# PORT OF TAGOMA

# SIM YARD CHARGING STATIONS PROJECT PROJECT NO. 201119.01 CONTRACT NO.071514

## PORT COMMISSIONERS:

RICHARD P. MARZANO DON MEYER **JOHN MCCARTHY KRISTIN ANG DEANNA KELLER** 

## **PORT STAFF:**

**JOHN WOLFE NWSA Chief Executive Officer** 

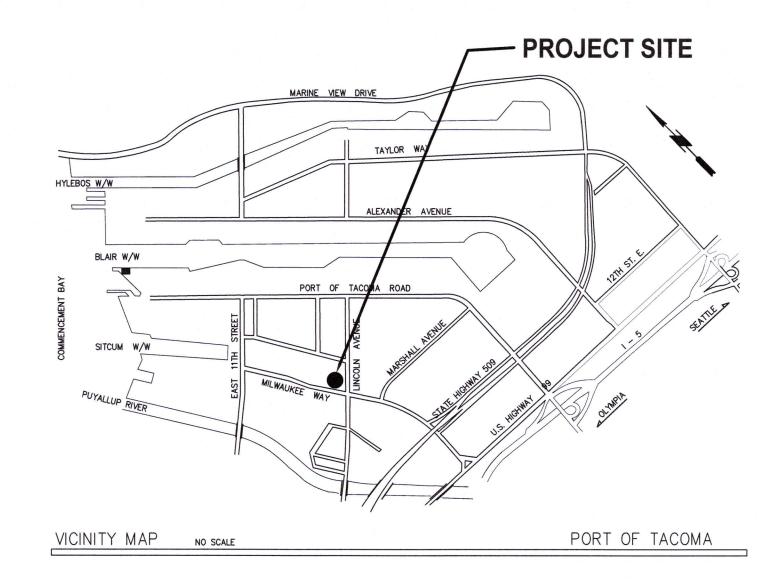
**ERIC JOHNSON Port of Tacoma Executive Director** 

THAIS HOWARD, P.E. **Director of Engineering** 

**HUGHES WIKE, P.E. Project Manager** 

# **CONSULTANT:**

MOHAMMAD Q. AZEEM **Harris Group Project Manager** 

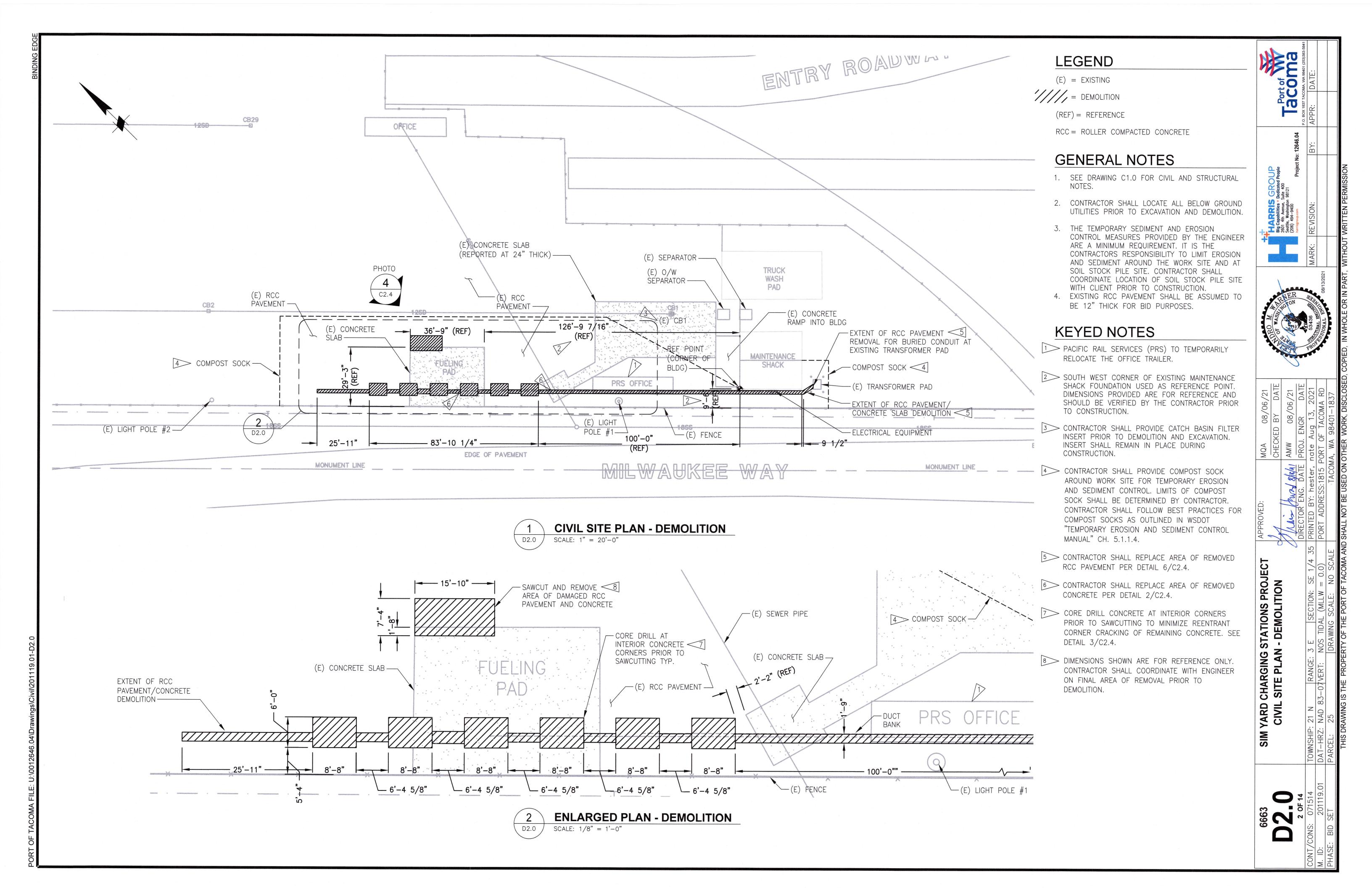




SHEET DESIGNATION	SHEET#	SHEET TITLE	REVISION	
G0.0	1	COVER SHEET		
D2.0	2	CIVIL SITE PLAN - DEMOLITION		
C1.0	3	GENERAL CIVIL AND STRUCTURAL NOTES		
C2.0	4	CIVIL SITE PLAN		
C2.1	5	STRUCTURAL DETAILS		
C2.2	6	STRUCTURAL DETAILS		
C2.3	7	STRUCTURAL DETAILS		
C2.4	8	STRUCTURAL DETAILS		
D3.0	9	ELECTRICAL SITE PLAN — DEMOLITION		
E1.0	10	ELECTRICAL GENERAL NOTES AND SYMBOLS		
E2.0	11	ELECTRICAL SITE PLAN		
E3.0	12	ONE LINE DIAGRAM ELECTRICAL DISTRIBUTION		
E4.0	13	ELECTRICAL DETAILS		
E4.1	14	ELECTRICAL NAMEPLATE SCHEDULE		

**DRAWING LIST** 

SHEET DESIGNATION	SHEET#	SHEET TITLE	REVISION	
G0.0	1	COVER SHEET		
D2.0	2	CIVIL SITE PLAN - DEMOLITION		
C1.0	3	GENERAL CIVIL AND STRUCTURAL NOTES		
C2.0	4	CIVIL SITE PLAN		
C2.1	5	STRUCTURAL DETAILS		
C2.2	6	STRUCTURAL DETAILS		
C2.3	7	STRUCTURAL DETAILS		
C2.4	8	STRUCTURAL DETAILS	2	
D3.0	9	ELECTRICAL SITE PLAN — DEMOLITION		
E1.0	10	ELECTRICAL GENERAL NOTES AND SYMBOLS		
E2.0	11	ELECTRICAL SITE PLAN		
E3.0	12	ONE LINE DIAGRAM ELECTRICAL DISTRIBUTION		
E4.0	13	ELECTRICAL DETAILS		
E4.1	14	ELECTRICAL NAMEPLATE SCHEDULE		



#### A. DESIGN CODES

1) 2018 INTERNATIONAL BUILDING CODE (IBC) AS ADOPTED BY THE STATE OF WASHINGTON.

#### B. DESIGN CRITERIA

- 1) LATERAL LOADS
- a) SEISMIC
- 1) SEISMIC IMPORTANCE FACTOR, le = 1.0
- 2) SEISMIC IMPORTANCE FACTOR, IP = 1.0
- 3) MAPPED ACCELERATION PARAMETERS:
  - Ss = 1.342
- $S_1 = 0.463$
- 4) SITE CLASS: D 5) DESIGN SPECTRAL ACCELERATION PARAMETERS: Sps = 1.074
- SD1 = NOT USED (T<1.0 SEC)
- 6) SEISMIC DESIGN CATEGORY: D
- b) WIND
- 1) BASIC WIND SPEED (3-SECOND GUST) = 97 MPH
- 2) ALLOWABLE SOIL BEARING CAPACITY = 1500 PSF (ASSUMED)

#### GENERAL REQUIREMENTS

- A. WORK REQUIRING SPECIAL INSPECTION ALL INSPECTION TO BE CONTINUOUS UNLESS NOTED.
  - 1) CONCRETE CONSTRUCTION

2) EXPOSURE C

- a) INSPECTION OF REINFORCING STEEL AND PLACEMENT,
- b) INSPECTION OF BOLTS AND OTHER EMBEDDED ITEMS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE.
- 1) VERIFYING USE OF REQUIRED DESIGN MIX, PERIODIC.
- 2) AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TEST AND DETERMINE THE TEMPERATURE OF THE CONCRETE.
- 3) INSPECTION OF CONCRETE PLACEMENT FOR PROPER INSTALLATION TECHNIQUES.
- 4) INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES, PERIODIC.

#### 2) SOILS

- a) VERIFY MATERIALS BELOW PAVEMENT ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY, PERIODIC.
- b) VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL, PERIODIC.
- c) PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS, PERIODIC.
- d) VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.
- e) PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY, PERIODIC.

#### 3) SPECIAL CASES

- a) EXPANSION ANCHORS INSTALLATION, PER ICC-ES EVALUATION REPORT, PERIODIC.
- b) CHEMICAL ADHESIVE ANCHORS INSTALLATION, PER ICC-ES EVALUATION REPORT, PERIODIC.

#### B. CONTRACTOR RESPONSIBILITIES AND COORDINATION

- 1) CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES, STRUCTURES, OR OTHER PROPERTY, KNOWN OR UNKNOWN, ENCOUNTERED DURING EXCAVATION OR OTHER
- 2) COORDINATE WORK IN SUCH A MANNER AS TO MINIMIZE IMPACT ON SIM YARD OPERATIONS.
- 3) COORDINATE WORK OF OTHER CRAFTS HAVING INTERDEPENDENT RESPONSIBILITIES FOR INSTALLING, CONNECTING TO, AND PLACING IN SERVICE MATERIALS AND EQUIPMENT
- 4) FIELD VERIFY ALL EXISTING ELEVATIONS AND DIMENSIONS SHOWN ON THE DRAWINGS BEFORE PROCEEDING WITH THE WORK. IMMEDIATELY REPORT ANY DEVIATIONS TO THE ENGINEER.
- 5) SITE DEMOLITION SEE SPECIFICATION 02 41 00.
- 6) TEMPORARY EROSION AND SEDIMENT CONTROL (TESC) PER SPECIFICATIONS 01 57 13.

#### SITE WORK

#### A. SITE CONDITIONS

1) THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SITE CONDITIONS.

#### B. EXCAVATION AND BACKFILL

- 1) EARTHWORK SEE SPECIFICATION 31 00 00.
- 2) VERIFY THAT SURVEY BENCHMARKS AND INTENDED ELEVATIONS FOR WORK ARE AS INDICATED.
- 3) PRIOR TO COMMENCEMENT OF PAVEMENT REMOVAL AND EXCAVATION ALL UNDERGROUND UTILITIES SHALL BE IDENTIFIED AND LOCATED. CARE SHALL BE TAKEN TO AVOID DAMAGE TO UNDERGROUND UTILITIES AND STRUCTURES DURING CONSTRUCTION
- 4) OVER-EXCAVATE AREAS NOT CAPABLE OF IN SITU COMPACTION. 5) NOTIFY ENGINEER OF ANY UNUSUAL CONDITIONS ENCOUNTERED IN EXCAVATION.
- 6) CLEAN ALL AREAS OF LOOSE MATERIAL BY HAND. REMOVE ALL WET, SOFT SOIL FROM EXCAVATIONS PRIOR TO PLACING NEW FILL.
- 7) PAVEMENT BASE COURSE -SEE SPECIFICATION SECTION 32 15 40.

#### ASPHALTIC CONCRETE PAVING

1) SEE SPECIFICATION SECTIONS 32 12 16.

#### **CONCRETE**

#### A. REFERENCES

- 1) ACI 301 STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS
- 2) ACI 302 GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION 3) ACI 304 - GUIDE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE
- 4) ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
- 5) CRSI MSP-1 MANUAL OF STANDARD PRACTICE

#### B. CAST-IN-PLACE CONCRETE

1) SEE SPECIFICATION SECTIONS 03 10 00, 03 20 00 AND 03 30 00.

#### C. BONDING AGENT

1) VOC COMPLIANT, NON-SOLVENT BASED EPOXY ADHESIVE.

#### D. POST INSTALLED CONCRETE FASTENERS

- 1) EXPANSION ANCHORS: ASTM A316 STAINLESS STEEL MECHANICAL EXPANSION TYPE: ICC-ESR APPROVED FOR USE IN CRACKED OR UNCRACKED CONCRETE FOR THE RESISTANCE OF WIND AND SEISMIC LOADS. PROVIDE MINIMUM EDGE DISTANCE AND SPACING AS INDICATED IN THE MANUFACTURERS SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- 2) CHEMICAL ADHESIVE ANCHORS: CHEMICAL ANCHOR TYPE: ICC-ESR APPROVED FOR USE IN CRACKED OR UNCRACKED CONCRETE FOR THE RESISTANCE OF WIND AND SEISMIC LOADS. PROVIDE MINIMUM EDGE DISTANCE AND SPACING AS INDICATED IN THE MANUFACTURERS SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE DRAWINGS. THREADED RODS TO BE ASTM A316 STAINLESS STEEL.

#### E. FINISHING

- 1) ALL FINISHING SHALL BE IN ACCORDANCE WITH ACI 301 SECTION 5.
- 2) FORMED CONCRETE SURFACES NOT EXPOSED TO VIEW MAY HAVE A ROUGH FORM FINISH AND FORMED CONCRETE SURFACES EXPOSED TO VIEW SHALL HAVE A SMOOTH FORM FINISH.
- 3) HORIZONTAL UNFORMED CONCRETE SURFACES SHALL BE SCREED AND FLOATED.
- 4) SURFACES RECEIVING GROUT OR BONDED CONCRETE TOPPING SHALL BE A SCRATCHED FINISH TO 1/4 INCH AMPLITUDE.
- 5) INTERIOR SLABS FINISH SHALL BE A TROWELED FINISHED.
- 6) EXTERIOR SLAB FINISH SHALL BE A BROOMED FINISHED IN THE DIRECTION OF THE FLOOR SLOPE.
- 7) EXPOSED NON-CHAMFERED SLAB EDGES SHALL BE EDGED TO A 1/4 INCH RADIUS AFTER FINISHING. EDGING SHALL NOT FORM RIDGES ON THE SLAB SURFACE.
- 8) EXPOSED EDGES SHALL BE FORMED USING 3/4 INCH CHAMFER UNLESS OTHERWISE NOTED.
- 9) VERIFY FINISHING REQUIREMENTS OF SURFACES SCHEDULED TO RECEIVE PROTECTIVE COATINGS WITH PRODUCT MANUFACTURER.

#### F. TESTING AND INSPECTION

1) PROVIDE IN ACCORDANCE WITH THE SPECIFICATIONS. THE BUILDING CODE AND LOCAL AUTHORITY REQUIREMENTS.

#### F. <u>GROUT</u>

- 1) ASTM C1107, ICC-ES APPROVED, NON-SHRINK, NON-METALLIC, MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 7 DAYS.
- 2) EQUIPMENT BASES AND BOLLARD BASE PLATES SHALL BE GROUTED IN STRICT ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS.

#### G. <u>WASH OUT</u>

1) THERE WILL BE NO ON-SITE WASH OUT AREA IN THE SITE.

#### H. ACCESSORIES

1) JOINT SEALANTS: ASTM C920, TYPE S, USE T BY SIKAFLEX. EUCOLASTIC, OR APPROVED EQUAL.

#### <u>METALS</u>

A. STRUCTURAL STEEL AND MISCELLANEOUS METALS 1) SEE SPECIFICATION SECTION 05 50 00

#### B. CONNECTIONS

- 1) ALL STRUCTURAL CONNECTIONS SHALL UTILIZE 3/4-INCH DIAMETER A325 HIGH STRENGTH BOLTS AND BE TYPE N (BEARING WITH THREADS INCLUDED IN THE SHEAR PLANE) UNLESS OTHERWISE NOTED.
- 2) HIGH STRENGTH BOLTS SHALL BE INSTALLED AND TIGHTENED IN ACCORDANCE WITH RCSC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" AND SSTC "STRUCTURAL BOLTING HANDBOOK".
- 3) ALL HIGH STRENGTH BOLTS SHALL BE FULLY TENSIONED UNLESS NOTED OTHERWISE.

#### E. WELDING

1) SEE SPECIFICATION SECTION 05 05 23.

#### F. TESTING AND INSPECTION

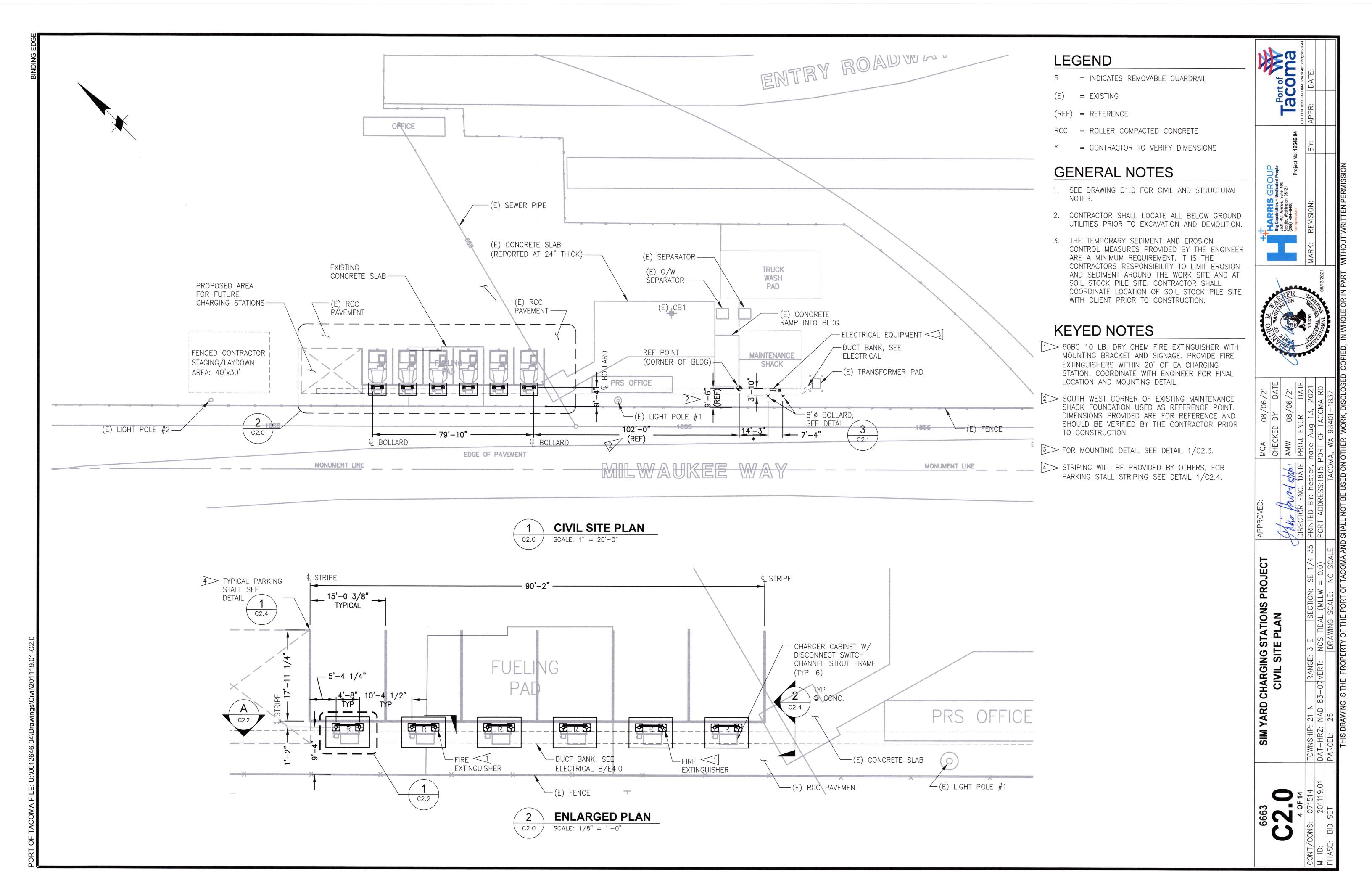
1) PROVIDE IN ACCORDANCE WITH AISC 360. THE BUILDING CODE AND LOCAL AUTHORITY REQUIREMENTS.

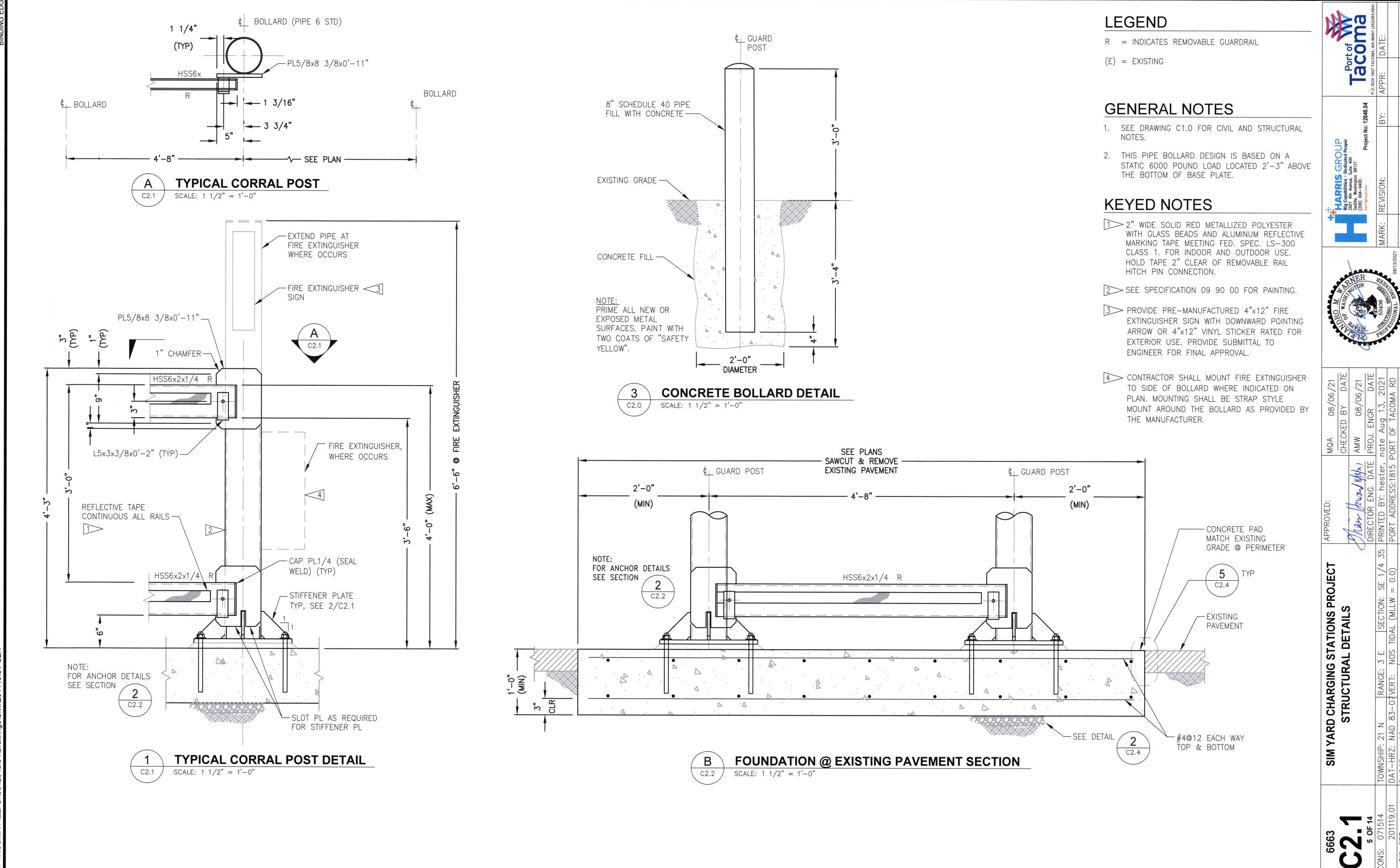
#### PROTECTIVE COATINGS

#### A) CORROSION PROTECTION

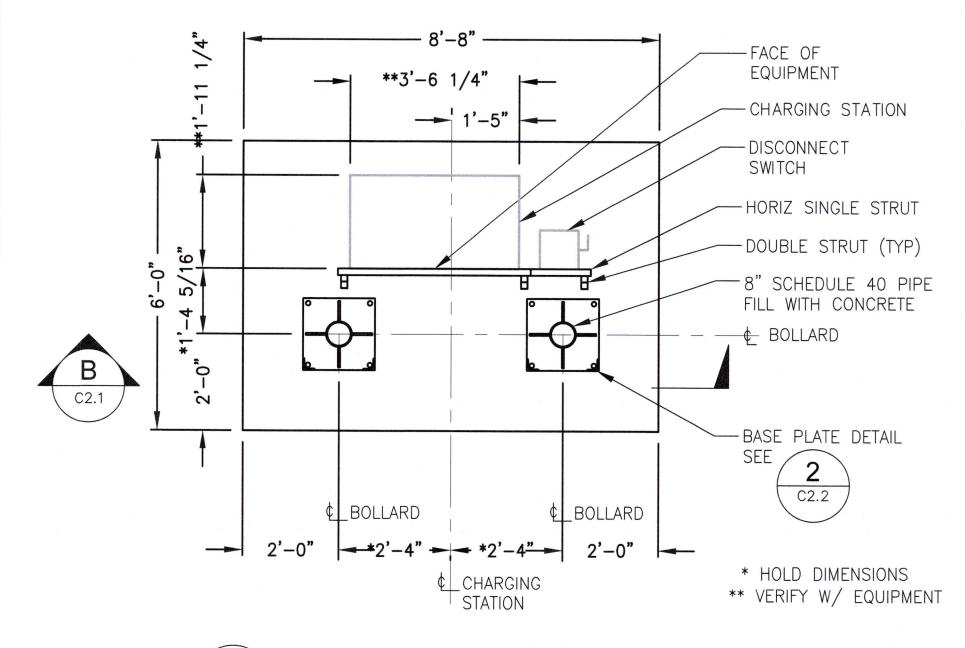
- 1) ALL EXTERIOR EXPOSED STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE HOT DIP GALVANIZED AND PAINTED PER SPECIFICATION SECTION 09 90 00 UNLESS OTHERWISE NOTED.
- 2) ALL PAINTING SHALL BE PERFORMED OFF SITE WITH THE EXCEPTION OF TOUCH-UP.

Tacoma Bex 1827 Tacoma

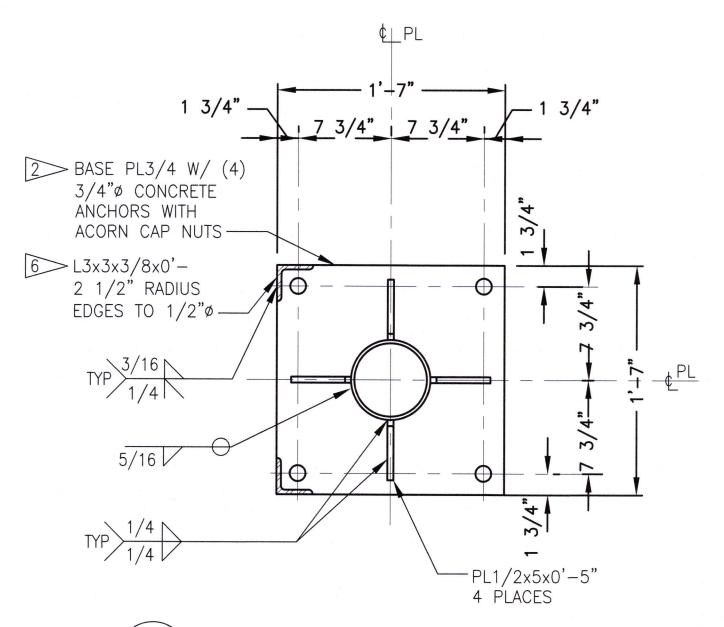




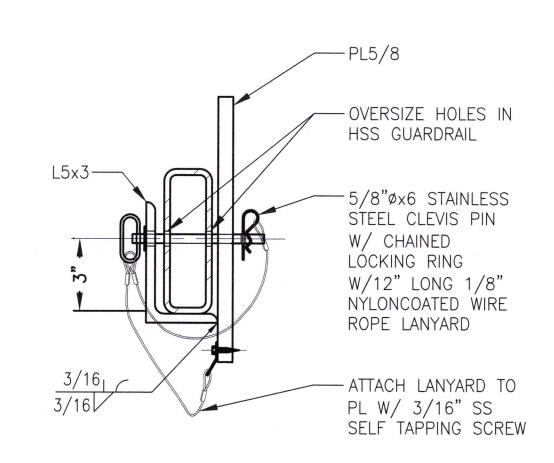
## VEHICLE CHARGING CORRAL SECTION SCALE: 1/2" = 1'-0"







TYPICAL BASE PLATE DETAIL SCALE:  $1 \frac{1}{2}$ " = 1'-0"



**GUARDRAIL SECTION** SCALE: 3'' = 1'-0''

## LEGEND

R = INDICATES REMOVABLE GUARDRAIL

(E) = EXISTING

## **GENERAL NOTES**

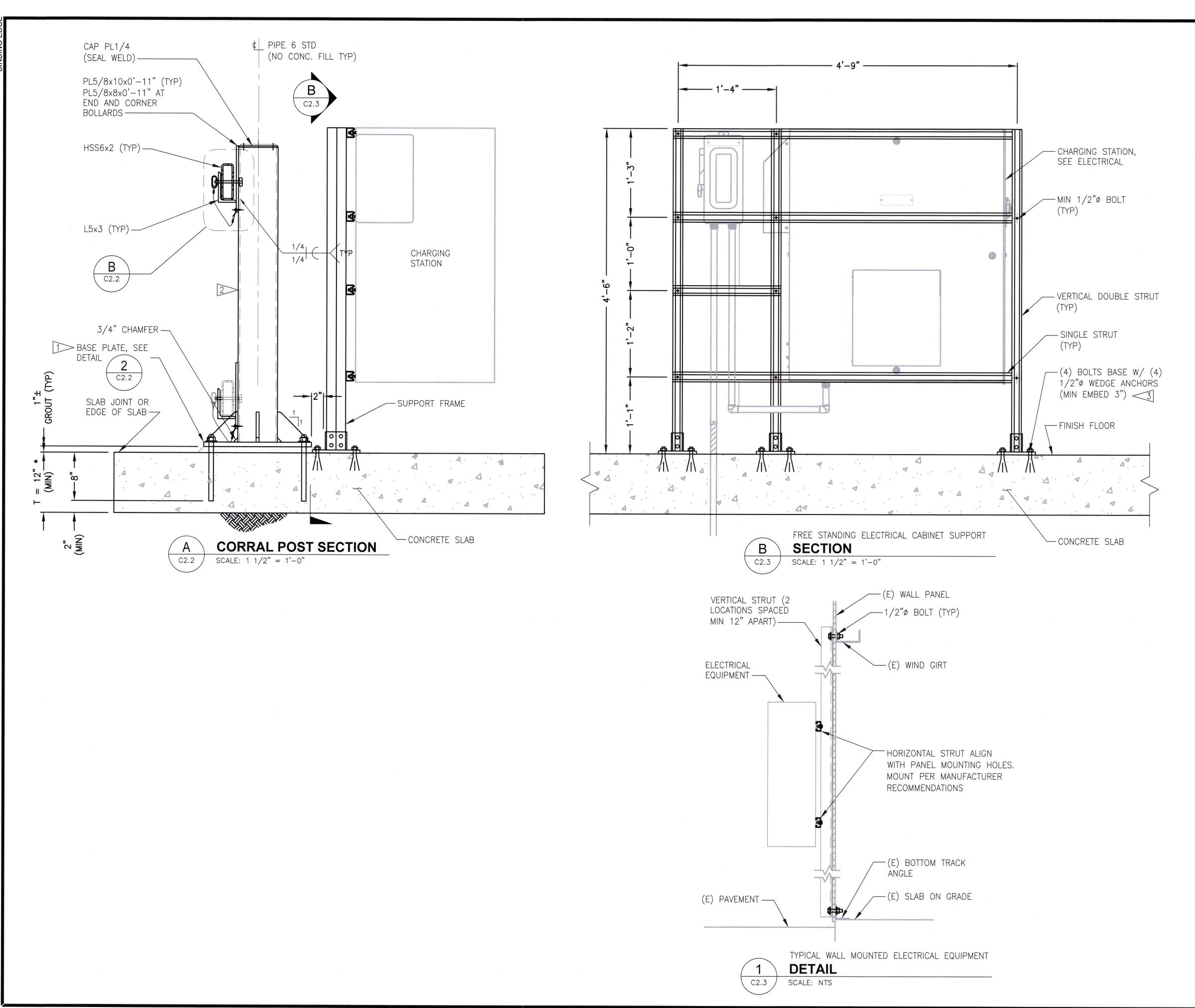
- 1. SEE DRAWING C1.0 FOR CIVIL AND STRUCTURAL NOTES.
- 2. THIS PIPE BOLLARD DESIGN IS BASED ON A STATIC 6000 POUND LOAD LOCATED 2'-3" ABOVE THE BOTTOM OF BASE PLATE.

## **KEYED NOTES**

- 2" WIDE SOLID RED METALLIZED POLYESTER WITH GLASS BEADS AND ALUMINUM REFLECTIVE MARKING TAPE MEETING FED. SPEC. LS-300 CLASS 1. FOR INDOOR AND OUTDOOR USE. HOLD TAPE 2" CLEAR OF REMOVABLE RAIL HITCH PIN CONNECTION.
- 2 CONCRETE ANCHORS ADHESIVE SHALL BE ICC-ESR EPOXY TYPE ADHESIVE APPROVED FOR USE IN CRACKED AND UNCRACKED CONCRETE.
- 3> SEE SPECIFICATION 09 90 00 FOR PAINTING.
- 4 PROVIDE 3/8" WEEP HOLE IN BOTTOM @ 1'-0" EACH END OF RAILS.
- 5> PROVIDE WEEP/VENT HOLES TO ALLOW FOR THE GALVANIZING PROCESS. HOLES EXPOSED TO WEATHER WHEN ASSEMBLIES ARE IN FINAL POSITION SHALL BE PLUGGED PRIOR TO PAINTING.
- 6 PROVIDE BOLT GUARD ON TRAFFIC SIDE OF BOLLARD.

Tacoma

YARD CHARGING STATIONS PROJECT STRUCTURAL DETAILS



## **LEGEND**

(E) = EXISTING

\* = FIELD VERIFY

## GENERAL NOTES

- 1. SEE DRAWING C1.0 FOR CIVIL AND STRUCTURAL NOTES.
- 2. SEE SPECIFICATION SECTION 05 50 00 FOR STRUT SYSTEM REQUIREMENTS AND APPROVED MANUFACTURERS.
- 3. ALL STRUT TO BE STANDARD 1 5/8"x1 5/8" 12 GA UNLESS OTHERWISE NOTED.
- 4. SEE ELECTRICAL DRAWINGS FOR CONDUIT SUPPORT LOCATIONS AND TYPES.

## **KEYED NOTES**

CONCRETE ANCHORS ADHESIVE SHALL BE ICC-ESR EPOXY TYPE ADHESIVE APPROVED FOR USE IN CRACKED AND UNCRACKED CONCRETE.

2 SEE SPECIFICATION 09 90 00 FOR PAINTING.

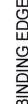
3 SQUARE BASE SHALL BE PREMANUFACTURED BASE BY STRUT MANUFACTURER.

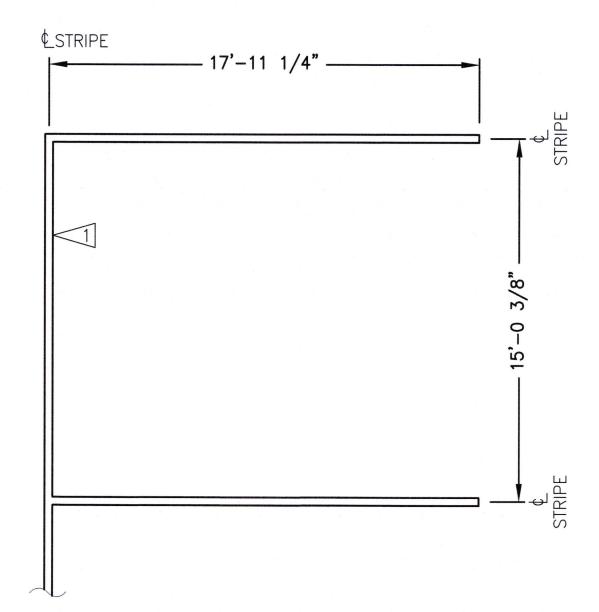
_	Port of Ma	30X 1837 TACOMA, WA 98401 (253)383-584	L
		ô	(

HARRIS
Big Capabilities + E
2601 4th Avenue, Si
Sectile, Washington i
(206) 494-9400

YARD CHARGING STATIONS PROJECT STRUCTURAL DETAILS

**W** <sup>±</sup> <sup>4</sup>





TYPICAL PARKING STALL SCALE:  $1 \frac{1}{4}$ " = 1'-0" C2.0 /

## C2.4 -CONCRETE SLAB BROOM FINISH, MATCH (E) THICKNESS (8" (E) CONCRETE MINIMUM) PROVIDE TROWEL ŠLÁB--JOINT AT 8'-0" O.C. TYPICAL FINISH GRADE #5@12" EA. WAY CENTERED (3 MINIMUM) 6" OF CRUSHED STONE -COMPACTED SUBGRADE OR TRENCH BACKFILL (MIN 6")

**CONCRETE REPAIR** SCALE: 1" = 1'-0"

#### **EXISTING** -LIMITS OF SAWCUT CONCRETE WALL DO NOT OVERCUT OR SLAB --CHIP, REMOVE AND GRIND SMOOTH REMAINDER OF CONCRETE 3"Ø CORE DRILL PRIOR TO SAW CUT - CONCRETE TO BE REMOVED -SAWCUT

SAWCUT AT INTERIOR CONER DETAIL C2.4 SCALE: 1" = 1'-0"

## **GENERAL NOTES**

1. SEE DRAWING C1.0 FOR CIVIL AND STRUCTURAL NOTES.



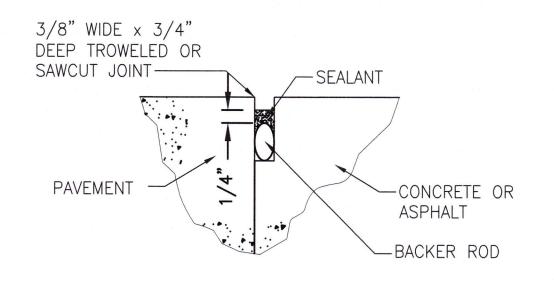
YARD CHARGING STATIONS PROJECT STRUCTURAL DETAILS

**KEYED NOTES** 

1> 4-INCH WIDE WHITE PAINT STRIPE BY OTHERS.



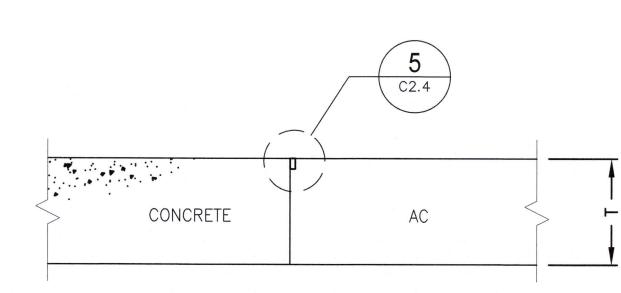
-REMOVE AREA OF DAMAGED RCC PAVEMENT AND CONCRETE SLAB.
REPLACE WITH NEW COMPACTED SUBBASE AND ASPHALT PER DETAIL 6/C2.4. PROVIDE CONTROL JOINT PER 5/C2.4.



C2.4

**TYPICAL JOINT DETAIL** 

SCALE: NTS

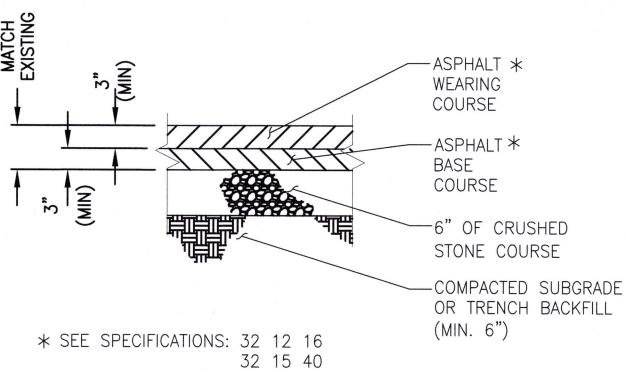


**CONCRETE - AC JOINT DETAIL** C2.4 SCALE: NTS



## **ROLLER COMPACTED CONCRETE REMOVAL - PHOTO**

SCALE: NTS



C2.4

**ASPHALT CONCRETE PAVEMENT** 

SCALE: 1" = 1'-0"

LEGEND

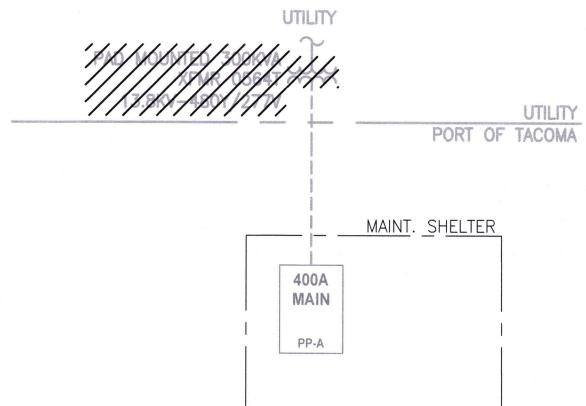
(E) = EXISTING///// = DEMOLITION

## **GENERAL NOTES**

1. SEE DRAWING E1.0 FOR ELECTRICAL NOTES.

## **ELECTRICAL NOTES:**

TACOMA POWER SHALL DEENERGIZE AND REMOVE EXISTING 300 KVA TRANSFORMER AND 15KV CABLE. PAD SHALL BE REUSED FOR NEW 500 KVA UNIT. COORDINATE WITH PORT OF TACOMA TO SCHEDULE OUTAGE.



PARTIAL SINGLE LINE DIAGRAM SCALE: NO SCALE

6663 D3.

CONDUIT CAP & SEAL

GROUND PER NEC

DISCONNECT SWITCH

XXXX —

CONDUIT IDENTIFICATION. SEE CONDUIT AND CONDUCTOR SCHEDULE

DRAWINGS E3.0.

 $\bigcap$ 

PAD MOUNTED TRANSFORMER

**PULLBOX** 

## PARTIAL ABBREVIATION LEGEND:

A = AMPS

AFG = ABOVE FINISHED GRADE

AMPERE INTERRUPTING CAPACITY

= COMMUNICATIONS

CDF = CONTROLLED DENSITY FILL

CKT = CIRCUIT

= CRANE POWER

CSB = CRANE SERVICE VAULT

CV = COMMUNICATIONS VAULT

E = EXISTING

FT = FEET

GND = GROUND

ID = IDENTIFICATION

N = NEW

NEC = NATIONAL ELECTRICAL CODE

NEMA = NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION

PB = PULLBOX

POT = PORT OF TACOMA

RGS = RIGID GALVANIZED STEEL

SCCR = SHORT CIRCUIT CURRENT RATING

SD = SECONDARY DISTRIBUTION

SP = SPARE CONDUIT

SWBD = SWITCHBOARD

TPU = TACOMA POWER UTILITIES

TPUV = TACOMA PUBLIC UTILITIES VAULT

TPUM = TACOMA PUBLIC UTILITIES MANHOLE

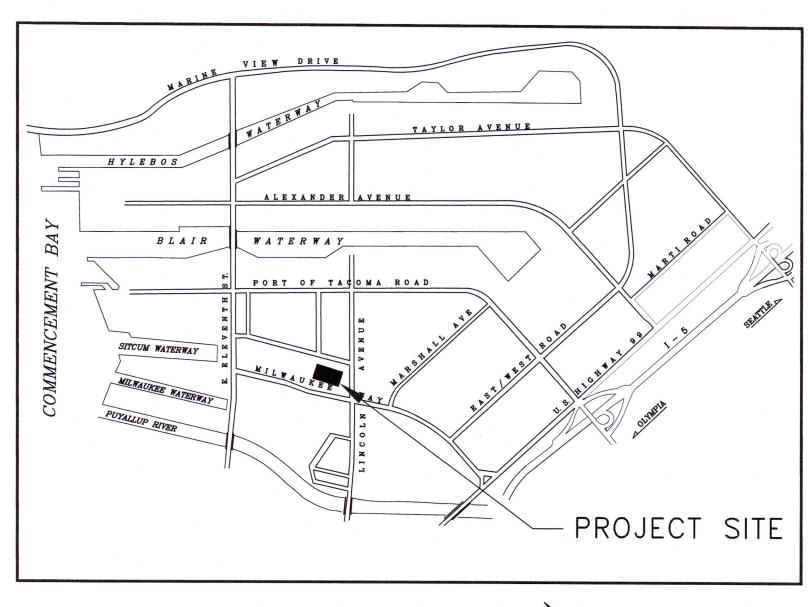
WAC = WASHINGTON ADMINISTRATIVE CODE

WP = WEATHERPROOF

XFMR = TRANSFORMER

## **GENERAL NOTES:**

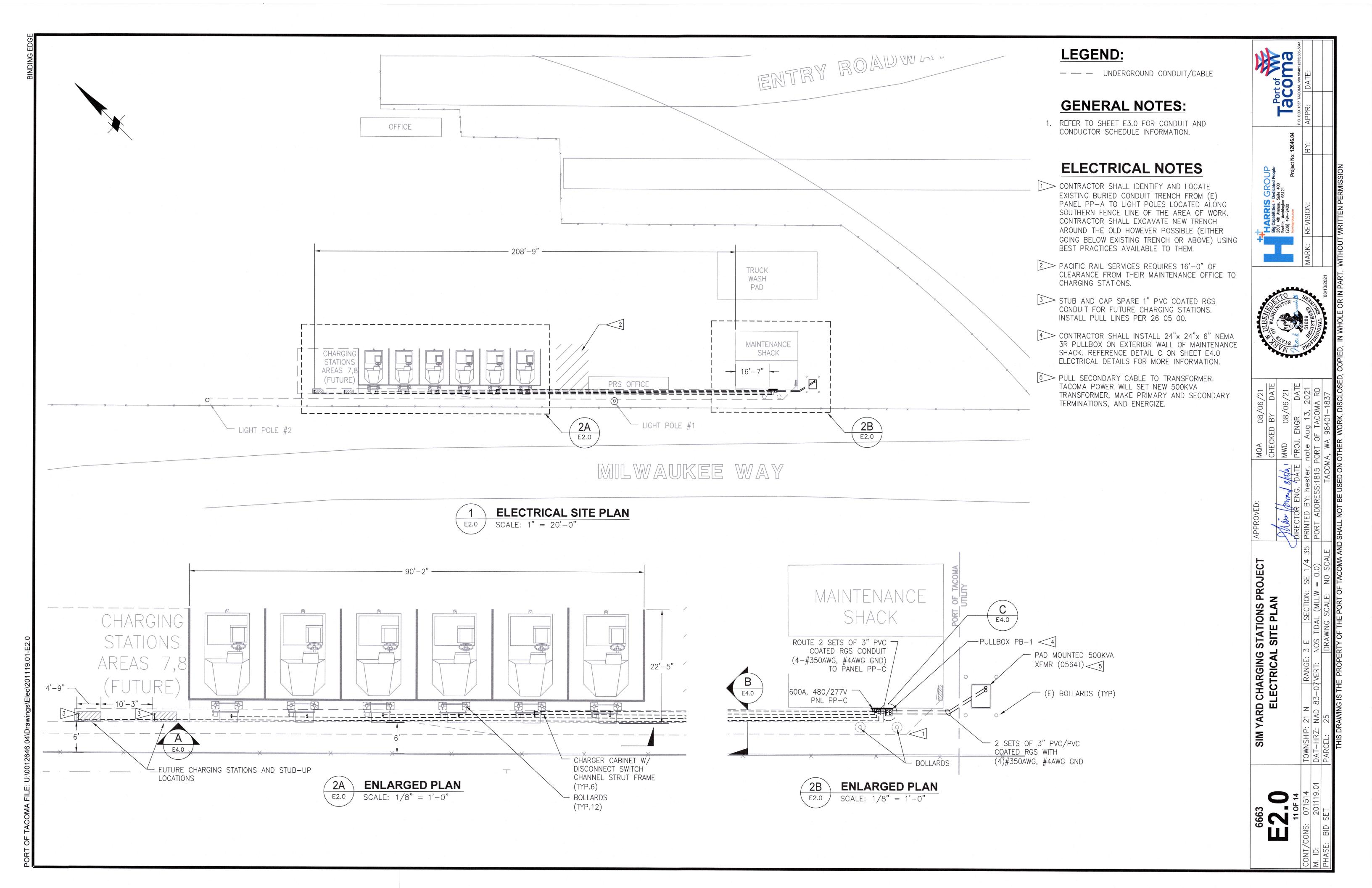
- 1. DO NOT SCALE ELECTRICAL DRAWINGS. REFER TO CIVIL AND STRUCTURAL DRAWINGS TO COORDINATE EXACT LOCATION OF ALL ELECTRICAL EQUIPMENT, STRUCTURES, CONDUITS, ETC. NOTIFY ENGINEER IN THE EVENT OF A CONFLICT.
- 2. SEE DRAWING E3.0 FOR CONDUIT AND CONDUCTOR SCHEDULE. SEE SITE PLANS, AND DETAILS FOR ADDITIONAL CONDUIT AND CONDUCTOR REQUIREMENTS. COUPLINGS AND JOINTS OF CONDUITS EMBEDDED IN CONCRETE OR ASPHALT SHALL BE TAPED OR OTHERWISE MADE WATERTIGHT TO PREVENT INTRUSION OF MORTAR, WATER OR OTHER MATERIALS. TEST CONDUIT FOR ABSENCE OF ANY BLOCKAGE PRIOR TO AND WITHIN 24 HOURS OF COMPLETING A CONCRETE POUR OR ASPHALT
- 3. PROVIDE PULL STRINGS WITH DISTANCE INCREMENTS (FEET) IN ALL CONDUITS. CONTRACTOR SHALL PROVIDE CONDUIT LABELS FOR ALL EXPOSED CONDUIT GREATER THAN 208V AS PER SPECIFICATION 26 05 33.
- 4. CONTRACTOR SHALL INCLUDE IN THE BID ALL COSTS TO HAVE A DEPARTMENT OF LABOR AND INDUSTRIES APPROVED FIRM TO FIELD EVALUATE THE INSTALLATION, SAFETY, AND COMPLIANCE REQUIRED PER TACOMA POWER ELECTRICAL INSPECTION AND/OR PER W.A.C. 296-46B-901 FOR ANY EQUIPMENT SPECIFIED OR FURNISHED THAT IS NOT UL LABELED.
- 5. FOR ALL TRENCHING IN EXISTING ASPHALT AREAS, CONTRACTOR SHALL SAWCUT AND PATCH EXISTING ASPHALT PER CIVIL REQUIREMENTS IN SPECIFICATION 32 12 16. SEE CIVIL DRAWINGS FOR ASPHALT AREAS.
- 6. PROVIDE 1" PVC COATED RGS CONDUIT FOR RISER AND SWEEP BEFORE TRANSITION TO 1" SCHED. 40 PVC CONDUIT IN TRENCH.
- 7. CONTRACTOR IS REQUIRED TO FIELD WALK THE WORK AREA TO LOCATE AND ASSESS FIELD CONDITIONS OF EQUIPMENT INCLUDED IN THIS PROJECT, REFER TO ELECTRICAL DRAWINGS.
- 8. ALL EXPOSED RIGID GALVANIZED STEEL CONDUIT SHALL BE PVC COATED OR PAINTED WITH A MINIMUM 3 MIL COATING OF PAINT FOR CORROSION PROTECTION AND TO PREVENT ZINC RUNOFF TO THE STORMWATER SYSTEM. PAINT APPLICATION BY MANUFACTURER IS PREFERRED TO FIELD PAINTING FOR COVERAGE AND QUALITY.
- 9. REFER TO DIVISION 26 ELECTRICAL SPECIFICATION FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

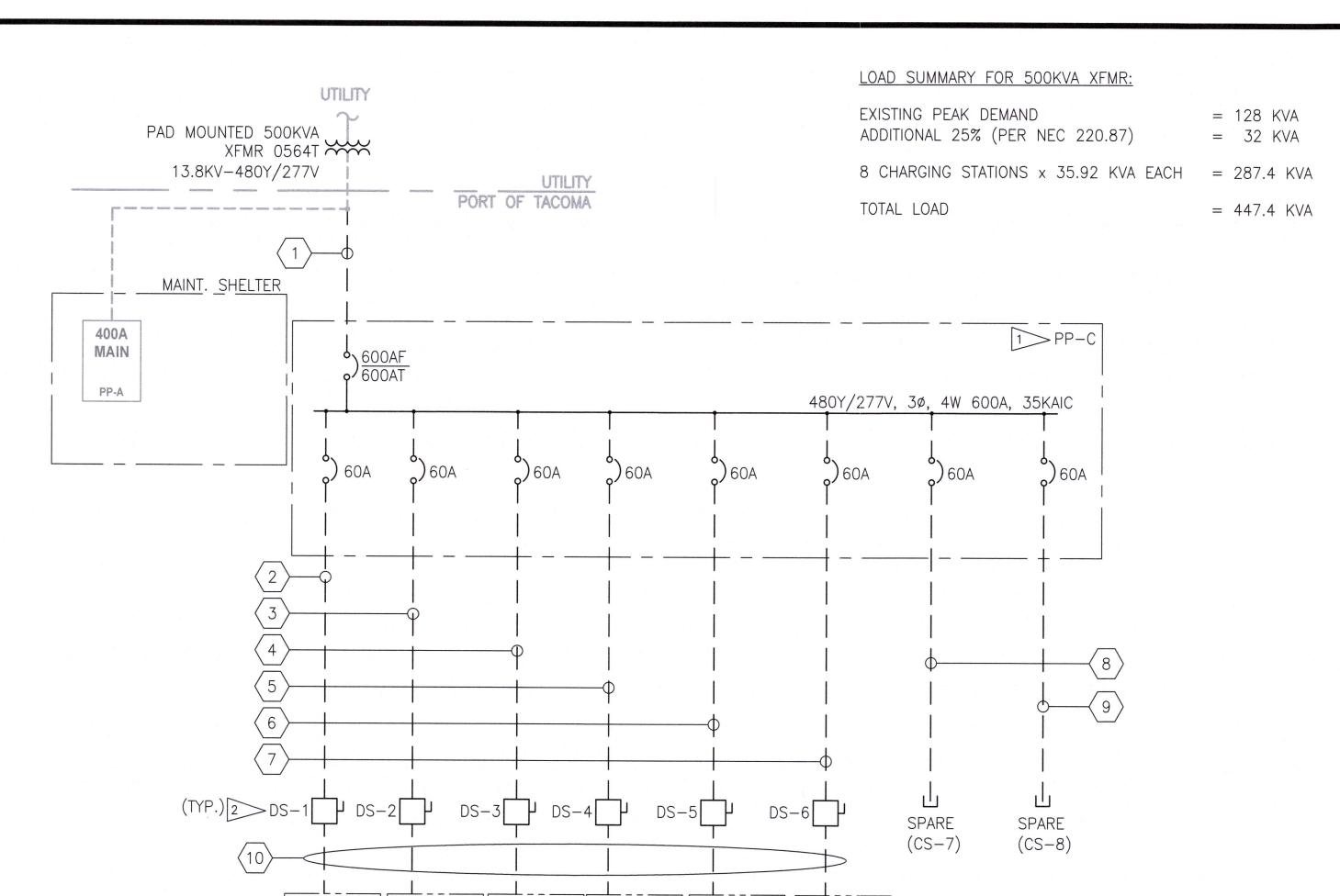




acon

0





### **480V ONE LINE DIAGRAM**

CHARGING | CHARGING | CHARGING | CHARGING | CHARGING STATION #1 STATION #2 STATION #3 STATION #4 STATION #5 STATION #6

NO SCALE

(CS-1) || (CS-2) || (CS-3) || (CS-4)

			NO SCALE						
FEEDER			CONDUIT	LOCA	TION		CONDUCTORS		
ID.	QTY.	SIZE	TYPE	FROM	ТО	VOLTAGE	NUMBER OF WIRES		(FT)
1	2	3"	PVC COATED RGS/PVC	XFMR (0564T)	480V PANEL - PP-C	480Y/277V	4-#350 + #4G		40'
2	1	1"	PVC COATED RGS/PVC	480V PANEL - PP-C	DISCONNECT SWITCH DS-1	480	3-#4 + #10G		135'
3	1	1"	PVC COATED RGS/PVC	480V PANEL - PP-C	DISCONNECT SWITCH DS-2	480	3-#4 + #10G		150'
4	1	1"	PVC COATED RGS/PVC	480V PANEL - PP-C	DISCONNECT SWITCH DS-3	480	3-#4 + #10G		165'
5	1	1"	PVC COATED RGS/PVC	480V PANEL - PP-C	DISCONNECT SWITCH DS-4	480	3-#4 + #10G		180'
6	1	1"	PVC COATED RGS/PVC	480V PANEL - PP-C	DISCONNECT SWITCH DS-5	480	3-#4 + #10G		195'
7	1	1"	PVC COATED RGS/PVC	480V PANEL - PP-C	DISCONNECT SWITCH DS-6	480	3-#4 + #10G		210'
8	1	1"	PVC COATED RGS/PVC	480V PANEL - PP-C	FUTURE CHARGING STATION CS-7	480	<del>-</del>		225'
9	1	1"	PVC COATED RGS/PVC	480V PANEL - PP-C	FUTURE CHARGING STATION CS-8	480	· - · · · · · · · · · · · · · · · · · ·		240'
(10)	6	1"	PVC COATED RGS	DISCONNECT SWITCHES DS-1 - DS-6	CHARGING STATIONS CS-1 - CS-6	480	3-#4 + #10G		5'

|| (CS-5) ||

(CS-6)

### CONDUIT AND CONDUCTOR SCHEDULE

NO SCALE

	ANELBOARD SCI	IILDOLL			DEMAN	DIOA	n	1		DA.		PP-C		4
*	LOAD SUMMARY	CL	D			B LOA	С	TOTA	T	PANELBOARD DESIGNATION				L
	Lighting	0.0	0			.0	0.0	0.0		VOLTAGE		480Y/277V		٦
- २	Convenience Recept	0.0	0			0.0	0.0	0.0		PHASING 3				
	Heating	0.0	0	<del></del>		.0	0.0	0.0		SYSTEM	NORMAL			+
	Cooling	0.0	0			.0	0.0	0.0						$\dashv$
					-			1		BUS SIZE		600A		4
	HVAC	0.0	0			.0	0.0	0.0	—	MAINS		600A MCB		4
	Process	0.0	0			.0	0.0	0.0		FEEDER N				
2	Other Continuous	287.4	1	95.8	95	5.8	95.8	287.	4	FEEDER SI	ZE			
1	Other Noncontinuous	0.0	0	0.0	0	.0	0.0	0.0		FEEDER P	ROT			
	Total	287.4		95.8	95	5.8	95.8	287.	4	FEEDER LE	ENGTH			
								•		FEEDER V.				
	Min. Feeder Ampacity	432.1												4
						4/00/00	١٥4			FAULT CUF				
	Spare Feeder Ampacity	25%				4/22/20	121			ENCLOSUF	₹E	3R		
	Calc. Feeder Ampacity	540		<u> </u>						MOUNTING	/FEED			
	DESCRIPTIO	N	*	СВ	KVA	Α	В	С	KVA	СВ	D	ESCRIPTION	*	٦
1			0		11.98	23.95			11.98					,
3	Charging Station C	S-1	0	60A-3P	11.98		23.95		11.98	60A-3P	Cha	arging Station CS-2		$\frac{1}{1}$
5			0		11.98			23.95	11.98					4
								20.00						+
7			0		11.98	23.95			11.98				0	4
9	Charging Station C	S-3	0	60A-3P	11.98		23.95		11.98	60A-3P	Cha	rging Station CS-4	0	
11			0		11.98			23.95	11.98				0	
13			0		11.98	23.95			11.98				0	
15	Charging Station C	S-5	0	60A-3P	11.98		23.95		11.98	60A-3P	Cha	rging Station CS-6	0	
17			0		11.98			23.95	11.98				0	
19			0		11.98	23.95			11.98				0	
21	Charging Station C (FUTURE)	S-7	0	60A-3P	11.98		23.95		11.98	60A-3P	Cha	rging Station CS-8 (FUTURE)	0	
23			0		11.98			23.95	11.98				0	
25	(space)					0						(space)		
27	(space)						0					(space)		
29	(space)							0				(space)		
31	(space)					0						(space)		
33	(space)						0					(space)		
35	(space)							0				(space)		
37	(space)					0						(space)		
39	(space)						0					(space)		
11	(space)							0			Guerrin	(space)		
	SUB-FEED PANEL(S) KV	Ά								27 (1985) 27 (1985)				

## PP-C PANEL SCHEDULE

Total Connected Load 95.8 95.8 95.8

NO SCALE

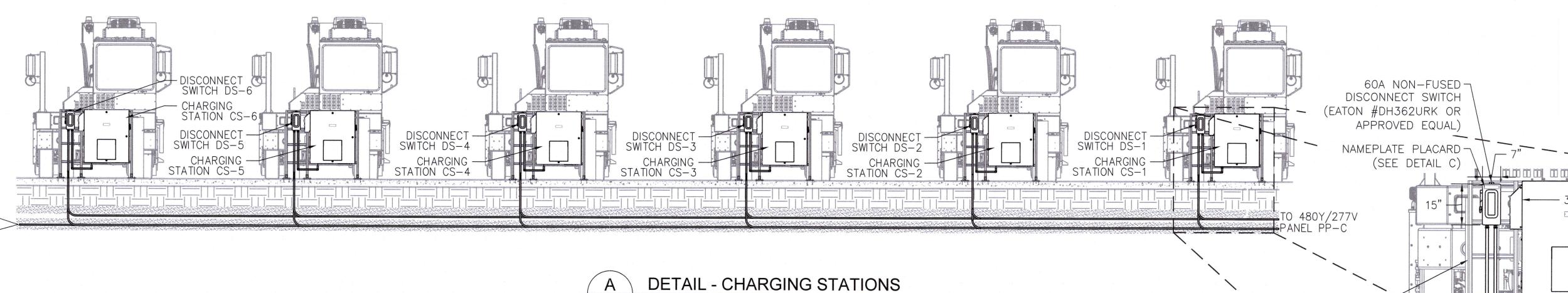
## **ELECTRICAL NOTES:**

PROVIDE 600A, 3-POLE, 480Y/277V, 35KAIC RATED, NEMA 3R, 20" WIDE X 60" TALL PANELBOARD. EATON CATALOG # PRL3A. PROVIDE WITH 100% RATED 600A MAIN BREAKER TYPE LGE WITH (8) 60A, 3-POLE CIRCUIT BREAKERS TYPE FDB.

PROVIDE 60A RATED, 600V, 3-POLE, HEAVY DUTY, NON-FUSED, NEMA 3R DISCONNECT SWITCH WITH LOCKABLE

MQA 08/06/21  CHECKED BY DATE  Sequence People Big Capabilities • Dedicated People	106/21	Mark of Frankling			
MQA	in from 18/8/21 MWD	DIRECTOR ENG. DATE PROJ. ENGR	RANGE: 3 E   SECTION: SE 1/4 35   PRINTED BY: hester, nate Aug 13, 2021	PORT ADDRESS:1815 PORT OF TACOMA RD	TACOMA WA GRADI-1837





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

E2.0

EXISTING PAVEMENT

24" PULLBOX SH 48" AB0 TO PP-C -3" CONDUIT FED THROUGH BOTTOM OF PULLBOX

> DETAIL - PULLBOX (PB-1) SCALE: 1" = 1'-0"

## **GENERAL NOTES:**

1. CONTAIN EXCAVATED MATERIALS FOR REUSE. PREVENT MIXING OF MATERIALS NEED TO BE STORED ON PLASTIC SHEETING AND COVERED AT ALL TIMES WHEN THE PILE IS NOT BEING WORKED. ALTERNATIVELY A DROP OFF BOX WITH A COVER MAY BE USED TO CONTAIN THE MATERIAL.

## **ELECTRICAL NOTES:**

ROUTE (2) 1" SPARE CONDUIT TO FUTURE CHARGING STATIONS CS-7 AND CS-8. STUB AND CAP CONDUIT. SEE E2.0 FOR LOCATIONS.

2 CHARGING STATIONS, CHARGING CABLES AND CABLE HANGERS WILL BE PROVIDED BY THE PORT.

TIONS	CHANNEL STRUT FRAME  (SEE DETAIL C)
4"x24"x6" NEMA 3R ———————————————————————————————————	PVC COATED RGS (TYP)  (3)#4, #10G
24" -4-#350,	-1" PVC, SCHED. 40 (3)#4, #10G

## 1" SPARE FOR -DETECTOR TAPE FUTURE > OR TRACE WIRE CHARGING STATIONS -(TYP. OF 6) 1" SCHED. 40 PVC -BASE AND INTERMEDIATE SPACERS 48" ON CENTER 0 0 0 -3" SAND BEDDING BELOW CONDUIT -MASONRY LEVELING 3" | 4.5" | 4.5" | 4.5" | BLOCKS AT BASE SPACERS AS NEEDED NOTE: REFER TO CIVIL SHEET C2.4 FOR DETAILED INFORMATION REGARDING DEPTH OF

ASPHALT PATCHWORK.

ASPHALT PATCH ----

GRADE

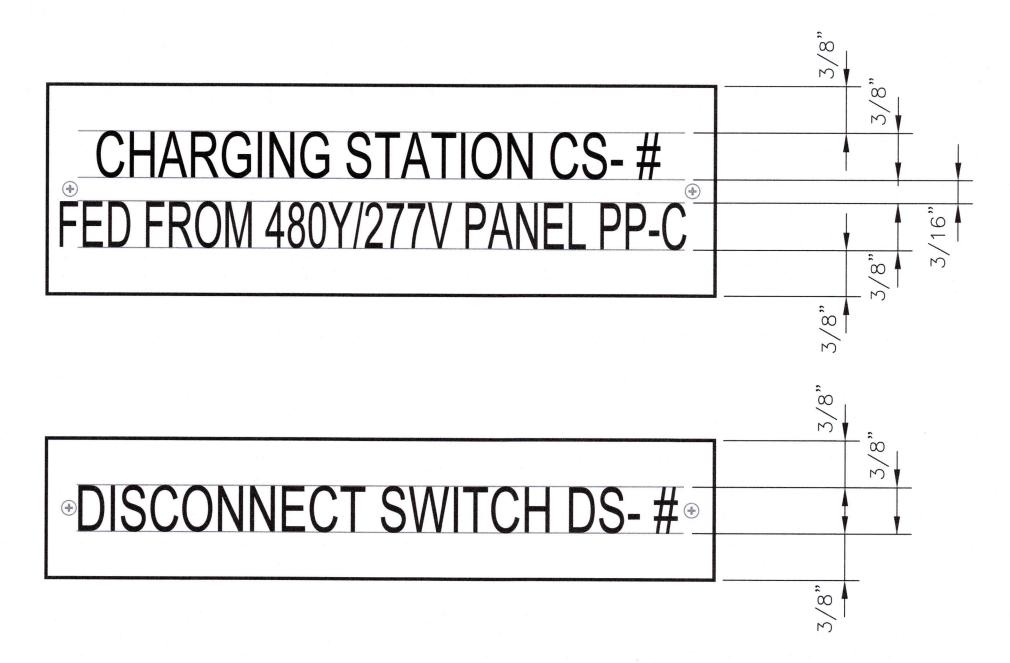
DETAIL - DUCT BANK SCALE: 1-1/2"=1'-0"

Tacon Tacon

- CHARGING STATION 2 ENCLOSURE (SUPPLIED BY PORT OF TACOMA)

YARD CHARGING STATIONS PROJECT ELECTRICAL DETAILS

6663 **E4.0** 



NAMEPLATE SCHEDU	LE	NAMEPLATE SCHEDULE						
1ST LINE	LETTERING HEIGHT	1ST LINE	2ND LINE	LETTERING HEIGHT				
DISCONNECT SWITCH DS-1	3/8"	CHARGING STATION CS-1	FED FROM 480Y/277V PNL PP-C	3/8"				
DISCONNECT SWITCH DS-2	3/8"	CHARGING STATION CS-2	FED FROM 480Y/277V PNL PP-C	3/8"				
DISCONNECT SWITCH DS-3	3/8"	CHARGING STATION CS-3	FED FROM 480Y/277V PNL PP-C	3/8"				
DISCONNECT SWITCH DS-4	3/8"	CHARGING STATION CS-4	FED FROM 480Y/277V PNL PP-C	3/8"				
DISCONNECT SWITCH DS-5	3/8"	CHARGING STATION CS-5	FED FROM 480Y/277V PNL PP-C	3/8"				
DISCONNECT SWITCH DS-6	3/8"	CHARGING STATION CS-6	FED FROM 480Y/277V PNL PP-C	3/8"				



## **GENERAL NOTES**

- REFER TO DRAWING E1.0 FOR ADDITIONAL GENERAL NOTES.
- 2. REFER TO SPECIFICATION SECTION 26 05 53 FOR ADDITIONAL LABELING REQUIREMENTS INCLUDING NAMEPLATE COLOR, MATERIAL THICKNESS, AND ATTACHMENT. USE ARIAL FONT FOR NAMEPLATE TEXT.
- 3. CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING LABELS ON NEW EQUIPMENT.
- 4. ALL LABELING SHALL BE COMPLETE PRIOR TO ENERGIZING EQUIPMENT.



