

**ADDENDUM NUMBER TWO
FOR
Phase I Site Access Road & Utilities and
Phase II Library Building & Site Bid
IFB #2914/120700
LAI Project Number: 09107**

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TO: ALL BIDDERS OF RECORD

This Addendum modifies the Contract Documents only in the manner and to the extent stated herein and shown on any accompanying drawings and will become a part of the Contract Documents. Except as specified or otherwise indicated by this Addendum, all work shall be in accordance with the basic requirements of the Contract Documents.

BIDDERS SHALL ACKNOWLEDGE RECEIPT OF ADDENDUM IN THE SPACE PROVIDED ON THE BID FORM. FAILURE TO DO SO MAY CONSTITUTE AN INFORMALITY IN THE BID.

This Addendum consists of fifteen (15) page(s) and the following enclosures:

I. ENCLOSURES:

1. Specification Section 055214 – Aluminum Railing System
2. Specification Section 211313 – Wet Pipe Sprinkler Systems (Revised)
3. Specification Section 237433 – Dedicated Outdoor Air Units (Revised)
4. Specification Section 323100 – Gates
5. Sketch AD02-C107
6. Sketch AD02-C200
7. Sketch AD-02-S-01
8. Sketch AD-02-S-02
9. Sketch AD-02-S-03
10. Sketch AD-02-S-04
11. Sketch AD-02-S-05
12. Sketch AD-02-S-06
13. Sketch AD-02-S-07
14. Sketch AD-02-S-08
15. Sketch AD-02-S-09
16. Sketch AD-02-S-10
17. Sketch AD-02-S-11
18. Sketch AD-02-S-12
19. Sketch AD-02-S-13
20. Sketch AD-02-S-14
21. Sketch AD-02-S-15
22. Sketch AD-02-S-16
23. Sketch AD-02-S-17
24. Sketch AD-02-S-18
25. Sketch AD-02-S-19
26. Sketch AD-02-S-20
27. Sketch AD-02-S-21
28. Sketch AD-02-S-22
29. Sketch AD-02-S-23

30. Sketch AD-02-S-24
31. Sketch AD-02-S-25
32. Sketch AD-02-S-26
33. Sketch AD-02-S-27
34. Sketch AD-02-S-28
35. Sketch AD-02-S-29
36. Sketch AD-02-S-30
37. Sketch AD-02-S-31
38. Sketch AD-02-S-32
39. Sketch AD-02-S-33
40. Sketch AD-02-S-34
41. Sketch AD-02-S-35
42. Sketch AD-02-S-36
43. Sketch AD02-01
44. Sketch AD02-02
45. Sketch AD02-03
46. Sketch AD02-04
47. Sketch AD02-05
48. Sketch AD02-06
49. Sketch AD02-07
50. Sketch AD02-08
51. Sketch AD02-09
52. Sketch AD02-10
53. Sketch AD02-11
54. Sketch AD02-12
55. Sketch AD02-13
56. Sketch AD02-14
57. Sketch AD02-15
58. Sketch AD02-16
59. Sketch AD02-17
60. Sketch AD02-18
61. Sketch AD02-19
62. Sketch AD02-20
63. Sketch AD02-21
64. Sketch AD02-22
65. Sketch AD02-23
66. Sketch AD02-24
67. Sketch AD02-25
68. Sketch AD02-26
69. Sketch AD02-27
70. Sketch AD02-28
71. Sketch AD02-29
72. Sketch AD02-30
73. Sketch AD02-31
74. Sketch AD02-32
75. Sketch AD02-33
76. Sketch AD02-34
77. Sketch AD02-35
78. Sketch AD02-36
79. Sketch AD02-37
80. Sketch AD02-38
81. Sketch AD-02-FP-01
82. Sketch AD-02-FP-02
83. Sketch AD-02-FP-03
84. Sketch AD-02-FP-04
85. Sketch AD-02-P-01
86. Sketch AD-02-P-02

87. Sketch AD-02-P-03
88. Sketch AD-02-P-04
89. Sketch AD-02-P-05
90. Sketch AD-02-P-06
91. Sketch AD-02-P-07
92. Sketch AD-02-P-08
93. Sketch AD-02-P-09
94. Sketch AD-02-P-10
95. Sketch AD-02-P-11
96. Sketch AD-02-M-01
97. Sketch AD-02-M-02
98. Sketch AD-02-M-03
99. Sketch AD-02-M-04
100. Sketch AD-02-M-05
101. Sketch AD-02-M-06
102. Sketch AD-02-M-07
103. Sketch AD-02-M-08
104. Sketch AD-02-M-09
105. Sketch AD-02-M-10
106. Sketch AD-02-M-11
107. Sketch AD-02-E-01
108. Sketch AD-02-E-02
109. Sketch AD-02-E-03
110. Sketch AD-02-E-04
111. Sketch AD-02-E-05
112. Sketch AD-02-E-06
113. Sketch AD-02-E-07
114. Sketch AD-02-E-08

II. GENERAL INFORMATION / CLARIFICATIONS:

1. The software used for Drawings on this Project is REVIT.
2. COMMISSIONING: All commissioning activities shall be shown on the Contractor's Project Schedule and shall be updated monthly in sequence with all other project activities.
3. The reading garden areas do not contain yard drains. The roof drain manifold can be reduced from 15" to 12" diameter as demonstrated on attached Sketch AD02-C107.
4. All 6" concrete pads shown on civil plans shall have turndown edges as demonstrated on detail – see attached Sketch AD02-C200.
5. No Cameras, Speakers or equipments or switch of any kind are to be mounted to the "Tree" Columns in the main Library space and the walls of the Gullah Room.
6. Luminaires for this project have specific mounting requirements. Some are located in architectural finishes which may require cutting in the field to facilitate installation. Some require installation prior to floor and ceiling finishes being installed. Contractor shall have all costs associated with light fixture installation in architectural finishes and associated on-site coordination / supervision included in their bid.

III. QUESTIONS & ANSWERS:

1. **Question:** On page 1 of the special provision for construction, section 2, item A states "If bidding as a general contractor and the bid amount is over \$5,000 or more, a State Bidder's License and General Contractor's License are required and numbers must be shown on the outside of the bid envelope along with the bid number." Per Shonda Davis with the South Carolina Licensing Board, they have not issued a bidder's license since 1999. Can you provide clarification?
Answer: Delete the requirement to provide a Bidder's License.
2. **Question:** Provide a Bid Form.

Answer: Refer to Division 00 of the Project Manual.

3. **Question:** Please provide a concrete specification naming the strengths of concrete for footings and slab on grade.
Answer: See Specification Section 033000 Cast-In-Place Concrete.
4. **Question:** How are the wooden ribs on the Gullah Geechee room anchored to the floor?
Answer: See attached Sketch AD02-27.
5. **Question:** Please provide more details including a manufacturer for the custom ½" bamboo basket weave membrane for the Gullah Geechee Room as seen in 1/A705 or establish an allowance for this work.
Answer: See attached Sketch AD02-27.
6. **Question:** Detail E/S402 shows the light gauge framing leaving 9'-6" to be framed by the method shown in 4/A500 which shows approximately 3'-8" to be framed. Which is correct?
Answer: The 9'-6" dimension is correct.
7. **Question:** Should the scale on sheets C109 and C110 be 1:20 instead of 1:40?
Answer: Yes, both are 1:20.
8. **Question:** Please provide a manufacturer and model number for the microwave ovens seen in elevations 1 and 3/A704.
Answer: Microwaves are N.I.C. and Owner provided.
9. **Question:** Should there be a mop and broom holder in Janitor 104 seen in 2/A200?
Answer: Yes.
10. **Question:** Please provide details/specifications for the solid barn sliding door number 122 on the Door Schedule sheet A601.
Answer: See attached Sketch AD02-11.
11. **Question:** Please provide a section and elevation for the Millwork Typ. OPAC Station seen in 8/A702 and the ADA/Child Height OPAC seen in 5/A201.
Answer: See attached Sketch AD02-26.
12. **Question:** Please provide an elevation of the veneered plywood door in 5/A506 showing the height.
Answer: See attached Sketch AD02-20.
13. **Question:** What do the circles in areas 144 and 149 on the RCP sheet A103 represent?
Answer: The circles in Areas 144 and 149 are suspended light fixtures. The circles in Area 143 are ceiling recessed light fixtures. See Electrical Drawings for fixture types and specifications.
14. **Question:** Is the IPE Wood Louver shown in 1/A501 the same as the exterior sunscreen specified in 064013 – Exterior Architectural Woodwork?
Answer: Yes. See Section 064013 Exterior Architectural Woodwork.
15. **Question:** Please provide the reference for the detail around the porch post on column line 2 of sheet A102 showing what the four circles around the porch columns represent.
Answer: See attached Sketch AD02-02.

16. **Question:** Are the columns, including the five columns on the porch, wrapped? What are they wrapped with? What are the details?
Answer: The columns are not wrapped. The steel remains exposed and is painted.
17. **Question:** Detail A/S402 refers to architectural for top of masonry. What is the top of masonry for detail 2/A502?
Answer: Top of masonry now called out on plan and in detail. See attached Sketches AD-02-S-12 and AD-02-S-13.
18. **Question:** Please provide a section drawing for the shelf in detail 7/A705.
Answer: See attached Sketch AD02-28.
19. **Question:** Please provide elevations and cross sections for the built in items shown in detail 5/A706.
Answer: See attached Sketches AD02-28, AD02-29, AD02-30, AD02-31, AD02-32, AD02-34, and AD02-35.
20. **Question:** Should the words "industrial grade" in paragraph 2.02.A of specification section 061800 – Glued-Laminated Construction be changed to "architectural grade"?
Answer: No, "industrial grade" is correct.
21. **Question:** Paragraph 2.04 of specification sections 061500 – Wood Decking and 061800 – Glued-Laminated Construction states that these components are to be treated. These components are covered by the roof. Is it necessary to treat these components?
Answer: Yes, there are Wood Decking and Glued-Laminated members that are exposed to the elements.
22. **Question:** What is the difference between the shaded CMU walls on A100 and the non-shaded CMU walls?
Answer: No. Printer error. Also see Structural for location of CMU walls.
23. **Question:** Sheet L104 shows the porch and steps covered by the high roof as part of Alternate One. Is the porch and steps part of Alternate One or Base Bid?
Answer: The porch and steps are part of the Base Bid.
24. **Question:** There is a note on the plan that states that everything within the fence is alternate, and the base is seeding the area. Will we need to bid the seeding of the entire area, or just replacing sod with seed? It is on the landscape plan L 107 for reference.
Answer: The entire area inside the fence will need to be seeded.
25. **Question:** I need a clarification regarding the concrete porch on the North elevation. According to the Architectural and Structural plans this porch looks to be in the base bid. Sheet L104 calls for the porch to be in the Bid Alternate. Can you please clarify the intent?
Answer: The porch and steps are part of the Base Bid.
26. **Question:** Can you confirm that the exterior glass / glazing is to be impact rated?
Answer: Yes. Refer to Specification Section 088000 – Glazing.
27. **Question:** Who is responsible for permanent / final electrical costs?
Answer: The contractor is responsible for ALL costs associated with bringing electrical and communication utilities to the site and terminating them at the building including all costs from the local electrical utility company (SCE&G) and communications utility company. Contact the local utility company's field engineer to determine what, if any,

costs there may be for the utility services to the building. In addition, the contractor is responsible for all costs associated with temporary utilities.

28. **Question:** Who is responsible for NPDES monitoring costs?
Answer: NPDES monitoring is part of construction inspections.
29. **Question:** Can you confirm who will be responsible for all independent testing costs.
Answer: Owner provides special inspections.
30. **Question:** Is the waved specialty ceiling shown on drawing A103 referencing the "curved veneer panels" located in spec section 095500-3?
Answer: No. Not used in this project. See Specification 095133 changes this addendum.
31. **Question:** On drawing A103, there are references to "Translucent Resin Panels" and "wood panels" in the legend. However, these 2 types of ceiling are not shown on the drawing. Please advise.
Answer: OMIT both from Legend on Sheet A103.
32. **Question:** The drawings are referring to light gage metal roof framing on sheet S221. Can you please clarify if this is intended to be light gage metal roof trusses (pre-fab)?
Answer: These are not trusses. Refer to section E/S402.
33. **Question:** Sheet S211/2 refers to structural wood panels being applied. However, this is not shown on the details or the architectural. The architectural refer to plywood sheathing. Please advise.
Answer: The note on 2/S211 does not specifically state plywood so that the GC can use either plywood or OSB, as long as it meets the stated requirements.
34. **Question:** The microwaves on sheet A704 are not denoted at NIC. Please confirm that this is Owner provided.
Answer: Microwaves are N.I.C. and Owner provided.
35. **Question:** What type of door and frame is door opening 116 per A601.
Answer: See attached Sketch AD02-11.
36. **Question:** The wood on the children's desk – what species?
Answer: See attached Sketches AD02-37 and AD02-38.
37. **Question:** Species throughout building on other millwork.
Answer: Cypress, Ash, Cherry, Walnut, Bamboo, and Antique Heart Pine.
38. **Question:** Rib construction for Gullah Room solid wood to mimic old ship construction, or veneered construction? What species for ribs (white oak like old ships?) Do you want it hand hewn?
Answer: See attached Sketch AD02-27 and AD02-28. See change to Specification Section 064023. No – not hand hewn.
39. **Question:** The woven covering is it provided by mill worker? Any details as to how it should look (open weave)?
Answer: See attached Sketch AD02-27.
40. **Question:** Please confirm if there is a DX Fan Coil Unit/DX Heat Pump as listed on Drawing M-701 and does it go with Spec Section 238123 Computer Room Air Conditioning Units. There are also Fan Coil Units on Drawing M-700 and looks to be deleted in Addendum 1. Addendum 1 says to replace Drawing M-700 and M-701 with the

new one and they do not show the FCU's or the DX Fan Coil Unit but doesn't say anything regarding the DX Unit in the Addendum.

Answer: The only changes made to the schedules were as follows:

Drawing M700: Ventilation Air Unit Schedule was updated for changes made to VAU-01 and VAU-02.

Drawing M701: Schedule for Electric Duct Heaters was added to the drawing.

All other schedules on both M700 and M701 did not change and none were removed.

The fan coil unit schedule on M701 does apply to the Computer Room A/C spec. This unit did not change in Addendum 1.

41. **Question:** Per the civil plans, the 8" water lines and hydrants crossing onto the Leroy Brown site are part of this site utilities package. I assume that since the plan did not state that they are not and they are shown we are to include them in our bid. Please clarify.

Answer: The plans say waterline for Health Center by others/not in contract.

42. **Question:** Please confirm that the Porch, 3 steps and lighted handrails are in the base bid as shown and not priced as sod / in alternate 1.

Answer: Confirmed. Steps and illuminated handrails are in Base Bid.

43. **Question:** I have been unable to get the elevation pages to estimate the wall tile in the following rooms and was wondering if you could provide these for us: Womans Bath Room 102 A-1 (ceramic A), Mens Bath Room 103 A-1 (ceramic B), Staff Toilet Room 126 C-1 (ceramic C), Child/Family Toilet Room 147 D-1 (ceramic D), Vestibule Room 105, Kitchenette Room 107.

Answer: See attached Sketch AD02-23 Room Finish Schedule Sheet 600 for rooms with Ceramic Tile Wall Finish. Wall tile to extend 6-inches above ceiling in designated rooms.

44. **Question:** Per conversation with one of our suppliers, the roofing specification on the St. Helena Library project is a proprietary specification written around Tremco roofing systems...We would like to suggest an equivalent system from Performance / Derbigum or Certainteed which is the same modified bitumen / built up roof system with equivalent warranty coverage.

Answer: Section 075520 is a Basis of Design specification. No substitution request was received.

45. **Question:** A sample or a section of two or three frames of the room is required for the project. Can you please clarify how large and what the scale the sample needs to be?

Answer: Provide 4' x 4' section of Gullah Room wall sample including two (2) ribs, stringer connection, woven bamboo skin, chase at the top and bamboo trim piece at the top, as well as all connection and fastening types for the bamboo skin.

IV. CHANGES TO SPECIFICATIONS:

1. SECTION 017900 – DEMONSTRATION AND TRAINING: 3.2.B: ADD the following: "2. All Owner training must be provided within 90 days prior to the Date of Substantial Completion."
2. SECTION 019113 – GENERAL COMMISSIONING REQUIREMENTS: GENERAL NOTE: All O&M manuals and installation instructions for all of the energy using systems listed in this specification shall be submitted within 30 days after approval of the shop drawings for these systems, or within 120 days prior to substantial completion, whichever date occurs first.
3. SECTION 055214 – ALUMINUM RAILING SYSTEM: ADD this section in its entirety as attached to this Addendum.
4. SECTION 064023 – INTERIOR ARCHITECTURAL WOODWORK:

- A. 2.1.C: DELETE the words "Insert species and cut" and SUBSTITUTE the following:
"Quarter Sawn Cypress
Bamboo
Quarter Sawn Antique Reclaimed Heart Pine."
 - B. 2.1.D.5: DELETE this item in its entirety.
 - C. 2.1.D.6: DELETE this item in its entirety.
 - D. 2.2.L.1: DELETE this item and SUBSTITUTE with the following: "BHMA 630 Stainless Steel Base."
 - E. 2.5.A.1: ADD the following: "Gullah Room Woven Wood Skin: 1-1/2-inch by 1/4-inch steamed Bamboo. Typical space between Bamboo minimum 2-inches and maximum 5-inches."
 - F. 2.5.C: DELETE this item in its entirety and SUBSTITUTE with the following:
"C. Gullah Room Ribs and Stringer:
 1. Antique / Reclaimed Heart Pine
 2. Quartersawn
 3. Nail or bolt holes: Occasional nail holes are acceptable every four or five feet.
 4. Rings per inch: Minimum of thirty or higher.
 5. Supplier keeps the material under cover in the yard.
 6. Moisture content of 8% to 12% maximum.
 7. Do not use material that has fracture checks.
 8. Acquire material from a qualified source."
 - G. 2.6.B: ADD the following: "6. Face veneer to overlap solid wood edging."
5. SECTION 087100 – DOOR HARDWARE: 3.7.A: HW SET 20 DOOR NUMBER 124:
Make the following changes:
- | | | |
|-------|--------------|----------------------|
| 3 EA | HINGE | 5BB1HW 4.5 X 4.5 NRP |
| 1 EA | PANIC DEVICE | F-25-R-L-NL |
| 1 EA | MORTISE | NO CHANGE |
| | CYLINDER | |
| 1 EA | CORE | NO CHANGE |
| 1 EA | CLOSER | NO CHANGE |
| 1 EA | WALL STOP | NO CHANGE |
| 3 EA | SILENCER | NO CHANGE |
| | ADD | |
| 1 SET | SMOKE SEAL | 5050 CLR NGP |
6. SECTION 092900 – GYPSUM BOARD: 3.3.A.3: CHANGE to read as follows: "3. High Impact Type X: As indicated in Finish Schedule."
7. SECTION 093000 – TILING: 2.4.1: ADD the following: "3. Color: As selected by Architect from manufacturer's full range of standard colors."
8. SECTION 095500 – ACOUSTICAL CEILING SYSTEM:
- A. Part 1 – General: A: DELETE this paragraph in its entirety.
 - B. 2.1.A: CHANGE "Cypress" to "Ash".
 - C. 2.1.A: ADD the following contact information for Basis of Design: "Rulon Company, World Commerce Center, 2000 Ring Way Road, St. Augustine, FL 32092; 800.227.8566, Fax 904.584.1499."
 - D. 2.1.B: CHANGE "Cypress" to "Ash".
 - E. 2.1.E Curved Veneer Panels: DELETE this item in its entirety.
9. SECTION 096340 – STONE FLOORING:
- A. 2.1.B.1: DELETE the words "Blue gray" and SUBSTITUTE the following: "As selected by Architect from manufacturer's full range of colors. Reds will not be accepted."

- B. 2.1.B: ADD the following: "Stone flooring and unit pavers as specified in Division 32 will be obtained from the same single source for color coordination."
- 10. SECTION 096400 – WOOD FLOORING:
 - A. 2.3.A: DELETE the (last) word "Dark" and SUBSTITUTE the following: "Color to match flooring."
 - B. 2.3.B: DELETE this item in its entirety.
- 11. SECTION 102113 – 2.2 STAINLESS-STEEL UNITS: DELETE the words "<Insert drawing designation>".
- 12. SECTION 102226 – OPERABLE PARTITIONS: CLARIFICATION: All hardware this specification shall match finish on hardware specified in Section 087000.
- 13. SECTION 102800 – TOILET, BATH AND LAUNDRY ACCESSORIES: 2.2.E.1: CHANGE Basis of Design Bobrick Product from "B-5270" to "B270".
- 14. SECTION 104413 – FIRE EXTINGUISHER CABINETS:
 - A. 2.2.D: CHANGE all references to "semi-recessed" and "partially recessed" to "recessed".
 - B. 2.2.E: ADD the following: "3/8-inch flat trim".
 - C. 2.5.B.1: CHANGE to read as follows: "Color and Gloss: Clear coat – no color."
- 15. SECTION 211313 – WET PIPE SPRINKLER SYSTEMS: DELETE section as bound in the Project Manual and REPLACE with attached revised section.
- 16. SECTION 220450 – PLUMBING SYSTEMS COMMISSIONING: GENERAL NOTE: All O&M manuals and installation instructions for all of the energy using systems listed in this specification shall be submitted within 30 days after approval of the shop drawings for these systems, or within 120 days prior to substantial completion, whichever date occurs first.
- 17. SECTION 230450 – HVAC SYSTEMS COMMISSIONING: GENERAL NOTE: All O&M manuals and installation instructions for all of the energy using systems listed in this specification shall be submitted within 30 days after approval of the shop drawings for these systems, or within 120 days prior to substantial completion, whichever date occurs first.
- 18. SECTION 237433 – DEDICATED OUTDOOR AIR UNITS: DELETE section as bound in the Project Manual and REPLACE with attached revised section.
- 19. SECTION 260450 – ELECTRICAL SYSTEMS COMMISSIONING: GENERAL NOTE: All O&M manuals and installation instructions for all of the energy using systems listed in this specification shall be submitted within 30 days after approval of the shop drawings for these systems, or within 120 days prior to substantial completion, whichever date occurs first.
- 20. SECTION 263213 - ENGINE GENERATORS
 - A. 2.4.B.2: CHANGE fuel capacity to 96 hours at 100% rated load.
 - B. 2.8.A.: Provide weatherproof, outdoor generator enclosure with Level-2 sound attenuation (-20dBa).
- 21. SECTION 323100 – GATES: ADD this Section in its entirety as attached to this Addendum.

V. CHANGES TO DRAWINGS:

1. CLARIFICATION: See Enlarged Plan 3-A100/A201 for typical Adult and Teen Services desk layout and requirements.
2. CLARIFICATION: Per attached Sketch AD-02-S-20 Detail S301: Column line 0.5 and the tube columns on 0.5 at column line B, B.6 and B.9 shifted 1-1/2-inches toward column line 0.7.
3. DRAWING C107: Refer to General Information / Clarifications this Addendum and attached Sketch AD02-C107.
4. DRAWING C200: Refer to General Information / Clarifications this Addendum and attached Sketch AD02-C200.
5. DRAWING S100: Refer to attached Sketch AD-02-S-01.
6. DRAWING S200: Refer to attached Sketches AD-02-S-01, AD-02-S-02, AD-02-S-03, AD-02-S-04, AD-02-S-05, AD-02-S-06, AD-02-S-07, and AD-02-S-36.
7. DRAWING S201: Refer to attached Sketches AD0-02-S-08 and AD0-02-S-09.
8. DRAWING S202: Refer to attached Sketches AD0-02-S-01, AD0-02-S-10 and AD0-02-S-11.
9. DRAWING S210: Refer to attached Sketches AD0-02-S-12 and AD0-02-S-13.
10. DRAWING S211: Refer to attached Sketches AD0-02-S-14 and AD0-02-S-15.
11. DRAWING S220: Refer to attached Sketch AD0-02-S-16.
12. DRAWING S300: Refer to attached Sketches AD0-02-S-17 and AD0-02-S-18.
13. DRAWING S301: Refer to attached Sketches AD0-02-S-17, AD0-02-S-19, AD0-02-S-20, and AD0-02-S-21.
14. DRAWING S302: Refer to attached Sketches AD0-02-S-22, AD0-02-S-23, and AD0-02-S-24.
15. DRAWING S400: Refer to attached Sketches AD0-02-S-25 and AD0-02-S-26.
16. DRAWING S401: Refer to attached Sketches AD0-02-S-27 and AD0-02-S-28.
17. DRAWING S402: Refer to attached Sketches AD0-02-S-29 and AD0-02-S-30.
18. DRAWING S500: Refer to attached Sketches AD0-02-S-31.
19. DRAWING S501: Refer to attached Sketch AD0-02-S-32.
20. DRAWING S502: Refer to attached Sketches AD0-02-S-33 and AD0-02-S-34.
21. DRAWING S600: Refer to attached Sketch AD0-02-S-35.
22. DRAWING A002: See MEP drawings for life safety device symbol legend.
23. DRAWING A100:
 - A. The interior walls between Storage 138 and Electrical Room 137 and the Mech/FR 133 and Electrical Room 137 are 1 hour rated.

- B. See attached Sketch AD02-18 for revision in Community Meeting Room 106.
24. DRAWING A101: Dimension from column line 5 is to face of CMU wall on the side of Adult Services Room 122 is 8 ½" instead of 11 7/8" and the dimension from the face of the CMU wall on the side of Adult Services Room 122 to the window in Processing Workroom 119 is 4'-4 7/8" instead of 4'-4".
25. DRAWING A102:
- A. See Civil drawings for concrete stoops and sidewalks connecting to the building.
 - B. OMIT all circular hardwood floor inlays at "tree" columns.
 - C. OMIT detail tag column 4B.
 - D. Mechanical Room 133 a floor drain was added. See Structural and MEP drawings
26. DRAWING A103:
- A. The following interior walls go up to the deck: Between Storage 138 and Electrical Room 137; Between the Mech/FR 133 and all surrounding rooms; Between Group Study Rooms 134 and 131; Between Vending 102 and Men's 103 and the Vestibule 105; Between Community Meeting Room 106/Lobby Gallery/Circ. 100 and Child/Family Toilet 147 and Child Services Workroom 145.
 - B. Gullah Room 142: DELETE Note "Custom Stepped wood Panel Ceiling".
 - C. See attached Sketch AD02-19 for revision in Community Meeting Room 106.
 - D. See Electrical drawings for Types of Circular Fixtures in the Children's Library and Storyhour/Activity Room.
27. DRAWING A110:
- A. See attached Sketch AD02-A001.
 - B. CHANGE note "Canopy below" to "Aluminum Canopy Below; See Structural Drawings"
28. DRAWING A111:
- A. Detail 3-A100/A111; ignore West/East section thru Book drop/ Lift 151 without detail number.
 - B. Detail 2-A100/A111; ignore West/East section thru Book drop/ Lift 151 without detail number.
 - C. Detail 2-A100/A111 CHANGE NOTE "Lockable Access Panel...." To Lockable Access Panels...".
 - D. Detail 8-A100/A111 change note "Grade; See Civil" to "Concrete Stoop; See Civil".
29. DRAWING A300:
- A. Windows "A" and "B" have cast stone sill not shown in the elevations on sheet A300. See attached Sketch AD02-03 for size and elevation.
 - B. Elevation 1-a100/a300; COORDINATE aluminum letters and wording with Architect and Owner.
30. DRAWING A501: Roof Crickets may be formed using tapered insulation.
31. DRAWING A505: Provide P-Lam edging to all built-in shelving.
32. DRAWING A506: Detail 7- A106/A506; allow for 1/4" tolerance between the steel column and gypsum board.
33. DRAWING A600:
- A. See attached Sketch AD02-23 for Revised Room Finish Schedule.

- B. CLARIFICATION: Room Finish Schedule: 142 Gullah Room: The "specialty wood wall system" is part of the millwork. The ceiling is open to above. See Drawing A700 changes this Addendum.
- C. Room Finish Schedule: Floor Finish and Vinyl Base Types designated by the letter "A", "B" etc describe different types and/ or color for each category to be selected by the Architect.
- D. Room Finish Schedule: Wall tile to extend to 6" above ceiling in designated rooms.

34. DRAWING A601:

- A. Window Schedule: OMIT Column Glazing. See specifications for Glazing.
- B. Window Type Legend: Storefront Window Type SFW is not listed in the Window Schedule. Details are WJ2B for Head and Jamb and WS2B for Sill.
- C. ADD Doors # 147; #150 and 151 to Door Schedule.
- D. ADD Doors # 147; #150 and 151 to Door Schedule.

35. DRAWING A608:

- A. Elevations ISF10a (Detail 12), ISF10b (Detail 13) and ISF12c (Detail 18) CHANGE vertical dimension from top of frame to center of first mullion to 1' - 10". See attached Sketch AD02-12 for typical dimensions.
- B. Elevations ISF10a (Detail 12), ISF10b (Detail 13) and ISF12c (Detail 18) CHANGE vertical dimension from center of first mullion to center second mullion from top 3' - 7 1/4". See attached Sketch AD02-12 for typical dimensions.
- C. Elevations ISF9 (Detail 11) CHANGE vertical dimension from top of frame to center of first mullion to 1' - 10". CHANGE vertical dimension from center of first mullion to center second mullion from top 3' - 7 1/4". CHANGE vertical clear dimension of door 119 to 7' - 0" CLEAR. See attached Sketch AD02-12 for typical dimensions.

36. DRAWING A700:

- A. Under the column "Ceiling" OMIT the word "Wood".
- B. The wood species for the Adult Services Desk and the Circulation Desk are Walnut for counters and Cypress for cabinets,

37. DRAWING A702:

- A. Detail 5-A200/A702 CHANGE all notes "Stained Wood Veneer Backboard" and "Stained Wood Bench" to "5/8" PLYWD.W/ CYPRESS VENEER; SOLID WOOD EDGES; OVERLAY WOOD EDGE W/ VENEER.
- B. Detail 1-A201/A702: OMIT the note "Translucent Resin Panel" at Teen Services ceiling canopy.
- C. The wood species for the Teen Services desk is Cypress.

38. DRAWING A704: Detail 9 A704/904: See attached Sketch AD02-17 for revisions to dimensions.

39. DRAWING FP000: UPDATE size of the fire protection pump as noted on the riser diagram and pump schedule. Refer to attached Sketch AD-02-FP-01.

40. DRAWING FP000: UPDATE drawing to include the coverage of the canopy and book drop area. Refer to attached Sketch AD-02-FP-02.

41. DRAWING FP200: RELOCATE the incoming fire protection piping and piping to the FDC. Refer to attached Sketch AD-02-FP-03.

42. DRAWING FP201: RELOCATE the incoming fire protection piping and piping to the FDC. Show new fire pump test connector located on exterior wall. Refer to attached Sketch AD-02-FP-04.
43. DRAWING P100: REMOVE floor cleanout and REPLACE with wall cleanout in the restroom. Refer to attached Sketch AD-02-P-01.
44. DRAWING P100: RELOCATE sanitary piping coming from teen lounge area. Refer to attached Sketch AD-02-P-02.
45. DRAWING P100: ADD floor drain and associated sanitary and vent piping to mechanical room. Refer to attached Sketch AD-02-P-03.
46. DRAWING P101: REMOVE floor cleanout and REPLACE with wall cleanout in the restroom. Refer to attached Sketch AD-02-P-04.
47. DRAWING P100: ADD floor drain to mechanical room. Refer to attached Sketch AD-02-P-05.
48. DRAWING P300: RELOCATE condensate piping riser between windows. Refer to attached Sketch AD-02-P-06.
49. DRAWING P301: RELOCATE condensate piping riser between windows. Refer to attached Sketch AD-02-P-07.
50. DRAWING P400: UPDATE domestic water riser to show 60 psi setpoint for pressure regulating valve. Refer to attached Sketch AD-02-P-08.
51. DRAWING P-500: REMOVE detail number four. Refer to attached Sketch AD-02-P-09.
52. DRAWING P501: REMOVE notes from details number one and two. Refer to attached Sketch AD-02-P-10.
53. DRAWING P600: UPDATE the size of domestic water booster pump as shown on schedule. Refer to attached Sketch AD-02-P-11.
54. DRAWING M100: UPDATE the size of ceiling diffusers as shown. Refer to attached Sketch AD-02-M-1-01.
55. DRAWING M201: REMOVE drawing note number three and update outdoor air damper setting as shown. Refer to attached Sketch AD-02-M-02.
56. DRAWING M201: ADD dimensions showing the chiller location for the design case. Refer to attached Sketch AD-02-M-03.
57. DRAWING M201: ADD fire dampers as shown. Refer to attached Sketch AD-02-M-04.
58. DRAWING M300: UPDATE drawing to show location of chilled water piping. Refer to attached Sketch AD-02-M-05.
59. DRAWING M400: ADD a chemical shot feeder as shown. Refer to attached Sketch AD-02-M-06.
60. DRAWING M400: MOVE pipe drops to inside the mechanical room as shown. Refer to attached Sketch AD-02-M-07.
61. DRAWING M602: REMOVE detail number one. Refer to attached Sketch AD-02-M-08.

62. DRAWING M603: UPDATE detail number three as shown. Refer to attached Sketch AD-02-M-09.
63. DRAWING M606: UPDATE details number one and two as shown. Refer to attached Sketch AD-02-M-10.
64. DRAWING M701: UPDATE schedule to show new diffuser size as shown. Refer to attached Sketch AD-02-M-11.
65. DRAWING E003: ADD (5) Type "LF" luminaires to illuminate wall mounted building letters. Refer to attached Sketch AD-02-E-6.
66. DRAWING E502: CHANGE generator from 50 KW to 70 KW. CHANGE Fire Pump Controller breaker and feeder as indicated. Refer to attached Sketch AD-02-E-5.
67. DRAWING E600: DELETE Lighting Fixture Schedule. Refer to attached Sketches AD-02-E-01 and AD-02-E-02 for revised lighting fixture schedule.
68. DRAWING E204: CHANGE luminaire type E3 to type S4. Refer to attached Sketch AD-02-E-03.
69. DRAWING E201: CHANGE luminaire type E3 shown at exterior canopies to type S4. Refer to attached Sketch AD-02-E-04.
70. DRAWING E204: CHANGE locations and quantities of luminaire type U2. ADD luminaire type W1 to be mounted in built-in casework and furniture within Gullah Room. Wiring to W1 luminaires to be low voltage routed concealed in casework back to remote power supply mounted in utility area of Gullah Room. Exposed raceway is not allowed. Refer to attached Sketch AD-02-E-08.
71. DRAWING E101: ADD receptacles at Kitchenettes. Refer to attached Sketch AD-02-E-07.

VI. SUBSTITUTION REQUESTS: Subject to strict compliance with drawings and specifications, the following products are clearly marked "Approved" or "Not Approved":

<u>Description</u>	<u>Approved</u>	<u>Not Approved</u>
Section 099123 Interior Painting		
• Rose Talbert	X	
Section 081416 Flush Wood Doors		
• Oshkosh Door	X	
Section 076100 Sheet Metal Roofing		
• CMP, Inc.: SERIES 2500	X	
• CCG, a unit of CSi: SSS2	X	
• Metal Sales Mfg.: Magna-Loc	X	
Section 102800 Toilet, Bath & Laundry Accessories		
• Columbia Accessories		
o Jumbo-Roll Toilet Tissue Dispenser TT-181-200		X
o Towel Dispenser & Waste Receptacle Recessed Mounted TW-441-200	X	

- o Vertical Stainless Steel Soap Dispenser
Surface Mounted SD-111-200 X
- o Sanitary Napkin Disposal
Surface Mounted ND-111-200 X
- o Toilet Seat Cover Dispenser
Surface Mounted TC-111-200 X
- o Horizontal Baby Changing Station
Surface Mounted – Columbia Guard
(Antimicrobial Agent) BS-113-400 / BS114-400 X
- o Mop & Broom Holder Rack w/Shelf
& Drying Bar
Surface-Mounted MS-351-200 X

Section 263213 - ENGINE GENERATORS

- Baldor Generator Manufacturer X

Section 265100 – INTERIOR LIGHTING

- The Schneider Company
 - o TYPES A1, D3, P1/P2, P4,
R22,R33,R44,R66,
S1, WW1, X1, LU, LD, LF X
- ALL OTHERS LISTED X

Section 321400 Unit Paving

- Charles Luck Stone X

END OF ADDENDUM TWO

SECTION 055214 – ALUMINUM RAILING SYSTEM

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes extruded aluminum railing system with infill.
- B. Related Sections: 051200 – Structural Steel Framing.

1.2 SUBMITTALS

- A. Reference Division 01 for submittal procedures. Submit the following items:
 - 1. Product Data including color chart for initial color selection.
 - 2. Shop Drawings: Indicate materials, sizes, styles, fabrication, anchorage and installation details for railing system and infill.
 - 3. Samples:
 - a. Post and rail sections: minimum 4-inch long piece of each type specified herein.
 - b. Infill:
 - 1) Cable: minimum 8-inch long piece with end fittings.
 - 2) Picket: minimum 4-inch long piece.
 - 4. Quality Assurance and Control Submittals:
 - a. Qualifications: Proof of manufacturer's qualifications.
 - b. Manufacturer's Installation Instructions.
- B. Closeout Submittals: Reference Division 01 for closeout procedures: Submit the following items:
 - 1. Maintenance Instructions:
 - a. Manufacturer's recommendation for periodic checking and adjustment of cables to maintain uniform cable tension.
 - b. Manufacturer's recommendation for periodic cleaning of cables, railing frames and related components to remove accumulated dirt, debris and stains.
 - 2. Special Warranties.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum five years experience in producing aluminum railing systems.
- B. Field Samples: Reference Division 01 for quality control requirements.
- C. Install one (1) complete railing including infill panel at location selected by Architect.
- D. Obtain Architect's approval prior to installing additional railings.
- E. Approved sample may remain as part of completed work.

1.4 DELIVERY, STORAGE, AND HANDLING: Reference Division 01 for product storage and handling requirements.

1.5 WARRANTY

- A. Cable and Connectors: 5-year limited warranty against defects in materials and workmanship.
- B. Paint Finish on Aluminum Extrusions and Components: 5-year limited warranty against cracking, flaking, blistering, and peeling.

1.6 MAINTENANCE: Extra Materials: Provide one, approximately 3ounce can, of touch-up paint per 100 feet of each color railing.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Basis of Design: Provide DesignRail® Aluminum Railing Systems or approved equal. Basis of Design contact information: Feeney, Inc. 2603 Union Street Oakland CA 94607, 800.888.2418; sales@feeneywire.com.

2.2 MATERIALS

- A. Extruded aluminum rails, tubes, profiles, pipes, plate and sheet: 6000-series aluminum.
- B. Cables: 1/8-inch diameter, 1 by 19 construction, Type 316 stainless steel, polished finish, commercial, dry grade cable with fittings specified below.
 - 1. Fittings:
 - a. Vertical Cables: Provide a 2-inch long stainless steel threaded terminal factory-attached to one end of each cable and a stainless steel fixed button end factory-attached to the other end.
 - b. Horizontal Cables: Provide a 4-1/4-inch long stainless steel threaded terminal factory-attached to one end of each cable and a stainless steel Quick-Connect® SS fitting for field attachment on the other end.
 - c. Include washers, nuts, end caps and any accessory items as recommended by manufacturer for installation conditions or as shown on Drawings.

2.3 COMPONENTS

- A. Square Posts: 2-3/8-inch square with 3/32-inchthick extruded aluminum tube. Stanchion-mount as shown on Drawings.
- B. Cap Infill Channel: Extruded aluminum profile configured to secure specified infill.
- C. Infill: Cables: horizontal placement.
- D. Fasteners for interconnecting railing components: Stainless steel screws of type and size recommended by railing manufacturer.
- E. Fasteners for connecting components to other construction: Type and size as shown on Drawings.
- F. Aluminum end caps for exposed open ends of rails, tubes, and profiles.

2.4 FINISH

- A. Shop Finish: Powder coat aluminum components in compliance with AAMA 2604.

- B. Color: Silver

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine work upon which railings will be installed.
- B. Coordinate with responsible entity to correct unsatisfactory conditions.
- C. Commencement of work by installer is acceptance of substrate conditions.

3.2 INSTALLATION

- A. Follow manufacturer's installation instructions.
- B. Isolate dissimilar metals where indicated on the Drawings with grommets, bushings, or coatings as appropriate.
- C. Touch-up damaged paint surfaces with touch-up paint provided.

3.3 CLEANING

- A. Reference Division 01 for cleaning and waste management.
- B. Clean soiled surfaces and cables using a mild detergent and warm water solution with soft clean cloths.
- C. Clean cables thoroughly using synthetic scotch type pads and hot soapy water (or denatured alcohol) to remove residual lubricants; rinse thoroughly with clear water and wipe dry.

END OF SECTION 055214

SECTION 211313 - WET-PIPE SPRINKLER SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Pipes, fittings, and specialties.
 - 2. Fire-protection valves.
 - 3. Fire-department connections.
 - 4. Sprinklers.
 - 5. Excess-pressure pumps.
 - 6. Alarm devices.
 - 7. Manual control stations.
 - 8. Control panels.
 - 9. Pressure gages.
- B. Related Sections:
 - 1. Division 23 Section "Mechanical and Electrical Vibration, Sound and Seismic Controls".

1.3 DEFINITIONS

- A. AHJ: Authority having jurisdiction.
- B. FSSSS: Fire sprinkler system specification sheet.
- C. High-Pressure Sprinkler Piping: Wet-pipe sprinkler system piping designed to operate at working pressure higher than standard 175 psig, but not higher than 250 psig.
- D. Standard-Pressure Sprinkler Piping: Wet-pipe sprinkler system piping designed to operate at working pressure of 175 psig maximum.

1.4 SYSTEM DESCRIPTIONS

- A. Wet-Pipe Sprinkler System: Automatic sprinklers are attached to piping containing water and that is connected to water supply through alarm valve. Water discharges immediately from sprinklers when they are opened. Sprinklers open when heat melts fusible link or destroys frangible device. Hose connections are included if indicated.

1.5 PERFORMANCE REQUIREMENTS

- A. Standard-Pressure Piping System Component: Listed for 175-psig minimum working pressure.
- B. Delegated Design: Design sprinkler system(s), including comprehensive engineering

analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

1. For design data refer to the Fire Sprinkler System Specification Sheets (FSSSS) provided.
- C. Sprinkler system design shall be approved by authority having jurisdiction.
- D. Seismic Performance: Sprinkler piping shall withstand the effects of earthquake motions determined according to NFPA 13 and ASCE/SEI 7.

1.6 SUBMITTALS

- A. Submittal Transmittal: Include the following information on the shop drawing transmittal sheet.
1. The square footage of the largest floor.
 2. The number of stories.
 3. Contact information for the general contractor to include;
 - a. Contact name.
 - b. Company name.
 - c. Mailing address.
- B. Product Data: For each type of product indicated. [Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.]
1. Wiring Diagrams: For power, signal, and control wiring.
- C. Shop Drawings: Comply with NFPA 13.
- D. Hydraulic calculations: Perform hydraulic calculations based on the fire hydrant flow test data provided on the FSSSS.
- E. Coordination Drawings: Sprinkler systems, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
1. Building structure.
 2. Piping systems.
 3. Duct systems.
 4. Ceiling grid systems.
 5. Items penetrating finished ceiling include the following:
 - a. Lighting fixtures.
 - b. Air outlets and inlets.
- F. Field Test Reports and Certificates: Indicate and interpret test results for compliance with performance requirements and as described in NFPA 13. Include "Contractor's Material and Test Certificate for Aboveground Piping."
- G. Field quality-control reports.
- H. Operation and Maintenance Data: For sprinkler specialties to include in emergency, operation, and maintenance manuals.
- I. Samples: Submit one sample sprinkler head for each type and finish of sprinkler head to

be provided.

1.7 QUALITY ASSURANCE

- A. Installer Responsibility:
 - 1. Installer's responsibilities include designing, fabricating, and installing sprinkler systems. Base calculations on results of fire-hydrant flow test found on the FSSSS provided in the project manual.
- B. Engineering Responsibility:
 - 1. Shop drawings shall bear the company name, license number, and qualifying signature of the designer who prepared them.
- C. Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- E. Codes, Standards and Regulations: Sprinkler system equipment, specialties, accessories, installation, and testing shall comply with applicable sections of the following codes, standards and regulations.
 - 1. NFPA 13 (2010)
 - 2. NFPA 25 (2008)
 - 3. NFPA 70 (2008)
 - 4. NFPA 72 (2007)
 - 5. NFPA 101 (2009)
 - 6. The State of South Carolina Code of laws Title 40 Chapter 10
 - 7. LLR Office of the State Fire Marshal Policy Memorandums
 - 8. ICC IBC (2009)
 - 9. ICC IBC (2009)

1.8 COORDINATION

- A. Coordinate layout and installation of sprinklers with other construction that penetrates ceilings, including light fixtures, HVAC equipment, and partition assemblies.

1.9 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Sprinkler Cabinets: Finished, wall-mounted, steel cabinet with hinged cover, and with space for minimum of six spare sprinklers plus sprinkler wrench. Include number of sprinklers required by NFPA 13 and sprinkler wrench. Include separate cabinet with sprinklers and wrench for each type of sprinkler used on Project.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

- A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, and

fitting materials, and for joining methods for specific services, service locations, and pipe sizes.

2.2 STEEL PIPE AND FITTINGS

- A. Schedule 40, Standard Weight, Black-Steel Pipe: ASTM A 53/A 53M, Type E, Grade B, 2-inch and smaller. Pipe ends may be factory or field formed to match joining method.
- B. Schedule 10, Black Steel Pipe: ASTM A 135 or ASTM A 795/A 795M, Schedule 10, 2 ½ inch and larger.
- C. Black-Steel Pipe Nipples: ASTM A 733, made of ASTM A 53/A 53M, standard-weight, seamless steel pipe with threaded ends.
- D. Uncoated, Steel Couplings: ASTM A 865, threaded.
- E. Uncoated, Gray-Iron Threaded Fittings: ASME B16.4, Class 125, standard pattern.
- F. Malleable- or Ductile-Iron Unions: UL 860.
- G. Cast-Iron Flanges: ASME 16.1, Class 125.
- H. Steel Flanges and Flanged Fittings: ASME B16.5, Class 150.
- I. Steel Welding Fittings: ASTM A 234/A 234M and ASME B16.9.
- J. Grooved-Joint, Steel-Pipe Appurtenances:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Anvil International, Inc.
 - b. Corcoran Piping System Co.
 - c. National Fittings, Inc.
 - d. Shurjoint Piping Products.
 - e. Tyco Fire & Building Products LP.
 - f. Victaulic Company.
 - 2. Pressure Rating: 175 psig minimum.
 - 3. Painted, Grooved-End Fittings for Steel Piping: ASTM A 47/A 47M, malleable-iron casting or ASTM A 536, ductile-iron casting; with dimensions matching steel pipe.

2.3 PIPING JOINING MATERIALS

- A. Pipe-Flange Gasket Materials: ASME B16.21, nonmetallic and asbestos free.
 - 1. Class 125, Cast-Iron Flanges and Class 150, Bronze Flat-Face Flanges: Full-face gaskets.
- B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.
- C. Welding Filler Metals: Comply with AWS D10.12M/D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

2.4 PIPE SUPPORTS AND SEISMIC BRACING

- A. Pipe supports shall comply with NFPA 13. Only supports comprised of UL listed components shall be acceptable.
- B. Seismic bracing shall comply with NFPA 13 and IBC. Only seismic braces comprised of UL listed components shall be acceptable.

2.5 COVER SYSTEM FOR SPRINKLER PIPING

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. DecoShield Systems, Inc.
- B. Description: System of support brackets and covers made to protect sprinkler piping.
- C. Brackets: Glass-reinforced nylon.

2.6 LISTED FIRE-PROTECTION VALVES

- A. General Requirements:
 - 1. Valves shall be UL listed or FM approved.
 - 2. Minimum Pressure Rating for Standard-Pressure Piping: 175 psig.
- B. Ball Valves:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Anvil International, Inc.
 - b. Victaulic Company.
 - 2. Standard: UL 1091 except with ball instead of disc.
 - 3. Valves NPS 1-1/2 and Smaller: Bronze body with threaded ends.
 - 4. Valves NPS 2 and NPS 2-1/2: Bronze body with threaded ends or ductile-iron body with grooved ends.
 - 5. Valves NPS 3: Ductile-iron body with grooved ends.
- C. Iron Butterfly Valves:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Anvil International, Inc.
 - b. Fivalco Inc.
 - c. Global Safety Products, Inc.
 - d. Kennedy Valve; a division of McWane, Inc.
 - e. Milwaukee Valve Company.
 - f. NIBCO INC.
 - g. Pratt, Henry Company.
 - h. Shurjoint Piping Products.
 - i. Tyco Fire & Building Products LP.
 - j. Victaulic Company.
 - 2. Standard: UL 1091.
 - 3. Pressure Rating: 175 psig.

4. Body Material: Cast or ductile iron.
5. Style: Lug or wafer.
6. End Connections: Grooved.

D. Check Valves:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. AFAC Inc.
 - b. American Cast Iron Pipe Company; Waterous Company Subsidiary.
 - c. Anvil International, Inc.
 - d. Clow Valve Company; a division of McWane, Inc.
 - e. Crane Co.; Crane Valve Group; Crane Valves.
 - f. Crane Co.; Crane Valve Group; Jenkins Valves.
 - g. Crane Co.; Crane Valve Group; Stockham Division.
 - h. Fire-End & Croker Corporation.
 - i. Fire Protection Products, Inc.
 - j. Fivalco Inc.
 - k. Globe Fire Sprinkler Corporation.
 - l. Groeniger & Company.
 - m. Kennedy Valve; a division of McWane, Inc.
 - n. Matco-Norca.
 - o. Metraflex, Inc.
 - p. Milwaukee Valve Company.
 - q. Mueller Co.; Water Products Division.
 - r. NIBCO INC.
 - s. Potter Roemer.
 - t. Reliable Automatic Sprinkler Co., Inc.
 - u. Shurjoint Piping Products.
 - v. Tyco Fire & Building Products LP.
 - w. United Brass Works, Inc.
 - x. Venus Fire Protection Ltd.
 - y. Victaulic Company.
 - z. Viking Corporation.
 - aa. Watts Water Technologies, Inc.
2. Standard: UL 312.
3. Pressure Rating: 250 psig minimum.
4. Type: Swing check.
5. Body Material: Cast iron.
6. End Connections: Flanged or grooved.

E. Bronze OS&Y Gate Valves:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Crane Co.; Crane Valve Group; Crane Valves.
 - b. Crane Co.; Crane Valve Group; Stockham Division.
 - c. Milwaukee Valve Company.
 - d. NIBCO INC.
 - e. United Brass Works, Inc.
2. Standard: UL 262.
3. Pressure Rating: 175 psig.
4. Body Material: Bronze.
5. End Connections: Threaded.

F. Iron OS&Y Gate Valves:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Cast Iron Pipe Company; Waterous Company Subsidiary.
 - b. American Valve, Inc.
 - c. Clow Valve Company; a division of McWane, Inc.
 - d. Crane Co.; Crane Valve Group; Crane Valves.
 - e. Crane Co.; Crane Valve Group; Jenkins Valves.
 - f. Crane Co.; Crane Valve Group; Stockham Division.
 - g. Hammond Valve.
 - h. Milwaukee Valve Company.
 - i. Mueller Co.; Water Products Division.
 - j. NIBCO INC.
 - k. Shurjoint Piping Products.
 - l. Tyco Fire & Building Products LP.
 - m. United Brass Works, Inc.
 - n. Watts Water Technologies, Inc.
2. Standard: UL 262.
3. Pressure Rating: 250 psig minimum.
4. Body Material: Cast or ductile iron.
5. End Connections: Flanged or grooved.

2.7 TRIM AND DRAIN VALVES

A. General Requirements:

1. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
2. Pressure Rating: 175 psig minimum.

B. Ball Valves:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Affiliated Distributors.
 - b. Anvil International, Inc.
 - c. Barnett.
 - d. Conbraco Industries, Inc.; Apollo Valves.
 - e. Fire-End & Croker Corporation.
 - f. Fire Protection Products, Inc.
 - g. Flowserve.
 - h. FNW.
 - i. Jomar International, Ltd.
 - j. Kennedy Valve; a division of McWane, Inc.
 - k. Kitz Corporation.
 - l. Legend Valve.
 - m. Metso Automation USA Inc.
 - n. Milwaukee Valve Company.
 - o. NIBCO INC.
 - p. Potter Roemer.
 - q. Red-White Valve Corporation.
 - r. Southern Manufacturing Group.
 - s. Stewart, M. A. and Sons Ltd.
 - t. Tyco Fire & Building Products LP.
 - u. Victaulic Company.

- v. Watts Water Technologies, Inc.

2.8 SPECIALTY VALVES

A. General Requirements:

1. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
2. Pressure Rating:
 - a. Standard-Pressure Piping Specialty Valves: 175 psig minimum.
3. Body Material: Cast or ductile iron.
4. Size: Same as connected piping.
5. End Connections: Flanged or grooved.

B. Alarm Valves:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. AFAC Inc.
 - b. Globe Fire Sprinkler Corporation.
 - c. Reliable Automatic Sprinkler Co., Inc.
 - d. Tyco Fire & Building Products LP.
 - e. Venus Fire Protection Ltd.
 - f. Victaulic Company.
 - g. Viking Corporation.
2. Standard: UL 193.
3. Design: For horizontal or vertical installation.
4. Include trim sets for bypass, drain, electrical sprinkler alarm switch, pressure gages, retarding chamber, and fill-line attachment with strainer.
5. Drip Cup Assembly: Pipe drain without valves and separate from main drain piping.
6. Drip Cup Assembly: Pipe drain with check valve to main drain piping.

C. Automatic (Ball Drip) Drain Valves:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. AFAC Inc.
 - b. Reliable Automatic Sprinkler Co., Inc.
 - c. Tyco Fire & Building Products LP.
2. Standard: UL 1726.
3. Pressure Rating: 175 psig minimum.
4. Type: Automatic draining, ball check.
5. Size: NPS 3/4.
6. End Connections: Threaded.

2.9 FIRE-DEPARTMENT CONNECTIONS

A. Exposed-Type, Fire-Department Connection:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. AFAC Inc.
 - b. Elkhart Brass Mfg. Company, Inc.
 - c. Fire-End & Croker Corporation.
 - d. Fire Protection Products, Inc.

- e. GMR International Equipment Corporation.
- f. Guardian Fire Equipment, Inc.
- g. Tyco Fire & Building Products LP.
- h. Wilson & Cousins Inc.
- 2. Standard: UL 405.
- 3. Type: Exposed, projecting, for wall mounting.
- 4. Pressure Rating: 175 psig minimum.
- 5. Body Material: Corrosion-resistant metal.
- 6. Inlets: Brass with threads according to NFPA 1963 and matching local fire-department sizes and threads. Include extension pipe nipples, brass lugged swivel connections, and check devices or clappers.
- 7. Caps: Brass, lugged type, with gasket and chain.
- 8. Escutcheon Plate: Round, brass, wall type.
- 9. Outlet: Back, with pipe threads.
- 10. Number of Inlets: Three.
- 11. Escutcheon Plate Marking: Similar to "AUTO SPKR."
- 12. Finish: Rough brass or bronze.
- 13. Outlet Size: NPS 4.

2.10 SPRINKLER SPECIALTY PIPE FITTINGS

A. Branch Outlet Fittings:

- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:
 - a. Anvil International, Inc.
 - b. National Fittings, Inc.
 - c. Shurjoint Piping Products.
 - d. Tyco Fire & Building Products LP.
 - e. Victaulic Company.
- 2. Standard: UL 213.
- 3. Pressure Rating: 175 psig minimum.
- 4. Body Material: Ductile-iron housing with EPDM seals and bolts and nuts.
- 5. Type: Mechanical-T and -cross fittings.
- 6. Configurations: Snap-on and strapless, ductile-iron housing with branch outlets.
- 7. Size: Of dimension to fit onto sprinkler main and with outlet connections as required to match connected branch piping.
- 8. Branch Outlets: Grooved, plain-end pipe, or threaded.

B. Flow Detection and Test Assemblies:

- 1. Manufacturers: Subject to compliance with requirements, [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:
 - a. AGF Manufacturing Inc.
 - b. Reliable Automatic Sprinkler Co., Inc.
 - c. Tyco Fire & Building Products LP.
 - d. Victaulic Company.
- 2. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
- 3. Pressure Rating: 175 psig minimum.
- 4. Body Material: Cast- or ductile-iron housing with orifice, sight glass, and integral test valve.
- 5. Size: Same as connected piping.
- 6. Inlet and Outlet: Threaded.

- C. Branch Line Testers:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Elkhart Brass Mfg. Company, Inc.
 - b. Fire-End & Croker Corporation.
 - c. Potter Roemer.
 2. Standard: UL 199.
 3. Pressure Rating: 175 psig.
 4. Body Material: Brass.
 5. Size: Same as connected piping.
 6. Inlet: Threaded.
 7. Drain Outlet: Threaded and capped.
 8. Branch Outlet: Threaded, for sprinkler.
- D. Sprinkler Inspector's Test Fittings:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. AGF Manufacturing Inc.
 - b. Triple R Specialty.
 - c. Tyco Fire & Building Products LP.
 - d. Victaulic Company.
 - e. Viking Corporation.
 2. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
 3. Pressure Rating: 175 psig minimum.
 4. Body Material: Cast- or ductile-iron housing with sight glass.
 5. Size: Same as connected piping.
 6. Inlet and Outlet: Threaded.
- E. Adjustable Drop Nipples:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. CECA, LLC.
 - b. Corcoran Piping System Co.
 - c. Merit Manufacturing; a division of Anvil International, Inc.
 2. Standard: UL 1474.
 3. Pressure Rating: 250 psig minimum.
 4. Body Material: Steel pipe with EPDM-rubber O-ring seals.
 5. Size: Same as connected piping.
 6. Length: Adjustable.
 7. Inlet and Outlet: Threaded.
- F. Flexible, Sprinkler Hose Fittings:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Fivalco Inc.
 - b. FlexHead Industries, Inc.
 - c. Gateway Tubing, Inc.
 2. Standard: UL 1474.
 3. Type: Flexible hose for connection to sprinkler, and with bracket for connection to ceiling grid.

4. Pressure Rating: 175 psig minimum.
5. Size: Same as connected piping, for sprinkler.

2.11 SPRINKLERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. AFAC Inc.
 2. Globe Fire Sprinkler Corporation.
 3. Reliable Automatic Sprinkler Co., Inc.
 4. Tyco Fire & Building Products LP.
 5. Venus Fire Protection Ltd.
 6. Victaulic Company.
 7. Viking Corporation.
- B. General Requirements:
 1. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
 2. Pressure Rating for Residential Sprinklers: 175 psig maximum.
 3. Pressure Rating for Automatic Sprinklers: 175 psig minimum.
 4. Pressure Rating for High-Pressure Automatic Sprinklers: 250 psig minimum.
- C. Automatic Sprinklers with Heat-Responsive Element:
 1. Nonresidential Applications: UL 199.
- D. Open Sprinklers with Heat-Responsive Element Removed: UL 199.
 1. Characteristics:
 - a. Nominal 1/2-inch Orifice: With Discharge Coefficient K between 5.3 and 5.8.
 - b. Nominal 17/32-inch Orifice: With Discharge Coefficient K between 7.4 and 8.2.
- E. Sprinkler Finishes:
 1. Chrome plated.
 2. Bronze.
 3. Painted.
- F. Special Coatings:
 1. Wax.
 2. Lead.
 3. Corrosion-resistant paint.
- G. Sprinkler Escutcheons: Materials, types, and finishes for the following sprinkler mounting applications. Escutcheons for concealed, flush, and recessed-type sprinklers are specified with sprinklers.
 1. Ceiling Mounting: Chrome-plated steel, one piece, flat, with 1-inch vertical adjustment.
 2. Sidewall Mounting: Chrome-plated steel, one piece, flat.
- H. Sprinkler Guards:
 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Reliable Automatic Sprinkler Co., Inc.
 - b. Tyco Fire & Building Products LP.

- c. Victaulic Company.
- d. Viking Corporation.
- 2. Standard: UL 199.
- 3. Type: Wire cage with fastening device for attaching to sprinkler.

2.12 ALARM DEVICES

- A. Alarm-device types shall match piping and equipment connections.
- B. Water-Motor-Operated Alarm:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Globe Fire Sprinkler Corporation.
 - b. Tyco Fire & Building Products LP.
 - c. Victaulic Company.
 - d. Viking Corporation.
 - 2. Standard: UL 753.
 - 3. Type: Mechanically operated, with Pelton wheel.
 - 4. Alarm Gong: Cast aluminum with red-enamel factory finish.
 - 5. Size: 10-inch diameter.
 - 6. Components: Shaft length, bearings, and sleeve to suit wall construction.
 - 7. Inlet: NPS 3/4.
 - 8. Outlet: NPS 1 drain connection.
- C. Water-Flow Indicators:
 - 1. Manufacturers: Subject to compliance with requirements, [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ADT Security Services, Inc.
 - b. McDonnell & Miller; ITT Industries.
 - c. Potter Electric Signal Company.
 - d. System Sensor; a Honeywell company.
 - e. Viking Corporation.
 - f. Watts Industries (Canada) Inc.
 - 2. Standard: UL 346.
 - 3. Water-Flow Detector: Electrically supervised.
 - 4. Components: Two single-pole, double-throw circuit switches for isolated alarm and auxiliary contacts, 7 A, 125-V ac and 0.25 A, 24-V dc; complete with factory-set, field-adjustable retard element to prevent false signals and tamperproof cover that sends signal if removed.
 - 5. Type: Paddle operated.
 - 6. Pressure Rating: 250 psig.
 - 7. Design Installation: Horizontal or vertical.
- D. Pressure Switches:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. AFAC Inc.
 - b. Barksdale, Inc.
 - c. Detroit Switch, Inc.
 - d. Potter Electric Signal Company.
 - e. System Sensor; a Honeywell company.

- f. Tyco Fire & Building Products LP.
 - g. United Electric Controls Co.
 - h. Viking Corporation.
 - 2. Standard: UL 346.
 - 3. Type: Electrically supervised water-flow switch with retard feature.
 - 4. Components: Single-pole, double-throw switch with normally closed contacts.
 - 5. Design Operation: Rising pressure signals water flow.
- E. Valve Supervisory Switches:
- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Fire-Lite Alarms, Inc.; a Honeywell company.
 - b. Kennedy Valve; a division of McWane, Inc.
 - c. Potter Electric Signal Company.
 - d. System Sensor; a Honeywell company.
 - 2. Standard: UL 346.
 - 3. Type: Electrically supervised.
 - 4. Components: Single-pole, double-throw switch with normally closed contacts.
 - 5. Design: Signals that controlled valve is in other than fully open position.
- F. Indicator-Post Supervisory Switches:
- 1. Manufacturers: Subject to compliance with requirements, [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:
 - a. Potter Electric Signal Company.
 - b. System Sensor; a Honeywell company.
 - 2. Standard: UL 346.
 - 3. Type: Electrically supervised.
 - 4. Components: Single-pole, double-throw switch with normally closed contacts.
 - 5. Design: Signals that controlled indicator-post valve is in other than fully open position.

2.13 MANUAL CONTROL STATIONS

- A. Description: UL listed or FM approved, hydraulic operation, with union, NPS 1/2 pipe nipple, and bronze ball valve. Include metal enclosure labeled "MANUAL CONTROL STATION" with operating instructions and cover held closed by breakable strut to prevent accidental opening.

2.14 PRESSURE GAGES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. AMETEK; U.S. Gauge Division.
 - 2. Ashcroft, Inc.
 - 3. Brecco Corporation.
 - 4. WIKA Instrument Corporation.
- B. Standard: UL 393.
- C. Dial Size: 3-1/2- to 4-1/2-inch diameter.

- D. Pressure Gage Range: 0 to 250 psig minimum.
- E. Water System Piping Gage: Include "WATER" or "AIR/WATER" label on dial face.
- F. Air System Piping Gage: Include retard feature and "AIR" or "AIR/WATER" label on dial face.

2.15 ESCUTCHEONS

- A. General: Manufactured ceiling, floor, and wall escutcheons and floor plates.
- B. One-Piece, Cast-Brass Escutcheons: Polished chrome-plated finish with set-screws.
- C. One-Piece, Deep-Pattern Escutcheons: Deep-drawn, box-shaped brass with chrome-plated finish.
- D. One-Piece, Stamped-Steel Escutcheons: Chrome-plated finish with set-screw or spring clips.
- E. Split-Casting, Cast-Brass Escutcheons: Polished chrome-plated finish with concealed hinge and set-screw.
- F. Split-Plate, Stamped-Steel Escutcheons: Chrome-plated finish with concealed hinge, set-screw or spring clips.
- G. One-Piece Floor Plates: Cast-iron flange with holes for fasteners.
- H. Split-Casting Floor Plates: Cast brass with concealed hinge.

2.16 SLEEVES

- A. Steel-Pipe Sleeves: ASTM A 53/A 53M, Type E, standard weight, zinc coated, plain ends.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Refer to the FSSSS.

3.2 SERVICE-ENTRANCE PIPING

- A. Connect sprinkler piping to water-service piping for service entrance to building. Refer to civil drawings for point of connection.
- B. Install shutoff valve, check valve, pressure gage, and drain at connection to water service.

3.3 PIPING INSTALLATION

- A. Locations and Arrangements: Drawing plans, schematics, and diagrams indicate general

location and arrangement of piping. Install piping as indicated, as far as practical.

1. Deviations from approved working plans for piping require written approval from authorities having jurisdiction. File written approval with Architect before deviating from approved working plans.
- B. Piping Standard: Comply with requirements for installation of sprinkler piping in NFPA 13.
- C. Install seismic restraints on piping. Comply with requirements for seismic-restraint device materials and installation in NFPA 13.
- D. Use listed fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.
- E. Install unions adjacent to each valve in pipes NPS 2 and smaller.
- F. Install flanges, flange adapters, or couplings for grooved-end piping on valves, apparatus, and equipment having NPS 2-1/2 and larger end connections.
- G. Install "Inspector's Test Connections" in sprinkler system piping, complete with shutoff valve, and sized and located according to NFPA 13.
- H. Install sprinkler piping with drains for complete system drainage.
- I. Install sprinkler control valves, test assemblies, and drain risers adjacent to standpipes when sprinkler piping is connected to standpipes.
- J. Install automatic (ball drip) drain valve at each check valve for fire-department connection, to drain piping between fire-department connection and check valve. Install drain piping to and spill over floor drain or to outside building.
- K. Install alarm devices in piping systems.
- L. Install hangers and supports for sprinkler system piping according to NFPA 13. Comply with requirements for hanger materials in NFPA 13.
- M. Install pressure gages on riser or feed main, at each sprinkler test connection, and at top of each standpipe. Include pressure gages with connection not less than NPS 1/4 and with soft metal seated globe valve, arranged for draining pipe between gage and valve. Install gages to permit removal, and install where they will not be subject to freezing.
- N. Fill sprinkler system piping with water.

3.4 JOINT CONSTRUCTION

- A. Install couplings, flanges, flanged fittings, unions, nipples, and transition and special fittings that have finish and pressure ratings same as or higher than system's pressure rating for aboveground applications unless otherwise indicated.
- B. Install unions adjacent to each valve in pipes NPS 2 and smaller.
- C. Install flanges, flange adapters, or couplings for grooved-end piping on valves, apparatus,

and equipment having NPS 2-1/2 and larger end connections.

- D. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- E. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.
- F. Flanged Joints: Select appropriate gasket material in size, type, and thickness suitable for water service. Join flanges with gasket and bolts according to ASME B31.9.
- G. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.
- H. Welded Joints: Construct joints according to AWS D10.12M/D10.12, using qualified processes and welding operators according to "Quality Assurance" Article.
 - 1. Shop weld pipe joints where welded piping is indicated. Do not use welded joints for galvanized-steel pipe.
- I. Steel-Piping, Cut-Grooved Joints: Cut square-edge groove in end of pipe according to AWWA C606. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings according to AWWA C606 for steel-pipe joints.
- J. Steel-Piping, Roll-Grooved Joints: Roll rounded-edge groove in end of pipe according to AWWA C606. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings according to AWWA C606 for steel-pipe grooved joints.

3.5 VALVE AND SPECIALTIES INSTALLATION

- A. Install listed fire-protection valves, trim and drain valves, specialty valves and trim, controls, and specialties according to NFPA 13 and authorities having jurisdiction.
- B. Install listed fire-protection shutoff valves supervised open, located to control sources of water supply except from fire-department connections. Install permanent identification signs indicating portion of system controlled by each valve.
- C. Install check valve in each water-supply connection. Install backflow preventers instead of check valves in potable-water-supply sources.

3.6 SPRINKLER INSTALLATION

- A. Install sprinklers in suspended ceilings in center of narrow dimension of acoustical ceiling panels.
- B. Install dry-type sprinklers with water supply from heated space. Do not install pendent or sidewall, wet-type sprinklers in areas subject to freezing.
- C. Install sprinklers into flexible, sprinkler hose fittings and install hose into bracket on ceiling

grid.

3.7 FIRE-DEPARTMENT CONNECTION INSTALLATION

- A. Install wall-type, fire-department connections.
- B. Install automatic (ball drip) drain valve at each check valve for fire-department connection.

3.8 ESCUTCHEON INSTALLATION

- A. Install escutcheons for penetrations of walls, ceilings, and floors.
- B. Escutcheons for New Piping:
 - 1. Piping with Fitting or Sleeve Protruding from Wall: One piece, deep pattern.
 - 2. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One piece, cast brass with polished chrome-plated finish.
 - 3. Bare Piping at Ceiling Penetrations in Finished Spaces: One piece, cast brass with polished chrome-plated finish.
 - 4. Bare Piping in Unfinished Service Spaces: One piece, cast brass with polished chrome-plated finish.
 - 5. Bare Piping in Equipment Rooms: One piece, cast brass.
 - 6. Bare Piping at Floor Penetrations in Equipment Rooms: One-piece floor plate.

3.9 SLEEVE INSTALLATION

- A. General Requirements: Install sleeves for pipes and tubes passing through penetrations in floors, partitions, roofs, and walls.
- B. Sleeves are not required for core-drilled holes.
- C. Permanent sleeves are not required for holes formed by removable PE sleeves.
- D. Cut sleeves to length for mounting flush with both surfaces unless otherwise indicated.
- E. Install sleeves in new partitions, slabs, and walls as they are built.
- F. For interior wall penetrations, seal annular space between sleeve and pipe or pipe insulation using joint sealants appropriate for size, depth, and location of joint. Comply with requirements for joint sealants in Division 07 Section "Joint Sealants."
- G. For exterior wall penetrations above grade, seal annular space between sleeve and pipe using joint sealants appropriate for size, depth, and location of joint. Comply with requirements for joint sealants in Division 07 Section "Joint Sealants."
- H. For exterior wall penetrations below grade, seal annular space between sleeve and pipe using sleeve seals.
- I. Seal space outside of sleeves in concrete slabs and walls with grout.
- J. Annular space shall comply with NFPA 13 9.3.2 unless flexible couplings are provided in accordance with NFPA 13 9.3.4.5.

- K. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestop materials and installations in Division 07 Section "Penetration Firestopping."

3.10 IDENTIFICATION

- A. Install labeling and pipe markers on equipment and piping according to requirements in NFPA 13.
- B. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.11 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
 - 1. Leak Test: After installation, charge systems and test for leaks. Repair leaks and retest until no leaks exist.
 - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
 - 3. Flush, test, and inspect sprinkler systems according to NFPA 13, "Systems Acceptance" Chapter.
 - 4. Energize circuits to electrical equipment and devices.
 - 5. Start and run excess-pressure pumps.
 - 6. Coordinate with fire-alarm tests. Operate as required.
 - 7. Coordinate with fire-pump tests. Operate as required.
 - 8. Verify that equipment hose threads are same as local fire-department equipment.
- C. Sprinkler piping system will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

3.12 CLEANING

- A. Clean dirt and debris from sprinklers.
- B. Remove and replace sprinklers with paint other than factory finish.

3.13 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain specialty valves.

3.14 PIPING SCHEDULE

- A. Piping between Fire-Department Connections and Check Valves: Galvanized, standard-weight steel pipe with threaded ends; cast-iron threaded fittings; and threaded joints.
- B. Sprinkler specialty fittings may be used, downstream of control valves, instead of specified

fittings.

- C. Copper-tube, extruded-tee connections may be used for tee branches in copper tubing instead of specified copper fittings. Branch-connection joints must be brazed.
- D. Standard-pressure, wet-pipe sprinkler system, NPS 2 and smaller, shall be the following:
 - 1. Standard-weight, black-steel pipe with threaded ends; uncoated, gray-iron threaded fittings; and threaded joints.
- E. Standard-pressure, wet-pipe sprinkler system, NPS 2-1/2 and larger, shall be the following:
 - 1. Schedule 10, black-steel pipe with roll-grooved ends; uncoated, grooved-end fittings for steel piping; grooved-end-pipe couplings for steel piping; and grooved joints.

3.15 SPRINKLER SCHEDULE

- A. Use sprinkler types in subparagraphs below for the following applications:
 - 1. Rooms without Ceilings: Upright sprinklers.
 - 2. Rooms with Suspended Ceilings: Pendent sprinklers.
 - 3. Wall Mounting: Sidewall sprinklers.
 - 4. Spaces Subject to Freezing: Upright, pendent, dry sprinklers; and sidewall, dry sprinklers as indicated.
- B. Provide sprinkler types in subparagraphs below with finishes indicated.
 - 1. Upright, Pendent, and Sidewall Sprinklers: Chrome plated in finished spaces exposed to view; rough bronze in unfinished spaces not exposed to view; wax coated where exposed to acids, chemicals, or other corrosive fumes.

END OF SECTION 211313



Fire Sprinkler System Specification Sheet

(Per §40-10-250)



Project Data

Project name: St. Helena Branch Library at Penn Center

Location in South Carolina: Address (street # & street name): Penn Center Road, Saint Helena Island, 29920 State project: ☐ Yes ☒ No
City: Saint Helena Island County: Beaufort State project #:

Water Supply Information

(flow test data must be less than 1 year old per §40-10-250(A)(1))

Date test conducted: 06 / 22 / 2011 Static pressure (psi): 60 Residual pressure (psi): 32 Flow (gpm): 887

Distances of test gauges relative to the base of the riser: Horizontal (ft): 1060 Vertical (elevation difference in ft): -7
Hydrant SH1256 Base of riser higher than test

Source of water supply: ☐ Municipal dead-end ☒ Municipal circulation ☐ Other: Pipe Size (in.): 8

Test data by/from: Name: Title: Organization: BJWSA Telephone #: 843 987 9209

Fire pump: ☒ Yes ☐ No Pump Capacity (gpm): 300 Churn Pressure (psi):
☒ New ☐ Existing Rated Pressure (psi): 50 Pressure @ 150% flow (psi):

On-site storage tank: ☐ Yes ☒ No ☐ New ☐ Existing Tank capacity (gallons):

NFPA Hazard Classification

(attach continuation page when necessary)

Area #	Class or Code Reference	Description of Hazard Protected (commodity description, storage height, and arrangement as applicable.)
1	Light Hazard	Offices, Conference, Meeting Room, Librarian, Restrooms, Lockers, Lounges, Story Hour, Gullah/Geechee, Collections/Seating, Computer, Vending, Cafe
2	Ordinary Hazard Group 1	Storage, Mechanical, Electrical
3	Ordinary Hazard Group 2	Mat'l's Return/Sort, Receiving/Holding, Processing Workroom
4	Ordinary Hazard Group 2	Book Drop/Lift, Book Drop Canopy

Design Parameters

(attach continuation page when necessary)

Area #	System Type	Density (gpm/ft ²) / Area (ft ²) or Other (reference code section)	Inside Hose (gpm)	Outside Hose (gpm)
1	Automatic Wet	0.1 / 1500	0	100
2	Automatic Wet	0.15 / 1500	0	250
3	Automatic Wet	0.2 / 1500	0	250
4	Automatic Wet with Dry Sprinklers	0.2 / 1500	0	250

Seismic Design Data: $S_s=0.732$ Centroid Short Period

Codes and Standards

(attach continuation page when necessary)

Applicable Codes, Standards & Editions (i.e. "2006 IBC", "2007 NFPA 13", etc.) for the Scope of Work on the Sprinkler System

NFPA 13(2010), NFPA 20(2010), NFPA 24(2010), ICC IBC(2009), ICC IFC(2009)

Scope of work (such as sprinkler system A.G. from 1'-0" A.F.F., U.G. from tap to 5'-0" outside, etc.) and notes (attach continuation page when necessary):
Above ground fire sprinkler work including pipe trench and to 5 feet outside building footprint. Sprinkler coverage required within and above Story Hour/Teen Lounge. Refer to Architectural RCP for cloud ceiling features in Children's Computer and Preschool Reading areas. Aesthetic considerations. Refer to plan view for approximate branch main routing. Exposed sprinkler piping shall be unobtrusive.

Specifier's Information

Name: Todd E. Smith, P.E.
Engineering services provided through a firm: ☒ Yes ☐ No
Firm name: RMF Engineering, Inc.
Address: 474 Wando Park Boulevard, Suite 100
City: Mount Pleasant
State: South Carolina Zip: 29464
Phone #: 843 971 9639 Fax #: 843 971 9641
E-mail: tsmith@rmf.com



Hydrant Flow Test Summary Report

6/23/2011
10:32 AM

Hydrant	Number	Street	Cross St	Fire District	Test Date	Static	Residual	Pitot	TotalGPM	GPM20	Type
SH1256	11			Saint Helena Island	6/22/2011	60.00	32.00	28	887	1075	Single Hydrant

SECTION 237433 - DEDICATED OUTDOOR-AIR UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes factory-packaged units capable of supplying up to 100 percent outdoor air.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include rated capacities, operating characteristics, and furnished specialties and accessories.
- B. LEED Submittals:
 - 1. Product Data for Prerequisite EA 2: Documentation indicating that units comply with applicable requirements in ASHRAE/IESNA 90.1.
 - 2. Product Data for Prerequisite EA 3: Documentation indicating that refrigerants comply.
 - 3. Product Data for Credit EA 4: Documentation indicating that equipment and refrigerants comply.
 - 4. Product Data for Prerequisite IEQ 1: Documentation indicating that units comply with ASHRAE 62.1, Section 5 - "Systems and Equipment."
 - 5. Product Data for Credit IEQ 1: Documentation indicating that units are equipped with a direct outdoor airflow-measuring device capable of measuring the minimum outdoor airflow with accuracy within 15 percent of the design minimum airflow rate, as defined by ASHRAE 62.1.
 - 6. Product Data for Credit IEQ 4.1: For solvent cements and adhesive primers, documentation including printed statement of VOC content.
 - 7. Laboratory Test Reports for Credit IEQ 4: For solvent cements and adhesive primers, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
 - 8. Product Data for Credit IEQ 5: Documentation indicating that units include MERV 13 filters rated according to ASHRAE 52.2.
- C. Shop Drawings:
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Prepare the following by or under the supervision of a qualified professional engineer:

- a. Mounting Details: For securing and flashing roof curb to roof structure. Indicate coordinating requirements with roof membrane system.
 - b. Include diagrams for power, signal, and control wiring.
- D. Delegated-Design Submittal: For design of [vibration isolation] [seismic restraints] [and] [wind restraints], including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - 1. Unit fabrication and assembly details.
 - 2. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.
 - 3. Design Calculations:
 - a. Calculate requirements for selecting vibration isolators [and seismic restraints] [and wind restraints] and for designing vibration isolation bases.
 - b. Indicate compliance with "Performance Requirements" article.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Roof-curb mounting details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Size and location of unit-mounted rails and anchor points and methods for anchoring units to roof curb.
 - 2. Required roof penetrations for ducts, pipes, and electrical raceways, including size and location of each penetration.
- B. Seismic Qualification Certificates: For dedicated outdoor-air units, accessories, and components, from manufacturer.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- C. Startup service reports.
- D. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For units to include in emergency, operation, and maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fan Belts: [One] <Insert number> set[s] for each belt-driven fan.
2. Filters: [One] <Insert number> set[s] for each unit.

1.7 WARRANTY

- A. AHU manufacturer shall provide at no additional cost a warranty that covers all parts and labor for a period of 1 year from date of start up. This warrants that all products are free from defects in material and workmanship and shall meet the capacities and ratings set forth in the equipment manufacturer's catalog and bulletins.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following:

1. Trane
2. York
3. Carrier

2.2 PERFORMANCE REQUIREMENTS

- A. General Fabrication Requirements: Comply with requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment," and Section 7 - "Construction and System Start-up."
- B. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design vibration isolation and seismic restraints.
- C. Seismic Performance: Units shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 1. The term "withstand" means "the unit will remain in place without separation of any parts when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

1.3 AIR HANDLING UNITS

- A. Unit layout and configuration shall be as defined in project plans and schedule.
- B. Entire unit shall have a full perimeter base rail for structural rigidity and condensate trapping.

2.4 UNIT CASING

- A. Unit manufacturer shall ship separate segments so unit can be broken down for ease of installation in tight spaces. The entire air handler shall be constructed of galvanized steel. Casing finished to meet ASTM B117 250-hour salt-spray test. The removal of access panels or access doors shall not affect the structural integrity of the unit. All removable panels shall be gasketed. All doors shall have gasketing around full perimeter to prevent air leakage.

- B. Casing performance – Casing air leakage shall not exceed leak class 6 ($C_L = 6$) per ASHRAE 111 at specified casing pressure, where maximum casing leakage (cfm/100 ft² of casing surface area) = $C_L \times P^{0.65}$.
- C. Casing performance – Casing air leakage shall not exceed 1% of design airflow at the specified casing pressure.
- D. Air leakage shall be determined at 1.25 times maximum casing static pressure up to 8 inches w.g. Specified air leakage shall be accomplished without the use of caulk. Total estimated air leakage shall be reported for each unit in CFM, as a percentage of supply air, and as an ASHRAE 111 Leakage Class.
- E. Unit shall be manufactured as thermal break construction that ensures that no member on the exterior of the unit assembly has through metal contact with any member on the exterior of the unit.
- F. Factory Thermal Performance Testing: Provide factory thermal performance testing from a certified laboratory under controlled environmental conditions, to provide documentation that the unit shall meet the requirements listed herein. Under 51 °F supply air temperature and design conditions on the exterior of the unit of 80 °F dry bulb and 71 °F wet bulb, with circulating air, condensation shall not form on the casing exterior. The AHU manufacturer shall provide tested casing thermal performance for the scheduled supply air temperature plotted on a psychrometric chart. The design condition on the exterior of the unit shall also be plotted on the chart. Thermal performance data based on anything other than actual tested casing enclosures for each unit will not be accepted. Calculations/Tested data for individual panels only and predicted calculations for unit thermal performance are not acceptable.
 - 1. Instrument calibration shall be traceable to NIST (National Institute of Standards and Technology). Provide a copy of the latest certification report to the engineer.
 - 2. Utilize Multiple Thermo-Couples on the unit casing, including panel faces, panel-to-panel joints, unit corners, panel-to-roof joints, structural members, door hinges, and all seams and joints to measure and record the thermal conductivity of each surface type on the exterior of the entire unit. Utilize two thermo-couples to measure temperature at each location on the exterior of the unit casing and utilize multiple sensing points to control the ambient temperature/dew point temperatures within the test facility.
 - 3. The ambient air conditions within the test facility shall be compensated for air-density at the specific location for the amount of feet above sea level.
 - 4. Redundant measurement devices shall be incorporated to verify test data. Agreement between the calibrated sensors shall confirm the data taken is accurate. These redundant measurements shall be recorded and provided in the test report to show agreement between the calibrated sensors confirms the data taken is accurate. Description of the test facility and location of redundant measuring sensors shall be detailed in the test report.
 - 5. Tolerances: Temperature sensors +/- 0.5%; Dew point +/- 1.0%. Provide documentation validating the units meet the requirements under the above mentioned controlled conditions.
- G. Unit casing (wall/floor/roof panels and doors) shall be able to withstand up to 1.5 times design static pressure, or 8" w.g., whichever is less, and shall not exceed 0.0042" per inch of panel span (L/240).
- H. Unit Acoustical Test Data:
 - 1. Provide factory acoustical testing based on calculated effects from ARI-260 tested units to provide documentation that each unit shall meet the requirements listed herein. Submit sound power levels at the specified External Static Pressure, Total Static Pressure, and Design CFM of each unit. Submit sound power level, L_w , data in decibels for ducted discharge for octave bands of center frequency 63 to 8000 hertz. Data provided in Sones or

- Bels is not acceptable. Submit unit Lw predictions based on actual test data for the unit configurations to be furnished for this project.
2. Tested sound data must be obtained using a ducted reverberant room technique in accordance with ARI 260. The reverberant room shall be qualified in accordance with ANSI-S12.32. Unit predictions obtained from fan sound power levels estimated by the AHSRAE 1991 fan noise prediction algorithm are not acceptable. Predictions based upon AMCA 300-96 coupled with generalized unit "plenum" algorithms are also not acceptable. Submit a description of the acoustic test facility, the test set-up, and the number and type of units tested to develop the sound power database. Submit a certification that the data was developed in accordance with the standards listed above. All sound power levels submitted shall be based upon laboratory test data taken in accordance with ARI-260. Generalized plenum algorithms only predict sound power levels and are not acceptable. Documentation shall be provided to the engineer for each unit. The AHU manufacturer shall provide all equipment and trained personnel to conduct each test.
 3. Unit ducted discharge sound power levels in dB shall be provided for 63, 125, 250, 500, 1000, 2000, 4000, and 8000 Hz in accordance with ARI-260 and shall not exceed 66, 65, 67, 66, 65, 65, 62, and 58, respectively.
- I. Floor panels shall be double-wall construction and designed to support a 250-lb load during maintenance activities and shall deflect no more than 0.0042" per inch of panel span.
 - J. Unit casing panels shall be 2" double-wall construction, with solid galvanized exterior and solid galvanized interior, to facilitate cleaning of unit interior.
 - K. Discharge plenums, where indicated, shall be 4" triple wall construction with perforated acoustic inner liner.
 - L. Unit casing panels (roof, walls, floor) and doors shall be provided with a minimum thermal resistance (R-value) of $13 \text{ Hr} \cdot \text{Ft}^2 \cdot ^\circ\text{F} / \text{BTU}$.
 - M. Unit casing panels (roof, walls, floor) and external structural frame members shall be completely insulated filling the entire panel cavity in all directions so that no voids exist. Panel insulation shall comply with NFPA 90A.
 - N. Casing panel inner liners must not extend to the exterior of the unit or contact the exterior frame. A mid-span, no-through-metal, internal thermal break shall be provided for all unit casing panels.
 - O. Access panels and/or access doors shall be provided in all sections to allow easy access to drain pan, coil(s), motor, drive components and bearings for cleaning, inspection, and maintenance.
 - P. Access panels and doors shall be fully removable without the use of specialized tools to allow complete access of interior surfaces.
 - Q. Traction enhancements shall be applied to the unit floor to improve the walking surface in those unit sections where the floor is fully accessible, and not impeded by internal structural or functional features.

2.5 ACCESS DOORS

- A. Access doors shall be 2" double-wall, thermal break construction. Interior and exterior shall be of the same construction as the interior and exterior wall panels. Gasketing shall be provided around the full perimeter of the doors to prevent air leakage.

- B. Door hardware shall be surface-mounted to prevent through-cabinet penetrations that could likely weaken the casing leakage and thermal performance.
- C. Access doors shall be hinged and removable without the use of specialized tools to allow.
- D. Hinges shall be interchangeable with the door handle hardware to allow for alternating door swing in the field to minimize access interference due to unforeseen job site obstructions.
- E. Door handles shall be provided for each latching point of the door necessary to maintain the specified air leakage integrity of the unit.

2.6 PRIMARY DRAIN PANS

- A. All cooling coil sections shall be provided with an insulated, double-wall, stainless steel sloping drain pan.
- B. Drain connections shall be of the same material as the primary drain pan and shall extend a minimum 2-1/2" beyond the base to ensure adequate room for field piping of condensate traps.
- C. Coil support members inside the drain pan shall be of the same material as the drain pan and coil casing.
- D. Drain pans shall be provided for all coils and all access sections.

2.7 DIRECT DRIVE FANS

- A. Provide fans of type and class as specified on the schedule. Fan shafts shall be solid steel, coated with a rust-inhibiting coating, and properly designed so that fan shaft does not pass through first critical speed as unit comes up to rated RPM. All fans shall be statically and dynamically tested by the manufacturer for vibration and alignment as an assembly at the operating RPM to meet design specifications. Fans controlled by variable frequency drives shall be statically and dynamically tested for vibration and alignment at speeds between 25% and 100% of design RPM. Fan wheels shall be keyed to fan shafts to prevent slipping.
- B. Motors and drives
 - 1. Motors shall meet or exceed all NEMA Standards Publication MG 1 – 2006 requirements and comply with NEMA Premium efficiency levels when applicable. Motors shall comply with applicable requirements of NEC and shall be UL Listed.
 - 2. Fan Motors shall be heavy duty, NEMA Premium efficient ODP, exceeding the EPA efficiency requirements.
 - 3. Motors shall be 1800 rpm, and shall NEMA Design B, with Class B insulation to operate continuously at 104°F (40°C) ambient without tripping of overloads.
 - 4. Motors shall have a +/- 10 percent voltage utilization range to protect against voltage variation.
- C. Fan airflow measurement systems shall be provided as indicated on the schedule and drawings to measure fan airflow directly or to measure differential pressure that can be used to calculate airflow. The accuracy of the devices shall be no worse than +/- 5 percent when operating within stable fan operating conditions. Devices shall not affect the submitted fan performance and acoustical levels. Devices that obstruct the fan inlet or outlet shall not be acceptable. Devices shall be connected to transducers with selectable 4-20 mA or 2-10 VDC output. Signal shall be proportional to air velocity.

2.8 COILS

- A. Coils section side panels shall be removable to allow for removal and replacement of coils without impacting the structural integrity of the unit.
- B. Install coils such that headers and return bends are enclosed by unit casing to ensure that if condensate forms on the header or return bends, it is captured by the drain pan under the coil.
- C. Coils shall be manufactured with plate fins to minimize water carryover and maximize airside thermal efficiency. Fin tube holes shall have drawn and belled collars to maintain consistent fin spacing to ensure performance and air pressure drop across the coil as scheduled. Tubes shall be mechanically expanded and bonded to fin collars for maximum thermal conductivity.
- D. Construct coil casings of stainless steel. End supports and tube sheets shall have belled tube holes to minimize wear of the tube wall during thermal expansion and contraction of the tube.
- E. All coils shall be completely cleaned prior to installation into the air handling unit. Complete fin bundle in direction of airflow shall be degreased and steam cleaned to remove any lubricants used in the manufacturing of the fins, or dirt that may have accumulated, in order to minimize the chance for water carryover.
- F. Hydronic Coils
 - 1. Supply and return header connections shall be clearly labeled on unit exterior such that direction of coil water-flow is counter to direction of unit air-flow.
 - 2. Coils shall be proof-tested to 300 psig and leak-tested to 200 psig air pressure under water.
 - 3. Headers shall be constructed of round copper pipe or cast iron.
 - 4. Tubes shall be 1/2 inch O.D., minimum copper. Fins shall be aluminum. See schedule for other fin types or special coatings required.
- G. Thermosyphon Heat Pipe
 - 1. Provide passive dehumidifying, controllable, Thermosyphon Run Around Heat Pipe Loop, air-to-air heat exchanger as shown in the design drawings and schedule to be manufactured by Trane-Carolina Heat Pipe, Inc. or equal. Heat Pipe shall be 4 Row Coil consisting of vertical tubes with headers top and bottom to allow precise heat transfer using a single modulating valve to meet capacity scheduled. Modulating valve shall be provided by the AHU manufacturer and factory mounted in the refrigerant circuit.
 - 2. The Thermosyphon Run Around Heat Pipe Loop will transfer heat from the air entering the cooling coil into the air leaving the cooling coil, using the heat pipe thermosyphon loop process of passive vapor mass transfer, without the use of any pumps, compressors or other means of moving the working fluid.
 - 3. The Thermosyphon Run Around Heat Pipe Loop shall be capable of operating at temperatures ranging from -80F to 130F.
 - 4. The Thermosyphon Run Around Heat Pipe Loop shall be constructed of seamless copper tubing which is permanently expanded into aluminum fins to form a rigid and complete metal to metal contact between the copper tube and the fin collar at all operating conditions.
 - 5. The Thermosyphon Run Around Heat Pipe Loop's working fluid shall conform to Group I of the American National Safety Code for Mechanical Refrigeration.
 - 6. The Thermosyphon Run Around Heat Pipe Loop shall be controllable in an infinitely variable manner in the range of off to full capacity by means of one control device, located in the interconnecting vapor line, for each increment of 75,000 BTUH of heat transfer.

2.9 FILTERS

- A. Provide factory-fabricated filter section of the same construction and finish as unit casings. Filter section shall have filter guides and access door(s) extending the full height of the casing to facilitate filter removal. Provide fixed filter blockoffs as required to prevent air bypass around filters. Blockoffs shall not need to be removed during filter replacement.

2.10 DAMPERS

- A. Dampers shall be internally mounted. Dampers shall be premium ultra low leak and located as indicated on the schedule and plans. Blade arrangement (parallel or opposed) shall be provided as indicated on the schedule and drawings. Dampers shall be Ruskin CD60 double-skin airfoil design or equivalent for minimal air leakage and pressure drop. Leakage rate shall not exceed 4 CFM/square foot at one inch water gauge complying with ASHRAE 90.1 maximum damper leakage and shall be AMCA licensed for Class 1A. All leakage testing and pressure ratings shall be based on AMCA Standard 500-D. Manufacturer shall submit brand and model of damper(s) being furnished, if not Ruskin CD60.

2.11 ACCESS SECTIONS

- A. Access sections shall be provided where indicated in the schedule and plans to allow additional access for inspection, cleaning, and maintenance of unit components. The unit shall be installed for proper access. Procedure for proper access, inspection and cleaning of the unit shall be provided in the AHU manufacturer's maintenance manual.

2.12 FACTORY MOUNTED VARIABLE FREQUENCY DRIVE WITH BYPASS

- A. Variable frequency drives shall be provided, mounted and wired by the AHU manufacturer as indicated on the schedule and drawings. All standard and optional features shall be included within the VFD enclosure, unless otherwise specified. The VFDs shall be UL listed. The listing shall allow mounting in plenum or other air handling compartments.
- B. The VFD shall convert incoming fixed frequency three-phase AC power into a variable frequency and voltage for controlling the speed of three-phase AC motors. The motor current shall closely approximate a sine wave. Motor voltage shall be varied with frequency to maintain desired motor magnetization current suitable for centrifugal pump and fan control and to eliminate the need for motor derating.
- C. With the motor's rated voltage applied to the VFD input, the VFD shall allow the motor to produce full rated power at rated amps, RMS fundamental volts, and speed without using the motor's service factor. VFDs utilizing sine weighted/coded modulation (with or without 3rd harmonic injection) must provide data verifying that the motors will not draw more than full load current during full load and full speed operation.
- D. The VFD shall include an input full-wave bridge rectifier and maintain a fundamental power factor near unity regardless of speed or load.
- E. The VFD and options shall be tested to ANSI/UL Standard 508. The complete VFD, including all specified options, shall be assembled by the manufacturer, which shall be UL 508 certified for the building and assembly of option panels. Assembly of separate panels with options by a third-party is not acceptable. The appropriate UL stickers shall be applied to both the VFD and option panel, in the case where these are not contained in one panel.

- F. The VFD shall have DC link reactors on both the positive and negative rails of the DC bus to minimize power line harmonics. VFDs without DC link reactors shall provide a minimum 3% impedance line reactor.
- G. The VFDs full load amp rating shall meet or exceed NEC Table 430-150. The VFD shall be able to provide full rated output current continuously, 110% of rated current for 60 seconds and 160% of rated current for up to 0.5 second while starting.
- H. The VFD shall be able to provide full torque at any selected frequency from 28 Hz to base speed to allow driving direct drive fans without derating.
- I. An automatic energy optimization selection feature shall be provided standard in the VFD. This feature shall automatically and continually monitor the motor's speed and load and adjust the applied voltage to maximize energy savings and provide up to an additional 3% to 10% energy savings.
- J. Input and output power circuit switching shall be able to be accomplished without interlocks or damage to the VFD. Switching rate may be up to 1 time per minute on the input and unlimited on the output.
- K. An automatic motor adaptation test algorithm shall measure motor stator resistance and reactance to optimize performance and efficiency. It shall not be necessary to run the motor or decouple the motor from the load to run the test.
- L. Galvanic and/or optical isolation shall be provided between the VFDs power circuitry and control circuitry to ensure operator safety and to protect connected electronic control equipment from damage caused by voltage spikes, current surges, and ground loop currents. VFDs not including either galvanic or optical isolation on both analog I/O and discrete I/O shall include additional isolation modules.
- M. The VFD shall minimize the audible motor noise through the use of an adjustable carrier frequency. The carrier frequency shall be automatically adjusted to optimize motor and VFD efficiencies while reducing motor noise.
- N. Protective Features
 - 1. Protection shall be provided against input transients, loss of AC line phase, output short circuit, output ground fault, overvoltage, undervoltage, VFD overtemperature and motor overtemperature. The VFD shall display all faults as words. Codes are not acceptable.
 - 2. The VFD shall be protected from sustained power or phase loss. The VFD shall provide full rated output with an input voltage as low as 90% of the nominal. The VFD shall continue to operate with reduced output with an input voltage as low as 164 V AC for 208/230 volt units, 313 V AC for 460 volt units, and 394 volts for 600 volts units.
 - 3. The VFD shall incorporate a motor preheat circuit to keep the motor warm and prevent condensation build up in the stator.
 - 4. The VFD package shall include semi-conductor rated input fuses to protect power components.
 - 5. To prevent breakdown of the motor winding insulation, the VFD shall be designed to comply with IEC Part 34-17. Otherwise the AHU manufacturer shall ensure that inverter rated motors are supplied.
 - 6. The VFD shall include a "signal loss detection" circuit to sense the loss of an analog input signal such as 4 to 20 mA or 2 to 10 V DC, and shall be programmable to react as desired in such an instance.

7. The VFD shall function normally when the keypad is removed while the VFD is running and continue to follow remote commands. No warnings or alarms shall be issued as a result of removing the keypad.
8. The VFD shall catch a rotating motor operating forward or reverse up to full speed.
9. The VFD shall be rated for 100,000 amp interrupting capacity (AIC).
10. The VFD shall include current sensors on all three output phases to detect and report phase loss to the motor. The VFD shall identify which of the output phases is low or lost.
11. The VFD shall continue to operate without faulting until input voltage reaches 300 V AC on 208/230 volt units, 539 V AC on 460 volt units, and 690 volts on 600 volt units.

2.13 FACTORY-INSTALLED MOTOR WIRE TERMINATION, VFD, AND COMBINATION STARTER/DISCONNECT ENCLOSURES

- A. VFDs shall be factory mounted on the drive side of the fan section. VFD may be mounted on the interior of the unit, accessible from the unit exterior through an access door, or on the casing exterior in a NEMA Type 1 enclosure for indoor units. If not mounted on the fan section due to NEC disconnect height limitations or serviceability constraints in the mechanical equipment room, VFD may be mounted in another location other than the fan.

2.3 ACCESSORIES

- A. Service Lights and Switch: Factory installed in each accessible section with weatherproof cover. Factory wire lights to a single-point field connection.
- B. Duplex Receptacle: Factory mounted in unit supply-fan section, with 20 amp 120 V GFI duplex receptacle and weatherproof cover.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for piping, ducts, and electrical systems to verify actual locations of connections before equipment installation.
- C. Examine roof curbs and equipment supports for suitable conditions where units will be installed.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with manufacturer's rigging and installation instructions for unloading units and moving to final locations.
- B. Equipment Mounting: Install floor or on-grade mounted units on cast-in-place concrete equipment bases. Comply with requirements for equipment bases specified in Section 033000 "Cast-in-Place Concrete."

1. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases.
 2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
 3. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base, and anchor into structural concrete floor.
 4. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 5. Install anchor bolts to elevations required for proper attachment to supported equipment.
 6. Install on 6-inch-high concrete base designed to withstand, without damage to equipment, seismic force required by code.
- C. Install separate devices furnished by manufacturer and not factory installed.
- D. Install new filters at completion of equipment installation and before testing, adjusting, and balancing.
- E. Install drain pipes from unit drain pans to sanitary drain.
1. Drain Piping: Drawn-temper copper water tubing complying with ASTM B 88, Type L with soldered joints.
 2. Drain Piping: Schedule 40 PVC pipe complying with ASTM D 1785, with solvent-welded fittings.
 - a. PVC solvent cement shall have a VOC content of 510 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - b. Adhesive primer shall have a VOC content of 550 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - c. Solvent cement and adhesive primer shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
 3. Pipe Size: Same size as condensate drain pan connection.

3.3 CONNECTIONS

- A. Where installing piping adjacent to units, allow space for service and maintenance.
- B. Hydronic Piping Connections:
1. Comply with requirements in Section 232113 "Hydronic Piping."
 2. Install shutoff valve and union or flange on each supply connection and install balancing valve and union or flange on each return connection.
- C. Duct Connections:
1. Comply with requirements in Section 233113 "Metal Ducts."
 2. Drawings indicate the general arrangement of ducts.
 3. Connect ducts to units with flexible duct connectors. Comply with requirements for flexible duct connectors in Section 233300 "Air Duct Accessories."

- D. Electrical Connections: Comply with requirements for power wiring, switches, and motor controls in electrical Sections.

1. Install electrical devices furnished by unit manufacturer but not factory mounted.

3.4 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.
2. Inspect units for visible damage to furnace combustion chamber.
3. Perform the following operations for both minimum and maximum firing and adjust burner for peak efficiency:
 - a. Measure gas pressure at manifold.
 - b. Measure combustion-air temperature at inlet to combustion chamber.
 - c. Measure flue-gas temperature at furnace discharge.
 - d. Perform flue-gas analysis. Measure and record flue-gas carbon dioxide and oxygen concentration.
 - e. Measure supply-air temperature and volume when burner is at maximum firing rate and when burner is off. Calculate useful heat to supply air.
4. Verify operation of remote panel including pilot-light operation and failure modes. Inspect the following:
 - a. High-limit heat exchanger.
 - b. Alarms.
5. Inspect units for visible damage to refrigerant compressor, condenser and evaporator coils, and fans.
6. Start refrigeration system when outdoor-air temperature is within normal operating limits and measure and record the following:
 - a. Cooling coil leaving-air, dry- and wet-bulb temperatures.
 - b. Cooling coil entering-air, dry- and wet-bulb temperatures.
 - c. Condenser coil entering-air dry-bulb temperature.
 - d. Condenser coil leaving-air dry-bulb temperature.
7. Simulate maximum cooling demand and inspect the following:
 - a. Compressor refrigerant suction and hot-gas pressures.
 - b. Short-circuiting of air through outside coil or from outside coil to outdoor-air intake.
8. Inspect casing insulation for integrity, moisture content, and adhesion.
9. Verify that clearances have been provided for servicing.
10. Verify that controls are connected and operable.
11. Verify that filters are installed.
12. Clean coils and inspect for construction debris.
13. Clean furnace flue and inspect for construction debris.
14. Inspect operation of power vents.
15. Purge gas line.
16. Inspect and adjust vibration isolators and seismic restraints.
17. Verify bearing lubrication.

18. Clean fans and inspect fan-wheel rotation for movement in correct direction without vibration and binding.
19. Adjust fan belts to proper alignment and tension.
20. Start unit.
21. Inspect and record performance of interlocks and protective devices including response to smoke detectors by fan controls and fire alarm.
22. Operate unit for run-in period.
23. Calibrate controls.
24. Adjust and inspect high-temperature limits.
25. Inspect outdoor-air dampers for proper stroke.
26. Verify operational sequence of controls.
27. Measure and record the following airflows. Plot fan volumes on fan curve.
 - a. Supply-air volume.
 - b. Return-air flow.
 - c. Outdoor-air flow.

- B. After startup, change filters, verify bearing lubrication, and adjust belt tension.
- C. Remove and replace components that do not properly operate and repeat startup procedures as specified above.
- D. Prepare written report of the results of startup services.

3.5 ADJUSTING

- A. Adjust initial temperature and humidity set points.
- B. Set field-adjustable switches and circuit-breaker trip ranges as indicated.
- C. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose.

3.6 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain units.

END OF SECTION 237433

SECTION 323100 – GATES

PART 1 GENERAL

1.1 SUMMARY: Section includes double-swing gate for dumpster enclosure:

1.2 SUBMITTALS

A. Reference Division 01 for submittal procedures. Submit the following items:

1. Product Data including color chart for initial color selection.
2. Shop Drawings: Indicate materials, sizes, styles, fabrication, anchorage and installation details.
3. Quality Assurance and Control Submittals:
 - a. Qualifications: Proof of manufacturer's qualifications.
 - b. Manufacturer's Installation Instructions.

B. Closeout Submittals: Reference Division 01 for closeout procedures: Submit the following items:

1. Maintenance Instructions.
2. Special Warranties.

1.3 DELIVERY, STORAGE, AND HANDLING: Reference Division 01 for product storage and handling requirements.

1.4 WARRANTY:

A. Certification that gate is free from defects in material and workmanship.

B. 10-year warranty against cracking, peeling, and blistering under normal use.

PART 2 PRODUCTS

2.1 MANUFACTURER: Basis of Design: Provide Ametco Double-Swing Gate with Eclipse Aluminum Louvers or approved equal. Basis of Design contact information: Ametco Manufacturing Corp. P O Box 1210 Willoughby, OH 44096-1210; 800.321.7042; ametco@ametco.com; www.ametco.com.

2.2 MATERIALS AND FINISH

A. Hot-dip galvanized polyester powder coated steel gate with tube frame, infill panels, posts, hinges, a padlockable slide bolt and padlockable cane bolt.

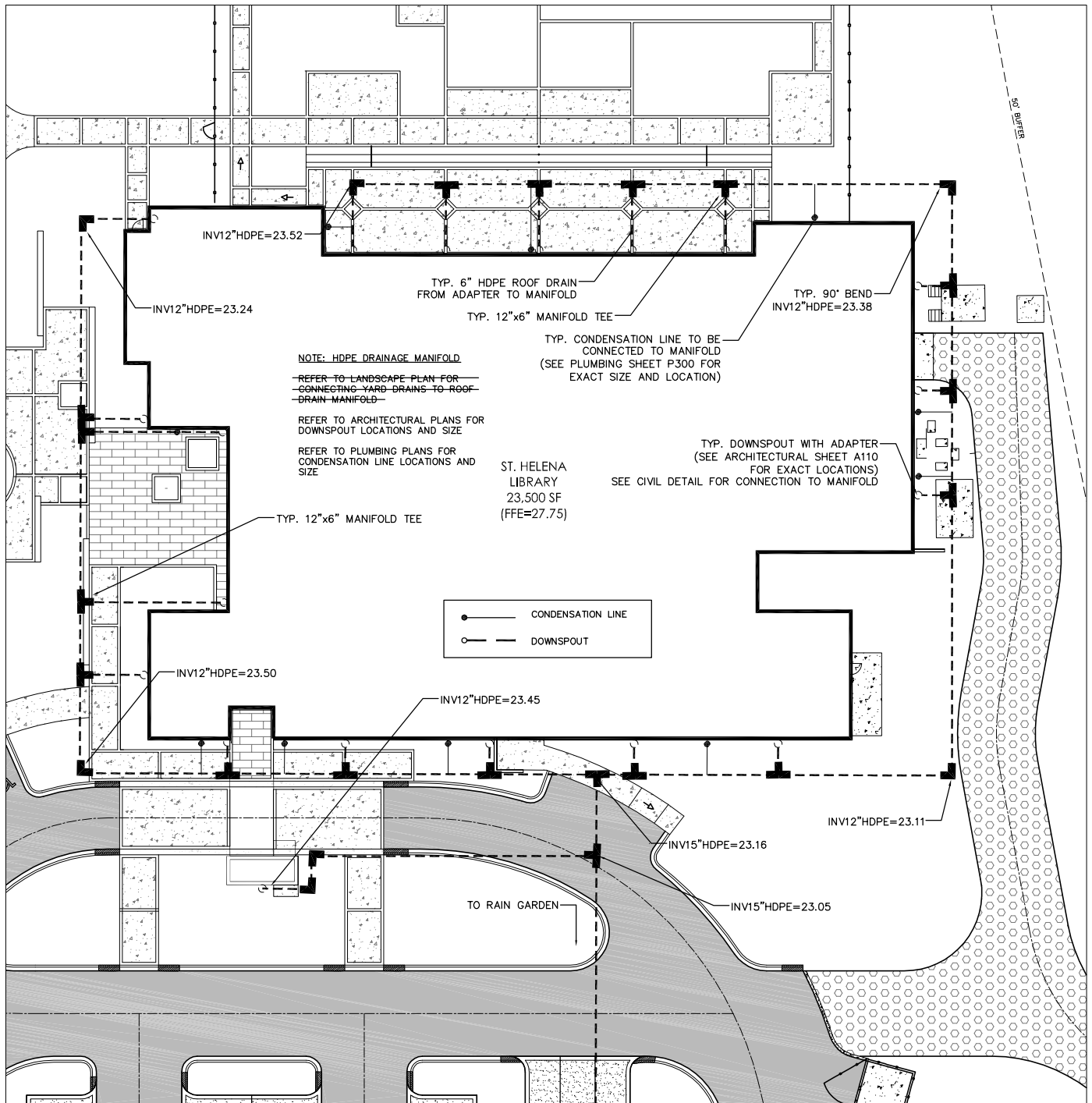
B. Color: As selected from manufacturer's full range of standard colors.

PART 3 EXECUTION

3.1 INSTALLATION: Follow manufacturer's installation instructions.

3.2 CLEANING: Reference Division 01 for cleaning and waste management.

END OF SECTION 323100



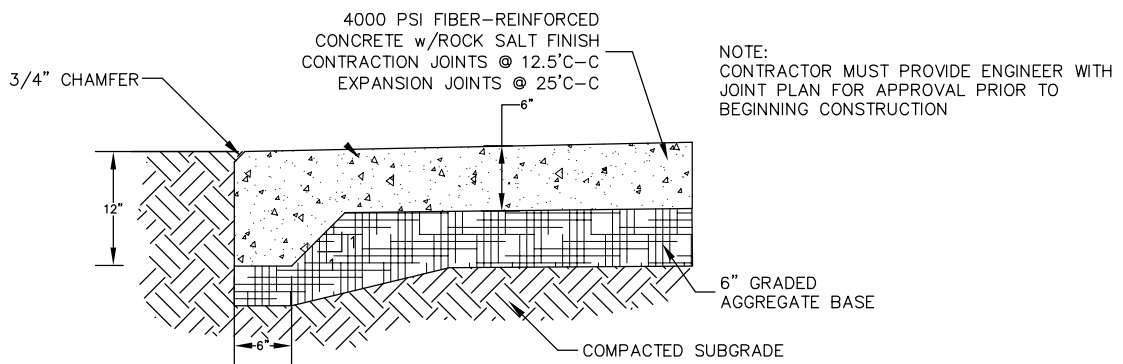
St. Helena Island Branch

ROOF DRAIN & CONDENSATION PLAN

Project number: 09107
 Date: 07/05/11
 Drawn by: RB
 Checked by: AK

AD02-C107

Scale: nts



TYPICAL SECTION CONCRETE PAD
N.T.S

St. Helena Island Branch

CONCRETE PAD DETAIL

Project number:	09107	AD02-C200
Date:	07/05/11	
Drawn by:	Rb	
Checked by:	AK	
Scale: nts		

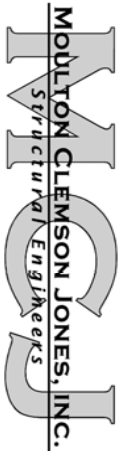
STRUCTURAL STEEL

1. ALL SHEER AND TENSION TYPE CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER ASTM A325 HIGH STRENGTH BOLTS.
2. ALL ANCHOR RODS SHALL BE ASTM F1554, GRADE 36.



FOOTING SCHEDULE

FOOTING	DIMENSIONS	REINFORCEMENT	TOP OF FOOTING
F2.0	2'-0"x2'-0"x1'-0"D.	BOTTOM: (3) #5'S EACH WAY	-0'-8" B.F.F.
F3.0	3'-0"x3'-0"x1'-6"D.	BOTTOM: (4) #5'S EACH WAY	-0'-8" B.F.F. (U.N.O.)
F3.6	3'-6"x3'-6"x1'-6"D.	BOTTOM: (5) #5'S EACH WAY	-0'-8" B.F.F.
F8.0	8'-0"x8'-0"x36"D.	BOTTOM: (12) #6'S EACH WAY, MIN.	-3'-0" B.F.F. (U.N.O.)
WF1	1'-0"W.x1'-0"D.xCONT. TURNDOWN	(4) #5'S CONT. & #5 DOWELS @ 16" O.C. PER DETAILS ON S301	0'-0" F.F.E.
WF2	2'-0"W.x1'-6"D.xCONT.	BOTTOM: #5'S @ 16" O.C.; (3) #5'S CONT.	PER PLAN
WF4	4'-0"W.x2'-0"D.xCONT.	BOTTOM: #5'S @ 12" O.C.; (7) #5'S CONT.	PER PLAN



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PROJECT NUMBER: 09-053

DATE: 07/06/2011

St. Helena Island Branch Library at Penn Center

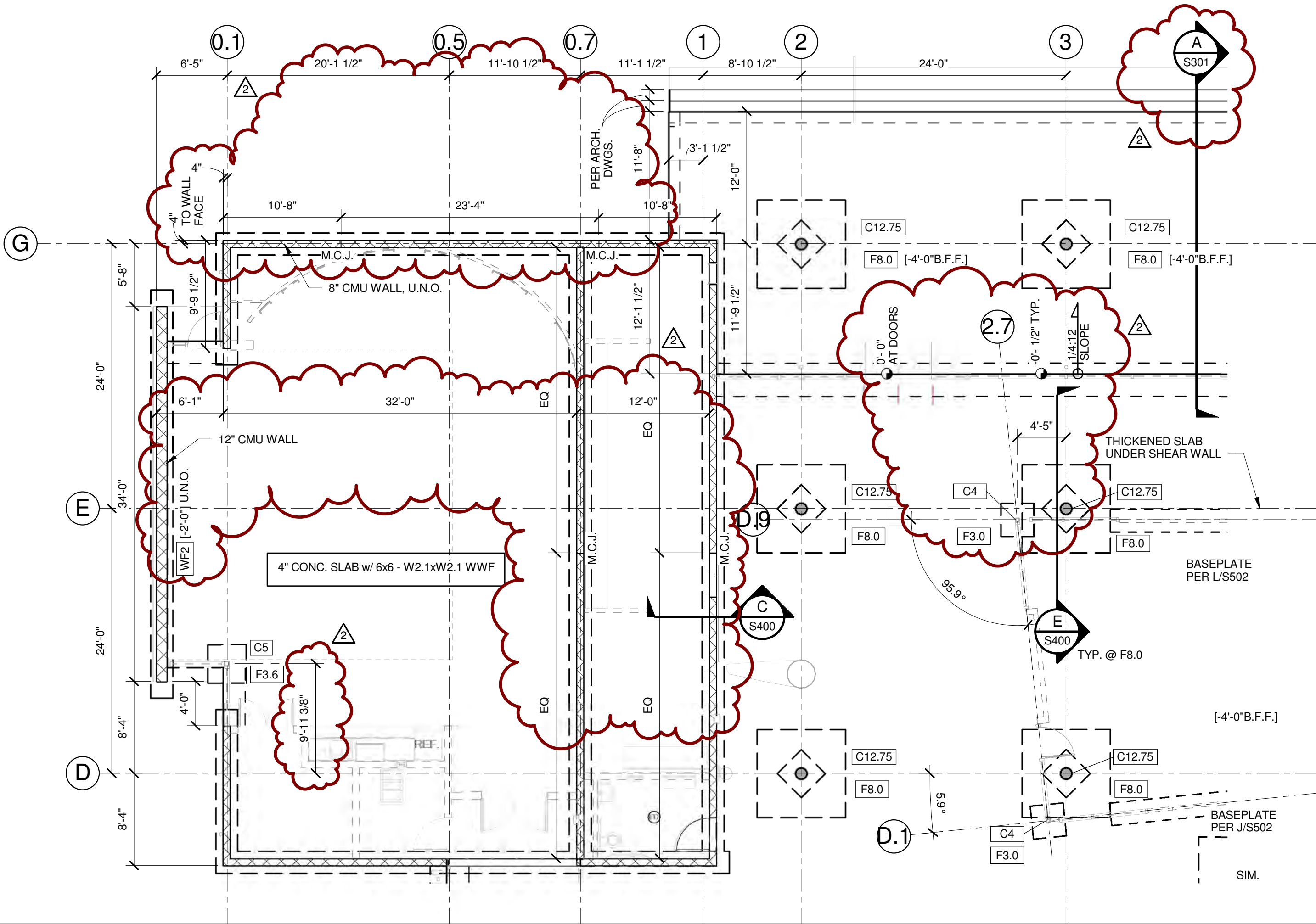
Watson Tate Savory Liollo
ARCHITECTURE

S100, S200 - STRUCTURAL NOTES & SCHEDULES

Project number:	09107
Date:	07/06/11
Drawn by:	BTH
Checked by:	BR

AD-02-S-01

Scale: As indicated



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Center

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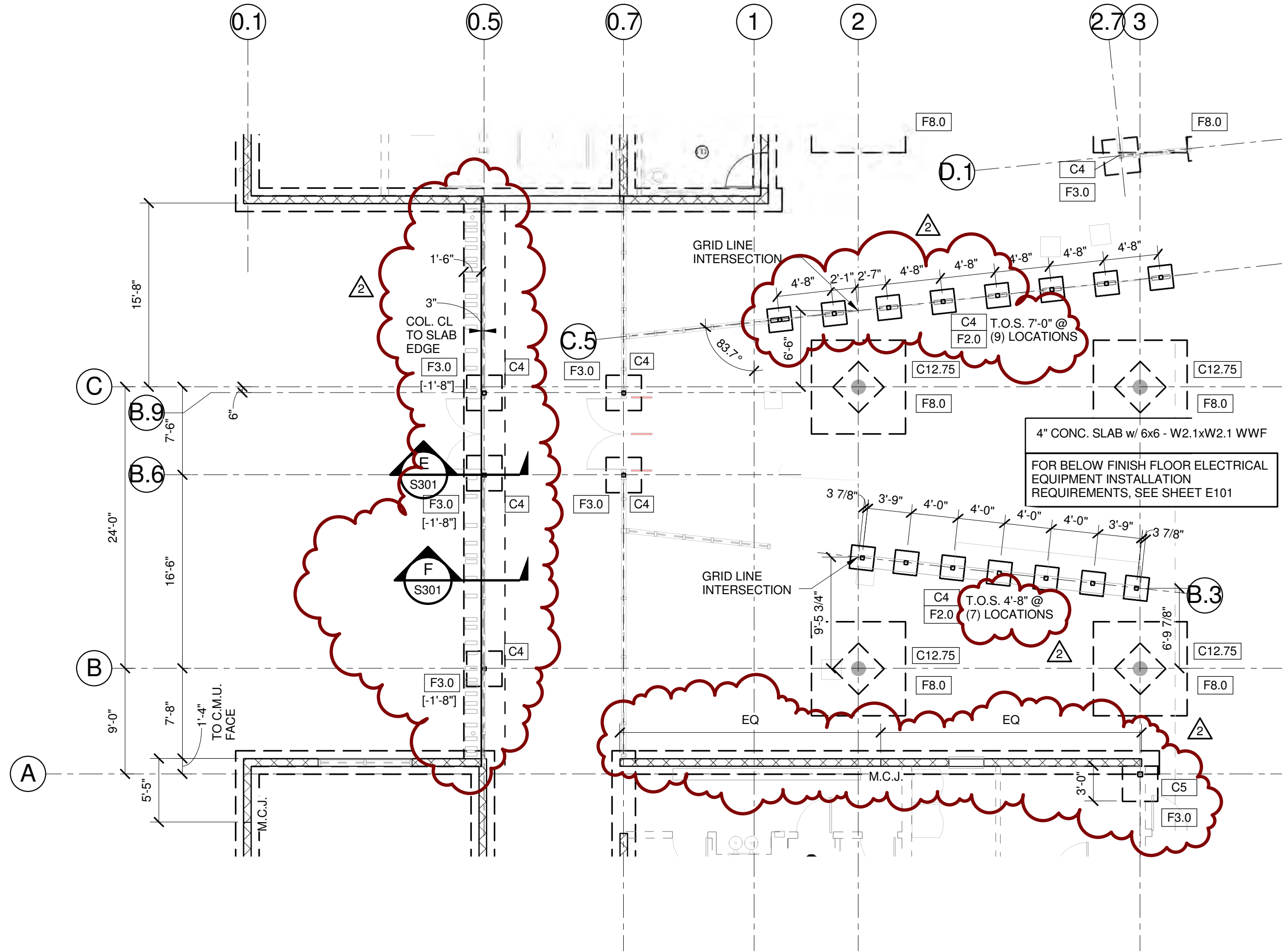


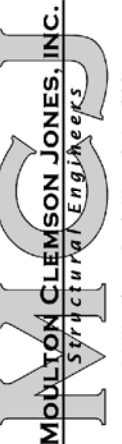
14 Westbury Park Way, Suite 202
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S200 - FOUNDATION PLAN REVISIONS

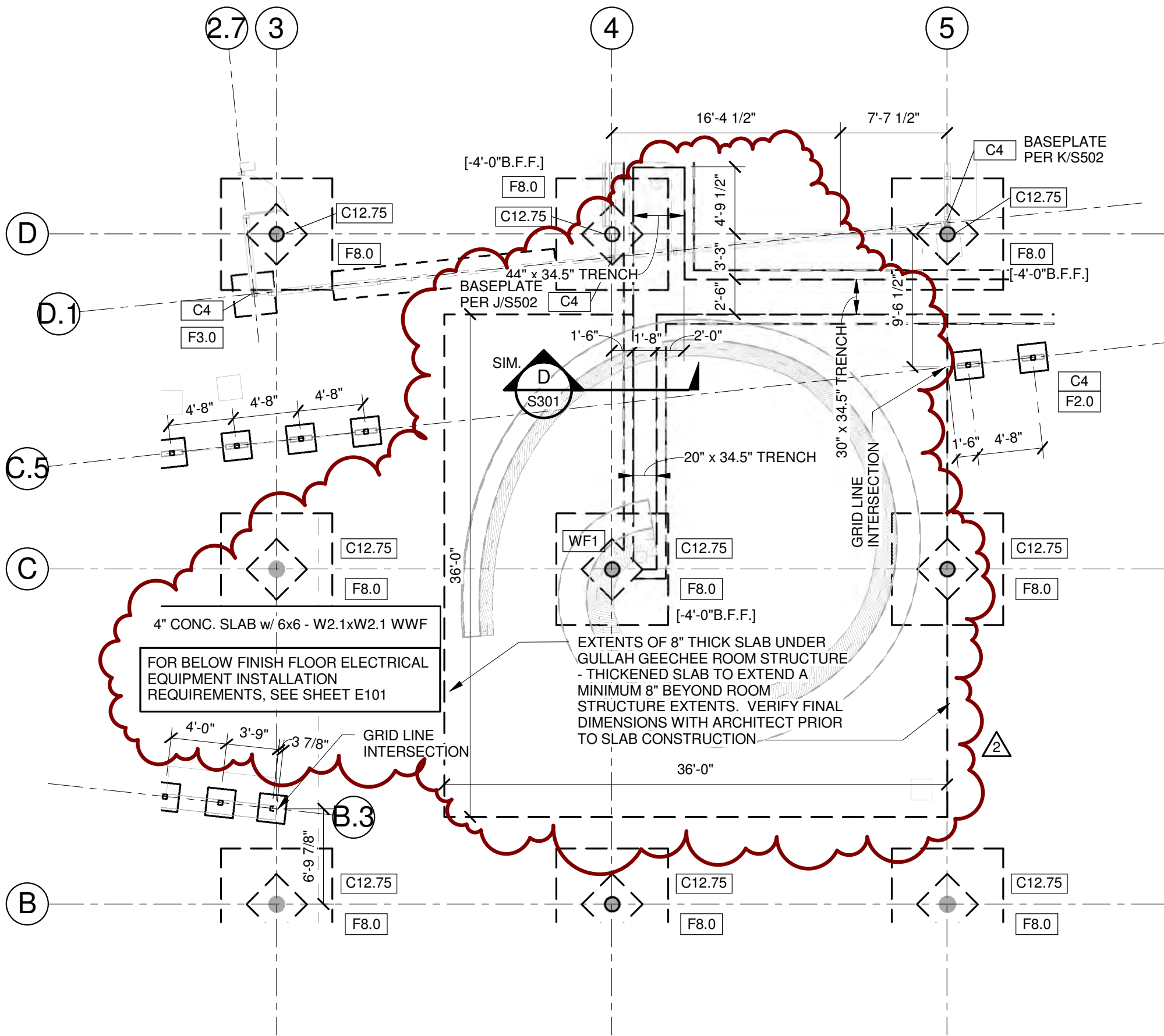
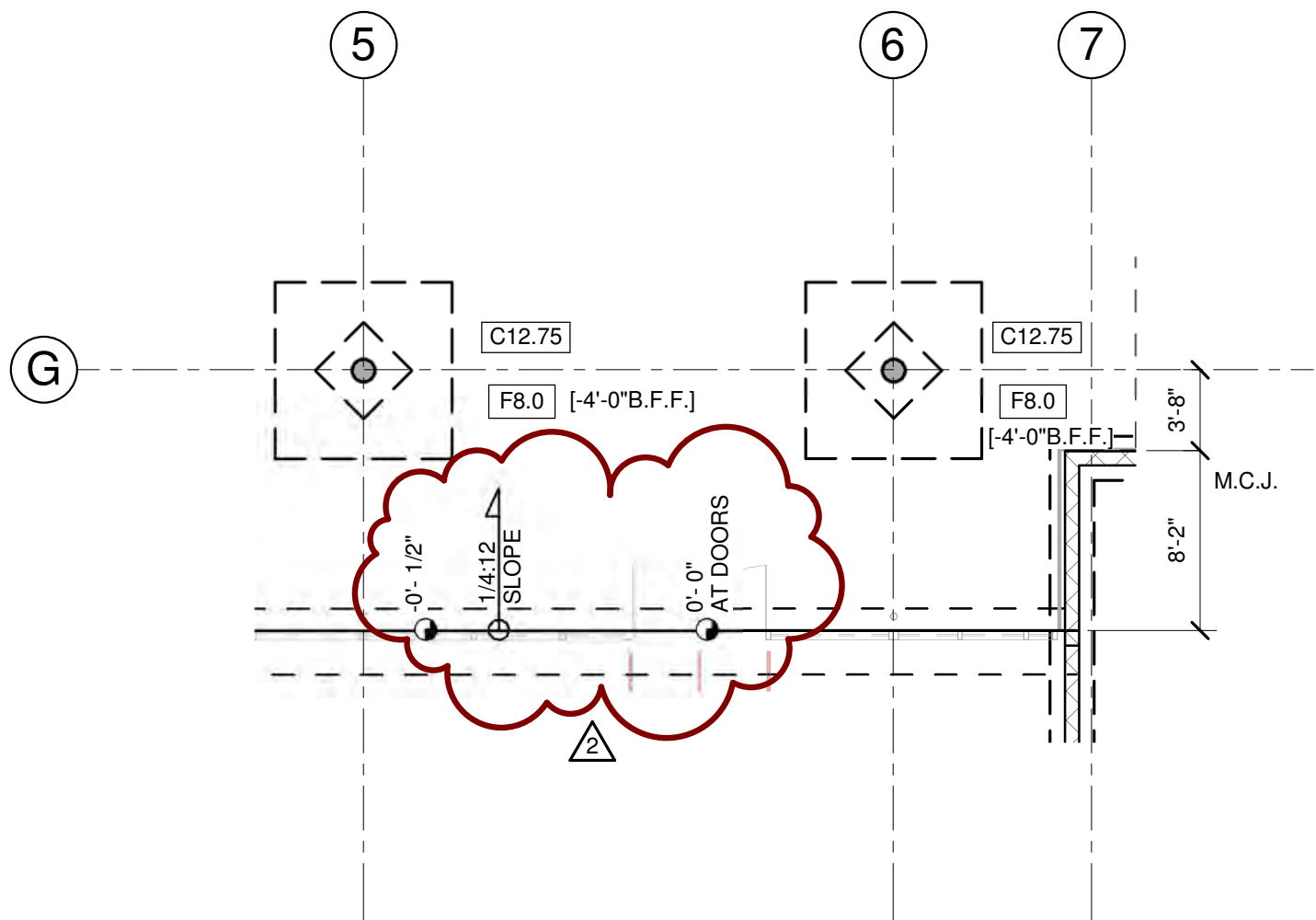
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Date:	07/06/11	
Drawn by:	BTH	
Checked by:	BR	Scale: As indicated

PROJECT NUMBER: 09-053 DATE: 07/06/2011



St. Helena Island Branch Library at Penn Center	S200 - FOUNDATION PLAN REVISIONS			
				
	Watson Tate Savory Liollo ARCHITECTURE			
	PROJECT NUMBER: 09-053 DATE: 07/06/2011			
Project number: 09107		Date: 07/06/11		Scale: As indicated
Drawn by: BTH		Checked by: BR		





St. Helena Island Branch Library at Penn Center

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Structural Engineers

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PROJECT NUMBER: 09-053

DATE: 07/06/2011

S200 - FOUNDATION PLAN REVISIONS

Project number: 09107

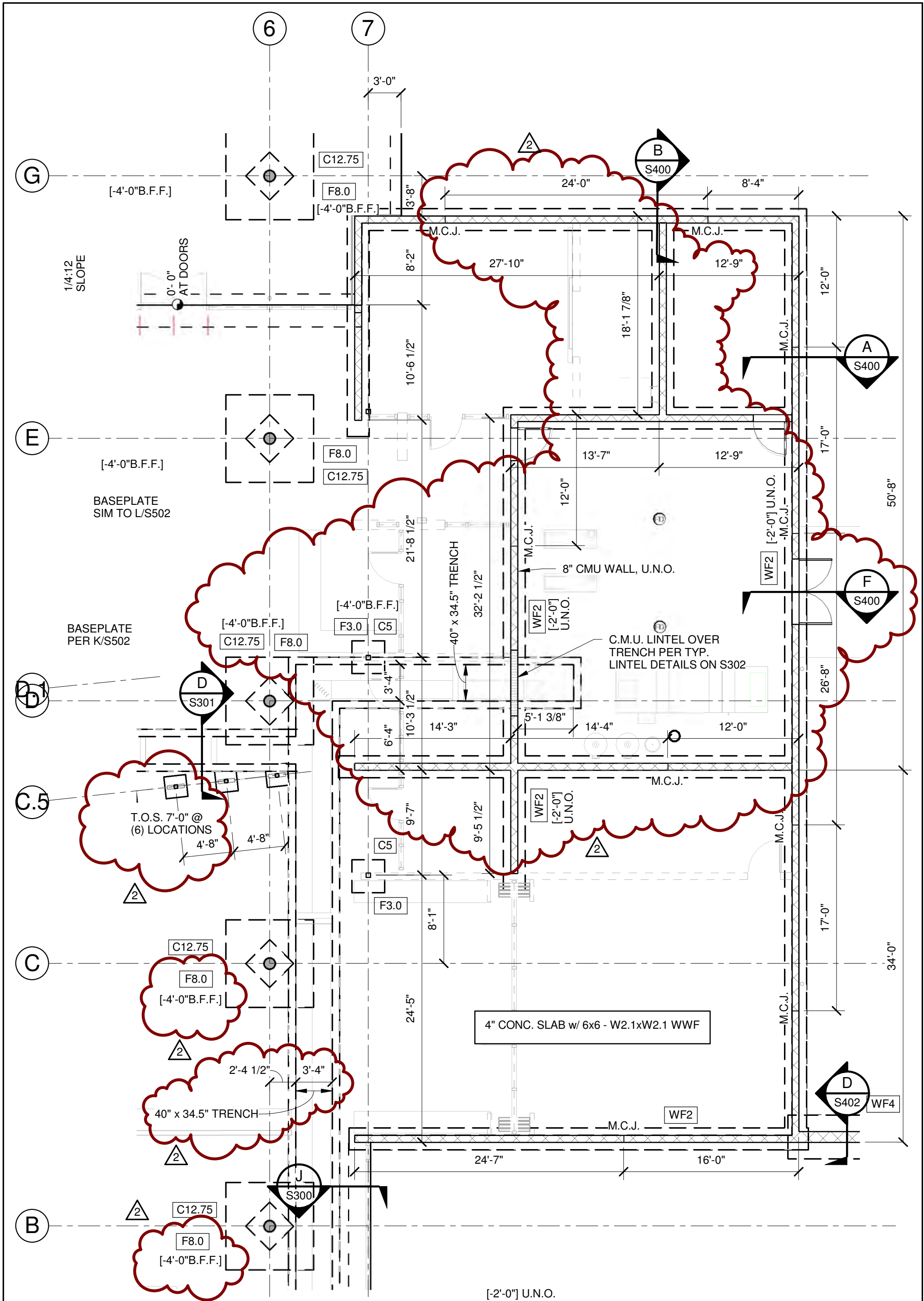
Date: 07/06/11

Drawn by: BTH

Checked by: BR

AD-02-S-05

Scale: As indicated



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PROJECT NUMBER: 09-053

DATE: 07/06/2011

S200 - FOUNDATION PLAN REVISIONS

Project number: 09107

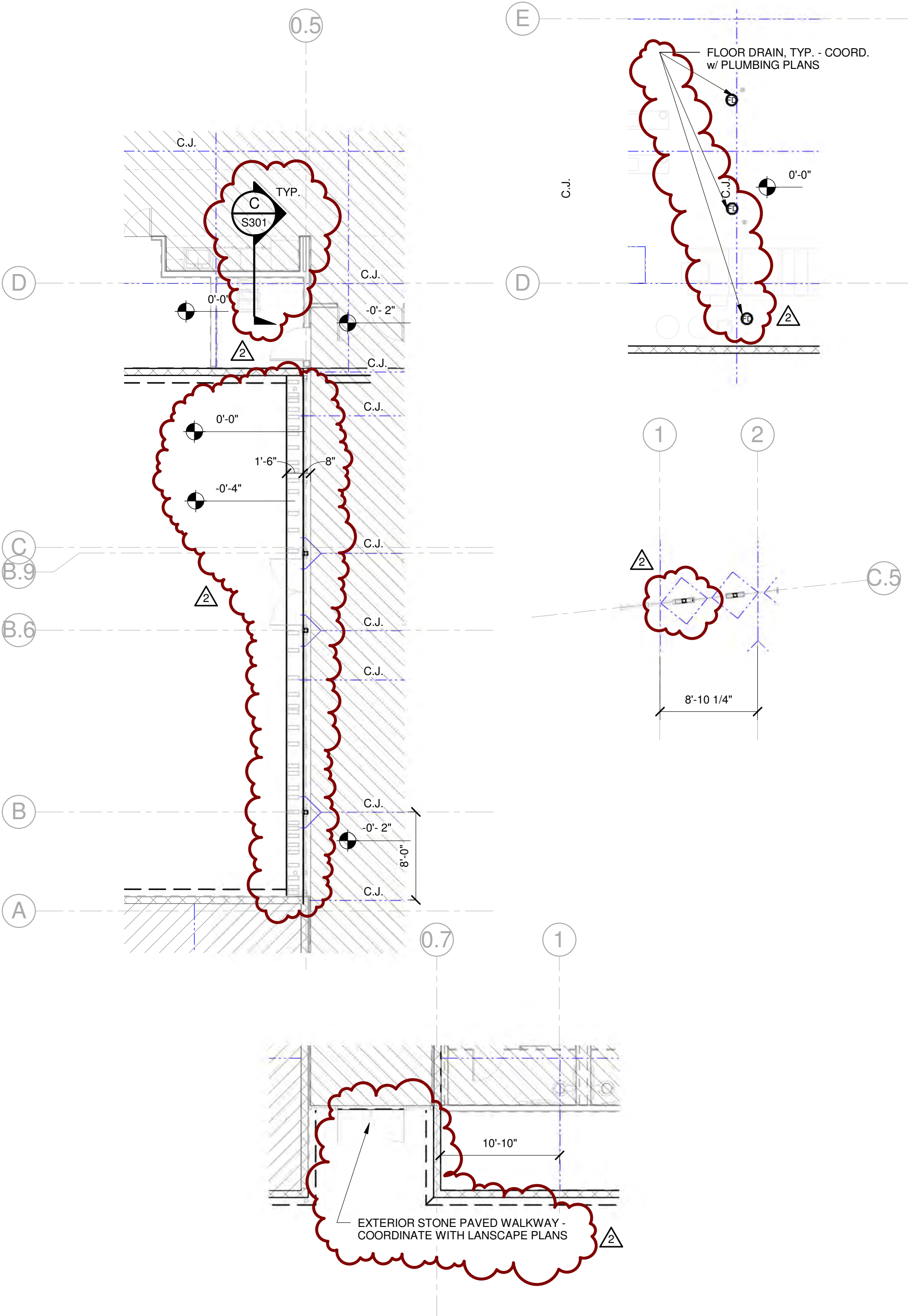
Date: 07/06/11

Drawn by: BTH

Checked by: BR

AD-02-S-06

Scale: As indicated



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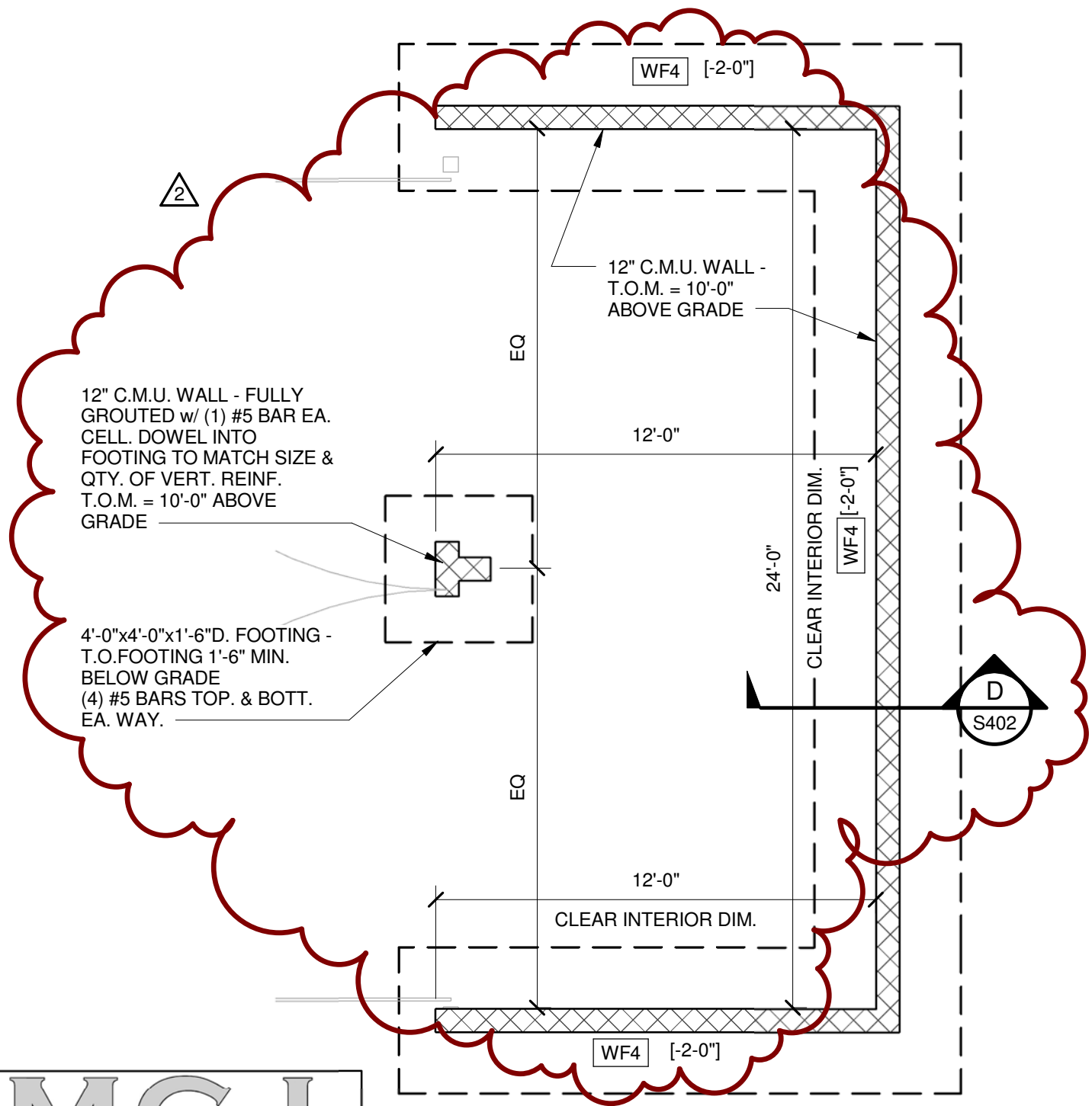
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PROJECT NUMBER: 09-053 DATE: 07/06/2011

S201 - CONTROL JOINT PLAN REVISIONS

Project number:	09107	AD-02-S-09
Date:	07/06/11	
Drawn by:	BTH	
Checked by:	BR	Scale: As indicated



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PROJECT NUMBER: 09-053

DATE: 07/06/2011

St. Helena Island Branch Library at Penn
 Center

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 ARCHITECTURE

S202 - REVISED DUMPSTER ENCLOSURE

Project number: 09107

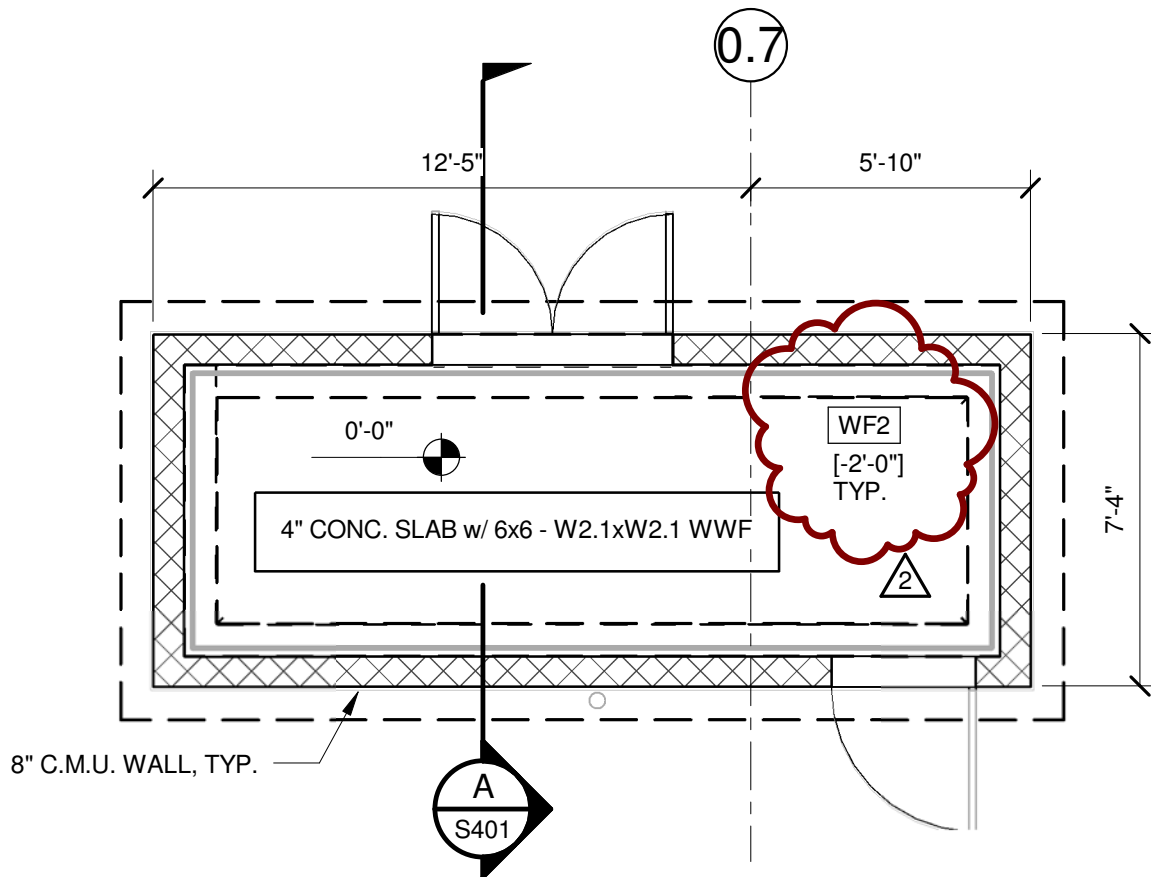
Date: 07/06/11

Drawn by: BTH

Checked by: BR

AD-02-S-10

Scale: As indicated



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PROJECT NUMBER: 09-053

DATE: 07/06/2011

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 Center

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**A/S202 - REVISIONS TO FOUNDATION PLAN -
 CANOPY**

Project number: 09107

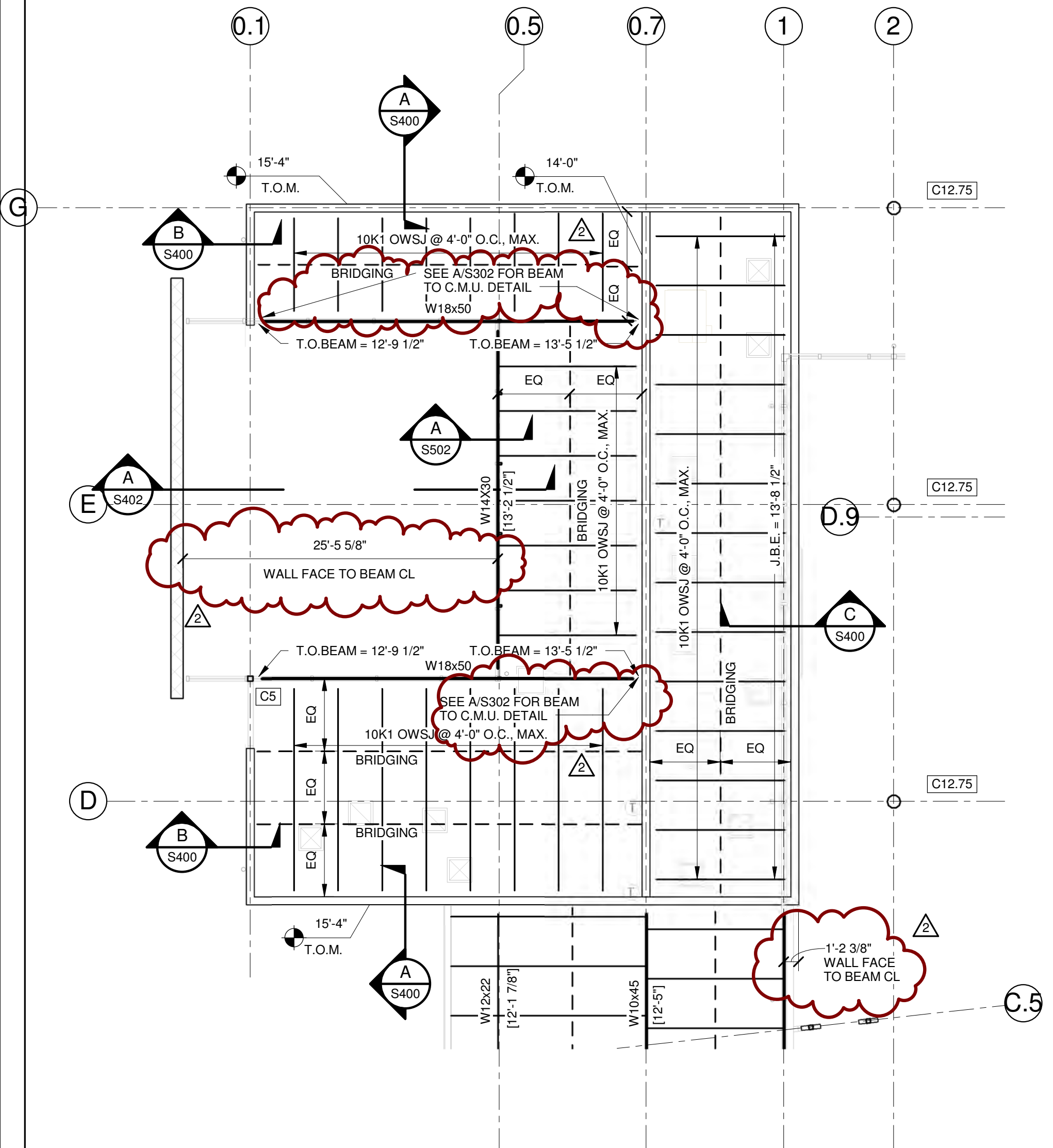
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Drawn by: BTH

Checked by: BR

AD-02-S-11

Scale: As indicated



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PROJECT NUMBER: 09-053

DATE: 07/06/2011

S210 - LOW ROOF FRAMING PLAN REVISIONS

Project number: 09107

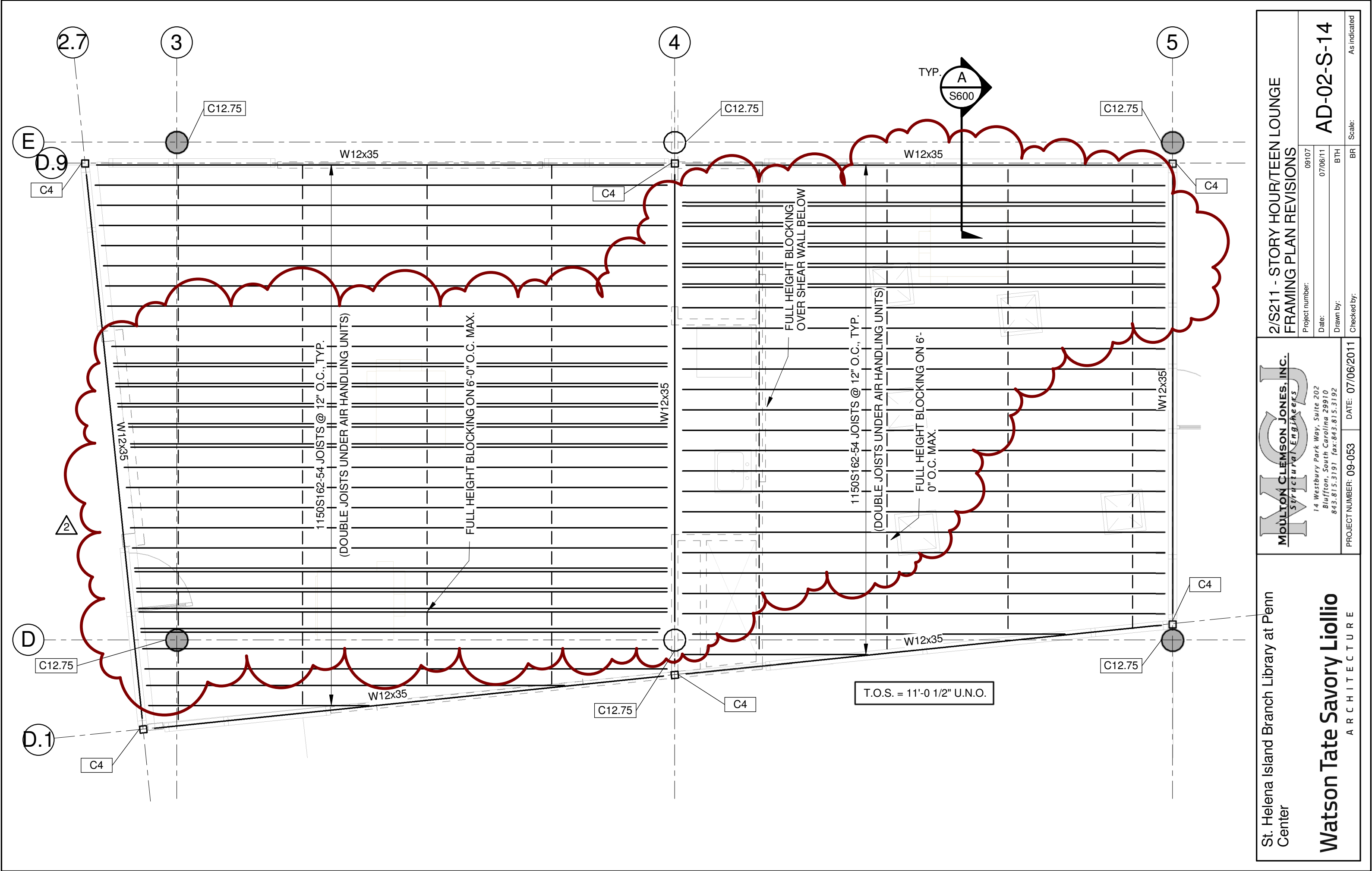
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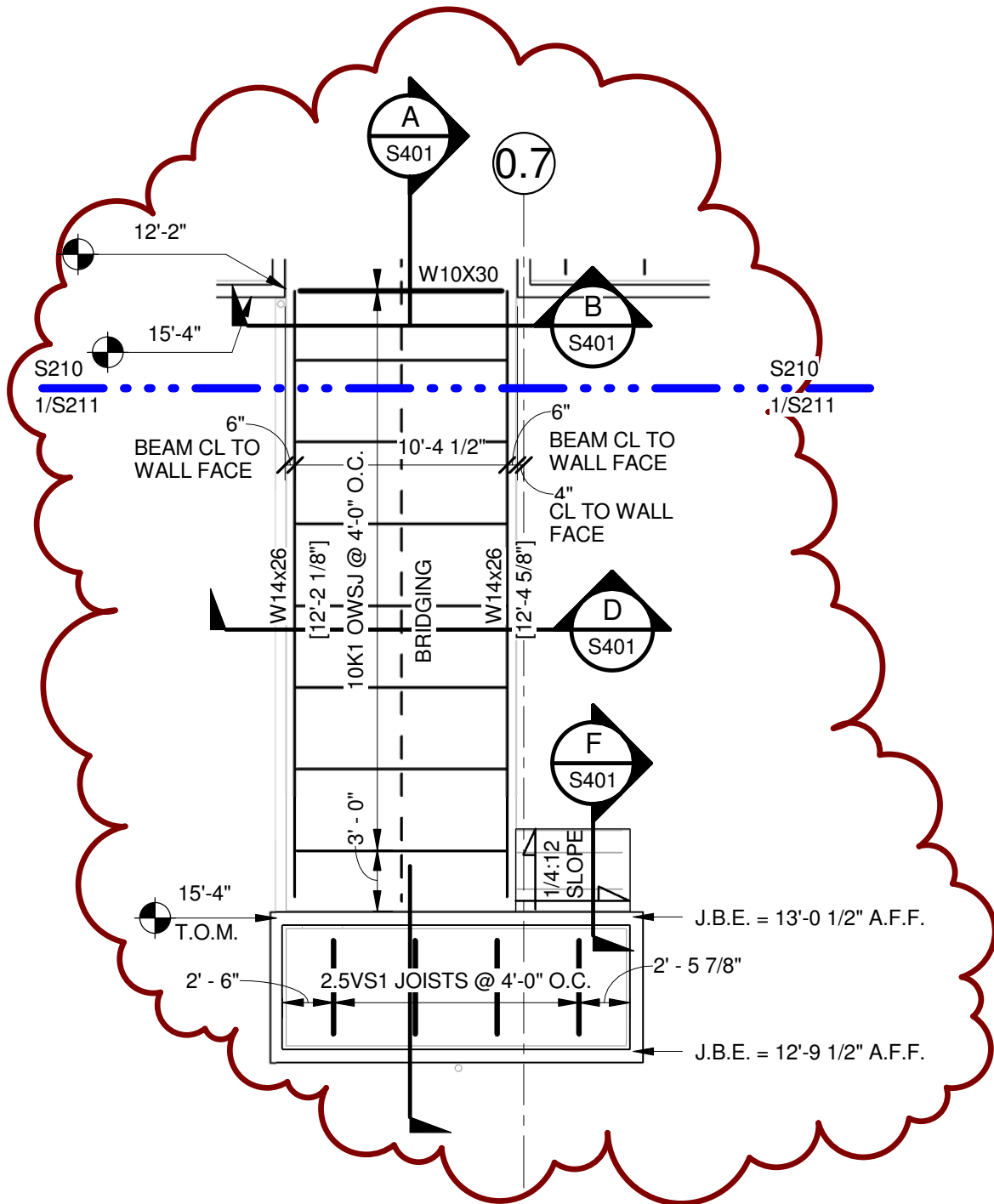
Drawn by: BTH

Checked by: BR

AD-02-S-12

Scale: As indicated





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PROJECT NUMBER: 09-053

DATE: 07/06/2011

St. Helena Island Branch Library at Penn
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 ARCHITECTURE

**1/S211 - LOW ROOF FRAMING PLAN - CANOPY
 REVISIONS**

Project number: 09107

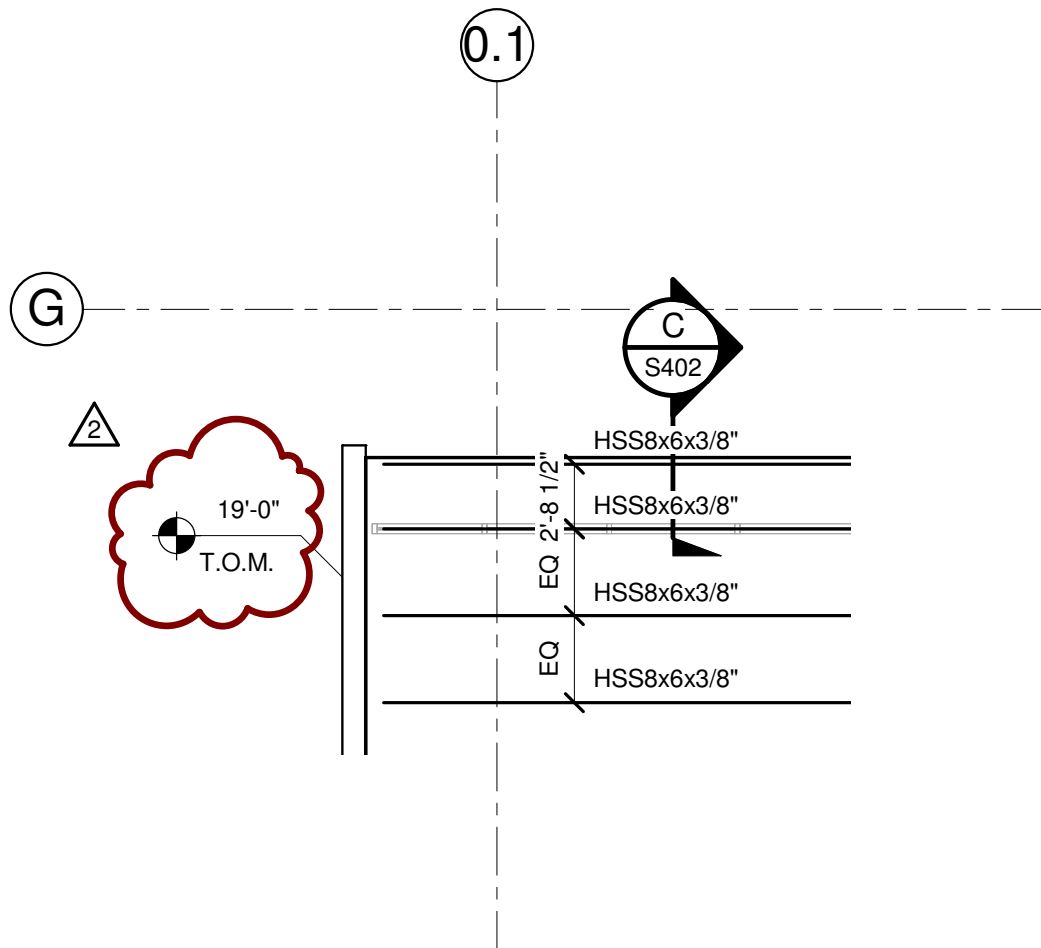
Date: 07/06/11

Drawn by: BTH

Checked by: BR

AD-02-S-15

Scale: As indicated



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DATE: 07/06/2011

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S220 - HIGH ROOF FRAMING PLAN REVISION

Project number: 09107

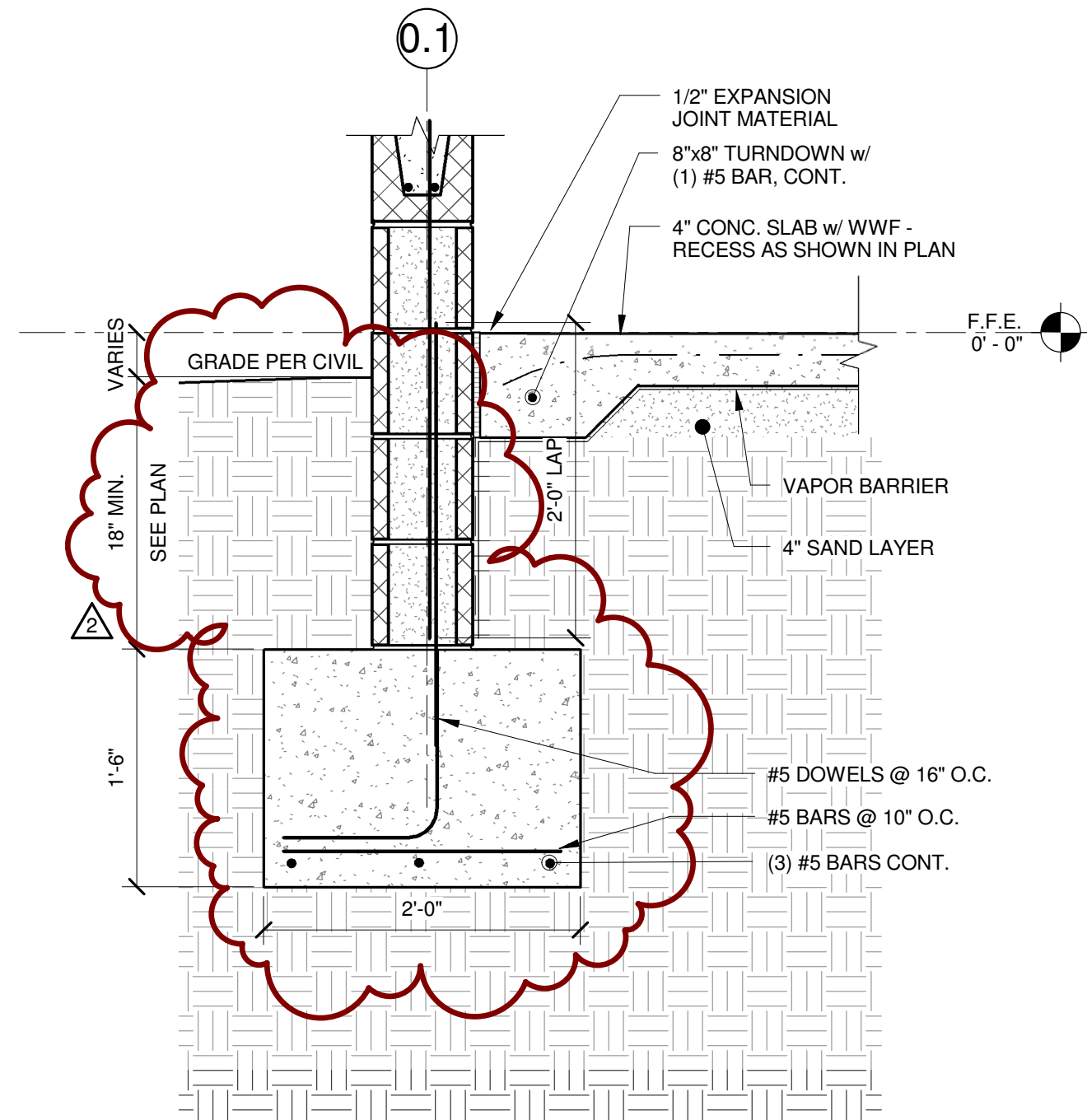
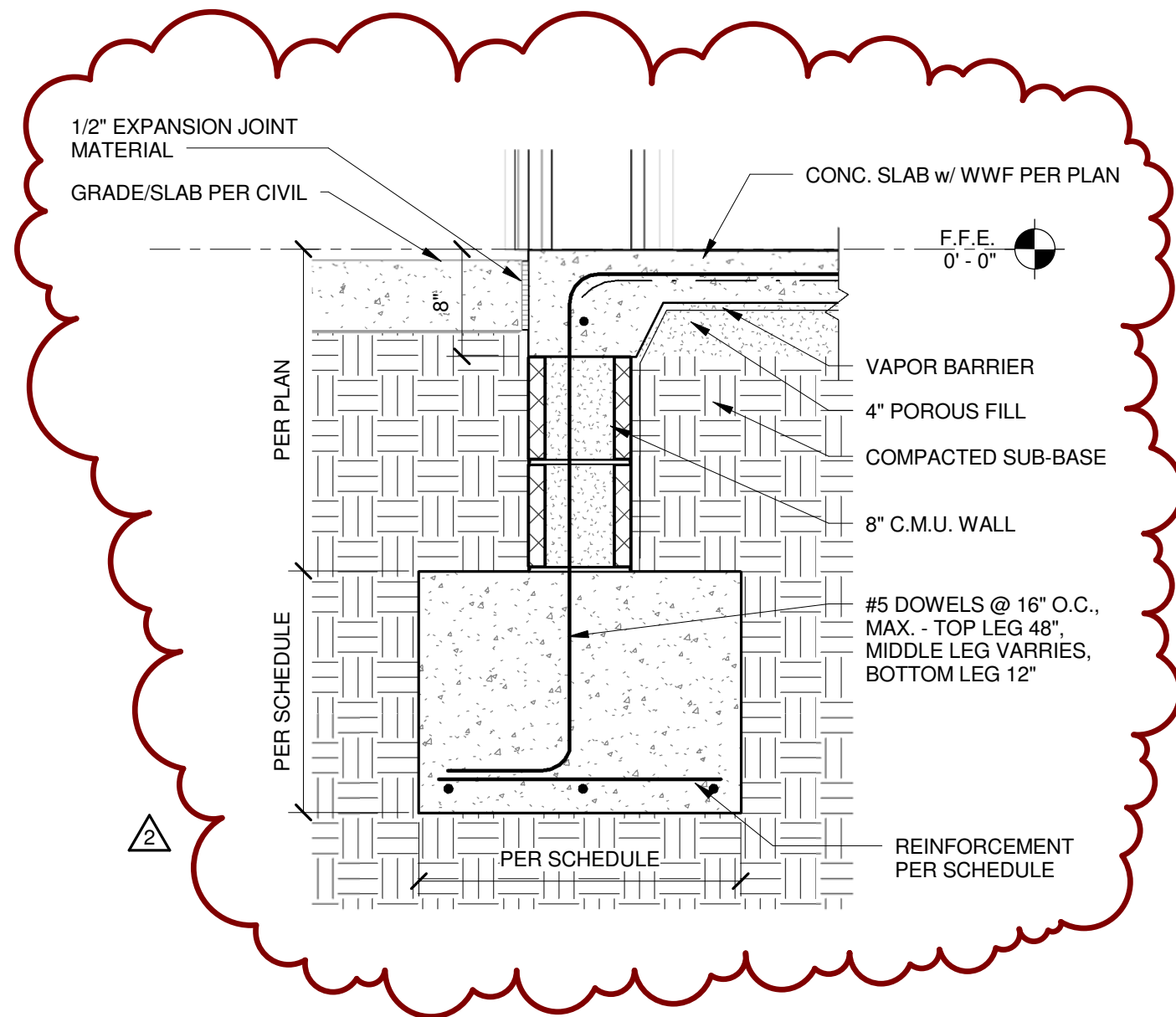
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Drawn by: BTH

Checked by: BR

AD-02-S-16

Scale: As indicated



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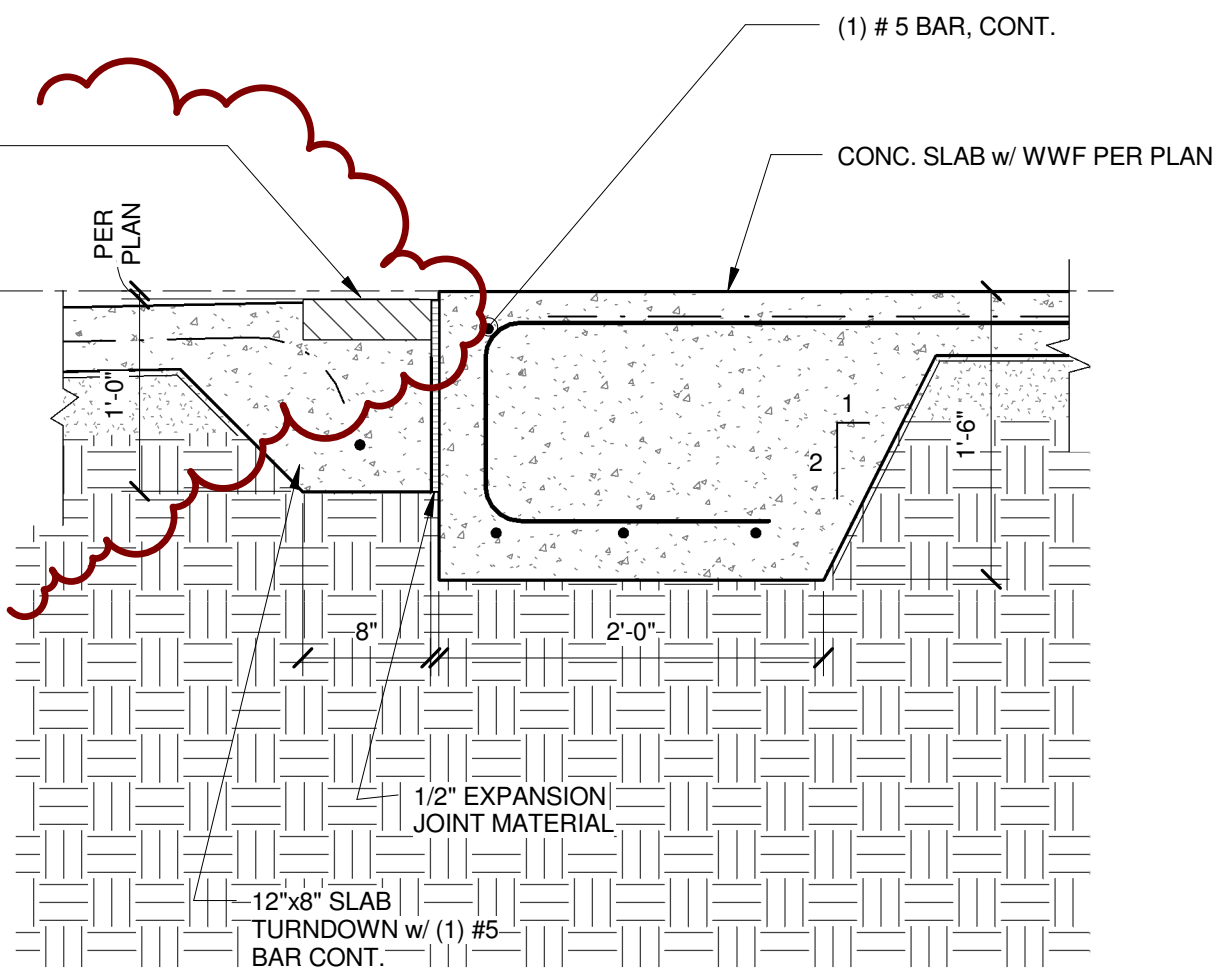
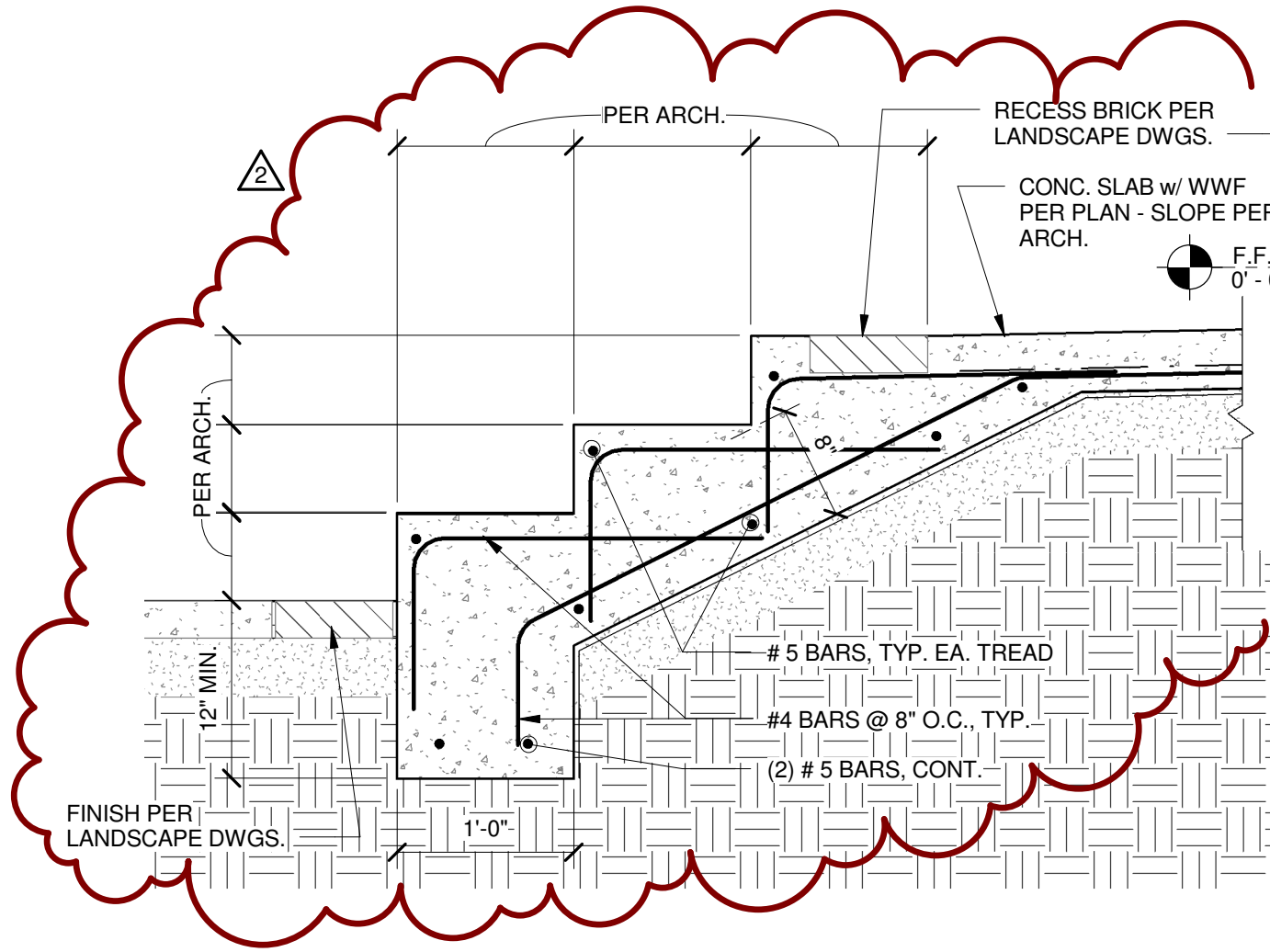
Watson Tate Savory Liollo
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MJC
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C.M.U. WALL FOOTING REVISIONS

Project number:	09107	AD-02-S-17
Date:	07/06/11	
Drawn by:	BTH	
Checked by:	BR	Scale: As indicated

PROJECT NUMBER: 09-053	DATE: 07/06/2011
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A R C H I T E C T U R E

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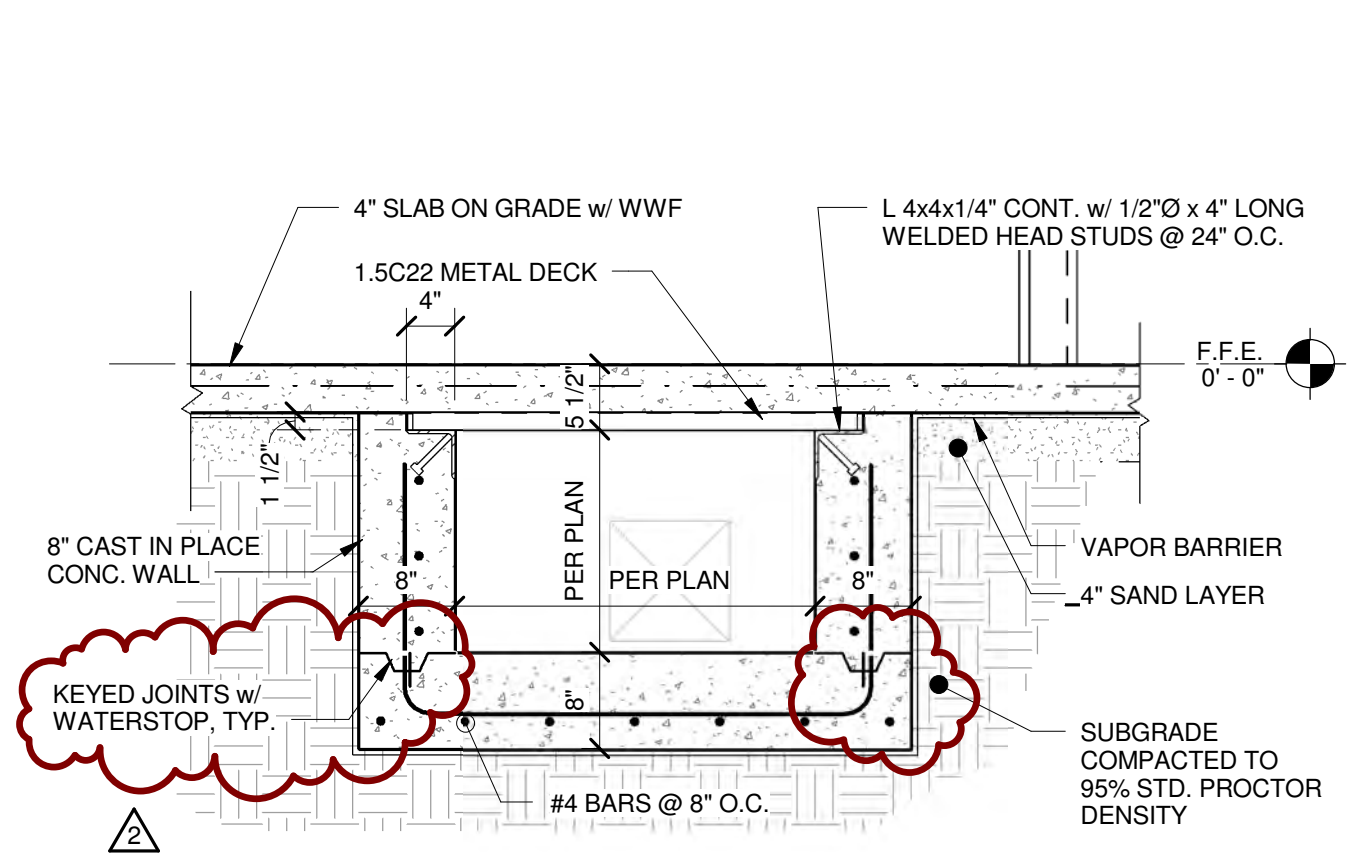
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PROJECT NUMBER: 09-053 DATE: 07/06/2011

A/S301 - PORCH SECTION w/ STAIR REVISIONS

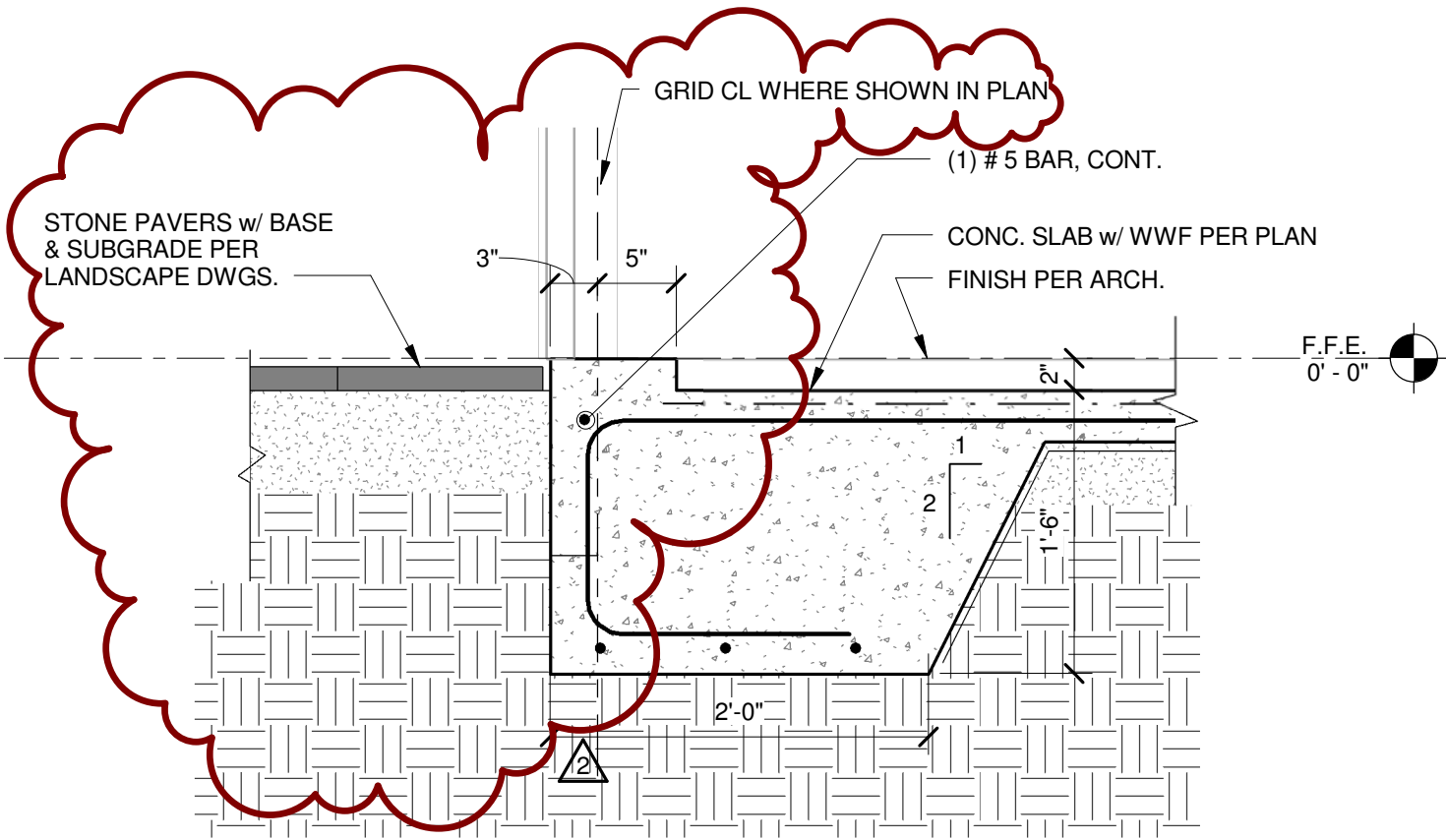
Project number:	09107
Date:	07/06/11
Drawn by:	BTH
Checked by:	BR
Scale:	As indicated

AD-02-S-19



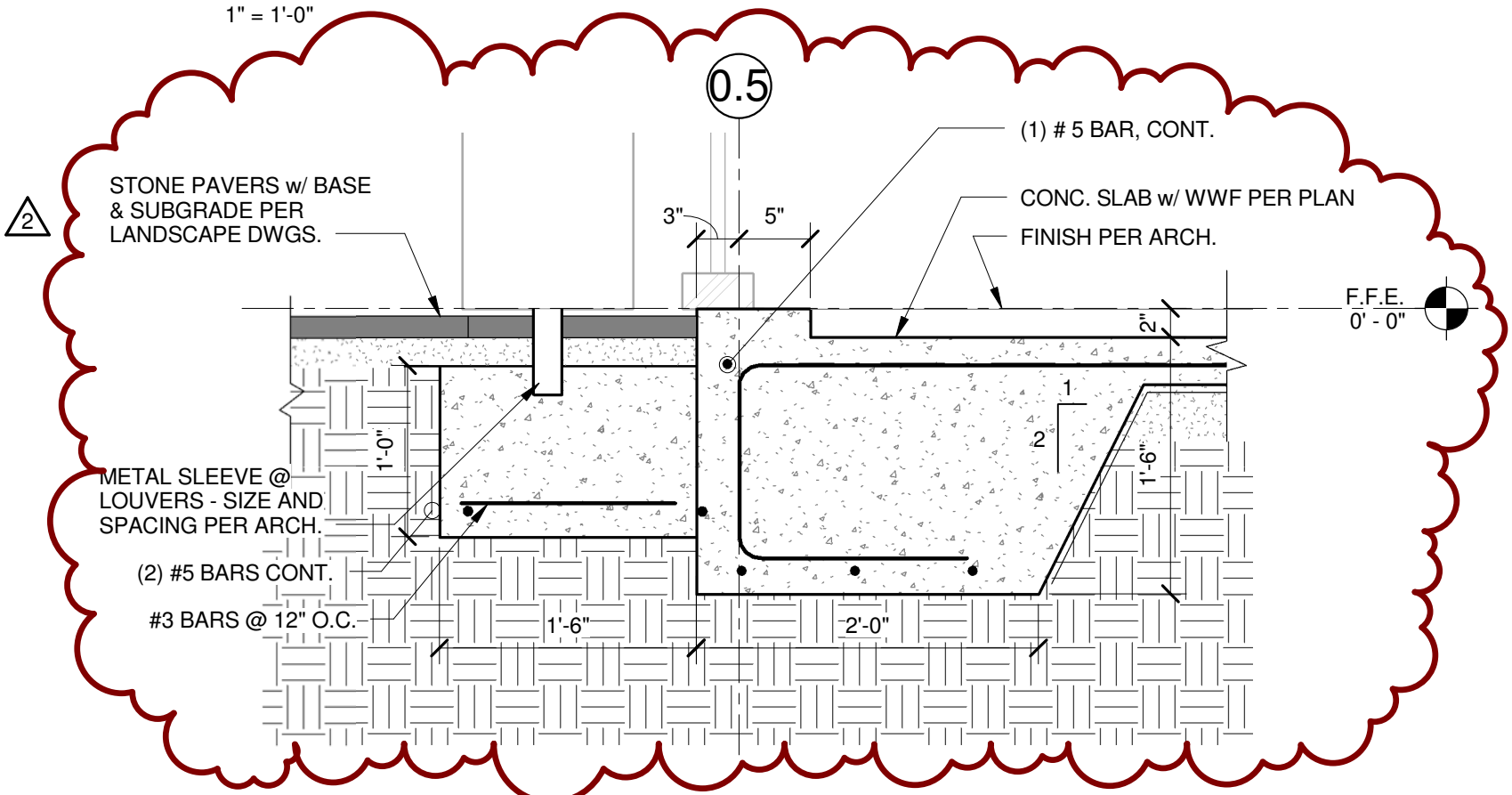
D/S301 - TRENCH SECTION

3/4" = 1'-0"



B/S301 - SLAB TURNDOWN SECTION

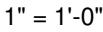
1" = 1'-0"



F/S301 - SLAB TURNDOWN SECTION

1" = 1'-0"

S301 - FOOTING DETAIL REVISIONS		AD-02-S-20		As indicated	
Project number:	09107	Date:	07/06/11	Drawn by:	BTH
Checked by:	BR	Scale:	BR	Project number:	09107
MOULTON CLEMONSON JONES, INC.		DATE: 07/06/2011		PROJECT NUMBER: 09-053	
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DATE: 07/06/2011

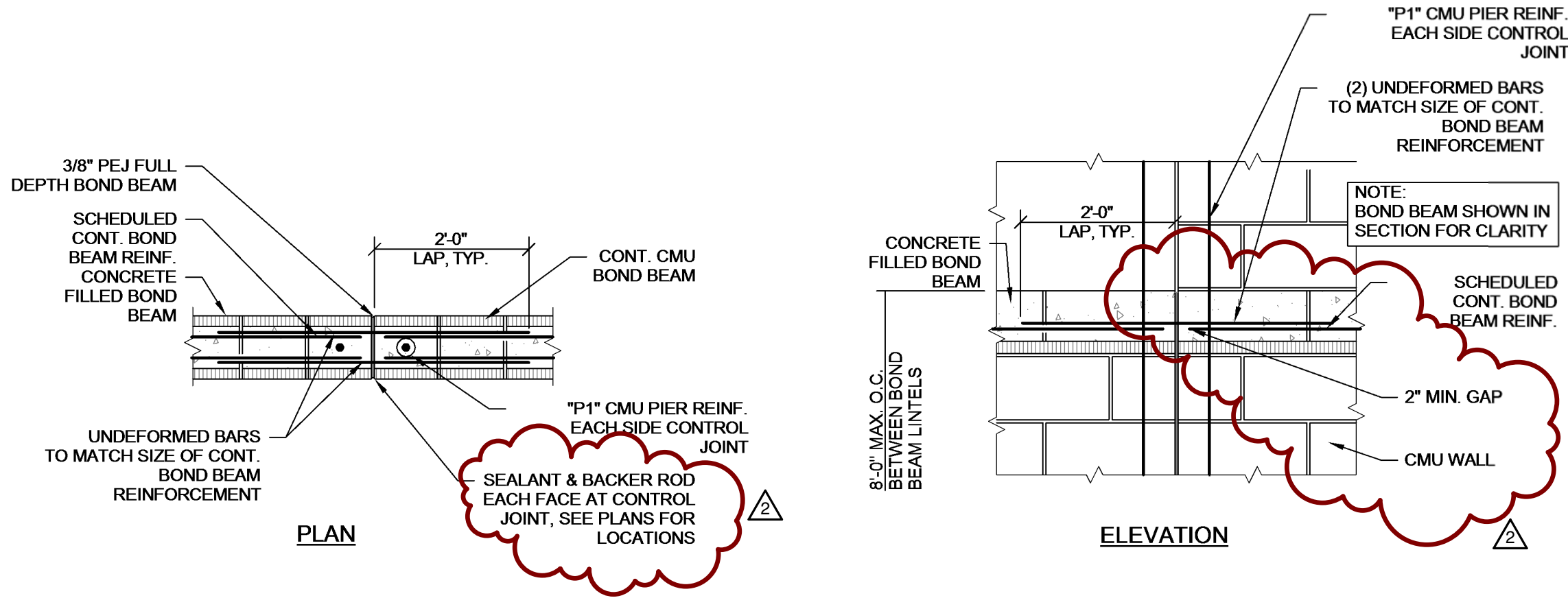
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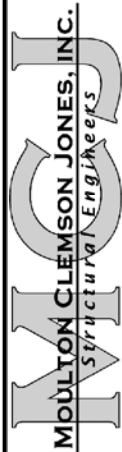
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As indicated

As indicated

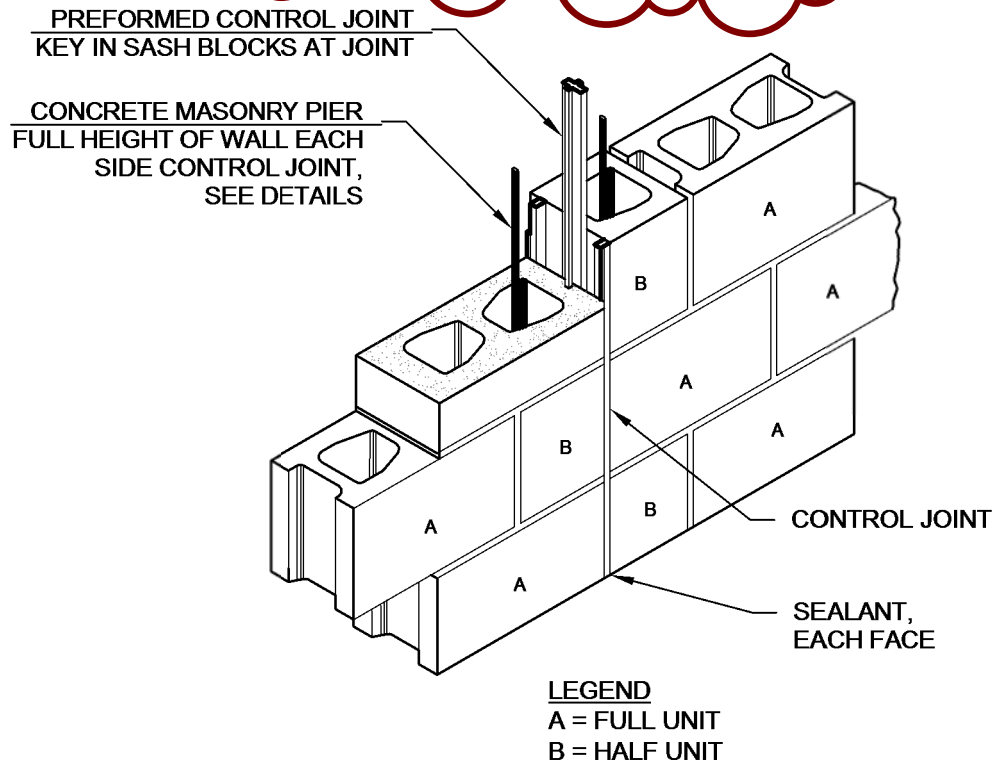


CONTROL JOINT DETAIL AT BOND BEAMS & LINTELS
 NOT TO SCALE

St. Helena Island Branch Library at Penn Center	S302 - TYPICAL CMU DETAIL REVISION			
	Project number:	09107	AD-02-S-22	
	Date:	07/06/11	Drawn by:	BTH
	Checked by:	BR	Scale:	As indicated
Watson Tate Savory Liollo ARCHITECTURE				
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	PROJECT NUMBER:	09-053	DATE:	07/06/2011

2

CONTROL JOINT PLACEMENT PER PLANS.
DO NOT PLACE OVER OPENINGS OR
CONTINUE THROUGH C.I.P. BEAMS U.N.O.
SEE ARCH. DWGS FOR LOCATION,
SPACING, AND ADDITIONAL
REQUIREMENTS.



CMU WALL CONTROL JOINT

NOT TO SCALE

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PROJECT NUMBER: 09-053 DATE: 07/06/2011

St. Helena Island Branch Library at Penn
Center

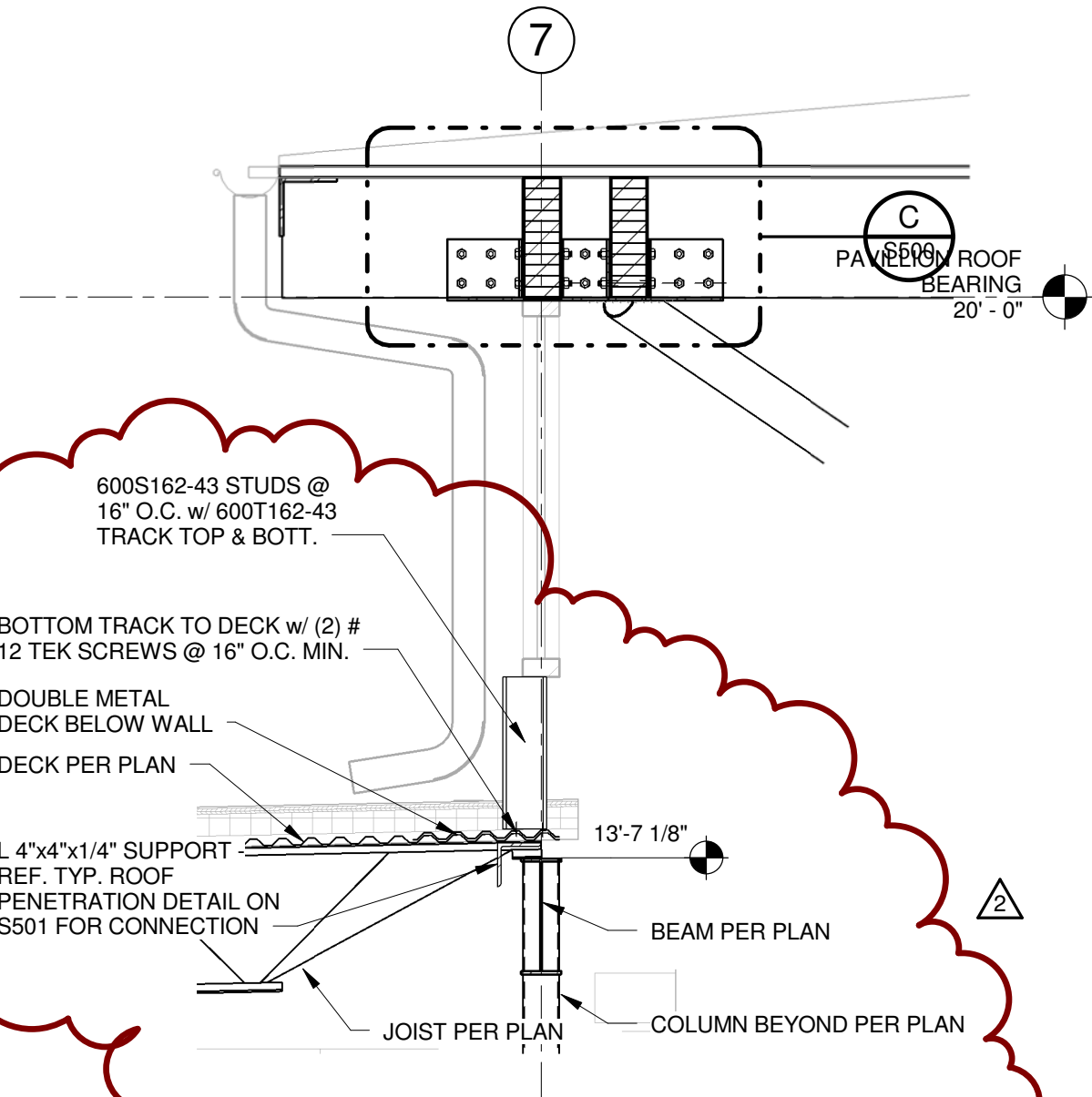
Watson Tate Savory Liollo
ARCHITECTURE

S302 - TYPICAL CMU DETAIL REVISION

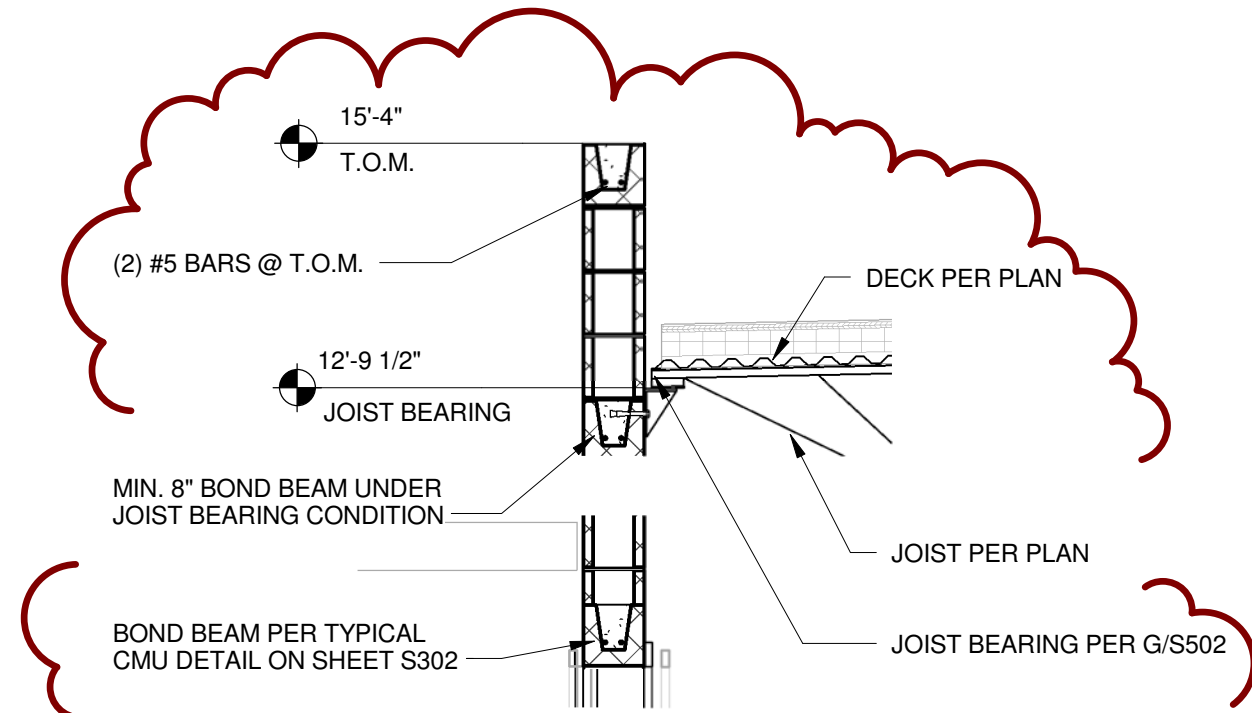
Project number:	09107
Date:	07/06/11
Drawn by:	BTH
Checked by:	BR

AD-02-S-23

Scale: As indicated



D/S400 - ROOF FRAMING SECTION
1/2" = 1'-0"



F/S400 - TYPICAL MASONRY WALL SECTION @ DOOR
1/2" = 1'-0"

S400 - SECTION REVISIONS

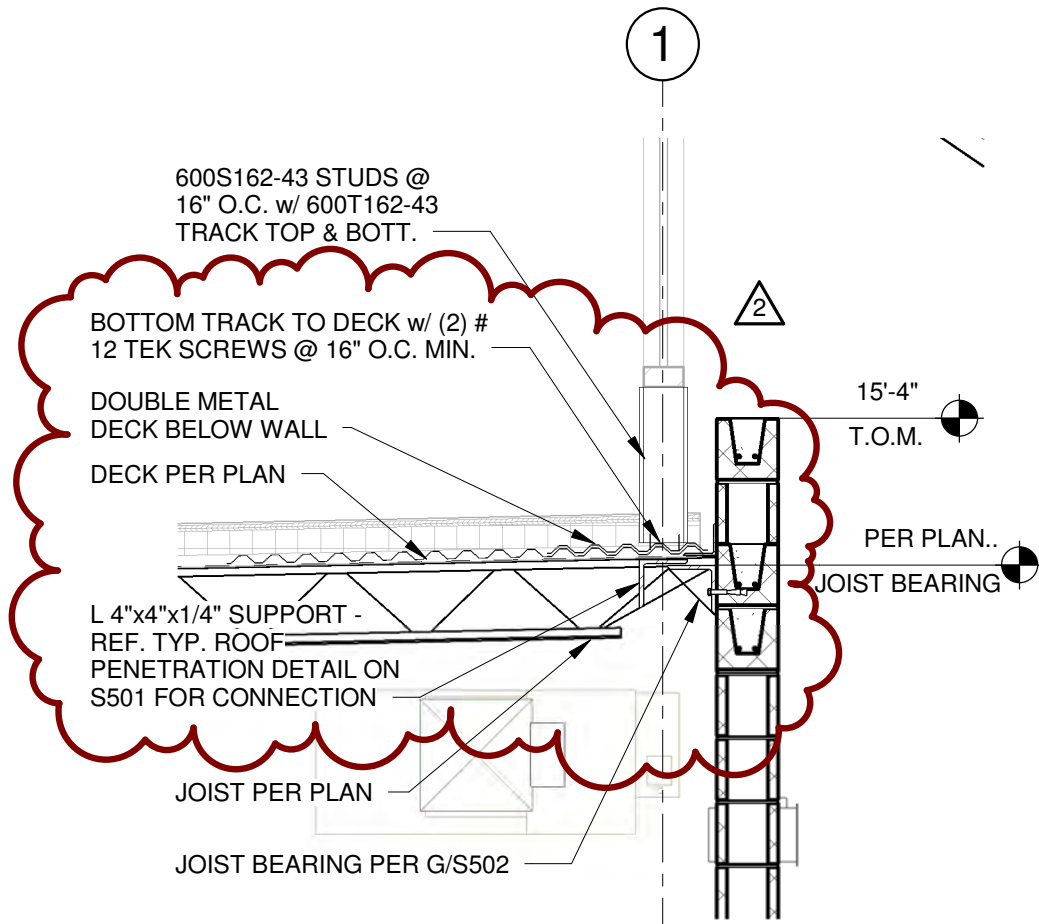
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Checked by:	BR			

Moulton Clemson Jones, Inc.
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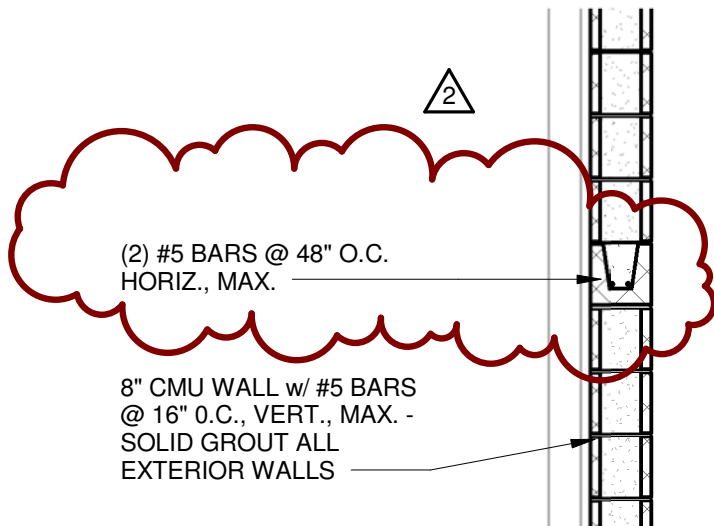
PROJECT NUMBER: 09-053 DATE: 07/06/2011

St. Helena Island Branch Library at Penn Center

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C/S400 MASONRY WALL SECTION
1/2" = 1'-0"



A/S400 TYPICAL MASONRY WALL SECTION
1/2" = 1'-0"

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PROJECT NUMBER: 09-053

DATE: 07/06/2011

S400 - SECTION REVISIONS

Project number:	09107
Date:	07/06/11
Drawn by:	BTH
Checked by:	BR

AD-02-S-26

Scale: As indicated

St. Helena Island Branch Library at Penn Center

Watson Tate Savory Liollo
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S401 - SECTION REVISIONS

Project number:	09107
Date:	07/06/11
Drawn by:	BTH
Checked by:	BR
Scale:	As indicated

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Structural Engineers

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PROJECT NUMBER: 09-053

DATE: 07/06/2011

AD-02-S-27

09107
07/06/11
BTH
BR
As indicated

