

DOCUMENT 00 91 13

ADDENDA

ADDENDUM NUMBER 02 (REVISED)

DATE: January 23, 2024

PROJECT: Cass District Library Edwardsburg, MI

PROJECT NUMBER: 22-1836

OWNER: Cass District Library

ARCHITECT: Abonmarche  
315 W. Jefferson Blvd.  
South Bend, IN 46601

TO: Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the Bidding Documents dated December 20, 2023, with addendum number 001 issued January 12, 2024, addendum number 002 issued January 19, 2024, with amendments and additions noted below.

Acknowledge receipt of this Addendum in the space provided in the Bid Form. Failure to do so may disqualify the Bidder.

This Addendum consists of 120 pages and the following Drawings:

No.	Drawing Title	Issue Date
T1.1	Title Sheet	01/23/2024
C1.0	Existing Conditions & Demolition Plan	01/23/2024
C2.0	Site Development Plan	01/23/2024
C2.1	Site Plan Layout Details	01/23/2024
C5.0	Utilities Plan	01/23/2024
C6.0	Landscape Plan	01/23/2024
C6.1	Landscape Plan	01/23/2024
C7.0	Construction Details	01/23/2024



C7.1	Construction Details	01/23/2024
S0.1	Structural Specifications	01/23/2024
S1.0	Foundation Plan	01/23/2024
S1.1	Partial Framing Plans	01/23/2024
S1.2	Roof Framing Plan	01/23/2024
S2.1	Foundation Details	01/23/2024
S2.2	Foundation Details	01/23/2024
S2.3	Foundation Details	01/23/2024
S3.2	Structural Details	01/23/2024
S3.3	Structural Details	01/23/2024
S5.1	Truss Profiles	01/23/2024
A2.2	Roof Plan	01/23/2024
A3.1	Exterior Elevations	01/23/2024
A3.2	Exterior Elevations	01/23/2024
A7.1	Plan Details	01/23/2024
A7.3	Section Details	01/23/2024
A7.4	Details	01/23/2024
A8.1	Room Finish Schedules	01/23/2024
A9.1	Furniture Plan	01/23/2024
M0.1	Mechanical Schedules	01/23/2024
M4.2	Mezzanine Hydronic Piping Plan	01/23/2024
M5.1	First Floor HVAC Plan	01/23/2024
M5.2	Mezzanine HVAC Plan	01/23/2024
M6.0	Mechanical Roof Plan	01/23/2024
M8.0	Mechanical Details	01/23/2024
P3.0	Underground Plumbing Plan	01/23/2024



P3.1	First Floor Plumbing Plan	01/23/2024
P3.2	Mezzanine Plumbing Plan	01/23/2024
EC1.0	Electrical Site Plan	01/23/2024

## GENERAL INFORMATION

1. **REVISE** Addendum #2 – Typographical errors and electronic printing errors have been corrected from ADD #2 issued 01/19/2024.
2. **REVISE** Final dates to submit RFI questions have been extended to January 26, 2024. The bid due date has been extended to February 7, 2024. See below for additional information.
3. **REVISE** Project address, Delete street number from all sheets.
4. **ADD** #121 & 122 to Contractor RFI Questions.

## CHANGES TO THE PROJECT MANUAL

### SECTION 001113 – ADVERTISMENT FOR BIDS (Re-Issue)

5. **REVISE** Paragraph 1.2 – Section 1: Revised Bid Due Date

### SECTION 002213 – SUPPLEMENTARY INSTRUCTIONS TO BIDDERS (Re-Issue)

6. **REVISE** Paragraph 0.5.A.4 to delete tax exemption.  
**REVISE** Paragraph 1.1B Bidding Schedule with new dates.

### SECTION 003113 – PRELIMINARY SCHEDULES (Re-Issue)

7. **REVISE** Entire Project Schedules Section.

### SECTION 004323 – ALTERNATES FORM (Re-Issue)

8. **ADD** Paragraph 1.4 Section K for Alternate #9 – Multipurpose Room room flooring
9. **ADD** Paragraph 1.4 Section L for Alternate #19 - Landscaping
10. **ADD** Paragraph 1.4 Section M for Alternate #11- Multipurpose Room and Library Ceilings

### SECTION 012300 – ALTERNATES (Re-Issue)

11. **ADD** the following alternates:
  - a. Alternate No. 9 for Multipurpose room flooring.
  - b. Alternate No. 10 for Landscaping.
  - c. Alternate No. 11 for vaulted ceiling finish options

### SECTION 087100.13 – DOOR HARDWARE (Re-Issue)

12. **ADD** Technical Spec (Attached)
13. **REVISE** Hardware Groups (Attached)



SECTION 283101-3 – ADDRESSABLE FIRE ALARM AND DETECTION SYSTEMS

14. **REVISE** Entire Section (Attached).

**CHANGES TO THE DRAWINGS**

DRAWING T1.1 – TITLE SHEET (Re-Issued)

15. **ADD** Alternates #9: base bid to provide CPT-3 to multi-purpose room. Alternate to provide CPT-2 to multi-purpose room.
16. **ADD** Alternates #10: Provide the following:
- a. Native wildflower seed mix as shown on the drawings.
  - b. Sod mow strips in sheet flow areas off the parking asphalt and walks.
  - c. 6" cobblestone and geotextile fabric located at outlet pipes. Contractor shall refer to stone apron lengths and widths.
- Alternate is to provide the following:
- a. Provide all landscaping items as shown on the drawings, including but not limited to:
    - 1. Items above
    - 2. All trees, evergreen trees, flowering trees, shrubs, ornamental grasses, and perennials.
    - 3. Steel edging, shredded hardwood bark mulch, boulders, and 4-6" glacial cobblestone and geotextile fabric.
17. **ADD** Alternate #11: base bid to provide T1-11 board with reveals perpendicular to trusses. Alternate is to provide 1x8 poplar car siding with "v" grooves perpendicular to trusses.

DRAWING C1.0 – EXISTING CONDITIONS & DEMOLITION PLAN (Re-Issued)

18. **REVISE** Topographic Information.
19. **REVISE** Horizontal Datum

DRAWING C2.0 – SITE DEVELOPMENT PLAN (Re-Issued)

20. **REVISE** Concrete Sidewalk 5" Thickness Callout.

DRAWING C2.1 – SITE PLAN LAYOUT DETAILS (Re-Issued)

21. **REVISE** Sidewalk 5" Thickness Callout

DRAWING C5.0 – UTILITIES PLAN (Re-Issued)

22. **ADD** Underground utility Information Added: Gas, Electric, Cable, & Telephone Locations.

DRAWING C6.0 – LANDSCAPE PLAN (Re-Issued)



- 23. **ADD** Bid Alternate #3A Plan & Notes
- 24. **ADD** Note: All dead fall shall be cleared
- 25. **ADD** Note: Contractor shall limb up trees remaining in clear area 20' to a height of 12'

DRAWING C6.1 – LANDSCAPE PLAN (Re-Issued)

- 26. **REVISE** Plant Schedule List. Coordinate with Landscape Plan.

DRAWING C7.0 – CONSTRUCTION DETAILS (Re-Issued)

- 27. **REVISE** All sidewalks shall be 5" thickness per geotechnical recommendations. Soils report was provided in ADD #2, and attached here to.

DRAWING C7.1 – CONSTRUCTION DETAILS (Re-Issued)

- 28. **REVISE** Contractor shall see revised sheet. Only 2" Type K Copper Will Be Accepted for Water Service. 6" Cobble stone and Geotextile fabric located at outlet pipes shall remain. Contractor shall refer to the Stone Apron & Pipe End Section Treatment for the Cobble Stone apron lengths and widths.

DRAWING C8.1 – SOIL EROSION AND SEDIMENTATION CONTROL PLAN (Re-Issued)

- 29. **REVISE** 6" Cobble Stone & Geotextile fabric located at outlet pipes shall remain. Contractor shall refer to the stone apron & pipe end section treatment for the cobblestone aprons lengths and widths.

DRAWING S0.1 – FOUNDATION PLAN (Re-Issued)

- 30. **REVISE** Note "C" regarding sips requirements

DRAWING S1.0 – STRUCTURAL SPECIFICATIONS (Re-Issued)

- 31. **REVISE** Pergola Structural Details See Detail #3
- 32. **REVISE** Foundation Plan & Footing Schedule to Reflect Design Changes from Existing Soils Conditions on Geotechnical Report. See Attached Geotechnical Report

DRAWING S1.1 – Partial Framing Plans (Re-Issued)

- 33. **REVISE** Pergola Framing – See Detail #3

DRAWING S1.2 – ROOF FRAMING PLAN (Re-Issued)

- 34. **REVISE** HSS2- 1/2"x2-1/2"x1/4" canopy tie off supports – See S3.3 For More Details



DRAWING S2.1 – FOUNDATION DETAILS (Re-Issued)

- 35. REVISE** Detail #7, #8, & #9 – Footing Sizes

DRAWING S2.2 – FOUNDATION DETAILS (Re-Issued)

- 36. REVISE** See all details for footing size changes

DRAWING S2.3 – FOUNDATION DETAILS (Re-Issued)

- 37. REVISE** Detail #8 For Adjusted Foundation Footing Depth

DRAWING S3.2 – STRUCTURAL DETAILS (Re-Issued)

- 38. REVISE** Details #8, #9, #11 & #12 – Framing Connections for Sip Panel

DRAWING S3.3 – STRUCTURAL SPECIFICATIONS (Re-Issued)

- 39. REVISE** Details #3, #4, #5, #6 – Interior Cloud Framing Details & Mechanical Louvered Dormer Details

DRAWING S5.1 – TRUSS PROFILES (Re-Issued)

- 40. REVISE** Reference Details See S3.2 Detail #9

DRAWING A2.2 – ROOF PLAN (Re-Issued)

- 41. CLARIFY** Keynoting for Pac Clad Metal Roofing to Be Snap Clad System

DRAWING A3.1 – EXTERIOR ELEVATIONS (Re-Issued)

- 42. REVISE** Exterior Elevations due to electronic printing errors.

DRAWING A3.2 – EXTERIOR ELEVATIONS (Re-Issued)

- 43. REVISE** Exterior Elevations due to electronic printing errors.

DRAWING A7.1 – PLAN DETAILS (Re-Issued)

- 44. REVISE** All Details due to graphical issues.  
**45. ADD** Graphics & hatch patterns.

DRAWING A7.3 – SECTION DETAILS (Re-Issued)

- 46. REVISE** Detail #1 – T1-11 boards to be fastened to (2) 2x4 blocking @ 16” o.c. and fastened with #10 Tek screws.

DRAWING A7.4 – DETAILS (Re-Issued)



47. **REVISE** Linear Metal Ceiling System To Be Paraline Plus. See Details #10 – Detail at hall for installation information.

DRAWING A8.1 – ROOM FINISH SCHEDULE AND LEGEND (Re-Issued)

48. **REVISE** No base required at vestibule 101 & 103.  
49. **REVISE** Janitor's closet to have conc-1 finish – See revised room finish schedule  
50. **ADD** New locations designated for roller shades at storefront -  
See revised room finish plan.

DRAWING A9.1 – FURNITURE PLAN (Re-Issued)

51. **CLARIFY** Furniture plan provided for reference only.

DRAWING M0.1 – MECHANICAL SCHEDULES (Re-Issued)

52. **REVISE** Plumbing Fixture Schedule entry “HB-1” to “NFWH-1” and updated model number for SK-1 to a barrier free model.  
53. **ADD** V/P column to Pumps Schedule, Water Heater Schedule, and Electric Baseboard Heater Schedule.  
54. **ADD** Note to Air Inlets and Outlets Schedule calling for colors to be selected by architects.  
55. **Revise** Air Handling Unit Schedule to include Fan HP, BHP, and RPM columns, and revise remarks to use Temperature Controlled Thermostat

DRAWING M4.2 – MEZZANINE HYDRONIC PIPING PLAN (Re-Issued)

56. **ADD** Reference marks to the “Two Way Piping Detail” for AHU-2, 3, and 4.  
57. **ADD** Reference marks to the “Three Way Piping Detail” for AHU-1.

DRAWING M5.1 – FIRST FLOOR HVAC PLAN (Re-Issued)

58. **ADD** Duct Sizing Chart.  
59. **ADD** AHU-1 Return Duct Section.  
60. **ADD** Note to call out toe kick return grilles.  
61. **ADD** Note to exhaust duct transition up to mezzanine plan.  
62. **ADD** Duct sizes in Maker's Space, Multipurpose Room, 116 Computer Supply ducts, and 122 Office exhaust ducts.  
63. **ADD** Volume dampers at Return ducts in 107 Men's Bathroom, 105 Women's Bathroom and 120 Family Toilet Exhaust ducts.  
64. **REMOVE** Unnecessary duct break near EF-2.

DRAWING M5.2 – MEZZANINE HVAC PLAN (Re-Issued)

65. **ADD** Sheet metal plenum box at Fresh Air Intake Louvers.  
66. **ADD** Turns in fresh air intake ducts to meet 10' clearance requirement for economizer exhaust duct.  
67. **ADD** Exhaust duct and new exhaust fan EF-3 for economizer relief.



DRAWING M6.0 – MECHANICAL ROOF PLAN (Re-Issued)

- 68. **ADD** Economizer relief hood for duct through roof, and construction note with model number and required accessory.

DRAWING M8.0 – MECHANICAL DETAILS (Re-Issued)

- 69. **REVISE** Condensing Unit Support detail to include a manufactured condenser support pad and note.
- 70. **ADD** Note to Water Service Detail beneath RPZ calling to drain into Floor Drain.
- 71. **REVISE** 3-Way AHU Coil Piping Detail to make sure note leaders point to the correct symbol.

DRAWING P3.0 – UNDERGROUND PLUMBING PLAN (Re-Issued)

- 72. **REVISE** Pipe size tags for sanitary main from 6” SAN to 4” SAN.
- 73. **REMOVE** Extra pipe under service sink.
- 74. **REVISE** Fixture tags for service sink and add one for CO in that area.
- 75. **ADD** Pipe Size Tags for lavs in 107 Women’s Bathroom.
- 76. **REVISE** Underground plumbing for 120 Family Toilet.

DRAWING P3.1 – FIRST FLOOR PLUMBING PLAN (Re-Issued)

- 77. **REVISE** Pipe size tags for Pipe drops in all bathrooms.
- 78. **REMOVE** Extra CW pipe in 106 Janitor Closet.
- 79. **REVISE** Pipe sizes to SK-1 and SS-1 in 106 Janitor Closet.
- 80. **REVISE** Note for pipe drops to SK-1 and SS-1 in 106 Janitor Closet.
- 81. **ADD** Ball valves to HW and CW lines running to SK-1 in 110 Kitchen.
- 82. **REVISE** Pipe size tag and note for drops to SK-1.
- 83. **REVISE** Tags for hose bibbs to “NFWH-1” and add note for pipe drops.
- 84. **ADD** Note to clarify HW and CW going to WH on Mezzanine.
- 85. **ADD** Note to clarify pipes going up to P3.2.

DRAWING P3.2 – MEZZANINE PLUMBING PLAN (Re-Issued)

- 86. **ADD** Note to domestic piping mains coming up from P3.1.
- 87. **ADD** Note and view reference bubble to refer to Water Heater Detail.
- 88. **REVISE** Hot water piping loop and Hot water return connection point in Plan-South-East corner to more efficient route. Also revise pipe size tags, drop notes, and add ball and balance valves to hot water return.
- 89. **ADD** Hot and cold water pipes up behind WH, with note calling them out.

DRAWING EC1.0 – ELECTRICAL SITE PLAN (Re-Issued)

- 90. **REVISE** Notes on drawings.
- 91. **ADD** Notes on drawings.



## QUESTIONS AND ANSWERS

92. Structural steel framing performance requirements call for steel to be fabricated in accordance with AISC standards. Can this be waived so that local fabricators can bid the project?
- a. Structural steel framing shall meet AISC standards for steel framing performance requirements. Steel fabricator shall meet these performance requirements but does not need to be AISC certified.
93. Sheet A8.1 under general notes E & F call out for plaques and interior room signage other than accessible bathroom signage to be by owner. However, point D calls out to provide room identification signage including ADA restroom signs with braille. Please clarify if room panel signage should be included in scope. If room panels are included in scope, please provide panel designs in drawings.
- a. All toilet room facilities to have ADA signage provided by G.C. Please see sheet T1.2 for ADA signage requirements. Dedication plaque and all other room signage to be coordinated and provided by the owner.
94. Sheet A7.4 does not provide the material or thickness for the “Teen”, Children” & “Welcome” letters. Please advise.
- a. Teen, Children, & Welcome letters are to be plastic. Thickness to be between 1”-2”.
95. Sheet A3.2 item 4 exterior elevation east calls out for dimensional letter signage to be aluminum for the “Drop” with “arrow” letters to be mounted above the book drop. The cut sheet does not provide details to the size or thickness of letters. Please advise.
- a. Book drop signage will be integrated into the book drop product. No other signage will be included for this area.
96. Corten steel will continue to patina over time when exposed to moisture. This will result in a rust run-off that will bleed onto the acrylic copy staining the white lettering. We propose an aluminum face painted to match a faux Corten steel. Can this be approved?
- a. Acrylic white lettering to protrude ½” beyond face of Corton steel face of signage. Please see dimension changes on detail 1/A7.4 @ Sign “A”.
97. Do TPO roof areas D, E, F, G, & H fascia trim require wood blocking?
- a. Roof structure is specified to be wrapped in continuous plywood sheathing. Provide continuous pressure treated, #2 or better kiln dried southern pine (or Douglas fir) behind perimeter fascia sheathing.
98. Paper Bark Maple, White Oak, False Salomon are shown on the tree schedule, but not on the Landscape Plan. Please advise.
- a. False Salomon Seal will be replaced by “Little Business Daylily” Located at Entry Sign. Please see revised Sheet C6.0 & C6.1 – Landscape Plan for revised plant tree list with Paper Bark Maple Location. White Oak tree was removed in addendum #1 item #38.
99. 101416 Plaque—there are no size dimensions. Please advise.



- a. Dedication Plaque to be provided and coordinated by owner.
- 100. Rendering #6 & 8 show a monument sign along the driveway. There is no information in the drawings or specs regarding this sign. If this is part of the bid, detailed information is needed.
  - a. Rendering for reference only. Monument sign at driveway to be coordinated and provided by owner.
- 101. Rendering #14 & 35 show an interior building sign. There is no information in the drawings or specs regarding this sign. If this is part of the bid, detailed information is needed.
  - a. Rendering for reference purposes only. Interior signage at Hall 102 shall be provided by owner.
- 102. The mechanical schedule calls for programmable thermostats, but the specification calls for temperature control. Also, no points or detailed controls drawings are listed under the mechanical drawings. Please clarify; without this information, it will be hard to estimate.
  - a. Thermostats to be programmable thermostats NOT temperature controlled.
- 103. Please advise the locations of the roller window shades, as the drawings don't indicate locations.
  - a. Refer to revised first floor finish plan on re-issued sheet A8.1 room finish schedule and legend for roller window shade locations.
- 104. We thought we heard that prevailing wage was going to be waived at the pre-bid meeting. Is this correct?
  - a. Prevailing Wage is NOT required.
- 105. Is it possible to find out what size the water main is along US 12 that we're to tap into.
  - a. The existing water main along US 12 is a 10" transite (concrete asbestos wrapped) pipe.
- 106. What is the vaulted ceiling material for rooms 109 & 113? It appears to be stained T&G in the renderings and elevations, but we cannot find a callout.
  - a. The ceiling material in rooms 109 & 113 is to be T1-11 boards with stain TBD. See detail 1/A7.3 Detail @ Eave (Multipurpose room).
- 107. Existing power lines along US 12 will interfere with new property aesthetics and utility. Is the cost to move/bury this powerline to be included in the proposal?
  - a. Low voltage lines shall be relocated by owner.
- 108. At the pre-bid meeting it was indicated soil boring would require updated footing designs. Is this still outstanding?
  - a. Yes, structural updates are included in addendum #2. See all attached revised structural drawings.
- 109. The drawings show insulation and plywood under the standing seam roof above the metal deck. I could not find how thick the insulation is. Spec for standing seam says 1 1/2" base layer but nothing for upper layer. Is this intended to be nail base?
  - a. The energy code requirement for the roof is R-30. Refer to thermal values on sheet T1.1. Roof insulation thickness to be determined by insulation



manufacturer specifications to achieve R-30 rating.

- 110.** 101 Vest calls for CTB-1 base on both the original and ADD 01 room finish schedule. Confirm this to be RB-1.
- a.** Vestibules 101 & 103 have full storefront systems at all sides. No base is required. Required CPT-1 to be installed and secured with clean, trimmed edges adjacent to storefronts.
- 111.** C5.0 Storm Sewer Notes – Reference ADS Double Wall or SDR35 – Stormwater Conveyance Spec references PVC and RCP? Is RCP preferred over N-12 piping.
- a.** ADS double wall, PVC, or RCP can be used.
- 112.** The existing elevations do not line up between C1.0 and C3.0. Which print are we to base our grading operations by?
- a.** Contractor shall see revised sheet C1.0; Horizontal datum correction on grading was made. C3.0 & C3.1 grading are correct.
- 113.** Based on the soil borings, is the native soil accepted as suitable material for the granular subbase of the sidewalk?
- a.** Native soils are not suitable for sub-base materials. The contractor shall follow the standard details on sheet C7.0 for installation of sidewalks. NOTE: All sidewalks shall be 5" thickness per the Geotechnical recommendations. Soils report is provided in addendum #2.
- 114.** Is 2" CTS HDPE SDR11 or SDR9 acceptable alternate for the 2" TYPE K water service?
- a.** Only 2" Type K Copper will be accepted.
- 115.** Is #53 recycle concrete suitable for asphalt and building slab subbase.
- a.** Only MDOT 21AA Aggregate will be accepted.
- 116.** Can you send a question to the engineer about the asphalt? I cannot find the type of AC liquid going into the mixes. PG 58-28, PG 64-22.
- a.** The contractor shall use the PG-58-28 for the AC liquid mix.
- 117.** The specified sliding door systems do not integrate with the specified Tubelite storefront system. We do not have a manufacturer in Grand Rapids, MI that uses Tubelite materials to make integral sliding door systems for Tubelite storefront systems. Is this something the customer may be interested in? If not we will need to make opening 114A, 115A, and 118A completely out of one of the specified manufacture's framing, which will not match the rest of the storefront framing in the building.
- a.** Storefront and sliding door specifications are not proprietary. If your system is not compatible, please submit voluntary alternate for compatible system.
- 118.** Sheet S2.1 detail 8 indicates the use of both a bollard cover and painting as a finish. Sheet A7.6 dumpster enclosure note f states using yellow bollard covers. Please clarify if bollards are to receive covers or to be painted finish.
- a.** Please see revised sheet S2.1 detail #8 and sheet A7.5 note "F". Bollard cover shall have pvc slip on yellow covers. Delete painted finish requirement.



**119.** Provide clarification regarding tax exemption for contractors versus owner purchased materials.

**a.** Refer to Specification Section 002213 “Supplementary Instructions to Bidders”.  
Revise paragraph 0.5.A.4.a as follows:

~~“4.1.10 - Project will be tax exempt. ID number will be provided to successful bidder. Bids shall include sales and use taxes.”~~

**120.** Please confirm that property line security fencing is not required.

**a.** Property line security fencing is not required; however, it is the responsibility of the contractor to secure the materials on the jobsite accordingly. The owner is not responsible for any lost or stolen items.

**121.** Please provide metal shelving specification 10 56 13.2.1 referenced on drawing A6.3.

**a.** Metal shelving to be provided and selected by owner.

**122.** Door? All four toilets show CTB base. Is this base a bull nose or cut tile with metal cap? Janitor 106 show conc-1 on the floor plan and conc-2 on the finish schedule.

**a.** Please see revised Sheet A8.1 – Room Finish Schedule, A6.1 – Enlarged Floor Plans and Elevations. Vestibule base trim not required. CTB-1 Base to have Schluter Rondec Metal Cap in Brushed Graphite Finish model # RO 100 AGR.

**123.** Please confirm that front and rear vestibule soffit are aluminum soffit panels and not an extension of the Paraline Plus cherry material indicated on A2.1. The aluminum soffit specifications 074100.2.1 is not in the specifications.

**a.** Paraline Plus Cherry material to be used at exterior soffit conditions

**124.** Please clarify alternates 2B & 3B light fixture descriptions and also light fixture type along limestone path.

**a.** Please see revised sheet EC1.0 - Site Plan. Exterior Lights For Patio area only. Pedestrian paths are to have no light fixtures.

**125.** Can you provide clarification on the trees to be saved?

**a.** All trees shall be removed 20' beyond all proposed design elements (Grading) limits. Contractor shall remove all dead fall, (limbs, fallen tree trunks, stumps or diseased trees, 20' beyond the proposed grading limits. Within the 20' zone if a Specimen tree is identified, the clearing contractor shall mark and notify the Landscape Architect prior to removal. (Specimen tree is a tree that is 10" in Caliper or larger within the 20' clearing zone and is in good condition). Contractor shall plan to protect 8-12 of the best conditioned specimen trees prior to removal and get signoff by the Landscape Architect prior to removal. The intent is to preserve as many good quality trees as possible on site and minimize the removal of the trees if deemed in good condition.

**126.** Provide information regarding Keynote number system and CSI divisions.

**a. KEYNOTE NUMBERING SYSTEM**

THE KEYNOTE NUMBER REFERS TO THE PRODUCT SPECIFICATION SECTION APPLICABLE TO THE KEYNOTE. THE FIRST (2) DIGITS IDENTIFY THE CSI DIVISION AS NOTED IN THE TABLE BELOW.

**EXAMPLE: 033000.2.1** = KEYNOTE REFERS TO SPECIFICATION DIVISION 03



– CONCRETE, SPECIFICATION SECTION = 033000,  
(.2) = PART 2 OF THE SPECIFICATION SECTION,  
(.1) = KEYNOTE NUMBER 1 APPLICABLE TO THAT SPECIFICATION  
SECTION.

<b>DIV #</b>	<b>DESCRIPTION</b>
03	CONCRETE
04	MASONRY
05	METALS
06	WOOD, PLASTICS, AND COMPOSITES
07	THERMAL AND MOISTURE PROTECTION
08	OPENINGS
09	FINISHES
10	SPECIALTIES
11	EQUIPMENT
12	FURNISHINGS
22	PLUMBING
23	HVAC
26	ELECTRICAL
28	ELECTRONIC SAFETY AND SECURITY
31	EARTHWORK
32	EXTERIOR IMPROVEMENTS
33	UTILITIES



## APPROVAL OF ADDITIONAL PRODUCTS/SYSTEMS

1.Include the following acceptable manufacturers in sections indicated:

Section	Acceptable Manufacturers
123216	Custom Millwork & Display – 2102 Washington St. South Bend, IN (574-289-4000)
122413	Creative Windows;OpenLight Roller Shades - www.creativewindowscommercial.com – (734-769-5100)
230529	Big Foot Systems – www.bigfootsupport.com – (364-236-1270)
223100	North Star Water Treatment Systems – www.northstarwater.com – (800-972-0135)
081113	Mesker – www.meskerdoor.com – (256-851-6670)
081416	Five Lakes Wood Doors - www.fivelakesmfg.com – (586-463-4123)
087100	Hagar Companies - www.hagerco.com – (800-325-9995)
235216	Camus Hydronics Ltd. – www.camus-hydronics.com – (905-696-8801)
077253	Alpine SnowGuards - www.alpinesnowguards.com – (888-766-4273)
74113.16	McElroy Metal – www.McElroymetal.com – (800-562-3576)
072119	WallTite – spf.basf.com – (800-706-0712)

END OF DOCUMENT



## DOCUMENT 001113 - ADVERTISEMENT FOR BIDS

### PART 1 - GENERAL

#### 1.1 PROJECT INFORMATION

- A. Notice to Bidders: Bidders may submit bids for project as described in this Document. Submit bids according to the Instructions to Bidders.
- B. Project Identification: 22-1836 CDL Edwardsburg Library.
  - 1. Project Location: 319 M62, Cassopolis, MI 49031.
- C. Owner: Cass District Library - Edwardsburg Branch.
  - 1. Owner's Representative: Barbara Gordon, MLS/Director.
- D. Owner's Representative: The Barton Group, 2255 W. Center Ave., Suite 212, Portage MI 49024
  - 1. Owner's Representative: Jen Sawyer, Project Manager, 269-207-3721.
- E. Architect: Abonmarche Consultants, Inc. 315 W. Jefferson Blvd., South Bend, IN 46601.
  - 1. Architect's Representative: Arvin Delacruz, AIA, NCARB - 574-232-8700
- F. Project Description: Project consists of a new 9,500 sf Branch Library to be located on 5.4 acres on the north side of US12 in Edwardsburg near the high school. This project centers on the creation of a vibrant library, specifically tailored to meet the needs of the Cass District Library and greater community in Edwardsburg, Michigan.
  - 1. Project cost range is anticipated to be under \$4,900,000.00.
- G. Construction Contract: Bids will be received for the following Work:
  - 1. General Contract (all trades).

#### 1.2 BID SUBMITTAL AND OPENING

- A. Owner will receive sealed lump sum bids until the bid time and date at the location given below. Owner will consider bids prepared in compliance with the Instructions to Bidders issued by Owner, and delivered as follows:
  - 1. Bid Date: February 07, 2024.
  - 2. Bid Time: 6:00 pm, local time.
  - 3. Location: Cass District Library, Main Branch; 319 M-62; Cassopolis, MI 49031.



- B. Bids will be thereafter opened publicly at a Special Board Meeting.

### 1.3 BID SECURITY

- A. Bid security shall be submitted with each bid in the amount of 5 percent of the bid amount. No bids may be withdrawn for a period of 60 days after opening of bids. Owner reserves the right to reject any and all bids and to waive informalities and irregularities.

### 1.4 PREBID MEETING

- A. Prebid Meeting: See Document 002513 "Prebid Meetings."
- B. Prebid Meeting: A Prebid meeting for all bidders will be held:
  - 1. Location: Ontwa Township Hall, 26225 US-12 Edwardsburg, MI 49112.
  - 2. Date: January 8, 2024.
  - 3. Time: 1:00 p.m. local time.
- C. Prospective prime bidders are required to attend.

### 1.5 DOCUMENTS

- A. Online Procurement and Contracting Documents: Obtain access after December 11, 2023, by contacting Abonmarche Plan Room at [www.abonmarche.com](http://www.abonmarche.com). Online access will be provided to all registered bidders and suppliers.

### 1.6 TIME OF COMPLETION

- A. Successful bidder shall begin the Work on receipt of the Notice to Proceed and shall complete the Work within the Contract Time.

### 1.7 BIDDER'S QUALIFICATIONS

- A. Bidders must be properly licensed under the laws governing their respective trades and be able to obtain insurance and bonds required for the Work.
- B. A Performance Bond, separate Labor and Material Payment Bond, and Insurance in a form acceptable to Owner will be required of the successful Bidder.



- C. Builder's Risk Insurance: The Owner will purchase and maintain property insurance for 100% of actual cash replacement value of the insurable work while in the course of construction, including foundations, additions, attachments, and all fixtures, machinery and equipment belonging to and constituting a permanent part of the building structures. The property insurance also will cover temporary structures, materials and supplies to be used in completing the work, only while on the building site premises or within five hundred feet of the site. The property insurance insures the interests of the Owner, Contractor, and all Subcontractors and Suppliers at any tier as their interest may appear.
- D. Insurance Requirements: The Contractor is required to provide the type and amount of insurance below.
  - 1. Commercial General Liability Insurance with a limit of not less than five million dollars (\$5,000,000.00) per occurrence and ten million dollars (\$10,000,000.00) in general aggregate.
    - a. The Contractor must list the Owner as Additional Insureds on the Commercial General Liability policy.
  - 2. Contractor must have vehicle liability insurance for bodily injury and property damage as required by law on any auto including owned, hired and non-owned vehicles used in the Contractor's business.
    - a. The Contractor must list the Owner as Additional Insureds on the vehicle liability policy.
  - 3. Worker's disability compensation, disability benefit or other similar employee benefit act with minimum statutory limits.
    - a. This provision must not be applicable where prohibited or limited by Michigan law.

END OF DOCUMENT 001113



## DOCUMENT 002213 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

### 1.1 INSTRUCTIONS TO BIDDERS

- A. Instructions to Bidders for Project consist of the following:
  - 1. AIA Document A701, "Instructions to Bidders," a copy of which is bound in this Project Manual.
  - 2. The following Supplementary Instructions to Bidders that modify and add to the requirements of the Instructions to Bidders.

### 1.2 SUPPLEMENTARY INSTRUCTIONS TO BIDDERS, GENERAL

- A. The following supplements modify AIA Document A701, "Instructions to Bidders." Where a portion of the Instructions to Bidders is modified or deleted by these Supplementary Instructions to Bidders, unaltered portions of the Instructions to Bidders shall remain in effect.

### 1.3 ARTICLE 2 - BIDDER'S REPRESENTATIONS

- A. Add Section 2.1.3.1:
  - 1. 2.1.3.1 - The Bidder has investigated all required fees, permits, and regulatory requirements of authorities having jurisdiction and has properly included in the submitted bid the cost of such fees, permits, and requirements not otherwise indicated as provided by Owner.
- B. Add Section 2.1.5:
  - 1. 2.1.5 - The Bidder is a properly licensed Contractor according to the laws and regulations of The State of Michigan, Cass County, Ontwa Township, Village of Edwardsburg and all Authorities having jurisdiction and meets qualifications indicated in the Procurement and Contracting Documents.
- C. Add Section 2.1.6:
  - 1. 2.1.6 - The Bidder has incorporated into the Bid adequate sums for work performed by installers whose qualifications meet those indicated in the Procurement and Contracting Documents.

### 1.4 ARTICLE 3 - BIDDING DOCUMENTS

- A. 3.2 - Interpretation or Correction of Procurement and Contracting Documents:
  - 1. Add Section 3.2.2.1:



- a. 3.2.2.1 - Submit Bidder's Requests for Interpretation using form bound in the Project Manual.
- B. 3.4 - Addenda:
  - 1. Delete Section 3.4.3 and replace with the following:
    - a. 3.4.3 - Addenda may be issued at any time prior to the receipt of bids.
  - 2. Add Section 3.4.4.1:
    - a. 3.4.4.1 - Owner may elect to waive the requirement for acknowledging receipt of 3.4.4 Addenda as follows:
      - 1) 3.4.4.1.1 - Information received as part of the Bid indicates that the Bid, as submitted, reflects modifications to the Procurement and Contracting Documents included in an unacknowledged Addendum.
      - 2) 3.4.4.1.2 - Modifications to the Procurement and Contracting Documents in an unacknowledged Addendum do not, in the opinion of Owner, affect the Contract Sum or Contract Time.

## 1.5 ARTICLE 4 - BIDDING PROCEDURES

- A. 4.1 - Preparation of Bids:
  - 1. Add Section 4.1.1.1:
    - a. 4.1.1.1 - Printable electronic Bid Forms and related documents are available from Architect.
  - 2. Add Section 4.1.8:
    - a. 4.1.8 - The Bid shall include unit prices when called for by the Procurement and Contracting Documents. Owner may elect to consider unit prices in the determination of award. Unit prices will be incorporated into the Contract.
  - 3. Add Section 4.1.9:
    - a. 4.1.9 - Owner may elect to disqualify a bid due to failure to submit a bid in the form requested, failure to bid requested alternates or unit prices, failure to complete entries in all blanks in the Bid Form, or inclusion by the Bidder of any alternates, conditions, limitations or provisions not called for.
  - 4. Add Section 4.1.10:



- a. 4.1.10 - Bids shall include sales and use taxes. Project will be tax-exempt. ID number will be provided to successful bidder.
- B. 4.3 - Submission of Bids:
  - 1. Add Section 4.3.1.2:
    - a. 4.3.1.2 - Include Bidder's Contractor License Number applicable in Project jurisdiction on the face of the sealed bid envelope.
- C. 4.4 - Modification or Withdrawal of Bids:
  - 1. Add the following sections to 4.4.2:
    - a. 4.4.2.1 - Such modifications to or withdrawal of a bid may only be made by persons authorized to act on behalf of the Bidder. Authorized persons are those so identified in the Bidder's corporate bylaws, specifically empowered by the Bidder's charter or similar legally binding document acceptable to Owner, or by a power of attorney, signed and dated, describing the scope and limitations of the power of attorney. Make such documentation available to Owner at the time of seeking modifications or withdrawal of the Bid.
    - b. 4.4.2.2 - Owner will consider modifications to a bid written on the sealed bid envelope by authorized persons when such modifications comply with the following: the modification is indicated by a percent or stated amount to be added to or deducted from the Bid; the amount of the Bid itself is not made known by the modification; a signature of the authorized person, along with the time and date of the modification, accompanies the modification. Completion of an unsealed bid form, awaiting final figures from the Bidder, does not require power of attorney due to the evidenced authorization of the Bidder implied by the circumstance of the completion and delivery of the Bid.
- D. 4.5 - Break-Out Pricing Bid Supplement:
  - 1. Add Section 4.5:
    - a. 4.5 - Provide detailed cost breakdowns on forms provided no later than two business days following Architect's request.
- E. 4.6 - Subcontractors, Suppliers, and Manufacturers List Bid Supplement:
  - 1. Add Section 4.6:



- a. 4.6 - Provide list of major subcontractors, suppliers, and manufacturers furnishing or installing products on forms provided no later than two business days following Architect's request. Include those subcontractors, suppliers, and manufacturers providing work totaling three percent or more of the Bid amount. Do not change subcontractors, suppliers, and manufacturers from those submitted without approval of Architect.

## 1.6 ARTICLE 5 - CONSIDERATION OF BIDS

### A. 5.2 - Rejection of Bids:

#### 1. Add Section 5.2.1:

- a. 5.2.1 - Owner reserves the right to reject a bid based on Owner's and Architect's evaluation of qualification information submitted following opening of bids. Owner's evaluation of the Bidder's qualifications will include: status of licensure and record of compliance with licensing requirements, record of quality of completed work, record of Project completion and ability to complete, record of financial management including financial resources available to complete Project and record of timely payment of obligations, record of Project site management including compliance with requirements of authorities having jurisdiction, record of and number of current claims and disputes and the status of their resolution, and qualifications of the Bidder's proposed Project staff and proposed subcontractors.

## 1.7 ARTICLE 6 - POSTBID INFORMATION

### A. 6.1 - Contractor's Qualification Statement:

#### 1. Add Section 6.1.1:

- a. 6.1.1 - Submit Contractor's Qualification Statement no later than two business days following Architect's request.

### B. 6.3 - Submittals:

#### 1. Add Section 6.3.1.4:

- a. 6.3.1.4 - Submit information requested in Sections 6.3.1.1, 6.3.1.2, and 6.3.1.3 no later than two business days following Architect's request.

## 1.8 ARTICLE 7 - PERFORMANCE BOND AND PAYMENT BOND

### A. 7.1 - Bond Requirements:



1. Add Section 7.1.1.1:
    - a. 7.1.1.1 - Both a Performance Bond and a Payment Bond will be required, each in an amount equal to 100 percent of the Contract Sum.
  - B. 7.2 - Time of Delivery and Form of Bonds:
    1. Delete the first sentence of Section 7.2.1 and insert the following:
      - a. The Bidder shall deliver the required bonds to Owner no later than 10 days after the date of Notice of Intent to Award and no later than the date of execution of the Contract, whichever occurs first. Owner may deem the failure of the Bidder to deliver required bonds within the period of time allowed a default.
    2. Delete Section 7.2.3 and insert the following:
      - a. 7.2.3 - Bonds shall be executed and be in force on the date of the execution of the Contract.
- 1.9 ARTICLE 8 - FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR
- A. A101-2017 "Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum".
- 1.10 ARTICLE 9 - EXECUTION OF THE CONTRACT
- A. Add Article 9:
    1. 9.1.1 - Subsequent to the Notice of Intent to Award, and within 10 days after the prescribed Form of Agreement is presented to the Awardee for signature, the Awardee shall execute and deliver the Agreement to Owner through Architect, in such number of counterparts as Owner may require.
    2. 9.1.2 - Owner may deem as a default the failure of the Awardee to execute the Contract and to supply the required bonds when the Agreement is presented for signature within the period of time allowed.
    3. 9.1.3 - Unless otherwise indicated in the Procurement and Contracting Documents or the executed Agreement, the date of commencement of the Work shall be the date of the executed Agreement or the date that the Bidder is obligated to deliver the executed Agreement and required bonds to Owner.
    4. 9.1.4 - In the event of a default, Owner may declare the amount of the Bid security forfeited and elect to either award the Contract to the next responsible bidder or re-advertise for bids.

END OF DOCUMENT 002213



## DOCUMENT 003113 - PRELIMINARY SCHEDULES

### 1.1 PROJECT SCHEDULE

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but do not affect Contract Time requirements. This Document and its attachments are not part of the Contract Documents.
- B. Bidding Schedule:
  - 1. Bid documents issued: December 20, 2023.
  - 2. Pre-bid meeting: January 8, 2024.
  - 3. Bid RFI's due by: January 26, 2024; 5:00 pm local time.
  - 4. Last addendum issued: January 31, 2024; 5:00 pm local time.
  - 5. Bids due: February 07, 2024; 6:00 pm local time; special board meeting.
  - 6. Post-bid vetting: February 8-20, 2024
  - 7. Award recommendation, Board approval, and award: February 21, 2024; 6:00 pm local time; regular board meeting.
  - 8. Construction start: March 15, 2024.
  - 9. Substantial completion: March 31, 2025.
  - 10. Final completion: April 11, 2025.
- C. Available Project information includes the following:
  - 1. Project Schedule.
- D. Project schedule including design and construction milestones and Owner's occupancy requirements is available for viewing as appended to this Document.
- E. Related Requirements:
  - 1. Document 004113 "Bid Form - Stipulated Sum (Single-Prime Contract)" for Contract Time.
  - 2. Section 013200 "Construction Progress Documentation" for Contractor's construction schedule requirements.

END OF DOCUMENT 003113



## SECTION 004323 - ALTERNATES FORM

### 1.1 BID INFORMATION

- A. Bidder: \_\_\_\_\_.
- B. Project Name: CDL Edwardsburg Library.
- C. Project Location: 319 M62, Cassopolis, MI 4903.
- D. Owner: Cass District Library - Edwardsburg Branch.
- E. Architect: Abonmarche Consultants, Inc. 315 W. Jefferson Blvd., South Bend, IN 46601.
- F. Architect Project Number: 22-1836.

### 1.2 BID FORM SUPPLEMENT

- A. This form is required to be attached to the Bid Form.

### 1.3 DESCRIPTION

- A. The undersigned Bidder proposes the amount below be added to or deducted from the Base Bid if particular alternates are accepted by Owner. Amounts listed for each alternate include costs of related coordination, modification, or adjustment.
- B. If the alternate does not affect the Contract Sum, the Bidder shall indicate "NO CHANGE."
- C. If the alternate does not affect the Work of this Contract, the Bidder shall indicate "NOT APPLICABLE."
- D. The Bidder shall be responsible for determining from the Contract Documents the affects of each alternate on the Contract Time and the Contract Sum.
- E. Owner reserves the right to accept or reject any alternate, in any order, and to award or amend the Contract accordingly within 60 days of the Notice of Award unless otherwise indicated in the Contract Documents.
- F. Acceptance or non-acceptance of any alternates by the Owner shall have no affect on the Contract Time unless the "Schedule of Alternates" Article below provides a formatted space for the adjustment of the Contract Time.

### 1.4 SCHEDULE OF ALTERNATES

- A. Alternate No. 1: Performance and Payment Bond:

22-1836 Edwardsburg Branch  
Cass District Library  
January 19, 2024 - Addendum 2

ALTERNATES FORM  
004323-1



1. ADD \_\_\_ DEDUCT \_\_\_ NO CHANGE \_\_\_ NOT APPLICABLE \_\_\_.
2. \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_).
3. ADD \_\_\_ DEDUCT \_\_\_ calendar days to adjust the Contract Time for this alternate.

B. Alternate No. 2A: Limestone Paths:

1. ADD \_\_\_ DEDUCT \_\_\_ NO CHANGE \_\_\_ NOT APPLICABLE \_\_\_.
2. \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_).
3. ADD \_\_\_ DEDUCT \_\_\_ calendar days to adjust the Contract Time for this alternate.

C. Alternate No. 2B: Path Light Fixtures:

1. ADD \_\_\_ DEDUCT \_\_\_ NO CHANGE \_\_\_ NOT APPLICABLE \_\_\_.
2. \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_).
3. ADD \_\_\_ DEDUCT \_\_\_ calendar days to adjust the Contract Time for this alternate.

D. Alternate No. 3A: Patios:

1. ADD \_\_\_ DEDUCT \_\_\_ NO CHANGE \_\_\_ NOT APPLICABLE \_\_\_.
2. \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_).
3. ADD \_\_\_ DEDUCT \_\_\_ calendar days to adjust the Contract Time for this alternate.

E. Alternate No. 3B: Patio Light Poles:

1. ADD \_\_\_ DEDUCT \_\_\_ NO CHANGE \_\_\_ NOT APPLICABLE \_\_\_.
2. \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_).
3. ADD \_\_\_ DEDUCT \_\_\_ calendar days to adjust the Contract Time for this alternate.

F. Alternate No. 4: Pergola:

1. ADD \_\_\_ DEDUCT \_\_\_ NO CHANGE \_\_\_ NOT APPLICABLE \_\_\_.
2. \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_).
3. ADD \_\_\_ DEDUCT \_\_\_ calendar days to adjust the Contract Time for this alternate.

G. Alternate No. 5: Parking:

1. ADD \_\_\_ DEDUCT \_\_\_ NO CHANGE \_\_\_ NOT APPLICABLE \_\_\_.
2. \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_).
3. ADD \_\_\_ DEDUCT \_\_\_ calendar days to adjust the Contract Time for this alternate.

H. Alternate No. 6: Roof Insulation:

1. ADD \_\_\_ DEDUCT \_\_\_ NO CHANGE \_\_\_ NOT APPLICABLE \_\_\_.



2. \_\_\_\_\_ Dollars  
(\$\_\_\_\_\_).
3. ADD\_\_\_\_ DEDUCT\_\_\_\_ calendar days to adjust the Contract Time for this alternate.

I. Alternate No. 7: Fencing:

1. ADD\_\_\_\_ DEDUCT\_\_\_\_ NO CHANGE\_\_\_\_ NOT APPLICABLE\_\_\_\_.
2. \_\_\_\_\_ Dollars  
(\$\_\_\_\_\_).
3. ADD\_\_\_\_ DEDUCT\_\_\_\_ calendar days to adjust the Contract Time for this alternate.

J. Alternate No. 8: Contractor's Warranty:

1. ADD\_\_\_\_ DEDUCT\_\_\_\_ NO CHANGE\_\_\_\_ NOT APPLICABLE\_\_\_\_.
2. \_\_\_\_\_ Dollars  
(\$\_\_\_\_\_).
3. ADD\_\_\_\_ DEDUCT\_\_\_\_ calendar days to adjust the Contract Time for this alternate.

K. Alternate No. 9: Multipurpose Room Flooring:

1. ADD\_\_\_\_ DEDUCT\_\_\_\_ NO CHANGE\_\_\_\_ NOT APPLICABLE\_\_\_\_.
2. \_\_\_\_\_ Dollars  
(\$\_\_\_\_\_).
3. ADD\_\_\_\_ DEDUCT\_\_\_\_ calendar days to adjust the Contract Time for this alternate.

L. Alternate No. 10: Landscaping:

1. ADD\_\_\_\_ DEDUCT\_\_\_\_ NO CHANGE\_\_\_\_ NOT APPLICABLE\_\_\_\_.
2. \_\_\_\_\_ Dollars  
(\$\_\_\_\_\_).
3. ADD\_\_\_\_ DEDUCT\_\_\_\_ calendar days to adjust the Contract Time for this alternate.

M. Alternate No. 11: Multipurpose & Library Room Ceiling:

1. ADD\_\_\_\_ DEDUCT\_\_\_\_ NO CHANGE\_\_\_\_ NOT APPLICABLE\_\_\_\_.
2. \_\_\_\_\_ Dollars  
(\$\_\_\_\_\_).
3. ADD\_\_\_\_ DEDUCT\_\_\_\_ calendar days to adjust the Contract Time for this alternate.

1.5 SUBMISSION OF BID SUPPLEMENT

- A. Respectfully submitted this \_\_\_\_ day of \_\_\_\_\_, <Insert year>.



- B. Submitted By: \_\_\_\_\_ (Insert name of bidding firm or corporation).
- C. Authorized Signature: \_\_\_\_\_ (Handwritten signature).
- D. Signed By: \_\_\_\_\_ (Type or print name).
- E. Title: \_\_\_\_\_ (Owner/Partner/President/Vice President).

END OF DOCUMENT 004323



## SECTION 012300 - ALTERNATES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

#### 1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
  - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

#### 1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include, as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation, whether or not indicated as part of alternate.
- B. Execute accepted alternates under the same conditions as other Work of the Contract.
- C. Schedule: A Part 3 "Schedule of Alternates" Article is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.



## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 SCHEDULE OF ALTERNATES

#### A. Alternate No. 1: Performance and Payment Bond:

1. Base Bid: Provide 100% Performance and Payment Bond.
2. Alternate: Delete Performance and Payment Bond.

#### B. Alternate No. 2A: Limestone Paths:

1. Base Bid: Provide ADA accessible, crushed limestone paths through woods as shown on the drawings.
2. Alternate: Delete limestone path and all related items.

#### C. Alternate No. 2B: Path Light Fixtures:

1. Base Bid: Provide light fixtures along limestone path, refer to the drawings.
2. Alternate: Delete light fixtures along limestone path.

#### D. Alternate No. 3A: Patios:

1. Base Bid: Provide ADA accessible patios on north side of the building as shown on the drawings.
2. Alternate: In lieu of patios on north side of the building, provide concrete stoops per detail 4/S2.1. Stoops shall be 5'x5' at doors 113-B and 113-C, and 10'x10' at door 103-A.

#### E. Alternate No. 3B: Patio Light Poles:

1. Base Bid: Provide light poles at patios.
2. Alternate: Delete light poles at patios.

#### F. Alternate No. 4: Pergola:

1. Base Bid: Provide ADA accessible pergola as shown on the drawings. Refer to Sheet A7.5e.
2. Alternate: Delete pergola and all related items.

#### G. Alternate No. 5: Parking:

1. Base Bid: Provide parking as shown on drawings. Refer to civil drawings and specs.
2. Alternate: Reduce parking as shown on revised civil drawings.

#### H. Alternate No. 6: Roof Insulation:



1. Base Bid: Provide metal roof deck, 6" polyisocyanurate insulation and roof sheathing with T1-11 architectural wood ceiling at roof areas "A" and "C".
  2. Alternate: In lieu of base bid, provide 8" SIPs with architectural exposed interior wood finish.
- I. Alternate No. 7: Fencing:
1. Base Bid: Provide fence at north property line as shown on drawings.
  2. Alternate: Provide additional fence along east property line as shown on the drawings. Fence shall match specified fence at the north property line.
- J. Alternate No. 8: Contractor Warranty.
1. Base Bid: One-year Contractor's warranty.
  2. Alternate: Two-year Contractor's warranty
- K. Alternate No. 8: Multipurpose Room Flooring.
1. Base Bid: Provide CPT-3 for the Multipurpose Room floor finish.
  2. Alternate: Provide CPT-2 for the Multipurpose Room floor finish.
- L. Alternate No. 10: Landscaping.
1. Base Bid: Provide the following:
    - a. Native wildflower seed mix areas as shown on the drawings.
    - b. Sod mow strips in sheet flow areas off the parking asphalt and walks.
    - c. 6" cobble stone and geotextile fabric located at outlet pipes. Contractor shall refer to the Stone Apron & Pipe End Section Treatment for the cobble stone apron lengths and widths.
    - d. Soil Erosion and Sedimentation Control Plans (Sheets C8.0-C8.3).
  2. Alternate: Provide the following:
    - a. Provide all landscaping items as shown on the drawings. Including but not limited to:
      - 1) Items above.
      - 2) All trees, evergreen trees, flowering trees, shrubs, ornamental grasses, and perennials.
      - 3) Steel edging, shredded hardwood bark mulch, boulders and 4-6" Glacial Cobble Stone and geotextile fabric.
- M. Alternate No. 11: Multi-purposed & Library Room Ceiling.
1. Base Bid: Provide T1-11 panel boards with reveals perpendicular to trusses at vaulted ceiling. Provide continuous boards extending full distance between trusses
  2. Alternate: Provide 1x8 poplar car siding with "v" groove boards at vaulted ceiling.

END OF SECTION



## SECTION 08 71 00 - DOOR HARDWARE

### PART 1 - GENERAL

#### 1.01 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware.
2. Electronic access control system components.

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 "General Requirements" sections for Allowances, Alternates, Owner Furnished Contractor Installed, Project Management and Coordination.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
  - a. "Metal Doors and Frames"
  - b. "Flush Wood Doors"
  - c. "Stile and Rail Wood Doors"
  - d. "Interior Aluminum Doors and Frames"
  - e. "Aluminum-Framed Entrances and Storefronts"
6. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
7. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

#### 1.02 REFERENCES

A. UL, LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute



1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA - National Fire Protection Association

1. NFPA 70 - National Electric Code
2. NFPA 80 - 2016 Edition - Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 - Life Safety Code
4. NFPA 105 - Smoke and Draft Control Door Assemblies
5. NFPA 252 - Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 - 2017 Edition - Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

### 1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
  - a. Comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.
  - b. Review drawings and Sections from related trades to verify compatibility with specified hardware.
  - c. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
  - a. Wiring Diagrams: For power, signal, and control wiring and including:
    - 1) Details of interface of electrified door hardware and building safety and security systems.
    - 2) Schematic diagram of systems that interface with electrified door hardware.
    - 3) Point-to-point wiring.
    - 4) Risers.



3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
  - a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
4. Door Hardware Schedule:
  - a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
  - b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
  - c. Indicate complete designations of each item required for each opening, include:
    - 1) Door Index: door number, heading number, and Architect's hardware set number.
    - 2) Quantity, type, style, function, size, and finish of each hardware item.
    - 3) Name and manufacturer of each item.
    - 4) Fastenings and other pertinent information.
    - 5) Location of each hardware set cross-referenced to indications on Drawings.
    - 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
    - 7) Mounting locations for hardware.
    - 8) Door and frame sizes and materials.
    - 9) Degree of door swing and handing.
    - 10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.
5. Key Schedule:
  - a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
  - b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
  - c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
  - d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
  - e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
  - f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:



- a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
- b. Include warranties for specified door hardware.

D. Closeout Submittals:

- 1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
  - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
  - b. Catalog pages for each product.
  - c. Final approved hardware schedule edited to reflect conditions as installed.
  - d. Final keying schedule
  - e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
  - f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

- 1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
  - a. fire door assemblies, in compliance with NFPA 80.
  - b. required egress door assemblies, in compliance with NFPA 101.

#### 1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

- 1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
- 2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
- 3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
  - a. For door hardware: DHI certified AHC or DHC.
  - b. Can provide installation and technical data to Architect and other related subcontractors.
  - c. Can inspect and verify components are in working order upon completion of installation.
  - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.



4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.
- B. Certifications:
1. Fire-Rated Door Openings:
    - a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
    - b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
  2. Smoke and Draft Control Door Assemblies:
    - a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
    - b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
  3. Electrified Door Hardware
    - a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
  4. Accessibility Requirements:
    - a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.
- C. Pre-Installation Meetings
1. Keying Conference
    - a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
      - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
      - 2) Preliminary key system schematic diagram.
      - 3) Requirements for key control system.
      - 4) Requirements for access control.
      - 5) Address for delivery of keys.
  2. Pre-installation Conference
    - a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
    - b. Inspect and discuss preparatory work performed by other trades.
    - c. Inspect and discuss electrical roughing-in for electrified door hardware.
    - d. Review sequence of operation for each type of electrified door hardware.



- e. Review required testing, inspecting, and certifying procedures.
  - f. Review questions or concerns related to proper installation and adjustment of door hardware.
3. Electrified Hardware Coordination Conference:
- a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.
- D. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping.
- E. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
- F. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
- G. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- H. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- I. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

#### 1.05 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- E. Existing Openings: Where existing doors, frames and/or hardware are to remain, field verify existing functions, conditions and preparations and coordinate to suit opening conditions and to provide proper door operation.



## 1.06 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.
  - 1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
  - 2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.
    - a. Mechanical Warranty
      - 1) Locks
        - a) Falcon: 10 years
      - 2) Exit Devices
        - a) Falcon: 10 years
      - 3) Closers
        - a) Falcon SC Series: 10 years
      - 4) Automatic Operators
        - a) LCN: 2 years

## 1.07 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- B. Turn over unused materials to Owner for maintenance purposes.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS

- A. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance in section 01 25 00.
- B. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- C. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

### 2.02 MATERIALS

- A. Fabrication



1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer's recognized installation standards for application intended.
  2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
  3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with "Metal Doors and Frames", "Flush Wood Doors", "Stile and Rail Wood Doors" to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.
- B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.
1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

## 2.03 HINGES

### A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
  - a. Ives 5BB series
2. Acceptable Manufacturers and Products:
  - a. Hager BB1191/1279 series
  - b. McKinney TB series

### B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
  - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
  - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
  - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
  - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
  - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
  - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
9. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:



- a. Steel Hinges: Steel pins
- b. Non-Ferrous Hinges: Stainless steel pins
- c. Out-Swinging Exterior Doors: Non-removable pins
- d. Out-Swinging Interior Lockable Doors: Non-removable pins
- e. Interior Non-lockable Doors: Non-rising pins

## 2.04 CONTINUOUS HINGES

### A. Manufacturers:

- 1. Scheduled Manufacturer:
  - a. Ives
- 2. Acceptable Manufacturers:
  - a. Select

### B. Requirements:

- 1. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
- 2. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
- 3. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
- 4. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
- 5. On fire-rated doors, provide aluminum geared continuous hinges classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
- 6. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
- 7. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

## 2.05 MORTISE LOCKS

### A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product:
  - a. Falcon MA series
- 2. Acceptable Manufacturers and Products:
  - a. Corbin-Russwin ML2000 series
  - b. Sargent 8200 series

### B. Requirements:



1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
3. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
4. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
5. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
6. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide a request to exit (RX) switch that is actuated with rotation of inside lever.
7. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.

a. Lever Design: BOG.

## 2.06 CYLINDRICAL LOCKS - GRADE 1

### A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
  - a. Falcon T series
2. Acceptable Manufacturers and Products:
  - a. Corbin-Russwin CL3300 series
  - b. Sargent 10-Line

### B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
4. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
5. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets.
8. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.

a. Lever Design: BRK.

## 2.07 EXIT DEVICES

### A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:



- a. Falcon 24/25 series
- 2. Acceptable Manufacturers and Products:
  - a. Sargent 19-43-GL-80 series
  - b. Precision Apex series
- B. Requirements:
  - 1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
  - 2. Cylinders: Refer to "KEYING" article, herein.
  - 3. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
  - 4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
  - 5. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
  - 6. Provide flush end caps for exit devices.
  - 7. Provide exit devices with manufacturer's approved strikes.
  - 8. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
  - 9. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
  - 10. Provide cylinder or hex-key dogging as specified at non fire-rated openings.
  - 11. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
  - 12. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
  - 13. Provide electrified options as scheduled.
  - 14. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

## 2.08 ACCESS CONTROL READER

- A. Manufacturers and Products:
  - 1. Scheduled Manufacturer and Product:
    - a. Schlage MTB series (Basis of Design)
- B. Requirements:
  - 1. Provide access control card readers manufactured by a global company who is a recognized leader in the production of access control devices. Card reader manufactured for non-access control applications are not acceptable.
  - 2. Provide multi-technology contactless readers complying with ISO 14443.
  - 3. Provide access control card readers capable of reading the following technologies:
    - a. CSN - DESFire® CSN, HID iCLASS® CSN, Inside Contactless PicoTag® CSN, ST Microelectronics® CSN, Texas Instruments Tag-It®, CSN, Phillips I-Code® CSN



- b. 125 KHz proximity - Schlage® Proximity, HID® Proximity, GE/CASI® Proximity, AWID® Proximity, LenelProx®
- c. 13.56 MHz Smart card - Schlage smart cards using MIFARE Classic® EV1/EV3, Schlage smart cards using MIFARE Plus®, Schlage smart cards using MIFARE® DESFire® EV1/EV3, Schlage smart cards using MIFARE® DESFire® EV2/EV3
- d. 13.56 MHz NFC (mobile), 2.45 GHz Bluetooth (mobile) - Mobile means compatible with Bluetooth and NFC-enabled smartphones.

## 2.09 CREDENTIAL ENROLLMENT READER

### A. Manufacturer and Product:

#### 1. Scheduled Manufacturer and Product:

- a. Schlage MT20W (Basis of Design)

### B. Requirements:

- 1. Unit provides simplified credential enrollment via computer connect. USB connection is for power only, enrollment uses Wi-Fi connection.
- 2. Multi-technology enrollment reader is designed to simplify the enrollment of proximity and smart credentials. The reader is powered by a USB cable via computer's USB port and utilizes a Wi-Fi connection for certain scenarios (enrolling no-tour credentials).
- 3. The unit is compatible with smart credentials (MIFARE Classic and FIFARE DESFire EV1/EV3), Schlage Mobile credentials, PIV credentials and most proximity credentials up to 37-bits. The unit supports no-tour (with supported locks) via Schlage MIFARE Classic or MIFARE DESFire EV1/EV3 credentials.

## 2.10 ACCESS CONTROL CREDENTIALS

### A. Manufacturer:

#### 1. Scheduled Manufacturer:

- a. Schlage (Basis of Design)

### B. Requirements:

- 1. Provide access control credentials ISO 14443 compliant and GSC-IS® certified compatible with access control readers that allow authorized entry and hold information specific to the user.
- 2. Provide credentials that have an ISO MIFARE microprocessor, function at 13.56 MHz, 8kbits of memory, open memory architecture, and a passive design requiring no batteries.
- 3. Provide credentials made of a composite material for added durability that have a read range of up to 4 inches, support up to a 40-bit format.
- 4. Provide credentials which, when presented to the access control reader at any angle within a minimum distance of one 1-inch, will result in an accurate reading of the card.



## 2.11 OFFLINE CONTROLLER

### A. Manufacturer and Product:

1. Scheduled Manufacturer and Product:
  - a. Schlage CTE Engage Controller (Basis of Design)

### B. Requirements:

1. Provide an offline single opening controller UL 294 listed and compatible with the Schlage Engage Application. Include a multi-technology reader kit.
2. Provide interfaces for a multi-technology credential reader, powered and dry output relays for strike, alarm, and auxiliary function, and with wireless communication capability.
3. Provide offline controller with the following power options:
  - a. Power Over Ethernet (POE)
    - 1) .5A at 12 VDC for up to 500 feet.
    - 2) 1.5A at 24 VDC for up to 500 feet.
  - b. 12 VDC in 2A at 12 VDC for up to 500 feet.
  - c. 24 VDC in 2A at 24 VDC for up to 500 feet.
4. Provide offline controller with the following communication standards:
  - a. Bluetooth low energy version 4.2.
  - b. 2.4 GHz Wi-Fi (IEEE 802.11b/g/n).
  - c. WPA2, WPA, WEP, 802.1x (PEAP).
  - d. Transport Layer Security (TLS) version 12.
  - e. Advanced Encryption Standard (AES) 256-bit.
5. Provide offline controller with the following signal inputs:
  - a. One Schlage MT11-485 or MT15-485 reader.
  - b. Request to Enter (REN).
  - c. Request to Exit (REX).
  - d. Remote Release - hardwired.
  - e. Door Position Switch (DPS).
  - f. Reader tamper (TAMP).
6. Provide offline controller with the following signal outputs:
  - a. Card Reader 0.3A at 12 VDC for up to 500 feet.
  - b. Locking mechanism: 2A at 30 VDC max.
  - c. Auxiliary: 2A at 30 VDC max.
  - d. Alarm: 2A at 30 VDC max.
7. Provide offline controller with the following with operating temperatures between -31 F (-35 C) to 151 F (66 C).
8. Provide offline controller with the following on board database:
  - a. up to 5,000 users
  - b. up to 2,000 audits (FIFO)
  - c. up to 16 Time Zones



- d. up to 32 Holiday Schedules
  - e. up to 16 Schedules (lock & unlock)
9. Provide offline controller with the following connectivity options:
- a. Apple or Droid smart phone - Bluetooth updates to CTE.
  - b. Wi-Fi access point - automatic daily updates (one time per day) if connected to Wi-Fi.
- C. Provide offline controller with "No-Tour" with MT20W enrollment reader and Schlage 1K smart credentials (13.56 MHz).

## 2.12 ACCESS CONTROL PLATFORM

### A. Manufacturers and Products:

#### 1. Scheduled Manufacturer:

- a. Schlage Engage (Commercial - Basis of Design)

### B. Requirements:

1. Provide a cloud-based platform capable of managing users, credentials, access rights, schedules, and audits.
2. All locks must be supplied in construction mode.
3. Provide a platform that supports a mobile application (app). Mobile application must allow for:
  - a. Commissioning and configuring devices
  - b. Immediately updating door files
  - c. Retrieving audit information
  - d. Performing firmware updates
4. Provide software set up on the owner's workstation and Mobile Device which includes:
  - a. Creation of the Owner's Account
  - b. Creation of the Project Site
  - c. Creation of the Team as directed by the Owner
  - d. Addition of five users
  - e. Set up of MT20W and update firmware
  - f. Create unique credentials and verify proper commissioning of ten locks
5. Provide, at the owner's request, the following on-site training prior to the expiration of the service agreement:
  - a. Completing the following with ENGAGE software:
    - 1) Modifying the Team
    - 2) Move in/move out procedure including
      - a) Adding and Deleting Users
      - b) Adding and Deleting Doors
    - 3) Adding, assigning and programming credentials for access
    - 4) Replacing or deleting lost credentials.
    - 5) Retrieving and viewing of audit information
    - 6) Assigning temporary access



- b. Commissioning and verifying proper functioning between locks and credentials.
  - c. Updating firmware on the locks.
6. Must include a service agreement ending a year after Substantial Completion. This service agreement includes being on-site up to 16 hours for set-up and training, as listed above.

## 2.13 ELECTRIC STRIKES

### A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product:
  - a. HES 9500 series
- 2. Acceptable Manufacturers and Products:
  - a. Schlage 6000 series

### B. Requirements:

- 1. Provide electric strikes designed for use with type of locks shown at each opening.
- 2. Provide electric strikes UL Listed as burglary resistant that are tested to a minimum endurance test of 1,000,000 cycles.
- 3. Where required, provide electric strikes UL Listed for fire doors and frames.
- 4. Provide transformers and rectifiers for each strike as required. Verify voltage with electrical contractor.

## 2.14 POWER SUPPLIES

### A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product:
  - a. Schlage/Von Duprin PS900 series
- 2. Acceptable Manufacturers and Products:
  - a. Securitron BPS series
  - b. Security Door Controls 600 series

### B. Requirements:

- 1. Provide power supplies approved by manufacturer of supplied electrified hardware.
- 2. Provide appropriate quantity of power supplies necessary for proper operation of electrified locking components as recommended by manufacturer of electrified locking components with consideration for each electrified component using power supply, location of power supply, and approved wiring diagrams. Locate power supplies as directed by Architect.
- 3. Provide regulated and filtered 24 VDC power supply, and UL class 2 listed.
- 4. Provide power supplies with the following features:
  - a. 12/24 VDC Output, field selectable.



- b. Class 2 Rated power limited output.
- c. Universal 120-240 VAC input.
- d. Low voltage DC, regulated and filtered.
- e. Polarized connector for distribution boards.
- f. Fused primary input.
- g. AC input and DC output monitoring circuit w/LED indicators.
- h. Cover mounted AC Input indication.
- i. Tested and certified to meet UL294.
- j. NEMA 1 enclosure.
- k. Hinged cover w/lock down screws.
- l. High voltage protective cover.

## 2.15 CYLINDERS

### A. Manufacturers and Products:

#### 1. Scheduled Manufacturer:

- a. Falcon

#### 2. Acceptable Manufacturers and Products:

- a. Corbin-Russwin
- b. Sargent

### B. Requirements:

1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset; manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
  - a. Open: cylinder with small format interchangeable core (SFIC) core with open keyway

## 2.16 KEYING

### A. Scheduled System:

#### 1. New factory registered system:

- a. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

### B. Requirements:

#### 1. Construction Keying:

- a. Replaceable Construction Cores.
  - 1) Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
    - a) 3 construction control keys



- b) 12 construction change (day) keys.
  - 2) Owner or Owner's Representative will replace temporary construction cores with permanent cores.
- 2. Permanent Keying:
  - a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
    - 1) Master Keying system as directed by the Owner.
  - b. Forward biting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
  - c. Provide keys with the following features:
    - 1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
    - 2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
  - d. Identification:
    - 1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
    - 2) Identification stamping provisions must be approved by the Architect and Owner.
    - 3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
    - 4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
    - 5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
  - e. Quantity: Furnish in the following quantities.
    - 1) Change (Day) Keys: 3 per cylinder/core that is keyed differently.
    - 2) Permanent Control Keys: 3.
    - 3) Master Keys: 6.
    - 4) Key Blanks: quantity as determined in the keying meeting.

## 2.17 KEY CONTROL SYSTEM

### A. Manufacturers:

- 1. Scheduled Manufacturer:
  - a. Telkee
- 2. Acceptable Manufacturers:
  - a. HPC
  - b. Lund

### B. Requirements:

- 1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and



standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.

- a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
- b. Provide hinged-panel type cabinet for wall mounting.

## 2.18 DOOR CLOSERS

### A. Manufacturers and Products:

#### 1. Scheduled Manufacturer and Product:

- a. Falcon SC70A series

#### 2. Acceptable Manufacturers and Products:

- a. LCN 4050A series
- b. Norton 7500 series
- c. Sargent 351 series

### B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with aluminum cylinder.
3. Closer Body: 1-1/2-inch (38 mm) diameter with 5/8-inch (16 mm) diameter heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Pressure Relief Valve (PRV) Technology: Not permitted.
8. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

## 2.19 DOOR CLOSERS

### A. Manufacturers and Products:

#### 1. Scheduled Manufacturer and Product:

- a. Falcon SC80A series

#### 2. Acceptable Manufacturers and Products:

- a. LCN 1450 series



- b. Norton 8000 series
- c. Sargent 1331 series

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory.
2. Provide door closers with fully hydraulic, full rack and pinion action with aluminum cylinder.
3. Closer Body: 1-1/4-inch (32 mm) diameter, with 5/8-inch (16 mm) diameter heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Pressure Relief Valve (PRV) Technology: Not permitted.
8. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

## 2.20 ELECTRO-HYDRAULIC AUTOMATIC OPERATORS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
  - a. LCN 4600 series
2. Acceptable Manufacturers and Products:
  - a. Norton 6000 series
  - b. Precision D4990 series

B. Requirements:

1. Provide low energy automatic operator units with hydraulic closer complying with ANSI/BHMA A156.19.
2. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
3. Provide units with conventional door closer opening and closing forces unless power operator motor is activated. Provide door closer assembly with adjustable spring size, back-check, and opening and closing speed adjustment valves to control door
4. Provide units with on/off switch for manual operation, motor start up delay, vestibule interface delay, electric lock delay, and door hold open delay.
5. Provide drop plates, brackets, and adapters for arms as required for details.
6. Provide hard-wired actuator switches and receivers for operation as specified.
7. Provide weather-resistant actuators at exterior applications.
8. Provide key switches with LED's, recommended and approved by manufacturer of automatic operator as required for function described in operation description of hardware group below. Cylinders: Refer to "KEYING" article, herein.



9. Provide complete assemblies of controls, switches, power supplies, relays, and parts/material recommended and approved by manufacturer of automatic operator for each individual leaf. Actuators control both doors simultaneously at pairs. Sequence operation of exterior and vestibule doors with automatic operators to allow ingress or egress through both sets of openings as directed by Architect. Locate actuators, key switches, and other controls as directed by Architect.
10. Provide units with vestibule inputs that allow sequencing operation of two units, and SPDT relay for interfacing with latching or locking devices.

## 2.21 DOOR TRIM

### A. Manufacturers:

1. Scheduled Manufacturer:
  - a. Ives
2. Acceptable Manufacturers:
  - a. Burns
  - b. Rockwood

### B. Requirements:

1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

## 2.22 PROTECTION PLATES

### A. Manufacturers:

1. Scheduled Manufacturer:
  - a. Ives
2. Acceptable Manufacturers:
  - a. Burns
  - b. Rockwood

### B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.



## 2.23 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

### A. Manufacturers:

#### 1. Scheduled Manufacturers:

- a. Glynn-Johnson

#### 2. Acceptable Manufacturers:

- a. Rixson
- b. ABH

### B. Requirements:

- 1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.

## 2.24 DOOR STOPS AND HOLDERS

### A. Manufacturers:

#### 1. Scheduled Manufacturer:

- a. Ives

#### 2. Acceptable Manufacturers:

- a. Burns
- b. Rockwood

### B. Provide door stops at each door leaf:

- 1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
- 2. Where a wall stop cannot be used, provide overhead stop.

## 2.25 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

### A. Manufacturers:

#### 1. Scheduled Manufacturer:

- a. Zero International

#### 2. Acceptable Manufacturers:

- a. National Guard
- b. Reese

### B. Requirements:



1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
4. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.

## 2.26 SILENCERS

### A. Manufacturers:

1. Scheduled Manufacturer:
  - a. Ives
2. Acceptable Manufacturers:
  - a. Burns
  - b. Rockwood

### B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

## 2.27 FINISHES

- A. Finish (wood doors): Generally, Satin Chromium, BHMA 626/652 (US26D). Provide finish for each item as indicated in sets.
- B. Finish (aluminum doors): Generally, matte black, BHMA 622/631 (US19). Provide finish for each item as indicated in sets.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.



- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- D. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
  - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
  - 2. Custom Steel Doors and Frames: HMMA 831.
  - 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
  - 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.
- C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.
- I. Lock Cylinders:
  - 1. Install construction cores to secure building and areas during construction period.
  - 2. Replace construction cores with permanent cores as indicated in keying section.
  - 3. Furnish permanent cores to Owner for installation.
- J. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:
  - 1. Conduit, junction boxes and wire pulls.
  - 2. Connections to and from power supplies to electrified hardware.
  - 3. Connections to fire/smoke alarm system and smoke evacuation system.
  - 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.



- 5. Connections to panel interface modules, controllers, and gateways.
- 6. Testing and labeling wires with Architect's opening number.
- K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- L. Continuous Hinges: Re-locate the door and frame fire rating labels where they will remain visible so that the hinge does not cover the label once installed.
- M. Door Closers & Auto Operators: Mount closers/operators on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers/operators so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- N. Overhead Stops/Holders: Mount overhead stopes/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- O. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- P. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
- Q. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- R. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- S. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- T. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

### 3.03 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
  - 1. Spring Hinges: Adjust to achieve positive latching when door can close freely from an open position of 30 degrees.
  - 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
  - 3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.



### 3.04 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items per manufacturer's instructions to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

### 3.05 DOOR HARDWARE SCHEDULE


- A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.
- C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
- D. Hardware Sets:

#### Hardware Group No. 01

For use on Door #(s):

117-A                      117-B

Each to have:





QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	DOUBLE ACTING SPRING HINGE	AS REQUIRED		BLK	
2	EA	WALL STOP	WS406/407CVX		630	IVE

#### Hardware Group No. 02

For use on Door #(s):

121-A

Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 NRP		FBLK/6 31	IVE
1	EA	PASSAGE SET	T101 BRK		626	FAL
1	EA	WALL STOP	WS406/407CVX		630	IVE
3	EA	SILENCER	SR64		GRY	IVE










Hardware Group No. 03

For use on Door #(s):

105-A 107-A

Each to have:







QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		FBLK/6 31	IVE
1	EA	DOOR PULL, 1" ROUND	8103EZHD 10" F		630- 316	IVE
1	EA	PUSH PLATE	8200 6" X 16"		630	IVE
1	EA	SURFACE CLOSER	SC71A RW/PA - PULL-SIDE		689	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CVX		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 04

For use on Door #(s):

120-A

Each to have:






QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		FBLK/6 31	IVE
1	EA	PRIVACY LOCK	MA311 OCCUPIED/VACANT BOGM		626	FAL
1	EA	SURFACE CLOSER	SC71A RW/PA - PULL-SIDE		689	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CVX		630	IVE
1	EA	GASKETING	488S		BK	ZER

Hardware Group No. 05

For use on Door #(s):

123-A

Each to have:






QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		FBLK/6 31	IVE
1	EA	PRIVACY LOCK	MA311 OCCUPIED/VACANT BOGM		626	FAL
1	EA	SURFACE CLOSER	SC71A SS		689	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	GASKETING	488S		BK	ZER



Hardware Group No. 06

For use on Door #(s):  
122-A









Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		FBLK/6 31	IVE
1	EA	CLASSROOM LOCK	T561BDC BRK		626	FAL
1	EA	SFIC CORE	C607		626	FAL
1	EA	WALL STOP	WS406/407CVX		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 07

For use on Door #(s):  
108-A








Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 NRP		FBLK/6 31	IVE
1	EA	CLASSROOM LOCK	T561BDC BRK		626	FAL
1	EA	SFIC CORE	C607		626	FAL
1	EA	SURFACE CLOSER	SC71A RW/PA - PUSH-SIDE		689	FAL
1	EA	MOUNTING PLATE	SC70A-18PA		689	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CVX		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 08

For use on Door #(s):  
112-A

Each to have:








QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		FBLK/6 31	IVE
1	EA	STOREROOM LOCK	T581BDC BRK		626	FAL
1	EA	SFIC CORE	C607		626	FAL
1	EA	SURFACE CLOSER	SC81A RW/PA - PULL-SIDE		689	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP/HOLDER	WS40		626	IVE
3	EA	SILENCER	SR64		GRY	IVE



Hardware Group No. 09

For use on Door #(s):  
106-A








Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		FBLK/6 31	IVE
1	EA	STOREROOM LOCK	T581BDC BRK		626	FAL
1	EA	SFIC CORE	C607		626	FAL
1	EA	OH STOP & HOLDER	410H		630	GLY
1	EA	SURFACE CLOSER	SC81A RW/PA - PULL-SIDE		689	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 10

For use on Door #(s):  
125-A








Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 NRP		FBLK/6 31	IVE
1	EA	CLASSROOM LOCK	T561BDC BRK		626	FAL
1	EA	SFIC CORE	C607		626	FAL
1	EA	SURFACE CLOSER	SC71A RW/PA - PUSH-SIDE		689	FAL
1	EA	ARMOR PLATE	8400 34" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP/HOLDER	WS40		626	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 11

For use on Door #(s):  
111-A

Each to have:








QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		FBLK/6 31	IVE
1	EA	STOREROOM LOCK	T581BDC BRK		626	FAL
1	EA	SFIC CORE	C607		626	FAL
1	EA	SURFACE CLOSER	SC81A RW/PA - PULL-SIDE		689	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CVX		630	IVE
1	EA	GASKETING	488S		BK	ZER



Hardware Group No. 12

For use on Door #(s):  
109-A

Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		FBLK/6 31	IVE
1	EA	DUMMY PUSH BAR	250		626	FAL
1	EA	DOOR PULL, 1" ROUND	8103EZHD 10" O		630- 316	IVE
1	EA	SURFACE CLOSER	SC71A RW/PA - PUSH-SIDE		689	FAL
1	EA	MOUNTING PLATE	SC70A-18PA		689	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CVX		630	IVE
3	EA	SILENCER	SR64		GRY	IVE













Hardware Group No. 13

For use on Door #(s):

101-B 103-B

Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	CONT. HINGE	112HD		315AN	IVE
2	EA	DUMMY PUSH BAR	250		626	FAL
2	EA	LONG DOOR PULL	9266F 72" O		BLK	IVE
			- ALTERNATE			
2	EA	LONG DOOR PULL	RM4170 48"		BLK	ROC
			- VERIFY WOOD SPECIES WITH			
			ARCHITECT PRIOR TO ORDER			
1	EA	OH STOP	100S		BLK	GLY
1	EA	SURFACE CLOSER	SC71A SS		622	FAL
1	EA	SURF. AUTO OPERATOR	4642		693	LCN
1	EA	ACTUATOR, WALL	8310-853T		630	LCN
		MOUNT				
1	EA	SURFACE MOUNT BOX	8310-867S			LCN
1	EA	MOUNTING PLATE	SC70A-18PA		622	FAL
1	EA	CUSH SHOE SUPPORT	SC70A-30		622	FAL
1	EA	BLADE STOP SPACER	SC70A-61		622	FAL
			WEATHERSTRIP BY			
			DOOR/FRAME			
			MANUFACTURER			

NOTES:

1) VESTIBULE ACTUATOR LISTED WITH EXTERIOR VESTIBULE DOOR.

OPERATIONAL DESCRIPTION: COORDINATE SYSTEM OPERATION AND COMPONENT LOCATIONS WITH THE OWNER, THE ARCHITECT, AND ALL RELATED TRADES.




















BOTH ACTUATOR BUTTONS ARE ENABLED WHEN THE OPERATOR IS TURNED ON. PUSHING EITHER ENABLED ACTUATOR BUTTON WILL CAUSE THE AUTOMATIC OPERATOR TO MOMENTARILY OPEN THE DOOR. FREE EGRESS AT ALL TIMES.



Hardware Group No. 14

For use on Door #(s):  
109-B

Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112HD		315AN	IVE
1	EA	PANIC HARDWARE	25-R-NL-OP		626	FAL
1	EA	SFIC RIM HOUSING (LESS CORE)	C953		622	FAL
1	EA	SFIC CORE	C607		622	FAL
1	EA	SFIC CONST CORE	C607CCA (AS REQ'D)		622	FAL
1	EA	rectifier	2005m3			HES
1	EA	ELECTRIC STRIKE	9500		BLK	HES
1	EA	90 DEG OFFSET PULL	8190EZHD 10" O		BLK	IVE
1	EA	SURFACE CLOSER	SC71A SS		622	FAL
1	EA	MOUNTING PLATE	SC70A-18PA		622	FAL
1	EA	CUSH SHOE SUPPORT	SC70A-30		622	FAL
1	EA	BLADE STOP SPACER	SC70A-61		622	FAL
1	EA	DOOR SWEEP	8192BK		BK	ZER
1	EA	THRESHOLD	655A		A	ZER
1	EA	CONTROLLER	CTE-MTB11-485-B		 B	SCE
1	EA	DOOR CONTACT	PROVIDED BY SECURITY CONTRACTOR - CONNECTED TO BURGLAR ALARM			
1	EA	POWER SUPPLY	PS902 900-4R - COORDINATE POWER SUPPLY REQUIREMENTS W/SECURITY PROVIDER WEATHERSTRIP BY DOOR/FRAME MANUFACTURER	 		VON

NOTES:

1) POWER SUPPLY SHARED WITH DOOR 125-B.

OPERATIONAL DESCRIPTION: COORDINATE SYSTEM OPERATION AND COMPONENT LOCATIONS WITH THE OWNER, THE ARCHITECT, AND ALL RELATED TRADES.

DOOR NORMALLY CLOSED AND LOCKED. PRESENTING A VALID CREDENTIAL TO THE READER WILL MOMENTARILY UNLOCK THE ELECTRIC STRIKE ALLOWING ACCESS.

ELECTRIC STRIKE IS CAPABLE OF BEING ELECTRONICALLY UNLOCKED FOR CERTAIN TIMES OF THE DAY VIA THE DAY, THUS IN PUSH/PULL MODE.


















DOOR TO REMAIN LOCKED WITH LOSS OF POWER. FREE EGRESS AT ALL TIMES.



Hardware Group No. 15

For use on Door #(s):  
125-B

Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112HD		315AN	IVE
1	EA	PANIC HARDWARE	25-R-NL-OP		626	FAL
1	EA	SFIC RIM HOUSING (LESS CORE)	C953		622	FAL
1	EA	SFIC CORE	C607		622	FAL
1	EA	SFIC CONST CORE	C607CCA (AS REQ'D)		622	FAL
1	EA	rectifier	2005m3			HES
1	EA	ELECTRIC STRIKE	9500		BLK	HES
1	EA	90 DEG OFFSET PULL	8190EZHD 10" O		BLK	IVE
1	EA	SURFACE CLOSER	SC71A SS		622	FAL
1	EA	MOUNTING PLATE	SC70A-18PA		622	FAL
1	EA	CUSH SHOE SUPPORT	SC70A-30		622	FAL
1	EA	BLADE STOP SPACER	SC70A-61		622	FAL
1	EA	DOOR SWEEP	8192BK		BK	ZER
1	EA	THRESHOLD	655A		A	ZER
1	EA	CONTROLLER	CTE-MTB11-485-B		 B	SCE
1	EA	DOOR CONTACT	PROVIDED BY SECURITY CONTRACTOR - CONNECTED TO BURGLAR ALARM WEATHERSTRIP BY DOOR/FRAME MANUFACTURER			

NOTES:

1) POWER SUPPLY LISTEDED WITH DOOR 109-B.

OPERATIONAL DESCRIPTION: COORDINATE SYSTEM OPERATION AND COMPONENT LOCATIONS WITH THE OWNER, THE ARCHITECT, AND ALL RELATED TRADES.

DOOR NORMALLY CLOSED AND LOCKED. PRESENTING A VALID CREDENTIAL TO THE READER WILL MOMENTARILY UNLOCK THE ELECTRIC STRIKE ALLOWING ACCESS. DOOR TO REMAIN LOCKED WITH LOSS OF POWER. FREE EGRESS AT ALL TIMES.


















Hardware Group No. 16

For use on Door #(s):

101-A 103-A

Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	CONT. HINGE	112HD		315AN	IVE
2	EA	PANIC HARDWARE	25-C-EO		626	FAL
2	EA	LONG DOOR PULL	9266F 72" O - ALTERNATE		BLK	IVE
2	EA	LONG DOOR PULL	RM4170 48" - VERIFY WOOD SPECIES WITH ARCHITECT PRIOR TO ORDER		BLK	ROC
1	EA	OH STOP	100S		BLK	GLY
1	EA	SURFACE CLOSER	SC71A SS		622	FAL
1	EA	SURF. AUTO OPERATOR	4642	 ⚡	693	LCN
1	EA	WEATHER RING	8310-801			LCN
1	EA	ACTUATOR, WALL MOUNT	8310-853T	 ⚡	630	LCN
1	EA	ACTUATOR, WALL MOUNT	8310-855	 ⚡	630	LCN
2	EA	SURFACE MOUNT BOX	8310-867S			LCN
1	EA	MOUNTING PLATE	SC70A-18PA		622	FAL
1	EA	CUSH SHOE SUPPORT	SC70A-30		622	FAL
1	EA	BLADE STOP SPACER	SC70A-61		622	FAL
2	EA	DOOR SWEEP	8192BK		BK	ZER
1	EA	THRESHOLD	655A		A	ZER
2	EA	DOOR CONTACT	PROVIDED BY SECURITY CONTRACTOR - CONNECTED TO BURGLAR ALARM WEATHERSTRIP BY DOOR/FRAME MANUFACTURER	⚡		

NOTES:

1) VESTIBULE ACTUATOR SHARED WITH INSIDE VESTIBULE DOOR.

OPERATIONAL DESCRIPTION: COORDINATE SYSTEM OPERATION AND COMPONENT LOCATIONS WITH THE OWNER, THE ARCHITECT, AND ALL RELATED TRADES.

BOTH ACTUATOR BUTTONS ARE ENABLED WHEN THE OPERATOR IS TURNED ON. PUSHING EITHER ENABLED ACTUATOR BUTTON WILL CAUSE THE AUTOMATIC OPERATOR TO MOMENTARILY OPEN THE DOOR WHEN THE PANIC DEVICES ARE DOGGED DOWN (LATCHES IN RETRACTED POSITION). FREE EGRESS AT ALL TIMES.












Hardware Group No. 17

For use on Door #(s):

113-C 113-B

Each to have:



QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112HD		315AN	IVE
1	EA	PANIC HARDWARE	LD-25-R-EO		626	FAL
1	EA	SURFACE CLOSER	SC71A SS		622	FAL
1	EA	MOUNTING PLATE	SC70A-18PA		622	FAL
1	EA	CUSH SHOE SUPPORT	SC70A-30		622	FAL
1	EA	BLADE STOP SPACER	SC70A-61		622	FAL
1	EA	DOOR SWEEP	8192BK		BK	ZER
1	EA	THRESHOLD	655A		A	ZER
1	EA	DOOR CONTACT	PROVIDED BY SECURITY CONTRACTOR - CONNECTED TO BURGLAR ALARM WEATHERSTRIP BY DOOR/FRAME MANUFACTURER			

Hardware Group No. 18

For use on Door #(s):

MISC

Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	MULTITECH READER	MT20W USB		 BLK	SCE
50	EA	CREDENTIAL	9651T		BLK	SCE
1	EA	ENGAGE APPLICATION SOFTWARE	ENGAGE APPLICATION			SCE
1	EA	ENGAGE TRAINING	60-070			SCE





Hardware Group No. 19

For use on Door #(s):

113-A

Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	SFIC MORT HOUSING (LESS CORE)	C987 - VERIFY CAM/BLOCKING RING (AS REQ'D)		622	FAL
1	EA	SFIC CORE	C607 BALANCE OF HARDWARE BY DOOR MANUFACTURER		622	FAL

NOTES:

1) VERIFY MORTISE CYLINDER COMPATABILITY WITH DOOR MANUFACTURER PRIOR TO ORDER.

Hardware Group No. 20

For use on Door #(s):

114-A                      115-A                      118-A

Each to have:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
			HARDWARE BY DOOR MANUFACTURER			

**END OF SECTION 087100**



## SECTION 283101 - ADDRESSABLE FIRE ALARM AND DETECTION SYSTEMS

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Fire alarm and detection systems.

#### 1.2 RELATED WORK

- A. Section 260553 - Electrical Identification: Refer to electrical identification for color and identification labeling requirements.

#### 1.3 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in smoke detection and fire alarm systems with ten years' experience.
- B. Installer: A factory-authorized Electrical or Security Contractor licensed with the State and local jurisdiction with five years' experience in the design, installation, and maintenance of fire alarm systems by that manufacturer.
- C. Qualifications: The person managing/overseeing the preparation of shop drawings and the system installation/programming/testing shall be trained and certified by the system manufacturer and shall be Fire Alarm Certified by NICET, minimum Level 2. This person's name and certification number shall appear on the start-up and testing reports.

#### 1.4 REFERENCES

- A. ASME A17.1 - Safety Code for Elevators and Escalators
- B. NFPA 20 - Standard for Centrifugal Fire Pumps
- C. NFPA 70 - National Electrical Code (NEC)
- D. NFPA 72 - National Fire Alarm and Signaling Code
- E. NFPA 101 - Life Safety Code
- F. UL 2017 - General Purpose Signaling Devices and Systems
- G. UL 217 / 268 - Standard for Smoke Alarms / Smoke Detectors for Fire Alarm Systems
- H. UL 2572 - Control and Communication Units for Mass Notification Systems



## 1.5 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 260500 and as noted below.
  - 1. Failure to comply with all the following and all the provisions in 26 05 00 will result in the shop drawing submittal being rejected without review.
  - 2. Failure to submit the fire alarm without all requirements fulfilled in a single comprehensive submittal will be grounds to require a complete resubmittal.
- B. Provide product catalog data sheets as shop drawings.
  - 1. Provide a product catalog data sheet for each item shown on the Electrical Symbols List and for each piece of equipment that is not shown on the drawings, but required for the operation of the system.
  - 2. Where a particular Electrical Symbols List item has one or more variations (such as those denoted by subscripts, etc.) a separate additional product catalog data sheet shall be provided for each variation that requires a different part number to be ordered. The corresponding Electrical Symbols List symbol shall be shown on the top of each sheet.
  - 3. Where multiple items and options are shown on one data sheet, the part number and options of the item to be used shall be clearly denoted.
- C. Submit CAD Floor Plans as Shop Drawings:
  - 1. The complete layout of the entire system, device addresses, auxiliary equipment, and manufacturer's wiring requirements shall be shown.
  - 2. A legend or key shall be provided to show which symbols shown on the submittal floor plans correspond with symbols shown on the Contract Documents.

## 1.6 REGULATORY REQUIREMENTS

- A. System: UL listed.
- B. Conform to requirements of NFPA 101.
- C. Conform to requirements of Americans with Disabilities Act (ADA).
- D. Conform to UL 864 Fire Alarm, UL 1076 Security, UL2017 General Signaling, and UL 2572 Mass Notification Communications.



## 1.7 SYSTEM DESCRIPTION

- A. Performance Statement: This specification section and the accompanying fire alarm specific design documents describe the minimum material quality, required features, and operational requirements of the system. These documents do not convey every wire that must be installed and every equipment connection that must be made. Based on the equipment described and the performance required of the system, as presented in these documents, the Vendor and the Contractor are solely responsible for determining all wiring, programming and miscellaneous equipment required for a complete and operational system.
- B. This section of the specifications includes the furnishing, installation and connection of the microprocessor controlled, intelligent reporting, fire alarm equipment required to form a complete coordinated system that is ready for operation. It shall include, but is not limited to, alarm initiating devices, control panels, auxiliary control devices, annunciators, power supplies, and wiring as indicated on the drawings and specified herein.
- C. Extending the Existing Fire Alarm System: Provide all items, components, devices, hardware, software, programming, expansion components, conduit, wiring etc. needed to extend fire alarm system. This includes, but is not limited to, additional power supplies, initiating devices and circuits, signaling devices and circuits, monitoring devices and circuits, auxiliary control and related devices such as, door holders and their control, smoke damper control, fan shutdown, etc. The existing fire alarm system shall be extended such that the existing fire alarm system's functionality, integrity and annunciation shall be equivalent to pre-construction conditions, unless noted otherwise. The functionality and integrity shall be maintained during construction. The entire system shall be able to be completely reset from any single reset location point. The entire system shall be annunciated at any annunciation location.
- D. Extending the Existing Gamewell FCI 7100 Fire Alarm System: The existing control panel shall remain and shall be operational throughout construction. The system shall only be disabled to make new connections and to modify the programming. A fire watch shall be provided for all areas affected during outages. All system outages must be scheduled with the Owner at least one week prior. Individual devices may be disabled as needed based on construction activities to reduce the potential for false alarms, but all devices must be operational when the Contractor is not physically on site. New initiating devices may be connected to the existing signaling line circuits where capacity is available. Provide additional signaling line circuits as needed based on existing and new device quantity, including replacement of existing panel components. Provide new notification circuits to serve the new devices, including all necessary power supplies, amplifiers, batteries, and 120-volt input circuits. All new devices shall be programmed to provide the same sequence of operation as the existing devices of the same type, unless noted otherwise.
- E. Fire Alarm System: NFPA 72; Automatic and manual fire alarm system, non-coded, analog-addressable with automatic sensitivity control of certain detectors, multiplexed signal transmission.



- F. System Supervision: Provide electrically supervised system, with supervised Signal Line Circuit (SLC) and Notification Appliance Circuit (NAC). Occurrence of single ground or open condition in initiating or signaling circuit places circuit in TROUBLE mode. Component or power supply failure places system in TROUBLE mode.
- G. Drawings: Only device layouts and some equipment have been shown on the contract drawings. Wiring and additional equipment to make a complete and functioning system has not been shown, but shall be submitted on the shop drawings.

## 1.8 OPERATION AND MAINTENANCE DATA

- A. Include operating instructions, and maintenance and repair procedures.
- B. Include the CAD floor plan drawings.
- C. Include shop drawings as reviewed by the Architect/Engineer and the local Authority Having Jurisdiction.

## PART 2 - PRODUCTS

### 2.1 SIGNALING LINE CIRCUIT DEVICES

- A. Combination Devices: Subscripts identify combination type devices when applicable. Contractor shall provide the combination device or provide multiple device(s) to meet the functionality when the manufacturer does not offer the required functionality with a single device.
- B. Signal Line Device(s):
  - 1. Subscripts: Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
    - a. Device type as follows:
      - 1) W = Weather Proof
      - 2) Candela Ratings:
        - a) ## = 15 Candela, 30 Candela; 75 Candela; 110 Candela; 177 Candela
        - b) CD = NICET designer shall select Candela rating as required to provide full coverage of the space.
    - b. Sequence of operation as follows:
      - 1) D = HVAC Control



C. FA-120; Smoke Detectors:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
  - a. Device types as follows:
    - 1) Blank = Photoelectric
2. (BLANK) Analog Photoelectric Type Sensor: Shall use the photoelectric principle to measure smoke density and send data to the control panel representing the analog level of smoke density measured.
3. Each smoke detector shall connect directly to an SLC loop, unless listed as stand alone.
4. Each detector shall be mounted, where shown on the drawings, on a twist-lock base with all mounting hardware provided. Provide a two-piece head/base design.
5. Each detector shall have a manual switching means to set the internal identifying code (address) of that detector, which the control panel shall use to identify its address with the type of sensor connected.
6. Dual alarm and power indicators shall be provided that flash under normal conditions and remain continuous under alarm or trouble conditions. Remote indicator terminals shall be provided. Provide a remote LED indicator device if detector is not visible from a floor standing position.
7. A test means shall be provided to simulate an alarm condition.
8. Where operation is noted as required below 32°F and/or above 120°F, a conventional device shall be installed with a unique monitor module located in the nearest available location with maintained temperatures between 32°F and 120°F.

D. FA-122; Duct Smoke Detectors, Sampling Tube Type:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
  - a. Duct-type smoke detectors shall use the same analog photoelectric sensor technology, with the same features specified for standard smoke detectors, except with additional features as specified below.
  - b. Provide sampling tubes and mounting hardware to match the duct to which it is attached. Where the detector housing is larger than the duct height, Contractor shall fabricate a mounting bracket for the detector and attach according to the fire alarm manufacturer's recommendations.
  - c. Provide a remote alarm LED indicator device (FA-241) or (FA-242) if detector is not visible from a floor-standing position. If detector is located above a suspended ceiling, mount remote indicator in ceiling directly below detector with a white single-gang faceplate labeled: Duct Smoke Detector.



E. FA-130; Manual Pull Stations:

1. Manual pull station, addressable, double action, reset key lock, semi-flush mount, red high abuse plastic or cast metal construction with white lettering. Provided with all necessary mounting hardware.
2. Manual stations shall connect directly to an SLC loop. Stations shall provide address setting means using rotary decimal or DIP switches.
3. Where operation is noted as required below 32°F and/or above 120°F, a conventional device shall be installed with a unique monitor module located in the nearest available location, with maintained temperatures between 32°F and 120°F.

F. FA-160; Monitor Modules:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
2. Monitor Module shall connect directly to an SLC loop and receive power from a separate 24 VDC circuit. It shall interface initiating devices with the control panel using Style D or Style B circuits. Contractor Option: Use an interface module (2-wire operation) for Style B circuits connected to normally-open dry contacts, such as a flow switch.
3. The module shall be mounted in an enclosure located in an accessible service location as near as possible to the device(s) being monitored, or where shown on the drawings. All mounting hardware shall be provided.
4. The module shall supply the required power to operate the monitored device(s).
5. The module shall provide address setting means using rotary decimal or DIP switches.

## 2.2 NOTIFICATION APPLIANCE DEVICES

A. Combination Devices: Subscripts identify combination type devices when applicable. Contractor shall provide the combination device or provide multiple device(s) to meet the functionality when the manufacturer does not offer the required functionality with a single device.

B. Notification Appliance Device(s):

1. Subscripts: Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
  - a. Device types as follows:
    - 1) W = Weather Proof
    - 2) Candela Ratings:
      - a) ## = 15 Candela; 30 Candela; 75 Candela; 110 Candela; 177 Candela



- b) CD = NICET designer shall select Candela rating as required to provide full coverage of the space.
- C. Notification Device(s):
  - 1. Wall Mounted: Red housing with white lettering or pictogram.
- D. FA-200; Visual Alarm Devices:
  - 1. Wall or ceiling mounted, refer to plans.
  - 2. High intensity (Candela rating as scheduled on the drawings) xenon strobe or equivalent under a lens. Candela rating shall be visible from exterior of the device.
  - 3. The maximum pulse duration shall be 0.2 seconds with a maximum duty cycle of 40%. The flash rate shall be 1 Hz. Where more than two strobes are visible from any one location, the fire alarm visual devices shall be synchronized.
  - 4. Device, housing, and backbox shall be UL listed for fire alarm/emergency applications.
  - 5. (W) Weatherproof Visual Notification Device: High intensity strobe, square housing, 75 Candela rating, suitable for wet locations. Provide with weatherproof back box.
    - a. Mounting: Semi-flush wall.
    - b. Conduit shall not be exposed.
- E. FA-210; Audio Horn Alarm Devices:
  - 1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
  - 2. Wall or ceiling mounted, refer to plans.
  - 3. Sound Rating: 85 dB at 10 feet. Sound levels for alarm signals shall not exceed 120 dBA in the occupied area.
  - 4. Device shall be capable of a high and low dB level setting. Unless noted otherwise, the device shall be set to the high setting at building completion.
  - 5. Device, housing, and backbox shall be UL listed for fire alarm/emergency applications.
- F. FA-211; Combination Audio Horn and Visual Alarm Device:
  - 1. Wall or ceiling mounted, refer to plans.
  - 2. Combine audio and visual components into a single device. Refer to the corresponding paragraphs above for requirements of each component.
  - 3. (W) Weatherproof Audio/Visual Notification Device: Electronic horn with high intensity strobe, square housing, 75 Candela, suitable for wet locations. Provide with weatherproof back box.
    - a. Mounting: Semi-flush wall.
    - b. Conduit shall not be exposed.



## 2.3 NOTIFICATION APPLIANCE CIRCUIT PANEL (NAC)

- A. As shown on the plans or as a Contractor's option if not shown, furnish and install NAC extender panels as necessary to provide remote power supply for notification appliance circuits (NAC). Contractor shall indicate quantity and locations of each NAC on the shop drawing submittals.
- B. Each NAC shall be self-contained remote power supply with batteries, and battery charger mounted in a surface lockable cabinet. Battery capacity shall be sufficient for operation for 24 hours in a non-alarm state followed by alarm for 15 minutes, plus 25% spare capacity for future devices. Each NAC provides a minimum of up to 4 outputs, 2A continuous, or 6A full load total capacity.
- C. Power for each NAC shall be from a local 120 VAC circuit. Provide two #12 conductors and one #12 ground in 1/2" conduit to each NAC from a dedicated 20A/1P circuit breaker with a red handle and a manufacturer's standard handle lock-on device. Coordinate panel and circuit number with the Architect/Engineer prior to installation.
- D. Mounting: Surface.

## 2.4 WIRING

- A. Fire alarm wiring/cabling shall be furnished and installed by the Contractor in accordance with the manufacturer's recommendations and pursuant to National Fire Codes. Cabling shall be UL listed and labeled as complying with the Electrical Code for power-limited fire alarm signal service.

## PART 3 - EXECUTION

### 3.1 SEQUENCES OF FIRE ALARM OPERATION

- A. Panel/Annunciator Alarm, Trouble, Supervisory Indication:
  - 1. Appropriate system Alarm, Trouble, or Supervisory LED shall flash at the control panel, transponder, and annunciator locations.
  - 2. The LCD display shall indicate all information associated with the condition, including the name of the item, type of device and its location within the protected premises.
  - 3. Transmit the appropriate signal (supervisory, trouble, alarm) to the central station via the digital communicator.
- B. Audible Alarms Sequence:
  - 1. Audible alarms throughout the building shall sound.



C. Visual Alarms Sequence:

1. Visual alarms throughout the building shall flash.

D. AHU and Mechanical Fan Shutdown Sequence:

1. The fire alarm system shall utilize addressable relays to de-energize all AHU motor controllers and mechanical fans. Coordinate other requirements with HVAC installer.
2. The fire alarm system shall directly shut down the AHU or mechanical fan through the local HVAC control device (i.e., variable frequency drive or motor starter).
3. Where a facility has more than one AHU or mechanical fan, each shall be shutdown individually based on input from initiation devices in the area served by the unit or designated for each air distribution system.
4. All AHUs and mechanical fans shall be shutdown simultaneously throughout the building.

### 3.2 INSTALLATION

A. Install system in accordance with manufacturer's instructions and referenced codes.

B. Devices:

1. General:

- a. All ceiling-mounted devices shall be located where shown on the reflected ceiling and floor plans. If not shown on the reflected ceiling or reflected floor drawings, the devices shall be installed in the relative locations shown on the floor drawings in a neat and uniform pattern.
- b. All devices shall be coordinated with luminaires, diffusers, sprinkler heads, piping and other obstructions to maintain a neat and operable installation. Mounting locations and spacing shall not exceed the requirements of NFPA 72.
- c. Where the devices are to be installed in a grid type ceiling system, the detectors shall be centered in the ceiling tile.
- d. The location of all fire alarm devices shall be coordinated with other devices mounted in the proximity. Where a conflict arises with other items or with architectural elements that will not allow the device to be mounted at the location or height shown, the Contractor shall notify the Architect/Engineer to coordinate a different acceptable location.



2. Per the requirements of NFPA, detector heads shall not be installed until after the final construction cleaning unless required by the local Authority Having Jurisdiction (AHJ). If detector heads must be installed prior to final cleaning (for partial occupancy, to monitor finished areas or as otherwise required by the AHJ), they shall not be installed until after the fire alarm panel is installed, with wires terminated, ready for operation. Any detector head installed prior to the final construction cleaning shall be removed and cleaned prior to closeout.
3. Protection of Fire Alarm System:
  - a. A smoke detector shall be installed within the vicinity of the main fire alarm panel and every NAC extender panel per NFPA 72. A heat detector may be substituted when a smoke detector is not appropriate for the environment of installation.
4. Duct-type Analog Smoke Detectors:
  - a. Duct-type analog smoke detectors shall be installed on the duct where shown on the drawings and details. The sampling tubes shall be installed in the respective duct at the approximate location where shown on the electrical drawings to meet the operation requirements of the system.
  - b. All detectors shall be accessible.
  - c. Duct-type detectors shall be installed according to the manufacturer's instructions.
5. Manual Pull Stations:
  - a. Stations shall be located where shown and at the height noted on the drawings.
6. Addressable Relays and Monitor Modules:
  - a. Modules shall be located as near to the respective monitor or control devices as possible, unless otherwise indicated on the drawings.
  - b. All modules shall be mounted in or on a junction box in an accessible location.
  - c. Where not visible from a floor standing position, a remote indicator shall be installed to allow inspection of the device status from a local floor standing location.
7. Notification Appliance Devices:
  - a. Devices shall be located where shown on the drawings.
  - b. Wall-mounted audio, visual and audio/visual alarm devices shall be mounted as denoted on the drawings.
  - c. Where ceiling mounted visual alarm devices or combination audio/visual alarm devices are shown where the ceiling is greater than 30'-0" high, they shall be stem mounted so that the entire unit is below 30'-0". This does not apply to audio-only alarm devices.



C. Wiring:

1. Fire alarm wiring/cabling shall be provided by the Contractor in accordance with the manufacturer's recommendations and pursuant to National Fire Codes.
2. Wiring shall be installed in conduit from device to above accessible ceilings. Exposed plenum-rated cable (FPLP) shall be used above accessible ceilings supported every 4 feet or run in cable trays (if applicable) maintaining a minimum of 5-inches clearance from all lighting ballasts. Fire alarm cabling shall not be installed in the same bridge rings or cable trays designated for the cabling of other systems.
3. Notification Appliance Circuits shall provide the features listed below. These requirements may require separate circuits for visual and audible devices.
  - a. Fire alarm temporal audible notification for all audio appliances.
  - b. Synchronization of all visual devices where two or more devices are visible from the same location.
  - c. Ability to silence audible alarm while maintaining visual device operation.
  - d. Emergency communication alert and textual visible appliance notification.
4. Notification Appliance Circuits shall not span floors.
5. Signal line circuits connecting devices shall not span floors or 2-hour smoke compartments.
6. No wiring other than that directly associated with fire alarm detection, alarm or auxiliary fire protection functions shall be in fire alarm conduits. Wiring splices shall be avoided to the extent possible, and if needed, they shall be made only in junction boxes, and enclosed by plastic wire nut type connectors. Transposing or changing color coding of wires shall not be permitted. All conductors in conduit containing more than one wire shall be labeled on each end, in all junction boxes, and at each device with "E-Z Markers" or equivalent. Conductors in cabinets shall be carefully formed and harnessed so that each drops off directly opposite to its terminal. Cabinet terminals shall be numbered and coded, and no unterminated conductors are permitted in cabinets or control panels. All controls, function switches, etc. shall be clearly labeled on all equipment panels.

D. Devices surface mounted in finished areas shall be mounted on surface backboxes furnished by fire alarm equipment supplier. Backboxes shall be painted to match device, shall be the same shape and size as the device shall not have visible knockouts.

E. Make conduit and wiring connections to door release devices, sprinkler flow and pressure switches, sprinkler valve monitor switches, fire suppression system control panels, duct analog smoke detectors and all other system devices shown or noted on the Contract Documents or required in the manufacturer's product data and shop drawings.

3.3 MANUFACTURER'S FIELD SERVICES

A. Include services of certified technician to supervise installation, adjustments, final connections, and system testing.



- B. Note that room numbers depicted on the architectural/engineering drawings will not necessarily reflect the actual room (signage) numbers that the Owner selects. Contractor and fire alarm manufacturer shall coordinate the actual room numbers as the Owner directs to identify each device. This list shall be a part of the floor plan record drawing to be turned in at the project closeout.

END OF SECTION



# **REPORT OF GEOTECHNICAL ENGINEERING INVESTIGATION**

**CASS DISTRICT LIBRARY  
EDWARDSBURG, MICHIGAN**

**PREPARED FOR:**

**CASS DISTRICT LIBRARY  
319 M-62  
CASSOPOLIS, MICHIGAN 49031**

**Patriot Engineering and Environmental, Inc.  
1000-C Airport North Office Park  
Fort Wayne, Indiana 46825**

**January 5, 2024**





January 5, 2024

Ms. Barbara Gordon  
Cass District Library  
319 M-62  
Cassopolis, Michigan 49031

Re: Report of Geotechnical Engineering Exploration  
**Cass District Library**  
**West Main Street**  
**Edwardsburg, Michigan**  
Patriot Project No.: 23-1673-04G


Dear Barbara:

Attached is the report of our geotechnical engineering exploration for the above referenced project. This exploration was completed in general accordance with our Proposal No. P23-1807-04G dated Proposal Date.


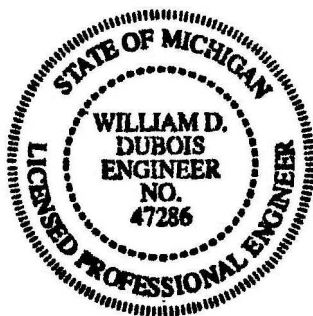
This report includes graphic logs of nine (9) soil borings drilled at the proposed project site. Also included in the report are the results of laboratory tests performed on samples obtained from the site, and geotechnical recommendations pertinent to the site development, foundation design, and construction.

We appreciate the opportunity to perform this geotechnical engineering exploration and are looking forward to working with you during the construction phase of the project. If you have any questions regarding this report or if we may be of any additional assistance regarding any geotechnical aspect of the project, please do not hesitate to contact our office.

Respectfully submitted,  
**Patriot Engineering and Environmental, Inc.**



**Ian Grafe, E.I.**  
Geotechnical Engineer



**William D. Dubois, P.E.**  
Senior Principal Engineer



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# **REPORT OF GEOTECHNICAL ENGINEERING EXPLORATION**

**Cass District Library  
West Main Street  
Edwardsburg, Michigan  
Patriot Project No.: 23-1673-04G**

## **1.0 INTRODUCTION**

### **1.1 General**

Cass District Library is planning the construction of a library branch to be located north of West Main Street in Edwardsburg, Michigan. The results of our geotechnical engineering exploration for the project are presented in this report.

### **1.2 Purpose and Scope**

The purpose of this exploration is to determine the general near surface and subsurface conditions within the project area and to develop the geotechnical engineering recommendations necessary for the design and construction of the proposed structure. This was achieved by drilling soil borings, and by conducting laboratory tests on samples taken from the borings. This report contains the results of our findings, geotechnical engineering interpretation of these results with respect to the available project information, and recommendations to aid in the design and construction of the proposed structure.

## **2.0 PROJECT INFORMATION**

The proposed project is located north of West Main Street in Edwardsburg, Michigan. The project consists of a high single-story structure of slab-on-grade construction, approximately 130 feet by 50 to 100 feet in plan dimension, with adjacent parking and roadway areas. Additionally, we understand that a storm-water management areas will be associated with the project.

Based on information provided by Abonmarche, we understand that the proposed structure will have wall loads not exceeding 1,000 pounds per lineal foot (plf), isolated column loads not exceeding 38 kips, and that floor loads will not exceed 150 pounds per square foot (psf). Additionally, based on visual observations of the existing site, it is assumed that any grade raise fill to complete the construction of building pads, finished pavement subgrades, etc., will not exceed 2 feet above the existing ground surface.



### 3.0 SITE AND SUBSURFACE CONDITIONS

#### 3.1 Site Conditions

The project site is presently a wooded lot. The surrounding area is generally an area of residential and commercial development. The topography in the area proposed for construction is generally slightly rolling.

#### 3.2 General Subsurface Conditions

Our interpretation of the subsurface conditions is based upon nine (9) soil borings drilled at the approximate locations shown on the Boring Location Map (Figure No. 2) in Appendix "A". All depths discussed below refer to depths below the existing ground surface. Based on the results of the soil borings completed at the site, the following subsurface profile is presented. A description of each general soil unit has been identified and is described below:

Topsoil – Topsoil, a surficial layer of material that is a blend of silts, sands, and clays, with varying amounts of organic matter, was encountered at the ground surface at the boring locations. The topsoil layer was about 11 to 12 inches thick in the borings.

Sand (SP-SM) – The topsoil layer is generally underlain by very loose to medium dense sand. The sand layers typically extends to the termination of the borings at 15 to 25 feet below the existing ground surface. Standard Penetration Test N-values in this sand varied from 2 to 19 blows per foot (bpf).

Sandy Clay (CL) – The topsoil layer in Boring S-1 is underlain by medium dense sandy silt encountered from 1 to 7 feet below existing ground surface. Standard Penetration Test N-values (blow counts) in this material ranges from 8 to 15 (bpf).

***As previously mentioned, unsuitable very loose sands were encountered in six (6) of the nine (9) borings, at depths up to 6 feet below the existing ground surface.*** The following table presents the extent of the unsuitable soils encountered in the borings:



**Table No. 1: Summary of Unsuitable Soils Encountered in Borings**

<b>Boring Number</b>	<b>Soil Classification</b>	<b>Approximate Depth of Unsuitable Soils (feet)<sup>(1)</sup></b>
B-1	Very Loose Sand (SP-SM)	0 to 3.5
B-2	Very Loose Sand (SP-SM)	3.5 to 6
B-4	Very Loose Sand (SP-SM)	0 to 6
S-3	Very Loose Sand (SP-SM)	0 to 3.5
S-4	Very Loose Sand (SP-SM)	0 to 3.5
S-5	Very Loose Sand (SP-SM)	0 to 3.5

<sup>(1)</sup> Represents depth below existing ground surface.

The soil conditions described above are general, and some variations in the descriptions should be expected; for more specific information, please refer to the boring logs presented in Appendix “A”. It should be noted that the dashed stratification lines shown on the soil boring logs indicate approximate transitions between soil types. In-situ stratification changes could occur gradually or at different depths.

### **3.3 Field Infiltration Testing**

Per the Client’s request, we performed five (5) percolation tests at the site to get a general idea of the infiltration rates for the storm-water drainage system. The tests were conducted in Borings S-1 through S-5 at a depth of 6 feet below the existing pavement surface. Water percolated too quickly through the holes during testing, so grain size analysis was conducted to estimate the permeability. While permeability and infiltration are not equivalent values, they are relative to each other. Using this correlation, we recommend that an infiltration rate of 1 to 2 inches per hour be used for calculating stormwater management capacity.

### **3.4 Groundwater Conditions**

The term groundwater pertains to any water that percolates through the soil found on site. This includes any overland flow that permeates through a given depth of soil, perched water, and water that occurs below the “water table”, a zone that remains saturated and water-bearing year-round.

Groundwater was observed during drilling in seven (7) of the nine (9) soil borings performed at the site at depths between 13.5 and 18.5 feet below the existing ground surface. Groundwater was not observed in the remaining borings during drilling. The borings were



dry at the cave-in depths shown on the boring logs immediately after the borings were completed and the augers were removed from the boreholes..

It should be recognized that fluctuations in the groundwater level should be expected over time due to variations in rainfall and other environmental or physical factors. ***The true static groundwater level can only be determined through observations made in cased holes over a long period of time, the installation of which was beyond the scope of this exploration.***

## 4.0 DESIGN RECOMMENDATIONS

### 4.1 Basis

Our recommendations are based on data presented in this report, which include soil borings, laboratory testing, and our experience with similar projects. Subsurface variations that may not be indicated by a dispersive exploratory boring program can exist on any site. If such variations or unexpected conditions are encountered during construction, or if the project information is incorrect or changed, we should be informed immediately since the validity of our recommendations may be affected.

### 4.2 Foundations

As previously mentioned, very loose sand was encountered in the six (6) of the nine (9) borings to a depth of about 3.5 to 6 feet below existing grade. ***If very loose sands or other unsuitable materials are encountered at the footing level or below, they must be undercut and replaced with well-compacted and tested structural fill prior to construction of foundations or the footings can be extended to suitable natural soils.***

Following the excavation of the footing areas, the foundations subgrade should be visually observed and probed by a *Patriot* representative at the direction of a geotechnical engineer at multiple locations at isolated footings and at every 10 feet (maximum) along wall footings to a depth of 3 to 5 feet. Any unsuitable soils encountered at the footing subgrade or below should be removed and replaced with well-compacted and tested structural fill.

Provided the above recommendations are followed, the proposed structures can be supported on spread footings bearing on the native undisturbed loose to medium dense sands encountered at shallow depths or on new well-compacted and tested structural fill overlying the same. These footings should be proportioned using a net allowable soil bearing pressure not exceeding 1,500 pounds per square foot (psf). For proper performance



at the recommended design bearing pressure, foundations must be constructed in compliance with the recommendations for footing excavation inspection that are discussed in Section 5.0 *“Construction Considerations”*.

Alternatively, the foundations may be designed to bear in the loose to medium dense sands (with an average N value of 9 to 10 bpf) encountered at a depth of 6 feet using a net maximum allowable soil bearing pressure not exceeding 2,000 psf. However, it may be necessary to undercut the excavation at isolated locations to accommodate the design bearing capacity. Careful field control during construction by *Patriot* will be necessary to confirm that the exposed material is capable of supporting the design bearing pressure and minimize the post construction settlement potential.

We estimate that the total foundation settlement should not exceed approximately 1 inch and that differential settlement should not exceed about  $\frac{3}{4}$  inch. Careful field control during construction is necessary to minimize the actual settlement that will occur.

In using the above net allowable soil bearing pressures, the weight of the foundation and backfill over the foundation need not be considered. Hence, only loads applied at or above the minimum finished grade adjacent to the footing need to be used for dimensioning the foundations. Each new foundation should be positioned so it does not induce significant pressure on adjacent foundations; otherwise the stress overlap must be considered in the design.

All exterior foundations and foundations in unheated areas should be located at a depth of at least 42 inches below final exterior grade for frost protection. However, interior foundations in heated areas can bear at depths of approximately 24 inches below the finished floor. We recommend that wall (strip) footings be at least 18 inches wide and column footings be at least 24 inches wide for bearing capacity considerations.

***Positive drainage of surface water, including downspout discharge, should be maintained away from structure foundations to avoid wetting and weakening of the foundation soils both during construction and after construction is complete.***



### 4.3 Floor Slabs

The near surface or shallow subgrade soils encountered within the proposed building footprint generally consist of very loose to loose sands, which are not suitable for floor slab support. ***Very loose sands and other unsuitable materials need to be removed and replaced with well-compacted structural fill.***

We recommend that all floor slabs be designed as "floating", that is, fully ground supported and not structurally connected to walls or foundations. This is to minimize the possibility of cracking and displacement of the floor slabs because of differential movements between the slab and the foundation. Although the movements are estimated to be within the tolerable limits for the structural safety, such movements could be detrimental to the slabs if they were rigidly connected to the foundations. Additionally, we recommend that all slabs should be liberally jointed and designed with the appropriate reinforcement for the anticipated loading conditions.

The building floor slabs should be supported on a minimum 6 inch thick well-compacted granular base course (i.e. Michigan Department of Transportation (MDOT) No. 5 G crushed stone) bearing on a suitably prepared subgrade (Refer to Section 5.0 "*Construction Considerations*"). The granular base course is expected to help distribute loads and equalize moisture conditions beneath the slab.

Provided that the recommendations above for floor slab design and construction are followed, a modulus of subgrade reaction, "K<sub>30</sub>" value of 85 pounds per cubic inch (pci), is recommended for the design of ground supported floor slabs. It should be noted that the "K<sub>30</sub>" modulus is based on a 30 inch diameter plate load empirical relationship.

### 4.4 Seismic Considerations

For structural design purposes, we recommend using a ***Site Classification of "D"*** as defined by the 2015 Michigan Building Code (modified 2015 International Building Code (IBC)). Furthermore, along with using a Site Classification of "D", we recommend the use of the maximum considered spectral response acceleration and design spectral response acceleration coefficients provided in Table No. 2 below. Refer to Appendix "B" for "*Seismic Site Class Evaluation*" report summary.



**Table No. 2: Seismic Design Spectral Response Acceleration Coefficients**

<b>Period (seconds)</b>	<b>Maximum Considered Spectral Response Acceleration Coefficient</b>	<b>Soil Factor</b>	<b>Design Spectral Response Acceleration Coefficient</b>
0.2	$S_s = 0.064 \text{ g}$	1.60	$S_{DS} = 0.078 \text{ g}$
1.0	$S_1 = 0.055 \text{ g}$	2.40	$S_{D1} = 0.051 \text{ g}$

These values were obtained from the “*Earthquake Ground Motion Parameters*” program for seismic design, developed by the United States Geological Survey (USGS) Earthquake Hazard Program, utilizing latitude 41.7979° (degree) north and longitude 86.0881° (degree) west as the designation for identifying the location of the parcel. Other earthquake resistant design parameters should be applied consistent with the minimum requirements of the 2015 Michigan Building Code.

#### **4.5 Pavements**

The near surface or shallow subgrade soils encountered within the proposed pavement areas generally consist of very loose to loose sands, which are not suitable for pavement support. ***Very loose sands and other unsuitable materials need to be removed and replaced with well-compacted structural fill.***

***If construction is performed during a wet or cold period, the contractor will need to exercise care during the grading and fill placement activities in order to achieve the necessary subgrade soil support for the pavement section (Refer to Section 5.0 “Construction Considerations”).*** The base soil for the pavement section will need to be firm and dry. The subgrade should be sloped properly in order to provide good base drainage. To minimize the effects of groundwater or surface water conditions, the base section for the pavement system should be sufficiently high above adjacent ditches and properly graded to provide pavement surface and pavement base drainage.

Our recommended minimum pavement design sections provided below are based on a soil support evaluation performed in accordance with generally accepted procedures set forth by the American Association of State Highway and Transportation Officials (AASHTO) “*Guide for Design of Pavement Structures, 1993*”. **No traffic counts were provided by the**



**client. Therefore, we estimated the traffic loading for the pavement design values based on our prior experience:**

- Design Life or 15 years
- 18-kips Equivalent Single Axle Loading (ESAL) estimated design value:
  - Rigid Pavement (500 passenger vehicle, 6 box truck, and 2 trash truck passes per day) = 142,572
  - Flexible Pavement (500 passenger vehicle, 6 box truck, and 2 trash truck passes per day) = 132,032
- Initial Serviceability:
  - Flexible Pavement = 4.2
  - Rigid Pavement = 4.5
- Terminal Serviceability of 2.0 (for both flexible and rigid pavement)
- Reliability of 80 percent (%) (for both flexible and rigid pavement)
- Standard Deviation
  - Flexible Pavement = 0.45
  - Rigid Pavement = 0.35
- Estimated California Bearing Ratio (CBR) of 3
- The crushed stone base course will not contain more than 10 percent (%) fines and will be compacted to at least 100 percent (%) of the maximum Standard Proctor dry density.
- Asphalt will be placed and compacted in accordance with the MDOT Standard Specification Requirements.
- Good to Excellent Drainage Condition – Assumes water in subgrade is removed within 1 day. Please note, the shallow subgrade soils encountered at the site generally consist of clays with Relatively low permeability's; which means the soils have relatively poor drainage characteristics. Therefore, we recommend installing longitudinal subsurface drains throughout the length of the proposed pavement areas. Additionally, we recommend the installation of series of finger drains within the proposed pavement areas; which if appropriate and feasible could be connected to storm-sewer inlets. In addition to providing good drainage, the installation of underdrains underlying pavement sections founded over low permeability soils will generally aid in improving long-term performance of the pavement sections, as well as helping lower maintenance costs.

Based on the above design parameters, provided below are the calculated minimum pavement design thicknesses for rigid (concrete) pavement loading and flexible (asphalt)



pavement for the provided loading. Refer to Appendix “B” “*Pavement Design Evaluation & Design Sections*” for detailed design calculations.

**Table 3: Standard Duty Rigid Pavement Design (Minimum Thicknesses)**

Traffic Loading Conditions <sup>(1)</sup>	Concrete (Inches) <sup>(2)</sup>	Aggregate Base Course (Inches) <sup>(3)</sup>	Modulus of Subgrade Reactions (psi)	Design Life (Years) <sup>(1)</sup>
142,572 ESAL's	5	6	100	15

<sup>(1)</sup> Estimated ESAL based on estimated number of truck passes per day

<sup>(2)</sup> Minimum of 4,000 pounds per square inch (psi) concrete strength with suitable reinforcement

<sup>(3)</sup> Michigan Department of Transportation (MDOT) approved crushed stone base.

**Table 4: Standard Duty Flexible Pavement Design (Minimum Thicknesses)**

Traffic Loading Conditions <sup>(1)</sup>	Asphalt Surface Course HMA 9.5 mm (Inches) <sup>(2)</sup>	Asphalt Base Course HMA 19 mm (Inches) <sup>(2)</sup>	Aggregate Sub-Base (Inches) <sup>(3)</sup>	Design Life (Years) <sup>(1)</sup>
132,032 ESAL's	2	3.5	6	15

<sup>(1)</sup> Estimated ESAL based on estimated number of truck passes per day

<sup>(2)</sup> Michigan Department of Transportation (MDOT) Specified Hot Mix Asphalt (HMA)

<sup>(3)</sup> Michigan Department of Transportation (MDOT) approved crushed stone base.

<sup>(3)</sup> Michigan Department of Transportation (MDOT) approved lifts between 3 and 5 inches (see Appendix B).

#### 4.6 Storm-Water Management System

The soils encountered in the area of the proposed storm-water management system (Borings S-1 through S-5) consist of sands which extend to depths of 15 feet below the existing ground surface. The sands are not favorable for a retention basin, due to the estimated high permeability characteristics of the sands. Therefore, if a retention capacity is required for the pond, the pond will require the installation of a clay liner, and/or a synthetic liner. However, if percolation of water into the underlying soil is allowed and maintaining a long-term pond level is not a concern, a liner will not be required.

The soils encountered in our borings should be readily excavated using conventional earthwork equipment. ***Additionally, depending on the invert elevation of the proposed detention basin, sand layers are expected to be free-flowing and will tend to readily cave and/or slough into excavations; therefore, over-excavation, benching and/or shoring should be expected in order to maintain the side slopes of the excavations.***



Depending on seasonal conditions and the invert elevation of the proposed detention basin, localized and sporadic groundwater infiltration should be expected to be encountered in the detention basin excavation (Refer to Section 5.5 “*Groundwater Considerations*”). Furthermore, it should also be noted that there may be the potential for encountering heaving of sand layers near the groundwater elevations during construction.

## 5.0 CONSTRUCTION CONSIDERATIONS

### 5.1 Site Preparation

All areas that will support foundations, floors, pavements, or newly placed structural fill must be properly prepared. All loose surficial soil or “topsoil” and other unsuitable materials must be removed. Unsuitable materials include frozen soil, relatively soft material, relatively wet soils, deleterious material, or soils that exhibit a high organic content. ***Additionally, all existing trees, under-brush and associated root-mass must also be completely removed within the proposed building and pavement areas prior to construction.***

Approximately eleven (11) to twelve (12) inches of loose surficial topsoil was encountered in the borings. The topsoil was measured at discrete locations as shown on the Boring Location Map (Figure No. 2) in Appendix “A”. The topsoil thickness measured at the boring locations may or may not be representative of the overall average topsoil thickness at the site. Therefore, it is possible that the actual stripping depth could significantly vary from this data. The data presented should be viewed only as a guide to the minimum stripping depth that will be required to remove organic material at the surface. Additional field exploration by *Patriot* would be required to provide an accurate estimate of the stripping depth. This limited data indicates that a minimum stripping depth will be required to remove the organic material at the surface, followed by the potential for additional stripping and/or scarification and recompaction as may be required to achieve suitable subgrade support. ***Additionally, if saturated conditions exist with the surface soils, light tracked equipment could be required to avoid pushing organics deeper into the suitable subgrade soils.*** A *Patriot* representative should verify the stripping depth at the time grading operations occur.

***Prior to construction of floor slabs, pavements or the placement of new structural fill, the exposed subgrade must be evaluated by a Patriot representative, which will include proofrolling of the subgrade.*** Proofrolling should consist of repeated passes of a loaded, pneumatic-tired vehicle such as a tandem-axle dump-truck or scraper. The



proofrolling operations should be observed by a *Patriot* representative, and the proofrolling vehicle should be loaded as directed by *Patriot*. Any area found to rut, pump, or deflect excessively should be compacted in-place or, if necessary, undercut and replaced with structural fill, compacted as specified in Section 5.3 “*Structural Fill and Fill Placement Control*”.

Care must be exercised during grading and fill placement operations. ***The combination of heavy construction equipment traffic and excess surface moisture can cause pumping and deterioration of the near surface soils. The severity of this potential problem depends to a great extent on the weather conditions prevailing during construction.*** The contractor must exercise discretion when selecting equipment sizes and also make a concerted effort to control construction traffic and surface water while the subgrade soils are exposed. We recommend that heavy construction equipment (i.e. dump trucks, scrapers, etc.) be rerouted away from the building and pavement areas. If such problems do arise, the operations in the affected area should be halted and the *Patriot* representative contacted to evaluate the condition.

## **5.2 Foundation Excavations**

***Excavation will be performed on sandy soils that can be easily disturbed. If the subgrade soil is disturbed, it should be re-compacted or a crushed stone layer should be placed at the subgrade level.***

Upon completion of the foundation excavations and prior to the placement of reinforcing steel, a *Patriot* representative should check the exposed subgrade to confirm that a bearing surface of adequate strength has been reached. Any localized soft soil zones encountered at the bearing elevations should be further excavated until adequate support soils are encountered. The cavity should be backfilled with structural fill as defined below, or the footing can be poured at the excavated depth. Structural fill used as backfill beneath footings should be limited to lean concrete, well-graded sand and gravel, or crushed stone placed and compacted in accordance with Section 5.3 “*Structural Fill and Fill Placement Control*”.

If it is necessary to support spread footings on structural fill, the fill pad must extend laterally a minimum distance beyond the edge of the footing. The minimum structural pad width would correspond with a point at which an imaginary line extending downward from the outside edge of the footing at a 1H:2V (horizontal: vertical) slope intersects the surface of the natural soils. For example, if the depth to the bottom of excavation is 4 feet below the



bottom of the foundation, the excavation would need to extend laterally beyond the edge of the footing at least 2 feet, as shown in Illustration "A" found at the conclusion of this report.

Excavation slopes should be maintained within all requirements set-forth by the Occupational Safety and Health Standards (OSHA), but specifically Section 1926 Subpart "P" – "*Excavations*". We recommend that any surcharge fill or heavy equipment be kept at least 5 feet away from the edge of the excavation.

Construction traffic on the exposed surface of the bearing soil will potentially cause some disturbance of the subgrade and consequently loss of bearing capacity. However, the degree of disturbance can be minimized by proper protection of the exposed surface.

### **5.3 Structural Fill and Fill Placement Control**

Structural fill, defined as any fill which will support structural loads, should be clean and free of organic material, debris, deleterious materials, and frozen soils. Samples of the proposed fill materials should be tested prior to initiating the earthwork and backfilling operations to determine the classification, the natural and optimum moisture contents and maximum dry density and overall suitability as a structural fill. ***Structural fill should have a liquid limit less than 40 and a plasticity index less than 20.***

All structural fill beneath floor slabs, adjacent to foundations and over foundations, should be compacted to at least 95 percent (%) of its maximum Standard Proctor dry density (ASTM D-698). This minimum compaction requirement should be increased to 100 percent (%) of the maximum Standard Proctor dry density for fill supporting footings, provided these are designed as outlined Section 4.0 "*Design Recommendations*".

Structural fill supporting, around and over utilities should be compacted to at least 95 percent (%) of its maximum Standard Proctor dry density (ASTM D-698) for utilities underlying structural areas (i.e. buildings, pavements, sidewalks, etc.). However, the minimum compaction requirement can be reduced for backfill around and over the utilities to 90 percent (%) of the maximum Standard Proctor dry density where utilities underlie greenbelt areas (i.e. grassy lawns, landscaping, etc.). It is recommended that a clean well-graded granular material be utilized as the bedding material, as well as the backfill material around and over the utility lines.

In cut areas, where pavement sections are planned, the upper 10 inches of subgrade should be scarified and compacted to a dry density of at least 100 percent (%) of the



Standard Proctor maximum dry density (ASTM D-698). Any grade-raise fill placed within 1 foot of the base of the pavement section should also be compacted to at least 100 percent (%) of the Standard Proctor maximum dry density. This can be reduced to 95 percent (%) for structural fill placed more than 1 foot below the base of the pavement section.

To achieve the recommended compaction of the structural fill, we suggest that the fill be placed and compacted in layers not exceeding 8 inches in loose thickness (the loose lift thickness should be reduced to 6 inches when utilizing small hand compactors) and within the range of 2 percentage (%) points below or above the optimum moisture content value. All fill placement should be monitored by a *Patriot* representative. ***Each lift should be tested for proper compaction at a frequency of at least one (1) test every 2,500 square feet (ft<sup>2</sup>) per lift for the building areas, at least one (1) test every 10,000 square feet (ft<sup>2</sup>) per lift for the parking and roadway areas, and at a frequency of at least one (1) test for every 50 lineal feet of utility installation.***

#### **5.4 Groundwater Considerations**

Groundwater was observed during our field activities at depths between about 13.5 and 18.5 feet below the existing ground surface; which is expected to be below the anticipated foundation excavation depths, though the groundwater observations could potentially be within the anticipated storm-water management basin excavations and potentially within trench excavation depths for subsurface utilities. Therefore, groundwater infiltration should be expected into the storm-water management basins and subsurface utility excavations, and depending on seasonal conditions, localized and sporadic groundwater infiltration may occur into the building foundation excavations on this site.

Groundwater inflow into shallow excavations **above** the groundwater table is expected to be adequately controlled by conventional methods such as gravity drainage and/or pumping from sumps. More significant inflow can be expected in deeper excavations **below** the groundwater table requiring more aggressive dewatering techniques, such as well or wellpoint systems. For groundwater to have minimal effects on the construction, foundation excavations should be constructed and poured in the same day, if possible.



## 6.0 EXPLORATIONAL PROCEDURES

### 6.1 Field Work

A total of nine (9) soil borings were drilled, sampled, and tested at the project site between December 4 and 5, 2023, at the approximate locations shown on the Boring Location Map (Figure No. 2) in Appendix "A". The depths that the soil borings were advanced to are shown on the Boring Logs in Appendix "A". All depths are given as feet below the existing ground surface.

The borings were advanced using 3¼ inch inside diameter hollow-stem augers. Samples were recovered in the undisturbed material below the bottom of the augers using the standard drive sample technique in accordance with ASTM D 1586-74. A 2 inch outside diameter by 1⅜ inch inside diameter split-spoon sampler was driven a total of 18 inches with the number of blows of a 140-pound hammer falling 30 inches recorded for each 6 inches of penetration. The sum of blows for the final 12 inches of penetration is the Standard Penetration Test result commonly referred to as the N-value (or blow-count). Split-spoon samples were recovered at 2.5 feet intervals, beginning at a depth of 1 foot below the existing surface grade, extending to a depth of 10 feet, and at 5 feet intervals thereafter to the termination of the boring.

Water levels were monitored at each borehole location during drilling and upon completion of the boring. The boreholes were backfilled with auger cuttings prior to demobilization for safety considerations.

Upon completion of the boring program, the samples retrieved during drilling were returned to *Patriot's* soil testing laboratory where they were visually examined and classified. A laboratory-generated log of each boring was prepared based upon the driller's field log, laboratory test results, and our visual examination. Test boring logs and a description of the classification system are included in Appendix "A" in this report. Indicated on each log are the primary strata encountered, the depth of each stratum change, the depth of each sample, the Standard Penetration Test results, groundwater conditions, and selected laboratory test data. The laboratory logs were prepared for each boring giving the appropriate sample data and the textural description and classification.



## **6.2 Laboratory Testing**

Representative samples recovered in the borings were selected for testing in the laboratory to evaluate their physical properties and engineering characteristics. Laboratory analysis included:

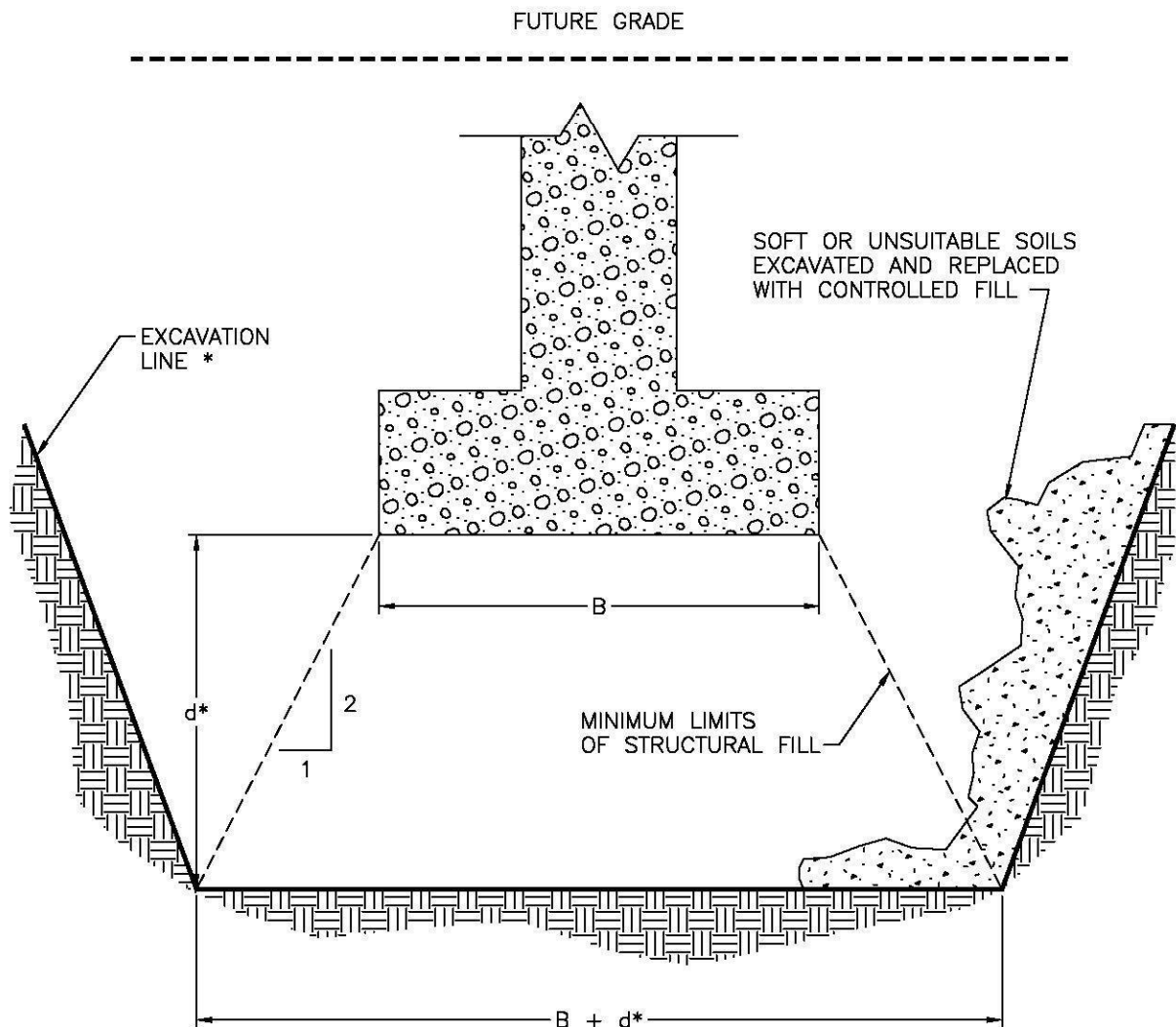
- Natural Moisture Content Analysis (ASTM D 2216)
- Particle Size Distribution Analysis (ASTM D 422)

Additionally, an estimate of the cohesive soil strength was determined utilizing a hand penetrometer ( $q_p$ ). The results of laboratory tests are summarized in Section 3.2 *“General Subsurface Conditions”*, as well as in Appendix “C”. Soil descriptions on the boring logs are in accordance with the Unified Soil Classification System (USCS).

## **7.0 ILLUSTRATIONS**

See Illustrations “A” and “B” on the following pages. These illustrations are presented to further visually clarify several of the construction considerations presented in Section 5.2 *“Foundation Excavations”*.





\*d IS DEPTH TO SUITABLE SOILS

\* IN COMPLIANCE WITH OSHA STANDARDS

## Excavation for Footings In an Area of Fill ILLUSTRATION A

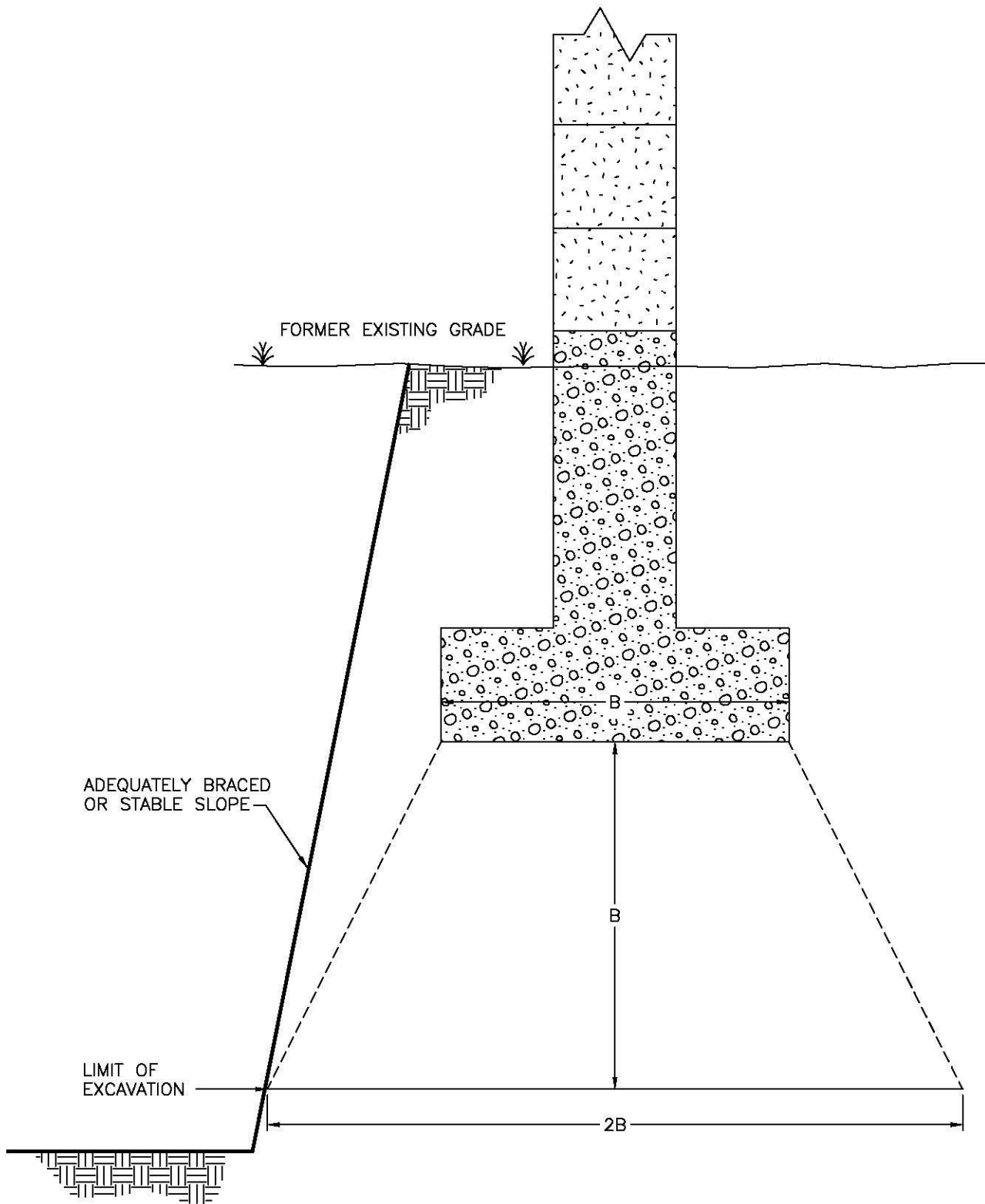
job. no.:

figure:



**PATRIOT ENGINEERING  
and Environmental, Inc.**  
Engineering Value for Project Success  
Consulting Environmental, Geotechnical  
and Materials Engineers





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Consulting Environmental, Geotechnical  
and Materials Engineers

## Excavation Near Existing In Use Foundations ILLUSTRATION B

job. no.:

figure:



**APPENDIX A**

**SITE VICINITY MAP (FIGURE NO. 1)**

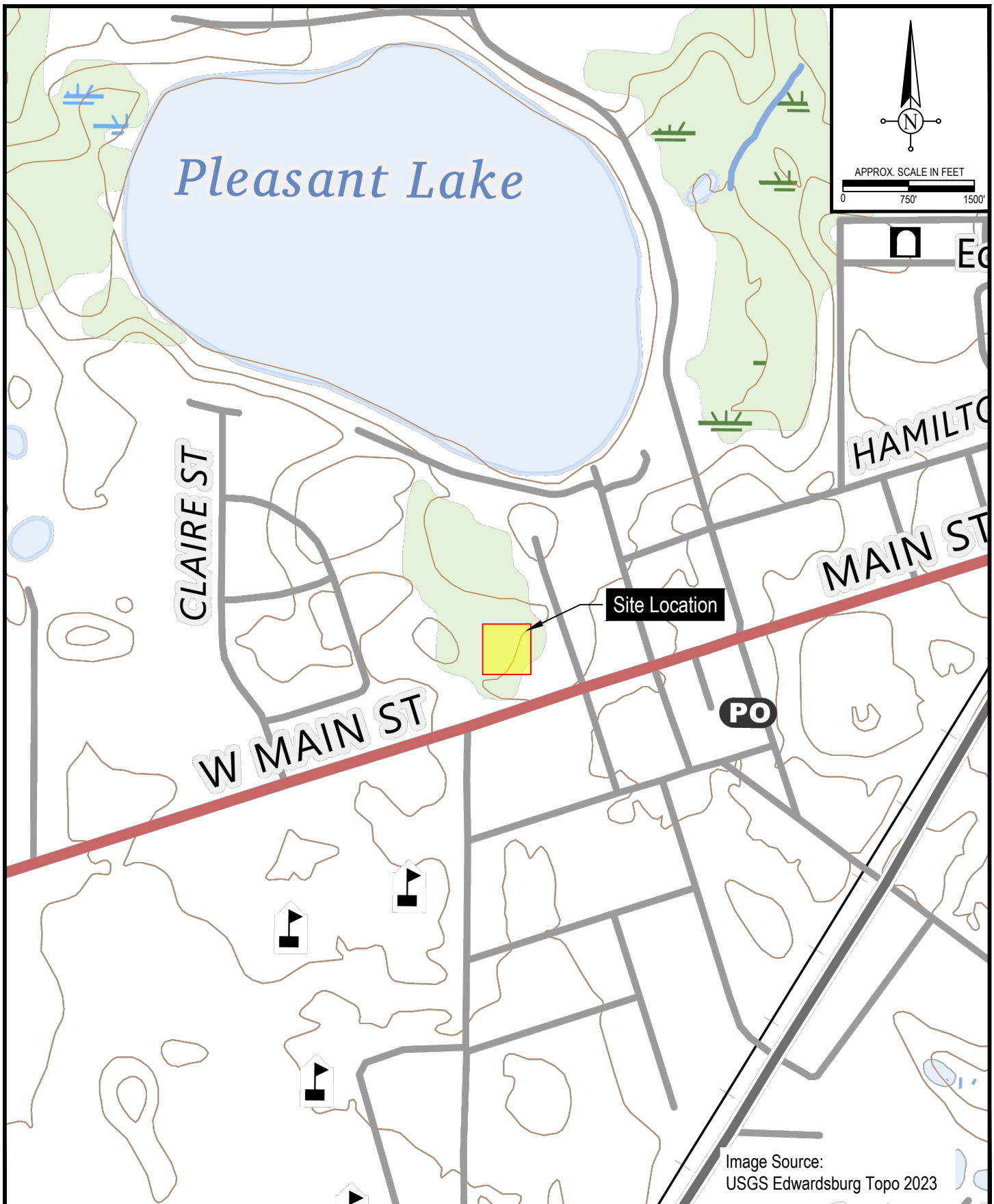
**BORING LOCATION MAP (FIGURE NO. 2)**

**BORING LOGS**

**BORING LOG KEY**

**UNIFIED SOIL CLASSIFICATION SYSTEM  
(USCS)**





Patriot Engineering &  
Environmental, Inc.

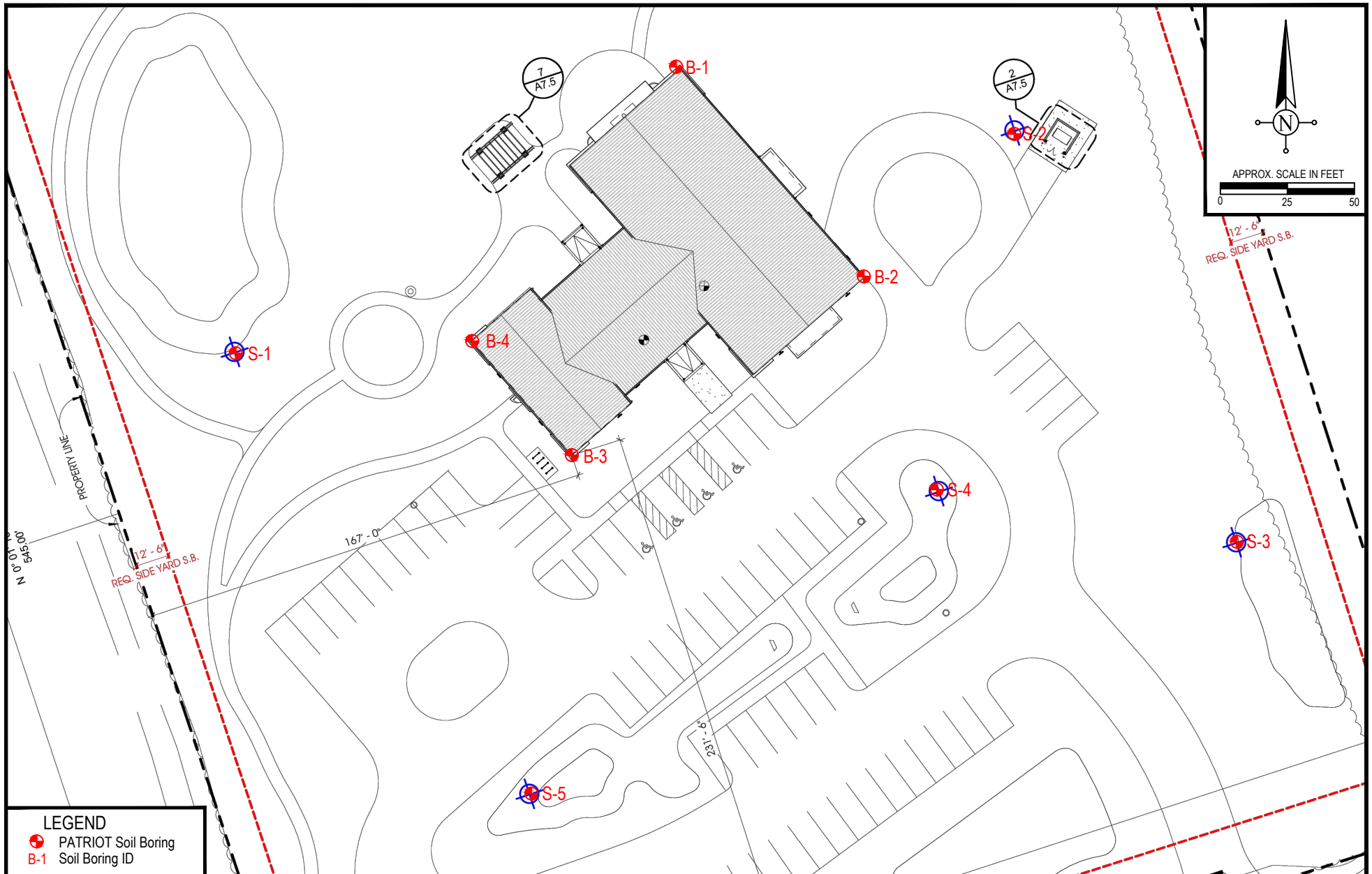
Project: Cass District Library  
West Main Street  
Edwardsburg, Michigan

Project Number: 23-1673-04G	Drawn By: L. Lidy
Date: 12/21/2023	Approved: I. Grafe
	DWG: 23-1673-04G_geo

Figure 1

Site Vicinity Map





#### LEGEND

- PATRIOT Soil Boring
- Soil Boring ID



Patriot Engineering &  
Environmental, Inc.

#### NOTES:

1. Boring locations were staked by PATRIOT. All locations are shown as approximate.
2. All locations were determined in the field with references to existing landmarks.
3. Image Source: Abonmarche
4. Scale as shown.

Project: Cass District Library  
West Main Street  
Edwardsburg, Michigan

Project Number: 23-1673-04G	Drawn By: J. DuMond
Date: January 5, 2024	Approved: I. Grafe
	DWG: 23-1673-04G_geo

Figure 2

Soil Boring Location Map





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LOG OF BORING B-1

(Page 1 of 1)

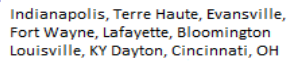
Cass District Library  
16977 West Main Street  
Edwardsburg, Michigan

Client Name : Abonmarche  
Project Number : 23-1673-04G  
Logged By : J. Rogers  
Start Date : 12/05/2023  
Drilling Method : HSA

Driller : J. Boeche  
Sampling : Splitspoon  
Approx. Elevation : +/- feet  
Latitude : 41°47'54.73"N  
Longitude : 86° 5'17.18"W

Depth (Feet)	Elevation (Feet)	Water Level	USCS	GRAPHIC	Water Levels	Samples	Rec %	SPT Results	qp tsf	w %	REMARKS
					DESCRIPTION						
0					TOPSOIL (12")						
			SP-SM		Brown, slightly moist, very loose, fine to medium grained, SAND with trace silt and trace gravel	1	78	2/1/2			
					Brown, slightly moist, medium dense to loose, fine to medium grained, SAND with trace silt and trace gravel	2	89	2/5/7			
5						3	89	2/3/2			
			SP-SM			4	89	1/1/6			
10											
						5	89	5/6/7			
15											
					Brown, saturated, medium dense, fine to medium grained, SAND with trace silt and trace to little gravel	6	100	2/4/7			
20			SP-SM								
						7	100	5/9/8			
25					Boring terminated at 25 feet.						
30											





(Page 1 of 1)

Driller : J. Boeche  
Sampling : Splitspoon  
Approx. Elevation : +/- feet  
Latitude : 41°47'53.94"N  
Longitude : 86° 5'16.25"W

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LOG OF BORING B-3

(Page 1 of 1)

Cass District Library  
16977 West Main Street  
Edwardsburg, Michigan

Client Name : Abonmarche  
Project Number : 23-1673-04G  
Logged By : J. Rogers  
Start Date : 12/05/2023  
Drilling Method : HSA

Driller : J. Boeche  
Sampling : Splitspoon  
Approx. Elevation : +/- feet  
Latitude : 41°47'53.30"N  
Longitude : 86° 5'17.71"W

Depth (Feet)	Elevation (Feet)	Water Level	USCS	GRAPHIC	Water Levels ▼ During Drilling - 18.5 feet ▽ After Completion - Dry ◆ After 24 Hours - N/A	Samples	Rec %	SPT Results	qp tsf	w %	REMARKS
					DESCRIPTION						
0					TOPSOIL (12")						
					Brown, slightly moist, loose, fine to medium grained, SAND with trace silt and trace gravel	1	89	2/3/3			
						2	89	2/3/2			
5						3	78	2/3/3			
						4	89	4/4/6			
10											Boring caved to 10 feet upon auger removal.
						5	89	4/5/4			
15											
						6	100	2/4/5			
20											
						7	100	1/1/2			
25											
					Boring terminated at 25 feet.						
30											





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LOG OF BORING B-4

(Page 1 of 1)

Cass District Library  
16977 West Main Street  
Edwardsburg, Michigan

Client Name : Abonmarche  
Project Number : 23-1673-04G  
Logged By : J. Rogers  
Start Date : 12/05/2023  
Drilling Method : HSA

Driller : J. Boeche  
Sampling : Splitspoon  
Approx. Elevation : +/- feet  
Latitude : 41°47'53.75"N  
Longitude : 86° 5'18.18"W

Depth (Feet)	Elevation (Feet)	Water Level	USCS	GRAPHIC	Water Levels ▼ During Drilling - 13.5 feet ▽ After Completion - Dry ◆ After 24 Hours - N/A	Samples	Rec %	SPT Results	qp tsf	w %	REMARKS
					DESCRIPTION						
0					TOPSOIL (11")						
			SP-SM		Brown, slightly moist, very loose, fine to medium grained, SAND with trace silt and trace gravel	1	89	1/1/2			
5						2	89	2/1/2			
			SP-SM		Brown, slightly moist, medium dense, fine to medium grained, SAND with trace silt and trace gravel	3	100	5/5/7			
10						4	100	5/7/7			
		▼									Boring caved to 10 feet upon auger removal.
15			SP-SM		Brown, saturated, medium dense, fine to medium grained, SAND with trace silt and trace gravel	5	89	3/5/7			
20						6	100	3/6/7			
25						7	100	4/5/7			
					Boring terminated at 25 feet.						
30											





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## LOG OF BORING S-1

(Page 1 of 1)

Cass District Library  
16977 West Main Street  
Edwardsburg, Michigan

Client Name : Abonmarche  
Project Number : 23-1673-04G  
Logged By : J. Rogers  
Start Date : 12/05/2023  
Drilling Method : HSA

Driller : J. Boeche  
Sampling : Splitspoon  
Approx. Elevation : +/- feet  
Latitude : 41°47'53.70"N  
Longitude : 86° 5'19.39"W

Depth (Feet)	Elevation (Feet)	Water Level	USCS	GRAPHIC	Water Levels ▼ During Drilling - 13.5 feet ▽ After Completion - Dry ◆ After 24 Hours - N/A	Samples	Rec %	SPT Results	qp tsf	w %	REMARKS
					DESCRIPTION						
0					TOPSOIL (12")						
			SM		Brown, slightly moist, medium dense, SILTY SAND with trace gravel	1	89	4/5/7			Sample No. 2: Grain Size Analysis performed.  Boring caved to 9 feet upon auger removal.
5						2	100	5/7/8			
					Brown, slightly moist, loose, fine to medium grained, SAND with trace silt and trace gravel	3	89	4/4/4			
10			SP-SM			4	89	3/5/4			
		▼			Brown, saturated, very loose, fine to medium grained, SAND with trace silt and trace gravel	5	89	2/1/1			
15			SP-SM		Brown, saturated, loose to medium dense, fine to medium grained, SAND with trace silt and trace gravel	6	89	2/3/4			
20						7	89	4/5/6			
					Boring terminated at 20 feet.						
25											
30											





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# LOG OF BORING S-2

(Page 1 of 1)

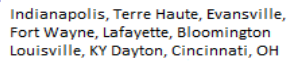
Cass District Library  
16977 West Main Street  
Edwardsburg, Michigan

Client Name : Abonmarche  
Project Number : 23-1673-04G  
Logged By : J. Rogers  
Start Date : 12/04/2023  
Drilling Method : HSA

Driller : J. Boeche  
Sampling : Splitspoon  
Approx. Elevation : +/- feet  
Latitude : 41°47'54.50"N  
Longitude : 86° 5'15.54"W

Depth (Feet)	Elevation (Feet)	Water Level	USCS	GRAPHIC	Water Levels ▼ During Drilling - Dry ▽ After Completion - Dry ◆ After 24 Hours - N/A	Samples	Rec %	SPT Results	qp tsf	w %	REMARKS
					DESCRIPTION						
0					TOPSOIL (11") Brown, slightly moist, loose to medium dense, fine to medium grained, SAND with trace silt and trace gravel	1	78	2/2/3			Boring caved to 9 feet upon auger removal.
						2	89	3/3/4			
5						3	100	5/6/7			
						4	89	6/8/11			
10						5	89	5/8/9			
15					Boring terminated at 15 feet.						Groundwater was not encountered during drilling, nor upon completion.
20											
25											
30											





(Page 1 of 1)

Driller : J. Boeche  
Sampling : Splitspoon  
Approx. Elevation : +/- feet  
Latitude : 41°47'52.94"N  
Longitude : 86° 5'14.45"W

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Louisville, KY Dayton, Cincinnati, OH

## LOG OF BORING S-4

(Page 1 of 1)

Cass District Library  
16977 West Main Street  
Edwardsburg, Michigan

Client Name : Abonmarche  
Project Number : 23-1673-04G  
Logged By : J. Rogers  
Start Date : 12/05/2023  
Drilling Method : HSA

Driller : J. Boeche  
Sampling : Splitspoon  
Approx. Elevation : +/- feet  
Latitude : 41°47'53.17"N  
Longitude : 86° 5'15.91"W

Depth (Feet)	Elevation (Feet)	Water Level	USCS	GRAPHIC	Water Levels ▼ During Drilling - 13.5 feet ▽ After Completion - Dry ◆ After 24 Hours - N/A	Samples	Rec %	SPT Results	qp tsf	w %	REMARKS
					DESCRIPTION						
0					TOPSOIL (12")						
			SP-SM		Brown, slightly moist, very loose, fine to medium grained, SAND with trace silt and trace gravel	1	89	4/2/2			Sample No. 2: Grain Size Analysis performed.
					Brown, slightly moist, loose, fine to medium grained, SAND with trace silt and trace gravel	2	78	2/2/3			
5						3	89	2/3/2			
			SP-SM			4	100	3/4/6			
10											Boring caved to 10 feet upon auger removal.
		▼	SP-SM		Brown, saturated, medium dense, fine to medium grained, SAND with trace silt and trace gravel	5	89	5/6/6			
15					Boring terminated at 15 feet.						
20											
25											
30											





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## LOG OF BORING S-5

(Page 1 of 1)

Cass District Library  
16977 West Main Street  
Edwardsburg, Michigan

Client Name : Abonmarche  
Project Number : 23-1673-04G  
Logged By : J. Rogers  
Start Date : 12/04/2023  
Drilling Method : HSA

Driller : J. Boeche  
Sampling : Splitspoon  
Approx. Elevation : +/- feet  
Latitude : 41°47'52.04"N  
Longitude : 86° 5'17.91"W

Depth (Feet)	Elevation (Feet)	Water Level	USCS	GRAPHIC	Water Levels	Samples	Rec %	SPT Results	qp tsf	w %	REMARKS
					DESCRIPTION						
0					TOPSOIL (1")						
			SP-SM		Brown, slightly moist, very loose, fine to medium grained, SAND with trace silt and trace gravel	1	100	2/1/1			
						2	89	2/2/3			
5					Brown, slightly moist, loose to medium dense, fine to medium grained, SAND with trace silt and trace gravel	3	100	4/3/4			
			SP-SM			4	89	4/3/5			
10											
						5	89	5/7/6			
15											Boring caved to 12 feet upon auger removal.
					Boring terminated at 15 feet.						Groundwater was not encountered during drilling, nor upon completion.
20											
25											
30											



# BORING LOG KEY

## UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

### NON-COHESIVE SOILS (Silt, Sand, Gravel, and Combinations)

Density	Field Identification (SPT Blows/ft)	Grain Size Terminology		
		Soil Fraction	Particle Size	US Standard Sieve Size
Very Loose	0 - 4	Boulders	> 12 inches	> 12 inches
Loose	5 - 10	Cobbles	3 - 12 inches	3 - 12 inches
Medium Dense	11 - 30	Gravel: Coarse	¾ - 3 inches	¾ - 3 inches
Dense	31 - 50	Small	4.76 mm - ¾ inch	No. 4 - ¾ inches
Very Dense	> 51	Sand: Coarse	2.00 - 4.76 mm	No. 10 - No. 4
		Medium	0.42 - 2.00 mm	No. 40 - No. 10
		Fine	0.074 - 0.42 mm	No. 200 – No. 40
		Silt	0.005 - 0.074 mm	< No. 200
		Clay	< 0.005 mm	< No. 200

### RELATIVE PROPORTIONS FOR SOILS

Descriptive Term	Percent
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

### COHESIVE SOILS (Clay, Silt and Combinations)

Consistency	Unconfined Compressive Strength (tons/ft <sup>2</sup> )	Field Identification (SPT Blows/ft)
Very Soft	Less than 0.25	0 - 2
Soft	0.25 – < 0.5	3 - 4
Medium Stiff	0.5 - < 1.0	5 - 8
Stiff	1.0 - < 2.0	9 -15
Very Stiff	2.0 - < 4.0	16 - 30
Hard	Over 4.0	> 30

**Classification:** Provided on Boring Logs are made by visual inspection.

**Standard Penetration Test:** Driving a 2 inch outer-diameter (O.D.) by 1½ inch inner-diameter (I.D.) split-spoon sampler a total of 18 inches into undisturbed soil with the number of blows of a 140 pound hammer free-falling a distance of 30 inches recorded for each 6 inches of penetration. The sum of blows for the final 12 inches of penetration is the Standard Penetration Test result commonly referred to as the “N”-value (or blow-count).

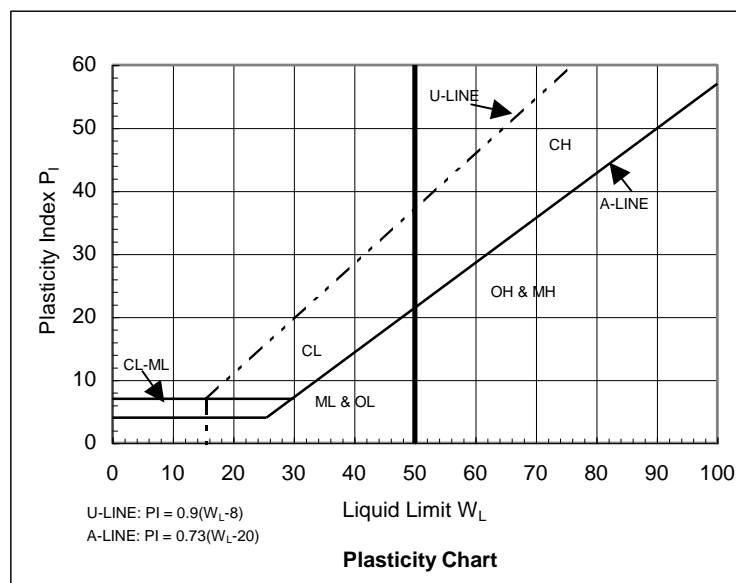
**Strata Changes:** In the column “Descriptions” on the Boring Logs the horizontal lines represent strata changes. A solid line (——) represents an observed change, a dashed line (- - - -) represents an estimated change.

**Groundwater:** Observations were made at the times indicated on the Boring Logs. Fluctuations in the groundwater level should be expected over time due to variations in rainfall and other environmental or physical factors. *Groundwater symbols:* (▼)-observed groundwater level and/or elevation during drilling; (▽)-observed groundwater level and/or elevation upon completion of boring.



# Unified Soil Classification System (USCS)

Major Divisions			Group Symbol		Typical Names	Classification Criteria for Coarse-Grained Soils		
Coarse-grained soils (more than half of material is larger than No. 200)	Gravels (more than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (little or no fines)	GW		Well-graded gravels, gravel-sand mixtures, little or no fines	$C_u \geq 4$ $1 \leq C_c \leq 3$	$C_u = \frac{D_{60}}{D_{10}}$	$C_c = \frac{D_{30}^2}{D_{10} D_{60}}$
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines	Not meeting all gradation requirements for GW ( $C_u < 4$ or $1 > C_c > 3$ )		
		Gravels with fines (appreciable amount of fines)	GM	$\frac{d}{u}$	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below A line or $P_L < 4$		Above A line with $4 < P_L < 7$ are borderline cases requiring use of dual symbols
			GC		Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above A line or $P_L > 7$		
	Sands (more than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines	$C_u \geq 6$ $1 \leq C_c \leq 3$	$C_u = \frac{D_{60}}{D_{10}}$	$C_c = \frac{(D_{30})^2}{D_{10} D_{60}}$
			SP		Poorly graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW ( $C_u < 6$ or $1 > C_c > 3$ )		
		Sands with fines (appreciable amount of fines)	SM	$\frac{d}{u}$	Silty sands, sand-silt mixtures	Atterberg limits below A line or $P_L < 4$		Limits plotting in hatched zone with $4 \leq P_L \leq 7$ are borderline cases requiring use of dual symbols
			SC		Clayey sands, sand-clay mixtures	Atterberg limits above A line with $P_L > 7$		
Fine-grained soils (more than half of material is smaller than No. 200)	Silt and clays (liquid limit <50)	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity	<div>1. Determine percentages of sand and gravel from grain size curve.</div> <div>2. Depending on percentages of fines (fraction smaller than 200 sieve size), coarse-grained soils are classified as follows: Less than 5% - GW, GP, SW, SP More than 12% - GM, GC, SM, SC 5-12% - Borderline cases requiring dual symbols</div>			
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays				
		OL		Organic silts and organic silty clays of low plasticity				
	Silt and clays (liquid limit >50)	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts				
		CH		Inorganic clays or high plasticity, fat clays				
		OH		Organic clays of medium to high plasticity, organic silts				
	Highly organic soils	PT		Peat and other highly organic soils				






**APPENDIX B**

**SEISMIC SITE CLASS EVALUATION**



 This is a beta release of the new ATC Hazards by Location website. Please [contact us](#) with feedback.

 The ATC Hazards by Location website will not be updated to support ASCE 7-22. [Find out why.](#)

# ATC Hazards by Location

## Search Information

**Coordinates:** 41.797861298454, -86.08805879021301

**Elevation:** 860 ft

**Timestamp:** 2023-12-19T15:52:38.494Z

**Hazard Type:** Seismic

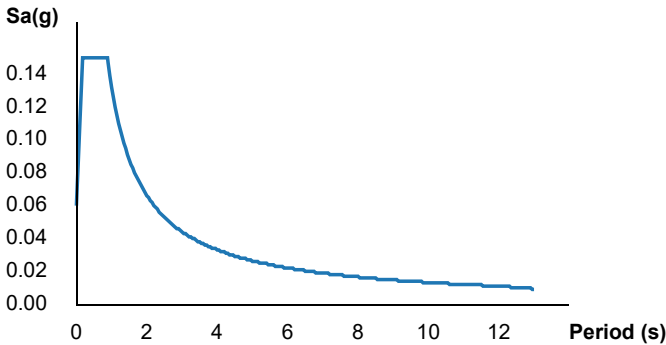
**Reference Document:** IBC-2015

**Risk Category:** III

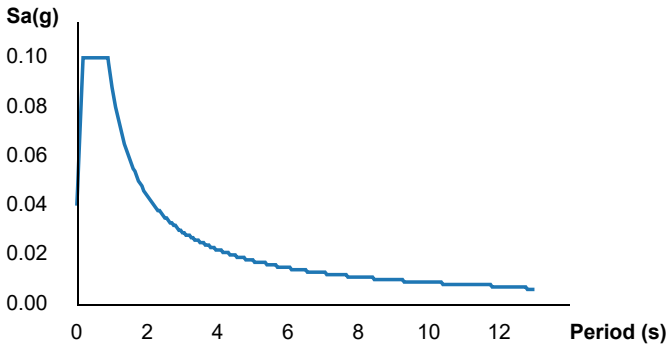
**Site Class:** D



## MCER Horizontal Response Spectrum



## Design Horizontal Response Spectrum



## Basic Parameters

Name	Value	Description
$S_S$	0.094	$MCE_R$ ground motion (period=0.2s)
$S_1$	0.055	$MCE_R$ ground motion (period=1.0s)
$S_{MS}$	0.15	Site-modified spectral acceleration value
$S_{M1}$	0.132	Site-modified spectral acceleration value
$S_{DS}$	0.1	Numeric seismic design value at 0.2s SA
$S_{D1}$	0.088	Numeric seismic design value at 1.0s SA

## Additional Information

Name	Value	Description
SDC	B	Seismic design category
$F_a$	1.6	Site amplification factor at 0.2s
$F_v$	2.4	Site amplification factor at 1.0s
$CR_S$	0.916	Coefficient of risk (0.2s)
$CR_1$	0.874	Coefficient of risk (1.0s)



PGA	0.043	MCE <sub>G</sub> peak ground acceleration
F <sub>PGA</sub>	1.6	Site amplification factor at PGA
PGA <sub>M</sub>	0.069	Site modified peak ground acceleration
T <sub>L</sub>	12	Long-period transition period (s)
SsRT	0.094	Probabilistic risk-targeted ground motion (0.2s)
SsUH	0.102	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.055	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.063	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.6	Factored deterministic acceleration value (PGA)

*The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.*

*Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. [Find out why.](#)*

## Disclaimer

Hazard loads are provided by the U.S. Geological Survey [Seismic Design Web Services](#).

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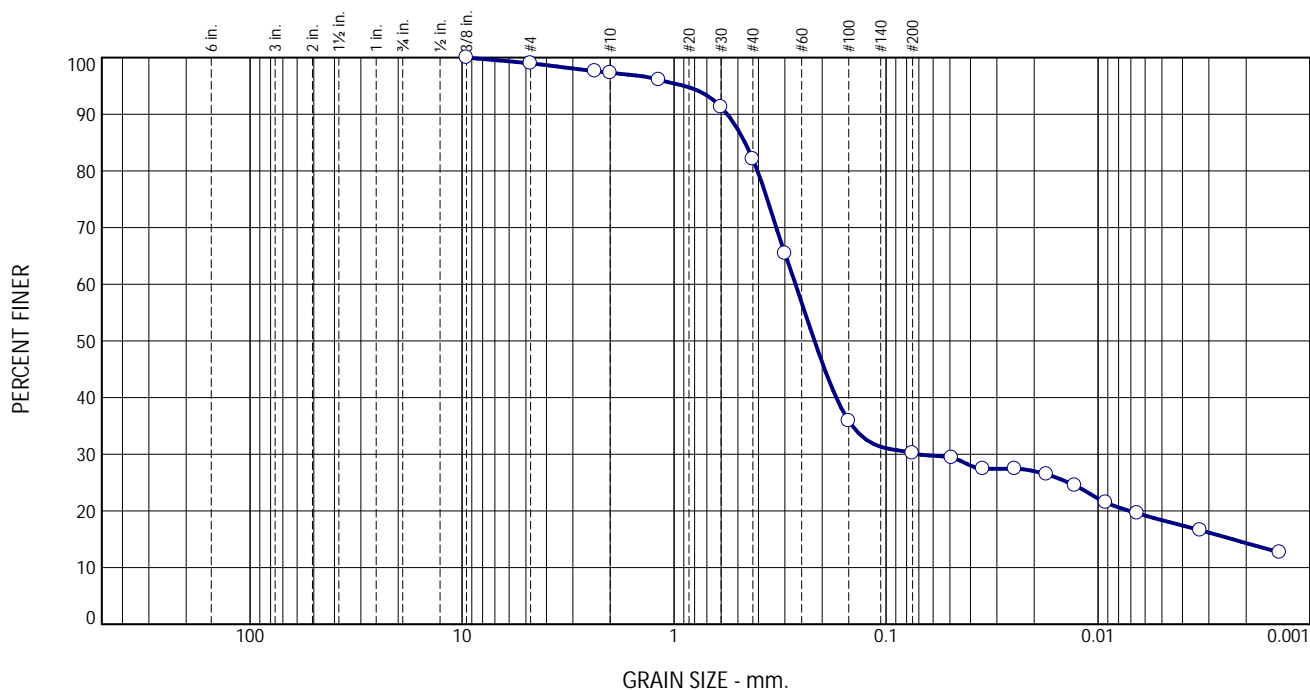


**APPENDIXC**

**LABORATORY TESTING RESULTS**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	1.7	15.2	51.9	11.8	18.4

Test Results (ASTM D6913 and D7928)			
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)
3/8"	100.0		
#4	99.0		
#8	97.6		
#10	97.3		
#16	96.1		
#30	91.3		
#40	82.1		
#50	65.4		
#100	35.9		
#200	30.2		
0.0490 mm.	29.4		
0.0349 mm.	27.4		
0.0247 mm.	27.4		
0.0175 mm.	26.4		
0.0129 mm.	24.5		
0.0092 mm.	21.5		
0.0065 mm.	19.6		
0.0033 mm.	16.6		
0.0014 mm.	12.7		

· (no specification provided)

Material Description  
Brown SILTY SAND with trace gravel

Atterberg (ASTM D4318)  
PL= NP LL= NP PI= NP

## Sieve Test (ASTM D6913)

Test Date: 12/29/2023 Technician: E. Bergel

Test Notes

Coefficients  
D<sub>90</sub>= 0.5603 D<sub>85</sub>= 0.4624  
D<sub>60</sub>= 0.2673 D<sub>50</sub>= 0.2175  
D<sub>30</sub>= 0.0711 D<sub>15</sub>= 0.0023  
D<sub>10</sub>=  
C<sub>u</sub>= C<sub>c</sub>=

## Hydrometer Test (ASTM D7928)

Test Date: 12/28/2023 Technician: E. Bergel

Test Notes

USCS (ASTM D2487)  
SM

Date Sampled: 12/05/2023

Date Received: 12/07/2023

Checked By: S. Lauletta

Title: Lab Supervisor

Source of Sample: S-1 Depth: 3.5-5.0 feet  
Sample Number: SS-2

**PATRIOT ENGINEERING  
AND ENVIRONMENTAL, INC.**  
Indianapolis, Indiana

Client: Abonmarche  
Project: Cass District Library

Project No: 23-1673-04G



PERCENT FINER

GRAIN SIZE - mm.

Grain Size (mm)	Percent Finer (%)
60	100
4.75	100
3.75	100
2.5	100
1.9	100
1.18	100
0.85	99
0.6	97
0.425	93
0.3	92
0.25	88
0.15	78
0.106	62
0.075	35
0.075	7
0.06	5
0.0475	5
0.0375	5
0.03	5
0.025	4.5
0.02	4.5
0.015	4
0.0125	3.5
0.01	3
0.0075	3
0.006	2.5
0.00475	2.5
0.00375	2

Project No: 23-1673-04G



**APPENDIX D**

**GENERAL QUALIFICATIONS**

**STANDARD CLAUSE FOR UNANTICIPATED  
SUBSURFACE CONDITIONS**



**GENERAL QUALIFICATIONS**  
**of Patriot Engineering's Geotechnical Engineering Investigation**

This report has been prepared at the request of our client for his use on this project. Our professional services have been performed, findings obtained, and recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied.

The scope of our services did not include any environmental assessment or investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report or on the test borings logs regarding vegetation types, odors or staining of soils, or other unusual conditions observed are strictly for the information of our client and the owner.

This report may not contain sufficient information for purposes of other parties or other uses. This company is not responsible for the independent conclusions, opinions or recommendations made by others based on the field and laboratory data presented in this report. Should there be any significant differences in structural arrangement, loading or location of the structure, our analysis should be reviewed.

The recommendations provided herein were developed from the information obtained in the test borings, which depict subsurface conditions only at specific locations. The analysis, conclusions, and recommendations contained in our report are based on site conditions as they existed at the time of our exploration. Subsurface conditions at other locations may differ from those occurring at the specific drill sites. The nature and extent of variations between borings may not become evident until the time of construction. If, after performing on-site observations during construction and noting the characteristics of any variation, substantially different subsurface conditions from those encountered during our explorations are observed or appear to be present beneath excavations, we must be advised promptly so that we can review these conditions and reconsider our recommendations where necessary.

If there is a substantial lapse of time between the submission of our report and the start of work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, we urge that our report be reviewed to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse.

We urge that Patriot be retained to review those portions of the plans and specifications that pertain to earthwork and foundations to determine whether they are consistent with our recommendations. In addition, we are available to observe construction, particularly the compaction of structural backfill and preparation of the foundations, and such other field observations as may be necessary.

In order to fairly consider changed or unexpected conditions that might arise during construction, we recommend the following verbiage (Standard Clause for Unanticipated Subsurface Conditions) be included in the project contract.



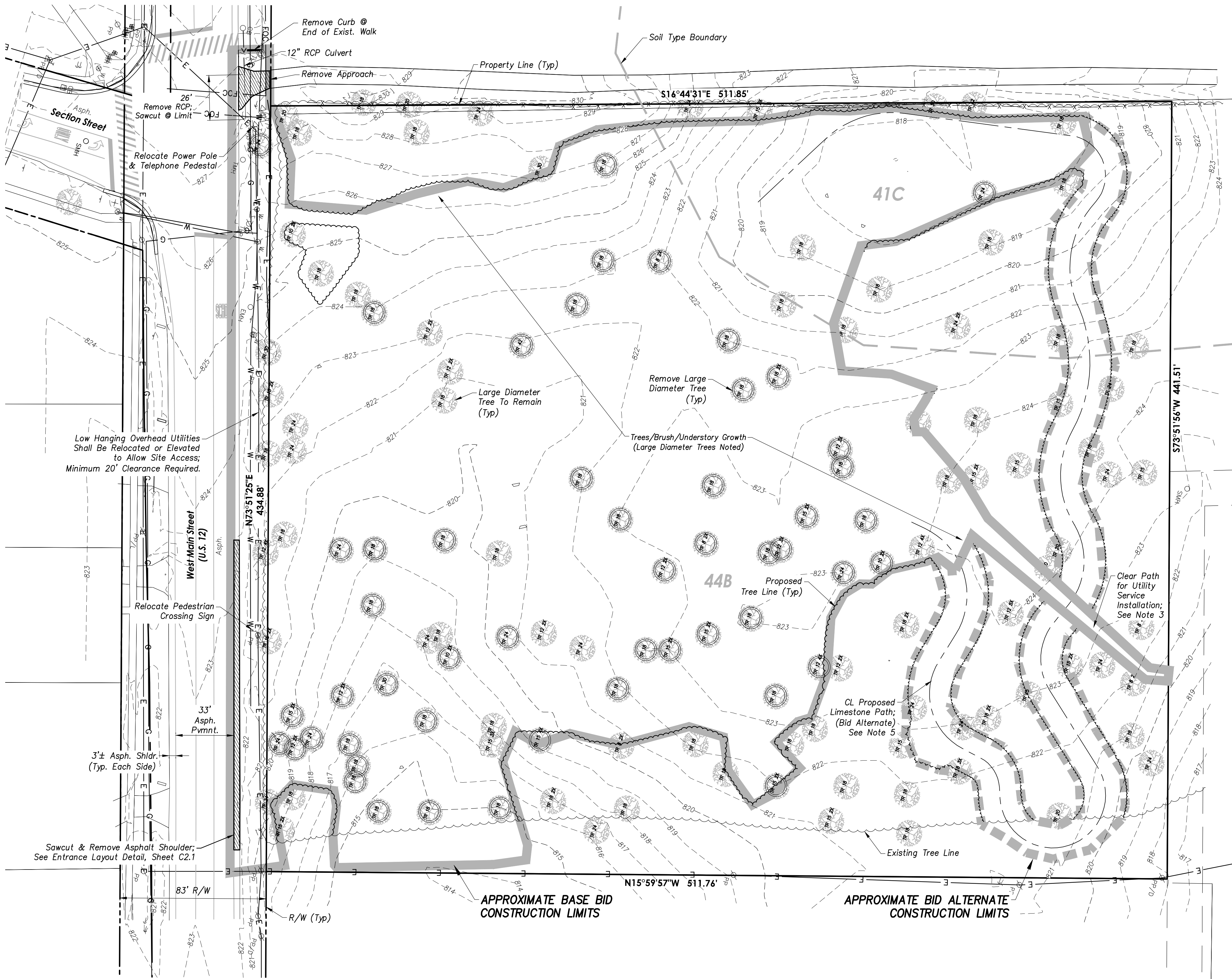
## **STANDARD CLAUSE FOR UNANTICIPATED SUBSURFACE CONDITIONS**

"The owner has had a subsurface exploration performed by a soils consultant, the results of which are contained in the consultant's report. The consultant's report presents his conclusions on the subsurface conditions based on his interpretation of the data obtained in the exploration. The contractor acknowledges that he has reviewed the consultant's report and any addenda thereto, and that his bid for earthwork operations is based on the subsurface conditions as described in that report. It is recognized that a subsurface exploration may not disclose all conditions as they actually exist and further, conditions may change, particularly groundwater conditions, between the time of a subsurface exploration and the time of earthwork operations. In recognition of these facts, this clause is entered in the contract to provide a means of equitable additional compensation for the contractor if adverse unanticipated conditions are encountered and to provide a means of rebate to the owner if the conditions are more favorable than anticipated.

At any time during construction operations that the contractor encounters conditions that are different than those anticipated by the soils consultant's report, he shall immediately (within 24 hours) bring this fact to the owner's attention. If the owner's representative on the construction site observes subsurface conditions which are different than those anticipated by the consultant's report, he shall immediately (within 24 hours) bring this fact to the contractor's attention. Once a fact of unanticipated conditions has been brought to the attention of either the owner or the contractor, and the consultant has concurred, immediate negotiations will be undertaken between the owner and the contractor to arrive at a change in contract price for additional work or reduction in work because of the unanticipated conditions. The contract agrees that the following unit prices would apply for additional or reduced work under the contract. For changed conditions for which unit prices are not provided, the additional work shall be paid for on a time and materials basis."

Another example of a changed conditions clause can be found in paper No. 4035 by Robert F. Borg, published in ASCE Construction Division Journal, No. CO2, September 1964, page 37.





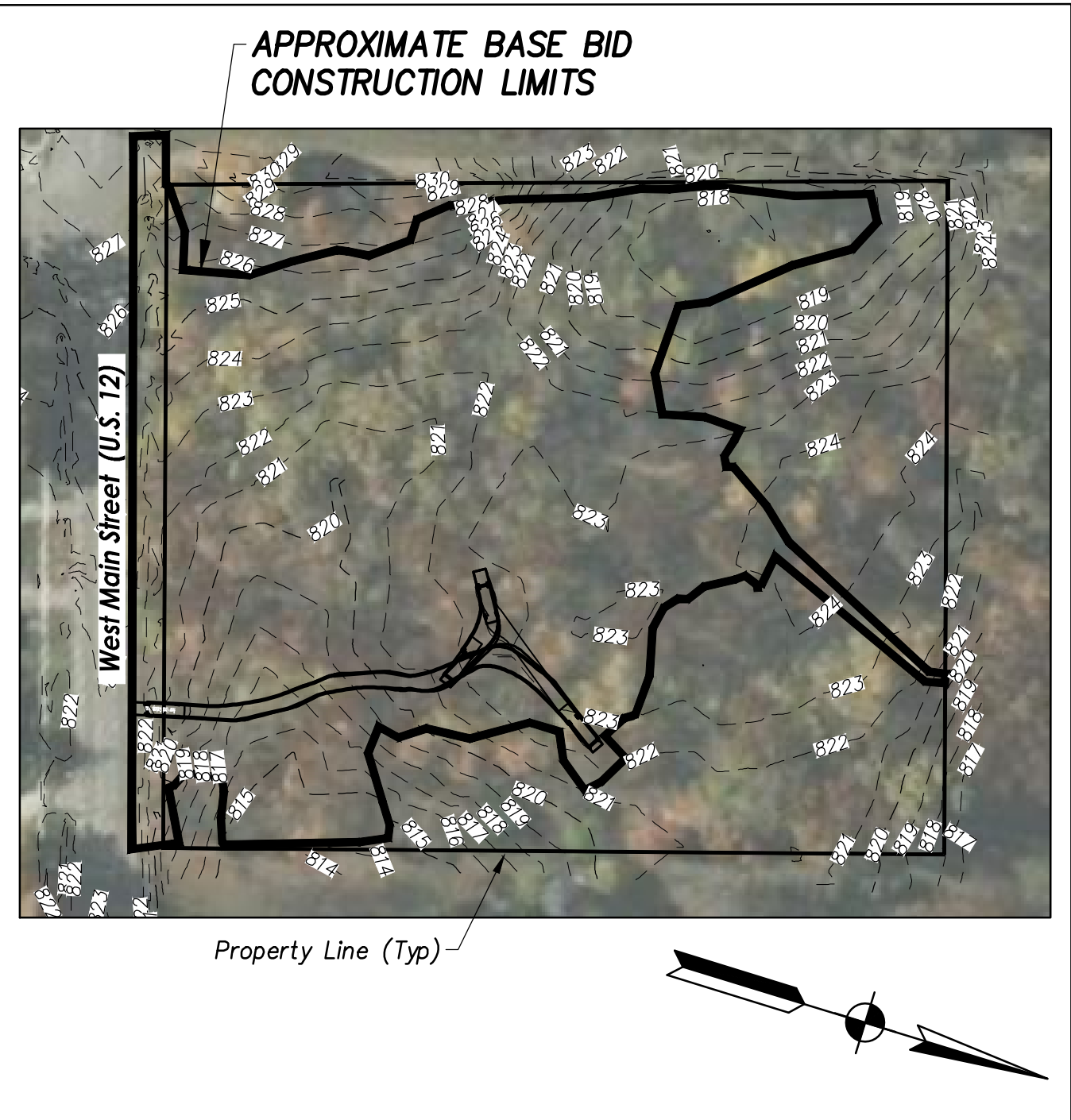
EXISTING FEATURES LEGEND			
△ T	Telephone Pedestal	⌘	Fire Hydrant
○ SMH	Sanitary Sewer Manhole	— W —	Water Main
○ EMH	Electric Manhole	— S —	Sanitary Sewer
○ PP	Power Pole	— C —	Storm Culvert
⊗ TLP	Traffic Strain Pole	— G —	Gas Main
⊗ PP/D	Power Pole w/Drop	— FOC —	Fiber Optic Marker
⊗ PP/L	Power Pole w/Light	— OH —	Overhead Electric
→	Guy Anchor	— X —	Fence
⊗	Large Diameter Tree	— TL —	Tree Line
		FIP	Found Iron Pipe
		FIR	Found Iron Rod

GENERAL NOTES

- CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING THE BID.
- Contractor shall request existing utility location prior to commencing construction.
- Contractor shall notify the jurisdictional municipality Engineering Department prior to commencing construction in the R/W.
- Contractor is responsible for contacting & coordinating with Others as needed to complete the Work and is responsible for including any associated costs of the Work in the Bid.
- Contractor shall remove topsoil and stockpile the material onsite at a location approved by the Owner.
- Contractor shall identify any underground utilities, structures, buried debris, etc. not visible from topographic survey. Contact Engineer for determination of removal.
- Removed items shall be disposed off-site in accordance with all applicable local, state and federal codes.

DEMOLITION NOTES

- Remove large diameter trees as noted. Protect and save remaining large diameter trees as specified on the Soil Erosion Control and Sedimentation Control Plan, C8.0.
- Clear all underbrush, small trees and large diameter trees slated for removal within construction limits.
- See Sheet C5.0 for on-site water service and sewer service alignments. Confirm final alignments with Engineer prior to clearing.
- Clear area for proposed limestone path. See Sheet C2.1 for path alignment.
- Contractor shall remove understory growth (less than 18" in diameter) within the construction limits and that is impacted by construction.
- Contractor shall clear 20' beyond all proposed elements. All dead fall shall be cleared.



AERIAL IMAGE  
Scale: 1" = 100'

SOILS	
41C—Spinks—Oshemo complex, 6 to 12 percent slopes Typical profile Ap — 0 to 9 inches: loamy sand Bw — 9 to 28 inches: sand E and Bt — 28 to 69 inches: loamy sand C — 69 to 80 inches: sand  Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)  Depth to water table: More than 80 inches  Hydrologic Soil Group: A	44B—Urban land—Spinks complex, 0 to 6 percent slopes Typical profile Ap — 0 to 10 inches: loamy sand E and Bt — 10 to 53 inches: loamy sand C — 53 to 60 inches: sand  Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)  Depth to water table: More than 80 inches  Hydrologic Soil Group: A



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NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET  
EDWARDSBURG, MI

PROJECT:

EXISTING CONDITIONS  
& DEMOLITION PLAN

SHEET TITLE:

MODELED BY: NI

DESIGNED BY: JW/N

PM REVIEW: SDR

QA/QC REVIEW: JW

DATE: 12/20/2023

SEAL:

PRELIMINARY  
NOT FOR  
CONSTRUCTION

SIGNATURE:

DATE: 12/20/2023

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ACT JOB #

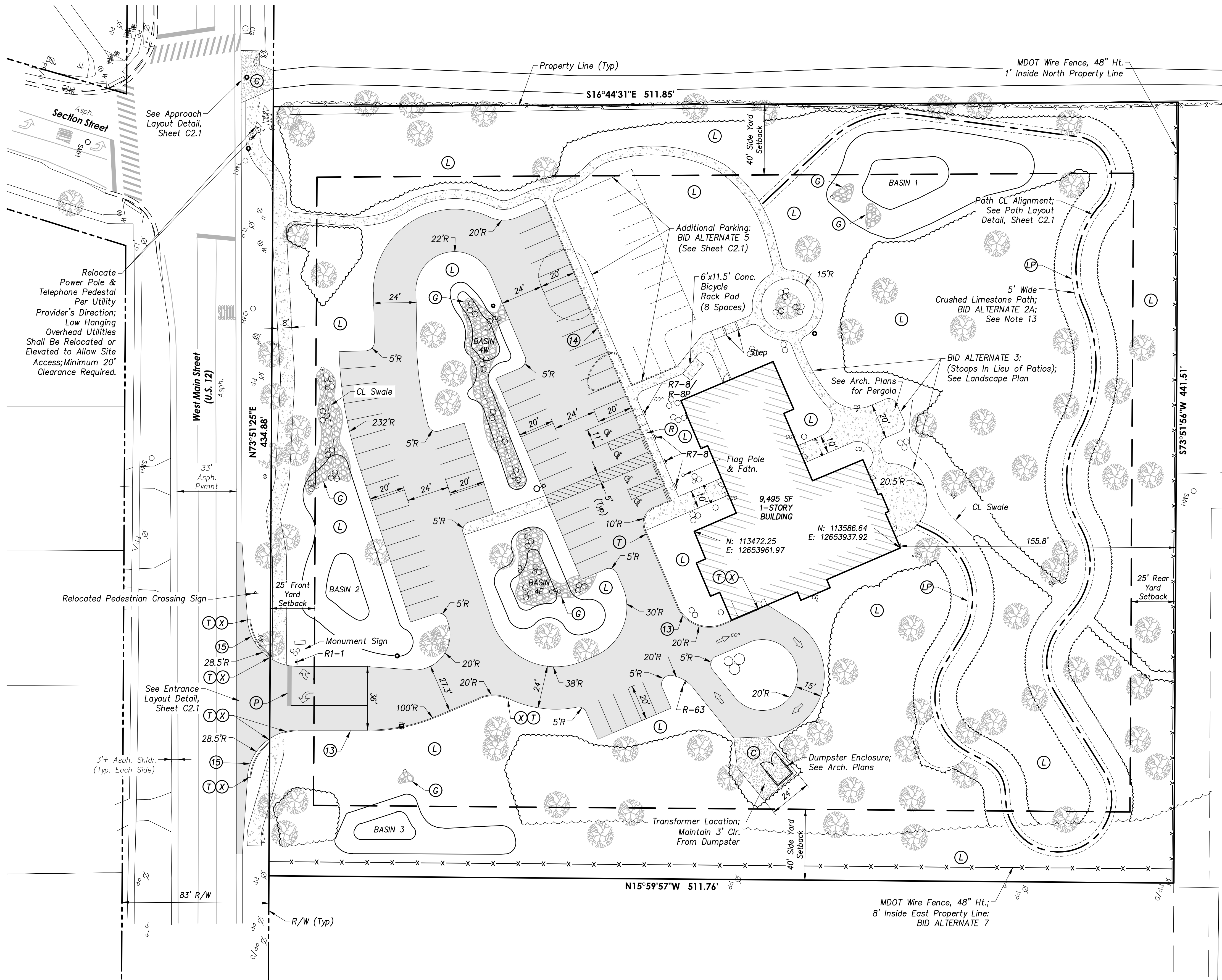
22-1836

SHEET NO.

C1.0

2	ADDENDUM 2 - ADJUST EXIST. SURFACE COORDINATES	NI	01/23/2024
1	ADDENDUM 1	NI	01/10/2024
NO.	REVISION DESCRIPTION	BY	DATE





- EXISTING FEATURES LEGEND**
- △ T Telephone Pedestal
  - SMH Sanitary Sewer Manhole
  - EMH Electric Manhole
  - PP Power Pole
  - Ø TLP Traffic Strain Pole
  - Ø PP/D Power Pole w/Drop
  - Ø PP/L Power Pole w/Light
  - Guy Anchor
  - Large Diameter Tree To Remain
  - Fire Hydrant
  - W — Water Main
  - >— Sanitary Sewer
  - >— Storm Culvert
  - G — Gas Main
  - FOC — Fiber Optic Marker
  - OH — Overhead Electric
  - X — Fence
  - ~~~~~ Tree Line

- PROPOSED FEATURES LEGEND**
- Full Depth HMA Pavement: 2" HMA Surface, 3-1/2" HMA Base, 6" Compacted 21AA Aggregate Base on Compacted Subgrade
  - 8" Concrete Pad
  - 5" Concrete Sidewalk; 5' Wide, U.N.O.
  - 4"-6" Glacial Cobble Stone over Non-Woven Geotextile; 6" Cobble @ Pipe End Sections In Accordance w/"Stone Apron & Pipe End Section Detail," Sheet C8.1
  - Standard Concrete Curb
  - Curb Integral w/Sidewalk
  - Concrete Combined Curb & Gutter
  - Landscape Area
  - Stop Bar Pavement Marking, 24" Solid Line, White
  - Curb Ramp
  - Taper Curb From Full Ht. To 0' in 2'
  - Terminate Curb/Curb & Gutter
  - Tree Line
  - Boulder Group, See Landscape Plan
  - Concrete Parking Bumper (@ ADA Space); Contractor to Submit Shop Drawings for Engineer Review & Approval
  - R1-1 "STOP" Sign & Post
  - R7-8 "RESERVED PARKING" (ADA Accessible) Sign & Post
  - R7-8P "VAN ACCESSIBLE" Sign
  - R-63 "ONE WAY DO NOT ENTER" Sign & Post
  - Drainage Structure
  - Pipe End Section
  - Clean-Out
  - Pavement Marking Message "ONLY"
  - Pavement Marking Graphic: Turn Arrow
  - Pavement Marking Graphic: ADA Accessibility Symbol

**PARKING SPACE NOTES**

- All parking spaces 9'-0" wide unless noted otherwise.
- All pavement markings to be 4" solid paint lines, color as noted:  
White: Standard Parking Space  
Blue: ADA Accessible Spaces & Aisles

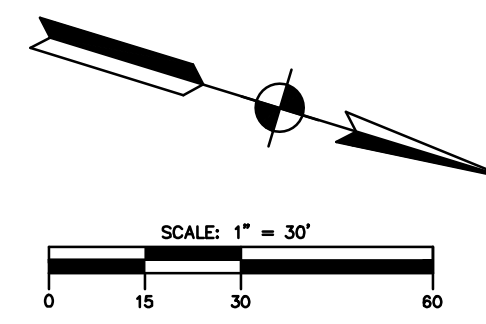
- SITE PLAN CONSTRUCTION NOTES**
- Contractor shall request existing utility location from Indiana 811 prior to commencing construction.
  - Damage to public and private property shall be repaired to equal or better condition at no additional cost to the Owner.
  - No streets shall be closed or restricted without prior approval from the local municipality.
  - Contractor shall protect the work and the safety of the public and shall provide, erect and maintain barricades, signals, signs and other traffic control devices in accordance with the Indiana Manual on Uniform Traffic Control Devices.
  - Contractor shall follow the latest Michigan Department of Transportation Standard Specifications for pavement materials and installation procedures.
  - Contractor shall construct sidewalks, ramps, parking spaces and ADA accessible areas in accordance with the current ADA standards.
  - Traffic sign designations shall comply with the U.S. Dept. of Transportation Federal Highway Administration "Manual on Uniform Traffic Control Devices" (MUTCD).
  - Curb radii noted are dimensioned along the face of curb.
  - Contractor shall bring Drawing discrepancies and conflicts to the attention of the Engineer as soon as they are noticed, for clarifications and revisions as necessary.
  - Contractor shall prepare Record Drawings with field locations and elevations upon completion of the work for submittal to the Engineer.
  - Owner to provide bicycle rack.
  - Site contractor shall coordinate light pole locations as shown on Site Electrical plan, Sheet EC.1.
  - Tree removal for BID ALTERNATE 2A shall be included in BID ALTERNATE 2A and not in the BASE BID.

- GENERAL NOTES**
- Existing Land Use: Vacant  
Proposed Land Use: Library
  - Building setbacks are in accordance with the requirements of the Service Commercial District zoning ordinance.
  - The site will be serviced by municipal sewer and water.
  - Drainage will be collected on-site and managed by the Owner.
  - Parking areas will be paved and privately owned.
  - The site shall conform to area, height and development regulations of the Commercial zoning district unless proper variances are granted.

**TABULATED SITE DATA**

PROPOSED LAND USE	AREA (SQT)	COVERAGE
Building	9,495	4.2%
Pavement	47,625	21.2%
Open Area	167,145	74.6%
TOTAL	224,265	100.0%

**PARKING SPACE SUMMARY**  
62 Spaces Provided Including  
4 ADA Accessible Spaces



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Engineering, Architecture, Land Surveying

**NEW CONSTRUCTION FOR:**  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET  
EDWARDSBURG, MI

**SITE DEVELOPMENT PLAN**

**MODELED BY:** NI

**DESIGNED BY:** JWL/NI

**PM REVIEW:** SDR

**QA/QC REVIEW:** JWL

**DATE:** 12/20/2023

**SEAL:**

STATE OF MICHIGAN  
JOHN W. LINN  
ENGINEER  
No. 39676

**SIGNATURE:** *[Signature]*

**DATE:** 12/20/2023

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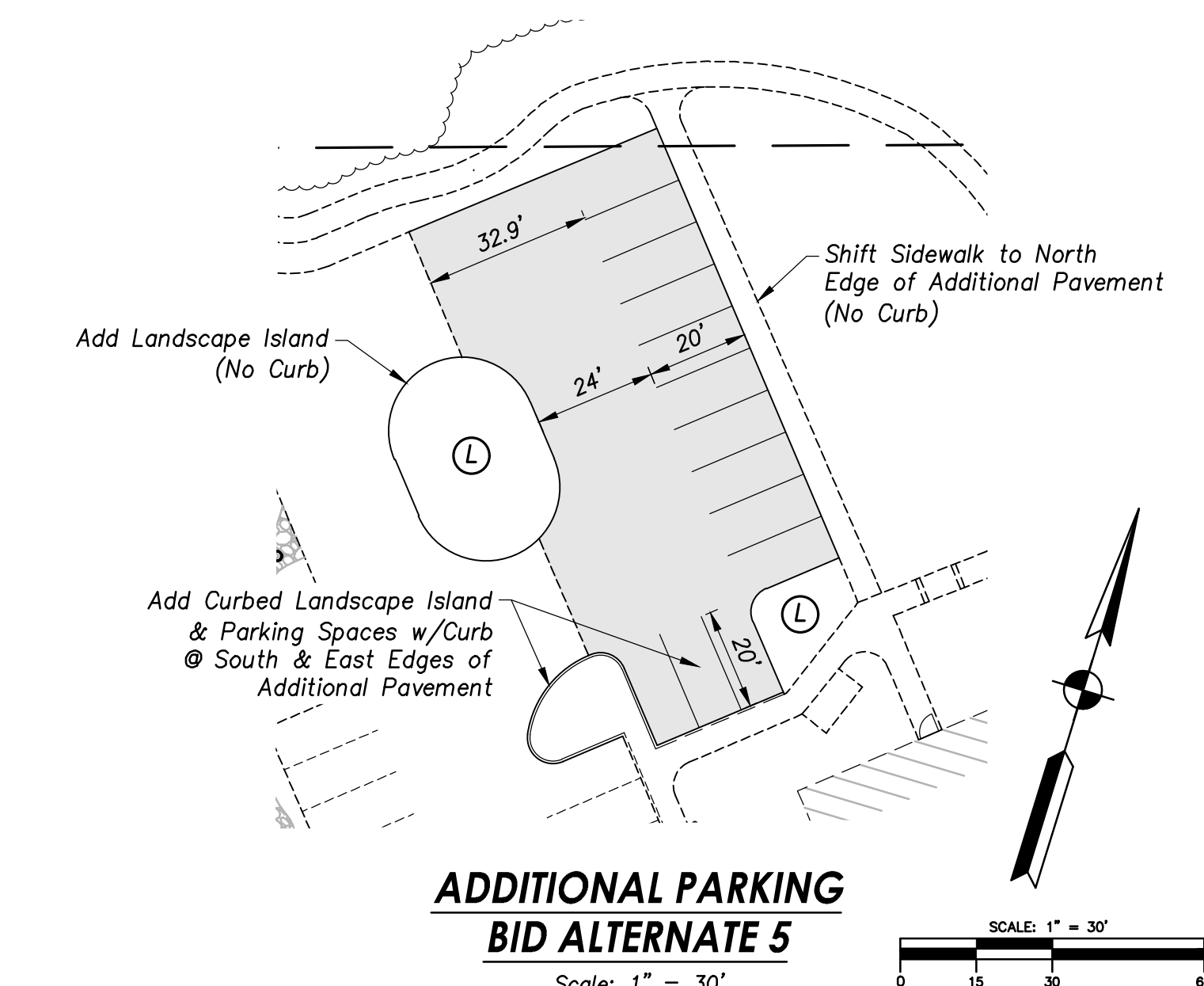
**ACT JOB #**  
**22-1836**

**SHEET NO.**

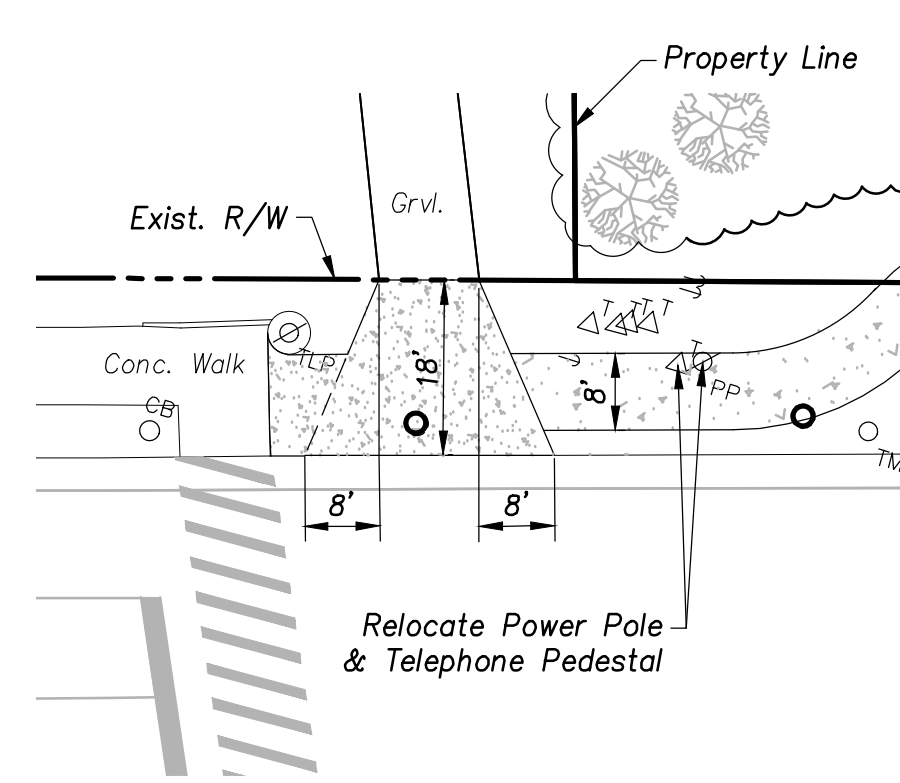
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1	ADDENDUM 1	NI	01/10/2024
NO.	REVISION DESCRIPTION	BY	DATE

**C2.0**

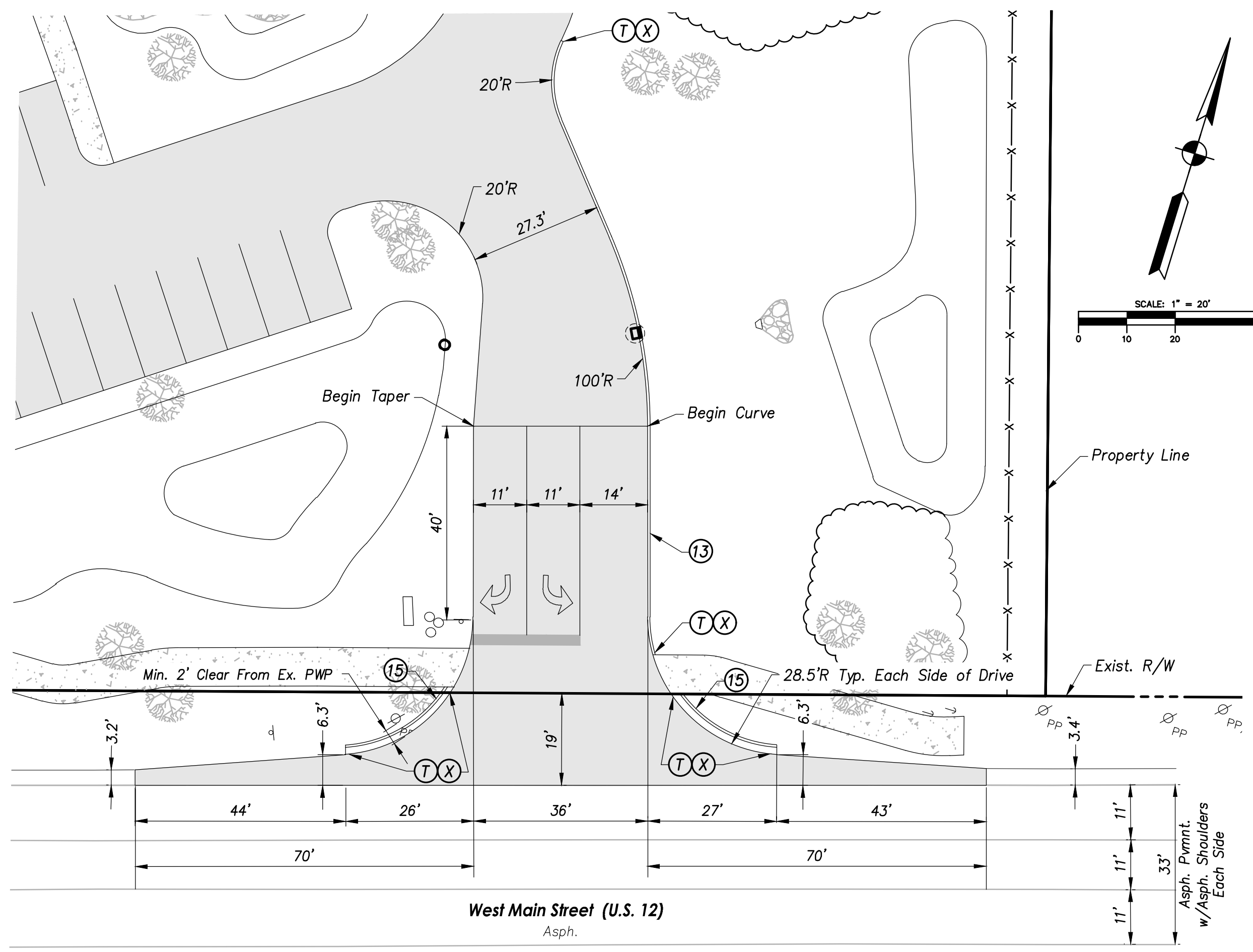




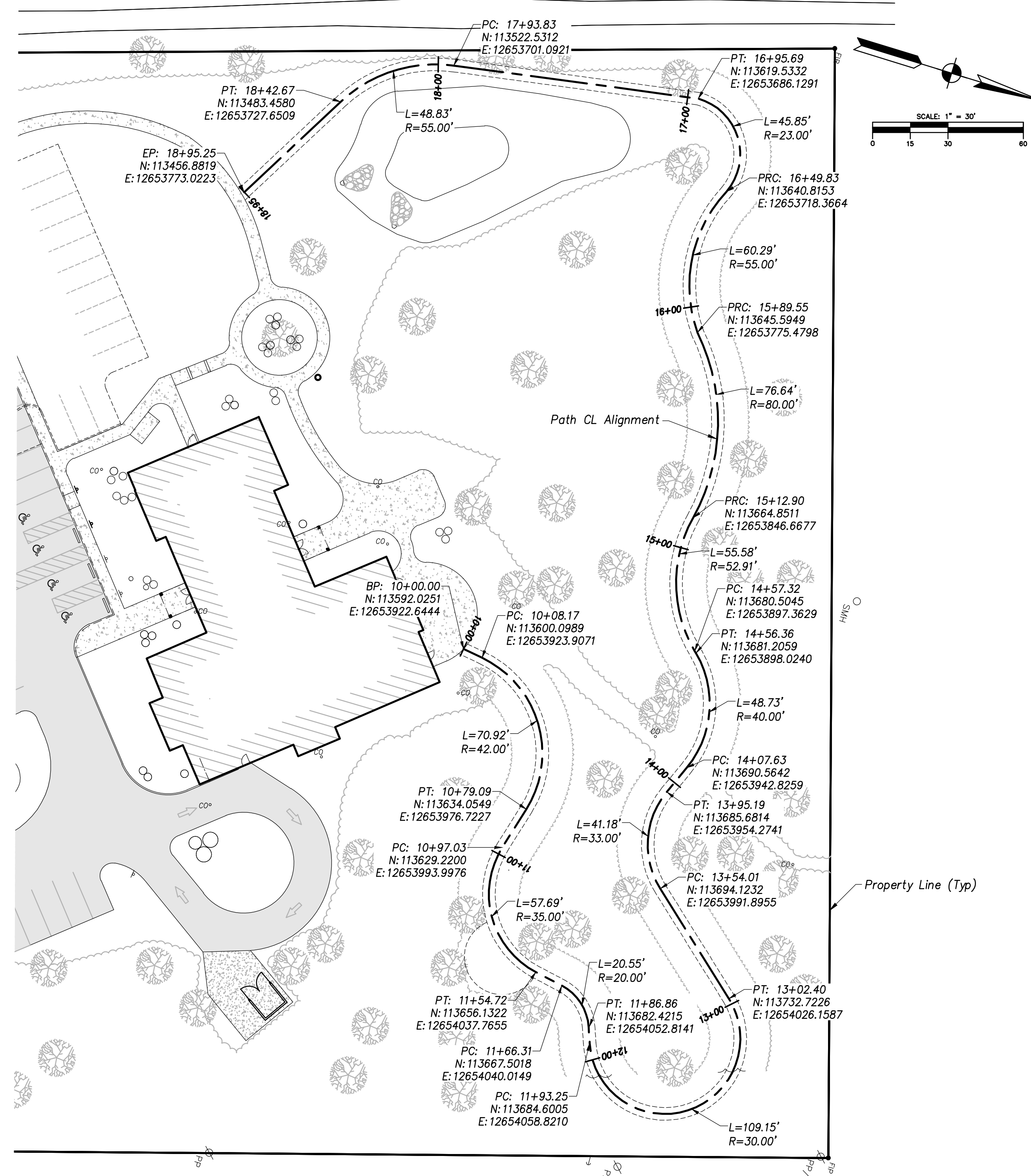
ADDITIONAL PARKING  
BID ALTERNATE 5  
Scale: 1" = 30'



APPROACH LAYOUT DETAIL  
Scale: 1" = 20'



ENTRANCE LAYOUT DETAIL  
Scale: 1" = 20'



LIMESTONE PATH LAYOUT DETAIL  
Scale: 1" = 30'

- PROPOSED FEATURES LEGEND**
- Full Depth HMA Pavement:  
2" HMA Surface  
3-1/2" HMA Base  
6" Compacted 21AA Aggregate Base  
on Compacted Subgrade
  - Concrete Sidewalk
  - 4"-6" Glacial Cobble Stone  
over Non-Woven Geotextile;  
6" Cobble @ Pipe End Sections  
In Accordance w/"Stone Apron &  
Pipe End Section Detail," Sheet C8.1
  - Standard Concrete Curb
  - Concrete Combined Curb & Gutter
  - Landscape Area
  - Taper Curb From Full Ht.  
To 0' in 2'
  - Terminate Curb/Curb & Gutter

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ENGINEERING, ARCHITECTURE, LAND SURVEYING

Fort Wayne  
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Bloomington  
South Bend  
Valparaiso

PROJECT:

NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET  
EDWARDSBURG, MI

SHEET TITLE:

SITE PLAN LAYOUT DETAILS

MODELED BY:

NI

DESIGNED BY:

JWL/NI

PM REVIEW:

SDR

QA/QC REVIEW:

JWL

DATE:

12/20/2023

SEAL:

STATE OF MICHIGAN

JOHN W. LINN

ENGINEER

No. 39676

REGISTERED PROFESSIONAL ENGINEER

SIGNATURE:

DATE:

12/20/2023

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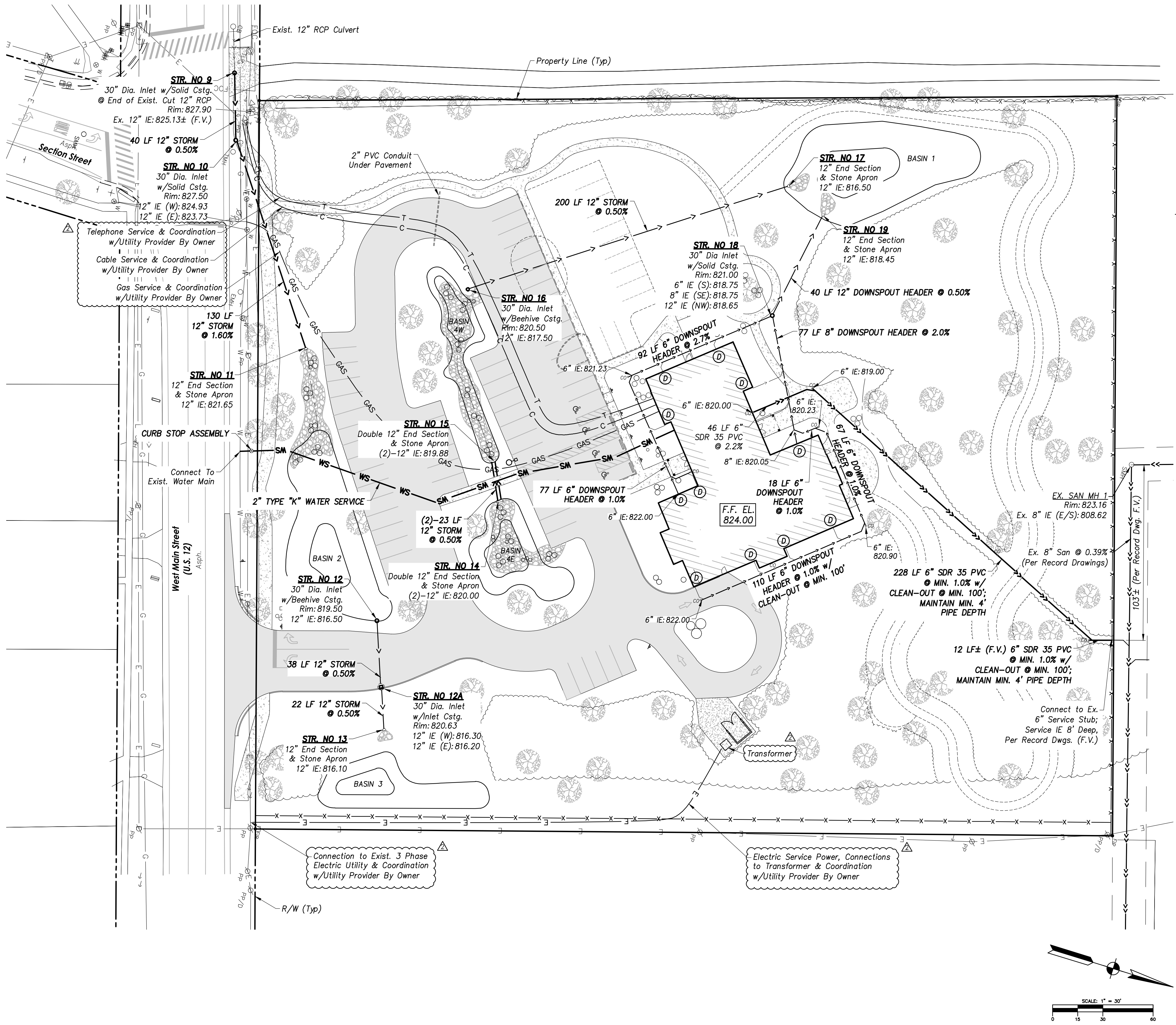
22-1836

SHEET NO.

C2.1

2	ADDENDUM 2	NI	01/23/2024
1	ADDENDUM 1	NI	01/10/2024
NO.	REVISION DESCRIPTION	BY	DATE





EXISTING FEATURES LEGEND

△ T	Telephone Pedestal	⊕	Fire Hydrant
○ SMH	Sanitary Sewer Manhole	— W —	Water Main
○ EMH	Electric Manhole	— S —	Sanitary Sewer
⊙ PP	Power Pole	— C —	Storm Culvert
⊗ TLP	Traffic Strain Pole	— G —	Gas Main
⊗ PP/D	Power Pole w/Drop	— FOC —	Fiber Optic Marker
⊗ PP/L	Power Pole w/Light	— OH —	Overhead Electric
→	Guy Anchor	— X —	Fence
⊗	Large Diameter Tree To Remain	— T —	Tree Line
		--- 872 ---	Contour

PROPOSED FEATURES LEGEND

■	Full Depth HMA Pavement
■	Concrete Pavement
■	Glacial Cobble Stone
— 891 —	Contour
— T —	Tree Line
⊙	Drainage Structure
∞ ∞	Clean-Out
⊙	Downspout Connection
⊗	Boulder Group, See Landscape Plan

STORM SEWER NOTES

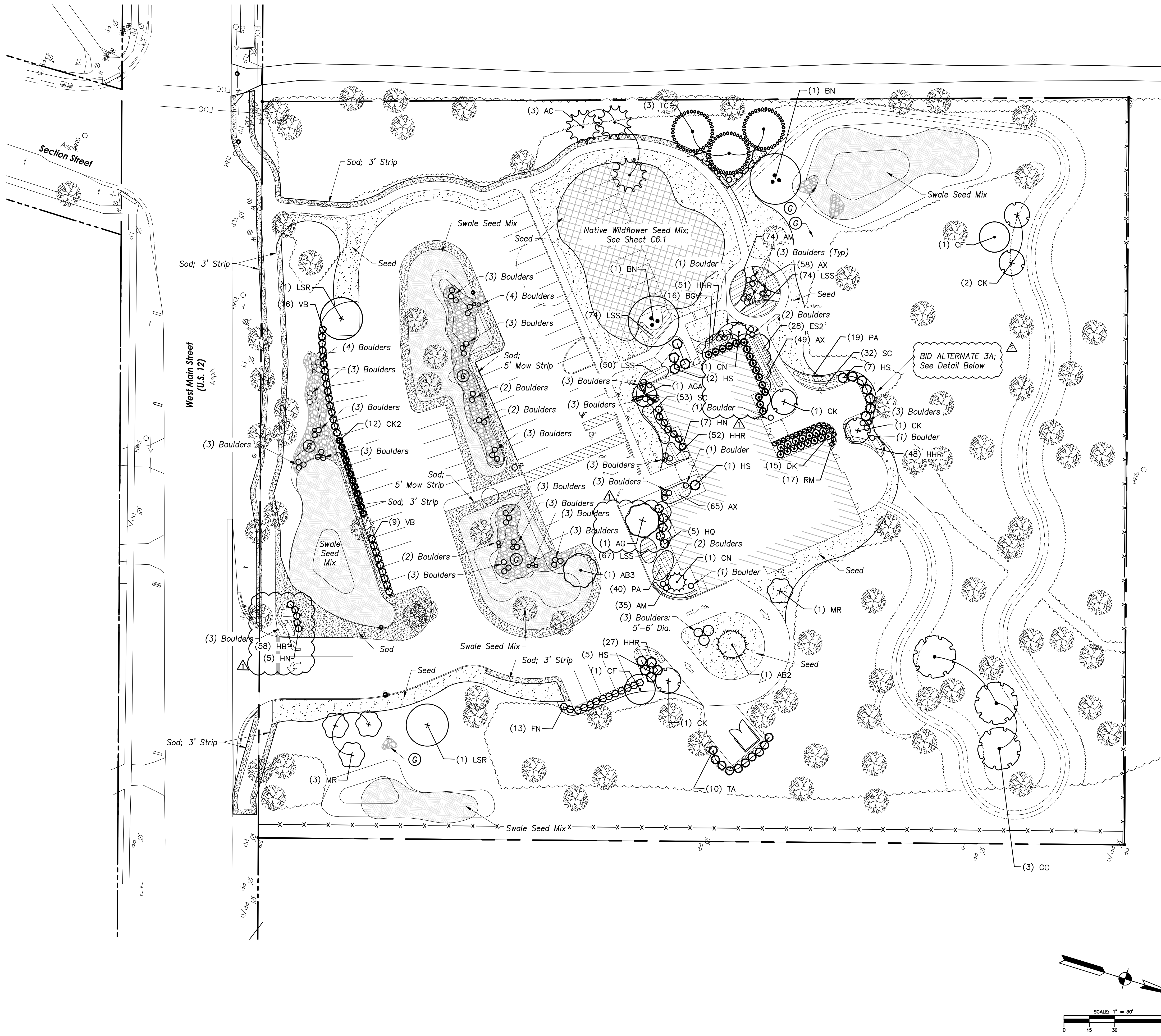
- CASTINGS  
a. Flat Inlet Casting: Neenah R-2502  
b. Beehive Casting: Neenah R-2561-A  
c. Solid Casting: Neenah R-1642
- Storm sewer open grate castings shall be stamped with a fish image and the message: "DUMP NO WASTE - DRAINS TO WATERWAYS"
- Neenah castings specified. Approved equal to specified Neenah Foundry Co. castings may be acceptable if approved by Owner. Contractor to submit casting cut sheets to Owner for review.
- STORM SEWER PIPE  
a. ADS Double Wall HPDE or Approved Equal;  
b. SDR 35 PVC

UTILITIES CONSTRUCTION NOTES

- Contractor is responsible for having existing underground utilities located and field confirming locations and depths prior to commencing construction.
- Contractor shall coordinate utility service locations and depths in the R/W with utility companies prior to installation.
- Contractor shall verify utility service locations and depths at the building with the Architect prior to installation.
- Contractor shall coordinate with utility companies as necessary if service interruption is required.
- Materials, construction and testing shall be in accordance with the current construction standards of the local jurisdiction.
- Contractor shall verify the water table depth and include dewatering costs in the Bid. The water table shall be lowered to at least 12 inches below the lowest pipe invert prior to pipe installation.
- Maintain minimum 10 feet clear of horizontal separation between sewer and water pipes. Maintain minimum 18 inches clear of vertical separation at sewer and water pipe crossings. If clearances cannot be met, sewer shall be water grade pipe in accordance with AWWA standards. At crossings, water grade sewer pipe shall extend a minimum of 10 feet past each side of the crossing, and one full length of water pipe shall be centered at the crossing.
- Maintain minimum 5 feet of cover at water mains & services.
- Unsuitable material that may affect the structural integrity of the pipe shall be replaced or treated to support the anticipated loads.
- Sewer Contractor is responsible shall install castings to within 0.1 feet of finished grade.
- Storm and sanitary sewer castings shall be imprinted with the notices as specified on the construction details.
- Sewer Contractor is responsible shall install castings to within 0.1 feet of finished grade.
- Roof downspouts shall connect to the storm sewer. It is the Contractor's responsibility to review the Arch. plans and confirm downspout locations.
- Utilities other than sewer and water shall be installed underground and placed in PVC conduit where located under pavement sidewalk and curb.
- The main lawn sprinkler service line shall branch off the domestic water service line inside the building and shall have a separate service.
- Remove sediment buildup from storm structures prior to Owner's acceptance of the Work.
- Contractor shall coordinate with municipality for water connection.
- Contractor shall be responsible for obtaining well head protection permit.
- Contractor shall be responsible for relocating/elevating low hanging overhead utilities to allow site access; minimum 20' clearance required.

2	ADDENDUM 2	NI	01/23/2024
1	ADDENDUM 1	NI	01/10/2024
NO.	REVISION DESCRIPTION	BY	DATE





LANDSCAPE NOTES

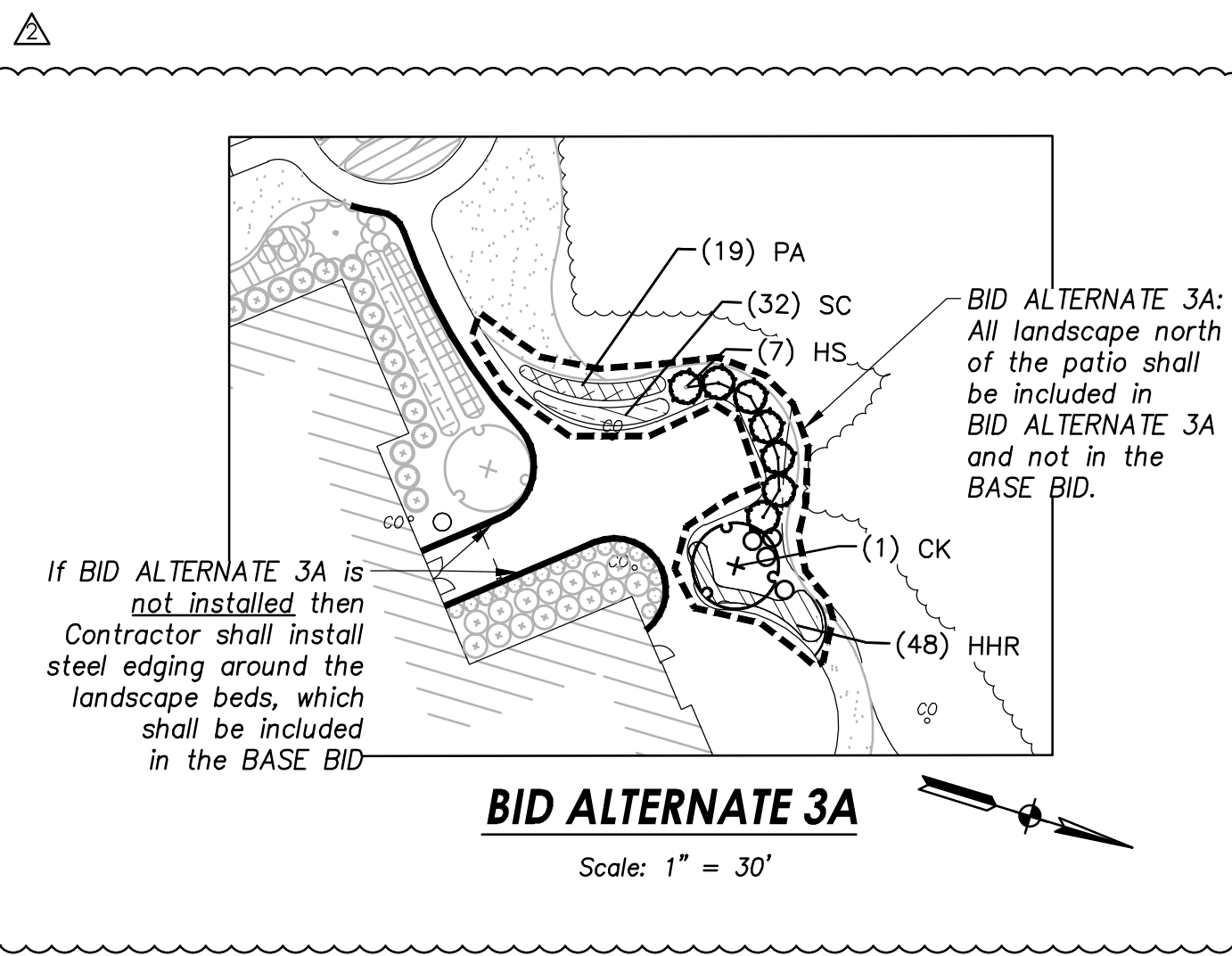
1. Locate all utilities prior to beginning work. Utilities shown were located by field survey, but they may not indicate all underground improvements.
2. Examine existing conditions and verify conditions are acceptable for required work. Notify Engineer of any discrepancies with information shown on plans prior to beginning work.
3. Protect all existing paving, structures, utilities, and plant material indicated to remain. Contractor responsible for any damage to existing features at no expense to the owner.
4. Contractor responsible for removal of any existing grass, weeds, or scrub growth within limits of plant bed edge or within 5' diameter circle around base of each tree.
5. Plants and other materials are quantified and summarized for the convenience of the owner and jurisdictional agencies only. Confirm and install sufficient quantities to complete the work as drawn on the plans. No additional payments will be made for materials required to complete the work as drawn. Contractor responsible for verifying all quantities.
6. All proposed plant substitutions must be approved by the Engineer.
7. All plant material shall be warranted for one (1) year from the date of final acceptance.
8. Plants shall confirm to the minimum measurements listed on the plant list.
9. All plant material shall comply with all recommendations and requirements of ANSI Z60.1-2004 "American Standard for Nursery Stock." Plant material shall be healthy, vigorous stock grown with good horticultural practice under climactic conditions similar to those of the project site, and installed in accordance with methods established by the American Association of Nurserymen.
10. All plant material must be tagged by the nursery of origin for proper identification in the field.
11. All trees and shrubs to be mulched with 3" depth shredded hardwood bark mulch (no dye) free of foreign matter, unless noted otherwise on plan. Perennial beds to receive 2" depth shredded hardwood bark mulch (no dye). Trees outside of bed lines to be mulched with a 5' diameter mulch ring. Mulch shall not be placed within 3" of trunks.
12. Rake topsoil to eliminate uneven areas and remove debris, roots, branches, and stones in excess of 1 inch size, and ensure positive drainage is retained away from buildings during landscape construction activities.
13. All areas disturbed by construction shall be seeded unless noted otherwise.
14. Contractor responsible for erosion control in all seeded areas.
15. All planting bed edges not adjacent to paving or curb shall receive a 1/8" x 4" black steel edging, natural mill finish.
16. Clean all surfaces of soil, mulch, and landscape debris after work is complete.
17. Landscape boulders shall be 3'-5' in diameter unless noted otherwise.
18. Contractor shall clear 20' beyond all proposed elements. All dead fall shall be cleared.
19. Contractor shall place 1" of mulch over swale seed mix.
20. Contractor shall limb up trees remaining in clear area 20' clear area to a height of 12'.

LANDSCAPE LEGEND

- ⑥ 4"-6" Glacial Cobble Stone over Non-Woven Geotextile;
  - 6" Cobble @ Pipe End Sections In Accordance w/"Stone Apron & Pipe End Section Detail", Sheet C9.1
- For Boulder/Stone Placement At Basins, See Detail, Sheet C6.1

LANDSCAPE DETAILS

See Sheet C6.1.



2	ADDENDUM 2	NI	01/23/2024
NO.	REVISION DESCRIPTION	BY	DATE

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PROJECT:

NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET  
EDWARDSBURG, MI

SHEET TITLE:

LANDSCAPE PLAN

MODELED BY:

DEF

DESIGNED BY:

SDR/DEF

PM REVIEW:

SDR

QA/QC REVIEW:

JWL

DATE:

12/20/2023

SEAL:

STATE OF MICHIGAN  
ENGINEER  
JOHN W. LINN  
No. 39676

SIGNATURE:

DATE:

12/20/2023

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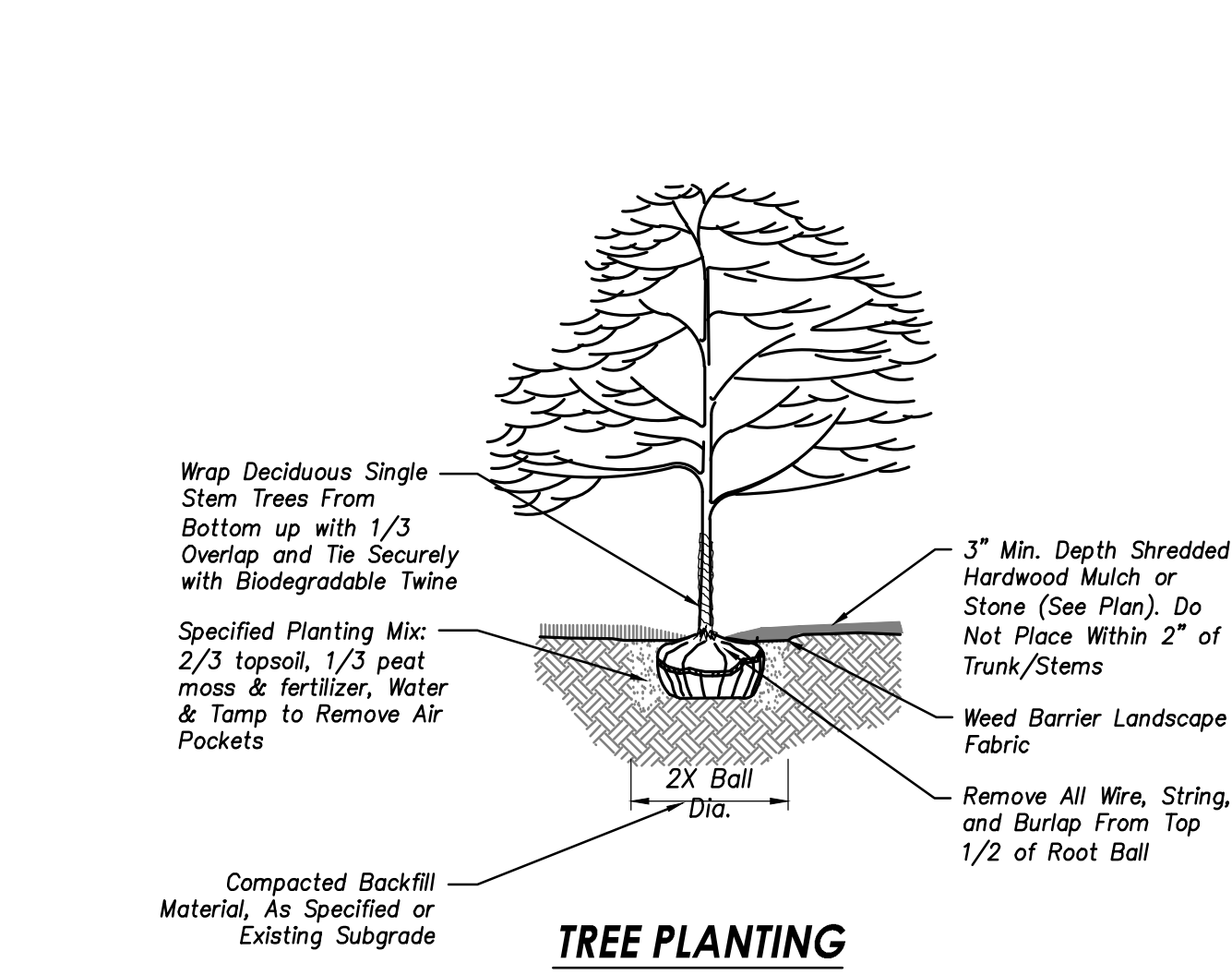
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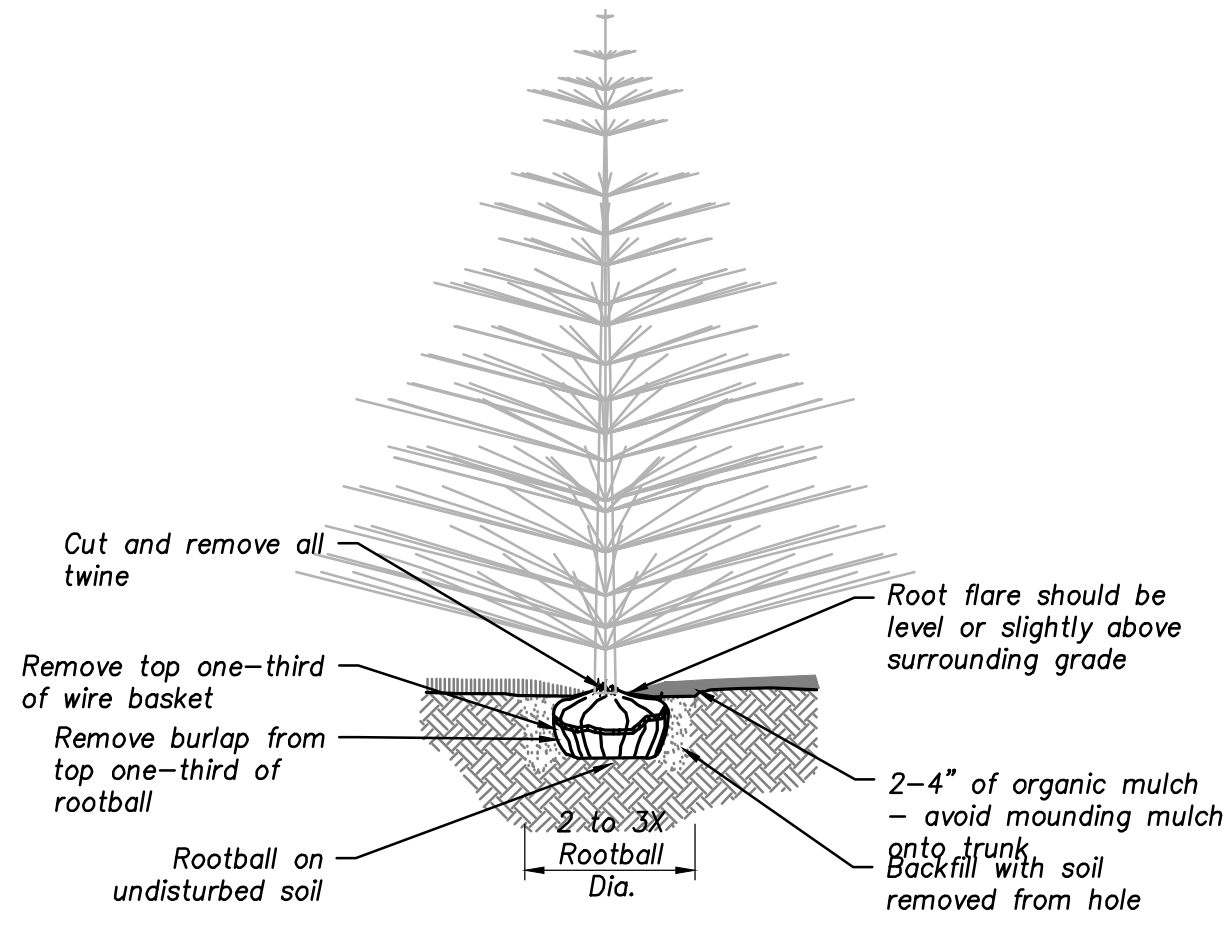
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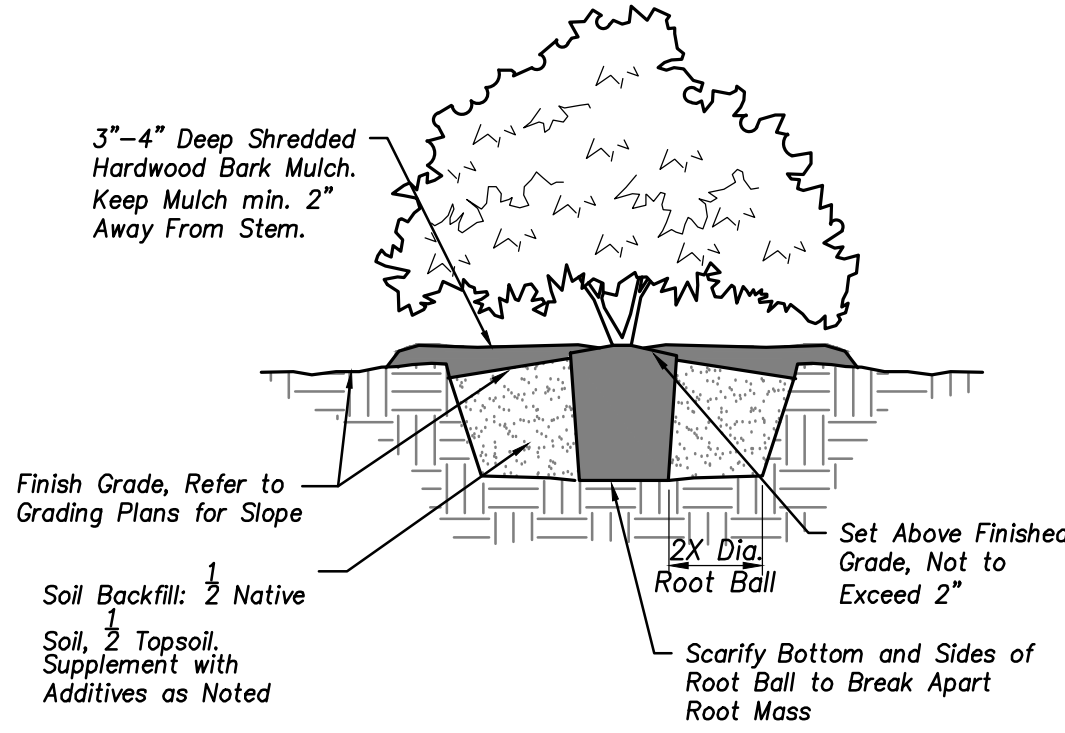




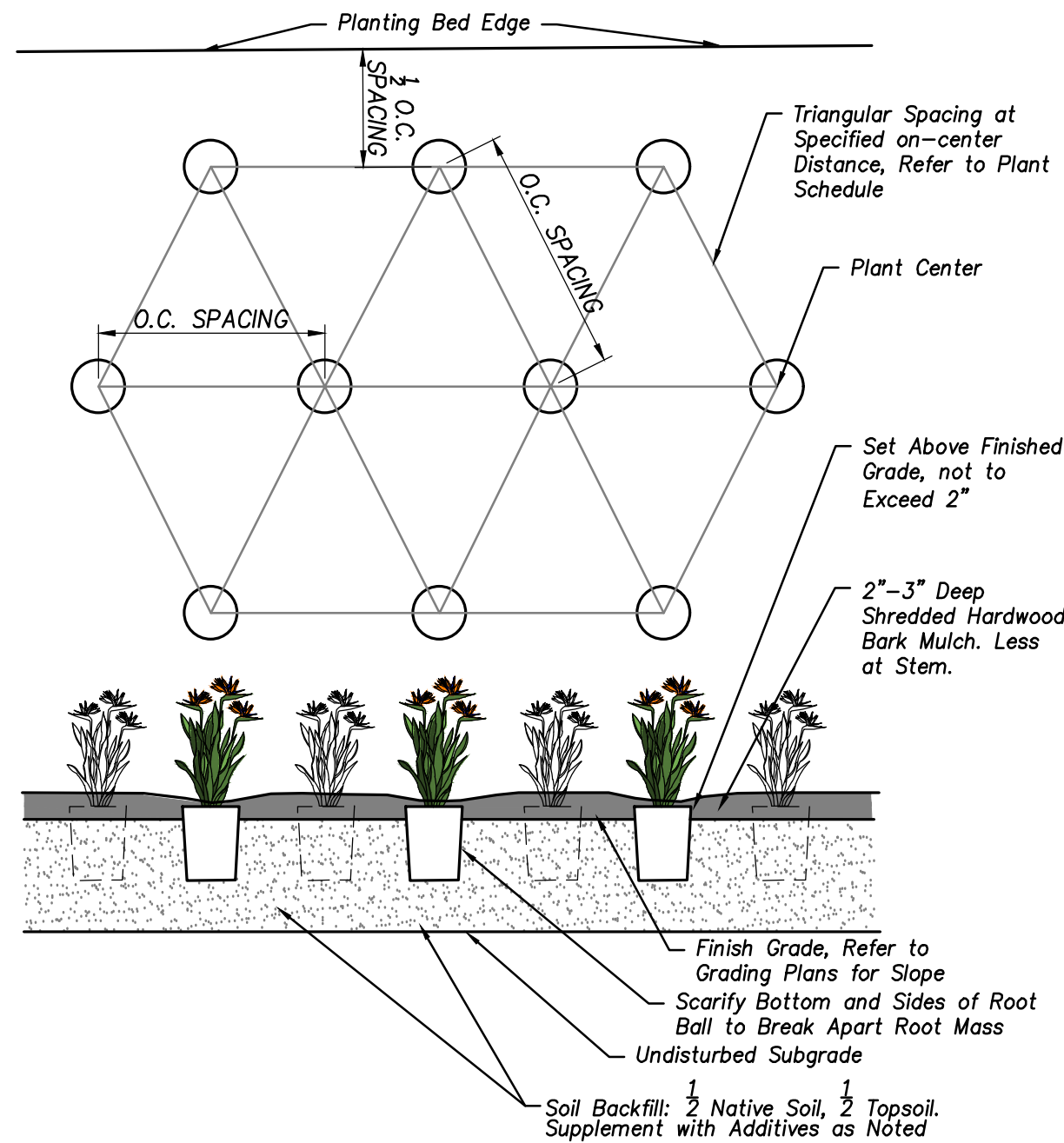
TREE PLANTING



EVERGREEN TREE PLANTING



SHRUB BED PLANTING

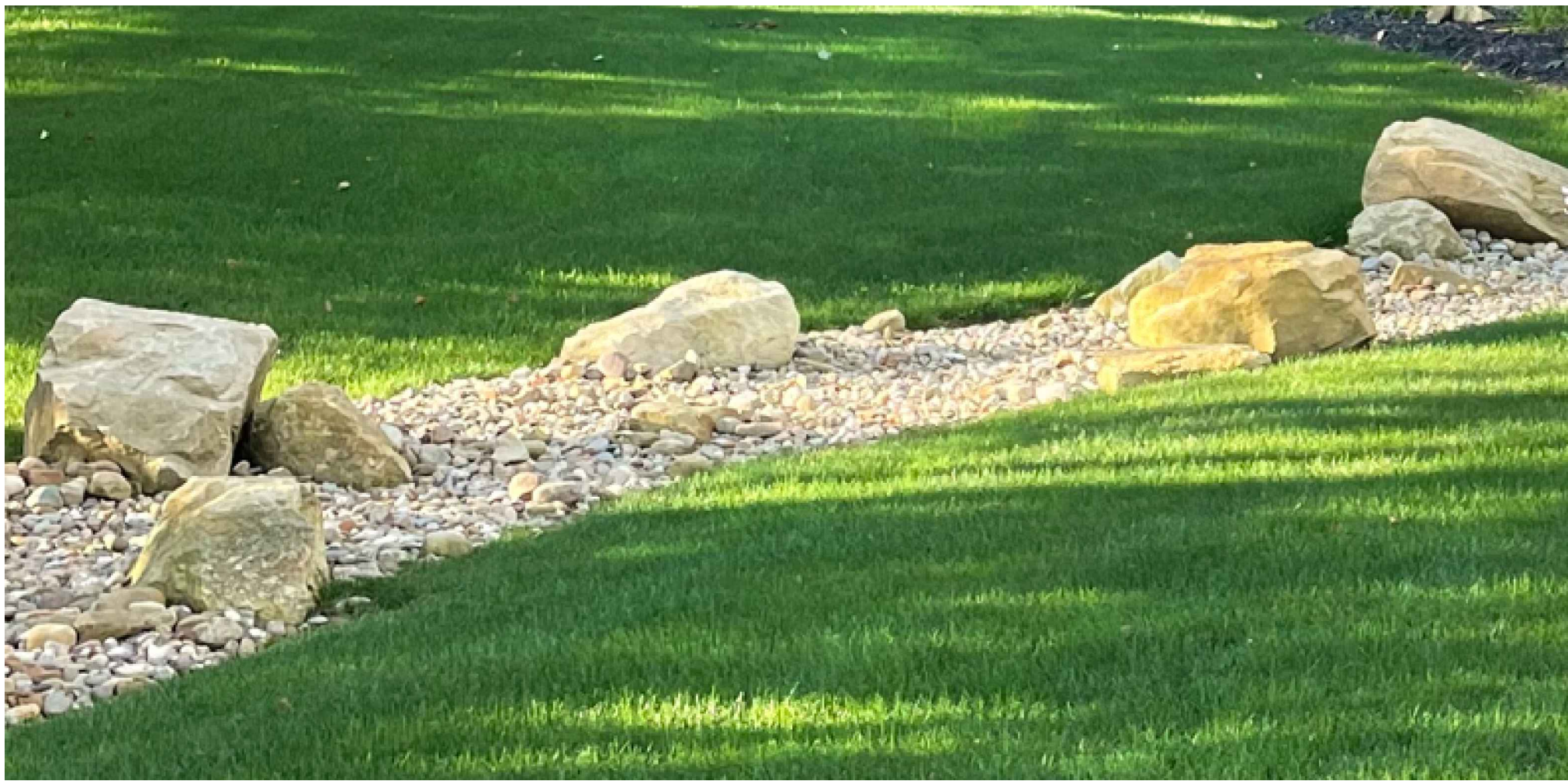


PERENNIAL PLANTING

NATIVE WILDFLOWER MIX

This seed mix includes quick-blooming native wildflowers to provide initial color during native prairie establishment, especially on restoration sites. This mix contains many species beneficial to native bees and pollinators and can be used to supplement other seed mixes or existing natural areas. This seed mix includes at least 10 of 12 native forb species. Apply at 4.63 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Native Species:		
Asclepias syriaca	Common Milkweed	4.00
Chamaecrista fasciculata	Partridge Pea	16.00
Coreopsis lanceolata	Sand Coreopsis	8.00
Desmanthus illinoensis	Illinois Sensitive Plant	12.00
Echinacea purpurea	Broad Leaved Purple Coneflower	12.00
Lupinus perennis v. occidentalis	Wild Lupine	4.00
Monarda fistulosa	Wild Bergamot	1.50
Penstemon digitalis	Forgive Me Beard Tongue	1.00
Ranibida pinnata	Yellow Coneflower	4.00
Rudbeckia hirta	Black Eyed Susan	10.00
Solidago speciosa	Showy Goldenrod	0.50
Symphoricarpon laeve	Smooth Blue Aster	1.00
Total:		74.00



ROCK AREAS AT BASINS

Contractor shall use 4-6" cobblestone in rock areas. Boulders shall be 4-6".

Swale

Best suited for drainage swales or depressions, the native plants used in this mix help filter pollutants from lawns and pavement runoff. This seed mix can also be applied to areas that temporarily retain water after a rain event or dry-bottomed detention basins. The swale seed mix includes at least 10 of 12 native permanent grass and sedge species and 12 of 17 native forb species to provide diversity for establishment. Apply at 37.00 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
Andropogon gerardii	Big Bluestem	4.00
Carex cristatella	Crested Oval Sedge	0.50
Carex lurida	Bottlebrush Sedge	3.00
Carex spp.	Prairie Sedge Species	8.00
Carex vulpocarpa	Brown Fox Sedge	3.00
Elymus canadensis	Canada Wild Rye	16.00
Elymus virginicus	Virginia Wild Rye	16.00
Juncus canadensis	Canadain Rush	1.00
Panicum virgatum	Switch Grass	3.00
Scirpus atrovirens	Dark Green Rush	2.00
Scirpus cyperinus	Wool Grass	0.50
Spartina pectinata	Prairie Cord Grass	3.00
Total:		60.00
Temporary Cover		
Avena sativa	Common Oat	512.00
Total:		512.00
Forbs		
Alisma subcordatum	Common Water Plantain	1.00
Asclepias incarnata	Swamp Milkweed	2.00
Coreopsis tripteris	Tall Coreopsis	1.00
Euthamia graminifolia	Common Grass-Leaved Goldenrod	0.50
Eutrochium maculatum	Spotted Joe Pye Weed	1.00
Iris virginica v. sibirica	Blue Flag	4.00
Liatris spicata	Marsh Blazing Star	1.00
Lycopus americanus	Common Water Horehound	0.50
Mimulus ringens	Monkey Flower	0.50
Pentstemon spectabilis	Orchid Stemon	1.00
Pycnostemon virginianum	Common Mountain Mint	0.50
Rudbeckia triloba	Brown-Eyed Susan	1.00
Silene helioscopia	Wild Silene	1.00
Staphylea trifoliate	Prairie Dock	1.00
Symphoricarpon laeve v. anglicae	New England Aster	0.50
Verbena hastata	Blue Vervain	1.50
Zizia aurea	Golden Alexanders	2.00
Total:		20.00

PLANT SCHEDULE

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING
TREES						
AB3	1	Acer buergerianum	Trident Maple	2.5" Cal		
AG	1	Acer griseum	Paperbark Maple	2.5" Cal	B&B	
BN	1	Betula nigra	River Birch Multi-Trunk	8'-10' HT	B&B	40' O.C.
LSR	2	Liquidambar styraciflua 'Rotundiloba'	Round-Lobed Sweet Gum	2.5" Cal	B&B	40' O.C.
EVERGREEN TREES						
AB2	1	Abies balsamea	Balsam Fir	10'-12' HT		
AC	3	Abies concolor	White Fir	10'-12' HT		
CN	2	Callitropsis nootkatensis 'Pendula'	Weeping Nootka False Cypress	6'-8' HT		
TA	10	Thuja occidentalis 'Art Boe'	North Pole® Arborvitae	6'-8' HT		
TC	3	Tsuga canadensis	Eastern Hemlock	6'-8' HT		
FLOWERING TREES						
ACA	1	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	8'-10' HT	B&B	15' O.C.
CC	3	Cercis canadensis 'Single Stem'	Eastern Redbud	2" Cal	B&B	25' O.C.
CF	2	Cornus florida 'Cherokee Chief'	Cherokee Chief Dogwood	2" Cal	B&B	As Shown
CK	5	Cornus kousa 'Milky Way'	Milky Way Kousa Dogwood	8'-10' HT	B&B	Multi-Trunk
MR	4	Malus x 'JFS-KWS'	Royal Raindrops® Crabapple	2.5" Cal	B&B	
SHRUBS						
BCV	16	Buxus x 'Green Velvet'	Green Velvet Boxwood	24" Ht	Cont.	4' O.C.
DK	15	Diervilla x 'Kodiak Orange'	Kodiak® Orange Diervilla	15" Ht.	Cont.	4' O.C.
FN	13	Forsythia x 'New Hampshire Gold'	New Hampshire Gold Forsythia	1 Gal		4' O.C.
HS	15	Hamamelis vernalis	Ozark Witchhazel	24" Ht		
HN	12	Hydrangea macrophylla 'Nikko Blue'	Nikko Blue Hydrangea	24" Ht		
HO	5	Hydrangea quercifolia 'Brenhill'	Catsby Gal® Oakleaf Hydrangea	24" Ht	Cont.	
RM	17	Rhododendron x 'Mary Fleming'	Mary Fleming Rhododendron	18" Ht.		
VB	25	Viburnum x 'Burkwoodii'	Burkwood Viburnum	24" Ht		
ORNAMENTAL GRASSES						
CK2	12	Calamagrostis x acutiflora 'Karl Foerster'	Karl Foerster Feather Reed Grass	1 Gal		
PERENNIALS						
AM	109	Allium x 'Millenium'	Millenium Ornamental Chive	1 Gal	Pot	16" O.C.
AX	172	Astilbe x 'Versasprberry'	Younique™ Raspberry Astilbe	1 Gal		
ES2	28	Epimedium stellulatum	Bishops Hat	4" POT		
HR	265	Hemerocallis x 'Happy Returns'	Happy Returns Daylily	1 Gal	Pot	18" O.C.
HB	58	Hemerocallis x 'Little Business'	Little Business Daylily	1 Gal	Pot	18" O.C.
LSS	265	Leucanthemum x superbum 'Snowcap'	Snowcap Shasta Daisy	1 Gal	Pot	16" O.C.
PA	59	Perovskia atriplicifolia 'Little Spire'	Little Spire Russian Sage	1 Gal	Pot	24" O.C.
SC	85	Sedum x 'Carl'	Carl Sedum	1 Gal	Pot	18" O.C.

LANDSCAPE PLAN

SHEET TITLE:

MODELED BY: DEF

DESIGNED BY: SDR/DEF

PM REVIEW: SDR

QA/QC REVIEW: JWJ

DATE: 12/20/2023

SEAL: JOHN W. LINN ENGINEER No. 39676

SIGNATURE: [Signature]

DATE: 12/20/2023

HARD COPY IS INTENDED TO BE 24" x 36" WHEN PLOTTED SCALE(S) INDICATED AND GRAPHIC QUALITY MAY NOT BE ACCURATE FOR ANY OTHER SIZES

SCALE: 1" = 30' UNLESS NOTED OTHERWISE

ACT JOB # 22-1836

SHEET NO.

2	ADDENDUM 2	NI	01/23/2024
NO.	REVISION DESCRIPTION	BY	DATE

C6.1

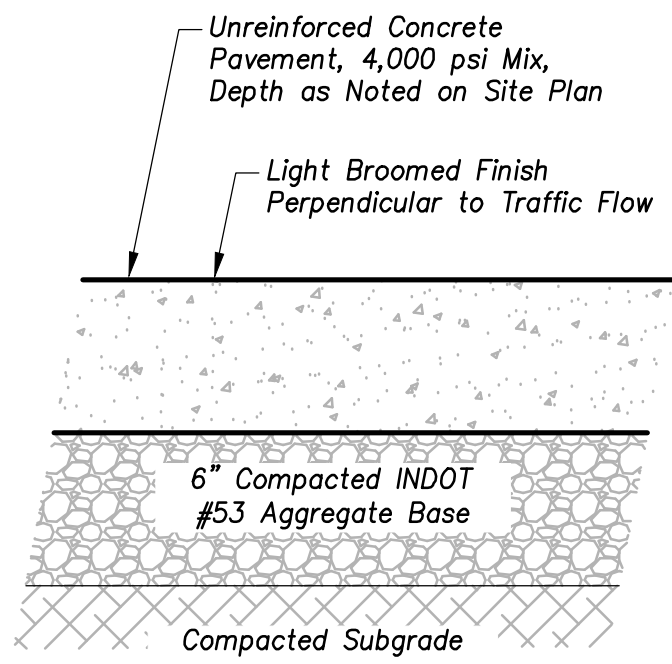
ABONMARCHÉ

315 W. JEFFERSON BLVD  
Ft. Wayne, IN 46601  
T 774.231.4400  
F 774.231.4440  
abonmarche.com

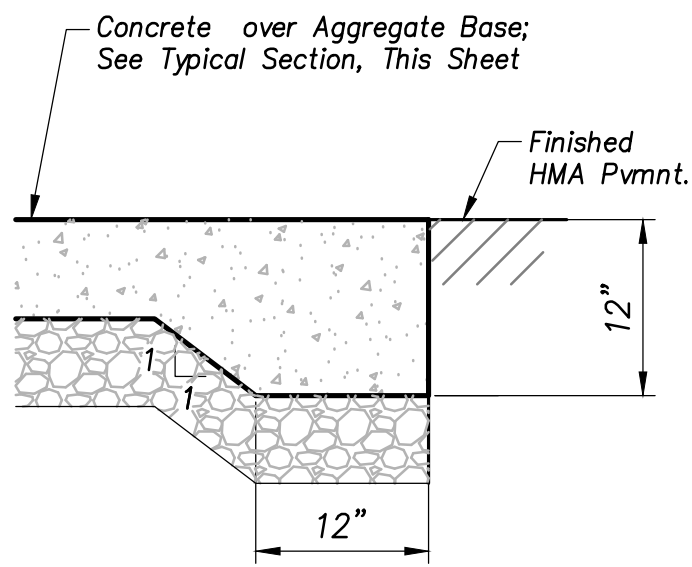
Goshen  
Indianapolis  
Jacksonville  
South Bend  
Valparaiso

Engineering, Architecture, Land Surveying



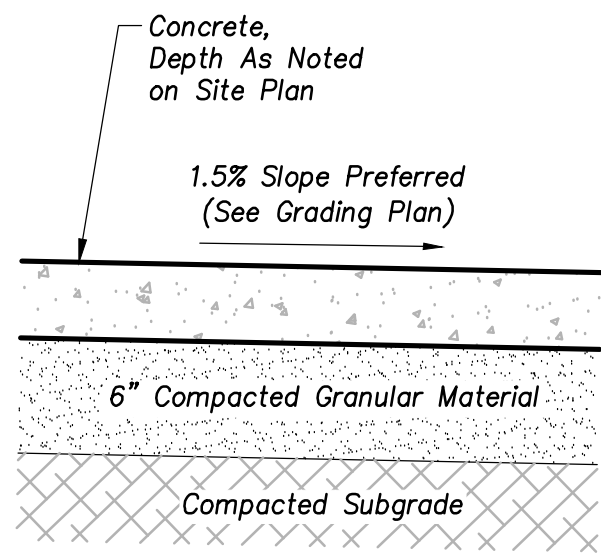


**CONCRETE PAVEMENT**  
(Not To Scale)



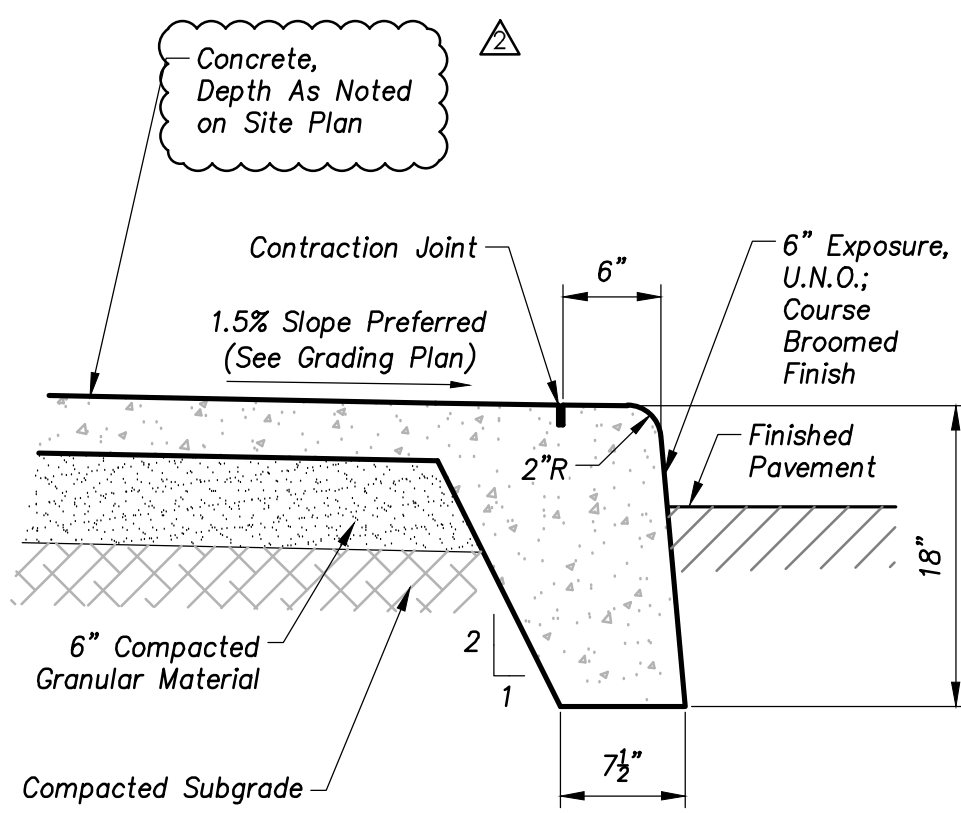
NOTE:  
Thicken concrete edge at interface  
with HMA pavement.

**CONCRETE PAVEMENT/PAD  
THICKENED EDGE**  
(Not To Scale)

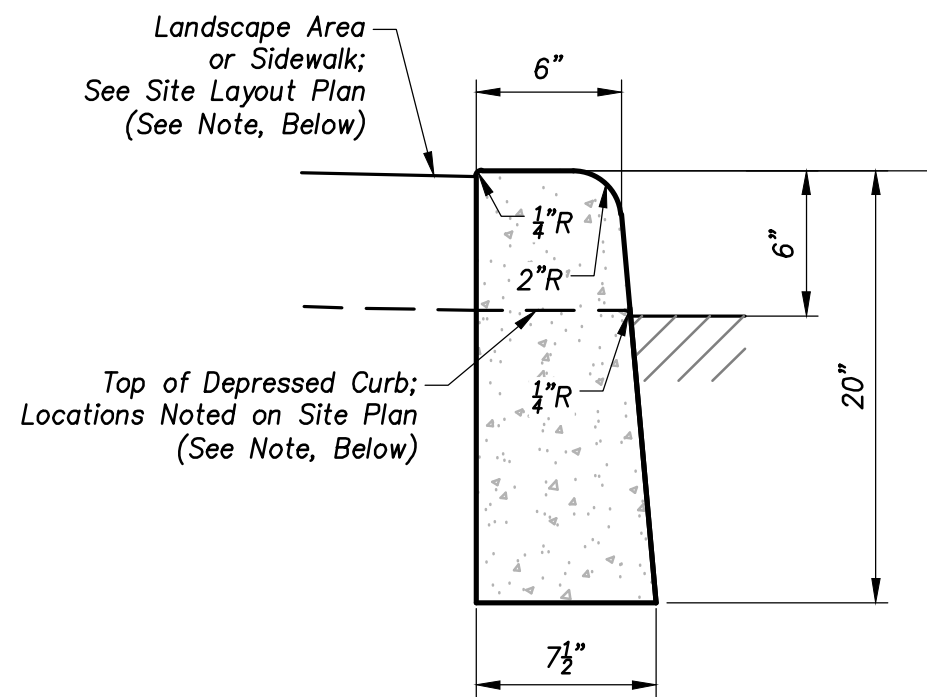


NOTE:  
Where sidewalk is located adjacent to  
the building, install 1/2\"/>

**CONCRETE SIDEWALK**  
(Not To Scale)

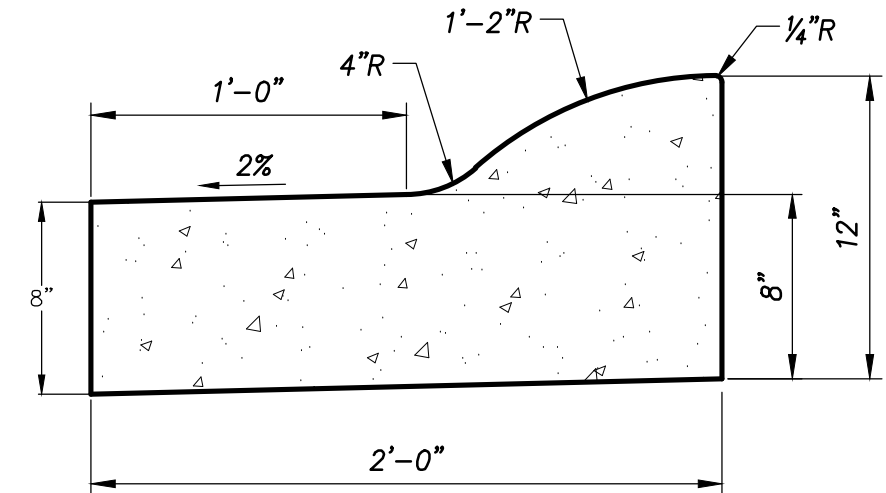


**INTEGRAL CURB**  
(Not To Scale)

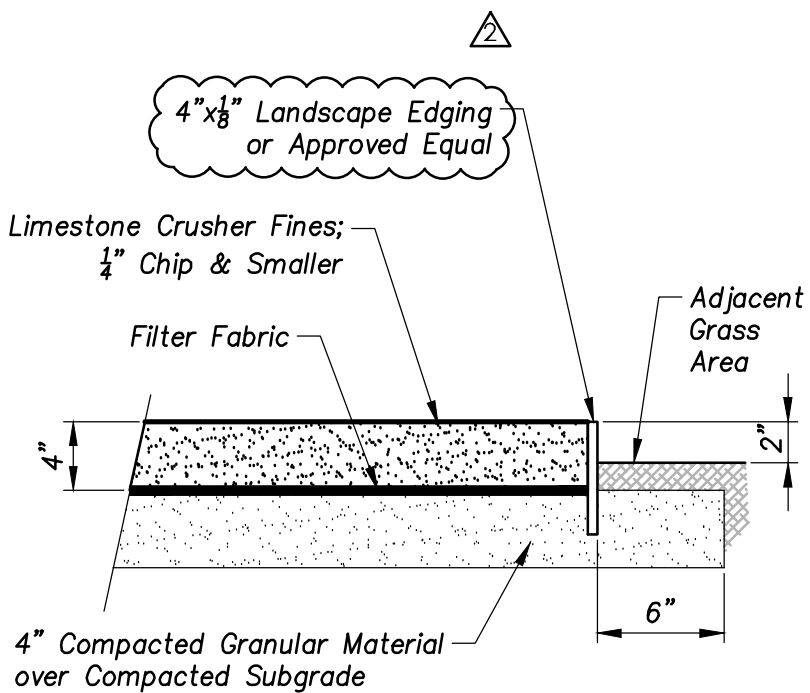


NOTE:  
Where sidewalk is located behind curb, install 1/2\"/>

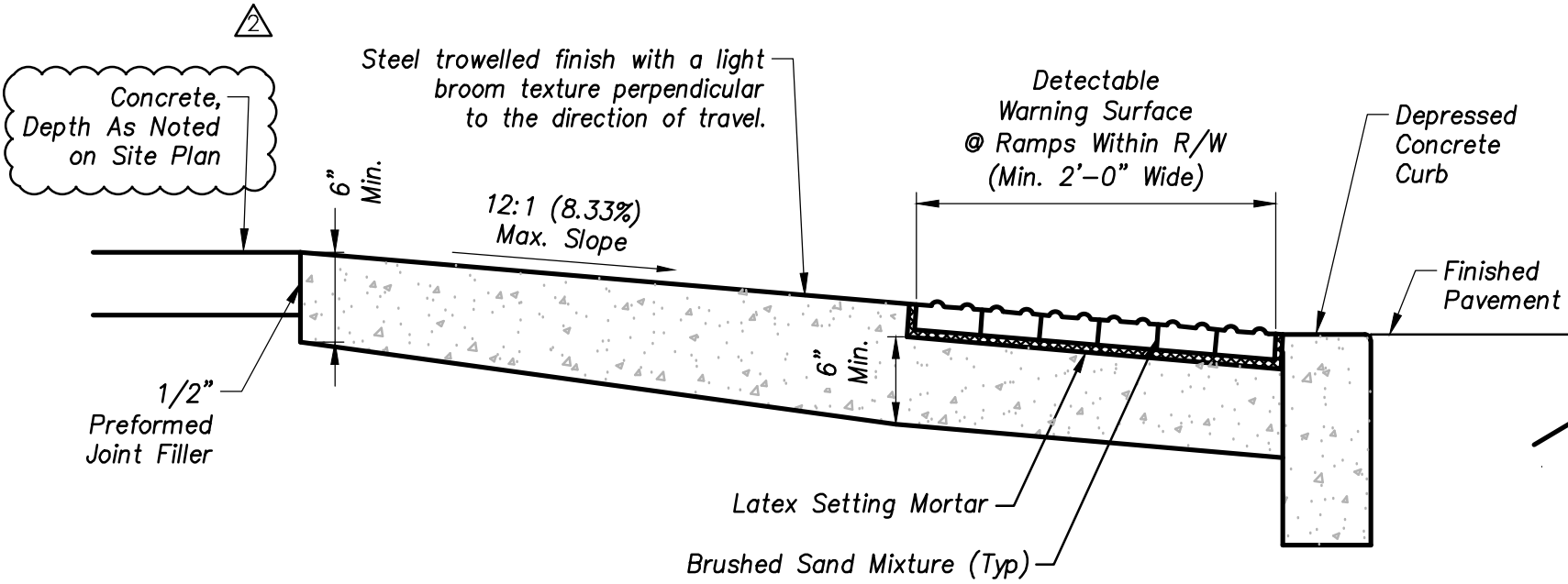
**STANDARD CONCRETE CURB**  
(Not To Scale)



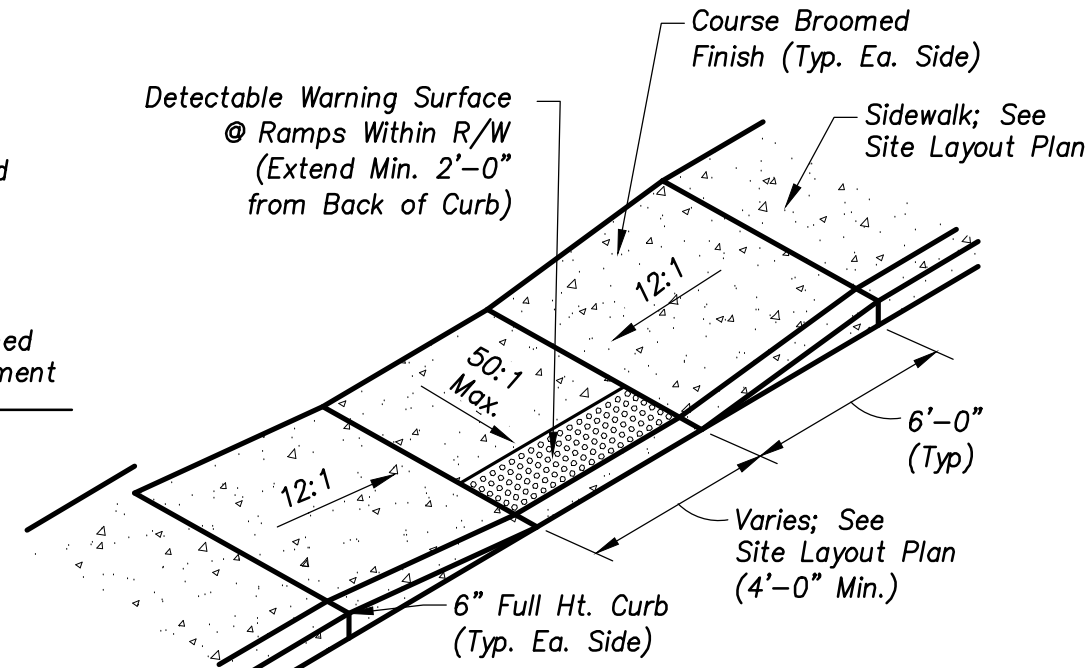
**CONCRETE COMBINED CURB & GUTTER**  
(Not To Scale)



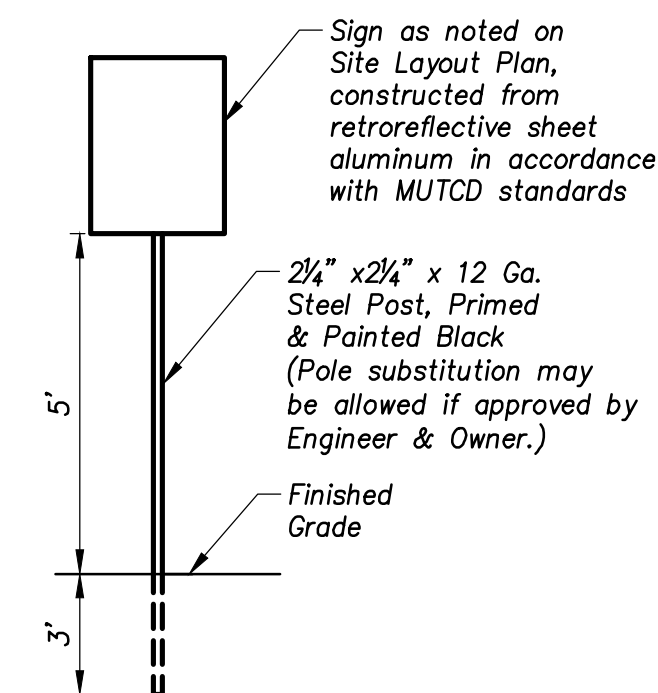
**LIMESTONE PATH**  
(Not To Scale)



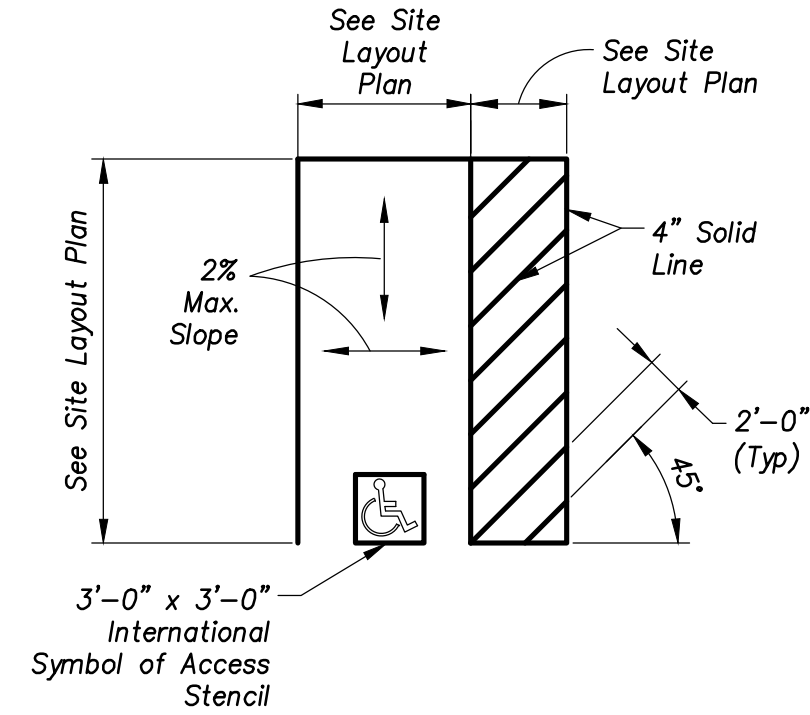
**RAMP SECTION**



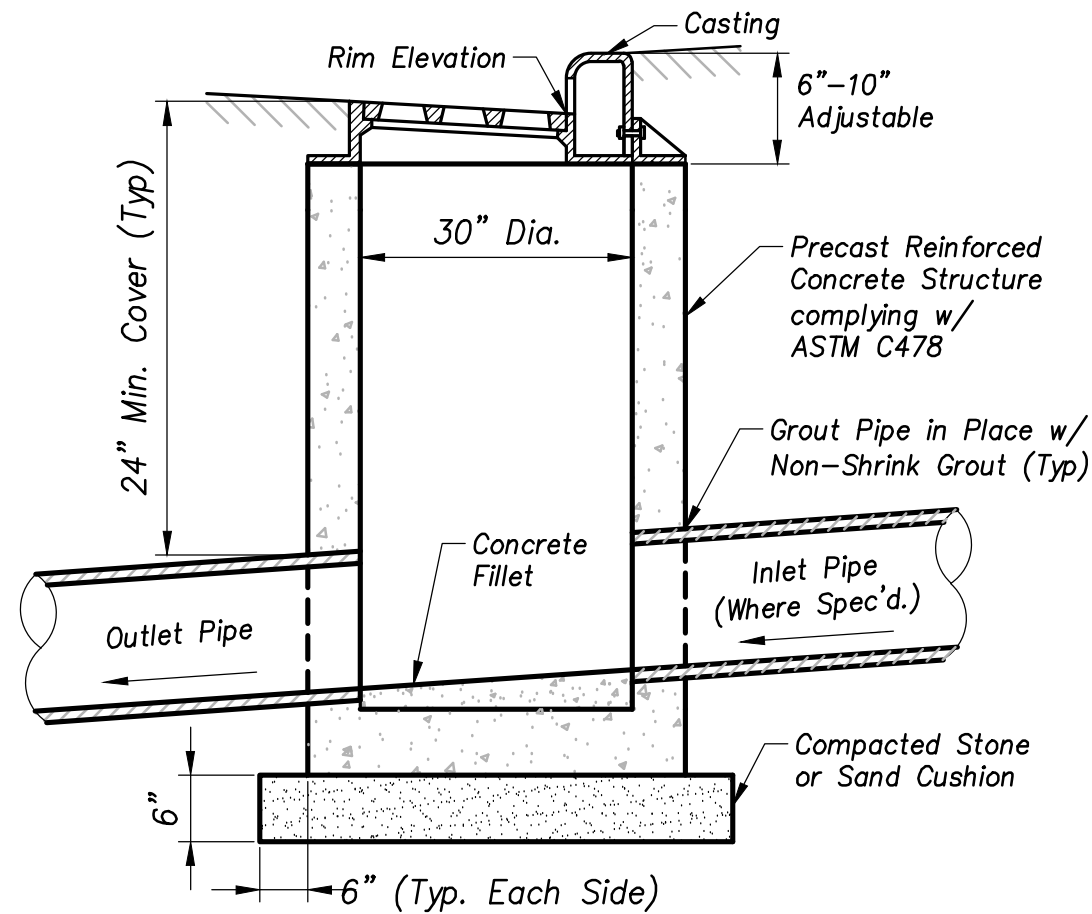
**RAMP ISOMETRIC**



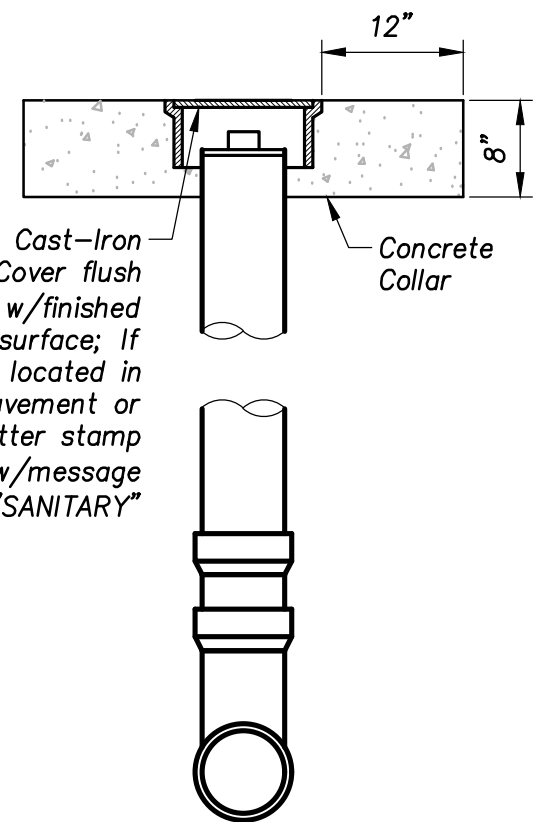
**SIGN & POST**  
(Not To Scale)



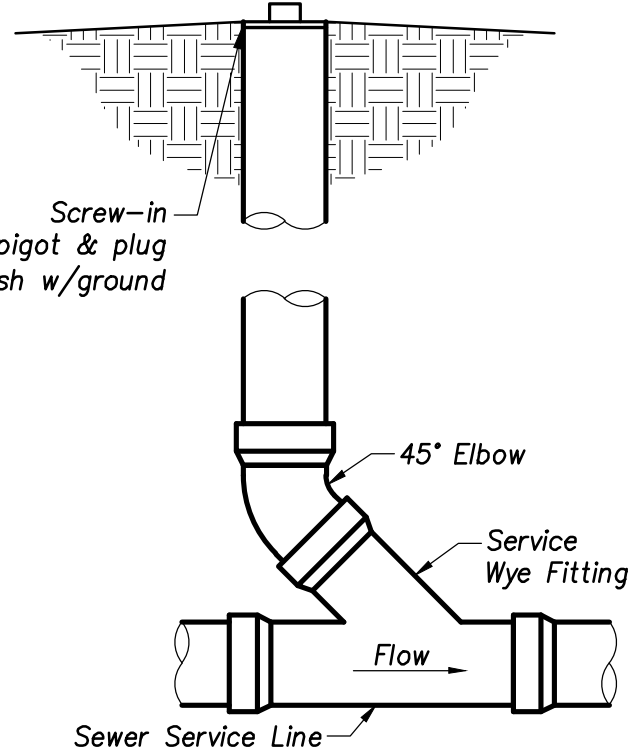
**ADA ACCESSIBLE PARKING SPACE**  
(Not To Scale)



**INLET**  
(Not To Scale)

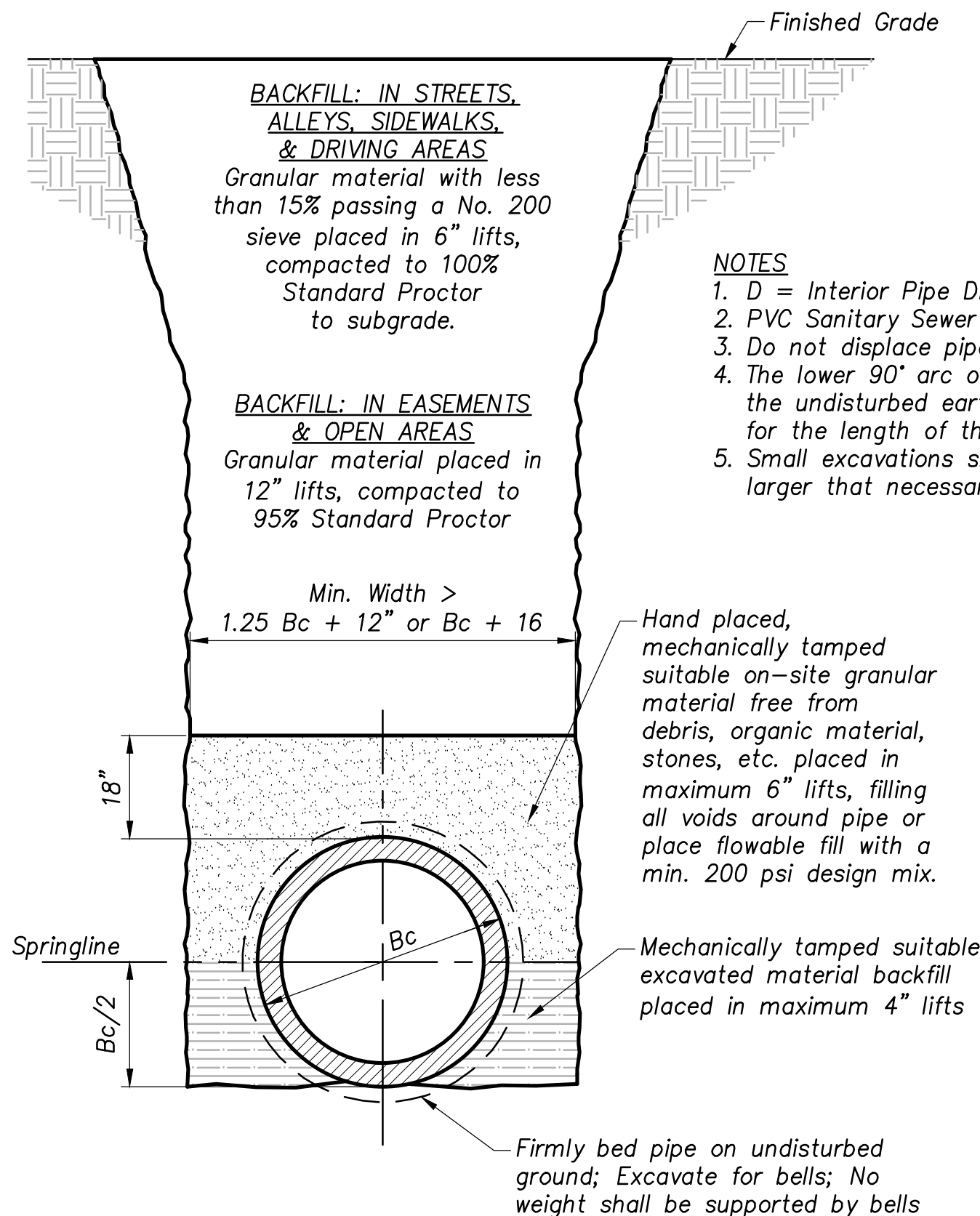


**In Pavement/Gutter**



**In Grass Area**

**CLEAN-OUT**  
(Not To Scale)

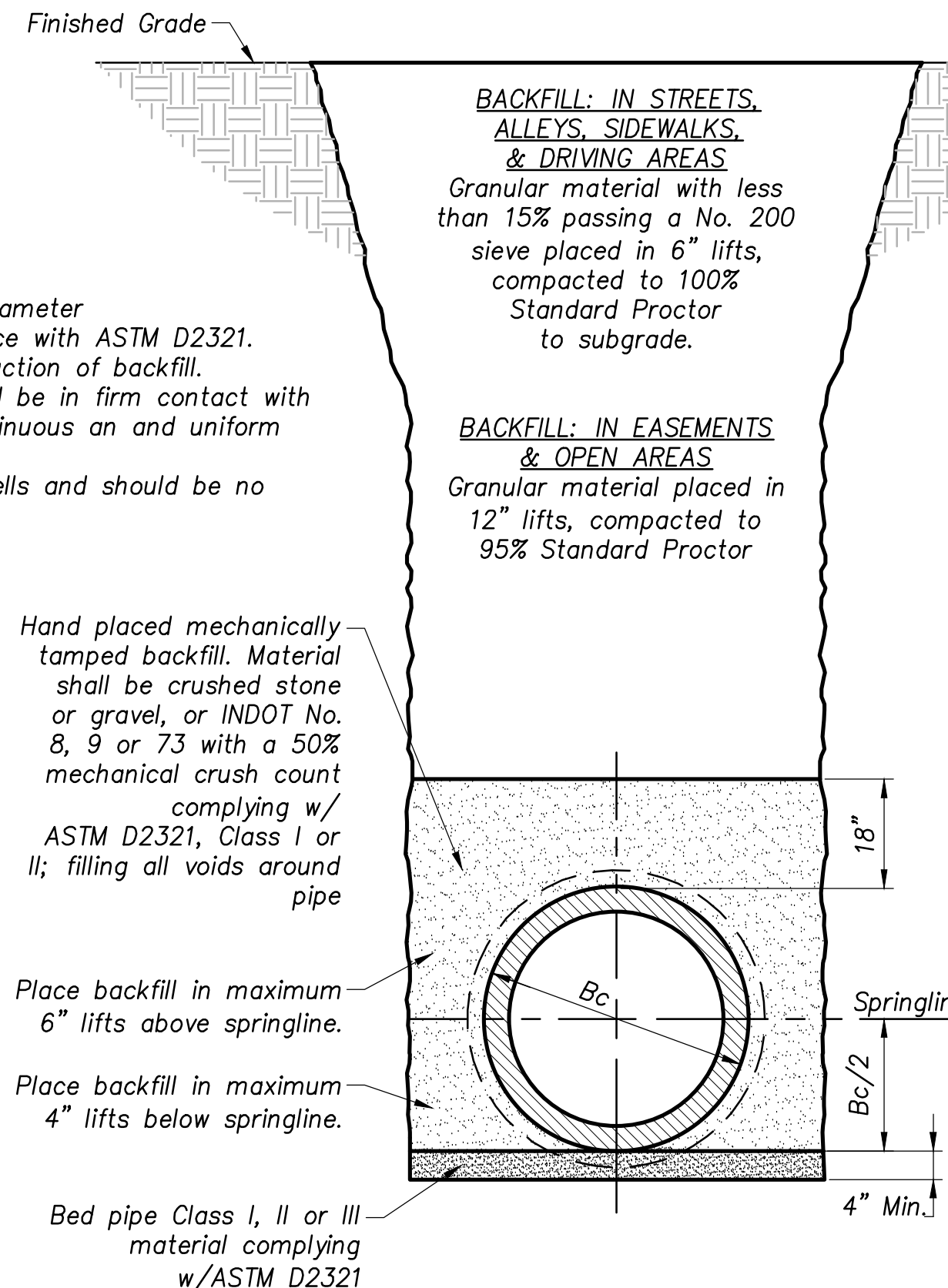


**RIGID PIPE**

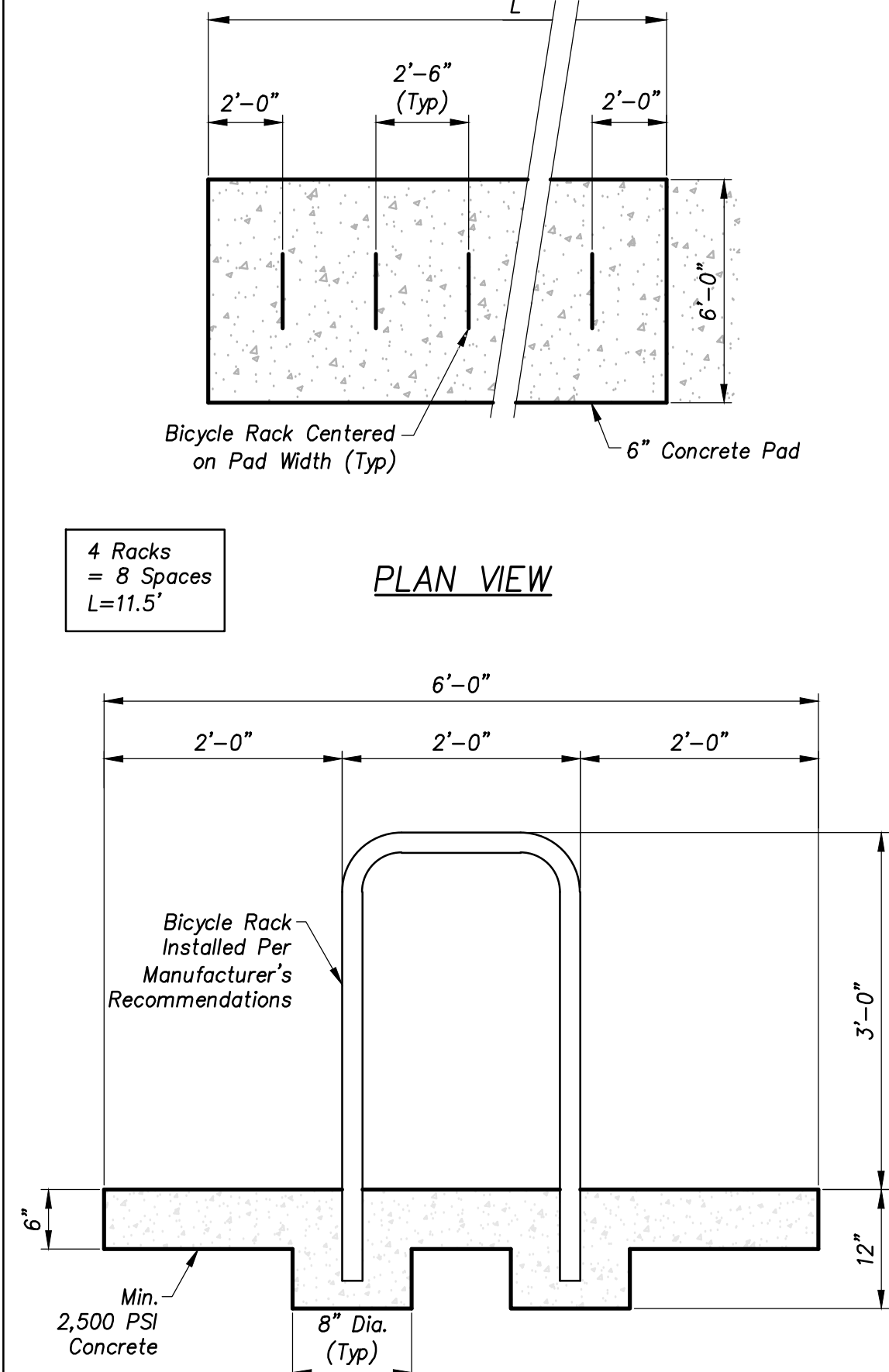
ALLOWABLE MAXIMUM TRENCH WIDTH AT TOP OF PIPE	
D	"W"
6"	27"
8"	27"
10"	30"
12"	33"
15"	36"
18"	39"
21"	42"
24"	48"
27"	51"
30"	57"
36"	68"
42"	75"
48"	82"

An allowable "W" of 30" will be permitted where depth of cut exceeds 12 ft. and extra strength pipe is specified.

**PIPE BEDDING**  
(Not To Scale)



**FLEXIBLE PIPE**



**BICYCLE RACK PAD**  
(Not To Scale)

2	ADDENDUM 2	NI	01/23/2024
NO.	REVISION DESCRIPTION	BY	DATE



## I. DESIGN BASIS

A. BUILDING CODE USED IN THE DESIGN OF THIS STRUCTURE: 2015 MICHIGAN BUILDING CODE.

B. THE EDITIONS REFERENCED IN THE BUILDING CODE LISTED ABOVE SHALL APPLY FOR THE FOLLOWING DESIGN STANDARDS:

1. CONCRETE: ACI 318
2. STRUCTURAL STEEL: AISC STEEL CONSTRUCTION MANUAL, LRFD/ASD
3. STEEL JOISTS & GIRDERS: SJI AMERICAN NATIONAL STANDARD (ASD)
4. COLD-FORMED STEEL: AISI S100
5. METAL DECK: SDI MANUALS
6. WOOD: NDS FOR WOOD CONSTRUCTION

### C. SOIL CAPACITY (ASSUMED AT BOTTOM OF FOOTING)

1. MINIMUM SOIL BEARING PRESSURE = 1,500 PSF
2. CONTRACTOR MUST VERIFY THAT THE SOILS CAN SUPPORT THIS PRESSURE.
3. SOIL CAPACITIES ARE BASED UPON RECOMMENDATIONS OF GEOTECHNICAL REPORT BY PATRIOT ENGINEERING AND ENVIRONMENTAL, INC. DATED JANUARY 5, 2023.

### D. GRAVITY DEAD LOADS

1. ROOF = 20 PSF
2. ALL OTHER = ACTUAL WEIGHTS

### E. GRAVITY LIVE LOADS

1. SLAB ON GRADE = 150 PSF (AT LIBRARY STACK ROOM)
2. SLAB ON GRADE = 100 PSF (ALL OTHER ROOMS)
3. MECHANICAL ATTIC = 80 PSF
4. ROOF = 20 PSF

### F. WIND LATERAL LIVE LOADS

1. ULTIMATE DESIGN WIND SPEED = 115 MPH
2. RISK CATEGORY = II
3. WIND EXPOSURE = C
4. INTERNAL PRESSURE COEFFICIENT,  $GCF_i = \pm 0.18$
5. COMPONENTS/CLADDING WIND PRESSURE: ZONE 1 =  $\pm 21.8$  PSF  
ZONE 2 =  $\pm 37.9$  PSF  
ZONE 3 =  $\pm 56.0$  PSF  
ZONE 4 =  $\pm 25.8$  PSF  
ZONE 5 =  $\pm 31.8$  PSF

### G. SNOW LOADS

1. GROUND SNOW LOAD,  $P_g = 50$  PSF
2. SNOW EXPOSURE FACTOR,  $C_e = 1.0$
3. SNOW IMPORTANCE FACTOR,  $I_s = 1.0$
4. THERMAL FACTOR,  $C_t = 1.0$
5. FLAT ROOF SNOW LOAD,  $P_f = 35$  PSF
6. UNBALANCED, SLIDING AND DRIFTS PER ASCE 7-10

### H. SEISMIC LATERAL LIVE LOADS

1. SEISMIC RISK CATEGORY = II
2. SEISMIC DESIGN CATEGORY = B
3. SITE CLASS = D
4. IMPORTANCE FACTOR,  $I_h = 1.0$
5. RESPONSE MODIFICATION FACTOR,  $R = 3.0$
6. SEISMIC RESPONSE COEFFICIENT,  $C_s = 0.0365$
7. MAPPED SPECTRAL RESPONSE ACCELERATIONS:  $S_s = 0.095$ ;  $S_1 = 0.056$
8. SPECTRAL RESPONSE COEFFICIENTS:  $S_{D2} = 0.102$ ;  $S_{D1} = 0.090$
9. BASIC SEISMIC FORCE RESISTING SYSTEM: STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
10. ANALYSIS USED: EQUIVALENT LATERAL FORCE PROCEDURE

### I. SERVICEABILITY DEFLECTION ( $\Delta$ )=STRUCTURAL COMPONENT SPAN LENGTH/

1. FLOOR: LIVE LOAD =  $L/360$  2. ROOF: LIVE LOAD =  $L/240$   
TOTAL LOAD =  $L/240$  TOTAL LOAD =  $L/180$

## II. OVERVIEW

### A. GENERAL

1. ANY CHANGES TO THE STRUCTURAL DESIGN MUST HAVE WRITTEN APPROVAL FROM THE ENGINEER OR THE CERTIFICATION MAY BE INVALIDATED.
2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR FOLLOWING SAFETY PRECAUTIONS AND REGULATIONS.
3. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR METHODS, TECHNIQUES, SEQUENCING AND SUPERVISION OF THE WORK.
4. THESE DRAWINGS INDICATE GENERAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY DETAILED, CONSTRUCTION SIMILAR TO THE DRAWING DETAILS SHALL BE USED, UNLESS NOTED OTHERWISE.
5. THE CONTRACTOR SHALL USE THESE DRAWINGS TOGETHER WITH THE DRAWINGS AND SPECIFICATIONS OF ALL OTHER DISCIPLINES ON THE PROJECT AND SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES THAT INTERFACE WITH THE STRUCTURAL WORK.
6. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN, INSTALL AND INSPECT ADEQUATE AND SAFE TEMPORARY BRACING, SHORING, ETC. REQUIRED DURING CONSTRUCTION UNTIL ALL STRUCTURAL WORK IS COMPLETED.
7. THE CONTRACTOR SHALL COMPLY WITH THE SUPPLIER'S MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION SPECIFICATIONS FOR ALL STRUCTURAL SYSTEM COMPONENTS.
8. THE CURRENT EDITIONS OF ASTM STANDARDS AND ALL REFERENCES SHALL APPLY UNLESS NOTED OTHERWISE.
9. DEMOLISHED ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE, UNLESS NOTED OTHERWISE.
10. DO NOT SCALE DRAWINGS. USE INDICATED DIMENSIONS ONLY.

### B. SHOP DRAWINGS

1. THE GENERAL CONTRACTOR SHALL REVIEW, CHECK AND COORDINATE THE SHOP DRAWINGS AND SUBMIT A REVIEW STAMPED SET TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS WITHOUT A CONTRACTOR REVIEW STAMP WILL BE REJECTED BY THE ENGINEER.
2. THE ENGINEER WILL REVIEW SHOP DRAWINGS ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT AND GENERAL COMPLIANCE WITH THE DRAWINGS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS.
3. THE ENGINEER SHALL REVIEW THE SHOP DRAWINGS IN ACCORDANCE WITH A SCHEDULE PRE-APPROVED BY THE ENGINEER, OR, IN THE ABSENCE OF A SCHEDULE, IN A MANNER DEEMED TIMELY BY THE ENGINEER.
4. AS A MINIMUM, SUBMIT THE FOLLOWING APPLICABLE SHOP DRAWINGS FOR REVIEW: (1) CONCRETE MIX DESIGN SPECIFICATIONS; (2) CONCRETE REINFORCING STEEL; (3) LOAD BEARING MASONRY REINFORCING STEEL; (4) STRUCTURAL STEEL; (5) STEEL JOISTS/GIRDERS; (6) METAL DECK; (7) WOOD TRUSSES; (8) LOAD BEARING COLD-FORMED STEEL FRAMING; (9) PRECAST CONCRETE.

### C. SPECIAL INSPECTIONS

1. THE **CONTRACTOR** SHALL EMPLOY ONE OR MORE 3RD PARTY SPECIAL INSPECTORS WHO SHALL PROVIDE INSPECTIONS AND MATERIALS TESTING DURING CONSTRUCTION. ALL SPECIAL INSPECTIONS AND TESTING SHALL CONFORM TO THE REQUIREMENTS OF THE 2015 MICHIGAN BUILDING CODE (MBC).
2. SPECIAL INSPECTIONS ARE IN ADDITION TO THE INSPECTIONS CONDUCTED BY THE LOCAL BUILDING OFFICIAL. SPECIAL INSPECTIONS SHALL NOT RELIEVE THE OWNER AND CONTRACTOR FROM REQUESTING THE BUILDING OFFICIAL'S INSPECTIONS REQUIRED BY MBC SECTION 110.
3. SPECIAL INSPECTORS SHALL BE GIVEN PROPER NOTICE AND ACCESS TO THE SITE TO PERFORM TESTING AND INSPECTION AS NECESSARY.
4. REQUIRED CATEGORIES OF SPECIAL INSPECTIONS:
  - a. STEEL CONSTRUCTION (MBC SECTION 1705.2)
  - b. CONCRETE CONSTRUCTION (MBC SECTION 1705.3)
  - c. MASONRY CONSTRUCTION (MBC SECTION 1705.4)
  - d. SOILS (MBC SECTION 1705.6)
5. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:
  - a. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO VERIFY THAT IT CONFORMS TO CONTRACT DOCUMENTS.
  - b. THE SPECIAL INSPECTOR SHALL NOT AUTHORIZE OR APPROVE DEVIATIONS FROM THE CONTRACT DOCUMENTS. ALL DEVIATIONS FROM THE CONTRACT DOCUMENTS MUST BE INITIATED BY THE CONTRACTOR VIA A WRITTEN REQUEST FOR INFORMATION (RFI) AND APPROVED BY THE ENGINEER OF RECORD PRIOR TO PROCEEDING WITH WORK.
  - c. THE SPECIAL INSPECTOR SHALL FURNISH WRITTEN INSPECTION REPORTS TO THE THE CONTRACTOR FOR CORRECTION. IF CORRECTIONS ARE NOT MADE, THE BUILDING OFFICIAL AND ENGINEER AND/OR ARCHITECT SHALL BE NOTIFIED.

## III. FOUNDATIONS

### A. GENERAL

1. FOLLOW ALL RECOMMENDATIONS OF THE GEOTECHNICAL REPORT FOR SITE BY PATRIOT ENGINEERING AND ENVIRONMENTAL, INC. DATED JANUARY 5, 2024.
2. FOOTINGS SHALL BEAR ON UNDISTURBED, FIRM, NATURAL SOIL OR COMPACTED FILL CAPABLE OF SUPPORTING THE MINIMUM SOIL BEARING PRESSURE SPECIFIED IN THE 'DESIGN BASIS' SECTION OF THESE STRUCTURAL NOTES. A GEOTECHNICAL ENGINEER/TESTING AGENCY SHALL EVALUATE FOUNDATION EXCAVATIONS PRIOR TO PLACING FOUNDATION CONCRETE.
3. CONTRACTOR SHALL REMOVE UNSUITABLE SOILS FROM BELOW THE BUILDING AND PLACE SUITABLE FILL MATERIAL UNDER THE FOUNDATION COMPACTED TO 100% STANDARD PROCTOR IN 8" MAXIMUM LIFTS. A GEOTECHNICAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED SHALL TEST COMPACTED FILL PLACED UNDER FOUNDATIONS.
4. CONCRETE WORK SHALL CONFORM TO THE SPECIFICATIONS IN THE 'CAST-IN-PLACE CONCRETE' SECTION OF THESE STRUCTURAL NOTES.
5. IF FOOTINGS ARE NOT PLACED IMMEDIATELY AFTER EXCAVATION, INSTALL A 2" THICK SEAL OF LEAN CONCRETE TO PROTECT THE SOIL FROM MOISTURE DAMAGE.
6. CONTRACTOR MAY LOCATE CONSTRUCTION JOINTS IN FOUNDATION WALLS AND FOOTINGS AT HIS DISCRETION. REINFORCING SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS. IN MAT AND SPREAD FOOTINGS, CONSTRUCTION JOINTS ARE PROHIBITED WITHOUT THE ENGINEER'S APPROVAL.
7. DEPRESS FOUNDATION WALLS 8" AT DOOR OPENINGS, UNLESS NOTED OTHERWISE. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR VERIFICATION OF DOOR OPENING LOCATIONS.
8. SECURE WATER STOPS TO AVOID SHIFTING WHEN CONCRETE IS PLACED.
9. COLUMN CENTERLINES AND PILE CAPS ARE LOCATED ON COLUMN CENTERLINES UNLESS NOTED OTHERWISE.

## IV. CONCRETE

### A. CAST-IN-PLACE CONCRETE


1. **APPLICABLE SPECIFICATIONS**
  - a. STRUCTURAL CONCRETE: ACI 301
  - b. HOT WEATHER CONCRETING: ACI 305
  - c. COLD WEATHER CONCRETING: ACI 306
  - d. CONCRETE MIX: ACI 301
  - e. REINFORCEMENT LAP & EMBEDMENT LENGTH: ACI 318
  - f. REINFORCEMENT DETAILING: ACI 315
  - g. WELDING REINFORCING STEEL: AWS D1.4
  - h. PORTLAND CEMENT CONCRETE: ASTM C150
  - i. AGGREGATE: ASTM C33
  - j. REINFORCING STEEL: ASTM A615
  - k. WELDED WIRE FABRIC, MIN. 70 KSI STRENGTH: ASTM A185
  - l. EPOXY COATED REINFORCING STEEL: ASTM A775
  - m. ADMIXTURES: ASTM C494
  - n. AIR-ENTRAINING ADMIXTURES: ASTM C260
  - o. READY-MIXED CONCRETE: ASTM C94
2. INTERIOR AND FOUNDATION CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 4,000 PSI AT 28 DAYS.
3. CONCRETE EXPOSED TO WEATHER SHALL HAVE A MINIMUM STRENGTH OF 4,000 PSI AT 28 DAYS, LIMESTONE AGGREGATE AND 4%-7% ENTRAINED AIR.
4. MINIMUM CONCRETE COVER FOR REINFORCING STEEL:
  - a. CAST AGAINST & PERMANENTLY EXPOSED TO EARTH: 3"
  - b. FORMED SURFACES EXPOSED TO WEATHER OR IN CONTACT WITH SOIL:
    1. #5 BARS OR LESS: 1-1/2"
    2. #6 BARS OR GREATER: 2"
  - c. FORMED SURFACE NOT EXPOSED TO WEATHER: 1-1/2"
  - d. FORMED SURFACES NOT EXPOSED TO WEATHER OR NOT IN CONTACT WITH SOIL:
    1. SLABS, WALLS, JOISTS: 3/4"
    2. BEAMS & COLUMNS - PRIMARY REINFORCEMENT: 1-1/2"
    3. BEAMS & COLUMNS - TIES, STIRRUPS, SPIRALS: 1-1/2"
5. STEEL REINFORCING SHALL BE GRADE 60. TIES AND STIRRUPS SHALL BE GRADE 60.
6. LAP CONTINUOUS REINFORCING STEEL WITH CLASS B SPLICES PER ACI 318, UNLESS NOTED OTHERWISE. PROVIDE MIN. LAP LENGTH PER TABLE ON THIS SHEET.
7. PROVIDE PLASTIC OR STAINLESS STEEL SUPPORTS FOR REINFORCING STEEL TO INSURE MINIMUM CONCRETE COVER.
8. SET REINFORCING STEEL AND SECURE PRIOR TO PLACING CONCRETE. VERTICAL DOWELS FOR MASONRY WALL REINFORCING MAY BE FLOATED IN PLACE.
9. REINFORCING STEEL SHALL BE CONTINUOUS AT CORNERS. EXTEND WALL VERTICAL REINFORCING INTO FOOTINGS AND PROVIDE DOWELS AS REQUIRED.
10. DO NOT FIELD BEND REINFORCING BARS EMBEDDED IN HARDENED CONCRETE.
11. WELDED WIRE FABRIC SHALL CONFORM TO THE SPECIFICATIONS IN THE 'SLAB-ON-GRADE' SECTION OF THESE STRUCTURAL NOTES.
12. CONCRETE SUPERSTRUCTURE FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 90% OF 28 DAY COMPRESSIVE STRENGTH. CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING AND RE-SHORING.

### B. SLAB-ON-GRADE

1. CONCRETE WORK SHALL CONFORM TO THE SPECIFICATIONS IN THE 'CAST-IN-PLACE CONCRETE' SECTION OF THESE STRUCTURAL NOTES.
2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 SPECIFICATIONS; BE SUPPLIED IN FLAT SHEETS, LAP ADJOINING PIECES BY AT LEAST ONE FULL MESH AND BE HELD IN PLACE AS NEEDED TO REMAIN IN THE PROPER POSITION WHEN CONCRETE IS PLACED.
3. PROVIDE ONE LAYER OF 6x6-W2.1XW2.1 WELDED WIRE FABRIC PLACED 1-1/2" CLEAR BELOW THE TOP OF THE SLAB, UNLESS NOTED OTHERWISE.
4. EXTERIOR SLABS TO BE UNREINFORCED UNLESS NOTED OTHERWISE. WHERE REINFORCING IS NOTED, ALL EXTERIOR SLAB REINFORCING SHALL BE EPOXY COATED.
5. POLYPROPYLENE FIBER REINFORCEMENT IS PROHIBITED WITHOUT THE WRITTEN AUTHORIZATION OF THE ENGINEER.
6. PROVIDE 6 MIL POLYETHYLENE VAPOR BARRIER OVER 4" POROUS SUBGRADE OR POROUS FILL COMPACTED TO 95% STANDARD PROCTOR UNDER INTERIOR CONCRETE SLABS.
7. POROUS FILL SHALL BE CLEAN GRANULAR MATERIAL WITH 100% PASSING THROUGH A 1-1/2" SIEVE AND NO MORE THAN 5% PASSING THROUGH A NO. 4 SIEVE.
8. MAXIMUM JOINT SPACING SHALL BE 3x TIMES THE SLAB THICKNESS. SAWCUT JOINTS AS SOON AS POSSIBLE AFTER CONCRETE IS PLACED. DO NOT SPALL JOINT EDGES. FILL SAWN JOINTS WITH EPOXY RESIN 4-6 WEEKS AFTER SLAB IS CAST. REMOVE DEBRIS FROM JOINTS PRIOR TO FILLING.
9. PROVIDE EXPANSION JOINTS BETWEEN EXTERIOR SLABS-ON-GRADE AND THE BUILDING.
10. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF DEPRESSED SLABS AND DRAINS. SLOPE SLAB TO DRAINS.

## V. STEEL

### A. STRUCTURAL STEEL

1. **APPLICABLE SPECIFICATIONS (FY=MINIMUM YIELD STRENGTH)**
  - a. W SHAPES, MIN. FY = 50 KSI: ASTM A992
  - b. HSS ROUND SHAPES, MIN. FY = 42 KSI: ASTM A500, GRADE B
  - c. HSS RECTANGULAR SHAPES, MIN. FY = 46 KSI: ASTM A500, GRADE B
  - d. M, S, C, MC, L SHAPES, MIN. FY = 36 KSI: ASTM A36
  - e. HP SHAPES, MIN. FY = 50 KSI: ASTM A572, GRADE 50
  - f. BEARING PLATES, MIN. FY = 36 KSI: ASTM A36
  - g. ANCHOR BOLTS: ASTM F1554, GRADE 36
  - h. HIGH STRENGTH BOLTS, MIN. ULTIMATE STRENGTH, FU = 120 KSI: ASTM A325
  - i. THREADED RODS, MIN. FY = 36 KSI: ASTM A36
  - j. NON-SHRINK GROUT, MIN. 8,000 PSI STRENGTH: ASTM C1107
  - k. STRUCTURAL STEEL CONSTRUCTION: AISC, TYPE 2
  - l. HOT-DIP GALVANIZING: ASTM A153
  - m. WELDING, MIN. FY = 58 KSI FOR FILLER MATERIAL: AWS D1.1
2. THE FABRICATOR SHALL MAINTAIN DETAILED QUALITY CONTROL PROCEDURES AS REQUIRED BY THE SPECIAL INSPECTION SPECIFICATIONS OF THE INTERNATIONAL BUILDING CODE.
3. CONNECTIONS SHALL BE SHEAR TYPE UNLESS NOTED OTHERWISE AND DESIGNED BY THE FABRICATOR FOR SHEAR LOADS INDICATED ON THESE DRAWINGS IN ACCORDANCE WITH THE AISC SPECIFICATIONS DESIGNATED IN THE 'DESIGN BASIS' SECTION OF THESE STRUCTURAL NOTES.
4. COLUMNS, ANCHOR BOLTS, BASE PLATES, ETC. ARE DESIGNED FOR THE FINAL LOADING CONDITION AND HAVE NOT BEEN INVESTIGATED FOR POTENTIAL LOADINGS DURING ERECTION AND CONSTRUCTION. THIS INVESTIGATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
5. MOMENT CONNECTIONS ARE DENOTED WITH THE SYMBOL  ON THESE DRAWINGS. THE FABRICATOR SHALL SUBMIT CALCULATIONS AND SHOP DRAWINGS FOR ALL SPECIAL CONNECTIONS, INCLUDING MOMENT CONNECTIONS. CALCULATIONS SHALL BE CERTIFIED BY AN ENGINEER REGISTERED IN THE STATE WHERE INSTALLED.
6. BOLTS SHALL BE SNUG-FIT SHEAR/BEARING TYPE WITH MINIMUM 3/4" DIAMETER, UNLESS NOTED OTHERWISE.
7. A CERTIFIED WELDER SHALL PERFORM ALL WELDING WORK. USE E70XX ELECTRODES FOR WELDING, UNLESS NOTED OTHERWISE. PROVIDE CONTINUOUS MINIMUM SIZED FILLET WELDS IN ACCORDANCE WITH AISC SPECIFICATIONS. TOUCH UP WELDED CONNECTIONS WITH ZINC RICH PRIMER.
8. DRILL OR PUNCH HOLES IN STEEL. PROVIDE SMOOTH EDGES FOR SLOTTED HOLES. BURNING AND TORCH CUTTING AT THE SITE IS NOT PERMITTED.
9. SHOP PAINT STRUCTURAL STEEL WITH ONE COAT OF RUST INHIBITIVE ALKYD PRIMER, UNLESS NOTED OTHERWISE.
10. HOT-DIP GALVANIZE STRUCTURAL STEEL PERMANENTLY EXPOSED TO THE WEATHER, INCLUDING BRICK SHELF ANGLES AND LINTELS AT EXTERIOR OPENINGS.
11. FIELD REPAIR PERMANENT COATINGS DAMAGED DURING TRANSPORT, ERECTING AND FIELD WELDING TO MATCH THE SHOP APPLIED COATING.
12. THE STRUCTURAL STEEL ERECTOR SHALL PROVIDE TEMPORARY GUYING AND BRACING.
13. PROVIDE ANGLE FRAMES AT ROOF OPENINGS AND ROOFTOP MECHANICAL UNITS IN ACCORDANCE WITH DETAILS PROVIDED IN THESE DRAWINGS.

### B. STEEL JOISTS & JOIST GIRDERS

1. STEEL JOIST INSTITUTE (SJI) STANDARDS AND SPECIFICATIONS SHALL APPLY FOR THE DESIGN, FABRICATION, AND ERECTION OF STEEL JOISTS AND GIRDERS, INCLUDING JOIST BRIDGING AND SHOP PAINTING.
2. JOIST AND GIRDER MANUFACTURERS SHALL BE SJI CERTIFIED AND MAINTAIN APPROVED FABRICATION PROCEDURES AS REQUIRED BY THE SPECIAL INSPECTION SPECIFICATIONS OF THE INTERNATIONAL BUILDING CODE.
3. PRIOR TO FABRICATION, THE JOIST MANUFACTURER SHALL SUBMIT CALCULATIONS TO THE ENGINEER FOR SPECIAL JOISTS AND ALL JOIST GIRDERS, CERTIFIED BY A PROFESSIONAL IN THE STATE WHERE INSTALLED FOR RECORD PURPOSES.
4. PROPERLY ANCHOR JOISTS AT BEARINGS. REFER TO ANY DETAILS IN THESE DRAWINGS.
5. COMPLETELY INSTALL JOIST BRIDGING AND CONNECTIONS PRIOR TO PLACING ANY CONSTRUCTION LOADS ON THE JOISTS. CONSTRUCTION LOADS SHALL NOT EXCEED JOIST DESIGN LOAD.

## MINIMUM REINF. BAR LAP LEGTHS TABLE

REBAR SIZE	VERT. BARS	HORIZ. BARS
#3	19"	25"
#4	25"	33"
#5	31"	41"
#6	37"	49"

## V. STEEL CONT.

6. AT STANDING SEAM ROOFS, PROVIDE ADDITIONAL BRIDGING TO ADEQUATELY BRACE TOP CHORDS AGAINST LOADS ON THE JOISTS. CONSTRUCTION LOADS SHALL NOT EXCEED JOIST DESIGN LOAD.
7. DESIGN ROOF JOISTS AND GIRDERS FOR A NET WIND UPLIFT AS SPECIFIED ON THESE DRAWINGS. MANUFACTURER SHALL PROVIDE BOTTOM CHORD BRACING FOR JOISTS AS REQUIRED TO RESIST WIND UPLIFT.
8. JOIST ON COLUMN CENTERLINES SHALL HAVE EXTENDED BOTTOM CHORD CONNECTIONS. REFER TO ANY DETAILS IN THESE DRAWINGS. DO NOT CONNECT BOTTOM CHORD EXTENSION TO STABILIZER PLATE.
9. ATTACH FIELD INSTALLED MEMBERS AT CONCENTRATED LOADS NOT OCCURRING AT PANEL POINTS.
10. INSTALL ADDITIONAL JOISTS UNDER PARTITIONS RUNNING PARALLEL TO JOISTS.

### C. LOAD BEARING COLD-FORMED STEEL FRAMING

1. AMERICAN IRON AND STEEL INSTITUTE (AISI) 'NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS' SHALL APPLY FOR THE DESIGN, FABRICATION AND ERECTION OF COLD-FORMED STEEL FRAMING MEMBERS INCLUDING BRIDGING FOR STUDS AND WEB STIFFENERS AT JOIST AND RAFTER BEARINGS.
2. FORM FRAMING MEMBERS FROM STEEL CONFORMING TO ASTM A653 WITH A MINIMUM YIELD STRENGTH OF 50 KSI, UNLESS NOTED OTHERWISE.
3. FASTENING OF STRUCTURAL MEMBERS SHALL BE MADE WITH SELF TOPPING SCREWS OR ADEQUATELY SIZED WELDS.
4. WELDING SHALL CONFORM TO AWS D1.3. TOUCH UP WELDS WITH ZINC RICH PRIMER.
5. PROVIDE THE MANUFACTURER'S STANDARD TRACKS, CLIP ANGLES, BRACING, REINFORCEMENT, FASTENERS, AND ACCESSORIES AS RECOMMENDED FOR THE APPLICATION INDICATED.
6. CONTRACTOR SHALL SUBMIT THE FOLLOWING TO THE ENGINEER:
  - a. MANUFACTURER'S PRODUCT AND MOST CURRENT TECHNICAL DATA.
  - b. ERECTION DRAWINGS WITH THE FRAMING MEMBER QUANTITY, TYPE, LOCATION AND SPACING, CLEARLY SHOWING ALL CONNECTIONS AND ATTACHMENTS.
  - c. PROPERTIES DEMONSTRATING CONFORMANCE WITH SPECIFICATIONS IN THESE NOTES OF FRAMING MEMBERS USED IN LOAD BEARING APPLICATIONS.
7. TRACK GAGE SHALL NOT BE LIGHTER THAN THE FRAMING BEING CONNECTED. CONNECT TRACKS TO CONCRETE WITH 0.205 INCH DIAMETER POWER DRIVEN FASTENERS SPACED AT 16 INCHES ON CENTER WITH 1.25 INCH EMBEDMENT, UNLESS NOTED OTHERWISE.
8. AXIALLY LOADED STUDS SHALL HAVE FULL BEARING AGAINST THE INSIDETRACK WEB PRIOR TO STUD AN DTRACK ALIGNMENT. SPLICES IN AXIALLY LOADED STUDS ARE NOT PERMITTED.
9. PROVIDE DOUBLE JACK STUDS AT BEAM BEARINGS, UNLESS NOTED OTHERWISE.

### D. PRE-ENGINEERED COLD-FORMED STEEL TRUSSES

1. THE CONTRACTOR SHALL EMPLOY A STRUCTURAL ENGINEER LICENSED IN THE STATE WHERE THE TRUSSES ARE BEING INSTALLED TO DESIGN ALL ASPECTS OF THE TRUSSES, INCLUDING MEMBER SIZES, GAGES, CONNECTIONS, BRACING, WEB STIFFENERS, ETC.
2. DESIGN METAL TRUSSES IN ACCORDANCE WITH AISI PROVISIONS TO SUPPORT THE LOADS SPECIFIED IN THE 'DESIGN BASIS' SECTION OF THESE STRUCTURAL NOTES.
3. THE 'LOAD BEARING COLD-FORMED STEEL' SECTION OF THESE STRUCTURAL NOTES SHALL APPLY TO FRAMING MEMBERS.
4. MAXIMUM LIVE LOAD DEFLECTION IS LIMITED TO  $L/360$ . ( $L$ =SPAN LENGTH OF INDIVIDUAL STRUCTURAL COMPONENT.)
5. CONTRACTOR SHALL SUBMIT SHOP DRAWING TO THE ENGINEER CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE INSTALLED WITH CALCULATIONS, MEMBER SIZES, GAGE, YIELD STRENGTH, CONNECTIONS, SPAN, CAMBER, DIMENSIONS, CHORD PITCH, AND DESIGN LOADS.
6. CONTRACTOR SHALL ERECT TRUSSES IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND SHALL PROVIDE TEMPORARY AND PERMANENT BRACING.

### E. METAL ROOF & FLOOR DECK

1. AMERICAN STEEL DECK INSTITUTE 'DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS AND ROOF DECKS' SHALL APPLY FOR THE MANUFACTURING AND ERECTION OF METAL DECK.
2. CONCRETE TOPPING SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI WITH MAXIMUM 1/2 INCH AGGREGATE SIZE AND MAXIMUM 4 INCH SLUMP, UNLESS NOTED OTHERWISE.
3. WELDING SHALL BE IN ACCORDANCE WITH AWS D3.1 SPECIFICATIONS. PROVIDE WELDING WASHERS FOR FLOOR DECK WELDS. TOUCH UP DECK WELDS WITH PAINT.
4. CONTRACTOR TO SUBMIT SHOP DRAWINGS PRIOR TO FABRICATION WITH LAYOUT, DECK TYPES, CONNECTION DETAILS AND OTHER RELATED ITEMS.
5. DECK SHALL NOT SUPPORT SUSPENDED CEILINGS, LIGHT FIXTURES, DUCTS AND OTHER PERMANENT SUSPENDED LOADS.
6. PAINT FLOOR DECK. CONFIRM WITH ENGINEER WHETHER ROOF DECK SHALL BE PAINTED OR GALVANIZED.
7. CONNECT ROOF DECK AS SHOWN IN THESE DRAWINGS. AT ENDS OF CANTILEVERS, ATTACH ROOF DECK SIDELAPS AT A MAXIMUM SPACING OF 12 INCHES ON CENTER. COMPLETELY ATTACH ROOF DECK TO SUPPORTS AND AT SIDELAPS PRIOR TO APPLYING ANY LOAD TO THE CANTILEVER.

## VI. WOOD

### A. WOOD FRAMING

1. MATERIAL SHALL BE SURFACE DRY AND USED AT 19% MAXIMUM MOISTURE CONTENT. ALLOWABLE STRESS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THIS SECTION.
2. UNLESS NOTED OTHERWISE, JOISTS, RAFTERS EXTERIOR WALL STUDS, LOAD BEARING INTERIOR WALL STUDS AND MISCELLANEOUS FRAMING SHALL BE NO. 1 GRUEN SOUTHERN YELLOW PINE OR BETTER WITH THE FOLLOWING MINIMUM PROPERTIES FOR MEMBERS 2-4 INCHES THICK:

Width	F <sub>b</sub>	F <sub>t</sub>	F <sub>v</sub>	F <sub>c, parallel</sub>	F <sub>c, perp.</sub>	E
2-4 inches	1,500 psi	1,000 psi	175 psi	1,650 psi	565 psi	1,600 psi
5-6 inches	1,350 psi	875 psi	175 psi	1,550 psi	565 psi	1,600 psi
8 inches	1,250 psi	800 psi	175 psi	1,500 psi	565 psi	1,600 psi
10 inches	1,050 psi	700 psi	175 psi	1,450 psi	565 psi	1,600 psi
12 inches	1,000 psi	650 psi	175 psi	1,400 psi	565 psi	1,600 psi
3. PRESSURE TREAT FRAMING EXPOSED TO WEATHER OR IN CONTACT WITH MASONRY OR CONCRETE IN ACCORDANCE WITH THE AMERICAN WOOD PRESERVERS ASSOCIATION SPECIFICATIONS. WHERE POSSIBLE, COMPLETE CUTS AND HOLES PRIOR TO TREATMENT. FOR ON-SITE FABRICATION, BRUSH CUTS AND HOLES WITH TWO COATS OF COPPER NAPHTHENATE SOLUTION CONTAINING MINIMUM 2% METALLIC COPPER IN ACCORDANCE WITH AWWA STD. M4.
4. FOR 2 INCH NOMINAL LOAD BEARING FRAMING, WIDE FACE LENGTH OF SPLIT SHALL BE LIMITED TO LESS THAN 1/2 OF THE WIDE FACE DIMENSION. FOR 3 INCH NOMINAL OR THICKER LOAD BEARING FRAMING, WIDE FACE LENGTH OF SPLIT SHALL BE LIMITED TO LESS THAN 1/2 OF THE NARROW FACE DIMENSION.

## VI. WOOD CONT.

5. PREFABRICATED LAMINATED VENEER LUMBER (LVL) FRAMING FOR HEADERS AND BEAMS SHALL BE "2.0E MICROLAM LVL" WITH THE FOLLOWING MINIMUM PROPERTIES:

G (psi)	E (psi)	E <sub>min</sub> (psi)	F <sub>b</sub> (psi)	F <sub>t</sub> (psi)	F <sub>c, perp.</sub> (psi)	F <sub>c, parallel</sub> (psi)	F <sub>v</sub> (psi)	SG
125,000	2.0x10 <sup>6</sup>	1,016,535	2,600	1,555	750	2,510	285	0.50

6. PREFABRICATED PARALLEL STRAND LUMBER (PSL) FRAMING FOR HEADERS AND BEAMS SHALL BE "2.0E PARALLAM PSL" WITH THE FOLLOWING MINIMUM PROPERTIES:

G (psi)	E (psi)	E <sub>min</sub> (psi)	F <sub>b</sub> (psi)	F <sub>t</sub> (psi)	F <sub>c, perp.</sub> (psi)	F <sub>c, parallel</sub> (psi)	F <sub>v</sub> (psi)	SG
125,000	2.0x10 <sup>6</sup>	1,016,535	2,900	2,025	625	2,900	290	0.50

7. PREFABRICATED PARALLEL STRAND LUMBER (PSL) FRAMING FOR COLUMNS SHALL BE "1.8E PARALLAM PSL" WITH THE FOLLOWING MINIMUM PROPERTIES:

G (psi)	E (psi)	E <sub>min</sub> (psi)	F <sub>b</sub> (psi)	F <sub>t</sub> (psi)	F <sub>c, perp.</sub> (psi)	F <sub>c, parallel</sub> (psi)	F <sub>v</sub> (psi)	SG
112,500	1.8x10 <sup>6</sup>	914,880	2,400	1,755	545	2,500	190	0.50

8. EXTERIOR PREFABRICATED LUMBER FRAMING SHALL BE "PARALLAM PLUS PSL" TREATED TO RESIST FUNGAL DECAY AND TERMITE ATTACK.
9. DO NOT CUT OR NOTCH LVL AND PSL FRAMING WITHOUT THE MANUFACTURER'S APPROVAL.
10. PROVIDE DOUBLE JOISTS UNDER PARTITIONS THAT ARE PARALLEL TO THE JOISTS AND UNDER CONCENTRATED LOADS FROM THE FRAMING ABOVE.
11. FRAME AROUND PLYWOOD DECK OPENINGS WITH HEADER BEAMS EQUAL TO THE JOIST/RAFTER MEMBER SIZE, UNLESS NOTED OTHERWISE.
12. HOLES AND NOTCHES CUT OR DRILLED INTO WOOD FRAMING SHALL BE IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE REQUIREMENTS.
13. HOT DIP GALVANIZE PLATES, ANCHORS, BOLTS, NAILS, NUTS WASHERS AND OTHER MISCELLANEOUS HARDWARE.
14. PROVIDE A STEEL BASE PLATE AT COLUMNS TO PREVENT MOISTURE TRANSMISSION.
15. PREFABRICATED METAL JOIST HANGERS, HURRICANE CLIPS, HOLD DOWN ANCHORS AND OTHER ACCESSORIES SHALL BE MANUFACTURED BY 'SIMPSON STRONG-TIE' OR APPROVED EQUAL. INSTALL ALL ACCESSORIES IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. STEEL SHALL BE ASTM GRADE A STEEL, 0.04 INCHES OR GREATER IN COATING THICKNESS AND HAVE A G60 GALVANIZED COATING IN ACCORDANCE WITH ASTM A653.

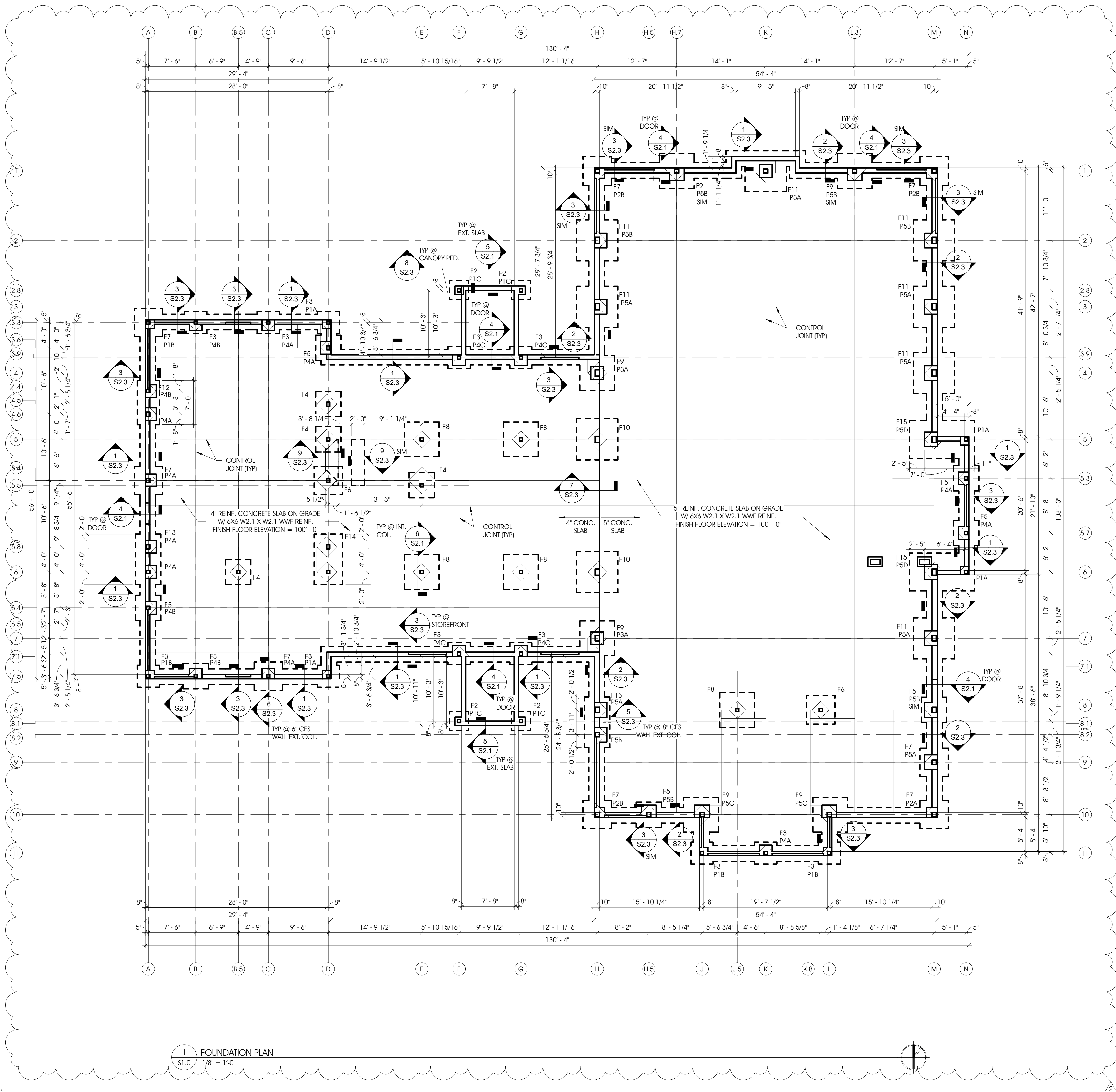
### B. PLYWOOD SHEATHING

1. SPECIFICATIONS OF THE APA-THE ENGINEERED WOOD ASSOCIATION SHALL APPLY FOR PLYWOOD CONSTRUCTION.
2. UNLESS NOTED OTHERWISE, ROOF PANEL SHEATHING SHALL BE APA RATED SHEATHING PERFORMANCE CATEGORY 19/32, SPAN RATING 40/20, EXPOSURE 1, CONNECTED WITH 10D COMMON NAILS (MIN. 0.148 INCH DIA.) SPACED AT 6 INCHES ON CENTER AT SUPPORTED PANEL EDGES AND INTERMEDIATE SUPPORTS. USE PANEL CLIPS OR BLOCKING BETWEEN FRAMING FOR SUITABLE EDGE SUPPORT.
3. UNLESS NOTED OTHERWISE, FLOOR PANEL SHEATHING SHALL BE APA RATED SHEATHING PERFORMANCE CATEGORY 23/32, SPAN RATING 48/24, EXPOSURE 1, WITH TONGUE AND GROOVE EDGES, CONNECTED WITH 10D COMMON NAILS (MIN. 0.148 INCH DIA.) SPACED AT 6 INCHES ON CENTER AT SUPPORTED PANEL EDGES AND INTERMEDIATE SUPPORTS. FIELD GLUE SHALL BE IN ACCORDANCE WITH APA SPECIFICATION AFG-01 APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
4. UNLESS NOTED OTHERWISE, WALL PANEL SHEATHING SHALL BE APA RATED SHEATHING PERFORMANCE CATEGORY 15/32, SPAN RATING 32/16, EXPOSURE 1, CONNECTED WITH 8D COMMON NAILS (MIN. 0.131 INCH DIA.) SPACED AT 6 INCHES ON CENTER AT SUPPORTED PANEL EDGES AND 12 INCHES ON CENTER AT INTERMEDIATE SUPPORTS. FIELD GLUE SHALL BE IN ACCORDANCE WITH APA SPECIFICATION AFG-01 APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. USE BLOCKING BETWEEN FRAMING FOR EDGE SUPPORT.
5. INSTALL PLYWOOD SHEATHING WITH THE LONG DIMENSION SPANNING ACROSS SUPPORTS AND CONTINUOUS OVER TWO OR MORE SPANS. STAGGER PANEL END JOINTS. ALLOW 1/8 INCH SPACING UNLESS RECOMMENDED OTHERWISE BY SHEATHING MANUFACTURER.
6. DO NOT OVERDRIVE NAILS. THE USE OF STAPLES AND PNEUMATIC GUNS IS PROHIBITED.
7. PROVIDE 2X BLOCKING AT UNSUPPORTED PANEL EDGES IN ROOFS, FLOORS AND SHEAR WALLS.

### C. SIPS PANEL

1. THE DELEGATED DESIGN PROFESSIONAL IS RESPONSIBLE FOR THE PANEL DESIGN AND LAYOUT. PANEL DEPTH TO BE 10-1/4" AND SHEATHING AT UNDERSIDE OF SIPS PANEL TO BE **T1-11 PLYWOOD**.
2. SEE DESIGN BASIS SECTION ON S0.1 FOR ROOF LOADING APPLICABLE TO SIPS PANEL DESIGN.
3. FASTENING TO STRUCTURAL MEMBERS SHALL BE DESIGNED TO MEET OR EXCEED THE NOTED METAL DECK CONNECTION CAPACITIES.
4. PROVIDE THE MANUFACTURER'S STANDARD TRACKS, CLIP ANGLES, BRACING, REINFORCEMENT, FASTENERS, AND ACCESSORIES AS RECOMMENDED FOR THE APPLICATION INDICATED BY THE DELEGATED DESIGN PROFESSIONAL.
5. ALL SIPS PANEL CONNECTORS TO BE BE CONSEALED AND PANEL SPLINES TO ALIGN WITH BEARING LOCATIONS. THE ONLY VISIBLE COMPONENTS OF THE SIPS PANEL IS TO BE THE UNDERSIDE OF THE BOTTOM WOOD PANEL.
6. CONTRACTOR SHALL SUBMIT THE FOLLOWING TO THE ENGINEER:
  - a. MANUFACTURER'S PRODUCT AND MOST CURRENT TECHNICAL DATA.
  - b. ERECTION DRAWINGS WITH THE FRAMING MEMBER QUANTITY, TYPE, LOCATION AND SPACING, CLEARLY SHOWING ALL CONNECTIONS AND ATTACHMENTS.
  - c. PROPERTIES DEMONSTRATING CONFORMANCE WITH SPECIFICATIONS IN THESE NOTES OF FRAMING MEMBERS USED IN LOAD BEARING APPLICATIONS.





## GENERAL NOTES

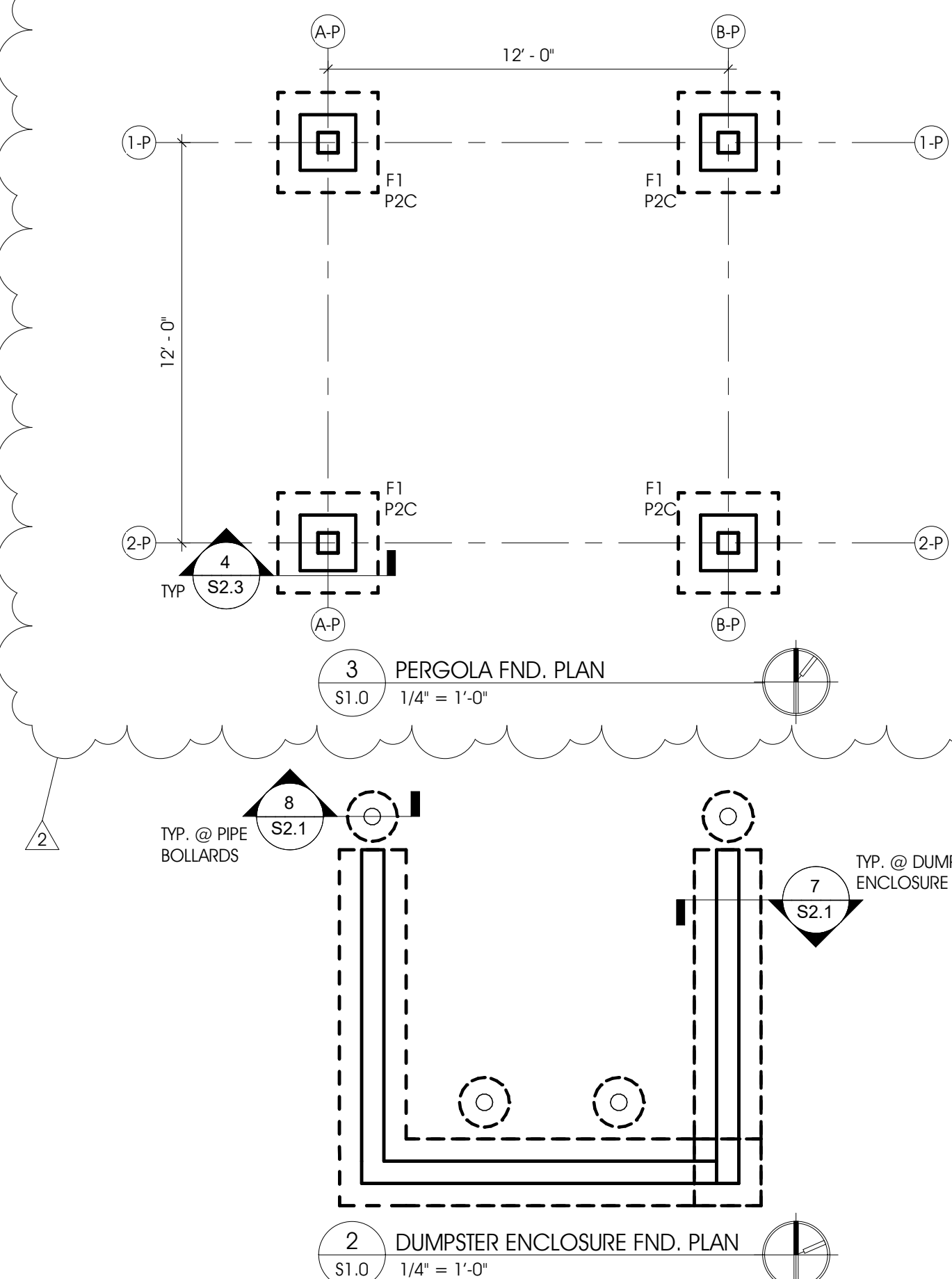
- ALL SLABS ON GRADE TO BE AT FINISH FLOOR ELEVATION 100' - 0" = 824.00' U.N.O.
- ALL INTERIOR CONCRETE SLABS ON GRADE TO BE 4" OR 5" THICK CONCRETE (SEE PLAN FOR LOCATION) WITH 6x6 - W2.1/W2.1 WWF REINFORCING. LOCATE 1-1/2" CLEAR BELOW TOP OF SLAB U.N.O.
- DESIGN BASED ON SOIL BEARING CAPACITY OF 1,500 PSF. SEE S0.1 FOR FURTHER DESIGN SPECIFICATIONS.

## FOOTING SCHEDULE

MARK	DIMENSIONS	THICK	LOCATION	T/FTG. ELEV.	TOP REINF.	BOT. REINF.	QNTY
F1	3'-0X3'-0"	12"	1P/AP, 1P/BP, 2P/AP, 2P/BP	SEE CIVIL	-	#5 @ 11" E.W.	4
F2	3'-0X3'-0"	12"	2.8/F, 2.8/G, 8.1/F, 8.1/G	97'-0"	-	#5 @ 11" E.W.	4
F3	3'-6X3'-6"	12"	3.3/B, 3.3/C, 3.3/D, 3.9/F, 3.9/G, 7.1/F, 7.1/G, 7.5/A, 7.5/D, 11/J, 11/K, 11/L	97'-0"	-	#5 @ 12" E.W.	12
F4	4'-0X4'-0"	16"	4.5/D, 5/D, 5.5/E, 6/B.5	99'-4"	-	#5 @ 11" E.W.	4
F5	4'-0X4'-0"	12"	3.6/D, 5.3/N, 5.7/N, 6.4/A, 7.5/B, 8/M, 10/H.5	97'-0"	-	#5 @ 12" E.W.	7
F6	4'-6X4'-6"	16"	5.4/D, 8/K.8	99'-4"	-	#5 @ 12" E.W.	2
F7	4'-6X4'-6"	12"	1/H, 1/M, 3.3/A, 5.4/A, 7.5/C, 9/M, 10/H, 10/M	97'-0"	-	#5 @ 12" E.W.	8
F8	5'-6X5'-6"	16"	5/E, 5/G, 6/E, 6/G, 8/U.5	99'-4"	-	#5 @ 12" E.W.	5
F9	5'-6X5'-6"	12"	1/H.7, 1/L.3, 4/H, 7/H, 10/J, 10/L	97'-0"	-	#5 @ 12" E.W.	6
F10	6'-6X6'-6"	16"	5/H, 6/H	99'-4"	-	#5 @ 12" E.W.	2
F11	6'-6X6'-6"	12"	1/K, 2/H, 2/M, 3/H, 3/M, 4/M, 7/M	97'-0"	-	#5 @ 12" E.W.	7
F12	3'-6X7'-0"	12"	4.4.4.6/A	97'-0"	#5 @ 9" SHORT WAY #5 @ 12" LONG WAY	#5 @ 9" SHORT WAY #5 @ 12" LONG WAY	1
F13	4'-0X8'-0"	12"	5.8.6/A, 8.8.2/H	97'-0"	#5 @ 9" SHORT WAY #5 @ 12" LONG WAY	#5 @ 11" SHORT WAY #5 @ 9" LONG WAY	2
F14	4'-6X8'-0"	16"	5.8.6/D	99'-4"	-	#5 @ 12" SHORT WAY #5 @ 10" LONG WAY	1
F15	6'-0X10'-4"	12"	5/M.N, 6/M.N	97'-0"	-	#5 @ 10" SHORT WAY #5 @ 11" LONG WAY	2

## PEDESTAL SCHEDULE

MARK	SIZE	VERT. REINF.	HORIZ. REINF.	QNTY.	T/PEDESTAL ELEV.
P1A-B	16"x16"	(10) #5 DOWELS	#4 TIES @ 8" O.C.	8	99'-4"
P1C	16"x16"	(10) #5 DOWELS	#4 TIES @ 8" O.C.	4	SEE CIVIL
P2A-B	20"x20"	(16) #5 DOWELS	#4 TIES @ 8" O.C.	17	99'-4"
P2C	20"x20"	(8) #5 DOWELS	#4 TIES @ 8" O.C.	4	SEE CIVIL
P3A	24"x24"	(20) #5 DOWELS	#4 TIES @ 8" O.C.	3	99'-4"
P4A-C	20"x24"	(16) #5 DOWELS	#4 TIES @ 8" O.C.	18	99'-4"
P5A-D	24"x28"	(22) #5 DOWELS	#4 TIES @ 8" O.C.	17	99'-4"



2	ADDENDUM #2	JMO	01/23/2024
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Benton Harbor  
Lafayette  
Grand Rapids  
Kalamazoo/Portage  
Fort Wayne  
Valparaiso

Engineering, Architecture, Land Surveying

PROJECT:  
**NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI**

## FOUNDATION PLAN

SHEET TITLE:

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DESIGNED BY:

JMO

PM REVIEW:

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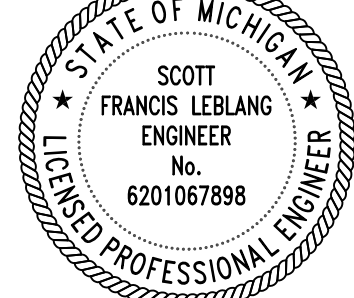
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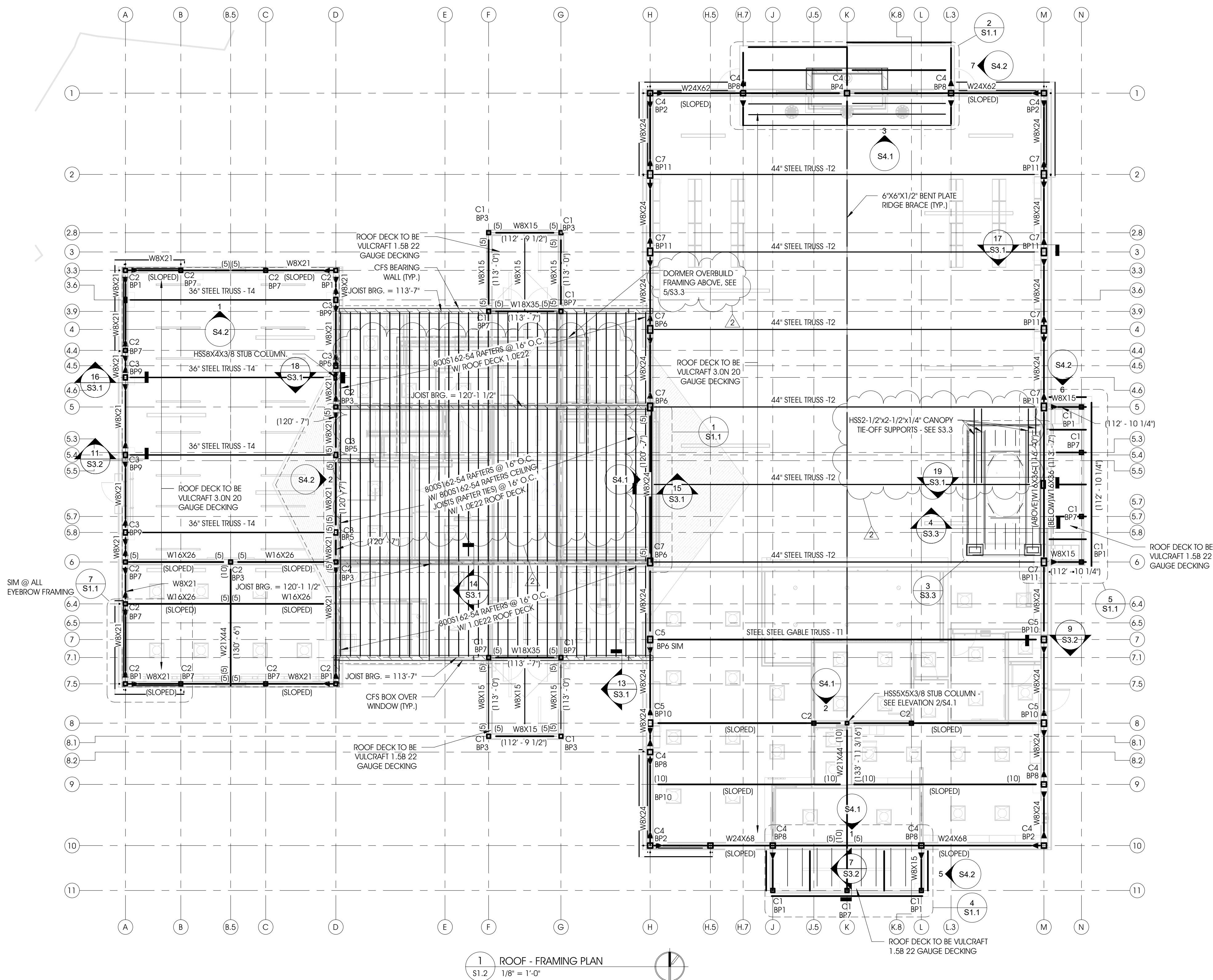
SHEET NO.

S1.0









## GENERAL NOTES

1. TYPICAL TOP OF STEEL ELEVATION NOTED ON PLANS.
2. T/STEEL @ MULTIPURPOSE ROOM = 11'6" - 3 1/4" U.N.O.
3. T/STEEL @ LIBRARY = 11'6" - 1 3/4" U.N.O.
4. SEE 1/S3.1 FOR HORIZONTAL W8 MOMENT CONNECTIONS U.N.O.
5. HEADER IN EXTERIOR WALLS  $\leq 7'-0"$  TO BE (2) 600S162-54 (TOE TO TOE) WITH (2) 600S200-68 JACK STUDS AND (1) 600S200-68. HEADER IN EXTERIOR WALLS  $\geq 7'-0"$  BUT  $\leq 11'-0"$  TO BE (2) 600S200-68 (TOE TO TOE) WITH (2) 600S200-68 JACK STUDS AND (2) 600S200-68.
6. BEARING WALLS @ MECH. MEZZ. TO BE 600S162-54 @ 16" O.C.
7. PROVIDE 1/4" BENT PLATE EDGE ANGLE CONTINUOUS AT ALL 3" ROOF DECK EDGES.
8. PROVIDE L4X4X1/4 CONTINUOUS ROOF DECK EDGE ANGLE AT ALL 1.5" AND 1.0" ROOF DECK EDGES.

## COLUMN SCHEDULE

MARK	SHAPE	BASE PLATE	BRG. ELEV.
C1	HSS6X6X5/16	SEE PLAN	99'-4"
C2	HSS6X6X3/8	SEE PLAN	99'-4"
C3	HSS8X6X3/8	SEE PLAN	99'-4"
C4	HSS8X8X3/8	SEE PLAN	99'-4"
C5	HSS10X8X3/8	SEE PLAN	99'-4"
C6	HSS12X6X3/8	SEE PLAN	99'-4"
C7	HSS12X8X3/8	SEE PLAN	99'-4"

## NOTES:

1. SEE ROOF FRAMING PLAN (S1.2) FOR BASE PLATE CALL-OUTS EA. COLUMN. SEE SHEET S3.1 FOR BASE PLATE DETAILS.
2. CAP TOPS OF ALL COLUMNS W/ MIN. 3/8" CAP PLATE U.N.O. IN DETAILS.

## BEAM KEY PLAN

SHEAR REACTION (KIPS ASD)	SHAPE (T.O.S. ELEVATION)	SHEAR REACTION (KIPS ASD)

PROJECT:

NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI

2

## ROOF FRAMING PLAN

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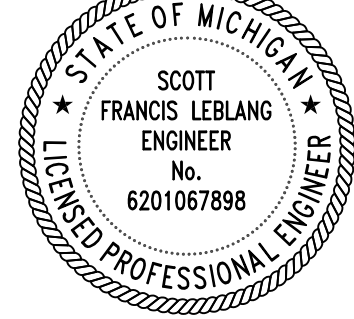
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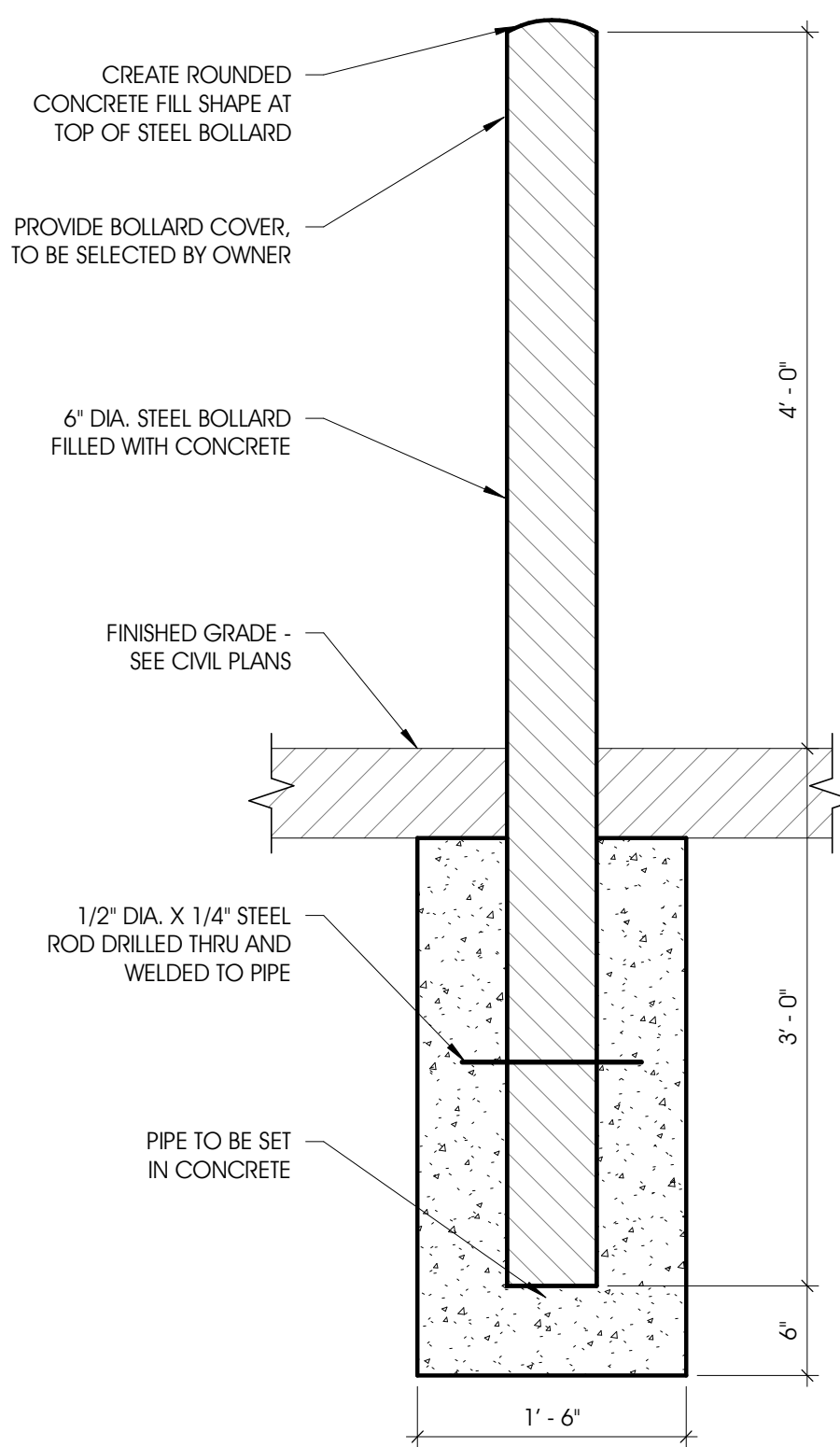
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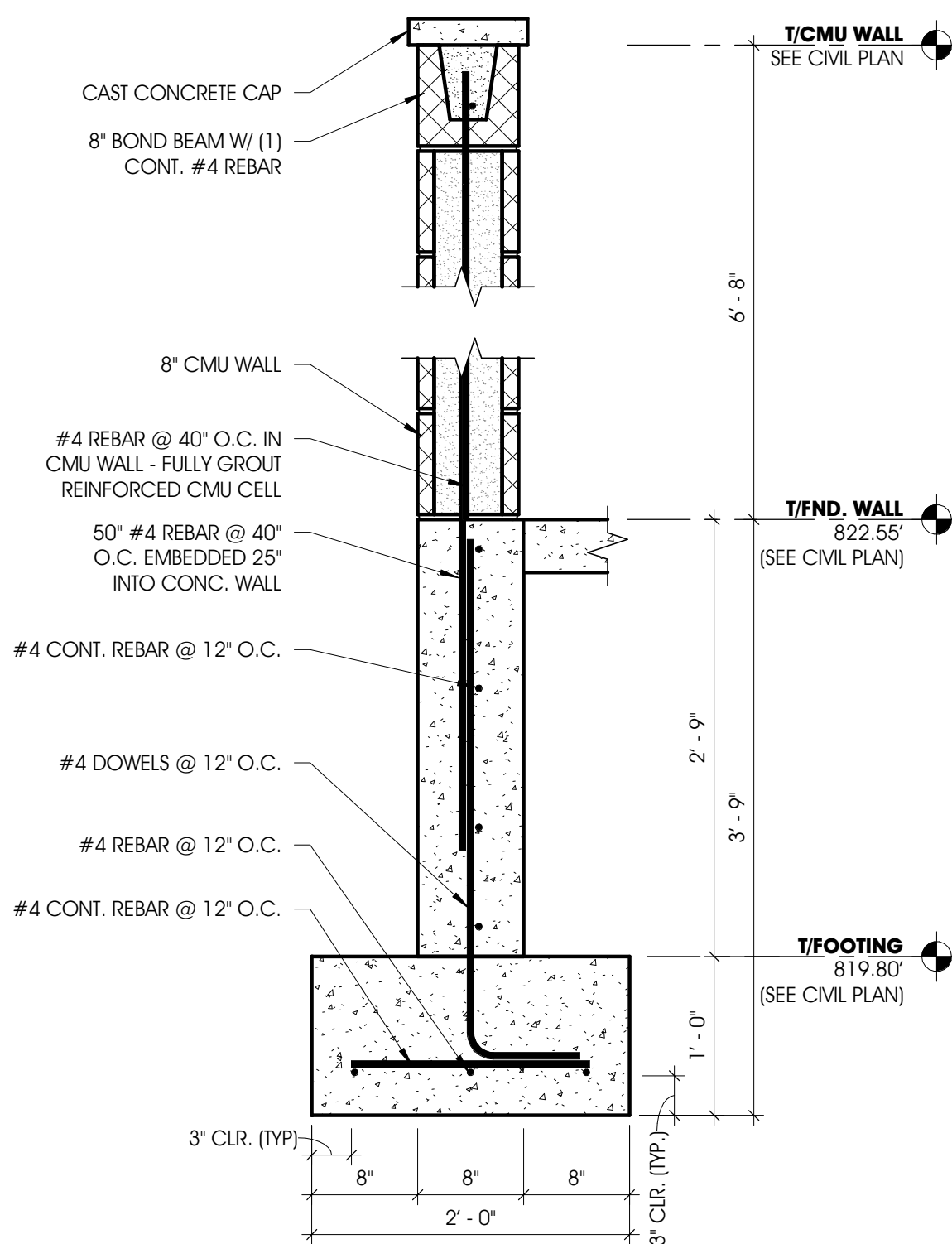
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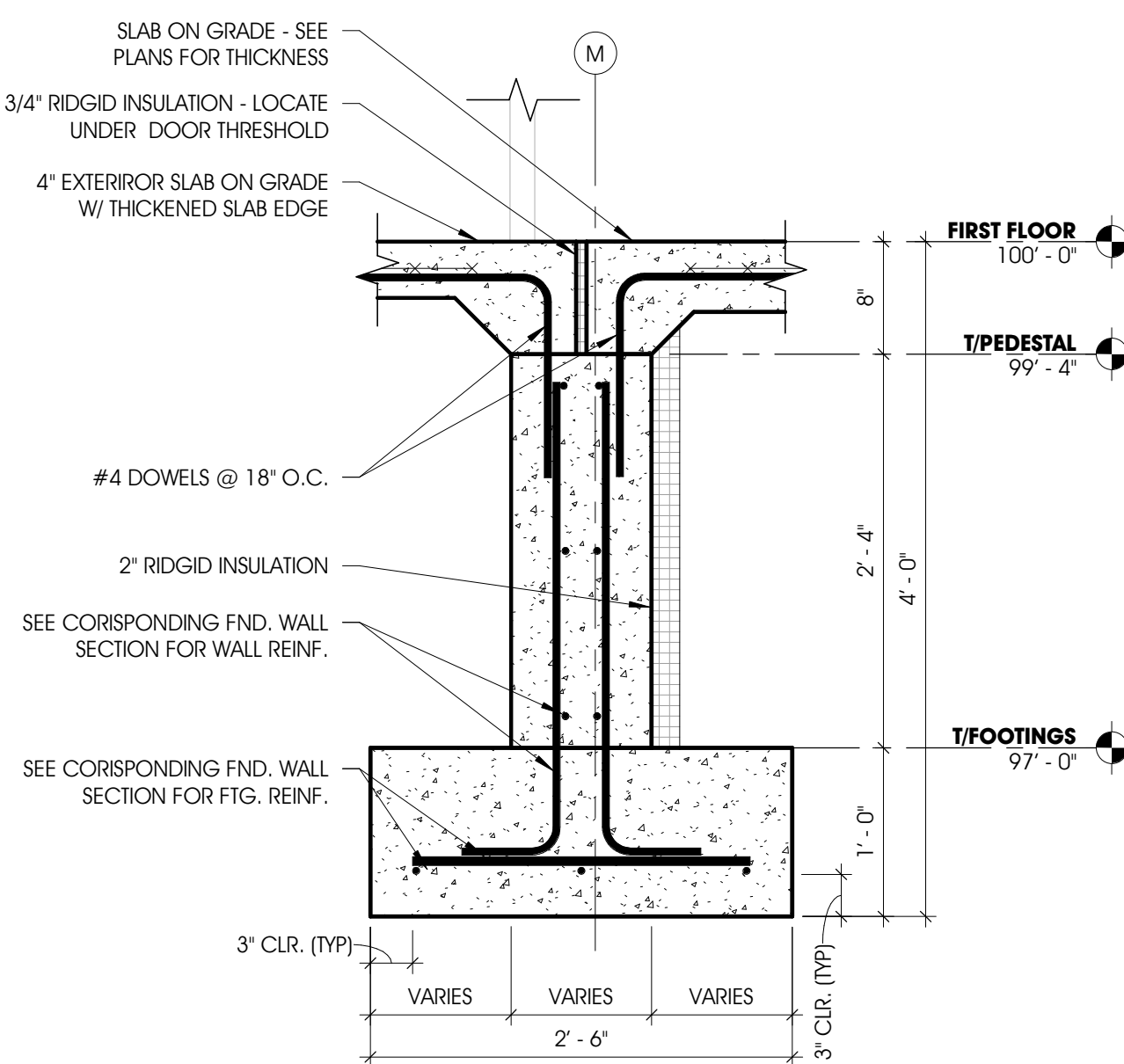
8  
S2.1 BOLLARD DETAIL  
1" = 1'-0"



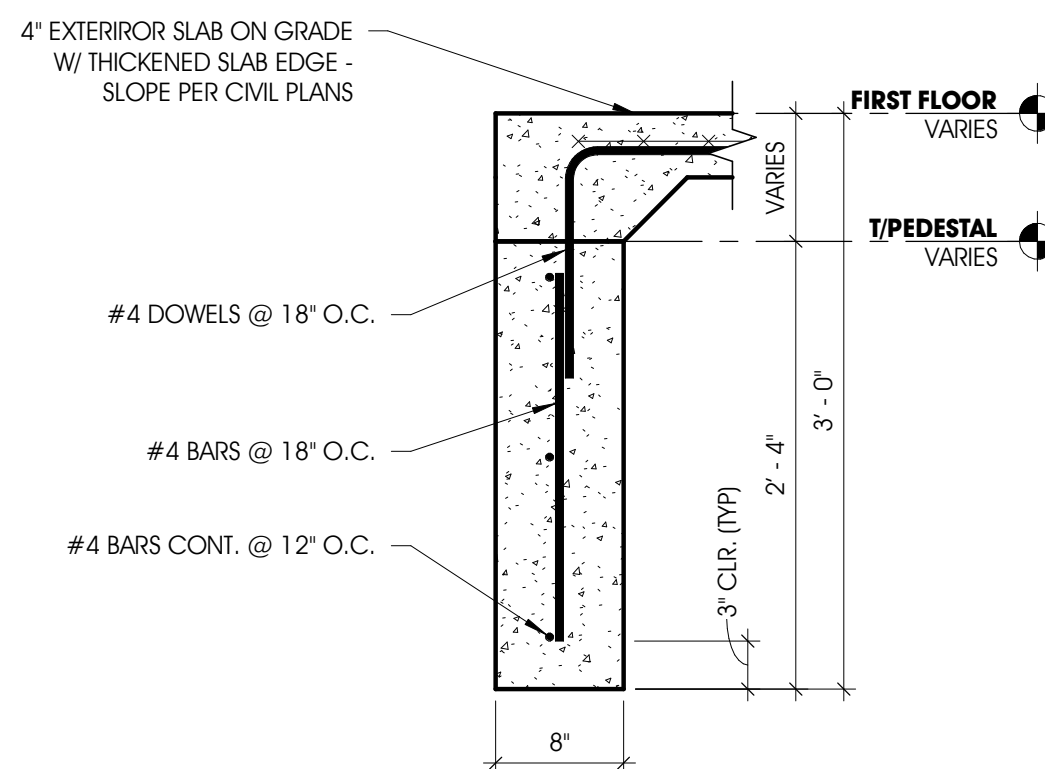
7  
S2.1 FOUNDATION DETAIL @ ENCLOSED DUMPSTER  
1" = 1'-0"



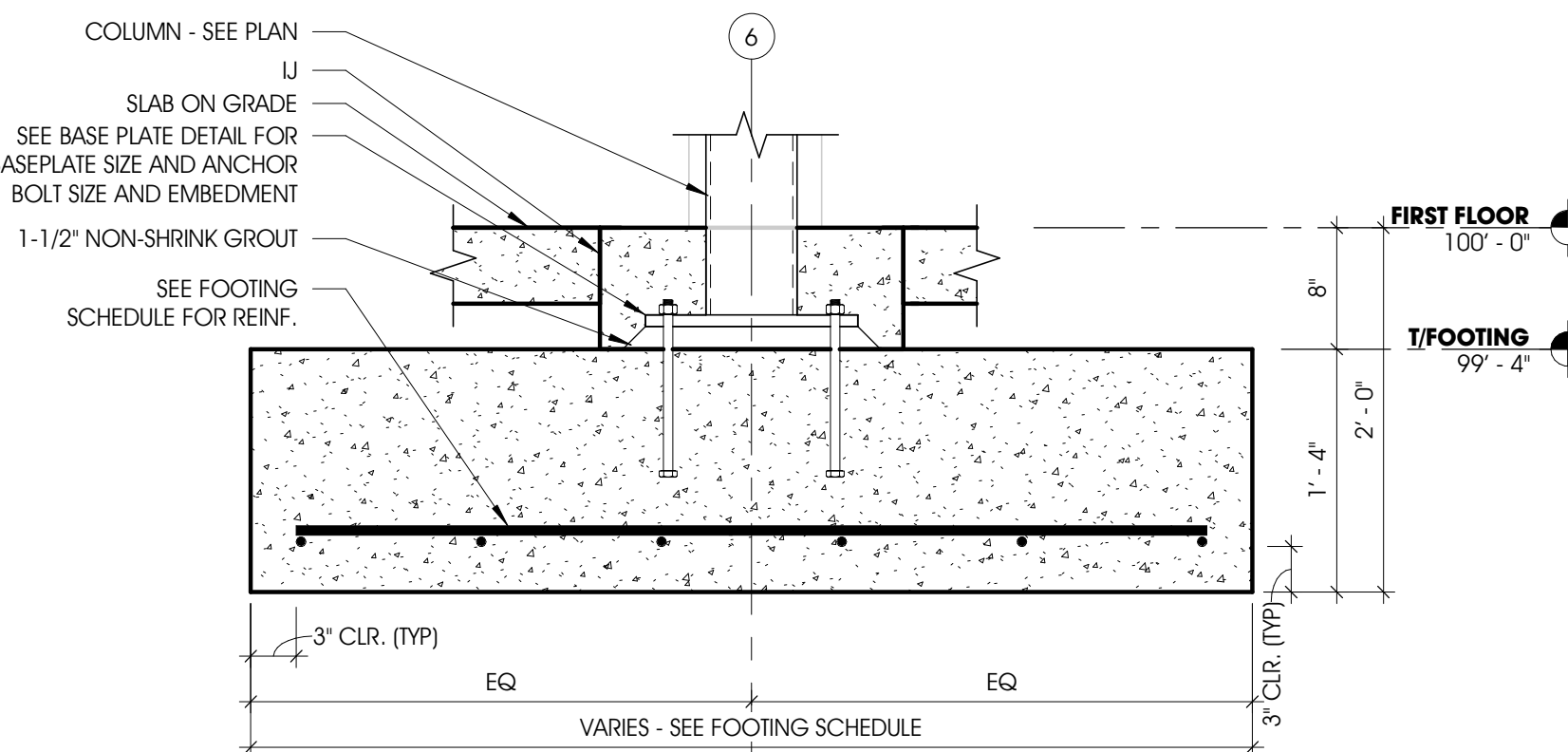
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S2.1 FOUNDATION DETAIL  
1" = 1'-0"



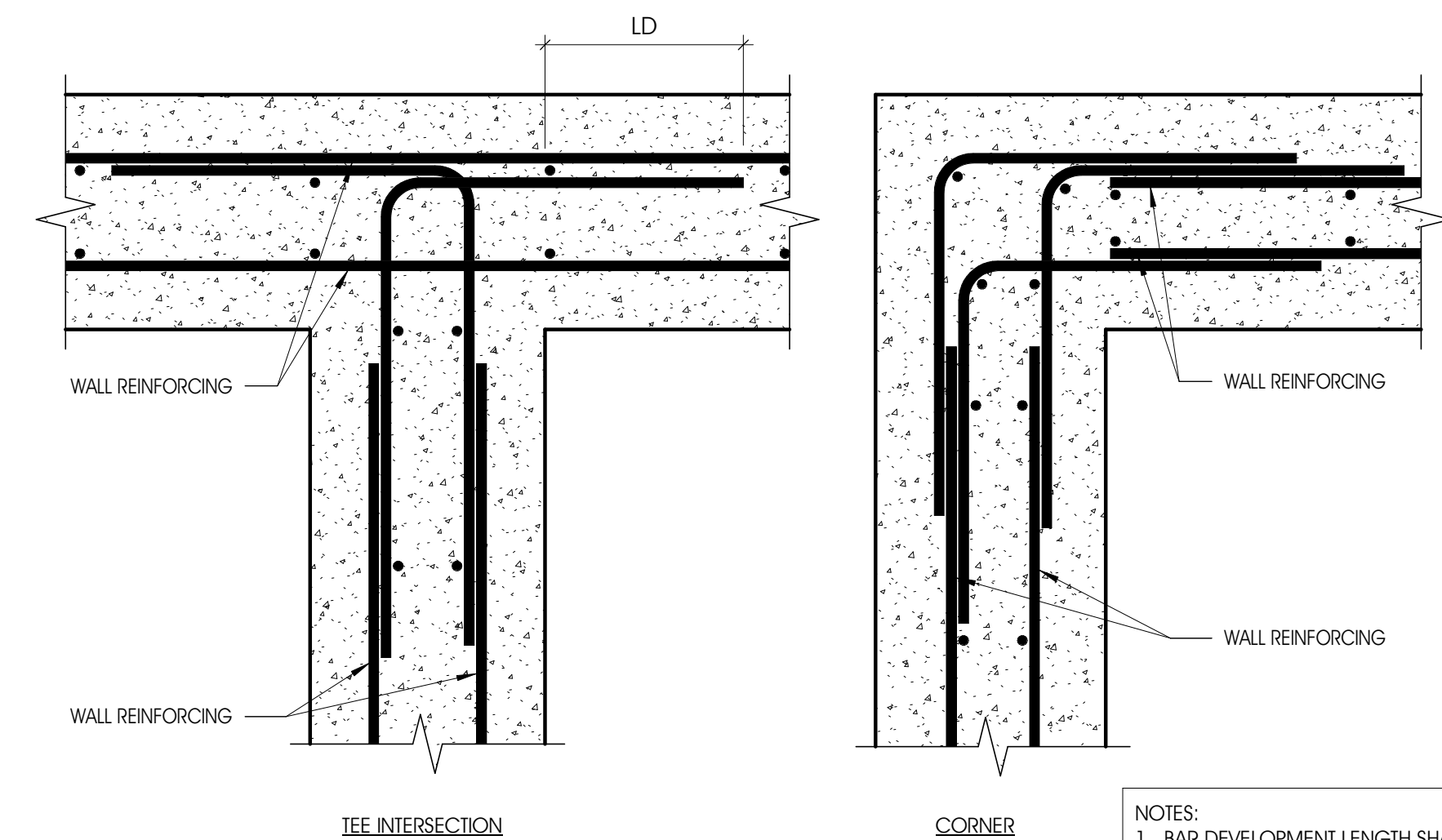
5  
S2.1 FOUNDATION DETAIL  
1" = 1'-0"



6  
S2.1 FOUNDATION DETAIL  
1" = 1'-0"

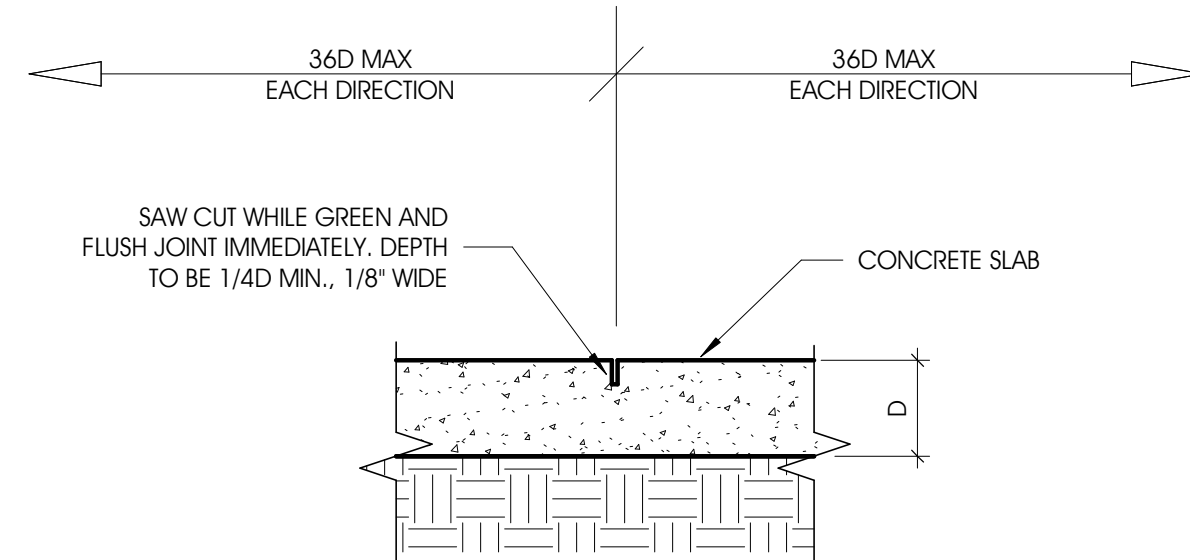


1  
S2.1 TYPICAL FOUNDATION INTERSECTIONS  
1 1/2" = 1'-0"

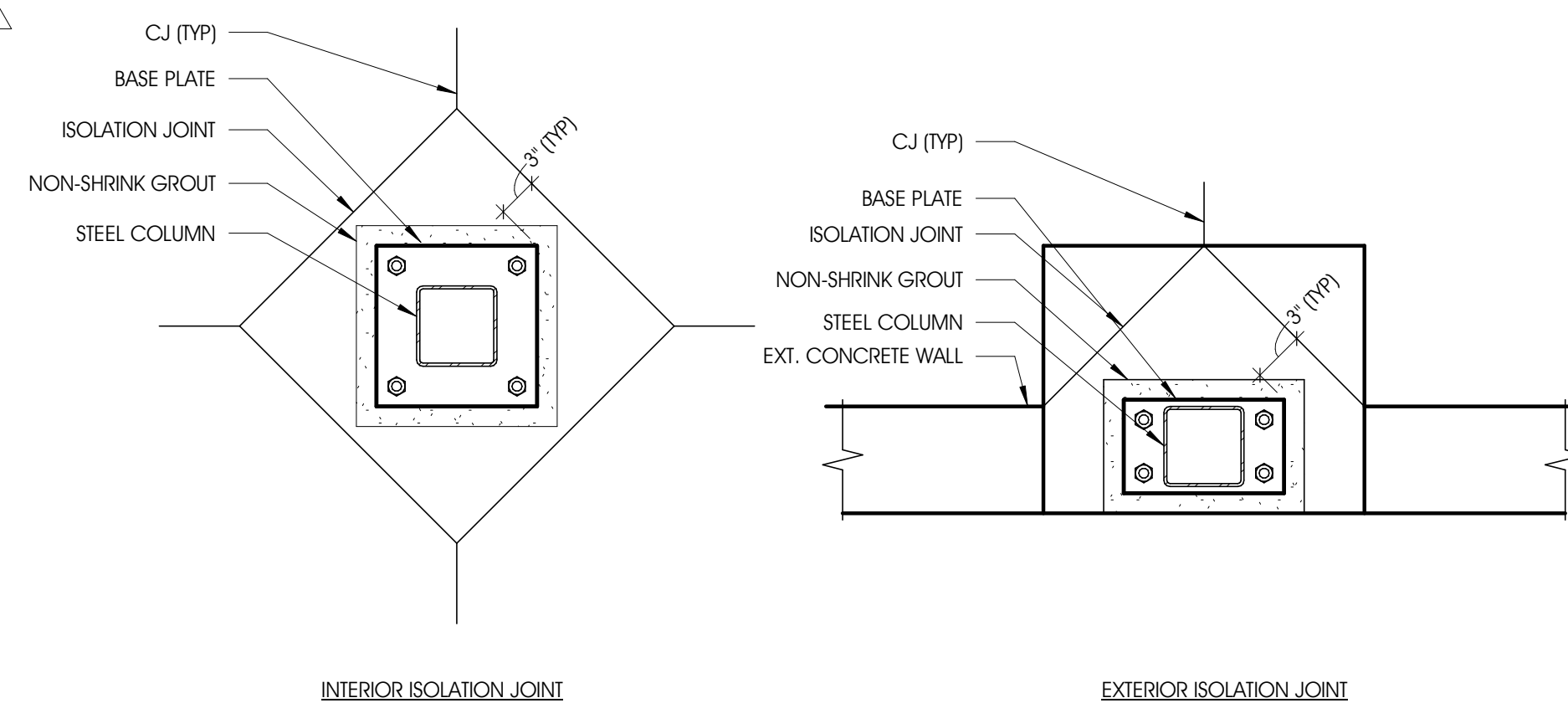


- NOTES:
1. BAR DEVELOPMENT LENGTH SHALL BE IN ACCORDANCE WITH ACI 318 AND "MINIMUM REQUIRED LAP & DEVELOPMENT LENGTH, LD" TABLE, THIS DETAIL.
  2. CORNER REINF. MAY BE AN EXTENSION OF THE WALL REINFORCING AT THE CONTRACTOR'S OPTION.

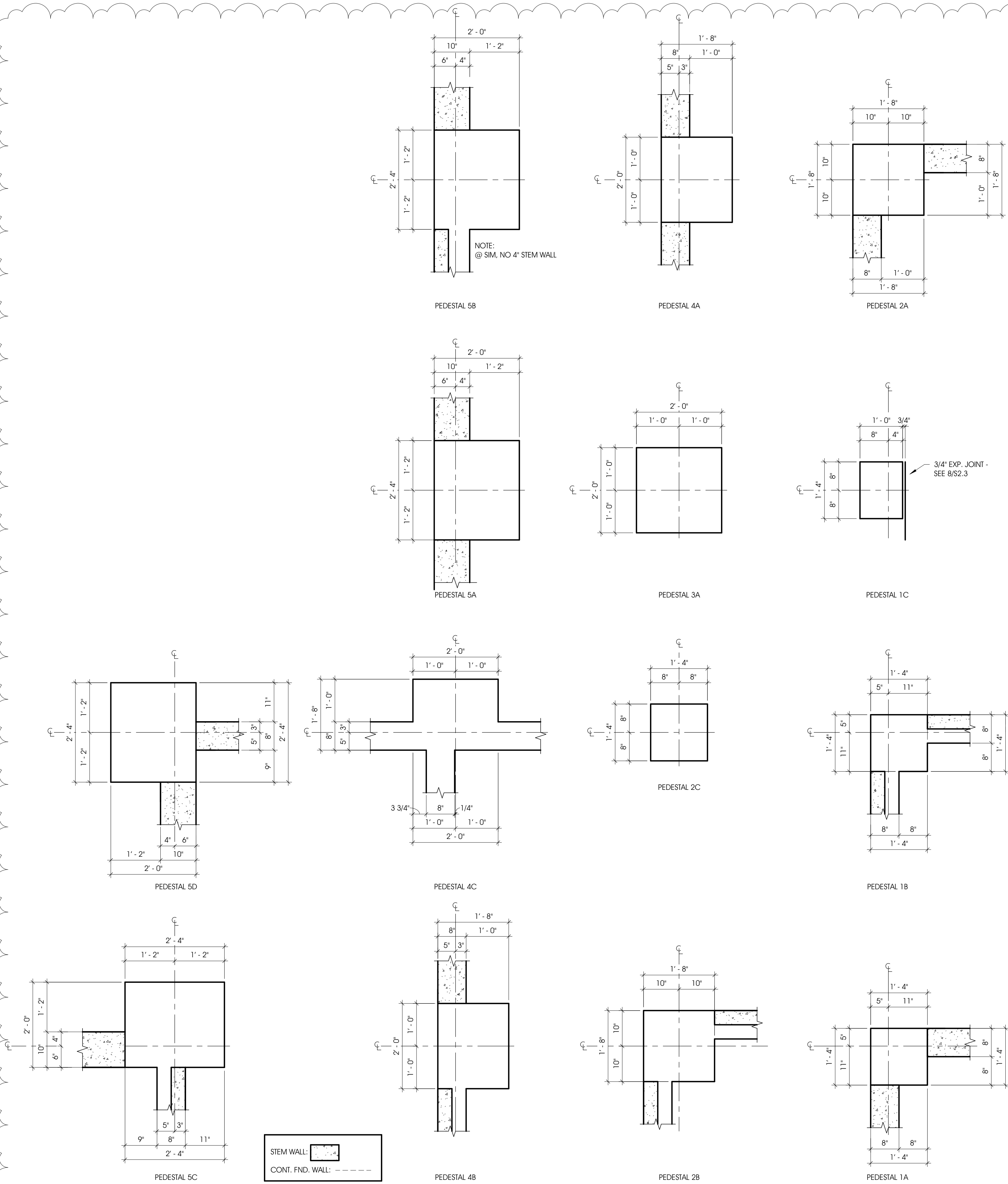
3  
S2.1 FLOOR SLAB CONTROL JOINT DETAIL  
1 1/2" = 1'-0"



2  
S2.1 ISOLATION JOINT  
1" = 1'-0"







7 PEDESTAL LAYOUTS  
S2.2 3/4" = 1'-0"

5 PEDESTAL - P4 DETAIL  
S2.2 1 1/2" = 1'-0"

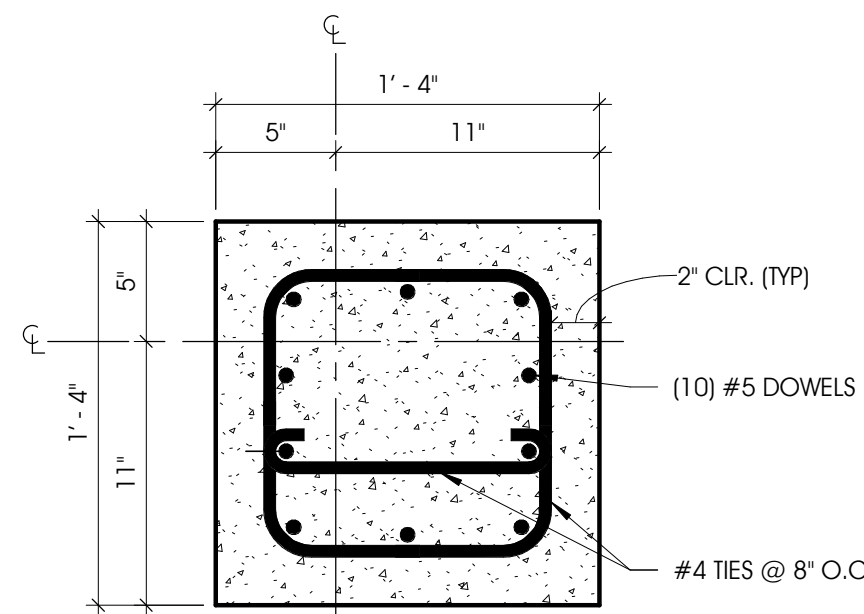
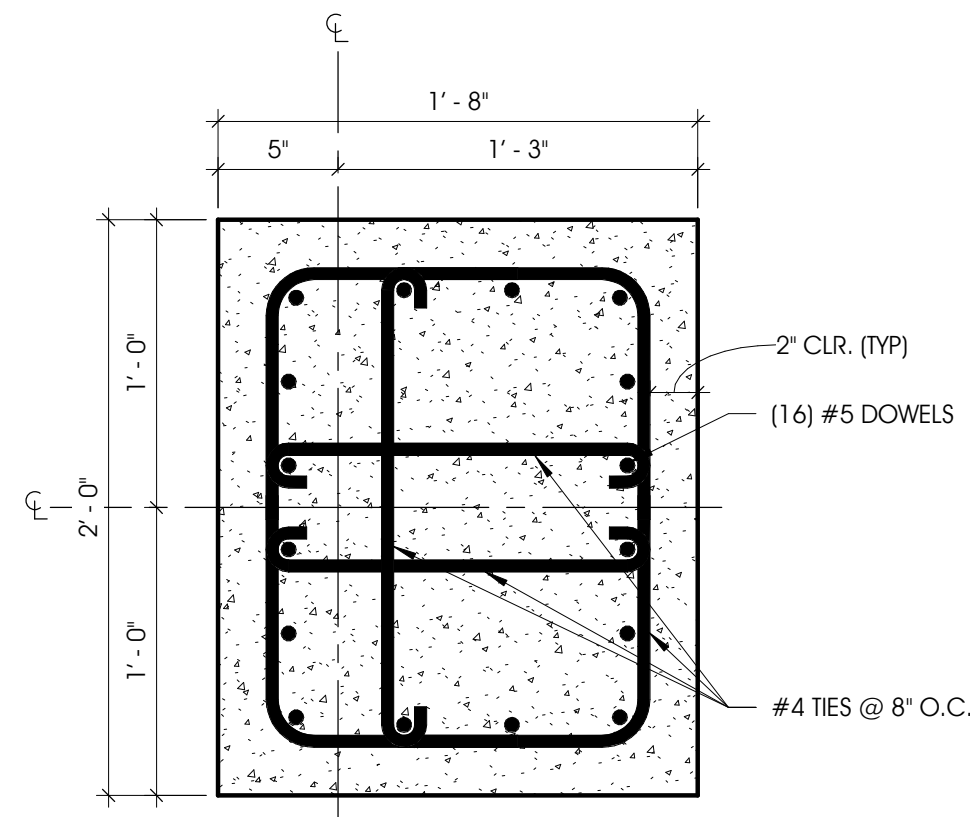
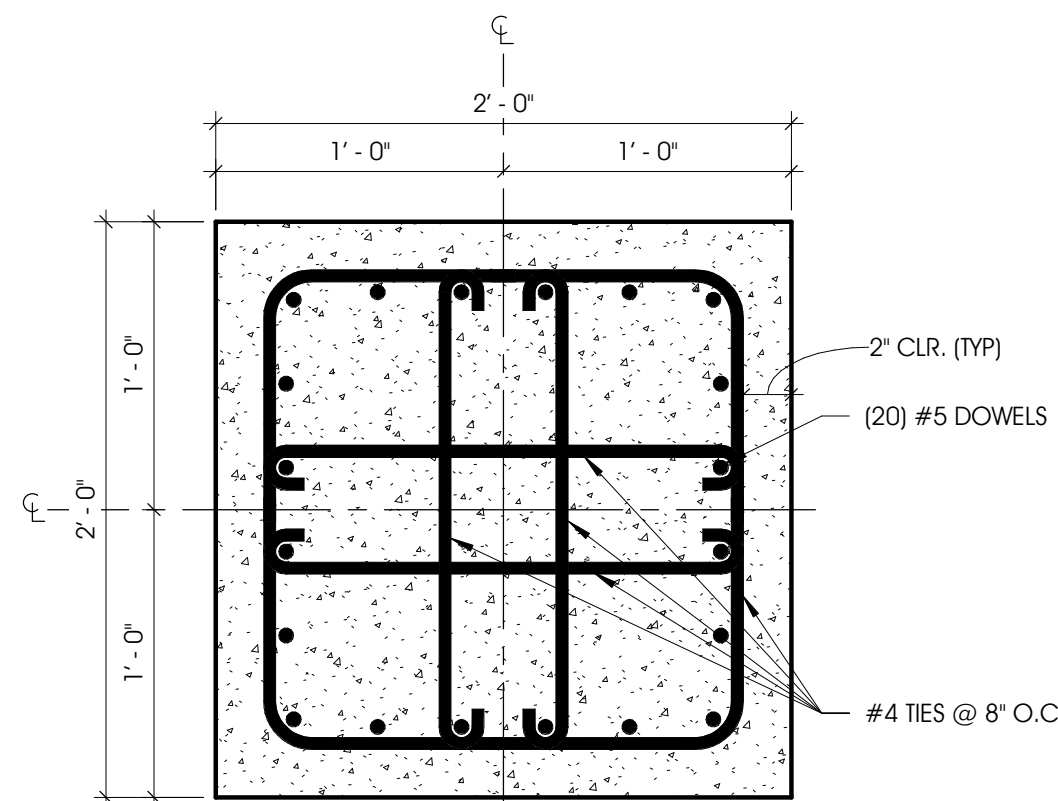
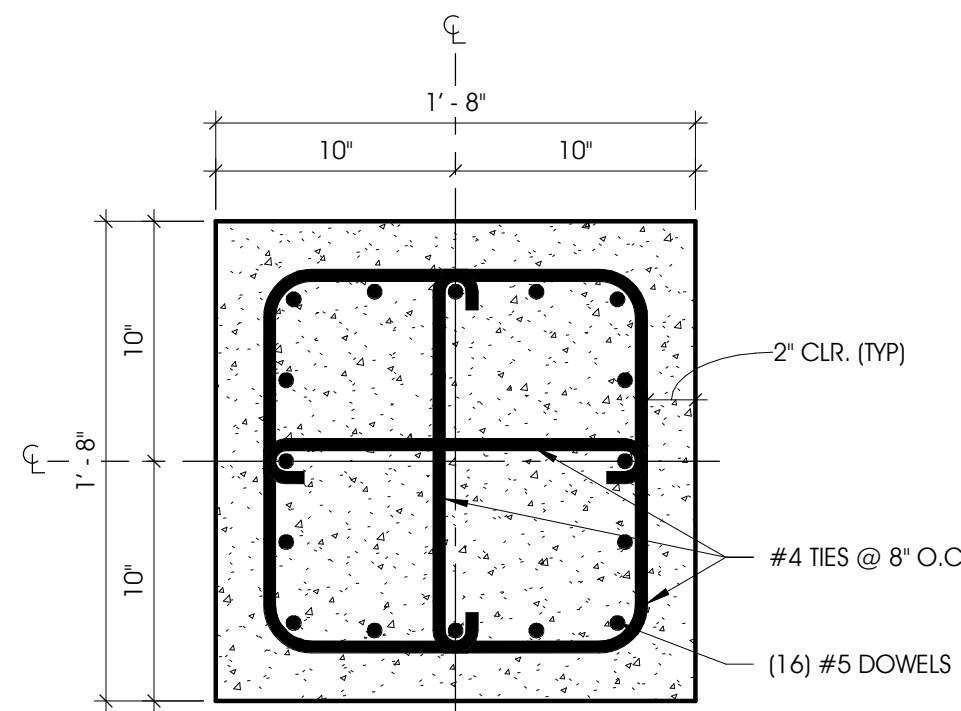
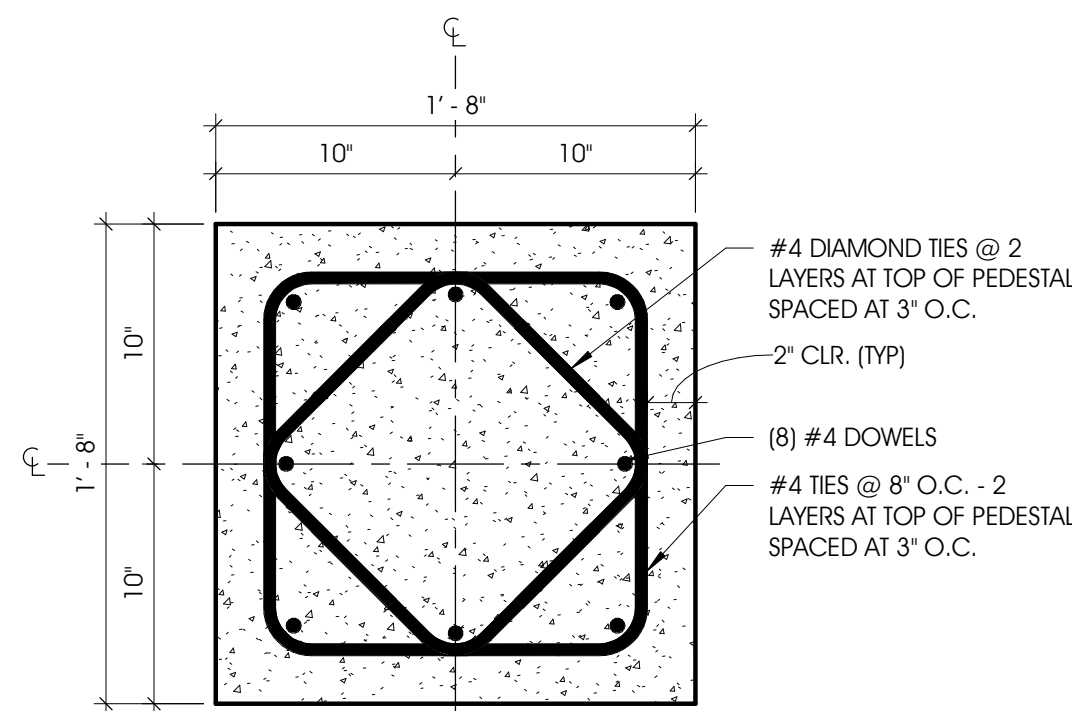
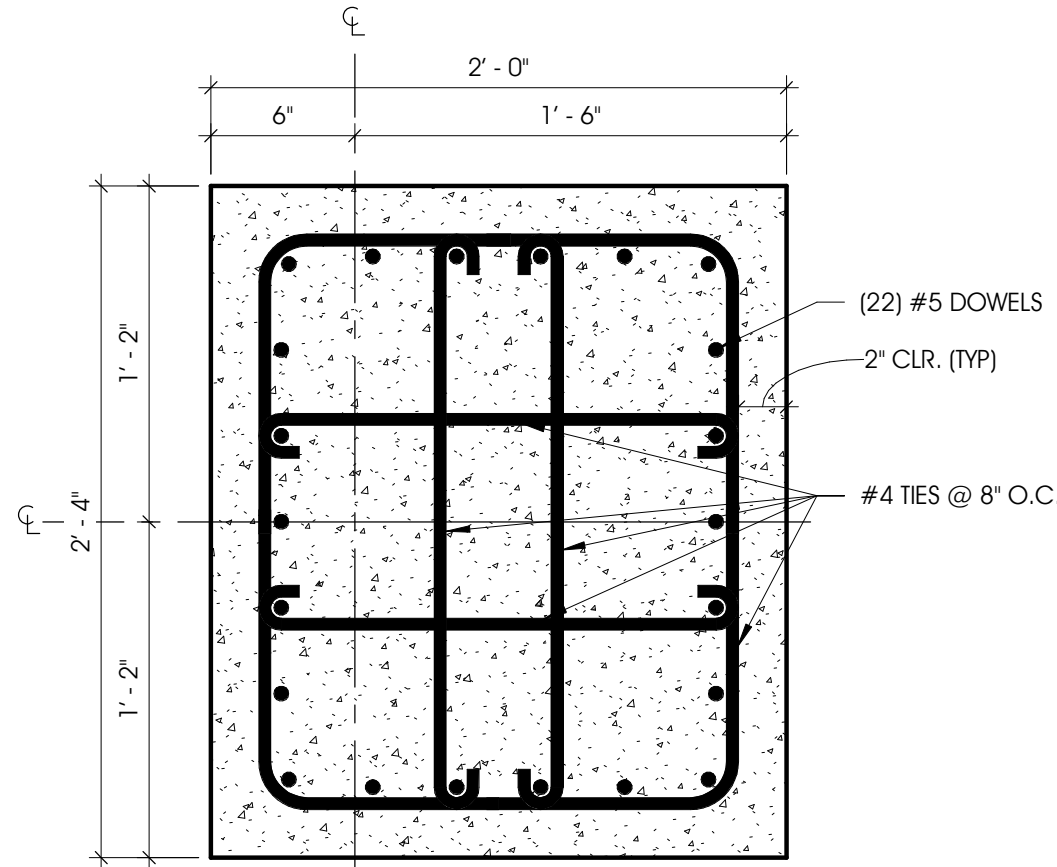
1 PEDESTAL - P1 DETAIL  
S2.2 1 1/2" = 1'-0"

6 PEDESTAL - P5 DETAIL  
S2.2 1 1/2" = 1'-0"

2 PEDESTAL - P2C DETAIL  
S2.2 1 1/2" = 1'-0"

3 PEDESTAL - P2A-B,D DETAIL  
S2.2 1 1/2" = 1'-0"

4 PEDESTAL - P3 DETAIL  
S2.2 1 1/2" = 1'-0"



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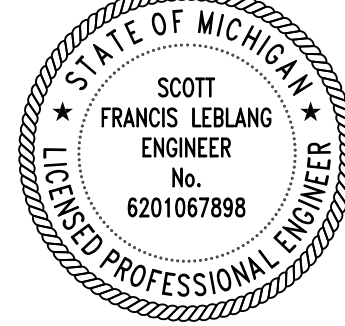
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SHEET NO.

S2.2

2	ADDENDUM #2
NO.	REVISION DESCRIPTION

JMO	01/23/2024
BY	DATE

## FOUNDATION DETAILS

PROJECT:

NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI

2

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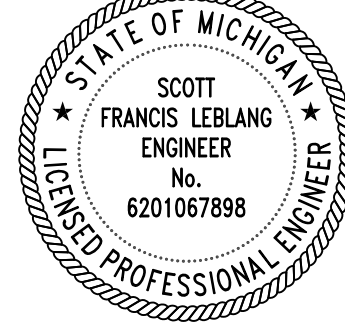
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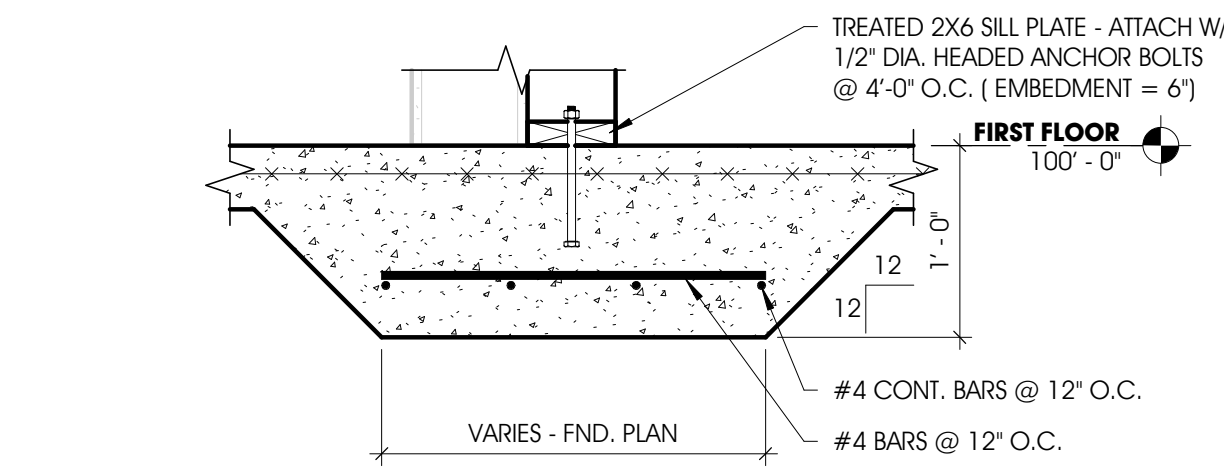
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Grand Rapids  
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Engineering Architecture Land Surveying

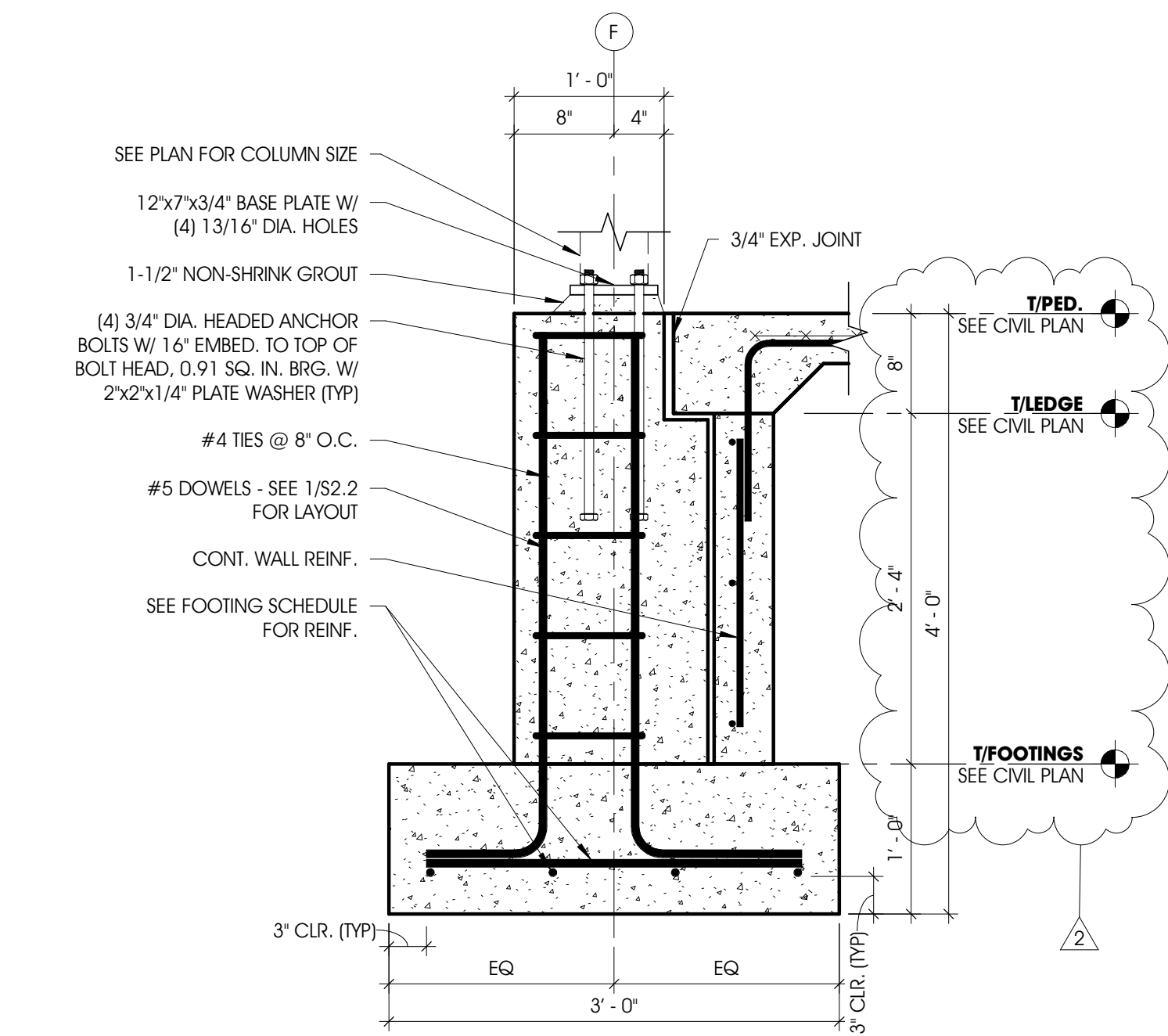
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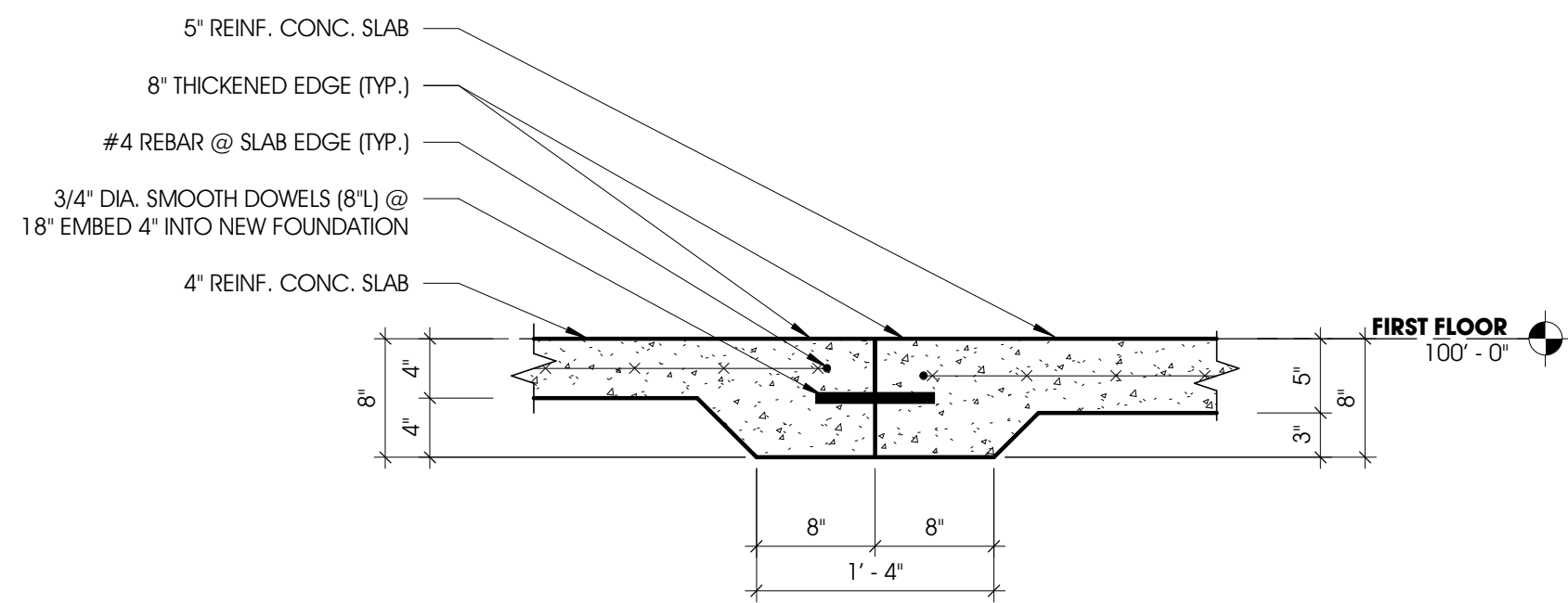




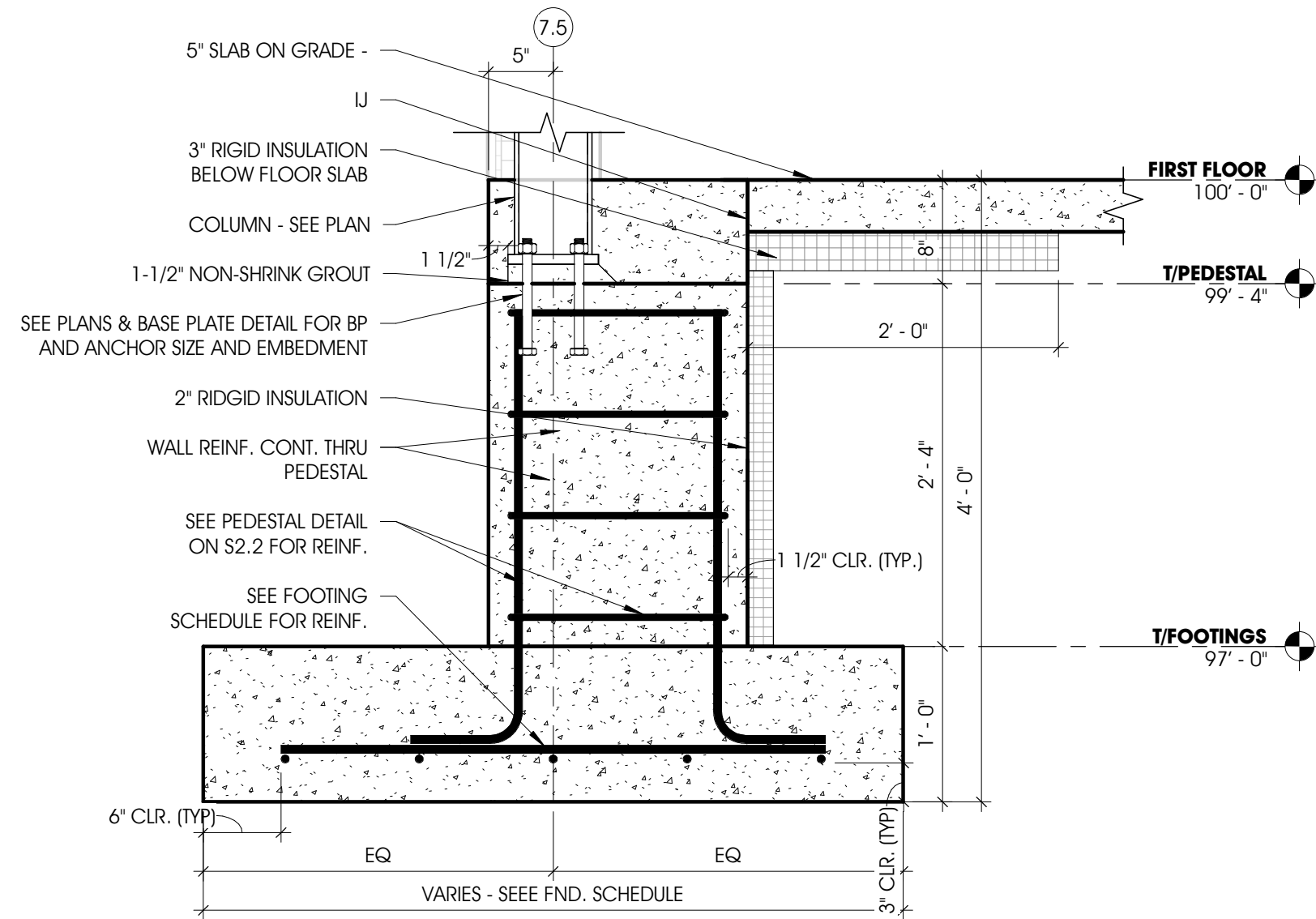
9 FOUNDATION DETAIL  
S2.3 1" = 1'-0"



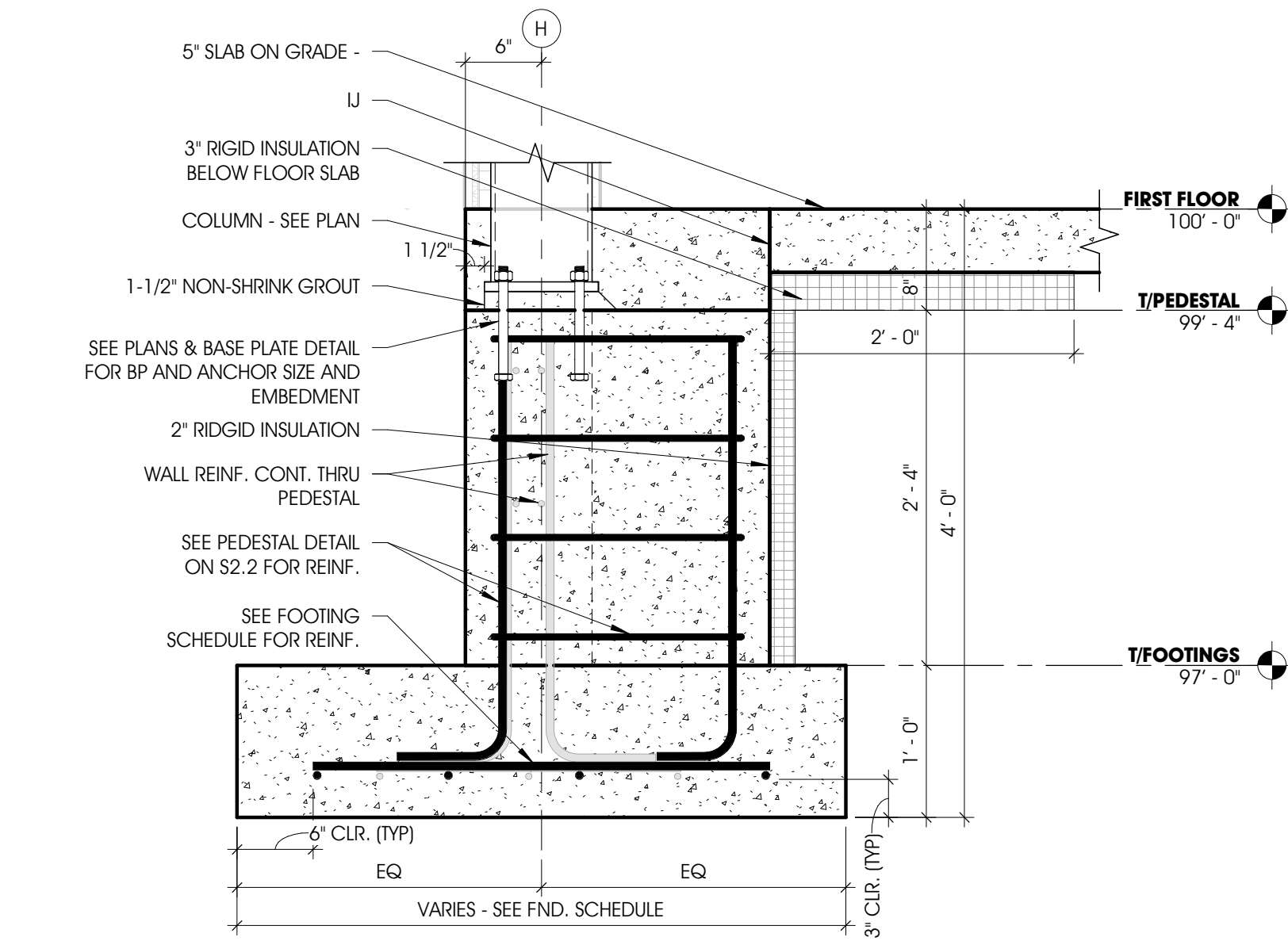
8 FOUNDATION DETAIL  
S2.3 1" = 1'-0"



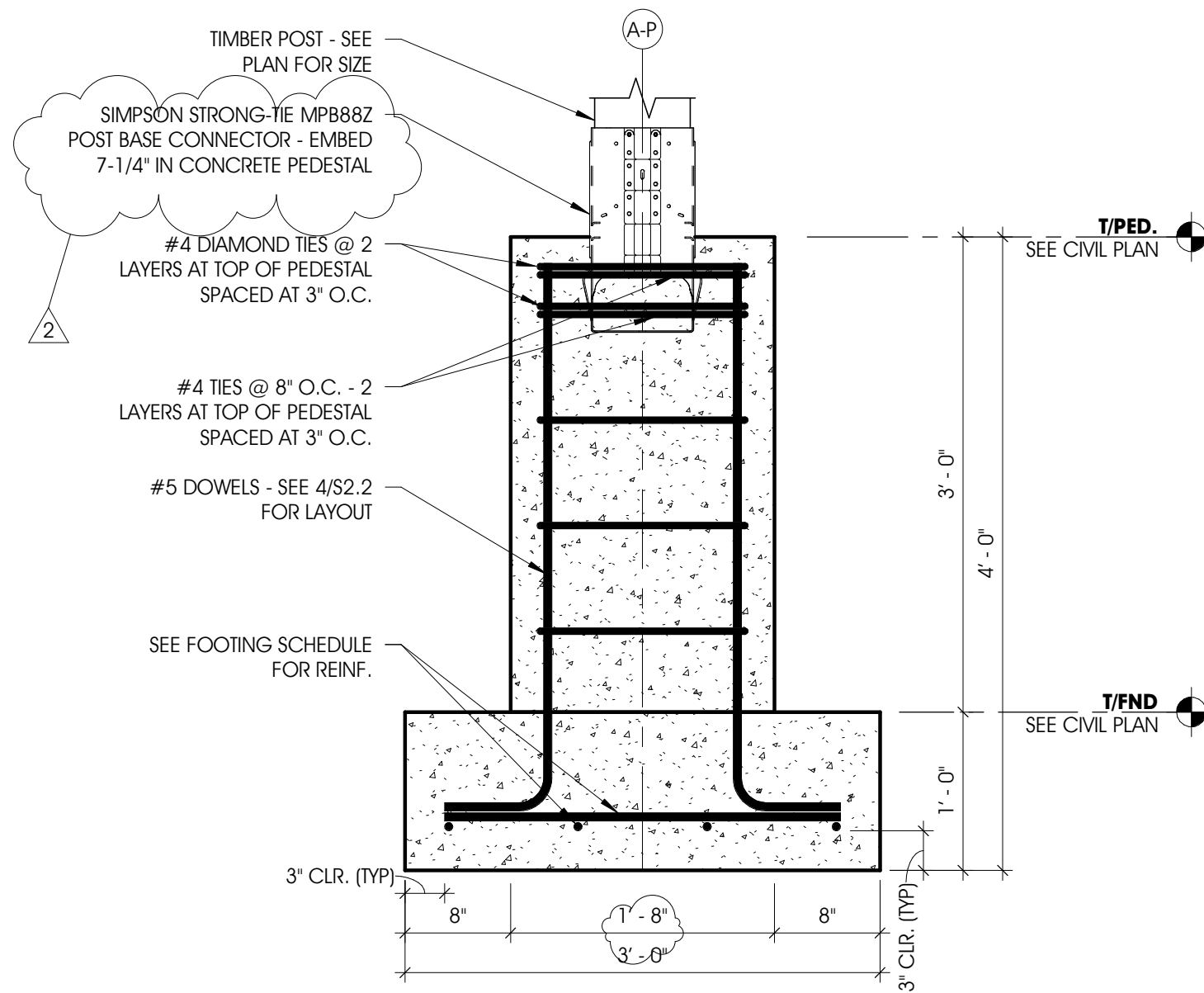
7 FLOOR SLAB DETAIL  
S2.3 1" = 1'-0"



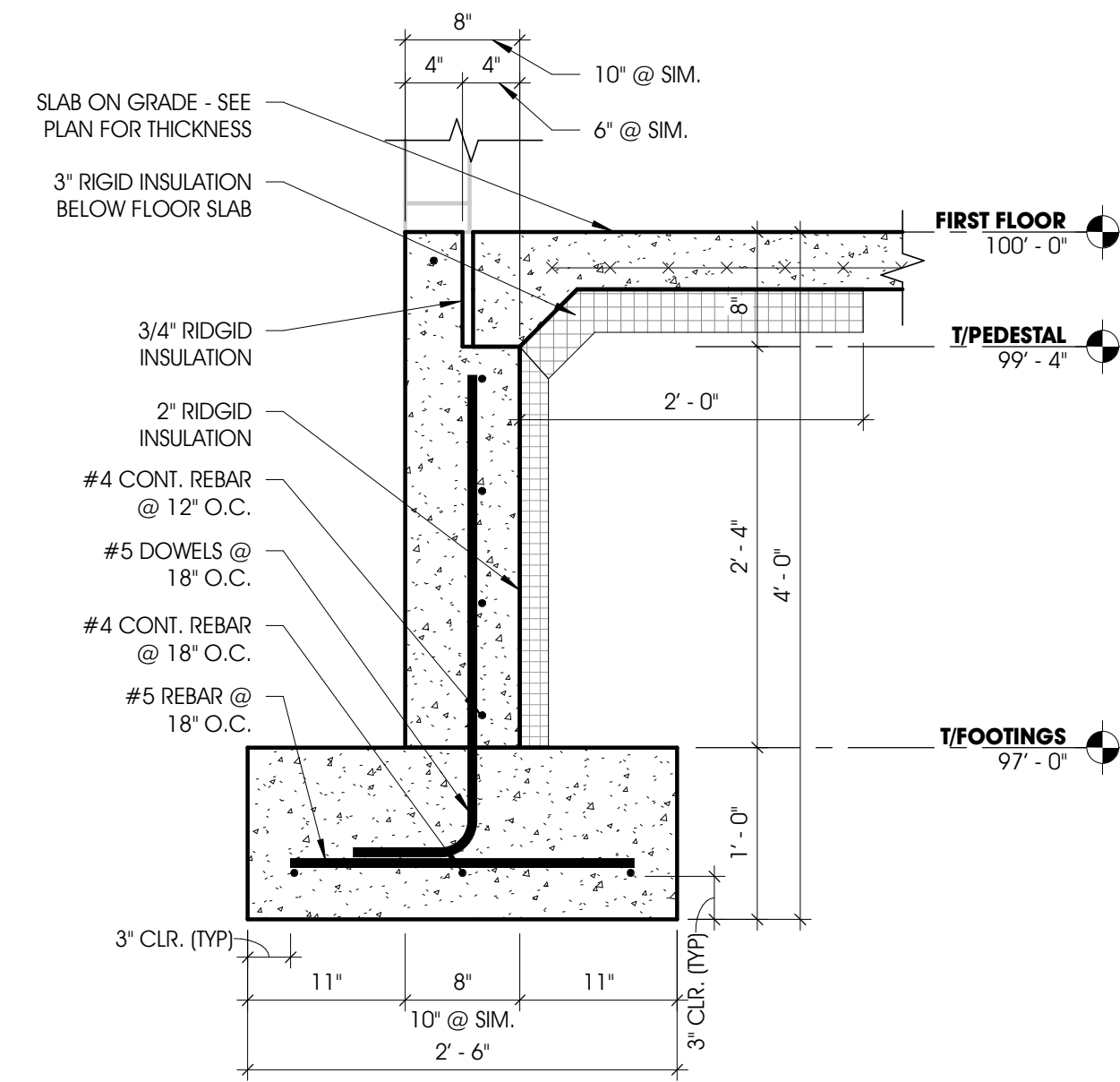
6 FOUNDATION DETAIL  
S2.3 1" = 1'-0"



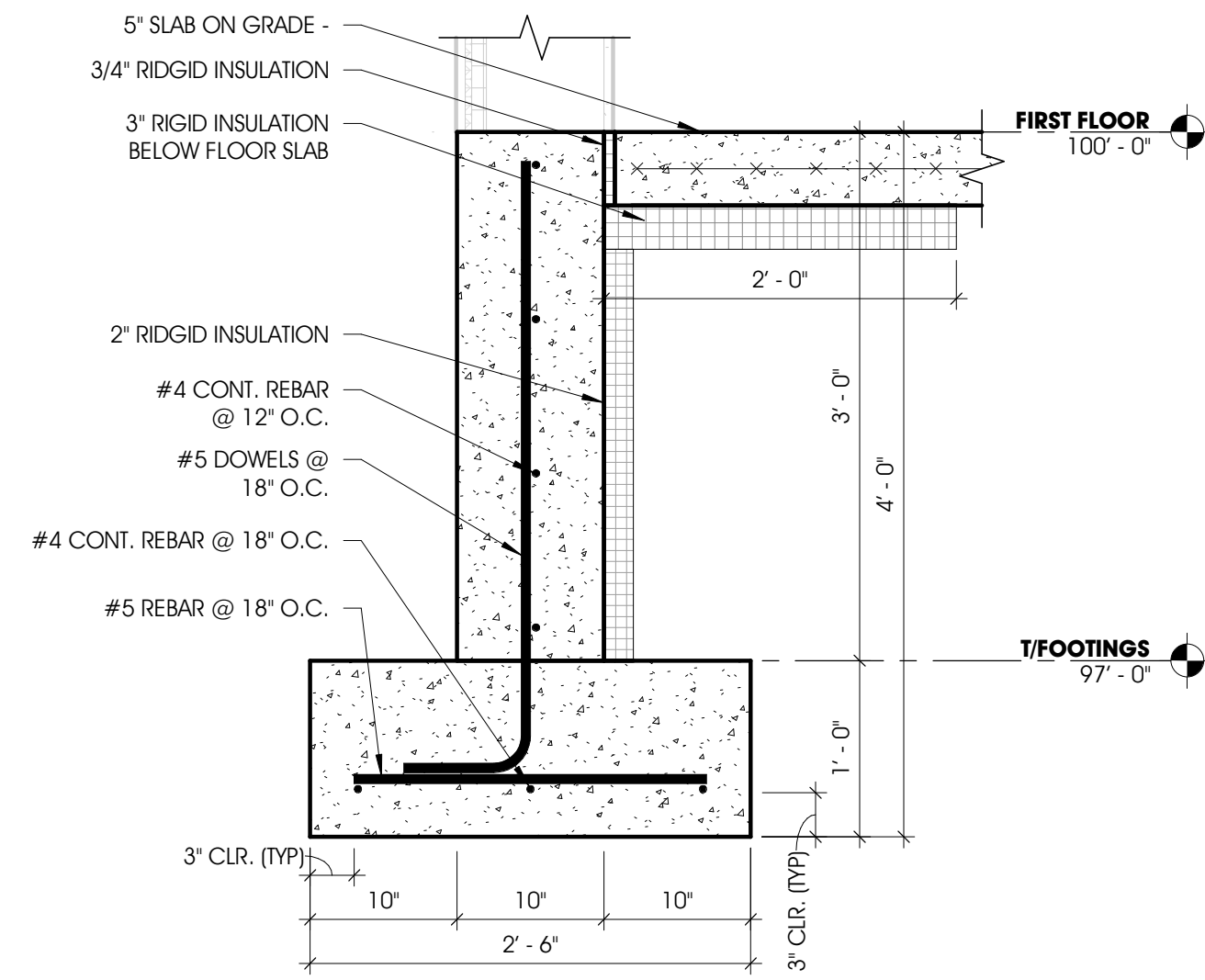
5 FOUNDATION DETAIL  
S2.3 1" = 1'-0"



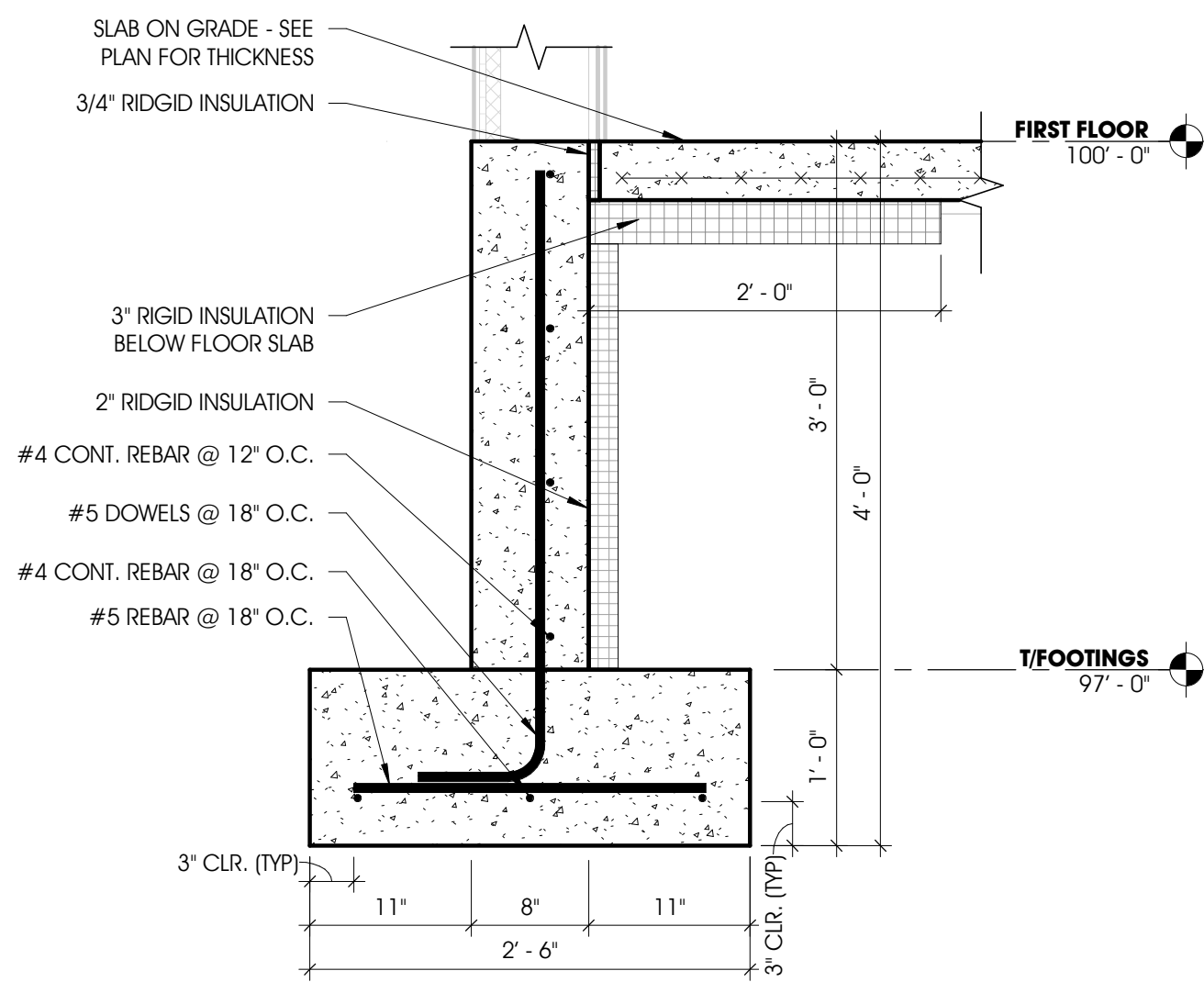
4 TRELLIS FND  
S2.3 1" = 1'-0"



3 FOUNDATION DETAIL @ STOREFRONT  
S2.3 1" = 1'-0"



2 FOUNDATION DETAIL  
S2.3 1" = 1'-0"

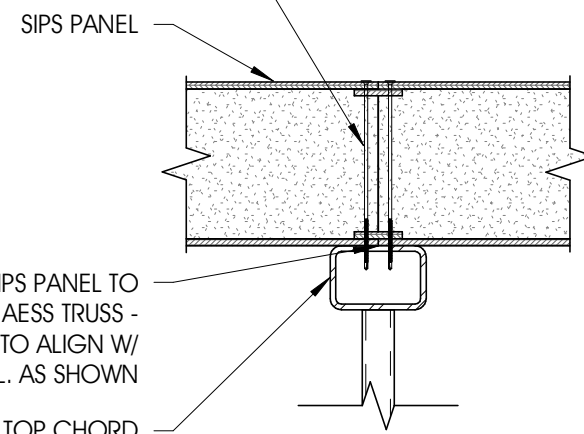


1 FOUNDATION DETAIL  
S2.3 1" = 1'-0"

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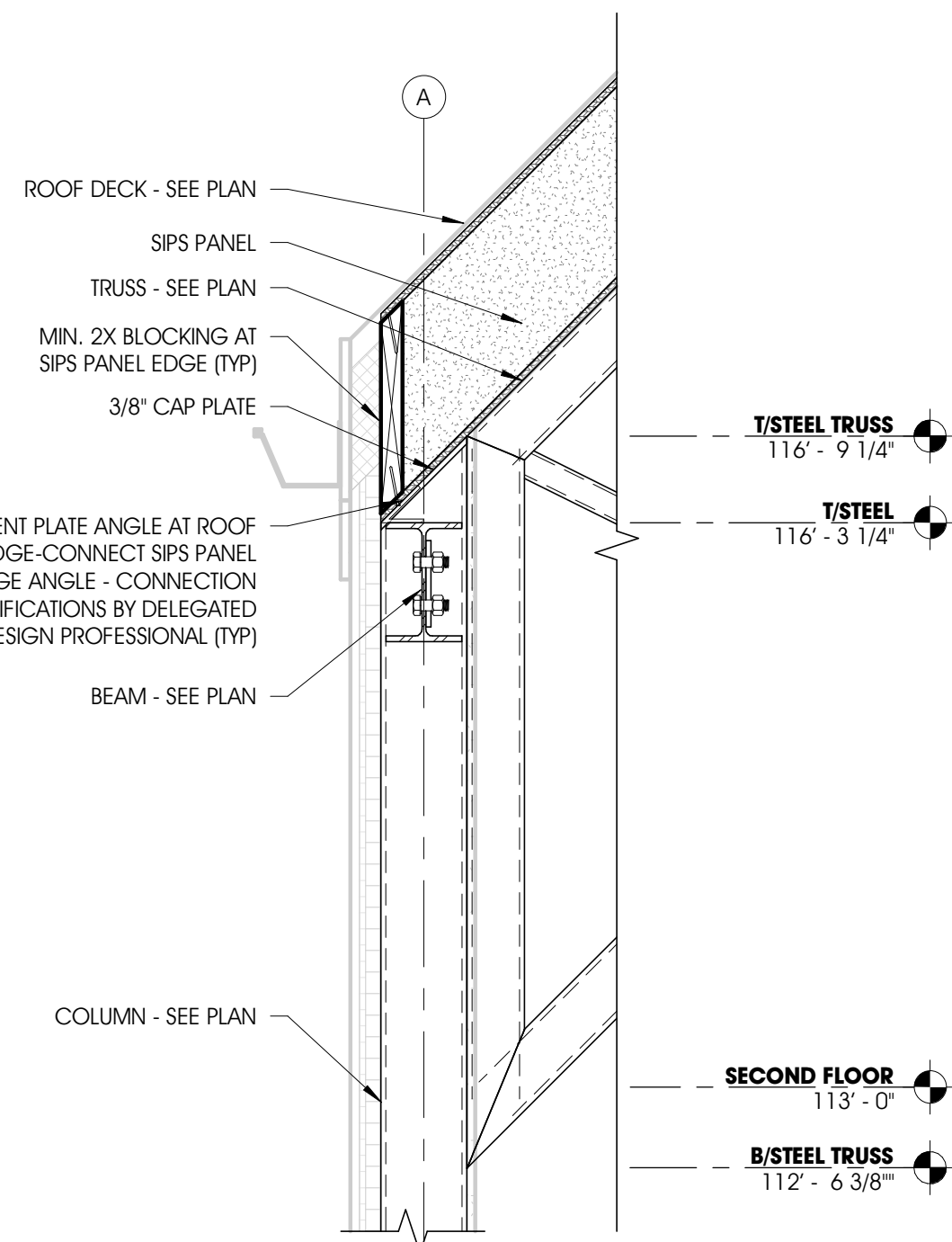


SIPS CONNECTORS TO BE CONCEALED AS SHOWN - SPECIFICATIONS BY DELEGATED DESIGN PROFESSIONAL



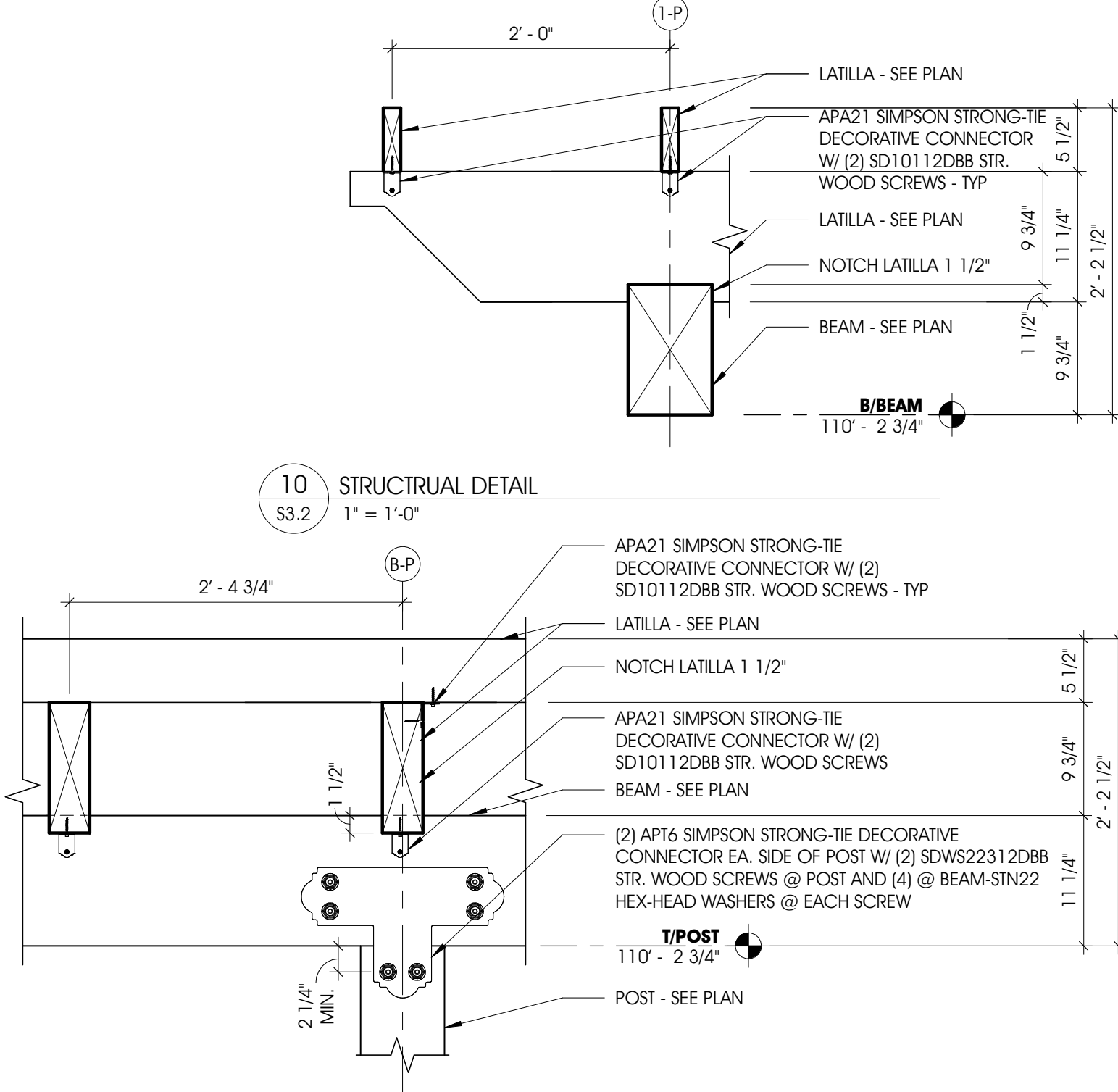
NOTE:  
DELEGATED DESIGN PROFESSIONAL TO DESIGN SIPS PANEL AND CONNECTIONS TO STRUCTURAL STEEL SEE S0.1 FOR MORE INFORMATION. SIPS PANEL CONNECTORS MUST BE CONCEALED. SPLINES TO ALIGN WITH TRUSSES AS SHOWN.

**12** ALTERNATE #2 STRUCTURAL DETAIL  
S3.2 1" = 1'-0"

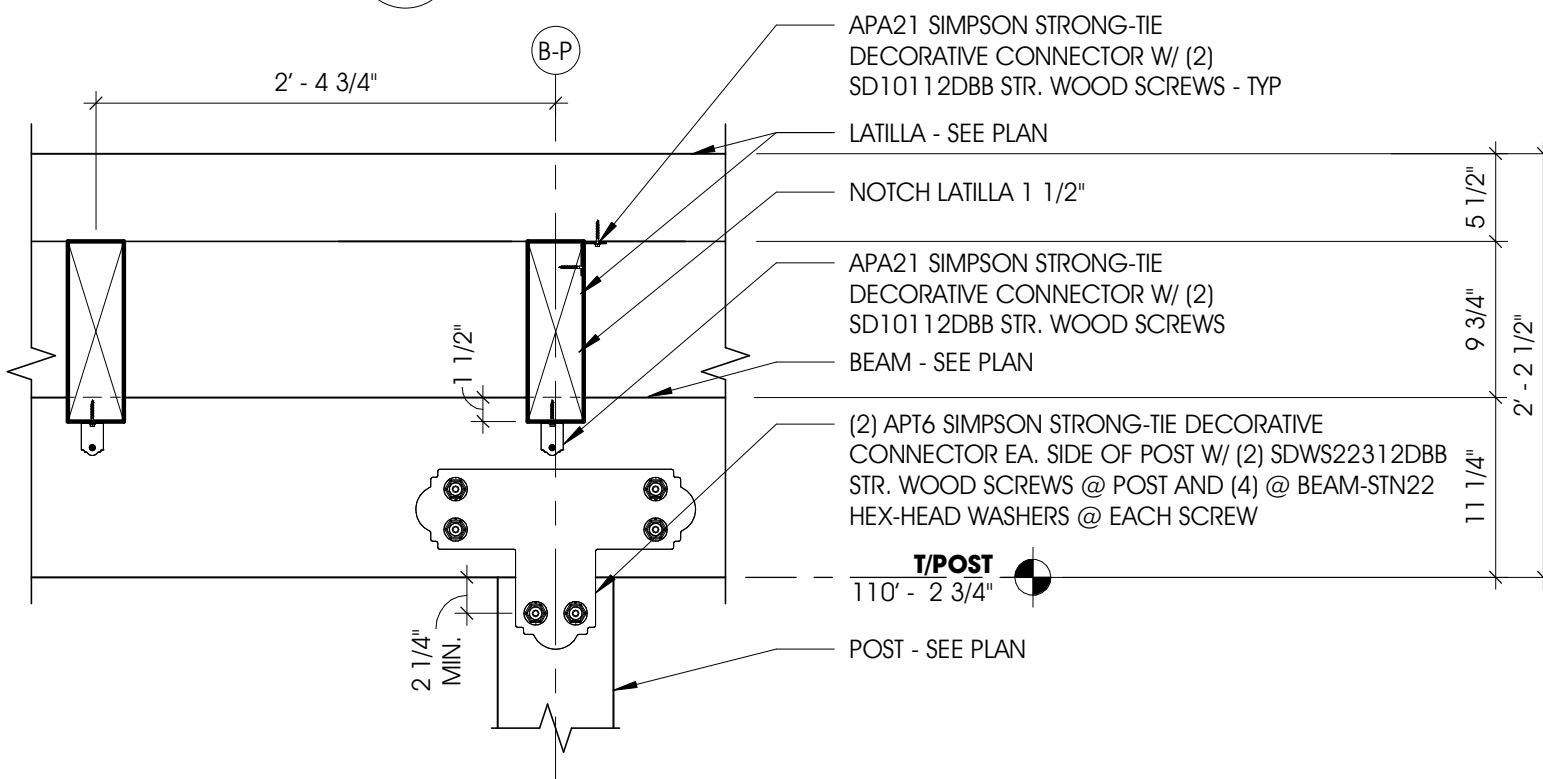


NOTE:  
DELEGATED DESIGN PROFESSIONAL TO DESIGN SIPS PANEL AND CONNECTIONS TO STRUCTURAL STEEL SEE S0.1 FOR MORE INFORMATION. SIPS PANEL CONNECTORS MUST BE CONCEALED

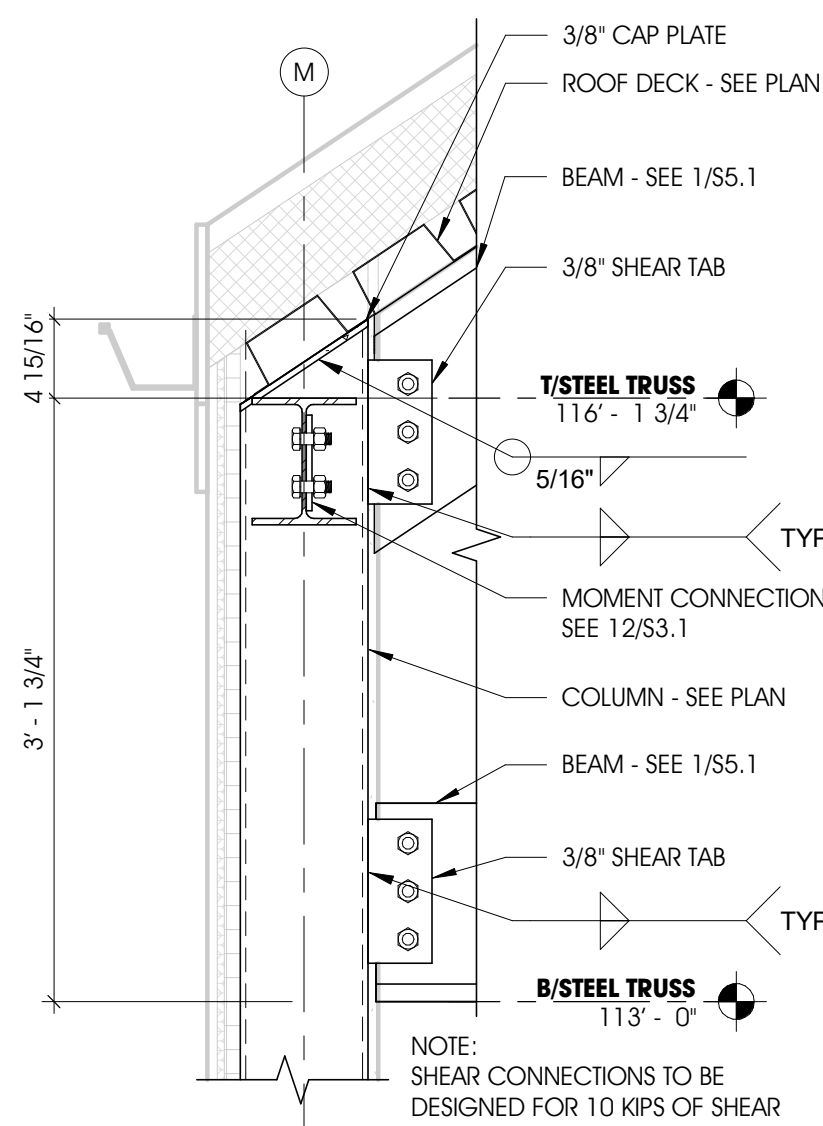
**11** ALTERNATE #2 STRUCTURAL DETAIL  
S3.2 1" = 1'-0"



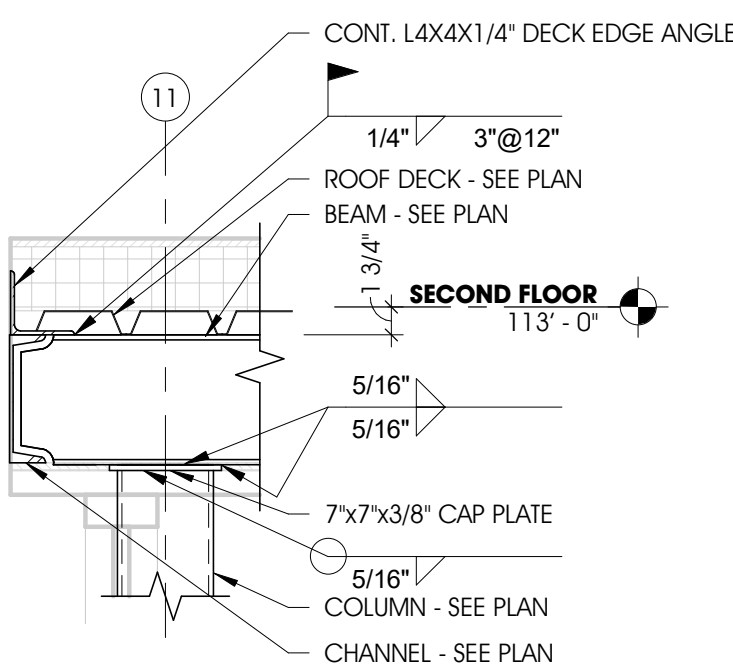
**10** STRUCTURAL DETAIL  
S3.2 1" = 1'-0"



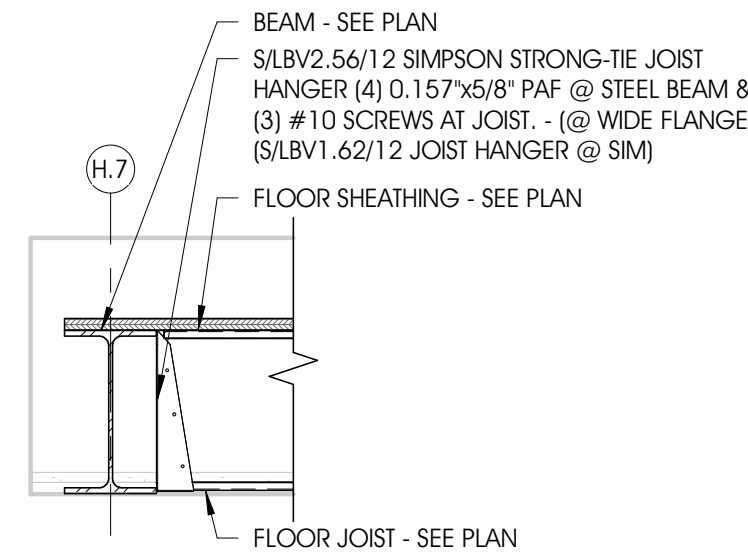
**8** STRUCTURAL DETAIL  
S3.2 1" = 1'-0"



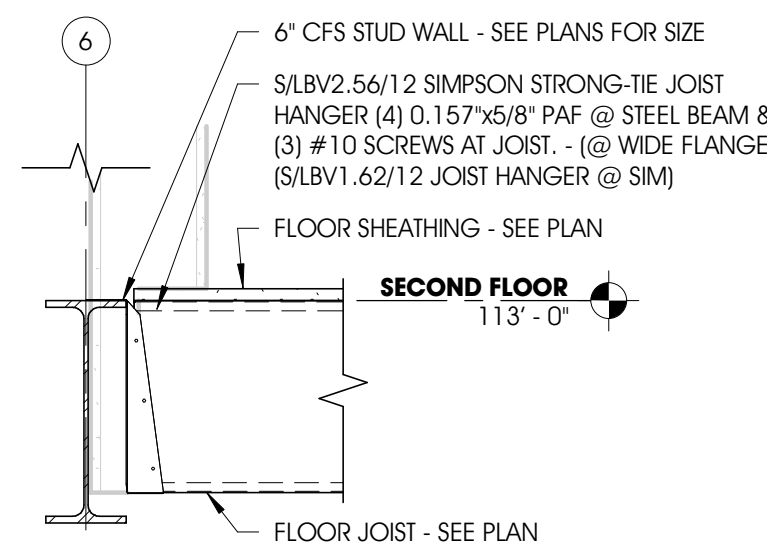
**9** STRUCTURAL DETAIL  
S3.2 1" = 1'-0"



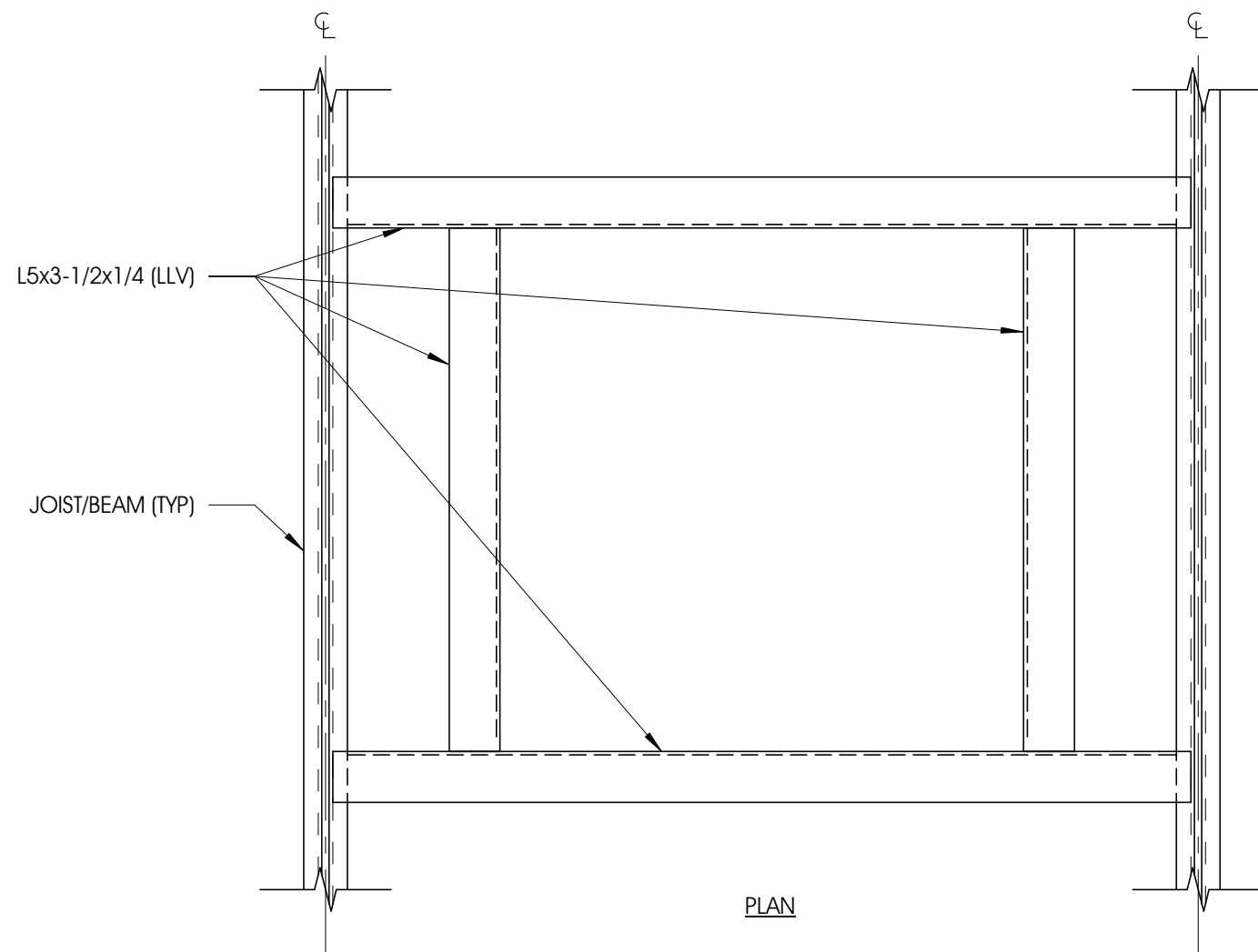
**7** STRUCTURAL DETAIL  
S3.2 1" = 1'-0"



**6** STRUCTURAL DETAIL  
S3.2 1" = 1'-0"

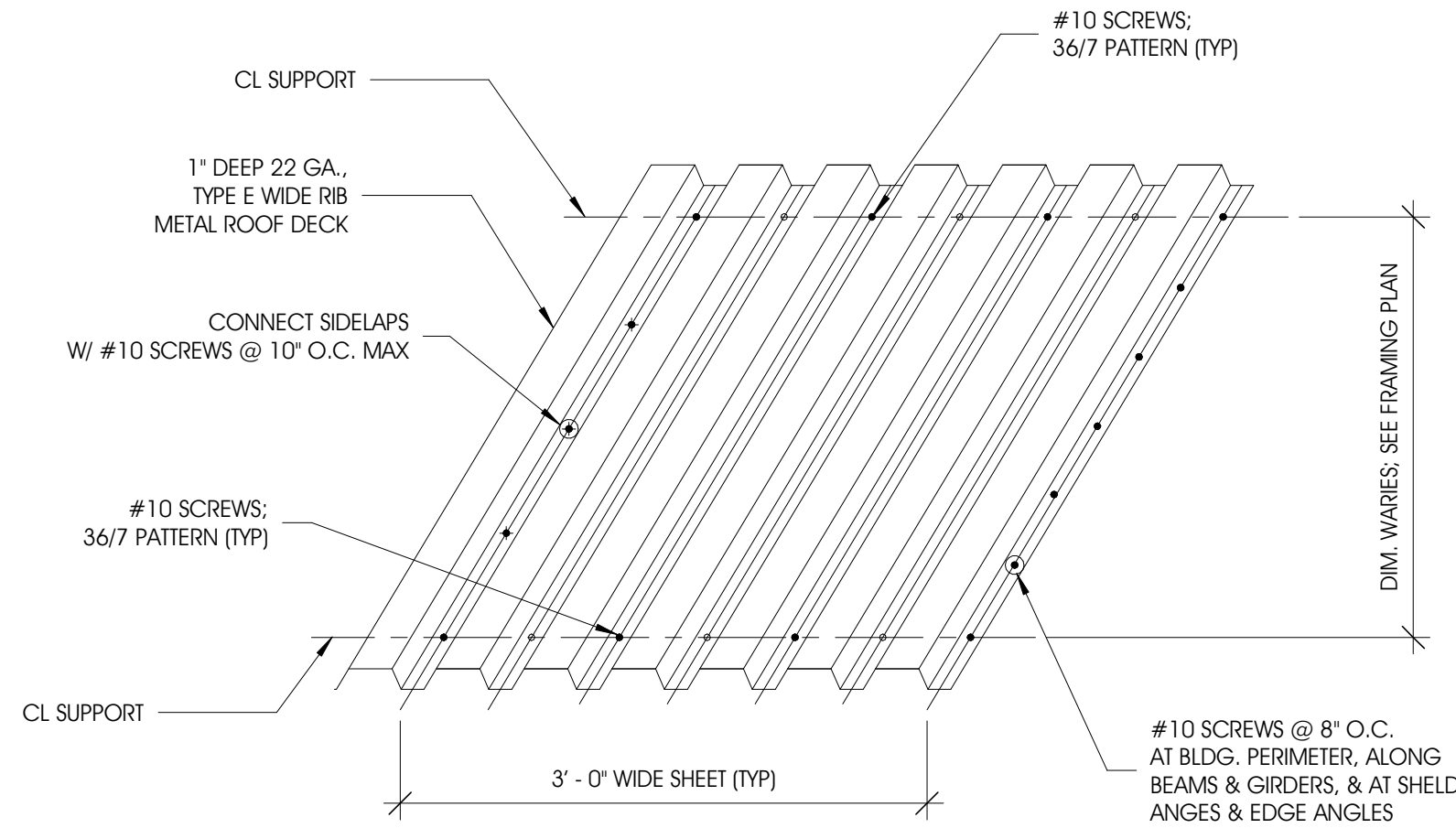


**5** STRUCTURAL DETAIL  
S3.2 1" = 1'-0"

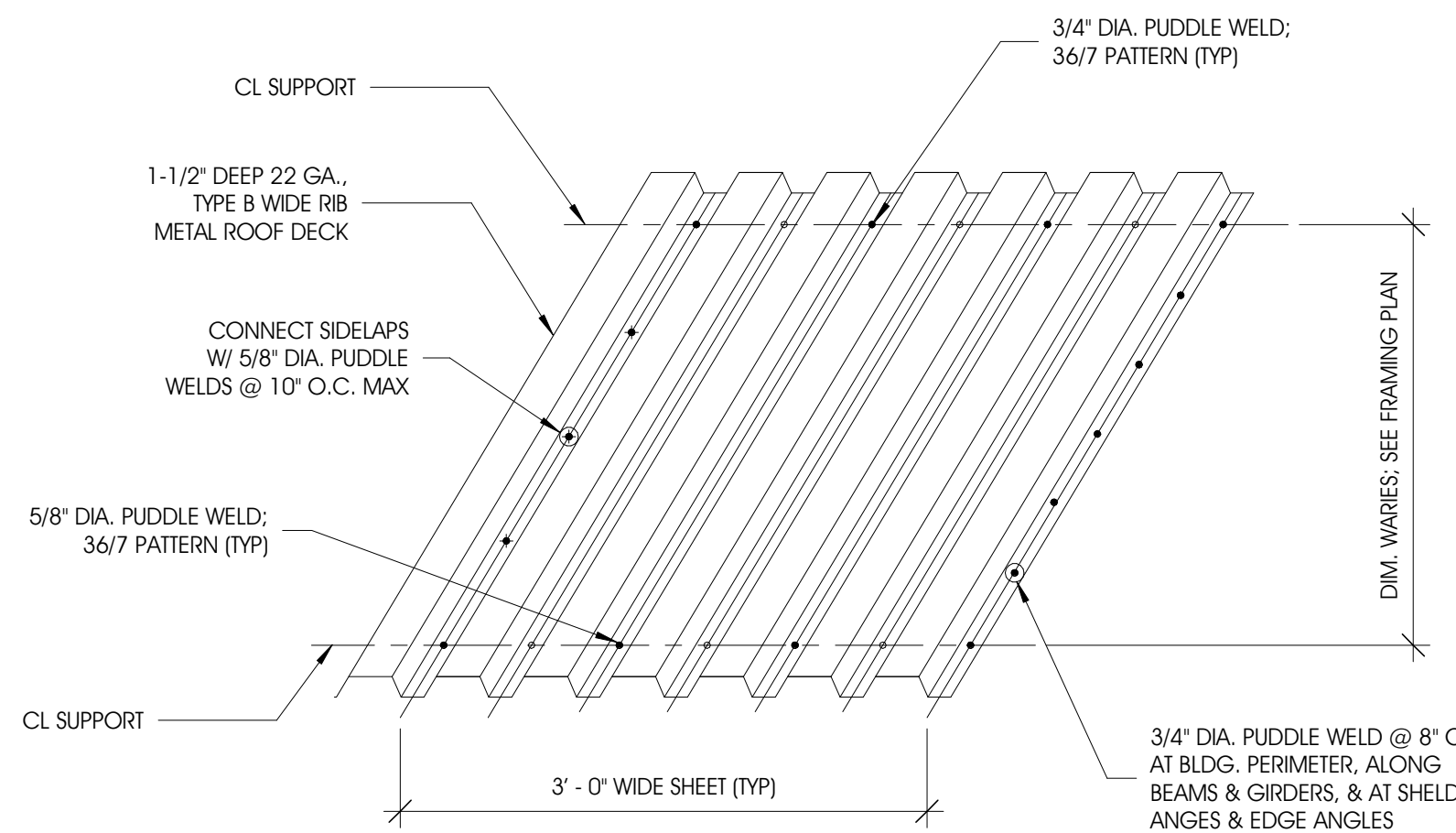


NOTES:  
1. EXACT LOCATION & DIMENSIONS OF OPENINGS PROVIDED BY OWNERS  
2. FRAME NOT REQUIRED FOR OPENINGS SMALLER THAN 12'X12'

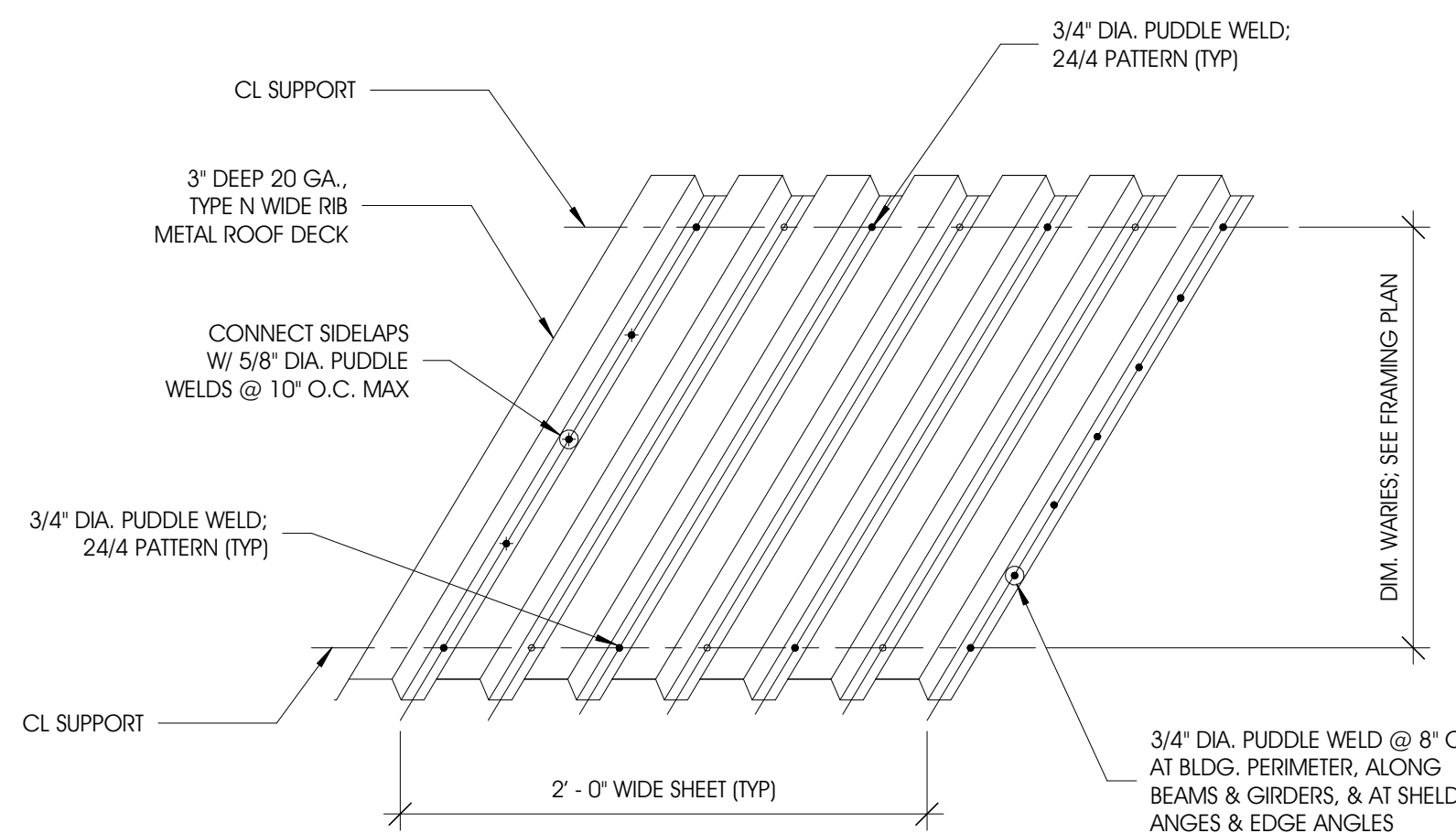
**4** ROOF DECK OPENING  
S3.2 1" = 1'-0"



**3** TYPICAL 1" ROOF DECK ATTACHMENT DETAIL  
S3.2 1" = 1'-0"

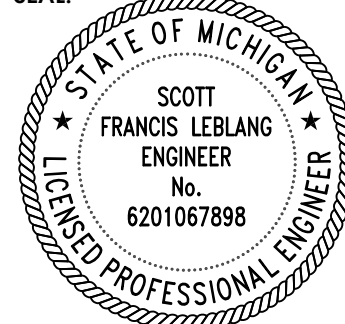


**2** TYPICAL 1-1/2" ROOF DECK ATTACHMENT DETAIL  
S3.2 1" = 1'-0"

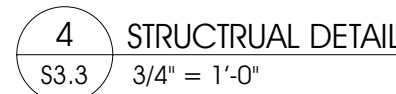
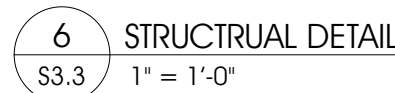
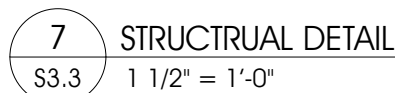


**1** TYPICAL 3" ROOF DECK ATTACHMENT DETAIL  
S3.2 1" = 1'-0"

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**PROJECT:**  
NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI

## STRUCTURAL DETAILS

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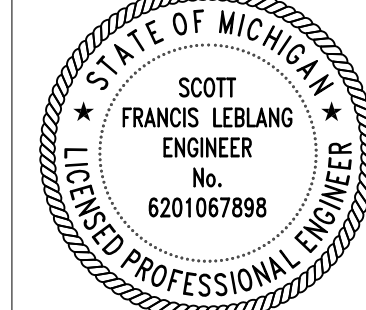

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### S3.3



# TRUSS PROFILES

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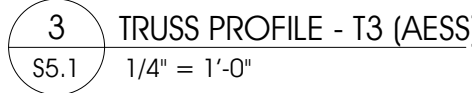
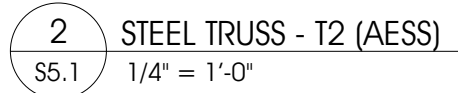
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## S5.1

1. SEE ARCH DWGS FOR ARCHITECTUALLY EXPOSED STRUCTURAL STEEL (AESS) FINISHES.
2. ALL STEEL INDICATED ON THIS DWG AS AESS IS TO BE TREATED AS CATEGORY AESS 3.
3. GRIND WELDS SMOOTH FOR AESS. FOR GROOVE WELD GRIND TO WITHIN 1/16" OF ORIGINAL THICKNESS.
4. CONTOUR AND BLEND WELDS TO PROVIDE A SMOOTH TRANSITION AT ALL LOCATIONS APPLICABLE.
5. PROVIDE A UNIFORM GAP OF 1/8" +/- 1/32" AT ALL COPES AND BLOCKING.
6. POSITION PIECE MARKS SO THAT THEY WILL BE HIDDEN AFTER FINAL ERECTION.
7. PROVIDE A 3/8" CLOSURE PLATE AT ANY OPEN ENDED HOLLOW STEEL SECTION.
8. SEE SPECIFICATIONS SECTION 051213 FOR FURTHER REQUIREMENTS FOR AESS.



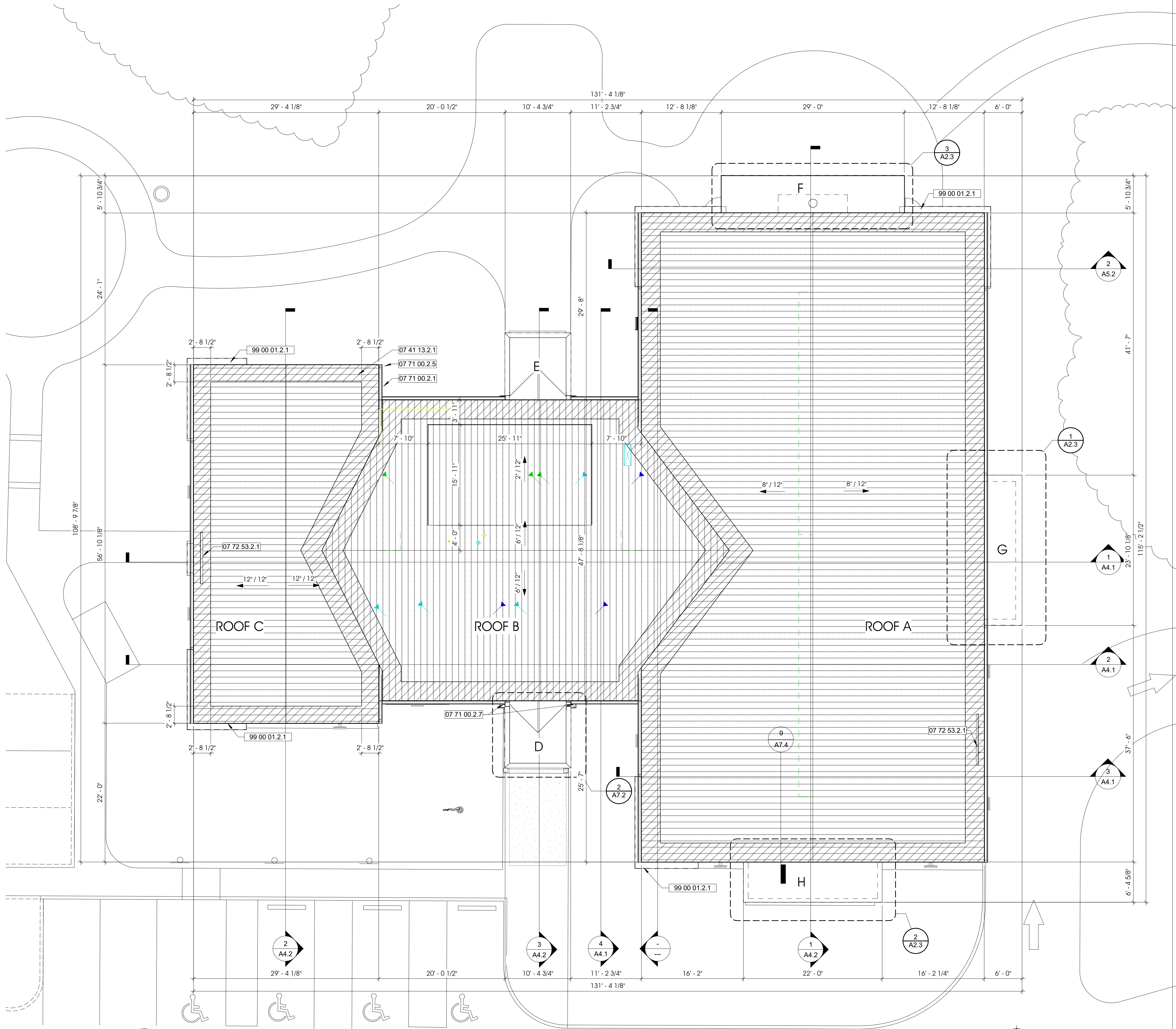
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1  
A2.2  
ROOF PLAN  
1/8" = 1'-0"

## GENERAL NOTES - ROOF PLAN

- ALL MATERIALS SHALL BE INSTALLED AS REQUIRED BY MANUFACTURERS WRITTEN REQUIREMENTS.
- SEPARATE ALL DISSIMILAR METALS WITH BITUMINOUS COATINGS OR OTHER METHODS ACCEPTABLE TO THE ARCHITECT.
- FLASHING DETAILS SHALL BE IN STRICT COMPLIANCE APPROVED ROOFING MANUFACTURERS STANDARDS FOR APPLICATION AND SHALL BE FABRICATED TO MEET THE LATEST EDITION OF THE "SHEET METAL AND AIR CONDITIONING CONTRACTORS INSTITUTE (SMACNA) TECHNICAL MANUAL.
- PROVIDE FLASHING PER ROOF MANUFACTURES STANDARD DETAILS AT ALL ELECTRICAL CONDUIT, HVAC UNITS, ROOF PENETRATIONS, ETC..
- CONTRACTOR AND ALL SUBTRADES SHALL EXERCISE THE NECESSARY CARE TO KEEP CLEAR OF DEBRIS AND LIMIT TRAFFIC AND PREVENT DAMAGE TO THE ROOF MEMBRANE.
- REFER TO CIVIL DRAWINGS FOR STORMWATER MANAGEMENT DETAILS
- ALL DOWNSPOUTS SHALL TIE INTO NEW UNDERGROUND STORMWATER PIPING. REFER TO CIVIL PLAN FOR ADDITIONAL REQUIREMENTS.
- ALL ROOF PENETRATIONS SHALL BE ROUTED TO THE NORTHWEST SIDE OF ROOF "A", THE NORTH SIDE OF ROOF "B" AND THE NORTHEAST SIDE OF ROOF "C". COORDINATE FINAL LOCATIONS W/ ARCHITECT & MECHANICAL CONSULTANT PRIOR TO INSTALLATION.
- ALL ROOF PENETRATIONS SHALL BE FINISHED/ PAINTED TO MATCH ADJACENT ROOF COLOR (TYP).

## ROOF LEGEND

	STANDING SEAM METAL ROOF
	ICE & WATER SHIELD
	TPO MEMBRANE

## KEYNOTE LEGEND

Key Value	Keynote Text
07 41 13.2.1	PAC CLAD SNAP CLAD STANDING SEAM METAL ROOF. COLOR SHALL BE GRAPHITE
07 71 00.2.1	"ALUMINUM GUTTER SHALL BE HEAVY DUTY. PROVIDE ADDITIONAL 1/8"x1 1/2" SUPPORT BRACKETS AT 36" O.C. GUTTER PROFILE SHALL BE 6"W x 4.5"D STYLE F PER SMACNA ARCHITECTURAL SHEET METAL MANUAL. GUTTER AND SUPPORT BRACKET - COLOR SHALL BE DARK BLACK."
07 71 00.2.5	"ALUMINUM DOWNSPOUT SHALL BE HEAVY DUTY, SMOOTH, 4" x 4" RECTANGULAR SHAPE - COLOR SHALL BE BLACK."
07 71 00.2.7	CUSTOM ROOF SCUPPER SHALL MEET SMACNA DESIGN REQUIREMENTS
07 72 53.2.1	SNOW GUARDS
99 00 01.2.1	ARCHITECTURAL EYEBROW ABOVE STOREFRONT



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County  
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Madeline  
South Haven  
Valparaiso

Engineering, Architecture, Land Surveying

PROJECT:  
**NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI**

## ROOF PLAN

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JPA, AND, MHK

DESIGNED BY:  
ARD

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ARD, MDN

QA/QC REVIEW:  
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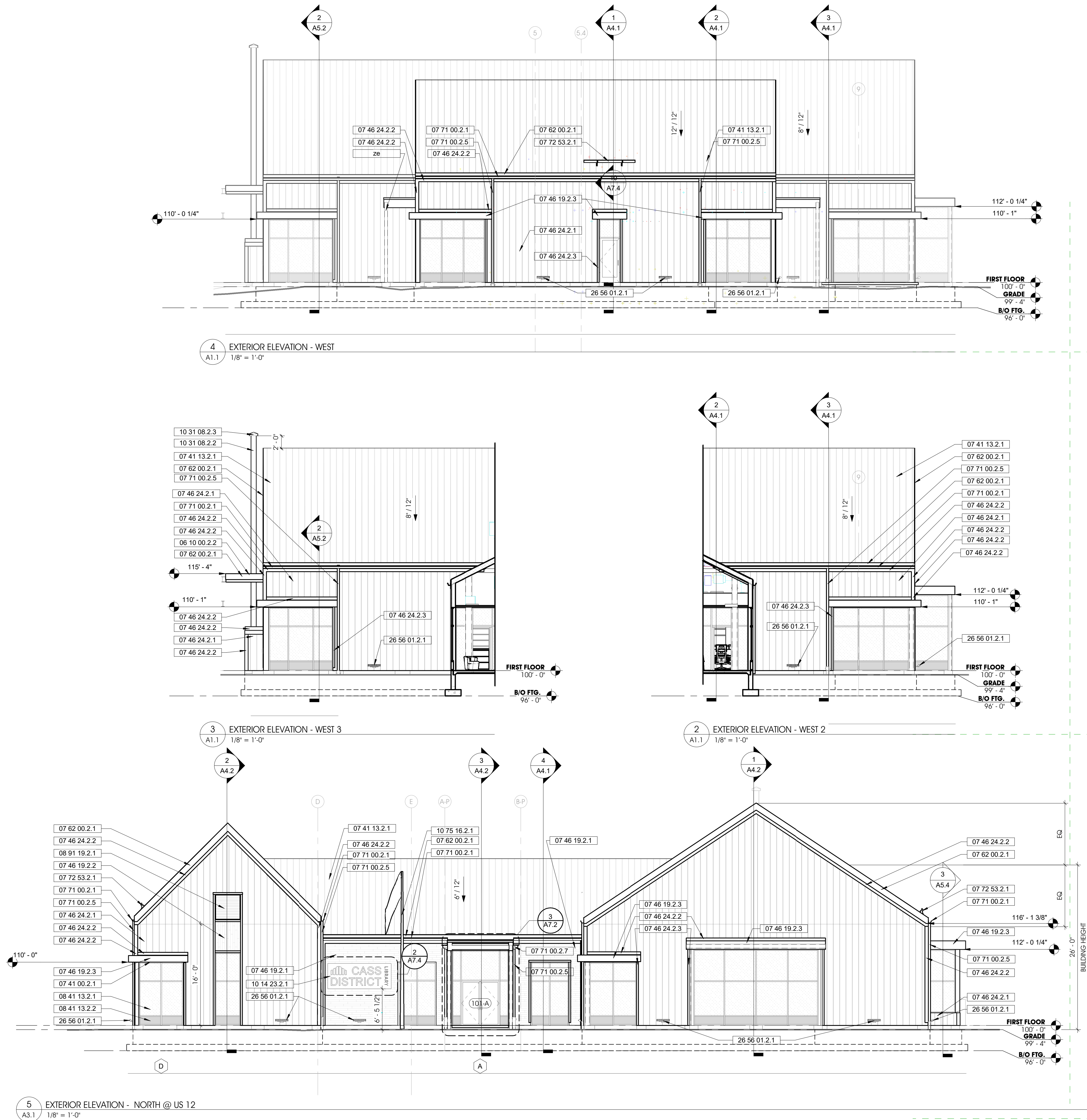
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## GENERAL NOTES - EXTERIOR ELEVATIONS

A. PROVIDE SEALANT AND BACKER ROD BETWEEN ALL DISSIMILAR MATERIALS

### KEYNOTE LEGEND

Key Value	Keynote Text
06 10 00.2.2	TREATED WOOD BLOCKING SHALL BE PROVIDED AT ALL LOCATIONS EXPOSED TO MOISTURE, EXTERIOR BUILDING ENVELOPE, ADJACENT TO CONCRETE OR MASONRY, AND AS OTHERWISE REQUIRED."
07 41 00.2.1	PRE-FORMED ALUMINUM SOFFIT PANELS SHALL BE FACTORY MANUFACTURED STANDARD SMOOTH WITH CONTINUOUS END ROLLING. PANELS SHALL BE FLUSH IN 7" WIDTHS WITH 1" HEIGHT. REFER TO ELEVATIONS FOR COLOR LOCATIONS.
07 41 13.2.1	PAC CLAD SNAP CLAD STANDING SEAM METAL ROOF. COLOR SHALL BE GRAPHITE
07 46 19.2.1	QUALITY EDGE VESTA STEEL SIDING - 482 GUILDED GRAIN
07 46 19.2.2	QUALITY EDGE VESTA STEEL SIDING - 480 AUTUMN THISTLE
07 46 19.2.3	QUALITY EDGE VESTA STEEL FASCIA AND TRIM - 480 AUTUMN THISTLE
07 46 24.2.1	LP SMARTSIDE VERTICAL SIDING BOARD & BATTEN - PANEL SHALL BE SMOOTH - COLOR SHALL BE SHERWIN WILLIAMS SW9685 "AFTER THE STORM"
07 46 24.2.2	LP SMARTSIDE 440 SERIES TRIM 5.5"
07 46 24.2.3	LP SMARTSIDE 440 SERIES TRIM 3.5"
07 62 00.2.1	"FASCIA, TRIM, COPING, ETC. SHALL BE .080 ALUMINUM. PROVIDE BUTT SEAMS WITH BACK UP PLATES (10 FT MAX LENGTH). CORNERS SHALL BE FULLY WELDED WITH 24" (MIN) RETURN. ALL FASTENERS SHALL BE CONCEALED. COLOR SHALL MATCH ADJACENT WALL FINISH (U.N.O.)."
07 71 00.2.1	"ALUMINUM GUTTER SHALL BE HEAVY DUTY. PROVIDE ADDITIONAL 1/8"x1 1/2" SUPPORT BRACKETS AT 36" O.C. GUTTER PROFILE SHALL BE 6"W x 4.5"D STYLE F PER SMACNA ARCHITECTURAL SHEET METAL MANUAL. GUTTER AND SUPPORT BRACKET - COLOR SHALL BE DARK BLACK."
07 71 00.2.5	"ALUMINUM DOWNSPOUT SHALL BE HEAVY DUTY, SMOOTH, 4" x 4" RECTANGULAR SHAPE - COLOR SHALL BE BLACK."
07 71 00.2.7	CUSTOM ROOF SCUPPER SHALL MEET SMACNA DESIGN REQUIREMENTS
07 72 53.2.1	SNOW GUARDS
08 41 13.2.1	"ALUMINUM FRAMED STOREFRONTS SHALL BE TUBULITE 14000T SERIES. ALL EXTERIOR LOCATIONS SHALL HAVE THERMALLY BROKEN FRAMES. FRAME AND DOOR COLOR SHALL BE BLACK ANODIZED ALUMINUM. PROVIDE ACTUAL SAMPLE FOR FINAL APPROVAL. EXTERIOR DOORS SHALL BE INSULATED MEDIUM STILE WITH 5" VERTICAL STILES AND TOP RAIL, AND 10" BOTTOM RAIL."
08 41 13.2.2	MAPES (OR EQUAL) CONTINUOUS INSULATED STOREFRONT FILLER PANEL WITH ALUMINUM INTERIOR AND EXTERIOR FACES - COLOR/FINISH SHALL MATCH STOREFRONT.
08 91 19.2.1	FIXED LOUVERS
10 14 23.2.1	ILLUMINATED PANEL SIGNAGE
10 31 08.2.2	MANUFACTURED METAL CHIMNEY FLUE
10 31 08.2.3	MANUFACTURED METAL CHIMNEY CAP
10 75 16.2.1	"GROUND SET ALUMINUM FLAGPOLE SHALL BE 25'-0" H WITH GOLD BALL TOPPER AND LED LIGHTING (FLAG SHALL BE BY OWNER) - REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION"
26 56 01.2.1	EXTERIOR LED UP LIGHT

PROJECT:  
**NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI**

## EXTERIOR ELEVATIONS

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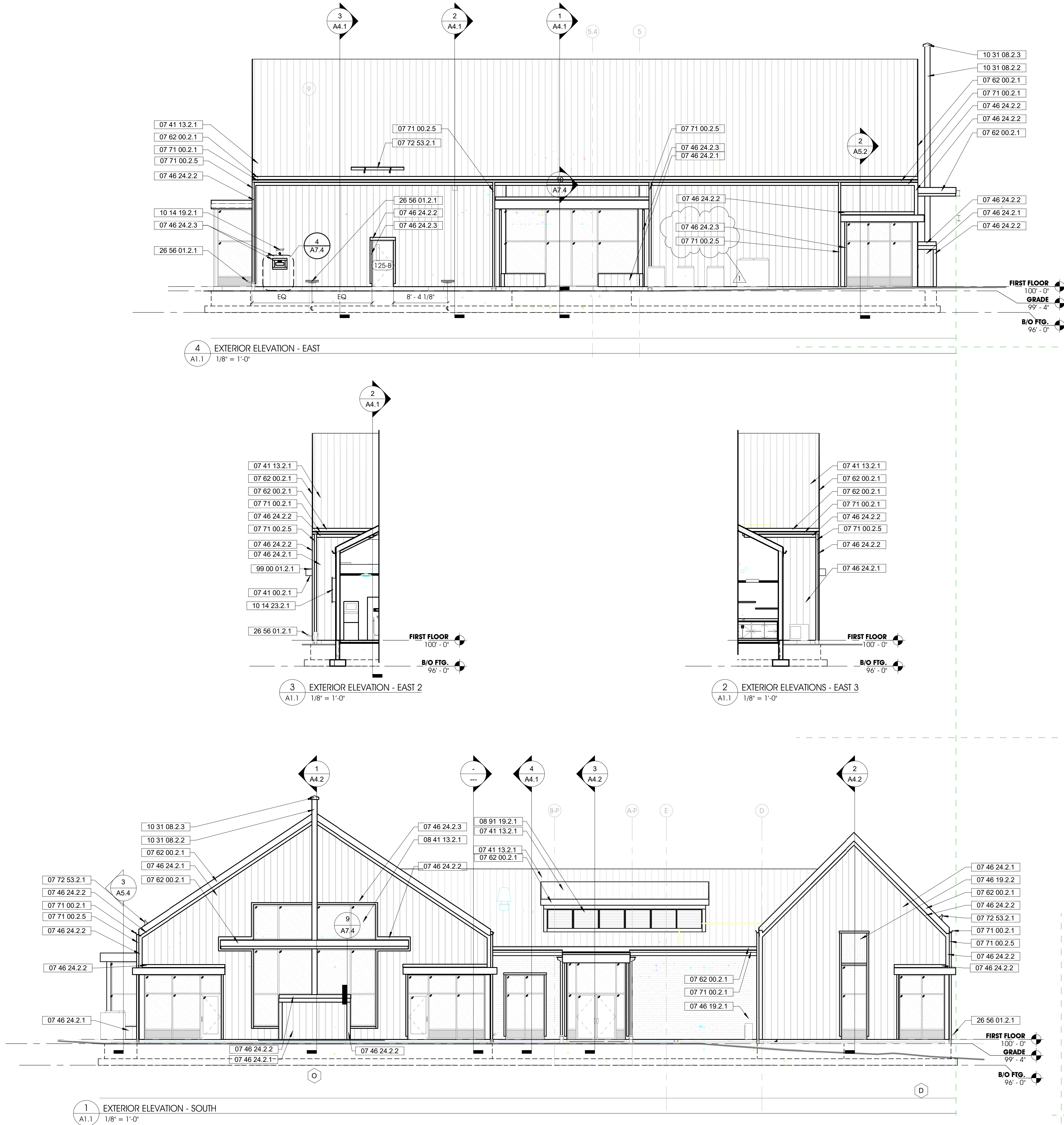
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## GENERAL NOTES - EXTERIOR ELEVATIONS

A. PROVIDE SEALANT AND BACKER ROD BETWEEN ALL DISSIMILAR MATERIALS

### KEYNOTE LEGEND

Key Value	Keynote Text
07 41 00.2.1	PRE-FORMED ALUMINUM SOFFIT PANELS SHALL BE FACTORY MANUFACTURED STANDARD SMOOTH WITH CONTINUOUS END ROLLING. PANELS SHALL BE FLUSH IN 7' WIDTHS WITH 1' HEIGHT. REFER TO ELEVATIONS FOR COLOR LOCATIONS.
07 41 13.2.1	PAC CLAD SNAP CLAD STANDING SEAM METAL ROOF. COLOR SHALL BE GRAPHITE
07 46 19.2.1	QUALITY EDGE VESTA STEEL SIDING - 482 GUILDED GRAIN
07 46 19.2.2	QUALITY EDGE VESTA STEEL SIDING - 480 AUTUMN THISTLE
07 46 24.2.1	LP SMARTSIDE VERTICAL SIDING BOARD & BATTEN - PANEL SHALL BE SMOOTH - COLOR SHALL BE SHERWIN WILLIAMS SW9685 "AFTER THE STORM"
07 46 24.2.2	LP SMARTSIDE 440 SERIES TRIM 5.5"
07 46 24.2.3	LP SMARTSIDE 440 SERIES TRIM 3.5"
07 62 00.2.1	"FASCIA, TRIM, COPING, ETC. SHALL BE .080 ALUMINUM. PROVIDE BUTT SEAMS WITH BACK UP PLATES (10 FT MAX LENGTH). CORNERS SHALL BE FULLY WELDED WITH 24" (MIN) RETURN. ALL FASTENERS SHALL BE CONCEALED. COLOR SHALL MATCH ADJACENT WALL FINISH (U.N.O.)."
07 71 00.2.1	"ALUMINUM GUTTER SHALL BE HEAVY DUTY. PROVIDE ADDITIONAL 1/8"X1 1/2" SUPPORT BRACKETS AT 36" O.C. GUTTER PROFILE SHALL BE 6"W x 4.5"D STYLE F PER SMACNA ARCHITECTURAL SHEET METAL MANUAL. GUTTER AND SUPPORT BRACKET - COLOR SHALL BE DARK BLACK."
07 71 00.2.5	"ALUMINUM DOWNSPOUT SHALL BE HEAVY DUTY, SMOOTH, 4" x 4" RECTANGULAR SHAPE - COLOR SHALL BE BLACK."
07 72 53.2.1	SNOW GUARDS
08 41 13.2.1	"ALUMINUM FRAMED STOREFRONTS SHALL BE TUBEUTE 1400T SERIES. ALL EXTERIOR LOCATIONS SHALL HAVE THERMALLY BROKEN FRAMES. FRAME AND DOOR COLOR SHALL BE BLACK ANODIZED ALUMINUM. PROVIDE ACTUAL SAMPLE FOR FINAL APPROVAL. EXTERIOR DOORS SHALL BE INSULATED MEDIUM STILE WITH 5' VERTICAL STILES AND TOP RAIL, AND 10' BOTTOM RAIL."
08 91 19.2.1	FIXED LOUVERS
10 14 19.2.1	DIMENSIONAL LETTER SIGNAGE SHALL BE EXTRUDED ALUMINUM
10 14 23.2.1	ILLUMINATED PANEL SIGNAGE
10 31 08.2.2	MANUFACTURED METAL CHIMNEY FLUE
10 31 08.2.3	MANUFACTURED METAL CHIMNEY CAP
26 56 01.2.1	EXTERIOR LED UP LIGHT
99 00 01.2.1	ARCHITECTURAL EYEBROW ABOVE STOREFRONT

### MATERIAL LEGEND

ROOF (STANDING SEAM)	
SIDING (BOARD & BATTEN)	
SIDING (PLANK)	
GLASS (VISION)	
FIREPLACE (TEMPERED)	
FIREPLACE (SPANDREL)	
FIREPLACE (???)	



For Wayne  
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Engineering Architecture, Land Surveying

PROJECT:  
**NEW CONSTRUCTION FOR:  
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EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI**

## EXTERIOR ELEVATIONS

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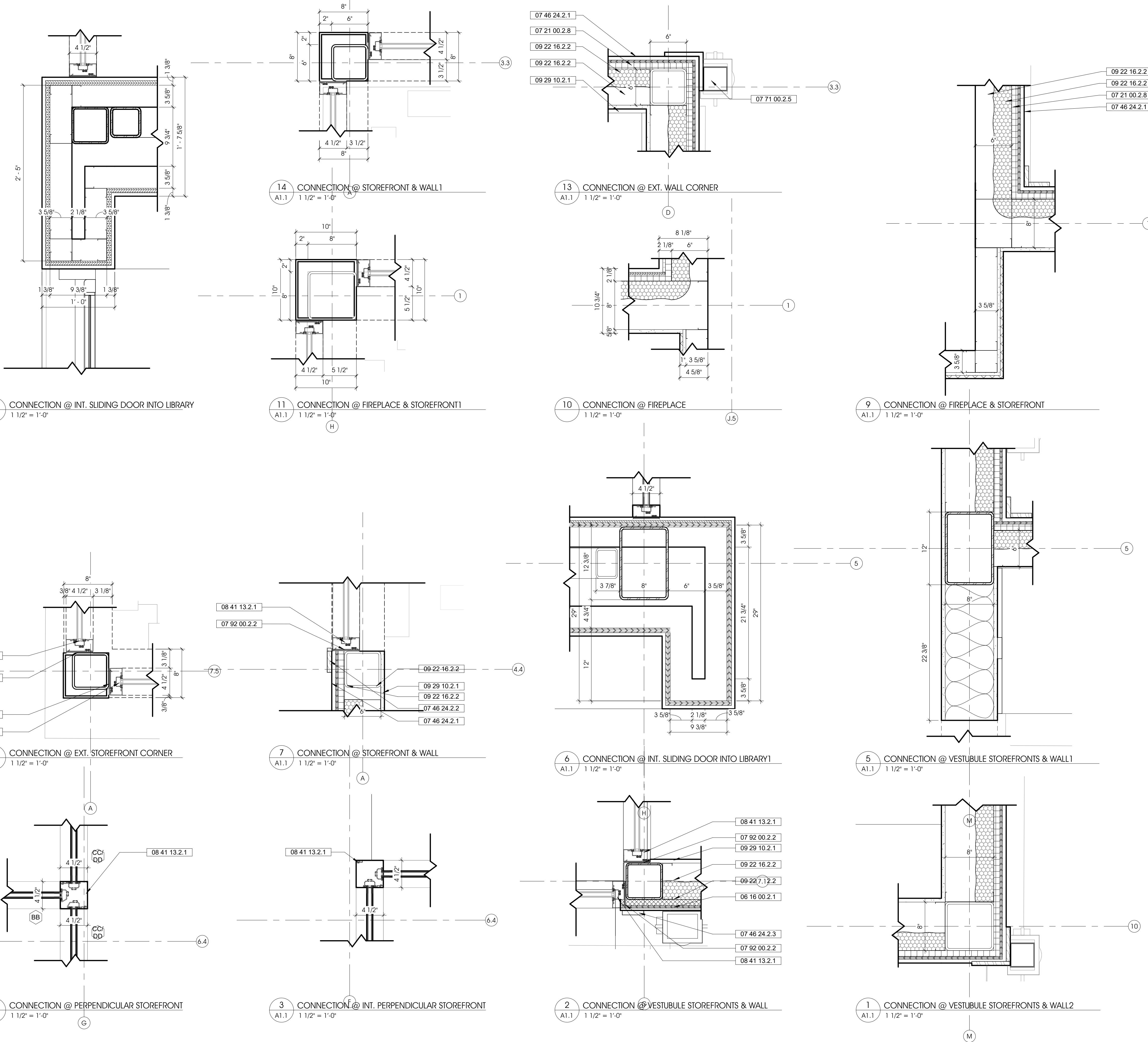
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## GENERAL NOTES - PLAN DETAILS

- A. BUILDING ENVELOPE SHALL BE WEATERTIGHT.
- B. PROVIDE SEALANT BETWEEN ALL DISSIMILAR MATERIALS. PROVIDE BACKER ROD WHERE REQUIRED. INSTALL PER MANUFACTURER'S WRITTEN REQUIREMENTS.

## KEYNOTE LEGEND

Key Value	Keynote Text
06 16 00.2.1	ZIP R-6 INSULATED WALL SHEATHING AND WEATHER BARRIER SYSTEM. PROVIDE ZIP SYSTEM TAPE AT ALL SEAMS AND BETWEEN ROOF AND WALL SHEATHING (TYP) FOR A COMPLETE WEATHER BARRIER SYSTEM BY HUBER ENGINEERED WOODS, WWW.HUBERWOOD.COM, 1-800-933-9220
07 21 00.2.8	XPS RIGID INSULATION - PROVIDE TYPE IV AT ALL CAVITY WALL LOCATIONS, TYPE VI AT ALL FOUNDATION WALL LOCATIONS, AND TYPE VII AT ALL UNDER SLAB LOCATIONS
07 46 24.2.1	LP SMARTSIDE VERTICAL SIDING BOARD & BATTEN - PANEL SHALL BE SMOOTH - COLOR SHALL BE SHERWIN WILLIAMS SW9685 "AFTER THE STORM"
07 46 24.2.2	LP SMARTSIDE 440 SERIES TRIM 5.5"
07 46 24.2.3	LP SMARTSIDE 440 SERIES TRIM 3.5"
07 71 00.2.5	ALUMINUM DOWNSPOUT SHALL BE HEAVY DUTY, SMOOTH, 4" x 4" RECTANGULAR SHAPE - COLOR SHALL BE BLACK
07 92 00.2.2	SEALANT AND BACKER ROD SHALL BE PROVIDED BETWEEN ALL DISSIMILAR BUILDING ENVELOPE MATERIALS PER SEALANT MANUFACTURER'S WRITTEN REQUIREMENTS. (TYP)
08 41 13.2.1	ALUMINUM FRAMED STOREFRONTS SHALL BE TUBELITE 14000T SERIES. ALL EXTERIOR LOCATIONS SHALL HAVE THERMALLY BROKEN FRAMES. FRAME AND DOOR COLOR SHALL BE BLACK ANODIZED ALUMINUM. PROVIDE ACTUAL SAMPLE FOR FINAL APPROVAL. EXTERIOR DOORS SHALL BE INSULATED MEDIUM STILE WITH 5 VERTICAL STILES AND TOP RAIL, AND 10 BOTTOM RAIL
09 22 16.2.2	6" METAL STUD, BY CLARK DIETRICH BUILDING SYSTEMS (OR EQUAL). PROVIDE COLD FORMED GALVANIZED STEEL PROSTUD C-STUDS, AND PROTRAK RUNNER AND DRYWALL TRACK. PROVIDE SLIP TYPE HEAD JOINT SLOTTED DEFLECTION TRACK AT ALL LOCATIONS (TYP)
09 29 10.2.1	GYPSUM WALL BOARD SHALL BE 5/8" (TYP). PROVIDE TYPE WR AT ALL TOILET ROOM AND WET WALL LOCATIONS. ALL OTHER LOCATIONS SHALL BE TYPE X (TYP). PROVIDE MUDDABLE CORNER BEAD AND J TRIM AT ALL EXPOSED DRYWALL END AND OPENING LOCATIONS. EXPOSED DRYWALL FINISH SHALL BE LEVEL 4 (TYP). PROVIDE CONTROL JOINTS AT 30FT O.C. (MAX) EQUALLY SPACED. PROVIDE CONTROL JOINTS AT ALL DOOR AND WINDOW LOCATIONS.

PROJECT:  
**NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI**

## PLAN DETAILS

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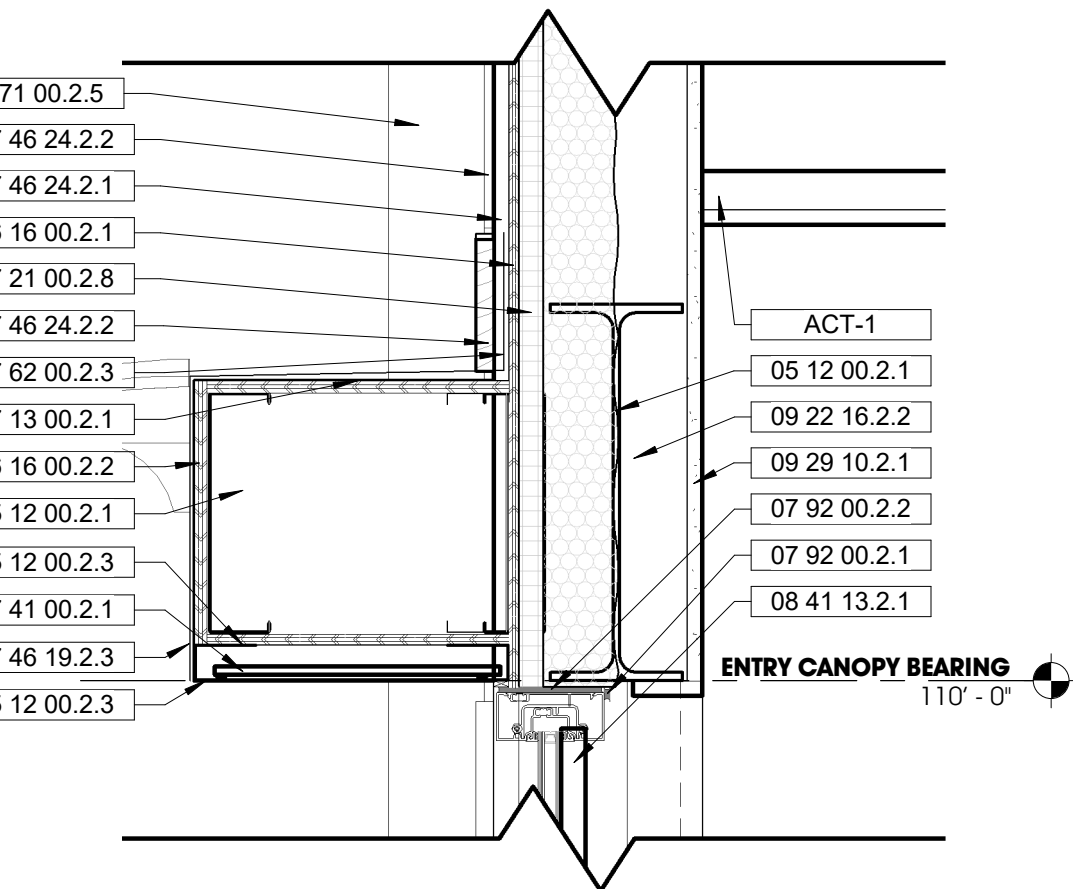
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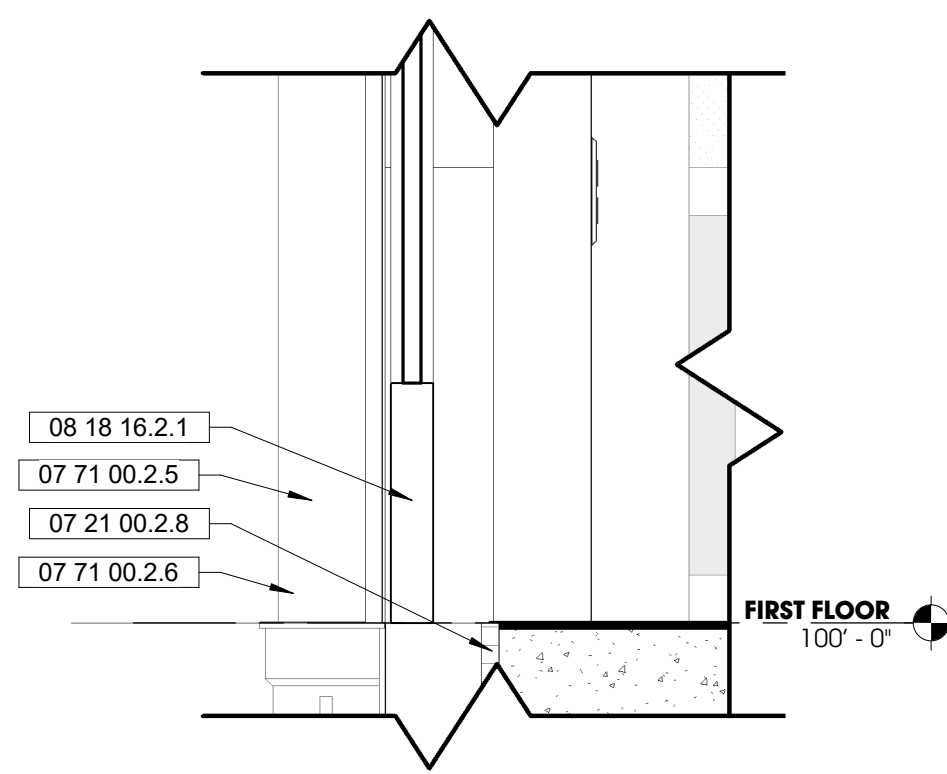
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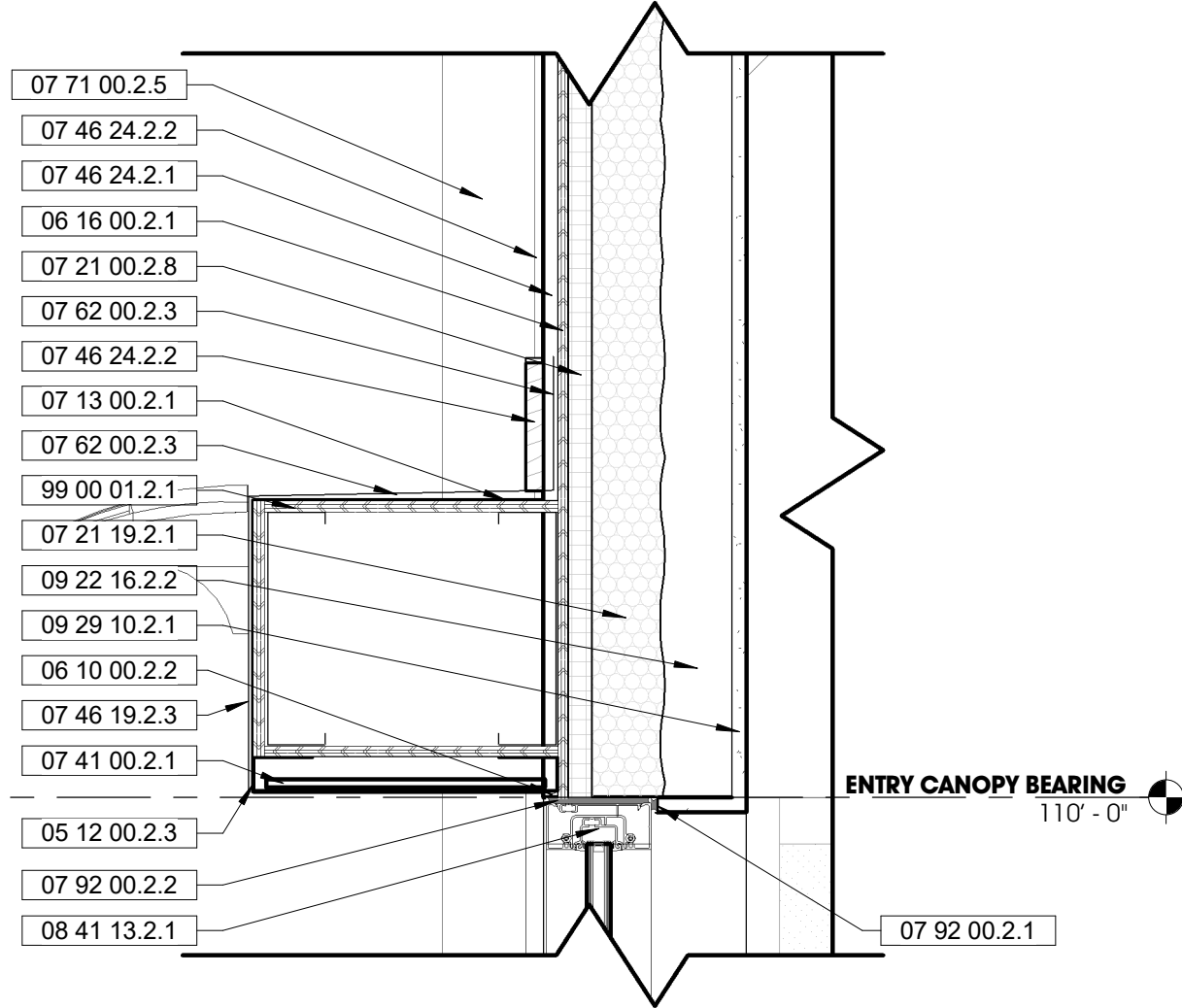
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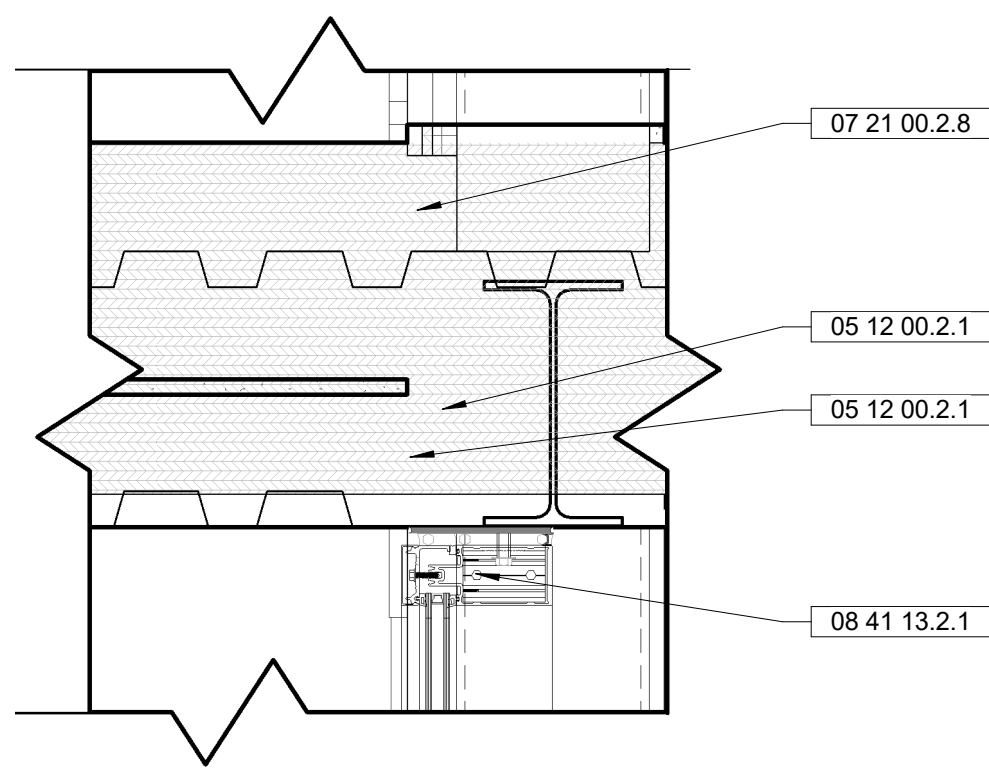
4 WALL DETAIL @ MAKERS SPACE LOUVRE  
A5.1 1 1/2" = 1'-0"



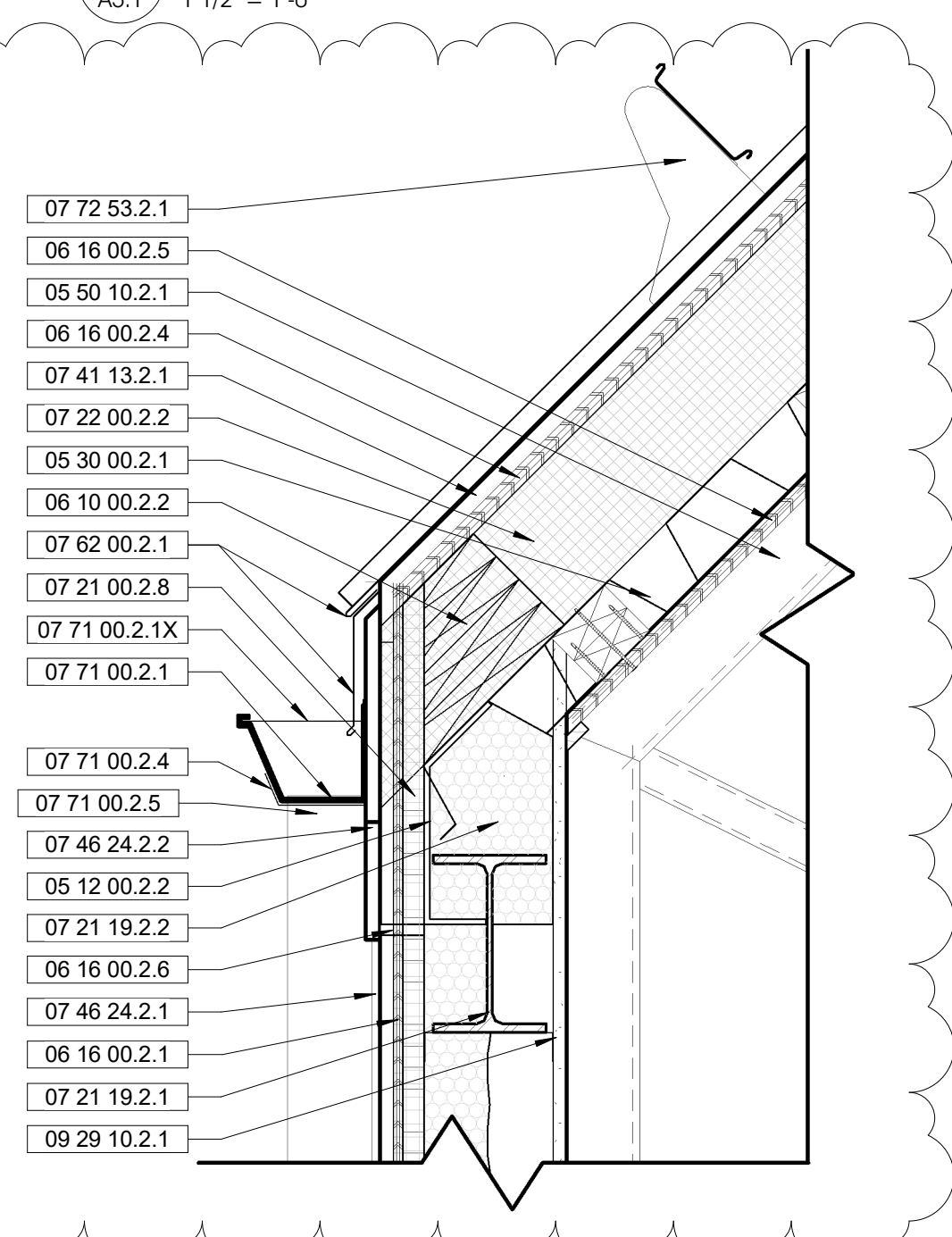
3 WALL SECTION - MULTI-PURPOSE RM STOREFRONT F  
A5.1 1 1/2" = 1'-0"



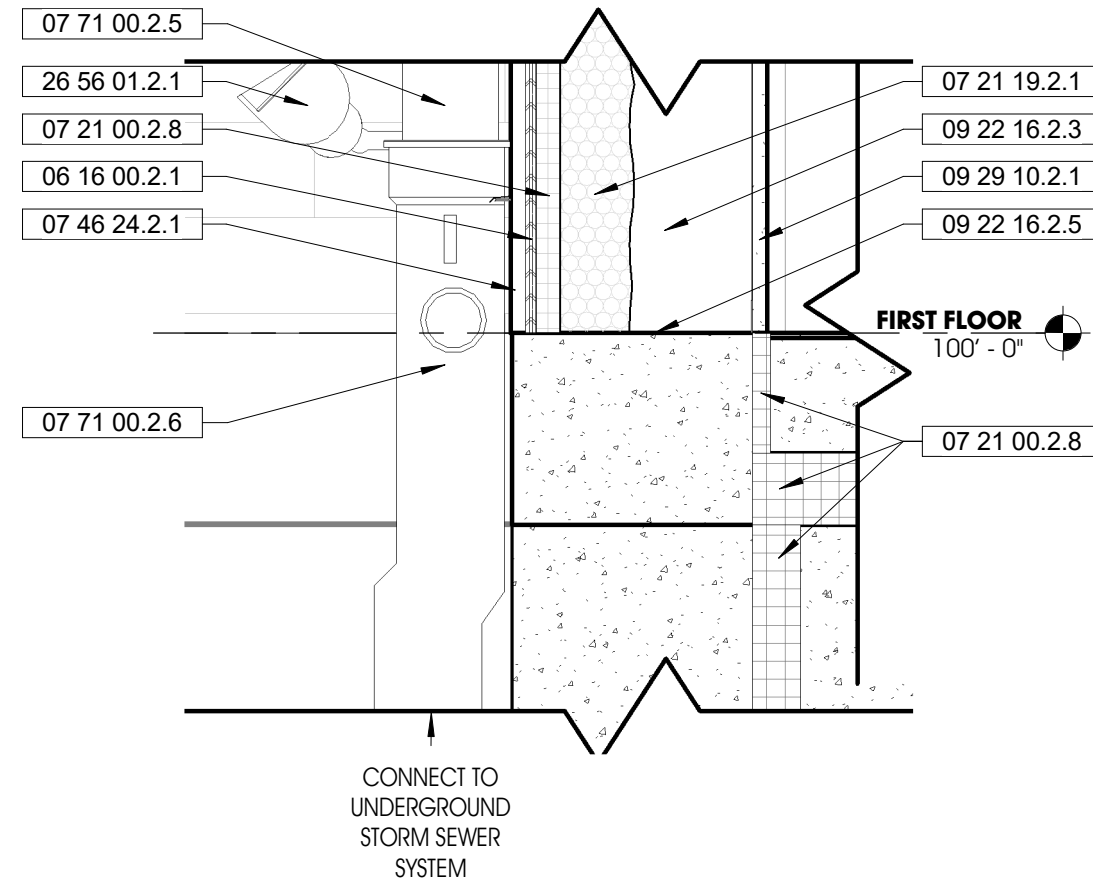
2 WALL DETAIL @ MULTI-PURPOSE ROOM LOUVRE  
A5.1 1 1/2" = 1'-0"



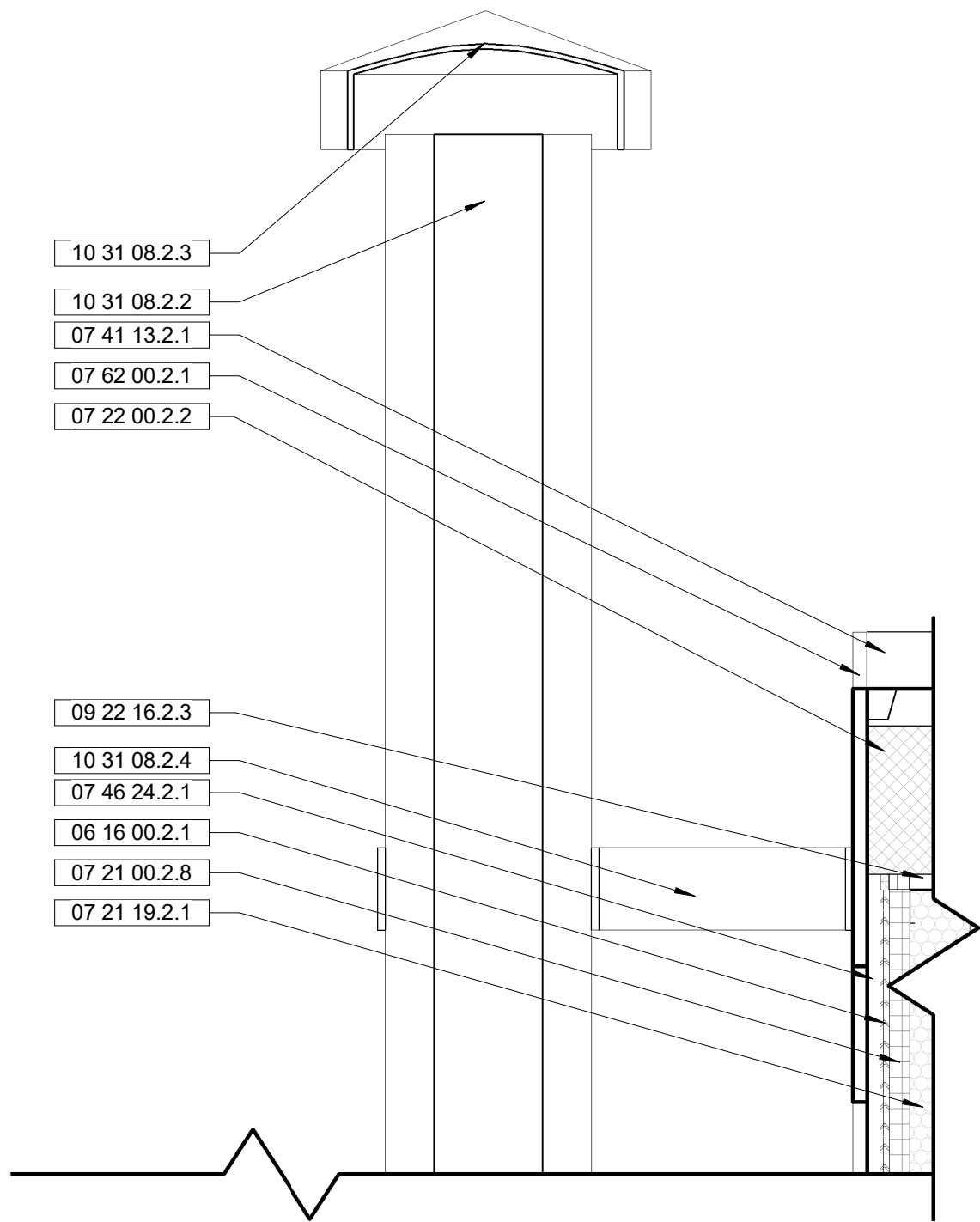
6 WALL SECTION - LIBRARY FIREPLACE STOREFRONT O  
A5.4 1 1/2" = 1'-0"



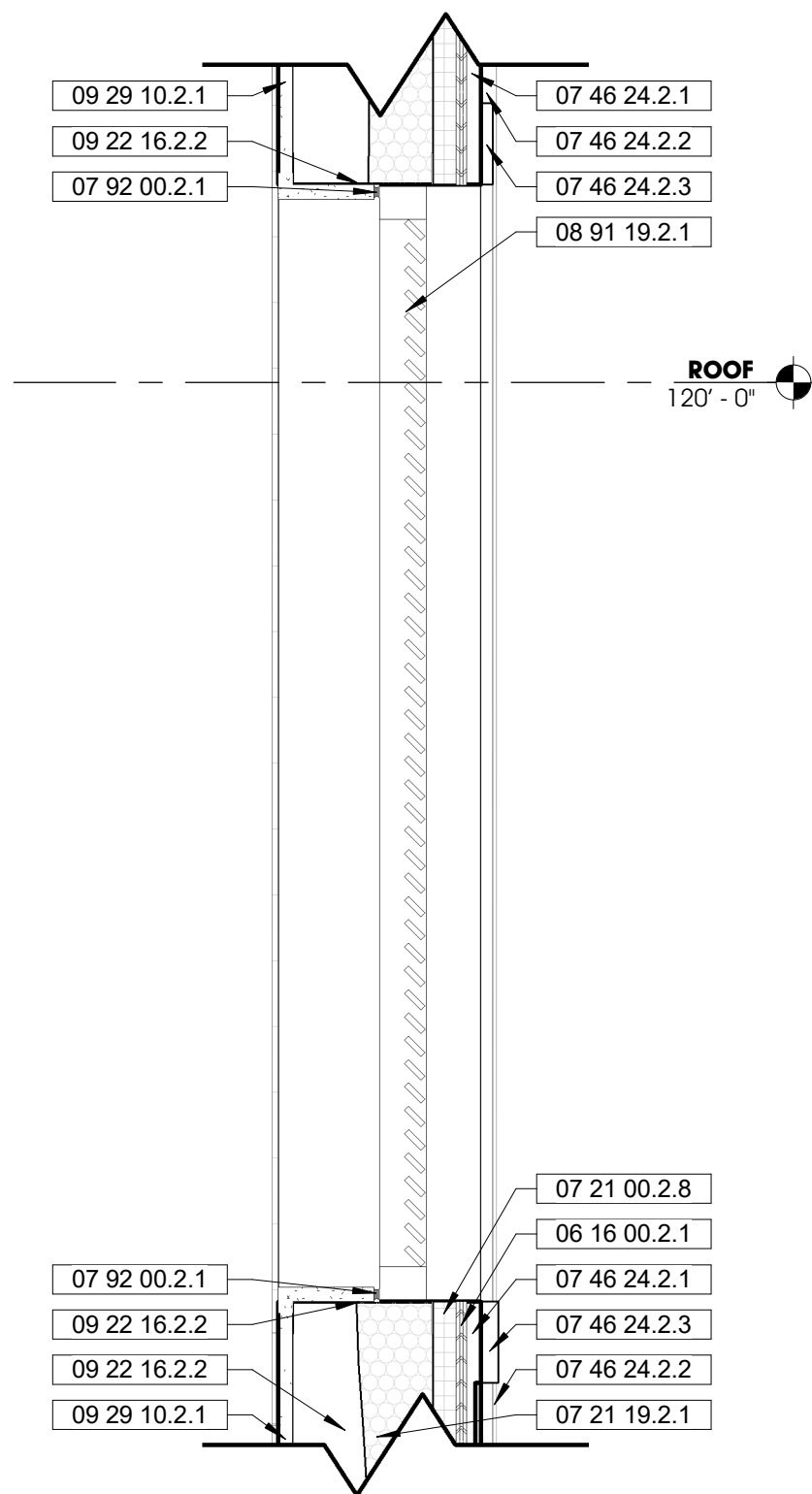
1 DETAIL @ EAVE (MULTI-PURPOSE ROOM)  
A5.1 1 1/2" = 1'-0"



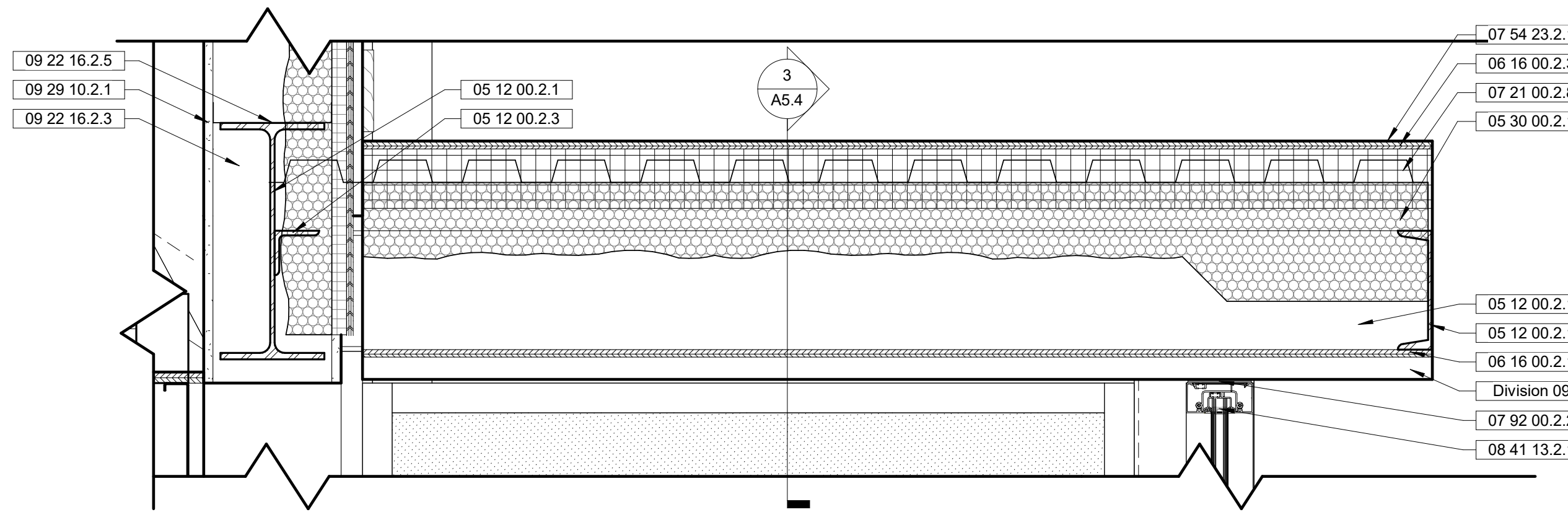
5 WALL DETAIL @ DOWNSPOUT BOOT  
A5.1 1 1/2" = 1'-0"



8 WALL DETAIL @ FIREPLACE FLUE  
A5.4 1 1/2" = 1'-0"



10 DETAIL SECTION @ LOUVERED OPENING  
A5.3 1 1/2" = 1'-0"



9 WALL SECTION - BAY WINDOW ROOF @ CHILDREN'S AREA  
A5.3 1 1/2" = 1'-0"

7 WALL SECTION - LIBRARY FIRE PLACE STOREFRONT N  
A5.4 1 1/2" = 1'-0"

## GENERAL NOTES - DETAILS

- A. BUILDING ENVELOPE SHALL BE WEATHER PROOF. PROVIDE SELF-ADHERED FLEXIBLE FLASHING @ ALL OPENINGS, CONTINUOUS WEATHER BARRIER AT WALLS, ETC...
- B. ROOF MEMBRANE SHALL BE CONTINUOUS UP OVER PARAPETS (TYPICAL). EXTEND MEMBRANE 6" (MIN) DOWN EXTERIOR FACE OF WALL BEHIND COPING/ METAL WALL PANEL.
- C. PROVIDE FLASHING ABOVE ALL OPENINGS

## KEYNOTE LEGEND

Key Value	Keynote Text
05 12 00.2.1	STEEL BEAM - REFER TO STRUCTURAL
05 12 00.2.2	STEEL CLIP ANGLE - REFER TO STRUCTURAL
05 12 00.2.3	STEEL L-ANGLE - REFER TO STRUCTURAL
05 30 00.2.1	METAL DECK - REFER TO STRUCTURAL
05 50 10.2.1	PREFABRICATED STEEL TRUSS - REFER TO STRUCTURAL
06 10 00.2.2	TREATED WOOD BLOCKING SHALL BE PROVIDED AT ALL LOCATIONS EXPOSED TO MOISTURE, EXTERIOR BUILDING ENVELOPE, ADJACENT TO CONCRETE OR MASONRY, AND AS OTHERWISE REQUIRED."
06 16 00.2.1	ZIP R-6 INSULATED WALL SHEATHING AND WEATHER BARRIER SYSTEM. PROVIDE ZIP SYSTEM TAPE AT ALL SEAMS AND BETWEEN ROOF AND WALL SHEATHING (TYP) FOR A COMPLETE WEATHER BARRIER SYSTEM BY HUBER ENGINEERED WOODS, WWW.HUBERWOOD.COM, 1-800-933-9220
06 16 00.2.2	5/8" ZIP SYSTEM ROOF SHEATHING AT ALL GABLE ROOFS SHALL BE CONTINUOUS AROUND ROOF EDGE DETAIL. PROVIDE ZIP SYSTEM TAPE AT ALL SEAMS AND BETWEEN ROOF AND WALL SHEATHING (TYP) FOR A COMPLETE WEATHER BARRIER SYSTEM BY HUBER ENGINEERED WOODS, www.huberwood.com, 1-800-933-9220
06 16 00.2.3	1/2" PLYWOOD WALL SHEATHING
06 16 00.2.4	3/4" PLYWOOD ROOF SHEATHING WITH "H" CLIPS OR "T&G"
06 16 00.2.5	3/4" T1-T11 ARCHITECTURAL GRADE SHEATHING WITH REVEALS @ 6" O.C. - SHALL BE STAINED AND VARNISHED
06 16 00.2.6	EXPANSION JOINT
07 13 00.2.1	"PROVIDE ZIP SYSTEM STRETCH TAPE AT ALL OPENINGS, PENETRATIONS, ETC..."
07 21 00.2.8	"XPS RIGID INSULATION - PROVIDE TYPE IV AT ALL CAVITY WALL LOCATIONS, TYPE VI AT ALL FOUNDATION WALL LOCATIONS, AND TYPE VII AT ALL UNDER SLAB LOCATIONS"
07 21 19.2.1	"3" (MIN) CLOSED CELL SPRAY POLYURETHANE FOAM INSULATION AND VAPOR BARRIER SYSTEM"
07 21 19.2.2	"6" (MIN) CLOSED CELL SPRAY POLYURETHANE FOAM INSULATION AND VAPOR BARRIER SYSTEM"
07 22 00.2.2	POLYISOCYANURATE INSULATION WITH COVER BOARD AS REQUIRED BY ROOFING MANUFACTURER'S WRITTEN REQUIREMENTS
07 41 00.2.1	PRE-FORMED ALUMINUM SOFFIT PANELS SHALL BE FACTORY MANUFACTURED STANDARD SMOOTH WITH CONTINUOUS END ROLLING. PANELS SHALL BE FLUSH IN 7 WIDTHS WITH 1 HEIGHT. REFER TO ELEVATIONS FOR COLOR LOCATIONS.
07 41 13.2.1	PAC CLAD SNAP CLAD STANDING SEAM METAL ROOF. COLOR SHALL BE GRAPHITE
07 46 19.2.3	QUALITY EDGE VESTA STEEL FASCIA AND TRIM - 480 AUTUMN THISTLE
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07 46 24.2.2	LP SMARTSIDE 440 SERIES TRIM 5.5"
07 46 24.2.3	LP SMARTSIDE 440 SERIES TRIM 3.5"
07 54 23.2.1	"THERMOPLASTIC-POLYOLEFIN ROOFING (TPO) SHALL BE HOCIM ELEVATE ULTRAPLY SINGLE PLY MEMBRANE (OR EQUAL). COLOR SHALL BE WHITE. PROVIDE POLY-ISO INSULATION AT ALL ROOF LOCATIONS AND INTEGRAL COVER BOARD. ALL MATERIALS AND ACCESSORIES, INCLUDING FLASHING SHALL BE SINGLE SOURCE. PROVIDE 20 YEAR RED SHIELD WARRANTY (WIND SPEEDS UP TO 72 MPH), SEPARATE 20 YEAR FIRESTONE ISO 95+ INSTALLATION WARRANTY WITH NO DOLLAR LIMIT."
07 62 00.2.1	"FASCIA, TRIM, COPING, ETC SHALL BE .080 ALUMINUM. PROVIDE BUTT SEAMS WITH BACK UP PLATES (10 FT MAX LENGTH). CORNERS SHALL BE FULLY WELDED WITH 24" (MIN) RETURN. ALL FASTENERS SHALL BE CONCEALED. COLOR SHALL MATCH ADJACENT WALL FINISH (U.N.O.)."
07 62 00.2.3	THROUGH WALL FLASHING
07 71 00.2.1	"ALUMINUM GUTTER SHALL BE HEAVY DUTY. PROVIDE ADDITIONAL 1/8"x1 1/2" SUPPORT BRACKETS AT 36" O.C. GUTTER PROFILE SHALL BE 6"W x 4.5"D STYLE F PER SMACNA ARCHITECTURAL SHEET METAL MANUAL. GUTTER AND SUPPORT BRACKET - COLOR SHALL BE DARK BLACK."
07 71 00.2.1X	MCBI GUTTER STRAP FL-893
07 71 00.2.4	"GUTTER BRACKET 1 1/2" X 1/8" @ 36" O.C. - COLOR SHALL MATCH GUTTER"
07 71 00.2.5	"ALUMINUM DOWNSPOUT SHALL BE HEAVY DUTY, SMOOTH, 4" x 4" RECTANGULAR SHAPE - COLOR SHALL BE BLACK."
07 71 00.2.6	DOWNSPOUT BOOT TO TIE INTO STORM WATER PIPING - REFER TO CIVIL DRAWINGS
07 72 53.2.1	SNOW GUARDS
07 92 00.2.1	CAULK SHALL BE PROVIDED BETWEEN ALL DISSIMILAR INTERIOR MATERIALS PER MANUFACTURERS WRITTEN REQUIREMENTS (TYP)
07 92 00.2.2	SEALANT AND BACKER ROD SHALL BE PROVIDED BETWEEN ALL DISSIMILAR BUILDING ENVELOPE MATERIALS PER SEALANT MANUFACTURERS WRITTEN REQUIREMENTS (TYP)
08 18 16.2.1	MULTI-PANEL SLIDING ALUMINUM-FRAMED GLASS DOORS
08 41 13.2.1	"ALUMINUM FRAMED STOREFRONTS SHALL BE TUBELITE 14000T SERIES. ALL EXTERIOR LOCATIONS SHALL HAVE THERMALLY BROKEN FRAMES. FRAME AND DOOR COLOR SHALL BE BLACK ANODIZED ALUMINUM. PROVIDE ACTUAL SAMPLE FOR FINAL APPROVAL. EXTERIOR DOORS SHALL BE INSULATED MEDIUM STILE WITH 5 VERTICAL STILES AND TOP RAIL, AND 10 BOTTOM RAIL."
08 91 19.2.1	FIXED LOUVERS
09 22 16.2.2	"6" METAL STUD. BY CLARK DIETRICH BUILDING SYSTEMS (OR EQUAL). PROVIDE COLD FORMED GALVANIZED STEEL PROSTUD C-STUDS, AND PROTRAK RUNNER AND DRYWALL TRACK. PROVIDE SLIP TYPE HEAD JOINT SLOTTED DEFLECTION TRACK AT ALL LOCATIONS (TYP)"
09 22 16.2.3	"8" METAL STUD. BY CLARK DIETRICH BUILDING SYSTEMS (OR EQUAL). PROVIDE COLD FORMED GALVANIZED STEEL PROSTUD C-STUDS, AND PROTRAK RUNNER AND DRYWALL TRACK. PROVIDE SLIP TYPE HEAD JOINT SLOTTED DEFLECTION TRACK AT ALL LOCATIONS (TYP)"
09 22 16.2.5	"8" BASE TRACK
09 29 10.2.1	GYPSUM WALL BOARD SHALL BE 5/8" (TYP). PROVIDE TYPE WR AT ALL TOILET ROOM AND WET WALL LOCATIONS. ALL OTHER LOCATIONS SHALL BE TYPE X (TYP). PROVIDE MUDDABLE CORNER BEAD AND J TRIM AT ALL EXPOSED DRYWALL END AND OPENING LOCATIONS. EXPOSED DRYWALL FINISH SHALL BE LEVEL 4 (TYP). PROVIDE CONTROL JOINTS AT 30FT O.C. (MAX) EQUALLY SPACED. PROVIDE CONTROL JOINTS AT ALL DOOR AND WINDOW LOCATIONS.
10 31 08.2.2	MANUFACTURED METAL CHIMNEY FLUE
10 31 08.2.3	MANUFACTURED METAL CHIMNEY CAP
10 31 08.2.4	MANUFACTURED METAL CHIMNEY STRAP
26 56 01.2.1	EXTERIOR LED UP LIGHT
99 00 01.2.1	ARCHITECTURAL EYEBROW ABOVE STOREFRONT

2	ADDENDUM #2	MIH	01/24/2024
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT:  
**NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI**

## SECTION DETAILS

SHEET TITLE:

MODELED BY: AND, JCA

DESIGNED BY: ARD

PM REVIEW: ARD, MDN

QA/QC REVIEW: MDN

DATE: 12/20/2023

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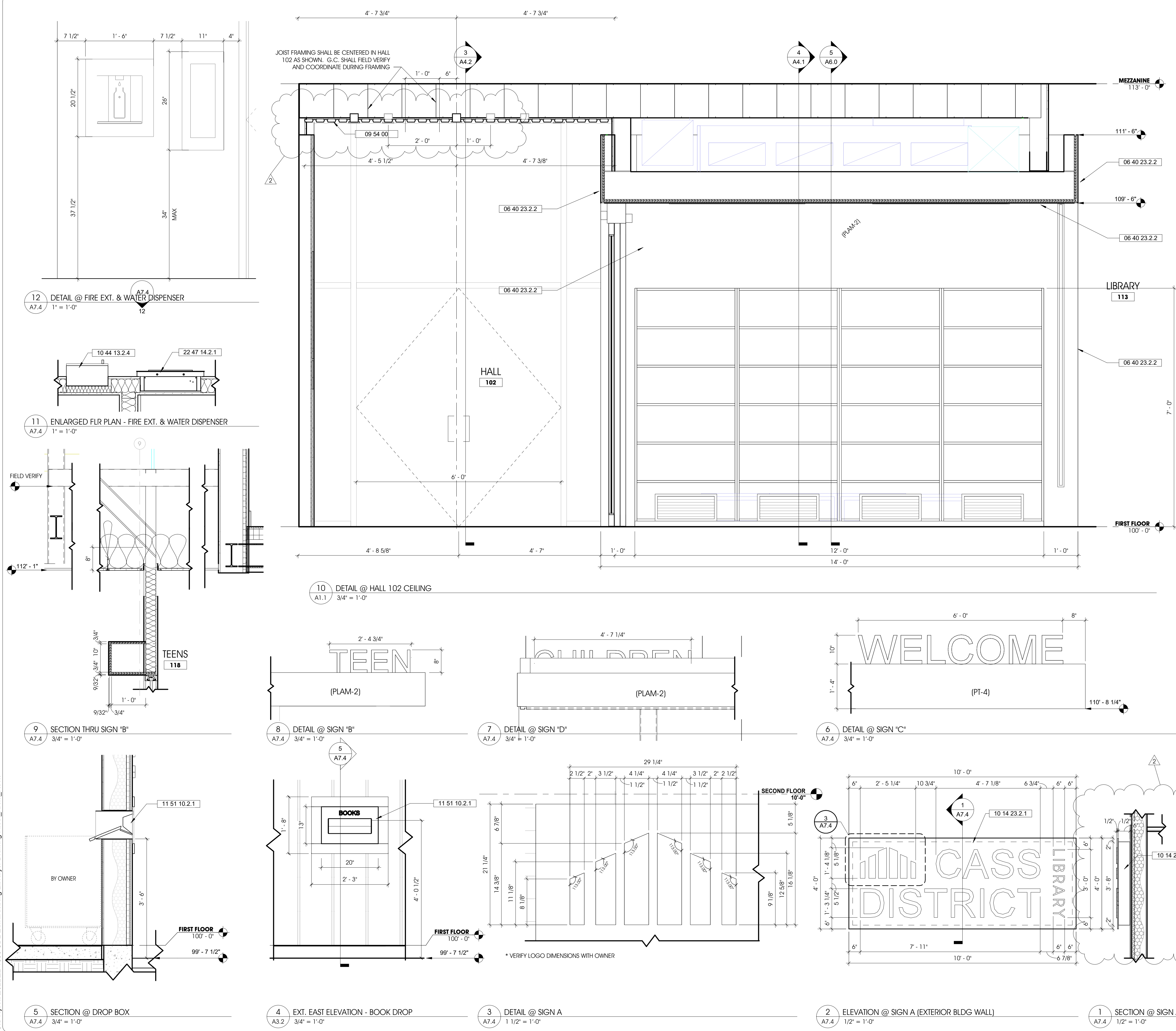
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A7.3

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## GENERAL NOTES - DETAILS

- A. BUILDING ENVELOPE SHALL BE WEATHER PROOF. PROVIDE SELF ADHERED FLEXIBLE FLASHING @ ALL OPENINGS, CONTINUOUS WEATHER BARRIER AT WALLS, ETC...
- B. ROOF MEMBRANE SHALL BE CONTINUOUS UP OVER PARAPETS (TYPICAL). EXTEND MEMBRANE 6" (MIN) DOWN EXTERIOR FACE OF WALL BEHIND COPING/ METAL WALL PANEL
- C. PROVIDE FLASHING ABOVE ALL OPENINGS

## KEYNOTE LEGEND

Key Value	Keynote Text
46 40 23.2.2	Plastic laminate faced custom wall panels shall have dogbone clips installed at all joint locations. Panels shall be attached from behind, through fasteners. Fasteners shall not damage or penetrate veneer finish. Panel faces shall align flush at all joint locations. Maximize panel size to minimize joints. Joints shall be equally spaced. Grain pattern shall be vertical at all vertical wall locations. Grain pattern of ceiling shall be parallel/continuous with vertical face at all J02 - color shall be plain-2.
59 54 00	LEARN METAL CEILINGS
01 14 23.2.1	ILLUMINATED PANEL SIGNAGE
00 44 13.2.4	FIRE EXTINGUISHER CABINET SHALL BE SEMI-RECESSED
1 51 10.2.1	KINGSLEY THRUWALL BLACK DROP
15 47 14.2.1	EXCEL e2H2O LV PRO IN-WALL COMMERCIAL FILTERED WATER DISPENSER

**PROJECT:** NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI

## DETAILS

**SHEET TITLE:**

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DESIGNED BY: APR

PM REVIEW: ARD, MDM

QA/QC REVIEW: MDA

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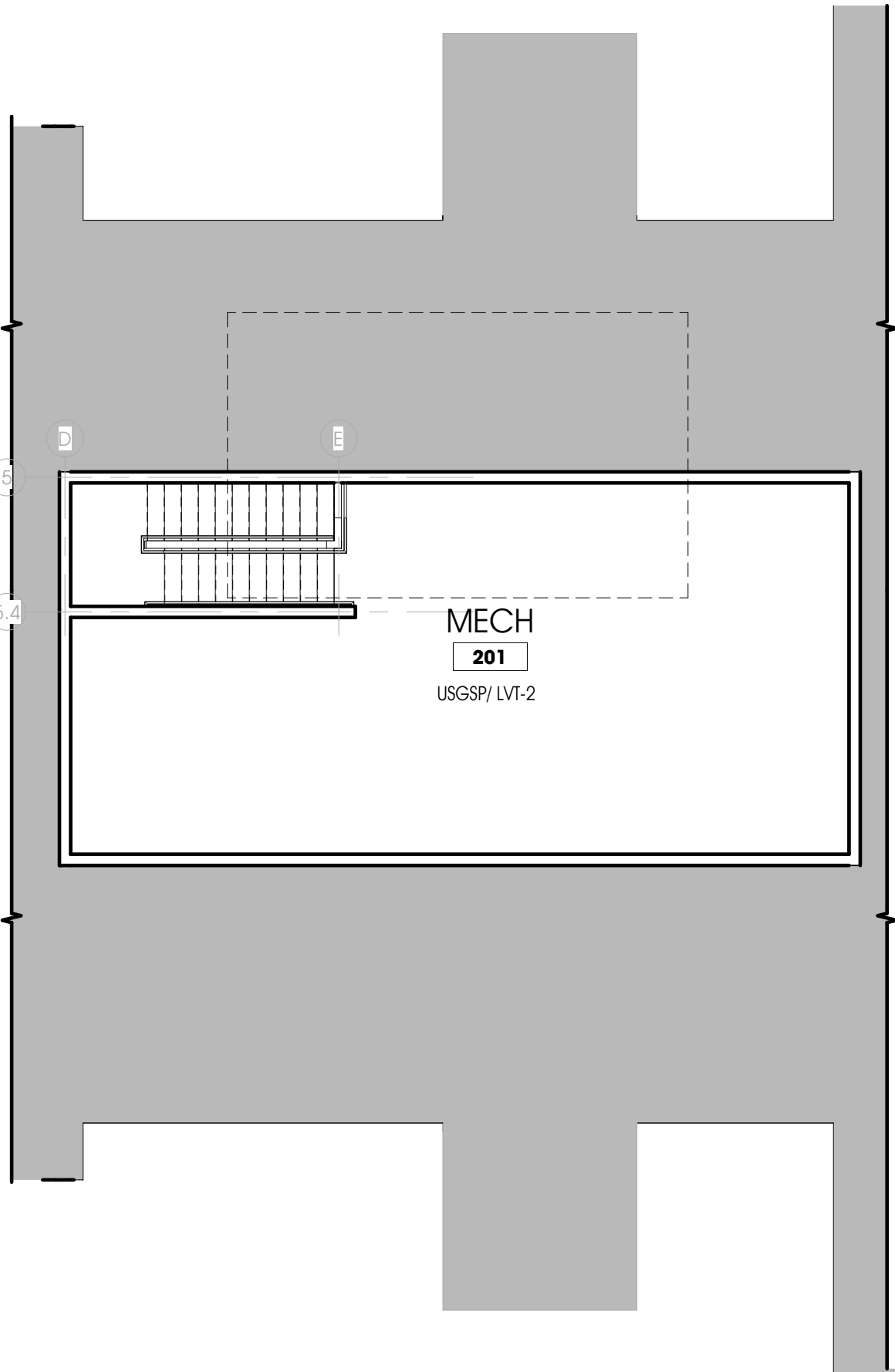
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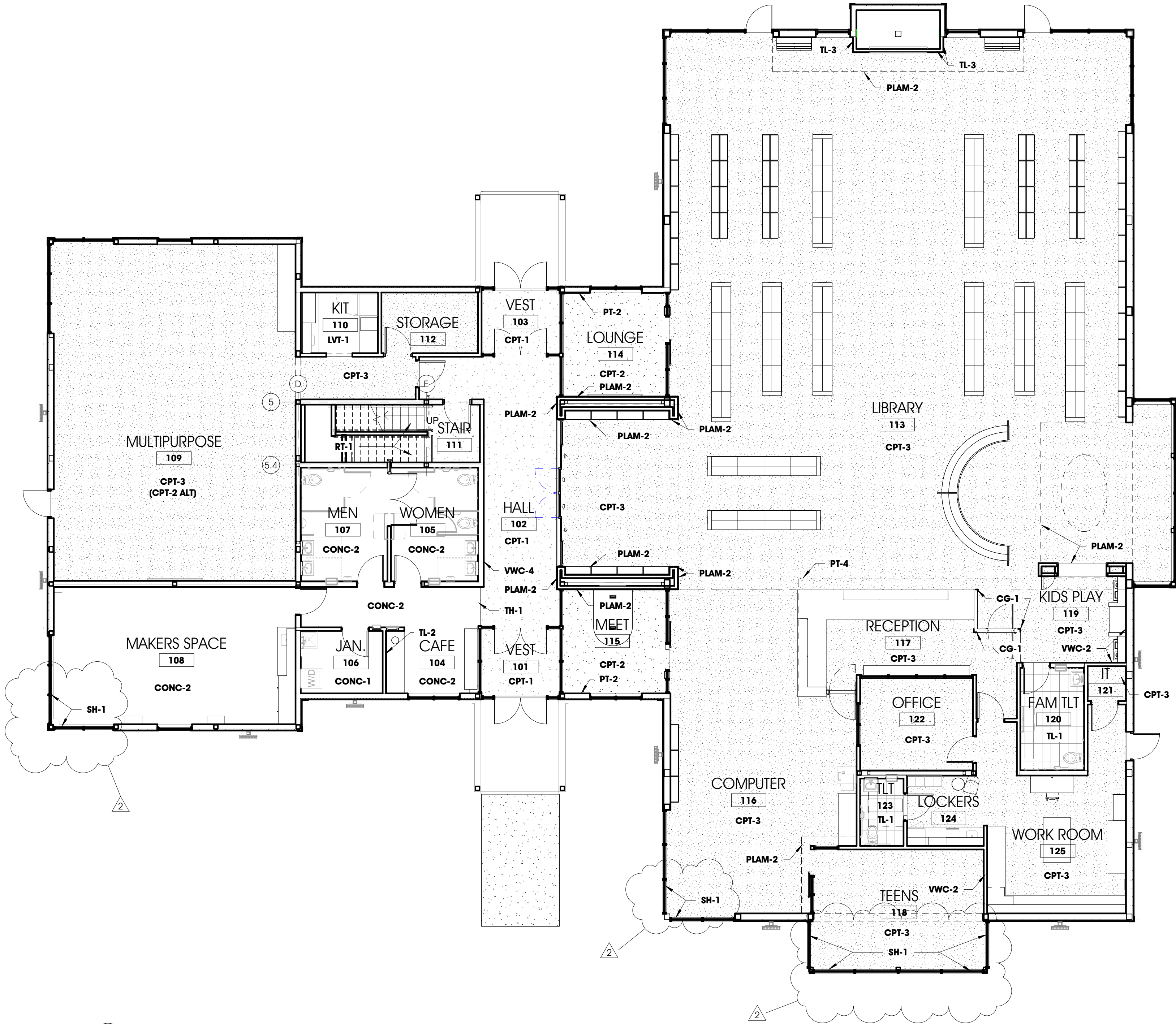
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## A7.4





2 MEZZANINE FINISH FLOOR PLAN  
A8.1 1/8" = 1'-0"



1 FIRST FLOOR FINISH PLAN  
A8.1 1/8" = 1'-0"

ROOM FINISH SCHEDULE																	
RM. NO.	ROOM NAME	FLOORING		BASE	NORTH WALL		EAST WALL		SOUTH WALL		WEST WALL		CEILING		CEILING HEIGHT	BULKHEAD	REMARKS
		MATERIAL	FINISH		MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH			
101	VEST	CONC.	CPT-1		GLASS		GLASS		GLASS		GLASS		PARALINE PLUS	CHERRY 4013	11' - 11"		
102	HALL	CONC.	CPT-1	RB-1	GYP		GLASS	MACCHIATO WALNUT	GLASS		GYP	VWC-4	PARALINE PLUS	CHERRY 4013	11' - 11"		
103	VEST	CONC.	CPT-1		GLASS		GLASS		GLASS		GLASS		PARALINE PLUS	CHERRY 4013	11' - 11"		
104	CAFE	CONC.	CONC-2	RB-1	GYP	VWC-4	GLASS		GYP	PT-1	GYP	PT-1	ACP-1	WHITE	10' - 1"		
105	WOMEN	CONC.	CONC-2	CTB	GYP	PT-1	GYP	TL-1	GYP	PT-1	GYP	PT-1	ACP-1	WHITE	9' - 0"		
106	JAN.	CONC.	CONC-1	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	ACP-1	WHITE	10' - 1"		
107	MEN	CONC.	CONC-2	CTB	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	TL-1	ACP-1	WHITE	9' - 0"		
108	MAKERS SPACE	CONC.	CONC-2	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	ACP-1	WHITE	11' - 7"		
109	MULTIPURPOSE	CONC.	CPT-3	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	WOOD	S&V-2			
110	KIT	CONC.	LVT-1	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	ACP-1	WHITE	9' - 0"		
111	STAIR	CONC.	CPT-3	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1			
112	STORAGE	CONC.	CPT-3	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	ACP-1	WHITE	9' - 0"		
113	LIBRARY	CONC.	CPT-3	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	WOOD	S&V-2			
114	LOUNGE	CONC.	CPT-2	RB-1	GYP	VWC-3	GLASS		GLAM-2	MACCHIATO WALNUT	GLASS		ACP-1	WHITE	10' - 1"		
115	MEET	CONC.	CPT-2	RB-1	PLAM-2	MACCHIATO WALNUT	GLASS		GYP	VWC-3	GLASS		ACP-1	WHITE	10' - 1"		
116	COMPUTER	CONC.	CPT-3	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	ACP-1	WHITE	12' - 1"		
117	RECEPTION	CONC.	CPT-3	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-4			
118	TEENS	CONC.	CPT-3	RB-1	GYP	PT-1	GYP	VWC-2	GLASS		GLASS		ACP-1/WD	WHITE/CHERRY	12' - 1"		
119	KIDS PLAY	CONC.	CPT-3	RB-1	PLAM-2	MACCHIATO WALNUT	GYP	VWC-1	GYP	VWC-1	GYP	PT-1	ACP-1	WHITE	12' - 1"		
120	FAM TLT	CONC.	TL-1	CTB	GYP	PT-1	GYP	TL-1	GYP	PT-1	GYP	PT-1	ACP-1	WHITE	9' - 0"		
121	IT	CONC.	CPT-3	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	ACP-1	WHITE	9' - 0"		
122	OFFICE	CONC.	CPT-3	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	ACP-1	WHITE	10' - 1"		
123	TLT	CONC.	TL-1	CTB	GYP	TL-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	ACP-1	WHITE	9' - 0"		
124	LOCKERS	CONC.	CPT-3	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	ACP-1	WHITE	10' - 1"		
125	WORK ROOM	CONC.	CPT-3	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	ACP-1	WHITE	10' - 1"		
201	MECH	WD.	LVT-2	RB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1			

## GENERAL NOTES

- PREP & PRIME ALL SURFACES TO RECEIVE FINISHES PER MFR. REQUIREMENTS
- PROVIDE TEMPERED GLAZING IN ALL DOORS AS REQUIRED BY CODE
- COORDINATE KEYING REQUIREMENTS WITH OWNER
- ALL ROOMS TO HAVE ROOM IDENTIFICATION SIGNAGE. ALL TOILET ROOMS TO HAVE ADA SIGNAGE W/ BRAILLE - SEE REFERENCE SHEET T1.2 FOR MOUNTING REQUIREMENTS
- ALL INTERIOR ROOM SIGNAGE OTHER THAN TOILET ROOMS TO BE COORDINATED AND PROVIDED BY OWNER. ACCESSIBLE TOILET ROOM SIGNAGE TO BE PROVIDED BY G.C.
- DEDICATION PLAQUE TO BE COORDINATED AND PROVIDED BY OWNER
- CPT-1 AT ENTRY VESTIBULE LOCATIONS INCLUDE NO BASE TRIM. CARPET TO BE TRIM AND SECURED TO PROVIDE CLEAN EDGES AT STOREFRONT PERIMETER.

## MATERIAL LEGEND

- ACT** ACOUSTIC CEILING TILE
- CONC.** POLISHED CONCRETE
- CPT** CARPET TILE
- GFA** GLASS FILM APPLICATION
- GYP** GYPSUM WALL BOARD
- LVT** LUXURY VINYL TILE
- MFR** MANUFACTURER
- PLAM** PLASTIC LAMINATE
- PT** PAINT
- RB** RESILIENT BASE
- CTB** CERAMIC TILE BASE
- SAS** SUSPENDED ACOUSTICAL SYSTEM
- SS** SOLID SURFACE
- TL** CERAMIC TILE
- TS** TRANSITION STRIP
- WC** WALL COVERING

- ACP-1** USG RADAR 2X2 REGULAR ACOUSTICAL CEILING PANELS WITH DONN DX/DXL 15/16" L/G
- CONC-1** SEALED CONCRETE
- CONC-2** POLISHED CONCRETE - GLOSS LEVEL 1 - AGGREGATE EXPOSURE CLASS B
- CPT-1** MOHAWK - TUFF STUFF II COLLECTION - FIRST STEP II - 989 OBSIDIAN (MONOLITHIC INSTALLATION)
- CPT-2** MOHAWK - ABOVE AND BELOW COLLECTION - MYCOBIOME GT358 - 978 MOREL (HALF LAP INSTALLATION)
- CPT-3** MOHAWK - FRACTAL FLUENCY - SQUARED GT478 - 989 CHARCOAL (BRICK ASHLAR INSTALLATION)
- LVT-1** PATCRAFT - AGGREGATE (33.3V - BEDROCK D0580) (RANDOM INSTALLATION)
- LVT-2** ARMSTRONG - STANDARD EXCELRON IMPERIAL TEXTURE - 51941 POLAR WHITE (BRICK INSTALLATION)
- PLAM-1** WILSONART - ASIAN SAND - 7952K-18 - LINEARTY FINISH (CASEWORK & SHELVING)
- PLAM-2** FORMICA - MACCHIATO WALNUT 6933 (INTERIOR BULKHEAD & ACCENT WALLS)
- PT-1** (FIELD - WALLS/CLGS) SHERWIN WILLIAMS - ORIGAMI WHITE SW7636
- PT-2** TBD
- PT-3** (KIDS PLAY BUILT-IN) SHERWIN WILLIAMS - MOONRAKER SW6701
- PT-4** (RECEPTION BULKHEAD) SHERWIN WILLIAMS - JACARANDA SW6802
- PT-5** (HM FRAMES) SHERWIN WILLIAMS - TRICORN BLACK SW6258 (SATIN)
- PT-5** (EXTERIOR SIDING) SHERWIN WILLIAMS - AFTER THE STORM SW9685
- RB-1** JOHNSONITE - 4" STANDARD TOE - 40 BLACK B
- SS-1** CORIAN - ANTARCTICA
- TL-1** (STAFF & FAMILY TOILET) DAL TILE - SOCIETY SERIES - S049 DISTRICT SLATE - 12X24
- TL-2** (CAFE ACCENT WALL) WOW TILE - STRIPES COLLECTION - STRIPES SKY & TRANSITION - 3X12
- TL-3** ISLAND STONE - CRESCENT CRYSTAL WHITE HONED TILE (FIREPLACE) INSTALLED IN VERTICAL ORIENTATION
- TH-1** JOHNSONITE - EG-40-W - BLACK (ADA COMPLIANT)
- TS-1** ZERO INTERNATIONAL - J32100 - ALUMINUM
- S&V-1** (WOOD DOORS) MARSHFIELD - RED OAK - MIST 54-02
- S&V-2** (WOOD DOORS) CUSTOM COLOR SHALL MATCH PLAM-2
- CG-1** ACROVYN CORNER GUARD (COLOR SHALL MATCH ADJACENT WALL COLOR) - FULL HEIGHT @ HALF WALL, 8" HIGH @ FULL HEIGHT WALLS
- USGSP** STRUCTURAL PANEL CONCRETE SUBFLOOR
- WC-1** UL Greenguard-Gold Certification (CUSTOM Print TBD)
- WC-2** UL Greenguard-Gold Certification (CUSTOM Print TBD)
- WC-3** UL Greenguard-Gold Certification (CUSTOM Print TBD)
- RT-1** RUBBER STAIR NOSING & TREAD
- SH-1** WINDOW SHADES
- TS-2** METAL TRANSITION STRIP @ TILE FLOORS

2	ADDENDUM #2	MIH	01/24/2024
1	ADDENDUM #1		01/12/2024
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT:  
**NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI**

## ROOM FINISH SCHEDULE AND LEGEND

SHEET TITLE:

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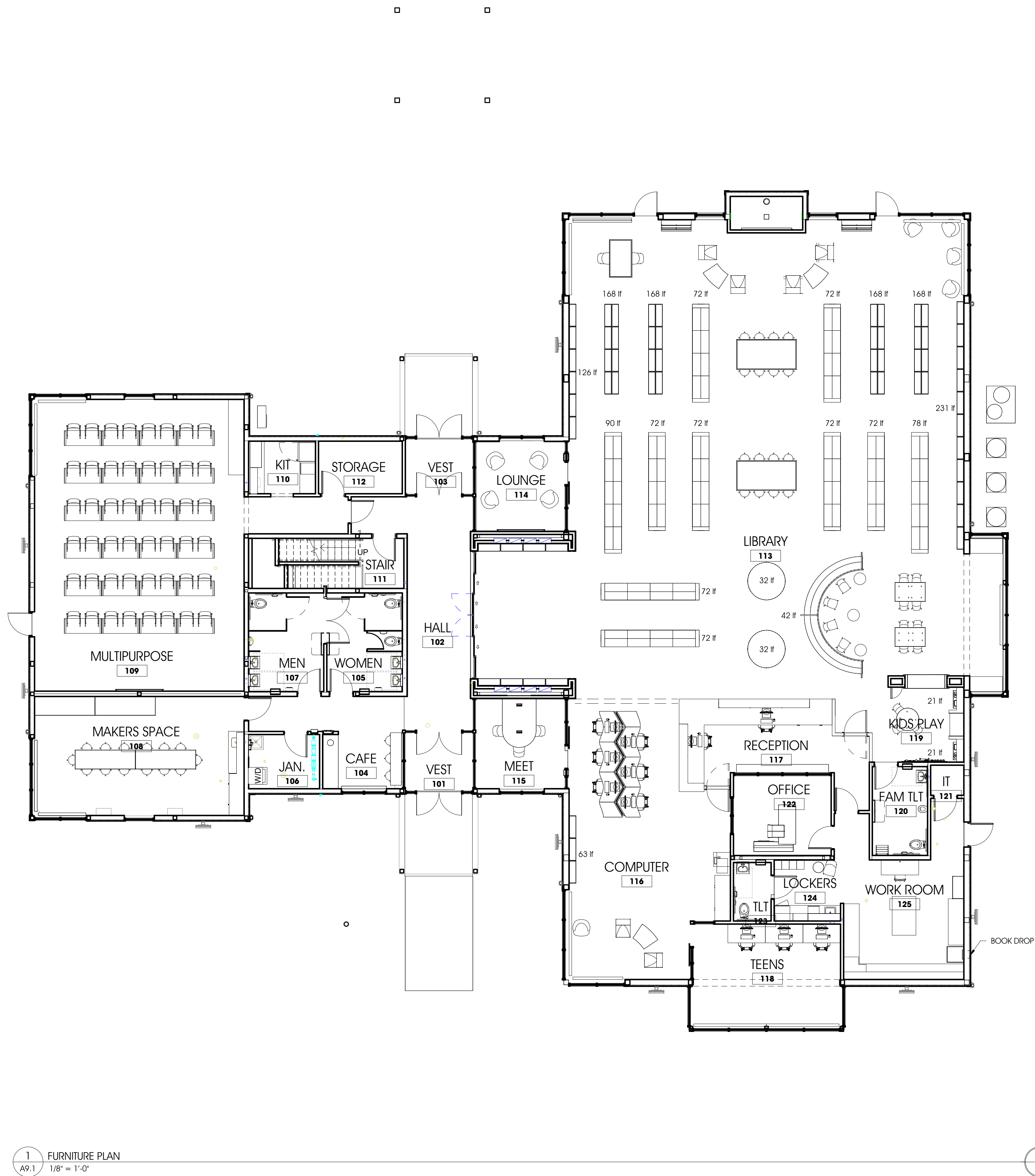
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## GENERAL NOTES - FURNITURE PLAN

- A. FURNITURE BY OWNER
- B. LIBRARY BOOK SHELVES BY OWNER
- C. LIBRARY EQUIPMENT BY OWNER
- D. APPLIANCES BY OWNER

CDL Edwadsburg Library - Shelving		
Required		
Children	147 shelves	441 LF
Young Adult	45 shelves	135 LF
Adult	491 shelves	1,473 LF
Shown		
Children	*	442 LF
Young Adult	45 shelves	135 LF
Adult	525 shelves	1,575 LF

**FOR REFERENCE ONLY**

**FURNITURE PLAN**

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DESIGNED BY:	ARD	
PM REVIEW:	ARD, MDN	
QA/QC REVIEW:	MDN	
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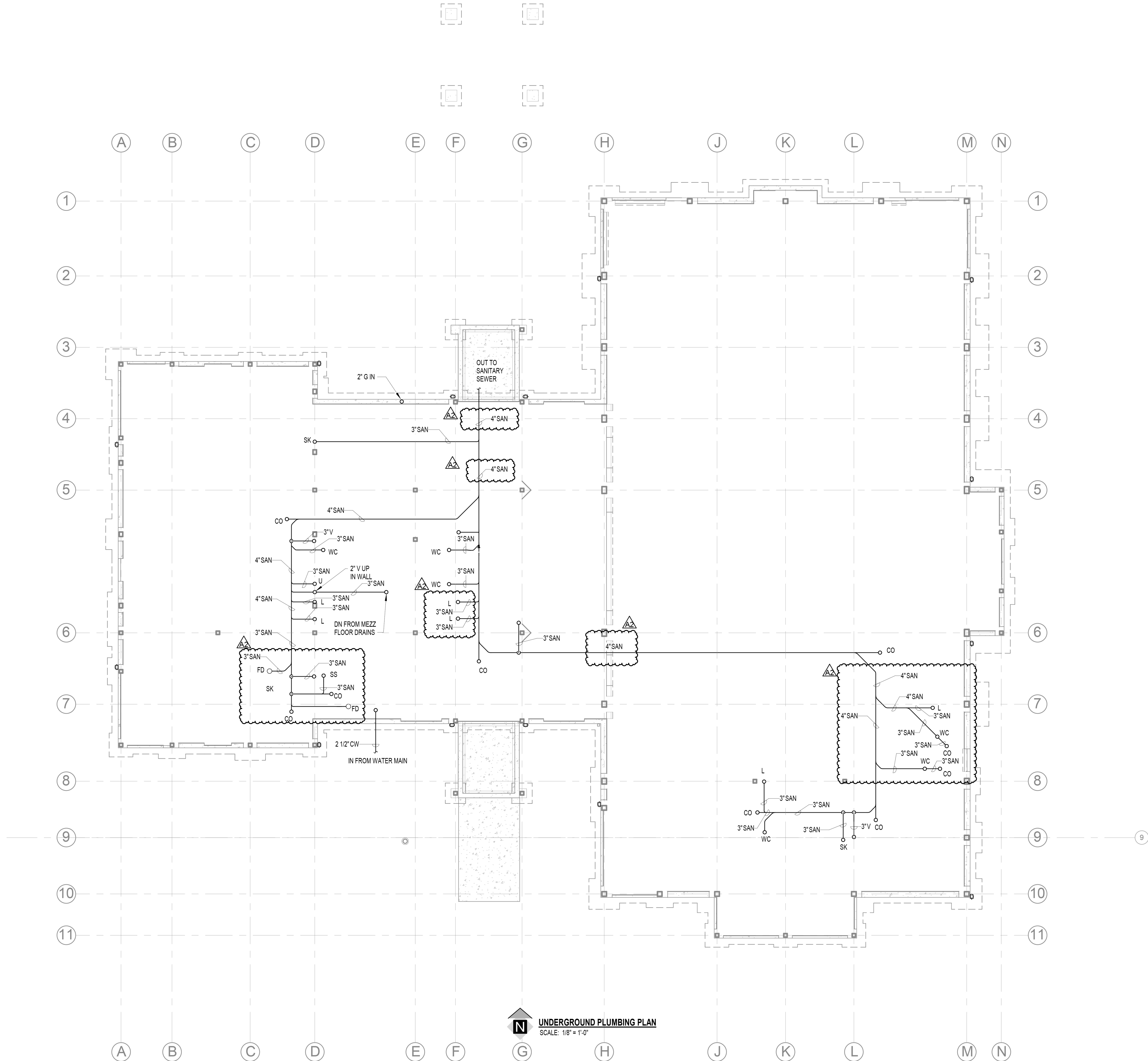
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## A9.1

2	ADDENDUM #2	MHK	01/24/2024
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**UNDERGROUND PLUMBING PLAN**  
SCALE: 1/8" = 1'-0"

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DESIGNED BY:	Designer
PM REVIEW:	Approver
QA/QC REVIEW:	Checker
DATE:	12/20/2023
SEAL:	

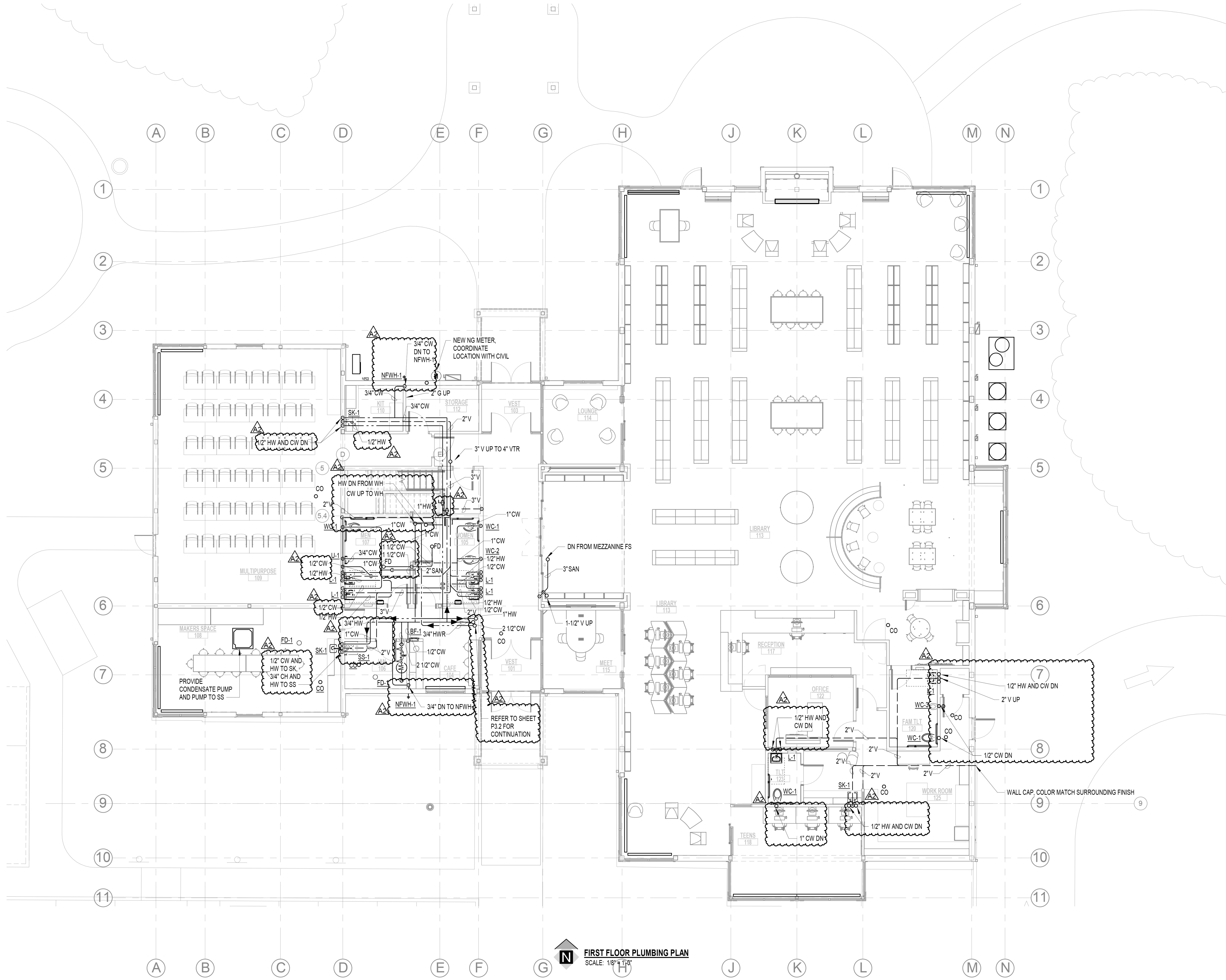
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1	ADDENDUM 2		01/23/24
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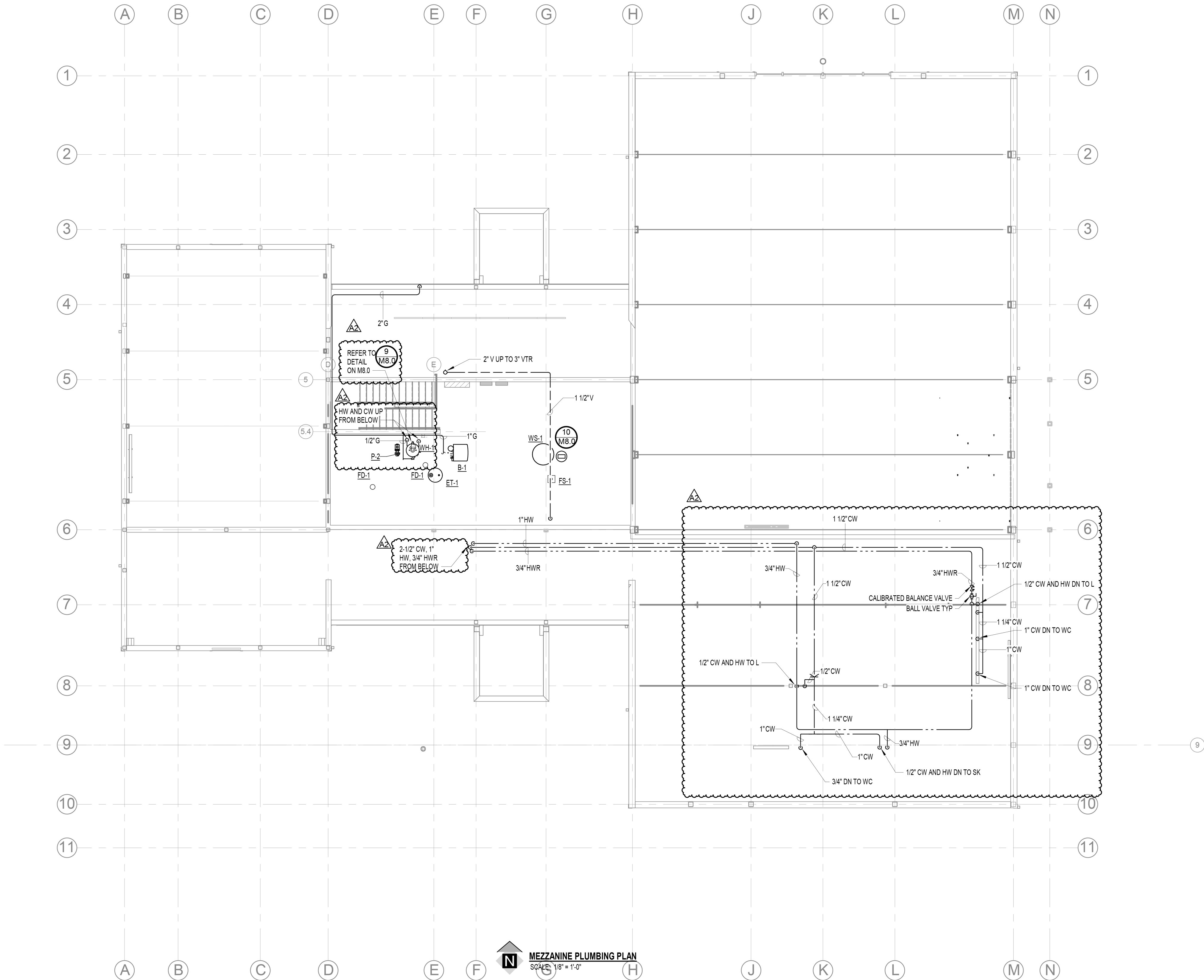


**FIRST FLOOR PLUMBING PLAN**  
SCALE: 1/8" = 1'-0"

1	ADDENDUM 2		01/23/24
NO.	REVISION DESCRIPTION	BY	DATE



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1	ADDENDUM 2		01/23/24
NO.	REVISION DESCRIPTION	BY	DATE



LEGEND:

	V	PLUMBING SYSTEM VENT		CAP
	CW	DOMESTIC COLD WATER		DROP
	SCW	SOFT COLD WATER		RISE
	TW	TEPID WATER		REDUCER
	HW	DOMESTIC HOT WATER		UNION
	HWR	DOMESTIC HOT WATER RETURN		THREE-WAY CONTROL VALVE
	SAN	SANITARY SEWER		CONTROL VALVE
	ST	STORM		GATE VALVE
	CA	COMPRESSED AIR		GLOBE VALVE
	DCA	DRY COMPRESSED AIR		BALL VALVE
	G	GAS		CHECK VALVE
	HS	HEATING WATER SUPPLY		CALIBRATED BALANCING VALVE
	HR	HEATING WATER RETURN		BUTTERFLY VALVE
	CS	CHILLED WATER SUPPLY		PLUG VALVE, GAS COCK
	CR	CHILLED WATER RETURN		PRESSURE REDUCING VALVE
	RS	REFRIGERANT SUCTION		RELIEF VALVE
	RL	REFRIGERANT LIQUID		STRAINER WITH FULL SIZE BLOWDOWN VALVE WITH HOSE END AND CAP
		DIRECTION OF FLOW		MANUAL AIR VENT
		DROP TEE IN-LINE		PUMP

DIFFUSER / GRILLE LEGEND:

TAG:	DESCRIPTION:
S-1 (3) 10"3 400	SUPPLY DIFFUSER TYPE (# OF SIMILAR DIFFUSER IN ROOM, ONLY USE IF GREATER THAN 1) NECK SIZE OF SQUZRE CEILING DIFFUSER (TYPICALLY 24"x24" FACE FOR LAY-IN CEILINGS) CFM
S-1 (4) 40"x12" 1750 11'-0" AFF 45" DN	SUPPLY DIFFUSER / GRILLE TYPE (# OF SIMILAR DIFFUSER / GRILLE IN ROOM, ONLY USE IF GREATER THAN 1) SIZE OF SUPPLY GRILLE CFM MOUNTING HEIGHT ABOVE FINISHED FLOOR (IF WALL MOUNTED) MOUNTING ANGLE WHEN NEEDED (WHEN MOUNTED ON SPIRAL DUCT)
R-1 (4) 14"x6" 400 11'-0" AFF	RETURN GRILLE TYPE (# OF SIMILAR GRILLE IN ROOM, ONLY USE IF GREATER THAN 1) SIZE OF RETURN GRILLE CFM (NOTE: IF PLENUM RETURN, NO CFM NEEDED) MOUNTING HEIGHT ABOVE FINISHED FLOOR (IF WALL MOUNTED)
E-1 (4) 14"x6" 400 11'-0" AFF	EXHAUST GRILLE TYPE (# OF SIMILAR GRILLE IN ROOM, ONLY USE IF GREATER THAN 1) SIZE OF RETURN GRILLE CFM MOUNTING HEIGHT ABOVE FINISHED FLOOR (IF WALL MOUNTED)
	PRESSURE GAUGE
	COMBINATION PRESSURE AND TEMPERATURE TEST PLUG WITH EXTENDED NECK AND CAP
	THERMOMETER
	TEMPERATURE WELL
	FLEXIBLE CONNECTION
	THROUGH WALL SLEEVE
	POINT OF NEW CONNECTION TO EXISTING
	VOLUME CONTROL DAMPER IN DUCT
	FIRE DAMPER IN HORIZONTAL DUCT
	FIRE DAMPER IN VERTICAL DUCT
	MOTORIZED DAMPER
	THERMOSTAT
	SENSOR
	SUPPLY AIR (SECTION)
	RETURN / EXHAUST AIR (SECTION)
	AIR FLOW DIRECTION
	DUCT TRANSITION
	FLEXIBLE DUCT

ABBREVIATIONS:

AFB	ABOVE FINISH FLOOR	LWT	LEAVING WATER TEMPERATURE
ATR	AIR TEMPERATURE RISE	MAT	MIXED AIR TEMPERATURE
BF	BELOW FLOOR	MBH	1000 BRITISH THERMAL UNITS PER HOUR
BOD	BOTTOM OF DUCT	MIN	MINIMUM
BOS	BOTTOM OF STEEL	MFG	MANUFACTURER
BTUH	BRITISH THERMAL UNIT PER HOUR	NC	NORMALLY CLOSED
BY	BRITISH THERMAL UNIT PER HOUR	NO	NORMALLY OPEN
CA	COMPRESSED AIR	OA	OUTSIDE AIR
CEF	CEILING EXHAUST FAN	OAL	OUTSIDE AIR LOUVER
CFH	CUBIC FEET PER HOUR	OD	OVERFLOW DRAIN
CFM	CUBIC FEET PER MINUTE	OF	OVERFLOW
CH	CABINET HEATER	OCFI	OWNER FURNISHED - CONTRACTOR INSTALLED
CO	CLEAN OUT	PD	PRESSURE DROP
CONC	CONCRETE	PT	PRESSURE/TEMPERATURE PLUG
CW	DOMESTIC COLD WATER	RD	ROOF DRAIN
DB	DECELS, SOUND PRESSURE LEVEL	RH	RELATIVE HUMIDITY/REHEAT
DN	DOWN	RPM	REVOLUTIONS PER MINUTE
EA	EXHAUST AIR/ EACH	BFP	BACKFLOW PREVENTER
EAL	EXHAUST/RELIEF AIR LOUVER	S	SINK
EAT	ENTERING AIR TEMPERATURE	SA	SUPPLY AIR
EDB	ENTERING DRY BULB	SAN	SANITARY
EF	EXHAUST FAN	SCW	SPPT COLD WATER
ESP	EXTERNAL STATIC PRESSURE	SP	STATIC PRESSURE
EWB	ENTERING WET BULB	ST	STAINLESS STEEL
EWT	ENTERING WATER TEMPERATURE	ST	STORM
EXIST	EXISTING	TEMP	TEMPERATURE
FD	FLOOR DRAIN	TOD	TOP OF DUCT
FS	FLOW SWITCH	TOS	TOP OF STEEL
GPM	GALLONS PER MINUTE	TSP	TOTAL STATIC PRESSURE
HB	HOSE BIB	V	VENT
HO	HOBSPPOWER	VTR	VENT THROUGH ROOF
HP	HOBSPPOWER	WC	WATER CLOSET
HW	DOMESTIC HOT WATER	WH	WATER HEATER
HWR	DOMESTIC HOT WATER RETURN	WPD	WATER PRESSURE DROP
LAV,L	LAVATORY	WTW	WALL TO WALL
LAT	LEAVING AIR TEMPERATURE/LATENT HEAT		
LD	LEAVING DRY BULB		
LWB	LEAVING WET BULB		

GENERAL CONTRACTOR REQUIREMENTS:

- ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, AND LAWS.
- ARRANGE AND PAY FOR ALL PERMITS AND INSPECTIONS AS REQUIRED.
- MAKE ARRANGEMENTS WITH AND PAY ALL CHARGES REQUIRED BY UTILITY COMPANIES FOR, WATER, AND SEWER SERVICES.
- ALL WORK SHALL BE PERFORMED TO FACILITATE EXPEDITIOUS PROGRESS ON THE WHOLE PROJECT. COORDINATE WORK WITH OTHER TRADES TO MINIMIZE AND RESOLVE POTENTIAL CONFLICTS.
- COMPLETED SYSTEM SHALL BE TESTED, BALANCED, AND GUARANTEED.
- PROVIDE A GAS SHUTOFF VALVE AND DIRT LEG AT EACH PIECE OF GAS FIRED EQUIPMENT.
- THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR SHALL PROVIDE FITTINGS, OFFSETS, ETC., AS NECESSARY TO PROPERLY COMPLETE THE INSTALLATION OF THE SYSTEMS.
- CONTRACTOR TO FURNISH AND INSTALL WATER HAMMER ARRESTERS AT EACH VALVED FIXTURE.
- ALL PIPES PASSING THRU FINISHED WALLS, PARTITIONS AND FLOORS SHALL BE FITTED WITH ADJUSTABLE ESCUTCHEONS, AND APPROPRIATE FIRE TOPPING WHERE REQUIRED.
- FURNISH AND INSTALL ALL VALVING FOR THE PROPER SECTIONALIZING AND OPERATION OF THE PIPING SYSTEM.
- LAYOUT PLUMBING WORK TO AVOID CONFLICTS WITH OTHER BUILDING COMPONENTS. ESTABLISH ELEVATION OF PUBLIC SEWER SYSTEM.
- WHERE FIXTURES ARE MOUNTED TO WALLS SEAL ALL INTERSECTIONS WITH SILICONE CAULK.
- IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY DETAIL OF CONSTRUCTION. CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS NECESSARY FOR A COMPLETE CODE COMPLYING MECHANICAL SYSTEM TO BE IN PROPER WORKING ORDER.
- PROVIDE APPROPRIATE FIRE STOPPING MATERIALS WHERE FIRE RATED ASSEMBLIES ARE PENETRATED.
- MATERIALS EXPOSED WITHIN A PLENUM SHALL BE NONCOMUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84. EXISTING AND NEW PVC PIPING WILL REQUIRE 1/2 INCH MINERAL FIBER INSULATION WITH VAPOR RETARDER FACING THAT MEETS ASTM E84.
- CONTROL S MECHANICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL CONDUIT AND WIRING FOR LOW VOLTAGE AND LINE VOLTAGE REQUIREMENTS FOR PROPER FUNCTION AND COMMUNICATION OF EQUIPMENT.

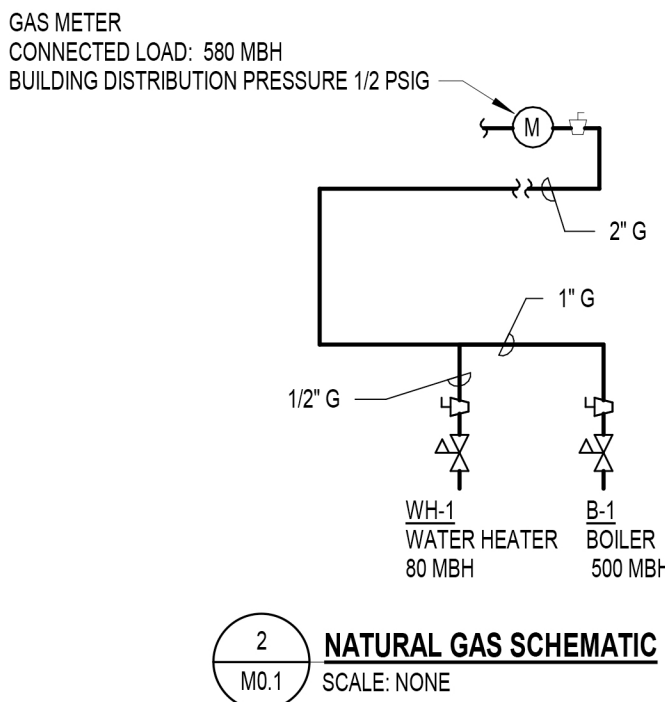
PLUMBING FIXTURE SCHEDULE									
MARK	FIXTURE	CW	HW	SAN	V	FIXTURE MODEL	FIXTURE MANUFACTURER	TRIM MODEL	TRIM MANUFACTURER
BF-1	BOTTLE FILLER	1/2"	-	1-1/4"	-	LBDV06	ELKAY	STAINLESS STEEL	ELKAY
CO-LD	CLEANOUT	-	-	4"	-	ZN-1400	ZURN	-	-
DN-1	DOWNSPOUT NOZZLE	-	-	-	-	ZANB199-SS	ZURN	STAINLESS STEEL BIRD SCREEN	ZURN
FD-1	FLOOR DRAIN	-	-	3", 4"	-	ZN415B	ZURN	SURE SEAL TRAP SEAL	RECTORSEAL
FS-1	FLOOR SINK	-	-	4"	-	ZN1926-33	ZURN	SURE SEAL TRAP SEAL	RECTORSEAL
L-1	LAVATORY - BARRIER FREE	1/2"	1/2"	1-3/4"	1-1/2"	037100-U	NAMEEKS	EFX 300 FAUCET	SLOAN
MS-1	MOP SINK	1/2"	1/2"	3"	1-1/2"	Z1996-24	ZURN	830-AA	FIAT
NFW-1	HOSE BIBB	3/4"	-	-	-	MODEL 68	WOODFORD	-	-
SK-1	BAR SINK - BARRIER FREE	1/2"	1/2"	2"	1-1/2"	ELUHAD161650	ELKAY	4932 410, FINISH: 075 PVD STAINLESS STEEL	AMERICAN STANDARD
UR-1	URINAL	3/4"	-	2"	1-1/2"	6002.001	AMERICAN STANDARD	SOLIS 8186-0.5-SF	SLOAN VALVE
WB-1	WALL BOX - CLOTHES WASHER	1/2"	-	-	-	SSWB3	GUY GRAY	-	-
WC-1	WATER CLOSET	1"	-	4"	2"	2234.001	AMERICAN STANDARD	SOLIS 8111-1.28-SF	SLOAN VALVE
WC-2	WATER CLOSET - BARRIER FREE	1"	-	4"	2"	3043.001	AMERICAN STANDARD	SOLIS 8111-1.28-SF	SLOAN VALVE
WC-3	WATER CLOSET - KIDS	1"	-	4"	2"	2282.001	AMERICAN STANDARD	SOLIS 8111-1.28-SF	SLOAN VALVE

EXHAUST FANS									
MARK	MODEL	CFM	ESP	WATTS	BHP	RPM	VIP	SONES	REMARKS
EF-1	CSP-A390-VG	275	0.5	60	0.08	1,320	115/1	2.2	1, 2
EF-2	CSP-A390-VG	200	0.5	40	0.05	1,243	115/1	2.2	1, 2
EF-3	SQ-16-M2	4,800	1.09	2 HP	1.55	1,750	480/3	18.3	1, 3

- BASED ON "GREENHECK".
- TO OPERATE CONTINUOUSLY.

SPLIT SYSTEMS									
MARK	LOCATION	MODEL	MARK	CONDENSER LOCATION	MODEL	TONS	VIP	REMARKS	
AC-5	MAKERS SPACE 108	FCQ181AVJU	CU-5	OUTDOOR	RZQ181AVJUA	1.5	208 / 1	1	

- BASED ON "DAIKIN".



PUMPS									
MARK	MODEL	GPM	HEAD (FT)	RPM	HP	BHP	IMPELLER DIA	VIP	REMARKS
P-1	E60-1.25-1.25-5.25	27	20	1576	0.5	0.237	5	115/1	1
P-2	PL-45	17.5	20	3300	1/6	-	-	115/1	1

- BASED ON "BELL & GOSSETT".

BOILERS									
MARK	MODEL #	SERVICE	INPUT (MBH)	OUTPUT (MBH)	WATER (GPM)	VENT (")	VIP	REMARKS	
B-1	KBX0500N	NATURAL GAS	500	485	75	4"	120/1	1	

- BASED ON "LOCHINVAR".

WATER HEATER									
MARK	MODEL	SERVICE	STORAGE	GPH REC	INPUT BTU	VIP	REMARKS		
WH-1	LG2PDV7SH803N	NATURAL GAS	75	77	80,000	115/1	1		

- BASED ON "BRADFORD WHITE".

AIR HANDLING UNITS									
MARK	MODEL	CFM	MAX O.A. CFM	ESP	COOLING MBH	HEATING MBH	FAN HP	FAN BHP	FAN RPM
AHU-1	CAH011GDQM	4800	4800	0.75	187	153.5	4.1	1.80	3001
AHU-2	V3-BRB-3-0-141D-12M	1600	360	0.75	54.2	76.2	1.5	1.11	3500
AHU-3	V3-BRB-3-0-141D-12M	1600	360	0.75	54.2	76.2	1.5	1.11	3500
AHU-4	V3-BRB-3-0-141D-12M	1600	360	0.75	54.2	76.2	1.5	1.11	3500

- BASED ON "DAIKIN".
- PROVIDE TEMPERATURE CONTROLLED THERMOSTAT.

CONDENSING UNITS									
MARK	MODEL	CONNECT TO	TONS	SEER (MIN)	VIP	REMARKS			
CU-1	CFA-015-B-A-3-DA00N	AHU-1	12.5	12	460/3	1			
CU-2	CFA-005-A-A-3-DA00H	AHU-2	4	14.2	460/3	1			
CU-3	CFA-005-A-A-3-DA00H	AHU-3	4	14.2	460/3	1			
CU-4	CFA-005-A-A-3-DA00H	AHU-4	4	14.2	460/3	1			

- BASED ON "AAON".

AIR INLETS AND OUTLETS									
KEY	MODEL	DESCRIPTION						REMARKS	
E-1	50F	11/2x12x1/2 GRID CORE, SURFACE MOUNTED, ALUMINUM, BAKED ON ENAMEL						1, 3	
R-1	667	24x8 ONE PIECE STEEL CONSTRUCTION, 1/3" SPACED FINS SET AT 20 DEGREES						2, 3	
R-2	50F	11/2x12x1/2 GRID CORE, LAY-IN, ALUMINUM, BAKED ON ENAMEL						1, 3	
R-3	300RL	STEEL DOUBLE DEFLECTION RETURN GRILLE, 3/4" BLADE SPACING, FRONT BLADES PARALLEL TO LONG DIMENSION						1, 3	
S-1	TMS	24x24 LOUVER FACE, SURFACE MOUNTED, STEEL, BAKED ON ENAMEL						1, 3	
S-2	S300FL	DOUBLE DEFLECTION SPIRAL MOUNTED GRILLE, 3/4" BLADE SPACING WITH OUTER BLADE PARALLEL TO LONG DIMENSION						1, 3	
S-3	300FL	ALUMINUM DOUBLE DEFLECTION SUPPLY GRILLE, SURFACE MOUNTED, 3/4" BLADE SPACING WITH FRONT BLADES PARALLEL TO THE LONG DIMENSION						1, 3	

- BASED ON "TITUS".
- BASED ON "HART AND COOLEY".
- COLOR BY ARCHITECT.

ELECTRIC BASEBOARD HEATERS									
MARK	MODEL	ENCLOSURE LENGTH	CONVECTOR LENGTH	CATALOG NUMBER	WATTS	BTU/HR	VIP	REMARKS	
EBH-1	SBT	9'-6"	8'-0"	SB-8150	1200	4092	115/1	1, 2	
EBH-2	SBT	7'-10"	7'-0"	SB-7150	1050	3581	115/1	1, 2	
EBH-3	SBT	7'-10"	7'-0"	SB-7150	1050	3581	115/1	1, 2	
EBH-4	SBT	9'-6"	8'-0"	SB-8150	1200	4092	115/1	1, 2	
EBH-5	SBT	8'-0"	7'-0"	SB-7150	1050	3581	115/1	1, 2	
EBH-6	SBT	9'-8"	8'-0"	SB-8150	1200	4092	115/1	1, 2	
EBH-7	SBT	9'-8"	8'-0"	SB-8150	1200	4092	115/1	1, 2	
EBH-8	SBT	6'-8"	5'-0"	SB-5150	750	2560	115/1	1, 2	
EBH-9	SBT	11'-2"	10'-0"	SB-10150	1500	5120	115/1	1, 2	
EBH-10	SBT	6'-0"	5'-0"	SB-5150	750	2560	115/1	1, 2	
EBH-11	SBT	6'-4"	5'-0"	SB-5150	750	2560	115/1	1, 2	
EBH-12	SBT	9'-6"	8'-0"	SB-8150	1200	4092	115/1	1, 2	
EBH-13	SBT	9'-6"	8'-0"	SB-8150	1200	4092	115/1	1, 2	
EBH-14	SBT	6'-4"	5'-0"	SB-5150	750	2560	115/1	1, 2	

- BASED ON "VULCAN".
- PROVIDE ALL BASEBOARD HEATERS AS BOTTOM INTAKE. TOP DISCHARGE WITH CAST PEDESTAL.

PLUMBING EQUIPMENT LIST

- WS-1**
- WATER SOFTENER  
MANUFACTURER: PEERLESS  
MODEL: 450 TCCM-FD-3"  
CAPACITY: 450,000 GRAINS (EACH)  
PIPING SIZE: 3"  
SERVICE FLOW RATE: 75 GPM STEADY EACH TANK @ 15 PSI DROP  
FLOW DEMAND FLOW RATE: 180 GPM STEADY SYSTEM @ 15 PSI DROP  
BACKWASH RATE: 25 GPM EACH TANK  
MEDIA: 15 CU. FT. RESIN EACH TANK  
CONTROL CENTER: (2) CLACK WS3" VALVES EACH WITH 3" NHWB VALVES  
METERS: 3"  
VIP: 120/1
- ET-1**
- EXPANSION TANK  
MANUFACTURER: BELL AND GOSSETT  
MODEL: PTA-20V  
TYPE: DIAPHRAGM  
MAXIMUM TEMPERATURE: 180°F  
OPERATING PRESSURE: 30 PSI  
MAXIMUM PRESSURE: 45 PSI  
TANK VOLUME: 8.0 GAL  
ACCEPTANCE VOLUME: 5.3 GAL  
ORIENTATION: VERTICAL

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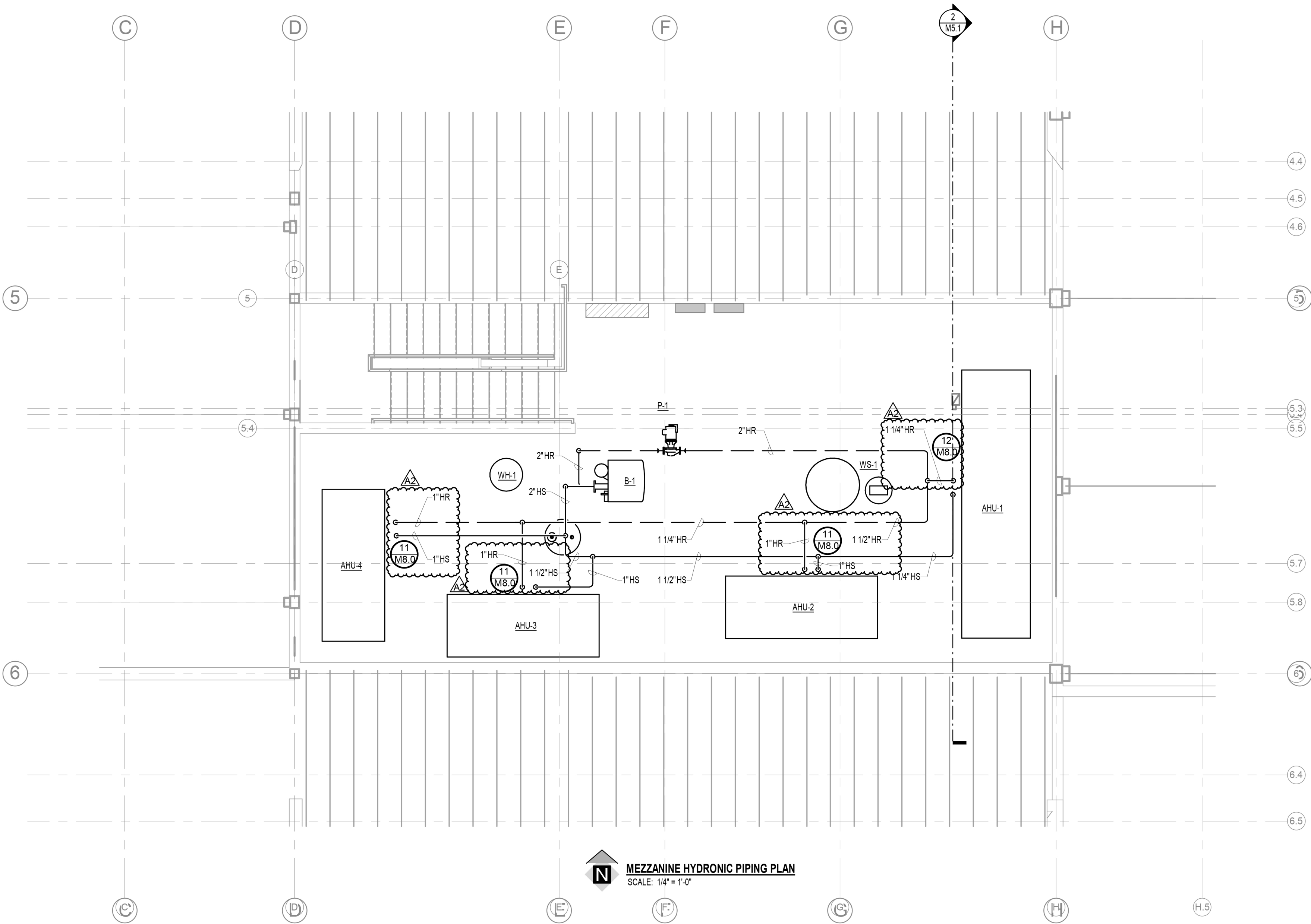
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**MEZZANINE HYDRONIC PIPING PLAN**  
SCALE: 1/4" = 1'-0"

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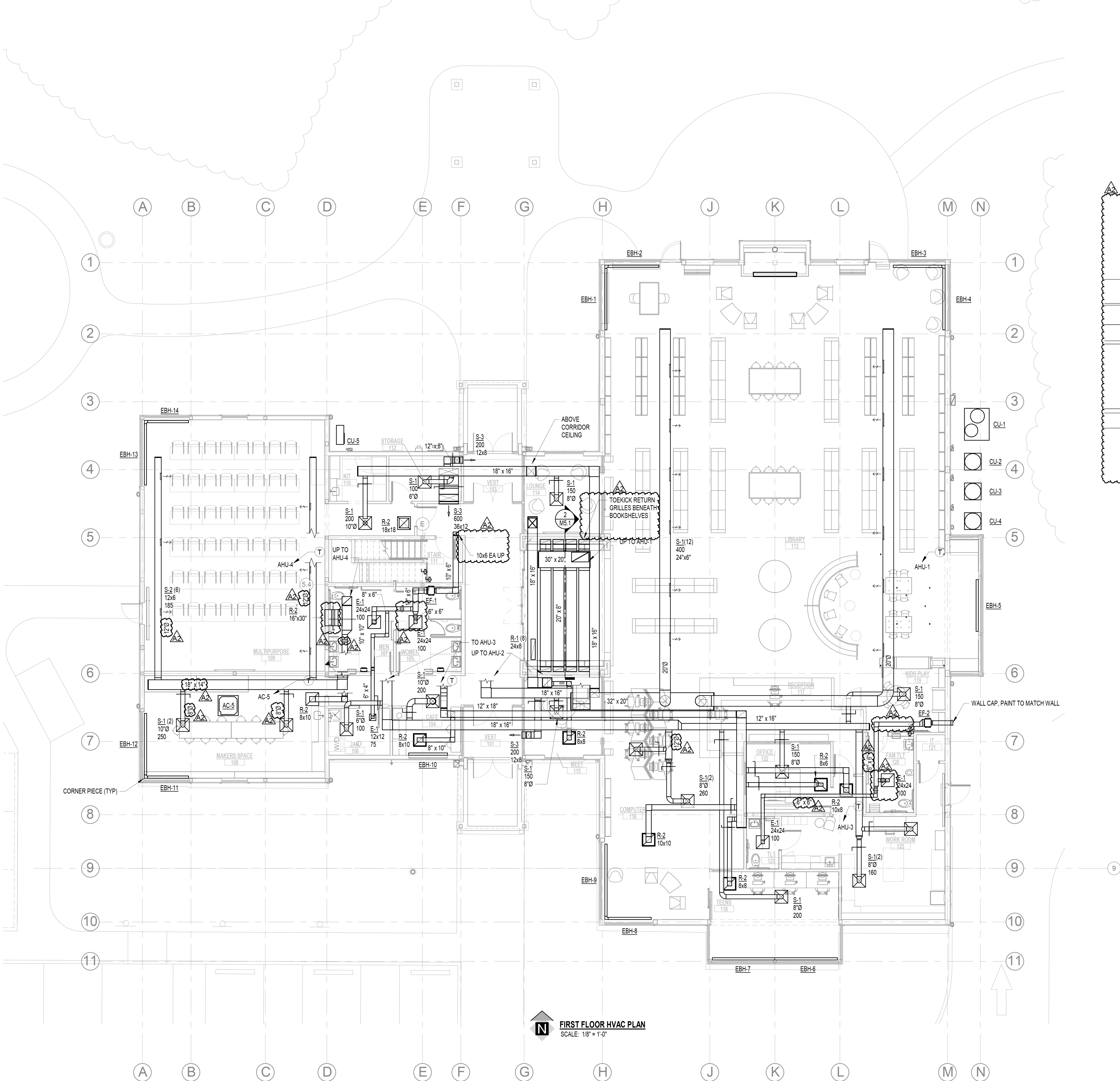
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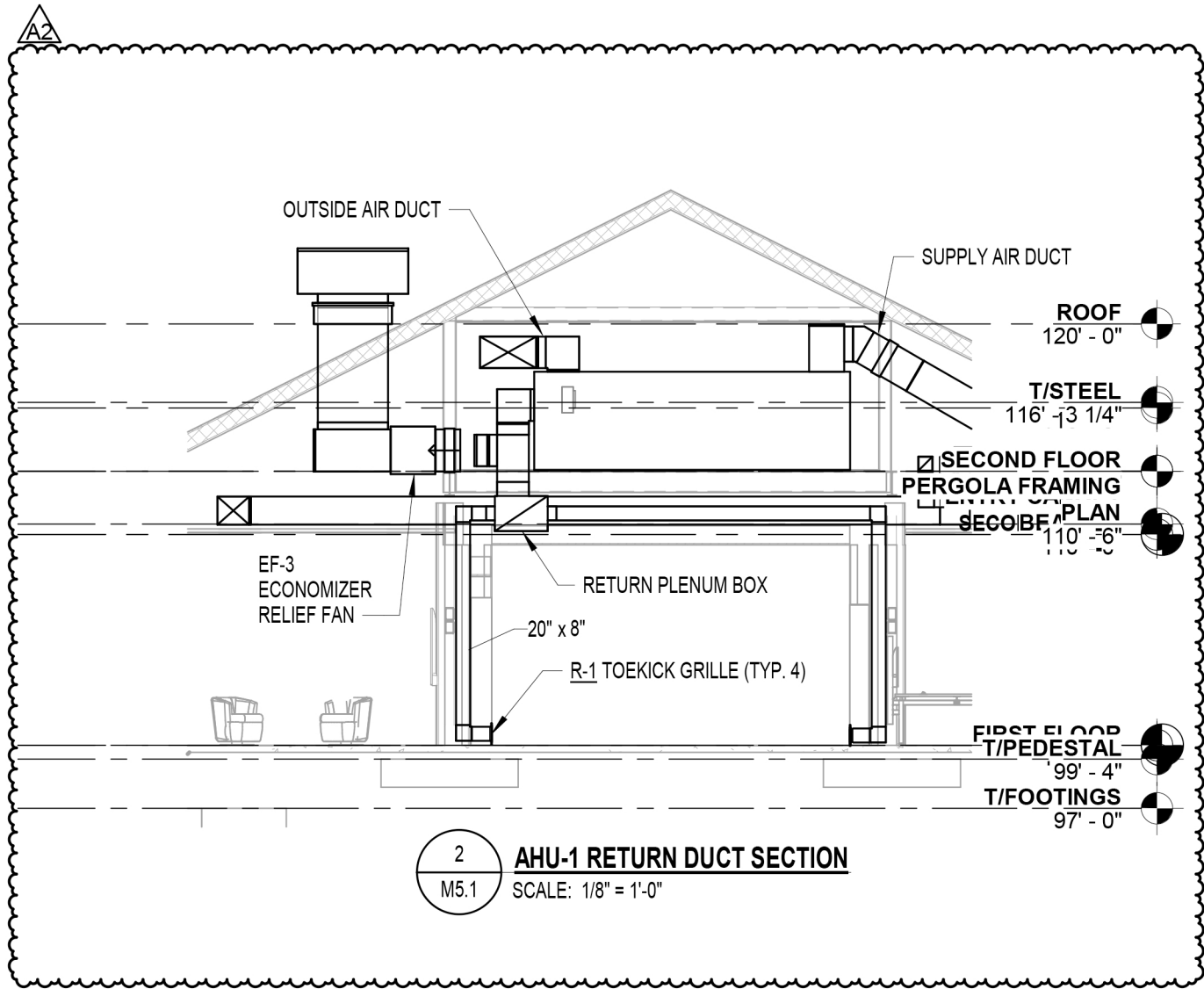
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DUCT SIZING CHART	
AIRFLOW (CFM)	SIZE (in) OR EQUIVALENT
0-100	6"Ø
101-250	8"Ø
251-400	10"Ø
401-650	12"Ø
651-1000	14"Ø
1001-1400	16"Ø



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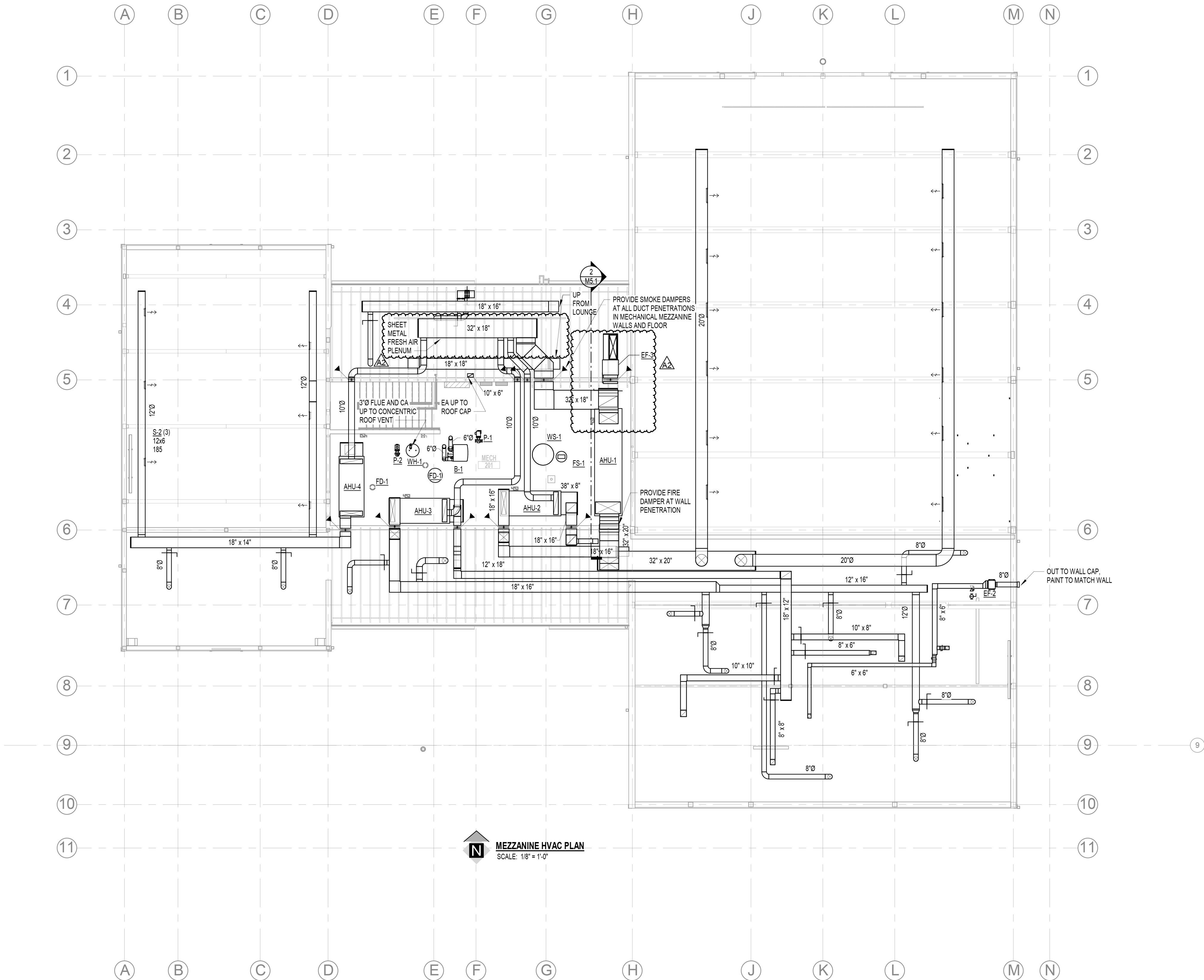
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DUCT SIZING CHART	
AIRFLOW (CFM)	SIZE (in) OR EQUIVALENT
0-100	6"Ø
101-250	8"Ø
251-400	10"Ø
401-650	12"Ø
651-1000	14"Ø
1001-1400	16"Ø



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MEZZANINE HVAC PLAN

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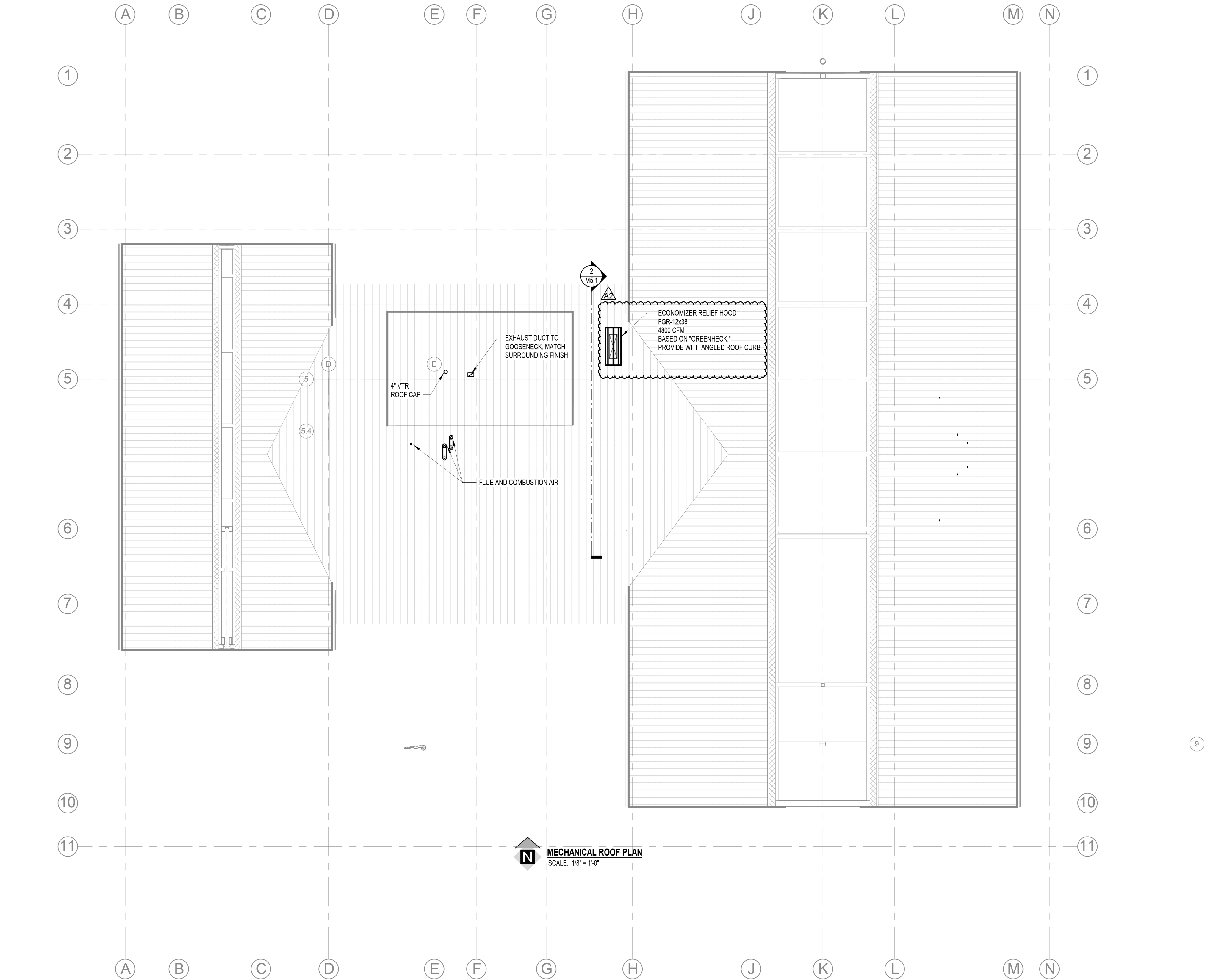
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SHEET TITLE:  
**MECHANICAL ROOF PLAN**

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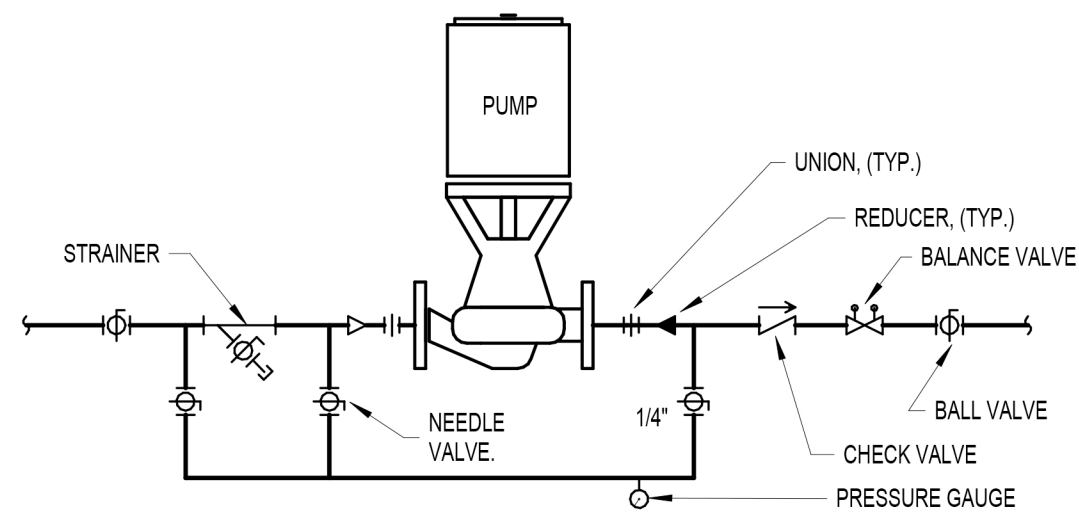
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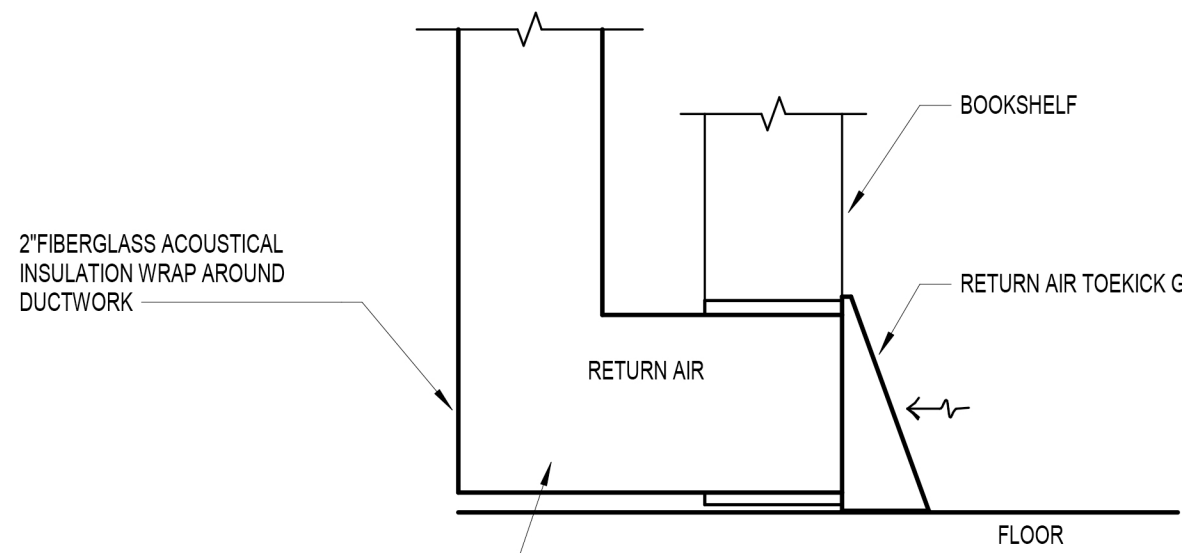
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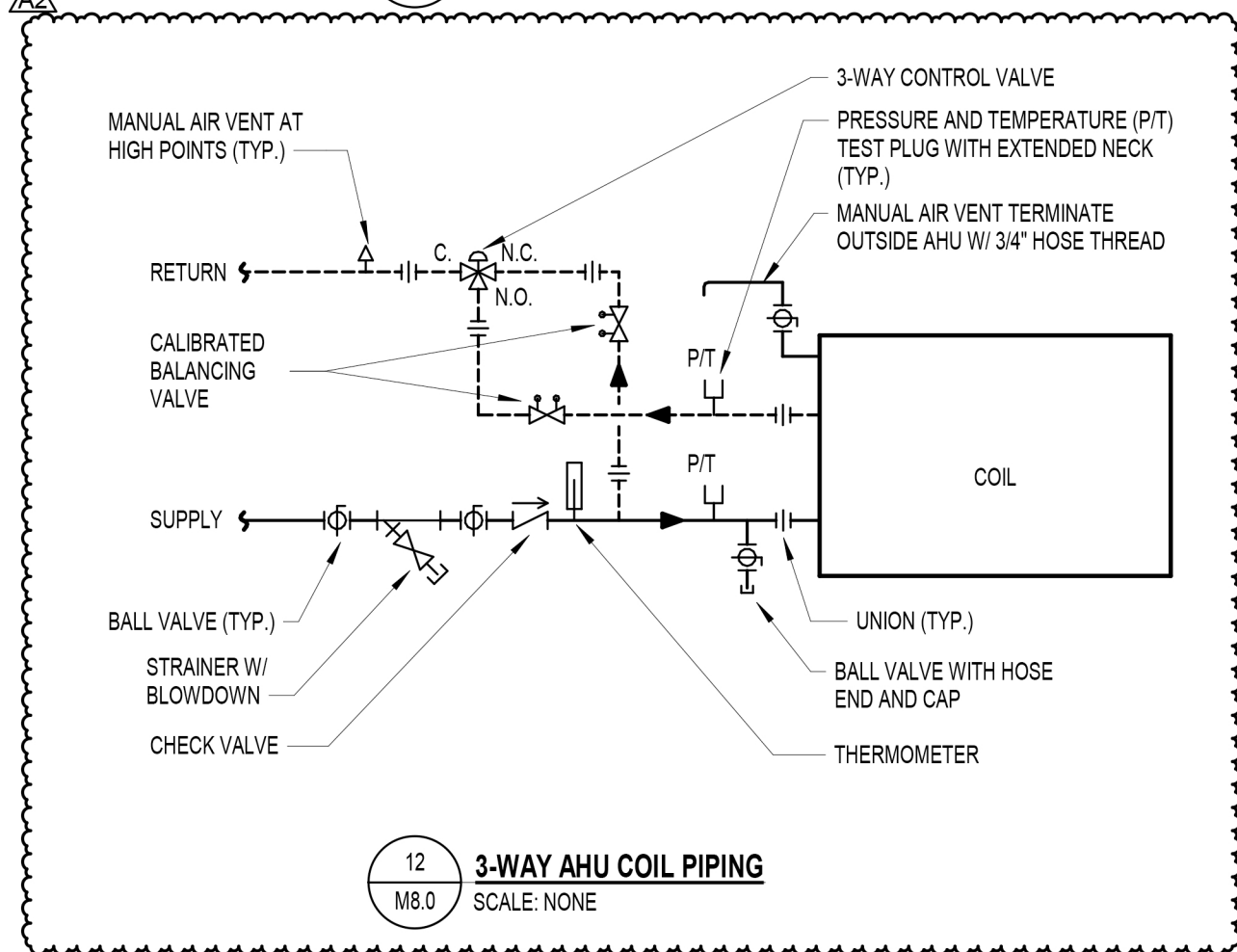
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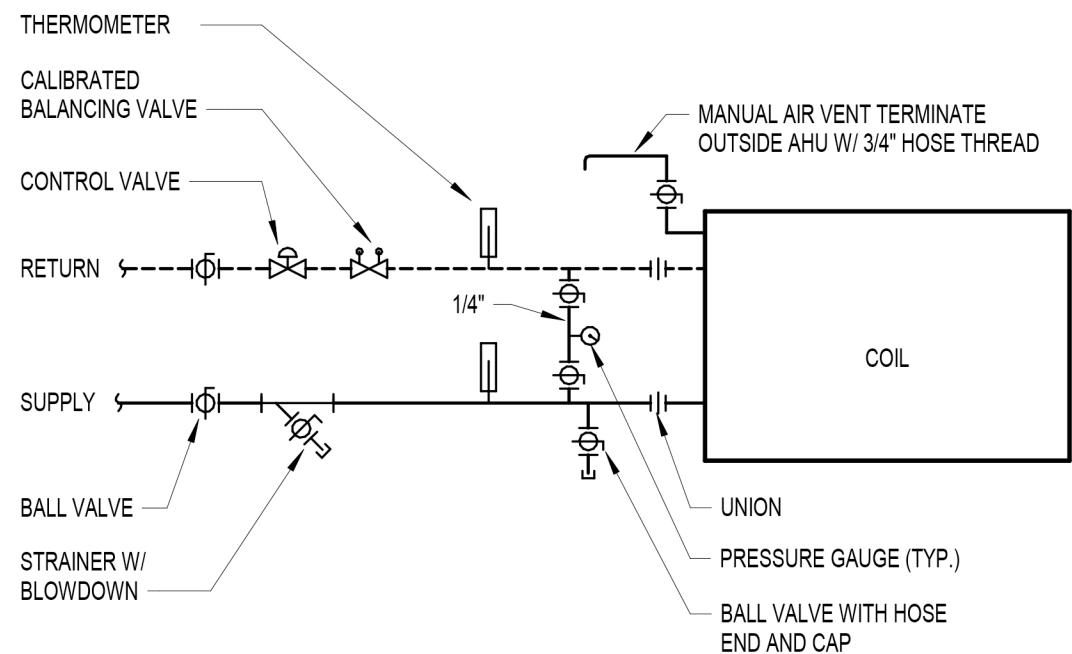
14 INLINE PUMP  
M8.0 SCALE: NONE



13 TOEKICK RETURN AIR GRILLE  
M8.0 SCALE: NONE

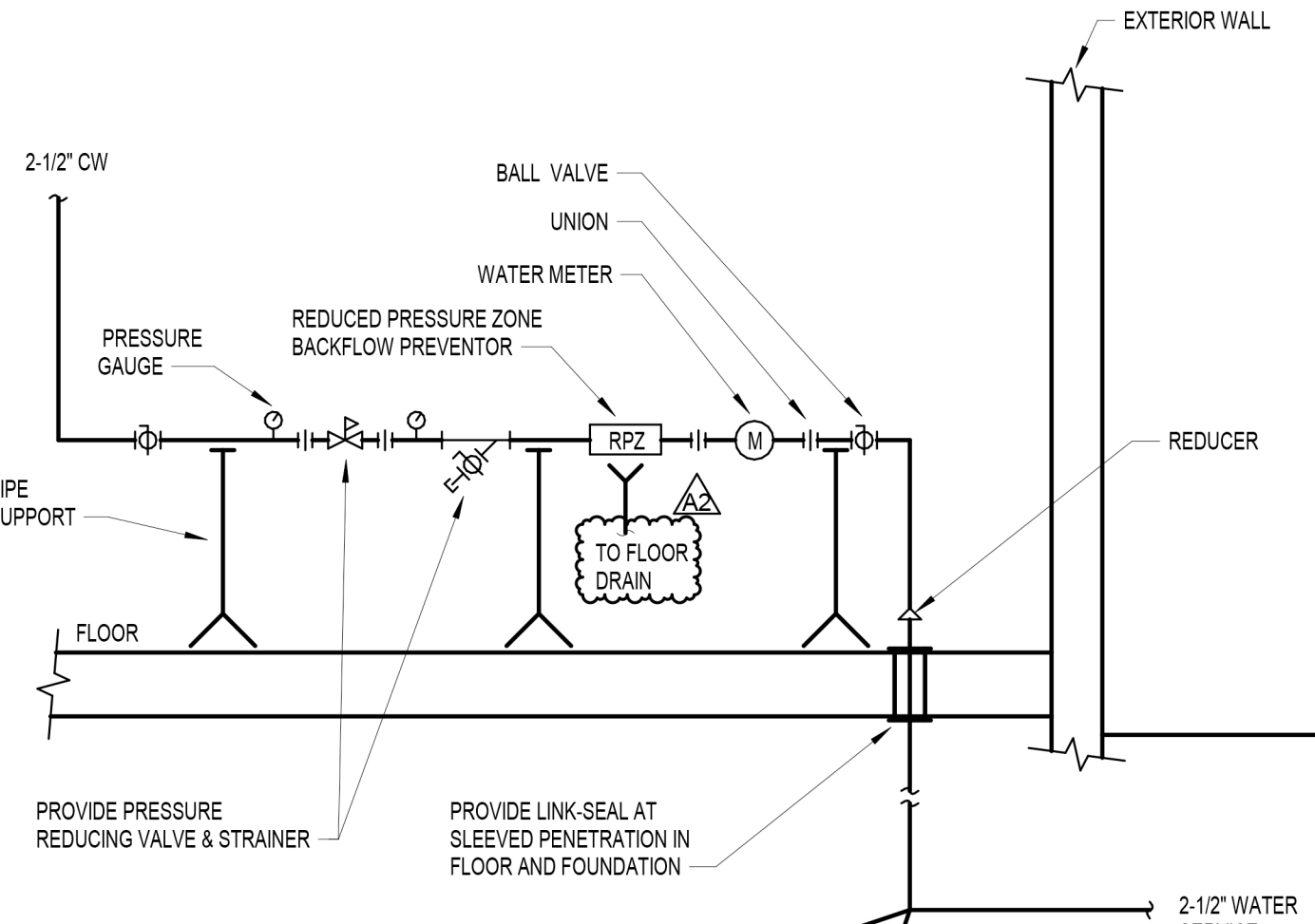


12 3-WAY AHU COIL PIPING  
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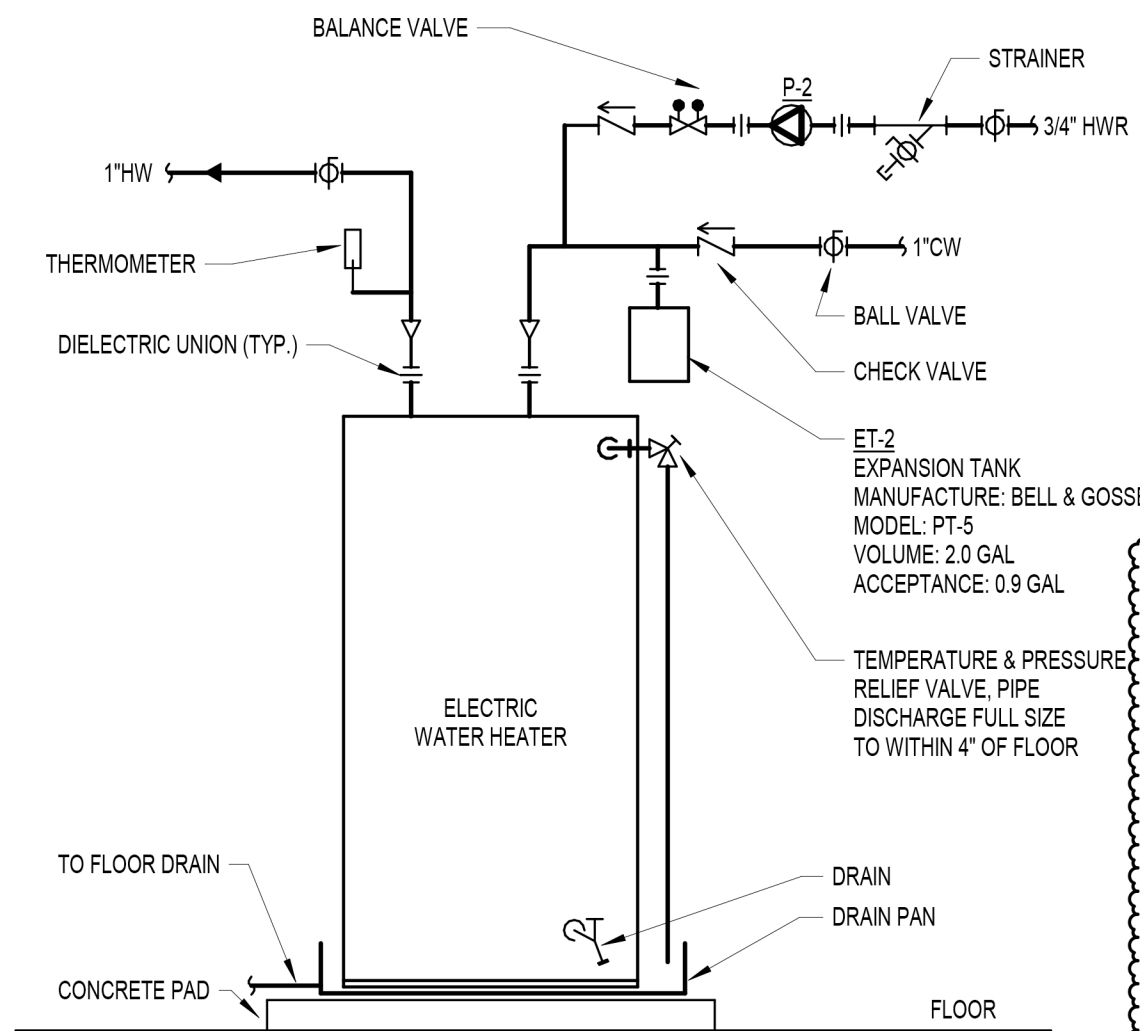


11 2-WAY AHU COIL PIPING  
M8.0 SCALE: NONE

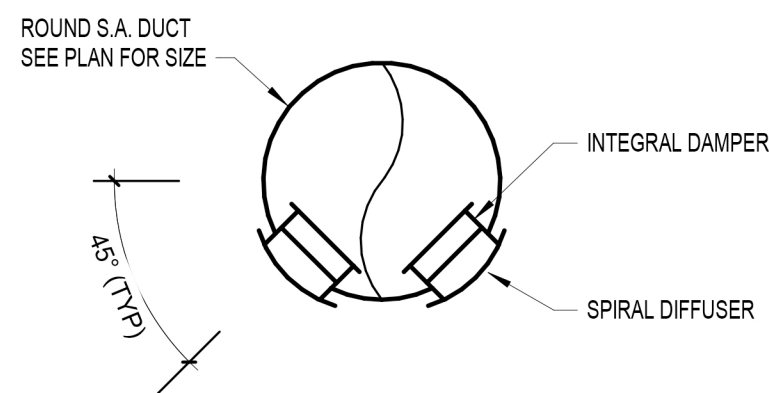
- NOTES:
1. ALL PIPING AND VALVES TO BE LINE SIZE INDICATED ON PLANS. FIRST FITTING AT COIL TO ADJUST TO COIL CONNECTION SIZE.
  2. OFFSET PIPING FROM COIL TO ALLOW COIL REMOVAL WHEN FIRST UNION IS DISCONNECTED.
  3. SUBSTITUTE BUTTERFLY VALVES FOR BALL VALVES ON PIPES LARGER THAN 2".



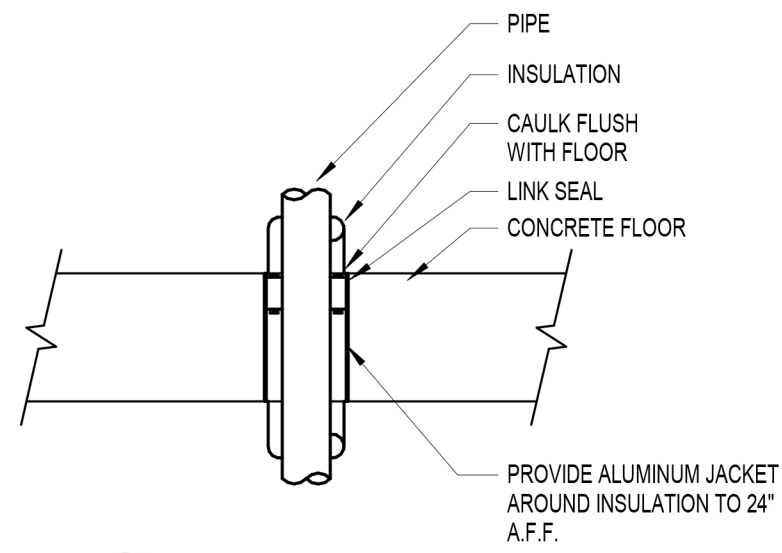
10 WATER SERVICE DETAIL  
M8.0 SCALE: NONE



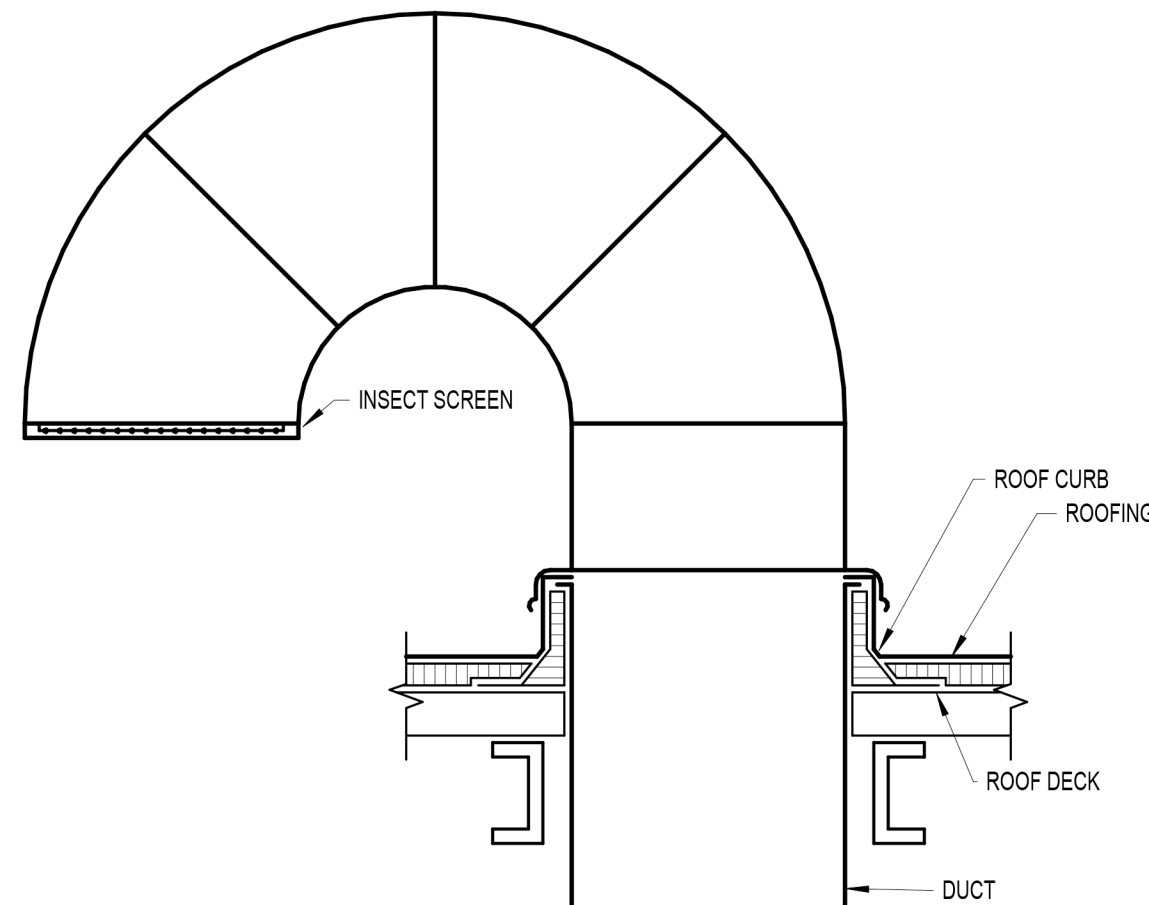
9 WATER HEATER DETAIL  
M8.0 SCALE: NONE



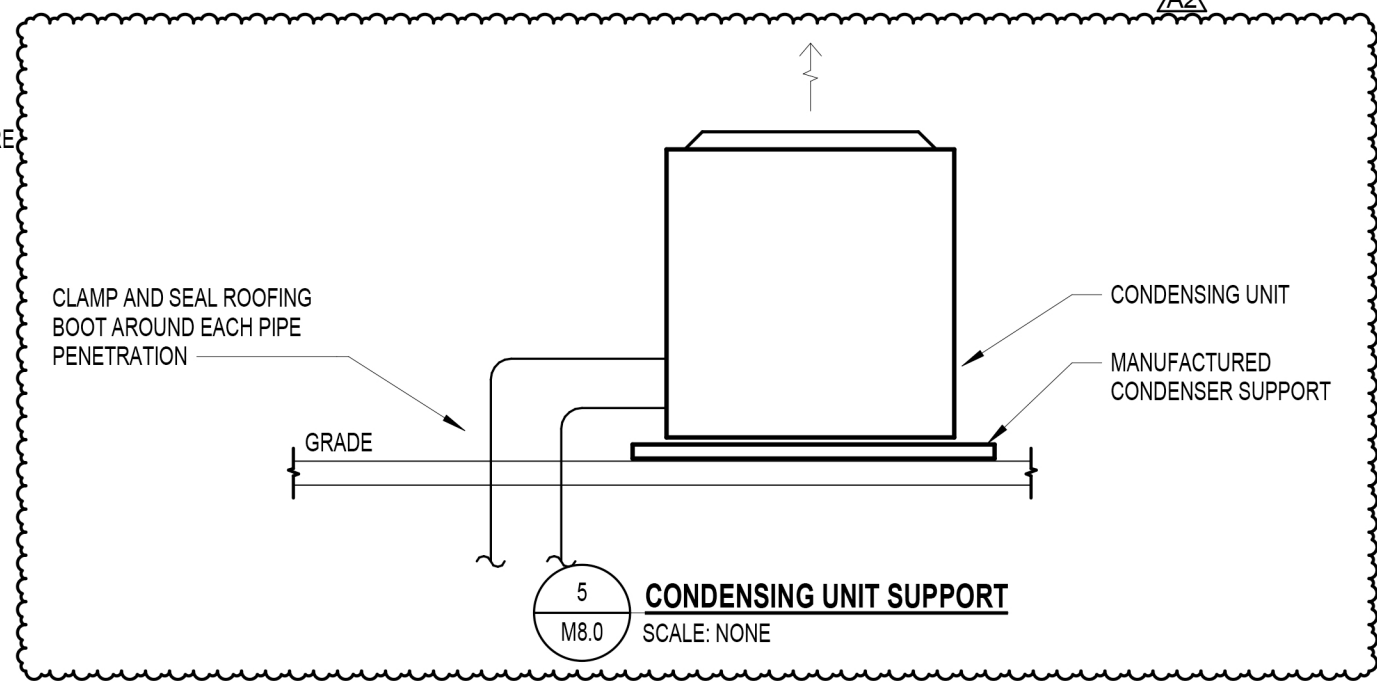
8 48" DOWNWARD SPIRAL SUPPLY GRILLE  
M8.0 SCALE: NONE



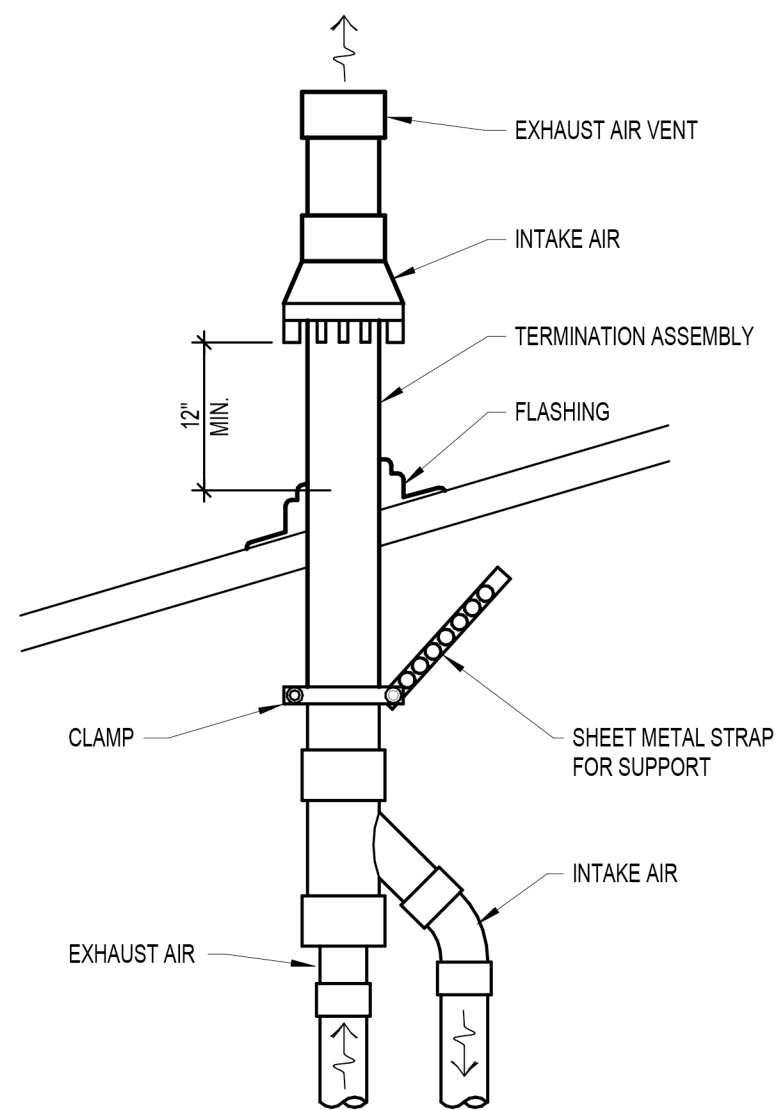
7 PIPE SLEEVE THROUGH FLOOR  
M8.0 SCALE: NONE



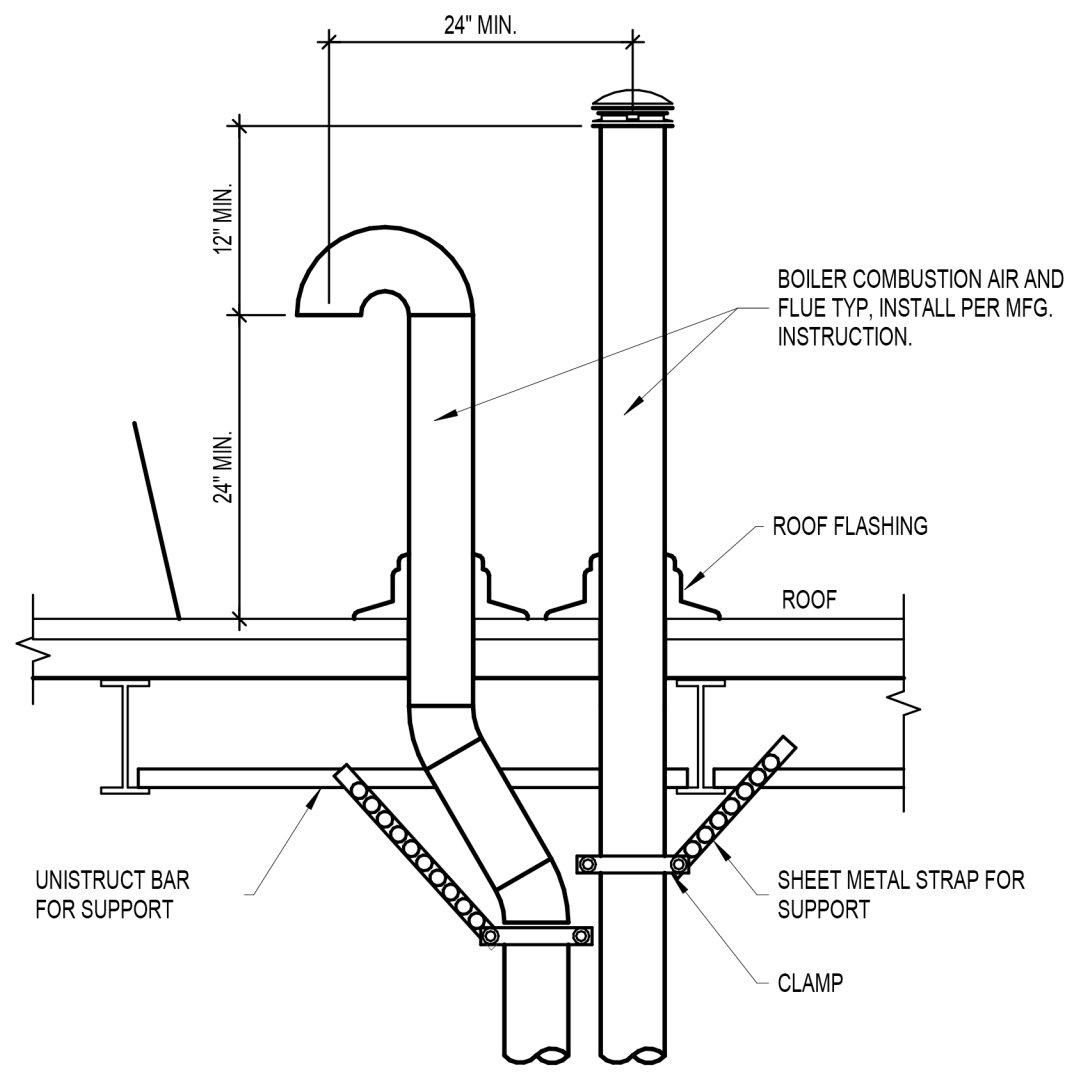
6 EXHAUST DUCT GOOSENECK DETAIL  
M8.0 SCALE: NONE



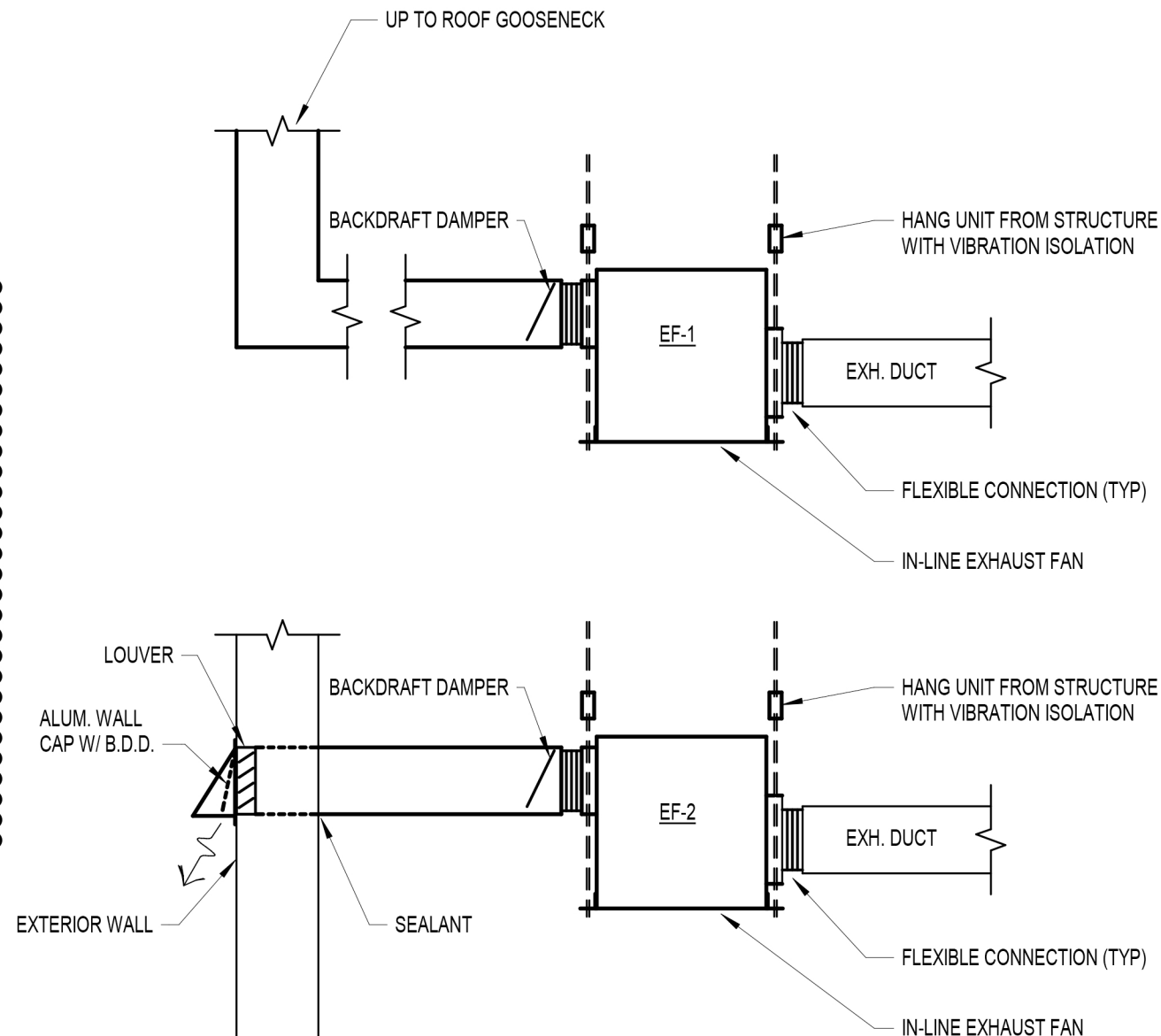
5 CONDENSING UNIT SUPPORT  
M8.0 SCALE: NONE



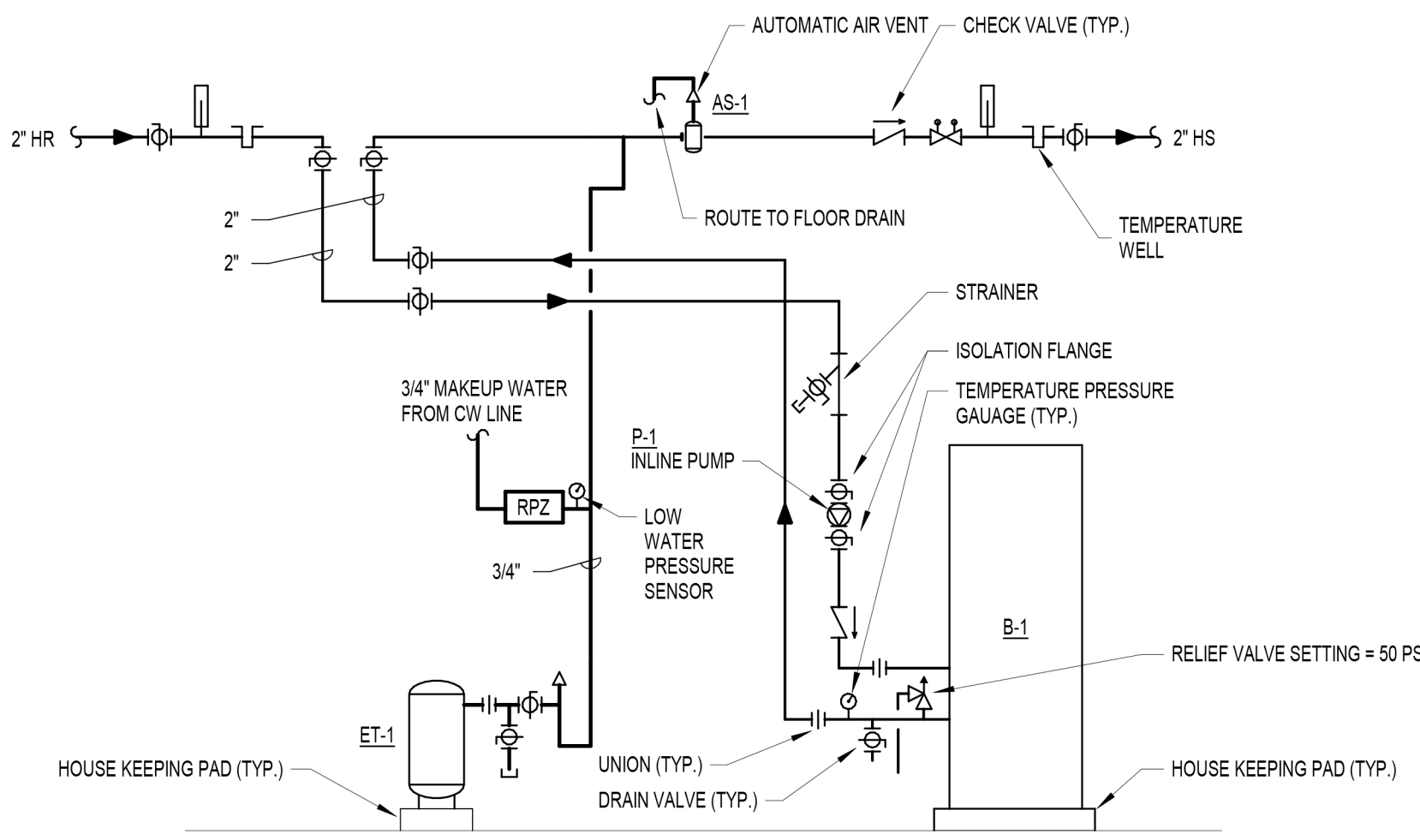
4 CONCENTRIC VENT  
M8.0 SCALE: NONE



3 BOILER VENT  
M8.0 SCALE: NONE



2 INLINE EXHAUST FAN  
M8.0 SCALE: NONE



1 BOILER SCHEMATIC  
M8.0 SCALE: NONE

1	ADDENDUM 2		01/23/24
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT:

CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI

SHEET TITLE:

MECHANICAL DETAILS

MODELED BY:

Author

DESIGNED BY:

Designer

PM REVIEW:

Approver

QA/QC REVIEW:

Checker

DATE:

12/20/2023

SEAL:

SIGNATURE:

DATE:

HARD COPY IS INTENDED TO BE  
24" x 36" WHEN PLOTTED  
SCALE(S) INDICATED AND  
GRAPHIC QUALITY MAY NOT  
BE ACCURATE FOR ANY OTHER  
SIZES

SCALE:

UNLESS NOTED OTHERWISE

ACI JOB #

22-1836

SHEET NO.

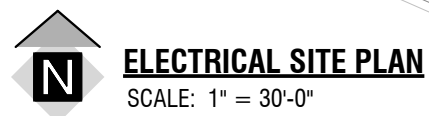
M8.0





1. TRANSFORMER PAD TO BE 12" LONGER AND WIDER THAN TRANSFORMER BASE DESCRIBED IN SHOP DRAWINGS.
2. GROUND RODS TO BE A MINIMUM OF 10'-0" LONG.
3. PROVIDE A MINIMUM OF 4 GROUND RODS PER PLAN. SPACE AT A MINIMUM DISTANCE OF 10'-0" AND INCREASE THE NUMBER AND/OR LENGTH OF RODS TO PROVIDE A RESISTANCE OF LESS THAN 25 OHMS (MAXIMUM).

\*POLE MOUNTED LIGHT FIXTURES TO HAVE INTEGRATED SENSOR TO CONTROL ON/OFF. BUILDING MOUNT EXTERIOR LIGHTS, AND FLAG POLE LIGHTS TO BE CONTROLLED BY BUILDING MOUNTED PHOTOCCELL AND TIME CLOCK. LIGHTS TO TURN ON AT DUSK, AND TO TURN OFF AT DAWN.



B	ADDENDUM #2		01/23/2024
A	ADDENDUM #1		01/12/2024
NO.	REVISION DESCRIPTION	BY	DATE