ADDENDUM NO. 1

RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR ELEMENTARY SCHOOL
2025 Graves Road, Hockessin, DE 19707

THE WHITING-TURNER CONTRACTING COMPANY
CONSTRUCTION MANAGER
131 Continental Drive – Suite 404
Newark, DE 19713
302-292-0676 (phone)
302-292-0683 (fax)

BIDS DUE: **SEPTEMBER 24, 2013 at 2:00PM**

LOCATION: **William F. Cooke Jr. Elementary School Jobsite – Conference Room**
2025 Graves Road
Hockessin, DE 19707

NOTICE TO ALL BIDDERS

1.0 GENERAL NOTES:

1.1 Bidders are hereby notified that this Addendum shall be and hereby becomes part of their Contract Documents, and shall be attached to the Project Manual for this project. All bidders shall acknowledge this addendum on the Bid Form.

1.2 The following items are intended to revise and clarify the Drawings and Project Manual, and shall be included by the Bidder in their proposal.

1.3 Bidders shall verify that their Sub-bidders are in full receipt of the information contained herein.

1.4 Deadline for questions shall be September 17, 2013 at 2:00pm.

1.5 A **mandatory** pre-bid meeting was held on September 6, 2013 at William F. Cooke Jr. Elementary School jobsite conference room.

1.5.1 Pre-Bid Meeting Minutes dated September 6, 2013 are attached to this addendum.

1.5.2 Pre-Bid Sign-in Sheets are attached to this addendum.

1.6 CAD files will not be provided for bidding purposes. CAD files will be available for purchase as requested to awarded contractors.

1.7 The individual bid package 2-13-67-09E Epoxy Flooring has been deleted.

1.8 The individual bid package 2-13-67-14A Elevator has been deleted.

1.9 The individual bid package 2-13-67-31B Landscaping has been deleted.

1.10 Substitution Request: Gymnasium Equipment, spec section 116623, Safety Pads. Subject

to compliance with requirements, Mancino Safety Wall Padding is an acceptable equivalent, see below.

1.11 Substitution Request: Aluminum Framed Entrances and Storefronts, spec section 084113. Subject to compliance with requirements, EFCO is an acceptable equivalent, see below.

1.12 Substitution Request: Glazed Aluminum Curtainwall, spec section 084413. Subject to compliance with requirements, EFCO is an acceptable equivalent, see below.

1.13 Where EPDM membrane continues up walls, including parapets, sheathing shall be ½" exterior grade plywood as noted below, up to the termination of the membrane. Contractor shall coordinate tie-in and transition to air barrier system to maintain continuity of the building envelope.

1.14 All plywood shall be Fire Retardant Treated as noted below.

1.15 The system(s) defined in specification SECTION 274116 INTEGRATED AUDIO-VIDEO SYSTEMS AND EQUIPMENT FOR CLASSROOMS shall be by others. However, the pathways, conduit, boxes, and other infrastructure required to install the systems(s) defined in this section shall be provided by the Contractor.

1.16 The T series drawings have been revised to reflect that the audio video systems to accompany the interactive projectors are to be by others. However, the boxes, conduit, and other supporting infrastructure for the audio video systems shall remain part of the base bid of this project as specified and noted on the drawings.

1.17 Standing seam roofing panels shall run continuously from eave to ridge without any laps seams.

1.18 Masonry ties are indicated in details for reference. Additional ties shall be provided as necessary to comply with structural and maximum spacing requirements.

2.0 CHANGES TO THE PROJECT MANUAL

2.1 TABLE OF CONTENTS

2.1.1 Page 1 of 6, DIVISION 00 – CONTRACT REQUIREMENTS, SECTION 003132 GEOTECHNICAL REPORTS – DELETE following items: "ADDITIONAL HAND AUGER BORING REPORT BY HILLIS- CARNES ENGINEERING (Date…….)" and "PAVEMENT CORING REPORT BY HILLIS-CARNES ENGINEERIG (Date …….)".

2.2 SECTION 012300 ALTERNATES

2.2.1 Paragraph 3.1.H Alternate No. 8: Terrazzo at Main Lobby A100, Corridor A100C and C100A, ADD item 3: Alternate 8A: Delete resilient quartz tile flooring at Lobby A100,
Corridor A100C and Stair C100A. Provide solid color stained concrete floor.

2.3 SECTION 018000 RELEASE OF ELECTRONIC MEDIA

2.3.1 REPLACE section 018000 with section issued in this addendum.

2.4 SECTION 042000 UNIT MASONRY

2.4.1 ADD subparagraph 2.3.B.1.a.1).c), as follows: "c) Belden: Graystone Smooth".

2.5 SECTION 047300 CAST STONE CONCRETE MASORNY VENEER

2.5.1 REPLACE "Canyon Gray Smooth" with "Sandstone Smooth" at article 2.2.C.1.a.1

2.5.2 REPLACE "Canyon Gray Smooth" with "Sandstone Smooth" at article 2.2.C.2.a.1

2.5.3 REPLACE "Canyon Gray Smooth" with "Sandstone Smooth" at article 2.2.C.3.a.1

2.6 SECTION 055113 METAL STAIRS

2.6.1 REPLACE paragraph 2.2.F with the following:

F. Woven-Wire Mesh: Lockcrimp weave, square pattern, 2-inch (50-mm) woven-wire mesh, made from minimum 0.135-inch (3.5-mm) nominal diameter wire complying with ASTM A 510 (ASTM A 510M).

1. Basis-of-Design: McNichols Company; square weave wire mesh #3693160041.

2.7 SECTION 055213 PIPE AND TUBE RAILINGS

2.7.1 REPLACE paragraph 2.4.D with the following:

D. Woven-Wire Mesh: Lockcrimp weave, square pattern, 2-inch (50-mm) woven-wire mesh, made from minimum 0.135-inch (3.5-mm) nominal diameter wire complying with ASTM A 510 (ASTM A 510M).

1. Basis-of-Design: McNichols Company; square weave wire mesh #3693160041.

2.8 SECTION 061600 SHEATHING

2.8.1 REPLACE article 2.4.E, "Application: Treat plywood indicated on Drawings, and the following" with "Application: Treat all plywood"

2.9 SECTION 064023 INTERIOR ARCHITECTURAL WOODWORK is provided for millwork indicated on Drawings A404, A405 and A406.

2.10 SECTION 074113 STANDING SEAM ROOF PANELS

2.10.1 ADD paragraph 2.1.A.3 as follows: "3. Centria."

2.10.2 ADD paragraph 2.1.F.1.d as follows; "d. SRS3 by Centria."

2.10.3 ADD Paragraph 2.10 as follows:

A. 2.10 COVERBOARD

a. A. Provide ½" DensDeck Roof Board or equivalent product.

2.10.4 Paragraph 3.4.A: REVISE fourth sentence to read as follows: "Apply per manufacturer's recommended instructions to shed water."

2.10.5 Paragraph 3.5.A: REVISE first sentence to read as follows: "General: Provide metal roof panels of full length from eave to ridge, unless otherwise indicated."

2.10.6 REMOVE paragraph 3.5.A.8 and renumber following paragraph.

2.10.7 Paragraph 3.5.C.1: REVISE to read as follows: "Seal side joints where recommended by metal roof panel manufacturer."

2.11 SECTION 084113 ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

2.11.1 ADD Article 2.2.A.4 EFCO

2.11.1.1 Exterior: Series 403(T)

2.11.1.2 Interior: Series 401

2.12 SECTION 084413 GLAZED ALUMINUM CUTRAINWALLS

2.12.1 ADD Article 2.2.A.4 EFCO

2.12.1.1 Curtainwall: System 5600 – 2 ½" x 7 ½" System

2.12.1.2 Butt Glazed Curtainwall: System 5600 System SSG Verticals – 2 ½" x 7 ½" System. Modify mullion at transition to curtainwall as required per manufacturer's written instructions.

2.12.2 REVISE article 2.3.B.1.a "4" vertical pressure caps" to "vertical pressure caps, Basis of Design EFCO-12G3"

2.12.3 ADD article 2.3.B.1.b "Provide vertical pressure caps, Basis of Design EFCO-4564 at CW-6, CW-6A, & CW-6B (Stair C100A)

2.12.4 ADD article 2.3.B.1.c "Provide manufacturer's standard pressure caps at all horizontal and all other vertical locations not listed above.

2.13 SECTION 087100 DOOR HARDWARE

2.13.1 REVISE Hardware Set No. 327 to revise set for in swinging door as follows:
Hardware Set No. 327
For use of door #(s):
C116A/1
Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	L9080T 17A	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
1	EA	SURFACE CLOSER	4041 DEL TBSRT	689	LCN
1	EA	KICK PLATE	8400 16" X 1" LDW BAE	630	IVE
1	SET	SEALS	5020B	BRN	NGP

2.13.2 REVISE Hardware Set No. 109 to include fire rated hardware as follows:
Hardware Set No. 109
For use of door #(s):
C110/1
Provide each PR door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
2	EA	CONT. HINGE	224HD	628	IVE
1	EA	KEYED FIRE RATED REMOVABLE	KR9954-STAB	689	VON
1	EA	FIRE EXIT	98-EO-F	626	VO
1	EA	RIM CYLINDER	20-057-ICX	626	SCH
1	EA	MORTISE CYLINDER	20-061-ICX	626	SCH
2	EA	PRIMUS CORE	20-740	626	SCH

1	EA	DOOR PULL	VR910 NL	630	IVE
2	EA	SURFACE CLOSER	4040XP SCUSH TBSRT	689	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW B4E	630	IVE
1	SET	SEALS	5050B	BRN	NGP
1	SET	ASTRAGAL	140PA	CL	NGP
1	EA	MULLION SEAL	5100	BLK	NGP
2	EA	DOOR SWEEP	C627A	CL	NGP
1	EA	THRESHOLD	896S	AL	NGP
2	EA	DOOR CONTACT	679-05HM	BLK	SCE

DOOR OPERATION: Door position switch to be connected to access control system for monitoring.

2.14 SECTION 092900 GYPSUM BOARD

2.14.1 ADD article 1.2.A.2 Cement Board (Tile backing panels)

2.14.2 ADD Section 2.5 TILE BACKING PANELS

2.14.2.1 Cementitious Baker Units (CB): ANSI A118.9 and ASTM C1288 or 1325, with manufacturer's standard edges.

1. Products: Subject to compliance with requirements, provide one of the following:

a. CertainTeed Corp: Fiber Cement BackerBoard

b. Custom Building Products: Wonderboard

c. James Hardi Building Products, Inc.: Hardiebacker

d. National Gypsum Company: Permabased Cement Board

e. USG Corporation: DUROCK Cement Board

2. Thickness: ¼" inch

3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.15 SECTION 0984113 FABRIC-WRAPPED ACOUSTICAL PANELS

2.15.1 Paragraph 2.2, ADD subparagraph 2.2.B as follows:

B. Fabric-wrapped Custom Graphic Acoustic Wall System (AWP-2) in Corridor C101C and Corridor C101D.

1. Basis-of-Design: Noise S.T.O.P. Custom Graphic Acoustic Wall Systems by Acoustical Surfaces, Inc. or comparable product by one of the following:

a. CONWED Designscape, Div. of Owen's Corning.

b. Wenger Corporation.

c. Golterman & Sabo.

2. Type: Decorative.

3. Thickness: 1".

4. Size: 4' x 4' with hardened edges. All edges shall be wrapped.

5. Quantity: 8.

6. Flammability: ASTM E-84, Class 1-A, Nonflammable.

7. Graphics: Custom. To be provided by Owner. Full range of color per panel.

8. Mounting Accessories: Manufacturer's standard or recommended

accessories for securely mounting panels to substrates.
a. Mounting: Z-Clips.

2.15.2 ADD paragraph 2.2.A.1.c as follows: "`c. Essi Acoustical Products Company."

2.16 SECTION 096723 RESINOUS FLOORING

2.16.1 REVISE paragraph 2.1.B.1 to read as follows: "Color and Pattern: As selected by Architect from manufacturer's full range. Up to four (4) total selections, three (3) of which may be custom blend."

2.16.2 REVISE paragraph 2.2.B.1 to read as follows: "Color and Pattern: As selected by Architect. One (1) selection from manufacturer's full range of blends."

2.17 SECTION 101400 SIGNAGE

2.17.1 REVISE paragraph 2.7.D to read as follows: "D. Mounting: Provide bottom stud mounting. Provide tiebacks as required. See drawings for configuration. Finish color shall be black."

2.18 SECTION 104200 PLAQUES

2.18.1 ADD Plaque Layout to end of Section 104200.

2.19 SECTION 104413 FIRE EXTINGUISHER AND DEFIBRILLATOR CABINETS

2.19.1 ADD paragraph 2.3 as follows, and renumber subsequent paragraphs accordingly.

2.3 FIRE VALVE CABINET (FVC):
A. Fire Rated Cabinet: Basis of Design: Larsen Manufacturing Company, Model: FS-VCSS1818
1. Locations: Stair C100A and Lobby C100D
B. Standard Cabinet: Basis of Design: Larsen Manufacturing Company, Model: VCSS1818
1. Locations: At all other locations

2.20 SECTION 113100 RESIDENTIAL APPLIANCES

2.20.1 ADD paragraph 2.3 as follows, and renumber subsequent paragraphs accordingly.

2.3 MICROWAVE OVENS
A. Manufacturer's: Subject to compliance with requirements, provide product indicated or comparable product by one of the following:
1. LG Appliances.
2. Samsung.
3. Sears Brands LLC (Kenmore)
4. Whirlpool Corporation.
B. Microwave Oven – Provide 1 at Teacher's Lounge C112
1. Basis-of-Design Product: Whirlpool – WMC50522AS
2. Material: Stainless steel.

2.21 SECTION 114000 FOODSERVICE EQUIPMENT

2.21.1 REMOVE line 5 from paragraph 3.06, Item #26, and renumber following items. Doors shall be stainless steel.

2.21.2 REMOVE line 9 from paragraph 3.06, Item #29A. Front and ends shall be stainless steel.

2.21.3 REMOVE line 9 from paragraph 3.06, Item #29B. Front and ends shall be stainless steel.

2.21.4 REMOVE line 7 from paragraph 3.06, Item #29C Front and ends shall be stainless steel.
2.21.5 REMOVE line 8 from paragraph 3.06, Item #29D. Front and ends shall be stainless steel.
2.21.6 REVISE paragraph 3.06, Item #30, line 6, to remove "…and laminate finish, color as selected by Architect; K.E.C. to verify." Doors shall be stainless steel.
2.21.7 REMOVE line 5 from paragraph 3.06, Item #32. Front, back, and ends shall be stainless steel.

2.22 SECTION 116623 GYMNASIUM EQUIPMENT
2.22.1 ADD article 2.4.A.5 Mancino Safety Wall Padding

2.23 SECTION 123200 MANUFACTURED WOOD CASEWORK
2.23.1 ADD paragraph 2.2.J and 2.2.K as follows:

J. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for Test Methods 3.3, 3.4, 3.6, 3.8, and 3.10.

K. Edgebanding for Thermoset Decorative Panels: PVC or polyester edgebanding matching thermoset decorative panels.

2.23.2 Add paragraph 2.4.E as follows:
E. Thermoset Decorative Panel Colors, Patterns, and Finishes: As selected by Architect from thermoset decorative panel manufacturer's full range

2.23.3 REVISE paragraph 2.5.A.5 and 2.5.A.6 to read as follows:
5. Drawer Sides and Backs: 1/2-inch (12.7-mm) 1/2-inch (12.7-mm) particleboard or MDF, thermoset decorative panel faced.

6. Drawer Bottoms: 1/4-inch (6.4-mm) particleboard or MDF, thermoset decorative panel faced glued and dadoed into front, back, and sides of drawers. Use 1/2-inch (12.7-mm) material for drawers more than 24 inches (600 mm) wide.

2.23.4 REVISE paragraph 2.6.F from "…5-pin tumbler…" to "…5-pin or 5-disc tumbler…"
2.23.5 ADD paragraph 2.7.C as follows:
C. Plastic-Laminate Tops: Plastic-laminate sheet, shop bonded with waterproof glue to both sides of 3/4-inch plywood or particleboard. Sand surfaces to which plastic laminate is to be bonded.
1. Plastic-Laminate Type for Flat Tops: HGS

2. Plastic-Laminate Type for Formed Tops: HGP.

3. Plastic-Laminate Type for Backing: BKL

4. Provide 3-mm PVC edging on front edge of top, on top edges of backsplashes and end splashes, and on ends of tops and splashes.

5. Construct top and backsplash from one piece of plastic laminate with rolled edges and coved intersection. Where indicated, provide separate end splashes fitted to top.

6. Use exterior plywood or phenolic-resin-bonded particleboard for countertops containing sinks.

2.24 SECTION 123280 MEDIA SHELVING AND CASEWORK

2.24.1 Paragraph 2.1.A, ADD subparagraph 4 as follows:

4. Library Bureau Steel.

2.24.2 Paragraph 2.1.A, ADD items 4 and 5 as follows:

4. Estey, A Division of Tennsco Corp.
5. Palmeiri Furniture.

2.25 SECTION 230923 DIRECT DIGITAL CONTROL SYSTEM FOR HVAC

2.25.1 REPLACE Section 230923 with Section issued in this addendum. Reissued section clarifies the scope of work for the pre-purchased control system and requirements for the VRF system and interface.

2.26 SECTION 230993 SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

2.26.1 REPLACE Section 230993 with Section issued in this addendum. Reissued section clarifies the scope of work for the pre-purchased control system and requirements for the VRF system and interface.

2.27 SECTION 237223 PACKAGED AIR-TO-AIR ENERGY RECOVERY UNITS

2.27.1 REPLACE Section 237223 with Section issued in this addendum. Reissued section clarifies manufacturer and selected options for the units.

2.28 SECTION 238129 VARIABLE REFRIGERANT VOLUME (VRV, VRF) HVC SYSTEM

2.28.1 REPLACE Section 238129 with Section issued in this addendum. Reissued section clarifies the scope of work for the pre-purchased control system and requirements for the VRF system and interface.

3.0 CHANGES TO THE DRAWINGS:

3.1 DRAWING G001 Cover Sheet – Volume 1

3.1.1 DELETE drawing “C102 Existing Conditions and Demolition Plans from drawing list.

3.1.2 ADD drawing “S100A Structural Notes” to drawing list.

3.1.3 REVISE proposed new edge of wooded area at northwest corner of property along Graves Road (adjacent to Galster Property) per attached sketch CSK003.

3.2 DRAWING G002 Cover Sheet – Volume 2

3.2.1 ADD drawing "E800 Electrical Grounding Plan" to drawing list.
3.2.2 ADD drawing "T201 Technology Details" to drawing list.
3.2.3 DELETE drawing MP102C Refrigerant Piping and Condensate First Floor Upper Level & Roof Plan – Area C"

3.3 DRAWING G101 First Floor and Second Floor Life Safety Plan
3.3.1 DELETE code references listed under "Applicable Codes" and "REPLACE" with the following:
3.3.1.1 2006 International Building Code (IBC)
3.3.1.2 2009 ICC/ANSI A117.1 Accessible and Useable Buildings and Facilities
3.3.1.3 2009 International Energy Conservation Code
3.3.1.4 2009 International Mechanical Code
3.3.1.5 2009 International Plumbing Code
3.3.1.6 2010 ADA Standard for Accessible Design
3.3.1.7 2012 Delaware State Fire Prevention Regulations
3.3.1.8 2012 NFPA 101 Life Safety Code (NFPA)
3.3.2 DELETE code reference in Building Component Fire Rating Schedule - "NFPA 5000 – 7.2.3.2.8" and REPLACE with "Table A.8.2.1.2"
3.3.3 DELETE code references in Minimum Interior Finish Requirements "39.3.3.2(1)" and REPLACE with "14.3.3.2(1)"
3.3.4 DELETE code references in Minimum Interior Finish Requirements "39.3.3.2(2)" and REPLACE with "14.3.3.2(2)"
3.3.5 DELETE code references in Minimum Interior Finish Requirements "39.3.3.2(C)" and REPLACE with "14.3.3.2(2)"

3.4 DRAWING C101 EXISTING CONDITIONS AND DEMOLITION PLAN
3.4.1 REVISE area of woods to be cleared, thus adjusting proposed new edge of wooded area at northwest corner of property along Graves Road (adjacent to Galster Property) per attached sketch CSK004.

3.5 DRAWING C-300 UTILITY COVER SHEET
3.5.1 REPLACE Drawings C300 with drawing issued in this addendum.
3.5.2 REVISED "Total Number of Manholes" from 10 to 11 in the Sewer Detail Table on sheet C-300.
3.5.3 ADD new manhole and label (new San. M.H. 5) at southwest corner of property where sanitary sewer system enters from the adjacent property.
3.5.4 Manholes previously labeled as San. M.H. 5 through San M.H. 10 have been renumbered to San. M.H. 6 through San. M.H. 11.
3.5.5 REVISE proposed new edge of wooded area at northwest corner of property along Graves Road (adjacent to Galster Property) per attached sketch CSK006.
3.5.6 REVISE grading at northwest corner of property along Graves Road (adjacent to Galster Property) per attached sketch CSK006.
3.5.7 REVISE sanitary sewer lateral table, lateral 1 and 2 at invert at connection point per attached sketch CSK006.
3.5.8 REVISE sanitary sewer lateral 2 from 4" size to 6" size per attached sketch CSK020.
3.5.9 REVISE sanitary sewer lateral 1 and manhole # 11 location to west by 3'-0" to match location of sanitary leaving building as shown on plumbing plan P-101C(S) per attached sketch CSK020.

3.5.10 REVISE sanitary sewer manhole invert of lateral 2 entering manhole # 10 per attached sketch CSK020.
3.5.11 REVISE sanitary sewer manhole # 11 information for new location per attached sketch CSK020.
3.5.12 REVISE Sanitary Sewer Lateral Table to reverse inverts at connection point for Lateral 1 and 2 inverts as indicated on sketch CSK027.
3.5.13 REVISE upstream manhole numbers for all four (4) laterals as indicated on sketch CSK027.
3.5.14 REVISE downstream manhole number for LAT-1 as indicated on sketch CSK027.
3.5.15 REVISE Sanitary Sewer Detail Table correcting total linear feet of 8" gravity sewer as indicated on sketch CSK027.
3.5.16 ADD legend as indicated on CSK027.
3.5.17 REVISE "Invert In" elevation of manhole #3 to El. 276.00' as indicated on sketch CSK028.
3.5.18 SHIFT location of turf trail slightly as indicated on CSK028.
3.5.19 REVISE General Notes to eliminate former note #11 and RENUMBER former notes #12 and #13 to note #11 and #12 as indicated on sketch CSK029.

3.6 DRAWING C-301 UTILITY PLAN
3.6.1 REPLACE Drawings C301 with drawing issued in this addendum.
3.6.2 Manholes previously labeled as San. M.H. 7 through San M.H. 10 have been renumbered to San. M.H. 8 through San. M.H. 11.
3.6.3 Previously labeled pipes SS-8 through SS-10 have been renumbered as SS-9 through SS-11.
3.6.4 Note S-4 and S-7 revised to read "The system shall be public up to manhole no. 5. Manhole no.'s 1 - 5 shall have N.C.C. standard manhole frame and cover. All others shall have manhole frame and cover for private system"
3.6.5 Note S-5 is revised from "precast concrete grease interceptor" to "stainless steel grease interceptor" and added "with 12"x18"x120" concrete dead man anchors and straps per details, sheet C-902".
3.6.6 Updated Sanitary Sewer Manhole Schedule and Sanitary Sewer Pipe Schedule for the revisions shown above.
3.6.7 REVISE sanitary sewer lateral 2 from 4" size to 6" size per attached sketch CSK020.
3.6.8 REVISE sanitary sewer lateral 1 and manhole # 11 location to west by 3'-0" to match location of sanitary leaving building as shown on plumbing plan P-101C(S) per attached sketch CSK020.
3.6.9 REVISE sanitary sewer manhole invert of lateral 2 entering manhole # 10 per attached sketch CSK020.
3.6.10 REVISE sanitary sewer manhole # 11 information for new location per attached sketch CSK020.
3.6.11 REVISE sanitary sewer manhole and pipe schedules to reflect changes per attached sketch CSK021 and CSK022.
3.6.12 REPLACE Drawing C301 with drawing issued in this addendum.
3.6.13 REVISE Sanitary Sewer Pipe Schedule, Pipe #SS-4 slope and invert.
3.6.14 REVISE Sanitary Sewer Manhole Schedule, MH. #3 revised from 48" diameter to 60" diameter and manhole becomes a drop manhole, and Invert In elevation revised to 276.00.

3.6.15 REVISE Sanitary Sewer Manhole Schedule, MH. #8 is no longer a shallow manhole.
3.6.16 REVISE Sanitary Sewer Construction Note #S-8.
3.6.17 ADD electric and communications conduit locations to plan.
3.6.18 REVISE electric and communication note UE-4.
3.6.19 ADD electric and communication note UE-5.
3.6.20 REVISE telephone/fiber optic construction note UT-1.
3.6.21 ADD telephone/fiber optic construction note UT-2.

3.7 DRAWING C-302 UTILITY PLAN
3.7.1 REPLACE Drawings C302 with drawing issued in this addendum.
3.7.2 ADD new manhole and label (new San. M.H. 5) at southwest corner of property where sanitary sewer system enters from the adjacent property.
3.7.3 Manholes previously labeled as San. M.H. 5 through San M.H. 10 have been renumbered to San. M.H. 6 through San. M.H. 11.
3.7.4 Previously labeled pipes SS-5 through SS-8 have been renumbered as SS-6 through SS-9.
3.7.5 Note S-4 and S-7 revised to read “The system shall be public up to manhole no. 5. Manhole no.'s 1 - 5 shall have N.C.C. standard manhole frame and cover. All others shall have manhole frame and cover for private system”
3.7.6 Note S-5 is revised from “precast concrete grease interceptor” to “stainless steel grease interceptor” and added “with 12”x18”x120” concrete dead man anchors and straps per details, sheet C-902”.
3.7.7 Updated Sanitary Sewer Manhole Schedule and Sanitary Sewer Pipe Schedule for the revisions shown above
3.7.8 REVISE sanitary sewer manhole and pipe schedules to reflect changes per attached sketch CSK021 and CSK022.
3.7.9 REVISE sanitary sewer easement note to add text “Associated with this application” as indicated on sketch CSK030.
3.7.10 REVISE Sanitary Sewer Pipe Schedule, Pipe #SS-4 slope and invert as indicated on sketch CSK030.
3.7.11 REVISE Sanitary Sewer Manhole Schedule, MH. #3 revised from 48” diameter to 60” diameter and manhole becomes a drop manhole, and Invert In elevation revised to. 276.00 as indicated on sketch CSK030.
3.7.12 REVISE Sanitary Sewer Manhole Schedule, MH. #8 is no longer a shallow manhole as indicated on sketch CSK030.
3.7.13 REVISE Sanitary Sewer Construction Note #S-8 as indicated on sketch CSK031.
3.7.14 REVISE electric and communication note UE-4 as indicated on CSK038.
3.7.15 ADD electric and communication note UE-5 as indicated on CSK038.
3.7.16 REVISE telephone/fiber optic construction note UT-1 as indicated on CSK038.
3.7.17 ADD telephone/fiber optic construction note UT-2 as indicated on CSK038.

3.8 DRAWING C-303 OFF-SITE UTILITY PLAN
3.8.1 REPLACE Drawings C303 with drawing issued in this addendum.
3.8.2 Added new manhole and label (new San. M.H. 5) at southwest corner of property where sanitary sewer system enters from the adjacent property.

3.8.3 Manhole previously labeled as San. M.H. 5 has been renumbered to San. M.H. 6.
3.8.4 Sanitary Sewer Pipe previously labeled as SS-5 has now been bisected by new manhole #5 creating new pipe SS-5 and SS-6.
3.8.5 Note S-4 and S-7 revised to read "The system shall be public up to manhole no. 5. Manhole no.'s 1 - 5 shall have N.C.C. standard manhole frame and cover. All others shall have manhole frame and cover for private system"
3.8.6 Note S-5 is revised from "precast concrete grease interceptor" to "stainless steel grease interceptor" and added "with 12"x18"x120" concrete dead man anchors and straps per details, sheet C-902".
3.8.7 Updated Sanitary Sewer Manhole Schedule and Sanitary Sewer Pipe Schedule for the revisions shown above.
3.8.8 REVISE sanitary sewer manhole and pipe schedules to reflect changes per attached sketch CSK021 and CSK022.
3.8.9 REVISE sanitary sewer easement note to add text "Prior to issuance of any permit" as indicated on sketch CSK033.
3.8.10 REVISE "Invert In" elevation of manhole #3 to El. 276.00' as indicated on sketch CSK033.
3.8.11 SHIFT location of turf trail slightly as indicated on sketch CSK033.
3.8.12 REVISE Construction Note Tag at manhole #3 from S-4 to S-7 (Drop Manhole) as indicated on sketch CSK033.
3.8.13 REVISE Sanitary Sewer Pipe Schedule, Pipe #SS-4 slope and invert as indicated on sketch CSK030.
3.8.14 REVISE Sanitary Sewer Manhole Schedule, MH. #3 revised from 48" diameter to 60" diameter and manhole becomes a drop manhole, and Invert In elevation revised to 276.00 as indicated on sketch CSK030.
3.8.15 REVISE Sanitary Sewer Manhole Schedule, MH. #8 is no longer a shallow manhole as indicated on sketch CSK030.
3.8.16 REVISE Sanitary Sewer Construction Note #S-8 as indicated on sketch CSK031.

3.9 DRAWING C-401 GRADING PLAN
3.9.1 ADD new manhole (new San. M.H. 5) at southwest corner of property where sanitary sewer system enters from the adjacent property. – See sketch CSK-001.
3.9.2 REVISE proposed new edge of wooded area at northwest corner of property along Graves Road (adjacent to Galster Property) per attached sketch CSK007.
3.9.3 REVISE grading at northwest corner of property along Graves Road (adjacent to Galster Property) per attached sketch CSK007.
3.9.4 ADD condensate drain connection to roof drain piping and construction note label per attached sketches CSK025 and CSK026.
3.9.5 REVISE storm drain construction notes to include D-9, concerning connection of condensate drain to roof line per attached sketches CSK025 and CSK026.

3.10 DRAWING C402 GRADING PLAN
3.10.1 ADD condensate drain connection to roof drain piping and construction note label per attached sketch CSK026.
3.10.2 REVISE storm drain construction notes to include D-9, concerning connection of condensate drain to roof line per attached sketch CSK026.
3.10.3 REVISE Storm Drain Pipe Schedules to include notation "All RCP pipes shall be class III unless otherwise noted." See sketch CSK035 and

CSK037.

3.10.4 ADD Construction Note D-4 to end of storm drain pipe SD-1D as indicated on sketch CSK036.

3.11 DRAWING C501 SEDIMENT AND STORMWATER MANAGEMENT PLAN

3.11.1 REVISE proposed new edge of wooded area at northwest corner of property along Graves Road (adjacent to Galster Property) per attached sketch CSK008.

3.11.2 REVISE grading at northwest corner of property along Graves Road (adjacent to Galster Property) per attached sketch CSK008.

3.11.3 REVISE erosion and sediment control legend to include tree protection symbol per attached sketch CSK009.

3.12 DRAWING C-502 SEDIMENT AND STORMWATER MANAGEMENT PLAN

3.12.1 ADD new manhole (new San. M.H. 5) at southwest corner of property where sanitary sewer system enters from the adjacent property. – See sketch CSK-002.

3.12.2 REPLACE Drawing C502 with drawing issued in this addendum.

3.12.3 REVISE proposed new edge of wooded area at northwest corner of property along Graves Road (adjacent to Galster Property).

3.12.4 REVISE grading at northwest corner of property along Graves Road (adjacent to Galster Property).

3.12.5 REVISE L.O.D. line, silt fence locations at northwest corner of property along Graves Road (adjacent to Galster Property).

3.12.6 REVISE length of silt fence to 125 L.F.

3.12.7 ADD tree protection around existing evergreen trees at northwest corner of property along Graves Road (adjacent to Galster Property) and around two (2) trees adjacent to Church entrance at northeast corner of project.

3.12.8 ADD tree protection notation with reference to sheet C506.

3.12.9 REVISE erosion and sediment control legend to include tree protection symbol.

3.12.10 REVISE silt fence, reinforced silt fence, and super silt fence notations to reference sheet C504 (previously reference C505).

3.12.11 REVISE erosion control matting notations to reference sheet C505 (previously reference C506).

3.12.12 REVISE infiltration basin notation to reference sheet C503 (previously referenced sheet C503 and C504).

3.12.13 REVISE outlet stilling basin notation to reference C505.

3.12.14 REVISE temporary sediment basin notation to add “Provide skimmer dewatering device” and to reference sheets C505 and C506 (previously referenced sheet C505).

3.12.15 REVISE riprap outlet protection notation to reference sheet C504 (previously referenced C505).

3.12.16 REVISE inlet protection, type 1 and type 2 notations to reference sheet C504 (previously reference sheet C505).

3.13 DRAWING C503 SEDIMENT AND STORMWATER MANAGEMENT POND SECTIONS

3.13.1 REVISE Storm Drain Pipe Schedules to include notation “All RCP pipes shall be class III unless otherwise noted.” See sketch CSK035 and CSK037.

3.13.2 ADD Construction Note D-4 to end of storm drain pipe SD-1D as indicated on sketch CSK036.

3.14 DRAWING C506 SEDIMENT AND STORMWATER MANAGEMENT DETAILS
- 3.14.1 REPLACE Drawing C506 with drawing issued in this addendum.
- 3.14.2 ADD Tree protection details.

3.15 DRAWING C601 ENTRANCE SIGNAGE AND STRIPING PLAN
- 3.15.1 REVISE proposed new edge of wooded area at northwest corner of property along Graves Road (adjacent to Galster Property) per attached sketch CSK010.

3.16 DRAWING C606 ENTRANCE SEDIMENT AND STORMWATER MANAGEMENT PLAN
- 3.16.1 REVISE erosion and sediment control legend to include tree protection symbol per attached sketch CSK009.
- 3.16.2 REVISE proposed new edge of wooded area at northwest corner of property along Graves Road (adjacent to Galster property) per attached sketches CSK012 and CSK013.
- 3.16.3 REVISE grading at northwest corner of property along Graves Road (adjacent to Galster property) per attached sketches CSK012 and CSK013.
- 3.16.4 REVISE L.O.D. line, silt fence locations per attached sketches CSK012 and CSK013.

3.17 ADD tree protection around existing evergreen trees at northwest corner of property along Graves Road (adjacent to Galster Property) and around two (2) trees adjacent to Church entrance at northeast corner of project per attached sketches CSK012 and CSK013.

3.18 DRAWING C-701 SANITARY SEWER PROFILE
- 3.18.1 REPLACE Drawings C701 with drawing issued in this addendum.
- 3.18.2 Add new manhole and label (new San. M.H. 5) in profile.
- 3.18.3 Manholes previously labeled as San. M.H. 5 and San. M.H. 6 have been renumbered to San. M.H. 6 and San. M.H. 7.
- 3.18.4 Sanitary Sewer Pipe previously labeled as SS-5 has now been bisected by new manhole #5 creating new pipe SS-5 and SS-6. Previously labeled pipe SS-6 has been renumbered as SS-7.
- 3.18.5 REPLACE Drawing C701 with drawing issued in this addendum.
- 3.18.6 REVISE Sanitary Sewer Manhole #3 from 48” diameter to 60” diameter and manhole becomes a drop manhole. Invert In elevation revised to el. 276.00.
- 3.18.7 REVISE Sanitary Sewer Pipe #SS-4 slope and invert.
- 3.18.8 ADD “Public/Private” Text and arrows at manhole #5.

3.19 DRAWING C-702 SANITARY SEWER PROFILE
- 3.19.1 REPLACE Drawings C702 with drawing issued in this addendum.
- 3.19.2 Manholes previously labeled as San. M.H. 6 through San. M.H. 10 have been renumbered to San. M.H. 7 through San. M.H. 11.
- 3.19.3 Previously labeled pipes SS-7 through SS-10 have been renumbered as SS-8 through SS-11.
- 3.19.4 Added Lateral 2 in cross section of San. M.H. 10 (as relabeled, previously M.H. 9) in Sanitary Sewer Profile – Station 8+75 to 13+02.28.

3.19.5 REVISE sanitary sewer manhole # 10 "invert in" elevation of lateral 2 per attached sketches CSK023 and CSK024.
3.19.6 REVISE sanitary sewer manhole # 11 information per attached sketches CSK023 and CSK024.
3.19.7 REVISE sanitary sewer pipe SS-11 length per attached sketches CSK023 and CSK024.
3.19.8 REVISE sanitary sewer pipe LAT-1 invert at 5'-0" outside of building per attached sketches CSK023 and CSK024.
3.19.9 REVISE profile view window to end of profile to show building and end of profile per attached sketched CSK023 and CSK024.
3.19.10 REVISE sanitary sewer lateral 2 size, slope and inverts at both cleanout and manhole # 10 per attached sketches CSK023 and CSK024.
3.19.11 ADD pipe designations of storm drain crossing under sanitary sewer and REVISE pipe material to "HDPE" to match storm drain pipe schedule per attached sketches CSK023 and CSK024.

3.20 DRAWING C703 STORM WATER DRAIN PROFILE SD-7A to SD-17A
3.20.1 REVISE SD-1A and SD-2A pipe material to "HDPE" to match storm drain pipe schedule per attached sketch CSK014.

3.21 DRAWING C704 STORM WATER DRAIN PROFILE SD-1A to SD-6A
3.21.1 REVISE SD-7A, SD-8A, and SD-9A pipe material to "HDPE" to match storm drain pipe schedule per attached sketches CSK015 and CSK016.

3.22 DRAWING C705 STORM WATER DRAIN PROFILE SD-1B to SD-2B and SD-1C to SD-2C
3.22.1 REVISE SD-1B pipe material to "HDPE" to match storm drain pipe schedule per attached sketch CSK017.

3.23 DRAWING C-902 SEWER CONSTRUCTION DETAILS
3.23.1 REPLACE Drawings C902 with drawing issued in this addendum.
3.23.2 Added Grease Interceptor Buoyancy Calculations.
3.23.3 Added concrete deadman and strap details/information.
3.23.4 RESCALED "Buoyancy Calculation Sheet and Deadman Anchor Details" for readability clarity.

3.24 DRAWING C904 CONSTRUCTION DETAILS
3.24.1 REPLACE Drawing C904 with drawing issued in this addendum.
3.24.2 REVISE Steel Pipe Gate Detail to reflect that all pipes shall be schedule 40 except the gate posts which shall remain as schedule 80.
3.24.3 REVISE Steel Pipe Gate Detail to include missing center supports on gate leafs and ADD notation "2 supports equally spaced per gate leaf."

3.25 DRAWING C905 CONSTRUCTION DETAILS
3.25.1 REVISE storm drain manhole details to remove requirement for coating of black bituminous material on outside of manholes. Renumbered remaining notes per attached sketches CSK018 and CSK019.

3.25.2 REVISE storm drain manhole details to DELETE requirement for "pipe to manhole seals" (A-Lok gaskets) for pipe openings for manholes per attached sketches CSK018 and CSK019.

3.25.3 REVISE storm drain manhole details to DELETE requirement for benches and channels in manhole and REPLACE with "Grout bottom of manhole to pipe invert" per attached sketches CSK018 and CSK019.

3.26 DRAWING S100A STRUCTURAL NOTES

3.26.1 ADD the following uplift criteria to Design Loads - #4: "Net Uplift on bar joists (a=8'): Zone 1 -14 PSF; Zone 2 -16 PSF; Zone 3 -16 PSF; Zone 2' -19 PSF; Zone 3' -21 PSF; Overhang Zone 1&2&3 -26 PSF; Net Uplift on deck (a=8'): Zone 1 -16 PSF; Zone 2 -18 PSF; Zone 3 -22 PSF; Zone 2' -23 PSF; Zone 3' -32 PSF; Overhang Zone 1&2&3 -32 PSF"

3.27 DRAWING S101A FOUNDATION & SLAB PLAN – AREA A

3.27.1 DELETE note "Recess Slab for Walk Off Mat" at vestibule slab – 2 locations. Clarification: No slab recess required.

3.27.2 REVISE column on BS-B9 from C10w33 to C8t1.

3.28 DRAWING S101B FOUNDATION & SLAB PLAN – AREA B

3.28.1 DELETE note "Recess Slab for Walk Off Mat" at vestibule slab – 1 location. Clarification: No slab recess required.

3.29 DRAWING S101C FOUNDATION & SLAB PLAN – AREA C

3.29.1 DELETE note "Recess Slab for Walk Off Mat" at vestibule slab – 1 location. No slab recess required.

3.29.2 DELETE note "Recess Slab for Walk Off Mat" at vestibule slab – 2 locations. Clarification: No slab recess required.

3.30 DRAWING S101D FOUNDATON AND SLAB PLAN – AREA D

3.30.1 ADD ramp plan per attached SSK1.

3.31 DRAWING S102A LOW ROOF FRAMING PLAN – AREA A

3.31.1 REVISE note "All exposed deck to be field painted in this area" to "All exposed steel to be field painted in this area"

3.31.2 ADD note "Reference S401 for truss elevation"

3.31.3 ADD lateral moment connections to both ends of (5) W12x35 beams

3.31.4 REVISE truss callout "Truss A4" to "Truss A2 sim." and truss extends to AA grid line (panel points are equal between BS & AA).

3.31.5 REVISE "Truss A5" to "Truss A3 sim." and truss extends to AA grid line (panel points are equal between BS & AA).

3.31.6 Change (6) segmented HSS5x3x1/4 tubes near C7 line to (2) continuous HSS5x5x1/4. Attach top of each HSS5x5 to intersecting HSS6x4 w/ (2) welded 3/8" bent plate hangers.

3.31.7 Provide (7) C6x13 parapet support posts welded to sloping W12x35 roof beam between column lines B6 & B5 along BS with a continuous C6x13 at top of parapet.

3.32 DRAWING S102C LOW ROOF FRAMING PLAN – AREA C

3.32.1 REVISE W8x24 folding partition beam to extend to back wall of partition pocket and bear on 24"x8" CMU pier which continues up to beam bearing from top of CMU wall. Reference 9/S303 for bearing condition.

3.32.2 Reference architectural drawings for the locations of (3) pre-fabricated canopies by others. Submit signed and sealed shop drawings by registered Delaware Professional Engineer for review by the design team. No thru- wall connections may be used for the connection at the exterior masonry walls. Canopy shall be secured to CMU wall with epoxy bolts per manufacture's recommendations. Care shall be taken to coordinate the brick veneer and metal wall panel with the canopy attachment. Reinforce and grout the CMU wall solid with #5 verticals @ 8" o.c. above the door and within 8'-0" full height of each jamb. Provide (2) bond beams at the canopy elevation and additional bond beams @ 24" o.c. vertically above canopy. Reinforce all bond beams with (2) #5 continuous and continue bond beams 8' beyond door jamb.

3.32.3 Reference attached sketch SSK13 & SSK14 for clarification to dunnage framing.

3.33 DRAWING S103A ROOF FRAMING PLAN – AREA A

3.33.1 ADD 3 5/8" 18 gage, CF soffit framing @ 16" O.C. to support metal soffit. Attach to structural steel overhangs with (2) 0.177" diameter P.A.F. at each intersection. Reference architectural drawings for extents.

3.33.2 Reduce overhang between BR & BS along B7 line from 5'-2" to 2'-1".

3.34 DRAWING S103B ROOF FRAMING PLAN – AREA B

3.34.1 ADD 3 5/8" 18 gage, CF soffit framing @ 16" O.C. to support metal soffit. Attach to structural steel overhangs with (2) 0.177" diameter P.A.F. at each intersection. Reference architectural drawings for extents.

3.34.2 ADD note "Reference S401 for truss elevation".

3.35 DRAWING S103C ROOF FRAMING PLAN – AREA C

3.35.1 ADD 3 5/8" 18 gage, CF soffit framing @ 16" O.C. to support metal soffit. Attach to structural steel overhangs with (2) 0.177" diameter P.A.F. at each intersection. Reference Architectural drawings for extents.

3.35.2 REVISE roof overhang along C8 column line from 3'-5" to 3'-6".

3.35.3 Add partial clarification plans at dunnage framing per attached SSK16 & SSK17.

3.36 DRAWING S103D ROOF FRAMING PLAN – AREA D

3.36.1 ADD note "Reference S401 for truss elevation".

3.36.2 ADD W8x28 hoist beam at top of elevator shaft (BOS elev. 345'-8") with 1 ½" 18 gage composite deck spanning in least direction with 2 ½" concrete topping (4" total). Provide continuous 3/8" x 6" bearing plate w/4" x ¾" diameter stud anchors @ 24" O.C. at top of CMU wall for attachment of deck on 3 sides and continuous angle 6x6x3/8" along firewall. Anchor angle to CMU wall with 5/8" diameter epoxy anchors @ 24" O.C. Provide continuous bond beam w (2) # 4 bars at top of CMU walls in elevator shaft.

3.36.3 Section 25/S204 applies at high roof along C6 and BT column lines.

3.36.4 Reference attached sketch SSK15 for revisions.

3.37 DRAWING S201 FOUNDATION DETAILS

3.37.1 ADD detail 22/S201 per attached sketch SSK2.

3.37.2 Detail 18/S201 – PROVIDE 2 layers of #6 @ 24" o.c. vertical reinforcement in CMU.

3.37.3 Detail 20/S201 – PROVIDE 4'-6" wide x 1'-0" thick continuous footing with (5) #5 continuous longitudinal and #5 @ 16" o.c. transverse.

3.37.4 Detail 20/S201 – REVISE 8" CMU callout to 10" CMU & REVISE 7-7/16" dimensions to 8-7/16". d. Detail 21/S201 – PROVIDE 2 layers of #6 @ 24" o.c. vertical reinforcement in CMU.

3.38 DRAWING S202 FRAMING DETAILS

3.38.1 ADD note "Provide plate and angles per 1/S203 @ overhang" at detail 4/S202.

3.38.2 ADD note "Reference 18/S202 for detail of brick support" (Detail added per addendum # 2) at detail 4/S202.

3.38.3 ADD note "Provide plate and angles per 1/S203 @ overhang" at detail 5/S202.

3.38.4 ADD note "Reference 18/S202 for detail of brick support" (Detail added per addendum # 2) at detail 5/S202.

3.38.5 ADD note "Provide plate and angles per 1/S203 @ overhang" at detail 6/S202.

3.38.6 ADD note "Reference 18/S202 for detail of brick support" (Detail added per addendum # 2) at detail 6/S202.

3.38.7 ADD detail 18/S202 per attached sketch SSK3. Detail occurs along column lines C3 & CP where brick transitions to insulated metal wall panel. Reference Architectural drawings for extents.

3.38.8 ADD note "110 plf. max" to folding partition note.

3.38.9 Detail 4/S202 – ADD Note: "Attach channel girt to CMU bond beam with ¾" diameter epoxy anchors at 24"o.c. with 6" embedment."

3.38.10 Detail 5A/S202 – ADD Note: "Attach channel girt to CMU bond beam with ¾" diameter epoxy anchors at 24"o.c. with 6" embedment."

3.38.11 Detail 6/S202 – Add Note: "Attach channel girt to CMU bond beam with ¾" diameter epoxy anchors at 24" o.c. with 6" embedment." DELETE plate depicted in sketch and PROVIDE solid blocking below bottom track of cold-formed wall.

3.38.12 Detail 19/S202 - ADD attached sketch SSK22 along firewall between C6 & C1.

3.38.13 Detail 20/S202 – ADD attached sketch SSK23 at second floor between C6 & C4 along CE line.

3.39 DRAWING S203 FRAMING DETAILS

3.39.1 REVISE detail 17/S203 per attached sketch SSK4

3.39.2 ADD detail 20/S203 per attached sketch SSK5, along truss at end of canopy south of B9 line.

3.39.3 ADD detail 21/S203 per attached sketch SSK6, along BS & BT at truss bearing between columns.

3.39.4 ADD detail 22/S203 per attached sketch SSK7, along BS & BT at truss bearing at columns.

3.39.5 Detail 23/S203 – ADD attached sketch SSK24 at storefront and canopy along B5 between BS & BT.

3.40 DRAWING S204 FRAMING DETAILS

3.40.1 REVISE "¼" bent plate" to "L4x4x1/4" at detail 11/S204

3.40.2 REVISE "L4x4x1/4" to "L6x4x5/16" at detail 12/S204
3.40.3 REVISE T.O.S. from "329'-11"" to "330'-0""
3.40.4 ADD note "Cont. 4x4x1/4 angle pour stop (typ uno)" to callout pour stop at detail 24/S204
3.40.5 ADD detail 27/S204 per attached sketch SSK8, along expansion joint between CA & CB at wall opening
3.40.6 ADD detail 28/S204 per attached sketch SSK9, along expansion joint between CA & CB at CMU walls.
3.40.7 Detail 25/S204 – PROVIDE 3/8" stiffener plate @ 48" o.c. welded to tube.
3.40.8 Detail 26/S204 – PROVIDE 3/8" stiffener plate @ 48" o.c. welded to tube.
3.40.9 Detail 29/S204 – ADD attached sketch SSK21.

3.41 DRAWING S302 FRAMING DETAILS
3.41.1 Detail 24/S302– ADD attached sketch SSK25 at piping penetration thru beam (cf. A402 below).

3.42 DRAWING S303 TYPICAL MASONRY AND CF DETAILS
3.42.1 REVISE drawing reference "S10-00" to "S100A" at Note # 2 in Cold-Formed Wall Schedule.
3.42.2 REVISE drawing reference "S10-00" to "S100A" at Note # 6 in Cold-Formed Wall Schedule.
3.42.3 ADD detail 21/S303 per attached sketch SSK10, sketch occurs at all brick sills which extend over wall cavity, including all window sills in brick veneer and all brick to insulated metal panel transitions. Reference Architectural drawings for extents.
3.42.4 Detail 2/S303 – REPLACE the not used detail with added attached lintel sketch SSK18.
3.42.5 Detail 3/S303 – REPLACE the not used detail with added attached lintel sketch SSK19. Lintel applies in exterior CMU wall opening & door C100A along BT column line.
3.42.6 Detail 22/S303 – ADD attached dunnage sketch SSK20.
3.42.7 Revise Cold-Formed Wall Schedule to read as follows:
3.42.7.1Up to 13'-0": 6" studs 18 gage @ 16" o.c.
3.42.7.2Between 13'0-15'0: 6" studs 14 gage @ 16" o.c.
3.42.7.3Between 15'0-16'0: 6" studs 12 gage @ 16" o.c.
3.42.7.4Between 16'-0" and 19'6": 6" studs 12 gage @ 12" o.c.

3.43 DRAWING S401 TRUSS ELEVATIONS
3.43.1 ADD detail E2/S401 per attached sketch SSK11
3.43.2 ADD detail E3/S401 per attached sketch SSK12

3.44 DRAWING A101A FIRST FLOOR PLAN – AREA A
3.44.1 REPLACE Drawing A101A with drawing issued in this addendum.
3.44.2 REVISE interior finish of a portion of the exterior wall at Corridor A100C from GWB to ½" exterior gypsum sheathing with 4" CMU. CMU extends to 8" above ceiling at Corridor A100C.
3.44.3 DELETE wall at C100A
3.44.4 CHANGE column at BS/B9 per structural comments in this addendum.
3.44.5 REPLACE Drawing A101A with drawing issued in this addendum.
3.44.6 ADD A.E.D. Cabinet adjacent to FEC cabinet at Corridor A100C, by column

BQ-B6.

3.44.7 ADD fire-rated F.V.C. at Stair C100A in chase behind Toilet A117.

3.45 DRAWING A101B FIRST FLOOR PLAN AREA B

3.45.1 REPLACE Drawing A101B with drawing issued in this addendum.
3.45.2 ADD Fire Protection cabinet at Corridor B100.
3.45.3 ADD welded wire fence and height of masonry pier at detail 4/A101B.
3.45.4 ADD welded-wire fence at detail 5/A101B.
3.45.5 ADD interior elevation reference 12/A705 at Vestibule B101A, B102A, B106A, B107A and B110A.

3.46 DRAWING A101C FIRST FLOOR PLAN – AREA C

3.46.1 REPLACE Drawing A101C with drawing issued in this addendum.
3.46.2 DELETE wall at C100A
3.46.3 ADD Fire Protection cabinet at Lobby C100D
3.46.4 ADD Fire Protection cabinet at Stair C100A
3.46.5 ADD A.E.D. Cabinet at Lobby C100D
3.46.6 MOVE East wall of Elev. Machine Room C101, 8” to east.

3.47 DRAWING A102D SECOND FLOOR PLAN – AREA D

3.47.1 REPLACE Drawing A102D with drawing issued in this addendum.
3.47.2 ADD Fire Protection cabinet at Stair C100A
3.47.3 ADD Fire Protection cabinet at Stair D114
3.47.4 MOVE East wall of Elev. Machine Room C101, 8” to east.

3.48 DRAWING A103 ROOF PLAN

3.48.1 REPLACE Drawing A103 with drawing issued in this addendum.
3.48.2 ADD Partial Plan View 4/A103 for lower roof.
3.48.3 ADD Pre-Fabricated canopies at three (3) locations.
3.48.4 ADD 2” expansion joint at roof.

3.49 DRAWING A104 FIRST AND SECOND FLOOR CLERESTORY PLANS

3.49.1 REPLACE Drawing A104 with drawing issued in this addendum.
3.49.2 REVISE dimensions / notes pertaining to location of Translucent Wall Panels at 2/A104. Refer to exterior elevations, building sections, wall sections, and details for additional information.

3.50 DRAWING A106D FIRST FLOOR REFLECTED CEILING PLAN – AREA D

3.50.1 REPLACE Drawings A106D with drawing issued in this addendum.
3.50.2 ADD ACT-2 and Light Fixtures (see electrical) at Room D110 THIRD GRADE.
3.50.3 ADD detail of sloped bulkhead at Stair D114.

3.51 DRAWING SERIES A108 AND A109 FLOOR PATTERN AND CASEWORK PLAN

3.51.1 GENERAL CASEWORK NOTES, Note 1, REVISE “A108F” to “A108C”.

3.52 DRAWING A108A FIRST FLOOR PATTERN AND CASEWORK PLAN – AREA A

3.52.1 REPLACE Drawing A108A with drawing issued in this addendum.
3.52.2 ADD metal shelving designations at Storage A113A.

3.53 DRAWING A108B FIRST FLOOR PATTERN AND CASEWORK PLAN – AREA B
- 3.53.1 REPLACE Drawing A108B with drawing issued in this addendum.
- 3.53.2 ADD interior elevation reference 12/A705 at Vestibule B101A, B102A, B106A, B107A and B110A.
- 3.53.3 ADD interior elevation reference 3/A705 at Resource Room B105A.

3.54 DRAWING A108C FIRST FLOOR PATTERN AND CASEWORK PLAN – AREA C
- 3.54.1 REPLACE Drawing A108C with drawing issued in this addendum.

3.55 DRAWING A108D FIRST FLOOR PATTERN AND CASEWORK PLAN – AREA D
- 3.55.1 REPLACE Drawing A108D with drawing issued in this addendum.

3.56 DRAWING A109D FIRST FLOOR PATTERN AND CASEWORK PLAN – AREA D
- 3.56.1 REPLACE Drawing A109D with drawing issued in this addendum.

3.57 DRAWING A110 ALTERNATE 1 – MULTIPURPOSE ROOM
- 3.57.1 Detail 3: ADD A.E.D. Cabinet at Corridor A100C, by column BQ-B6.
- 3.57.2 CHANGE ceiling type at Toilet A120A to ACT-3

3.58 DRAWING A111 ALTERNATE 2 – FLEXIBLE SPACE – AREA D
- 3.58.1 Detail 10: ADD solid surface sill and apron at 2nd floor window.

3.59 DRAWING A201 EXTERIOR ELEVATIONS
- 3.59.1 REPLACE Drawing A201 with drawing issued in this addendum.
- 3.59.2 ADD Mockup Panel – 1 note w/ area limits box at exterior elevation 3/A201. Dashed box represents dimensions of area to be included in mockup panel.
- 3.59.3 ADD Mockup Panel – 2 note w/ area limits box at exterior elevation 5/A201. Dashed box represents dimensions of area to be included in mockup panel.
- 3.59.4 ADD note "PARGED CAST-IN-PLACE CONC. RAMP AND LANDINGS – SEE STRUCTURAL" to exterior elevation 6/A201.
- 3.59.5 ADD notes and representation of "PRE-FABRICATED CANOPY" at exterior elevation 2/A202.

3.60 DRAWING A202 EXTERIOR ELEVATIONS
- 3.60.1 REPLACE Drawing A202 with drawing issued in this addendum.
- 3.60.2 ADD notes and representation of "PRE-FABRICATED CANOPY" at exterior elevation 6/A202.
- 3.60.3 Exterior elevation 2/A202, REVISE insulated wall panel type between column lines B6.2 and B7 from "IMP-2" to "IMP-1".

3.61 DRAWING A203 EXTERIOR ELEVATIONS
- 3.61.1 REPLACE Drawing A203 with drawing issued in this addendum.
- 3.61.2 REMOVE hatching at details 18 & 19 /A203.

3.62 DRAWING A304 WALL SECTIONS
- 3.62.1 REPLACE Drawing A304 with drawing issued in this addendum

3.62.2 ADD note at sheathing below louver sill, " ½" EXTERIOR GYPSUM SHEATHING" to " ½" EXTERIOR GRADE PLYWOOD" at detail 3/A304.
3.62.3 ADD partial wall section 5/A304

3.63 DRAWING A305 WALL SECTIONS
3.63.1 REPLACE Drawing A305 with drawing issued in this addendum.
3.63.2 REVISE wall section 4/A305 to show 4" CMU and 1/2" exterior gypsum sheathing at the interior face of wall.
3.63.3 Detail 1: ADD solid surface sill and apron at window.
3.63.4 Detail 2: ADD solid surface sill and apron at high window.

3.64 DRAWING A306 WALL SECTIONS
3.64.1 REPLACE Drawing A306 with drawing issued in this addendum.
3.64.2 Detail 1/A306, DELETE recessed entrance grille and slab depression.
3.64.3 Detail 3/A306, DELETE recessed entrance grille and slab depression.
3.64.4 DELETE recessed entrance grille at wall section 1/A306.
3.64.5 ADD note at sheathing below metal panel, "½" EXTERIOR GRADE PLYWOOD, UP TO EPDM TERMINATION" at detail 2/A306.
3.64.6 REVISE position of internal gutter at wall section 3/A306.
3.64.7 DELETE recessed entrance grille at wall section 3/A306.

3.65 DRAWING A307 WALL SECTIONS
3.65.1 REVISE material at roof side of parapet from " ½" EXTERIOR GYPSUM SHEATHING" to " ½" EXTERIOR GRADE PLYWOOD" at detail 4/A307.

3.66 DRAWING A308 WALL SECTIONS
3.66.1 REPLACE Drawing A308 with drawing issued in this addendum.
3.66.2 ADD note at sheathing below metal panel, "½" EXTERIOR GRADE PLYWOOD, UP TO EPDM TERMINATION" at detail 1/A308.
3.66.3 REVISE cast stone sill detail / type at wall section 2/A308.

3.67 DRAWING A309 WALL SECTIONS
3.67.1 REPLACE Drawing A309 with drawing issued in this addendum.
3.67.2 DELETE jamb materials beyond at wall section 4/A310 (C.W. wraps corner, refer to exterior elevations).

3.68 DRAWING A310 WALL SECTIONS
3.68.1 REPLACE Drawing A310 with drawing issued in this addendum.
3.68.2 REVISE note to "Metal Roof Deck – See Structural" at wall section 1/A310.
3.68.3 ADD note at sheathing below metal panel, "½" EXTERIOR GRADE PLYWOOD, UP TO EPDM TERMINATION" at wall section 1/A310.
3.68.4 ADD note at sheathing below metal panel, "½" EXTERIOR GRADE PLYWOOD, UP TO EPDM TERMINATION" at wall section 3/A310.
3.68.5 DELETE material at jamb (open corner) at wall section 4/A310.

3.69 DRAWING A311 WALL SECTIONS
3.69.1 REPLACE Drawing A311 with drawing issued in this addendum.
3.69.2 ADD CMU Bond Beam and Steel Angle at wall section 2/A311. Refer to structural.

3.69.3 ADD CMU Bond Beam and Steel Angle at wall section 3/A311. Refer to structural.
3.69.4 ADD note at sheathing below metal panel, "½" EXTERIOR GRADE PLYWOOD, UP TO EPDM TERMINATION" at wall section 4/A311.
3.69.5 ADD note at sheathing below metal panel, "½" EXTERIOR GRADE PLYWOOD, UP TO EPDM TERMINATION" at wall section 5/A311.

3.70 DRAWING A313 WALL SECTIONS
3.70.1 REVISE material at roof side of parapet from "½" EXTERIOR GYPSUM SHEATHING" to " ½" EXTERIOR GRADE PLYWOOD" at detail 2/A313

3.71 DRAWING A401 ENLARGED TOILET, STAIR, AND RAMP PLANS AND SECTIONS
3.71.1 REPLACE Drawing A401 with drawing issued in this addendum.
3.71.2 REMOVE floor shading on the following details: (3,7,9,11,12,14,17,18)
3.71.3 REVISE wall types at 1/A401.
3.71.4 REVISE wall types at 2/A402.
3.71.5 Detail 1: ADD interior elevation reference 12/A705 at Vestibule B110A.
3.71.6 Detail 2: ADD interior elevation reference 12/A705 at Vestibule B101A.
3.71.7 Detail 10: ADD A.E.D. Cabinet at Corridor A100C, by column BQ-B6, and ADD wall type 1B at Toilet A120A behind A.E.D, shifting toilet accessory "J" plan right.

3.72 DRAWING A402 ENLARGED ELEVATOR, STAIR, AND RAMP PLANS AND SECTIONS
3.72.1 REPLACE Drawing A402 with drawing issued in this addendum.
3.72.2 REMOVE floor shading on the following details (4&5).
3.72.3 REMOVE section references from detail 7.
3.72.4 DELETE wall at C100A at enlarged plan 4/A402.
3.72.5 ADD wall type reference "4F" at enlarged plan 1/A402.
3.72.6 ADD note "EXP. JT. FLOOR COVER – SEE STRUCTURAL" at enlarged plan 1/A402.
3.72.7 DELETE detail reference 8/A505 at enlarged plan 4/A402.
3.72.8 REVISE wall type reference "9A" to "1E" at enlarged plan 4/A402.
3.72.9 REVISE wall type reference "-" to "4F" at enlarged plan 4/A402.
3.72.10 ADD note "PRE-ENGINEERED STEEL STAIR AND PLATFORM" at detail 6/A402.
3.72.11 ADD Fire Protection cabinet at Stair C100A, detail 1 & 4/A402.
3.72.12 MOVE East wall of Elev. Machine Room C101, 8" to east at detail 4/A402
3.72.13 ADD callout for detail 10/A402 at detail 4/A402.
3.72.14 ADD note "COORD. GUARD W/ HVAC UNITS"
3.72.15 ADD Fire Protection cabinet at Stair D114, 5/A402
3.72.16 REVISE location of chase walls on either side of door D114/1 to be 12" closer to door.
3.72.17 ADD notes regarding bulkhead and FVC at detail 8/A402.
3.72.18 ADD detail 10/A402.
3.72.19 ADD general sheet note as follows: "THE ELEVATOR CONTRACTOR, AND ALL OTHER RELEVANT CONTRACTORS, SHALL COORDINATE CONSTRUCTION OF THE ELEVATOR IN ACCORDANCE WITH ALL REGULATORY REQUIREMENTS (INCLUDING, BUT NOT LIMITED TO:

SHAFT REQUIREMENTS, DIMENSIONS, OVERHEAD CLEARANCE, HOIST BEAMS, SMOKE DETECTORS, SUMP DEPRESSION, PUMPS, AND GRATES, ETC.) TO ENSURE THE ELEVATOR'S PROPER PERFORMANCE."

3.73 DRAWING A403 ENLARGED PLAN AND SECTION OF RAMPS
- 3.73.1 REPLACE Drawing A403 with drawing issued in this addendum. REMOVE floor shading on the following details (1, 2, &4).
- 3.73.2 REVISE material at roof side of parapet from "½" EXTERIOR GYPSUM SHEATHING" to "½" EXTERIOR GRADE PLYWOOD" at detail 6/A403.

3.74 DRAWING A404 MEDIA CENTER MILLWORK PLANS, ELEVATIONS, AND DETAILS
- 3.74.1 REPLACE Drawing A404 with drawing issued in this addendum.
- 3.74.2 REVISE plan 1/A404.
- 3.74.3 REVISE support brackets to metal brackets at details 2/A404 and 6/A404, and 10/A404
- 3.74.4 ADD note for RP-1 at elevations 7 and 8/A404.

3.75 DRAWING A406 RECEPTION MILLWORK PLAN AND ELEVATIONS
- 3.75.1 REPLACE Drawing A406 with drawing issued in this addendum.
- 3.75.2 REVISE configuration of desk per 1/A406 and 4/A406..

3.76 DRAWING A501 WALL TYPES AND DETAILS
- 3.76.1 REPLACE Drawing A501 with drawing issued in this addendum.
- 3.76.2 REVISE wall type "2H"
- 3.76.3 ADD wall type "4F"
- 3.76.4 REPLACE Drawing A501 with drawing issued in the addendum.
- 3.76.5 ADD detail 7/A501 30" HIGH SINK CABINET.

3.77 DRAWING A502 WALL DETAILS
- 3.77.1 REPLACE Drawing A502 with drawing issued in this addendum.
- 3.77.2 REVISE wall detail 1/A502 to ADD 4" CMU and 1/2" exterior gypsum sheathing (in lieu of 5/8" GWB) at the interior face of wall.
- 3.77.3 REVISE wall detail 3/A502 to ADD 4" CMU and 1/2" exterior gypsum sheathing (in lieu of 5/8" GWB) at the interior face of wall.
- 3.77.4 REVISE detail 6.
- 3.77.5 ADD steel tube at detail 10/A502.

3.78 DRAWING A504 WALL DETAILS
- 3.78.1 REPLACE Drawing A504 with drawing issued in this addendum.
- 3.78.2 REVISE detail 2 to show air barrier transition membrane.

3.79 DRAWING A506 WALL DETAILS
- 3.79.1 REPLACE Drawing A506 with drawing issued in this addendum.
- 3.79.2 REVISE wall detail 3/A502.
- 3.79.3 REVISE wall detail 11/A502.

3.80 DRAWING A508 PLAN DETAILS
- 3.80.1 Detail 10: REVISE dimension of plan north wall from 6" to 1'-6" plan north of

grid DF.

3.81 DRAWING A511 SECTION AND ELEVATION DETAILS & SITE DETAILS

3.81.1 Detail 9D: REVISE note to read as follows; "CAST STONE CAP, SLOPE TOP TO DRAIN, MIN. 1/4" / 12", W/ DRIP EDGE AND CONT. FLASHING", and ADD note at pier cap as follows: "ANCHORAGE BY CAST STONE MFR". ADD dimensions for recessed brick at pier, 4 courses from lower cast stone cap, +/- 3'-9 1/4" for recess height, and 3 courses to bottom of pier cap.

3.81.2 Detail 3, Guard Type 4, REVISE location from "C110A" to "C100A".

3.82 DRAWING A512 SECTION DETAILS

3.82.1 REPLACE Drawing A512 with drawing issued in this addendum.

3.82.2 REVISE section detail 5/A512.

3.83 DRAWING A513 SECTION DETAILS

3.83.1 REVISE material at roof side of parapet from " ½" EXTERIOR GYPSUM SHEATHING" to " ½" EXTERIOR GRADE PLYWOOD" at detail 12/A513.

3.84 DRAWING A514 SECTION DETAILS

3.84.1 REPLACE Drawing A514 with drawing issued in this addendum.

3.84.2 ADD note at sheathing below louver sill, "½" EXTERIOR GRADE PLYWOOD" at detail 2/A514.

3.84.3 REVISE section detail 5/A514.

3.84.4 ADD note to sheathing " ½" EXTERIOR GRADE PLYWOOD SHEATHING" at detail 6/A514.

3.84.5 ADD 2 ½" Metal stud framing at exterior face of 6" stud at detail 6/A514.

3.84.6 Detail 1: ADD solid surface sill and apron at window.

3.84.7 Detail 8: ADD solid surface sill and apron at window.

3.85 DRAWING A515 CAST STONE & SPECIAL SHAPE BRICK / CMU DETAILS

3.85.1 REPLACE Drawing A515 with drawing issued in this addendum.

3.85.2 ADD Cast Stone Coping (CS-12) Detail.

3.85.3 Detail 10: ADD note that top and bottom of cast stone aligns with projected brick bands.

3.85.4 Detail 16: ADD air barrier transition membrane and note concerning wall construction.

3.86 DRAWING A516 ROOF EXPANSION JOINT AND CONDUCTOR HEAD DETAILS

3.86.1 REVISE title of detail 1 to read as follows: "TYPICAL PRE-FABRICATED HUNG ALUMINUM CANOPY SYSTEM DETAIL".

3.87 DRAWING A519 PARAPET ROOF DEAILS

3.87.1 REVISE material at roof side of parapet from " ½" EXTERIOR GYPSUM SHEATHING" to " ½" EXTERIOR GRADE PLYWOOD" at details 2, 4, & 6 / A519.

3.87.2 ADD note on roof side of parapet "½" EXTERIOR GRADE PLYWOOD"

3.88 DRAWING A520 ROOF DETAILS

3.88.1 REPLACE Drawing A520 with drawing issued in this addendum .
3.88.2 ADD note at sheathing below metal panel, "½" EXTERIOR GRADE PLYWOOD, UP TO EPDM TERMINATION" at wall section 1/A520.
3.88.3 ADD note at sheathing below metal panel, "½" EXTERIOR GRADE PLYWOOD, UP TO EPDM TERMINATION" at wall section 2/A520.
3.88.4 ADD plan detail 6/A520.

3.89 DRAWING A521 ROOF DETAILS
3.89.1 REPLACE Drawing A521 with drawing issued in this addendum.
3.89.2 REVISE position of internal gutter at detail 3/A521.
3.89.3 REVISE detail 1 so that wall terminates at bent plate.
3.89.4 REVISE detail 4 entrance sign.

3.90 DRAWING A528 TYPICAL EPDM ROOF DETAILS
3.90.1 ADD note "NOTE: SEE A529 FOR TYPICAL EPDM CURB AND EXPANSION JOINT DETAILS"

3.91 DRAWING A529 TYPICAL INSULATED METAL PANEL DETAILS (IMP-1)
3.91.1 ADD typical EPDM PRESSURE-SENSTIVE CURB WRAP DETAIL. See attached detail U-5B
3.91.2 ADD typical EPDM DECK-TO-DECK EXPANSION JOINT. See attached detail U-3A.

3.92 DRAWING A601 FINISH SCHEDULE AND LEGEND, CASEWORK SCHEDULE
3.92.1 REPLACE Drawing A601 with drawing issued in this addendum. Reissued drawing revises Casework Schedule, provides readable Acoustical Wall Panel Schedule
3.92.2 REVISE Finish Schedule Ceiling Materials to match Reflected Ceiling Plan, Finish Schedule Legend, Ceiling Plan Legend, and specifications.
3.92.3 REVISE Finish Schedule Legend as follows:
3.92.3.11. ACT-1: 2x2 Acoustical Ceiling Tile
3.92.3.22. ACT-2: 2x4 Acoustical Ceiling Tile
3.92.4 Casework Schedule, ADD cabinet type B5-A and B6-A.

3.93 DRAWING A602 COLOR SCHEDULE
3.93.1 REPLACE Drawing A602 with drawing issued in this addendum.
3.93.2 REVISE flooring RST/1 color to read "LK1 RED CABOOSE W/ 163 SALSA HINGE NOSING" and remarks to read "RUBBER TREAD WITHOUT RISER FOR VISUALLY IMPAIRED".

3.94 DRAWING A603 DOOR SCHEDULE AND DOOR, LOUVER, AND H.M. FRAME TYPES
3.94.1 DELETE "45 MIN" fire rating from the following doors: A106/1; A111/1; A113B/1; A117/1
3.94.2 Door Schedule, Door C116A/1, ADD Hardware Set No. 327.

3.95 DRAWING A604 STOREFRONT TYPES
3.95.1 REPLACE Drawing A604 with drawing issued in this addendum.
3.95.2 REVISE dimensions at SF-33 and SF-33A.

3.96 DRAWING A701 INTERIOR ELEVATIONS K AND 1ST GRADE CLASSROOMS

3.96.1 REPLACE Drawing A701 with drawing issued in this addendum.
3.96.2 ADD detail 26/A701 "TILE PATTERN – CORRIDOR D100 – SOUTH"
3.96.3 Detail 11: REVISE sink base designation to "B6-A".

3.97 DRAWING A702 INTERIOR ELEVATIONS – ADMIN, HEALTH SUITE, AND MEDIA CENTER
3.97.1 REPLACE Drawing A702 with drawing issued in this addendum.
3.97.2 REVISE wall materials at interior elevation 2/A702.
3.97.3 Detail 12: REVISE sink base designation to "B5-A".
3.97.4 Detail 13: REVISE sink base designation to "B5-A".
3.97.5 Detail 14: DELETE filler panels both sides of refrigerator recess.

3.98 DRAWING A705 INTERIOR ELEVATIONS – CPU, RESOURCE, TEACHER PLANNING & SMALL GROUP
3.98.1 REPLACE Drawing A705 with drawing issued in this addendum.
3.98.2 ADD Interior Elevation 12/A705 TYPICAL VESTIBULE K-1.

3.99 DRAWING FP101 OVERALL FIRST FLOOR FIRE PROTECTION PLAN
3.99.1 REPLACE drawing FP101 with drawing issued in this addendum.
3.99.2 REVISE/ADD standpipe locations.
3.99.3 ADD fire cabinets.

3.100 DRAWING FP102 OVERALL SECOND FLOOR FIRE PROTECTION PLAN
3.100.1 REPLACE drawing FP102 with drawing issued in this addendum.
3.100.2 ADD standpipe and fire cabinet.

3.101 DRAWING M101A FIRST FLOOR MECHANICAL PLAN – AREA A
3.101.1 REPLACE drawing M101A with drawing issued in this addendum. Reissued drawing revises motor-operated damper requirements at each fan-coil and blower-coil unit.

3.102 DRAWING M101B FIRST FLOOR MECHANICAL PLAN – AREA B
3.102.1 REPLACE drawing M101B with drawing issued in this addendum. Reissued drawing revises motor-operated damper requirements at each fan-coil and blower-coil unit.

3.103 DRAWING M101C FIRST FLOOR MECHANICAL PLAN – AREA C
3.103.1 REPLACE drawing M101C with drawing issued in this addendum. Reissued drawing revises motor-operated damper requirements at each fan-coil and blower-coil unit and indicates location of VRF central controllers.
3.103.2 ADD 4" dryer vent through wall at kitchen area locker room.
3.103.3 REVISE basis-of-design model for BC-19A and BC-19B.

3.104 DRAWING M101D FIRST FLOOR MECHANICAL PLAN – AREA D
3.104.1 REPLACE drawing M101D with drawing issued in this addendum. Reissued drawing revises motor-operated damper requirements at each fan-coil and blower-coil unit.
3.104.2 REVISE FC-24 in Stair D114.

3.105 DRAWING M102D SECOND FLOOR MECHANICAL PLAN – AREA D
3.105.1 REPLACE drawing M102D with drawing issued in this addendum. Reissued drawing revises motor-operated damper requirements at each fan-coil and blower-coil unit.

3.106 DRAWING M600 MECHANICAL SCHEDULES
3.106.1 REPLACE drawing M600 with drawing issued in this addendum.
3.106.2 REVISE VRF blower coil schedule to show revised BC-19A and BC-19B.
3.106.3 REVISE VRF fan coil schedule to show revised FC-24.

3.107 DRAWING P101C(S) FIRST FLOOR SANITARY PLAN – AREA C
3.107.1 REPLACE Drawing P101C(S) with drawing issued in this addendum.
3.107.2 REVISED sanitary layout to correspond with civil utility plans.
3.107.3 ADD floor drains in kitchen to correspond with kitchen plan.
3.107.4 ADD condensate drain into storm water system.

3.108 DRAWING P500 SANITARY RISER DIAGRAM
3.108.1 REPLACE Drawing P500 with drawing issued in this addendum.
3.108.2 REVISED sanitary riser diagram to correspond with changes from P101C(S).

3.109 DRAWING E000 ELECTRICAL COVER SHEET
3.109.1 REPLACE Drawing E000 with drawing issued in this addendum.
3.109.2 ADD electrical symbol for duplex receptacle to be mounted in A/V box
3.109.3 REVISE AV outlet description.

3.110 DRAWING EP101A FIRST FLOOR POWER PLAN – AREA A
3.110.1 REPLACE Drawing EP101A with drawing issued in this addendum.
3.110.2 REVISED circuiting, receptacle types, and circuiting requirements.

3.111 DRAWING EP101B FIRST FLOOR POWER PLAN – AREA B
3.111.1 REPLACE Drawing EP101B with drawing issued in this addendum.
3.111.2 REVISED circuiting, receptacle types, and circuiting requirements.

3.112 DRAWING EP101C FIRST FLOOR POWER PLAN – AREA C
3.112.1 REPLACE Drawing EP101C with drawing issued in this addendum.
3.112.2 REVISED circuiting, receptacle types, and circuiting requirements.
3.112.3 REVISED power requirements for blower coil in walk-in freezer box.
3.112.4 ADD heat trace to condensate piping in walk-in freezer.

3.113 DRAWING EP101D FIRST FLOOR POWER PLAN – AREA D
3.113.1 REPLACE Drawing EP101D with drawing issued in this addendum.
3.113.2 REVISED circuiting, receptacle types, and circuiting requirements.
3.113.3 ADD location of panel PLL.

3.114 DRAWING EP102D FIRST FLOOR POWER PLAN – AREA D
3.114.1 REPLACE Drawing EP102D with drawing issued in this addendum.
3.114.2 REVISED circuiting, receptacle types, and circuiting requirements.

3.115 DRAWING EMP101A FIRST FLOOR MECHANICAL POWER PLAN – AREA A

3.115.1 REPLACE Drawing EMP101A with drawing issued in this addendum.

3.116 DRAWING E500 ELECTRICAL SINGLE LINE
3.116.1 REPLACE Drawing E500 with drawing issued in this addendum.
3.116.2 ADD panels to single line to correspond with circuiting and schedules already shown on drawings.

3.117 DRAWING T000 TELECOMMUNICATIONS COVER SHEET
3.117.1 REPLACE drawing T000 with drawing issued in this addendum.
3.117.2 ADD Note #30.

3.118 DRAWING T101C FIRST FLOOR TECHNOLOGY PLAN – AREA C
3.118.1 REPLACE Drawing T101C with drawing issued in this addendum.
3.118.2 REVISED conduit routing for telecommunications services in MDF.
3.118.3 ADD (1) C2 information outlet to Mechanical Room C107.

3.119 DRAWING T200 TECHNOLOGY DETAILS
3.119.1 REPLACE drawing T200 with drawing issued in this addendum.
3.119.2 REVISE Detail 10/T200.

3.120 DRAWING T201 TECHNOLOGY DETAILS
3.120.1 REPLACE drawing T201 with drawing issued in this addendum.
3.120.2 REVISE Detail 2/T201.

4.0 ATTACHMENTS

4.1.1 SPECIFICATION SECTION 018000 RELEASE OF ELECTRONIC MEDIA
4.1.2 SECTION 104200 PLAQUE LAYOUT
4.1.3 SECTION 230923 DIRECT DIGITAL CONTROL SYSTEM FOR HVAC
4.1.4 SECTION 230993 SEQUENCE OF OPERATIONS FOR HVAC CONTROLS
4.1.5 SECTION 237223 PACKAGED AIR-TO-AIR ENERGY RECOVERY UNITS
4.1.6 SECTION 238129 VARIABLE REFRIGERANT VOLUME (VRV, VRF) HVC SYSTEM
4.1.7 DRAWING C-300 UTILITY COVER SHEET
4.1.8 DRAWING C-301 UTILITY PLAN
4.1.9 DRAWING C-302 UTILITY PLAN
4.1.10 DRAWING C-303 OFF-SITE UTILITY PLAN
4.1.11 DRAWING C-502
4.1.12 DRAWING C-506
4.1.13 DRAWING C-701 SANITARY SEWER PROFILE
4.1.14 DRAWING C-702 SANITARY SEWER PROFILE
4.1.15 DRAWING C-902 SEWER CONSTRUCTION DETAILS
4.1.16 DRAWING C904 CONSTRUCTION DETAILS
4.1.17 CSK-001
4.1.18 CSK-002
4.1.19 CSK003
4.1.20 CSK004
4.1.21 CSK005
4.1.22 CSK006

4.1.23 CSK007
4.1.24 CSK008
4.1.25 CSK009
4.1.26 CSK010
4.1.27 CSK011
4.1.28 CSK012
4.1.29 CSK013
4.1.30 CSK014
4.1.31 CSK015
4.1.32 CSK016
4.1.33 CSK017
4.1.34 CSK018
4.1.35 CSK019
4.1.36 CSK020
4.1.37 CSK021
4.1.38 CSK022
4.1.39 CSK023
4.1.40 CSK024
4.1.41 CSK025
4.1.42 CSK026
4.1.43 CSK027 Reference Sheet C-300
4.1.44 CSK028 Reference Sheet C-300
4.1.45 CSK029 Reference Sheet C-300
4.1.46 CSK030 Reference Sheet C-302, C-303
4.1.47 CSK031 Reference Sheet C-302, C-303
4.1.48 CSK032 Reference Sheet C-302
4.1.49 CSK033 Reference Sheet C-303
4.1.50 CSK034 Reference Sheet C-701
4.1.51 CSK035 Reference Sheet C-402
4.1.52 CSK036 Reference Sheet C-402
4.1.53 CSK037 Reference Sheet C-503
4.1.54 CKS038 Reference Sheet C-302
4.1.55 SSK1 – PARTIAL FOUNDATION PLAN
4.1.56 SSK2 – SECTION 22/S201
4.1.57 SSK3 – SECTION 18/S201
4.1.58 SSK4 – SECTION 17/S203
4.1.59 SSK5 – SECTION 20/S203
4.1.60 SSK6 – SECTION 21/S203
4.1.61 SSK7 – SECTION 22/S203
4.1.62 SSK8 – SECTION 27/S204
4.1.63 SSK9 – SECTION 29/S204
4.1.64 SSK10 – SECTION 21/S303
4.1.65 SSK11 – TRUSS ELEVATION A2
4.1.66 SSK12 – TRUSS ELEVATION A3
4.1.67 SSK13 Partial Low Roof Framing Plan
4.1.68 SSK14 Partial Low Roof Framing Plan
4.1.69 SSK15 Partial Roof Framing Plan
4.1.70 SSK16 Partial Dunnage Framing Plan
4.1.71 SSK17 Partial Dunnage Framing Plan
4.1.72 SSK18 Section 2/S303

4.1.73 SSK19 Section 3/S303
4.1.74 SSK20 Section 22/S303
4.1.75 SSK21 Section 19/S204
4.1.76 SSK22 Section 19/S202
4.1.77 SSK23 Section 20/S202
4.1.78 SSK24 Section 21/S203
4.1.79 SSK25 Section 24/S302
4.1.80 Detail U-3A Deck to Deck Expansion Joint
4.1.81 Detail U-5B Pressure-Sensitive Curb Wrap
4.1.82 DRAWING A101A FIRST FLOOR PLAN – AREA A
4.1.83 DRAWING A101B FIRST FLOOR PLAN AREA B
4.1.84 DRAWING A101C FIRST FLOOR PLAN – AREA C
4.1.85 DRAWING A101D FIRST FLOOR PLAN AREA D
4.1.86 DRAWING 102D SECOND FLOOR PLAN – AREA D
4.1.87 DRAWING A103 ROOF PLAN
4.1.88 DRAWING A104 FIRST AND SECOND FLOOR CLERESTORY PLANS
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END OF ADDENDUM NO. 01

BECKER MORGAN GROUP

ARCHITECTURE PLANNING

Date:

William F. Cooke, Jr. Elementary School
New Castle County, Delaware
2012080.00

Release for use of Digital Media

Revised to include Building Information Modeling

Pursuant to your request, the Digital Media being provided is forwarded in accordance with the following terms.

Definitions:

a. The Work: the instrument of professional services of the Firm including but not limited to the design drawings, sketches, renderings, photographs, models, specifications.
b. Digital Media: the electronic, electromagnetic and/or optical storage media, (i.e. physical media) on which the Work is stored.
c. Digital Information: the information stored on Digital Media or sent via an electronic exchange method (email and FTP) known as the Work of the contracted design professional, Becker Morgan Group, Inc. and their consultants, herein after referred to as the Firm.
d. Digital Documents: the collective Digital Information that constitutes equivalent physical documents or Work of the Firm. Digital Documents may include one or more electronic files produced by Computer Aided Design (CAD) software applications.

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1. In accepting and utilizing Digital Information on any form of Digital Media generated and provided by the Firm, the Recipient covenants and agrees that all such Digital Information are instruments of service of the Firm prepared solely for use in connection with the single project for which they were prepared, who shall be deemed the author of the Digital Information, and shall retain all common law, statutory law and other rights, including copyrights.
2. The Digital Documents are provided as a convenience to the Recipient for informational purposes only in connection with the Recipient's performance of its responsibilities and obligations relating to the Project. The Digital Documents do not replace or supplement the printed copies of the Drawings and Specifications that are, and remain, the Contract Documents for the Project.
3. The Digital Information is provided only as a design record prior to construction and for reference to the Recipient. The information in no way shall be used for "as-built" or record purposes.
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5. The Work cannot be distributed, altered, reused, sold, leased, printed, plotted, or duplicated without the expressed written consent of the Firm.
6. For Shop Drawings - Where the Recipient has received specific permission to use the Digital Documents in connection with Recipient's obligation to prepare certain documents for the Project, Recipient shall, in addition to the other obligations set forth herein, be obligated to remove Architect's or Architect's Consultant's title block from the copy of the Digital Documents used by Recipient. It is understood and agreed that the Digital Documents are not to be used by any contractor or any of its subcontractors of any tier or any material supplier or vendor as a shop drawing or any other type of submittal or as the basis for preparing such shop drawing or submittal. The sole exception to this prohibition shall be that the Recipient may use the Digital Documents as backgrounds upon which to prepare its shop drawing or other submittal when it is specifically permitted in technical section of project specification. When these digital documents are used as backgrounds in the preparation of shop drawings or other submittals, the Recipient agrees to confirm the accuracy of the digital documents before using then, Recipient agrees to accept all responsibility for any errors or inaccuracies and to release the Architect and its sub-consultants from any liability or claims for recovery of damages or expenses arising as the result of such errors or inaccuracies.
7. Under no circumstances shall transfer of the Digital Information for use by the Recipient be deemed a sale by the Firm. The parties agree that the Digital Documents are not, nor shall they be construed to be, a product. The Firm makes no warranties, either express or implied, of the Digital Media or the Digital Information as to merchantability or fitness for any particular purpose the Recipient may need.
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9. The Digital Information is not guaranteed as to accuracy and completeness of all dimensions and details. Information contained in the signed and sealed printed documents should be deemed to be correct and superior to digital information.
10. The Digital Information is not guaranteed as to compatibility, in so far as incompatibilities may be present now or in the future with the Recipient's computers, storage devices, software, and output systems.
11. The Digital Media on which the Digital Information is provided cannot be guaranteed as to its durability, completeness or usability, in so far as instabilities may be present in the Digital Media, and in the transferring, archiving, recording or translating systems now and in the future. The Firm is not liable in any way for the perpetuation of this Digital Information on released digital media or on digital media retained by the Firm for its archives. Recipient agrees to accept all responsibility for any errors or inaccuracies and to release Architect and its sub-consultants from any liability or claims for recovery of damages or expenses arising as the result of such errors or inaccuracies.
12. Provision of the Information to the Recipient in no way limits the Firm to the further use of the Digital Information for the Firm's benefit.
13. Recipient agrees to waive any and all claims and liability against Architect and its sub-consultants resulting in any way from any failure by Recipient to comply with the requirements of this Agreement for the Delivery of Documents in Digital Format. The Recipient agrees, to the fullest extent permitted by law, to indemnify and hold the Firm harmless from any damage, liability or cost, including reasonable attorney's fees and costs of defense, arising from any changes made by anyone other than the Firm or from any reuse of the Digital Information without the prior written consent of the Firm. Recipient further agrees to indemnify and save harmless the Owner, Architect and its sub-consultants and each of their partners, officers, shareholders, directors and employees from any and all claims, judgments, suits, liabilities, damages, costs or expenses (including reasonable defense and attorney's fees) arising as the result of either: 1) Recipient's failure to comply with any of the requirements of this Agreement for the Delivery of Documents in Digital Format; or 2) a defect, error or omission in the Digital Documents or the information contained therein, which defect, error or omission was not contained in the Contract Documents

as defined in Paragraph 2 or where the use of such Contract Documents would have prevented the claim, judgment, suit, liability, damage, cost or expense.

The Recipient agrees to a $200 charge per each of the following drawing sheets listed below, created within a CAD digital file, payable to this office prior to release of any Digital Information. NOTE: All sheets are available for release.

List Requested Drawing Sheets:

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The Recipient agrees to a $500 charge per each of the following groups of CAD digital files checked below, payable to this office prior to release of any Digital Information. NOTE: Only those file groups listed below are available for release.

Check Requested Files:

____ S101-series, S102-series, and S103-series

____ A101-series, A102-series, A103, A104, A106-series, A107D

____ P101-series, P102, P103, P201-P207

____ M101-series, M102D, MP101-series, MP102D

____ EP101-series, EP102D, EL101-series, EL102D EMP101-series, EMP102D, EFA101-series, EFA102

____ T101-series, T102D

Please sign and return one copy of any release forms required by Consultants.

Please sign below and return one copy of this form with a check for the total payment made out to Becker Morgan Group.

Recipient sign here> _____

Accepted - signature Date

_____

Name/Title – printed

_____

Company

_____

BMG Principal - signature Date

_____

BMG Principal – printed

_____

Prepared by – printed

BMG_release-elecmediaCAD.doc

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

APPROVED 2012 – COMPLETED 2015

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BECKER MORGAN GROUP, INC., ARCHITECT
WHITING-TURNER CONTRACTING COMPANY, CONSTRUCTION MANAGER

SECTION 23 09 23

DIRECT-DIGITAL CONTROL SYSTEM FOR HVAC

-1.01 SECTION PROVIDED FOR REFERENCE ONLY. BUILDING AUTOMATION SYSTEM/CONTROLS PACKAGE PURCHASED UNDER SEPARATE CONTRACT.

PART 1 GENERAL

1.01 SECTION INCLUDES

A. System Description

B. Operator Interface

C. Controllers

D. Power Supplies and Line Filtering

E. System Software

F. Controller Software

G. HVAC Control Programs

H. Control equipment.

I. Software.

1.02 RELATED REQUIREMENTS

A. Section 28 31 00 - Fire Detection and Alarm.

B. Section 23 09 13 - Instrumentation and Control Devices for HVAC.

C. Section 23 09 93 - Sequence of Operations for HVAC Controls.

D. Section 26 27 17 - Equipment Wiring: Electrical characteristics and wiring connections.

E. Section 27 52 23.50 - Educational Intercommunications and Programs - Education For Sustainability Systems

1.03 REFERENCE STANDARDS

A. NFPA 70 - National Electrical Code; National Fire Protection Association.

1.04 SYSTEM DESCRIPTION

A. Automatic temperature control field monitoring and control system using field programmable micro-processor based units. No other vendors are acceptable.

B. Base system on distributed system of fully intelligent, stand-alone controllers, operating in a multi-tasking, multi-user environment on token passing network, with central and remote hardware, software, and interconnecting wire and conduit.

C. Include computer software and all hardware, operator input/output devices, control units, local area networks (LAN), sensors, control devices, actuators.

D. Controls for variable air volume terminals, radiation, reheat coils, unit heaters, fan coils, and the like when directly connected to the control units. Individual terminal unit control is specified in Section 23 09 13.

E. Provide control systems consisting of thermostats, control valves, dampers and operators, indicating devices, interface equipment, power transformers and electrical feeds, and other apparatus and accessories required to operate mechanical systems, and to perform functions specified.

F. Include installation and calibration, supervision, adjustments, and fine tuning necessary for complete and fully operational system.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for each system component and software module.

C. Shop Drawings:
1. Indicate trunk cable schematic showing programmable control unit locations, and trunk data conductors.
2. List connected data points, including connected control unit and input device.
3. Indicate system graphics indicating monitored systems, data (connected and calculated) point addresses, and operator notations. Provide demonstration diskette containing graphics.
4. Show system configuration with peripheral devices, batteries, power supplies, diagrams, modems, and interconnections.
5. Indicate description and sequence of operation of operating, user, and application software.

D. Manufacturer's Instructions: Indicate manufacturer's installation instructions for all manufactured components.

E. Project Record Documents: Record actual locations of control components, including control units, thermostats, and sensors.
1. Revise shop drawings to reflect actual installation and operating sequences.
2. Include submittals data in final "Record Documents" form.

F. Operation and Maintenance Data:
1. Include interconnection wiring diagrams complete field installed systems with identified and numbered, system components and devices.
2. Include keyboard illustrations and step-by-step procedures indexed for each operator function.
3. Include inspection period, cleaning methods, cleaning materials recommended, and calibration tolerances.

G. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Red Clay Consolidated School District s name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with NFPA 70.

B. Design system software under direct supervision of a Professional Engineer experienced in design of this Work and licensed at DE.

C. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum 10 years documented experience.

D. Installer Qualifications: Company specializing in performing the work of this section 5 years documented experience approved by manufacturer.

E. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

1.07 PRE-INSTALLATION MEETING

A. Convene one week before starting work of this Section.

B. Require attendance of parties directly affecting the work of this Section.

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a five year period after Substantial Completion.

C. Provide five year manufacturer's warranty for field programmable micro-processor based units.

1.09 MAINTENANCE SERVICE

A. Provide service and maintenance of energy management and control systems for one years from Date of Substantial Completion.

B. Provide four complete inspections per year, two in each season, to inspect, calibrate, and adjust controls as required, and submit written reports.

C. Provide complete service of systems, including call backs. Make minimum of 4 complete normal inspections of approximately 4 hours duration in addition to normal service calls to inspect, calibrate, and adjust controls, and submit written reports.

1.10 EXTRA MATERIALS

A. See Section 01 60 00 - Product Requirements, for additional provisions.

1.11 PROTECTION OF SOFTWARE RIGHTS

A. Prior to delivery of software, the Red Clay Consolidated School District and the party providing the software will enter into a software license agreement with provisions for the following:
   1. Limiting use of software to equipment provided under these specifications.
   2. Limiting copying.
   3. Preserving confidentiality.
   4. Prohibiting transfer to a third party.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Trane

B. Substitutions: Not Permitted.

2.02 SYSTEM DESCRIPTION

A. Automatic temperature control field monitoring and control system using field programmable micro-processor based units with communications to Building Management System.

B. Base system on distributed system of fully intelligent, stand-alone controllers, operating in a multi-tasking, multi-user environment on token passing network, with central and remote hardware, software, and interconnecting wire and conduit.

C. Include computer software and hardware, operator input/output devices, control units, local area networks (LAN), sensors, control devices, actuators.

D. Controls for variable air volume terminals, radiation, reheat coils, unit heaters, fan coils, and the like when directly connected to the control units. Individual terminal unit control is specified in Section 23 09 13.

E. Provide control systems consisting of thermostats, control valves, dampers and operators, indicating devices, interface equipment and other apparatus and accessories required to operate mechanical systems, and to perform functions specified.

F. Include installation and calibration, supervision, adjustments, and fine tuning necessary for complete and fully operational system.

2.03 CONTROLLERS

A. BUILDING CONTROLLERS
1. General:
   a. Manage global strategies by one or more, independent, standalone, microprocessor based controllers.
   b. Provide sufficient memory to support controller's operating system, database, and programming requirements.
   c. Share data between networked controllers.
   d. Controller operating system manages input and output communication signals allowing distributed controllers to share real and virtual object information and allowing for central monitoring and alarms.
   e. Utilize real-time clock for scheduling.
   f. Continuously check processor status and memory circuits for abnormal operation.
   g. Controller to assume predetermined failure mode and generate alarm notification upon detection of abnormal operation.
   h. Communication with other network devices to be based on assigned protocol.
2. Communication:
   a. Controller to reside on a BACnet network using ISO 8802-3 (ETHERNET) Data Link/Physical layer protocol.
   b. Perform routing when connected to a network of custom application and application specific controllers.
   c. Provide required communication to District-wide BAS.
3. Anticipated Environmental Ambient Conditions:
   a. Outdoors and/or in Wet Ambient Conditions:
      1) Mount within waterproof enclosures.
      2) Rated for operation at 40 to 150 degrees F.
   b. Conditioned Space:
      1) Mount within dustproof enclosures.
      2) Rated for operation at 32 to 120 degrees F.
4. Provisions for Serviceability:
   a. Diagnostic LEDs for power, communication, and processor.
   b. Make all wiring connections to field removable, modular terminal strips, or to a termination card connected by a ribbon cable.
5. Memory: In the event of a power loss, maintain all BIOS and programming information for a minimum of 72 hours.
6. Power and Noise Immunity:
   a. Maintain operation at 90 to 110 percent of nominal voltage rating.
   b. Perform orderly shutdown below 80 percent of nominal voltage.

c. Operation protected against electrical noise of 5 to 120 Hz and from keyed radios up to 5 W. at 3 feet.

B. INPUT/OUTPUT INTERFACE

1. Hardwired inputs and outputs tie into the DDC system through building, custom application, or application specific controllers.
2. All Input/Output Points:
   a. Protect controller from damage resulting from any point short-circuiting or grounding and from voltage up to 24 volts of any duration.
   b. Provide universal type for building and custom application controllers where input or output is software designated as either binary or analog type with appropriate properties.
3. Binary Inputs:
   a. Allow monitoring of On/Off signals from remote devices.
   b. Provide wetting current of 12 mA minimum, compatible with commonly available control devices and protected against the effects of contact bounce and noise.
   c. Sense dry contact closure with power provided only by the controller.
4. Pulse Accumulation Input Objects: Conform to all requirements of binary input objects and accept up to 10 pulses per second.
5. Analog Inputs:
   a. Allow for monitoring of low voltage 0 to 10 VDC, 4 to 20 mA current, or resistance signals (thermistor, RTD).
   b. Compatible with and field configurable to commonly available sensing devices.
6. Binary Outputs:
   a. Used for On/Off operation or a pulsed low-voltage signal for pulse width modulation control.
   b. Outputs provided with three position (On/Off/Auto) override switches.
   c. Status lights for building and custom application controllers to be selectable for normally open or normally closed operation.
7. Analog Outputs:
   a. Monitoring signal provides a 0 to 10 VDC or a 4 to 20 mA output signal for end device control.
   b. Provide status lights and two position (AUTO/MANUAL) switch for building and custom application controllers with manually adjustable potentiometer for manual override on building and custom application controllers.
   c. Drift to not exceed 0.4 percent of range per year.
8. Tri State Outputs:
   a. Coordinate two binary outputs to control three point, floating type, electronic actuators without feedback.
   b. Limit the use of three point, floating devices to the following zone and terminal unit control applications:
   c. Control algorithms run the zone actuator to one end of its stroke once every 24 hours for verification of operator tracking.
9. System Object Capacity:
   a. System size to be expandable to twice the number of input output objects required by providing additional controllers, including associated devices and wiring.
   b. Hardware additions or software revisions for the installed operator interfaces are not to be required for future, system expansions.

2.04 POWER SUPPLIES AND LINE FILTERING

A. Power Supplies:
   1. Provide UL listed control transformers with Class 2 current limiting type or over-current protection in both primary and secondary circuits for Class 2 service as required by the NEC.
   2. Limit connected loads to 80 percent of rated capacity.
   3. Match DC power supply to current output and voltage requirements.
   4. Unit to be full wave rectifier type with output ripple of 5.0 mV maximum peak to peak.
   5. Regulation to be 1 percent combined line and load with 100 microsecond response time for 50 percent load changes.
   6. Provide over-voltage and over-current protection to withstand a 150 percent current overload for 3 seconds minimum without trip-out or failure.
   7. Operational Ambient Conditions: 32 to 120 degrees F.
   8. EM/RF meets FCC Class B and VDE 0871 for Class B and MIL-STD 810 for shock and vibration.
   9. Line voltage units UL recognized and CSA approved.

B. Power Line Filtering:
   1. Provide external or internal transient voltage and surge suppression component for all workstations and controllers.
   2. Minimum surge protection attributes:
      a. Dielectric strength of 1000 volts minimum.
      b. Response time of 10 nanoseconds or less.
      c. Transverse mode noise attenuation of 65 dB or greater.
      d. Common mode noise attenuation of 150 dB or greater at 40 to 100 Hz.

2.05 OPERATOR INTERFACE - DISTRICT WIDE

A. Work Station:
   1. Utilize existing workstations within the District for full access to the system.

B. System Support: Full LAN interface units (desktop, laptop, tablet, etc.) connected to multi-user, multi-tasking environment with concurrent capability to:
   1. Access DDC network.
   2. Access or control same control unit.
   3. Access or modify same control unit data base.
   4. Archive data, alarms, and network actions to hard disk regardless of what application programs are being currently executed.
   5. Develop and edit data base.
   6. Implement and tune DDC control.
   7. Develop graphics.
   8. Control facility.

2.06 CONTROL UNITS

A. Units: Modular in design and consisting of processor board with programmable RAM memory, local operator access and display panel, and integral interface equipment.

B. Battery Backup: For minimum of 48 hours for complete system including RAM without interruption, with automatic battery charger.

C. Control Units Functions:
   1. Monitor or control each input/output point.
   2. Completely independent with hardware clock/calendar and software to maintain control independently.

3. Acquire, process, and transfer information to operator station or other control units on network.
4. Accept, process, and execute commands from other control unit's or devices or operator stations.
5. Access both data base and control functions simultaneously.
6. Record, evaluate, and report changes of state or value that occur among associated points. Continue to perform associated control functions regardless of status of network.
7. Perform in stand-alone mode:
   a. Start/stop.
   b. Duty cycling.
   c. Automatic Temperature Control.
   d. Demand control via a sliding window, predictive algorithm.
   e. Event initiated control.
   f. Calculated point.
   g. Scanning and alarm processing.
   h. Full direct digital control.
   i. Trend logging.
   j. Global communications.
   k. Maintenance scheduling.

D. Global Communications:
1. Broadcast point data onto network, making that information available to all other system control units.
2. Transmit any or all input/output points onto network for use by other control units and utilize data from other control units.

E. Input/Output Capability:
1. Discrete/digital input (contact status).
2. Discrete/digital output.
3. Analog input.
4. Analog output.
5. Pulse input (5 pulses/second).
6. Pulse output (0-655 seconds in duration with 0.01 second resolution).

F. Monitor, control, or address data points. Mix shall include analog inputs, analog outputs, pulse inputs, pulse outputs and discrete inputs/outputs, as required. Install control unit's with minimum 30 percent spare capacity.

G. Point Scanning: Set scan or execution speed of each point to operator selected time from 1 to 250 seconds.

H. Upload/Download Capability: Download from or upload to operator station. Upload/Download time for entire control unit database maximum 10 seconds on hard wired LAN, or 60 seconds over voice grade phone lines.

I. Test Mode Operation: Place input/output points in test mode to allow testing and developing of control algorithms on line without disrupting field hardware and controlled environment. In test mode:
1. Inhibit scanning and calculation of input points. Issue manual control to input points (set analog or digital input point to operator determined test value) from work station.
2. Control output points but change only data base state or value; leave external field hardware unchanged.

3. Enable control actions on output points but change only data base state or value.

J. Local display and adjustment panel: Portable control unit, containing digital display, and numerical keyboard. Display and adjust:
1. Input/output point information and status.
2. Controller set points.
3. Controller tuning constants.
4. Program execution times.
5. High and low limit values.
6. Limit differential.
7. Set/display date and time.
8. Control outputs connected to the network.
9. Automatic control outputs.
10. Perform control unit diagnostic testing.
11. Points in "Test" mode.

2.07 LOCAL AREA NETWORK (LAN)

A. Provide communication between control units over local area network (LAN).

B. LAN Capacity: Not less than 100 stations or nodes.

C. Break in Communication Path: Alarm and automatically initiate LAN reconfiguration.

D. LAN Data Speed: Minimum 19.2 Kb.

E. Communication Techniques: Allow interface into network by multiple operation stations and by auto-answer/auto-dial modems. Support communication over telephone lines utilizing modems.

F. Transmission Median: Fiber optic or single pair of solid 24 gauge twisted, shielded copper cable.

G. Network Support: Time for global point to be received by any station, shall be less than 3 seconds. Provide automatic reconfiguration if any station is added or lost. If transmission cable is cut, reconfigure two sections with no disruption to system's operation, without operator intervention.

2.08 SYSTEM SOFTWARE

A. Operating System:
1. Concurrent, multi-tasking capability.
   a. Common Software Applications Supported: Microsoft Excel.
2. System Graphics:
   a. Allow up to 10 graphic screens, simultaneously displayed for comparison and monitoring of system status.
   b. Animation displayed by shifting image files based on object status.
   c. Provide method for operator with password to perform the following:
      1) Move between, change size, and change location of graphic displays.
      2) Modify on-line.
      3) Add, delete, or change dynamic objects consisting of:
         (a) Analog and binary values.
         (b) Dynamic text.
         (c) Static text.
         (d) Animation files.
3. Custom Graphics Generation Package:
   a. Create, modify, and save graphic files and visio format graphics in PCX formats.

b. HTML graphics to support web browser compatible formats.
c. Capture or convert graphics from AutoCAD.

4. Standard HVAC Graphics Library:
   a. HVAC Equipment:
   b. Ancillary Equipment:

B. Workstation System Applications:
1. Automatic System Database Save and Restore Functions:
   a. Current database copy of each Building Controller is automatically stored on hard disk.
   b. Automatic update occurs upon change in any system panel.
   c. In the event of database loss in any system panel, the first workstation to detect the loss automatically restores the database for that panel unless disabled by the operator.
2. Manual System Database Save and Restore Functions by Operator with Password Clearance:
   a. Save database from any system panel.
   b. Clear a panel database.
   c. Initiate a download of a specified database to any system panel.
3. Software provided allows system configuration and future changes or additions by operators under proper password protection.
4. On-line Help:
   a. Context-sensitive system assists operator in operation and editing.
   b. Available for all applications.
   c. Relevant screen data provided for particular screen display.
   d. Additional help available via hypertext.
5. Security:
   a. Operator log-on requires user name and password to view, edit, add, or delete data.
   b. System security selectable for each operator.
   c. System supervisor sets passwords and security levels for all other operators.
   d. Operator passwords to restrict functions accessible to viewing and/or changing system applications, editor, and object.
   e. Automatic, operator log-off results from keyboard or mouse inactivity during user-adjustable, time period.
   f. All system security data stored in encrypted format.
6. System Diagnostics:
   a. Operations Automatically Monitored:
      1) Workstations.
      2) Printers.
      3) Modems.
      4) Network connections.
      5) Building management panels.
      6) Controllers.
   b. Device failure is annunciated to the operator.
7. Alarm Processing:
   a. All system objects are configurable to "alarm in" and "alarm out" of normal state.
   b. Configurable Objects:
      1) Alarm limits.
      2) Alarm limit differentials.
      3) States.
      4) Reactions for each object.
8. Alarm Messages:
   a. Descriptor: English language.

b. Recognizable Features:
   1) Source.
   2) Location.
   3) Nature.
9. Configurable Alarm Reactions by Workstation and Time of Day:
   a. Logging.
   b. Printing.
   c. Starting programs.
   d. Displaying messages.
   e. Dialing out to remote locations.
   f. Paging.
   g. Providing audible annunciation.
   h. Displaying specific system graphics.
10. Custom Trend Logs:
   a. Definable for any data object in the system including interval, start time, and stop time.
   b. Trend Data:
      1) Sampled and stored on the building controller panel.
      2) Archivable on hard disk.
      3) Retrievable for use in reports, spreadsheets and standard database programs.
      4) Archival on LAN accessible storage media including hard disk, tape, Raid array drive, and virtual cloud environment.
      5) Protected and encrypted format to prevent manipulation, or editing of historical data and event logs.
11. Alarm and Event Log:
   a. View all system alarms and change of states from any system location.
   b. Events listed chronologically.
   c. Operator with proper security acknowledges and clears alarms.
   d. Alarms not cleared by operator are archived to the workstation hard disk.
12. Object, Property Status and Control:
   a. Provide a method to view, edit if applicable, the status of any object and property in the system.
   b. Status Available by the Following Methods:
      1) Menu.
      2) Graphics.
      3) Custom Programs.
13. Reports and Logs:
   a. Reporting Package:
      1) Allows operator to select, modify, or create reports.
      2) Definable as to data content, format, interval, and date.
      3) Archivable to hard disk.
   b. Real-time logs available by type or status such as alarm, lockout, normal, etc.
   c. Stored on hard disk and readily accessible by standard software applications, including spreadsheets and word processing.
   d. Set to be printed on operator command or specific time(s).
14. Reports:
   a. Standard:
      1) Objects with current values.
      2) Current alarms not locked out.
      3) Disabled and overridden objects, points and SNVTs.
      4) Objects in manual or automatic alarm lockout.
      5) Objects in alarm lockout currently in alarm.

6) Logs:
   (a) Alarm History.
   (b) System messages.
   (c) System events.
   (d) Trends.

b. Custom:
   1) Daily.
   2) Weekly.
   3) Monthly.
   4) Annual.
   5) Time and date stamped.
   6) Title.
   7) Facility name.

c. Tenant Override:
   1) Monthly report showing total, requested, after-hours HVAC and lighting services on a daily basis for each tenant.
   2) Annual report showing override usage on a monthly basis.

d. Electrical, Fuel, and Weather:
   1) Electrical Meter(s):
      (a) Monthly showing daily electrical consumption and peak electrical demand with time and date stamp for each meter.
      (b) Annual summary showing monthly electrical consumption and peak demand with time and date stamp for each meter.
   2) Fuel Meter(s):
      (a) Monthly showing daily natural gas consumption for each meter.
      (b) Annual summary showing monthly consumption for each meter.
   3) Weather:
      (a) Monthly showing minimum, maximum, average outdoor air temperature and heating/cooling degree-days for the month.

C. Workstation Applications Editors:
   1. Provide editing software for all system applications at the PC workstation.
   2. Downloaded application is executed at controller panel.
   3. Full screen editor for each application allows operator to view and change:
      a. Configuration.
      b. Name.
      c. Control parameters.
      d. Set-points.
   4. Scheduling:
      a. Monthly calendar indicates schedules, holidays, and exceptions.
      b. Allows several related objects to be scheduled and copied to other objects or dates.
      c. Start and stop times adjustable from master schedule.
   5. Custom Application Programming:
      a. Create, modify, debug, edit, compile, and download custom application programming during operation and without disruption of all other system applications.
      b. Programming Features:
         1) English oriented language, based on BASIC, FORTRAN, C, or PASCAL syntax allowing for free form programming.
         2) Alternative language graphically based using appropriate function blocks suitable for all required functions and amenable to customizing or compounding.
         3) Insert, add, modify, and delete custom programming code that incorporates word

processing features such as cut/paste and find/replace.

4) Allows the development of independently, executing, program modules designed to enable and disable other modules.
5) Debugging/simulation capability that displays intermediate values and/or results including syntax/execution error messages.
6) Support for conditional statements (IF/THEN/ELSE/ELSE-F) using compound Boolean (AND, OR, and NOT) and/or relations (EQUAL, LESS THAN, GREATER THAN, NOT EQUAL) comparisons.
7) Support for floating-point arithmetic utilizing plus, minus, divide, times, square root operators; including absolute value; minimum/maximum value from a list of values for mathematical functions.
8) Language consisting of resettable, predefined, variables representing time of day, day of the week, month of the year, date; and elapsed time in seconds, minutes, hours, and days where the variable values cab be used in IF/THEN comparisons, calculations, programming statement logic, etc.
9) Language having predefined variables representing status and results of the system software enables, disables, and changes the set points of the controller software.

2.09 CONTROLLER SOFTWARE

A. All applications reside and operate in the system controllers and editing of all applications occurs at the operator workstation.

B. System Security:
   1. User access secured via user passwords and user names.
   2. Passwords restrict user to the objects, applications, and system functions as assigned by the system manager.
   3. User Log On/Log Off attempts are recorded.
   4. Automatic Log Off occurs following the last keystroke after a user defined delay time.

C. Object or Object Group Scheduling:
   1. Weekly Schedules Based on Separate, Daily Schedules:
      a. Include start, stop, optimal stop, and night economizer.
      b. 10 events maximum per schedule.
      c. Start/stop times adjustable for each group object.

D. Provide standard application for equipment coordination and grouping based on function and location to be used for scheduling and other applications.

E. Alarms:
   1. Binary object is set to alarm based on the operator specified state.
   2. Analog object to have high/low alarm limits.
   3. All alarming is capable of being automatically and manually disabled.
   4. Alarm Reporting:
      a. Operator determines action to be taken for alarm event.
      b. Alarms to be routed to appropriate workstation.
      c. Reporting Options:

F. Maintenance Management: System monitors equipment status and generates maintenance messages based upon user-designated run-time limits.

G. Sequencing: Application software based upon specified sequences of operation in Section 23 09 93.

H. PID Control Characteristics:
   1. Direct or reverse action.
   2. Anti-windup.
   3. Calculated, time-varying, analog value, positions an output or stages a series of outputs.
   4. User selectable controlled variable, set-point, and PED gains.

I. Staggered Start Application:
   1. Prevents all controlled equipment from simultaneously restarting after power outage.
   2. Order of equipment startup is user selectable.

J. Energy Calculations:
   1. Accumulated instantaneous power or flow rates are converted to energy use data.
   2. Algorithm calculates a rolling average and allows window of time to be user specified in minute intervals.
   3. Algorithm calculates a fixed window average with a digital input signal from a utility meter defining the start of the window period that in turn synchronizes the fixed-window average with that used by the power company.

K. Anti-Short Cycling:
   1. All binary output objects protected from short-cycling.
   2. Allows minimum on-time and off-time to be selected.

L. On-Off Control with Differential:
   1. Algorithm allows binary output to be cycled based on a controlled variable and set-point.
   2. Algorithm to be direct-acting or reverse-acting incorporating an adjustable differential.

M. Run-Time Totalization:
   1. Totalize run-times for all binary input objects.
   2. Provides operator with capability to assign high run-time alarm.

2.10 OPERATING SYSTEM SOFTWARE

A. Input/Output Capability From Operator Station:
   1. Request display of current values or status in tabular or graphic format.
   2. Command selected equipment to specified state.
   3. Initiate logs and reports.
   4. Change analog limits.
   5. Add, delete, or change points within each control unit or application routine.
   6. Change point input/output descriptors, status, alarm descriptors, and engineering unit descriptors.
   7. Add new control units to system.
   8. Modify and set up maintenance scheduling parameters.
   9. Develop, modify, delete or display full range of color graphic displays.
   10. Automatically archive select data even when running third party software.
   11. Provide capability to sort and extract data from archived files and to generate custom reports.
   12. Support two printer operations.
      a. Alarm printer: Print alarms, operator acknowledgements, action messages, system alarms, operator sign-on and sign-off.
      b. Data printer: Print reports, page prints, and data base prints.
   13. Select daily, weekly or monthly as scheduled frequency to synchronize time and date in digital control units. Accommodate daylight savings time adjustments.
   14. Print selected control unit data base.

B. Operator System Access: Via software password with minimum 30 access levels at work station and minimum 3 access levels at each control unit.

C. Data Base Creation and Support: Changes shall utilize standard procedures. Control unit shall automatically check work station data base files upon connection and verify data base match. Minimum capability shall include:
   1. Add and delete points.
   2. Modify any point parameter.
   3. Change, add, or delete English language descriptors.
   4. Add, modify, or delete alarm limits.
   5. Add, modify, or delete points in start/stop programs, trend logs, etc.
   6. Create custom relationship between points.
   7. Create or modify DDC loops and parameters.
   8. Create or modify override parameters.
   9. Add, modify, and delete any applications program.
   10. Add, delete, develop, or modify dynamic color graphic displays.

D. Dynamic Color Graphic Displays:
   1. Utilizes custom symbols or system supported library of symbols.
   2. Sixteen (16) colors.
   3. Sixty (60) outputs of real time, live dynamic data per graphic.
   4. Dynamic graphic data.
   5. 1,000 separate graphic pages.
   6. Modify graphic screen refresh rate between 1 and 60 seconds.

E. Operator Station:
   1. Accept data from LAN as needed without scanning entire network for updated point data.
   2. Interrogate LAN for updated point data when requested.
   3. Allow operator command of devices.
   4. Allow operator to place specific control units in or out of service.
   5. Allow parameter editing of control units.
   6. Store duplicate data base for every control unit and allow down loading while system is on line.
   7. Control or modify specific programs.
   8. Develop, store and modify dynamic color graphics.
   9. Provide data archiving of assigned points and support overlay graphing of this data utilizing up to four (4) variables.

F. Alarm Processing:
   1. Off normal condition: Cause alarm and appropriate message, including time, system, point descriptor, and alarm condition. Select alarm state/value and which alarms shall cause automatic dial-out.
   2. Critical alarm or change-of-state: Display message, stored on disk for review and sort, or print.
   3. Print on line changeable message, up to 100 characters in length, for each alarm point specified.
   4. Display alarm reports on video. Display multiple alarms in order of occurrence.
   5. Define time delay for equipment start-up or shutdown.
   6. Allow unique routing of specific alarms.
   7. Operator specifies if alarm requires acknowledgement.
   8. Continue to indicate unacknowledged alarms after return to normal.

9. Alarm notification:
    a. Automatic print.
    b. Display indicating alarm condition.
    c. Selectable audible alarm indication.

G. Event Processing: Automatically initiate commands, user defined messages, take specific control actions or change control strategy and application programs resulting from event condition. Event condition may be value crossing operator defined limit, change-of-state, specified state, or alarm occurrence or return to normal.

H. Automatic Restart: Automatically restart field equipment on restoration of power. Provide time delay between individual equipment restart and time of day start/stop.

I. Messages:
1. Automatically display or print user-defined message subsequent to occurrence of selected events.
2. Compose, change, or delete any message.
3. Display or log any message at any time.
4. Assign any message to any event.

J. Reports:
1. Manually requested with time and date.
2. Long term data archiving to hard disk.
3. Automatic directives to download to transportable media such as floppy diskettes for storage.
4. Data selection methods to include data base search and manipulation.
5. Data extraction with mathematical manipulation.
6. Data reports shall allow development of XY curve plotting, tabular reports (both statistical and summary), and multi-point timed based plots with not less than four (4) variables displayed.
7. Generating reports either normally at operator direction, or automatically under work station direction.
8. Reports may either manually displayed or printed, or may be printed automatically on daily, weekly, monthly, yearly or scheduled basis.
9. Include capability for statistical data manipulation and extraction.
10. Provide capability to generate four types of reports: Statistical detail reports, summary reports, trend graphic plots, x-y graphic plots.

K. Parameter Save/Restore: Store most current operating system, parameter changes, and modifications on disk or diskette.

L. Data Collection:
1. Automatically collect and store in disk files.
2. Daily electrical energy consumption, peak demand, and time of peak demand for up to electrical meters over 2 year period.
3. Daily consumption for up to 30 meters over a 2 year period.
4. Daily billable electrical energy consumption and time for up to 1024 zones over a 10 year period.
5. Provide archiving of stored data for use with system supplied custom reports.

M. Graphic Display: Support graphic development on work station with software features:
1. Page linking.
2. Generate, store, and retrieve library symbols.
3. Single or double height characters.

4. Sixty (60) dynamic points of data per graphic page.
5. Pixel level resolution.
6. Animated graphics for discrete points.
7. Analog bar graphs.
8. Display real time value of each input or output line diagram fashion.

N. Maintenance Management:
1. Run time monitoring, per point.
2. Maintenance scheduling targets with automatic annunciation, scheduling and shutdown.
3. Equipment safety targets.
4. Display of maintenance material and estimated labor.
5. Target point reset, per point.

O. Advisories:
1. Summary which contains status of points in locked out condition.
2. Continuous operational or not operational report of interrogation of system hardware and programmable control units for failure.
3. Report of power failure detection, time and date.
4. Report of communication failure with operator device, field interface unit, point, programmable control unit.

2.11 LOAD CONTROL PROGRAMS

A. General: Support inch-pounds and SI (metric) units of measurement.

B. Demand Limiting:
1. Monitor total power consumption per power meter and shed associated loads automatically to reduce power consumption to an operator set maximum demand level.
2. Input: Pulse count from incoming power meter connected to pulse accumulator in control unit.
3. Forecast demand (kW): Predicted by sliding window method.
4. Automatically shed loads throughout the demand interval selecting loads with independently adjustable on and off time of between one and 255 minutes.
5. Demand Target: Minimum of 3 per demand meter; change targets based upon (1) time, (2) status of pre-selected points, or (3) temperature.
6. Load: Assign load shed priority, minimum "ON" time and maximum "OFF" time.
7. Limits: Include control band (upper and lower limits).
8. Output advisory if loads are not available to satisfy required shed amount, advise shed requirements and requiring operator acknowledgement.

C. Duty Cycling:
1. Periodically stop and start loads, based on space temperature, and according to various On/Off patterns.
2. Modify off portion of cycle based on operator specified comfort parameters. Maintain total cycle time by increasing on portion of cycle by same amount that off portion is reduced.
3. Set and modify following parameters for each individual load.
   a. Minimum and maximum Off time.
   b. On/Off time in one minute increments.
   c. Time period from beginning of interval until load can be cycled.
   d. Manually override the DCC program and place a load in an On or Off state.
   e. Cooling Target Temperature and Differential.
   f. Heating Target Temperature and Differential.
   g. Cycle off adjustment.

D. Automatic Time Scheduling:
   1. Self-contained programs for automatic start/stop/scheduling of building loads.
   2. Support up to seven (7) normal day schedules, seven (7) "special day" schedules and two (2) temporary day schedules.
   3. Special days schedule shall support up to 30 unique date/duration combinations.
   4. Any number of loads assigned to any time program; each load can have individual time program.
   5. Each load assigned at least 16 control actions per day with 1 minute resolution.
   6. Time schedule operations may be:
      a. Start.
      b. Optimized Start.
      c. Stop.
      d. Optimized Stop.
      e. Cycle.
      f. Optimized Cycle.
   7. Minimum of 30 holiday periods up to 100 days in length may be specified for the year.
   8. Create temporary schedules.
   9. Broadcast temporary "special day" date and duration.

E. Start/Stop Time Optimization:
   1. Perform optimized start/stop as function of outside conditions, inside conditions, or both.
   2. Adaptive and self-tuning, adjusting to changing conditions unattended.
   3. For each point under control, establish and modify:
      a. Occupancy period.
      b. Desired temperature at beginning of occupancy period.
      c. Desired temperature at end of occupancy period.

F. Night Setback/Setup Program: Reduce heating space temperature setpoint or raise cooling space temperature setpoint during unoccupied hours; in conjunction with scheduled start/stop and optimum start/stop programs.

G. Calculated Points: Define calculations and totalization computed from monitored points (analog/digital points), constants, or other calculated points.
   1. Employ arithmetic, algebraic, Boolean, and special function operations.
   2. Treat calculated values like any other analog value, use for any function that a "hard wired point" might be used.

H. Event Initiated Programming: Event may be initiated by any data point, causing series of controls in a sequence.
   1. Define time interval between each control action between 0 to 3600 seconds.
   2. Output may be analog value.
   3. Provide for "skip" logic.
   4. Verify completion of one action before proceeding to next. If not verified, program shall be able to skip to next action.

I. Direct Digital Control: Each control unit shall provide Direct Digital Control software so that the operator may customize control strategies and sequences of operation by defining the appropriate control loop algorithms and choosing the optimum loop parameters.
   1. Control loops: Defined using "modules" that are analogous to standard control devices.
   2. Output: Paired or individual digital outputs for pulse-width modulation, and analog outputs, as required.
   3. Firmware:
      a. PID with analog or pulse-width modulation output.

b. Floating control with pulse-width modulated outputs.
c. Two-position control.
d. Primary and secondary reset schedule selector.
e. Hi/Lo signal selector.
f. Single pole double throw relay.
g. Single pole double throw time delay relay with delay before break, delay before make and interval time capabilities.

4. Direct Digital Control loops: Downloaded upon creation or on operator request. On sensor failure, program shall execute user defined failsafe output.
5. Display: Value or state of each of the lines which interconnect DDC modules.

J. Fine Tuning Direct Digital Control PID or floating loops:
1. Display information:
a. Control loop being tuned
b. Input (process) variable
c. Output (control) variable
d. Setpoint of loop
e. Proportional band
f. Integral (reset) Interval
g. Derivative (rate) Interval
2. Display format: Graphic, with automatic scaling; with input and output variable superimposed on graph of "time" vs "variable".

K. Trend logging:
1. Each control unit will store samples of control unit's data points.
2. Update file continuously at discretely assignable intervals.
3. Automatically initiate upload request and then store data on hard disk.
4. Time synchronize sampling at operator specified times and intervals with sample resolution of one minute.
5. Co-ordinate sampling with on/off state of specified point.
6. Display trend samples on work station in graphic format. Automatically scale trend graph with minimum 60 samples of data in plot of time vs data.

2.12 HVAC CONTROL PROGRAMS

A. General:
1. Support Inch-pounds and SI (metric) units of measurement.
2. Identify each HVAC Control system.

B. Optimal Run Time:
1. Control start-up and shutdown times of HVAC equipment for both heating and cooling.
2. Base on occupancy schedules, outside air temperature, seasonal requirements, and interior room mass temperature.
3. Start-up systems by using outside air temperature, room mass temperatures, and adaptive model prediction for how long building takes to warm up or cool down under different conditions.
4. Use outside air temperature to determine early shut down with ventilation override.
5. Analyze multiple building mass sensors to determine seasonal mode and worse case condition for each day.
6. Operator commands:
a. Define term schedule
b. Add/delete fan status point.
c. Add/delete outside air temperature point.

d. Add/delete mass temperature point.
e. Define heating/cooling parameters.
f. Define mass sensor heating/cooling parameters.
g. Lock/unlock program.
h. Request optimal run time control summary.
i. Request optimal run time mass temperature summary.
j. Request HVAC point summary.
k. Request HVAC saving profile summary.

7. Control Summary:
   a. HVAC Control system begin/end status.
   b. Optimal run time lock/unlock control status.
   c. Heating/cooling mode status.
   d. Optimal run time schedule.
   e. Start/Stop times.
   f. Selected mass temperature point ID.
   g. Optimal run time system normal start times.
   h. Occupancy and vacancy times.
   i. Optimal run time system heating/cooling mode parameters.
8. Mass temperature summary:
   a. Mass temperature point type and ID.
   b. Desired and current mass temperature values.
   c. Calculated warm-up/cool-down time for each mass temperature.
   d. Heating/cooling season limits.
   e. Break point temperature for cooling mode analysis.
9. HVAC point summary:
   a. Control system identifier and status.
   b. Point ID and status.
   c. Outside air temperature point ID and status.
   d. Mass temperature point ID and point.
   e. Calculated optimal start and stop times.
   f. Period start.

C. Supply Air Reset:
1. Monitor heating and cooling loads in building spaces, terminal reheat systems, both hot deck and cold deck temperatures on dual duct and multizone systems, single zone unit discharge temperatures.
2. Adjust discharge temperatures to most energy efficient levels satisfying measured load by:
   a. Raising cooling temperatures to highest possible value.
   b. Reducing heating temperatures to lowest possible level.
3. Operator commands:
   a. Add/delete fan status point.
   b. Lock/unlock program.
   c. Request HVAC point summary.
   d. Add/Delete discharge controller point.
   e. Define discharge controller parameters.
   f. Add/delete air flow rate.
   g. Define space load and load parameters.
   h. Request space load summary.
4. Control summary:
   a. HVAC control system status (begin/end).
   b. Supply air reset system status.

c. Optimal run time system status.
d. Heating and cooling loop.
e. High/low limits.
f. Deadband.
g. Response timer.
h. Reset times.

5. Space load summary:
   a. HVAC system status.
   b. Optimal run time status.
   c. Heating/cooling loop status.
   d. Space load point ID.
   e. Current space load point value.
   f. Control heat/cool limited.
   g. Gain factor.
   h. Calculated reset values.
   i. Fan status point ID and status.
   j. Control discharge temperature point ID and status.
   k. Space load point ID and status.
   l. Air flow rate point ID and status.

D. Enthalpy Switchover:
1. Calculate outside and return air enthalpy using measured temperature and relative humidity; determine energy expended and control outside and return air dampers.
2. Operator commands:
   a. Add/delete fan status point.
   b. Add/delete outside air temperature point.
   c. Add/delete discharge controller point.
   d. Define discharge controller parameters.
   e. Add/delete return air temperature point.
   f. Add/delete outside air dew point/humidity point.
   g. Add/delete return air dew point/humidity point.
   h. Add/delete damper switch.
   i. Add/delete minimum outside air.
   j. Add/delete atmospheric pressure.
   k. Add/delete heating override switch.
   l. Add/delete evaporative cooling switch.
   m. Add/delete air flow rate.
   n. Define enthalpy deadband.
   o. Lock/unlock program.
   p. Request control summary.
   q. Request HVAC point summary.
3. Control summary:
   a. HVAC control system begin/end status.
   b. Enthalpy switchover optimal system status.
   c. Optimal return time system status.
   d. Current outside air enthalpy.
   e. Calculated mixed air enthalpy.
   f. Calculated cooling cool enthalpy using outside air.
   g. Calculated cooling cool enthalpy using mixed air.
   h. Calculated enthalpy difference.
   i. Enthalpy switchover deadband.

j. Status of damper mode switch.

2.13 PROGRAMMING APPLICATION FEATURES

A. Trend Point:
   1. Sample up to 150 points, real or computed, with each point capable of collecting 100 samples at intervals specified in minutes, hours, days, or month.
   2. Output trend logs as line graphs or bar graphs. Output graphic on terminal, with each point for line and bar graphs designated with a unique pattern, vertical scale either actual values or percent of range, and horizontal scale time base. Print trend logs up to 12 columns of one point/column.

B. Alarm Messages:
   1. Allow definition of minimum of 100 messages, each having minimum length of 100 characters for each individual message.
   2. Assign alarm messages to system messages including point's alarm condition, point's off-normal condition, totalized point's warning limit, hardware elements advisories.
   3. Output assigned alarm with "message requiring acknowledgement".
   4. Operator commands include define, modify, or delete; output summary listing current alarms and assignments; output summary defining assigned points.

C. Weekly Scheduling:
   1. Automatically initiate equipment or system commands, based on preselected time schedule for points specified.
   2. Provide program times for each day of week, per point, with one minute resolution.
   3. Automatically generate alarm output for points not responding to command.
   4. Provide for holidays, minimum of 366 consecutive holidays.
   5. Operator commands:
      a. System logs and summaries.
      b. Start of stop point.
      c. Lock or unlock control or alarm input.
      d. Add, delete, or modify analog limits and differentials.
      e. Adjust point operation position.
      f. Change point operational mode.
      g. Open or close point.
      h. Enable/disable, lock/unlock, or execute interlock sequence or computation profile.
      i. Begin or end point totalization.
      j. Modify totalization values and limits.
      k. Access or secure point.
      l. Begin or end HVAC or load control system.
      m. Modify load parameter.
      n. Modify demand limiting and duty cycle targets.
   6. Output summary: Listing of programmed function points, associated program times, and respective day of week programmed points by software groups or time of day.

D. Interlocking:
   1. Permit events to occur, based on changing condition of one or more associated master points.
   2. Binary contact, high/low limit of analog point or computed point shall be capable of being utilized as master. Same master may monitor or command multiple slaves.
   3. Operator commands:
      a. Define single master/multiple master interlock process.
      b. Define logic interlock process.

c. Lock/unlock program.
d. Enable/disable interlock process.
e. Execute terminate interlock process.
f. Request interlock type summary.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that conditioned power supply is available to the control units and to the operator work station. Verify that field end devices, wiring, and pneumatic tubing is installed prior to installation proceeding.

3.02 INSTALLATION

A. Install control units and other hardware in position on permanent walls where not subject to excessive vibration.

B. Install software in control units and in operator work station. Implement all features of programs to specified requirements and appropriate to sequence of operation. Refer to Section 23 09 93.

C. Provide with 120v AC, 15 amp dedicated emergency power circuit to each programmable control unit.

D. Provide conduit and electrical wiring in accordance with Section 26 27 17. Electrical material and installation shall be in accordance with appropriate requirements of Division 26.

E. Ensure that all components necessary to execute the sequences of operation are coordinated and installed by all contractors.

F. Contractor shall demolish and remove all existing control components, including but not limited to thermostats, pneumatic tabing, compressors, panels, and devices unless otherwise noted on the drawings. Demolition shall be coordinated on phased projects to maintain the existing system where needed until complete charge-over has been accomplished.

3.03 MANUFACTURER'SFIELD SERVICES

A. Start and commission systems. Allow sufficient time for start-up and commissioning prior to placing control systems in permanent operation.

B. Provide service engineer to instruct Red Clay Consolidated School District's representative in operation of systems plant and equipment for 2 day period.

C. Provide basic operator training for 4 persons on data display, alarm and status descriptors, requesting data, execution of commands and request of logs. Include a minimum of 8 hours dedicated instructor time. Provide training on site.

3.04 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate complete and operating system to Red Clay Consolidated School District.

3.05 SCHEDULES

A. Input/Output Schedule:
1. Point Description:
2. Digital Input:
a. Demand Meter (kW):

b. Auxiliary Contact:
c. Switches:
1) Switch Closing:
2) Flow Switch:
3) Optical:
d. Current:
e. Pressure:
3. Digital Output:
a. Control Relay:
b. Solenoid:
c. Contactor:
4. Analog Input:
a. Temperature:
b. Relative Humidity:
c. Pressure/Vacuum:
d. Filter:
e. Flow:
f. Current:
g. Liquid Level:
h. Photocell:
5. Analog Output:
a. Pneumatic Transducer:
b. 4-20 ma Module:
c. 0-16 v DC:
6. Alarm:

B. Input/Output Schedule:
1. Point Description:
2. Inputs:
a. Temperature:
b. Relative Humidity:
c. Pressure:
d. Flow:
e. Level:
f. Position:
g. Energy:
h. Power:
3. Outputs:
a. Status:
b. Alarm:
c. Pneumatic Position:
d. Electronic Position:
e. Set Point Adjust:
f. Start/Stop:
g. Off/Low/High:
4. Software Features:
a. PID Control (DDC):
b. High Limit:
c. Low Limit:
d. Run Time Totalization:
e. Consumption Totalization:

f. Program Start/Stop:
g. Load Shed:
h. Duty Cycle:
i. Enthalpy Switchover:
j. Optimal Run Time:
k. Supply Air Reset:
l. O.A. Interlock:
m. O.A. Temperature Reset:
n. Free Cooling Mode:
o. Warm-up Mode:
p. Boiler Interlock:
q. Chiller Sequencing:
r. Energy Calculation:

C. Alarm Schedule:
1. High Limit: A1.
2. Low Limit: A2.
3. Run Time: A3.
4. Maintenance: A4.
5. Status: A5.
6. Override: A6.
7. Freeze: A7.
8. Low Pressure: A8.

END OF SECTION

SECTION 23 09 93

SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

BUILDING AUTOMATION SYSTEM/CONTROLS PACKAGE PURCHASED UNDER SEPARATE CONTRACT. CONTRACTOR SHALL PROVIDE ALL CONTROLS AND INTERCONNECTING WIRING FOR THE VARIABLE REFRIGERANT FLOW (VRF) SYSTEM AS REQUIRED IN THE SPECIFICATIONS. ALL HEAD-END EQUIPMENT, CONTROLLERS, WIRING, LABOR, AND SOFTWARE REQUIRED TO INTEGRATE THE VRF SYSTEM INTO THE B.A.S. AND PROVIDE CONTROLS FOR THE ENERGY RECOVERY VENTILAOTRS (ERV) AND PACKAGED ROOF-TOP MOUNTED AIR HANDLING UNITS (RTU) SHALL BE PROVIDED UNDER SEPERATE CONTRACT. VRF SEQUENCES OF OPERATION ARE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

1.01 PART 1 GENERAL

1.02 This section defines the general operating parameters for the Buildign Automation System purchased under separate contract by the Owner. It further defines the expected operating parameters of the VRF system as defined in specificaiton section 23 81 29.

1.03 SECTION INCLUDES

A. This section defines the manner and method by which controls function. Requirements for each type of control system operation are specified. Equipment, devices, and system components required for control systems are specified in other sections.

B. Sequence of operation for:
   1. Packaged Rooftop Outdoor Air Units with Energy Recovery
   2. Kitchen Exhaust Hoods / Kitchen Ventilation Systems
   3. Variable Refrigerant Flow (VRF) Heat Pump Systems
   4. Radiation and convectors.
   5. Energy Recovery Ventilators/Supply Air Units

1.04 RELATED SECTIONS

A. Section 23 09 23 - Direct-Digital Control System for HVAC.

B. Section 23 09 13 - Instrumentation and Control Devices for HVAC.

C. Section 26 27 17 - Equipment Wiring: Electrical characteristics and wiring connections.

1.05 SYSTEM DESCRIPTION

A. This Section defines the manner and method by which controls function. Requirements for each type of control system operation are specified. Equipment, devices, and system components required for control systems are specified in other Sections.

1.06 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Sequence of Operation Documentation: Submit written sequence of operation for entire HVAC system and each piece of equipment.
   1. Preface: 1 or 2 paragraph overview narrative of the system describing its purpose, components and function.

2. State each sequence in small segments and give each segment a unique number for referencing in Functional Test procedures; provide a complete description regardless of the completeness and clarity of the sequences specified in the contract documents.
3. Include at least the following sequences:
   a. Start-up.
   b. Warm-up mode.
   c. Normal operating mode.
   d. Unoccupied mode.
   e. Shutdown.
   f. Capacity control sequences and equipment staging.
   g. Temperature and pressure control, such as setbacks, setups, resets, etc.
   h. Detailed sequences for all control strategies, such as economizer control, optimum start/stop, staging, optimization, demand limiting, etc.
   i. Effects of power or equipment failure with all standby component functions.
   j. Sequences for all alarms and emergency shut downs.
   k. Seasonal operational differences and recommendations.
   l. Interactions and interlocks with other systems.
4. Include initial and recommended values for all adjustable settings, setpoints and parameters that are typically set or adjusted by operating staff; and any other control settings or fixed values, delays, etc. that will be useful during testing and operating the equipment.
5. For packaged controlled equipment, include manufacturer's furnished sequence of operation amplified as required to describe the relationship between the packaged controls and the control system, indicating which points are adjustable control points and which points are only monitored.
6. Include schedules, if known.

C. Control System Diagrams: Submit graphic schematic of the control system showing each control component and each component controlled, monitored, or enabled.
   1. Label with settings, adjustable range of control and limits.
   2. Include flow diagrams for each control system, graphically depicting control logic.
   3. Include the system and component layout of all equipment that the control system monitors, enables or controls, even if the equipment is primarily controlled by packaged or integral controls.
   4. Include draft copies of graphic displays indicating mechanical system components, control system components, and controlled function status and value.
   5. Include all monitoring, control and virtual points specified in elsewhere.
   6. Include a key to all abbreviations.

D. Points List: Submit list of all control points indicating at least the following for each point.
   1. Name of controlled system.
   2. Point abbreviation.
   3. Point description; such as dry bulb temperature, airflow, etc.
   4. Display unit.
   5. Control point or setpoint (Yes / No); i.e. a point that controls equipment and can have its setpoint changed.
   6. Monitoring point (Yes / No); i.e. a point that does not control or contribute to the control of equipment but is used for operation, maintenance, or performance verification.
   7. Intermediate point (Yes / No); i.e. a point whose value is used to make a calculation which then controls equipment, such as space temperatures that are averaged to a virtual point to control reset.

8. Calculated point (Yes / No); i.e. a “virtual” point generated from calculations of other point values.

E. Project Record Documents: Record actual locations of components and setpoints of controls, including changes to sequences made after submission of shop drawings.

1.07 QUALITY ASSURANCE

A. Design system under direct supervision of a Professional Engineer experienced in design of this Work and licensed in DE.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 General System Design and Operation Standards

A. The BAS shall control the mechanical systems within the site based upon a variable refrigerant flow (VRF) heat pump system with central energy recovery ventilators supplying outdoor air to the terminal units. Large assebly spaces are served by packed DX cooling / gas fired heating rooftop units with energy recovery and hot-gas reheat-basd dehumidification controls.

B. Each unit shall be controlled by an individual DDC Controller and all required sensors, control valves, and appurtenances required to complete the sequence of operation. Units shall include occupied/unoccupied control, night-setback, morning warm-up/cool-down, and enthalpy-based economizer functions.

3.02 Kitchen Exhaust Hoods / Kitchen Make-Up Air Units

A. Exhaust fans servince Hoods shall be controlled manually via a hood-mounted control system.

B. Provide a current sensor for each fan (supply and exhaust) to show operational status.

C. The following items shall be displayed at the Operator's Terminal:
   1. Operational status of fan via current sensor.

3.03 Variable Refrigerant Volume Heat Pump Systems

A. The variable refrigerant split system shall have a BAS DDC interface wired to the manufacturer factory central system controller to provide operation, configuration, and monitoring of the system. The manufacturer factory central controller shall operate in BACnet protocol, and be connected to manufacturer factory space temperature sensors as specified.

B. Sequence of operation:
   1. Cooling Mode: Cooling mode shall be selected based on outdoor air temperatures or manually enabled or scheduled from the workstation. During the programmed occupied mode, the supply fan shall run continuously. On a rise in space temperature above the setpoint (75 degrees, adjustable), the manufacturer central controller shall energize the central compressor to provide cooling. The internal capacity control valve in the evaporator unit shall modulate to control the flow of refrigerant to maintain space temperature. On a fall in space temperature the refrigerant capacity control valve shall modulate closed.
   2. Heating Mode: Heating mode shall be selected based on outdoor air temperatures or manually enabled or scheduled from the workstation. During the programmed occupied mode, the supply fan shall run continuously. On a drop in space temperature below the setpoint (68 degrees, adjustable), the manufacturer central controller shall energize the central compressor to with the requisite reversing valve to provide heating to the evaporator unit as required. The internal capacity control valve in the evaporator unit shall modulate to

control the flow of refrigerant to maintain space temperature. On a fall in space temperature the refrigerant capacity control valve shall modulate closed.

3. The following items shall be accessible and displayed at the Operator's Terminal:
   a. Space temperature setpoint at each fan-coil unit (user adjustable).
   b. Actual space temperature of each fan-coil unit space.
   c. Operational status of each fan-coil unit (heating, cooling, off, user adjustable).
   d. Factory error codes from each unit.
   e. Remote space temperature sensor override for each fan-coil unit (user adjustable to limit temperature adjustment range, heat/cool selection, fan speed).
   f. Compressor Status
   g. Accumulated Power Consumption

C. Each terminal unit (fan coil) shall be controlled by the factory-provided wall-mounted controller. The controller shall be capable of allowing space temperature adjustment of +1 / -1 degrees (user adjustable).

3.04 Packaged Rooftop Units with Natural Gas Heat

A. Each unit shall be controlled by an individual DDC Controller. The DDC Controller shall be wired to a space temperature sensor, space-level CO2 sensor, discharge air temperature sensor, return air temperature sensor, space differential pressure sensor, damper motors, and the contacts to the factory-mounted unit control system controlling the compressor(s), hot-gas bypass, hot-gas reheat, and gas train combustion equipment.

B. Cooling Mode:
   1. During the programmed occupied mode, the supply fan, return fan, and energy recovery wheel shall run continuously with the outside air damper open to the minimum position (10% outdoor air, adjustable). The amount of outside air will be increased above the minimum setting on a rise in the space CO2 level above the setpoint of 1000 PPM (adjustable) up to the code required minimum O/A (see schedule). On a return to the CO2 level setpoint the reverse shall occur. On a rise in temperature above the programmed cooling setpoint (adjustable), the following shall occur, in order, and to the extent necessary:
      a. The DX cooling system shall be engaged. The compressors and hot-gas bypass system shall modulate as necessary to meet the cooling demands of the space and the discharge air temperature setpoint (adjustable).
      b. When dehuminidifcation is required as sensed by the factory-provided humidistat (setpoint, 60% RH, adjustable), the hot-gas reheat system will be engaged and follow the factory-programmed sequence.
      c. Upon a fall in space temperature the reverse shall occur.
   2. The factory-provided VFD shall modulate the speed of the energy recovery wheel as required to maintain optimal performance as the outdoor air levels vary with the CO2 levels within the space.
   3. For units equipped with an outdoor air economizer: The DDC Controller shall receive input from the Global Enthalpy Sensor. If the enthalpy of the outdoor air is lower than the defined minimum level (user adjustable) the economizer sequence shall be activated upon a call for cooling. This sequence shall include opening the outside air damper up to 100%, opening the outside air. This shall be done for each unit that is in operation. The outside air damper shall never close past the minimum position during the occupied period.

C. Heating Mode:

1. During the programmed occupied mode, the supply fan and return fan (if equipped) shall run continuously with the outside air damper open to the minimum position (10% outdoor air, adjustable). The amount of outside air will be increased above the minimum setting on a rise in the space CO2 level above the setpoint of 1000 PPM (adjustable). On a return to setpoint the reverse shall occur. On a drop in temperature below the programmed heating setpoint, the following shall occur, in order, and to the extent necessary:
   a. The factory-mounted controller shall command the gas-train to ignite and provide heating. The gas-train shall modulate from it's lowest to highest setting depending on demand.
   b. When dehuminidifcation is required as sensed by the factory-provided humidistat (setpoint, 60% RH, adjustable), the hot-gas reheat system will be engaged and follow the factory-programmed sequence.
   c. Upon a rise in space temperature the reverse shall occur.
2. The factory-provided VFD shall modulate the speed of the energy recovery wheel as required to maintain optimal performance as the outdoor air levels vary with the CO2 levels within the space.

D. Unoccupied Mode:
   1. During the programmed un-occupied mode, the supply fan, compressor, gas train, and dampers for shall be cycled / modulated to maintain the un-occupied setpoints (55 degrees in Heating mode, 80 degrees in Cooling mode, both adjustable). Unless required for economizer cycle, the outside air damper shall remain closed.

E. All setpoints and shall be adjustable at the BAS workstation.

F. Provide a current sensor on one phase of power feeding each supply fan, exhaust fan, heat wheel, and compressor for status indication at the Operator's Terminal.

G. If the discharge temperature fails to rise to a programmed minimum temperature during a call for heating; a low temperature alarm shall be activated at the Operator's Terminal. If the discharge temperature fails to fall to a programmed minimum temperature on a call for mechanical cooling, a high temperature alarm shall be activated at the Operator's Terminal.

H. The following items shall be displayed at the Operator's Terminal:
   1. Space temperature.
   2. Space temperature setpoint.
   3. Space humidity.
   4. Space humidity setpoint.
   5. Low Space temperature alarm.
   6. High Space temperature alarm.
   7. Discharge air temperature.
   8. Discharge air temperature setpoint.
   9. Return air temperature.
   10. Outside air temperature, humidity and enthalpy.
   11. Economizer enthalpy setpoint.
   12. Space CO2 level.
   13. Space CO2 level setpoint.
   14. Space high CO2 level alarm: “1500 PPM”, adjustable.
   15. Supply fan operational status via current sensor.
   16. Commanded status of supply fan.
   17. Exhaust fan operational status via current sensor.
   18. Commanded status of exhaust fan.

19. Heat Wheel operational status via current sensor.
20. Commanded status of heat wheel.
21. Commanded status of compressor(s).
22. Commanded status of gas-train.
23. Commanded position of dampers.
24. Diagram showing the layout of the unit with major components and dynamic temperatures shown where temperature sensors exist in the system.

3.05 Electric Resistance Radiant and Convective Heating Units

A. The electric-resistance radiant and convective heating units shall be controlled by a self contained, unit mounted controller with remote sensing element.

3.06 UNIT HEATERS

A. Each unit shall be conrtrolled by an individual DDC controller and space temperature sensor. Single temperature room temperature sensor maintains constant space temperature of 68 degrees F by cycling unit fan motor and gas train.

B. The factory gas train shall control all integral combustion components and safeties for the system.

C. Provide room temperature setpoint and actual space temperature readings at the BAS head-end.

3.07 Supply Air Units and Energy Recovery Ventilators (ERV)

A. Supply air units and ERV's shall be scheduled for occupied and unoccupied cycles based on an operator adjustable time schedule. Units may also be manually enabled and disabled at the operator workstation. Fan status shall be monitored by the BAS via the fans current sensing relay.

B. The variable frequency drives shall be set by the balancer to deliver the minimum outdoor air to each associated terminal unit under fully-occupied conditions.

C. When any heat pump in the area served be the heat recovery unit is in the occupied mode the unit shall be energized.
   1. The unit exhaust and outside air isolation dampers shall open.
   2. Provide proof of airflow for each fan and provide fan failure alarms.
   3. Provide temperature indication of the supply and exhaust inlet and leaving air.
   4. For units over 2,000 cfm a duct smoke detector shall be provided by the electrical contractor. Provide the interlock wiring to shut down the units upon activation.
   5. The electric heating coil shall be energized when required to maintain a minimum discharge air (supply air) temperature of 60 degrees to the units.

D. The following items shall be displayed at the operators workstation:
   1. Discharge temperature.
   2. Return air temperature.
   3. Outside air temperature, humidity and enthalpy.
   4. Fan operational status via current sensor.
   5. Commanded status of fan.
   6. Commanded status of heating coils (as applicable).
   7. Commanded status of gas-train (as applicable).
   8. Commanded position of dampers.
   9. Diagram showing the layout of the unit with major components and dynamic temperatures shown where temperature sensors exist in the system.

END OF SECTION

SECTION 23 72 23

PACKAGED AIR-TO-AIR ENERGY RECOVERY UNITS

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. AHRI 1060 I-P - Performance Rating of Air-to-Air Heat Exchangers for Energy Recovery Ventilation Equipment; Air-Conditioning, Heating, and Refrigeration Institute.

B. ASHRAE Std 52.2 - Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size.

C. ASHRAE Std 84 - Method of Testing Air to Air Heat Exchangers.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

E. NFPA 70 - National Electrical Code.

F. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems.

G. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials

H. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Energy Recovery Ventilators:
   1. Renew Aire: www.renewaire.com.
   2. Innovent: www.innoventair.com
   3. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 ENERGY RECOVERY UNITS

A. Energy Recovery Units: Fixed plate cross-flow energy exchange type (hydroscopic resin) type; prefabricated packaged system designed by manufacturer.
   1. Access: Hinged access panels on front. Pressure taps provided.
   2. Lifting holes at the unit base.
   3. Permanent name plate listing manufacturer mounted inside door near electrical panel.

2.03 CASING

A. Wall, Floor, and Roof Panels:
   1. Construction: 1 inch thick, double wall box construction, with formed edges of exterior wall overlapping formed edges of interior wall.
   2. Exterior Wall: galvanized steel sheet.
      a. 20 gage galvanized steel.
   3. Insulation:
      a. 1 inch insulated fiberglass board insulation.
      b. All insulation sealed with foil/scrim facing leaving no exposed insulation to the airstream.
      c. Flame Spread Index: 25, maximum, when tested in accordance with ASTM E84, NFPA 255, and UL 723.
      d. Smoke Developed Index: 50, maximum, when tested in accordance with ASTM E84, NFPA 255, and UL 723.

4. Panel Joints: 20 gauge steel with lapped corners and zinc-plated screws.
5. Isolation and Seal: Form continuous, thermally isolated, weather tight seal between inner wall of panels and structural framing with closed cell PVC foam gasketing.
6. Seams: Sealed, requiring no caulking at job site.

B. Access Panels: Provide access to components through a large, tightly sealed and easily removable panel.

C. Doors:
1. Construct doors of same construction and thickness as wall panels.
2. Hardware:
a. Corrosion-resistant.

2.04 FANS

A. Provide separate fans for exhaust and supply blowers.

B. Fans:
1. Individually driven with a dedicated motor.

C. Bearings:
1. Pillow block.
2. Bearings: Permanently lubricated sealed ball bearings.
3. Rated for not less than 200,000 hours of operation with accessible greased fittings.

D. Housings: 12 gage aluminized steel with plenums integral to general housing and constructed to Class 1 fan standards.

E. Motors:
1. Motors: Open drip proof or ECM direct drive as scheduled.
2. Efficiency: Premium.
3. Speed: Variable.
4. Control: Variable Frequency Drive.
5. Fan Motor: Thermal overload protected.
6. Fan Motor: UL listed and labeled.

F. Drives:
1. Fans: Belt driven or direct as scheduled.
2. Sheaves: Variable.
3. Service Factor: 1.2.

2.05 TOTAL ENERGY RECOVERY MEDIA

A.

B. Transfer heat and humidity from one air stream to the other with no carryover of the exhaust air into the supply air stream.

C. Effectiveness: Rated in accordance with ASHRAE Std 84 and AHRI 1060.

D. Flame Spread Index: 25, maximum, when tested in accordance with ASTM E84, NFPA 255, and UL 723.

E. Smoke Developed Index: 50, maximum, when tested in accordance with ASTM E84, NFPA 255, and UL 723.

F. Energy Recovery Media Facing:
1. Conform to NFPA 90A.

2.06 FILTERS

A. Efficiency: 13 MERV.

B. Exhaust and Fresh Air Streams: MERV 13 filters constructed to meet ASHRAE Std 52.2.

C. Mount 1/2 inches thick permanent aluminum washable type filter in the outside air hood and in the return plenum air.

2.07 DAMPERS

A. Motorized Dampers: Provide motorized dampers at outside air inlet, exhaust air outlet, and supply air outlet.
   1. Type: Motorized two position low-leak.
   2. Blades: Insulated, single blade damper.

2.08 VIBRATION ISOLATION

A. Vibration Isolation: Provide whole unit vibration isolation with the energy recovery unit assembly.

B. Construct with appropriately-sized, seismic-rated, corrosion-resistant captive-spring isolators.

2.09 POWER AND CONTROLS

A. Motor Control Panels: UL listed.

B. Include necessary motor starters, fuses, transformers and overload protection according to NFPA 70.

C. Install wiring in accordance with NFPA 70.

2.10 SERVICE ACCESSORIES

A. Switch: 2 type.
   1. Two Position Type: Service and Operate.

B. Electrical Components: Factory wired for single point power connection.
   1. Protect all integral wires and connections.
   2. Electrical Components: UL Listed.

PART 3 EXECUTION

3.01 EXAMINATION

3.02 INSTALLATION

A. Provide openings for suitable ductwork connection.

3.03 SYSTEM STARTUP

A. Provide services of manufacturer's authorized representative to provide start up of unit.

3.04 CLEANING

A. Clean filters, air plenums, interior and exposed-to-view surfaces prior to Substantial Completion.

END OF SECTION

SECTION 23 81 29

VARIABLE REFRIGERANT VOLUME (VRV, VRF) HVAC SYSTEM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Variable refrigerant volume HVAC system includes:
   1. Outdoor/Condensing unit(s).
   2. Indoor/Evaporator units.
   3. Branch selector units.
   4. Refrigerant piping.
   5. Control panels.
   6. Control wiring.

1.02 RELATED REQUIREMENTS

A. Section 01 23 00 - Alternates: List of alternates relevant to this section.

B. Section 01 79 00 - Demonstration and Training.

C. Section 01 91 13 - General Commissioning Requirements.

D. Section 01 91 14 - Commissioning Authority Responsibilities.

E. Section 22 10 05 - Plumbing Piping: Condensate drain piping.

F. Section 22 30 00 - Plumbing Equipment: Cooling condensate removal pumps.

G. Section 23 08 00 - Commissioning of HVAC.

H. Section 23 23 00 - Refrigerant Piping and Specialties: Additional requirements for refrigerant piping system.

I. Section 26 27 17 - Equipment Wiring: Power connections to equipment.
   1. Provide separate power connections for each unit of equipment.

J. Section 23 09 23 and 23 09 93: Building automation system providing centralized control of this system.

1.03 REFERENCE STANDARDS

A. AHRI 210/240 - Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment; Air-Conditioning, Heating, and Refrigeration Institute.

B. ASHRAE (FUND) - ASHRAE Handbook - Fundamentals.

C. ASHRAE Std 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings; American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc (ANSI/ASHRAE/IESNA Std 90.1).

D. NFPA 70 - National Electrical Code; National Fire Protection Association.

E. UL 1995 - Heating and Cooling Equipment.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Pre-Bid Submittals: For proposed substitute systems/products, as defined in PART 2, and alternate systems/products, as defined above, proposer shall submit all data described in this article, under the terms given for substitutions stated in PART 2.

C. Design Data:
1. Provide design calculations showing that system will achieve performance specified.
2. Provide design data required by ASHRAE 90.1.

D. Product Data: Submit manufacturer's standard data sheets showing the following for each item of equipment, marked to correlate to equipment item markings shown in the contract documents:
1. Outdoor/Central Units:
   a. Refrigerant Type and Size of Charge.
   b. Cooling Capacity: Btu/h.
   c. Heating Capacity: Btu/h.
   d. Cooling Input Power: Btu/h.
   e. Heating Input Power: Btu/h.
   f. Operating Temperature Range, Cooling and Heating.
   g. Air Flow: Cubic feet per minute.
   h. Fan Curves.
   i. External Static Pressure (ESP): Inches WG.
   j. Sound Pressure Level: dB(A).
   k. Electrical Data:
      1) Maximum Circuit Amps (MCA).
      2) Maximum Fuse Amps (MFA).
      3) Maximum Starting Current (MSC).
      4) Full Load Amps (FLA).
      5) Total Over Current Amps (TOCA).
      6) Fan Motor: HP.
   l. Weight and Dimensions.
   m. Maximum number of indoor units that can be served.
   n. Maximum refrigerant piping run from outdoor/condenser unit to indoor/evaporator unit.
   o. Maximum height difference between outdoor/condenser unit to indoor/evaporator unit, both above and below.
   p. Control Options.
2. Indoor/Evaporator Units:
   a. Cooling Capacity: Btu/h.
   b. Heating Capacity: Btu/h.
   c. Cooling Input Power: Btu/h.
   d. Heating Input Power: Btu/h.
   e. Air Flow: Cubic feet per minute.
   f. Fan Curves.
   g. External Static Pressure (ESP): Inches WG.
   h. Sound Pressure level: dB(A).
   i. Electrical Data:
      1) Maximum Circuit Amps (MCA).
      2) Maximum Fuse Amps (MFA).
      3) Maximum Starting Current (MSC).
      4) Full Load Amps (FLA).

5) Total Over Current Amps (TOCA).
6) Fan Motor: HP.

j. Maximum Lift of Built-in Condensate Pump.
k. Weight and Dimensions.
l. Control Options.

3. Control Panels: Complete description of options, control points, zones/groups.

E. Specimen Warranty: Copy of manufacturer's warranties.

F. Shop Drawings: Installation drawings custom-made for this project; include as-designed HVAC layouts, locations of equipment items, refrigerant piping sizes and locations, condensate piping sizes and locations, remote sensing devices, control components, electrical connections, control wiring connections. Include:
1. Detailed piping diagrams, with branch balancing devices.
2. Condensate piping routing, size, and pump connections.
3. Detailed power wiring diagrams.
4. Detailed control wiring diagrams.
5. Locations of required access through fixed construction.
6. Drawings required by manufacturer.

G. Operating and Maintenance Data:
1. Manufacturer's complete standard instructions for each unit of equipment and control panel.
2. Custom-prepared system operation, troubleshooting, and maintenance instructions and recommendations.
3. Identification of replaceable parts and local source of supply.

H. Project Record Documents: Record the following:
1. As-installed routing of refrigerant piping and condensate piping.
2. Locations of access panels.
3. Locations of control panels.

I. Warranty: Executed warranty, made out in Owner's name.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications:
1. Company that has been manufacturing variable refrigerant volume heat pump equipment for at least 5 years.
2. Company that provides system design software to installers.

B. Installer Qualifications: Trained and approved by manufacturer of equipment.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and handle equipment and refrigerant piping according to manufacturer's recommendations.

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Compressors: Provide manufacturer's warranty for six (6) years from date of installation. During the stated period, should any part fail due to defects in material and workmanship, it shall be repaired or replaced by the manufacturer. All warranty service work shall be preformed by a Daikin factory trained service professional.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: The system design shown in the contract documents is based on equipment and system designed by Mitsubishi Electric: www.mitsubishipro.com.

B. Additional acceptable manufacturers:
   1. Daikin AC: www.daikinac.com
   2. LG Industries: www.lg-vrf.com
   3. Samsung: www.www.samsungaccentre.com
   4. Trane Corporation: www.trane.com

C. For systems proposed by other manufacturers, all required modifications to the design and installation shall be the responsibility of the contractor and supplier for both costs and coordination with all other contractors and designers. These changes include, but are not limited to:
   1. Changes in refrigerant piping sizes, legnhts, and locations.
   2. Changes in branch selector quantities, locations, and accessibility.
   3. Changes in electrical requirements, including all power wiring, terminations, breakers, disconnects, and control wiring.
   4. Changes in heat-pump unit locations and quantities.
   5. Changes in structural supports, vibration isolation, and hangers.
   6. Changes to the drawings to reflect the new system parameters.

2.02 HVAC SYSTEM DESIGN

A. System Operation: Heating and cooling, simultaneously.
   1. Zoning: Provide capability for temperature control for each individual indoor/evaporator unit independently of all other units.
   2. Zoning: Provide heating/cooling selection for each individual indoor/evaporator unit independently of all other units.
   3. Provide a complete functional system that achieves the specified performance based on the specified design conditions and that is designed and constructed according to the equipment manufacturer's requirements.
   4. Conditioned spaces are shown on the drawings.
   5. Branch selector unit locations are shown on the drawings for reference only. Final design locations shall be corrdinated in the field to ensure optimized line lengths and maintanence access.
   6. Required equipment unit capacities are shown on the drawings.
   7. Refrigerant piping sizes shown on the drawings are for general reference only. Final line sizing shall be the responsibility of the successful contractor and manufacturer.
   8. Connect equipment to condensate piping; condensate piping is shown on the drawings.

B. Cooling Mode Interior Design Performance:
   1. Daytime Setpoint: 74 degrees F, plus or minus 2 degrees F.
   2. Setpoint Range: 57 degrees F to 80 degrees F.
   3. Night Setback: 78 degrees F.
   4. Interior Relative Humidity: 50 percent, maximum.

C. Heating Mode Interior Design Performance:
   1. Daytime Setpoint: 70 degrees F, plus or minus 2 degrees F.
   2. Setpoint Range: 59 degrees F to 76 degrees F.
   3. Night Setback: 60 degrees F.
   4. Interior Relative Humidity: 20 percent, minimum.

D. Outside Air Design Conditions:
   1. Summer Outside Air Design Temperature: 0.4 percent cooling design condition listed in ASHRAE Fundamentals Handbook.

E. Operating Temperature Ranges:
   1. Simultaneous Heating and Cooling Operating Range: minus 4 degrees F to 60 degrees F dry bulb.
   2. Cooling Mode Operating Range: minus 4 degrees F to 110 degrees F dry bulb.
   3. Heating Mode Operating Range: 0 degrees F to 77 degrees F dry bulb; minus 4 degrees F to 60 degrees F wet bulb; without low ambient controls or auxiliary heat source.

F. Refrigerant Piping Lengths: Provide equipment capable of serving system with following piping lengths without any oil traps:
   1. Minimum Piping Length from Outdoor/Central Unit(s) to Furthest Terminal Unit: 540 feet, actual; 620 feet, equivalent.
   2. Total Combined Liquid Line Length: 3280 feet, minimum.
   3. Minimum Piping Length Between Indoor Units: 49 feet.

G. Controls: Provide the following control interfaces:
   1. For Each Indoor/Evaporator Unit: One wall-mounted wired "local" controller, with temperature sensor; locate where directed, in each space.
   2. One central remote control panel for entire system; locate where indicated.
   3. BACNet gateways sufficient to connect all units to building automation system by others; include wiring to gateways. Unit shall be BTL certified.
   4. Building automation system by HVAC system manufacturer; provide one user stations located where indicated.

H. Local Controllers: Wall-mounted, wired, containing temperature sensor, setpoint adjustment (with central control override, maximum temperature adjustment +1/-1 degree, adjustable), and temperature display.

2.03 EQUIPMENT

A. All Units: Factory assembled, wired, and piped and factory tested for function and safety.
   1. Refrigerant: R-410A.
   2. Performance Certification: AHRI Certified; www.ahrinet.org.
   3. Safety Certification: Tested to UL 1995 by UL or Intertek-ETL and bearing the certification label.
   4. Provide outdoor/condensing units capable of serving indoor unit capacity up to 200 percent of the capacity of the outdoor/condensing unit.
   5. Provide units capable of serving the zones indicated.
   6. Thermal Performance: Provide heating and cooling capacity as indicated, based on the following nominal operating conditions:
   7. Energy Efficiency: Report EER and COP based on tests conducted at “full load” in accordance with AHRI 210/240 or alternate test method approved by U.S. Department of Energy.

B. Electrical Characteristics:
   1. See drawings.

C. System Controls:
   1. Include self diagnostic, auto-check functions to detect malfunctions and display the type and location.

D. Unit Controls: As required to perform input functions necessary to operate system; provided by manufacturer of units.
   1. Provide interfaces to remote control and building automation systems in BACNET native format.

E. Wiring:
   1. Control Wiring: 18 AWG, 2-conductor, non-shielded, non-polarized, stranded cable.
   2. Control Wiring Configuration: Daisy chain.
   3. **All control wiring for the VRF system in it's entirety is the responsbility of the installing contractor, including, but not limited to: Wiring between the condensing unit(s) and system controller, wiring between the branch selector boxes and system controller, wiring from the terminal units to the system controllers, wiring from the thermostats to the terminal units.** The BAS contractor shall only be required to provide communications wiring to the BACnet interface from the nearest BAS controller.

F. Refrigerant Piping:
   1. Refrigerant Flow Balancing: Provide refrigerant piping joints and headers specifically designed to ensure proper refrigerant balance and flow for optimum system capacity and performance.
   2. Insulate each refrigerant line individually between the condensing and indoor units.

2.04 OUTDOOR/CONDENSING UNITS

A. Outdoor/Condensing Units: Air-cooled DX refrigeration units, designed specifically for use with indoor/evaporator units; factory assembled and wired with all necessary electronic and refrigerant controls; modular design for ganging multiple units.
   1. Refrigeration Circuit: Scroll compressors, motors, fans, condenser coil, electronic expansion valves, solenoid valves, 4-way valve, distribution headers, capillaries, filters, shut off valves, oil separators, service ports and refrigerant regulator.
   2. Refrigerant: Factory charged.
   3. Variable Volume Control: Modulate compressor capacity automatically to maintain constant suction and condensing pressures while varying refrigerant volume to suit heating/cooling loads.
   4. Capable of being installed with wiring and piping to the left, right, rear or bottom.
   5. Capable of heating operation at low end of operating range as specified, without additional low ambient controls or auxiliary heat source; during heating operation, reverse cycle (cooling mode) oil return or defrost is not permitted, due to potential reduction in space temperature.
   6. Sound Pressure Level: As specified, measured at 3 feet from front of unit; provide night setback sound control as a standard feature; three selectable sound level steps of 55 dB, 50 dB, and 45 dB, maximum.
   7. Power Failure Mode: Automatically restart operation after power failure without loss of programmed settings.
   8. Safety Devices: High pressure sensor and switch, low pressure sensor/switch, control circuit fuses, crankcase heaters, fusible plug, overload relay, inverter overload protector, thermal protectors for compressor and fan motors, over current protection for the inverter and anti-recycling timers.
   9. Provide refrigerant sub-cooling to ensure the liquid refrigerant does not flash when supplying to us indoor units.
   10. Oil Recovery Cycle: Automatic, occurring 2 hours after start of operation and then every 8 hours of operation; maintain continuous heating during oil return operation.
   11. Controls: Provide contacts for electrical demand shedding.

B. Unit Cabinet: Weatherproof and corrosion resistant; rust-proofed mild steel panels coated with baked enamel finish.
   1. Designed to allow side-by-side installation with minimum spacing.

C. Fans: One or more direct-drive propeller type, vertical discharge, with multiple speed operation via DC (digitally commutating) inverter.
   1. Provide minimum of 2 fans for each condensing unit.
   2. External Static Pressure: Factory set at 0.12 in WG, minimum.
   3. Indoor Mounted Air-Cooled Units: External static pressure field set at 0.32 in WG, minimum; provide for mounting of field-installed ducts.
   4. Fan Airflow: As indicated for specific equipment.
   5. Fan Motors: Factory installed; permanently lubricated bearings; inherent protection; fan guard; output as indicated for specific equipment.

D. Condenser Coils: Copper tubes expanded into aluminum fins to form mechanical bond; waffle louver fin and rifled bore tube design to ensure high efficiency performance.

E. Compressors: Scroll type, hermetically sealed, variable speed inverter-driven and fixed speed in combination to suit total capacity; minimum of one variable speed, inverter driven compressor per condenser unit; minimum of two compressors per condenser unit; capable of controlling capacity within range of 6 percent to 100 percent of total capacity.
   1. Multiple Condenser Modules: Balance total operation hours of compressors by means of duty cycling function, providing for sequential starting of each module at each start/stop cycle, completion of oil return, and completion of defrost, or every 8 hours. Provide twinning kits where required.
   2. Failure Mode: In the event of compressor failure, operate remaining compressor(s) at proportionally reduced capacity; provide microprocessor and associated controls specifically designed to address this condition.
   3. Provide each compressor with crankcase heater, high pressure safety switch, and internal thermal overload protector.
   4. Provide oil separators and intelligent oil management system.
   5. Provide spring mounted vibration isolators.

2.05 BRANCH SELECTOR UNITS

A. Branch Selector Units: Concealed boxes designed specifically for this type of system to control heating/cooling mode selection of downstream units; consisting of electronic expansion valves, subcooling heat exchanger, refrigerant control piping and electronics to facilitate communications between unit and main processor and between branch unit and indoor/evaporator units.
   1. Provide one electronic expansion valve for each downstream unit served, except multiple indoor/evaporator units may be connected, provided balancing joints are used in downstream piping and total capacity is within capacity range of the branch selector.
   2. When branch unit is simultaneously heating and cooling, energize subcooling heat exchanger.
   3. Casing: Galvanized steel sheet; with flame and heat resistant foamed polyethylene sound and thermal insulation.
   4. Refrigerant Connections: Braze type.
   5. Condensate Drainage: Provide condensate drain tap where required.

2.06 INDOOR/EVAPORATOR UNITS

A. All Indoor/Evaporator Units: Factory assembled and tested DX fan-coil units, with electronic proportional expansion valve, control circuit board, factory wiring and piping, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch.
   1. Refrigerant: Refrigerant circuits factory-charged with dehydrated air, for field charging.
   2. Temperature Control Mechanism: Return air thermistor and computerized Proportional-Integral-Derivative (PID) control of superheat.
   3. Coils: Direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond; waffle louver fin and high heat exchange, rifled bore tube design; factory tested.
      a. Provide thermistor on liquid and gas lines.
   4. Fans: Direct-drive, with statically and dynamically balanced impellers; high and low speeds unless otherwise indicated; motor thermally protected.
   5. Return Air Filter: Washable long-life net filter with mildew proof resin, unless otherwise indicated.
   6. Condensate Drainage: Built-in condensate drain pan with PVC drain connection.
   7. Cabinet Insulation: Sound absorbing foamed polystyrene and polyethylene insulation.

B. Recessed Ceiling Units: Four-way airflow cassette with central return air grille, for installation in a fixed ceiling.
   1. Cabinet Height: Maximum of 10 inches above face of ceiling.
   2. Exposed Housing: White, impact resistant, with washable decoration panel.
   3. Supply Airflow Adjustment:
      a. Via motorized louvers which can be horizontally and vertically adjusted from 0 to 90 degrees.
      b. Field-modifiable to 3-way and 2-way airflow.
      c. Three auto-swing positions, including standard, draft prevention and ceiling stain prevention.
   4. Return Air Filter: High efficiency, MERV 8.
   5. Minimum Capacity: As indicated on the drawings.
   6. Sound Pressure Range: Between 28 dB(A) to 33 dB(A) at low speed measured at 5 feet below the unit.
   7. Fan: Direct-drive turbo type, with motor output range of 0.06 to 0.12 HP.
   8. Condensate Pump: Built-in, with lift of 21 inches, minimum.
   9. Provide side-mounted fresh air intake duct connection.

C. Concealed-In-Ceiling Units: Ducted horizontal discharge and return; galvanized steel cabinet.
   1. Return Air Filter: MERV 11.
   2. Sound Pressure: Measured at low speed at 5 feet below unit.
   3. Provide external static pressure switch adjustable for high efficiency filter operation
   4. Condensate Pump: Built-in, with lift of 9 inches, minimum.
   5. Switch box accessible from side or bottom.

D. Wall Surface-Mounted Units: Finished white casing, with removable front grille; foamed polystyrene and polyethylene sound insulation; wall mounting plate; polystyrene condensate drain pan.
   1. Airflow Control: Auto-swing louver that closes automatically when unit stops; five (5) steps of discharge angle, set using remote controller; upon restart, discharge angle defaulting to same angle as previous operation.
   2. Sound Pressure Range: Measured at low speed at 3.3 feet below and away from unit.

3. Condensate Drain Connection: Side (end), not concealed in wall.
4. Fan: Direct-drive cross-flow type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that required electrical services have been installed and are in the proper locations prior to starting installation.

B. Verify that condensate piping has been installed and is in the proper location prior to starting installation.

C. Notify Architect if conditions for installation are unsatisfactory.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install refrigerant piping in accordance with equipment manufacturer's instructions.

C. Perform wiring in accordance with NFPA 70, National Electric Code (NEC).

D. Coordinate with installers of systems and equipment connecting to this system.

3.03 FIELD QUALITY CONTROL

A. Provide manufacturer's field representative to inspect installation prior to startup.

3.04 SYSTEM STARTUP

A. Provide manufacturer's field representative to perform system startup.

B. Prepare and start equipment and system in accordance with manufacturer's instructions and recommendations.

C. Adjust equipment for proper operation within manufacturer's published tolerances.

3.05 CLEANING

A. Clean exposed components of dirt, finger marks, and other disfigurements.

3.06 CLOSEOUT ACTIVITIES

A. Demonstrate proper operation of equipment to Red Clay Consolidated School District's designated representative.

B. Demonstration: Demonstrate operation of system to Red Clay Consolidated School District's personnel.
   1. Use operation and maintenance data as reference during demonstration.
   2. Briefly describe function, operation, and maintenance of each component.

C. Training: Train Red Clay Consolidated School District's personnel on operation and maintenance of system.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
   2. Provide minimum of two hours of training.
   3. Instructor: Manufacturer's training personnel.
   4. Location: At project site.

3.07 PROTECTION

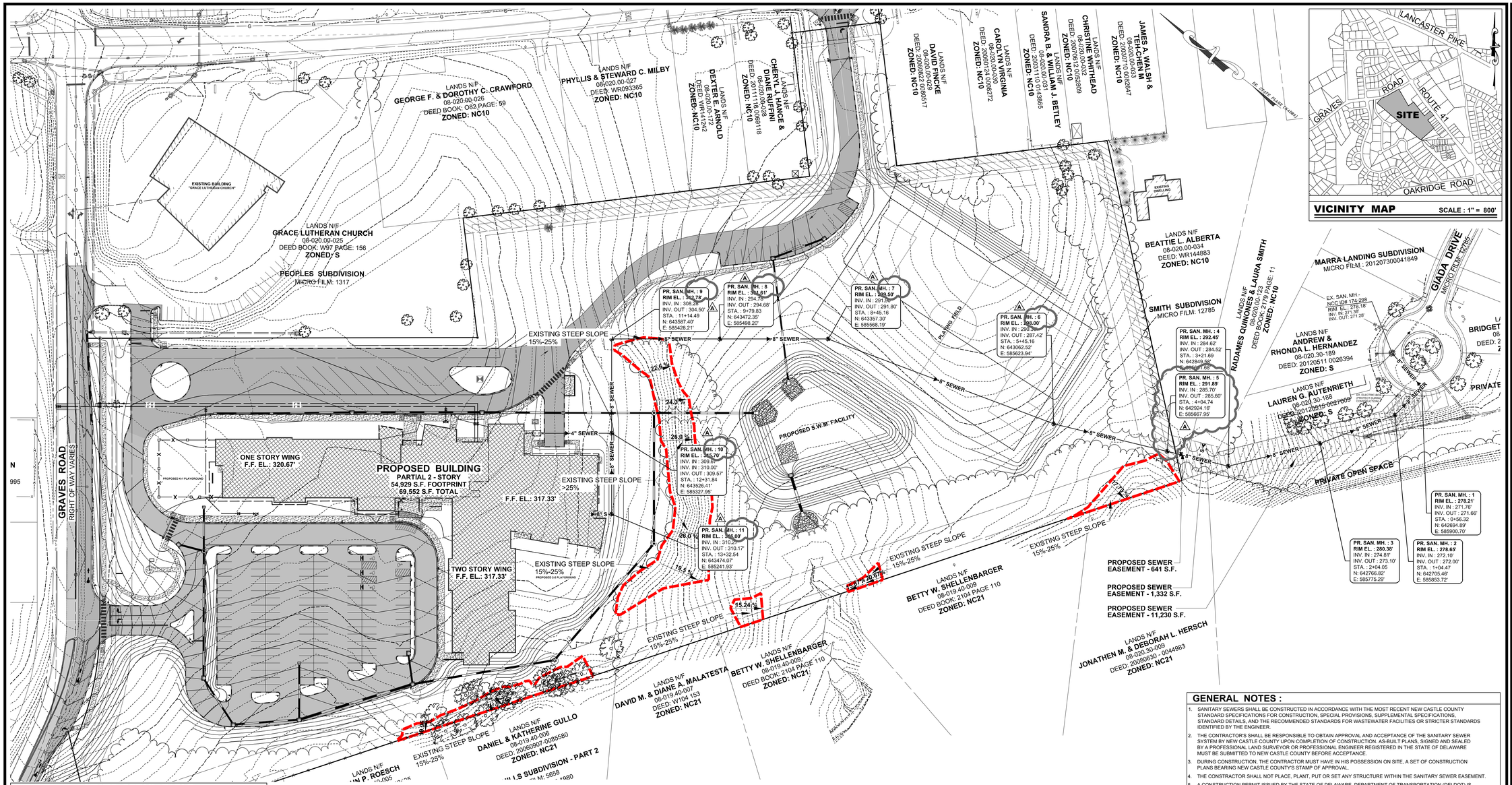
A. Protect installed components from subsequent construction operations.

B. Replace exposed components broken or otherwise damaged beyond repair.

3.08 MAINTENANCE

A. See Section 01 70 00 - Execution Requirements, for additional requirements relating to maintenance service.

END OF SECTION



SEWER DETAIL TABLE

ST. NAME	TOTAL NUMBER OF MANHOLES	NOMINAL DIAMETER OF SANITARY SEWER PIPE	TOTAL LINEAR FEET OF GRAVITY SANITARY SEWER PIPE	TOTAL LINEAR OF FORCE MAIN	PIPE MATERIAL
NA	11	8"	1,477	0	PVC SDR 26

SEWER LATERAL TABLE

LATERAL NUMBER	LATERAL INVERT AT CONNECTION POINT TO SANITARY SEWER MAIN	MINIMUM PLUMBING FIXTURE ELEVATION	ELEVATION OF LOWEST FLOOR SEWERED BY GRAVITY	UPSTREAM MH NUMBER AND RIM ELEVATION	DOWNSTREAM MH NUMBER	DISTANCE OF LATERAL CONNECTION FROM UPSTREAM MANHOLE	BACKWATER VALVE REQUIRED
LAT-1	309.67'(MH 9)	314.67'	317.33'	#9-315.70'	8	N/A	N/A
LAT-2	310.27'(MH 10)	315.27'	317.33'	#10-316.00'	9	N/A	N/A
LAT-3	285.08'	290.08'	FUTURE	#5-298.00'	4	N/A	N/A
LAT-4	285.39'	290.39'	FUTURE	#5-298.00'	4	N/A	N/A

LEGEND

ITEM	EXISTING	ITEM	EXISTING
CONCRETE CURB & GUTTER		SANITARY GRAVITY SEWER LINE, SIZE & FLOW DIRECTION	EX. 10"S
CONCRETE SIDEWALK, SLAB / PAVING		SANITARY SEWER FORCE MAIN, SIZE & FLOW DIRECTION	EX. 10" F.M.
IMPERVIOUS SURFACED ROAD, DRIVE OR LOT		SANITARY SEWER MANHOLE (S.M.H.)	
INDIVIDUAL TREE OR BUSH	EVERGREEN DECIDUOUS	SANITARY SEWER CLEANOUT	
WIRE FENCE		WATER MAIN & SIZE	EX. 10" W
CHAINLINK FENCE		FIRE HYDRANT	F.H.
STOCKADE FENCE		WATER VALVE (W.V.) OR METER (W.M.)	W.M. W.V.
STRUCTURE (CONCRETE, WOOD, METAL, ETC.)		STORM DRAIN MANHOLE (S.D.M.H.)	
DRAINAGE DITCH OR SWALE		STORM DRAIN LINE (CMP OR RCP)	
EMBANKMENT SIDESLOPES (DOWN)		CATCH BASIN	
CONTOUR	49	UTILITY POLE W/ OVERHEAD SERVICE (TELEPHONE OR ELECTRIC OR BOTH)	
ELEVATION SPOT SHOT	43.55	UNDERGROUND ELECTRIC	U.E.
BENCH MARK		UNDERGROUND TELEPHONE	U.T.
PROPERTY OR RIGHT-OF-WAY LINE		UNDERGROUND GAS MAIN	EX. 2" G
CENTERLINE		PAVEMENT TO BE REMOVED	N/A
LIGHT POLE			
CONSTRUCTION NOTE	N/A		

ENGINEERS CERTIFICATION

I, J. MICHAEL RIEMANN, P.E., HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF DELAWARE WITH A BACKGROUND IN CIVIL ENGINEERING AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, I CERTIFY THAT ALL OF THE INFORMATION ON THESE SANITARY SEWER DRAWINGS IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY ACCEPTED SURVEYING AND ENGINEERING STANDARDS AND PRACTICES AND BY THE NEW CASTLE COUNTY UNIFIED DEVELOPMENT CODE. ADDITIONALLY, THE SANITARY SEWER DESIGN HAS BEEN PREPARED IN ACCORDANCE WITH AND COMPLIES WITH ALL APPLICABLE REGULATIONS, CODES , STANDARDS, GUIDELINES, LAWS AND POLICIES, INCLUDING BUT NOT LIMITED TO CHAPTER 38 OF THE NEW CASTLE COUNTY CODE, THE DEPARTMENT OF SPECIAL SERVICES POLICIES #6 AND #7, THE NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION AND AMENDMENTS AND THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES.

J. MICHAEL RIEMANN P.E. NO. 13772 DATE

OWNERS CERTIFICATION

WE, RED CLAY CONSOLIDATED SCHOOL DISTRICT C/O MARCIN MICHALSKI, HEREBY CERTIFY THAT I AM THE CURRENT, LEGAL OWNER OF THE PROPERTY TO BE SEWERED AND THAT THE SANITARY SEWER WILL BE CONSTRUCTED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS, CODES, STANDARDS, GUIDELINES, LAWS AND POLICIES, INCLUDING BUT NOT LIMITED TO CHAPTER 38 OF THE NEW CASTLE COUNTY CODE, THE DEPARTMENT OF SPECIAL SERVICES POLICIES #6 AND #7, THE NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION AND AMENDMENTS AND THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES.

SIGNATURE DATE

SHEET INDEX

C-300 (1 OF 8) UTILITY COVER SHEET
C-301 (2 OF 8) UTILITY PLAN
C-302 (3 OF 8) UTILITY PLAN
C-303 (4 OF 8) OFF SITE UTILITY PLAN
C-701 (5 OF 8) SANITARY SEWER PROFILES
C-702 (6 OF 8) SANITARY SEWER PROFILES
C-901 (7 OF 8) SEWER CONSTRUCTION DETAILS
C-902 (8 OF 8) SEWER CONSTRUCTION DETAILS

FOR USE BY DEPARTMENT OF SPECIAL SERVICES

PURPOSE NOTE:
THE PURPOSE OF THIS PLAN IS TO CONSTRUCT A NEW ELEMENTARY SCHOOL FOR RED CLAY CONSOLIDATED SCHOOL DISTRICT.

SITE DATA

1. OWNER OF RECORD: RED CLAY CREEK CONSOLIDATED SCHOOL DISTRICT
   AKA - RED CLAY CONSOLIDATED SCHOOL DISTRICT
   1502 SPRUCE AVE
   WILMINGTON, DELAWARE 19805
2. ENGINEER / SURVEYOR: BECKER MORGAN GROUP INC.
   309 SOUTH GOVERNORS AVE.
   DOVER, DELAWARE 19904
   (302) 734-7950
3. PROPERTY MAP NUMBER: 08-019.00-067
4. TOTAL LOTS: ONE
5. ZONING CLASSIFICATION: EXISTING: S (SUBURBAN/ SCHOOL)
   PROPOSED: S (SUBURBAN/ SCHOOL)
6. DEED SUMMARY: DEED BOOK: H115 PAGE: 146
   DEED BOOK: R82 PAGE: 839
7. PRESENT USE: OPEN/ FARM LAND
8. PROPOSED USE: ELEMENTARY SCHOOL
9. TOTAL SITE AREA: EXISTING: 17.1063 ACRES ± (745,150 S.F.)
   PROPOSED: 16.6406 ACRES ± (724,864 S.F.) (AFTER DEDICATION)
10. TOTAL DISTURBED AREA: 13.80± ACRES (600,952 S.F.)
11. BUILDING: EXISTING: 0 S.F.
    PROPOSED: 69,552 ± S.F.
12. SOURCE OF WATER: ARTESIAN WATER COMPANY
13. SOURCE OF SEWER: NEW CASTLE DEPARTMENT OF SPECIAL SERVICES
14. SOURCE OF GAS: DELMARVA POWER AND GAS
15. SOURCE OF ELECTRIC: DELMARVA POWER
16. SURVEY BENCHMARK: NGS MONUMENT - NC3A (BRASS DISK)
    VERTICAL: NAVD88
    HORIZONTAL: NAD83
17. MONUMENTATION: EXISTING: 20 FOUND
    PROPOSED: 6 TO BE SET
18. ROADWAY CLASSIFICATION: GRAVES ROAD (CO. RD. 30) - MAJOR COLLECTOR
    NEWPORT GAP PIKE (U.S. ROUTE 41) - OTHER PRINCIPAL ARTERIALS
19. SANITARY SEWER FLOW: AVERAGE DAILY FLOW: 5,213 GPD
    PEAK DAILY FLOW: 20,852 GPD
20. ADC MAP NO. PAGE: 11 GRID: H5

GENERAL NOTES :

1. SANITARY SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MOST RECENT NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION, SPECIAL PROVISIONS, SUPPLEMENTAL SPECIFICATIONS, STANDARD DETAILS, AND THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES OR STRICTER STANDARDS IDENTIFIED BY THE ENGINEER.
2. THE CONTRACTOR'S SHALL BE RESPONSIBLE TO OBTAIN APPROVAL AND ACCEPTANCE OF THE SANITARY SEWER SYSTEM BY NEW CASTLE COUNTY UPON COMPLETION OF CONSTRUCTION. AS-BUILT PLANS, SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR OR PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF DELAWARE MUST BE SUBMITTED TO NEW CASTLE COUNTY BEFORE ACCEPTANCE.
3. DURING CONSTRUCTION, THE CONTRACTOR MUST HAVE IN HIS POSSESSION ON SITE, A SET OF CONSTRUCTION PLANS BEARING NEW CASTLE COUNTY'S STAMP OF APPROVAL.
4. THE CONSTRACTOR SHALL NOT PLACE, PLANT, PUT OR SET ANY STRUCTURE WITHIN THE SANITARY SEWER EASEMENT.
5. A CONSTRUCTION PERMIT ISSUED BY THE STATE OF DELAWARE, DEPARTMENT OF TRANSPORTATION (DELDOT) IS REQUIRED BEFORE ANY WORK IS PERFORMED WITHIN A DELDOT RIGHT OF WAY. ALL WORK PRFORMED WITHIN DELDOT'S RIGHT OF WAY OR PROPERTY OWNED BY THE STATE OF DELAWARE SHALL BE PERFORMED IN ACCORDANCE WITH THE MOST RECENT DELDOT STANDARD SPECIFICATIONS AND UTILITY MANUAL.
6. SANITARY SEWER IS TO BE PUBLICLY/PRIVATELY OWNED AND MAINTAINED. SEE PLAN FOR DEMARCATION OF OWNERSHIP.
7. CONSTRUCTION SHALL NOT DEVIATE FROM THE PLANS AND SPECIFICATIONS APPROVED BY NEW CASTLE COUNTY WITHOUT WRITTEN PERMISSION FROM NEW CASTLE COUNTY'S DEPARTMENT OF SPECIAL SERVICES.
8. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS, DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK AND THE NEW CASTLE COUNTY DRAINAGE CODE, AS AMENDED.
9. TYPICAL SEQUENCE OF CONSTRUCTION:
   a. CONTACT NEW CASTLE COUNTY DEPARTMENT OF SPECIAL SERVICES (48 HOURS NOTICE AT 395-5756) PRIOR TO ANY EXCAVATION OR ACTIVITY INVOLVING SANITARY SEWER CONSTRUCTION, PUMP STATION OR LATERAL TIE-INS TO EXISTING LINES.
   b. CONSTRUCT PROPOSED SANITARY SEWER SYSTEM AS APPROVED BY NEW CASTLE COUNTY.
   c. BACKFILL AND RE-GRADE AS REQUIRED.
   d. PERFORM AIR TEST, IF REQUIRED, IN ACCORDANCE WITH SECTION 32.01-3 OF THE NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION, IN THE PRESENCE OF A NEW CASTLE COUNTY INSPECTOR.
   e. FOLLOWING A PASSING AIR TEST (IF APPLICABLE), A FINAL VISUAL INSPECTION (LAMP TEST) MUST BE PERFORMED PRIOR TO ACCEPTANCE BY NEW CASTLE COUNTY.
   f. BASED UPON THE RESULTS OF THE VISUAL INSPECTION, A MANDREL TEST MAY BE REQUIRED FOLLOWING THE VISUAL INSPECTION.
   g. LATERAL CONNECTIONS FROM THE PROPOSED SCHOOL INTO THE SEWER LINES WILL NOT BE PERMITTED UNTIL AFTER FINAL ACCEPTANCE.
   h. PRIOR TO NEW CASTLE COUNTY MAKING A FINAL INSPECTION, THE FOLLOWING ITEMS MUST BE COMPLETED:
      i. ALL MANHOLES MUST BE BROUGHT TO GRADE AND HAVE CONCRETE COLLARS INSTALLED.
      ii. CHANNELS MUST BE COMPLETED IN ALL MANHOLES
      iii. ALL MANHOLES AND SEWER PIPES MUST BE CLEANED AND FLUSHED.
      iv. AS-BUILT DRAWINGS (SIGNED AND SEALED BY A REGISTERED LAND SURVEYOR OR PROFESSIONAL ENGINEER IN DELAWARE) WITH ONE (1) MYLAR AND THREE (3) SETS OF PRINTS MUST BE SUBMITTED TO NEW CASTLE COUNTY.
      v. TURF TRAIL IS CONSTRUCTED IN ACCORDANCE WITH NCC DETAIL SS-MISC-2, OR IF PIPE AND MANHOLES ARE WITHIN A PROPOSED ROADWAY, STABILIZED ROADWAY ACCESS IS CONSTRUCTED FOR THE PURPOSE OF MAINTAINING THE CONSTRUCTED SANITARY SEWER SYSTEM UNTIL FINAL PAVING IS COMPLETED.
   i. CERTIFICATES OF OCCUPANCY WILL NOT BE ISSUED UNTIL THE AS-BUILT DRAWINGS HAVE BEEN RECEIVED, REVIEWED, AND APPROVED AND THE SANITARY SEWER CONSTRUCTION (INCLUDING ALL APPURTENANCES) HAS BEEN ACCEPTED BY NEW CASTLE COUNTY).
10. MANHOLE COVER(S) ON PRIVATELY OWNED AND MAINTAINED SEWER SYSTEMS SHALL NOT BE LABELED "NEW CASTLE COUNTY."
11. THE SANITARY SEWER WILL BE PRIVATELY OWNED AND MAINTAINED.
12. THE SANITARY SEWER SYSTEM TIE-IN MANHOLE LOCATED IN MARRA LANDING IS IDENTIFIED AS N.C.C. MANHOLE # 174-298
13. GREASE TRAP SIZING CALCULATION:
    A. A 4" PIPE, HALF-FULL AT 1% SLOPE WILL YIELD 45 GPM. MULTIPLIED BY 30 MIN. RETENTION TIME = 1,350 GALLONS.
    B. PER THE UPC, A 1,500 GALLON GREASE INTERCEPTOR (172 DFU'S).

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RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

PROJECT TITLE

NCC APP #: 2012-0736
RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DELAWARE 19707
MILLCREEK HUNDRED
NEW CASTLE COUNTY, DE

SHEET TITLE

UTILITY COVER SHEET

0 30 60 120
SCALE : 1" = 60'

ISSUE BLOCK		
13	7-16-13	ADDENDUM - 01
12	7-11-13	SPECIAL SERVICES RESUBMISSIONS
11	7-2-13	DNREC, DELDOT RESUBMISSIONS
10	7-1-13	BIDDING DOCUMENTS N.C.C. SPEC. SERVICES RESUBMISSION
9	6-24-13	DFM SUBMISSION
8	6-10-13	CD RESUBMISSION DNREC, ARTESIAN
7	5-15-13	CD SUBMISSION
6	4-22-13	CD PRICING SET / FIRE MARSHAL, DNREC, PUB. HEALTH, NCC SUBMISSION
5	4-16-13	DELDOT CD SUBMISSION #2
4	3-21-13	DD SUBMISSION
3	2-18-13	DD PRICING SET DELDOT CD SUBMISSION
2	1-10-13	N.C.C. EXPLORATORY PLAN RESUBMISSION
1	12-6-12	SD SUBMISSION
MARK	DATE	DESCRIPTION

LAYER STATE : C-300

PROJECT NO.: 2012080.00
DATE: 10-31-12
SCALE: 1" = 60'
DRAWN BY: **M.J.H.** PROJ. MGR.: **J.M.R.**

SHEET
C-300

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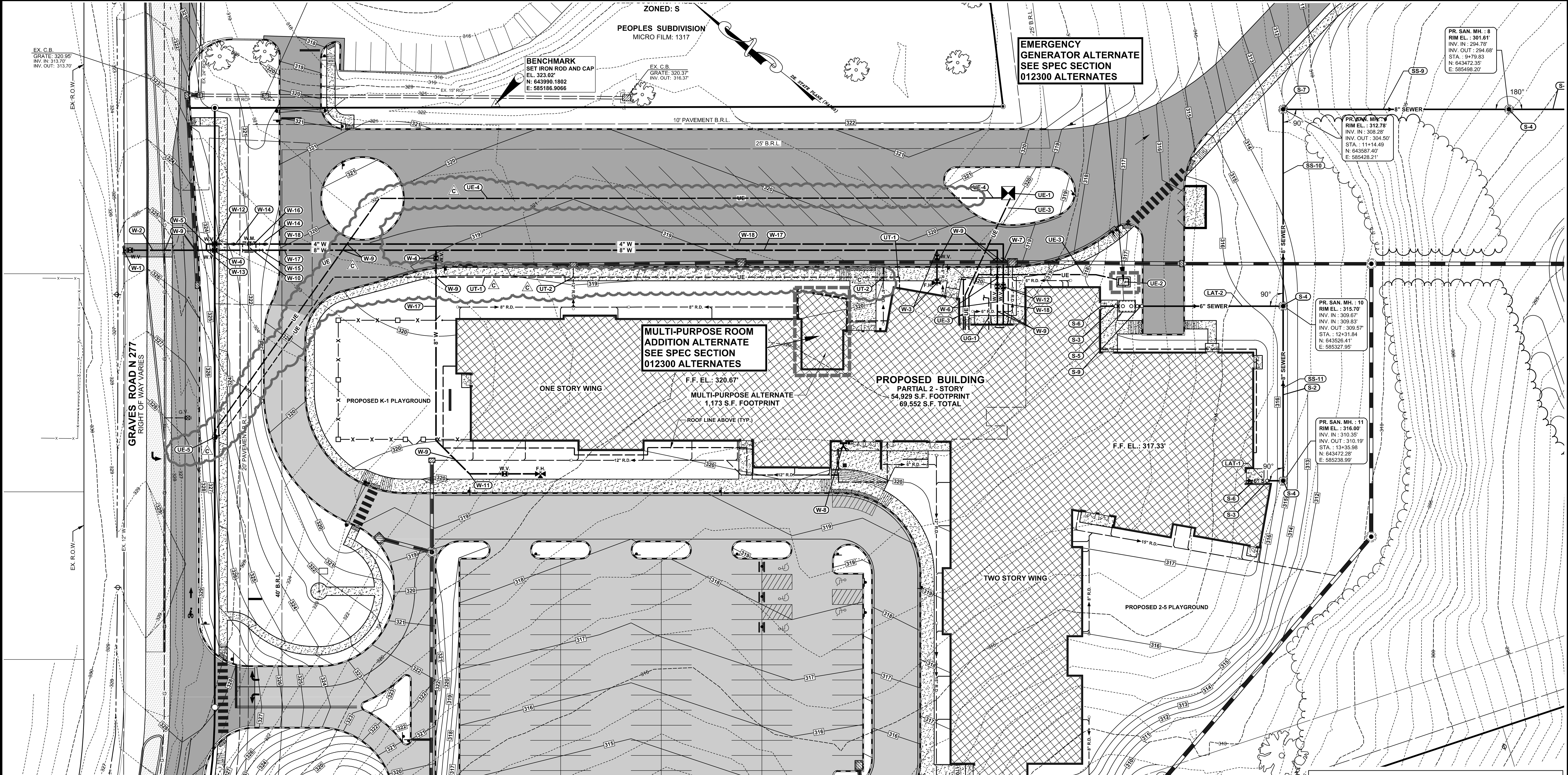


SANITARY SEWER PIPE SCHEDULE

PIPE NO.	SIZE	PIPE TYPE	LENGTH	SLOPE	INV. IN	INV. OUT
LAT-1	6"	PVC SDR 26	22'	1.05%	310.58'	310.35'
LAT-2	6"	PVC SDR 26	88'	3.59%	313.00'	309.83'
LAT-3	4"	PVC SDR 26	17'	2.08%	285.43'	285.08'
LAT-4	4"	PVC SDR 26	17'	2.08%	285.74'	285.39'
SS-1	8"	PVC SDR 26	56'	0.50%	271.66'	271.38'
SS-2	8"	PVC SDR 26	48'	0.50%	272.00'	271.76'
SS-3	8"	PVC SDR 26	100'	1.00%	273.10'	272.10'
SS-4	8"	PVC SDR 26	118'	7.24%	284.52'	276.00'
SS-5	8"	PVC SDR 26	78'	1.25% (C)	285.60'	284.62' (C)
SS-6	8"	PVC SDR 26	145'	1.18%	287.42'	285.70'
SS-7	8"	PVC SDR 26	300'	0.50%	291.80'	290.30'
SS-8	8"	PVC SDR 26	135'	2.06%	294.68'	291.90'
SS-9	8"	PVC SDR 26	135'	7.22%	304.50'	294.78'
SS-10	8"	PVC SDR 26	117'	1.10%	309.57'	308.28'
SS-11	8"	PVC SDR 26	104'	0.50%	310.19'	309.67'

SANITARY SEWER MANHOLE SCHEDULE

MH NO.	RIM EL.	DIA.	DEPTH	INV. IN	INV. OUT
1	278.21'	48"	6.55'	271.76' *(SS-2)*	271.66' *(SS-1)*
2	278.65'	48"	6.65'	272.10' *(SS-3)*	272.00' *(SS-2)*
3** (C)	280.38'	60" (C)	7.28' (C)	276.00' *(SS-4)*	273.10' *(SS-3)*
4	292.45'	48"	7.93'	284.62' *(SS-5)*	284.52' *(SS-4)*
5	291.89'	48"	6.29'	285.70' *(SS-6)*	285.60' *(SS-5)*
6**	298.00'	60"	10.58'	290.30' *(SS-7)*	287.42' *(SS-6)*
7	299.50'	48"	7.70'	291.90' *(SS-8)*	291.80' *(SS-7)*
8 (C)	301.61'	48"	6.93'	294.78' *(SS-9)*	294.68' *(SS-8)*
9**	312.78'	60"	8.28'	308.28' *(SS-10)*	304.50' *(SS-9)*
10	315.70'	48"	6.13'	309.67' *(SS-11)* 309.83' *(LAT-2)*	309.57' *(SS-10)*
11 #	316.00'	48"	5.81'	310.35' *(LAT-1)*	310.19' *(SS-11)*

** INDICATES DROP MANHOLE # INDICATES SHALLOW MANHOLE PER N.C.C.

ELECTRIC CONSTRUCTION NOTES

- **UE-1** PROPOSED TRANSFORMER LOCATION. SEE ELECTRICAL DRAWINGS FOR DETAILS.
- **UE-2** PROPOSED EMERGENCY GENERATOR ON 6'x8'x8" THICK CONCRETE PAD. SEE ELECTRICAL DRAWINGS FOR DETAILS. SEE SHEET C-906 FOR GENERATOR PAD DETAIL.
- **UE-3** PROPOSED ELECTRIC CONDUITS. SEE ELECTRICAL DRAWINGS FOR DETAIL, NUMBER AND SIZES.
- **UE-4** TWO (2) 4" PVC CONDUITS FROM TRANSFORMER TO PROPOSED UTILITY POLE LOCATION. UTILITY COMPANY TO PROVIDE CONNECTION AT POLE.
- **UE-5** APPROXIMATE LOCATION OF NEW UTILITY POLE. (NOT IN CONTRACT, TO BE INSTALLED BY UTILITY COMPANY)

(C)

GAS CONSTRUCTION NOTES

- **UG-1** 3" DIA. GAS SERVICE LOCATION TO BUILDING FROM UTILITY COMPANY DEMARCATION POINT. ROUTING AND INSTALLATION BY UTILITY COMPANY. SEE PLUMBING DRAWINGS FOR METER AND BUILDING ENTRANCE DETAILS.

TELEPHONE / FIBER OPTIC CONSTRUCTION NOTES

- **UT-1** TWO (2) 4" PVC CONDUITS (COMMUNICATIONS SERVICES) AND ONE (1) 4" INNERDUCT WITH PULL ROPE (FIBER OPTIC SERVICE) FROM BUILDING TO PROPOSED UTILITY POLE. UTILITY COMPANY TO PROVIDE CONNECTION AT POLE.
- **UT-2** MAINTAIN MIN. 2'-0" COVER AND 12" VERTICAL SEPARATION BETWEEN CONDUITS AND STORM DRAIN.

(C)

SANITARY SEWER CONSTRUCTION NOTES

- **S-1** CORE DRILL EXISTING SANITARY SEWER MANHOLE (NC 174-298) AND CONNECT PROPOSED 8" SEWER AT INVERT 271.38', USING APPROVED PIPE TO MANHOLE CONNECTOR AND INTERIOR DROP CONNECTION. SEE DETAILS, SHEET C-901
- **S-2** INSTALL PVC SDR 26 SANITARY SEWER SERVICE. SEE SANITARY SEWER PIPE SCHEDULE.
- **S-3** INSTALL CLEANOUT WITH CAST IRON FRAME AND COVER. SEE DETAIL, SHEET C-902. SIZE TO MATCH LATERAL SIZE. SEE DETAIL, SHEET C-901.
- **S-4** INSTALL PRECAST CONCRETE MANHOLE WITH HEAVY DUTY FRAME AND COVER. FRAME AND COVERS IN NONPAVED AREAS ARE SET ABOVE PROPOSED GRADE AND SHALL HAVE BERM PER N.C.C. STANDARD. SEE DETAILS, SHEET C-901,C-902 AND SANITARY SEWER MANHOLE SCHEDULE. THE SYSTEM SHALL BE PUBLIC UP TO MANHOLE NO. 5. MANHOLE NO.'S 1 - 5 SHALL HAVE N.C.C. STANDARD MANHOLE FRAME AND COVER. ALL OTHERS SHALL HAVE MANHOLE FRAME AND COVER FOR PRIVATE SYSTEM. SEE DETAIL, SHEET C-901.
- **S-5** INSTALL STAINLESS STEEL GREASE INTERCEPTOR WITH HEAVY DUTY FRAMES/COVERS OVER OPENINGS AND 12"x18"x120" CONCRETE DEADMAN ANCHORS AND STRAPS. SEE DETAILS, SHEET C-902.
- **S-6** TRANSITION FROM BUILDING SEWER SIZE AND TYPE TO PVC SDR 26 LATERAL SIZE USING REQUIRED FITTINGS PRIOR TO CLEANOUT.
- **S-7** INSTALL PRECAST CONCRETE DROP MANHOLE WITH HEAVY DUTY FRAME AND COVER. FRAME AND COVERS IN NONPAVED AREAS ARE SET ABOVE PROPOSED GRADE AND SHALL HAVE BERM PER N.C.C. STANDARD. SEE DETAILS, SHEET C-901, C-902 SANITARY SEWER MANHOLE SCHEDULE. THE SYSTEM SHALL BE PUBLIC UP TO MANHOLE NO. 5. MANHOLE NO.'S 1 - 5 SHALL HAVE N.C.C. STANDARD MANHOLE FRAME AND COVER. ALL OTHERS SHALL HAVE MANHOLE FRAME AND COVER FOR PRIVATE SYSTEM. SEE DETAIL, SHEET C-901.
- **S-8** INSTALL TURF TRAIL PER N.C.C. STANDARD. SEE SHEET C-303 FOR LOCATION OF TURF TRAIL AND TYPICAL DETAIL ON SHEET C-902.
- **S-9** INSTALL DUAL CLEANOUT ASSEMBLY.

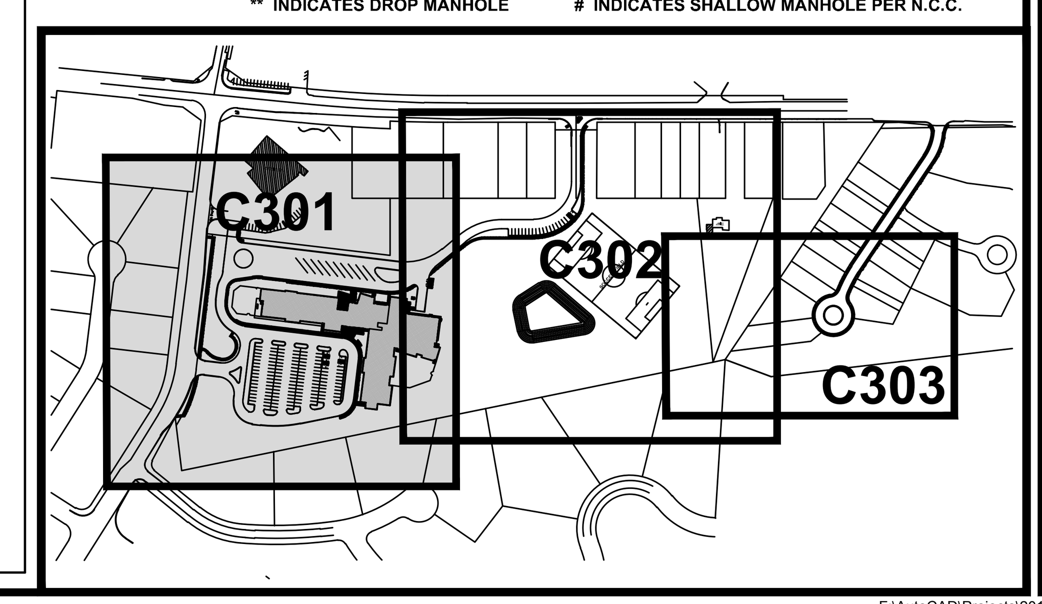
SEE SHEET C-901 AND C-902 FOR SANITARY SEWER DETAILS.

(C)

DOMESTIC/FIRE WATER SYSTEM CONSTRUCTION NOTES

- **W-1** TAP EXISTING 12" DIA. WATER MAIN WITHIN GRAVES ROAD WITH A 12"x12"x8" TAPPING SLEEVE AND VALVE W/ BOX.
- **W-2** INSTALL 8" DIA. D.I.P. CLASS 50, CEMENT LINED WATER MAIN. (42" MINIMUM COVER).
- **W-3** INSTALL 8"x8"x6" TEE, 6" DIA. PVC C900 DR 18 HYDRANT LEAD, 6" ISOLATION VALVE WITH VALVE BOX AND FIRE HYDRANT AT THE LOCATION SHOWN. SEE DETAIL, SHEET C-904.
- **W-4** INSTALL 8" GATE VALVE WITH VALVE BOX, SEE DETAIL, SHEET C-904.
- **W-5** INSTALL 4" DIA. D.I.P. CLASS 50, CEMENT LINED WATER MAIN WITH 4" GATE VALVE AND BOX (42" MIN. COVER).
- **W-6** INSTALL 8"x6" REDUCER, 6" DIA. PVC C900 DR 18, WATER MAIN FOR FIRE SERVICE WITH 6" GATE VALVE AND BOX. (42" MIN. COVER). SEE DOMESTIC/FIRE WATER SERVICE ENTRANCE. SEE DETAIL, SHEET C-904
- **W-7** DOMESTIC/FIRE WATER SERVICE ENTRANCE AREA. SEE DETAIL, SHEET C-904
- **W-8** FIRE DEPARTMENT CONNECTION LOCATION WITH "FIRE DEPARTMENT CONNECTION" SIGN PER DELAWARE STATE FIRE PREVENTION REGULATIONS. SEE SIGN DETAIL, SHEET 300.
- **W-9** DEFLECT WATER MAIN UNDER OTHER UTILITIES WHERE IN CONFLICT OR IN ORDER TO MAINTAIN MINIMUM 42" COVER AND 18" VERTICAL SEPARATION BETWEEN WATER AND SANITARY AND MINIMUM 12" VERTICAL SEPARATION BETWEEN WATER AND OTHER UTILITIES AT ALL CROSSINGS. SEE DETAIL, SHEET C-904.
- **W-10** INSTALL 6'x6'x6' PRECAST VAULT FOR WATER METER AND DETECTOR CHECK VALVE ASSEMBLY PER ARTESIAN WATER COMPANY STANDARDS. WATER METER TO BE 2" WITH BYPASS. DETECTOR CHECK VALVE TO BE 8" WITH BYPASS. SEE DETAIL, SHEET C-904.
- **W-11** INSTALL 8"x6" REDUCING ELBOW, INSTALL 6" DIA. PVC C900 DR 18 HYDRANT LEAD, 6" ISOLATION VALVE WITH VALVE BOX AND FIRE HYDRANT AT THE LOCATION SHOWN. SEE DETAIL, SHEET C-904.
- **W-12** INSTALL 4" GATE VALVE WITH VALVE BOX, SEE DETAIL, SHEET C-904.
- **W-13** INSTALL 8"x8"x4" REDUCING TEE FITTING.
- **W-14** INSTALL 4"x2" REDUCING FITTING.
- **W-15** TRANSITION FROM DUCTILE IRON CLASS 50 PIPE TO PVC C900 DR 18 PIPE AFTER METER PIT USING TRANSITION COUPLING.
- **W-16** INSTALL 2" TYPE K COPPER PIPE FOR ALL DOMESTIC PIPING BETWEEN THE 4"x2" REDUCERS AND WITHIN THE METER PIT.
- **W-17** INSTALL 8" DIA. PVC C900 DR 18 FIRE SERVICE MAIN FROM TRANSITION COUPLING AT METER PIT. (42" MINIMUM COVER).
- **W-18** INSTALL 4" DIA. PVC C900 DR 18 DOMESTIC SERVICE MAIN FROM 4"x2' REDUCER AT METER PIT. (42" MIN. COVER).

NOTE: ALL VALVES AND FITTINGS 4" AND ABOVE IN SIZE TO BE D.I.M.J.



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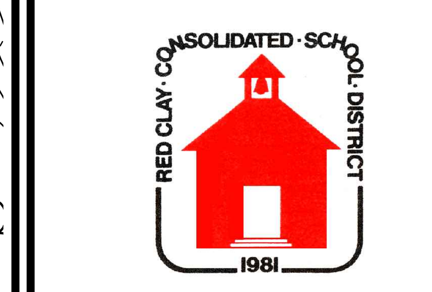

PROJECT TITLE

NCC APP #: 2012-0736
RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DELAWARE 19707
MILLCREEK HUNDRED
NEW CASTLE COUNTY, DE

SHEET TITLE

UTILITY PLAN

0 15 30 60

SCALE : 1" = 30'

ISSUE BLOCK

MARK	DATE	DESCRIPTION
15	7-29-13	ADDENDUM - 03 (C)
14	7-23-13	ADDENDUM - 02 (B)
13	7-16-13	ADDENDUM - 01 (A)
12	7-11-13	SPECIAL SERVICES RESUBMISSIONS
11	7-2-13	DNREC, DELDOT RESUBMISSIONS
10	7-1-13	BIDDING DOCUMENTS N.C.C. SPEC. SERVICES RESUBMISSION
9	6-24-13	DFM SUBMISSION
8	6-10-13	CD RESUBMISSION DNREC, ARTESIAN
7	5-15-13	CD SUBMISSION
6	4-22-13	CD PRICING SET / FIRE MARSHAL, DNREC, PUB. HEALTH, NCC SUBMISSION
5	4-16-13	DELDOT CD SUBMISSION #2
4	3-21-13	DD SUBMISSION
3	2-18-13	DD PRICING SET DELDOT CD SUBMISSION
2	1-10-13	N.C.C. EXPLORATORY PLAN RESUBMISSION
1	12-6-12	SD SUBMISSION

LAYER STATE : C-301

PROJECT NO.:	2012080.00
DATE:	10-31-12
SCALE:	1" = 30'
DRAWN BY: M.J.H.	PROJ. MGR.: J.M.R.

SHEET

C-301

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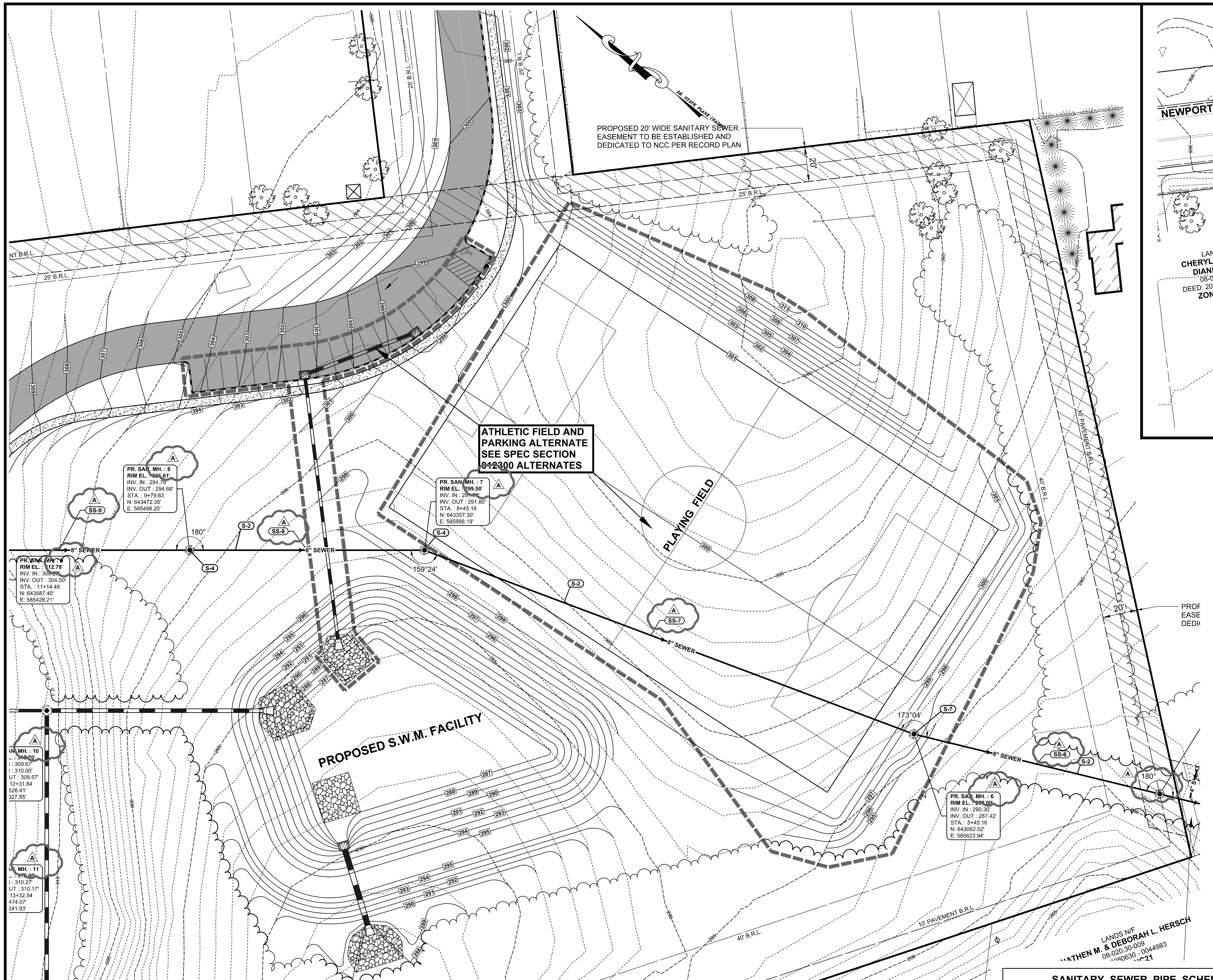

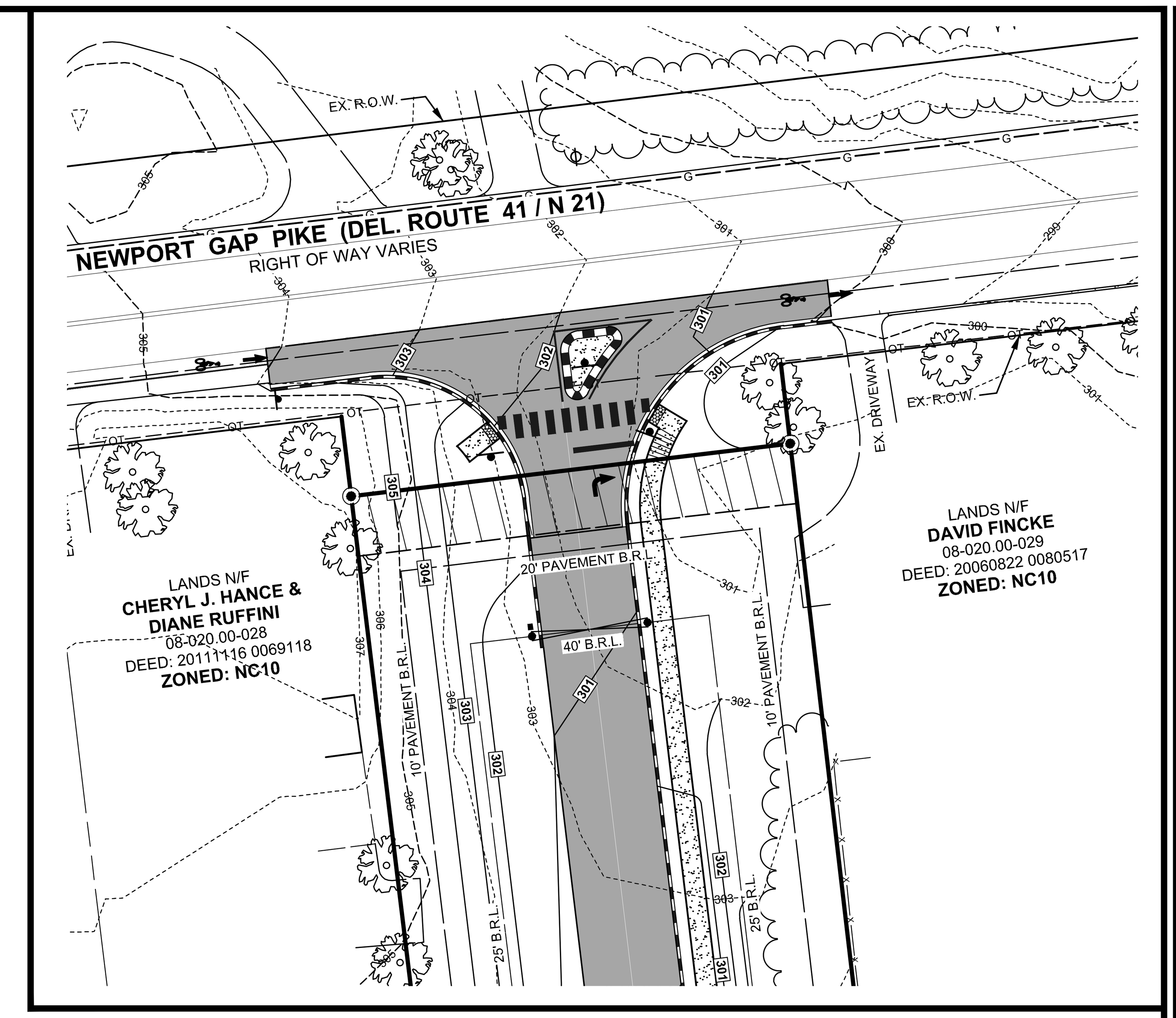

DOMESTIC/FIRE WATER SYSTEM CONSTRUCTION NOTES

W-1 TAP EXISTING 12" DIA. WATER MAIN WITHIN GRAVES ROAD WITH A 12"x12"x8" TAPPING SLEEVE AND VALVE W/ BOX.
W-2 INSTALL 8" DIA. D.I.P. CLASS 50, CEMENT LINED WATER MAIN. (42" MINIMUM COVER).
W-3 INSTALL 8"x8"x6" TEE, 6" DIA. PVC C900 DR 18 HYDRANT LEAD, 6" ISOLATION VALVE WITH VALVE BOX AND FIRE HYDRANT AT THE LOCATION SHOWN. SEE DETAIL, SHEET C-904.
W-4 INSTALL 8" GATE VALVE WITH VALVE BOX, SEE DETAIL, SHEET C-904.
W-5 INSTALL 4" DIA. D.I.P. CLASS 50, CEMENT LINED WATER MAIN WITH 4" GATE VALVE AND BOX (42" MIN. COVER).
W-6 INSTALL 8"x6" REDUCER, 6" DIA. PVC C900 DR 18, WATER MAIN FOR FIRE SERVICE WITH 6" GATE VALVE AND BOX. (42" MIN. COVER). SEE DOMESTIC/FIRE WATER SERVICE ENTRANCE. SEE DETAIL, SHEET C-904
W-7 DOMESTIC/FIRE WATER SERVICE ENTRANCE AREA. SEE DETAIL, SHEET C-904
W-8 FIRE DEPARTMENT CONNECTION LOCATION WITH "FIRE DEPARTMENT CONNECTION" SIGN PER DELAWARE STATE FIRE PREVENTION REGULATIONS. SEE SIGN DETAIL, SHEET 300.
W-9 DEFLECT WATER MAIN UNDER OTHER UTILITIES WHERE IN CONFLICT OR IN ORDER TO MAINTAIN MINIMUM 42" COVER AND 18" VERTICAL SEPARATION BETWEEN WATER AND SANITARY AND MINIMUM 12" VERTICAL SEPARATION BETWEEN WATER AND OTHER UTILITIES AT ALL CROSSINGS. SEE DETAIL, SHEET C-904.
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NOTE: ALL VALVES AND FITTINGS 4" AND ABOVE IN SIZE TO BE D.I.M.J.

SANITARY SEWER CONSTRUCTION NOTES

S-1 CORE DRILL EXISTING SANITARY SEWER MANHOLE (NC 174-298) AND CONNECT PROPOSED 8" SEWER AT INVERT 271.38', USING APPROVED PIPE TO MANHOLE CONNECTOR AND INTERIOR DROP CONNECTION. SEE DETAILS, SHEET C-901
S-2 INSTALL PVC SDR 26 SANITARY SEWER SERVICE. SEE SANITARY SEWER PIPE SCHEDULE.
S-3 INSTALL CLEANOUT WITH CAST IRON FRAME AND COVER. SEE DETAIL, SHEET C-902. SIZE TO MATCH LATERAL SIZE. SEE DETAIL, SHEET C-901.
S-4 INSTALL PRECAST CONCRETE MANHOLE WITH HEAVY DUTY FRAME AND COVER. FRAME AND COVERS IN NONPAVED AREAS ARE SET ABOVE PROPOSED GRADE AND SHALL HAVE BERM PER N.C.C. STANDARD. SEE DETAILS, SHEET C-901,C-902 AND SANITARY SEWER MANHOLE SCHEDULE. THE SYSTEM SHALL BE PUBLIC UP TO MANHOLE NO. 5. MANHOLE NO.'S 1 - 5 SHALL HAVE N.C.C. STANDARD MANHOLE FRAME AND COVER. ALL OTHERS SHALL HAVE MANHOLE FRAME AND COVER FOR PRIVATE SYSTEM. SEE DETAIL, SHEET C-901. (A)
S-5 INSTALL STAINLESS STEEL GREASE INTERCEPTOR WITH HEAVY DUTY FRAMES/COVERS OVER OPENINGS AND 12"x18"x120" CONCRETE DEADMAN ANCHORS AND STRAPS. SEE DETAILS, SHEET C-902. (A)
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S-8 INSTALL TURF TRAIL PER N.C.C. STANDARD. SHIFT TRAIL AS NECESSARY TO REMAIN IN EASEMENT. SEE DETAIL, SHEET C-902
S-9 INSTALL DUAL CLEANOUT ASSEMBLY.
SEE SHEET C-901 AND C-902 FOR SANITARY SEWER DETAILS.

ELECTRIC CONSTRUCTION NOTES

UE-1 PROPOSED TRANSFORMER LOCATION. SEE ELECTRICAL DRAWINGS FOR DETAILS.
UE-2 PROPOSED EMERGENCY GENERATOR ON 6'x8'x8" THICK CONCRETE PAD. SEE ELECTRICAL DRAWINGS FOR DETAILS. SEE SHEET C-906 FOR GENERATOR PAD DETAIL.
UE-3 PROPOSED ELECTRIC CONDUITS. SEE ELECTRICAL DRAWINGS FOR DETAIL, NUMBER AND SIZES.
UE-4 TWO (2) 4" CONDUITS FROM UTILITY COMPANY DEMARCATION POINT. ROUTING AND INSTALLATION BY UTILITY COMPANY.

SANITARY SEWER MANHOLE SCHEDULE

MH NO.	RIM EL.	DIA.	DEPTH	INV. IN	INV. OUT
1	278.21'	48"	6.55'	271.76' (SS-2)	271.66' (SS-1)
2	278.65'	48"	6.65'	272.10' (SS-3)	272.00' (SS-2)
3	280.38'	48"	7.28'	274.81' (SS-4)	273.10' (SS-3)
4	292.45'	48"	7.93'	284.62' (SS-5)	284.52' (SS-4)
5	291.89'	48"	6.29'	285.70' (SS-6)	285.60' (SS-5)
6**	298.00'	60"	10.58'	290.30' (SS-7)	287.42' (SS-6)
7	299.50'	48"	7.70'	291.90' (SS-8)	291.80' (SS-7)
8 #	301.61'	48"	6.93'	294.78' (SS-9)	294.68' (SS-8)
9**	312.78'	60"	8.28'	308.28' (SS-10)	304.50' (SS-9)
10	315.70'	48"	6.13'	309.67' (SS-11) 310.00' (LAT-2)	309.57' (SS-10)
11 #	316.00'	48"	5.83'	310.27' (LAT-1)	310.17' (SS-11)

** INDICATES DROP MANHOLE # INDICATES SHALLOW MANHOLE PER N.C.C.

SANITARY SEWER PIPE SCHEDULE

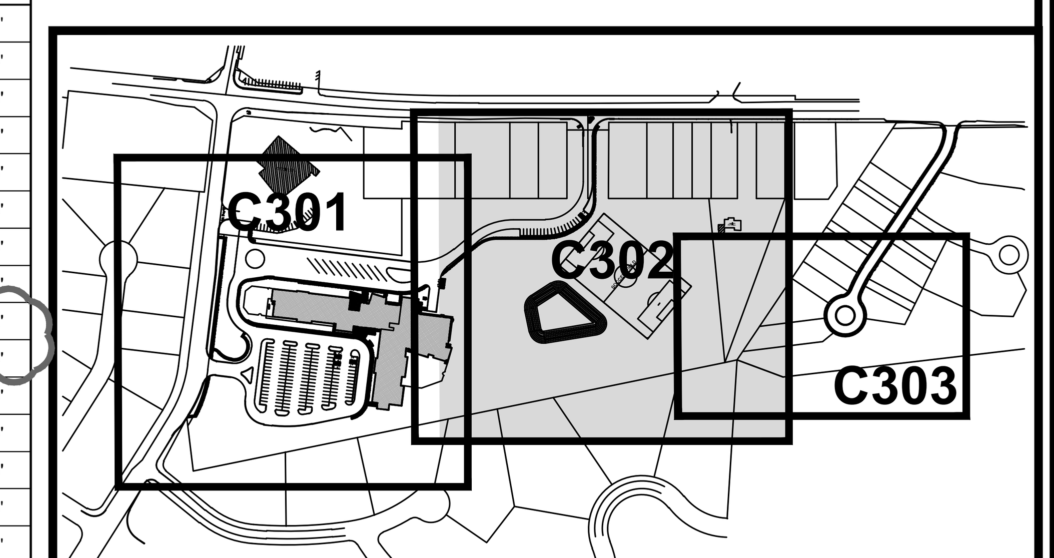
PIPE NO.	SIZE	PIPE TYPE	LENGTH	SLOPE	INV. IN	INV. OUT
LAT-1	6"	PVC SDR 26	22'	1.04%	310.50'	310.27'
LAT-2	4"	PVC SDR 26	88'	3.22%	312.84'	310.00'
LAT-3	4"	PVC SDR 26	17'	2.08%	285.43'	285.08'
LAT-4	4"	PVC SDR 26	17'	2.08%	285.74'	285.39'
SS-1	8"	PVC SDR 26	56'	0.50%	271.66'	271.38'
SS-2	8"	PVC SDR 26	48'	0.50%	272.00'	271.76'
SS-3	8"	PVC SDR 26	100'	1.00%	273.10'	272.10'
SS-4	8"	PVC SDR 26	118'	8.25%	284.52'	274.81'
SS-5	8"	PVC SDR 26	78'	1.25%	285.60'	284.62'
SS-6	8"	PVC SDR 26	145'	1.18%	287.42'	285.70'
SS-7	8"	PVC SDR 26	300'	0.50%	291.80'	290.30'
SS-8	8"	PVC SDR 26	135'	2.06%	294.68'	291.90'
SS-9	8"	PVC SDR 26	135'	7.22%	304.50'	294.78'
SS-10	8"	PVC SDR 26	117'	1.10%	309.57'	308.28'
SS-11	8"	PVC SDR 26	101'	0.50%	310.17'	309.67'

GAS CONSTRUCTION NOTES

UG-1 3" DIA. GAS SERVICE LOCATION TO BUILDING FROM UTILITY COMPANY DEMARCATION POINT. ROUTING AND INSTALLATION BY UTILITY COMPANY. SEE PLUMBING DRAWINGS FOR METER AND BUILDING ENTRANCE DETAILS.

TELEPHONE / FIBER OPTIC CONSTRUCTION NOTES

UT-1 THREE (3) 4" CONDUITS FOR COMMUNICATIONS SERVICE FROM UTILITY COMPANY DEMARCATION POINT. ROUTING AND INSTALLATION BY UTILITY COMPANY. SEE COMMUNICATIONS DRAWINGS FOR BUILDING ENTRANCE DETAILS.



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RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

PROJECT TITLE

NCC APP #: 2012-0736
RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DELAWARE 19707
MILLCREEK HUNDRED
NEW CASTLE COUNTY, DE

SHEET TITLE

UTILITY PLAN

0 15 30 60
SCALE : 1" = 30'

ISSUE BLOCK		
13	7-16-13	ADDENDUM - 01 (A)
12	7-11-13	SPECIAL SERVICES RESUBMISSIONS
11	7-2-13	DNREC, DELDOT RESUBMISSIONS
10	7-1-13	BIDDING DOCUMENTS N.C.C. SPEC. SERVICES RESUBMISSION
9	6-24-13	DFM SUBMISSION
8	6-10-13	CD RESUBMISSION DNREC, ARTESIAN
7	5-15-13	CD SUBMISSION
6	4-22-13	CD PRICING SET / FIRE MARSHAL, DNREC, PUB. HEALTH, NCC SUBMISSION
5	4-16-13	DELDOT CD SUBMISSION #2
4	3-21-13	DD SUBMISSION
3	2-18-13	DD PRICING SET DELDOT CD SUBMISSION
2	1-10-13	N.C.C. EXPLORATORY PLAN RESUBMISSION
1	12-6-12	SD SUBMISSION
MARK	DATE	DESCRIPTION

LAYER STATE : C-302

PROJECT NO.: 2012080.00
DATE: 10-31-12
SCALE: 1" = 30'
DRAWN BY: **M.J.H.** PROJ. MGR.: **J.M.R.**

SHEET
C-302

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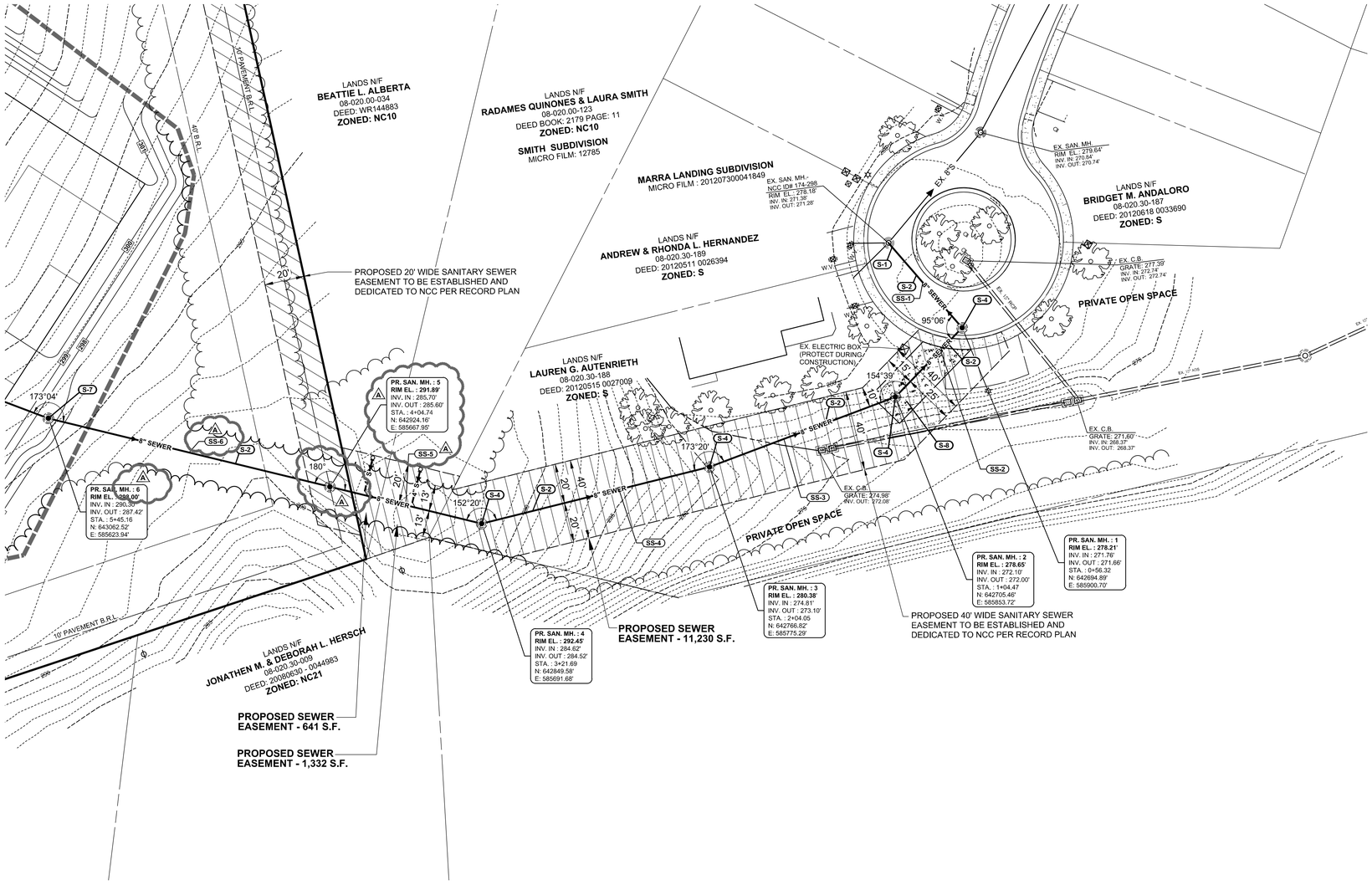


SANITARY SEWER MANHOLE SCHEDULE

MH NO.	RIM EL.	DIA.	DEPTH	INV. IN	INV. OUT
1	278.21'	48"	6.55'	271.76' *(SS-2)*	271.66' *(SS-1)*
2	278.65'	48"	6.65'	272.10' *(SS-3)*	272.00' *(SS-2)*
3	280.38'	48"	7.28'	274.81' *(SS-4)*	273.10' *(SS-3)*
4	292.45'	48"	7.93'	284.62' *(SS-5)*	284.52' *(SS-4)*
5	291.89'	48"	6.29'	285.70' *(SS-6)*	285.60' *(SS-5)*
6**	298.00'	60"	10.58'	290.30' *(SS-7)*	287.42' *(SS-6)*
7	299.50'	48"	7.70'	291.90' *(SS-8)*	291.80' *(SS-7)*
8 #	301.61'	48"	6.93'	294.78' *(SS-9)*	294.68' *(SS-8)*
9**	312.78'	60"	8.28'	308.28' *(SS-10)*	304.50' *(SS-9)*
10	315.70'	48"	6.13'	309.67' *(SS-11)* 310.00' *(LAT-2)*	309.57' *(SS-10)*
11 #	316.00'	48"	5.83'	310.27' *(LAT-1)*	310.17' *(SS-11)*

** INDICATES DROP MANHOLE # INDICATES SHALLOW MANHOLE PER N.C.C.

SANITARY SEWER PIPE SCHEDULE

PIPE NO.	SIZE	PIPE TYPE	LENGTH	SLOPE	INV. IN	INV. OUT
LAT-1	6"	PVC SDR 26	22'	1.04%	310.50'	310.27'
LAT-2	4"	PVC SDR 26	88'	3.22%	312.84'	310.00'
LAT-3	4"	PVC SDR 26	17'	2.08%	285.43'	285.08'
LAT-4	4"	PVC SDR 26	17'	2.08%	285.74'	285.39'
SS-1	8"	PVC SDR 26	56'	0.50%	271.66'	271.38'
SS-2	8"	PVC SDR 26	48'	0.50%	272.00'	271.76'
SS-3	8"	PVC SDR 26	100'	1.00%	273.10'	272.10'
SS-4	8"	PVC SDR 26	118'	0.25%	284.52'	284.81'
SS-5	8"	PVC SDR 26	78'	1.25%	285.60'	284.62'
SS-6	8"	PVC SDR 26	145'	1.18%	287.42'	285.70'
SS-7	8"	PVC SDR 26	300'	0.50%	291.80'	290.30'
SS-8	8"	PVC SDR 26	135'	2.06%	294.68'	291.90'
SS-9	8"	PVC SDR 26	135'	7.22%	304.50'	294.78'
SS-10	8"	PVC SDR 26	117'	1.10%	309.57'	308.28'
SS-11	8"	PVC SDR 26	101'	0.50%	310.17'	309.67'

SANITARY SEWER CONSTRUCTION NOTES

S-1 CORE DRILL EXISTING SANITARY SEWER MANHOLE (NC 174-298) AND CONNECT PROPOSED 8" SEWER AT INVERT 271.38', USING APPROVED PIPE TO MANHOLE CONNECTOR AND INTERIOR DROP CONNECTION. SEE DETAILS, SHEET C-901

S-2 INSTALL PVC SDR 26 SANITARY SEWER SERVICE. SEE SANITARY SEWER PIPE SCHEDULE.

S-3 INSTALL CLEANOUT WITH CAST IRON FRAME AND COVER. SEE DETAIL, SHEET C-902. SIZE TO MATCH LATERAL SIZE. SEE DETAIL, SHEET C-901.

S-4 INSTALL PRECAST CONCRETE MANHOLE WITH HEAVY DUTY FRAME AND COVER. FRAME AND COVERS IN NONPAVED AREAS ARE SET ABOVE PROPOSED GRADE AND SHALL HAVE BERM PER N.C.C. STANDARD. SEE DETAILS, SHEET C-901, C-902 AND SANITARY SEWER MANHOLE SCHEDULE. THE SYSTEM SHALL BE PUBLIC UP TO MANHOLE NO. 5. MANHOLE NO.'S 1 - 5 SHALL HAVE N.C.C. STANDARD MANHOLE FRAME AND COVER. ALL OTHERS SHALL HAVE MANHOLE FRAME AND COVER FOR PRIVATE SYSTEM. SEE DETAIL, SHEET C-901.

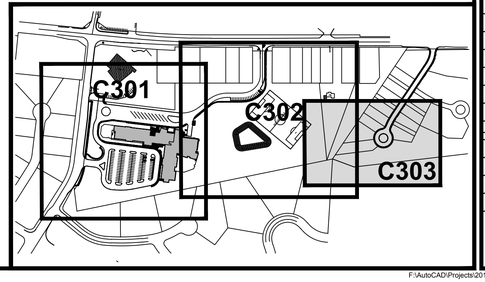
S-5 INSTALL STAINLESS STEEL GREASE INTERCEPTOR WITH HEAVY DUTY FRAMES/COVERS OVER OPENINGS AND 12"x18"x120" CONCRETE DEADMAN ANCHORS AND STRAPS. SEE DETAILS, SHEET C-902.

S-6 INSTALL CONCRETE WITH SOLID PIPE PVC SDR 26 LATERAL SIZE USING REQUIRED FITTINGS PRIOR TO CLEANOUT.

S-7 INSTALL PRECAST CONCRETE DROP MANHOLE WITH HEAVY DUTY FRAME AND COVER. FRAME AND COVERS IN NONPAVED AREAS ARE SET ABOVE PROPOSED GRADE AND SHALL HAVE BERM PER N.C.C. STANDARD. SEE DETAILS, SHEET C-901, C-902 SANITARY SEWER MANHOLE SCHEDULE. THE SYSTEM SHALL BE PUBLIC UP TO MANHOLE NO. 5. MANHOLE NO.'S 1 - 5 SHALL HAVE N.C.C. STANDARD MANHOLE FRAME AND COVER. ALL OTHERS SHALL HAVE MANHOLE FRAME AND COVER FOR PRIVATE SYSTEM. SEE DETAIL, SHEET C-901.

S-8 INSTALL TURF TRAIL PER N.C.C. STANDARD. SHIFT TRAIL AS NECESSARY TO REMAIN IN EASEMENT. SEE DETAIL, SHEET C-902

S-9 INSTALL DUAL CLEANOUT ASSEMBLY.
SEE SHEET C-901 AND C-902 FOR SANITARY SEWER DETAILS.



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RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

PROJECT TITLE

NCC APP #: 2012-0736 RED CLAY CONSOLIDATED SCHOOL DISTRICT WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DELAWARE 19707
MILLCREEK HUNDRED
NEW CASTLE COUNTY, DE

SHEET TITLE

OFF-SITE UTILITY PLAN

0 15 30 60

SCALE : 1" = 30'

ISSUE BLOCK

MARK	DATE	DESCRIPTION
13	7-16-13	ADDENDUM - 01
12	7-11-13	SPECIAL SERVICES RESUBMISSIONS
11	7-2-13	DNREC, DELDOT RESUBMISSIONS
10	7-1-13	BIDDING DOCUMENTS N.C.C. SPEC. SERVICES RESUBMISSION
9	6-24-13	DFM SUBMISSION
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5	4-16-13	DELDOT CD SUBMISSION #2
4	3-21-13	DD SUBMISSION
3	2-18-13	DD PRICING SET DELDOT CD SUBMISSION
2	1-10-13	N.C.C. EXPLORATORY PLAN RESUBMISSION
1	12-6-12	SD SUBMISSION

LAYER STATE : C-302

PROJECT NO.: 2012080.00
DATE: 10-31-12
SCALE: 1" = 30'
DRAWN BY: **M.J.H.** PROJ. MGR.: **J.M.R.**

SHEET

C-303

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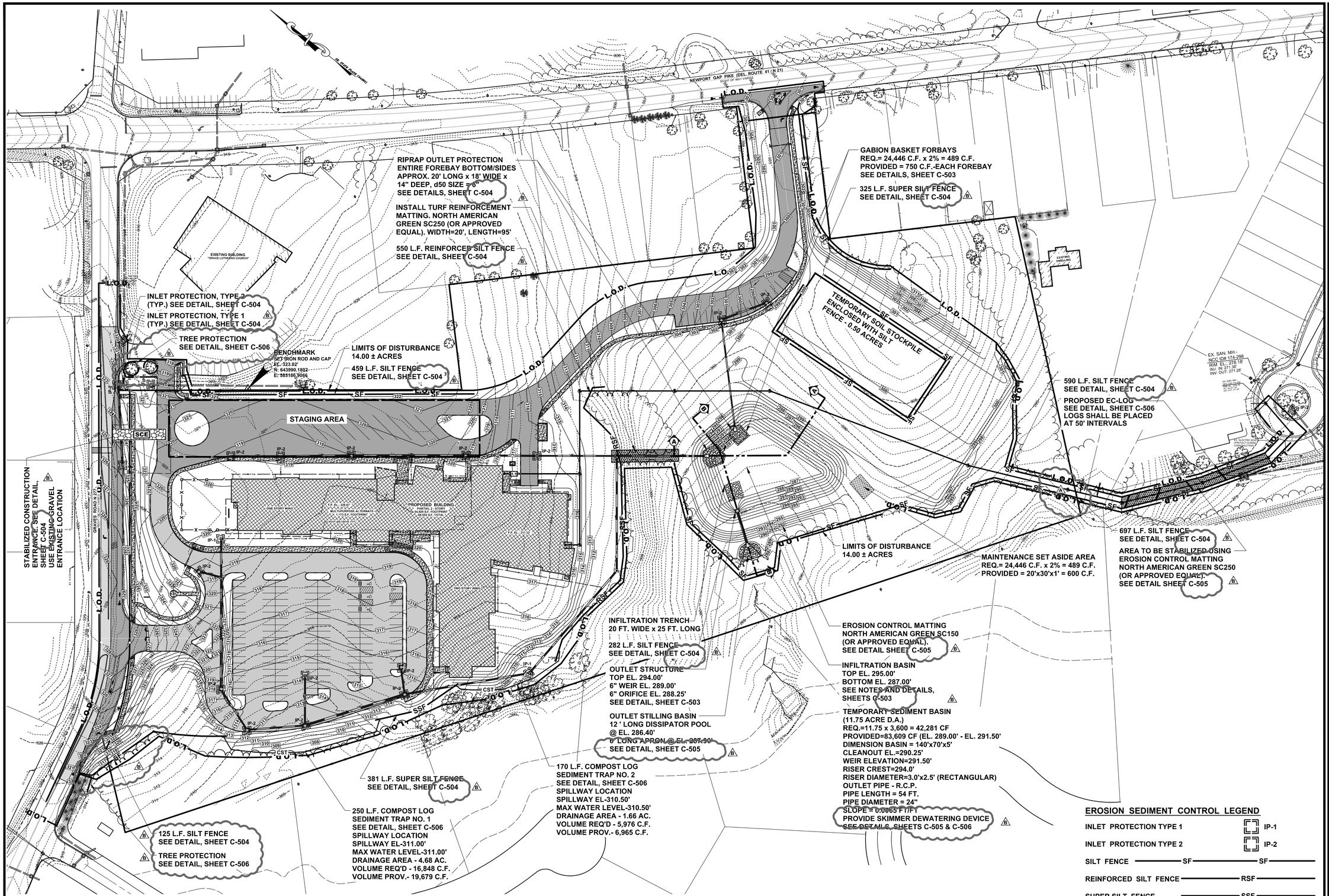

EROSION SEDIMENT CONTROL LEGEND

INLET PROTECTION TYPE 1	IP-1
INLET PROTECTION TYPE 2	IP-2
SILT FENCE	SF
REINFORCED SILT FENCE	RSF
SUPER SILT FENCE	SSF
STABILIZED CONSTRUCTION ENTRANCE	SCE
LIMIT OF DISTURBANCE	L.O.D.
COMPOST LOG SEDIMENT TRAP	CST
TREE PROTECTION	TP

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RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

PROJECT TITLE

NCC APP #: 2012-0736
RED CLAY CONSOLIDATED SCHOOL DISTRICT WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DELAWARE 19707
MILLCREEK HUNDRED
NEW CASTLE COUNTY, DE

SHEET TITLE

SEDIMENT AND STORMWATER MANAGEMENT PLAN

0 30 60 120

SCALE : 1" = 60'

ISSUE BLOCK

MARK	DATE	DESCRIPTION
14	7-23-13	ADDENDUM - 02
13	7-16-13	ADDENDUM - 01
12	7-11-13	SPECIAL SERVICES RESUBMISSIONS
11	7-2-13	DNREC, DELDOT RESUBMISSIONS
10	7-1-13	BIDDING DOCUMENTS N.C.C. SPEC. SERVICES RESUBMISSION
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4	3-21-13	DD SUBMISSION
3	2-18-13	DD PRICING SET DELDOT CD SUBMISSION
2	1-10-13	N.C.C. EXPLORATORY PLAN RESUBMISSION
1	12-6-12	SD SUBMISSION

LAYER STATE : C-502

PROJECT NO.: 2012080.00
DATE: 10-31-12
SCALE: 1" = 60'
DRAWN BY: M.J.H. PROJ. MGR.: J.M.R.

SHEET

C-502

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Standard Detail & Specifications
Site Pollution Prevention

Notes:

The Construction Site Pollution Prevention Plan should include the following elements:

1. **Material Inventory**

   Document the storage and use of the following materials:
   a. Concrete
   b. Detergents
   c. Paints (enamel and latex)
   d. Cleaning solvents
   e. Pesticides
   f. Wood scraps
   g. Fertilizers
   h. Petroleum based products

2. **Good housekeeping practices**
   a. Store only enough product required to do the job.
   b. All materials shall be stored in a neat, orderly manner in their original labeled containers and covered.
   c. Substances shall not be mixed.
   d. When possible, all of a product shall be used up prior to disposal of the container.
   e. Manufacturers' instructions for disposal shall be strictly adhered to.
   f. The site foreman shall designate someone to inspect all BMPs daily.

3. **Waste management practices**
   a. All waste materials shall be collected and stored in securely lidded dumpsters in a location that does not drain to a waterbody.
   b. Waste materials shall be salvaged and/or recycled whenever possible.
   c. The dumpsters shall be emptied a minimum of twice per week, or more if necessary. The licensed trash hauler is responsible for cleaning out dumpsters.

Source:	Symbol:	Detail No.
Adapted from USEPA Pub. 840-B-92-002		DE-ESC-3.6.1 Sheet 1 of 3 Date: 6/05

Standard Detail & Specifications
Site Pollution Prevention

Notes (cont.)

   d. Trash shall be disposed of in accordance with all applicable Delaware laws.
   e. Trash cans shall be placed at all lunch spots and littering is strictly prohibited. Recycle bins shall be placed near the construction trailer.
   f. If fertilizer bags can not be stored in a weather-proof location, they shall be kept on a pallet and covered with plastic sheeting which is overlapped and anchored.

4. **Equipment maintenance practices**
   a. If possible, equipment should be taken to off-site commercial facilities for washing and maintenance.
   b. If performed on-site, vehicles shall be washed with high-pressure water spray without detergents in an area contained by an impervious berm.
   c. Drip pans shall be used for all equipment maintenance.
   d. Equipment shall be inspected for leaks on a daily basis.
   e. Washout from concrete trucks shall be disposed of in a temporary pit for hardening and proper disposal.
   f. Fuel nozzles shall be equipped with automatic shut-off valves.
   g. All used products such as oil, antifreeze, solvents and tires shall be disposed of in accordance with manufacturers' recommendations and local, state and federal laws and regulations.

5. **Spill prevention practices**
   a. Potential spill areas shall be identified and contained in covered areas with no connection to the storm drain system.
   b. Warning signs shall be posted in hazardous material storage areas.
   c. Preventive maintenance shall be performed on all tanks, valves, pumps, pipes and other equipment as necessary.
   d. Low or non-toxic substances shall be prioritized for use.

Source:	Symbol:	Detail No.
Adapted from USEPA Pub. 840-B-92-002		DE-ESC-3.6.1 Sheet 2 of 3 Date: 6/05

Standard Detail & Specifications
Site Pollution Prevention

Notes (cont.)

   e. Contact information for reporting spills through the DNREC 24-Hour Toll Free Number shall be prominently posted.

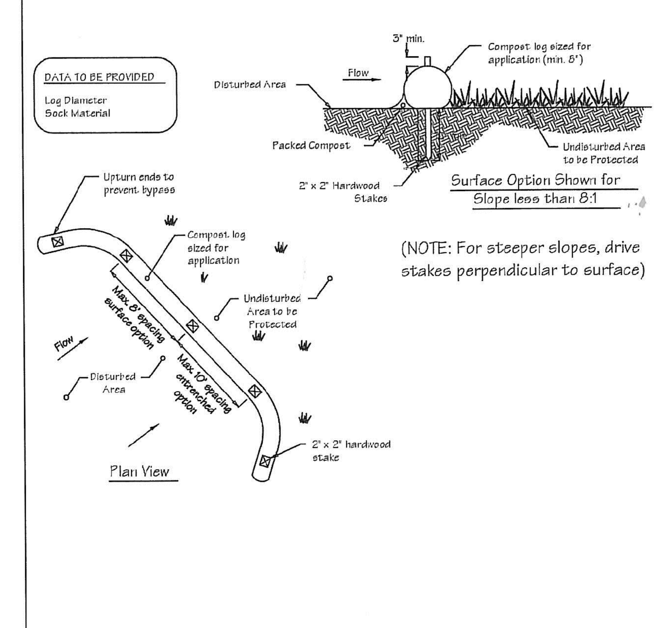
6. **Education**
   a. Best management practices for construction site pollution control shall be a part of regular progress meetings.
   b. Information regarding waste management, equipment maintenance and spill prevention shall be prominently posted in the construction trailer.

CONTACT INFORMATION

DNREC 24-Hour Toll Free Number	**800-662-8802**
DNREC Solid & Hazardous Waste Branch	**302-739-9403**

Source:	Symbol:	Detail No.
Adapted from USEPA Pub. 840-B-92-002		DE-ESC-3.6.1 Sheet 3 of 3 Date: 6/05

Standard Detail & Specifications
Slope Treatment - EC Log



Source:	Symbol:	Detail No.
Adapted from Filtrexx™ International	ST-L	DE-ESC-3.4.2.4 Sheet 1 of 2 Date: 03/13

Standard Detail & Specifications
Slope Treatment - EC Log

Construction Notes:

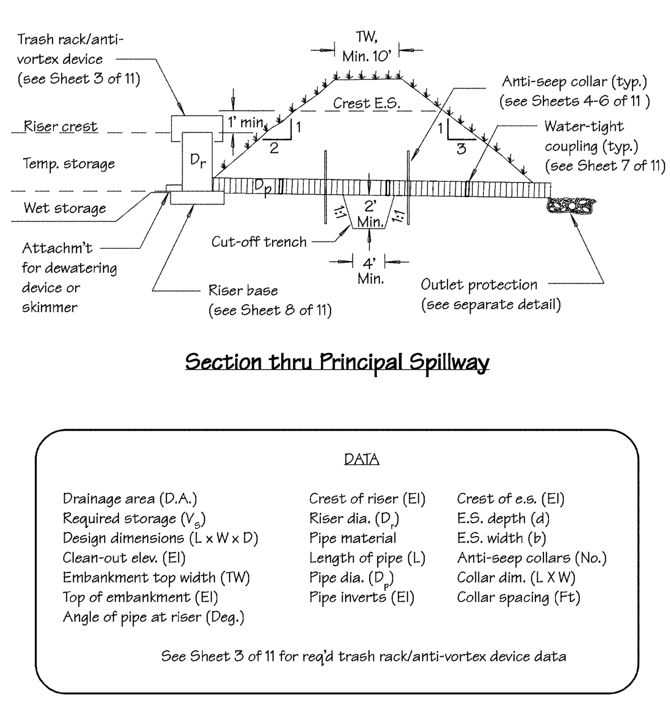
1. All graded or disturbed areas including slopes shall be protected during clearing and construction in accordance with the approved sediment control plan until they are permanently stabilized.
2. The erosion control log shall be placed perpendicular to the slope gradient. The product must have intimate contact with the soil to reduce the occurrence of undermining of the product.
3. Stakes should be driven so that they are perpendicular to the ground surface slope. Refer to the product manufacturer's guidelines for more information on installation and spacing of the stakes.
4. Installing a slope interruption product on frozen ground is not recommended. In the case where the product must be installed on frozen ground, trenching is not required and staking can be accomplished with metal stakes.

Spacing Specifications:

Straw Wattle	12" dia.	Fiber Filt. Tube	9" dia.	Compost Log	12" dia.	18" dia.	24" dia.
Slope Ratio (x:1)	Spacing (L) in ft.	Slope Ratio (x:1)	Spacing (L) in ft.	Slope Ratio (x:1)	Spacing (L) in ft.	Spacing (L) in ft.	Spacing (L) in ft.
1:1	5	1:1	15	1:1 to 2:1	20	30	35
2:1 to 1:1	10	2:1	25	3:1	30	45	60
4:1 to 2:1	20	3:1	35	5:1	50	70	130
5:1 to 4:1	40	4:1	50				
< 6:1	50						

Source:	Symbol:	Detail No.
Adapted from Filtrexx™ International	ST-L	DE-ESC-3.4.2.4 Sheet 2of 2 Date: 03/13

Standard Detail & Specifications
Temporary Sediment Basin



Section thru Principal Spillway

Source:	Symbol:	Detail No.
DE ESC Handbook	TSB	DE-ESC-3.1.4 Sheet 1 of 11 Date: 12/03

Standard Detail & Specifications
Temporary Sediment Basin

Construction Notes:

1. **Site Preparation**
   Areas under the embankment shall be cleared, grubbed, and stripped of topsoil. In order to facilitate clean-out and restoration, the pool area (measured at the top of the pipe spillway) will be cleared of all brush, trees, and other objectionable materials.

2. **Cut-off-trench**
   A cut-off trench shall be excavated along the centerline of earth fill embankments. The minimum depth shall be two feet. The cut-off trench shall extend up both abutments to the riser crest elevation. The minimum bottom width shall be four feet, but wide enough to permit operation of excavation and compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for embankment. The trench shall be dewatered during the backfilling and compaction operations.

3. **Embankment**
   The fill material shall be taken from approved areas shown on the plans. It shall be clean mineral soil free of roots, woody vegetation, oversized stones, rocks, or other objectionable material. Relatively pervious materials such as sand or gravel (Unified Soil Classes GW, GP, SW & SP) shall **not** be placed in the embankment. Areas on which fill is to be placed shall contain sufficient moisture so that it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction. Fill material shall be placed in six-inch to eight-inch thick continuous layers over the entire length of the fill. Compaction shall be obtained by routing and hauling the construction equipment over the fill so that the entire surface of each layer of the fill is traversed by at least one wheel or tread track of the equipment or by the use of a compactor. The embankment shall be constructed to an elevation 10 percent higher than the design height to allow for settlement.

4. **Pipe Spillways**
   The riser shall be securely attached to the barrel or barrel stub by welding the full circumference making a watertight connection. The barrel stub must be attached to the riser at the same percent (angle) of grade as the outlet conduit. The connection between the riser and the riser base shall be water tight. All connections between barrel sections must be achieved by approved watertight band assemblies. The barrel and riser shall be placed on a firm, smooth foundation of impervious soil. Pervious materials such as sand, gravel, or crushed stone shall not be used as backfill around the pipe or anti-seep collars. The fill material around the pipe spillway shall be placed in four inch layers and compacted by means of a manually directed power tamper under and around the pipe to at least the same density as the adjacent embankment. A minimum depth of two feet of hand compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment. Steel base plates on risers shall have at least 2-1/2 feet of compacted earth, placed over it to prevent flotation.

Source:	Symbol:	Detail No.
DE ESC Handbook	TSB	DE-ESC-3.1.4 Sheet 10 of 11 Date: 12/03

Standard Detail & Specifications
Temporary Sediment Basin

Construction Notes (cont.)

5. **Emergency Spillway**
   The emergency spillway shall be installed in undisturbed ground. The achievement of planned elevations, grades, design width, entrance and exit channel slopes are critical to the successful operation of the emergency spillway and must be constructed within a tolerance of + 0.2 feet.

6. **Vegetative Treatment**
   Stabilize the embankment and emergency spillway in accordance with the appropriate Vegetative Standard and Specifications immediately following construction. In no case shall the embankment remain unstabilized for more than seven (7) days.

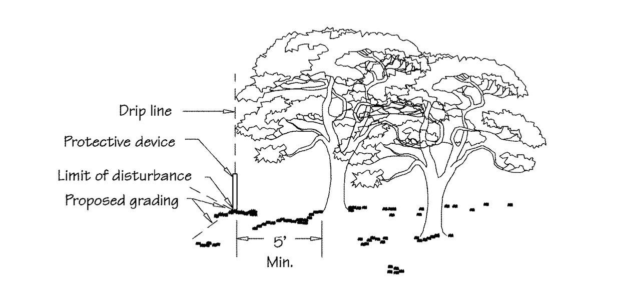
7. **Safety**
   State and local requirements shall be met concerning fencing and signs, warning the public of hazards of soft sediment and floodwater.

8. **Maintenance**
   a. Repair all damages caused by soil erosion and construction equipment at or before the end of each working day.
   b. **An approved dewatering device shall be considered an integral part of the basin. Dewatering operations shall be conducted in accordance with any and all regulatory requirements.**
   c. Sediment shall be removed from the basin when it reaches the specified distance below the top of the riser. This sediment shall be placed in such a manner that it will not erode from the site. The sediment shall not be deposited downstream from the embankment, or adjacent to a stream or floodplain.

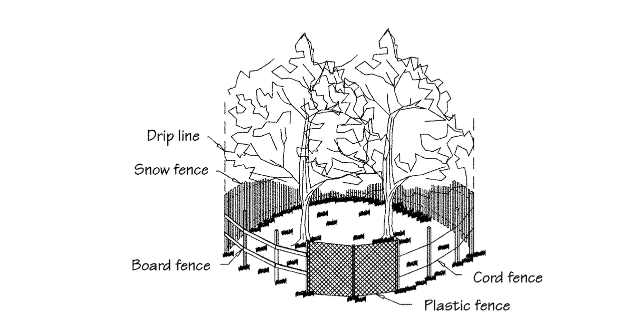
9. **Final Disposal**
   When temporary structures have served their intended purpose and the contributing drainage area has been properly stabilized, the embankment and resulting sediment deposits are to be leveled or otherwise disposed of in accordance with the approved sediment control plan. The proposed use of a sediment basin site will often dictate final disposition of the basin and any sediment contained therein. If the site is scheduled for future construction, then the basin material and trapped sediments must be removed, safely disposed of, and backfilled with a structural fill. When the basin area is to remain open space the pond may be pumped dry, graded and backfilled.

Source:	Symbol:	Detail No.
DE ESC Handbook	TSB	DE-ESC-3.1.4 Sheet 11 of 11 Date: 12/03

Standard Detail & Specifications
Tree Protection



Location of Tree Protection



Methods of Tree Protection

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	TP	DE-ESC-3.7.2 Sheet 1 of 3 Date: 12/03

Standard Detail & Specifications
Tree Protection

Construction Notes:

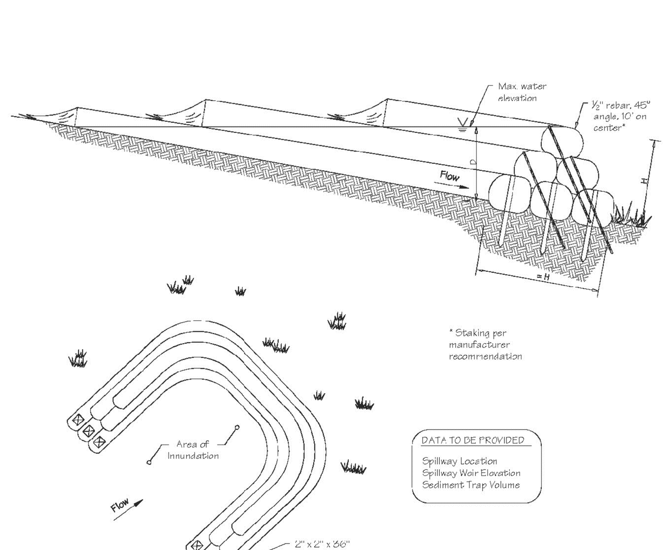
Any device may be used which will effectively protect the roots, trunk and tops of trees retained on the site. However, trees to be retained within 40 feet of a proposed building or excavation shall be protected by fencing. Personnel must be instructed to honor protective devices. The devices described are suggested only, and are not intended to exclude the use of other devices which will protect the trees to be retained.

Materials:

1. Snow Fence - Standard 40-inch high snow fence shall be placed at the limits of clearing on standard steel posts set 6 feet apart.
2. Board Fence - Board fencing consisting of 4-inch square posts set securely in the ground and protruding at least 4 feet above the ground shall be placed at the limits of clearing with a minimum of two horizontal boards between posts. If it is not practical to erect a fence at the drip line, construct a triangular fence nearer the trunk. The limits of clearing will still be located at the drip line, since the root zone within the drip line will still require protection.
3. Plastic Fencing - 40-inch high "international orange" plastic (polyethylene) web fencing secured to conventional metal "T" or "U" posts driven to a minimum depth of 18 inches on 6-foot minimum centers shall be installed at the limits of clearing. The fence should have the following minimum physical qualities:
   a. Tensile yield: Average 2,000 lbs. per 4-foot width (ASTM D638)
   b. Ultimate tensile yield: Average 2,900 lbs. per 4-foot width (ASTM D638)
   c. Elongation at break (%): Greater than 1000% (ASTM D638)
   d. Chemical resistance: Inert to most chemicals and acids

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	TP	DE-ESC-3.7.2 Sheet 2 of 3 Date: 12/03

Standard Detail & Specifications
Compost Log Sediment Trap



Source:	Symbol:	Detail No.
Adapted from Filtrexx™ International	CST	DE-ESC-3.1.3.4 Sheet 1 of 3 Date: 03/13

Standard Detail & Specifications
Compost Log Sediment Trap

Construction Notes:

1. Compost log sediment traps should be placed on low grade or level contours to maximize runoff-sediment volume containment.
2. Compost logs are stacked so the horizontal base width is at least equivalent to the effective height (1H:1V); traps shall be installed so the effective height is at least 3 feet.
3. The volume of sediment storage shall be 3600 cubic feet per acre of drainage area.
4. Stakes shall be installed through the middle of the compost logs using 2 inches by 2 inches by 3 feet wooden hardwood stakes on 10 feet centers. Stakes shall be placed in a pyramid configuration perpendicular to compost logs where stakes cross at the apex of the compost log trap. Stakes shall be joined and secured with wire wrapping at apex using 16 gauge or multi-strand 20 gauge wire allowing 12 inches of stake above the compost log trap.
5. All base layers shall be staked on 5 feet centers; placed opposite the pyramid staking; where staking is present every 2.5 feet Half inch rebar may also be used when ground is frozen or extremely compacted. Staking depth for all soil types shall be a minimum 12 inches into native soil.
6. Concentrated flows, channels, or ditches directing flow into the trap shall employ energy flow dissipaters prior to flow contact with the trap compost logs or entry into the trap system. Dissipaters shall be placed at a minimum distance of 20 feet from the base course of the trap.
7. In order to prevent water flowing around the ends of the sediment trap, the ends of the trap must be constructed pointing upslope so the ends are at a minimum 1 feet higher elevation than the lowest point (mid-section) of the sediment trap. The mid-section of the sediment trap shall be the point of lowest elevation. A minimum of 10 linear feet per end each placed at a 30 degree angle is recommended.
8. The design engineer will determine the location of a controlled outfall which will also serve as the minimum freeboard location for the trap. Erosion control matting or appropriately sized riprap shall be installed under the first row of compost logs and extend from the trap a distance no less than 30 feet.
9. The compost log sediment trap must be reviewed on a regular basis to ensure that it is in a functional condition at all times. Remove the sediment at the base of the upslope side of the sediment trap when accumulation has reached one half (1/2) of the effective height of the trap.

Source:	Symbol:	Detail No.
Adapted from Filtrexx™ International	CST	DE-ESC-3.1.3.4 Sheet 2 of 3 Date: 03/13

Standard Detail & Specifications
Compost Log Sediment Trap

10. The compost medium in the logs will be dispersed on site once the upgrade disturbed area has been permanently stabilized and approval is granted by the local delegated agency to remove the trap. The compost medium may be dispersed with a loader, rake, bulldozer or similar device and may be incorporated into the soil as an amendment or left on the soil surface to aid in permanent seeding or landscaping. The compost log mesh netting must be extracted and disposed of properly. In the case where biodegradable mesh netting has been used, the netting may remain incorporated with the compost medium when being spread on site.

Materials

1. Stakes: 2" x 2" x 36" hardwood.
2. Compost media : See requirements in Standard Detail and Specifications for Compost Logs (DE-ES-3.1.7).
3. Filter sock: See requirements in Standard Detail and Specifications for Compost Logs (DE-ES-3.1.7).

MAXIMUM DRAINAGE AREA: 5 ACRES

Source:	Symbol:	Detail No.
Adapted from Filtrexx™ International	CST	DE-ESC-3.1.3.4 Sheet 3 of 3 Date: 03/13

Standard Detail & Specifications
Tree Protection

4. Cord Fence - Posts with a minimum size of 2 inches square or 2 inches in diameter set securely in the ground and protruding at least 4 feet above the ground shall be placed at the limits of clearing with two rows of cord 1/4-inch or thicker at least 2 feet apart running between posts with strips of colored surveyor's flagging tied securely to the string at intervals no greater than 3 feet.
5. Earth Berms - Temporary earth berms shall be constructed according to specifications for a Temporary Earth Dike with the base of the berm on the tree side located along the limits of clearing. Earth berms may not be used for this purpose if their presence will conflict with drainage patterns.
6. Additional Trees - Additional trees may be left standing as protection between the trunks of the trees to be retained and the limits of clearing. However, in order for this alternative to be used, the trunks of the trees in the buffer must be no more than 6 feet apart to prevent passage of equipment and material through the buffer. These additional trees shall be reexamined prior to the completion of construction and either be given sufficient treatment to ensure survival or be removed.
7. Trunk Armoring - As a last resort, a tree trunk can be armored with burlap wrapping and 2-inch studs wired vertically no more than 2 inches apart to a height of 5 feet encircling the trunk. If this alternative is used, the root zone within the drip line will still require protection. Nothing should ever be nailed to a tree.

Maintenance:

Fencing and armoring devices shall be in place before any excavation or grading is begun, shall be kept in good repair for the duration of construction activities, and shall be the last items removed during the final cleanup after the completion of the project.

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	TP	DE-ESC-3.7.2 Sheet 3 of 3 Date: 12/03

BECKER MORGAN GROUP
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Wilmington, North Carolina 28403
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RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

PROJECT TITLE

NCC APP #: 2012-0736
RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DELAWARE 19707
MILLCREEK HUNDRED
NEW CASTLE COUNTY, DE

SHEET TITLE

SEDIMENT AND STORMWATER MANAGEMENT DETAILS

ISSUE BLOCK

MARK	DATE	DESCRIPTION
14	7-23-13	ADDENDUM - 02 (B)
13	7-16-13	ADDENDUM 1 (A)
12	7-11-13	SPECIAL SERVICES RESUBMISSION
11	7-2-13	DNREC, DELDOT RESUBMISSIONS
10	7-1-13	BIDDING DOCUMENTS N.C.C. SPEC. SERVICES RESUBMISSION
9	6-24-13	DFM SUBMISSION
8	6-10-13	CD RESUBMISSION DNREC , ARTESIAN
7	5-15-13	CD SUBMISSION
6	4-22-13	CD PRICING SET / FIRE MARSHAL, DNREC, PUB. HEALTH, NCC SUBMISSION
5	4-16-13	DELDOT CD SUBMISSION #2
4	3-21-13	DD SUBMISSION
3	2-18-13	DD PRICING SET DELDOT CD SUBMISSION
2	1-10-13	N.C.C. EXPLORATORY PLAN RESUBMISSION
1	12-6-12	SD SUBMISSION

LAYER STATE : C-506

PROJECT NO.:	**2012080.00**
DATE:	**10-31-12**
SCALE:	**NO SCALE**
DRAWN BY: **M.J.H.**	PROJ. MGR.: **J.M.R.**

SHEET

C-506

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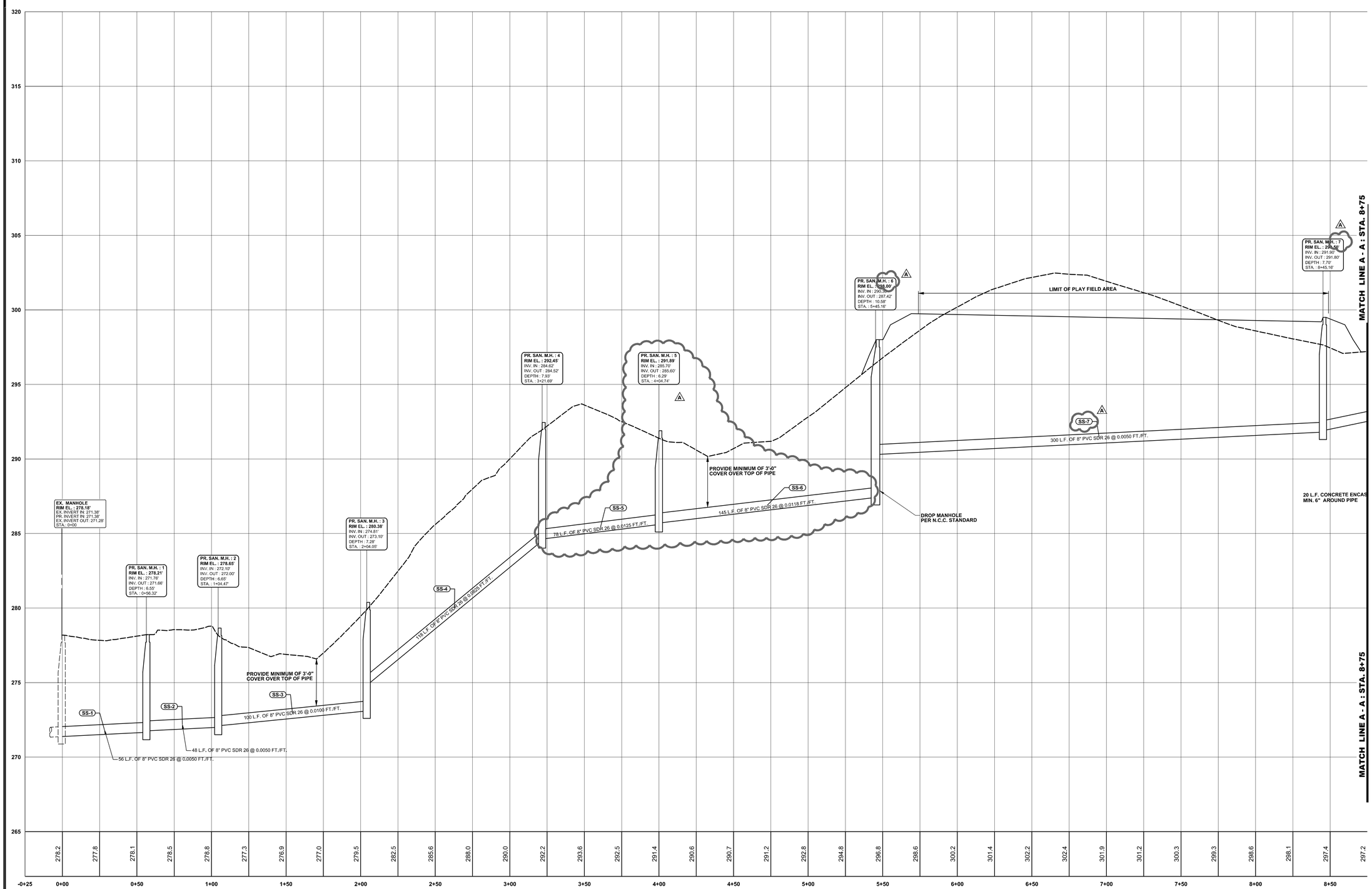

SANITARY SEWER PROFILE - STATION 0+00 TO STATION 8+75

SCALE : 1" = 30' HORIZONTAL
: 1" = 3' VERTICAL

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Wilmington, NC
3205 Randall Parkway, Suite 211
Wilmington, North Carolina 28403
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Fax 910.341.7506

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RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

PROJECT TITLE

NCC APP #: 2012-0736 RED CLAY CONSOLIDATED SCHOOL DISTRICT WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DELAWARE 19707
MILLCREEK HUNDRED
NEW CASTLE COUNTY, DE

SHEET TITLE

SANITARY SEWER PROFILE

0 15 30 60

SCALE : 1" = 30'

ISSUE BLOCK

MARK	DATE	DESCRIPTION
13	7-16-13	ADDENDUM - 01 (A)
12	7-11-13	SPECIAL SERVICES RESUBMISSIONS
11	7-2-13	DNREC, DELDOT RESUBMISSIONS
10	7-1-13	BIDDING DOCUMENTS N.C.C. SPEC. SERVICES RESUBMISSION
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4	3-21-13	DD SUBMISSION
3	2-18-13	DD PRICING SET DELDOT CD SUBMISSION
2	1-10-13	N.C.C. EXPLORATORY PLAN RESUBMISSION
1	12-6-12	SD SUBMISSION

LAYER STATE: C-701

PROJECT NO.:	**2012080.00**
DATE:	**10-31-12**
SCALE:	**1" = 30'**
DRAWN BY: **M.J.H.**	PROJ. MGR.: **J.M.R.**

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C-701

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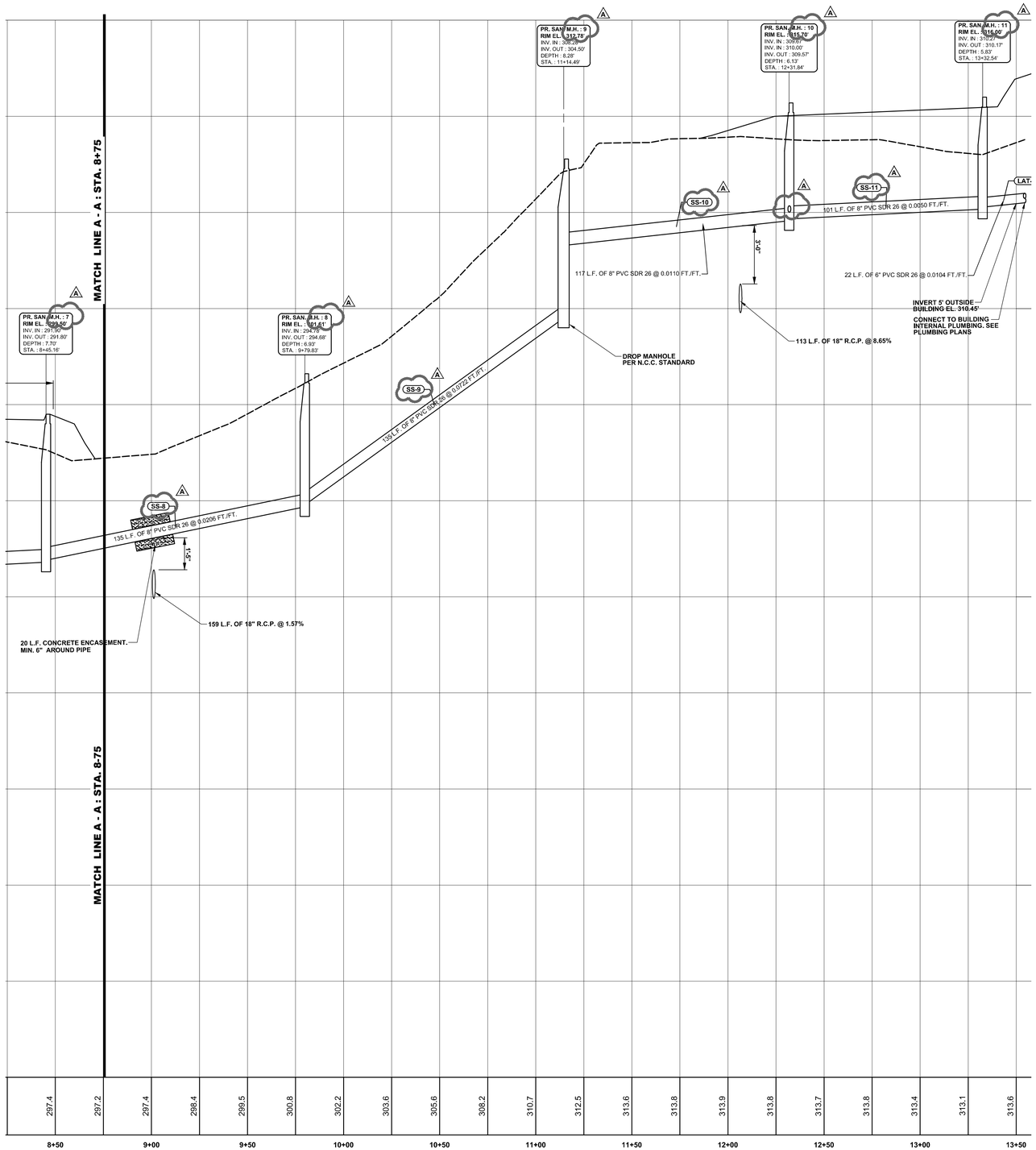
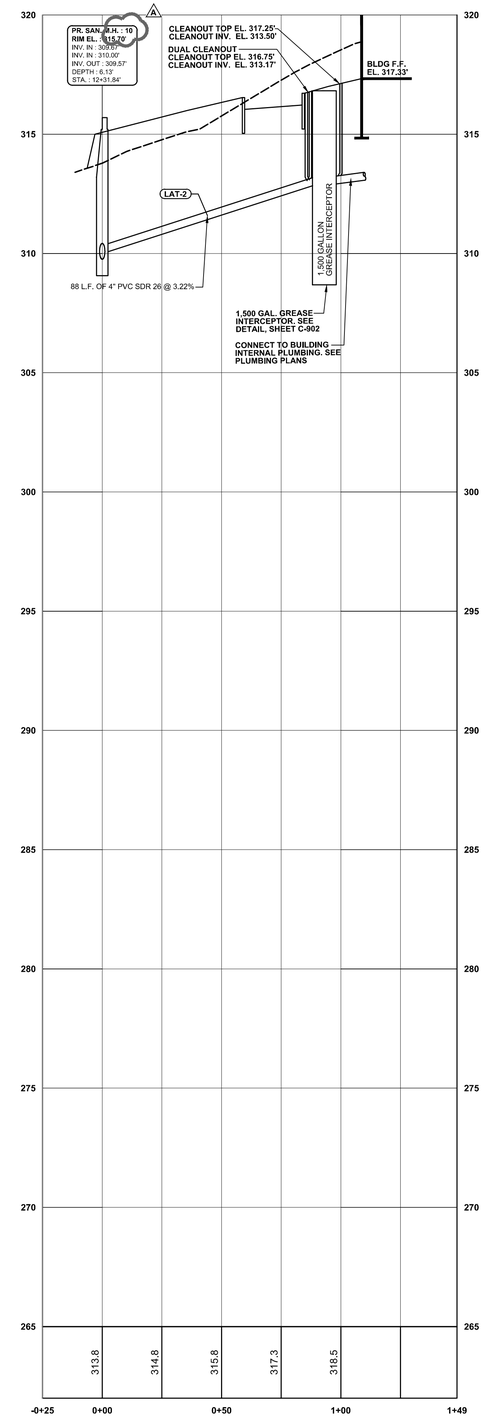


SANITARY SEWER PROFILE - STATION 8+75 TO STATION 13+02.28

SCALE : 1" = 30' HORIZONTAL
: 1" = 3' VERTICAL



SANITARY SEWER PROFILE - LATERAL 2

SCALE : 1" = 30' HORIZONTAL
: 1" = 3' VERTICAL

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RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

PROJECT TITLE

NCC APP #: 2012-0736
RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DELAWARE 19707
MILLCREEK HUNDRED
NEW CASTLE COUNTY, DE

SHEET TITLE

SANITARY SEWER PROFILE

0 15 30 60

SCALE : 1" = 30'

ISSUE BLOCK

MARK	DATE	DESCRIPTION
13	7-16-13	ADDENDUM - 01
12	7-11-13	SPECIAL SERVICES RESUBMISSIONS
11	7-2-13	DNREC, DELDOT RESUBMISSIONS
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3	2-18-13	DD PRICING SET DELDOT CD SUBMISSION
2	1-10-13	N.C.C. EXPLORATORY PLAN RESUBMISSION
1	12-6-12	SD SUBMISSION

LAYER STATE : C702

PROJECT NO.: 2012080.00
DATE: 10-31-12
SCALE: 1" = 30'
DRAWN BY: **M.J.H.** PROJ. MGR.: **J.M.R.**

SHEET

C-702

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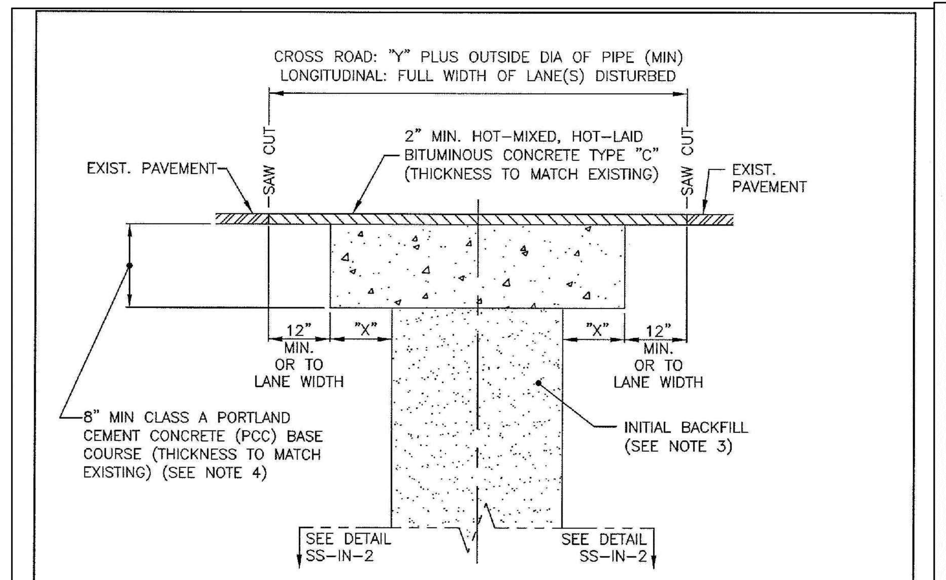


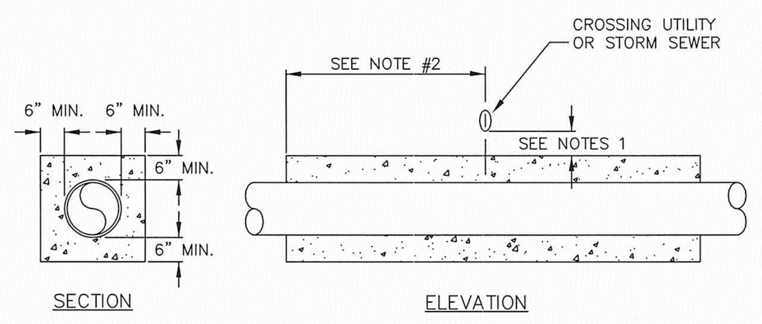
TYPICAL SECTION
(NOT TO SCALE)

NOTES:

1. BACKFILL TO BE COMPACTED IN 8" LIFTS TO 95% STANDARD PROCTOR DENSITY BY ASTM D698.
2. SEE DETAIL SS-IN-2 FOR TRENCH WIDTH AND PIPE BEDDING DETAILS.
3. FILL TRENCH WITH BORROW BACKFILL TYPE "C" UP TO 6" BELOW GRADE PER SECTION 20.03-2 OF NEW CASTLE COUNTY STANDARD SPECIFICATIONS.
4. FOR HOT-MIX PAVEMENT, 12" MIN. THICKNESS BITUMINOUS CONCRETE BASE COURSE MAY BE SUBSTITUTED FOR 8" MIN. OF CLASS A PORTLAND CEMENT CONCRETE (PCC).

ROADWAY TABLE	DIMS	HOT-MIX	PCC
BASE COURSE WIDTH	X	12"	24"
WEAR COURSE WIDTH	Y	6'-0"	8'-0"

NEW CASTLE COUNTY, DELAWARE
DEPARTMENT OF SPECIAL SERVICES
SANITARY SEWER DETAILS PAVING RESTORATION
ISSUED 5/27/10
REVISED 12/05/11
REVISED
DETAIL SS-IN-1



CONCRETE ENCASEMENT DETAIL
(NOT TO SCALE)

NOTES:

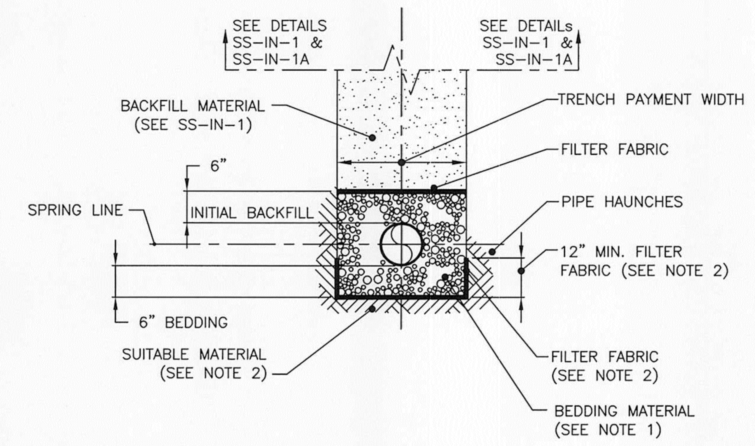
1. IF CROSSING UTILITY IS STORM SEWER, LESS THAN 18"ø AND VERTICAL SEPARATION IS LESS THAN 2' BETWEEN SEWER OR FORCE MAIN, THEN CONCRETE SHALL FILL VOID BETWEEN PIPES AND CRADLE CROSSING UTILITY.

   IF CROSSING UTILITY IS STORM SEWER, 18"ø OR GREATER, AND VERTICAL SEPARATION IS LESS THAN 3' BETWEEN SEWER OR FORCE MAIN, THEN CONCRETE SHALL FILL VOID BETWEEN PIPES AND CRADLE CROSSING UTILITY.

   FOR OTHER CROSSING UTILITIES:
   IF VERTICAL SEPARATION IS LESS THAN 12" BETWEEN SEWER OR FORCE MAIN, THEN CONCRETE SHALL FILL VOID BETWEEN PIPES AND CRADLE CROSSING UTILITY.
   IF VERTICAL SEPARATION IS 12" OR GREATER THEN CROSSING UTILITY WILL BE SUPPORTED WITH AASHTO #57 STONE OR EQUIVALENT.

2. CONCRETE ENCASE MIN. 10' EITHER SIDE OF PIPES CROSSING UTILITIES, OR STORM SEWERS.
3. ALL CONCRETE SHALL BE 3,000 P.S.I. MIN.

NEW CASTLE COUNTY, DELAWARE
DEPARTMENT OF SPECIAL SERVICES
CONCRETE ENCASEMENT DETAIL FOR UTILITY CROSSING
ISSUED 5/27/10
REVISED
REVISED
PLATE SS-UC-1



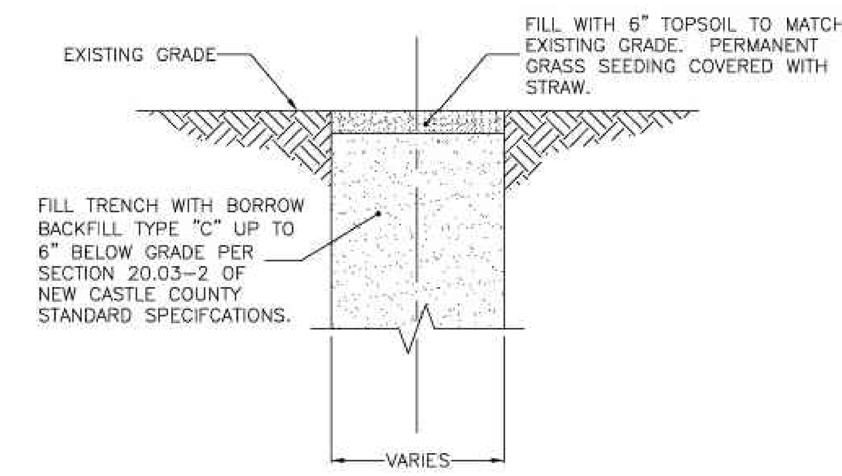
TYPICAL SECTION
(NOT TO SCALE)

NOTES:

1) STONE BEDDING: BEDDING, HAUNCHING AND INITIAL BACKFILL SHALL CONFORM TO SECTION 20.04-1 OF THE NCC STANDARD SPECIFICATIONS.
2) BEDDING: PRIOR TO PIPE INSTALLATION, CAREFULLY BRING 6" OF BEDDING MATERIAL TO PROPOSED BOTTOM OF PIPE ALONG THE ENTIRE LENGTH OF PIPE TO BE INSTALLED. IF TRENCH BOTTOM IS IN UNSUITABLE MATERIAL, SUITABLE FILL MATERIAL AND MIRAFI 140N OR APPROVED EQUAL FILTER FABRIC WILL BE REQUIRED PRIOR TO PLACEMENT OF BEDDING.
3) PIPE HAUNCHES: CAREFULLY WORK, BY HAND, STONE BEDDING FROM THE EDGE OF THE TRENCH UP AND UNDER THE PIPE TO SUPPORT THE HAUNCHES. CONTINUE FILLING, BY HAND, TO THE SPRING LINE OF THE PIPE.
4) FOR NEW CASTLE COUNTY CAPITAL IMPROVEMENT PROJECTS, SEE TABLE FOR TRENCH PAYMENT WIDTH.

PIPE DIAMETER	TRENCH PAYMENT WIDTH
6"	36"
8"	36"
10"	36"
12"	36"
15" AND 16"	36"
18"	42"
20" AND 21"	42"
24"	48"
27"	60"
30"	60"

NEW CASTLE COUNTY, DELAWARE
DEPARTMENT OF SPECIAL SERVICES
SANITARY SEWER DETAILS TRENCH WIDTH & PIPE BEDDING
ISSUED 5/27/10
REVISED 12/05/11
REVISED 4/16/12
DETAIL SS-IN-2

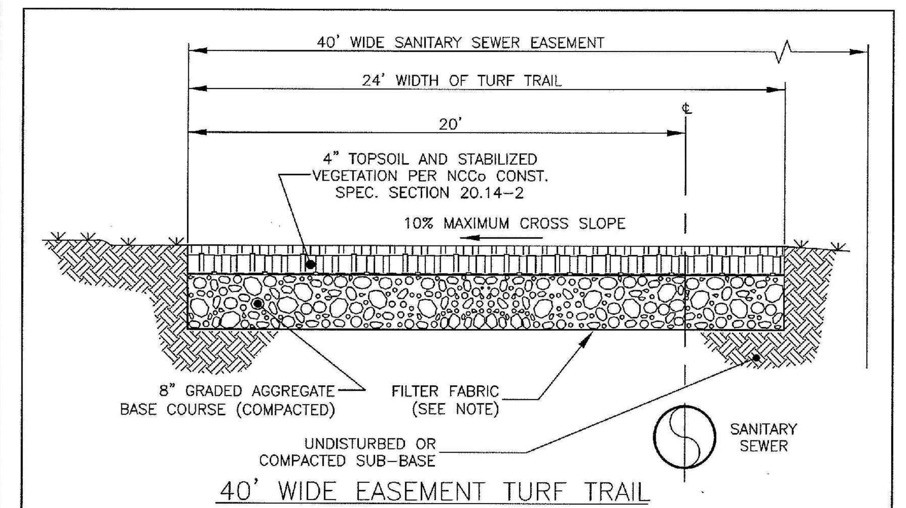


NOTES:

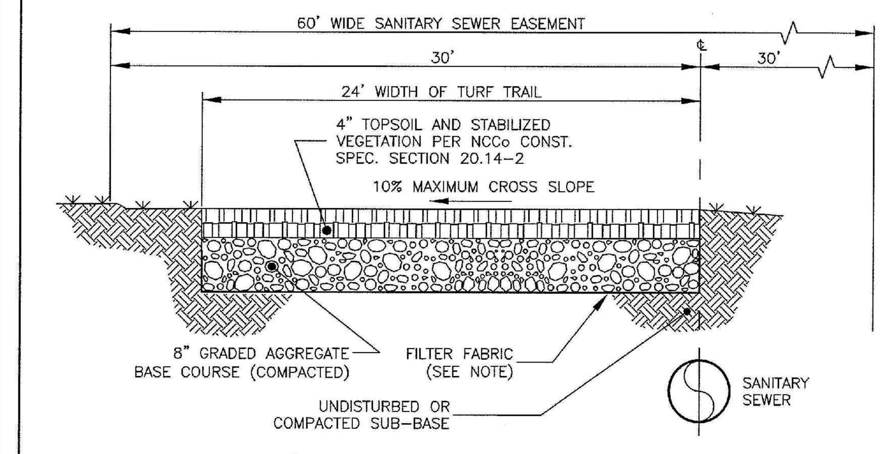
1. ALL BACKFILL AND BEDDING TO BE COMPACTED USING MECHANICAL TAMPER OR VIBRATORY COMPACTOR IN 8" LIFTS.
2. TYPICAL TRENCH WIDTH AND PIPE BEDDING, SEE DETAIL: SS-IN-2.

(NOT TO SCALE)

NEW CASTLE COUNTY, DELAWARE
DEPARTMENT OF SPECIAL SERVICES
SANITARY SEWER DETAILS RESTORATION & TRENCH BACKFILL NON-PAVED AREA
ISSUED 5/27/10
REVISED 5/2/12
REVISED
DETAIL SS-IN-1A



40' WIDE EASEMENT TURF TRAIL
(NOT TO SCALE)

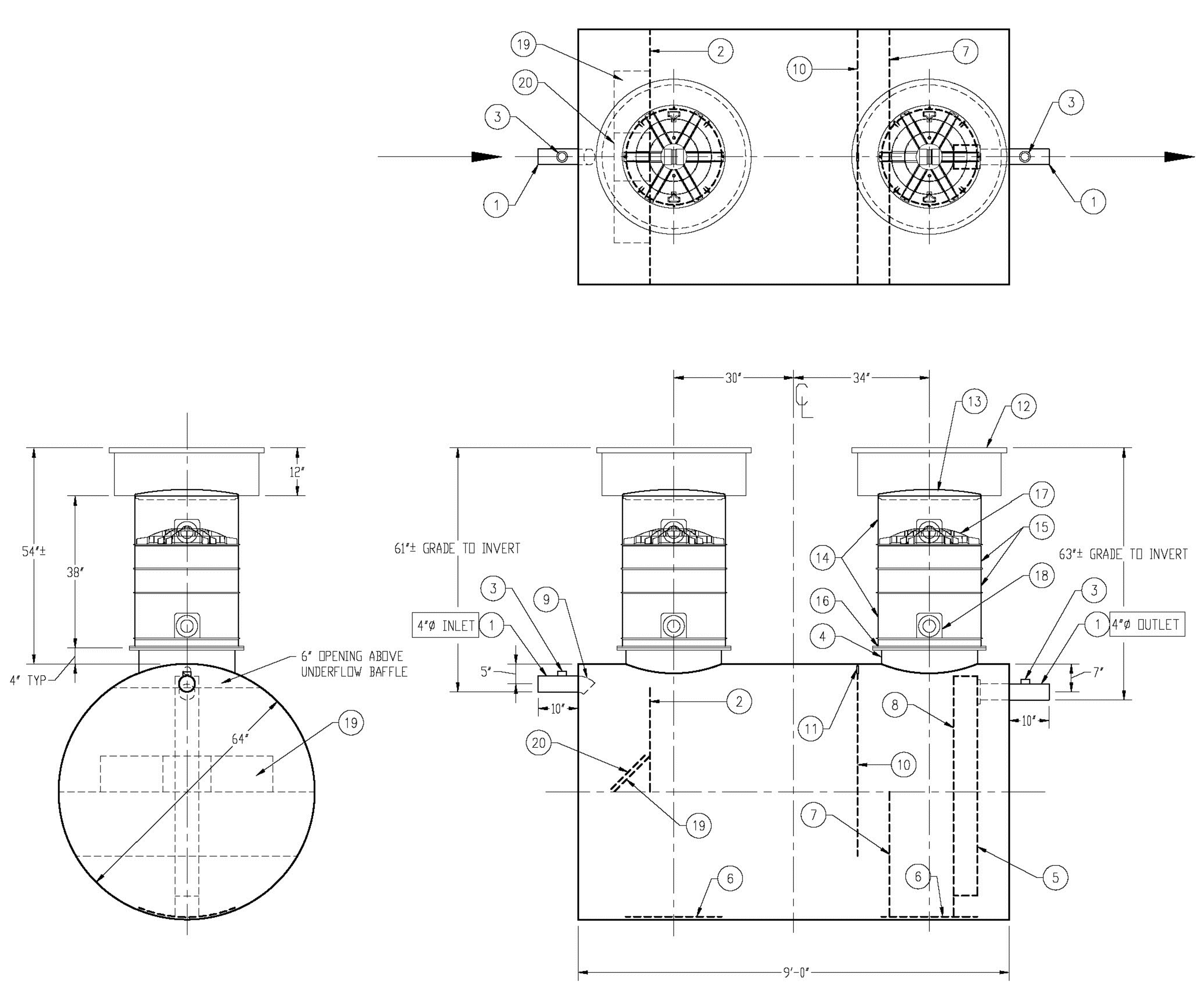


60' WIDE EASEMENT TURF TRAIL
(NOT TO SCALE)

NOTE:
MIRAFI 140N OR APPROVED EQUAL MAY BE REQUIRED OVER UNSUITABLE MATERIAL, AS DIRECTED BY THE ENGINEER.

NEW CASTLE COUNTY, DELAWARE
DEPARTMENT OF SPECIAL SERVICES
SANITARY SEWER DETAILS TURF TRAIL 40' & 60' WIDE EASEMENTS
ISSUED 5/27/10
REVISED 12/05/11
REVISED
DETAIL SS-MISC-2

CUSTOMER APPROVAL
THE CUSTOMER HAS REVIEWED THIS DRAWING AND VERIFIED THE ACCURACY OF ALL INFORMATION AND DIMENSIONS.
SIGNED:
DATE:



GENERAL SPECIFICATIONS

QUANTITY: ONE (1)
MODEL: PGI-1500-2
NOMINAL CAPACITY: 1,500 GALLONS
STATIC WATER CAPACITY: 1,375.1 GALLONS
TYPE: SINGLE WALL, UNDERGROUND

MATERIAL: 304 STAINLESS STEEL
GAUGE OF SHELL & HEADS: 7 GA

GAUGE OF MATERIAL BASED ON 60" MAX. BURIAL DEPTH
LAP FIT AND WELD INTERIOR AND EXTERIOR SEAMS

OPERATING PRESSURE: ATMOSPHERIC

NOTE: MINIMUM OF ONE 2" VENT PIPE MUST BE INSTALLED IN EACH MANWAY RISER

PROVIDED EQUIPMENT

1. 4"ø SCH 40 PIPE STUB W/ 2" NPT HC FOR VENT
2. UNDERFLOW BAFFLE – 7 GA
3. 2" NPT HC – VENT
4. 24"ø MANWAY FOR STACKABLE RISER
5. OUTLET DOWNCOMER BAFFLE W/ OPEN TOP FOR EFFLUENT SAMPLING
6. 1/4" STRIKER PLATE (AT ALL MANWAYS)
7. SLUDGE BAFFLE – 7 GA
8. VELOCITY DIFFUSION BREAKER
9. 4"ø 45° DIFFUSION ELBOW
10. GREASE DAM – 7 GA
11. 2" OPENING FOR AIR CIRCULATION
12. 36"ø MILD STEEL GRADE-LEVEL MANWAY – SHIPPED LOOSE
13. 24"ø PVC COVER
14. 24"ø x 12" STACKABLE RISER – ALL STACKABLE RISER COMPONENTS ARE PRE-ASSEMBLED AND COMPLETE MANWAY RISER IS SHIPPED LOOSE
15. 24"ø x 6" STACKABLE RISER
16. STACKABLE RISER ADAPTER RING & GASKET
17. STACKABLE RISER SAFETY SCREEN
18. KNOCKOUT FOR VENT PIPING – (4) KNOCKOUTS PER EACH 12" RISER SECTION
19. DIFFUSION BAFFLE –1/4"
20. 12" x 12" WEAR PLATE –1/4"

NOTE: BUOYANCY RESTRAINT NOT SHOWN
CUSTOMER TO ADDRESS BEFORE INSTALLATION
CONTACT HIGHLAND TANK FOR OPTIONS

NOTE:
ALL RIGHTS RESERVED. THIS DRAWING, OR ANY PART THEREOF, MUST NOT BE REPRODUCED IN ANY FORM WITHOUT WRITTEN PERMISSION FROM HIGHLAND TANK. UNLESS OTHERWISE NOTED, HIGHLAND TANK SHALL BE RESPONSIBLE ONLY FOR ITEMS INDICATED ON THIS FABRICATION DRAWING. THE CUSTOMER IS RESPONSIBLE FOR VERIFYING THE CORRECTNESS OF THE TYPE, SIZE, AND LOCATION OF ALL FITTINGS, ACCESSORIES, AND COATINGS SHOWN ON THIS DRAWING.

Highland Tank®
PASSIVE GREASE INTERCEPTOR
1,500 GALLON – DOUBLE BASIN
REVISIONS
CUSTOMER:
PROJECT: RED CLAY SCHOOL
ORDER#:
QUOTE NO:
SCALE: NTS | DATE: 6/27/13 | DWG BY: MGS | 84823
DIMENSION TOLERANCE: ± 1"

GREASE TRAP SIZING CALCULATIONS
1. A 4" pipe, half-full at 1% slope will yield 45 GPM. Multiplied by 30 min. retention time = 1,350 gallons.
2. Per the UPC, a 1,500 gallon grease interceptor (172 DFU's).

Highland Tank — Over 50 Years Experience
One Highland Road, Stoystown, PA 15563
814-893-5701, FAX 893-6126

Buoyancy Calculations

(Underground Tank Installations Per PEI/RP100-2005 Appendix A Guidelines)

Table A: Tank Dimensions / Installation Data	ft.	in.
Tank (model:gallons) =	1,500 DB PGI SW HG	
Tank Volume =	1503.9 gal.	
Tank Diameter =	5 ft.	4 in.
Tank Length =	9 ft.	
Tank Weight =	2592.3 lbs.	
Burial Depth (to top of the tank) =	3.0 ft.	
Grade Pad Width (Tank Dia.+ 2' Recommended) =		
Grade Pad Length (Tank Length +4' Recommended) =		
Grade-Level Pad Thickness (8" min.) =		
Hold-Down Pad Width (Tank Dia. + 3' min) =		
Hold-Down Pad Length (Tank Length + 2' min) =		
Hold-Down Pad Thickness (8" min) =		
Dead-Man Anchor Width (12" min) =		18.0 in.
Dead-Man Anchor Height =		12.0 in.
Dead-Man Anchor Length (per side)=	10.0 ft.	
Anchor Burial Depth (See Note #2) =	8.3 ft.	

Customer Information:	
Company:	Lowe Engineering - Chas Tevis
Quote:	
Job:	

Table B: Manway Data	A	B
Cylindrical or Rectangular :	C	
Number of Manways :	2	
Diameter or Width (in) :	24.0 in.	
Length (if rectangular) (in) :		
Length Above Grade (in.) :		

Table C: Misc. Tank Accessory Weights		
Submersible Pumps =		lbs.
Bulkheads/Baffles =		lbs.
Straps (Safety/HD) =		lbs.
Reinforcing Rings =		lbs.

Total Tank Buoyancy Force * =	14,057	lbs.

* Assumes empty tank with water table at grade

Table D: Restraining Accessories Used:	
Top Grade Level Pad:	None
Hold-Down Pad:	None
Dead-Man Anchors:	Yes

Table E: Floatout and Anchorage Calculations		
B1 = Reflected Area of concrete pad =	48.0	sq. ft.
B2 = Reflected Tank Area =	48.0	sq. ft.
d = Depth of Overburden =	3.0	ft.
D = Diameter of Tank =	5.3	ft.
h = (D/2) + d =	5.7	ft.
V = Tank Displacement =	201.1	cu. ft.
M = Void in Overburden =	18.8	cu. ft.
Submerged Weight:		
Tank Weight =	2,262	lbs
Grade-Level Pad Weight =	0	lbs.
Hold-Down Pad Weight =	0	lbs.
Anchor Weight =	2,628	lbs.
Overburden Volume:		
Tank ONLY =	152.6	cu. ft.
With Only Dead-Man =	402.6	cu. ft.
		cu. ft.

Comments:
With (2) CDA-15 Deadmen Anchors

Overburden Weight:		
Tank ONLY =	9,157	lbs.
With Only Dead-Man =	24,157.2	lbs.
		lbs.
TOTAL Overburden Weight =	24,157.2	lbs.

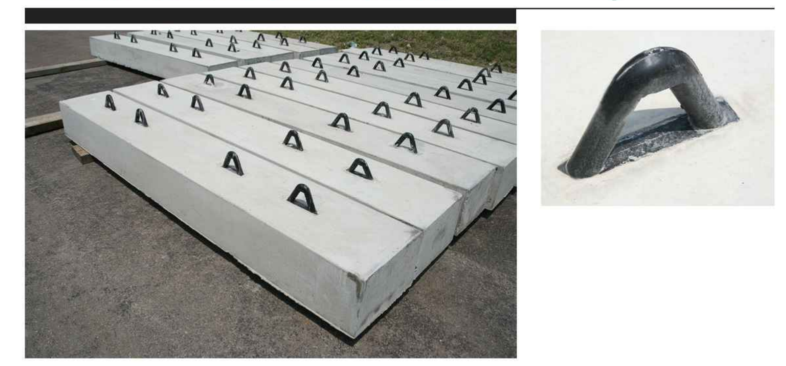
Type of Restraint	Total Restraining Force	Safety Factor	DISCLAIMER
Tank (Submerged) Weight ONLY	2,262 lbs.	0.16	The calculations contained herein are based on the *opinion* of Highland Tank & Mfg. Co, which assumes no responsibility for their validity in application.
With Tank Overburden	11,419 lbs.	0.81	
Tank Weight, Dead-Man Anchors and Overburden =	29,047 lbs.	2.07	
TOTAL Restraint Weight	29,047 lbs.	2.07	

NOTES AND ASSUMPTIONS:
1. HIGHLAND RECOMMENDS 1.50 MINIMUM SAFETY FACTOR
2. CALCULATIONS ASSUME AN EMPTY TANK, COMPLETELY SUBMERGED, BACKFILLED PER PEI/RP100-2000, BURIAL DEPTH INDICATED, AND RESTRAINT METHOD . IF ACTUAL CONDITIONS ARE DIFFERENT THAN WHAT IS SHOWN, THIS CALCULATION IS VOID.
3. FOR DEAD-MAN ANCHORS, TOP OF DEAD-MAN IS ASSUMED TO BE EVEN WITH THE TANK BOTTOM.
4. THIS CALCULATION ASSUMES TANK IS MADE ENTIRELY OF CARBON STEEL.

7/5/2013 Q ______ Bouyancy 1,500 PGI.xls Underground Cylindrical

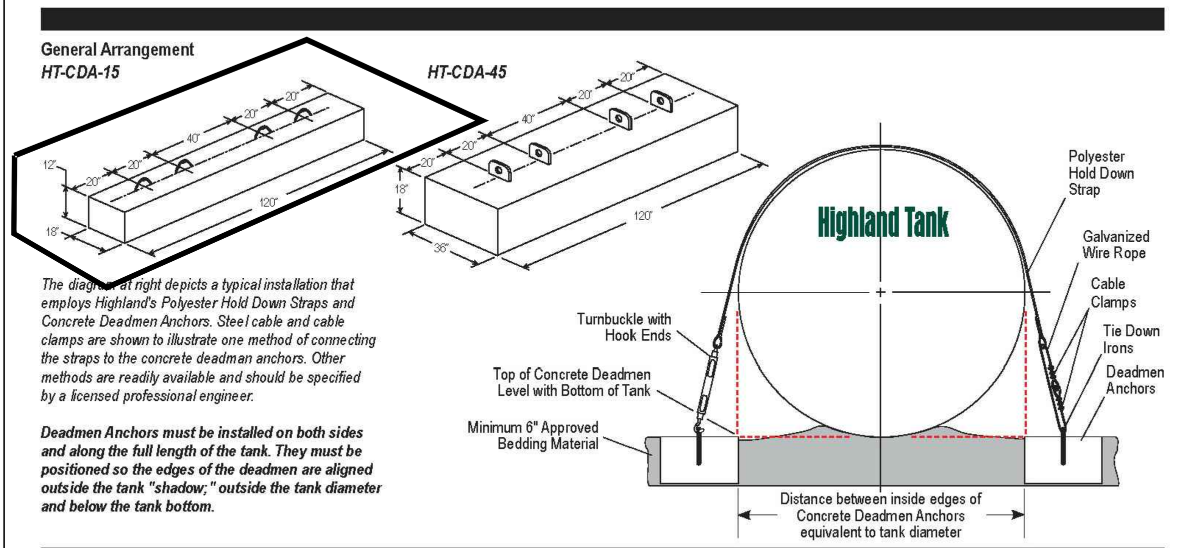
Concrete Deadmen Anchors

Economical and Effective Anchoring — Highland Tank



Concrete Deadmen Anchors

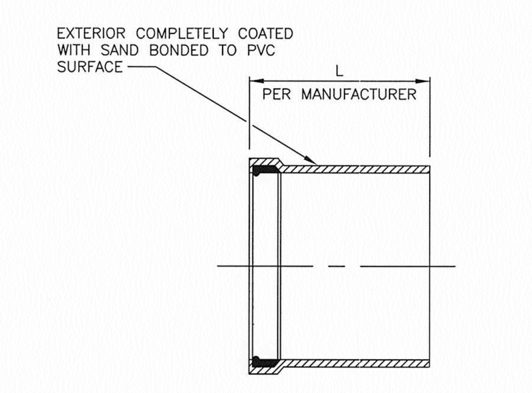
Standard Features



The diagram at right depicts a typical installation that employs Highland's Polyester Hold Down Straps and Concrete Deadmen Anchors. Steel cable and cable clamps are shown to illustrate one method of connecting the straps to the concrete deadman anchors. Other methods are readily available and should be specified by a licensed professional engineer.

Deadmen Anchors must be installed on both sides and along the full length of the tank. They must be positioned so the edges of the deadmen are aligned outside the tank "shadow;" outside the tank diameter and below the tank bottom.

Tank Volume Gallons	Tank Dimensions Diameter	Length	Required Deadmen	Required Straps
500	4'-0"	5'-5"	2	2
1,000	4'-0"	10'-9"	2	2
1,000	5'-4"	6'-0"	2	2
1,500	5'-4"	9'-0"	2	2
2,000	5'-4"	12'-0"	2	2



TYPICAL SECTION

SPECIFICATIONS:
MATERIAL: ASTM D1784-03
GASKET JOINT: ASTM D3212-96a(2003)e1
GASKET: ASTM F477-02e1
WALL THICKNESS: SDR-26

NOTES:
1. ONE PIECE MOLDED.
2. ADAPTERS AS MANUFACTURED BY HARCO OR APPROVED EQUAL.

NEW CASTLE COUNTY, DELAWARE
DEPARTMENT OF SPECIAL SERVICES
SANITARY SEWER DETAILS MANHOLE ADAPTER (SAND COLLAR) FOR PVC OR DIP SEWER (SINGLE BELL)
ISSUED 5/27/10
REVISED
REVISED
DETAIL SS-MH-11

BECKER MORGAN GROUP
ARCHITECTURE ENGINEERING

Dover, DE
309 S. Governors Ave.
Dover, DE 19904
Ph. 302.734.7950
Fax 302.734.7965

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www.beckermorgan.com

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

PROJECT TITLE
NCC APP #: 2012-0736
RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DELAWARE 19707
MILLCREEK HUNDRED
NEW CASTLE COUNTY, DE

SHEET TITLE
SEWER CONSTRUCTION DETAILS

ISSUE BLOCK

MARK	DATE	DESCRIPTION
15	7-29-13	ADDENDUM - 03 (C)
14	7-23-13	ADDENDUM - 02 (B)
13	7-16-13	ADDENDUM 1 (A)
12	7-11-13	SPECIAL SERVICES RESUBMISSION
11	7-2-13	DNREC, DELDOT RESUBMISSIONS
10	7-1-13	BIDDING DOCUMENTS N.C.C. SPEC. SERVICES RESUBMISSION
9	6-24-13	DFM SUBMISSION
8	6-10-13	CD RESUBMISSION DNREC , ARTESIAN
7	5-15-13	CD SUBMISSION
6	4-22-13	CD PRICING SET / FIRE MARSHAL, DNREC, PUB. HEALTH, NCC SUBMISSION
5	4-16-13	DELDOT CD SUBMISSION #2
4	3-21-13	DD SUBMISSION
3	2-18-13	DD PRICING SET DELDOT CD SUBMISSION
2	1-10-13	N.C.C. EXPLORATORY PLAN RESUBMISSION
1	12-6-12	SD SUBMISSION

LAYER STATE : C-902
PROJECT NO.: 2012080.00
DATE: 10-31-12
SCALE: NO SCALE
DRAWN BY: **M.J.H.** PROJ. MGR.: **J.M.R.**
SHEET
C-902
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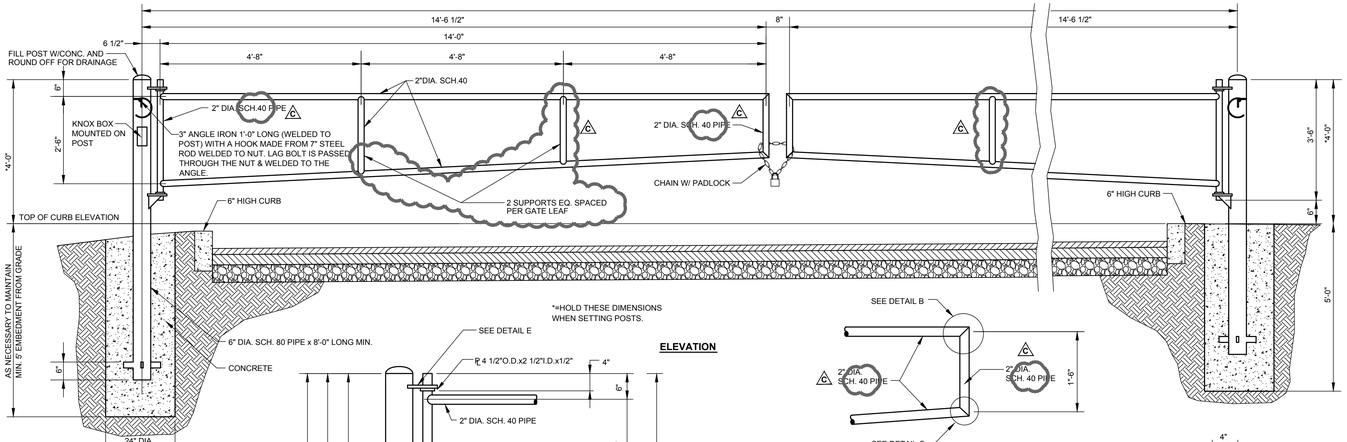
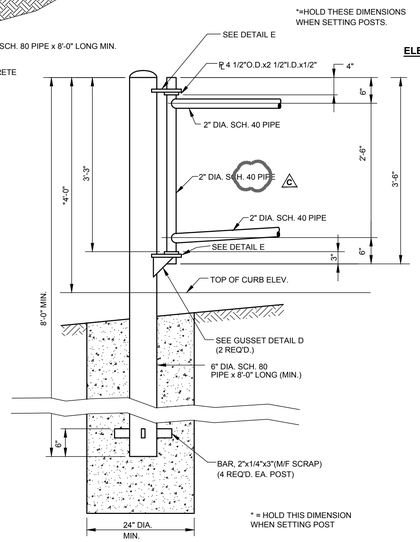
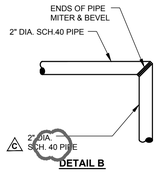


ELEVATION



HINGE POST DETAIL

DETAIL A



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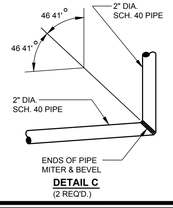

DETAIL C
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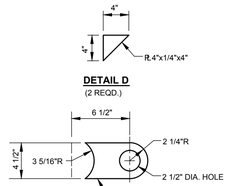
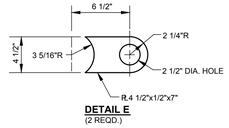


DETAIL D
(2 REQD.)



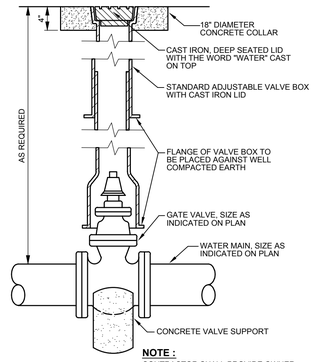
DETAIL E
(2 REQD.)

NOTES:

1. THE EXPOSED SURFACE OF THE CONC. SHALL BE CROWNED TO SHED WATER.
2. ALL PIPE SHALL BE HOT DIP GALVANIZED.

STEEL PIPE GATE

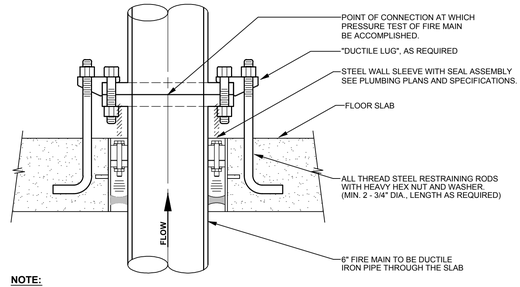
NO SCALE



NOTE :
CONTRACTOR SHALL PROVIDE OWNER WITH TWO VALVE OPERATING WRENCHES

GATE VALVE DETAIL

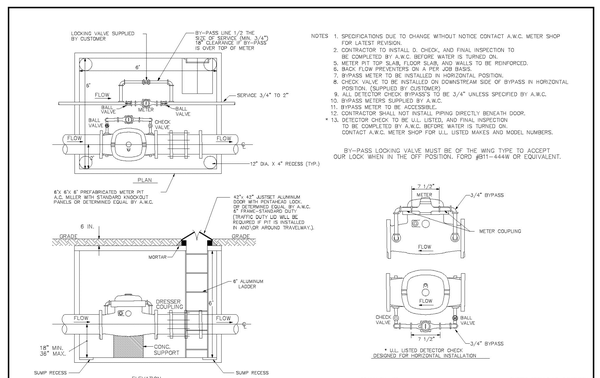
NO SCALE BMG NO. : W-03



NOTE:
THE INTENT OF THIS DETAIL IS TO RESTRAIN 6" FIRE MAIN COMING THROUGH FLOOR SLAB TO THE DEGREE NECESSARY TO ENSURE PIPE AND JOINT INTEGRITY DURING TESTING AND NORMAL CONDITIONS. FIELD MODIFICATIONS MAY BE MADE AS LONG AS THE INTENT IS MET.

FIRE MAIN PIPE RESTRAINT DETAIL

NO SCALE BMG NO. : W-10A



NOTES
1. SPECIFICATIONS DUE TO CHANGE WITHOUT NOTICE CONTACT A.W.C. METER SHOP FOR LATEST REVISION.
2. CONTRACTOR TO INSTALL D. CHECK, AND FINAL INSPECTION TO BE COMPLETED BY A.W.C. BEFORE WATER IS TURNED ON.
5. METER PIT TOP SLAB, FLOOR SLAB, AND WALLS TO BE REINFORCED.
6. BACK FLOW PREVENTERS ON A PER JOB BASIS.
7. BY-PASS METER TO BE INSTALLED IN HORIZONTAL POSITION.
8. CHECK VALVE TO BE INSTALLED ON DOWNSTREAM SIDE OF BYPASS IN HORIZONTAL POSITION. (SUPPLIED BY CUSTOMER)
9. BYPASS LINE SHALL BE SIZED FOR 3/4" UNLESS SPECIFIED BY A.W.C.
10. BYPASS METERS SUPPLIED BY A.W.C.
11. BYPASS METER TO BE ACCESSIBLE.
12. CONTRACTOR SHALL NOT INSTALL PIPING DIRECTLY BENEATH DOOR.
* 13. DETECTOR CHECK TO BE U.L. LISTED, AND FINAL INSPECTION TO BE COMPLETED BY A.W.C. BEFORE WATER IS TURNED ON. CONTACT A.W.C. METER SHOP FOR U.L. LISTED MAKES AND MODEL NUMBERS.

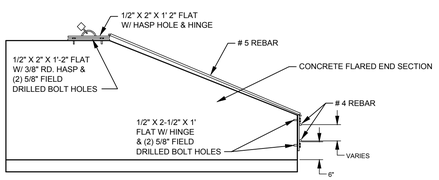
BY-PASS LOCKING VALVE MUST BE OF THE WING TYPE TO ACCEPT OUR LOCK WHEN IN THE OFF POSITION, FORD #B11-444W OR EQUIVALENT.

DRAWN BY: JTP
11-13-01
REVISED: 3/30/01
REVISED: 3/10/03
\METER DETAILS\NO-DOMCHECK

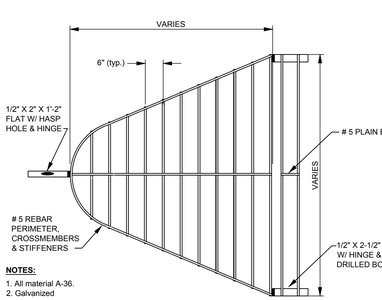
ARTESIAN WATER COMPANY, INC.
664 Churchmans Road Newark, Delaware 19702 P.O. Box 1394, Wilmington, Delaware 19899 Phone: (302) 453-6900 Fax: (302) 453-5880
Route 896 & Carpenter Road P.O. Box 842 Bethany Beach, Delaware 19930 Phone: (302) 539-8600 Fax: (302) 539-8464

NOT TO SCALE

TYPICAL DETECTOR CHECK VALVE FOR FIRE SERVICE AND 3/4" TO 2" MAX. DOMESTIC METER (IN PIT)



SECTION

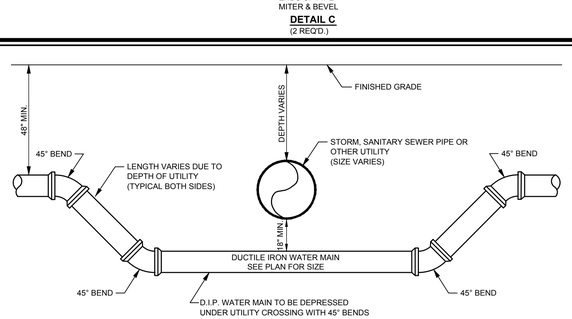


NOTES:
1. All material A-36.
2. Galvanized

PLAN

FLARED END SECTION CHILD SAFETY RACK

NO SCALE BMG NO. : SD-09



WATER MAIN / UTILITY CROSSING DETAIL

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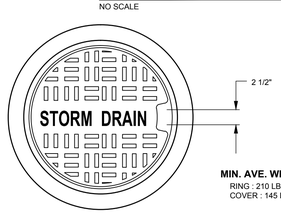
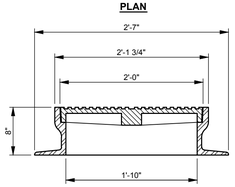


PLAN

MIN. AVE. WEIGHTS :
RING : 210 LBS.
COVER : 145 LBS.

FOUNDRY :
DEWEY BROS.
GOLDSBORO N.C.
SER. NO. MH RCR-36
OR APPROVED EQUAL



SECTION

STORM DRAIN MANHOLE FRAME & COVER

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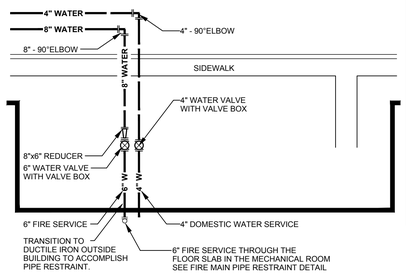

PROPOSED BUILDING

4" DOMESTIC WATER SERVICE

WATER SERVICE ENTRANCE DETAIL

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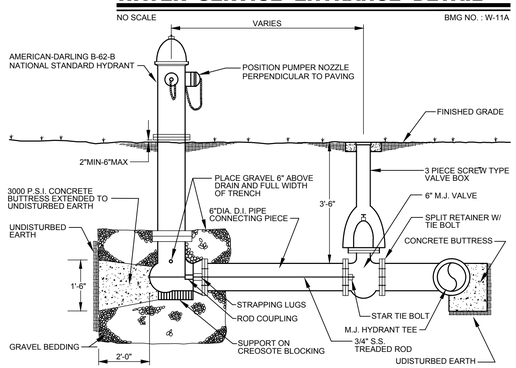

FIRE HYDRANT DETAIL

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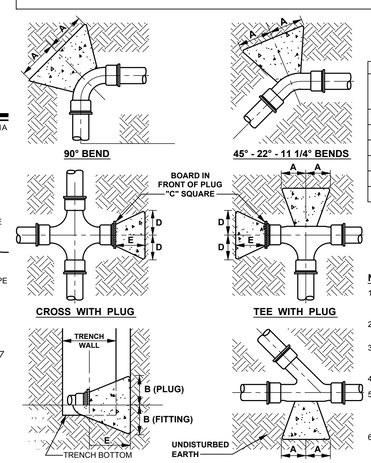

THRUST BLOCK SCHEDULE										
PIPE SIZE	HOLD DIMENSIONS		150 P.S.I. TEST PRESSURE							
			90°	45°	22 1/2°	11 1/4°	LAT	TEE	PLUG	
INCHES	E MIM.	B	A	A	A	A	A	C	D	E
2, 3 & 4	10"	7"	10"	6"	3"	3"	7"	7"	10"	7"	6"
6	14"	10"	15"	8"	4"	4"	10"	10"	12"	10"	8"
8	20"	14"	18"	10"	5"	5"	14"	14"	14"	14"	12"
10	28"	16"	24"	14"	7"	7"	16"	16"	16"	16"	14"
12	30"	20"	26"	16"	8"	8"	20"	20"	18"	20"	20"

NOTE :

1. THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED MATERIAL. WHERE TRENCH WALL HAS BEEN DISTURBED EXCAVATE ALL LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL.
2. IN THE CASE OF FIRE HYDRANTS THE BOARDS MAY BE OMITTED WHEN SOLID BEARING CAN BE OBTAINED.
3. ON TEES AND BENDS EXTEND THRUST BLOCK THE FULL LENGTH AND PUT WOOD BLOCKING IN FRONT OF ALL PLUGS BEFORE POURNING CONCRETE.
4. ALL WOOD BLOCKING SHALL BE 0.6 LB. CCA TREATED.
5. BACKFILL SHALL CONSIST OF SUITABLE MATERIAL FROM TRENCH EXCAVATION OR SELECT BACKFILL AT THE DIRECTION OF THE ENGINEER. ANY MUCK FOUND AROUND THE EXCAVATION SHALL BE REPLACED WITH COMPACTED ACCEPTABLE MATERIAL.
6. ALL PIPES 16" DIA. AND ABOVE SHALL HAVE RESTRAINED JOINTS OR HAVE SUITABLE THRUST RESTRAINT PROVIDED OF A DESIGN APPROVED BY THE ENGINEER.

THRUST BLOCK DETAIL

NO SCALE BMG NO.: W-05

BECKER MORGAN GROUP

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Dover, DE
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Fax 410.546.5824

Wilmington, NC
3205 Randall Parkway, Suite 211
Wilmington, North Carolina 28403
Ph. 910.341.7600
Fax 910.341.7506

www.beckermorgan.com

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

PROJECT TITLE

NCC APP #: 2012-0736
RED CLAY CONSOLIDATED SCHOOL DISTRICT WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DELAWARE 19707
MILLCREEK HUNDRED
NEW CASTLE COUNTY, DE

SHEET TITLE

CONSTRUCTION DETAILS

ISSUE BLOCK

MARK	DATE	DESCRIPTION
15	7-29-13	ADDENDUM - 03 (C)
14	7-23-13	ADDENDUM - 02 (B)
13	7-16-13	ADDENDUM 1 (A)
12	7-11-13	SPECIAL SERVICES RESUBMISSION
11	7-2-13	DNREC, DELDOT RESUBMISSIONS
10	7-1-13	BIDDING DOCUMENTS N.C.C. SPEC. SERVICES RESUBMISSION
9	6-24-13	DFM SUBMISSION
8	6-10-13	CD RESUBMISSION DNREC , ARTESIAN
7	5-15-13	CD SUBMISSION
6	4-22-13	CD PRICING SET / FIRE MARSHAL, DNREC, PUB. HEALTH, NCC SUBMISSION
5	4-16-13	DELDOT CD SUBMISSION #2
4	3-21-13	DD SUBMISSION
3	2-18-13	DD PRICING SET DELDOT CD SUBMISSION
2	1-10-13	N.C.C. EXPLORATORY PLAN RESUBMISSION
1	12-6-12	SD SUBMISSION

LAYER:STATE : C-904

PROJECT NO.: 2012080.00
DATE: 10-31-12
SCALE: NO SCALE
DRAWN BY: **M.J.H.** PROJ. MGR.: **J.M.R.**

SHEET
C-904

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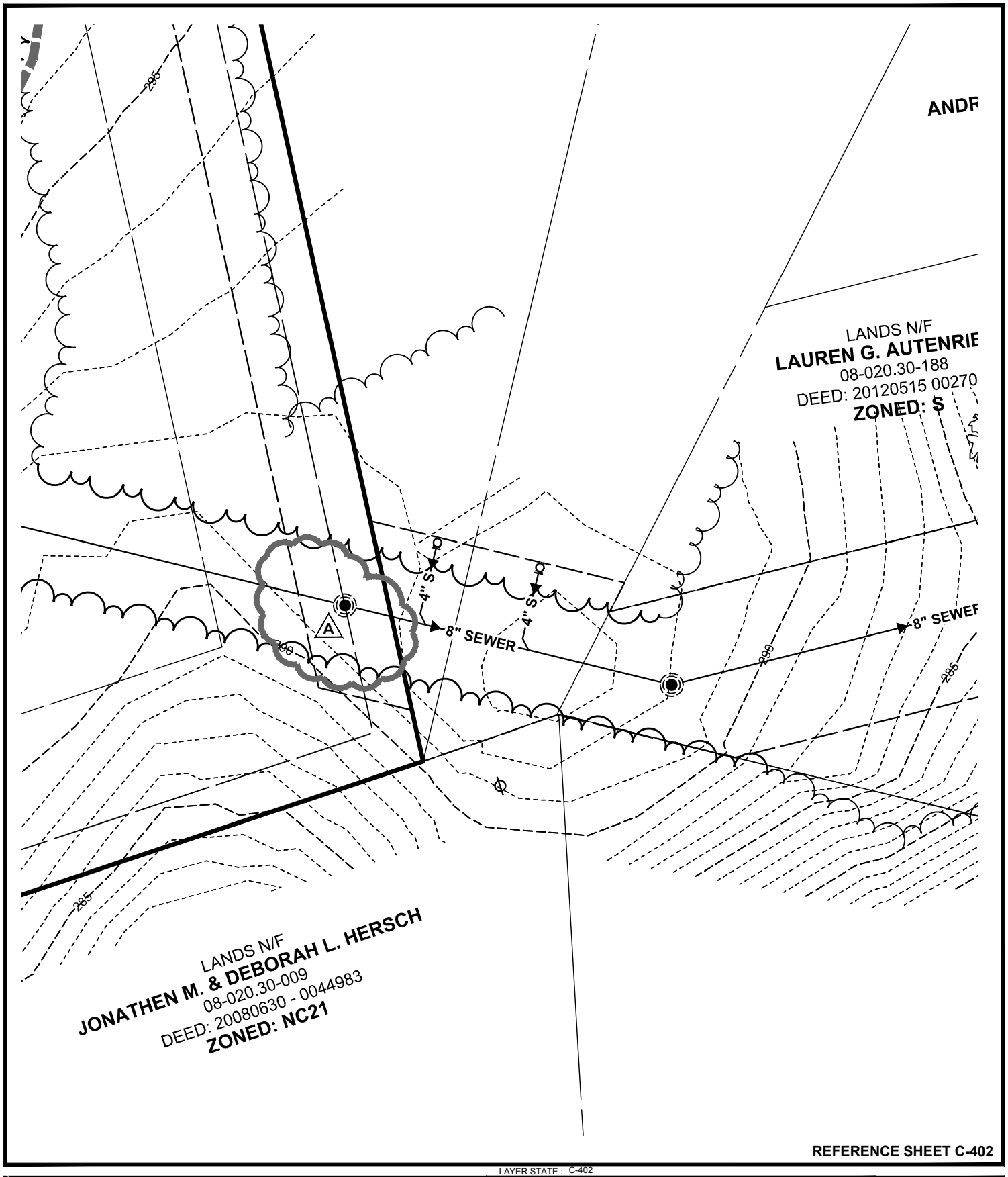

REFERENCE SHEET C-402

LAYER STATE : C-402

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 1 A

2025 GRAVES, RD., HOCKESSIN, DELAWARE

NEW CASTLE COUNTY, DELAWARE

BECKER MORGAN GROUP

ARCHITECTURE ENGINEERING

Dover, DE

309 S. Governors Ave.
Dover, DE 19904
Ph. 302.734.7950
Fax 302.734.7965

BMG:	**2012080.00**
SCALE :	**1" = 30'**
DATE :	**7-16-13**
DRAWN BY :	**M.J.H.**

CSK001

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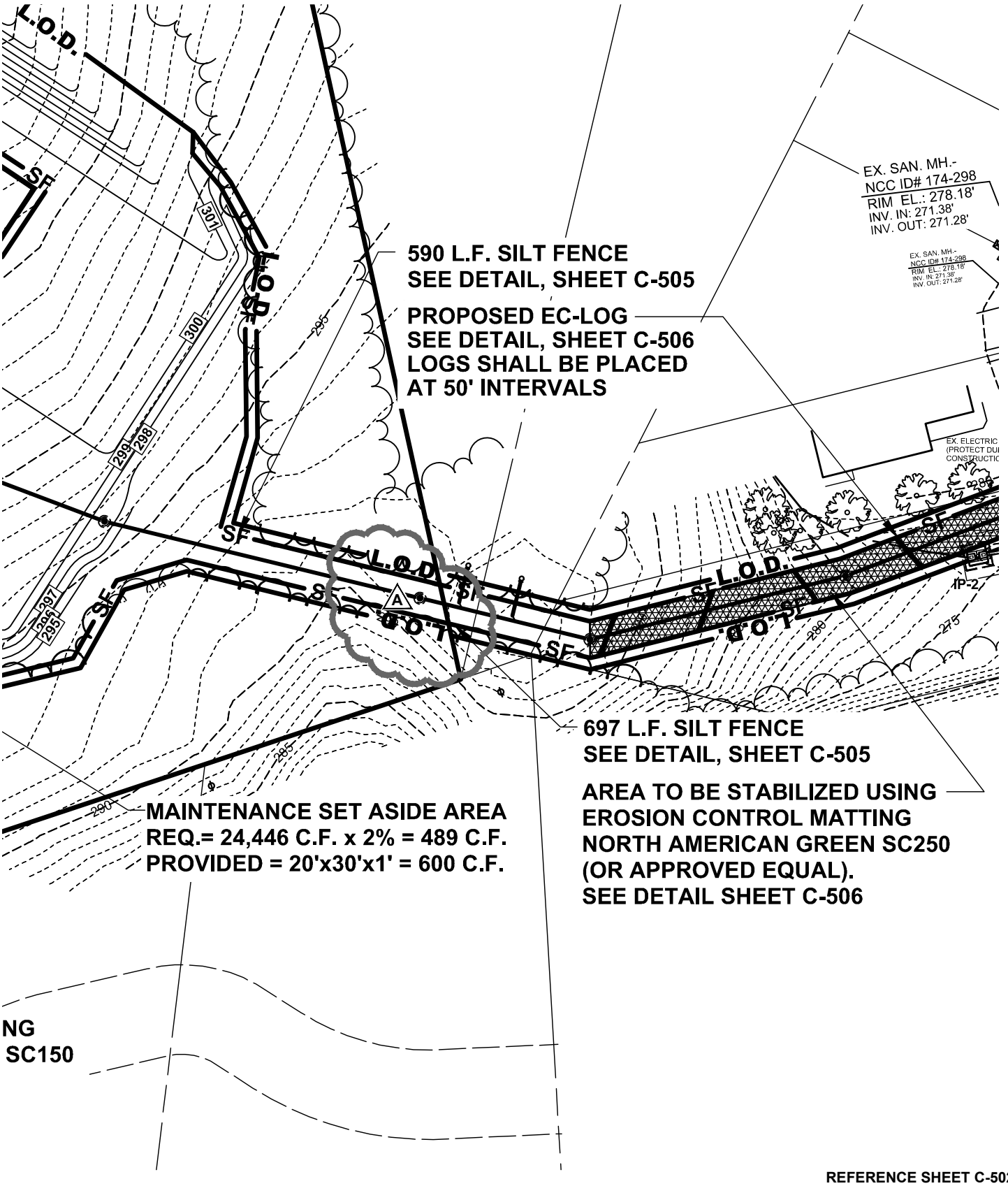

REFERENCE SHEET C-502

LAYER STATE : C-502

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 1 A

2025 GRAVES, RD., HOCKESSIN, DELAWARE

NEW CASTLE COUNTY, DELAWARE

BECKER MORGAN GROUP

ARCHITECTURE ENGINEERING

Dover, DE

309 S. Governors Ave.
Dover, DE 19904
Ph. 302.734.7950
Fax 302.734.7965

BMG:	2012080.00
SCALE :	1" = 60'
DATE :	7-16-13
DRAWN BY :	M.J.H.

CSK002

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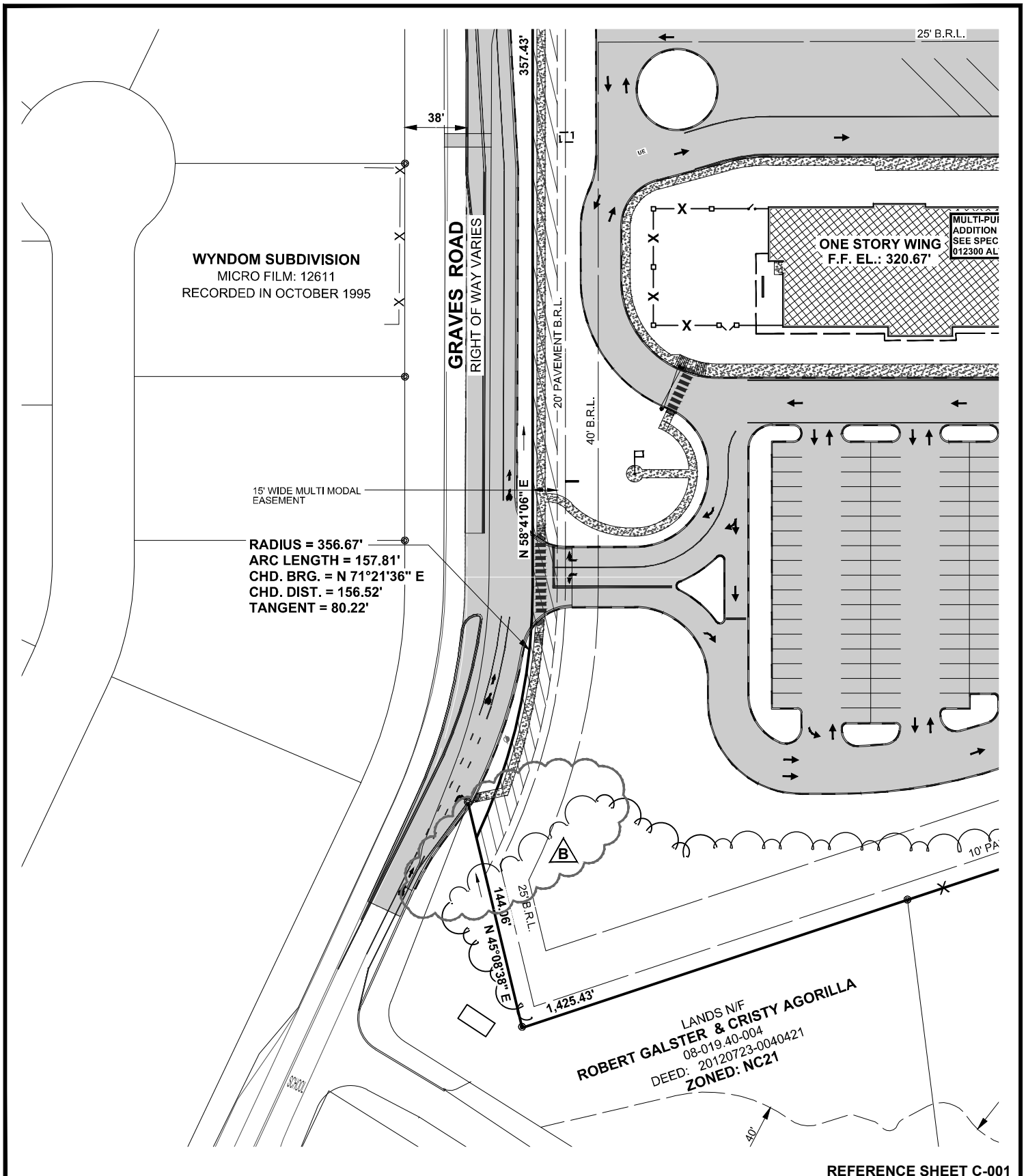

REFERENCE SHEET C-001

LAYER STATE : C-001

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

NEW CASTLE COUNTY, DELAWARE

BECKER MORGAN GROUP

ARCHITECTURE ENGINEERING

Dover, DE

309 S. Governors Ave.
Dover, DE 19904
Ph. 302.734.7950
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BMG:	2012080.00
SCALE :	1" = 80'
DATE :	7-23-13
DRAWN BY :	M.J.H.

CSK003

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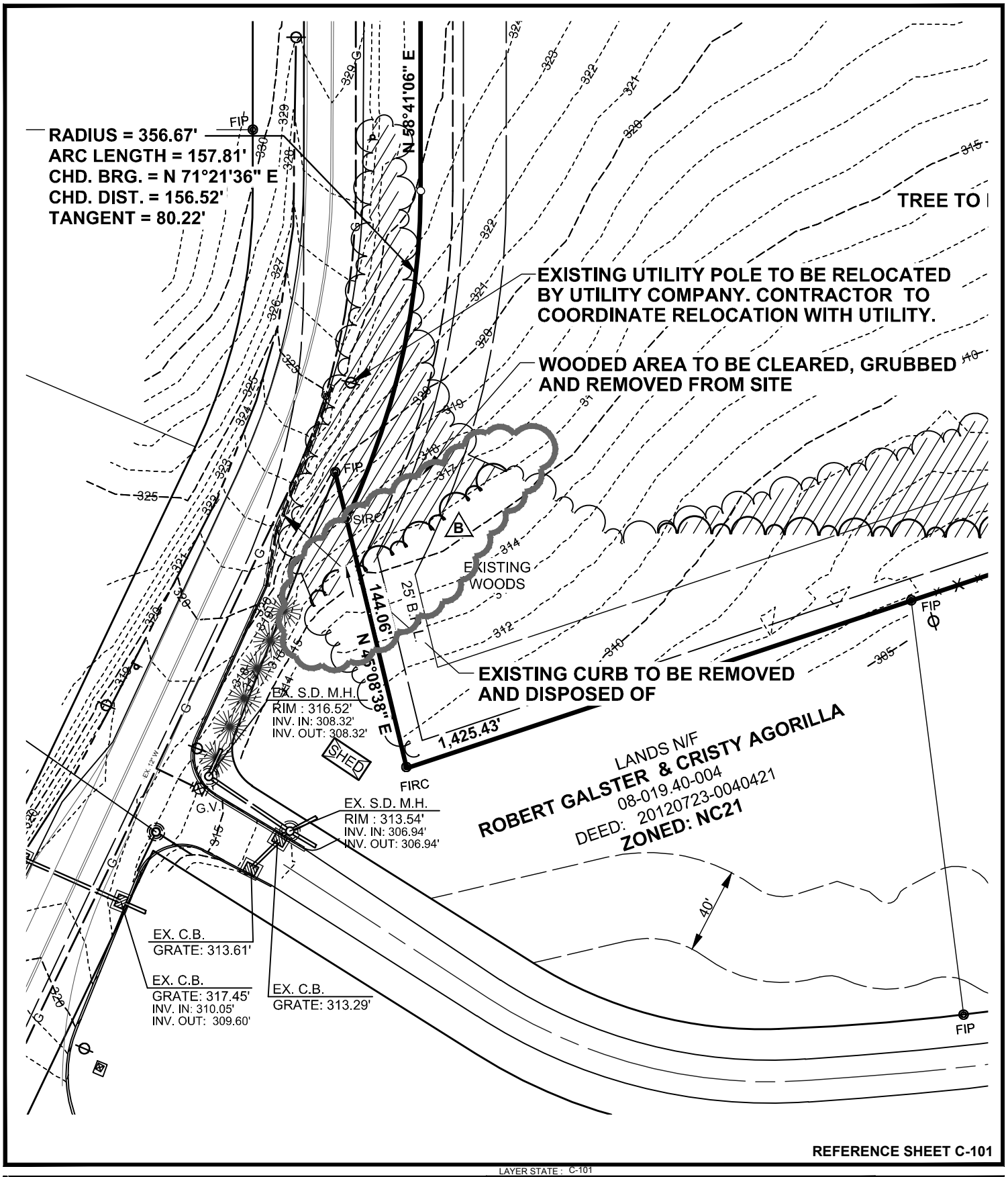

REFERENCE SHEET C-101

LAYER STATE : C-101

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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BMG:	2012080.00
SCALE :	1" = 60'
DATE :	7-23-13
DRAWN BY :	M.J.H.

CSK004

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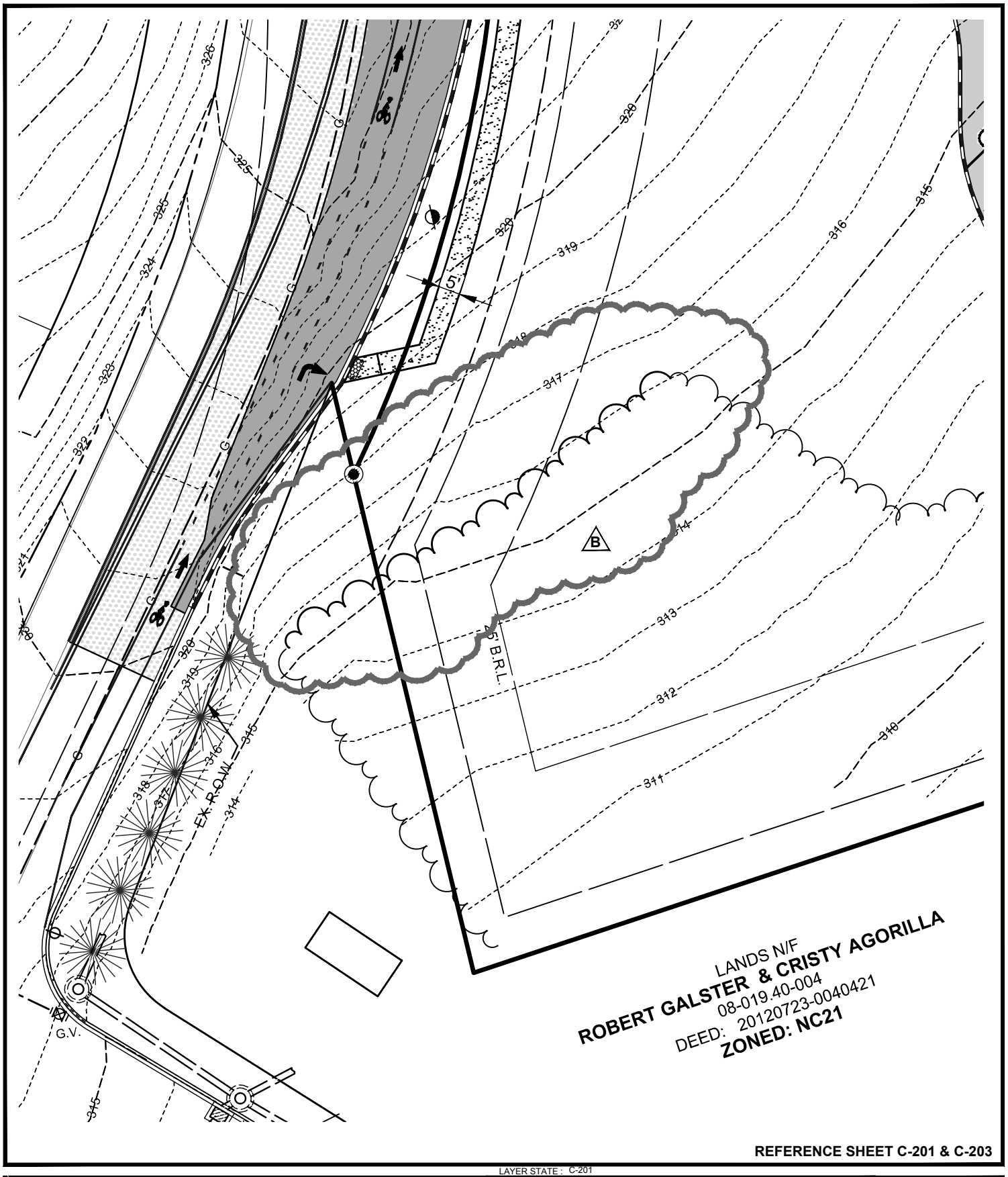

REFERENCE SHEET C-201 & C-203

LAYER STATE : C-201

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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BMG:	**2012080.00**
SCALE :	**1" = 30'**
DATE :	**7-23-13**
DRAWN BY :	**M.J.H.**

CSK005

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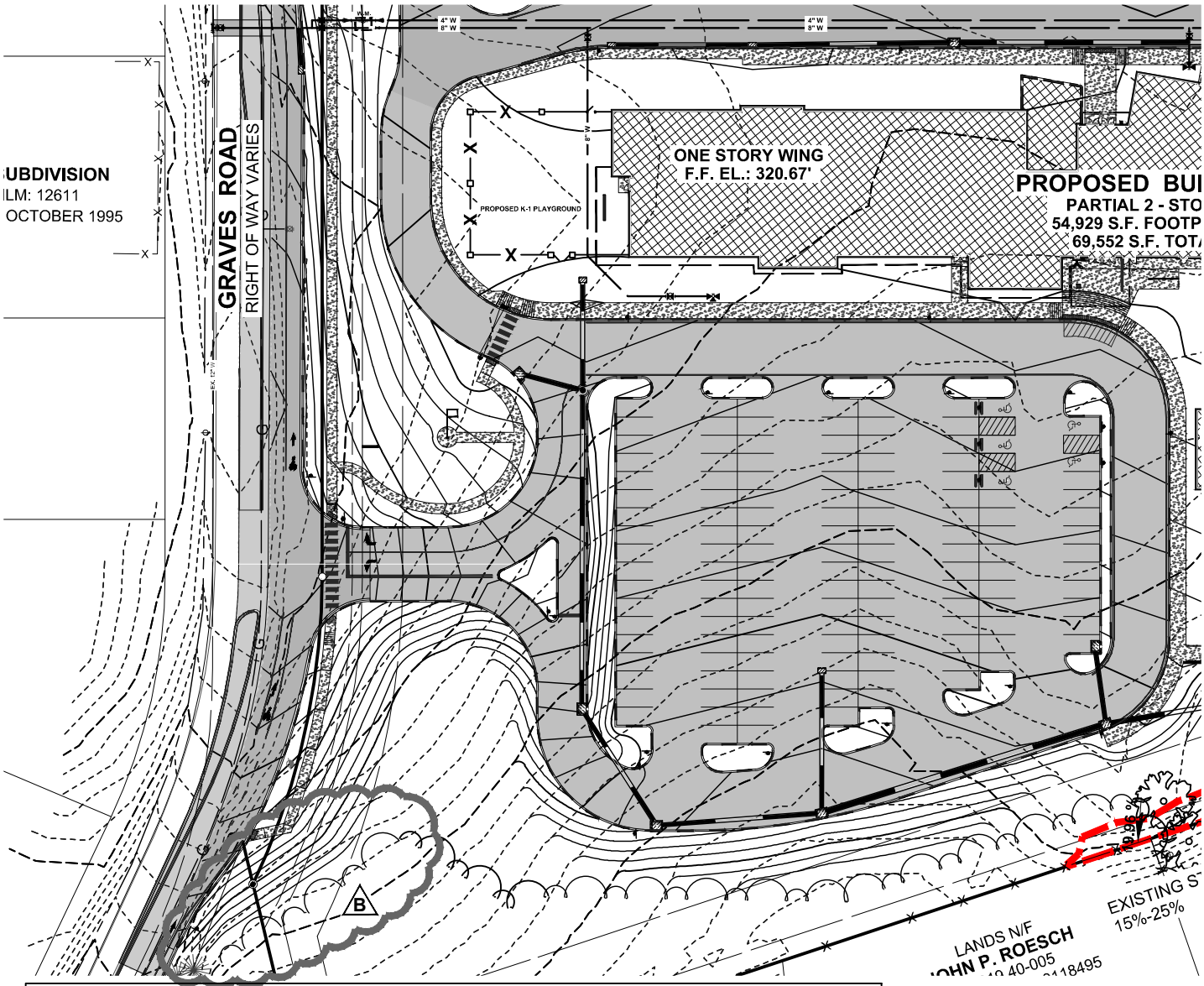

SEWER DETAIL TABLE

ST. NAME	TOTAL NUMBER OF MANHOLES	NOMINAL DIAMETER OF SANITARY SEWER PIPE	TOTAL LINEAR FEET OF GRAVITY SANITARY SEWER PIPE	TOTAL LINEAR OF FORCE MAIN	PIPE MATERIAL
NA	11	8"	1,477	0	PVC SDR 26

SEWER LATERAL TABLE

LATERAL NUMBER B	LATERAL INVERT AT CONNECTION POINT TO SANITARY SEWER MAIN	MINIMUM PLUMBING FIXTURE ELEVATION	ELEVATION OF LOWEST FLOOR SEWERED BY GRAVITY	UPSTREAM MH NUMBER AND RIM ELEVATION	DOWNSTREAM MH NUMBER	DISTANCE OF LATERAL CONNECTION FROM UPSTREAM MANHOLE	BACKWATER VALVE REQUIRED
LAT-1	309.83'(MH 9)	314.67'	317.33'	#9-315.70'	8	N/A	N/A
LAT-2	310.35'(MH 10)	315.27'	317.33'	#10-316.00'	9	N/A	N/A
LAT-3	285.08'	290.08'	FUTURE	#5-298.00'	4	N/A	N/A
LAT-4	285.39'	290.39'	FUTURE	#5-298.00'	4	N/A	N/A

REFERENCE SHEET C-300

RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B
2025 GRAVES, RD., HOCKESSIN, DELAWARE
NEW CASTLE COUNTY, DELAWARE

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SCALE: 1" = 60'
DATE: 7-23-13
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CSK006

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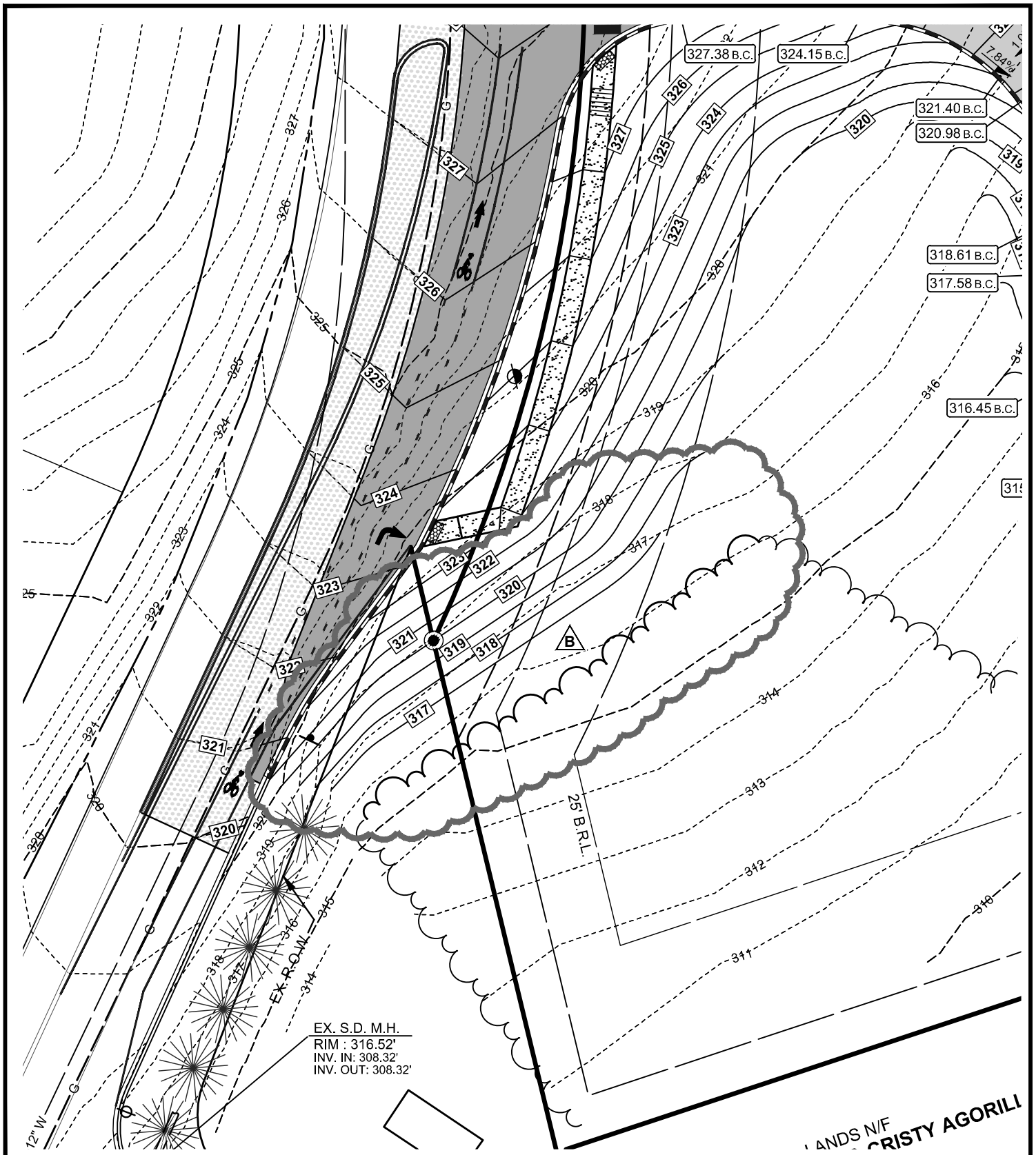

REFERENCE SHEET C-401

LAYER STATE : C-401

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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BMG:	**2012080.00**
SCALE :	**1" = 30'**
DATE :	**7-23-13**
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CSK007

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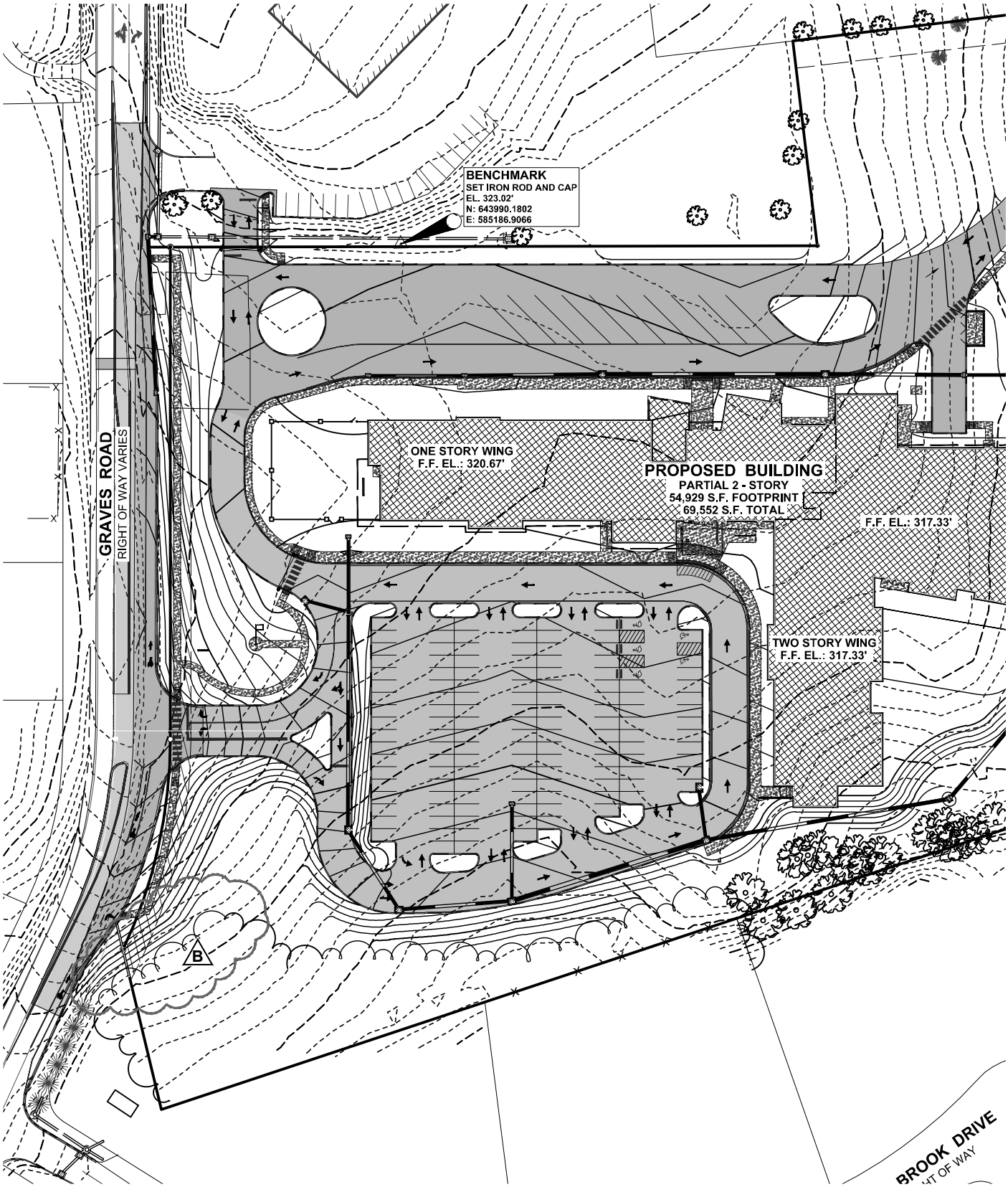

REFERENCE SHEET C-501

LAYER STATE : C-501

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2

B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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SCALE :	1" = 100'
DATE :	7-23-13
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CSK008

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EROSION SEDIMENT CONTROL LEGEND

INLET PROTECTION TYPE 1		IP-1
INLET PROTECTION TYPE 2		IP-2
SILT FENCE	SF	SF
REINFORCED SILT FENCE	RSF	
SUPER SILT FENCE	SSF	
STABILIZED CONSTRUCTION ENTRANCE	SCE	
LIMIT OF DISTURBANCE	L.O.D.	
COMPOST LOG SEDIMENT TRAP	CST	
B TREE PROTECTION	TP	

REFERENCE SHEET C-501 & C-606

LAYER STATE : C-501

RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B
2025 GRAVES, RD., HOCKESSIN, DELAWARE
NEW CASTLE COUNTY, DELAWARE

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SCALE : 1" = 30'
DATE : 7-23-13
DRAWN BY : M.J.H.

CSK009

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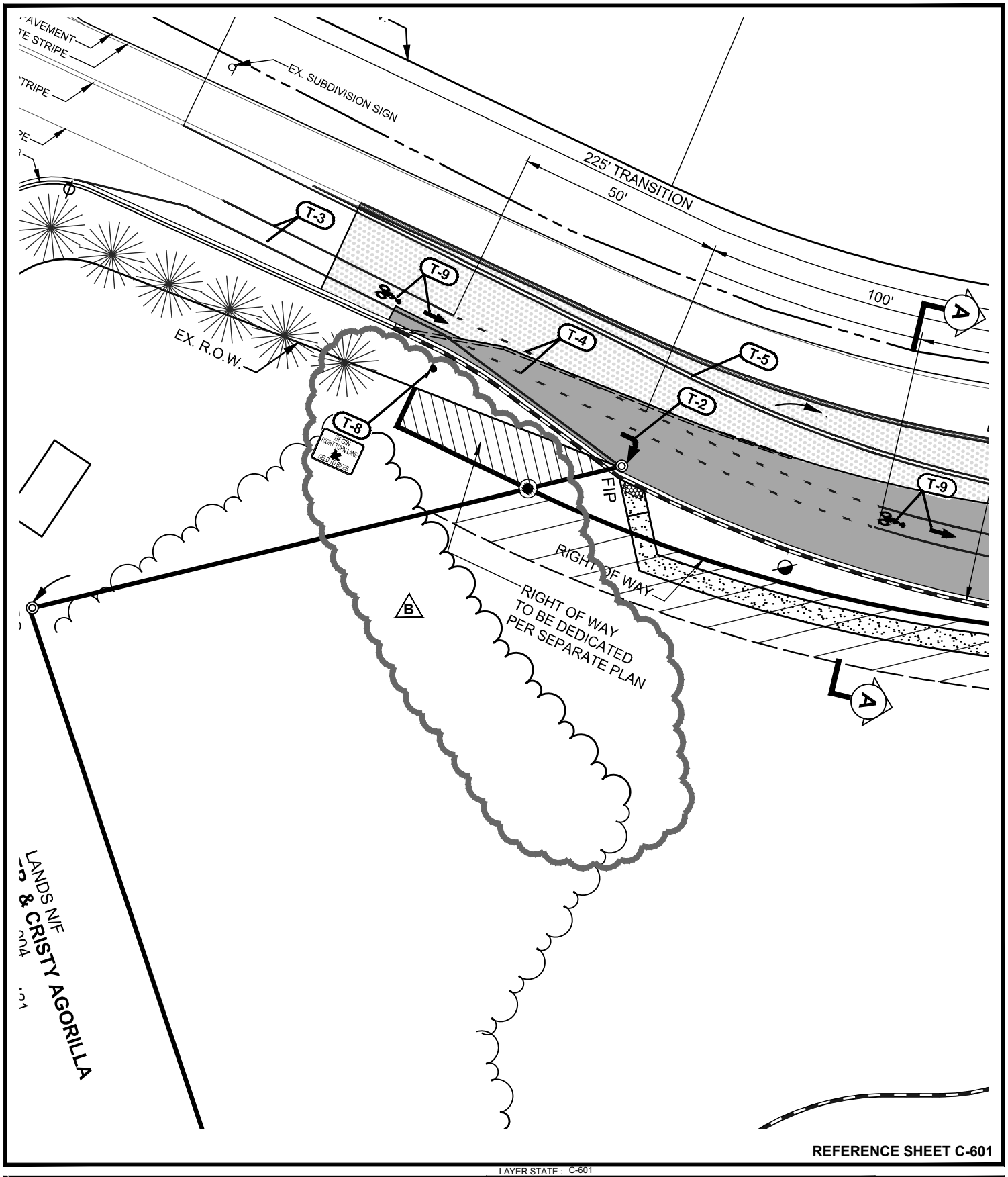

REFERENCE SHEET C-601

LAYER STATE : C-601

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

NEW CASTLE COUNTY, DELAWARE

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BMG:	**2012080.00**
SCALE :	**1" = 30'**
DATE :	**7-23-13**
DRAWN BY :	**M.J.H.**

CSK010

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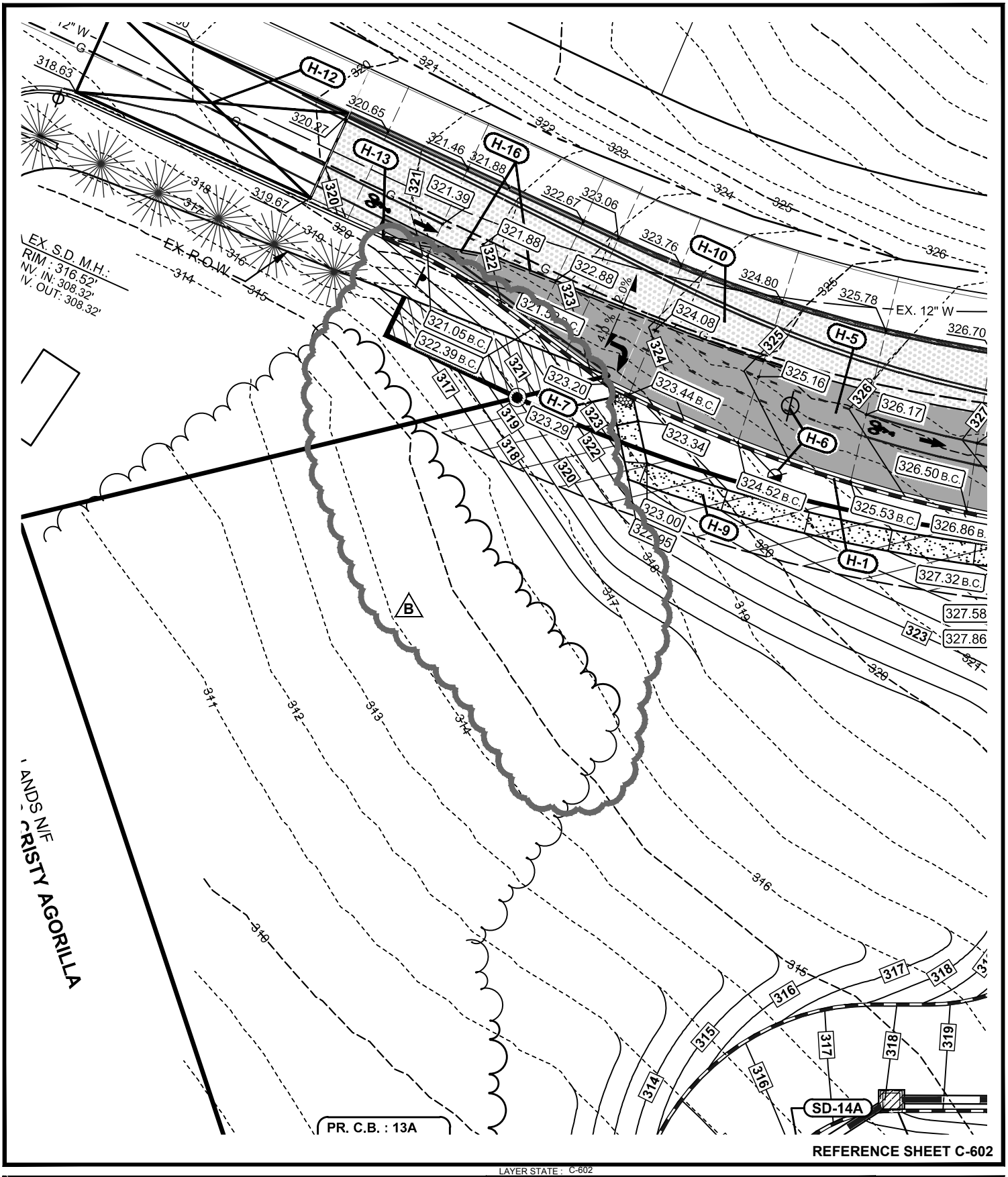

REFERENCE SHEET C-602

LAYER STATE : C-602

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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BMG:	2012080.00
SCALE :	1" = 30'
DATE :	7-23-13
DRAWN BY :	M.J.H.

CSK011

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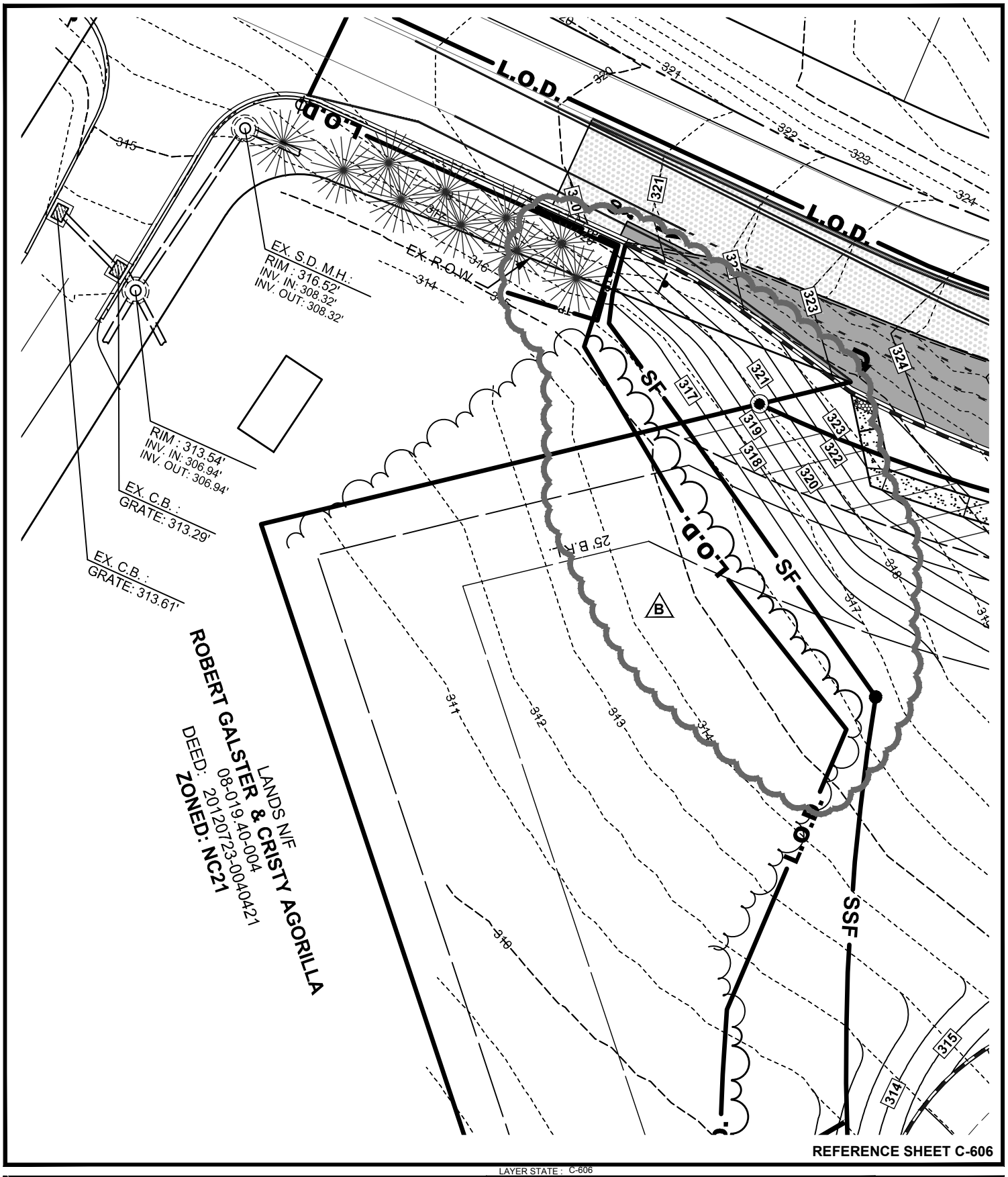

REFERENCE SHEET C-606

LAYER STATE : C-606

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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SCALE :	1" = 30'
DATE :	7-23-13
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CSK012

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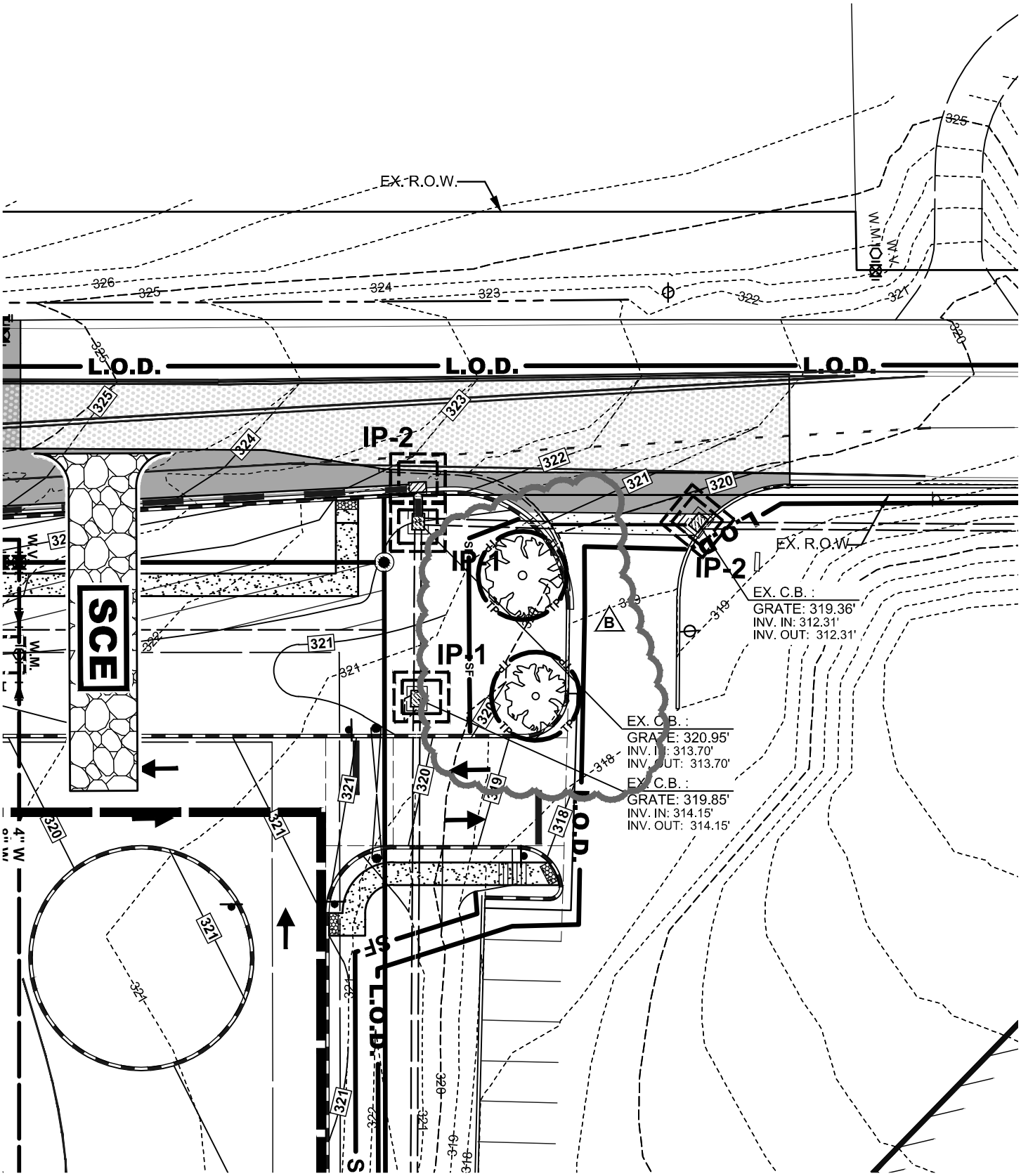

REFERENCE SHEET C-606

LAYER STATE : C-606

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

NEW CASTLE COUNTY, DELAWARE

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SCALE :	**1" = 30'**
DATE :	**7-23-13**
DRAWN BY :	**M.J.H.**

CSK013

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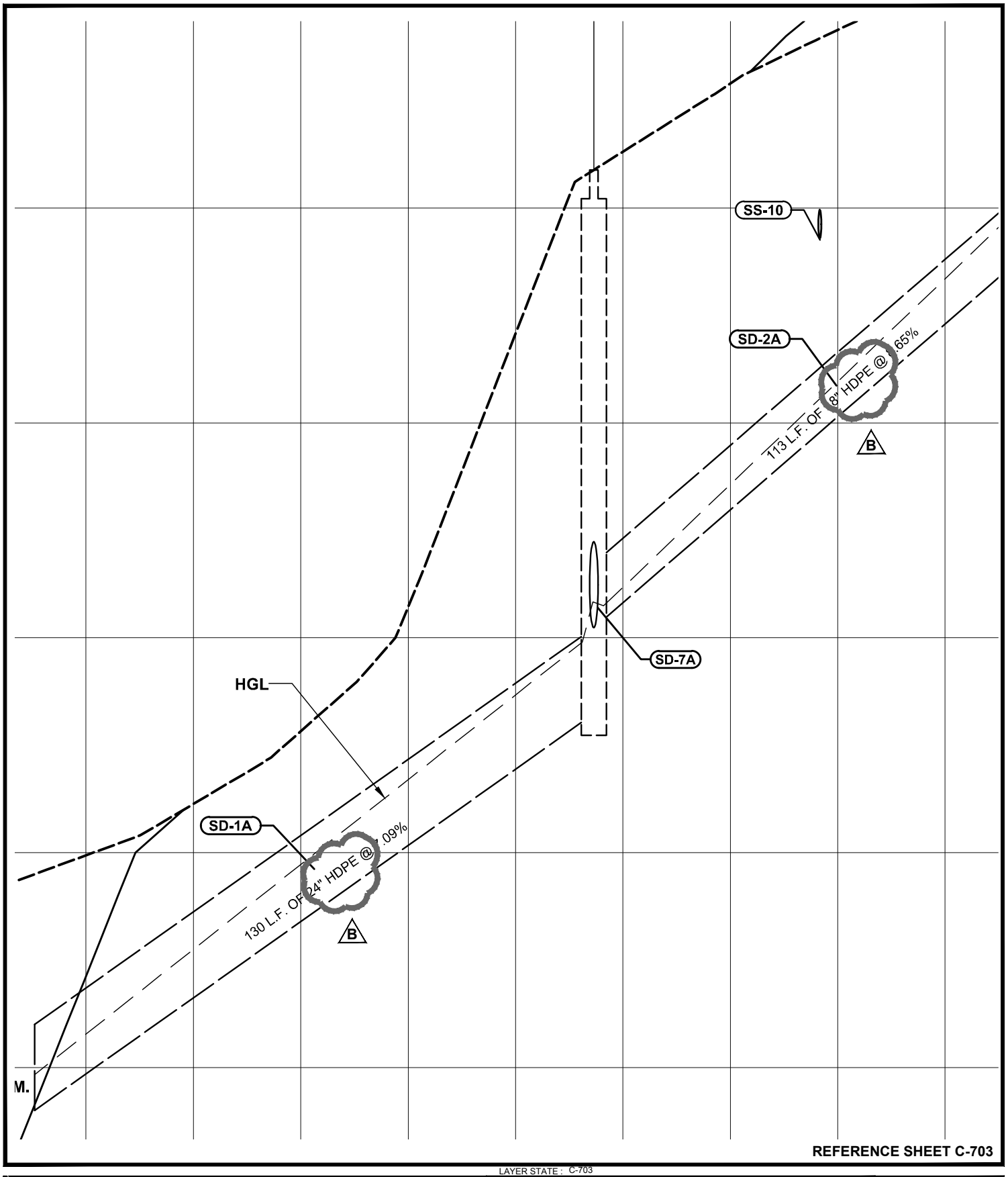

REFERENCE SHEET C-703

LAYER STATE : C-703

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

NEW CASTLE COUNTY, DELAWARE

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BMG:	2012080.00
SCALE :	1" = 30'
DATE :	7-23-13
DRAWN BY :	M.J.H.

CSK014

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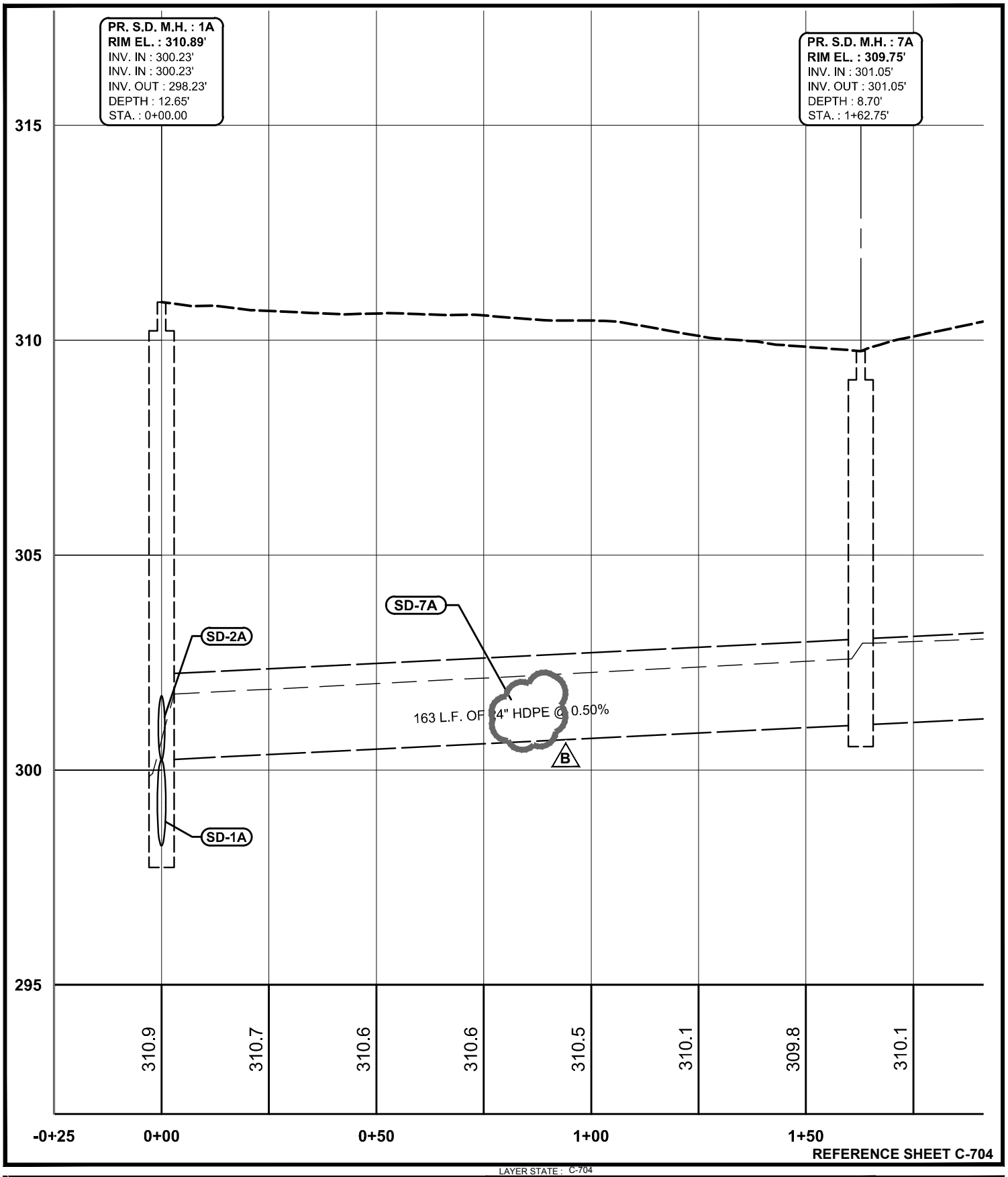

REFERENCE SHEET C-704

LAYER STATE : C-704

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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SCALE :	1" = 30'
DATE :	7-23-13
DRAWN BY :	M.J.H.

CSK015

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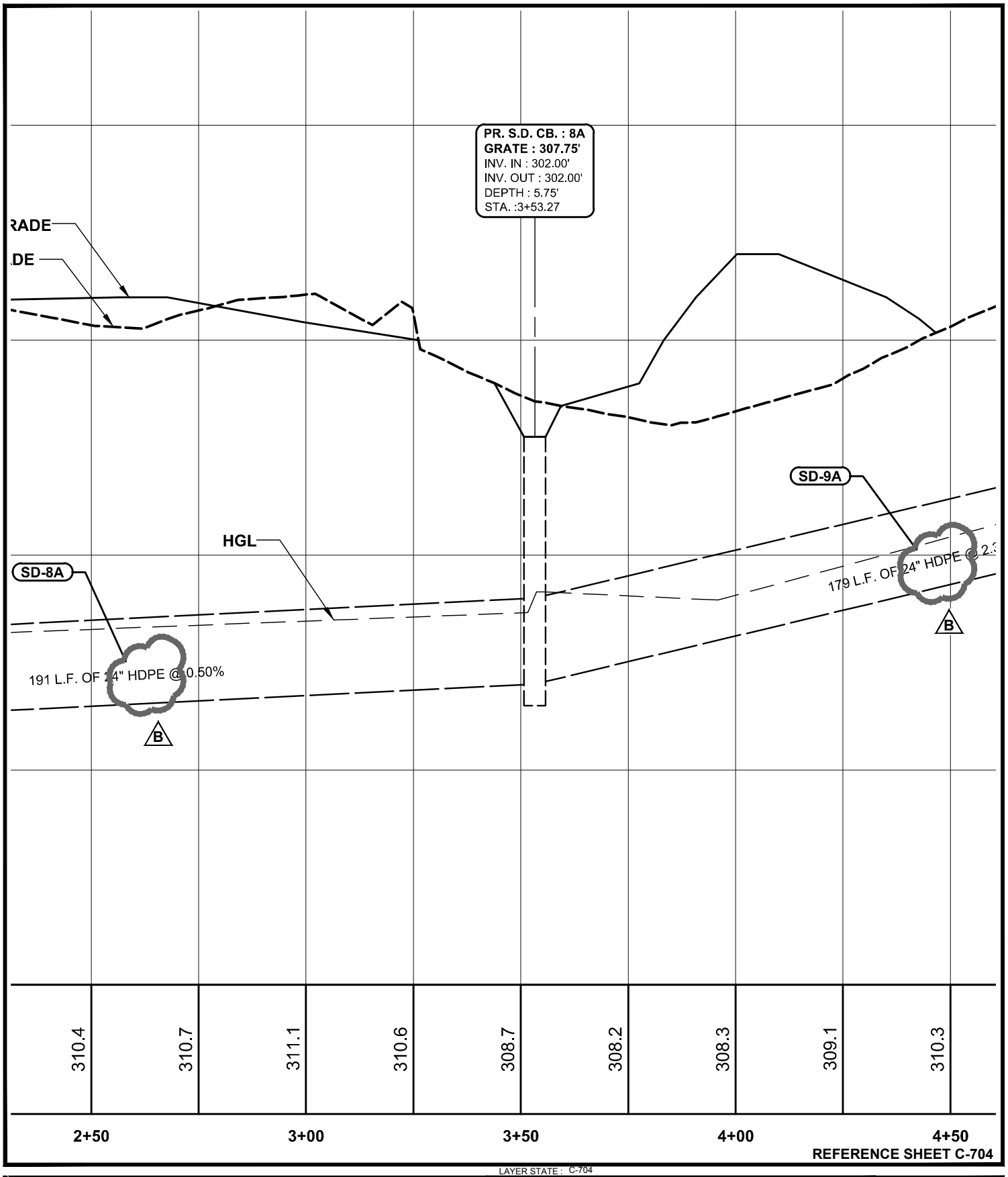

REFERENCE SHEET C-704

LAYER STATE : C-704

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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BMG: 2012080.00
SCALE : 1" = 30'
DATE : 7-23-13
DRAWN BY : M.J.H.

CSK016

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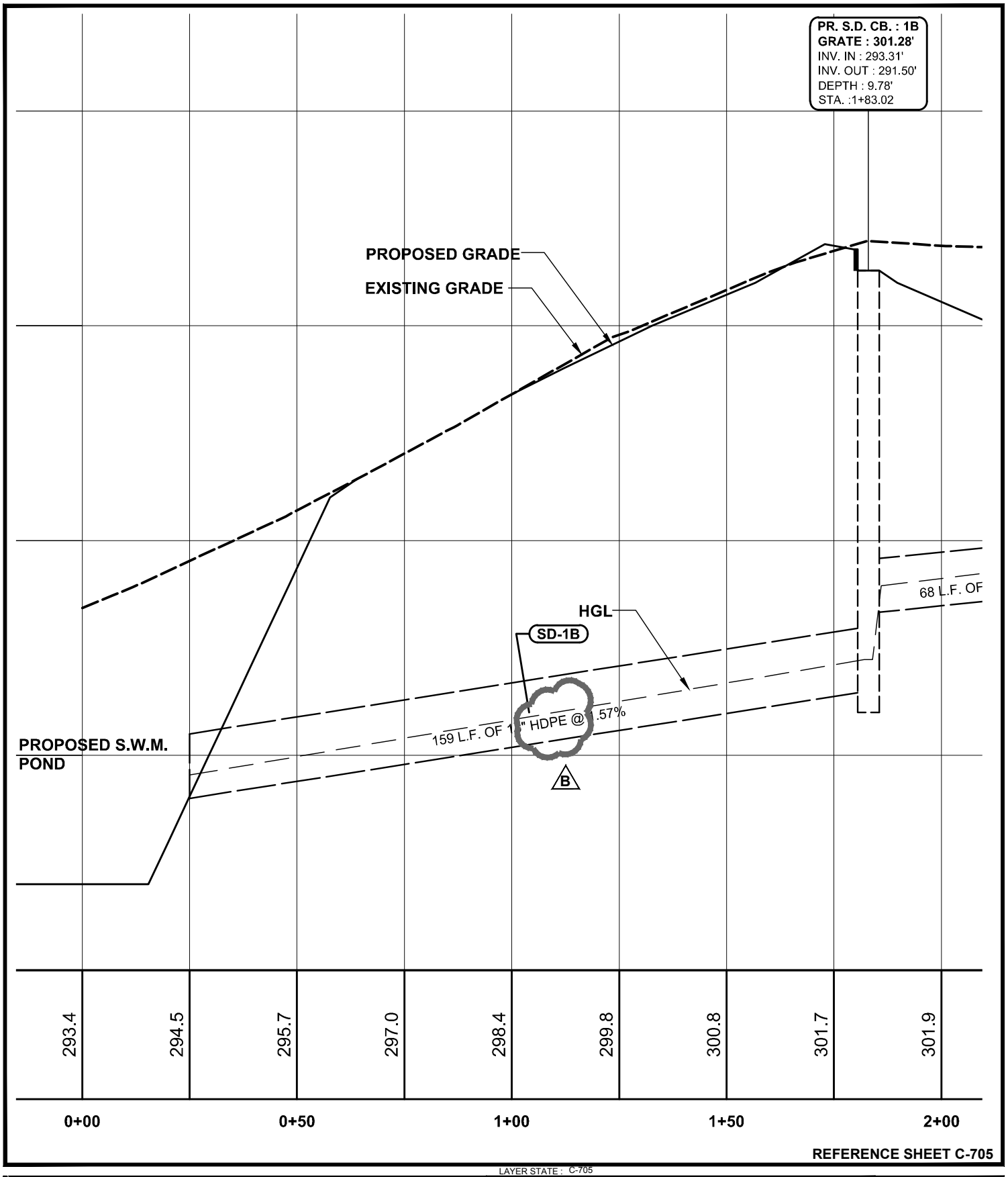

REFERENCE SHEET C-705

LAYER STATE : C-705

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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SCALE :	1" = 30'
DATE :	7-23-13
DRAWN BY :	M.J.H.

CSK017

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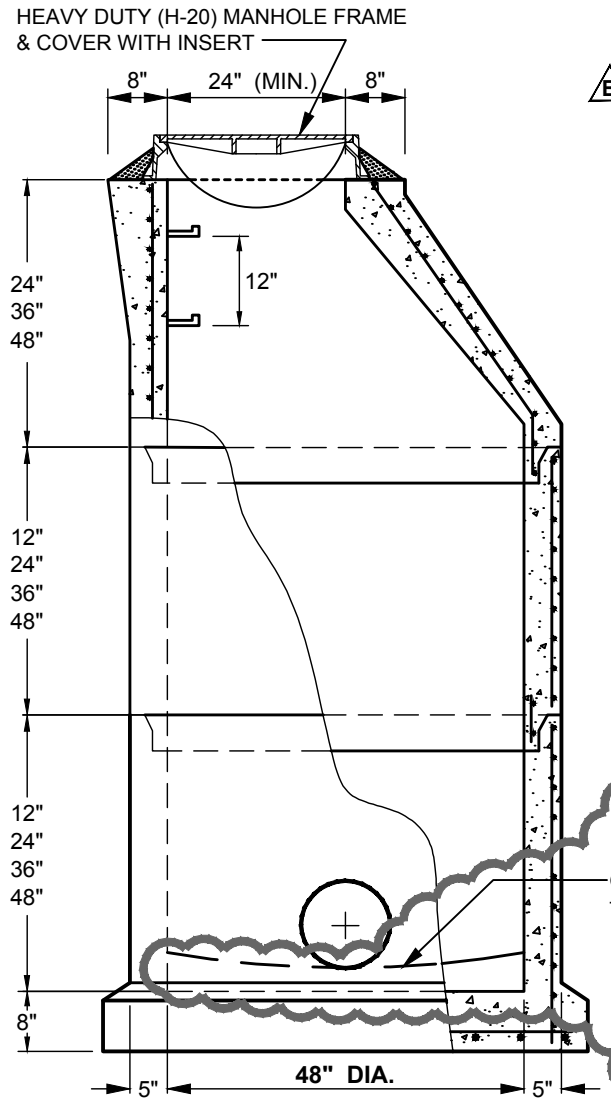

NOTES :

1. PIPE OPENINGS AS REQUIRED FOR PIPE DIAMETERS 4" THRU 24".
2. O-RING JOINT CONFORMS TO A.S.T.M. SPECIFICATIONS C361 AND C443, LATEST REVISIONS.
3. LIFT PIN HOLES IN ALL PIECES FOR HANDLING.
4. CONCRETE COMPRESSION STRENGTH 4000 PSI
5. MANHOLE DESIGN SPECIFICATIONS CONFORMS TO "PRECAST REINFORCED MANHOLE SECTIONS" ASTM C478, LATEST REVISION.
6. CIRCUMFERENTIAL REIN. ASTM A185 AREA 48" 0.12 SQ.IN. VERT. FT. REIN. IN BOTH BELL & SPIGOT.

NOTE: PLACE #106-A, 3/4 STONE FOUNDATION UNDER ALL MANHOLES 12" DEEP, EXTEND 12" BEYOND MANHOLE WALL.

STORM DRAIN MANHOLE - 4'-0" INSIDE DIA.

NO SCALE

BMG NO.: SS-01A-4

REFERENCE SHEET C-905

LAYER STATE : C-905

RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B
2025 GRAVES, RD., HOCKESSIN, DELAWARE
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BMG: **2012080.00**
SCALE : **1" = 30'**
DATE : **7-23-13**
DRAWN BY : **M.J.H.**

CSK018

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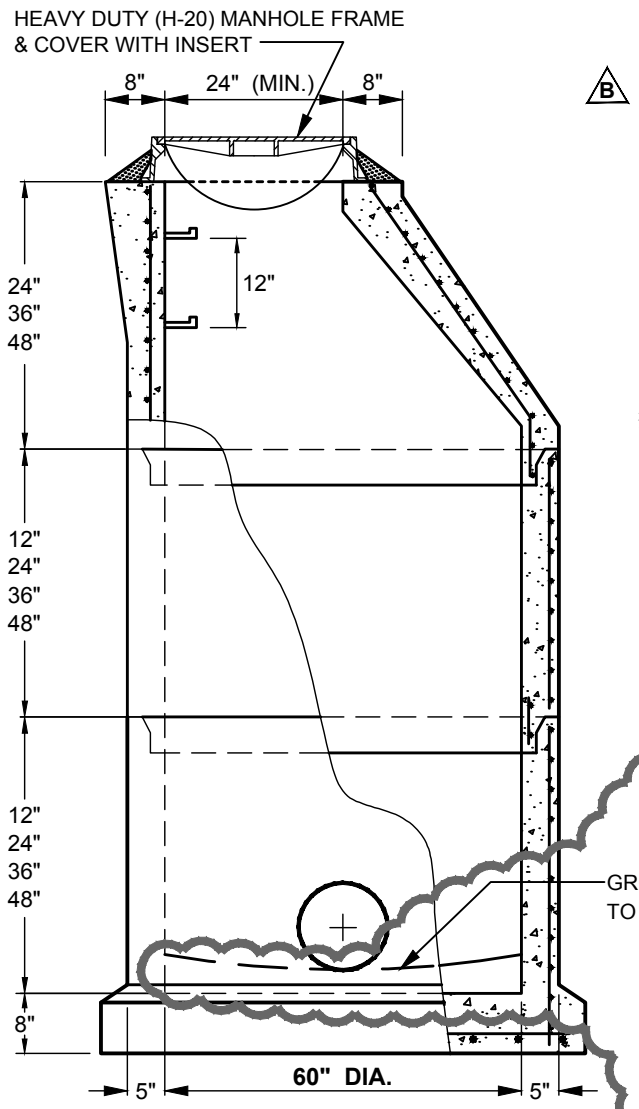

NOTES :

1. PIPE OPENINGS AS REQUIRED FOR PIPE DIAMETERS THRU 36".
2. O-RING JOINT CONFORMS TO A.S.T.M. SPECIFICATIONS C361 AND C443, LATEST REVISIONS.
3. LIFT PIN HOLES IN ALL PIECES FOR HANDLING.
4. CONCRETE COMPRESSION STRENGTH 4000 PSI
5. MANHOLE DESIGN SPECIFICATIONS CONFORMS TO "PRECAST REINFORCED MANHOLE SECTIONS" ASTM C478, LATEST REVISION.
6. CIRCUMFERENTIAL REIN. ASTM A185 AREA 48" 0.12 SQ.IN. VERT. FT. REIN. IN BOTH BELL & SPIGOT.

NOTE: PLACE #106-A, 3/4 STONE FOUNDATION UNDER ALL MANHOLES 12" DEEP, EXTEND 12" BEYOND MANHOLE WALL.

STORM DRAIN MANHOLE - 5'-0" INSIDE DIA.

NO SCALE

BMG NO.: SS-01A-5

REFERENCE SHEET C-905

LAYER STATE : C-905

RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B
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CSK019

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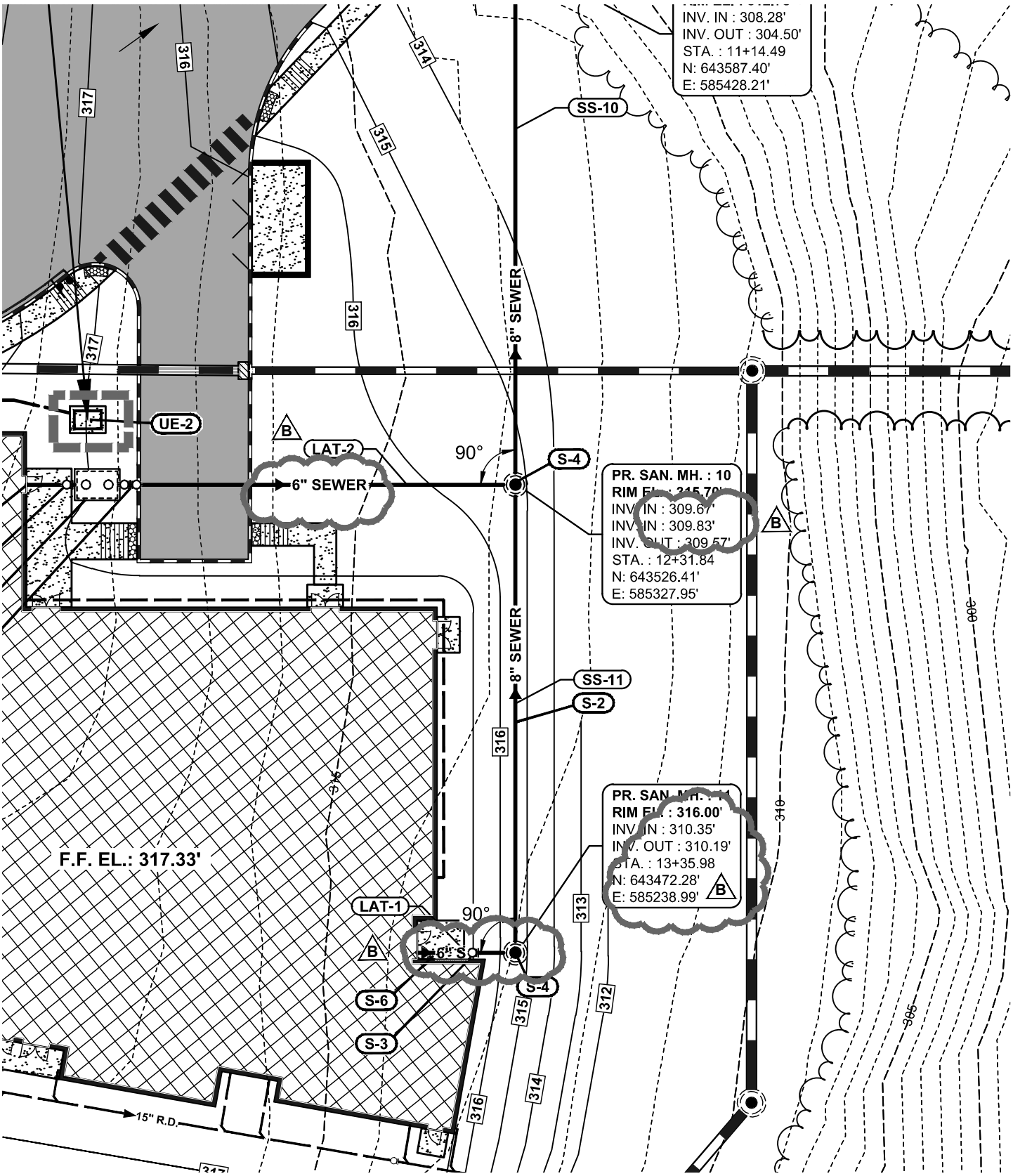

REFERENCE SHEET C-300 & C-301

LAYER STATE : C-301

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

2025 GRAVES, RD., HOCKESSIN, DELAWARE

NEW CASTLE COUNTY, DELAWARE

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DATE :	7-23-13
DRAWN BY :	M.J.H.

CSK020

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SANITARY SEWER PIPE SCHEDULE

PIPE NO.	SIZE	PIPE TYPE	LENGTH	SLOPE	INV. IN	INV. OUT
LAT-1	6"	PVC SDR 26	22'	1.04%	310.58'	310.35'
LAT-2	6"	PVC SDR 26	88'	3.59%	313.00'	309.83'
LAT-3	4"	PVC SDR 26	17'	2.08%	285.43'	285.08'
LAT-4	4"	PVC SDR 26	17'	2.08%	285.74'	285.39'
SS-1	8"	PVC SDR 26	56'	0.50%	271.66'	271.38'
SS-2	8"	PVC SDR 26	48'	0.50%	272.00'	271.76'
SS-3	8"	PVC SDR 26	100'	1.00%	273.10'	272.10'
SS-4	8"	PVC SDR 26	118'	8.25%	284.52'	274.81'
SS-5	8"	PVC SDR 26	78'	1.25%	285.60'	284.62'
SS-6	8"	PVC SDR 26	145'	1.18%	287.42'	285.70'
SS-7	8"	PVC SDR 26	300'	0.50%	291.80'	290.30'
SS-8	8"	PVC SDR 26	135'	2.06%	294.68'	291.90'
SS-9	8"	PVC SDR 26	135'	7.22%	304.50'	294.78'
SS-10	8"	PVC SDR 26	117'	1.10%	309.57'	308.28'
SS-11	8"	PVC SDR 26	104'	0.50%	310.19'	309.67'

B B B B

REFERENCE SHEET C-301, C-302, C-303

LAYER STATE : C-301

RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B
2025 GRAVES, RD., HOCKESSIN, DELAWARE
NEW CASTLE COUNTY, DELAWARE

BECKER MORGAN GROUP
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CSK021

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SANITARY SEWER MANHOLE SCHEDULE

MH NO.	RIM EL.	DIA.	DEPTH	INV. IN	INV. OUT
1	278.21'	48"	6.55'	271.76' *(SS-2)*	271.66' *(SS-1)*
2	278.65'	48"	6.65'	272.10' *(SS-3)*	272.00' *(SS-2)*
3	280.38'	48"	7.28'	274.81' *(SS-4)*	273.10' *(SS-3)*
4	292.45'	48"	7.93'	284.62' *(SS-5)*	284.52' *(SS-4)*
5	291.89'	48"	6.29'	285.70' *(SS-6)*	285.60' *(SS-5)*
6**	298.00'	60"	10.58'	290.30' *(SS-7)*	287.42' *(SS-6)*
7	299.50'	48"	7.70'	291.90' *(SS-8)*	291.80' *(SS-7)*
8 #	301.61'	48"	6.93'	294.78' *(SS-9)*	294.68' *(SS-8)*
9**	312.78'	60"	8.28'	308.28' *(SS-10)*	304.50' *(SS-9)*
10	315.70'	48"	6.13' B	309.67' *(SS-11)* 309.83' *(LAT-2)*	309.57' *(SS-10)*
11 #	316.00'	48"	5.81'	310.35' *(LAT-1)*	310.19' *(SS-11)* B

** INDICATES DROP MANHOLE # INDICATES SHALLOW MANHOLE PER N.C.C.

REFERENCE SHEET C-301, C-302, C-303

LAYER STATE : C-301

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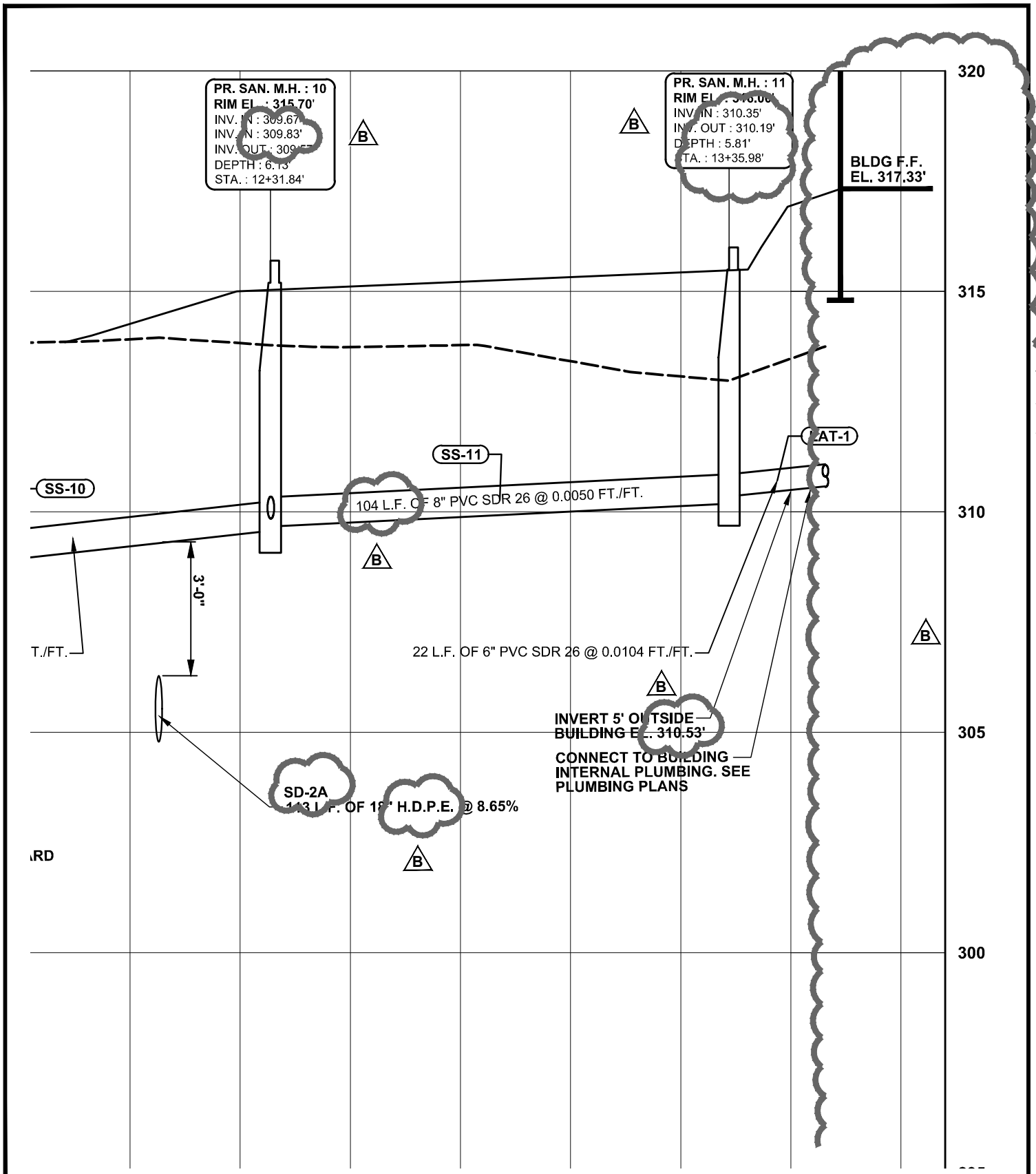

REFERENCE SHEET C-702

LAYER STATE : C-702

RED CLAY CONSOLIDATED SCHOOL DISTRICT

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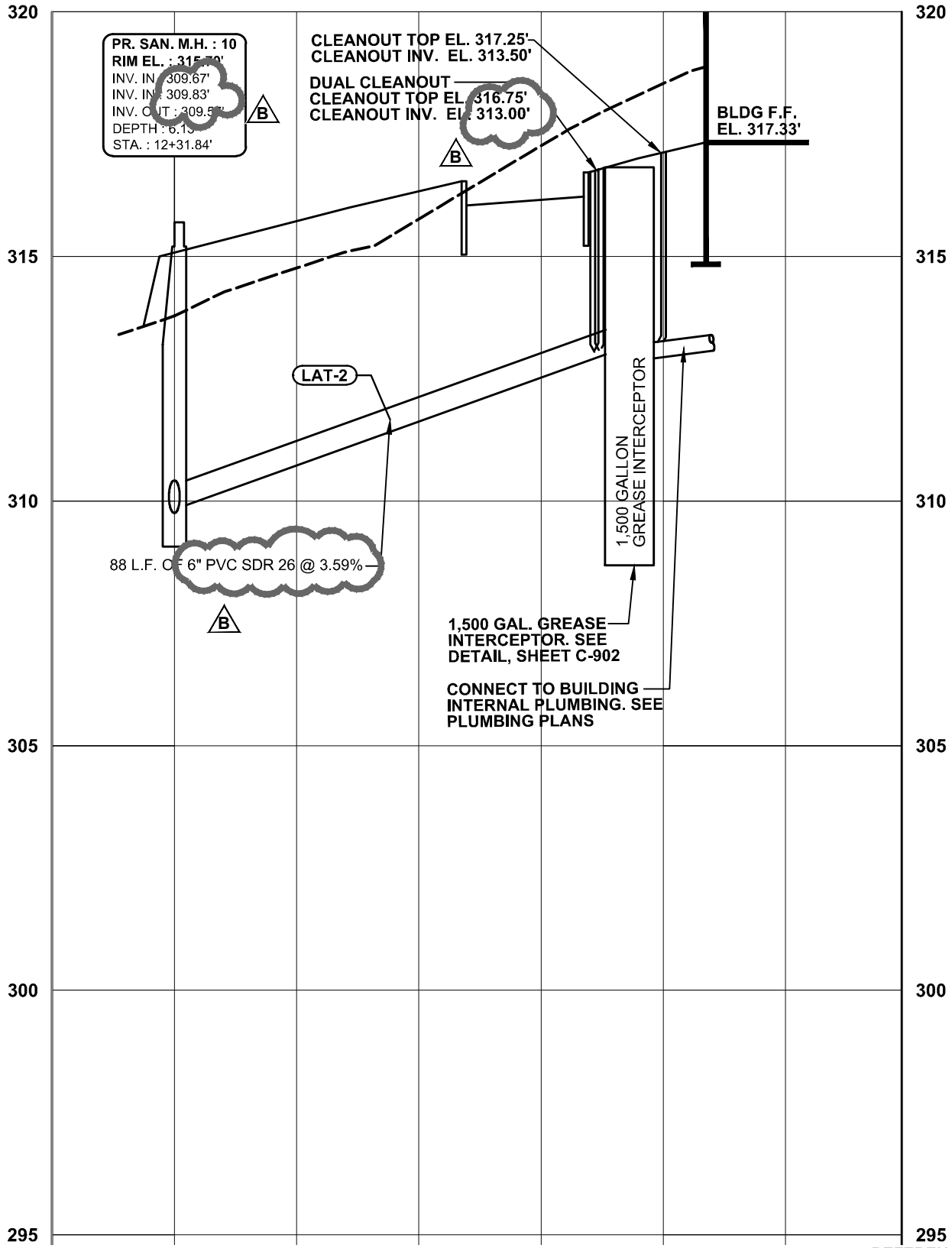

REFERENCE SHEET C-702

LAYER STATE : C-702

RED CLAY CONSOLIDATED SCHOOL DISTRICT

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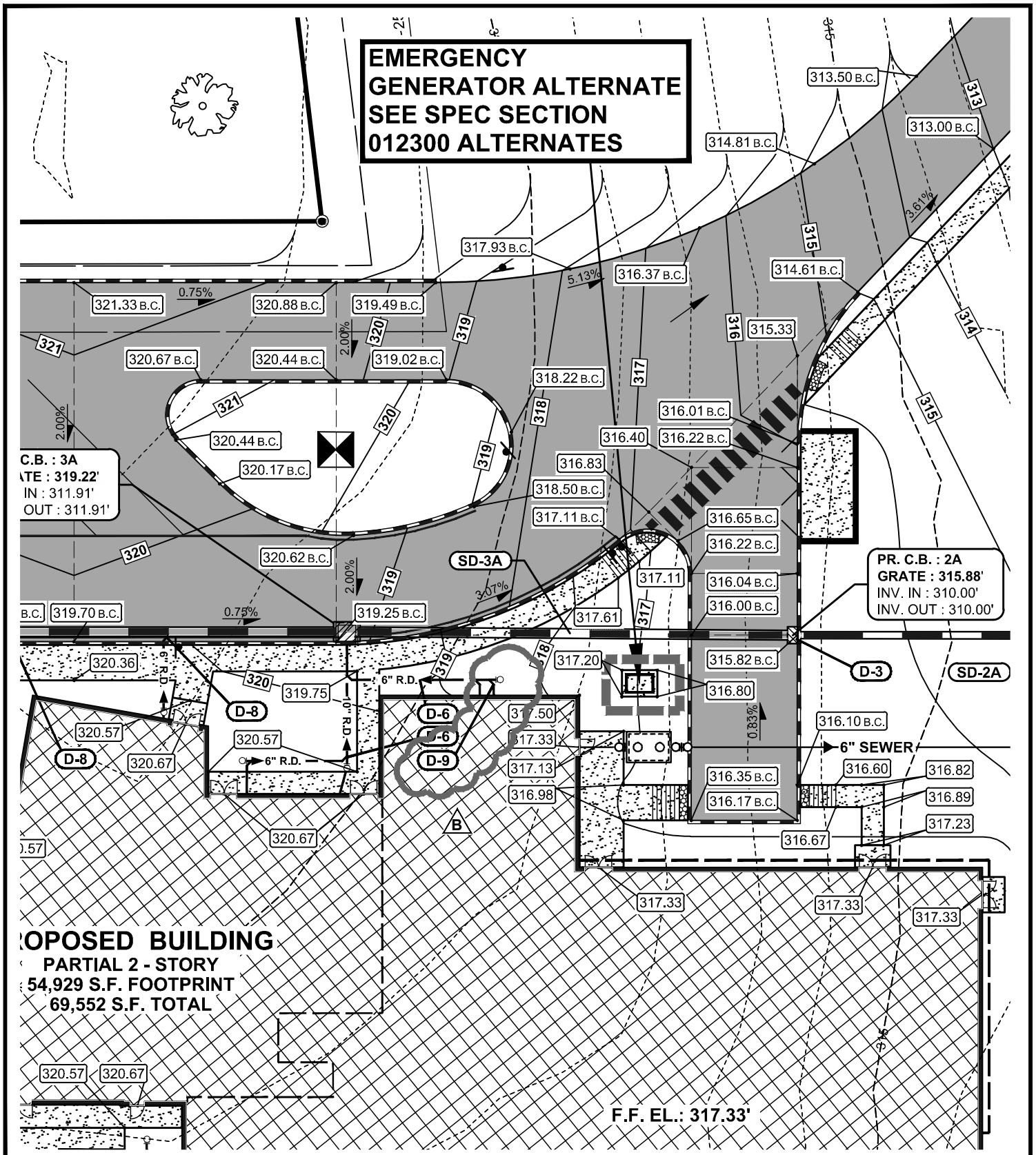

REFERENCE SHEET C-401

LAYER STATE : C-401

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 2 B

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STORM SEWER CONSTRUCTION NOTES

D-1 PROPOSED STORMWATER MANAGEMENT FACILITY TO BE CONSTRUCTED IN ACCORDANCE WITH DNREC REGULATIONS. SEE DETAILS AND SECTIONS, SHEET C-503 AND C-504.

D-2 PROPOSED STORM DRAIN PIPE (TYP). SEE PIPE SCHEDULES SHEET C-402 FOR PIPE SIZES AND INVERTS.

D-3 PROPOSED STORM DRAIN CATCH BASIN (TYP.). SEE CATCH BASIN SCHEDULES SHEET C-402 FOR TYPE, SIZE, AND INVERTS. SEE DELDOT STANDARD DETAIL SHEETS D-R, D-4, AND D-5 THROUGH D-5-6.

D-4 INSTALL FLARED END SECTION (TYP.). SIZE AND MATERIAL SHALL MATCH CONNECTING PIPE. SEE UTILITY SCHEDULES FOR CORRESPONDING PIPE SIZE AND MATERIAL.

D-5 PROPOSED STORM DRAIN MANHOLE (TYP.). SEE MANHOLE SCHEDULES SHEET C-402 FOR SIZE, RIM AND INVERTS.

D-6 INSTALL H.D.P.E. ROOF DRAIN MAINS (DUAL WALL / N-12 OR EQUAL). SLOPE AT 0.500% MINIMUM FOR 8" OR LARGER. SLOPE AT 1.0% MINIMUM FOR 6" DIA. MINIMUM DEPTH TO BE 2-0". ALL BENDS SHALL BE AT 45°. CLEANOUTS SHOULD BE INSTALLED AT ENDS AND AT ALL MAJOR BENDS AND AT A MINIMUM OF EVERY 100 FT. CONNECT TO HDPE STORM DRAIN PIPES WITH HDPE FITTINGS. SEE D-8 FOR CONNECTION TO RCP PIPE.

D-7 INSTALL 4" DIA. H.D.P.E. (@ 2% MIN. SLOPE) ROOF DRAIN LATERALS FOR 4"X3" DOWNSPOUTS AND 6" DIA. H.D.P.E. (@ 1% MINIMUM SLOPE) ROOF DRAIN LATERALS FOR 5"X5" DOWNSPOUTS AND CONNECT TO DOWNSPOUT BOOT USING A DISSIMILAR MATERIALS ADAPTOR (ADS OR EQUAL). CONNECT TO ROOF DRAIN MAIN UTILIZING A WYE FITTING CONNECTION. BOOT TO BE MODEL B25A (CAST IRON) BY BARRY PATTERN AND FOUNDARY. BOOT SIZE TO MATCH DOWNSPOUT SIZE. SEE DETAIL SHEET C-906 FOR DETAILS.

D-8 CONNECT ROOF DRAIN TO RCP STORM DRAIN PIPE USING INSERTA-TEE FITTING BY INSERTA FITTINGS CO.

D-9 CONNECT 2" DIA. CONDENSATE DRAIN FROM KITCHEN TO ROOF DRAIN PIPING WITH APPROPRIATE FITTINGS SEE INVERT EL. ON PLUMBING PLANS.

B

REFERENCE SHEET C-401 AND C-402

LAYER STATE : C-401

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SEWER DETAIL TABLE

ST. NAME	TOTAL NUMBER OF MANHOLES	NOMINAL DIAMETER OF SANITARY SEWER PIPE	TOTAL LINEAR FEET OF GRAVITY SANITARY SEWER PIPE	TOTAL LINEAR OF FORCE MAIN	PIPE MATERIAL
NA	11	8"	1,333 C	0	PVC SDR 26

SEWER LATERAL TABLE

LATERAL NUMBER C	LATERAL INVERT AT CONNECTION POINT TO SANITARY SEWER MAIN	MINIMUM PLUMBING FIXTURE ELEVATION	ELEVATION OF LOWEST FLOOR SEWERED BY GRAVITY	UPSTREAM MH NUMBER AND RIM ELEVATION C	DOWNSTREAM MH NUMBER	DISTANCE OF LATERAL CONNECTION FROM UPSTREAM MANHOLE	BACKWATER VALVE REQUIRED
LAT-[illegible]	310.35'(MH 11)	[illegible]15.35'	317.33'	#11-316.00'	10 C	N/A	N/A
LAT-[illegible]	309.83'(MH 10)	[illegible]14.83'	317.33'	#10-315.70'	9	N/A	N/A
LAT-3	285.08	290.08'	FUTURE	#5-291.89'	4	N/A	N/A
LAT-4	285.39'	290.39'	FUTURE	#5-291.89'	4	N/A	N/A

C

LEGEND

ITEM	PROPOSED
SANITARY GRAVITY SEWER LINE, SIZE & FLOW DIRECTION	10" S
SANITARY SEWER FORCE MAIN, SIZE & FLOW DIRECTION	12" F.M.
SANITARY SEWER MANHOLE (S.M.H.)	
SANITARY SEWER CLEANOUT	
PROPOSED SANITARY EASEMENT	
PROPOSED TURF TRAIL	

REFERENCE SHEET C-300

RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 3 C
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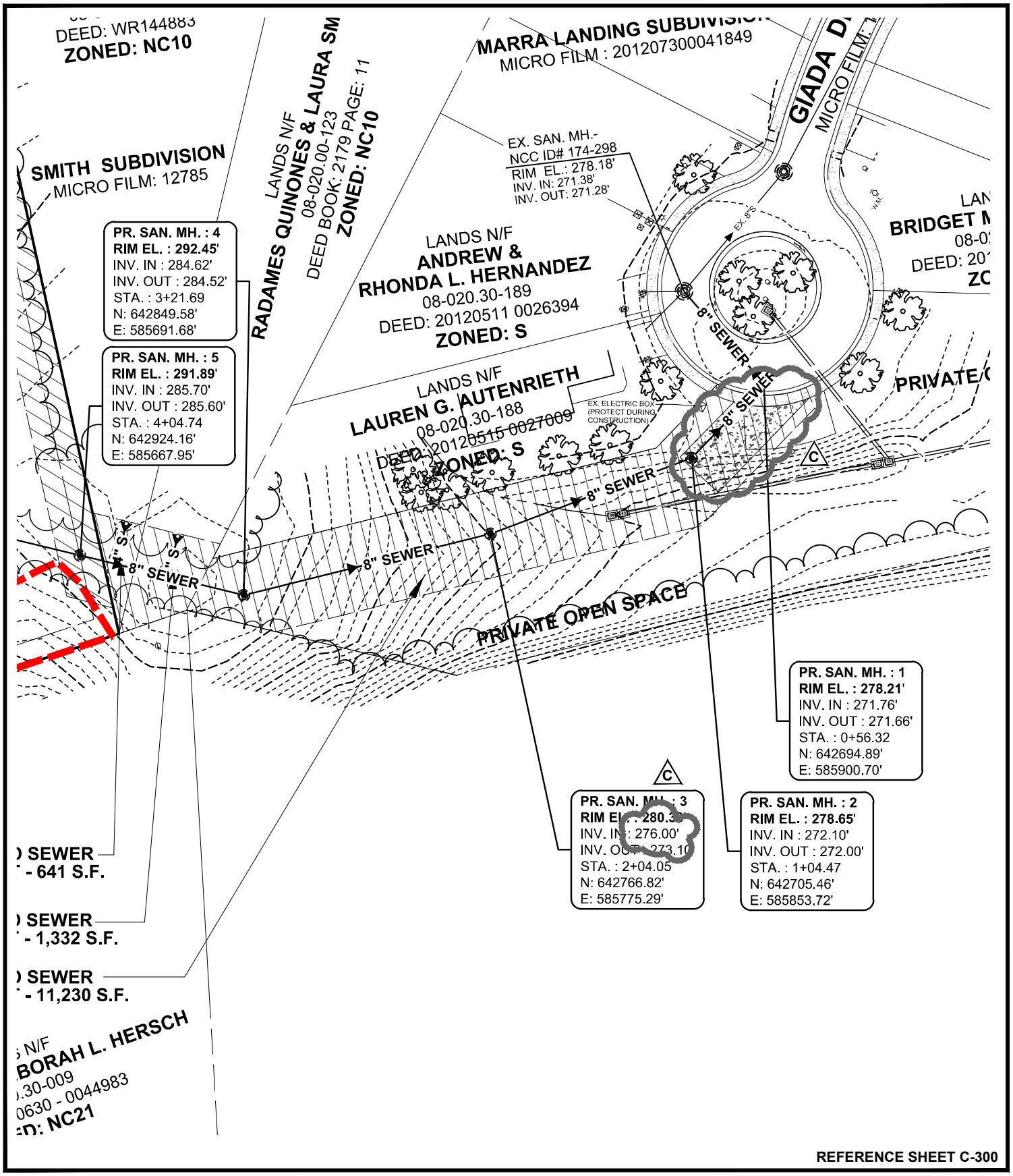

REFERENCE SHEET C-300

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 3

C

2025 GRAVES, RD., HOCKESSIN, DELAWARE

NEW CASTLE COUNTY, DELAWARE

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CSK028

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GENERAL NOTES :

1. SANITARY SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MOST RECENT NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION, SPECIAL PROVISIONS, SUPPLEMENTAL SPECIFICATIONS, STANDARD DETAILS, AND THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES OR STRICTER STANDARDS IDENTIFIED BY THE ENGINEER.
2. THE CONTRACTOR'S SHALL BE RESPONSIBLE TO OBTAIN APPROVAL AND ACCEPTANCE OF THE SANITARY SEWER SYSTEM BY NEW CASTLE COUNTY UPON COMPLETION OF CONSTRUCTION. AS-BUILT PLANS, SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR OR PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF DELAWARE MUST BE SUBMITTED TO NEW CASTLE COUNTY BEFORE ACCEPTANCE.
3. DURING CONSTRUCTION, THE CONTRACTOR MUST HAVE IN HIS POSSESSION ON SITE, A SET OF CONSTRUCTION PLANS BEARING NEW CASTLE COUNTY'S STAMP OF APPROVAL.
4. THE CONSTRACTOR SHALL NOT PLACE, PLANT, PUT OR SET ANY STRUCTURE WITHIN THE SANITARY SEWER EASEMENT.
5. A CONSTRUCTION PERMIT ISSUED BY THE STATE OF DELAWARE, DEPARTMENT OF TRANSPORTATION (DELDOT) IS REQUIRED BEFORE ANY WORK IS PERFORMED WITHIN A DELDOT RIGHT OF WAY. ALL WORK PRFORMED WITHIN DELDOT'S RIGHT OF WAY OR PROPERTY OWNED BY THE STATE OF DELAWARE SHALL BE PERFORMED IN ACCORDANCE WITH THE MOST RECENT DELDOT STANDARD SPECIFICATIONS AND UTILITY MANUAL.
6. SANITARY SEWER IS TO BE PUBLICLY/PRIVATELY OWNED AND MAINTAINED. SEE PLAN FOR DEMARCATION OF OWNERSHIP.
7. CONSTRUCTION SHALL NOT DEVIATE FROM THE PLANS AND SPECIFICATIONS APPROVED BY NEW CASTLE COUNTY WITHOUT WRITTEN PERMISSION FROM NEW CASTLE COUNTY'S DEPARTMENT OF SPECIAL SERVICES.
8. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS, DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK AND THE NEW CASTLE COUNTY DRAINAGE CODE, AS AMENDED.
9. TYPICAL SEQUENCE OF CONSTRUCTION:
   a. CONTACT NEW CASTLE COUNTY DEPARTMENT OF SPECIAL SERVICES (48 HOURS NOTICE AT 395-5756) PRIOR TO ANY EXCAVATION OR ACTIVITY INVOLVING SANITARY SEWER CONSTRUCTION, PUMP STATION OR LATERAL TIE-IN'S TO EXISTING LINES.
   b. CONSTRUCT PROPOSED SANITARY SEWER SYSTEM AS APPROVED BY NEW CASTLE COUNTY.
   c. BACKFILL AND RE-GRADE AS REQUIRED.
   d. PERFORM AIR TEST, IF REQUIRED, IN ACCORDANCE WITH SECTION 32.01-3 OF THE NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION, IN THE PRESENCE OF A NEW CASTLE COUNTY INSPECTOR.
   e. FOLLOWING A PASSING AIR TEST (IF APPLICABLE), A FINAL VISUAL INSPECTION (LAMP TEST) MUST BE PERFORMED PRIOR TO ACCEPTANCE BY NEW CASTLE COUNTY.
   f. BASED UPON THE RESULTS OF THE VISUAL INSPECTION, A MANDREL TEST MAY BE REQUIRED FOLLOWING THE VISUAL INSPECTION.
   g. LATERAL CONNECTIONS FROM THE PROPOSED SCHOOL INTO THE SEWER LINES WILL NOT BE PERMITTED UNTIL AFTER FINAL ACCEPTANCE.
   h. PRIOR TO NEW CASTLE COUNTY MAKING A FINAL INSPECTION, THE FOLLOWING ITEMS MUST BE COMPLETED:
      i. ALL MANHOLES MUST BE BROUGHT TO GRADE AND HAVE CONCRETE COLLARS INSTALLED.
      ii. CHANNELS MUST BE COMPLETED IN ALL MANHOLES
      iii. ALL MANHOLES AND SEWER PIPES MUST BE CLEANED AND FLUSHED.
      iv. AS-BUILT DRAWINGS (SIGNED AND SEALED BY A REGISTERED LAND SURVEYOR OR PROFESSIONAL ENGINEER IN DELAWARE) WITH ONE (1) MYLAR AND THREE (3) SETS OF PRINTS MUST BE SUBMITTED TO NEW CASTLE COUNTY.
      v. TURF TRAIL IS CONSTRUCTED IN ACCORDANCE WITH NCC DETAIL SS-MISC-2, OR IF PIPE AND MANHOLES ARE WITHIN A PROPOSED ROADWAY, STABILIZED ROADWAY ACCESS IS CONSTRUCTED FOR THE PURPOSE OF MAINTAINING THE CONSTRUCTED SANITARY SEWER SYSTEM UNTIL FINAL PAVING IS COMPLETED.
   i. CERTIFICATES OF OCCUPANCY WILL NOT BE ISSUED UNTIL THE AS-BUILT DRAWINGS HAVE BEEN RECEIVED, REVIEWED, AND APPROVED AND THE SANITARY SEWER CONSTRUCTION (INCLUDING ALL APPURTENANCES) HAS BEEN ACCEPTED BY NEW CASTLE COUNTY).
10. MANHOLE COVER(S) ON PRIVATELY OWNED AND MAINTAINED SEWER SYSTEMS SHALL NOT BE LABELED "NEW CASTLE COUNTY".
11. C THE SANITARY SEWER SYSTEM TIE-IN MANHOLE LOCATED IN MARRA LANDING IS IDENTIFIED AS NCC C MANHOLE #17-203
12. GREASE TRAP SIZING CALCULATION:
    A. A 4" PIPE, HALF-FULL AT 1% SLOPE WILL YIELD 45 GPM. MULTIPLIED BY 30 MIN. RETENTION TIME = 1,350 GALLONS.
    B. PER THE UPC, A 1,500 GALLON GREASE INTERCEPTOR (172 DFU'S).

REFERENCE SHEET C-300

RED CLAY CONSOLIDATED SCHOOL DISTRICT
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SANITARY SEWER PIPE SCHEDULE

PIPE NO.	SIZE	PIPE TYPE	LENGTH	SLOPE	INV. IN	INV. OUT
LAT-1	6"	PVC SDR 26	22'	1.05%	310.58'	310.35'
LAT-2	6"	PVC SDR 26	88'	3.59%	313.00'	309.83'
LAT-3	4"	PVC SDR 26	17'	2.08%	285.43'	285.08'
LAT-4	4"	PVC SDR 26	17'	2.08%	285.74'	285.39'
SS-1	8"	PVC SDR 26	56'	0.50%	271.66'	271.38'
SS-2	8"	PVC SDR 26	48'	0.50%	272.00'	271.76'
SS-3	8"	PVC SDR 26	100'	1.00%	273.10'	272.10'
SS-4	8"	PVC SDR 26	118'	7.24% C	284.52'	276.00' C
SS-5	8"	PVC SDR 26	78'	1.25%	285.60'	284.62'
SS-6	8"	PVC SDR 26	145'	1.18%	287.42'	285.70'
SS-7	8"	PVC SDR 26	300'	0.50%	291.80'	290.30'
SS-8	8"	PVC SDR 26	135'	2.06%	294.68'	291.90'
SS-9	8"	PVC SDR 26	135'	7.22%	304.50'	294.78'
SS-10	8"	PVC SDR 26	117'	1.10%	309.57'	308.28'
SS-11	8"	PVC SDR 26	104'	0.50%	310.19'	309.67'

SANITARY SEWER MANHOLE SCHEDULE

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11 #	316.00'	48"	5.81'	310.35' *(LAT-1)*	310.19' *(SS-11)*

** INDICATES DROP MANHOLE # INDICATES SHALLOW MANHOLE PER N.C.C.

REFERENCE SHEET C-302, C-303

LAYER STATE : C-302

RED CLAY CONSOLIDATED SCHOOL DISTRICT
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SANITARY SEWER CONSTRUCTION NOTES

S-1 CORE DRILL EXISTING SANITARY SEWER MANHOLE (NC 174-298) AND CONNECT PROPOSED 8" SEWER AT INVERT 271.38', USING APPROVED PIPE TO MANHOLE CONNECTOR AND INTERIOR DROP CONNECTION. SEE DETAILS, SHEET C-901

S-2 INSTALL PVC SDR 26 SANITARY SEWER SERVICE. SEE SANITARY SEWER PIPE SCHEDULE.

S-3 INSTALL CLEANOUT WITH CAST IRON FRAME AND COVER. SEE DETAIL, SHEET C-902. SIZE TO MATCH LATERAL SIZE. SEE DETAIL, SHEET C-901.

S-4 INSTALL PRECAST CONCRETE MANHOLE WITH HEAVY DUTY FRAME AND COVER. FRAME AND COVERS IN NONPAVED AREAS ARE SET ABOVE PROPOSED GRADE AND SHALL HAVE BERM PER N.C.C. STANDARD. SEE DETAILS, SHEET C-901,C-902 AND SANITARY SEWER MANHOLE SCHEDULE. THE SYSTEM SHALL BE PUBLIC UP TO MANHOLE NO. 5. MANHOLE NO.'S 1 - 5 SHALL HAVE N.C.C. STANDARD MANHOLE FRAME AND COVER. ALL OTHERS SHALL HAVE MANHOLE FRAME AND COVER FOR PRIVATE SYSTEM. SEE DETAIL, SHEET C-901.

S-5 INSTALL STAINLESS STEEL GREASE INTERCEPTOR WITH HEAVY DUTY FRAMES/COVERS OVER OPENINGS AND 12"x18"x120" CONCRETE DEADMAN ANCHORS AND STRAPS. SEE DETAILS, SHEET C-902.

S-6 TRANSITION FROM BUILDING SEWER SIZE AND TYPE TO PVC SDR 26 LATERAL SIZE USING REQUIRED FITTINGS PRIOR TO CLEANOUT.

S-7 INSTALL PRECAST CONCRETE DROP MANHOLE WITH HEAVY DUTY FRAME AND COVER. FRAME AND COVERS IN NONPAVED AREAS ARE SET ABOVE PROPOSED GRADE AND SHALL HAVE BERM PER N.C.C. STANDARD. SEE DETAILS, SHEET C-901, C-902 SANITARY SEWER MANHOLE SCHEDULE. THE SYSTEM SHALL BE PUBLIC UP TO MANHOLE NO. 5. MANHOLE NO.'S 1 - 5 SHALL HAVE N.C.C. STANDARD MANHOLE FRAME AND COVER. ALL OTHERS SHALL HAVE MANHOLE FRAME AND COVER FOR PRIVATE SYSTEM. SEE DETAIL, SHEET C-901.

S-8 INSTALL TURF TRAIL PER N.C.C. STANDARD. SEE SHEET C-303 FOR LOCATION OF TURF TRAIL AND TYPICAL DETAIL ON SHEET C-902.

S-9 INSTALL DUAL CLEANOUT ASSEMBLY.
SEE SHEET C-901 AND C-902 FOR SANITARY SEWER DETAILS. C

REFERENCE SHEET C-302, C-303

LAYER STATE : C-302

RED CLAY CONSOLIDATED SCHOOL DISTRICT
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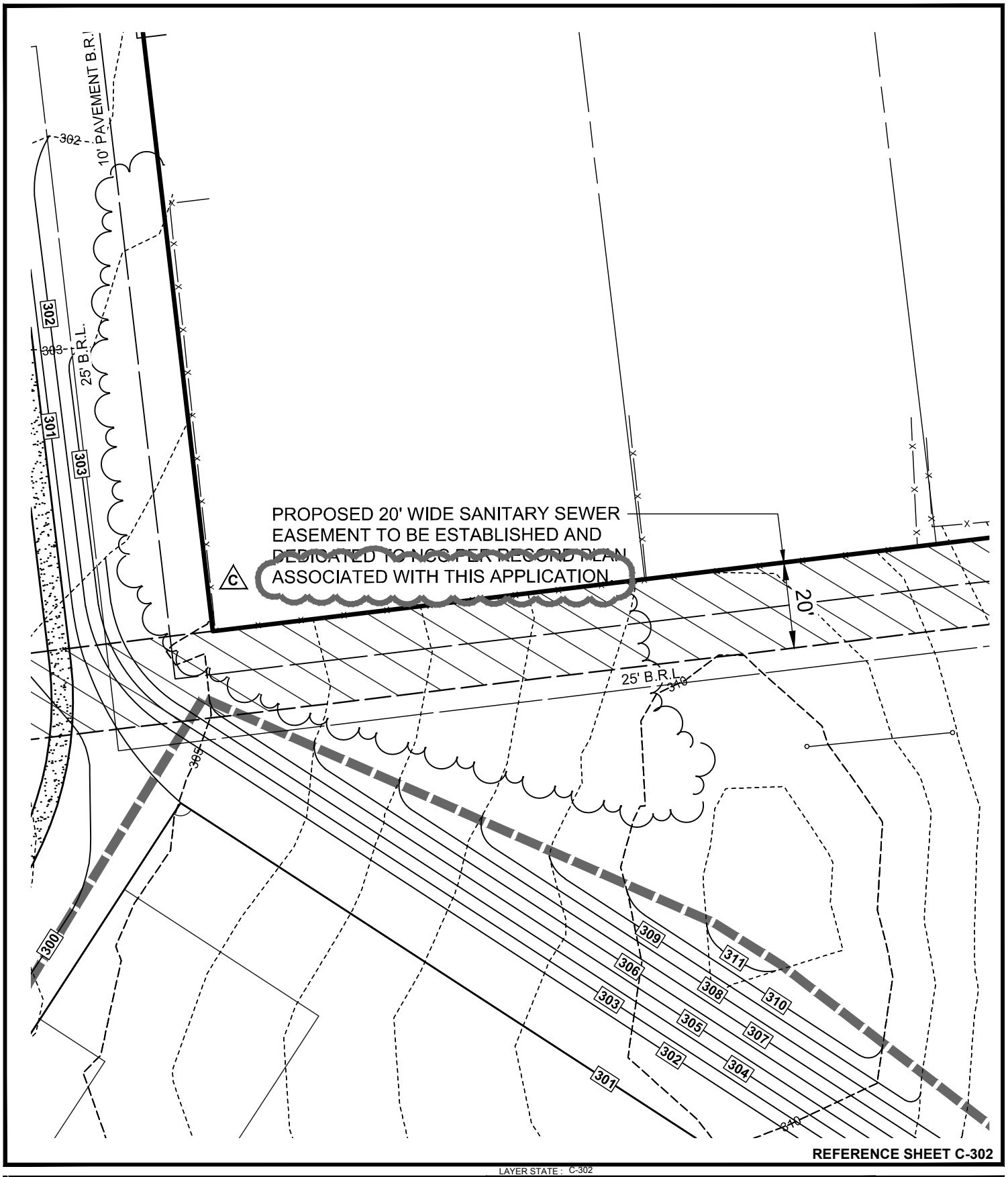

REFERENCE SHEET C-302

LAYER STATE : C-302

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 3 C

2025 GRAVES, RD., HOCKESSIN, DELAWARE

NEW CASTLE COUNTY, DELAWARE

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BMG:	2012080.00
SCALE :	1" = 30'
DATE :	7-29-13
DRAWN BY :	M.J.H.

CSK032

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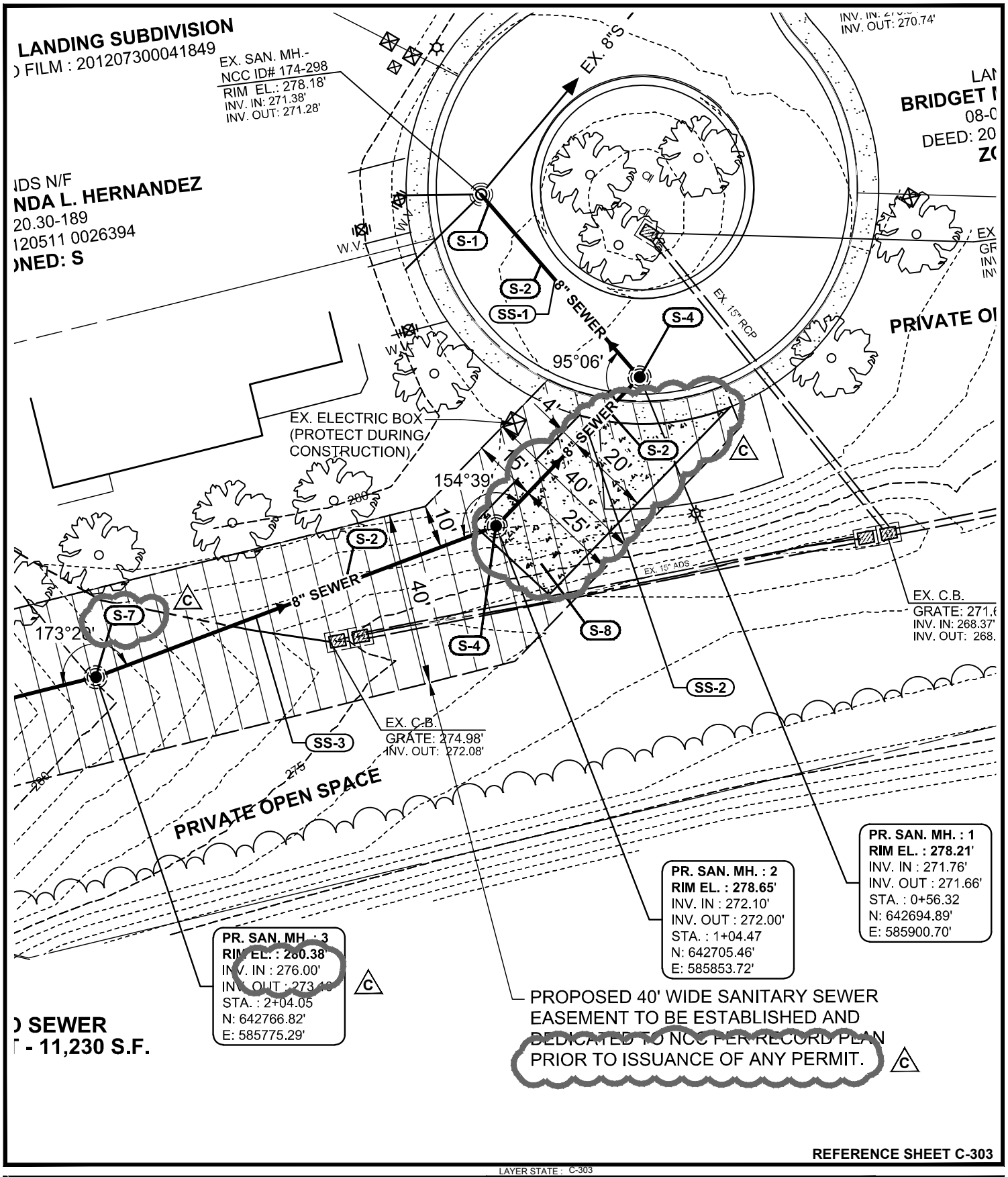

REFERENCE SHEET C-303

LAYER STATE : C-303

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 3

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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BMG:	2012080.00
SCALE :	1" = 30'
DATE :	7-29-13
DRAWN BY :	M.J.H.

CSK033

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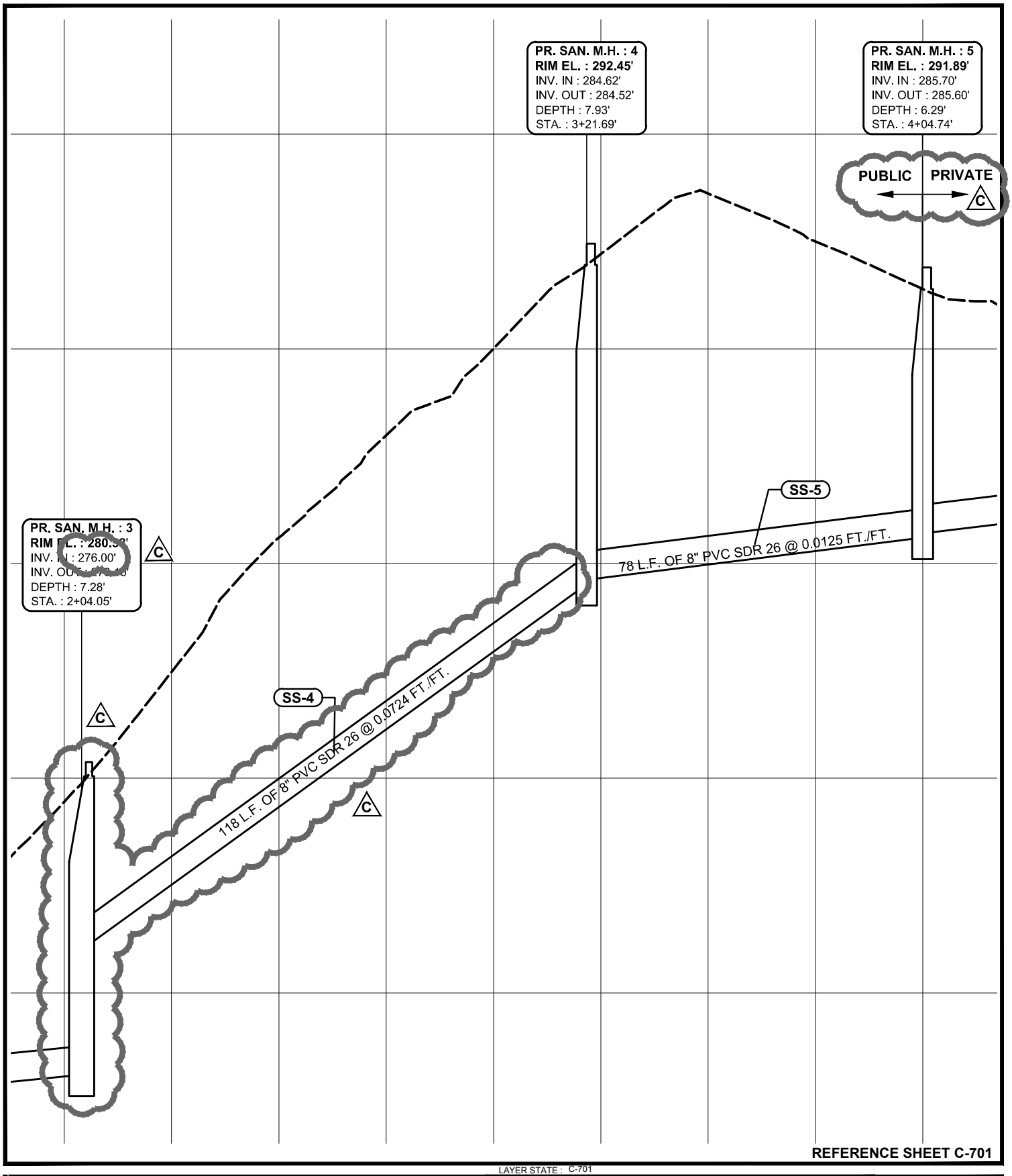

REFERENCE SHEET C-701

LAYER STATE : C-701

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 3 C

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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BMG:	2012080.00
SCALE :	1" = 30'
DATE :	7-29-13
DRAWN BY :	M.J.H.

CSK034

F:\AutoCAD\Projects\2012\2012080\DWG\2012080-SITE-C3D12.dwg, Jul 29, 2013 - 10:23am

STORM DRAIN PIPE SCHEDULE

PIPE NO.	SIZE	PIPE TYPE	LENGTH	SLOPE	INV. IN	INV. OUT
SD-1A	24"	HDPE	130'	7.09%	298.23'	289.00'
SD-2A	18"	HDPE	113'	8.65%	310.00'	300.23'
SD-3A	18"	R.C.P.	101'	1.89%	311.91'	310.00'
SD-4A	18"	R.C.P.	162'	0.85%	313.29'	311.91'
SD-5A	15"	R.C.P.	100'	0.85%	314.14'	313.29'
SD-6A	15"	R.C.P.	70'	0.50%	314.49'	314.14'
SD-7A	24"	HDPE	163'	0.50%	301.05'	300.23'
SD-8A	24"	HDPE	191'	0.50%	302.00'	301.05'
SD-9A	24"	HDPE	179'	2.39%	306.28'	302.00'
SD-10A	15"	R.C.P.	38'	1.21%	308.45'	308.00'
SD-11A	24"	R.C.P.	148'	1.18%	308.03'	306.28'
SD-12A	15"	R.C.P.	71'	2.06%	309.48'	308.03'
SD-13A	15"	R.C.P.	82'	1.43%	309.20'	308.03'
SD-14A	15"	R.C.P.	69'	2.86%	311.17'	309.20'
SD-15A	15"	R.C.P.	158'	2.08%	314.46'	311.17'
SD-16A	15"	R.C.P.	32'	0.52%	314.63'	314.46'
SD-17A	15	R.C.P.	55'	1.26%	315.15'	314.46'

C ALL RCP PIPE TO BE CLASS III UNLESS OTHERWISE NOTED

STORM DRAIN PIPE SCHEDULE

PIPE NO.	SIZE	PIPE TYPE	LENGTH	SLOPE	INV. IN	INV. OUT
SD-1B	18"	HDPE	159'	1.57%	291.50'	289.00'
SD-2B	15	R.C.P.	68'	1.02%	294.00'	293.31'

C ALL RCP PIPE TO BE CLASS III UNLESS OTHERWISE NOTED

STORM DRAIN PIPE SCHEDULE

PIPE NO.	SIZE	PIPE TYPE	LENGTH	SLOPE	INV. IN	INV. OUT
SD-1C	15"	R.C.P.	6'	0.50%	317.70'	317.67'
SD-2C	15	R.C.P.	114'	3.35%	321.50'	317.70'

C ALL RCP PIPE TO BE CLASS III UNLESS OTHERWISE NOTED

REFERENCE SHEET C-402

LAYER STATE : C-402

RED CLAY CONSOLIDATED SCHOOL DISTRICT
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 3 C
2025 GRAVES, RD., HOCKESSIN, DELAWARE
NEW CASTLE COUNTY, DELAWARE

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SCALE : 1" = 30'
DATE : 7-29-13
DRAWN BY : M.J.H.

CSK035

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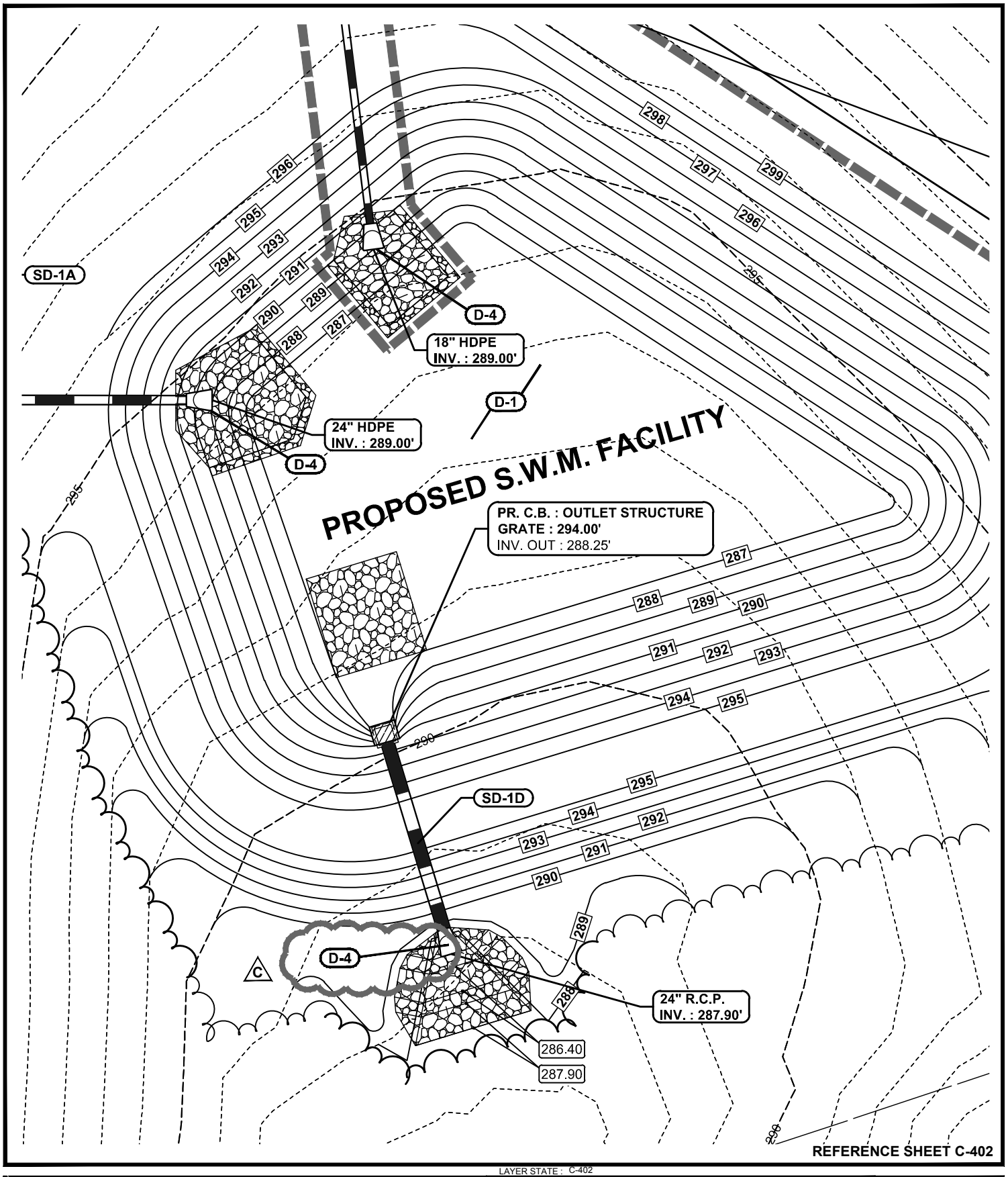

LAYER STATE : C-402

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 3 C

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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BMG:	2012080.00
SCALE :	1" = 30'
DATE :	7-29-13
DRAWN BY :	M.J.H.

CSK036

F:\AutoCAD\Projects\2012\2012080\DWG\2012080-SITE-C3D12.dwg, Jul 30, 2013 - 8:00am

STORM DRAIN PIPE SCHEDULE

PIPE NO.	SIZE	PIPE TYPE	LENGTH	SLOPE	INV. IN	INV. OUT
SD-1D	24"	R.C.P.	54'	0.65%	288.25'	287.90'

C ALL RCP PIPE TO BE CLASS III UNLESS OTHERWISE NOTED

REFERENCE SHEET C-503

LAYER STATE : C-503

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 3 C

2025 GRAVES, RD., HOCKESSIN, DELAWARE

NEW CASTLE COUNTY, DELAWARE

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BMG: 2012080.00
SCALE : 1" = 40'
DATE : 7-29-13
DRAWN BY : M.J.H.

CSK037

F:\AutoCAD\Projects\2012\2012080\DWG\2012080-SITE-C3D12.dwg, Jul 30, 2013 - 8:01am

ELECTRIC CONSTRUCTION NOTES

UE-1 PROPOSED TRANSFORMER LOCATION. SEE ELECTRICAL DRAWINGS FOR DETAILS.

UE-2 PROPOSED EMERGENCY GENERATOR ON 6'x8'x8" THICK CONCRETE PAD. SEE ELECTRICAL DRAWINGS FOR DETAILS. SEE SHEET C-906 FOR GENERATOR PAD DETAIL.

UE-3 PROPOSED ELECTRIC CONDUITS. SEE ELECTRICAL DRAWINGS FOR DETAIL, NUMBER AND SIZES.

UE-4 TWO (2) 4" PVC CONDUITS FROM TRANSFORMER TO PROPOSED UTILITY POLE LOCATION. UTILITY COMPANY TO PROVIDE CONNECTION AT POLE.

UE-5 APPROXIMATE LOCATION OF NEW UTILITY POLE. (NOT IN CONTRACT, TO BE INSTALLED BY UTILITY COMPANY)

C

TELEPHONE / FIBER OPTIC CONSTRUCTION NOTES

UT-1 TWO (2) 4" PVC CONDUITS (COMMUNICATIONS SERVICES) AND ONE (1) 4" INNERDUCT WITH PULL ROPE (FIBER OPTIC SERVICE) FROM BUILDING TO PROPOSED UTILITY POLE. UTILITY COMPANY TO PROVIDE CONNECTION AT POLE.

UT-2 MAINTAIN MIN. 2'-0" COVER AND 12" VERTICAL SEPARATION BETWEEN CONDUITS AND STORM DRAIN.

C

REFERENCE SHEET C-302

LAYER STATE : C-302

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL - ADDENDUM 3 C

2025 GRAVES, RD., HOCKESSIN, DELAWARE

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BMG: 2012080.00
SCALE : 1" = 30'
DATE : 7-29-13
DRAWN BY : M.J.H.

CSK038

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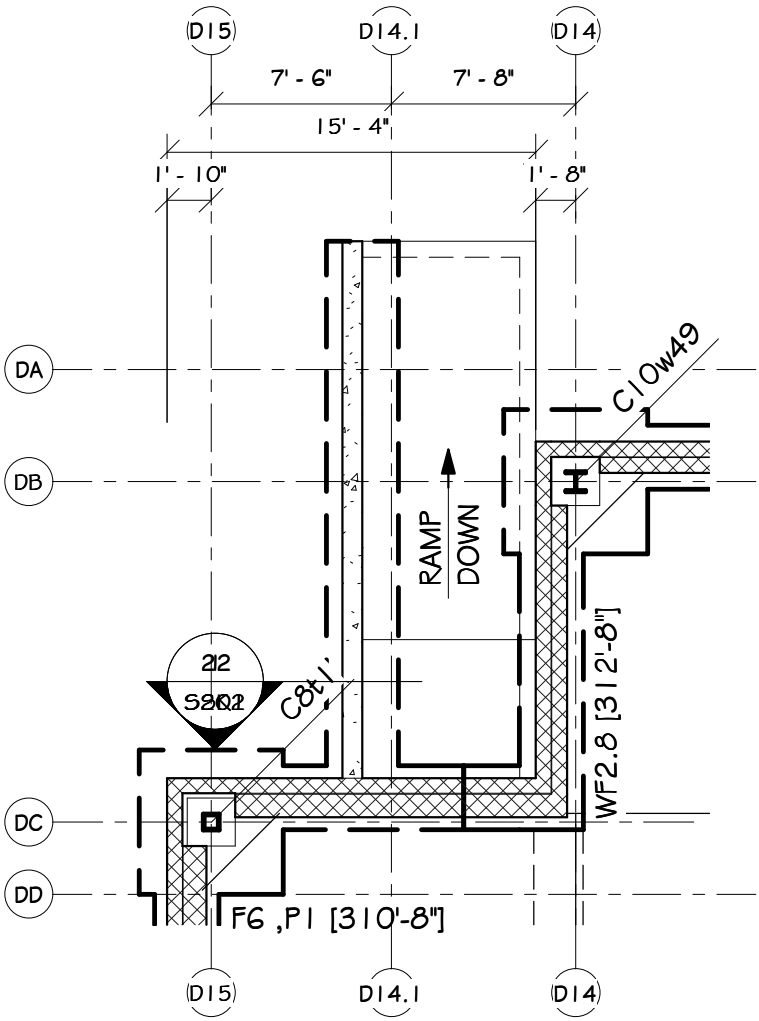

P1
SSK1

PARTIAL FOUNDATION PLAN

1/8" = 1'-0"

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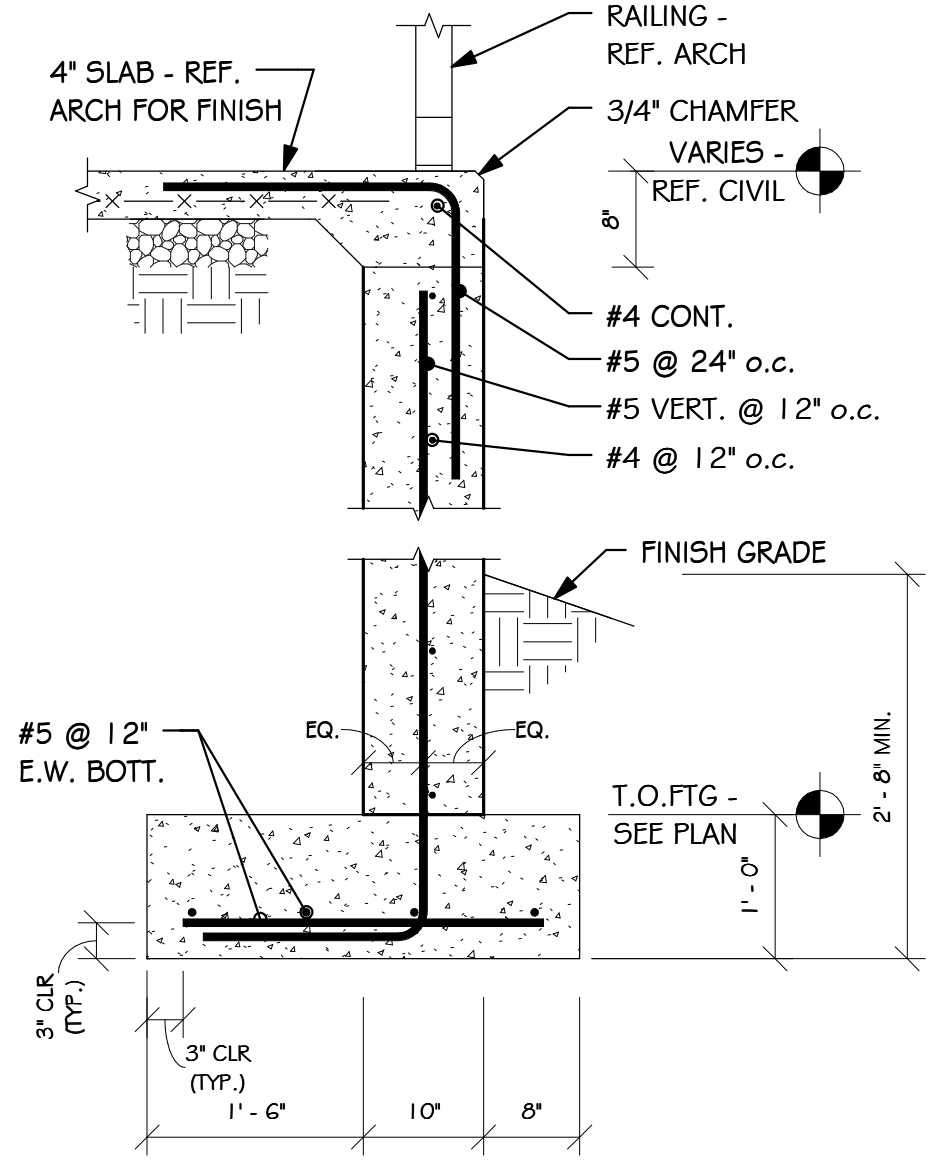
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

PARTIAL FOUNDATION PLAN

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY:	Author

SSK1



1
SSK2

SECTION

3/4" = 1'-0"

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2025 GRAVES ROAD,
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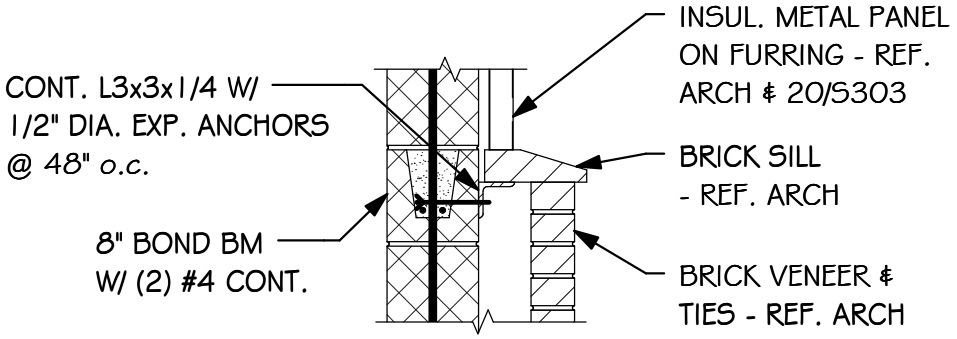
SECTION 22/S201

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY:	AJC

SSK2



1
SSK3

SECTION

3/4" = 1'-0"

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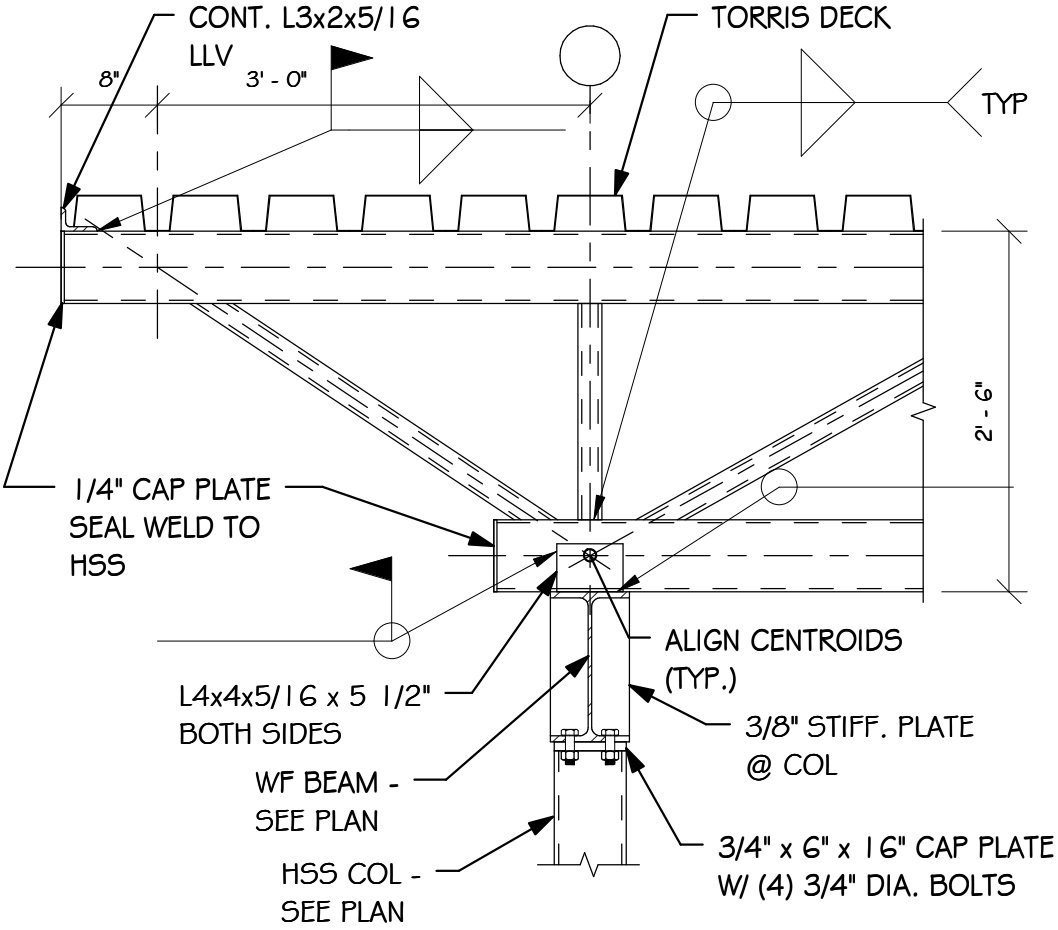
HOCKESSIN, DE 19707

SECTION 18/S202

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY:	AJC

SSK3



1
SSK4

SECTION

3/4" = 1'-0"

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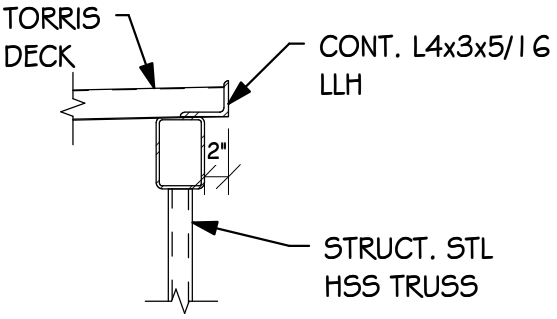
SECTION 17/S203

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY:	AJC

SSK4



1
SSK5

SECTION

3/4" = 1'-0"

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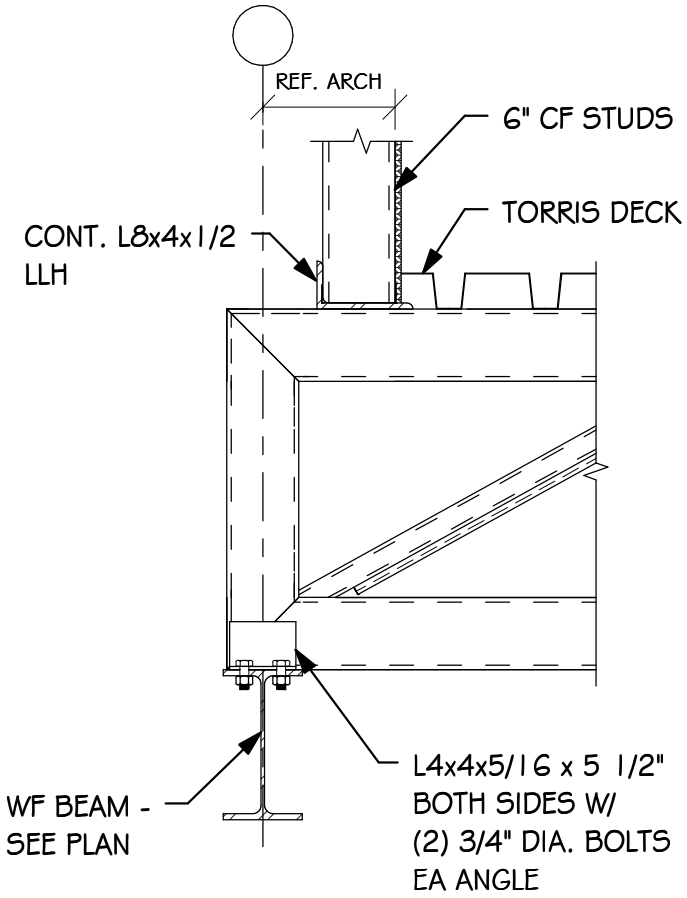
SECTION 20/S203

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY:	AJC

SSK5



1
SSK6

SECTION

3/4" = 1'-0"

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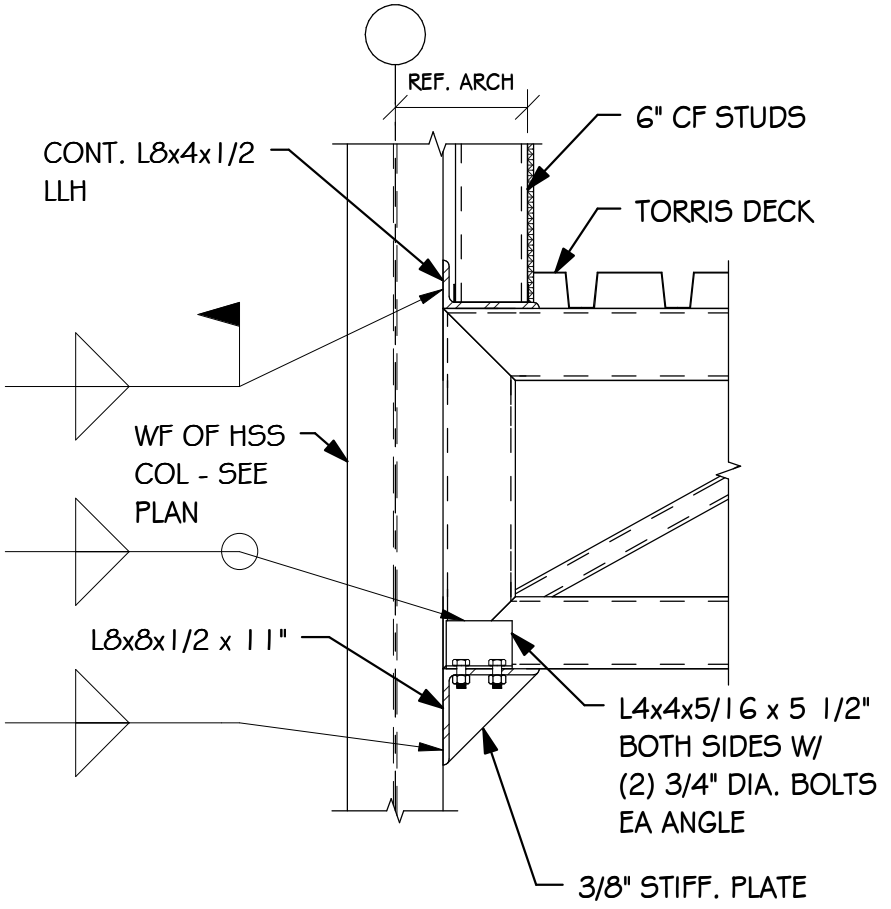
SECTION 21/S203

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY:	AJC

SSK6



1
SSK7

SECTION

3/4" = 1'-0"

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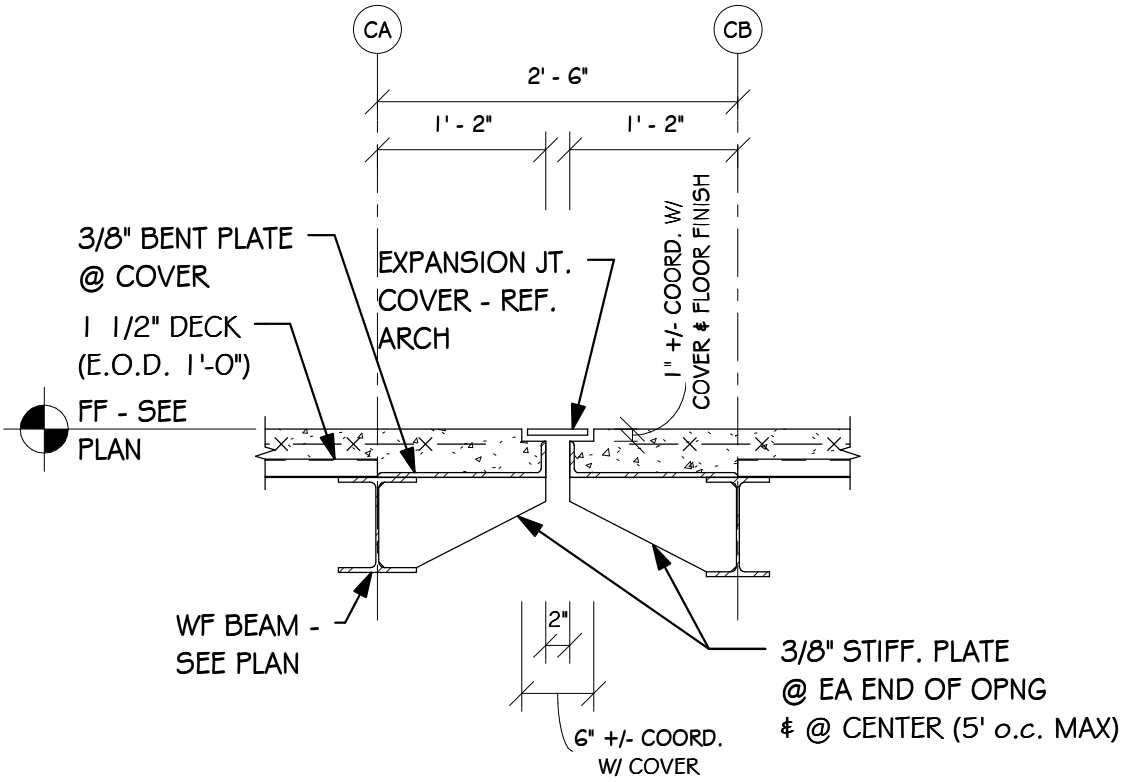
SECTION 22/S203

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY:	AJC

SSK7



1
SSK8

SECTION

3/4" = 1'-0"

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SECTION 27/S204

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
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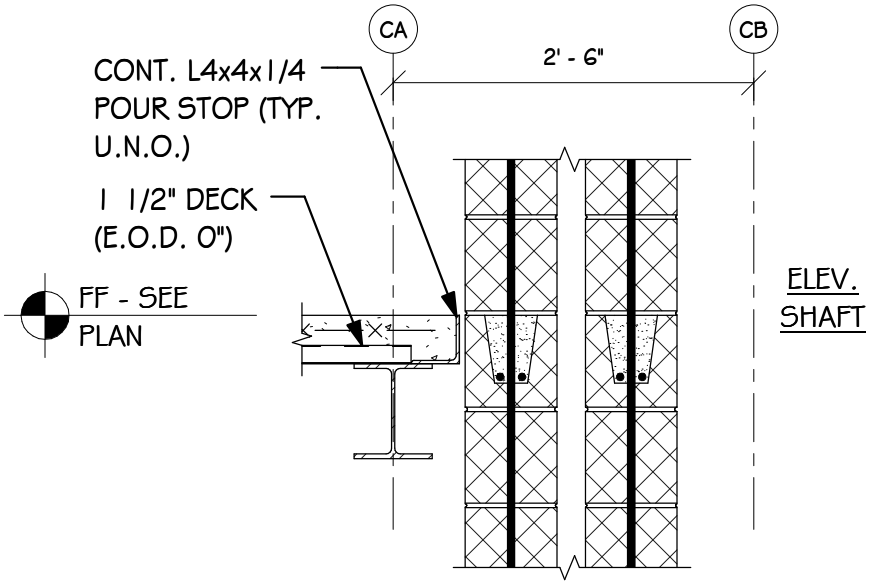
SSK8



1
SSK9

SECTION

3/4" = 1'-0"

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SECTION 28/S204

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
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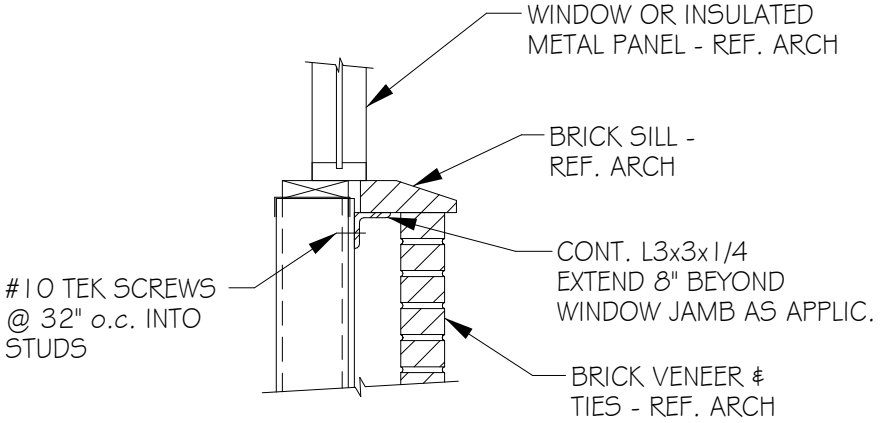
SSK9



21
S303

SECTION

3/4" = 1'-0"

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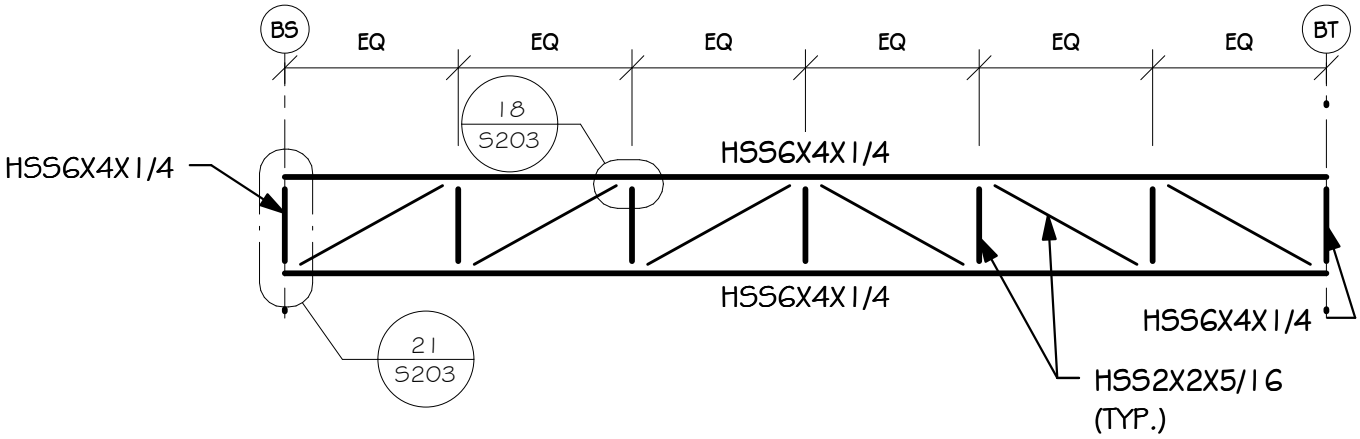
SECTION 21/S303

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY:	AJC

SSK10



1
SSK11

SSK11

1/4" = 1'-0"

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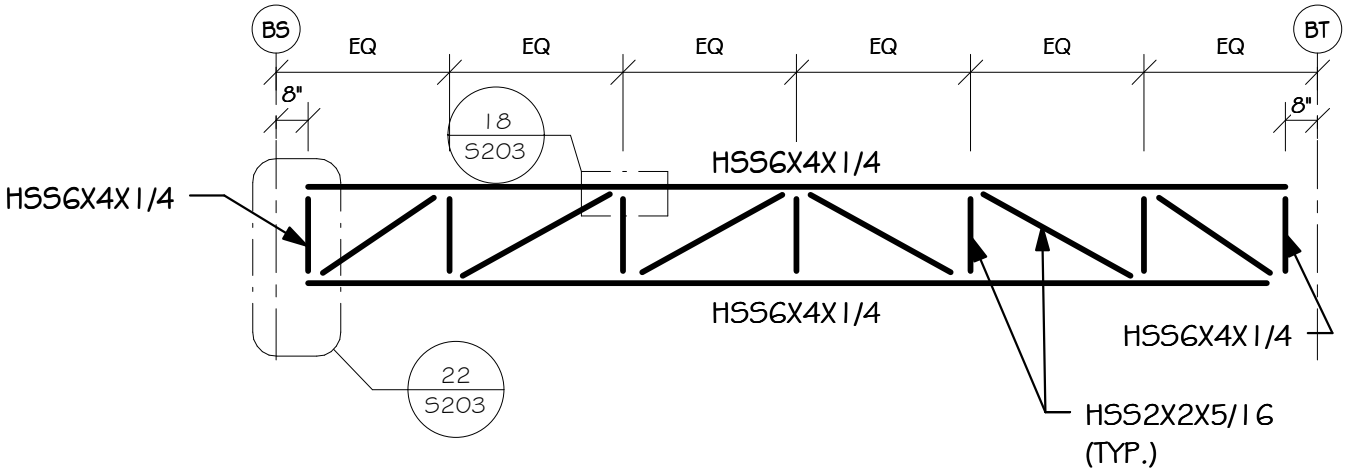
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

TRUSS ELEVATION A2

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	1/4" = 1'-0"
DRAWN BY:	AJC

SSK11



1
SSK12

SSK12

1/4" = 1'-0"

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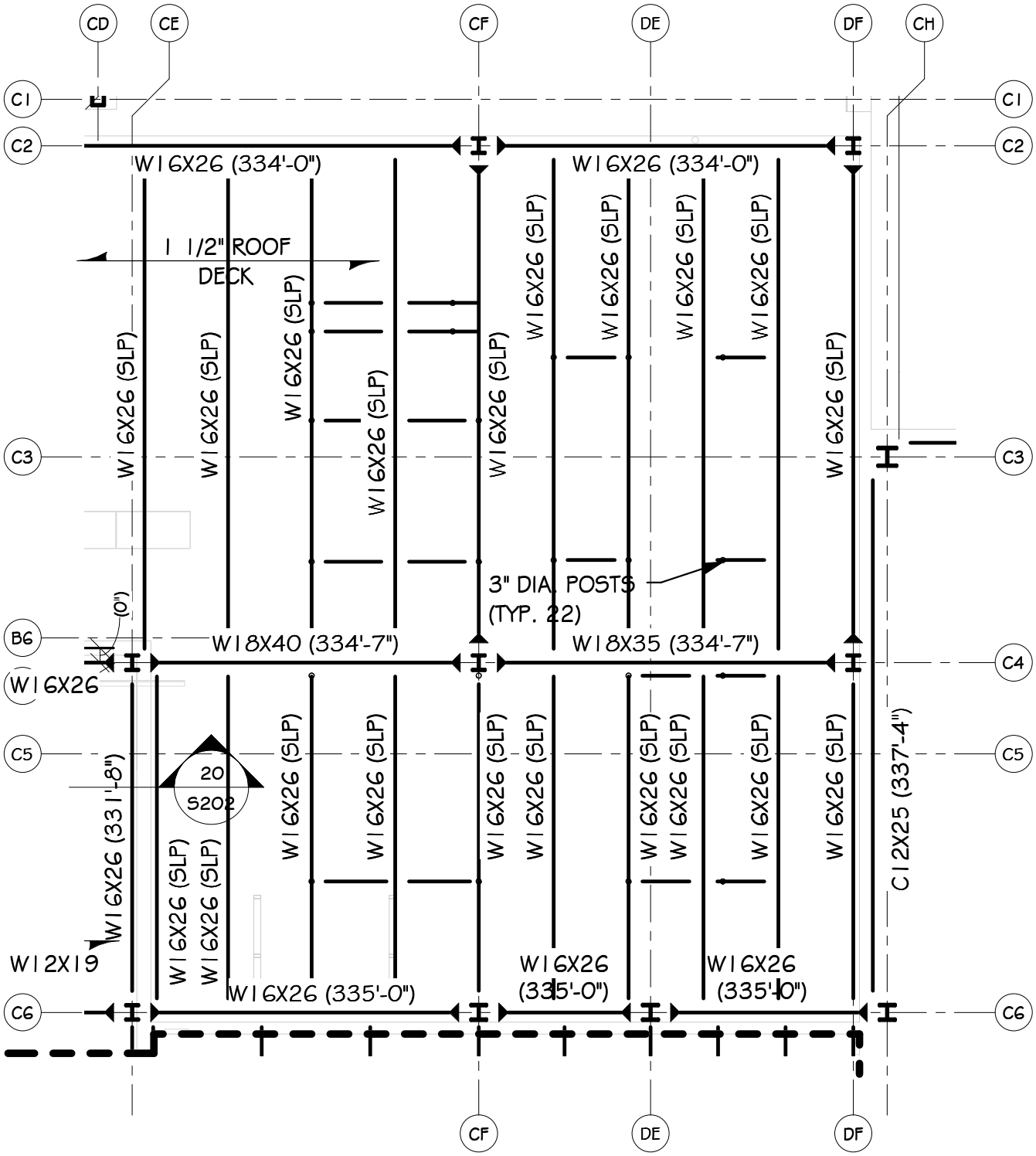
TRUSS ELEVATION A3

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	1/4" = 1'-0"
DRAWN BY:	AJC

SSK12



1
SSK13

SSK13

1/8" = 1'-0"

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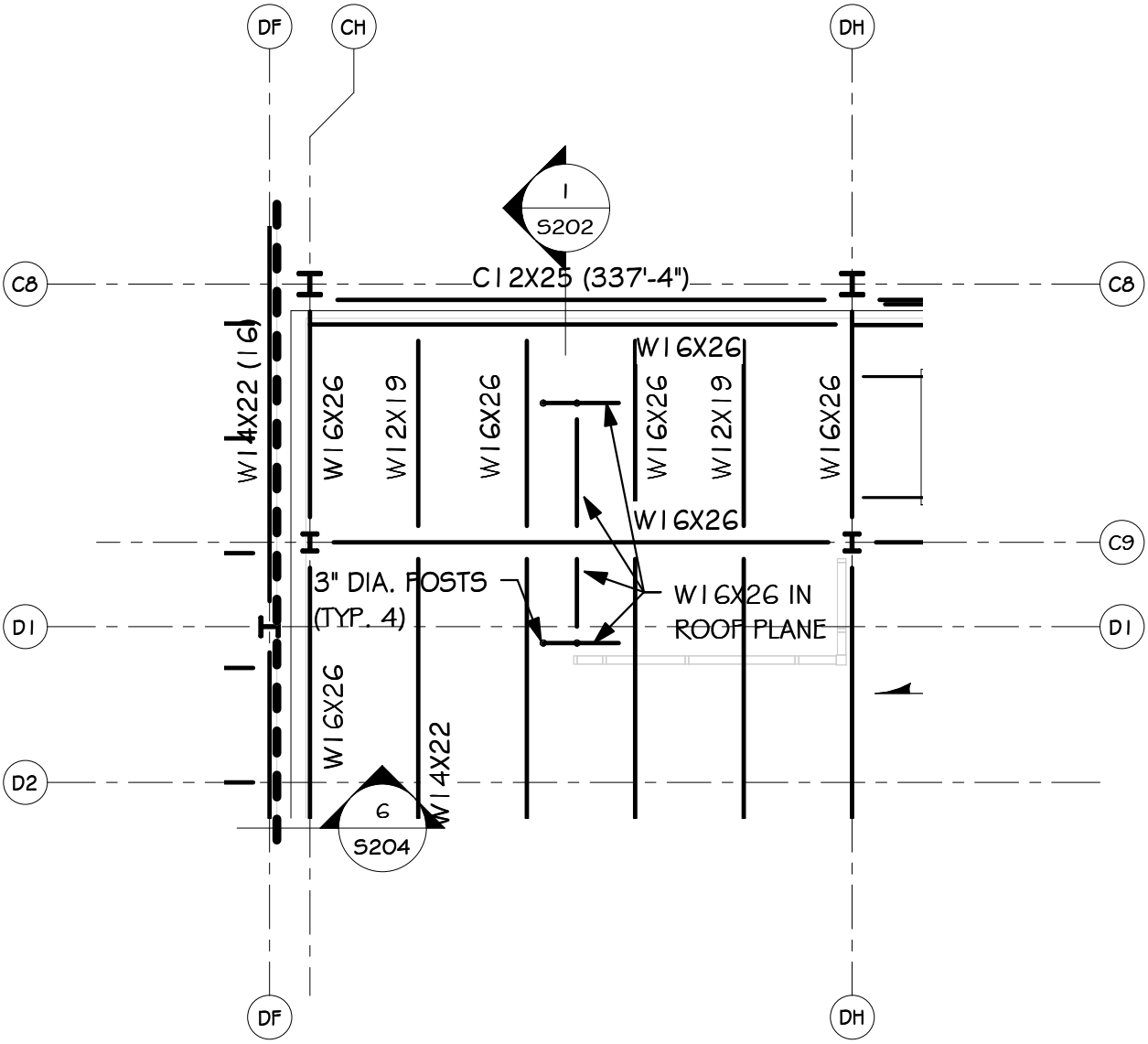
PARTIAL LOW ROOF FRAMING PLAN

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY:	AJC

SSK13



1
SSK14

SSK14

1/8" = 1'-0"

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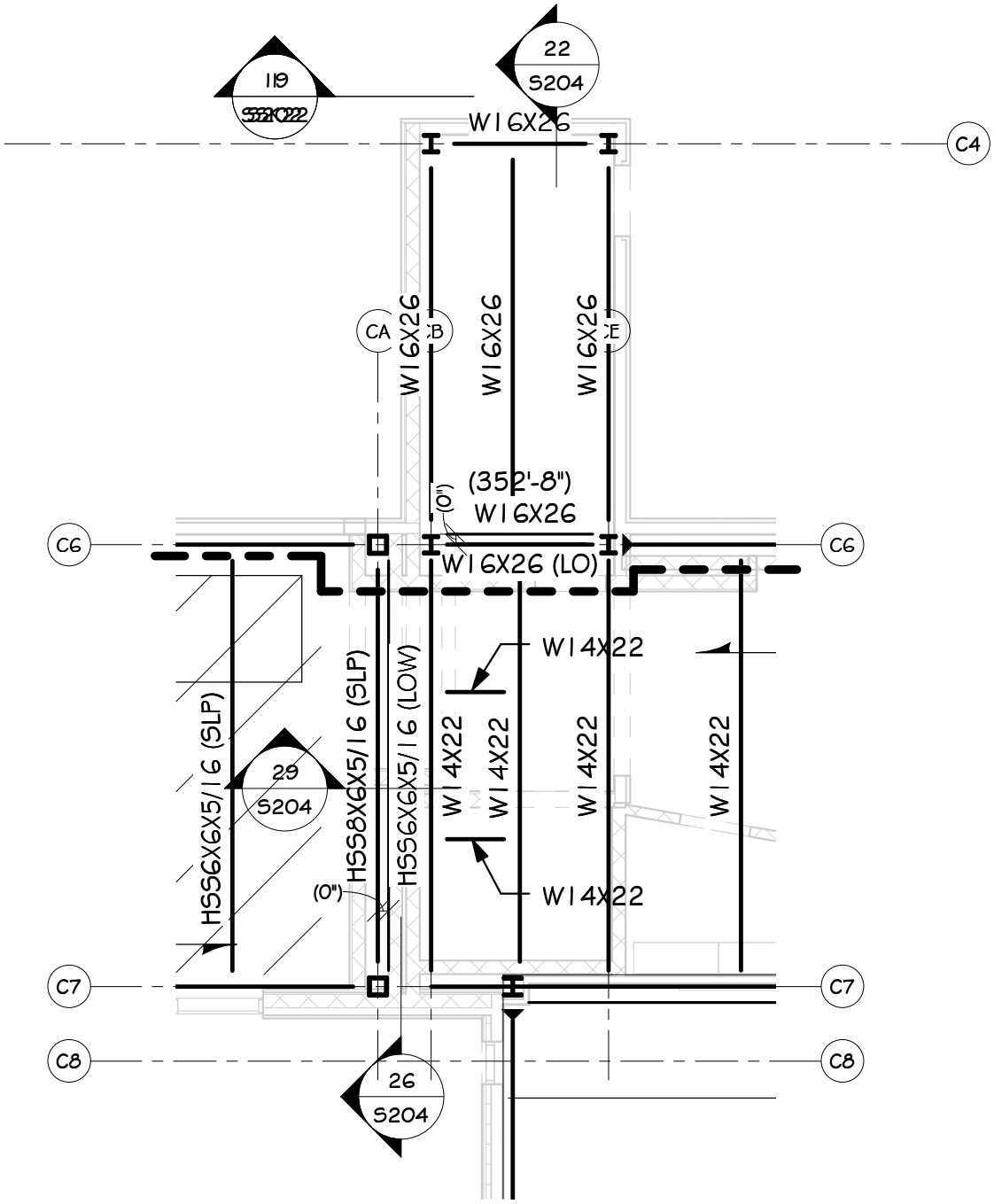
PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY:	AJC

SSK14



1
SSK15

SSK15

1/8" = 1'-0"

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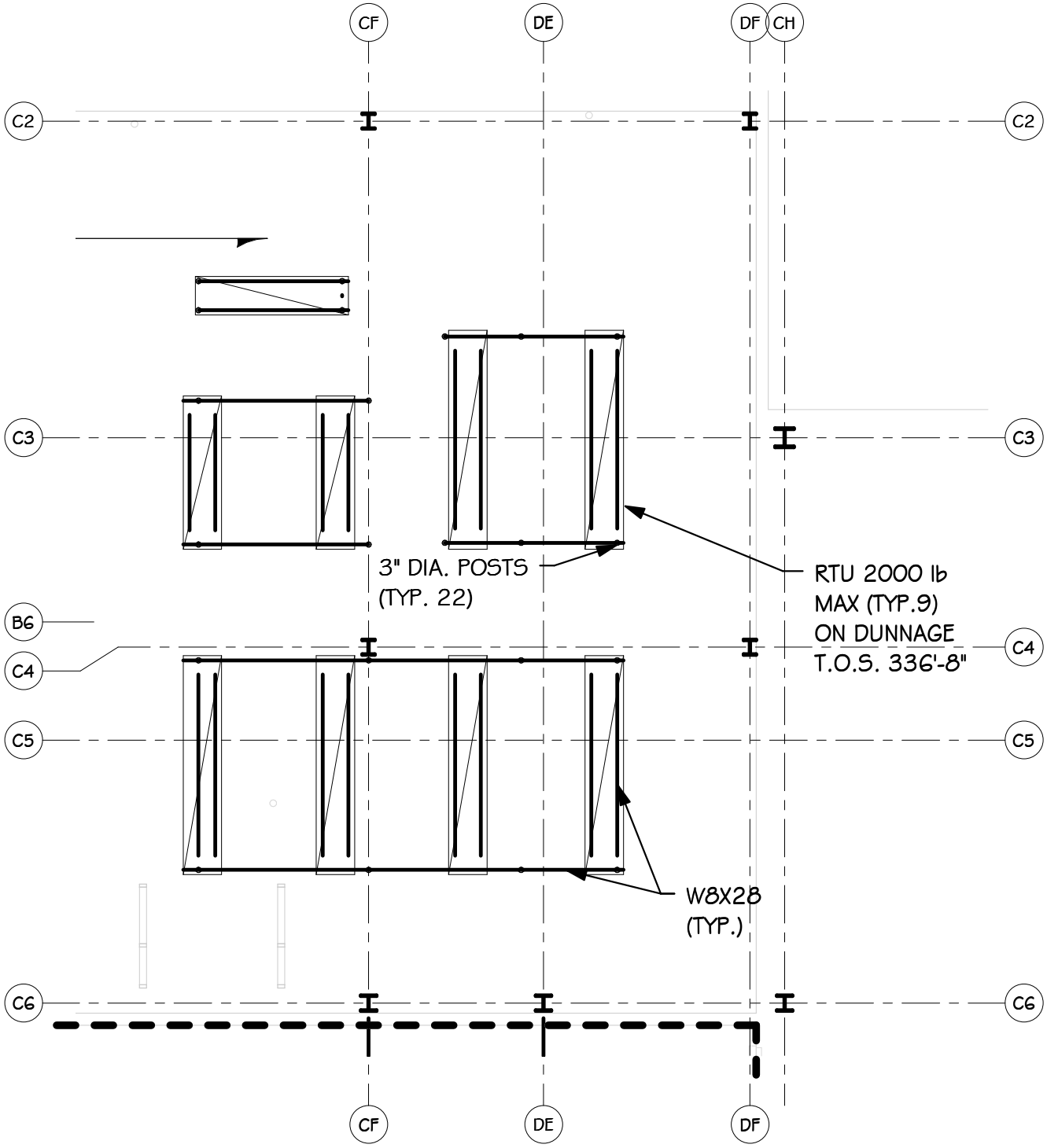
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

PARTIAL ROOF FRAMING PLAN

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY:	AJC

SSK15



1
SSK16

SSK16
1/8" = 1'-0"

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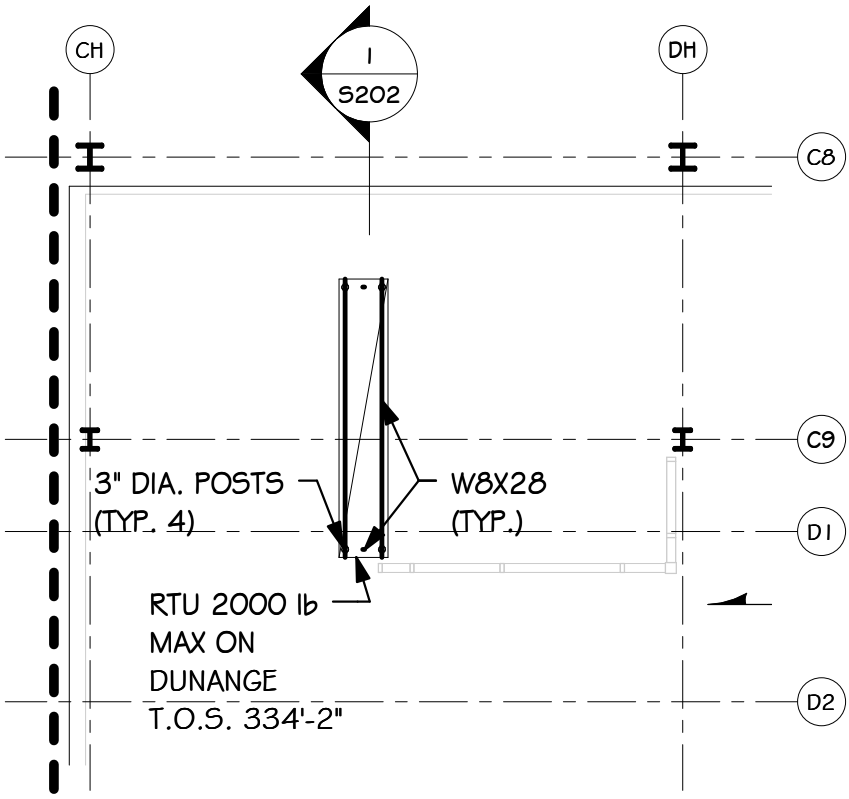
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

PARTIAL DUNNAGE FRAMING PLAN

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY:	AJC

SSK16



1
SSK17

PARTIAL DUNNAGE FRAMING PLAN

1/8" = 1'-0"

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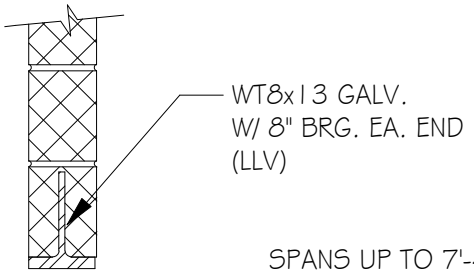
HOCKESSIN, DE 19707

PARTIAL DUNNAGE FRAMING PLAN

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY:	AJC

SSK17



SPANS UP TO 7'-4

2
S303

6" MASONRY LINTEL DETAILS

3/4" = 1'-0

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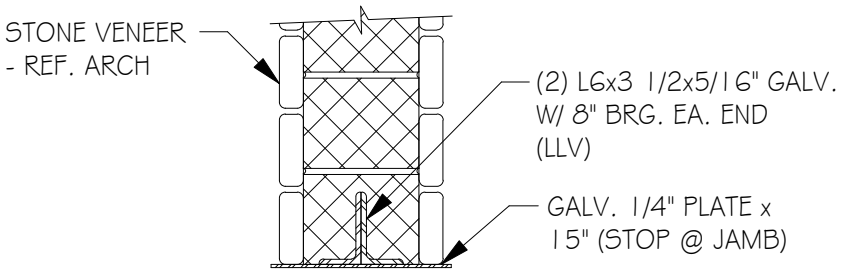
2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SECTION 2/S303

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	
DRAWN BY:	AJC

SSK18



SPANS 5'-4 TO 8'-8

3
S303

10" MASONRY LINTEL DETAILS

3/4" = 1'-0

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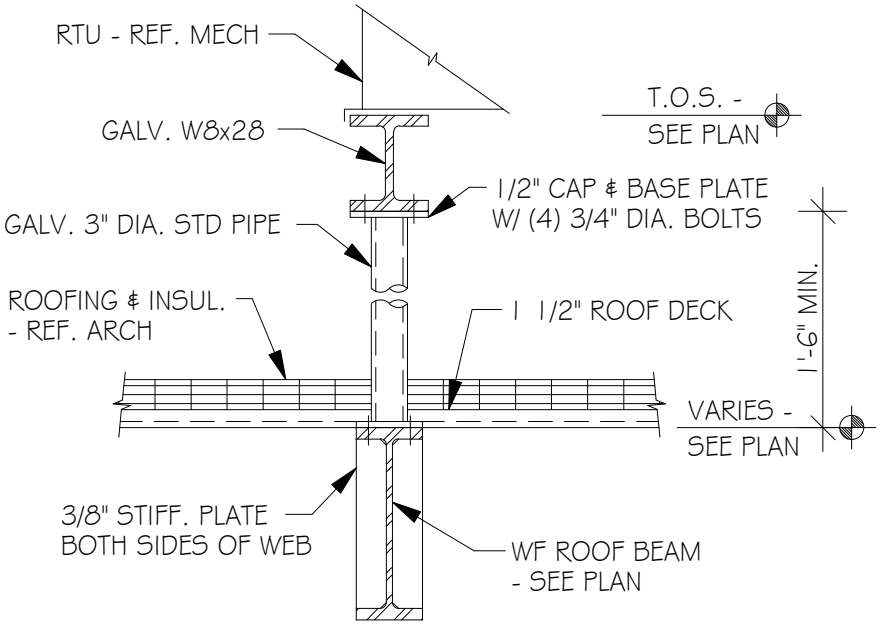
HOCKESSIN, DE 19707

SECTION S303

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	
DRAWN BY:	AJC

SSK19



22
S303

RTU DUNNAGE

3/4" = 1'-0"

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2025 GRAVES ROAD,
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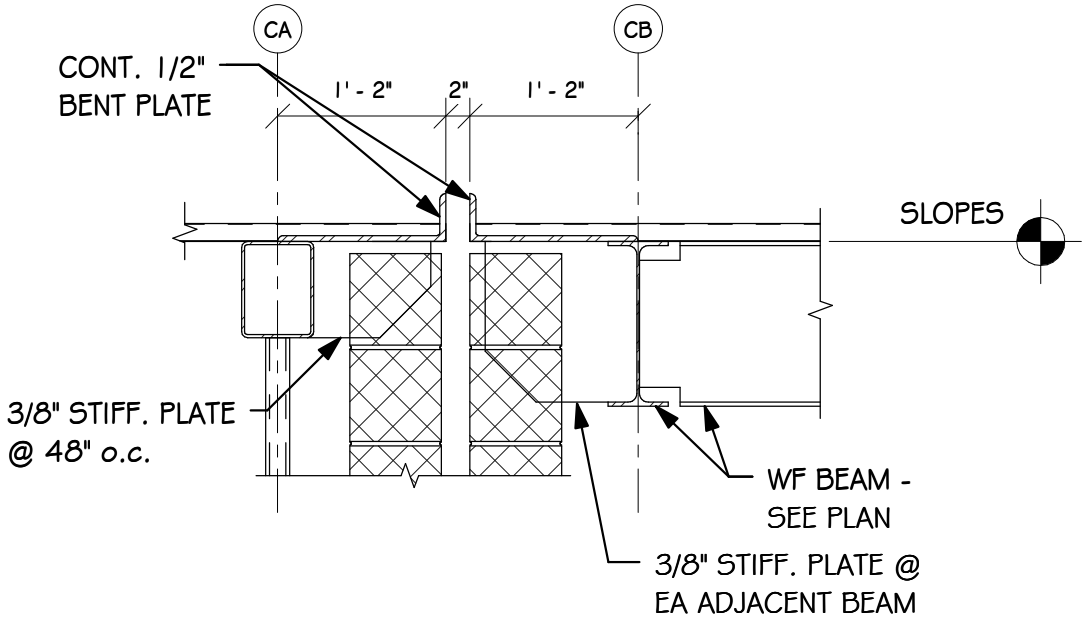
SECTION 22/S303

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	
DRAWN BY:	AJC

SSK20



1
SSK21

SECTION

3/4" = 1'-0"

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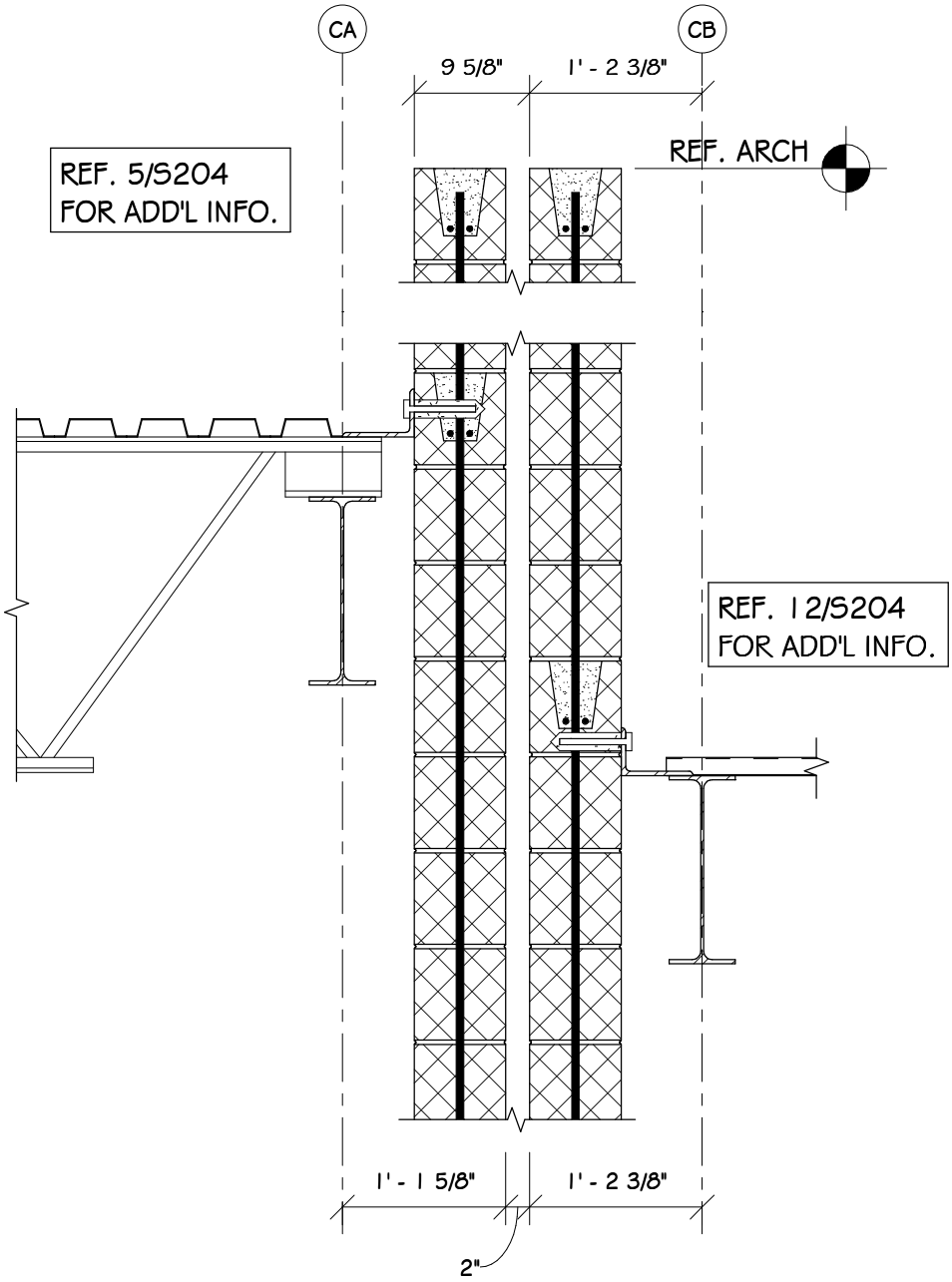
SECTION 19/S204

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY:	Author

SSK21



1
SSK22

SECTION

3/4" = 1'-0"

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2025 GRAVES ROAD,
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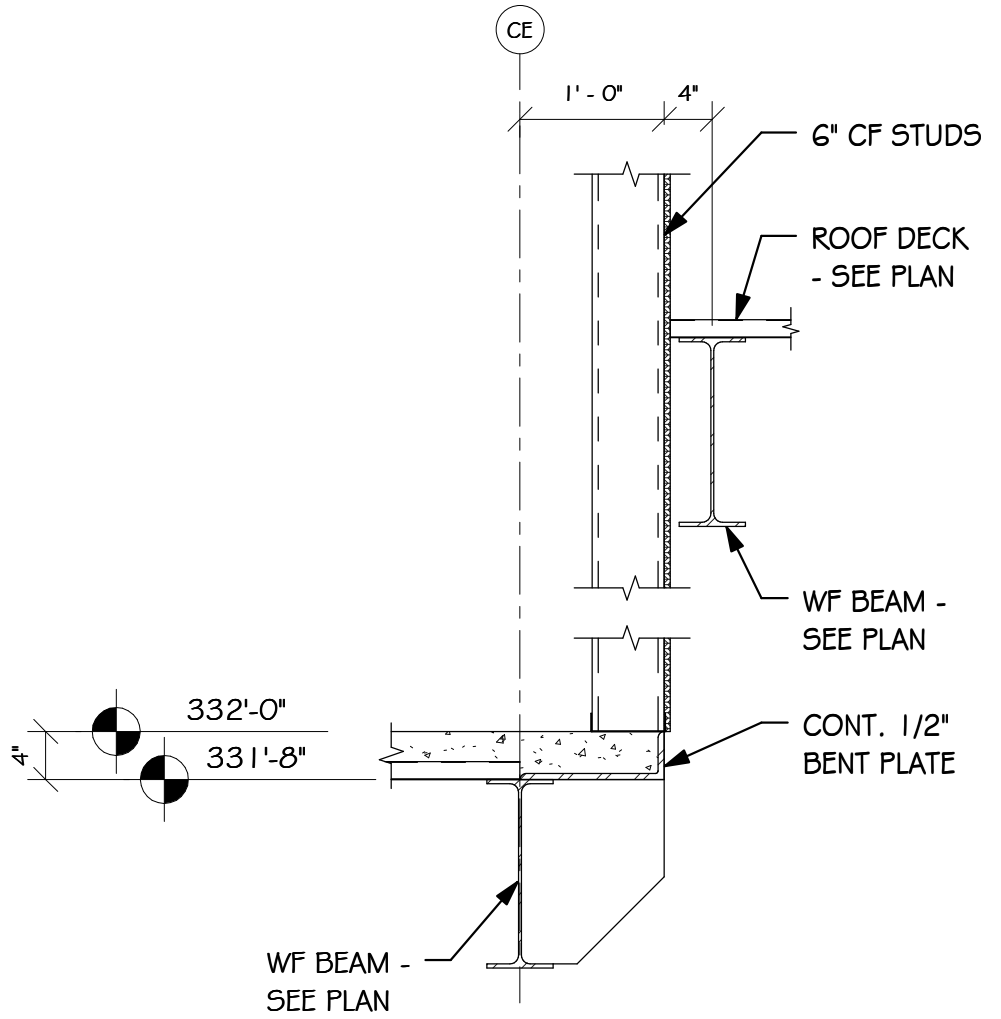
SECTION 19/S202

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY:	Author

SSK22



1
SSK23

SECTION
3/4" = 1'-0"

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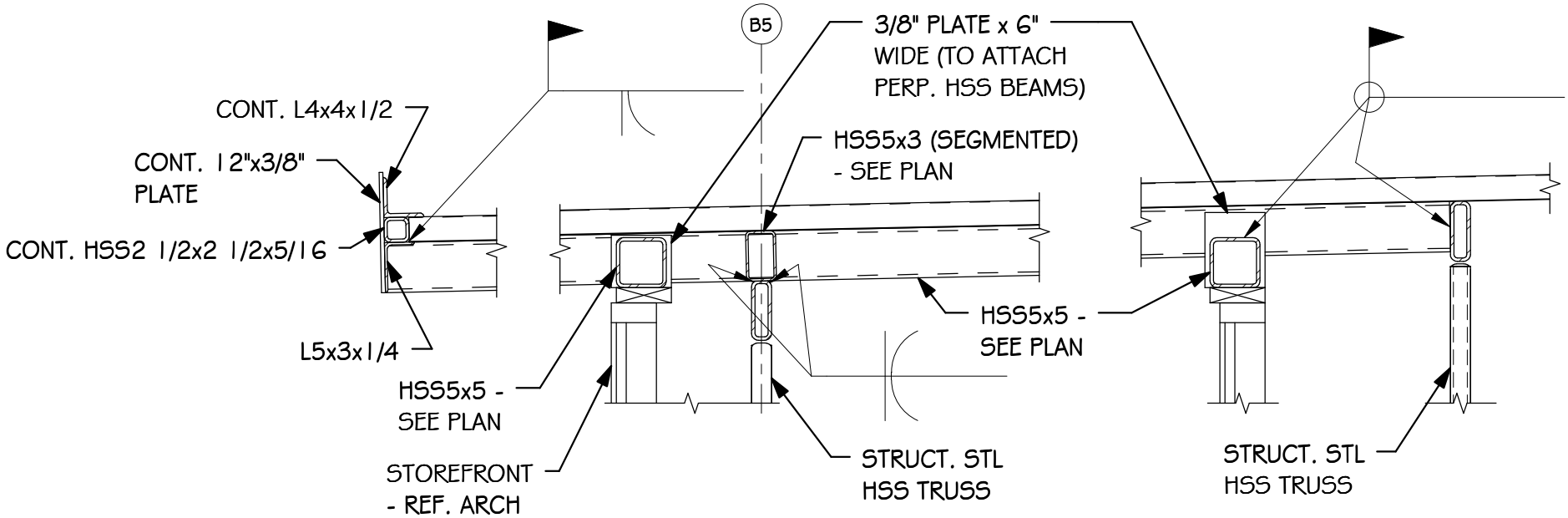
2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SECTION 20/S202

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY:	AJC

SSK23



1
SSK24

SECTION

3/4" = 1'-0"

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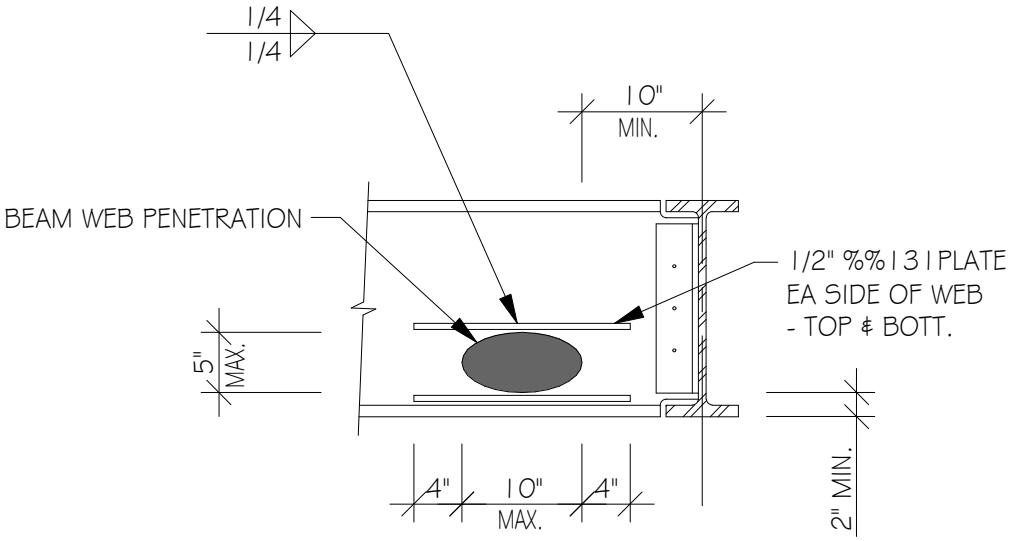
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SECTION 21/S203

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY:	AJC

SSK24



24
S302

WEB REINF. @ PENETRATION

3/4" = 1'-0

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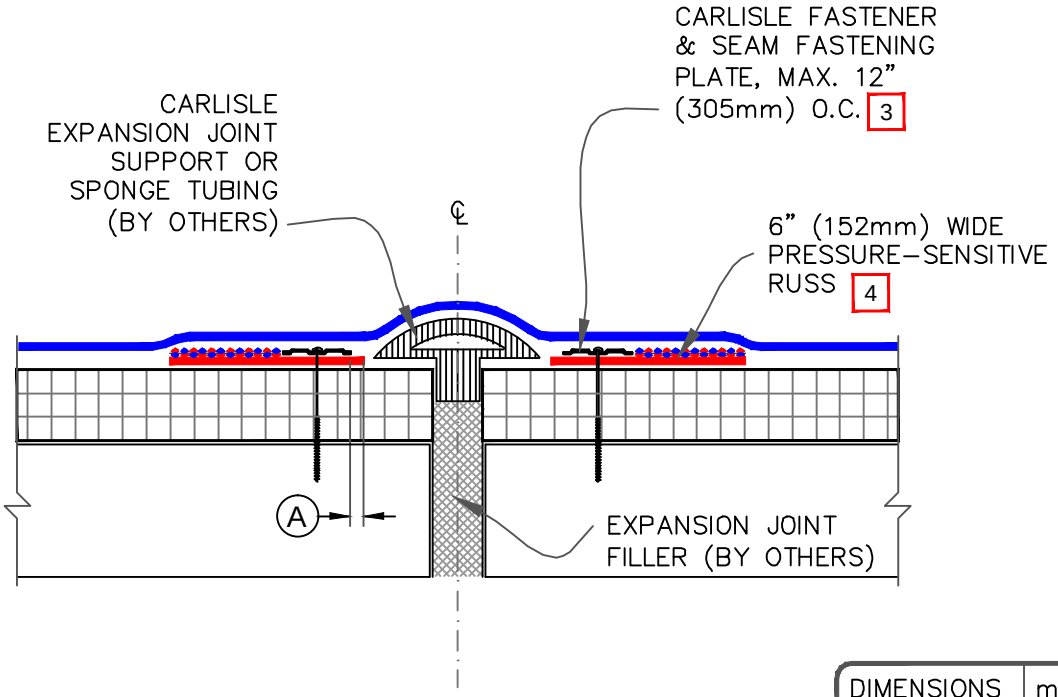
2025 GRAVES ROAD,
HOCKESSIN, DE 19707

WEB REINF.

PROJECT NO.:	D7077.00
DATE:	07.01.2013
SCALE:	
DRAWN BY:	AJC

SSK25



DIMENSIONS		mm	
A	1/8"	3	TO
	1"	25	MAX.

NOTES:

1. FOR EXPANSION JOINT INTERSECTIONS AND INTERSECTIONS BETWEEN EXPANSION JOINTS TO WALL OR EDGING, USE TWO LAYERS OF PRESSURE-SENSITIVE ELASTOFORM FLASHING WITH SECOND LAYER 3" (76mm) LARGER THAN PREVIOUS LAYER IN ALL DIRECTIONS.

2. WIDTH OF JOINT SHALL BE A MINIMUM OF 3/4" (19mm) AND SHALL NOT EXCEED 3" (76mm) WHEN CARLISLE EXPANSION JOINT SUPPORT IS USED.

3. ON MECHANICALLY FASTENED SYSTEMS, HP FASTENERS AND POLYMER SEAM PLATES ARE REQUIRED OVER STEEL DECKS.

4. EPDM PRIMER MUST BE APPLIED TO BACK SIDE OF DECK MEMBRANE PRIOR TO COMPLETING SPLICE TO PRESSURE-SENSITIVE RUSS.

EPDM APPROVED SUBSTRATE 0 SEE NOTE(S)	DECK-TO-DECK EXPANSION JOINT For additional information, refer to Specifications	EPDM	DETAIL NO. U-3A THERMOSET UNIVERSAL

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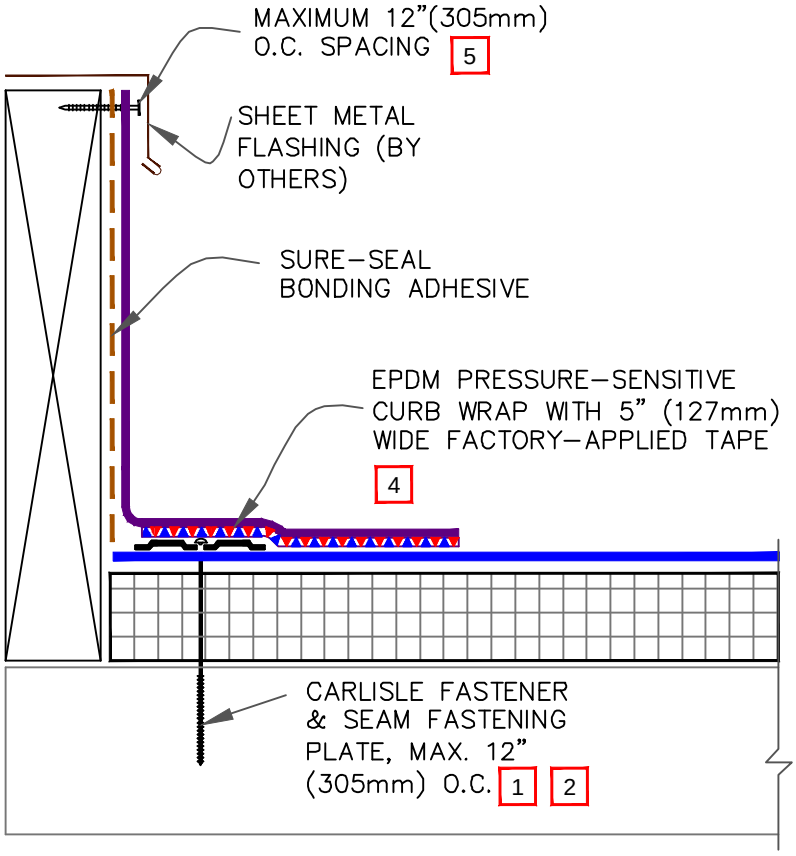
CAUTION

FOR PROJECTS WITH 25 & 30-YEAR WARRANTIES OR WHEN USING 90-MIL MEMBRANE, REFER TO DETAIL U-15H FOR REQUIRED CORNER ENHANCEMENTS.



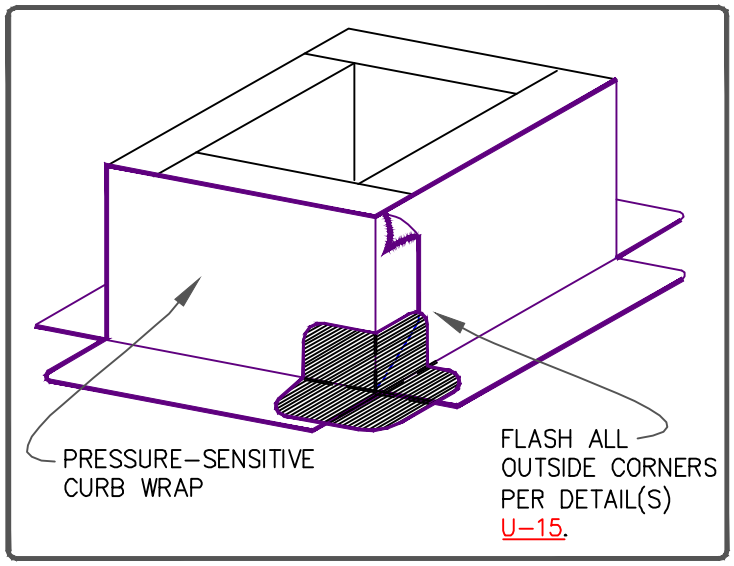
NOTES:

1. ON MECHANICALLY FASTENED ROOFING SYSTEMS, HP FASTENERS AND POLYMER SEAM PLATES ARE REQUIRED OVER STEEL DECKS.

2. SEAM FASTENING PLATES/FASTENERS MAY BE INSTALLED INTO THE VERTICAL SUBSTRATE.

3. IF THE VERTICAL SPLICE ON THE CURB FLASHING IS NOT LOCATED AT THE CORNER, 6" (152mm) WIDE PRESSURE-SENSITIVE ELASTOFORM OR T-JOINT FLASHING, IN CONJUNCTION WITH EPDM PRIMER, MUST BE CENTERED OVER FIELD SPLICE AT ANGLE CHANGE.

4. PRIOR TO THE INSTALLATION OF PRESSURE-SENSITIVE CURB WRAP, APPLY EPDM PRIMER TO SPLICE AREA.



5. WHEN MECHANICAL FASTENERS ARE USED TO PENETRATE THE METAL COUNTER-FLASHING, USE EPDM WASHERS, APPLY WATER CUT-OFF MASTIC UNDER THE COUNTER-FLASHING OR CAULK THE FASTENER HEADS.

EPDM APPROVED SUBSTRATE 0 SEE NOTE(S)	PRESSURE-SENSITIVE CURB WRAP For additional information, refer to Specifications	EPDM	DETAIL NO. U-5B THERMOSET UNIVERSAL

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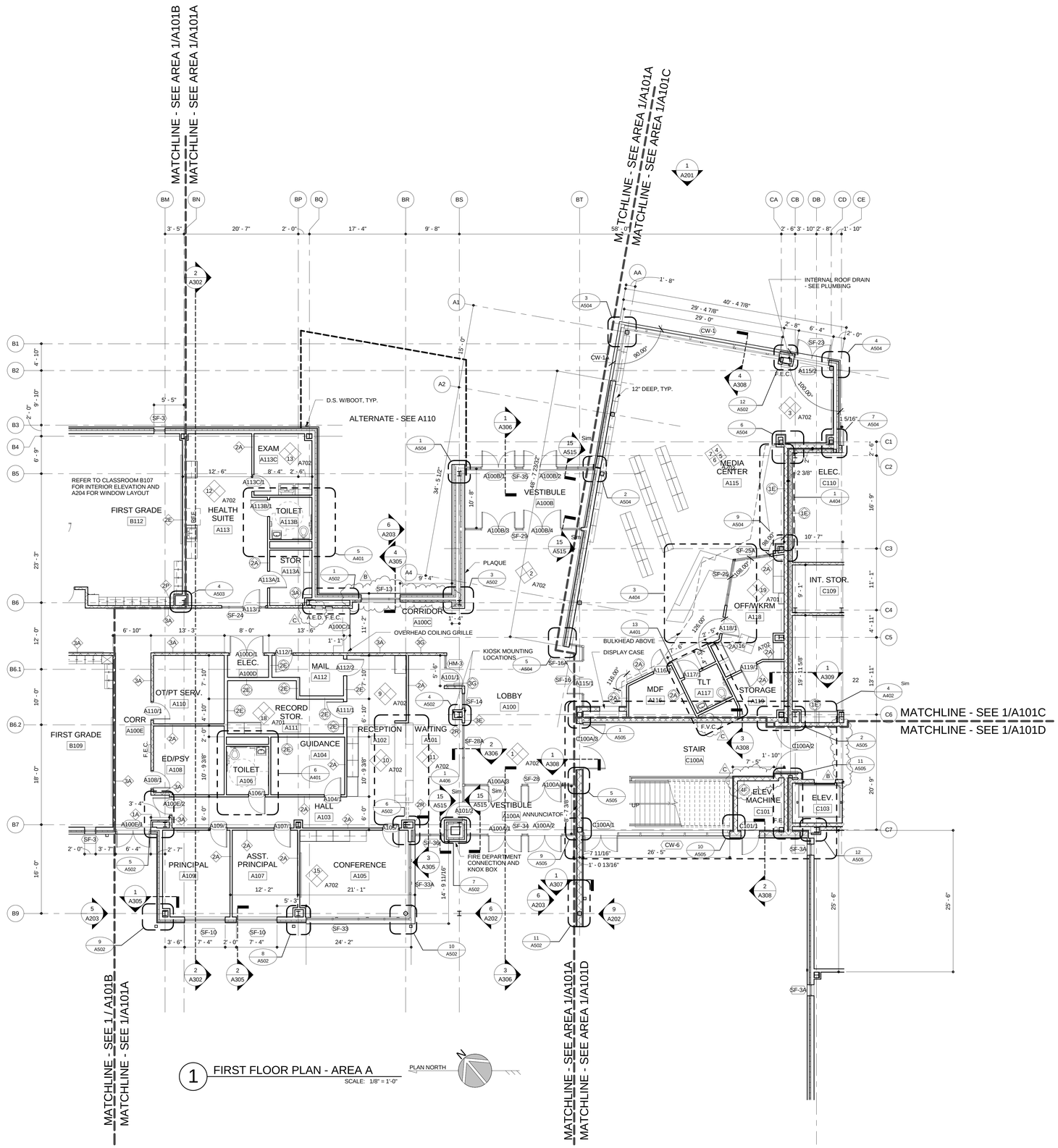

1 FIRST FLOOR PLAN - AREA A

SCALE: 1/8" = 1'-0"

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NO CONTRACTUAL OBLIGATION IS ASSUMED BY THE ARCHITECT FOR THE BENEFIT OF ANY OTHER PERSON INVOLVED IN THE PROJECT.

PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

FIRST FLOOR PLAN - AREA A

16' 8' 0' 16'

SCALE : 1/16" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY: BDF	PROJ MGR: SCC

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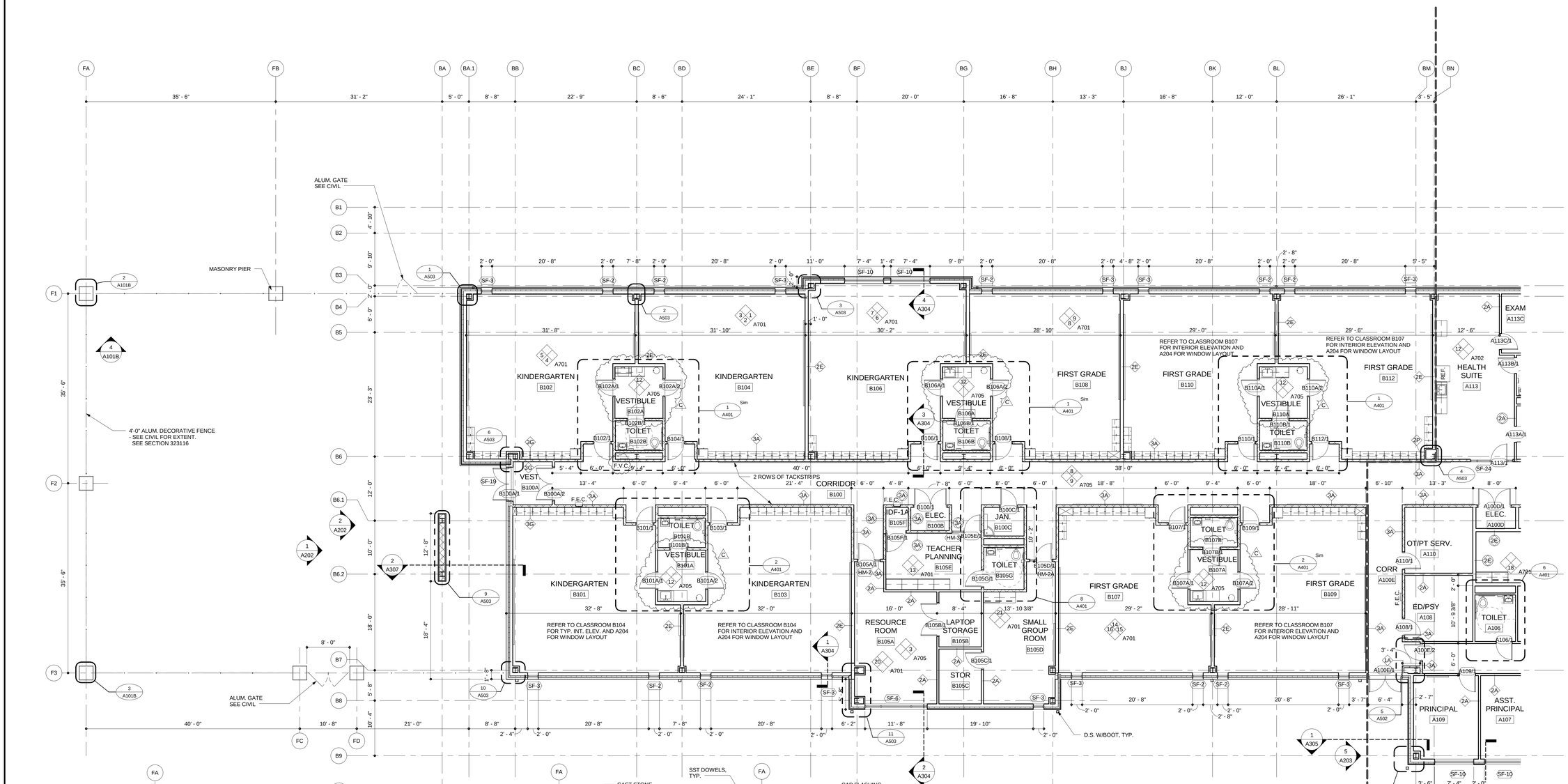
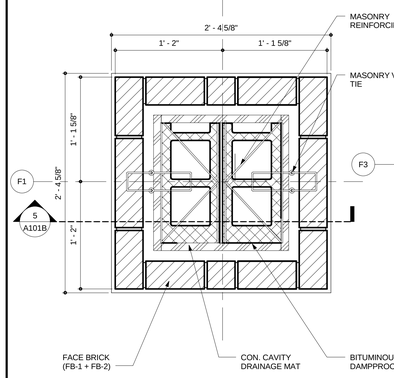
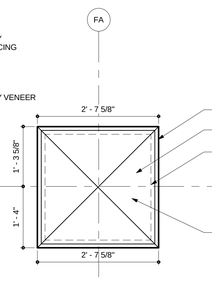


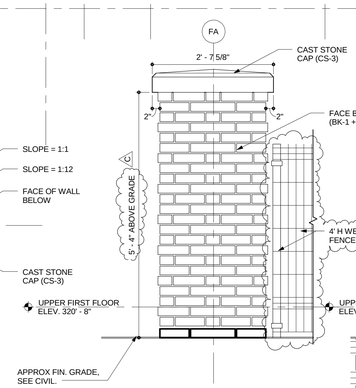
1 FIRST FLOOR PLAN - AREA B
SCALE: 1/8" = 1'-0"



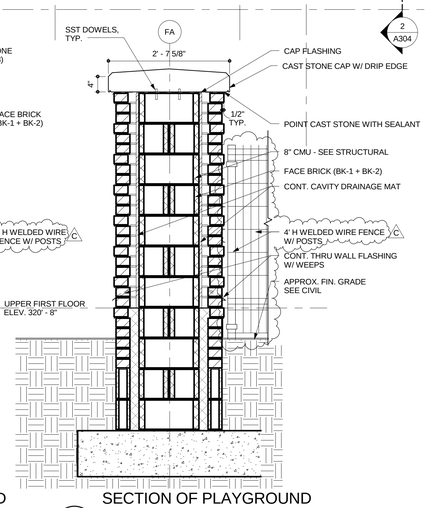
2 PLAN DETAIL AT PLAYGROUND PIER, TYP.
SCALE: 1 1/2" = 1'-0"



3 PLAN DETAIL AT PIER CAP
SCALE: 3/4" = 1'-0"



4 ELEVATION AT PLAYGROUND PIER, TYP.
SCALE: 3/4" = 1'-0"



5 SECTION OF PLAYGROUND PIER, TYP.
SCALE: 3/4" = 1'-0"

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PROJECT TITLE

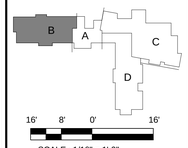
RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

FIRST FLOOR PLAN - AREA B



SCALE : 1/16" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: BDF	PROJ MGR: SCC

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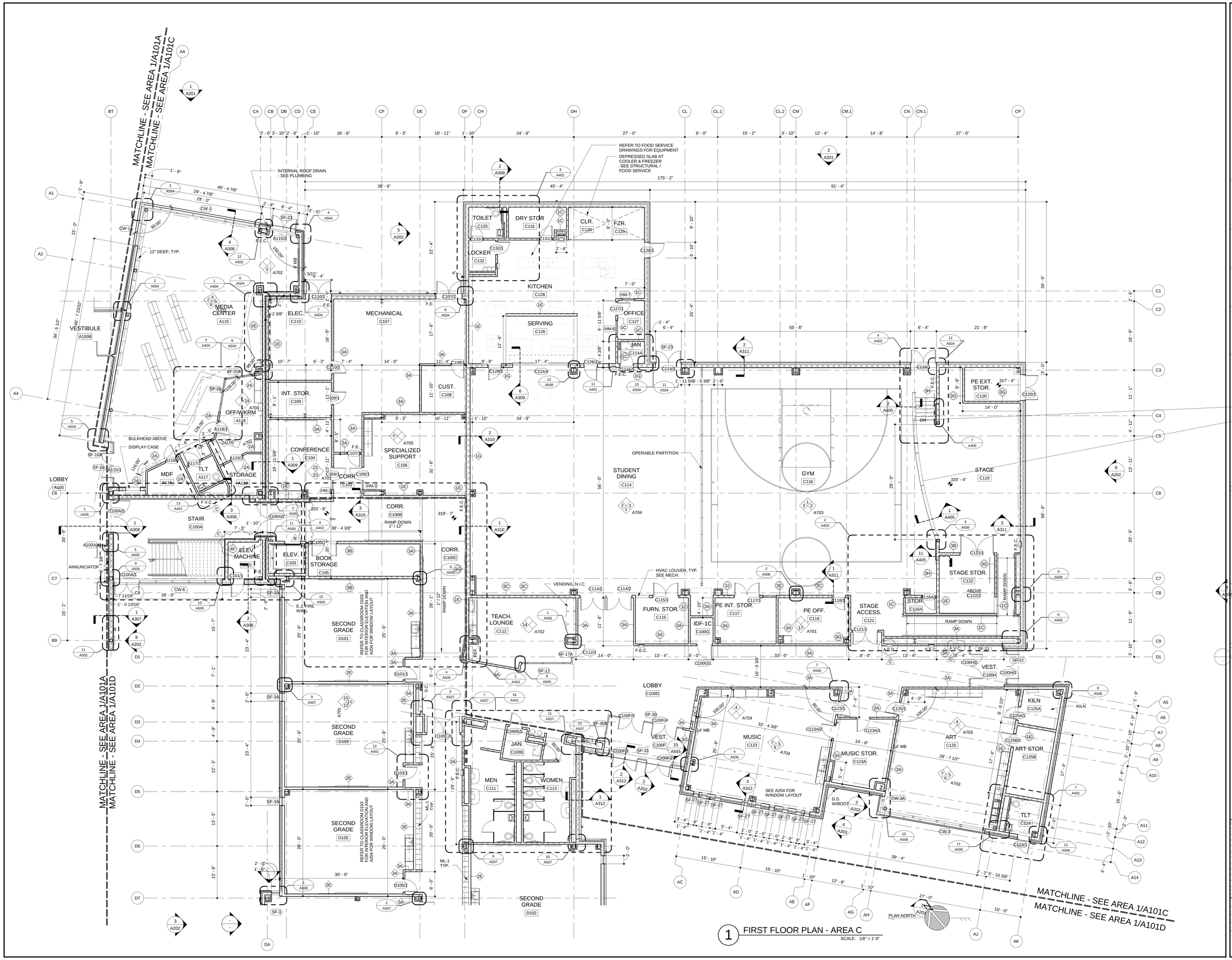

1 FIRST FLOOR PLAN - AREA C
SCALE: 1/8" = 1'-0"

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

FIRST FLOOR PLAN - AREA C

SCALE : 1/16" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY: BDF	PROJ MGR: SCC

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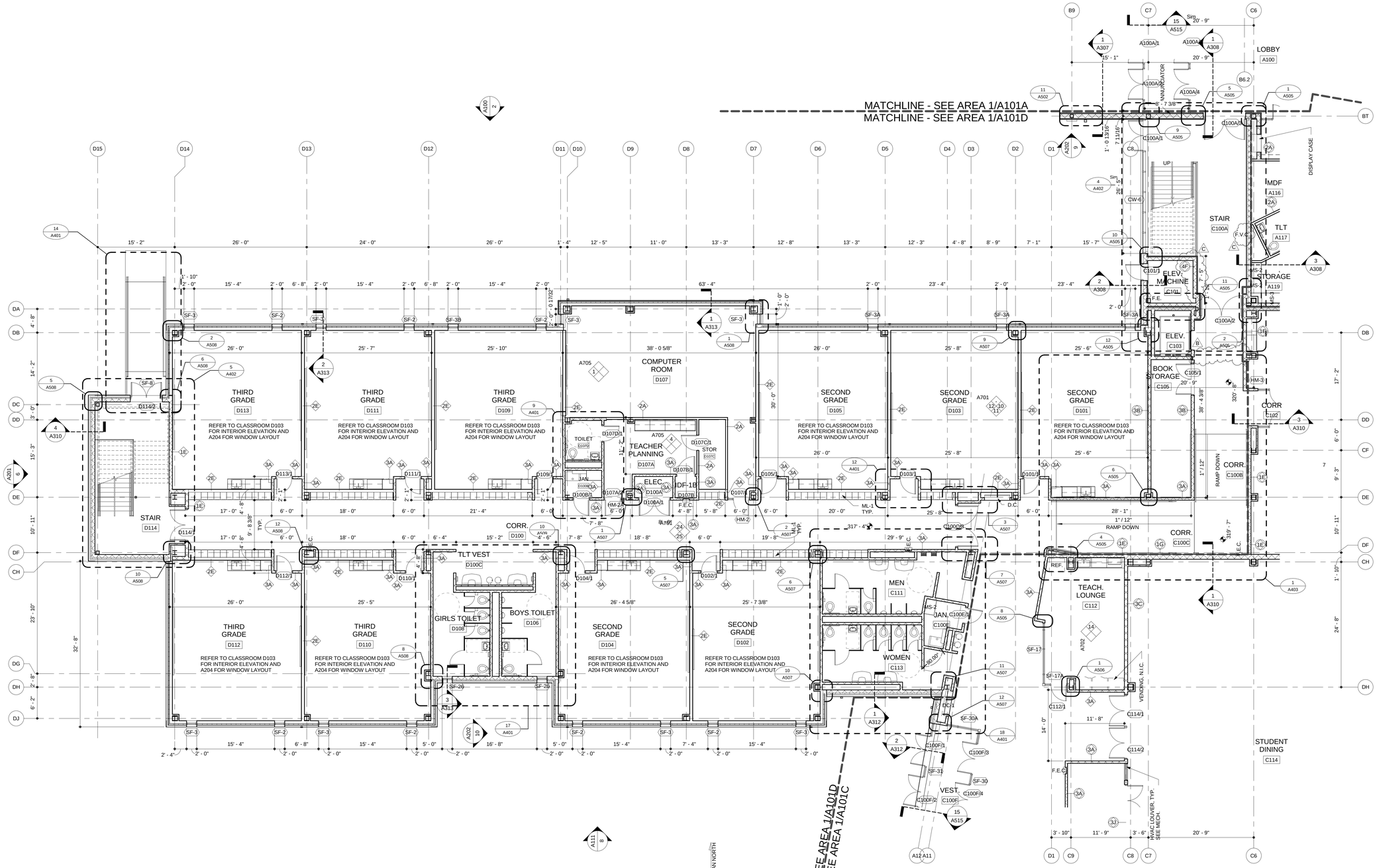

1 FIRST FLOOR PLAN - AREA D

SCALE: 1/8" = 1'-0"

LOCKER SCHEDULE	
MARK	QTY
LOWER FIRST FLOOR	
ML-1	123
SECOND FLOOR	
ML-1	135

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

FIRST FLOOR PLAN - AREA D

SCALE : 1/16" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
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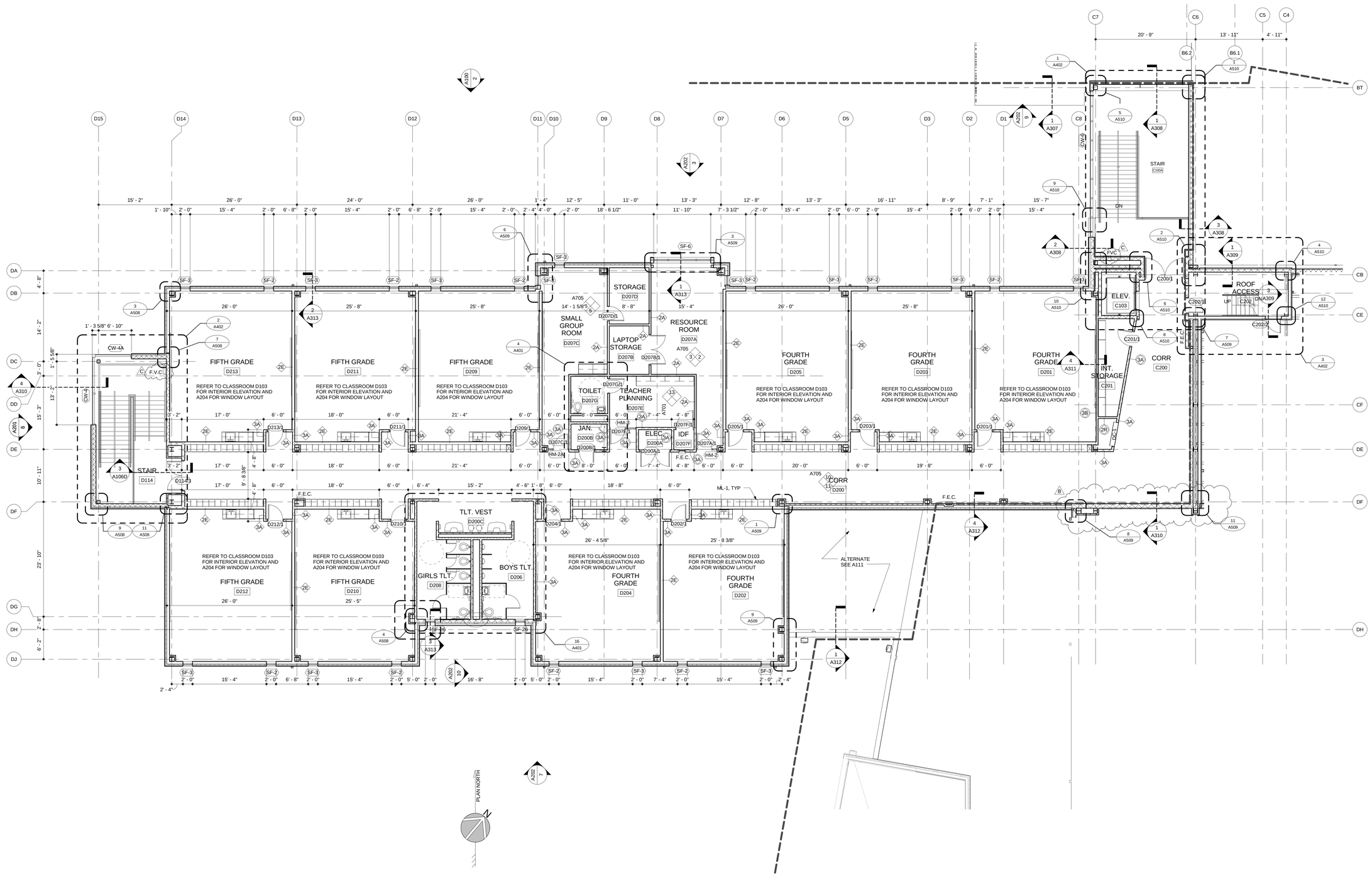

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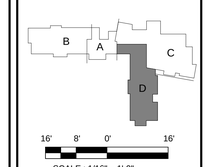
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

SECOND FLOOR PLAN - AREA D



SCALE : 1/16" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
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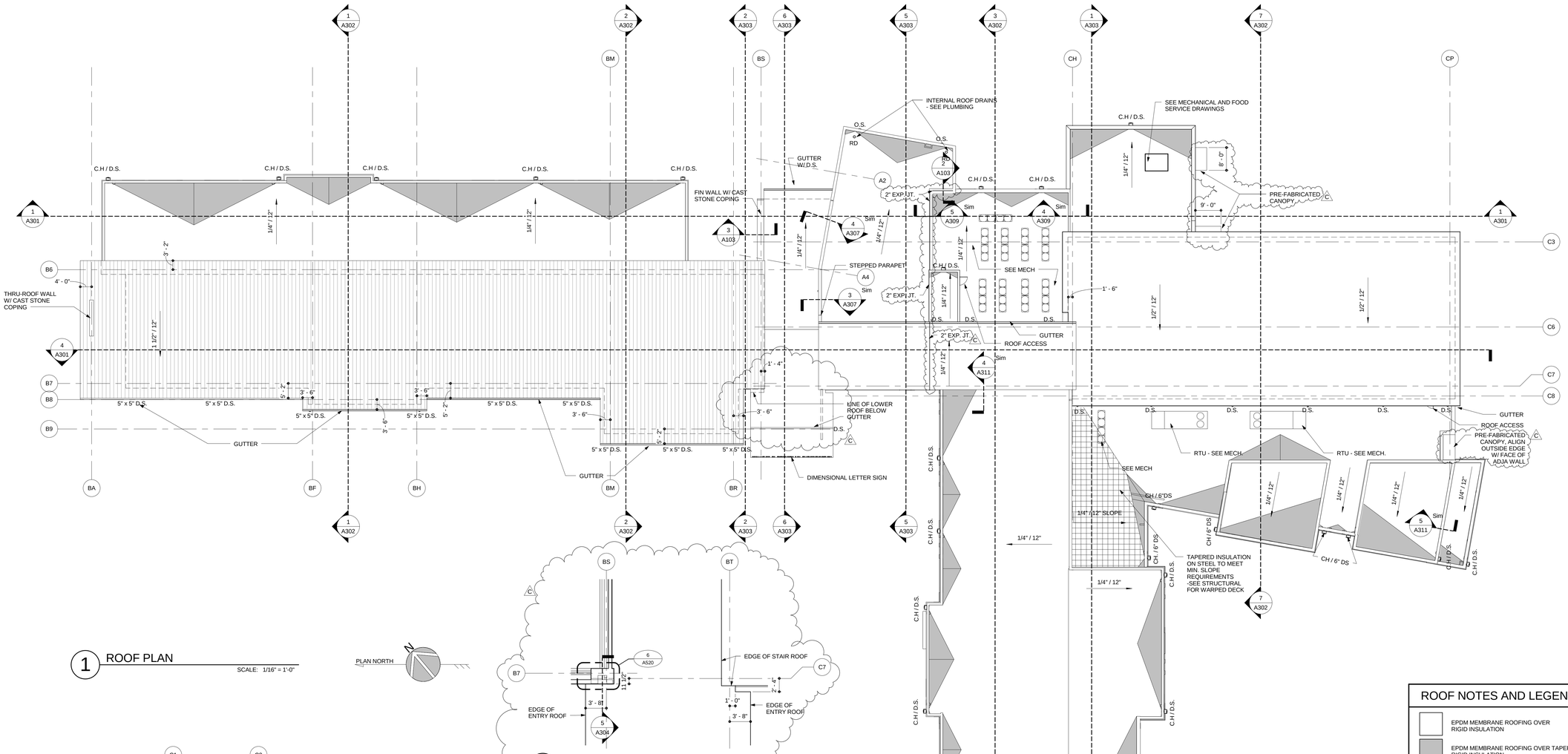


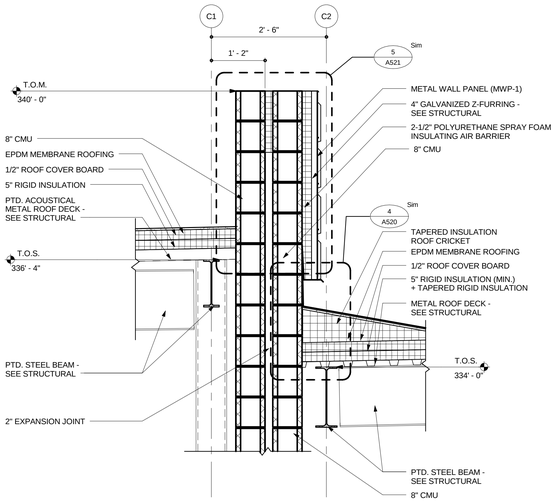
1 ROOF PLAN

SCALE: 1/16" = 1'-0"

PLAN NORTH

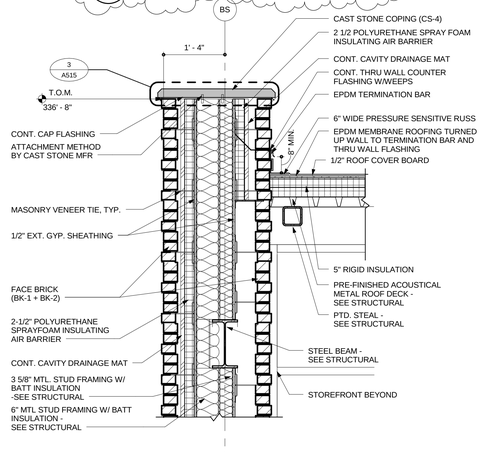
4 PARTIAL LOWER ROOF PLAN

SCALE: 1/8" = 1'-0"



2 PARTIAL WALL SECTION AT MEDIA CENTER

SCALE: 3/4" = 1'-0"



3 PARTIAL WALL SECTION AT VESTIBULE A100B

SCALE: 3/4" = 1'-0"

ROOF NOTES AND LEGEND

- EPDM MEMBRANE ROOFING OVER RIGID INSULATION
- EPDM MEMBRANE ROOFING OVER TAPERED RIGID INSULATION
- STANDING SEAM METAL ROOFING OVER RIGID INSULATION
- PARAPET WITH METAL COPING
- C.H. — CONDUCTOR HEAD WITH DOWNSPOUT
- O.S. — OVERFLOW SCUPPER
- R.D. — INTERNAL ROOF DRAIN
- D.S. — DOWNSPOUT
- S.B. — SPLASH BLOCK

1. SLOPE ALL ROOF SURFACES MINIMUM 1/4" / 12" UNLESS OTHERWISE NOTED.
2. SLOPE CRICKETS 1/2" / 12" TYPICAL. SLOPE AT 1/4" / 12" MINIMUM ONLY WHERE PARAPET AND FLASHING AND ROOF MEMBRANE TURN-UP HEIGHTS SO REQUIRE.
3. DOWNSPOUTS SHALL BE 5"x4" PLAIN RECTANGULAR UNLESS OTHERWISE NOTED.
4. GUTTERS SHALL BE 6"x6" UNLESS OTHERWISE NOTED. STYLE 'A' PER SMACNA FIG. 1-2.
5. OVERFLOW SCUPPERS (O.S.) SHALL BE 8"x8", 3" MIN AND 6" MAX ABOVE PRIMARY ROOF DRAIN INLET / BOTTOM OF CONDUCTOR HEAD SCUPPER.
6. REFER TO PLUMBING DRAWINGS FOR INTERNAL ROOF DRAINS AND LEADERS AND VTRS.
7. ALL DOWNSPOUTS CONNECT TO BOOT AT GRADE AND TIE INTO STORM WATER SYSTEM, EXCEPT WHERE SPECIFICALLY NOTED WITH SPLASHBLOCK (S.B.).
8. REFER TO PLUMBING AND CIVIL DRAWINGS FOR CONNECTION OF BOOTS AND INTERNAL ROOF LEADERS INTO STORM WATER SYSTEM.
9. REFER TO FLOOR PLANS AND EXTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION REGARDING LOCATIONS OF D.S., C.H., AND O.S.
10. PROVIDE WALKWAY PADS AT AROUND MECHANICAL EQUIPMENT, BASE AND TOP OF LADDERS, AND AT DOORS.
11. PROVIDE CRICKETS AT ALL ROOF-MOUNTED EQUIPMENT AND ACCESSORIES AS REQUIRED TO MAINTAIN POSITIVE DRAINAGE.
12. PROVIDE SPLASHBLOCK AT GRADE AT EACH CONDENSATE PIPE. SEE MP DRAWINGS FOR LOCATIONS.

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WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

ROOF PLAN

SCALE : 1/16" = 1'-0"

SCALE : 3/4" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
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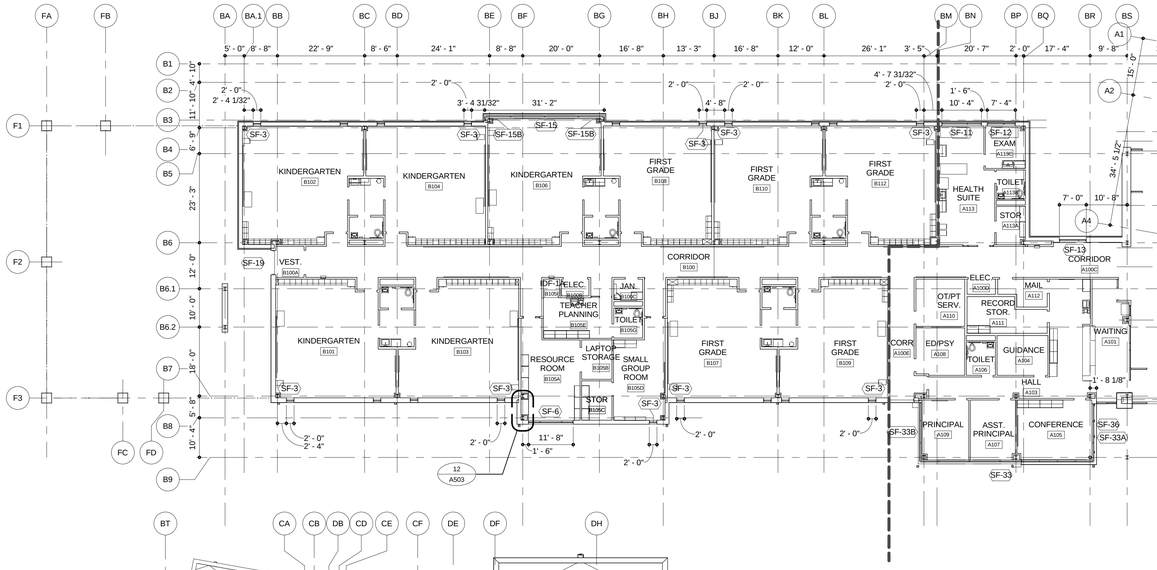
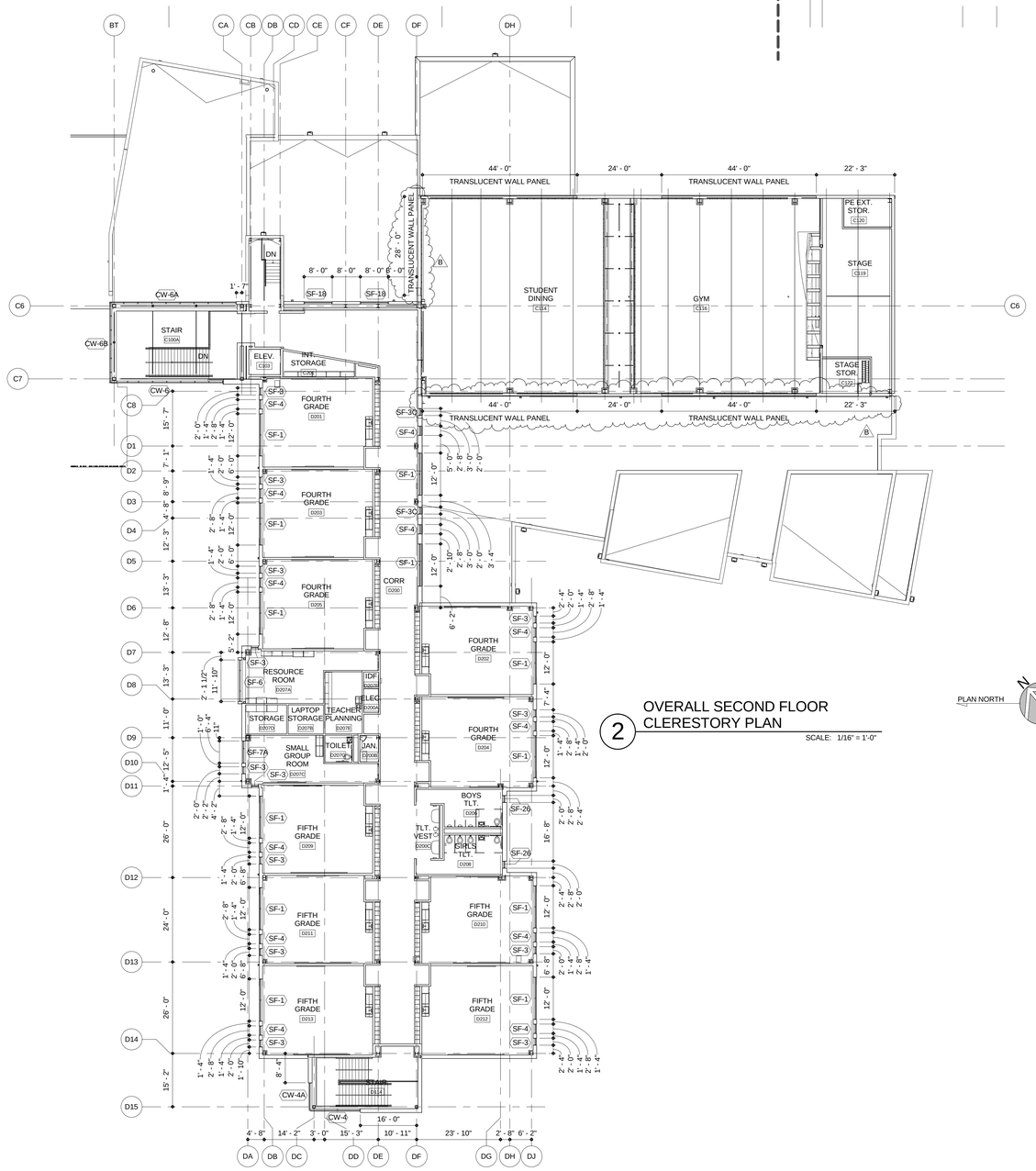
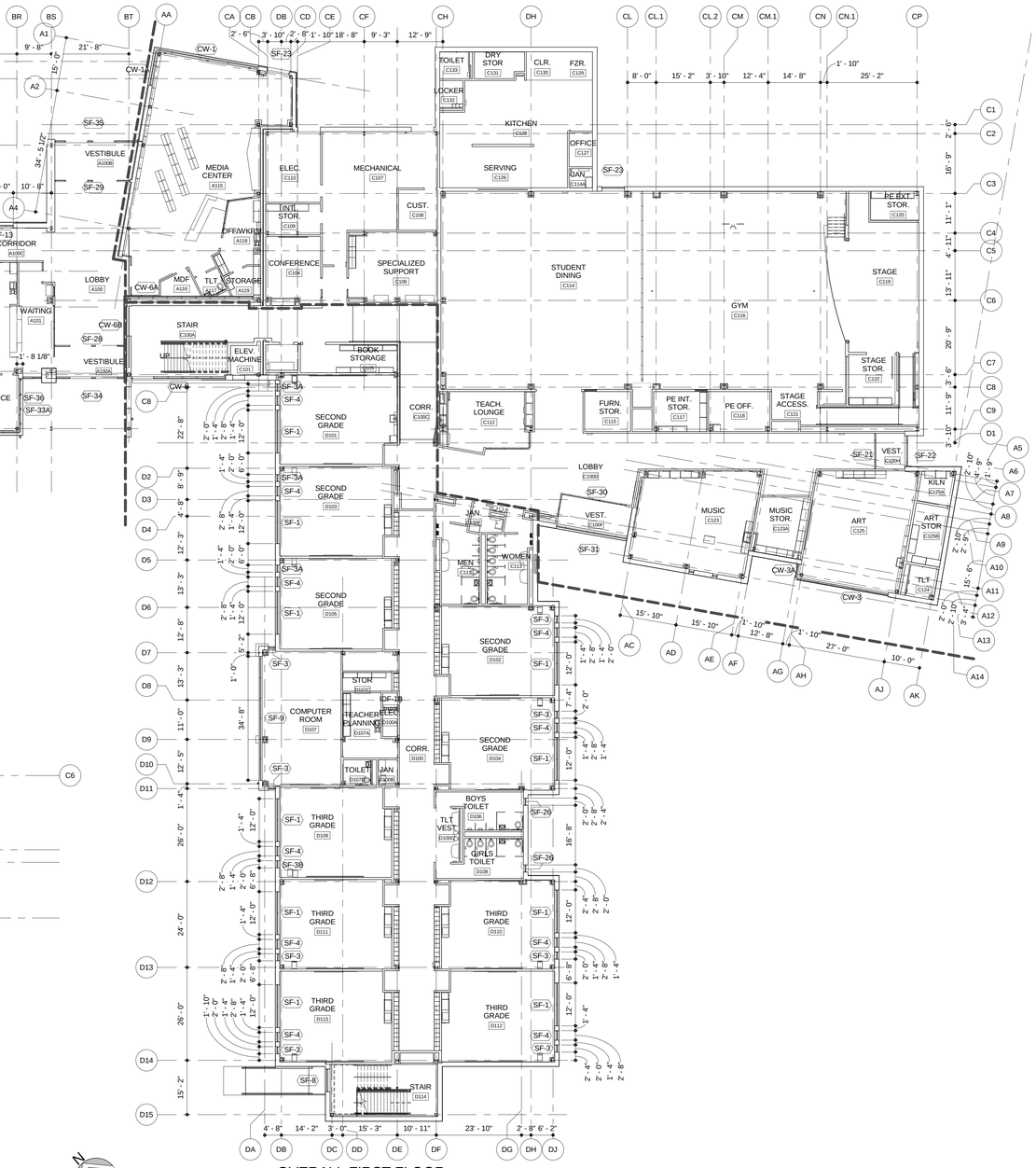




2 OVERALL SECOND FLOOR CLERESTORY PLAN

SCALE: 1/16" = 1'-0"



1 OVERALL FIRST FLOOR CLERESTORY PLAN

SCALE: 1/16" = 1'-0"

PLAN NORTH

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WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

FIRST AND SECOND FLOOR CLERESTORY PLANS

16' 8' 0' 16'

SCALE : 1/16" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
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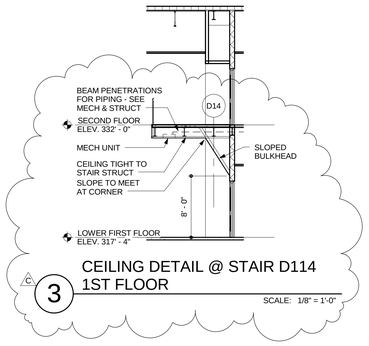
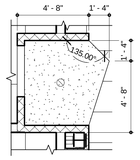


3 CEILING DETAIL @ STAIR D114 1ST FLOOR

SCALE: 1/8" = 1'-0"



2 2-5 CLASSROOM BULKHEAD, TYP.

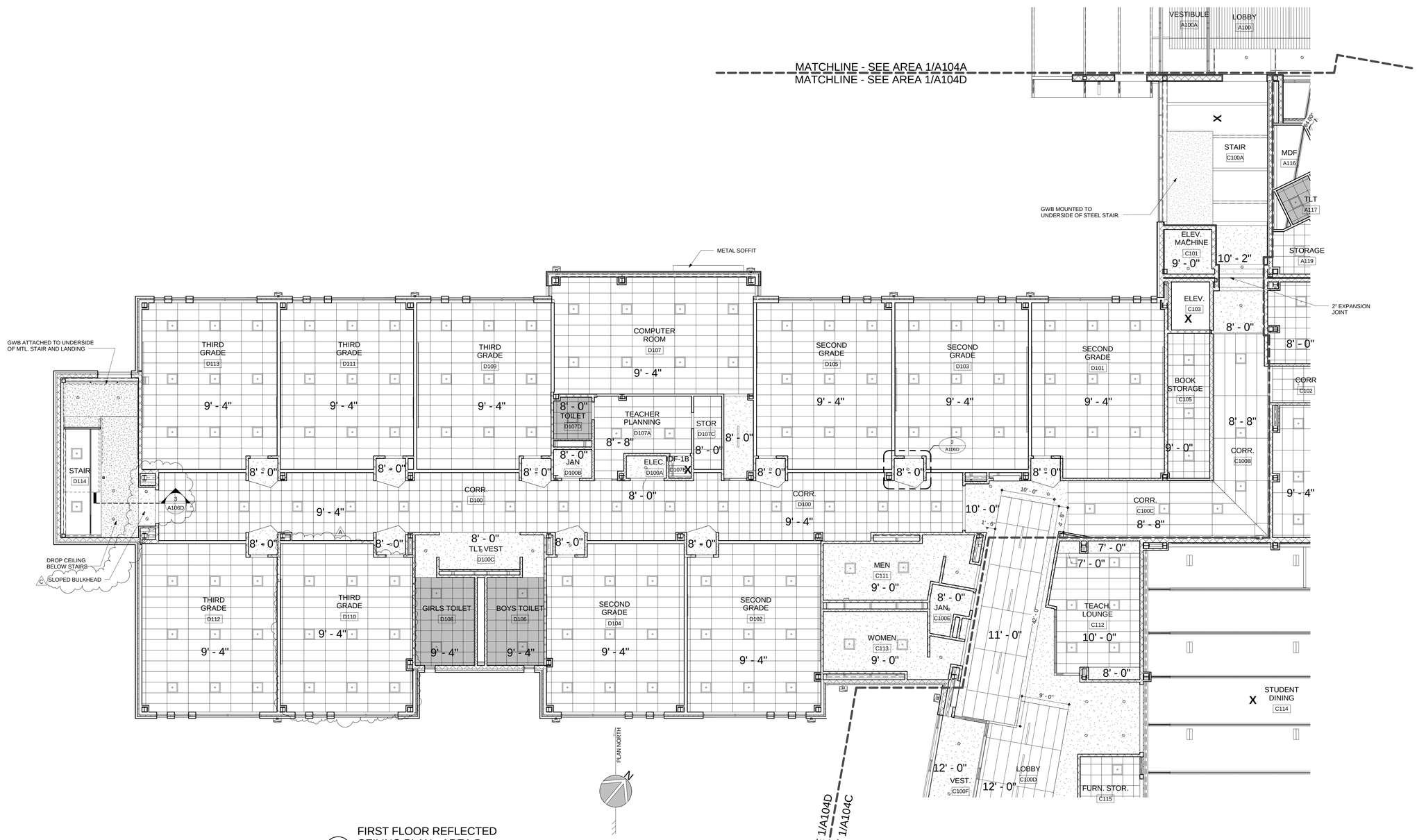
SCALE: 1/4" = 1'-0"

CEILING LEGEND

- 2x2 ACT CEILING (ACT-1)
- 2x4 ACT CEILING (ACT 2)
- 2x2 CLEAN ROOM CEILING (ACT 3)
- 2x4 CLEAN ROOM CEILING (ACT 4)
- 2x8 ACT CEILING (ACT 5)
- INTERIOR - GWB CEILINGS /BULKHEADS
- ACOUSTICAL CLOUD (AC 1)
- ACOUSTICAL WOOD CEILING (AWC 1)
- METAL WORKS PLANK CEILING (MC- 1)
- X EXPOSED

CEILING NOTES

1. SEE FINISH SCHEDULE FOR ACT TYPES.
2. SEE MECHANICAL DRAWINGS FOR G.R.D. TYPES, LOCATIONS, AND ADDITIONAL WORK.
3. SEE ELECTRICAL DRAWINGS FOR LIGHT FIXTURE TYPES AND LOCATIONS
4. CEILING HEIGHTS INDICATED ARE FROM FINISH FLOOR. CEILINGS AT LANDINGS, RAMPS ETC., REFER TO NEAREST FLOOR LEVEL. COORDINATE WITH EXG. WINDOW MULLION LOCATIONS.
5. ALL EXPOSED LINTELS SHALL BE PAINTED.
6. ALL AREAS INDICATED TO BE EXPOSED "X" TO HAVE ALL STRUCTURAL, HVAC, PLUMBING, AND ELECTRICAL ELEMENTS PAINTED.



1 FIRST FLOOR REFLECTED CEILING PLAN - AREA D

SCALE: 1/8" = 1'-0"

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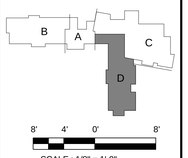
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

FIRST FLOOR REFLECTING CEILING PLAN - AREA D



SCALE : 1/8" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
A	07.16.2013	ADDENDUM-01

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
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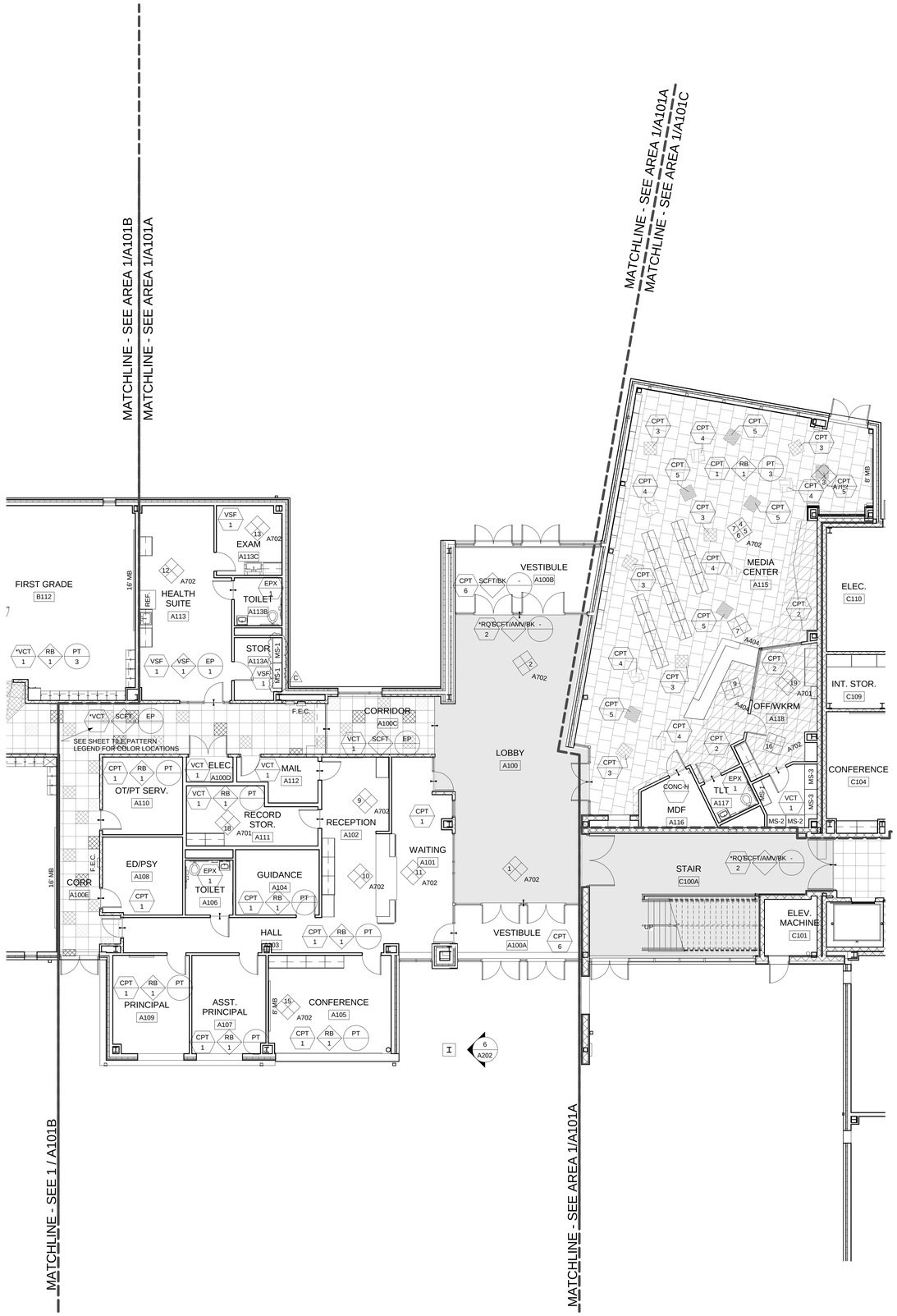

1 FIRST FLOOR PATTERN AND CASEWORK PLAN - AREA A

SCALE: 1/8" = 1'-0"

PLAN NORTH

TILE PATTERN

YELLOW	BLUE
LIGHT	LIGHT
MEDIUM	MEDIUM
DARK	DARK
GREEN	**RED**
LIGHT	LIGHT
MEDIUM	MEDIUM
DARK	DARK

GENERAL CASEWORK NOTES

1. SEE INTERIOR ELEVATION DRAWING SERIES A700 FOR GENERAL (B, T, AND W) CASEWORK DESIGNATIONS. SEE A108F FOR MEDIA CENTER SHELVING (SH) CASEWORK DESIGNATIONS.
2. SEE CASEWORK SCHEDULE ON DRAWING A601.
3. DIVISIONS IN CASEWORK ARE SHOWN FOR CLARITY AND DO NO REPRESENT BREAKS IN THE COUNTERTOP. PROVIDE CONTINUOUS COUNTERTOP OVER ADJACENT, SIMILAR HEIGHT BASE CABINETS, SINK BASE CABINETS, SHELVING, BOOKCASES, AND OTHER LOW CASEWORK, UNLESS OTHEWISE INDICATED. PROVIDE 4" HIGH CONTINUOUS BACKSPLASHES AND SIDESPLASHES AT COUNTERTOPS UNLESS OTHERWISE INDICATED ON DRAWINGS.
4. PROVIDE LOCKS FOR ALL DRAWERS AND CABINETS WITH DOORS. PROVIDE MASTER FOR ALL INSTRUCTIONAL PIECES AND MASTER FOR EACH DEPARTMENT. SEE ADDITIONAL KEYING NOTES BELOW.
5. PROVIDE RESILIENT BASE ON FRONT AND EXPOSED SIDES OF ALL CASEWORK THAT MEETS THE FLOOR, EXCEPT WHERE WOOD BASE IS INDICATED.
6. ALL EXPOSED SURFACES OF CASEWORK SHALL BE FINISHED WITH LAMINATE, AS SPECIFIED.
7. WHERE SIDE OF CASEWORK MEETS A WALL, PROVIDE FILLER PANEL SCRIBED TO WALL SURFACE.
8. PROVIDE LOCK FOR EVERY DOOR AND DRAWER.

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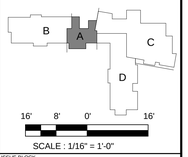
2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

FIRST FLOOR PATTERN AND CASEWORK PLAN - AREA A



16' 8' 0' 16'

SCALE : 1/16" = 1'-0"

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TILE PATTERN

YELLOW	BLUE
LIGHT	LIGHT
MEDIUM	MEDIUM
DARK	DARK
GREEN	**RED**
LIGHT	LIGHT
MEDIUM	MEDIUM
DARK	DARK

1 FIRST FLOOR PATTERN AND CASEWORK PLAN - AREA B

SCALE: 1/8" = 1'-0"

PLAN NORTH

GENERAL CASEWORK NOTES

1. SEE INTERIOR ELEVATION DRAWING SERIES A700 FOR GENERAL (B, T, AND W) CASEWORK DESIGNATIONS. SEE A108F FOR MEDIA CENTER SHELVING (SH) CASEWORK DESIGNATIONS.
2. SEE CASEWORK SCHEDULE ON DRAWING A601.
3. DIVISIONS IN CASEWORK ARE SHOWN FOR CLARITY AND DO NO REPRESENT BREAKS IN THE COUNTERTOP. PROVIDE CONTINUOUS COUNTERTOP OVER ADJACENT, SIMILAR HEIGHT BASE CABINETS, SINK BASE CABINETS, SHELVING, BOOKCASES, AND OTHER LOW CASEWORK, UNLESS OTHEWISE INDICATED. PROVIDE 4" HIGH CONTINUOUS BACKSPLASHES AND SIDESPLASHES AT COUNTERTOPS UNLESS OTHERWISE INDICATED ON DRAWINGS.
4. PROVIDE LOCKS FOR ALL DRAWERS AND CABINETS WITH DOORS. PROVIDE MASTER FOR ALL INSTRUCTIONAL PIECES AND MASTER FOR EACH DEPARTMENT. SEE ADDITIONAL KEYING NOTES BELOW.
5. PROVIDE RESILIENT BASE ON FRONT AND EXPOSED SIDES OF ALL CASEWORK THAT MEETS THE FLOOR, EXCEPT WHERE WOOD BASE IS INDICATED.
6. ALL EXPOSED SURFACES OF CASEWORK SHALL BE FINISHED WITH LAMINATE, AS SPECIFIED.
7. WHERE SIDE OF CASEWORK MEETS A WALL, PROVIDE FILLER PANEL SCRIBED TO WALL SURFACE.
8. PROVIDE LOCK FOR EVERY DOOR AND DRAWER.

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THE PROFESSIONAL SERVICES OF THE ARCHITECT ARE UNDERTAKEN FOR AND ARE PERFORMED IN THE INTEREST OF: 1) RED CLAY CONSOLIDATED SCHOOL DISTRICT

NO CONTRACTURAL OBLIGATION IS ASSUMED BY THE ARCHITECT FOR THE BENEFIT OF ANY OTHER PERSON INVOLVED IN THE PROJECT.

PROJECT TITLE

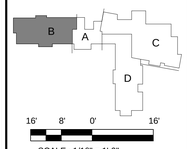
RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

FIRST FLOOR PATTERN AND CASEWORK PLAN - AREA B



16' 8' 0' 16'

SCALE : 1/16" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: GMS	PROJ MGR: SCC

A108B

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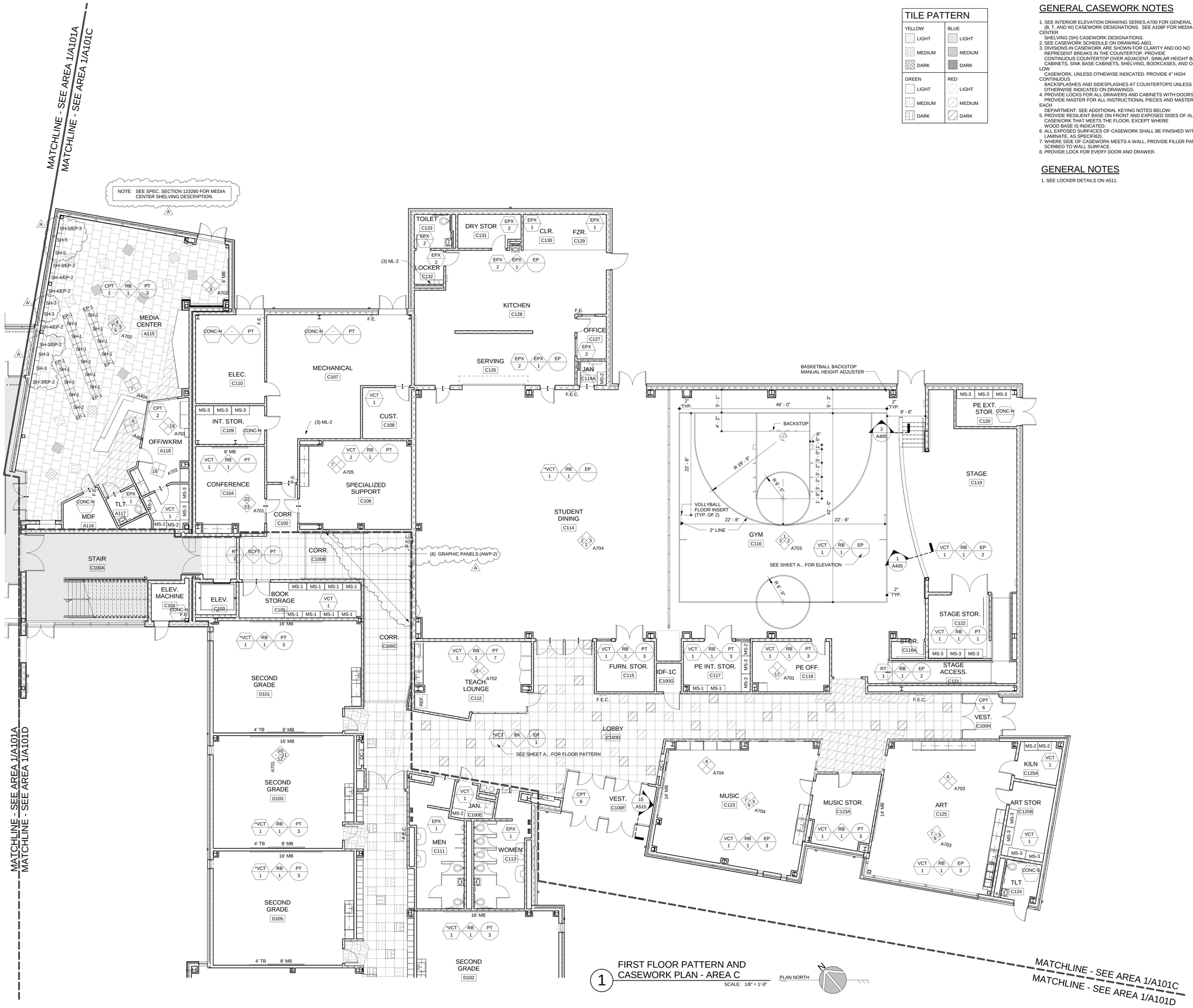

1 FIRST FLOOR PATTERN AND CASEWORK PLAN - AREA C

SCALE: 1/8" = 1'-0"

PLAN NORTH

TILE PATTERN

YELLOW	BLUE
LIGHT	LIGHT
MEDIUM	MEDIUM
DARK	DARK
GREEN	**RED**
LIGHT	LIGHT
MEDIUM	MEDIUM
DARK	DARK

GENERAL CASEWORK NOTES

1. SEE INTERIOR ELEVATION DRAWING SERIES A700 FOR GENERAL (B, T, AND W) CASEWORK DESIGNATIONS. SEE A108F FOR MEDIA CENTER SHELVING (SH) CASEWORK DESIGNATIONS.
2. SEE CASEWORK SCHEDULE ON DRAWING A601.
3. DIVISIONS IN CASEWORK ARE SHOWN FOR CLARITY AND DO NO REPRESENT BREAKS IN THE COUNTERTOP. PROVIDE CONTINUOUS COUNTERTOP OVER ADJACENT, SIMILAR HEIGHT BASE CABINETS, SINK BASE CABINETS, SHELVING, BOOKCASES, AND OTHER LOW CASEWORK, UNLESS OTHEWISE INDICATED. PROVIDE 4" HIGH CONTINUOUS BACKSPLASHES AND SIDESPLASHES AT COUNTERTOPS UNLESS OTHERWISE INDICATED ON DRAWINGS.
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7. WHERE SIDE OF CASEWORK MEETS A WALL, PROVIDE FILLER PANEL SCRIBED TO WALL SURFACE.
8. PROVIDE LOCK FOR EVERY DOOR AND DRAWER.

GENERAL NOTES

1. SEE LOCKER DETAILS ON A511.

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

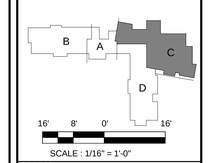
WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

FIRST FLOOR PATTERN AND CASEWORK PLAN - AREA C



SCALE : 1/16" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
A	07.16.2013	ADDENDUM-01

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
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A108C

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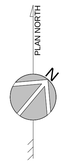
1 FIRST FLOOR PATTERN AND CASEWORK PLAN - AREA D

SCALE: 1/8" = 1'-0"



TILE PATTERN

YELLOW	BLUE
LIGHT	LIGHT
MEDIUM	MEDIUM
DARK	DARK
GREEN	**RED**
LIGHT	LIGHT
MEDIUM	MEDIUM
DARK	DARK

GENERAL CASEWORK NOTES

1. SEE INTERIOR ELEVATION DRAWING SERIES A700 FOR GENERAL (B, T, AND W) CASEWORK DESIGNATIONS. SEE A108F FOR MEDIA CENTER SHELVING (SH) CASEWORK DESIGNATIONS.
2. SEE CASEWORK SCHEDULE ON DRAWING A601.
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PROJECT TITLE

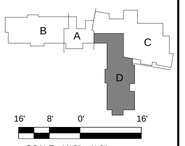
RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

FIRST FLOOR PATTERN AND CASEWORK PLAN - AREA D



SCALE : 1/16" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
A	07.16.2013	ADDENDUM-01

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
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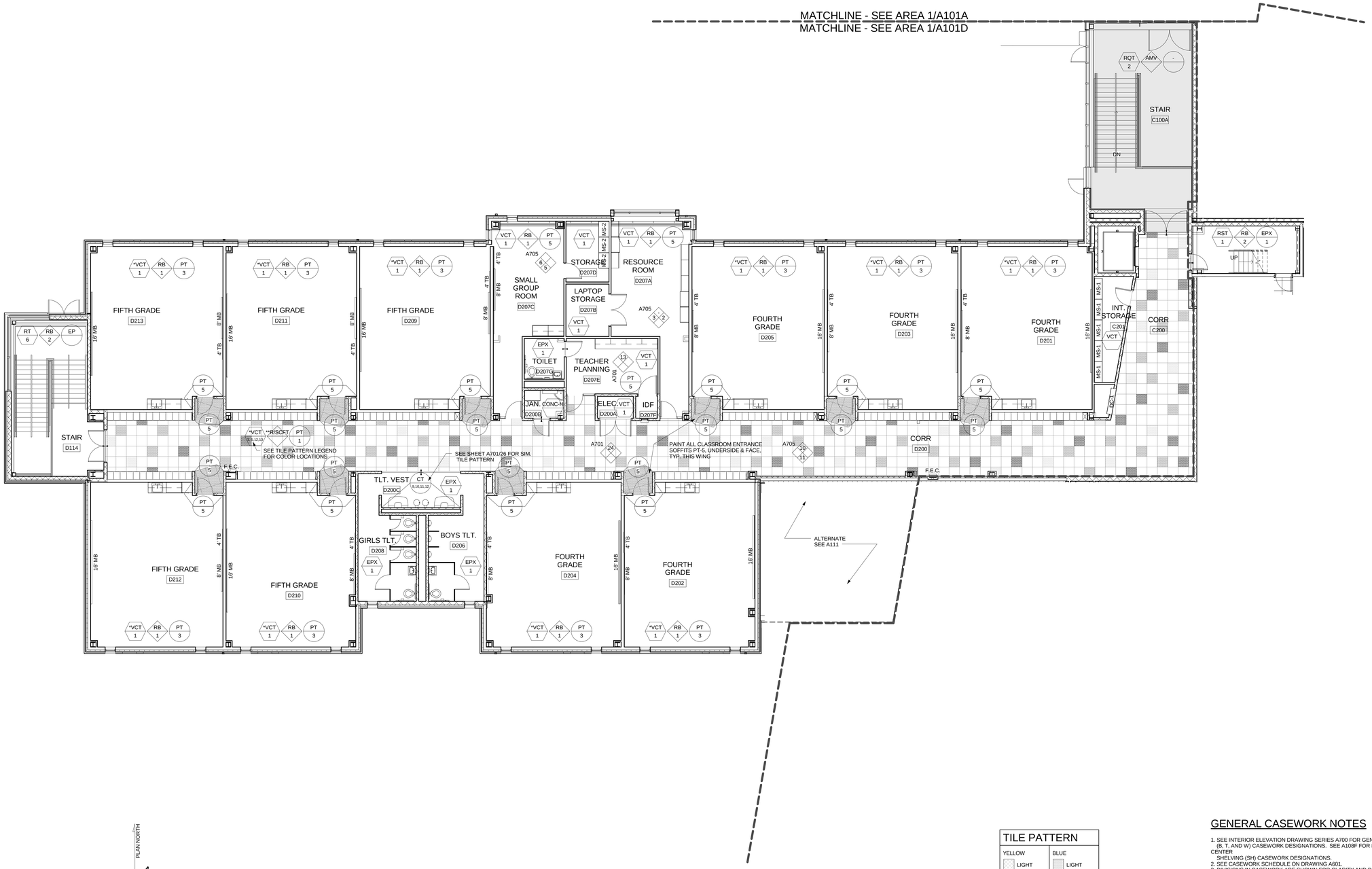

1 SECOND FLOOR PATTERN AND CASEWORK PLAN - AREA D

SCALE: 1/8" = 1'-0"

PLAN NORTH

TILE PATTERN

YELLOW	BLUE
LIGHT	LIGHT
MEDIUM	MEDIUM
DARK	DARK
GREEN	**RED**
LIGHT	LIGHT
MEDIUM	MEDIUM
DARK	DARK

GENERAL CASEWORK NOTES

1. SEE INTERIOR ELEVATION DRAWING SERIES A700 FOR GENERAL (B, T, AND W) CASEWORK DESIGNATIONS. SEE A108F FOR MEDIA CENTER SHELVING (SH) CASEWORK DESIGNATIONS.
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PROJECT TITLE

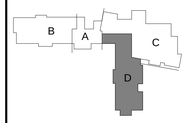
RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

SECOND FLOOR PATTERN AND CASEWORK PLAN - AREA D



16' 8' 0' 16'

SCALE : 1/16" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
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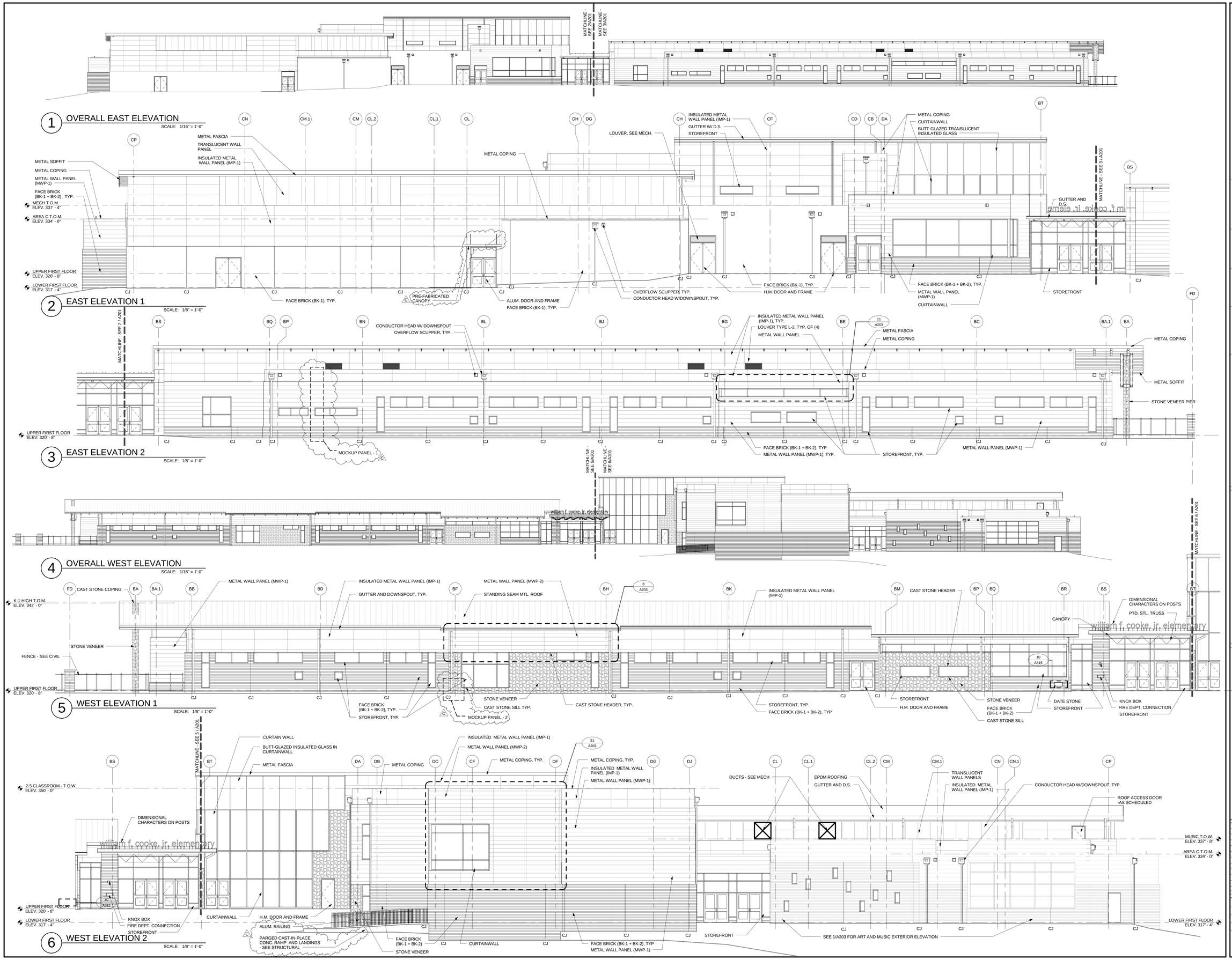

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BRIAN A. HASS, AIA No. 5274 STATE OF DELAWARE

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2025 GRAVES ROAD,
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RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

EXTERIOR ELEVATIONS

1/A201 2/A201 3/A201 4/A201 5/A201 6/A201 A B C D

16' 8' 0' 16'
SCALE : 1/16" = 1'-0"
8' 4' 0' 8'
SCALE : 1/8" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: GMS	PROJ MGR: SCC

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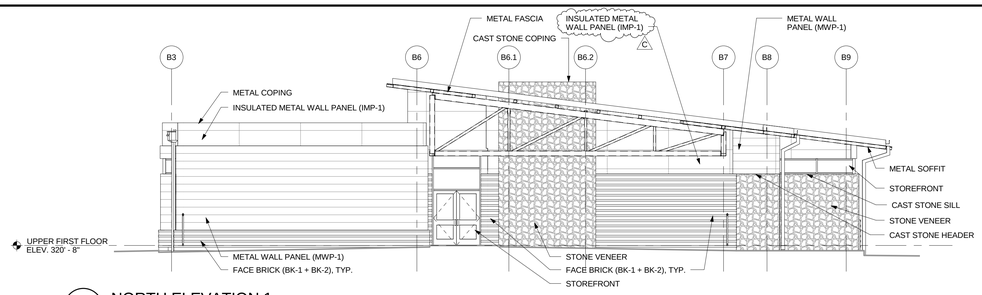
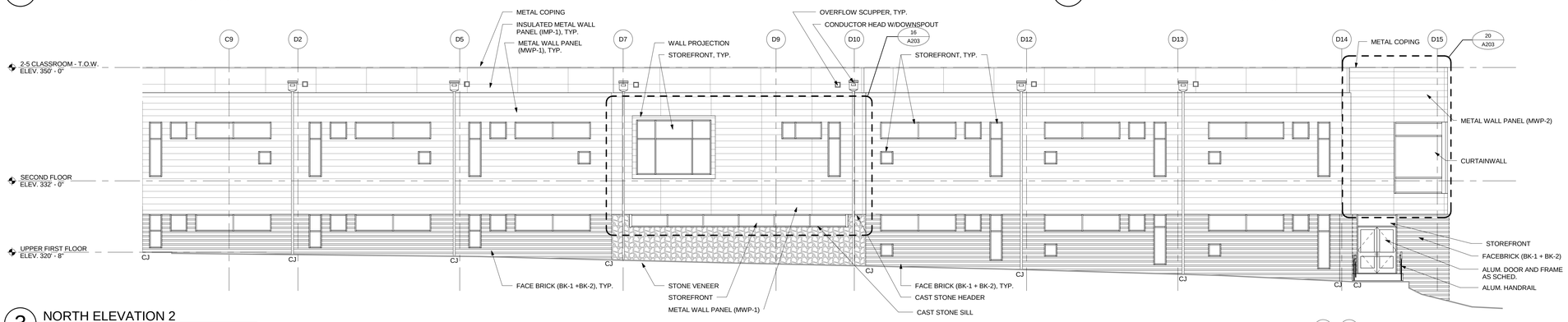
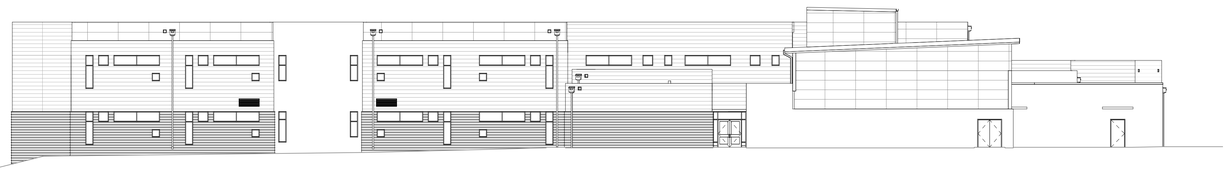
1 OVERALL NORTH ELEVATION
SCALE: 1/16" = 1'-0"



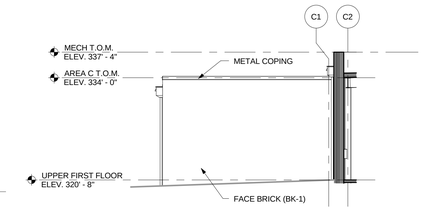
2 NORTH ELEVATION 1
SCALE: 1/8" = 1'-0"



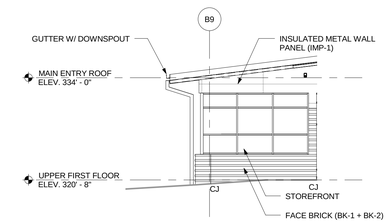
3 NORTH ELEVATION 2
SCALE: 1/8" = 1'-0"



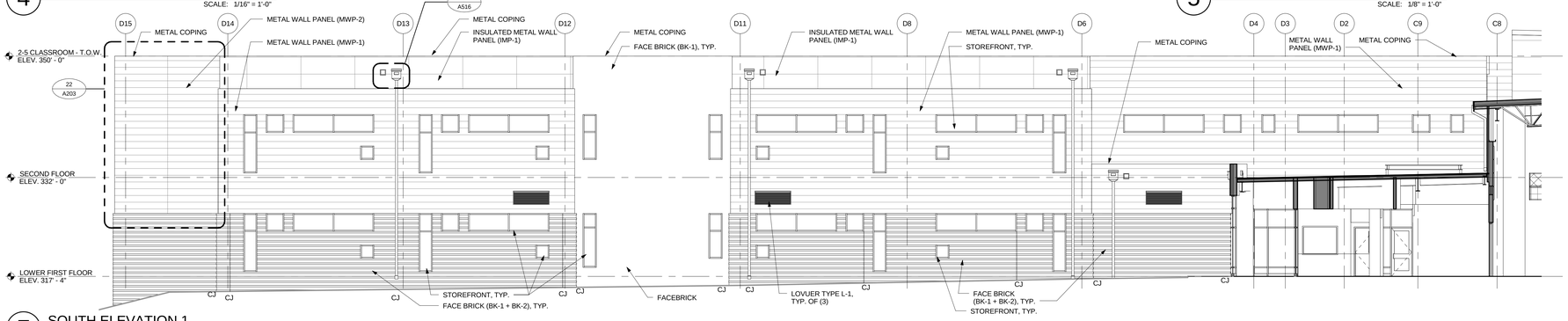
4 OVERALL SOUTH ELEVATION
SCALE: 1/16" = 1'-0"



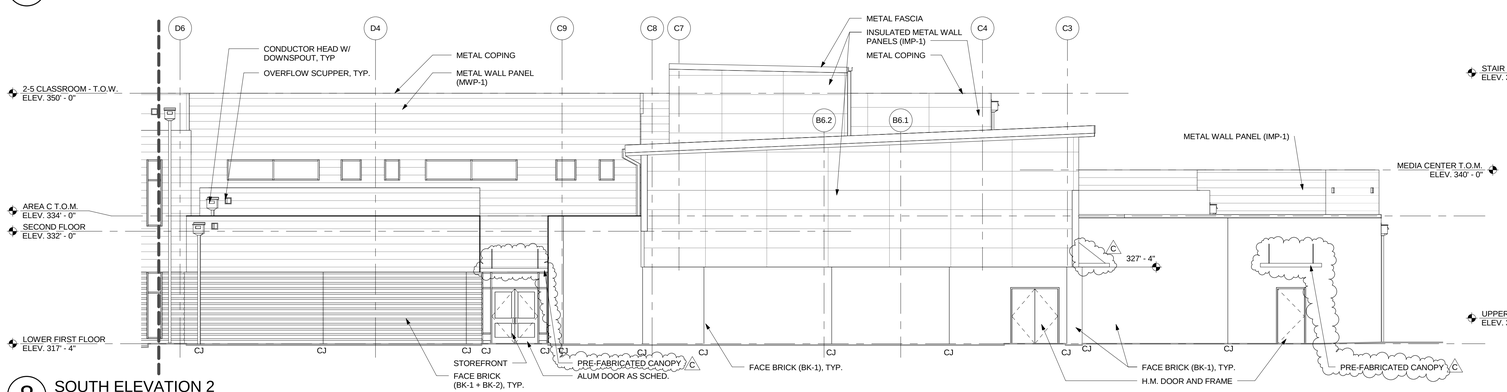
5 NORTH ELEVATION AT KITCHEN
SCALE: 1/8" = 1'-0"



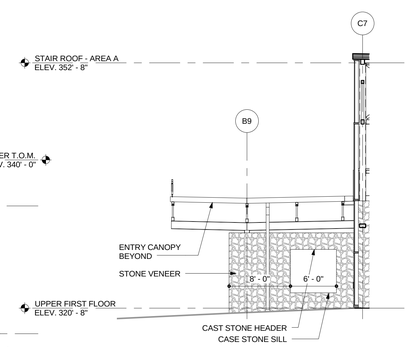
6 SOUTH ELEVATION AT MAIN ENTRY
SCALE: 1/8" = 1'-0"



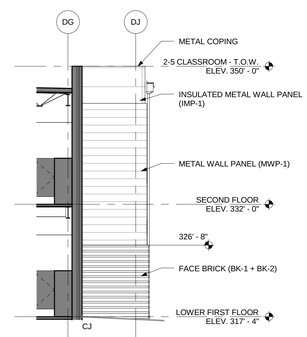
7 SOUTH ELEVATION 1
SCALE: 1/8" = 1'-0"



8 SOUTH ELEVATION 2
SCALE: 1/8" = 1'-0"



9 SOUTH ELEVATION AT ENTRY
SCALE: 1/8" = 1'-0"



10 WEST ELEVATION AT 2 STORY WING
SCALE: 1/8" = 1'-0"

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THE WHITING-TURNER CONTRACTING COMPANY
CONSTRUCTION MANAGER
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PROJECT TITLE

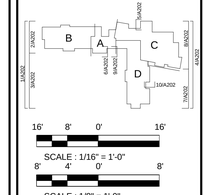
RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

EXTERIOR ELEVATIONS



ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: GMS	PROJ MGR: SCC

A202

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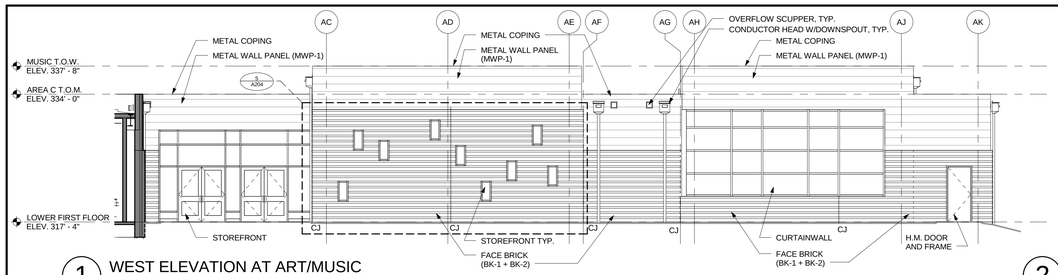
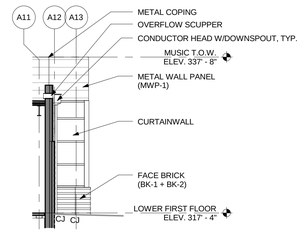
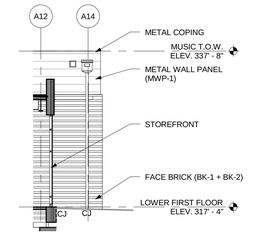


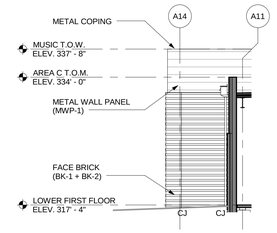
1 WEST ELEVATION AT ART/MUSIC
SCALE: 1/8" = 1'-0"



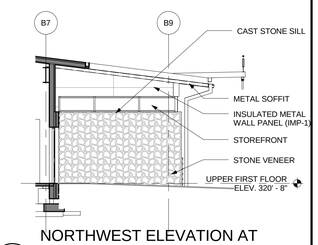
2 NORTH ELEVATION AT ART
SCALE: 1/8" = 1'-0"



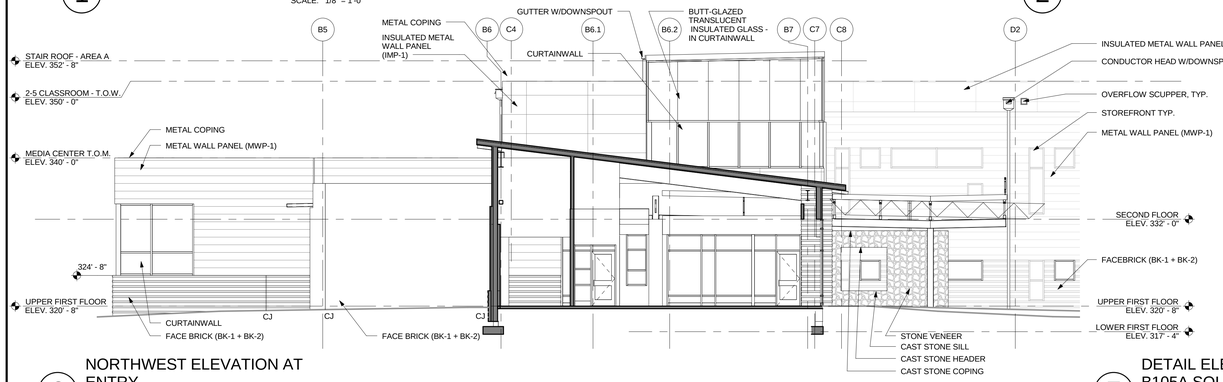
3 NORTH ELEVATION AT MUSIC
SCALE: 1/8" = 1'-0"



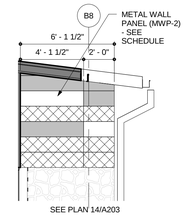
4 SOUTH ELEVATION AT MUSIC
SCALE: 1/8" = 1'-0"



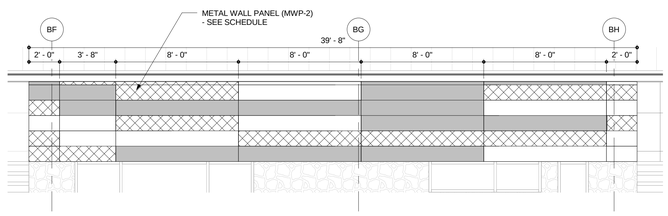
5 NORTHWEST ELEVATION AT CONFERENCE
SCALE: 1/8" = 1'-0"



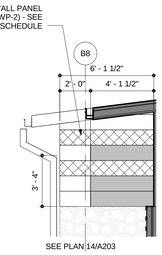
6 NORTHWEST ELEVATION AT ENTRY
SCALE: 1/8" = 1'-0"



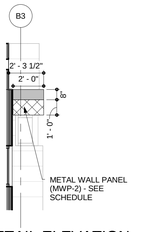
7 DETAIL ELEVATION - RESOURCE B105A SOUTH
SCALE: 1/4" = 1'-0"



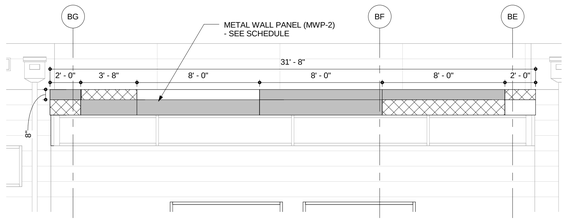
8 DETAIL ELEVATION - RESOURCE B105A EAST
SCALE: 1/4" = 1'-0"



9 DETAIL ELEVATION - RESOURCE B105A NORTH
SCALE: 1/4" = 1'-0"



10 DETAIL ELEVATION - KINDERGARTEN B106 NORTH
SCALE: 1/4" = 1'-0"



11 DETAIL ELEVATION - KINDERGARTEN B106 EAST
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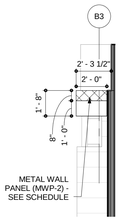
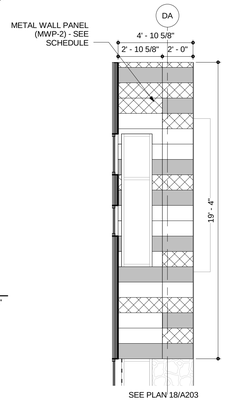
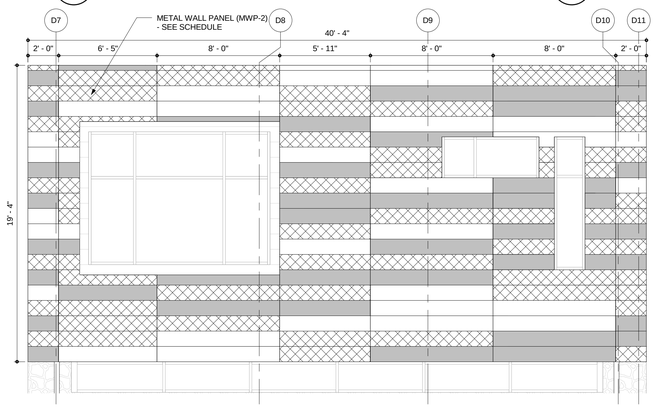


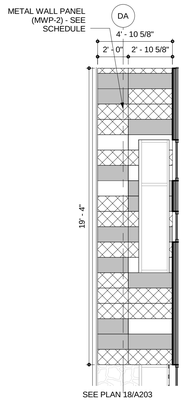
12 DETAIL ELEVATION - KINDERGARTEN B106 SOUTH
SCALE: 1/4" = 1'-0"



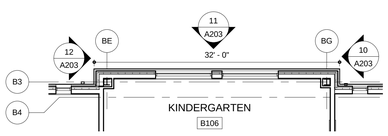
15 DETAIL ELEVATION - COMPUTER D107 WEST
SCALE: 1/4" = 1'-0"



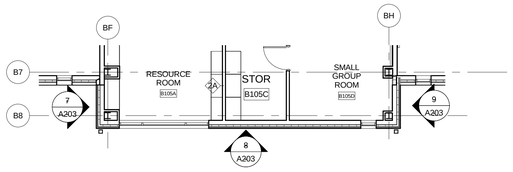
16 DETAIL ELEVATION - COMPUTER D107 SOUTH
SCALE: 1/4" = 1'-0"



17 DETAIL ELEVATION - COMPUTER D107 EAST
SCALE: 1/4" = 1'-0"

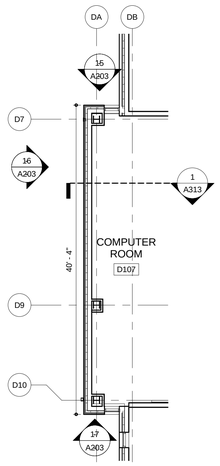


13 PARTIAL PLAN KINDERGARTEN B106
SCALE: 1/8" = 1'-0"

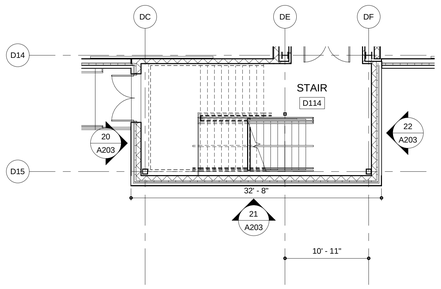


14 PARTIAL PLAN RESOURCE ROOM B105A
SCALE: 1/8" = 1'-0"

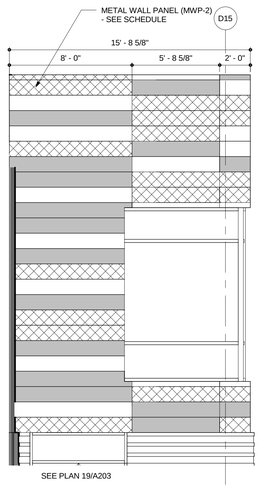
METAL WALL PANEL (MWP-2)		
	MP-1	MP-1A - AT KINDERGARTEN B106 MP-1A - AT RESOURCE B105A MP-1B - AT COMPUTER D107 MP-1C - AT STAIR D107
	MP-2	MP-2A - AT KINDERGARTEN B106 MP-2A - AT RESOURCE B105A MP-2B - AT COMPUTER D107 MP-2C - AT STAIR D107
	MP-3	MP-3A - AT KINDERGARTEN B106 MP-3A - AT RESOURCE B105A MP-3B - AT COMPUTER D107 MP-3C - AT STAIR D107



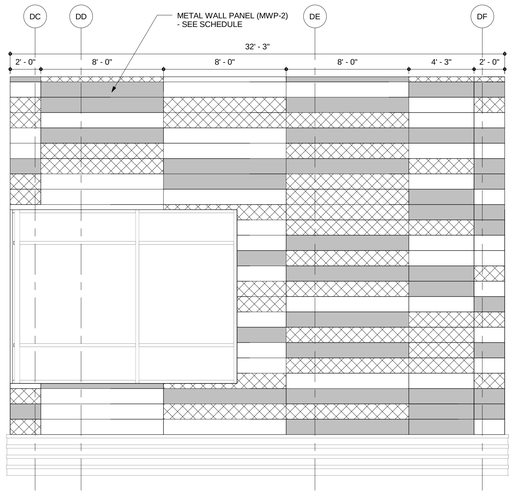
18 PARTIAL PLAN COMPUTER ROOM D107
SCALE: 1/8" = 1'-0"



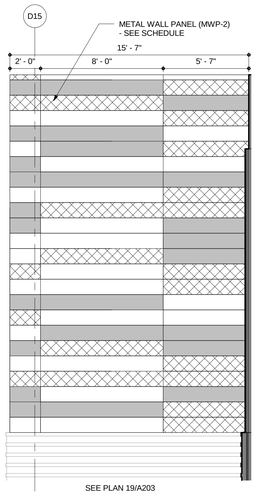
19 PARTIAL PLAN STAIR D107
SCALE: 1/8" = 1'-0"



20 DETAIL ELEVATION - STAIR D114 SOUTH
SCALE: 1/4" = 1'-0"



21 DETAIL ELEVATION - STAIR D114 EAST
SCALE: 1/4" = 1'-0"



22 DETAIL ELEVATION - STAIR D114 NORTH
SCALE: 1/4" = 1'-0"

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

EXTERIOR ELEVATIONS

8' 4' 0' 8'
SCALE : 1/8" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: ALS	PROJ MGR: SCC

A203

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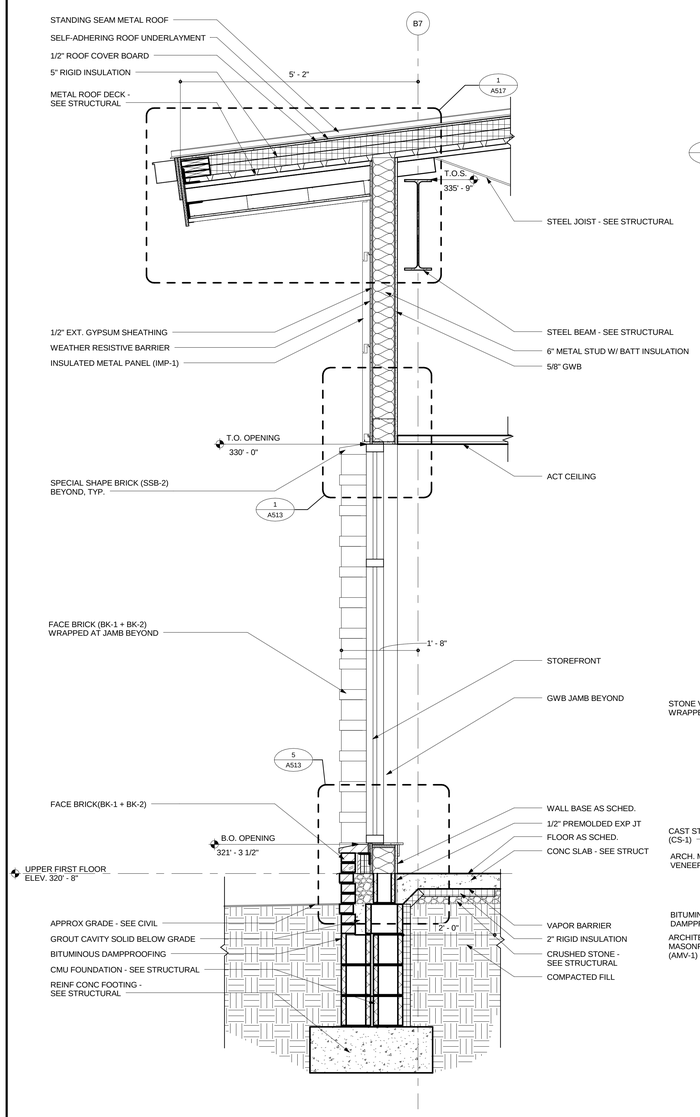
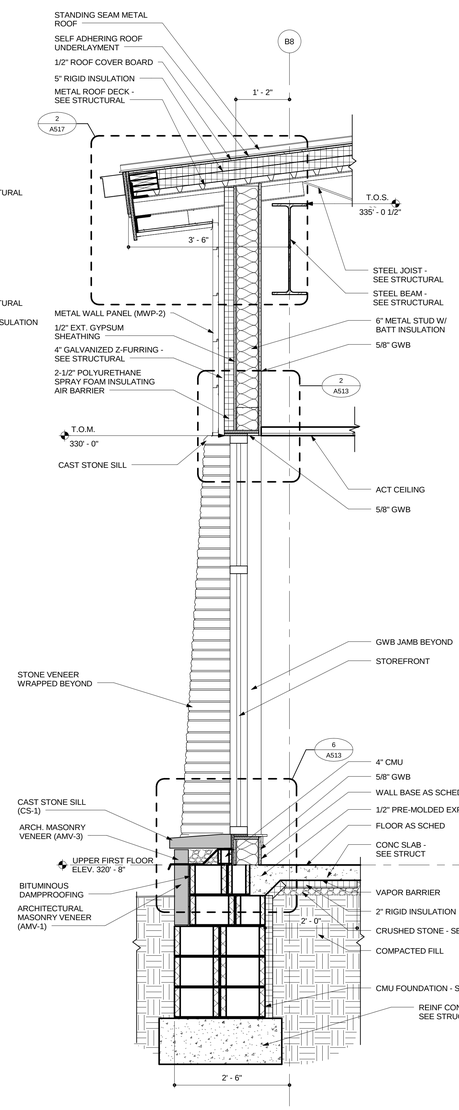


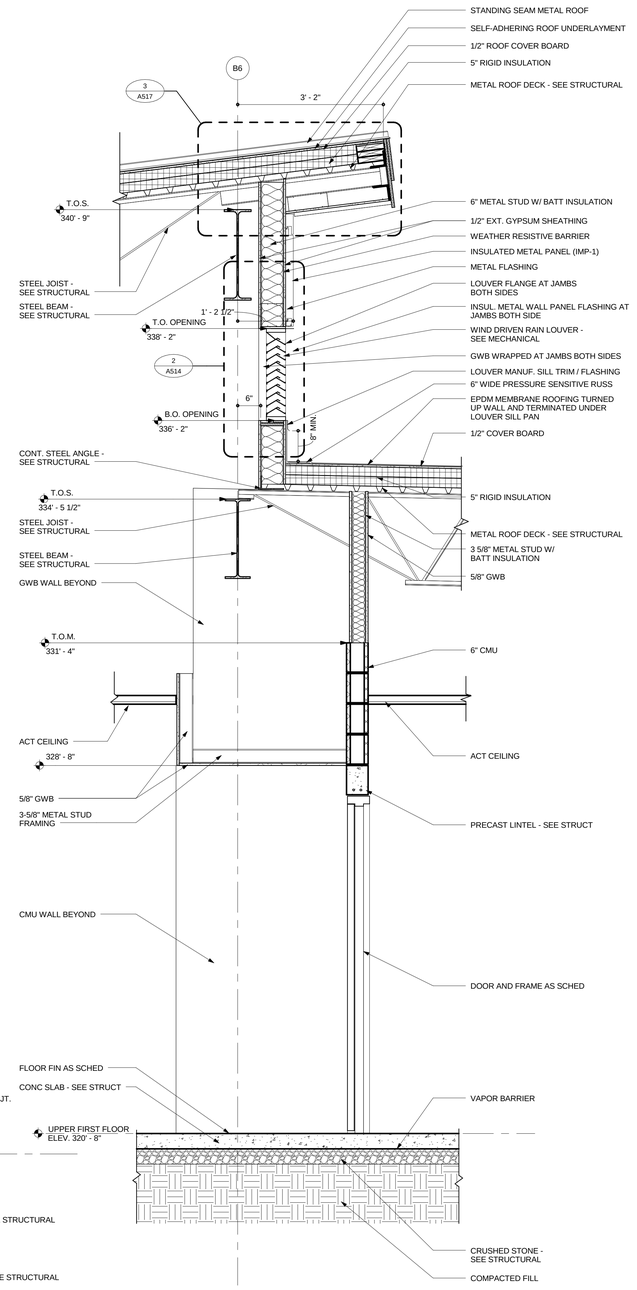
1 TYPICAL WALL SECTION AT K-1 CLASSROOM

SCALE: 3/4" = 1'-0"



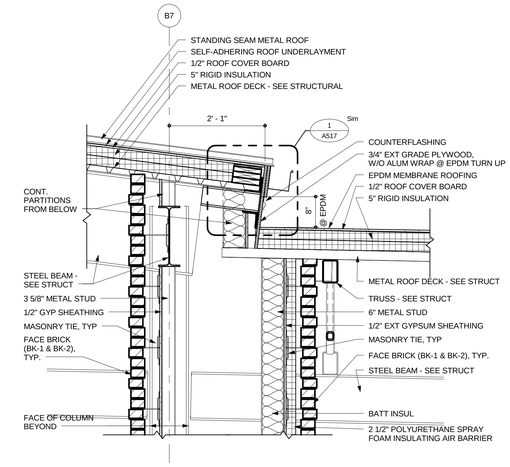
2 WALL SECTION AT RESOURCE ROOM B105A

SCALE: 3/4" = 1'-0"



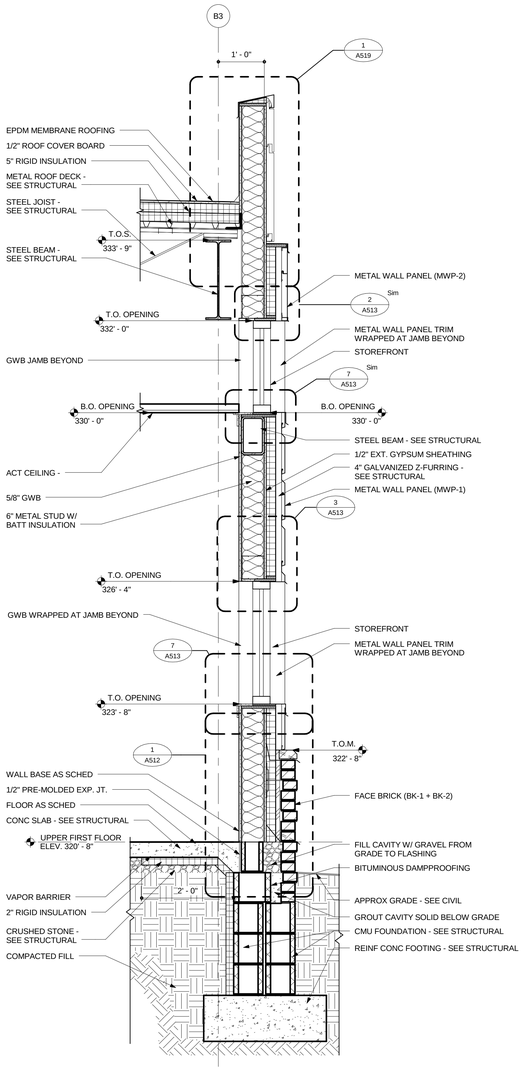
3 WALL SECTION AT K-1 ENTRANCE

SCALE: 3/4" = 1'-0"



5 PARTIAL WALL SECTION AT ADMIN PIER

SCALE: 3/4" = 1'-0"



4 WALL SECTION AT KINDERGARTEN CLASSROOM B106

SCALE: 3/4" = 1'-0"

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RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

WALL SECTIONS

2' 1' 6" 0' 1'

SCALE : 3/4" = 1'-0"

ISSUE BLOCK

Mark	Date	Description

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY: BDF	PROJ MGR: SCC

A304

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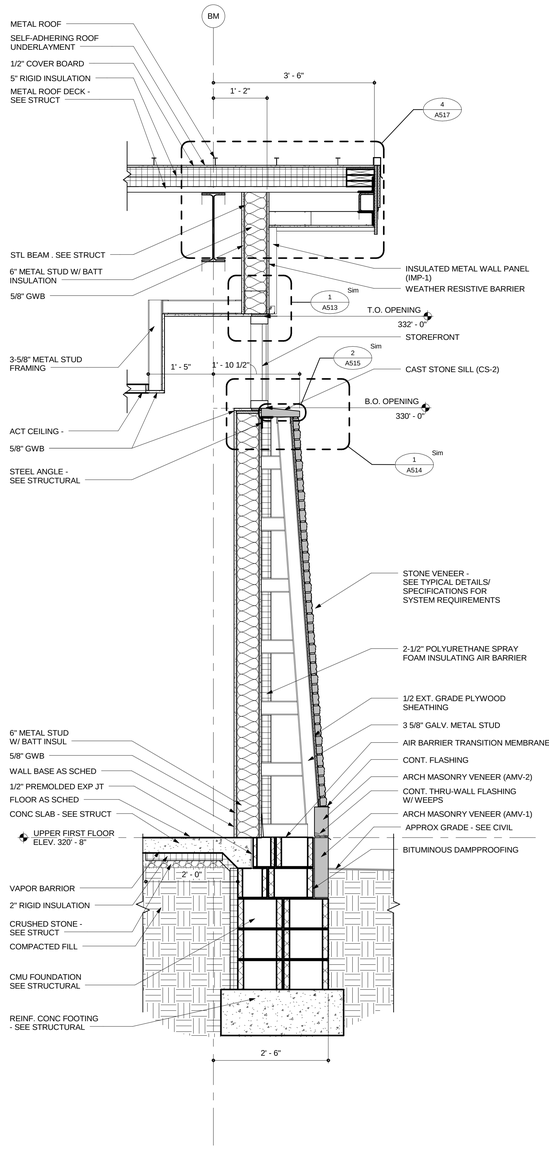
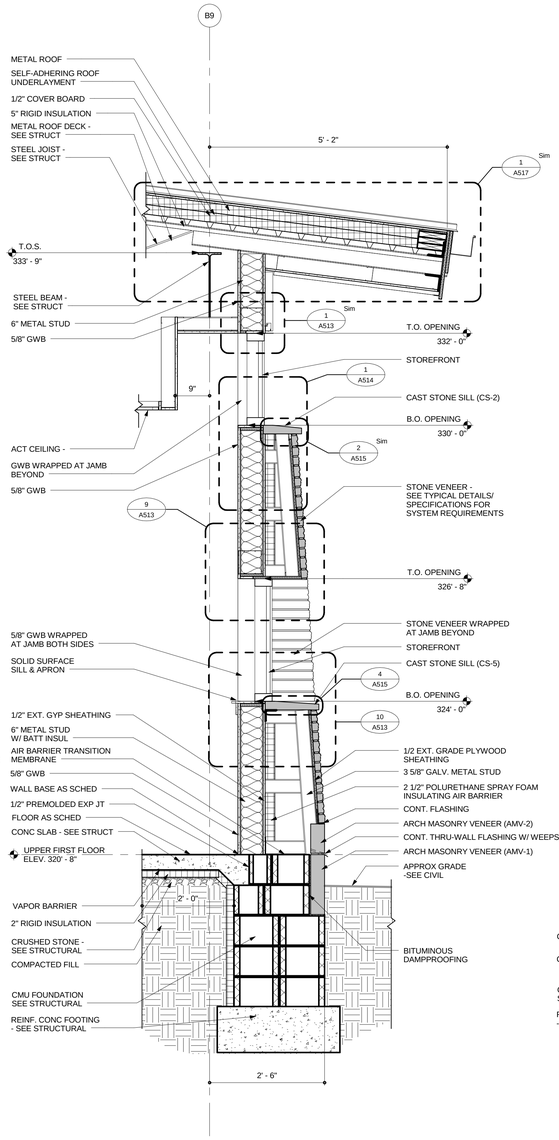


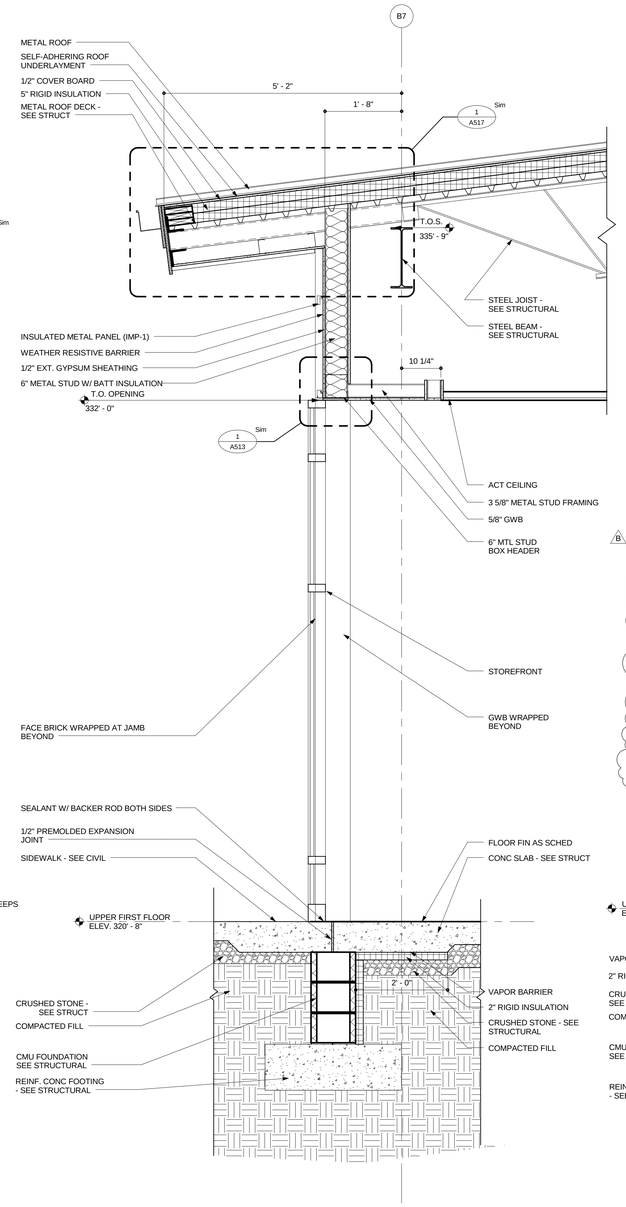
1 WALL SECTION AT PRINCIPAL'S OFFICE A109

SCALE: 3/4" = 1'-0"



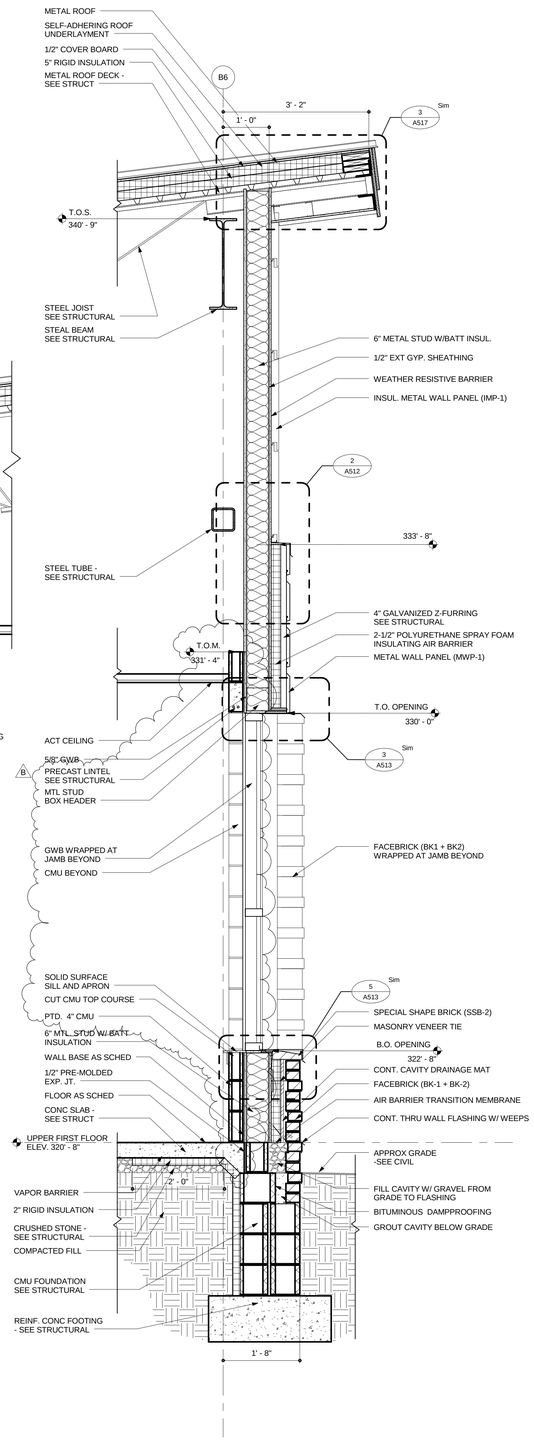
2 WALL SECTION AT ASST. PRINCIPAL'S OFFICE A107

SCALE: 3/4" = 1'-0"



3 WALL SECTION AT WAITING A101

SCALE: 3/4" = 1'-0"



4 WALL SECTION AT CORRIDOR A100C

SCALE: 3/4" = 1'-0"

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2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

WALL SECTIONS

2" 1' 6" 0" 1'

SCALE : 3/4" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	3/4" = 1'-0"
DRAWN BY: BDF	PROJ MGR: SCC

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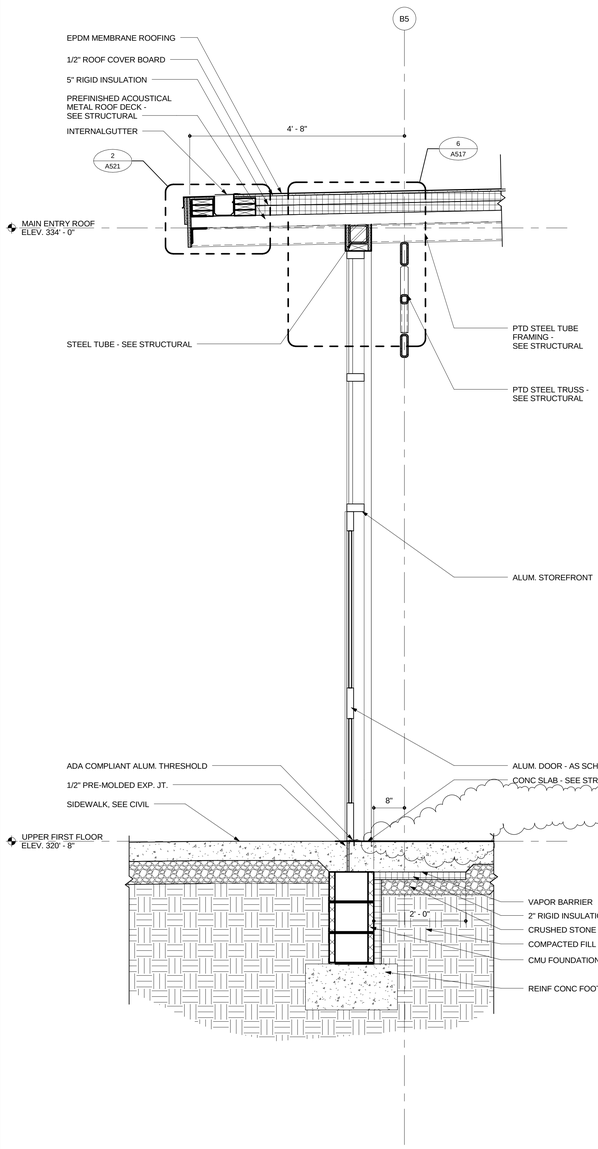
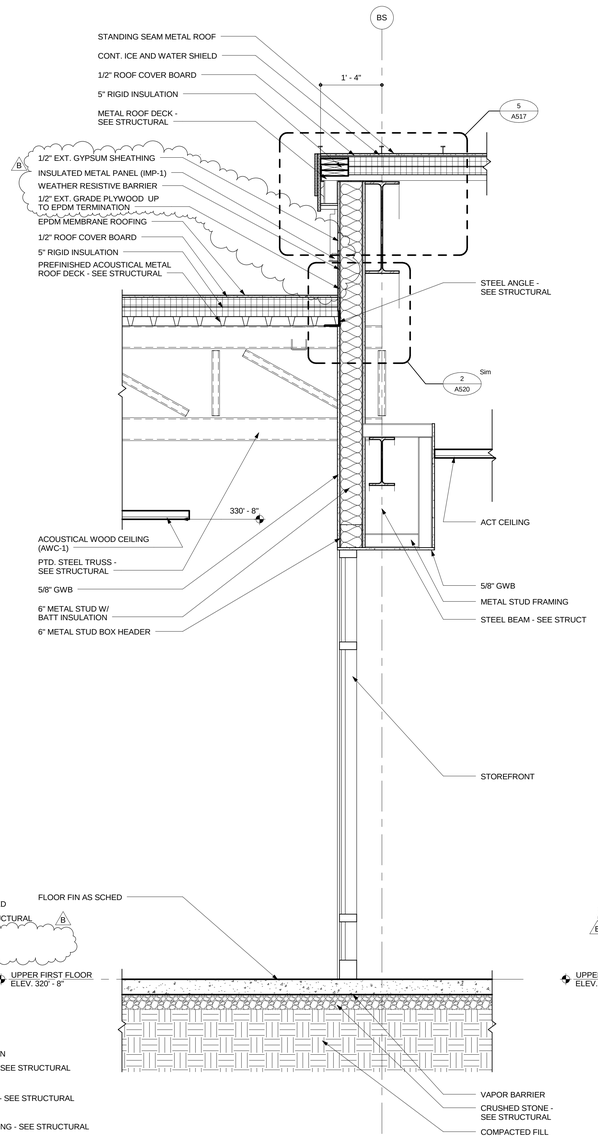


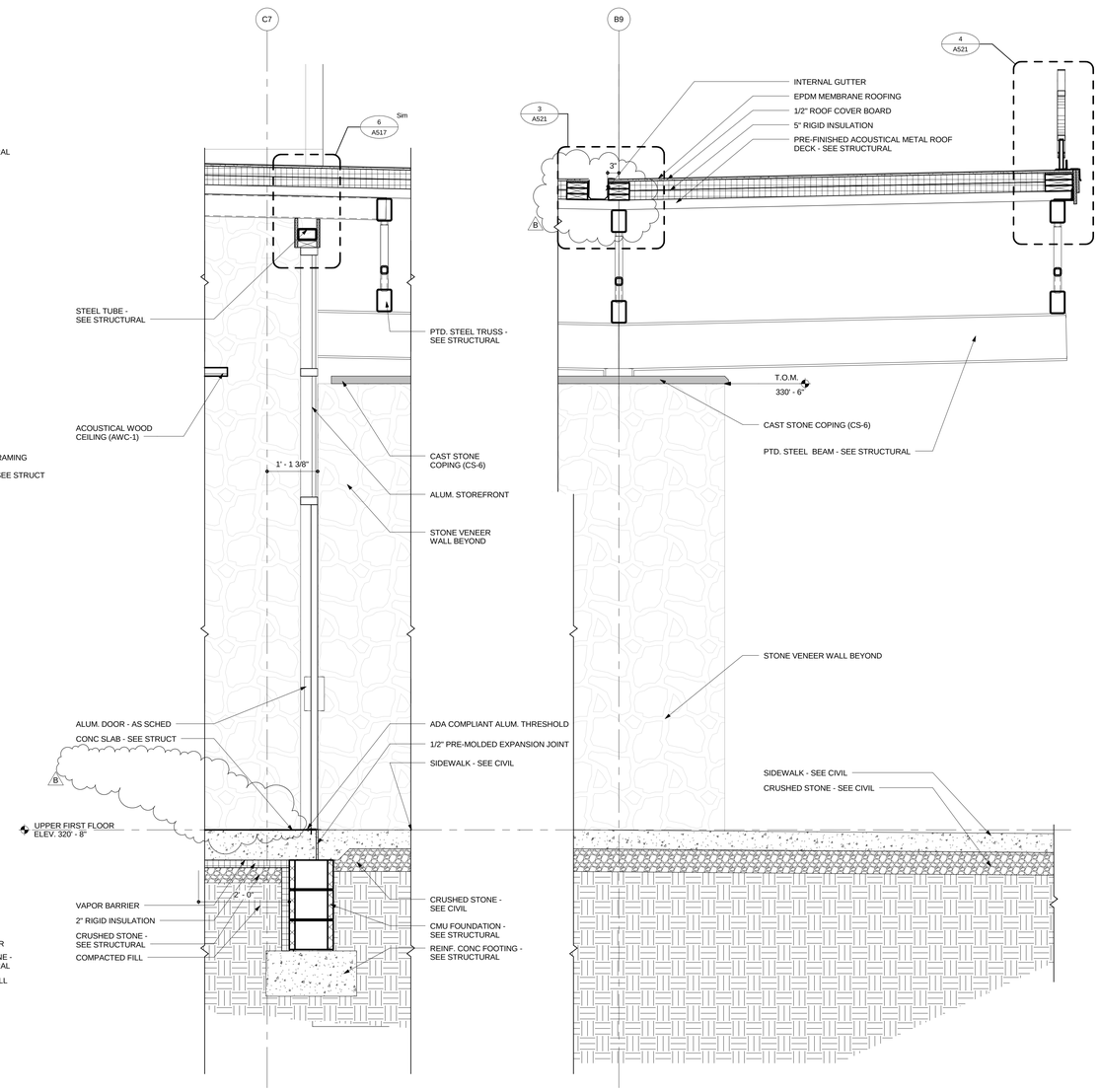
1 WALL SECTION AT VESTIBULE A100B

SCALE: 3/4" = 1'-0"



2 WALL SECTION AT LOBBY AND RECEPTION

SCALE: 3/4" = 1'-0"



3 WALL SECTION AT FRONT ENTRANCE

SCALE: 3/4" = 1'-0"

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CONSTRUCTION MANAGER
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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

WALL SECTIONS

2' 1' 6" 0' 1'

SCALE : 3/4" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
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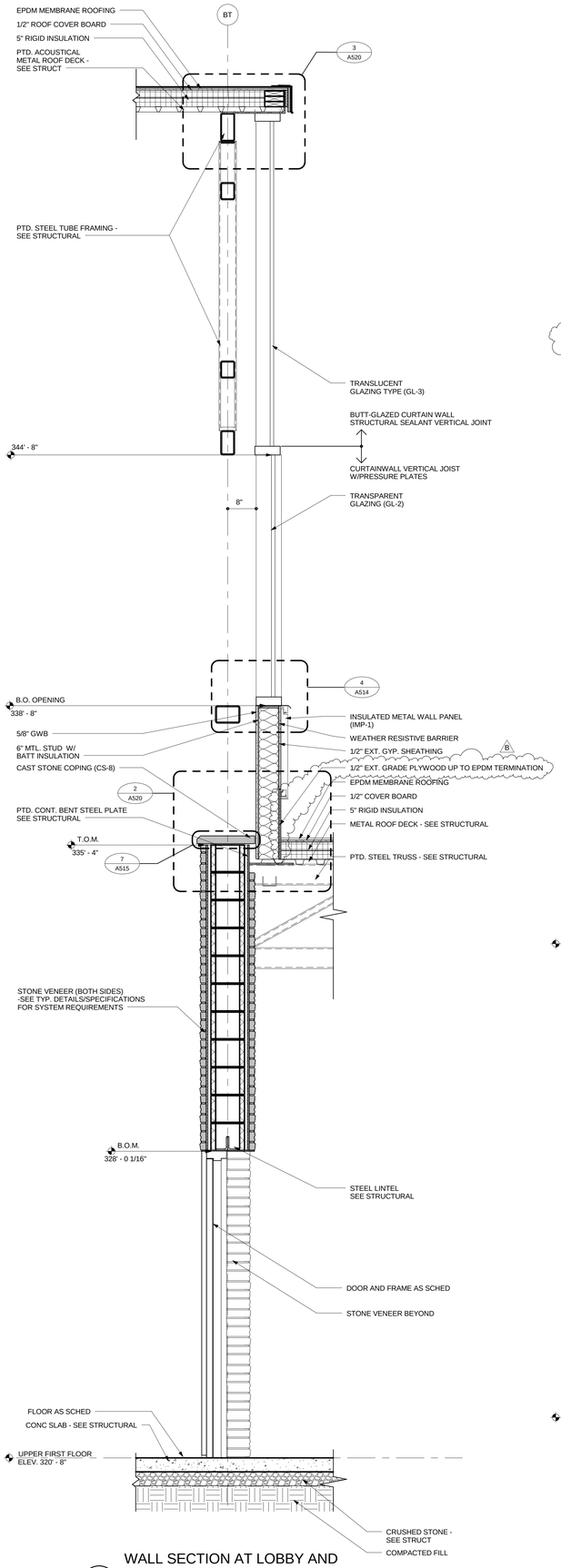
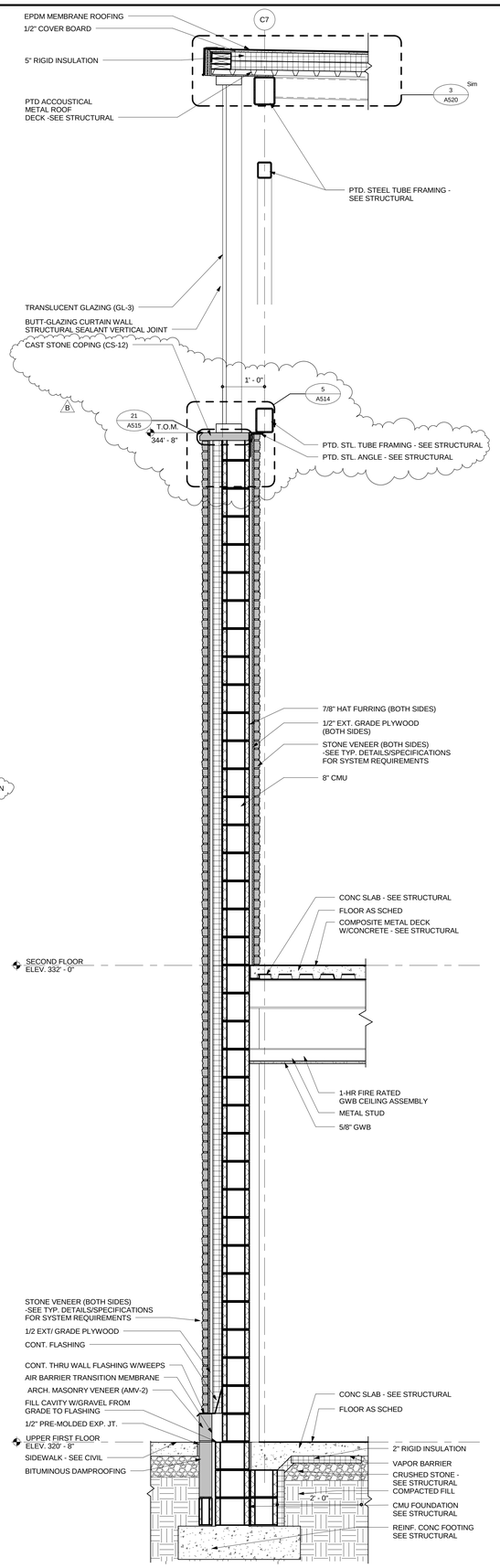


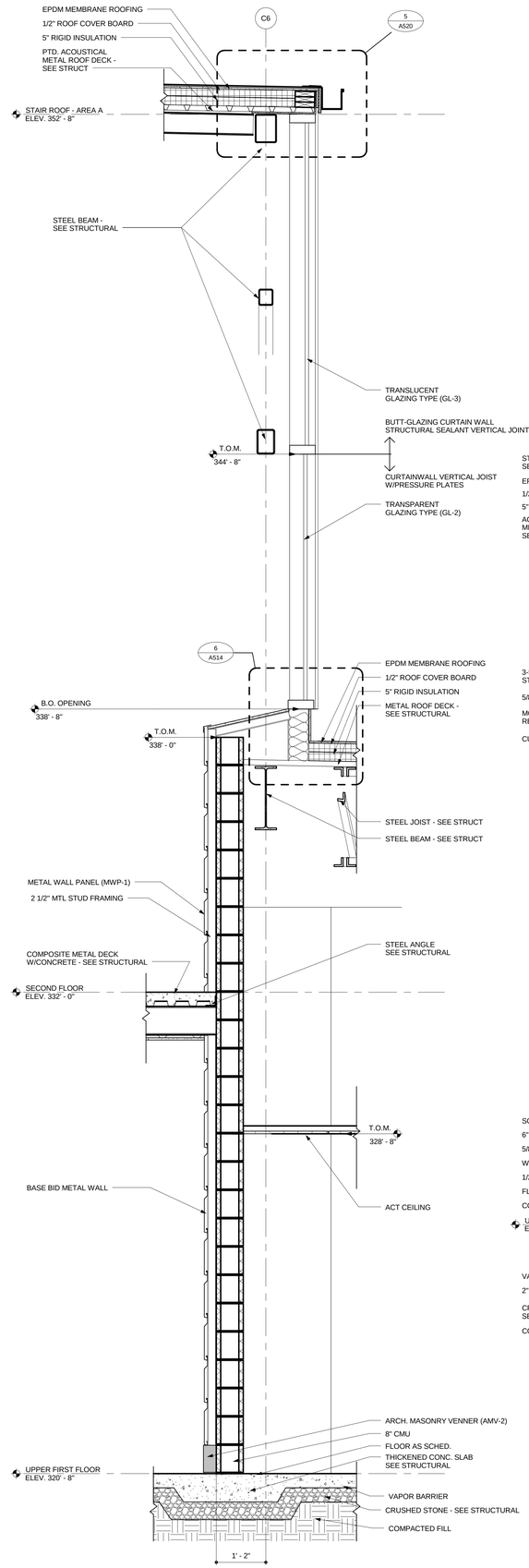
1 WALL SECTION AT LOBBY AND STAIR D101

SCALE: 3/4" = 1'-0"



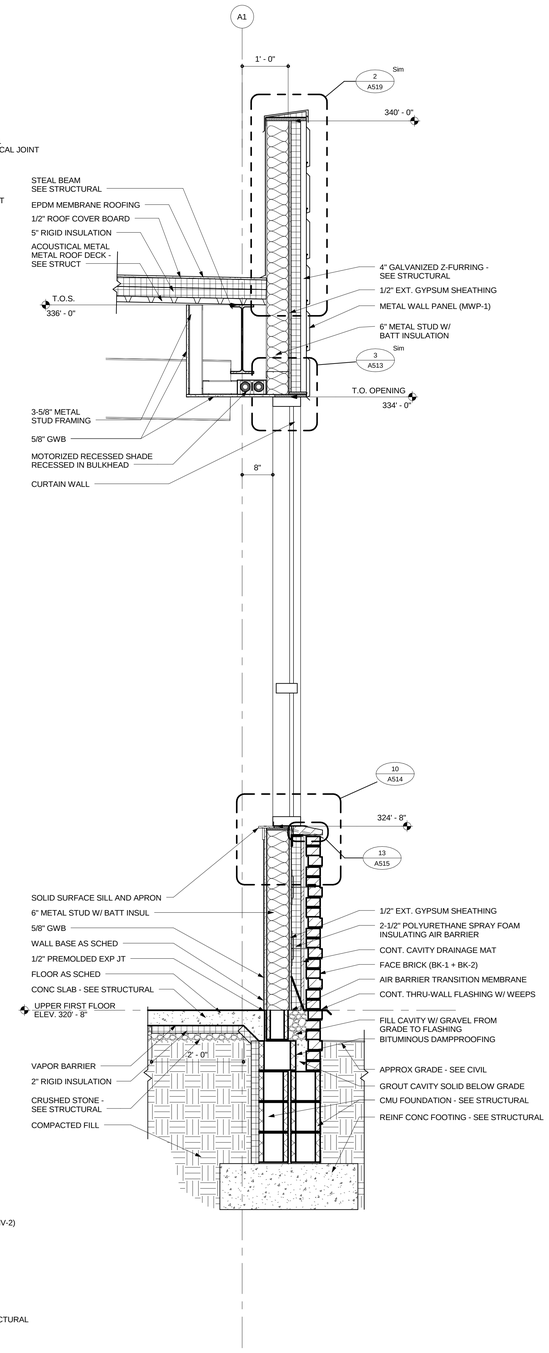
2 WALL SECTION AT ELEV. MACHINE RM/ STAIR C100A

SCALE: 3/4" = 1'-0"



3 WALL SECTION AT STAIR D101

SCALE: 3/4" = 1'-0"



4 WALL SECTION AT MEDIA CENTER

SCALE: 3/4" = 1'-0"

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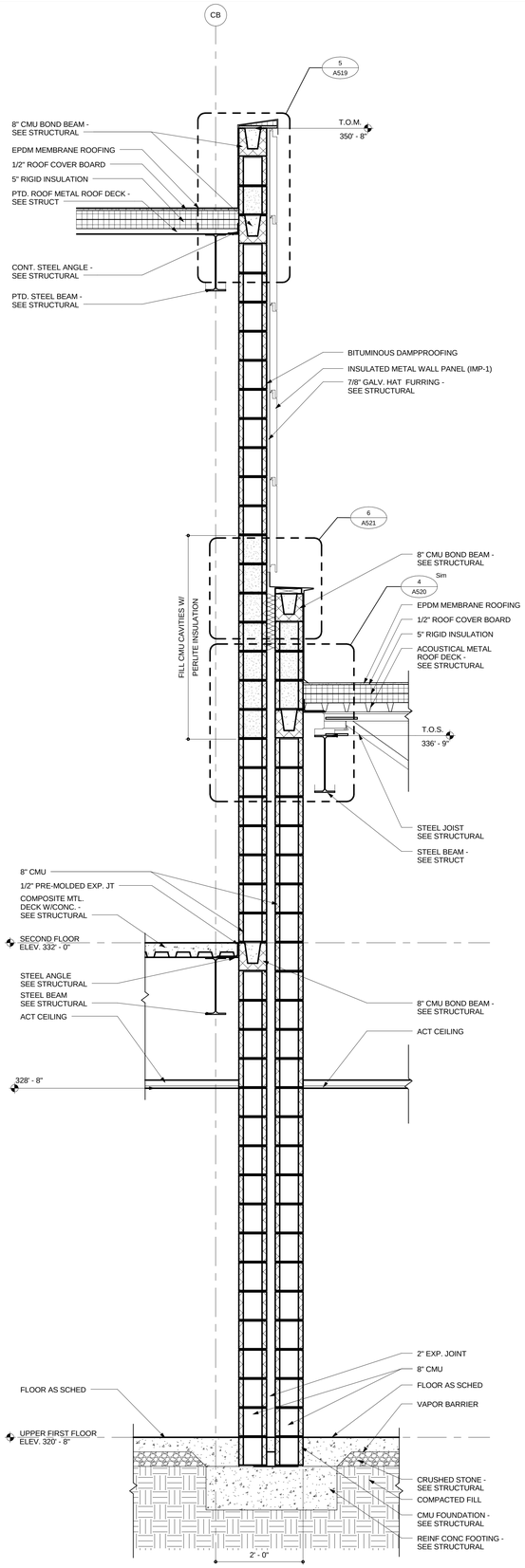
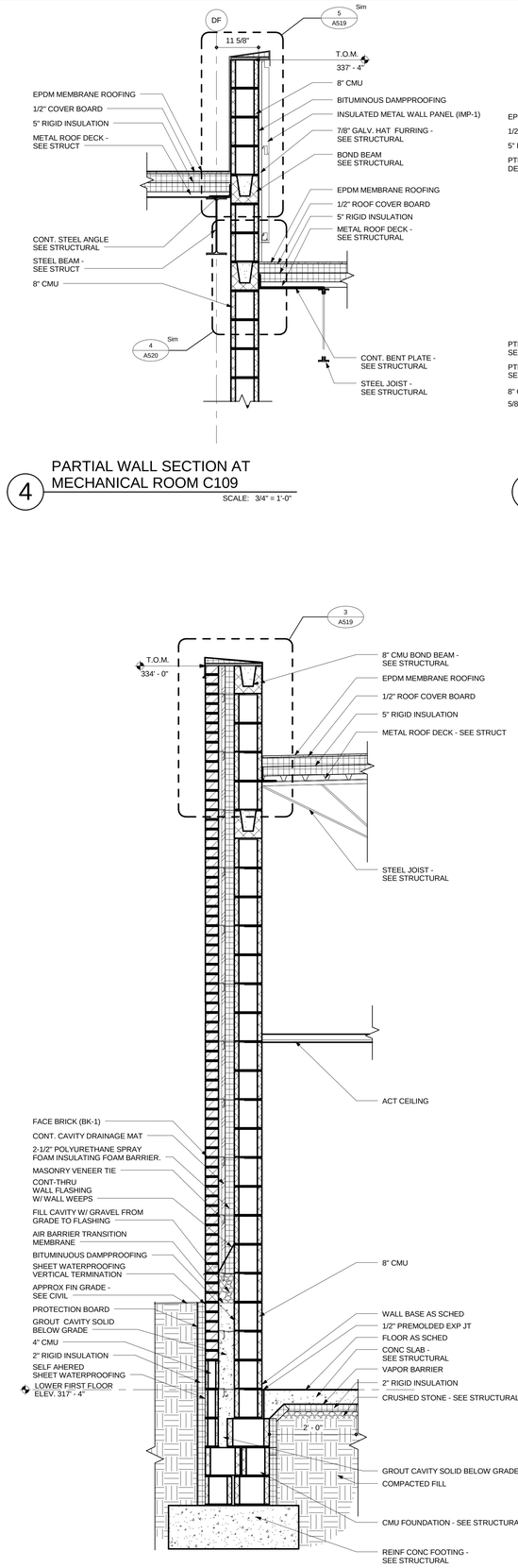


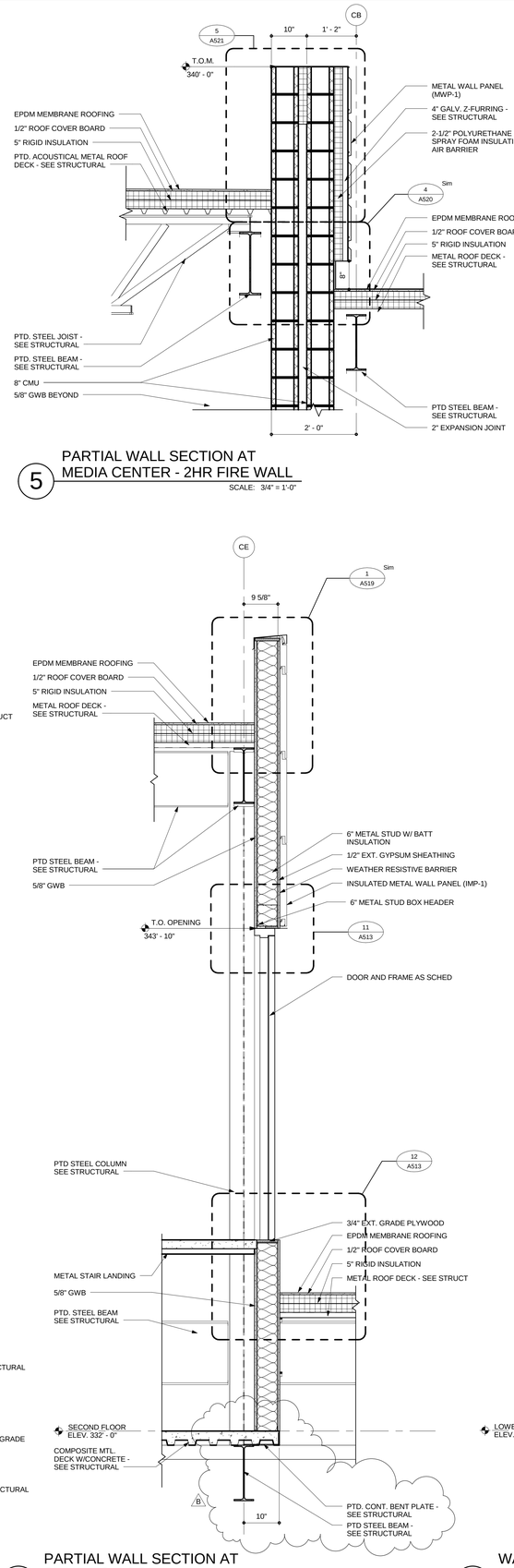
1 WALL SECTION AT ROOM A119 AND C104 - 2HR FIRE WALL

SCALE: 3/4" = 1'-0"



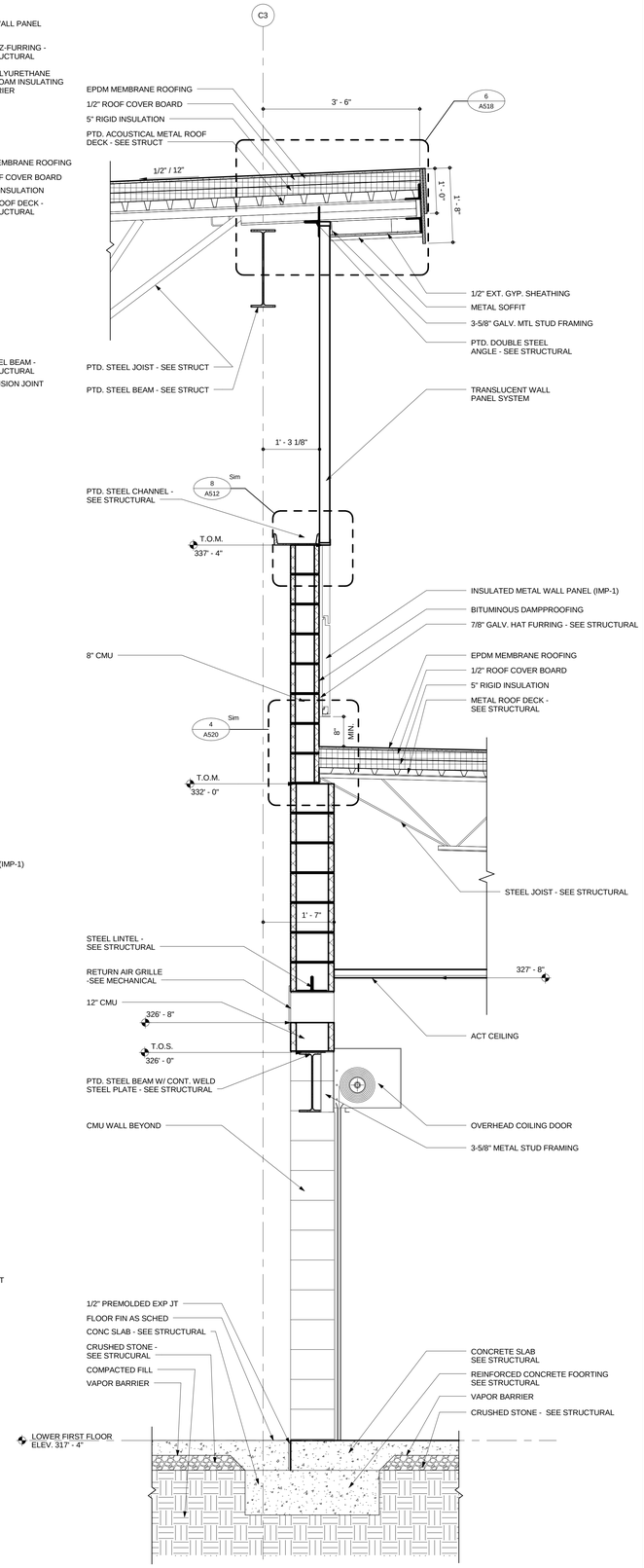
2 WALL SECTION AT TOILET ROOM C133

SCALE: 3/4" = 1'-0"



3 PARTIAL WALL SECTION AT STAIR TO ROOF

SCALE: 3/4" = 1'-0"



6 WALL SECTION AT STUDENT DINING C114 AND SERVING C126

SCALE: 3/4" = 1'-0"

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BRIAN A. NYIKOS No. 5257 STATE OF DELAWARE REGISTERED ARCHITECT

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2025 GRAVES ROAD,
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RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

WALL SECTIONS

2' 1' 6" 0' 1'

SCALE : 3/4" = 1'-0"

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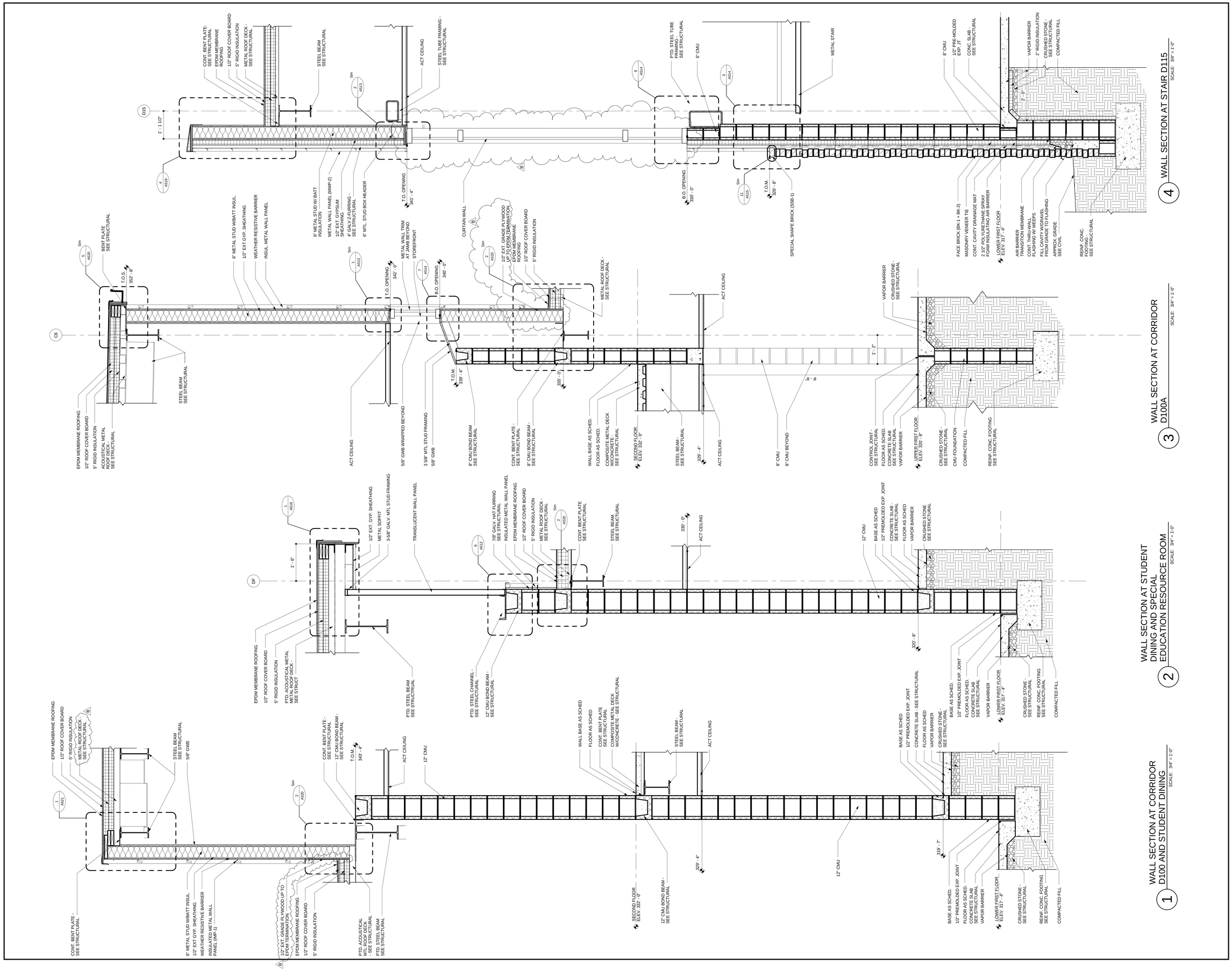

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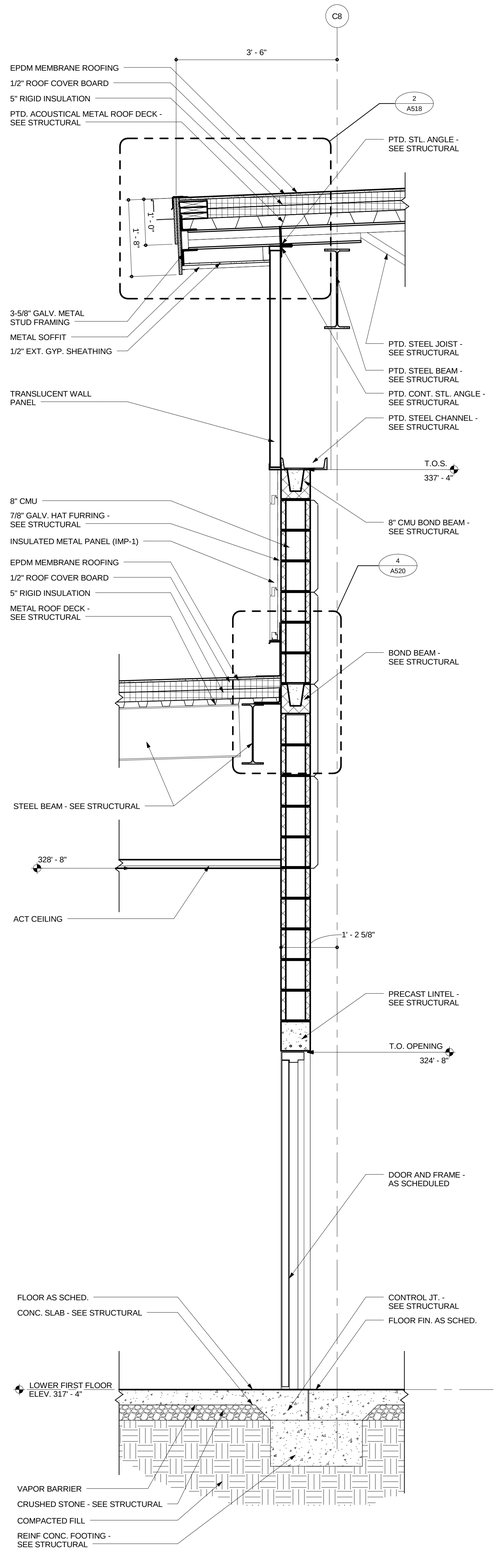
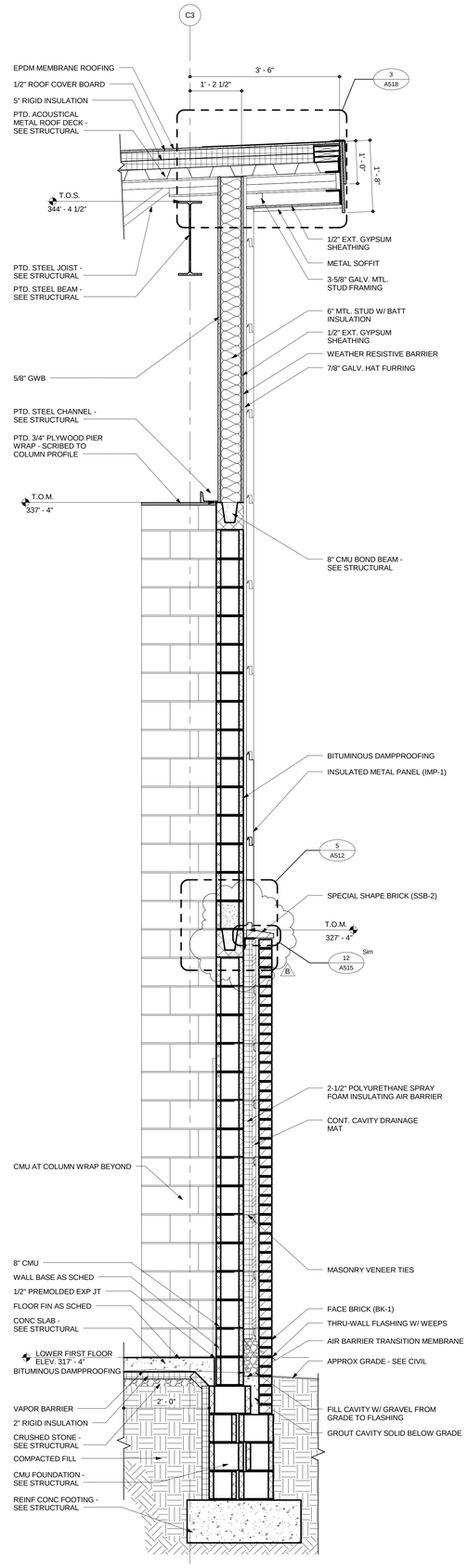


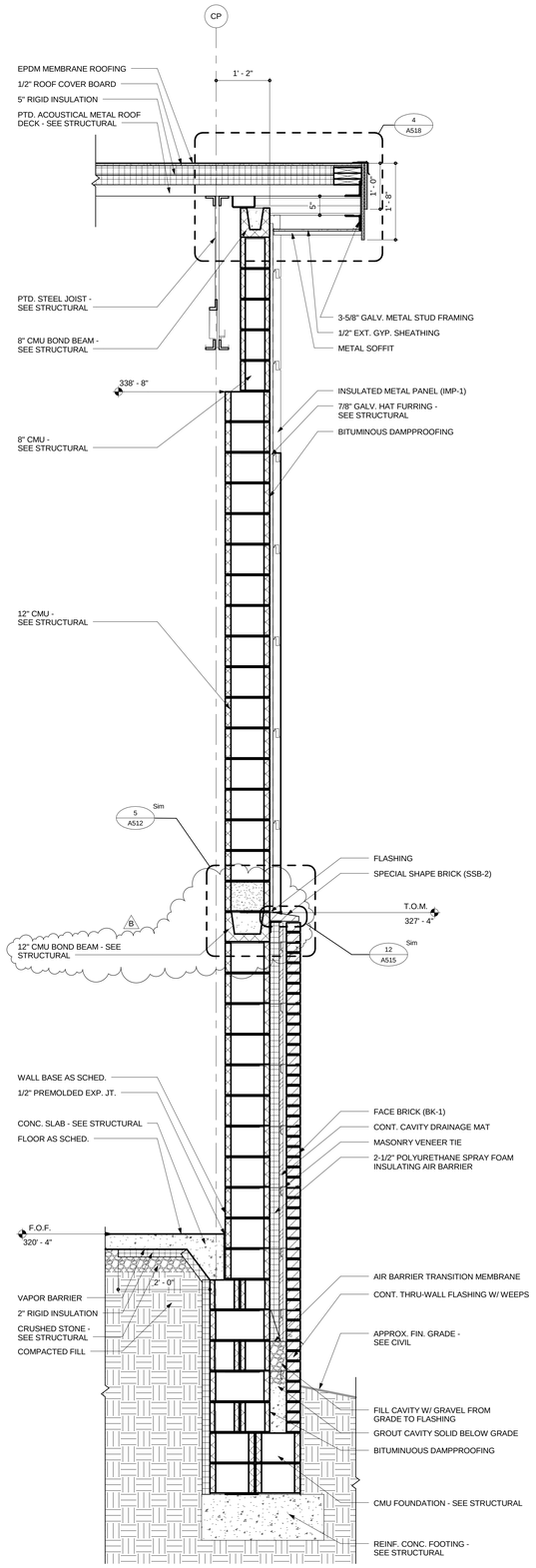
1 WALL SECTION THROUGH PE OFFICE ROOM C118

SCALE: 3/4" = 1'-0"



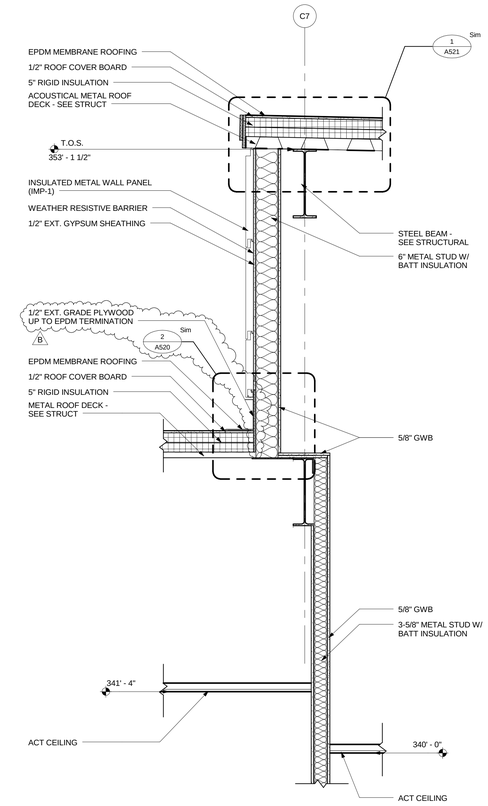
2 WALL SECTION AT GYM C106

SCALE: 3/4" = 1'-0"



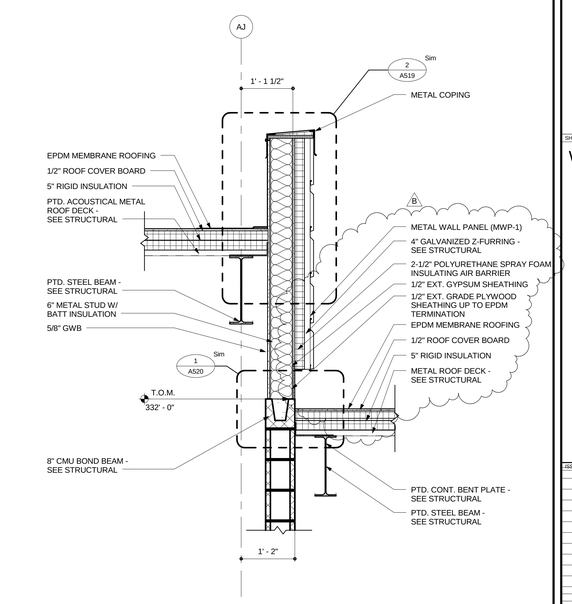
3 WALL SECTION AT STAGE

SCALE: 3/4" = 1'-0"



4 PARTIAL WALL SECTION AT CORRIDOR D100A

SCALE: 3/4" = 1'-0"



5 PARTIAL WALL SECTION AT ART STORAGE

SCALE: 3/4" = 1'-0"

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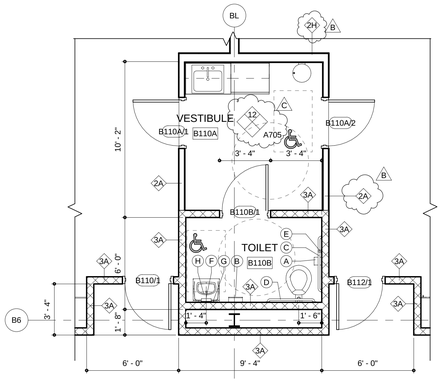
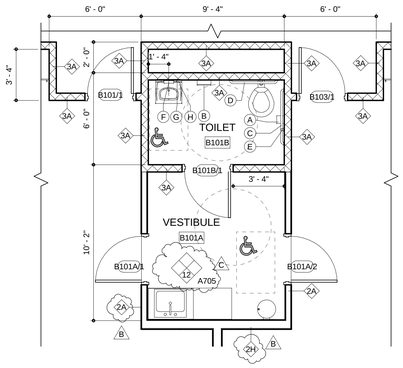
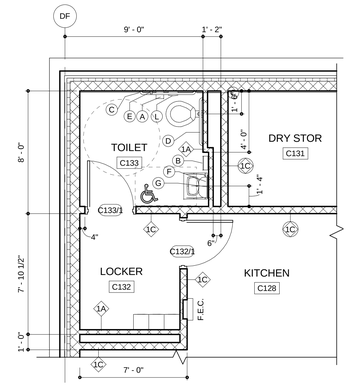


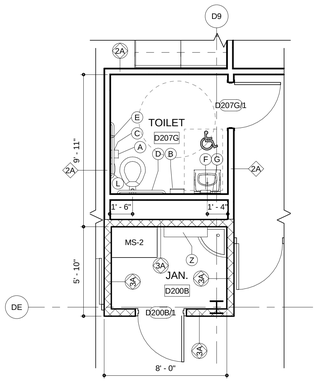
1 TOILET/VESTIBULE B102A/B102B, B106A/B106B, AND B110A/B110B
SCALE: 1/4" = 1'-0"



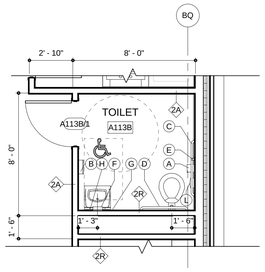
2 TOILET/VESTIBULE B101A/B101B AND B107A/B107B
SCALE: 1/4" = 1'-0"



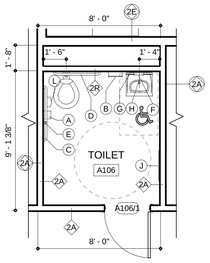
3 TOILET C133
SCALE: 1/4" = 1'-0"



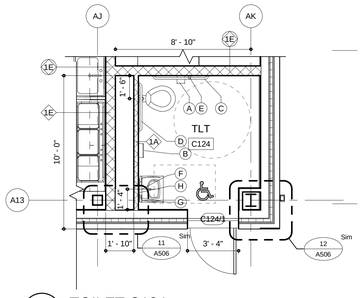
4 TOILET D207G AND JAN D200B
SCALE: 1/4" = 1'-0"



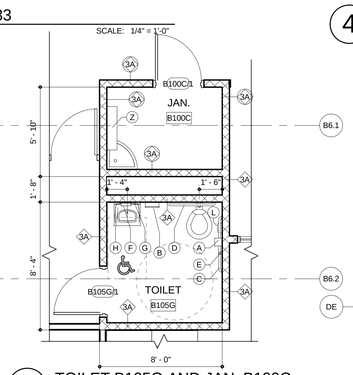
5 TOILET A113B
SCALE: 1/4" = 1'-0"



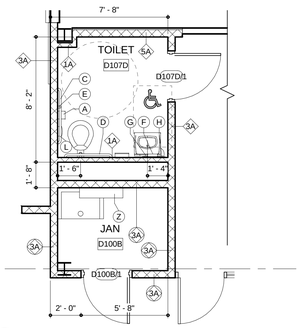
6 TOILET A106
SCALE: 1/4" = 1'-0"



7 TOILET C124
SCALE: 1/4" = 1'-0"

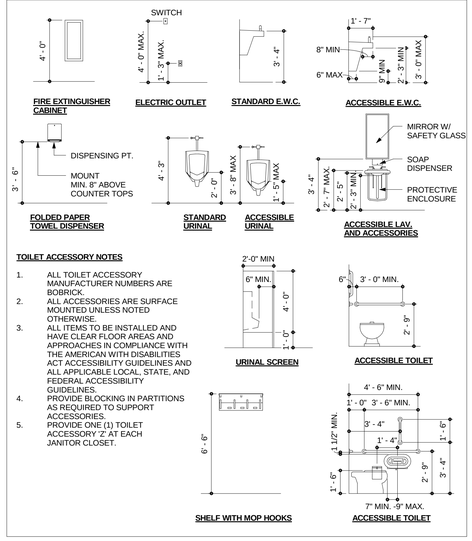


8 TOILET B105G AND JAN. B100C
SCALE: 1/4" = 1'-0"



9 TOILET D107D AND JAN. D100B
SCALE: 1/4" = 1'-0"

STANDARD MOUNTING HEIGHTS

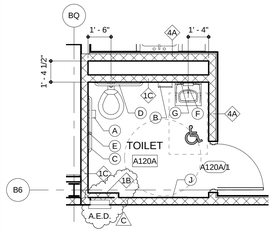


TOILET ACCESSORY NOTES

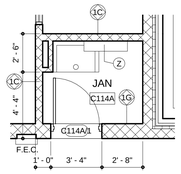
1. ALL TOILET ACCESSORY MANUFACTURER NUMBERS ARE BOBRICK.
2. ALL ACCESSORIES ARE SURFACE MOUNTED UNLESS NOTED OTHERWISE.
3. ALL ITEMS TO BE INSTALLED AND HAVE CLEAR FLOOR AREAS AND APPROACHES IN COMPLIANCE WITH THE AMERICAN WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL ACCESSIBILITY GUIDELINES.
4. PROVIDE BLOCKING IN PARTITIONS AS REQUIRED TO SUPPORT ACCESSORIES.
5. PROVIDE ONE (1) TOILET ACCESSORY 'Z' AT EACH JANITOR CLOSET.

TOILET ACCESSORY SCHEDULE

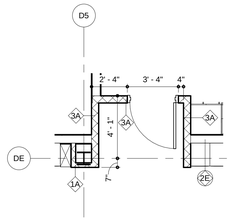
KEY	ACCESSORY DESCRIPTION	MFR'S PRODUCT NO.	QTY
A	TOILET TISSUE DISPENSER	PROVIDED BY OWNER	30
B	PAPER TOWEL DISPENSER	PROVIDED BY OWNER	25
C	GRAB BAR 42" LONG HORIZONTAL	B-6806 99x42	19
D	GRAB BAR 36" LONG HORIZONTAL	B-6806 .99x36	19
E	GRAB BAR 18" LONG VERTICAL	B-6806 99x18	22
F	SOAP DISPENSER	PROVIDED BY OWNER	22
G	FRAMED MIRROR 18"W x 36"H	B-165-1836	20
H	PROTECTIVE ENCLOSURE	SEE PLUMBING	16
J	FRAMED MIRROR 24"W x 60"H	B-165-1836	1
K	FRAMED MIRROR 36"W x 36"H	B-165-1836	8
L	SANITARY NAPKIN DISPOSAL	B-270	11
N	HAND DRYER	SEE ELECTRICAL	4
Z	MOP HOOKS AND SHELF	B-239	6



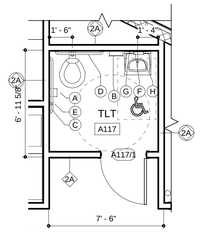
10 TOILET A120A - ALTERNATE
SCALE: 1/4" = 1'-0"



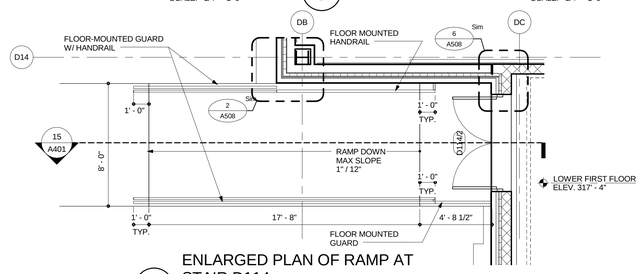
11 JANITOR C114A
SCALE: 1/4" = 1'-0"



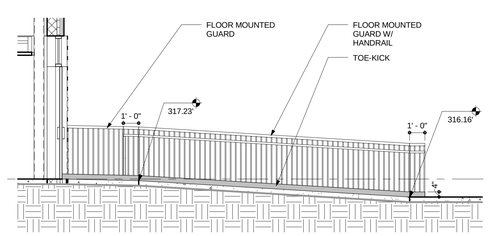
12 TYPICAL CLASSROOM ENTRY
SCALE: 1/4" = 1'-0"



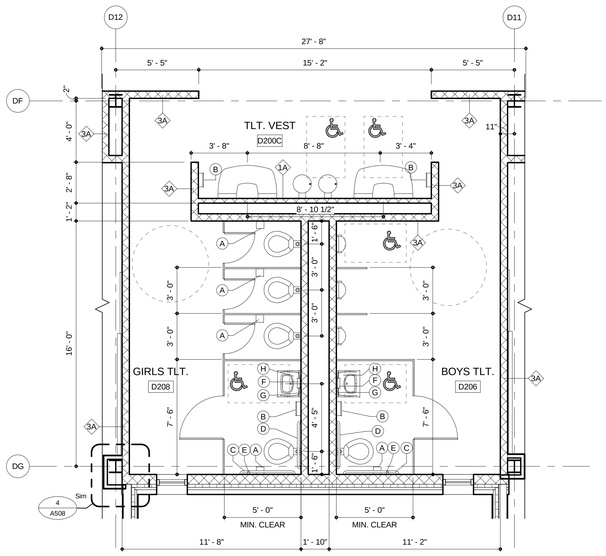
13 TOILET A117
SCALE: 1/4" = 1'-0"



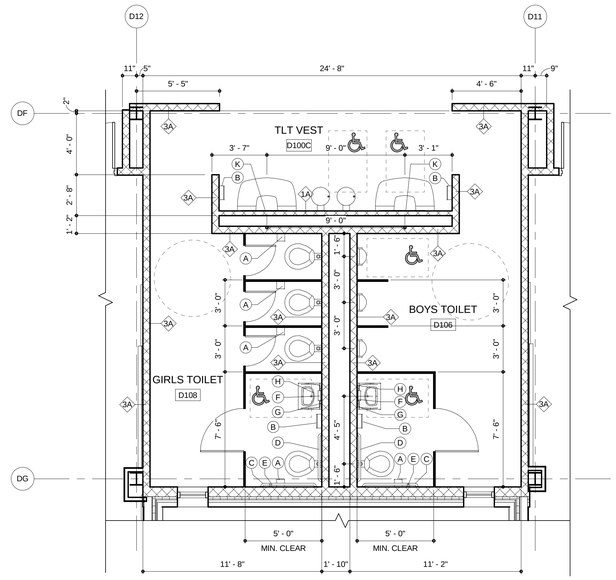
14 ENLARGED PLAN OF RAMP AT STAIR D114
SCALE: 1/4" = 1'-0"



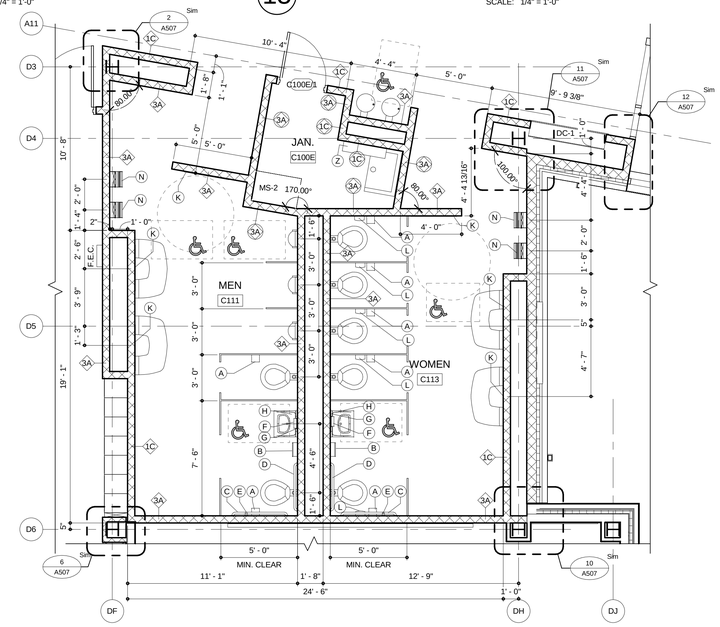
15 SECTION THROUGH RAMP AT STAIR D114
SCALE: 1/4" = 1'-0"



16 TOILET D206 AND D208
SCALE: 1/4" = 1'-0"



17 TOILETS D106 AND D108
SCALE: 1/4" = 1'-0"



18 TOILET C111 AND C113
SCALE: 1/4" = 1'-0"

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1) RED CLAY CONSOLIDATED SCHOOL DISTRICT
NO CONTRACTURAL OBLIGATION IS ASSUMED BY THE ARCHITECT FOR THE BENEFIT OF ANY OTHER PERSON INVOLVED IN THE PROJECT.

PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

ENLARGED TOILET, STAIR, AND RAMP PLANS AND SECTIONS

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

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02
A	07.16.2013	ADDENDUM-01

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	1/4" = 1'-0"
DRAWN BY: GMS	PROJ MGR: SCC

A401

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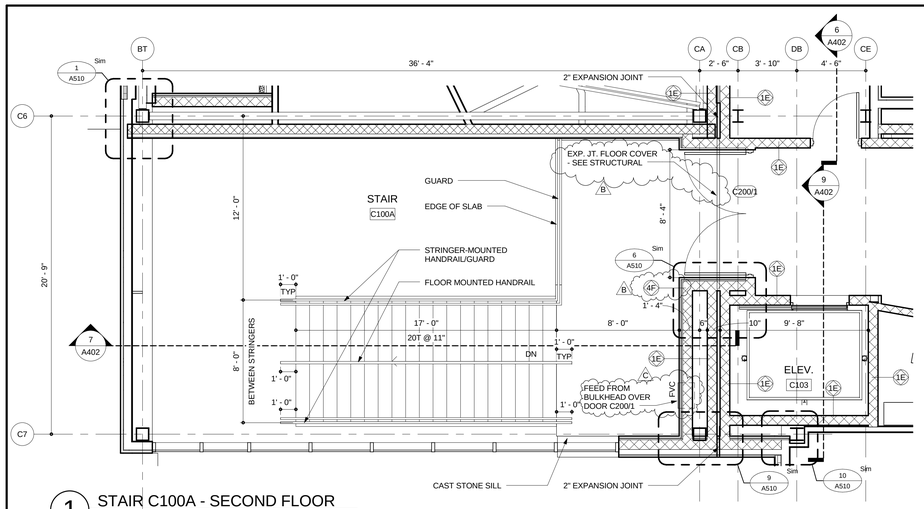
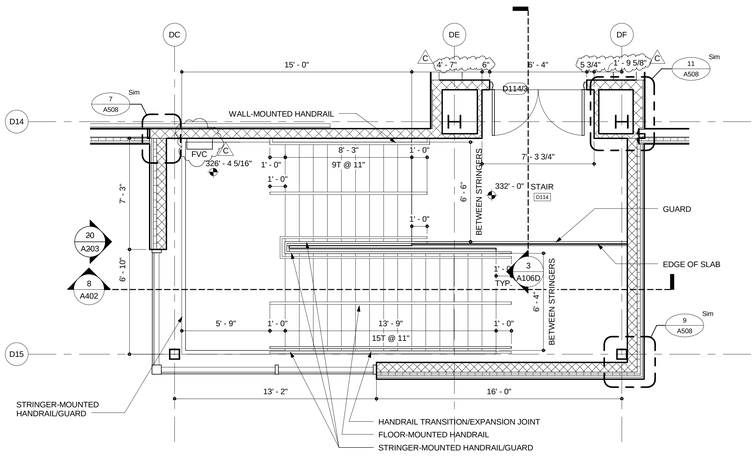


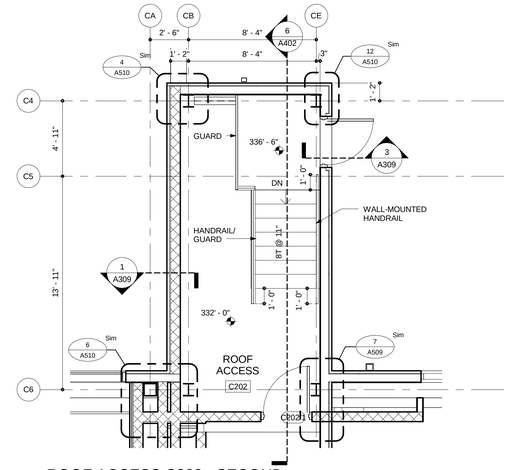
1 STAIR C100A - SECOND FLOOR

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



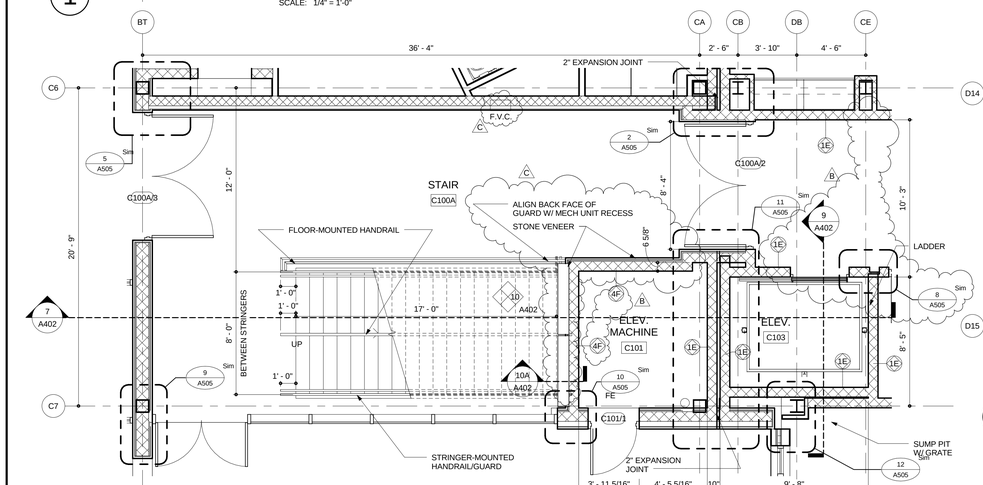
2 STAIR D114 - SECOND FLOOR

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



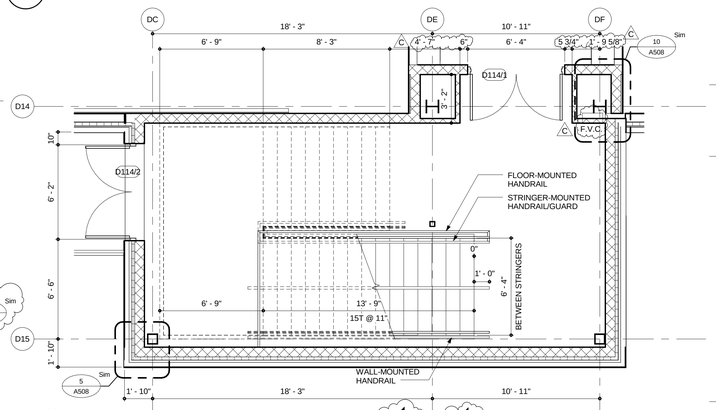
3 ROOF ACCESS C202 - SECOND FLOOR

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



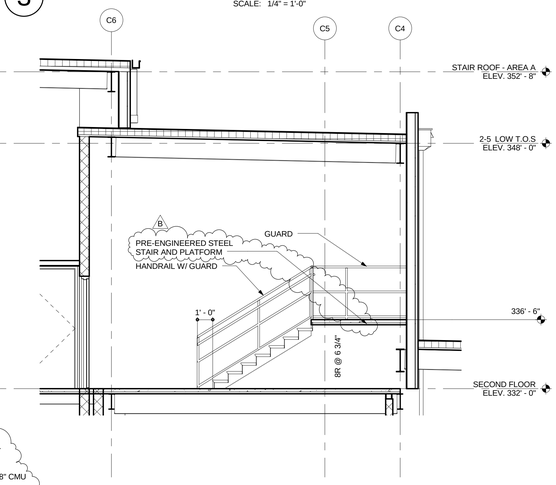
4 STAIR C100A

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



5 STAIR D114 - FIRST FLOOR

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

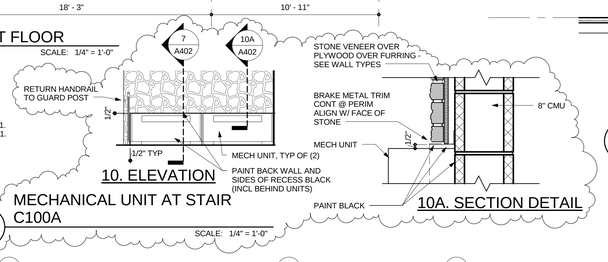


6 SECTION ROOF ACCESS C202

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

GENERAL NOTES:

1. SEE HAND/GUARDRAIL DETAILS ON A511.
2. SEE ELEVATOR LADDER DETAIL ON A511.



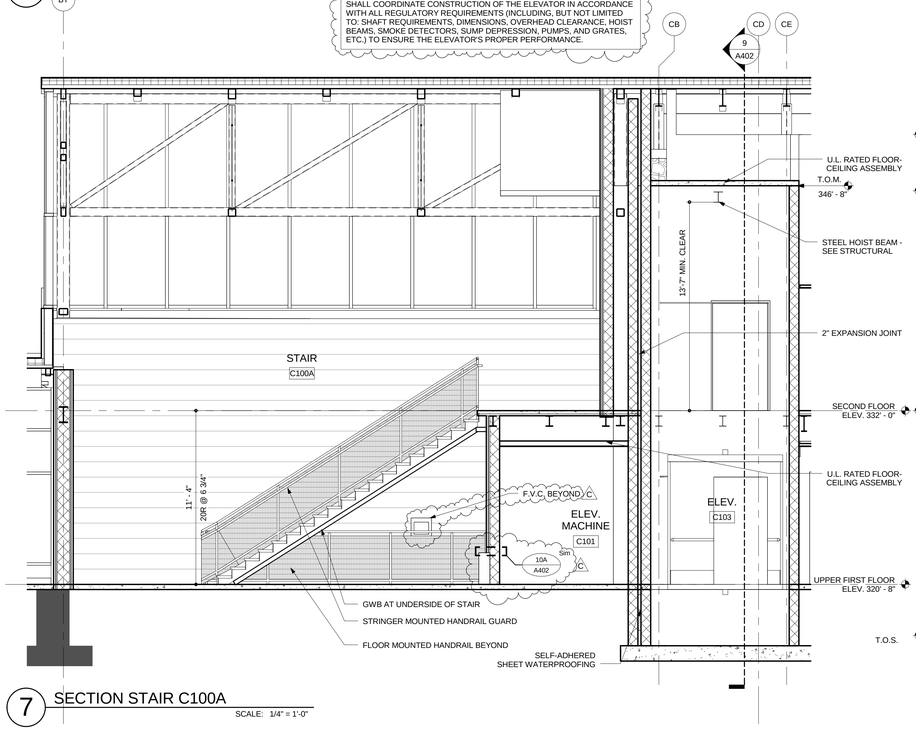
10. ELEVATION

10A. SECTION DETAIL

10 MECHANICAL UNIT AT STAIR C100A

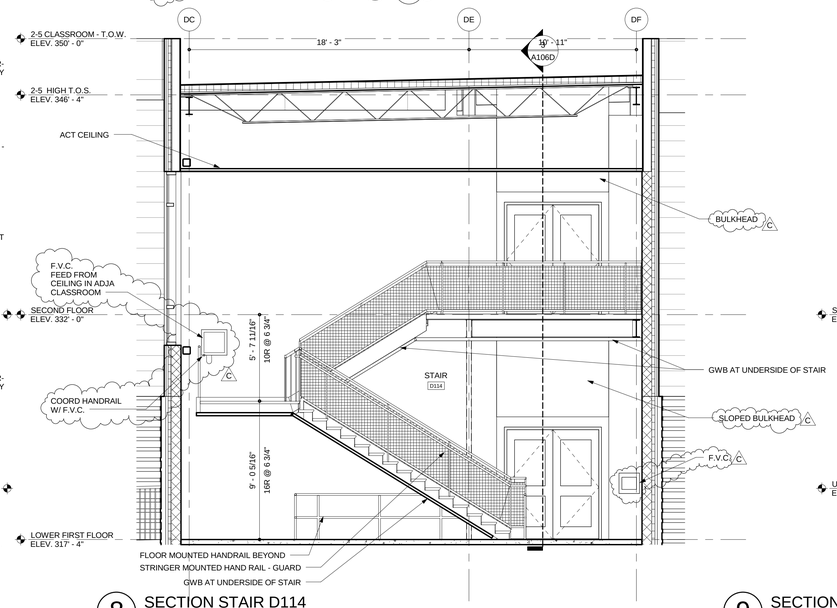
SCALE: 1/4" = 1'-0"

THE ELEVATOR CONTRACTOR, AND ALL OTHER RELEVANT CONTRACTORS, SHALL COORDINATE CONSTRUCTION OF THE ELEVATOR IN ACCORDANCE WITH ALL REGULATORY REQUIREMENTS (INCLUDING, BUT NOT LIMITED TO: SHAFT REQUIREMENTS, DIMENSIONS, OVERHEAD CLEARANCE, HOIST BEAMS, SMOKE DETECTORS, SUMP DEPRESSION, PUMPS, AND GRATES, ETC.) TO ENSURE THE ELEVATOR'S PROPER PERFORMANCE.



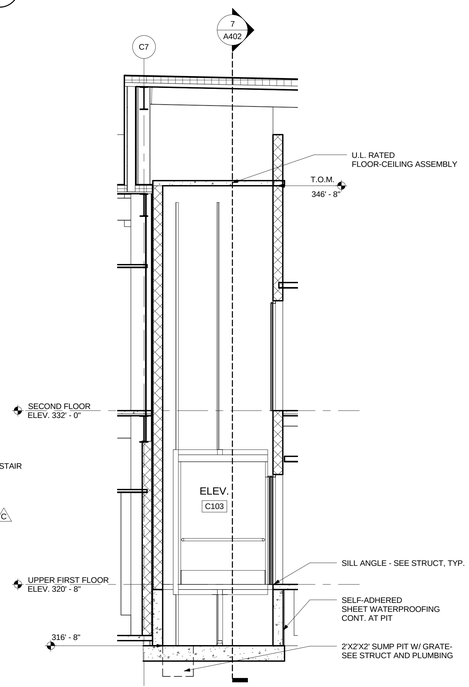
7 SECTION STAIR C100A

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



8 SECTION STAIR D114

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



9 SECTION AT ELEVATOR C103

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

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WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

ENLARGED ELEVATOR, STAIR, AND RAMP PLANS AND SECTIONS

4' 2' 0' 4'
SCALE : 1/4" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
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B	07.23.2013	ADDENDUM-02
A	07.16.2013	ADDENDUM-01

Revision Schedule

PROJECT NO:	2012080.00
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DRAWN BY: GMS	PROJ MGR: SCC

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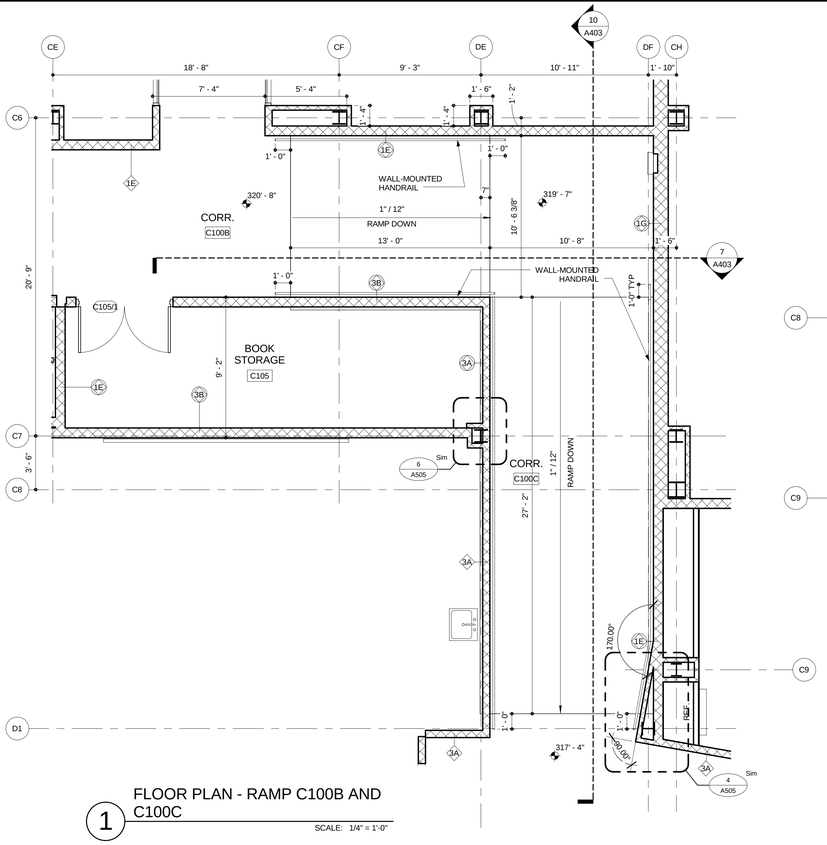
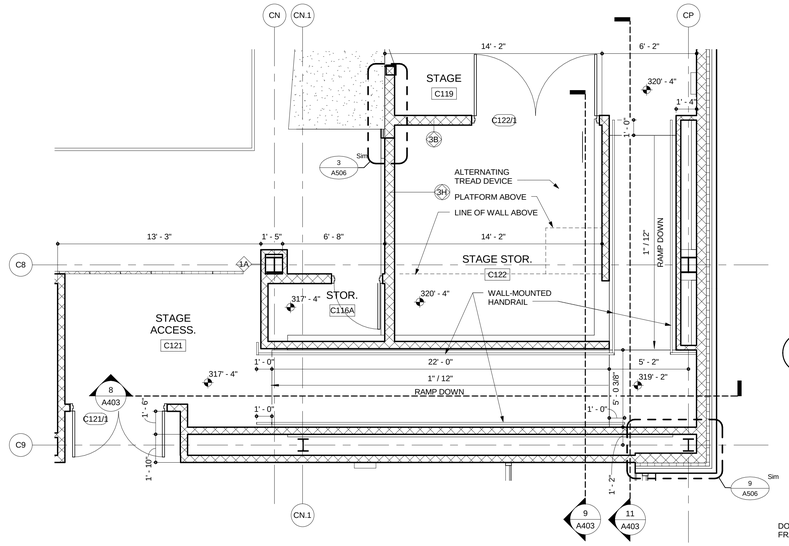


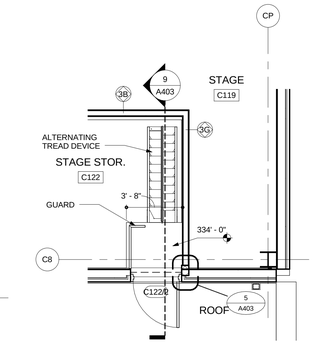
1 FLOOR PLAN - RAMP C100B AND C100C

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



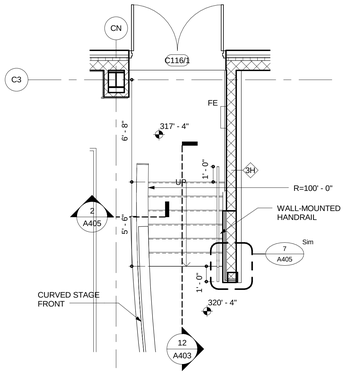
2 STAGE ACCESS - RAMP C107A

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



3 ENLARGED ROOF ACCESS PLAN

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



4 ENLARGED STAGE STAIR PLAN

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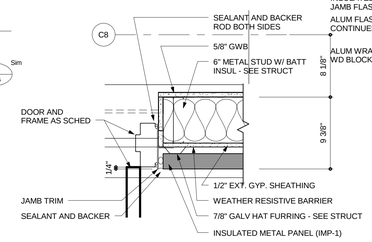

5 JAMB DETAIL AT ROOF ACCESS

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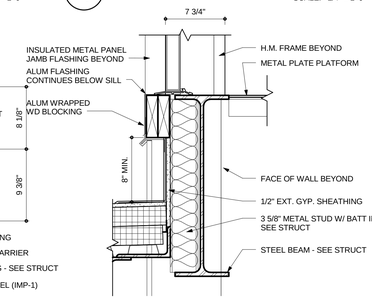
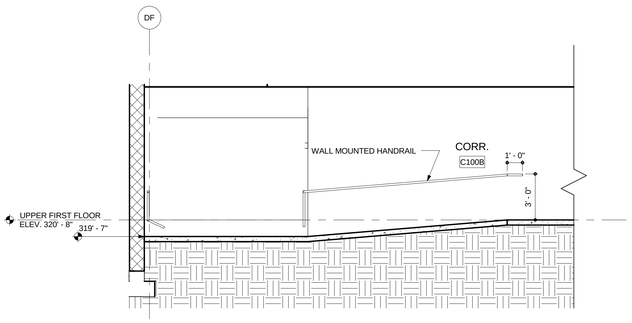


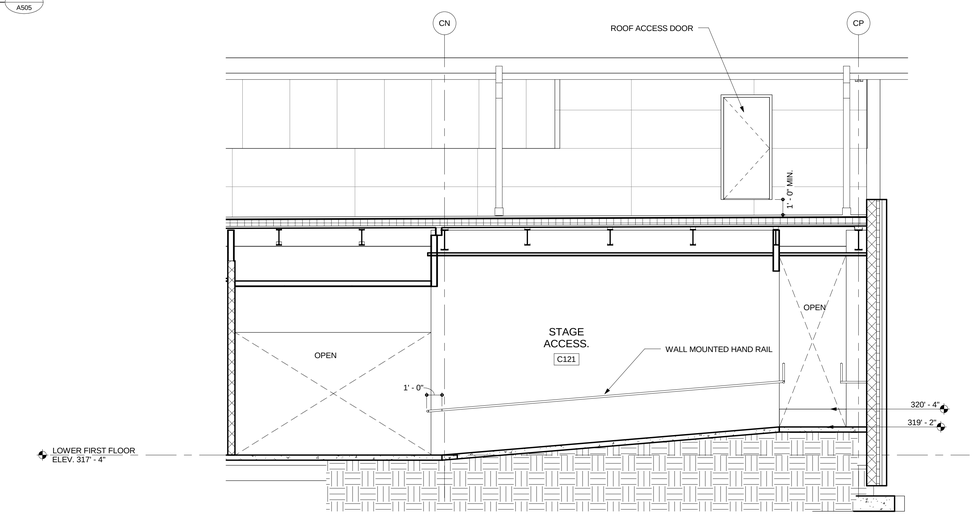
6 SILL DETAIL AT ROOF ACCESS

SCALE: 1 1/2" = 1'-0"



7 SECTION - RAMP C100B

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



8 SECTION - RAMP C121

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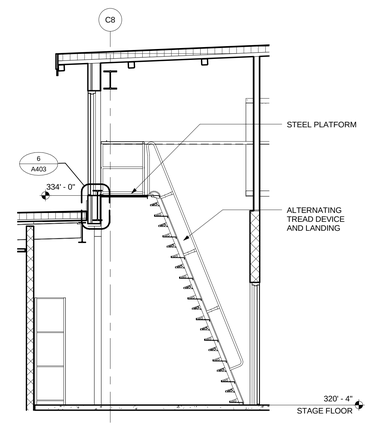
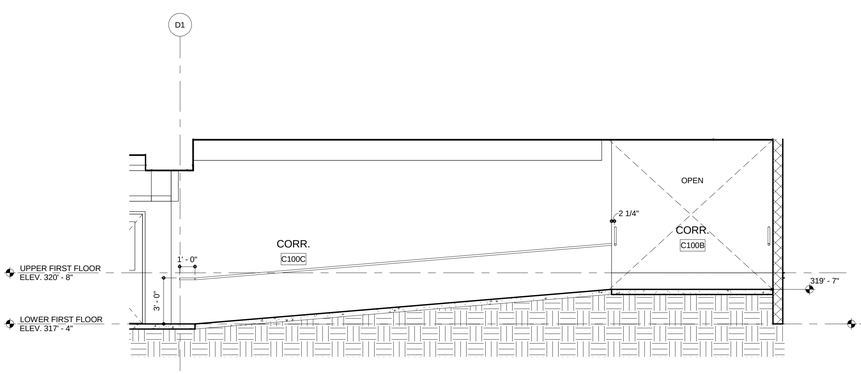


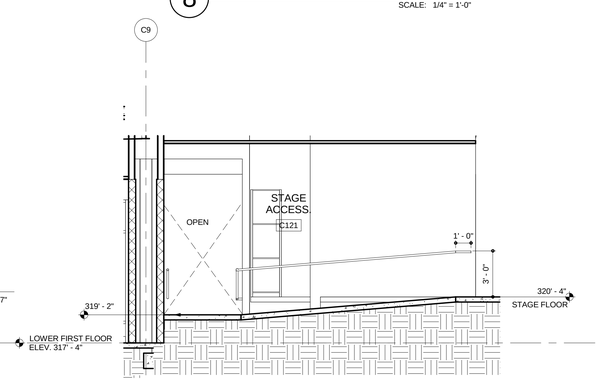
9 SECTION AT ROOF ACCESS

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



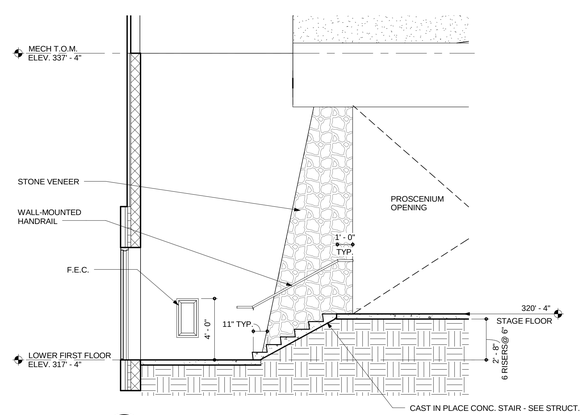
10 SECTION - RAMP C100C

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



11 SECTION - RAMP2 C121

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



12 SECTION AT STAGE STAIR

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

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BRIAN A. HANNON
No. 5274
STATE OF DELAWARE
REGISTERED ARCHITECT

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PROJECT TITLE

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WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

ENLARGED PLAN AND SECTION OF RAMPS

4' 2' 0' 4'
SCALE : 1/4" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
A	07.16.2013	ADDENDUM-01

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: GMS	PROJ MGR: SCC

A403 A

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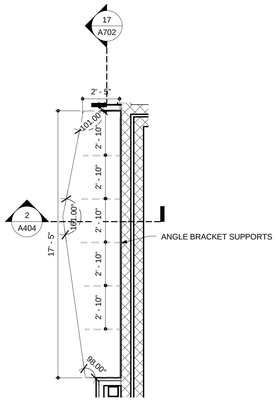
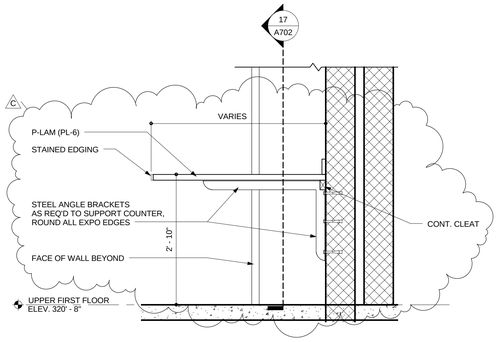


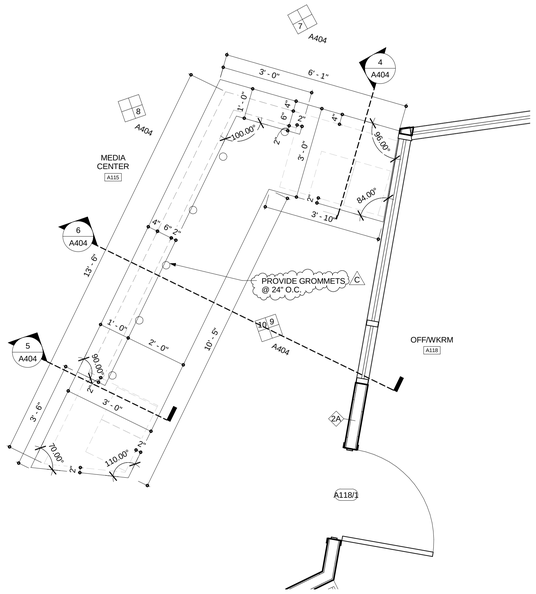
1 MEDIA CENTER MILLWORK PLAN

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



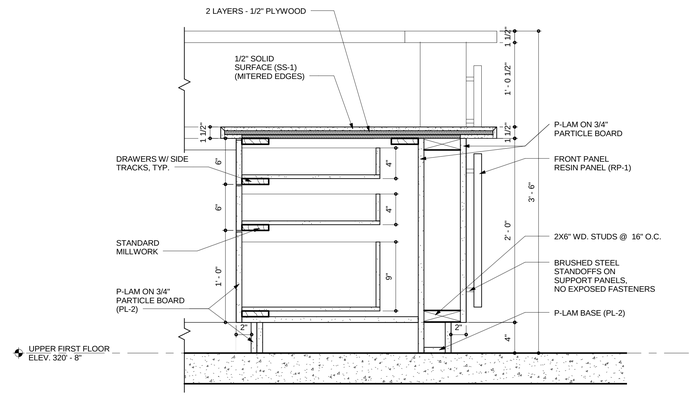
2 MEDIA CENTER MILLWORK SECTION

SCALE: 3/4" = 1'-0"



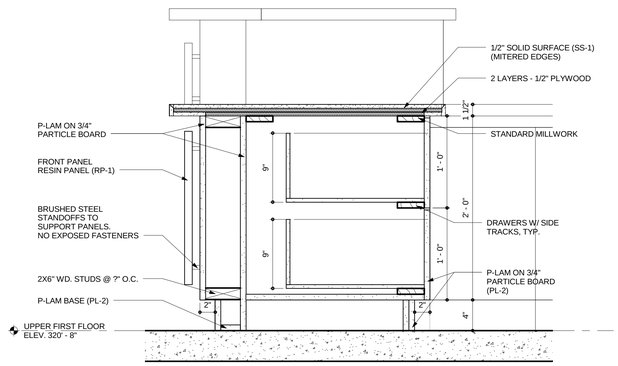
3 CIRCULATION DESK AT MEDIA CENTER

SCALE: 1/2" = 1'-0"



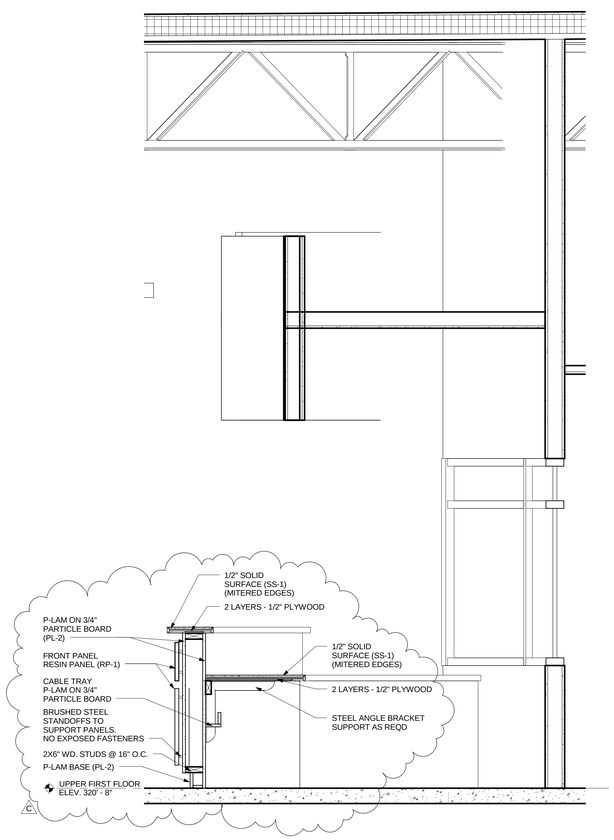
4 CIRCULATION DESK SECTION BASE CABINET

SCALE: 1 1/2" = 1'-0"



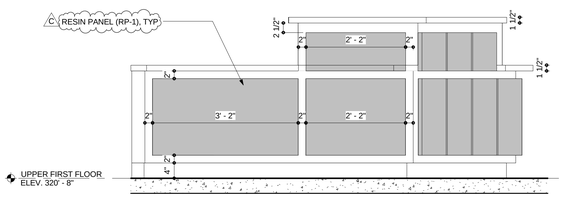
5 CIRCULATION DESK SECTION FILING CABINET

SCALE: 1 1/2" = 1'-0"



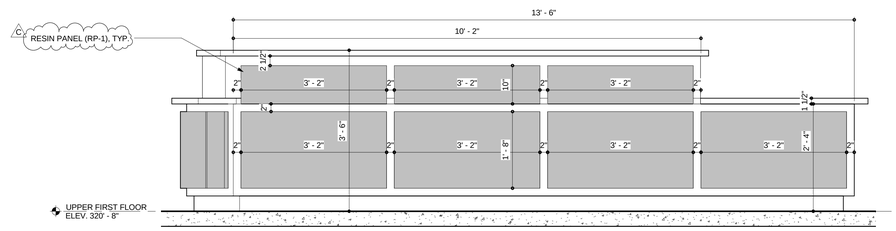
6 SECTION AT CIRCULATION DESK

SCALE: 3/4" = 1'-0"



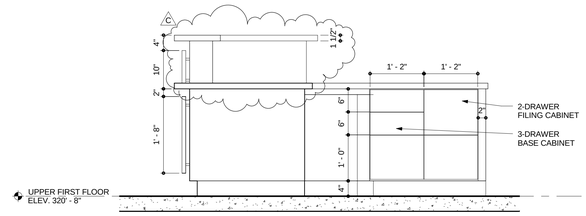
7 CIRCULATION DESK FRONT NORTH ELEVATION

SCALE: 3/4" = 1'-0"



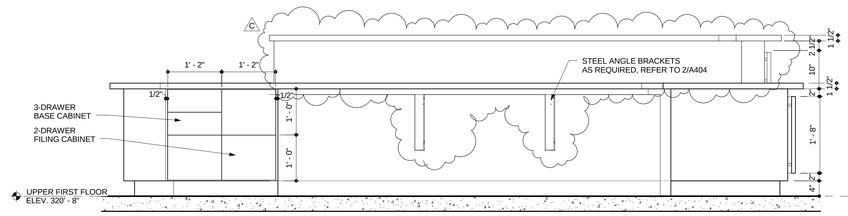
8 CIRCULATION DESK FRONT WEST ELEVATION

SCALE: 3/4" = 1'-0"



9 CIRCULATION DESK BACK SOUTH ELEVATION

SCALE: 3/4" = 1'-0"



10 CIRCULATION DESK BACK EAST ELEVATION

SCALE: 3/4" = 1'-0"

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1) RED CLAY CONSOLIDATED SCHOOL DISTRICT
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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

MEDIA CENTER MILLWORK PLANS, ELEVATIONS, AND DETAILS

4' 2' 0' 4'
SCALE : 1/4" = 1'-0"
2' 1' 0' 2'
SCALE : 1/2" = 1'-0"
2' 1' 6" 0' 1'
SCALE : 3/4" = 1'-0"
1' 6" 3" 0' 6"
SCALE : 1-1/2" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: VAP	PROJ MGR: SCC

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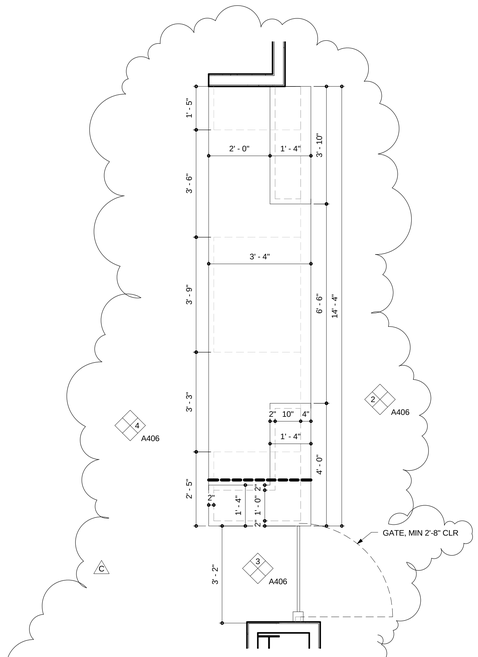
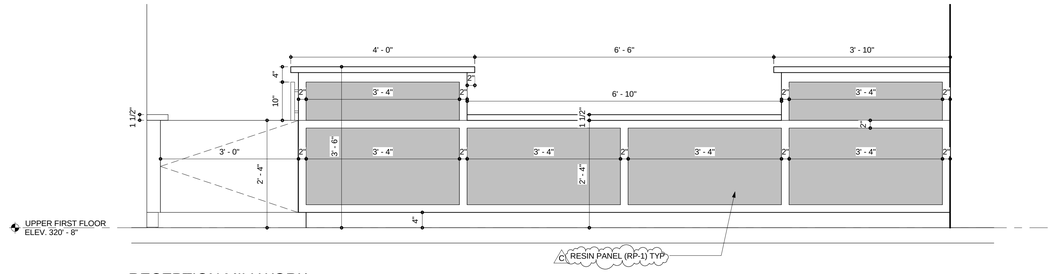


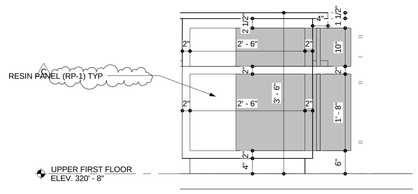
1 RECEPTION MILLWORK PLAN

SCALE: 1/2" = 1'-0"



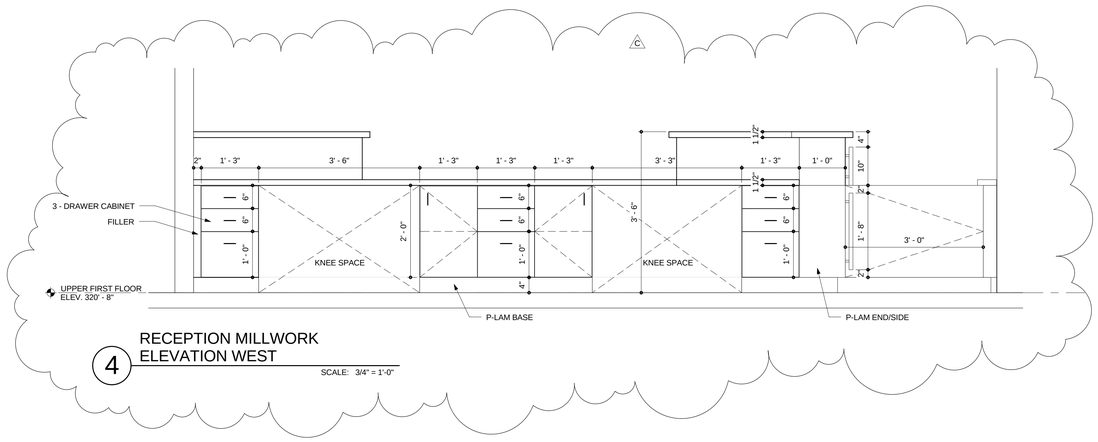
2 RECEPTION MILLWORK ELEVATION EAST

SCALE: 3/4" = 1'-0"



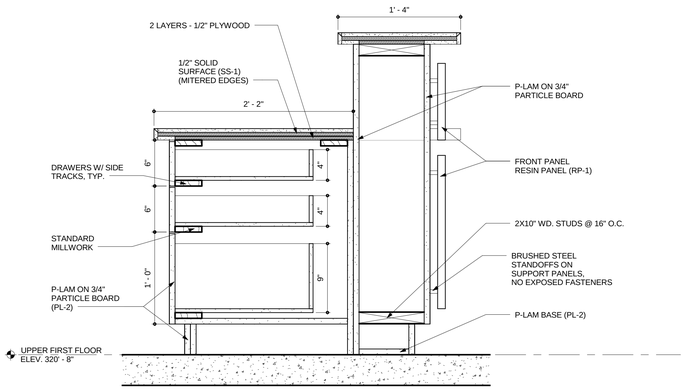
3 RECEPTION MILLWORK ELEVATION SOUTH

SCALE: 3/4" = 1'-0"



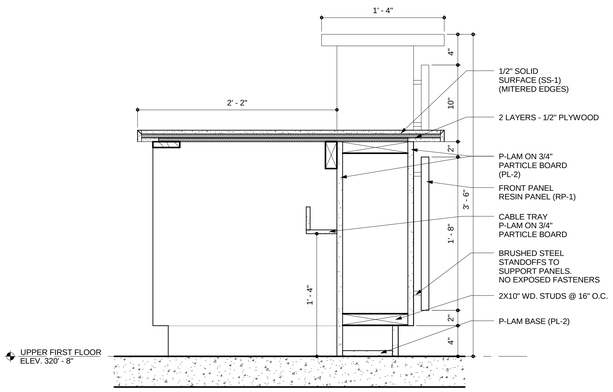
4 RECEPTION MILLWORK ELEVATION WEST

SCALE: 3/4" = 1'-0"



5 RECEPTION MILLWORK SECTION AT CABINET

SCALE: 1 1/2" = 1'-0"



6 RECEPTION MILLWORK SECTION AT KNEE SPACE

SCALE: 1 1/2" = 1'-0"

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WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

RECEPTION MILLWORK PLAN AND ELEVATIONS

1' 6" 3" 0' 6"
SCALE : 1-1/2" = 1'-0"

2' 1' 6" 0' 1'
SCALE : 3/4" = 1'-0"

2' 1' 0' 2'
SCALE : 1/2" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03

Revision Schedule

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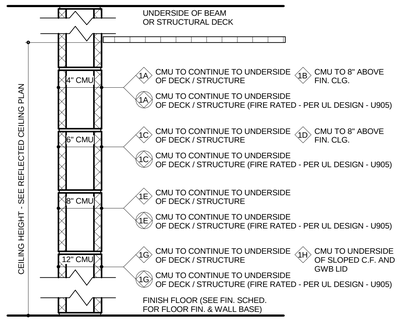
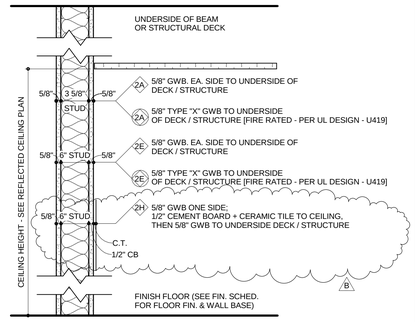
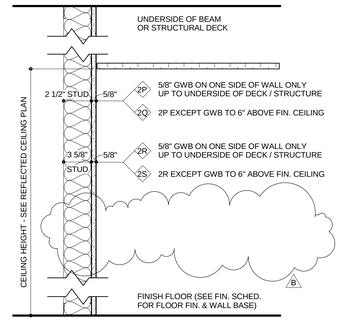


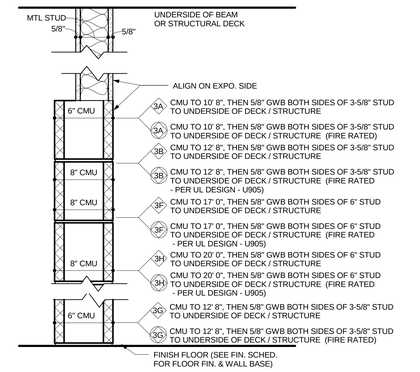
WALL TYPES 1A 1A 1B 1B 1C 1C 1D 1D 1E 1E 1F 1F 1G 1H



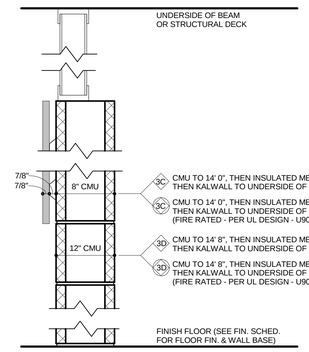
WALL TYPES 2A 2A 2E 2E 2H B



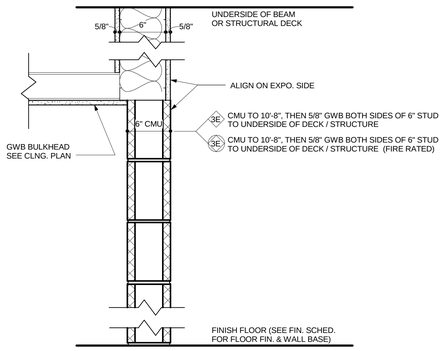
WALL TYPES 2P 2Q 2R 2S B



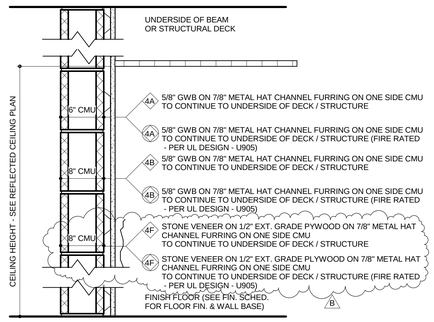
WALL TYPES 3A 3A 3B 3B 3F 3F 3G 3G 3H 3H



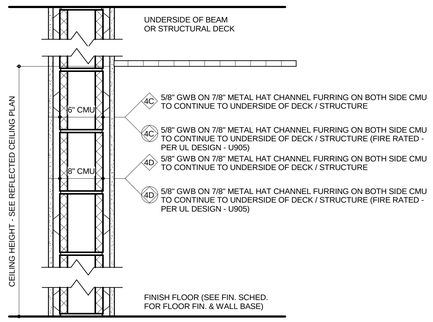
WALL TYPES 3C 3C 3D 3D



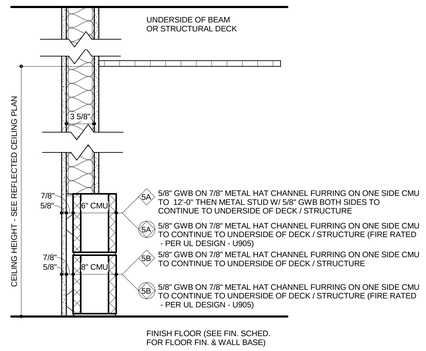
WALL TYPES 3F 3F



WALL TYPES 4A 4A 4B 4B 4F 4F B



WALL TYPES 4C 4C 4D 4E



WALL TYPES 5A 5A 5B 5B

WALL TYPE GENERAL NOTES

1. SEE CODE SHEETS, G100 AND G500 SERIES, FOR REQUIRED FIRE RATINGS OF ALL WALL ASSEMBLIES. MULTIPLE LAYERS OF GWB MAY BE REQUIRED AT RATED PARTITIONS. REFER TO U.L. ASSEMBLY FOR NUMBER OF LAYERS REQUIRED TO ACHIEVE INDICATED FIRE RATING.

2. SEE SPECIFICATIONS FOR TYPES OF SOUND BATT INSULATION IN METAL STUD PARTITIONS.

3. PROVIDE MOLD AND MOISTURE RESISTANT GWB AT ALL METAL STUD FRAMED PARTITIONS AT WET LOCATIONS, INCLUDING TOILET ROOMS, AND AT SINKS AND LAVATORIES. EXTEND TO END OF CASEWORK RUN, INCLUDING SIDEWALLS WHERE ADJACENT TO SINKS. SEE SPECIFICATIONS.

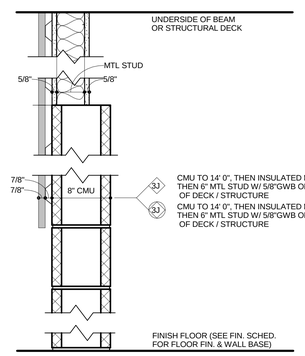
4. SEE SPECIFICATIONS AND STRUCTURAL DRAWINGS FOR BRACING OF METAL STUD PARTITIONS.

5. SEE STRUCTURAL FOR MASONRY REINFORCING AND TIES IN MULTIPLE WYTHE MASONRY WALLS AND PARTITIONS.

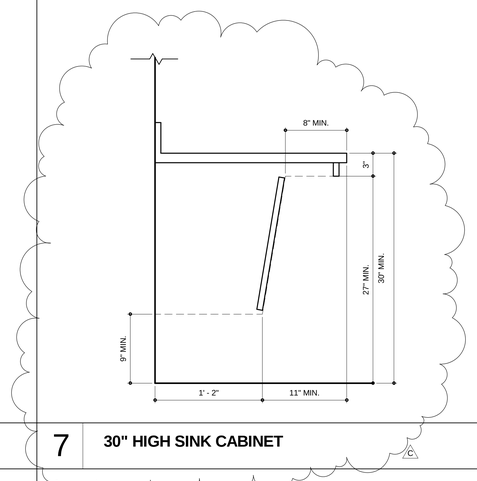
6. PROVIDE BULLNOSE MASONRY UNITS AT LOCATIONS NOTED IN SPECIFICATIONS.

7. PROVIDE SPECIAL-SHAPED MASONRY UNITS PER DETAILS AND PER SPECIFICATIONS.

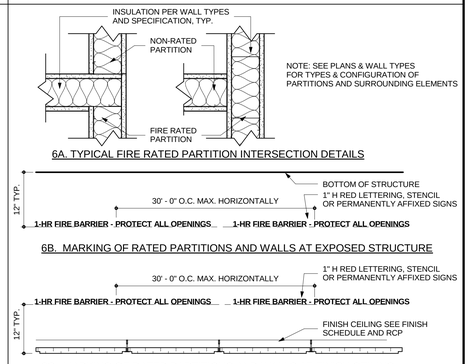
WALL TYPE GENERAL NOTES



WALL TYPES 3J 3J

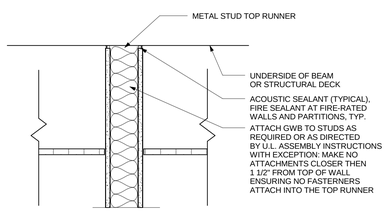


7 **30" HIGH SINK CABINET**



NOTE:
1. PROVIDE MARKING ON BOTH SIDES OF RATED WALLS AND PARTITIONS.
2. WHERE CHANGE IN WALL OR PARTITION DIRECTION OCCURS, MARK EACH SEGMENT INDIVIDUALLY.
3. LOCATE MARKINGS TO BE VISIBLE ABOVE CEILING.
4. LETTERING SHALL READ AS FOLLOWS:
SMOKE PARTITION: " SMOKE PARTITION - PROTECT ALL OPENINGS "
1-HR FIRE BARRIER: " 1-HR FIRE BARRIER - PROTECT ALL OPENINGS "
2-HR FIRE WALL: " 2-HR FIRE WALL - PROTECT ALL OPENINGS "

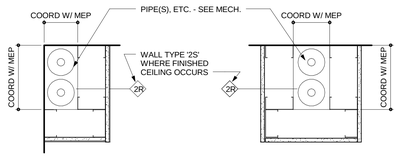
6 **TYPICAL RATED PARTITION MARKING DETAILS**
SCALE : N.T.S



NOTE: DO NOT ATTACH STEEL STUDS TO TOP RUNNERS

MTL STUDS TO BE CUT A MINIMUM OF 3/8" (MAX. 1/2") SHORTER THAN UNDERSIDE OF DECK - GWB TO BE CUT A MINIMUM OF 1/2" (MAX. 5/8") SHORTER THAN UNDERSIDE OF DECK

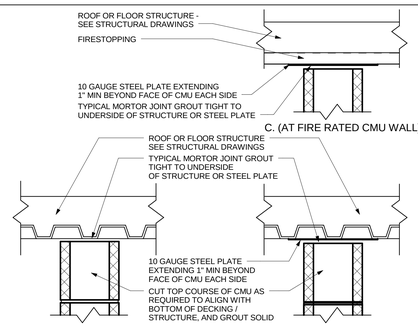
1 **TYPICAL STUD WALL DETAIL**
SCALE : 1 1/2" = 1' 0"



A. TYPICAL CHASE IN CORNER B. TYPICAL FREE STANDING CHASE

NOTE: COORDINATE CHASE SIZES WITH MECHANICAL/PLUMBING & STRUCTURAL REQUIREMENTS AND WITH DIMENSIONS INDICATED ON FLOOR PLANS. ALIGN CHASE WITH ADJACENT WALLS AS INDICATED ON PLANS.

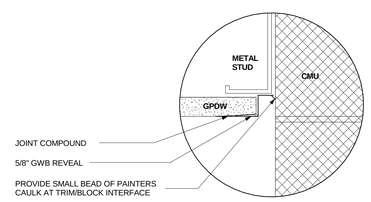
2 **TYPICAL CHASE DETAILS**
SCALE : 1 1/2" = 1' 0"



A. AT TYPICAL CMU WALL B. AT FIRE RATED CMU WALL

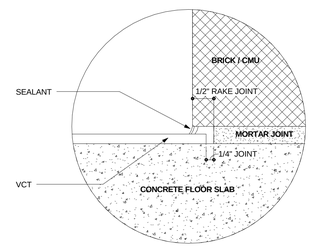
3 **TYPICAL TOP OF CMU WALL TERMINATION DETAIL**
SCALE : 1 1/2" = 1'0"

NOTE:
TYPICAL HORIZONTAL TRANSITIONS
WHERE CMU BLOCK AND GYPSUM
DRYWALL ALIGN



4 TYPICAL REVEAL DETAIL
SCALE : N.T.S.

NOTE:
TYPICAL AT ALL CMU / BRICK & SVT JOINTS



5 **TYPICAL VCT AT CMU BASE DETAIL**
SCALE : N.T.S

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SHEET TITLE

WALL TYPES AND DETAILS

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
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DRAWN BY: GMS	PROJ MGR: SCC

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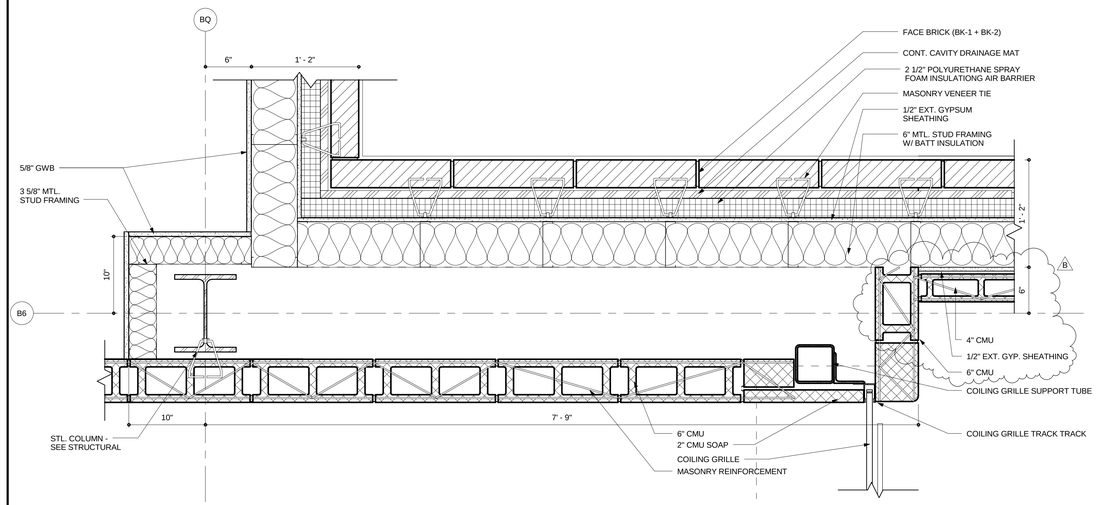
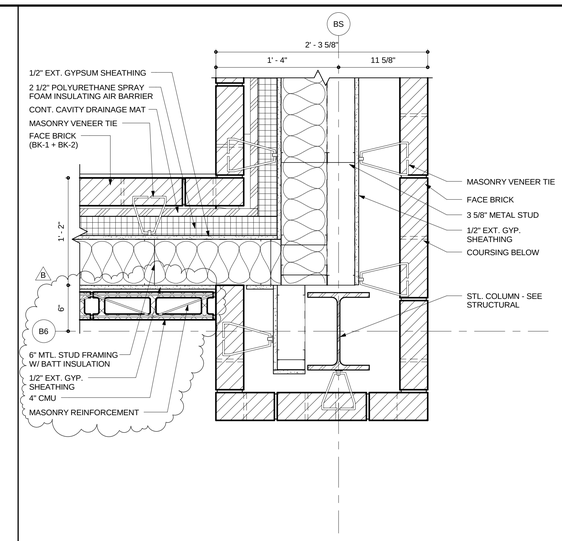


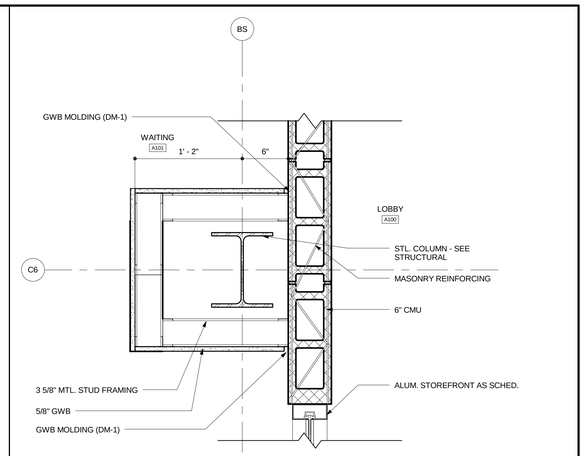
1 PLAN DETAIL AT BQ-B6

SCALE: 1 1/2" = 1'-0"



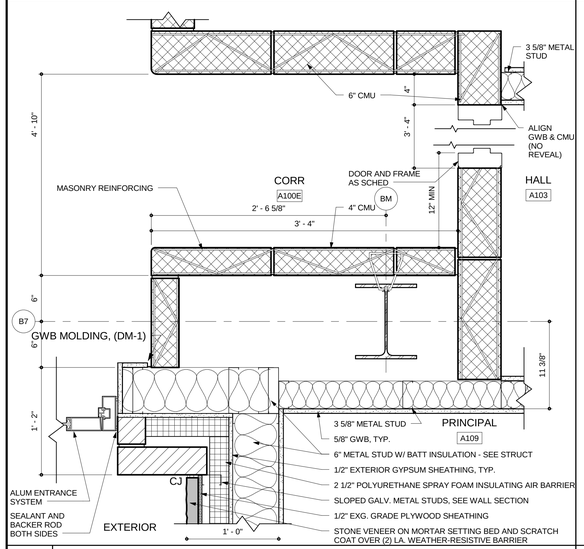
3 PLAN DETAIL AT BS-B6

SCALE: 1 1/2" = 1'-0"



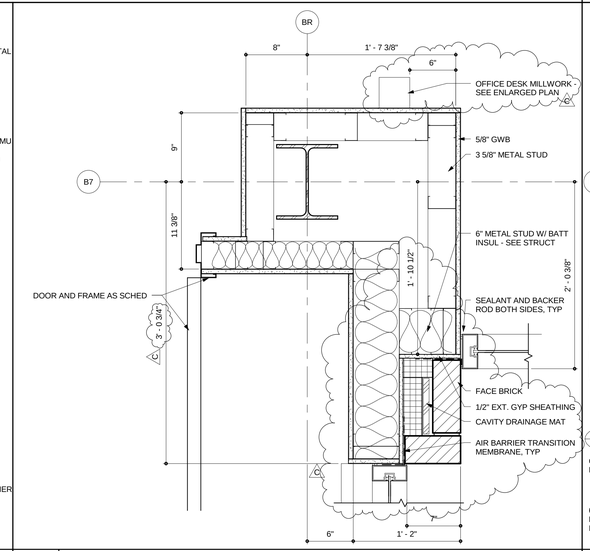
4 PLAN DETAIL AT BS-C7

SCALE: 1 1/2" = 1'-0"



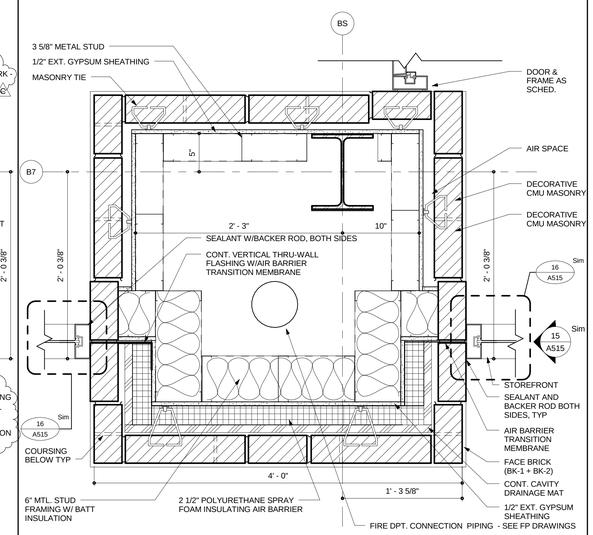
5 PLAN DETAIL AT BN-B7

SCALE: 1 1/2" = 1'-0"



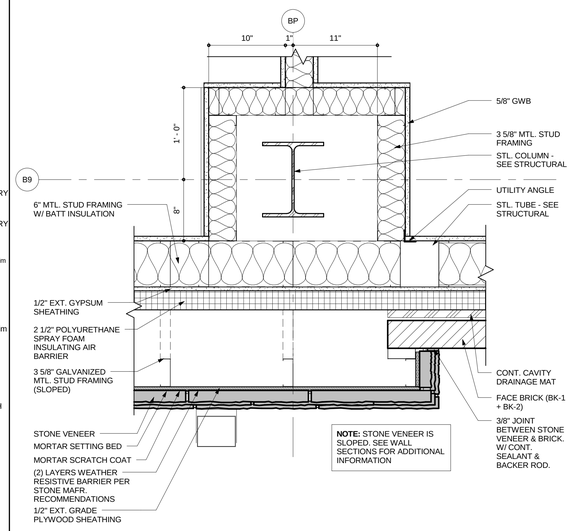
6 PLAN DETAIL AT BR-B7

SCALE: 1 1/2" = 1'-0"



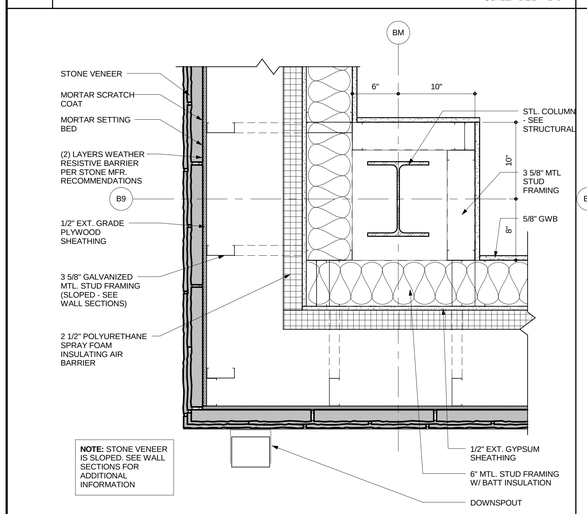
7 PLAN DETAIL AT BS-B7

SCALE: 1 1/2" = 1'-0"



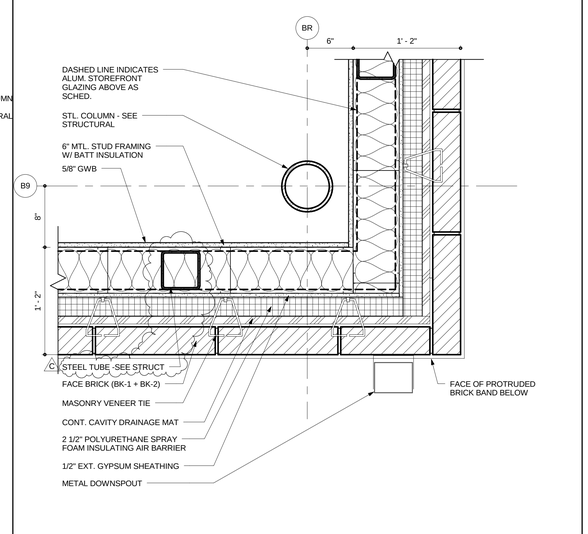
8 PLAN DETAIL AT BQ-B9

SCALE: 1 1/2" = 1'-0"



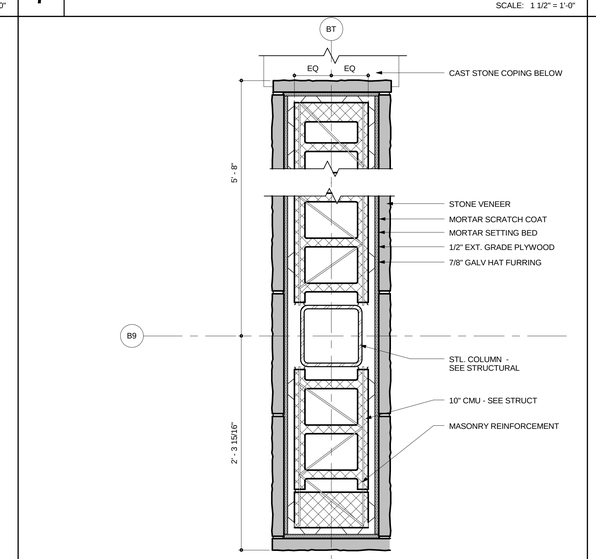
9 PLAN DETAIL AT BN-B9

SCALE: 1 1/2" = 1'-0"



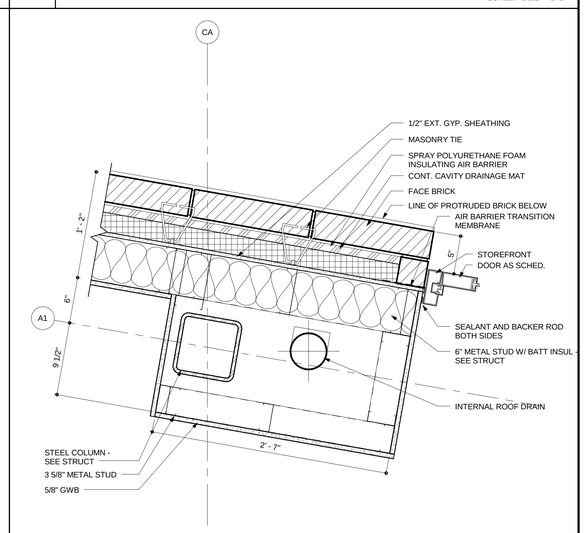
10 PLAN DETAIL AT BR-B9 @ 2'-0" A.F.F.

SCALE: 1 1/2" = 1'-0"



11 PLAN DETAIL AT BT-B9

SCALE: 1 1/2" = 1'-0"



12 PLAN DETAIL AT CA-A1

SCALE: 1 1/2" = 1'-0"

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WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

WALL DETAILS

1' 6" 3" 0' 6"
SCALE : 1-1/2" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	1 1/2" = 1'-0"
DRAWN BY: DJD	PROJ MGR: SCC

A502

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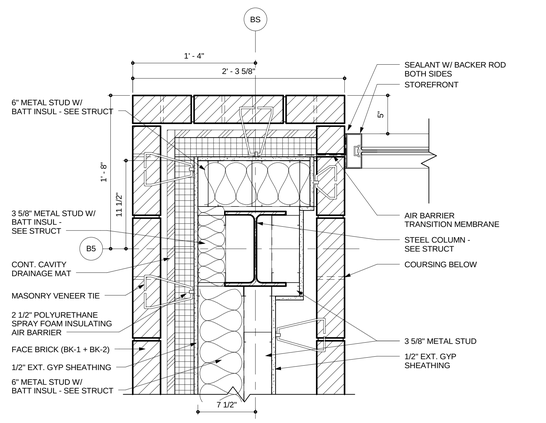
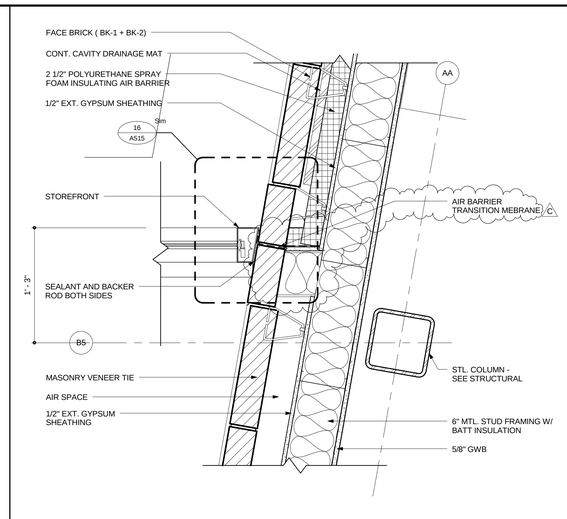


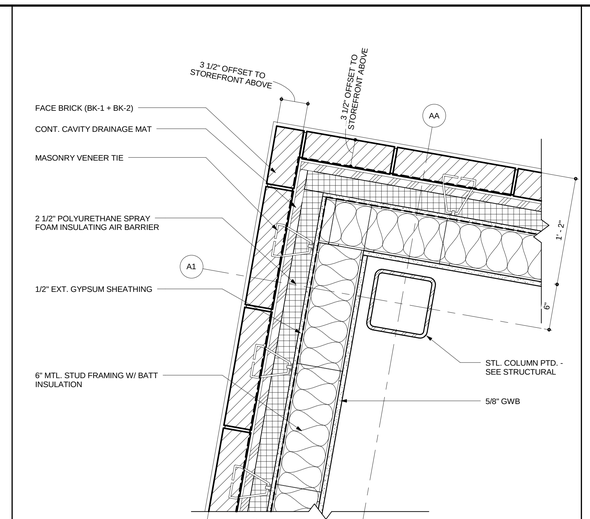
1 PLAN DETAIL AT BS-B5

SCALE: 1 1/2" = 1'-0"



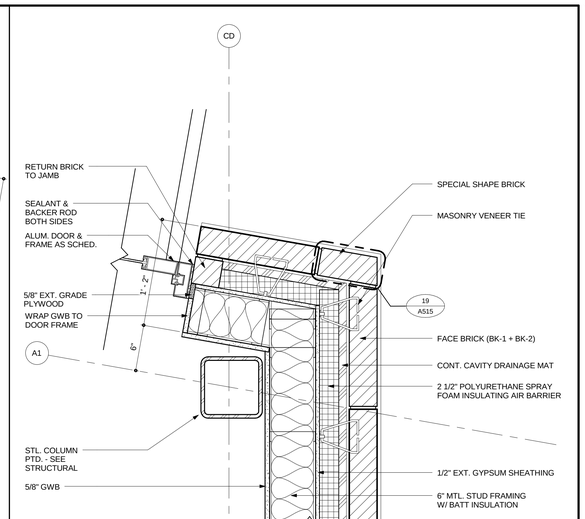
2 PLAN DETAIL AT BT-B5

SCALE: 1 1/2" = 1'-0"



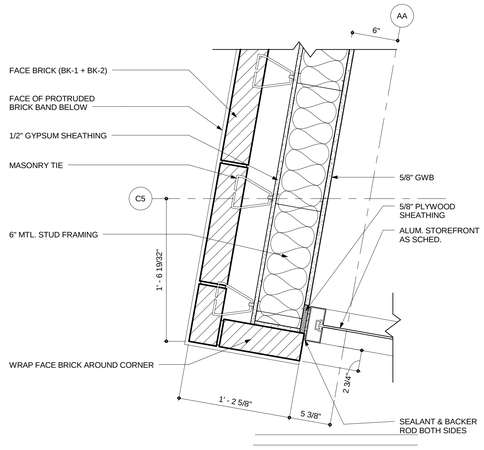
3 PLAN DETAIL AT AA-A1 @ 2'-0" A.F.F.

SCALE: 1 1/2" = 1'-0"



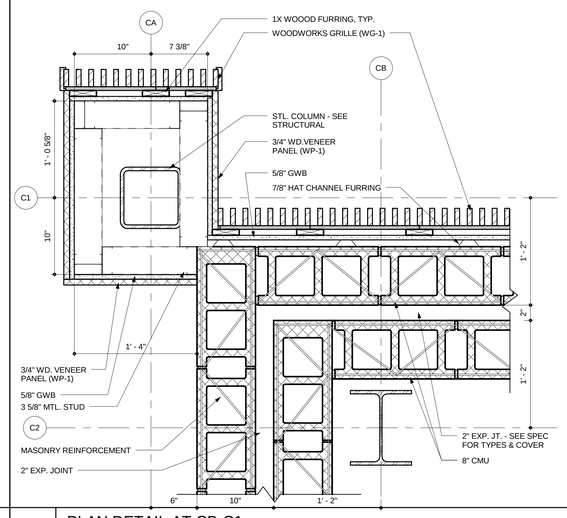
4 PLAN DETAIL AT CD-A1

SCALE: 1 1/2" = 1'-0"



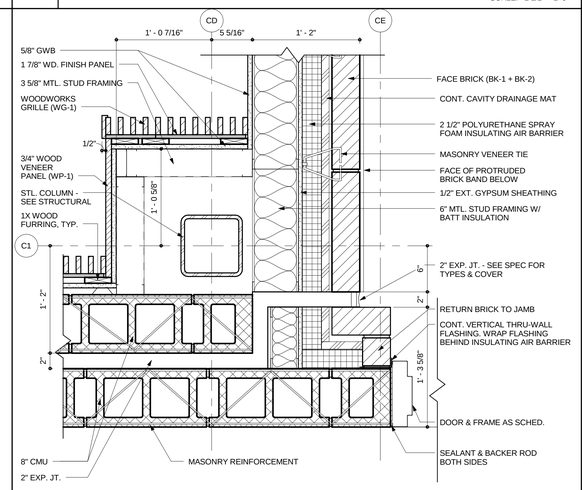
5 PLAN DETAIL AT AA-C5

SCALE: 1 1/2" = 1'-0"



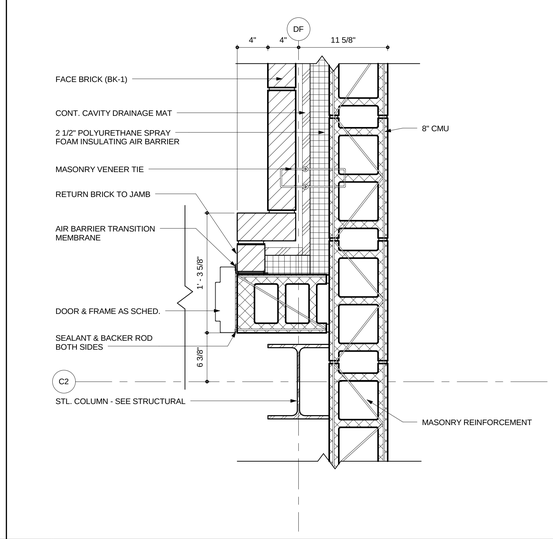
6 PLAN DETAIL AT CB-C1

SCALE: 1 1/2" = 1'-0"



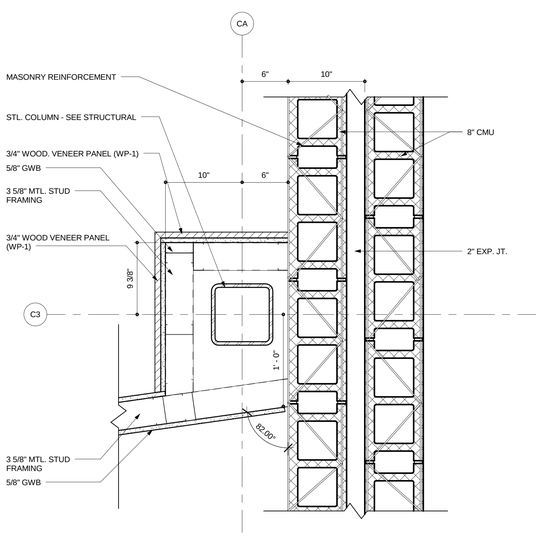
7 PLAN DETAIL AT CE-C1

SCALE: 1 1/2" = 1'-0"



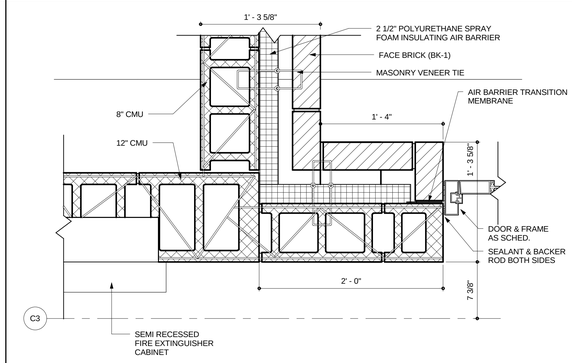
8 PLAN DETAIL AT DF-C2

SCALE: 1 1/2" = 1'-0"



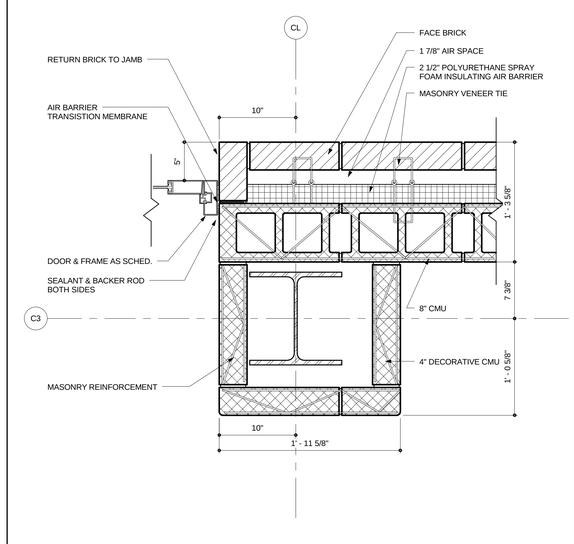
9 PLAN DETAIL AT CA-C3

SCALE: 1 1/2" = 1'-0"



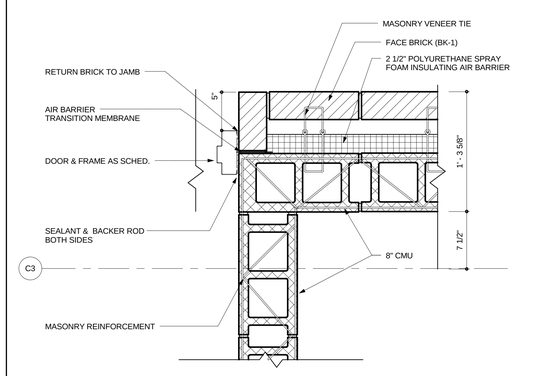
10 PLAN DETAIL AT C4-CUST. C114A

SCALE: 1 1/2" = 1'-0"



11 PLAN DETAIL AT CL-C3

SCALE: 1 1/2" = 1'-0"



12 PLAN DETAIL AT C3-STAGE

SCALE: 1 1/2" = 1'-0"

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1' 6" 3" 0' 6"
SCALE : 1-1/2" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03

Revision Schedule

PROJECT NO:	2012080.00
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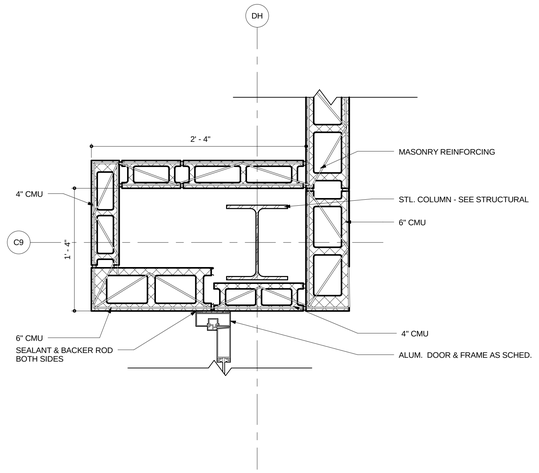
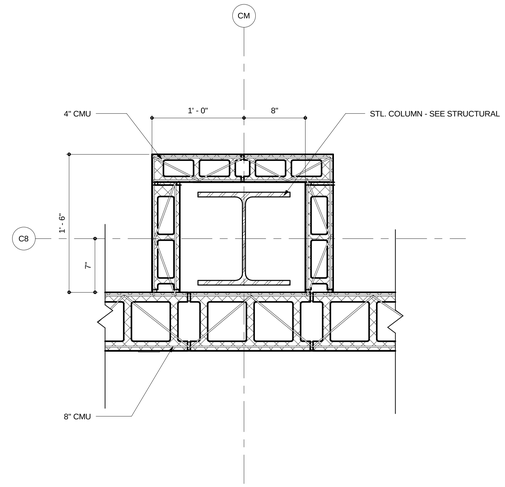


1 PLAN DETAIL AT DH-C9

SCALE: 1 1/2" = 1'-0"



2 PLAN DETAIL AT CM-C8

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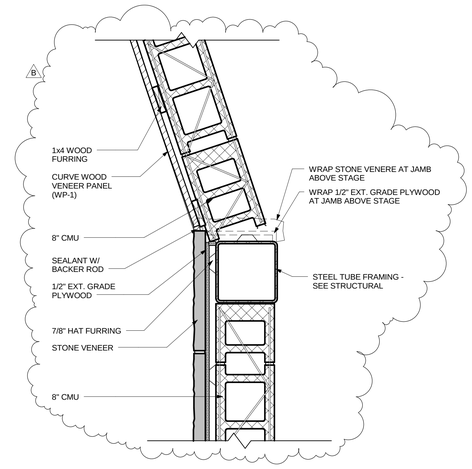
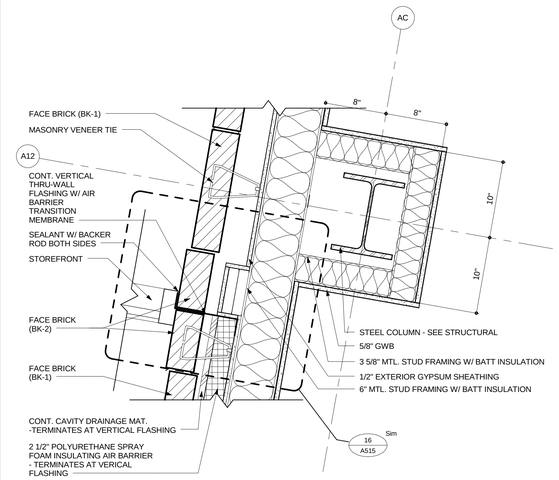


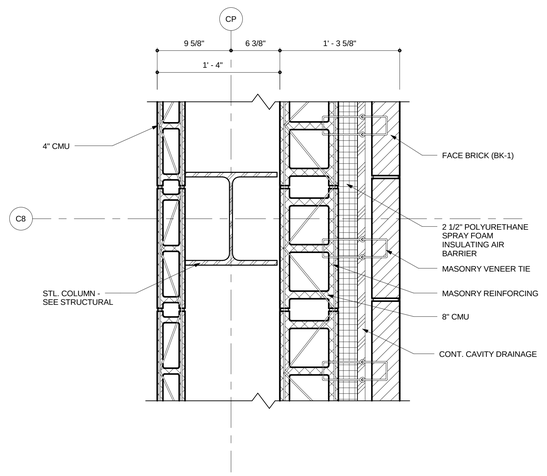
3 PLAN DETAIL AT C8-STAGE C119

SCALE: 1 1/2" = 1'-0"



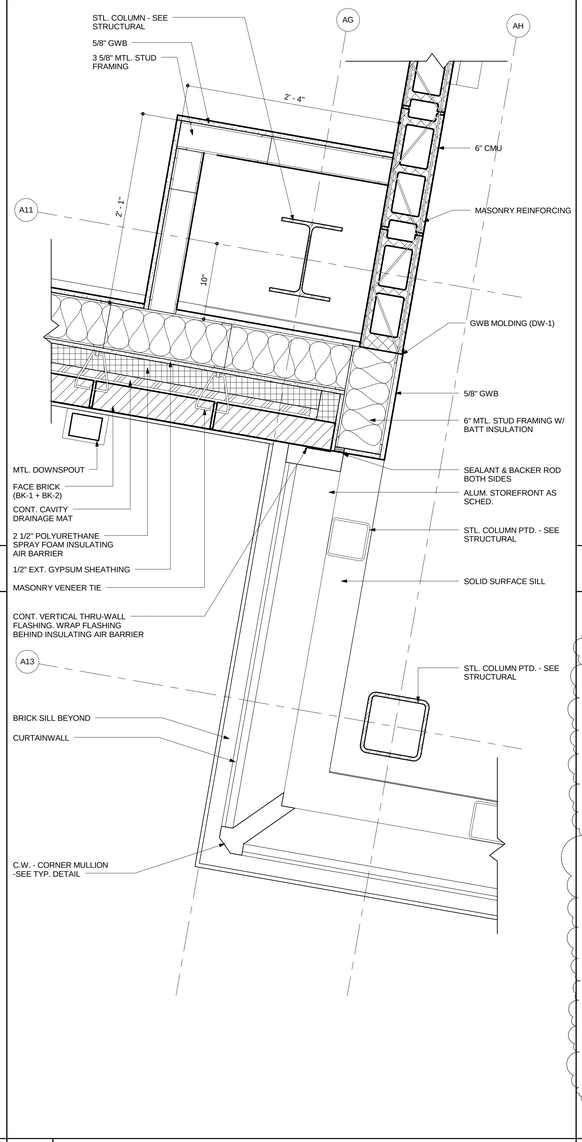
4 PLAN DETAIL AT AC-A12

SCALE: 1 1/2" = 1'-0"



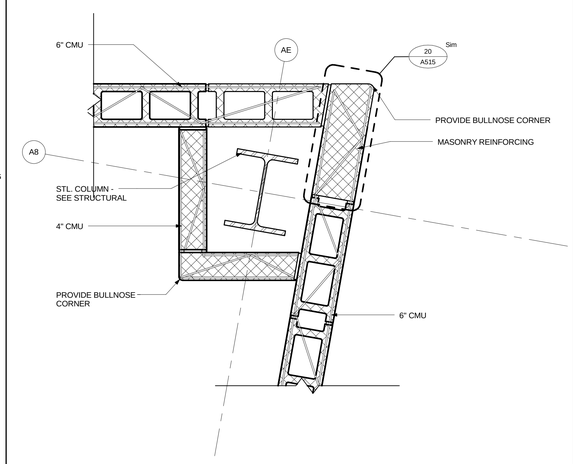
5 PLAN DETAIL AT CP-C8

SCALE: 1 1/2" = 1'-0"



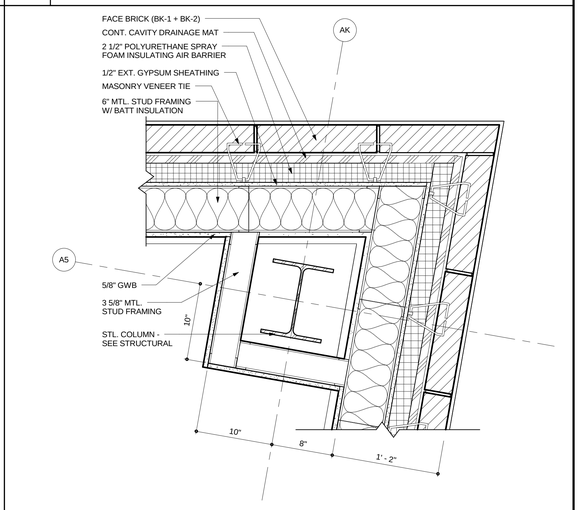
10 PLAN DETAIL AT A13-AH & AG-A11

SCALE: 1 1/2" = 1'-0"



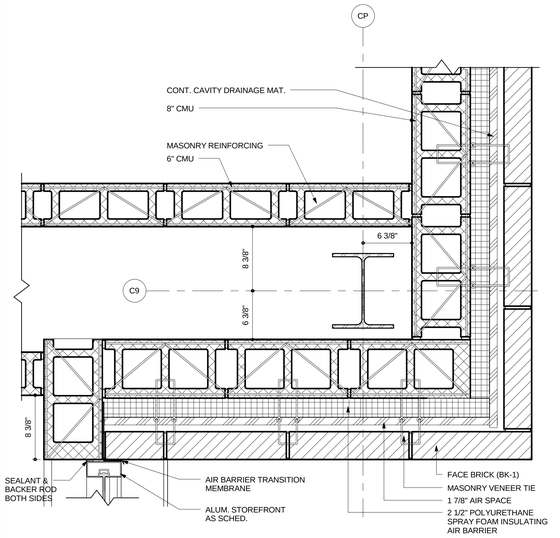
7 PLAN DETAIL AT AE-A8

SCALE: 1 1/2" = 1'-0"



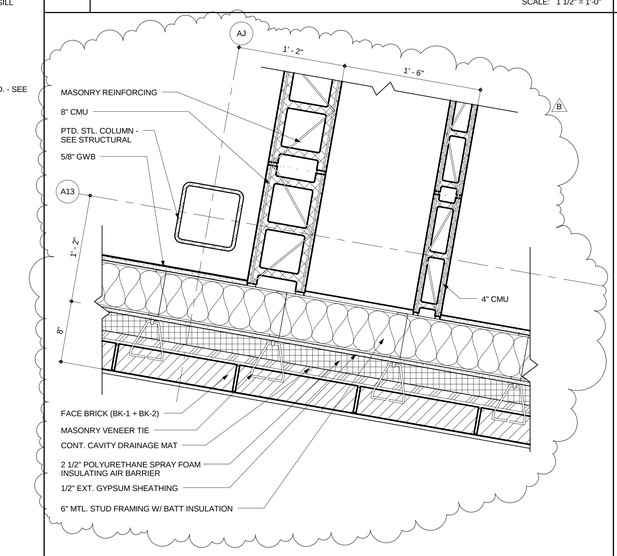
8 PLAN DETAIL AT AK-A6

SCALE: 1 1/2" = 1'-0"



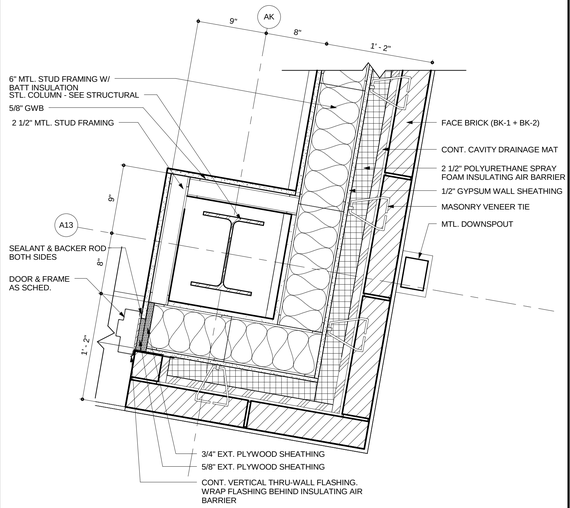
9 PLAN DETAIL AT CP-C9

SCALE: 1 1/2" = 1'-0"



11 PLAN DETAIL AT AJ-A13

SCALE: 1 1/2" = 1'-0"



12 PLAN DETAIL AT AK-A13

SCALE: 1 1/2" = 1'-0"

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SHEET TITLE

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1' 6" 3" 0' 6"

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Revision Schedule

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SCALE:	1 1/2" = 1'-0"
DRAWN BY: JML	PROJ MGR: SCC

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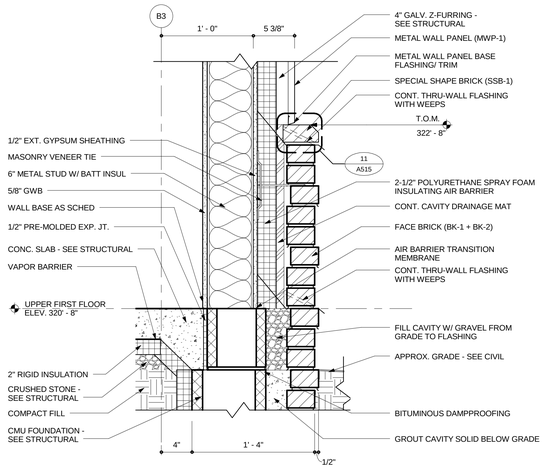
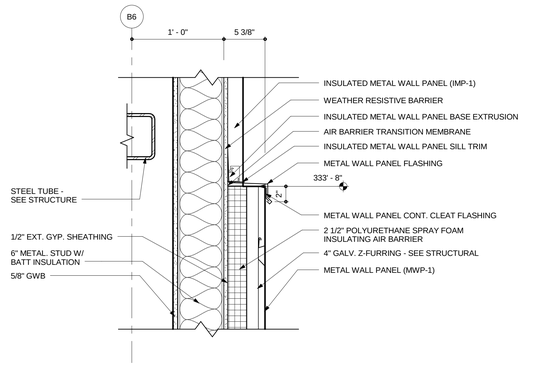


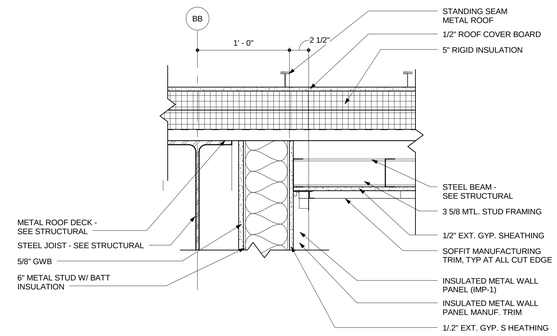
1 W1 - BANDED BRICK TO METAL PANEL ON METAL STUD

SCALE: 1 1/2" = 1'-0"



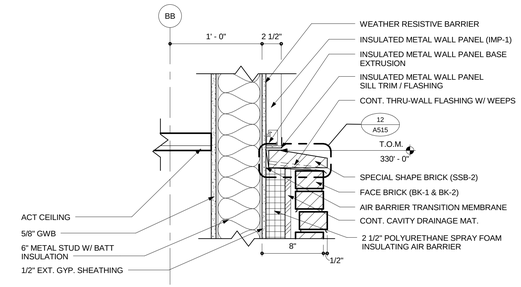
2 W2 - METAL WALL PANEL TO INSULATED METAL WALL PANEL ON METAL STUD

SCALE: 1 1/2" = 1'-0"



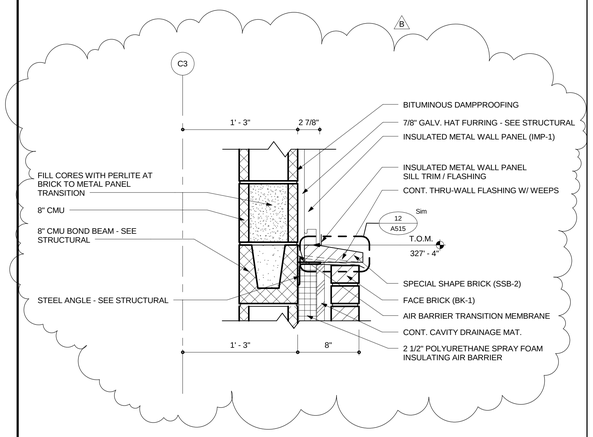
3 W3 - INSULATED METAL WALL PANEL ON METAL STUD

SCALE: 1 1/2" = 1'-0"



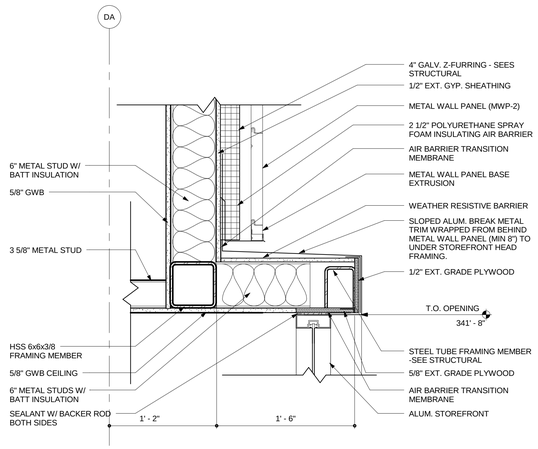
4 W4 - BANDED BRICK TO INSULATED METAL WALL PANEL ON METAL STUD

SCALE: 1 1/2" = 1'-0"



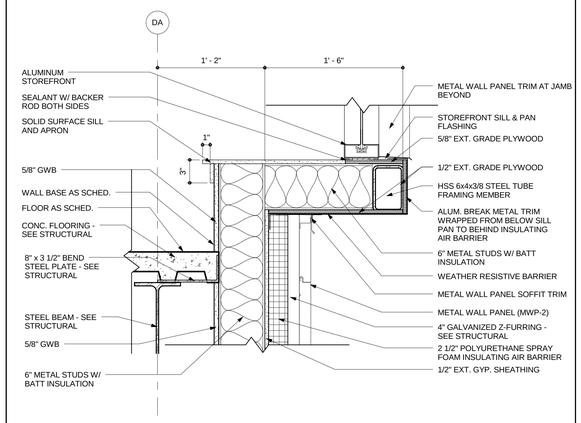
5 W5 - BRICK ON INSULTAED METAL WALL PANEL ON CMU

SCALE: 1 1/2" = 1'-0"



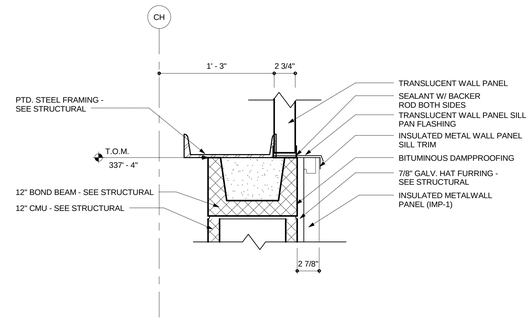
6 WALL PROJECTION HEAD CONDITION

SCALE: 1 1/2" = 1'-0"



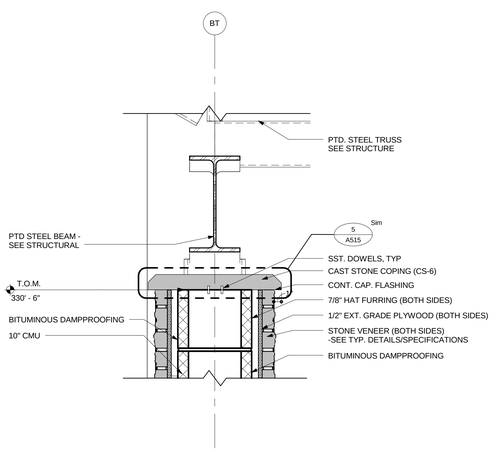
7 WALL PROJECTION SILL CONDITION

SCALE: 1 1/2" = 1'-0"



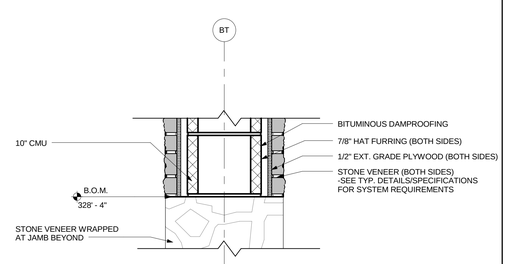
8 SILL DETAIL AT STUDENT DINING 114

SCALE: 1 1/2" = 1'-0"



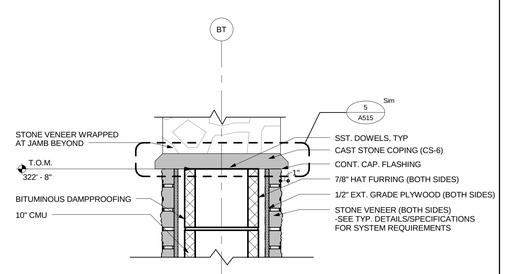
9 STONE CAP DETAIL AT VESTIBULE A100A

SCALE: 1 1/2" = 1'-0"



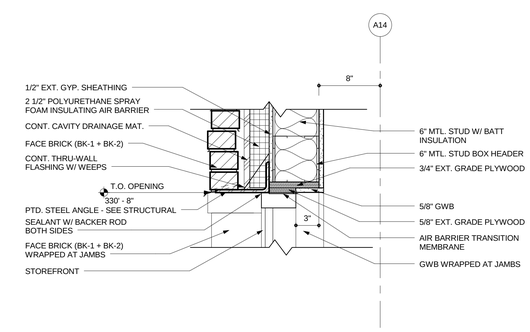
10 STONE HEAD OPENING AT VESTIBULE A100A

SCALE: 1 1/2" = 1'-0"



11 STONE SILL OPENING AT VESTIBULE A100A

SCALE: 1 1/2" = 1'-0"



12 TYP. HEAD OPENING AT BRICK W/ MTL STUD

SCALE: 1 1/2" = 1'-0"

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1) RED CLAY CONSOLIDATED SCHOOL DISTRICT
NO CONTRACTUAL OBLIGATION IS ASSUMED BY THE ARCHITECT FOR THE BENEFIT OF ANY OTHER PERSON INVOLVED IN THE PROJECT.

PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

SECTION DETAILS

1' 6" 3" 0" 6"

SCALE : 1-1/2" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	1 1/2" = 1'-0"
DRAWN BY: GMS	PROJ MGR: SCC

A512

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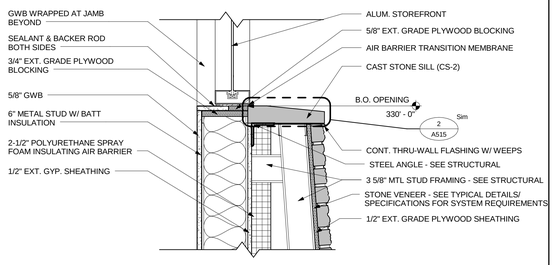

1 SILL DETAIL AT ASST. PRINCIPAL 107

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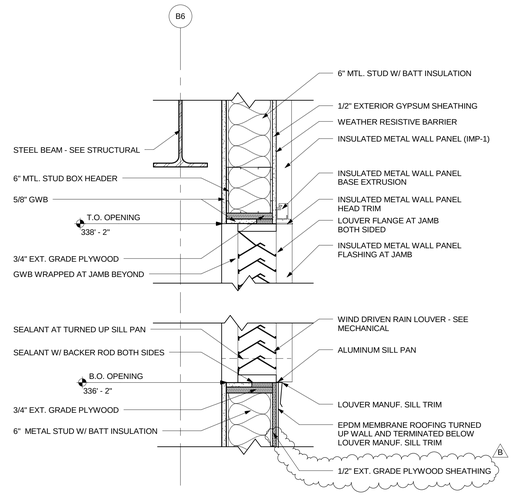

2 HEAD/SILL DETAIL AT LOUVER, TYP.

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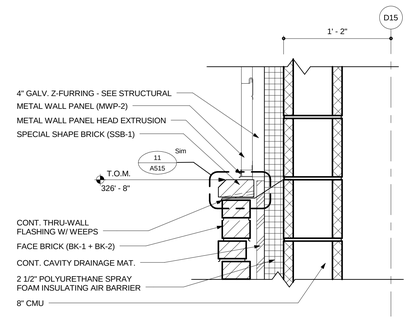

3 BK TO MWP W/ CMU DETAIL

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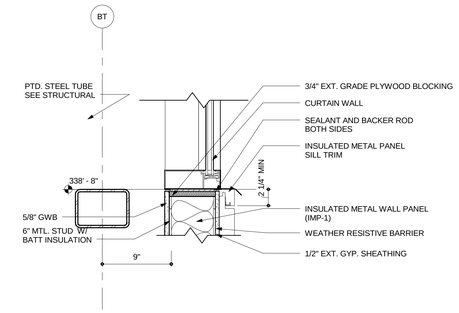

4 SILL DETAIL AT LOBBY AND STAIR C101

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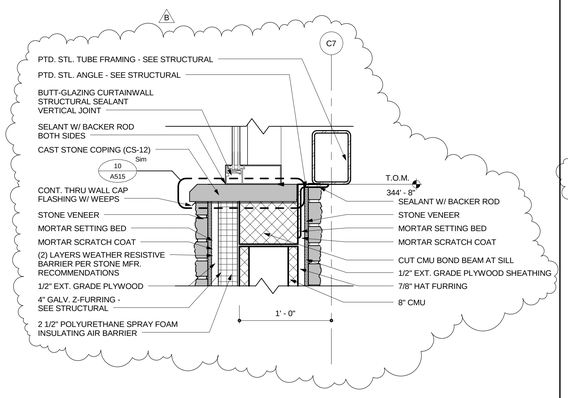
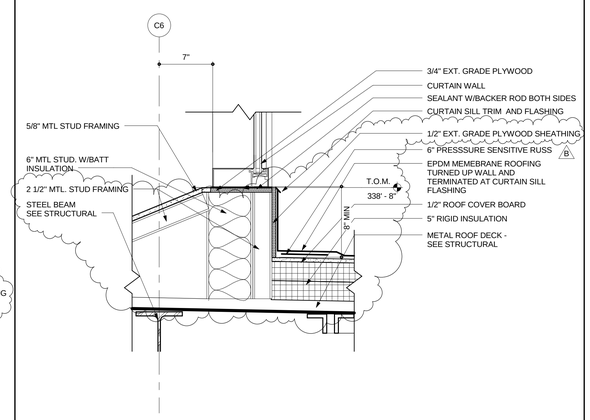


5 SILL DETAIL AT ELEV. MACHINE ROOM

SCALE: 1 1/2" = 1'-0"



6 SILL DETAIL AT STAIR C101A

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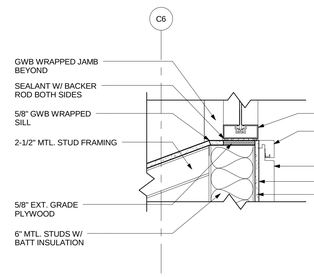

7 SILL DETAIL AT D100A

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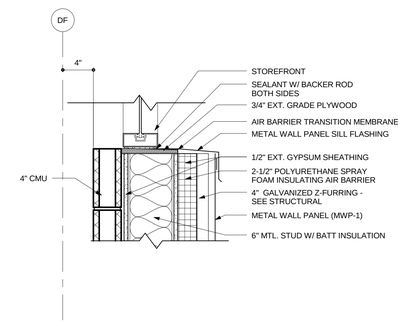

8 SILL DETAIL AT CORRIDOR D100

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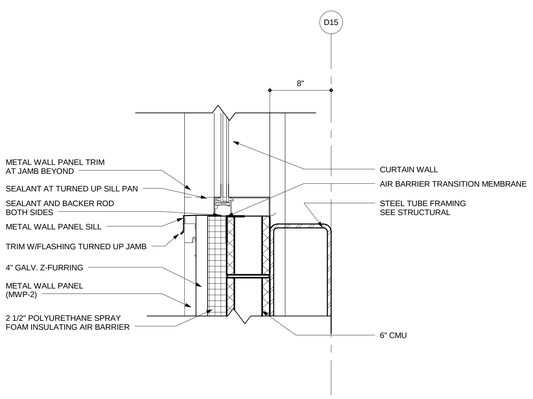
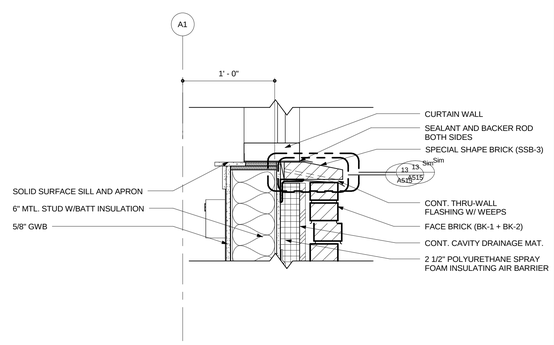


9 Detail 0

SCALE: 1 1/2" = 1'-0"



10 SILL DETAIL AT STAIR

SCALE: 1 1/2" = 1'-0"

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WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

SECTION DETAILS

1' 6" 3" 0' 6"
SCALE : 1-1/2" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
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DRAWN BY: GMS	PROJ MGR: SCC

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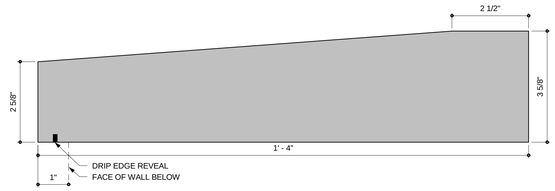
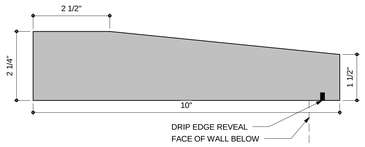


1 CAST STONE SILL (CS-1)
SCALE: 6" = 1'-0"



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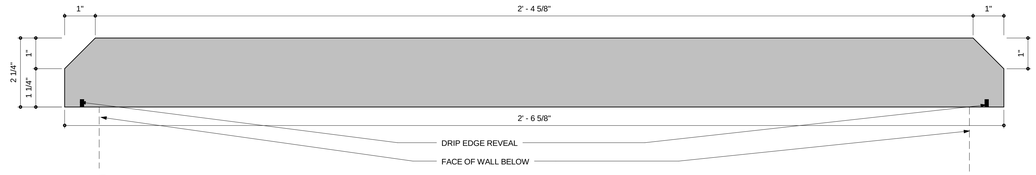

3 CAST STONE COPING (CS-4)
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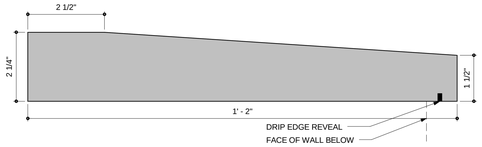

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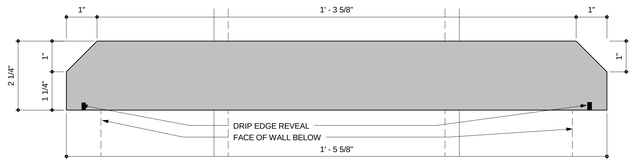

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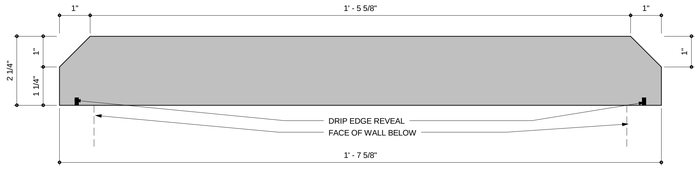

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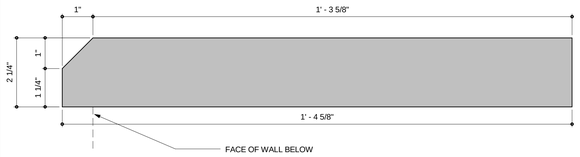

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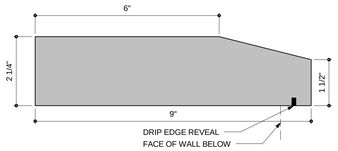

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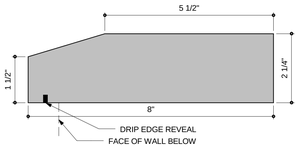

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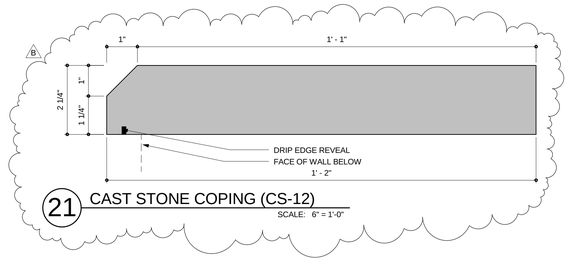

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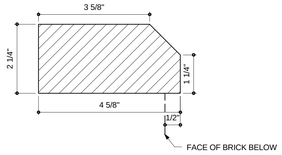

11 SPECIAL SHAPE BRICK (SSB-1)
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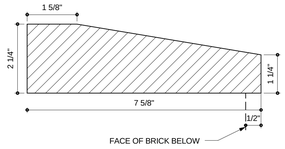

12 SPECIAL SHAPE BRICK (SSB-2)
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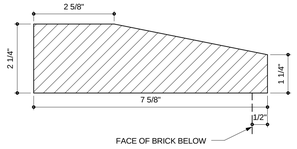

13 SPECIAL SHAPE BRICK (SSB-3)
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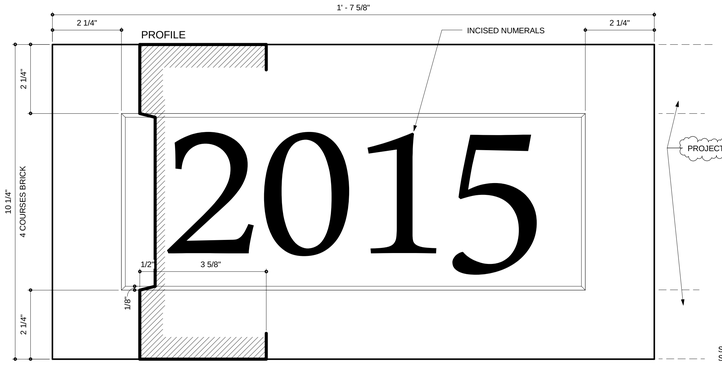

10 CAST STONE DATE STONE (CS-11)
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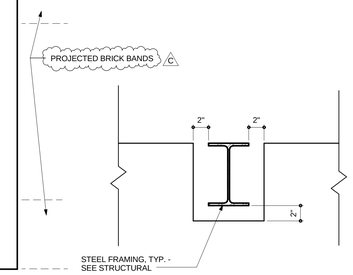

14 TYP. STEEL POCKET ELEVATION
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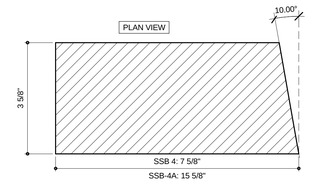

19 SPECIAL SHAPE BRICK (SSB-4 & SSB-4A)
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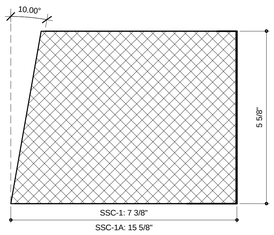

20 SPECIAL SHAPE CMU (SSC-1 & SSC-1A)
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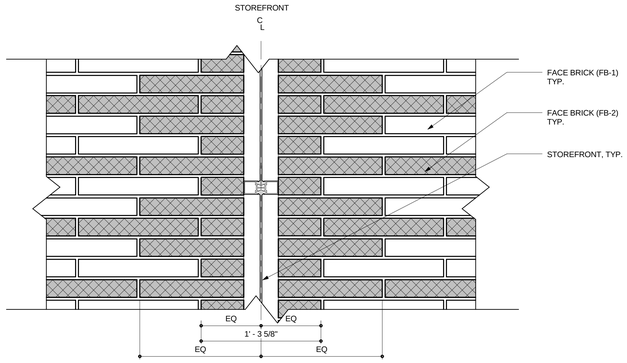

15 TYPICAL BRICK TRANSITION DETAIL
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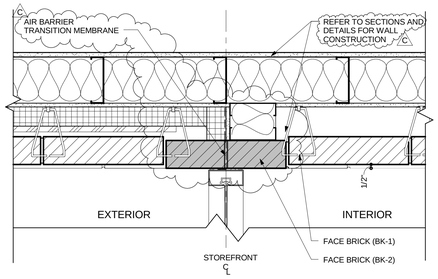

16 TYP. PLAN DETAIL AT BRICK TRANSITION
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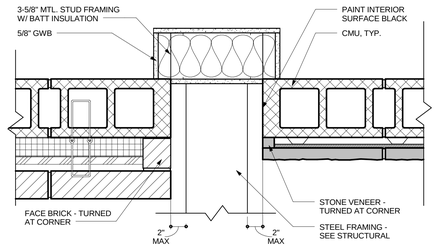

17 TYP. STEEL POCKET DETAIL AT CMU BACKUP
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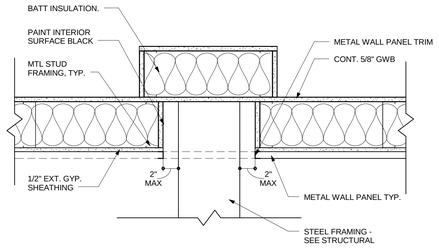

18 TYP. STEEL POCKET DETAIL AT METAL STUD BACKUP
SCALE: 1 1/2" = 1'-0"

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WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

CAST STONE & SPECIAL SHAPE BRICK / CMU DETAILS

1' 6" 3" 0' 6"
SCALE : 6" = 1'-0"

1' 6" 3" 0' 6"
SCALE : 1-1/2" = 1'-0"

2' 1' 6" 0' 1'
SCALE : 3/4" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: BDF	PROJ MGR: SCC

A515

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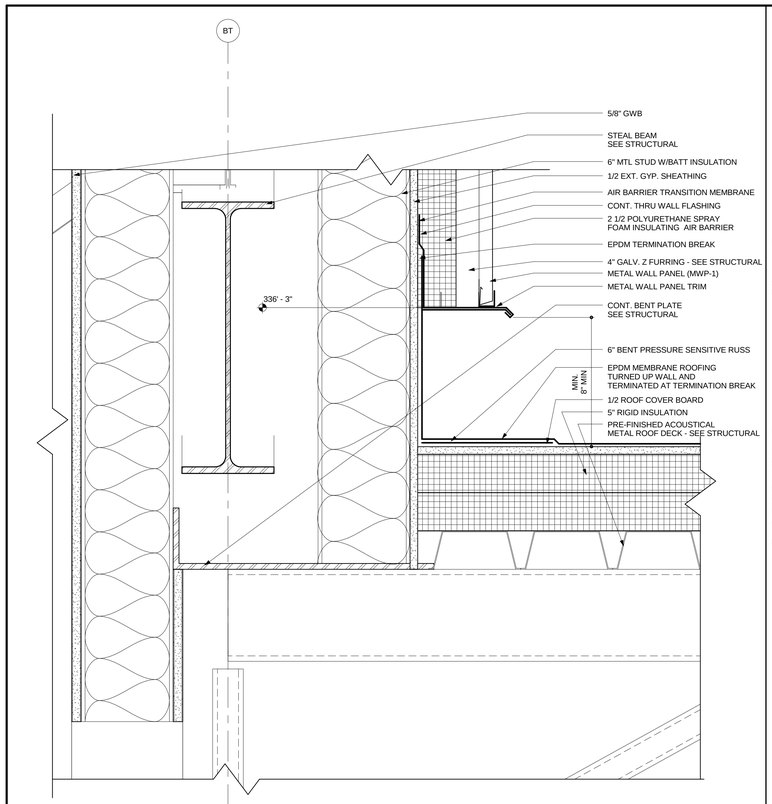

1 R12 = EPDM-MWP-STUD-SIDE

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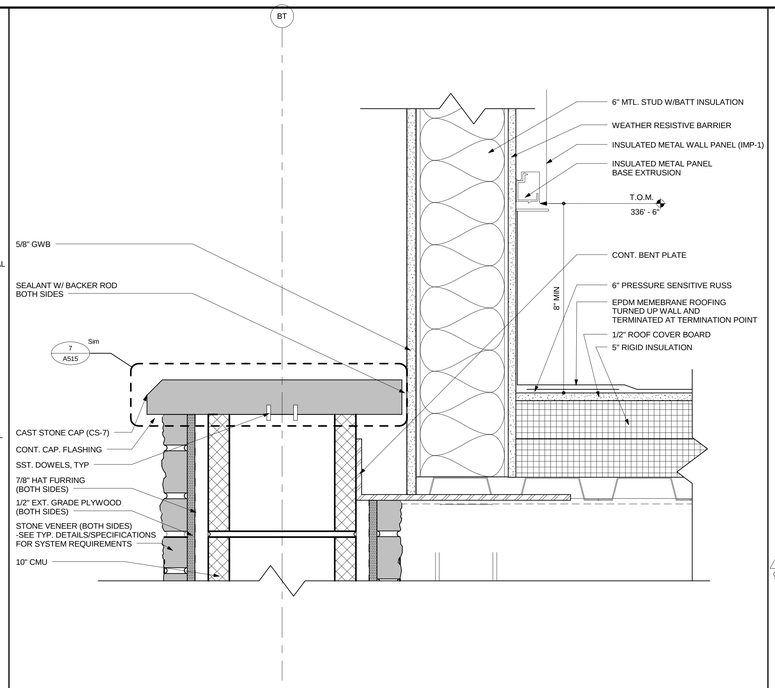

2 R14= EPDM-IMP-STUD-SIDE

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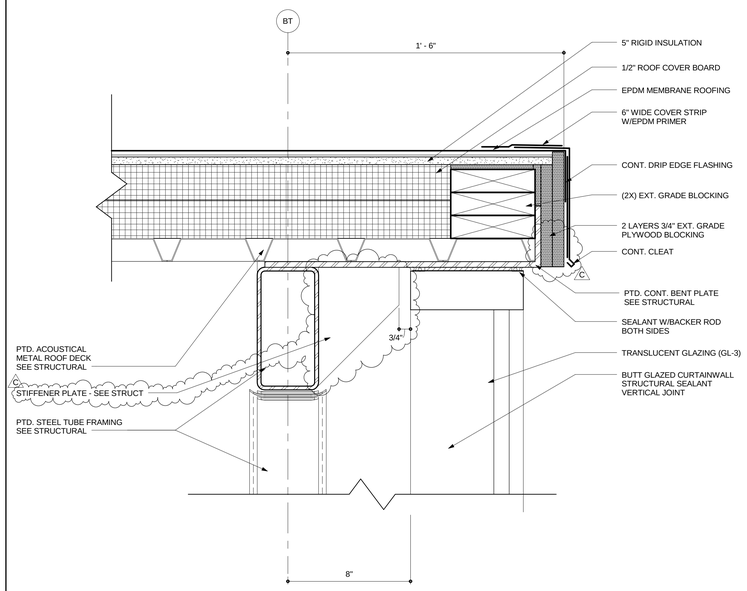

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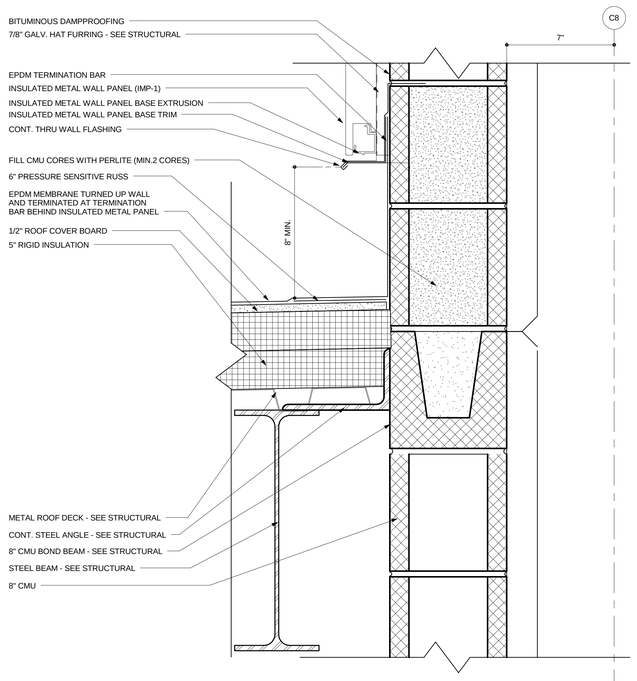

4 R23 - EPDM-IMP-CMU-SIDEWALL

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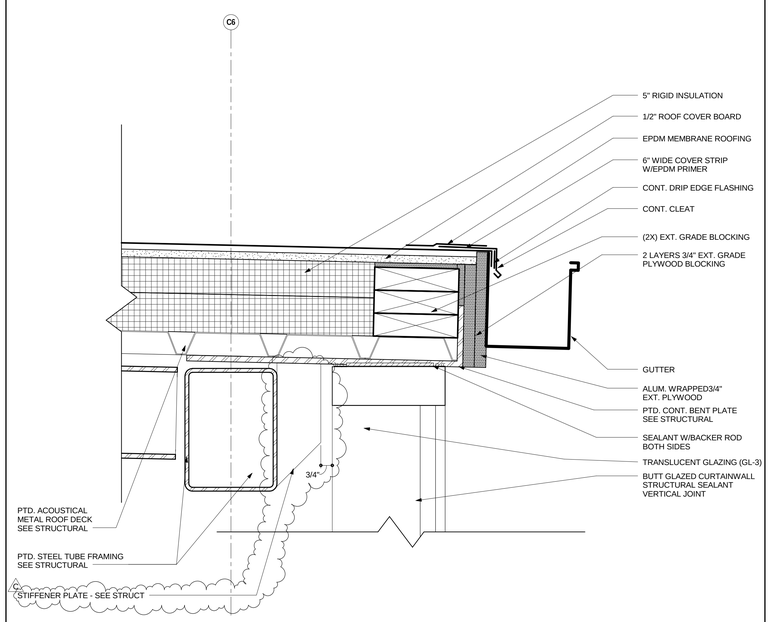

5 EPDM - CW - GUTTER

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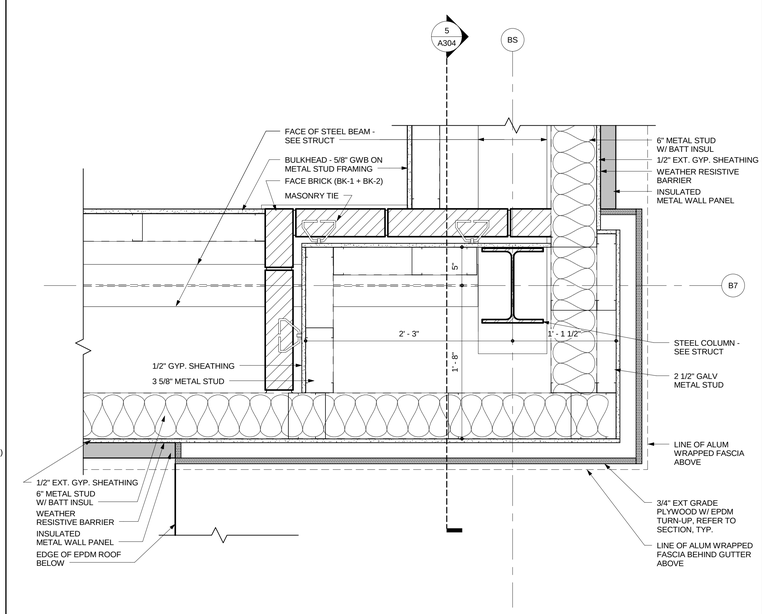

C 6 ROOF PLAN DETAIL AT BS-B7

SCALE: 1 1/2" = 1'-0"

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THE WHITING-TURNER CONTRACTING COMPANY
CONSTRUCTION MANAGER

131 CONTINENTAL DRIVE
SUITE 404
NEWARK, DE 19713
(302) 292-0676 fax: (302) 292-0683

THE PROFESSIONAL SERVICES OF THE ARCHITECT ARE UNDERTAKEN FOR AND ARE PERFORMED IN THE INTEREST OF: 1) RED CLAY CONSOLIDATED SCHOOL DISTRICT
NO CONTRACTUAL OBLIGATION IS ASSUMED BY THE ARCHITECT FOR THE BENEFIT OF ANY OTHER PERSON INVOLVED IN THE PROJECT.

PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

ROOF DETAILS

6" 3" 0" 3"

SCALE : 3" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: GMS	PROJ MGR: SCC

A520

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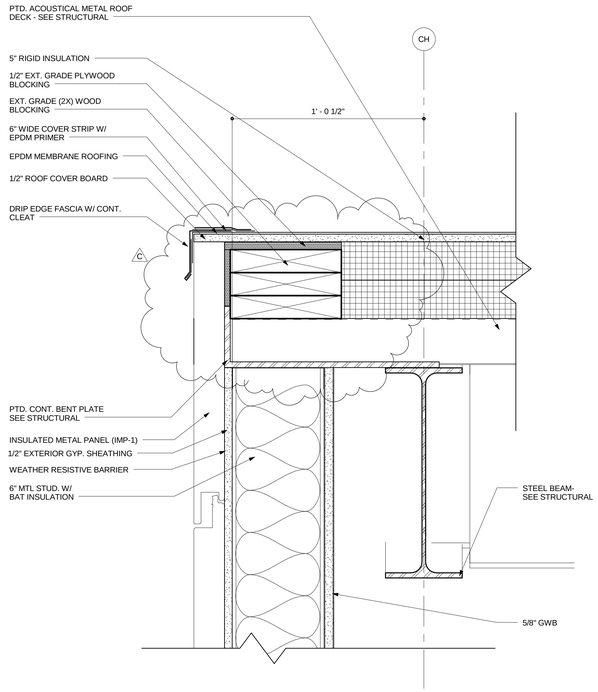
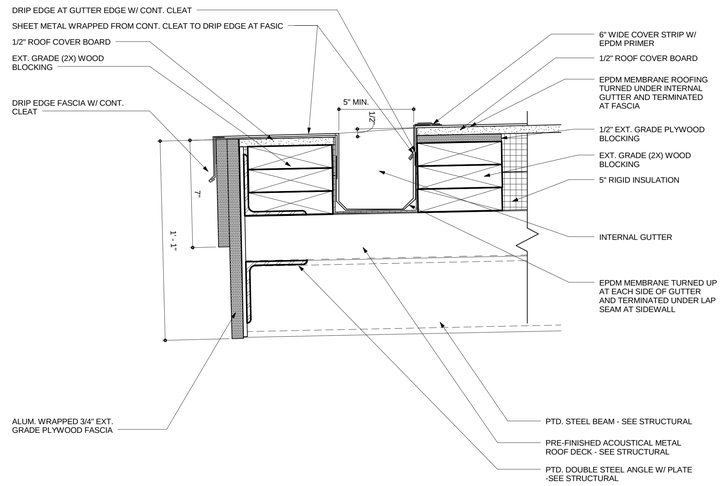


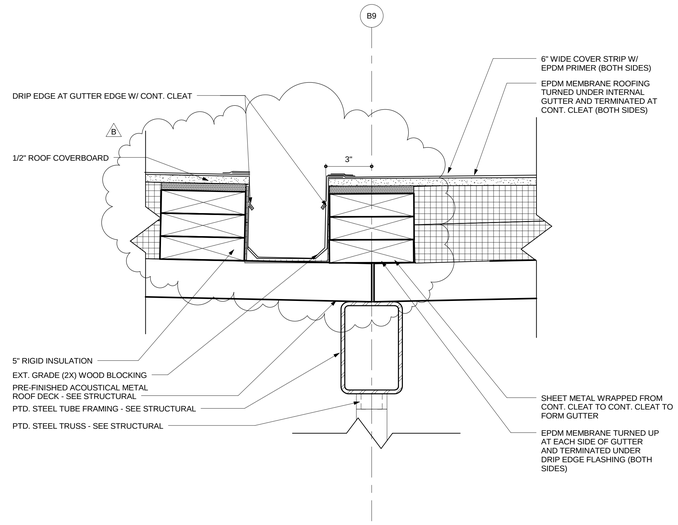
1 R20 - EPDM-IMP-STUD-DE

SCALE: 3" = 1'-0"



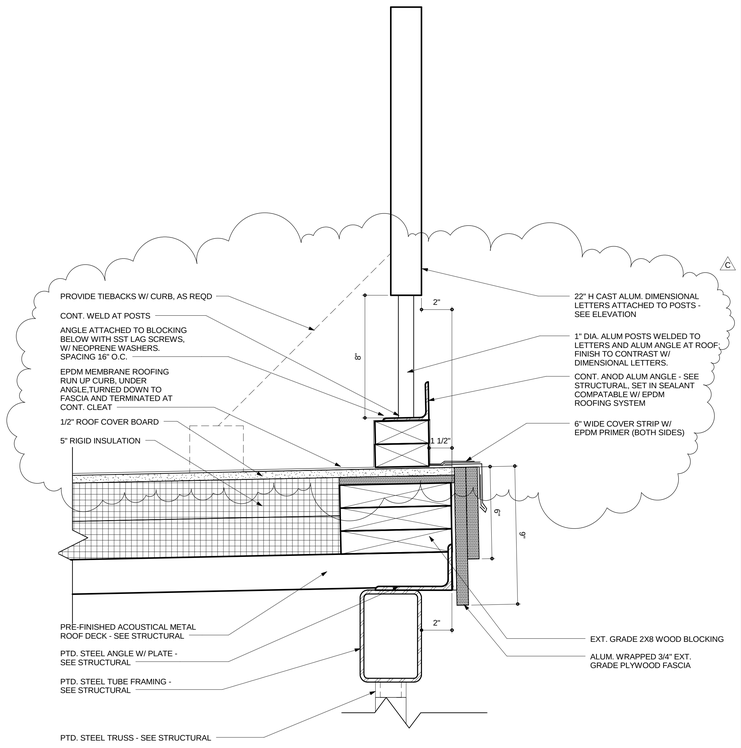
2 INTERNAL GUTTER DETAIL

SCALE: 3" = 1'-0"



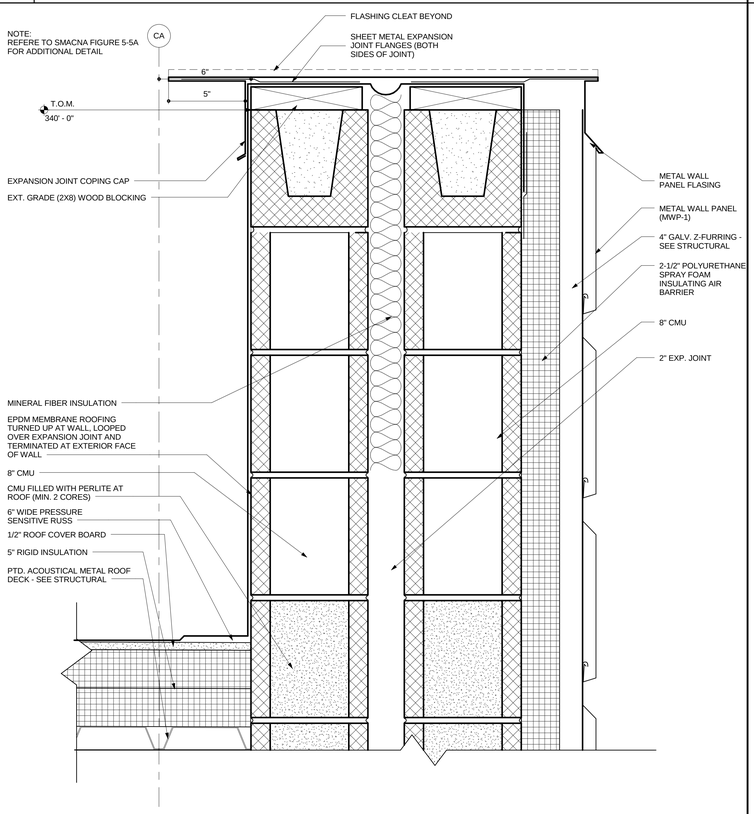
3 INTERNAL GUTTER AT FRONT ENTRANCE

SCALE: 3" = 1'-0"



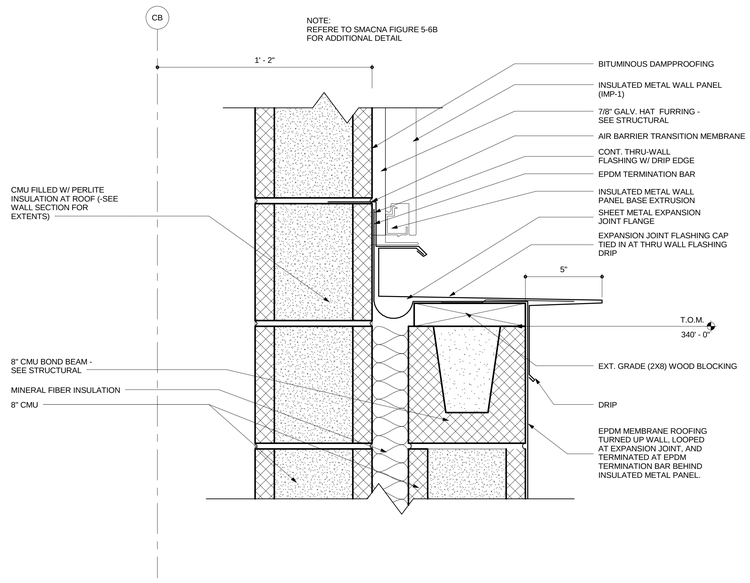
4 ENTRANCE SIGNAGE / EAVE DETAIL

SCALE: 3" = 1'-0"



5 EXPANSION JOINT AT ELECTRICAL ROOM /MEDIA CENTER

SCALE: 3" = 1'-0"



6 EXPANSION JOINT AT ROOF ACCESS AND MEDIA CENTER

SCALE: 3" = 1'-0"

BECKER MORGAN GROUP

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309 S Governors Ave
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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

ROOF DETAILS

6" 3" 0' 3"

SCALE : 3" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	3" = 1'-0"
DRAWN BY: SER	PROJ MGR: SCC

A521

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FINISH SCHEDULE

#	ROOM NAME	FLOOR MAT	BASE MAT	WALLS EAST MAT	EAST FIN	SOUTH MAT	SOUTH FIN	WEST MAT	WEST FIN	NORTH MAT	NORTH FIN	CEILING MAT	CEILING FIN	COMMENTS
UPPER FIRST FLOOR														
A100	LOBBY	*RQT	SCFT/AMV/BK	C.W.	-	BK/MWP/SV	-	C.W.	-	BK	-	EXPO/AWC-1	PT/-	*TZZ ADD ALT.
A100A	VESTIBULE	CPT	SCFT/AMV	C.W.	-	-	-	C.W.	-	BK / CMU	-	EXPO/AWC-1	PT/-	
A100B	VESTIBULE	CPT	SCFT/BK	C.W.	-	SV	-	C.W.	-	BK	-	EXPO/AWC-1	PT	
A100C	CORRIDOR	VCT	SCFT	DCMU	EP	-	-	DCMU	-	-	-	EXPO/ACT-2	PT/-	*TZZ ADD ALT.
A100D	ELEC.	VCT	RB	CMU	PT	GWB	PT	GWB	PT	GWB	PT	ACT-1	-	
A100E	CORR	*VCT	SCFT	-	-	CMU	EP	CMU	EP	CMU	EP	ACT-1	-	*RQT AND RVB ADD ALT.
A101	WAITING	CPT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-5 / GWB	-/PT	
A102	RECEPTION	CPT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-1	-	
A103	HALL	CPT	RB	GWB	PT	-	-	GWB	PT	CMU	PT	ACT-1	-	
A104	GUIDANCE	CPT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-1	-	
A105	CONFERENCE	CPT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-1	-	
A106	TOILET	EPX	EPX	GWB	EP	GWB	EP	GWB	EP	GWB	EP	ACT-3	-	
A107	ASST. PRINCIPAL	CPT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-1	-	
A108	ED/PSY	CPT	RB	GWB	PT	GWB	PT	GWB	PT	CMU	PT	ACT-1	-	
A109	PRINCIPAL	CPT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-1	-	
A110	OT/PT SERV.	CPT	RB	CMU	PT	GWB	PT	GWB	PT	CMU	PT	ACT-1	-	
A111	RECORD STOR.	VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-1	-	
A112	MAIL	VCT	RB	CMU	PT	GWB	PT	GWB	PT	GWB	PT	ACT-1	-	
A113	HEALTH SUITE	VSF	VSF	GWB	EP	GWB	EP	CMU	EP	GWB	EP	ACT-1	-	
A113A	STOR	VSF	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-1	-	
A113B	TOILET	EPX	EPX	GWB	EP	GWB	EP	GWB	EP	GWB	EP	ACT-3	-	
A113C	EXAM	VSF	RB	GWB	EP	GWB	EP	GWB	EP	GWB	EP	ACT-1	-	
A115	MEDIA CENTER	CPT	RB	GWB	PT	GWB/CMU	PT	GWB	PT	SV	-	EXPO/GWB/MC-1	PT/-	
A116	MDF	CONC-H	RB	GWB	PT	GWB	PT	CMU	PT	GWB	PT	EXPO	PT	
A117	TLT	EPX	EPX	GWB	EP	GWB	EP	GWB	EP	GWB	EP	ACT-3	-	
A118	OFF/WKRM	CPT	RB	GWB	PT	CMU	PT	GWB	PT	GWB	PT	ACT-1	-	
A119	STORAGE	VCT	RB	GWB	PT	CMU	PT	CMU	PT	GWB	PT	ACT-1	-	
B100	CORRIDOR	*VCT	SCFT	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-1	-	*RQT AND RVB ADD ALT.
B100A	VEST.	CPT	SCFT	CMU	EP	CMU	EP	CMU	EP	CMU	EP	GWB	PT	
B100B	ELEC.	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-1	-	
B100C	JAN.	CONC-H	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	GWB	PT	
B101	KINDERGARTEN	*VCT	RB	CMU	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
B101A	VESTIBULE	EPX	EPX	CMU	EP	GWB	EP	GWB	CT	GWB	EP	ACT-3	-	
B101B	TOILET	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
B102	KINDERGARTEN	*VCT	RB	GWB	PT	GWB	PT	CMU	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
B102A	VESTIBULE	EPX	EPX	GWB	CT	GWB	EP	CMU	EP	GWB	EP	ACT-3	-	
B102B	TOILET	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
B103	KINDERGARTEN	*VCT	RB	CMU	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
B104	KINDERGARTEN	*VCT	RB	GWB	PT	GWB	PT	CMU	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
B105A	RESOURCE ROOM	VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	
B105B	LAPTOP STORAGE	VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	
B105C	STOR	VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	
B105D	SMALL GROUP ROOM	VCT	RB	CMU	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	
B105E	TEACHER PLANNING	VCT	RB	CMU	PT	CMU	PT	GWB	PT	GWB	PT	ACT-2		
B105F	IDF-1A	CONC-H	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	EXPO	PT	
B105G	TOILET	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
B106	KINDERGARTEN	*VCT	RB	GWB	PT	GWB	PT	CMU	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
B106A	VESTIBULE	EPX	EPX	GWB	CT	GWB	EP	CMU	EP	GWB	EP	ACT-3	-	
B106B	TOILET	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
B107	FIRST GRADE	*VCT	RB	CMU	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
B107A	VESTIBULE	EPX	EPX	CMU	EP	GWB	EP	GWB	CT	GWB	EP	ACT-3	-	
B107B	TOILET	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
B108	FIRST GRADE	*VCT	RB	GWB	PT	GWB	PT	CMU	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
B109	FIRST GRADE	*VCT	RB	CMU	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
B110	FIRST GRADE	*VCT	RB	GWB	PT	GWB	PT	CMU	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
B110A	VESTIBULE	EPX	EPX	GWB	CT	GWB	EP	CMU	EP	GWB	EP	ACT-3	-	
B110B	TOILET	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
B112	FIRST GRADE	*VCT	RB	GWB	PT	GWB	PT	CMU	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
C100A	STAIR	RQT	AMV	SV	-	*MWP	-	SV	-	SV	-	EXPO	PT	*SV ADD ALT.
C100B	CORR.	RT	SCFT	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-5/GWB	-/PT	*RQT AND RVB ADD ALT.
C100C	CORR.	RT	SCFT	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-5/GWB	-/PT	*RQT AND RVB ADD ALT.
C100D	LOBBY	*VCT	BK	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-5/GWB	-/PT	*RQT AND RVB ADD ALT.
C100E	JAN.	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	GWB	PT	
C100F	VEST.	CPT	SCFT	CMU	PT	BK	-	CMU	PT	CMU	PT	GWB	PT	
C100G	IDF-1C	CONC-H	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	EXPO	PT	
C100H	VEST.	CPT	SCFT	CMU	PT	CMU	PT	CMU	PT	CMU	PT	GWB	PT	
C101	ELEV. MACHINE	CONC-H	-	CMU	PT	CMU	PT	CMU	PT	CMU	PT	EXPO	PT	
C102	CORR	VCT	SCFT	CMU	PT	CMU	PT	-	-	CMU	PT	ACT-1	-	
C103	ELEV.	RUB	-	CMU	*PT	CMU	*PT	CMU	*PT	CMU	*PT	EXPO	-	*PAINT SHAFT WALLS TO 8'-0" ABOVE 1ST FLOOR
C104	CONFERENCE	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-2	-	
C105	BOOK STORAGE	VCT	R	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-2	-	
C106	SPECIALIZED SUPPORT	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-2	-	
C107	MECHANICAL	CONC-H	-	CMU	PT	CMU	PT	CMU	PT	CMU	PT	EXPO	PT	
C108	CUST.	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-1	-	
C109	INT. STOR.	CONC-H	-	CMU	PT	CMU	PT	CMU	PT	CMU	PT	EXPO	PT	
C110	ELEC.	CONC-H	-	CMU	PT	CMU	PT	CMU	PT	CMU	PT	EXPO	PT	
C111	MEN	EPX	EPX	CMU	EP	CMU	EP	CMU	CT	CMU	EP	GWB	PT	
C112	TEACH. LOUNGE	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-2	-	
C113	WOMEN	EPX	EPX	CMU	CT	CMU	EP	CMU	EP	CMU	EP	GWB	PT	
C114	STUDENT DINING	*VCT	RB	CMU	EP	GWB/O.P.	EP/-	CMU	EP	CMU	EP	EXPO/GWB/ACT-4	PT	ACOUSTIC WALL PANELS *RAF ADD ALT
C114A	JAN	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	GWB	PT	
C115	FURN. STOR.	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-1	-	
C116	GYM	VCT	RB	CMU	EP	CMU	EP	CMU	EP	GWB/O.P.	EP/-	EXPO	PT	ACOUSTIC WALL PANELS *RAF ADD ALT
C116A	STOR.	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-1	-	
C117	PE INT. STOR.	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-1	-	
C118	PE OFF.	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-1	-	
C119	STAGE	VCT	RB	CMU	EP	CMU	EP	CMU	EP	CMU	EP	EXPO	PT	
C120	PE EXT. STOR.	CONC-H	-	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-1	-	WT
C121	STAGE ACCESS.	RT	RB	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-1	-	
C122	STAGE STOR.	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	EXP	PT	
C123	MUSIC	VCT	RB	CMU	EP	CMU	EP	CMU	EP	CMU	EP	EXPO/AC-1	PT/-	ACOUSTIC WALL PANELS
C123A	MUSIC STOR.	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-1	-	
C124	TLT	CONC-S	-	CMU	EP	CMU	EP	CMU	EP	CMU	EP	GWB	PT	
C125	ART	VCT	RB	CMU	EP	CMU	EP	CMU	EP	CMU	EP	EXPO	PT	
C125A	KILN	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-1	-	
C125B	ART STOR	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-1	-	
C126	SERVING	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
C127	OFFICE	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
C128	KITCHEN	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
C129	FZR.	EPX	EPX	-	-	-	-	-	-	-	-	-	-	
C130	CLR.	EPX	EPX	-	-	-	-	-	-	-	-	-	-	
C131	DRY STOR	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
C132	LOCKER	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
C133	TOILET	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
D100	CORR.	*VCT	**RB/SCFT	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-2	-	*RQT AND RVB ADD ALTS **R @ LOCKERS & DCMU @ CMU. SEE ADD ALT. FOR DCMU @ LOCKERS
D100A	ELEC.	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	GWB	PT	
D100B	JAN	CONC-H	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	GWB	PT	
D100C	TLT VEST	EPX	EPX	-	CT	CMU	EP	CMU	CT	CMU	EP	GWB	PT	
D101	SECOND GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D102	SECOND GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D103	SECOND GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D104	SECOND GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D105	SECOND GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D106	BOYS TOILET	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	GWB	PT	
D107	COMPUTER ROOM	VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	
D107A	TEACHER PLANNING	VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	
D107B	IDF-1B	CONC-H	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	EXPO	PT	
D107C	STOR	VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	
D107D	TOILET	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-3	-	
D108	GIRLS TOILET	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	GWB	PT	
D109	THIRD GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D110	THIRD GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D111	THIRD GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D112	THIRD GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D113	THIRD GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D114	STAIR	RT	RB	CMU	EP	CMU	EP	CMU	EP	CMU	EP	ACT-1/GWB	-/PT	
SECOND FLOOR														
C200	CORR	*VCT	SCFT	CMU	-	CMU	-	-	-	CMU	-	ACT-1	-	*RQT AND RVB ADD ALT.
C201	INT. STORAGE	VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-1	-	
C202	ROOF ACCESS	RST	RB		EPX									

FINISH SCHEDULE

#	ROOM NAME	FLOOR MAT	BASE MAT	WALLS EAST MAT	EAST FIN	SOUTH MAT	SOUTH FIN	WEST MAT	WEST FIN	NORTH MAT	NORTH FIN	CEILING MAT	CEILING FIN	COMMENTS
D200	CORR	*VCT	**R/SCFT	CMU	PT	DCMU/GWB	-/PT	CMU	-	CMU	-/PT	ACT-1	-	*RQT AND RVB ADD ALTS **R @ LOCKERS & DCMU @ CMU. SEE ADD ALT. FOR DCMU @ LOCKERS
D200A	ELEC.	VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-1	-	
D200B	JAN.	CONC-H	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	GWB	PT	
D200C	TLT. VEST	EPX	EPX	-	CT	CMU	EP	CMU	CT	CMU	EP	GWB	PT	
D201	FOURTH GRADE	*VCT	RB	CMU	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D202	FOURTH GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D203	FOURTH GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D204	FOURTH GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D205	FOURTH GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D206	BOYS TLT.	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	GWB	PT	
D207A	RESOURCE ROOM	VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	
D207B	LAPTOP STORAGE	VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	
D207C	SMALL GROUP ROOM	VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	
D207D	STORAGE	VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	
D207E	TEACHER PLANNING	VCT	RB	GWB	PT	CMU	PT	CMU	PT	GWB	PT	ACT-2	-	
D207F	IDF	CONC-H	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	EXPO	PT	
D207G	TOILET	EPX	EPX	CMU	EP	CMU	EP	GWB	EP	GWB	EP	ACT-3	-	
D208	GIRLS TLT.	EPX	EPX	CMU	EP	CMU	EP	CMU	EP	CMU	EP	GWB	PT	
D209	FIFTH GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D210	FIFTH GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D211	FIFTH GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D212	FIFTH GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.
D213	FIFTH GRADE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT-2	-	*RQT AND RVB ADD ALT.

FINISH SCHEDULE - MULTIPURPOSE ALTERNATE

#	ROOM NAME	FLOOR MAT	BASE MAT	WALLS EAST MAT	EAST FIN	SOUTH MAT	SOUTH FIN	WEST MAT	WEST FIN	NORTH MAT	NORTH FIN	CEILING MAT	CEILING FIN	COMMENTS
UPPER FIRST FLOOR														
A120	MULTI PURPOSE ROOM	*VCT	RB	BK	-	BK	-	GWB	PT	GWB	*PT	ACT-2	-	*RQT AND RVB ADD ALT. - MULTIPURPOSE RM
A120A	TOILET	*VCT	RB	CMU	PT	CMU	PT	CMU	PT	CMU	PT	ACT-3	-	*RQT AND RVB ADD ALT. - MULTIPURPOSE RM

FINISH SCHEDULE - FLEX SPACE ALTERNATE

#	ROOM NAME	FLOOR MAT	BASE MAT	WALLS EAST MAT	EAST FIN	SOUTH MAT	SOUTH FIN	WEST MAT	WEST FIN	NORTH MAT	NORTH FIN	CEILING MAT	CEILING FIN	COMMENTS
SECOND FLOOR														
D200D	FLEX SPACE	*VCT	RB	GWB	PT	GWB	PT	GWB	PT	GWB/CMU	PT	ACT-2	-	*RQT AND RVB ADD ALT. - FLEX SPACE

CASEWORK SCHEDULE

MARK	AWI-MFR #	WIDTH	DEPTH	HEIGHT	COMMENTS	QTY.
	201208000 Casework steel angle bracket	4' - 0"	2' - 0"	3' - 0"		7
B5-A	ADA SINK 30	3' - 0"	2' - 0"	2' - 4 1/4"	SEE 7/A501	3
B6-A	ADA SINK 30	3' - 6"	2' - 0"	2' - 4 1/4"	SEE 7/A501	20
B-1	212.0001	2' - 6"	2' - 0"	2' - 4 3/4"		5
B-2	212.0001	3' - 0"	2' - 0"	2' - 4 3/4"		50
B-3	212.0001	3' - 0"	2' - 0"	2' - 8 3/4"		9
B-4	212.0001	3' - 3"	2' - 0"	2' - 8 3/4"		3
B-5	1xx-ADA-sink2	3' - 0"	2' - 0"	2' - 11 1/4"		8
B-7	1xx-ADA-sink2	6' - 0"	2' - 0"	2' - 11 1/4"		1
T-1	400	2' - 0"	1' - 0"	7' - 0"		1
T-2	400	3' - 0"	1' - 8"	6' - 0"		3
T-3	400	3' - 0"	2' - 0"	7' - 0"		4
T-4	402	3' - 0"	1' - 6"	6' - 0"		8
T-5	402	3' - 0"	2' - 0"	7' - 0"		5
T-6	402	4' - 0"	2' - 0"	7' - 0"		2
T-7	412	3' - 6"	2' - 0"	7' - 0"		1
T-8	Wardrobe 512 24 x24	2' - 0"	2' - 0"	7' - 0"		33
W-1	301	1' - 6"	1' - 0 1/2"	2' - 6"		7
W-2	302	2' - 6"	1' - 0 1/2"	2' - 6"		3
W-3	302	3' - 0"	1' - 0 1/2"	2' - 6"		132
W-4	302	3' - 3"	1' - 0 1/2"	2' - 6"		2
W-5	302	3' - 6"	1' - 0 1/2"	2' - 6"		20
W-6	Kindergarten Cubbies - 40H x 12W x 18D	1' - 6"	1' - 6"	3' - 4"		124

ACOUSTICAL WALL PANEL SCHEDULE

MARK	QTY.
AWP-1A	143
AWP-1B	226

FINISH SCHEDULE LEGEND

KEY NAME	DESCRIPTION	SPEC. REF
FLOOR		
-	NOT APPLICABLE	
CONC-H	CONCRETE WITH SEALER/HARDENER	033000
CONC-S	CONCRETE W/ COLORED SEALER/HARDENER	033000
CPT	CARPET	096815
EPX	RESINOUS FLOORING	096723
RAF	RESILIENT ATHLETIC FLOORING	096566
RQT	RESILIENT QUARTZ TILE	096519
RUB	RUBBER FLOOR TILE / STAIR TREAD & RISER	096519
TZZ	RESINOUS MATRIX TERRAZZO FLOORING / STAIR TREADS	096623
VCT	VINYL COMPOSITION TILE	096519
VSF	VINYL SHEET FLOORING	096516
BASE		
-	NONE / NOT APPLICABLE	-
AMV	ARCHITECTURAL MASONRY VENEER	047300
EPX	RESINOUS FLOORING INTEGRAL COVE BASE	096723
RB	RUBBER WALL BASE	096513
RC	ROLLED COVE BASE	096513
SCFT	STRUCTURAL CLAY FACING TILE	042000
TZZ	RESINOUS MATRIX TERRAZZO BASE	096623
WALL		
-	NOT APPLICABLE	-
C.W.	CURTAINWALL / STOREFRONT	084113/084413
CMU	CONCRETE MASONRY UNITS	042000
EP	HIGH-PERFORMANCE COATING	0996000
GWB	GYPSUM WALL BOARD	092900
MWP	METAL WALL PANEL	074213
O.P.	OPERABLE PARTITION	102226
PCMU	PREFACED CONCRETE MASONRY UNITS	042000
PT	PAINT	099123
SV	STONE VENEER	047000
CEILING		
-	NONE / NOT APPLICABLE	
AC-1	ACOUSTICAL CLOUD	095113
ACT-1	2X2 ACOUSTICAL CEILING TILE	095113
ACT-2	2X4 ACOUSTICAL CEILING TILE	095113
ACT-3	2X2 CLEAN ROOM CEILING TILE	095113
ACT-4	2X4 CLEAN ROOM CEILING TILE	095113
ACT-5	2X8 ACOUSTICAL CEILING TILE	095113
AWC-1	ACOUSTICAL WOOD CEILING	095113
EXPO	EXPOSED	-
GWB	GYPSUM WALL BOARD CEILING	092900
MC-1	METAL WORKS PLANK CEILING	095113
PT	PAINT	099123
ORIENTATION		
	REFER TO FLOOR PLANS (A101/A102 SERIES DRAWINGS) FOR ORIENTATION. SCHEDULE NORTH IS NORTH EAST.	
GENERAL NOTES		
1	WALLS AND CEILINGS MAY CONTAIN MORE THAN ONE MATERIAL OR FINISH AS INDICATED. COORDINATE WITH CONSTRUCTION TYPE AND FINISH SIMILAR TO ADJACENT MATERIALS	
2	SEE A104 AND A105 REFLECTED CEILING PLANS & CEILING NOTES FOR CEILING HEIGHTS, MATERIAL EXTENTS, LOCATIONS AND HEIGHTS OF BULKHEADS, SOFFITS, ETC.	
3	PLAN WALL TYPES TAKE PRECEDENCE OVER SCHEDULED WALL FINISH. PROVIDE APPROPRIATE WALL FINISH TO CORRESPOND TO WALL TYPES.	
4	ABUSE RESISTANT GYPSUM BOARD SHALL BE USED AT ALL CLASSROOMS (INCLUDING ART AND MUSIC), HEALTH SUITE, AND WHERE OCCURS IN CORRIDORS AND HALLS.	
5	MOLD AND MOISTURE RESISTANT GYPSUM BOARD SHALL BE USED AT ALL KITCHEN AREAS, TOILET ROOMS AND CUSTODIAN SERVICE CLOSETS, WHERE OCCURS.	
6	WALL AND CEILING FINISHES SHALL INCLUDE ALL PROJECTIONS, BEAM ENCLOSURES, RECESSES, BULKHEADS, MATERIAL CHANGES, OR OTHER ENCLOSURES. REFER TO REFLECTED CEILING PLANS FOR EXTENTS.	
7	PROVIDE SEALANT/CAULK AT INTERSECTIONS OF DISSIMILAR MATERIALS AND AS RECOMMENDED BY MANUFACTURERS' DETAILS AND GUIDELINES.	

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BRAD A HASTINGS No 5276 STATE OF DELAWARE REGISTERED ARCHITECT

THE PROFESSIONAL SERVICES OF THE ARCHITECT ARE UNDERTAKEN FOR AND ARE PERFORMED IN THE INTEREST OF:
1) RED CLAY CONSOLIDATED SCHOOL DISTRICT
NO CONTRACTURAL OBLIGATION IS ASSUMED BY THE ARCHITECT FOR THE BENEFIT OF ANY OTHER PERSON INVOLVED IN THE PROJECT.

PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD, HOCKESSIN, DE 19707

RED CLAY · CONSOLIDATED · SCHOOL · DISTRICT 1981

SHEET TITLE

FINISH SCHEDULE AND LEGEND, CASEWORK SCHEDULE

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02
A	07.16.2013	ADDENDUM-01

Revision Schedule

PROJECT NO: 2012080.00
DATE: 07.01.2013
SCALE:
DRAWN BY: GMS PROJ MGR: SCC

A601

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COLOR SCHEDULE

FLOORING

FINISH KEY	MATERIAL	LOCATION	COMPANY	PATTERN #	COLOR	REMARKS
CONC H	CONCRETE WITH HARDER/SEALER	UTILITY ROOMS				
CPT 1	CARPET TILE 24" X 24"	ADMINISTRATION, MEDIA CENTER	MANNINGTON	ELEMENTAL BRIGHTS II	CARBON	FIELD COLOR, INSTALL BRICK ASHLAR PATTERN
CPT 2	CARPET TILE 24" X 24"	ADMINISTRATION, MEDIA CENTER	MANNINGTON	ELEMENTAL SOLIDS II	ORANGE 64213	ACCENT COLOR, INSTALL QUARTER TURN PATTERN
CPT 3	CARPET TILE 24" X 24"	ADMINISTRATION, MEDIA CENTER	MANNINGTON	ELEMENTAL SOLIDS II	YELLOW ORANGE 63210	ACCENT COLOR, INSTALL QUARTER TURN PATTERN
CPT 4	CARPET TILE 24" X 24"	ADMINISTRATION, MEDIA CENTER	MANNINGTON	ELEMENTAL SOLIDS II	AQUA 44185	ACCENT COLOR, INSTALL QUARTER TURN PATTERN
CPT 5	CARPET TILE 24" X 24"	ADMINISTRATION, MEDIA CENTER	MANNINGTON	ELEMENTAL SOLIDS II	BLUE 35174	ACCENT COLOR, INSTALL QUARTER TURN PATTERN
CPT 6	CARPET TILE 24" X 24"	VESTIBULES	TANDUS	ABRASIVE ACTION 02578	SOLAR FLARE 19109	
EPX 1	RESINOUS FLOORING	PUBLIC RESTROOMS	STONEHARD	STONEBLEND GS1		
EPX 2	RESINOUS FLOORING	FOOD SERVICE AREA	STONEHARD	STONESHIELD UTS		
RAF 1	RESILIENT ATHLETIC FLOORING	GYM ALTERNATE				
RQT 1	RESILIENT QUARTZ TILE 24" X 24"	LOBBY ACCENT COLOR NEW CASTLE COUNTY	UPOFLOOR	HOVI MOSAIC 9301	NEUTRAL 1	ALTERNATE: CLASSROOMS & CLASSROOM COORIDORS
RQT 2	RESILIENT QUARTZ TILE 24" X 24"	LOBBY FIELD COLOR	UPOFLOOR	HOVI MOSAIC 9349	RED	ALTERNATE: CLASSROOMS & CLASSROOM COORIDORS
RQT 3	RESILIENT QUARTZ TILE 24" X 24"	SEE REMARKS	UPOFLOOR	HOVI MOSAIC 9329	YELLOW	ALTERNATE: CLASSROOMS & CLASSROOM COORIDORS
RQT 4	RESILIENT QUARTZ TILE 24" X 24"	SEE REMARKS	UPOFLOOR	HOVI MOSAIC 9367	GREEN	ALTERNATE: CLASSROOMS & CLASSROOM COORIDORS
RQT 5	RESILIENT QUARTZ TILE 24" X 24"	SEE REMARKS	UPOFLOOR	HOVI MOSAIC 9389	BLUE	ALTERNATE: CLASSROOMS & CLASSROOM COORIDORS
RQT 6	RESILIENT QUARTZ TILE 24" X 24"	LOBBY ACCENT COLOR KENT COUNTY	UPOFLOOR	HOVI MOSAIC 9304	NEUTRAL 2	
RQT 7	RESILIENT QUARTZ TILE 24" X 24"	LOBBY ACCENT COLOR SUSSEX COUNTY	UPOFLOOR	HOVI MOSAIC 9319	NEUTRAL 3	
RST 1	RUBBER STAIR TREAD	STAIRS	JOHNSONITE	MICROTONE SPECKLED W/ HAMMERED TEXTURE	LK1 RED CABOOSE	RUBBER TREAD W/ INTEGRATED RISER FOR VISUALLY INPAIRED
RT 1	RUBBER TILE	SEE REMARKS	JOHNSONITE	MICROTONE SPECKLED	WEDDING CAKE OF SNOW WHITE	ALT. FOR CLASSROOMS & CLASSROOM COORIDORS
RT 2	RUBBER TILE	SEE REMARKS RAMP & STAIR LANDINGS	JOHNSONITE	MICROTONE SPECKLED	LK1 RED CABOOSE	
RT 3	RUBBER TILE	SEE REMARKS	JOHNSONITE	MICROTONE SPECKLED	LH7 SIZZLING	ALT. CLASSROOM COORIDORS
RT 4	RUBBER TILE	SEE REMARKS	JOHNSONITE	MICROTONE SPECKLED	LJ9 HIGH ENERGY	ALT. CLASSROOM COORIDORS
RT 5	RUBBER TILE	SEE REMARKS	JOHNSONITE	MICROTONE SPECKLED	LA8 BANANA REPUBLIC	ALT. CLASSROOM COORIDORS
RT 6	RUBBER TILE	SEE REMARKS	JOHNSONITE	MICROTONE SPECKLED	LJ8 SUMMERSET	ALT. CLASSROOM COORIDORS
RT 7	RUBBER TILE	SEE REMARKS	JOHNSONITE	MICROTONE SPECKLED	LE8 FRENCH TOAST	
RT 8	RUBBER TILE	SEE REMARKS	JOHNSONITE	MICROTONE SPECKLED	LH9 ALPINE	
RT 9	RUBBER TILE	SEE REMARKS	JOHNSONITE	MICROTONE SPECKLED	LD2 BACKWOODS	
RT 10	RUBBER TILE	SEE REMARKS	JOHNSONITE	MICROTONE SPECKLED	LF4 CEDAR GROVE	
RT 11	RUBBER TILE	SEE REMARKS	JOHNSONITE	MICROTONE SPECKLED	LF1 BLUEBERRY PIE	
RT 12	RUBBER TILE	SEE REMARKS	JOHNSONITE	MICROTONE SPECKLED	LB7 GO BLUE	
RT 13	RUBBER TILE	SEE REMARKS	JOHNSONITE	MICROTONE SPECKLED	LJ5 GLACIER LAKE	
TZZ 1	RESINOUS MATRIX TERRAZZO				RED TO MATCH ARCH SAMPLE	ALTERNATE LOBBY
TZZ 2	RESINOUS MATRIX TERRAZZO				WHITE TO MATCH ARCH SAMPLE	ALTERNATE LOBBY
TZZ 3	RESINOUS MATRIX TERRAZZO				YELLOW TO MATCH ARCH SAMPLE	ALTERNATE LOBBY
TZZ 4	RESINOUS MATRIX TERRAZZO				GREEN TO MATCH ARCH SAMPLE	ALTERNATE LOBBY
TZZ 5	RESINOUS MATRIX TERRAZZO				BLUE TO MATCH ARCH SAMPLE	ALTERNATE LOBBY
VCT 1	VINYL COMPOSITE TILE 12" X 12"	STORAGE ROOMS, CLASSROOMS, GYM, CAFETERIA, CLASSROOM COORIDORS	ARMSTRONG	EXCELON COMPANION SQUARE	PARTY WHITE 51983	BASE BID, WHITE
VCT 2	VINYL COMPOSITE TILE 12" X 12"	STORAGE ROOMS, CLASSROOMS, GYM, CAFETERIA, CLASSROOM COORIDORS	ARMSTRONG	STANDARD EXCELON/RAVE	HOT LIPS 57515	BASE BID, RED
VCT 3	VINYL COMPOSITE TILE 12" X 12"	STORAGE ROOMS, CLASSROOMS, GYM, CAFETERIA, CLASSROOM COORIDORS	ARMSTRONG	STANDARD EXCELON/RAVE	LEMON LICK 57509	BASE BID, YELLOW
VCT 4	VINYL COMPOSITE TILE 12" X 12"	STORAGE ROOMS, CLASSROOMS, GYM, CAFETERIA, CLASSROOM COORIDORS	ARMSTRONG	STANDARD EXCELON/RAVE	BASIL GREEN 51947	BASE BID, GREEN
VCT 5	VINYL COMPOSITE TILE 12" X 12"	STORAGE ROOMS, CLASSROOMS, GYM, CAFETERIA, CLASSROOM COORIDORS	ARMSTRONG	STANDARD EXCELON IMPERIAL TEXTURE	MARINE BLUE 51820	BASE BID, BLUE
VCT 6	VINYL COMPOSITE TILE 12" X 12"	CORRIDORS RED	ARMSTRONG	STANDARD EXCELON IMPERIAL TEXTURE	MARASCHINO 51880	BASE BID, RED
VCT 7	VINYL COMPOSITE TILE 12" X 12"	CORRIDORS RED	ARMSTRONG	EXCELON FEATURE TEXTURE	RED II 5680	BASE BID, RED
VCT 8	VINYL COMPOSITE TILE 12" X 12"	CLASSROOM CORRIDORS YELLOW	ARMSTRONG	STANDARD EXCELON IMPERIAL TEXTURE	LEMON YELLOW 51812	BASE BID, YELLOW
VCT 9	VINYL COMPOSITE TILE 12" X 12"	CLASSROOM CORRIDORS YELLOW	ARMSTRONG	EXCELON FEATURE TEXTURE	YELLOW II 56823	BASE BID, YELLOW
VCT 10	VINYL COMPOSITE TILE 12" X 12"	CLASSROOM CORRIDORS GREEN	ARMSTRONG	STANDARD EXCELON IMPERIAL TEXTURE	SEA GREEN 51824	BASE BID, GREEN
VCT 11	VINYL COMPOSITE TILE 12" X 12"	CLASSROOM CORRIDORS GREEN	ARMSTRONG	STANDARD EXCELON MULTICOLOR	ACROBAT GREEN 52522	BASE BID, GREEN
VCT 12	VINYL COMPOSITE TILE 12" X 12"	CLASSROOM CORRIDORS BLUE	ARMSTRONG	STANDARD EXCELON RAVE	BODACIOUS BLUE 57517	BASE BID, BLUE
VCT 13	VINYL COMPOSITE TILE 12" X 12"	CLASSROOM CORRIDORS BLUE	ARMSTRONG	EXCELON FEATURE TEXTURE	BLUE II 56812	BASE BID, BLUE
VSF 1	VINYL SHEET FLOORING	NURSE SUITE	MANNINGTON	BIOSPEC MO	NEW GLACIER 15364	HEAT WELDED SEAMS

WALL

FINISH KEY	MATERIAL	LOCATION	COMPANY	PATTERN #	COLOR	REMARKS
CT 1	CERAMIC WALL TILE 4 1/4" X 4 1/4"	KINDERGARTEN & 1ST GRADE BATHROOMS	DALTILE	Q075	LEMON ZEST	YELLOW
CT 2	CERAMIC WALL TILE 4 1/4" X 4 1/4"	KINDERGARTEN & 1ST GRADE BATHROOMS	DALTILE	Q091	MOON BEAM	YELLOW
CT 3	CERAMIC WALL TILE 4 1/4" X 4 1/4"	KINDERGARTEN & 1ST GRADE BATHROOMS	INTERCERAMIC		BOLD TONES TRUE YELLOW	YELLOW
CT 4	CERAMIC WALL TILE 4 1/4" X 4 1/4"	KINDERGARTEN & 1ST GRADE BATHROOMS	DALTILE	0139	CRISP LINEN	YELLOW
CT 5	CERAMIC WALL TILE 4 1/4" X 4 1/4"	2ND & 3RD GRADE WATER FOUNTAINS	INTERCERAMIC		BOLD TONES EVERGREEN	GREEN
CT 6	CERAMIC WALL TILE 4 1/4" X 4 1/4"	2ND & 3RD GRADE WATER FOUNTAINS	DALTILE	0152	MINT ICE	GREEN
CT 7	CERAMIC WALL TILE 4 1/4" X 4 1/4"	2ND & 3RD GRADE WATER FOUNTAINS	DALTILE	Q078	SHAMROCK GREEN	GREEN
CT 8	CERAMIC WALL TILE 4 1/4" X 4 1/4"	2ND & 3RD GRADE WATER FOUNTAINS	DALTILE	Q192	AEGEAN	GREEN
CT 9	CERAMIC WALL TILE 4 1/4" X 4 1/4"	4TH & 5TH GRADE WATER FOUNTAINS	AMERICAN OLEAN	0062	GLACIER	BLUE
CT 10	CERAMIC WALL TILE 4 1/4" X 4 1/4"	4TH & 5TH GRADE WATER FOUNTAINS	INTERCERAMIC		BOLD TONES PURE COBALT	BLUE
CT 11	CERAMIC WALL TILE 4 1/4" X 4 1/4"	4TH & 5TH GRADE WATER FOUNTAINS	AMERICAN OLEAN	0078	SAPPHIRE SKY	BLUE
CT 12	CERAMIC WALL TILE 4 1/4" X 4 1/4"	4TH & 5TH GRADE WATER FOUNTAINS	DALTILE	QF43	MARINE	BLUE
CT 13	CERAMIC WALL TILE 4 1/4" X 4 1/4"	CAFETERIA/GYM BATHROOMS	DALTILE	Q072	POMEGRANATE	RED
CT 14	CERAMIC WALL TILE 4 1/4" X 4 1/4"	CAFETERIA/GYM BATHROOMS	DALTILE	0DM1	VERMILLION	RED
CT 15	CERAMIC WALL TILE 4 1/4" X 4 1/4"	CAFETERIA/GYM BATHROOMS	DALTILE	Q073	ANTIQUE ROSE	RED
CT 16	CERAMIC WALL TILE 4 1/4" X 4 1/4"	CAFETERIA/GYM BATHROOMS	AMERICAN OLEAN	0090	WHITE	
EP 1	HIGH PERFORMANCE COATING					
EP 2	HIGH PERFORMANCE COATING					
PT 1	PAINT	GENERAL COORIDOR	ICI	A1941	SILVER QUILL	
PT 2	PAINT	WALL BEHIND LOCKERS	ICI	A1943	WEST COAST GREY	
PT 3	PAINT	GENERAL CLASSROOMS	ICI	A1940	SWISS WHITE	
PT 4	PAINT	YELLOW WING ACCENT	ICI			
PT 5	PAINT	BLUE WING ACCENT	ICI			
PT 6	PAINT	GREEN WING ACCENT	ICI			
PT 7	PAINT	RED WING ACCENT	ICI			
PT 8	PAINT	MAIN LOBBY AND PUBLIC CORRIDOR	ICI			

WALL BASE

FINISH KEY	MATERIAL	LOCATION	COMPANY	PATTERN #	COLOR	REMARKS
EPX 1	EPOXY BASE					
SCFT 1	STRUCTURAL CLAY FACING TILE	CORRIDORS				
RB 1	RUBBER BASE		JOHNSONITE			
RB 2	RUBBER BASE		JOHNSONITE			
RC 1	ROLLED COVE					

MILLWORK

FINISH KEY	MATERIAL	LOCATION	COMPANY	PATTERN #	COLOR	REMARKS
PL-1	PLASTIC LAMINATE	VERTICAL SURFACES, CLASSROOMS	WILSONART	7953-38	HARVEST MAPLE	
PL-2	PLASTIC LAMINATE	VERTICAL SURFACES, ADMIN/MEDIA	WILSONART	7953-38	HARVEST MAPLE	
PL-3	PLASTIC LAMINATE	COUNTER TOPS, CLASSROOMS, YELLOW WING	WILSONART			ALSO INSIDE OPEN CUBBIES
PL-4	PLASTIC LAMINATE	COUNTER TOPS, CLASSROOMS, GREEN WING	WILSONART			
PL-5	PLASTIC LAMINATE	COUNTER TOPS, CLASSROOMS, BLUE WING	WILSONART			
PL-6	PLASTIC LAMINATE	COUNTER TOPS, ADMIN	WILSONART			
RP-1	RESIN PANEL	ADMIN. RECEPTION DESK & MEDIA CENTER CIRCULATION DESK	3FORM	VARIA ECORESIN WITH HIGH RES. CUSTOM IMAGERY	VAPOR	ARTWORK PROVIDED BY OWNER
SS-1	SOLID SURFACE	WINDOW SILLS, TRANSACTION COUNTERS	MEGANITE	CUSTOM FOR RCCSD	P8003	

BECKER MORGAN GROUP

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THE WHITING-TURNER CONTRACTING COMPANY
CONSTRUCTION MANAGER
131 CONTINENTAL DRIVE
SUITE 404
NEWARK, DE 19713
(302) 292-0676 fax: (302) 292-0683

BRAD A HASTINGS No 5276 STATE OF DELAWARE REGISTERED ARCHITECT

THE PROFESSIONAL SERVICES OF THE ARCHITECT ARE UNDERTAKEN FOR AND ARE PERFORMED IN THE INTEREST OF:
1) RED CLAY CONSOLIDATED SCHOOL DISTRICT
NO CONTRACTUAL OBLIGATION IS ASSUMED BY THE ARCHITECT FOR THE BENEFIT OF ANY OTHER PERSON INVOLVED IN THE PROJECT.

PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

RED CLAY · CONSOLIDATED · SCHOOL · DISTRICT 1981

SHEET TITLE

COLOR SCHEDULE

ISSUE BLOCK

Mark	Date	Description
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO: 2012080.00
DATE: 07.01.2013
SCALE: 1/4" = 1'-0"
DRAWN BY: VAP PROJ MGR: SCC

B A602

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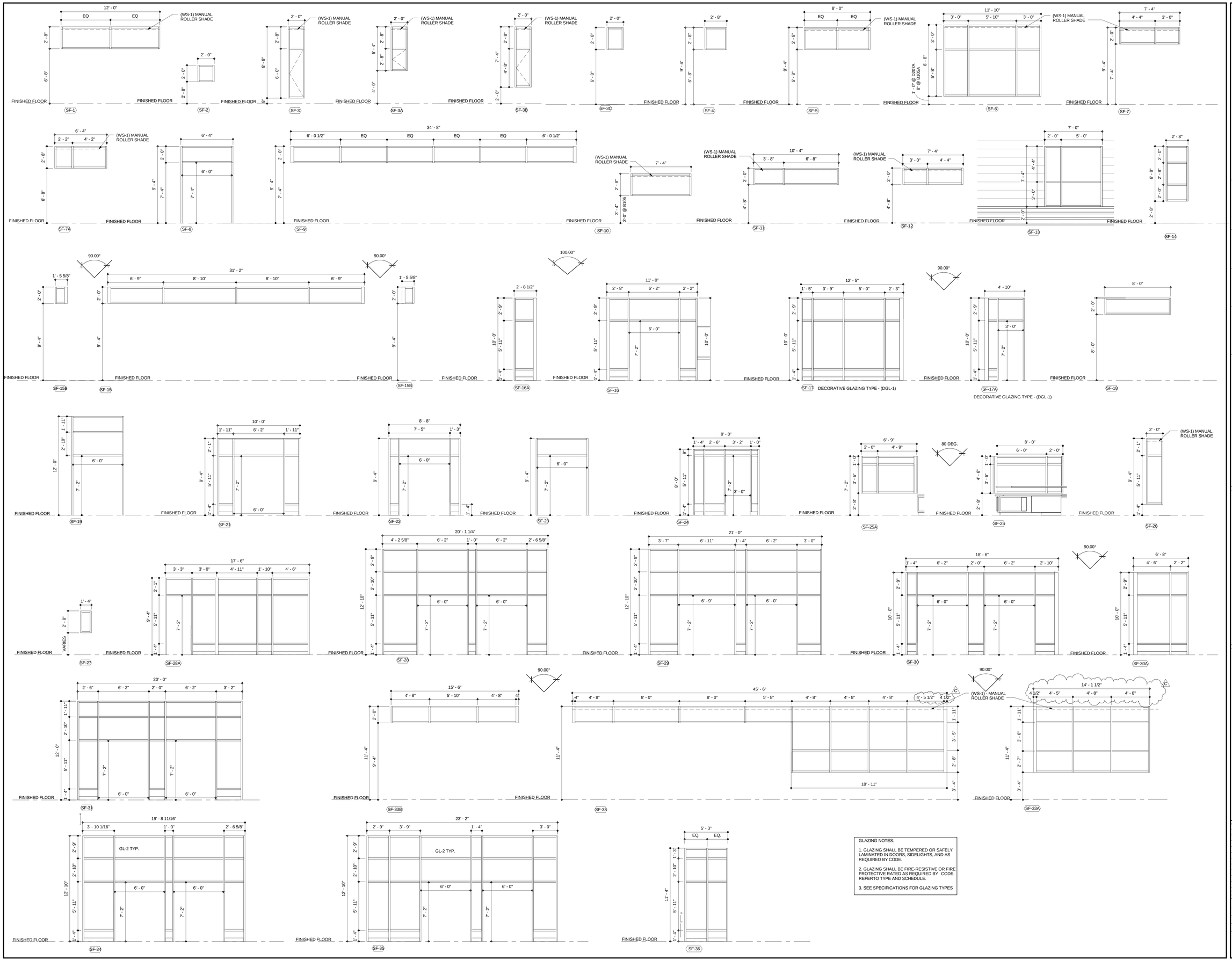

GLAZING NOTES:

1. GLAZING SHALL BE TEMPERED OR SAFELY LAMINATED IN DOORS, SIDELIGHTS, AND AS REQUIRED BY CODE.

2. GLAZING SHALL BE FIRE-RESISTIVE OR FIRE PROTECTIVE RATED AS REQUIRED BY CODE. REFERTO TYPE AND SCHEDULE.

3. SEE SPECIFICATIONS FOR GLAZING TYPES

BECKER MORGAN GROUP

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RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

STOREFRONT TYPES

4' 2' 0' 4'

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

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	1/4" = 1'-0"
DRAWN BY: SER	PROJ MGR: SCC

A604

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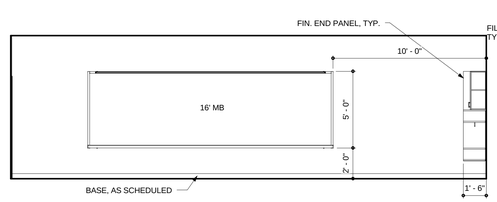
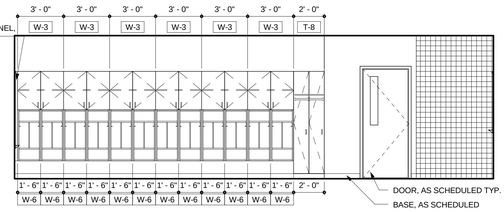
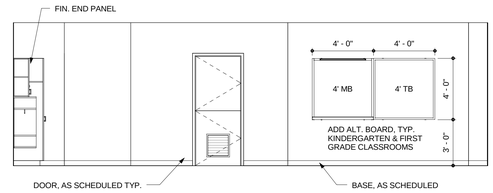


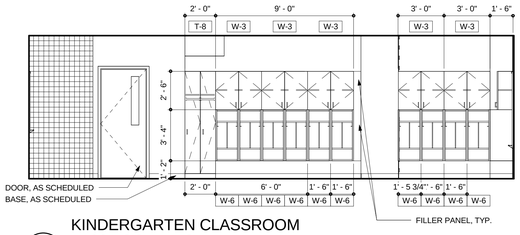
1 KINDERGARTEN CLASSROOM - TYPICAL TEACHING WALL
SCALE: 1/4" = 1'-0"



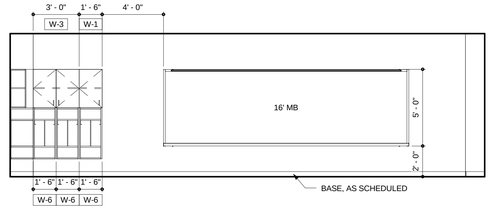
2 KINDERGARTEN CLASSROOM - TYPICAL CORRIDOR WALL
SCALE: 1/4" = 1'-0"



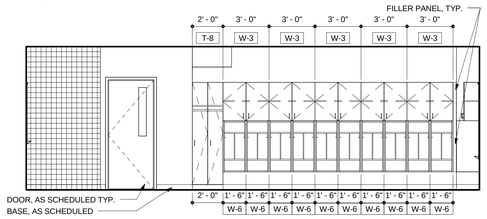
3 KINDERGARTEN & FIRST GRADE CLASSROOM - TYPICAL REAR WALL
SCALE: 1/4" = 1'-0"



4 KINDERGARTEN CLASSROOM B102 - CORRIDOR WALL
SCALE: 1/4" = 1'-0"



5 KINDERGARTEN CLASSROOM B102 - TEACHING WALL
SCALE: 1/4" = 1'-0"



6 KINDERGARTEN CLASSROOM B106 - CORRIDOR WALL
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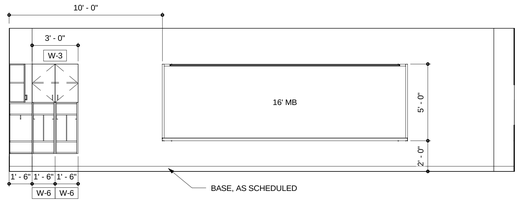
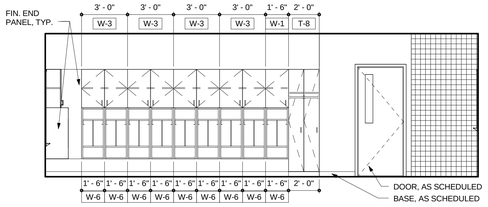
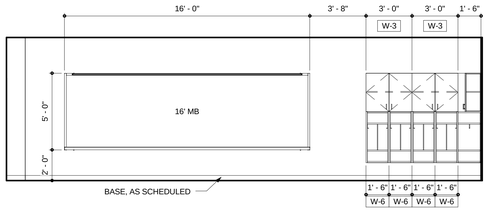


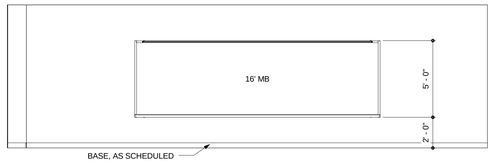
7 KINDERGARTEN CLASSROOM B106 - TEACHING WALL
SCALE: 1/4" = 1'-0"



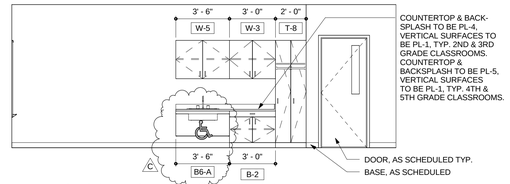
8 FIRST GRADE CLASSROOM - TYPICAL CORRIDOR WALL
SCALE: 1/4" = 1'-0"



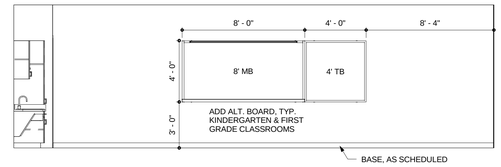
9 FIRST GRADE CLASSROOM - TYPICAL TEACHING WALL
SCALE: 1/4" = 1'-0"



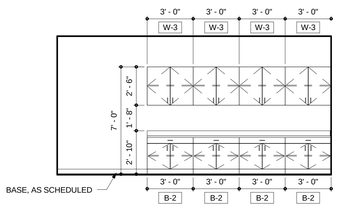
10 SECOND GRADE CLASSROOM - TYPICAL TEACHING WALL
SCALE: 1/4" = 1'-0"



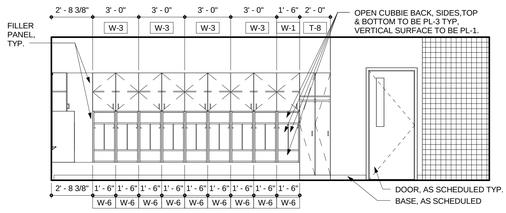
11 SECOND GRADE CLASSROOM - TYPICAL CORRIDOR WALL
SCALE: 1/4" = 1'-0"



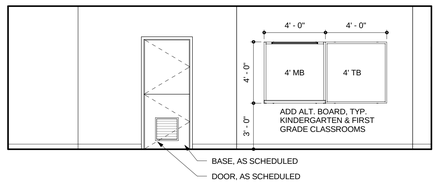
12 SECOND GRADE CLASSROOM - TYPICAL REAR WALL
SCALE: 1/4" = 1'-0"



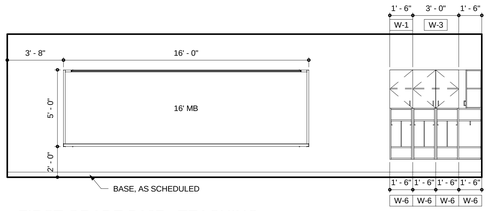
13 TYPICAL TEACHER PLANNING WORKROOM
SCALE: 1/4" = 1'-0"



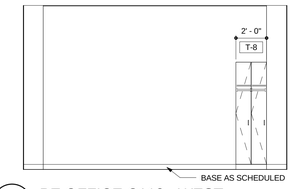
14 FIRST GRADE B107 - LOCKER STORAGE ROOM
SCALE: 1/4" = 1'-0"



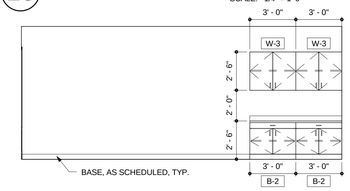
15 FIRST GRADE B107 - SOUTH
SCALE: 1/4" = 1'-0"



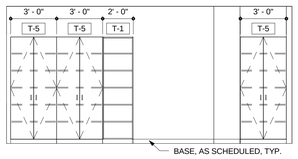
16 FIRST GRADE B107 - TEACHING WALL
SCALE: 1/4" = 1'-0"



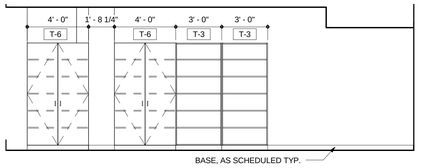
17 PE OFFICE C118 - WEST
SCALE: 1/4" = 1'-0"



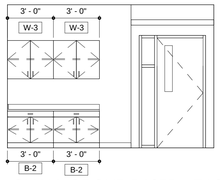
18 RECORD STORAGE A111 - WEST
SCALE: 1/4" = 1'-0"



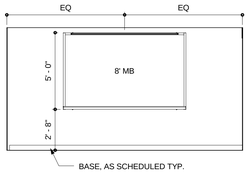
19 OFFICE/WORKROOM A118 - SOUTH
SCALE: 1/4" = 1'-0"



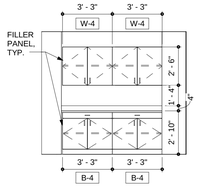
20 RESOURCE ROOM B105A - NORTH
SCALE: 1/4" = 1'-0"



21 SMALL GROUP B105D - EAST
SCALE: 1/4" = 1'-0"



22 CONFERENCE C104 - EAST
SCALE: 1/4" = 1'-0"



23 CONFERENCE C104 - WEST
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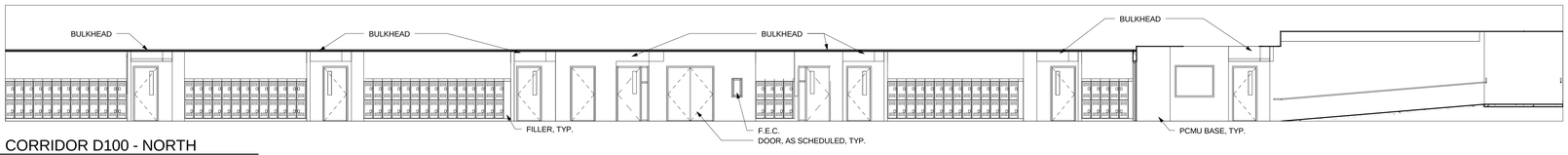
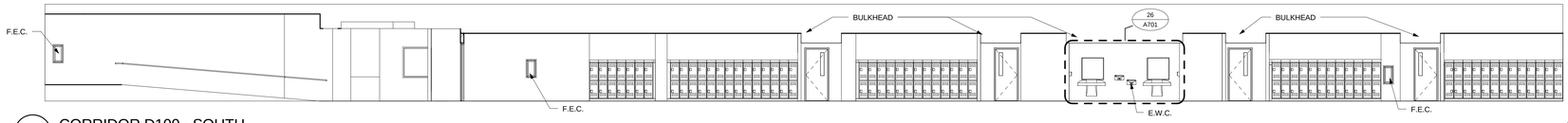
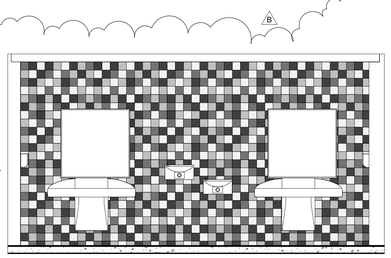


24 CORRIDOR D100 - NORTH
SCALE: 1/8" = 1'-0"



25 CORRIDOR D100 - SOUTH
SCALE: 1/8" = 1'-0"

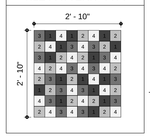


26 TILE PATTERN - CORRIDOR D100 - SOUTH
SCALE: 3/8" = 1'-0"

WALL TILE LEGEND

1	DARK: CT-1, CT-5, CT-10, CT-13
3	MEDIUM DARK: CT-3, CT-7, CT-11, CT-14
2	MEDIUM LIGHT CT-2, CT-8, CT-12, CT-15
4	LIGHT: CT-4, CT-6, CT-9, CT-16

TILE PATTERN, TYP.



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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

INTERIOR ELEVATIONS - K AND 1ST GRADE CLASSROOMS

SCALE : 1/8" = 1'-0"

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

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: ALS	PROJ MGR: SCC

A701

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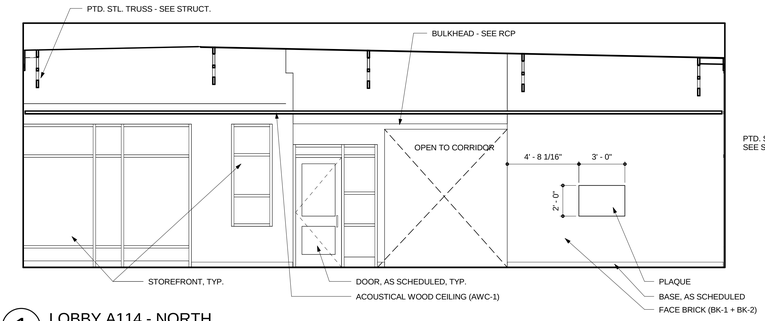
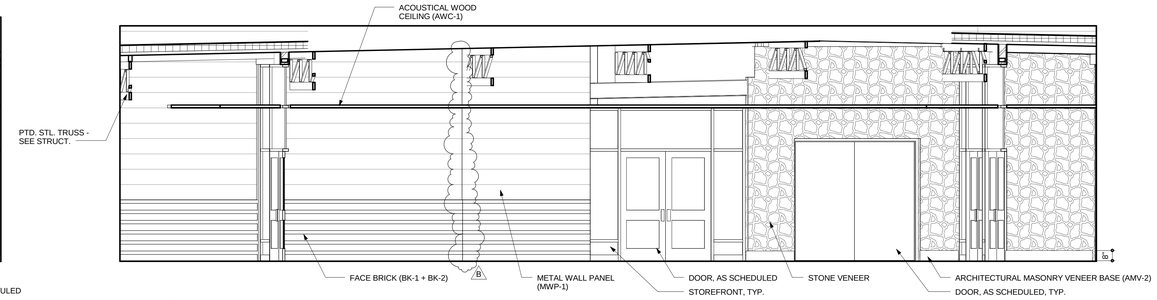
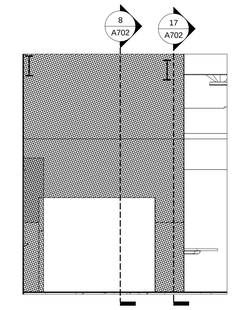


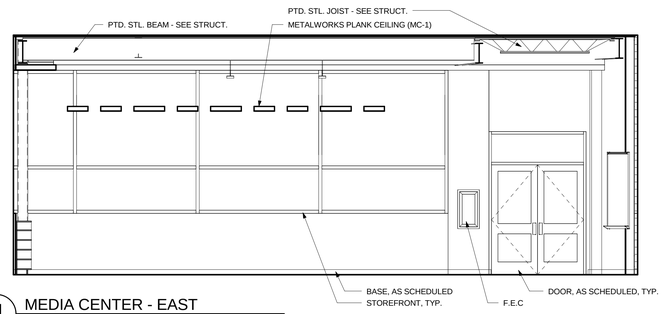
1 LOBBY A114 - NORTH
SCALE: 1/4" = 1'-0"



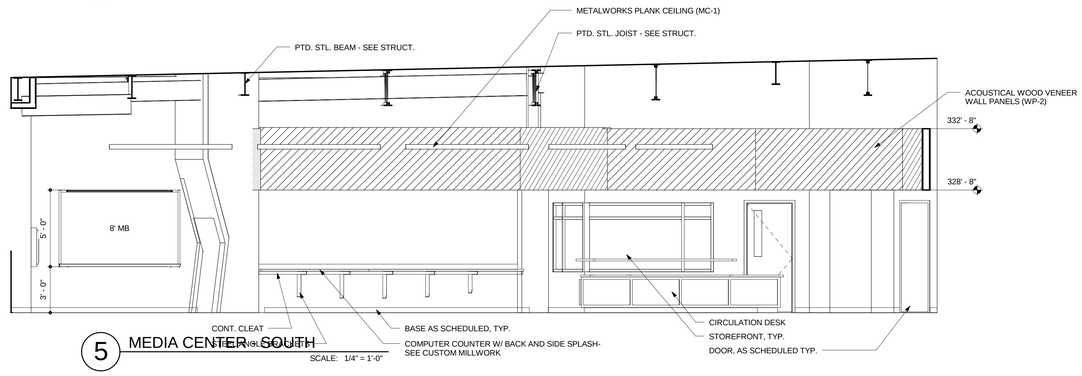
2 LOBBY A114 - SOUTH
SCALE: 1/4" = 1'-0"



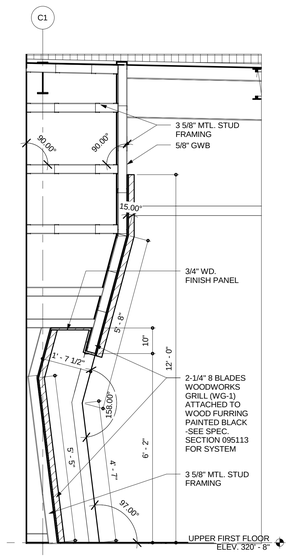
3 MEDIA CENTER - READING NOOK
SCALE: 1/4" = 1'-0"



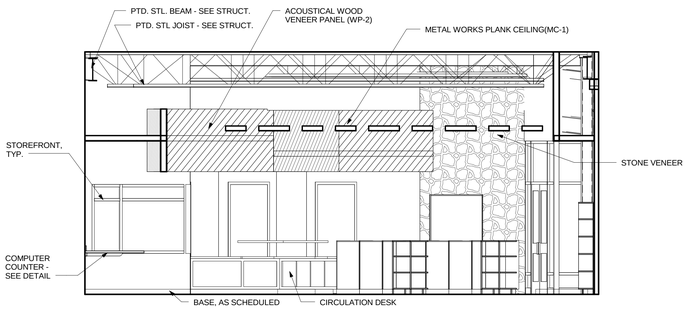
4 MEDIA CENTER - EAST
SCALE: 1/4" = 1'-0"



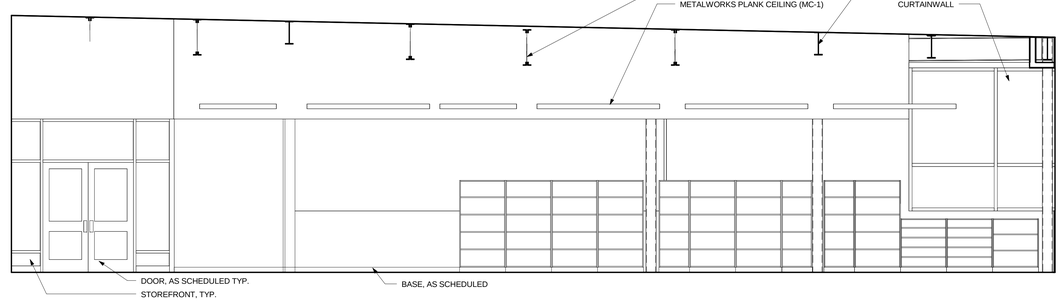
5 MEDIA CENTER - SOUTH
SCALE: 1/4" = 1'-0"



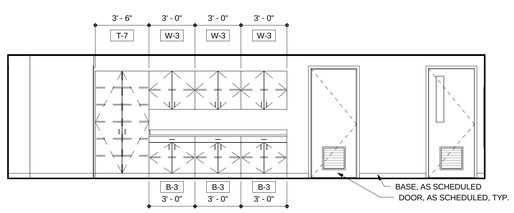
8 MEDIA CENTER READING NOOK SECTION B
SCALE: 1/2" = 1'-0"



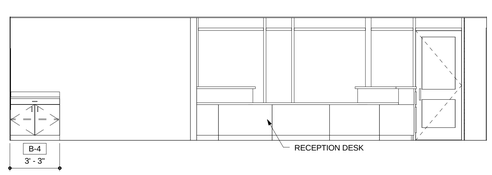
6 MEDIA CENTER - WEST
SCALE: 1/4" = 1'-0"



7 MEDIA CENTER - NORTH
SCALE: 1/4" = 1'-0"



9 RECEPTION A101 - NORTH
SCALE: 1/4" = 1'-0"



10 RECEPTION A102 - SOUTH
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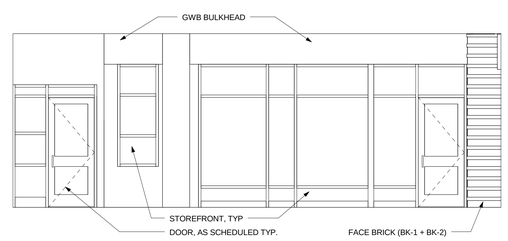
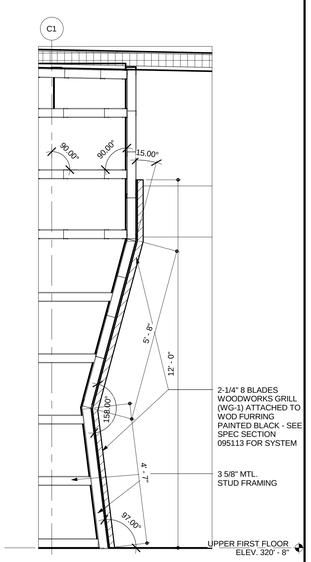
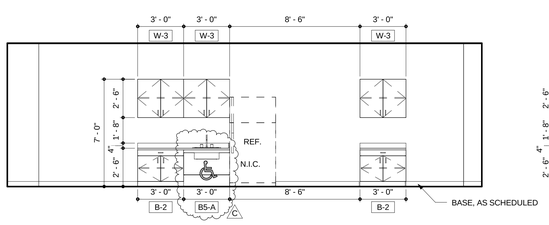


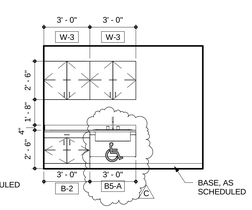
11 WAITING - SOUTH
SCALE: 1/4" = 1'-0"



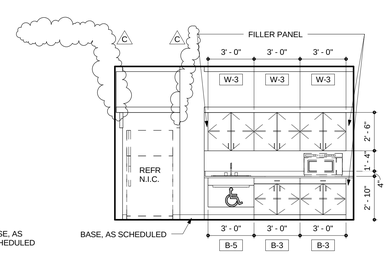
17 MEDIA CENTER READING NOOK SECTION A
SCALE: 1/2" = 1'-0"



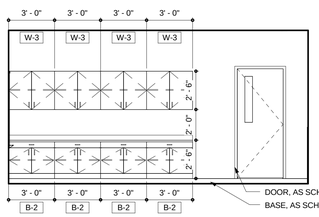
12 HEALTH A113 - NORTH
SCALE: 1/4" = 1'-0"



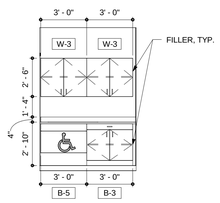
13 EXAM A113C - SOUTHWEST
SCALE: 1/4" = 1'-0"



14 TEACH. LOUNGE C112 - NORTH
SCALE: 1/4" = 1'-0"



15 CONFERENCE A109 - EAST
SCALE: 1/4" = 1'-0"



16 OFF/WKRM A118 NORTHWEST
SCALE: 1/4" = 1'-0"

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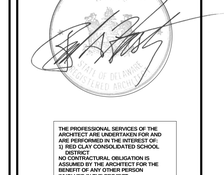

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1) RED CLAY CONSOLIDATED SCHOOL DISTRICT
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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

INTERIOR ELEVATIONS - ADMIN, HEALTH SUITE, AND MEDIA CENTER

8' 4' 0' 8'
SCALE : 1/8" = 1'-0"
4' 2' 0' 4'
SCALE : 1/4" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03
B	07.23.2013	ADDENDUM-02

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: ALS	PROJ MGR: SCC

A702

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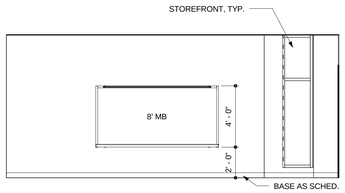
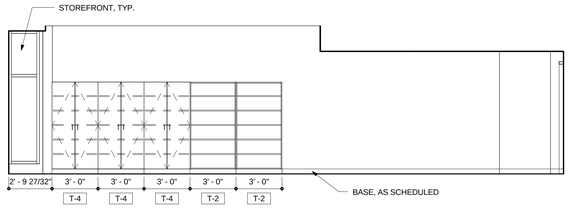
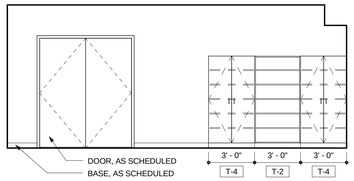


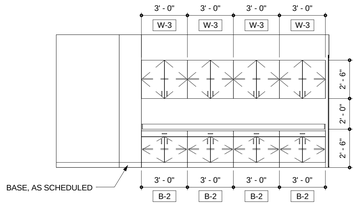
1 COMPUTER ROOM - WEST COPY
SCALE: 1/4" = 1'-0"



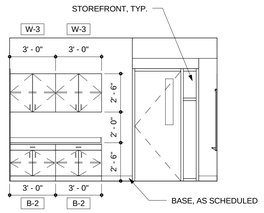
2 RESOURCE D207 - EAST
SCALE: 1/4" = 1'-0"



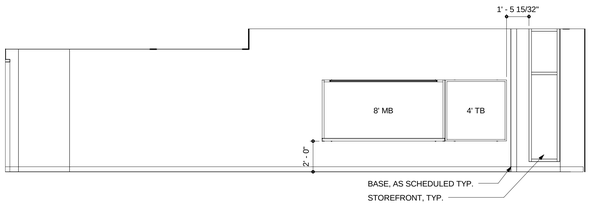
3 RESOURCE D205 - WEST
SCALE: 1/4" = 1'-0"



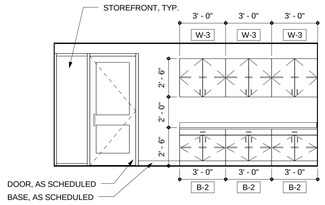
4 TEACHER PLANNING D107A - NORTH
SCALE: 1/4" = 1'-0"



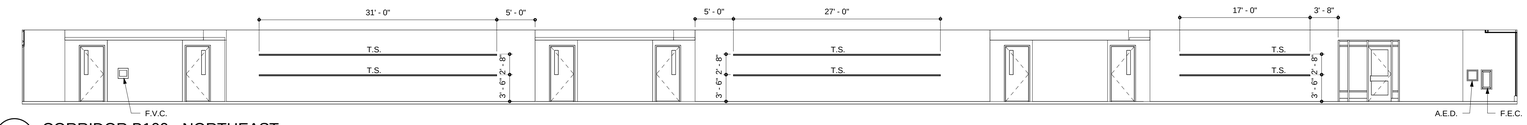
5 SMALL GROUP D207C - SOUTH
SCALE: 1/4" = 1'-0"



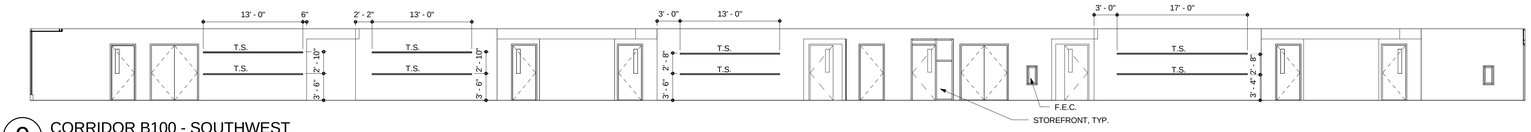
6 SMALL GROUP ROOM D207C - WEST
SCALE: 1/4" = 1'-0"



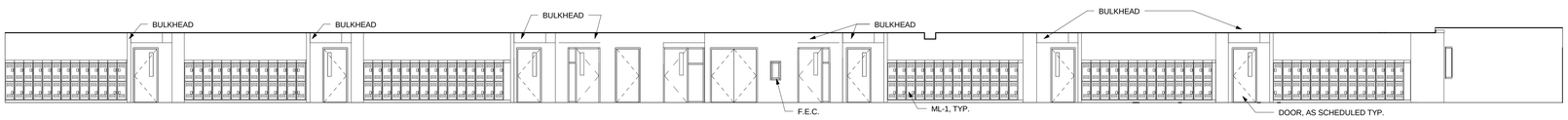
7 SPECIALIZED SUPPORT C106 - NORTH
SCALE: 1/4" = 1'-0"



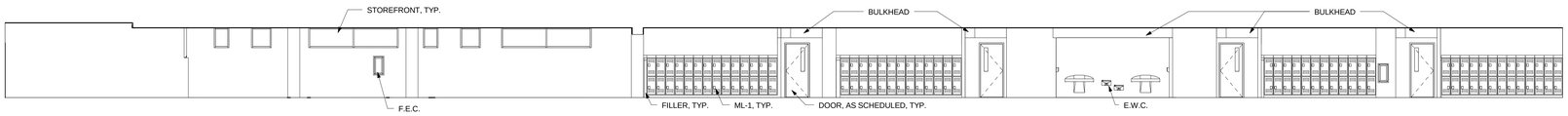
8 CORRIDOR B100 - NORTHEAST
SCALE: 1/8" = 1'-0"



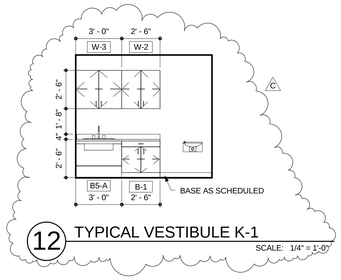
9 CORRIDOR B100 - SOUTHWEST
SCALE: 1/8" = 1'-0"



10 CORRIDOR D200 - NORTH
SCALE: 1/8" = 1'-0"



11 CORRIDOR D200 - SOUTH
SCALE: 1/8" = 1'-0"



12 TYPICAL VESTIBULE K-1
SCALE: 1/4" = 1'-0"

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE, JR. ELEMENTARY SCHOOL

2025 GRAVES ROAD,
HOCKESSIN, DE 19707

SHEET TITLE

INTERIOR ELEVATIONS - CPU, RESOURCE, TEACHER PLANNING, & SMALL GROUP

8' 4' 0' 8'
SCALE : 1/8" = 1'-0"
4' 2' 0' 4'
SCALE : 1/4" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
C	07.31.2013	ADDENDUM-03

Revision Schedule

PROJECT NO:	2012080.00
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: ALS	PROJ MGR: SCC

A705

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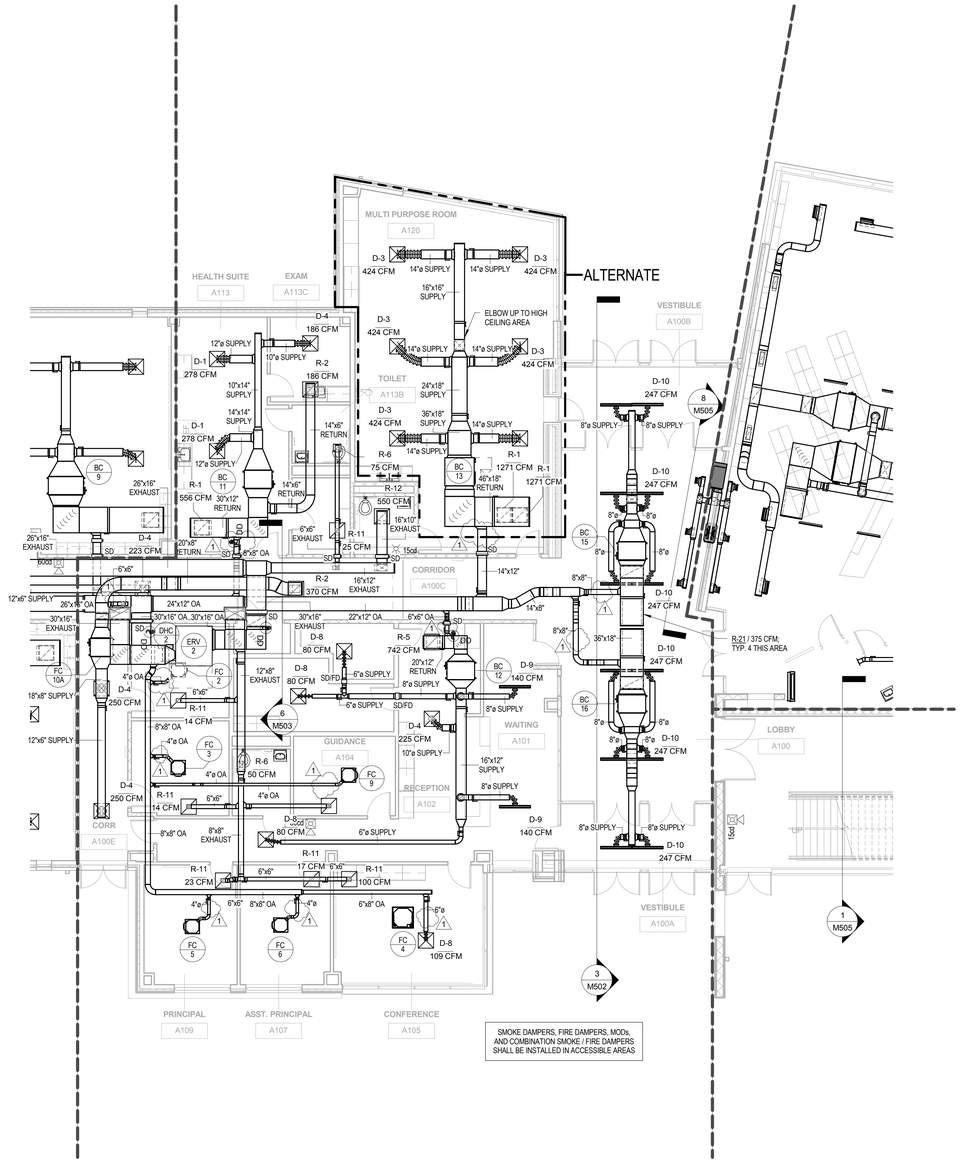

1 M101A MECHANICAL FIRST FLOOR PLAN - AREA A

1/8" = 1'-0"

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

MECHANCIAL FIRST FLOOR PLAN - AREA A

8' 4' 0' 8'

SCALE : 1/8" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
1	7/16/2013	ADDENDUM #1

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY: JRB	PROJ MGR: BMZ

M101A

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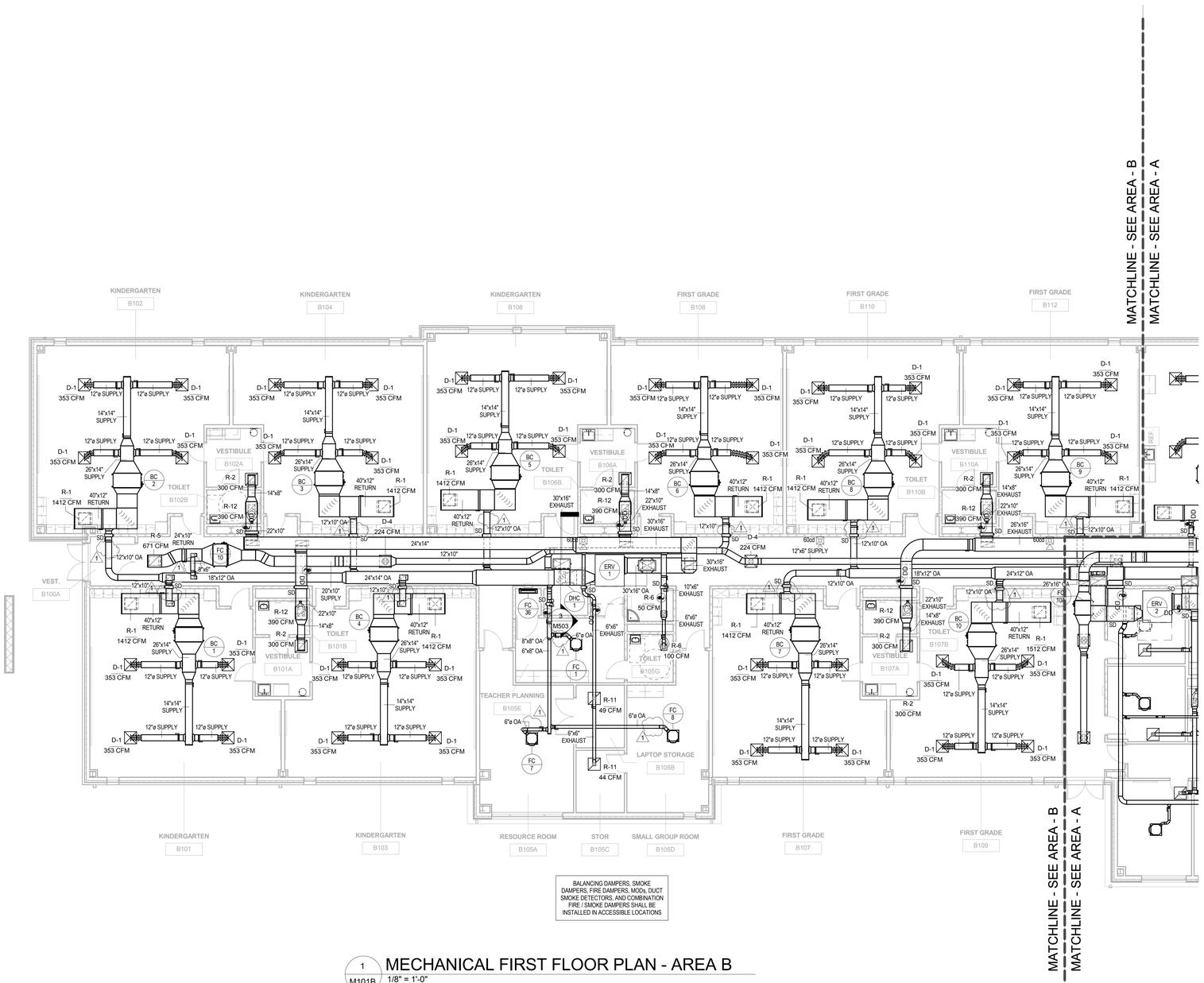

BALANCING DAMPERS, SMOKE DAMPERS, FIRE DAMPERS, MODs, DUCT SMOKE DETECTORS, AND COMBINATION FIRE / SMOKE DAMPERS SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS

1 / M101B MECHANICAL FIRST FLOOR PLAN - AREA B

1/8" = 1'-0"

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

SHEET TITLE

MECHANCIAL FIRST FLOOR PLAN - AREA B

SCALE : 1/8" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
1	7/16/2013	ADDENDUM #1

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
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M101B

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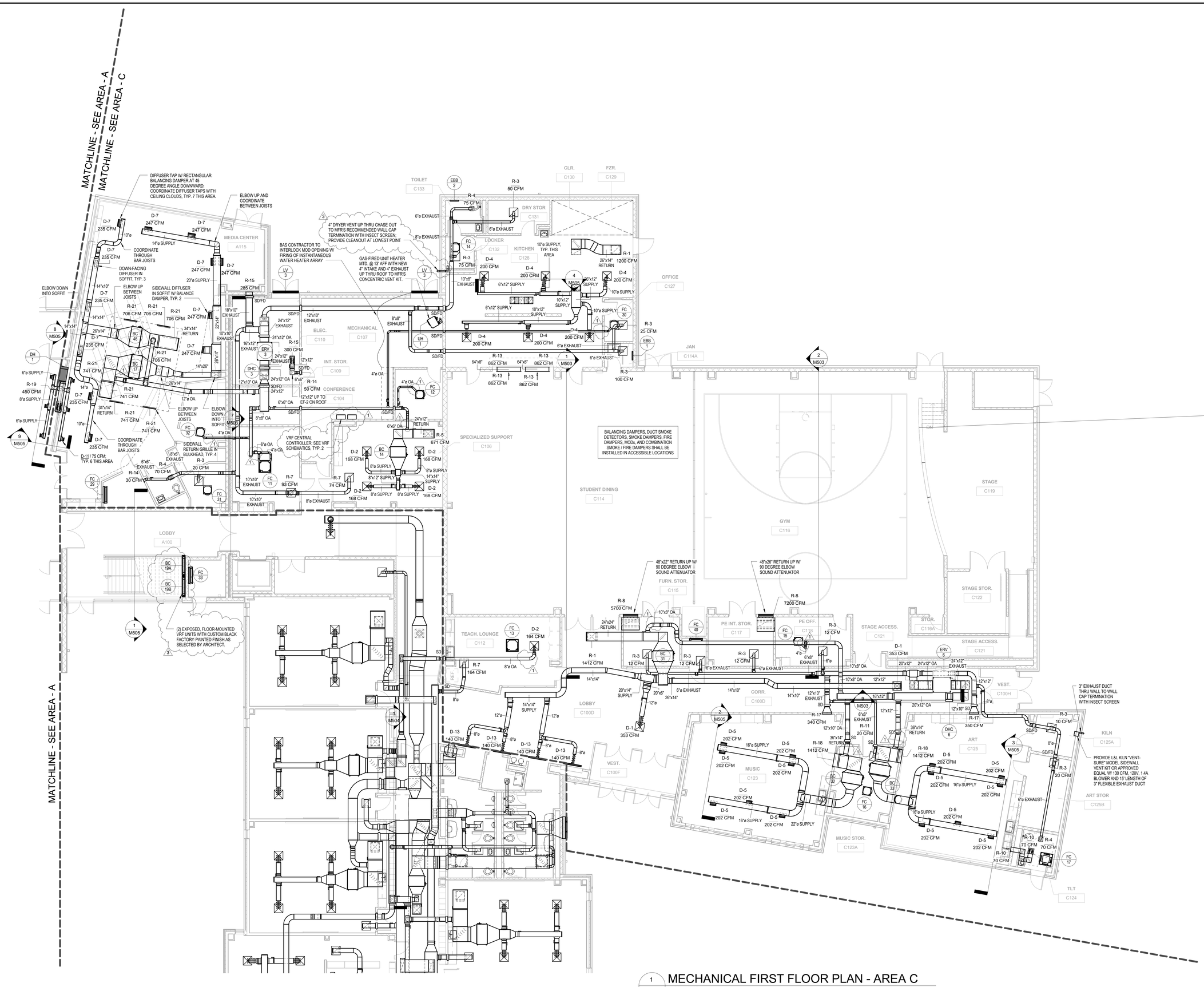

1 M101C MECHANICAL FIRST FLOOR PLAN - AREA C
1/8" = 1'-0"

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

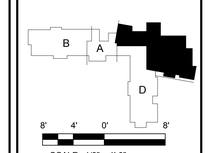
WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

MECHANICAL FIRST FLOOR PLAN - AREA C



SCALE : 1/8" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
3	7/30/2013	ADDENDUM #3
1	7/16/2013	ADDENDUM #1

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
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M101C

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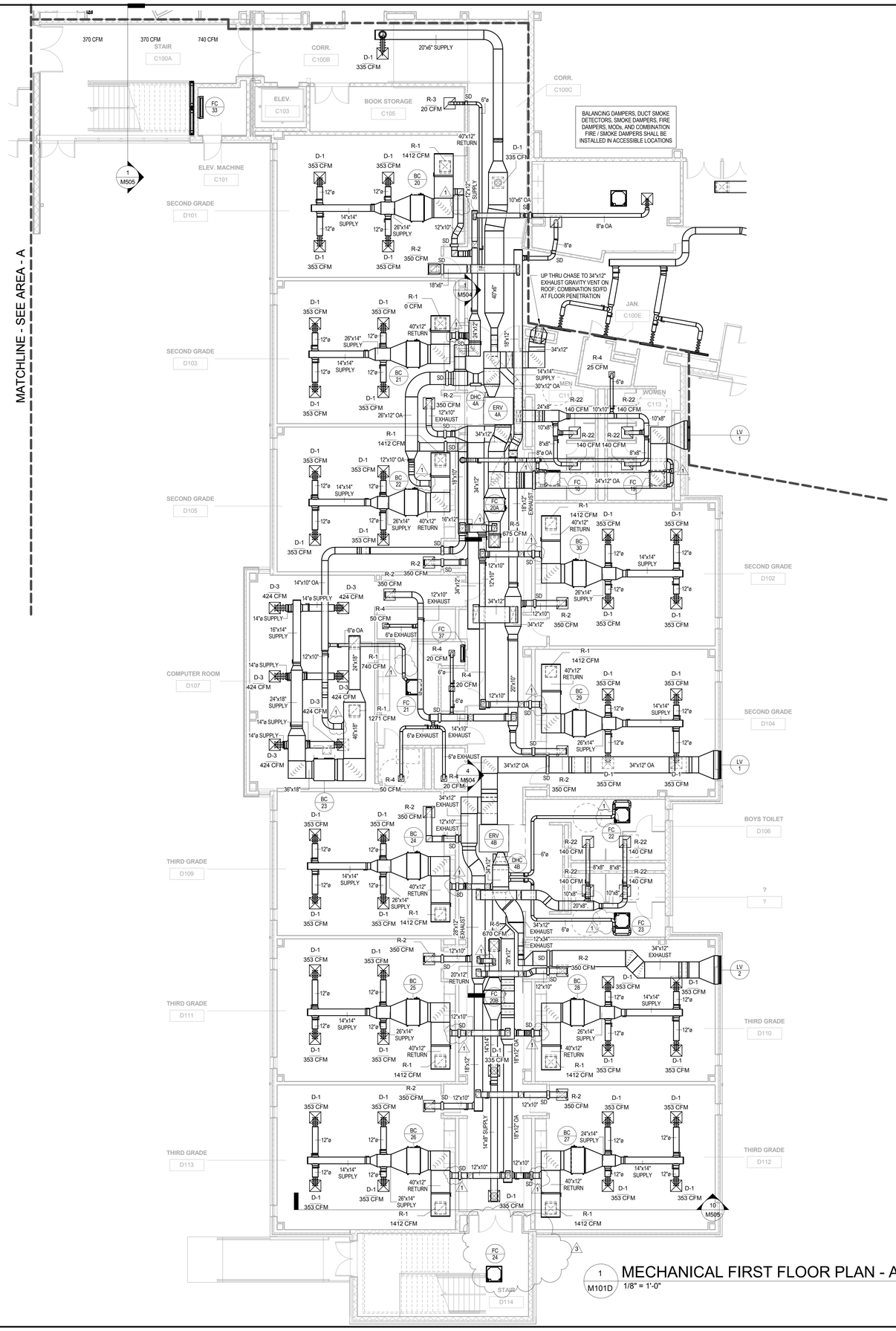

1 M101D MECHANICAL FIRST FLOOR PLAN - AREA D
1/8" = 1'-0"

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THE WHITING-TURNER CONTRACTING COMPANY
CONSTRUCTION MANAGER
131 CONTINENTAL DRIVE
SUITE 404
NEWARK, DE 19713
(302) 292-0676 fax: (302) 292-0683

THE PROFESSIONAL SERVICES OF THE ARCHITECT ARE UNDERTAKEN FOR AND ARE PERFORMED IN THE INTEREST OF:
1) Red Clay Consolidated School District

NO CONTRACTURAL OBLIGATION IS ASSUMED BY THE ARCHITECT FOR THE BENEFIT OF ANY OTHER PERSON INVOLVED IN THE PROJECT.

PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

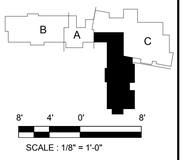
WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1961

SHEET TITLE

MECHANCIAL FIRST FLOOR PLAN - AREA D



SCALE : 1/8" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
3	7/30/2013	ADDENDUM #3
1	7/16/2013	ADDENDUM #1

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY: JRB	PROJ MGR: BMZ

M101D

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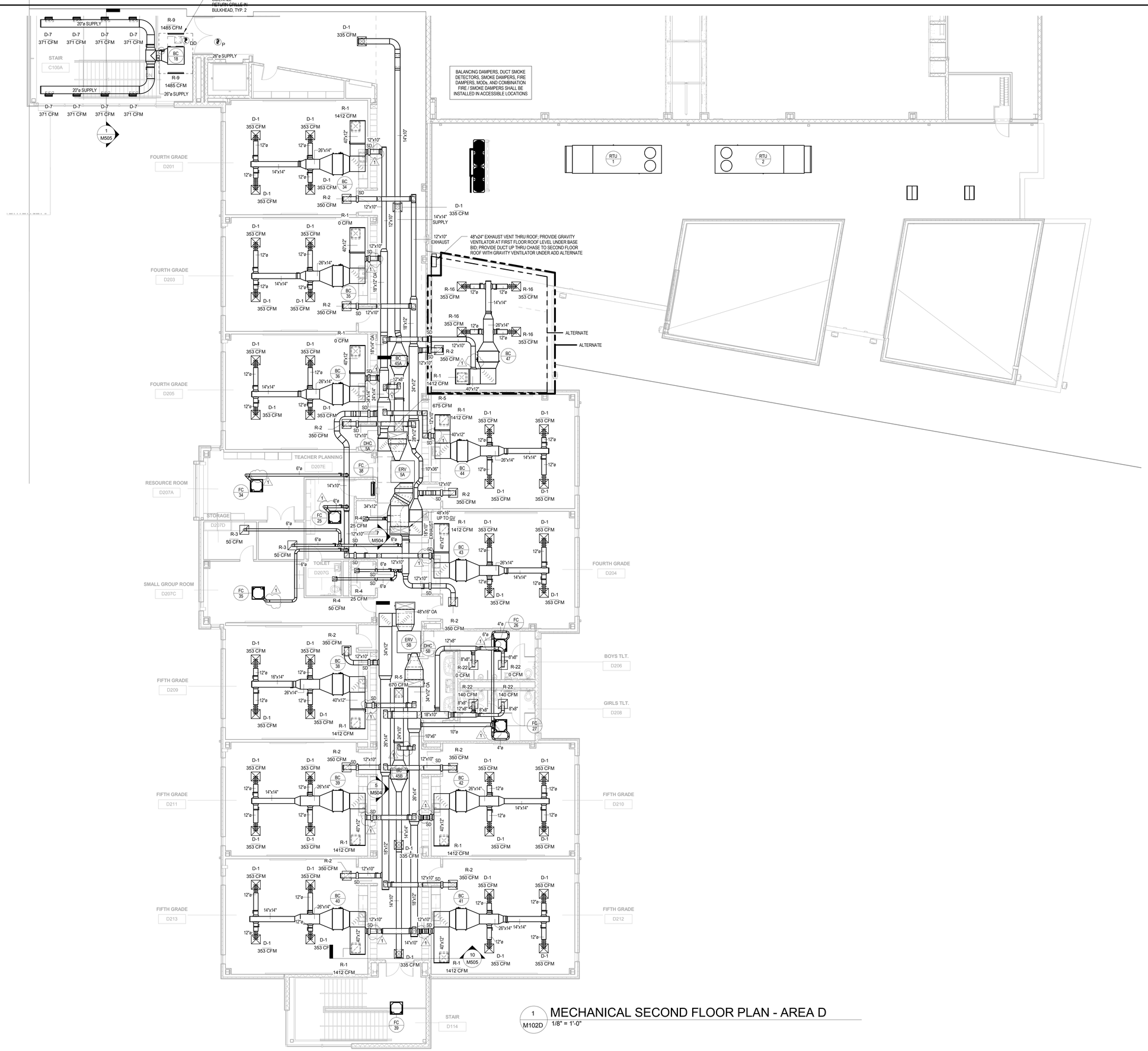

1 M102D MECHANICAL SECOND FLOOR PLAN - AREA D
1/8" = 1'-0"

BECKER MORGAN GROUP

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

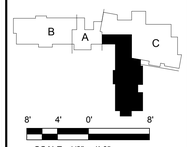
WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

MECHANICAL SECOND FLOOR PLAN - AREA C



SCALE : 1/8" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
1	7/16/2013	ADDENDUM #1

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY: DLS	PROJ MGR: BMZ

M102D

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Variable Refrigerant Flow Fan Coil Schedule

Comments	Mark	Supply Airflow (CFM)	OA Airflow (CFM)	Cooling E.D.B (F)	Cooling E.W.B. (F)	Cooling L.D.B. (F)	Cooling L.W.B. (F)	Cooling Capacity	Heating E.D.B. (F)	Heating L.D.B. (F)	Heating Capacity	External Static	Electrical	MOCP	Manufacturer	Model	Remarks
FC	1	320 - 350 - 390	52	76.5	65.5	55	54	15 MBh	69.3	95	17 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P15NCMU-E	Provide integral condensate removal pump
FC	2	280 - 320 - 350	14	76.2	65.2	55	54	8 MBh	69.8	95	9 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P08NCMU-E	Provide integral condensate removal pump
FC	3	280 - 320 - 350	14	76.2	65.2	55	54	8 MBh	69.8	95	9 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P08NCMU-E	Provide integral condensate removal pump
FC	4	424 - 459 - 494 - 565	0	76.0	65.0	55	54	15 MBh	70.0	95	17 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P24NBMU-E	Provide integral condensate removal pump
FC	5	320 - 350 - 390	23	73.2	65.2	55	54	15 MBh	69.7	95	17 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P15NCMU-E	Provide integral condensate removal pump
FC	6	320 - 350 - 390	17	76.2	65.2	55	54	15 MBh	69.8	95	17 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P15NCMU-E	Provide integral condensate removal pump
FC	7	320 - 350 - 390	49	76.5	65.5	55	54	15 MBh	69.4	95	17 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P15NCMU-E	Provide integral condensate removal pump
FC	8	320 - 350 - 390	44	76.5	65.5	55	54	15 MBh	69.4	95	17 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P15NCMU-E	Provide integral condensate removal pump
FC	9	280 - 320 - 350	14	76.2	65.2	55	54	8 MBh	69.8	95	9 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P08NCMU-E	Provide integral condensate removal pump
FC	10	477 - 565 - 671	150	76.9	65.9	55	54	24 MBh	68.9	95	27 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P24NMAU-E	Provide integral condensate removal pump
FC	10A	353 - 424 - 494	50	76.4	65.4	55	54	15 MBh	69.5	95	17 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P15NMAU-E	Provide integral condensate removal pump
FC	11	494 - 530 - 565 - 636	93	76.6	65.6	55	54	18 MBh	69.3	95	20 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P18NBMU-E	Provide integral condensate removal pump
FC	12	320 - 350 - 390	15	76.2	65.2	55	54	12 MBh	69.8	95	12 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P12NCMU-E	Provide integral condensate removal pump
FC	13	777 - 883 - 984 - 1059	0	76.0	65.0	55	54	30 MBh	70.0	95	34 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P36NBMU-E	Provide integral condensate removal pump
FC	14	320 - 350 - 390	0	76.0	65.0	55	54	15 MBh	70.0	95	17 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P15NCMU-E	Provide integral condensate removal pump
FC	15	320 - 350 - 390	12	76.1	65.1	55	54	12 MBh	69.8	95	13.5 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P12NCMU-E	Provide integral condensate removal pump
FC	16	320 - 350 - 390	0	76.0	65.0	55	54	15 MBh	70.0	95	17 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P15NCMU-E	Provide integral condensate removal pump
FC	17	494 - 530 - 565 - 636	0	76.0	65.0	55	54	18 MBh	70.0	95	20 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P18NBMU-E	Provide integral condensate removal pump
FC	18	494 - 530 - 565 - 636	100	76.6	65.6	55	54	18 MBh	69.2	95	20 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P18NBMU-E	Provide integral condensate removal pump
FC	19	530 - 565 - 636 - 706	100	76.6	65.6	55	54	24 MBh	69.3	95	27 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P24NBMU-E	Provide integral condensate removal pump
FC	20A	477 - 565 - 671	100	76.6	65.6	55	54	24 MBh	69.3	95	27 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P24NMAU-E	Provide integral condensate removal pump
FC	20B	477 - 565 - 671	100	76.6	65.6	55	54	24 MBh	69.3	95	27 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P24NMAU-E	Provide integral condensate removal pump
FC	21	565 - 636 - 706 - 777	52	76.3	65.3	55	54	30 MBh	69.7	95	34 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P30NBMU-E	Provide integral condensate removal pump
FC	22	494 - 530 - 565 - 636	100	76.6	65.6	55	54	18 MBh	69.2	95	20 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P18NBMU-E	Provide integral condensate removal pump
3 FC	23	494 - 530 - 565 - 636	100	76.6	65.6	55	54	18 MBh	69.2	95	20 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P18NBMU-E	Provide integral condensate removal pump
FC	24	494 - 530 - 565 - 636	0	76.0	65.0	55	54	18 MBh	70.0	95	20 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P18NBMU-E	Provide integral condensate removal pump
FC	25	494 - 530 - 565 - 636	52	76.3	65.3	55	54	18 MBh	69.6	95	20 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P18NBMU-E	Provide integral condensate removal pump
FC	26	530 - 565 - 636 - 706	100	76.6	65.6	55	54	24 Mbh	69.3	95	27 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P24NBMU-E	Provide integral condensate removal pump
FC	27	530 - 565 - 636 - 706	100	76.6	65.6	55	54	24 MBh	69.3	95	27 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P24NBMU-E	Provide integral condensate removal pump
FC	29	570 - 710	0	76.0	65.0	55	54	24 MBh	70.0	95	27 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	A24HA (L)	To be directly connected to CU-11, independent of variable refrigerant flow system with heat recovery
FC	30	320 - 350 - 390	15	76.2	65.2	55	54	15 MBh	69.8	95	17 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P15NCMU-E	Provide integral condensate removal pump
FC	31	320 - 350 - 390	0	76.0	65.0	55	54	12 MBh	70.0	95	13.5 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P12NCMU-E	Provide integral condensate removal pump
FC	32	320 - 350 - 390	19	76.2	65.2	55	54	12 MBh	69.8	95	13.5 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P12NCMU-E	Provide integral condensate removal pump
FC	33	710 - 950	0	76.0	65.0	55	54	30 MBh	70.0	95	34 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PKFY-P30NKMU-E	Provide condensate removal pump Aspen Pumps model "Mini Blanc - Deluxe" or approved equal
FC	34	530 - 565 - 636 - 706	49	76.3	65.3	55	54	24 MBh	69.7	95	37 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P24NBMU-E	Provide integral condensate removal pump
FC	35	530 - 565 - 636 - 706	44	76.2	65.2	55	54	24 MBh	69.7	95	27 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P24NBMU-E	Provide integral condensate removal pump
FC	36	320 - 355 - 390	0	76.0	65.0	55	54	12 MBh	70.0	95	13.5 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PKFY-P12NHMU-E	Provide condensate removal pump Aspen Pumps model "Mini Blanc - Deluxe" or approved equal
FC	37	320 - 355 - 390	0	76.0	65.0	55	54	12 MBh	70.0	95	13.5 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PKFY-P12NHMU-E	Provide condensate removal pump Aspen Pumps model "Mini Blanc - Deluxe" or approved equal
FC	38	320 - 355 - 390	0	76.0	65.0	55	54	12 MBh	70.0	95	13.5 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PKFY-P12NHMU-E	Provide condensate removal pump Aspen Pumps model "Mini Blanc - Deluxe" or approved equal
FC	39	494 - 530 - 565 - 636	30	76.2	65.2	55	54	18 MBh	69.8	95	20 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PLFY-P18NBMU-E	Provide integral condensate removal pump
FC	40	320 - 355 - 390	0	76.0	65.0	55	54	12 MBh	70.0	95	13.5 MBh	0 in-wg	208/1/60	15A	Mitsubishi Electric	PKFY-P12NHMU-E	Provide condensate removal pump Aspen Pumps model "Mini Blanc - Deluxe" or approved equal

NOTES: PROVIDE UNITS AS SCHEDULED OR APPROVED EQUAL. ALL UNITS SHALL HAVE EC MOTORS WITH FAN SPEED CONTROLLER. ALL UNITS EXCEPT WALL-MOUNTED TYPES SHALL BE EQUIPPED WITH INTEGRAL CONDENSATE PUMPS WHICH RECEIVE POWER FROM INDOOR UNIT. WALL-MOUNTED UNITS SHALL BE PROVIDED WITH CONDENSATE PUMP "ASPEN PUMPS" MODEL "MINI BLANC-DELUXE" OR APPROVED EQUAL. CONCEAL EXPOSED REFRIGERANT LINES AND CONDENSATE LINES IN BRAKE METAL ENCLOSURES WITH PAINTED FINISH TO BE SELECTED BY ARCHITECT AND FASTENED TO WALL. SEE DRAWINGS FOR UNTIS WHICH ARE TO BE PROVIDED WITH OPTIONAL ADDITIONAL OUTSIDE AIR INTAKES.

Variable Refrigerant Flow Blower Coil Schedule

Comments	Mark	Supply Airflow (CFM)	OA Airflow (CFM)	Cooling E.D.B (F)	Cooling E.W.B. (F)	Cooling L.D.B. (F)	Cooling L.W.B. (F)	Cooling Capacity	Heating E.D.B. (F)	Heating L.D.B. (F)	Heating Capacity	External Static	Electrical	MOCP	Manufacturer	Model	Remarks
BC	1	989 - 1201 - 1412	345	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	2	989 - 1201 - 1412	353	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	3	989 - 1201 - 1412	345	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	4	989 - 1201 - 1412	345	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	5	989 - 1201 - 1412	345	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	6	989 - 1201 - 1412	338	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	7	989 - 1201 - 1412	338	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	8	989 - 1201 - 1412	338	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	9	989 - 1201 - 1412	338	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	10	989 - 1201 - 1412	338	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	11	512 - 636 - 742	75	76.4	65.4	55	54	30 MBh	69.5	95	34 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P30NMAU-E	Provide integral condensate removal pump
BC	12	512 - 636 - 742	87	76.5	65.5	55	54	30 MBh	69.4	95	34 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P30NMAU-E	Provide integral condensate removal pump
BC	13	2542	548	76.9	65.9	55	54	72 MBh	68.9	95	80 MBh	0.20 - 1.00 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P72NMHU-E	Provide integral condensate removal pump
BC	14	477 - 565 - 671	74	76.4	65.4	55	54	24 MBh	69.4	95	27 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P24NMAU-E	Provide integral condensate removal pump
BC	15	512 - 636 - 742	200	77.1	66.1	55	54	27 MBh	68.7	95	30 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P27NMAU-E	Provide integral condensate removal pump
BC	16	512 - 636 - 742	200	77.1	66.1	55	54	27 MBh	68.7	95	30 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P27NMAU-E	Provide integral condensate removal pump
BC	17	1042 - 1254 - 1483	200	76.5	65.5	55	54	54 MBh	69.3	95	60 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P54NMAU-E	Provide integral condensate removal pump
BC	18	2966	0	76.0	65.0	55	54	96 MBh	70.0	95	108 MBh	0.20 - 1.00 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P96NMHU-E	Provide integral condensate removal pump
3 BC	19A	353 - 459	0	76.0	65.0	55	54	18 MBh	70.0	95	20 MBh	0.0 in-wg	208/1/60	15A	Mitsubishi Electric	PFFY-P18NEMU-E	
BC	19B	353 - 459	0	76.0	65.0	55	54	18 MBh	70.0	95	20 MBh	0.0 in-wg	208/1/60	15A	Mitsubishi Electric	PFFY-P18NEMU-E	
BC	20	989 - 1201 - 1412	349	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	21	989 - 1201 - 1412	349	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	22	989 - 1201 - 1412	349	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	23	2542	190	76.3	65.3	55	54	72 MBh	69.6	95	80 MBh	0.20 - 1.00 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P72NMHU-E	Provide integral condensate removal pump
BC	24	989 - 1201 - 1412	349	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	25	989 - 1201 - 1412	349	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	26	989 - 1201 - 1412	349	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	27	989 - 1201 - 1412	349	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	28	989 - 1201 - 1412	349	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	29	989 - 1201 - 1412	349	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	30	989 - 1201 - 1412	349	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	31	989 - 1201 - 1412	237	76.7	65.7	55	54	48 MBh	69.2	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	32	989 - 1201 - 1412	338	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	33	989 - 1201 - 1412	349	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	34	989 - 1201 - 1412	346	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	35	989 - 1201 - 1412	346	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	36	989 - 1201 - 1412	346	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	38	989 - 1201 - 1412	346	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	39	989 - 1201 - 1412	346	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	40	989 - 1201 - 1412	346	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	41	989 - 1201 - 1412	346	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	42	989 - 1201 - 1412	346	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	43	989 - 1201 - 1412	349	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	44	989 - 1201 - 1412	346	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	45A	477 - 565 - 671	100	76.6	65.6	55	54	24 MBh	69.3	95	27 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P24NMAU-E	Provide integral condensate removal pump
BC	45B	477 - 565 - 671	100	76.6	65.6	55	54	24 MBh	69.3	95	27 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P24NMAU-E	Provide integral condensate removal pump
BC	46	989 - 1201 - 1412	200	76.6	65.6	55	54	48 MBh	69.3	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump
BC	47	989 - 1201 - 1412	338	77.0	66.0	55	54	48 MBh	68.8	95	54 MBh	0.14 - 0.60 in-wg	208/1/60	15A	Mitsubishi Electric	PEFY-P48NMAU-E	Provide integral condensate removal pump

NOTES: PROVIDE UNITS AS SCHEDULED OR APPROVED EQUAL. ALL UNITS SHALL HAVE EC MOTORS WITH FAN SPEED CONTROLLER. ALL UNITS EXCEPT WALL-MOUNTED TYPES SHALL BE EQUIPPED WITH INTEGRAL CONDENSATE PUMPS WHICH RECEIVE POWER FROM INDOOR UNIT. WALL-MOUNTED UNITS SHALL BE PROVIDED WITH CONDENSATE PUMP "ASPEN PUMPS" MODEL "MINI BLANC-DELUXE" OR APPROVED EQUAL. CONCEAL EXPOSED REFRIGERANT LINES AND CONDENSATE LINES IN BRAKE METAL ENCLOSURES WITH PAINTED FINISH TO BE SELECTED BY ARCHITECT AND FASTENED TO WALL.

Rooftop Air Handler Unit Schedule

Comments	Mark	Supply Airflow	OA Flow	Exhaust Airflow	ERV - Cooling Entering DB	ERV - Cooling Entering WB	ERV - Cooling Leaving DB	ERV - Cooling Leaving WB	ERV - Total Cooling Capacity	ERV - Heating Entering DB	ERV - Heating Leaving DB	ERV - Total Heating Capacity	Cooling Entering Dry Bulb Temperature	Cooling Entering Wet Bulb Temperature	Cooling Leaving Dry Bulb Temperature	Cooling Leaving Wet Bulb Temperature	Sensible Cooling Capacity	Total Cooling Capacity	Heating Entering Dry Bulb Temperature	Heating Leaving Dry Bulb Temperature	Heating Capacity	External Static	Electrical	Full Load Current	MOCP	Manufacturer	Model	Remarks
RTU	1	5700 CFM	2350 CFM	2350 CFM	95.0 F	75.0 F	78.7 F	65.0 F	85,871 BTU/h	7.0 F	57.3	150,986 BTU/h	77 °F	63 °F	51 °F	51 °F	156,525 BTU/h	198,578 BTU/h	65 °F	96 °F	192,000 BTU/h	0.75 in-wg	460/3/60	46 A	60A	MCQUAY INTERNATIONAL	MPS017F	
RTU	2	7200 CFM	3000 CFM	3000 CFM	95.0 F	75.0 F	79.4 F	65.5 F	104,845 BTU/h	7.0 F	54.7 F	183,923 BTU/h	77 °F	64 °F	52 °F	51 °F	196,553 BTU/h	249,559 BTU/h	64 °F	96 °F	230,000 BTU/h	0.75 in-wg	460/3/60	62 A	80A	MCQUAY INTERNATIONAL	MPS020G	

NOTES: PROVIDE UNITS AS SCHEDULED OR APPROVED EQUAL. ALL UNITS SHALL BE EQUIPPED WITH INTEGRAL TOTAL ENERGY RECOVERY WHEEL. PROVIDE VARIABLE FREQUENC DRIVES FOR ALL SUPPLY FANS, RETURN FANS, CONDENSER FANS, AND HEAT RECOVERY WHEEL. ALL UNITS SHALL HAVE DX-COOLING WITH DIGITAL SCROLL COMPRESSORS FOR CAPACITY CONTROL AND, GAS REHEAT FOR HUMIDITY CONTROL, AND MODULATING NATURAL GAS-FIRED BURNER LOCATED IN REHEAT POSITION. PROVIDE CUSTOM, RAISED ROOF CURB FOR SIDE DISCHARGE.

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THE PROFESSIONAL SERVICES OF THE ARCHITECT ARE UNDERTAKEN FOR AND ARE PERFORMED IN THE INTEREST OF:
1) Red Clay Consolidated School District

NO CONTRACTURAL OBLIGATION IS ASSUMED BY THE ARCHITECT FOR THE BENEFIT OF ANY OTHER PERSON INVOLVED IN THE PROJECT.

PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

MECHANICAL SCHEDULES

ISSUE BLOCK

Mark	Date	Description
3	7/30/2013	ADDENDUM #3

Revision Schedule

PROJECT NO: 12037
DATE: 07.01.2013
SCALE:
DRAWN BY: DLS PROJ MGR: BMZ

M600

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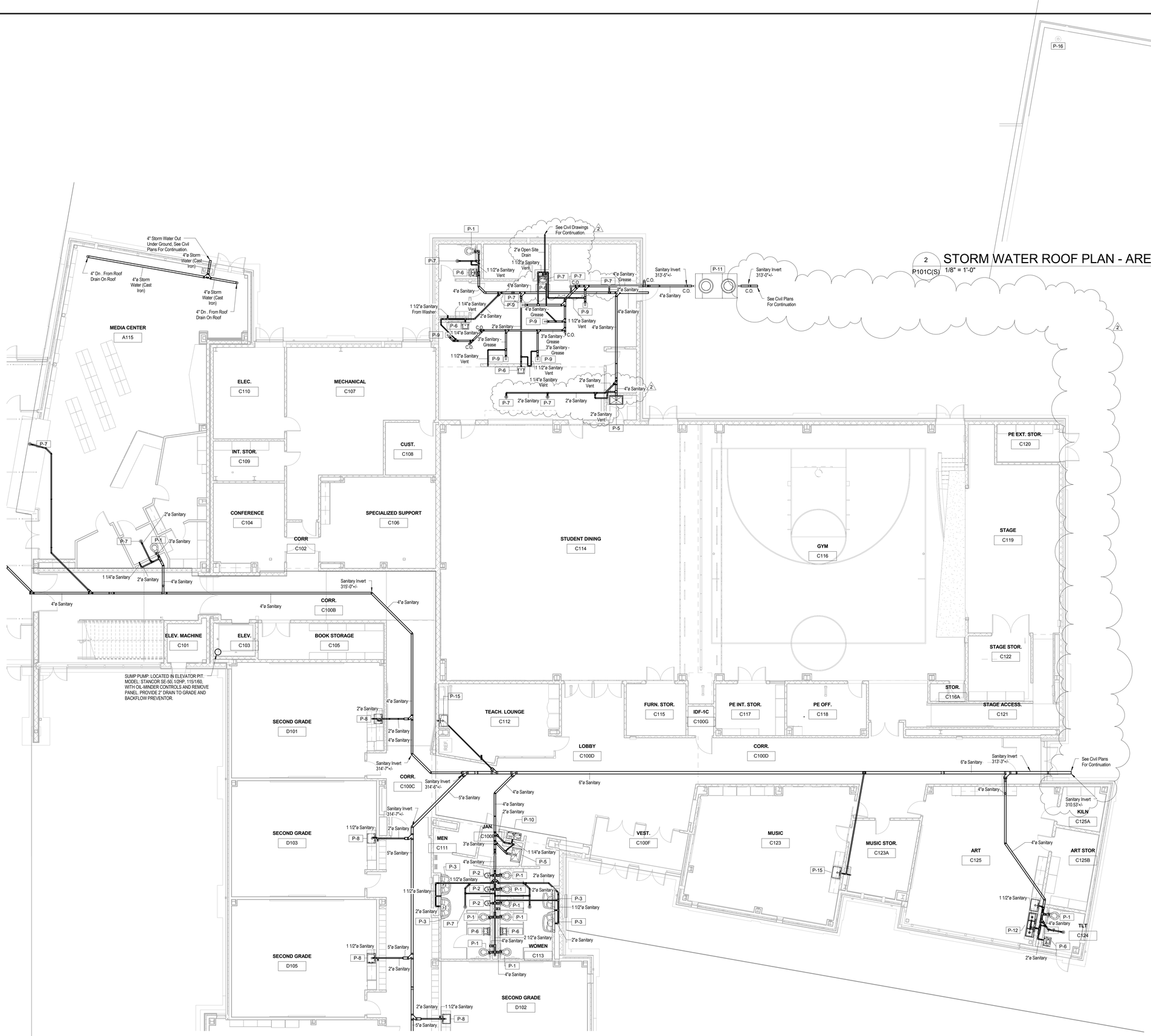

2 P101C(S) STORM WATER ROOF PLAN - AREA C (MEDIA CENTER) 1/8" = 1'-0"

1 P101C(S) PLUMBING FIRST FLOOR SANITARY PLAN - AREA C 1/8" = 1'-0"

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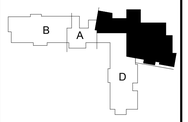
WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

SHEET TITLE

FIRST FLOOR SANITARY PLAN - AREA C



ISSUE BLOCK

Mark	Date	Description
2	7/23/2013	ADDENDUM #2

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY: JRB	PROJ MGR: BMZ

P101C(S)

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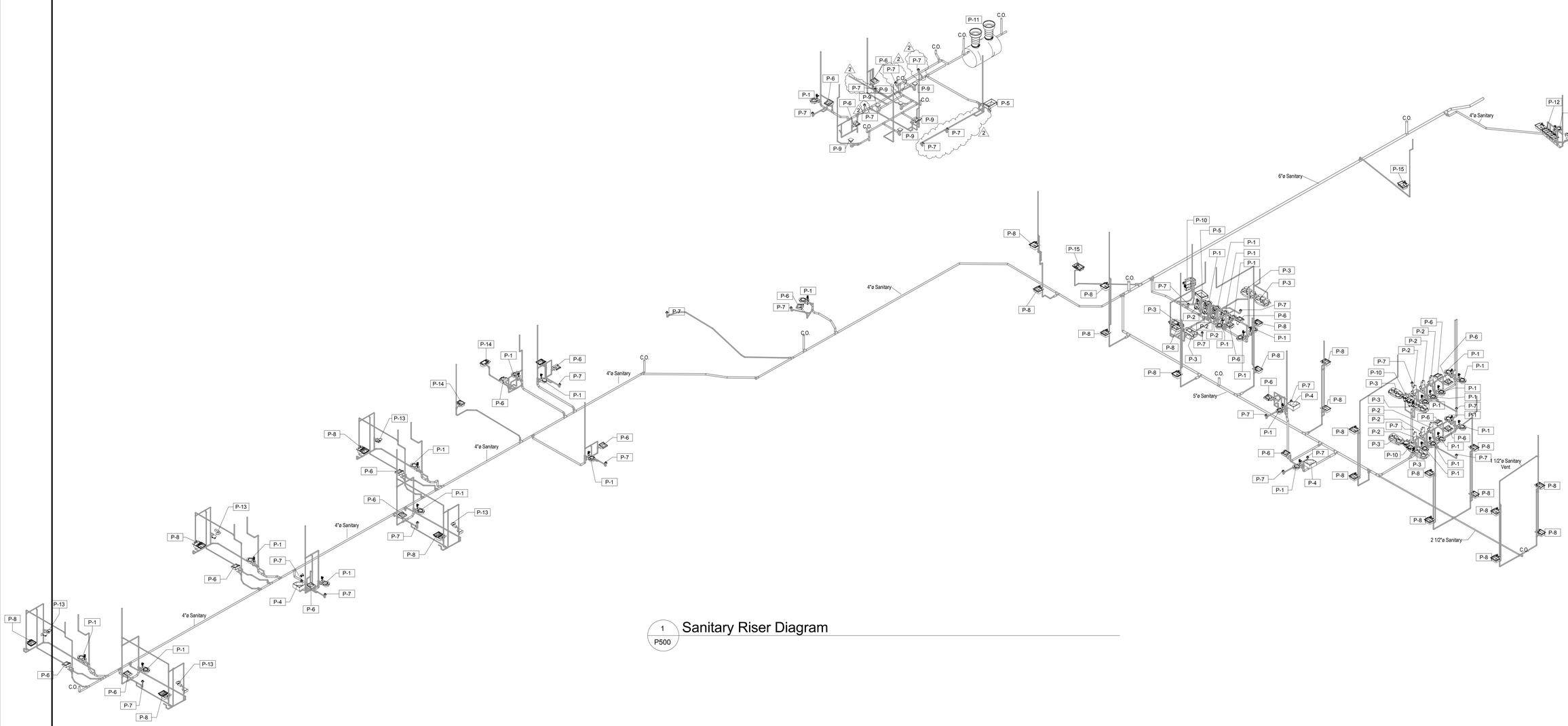

1 P500 Sanitary Riser Diagram

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07 / 01 / 2013

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WILLIAM F. COOKE ELEMENTARY SCHOOL

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HOCKESSIN, DE 19707

SHEET TITLE

SANITARY RISER DIAGRAM

ISSUE BLOCK

Mark	Date	Description
2	7/23/2013	ADDENDUM #2

Revision Schedule

PROJECT NO:	12037
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P500

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ELECTRICAL SYMBOL LEGEND

Power Devices

	GENERAL PURPOSE RECESSED SINGLE RECEPTACLE - 20AMP, 125VOLTS, NEMA5-20R. PROVIDE CLOCK BOX STYLE RECEPTACLE BEHIND GOGGLE CABINETS.
	GENERAL PURPOSE DUPLEX RECEPTACLE - 20AMP, 125VOLTS, NEMA5-20R.
3 P	RECESSED DUPLEX RECEPTACLE FOR PROJECTOR - LEVITON 15A- MODEL # R-52-00689-00W
AV	OUTLET IN CEILING BOX FOR A/V (IT) EQUIPMENT; COORDINATE WITH IT CONTRACTOR FOR EXACT LOCATION
	GENERAL PURPOSE QUADRUPLEX RECEPTACLE - 20AMP, 125VOLTS, NEMA5-20R.
GFCI OR GFCI	GENERAL PURPOSE GFCI RECEPTACLE (DUPLEX OR QUADRUPLEX) - 20AMP, 125VOLTS, NEMA5-20R.
J	JUNCTION BOX - FOR FUTURE ACCESS CONTROL HARDWARE
SM	FRACTIONAL HORSEPOWER MOTOR STARTER WITH OVERLOAD IN NEMA 1 ENCLOSURE
	FUSED DISCONNECT SWITCH-HEAVY DUTY, 3POLE WITH FUSE CLIPS SUITABLE FOR CLASS "R" FUSES. NEMA1 UNLESS NOTED. WP-WEATHER PROOF-NEMA3R ENCLOSURE. (NOMENCLATURE: 30A/20A = SWITCH SIZE/FUSE SIZE). SQ D CLASS 3110 OR EQUAL
	COMBINATION MAGNETIC STARTER, FUSIBLE DISCONNECT SWITCH TYPE, 3POLE, FULL VOLTAGE NON-REVERSIBLE TYPE WITH: FUSED CONTROL TRANSFORMER, BI-METALLIC OVERLOAD RELAYS, ON/OFF PUSH BUTTONS OR HAND-OFF-AUTO SELECTOR SWITCH, (1)N.O./(1)N.C., AUXILIARY CONTACTS AND LED PILOT LIGHT, CLASS "R" FUSE CLIPS. NEMA1 ENCLOSURE UNLESS NOTED- SQ D CLASS 8538 OR EQUAL. NEMA 1 - ENCLOSURE.

Lighting Controls

$	WALL SWITCH - 20A, 120/277V, SINGLE POLE, HEAVY DUTY, TOGGLE TYPE
$3	WALL SWITCH (3-WAY) - 20A, 120/277V, SINGLE POLE, HEAVY DUTY, TOGGLE TYPE
$4	WALL SWITCH (4-WAY) - 20A, 120/277V, SINGLE POLE, HEAVY DUTY, TOGGLE TYPE
$3K	KEYED WALL SWITCH (3-WAY) - 20A, 120/277V, SINGLE POLE, HEAVY DUTY, TOGGLE TYPE
$MS	WALL SWITCH (MOTION SENSOR) - 20A, 120/277V, SINGLE POLE, HEAVY DUTY, TOGGLE TYPE
PP	POWER PACK - 20A, 120/277V
OC	DUAL TECHNOLOGY OCCUPANCY SENSOR

Fire Alarm Devices

FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
BATT	FIRE ALARM SYSTEM BATTERY PACK AND CHARGER
P	MANUAL STATION - PULL STATION/FIRE ALARM BOX
SS 30cd	NOTIFICATION DEVICE (AUDIO/VISUAL) - SPEAKER WITH STROBE AS SINGLE ASSEMBLY, REQUIRED CANDELA RATING "X" INDICATED "X cd", MULTI CANDELA DEVICE
15cd	NOTIFICATION DEVICE (VISUAL) - STROBE ASSEMBLY. REQUIRED CANDELA RATING "X" INDICATED "x cd", MULTI CANDELA DEVICE
P	DETECTION DEVICE - SMOKE DETECTOR - PHOTOELECTRIC PRODUCTS OF COMBUSTION DETECTOR
I	DETECTION DEVICE - SMOKE DETECTOR - IONIZING
DD OR DD	DETECTION DEVICE - SMOKE DETECTOR - DUCT DETECTOR (SUPPLIED BY MECHANICAL EQUIPMENT VENDOR)
R/F	DETECTION DEVICE - SMOKE DETECTOR - RATE OF RISE/FIXED TEMPERATURE
F	DETECTION DEVICE - SMOKE DETECTOR - FIXED TEMPERATURE
	DETECTION DEVICE - HEAT DETECTOR - 130°F RATE OF RISE/FIXED TEMPERATURE - LISTED FOR 25'-30' SPACING
	DETECTION DEVICE - HEAT DETECTOR ABOVE CEILING - 190°F FIXED TEMPERATURE - LISTED FOR 50' SPACING
B	OUTDOOR WEATHERPROOF BELL

ELECTRICAL GENERAL NOTES

1. PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, COORDINATION, ADDITIONAL DESIGN AND ALL INCIDENTALS NECESSARY TO PROVIDE A COMPLETE AND OPERABLE SYSTEM AS DETAILED ON PLANS TO THE SATISFACTION OF THE ENGINEER AND THE OWNER. COORDINATE ALL WORK WITH THE ENGINEER BEFORE THE START OF WORK.
2. PRIOR TO SUBMITTING BID, THE CONTRACTOR SHALL VISIT THE SITE AND BE THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION. CONTRACTOR SHALL INCLUDE IN THEIR BID ALL MATERIAL, LABOR, AND ALL INCIDENTALS FOR A COMPLETE INSTALLATION WHETHER SPECIFICALLY INDICATED OR NOT. ALL ERRORS, DISCREPANCIES AND MISSED ITEMS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PROCESS BY THE CONTRACTOR. THESE ITEMS SHALL BE INCLUDED IN THE BID PRICE. NO EXTRA COST WILL BE ALLOWED FOR ANY DISCREPANCY WHICH COULD HAVE BEEN NOTICED AT THE SITE VISIT BY THE CONTRACTOR.
3. PERFORM WORK AS REQUIRED BY APPLICABLE CODES, REGULATIONS, AND LAWS OF LOCAL, STATE, AND FEDERAL GOVERNMENTS AND OTHER AUTHORITIES WITH LAWFUL JURISDICTION. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE.
4. MATERIAL AND EQUIPMENT SHALL BE UL, NEMA, ANSI, IEEE, ADA & CMB APPROVED FOR INTENDED PURPOSE. MATERIAL AND INSTALLATION SHALL MEET REQUIREMENTS OF NATIONAL AND LOCAL ELECTRICAL CODE.
5. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS, AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION.
6. MAINTAIN RECORD DRAWINGS ON SITE. RECORD SET MUST BE COMPLETE AND CURRENT AND AVAILABLE FOR INSPECTION WHEN REQUISITIONS FOR PAYMENT ARE SUBMITTED.
7. GUARANTEE WORK IN WRITING PER SPECIFICATIONS. REPAIR OR REPLACE DEFECTIVE MATERIALS OR INSTALLATION AT NO COST TO OWNER DURING THE GUARANTEE PERIOD. CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE AT NO COST TO OWNER. SUBMIT GUARANTEE TO OWNER BEFORE FINAL PAYMENT.
8. COORDINATE ALL ELECTRICAL ITEMS WITH EXISTING FIELD CONDITIONS. LOCATIONS SHOWN ARE APPROXIMATE AND MAY REQUIRE MINOR ADJUSTMENT IN THE FIELD TO SATISFY THE DESIGN INTENT.
9. DAMAGE TO FACILITIES AND EQUIPMENT SHALL BE REPAIRED OR REPLACED IMMEDIATELY BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
10. THE LOCATIONS ON THESE PLANS ARE APPROXIMATE AND REQUIRE COORDINATION WITH ALL OTHER TRADES AND VERIFICATION OF EXISTING CONDITIONS. ROUTING OF CONDUIT IS DIAGRAMMATIC IN NATURE AND NOT INTENDED TO SHOW ALL REQUIRED OFFSETS AND DETAILS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING ASSOCIATED EQUIPMENT AND CONDITIONS. COORDINATE THE LOCATION OF ALL EQUIPMENT WITH THE ENGINEER AND THE OWNER. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL OTHER TRADE'S DRAWINGS AND SPECIFICATIONS AND COORDINATING WITH ALL OTHER TRADES DURING BIDDING AND CONSTRUCTION.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTINUITY OF ALL POWER, CONTROL, FIRE ALARM, SECURITY SYSTEMS, AND COMMUNICATIONS FUNCTIONS TO ALL AREAS AFFECTED BY DEMOLITION AND/OR NEW CONSTRUCTION.
12. REPAIR AND PATCH ANY DISTURBED AREAS TO MATCH ADJACENT CONSTRUCTION.
13. DISCONNECT AND MAKE SAFE ANY EQUIPMENT TO BE REMOVED BY OTHERS. COORDINATE REMOVAL OF EQUIPMENT WITH OTHER TRADES PRIOR TO DEMOLITION.
14. IN ANY AREA REQUIRING THE PERFORMANCE OF ANY TRADE'S WORK, THIS CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ANY OR ALL ELECTRICAL ITEMS IN PATH OF WORK, REINSTALLING, AND RECONNECTING SAME AS REQUIRED, IN ACCORDANCE WITH THE PLANS AND/OR AS DIRECTED AFTER COMPLETION OF OTHER TRADE'S WORK IN THAT AREA.
15. PRIOR TO THE START OF DEMOLITION, CONTRACTOR SHALL FIELD VERIFY ALL BRANCH CIRCUITS AND MAINTAIN THOSE CIRCUITS THAT EXTEND OUTSIDE THE SCOPE OF WORK.
16. AFTER RENOVATING ELECTRICAL WORK, THE CONTRACTOR SHALL ENSURE THAT ALL REMAINING AND NEW EQUIPMENT WILL OPERATE PROPERLY, INCLUDING BUT NOT LIMITED TO BACKFEEDING OF POWER AND LIGHTING CIRCUITS. REFER TO SINGLE LINE DIAGRAM.
17. ALL ELECTRICAL WORK INDICATED TO REMAIN SHALL BE SUITABLY PROTECTED TO PREVENT ANY DAMAGE.
18. CONTRACTOR SHALL SUBMIT FOR REVIEW, SHOP DRAWINGS FOR ALL EQUIPMENT AND MATERIALS USED ON THE PROJECT. SUBMITTALS SHALL BE REVIEWED BY THE ENGINEER BEFORE PURCHASE OF MATERIALS.
19. ALL WIRING SHALL BE COPPER, 600V, 75°/90° RATED, FLAME-RETARDENT, HEAT AND MOISTURE RESISTANT. MINIMUM WIRE SIZE SHALL BE AWG #12.
20. PROVIDE TEMPORARY POWER AND LIGHTING FOR ALL TRADES AS REQUIRED TO COMPLETE THE PROJECT. ALL TEMPORARY AND INTERIM EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS INCLUDING, BUT NOT LIMITED TO NFPA 110 AND NFPA 70.
21. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION THAT IS NOT SHOWN ON THE DRAWINGS.
22. OPENINGS IN CONCRETE WALLS AND FLOORS REQUIRED FOR CONDUIT INSTALLATION SHALL BE CORE DRILLED. MAXIMUM CORE DRILL SIZE SHALL BE 5" IN DIAMETER. CORE DRILL LOCATIONS SHALL BE SPACED A MINIMUM OF 6" FROM EACH OTHER MEASURED FROM THE OUTSIDE EDGE OF THE CORE DRILL. ALL CORE DRILL OPENINGS SHALL BE PROPERLY SEALED ACCORDING TO THEIR LOCATION AND APPLICATION.
23. ALL OUTAGES SHALL BE KEPT TO A MINIMUM. ALL WORK THAT REQUIRES A SUSTAINED EQUIPMENT OUTAGE SHALL BE PERFORMED CONTINUOUSLY AROUND THE CLOCK UNTIL WORK IS COMPLETED UNLESS NOTED OTHERWISE. COORDINATE OUTAGES WITH OWNER REPRESENTATIVE.
24. PROVIDE FOR EACH BRANCH CIRCUIT AND FEEDER CIRCUIT A DEDICATED EQUIPMENT GROUND WIRE. FOR SINGLE PHASE BRANCH CIRUITS OF 120 V/1PH OR 277V/1 PH, PROVIDE DEDICATED HOT, DEDICATED NEUTRAL AND DEDICATED EQUIPMENT GROUND WIRES. SHARING OF NEUTRAL OR EQUIPMENT GROUND WIRES IS NOT PERMITTED. WIRING TO ALL HVAC EQUIPMENT OR OTHER TRADE EQUIPMENT SHALL BE IN CONDUIT. ALL EQUIPMENT AND FEEDER WIRING IN BOILER ROOM/ELECTRICAL ROOM SHALL BE IN RIGID CONDUIT. USE OF MC CABLE IS LIMITED TO BRANCH CIRCUIT WIRING ABOVE RECESSED CEILING OR CONCEALED IN WALL. WIRING TO OUTLETS ON TABLE SHALL BE PROVIED IN EITHER EMT CONDUIT OR FLEXIBLE METAL CONDUIT.
25. PROVIDE IDENTIFICATION LABELS FOR ALL BRANCH CIRCUITS AND FEEDERS CIRCUITS AT JUNCTION BOXES, PANELBOARDS, SWITCHBOARDS, TROUGHS, SPLICE BOXES AND DEVICES.
26. PROVIDE UNSPLICED FEEDERS FROM PANELBOARD OR SWITCHBOARD TO ALL EQUIPMENT. SPLICING IS PERMITTED FOR SINGLE PHASE CIRCUITS FOR LIGHTING AND OUTLETS ONLY.
27. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL (2) #14-3/4" FROM EACH VENDOR SUPPLIED DUCT SMOKE DETECTOR TO FACP. INSTALLATION OF DETECTOR BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY ELECTRICAL TERMINATIONS. EACH BLOWER COIL (BC) AND EACH ENERGY RECOVERY VENTILATOR (ERV) WILL HAVE (1) SUPPLY DUCT SMOKE DETECTOR AND (1) RETURN DUCT SMOKE DETECTOR.
28. DISCONNECTS FOR ALL OUTDOOR EQUIPMENT SHALL BE INSTALLED IN WATERPROOF NEMA-3R ENCLOSURE.
29. ALL VFD'S REQ'D ARE PROVIDED BY ELECTRICAL CONTRACTOR. REFER TO MECHANICAL DWGS FOR NUMBER AND SIZE OF MOTORS REQUIRING VFD'S. CABLES FROM VFD TO MOTOR SHALL BE (3) STRANDED TINNED COPPER CONDUCTORS PLUS (1) GROUND WIRE WITH XLPE INSULATION, OVERALL DUOFOIL (100 % COVERAGE) PLUS A TINNED COPPER BRAID SHIELD (85% COVERAGE), AND TINNED COPPER DRAIN WIRE. CABLES SHALL BE MULTICONDUCTOR , 1000 VOLT, UL FLEXIBLE MOTOR SUPPLY CABLE WITH SUN AND OIL RESISTANT PVC JACKET. INSTALL CABLES IN ADEQUATELY SIZED RIGID CONDUIT IN ACCORDANCE WITH THE LATEST NEC. MAINTAIN MIN. 6 INCHES SEPARATION BETWEEN CONDUITS CARRYING POWER AND CONTROL CABLES.
30. ALL EXPOSED WIRING IN ELECTRICAL ROOM, BOILER ROOM AND MECHANIAL ROOM SHALL BE IN RIGID GALVANIZED STEEL CONDUIT.

GRAPHIC CONVENTIONS

Wiring Devices

HOMERUN PANEL DESIGNATION — PLA-11 — BRANCH CIRCUIT DESIGNATION

1'- 6" — RECEPTACLE MOUNTING HEIGHT (AFF)

Disconnects

30A — DISCONNECT SIZE

20A — FUSE SIZE

Wiring Devices

TYPE: A — LUMINAIRE TYPE - SEE LIGHT FIXTURE SCHEDULE

PLA-11-d

d — CONTROL DEVICE IDENTIFICATION

11 — BRANCH CIRCUIT NUMBER

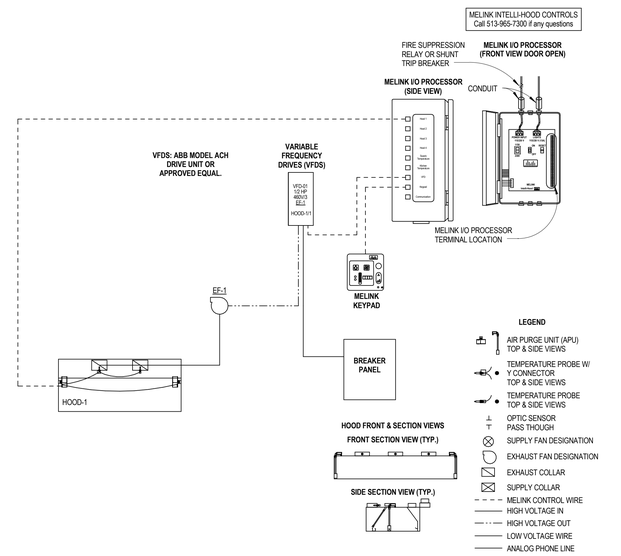
PLA — PANEL DESIGNATION

a — CONTROL DEVICE IDENTIFICATION

D — DEVICE TYPE DESIGNATION

LIGHTING FIXTURE SCHEDULE

TYPE	LAMPS	VOLTAGE	MOUNT	FIXTURE DESCRIPTION	MANUFACTURER/CATALOG NUMBER	REMARKS
A	34 WATTS 4000K LED	120 / 277	RECESSED	2 x 2 RECESSED LED LIGHT FIX.	FINELITE HPR-A-DCO-LED-4OOO OR APPROVED EQUAL	0-10V DIMMING CONTROLS
B	34 WATTS 4000K LED	120 / 277	RECESSED	2 x 2 RECESSED LED LIGHT FIXTURE w/ DRYWALL KIT	FINELITE HPR-A-2X2-DCO-LED-4000-SC-DW OR APPROVED EQUAL	0-10V DIMMING CONTROLS
C	28 WATTS 4000K LED	120 / 277	PENDANT	6 INCH DIA. CYLINDER LIGHT WITH 28W LEDS.	PRESCOLITE: LD6LED-4P-W-40K-8-FL35 OR APPROVED EQUAL	INSTALL IN LEVEL WITH CLOUD.
D	4000K LED	120 / 277	SUSPENDED	1 x 2 LED LIGHT FIXTURE	COLUMBIA LIGHTING LLHP-2-40-W-E-U-C6TL20 OR APPROVED EQUAL	
E	(2) 28WT5	120 / 277	PENDANT	2 LAMP INDUSTRIAL LIGHT FIX. WITH WIRE GUARD. 15% UPLIGHT.	COLUMBIA LIGHTING: KL-4-228-U-E-KLWG4 OR APPROVED EQUAL	
EX	LED	120 / 277	UNIVERSAL	EXIT LIGHT	DUAL-LITE: LED-1-AC-R-WW OR APPROVED EQUAL	CONNECT LIGHT FIXTURE AHEAD OF LOCAL LIGHT SWITCH - NORMAL / EMERGENCY CKT.
EX/EM	LED	120 / 277	UNIVERSAL	EXIT/ EMERGENCY COMB. UNIT WITH BATTERY BACK UP AND 2 UNIT MOUNTED HEADS. MIN. 3AH BATTERY, 3W LED LAMP(S)	DUAL-LITE: HCX-U-R-W RC12- (2)O3L OR APPROVED EQUAL	CONNECT TO LOCAL LIGHTING BRANCH CIRCUIT AHEAD OF SWITCH. PROVIDE MATCHING WEATHERPROOF REMOTE HEAD WHERE INDICATED.
EM	LED	120 / 277	SURFACE	EMERGENCY LIGHT WITH BATTERY BACKUP-REMOTE HEAD CAPABILITY. MIN. 3AH BATTERY, 3W LED LAMP(S)	DUAL-LITE: LZ-20-N-6V-I-03L OR APPROVED EQUAL	CONNECT TO LOCAL LIGHTING BRANCH CIRCUIT AHEAD OF SWITCH. PROVIDE MATCHING WEATHERPROOF REMOTE HEAD WHERE INDICATED.
FLP	55W LED	120 / 277	WALL	FLOOD LIGHT WITH MEDIUM SPREAD BEAM - 55W - LED	GARDCO: DFL7-W-MSP-55LA-NW-UNIV-BRD OR APPROVED EQUAL	PROVIDE MOUNTING HARDWARE AND ACCESSORIES.
L	(2) 13W CFL	120 / 277	SURFACE	9" DRUM LIGHT	PRESCOLITE: 9424-13HPF OR APPROVED EQUAL	
M	27W LED	120 / 277	SUSPENDED	1'x4' SUSPENDED LED LIGHT FIXTURE	SPI LIGHTING: SLCT-048-L27.2WA-45K-YY-CAA-048-AN-8-PS OR APPROVED EQUAL	PROVIDE 24VDC REMOTE POWER SUPPLY (1 PER 2 FIXTURES) CPS10875-PS01 AND PROVIDE INTERCONNECTING WIRING
S	(2) 28WT5	120 / 277	SURFACE	ENCLOSED AND GASKETED WET LOCATION APPROVED LIGHT FIXTURE	COLUMBIA LIGHTING: LU4-228T5-U OR APPROVED EQUAL	
U	(2) 17WT8	120 / 277	SURFACE	ABOVE MIRROR LIGHT	COLUMBIA LIGHTING: SA2217-U OR APPROVED EQUAL	
V	HIGH LUMEN	120 / 277	RECESSED	DIRECT SYMMETRIC RECESSED LED LIGHT FIXTURE	ALERA LIGHTING: LM6R440HL-SG-FA-HE-E-120/277-4TB OR APPROVED EQUAL	
W	26W CFL	120 / 277	PENDANT	PENDANT LIGHT WITH DIFFUSED GLASS LENS WITH CLEAR POWER CORD	SISTEMALUX: PRATO PENDANT #566-FL26-UNV OR APPROVED EQUAL	PROVIDE CANOPY AND MOUNTING HARDWARE
X	(2) 54WT5	120 / 277	PENDANT	PENDANT LIGHT WITH CABLE AND TRANSPARENT LENS	JETI: LUSTER EG DIM 8 OR APPROVED EQUAL	PROVIDE MOUNTING HARDWARE
Y	HIGH OUTPUT	120 / 277	RECESSED	6" LED DOWNLIGHT WITH HIGH OUTPUT ENGINE	PRESCOLITE: DBLED-4-120/277-OM-6-D9LED-4-40K-W1 OR APPROVED EQUAL	



1 / E000 Kitchen Hood Control Schematic

NTS

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RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

Electrical Cover Sheet

ISSUE BLOCK

Mark	Date	Description
3	7/30/2013	ADDENDUM #3

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: JRB	PROJ MGR: PP

E000

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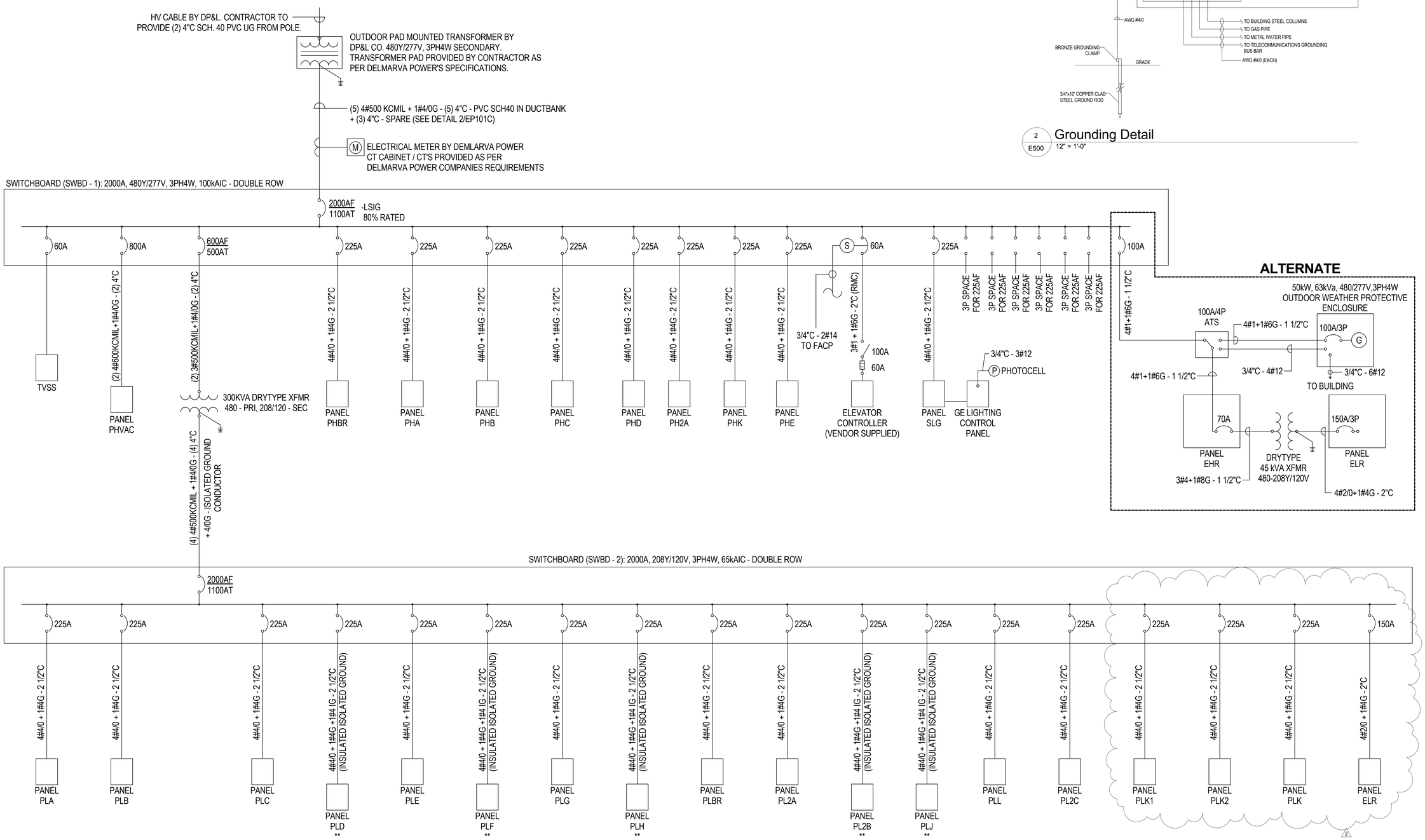
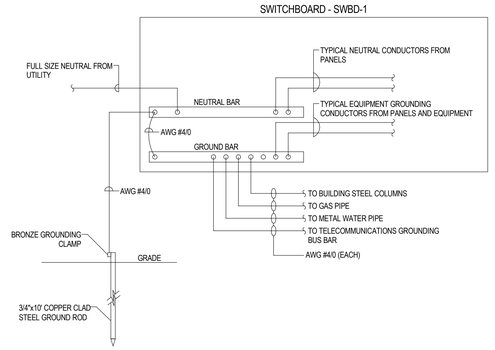


1 E500 Electrical Single Line Diagram

NTS



2 E500 Grounding Detail

12" = 1'-0"

* - ALL CIRCUIT BREAKERS AND DISCONNECT SWITCHES SHOWN ARE 3 POLE UNLESS NOTED. CIRCUIT BREAKERS WITH AMPACITY OF 400 AMP OR MORE SHALL HAVE FIELD REPLACABLE TRIP UNITS.

** - PROVIDE INSULATED ISOLATED GROUND BAR IN PANEL.

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07 / 01 / 2013

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WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

ELECTRICAL SINGLE LINE

ISSUE BLOCK

Mark	Date	Description
2	7/23/2013	ADDENDUM #2

Revision Schedule

PROJECT NO:	12037
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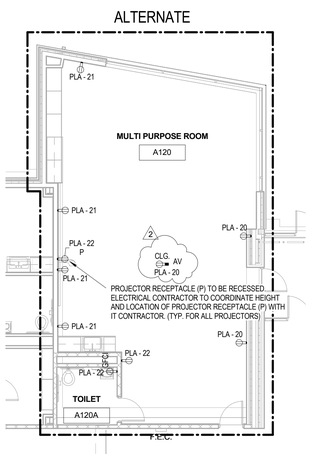
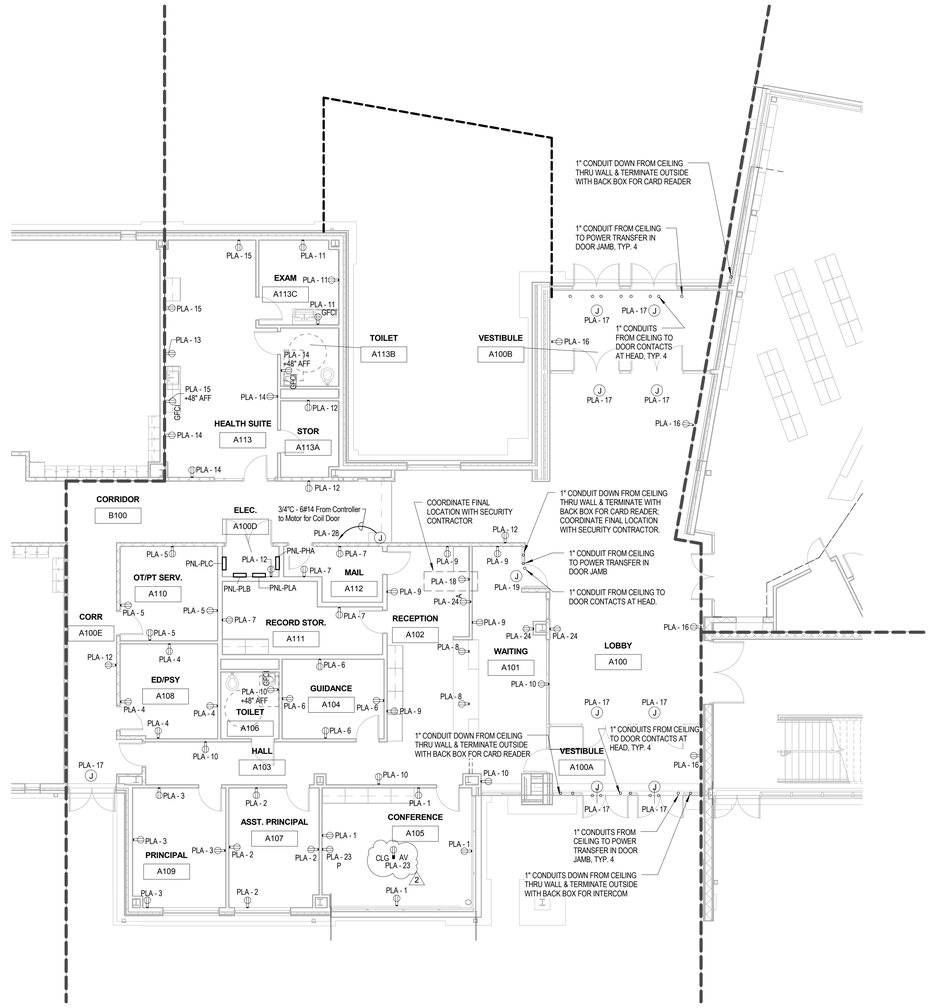


2 EP101A ELECTRICAL FIRST FLOOR POWER PLAN - AREA A - ALTERNATE

1/8" = 1'-0"



1 EP101A ELECTRICAL FIRST FLOOR POWER PLAN - AREA A

1/8" = 1'-0"

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WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

SHEET TITLE

FIRST FLOOR POWER PLAN - AREA A

8' 4' 0' 8'

SCALE : 1/8" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
2	7/23/2013	ADDENDUM #2

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
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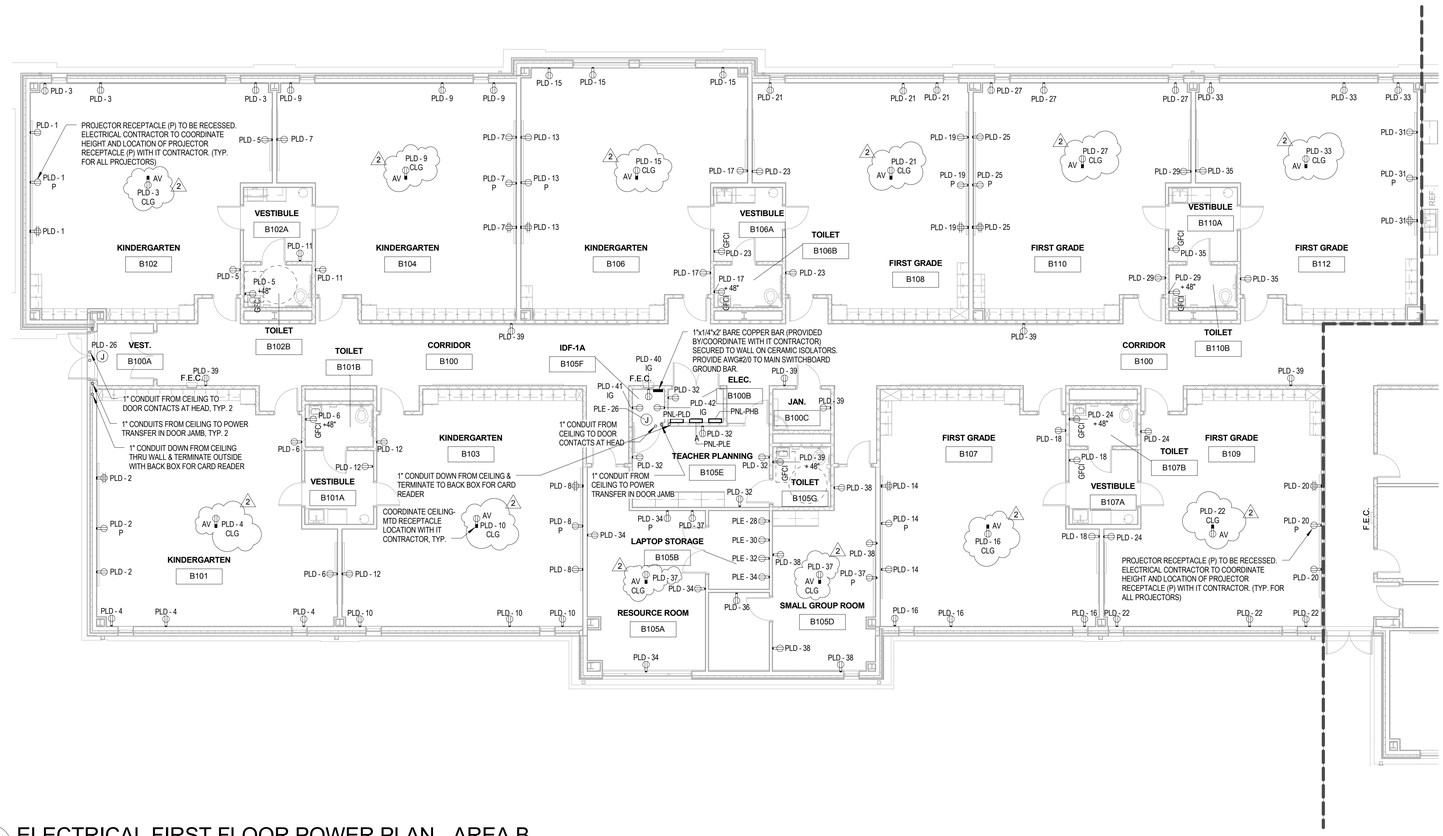

1 EP101B

ELECTRICAL FIRST FLOOR POWER PLAN - AREA B

1/8" = 1'-0"

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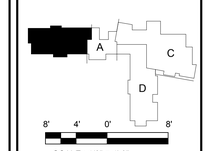
2025 GRAVES ROAD
HOCKESSIN, DE 19707

SHEET TITLE

FIRST FLOOR POWER PLAN - AREA B



SCALE : 1/8" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
2	7/23/2013	ADDENDUM #2

Revision Schedule

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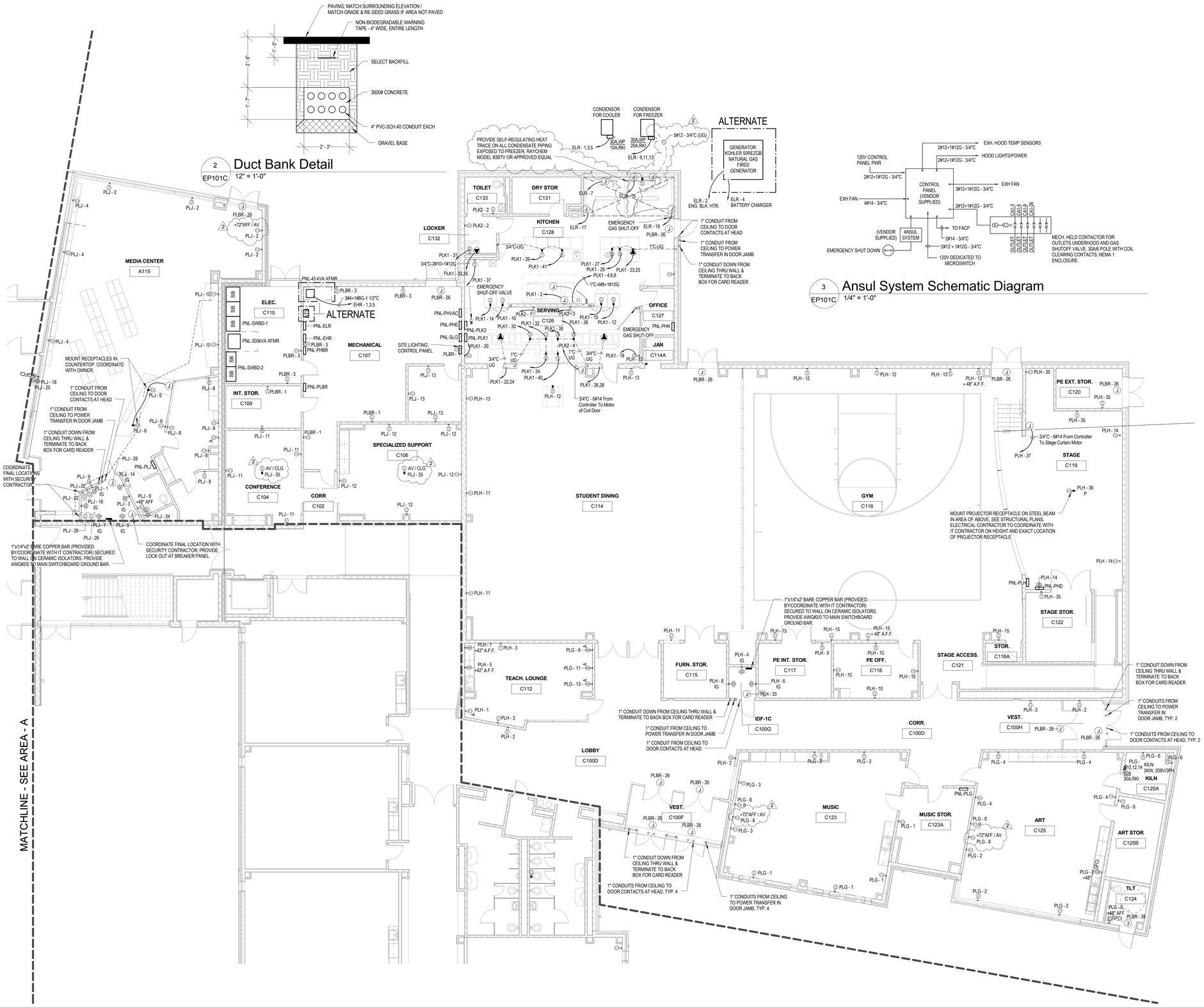

1 EP101C ELECTRICAL FIRST FLOOR POWER PLAN - AREA C
1/8" = 1'-0"

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WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

FIRST FLOOR POWER PLAN - AREA C

SCALE : 1/8" = 1'-0"

ISSUE BLOCK

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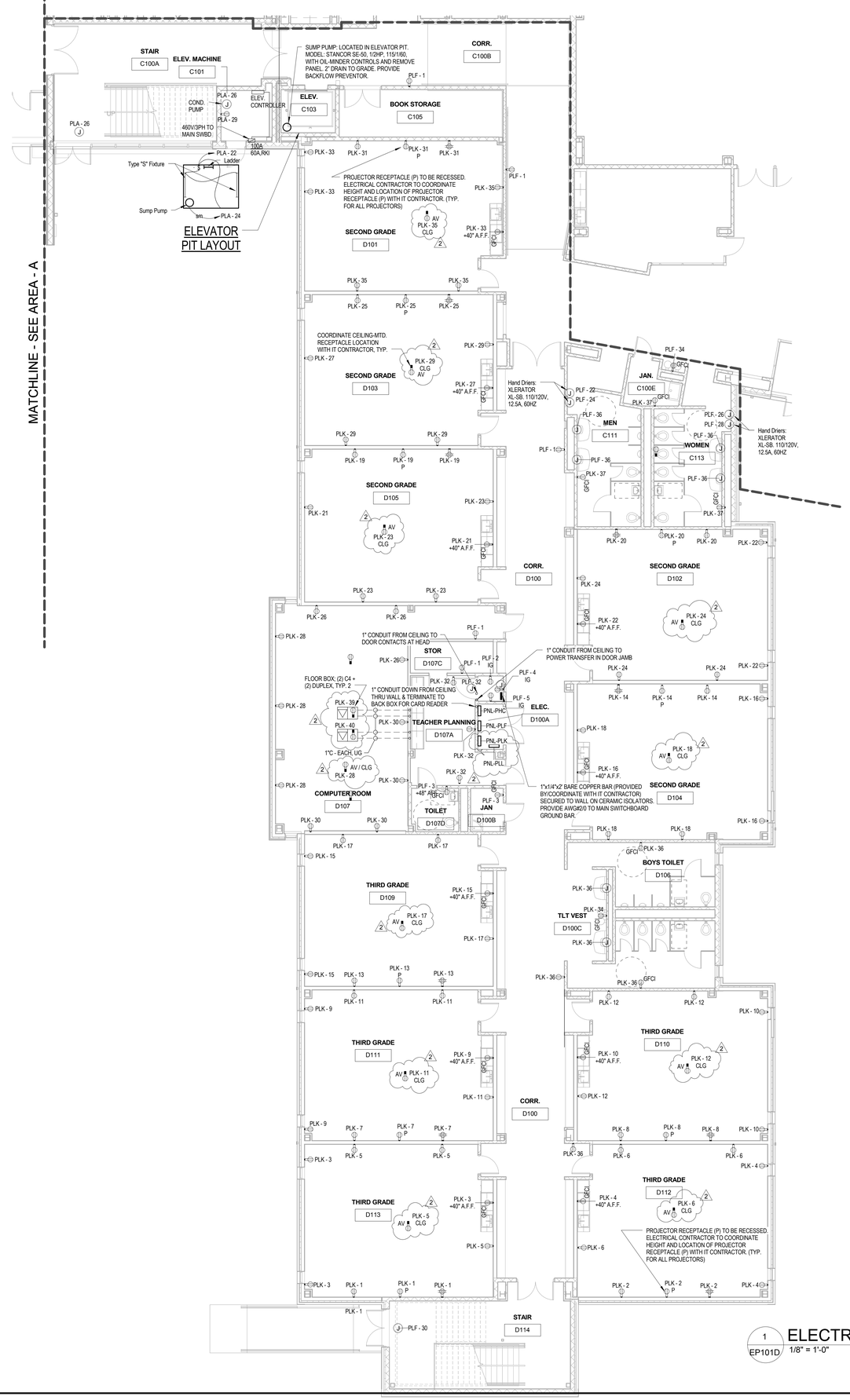

1 EP101D ELECTRICAL FIRST FLOOR POWER PLAN - AREA D

1/8" = 1'-0"

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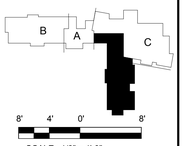
2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

FIRST FLOOR POWER PLAN - AREA D



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ISSUE BLOCK

Mark	Date	Description
2	7/23/2013	ADDENDUM #2

Revision Schedule

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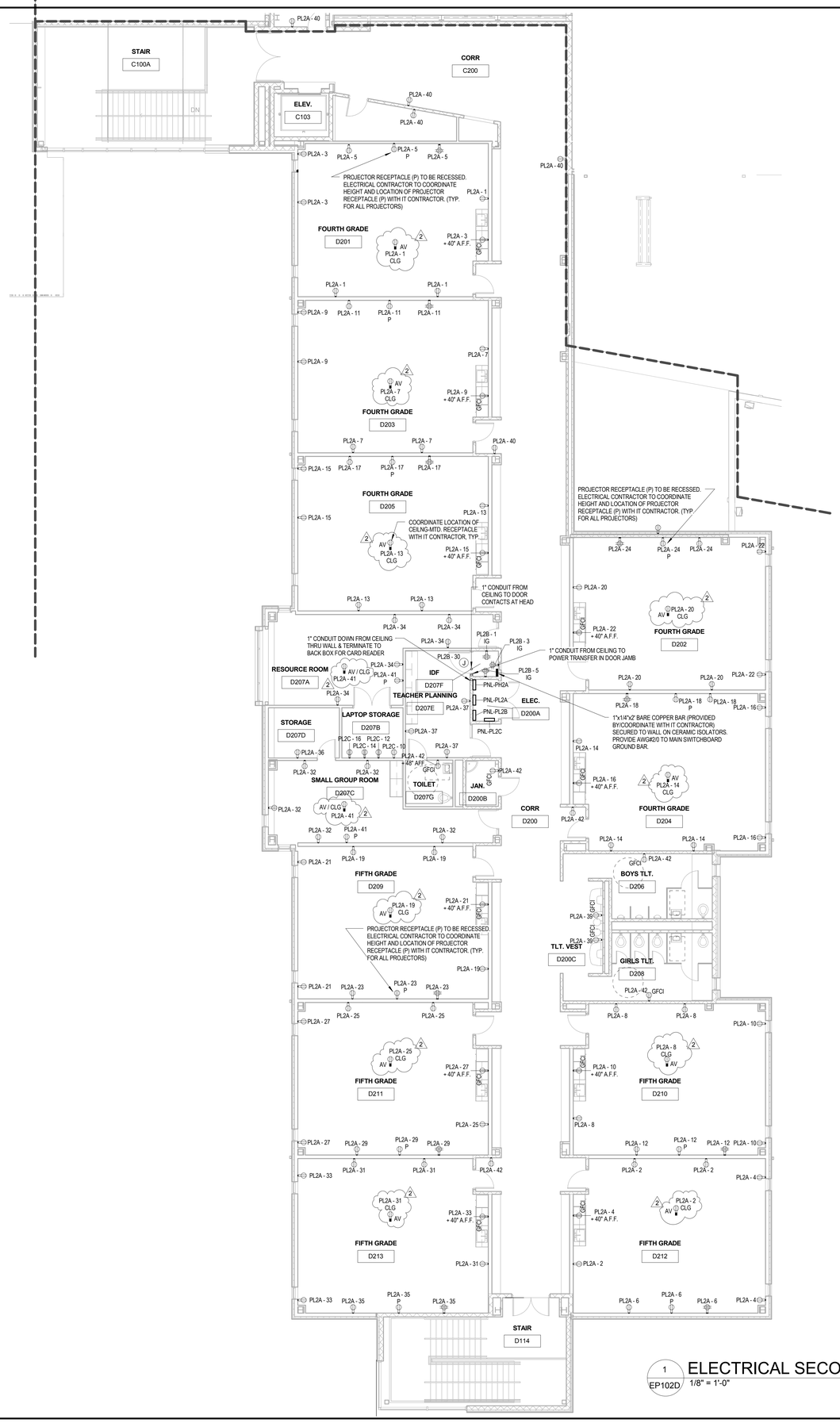
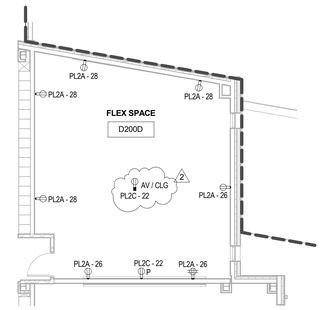


2 EP102D ELECTRICAL SECOND FLOOR POWER PLAN - AREA D - ALTERNATE
1/8" = 1'-0"



1 EP102D ELECTRICAL SECOND FLOOR POWER PLAN - AREA D
1/8" = 1'-0"

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THE PROFESSIONAL SERVICES OF THE ARCHITECT ARE UNDERTAKEN FOR AND ARE PERFORMED IN THE INTEREST OF:
1) Red Clay Consolidated School District

NO CONTRACTUAL OBLIGATION IS ASSUMED BY THE ARCHITECT FOR THE BENEFIT OF ANY OTHER PERSON INVOLVED IN THE PROJECT.

PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

SHEET TITLE

SECOND FLOOR POWER PLAN - AREA D

8' 4' 0' 8'
SCALE : 1/8" = 1'-0"

ISSUE BLOCK

Mark	Date	Description
2	7/23/2013	ADDENDUM #2

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY: JRB	PROJ MGR: PP

EP102D

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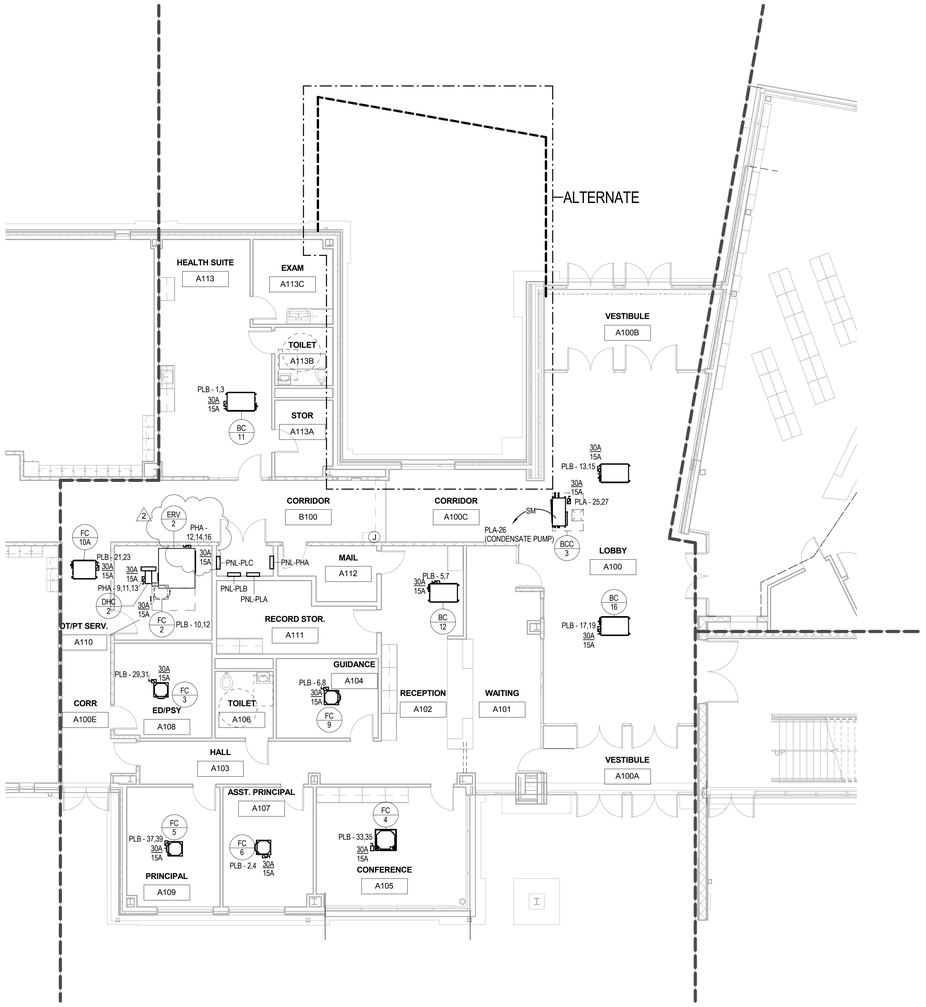
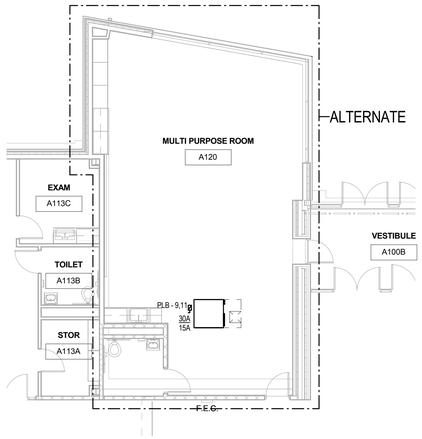


1 EMP101A ELECTRICAL FIRST FLOOR MECHANICAL POWER PLAN - AREA A

1/8" = 1'-0"



2 EMP101A ELECTRICAL FIRST FLOOR MECHANICAL POWER PLAN - AREA A - ALTERNATE

1/8" = 1'-0"

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1961

SHEET TITLE

FIRST FLOOR MECHANICAL POWER PLAN - AREA A

ISSUE BLOCK

Mark	Date	Description
2	7/23/2013	ADDENDUM #2

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	1/8" = 1'-0"
DRAWN BY: JRB	PROJ MGR: PP

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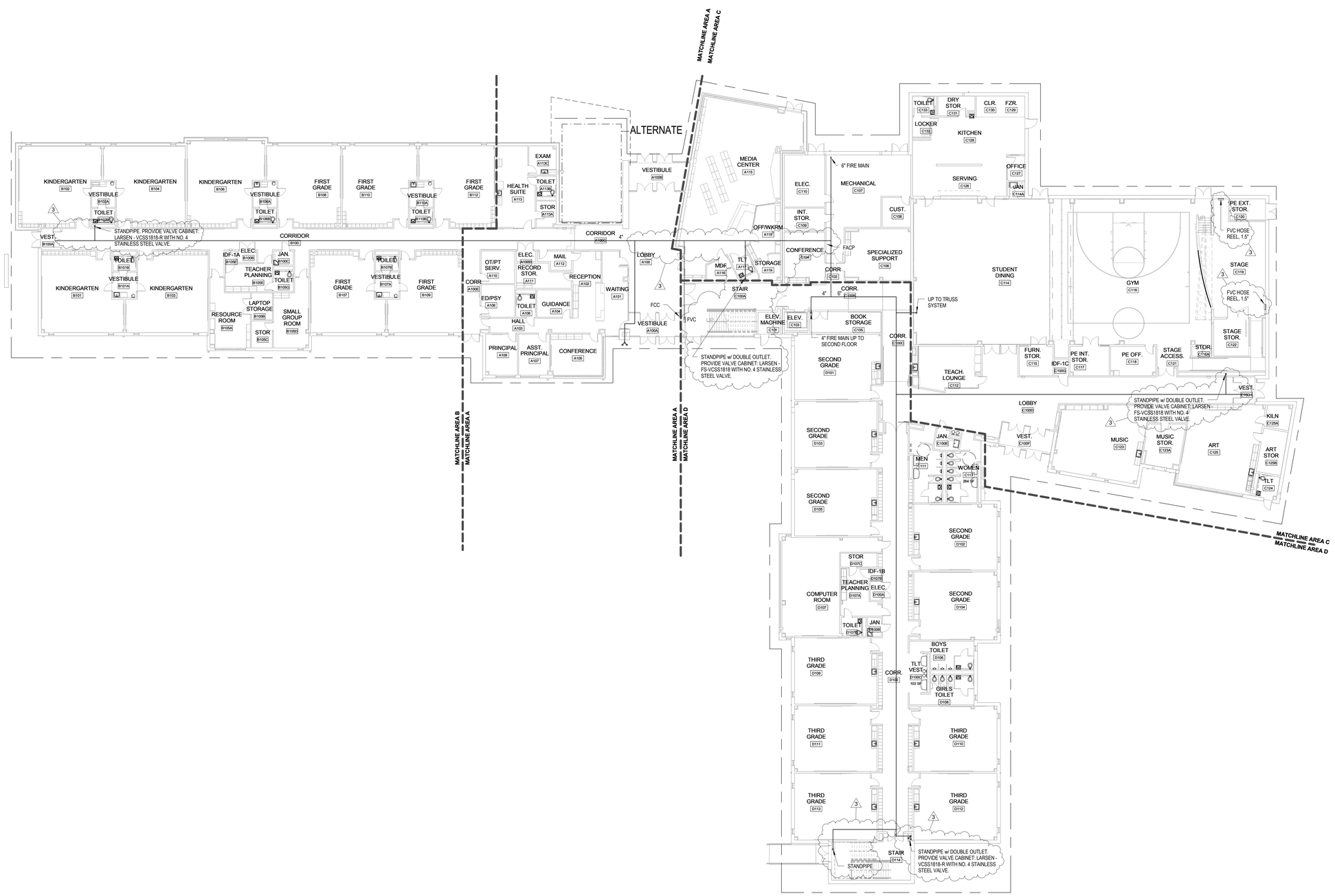

1 FP101 FIRST FLOOR FIRE PROTECTION PLAN
1/16" = 1'-0"

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

SHEET TITLE

OVERALL FIRST FLOOR FIRE PROTECTION PLAN

ISSUE BLOCK

Mark	Date	Description
3	7/30/2013	ADDENDUM #3

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	1/16" = 1'-0"
DRAWN BY: JRB	PROJ MGR: BMZ

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1 FP102 SECOND FLOOR FIRE PROTECTION PLAN
1/8" = 1'-0"

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

OVERALL SECOND FLOOR FIRE PROTECTION PLAN

ISSUE BLOCK

Mark	Date	Description
3	7/30/2013	ADDENDUM #3

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
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ELECTRICAL SYMBOL LEGEND

Communication Devices

X	TYPE C - DATA ONLY INFORMATION OUTLET w/RJ45 CAT6 JACKS, PROVIDE 4-PAIR, CAT6 CABLE BETWEEN EACH JACK AND MDF/IDF WITH ADEQUATE SLACK FOR FINAL TERMINATION TO DATA NETWORK PATCH PANEL. NUMBER INSCRIBED JACK SHOWS NUMBER OF JACKS/DROPS AT THAT OUTLET LOCATION.
	SOUND ENHANCEMENT INFRARED MICROPHONE RECEIVER
SE CLG	SOUND ENHANCEMENT SPEAKER, 1 X 2 DROP IN CEILING SPEAKER
PA 2WCLG	PUBLIC ADDRESS SPEAKER: VALCOM M/N VECTLA-2 OR APPROVED EQUAL. 2 WAY - 2x2 LAY-IN SPEAKER CEILING MOUNTED. HOMERUN EACH SPEAKER TO MDF/IDF WITHIN ITS GIVEN ZONE.
PA 2WWLL	PUBLIC ADDRESS SPEAKER: VALCOM M/N V-WTGV OR APPROVED EQUAL. 2 WAY WALL MOUNTED SPEAKER. MOUNT @ 8' A.F.F. UNLESS OTHERWISE STATED. HOMERUN EACH SPEAKER TO MDF/IDF WITHIN ITS GIVEN ZONE. PROVIDE RECESSED SINGLE GANG ELECTRICAL BOX IN THE WALL ON WHICH TO MOUNT THE SPEAKER.
PA CLG	PUBLIC ADDRESS SPEAKER: VALCOM M/N VE9022A-2 OR APPROVED EQUAL. 2x2 LAY-IN PAGING SPEAKER, CEILING MOUNTED. ALL OF THESE TYPE SPEAKERS IN A GIVEN ZONE SHALL BE GANGED TOGETHER WITHIN THE ZONE THEY ARE LOCATED AND CONNECTED TO THE MDF/IDF WITHIN THE ZONE THEY ARE LOCATED.
PA WLL	PUBLIC ADDRESS SPEAKER: VALCOM M/N V-1052C OR APPROVED EQUAL. WALL MOUNTED PAGING SPEAKER. MOUNT @ 8' A.F.F. UNLESS OTHERWISE NOTED. PROVIDE RECESSED SINGLE GANG ELECTRICAL BOX IN THE WALL ON WHICH TO MOUNT THE SPEAKER AND WITHIN WHICH TO CONNECT TO THE SPEAKER
PA LDSP	PUBLIC ADDRESS SPEAKER: VALCOM M/N 1036CCY OR APPROVED EQUAL. WALL MOUNTED PAGING SPEAKER HORN. MOUNT @ 15' A.F.F. UNLESS OTHERWISE NOTED. PROVIDE MFGR PROVIDED SAFETY CAGE PROTECTIVE COVER. PROVIDE RECESSED DOUBLE GANG ELECTRICAL BOX IN THE WALL ON WHICH TO MOUNT THE SPEAKER. HOMERUN EACH SPEAKER TO MDF/IDF WITHIN ITS GIVEN ZONE AND WITHIN WHICH TO CONNECT TO THE SPEAKER
	WIRELESS ACCESS POINT, CONTRACTOR INSTALLED, OWNER SUPPLIED.
T wap	INFORMATION OUTLET w/ONE DATA CONNECTION FOR WIRELESS ACCESS POINT CONNECTION. MOUNT ABOVE CEILING FOR CEILING MOUNTED WIRELESS ACCESS POINTS AND ON WALL FOR WALL MOUNTED WIRELESS ACCESS POINTS.
T	PRIMARY TEACHERS STATION (SEE PRIMARY TEACHER STATION DETAIL).
IR	CEILING MOUNTED SOUND ENHANCEMENT INFRARED MICROPHONE RECEIVER.
	TYPE "B" INFORMATION OUTLET w/(1) RJ45 CAT6 JACK FOR VOICE. PROVIDE (1) WHITE CAT6 CABLE BETWEEN EACH JACK AND MDF/IDF w/ADEQUATE SLACK FOR FINAL TERMINATION TO VOICE 110 BLOCK PATCH PANEL w/(2) RJ45 CAT6 JACKS FOR DATA. PROVIDE (2) YELLOW CAT6 CABLES BETWEEN EACH JACK AND MDF/IDF w/ADEQUATE SLACK FOR FINAL TERMINATION TO DATA NETWORK PATCH PANEL.
	WALL MOUNTED INTERACTIVE PROJECTOR: EPSON BRIGHTLINK 485wi w/MFGR PROVIDED MOUNTING BRACKET/ARM OR APPROVED EQUAL. ELECTRICAL CONTRACTOR TO PROVIDE A DUPLEX PROJECTOR ELECTRICAL OUTLET MOUNTED BEHIND PROJECTOR WALL MOUNTING PLATE TO POWER PROJECTOR AND ASSOCIATED PROJECTOR COMMUNICATION EQUIPMENT. IT CONTRACTOR TO PROVIDE PRECISE MOUNTING LOCATIONS FOR ALL DUPLEX PROJECTOR ELECTRICAL OUTLETS TO ELECTRICAL CONTRACTOR TO ENSURE PROJECTORS ARE PROPERLY LOCATED AND MOUNTED FOR PROPER PROJECTION, ETC.
	TYPE A - INFORMATION OUTLET - w/ (1)RJ45 CAT6 JACK FOR VOICE. PROVIDE (1) WHITE CAT6 CABLE BETWEEN EACH JACK AND MDF/IDF w/ADEQUATE SLACK FOR FINAL TERMINATION TO VOICE 110 BLOCK PATCH PANEL. WITH (2) RJ45 CAT6 JACKS FOR DATA. PROVIDE (2) YELLOW CAT6 CABLES BETWEEN EACH JACK AND MDF/IDF w/ ADEQUATE SLACK FOR FINAL TERMINATION TO DATA NETWORK PATCH PANEL. WITH (1) COAXIAL JACK F-CONNECTOR. PROVIDE (1) R66 CABLE BETWEEN EACH JACK AND MDF/IDF w/ ADEQUATE SLACK FOR FINAL TERMINATION TO COAXIAL F-CONNECTOR PATCH PANEL.

TELECOMMUNICATION GENERAL NOTES

1. ALL LOW VOLTAGE CABLING MUST BE INSTALLED ACCORDING TO BICSI GUIDELINES.
2. ALL CABLING SHALL CONFORM TO THE LASTEST EDITION OF THE EIA/TIA STANDARDS.
3. ALL CABLING SHALL BE APPROPRIATELY LABLED.
4. CONTRACTOR SHALL NOT INSTALL ANY EQUIPMENT PRIOR TO ITS APPROVAL BY THE ARCHITECT AND ENGINEER. CONTRACTOR WILL BE LIABLE FOR ITS REMOVAL IN ANY SUCH CASE.
5. PROVIDE A COMPLETE GROUNDING SYSTEM FOR ALL LOW VOLTAGE SYSTEMS AS SHOWN AND OR SPECIFIED.
6. CONTRACTOR TO PROVIDE PATHWAYS FOR LOW VOLTAGE SYSTEMS. PATHWAYS SHALL CONSIST OF IN-WALL CONDUIT, SURFACE MOUNTED SPLIT CHANNEL METALLIC RACEWAY, RIGID METAL, BACK BOXES, SLEEVES, CHASES, CABLE TRAY AND J-HOOKS. 14. ANY PENETRATION OF A FIRE-RATED BARRIER MUST BE FIRE-STOPPED IN ACCORDANCE WITH LOCAL AND STATE LAWS AND THE AUTHORITIES HAVING JURISDICTION.
7. PRIOR TO BEGINING ANY WORK, SECURE NECESSARY PERMITS OR CLEARANCES FROM THE AUTHORITIES HAVING JURISDICTION. PROVIDE ALL LABOR AND MATERIALS FOR A COMPLETE INSTALLATION. WORK SHALL BE EXECUTED BY EXPERIENCED TRADESMEN WHO ARE LICENSED IN THE JURISDICTION WHERE THE PROJECT IS LOCATED.
8. CONDUITS SHALL BE RUN BEHIND FINISHED SURFACES UNLESS OTHERWISE NOTED.
9. THE TELECOMMUNICATION PLANS ARE DIAGRAMMATIC ONLY. COORDINATE TECHNOLOGY EQUIPMENT LOCATION AND INSTALLATION WITH EQUIPMENT BEING SERVED.
10. CONTRACTOR SHALL INFORM THE OWNER'S REPRESENTATIVE PRIOR TO BEGINING CONSTRUCTION AND PRIOR TO COMPLETION OF CONSTRUCTION TO ALLOW SUFFICIENT TIME FOR COORDINATION OF EXISTING BUILDING ACTIVITIES WITH THE CONSTRUCTION WORK.
11. THE CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST, ANY LABOR, MATERIALS, SERVICES, APPARATUS, DRAWINGS (IN ADDITION TO CONTRACT DRAWINGS AND DOCUMENTS), IN ORDER TO COMPLY WITH ALL APPLICABLE LAWS, INDICATED AND/OR SPECIFIED.
12. THE EXACT NUMBER OF WIRES, CABLES, FIBER RUNS, ETC. MAY NOT BE INDICATED FOR ALL SYSTEMS. PROVIDE ALL WIRES, FIBER RUNS, CABLES, ETC. NECESSARY FOR THE PROPER FUNCTION OF THE SYSTEM WHETHER INDICATED ON PLAN OR NOT.
13. REFER TO ARCHITECTURAL DRAWINGS FOR THE FINISH, EXACT LOCATION, ELEVATION, MOUNTING HEIGHTS AND DETAILS OF ALL LIGHT FIXTURES AND DEVICES WITHIN THE CEILNG GRID FOR COORDINATION WITH TECHNOLOGY EQUIMENT. REPORT ANY DISCREPANCIES TO THE ARCHITECT IMMEDIATELY.
14. WHEREVER CONDUITS PENETRATE WALLS OR FLOORS, SPACE REMAINING IN SUCH PENETRATIONS SHALL BE FILLED. FILLING MATERIAL SHALL BE FIRE RESISTIVE WITH RATING EQUAL TO THE RATING OF THE FLOOR OR WALL ITSELF.
15. PROVIDE AND LEAVE ACCESSIBLE PULL STRINGS IN ALL CONDUITS, RACEWAYS, SLEEVES AND CHASES TO LOW VOLTAGE WIRING TO BE INSTALLED.
16. OUTLET BOXES INSTALLED ON OPPOSITE SIDES OF THE SAME PARTITION SHALL BE STAGGERED. DO NOT MOUNT OUTLET BOXES BACK TO BACK.
17. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS, CUT SHEETS, CALCULATIONS AND EQUIPMENT LITERATURE FOR ALL EQUIPMENT BEING PROVIDED AS PART OF THIS SCOPE OF WORK. THE EXACT DEVICE OR PIECE OF EQUIPMENT TO BE INSTALLED MUST BE CLEARLY CALLED OUT FOR THE DESIGN TEAM TO REVIEW.
18. CONTRACTOR SHALL PROVIDE COMPLETE AS-BUILT DRAWINGS FOR REVIEW AND APPROVAL BY THE DESIGN TEAM PRIOR TO JOB COMPLETION.
19. CONTRACTOR SHALL PROVIDE A COMPLETE PUNCH LIST OF ALL INSTALLED SYSTEMS TO THE CONSTRUCTION MANAGER WHEN THE INSTALLED WORK IS READY TO BE EXAMINED BY THE DESIGN TEAM. INCOMPLETE SYSTEMS SHALL NOT BE REVIEWED UNTIL IT IS DETERMINED THAT THE SYSTEMS ARE APPROXIMATELY COMPLETE.
20. ALL TELECOMMUNICATIONS CABLING SHALL BE PLENUM RATED CAT6, 4 PAIR, UNSHIELDED TWISTED PAIR CABLE, AS SPECIFIED OR APPROVED EQUAL ROUTED BETWEEN MDF/IDF ROOM AND EACH VOICE AND/OR DATA JACK. THE USE OF J-HOOKS IS PERMITTED IN AREAS WITH A SUSPENDED CEILING WHERE ADEQUATE CLEARANCE CAN BE OBTAINED. ALL WIRING IN SPACES WITHOUT CEILINGS OR AREAS WITH INADEQUATE SPACE ABOVE THE CEILING SHALL BE RUN IN EMT. PROVIDE TERMINATIONS AT BOTH PATCH PANEL AND OUTLET. CONTRACTOR SHALL TONE/TEST/TERMINATE ALL CONNECTIONS.
21. ALL WIRELESS ACCESS POINTS SHALL BE MOUNTED ON AND BELOW CEILINGS EXCEPT FOR THE FOLLOWING: MEDIA CENTER/LIBRARY, STUDENT DINING, GYM, MUSIC, ART.
22. IN THE CASE OF WIRELESS ACCESS POINTS INSTALLED IN THE MEDIA CENTER/LIBRARY, MUSIC AND ART ROOMS; THE WIRELESS ACCESS POINTS SHALL BE WALL MOUNTED @ 8' A.F.F.
23. IN THE CASE OF WIRELESS ACCESS POINTS INSTALLED IN THE STUDENT DINING AND GYM ROOMS; THE WIRELESS ACCESS POINTS SHALL BE WALL MOUNTED @ 10' A.F.F.
24. WIRELESS ACCESS POINTS AND THEIR ASSOCIATED INFORMATION OUTLETS SHALL BE INSTALLED AND LOCATED SUCH THAT THEY DO NOT IMPEDE THE FUNCTION OF ANY OTHER CEILING OR WALL MOUNTED DEVICES. OTHER CEILING OR WALL MOUNTED DEVICES INCLUDE, BUT NOT LIMITED TO, DIFFUSERS, RETURNS, SMOKE DETECTORS, HEAT DETECTORS, SPRINKLER HEADS, LIGHTS ETC. DO NOT INSTALL WIRELESS ACCESS POINTS IN LOCATIONS WHERE THEY IMPEDE AIR FLOW OUT OF DIFFUSERS OR INTO RETURNS.
25. CABLING MAY BE RUN OUT OF CONDUIT ONLY IN FRAME WALLS, MDF, IDF'S, AND CONCEALED ABOVE CEILINGS EXCEPT WHERE PENETRATING WALLS OR FLOORS.
26. ALL EXPOSED CABLING SHALL BE RUN IN EMT UNLESS OTHERWISE NOTED.
27. ALL CONDUIT (EMT, RIGID, ETC.) SHALL BE PROPERLY SIZED FOR THE CABLE(S) IT IS TO CONTAIN.
28. ALL CABLING RUN UNDERGROUND AND/OR UNDER SLAB SHALL BE RUN IN RIGID CONDUIT.
29. CONNECT ALL PUBLIC ADDRESS SPEAKERS TO THE APPLICABLE PA 110 BLOCK(S) IN THE MDF/IDF'S. UTILIZE PLENUM RATED CAT3 CABLING.
30. PROVIDE APPROPRIATELY SIZED RECESSED METAL BOXES FOR ALL IT OUTLETS UNLESS OTHERWISE SHOWN OR STATED.

3

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RED CLAY CONSOLIDATED SCHOOL DISTRICT

WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

TELECOMMUNICATIONS COVER SHEET

ISSUE BLOCK

Mark	Date	Description
3	7/30/2013	ADDENDUM #3

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	12" = 1'-0"
DRAWN BY: Author	PROJ MGR: Checker

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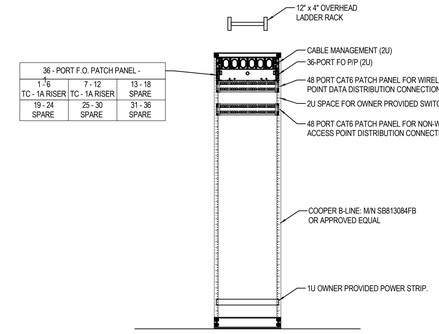


36 - PORT F.O. PATCH PANEL -		
1 - 6	7 - 12	13 - 18
TC - 1A RISER	TC - 1A RISER	SPARE
19 - 24	25 - 30	31 - 36
SPARE	SPARE	SPARE

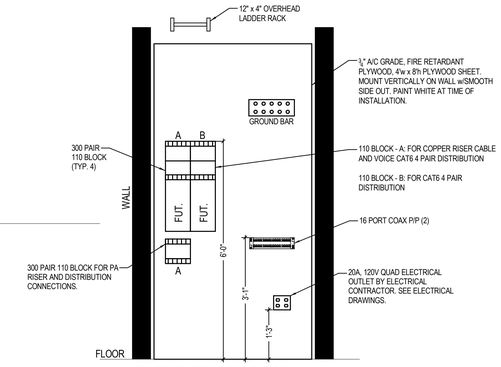
48 - PORT CAT6 PATCH PANEL -			
1 - 6	7 - 12	13 - 18	19 - 24
DISTRIBUTION	DISTRIBUTION	DISTRIBUTION	DISTRIBUTION
25 - 30	31 - 36	37 - 42	43 - 48
DISTRIBUTION	DISTRIBUTION	DISTRIBUTION	DISTRIBUTION

48 - PORT CAT6 PATCH PANEL -			
1 - 6	7 - 12	13 - 18	19 - 24
DISTRIBUTION	DISTRIBUTION	DISTRIBUTION	DISTRIBUTION
25 - 30	31 - 36	37 - 42	43 - 48
DISTRIBUTION	DISTRIBUTION	DISTRIBUTION	DISTRIBUTION

NOTE: PROVIDE ADDITIONAL PATCH PANELS AS NECESSARY TO CONNECT ALL INFORMATION OUTLETS AND ALL RISER CABLING PROVIDED, SHOWN, ETC.

IDF-1C FIGURE 2 DATA RACK ELEVATION

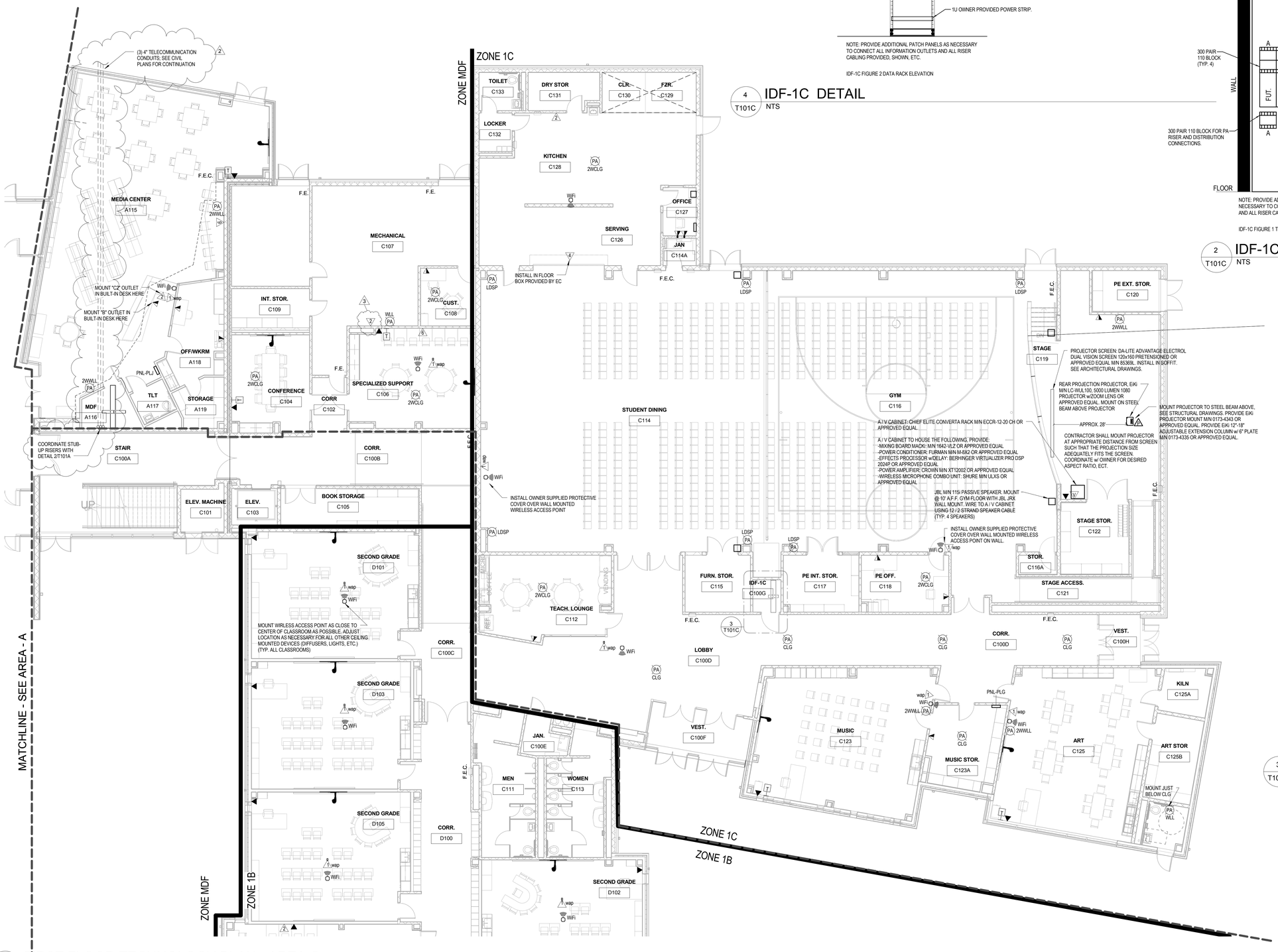
4 T101C IDF-1C DETAIL
NTS



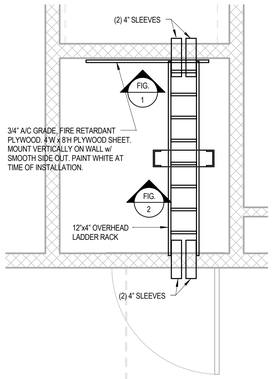
NOTE: PROVIDE ADDITIONAL PATCH PANELS AS NECESSARY TO CONNECT ALL INFORMATION OUTLETS AND ALL RISER CABLING PROVIDED, SHOWN, ETC.

IDF-1C FIGURE 1 TELECOMMUNICATIONS CLOSET ELEVATION

2 T101C IDF-1C DETAIL
NTS



1 T101C FIRST FLOOR TECHNOLOGY PLAN - AREA C
1/8" = 1'-0"



3 T101C IDF-1C PLAN DETAIL
1/2" = 1'-0"

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(302) 292-0676 fax: (302) 292-0683

PARAG H. PATEL REGISTERED No. 10562 STATE OF DELAWARE PROFESSIONAL ENGINEER

07 / 01 / 2013

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PROJECT TITLE

RED CLAY CONSOLIDATED SCHOOL DISTRICT

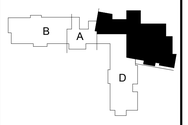
WILLIAM F. COOKE ELEMENTARY SCHOOL

2025 GRAVES ROAD
HOCKESSIN, DE 19707

RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE

FIRST FLOOR TECHNOLOGY PLAN - AREA C



ISSUE BLOCK

Mark	Date	Description
3	7/30/2013	ADDENDUM #3
2	7/23/2013	ADDENDUM #2

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	As indicated
DRAWN BY: JRB	PROJ MGR: DTS

T101C

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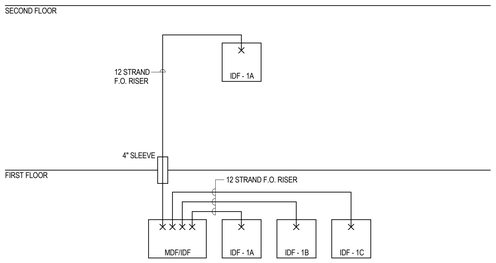
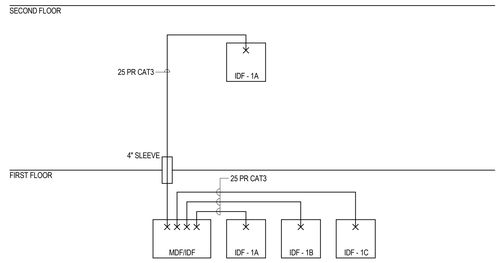
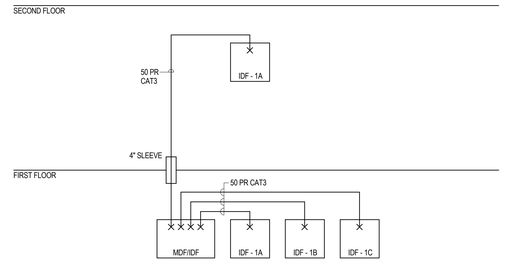


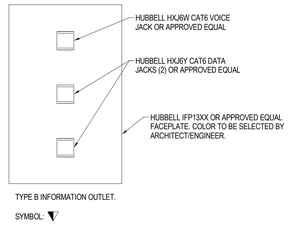
1 T200 Riser Diagram - Fiber Optic Cabling
NTS



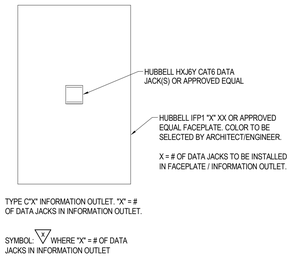
2 T200 Riser Diagram - PA Cabling
NTS



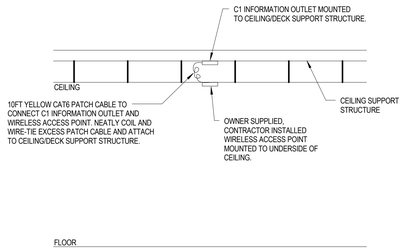
3 T200 Riser Diagram - Voice Cabling
NTS



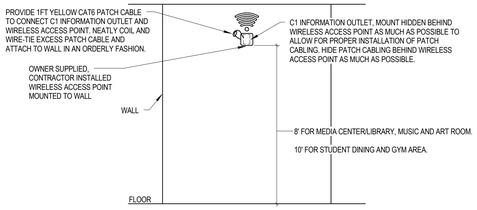
4 T200 Type B Information Outlet
NTS



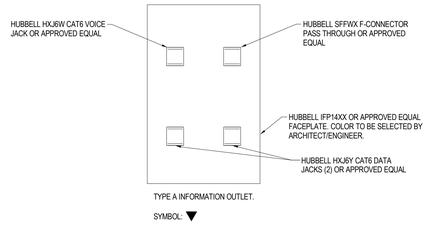
5 T200 Type C"X" Information Outlet
NTS



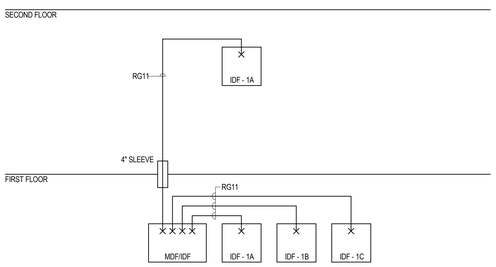
6 T200 Typical Ceiling Mounted Wireless Access Point Mounting Detail
NTS



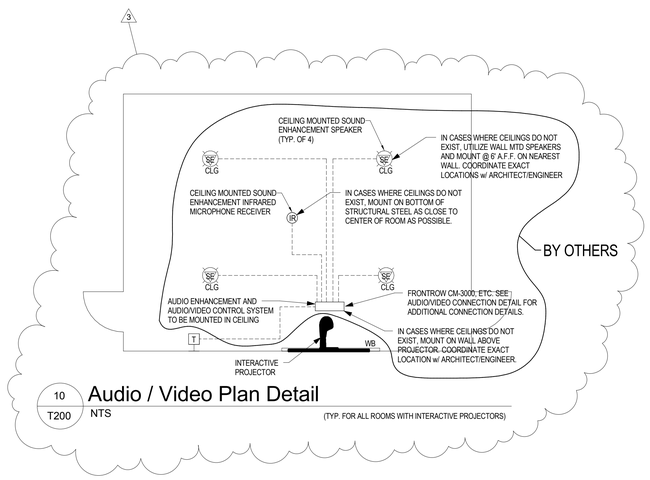
7 T200 Typical Wall Mounted Wireless Access Point Mounting Elevation
NTS



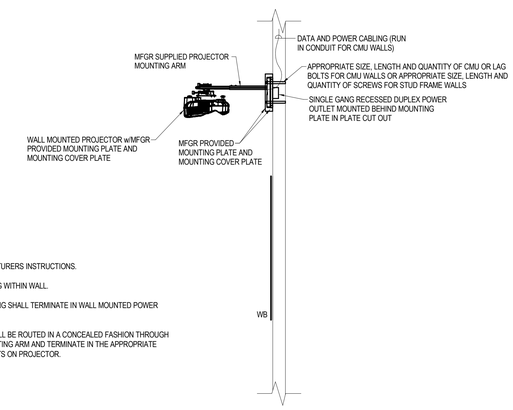
8 T200 Type A Information Outlet
NTS



9 T200 Riser Diagram - CATV Cabling
NTS



10 T200 Audio / Video Plan Detail
NTS
(TYP. FOR ALL ROOMS WITH INTERACTIVE PROJECTORS)



PROJECTOR NOTES:
1. FOLLOW MANUFACTURERS INSTRUCTIONS.
2. ROUTE ALL CABLING WITHIN WALL.
3. ELECTRICAL CABLING SHALL TERMINATE IN WALL MOUNTED POWER OUTLET.
4. DATA CABLING SHALL BE ROUTED IN A CONCEALED FASHION THROUGH PROJECTOR MOUNTING ARM AND TERMINATE IN THE APPROPRIATE CONNECTION POINTS ON PROJECTOR.

11 T200 Typical Projector Mounting Detail For CMU And Stud Framed Walls
NTS

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RED CLAY CONSOLIDATED SCHOOL DISTRICT 1981

SHEET TITLE
TECHNOLOGY DETAILS

ISSUE BLOCK

Mark	Date	Description
3	7/30/2013	ADDENDUM #3

Revision Schedule

PROJECT NO:	12037
DATE:	07.01.2013
SCALE:	12" = 1'-0"
DRAWN BY: JRB	PROJ MGR: DTS

T200

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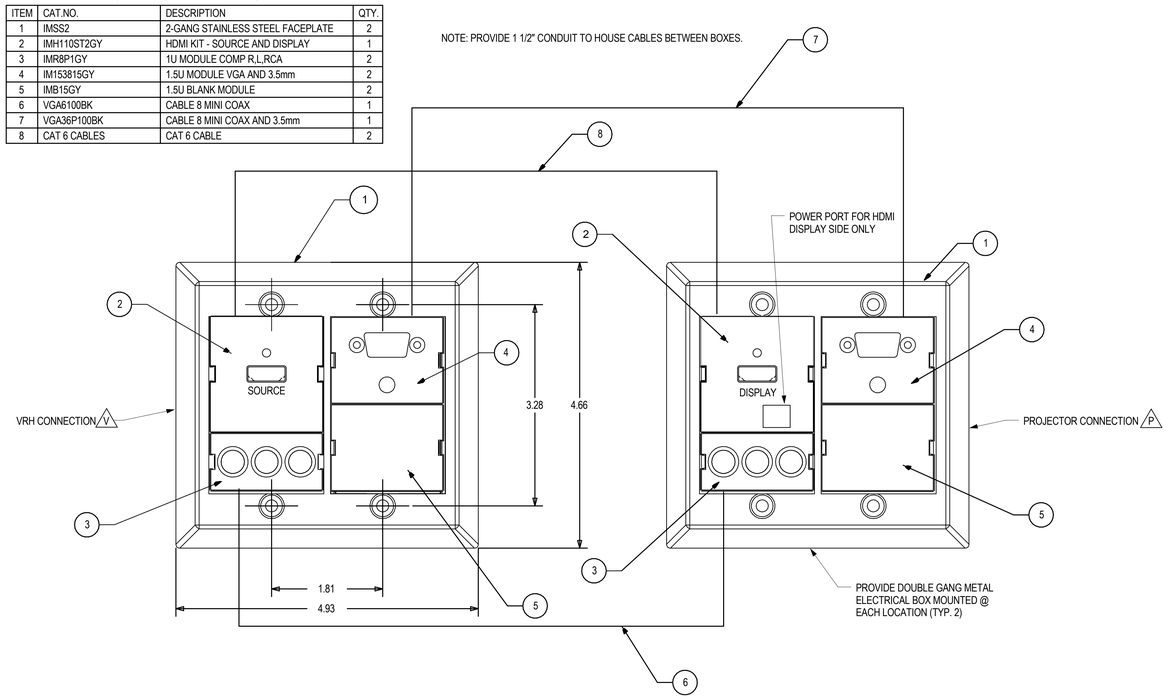
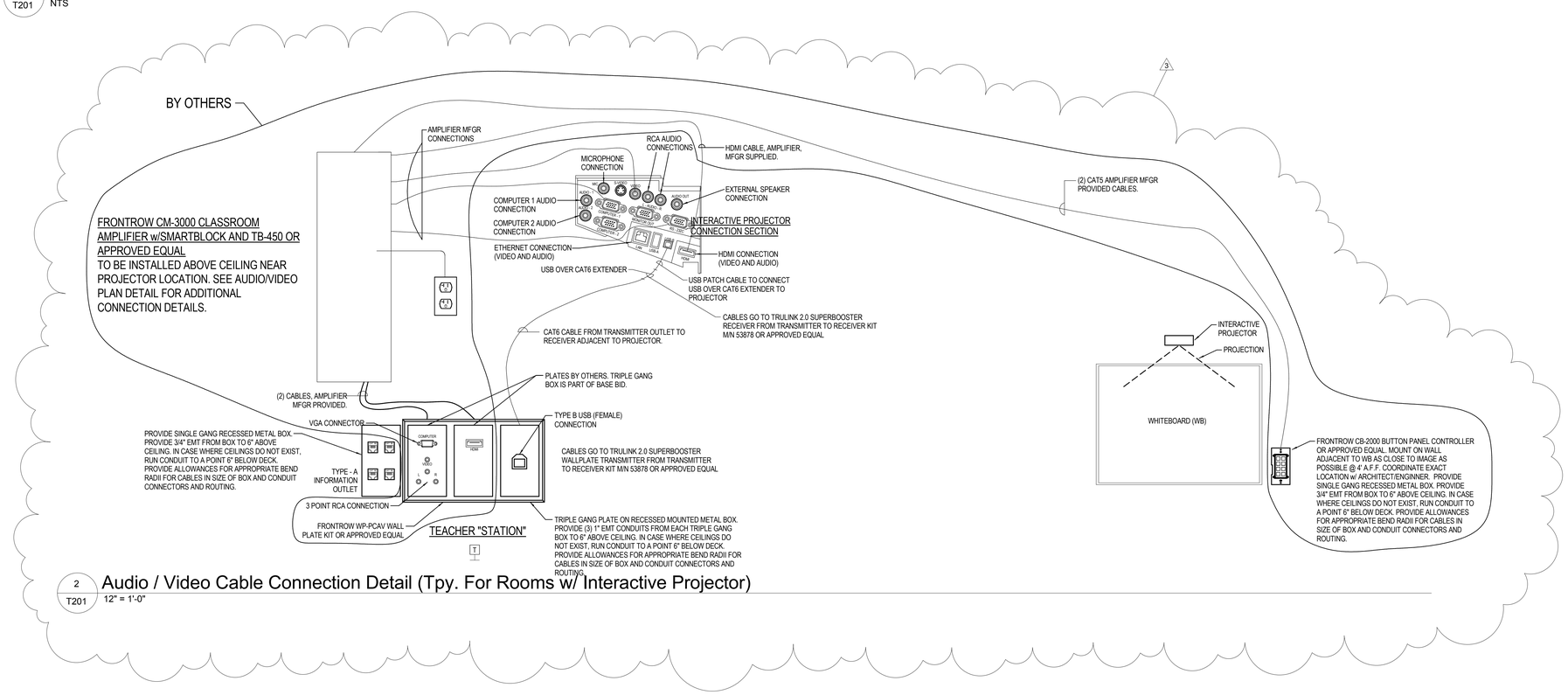
(HUBBELL OR APPROVED EQUAL)

ITEM	CAT.NO.	DESCRIPTION	QTY.
1	IMSS2	2-GANG STAINLESS STEEL FACEPLATE	2
2	IMH110ST2GY	HDMI KIT - SOURCE AND DISPLAY	1
3	IMR8P1GY	1U MODULE COMP R,L,RCA	2
4	IM153815GY	1.5U MODULE VGA AND 3.5mm	2
5	IMB15GY	1.5U BLANK MODULE	2
6	VGA6100BK	CABLE 8 MINI COAX	1
7	VGA36P100BK	CABLE 8 MINI COAX AND 3.5mm	1
8	CAT 6 CABLES	CAT 6 CABLE	2



1 T201 Stage Projector Connection Detail

NTS



2 T201 Audio / Video Cable Connection Detail (Tpy. For Rooms w/ Interactive Projector)

12" = 1'-0"

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PRE-BID MEETING MINUTES

RCCSD – Cooke Elementary School
The Whiting-Turner Contracting Co.
Newark, DE 19716

Project #13780
Tel: (302) 235-8398
Fax: (302) 292-0683

September 6, 2013 – COOKE ELEMENTARY JOBSITE CONFERENCE ROOM – 2:00 PM

I. Red Clay Consolidated School District – William F. Cooke Jr. Elementary School
   a. Whiting-Turner held a mandatory pre-bid meeting at Conrad School of Science on July 9, 2013.
   b. All attendees were asked to sign-in and provide contact information on the meeting sign-in sheets.
   c. All contractors in attendance were notified that only contractors that have signed in on the mandatory sign in sheet would be eligible to submit a bid for the project
   d. All contractors in attendance were given the opportunity to pick up a free CD containing all of the bid documents and specifications.

II. Project Team Introductions
   a. Red Clay Consolidated School District - Owner
      i. Ted Ammann (Noted as not present).
      ii. Marcin Michalski
   b. Becker Morgan Group - Architect
      i. Sandy Carpenter (Noted as not present).
   c. Whiting-Turner – Construction Manager-Adviser
      i. Frank Lerro
      ii. Lee Cherry
      iii. Dom Pavlik

III. Agenda
   a. Whiting-Turner reviewed the general outline/agenda for the mandatory pre-bid meeting.
      i. Items discussed:
         1. Project overview
         2. Bidding Information
         3. Schedule and Logistics
         4. Open Discussion/Questions

IV. Project Overview
   a. Whiting-Turner stated that the William F. Cooke Jr. Elementary School proposed as a 600 student facility.
   b. The building will be approximately 70,000 SF with single story and 2 story areas.
      i. The Kindergarten and 1st grade wing is a single story area; the 2nd through 5th grade wing is a 2 story area; the gym/dining/art/music area is a single story area.
   c. The project site is approximately 17 acres and will consist of work in the DelDOT right of way.
   d. The new construction is located in Hockessin, Delaware at the intersection of DE-41 (Newport Gap Pike) and Graves Road; entry to the project is from Graves Road.

V. Bidding Information

a. Whiting-Turner stated that a detailed scope of work is included in specifications for each trade.
    i. 09A – Studs & Drywall
b. Whiting-Turner is the Construction Manager-Adviser; Red Clay will hold contracts with each contractor.
    i. Whiting-Turner explained that the contract will be a standard AIA contract. A sample/draft copy of the AIA standard copy is included in the front end specifications.
c. WT stated that 100% P&P bonds will be required for each bid package.
d. WT stated that 2013 Prevailing Wage Rates for Building Construction will apply.
e. WT notified the pre-bid attendees that the following trades have been pre-qualified:
    i. Masonry
    ii. Steel
    iii. Roofing
    iv. Mechanical
    v. Electrical
    vi. Sitework
f. Whiting-Turner explained the bid form and bid process.
    i. The project bid form is included in Section 004000 of the Front End Specifications.
        1. WT stated that all bids must be submitted on the project specific bid form included in the front end.
    ii. WT stated that no qualifications or exclusions are permitted.
        1. WT informed contractors if bids included qualifications or exclusions that the bid would be considered non-responsive.
    iii. WT noted that the project has multiple alternates.
        1. WT stated that not all alternates will impact every trade contractor.
        2. If an alternate results in no pricing impact for your package, write N/A in the blank.
    iv. WT stated that TWO original bids must be submitted in a sealed envelope.
    v. WT informed attendees that a 10% Bid Bond is required for each package.
        1. WT stated that a bid bond form is included in the front end specifications.
        2. The bid bond is a state requirement and an original must be submitted with the bid.
    vi. KEY BIDDING DATES:
        1. BIDS DUE: TUESDAY SEPTEMBER 24, 2013 at 2:00 PM at COOKE ELEMENTARY JOBSITE CONFERENCE ROOM
            a. WT stated that this is a public bid opening.
        2. Last Day for Substitution Requests
            a. September 14, 2013 at 2:00 PM
        3. Last Day for Questions
            a. September 17, 2013 at 2:00 PM
        4. Last Addendum
            a. September 19, 2013

VI. Schedule and Logistics
    a. Whiting-Turner stated that the project schedule is from August 2013 to February 2015.

        i. WT noted that a detailed construction schedule is included in the front end specifications.
        ii. WT noted that site logistics plans are included in the front end specifications.
        iii. WT stated that contractors are expected to bid per the schedule and durations.

VII. Drawings and Specifications

a. WT provided bid drawings and specifications on September 6, 2013.
    i. CD provided at the pre-bid meeting including all bid drawings and specifications.
    ii. Whiting-Turner's FTP site (box.com) link was sent to meeting attendees on 9/6/2013; the link provides access to download all bid drawings and specifications.
b. Hard copies of the drawings and specifications are available for review.
    i. Whiting-Turner's field office: 2025 Graves Road, Hockessin DE, 19707
c. WT noted that printed drawings and specifications can be purchased through RCI at 302-328-5019.
d. WT noted that bid addenda will be posted via WT's FTP site and notifications will be sent via email.
    i. WT stated that the addenda files will be sent via email if the file size is not too large.
    ii. WT stated that only those with FTP site access will be notified of addenda. It is each trade contractor's responsibility to get information out to their 2nd tier subs and suppliers.
e. Send all bid related questions and substitution requests to Frank Lerro
    i. Frank.lerro@whiting-turner.com
    ii. 302-235-8398 (phone)
    iii. WT stated that responses to questions will be included in the bid addenda.

VIII. Closing

a. Subcontractor listings will be required for certain trades as noted on the bid forms.
    i. Include subcontractor/2nd tier qualifications as required.

September 6, 2013

WILLIAM F COOKE, JR ELEMENTARY SCHOOL
PRE-BID MEETING SIGN-IN SHEET

Bid Package	Contractor	Name	E-mail Address	Telephone #	Fax #
	ALN	BRIAN HEHER	R.LEID @ ALN CONSTRUCTION.COM B HEHER @ ALN construction.com	302-292-1580	302-292-1836
	Peninsula Acoustical Co.	Morgan Wilson	morgan.Peninsula@gmail.com	302-653-3551	302-653-6091
	Bristol ind Corp	JEROME Robinson	ACRISTOL@aol.com	302 322 1100	302 322 1199
	Jason Bamble	Mason Building Gen	jbamble@masonbuildg.com	302 2920600	302 292 6494
	NEC	MICHAEL GIOFFRE	MIKEGIOFFRE@VERIZON.NET	302-286-6324	302-286-0566
	BCI	JOHN de PROPHETIS	KCOLDIRON@BCI-ONLINE.COM	302-325-2700	302-325-2733
	BRISTOL	ED TAYLOR	SAME AS ABOVE	302-3221100	

September 6, 2013

WILLIAM F COOKE, JR ELEMENTARY SCHOOL
PRE-BID MEETING SIGN-IN SHEET

Bid Package	Contractor	Name	E-mail Address	Telephone #	Fax #
09A	HERITAGE INTERIORS	JEFF FAULK	jeff@heritageinteriors.net	302-369-3199	302-369-1364