



PURCHASING DEPARTMENT
DIVISION OF BUDGET & FINANCE

**PUR-1270
ADDENDUM NO. 5
INVITATION TO BID**

CONOCOCHEAGUE TREATMENT PLANT ENR UPGRADE

DATE: Thursday, May 26, 2016

BIDS DUE: Wednesday, June 8, 2016
(Revised due date – Addendum No. 5) 2:00P.M.

To Bidders:

This Addendum is hereby made a part of the Contract Documents on which all bids will be based and is issued to correct and clarify the original documents.

Please acknowledge receipt of this Addendum at the appropriate space on the Proposal Form. This Addendum consists of fifteen (15) pages and various attached drawings/sheets, DBE forms, and Concrete Repair specifications.

NOTE: All bidders must enter the County Administration Building through the front door, 100 West Washington Street entrance, and must use the elevator to access the Purchasing Department to submit their bid. Alternate routes are now controlled by a door access system.

ITEM NO. 1: *Inquiry:* Spec Section 26 05 00-3.1 Conduit Installation says provide conduit expansion fittings in aluminum conduit at 30' intervals. Please clarify type and if this is necessary.

Response: Conduit expansion fittings should be installed in straight runs of exterior aluminum conduit at **100** foot intervals.

ITEM NO. 2: *Inquiry:* Is PVC conduit type EB acceptable for encased duct banks?

Response: No.

ITEM NO. 3: *Inquiry:* Would PVC coated aluminum conduit be approved wherever PVC GRS is specified?

Response: No.

(NOTE: The wording of all "Inquiries" submitted are displayed exactly as received.)

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ITEM NO. 4: *Inquiry:* Drawings C-1, C-3 and PM 19A show the Reacration Blowers and pipe supports. There is no structural drawing showing foundations or support for these items. Please provide structural information for these foundations and supports.

Response: Sheet PM-20A Detail 1 shows the foundation for the air piping supports. Sheet S-2 shows an equipment pad detail for the blower foundation.

ITEM NO. 5: *Inquiry:* Drawing PM-22 shows a concrete stair outside of the footprint of the Methanol structure with no below grade support. Please provide information for the foundation for this stair.

Response: See revised Sheets S-13 and S-14 attached to this Addendum.

ITEM NO. 6: *Inquiry:* Drawing S-22 section C shows fiber reinforced fill concrete. Please confirm all process involved fill concrete or topping concrete is to be fiber reinforced.

Response: No, remove reference to fiber reinforced.

ITEM NO. 7: *Inquiry:* Drawing S-1, Cast in Place Reinforced Concrete note B States all concrete to be 5000 psi. Please confirm that all fill and topping concrete is to be 5000 psi and to include fiber reinforcing.

Response: 5000 psi is correct, no fiber.

ITEM NO. 8: *Inquiry:* Please confirm the elevation of the existing base slab in oxidation Ditch # 1 & # 3 is 403.10 and in oxidation ditch # 2 the existing base slab elevation is 404.60.

Response: Incorrect. Oxidation Ditch #2 and #3 has the same floor elevation of 403.10. The floor elevation of Oxidation Ditch #1 is 404.60.

ITEM NO. 9: *Inquiry:* Drawing PM-43 Shows areas to receive crack repair by pressure grouting. Please provide a specification for this repair work.

Response: See Concrete Repair specification attached to this Addendum.

ITEM NO. 10: *Inquiry:* On Drawing A-5 it is specifically detailed that if a room is called for painting it includes all existing and new work. The finish schedule includes only a small portion of the plant. In the painting section 09900 of the specifications there is a detailed paint system for new and existing surfaces. This seems to indicate that the owner expects more painting to be done than that dictated by the finish schedule

Response: Biomag and Electrical Buildings are new construction. Paint as scheduled.

For existing buildings, provide finishes as follows:

1. Filter/UV Building:
 - a) No painting in UV Filter room.
 - b) Finish addition as scheduled.
 - c) UV Equipment and UV Electrical rooms:
 - i.) Pressure wash floors and concrete wall section between floor and concrete block wall.
 - ii.) Paint concrete block walls.
 - iii.) Paint hollow metal doors and frames.
 - iv.) Do not paint ceilings.
2. Headworks
 - a) Pressure wash floors.
 - b) Paint concrete block walls.
 - c) Paint hollow metal doors and frames.
 - d) Do not paint ceilings.
3. Solids Handling
 - a) Pressure wash floors on both levels.
 - b) Paint concrete block walls on upper level.
 - c) Paint concrete walls on lower level.
 - d) Paint hollow metal doors and frames.
 - e) Do not paint ceilings.
4. Control Building
 - a) No finish work.

ITEM NO. 11: *Inquiry:* Does the Owner expect that clarifiers 1 and 2 be repainted?

Response: Clarifiers shall not be repainted.

ITEM NO. 12: *Inquiry:* Does the Owner expect that all exterior buildings or tank foundations be repainted?

Response: The existing items to be painted at the building exteriors are hollow metal doors and frames, and steel lintels.

ITEM NO. 13: *Inquiry:* Does the Owner expect that all interior buildings, equipment, floors and ceilings whether concrete plank or exposed structural steel be repainted?

Response: See the response to ITEM NO.10 in this Addendum.

ITEM NO. 14: *Inquiry:* Are any tank surfaces exterior or interior scheduled to receive coatings?

Response: No.

ITEM NO. 15: *Inquiry:* Drawing C-3 shows (2) new Manholes 1A & 2A. I can get the depths of these manholes off Profile No.5 on C-8 but I don't see any details, or anything that tells me what the diameter of these manholes is to be. Can you issue some more info on these?

Response: Per Standard Precast Manhole Detail on PM-65, manholes are to be 6'-0" diameter.

ITEM NO. 16: *Inquiry:* Drawing C-3 also has a note to remove the top 3' of existing manhole 36M & 36N & backfill them. Again what is the diameter & depth of these manholes?

Response: Assume they are 6'-0" diameter and the same depth as the new manholes.

ITEM NO. 17: *Inquiry:* Line 129 on the yard piping schedule is not shown on the yard piping plan, along with connection details 12 and 16. Please clarify the locations of these?

Response: On Drawing No. C-3, re-label Line No. 144 as Line No. 129. Line 129 is a 12" drain line that runs parallel on the west side of the Post Anoxic Tanks No. 1, 2, &3. Each Post Anoxic Tank has an 8" drain to be labeled Line No. 144 and each Line is to tie into the 12" Line No. 129 with a 12"x8" wye and 8" 45 degree elbow. Where Line No.129 ties into existing Line No. 6, refer to connection Detail No. 16 on Drawing C-7.

ITEM NO. 18: *Inquiry:* General Demolition note #10 on drawing A-2 calls out for all interior expansion joints to be raked out & recaulked. Is this for the entire building or just the area of new work shown on A-3? Can you give an approx. quantity or spacing on the existing joints?

Response: This is for the entire building.

ITEM NO. 19: *Inquiry:* Drawing PM-46 calls for the odor scrubber tank & blower concrete pads to get removed & they are both hatched like just the equip. pad gets removed. Drawing PM-49 picture 6 shows the entire concrete pad as being removed and is 12" thick with turndowns like the Lime Silo. Which is correct, just the equip. pads or the entire pad including the equip. pads?

Response: The entire pad is to be removed as shown in Demolition photos No. 5, 6, and 7 on PM-49.

ITEM NO. 20: *Inquiry:* Drawing PM-32, Section A-A, shows the base slab for the new final clarifier to be 2'3" thick, whereas S-22 shows the thickness at 1'0". Which is correct?

Response: The slab is to be 1'-0" thick as shown on the structural drawing.

ITEM NO. 21: *Inquiry:* The same two drawings also show two different thicknesses of base stone.

Response: Provide 6" of compacted select stone fill beneath the bottom slabs.

ITEM NO. 22: *Inquiry:* When will the next addendum be issued on this project?

Response: Addendum No. 5 is the most current Addendum.

ITEM NO. 23: *Inquiry:* Will the bid date be extended?

Response: All references in the bid document made to Bid Submission Deadline shall be changed to read: **No later than 2:00 P.M., (EDST), Wednesday, June 8, 2016.**

ITEM NO. 24: *Inquiry:* Drawing S-14 note 3 calls for plastic bird screen mesh on the underside of roof trusses & S-13 shows metal panels only on the structural steel. Detail 3 on A-6 calls for metal soffit on the underside & shows metal panel & plywood on the vertical side of the trusses. What is correct & should the plywood and metal panels be on the vertical as well as across the top of the trusses or only across the structural steel per S-13?

Response: The architectural details are correct. See Detail A and E on Sheet A-6.

ITEM NO. 25: *Inquiry:* Drawing S-23, Final Clarifier # 3 RAS Pump Station, Please provide size and spacing of reinforcing steel in the base slab and perimeter walls.

Response: #5@6"

ITEM NO. 26: *Inquiry:* Drawing S-24, Cascade, Please provide size and spacing of reinforcing steel for the base slab and walls.

Response: #5@6"

ITEM NO. 27: *Inquiry:* Drawing S-25 shows a detail for drilled dowels at the new wall and existing wall connection. Are drilled dowel required at the base of the new wall and existing concrete slab?

Response: Section B/S-25 shows the wall to existing slab condition. Yes, also dowel the new wall to the existing walls using a single centered row of #6@6" bars. Drill and set 8" into existing with Hilti HY200 epoxy. Provide a continuous hydrophilic up the wall and terminate 6" from the top of the wall.

ITEM NO. 28: *Inquiry:* Will underpinning or structural support be required at the addition to the Filter/UV building?

Response: Yes, as shown in section D/S-26 the expansion extends below the existing bottom slab elevation. Provide the means for continuous stability of the building during the excavation and installation of this expansion.

ITEM NO. 29: *Inquiry:* Drawing S-26 Filter/UV Building section 1. Will the exterior walls not shown in detail C/S-26 need to be extended in height the same as the trough walls?

Response: Yes.

ITEM NO. 30: *Inquiry:* Drawing S-27 shows what looks like 4 spread footing with column base plates and anchor bolts and all 4 include detail symbol A/S27. Detail A/S-27 shows a different footing with a concrete equipment support wall/pier. Please provide detail for the column footings.

Response: Detail A applies to the column footings. 1'-0" thickness and reinforcement applies as well as the 1'-0" top of footer. depth and the details for slab replacement. The only significant difference is that the steel column will be encompassed by the new slab concrete.

ITEM NO. 31: *Inquiry:* Drawing S-27 detail A notes a reference to slab detail 2/S-22. Detail 2/S-22 does not exist. Should the reference detail 2/S-27?

Response: Yes, this should reference 2/S-27.

ITEM NO. 32: *Inquiry:* Detail 2/S27 indicates backer rod and sealant at the top and under the bottom of the slab. Please confirm backer rod and sealant are to be included for the top of slab only.

Response: Yes, this is correct.

ITEM NO. 33: *Inquiry:* Drawing S-27 includes detail 4/S-27. This detail is not indicated at any locations. Please provide this information.

Response: See Note No. 1 in the Floor Drain Plan on Drawing No. PM-53.

ITEM NO. 34: *Inquiry:* Drawing PM-20A detail 1 shows overhead pipe supports. Please supply location for these overhead pipe supports.

Response: Pipe Supports detailed on PM-20A are shown on sheet PM-19A.

ITEM NO. 35: *Inquiry:* Structural Drawing S-16 and S-19 indicates lintels. Drawing S-1 concrete masonry note H references a lintel schedule. Please provide a lintel schedule or the location of the lintel schedule.

Response: See Drawing No. S-3 for lintel details.

ITEM NO. 36: *Inquiry:* Please provide the top elevation for the W12 x 65 monorail beams in the solids handling building shown on drawing S-27.

Response: Set top of beam flange 2" below bottom of existing precast tee.

ITEM NO. 37: *Inquiry:* Please provide locations for C/S-27 T.O. Col Detail.

Response: These are located at the four (4) monorail columns.

ITEM NO. 38: *Inquiry:* How can you install the 90 Bend in the Oxidation Ditch Effluent box while keeping the other two Oxidation ditches running?

Response: Use of temporary pumping/piping or the use of a plug in the Oxidation Ditch effluent pipe may be needed to install the 90 degree bend or core the hole in the effluent box.

ITEM NO. 39: *Inquiry:* How do you keep the UV system running when the new MCC and old MCC in that building are in the same location?

Response: The Contractor will need to provide a temporary means of powering the existing UV system as per paragraph 3.1. T. & U on page 01 14 00 -5 & -6 of the contract specifications.

ITEM NO. 40: *Inquiry:* Please confirm that all the aluminum grating in the headworks building need to be removed & replaced with solid top grating. It is not shown on the demo drawings & is not in bold on PM-5 & 6 like the rest of the new work is.

Response: Note No. 2 on PM-5 says to replace all grating.

ITEM NO. 41: *Inquiry:* What size grating are we supposed to use on the Post Anoxic Tanks shown only on PM-19A?

Response: Grating on the Post Anoxic tanks shall be furnished and installed in accordance with the general notes for aluminum grating on Sheet S-1.

ITEM NO. 42: *Inquiry:* Section C on drawing S-22 calls for fiber reinforcement in the concrete fill. What is the ratio or lbs per cubic yard you are requesting? Does the effluent box need this as well?

Response: Remove requirement for fiber reinforcement.

ITEM NO. 43: *Inquiry:* Drawing S-26 has a note near the upper left hand corner of the floor plan (detail 1) that says existing grating & new aluminum steps see ENV drawings. Drawing PM-39 shows 3 steps leading up to something. Is what it leads up to the aluminum grating that is already there? If so, are we to remove that to fill this area with stone as shown on S-26 & then put the grating back or does this get concrete slab poured under the grating as well? PM-35 actually shows some of the grating to be removed that is existing in front of where the new door is going which we would need as part of the “platform”. Please clarify what this area is to look like when the work is done.

Response: See revised copy of Drawing No. S-26 attached to this Addendum which should better clarify the work required.

ITEM NO. 44: *Inquiry:* The OVIVO scope of supply in Appendix B does not list (3) NEW ANNULAR MIXERS shown on the Oxidation Ditch drawings (PM-10 & PM-11), nor is there a separate specification for these mixers. Who supplies these mixers?

Response: See the response to Item No. 36 in Addendum No. 3.

ITEM NO. 45: *Inquiry:* Structural drawings for Final Clarifier #3 doesn't clearly call out any railing. PM-31 shows railing on top of some of the Launderer but not around the scum pit box. Detail B on PM32 calls out aluminum railing on top of scum pit box but it doesn't show it & the arrow doesn't really point to anything. Please clarify exactly what gets railing on it?

Response: On the Scum Box Enlargement Plan on PM 32, **DELETE** the note “Aluminum Guardrail” located on the left side of the Scum Pit. There is no guard rail to be installed on the Scum Pit.

ITEM NO. 46: *Inquiry:* Drawing PM-55 shows (3) polymer feed pumps, one of which is a standby. The Polymer Feed Pump Schedule at the end of specification section 46 33 46 lists (2) pumps & there is no mention anywhere within this section of any spare or standby pump. Please clarify.

Response: See the response to Item No. 53 in Addendum No. 3.

ITEM NO. 47: *Inquiry:* What elevation does the W18x60 lintel sit at shown on S-28 for the UV/Filter Building?

Response: Set bottom of 5/16” plate at 7'-0” above the high grating elevation 416.41.

ITEM NO. 48: *Inquiry:* Is the top elevation of the (2) HSS4x4x5/16 columns supposed to be 426.41 as shown in 5/S-28? If so, how does the W18 x 60 get attached to

the columns if the columns extended up past it? No detail given. Also does the W12x45 sit on the existing block that is now supported by the new lintel at this location since the lintel appears to be lower than the W12x45 & the column is higher in detail 5/S-28?

Response: The column cap plate is anchored into the bottom of the existing plank which bears higher than 426.41, the existing dimension will need to be field verified. Connect the W18x60 using a double angle connection welded to the column. The W12x45 will bear on the block. Grout fill the cores below the bearing a minimum of 2'-0". Provide a 10" wide x 6" deep x 3/4" thick bearing plate below the beams with two (2) 3/4" x 5" headed studs.

ITEM NO. 49: Inquiry: It appears that the (2) new HSS4x4x5/16 columns shown in 1/S-28 to support the new lintel are in the existing block wall that is not shown to be removed. Please clarify how this is to be done with out removing more of the block & brick wall to create an opening for this column.

Response: Remove and replace the block as needed to set the new column. Provide whatever temporary support is needed to maintain stability of the roof.

ITEM NO. 50: Inquiry: If the block wall is shown to remain above the new lintel in detail 5/S-28 how are we to grout the cavities above where the studs occur? How are we supposed to temporarily support that wall & brick veneer across that long of a span? Does this really need to remain since it appears the new addition will cover this section of the wall up anyway?

Response: The existing wall is higher than the wall of the new addition, so the existing wall will need to remain. In lieu of studs, contractor may choose to install 2"x6"x1/4"x 3" wide bent plates (long leg vertical) @ 24" on center welded to the flange. The vertical leg will be against the interior face of the concrete masonry unit and will be anchored using a Hilti HY20 sleeve anchor into the concrete masonry unit.

ITEM NO. 51: Inquiry: What size are the plates supposed to be, that I'm assuming get welded, to the beams in detail 4/S-28?

Response: This is a standard shear connection designed by the fabricator.

ITEM NO. 52: Inquiry: Drawing PM-35 shows (1) 12" sluice gate while the schedule on PM-63 lists (2). Which is correct?

Response: See the response to ITEM NO. 42 in Addendum No. 3.

ITEM NO. 53: *Inquiry:* Section 43 25 13 – Sump Pumps lists (3) locations for sump pumps. Where is the sump pump located in the BioMag Building?

Response: The sump pump is to be located in the Ballast Slurry Pump pit. Provide a 2 ft square by 2 ft deep sump pit in north east corner of the Ballast Slurry Pump pit and provide the pump with a 1 ½” schedule 40 stainless steel discharge into the ballast mixing pit 12” below the top of wall.

ITEM NO. 54: *Inquiry:* Is there a design for the platform & stairs shown on S-20 or is that to be buy us as well?

Response: The Contractor is to have a metal fabrication shop design the platform and stair

ITEM NO. 55: *Inquiry:* Can you issue sill details for the OH roll up door shown on PM-17 since this will be approx. 4’ above the top of slab? Also please verify it is not motor operated. This door does not show up on the door schedule.

Response: See the specification section in Addendum No. 3 and the response to ITEM NO. 60 in Addendum No. 4. The door hood shall be mounted on the exterior with the frame between the jambs so the sill is the concrete of the vault.

ITEM NO. 56: *Inquiry:* In regards to specification section 44 76 33 – Centrifuges, section 2 16, B.20. States that the Bowl Drive shall be an 18 pulse drive. When attempting to get pricing from Allen-Bradley (the named manufacturer) they advised that they were not quoting an 18 pulse drive for the unit. Is an 18 pulse drive necessary for such a small centrifuge or can an alternate VFD be provided?

Response: See the response to ITEM NO. 57 in Addendum No. 4.

ITEM NO. 57: *Inquiry:* There are 5 hoists on the project, 4 are interior, and 1 hoist is exterior. The specification for the hoists is only for interior hoists.

Response: On page 41 22 23-5, in the Design Parameter Table; **ADD**, note No. 1 below the table to read as follows: **1. The Post Anoxic Influent Pump Station motorized Trolley and Hoist is located outdoors. The trolley, hoist and pushbutton station are to be rated for a harsh outdoor environment and shall have an IP55 rating.**

ITEM NO. 58: *Inquiry:* An exterior hoist requires additional features, is the engineer going to provide a specification for exterior hoists?

Response: See the response to ITEM NO. 57 in this Addendum.

ITEM NO. 59: *Inquiry:* Drawing PM-32, Note 5 indicates the spray wash line is to be insulated & heat traced to the first spray nozzle, while drawing E-46 shows the entire spray wash line being insulated & heat traced. Which is correct?

Response: Insulate and heat trace the spray wash line up to the first spray wash nozzle as shown on PM-32.

ITEM NO. 60: *Inquiry:* Specification section 46 43 28 – Density Current Baffles only lists Clarifier No. 3 as receiving density current baffles. But drawing PM-25 shows new density current baffles being installed on Clarifiers No. 1 & No. 2. Are density current baffles required for Clarifiers No. 1 & No. 2?

Response: See the response to ITEM NO. 68 in Addendum No. 3. On page 46 43 28-1, paragraph 1.1.A.; **CHANGE**, to read **“Installation of peripheral density current baffles for Final Clarifier Nos. 1, 2, & 3.**

ITEM NO. 61: *Inquiry:* Drawing PM-6 shows (6) slide gates with motor operators while the schedule on PM-63 lists (4) with motor operators & (2) with removable hand cranks. Which is correct?

Response: See the response to ITEM NO. 24 in Addendum No. 3.

ITEM NO. 62: *Inquiry:* Drawing PM-23 shows (3) 10’ wide slide gates while the schedule on PM-63 lists (4). Which is correct?

Response: See the response to ITEM NO. 37 in Addendum No. 3.

ITEM NO. 63: *Inquiry:* What is the size of the discharge connection for the reparation blowers shown on drawing PM-19A?

Response: Sheet G-7 shows line sizes for the referenced air system.

ITEM NO. 64: *Inquiry:* This project is specified with Firestone’s UC-7 panel which is not eligible for the 20 year Red Shield Weathertight Warranty that is called out in spec section 074113. From the drawings we have I am only seeing a band of metal panels around the perimeter of the building in a wall application. Firestone does not provide warranties on any of their panels in this configuration.

Also, Firestone’s UC-750 soffit is specified in .063 aluminum. This panel is only available in .032 aluminum. We do not manufacture any panels in .063 Aluminum.

We will be providing you a quote on our UC-7 panel excluding the warranty.

(NOTE: The wording of all “Inquiries” submitted are displayed exactly as received.)

Response: Provide 0.032 aluminum soffit. Provide supports as required to fasten the soffit to the structure. The UC-7 metal panels are used at the building exterior over the masonry and steel frame construction. They do not need to be weather tight for this application.

ITEM NO. 65: *Inquiry:* The pipe in the biomag building is not defined. What material should we be using as nothing is labelled and few lines are shown? I assume all the process pipe is PVC and the blower piping is stainless. Is this correct?

Response: See the response to ITEM NO. 27 in Addendum No. 3.

ITEM NO. 66: *Inquiry:* The Evoqua PID is unreadable especially the smaller notes. Can a better copy be provided?

Response: I did not have any problem reading them, another copy will not be provided.

ITEM NO. 67: *Inquiry:* The polymer feed vault as detained on PM 64 is 7' deep with the pipe only 4' deep. The location of the vault is over the pipe that is over 24' deep. Is the vault shown in the wrong location on the site drawings? Why do you want a 7' deep vault?

Response: See the response to ITEM NO. 24 in Addendum No. 4.

ITEM NO. 68: *Inquiry:* In spec section 074113 it calls for the soffit to be .063 aluminum but Firestone can only provide a .032. Please confirm if this is acceptable.

Response: Provide 0.032 aluminum soffit. Provide supports as required to fasten the soffit to the structure.

ITEM NO. 69: *Inquiry:* Also please confirm what kind of warranty is to be provided on the metal panels and roof? Firestone stays they will not provide a weathertight warranty on the UC-7 panels.

Response: The UC-7 metal panels are used at the building exterior over the masonry and steel frame construction. They do not need to be weather tight for this application.

ITEM NO. 70: The loose DBE forms were inadvertently not included in the original bid document. Bidders shall submit the Government Wide Debarment and Suspension, Form of Proposal, Form of Proposal – Schedule of Prices, Sub – Contractors Listing, Bid Bond, Buy American Certificate contained in the original bid documents and the attached DBE forms as their submittal no later than **2:00 P.M., (EDST), Wednesday, June 8, 2016.**

Revisions to Drawings

Drawing E-25, Electrical Building Power Plan; **REVISE**, Wiring Note 6 to read as follows:

6. **30#14-2**”C to Ox Ditch Control Panel (120VAC)

Drawing E-25, Electrical Building Power Plan; **REVISE**, Wiring Note 7 to read as follows:

7. **156#14-3**”C to Ox Ditch Control Panel (24VDC)

Drawing E-33, Oxidation Ditch No. 1 Electrical Plan; **REVISE** the first sentence in Wiring Note 14 to read as follows:

14. **6#12** from motor thermal switches, motor condensate heater, **and gear box immersion heater to primary aerator VFD.**

Drawing E-33, Oxidation Ditch No. 1 Electrical Plan, **REVISE** the first sentence in Wiring Note 17 to read as follows:

17. **6#12** from motor thermal switches, motor condensate heater, **and gear box immersion heater to secondary aerator VFD.**

Drawing E-33, Oxidation Ditch No. 1 Electrical Plan; **REVISE** the wiring for the Primary Aerator Lube Oil Pump as follows: **The lube oil pump is 1 hp 480 volt, 3 phase. Provide a 30A-480V-3P NEMA 4X disconnect switch for the lube oil pump, mounted on stainless steel uni-strut. Run 3#10, #10 Grd. from the lube oil pump to the pump motor starter in MCC-E1. The wiring should be run in a 3/4”C to Ox. Ditch Power Pull Box No. 1B and in Duct Bank Conduit No. 53.**

Drawing E-34, Oxidation Ditch No. 2 Electrical Plan; **REVISE** the first sentence in Wiring Note 14 to read as follows:

14. **6#12** from motor thermal switches, motor condensate heater, **and gear box immersion heater to primary aerator VFD.**

Drawing E-34, Oxidation Ditch No. 2 Electrical Plan; **REVISE** the first sentence in Wiring Note 17 to read as follows:

17. **6#12** from motor thermal switches, motor condensate heater, **and gear box immersion heater to secondary aerator VFD.**

Drawing E-34, Oxidation Ditch No. 2 Electrical Plan; **REVISE** the wiring for the Primary Aerator Lube Oil Pump as follows: **The lube oil pump is 1 hp 480 volt, 3 phase. Provide a 30A-480V-3P NEMA 4X disconnect switch for the lube oil pump, mounted on stainless steel uni-strut. Run 3#10, #10 Grd. from the lube oil pump to the pump motor starter in MCC-**

E1. The wiring should be run in a 3/4" C to Ox. Ditch Power Pull Box No. 2A and in Duct Bank Conduit No. 73.

Drawing E-35, Oxidation Ditch No. 3 Electrical Plan; **REVISE** the first sentence in Wiring Note 14 to read as follows:

14. 6#12 from motor thermal switches, motor condensate heater, **and gear box immersion heater to primary aerator VFD.**

Drawing E-35, Oxidation Ditch No. 3 Electrical Plan; **REVISE** the first sentence in Wiring Note 17 to read as follows:

17. 6#12 from motor thermal switches, motor condensate heater, **and gear box immersion heater to secondary aerator VFD.**

Drawing E-35, Oxidation Ditch No. 3 Electrical Plan; **REVISE** the wiring for the Primary Aerator Lube Oil Pump as follows: **The lube oil pump is 1 hp 480 volt, 3 phase. Provide a 30A-480V-3P NEMA 4X disconnect switch for the lube oil pump, mounted on stainless steel uni-strut. Run 3#10, #10 Grd. from the lube oil pump to the pump motor starter in MCC-E1. The wiring should be run in a 3/4" C to Ox. Ditch Power Pull Box No. 3B and in Duct Bank Conduit No. 77.**

Drawing PCS-10, MCC E-1 Elevation and Drawing PCS-11, MCC E-1 One-Line Diagram, **ADD** three (3) size 1 motor starter buckets to the MCC for Primary Aerator No. 1 Lube Oil Pump, Primary Aerator No. 2 Lube Oil Pump, and Primary Aerator No. 3 Lube Oil Pump. The motor starter buckets should be located in Unit Locations 25, 26 and 27. Each motor starter bucket shall be furnished with a control transformer, H/O/A selector switch, run indication light, and elapsed time meter. The lube oil pump H/O/A switch and motor starter shall be wired to PLC-OX.

Revisions to Specifications

Section 26 05 00, Basic Materials and Methods; **REVISE** Paragraph 3.1.A.14 to read as follows:

14. Provide conduit expansion fittings in **straight runs of exterior aluminum conduit at 100 foot intervals.**

Section 26 21 00, Electric Service; **ADD** Paragraph **3.2.H** as follows:

- H. **Transformer Pad: Furnish and install a concrete pad for the power company transformer. The transformer pad shall be coordinated with the power company and shall meet all power company requirements.**

Section 25 50 10, Motor Control Centers; **ADD** Paragraph 1.1.B.3 as follows:

(NOTE: The wording of all "Inquiries" submitted are displayed exactly as received.)

3. The motor control centers shall have an arc-containing design rating to reduce arc flash hazards, which has been tested in accordance with IEEE C37.20.7 standard for Type 2 accessibility.

Section 25 50 45, HMI Software; **ADD** Paragraph 1.5 as follows:

1.5 TECHNICAL SUPPORT

A. Rockwell Software Technical Support:

1. Provide three (3) years of Rockwell TechConnect support for the HMI software. The TechConnect support shall commence on the date of substantial completion for the Process Control System.

Section 25 50 45, HMI Software; **ADD** the following sentence to the end of Paragraph 2.1.A.3:

“The HMI software package shall be furnished with a screen count of 250.”

BY AUTHORITY OF:



Karen R. Luther, CPPO
Director of Purchasing

January 21, 2015

MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard Suite 515 Baltimore MD 21230-1718
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http://www.mde.state.md.us/programs/Water/QualityFinancing/MinorityandWomensBusinessEnterprises/Pages/Programs/WaterPrograms/Water_Quality_Finance/MWBE/index.aspx

Disadvantaged Business Enterprise (DBE) Good Faith Efforts Checklist To be completed by Prime (Construction & A/E) Contractor

Project Name:

Procurement Category: Check box for all M/WBE procurement categories being reported under the above referenced project. Construction Equipment Services Supplies

For each procurement action, please answer the following questions

A: Develop Bidders List of DBE firms

- | | | | |
|----|--|------------------------------|-----------------------------|
| A1 | Did you develop a Bidders List of DBE firms? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| A2 | Did you advertise in minority, local, regional papers or Dodge Report? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| A3 | Did you send invitation for bids to DBE trade associations? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| A4 | Did you contact US-SBA/MBDA/MDOT? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| A5 | Did you receive Bidders List from Loan Recipient? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| A6 | Did you provide MDE with Bidders List? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

B: Smaller work components and delivery schedules

- | | | | |
|----|--|------------------------------|-----------------------------|
| B1 | Did DBE firms have opportunities to bid as subcontractors? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| B2 | Did you break down the project, where economically feasible, into smaller components for DBE firms to bid as subcontractors? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| B3 | Do project components have reasonable delivery schedules? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| B4 | Did you allow a reasonable time for DBEs to bid? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| B5 | Did you encourage DBEs to bid as a consortium due to project size? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

C: Solicitation Summary of DBE firms (Prime Contractor must fill EPA Form 6100-4)

- | | | | |
|----|---|------------------------------|-----------------------------|
| C1 | Did you use the Bidders List to solicit subcontractors? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| C2 | Did DBE firms bid as subcontractors (provide list, work type, & price)? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| C3 | Did you select any DBE firms as subcontractor? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| C4 | Is the subcontractor using any additional subcontractors? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

Prime contractor must provide to loan recipient: (1) list of ALL subcontractors (DBE and non-DBE) with type of work and estimated dollar amounts; (2) completed EPA Form 6100-4; and, (3) completed EPA Form 6100-3 for each DBE subcontractor. Also, EPA Form 6100-2 to each DBE subcontractor.

Supporting Documentation

In support of the actions taken in items A, B, and C, (above), all prime contractors must attach this checklist along with supporting documentation for "Yes" answers and an explanation for "No" answers. Examples of supporting documentation include: (i) Bidders List of DBE firms; (ii) list of sub-contract work elements possible under the prime contract; (iii) proof of contact with DBE firms as potential sub contractors (copies of invitations for bids/RFP, contact letters, faxes and telephone call sheets, etc.); (iv) copies of all procurement advertisements; and, (v) list of all sub contractors that submitted bids/RFP.

Prime Contractor's Name and Title

Prime Contractor Official's Signature/ Date

Contact Phone # _____

January 21, 2015



OMB Control No: 2090-0030
 Approved: 8/13/2013
 Approval Expires: 8/31/2015

**Disadvantaged Business Enterprise (DBE) Program
 DBE Subcontractor Utilization Form**

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE¹ subcontractors² and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact	
Address			
Telephone No.		Email Address	
Issuing/Funding Entity:			

I have identified potential DBE certified subcontractors	<input type="radio"/> YES	<input checked="" type="radio"/> NO	
If yes, please complete the table below. If no, please explain:			
Subcontractor Name/ Company Name	Company Address/ Phone/ Email	Est. Dollar Amt	Currently DBE Certified?

Continue on back if needed

¹ A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

² Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-4 (DBE Subcontractor Utilization Form)

January 21, 2015



OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

**Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Utilization Form**

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

EPA FORM 6100-4 (DBE Subcontractor Utilization Form)

January 21, 2015



OMB Control No: 2090-0030
 Approved: 8/13/2013
 Approval Expires: 8/31/2015

**Disadvantaged Business Enterprise (DBE) Program
 DBE Subcontractor Performance Form**

This form is intended to capture the DBE¹ subcontractor's² description of work to be performed and the price of the work submitted to the prime contractor. An EPA Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name		Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact	
Address			
Telephone No.		Email Address	
Prime Contractor Name		Issuing/Funding Entity:	

Contract Item Number	Description of Work Submitted to the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
DBE Certified By: <input type="radio"/> DOT <input type="radio"/> SBA		Meets/ exceeds EPA certification standards?
<input type="radio"/> Other: _____		<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> Unknown

¹ A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

² Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

January 21, 2015



OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

**Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Performance Form**

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

Subcontractor Signature	Print Name
Title	Date

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

EPA FORM 6100-3 (DBE Subcontractor Performance Form)

January 21, 2015



OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

**Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Participation Form**

An EPA Financial Assistance Agreement Recipient must require its prime contractors to provide this form to its DBE subcontractors. This form gives a DBE¹ subcontractor² the opportunity to describe work received and/or report any concerns regarding the EPA-funded project (e.g., in areas such as termination by prime contractor, late payments, etc.). The DBE subcontractor can, as an option, complete and submit this form to the EPA DBE Coordinator at any time during the project period of performance.

Subcontractor Name		Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact	
Address			
Telephone No.		Email Address	
Prime Contractor Name		Issuing/Funding Entity:	

Contract Item Number	Description of Work Received from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Amount Received by Prime Contractor

¹ A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

² Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-2 (DBE Subcontractor Participation Form)

SECTION 03 50 00 - CONCRETE REPAIR**PART 1 GENERAL****1.1 DESCRIPTION**

- A. The work under this section includes, but is not limited to:
 - 1. Concrete Repair Mortar: Repair concrete where handrail posts are removed or concrete pads are removed.
 - 2. Repair concrete cracks by pressure grouting with a chemical grout.

1.2 QUALITY ASSURANCE

- A. Include on labels of each container:
 - 1. Manufacturer's name
 - 2. Manufacturer's stock number
 - 3. Instructions for mixing, application, pot life
 - 4. Date when product was manufactured
- B. Contractor Qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative.
- C. Install materials in accordance with all safety and weather conditions required by manufacturer or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.
- D. All products for concrete repair and coatings shall be as manufactured by Sika Corporation, 210 Polito Avenue, Lyndhurst, NJ 07071, or equal.

1.3 SUBMITTALS

- A. General: Submit in accordance with Section 01 33 00.
- B. Submit manufacturer's product data listing properties, application recommendations, and environment conditions required for use and service conditions.
- C. Submit certification that product equals or exceeds specification requirements and will perform the intended function.

1.4 PRODUCTS, DELIVERY, STORAGE AND HANDLING

- A. Deliver products in sealed containers with manufacturer's labels legible and intact.
- B. Store products in ventilated dry areas, protected from contact with soil and from exposure to the elements. Keep product dry at all times. Comply with health and fire regulations.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Comply with manufacturer's recommendations as to environmental conditions under which product is to be applied.

1.6 WARRANTY

- A. Provide a written warranty from the manufacturer against defects of materials for a period of five (5) years, beginning with date of substantial completion of the project.

PART 2 PRODUCTS

2.1 CRACK REPAIR MATERIAL

- A. Hydrophobic Polyurethane Chemical Grout:
 - 1. SikaFix HH LV, as manufactured for Sika Corporation, is considered to conform to the requirements of this specification.
- B. Properties of the mixed polyurethane chemical grout.
 - 1. Pot Life: approximately 5 hours, providing no moisture enters the system
 - 2. Mixed Viscosity: 450 - 850 cps ASTM D- 2196 A
 - 3. Color: Pale yellow
 - 4. Flash point 270F
 - 5. Density 8.7 – 9.2 lbs./gal. ASTM D 3754- 95
 - 6. Solids 100%
 - 7. Corrosiveness - non- corrosive
- C. Properties of the cured polyurethane chemical grout
 - 1. Tensile Strength: 150 psi ASTM D-190-63
 - a. Elongation: 250%
 - 2. Absorption 10% After 6 months immersion
 - 3. Shrinkage: Less than 4% ASTM D-1042
 - 4. Density 8.70 – 9.17 lbs./gal ASTM D3574

2.2 CONCRETE REPAIR MORTAR

- A. SikaTop 123 Plus, as manufactured by Sika Corporation, is considered to conform to the requirements of this specification.
- B. Polymer-modified Portland cement mortar:
 - 1. Component A shall be a liquid polymer emulsion of an acrylic copolymer base and additives.
 - a. pH: 4.5-6.5
 - b. Film Forming Temperature: 73°F max.
 - c. Tear Strength: 950-psi min.
 - d. Elongation at Break: 500% min.
 - e. Particle Size: less than 0.1 micron
 - 2. Component A shall contain an organic, penetrating corrosion inhibitor which has been independently proven to reduce corrosion in concrete via ASTM G3 (half-cell potential tests). The corrosion inhibitor shall not be calcium nitrite, and shall have a minimum of 5 years of independent field testing to document performance on actual construction projects.

3. Component B shall be a blend of selected portland cements, specially graded aggregates, admixtures for controlling setting time, water reducers for workability, and an organic accelerator.
 4. The materials shall be non-combustible, both before and after cure.
 5. The materials shall be supplied in a factory-proportioned unit.
 6. The polymer-modified, portland cement mortar must be placeable from 1/8" to 1-1/2" in depth per lift for vertical applications and 1/8" to 1" in depth for overhead applications.
- C. Typical Properties of the mixed polymer-modified, portland cement mortar:
1. Working Time: Approximately 10 – 15 minutes
 2. Finishing Time: 20 - 60 minutes
 3. Color: concrete gray
- D. Typical Properties of the cured polymer-modified, portland cement mortar:
1. Compressive Strength (ASTM C-109 Modified)
 - a. 1 day: 3500 psi min. (24.1 MPa)
 - b. 7 day: 6000 psi min. (44.8 MPa)
 - c. 28 day: 7000 psi min. (48.3 MPa)
 2. Flexural Strength (ASTM C-293) @ 28 days: 2000 psi (13.8 MPa)
 3. Splitting Tensile Strength (ASTM C-496) @ 28 days: 900 psi (6.2 MPa)
 4. Bond Strength (ASTM C-882 Modified) @ 28 days: 2200 psi (15.2 MPa)
 5. The portland cement mortar shall not produce a vapor barrier.
 6. Density (wet mix): 132 lbs. / cu. ft. (2.2 kg/l)
 7. Permeability - AASHTO T-277 @ 28 days Approximately 500 Coulombs

PART 3 EXECUTION

3.1 SURFACE PREPARATION

- A. Concrete Repair Areas:
1. Areas to be repaired must be cleaned, sound, and free of contaminants. All loose and deteriorated concrete shall be removed by mechanical means. Mechanically prepare the concrete substrate to obtain a surface profile of $\pm 1/16$ " (CSP 5 or greater as per ICRI Guidelines) with a new exposed aggregate surface.
 2. Where reinforcing steel with active corrosive is encountered, sandblast the steel to a white metal finish to remove all contaminants and rust. Where corrosion has occurred due to the presence of chlorides, the steel shall be high pressure washed after mechanical cleaning. Prime concrete and steel with Sika Amartec 110 EpoCem or approved equal.
- B. Crack Repair:
1. Drill 5/8" diameter holes at 45° angle along the side of the crack. Drill the hole to intersect the crack midway through the substrate. Install injection packers in the hole and tighten. Flush the drill holes with water. Inject repair material following manufacturer's instructions. Cut excess material flush with concrete. Fill packer holes with SikaDur 31 or Sikaset plug and trowel smooth.

3.2 APPLICATION

- A. All coatings and patching materials shall be applied in strict accordance with the manufacturer's recommendations. Do not proceed with surface preparations or coating applications until environmental conditions are suitable.
- B. Do not apply concrete coatings until all other work has been completed, thereby, preventing damage to the coating by construction work.
- C. Concrete patching shall provide a smooth level surface, flush with adjoining surfaces and free of any sags or depressions.
- D. Adhere to all procedures, limitations and cautions for the product in the manufacturer's current printed literature.

3.3 CLEANING

- A. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

END OF SECTION 03 50 00

DESIGN CRITERIA

- A. STRUCTURAL DESIGN SHALL BE IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE FOLLOWING CODE, STANDARDS AND SPECIFICATIONS:
1. INTERNATIONAL BUILDING CODE (IBC) 2012
2. ASCE 7-10 MIN. DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.
3. ACI 318-11 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
4. ACI 350-06 CODE REQUIREMENTS FOR ENVIRONMENTAL CONCRETE STRUCTURES.
5. ACI 530-11 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
6. AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, A.S.D., 13th EDITION.
7. AWS D1.1 STRUCTURAL WELDING CODE - STEEL (2010).
B. SUPERIMPOSED DESIGN LOADS:
LIVE LOADS (MIN):
ROOFS, NON-REDUCIBLE: 30 PSF
WALKWAYS: 100 PSF
GRATING: 100 PSF
DEAD LOADS:
ROOFS: 15 PSF
WATER: 63 PCF
2" NW CONCRETE TOPPING ON 10" NW CONCRETE HOLLOW CORE PLANK: 93 PSF
ASCE 7-10; RISK CATEGORY = III
WIND LOADS:
BIOMAG BUILDING METHANOL FACILITY PAVILION
ULTIMATE DESIGN SPEED: 120 MPH 120 MPH
NOMINAL DESIGN SPEED: 93 MPH 93 MPH
PER ASCE 7-10 CATEGORY III PER ASCE 7-10 CATEGORY III
EXPOSURE: C C
EDGE DISTANCE (e): 7.0 FEET 4.4 FEET
WIND VELOCITY PRESSURE (C&C) WIND VELOCITY PRESSURE (C&C)
ZONE 4: -36.3 PSF, +33.5 PSF ±39.0 PSF
ZONE 5: -44.8 PSF, +33.5 PSF ±39.0 PSF
INTERNAL PRESSURE COEFF.: ± 0.55 0
EARTHQUAKE DESIGN DATA:
BIOMAG BUILDING METHANOL FACILITY PAVILION
RISK CATEGORY: III III
SEISMIC IMPORTANCE FACTOR: Ie=1.50 1.50
DESIGN SPECTRAL RESPONSE ACCELERATION: Ss=0.129 0.129
DESIGN SPECTRAL RESPONSE ACCELERATION: S1=0.052 0.052
DESIGN SPECTRAL RESPONSE ACCELERATION: Sds=0.103 0.103
DESIGN SPECTRAL RESPONSE ACCELERATION: Sd1=0.059 0.059
SOIL SITE CLASSIFICATION: TYPE C C
SEISMIC DESIGN CATEGORY: A A
DESIGN BASE SHEAR: 71 KIPS 1 KIP
SEISMIC RESPONSE COEFFICIENT: Cs=0.077 0.124
RESPONSE COEFFICIENT: R=2 1.25
BIOMAG BUILDING: ORDINARY MASONRY REINFORCED SHEAR WALLS
METHANOL FACILITY PAVILION: STEEL ORDINARY CANTILEVER SYSTEM
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE
SNOW LOADS:
GROUND SNOW LOAD (Pg): 40 PSF
FLAT ROOF SNOW LOAD (Pf): 37 PSF
SNOW EXPOSURE FACTOR (Ce): 1.0
SNOW THERMAL FACTOR (Ct): 1.2
SNOW LOAD IMPORTANCE FACTOR (Is): 1.10
C. FOUNDATION: SPREAD & WALL FOOTINGS
• ALLOWABLE BEARING PRESSURE: 3,000 PSF
• INTERNAL ANGLE OF FRICTION: 20 DEGREES
• UNIT WEIGHT OF SOIL (ABOVE WATER TABLE): 110 PCF
• UNIT WEIGHT OF SOIL (BELOW WATER TABLE): 60 PCF
• AT REST EARTH PRESSURE COEFFICIENT: ko=0.66
REFER TO GEOTECHNICAL REPORT PREPARED BY ADVANTAGE ENGINEERS, DATED NOVEMBER 5, 2014, FOR EARTHWORK REQUIREMENTS.

CONCRETE MASONRY

- A. HOLLOW UNITS: MIN. 1,900 PSI @ 28 DAYS, MIN. 45% SOLID, ASTM C90, GRADE N, LIGHT WEIGHT, f'm=1,500 PSI.
B. MORTAR: ASTM C270, TYPE S, MIN. 1800 PSI @ 28 DAYS, 3/8" FULL BEDDING. REMOVE MORTAR PROTRUDING INTO CELL CAVITIES TO BE REINFORCED AND GROUTED.
C. GROUT: ASTM C476, MIN. 2,000 PSI @ 28 DAYS, 3/8" AGGREGATE MAX., 8"-10" SLUMP.
D. REINFORCEMENT:
• HORIZONTAL JOINTS: STD. DUR-0-WALL @ 16" OC, USE PREFABRICATED CORNERS AND TEES @ WALL INTERSECTIONS, OVERLAP DISCONTINUED ENDS AND EXTEND INTO COLUMNS 6" MIN.
• VERTICAL AND HORIZONTAL REINFORCEMENT: ASTM 615, GRADE 60, PROVIDE MIN. #4 BARS TYP @ WALL INTERSECTIONS, EACH SIDE OF OPENINGS, AND @ WALL ENDS, HOOK TOP OF ALL DISCONTINUED BARS, LAP CONT. REINF 48 BAR DIA. UNO.
• USE BAR SPACERS IN EVERY 4TH COURSE WHERE CELLS ARE TO BE GROUTED.
E. PROVIDE CLEANOUT OPENINGS FOR EACH GROUTED CELL.
F. HIGH LIFT GROUTING SHALL BE USED WITH A MAXIMUM POUR OF 12'-0" IN 4' MAX LIFTS WITH ONE HOUR BETWEEN LIFTS. VIBRATE EACH LIFT AND RECONSOLIDATE PREVIOUS LIFT AFTER PLACING NEXT LIFT. VERTICAL CORES TO BE FILLED WITH GROUT SHALL HAVE A MINIMUM CLEAR DIMENSION OF 3"x3".
G. WHERE EXPANSION ANCHOR BOLTS ARE SET IN MASONRY WALLS, FILL BLOCK CELLS WITH GROUT FOR BOLTED COURSE AND TWO COURSES BELOW ANCHOR ELEVATION.
H. PROVIDE LINTELS OVER OPENINGS LARGER THAN 1'-0" IN ACCORDANCE WITH THE DETAILS ON S-3.

FOUNDATION

- A. ALL FOUNDATIONS SHALL BEAR ON MINIMUM 6" OF COMPACTED STRUCTURAL FILL OVER UNDISTURBED SOIL WITH AN ALLOWABLE BEARING CAPACITY SPECIFIED IN DESIGN CRITERIA.
B. CONCRETE SHALL NOT BE POURED ON FROZEN GROUND.
C. PROVIDE SHEETING AS REQUIRED TO SUPPORT LATERAL LOADS DURING EXCAVATION. SEE GEOTECHNICAL REPORT FOR SOIL PROPERTIES.
D. FILL ALL VOIDS AND REPLACE DISTURBED SOIL WITH LEAN CONCRETE.
E. EXCAVATIONS SHALL BE KEPT FREE OF WATER. NO CONCRETE SHALL BE PLACED IN WATER.
F. REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION.

CAST-IN-PLACE REINFORCED CONCRETE

- A. ALL CONCRETE WORK SHALL CONFORM TO THE PROVISIONS OF CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI 350-06).
B. MINIMUM 28 DAY COMPRESSIVE STRENGTH, MAX WATER TO CEMENTITIOUS MATERIAL RATIOS & AGGREGATE SIZE:
ALL CONCRETE: 5,000 PSI, NORMAL WEIGHT, W/C=0.40, #57 AGGREGATE
C. AIR ENTRAIN ALL CONCRETE EXPOSED TO WEATHER 6% ± 1.5%.
D. SLUMP SHALL BE AS REQUIRED BY ACI 302 - LATEST EDITION.
E. USE A WATER-REDUCING ADMIXTURE IN ALL CONCRETE.
F. NO CONCRETE SHALL BE PLACED UNTIL CONCRETE DESIGN MIXES HAVE BEEN SUBMITTED AND HAVE BEEN REVIEWED BY THE ENGINEER.
G. CHAMFER ALL EDGES OF BEAMS, COLUMNS, HAUNCHES, WALL, EQUIPMENT PADS AND SLABS EXPOSED TO VIEW 3/4" UNLESS OTHERWISE NOTED.

GENERAL

- A. ALL ELEVATIONS ARE REFERENCED TO TRAVERSE SURVEY CONTROL SHOWN ON DWG C-1. SEE DWGS FOR FINISHED FLOOR ELEV. ALL ELEVATIONS SHOWN ON PLANS ARE REFERENCED TO THIS DATUM UNLESS NOTED.
B. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OR START OF CONSTRUCTION.
C. NO STRUCTURAL MEMBER SHALL BE CUT, NOTCHED OR OTHERWISE REDUCED IN STRENGTH WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
D. THE GENERAL CONTRACTOR SHALL COORDINATE ALL OTHER DISCIPLINES FOR ANY ITEMS WHICH AFFECT THE STRUCTURAL DRAWINGS.
E. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING, GUY WIRES, ETC., WHERE NECESSARY TO ADEQUATELY RESIST ALL CONSTRUCTION LOADS.

EXISTING CONSTRUCTION

- A. ALL MEMBER SIZES AND DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES SHOWN ON THE DRAWINGS ARE OBTAINED FROM AVAILABLE SOURCES, AND ARE NOT GUARANTEED TO BE TRUE AND EXACT. THE CONTRACTOR SHALL VERIFY THESE DIMENSIONS AND ELEVATIONS BY ACTUAL FIELD MEASUREMENTS PRIOR TO FABRICATION OF ANY MATERIALS AND START OF WORK, AND REPORT ANY DISCREPANCIES TO THE ARCHITECT/ENGINEER.
B. THE CONTRACTOR SHALL PROVIDE ALL SHORING, NEEDLING AND BRACING AS REQUIRED TO SUPPORT THE EXISTING STRUCTURE. THE CONTRACTOR SHALL EXAMINE THE EXISTING STRUCTURE TO DETERMINE THE EXTENT OF THE NECESSARY SHORING, NEEDLING AND UNDERPINNING, THE CAPACITY AND METHOD FOR SHORING AND NEEDLING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

REINFORCEMENT

- A. ALL DEVELOPMENT AND SPLICES OF REINFORCEMENT SHALL CONFORM TO THE PROVISIONS OF CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI 350-06).
B. REINFORCING STEEL SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE NEW BILLET STEEL CONFORMING TO CURRENT REQUIREMENTS OF ASTM A615 GRADE 60 EXCEPT THAT COLUMN TIES AND BEAM STIRRUPS MAY BE GRADE 40. ALL HOOKS SHALL BE STANDARD HOOKS, UNLESS OTHERWISE NOTED.
C. WELDED WIRE FABRIC (W.W.F.) SHALL CONFORM TO ASTM A185.
D. ALL WELDED WIRE FABRIC SHALL BE SPLICED SO THAT THE OVERLAP OF THE OUTERMOST CROSS WIRES OF EACH ADJOINING SHEET IS NOT LESS THAN THE SPACING OF THE CROSS WIRES PLUS TWO INCHES, UNLESS OTHERWISE NOTED.
E. CONTINUOUS BOTTOM BARS SHALL BE SPLICED AT CENTERLINE OF SUPPORTS. CONTINUOUS TOP BARS SHALL BE SPLICED AT MIDSPAN.
F. AT CHANGES IN DIRECTION OF CONCRETE WALLS, STRIP FOOTINGS, BEAMS, TIE-BEAMS AND BOND BEAMS, PROVIDE CORNER BARS AT SAME SIZE AND SPACING AS HORIZONTAL STEEL.
G. REINFORCING BAR SUPPORTS AND SPACERS SHALL CONFORM TO ACI 315-(LATEST EDITION) DETAILING MANUAL.
H. SHOP DRAWINGS SHOWING ALL NECESSARY SECTIONS AND DETAILS FOR THE PROPER POSITIONING OF ALL REINFORCING STEEL SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW BEFORE FABRICATION OR PLACEMENT OF THE STEEL.

WATERPROOFING

FOR LIMITS OF WATERPROOFING FOR EXTERIOR WALLS, SEE STRUCTURAL SECTIONS. SEE SPECIFICATIONS FOR INFORMATION REGARDING MEMBRANE WATERPROOFING.

ALUMINUM

- A. ALUMINUM STRUCTURAL SHAPES SHALL BE ASTM B-308, 6061-T6.
B. ALLOWABLE TOLERANCES FOR MILLED ALUMINUM STANDARD STRUCTURAL SHAPES SHALL BE IN ACCORDANCE WITH ANSI H35.2. COMPLY WITH THE ALUMINUM DESIGN MANUAL (ADM-1) LATEST EDITION.
C. ALL RECTANGULAR CUTOUTS SHALL BE MADE TO THE NEXT BEARING BAR BEYOND THE PENETRATION WITH A CLEARANCE NOT TO EXCEED BEARING BAR SPACING.
D. USE GRATING CLIPS TO SECURE GRATING TO SUPPORTING MEMBERS. GRATING CLAMPS TO BE A TYPE TO ALLOW FOR EASY REMOVAL OF GRATING.
E. ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL BE GIVEN A HEAVY COAT OF ALKALI RESISTANT BITUMINOUS PAINT OR OTHER COATING PROVIDING EQUIVALENT PROTECTION BEFORE INSTALLATION.
F. CONTRACTOR IS RESPONSIBLE FOR DESIGN OF ALL ALUMINUM STRUCTURES, INCLUDING HANDRAILS, WALKWAYS, GRATING AND STAIRS. CONTRACTOR SHALL SUBMIT SIGNED AND SEALED PLANS. DESIGN SHALL BE IN ACCORDANCE WITH IBC.
G. "2" DIAMOND PLATE" SHALL BE ALUMINUM DIAMOND BACK PLANK BY McNICHOLS OR APPROVED EQUAL. PLANK SHALL BE 12" WIDE WITH A CAPACITY OF 250 PSF.

SUBMITTALS

- A. BEFORE SUBMISSION OF SHOP DRAWINGS, THE CONTRACTOR SHALL HAVE DETERMINED AND VERIFIED ALL QUANTITIES, DIMENSIONS, SPECIFIED PERFORMANCE CRITERIA, INSTALLATION REQUIREMENTS, MATERIALS, CATALOG NUMBERS AND SIMILAR DATA AND SHALL HAVE COORDINATED EACH SHOP DRAWING WITH OTHER SHOP DRAWINGS AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
B. PRIOR TO SUBMISSIONS, THE CONTRACTOR SHALL STAMP OR PROVIDE A SIMILAR WRITTEN INDICATION THAT THE CONTRACTOR HAS REVIEWED THE SUBMISSION AND IS SATISFIED THE CONTENTS ARE IN COMPLIANCE WITH THE CONTRACT DRAWINGS.
C. REPRINTS OF THE CONTRACT DRAWINGS WILL NOT BE ACCEPTED.
D. NO DIMENSIONAL INFORMATION MAY BE OBTAINED BY DIRECT SCALING OF THE DRAWINGS.
E. ADEQUATE SETS SHALL BE SUBMITTED SO THAT THE ARCHITECT/ENGINEER CAN MAINTAIN ONE RECORD SET AT ALL TIMES.
F. IN ADDITION TO SUBMISSIONS AS REQUIRED IN THE SPECIFICATIONS, CONTRACTOR SHALL PROVIDE PLANS AND DETAILS, SIGNED AND SEALED BY A MARYLAND PROFESSIONAL ENGINEER, FOR THE FOLLOWING: HANDRAILS, GRATING, METAL AND CONCRETE STAIRS, ROOF TRUSSES AND LADDERS.

PRE-ENGINEERED COLD-FORMED STEEL ROOF TRUSSES

- A. ALL COLD-FORMED DESIGN AND FABRICATION SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING:
- "AMERICAN IRON AND STEEL INSTITUTE STANDARD FOR COLD-FORMED STEEL FRAMING - TRUSS DESIGN"
- "AMERICAN IRON AND STEEL INSTITUTE, NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS"
- "STRUCTURAL BUILDING COMPONENTS ASSOCIATION - COLD-FORMED STEEL BUILDING COMPONENT SAFETY INFORMATION (CFSBCSI)"
B. SHOP DRAWINGS FOR ALL COLD-FORMED STEEL TRUSSES AND CONNECTORS SHALL IDENTIFY THE SPECIFIC PROJECT, SHALL LIST ALL DESIGN CRITERIA AND SHALL SHOW ALL DETAILS NECESSARY FOR PROPER ERECTION. SHOP DRAWINGS SHALL BEAR THE SIGNATURE AND IMPRESSED SEAL OF THE PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND WHO PREPARED THEM.
C. SIGNED AND SEALED SHOP DRAWINGS SHALL INCLUDE ALL TRUSS MEMBER SIZES, CONNECTORS, FRAMING PLANS IDENTIFYING EACH TRUSS AND IT'S LOCATION, PERMANENT BRACING AND ANCHORAGE OF BRACING, TRUSS TO TRUSS CONNECTION DETAILS, TRUSS TO STRUCTURE CONNECTIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS AND ANY OTHER TEMPORARY AND PERMANENT ERECTION AND FABRICATION INFORMATION.
D. PROVIDE COMPONENTS WITH PROTECTIVE ZINC COATING COMPLYING WITH ASTM A653, MINIMUM G60 COATING.
E. STRUCTURAL MEMBERS SHALL MEET THE FOLLOWING MINIMUM YIELD STRENGTH REQUIREMENTS: CHORD AND WEB MEMBER: Fy=50 KSI, BRACING, BRIDGING AND BLOCKING MEMBERS: Fy=33 KSI
F. THE ERECTION AND BRACING OF COLD-FORMED STEEL TRUSSES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH THE CFSBCSI COMMENTARY AND RECOMMENDATIONS UNLESS OTHERWISE NOTED ON APPROVED SHOP DRAWINGS.
G. TRUSSES SHALL PRODUCE NO HORIZONTAL THRUST TO BEARING WALLS.

STRUCTURAL STEEL

- A. ALL STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
B. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
• STRUCTURAL STEEL W-SHAPES: A992 HAVING A MINIMUM YIELD STRENGTH OF 50 KSI.
• STRUCTURAL STEEL CHANNELS, ANGLES, BARS & PLATES: A36 HAVING A MINIMUM YIELD STRENGTH OF 36 KSI.
• SQUARE AND RECTANGULAR TUBING: A500, GRADE B HAVING MINIMUM YIELD STRENGTH OF 46 KSI.
• ROUND PIPE: A53, GRADE B HAVING A MINIMUM YIELD STRENGTH OF 35 KSI.
BOLTS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
HIGH STRENGTH BOLTS: ASTM A325, ANCHOR BOLTS: ASTM F1554 GRADE 36.
ALL BOLTS SHALL BE 3/4" DIAMETER, OPEN HOLES 13/16" DIAMETER, UNLESS OTHERWISE SHOWN OR NOTED.
E. WELDING SHALL BE IN ACCORDANCE WITH AWS CODE FOR WELDING IN BUILDING CONSTRUCTION (AWS D1.1) AND SHALL BE PERFORMED BY CERTIFIED WELDERS. ALL WELDS SHALL BE MADE WITH AWS A5.1 E-70XX ELECTRODES.
F. ALL SHOP CONNECTIONS SHALL BE HIGH STRENGTH BOLTED OR WELDED.
G. ALL FIELD CONNECTIONS SHALL BE HIGH STRENGTH BOLTED EXCEPT WHERE DETAILS INDICATE WELDING.
H. NO PENETRATIONS ARE PERMITTED THROUGH STRUCTURAL STEEL MEMBERS UNLESS INDICATED ON STRUCTURAL DRAWINGS OR APPROVED BY ARCHITECT/ENGINEER.
I. APPROVAL OF THE ARCHITECT/ENGINEER SHALL BE MANDATORY FOR THE USE OF CUTTING TORCH IN THE FIELD.
J. ALL GROUT UNDER STEEL PLATES SHALL BE NON-SHRINK "PRE-MIX" TYPE AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI.
K. FOR ALL MISCELLANEOUS STEEL CONSTRUCTION NOT SHOWN ON STRUCTURAL DRAWINGS, SEE THE ARCHITECTURAL AND MECHANICAL DRAWINGS.
L. STRUCTURAL STEEL SHALL BE INSPECTED IN THE FIELD BY AN INDEPENDENT TESTING AGENCY APPROVED BY THE ARCHITECT AND PAID FOR BY THE CONTRACTOR.
M. ALL STEEL & CONNECTIONS EXPOSED TO WEATHER SHALL BE GALVANIZED.

METAL DECK

- A. METAL DECK SHALL CONFORM TO THE AISI (AMERICAN IRON AND STEEL INSTITUTE) SPECIFICATIONS FOR THE DESIGN OF LIGHT GAGE COLD-FORMED STRUCTURAL STEEL MEMBERS AND SDI CODE OF RECOMMENDED STANDARD PRACTICE.
B. METAL DECKING SHALL BE MADE OF STEEL CONFORMING TO ASTM A653 GRADE A FOR GALVANIZED DECK AND/OR ASTM A1008, GRADE C FOR PAINTED DECK HAVING A MINIMUM YIELD STRENGTH OF 33,000 PSI.
C. ALL METAL DECK HAS BEEN DESIGNED TO BE CONTINUOUS OVER THREE SPANS MINIMUM, AND SHALL BEAR AT LEAST 2" ON STEEL SUPPORTS. FOR ONE OR TWO SPAN CONDITIONS, THE CONTRACTOR SHALL PROVIDE SHORING AS REQUIRED, OR FURNISH HIGHER GAGE DECK AS REQUIRED TO SUPPORT ALL THE APPLICABLE LOADS. CONTRACTOR SHALL SUBMIT ALTERNATE FOR APPROVAL.
D. DECK SHALL BE WELDED TO SUPPORTING STEEL AT ENDS OF UNITS AND AT ALL INTERMEDIATE SUPPORTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. SIDE LAPS SHALL BE WELDED OR SCREWED AT 3' O/C MAXIMUM FOR SPANS OVER 5'. USE WELDING WASHERS FOR ATTACHING METAL DECK OF 23 GAGE OR LIGHTER.
E. PROVIDE RIDGE AND VALLEY PLATES, STANDARD CLOSURES, CANT STRIPS, POUR STOPS AND OTHER ACCESSORIES AS SHOWN ON DRAWINGS OR AS REQUIRED.
F. METAL DECK SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES PER FOOT WIDTH:
1 1/2", TYPE B, WIDE RIB, 22 GAUGE (0.0295 INCH)
I = 0.155 IN^4
SP = 0.186 IN^3
SN = 0.192 IN^2
G. DECK OPENINGS THAT ARE LARGER THAN 8" OR CUT THROUGH MORE THAN 2 WEBS SHALL BE REINFORCED.
H. METAL DECK SHALL BE INSPECTED IN THE FIELD BY AN INDEPENDENT TESTING AGENCY APPROVED BY THE ARCHITECT AND PAID FOR BY THE CONTRACTOR.

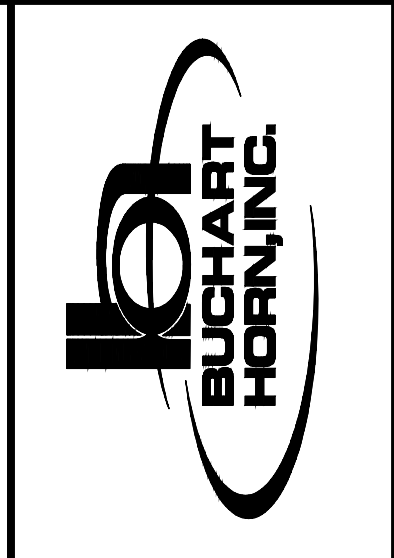
SPECIAL INSPECTION

- A. SPECIAL INSPECTIONS, IN ACCORDANCE WITH IBC CHAPTER 17, ARE REQUIRED. THE OWNER WILL ENGAGE A SPECIAL INSPECTIONS ENGINEER OF RECORD TO PERFORM THE SERVICES INDICATED.
• CONTRACTOR SHALL REGULARLY PROVIDE SPECIAL INSPECTIONS ENGINEER OF RECORD WITH A CURRENT CONSTRUCTION SCHEDULE SO THAT THE REQUIRED INSPECTIONS CAN BE PROVIDED IN A TIMELY MANNER.
B. THE OWNER WILL ENGAGE AN APPROVED, QUALIFIED TESTING AGENCY TO PROVIDE TESTING AND INSPECTION SERVICES AS INDICATED BELOW. SUBMIT REPORTS TO THE STRUCTURAL ENGINEER OF RECORD AND CODE OFFICIAL (AS APPLICABLE).

Table with 2 columns: TYPE OF INSPECTION, IBC SECTIONS. Includes rows for SPECIAL INSPECTIONS, STEEL CONSTRUCTION, CONCRETE CONSTRUCTION, MASONRY, and SOILS.

ABBREVIATIONS

Table listing abbreviations and their meanings, such as ANGLE, CENTERLINE, DIAMETER, PLATE, ADD'L, AFF, ALUM, ARCH, BOT, BRG, CIP, CJ, CLR, CMU, CONC, CONT, COORD, DEG, DIA, DIM, DTL, DWG(S), EA, EE, EF, ELEV, EMBED, EQ, EX, EW, EXP, FF, FTG, FV, FRP, GALV, HD GALV, HORIZ, HSS, JT, KSI, LLH, LONG, MANUF, MAX, MECH, MIN, MISC, MRWR, NO, OC, OPNG, PCF, PLWD, PSF, PSI, REINF, REQ'D, RTU, SCH, SECT, SF, SIM, SQ, SS, STD, T&B, T&G, TOS, TS, TRANSV, TYP, T/ RET WALL, T/ SOG, T/ WALL, UNO OR UON, VERT, VIF, W/, W/C, W/IN, W/O, WWF.

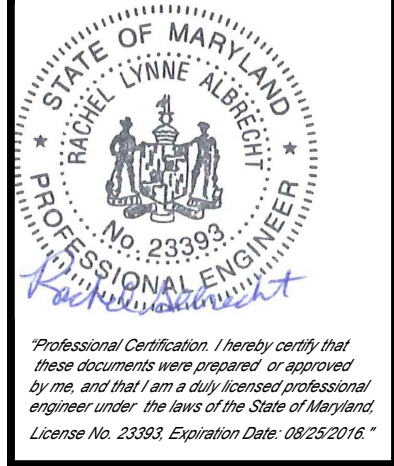
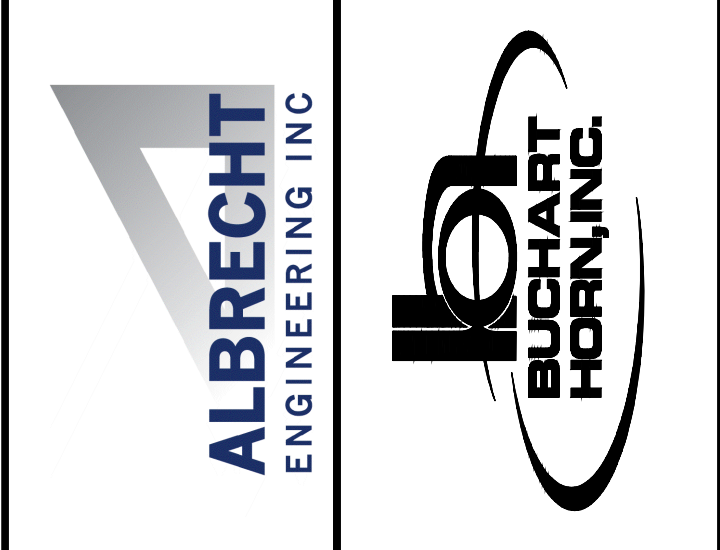


WASHINGTON COUNTY, MARYLAND
DEPARTMENT OF WATER QUALITY
CONOCOCHEAQUE WASTEWATER
TREATMENT PLANT ENR UPGRADE

Table with columns for APPENDIX #, JDS, DATE, and BY. Includes a revision table with columns for NO., REVISION, and DATE.

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CAD FILE: 2014-026_S-1_S-3.dwg
ENGR./ARCH.: AEI
DESIGN BY: JWG
DRAWN BY: KAP
CHECKED BY: RLA
DATE: 3/24/2016

GENERAL
STRUCTURAL
NOTES
AND
ABBREVIATIONS



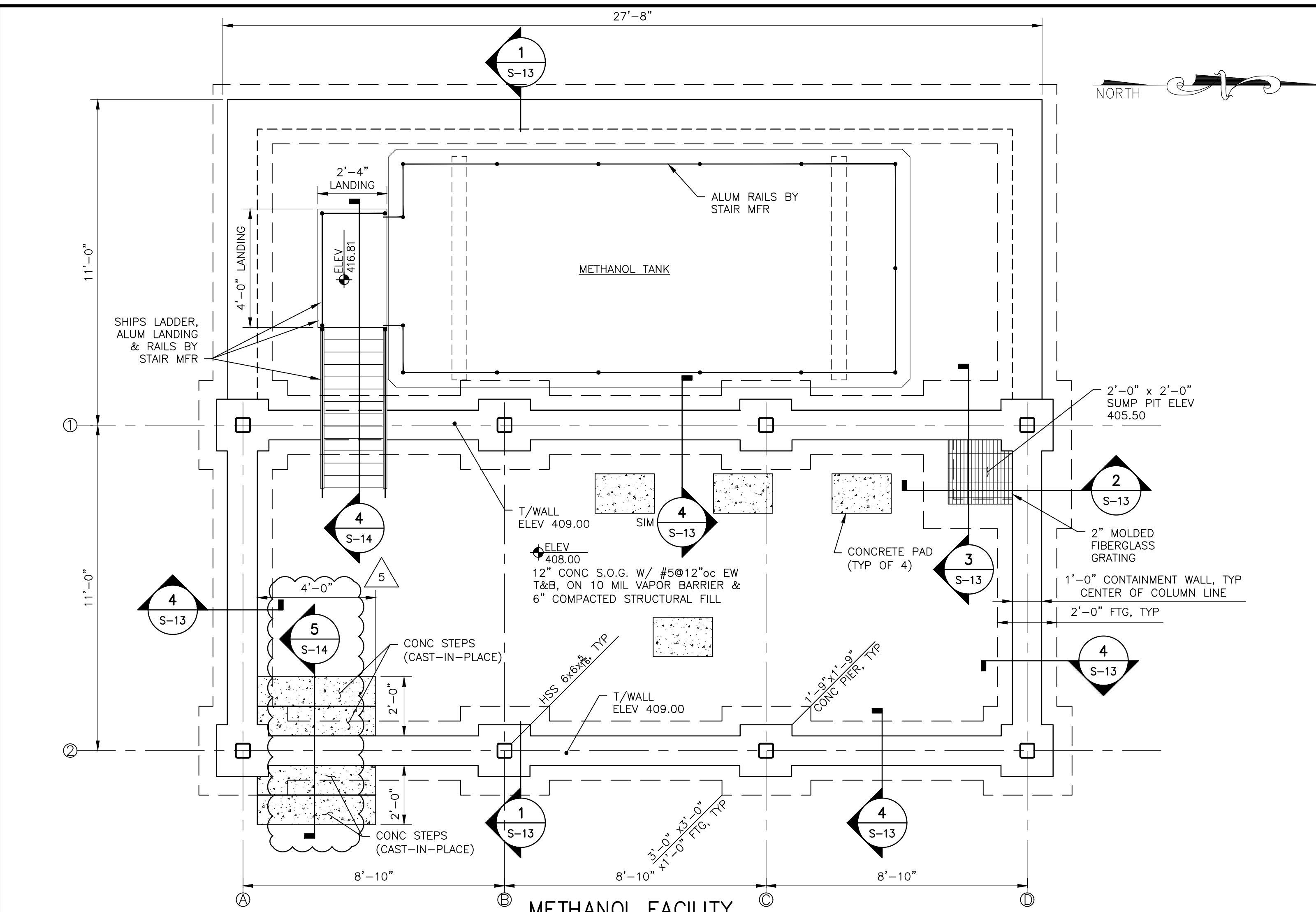
WASHINGTON COUNTY, MARYLAND
 DEPARTMENT OF WATER QUALITY
 CONOCOHEAGUE WASTEWATER
 TREATMENT PLANT ENR UPGRADE

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5/24/16		JWS	
ADDENDUM #2			
ADDENDUM #5			

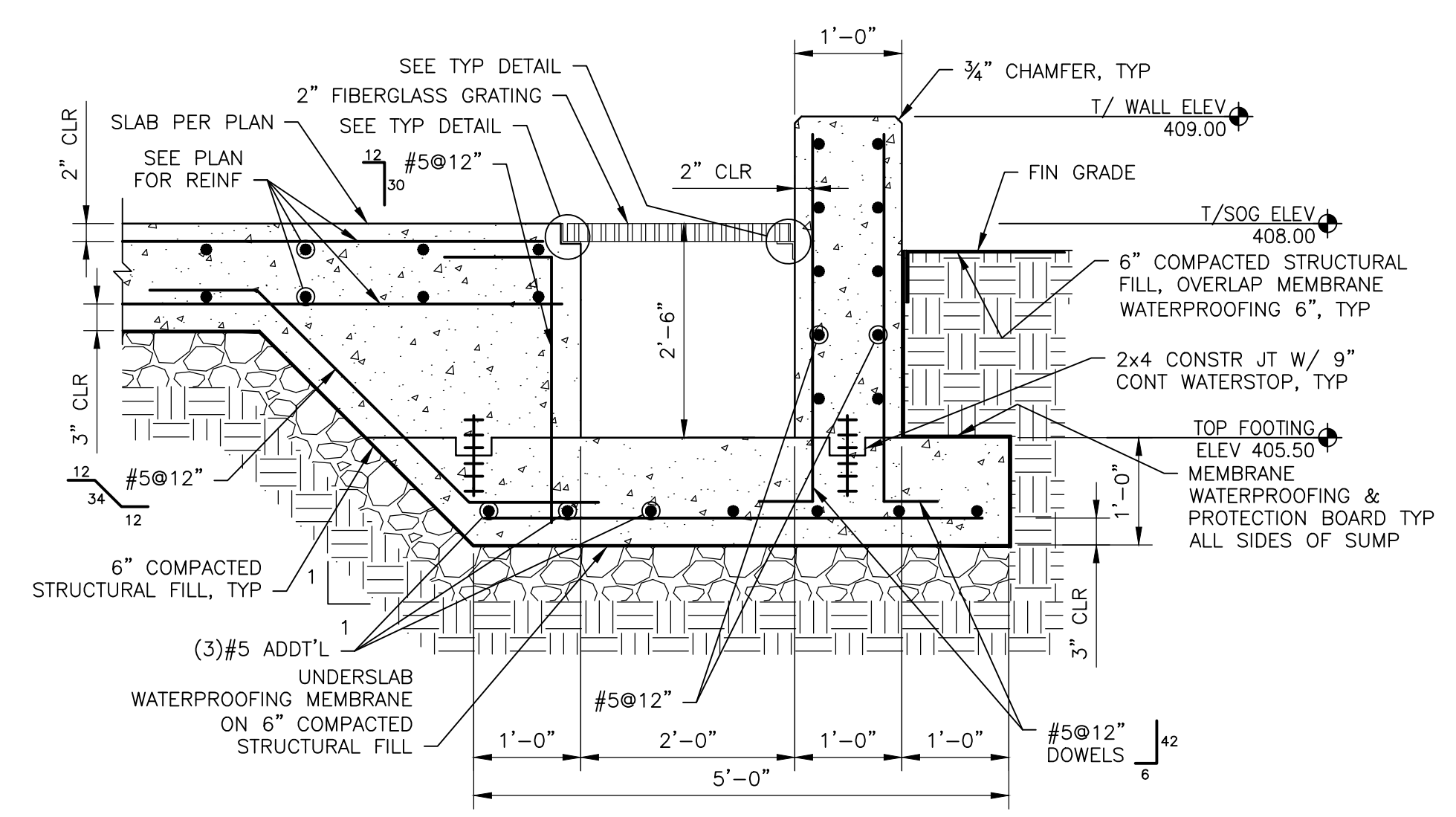
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 DRAWN BY: KAP
 CHECKED BY: RLA
 DATE: 3/24/2016

METHANOL FACILITY
 PLAN
 ELEVATION
 408.00
 AND
 SECTIONS

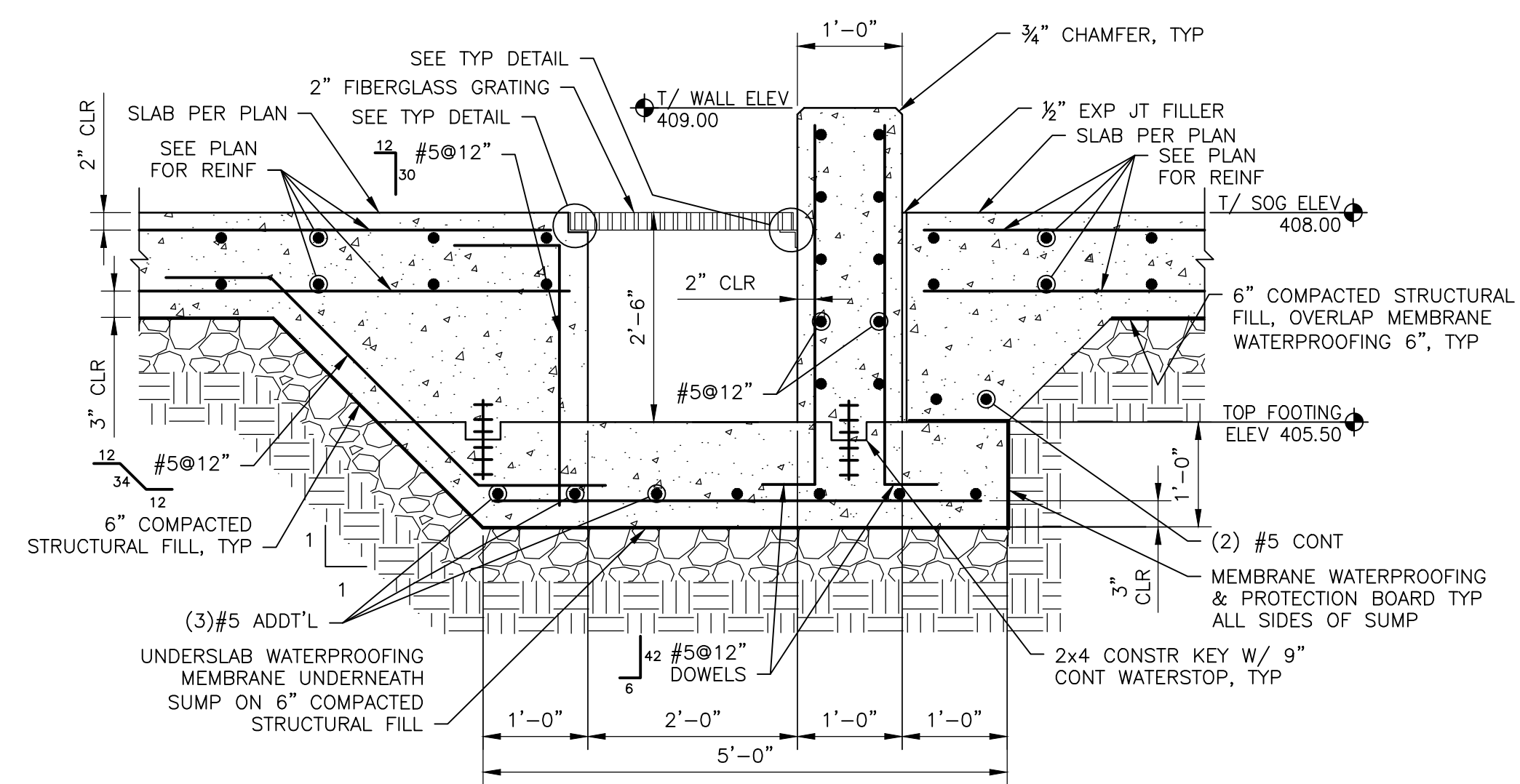
DRAWING NO. S-13
 SHEET NO. 111 OF 327
 SP-15-028



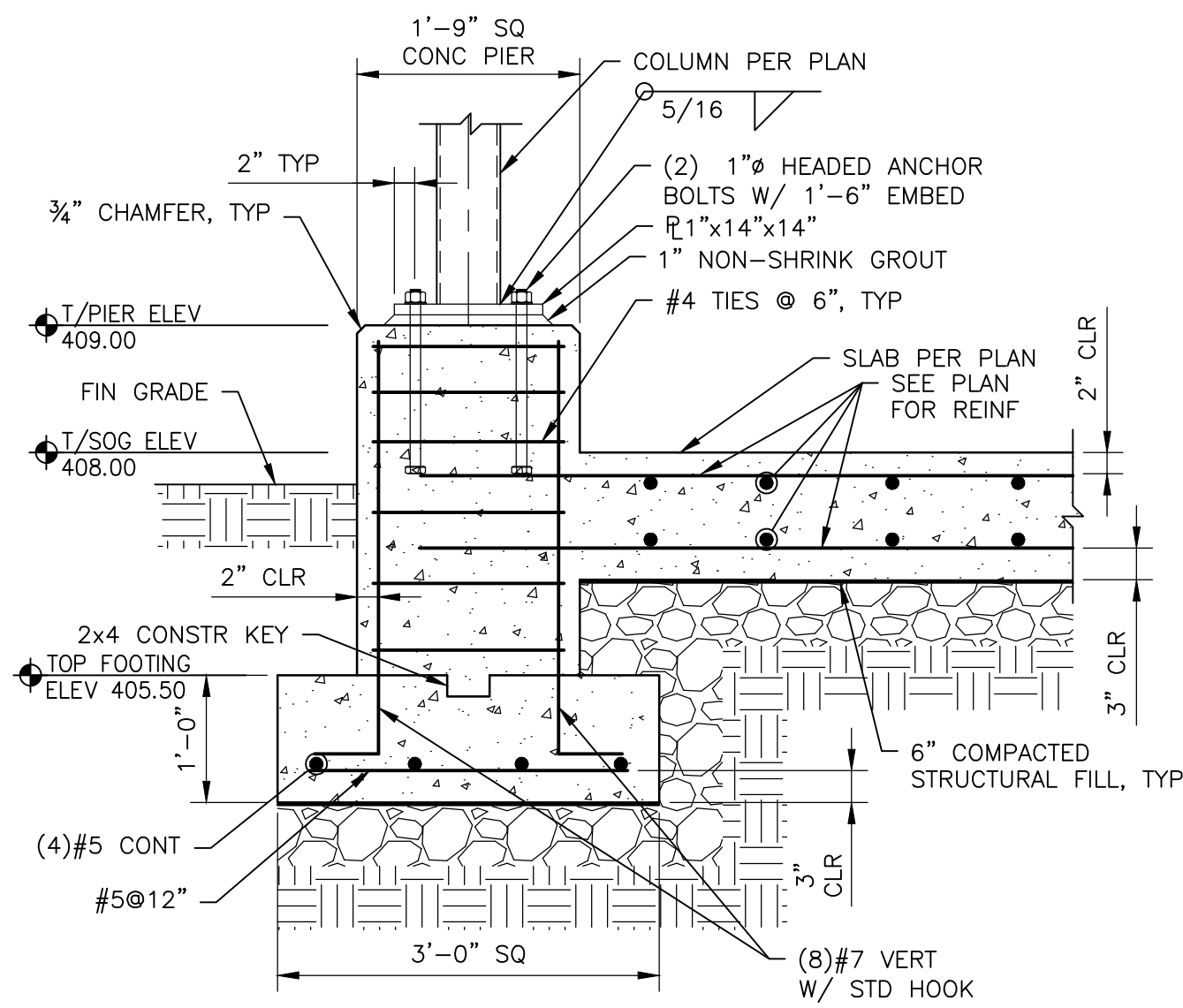
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 PLAN - ELEVATION 408.00
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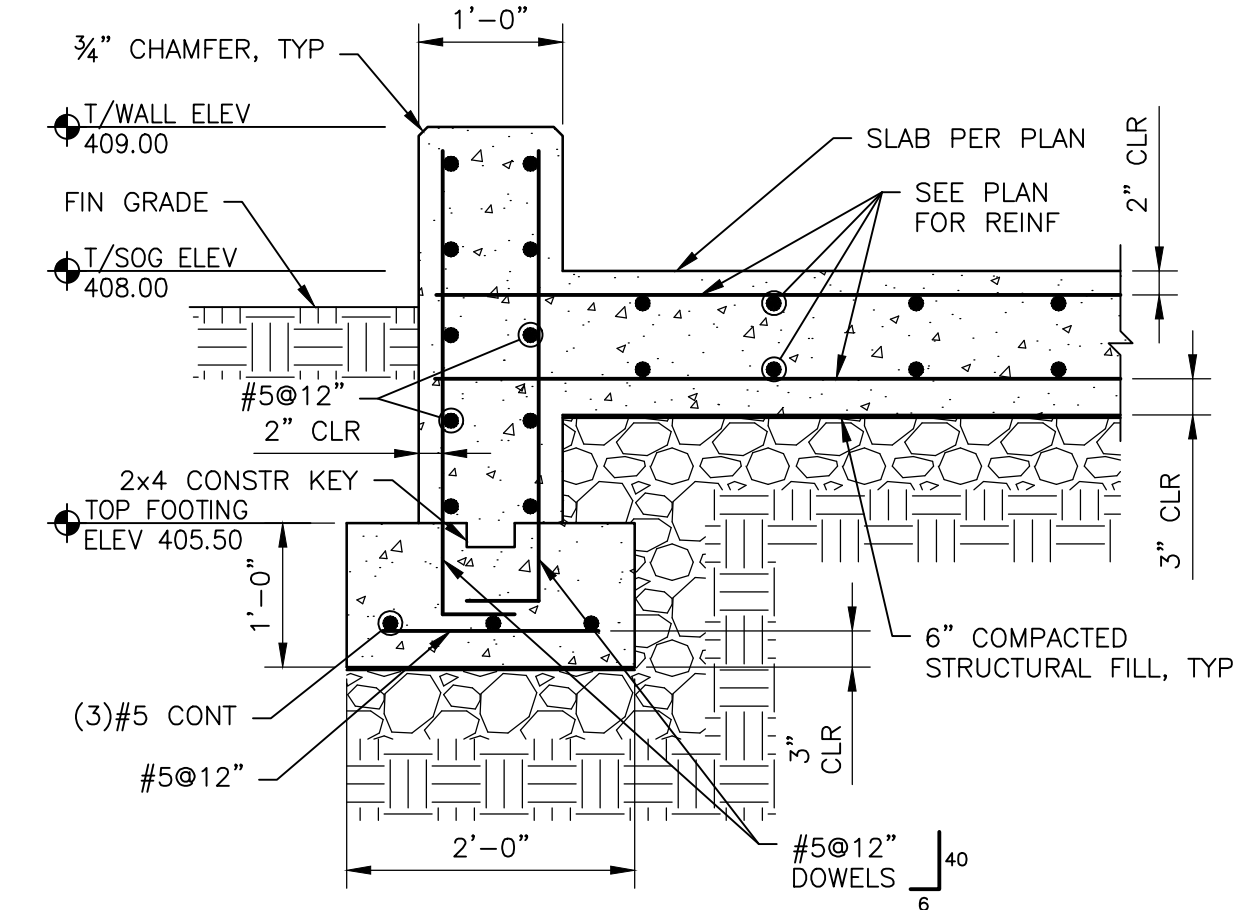
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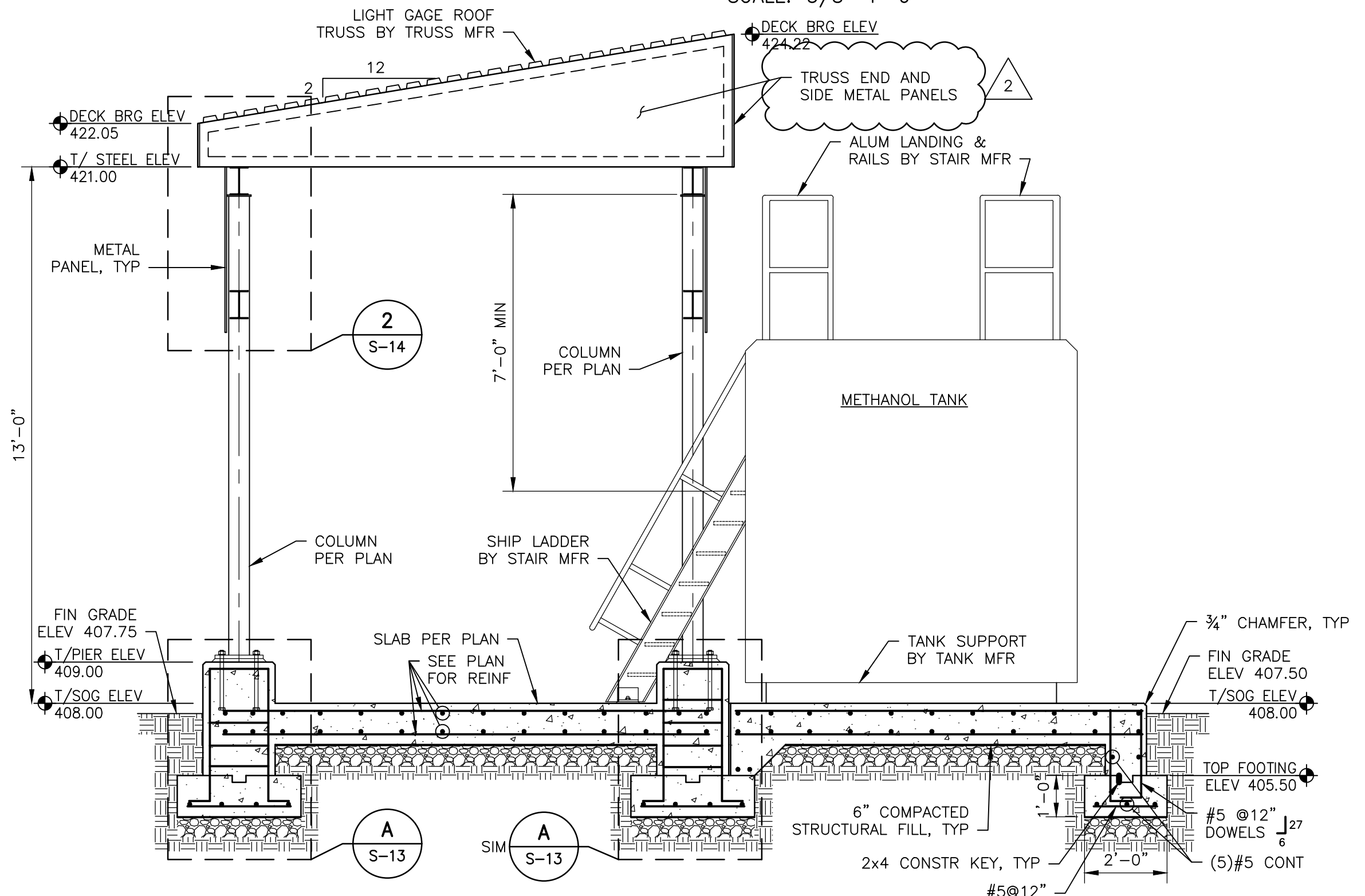
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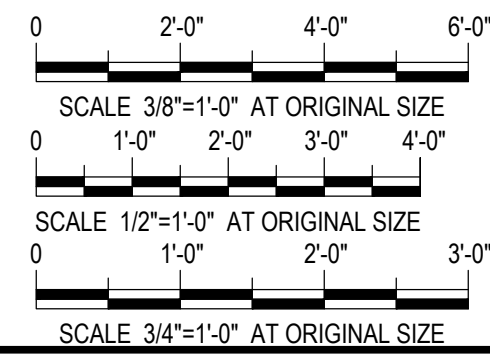
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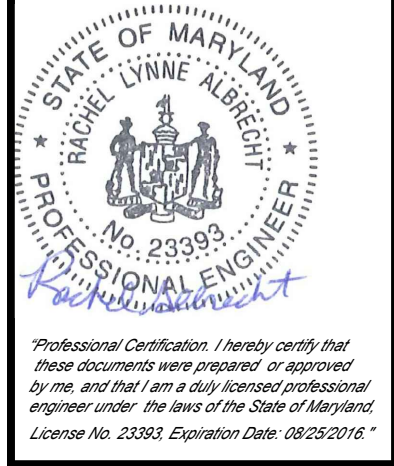
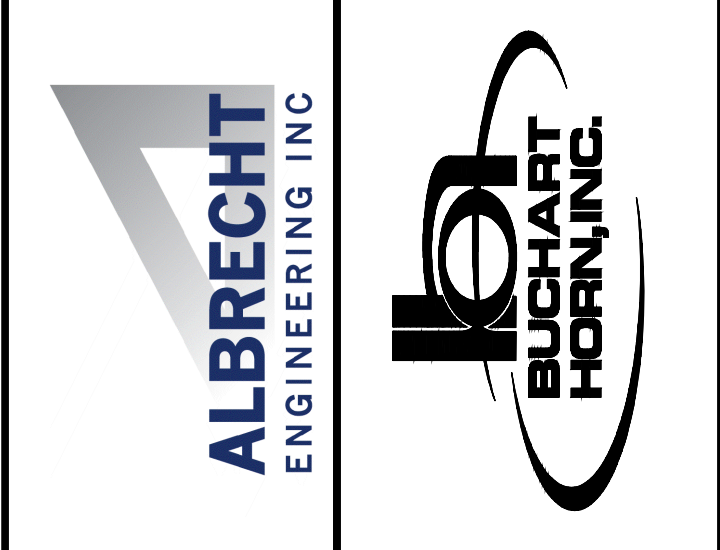


SECTION
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SECTION
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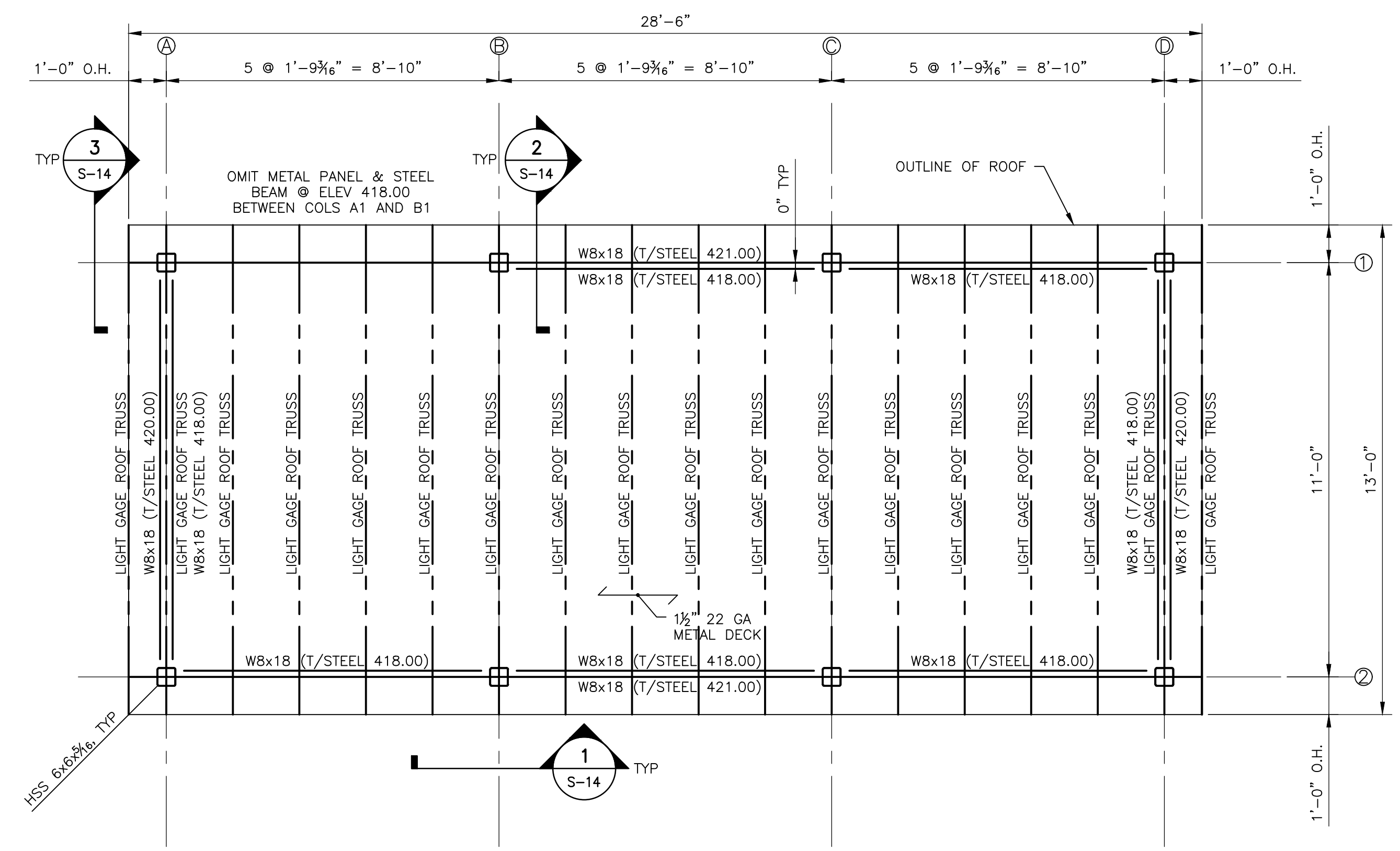
WASHINGTON COUNTY, MARYLAND
 DEPARTMENT OF WATER QUALITY
 CONOCOCHEAQUE WASTEWATER
 TREATMENT PLANT ENR UPGRADE

JDS	DATE	BY

APPENDIX #5	REVISION	NO.

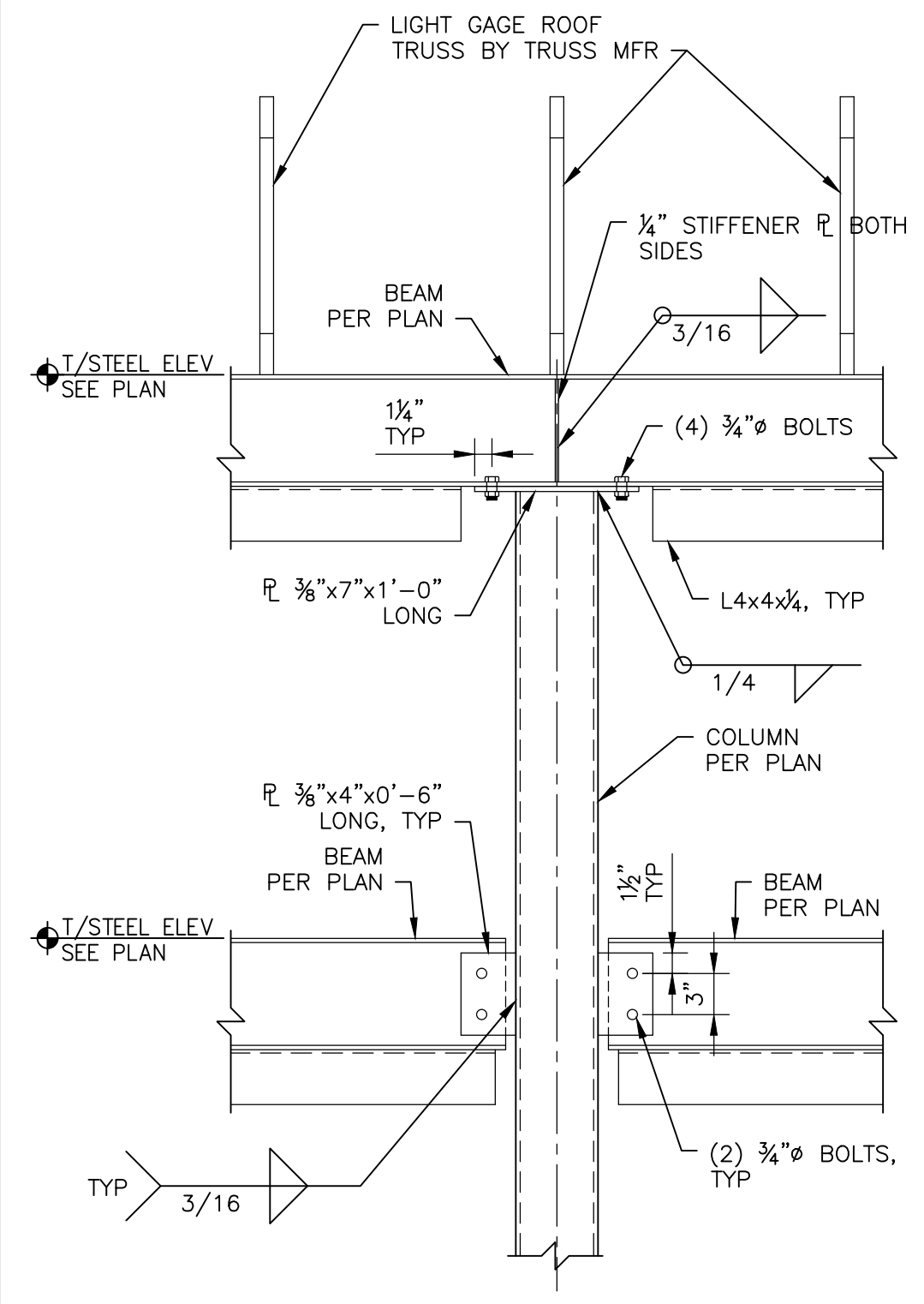
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 ENGR./ARCH.: AEI
 DESIGN BY: JWG
 DRAWN BY: KAP
 CHECKED BY: RLA
 DATE: 3/24/2016

METHANOL FACILITY
 SECTIONS
 AND
 DETAILS
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 SHEET NO.: 112 OF 327
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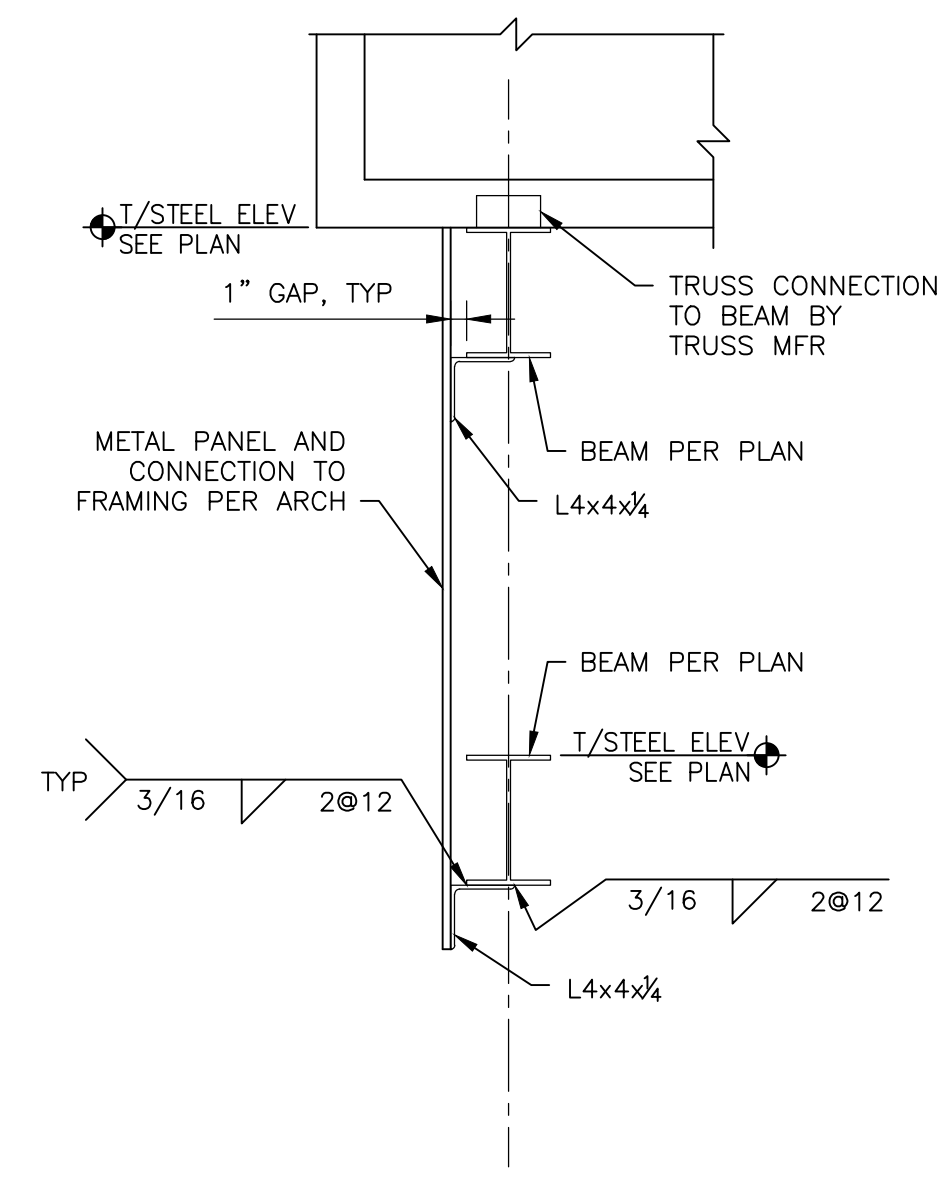


METHANOL FACILITY
 ROOF FRAMING PLAN
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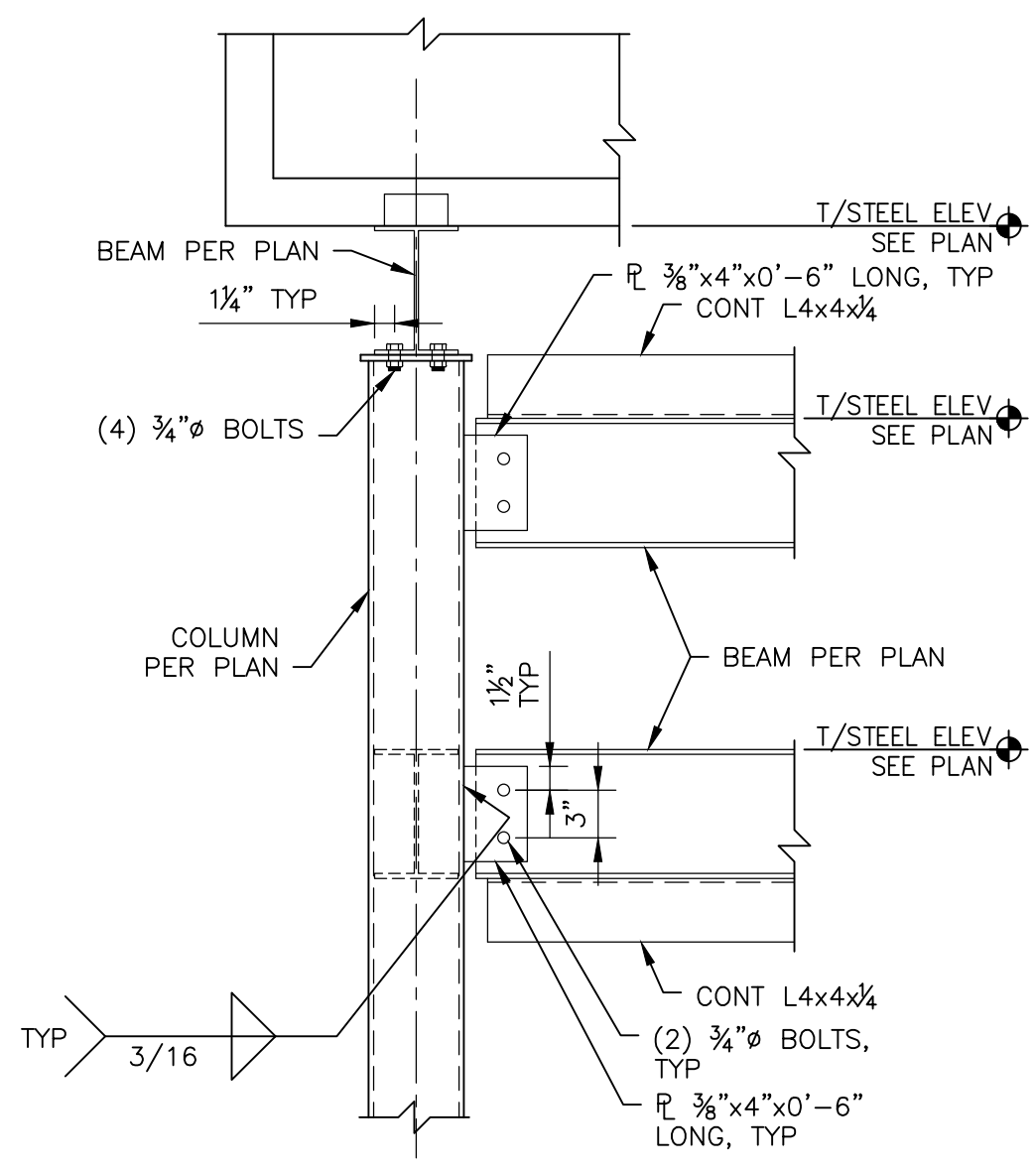
- NOTES:
- ALL STRUCTURAL STEEL AND HARDWARE SHALL BE HOT-DIPPED GALVANIZED.
 - LIGHT GAGE ROOF TRUSS DESIGN AND FABRICATION SHALL BE BY TRUSS MFR. TRUSSES SHALL BE TREATED FOR EXTERIOR APPLICATION.
 - INSTALL PLASTIC BIRD SCREEN MESH TO THE UNDERSIDE OF THE TRUSS.



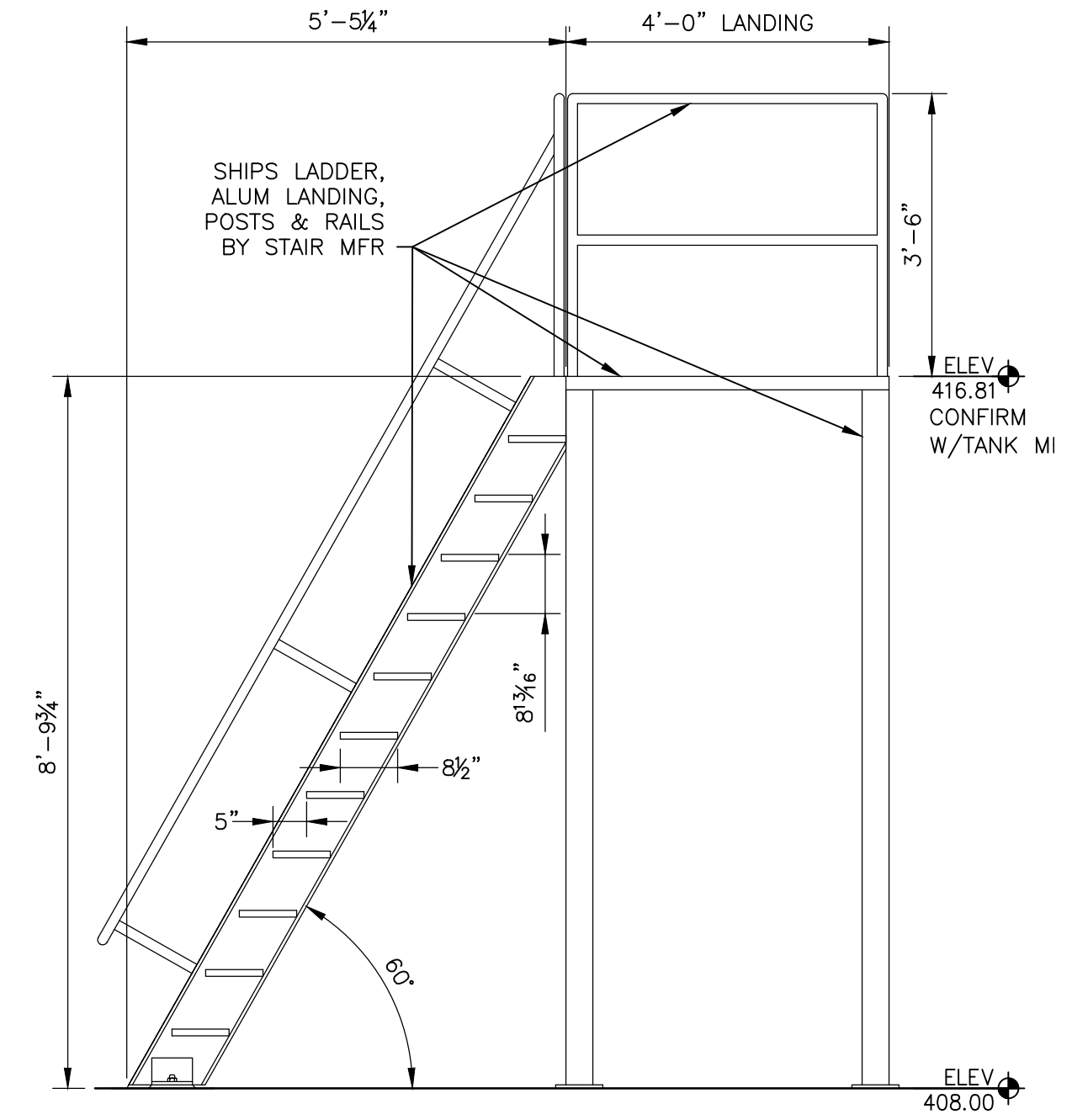
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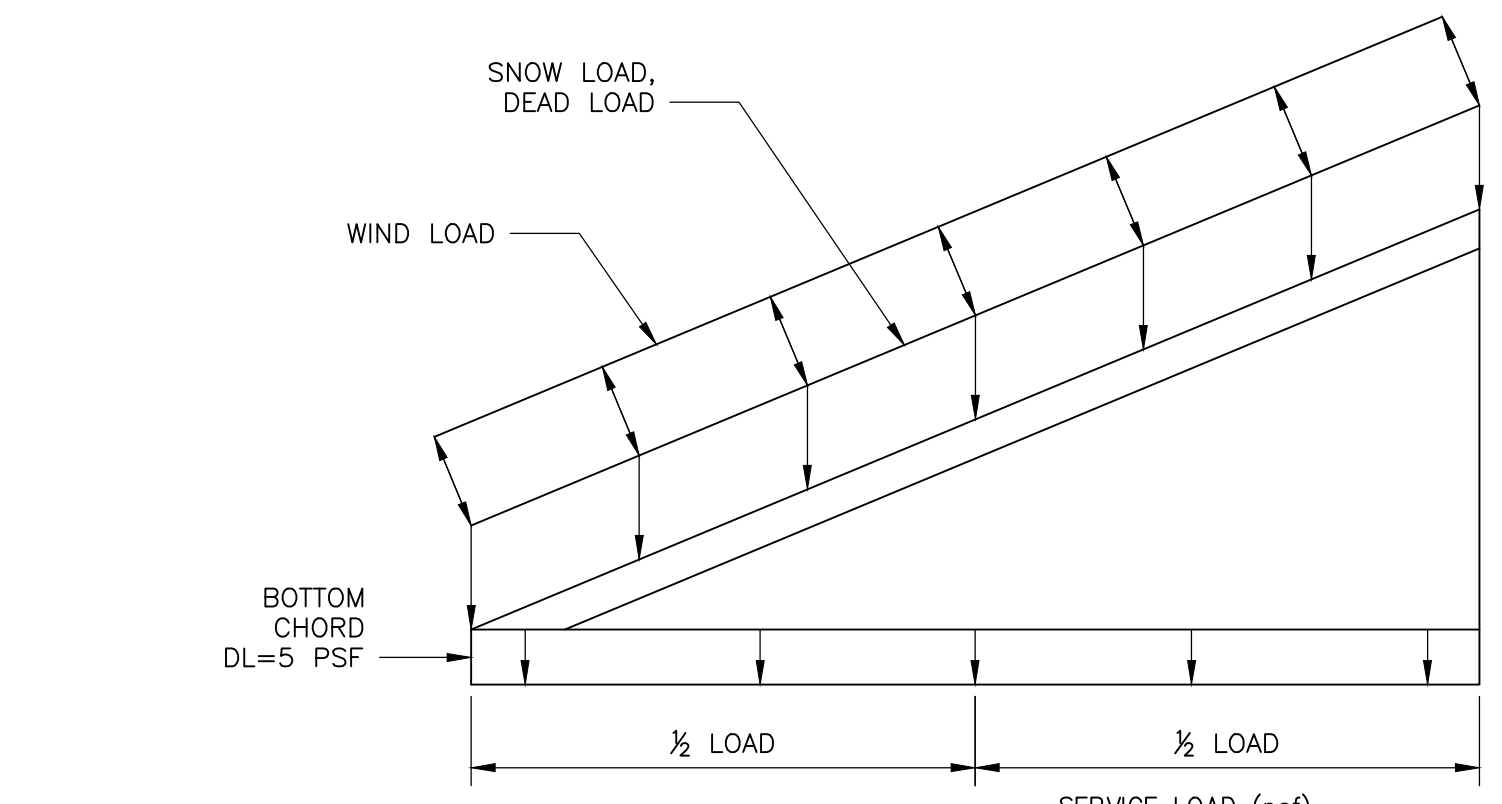
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3 SECTION
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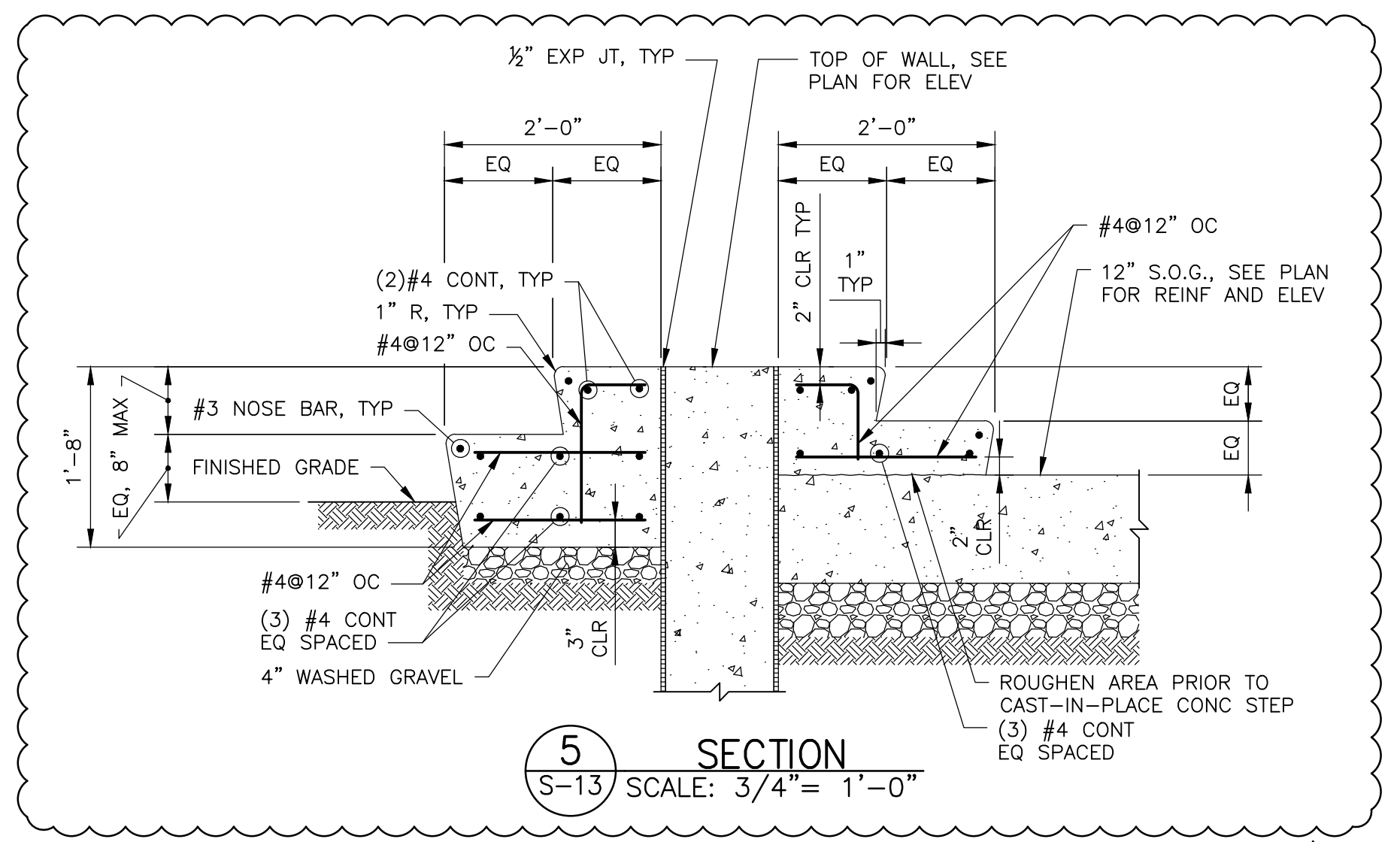


4 SECTION
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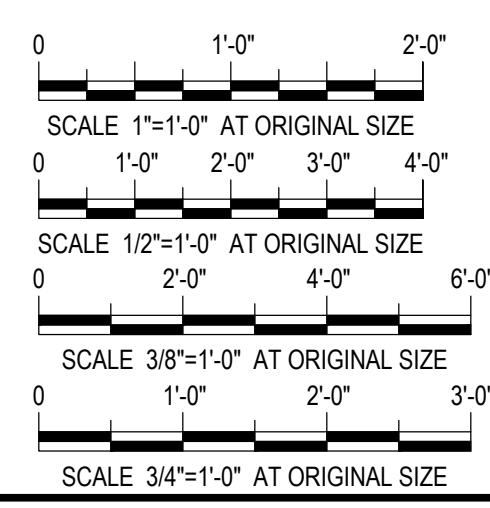


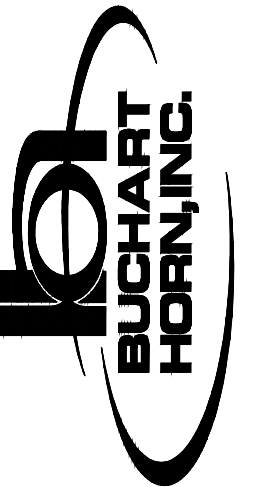
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LIVE	30	30
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WIND 2	-39.0	-39.0
NET UPLIFT	-33.0	-33.0

TRUSS LOADING DIAGRAM
 SCALE: NONE



5 SECTION
 S-13 SCALE: 3/4"=1'-0"





3/24/2016
 Professional Certification / I hereby certify that these documents were prepared, or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 46725. Expiration Date: 2/28/17

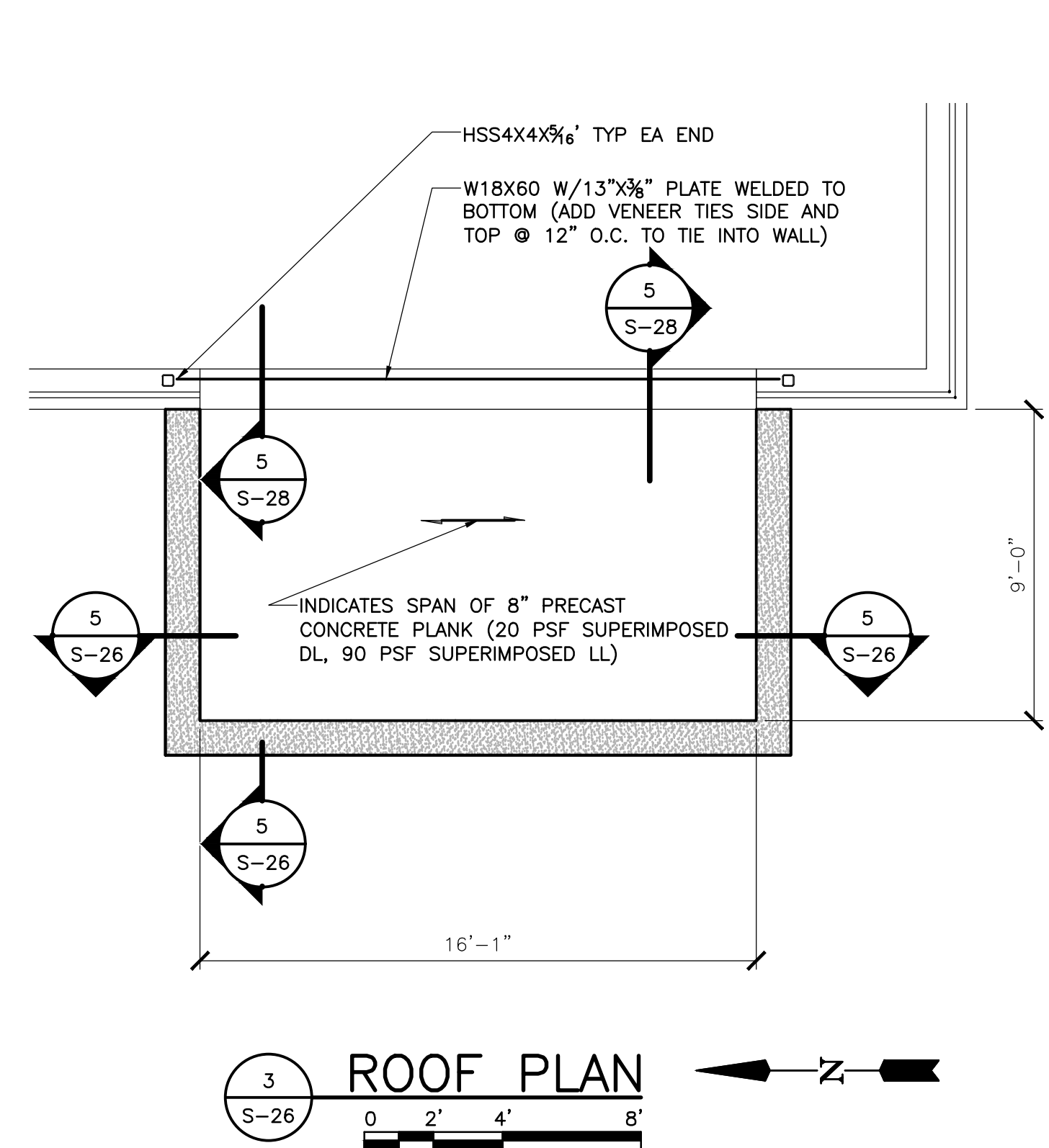
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 DEPARTMENT OF WATER QUALITY
 CONOCOCHEAQUE
 TREATMENT PLANT ENR UPGRADE

NO.	REVISION	BY	DATE

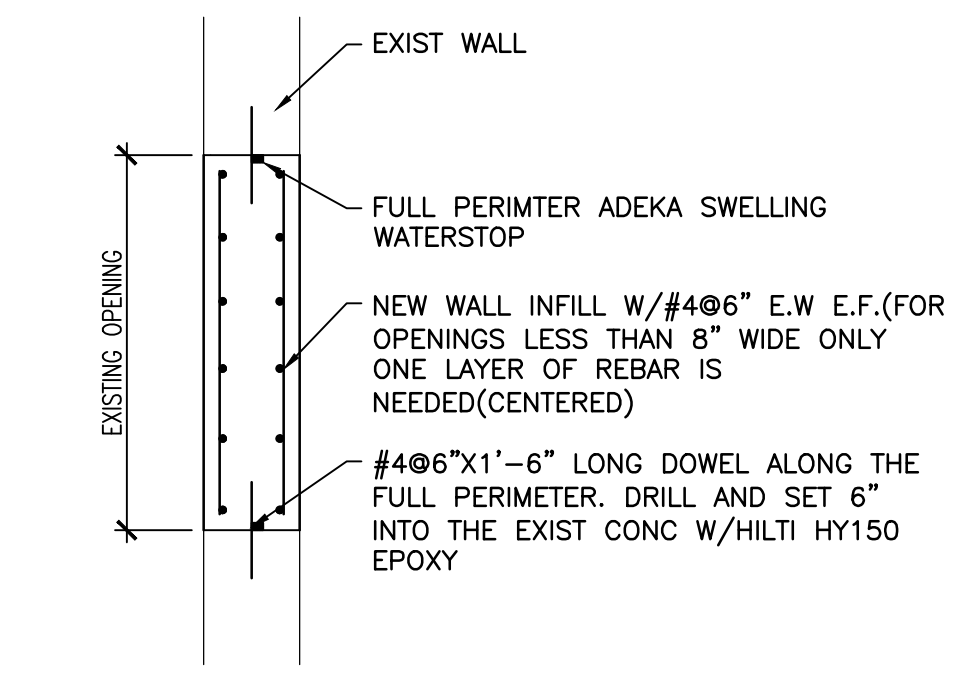
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 DRAWN BY: JTK
 CHECKED BY: RGC
 DATE: 3/24/2016

FILTER/UV BUILDING
 PLANS
 SECTIONS
 AND DETAILS

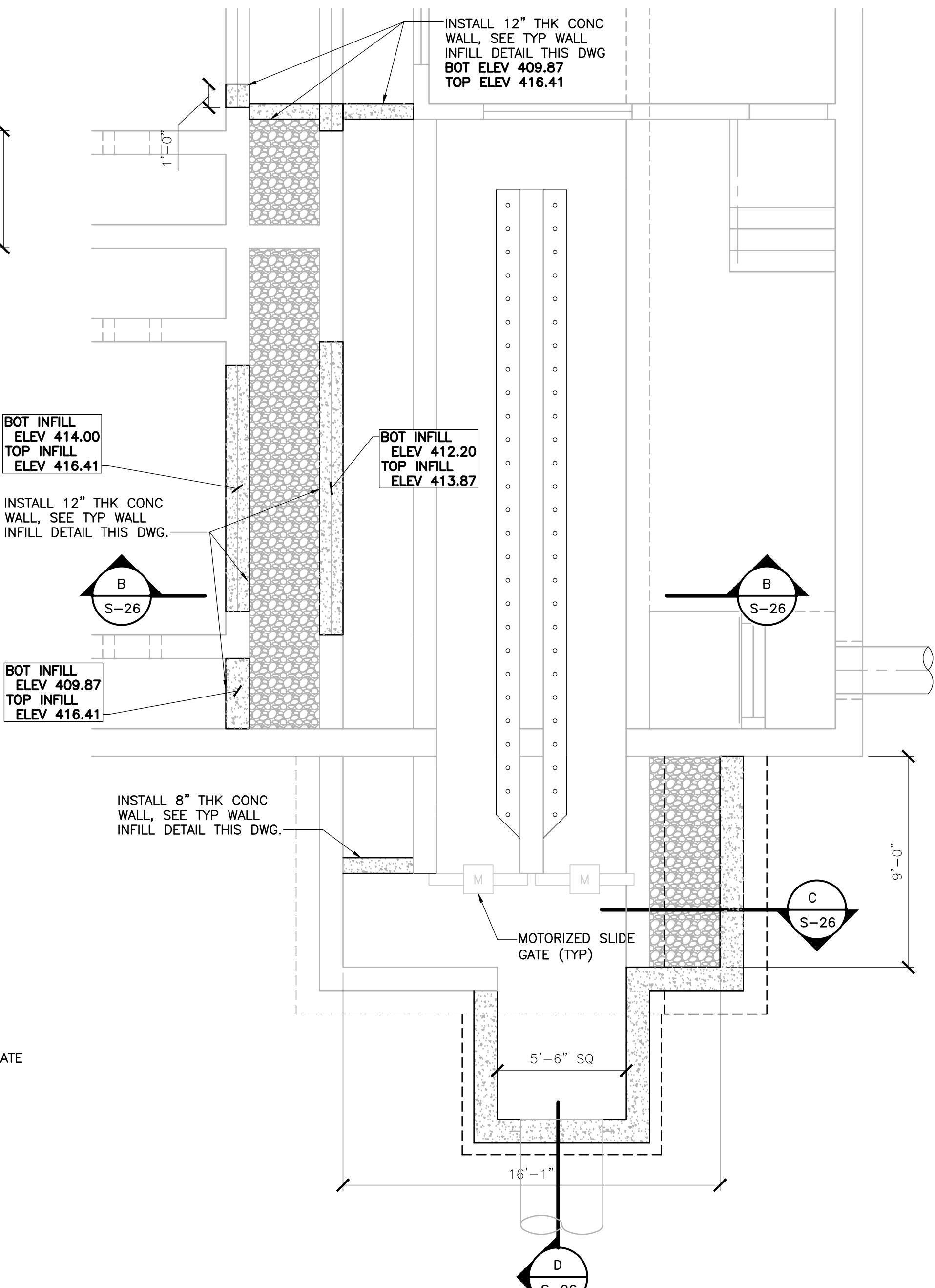
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 SHEET NO.: 124 OF 327
 SP-15-028



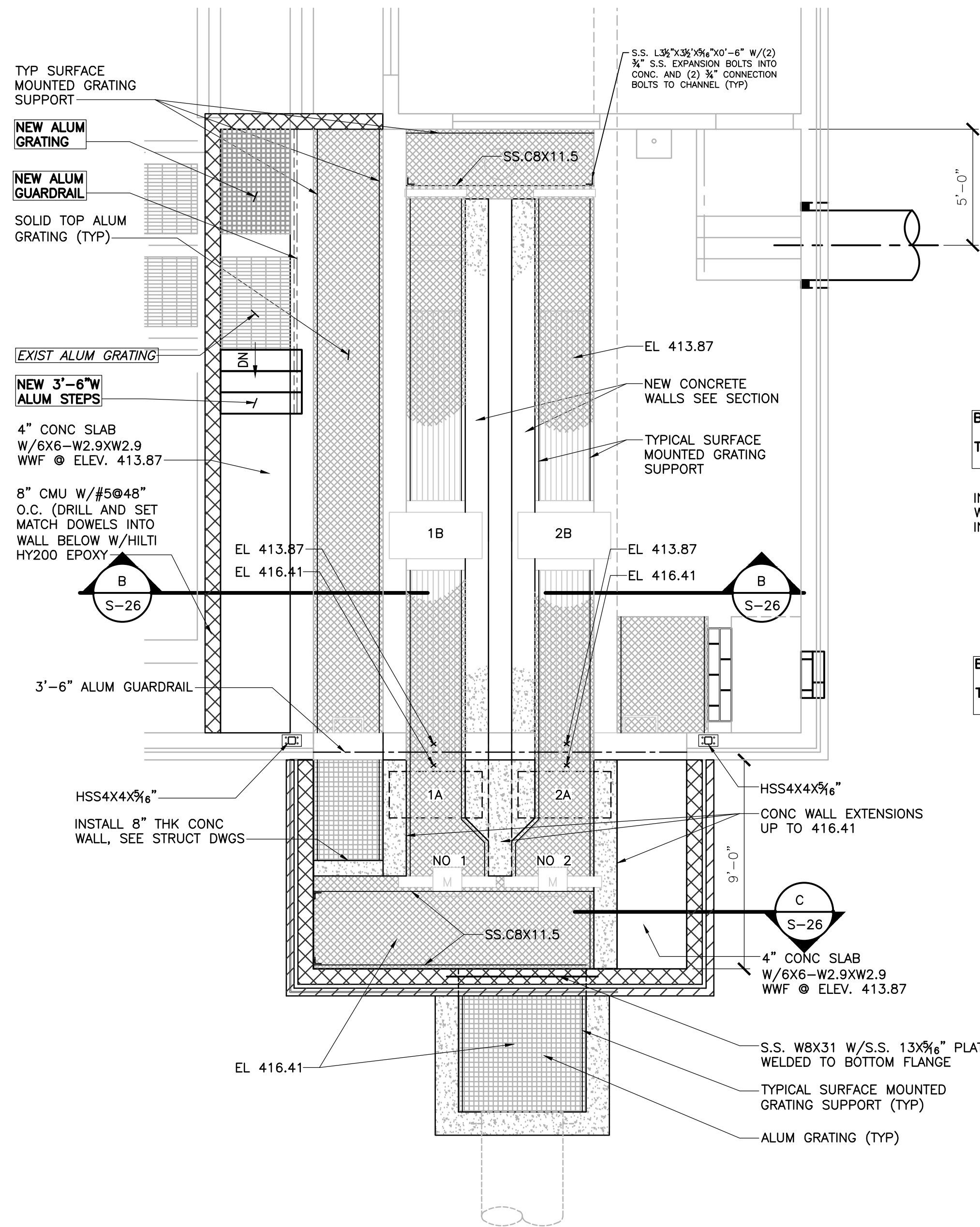
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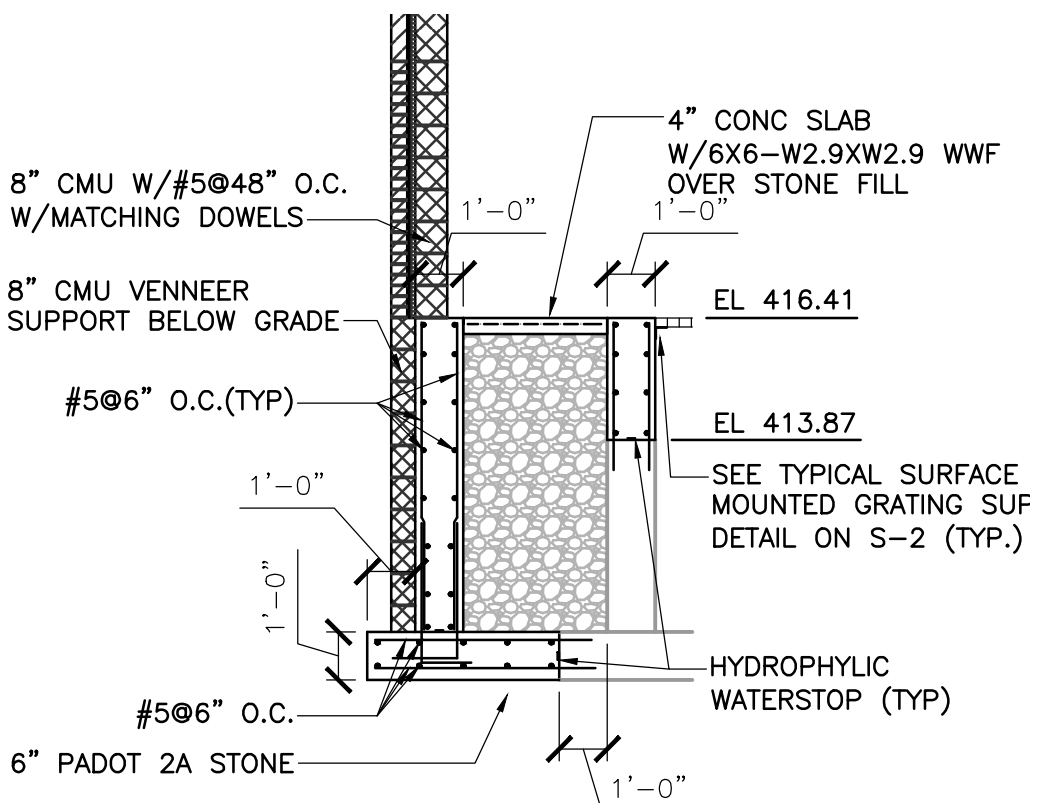
4 TYPICAL CONCRETE INFILL DETAIL
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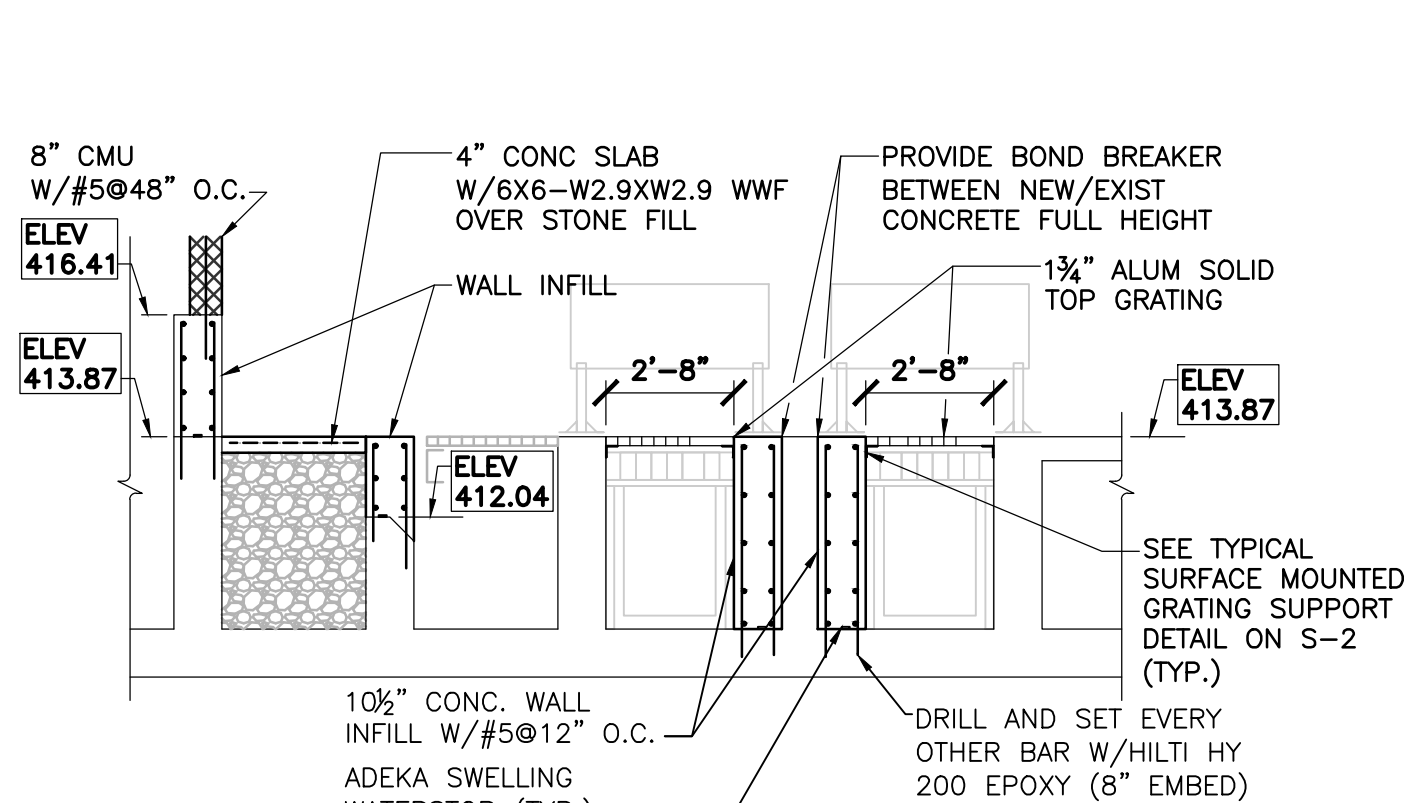
2 FOUNDATION PLAN
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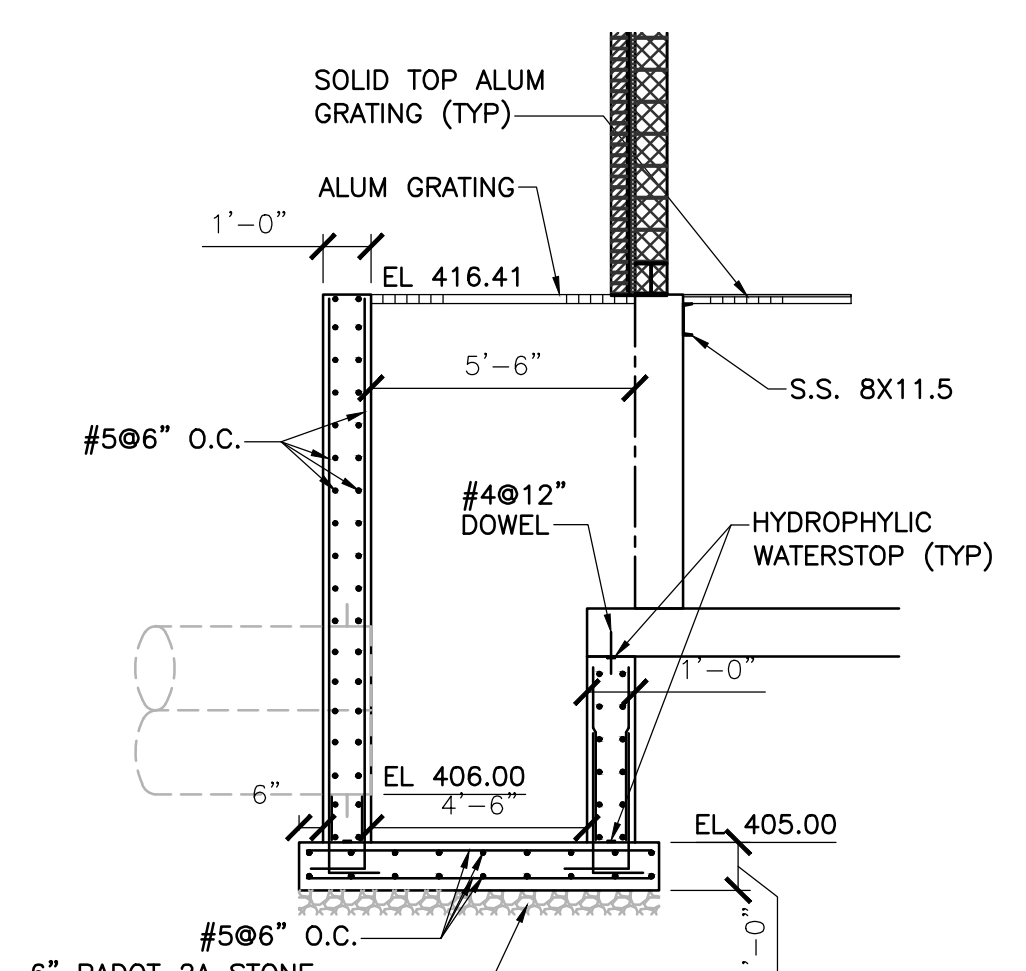
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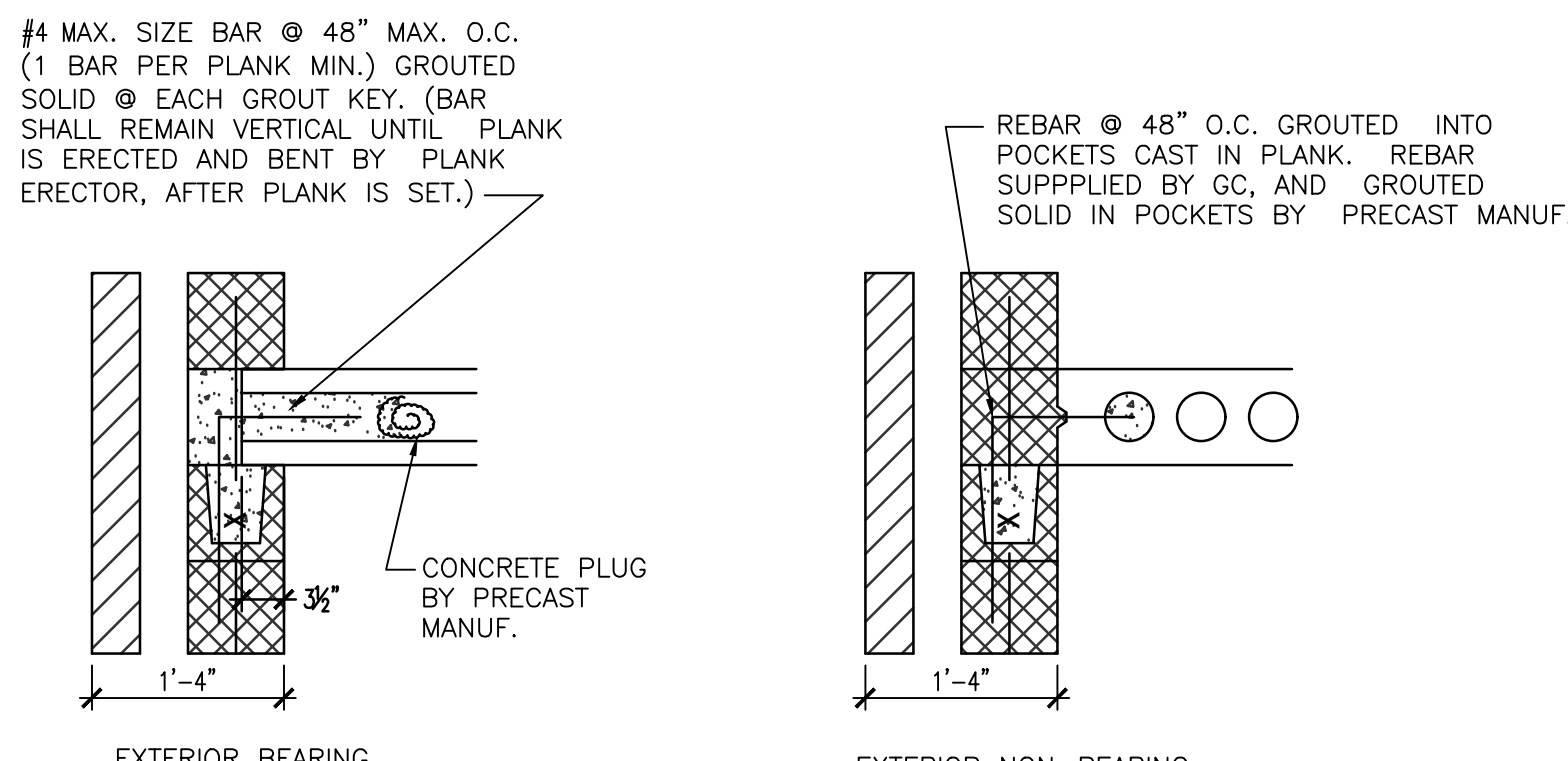
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B SECTION
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D SECTION
 0 2' 4' 8'



5 PLANK DETAILS
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Date: May 24, 2016 - 2:46pm
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