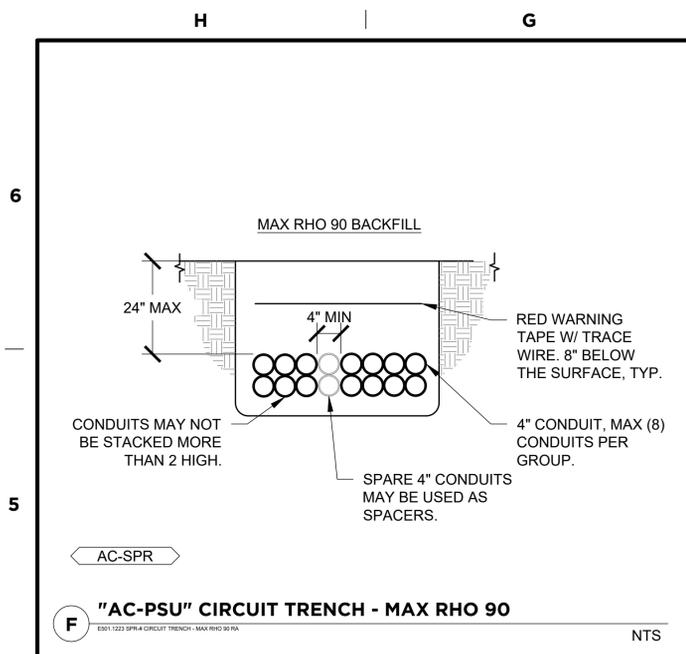
NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

SINGLE LINE DIAGRAM

E-201

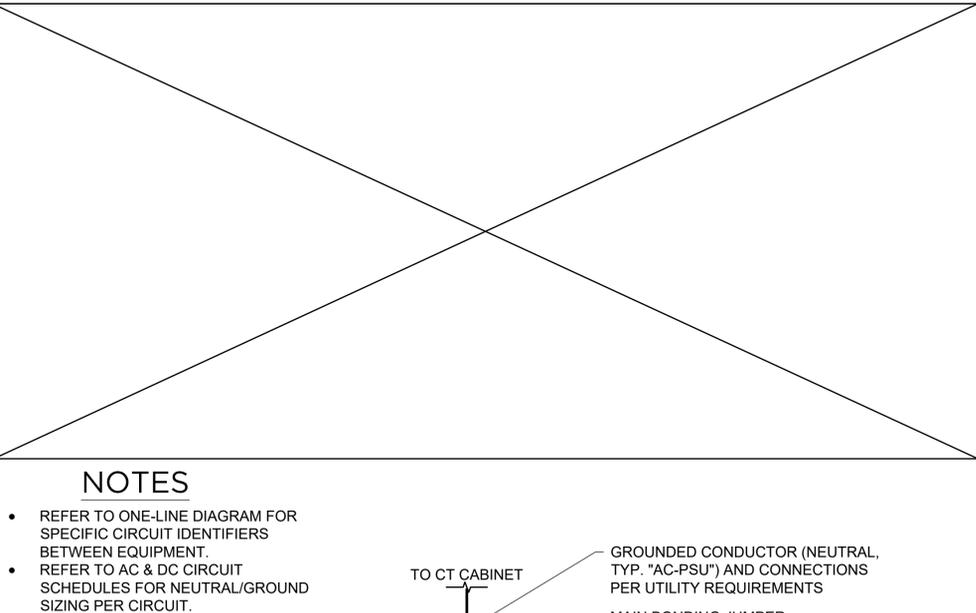
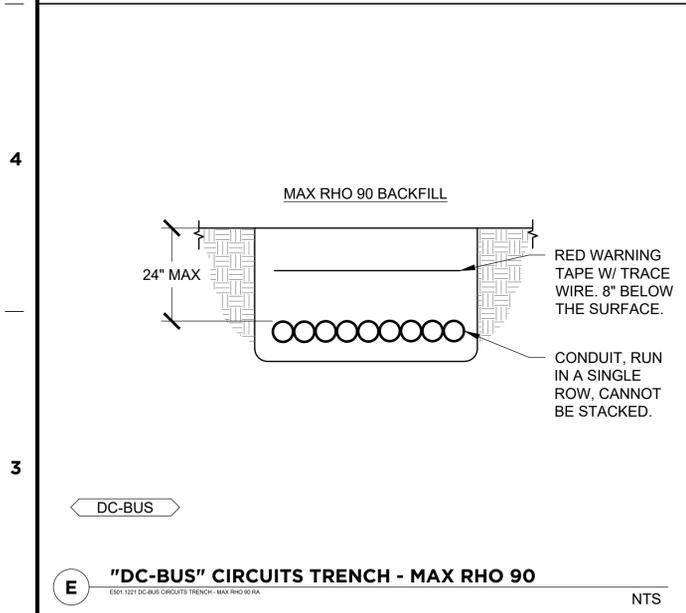
JB-565055-00

REV: C IFC



TRENCHING NOTES

- THE TRENCH DESIGNS FOR AC-SPR, DC-POST, AND DC-BUS CIRCUITS ARE THE RESULT OF A THERMAL ANALYSIS OF THE CONDUCTORS UNDER LOAD. FOR PROPER PROTECTION THEY MUST BE FOLLOWED.
- APPROVED BACKFILL IS REQUIRED TO MEET THE DESIGNED RHO VALUES. USE THE SPECIFIED BACKFILL LISTED BELOW OR TEST NATIVE SOIL CONDITIONS TO CONFIRM MAX DEFINED RHO VALUES. MINIMUM 2" OF APPROVED BACKFILL COVERAGE AROUND CONDUITS REQUIRED.
- RHO 60 BACKFILL** - CONCRETE BACKFILL WITH MIN 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI MUST BE USED TO ACHIEVE MAX RHO 60.
- RHO 90 BACKFILL** - LOW STRENGTH FLUIDIZED THERMAL (SLURRY) BACKFILL WITH MIN 28 DAY COMPRESSIVE STRENGTH OF 150 PSI MUST BE USED TO ACHIEVE MAX RHO 90.
- FOR TRENCHES WITH MIXED CIRCUIT TYPES, APPLY THE CONDUIT SPACING FOR THE CIRCUIT TYPE WITH THE LARGER SPACING REQUIREMENT.
- CONDUIT TO BE INSTALLED TO A MAX COVER OF 24". COVER MAY BE REDUCED PER THE NEC TABLE 300.5.
- CONDUIT ARE PERMITTED TO HAVE GREATER THAN 24" COVER FOR SHORT DISTANCES WHERE REQUIRED TO CROSS UNDER (E) UTILITY LINES, TO ALLOW FOR NEC REQUIRED MIN RADIUS FOR CONDUIT TURN-UPS INTO PAD-MOUNTED EQUIPMENT, TO AVOID (E) OBSTRUCTIONS, ETC.

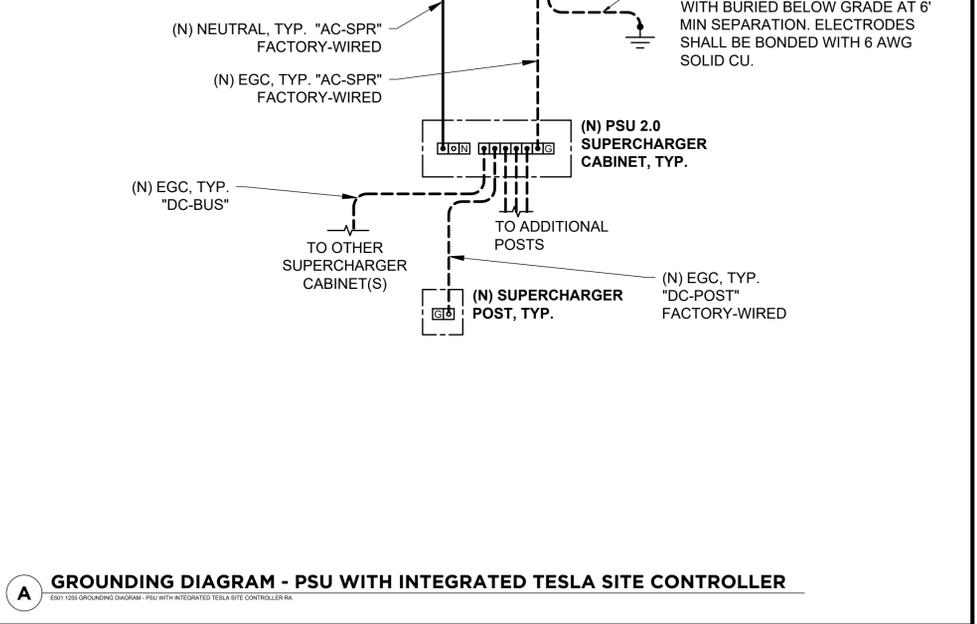
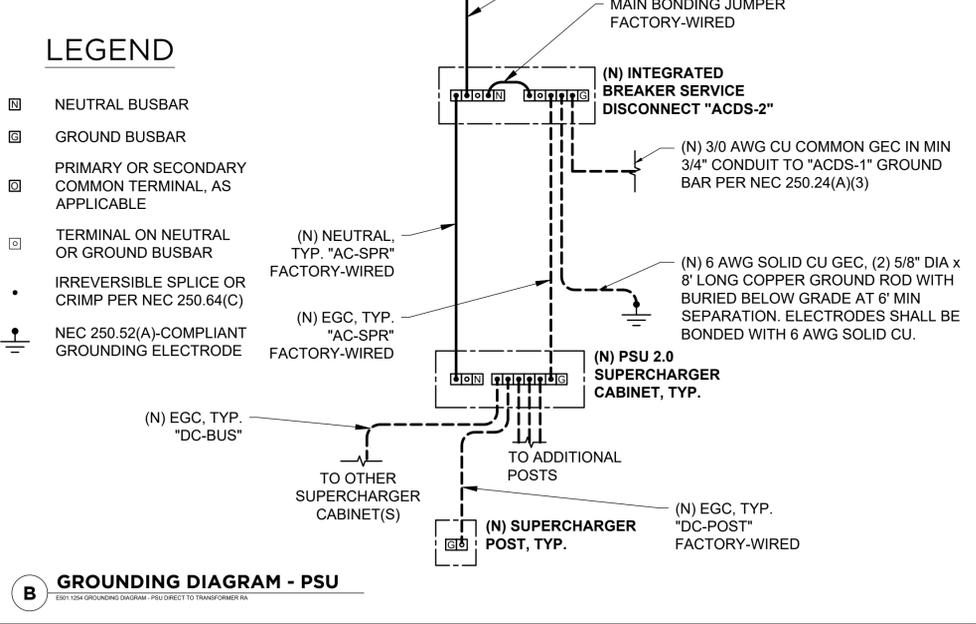
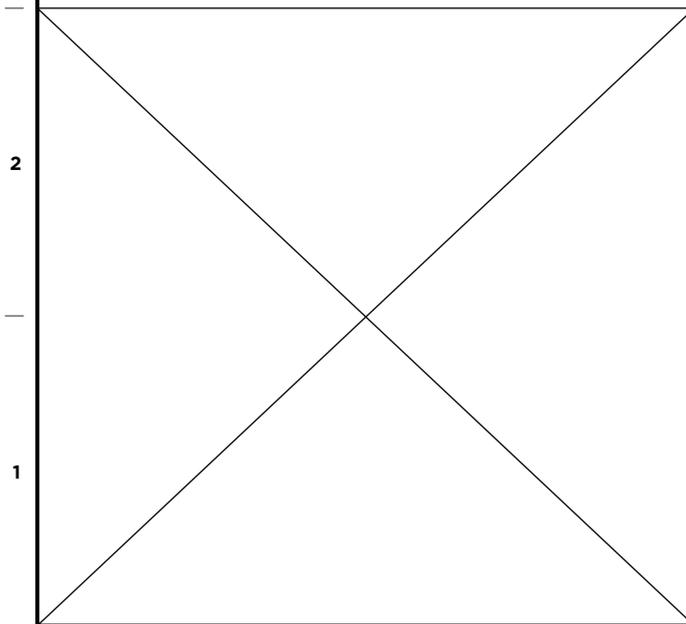


NOTES

- REFER TO ONE-LINE DIAGRAM FOR SPECIFIC CIRCUIT IDENTIFIERS BETWEEN EQUIPMENT.
- REFER TO AC & DC CIRCUIT SCHEDULES FOR NEUTRAL/GROUND SIZING PER CIRCUIT.

LEGEND

- Ⓝ NEUTRAL BUSBAR
- Ⓞ GROUND BUSBAR
- Ⓚ PRIMARY OR SECONDARY COMMON TERMINAL, AS APPLICABLE
- Ⓛ TERMINAL ON NEUTRAL OR GROUND BUSBAR
- IRREVERSIBLE SPLICE OR CRIMP PER NEC 250.64(C)
- Ⓜ NEC 250.52(A)-COMPLIANT GROUNDING ELECTRODE



3500 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

ORIGINAL SIZE 24"x36"
SHEET SIZE ARCH "D"

TESLA SUPERCHARGER_FERGUS FALLS
8 SUPERCHARGERS

623 FRONTIER DR,
FERGUS FALLS, MN, UNITED STATES

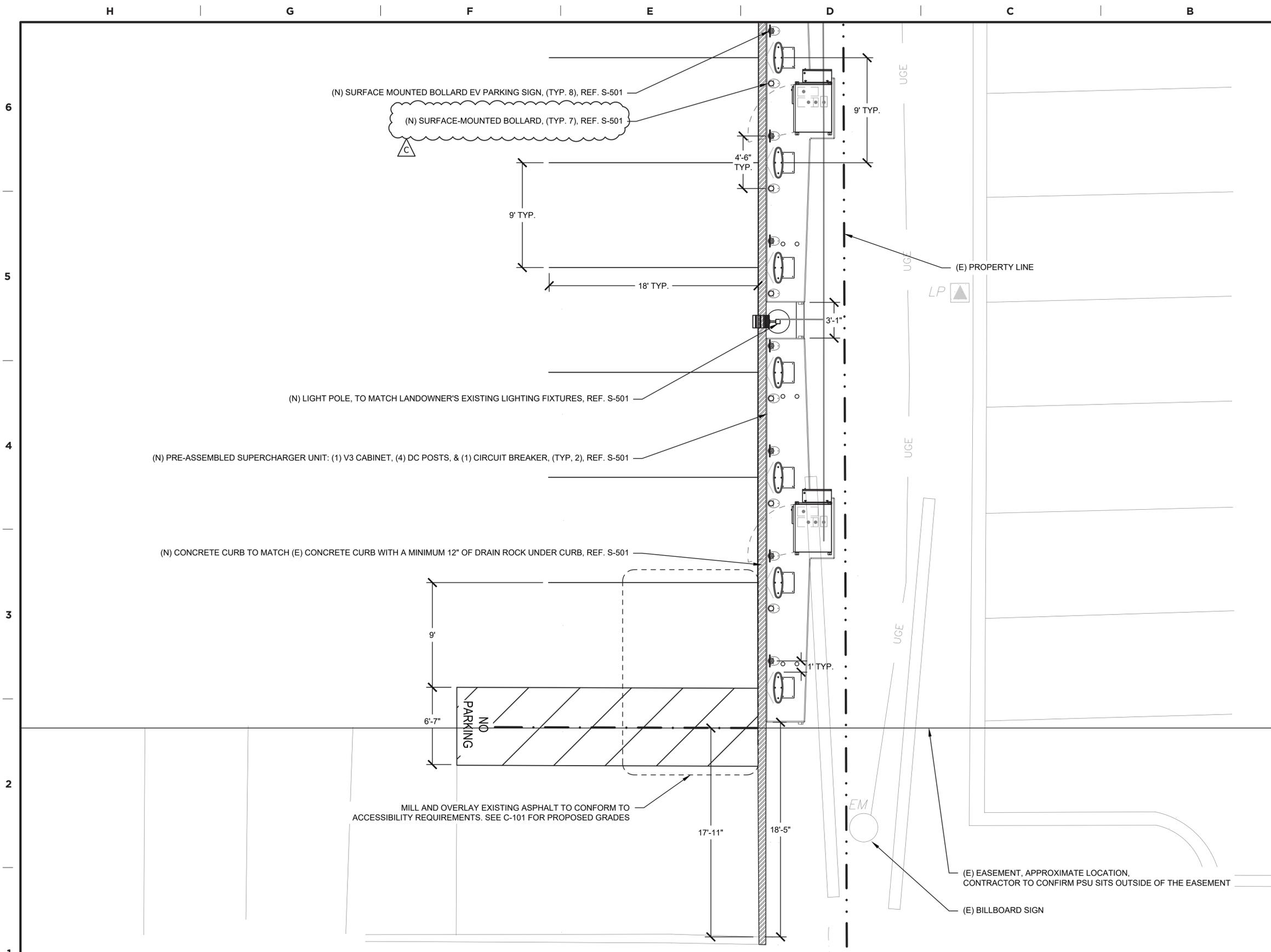
NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

ELECTRICAL DETAILS

E-501

JB-565055-00

REV: C IFC



SITE LEGEND

- (N) SUPERCHARGER POST
- (N) SIGN
- (N) CONCRETE CURB
- (N) ASPHALT SEAL COAT
- (N) FIXED BOLLARD
- (N) SURFACE BOLLARD
- (E) PROPERTY LINE

STRUCTURAL DESIGN CRITERIA:

- DESIGN CODE:**
- 2020 MNBC WITH 2018 IBC AMENDMENTS
- DESIGN CRITERIA:**
1. WIND DESIGN
 - DESIGN WIND SPEED = 111 MPH (ULTIMATE)
 - RISK CATEGORY = II
 - WIND EXPOSURE = C
 2. SEISMIC DESIGN
 - RISK CATEGORY = II
 - SEISMIC IMPORTANCE FACTOR = 1.0
 - SITE CLASS = D
 - $S_s = 0.071 / S_1 = 0.021$
 - $S_{ds} = 0.076 / S_{d1} = 0.033$
 - SEISMIC DESIGN CATEGORY = A
 - BASIC SEISMIC-FORCE-RESISTING SYSTEM = NON-STRUCTURAL COMPONENT
 - $R = 2.5 / a_p = 1.0$
 3. GEOTECHNICAL INFORMATION
 - ALLOWABLE BEARING PRESSURE = 1,500 PSF USED FOR EQUIPMENT FOUNDATION
 4. SNOW LOAD
 - GROUND SNOW LOAD = 50 PSF

NOTES:

1. PAD EXTENTS AND FOOTING TO BE CONFIRMED BY CONTRACTOR PRIOR TO CONSTRUCTION.
2. SWITCHBOARD DIMENSIONS AND ANCHOR LOCATIONS ARE LIABLE TO CHANGE. CONTRACTOR TO VERIFY AGAINST VENDOR FINAL SHOP DRAWINGS.
3. UTILITY EQUIPMENT/FOUNDATION DIMENSIONS AND LOCATIONS PER UTILITY. CONTRACTOR TO VERIFY AGAINST EXECUTED UTILITY DESIGN.
4. UTILITY BOLLARDS PER UTILITY REQUIREMENTS. CONTRACTOR TO VERIFY AND COORDINATE WITH UTILITY ON LOCATION, QUANTITY, AND SPECS.

TESLA

3500 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

ORIGINAL SIZE 24"x36"
SHEET SIZE ARCH "D"

Kirill Voronov

6097

Structural Engineer
STATE OF CALIFORNIA

Digitally signed by Kirill Voronov
Date: 2023.07.21 11:48:35 -07'00'

TESLA SUPERCHARGER_FERGUS FALLS
8 SUPERCHARGERS

623 FRONTIER DR,
FERGUS FALLS, MN, UNITED STATES

NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

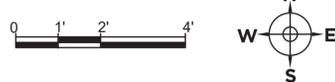
ENLARGED SITE PLAN

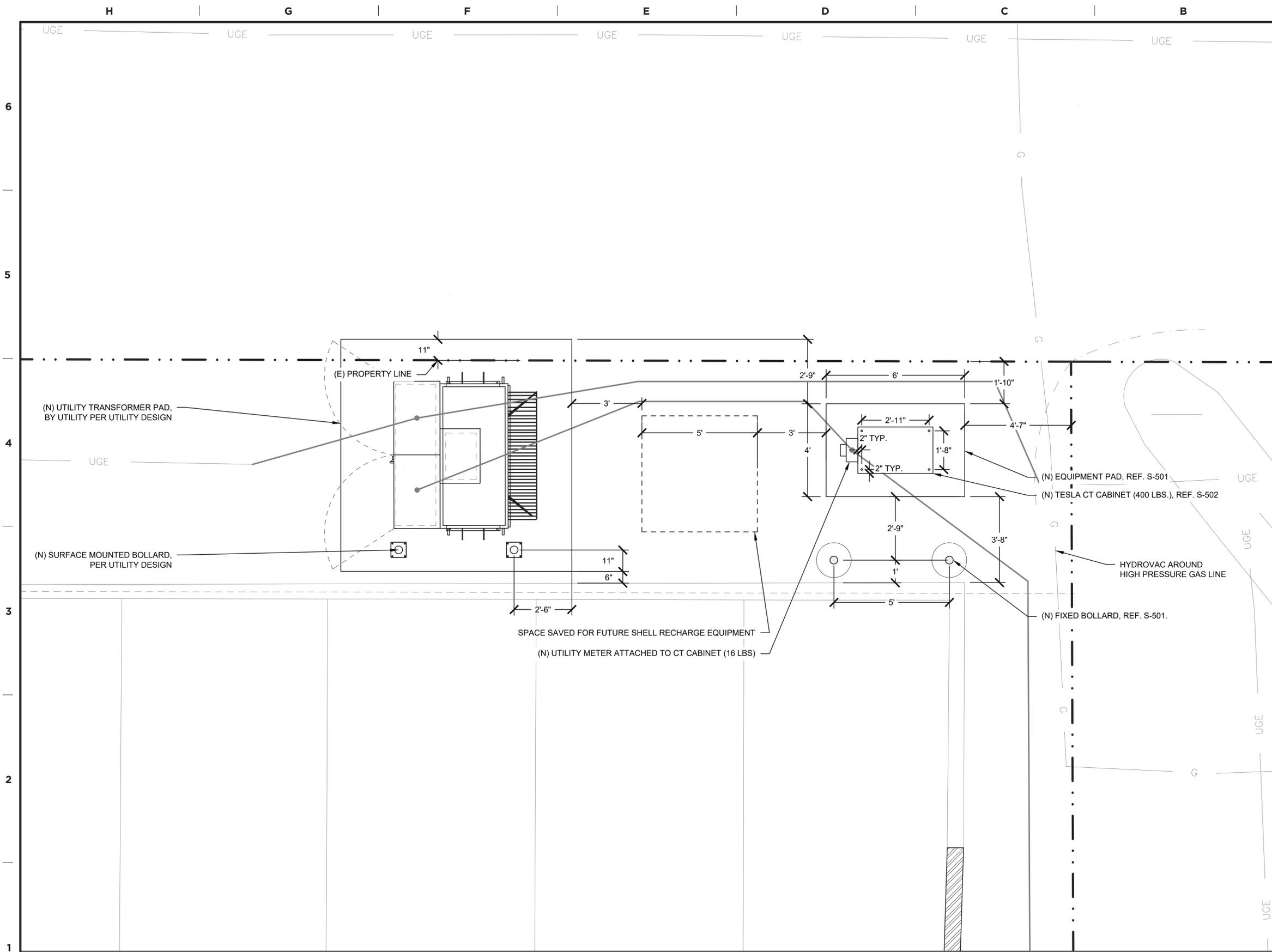
S-301

JB-565055-00

REV: C IFC

ENLARGED STRUCTURAL SITE PLAN
1/2" = 1'-0"





SITE LEGEND

- (N) SUPERCHARGER POST
- (N) SIGN
- (N) CONCRETE CURB
- (N) ASPHALT SEAL COAT
- (N) FIXED BOLLARD
- (N) SURFACE BOLLARD
- (E) PROPERTY LINE

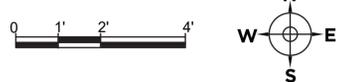
STRUCTURAL DESIGN CRITERIA:

- DESIGN CODE:**
- 2020 MNBC WITH 2018 IBC AMENDMENTS
- DESIGN CRITERIA:**
1. WIND DESIGN
 - DESIGN WIND SPEED = 111 MPH (ULTIMATE)
 - RISK CATEGORY = II
 - WIND EXPOSURE = C
 2. SEISMIC DESIGN
 - RISK CATEGORY = II
 - SEISMIC IMPORTANCE FACTOR = 1.0
 - SITE CLASS = D
 - $S_s = 0.071 / S_1 = 0.021$
 - $S_d_s = 0.076 / S_d_1 = 0.033$
 - SEISMIC DESIGN CATEGORY = A
 - BASIC SEISMIC-FORCE-RESISTING SYSTEM = NON-STRUCTURAL COMPONENT
 - $R = 2.5 / a_p = 1.0$
 3. GEOTECHNICAL INFORMATION
 - ALLOWABLE BEARING PRESSURE = 1,500 PSF USED FOR EQUIPMENT FOUNDATION
 4. SNOW LOAD
 - GROUND SNOW LOAD = 50 PSF

NOTES:

1. PAD EXTENTS AND FOOTING TO BE CONFIRMED BY CONTRACTOR PRIOR TO CONSTRUCTION.
2. SWITCHBOARD DIMENSIONS AND ANCHOR LOCATIONS ARE LIABLE TO CHANGE. CONTRACTOR TO VERIFY AGAINST VENDOR FINAL SHOP DRAWINGS.
3. UTILITY EQUIPMENT/FOUNDATION DIMENSIONS AND LOCATIONS PER UTILITY. CONTRACTOR TO VERIFY AGAINST EXECUTED UTILITY DESIGN.
4. UTILITY BOLLARDS PER UTILITY REQUIREMENTS. CONTRACTOR TO VERIFY AND COORDINATE WITH UTILITY ON LOCATION, QUANTITY, AND SPECS.

ENLARGED STRUCTURAL SITE PLAN
1/2" = 1'-0"



TESLA

3500 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

ORIGINAL SIZE 24"x36"
SHEET SIZE ARCH "D"

Kirill Voronov

6097

STRUCTURAL
STATE OF CALIFORNIA

Digitally signed by Kirill Voronov
Date: 2023.07.21 11:48:53 -0700'

TESLA SUPERCHARGER_FERGUS FALLS
8 SUPERCHARGERS

623 FRONTIER DR,
FERGUS FALLS, MN, UNITED STATES

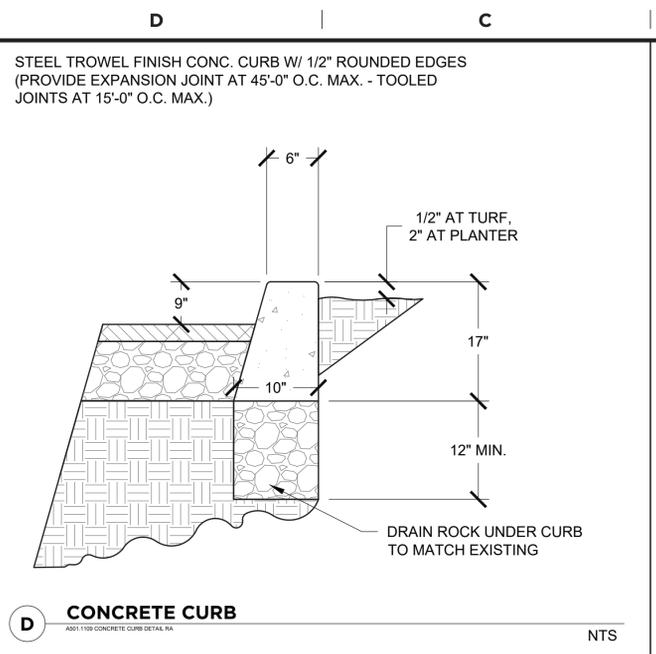
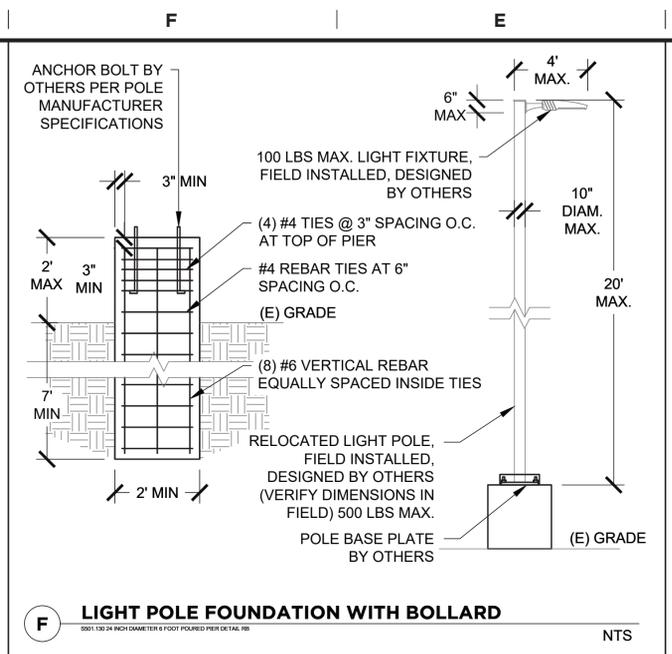
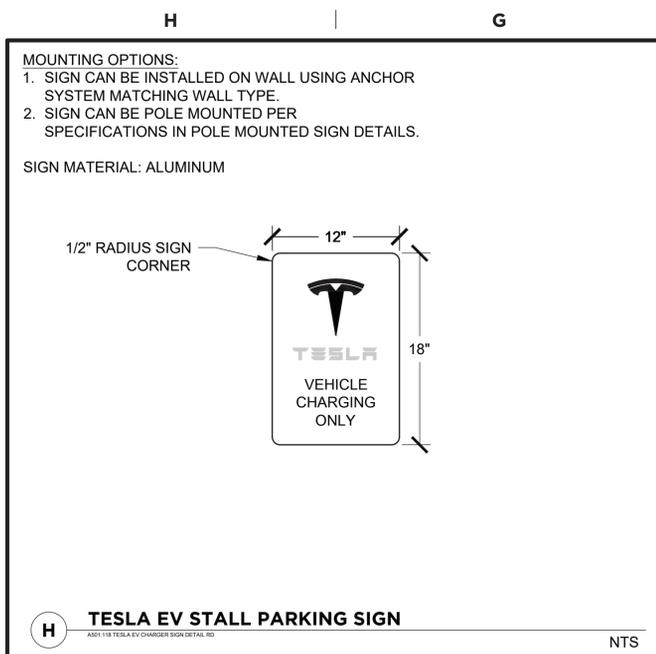
NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

ENLG STRUC
SITE PLAN 2

S-302

JB-565055-00

REV: C IFC

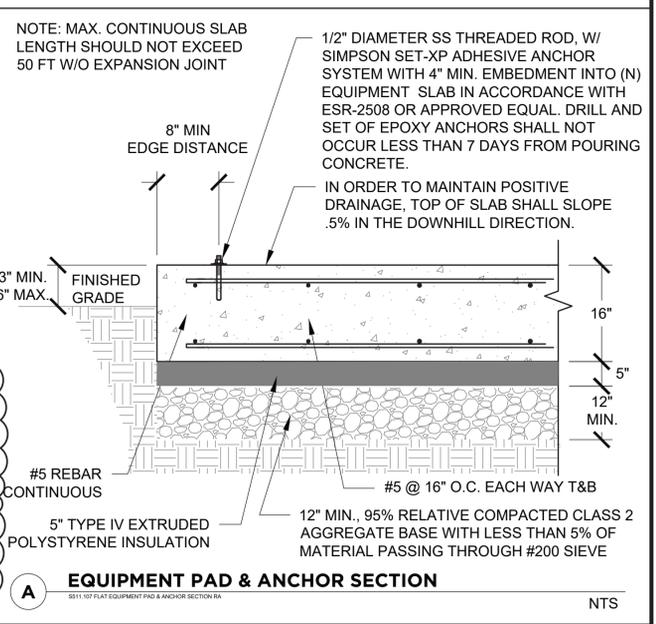
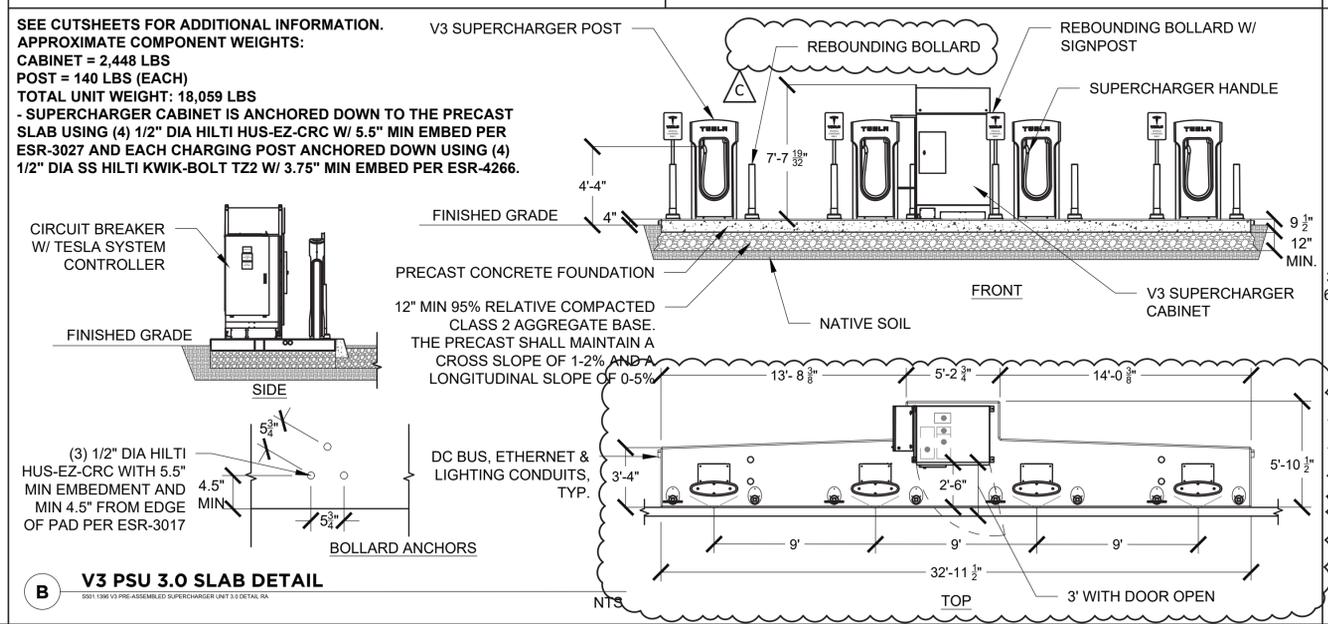
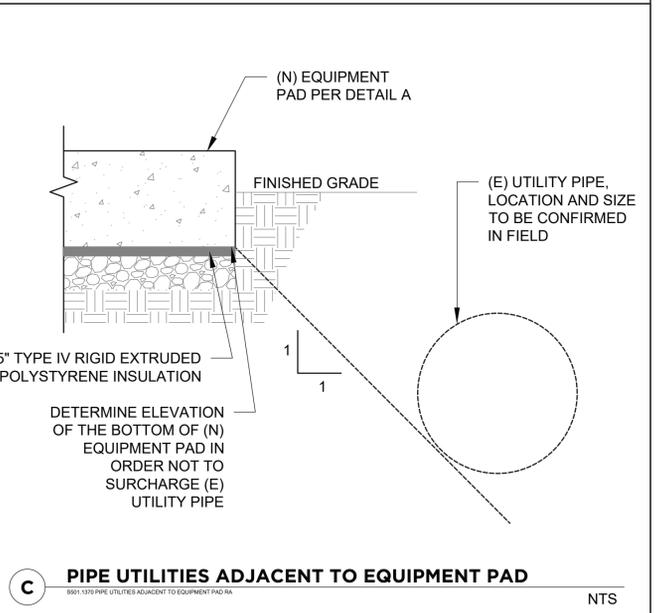
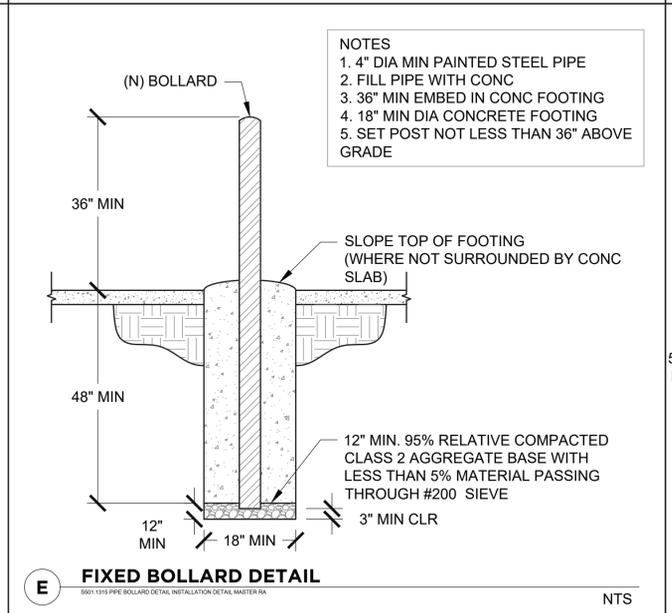
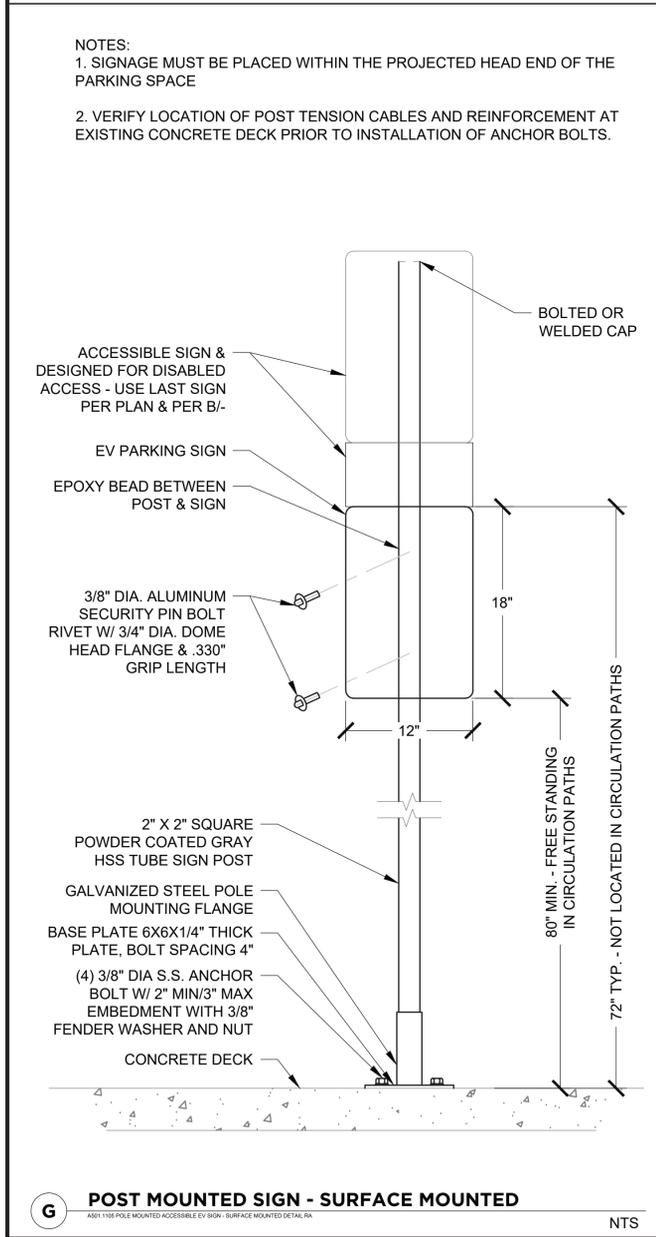


CONCRETE DESIGN

- THIS DESIGN IS APPLICABLE TO CONDITIONS WHERE THE SNOW LOAD IS 30PSF OR GREATER.
- CONCRETE STRENGTH - PROVIDE CONCRETE WITH THE FOLLOWING STRENGTHS AT THE LOCATIONS NOTED. MIX DESIGN, SLUMP, AIR ENTRAINMENT, AGGREGATE SIZE, ETC. SHALL BE IN CONFORMANCE WITH THE ACI CODE, LATEST EDITION.
 LOCATION: ANY
 STRENGTH AT 28 DAYS: 4500 PSI
 - ALL CONCRETE AGGREGATE IS HARD ROCK UON
 - DESIGN MIX SHALL CONTAIN 5-1/2 SACKS OF CEMENT, MIN.
 - TYPE I/II CEMENT TO MEET ASTM C150.
 - MAX AGGREGATE SIZE SHALL BE 3/4"
 - MAX WATER/CEMENT RATIO SHALL BE 0.45
 - MAX SLUMP SHALL BE 4"
 - PROVIDE 6% AIR ENTRAINMENT, ADD MIXTURE IN SNOW STATES ONLY (MIN 6% +/- 1.5%)
- REINFORCING STEEL - ASTM A615 WITH THE FOLLOWING STRENGTHS:

SIZE	STRENGTH:
#4 AND SMALLER	GRADE 60 (fy = 60000 PSI)
#5 AND LARGER	GRADE 60 (fy = 60000 PSI)
- FABRICATE AND PLACE REINFORCEMENT IN ACCORDANCE WITH ACI PUBLICATION SP-66, ACI DETAILING MANUAL - LATEST EDITION.
- PLACE CONCRETE IN COMPLIANCE WITH ACI 304. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED.

CONDITION	COVER
CAST AGAINST EARTH	3"
EXPOSED TO WEATHER	
#5 AND SMALLER	1-1/2"
#6 AND LARGER	2"
SLAB-ON-GRADE	2"
- EMBEDS - ALL ITEMS TO BE CAST INTO CONCRETE SUCH AS REINFORCING DOWELS, BOLTS, ANCHORS, PIPES, SLEEVES, ETC., SHALL BE SECURELY AND ACCURATELY POSITIONED INTO THE FORMS PRIOR TO PLACING THE CONCRETE.
- MAX. CONTINUOUS SLAB LENGTH SHOULD NOT EXCEED 50 FT W/O EXPANSION JOINT



TESLA SUPERCHARGER_FERGUS FALLS 8 SUPERCHARGERS

623 FRONTIER DR., FERGUS FALLS, MN, UNITED STATES

NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

STRUCTURAL DETAILS

S-501

JB-565055-00

REV: C IFC

6

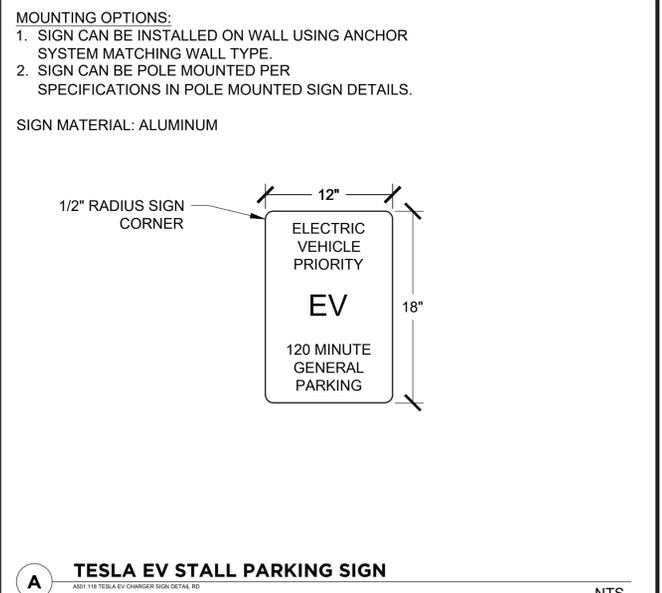
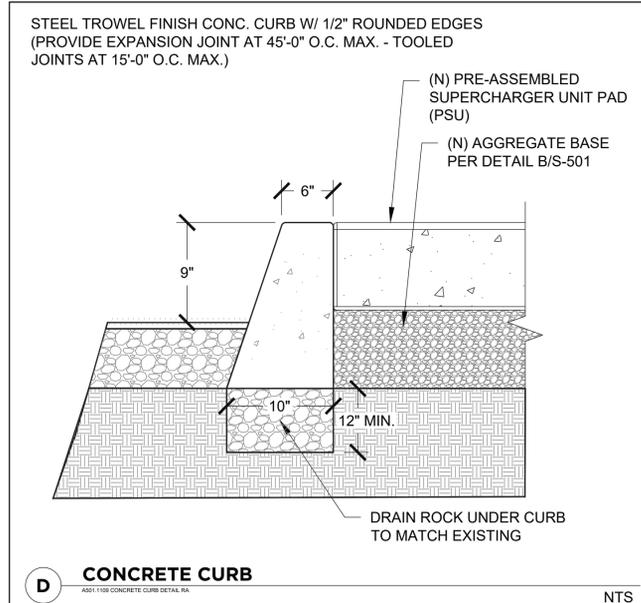
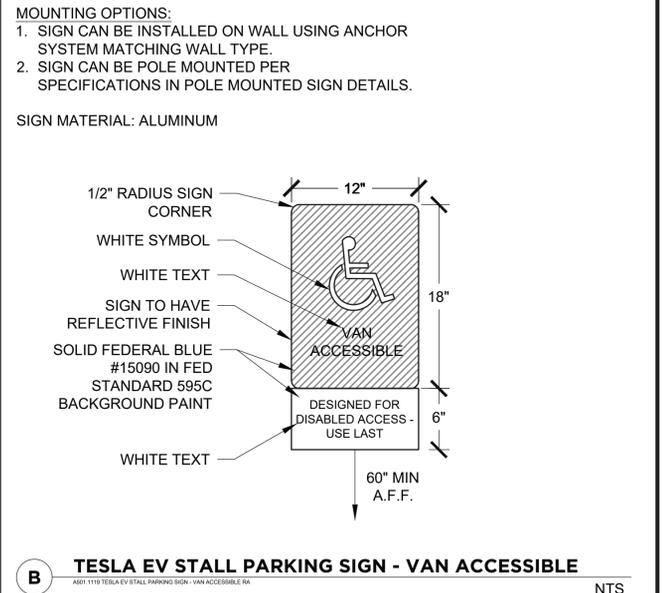
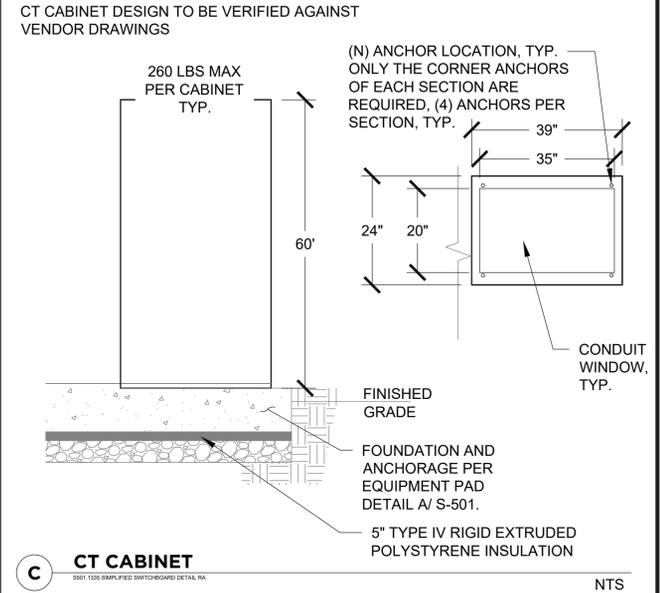
5

4

3

2

1



TESLA

3500 DEER CREEK RD.
 PALO ALTO, CA 94304
 (650) 681-5000

ORIGINAL SIZE 24"x36"
 SHEET SIZE ARCH "D"

Kirill Voronov

Digitally signed by Kirill Voronov
 Date: 2023.07.21 11:49:23 -07'00'

TESLA SUPERCHARGER_FERGUS FALLS
 8 SUPERCHARGERS

623 FRONTIER DR,
 FERGUS FALLS, MN, UNITED STATES

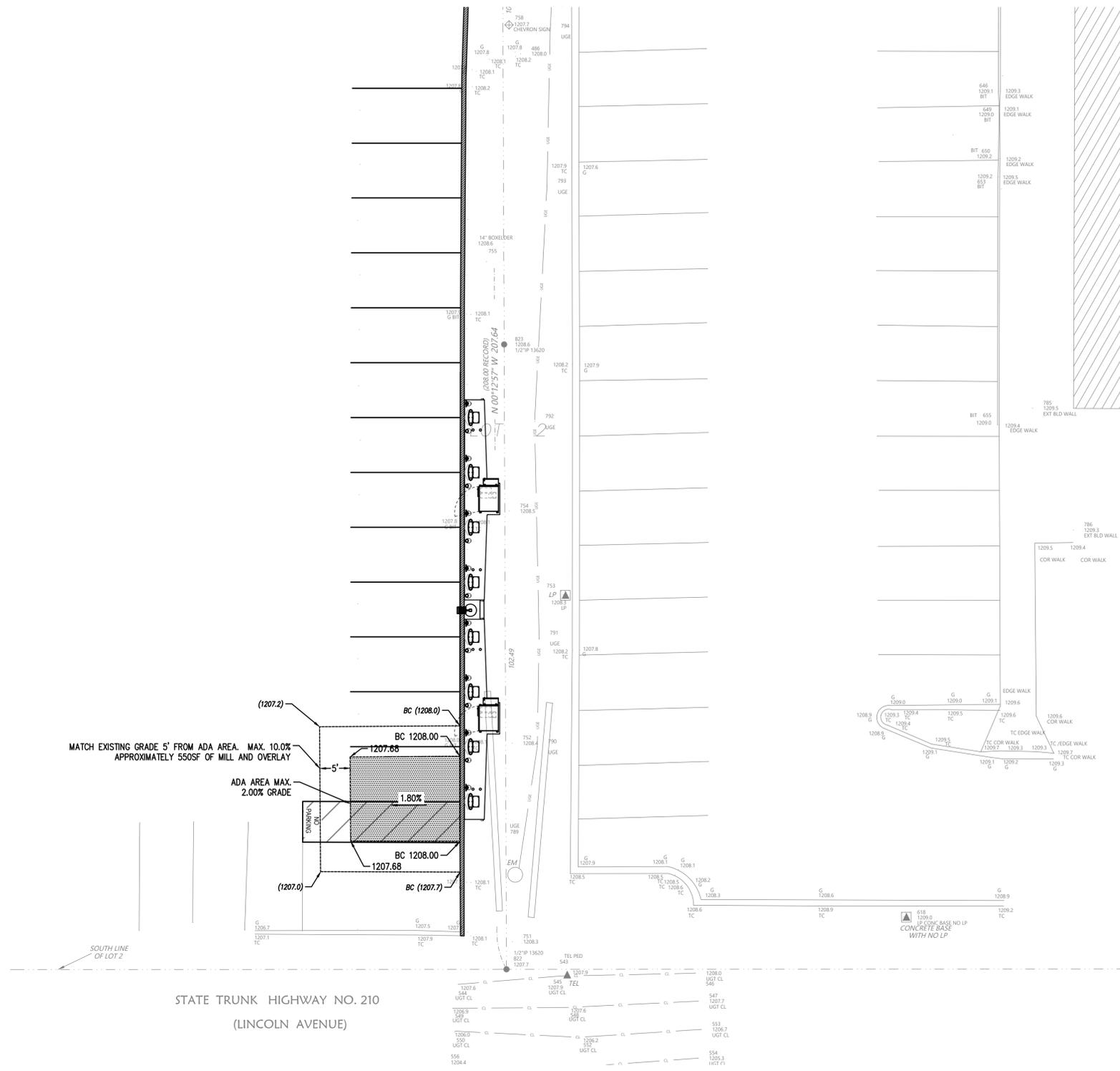
NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

STRUCTURAL DETAILS 2

S-502

JB-565055-00

REV: C IFC



LEGEND

EXISTING	TEXT STYLE	PROPOSED
×(99)	SPOT ELEVATION AT GRADE	×100
---	CONTOUR MAJOR	---
- - -	CONTOUR MINOR	---
---	PROPERTY LINE	---
---	FENCELINE	---
---	TREELINE	---
---	EDGE OF WATER	---
---	EDGE OF ROADWAY	---
---	ROADWAY HATCH	---
---	UNDERGROUND WATERLINE	---
---	ELECTRICAL CONDUIT	---
---	ELECTRICAL EQUIPMENT	---
---	LIMIT OF DISTURBANCE	---
---	18" SILT FENCE	---
---	COMPOST FILTER SOCK	---

DEFINITION

AC	ACRE
BC	BOTTOM OF CURB
BW	BOTTOM OF WALL
CF	CUBIC FEET
CO	CLEAN OUT
CY	CUBIC YARD
E	EASTING
EX	EXISTING
ES	EROSION AND SEDIMENT CONTROL
FNE	FIELD NETWORK ENCLOSURE
INV	INVERT
KV	KILOVOLT
LF	LINEAR FOOT
LP	LIGHT POLE
MAX	MAXIMUM
MIN	MINIMUM
O.C.	ON CENTER
N	NORTHING
R/W	RIGHT OF WAY
TC	TOP OF CURB
TS	TOP OF SLAB
TW	TOP OF WALL
TYP	TYPICAL

TESLA

3500 DEER CREEK RD.
PALO ALTO, CA 94304
(650) 681-5000

ORIGINAL SIZE 24"x36"
SHEET SIZE ARCH "D"

Professional Engineer
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota.

Signature: *[Signature]*
Michael P. Henderson, P.E.
Date: 07/21/2023 License Number: 45509

TESLA SUPERCHARGER_FERGUS FALLS
8 SUPERCHARGERS
623 FRONTIER DR,
FERGUS FALLS, MN, UNITED STATES

NO.	REVISION	DATE
A	ADJUSTED LAYOUT	9/6/2022
B	ADJUSTED LAYOUT	5/24/2023
C	ADJUSTED LAYOUT	

GRADING PLAN

C-101

JB-565055-00

REV: C | IFC

