176 PENNINGTON AVE
EV CHARGING STATION INSTALLATION

176 PENNINGTON AVE
PASSAIC, NJ 07055

SCOPE OF WORK

A. INSTALL NEW METER ENCLOSURE & 100A 208V 3PH PANEL IN EACH TOWNHOUSE (TH-1 & TH-2).
B. INSTALL (8) LEVEL 2 ELECTRIC VEHICLE CHARGING STATIONS ON THE SIDE OF THE TOWNHOUSES BETWEEN THE GARAGES. THERFORE, (4) EV CHARGERS PER TOWNHOUSE.

APPLICABLE CODES

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES:

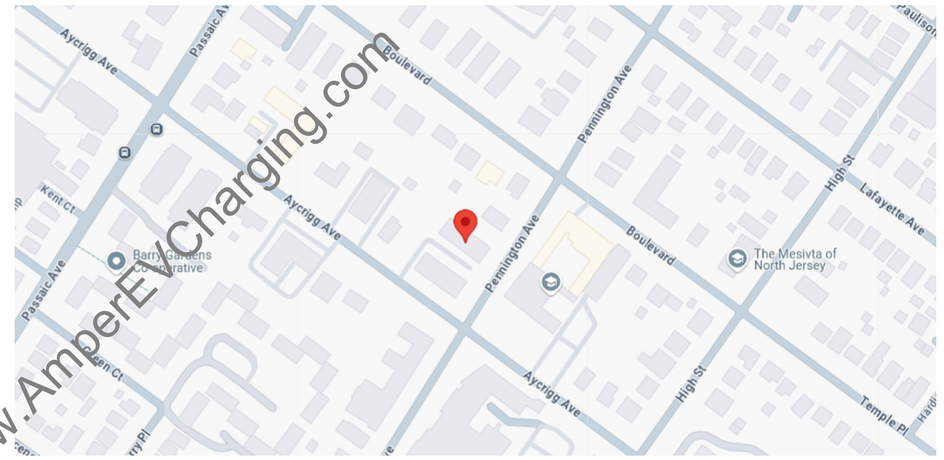
- NEW JERSEY BUILDING CODE 2021
- NEW JERSEY ENERGY CODE 2021
- NEC 2020

SHEET INDEX

SHEET NO.	TITLE
EV01	COVER SHEET
EV02	NOTES, LEGEND & SYMBOLS
EV03	ELECTRICAL SITE LAYOUT
EV04	ONE LINE DIAGRAM, CALCULATION, & DATA SHEET
EV05	INSTALLATION DETAILS

(NOT USED)

VICINITY MAP



SATELLITE VIEW

N

COORDINATING PROFESSIONAL:
AMPER ENGINEERING
ENGINEERING | CONSULTING | ESTIMATING
201-920-2899 info@AmperEngineering.com

ENGINEER OF RECORD SEAL & STAMP:
STATE OF NEW JERSEY DURAK EVRIM ERCAN No. 24GE54902 Signed on 10/04/2024 PROFESSIONAL ENGINEER
EXPIRATION: 04/30/2026

PROFESSIONAL ENGINEER:
DURAK EVRIM ERCAN, P.E
LICENSE #24GE54902

AMPER PROJECT NUMBER: 1997-NJ

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REV.	DATE	DESCRIPTION
0	10/04/2024	ISSUED FOR PLAN REVIEW

CLIENT:
Mt Salem Electric
ADDRESS:
24 COKESBURY ROAD,
LEBANON, NJ 08833
PHONE:
908-735-6126

PROJECT:
176 PENNINGTON AVENUE EVCS INSTALLATION
ADDRESS:
176 PENNINGTON AVE
PASSAIC, NJ
07055

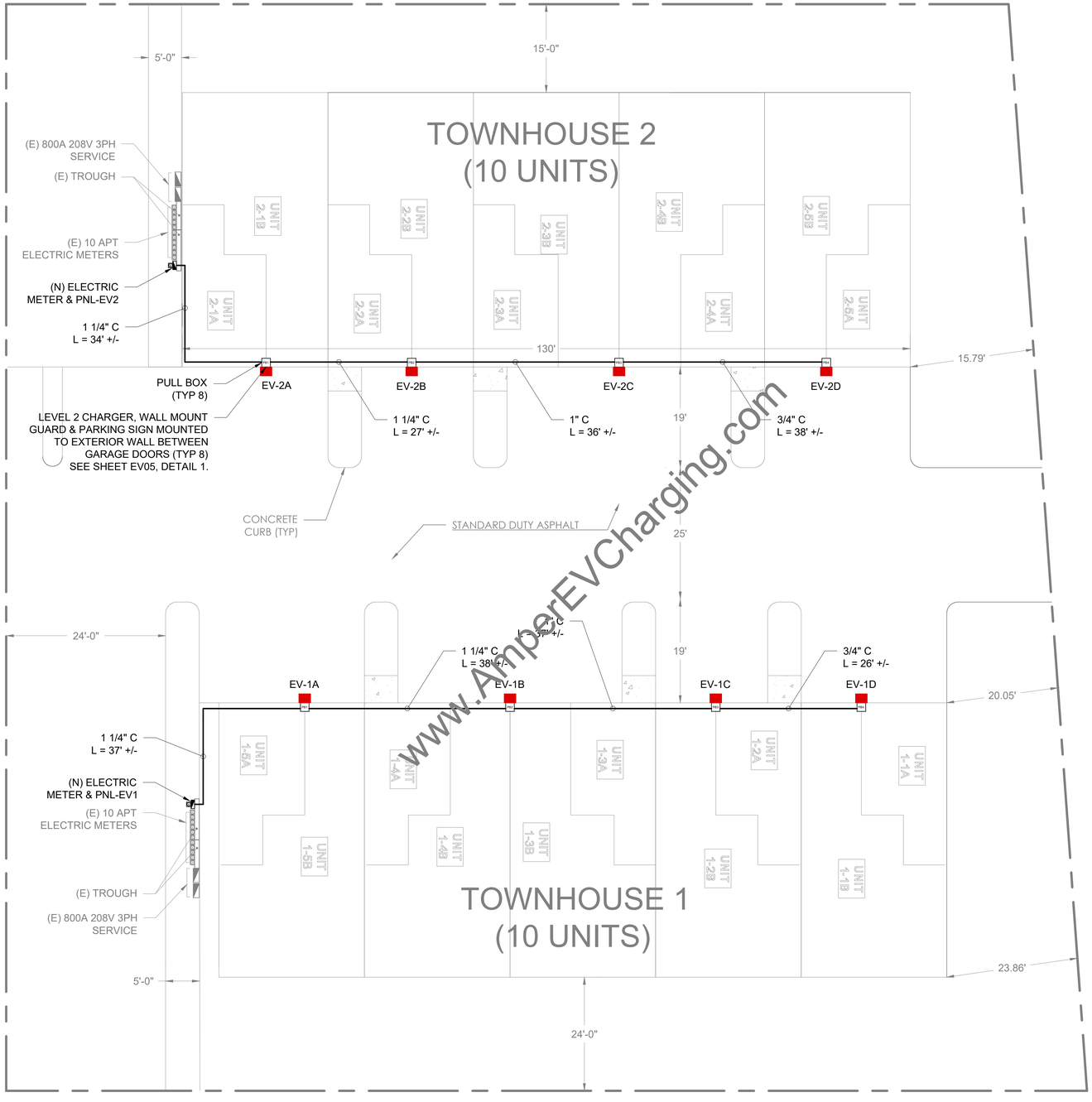
SHEET SIZE:	DRAWN BY:
24X36	IB
DESIGNED BY:	CHECKED BY:
AC	DEE

SHEET TITLE:
COVER SHEET

SHEET NO:
EV01

NOTE:

1. THIS DRAWING WAS PRODUCED WITHOUT THE BENEFIT OF A CURRENT LAND SURVEY. ALL PROPERTY LINES, EASEMENTS, AND SETBACKS SHALL BE VERIFIED PRIOR TO START OF CONSTRUCTION.



ELECTRICAL SITE LAYOUT
SCALE: NTS

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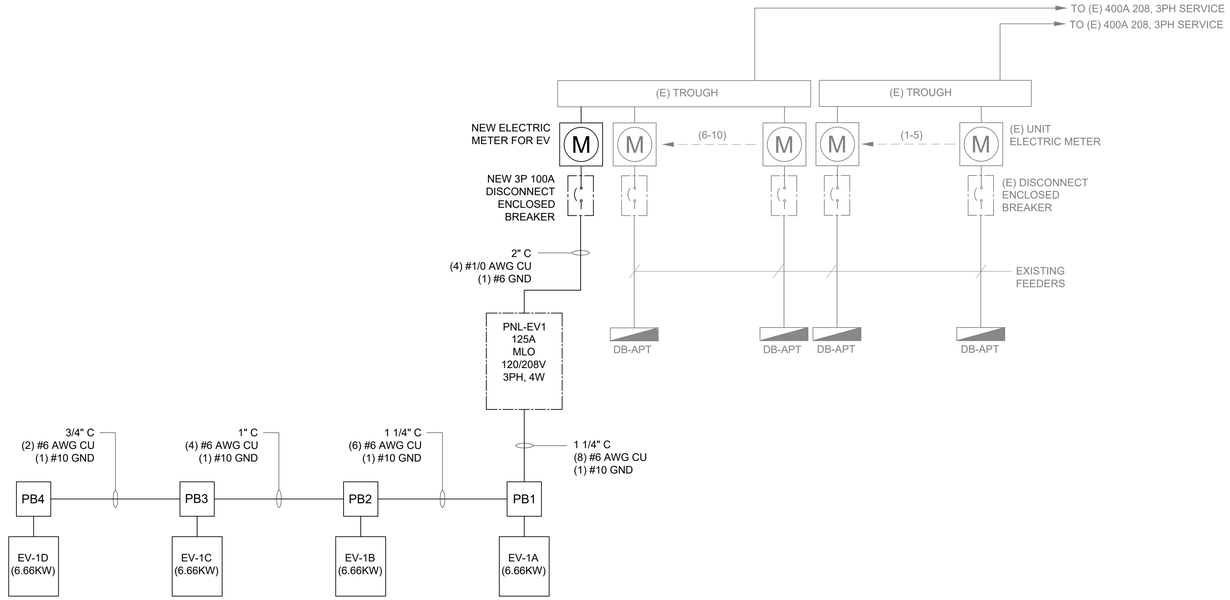
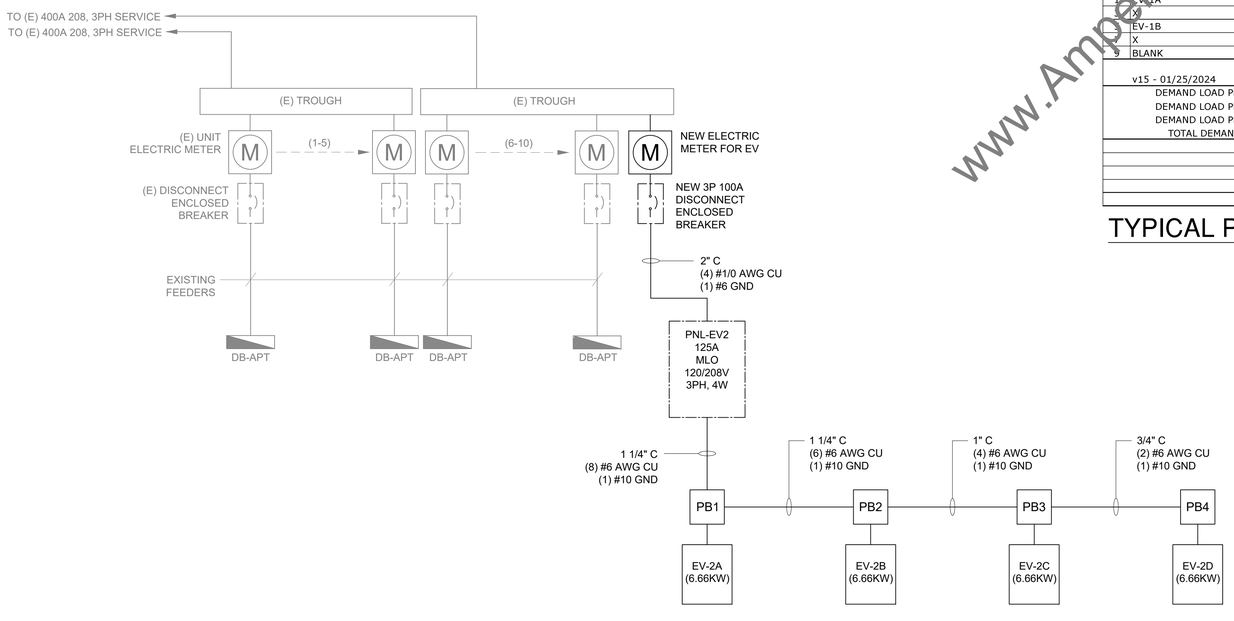
SHEET TITLE:
ELECTRICAL SITE LAYOUT

SHEET NO:
EV03



ONE LINE DIAGRAM - TOWNHOUSE 1



ONE LINE DIAGRAM - TOWNHOUSE 2

KEY NOTES:

1. ALL ELECTRICAL WORK AND RELATED ACTIVITIES PERFORMED ON-SITE SHALL BE DONE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE (NEC) STANDARDS BEING ENFORCED BY ALL APPLICABLE JURISDICTIONAL REQUIREMENTS AT THE TIME OF CONSTRUCTION.
2. CONDUIT PATHS ARE REPRESENTATIVE ONLY. EXACT CONDUIT PLACEMENT TO BE DETERMINED ON SITE BASED ON FIELD CONDITIONS.
3. A NATIONALLY RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH NEC ARTICLE 110.3
4. ALL EXTERIOR EQUIPMENT SHALL BE RAIN TIGHT AND APPROVED FOR USE IN WET CONDITIONS.
5. ALL CONDUCTORS TO BE THHN/THWN COPPER.
6. ALL CONDUCTORS AND CABLES SHALL BE PROVIDED WITH STRAIN RELIEF UPON ENTRY INTO ENCLOSURES.
7. UTILITY EQUIPMENT INSTALLATIONS AND PREP WORK SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY ENGINEER AT TIME OF PRECONSTRUCTION MEETING TO ENSURE ACCURACY OF INSTALLATIONS.
8. ALL METALLIC COMPONENTS SHALL BE GROUNDED VIA ELECTRIC GROUNDING CONDUCTORS.
9. WIRING FOR ELECTRICAL VEHICLE CHARGING STATIONS TO BE INSTALLED PER MANUFACTURER'S DIRECTIONS AND SPECIFICATIONS.
10. CONTRACTOR TO ENSURE THAT ALL FEEDERS, CONDUITS, CONDUCTORS, OCPD, TRANSFORMERS, ELECTRICAL PANELS AND OTHER ELECTRICAL EQUIPMENT IS SIZED TO COMPLY WITH CURRENT NEC AND LOCAL AHJ CODES.
11. CONTRACTOR IS RESPONSIBLE TO VERIFY DESIGN, ENGINEERING ASSUMPTIONS AND EXISTING FIELD CONDITIONS. REPORT ANY INSUFFICIENCIES TO ENGINEER OF RECORD PRIOR TO ANY WORK BEING PERFORMED.
12. THE NEW PANEL AND CBs SHALL HAVE THE SAME KAIC OR HIGHER THAN FAULT CONTRIBUTION FROM THE UTILITY.
13. GROUNDING INSTALLATION AS PER NEC ART. 250.
14. THE EV CHARGING SUPPLY SHALL BE INSTALLED AS PER NEC ART. 625.
15. ALL LEVEL 2 EV CHARGERS ARE PROGRAMMED TO DELIVER CONSTANT 32A. THEREFORE, AT 208V, EACH CHARGER CAPACITY IS 6.66KW.

PANEL-EV1

VOLTAGE: 120/208
3 PHASE, 4 WIRE

LOCATION: EXTERIOR WALL SIDE OF TOWNHOUSE 1
BUS (A): 125
MAIN (A): MLO

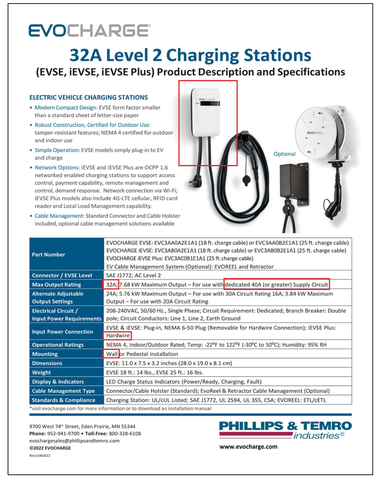
No.	CIRCUIT DESCRIPTION	LOAD (KVA) CONT	RCPT	MTR	A/C	KITCH	MISC	BREAKER TRIP	POLE	PHASE A	B	C	BREAKER POLE	TRIP	LOAD (KVA) MISC	KITCH	A/C	MTR	RCPT	CONT	CIRCUIT DESCRIPTION	No.
1	EV-1A	3.33						40	2	3.33											BLANK	2
3	X	3.33						X	X		6.66		2	40						3.33	EV-1C	4
5	EV-1B	3.33						40	2			6.66	X	X						3.33	X	6
7	X	3.33						X	X	6.66			2	40						3.33	EV-1D	8
9	BLANK										3.33		X	X						3.33	X	10
	v15 - 01/25/2024	LOADS W/ NEC 220 DEMAND FACTORS (KVA) CONT	RCPT	MTR	A/C	KITCH	MISC	TOTAL		9.99	9.99	6.66			0.00	0.00	0.00	0.00	0.00	26.64	CONNECTED KVA 26.64	
	DEMAND LOAD PHASE-A (KVA)	12.49	0.00	0.00	0.00	0.00	0.00	12.49														
	DEMAND LOAD PHASE-B (KVA)	12.49	0.00	0.00	0.00	0.00	0.00	12.49														
	DEMAND LOAD PHASE-C (KVA)	8.33	0.00	0.00	0.00	0.00	0.00	8.33														
	TOTAL DEMAND LOAD (KVA)	33.30	0.00	0.00	0.00	0.00	0.00	33.30														
	LARGEST DEMAND LOAD OF ANY PHASE (KVA)							12.49														
	LARGEST DEMAND LOAD OF ANY PHASE (AMP)							104														
	TOTAL DEMAND LOAD OF ALL PHASES (KVA)							33.30														
	TOTAL DEMAND LOAD OF ALL PHASES (AMP)							104														
	MINIMUM FEEDER AMPACITY SELECTION (AMP)							**104**														

CONTINUOUS:125% LOAD
RECEPTACLES:100% 1ST 10 KW + 50% REMAINING
MOTORS:125% LARGEST MOTOR + 100% REMAINING
A/C or HEAT:100% LOAD
KITCHEN:65% LOAD
MISC:100% LOAD

PANEL NOTES

1)IF PANEL EXISTING AND ACTUAL CONNECTED KVA ARE NOT KNOWN, ASSUMPTIONS ARE MADE AS: CONTINOUS & NON-CONTINUOUS CONNECTED LOADS ASSUMED TO BE 80% OF THE OCPD RATING.
2)DESIGN IS BASED ON NEC TABLE 310.15(B)(16) COPPER THHN CONDUCTORS. EXISTING CONDUCTORS. AND WIRING MAY NEED TO BE INSPECTED AND VERIFIED BY ELECTRICAL CONTRACTOR.
3)EVCS ARE CONSIDERED CONTINOUS LOADS AND ACTUAL NAME PLATE VALUES ARE USED.
4) ALL CONDUCTORS ON THE PANEL SCHEDULE ARE COPPER UNLESS OTHERWISE NOTED.

TYPICAL PANEL SCHEDULE (TH-1 & TH-2)



ONE LINE DIAGRAM - TOWNHOUSE 2

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PASSAIC, NJ
07055

SHEET SIZE:	DRAWN BY:
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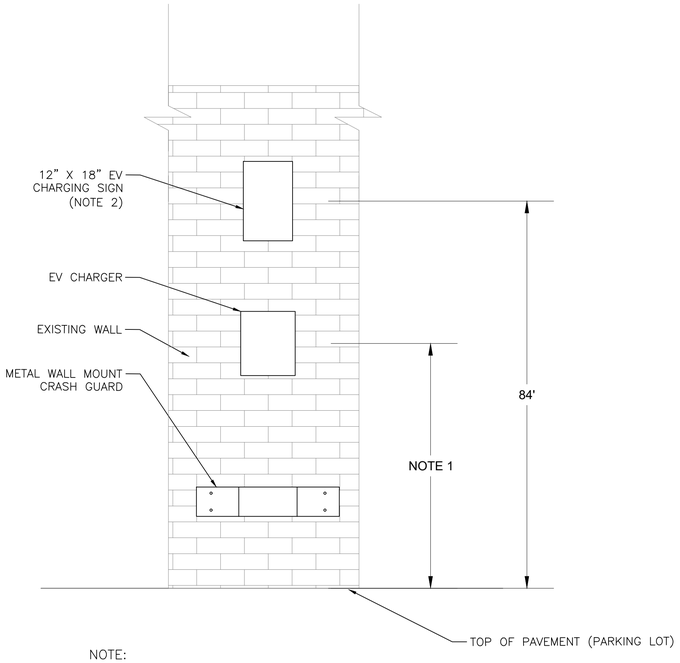
DESIGNED BY:	CHECKED BY:
AC	DEE

SHEET TITLE:
ONE LINE DIAGRAM, CALCULATION & DATA SHEET

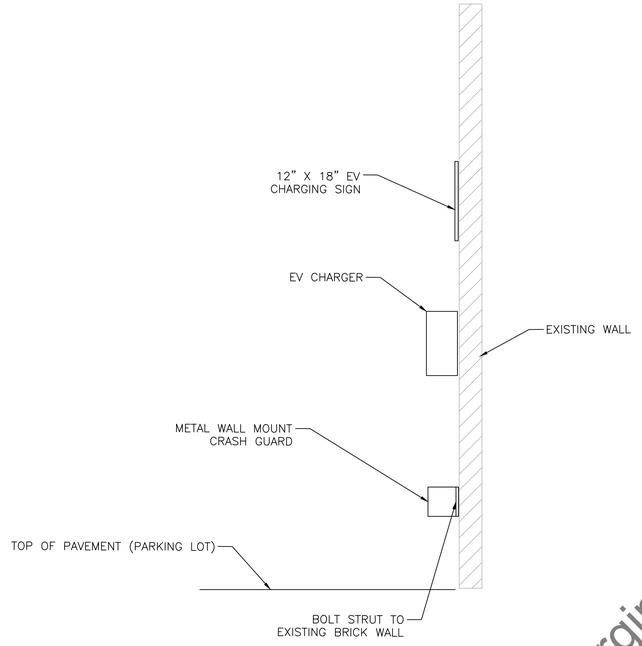
SHEET NO:
EV04



NOTE:

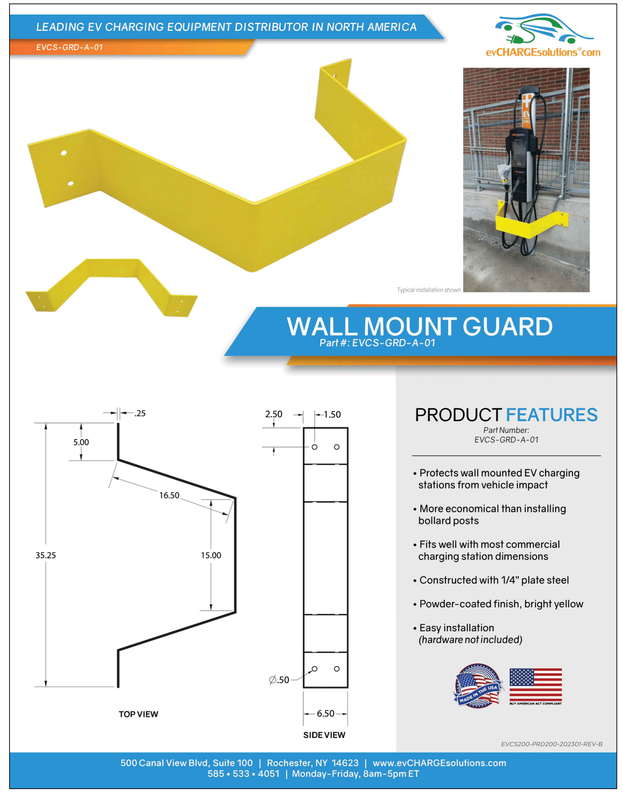
1. THE UNIT SHALL BE MOUNTED AT A SUFFICIENT HEIGHT FROM GROUND BETWEEN 24" AND 48" FROM GROUND AS PER NEC ARTICLE 625.
2. CONTRACTOR TO COORDINATE WITH MANUFACTURER TO DETERMINE EVCS SIGN TYPE PRIOR TO INSTALLATION.

FRONT



SIDE

1 EVCS WALL MOUNTED ELEVATION DETAILS



2 WALL MOUNT GUARD TYPICAL INSTALLATION

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SHEET TITLE:
INSTALLATION DETAILS

SHEET NO:
EV05