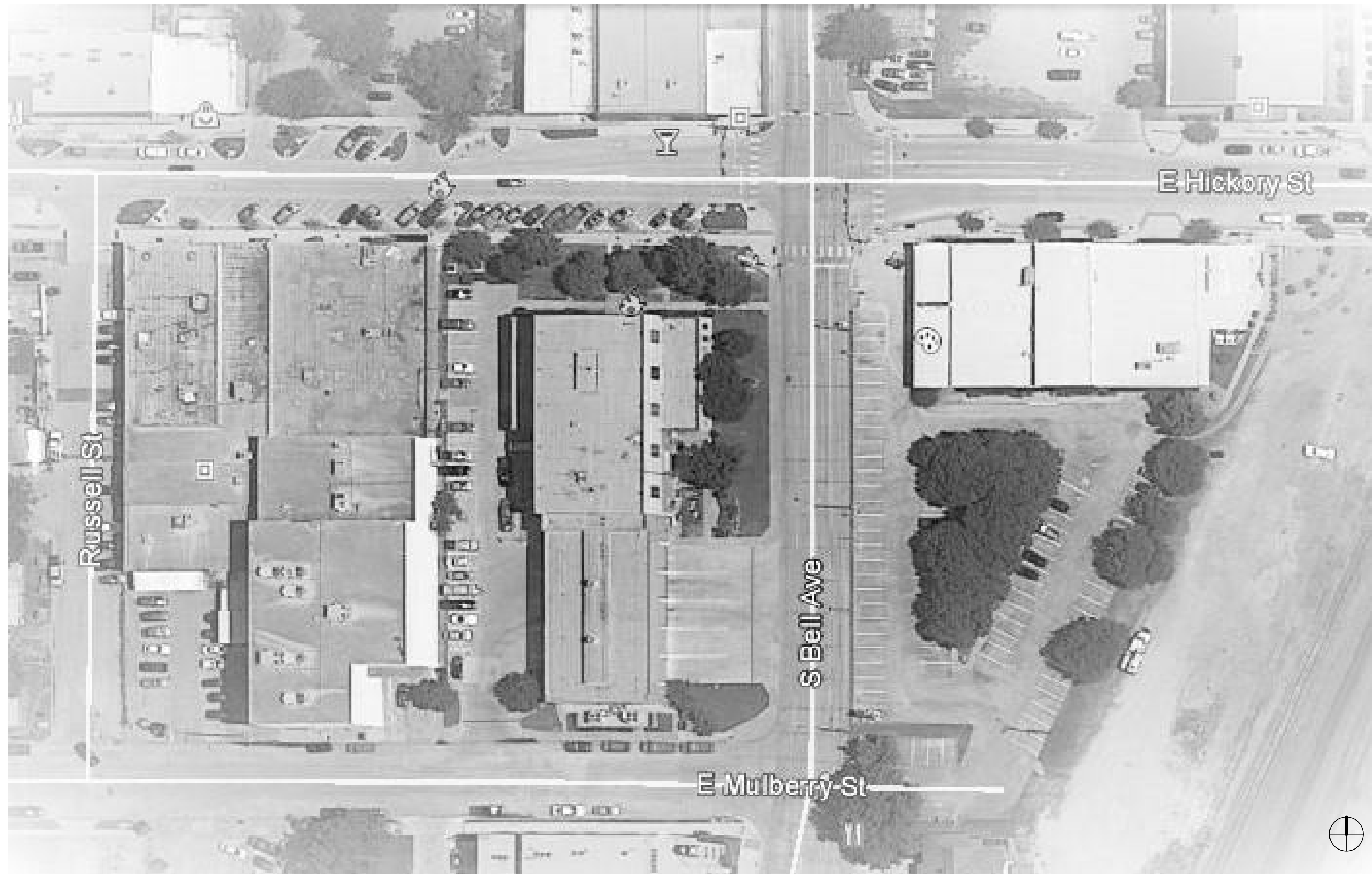


# 911 MEMORIAL



# DENTON TEXAS

## KIRKPATRICK ARCHITECTURE STUDIO

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Denton, Texas  
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75007

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KIRKPATRICK  
ARCHITECTURE  
STUDIO

02/16/2017

INCLUDED IN THIS ISSUE  
ISSUE DATE OF SHEET  
REVISION NUMBER

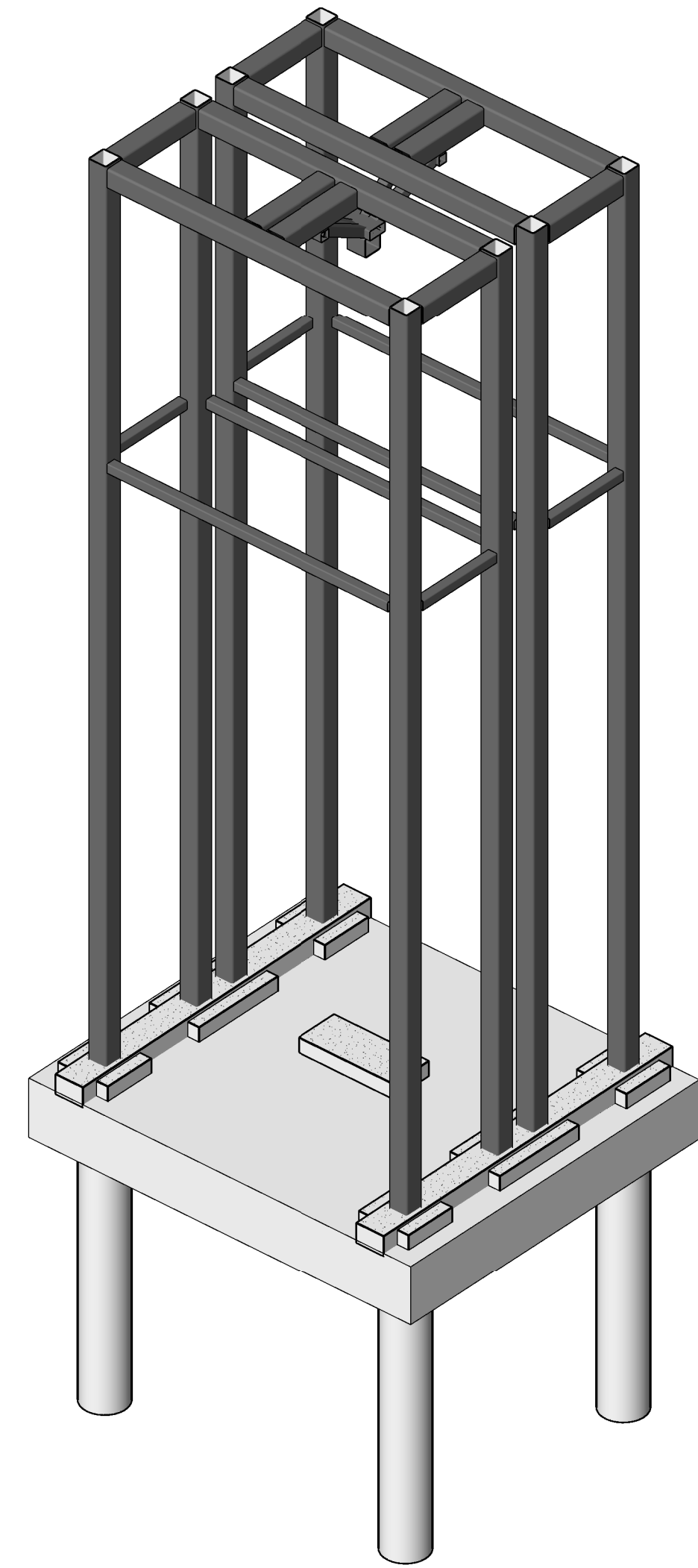
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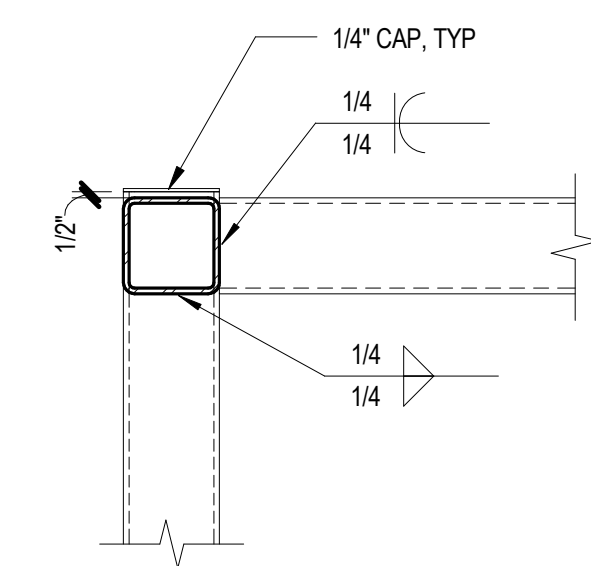


# GENERAL NOTES

- COORDINATION**  
Structural drawings are not stand-alone. Coordinate with Architectural documents.
- Promptly report deviations and interferences with structural components for resolution by the Engineer.
- Do not scale plans, details and sections for quantity, length or fit of materials.
- TEMPORARY BRACING**  
Structural systems are designed for in-place conditions only. Contractor shall provide temporary bracing of structural components for conditions that will exist during construction and to meet all regulatory requirements for safety of workmen.
- CODES AND STANDARDS**  
Building Code of Jurisdiction: 2012 International Building Code  
Structural Concrete Code: American Concrete Institute (ACI) 318  
Structural Steel Code: American Institute of Steel Construction (AISC) 360.
- SPECIAL INSPECTIONS**  
Provide special inspections per Section 1704 of the 2012 International Building Code and as follows: Verify placement locations and plumbness. Maintain complete and accurate record of size, length, and embedment into bedrock. Inspect formwork shape and location and placement of concrete reinforcing. Verify use of specified concrete mix design and placement of concrete. Inspection of structural steel to comply with AISC 360. Inspection of welding to comply with AWS D1.1.
- DESIGN CRITERIA**  
Wind Loads  
Basic Wind Speed : 115 mph  
Wind Risk Category : II  
Wind Exposure Classification : C
- GEOTECHNICAL REPORT**  
Design of foundations and structural components in contact with soil is based on the recommendations given in the following:  
Report by : Isbell Engineering Group, Inc.  
Date of Report : July 16, 2001  
Report Number : G01061
- STRAIGHT SHAFT PIERS:**  
Design Criteria:  
Bearing Stratum : Gray limestone  
Depth to Bearing Stratum : 30 ft  
(for Bidding Purposes Only)  
Allowable End Bearing : 25,000 psf  
Positive Side Friction : 2,800 psf  
Upheaval Side Friction : 1,500 psf  
Upheaval Design Depth : 10 ft  
Negative Side Friction : 2,200 psf
- Place concrete within 8 hours of drilling pier shaft. Overpour at tops of piers ("mushrooms") shall be removed to the required pier diameter.
- QUALITY CONTROL**  
Inspect drilling of each pier hole. Determine location of bearing stratum measured from ground surface. Measure depth of penetration into stratum. Inspect condition of base prior to concreting, measure size and quantity of reinforcing in pier cages, and monitor concrete placement including time between drilling and placement. Where un-anticipated subsurface conditions prevent proper installation of piers, do not proceed with work until directed by Architect.
- STRUCTURAL CONCRETE**  
Forming shall be monolithic and formed both sides. Limit deflections of forms to provide smooth, straight surfaces without unsightly bulges and deformations. Limit deformations of forms for architecturally exposed surfaces to 0.0025 times the span of each component. Use non-staining form release agent. Comply with ACI 318 and 347.
- Provide retained void space as shown. Use corrugated, water resistant fiberboard void boxes capable of supporting weight of wet concrete without crushing. Do not use material that is entirely wax impregnated. Provide 1/2" thick Wonderboard glass-mesh concrete backerboard for use as void retainers.
- Steel reinforcing bars shall be Grade 60 and deformed in accordance with ASTM 615. Shop fabricate to required lengths with required bends. Do not use reinforcing with kinks, unrequired bends, or re-straighten bars bent more than 30 degrees. Use sufficient supports and spacers to maintain position during concrete placement. Comply with ACI 318.
- Concrete shall be normal weight (145 pcf) with compressive cylinder strength of 3000 psi at 28 days and slump of 3-5 inches. Cement shall be Type I or III Portland Cement and shall conform to ASTM C150. Aggregates shall conform to ASTM C33. Thoroughly consolidate concrete and wet cure 7 days for Type I cement and 3 days for Type III cement, or until tests show concrete has reached 70% design strength. Comply with ACI 318.
- QUALITY CONTROL**  
Design concrete mix in accordance with ACI 318. Provide evidence of average strength by field strength tests, strength test records or trial mixtures. During construction make one strength test for each 100 cubic yards or fraction thereof placed in any single day. A single strength test shall consist of 4 cylinders; one to be tested at 7 days; two to be tested at 28 days; and one reserved for future test if required. Secure composite samples in accordance with ASTM C172, mold and cure samples in accordance with ASTM C31, and test specimens in accordance with ASTM C39. Determine slump and temperature for each strength test.
- STRUCTURAL STEEL**  
Structural Steel Properties:  
High Strength Steel : ASTM A992 Grade 50  
Use for W shapes, u.n.o.  
Structural Steel (Normal Strength) : ASTM A36  
Use for Angles and Plates, u.n.o.  
Hollow Structural Sections (HSS) : ASTM A500, Grade B
- Steel fabrication and erection shall conform to AISC Manual of Steel Construction, Ninth Edition.
- WELDING**  
Welding procedures and techniques, welders and tackers shall be qualified in accordance with AWS D1.1.
- Welding electrodes shall conform to AISC Specifications. Use E70 electrodes for ASTM A36 and ASTM A500, Grade B steel. Coatings of low-hydrogen electrodes shall be thoroughly dry when used. Electrodes taken from hermetically sealed packages shall be used within 4 hours, or shall be dried in accordance with AWS D1.1 before use. Do not use electrodes of any type that have been wet.
- Unless otherwise noted, angles, plates, rods, and miscellaneous framing shall be welded at contact joints and supports. Weld sizes shall conform to AWS D1.1 minimums, except where noted otherwise.
- Where fillet weld sizes are not indicated on weld symbols, fillet size shall be 1/10th inch smaller than thickness of thinner of materials being joined.

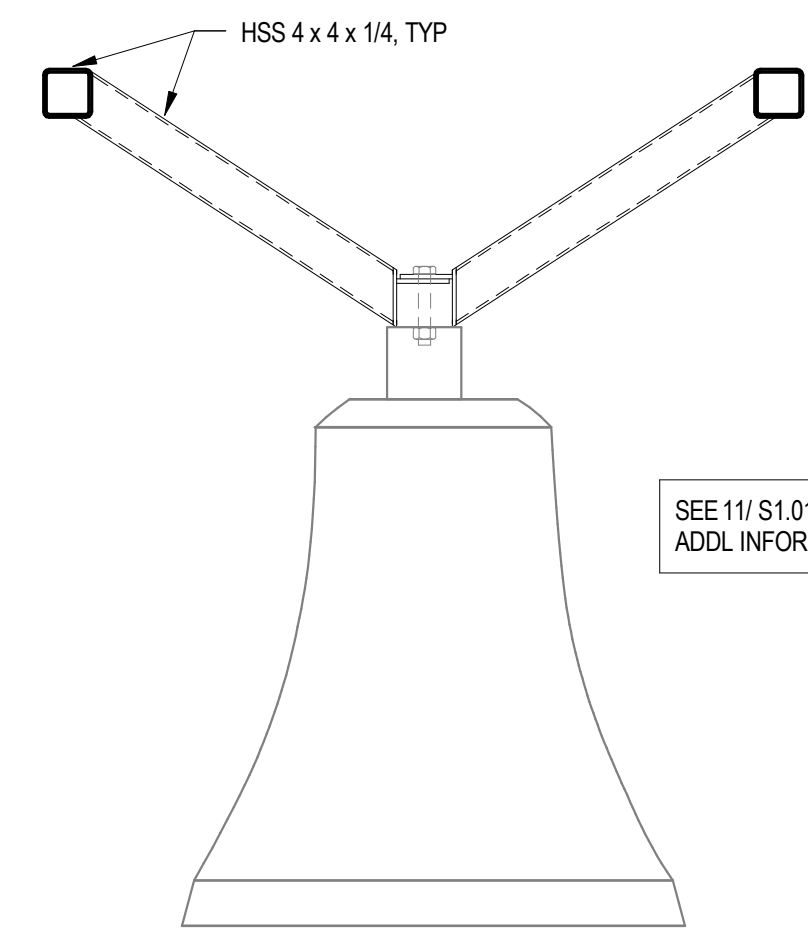


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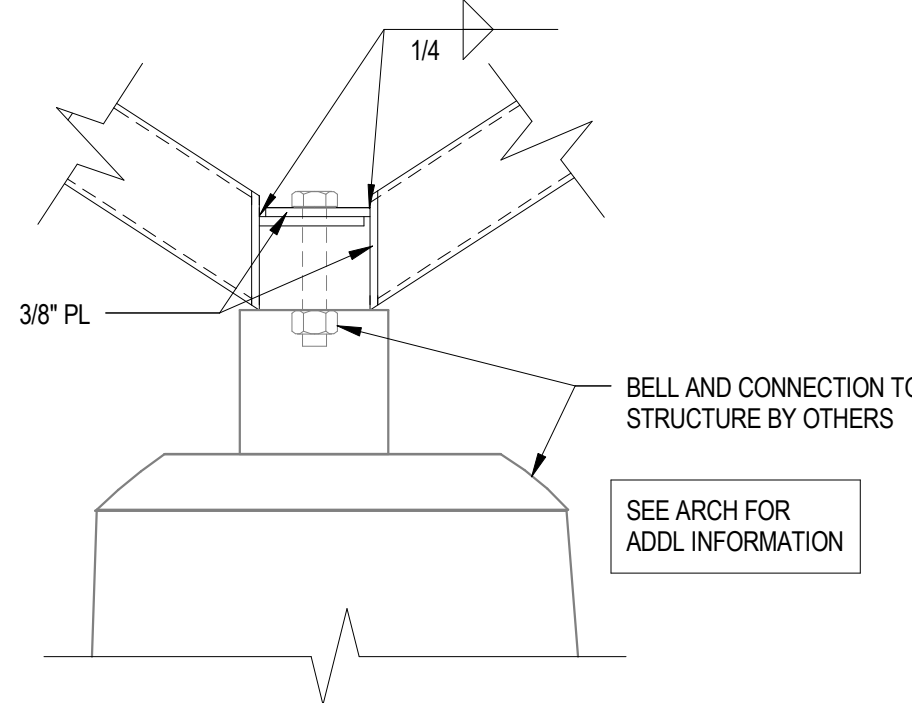
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3/4" = 1'-0"



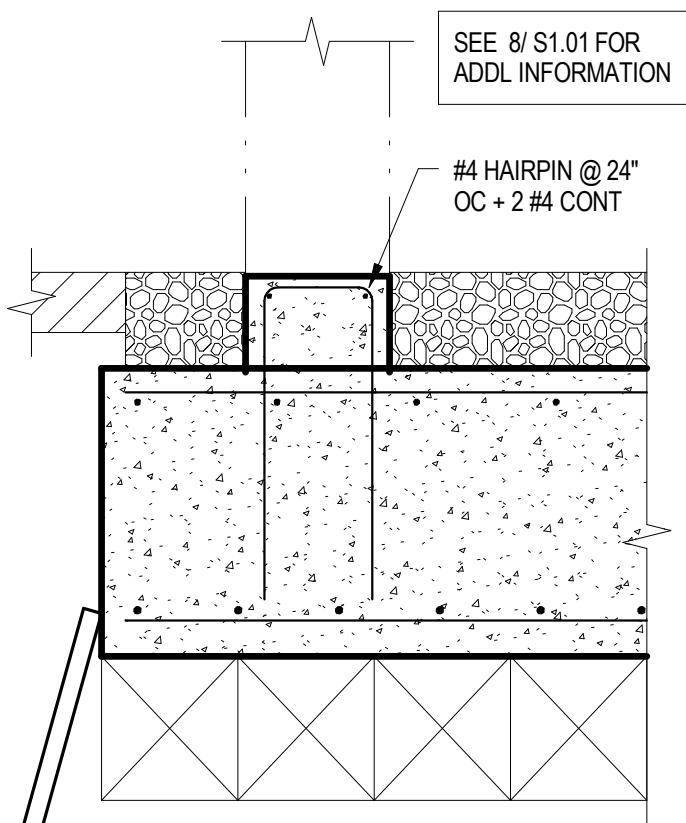
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3/4" = 1'-0"



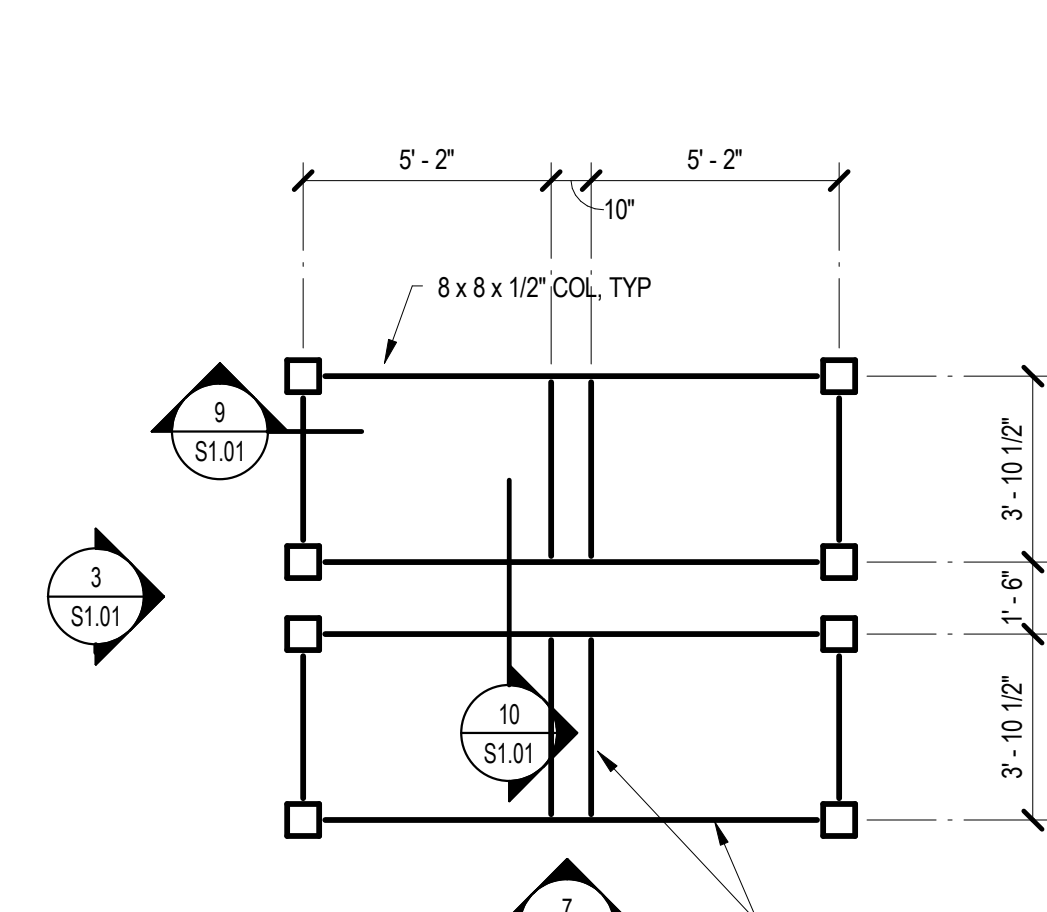
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1/2" = 1'-0"



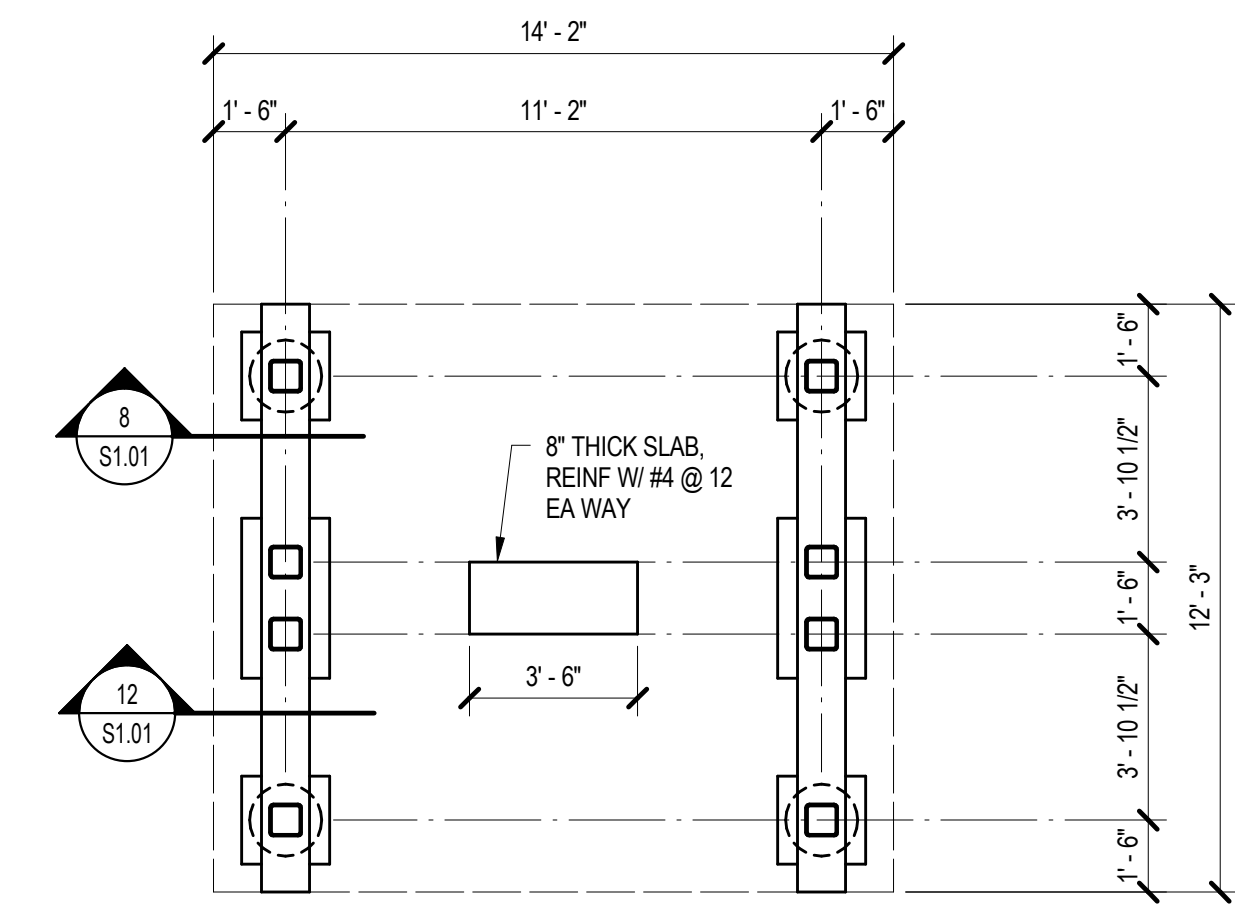
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3/4" = 1'-0"



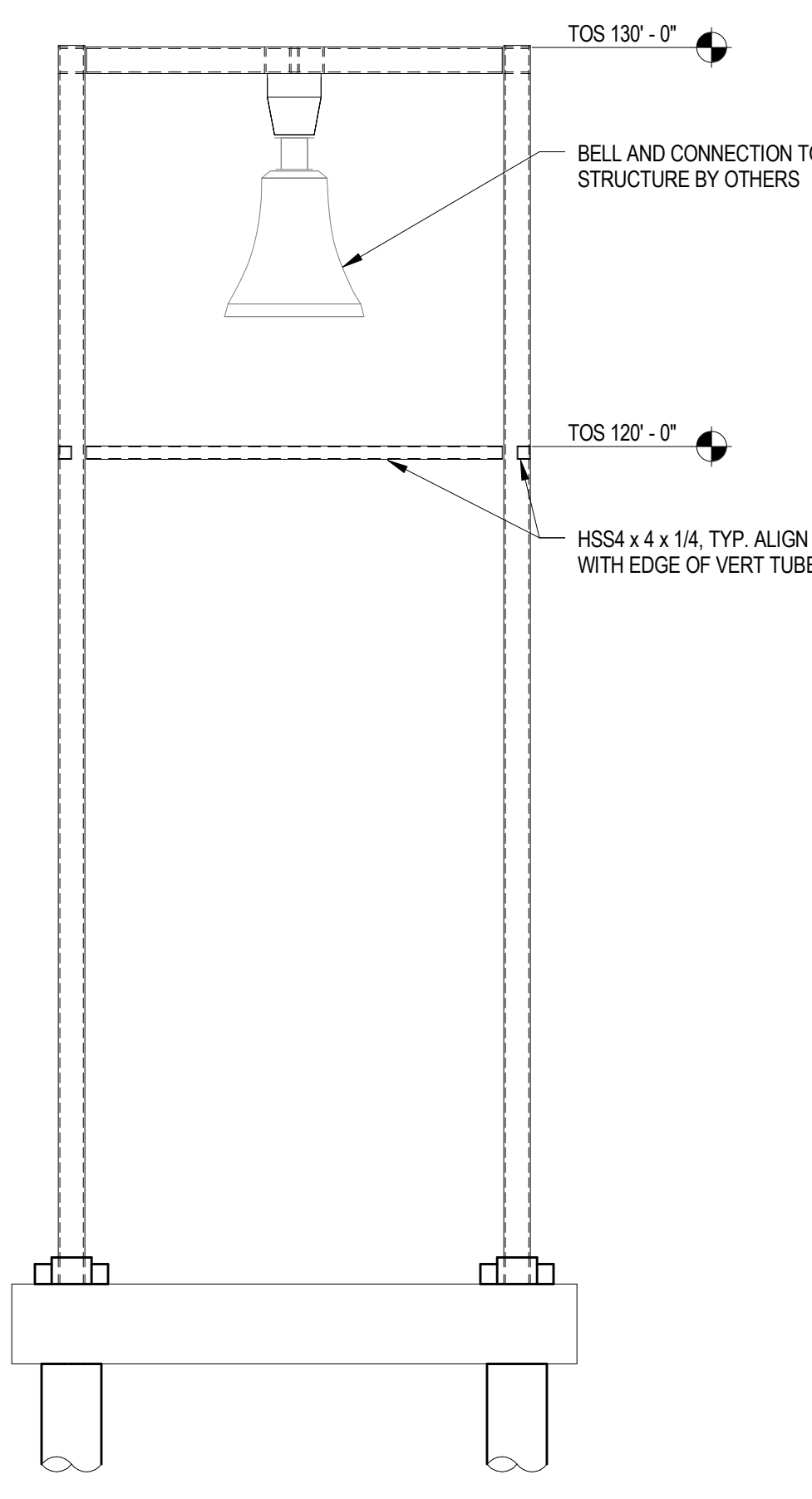
5 ROOF FRAMING PLAN

1/4" = 1'-0"



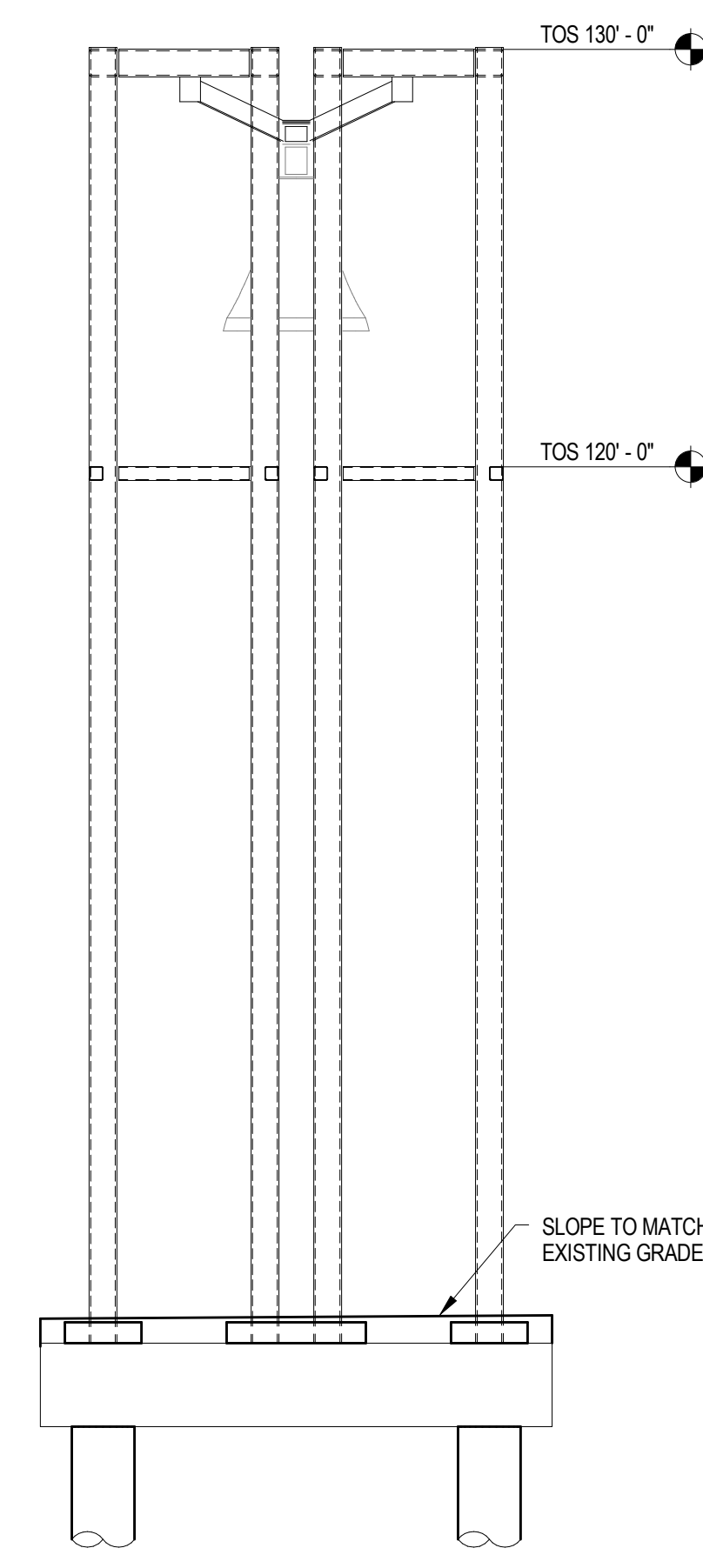
1 FOUNDATION PLAN

1/4" = 1'-0"



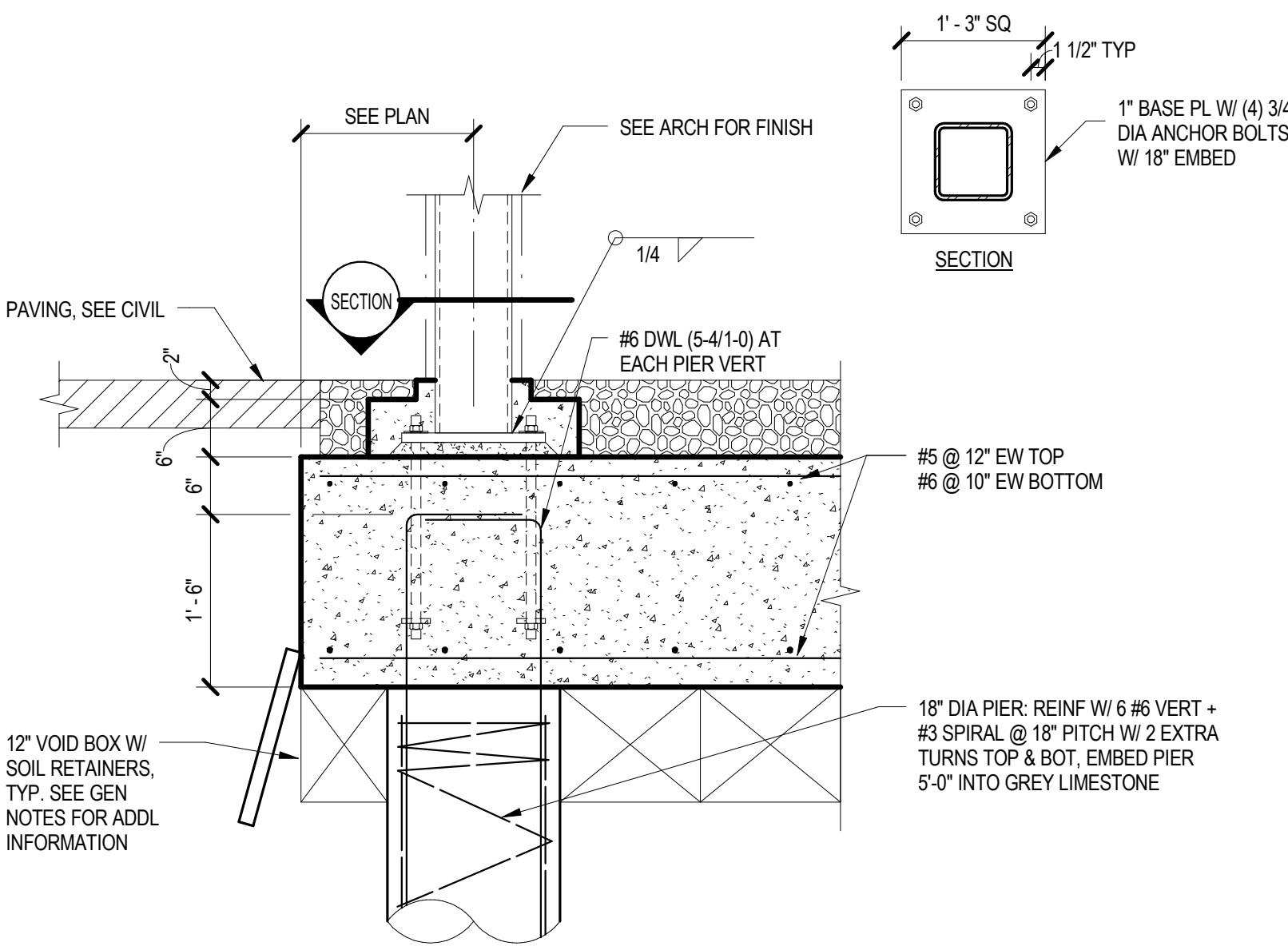
7 SIDE ELEVATION

1/4" = 1'-0"



3 END ELEVATION

1/4" = 1'-0"

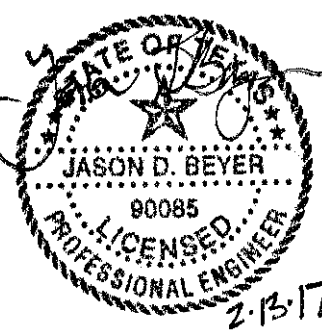


8

3/4" = 1'-0"

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9/11 FIREFIGHTER'S MEMORIAL BELL TOWER  
THE CITY OF DENTON  
332 E HICKORY ST.  
DENTON TEXAS



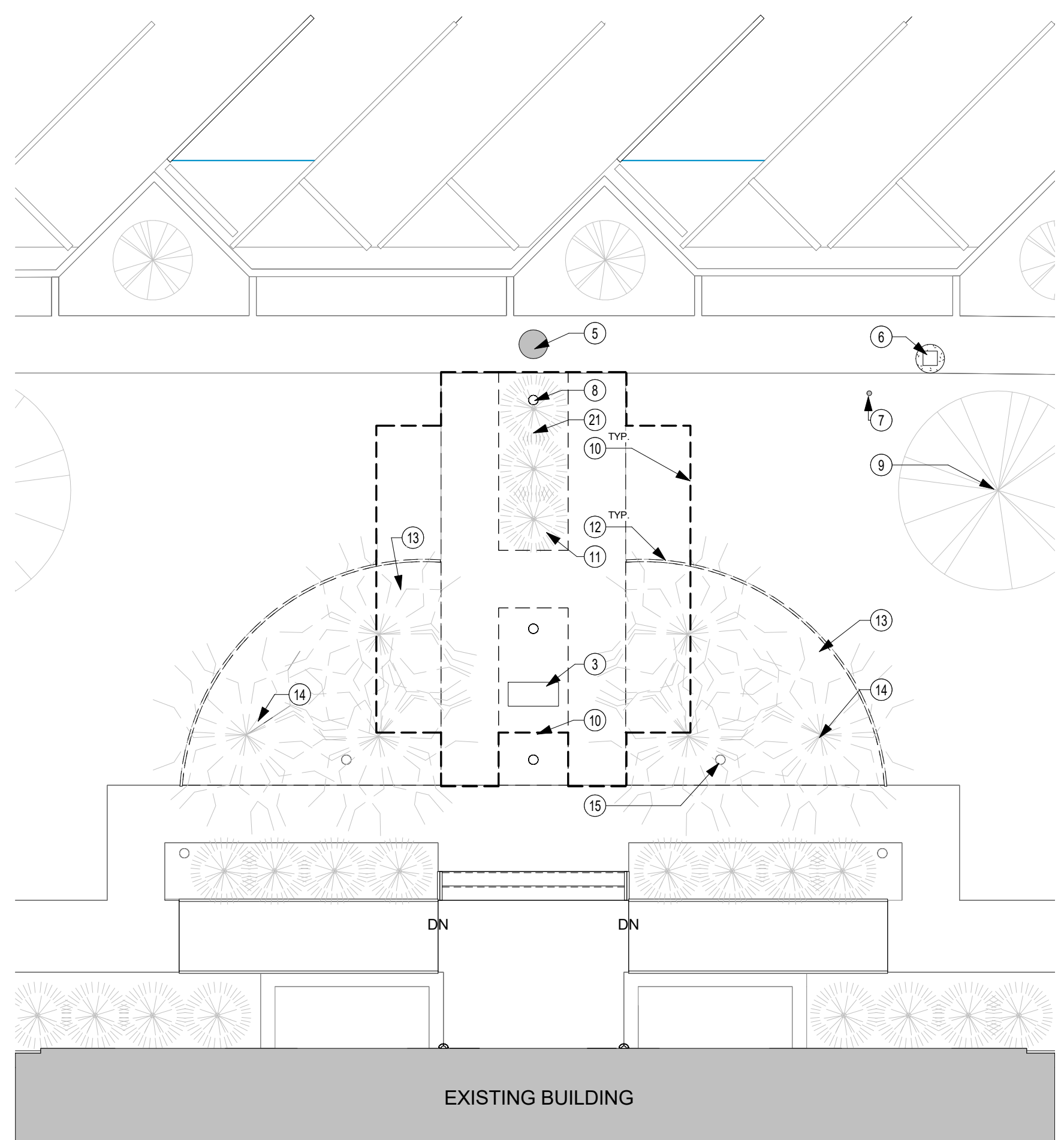
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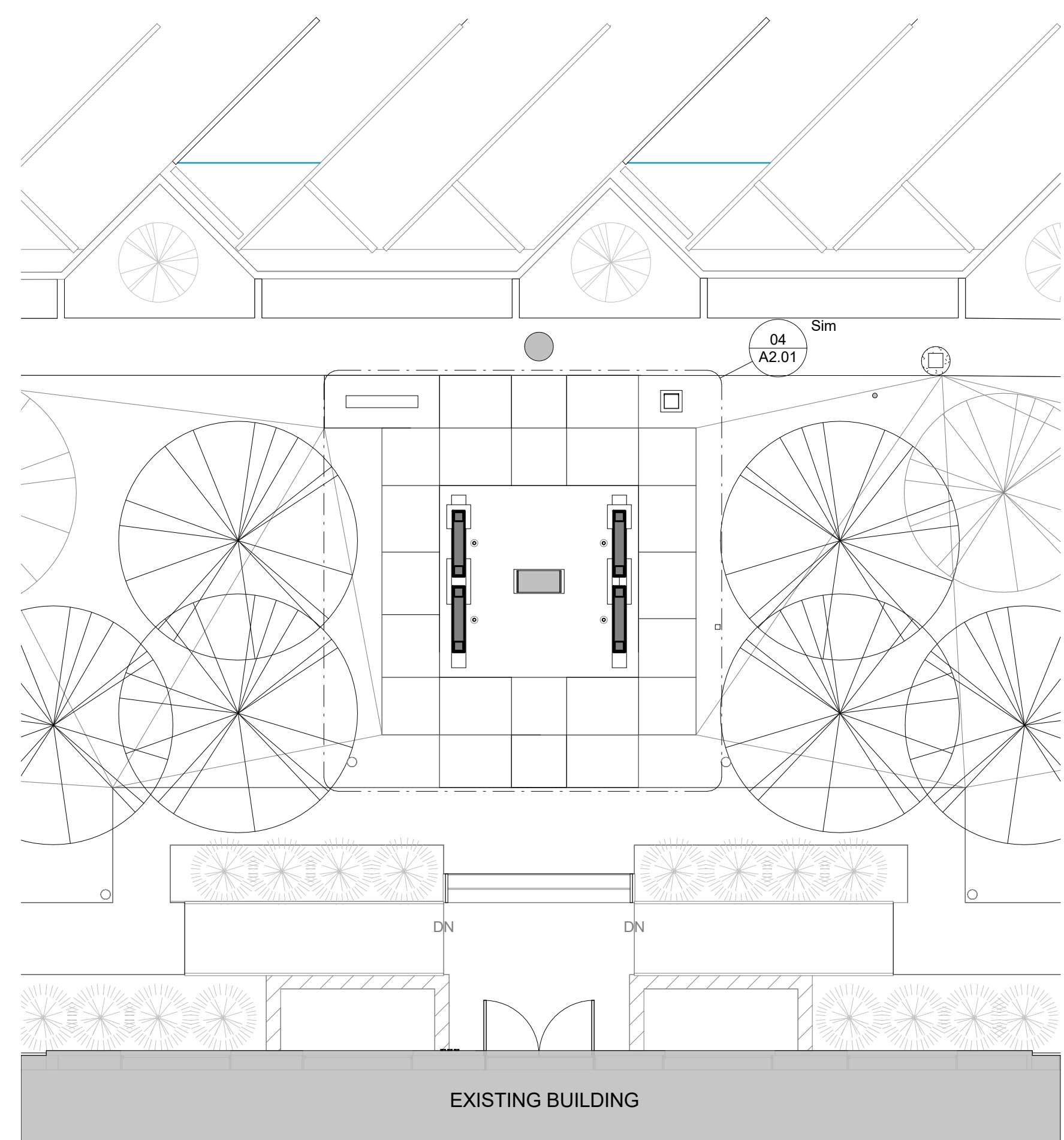
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DETAILS

DATE :  
02/13/2017

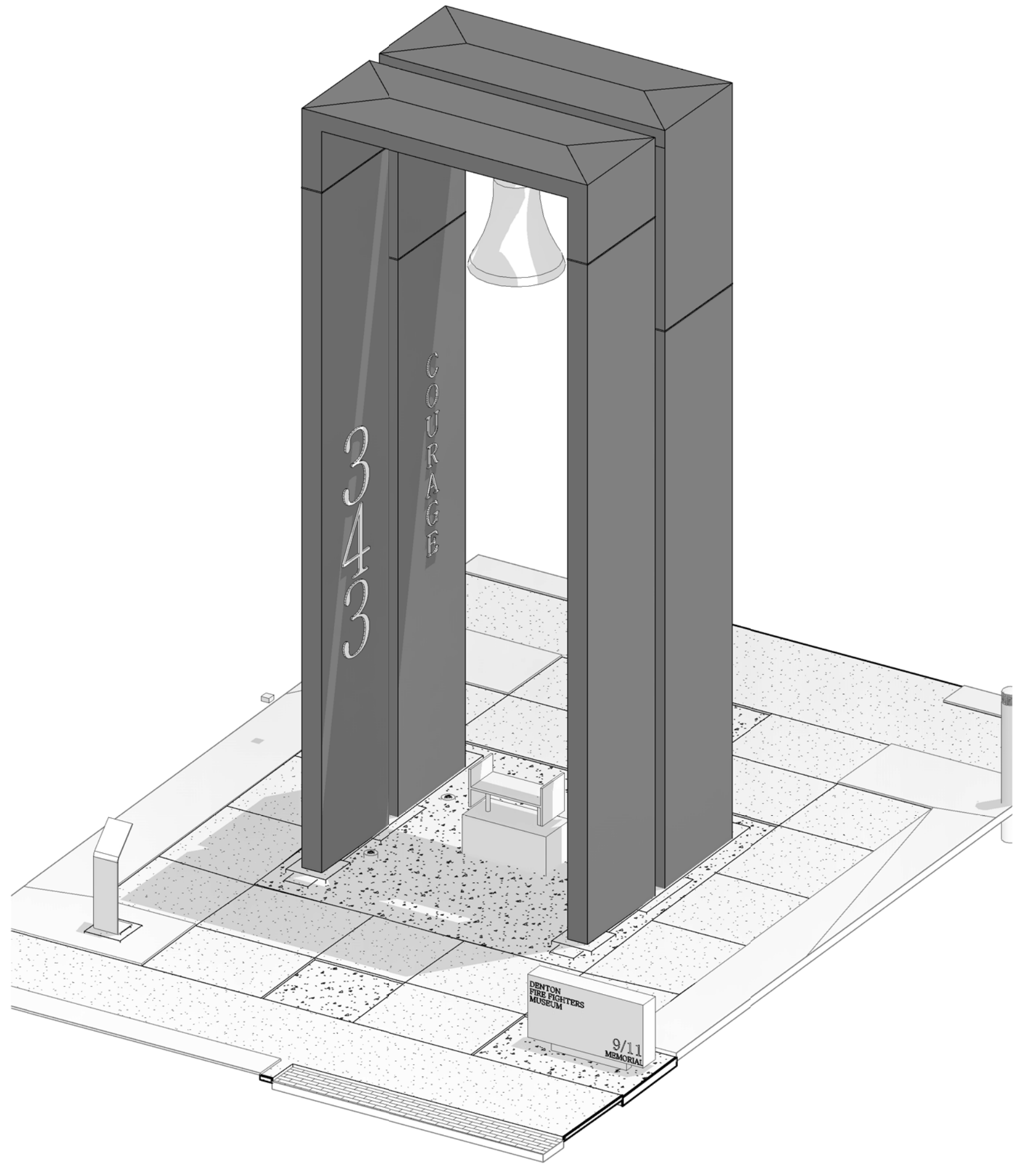
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S1.01



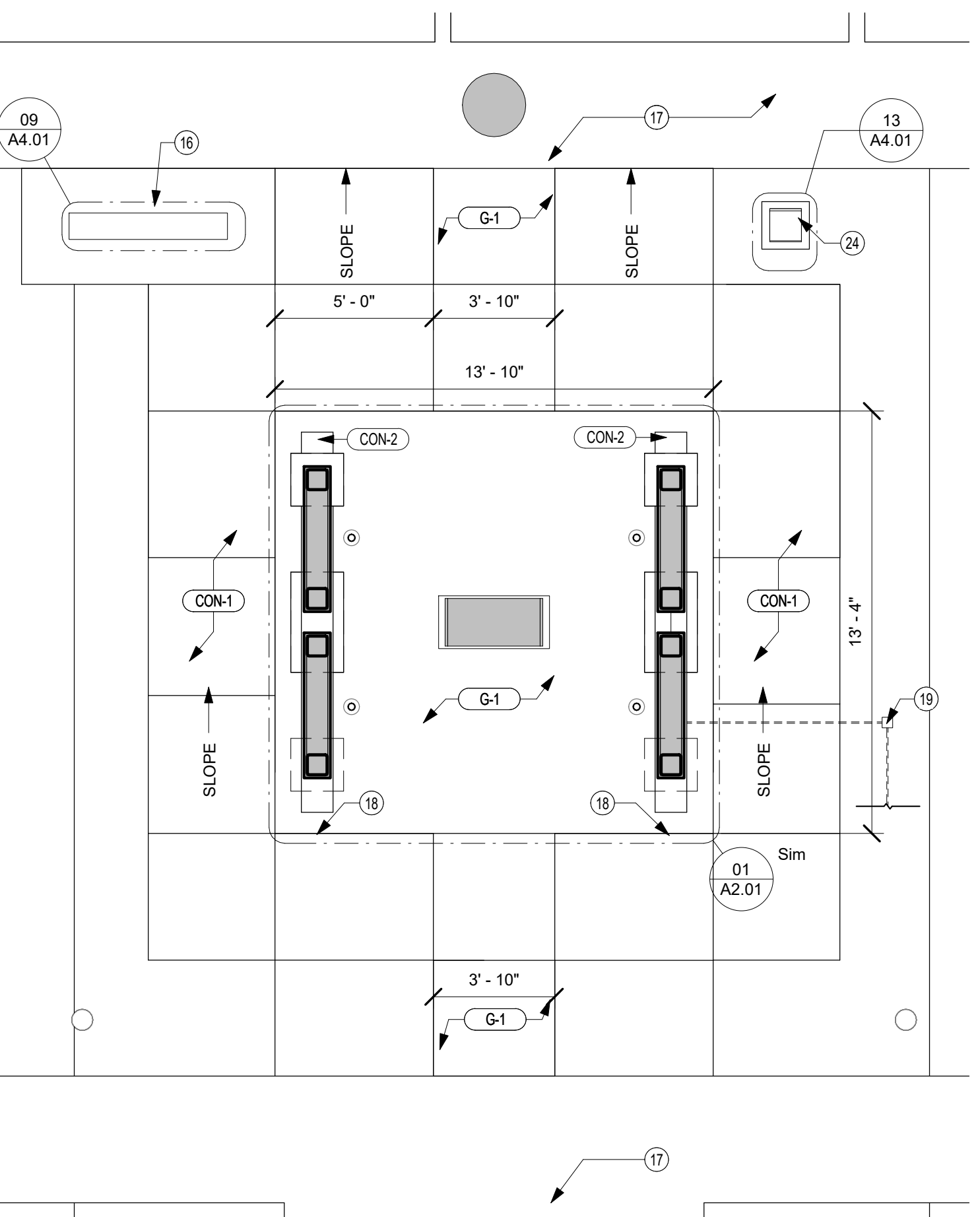
07 DEMO SITE PLAN  
1/8" = 1'-0"



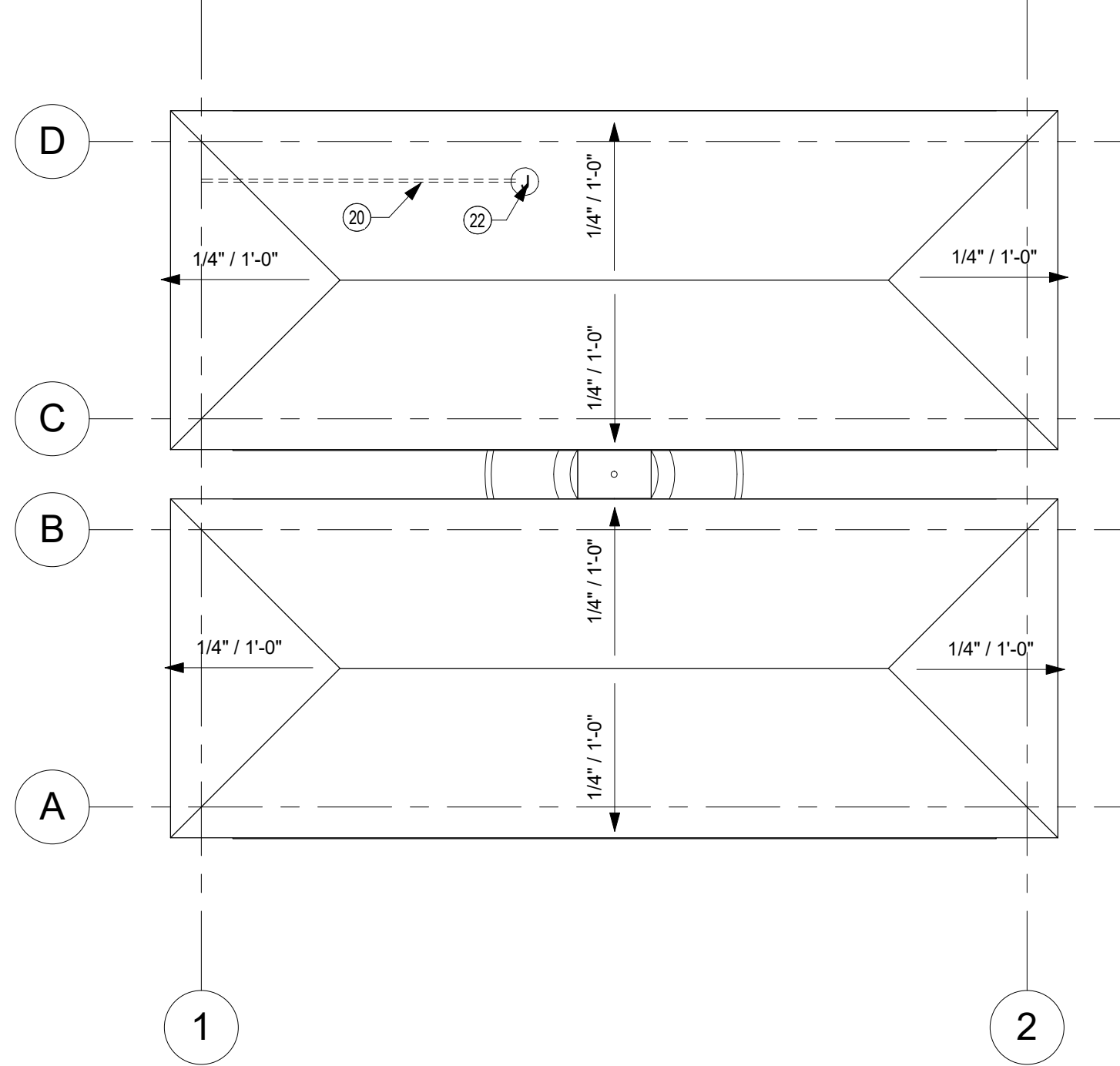
06 SITE PLAN  
1/8" = 1'-0"



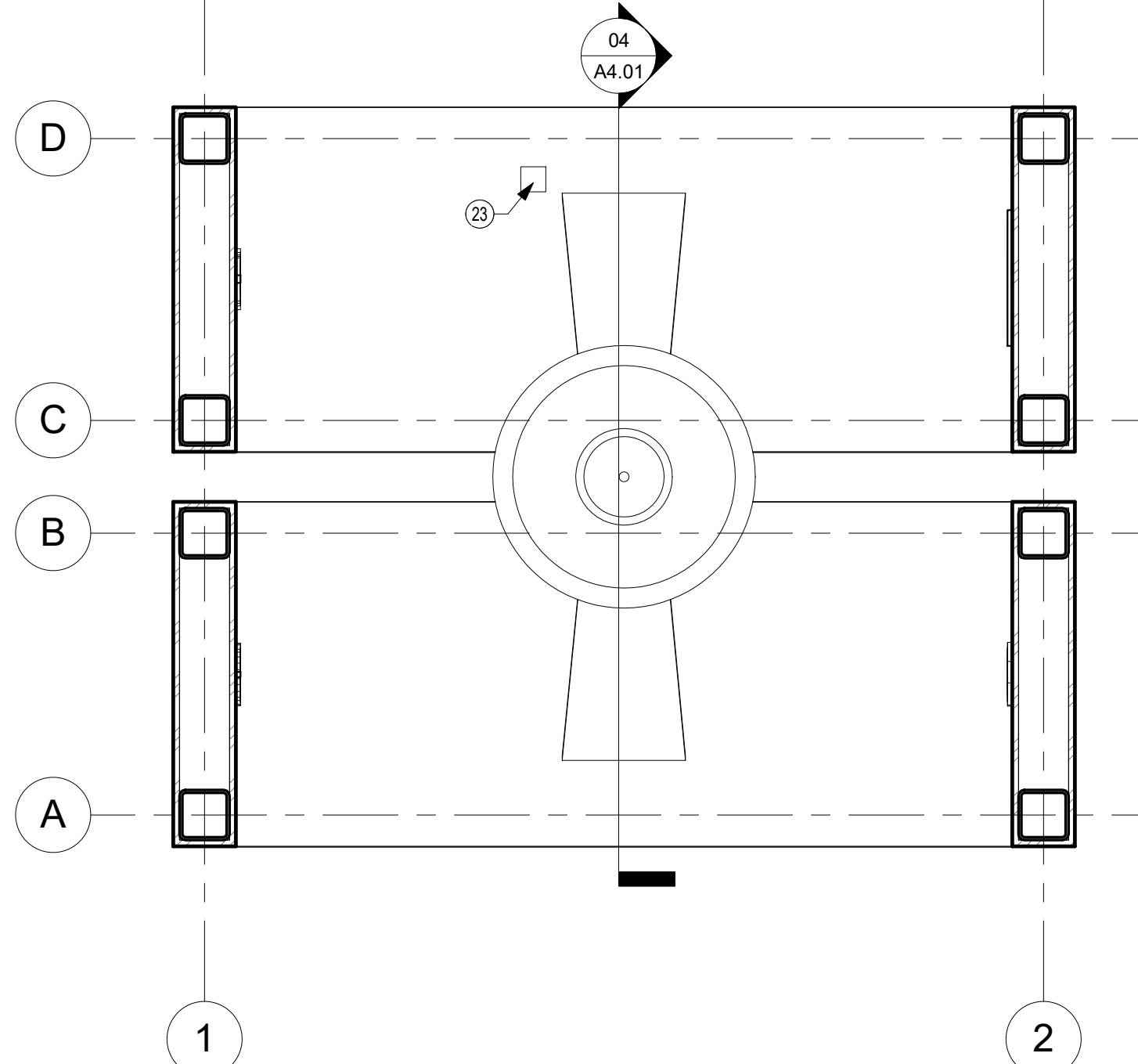
05 3D PLAN



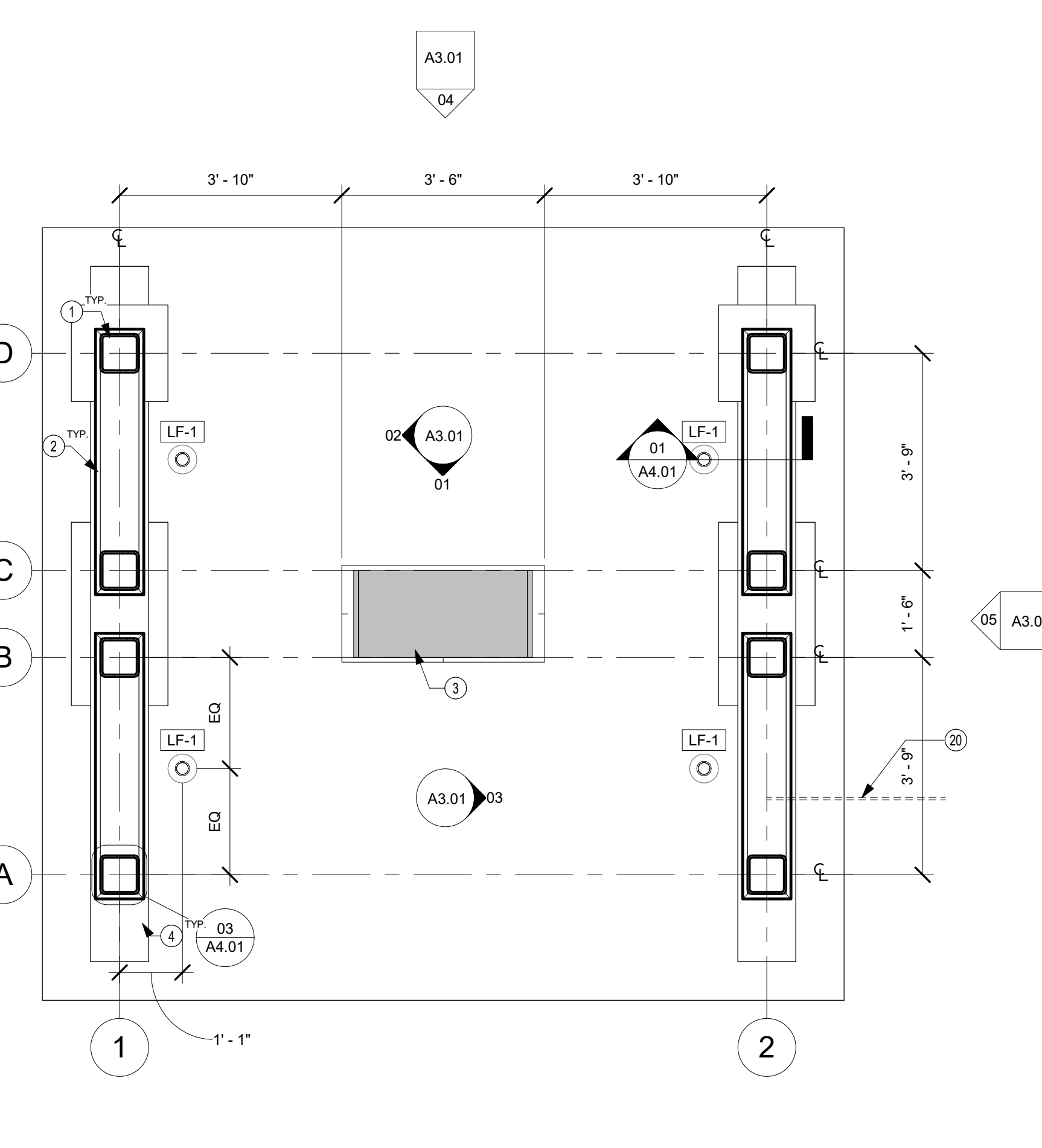
04 FLOOR PLAN  
1/4" = 1'-0"



03 ROOF PLAN  
1/2" = 1'-0"



02 REFLECTED CEILING PLAN  
1/2" = 1'-0"



01 COURTYARD DETAIL  
1/2" = 1'-0"

GENERAL NOTES

- ALL WORK PERFORMED BY THE GENERAL CONTRACTOR SHALL BE PERFORMED IN ACCORDANCE WITH RECOGNIZED STANDARDS OF GOOD WORKMANSHIP. THE GENERAL CONTRACTOR IS TO PROVIDE ALL LABOR, MATERIAL, EQUIPMENT AND SERVICES NECESSARY AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS TO PROVIDE A COMPLETE AND FINISHED SPACE. THIS INCLUDES ALL ARCHITECTURAL, ELECTRICAL, PLUMBING, HEATING AND VENTILATION, AND FIRE SAFETY TRADES. ALL MATERIALS SHALL BE OF FIRST QUALITY AND SHALL MEET RECOGNIZED STANDARDS OF QUALITY ESTABLISHED FOR THEIR GENERIC GROUP. ALL METHODS OF CONSTRUCTIONS AND ASSEMBLY SHALL COMPLY WITH MANUFACTURER'S RECOMMENDATIONS.
- THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, ORDINANCES, AND THE RULES AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION OVER CONSTRUCTION OF THE PROJECT SHALL APPLY TO THE CONTRACT THROUGHOUT, AND THEY WILL BE DEEMED TO BE INCLUDED IN THE CONTRACT AS THOUGH HEREIN WRITTEN OUT IN FULL.
- THIS PROJECT INVOLVES CONSTRUCTION ON AN EXISTING SITE. CONTRACTORS BY SUBMITTING A BID ARE ASSUMED TO BE COMPLETELY FAMILIAR WITH THE SITE CONDITION OF THE MEMORIAL AS IT INFLUENCES THE WORK DESCRIBED IN THE OTHER CONSTRUCTION DOCUMENTS. ABSOLUTELY NO CLAIMS FOR EXTRA COST WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERRABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING.
- IT SHALL BE THE FULL RESPONSIBILITY OF THE GENERAL CONTRACTOR TO COORDINATE AND EXPEDITE ALL PHASES OFF ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL WORK, REGARDLESS OF WHETHER THE OWNER AWARDS SEPARATE CONTRACTS FOR ANY TRADES, BRANCHES, OR ITEMS OF WORK AND EQUIPMENT. ALL OTHER TRADES, SUB-CONTRACTORS AND/OR SEPARATE CONTRACTORS SHALL COOPERATE FULLY WITH THE GENERAL CONTRACTOR.
- THE GENERAL CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS REQUIRED.
- CONTRACTOR SHALL REPAIR, REPLACE AND PATCH ALL ITEMS DAMAGED AS A RESULT OF CONSTRUCTION.
- THESE DRAWINGS HAVE BEEN DEVELOPED FROM EXISTING DOCUMENTS WHICH MAY NOT REFLECT ACTUAL FIELD CONDITIONS. VERIFY THESE DRAWINGS WITH EXISTING FIELD CONDITIONS AND NOTIFY THE ARCHITECT IMMEDIATELY OF ANY INCONSISTENCIES BETWEEN ACTUAL AND PROPOSED CONDITIONS BEFORE PROCEEDING WITH CONSTRUCTION.
- PROVIDE SAVED OR TOOLED CONTROL JOINTS (CJ) AS INDICATED ON PLAN AND AT 8'-0" MAXIMUM.

PROJECT NOTES

- SCULPTURE TO BE SHEATHED IN 1/4" CORTEN STEEL PANELS.
- SCULPTURE IS TO ARRIVE AT SITE PREPARED SO THAT NO INDICATION OF WELDS OR MARKS FROM FABRICATION ARE VISIBLE. IT IS INTENDED THAT THE MEMORIAL SHALL NOT ARRIVE PRE-PATINAED, BUT WILL PATINA AFTER INSTALLATION.
- RELOCATE IRRIGATION HEADS AS REQUIRED TO PROVIDE FOR FULL COVERAGE OF TURF AND LANDSCAPE AREAS.

Floor Schedule

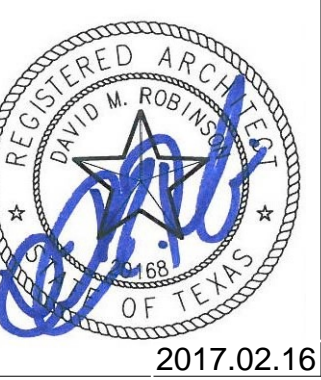
Type Mark	Description	Type Comments
CON-1	SIDEWALK	"5" 3,500 PSI PORTLAND CEMENT CONCRETE SIDEWALK WITH #4 REINFORCING BARS AT 18" O.C.E.W
CON-1	SIDEWALK	"5" 3,500 PSI PORTLAND CEMENT CONCRETE SIDEWALK WITH #4 REINFORCING BARS AT 18" O.C.E.W
CON-1	SIDEWALK	"5" 3,500 PSI PORTLAND CEMENT CONCRETE SIDEWALK WITH #4 REINFORCING BARS AT 18" O.C.E.W
CON-2	REF. S101	CONCRETE TO BE INTEGRALLY COLORED. COLOR TO BE SELECTED BY ARCHITECT
G-1	DECOMPOSED GRANITE	

Lighting Fixture Schedule

Type Mark	Description	Width	Depth	Comments
LF-1	In Ground non-adjustable uplighting	0' - 3"	0' - 6 1/4"	

Keynote Legend

Key Value	Keynote Text
	EXISTING SIDEWALK TO REMAIN
1	HSS 8X8 COLUMN TO STRUCTURE
2	1/4" CORTEN STEEL HORIZONTAL SEAM PANELS MOUNTED 2X2 CROSS BRACE
3	EXISTING STONE SLAB TO REMAIN. RELOCATE AS REQUIRED BY 1/A2.01
4	CONCRETE MIX TO MATCH THAT CALLED OUT ON NOTE 13 ON S101
5	EXISTING WATER METER. CONTRACTOR TO LOCATE ALL SUBSURFACE LINES PRIOR TO ANY DEMOLITION.
6	EXISTING TRAFFIC CAMERA TO REMAIN. CONTRACTOR TO LOCATE ALL SUBSURFACE LINES PRIOR TO ANY DEMOLITION
7	EXISTING "PHOTO ENFORCED STOPLIGHT" POLE SIGN TO REMAIN. CONTRACTOR TO PROTECT AS NEEDED
8	EXISTING BOLLARDS SHOWN DASHED TO BE REMOVED. TYPICAL OF THREE (3)
9	PROTECT TREES TO REMAIN WITH CITY OF DENTON REQUIRED PROTECTION
10	REMOVE SIDEWALK WITHIN AREA OF DISTURBANCE AND PREPARE FOR NEW SURFACES AS REQUIRED
11	REMOVE LANDSCAPE BEDS WITHIN AREA OF DISTURBANCE AND PREPARE FOR NEW SURFACES AS REQUIRED
12	REMOVE LANDSCAPE EDGING
13	REMOVE GROUND COVER; PREPARE EARTH FOR NEW SIDEWALK WITHIN SCOPE OF WORK
14	REMOVE TREES
15	PRESERVE BOLLARDS
16	PROVIDE CUSTOM ALUMINUM MONUMENT SIGN BY ASI
17	EXISTING SIDEWALK TO REMAIN
18	POINT SHALL ACT AS 100'-0"
19	UNDERGROUND ENCLOSURE FOR ELECTRICAL LINE ACTIVATING BELL CLAPPER. RUN 1/2" CONDUIT WITH LONG LEG SWEEP INTO CAVITY OF MEMORIAL
20	1/2" CONDUIT
21	IRRIGATION HEADS SHALL BE REMOVED AND LINE FROM AREAS TO RECEIVE PAVING OR DECOMPOSED GRANITE.
22	WEATHERPROOF, FLUSH MOUNTED, 4X4 JUNCTION BOX
23	PROVIDE 1/8" WEEP HOLE UNDER WEATHERPROOF JUNCTION BOX
24	BASE FOR ARTIST STATEMENT



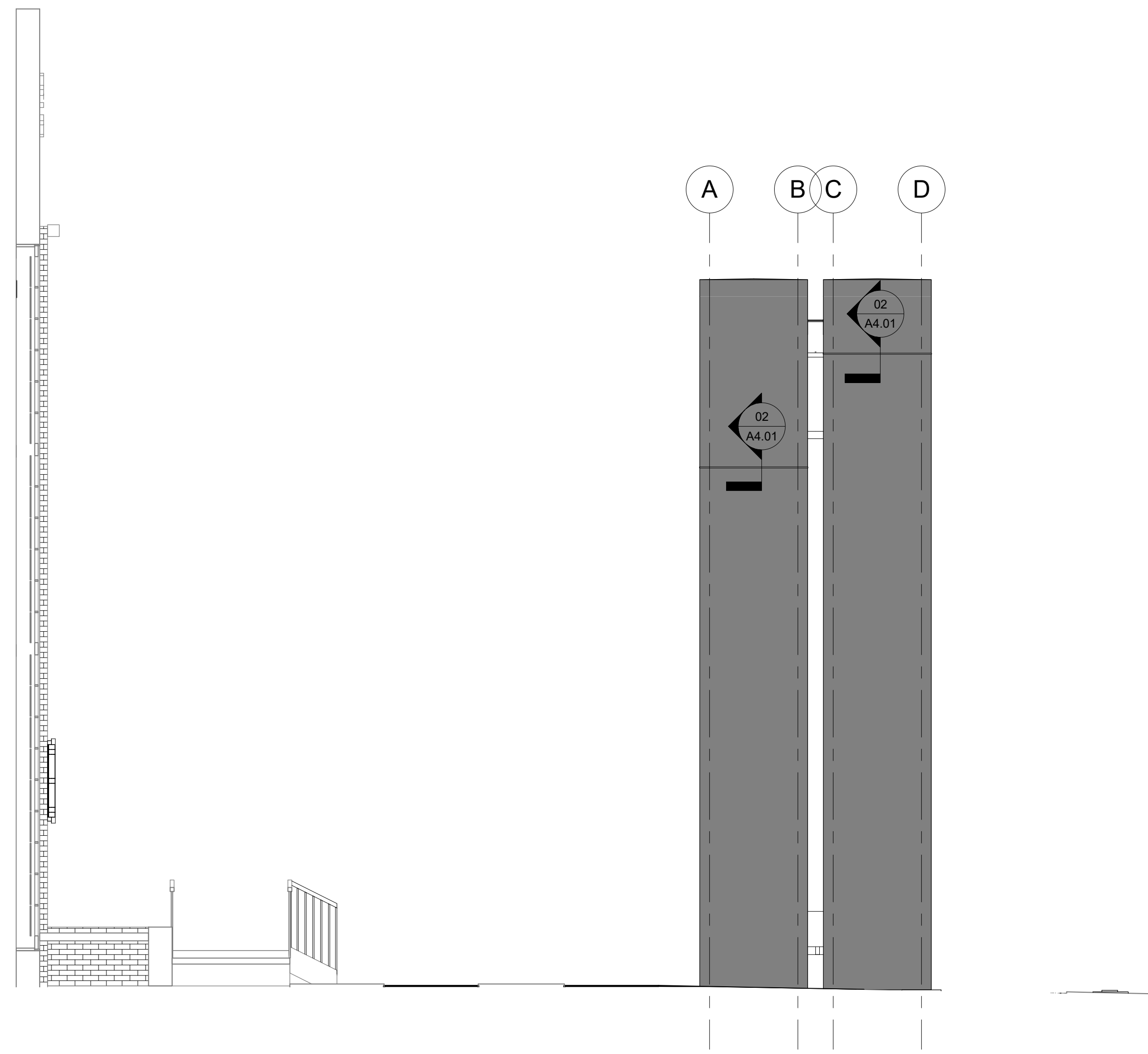
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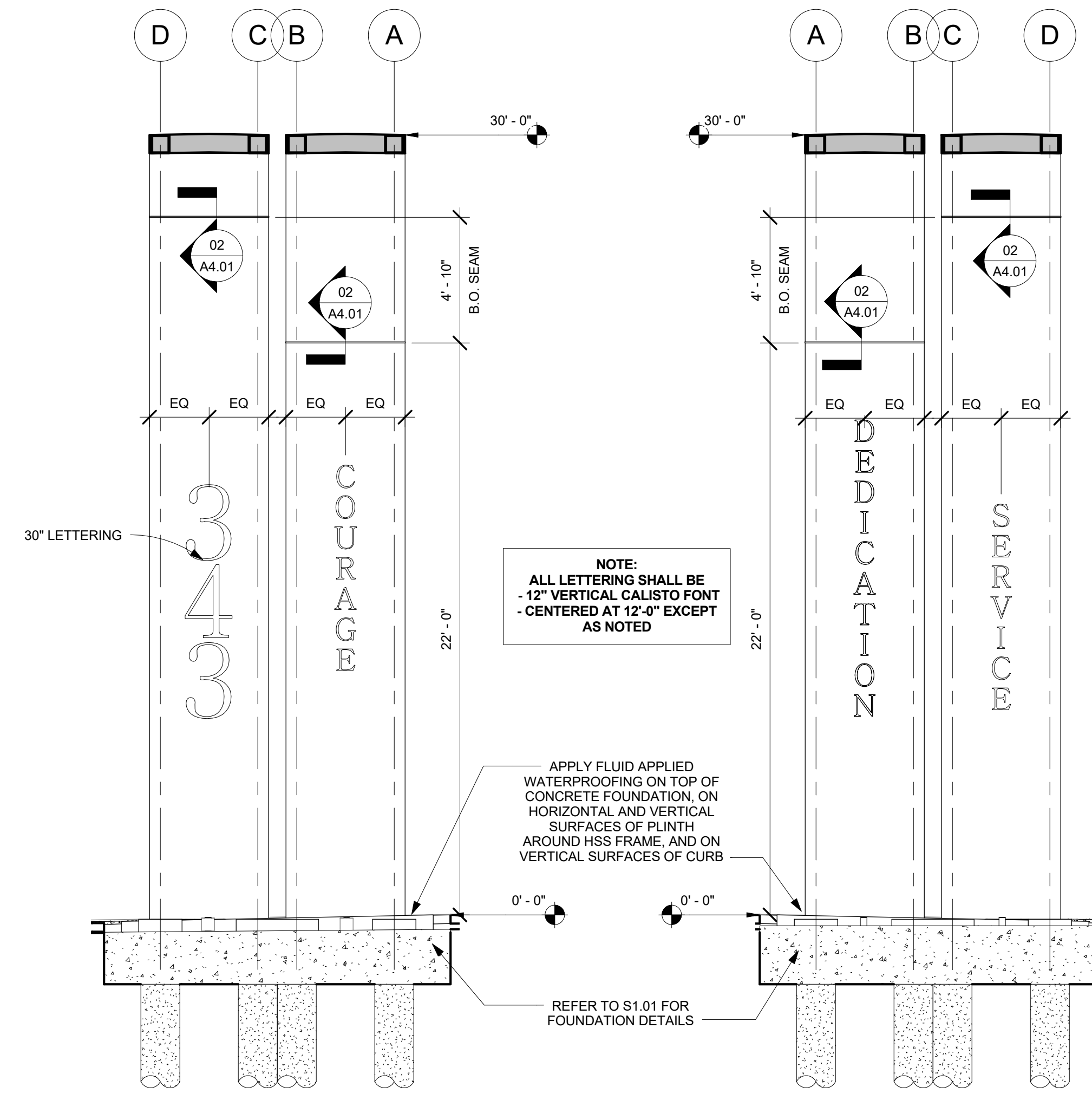
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SHEET A2.01

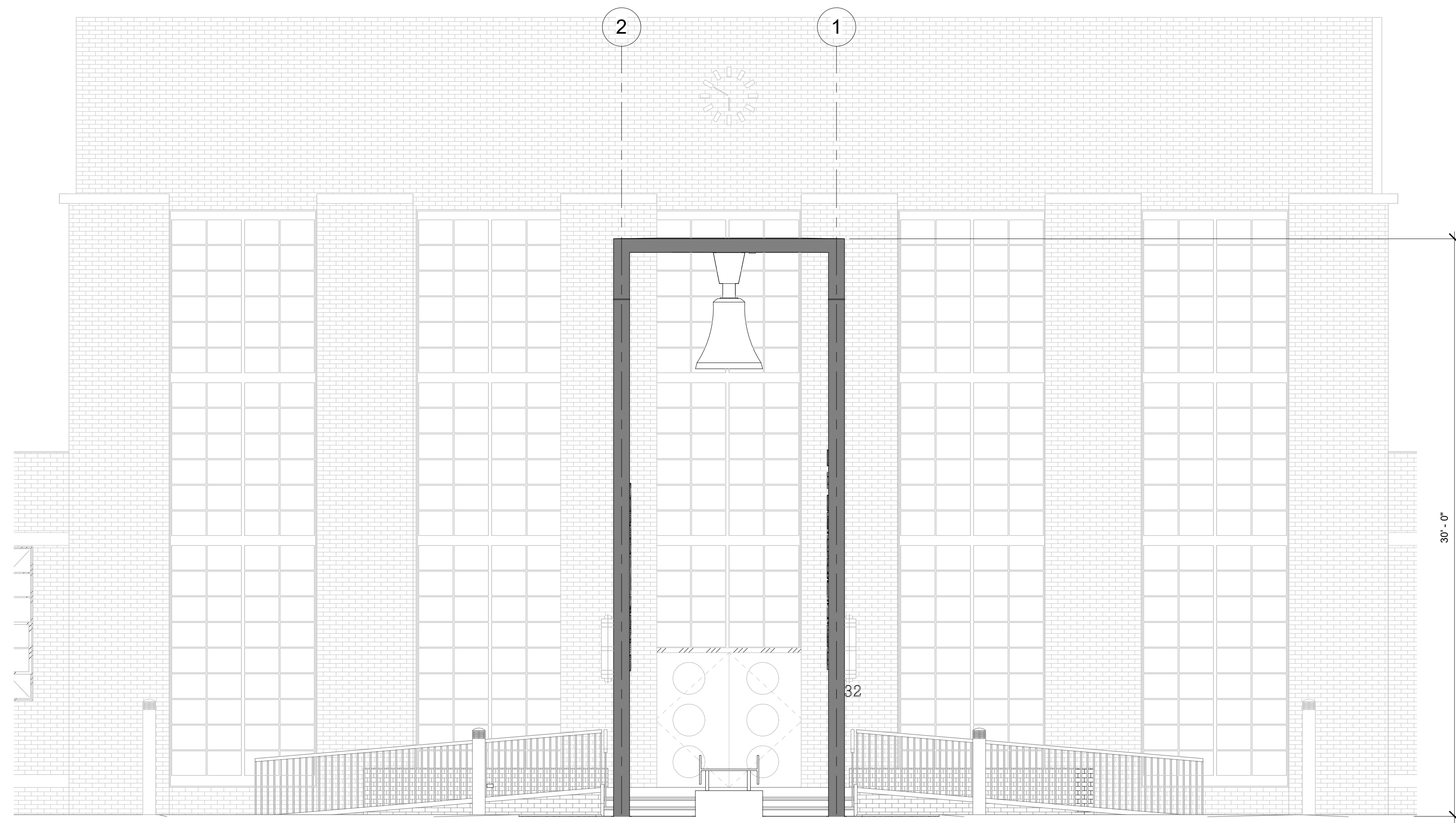


06 EAST ELEVATION  
1/4" = 1'-0"

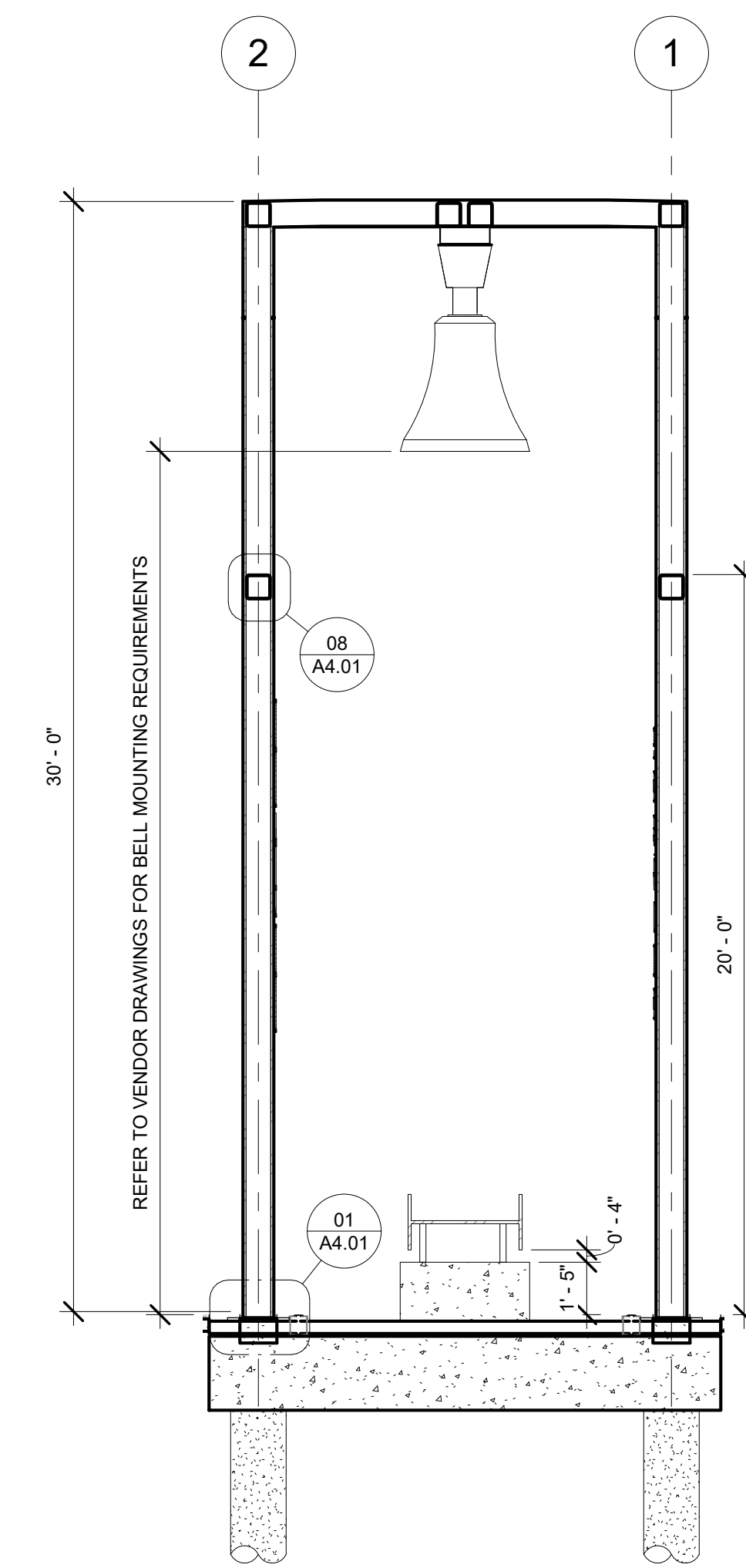


03 WEST INTERIOR ELEVATION  
1/4" = 1'-0"

02 EAST INTERIOR ELEVATION  
1/4" = 1'-0"



04 NORTH ELEVATION  
1/4" = 1'-0"



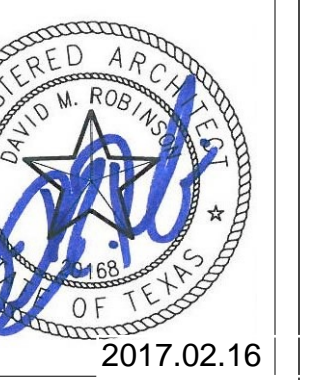
01 SOUTH INTERIOR ELEVATION  
1/4" = 1'-0"

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ELEVATIONS

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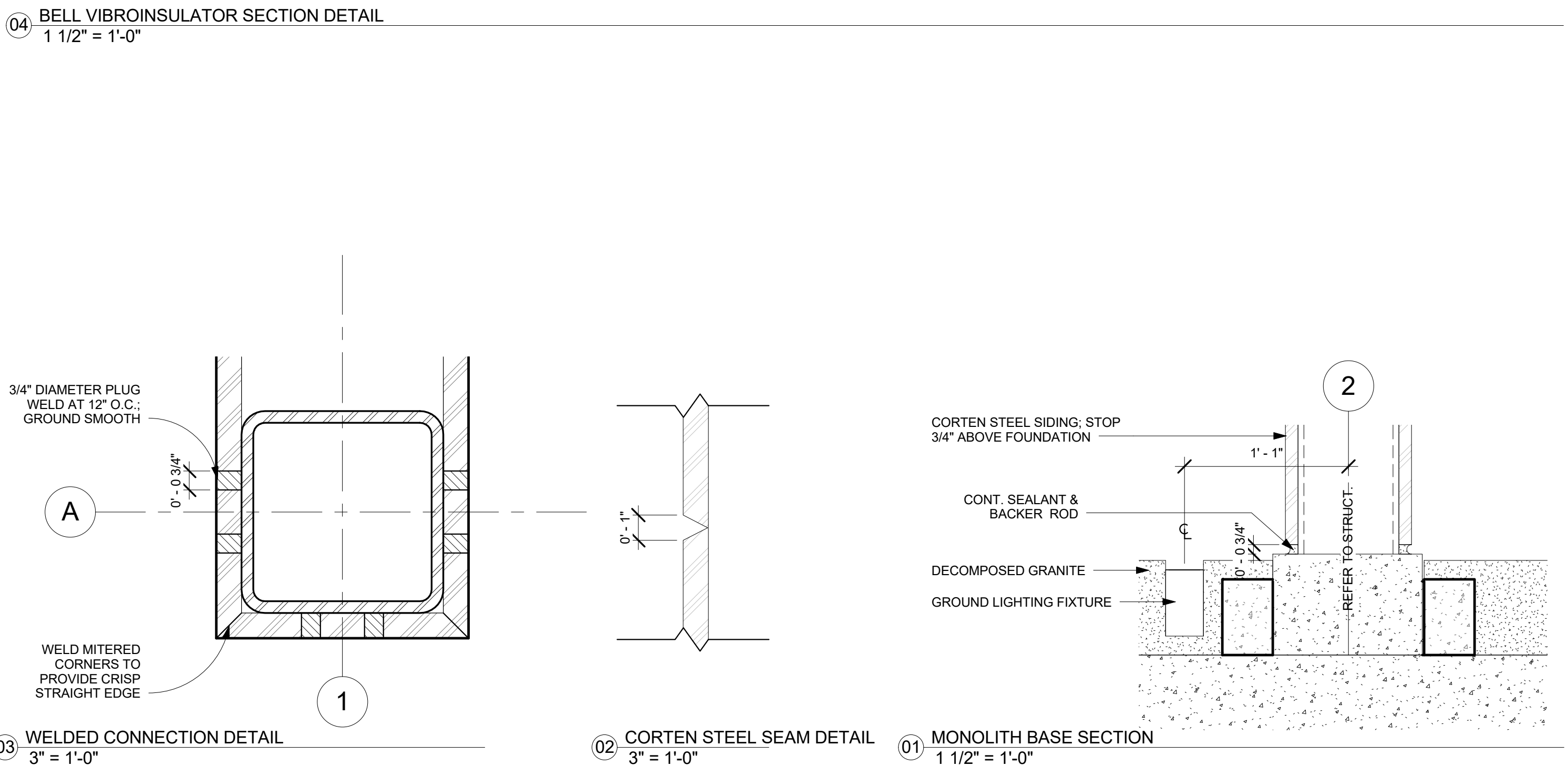
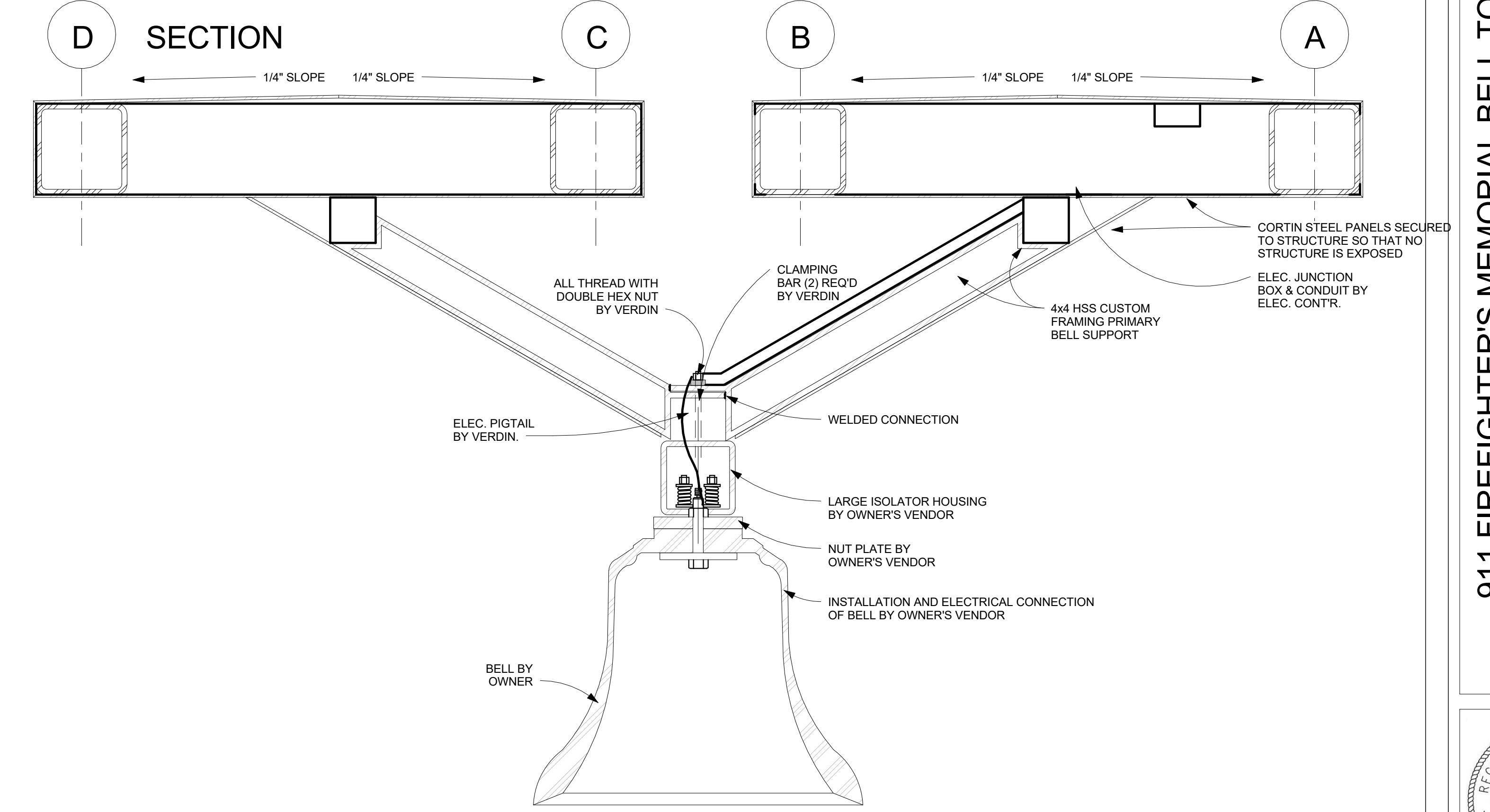
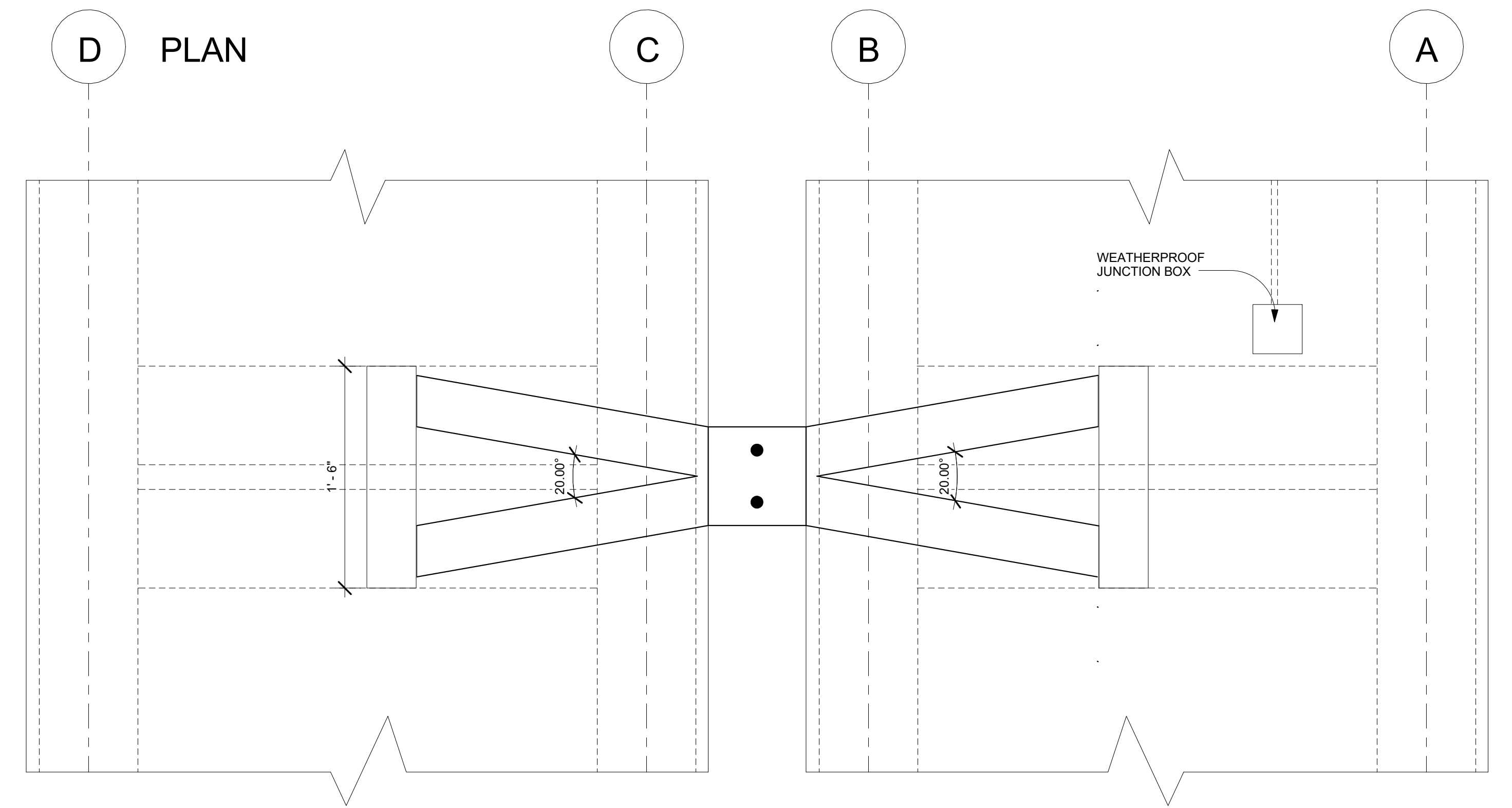
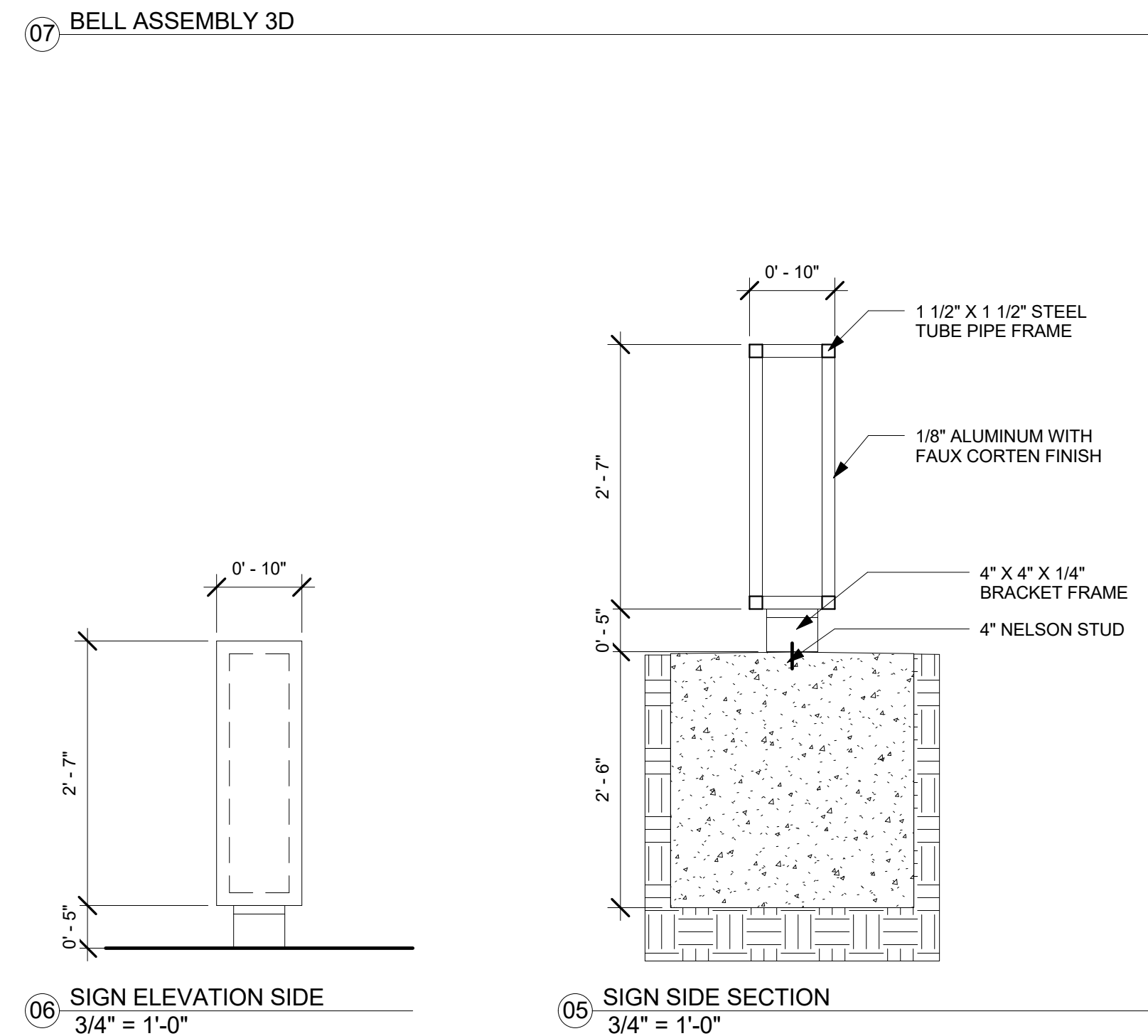
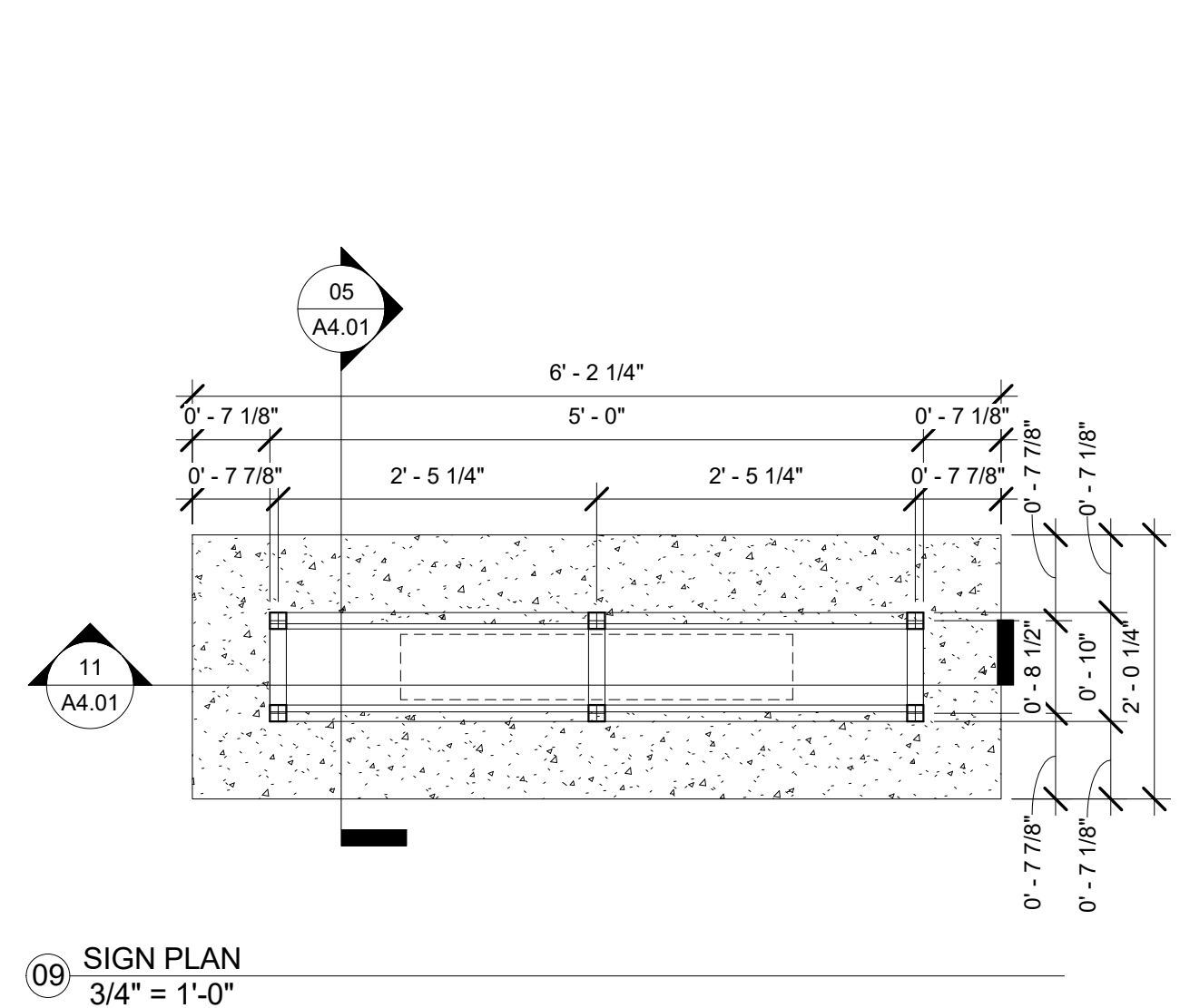
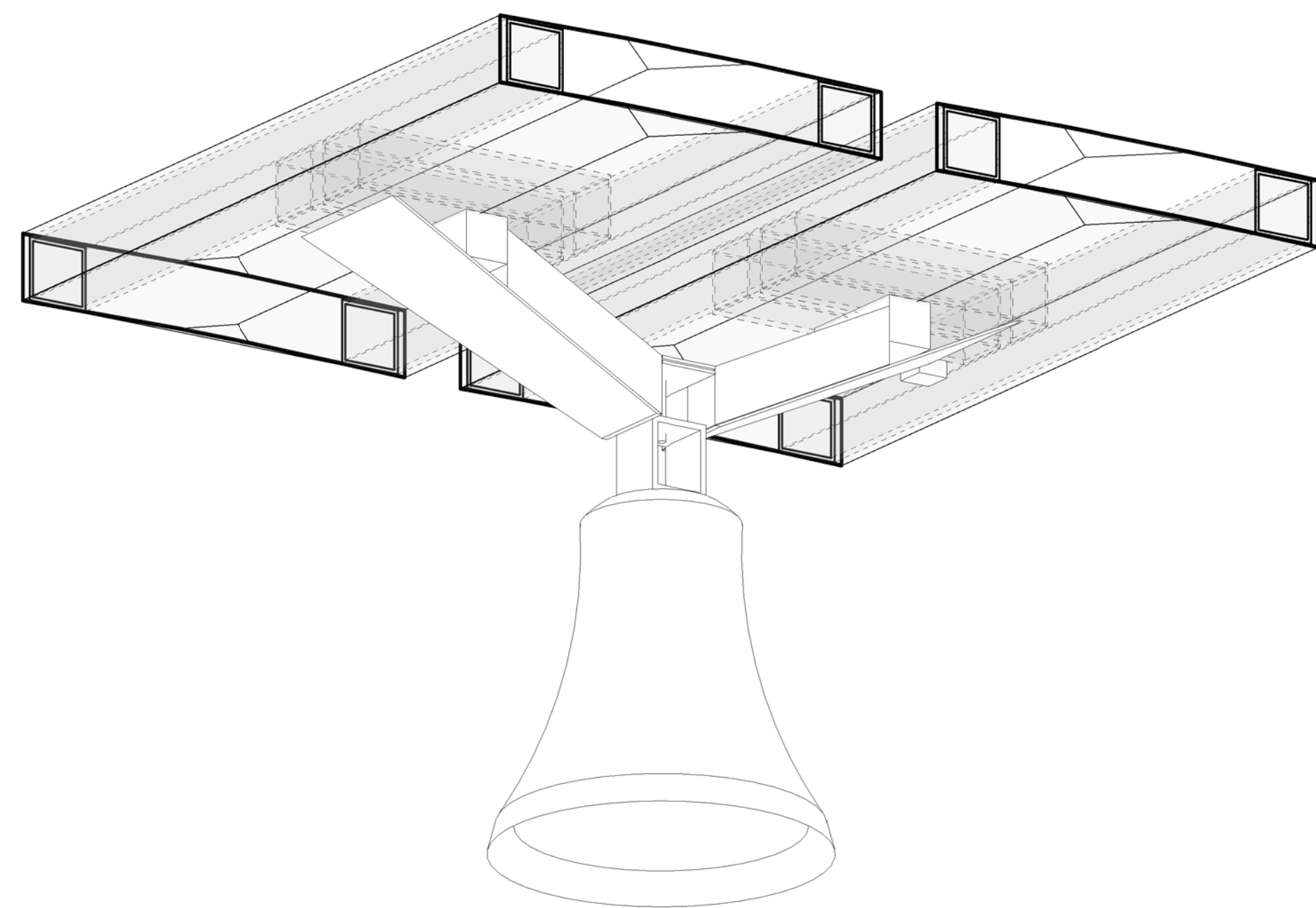
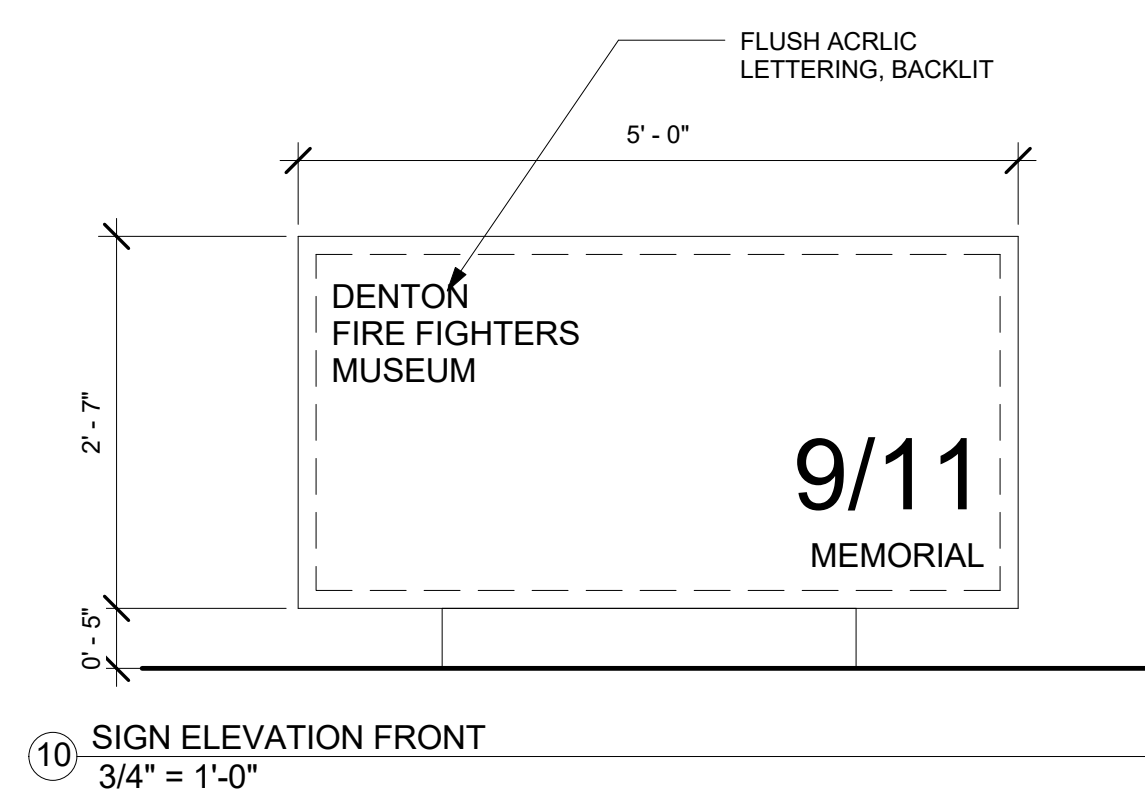
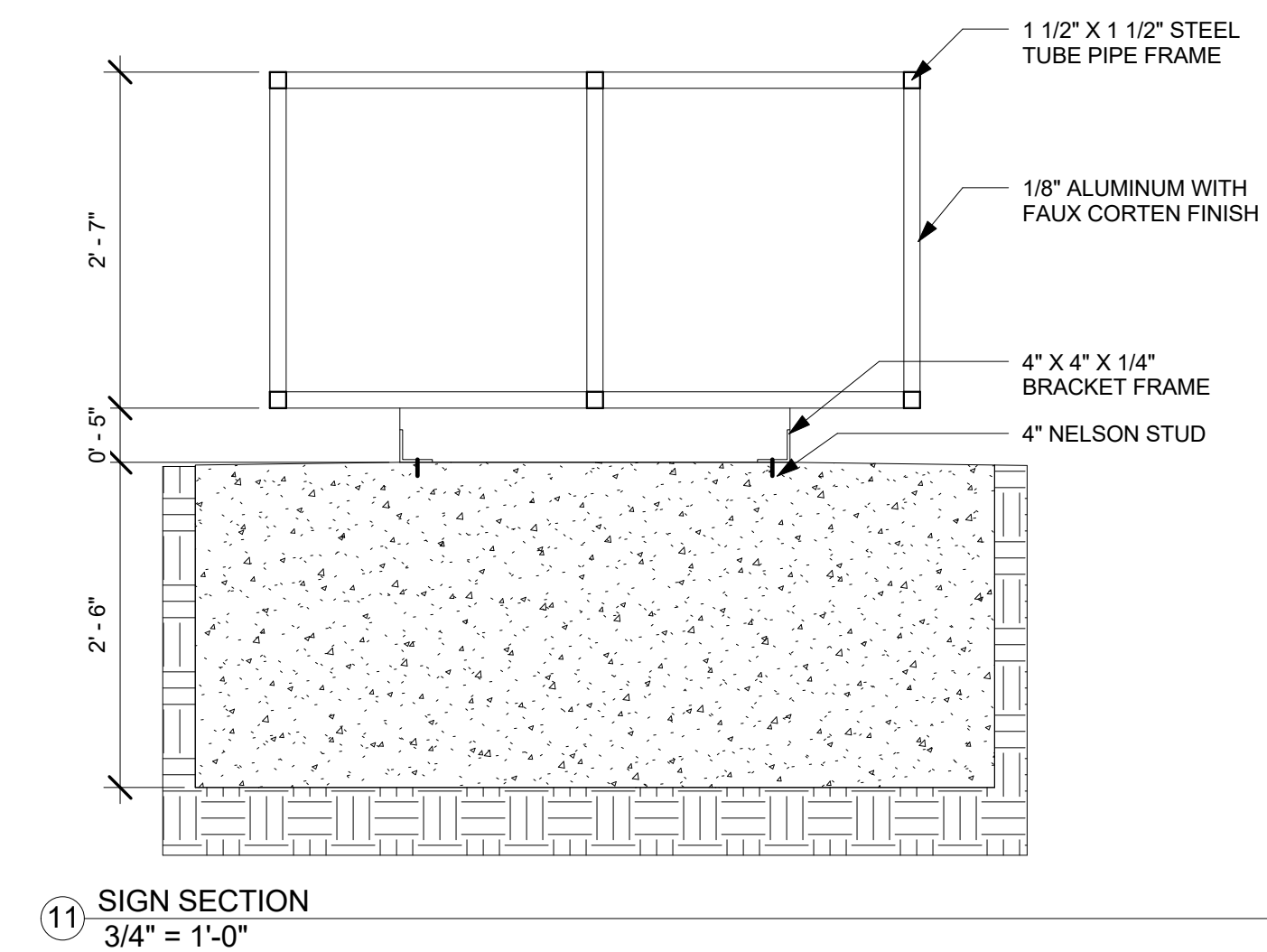
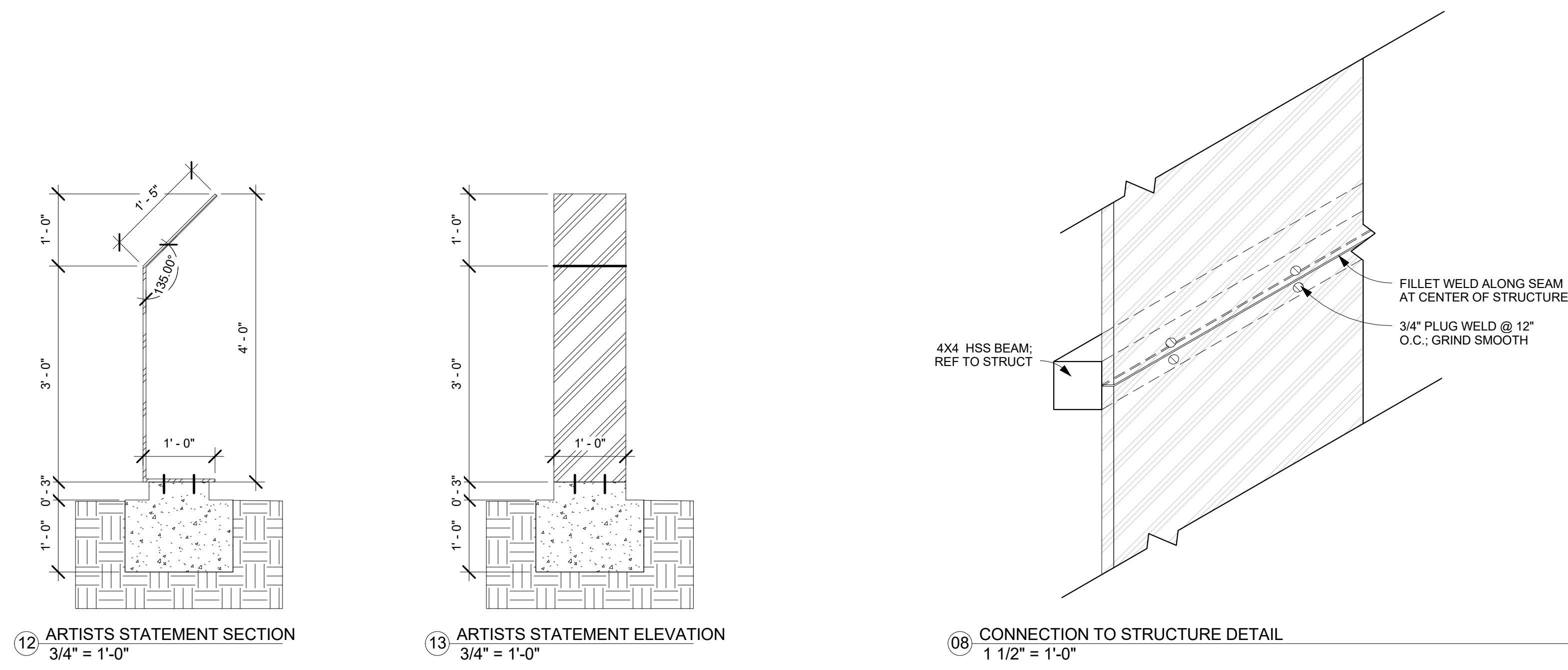


REVISIONS		
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A4.01



**DIVISION 16: ELECTRICAL**

**16010 - BASIC ELECTRICAL REQUIREMENTS**

- A. PROVIDE LABOR MATERIALS, EQUIPMENT AND TRANSPORTATION TO RECEIVE, INSTALL, ADJUST, AND PUT INTO OPERATION COMPLETE ELECTRICAL SYSTEMS IN ACCORDANCE WITH THE INTENT OF THE CONTRACT DOCUMENTS. PROVIDE PRODUCTS NOT MENTIONED BUT OBVIOUSLY NECESSARY AND INCIDENTAL TO THE COMPLETION OF THIS WORK.
- B. OBTAIN ALL PERMITS AND PAY ALL FEES.
- C. ALL WORK DONE SHALL BE PERFORMED BY QUALIFIED ELECTRICIANS, UNDER THE SUPERVISION AND DIRECTION OF A SUPERINTENDENT HAVING SUCCESSFUL EXPERIENCE INSTALLING AND SUPERVISING EQUIPMENT AND SYSTEMS OF SIMILAR TYPE AND SIZE AS INDICATED BY CONTRACT DOCUMENTS.
- D. EXAMINE AND BECOME FAMILIAR WITH ALL CONTRACT DOCUMENTS IN THEIR ENTIRETY. SURVEY THE PROJECT AND BECOME FAMILIAR WITH CONDITIONS AND SCOPE OF WORK. ALL COSTS SUBMITTED SHALL BE BASED ON A THOROUGH KNOWLEDGE OF ALL WORK AND MATERIALS REQUIRED. ANY ADDITIONAL COSTS DUE TO FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- E. COORDINATE WORK WITH ALL OTHER TRADES. GIVE SPECIAL CONSIDERATION TO COORDINATING INSTALLATION OF LIGHTING, SPRINKLER PIPING, AND DUCTWORK. COORDINATE WALL OUTLET LOCATIONS WITH MILLWORK. COORDINATE WALL SWITCHES WITH DOOR SWINGS. VERIFY EXACT LOCATION, COLOR AND FINISH OF OUTLETS AND DEVICES WITH INTERIOR DESIGNER, ARCHITECT, OR DESIGNATED TENANT REPRESENTATIVE PRIOR TO INSTALLATION.
- F. PRODUCTS OF A SIMILAR NATURE SHALL BE THE SAME TYPE AND MANUFACTURER. PROVIDE THE STANDARD PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF SPECIFIED PRODUCTS, UNLESS OTHERWISE REQUIRED BY THE DRAWINGS.
- G. ALL PRODUCTS SHALL BE LISTED AND INSTALLED IN ACCORDANCE WITH NATIONALLY RECOGNIZED AND ACCEPTED STANDARDS AND PROCEDURES.
- H. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE RULES, REGULATIONS, INDUSTRY STANDARDS, LOCAL CODES, LAWS, AND ORDINANCES. IN THE EVENT THAT A DISCREPANCY IS FOUND IN THE CONTRACT DOCUMENTS, NOTIFY THE ENGINEER IMMEDIATELY.

**16050 - BASIC ELECTRICAL MATERIALS AND METHODS**

- A. FOR SUBMITTALS, PROVIDE FIVE COPIES OF ELECTRICAL MATERIALS AND PRODUCTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: LIGHTING FIXTURES, DEVICES (SWITCHES, RECEPTACLES, ETC.), SWITCHBOARDS, TRANSFORMERS, PANELBOARDS, CIRCUIT AND MOTOR DISCONNECTS, MOTOR CONTROLLERS, SUPPORTING DEVICES, TRANSIENT VOLTAGE SURGE SUPPRESSION, AND FIRE ALARM SYSTEMS.
- B. COMPLETE AND ASSEMBLE THE WARRANTIES FOR ALL EQUIPMENT SPECIFIED IN DIVISION 16, INTO A SEPARATED SET OF VINYL COVERED, THREE RING BINDERS, TABULATED AND INDEXED FOR EASY REFERENCE. PROVIDE COMPLETE WARRANTY INFORMATION FOR EACH ITEM TO INCLUDE PRODUCT OR EQUIPMENT TO INCLUDE DATE OF BEGINNING OF WARRANTY OR BOND, DURATION OF WARRANTY OR BOND, AND NAMES, ADDRESSES, AND TELEPHONE NUMBERS AND REFERENCES FOR FILING A CLAIM AND OBTAINING WARRANTY SERVICES.
- C. PREPARE MAINTENANCE MANUALS THAT INCLUDE THE FOLLOWING INFORMATION FOR EQUIPMENT ITEMS:
  1. DESCRIPTION OF FUNCTION, NORMAL OPERATING CHARACTERISTICS AND LIMITATIONS, PERFORMANCE CURVES, ENGINEERING DATA AND TESTS, AND COMPLETE NOMENCLATURE AND COMMERCIAL NUMBERS OF REPLACEMENT PARTS.
  2. MANUFACTURER'S PRINTED OPERATING PROCEDURES TO INCLUDE START-UP, BREAK-IN, AND ROUTINE AND NORMAL OPERATING INSTRUCTIONS, REGULATION, CONTROL, STOPPING, SHUTDOWN, AND EMERGENCY INSTRUCTIONS; AND SUMMER AND WINTER OPERATING INSTRUCTIONS.
  3. MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING; DISASSEMBLY, REPAIR, AND REASSEMBLY; ALIGNING AND ADJUSTING INSTRUCTIONS.
  4. SERVICING INSTRUCTIONS AND LUBRICATION CHARTS AND SCHEDULES.
- D. UPON COMPLETION OF WORK, PREPARE ELECTRICAL AS-BUILT DRAWINGS. PRESENT COMPLETED DRAWINGS TO OWNER AND TWO SETS TO ARCHITECT. AS-BUILT DRAWINGS SHALL INCLUDE ALL BRANCH CIRCUIT WORK, PANELBOARD INFORMATION, FINAL SWITCHING, FINAL LOCATION OF ALL EQUIPMENT, ETC.
- E. PROVIDE SUPPORTING DEVICES FOR ALL ELECTRICAL SYSTEMS IN ACCORD WITH APPLICABLE CODES AND STANDARDS AND AS REQUIRED.
- F. PROVIDE ONLY FASTENERS OF THE FOLLOWING TYPES, MATERIALS, AND CONSTRUCTION FEATURES:
  1. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
  2. TOGGLE BOLTS: ALL STEEL SPRINGHEAD TYPE.
  3. POWDER-COATED WIRE-ROD STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.

**16060 - GROUNDING**

- A. PROVIDE AN ELECTRICAL EQUIPMENT GROUND SYSTEM AND AN ELECTRICAL SERVICE GROUND SYSTEM AS REQUIRED BY THE LOCAL AUTHORITIES HAVING JURISDICTION. A SEPARATE INSULATED EQUIPMENT GROUND CONDUCTOR SHALL BE INSTALLED IN ALL FEEDERS AND BRANCH CIRCUITS, INCLUDING ALL MOTOR FEEDERS FROM STARTER TO MOTOR. TEST AND SUBMIT REPORT OF GROUNDING SYSTEM TESTS.

**16075 - ELECTRICAL IDENTIFICATION**

- A. FINISH AND INSTALL ENGRAVED PLASTIC LAMINATE NAMEPLATES FOR ALL PANELS, SWITCHGEAR, SWITCHES, MOTOR STARTERS, AND ELECTRICAL EQUIPMENT. PROVIDE BRANCH CIRCUIT IDENTIFICATION (PANEL AND BRANCH CIRCUIT NUMBER) ON EACH SWITCH, RECEPTACLE, ETC., AND/OR ASSOCIATED WALL PLATE, FOR EVERY DEVICE. EXCEPT AS OTHERWISE INDICATED, PROVIDE SINGLE LINE OF TEXT, WITH 1/2-INCH HIGH LETTERING ON 1-1/2-INCH-HIGH LABELS (UNLESS HIGH WHERE TWO LINES ARE REQUIRED); WHITE LETTERING IN BLACK FIELD. TEXT SHALL MATCH TERMINOLOGY AND NUMBERING OF THE CONTRACT DOCUMENTS AND SHOP DRAWINGS.
- B. PROVIDE TYPED PANELBOARD SCHEDULES FOR ALL NEW PANELBOARDS AND ALL PANELBOARDS TO WHICH CIRCUITS HAVE BEEN ADDED.

**16080 - ELECTRICAL TESTING**

- A. ALL ELECTRICAL EQUIPMENT AND WIRING SYSTEMS SHALL BE THOROUGHLY TESTED AND ALL DEFECTS AND MALFUNCTIONING EQUIPMENT SHALL BE CORRECTED, REPAIRED OR REPLACED. ALL SYSTEMS SHALL BE TESTED; TEST DATA SHALL BE PROVIDED FOR OWNER'S RECORDS.

**16120 - CONDUCTORS AND CABLES**

- A. PROVIDE COPPER, TYPE THW, THWN, OR THHN AS REQUIRED FOR THE INTENDED USE. MINIMUM CONDUCTOR SIZE FOR BRANCH CIRCUITS SHALL BE NUMBER 12 AWG. USE NUMBER 10 AWG FOR ALL 120-VOLT BRANCH CIRCUITS LONGER THAN 100 FEET AND FOR ALL 277-VOLT BRANCH CIRCUITS LONGER THAN 200 FEET MEASURED FROM PANEL TO CENTER OF LOAD.
- B. INSTALL ALL CONDUCTORS IN CONDUIT. USE UL APPROVED PULLING LUBRICANT WHERE REQUIRED.
- C. USE NUMBER 12 AWG MINIMUM CONDUCTOR SIZE FOR POWER SYSTEMS AND FOR CONTROL CIRCUITS. ALL WIRES NUMBER 10 AWG AND SMALLER SHALL BE SOLID; ALL CONTROL WIRES SHALL BE STRANDED AND TERMINATED WITH CRAMPED LUGS.
- D. WHERE ALLOWED BY CODE, TYPE "AC" CABLE IS ACCEPTABLE ONLY ABOVE LAY-IN CEILINGS FOR MAXIMUM 6 FT. LENGTHS AS LIGHTING FIXTURE WHIPS.

**16130 - RACEWAYS AND BOXES**

- A. CONCEAL ALL CONDUITS, UNLESS INDICATED OTHERWISE, WITHIN FINISHED WALLS, CEILING, AND FLOORS. KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT WATER PIPES. INSTALL RACEWAYS LEVEL, SQUARE AT RIGHT ANGLES TO THE BUILDING AND AT PROPER ELEVATIONS.
- B. USE ONLY MALLEABLE IRON METALLIC CONDUIT BODIES (DIECAST BODIES ARE NOT ACCEPTABLE). USE ONLY STEEL BODIES WITH GLAND RING COMPRESSION-THREADED TYPE EMT CONNECTORS WITH INSULATED THROATS.
- C. OUTDOORS: USE THE FOLLOWING WIRING METHODS:
  1. EXPOSED: INTERMEDIATE METAL CONDUIT.
  2. CONCEALED: INTERMEDIATE METAL CONDUIT.
  3. UNDERGROUND, SINGLE RUN: RIGID NONMETALLIC CONDUIT.
  4. UNDERGROUND, GROUNDED: RIGID NONMETALLIC CONDUIT.
  5. CONNECTION TO VIBRATING EQUIPMENT, INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, OR ELECTRIC SOLENOID OR MOTOR-DRIVEN EQUIPMENT: LIQUDTIGHT FLEXIBLE METAL CONDUIT.
  6. INDOORS OR OUTDOORS: CONNECTION TO VIBRATING EQUIPMENT AND HYDRAULIC, PNEUMATIC, OR ELECTRIC SOLENOID OR MOTOR-DRIVEN EQUIPMENT IN MOIST OR HUMID LOCATION OR CORROSIVE ATMOSPHERE, OR WHERE SUBJECT TO WATER SPRAY OR DRIPPING OIL, GREASE, OR WATER: LIQUDTIGHT FLEXIBLE METAL CONDUIT.
- D. INDOORS: USE THE FOLLOWING WIRING METHODS:
  1. CONNECTION TO VIBRATING EQUIPMENT, INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC OR ELECTRIC SOLENOID OR MOTOR-OPERATED EQUIPMENT: FLEXIBLE METAL CONDUIT.
  2. EXPOSED: ELECTRICAL METALLIC TUBING.
  3. CONCEALED: ELECTRICAL METALLIC TUBING.
- E. ELECTRICAL METALLIC TUBING (EMT) IS EXCLUDED FROM USE IN THE FOLLOWING LOCATIONS OR CONDITIONS:
  1. OUTSIDE STRUCTURE OR ON ROOF.
  2. AT OR BELOW GRADE.
  3. IN OR BENEATH SLABS ON GRADE.
  4. IN HAZARDOUS LOCATIONS.
  5. WHERE EXPOSED TO PHYSICAL DAMAGE.
  6. WHERE SUBJECT TO EXCESSIVE MOISTURE OR DETERIORATION.
  7. HIGH VOLTAGE RACEWAYS.
- F. MINIMUM CONDUIT SIZE, INCLUDING FLEXIBLE CONDUIT, SHALL BE 3/4 INCH UNLESS MINIMUM SIZES ARE INDICATED TO BE LARGER FOR SPECIFIC SYSTEMS SPECIFIED ELSEWHERE IN THE DOCUMENTS.
- G. PROVIDE GALVANIZED STEEL PULL AND JUNCTION BOXES THAT COMPLY WITH NEC AS TO SIZE AND CONSTRUCTION.
- H. FOR JUNCTION AND PULL BOXES, USE BOXES NOT LESS THAN 4-INCHES SQUARE AND 4-INCHES DEEP WITH REMOVABLE COVERS.
- I. USE CAST ALUMINUM OR CAST IRON BOXES WITH THREADED HUBS AND GASKETED COVERS IN DAMP/WET AREAS OR OUTDOORS.

**16140 - WIRING DEVICES**

- A. PROVIDE UL LISTED SPECIFICATION GRADE MINIMUM 20 AMP (120 AND/OR 277 VOLT) SWITCHES AND RECEPTACLES. DEVICES AND WALL PLATES SHALL BE COLORED RED WHERE CONNECTED TO THE EMERGENCY POWER DISTRIBUTION SYSTEM. COLOR OF DEVICES NOT CONNECTED TO THE EMERGENCY SYSTEM SHALL BE AS SELECTED BY THE ARCHITECT. ISOLATED GROUND RECEPTACLES SHALL BE UTILIZED FOR ALL DATA EQUIPMENT AND SHALL BE FURNISHED WITH AN ORANGE TRIANGLE ON THE FACE OF THE DEVICE.
- B. PROVIDE SOLID STATE DIMMER SWITCHES CONFORMING TO NEMA WD 1, MOUNTED IN OUTLET BOXES AS INDICATED AND IN ACCORDANCE WITH THE FOLLOWING:
  1. INCANDESCENT LAMP DIMMERS: MODULAR DIMMER SWITCHES FOR INCANDESCENT FIXTURES; SWITCH POLES AND WATTAGE AS INDICATED, 120-VOLTS, 60-HZ, WITH CONTINUOUSLY ADJUSTABLE ROTARY KNOB OR TOGGLE, ANODIZED ALUMINUM FACE, SINGLE-POLE, WITH SOFT-START OF OTHER QUIET ON-OFF SWITCH, EQUIP WITH ELECTROMAGNETIC FILTER TO ELIMINATE NOISE, RF AND TV INTERFERENCE, AND 5 INCH WIRE CONNECTING LEADS.
  2. FLUORESCENT LAMP DIMMERS: FULL-WAVE MODULAR TYPE AC DIMMER SWITCHES. FOR FLUORESCENT FIXTURES, WATTAGE AND VOLTAGE RATINGS AS INDICATED, AND WITH ELECTROMAGNETIC FILTERS TO MINIMIZE NOISE, AND RF AND TV INTERFERENCE. CONSTRUCT WITH CONTINUOUSLY ADJUSTABLE TRIM POTENTIOMETER FOR ADJUSTMENT OF LOW END DIMMING, ANODIZED HEAT SINKS, 5 INCH WIRE CONNECTING LEADS AND QUIET ON-OFF SWITCH. INCLUDE COMPATIBLE DIMMING LAMP BALLASTS.

**ELECTRICAL AND LIGHTING SYMBOLS**

SYMBOL	DESCRIPTION
	THIN LINE WEIGHTS REPRESENT EXISTING WORK
	BOLDER LINE WEIGHTS REPRESENT NEW WORK
	DASHED LINE REPRESENTS DEMO WORK
	CONDUIT
	UNDERGROUND/UNDERFLOOR CONDUIT
	FLEXIBLE CONDUIT
	WIRE MOLD
	WIRING, HOMERUN
	WIRING, NEUTRAL
	WIRING, HOT
	WIRING, SWITCHLEG
	WIRING, GROUND
	WIRING, ISOLATED GROUND
	CONTINUATION
	SIMPLEX RECEPTACLE
	DUPLEX RECEPTACLE
	FLUSH FLOOR MOUNTED DUPLEX RECEPTACLE
	CEILING MOUNTED DUPLEX RECEPTACLE
	ABOVE COUNTER DUPLEX RECEPTACLE MOUNT @ 44" AFF UNO
	IG RECEPTACLE
	QUADRAPLEX RECEPTACLE
	FLUSH FLOOR MOUNTED QUADRAPLEX RECEPTACLE
	CEILING MOUNTED QUADRAPLEX RECEPTACLE
	ABOVE COUNTER QUADRAPLEX RECEPTACLE MOUNT @ 44" AFF UNO
	IG QUADRAPLEX RECEPTACLE
	SPECIAL PURPOSE RECEPTACLE (VERIFY EXACT NEMA CONFIGURATION IN FIELD)
	FLUSH FLOOR MOUNTED SPECIAL PURPOSE RECEPTACLE (VERIFY EXACT NEMA CONFIGURATION IN FIELD)
	CEILING MOUNTED SPECIAL PURPOSE RECEPTACLE (VERIFY EXACT NEMA CONFIGURATION IN FIELD)
	DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT
	ABOVE COUNTER DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT MOUNT @ 44" AFF UNO
	QUADRAPLEX RECEPTACLE ON EMERGENCY CIRCUIT
	ABOVE COUNTER QUAD RECEPTACLE ON EMERGENCY CIRCUIT MOUNT @ 44" AFF UNO
	DATA COMMUNICATIONS OUTLET WITH 3/4" E.C. TO 6" ABV. CLG.
	FLUSH FLOOR DATA COMMUNICATIONS OUTLET
	TELEPHONE OUTLET WITH 3/4" E.C. TO 6" ABV. CLG.
	FLUSH FLOOR TELEPHONE OUTLET
	TELEPHONE / DATA OUTLET WITH 3/4" E.C. TO 6" ABV. CLG.
	FLUSH FLOOR TELEDATA OUTLET
	POKE-THRU DEVICE
	TELEVISION OUTLET WITH 3/4" E.C. TO 6" ABV. CLG.
	CEILING MOUNTED TELEVISION OUTLET
	JUNCTION BOX
	WALL MOUNTED JUNCTION BOX
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	COMBINATION MOTOR STARTER
	VFD (VARIABLE FREQUENCY DRIVE)
	TVSS (TRANSIENT VOLTAGE SURGE SUPPRESSOR)
	MOTOR
	MOTION DETECTOR SWITCH
	CEILING MOUNTED MOTION DETECTOR
	SWITCH
	DOUBLE POLE SWITCH
	THREE-WAY SWITCH
	FOUR-WAY SWITCH
	MANUAL MOTOR STARTER
	WALL MOUNTED VOLUME CONTROL (P.A.)
	DIMMER SWITCH
	PUSH-BUTTON
	CARD READER
	DOOR CONTACT
	MAG-LOCK

**ELECTRICAL AND LIGHTING SYMBOLS**

SYMBOL	DESCRIPTION
	GENERATOR
	SHUNT TRIP
	CLOCK
	METER
	120/208V ELECTRICAL PANEL
	277/480V ELECTRICAL PANEL
	TRANSFORMER
	CONDUIT VIA LIGHTING CONTACTOR
	LIGHT FIXTURE LABELS
	HATCH REPRESENTS EMERGENCY FIXTURE
	2' X 4' LIGHT FIXTURE, REFERENCE LIGHT FIXTURE SCHEDULE.
	2' X 2' LIGHT FIXTURE, REFERENCE LIGHT FIXTURE SCHEDULE.
	UTILITY STRIP, REFERENCE LIGHT FIXTURE SCHEDULE.
	DOWNLIGHT, REFERENCE LIGHT FIXTURE SCHEDULE.
	SCONCE, REFERENCE LIGHT FIXTURE SCHEDULE.
	WALL WASHER, REFERENCE LIGHT FIXTURE SCHEDULE.
	PENDANT, REFERENCE LIGHT FIXTURE SCHEDULE.
	UNDER CABINET LIGHT FIXTURE, REFERENCE LIGHT FIXTURE SCHEDULE.
	WALL PACK, REFERENCE LIGHT FIXTURE SCHEDULE.
	POLE MTD. SITE LIGHT FIXTURE, REFERENCE LIGHT FIXTURE SCHEDULE.
	EXIT SIGN CHEVRON
	SINGLE FACE EXIT SIGN SHADED AREA INDICATES ILLUMINATED FACE. MODEL SHALL BE <u>DUAL-LITE #LXURWEI</u> UNO ON PLANS.
	DOUBLE FACE EXIT SIGN SHADED AREA INDICATES ILLUMINATED FACE. MODEL SHALL BE <u>DUAL-LITE #LXURWEI</u> UNO ON PLANS.
	WALL MOUNTED EXIT SIGN. MODEL SHALL BE <u>DUAL-LITE #LXURWEI</u> UNO ON PLANS.
	EMERGENCY LIGHTING FIXTURE. MODEL SHALL BE <u>DUAL-LITE #LXURWEI</u> UNO ON PLANS. VERIFY FINISH.
	EXTERIOR EMERGENCY LIGHTING FIXTURE. MODEL SHALL BE <u>DUAL-LITE #LXURWEI</u> UNO ON PLANS. VERIFY FINISH.

**FIRE ALARM SYMBOLS**

SYMBOL	DESCRIPTION
	THIN LINE WEIGHTS REPRESENT EXISTING WORK
	BOLDER LINE WEIGHTS REPRESENT NEW WORK
	DASHED LINE REPRESENTS DEMO WORK
	FM 200 ABORT SWITCH
	MANUAL FM 200 RELEASE PULL STATION
	DOOR HOLDER
	FIRE ALARM ANNUNCIATOR PANEL
	FIRE ALARM CONTROL PANEL
	FIRE ALARM SYSTEM FLOW SWITCH
	FIRE ALARM TAMPER SWITCH
	GENERATOR REMOTE ANNUNCIATOR PANEL
	ADA APPROVED FIRE ALARM HORN MOUNT @ 80" AFF.
	ADA APPROVED FIRE ALARM HORN, CEILING MOUNTED.
	ADA APPROVED AUDIOVISUAL FIRE ALARM SIGNALING DEVICE. MOUNT @ 80" AFF.
	ADA APPROVED AUDIOVISUAL FIRE ALARM SIGNALING DEVICE. CEILING MOUNTED.
	SMOKE DETECTOR
	UNDERFLOOR SMOKE DETECTOR
	DUCT MOUNTED SMOKE DETECTOR
	REMOTE PILOT LIGHT
	HEAT DETECTOR
	UNDERFLOOR HEAT DETECTOR
	FLAME DETECTOR
	SPEAKER
	FIRE ALARM SPEAKER

**ABBREVIATIONS**

SYMBOL	DESCRIPTION
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
B	EXISTING JUNCTION BOX WITH BLANK PLATE
BDD	BACKDRAFT DAMPER
BOD	BOTTOM OF DUCT
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
C	CONDUIT
CB	CIRCUIT BREAKER
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CR	CONDENSER WATER RETURN
CS	CONDENSER WATER SUPPLY
CU	COPPER
CW	DOMESTIC COLD WATER
D	EXISTING TO BE DEMOLISHED
DDO	DOUBLE CLEANOUT
E	EXISTING TO REMAIN
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EMPTY CONDUIT
ESP	EXTERNAL STATIC PRESSURE
EWC	ELECTRIC WATER COOLER
EPW	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
F	DEGREES FAHRENHEIT
F	FIRE LINE
FCO	FLOOR CLEANOUT
FDS	FUSES DISCONNECT SWITCH
FLD	FLOOR DRAIN
FD	FIRE DAMPER
FS	FLOOR SINK
FSD	COMBINATION FIRE SMOKE DAMPER
G	GAS
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GPM	GALLONS PER MINUTE
HG	REFRIGERANT HOT GAS
HP	HORSEPOWER
HR	HEATING HOT WATER RETURN
HS	HEATING HOT WATER SUPPLY
HW	HOT WATER SUPPLY
HWR	HOT WATER RETURN
IC	IN COUNTER
IG	ISOLATED GROUND
KE	KITCHEN EXHAUST
KW	KILOWATT
MA	MAKE-UP AIR
MTD	MOUNTED
N	NEW
NIC	NOT IN CONTRACT
NDR	NEMA 3R
O/A	OUTSIDE AIR
OB/D	OPPOSED BLADE DAMPER
OCD	OVERFLOW CONDENSATE DRAIN
OPCD	OVERCURRENT PROTECTIVE DEVICE
OD	OVERFLOW ROOF DRAIN
OF/CI	OWNER FURNISHED, CONTRACTOR INSTALLED
PBD	PARALLEL BLADE DAMPER
PSI	POUNDS PER SQUARE INCH
R	EXISTING TO BE RELOCATED
R/A	RETURN AIR
RD	ROOF DRAIN
RL	REFRIGERANT LIQUID
RO	REVERSE OSMOSIS
RS	REFRIGERANT SUCTION

**ABBREVIATIONS**

SYMBOL	DESCRIPTION
S	SINK
S/A	SUPPLY AIR
SAN	SANITARY SEWER
SD	STORM DRAIN
SM	SIMILAR
TP	TRAP PRIMER
TW	TEMPERED WATER
U	URNAL
UF	UNDERFLOOR
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
UNIVERSAL SERIAL BUS	UNLESS NOTED OTHERWISE
USB	DUPLEX RECEPTACLE WITH USB PORTS RATED FOR 2.1 AMPS. SIMILAR TO LEVITON T8832-HGW.
V	VENT
VIF	VERIFY IN FIELD
VTR	VENT THROUGH ROOF
W	WALL MOUNTED
WC	WATER CLOSET
WCO	WALL CLEANOUT
WP	WEATHER PROOF

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**9/11 FIREFIGHTERS' MEMORIAL BELL TOWER**  
**THE CITY OF DENTON**  
**DENTON TEXAS**  
 332 E HICKORY ST.



REVISIONS		
No.	DATE	DESCRIPTION

CONTENTS :

COVER SHEET - ELECTRICAL

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SHEET

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2017-02-13 PERMIT SET

LIGHTING FIXTURE SCHEDULE					
TYPE	DESCRIPTION	MANUFACTURER	MODEL NO.	LAMPS	VOLTAGE
S1	GROUND MOUNT RECESSED FIXTURE	SPJ LIGHTING	SPJ13-25LED - P/DS-20W-FLOOD-430-2700K-12-15V	LED (20W)	120V
T1	UNDERGROUND LOW-VOLTAGE TRANSFORMER	SPJ LIGHTING	FB-1500B-120V-12-15V-150W-1	N/A	120V

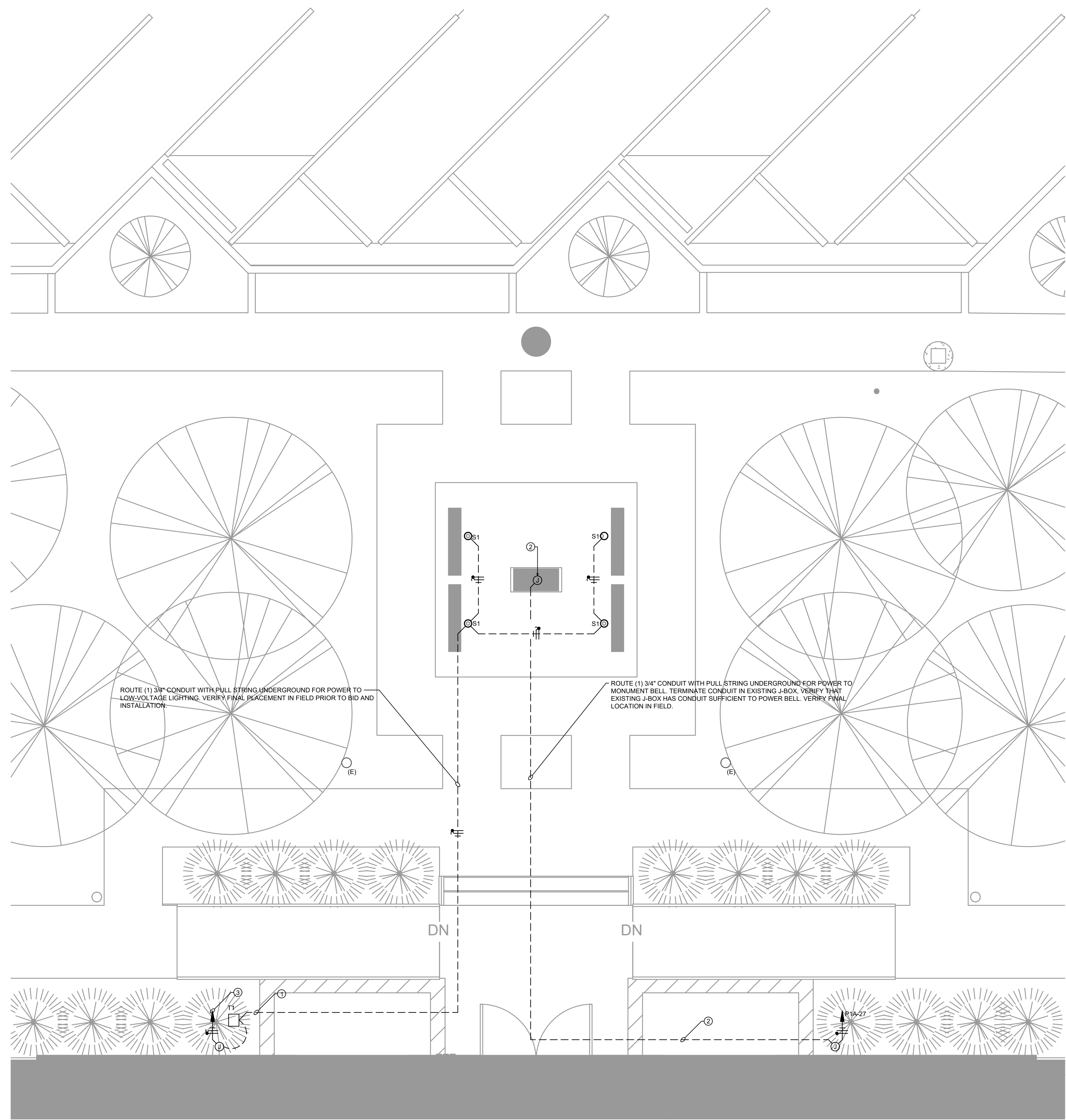
NOTES: 1) ALL FIXTURES MAY NOT BE USED.  
2) FURNISH COLD WEATHER (C) BALLASTS FOR ALL OUTDOOR HID OR FLUORESCENT LIGHTING FIXTURES.  
3) ENSURE ALL OUTDOOR FIXTURES ARE UL LISTED FOR THEIR INTENDED USE (I.E. DAMP OR WET LOCATION LISTED).  
4) CONTRACTOR SHALL PROVIDE 2', 3', OR 4' LENGTHS AS REQUIRED FOR UNDERCABINET LIGHTING FIXTURES TO ENSURE LIGHTING IS CONTINUOUS FROM END TO END WITH NO GAPS BETWEEN FIXTURES.  
5) PROVIDE ELECTRONIC BALLASTS AS APPROPRIATE AND AVAILABLE FOR ALL FLUORESCENT LIGHTING FIXTURES. ALL ELECTRONIC BALLAST SHALL BE AS MANUFACTURED BY ADVANCE, MOTOROLA OR TRUD.

**KEYED NOTES BY SYMBOL:**

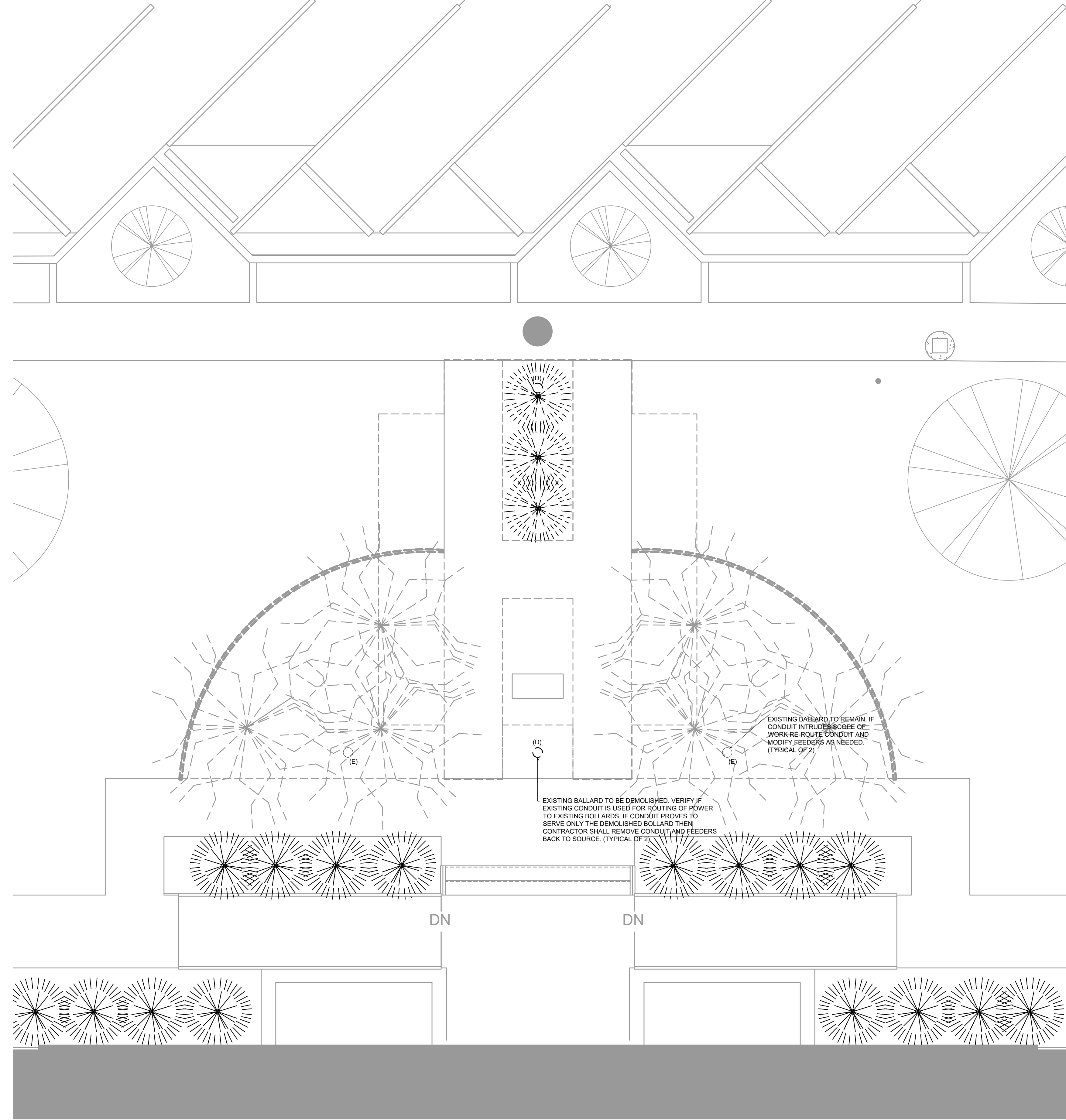
① CONTRACTOR TO TERMINATE UNDERGROUND CONDUIT AT THE LOCATION OF THE NEW LOW-VOLTAGE TRANSFORMER FOR MONUMENT LIGHTING. WHIP FROM TRANSFORMER TO EXISTING J-BOX ON BUILDING. VERIFY THAT J-BOX HAS EMPTY CONDUIT SUFFICIENT TO ROUTE POWER FOR NEW MONUMENT LIGHTING.

② POWER FOR MONUMENT BELL. COORDINATE POWER REQUIREMENTS AND LOCATION IN FIELD PRIOR TO BID. IF POWER REQUIREMENTS EXCEED A SINGLE 120V CIRCUIT CONTACT ENGINEER FOR RE-CIRCUITING PRIOR TO INSTALLATION.

③ CONTRACTOR TO CONNECT NEW MONUMENT LIGHTING TO EXISTING TIME-CLOCK AND CIRCUIT. VERIFY MAX OF 16A. AFTER ADDITION OF NEW LIGHTING.



**02 SITE PLAN - ELECTRICAL**  
SCALE: 1/4" = 1'-0" ↑



**01 DEMOLITION SITE PLAN - ELECTRICAL**  
SCALE: 1/4" = 1'-0" ↑

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