

MARK	SIZE		THK.	REINFORCEMENT	
	N-S	E-W		N-S	E-W
A	4'-0"	4'-0"	1'-4"	#5 AT 12"	#5 AT 12"
B	5'-0"	5'-0"	1'-4"	#5 AT 12"	#5 AT 12"
C	7'-0"	7'-0"	2'-0"	#6 AT 12"	#6 AT 12"
D	8'-0"	8'-0"	2'-0"	#6 AT 12"	#6 AT 12"
E	9'-0"	9'-0"	2'-0"	#6 AT 12"	#6 AT 12"

**1 SLAB AND FOUNDATION PLAN**  
1/8" = 1'-0"

**2 MEZZANINE FRAMING PLAN**  
1/8" = 1'-0"  
F.F.E. 12'-0"  
T/FTG. EL. 11'-4"

PROJECT TITLE  
**POWERMASTER ELECTRIC**  
JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.  
**C210507**

DRAWING TITLE  
**FOUNDATION PLAN**

SHEET 0 OF 0

**S1**

PLOT DATE 8/12/2021  
REVISION



STRUCTURAL NOTES

I. GENERAL

1. DESIGN CODES

NORTH CAROLINA BUILDING CODE, 2018 EDITION (AMENDED 2015 INTERNATIONAL BUILDING CODE)

ACI BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14)

AISC MANUAL OF STEEL CONSTRUCTION - ALLOWABLE STRESS DESIGN NINTH EDITION

ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES

2. DESIGN LOADS

LIVE LOADS: FLOOR: 100 PSF  
MEZZANINE: 50 PSF (OFFICE)  
ROOF: 20 PSF

ULTIMATE DESIGN WIND SPEED: 116 MPH (RISK CATEGORY II)

GROUND SNOW LOAD: 15 PSF

SITE CLASS D

Ss = 0.170

S1 = 0.082

SEE PRE-ENGINEERING METAL BUILDING DRAWINGS BY OTHERS FOR FULL STRUCTURAL DESIGN LOAD SUMMARY USED FOR BUILDING DESIGN.

3. ALL ELEVATIONS ARE REFERENCED FROM FINISHED FLOOR ELEVATION OF 0'-0".

4. BUILDING DESIGN AND MAXIMUM FOUNDATION REACTIONS PROVIDED BY CHIEF BUILDINGS, ORDER NUMBER B3020492, DATED 13 MAY 2021. FOUNDATION DESIGN IS BASED ON MAXIMUM AND MINIMUM LOADING CONDITIONS PROVIDED BY THE BUILDING DESIGNER.

5. SEE BUILDING DRAWINGS FOR COLUMN AND BASE PLATE SIZES AND LOCATIONS.

6. ANCHOR BOLT DESIGN PROVIDED BY BUILDING DESIGNER. ANCHOR BOLT EMBEDMENT ONLY IS PROVIDED ON DRAWING S2.

7. ENGINEER'S SEAL APPLIES TO STRUCTURAL COMPONENTS ONLY AND DOES NOT CERTIFY ARCHITECTURAL LAYOUT OR DIMENSIONAL ACCURACY.

8. ROSS LINDEN ENGINEERS PC ASSUMES NO LIABILITY FOR CHANGES OR MODIFICATIONS MADE TO THESE DRAWINGS BY OTHERS, OR FOR CONSTRUCTION METHODS, OR FOR ANY DEVIATION FROM THESE DRAWINGS.

II. CONCRETE

1. UNLESS OTHERWISE NOTED, ALL CONCRETE SHALL HAVE THE FOLLOWING STRENGTH AND SLUMP REQUIREMENTS:  
3,500 PSI 28-DAY COMPRESSIVE STRENGTH, MAX. 5" SLUMP.

2. ALL CONCRETE SHALL BE MOIST CURED PER ACI 301 OR CURED WITH AN APPROVED CURING COMPOUND. CONTRACTOR SHALL VERIFY THAT THE CURING COMPOUND IS COMPATIBLE WITH FLOOR COVERING ADHESIVES, COATINGS, OR TOPPING TO BE USED. CONCRETE SHALL BE CURED FOR A MINIMUM OF 7 DAYS.

3. UNLESS OTHERWISE NOTED, ALL REINFORCING STEEL SHALL BE NEW BILLET STEEL, CONFORMING TO ASTM A-615, GRADE 60, DEFORMED.

4. UNLESS OTHERWISE NOTED, ALL DETAILING, FABRICATION, AND PLACING OF REINFORCING STEEL SHALL CONFORM TO THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES. (ACI 315)

5. ALL BAR SPLICES SHALL BE CLASS "B" TENSION SPLICES PER ACI 318-14, UNLESS OTHERWISE SHOWN.

6. ANCHOR BOLTS TO BE ASTM A36 OR A307.

7. CONTRACTOR SHALL REFER TO DRAWINGS OF OTHER TRADES AND VENDOR DRAWINGS FOR EMBEDDED ITEMS AND RECESSES NOT SHOWN ON THE STRUCTURAL DRAWINGS.

8. ALL SPREAD FOOTINGS BEARING ON NATIVE SOIL OR STRUCTURAL FILL ARE DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 1,500 PSF. A GEOTECHNICAL REPRESENTATIVE SHALL INSPECT ALL FOOTING EXCAVATIONS TO CONFIRM ALLOWABLE BEARING PRESSURES.

9. PROVIDE TWO (2) #5 x 4'-0" LONG DIAGONAL BARS IN TOP FACE OF ALL SLABS (1" CLEAR) AT ALL RE-ENTRANT CORNERS. SEE PLAN FOR LOCATIONS.

10. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, PROTECTING, AND RELOCATING AS REQUIRED ALL SERVICE AND UTILITY LINES IN VICINITY OF THE WORK SITE.

11. CONTRACTOR SHALL VERIFY ALL SIZES AND LOCATIONS OF ALL MECHANICAL AND ELECTRICAL OPENINGS AND EQUIPMENT PADS WITH THE MECHANICAL AND ELECTRICAL DETAILS AND SHOP DRAWINGS BY OTHERS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION FOR ALL UTILITIES THROUGHOUT THE BUILDING.

12. ALL DOWELS WHICH ARE TO BE DRILLED AND GROUTED INTO EXISTING CONCRETE SHALL BE DONE WITH AN EPOXY GROUT. DRILL HOLE WITH DIAMETER 1/8" LARGER THAN DOWEL OR AS RECOMMENDED BY GROUT SUPPLIER. USE HIT-RE 500 V3 BY HILTI OR APPROVED EQUAL.

IV. STRUCTURAL STEEL

1. SEE FRAMING PLANS FOR BOTTOM OF BASE PLATE ELEVATIONS.

2. ALL STRUCTURAL STEEL WIDE FLANGE BEAMS AND COLUMNS, UNLESS NOTED, SHALL CONFORM TO THE REQUIREMENTS OF ASTM A992 OR ASTM A572, GRADE 50. ANGLES AND CHANNELS SHALL CONFORM TO ASTM A36. TUBES SHALL CONFORM TO ASTM A500, GRADE B.

3. ALL DETAILING, FABRICATION, AND ERECTION OF STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL CONFORM TO THE REQUIREMENTS OF THE AISC SPECIFICATIONS FOR BUILDINGS, LATEST EDITION.

4. UNLESS OTHERWISE NOTED, ALL SHOP CONNECTIONS SHALL BE MADE BY WELDING OR HIGH STRENGTH BOLTING. (3/4" DIAMETER BOLTS, MINIMUM)

5. WELDS SHALL BE MADE WITH E-70XX ELECTRODES BY CERTIFIED WELDERS.

6. UNLESS OTHERWISE NOTED, ALL FIELD CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER HIGH STRENGTH BOLTS (ASTM A-325). CONNECTIONS SHALL BE DESIGNED AS BEARING TYPE WITH THREADS IN SHEAR PLANE. BOLTS SHALL BE TIGHTENED TO THE SNUG TIGHT CONDITION PER "AISC" UNLESS NOTED OTHERWISE ON THE DRAWINGS.

7. UNLESS OTHERWISE SHOWN, ALL BEAM CONNECTIONS SHALL BE STANDARD FRAMED OR SEATED CONNECTIONS AS SHOWN IN PART 10 OF THE AISC MANUAL OF STEEL CONSTRUCTION. UNLESS REACTIONS ARE INDICATED ON THE DRAWINGS, CONNECTIONS SHALL DEVELOP AT LEAST ONE-HALF OF THE TOTAL UNIFORM LOAD CAPACITY TABULATED IN THE TABLES OF THE MANUAL FOR THE GIVEN SHAPE AND SPAN OF THE BEAM IN QUESTION. IN NO CASE, HOWEVER, SHALL THE LENGTH OF THE FRAMED CONNECTIONS BE LESS THAN ONE-HALF OF THE "T" DISTANCE OF THE BEAM WEB.

8. GUSSET PLATES SHALL BE 3/8" THICK MINIMUM.

9. ALL COLUMN ANCHOR BOLT HOLES TO BE OVERSIZED IN ACCORDANCE WITH RECOMMENDATIONS OF "AISC" MANUAL FOR "DETAILING FOR STEEL CONSTRUCTION."

10. UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL BRACING CONNECTIONS SHALL BE DESIGNED AND DETAILED SO THAT ALL FORCE COMPONENTS CAN BE DELIVERED DIRECTLY TO THE CENTERLINE OF INTERSECTING MEMBERS. ALTERNATELY, CONNECTIONS SHALL BE DESIGNED TO ACCOUNT FOR RESULTING ECCENTRICITIES.

11. CONTRACTOR TO PROVIDE ADEQUATE BRACING FOR STRUCTURE SO THAT IT WILL BE STABLE DURING ALL STAGES OF CONSTRUCTION. THE STRUCTURE AND FOUNDATIONS ARE DESIGNED FOR A COMPLETED CONDITION ONLY AND THEREFORE REQUIRES ADDITIONAL SUPPORT TO MAINTAIN STABILITY BEFORE COMPLETION.

V. METAL FLOOR DECK

1. COMPOSITE METAL FLOOR DECK SHALL BE 1 1/2" DEEP x 20 GAGE (EQUAL TO 1.5VL20 BY VULCRAFT) FOR FLOOR SLABS. THREE-SPAN CONDITION IS ASSUMED FOR CONSTRUCTION. CONCRETE UNIT WEIGHT IS 145 PCF (NORMAL WEIGHT CONCRETE). THE TOTAL SLAB DEPTH SHALL BE 4". PROVIDE 5/8" PUDDLE WELDS IN A 36/4 PATTERN WITH MIN. (2) SIDELAP FASTENERS PER SPAN.

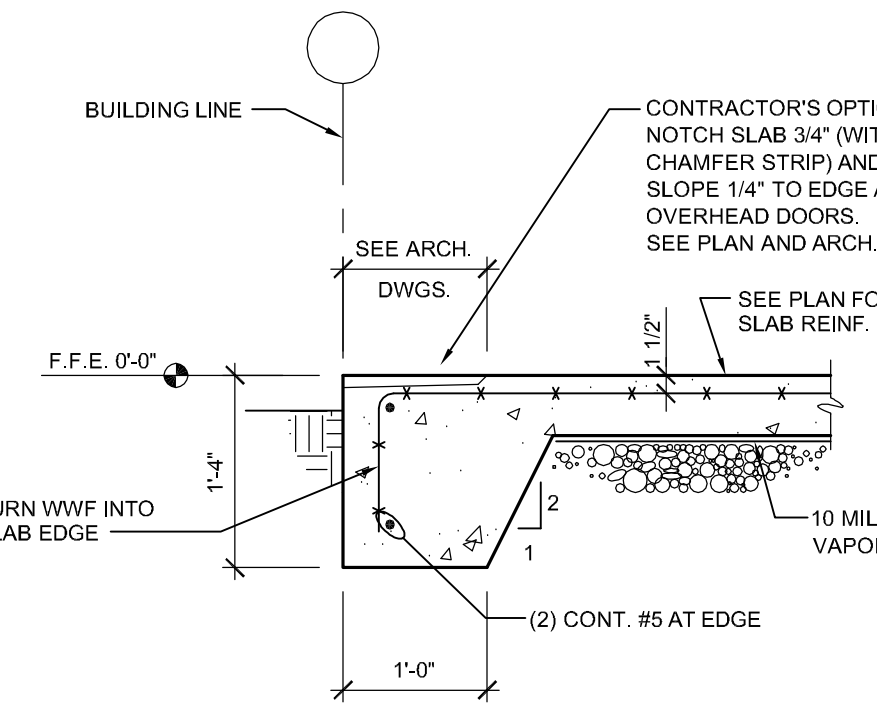
VI. LIGHT GAUGE STEEL FRAMING

1. INSTALLATION OF LIGHT GAUGE STEEL FRAMING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

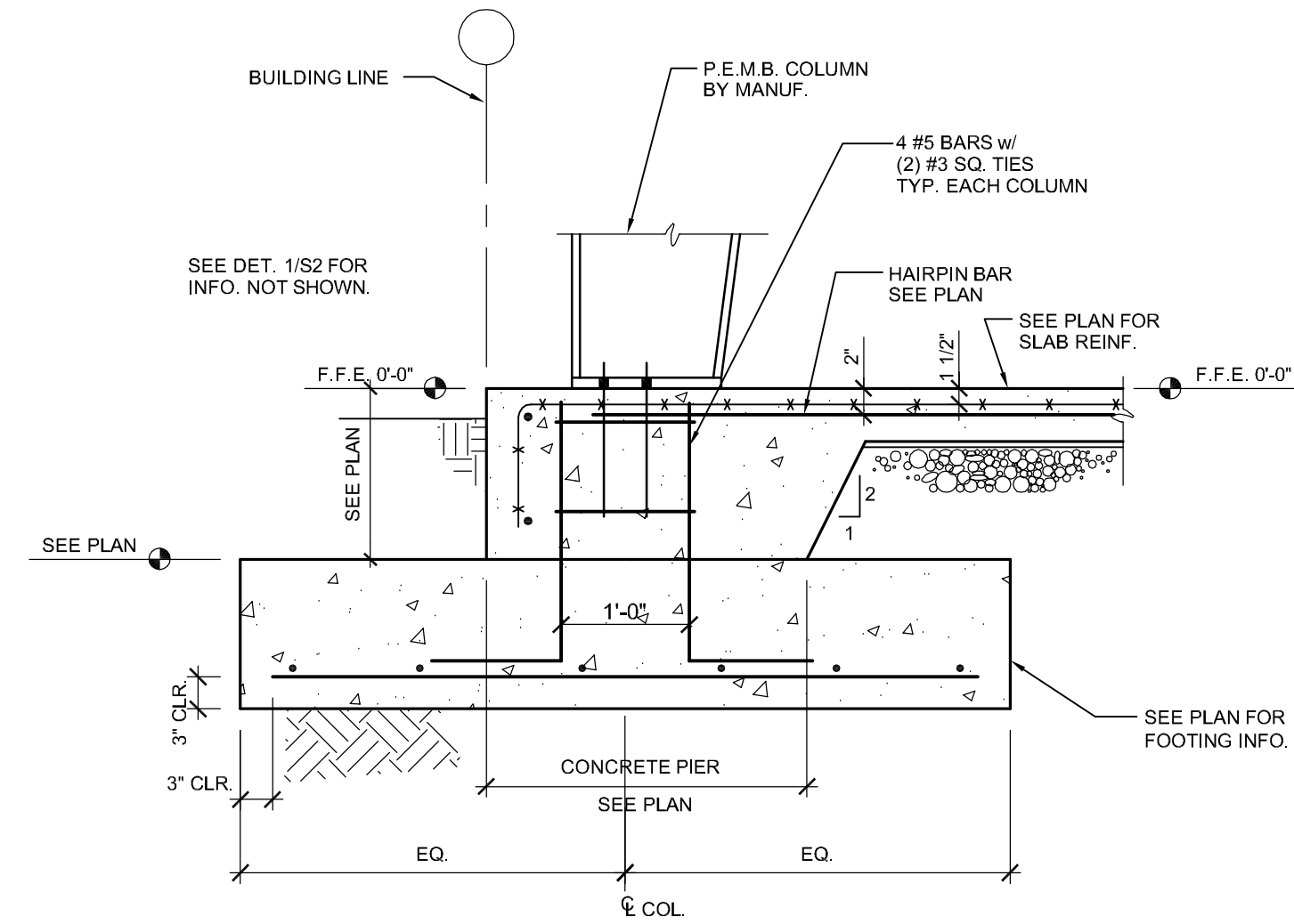
2. WALL STUDS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:  
16" MAX. SPACING  
STUD DEPTH = 8" (SEE ARCH. DWGS.)  
FLANGE WIDTH = 1 5/8" MIN.  
18 GAUGE STEEL

3. PROVIDE MIN. 18 GA. BOTTOM TRACK AND ANCHOR TO SLAB WITH POWDER ACTUATED FASTENERS AT 16" O.C. USE HILTI DS FASTENERS WITH 0.177" SHANK DIAMETER AND 1 7/16" EMBEDMENT. WELD STUDS TO TRACK EACH SIDE -OR- PROVIDE (2) NO. 10 SCREWS (ONE EACH SIDE OF TRACK).

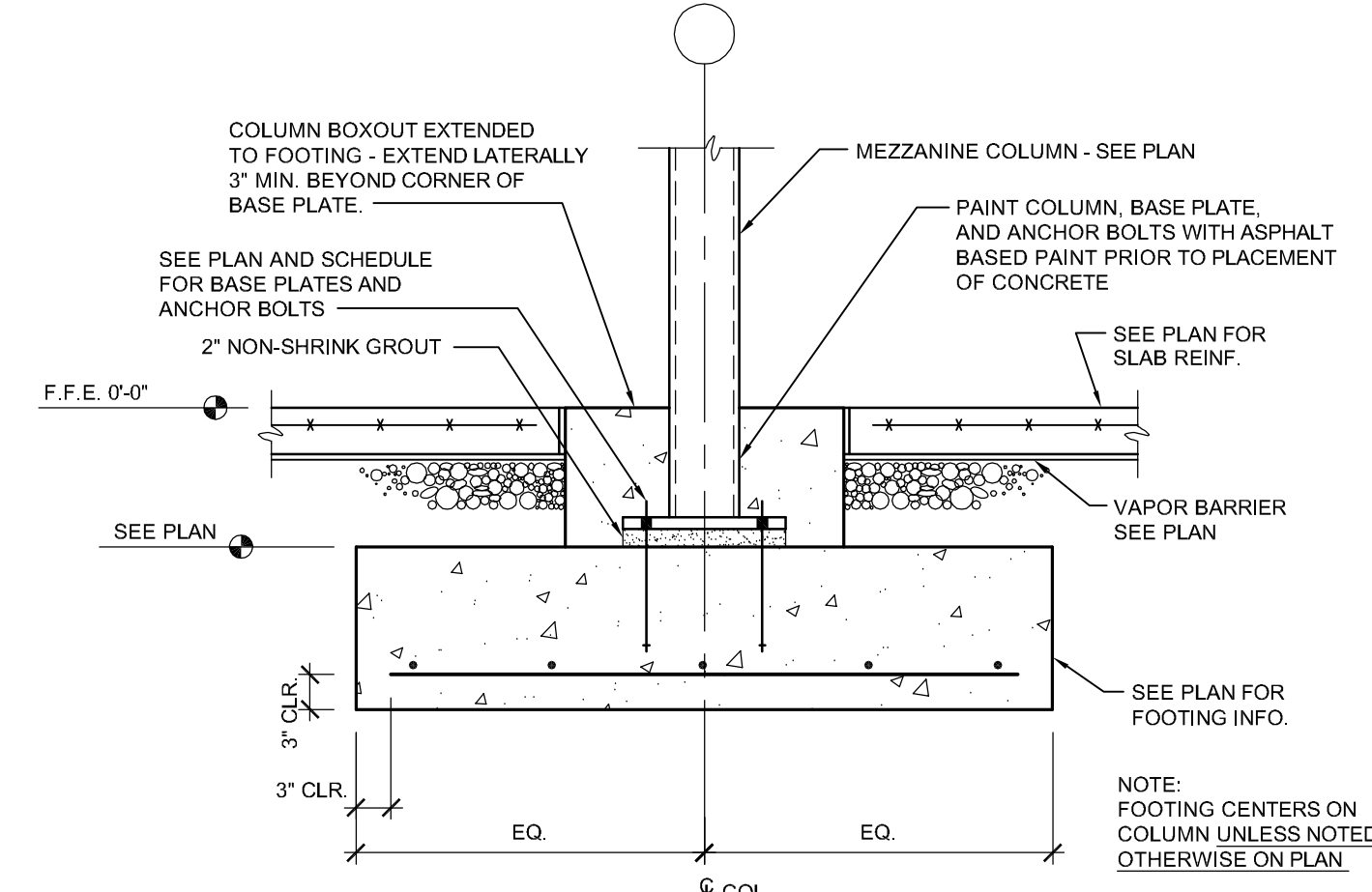
4. DETAILED SHOP DRAWINGS SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.



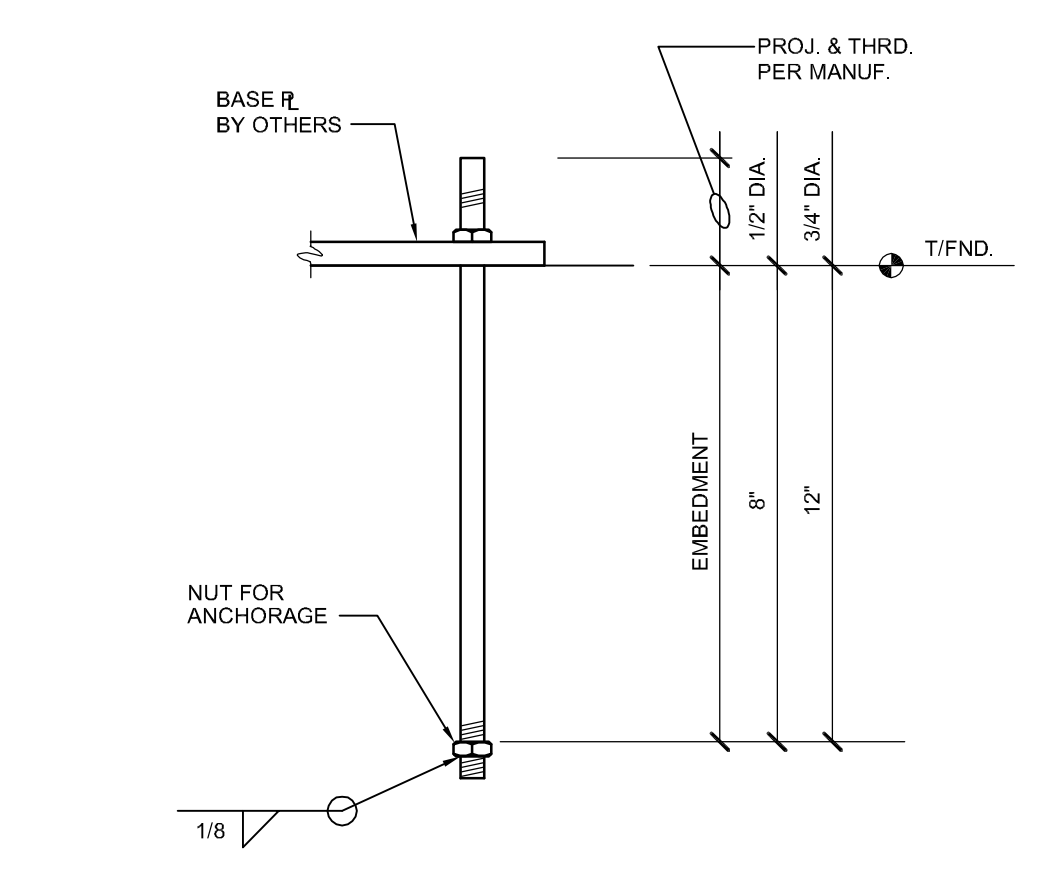
1 DETAIL - SLAB EDGE  
S2 3/4" = 1'-0"



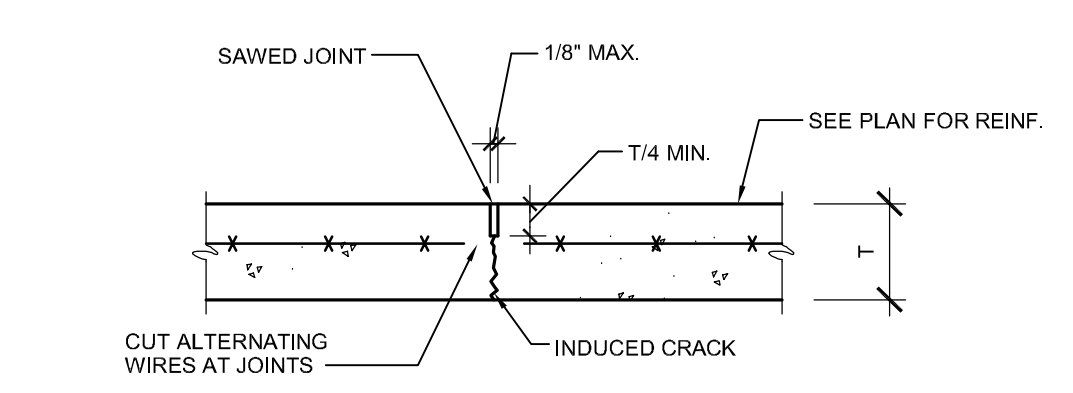
2 SECTION - COLUMN FOOTING  
S2 3/4" = 1'-0"



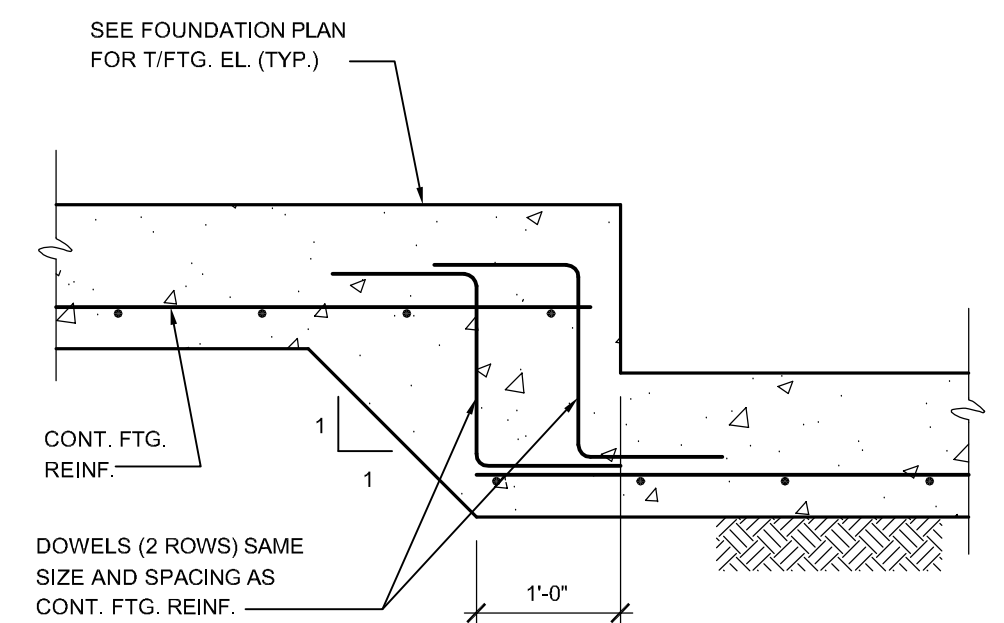
3 SECTION - MEZZ. COLUMN FOOTING  
S2 3/4" = 1'-0"



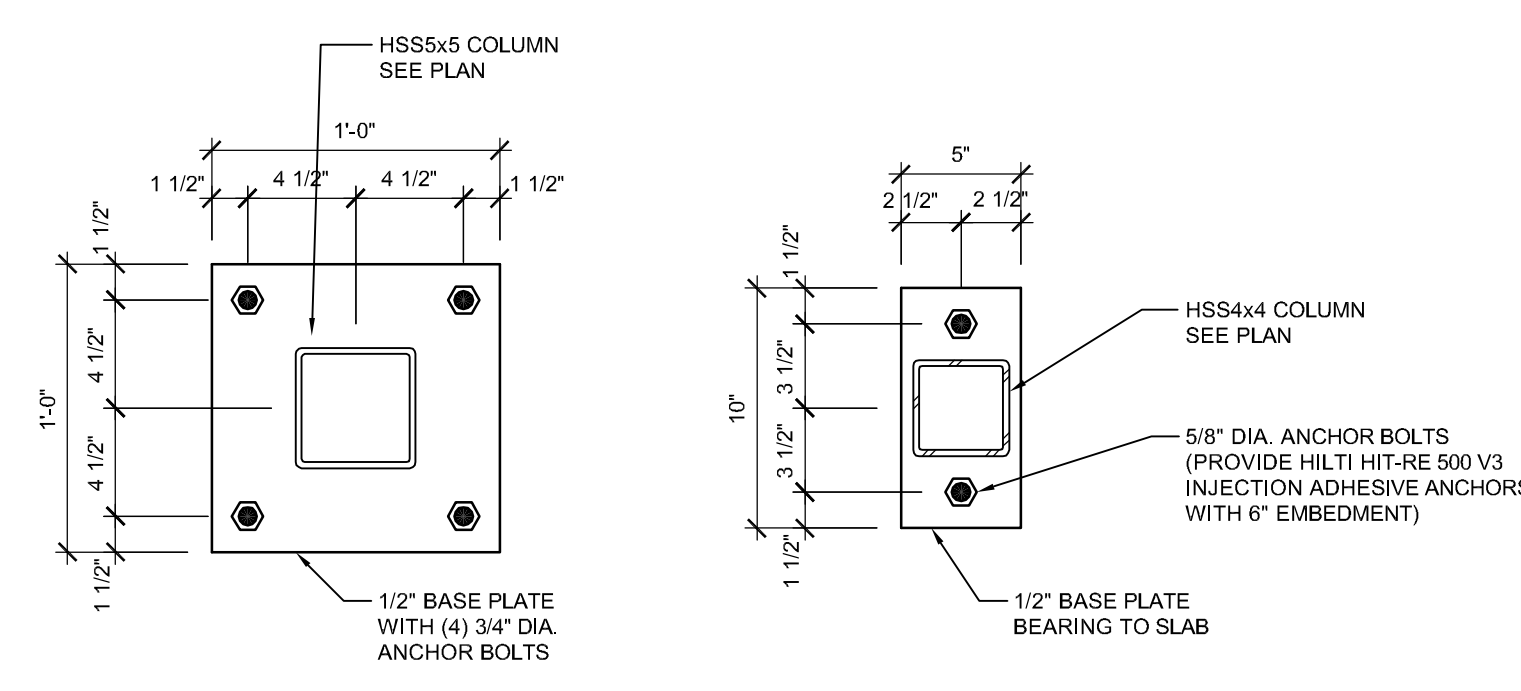
4 TYP. ANCHOR BOLT DETAIL  
S2 NO SCALE



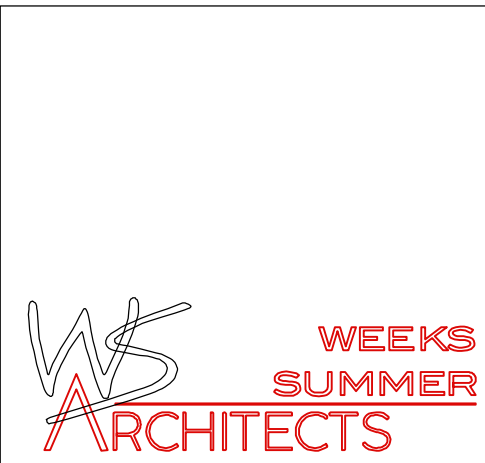
5 DETAIL - TYP. SLAB CONTROL JOINT  
S2 1" = 1'-0"



6 DETAIL - TYP. STEPPED FOOTING  
S2 3/4" = 1'-0"

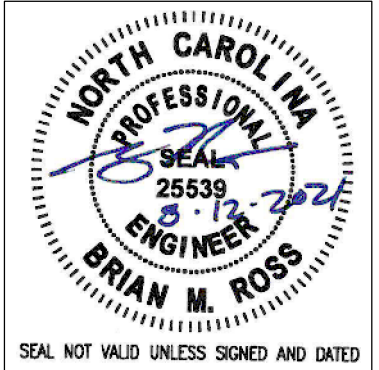


7 MEZZANINE BASE PLATE DETAILS  
S2 1 1/2" = 1'-0"



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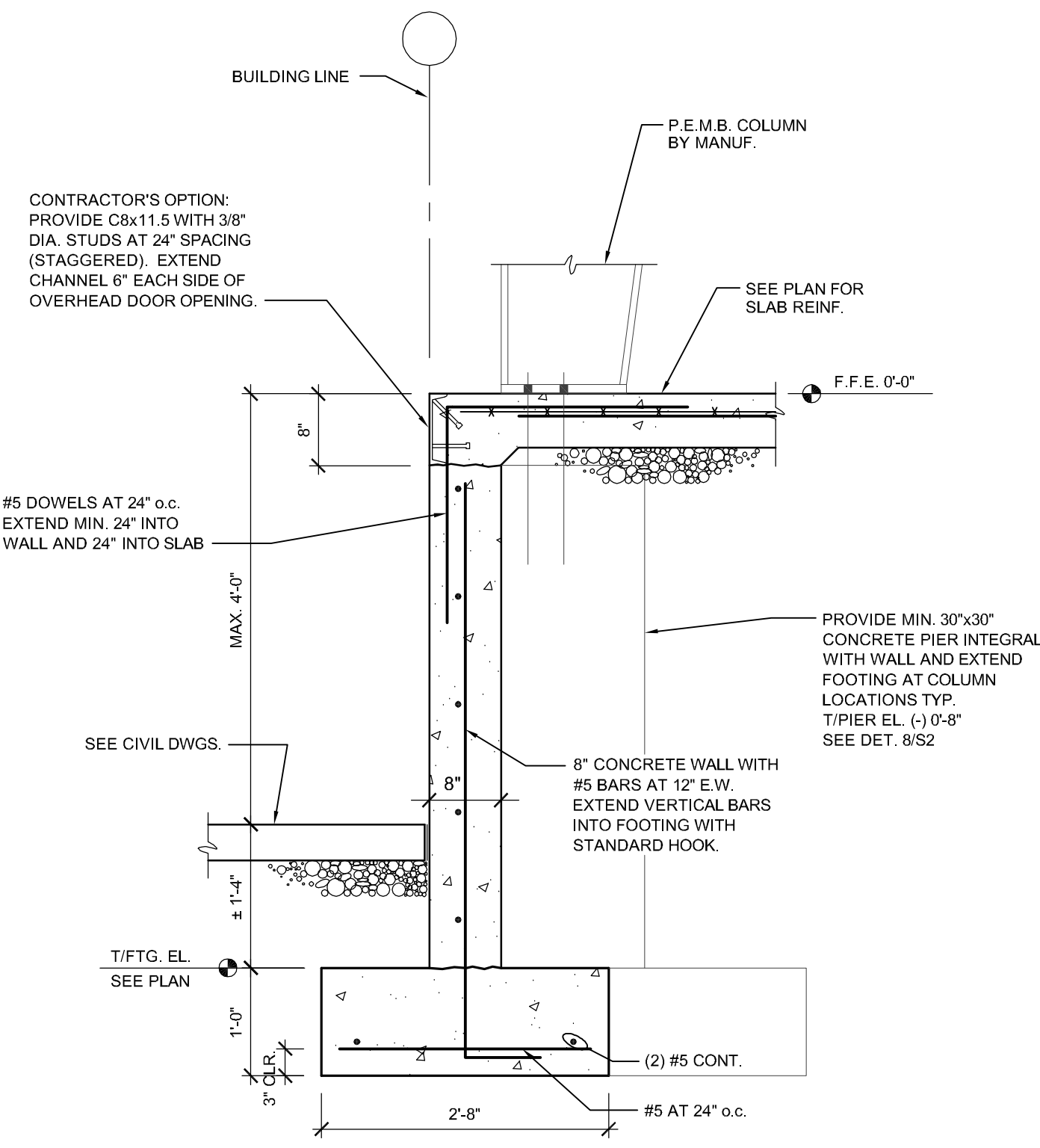
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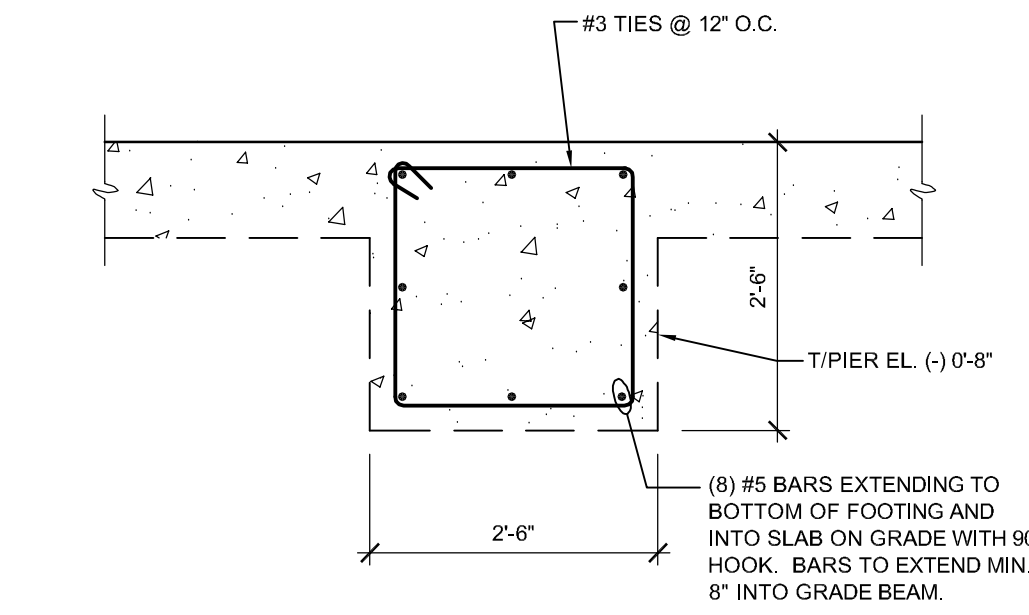
SHEET 0 OF 0

S2

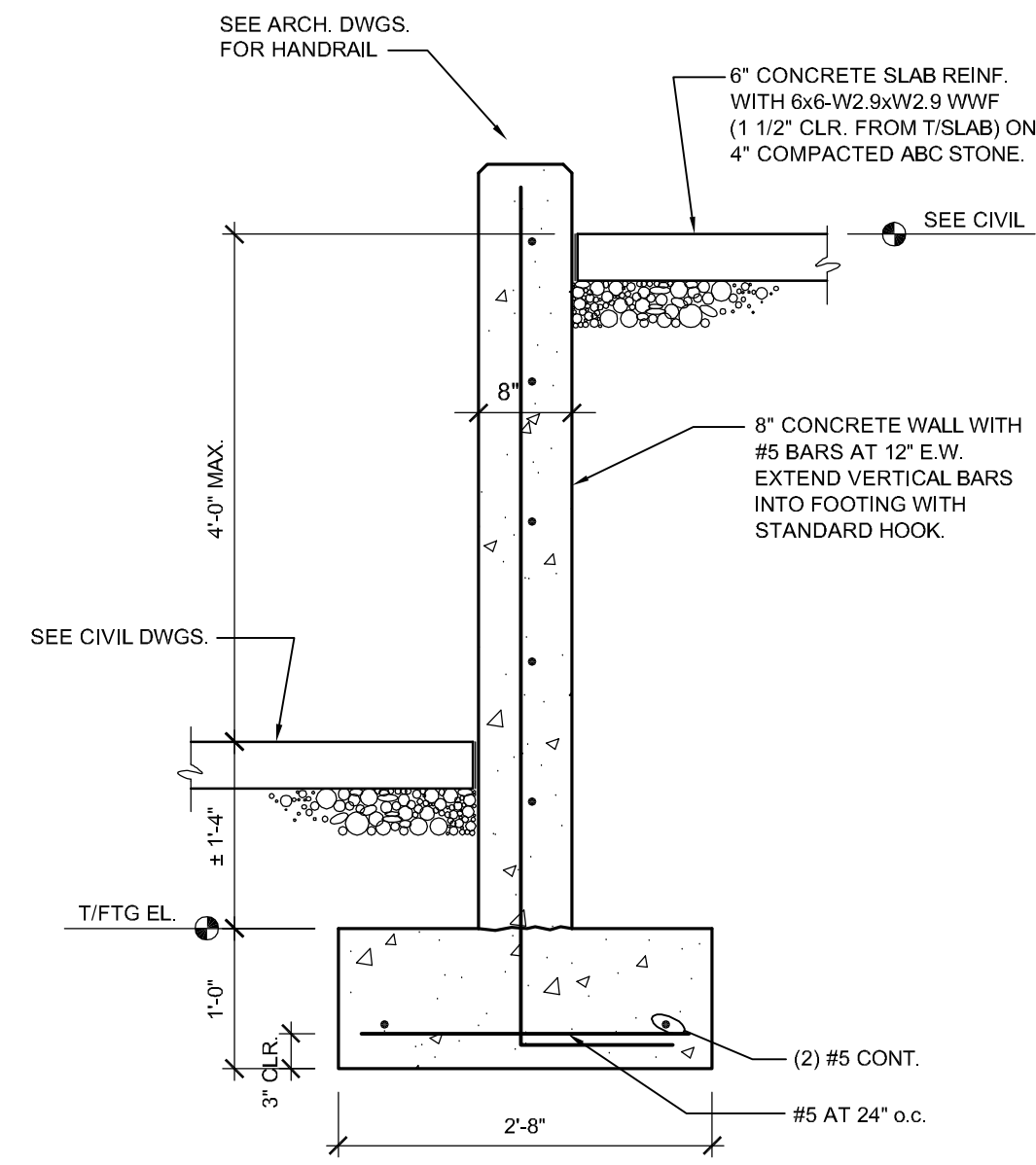
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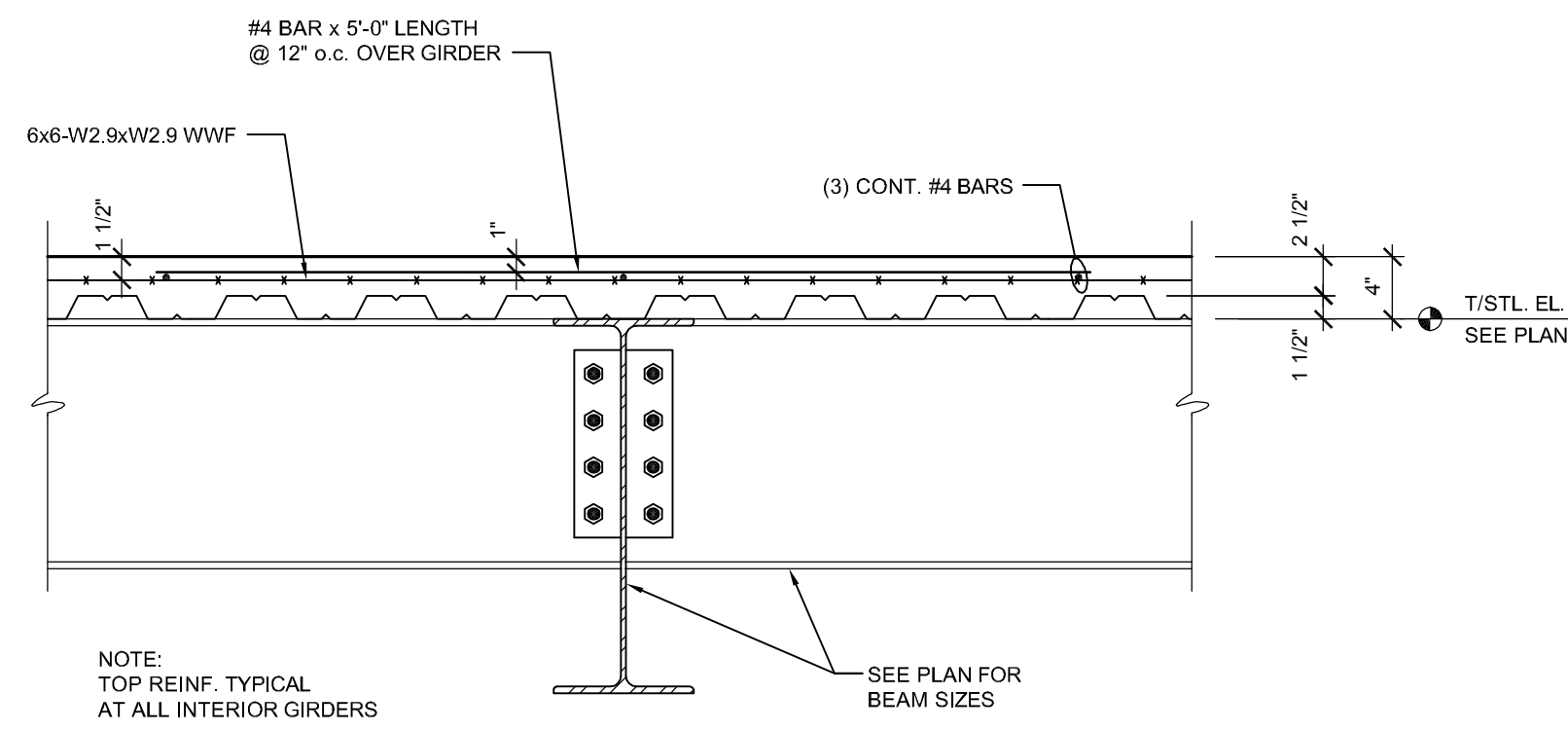
**1 SECTION - FOUNDATION WALL**  
S3 3/4" = 1'-0"



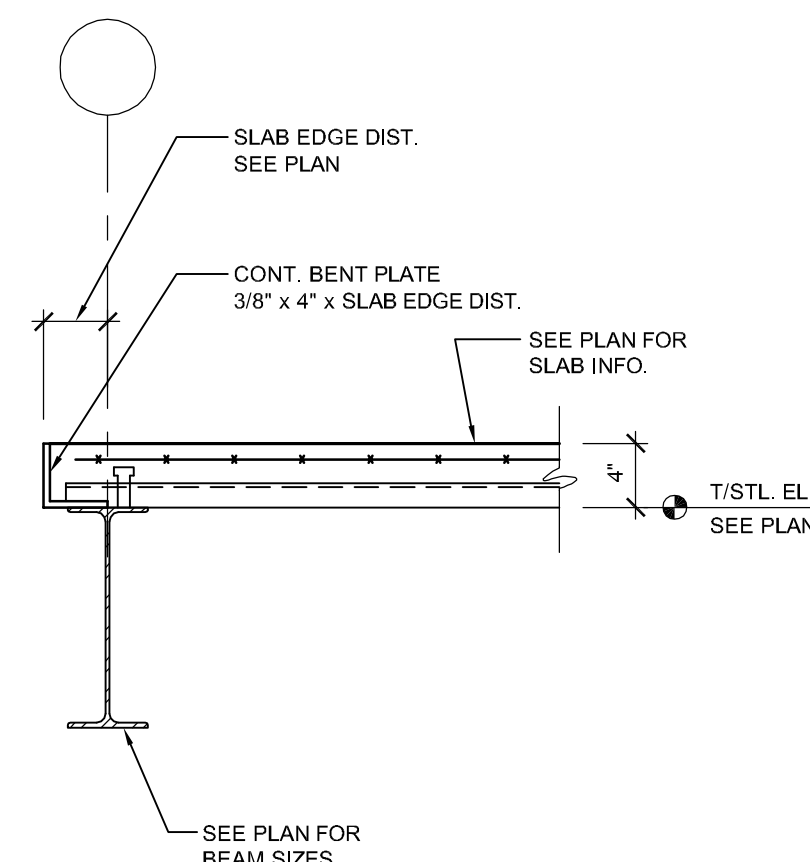
**2 SECTION AT PIER**  
S3 3/4" = 1'-0"



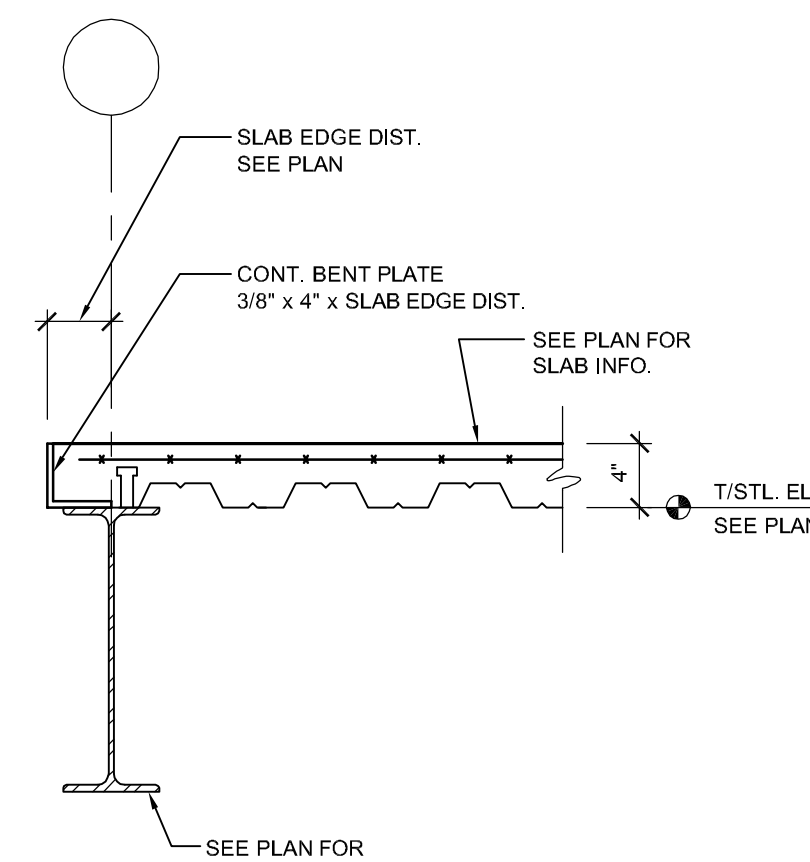
**3 DETAIL - RETAINING WALL**  
S3 3/4" = 1'-0"



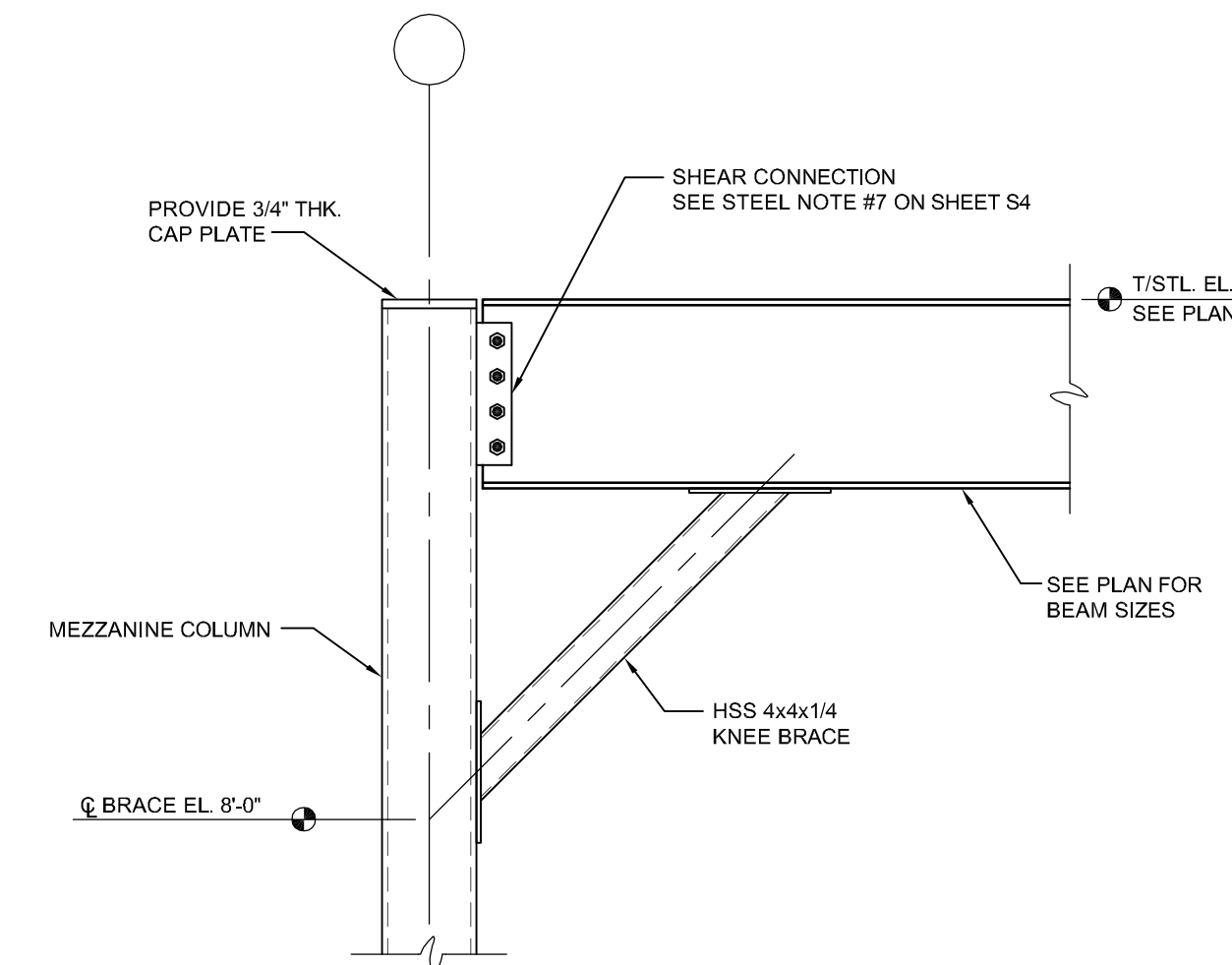
**4 TYP. SLAB SECTION AT GIRDER**  
S3 1" = 1'-0"



**5 FRAMING SECTION**  
S3 1" = 1'-0"



**6 FRAMING SECTION**  
S3 1" = 1'-0"



**7 DETAIL - TYP. KNEE BRACE**  
S3 3/4" = 1'-0"

