ADDENDUM NO. 3

April 10, 2026

Perry Meridian High School Phase 1 – Student Activity Center
401 W. Meridian School Road
Indianapolis, IN 46217

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications, and the Drawings dated February 16, 2026, by Lancer Associates Architecture. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Pages ADD 3-1 and 3-2 and Lancer Associates Architecture Addendum 3 Dated April 3, 2026 consisting of 4 pages and 35 drawings.

A. SPECIFICATION SECTION 01 12 00 – MULTIPLE CONTRACT SUMMARY

1. Paragraph 3.03 Bid Categories

A. Bid Category No. 1 – Site Demo, Earthwork and Utilities

Add the following Sections:

22 11 13 Facility Water Distribution Piping

Add the following Clarification:

15. Provide all stone access roads and laydown as shown in site logistics plan 01 32 00e Site Logistics Plan. Provide removal of temporary stone road at the end of the project or as required for the sequencing of work. This includes top dirt and seed and blanket as required.

B. Bid Category No. 2 – General Trades

Add the following Section:

32 31 13 Chain link Fences and Gates

Add the following Clarification:

14. Provide all temp fencing with black fence screen and gates as outlined on 01 32 00e Site Logistics Plan. The construction manager will maintain, move, and remove the construction fence.

O. Bid Category No. 16 – Electrical and Technology

Add the following Section:

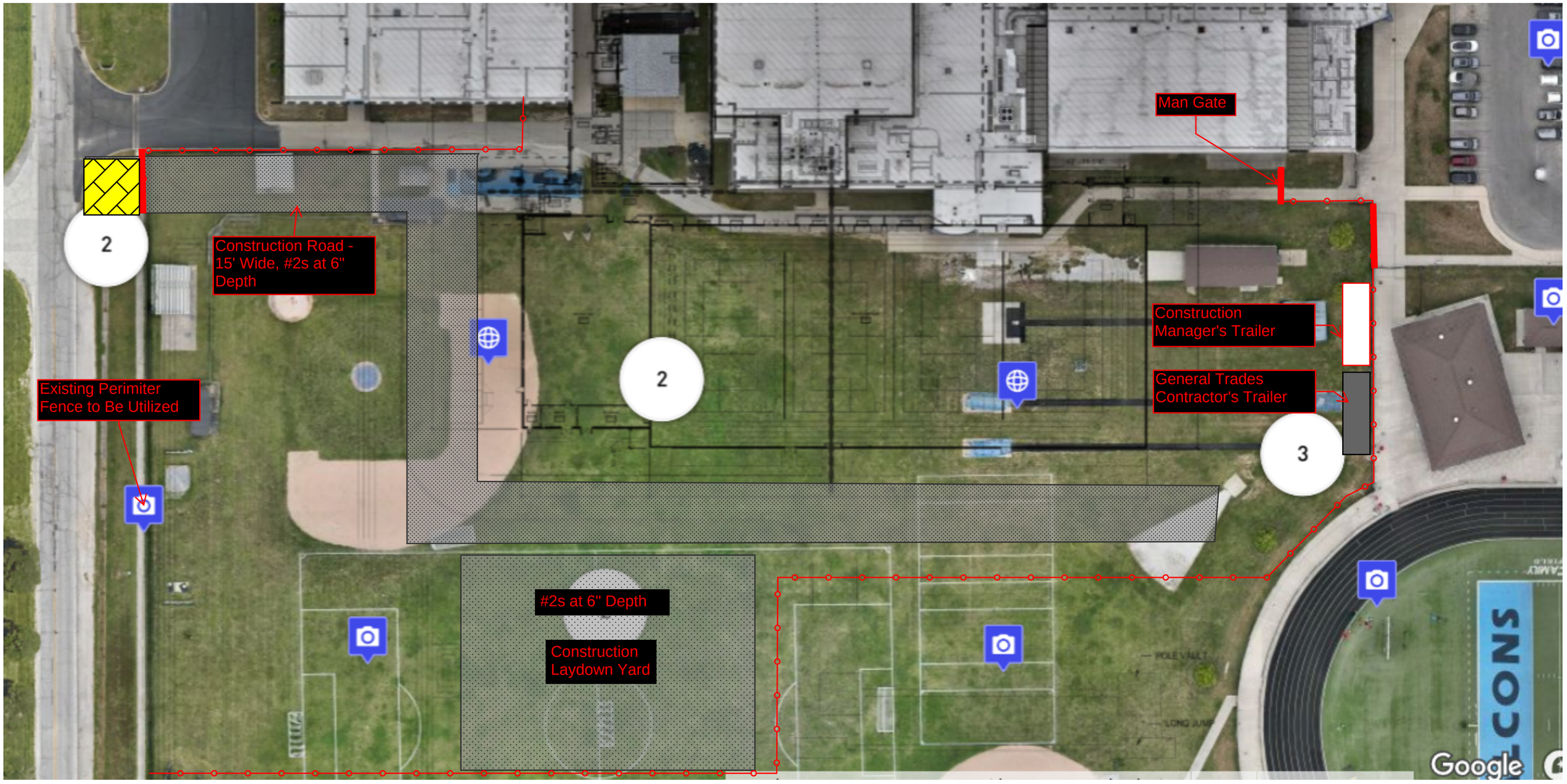
27 41 30 Athletic Scoreboards and Equipment

B. SPECIFICATION SECTION 01 32 00 – SCHEDULES AND REPORTS

Insert:

01 32 00e Site Logistics Plan

Perry Meridian High School Site Logistics



Construction Fence

20' Gate

FODS System Construction Entrance

ADDENDUM NO. THREE

PROJECT: **PERRY MERIDIAN HS PHASE 1**

PROJECT NUMBER: **24173P**

DATE OF ADDENDUM: **April 10, 2026**

THIS ADDENDUM FORMS A PART OF THE CONTRACT DOCUMENTS AND IS ISSUED IN ACCORDANCE WITH THE INSTRUCTIONS TO BIDDERS. ACKNOWLEDGE RECEIPT OF THIS ADDENDUM BY SIGNING THE ADDENDUM ACKNOWLEDGMENT SECTION OF THE BID FORM.

QUESTIONS & ANSWERS:

1. Q: Eight scoreboards are shown on the elevations, but none are specified. Please advise.
   A: See attached SPECS 27 4130 & drawings in addendum 3.

2. Q: 11 6623 says Roll-up divider curtain, the RCP's still say Top Roll
   A: Roll-up divider curtain is correct.

3. Q: Is there a baby changing station in this project?
   A: Yes, there's one baby changing station in the family restroom **RR N101**.
   'Baby Changing Station: KB310-SSRE'

4. Q: 08 8000 doesn't list a glass schedule, and glass types are not noted on the window schedules
   a. Paragraphs 2.3 calls for both monolithic and insulated security glass
   A: Security glazing location is indicated in drawings A611 & A612

5. Q: 09 4400 Section 2.2 note A calls for the terrazzo floor to be ¼" thick. But to avoid cracking, is it acceptable for the terrazzo floor to be 3/8" thick?
   A: Yes, the terrazzo floor is to be 3/8" in thickness.

6. Q: There is no specification for the site water utility
   A: Add SPEC 22 11 13 and 33 05 00

7. Q: There is no specification for the cantilever sliding gates indicated by Site Plan Notes 26 & 27
   A: Add SPEC 32 31 13

8. Q: 09 4400 Section 2.2 note A calls for the terrazzo floor to be ¼" thick. But to avoid cracking, is it acceptable for the terrazzo floor to be 3/8" thick?
   A: Yes, the terrazzo floor is to be 3/8" in thickness.

9. Q: 09 5426 specification does not list the mounting method for the slat wall panels. The manufacturer recommends plywood. The sizes listed for A720 WCP-1 and WWP-1 are not available for the WOODWORKS Grille - Forte.
   A: Use manufacturer recommended ¾" furring strips for mounting. Refer to finish drawings to wrap wood panels. The sizes listed on A720 are what is listed on manufacturer's website. If there is a different size that is available, a substitution request may be submitted.

10. Q: 09 4400 does not indicate if the terrazzo base is to be pre-cast or cast-in-place. What is correct method?
    A: Terrazzo base should be pre-cast.

11. Q: 09 6565 says that RUB-1 is to be a tiled product. Sheet A720 – Finish Legend says it is a sheet good. There is a conflict between specs and drawings, which is correct?
    A: The sheet A720 – Finish Legend is correct in listing RUB-1 as a sheet good.

12. Q: 09 8400 calls out acoustic panels to be 1" thick. Sheet A720 – Finish Legend says they are to be 1.5" thick. There is a conflict between specs and drawings, which is correct?
    A: The specification is correct in noting that the acoustical panels will be 1" thick.

13. Q: 09 5100 does not specify perimeter trim for ceiling clouds.
    A: Refer to updated attached sheet A130 – Reflected Ceiling Details.

ADDITIONAL APPROVED MANUFACTURERS:

1. Section 03 45 00 Precast
    a. Manufacturer: Add Fabcon Precast, as an acceptable manufacturer to paragraph 2.1.A of section 03 45 00

2. Section 04 21 00
    a. Manufacturer: Add TruFast MVA, as an acceptable manufacturer to paragraph 2.1 of section 04 21 00.

3. Section 07 21 13
    a. Manufacturer: Add Hunter Panel Xci CG, as an acceptable manufacturer to paragraph 2.1 of section 07 21 13.

4. Section 07 27 26
    a. Manufacturer: Add Tremco, ExoAir 230, as an acceptable manufacturer to paragraph 2.1 of section 07 27 26.

5. Section 07 42 13 Flat Metal Wall Panel
    a. Manufacturer: Add Alcotex, as an acceptable manufacturer to paragraph 2.1 of section 07 42 13.

6. Section 07 53 25
    a. Manufacturer: Add Duro Tech (Duro-Last) TPO, as an acceptable manufacturer to paragraph 2.1 of section 07 53 25

7. Section 08 45 23 Fiberglass-Sandwich Panel Assembly.
    a. Manufacturer: Add Kingspan, UniGrid Fiberglass Translucent Panels, as an acceptable manufacturer to paragraph 2.1 of section 08 45 23.

8. Section 09 65 67
    a. Manufacturer: Add Kiefer USA, Pulastic Class 90, as an acceptable manufacturer to paragraph 2.1 of section 09 6567.

9. Section 09 67 40
    a. Manufacturer: Add Terrazzo and Marble Supply Co. as an acceptable manufacturer to paragraph 2.1 of section 09 67 40.

10. Section 11 66 23.56
    a. Manufacturer: Add Performance Sports to paragraph 2.2A of section 11 66 23.56.

SPECIFICATIONS:

1. Spec Section: 08 45 25
   Spec Title: Kalwall

   Delete Specs Entirely

2. Spec Section: 22 11 13
   Spec Title: FACILITY WATER DISTRIBUTION PIPING

   Add New Spec Section

3. Spec Section: 27 41 30
   Spec Title: ATHLETICS SCOREBOARDS AND EQUIPMENT

   Add New Spec Section

4. Spec Section: 32 31 13 - CHAIN LINK FENCES AND GATES
   Spec Title: CHAIN LINK FENCES AND GATES

   Add New Spec Section

5. Spec Section: 33 05 00
   Spec Title: COMMON WORK RESULTS FOR UTILITIES

   Add New Spec Section

DRAWINGS:

1. Drawing Sheet Number: S111N
   Drawing Sheet Title: UNIT N FRAMING PLAN

   Change: Added annotation.
   - Set camber limits for roof joists over wrestling room.

2. Drawing Sheet Number: A130
   Drawing Sheet Title: REFLECTED CEILING DETAILS

   Change: Revised ceiling details.

Attachments:

(Narrative)
JQOL CIVIL ADDENDUM NO.03 NARRATIVE
D27 ADDENDUM NO.03 NARRATIVE

(Specs)
22 1113 - FACILITY WATER DISTRIBUTION PIPING
27 4130 - ATHLETICS SCOREBOARDS AND EQUIPMENT
32 3113 - CHAIN LINK FENCES AND GATES
33 0500 - COMMON WORK RESULTS FOR UTILITIES

(CIVIL Drawings)
C-9.1 UTILITY PLAN

(STRUCTURAL Drawings)
S111N UNIT N FRAMING PLAN

(ARCHITECTURAL Drawings)
A130 – REFLECTED CEILING PLANS

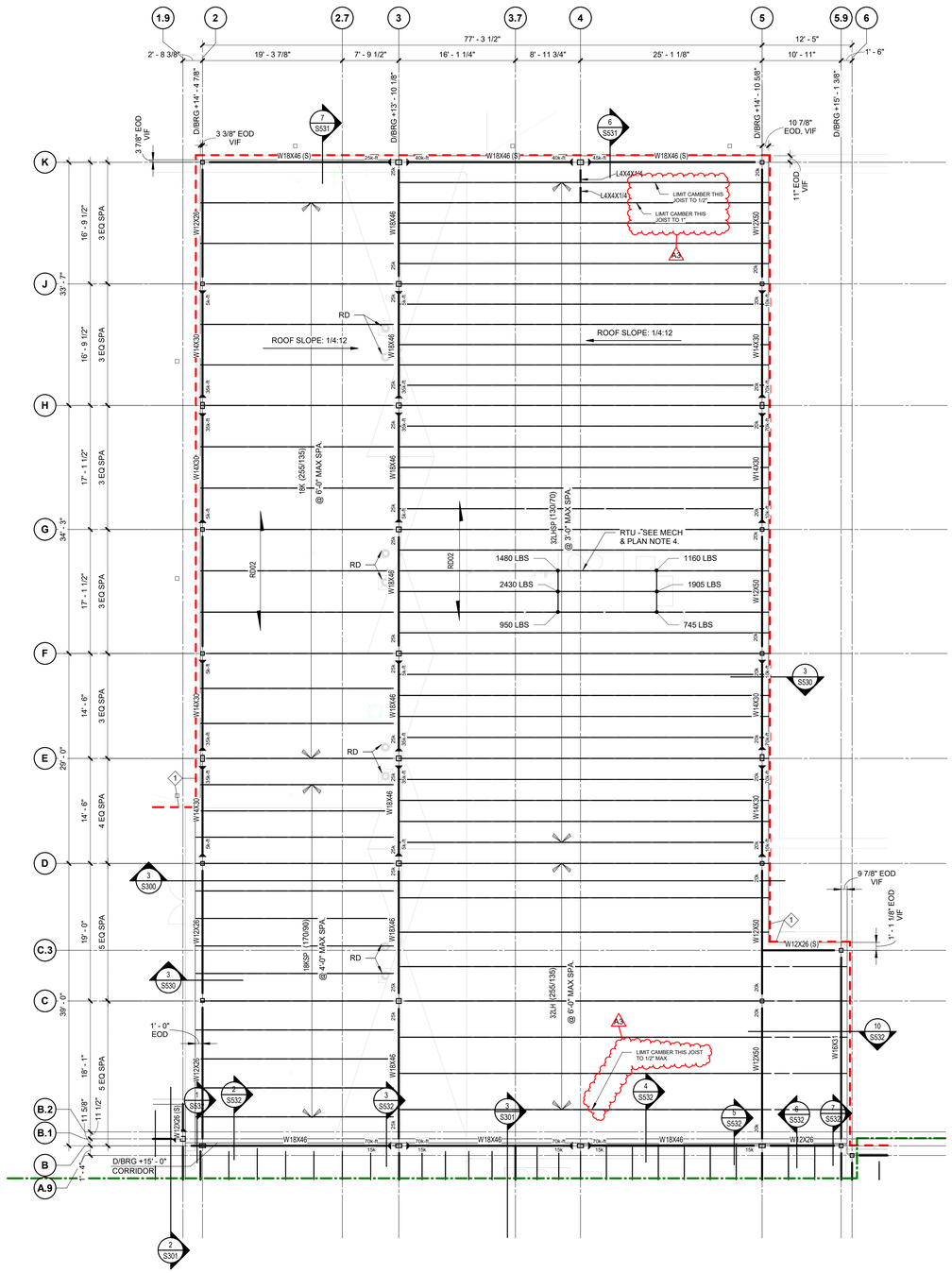
(PLUMBING Drawings)

(MECHANICAL Drawings)

(ELECTRICAL Drawings)

(TECHNOLOGY Drawings)
T201L – GROUND FLOOR TECHNOLOGY PLAN - UNIT L
T201M - GROUND FLOOR TECHNOLOGY PLAN - UNIT M
T405 - AV ELEVATIONS

END OF ADDENDUM NO. THREE



UNIT N ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

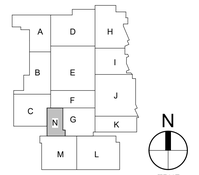
N

FRAMING PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. COORDINATE DECK AND SLAB OPENINGS - EXACT SIZE AND LOCATION, WITH MECHANICAL AND PLUMBING CONTRACTOR DRAWINGS AND EQUIPMENT SUPPLIER.
4. VERIFY EQUIPMENT SIZE, WEIGHT, AND LOCATION WITH MECHANICAL CONTRACTOR.
5. ALL JOISTS IN UNIT N ROOF FRAMING PLAN SHALL HAVE A MINIMUM SEAT DEPTH OF 5".

Framing Plan N Key Note Schedule

#	NOTE
1	2" EXPANSION JT AT WALL. SEE ARCH



N
TRUE NORTH

PLOT DATE/TIME: 4/1/2026 11:39:46 AM

LANCER ASSOCIATES ARCHITECTURE
145 N EAST ST.
INDIANAPOLIS, IN 46204

JQOL QUALITY OF LIFE

PERRY TOWNSHIP SHOOLS
PERRY MERIDIAN HIGH SCHOOL ADDITION AND RENOVATION
401 W MERIDIAN SCHOOL ROAD INDIANAPOLIS, IN

JESSICA KAY BARLOW REGISTERED No. PE11800818 STATE OF INDIANA PROFESSIONAL ENGINEER
Jessica Kay Barlow 02.16.26

REVISIONS:

#	Date	Desc.
A3	04.10.26	Addendum 3

CD

PROJECT: #24173S
DATE: 02.16.2026
DRAWN BY: CM

UNIT N ROOF FRAMING PLAN

S111N

LANCER ASSOCIATES ARCHITECTURE
145 N EAST ST.
INDIANAPOLIS, IN 46204

PERRY TOWNSHIP SCHOOLS
PERRY MERIDIAN HS PHASE 1 (VOLUME 1)
401 W MERIDIAN SCHOOL RD,
INDIANAPOLIS, IN 46217

REVISIONS:

#	Date	Desc.
3	04/10/2026	Addendum 03

100% CONSTRUCTION DOCUMENTS

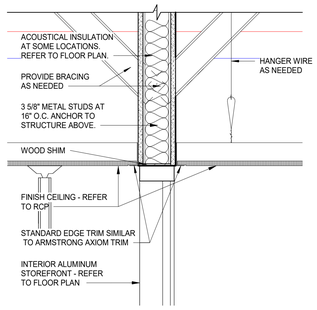
PROJECT: #24173P
DATE: 02-16-2026
DRAWN BY: Author

REFLECTED CEILING DETAILS

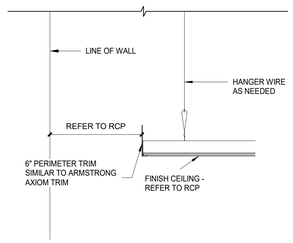
A130

PLOT DATE/TIME:4/10/2026 11:36:10 AM

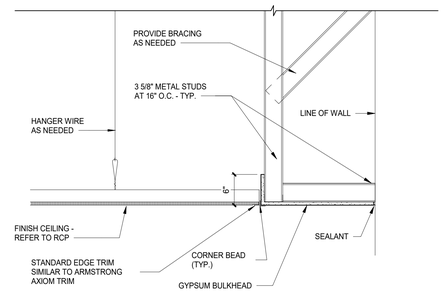
2



3 SF-19 HEAD DETAIL
SCALE: 1 1/2" = 1'-0" REF. 1 / A121N



2 BULKHEAD DETAIL
SCALE: 1" = 1'-0"



1 BULKHEAD DETAIL
SCALE: 1" = 1'-0"

April 10, 2026

Project Name: Perry Meridian High School
Project Owner: Perry Township Schools
Issued To: Lancer Associates Architects

RE: Addendum 03

Drawing revisions narrative by sheet number as follows:

Sheet C-9.1

- Water line layout and notes added/modified due to CEG Water Comments.

Specification revisions narrative by Spec numbers as follows:

SPEC NUMBER AND SECTION

- The Civil Spec Numbers and Sections have been updated to included Spec 221113 (Facility Water Distribution Piping).
- The Civil Spec Numbers and Sections have been updated to include Spec 323113 (Chain Link Fences and Gates).
- The Civil Spec Numbers and Sections have been updated to include Spec 330500 (Common Work Results for Utilities).

SECTION 221113

- Facility Water Distribution Piping (Spec 221113) have been included in this submittal.

SECTION 323113

- Chain Link Fences and Gates (Spec 323113) have been included in this submittal.

SECTION 330500

- Common Work Results for Utilities (Spec 330500) have been included in this submittal.

Please let me know if you have additional questions.

Best regards,

DJ O'Toole, PE

CIVIL SPECIFICATIONS

SECTION NO.	DESCRIPTION
116833	FIELD EVENTS ATHLETIC EQUIPMENT
221113	FACILITY WATER DISTRIBUTION PIPING
312000	EARTH MOVING
312319	DEWATERING
315000	EXCAVATION & PROTECTION
321216	ASPHALT PAVING
321311	CONCRETE PAVING
321373	CONCRETE PAVING JOINT SEALANTS
321723	PAVEMENT MARKINGS
323113	CHAIN LINK FENCES AND GATES
330500	COMMON WORK RESULTS FOR UTILITIES
333101	SANITARY SEWERS
334100	STORM UTILITY DRAINAGE PIPING
334200	STORMWATER CONVEYANCE
334600	SUBDRAINAGE

SECTION 221113 – FACILITY WATER DISTRIBUTION PIPING

GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes water-distribution piping and related components outside the building for water service combined water service and fire-service mains.

B. Utility-furnished products include water meters that will be furnished to the site, ready for installation.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Preparation for Transport: Prepare valves, including fire hydrants, according to the following:
   1. Ensure that valves are dry and internally protected against rust and corrosion.
   2. Protect valves against damage to threaded ends and flange faces.
   3. Set valves in best position for handling. Set valves closed to prevent rattling.

B. During Storage: Use precautions for valves, including fire hydrants, according to the following:
   1. Do not remove end protectors unless necessary for inspection; then reinstall for storage.
   2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.

C. Handling: Use sling to handle valves and fire hydrants if size requires handling by crane or lift. Rig valves to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.

D. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.

E. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside

F. Protect flanges, fittings, and specialties from moisture and dirt.

G. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.4 COORDINATION

A. Coordinate connection to water main with utility company.

PART 2 - PRODUCTS

2.1 DUCTILE-IRON PIPE AND FITTINGS

A. Mechanical-Joint, Ductile-Iron Pipe: AWWA C151, with mechanical-joint bell and plain spigot end unless grooved or flanged ends are indicated.
   1. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
   2. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts

B. Flanges: ASME 16.1, Class 125, cast iron.

2.2 PE PIPE AND FITTINGS

A. PE, ASTM Pipe: ASTM D 2239, SIDR No. 5.3, 7, or 9; with PE compound number required to give pressure rating not less than 200 psig.

2.3 SPECIAL PIPE FITTINGS

A. Ductile-Iron Rigid Expansion Joints:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. EBAA Iron, Inc.
      b. U.S. Pipe and Foundry Company.
      c. Zurn Industries LLC

B. Ductile-Iron Flexible Expansion Joints:
   1. Description: Compound, ductile-iron fitting with combination of flanged and mechanical-joint ends complying with AWWA C110 or AWWA C153. Include two gasketed ball-joint sections and one or more gasketed sleeve sections. Assemble components for offset and expansion indicated. Include AWWA C111, ductile-iron glands, rubber gaskets, and steel bolts.
      a. Pressure Rating: 250 psig minimum.

C. Ductile-Iron Deflection Fittings:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. EBAA Iron, Inc.
   2. Description: Compound, ductile-iron coupling fitting with sleeve and 1 or 2 flexing sections for up to 15-degree deflection, gaskets, and restrained-joint ends complying with AWWA C110 or AWWA C153. Include AWWA C111, ductile-iron glands, rubber gaskets, and steel bolts.

a. Pressure Rating: 250 psig minimum.

2.4 PIPING SPECIALTIES

A. Transition Fittings: Manufactured fitting or coupling same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.

B. Tubular-Sleeve Pipe Couplings:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Cascade Waterworks Manufacturing.
   b. Dresser, Inc.; Dresser Piping Specialties.
   c. Ford Meter Box Company, Inc. (The); Pipe Products Div.
   d. Hays Fluid Controls; a division of ROMAC Industries Inc.
   e. JCM Industries.
   f. Smith-Blair, Inc.
   g. Viking Johnson
2. Description: Metal, bolted, sleeve-type, reducing or transition coupling, with center sleeve, gaskets, end rings, and bolt fasteners and with ends of same sizes as piping to be joined.
   a. Standard: AWWA C219.
   b. Center-Sleeve Material: Manufacturer's standard Ductile iron.
   c. Gasket Material: Natural or synthetic rubber.
   d. Pressure Rating: 200 psig minimum.
   e. Metal Component Finish: Corrosion-resistant coating or material.

C. Split-Sleeve Pipe Couplings:
1. Description: Metal, bolted, split-sleeve-type, reducing or transition coupling with sealing pad and closure plates, O-ring gaskets, and bolt fasteners.
   a. Standard: AWWA C219.
   b. Sleeve Material: Manufacturer's standard.
   c. Sleeve Dimensions: Of thickness and width required to provide pressure rating.
   d. Gasket Material: O-rings made of EPDM rubber, unless otherwise indicated.
   e. Pressure Rating: 200 psig minimum.
   f. Metal Component Finish: Corrosion-resistant coating or material.

D. Flexible Connectors:
1. Nonferrous-Metal Piping: Bronze hose covered with bronze wire braid; with copper-tube, pressure-type, solder-joint ends or bronze flanged ends brazed to hose.
2. Ferrous-Metal Piping: Stainless-steel hose covered with stainless-steel wire braid; with ASME B1.20.1, threaded steel pipe nipples or ASME B16.5, steel pipe flanges welded to hose.

E. Dielectric Fittings:
1. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.
2. Dielectric Flanges:
   a. Description:
      1) Standard: ASSE 1079.
      2) Factory-fabricated, bolted, companion-flange assembly.

3) Pressure Rating: 125 psig minimum at 180 deg F.
4) End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

3. Dielectric Nipples:
   a. Description:
      1) Standard: IAPMO PS 66
      2) Electroplated steel nipple. complying with ASTM F 1545.
      3) Pressure Rating: 300 psig at 225 deg F.
      4) End Connections: Male threaded or grooved.
      5) Lining: Inert and noncorrosive, propylene.

2.5 GATE VALVE ACCESSORIES AND SPECIALTIES

A. Tapping-Sleeve Assemblies:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. American Cast Iron Pipe Co.; Waterous Co. Subsidiary.
      b. McWane, Inc.; Clow Valve Co. Div. (Oskaloosa).
      c. McWane, Inc.; Kennedy Valve Div.
      d. McWane, Inc.; M & H Valve Company Div.
      e. Mueller Co.; Water Products Div.
      f. U.S. Pipe and Foundry Company.
   2. Description: Sleeve and valve compatible with drilling machine.
      a. Standard: MSS SP-60.
      b. Tapping Sleeve: Cast- or ductile-iron or stainless-steel, two-piece bolted sleeve with flanged outlet for new branch connection. Include sleeve matching size and type of pipe material being tapped and with recessed flange for branch valve.
      c. Valve: AWWA, cast-iron, nonrising-stem, metal -seated gate valve with one raised face flange mating tapping-sleeve flange.
      d. Standards: UL 246, FMG approved.
      e. Pressure Rating: 150 psig minimum.
      f. Standard: AWWA C503.
      g. Pressure Rating: 150 psig minimum.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Refer to Section 31 20 00 "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING APPLICATIONS

A. General: Use pipe, fittings, and joining methods for piping systems according to the following applications.

B. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.

C. Do not use flanges or unions for underground piping.

D. Flanges, unions, grooved-end-pipe couplings, and special fittings may be used, instead of joints indicated, on aboveground piping and piping in vaults.

E. Underground water-service piping NPS 4 to NPS 8 shall be any of the following:
   1. Ductile-iron, mechanical-joint pipe; ductile-iron, mechanical-joint fittings; and mechanical joints.

F. Underground Combined Water-Service and Fire-Service-Main Piping NPS 6 to NPS 12 shall be any of the following:
   1. Ductile-iron, mechanical-joint pipe; ductile-iron, mechanical-joint fittings; and mechanical joints.
   2. PVC, AWWA Class pipe listed for fire-protection service; PVC fabricated or molded fittings of same class as pipe; and gasketed joints.
   3. Fiberglass, AWWA, FMG-approved RTRP, Class ; RTRF; and gasketed joints.

3.3 VALVE APPLICATIONS

A. General Application: Use mechanical-joint-end valves for NPS 3 and larger underground installation. Use threaded- or flanged-end valves for installation in vaults. Use UL/FMG, nonrising-stem gate valves for installation with indicator posts. Use corporation valves and curb valves with ends compatible with piping, for NPS 2 and smaller installation.

B. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
   1. Underground Valves, NPS 3 and Larger: AWWA, cast-iron, nonrising-stem, resilient-seated gate valves with valve box.
   2. Underground Valves, NPS 4 and Larger, for Indicator Posts: UL/FMG, cast-iron, nonrising-stem gate valves with indicator post.
   3. Use the following for valves in vaults and aboveground:
   4. Gate Valves, NPS 2 and Smaller: Bronze, stem.
   5. Gate Valves, NPS 3 and Larger: AWWA, cast iron, OS&Y rising stem, metal seated .
   6. Pressure-Reducing Valves: Use for water-service piping in vaults and aboveground to control water pressure.
   7. Relief Valves: Use for water-service piping in vaults and aboveground.

END OF SECTION

SECTION 323113 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
1. Chain-link fences.
2. Swing, motor-operated gates.
3. Horizontal-slide, motor-operated gates.
4. Privacy slats.

B. Related Requirements:

1. **Section 033000 "Cast-in-Place Concrete"**, **Section 033053 "Miscellaneous Cast-in-Place Concrete"** for cast-in-place concrete **equipment bases/pads for gate operators and controls and post footings.**
2. Section 281500 "Access Control Hardware Devices" for gate controls.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at **Project site**.

1. Inspect and discuss electrical roughing-in, equipment bases, and other preparatory work specified elsewhere.
2. Review sequence of operation for each type of gate operator.
3. Review coordination of interlocked equipment specified in this Section and elsewhere.
4. Review required testing, inspecting, and certifying procedures.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:

a. Fence and gate posts, rails, and fittings.
b. Chain-link fabric, reinforcements, and attachments.
c. Accessories:

d. Gates and hardware.
e. Gate operators, including operating instructions and motor characteristics.

B. Shop Drawings: For each type of fence and gate assembly.
1. Include plans, elevations, sections, details, and attachments to other work.
2. Include accessories, hardware, gate operation, and operational clearances.
3. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.
4. Wiring Diagrams: For power, signal, and control wiring.

C. Samples for Initial Selection: For each type of factory-applied finish.

D. Samples for Verification: For each type of component with factory-applied finish, prepared on Samples of size indicated below:
1. Polymer-Coated Components: In 6-inch lengths for components and on full-sized units for accessories.

E. Delegated-Design Submittal: For structural performance of chain-link fence and gate frameworks, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For **professional engineer**, **testing agency**, **factory-authorized service representative**.

B. Product Certificates: For each type of chain-link fence, **operator,** and gate.

C. Product Test Reports: For framework strength according to ASTM F 1043, for tests performed by **manufacturer and witnessed by a qualified testing agency or a qualified testing agency.**

D. Field quality-control reports.

E. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

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

1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing fence grounding; member company of NETA or an NRTL.
1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

B. Emergency Access Requirements: According to requirements of authorities having jurisdiction for gates with automatic gate operators serving as a required means of access.

C. Mockups: Build mockups to set quality standards for fabrication and installation.
   1. Build mockup for typical chain-link fence **and gate**, including accessories.
      a. Size: 10-foot length of fence.

1.8 FIELD CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.9 WARRANTY

A. Special Warranty: **Installer agrees** to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Failure to comply with performance requirements.
      b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
      c. Faulty operation of gate operators and controls.
   2. Warranty Period: **Five** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design chain-link fence and gate frameworks.

B. Structural Performance: Chain-link fence and gate frameworks shall withstand the design wind loads and stresses for fence height(s) and under exposure conditions indicated according to **ASCE/SEI 7.**

   1. Design Wind Load: **As indicated on Drawings**.

      a. Minimum Post Size: Determine according to ASTM F 1043 for post spacing not to exceed 10 feet for Material **Group IA, ASTM F 1043, Schedule 40 steel pipe**.
      b. Minimum Post Size and Maximum Spacing: Determine according to CLFMI WLG 2445, based on mesh size and pattern specified.

C. Lightning Protection System: Maximum resistance-to-ground value of 25 ohms at each grounding location along fence under normal dry conditions.

2.2 CHAIN-LINK FABRIC

A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:

1. Fabric Height: **As indicated on Drawings**:
2. Steel Wire for Fabric: Wire diameter of 0.148 inch.
    a. Mesh Size: 2 inches.
    b. Aluminum-Coated Fabric: ASTM A 491, Type I, 0.40 oz./sq. ft.
    c. Zinc-Coated Fabric: ASTM A 392, Type II, **Class 2,** 2.0 oz./sq. ft. with zinc coating applied **before** weaving.
    d. Zn-5-Al-MM Aluminum-Mischmetal-Coated Fabric: ASTM F 1345, Type III, **Class 2,** 1.0 oz./sq. ft.
    e. Polymer-Coated Fabric: ASTM F 668, **Class 1** over **aluminum**-coated steel wire.
        1) Color: **Black** according to ASTM F 934.
    f. Coat selvage ends of metallic-coated fabric before the weaving process with manufacturer's standard clear protective coating.
3. Aluminum Wire Fabric: ASTM F 1183, with **mill** finish, and wire diameter of 0.148 inch.
    a. Mesh Size: 2 inches.
4. Selvage: **Twisted top and knuckled bottom.**

2.3 FENCE FRAMEWORK

A. Posts and Rails Civil Drawings: ASTM F 1043 for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 104 based on the following:

1. Fence Height: As **indicated on Drawings**.
2. Light-Industrial-Strength Material: **Group IC-L, round steel pipe, electric-resistance-welded pipe**.
    a. Line Post: 2.375 inches **in diameter.**
    b. End, Corner, and Pull Posts: 4 inches
3. Heavy-Industrial-Strength Material: **Group IA, round steel pipe, Schedule 40**
    a. Line Post: 4.0 inches **in diameter**
    b. End, Corner, and Pull Posts: 4.0 inches **in diameter**
4. Horizontal Framework Members: **Intermediate** rails according to ASTM F 1043.
    a. Top Rail: 1.66 inches **in diameter**
5. Brace Rails: ASTM F 1043.
6. Metallic Coating for Steel Framework:

a. Type A: Not less than minimum 2.0-oz./sq. ft. average zinc coating according to ASTM A 123/A 123M or 4.0-oz./sq. ft. zinc coating according to ASTM A 653/A 653M.
b. Type B: Zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. of zinc after welding, a chromate conversion coating, and a clear, verifiable polymer film.
c. External, Type B: Zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. of zinc after welding, a chromate conversion coating, and a clear, verifiable polymer film. Internal, Type D, consisting of 81 percent, not less than 0.3-mil- thick, zinc-pigmented coating.
d. Type C: Zn-5-Al-MM alloy, consisting of not less than 1.8-oz./sq. ft. coating.
e. Coatings: Any coating above.

7. Polymer coating over metallic coating.
   a. Color: **Black** according to ASTM F 934.

2.4 TENSION WIRE

A. Metallic-Coated Steel Wire: 0.177-inch- diameter, marcelled tension wire according to ASTM A 817 or ASTM A 824, with the following metallic coating:

1. Type I: Aluminum coated (aluminized).
2. Type II: Zinc coated (galvanized) by **electrolytic** process, with the following minimum coating weight.
   a. Class 3: Not less than 0.8 oz./sq. ft. of uncoated wire surface.
   b. Class 4: Not less than 1.2 oz./sq. ft. of uncoated wire surface.
   c. Class 5: Not less than 2 oz./sq. ft. of uncoated wire surface.
   d. Matching chain-link fabric coating weight.
3. Type III: Zn-5-Al-MM alloy with the following minimum coating weight.
   a. Class 60: Not less than 0.6 oz./sq. ft. of uncoated wire surface.
   b. Class 100: Not less than 1 oz./sq. ft. of uncoated wire surface.
   c. Matching chain-link fabric coating weight.

B. Polymer-Coated Steel Wire: 0.177-inch-diameter, tension wire according to ASTM F 1664, **Class** over **aluminum**-coated steel wire.

C. Aluminum Wire: 0.192-inch- diameter tension wire, mill finished, according to ASTM B 211, Alloy 6061-T94 with 50,000-psi minimum tensile strength.

2.5 SWING GATES

A. General: ASTM F 900 for gate posts and **single** swing gate types. **Provide automated vehicular gates according to ASTM F 2200.**
1. Gate Leaf Width: As **indicated** on drawings.
2. Framework Member Sizes and Strength: Based on gate fabric height **of** 72 inches **or less.**

B. Pipe and Tubing:
1. Zinc-Coated Steel: ASTM F 1043 and ASTM F 1083; **protective coating and finish to match fence framework**
2. Aluminum: ASTM B 429/B 429M; **manufacturer's standard** finish.

3. Gate Posts: **Round tubular steel.**
4. Gate Frames and Bracing: **Round tubular steel.**

C. Frame Corner Construction: Welded or **assembled with corner fittings.**

D. Extended Gate Posts and Frame Members: Fabricate gate posts and frame end members to extend 12 inches above top of chain-link fabric at both ends of gate frame to attach barbed **wire** assemblies.

E. Hardware:
1. Hinges: **360-degree inward and outward** swing.
2. Latch: Permitting operation from both sides of gate **with provision for padlocking accessible from both sides of gate.**
3. Lock: **Manufacturer's standard** internal device.
4. Padlock and Chain:
5. Closer: **Manufacturer's standard.**

2.6 HORIZONTAL-SLIDE GATES

A. General: ASTM F 1184 for gate posts and **single** sliding gate types. **Provide automated vehicular gates according to ASTM F 2200.**
1. Classification: Type I Overhead Slide.
   a. Gate Leaf Width: **As indicated.**
   b. Framework Member Sizes and Strength: Based on gate fabric height **of** 72 inches **or less.**
2. Classification: Type II Cantilever Slide, **Class 1 with external** roller assemblies.
   a. Gate Frame Width and Height: **More than** 48 inches **wide by any height.**

B. Pipe and Tubing:
1. Zinc-Coated Steel: **Protective coating and finish to match fence framework**
2. Aluminum: ASTM B 429/B 429M; **manufacturer's standard** finish.
3. Gate Posts: ASTM F 1184. Provide **round tubular steel round tubular aluminum** posts.
4. Gate Frames and Bracing: **Round tubular steel.**

C. Frame Corner Construction: **Welded or assembled with corner fittings.**

D. Extended Gate Posts and Frame Members: Extend gate posts and frame end members above top of chain-link fabric at both ends of gate frame 12 inches **as indicated** as required to attach barbed **wire** assemblies.

E. Overhead Track Assembly: Manufacturer's standard track, with overhead framework supports, bracing, and accessories, engineered to support size, weight, width, operation, and design of gate and roller assemblies.

F. Hardware:
1. Hangers, Roller Assemblies, and Stops: Fabricated from **galvanized steel**
2. Latch: Permitting operation from both sides of gate **with provision for padlocking accessible from both sides of gate.**
3. Lock: **Manufacturer's standard** internal device.

4. Padlock and Chain:

2.7 FITTINGS

A. Provide fittings according to ASTM F 626.

B. Post Caps: Provide for each post.
   1. Provide line post caps with loop to receive tension wire or top rail.

C. Rail and Brace Ends: For each gate, corner, pull, and end post.

D. Rail Fittings: Provide the following:
   1. Top Rail Sleeves: **Pressed-steel or round-steel tubing** not less than 6 inches long.
   2. Rail Clamps: Line and corner boulevard clamps for connecting **intermediate and bottom** rails to posts.

E. Tension and Brace Bands: **Pressed steel.**

F. Tension Bars: **Aluminum**, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.

G. Truss Rod Assemblies: **Steel, hot-dip galvanized after threading** rod and turnbuckle or other means of adjustment.

H. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, according to the following:
   1. Hot-Dip Galvanized Steel: 0.106-inch-diameter wire**; galvanized coating thickness matching coating thickness of chain-link fence fabric.**
   2. Aluminum: ASTM B 211; Alloy 1350-H19; 0.148-inch-diameter, mill-finished wire.

I. Finish:
   1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz./sq. ft. of zinc.
      a. Polymer coating over metallic coating.
   2. Aluminum: Mill finish.

2.8 PRIVACY SLATS

A. Fiber-Glass-Reinforced Plastic Slats: UV-light-stabilized fiber-glass-reinforced plastic, not less than 0.06 inch thick, sized to fit mesh specified for direction indicated**, with vandal-resistant fasteners and lock strips.**

B. Tubular Polyethylene Slats: Minimum 0.023-inch-thick tubular polyethylene, manufactured for chain-link fences from virgin polyethylene with UV inhibitor, sized to fit mesh specified for direction indicated, with **vandal-resistant fasteners and lock strips.**

C. Aluminum Slats: Minimum 0.01-inch-thick aluminum, sized to fit mesh specified for direction indicated.

D. Redwood Slats: 5/16-inch-thick redwood, sized to fit mesh specified for direction indicated.

E. Hedge-Type Slats: UV-light-stabilized**, flame-resistant**, PVC "needles" woven into braided, galvanized wire core, sized to fit mesh specified for direction indicated.

F. Color: **Match Architect's samples.**

2.9 GATE OPERATORS

A. Operators: Factory-assembled, automatic, gate-operating system designed for gate size, type, weight, and frequency of use. Control system shall have characteristics suitable for Project conditions, with control stations, safety devices, and weatherproof enclosures.
1. Operator design shall allow for removal of cover or motor without disturbing limit-switch adjustment and without affecting auxiliary emergency operation.
2. Electronic components shall have built-in troubleshooting diagnostic feature.
3. Unit shall be designed and wired for both right-hand/left-hand opening, permitting universal installation.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. UL Standard: Manufacture and label gate operators according to UL 325.

D. Motors: Comply with NEMA MG 1.
1. Duty: Continuous duty at ambient temperature of 40 deg C and at altitude of 3300 feet above sea level.
2. Capacity and Torque Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, at installed altitude and environment, with indicated operating sequence, and without exceeding nameplate ratings or considering service factor.
3. Service Factor: 1.15.
4. Electrical Characteristics:
   a. Horsepower: **2.**
   b. Voltage: **208 V ac**, single phase, 60 hertz.
   c. Voltage: **460 V ac**, three phase, 60 hertz.

E. Gate Operators: **Equipment base/pad** mounted and as follows:
1. Hydraulic **Slide** Gate Operators:
   a. Duty: **Heavy** duty, **commercial/industrial.**
   b. Gate Speed: Minimum 45 feet per minute.
   c. Maximum Gate Weight: 300 lb.
   d. Frequency of Use: **25 cycles per hour.**
   e. Operating Type: **Wheel and rail drive**, **with manual release.**
   f. Hydraulic Fluid: Of viscosity required for gate operation at ambient temperature range for Project.
   g. Locking: Hydraulic in both directions.
   h. Heater: Manufacturer's standard track and roller heater with thermostatic control.
2. Mechanical **Slide** Gate Operators:
   a. Duty: **Heavy** duty, **commercial/industrial.**
   b. Gate Speed: Minimum 45 feet **per minute**
   c. Maximum Gate Weight: 600 lb

d. Frequency of Use: **25 cycles per hour**
e. Operating Type: **Crank arm Wheel and rail drive**, **with manual release.**
f. Drive Type: Enclosed worm gear **and chain-and-sprocket** reducers, roller-chain drive.
g. Drive Type: V-belt and **worm gear chain-and-sprocket** reducers, roller-chain drive.

F. Controls: Electric controls separated from gate and motor and drive mechanism, with **NEMA 250, Type 4**enclosure for **recessed or flush equipment base/pad** mounting and with space for additional optional equipment.

G. Control Devices:
1. Control Station: Keyed, **two**-position switch, located remotely from gate. Provide two keys per station.
   a. Function: Open**, stop,** and close.
2. Control Station: Momentary contact, **three**-button operated; located remotely from gate. **Key switches to lock out open and close buttons.**
   a. Function: Open**, stop,** and close.
3. Card Reader: Functions only when authorized card is presented. Programmable, magnetic **single**-code system[**, permitting four different access time periods ; face-lighted unit fully visible at night.**
   a. Reader Type: **Touch plate**
   b. Features: **Timed anti-passback**
4. Digital Keypad Entry Unit: Multiple-**programmable-**code capability of not less than **500** possible individual codes, consisting of **one- to seven** digit codes**, and permitting four different access time periods.**
   a. Features: **Timed anti-passback.**
   b. Face-lighted unit with [**metal-keyed**] [**keyless-membrane**] keypad fully visible at night.
5. Radio Control: Digital system consisting of code-compatible universal receiver for each gate, located where indicated, with remote antenna with coaxial cable and mounting brackets designed to operate gates. Provide **two** programmable transmitter(s) with multiple-code capability, permitting validating or voiding of not less than **1000** codes per channel configured for the following functions:
   a. Transmitters: **Single**-button operated, with open **and close** function.
   b. Channel Settings: **Four**independent channel settings controlling separate receivers for operating more than one gate from each transmitter.
6. Telephone Entry System: Hands-free voice-communication system for connection to building telephone system, with digital-entry code activation of gate operator **and auxiliary keypad entry.**
   a. Residential System: Designed to be wired to same line with telephone.
   b. Multiunit System: Designed to be wired to a dedicated telephone line, with capacity to access 100 telephone **and with electronic directory.**

7. Vehicle Loop Detector: System that includes automatic closing timer with adjustable time delay before closing**, timer cut-off switch,** and loop detector designed to **open and close gate hold gate open until traffic clears**. Provide electronic detector with adjustable detection patterns, adjustable sensitivity and frequency settings, and panel indicator light designed to detect presence or transit of a vehicle over an embedded loop of wire and to emit a signal activating the gate operator. Provide number of loops consisting of multiple strands of wire, number of turns, loop size, and method of placement at location shown on Drawings, and as recommended in writing by detection system manufacturer for function indicated.
   a. Loop: **Factory-preformed** wire, in size indicated, for **pave-over** installation.
8. Vehicle Presence Detector: System that includes automatic closing timer with adjustable time delay before closing**, timer cut-off switch,** and presence detector designed to **open and close gate.**
   a. Provide **retroreflective** detector with adjustable detection zone pattern and sensitivity, designed to detect the presence or transit of a vehicle in gate pathway when infrared beam in zone pattern is interrupted, and to emit a signal activating the gate operator.

H. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately function as follows:
1. Action: **Reverse gate in both opening and closing cycles and hold until clear of obstruction.**
2. Internal Sensor: Built-in torque or current monitor senses gate is obstructed.
3. Sensor Edge: Contact-pressure-sensitive safety edge, profile, and sensitivity designed for type of gate and component indicated, in locations as follows. Connect to control circuit using **gate edge transmitter and operator receiver.**
   a. Along entire gate leaf leading edge.
   b. Along entire gate leaf trailing edge.
   c. Across entire gate leaf bottom edge.
   d. Along entire length of gate posts.
   e. Along entire length of gate guide posts.
   f. Where indicated on Drawings.
4. Photoelectric/Infrared Sensor: Designed to detect an obstruction in gate's path when infrared beam in the zone pattern is interrupted.

I. Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop gate at fully open and fully closed positions.

J. Emergency Release Mechanism: Quick-disconnect release of operator drive system, permitting manual operation if operator fails. Control circuit power is disconnected during manual operation.
1. Type: **Integral fail-safe release, allowing gate to be pushed open without mechanical devices, keys, cranks, or special knowledge.**

K. Operating Features:
1. Digital Microprocessor Control: Electronic programmable means for setting, changing, and adjusting control features **with capability for monitoring and auditing gate activity**. Provide unit that is isolated from voltage spikes and surges.
2. System Integration: With controlling circuit board capable of accepting any type of input from external devices.
3. Master/Slave Capability: Control stations designed and wired for gate pair operation.

4. Automatic Closing Timer: With adjustable time delay before closing **and timer cut-off switch.**
5. Open Override Circuit: Designed to override closing commands.
6. Reversal Time Delay: Designed to protect gate system from shock load on reversal in both directions.
7. Maximum Run Timer: Designed to prevent damage to gate system by shutting down system if normal time to open gate is exceeded.
8. Clock Timer: **Seven day** programmable for regular events.

L. Accessories:
1. Warning Module: **Visual**, **constant strobe**-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving.
2. Battery Backup System: Battery-powered drive and access-control system, independent of primary drive system.
   a. Fail Safe: Gate opens and remains open until power is restored.
   b. Fail Secure: Gate cycles on battery power, then fail safe when battery is discharged.
3. External electric-powered **magnetic** lock with delay timer allowing time for lock to release before gate operates.
4. **Fire** box.
5. Fire **siren** alarm.
6. Intercom System:
7. Instructional, Safety, and Warning Labels and Signs: **According to UL 325**
8. Equipment Bases/Pads: Cast-in-place or precast concrete, **depth not less than** 12 inches, dimensioned and reinforced according to gate-operator component manufacturer's written instructions and as indicated on Drawings.

2.10 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout, recommended in writing by manufacturer, for exterior applications.

B. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating, and that is recommended in writing by manufacturer for exterior applications.

2.11 GROUNDING MATERIALS

A. Comply with requirements in Section 260526 "Grounding and Bonding for Electrical Systems."

B. Connectors and Grounding Rods: Listed and labeled for complying with UL 467.
1. Connectors for Below-Grade Use: Exothermic welded type.
2. Grounding Rods: Copper-clad steel, 5/8 by 96 inches.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for **a certified survey of property lines and legal boundaries,** site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
   1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 CHAIN-LINK FENCE INSTALLATION

A. Install chain-link fencing according to ASTM F 567 and more stringent requirements specified.

   1. Install fencing on established boundary lines inside property line.

B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

C. Post Setting: Set posts **in concrete by mechanically driving into soil** at indicated spacing into firm, undisturbed soil.
   1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
   2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
      a. Exposed Concrete: Extend 2 inches above grade; shape and smooth to shed water.
      b. Concealed Concrete: Place top of concrete 2 inches below grade to allow covering with surface material.
      c. Posts Set into Sleeves in Concrete: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with **nonshrink nonmetallic grout**, mixed and placed according to anchoring material manufacturer's written instructions. Finish anchorage joint to slope away from post to drain water.
      d. Posts Set into Holes in Concrete: Form or core drill holes not less than 5 inches deep and 3/4 inch larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with **nonshrink, nonmetallic grout,** mixed and placed according to anchoring material manufacturer's written instructions. Finish anchorage joint to slope away from post to drain water.

3. Mechanically Driven Posts: Drive into soil to depth of 36 inches. Protect post top to prevent distortion.

D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of **15 degrees or more**. For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.

E. Line Posts: Space line posts uniformly at 96 inches 10 feet o.c.

F. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
1. Locate horizontal braces at midheight of fabric 72 inches or higher, on fences with top rail, and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.

G. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch- diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:
1. Extended along **top and bottom** of fence fabric. Install top tension wire through post cap loops. Install bottom tension wire within 6 inches of bottom of fabric and tie to each post with not less than same diameter and type of wire.

H. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.

I. Intermediate and Bottom Rails: Secure to posts with fittings.

J. Chain-Link Fabric: Apply fabric to **outside** of enclosing framework. Leave 2-inch bottom clearance between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.

K. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.

L. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.

M. Fasteners: Install nuts for tension bands and carriage bolts on the side of fence opposite the fabric side. **Peen ends of bolts or score threads to prevent removal of nuts.**

3.4 GATE INSTALLATION

A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

3.5 GATE-OPERATOR INSTALLATION

A. Install gate operators according to manufacturer's written instructions, aligned and true to fence line and grade.

B. Excavation: Hand-excavate holes for posts, pedestals, and equipment bases/pads, in firm, undisturbed soil to dimensions and depths and at locations according to gate-operator component manufacturer's written instructions and as indicated.

C. Vehicle Loop Detector System: **Cut grooves in pavement, bury, and seal** wire loop according to manufacturer's written instructions. Connect to equipment operated by detector.

D. Ground electric-powered motors, controls, and other devices according to NFPA 70 and manufacturer's written instructions.

3.6 GROUNDING AND BONDING

A. Comply with requirements in Section 260526 "Grounding and Bonding for Electrical Systems."

B. Fence and Gate Grounding:
   1. Ground for fence and fence posts shall be a separate system from ground for gate and gate posts.
   2. Install ground rods and connections at maximum intervals of [1500 feet] <**Insert dimension**>.
   3. Fences within 100 Feet of Buildings, Structures, Walkways, and Roadways: Ground at maximum intervals of [750 feet] <**Insert dimension**>.
   4. Ground fence on each side of gates and other fence openings.
      a. Bond metal gates to gate posts.
      b. Bond across openings, with and without gates, except openings indicated as intentional fence discontinuities. Use No. 2 AWG wire and bury it at least 18 inches below finished grade.

C. Protection at Crossings of Overhead Electrical Power Lines: Ground fence at location of crossing and at a ground rod located a maximum distance of 150 feet on each side of crossing.

D. Fences Enclosing Electrical Power Distribution Equipment: Ground according to IEEE C2 unless otherwise indicated.

E. Grounding Method: At each grounding location, drive a grounding rod vertically until the top is 6 inches below finished grade. Connect rod to fence with No. 6 AWG conductor. Connect conductor to each fence component at grounding location.

1. Make grounding connections to each barbed wire strand with wire-to-wire connectors designed for this purpose.
2. Make grounding connections to each barbed tape coil with connectors designed for this purpose.

F. Connections:
1. Make connections with clean, bare metal at points of contact.
2. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
3. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
4. Make above-grade ground connections with mechanical fasteners.
5. Make below-grade ground connections with exothermic welds.
6. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

G. Bonding to Lightning Protection System: Ground fence and bond fence grounding conductor to lightning protection down conductor or lightning protection grounding conductor according to NFPA 780.

H. Comply with requirements in Section 264113 "Lightning Protection for Structures."

3.7 FIELD QUALITY CONTROL

A. Testing Agency: **Engage** a qualified testing agency to perform tests.

B. Grounding Tests: Comply with requirements in Section 264113 "Lightning Protection for Structures."

C. Prepare test reports.

3.8 ADJUSTING

A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

B. Automatic Gate Operator: Energize circuits to electrical equipment and devices, start units, and verify proper motor rotation and unit operation.
1. Hydraulic Operator: Purge operating system, adjust pressure and fluid levels, and check for leaks.
2. Test and adjust operators, controls**, alarms,** and safety devices. Replace damaged and malfunctioning controls and equipment.
3. Lubricate operator and related components.

C. Lubricate hardware and other moving parts.

3.9 DEMONSTRATION

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

END OF SECTION

SECTION 330500 - COMMON WORK RESULTS FOR UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Piping joining materials.
2. Transition fittings.
3. Dielectric fittings.
4. Sleeves.
5. Identification devices.
6. Grout.
7. Flowable fill.
8. Piped utility demolition.
9. Piping system common requirements.
10. Equipment installation common requirements.
11. Painting.
12. Concrete bases.
13. Metal supports and anchorages.

1.2 DEFINITIONS

A. Exposed Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions.

B. Concealed Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

C. ABS: Acrylonitrile-butadiene-styrene plastic.

D. CPVC: Chlorinated polyvinyl chloride plastic.

E. PE: Polyethylene plastic.

F. PVC: Polyvinyl chloride plastic.

1.3 ACTION SUBMITTALS

A. Product Data: For the following:

1. Dielectric fittings.
2. Identification devices.

1.4 INFORMATIONAL SUBMITTALS

A. Welding certificates.

1.5 QUALITY ASSURANCE

A. Steel Support Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Steel Piping Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Comply with ASME A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

1.7 COORDINATION

A. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

B. Coordinate installation of identifying devices after completing covering and painting if devices are applied to surfaces.

C. Coordinate size and location of concrete bases. Formwork, reinforcement, and concrete requirements are specified in Section 033000 "Cast-in-Place Concrete."

PART 2 - PRODUCTS

PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos free, 1/8-inch maximum thickness, unless otherwise indicated.

a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.

2. AWWA C110, rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.

B. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

C. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

D. Solder Filler Metals: ASTM B32, lead-free alloys. Include water-flushable flux according to ASTM B813.

E. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, BAg1, silver alloy for refrigerant piping, unless otherwise indicated.

F. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

G. Solvent Cements for Joining Plastic Piping:

1. ABS Piping: ASTM D2235.
2. CPVC Piping: ASTM F493.
3. PVC Piping: ASTM D2564. Include primer according to ASTM F656.
4. PVC to ABS Piping Transition: ASTM D3138.

H. Fiberglass Pipe Adhesive: As furnished or recommended by pipe manufacturer.

2.2 TRANSITION FITTINGS

A. Transition Fittings, General: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.

B. Transition Couplings NPS 1-1/2 and Smaller:

1. Underground Piping: Manufactured piping coupling or specified piping system fitting.
2. Aboveground Piping: Specified piping system fitting.

C. AWWA Transition Couplings NPS 2 and Larger:

1. Manufacturers: Subject to compliance with requirements, [**provide products by the following**] [**provide products by one of the following**] [**available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**]:

a. Cascade Waterworks Mfg. Co.
b. Dresser Utility Solutions.
c. Ford Meter Box Company, Inc. (The).

d. JCM Industries, Inc.
e. Smith-Blair, a Xylem brand.
f. Viking Johnson.

2. Description: AWWA C219, metal sleeve-type coupling for underground pressure piping.

D. Plastic-to-Metal Transition Fittings:

1. Manufacturers: Subject to compliance with requirements, **available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**:

a. Spears Manufacturing Company.

2. Description: **PVC**one-piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint **or threaded** end.

E. Plastic-to-Metal Transition Unions:

1. Manufacturers: Subject to compliance with requirements, **available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**:

a. Colonial Engineering, Inc.
b. NIBCO INC.
c. Spears Manufacturing Company.

2. Description: MSS SP-107, **PVC** four-part union. Include brass[**or stainless steel**] threaded end, solvent-cement-joint **or threaded** plastic end, rubber O-ring, and union nut.

F. Flexible Transition Couplings for Underground Nonpressure Drainage Piping:

1. Manufacturers: Subject to compliance with requirements, **available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**:

a. Cascade Waterworks Mfg. Co.
b. Fernco Inc.
c. Mission Rubber Company, LLC; a division of MCP Industries.
d. Plastic Oddities.

2. Description: ASTM C1173 with elastomeric sleeve, ends same size as piping to be joined, and corrosion-resistant metal band on each end.

2.3 DIELECTRIC FITTINGS

A. Dielectric Fittings, General: Assembly of copper alloy and ferrous materials or ferrous material body with separating nonconductive insulating material suitable for system fluid, pressure, and temperature.

B. Dielectric Unions:

1. Manufacturers: Subject to compliance with requirements, **available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**:

    a. Capitol Manufacturing Company.
    b. Epco Sales, Inc.
    c. GF Piping Systems: Georg Fischer LLC.
    d. HART Industrial Unions, LLC.
    e. WATTS; A Watts Water Technologies Company.
    f. Zurn Industries, LLC.

2. Description: Factory fabricated, union, NPS 2 and smaller.

    a. Pressure Rating: 150 psig **minimum** at 180 deg F.
    b. End Connections: Solder-joint copper alloy and threaded ferrous; threaded ferrous.

C. Dielectric Flanges:

1. Manufacturers: Subject to compliance with requirements, **available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**:

    a. Capitol Manufacturing Company.
    b. Epco Sales, Inc.
    c. GF Piping Systems: Georg Fischer LLC.
    d. WATTS; A Watts Water Technologies Company.
    e. Zurn Industries, LLC.

2. Description: Factory-fabricated, bolted, companion-flange assembly, NPS 2-1/2 to NPS 4 and larger.

    a. Pressure Rating: 175 psig **minimum**.
    b. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

D. Dielectric-Flange Kits:

1. Manufacturers: Subject to compliance with requirements, **available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**:

    a. Advance Products & Systems, LLC.
    b. CALPICO, Inc.
    c. GF Piping Systems: Georg Fischer LLC.
    d. GPT; a division of EnPRO Industries.

2. Description: Nonconducting materials for field assembly of companion flanges, NPS 2-1/2 and larger.

a. Pressure Rating: 150 psig **minimum**.
b. Gasket: Neoprene or phenolic.
c. Bolt Sleeves: Phenolic or polyethylene.
d. Washers: Phenolic with steel backing washers.

E. Dielectric Couplings:

1. Manufacturers: Subject to compliance with requirements, **available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**:

a. CALPICO, Inc.
b. Lochinvar, LLC.

2. Description: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining, NPS 3 and smaller.

a. Pressure Rating: 300 psig at 225 deg F.
b. End Connections: Threaded.

F. Dielectric Nipples:

1. Manufacturers: Subject to compliance with requirements, **available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**:

a. Elster Perfection; Honeywell.
b. Precision Plumbing Products.
c. Victaulic Company.

2. Description: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining.

a. Pressure Rating: 300 psig **at** 225 deg F.
b. End Connections: Threaded or grooved.

2.4 SLEEVES

A. Mechanical sleeve seals for pipe penetrations are specified in Section 220500 "Common Work Results for Plumbing."

B. Galvanized-Steel Sheet Sleeves: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

C. Steel Pipe Sleeves: ASTM A53/A53M, Type E, Grade B, Schedule 40, galvanized, plain ends.

Cast-Iron Sleeves: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

Molded PVC Sleeves: Permanent, with nailing flange for attaching to wooden forms.

F. PVC Pipe Sleeves: ASTM D1785, Schedule 40.

G. Molded PE Sleeves: Reusable, PE, tapered-cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.

2.5 IDENTIFICATION DEVICES

A. General: Products specified are for applications referenced in other utilities Sections. If more than single type is specified for listed applications, selection is Installer's option.

B. Equipment Nameplates: Metal permanently fastened to equipment with data engraved or stamped.

1. Data: Manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and essential data.
2. Location: Accessible and visible.

C. Stencils: Standard stencils prepared with letter sizes complying with recommendations in ASME A13.1. Minimum letter height is 1-1/4 inches for ducts, and 3/4 inch for access door signs and similar operational instructions.

1. Material: **Brass**.
2. Stencil Paint: Exterior, oil-based, alkyd-gloss black enamel, unless otherwise indicated. Paint may be in pressurized spray-can form.
3. Identification Paint: Exterior, oil-based, alkyd enamel in colors according to ASME A13.1, unless otherwise indicated.

D. Snap-on Plastic Pipe Markers: Manufacturer's standard preprinted, semirigid, snap-on type. Include color-coding according to ASME A13.1, unless otherwise indicated.

E. Pressure-Sensitive Pipe Markers: Manufacturer's standard preprinted, color-coded, pressure-sensitive-vinyl type with permanent adhesive.

Pipes with OD, Including Insulation, Less Than 6 Inches: Full-band pipe markers, extending 360 degrees around pipe at each location.

G. Pipes with OD, Including Insulation, 6 Inches and Larger: Either full-band or strip-type pipe markers, at least three times letter height and of length required for label.

H. Lettering:

1. Manufacturer's standard preprinted captions as selected by Architect.
2. Use piping system terms indicated and abbreviate only as necessary for each application length.

a. Arrows: Either integrally with piping system service lettering to accommodate both directions of flow, or as separate unit on each pipe marker to indicate direction of flow.

I. Plastic Tape: Manufacturer's standard color-coded, pressure-sensitive, self-adhesive vinyl tape, at least 3 mils thick.

1. Width: 1-1/2 inches on pipes with OD, including insulation, less than 6 inches; 2-1/2 inches for larger pipes.
2. Color: Comply with ASME A13.1, unless otherwise indicated.

J. Valve Tags: Stamped or engraved with 1/4-inch letters for piping system abbreviation and 1/2-inch sequenced numbers. Include 5/32-inch hole for fastener.

1. Material:

a. 0.032-inch- thick, [**polished brass**] [**or**] [**aluminum**].
b. 0.0375-inch- thick stainless steel.
c. 3/32-inch- thick plastic laminate with 2 black surfaces and a white inner layer.
d. Valve manufacturer's standard solid plastic.

2. Size: 1-1/2 inches in diameter, unless otherwise indicated.

Shape: As indicated for each piping system.

K. Valve Tag Fasteners: Brass, wire-link or beaded chain; or brass S-hooks.

Engraved Plastic-Laminate Signs: ASTM D709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock; Grade ES-2, black surface, black phenolic core, with white melamine subcore, unless otherwise indicated. Fabricate in sizes required for message. Provide holes for mechanical fastening.

1. Engraving: Engraver's standard letter style, of sizes and with terms to match equipment identification.
2. Thickness:

a. 1/8 inch, unless otherwise indicated.
b. 1/16 inch, for units up to 20 sq. in. or 8 inches in length, and 1/8 inch for larger units.

3. Fasteners: Self-tapping, stainless steel screws or contact-type permanent adhesive.

M. Plastic Equipment Markers: Manufacturer's standard laminated plastic, in the following color codes:

1. Green: Cooling equipment and components.
2. Yellow: Heating equipment and components.
3. Brown: Energy reclamation equipment and components.
4. Blue: Equipment and components that do not meet criteria above.
5. Hazardous Equipment: Use colors and designs recommended by ASME A13.1.
6. Terminology: Match schedules as closely as possible. Include the following:

a. Name and plan number.
b. Equipment service.
c. Design capacity.
d. Other design parameters such as pressure drop, entering and leaving conditions, and speed.

7. Size: 2-1/2 by 4 inches for control devices, dampers, and valves; 4-1/2 by 6 inches for equipment.

N. Plasticized Tags: Preprinted or partially preprinted, accident-prevention tags, of plasticized card stock with mat finish suitable for writing.

1. Size: 3-1/4 by 5-5/8 inches.
2. Fasteners: Brass grommets and wire.
3. Nomenclature: Large-size primary caption such as DANGER, CAUTION, or DO NOT OPERATE.

O. Lettering and Graphics: Coordinate names, abbreviations, and other designations used in piped utility identification with corresponding designations indicated. Use numbers, letters, and terms indicated for proper identification, operation, and maintenance of piped utility systems and equipment.

1. Multiple Systems: Identify individual system number and service if multiple systems of same name are indicated.

2.6 GROUT

A. Description: ASTM C1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.

1. Characteristics: Post hardening, volume adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi, 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

2.7 FLOWABLE FILL

A. Description: Low-strength-concrete, flowable-slurry mix.

1. Cement: ASTM C150, Type I, portland.
2. Density: 145-lb/cu. ft..
3. Aggregates:

a. ASTM C33, natural sand, fine and crushed gravel or stone, coarse.
b. ASTM C33, natural sand, fine.

4. Admixture: ASTM C618, fly-ash mineral.
5. Water: Comply with ASTM C94/C94M.
6. Strength: 200 psig at 28 days.

PART 3 - EXECUTION

3.1 PIPED UTILITY DEMOLITION

A. Refer to Section 024119 "Selective Demolition" for general demolition requirements and procedures.

B. Disconnect, demolish, and remove piped utility systems, equipment, and components indicated to be removed.

1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
2. Piping to Be Abandoned in Place: Drain piping. Fill abandoned piping with flowable fill, and cap or plug piping with same or compatible piping material.
3. Equipment to Be Removed: Disconnect and cap services and remove equipment.
4. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make operational.
5. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.2 DIELECTRIC FITTING APPLICATIONS

A. Dry Piping Systems: Connect piping of dissimilar metals with the following:

1. NPS 2 and Smaller: Dielectric unions.
2. NPS 2-1/2 to NPS 12: Dielectric flanges.

B. Wet Piping Systems: Connect piping of dissimilar metals with the following:

1. NPS 2 and Smaller: Dielectric **couplings**.
2. NPS 2-1/2 to NPS 4: Dielectric nipples.
3. NPS 2-1/2 to NPS 8: Dielectric nipples **or dielectric flange kits**.
4. NPS 10 and NPS 12: Dielectric flange kits.

3.3 INSTALLATION OF PIPING

A. Install piping according to the following requirements and utilities Sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on the Coordination Drawings.

C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

D. Install piping to permit valve servicing.

E. Install piping at indicated slopes.

F. Install piping free of sags and bends.

G. Install fittings for changes in direction and branch connections.

H. Select system components with pressure rating equal to or greater than system operating pressure.

Sleeves are not required for core-drilled holes.

Permanent sleeves are not required for holes formed by removable PE sleeves.

K. Install sleeves for pipes passing through concrete and masonry walls and concrete floor and roof slabs.

1. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of equipment areas or other wet areas 2 inches above finished floor level.

2. Install sleeves in new walls and slabs as new walls and slabs are constructed.

a. Pipe Sleeves: **PVC**. For pipes smaller than NPS 6.
b. Steel Sheet Sleeves: For pipes NPS 6 and larger, penetrating gypsum-board partitions.

L. Verify final equipment locations for roughing-in.

M. Refer to equipment specifications in other Sections for roughing-in requirements.

3.4 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and utilities Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.

2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

E. Welded Joints: Construct joints according to AWS D10.12/D10.12M, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.

F. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

G. Grooved Joints: Assemble joints with grooved-end pipe coupling with coupling housing, gasket, lubricant, and bolts according to coupling and fitting manufacturer's written instructions.

H. Soldered Joints: Apply ASTM B813 water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B828 or CDA's "Copper Tube Handbook," using lead-free solder alloy (0.20 percent maximum lead content) complying with ASTM B32.

I. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

J. Pressure-Sealed Joints: Assemble joints for plain-end copper tube and mechanical pressure seal fitting with proprietary crimping tool to according to fitting manufacturer's written instructions.

K. Plastic Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

1. Comply with ASTM F402 for safe-handling practice of cleaners, primers, and solvent cements.
2. ABS Piping: Join according to ASTM D2235 and ASTM D2661 appendixes.
3. CPVC Piping: Join according to ASTM D2846/D2846M Appendix.
4. PVC Pressure Piping: Join schedule number ASTM D1785, PVC pipe and PVC socket fittings according to ASTM D2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D2855.
5. PVC Nonpressure Piping: Join according to ASTM D2855.
6. PVC to ABS Nonpressure Transition Fittings: Join according to ASTM D3138Appendix.

L. Plastic Pressure Piping Gasketed Joints: Join according to ASTM D3139.

M. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D3212.

N. Plastic Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D2657.

1. Plain-End PE Pipe and Fittings: Use butt fusion.
2. Plain-End PE Pipe and Socket Fittings: Use socket fusion.

O. Bonded Joints: Prepare pipe ends and fittings, apply adhesive, and join according to pipe manufacturer's written instructions.

3.5 PIPING CONNECTIONS

A. Make connections according to the following, unless otherwise indicated:

1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.
3. Install dielectric fittings at connections of dissimilar metal pipes.

3.6 INSTALLATION OF EQUIPMENT

A. Install equipment level and plumb, unless otherwise indicated.

B. Install equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference with other installations. Extend grease fittings to an accessible location.

C. Install equipment to allow right of way to piping systems installed at required slope.

3.7 PAINTING

A. Painting of piped utility systems, equipment, and components is specified in Section 099113 "Exterior Painting," Section 099123 "Interior Painting," and Section 099600 "High-Performance Coatings."

B. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.8 IDENTIFICATION

A. Piping Systems: Install pipe markers on each system. Include arrows showing normal direction of flow.

1. Stenciled Markers: According to ASME A13.1.

Plastic markers, with application systems. Install on insulation segment if required for hot noninsulated piping.

Locate pipe markers on exposed piping according to the following:

a. Near each valve and control device.
b. Near each branch, excluding short takeoffs for equipment and terminal units. Mark each pipe at branch if flow pattern is not obvious.
c. Near locations where pipes pass through walls or floors or enter inaccessible enclosures.
d. At manholes and similar access points that permit view of concealed piping.
e. Near major equipment items and other points of origination and termination.

B. Equipment: Install engraved plastic-laminate sign or equipment marker on or near each major item of equipment.

1. Lettering Size: Minimum 1/4 inch high for name of unit if viewing distance is less than 24 inches, 1/2 inch high for distances up to 72 inches, and proportionately larger lettering for greater distances. Provide secondary lettering two-thirds to three-fourths of size of principal lettering.
2. Text of Signs: Provide name of identified unit. Include text to distinguish among multiple units, inform user of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.

C. Adjusting: Relocate identifying devices that become visually blocked by work of this or other Divisions.

3.9 CONCRETE BASES

A. Concrete Bases: Anchor equipment to concrete base according to equipment manufacturer's written instructions and according to seismic codes at Project.

1. Construct concrete bases of dimensions indicated, but not less than 4 inches larger in both directions than supported unit.
2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of base.
3. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.
4. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
5. Install anchor bolts to elevations required for proper attachment to supported equipment.
6. Install anchor bolts according to anchor-bolt manufacturer's written instructions.
7. Use 3000-psi, 28-day compressive-strength concrete and reinforcement as specified in Section 033000 "Cast-in-Place Concrete."

3.10 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Refer to Section 055000 "Metal Fabrications" for structural steel.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor piped utility materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.11 GROUTING

A. Mix and install grout for equipment base bearing surfaces, pump and other equipment base plates, and anchors.

B. Clean surfaces that will come into contact with grout.

C. Provide forms as required for placement of grout.

D. Avoid air entrapment during placement of grout.

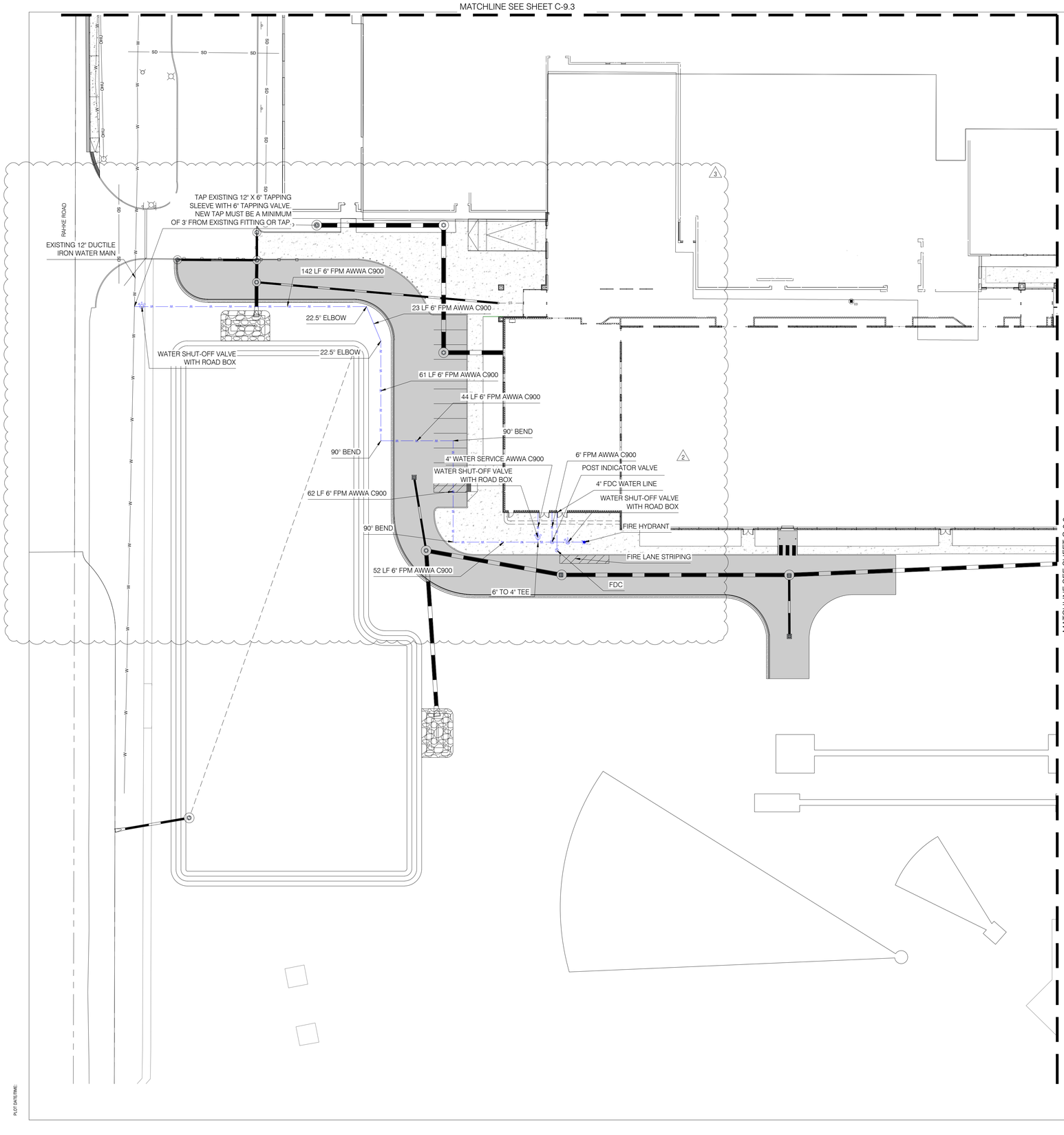
E. Place grout, completely filling equipment bases.

F. Place grout on concrete bases and provide smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout.

END OF SECTION



UTILITY PLAN GENERAL NOTES:

1. PROPOSED SANITARY INSTALLATION MUST BE BUILT WITH ADHERENCE TO THE LATEST CITIZENS SANITARY STANDARDS.
2. MINIMUM DEPTH OF COVER OVER PROPOSED SANITARY SEWER MAIN IS 6.5'.
3. MINIMUM DEPTH OF COVER OVER PROPOSED SANITARY SEWER LATERAL IS 4.0'.
4. THERE MUST BE 18" VERTICAL AND 10' HORIZONTAL SEPARATION FROM ANY WATER LINES.
5. TRACER WIRE IS REQUIRED FOR SANITARY SERVICE LATERALS.
6. FULL DEPTH GRANULAR BACKFILL IS REQUIRED FOR ANY PROPOSED LINES THAT ARE UNDER PAVEMENT OR WITHIN 5' OF THE PAVEMENT.
7. MINIMUM SLOPE FOR 6" SDR 35 PVC IS 1.04%.
8. LOWEST FLOOR ELEVATION WITH GRAVITY SERVICE SHALL BE A MINIMUM OF 1' ABOVE EITHER THE FIRST UPSTREAM OR FIRST DOWNSTREAM MANHOLE CASTING ELEVATION.
9. PROPOSED WATER LINE SHALL BE CONSTRUCTED AT MINIMUM DEPTH TO PREVENT FREEZING. REFER TO IDOH FROST DEPTH MAP.
10. ELECTRIC SHOULD BE 3 FT. MIN BELOW FINISHED GRADE.
11. COPPER OR DUCTILE IRON PIPE MUST BE RUN FROM 5 FEET OUTSIDE OF THE BUILDING FOOTER IN TO THE BUILDING TO THE METER SETUP. CONTRACTOR TO REFER TO SECTION 8.06 OF CEG WATER STANDARDS.
12. UTILITY LOCATIONS NOTED AS APPROXIMATE AND CONTRACTOR RESPONSIBLE FOR VERIFICATION.

GRAPHIC SCALE
0' 30' 60' 90'
(IN FEET)

N
TRUE NORTH

LANCER ASSOCIATES ARCHITECTURE
145 NORTH EAST STREET
INDIANAPOLIS, IN 46204

JQOL QUALITY OF LIFE

creative engineering solutions
mechanical • electrical • plumbing
602 N. Capitol Ave., Suite 200
Indianapolis, IN 46204 • 463-233-9799
www.creativeeng.net

PERRY TOWNSHIP SCHOOLS
PERRY MERIDIAN HIGH SCHOOL
401 W. MERIDIAN SCHOOL ROAD
INDIANAPOLIS, IN 46217

DANIEL J. O'TOOLE REGISTERED No. 10200269 STATE OF INDIANA PROFESSIONAL ENGINEER

REVISIONS:

#	DATE	DESC.
2	04/03/26	ADDENDUM #2
3	04/10/26	ADDENDUM #3

100% CONSTRUCTION DOCUMENTS

PROJECT:	2025.148
DATE:	04/10/2026
DRAWN BY:	AKD

UTILITY PLAN

C-9.1

PLOT DATE/TIME:

DESIGN 27 TECHNOLOGY + ACOUSTICS	Perry Township Schools Perry Meridian HS Addition & Renovations Addendum 3 Narrative	April 10, 2026

SPECIFICATIONS:

1) 27 41 30 – ATHLETICS SCOREBOARDS AND EQUIPMENT
   a) Issued new specification section

DRAWINGS:

1) Sheet T201L – GROUND FLOOR OVERALL TECHNOLOGY PLAN – UNIT L
   a) Added scoreboard locations to L100
   b) Added sheet note #3

2) Sheet T201M – GROUND FLOOR OVERALL TECHNOLOGY PLAN – UNIT M
   a) Added scoreboard locations to L100
   b) Added sheet note #3
3) Sheet T405 – AV ELEVATIONS
   a) Added outline and text to clarify scoreboards

SHEET INDEX:

T201L – GROUND FLOOR OVERALL TECHNOLOGY PLAN – UNIT L
T201M – GROUND FLOOR OVERALL TECHNOLOGY PLAN – UNIT M
T405 – AV ELEVATIONS

SECTION 27 41 30 – ATHLETICS SCOREBOARDS AND EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES
A. Scoreboards

1.02 REFERENCES
A. Standard for Electric Signs, UL-48, 14th Edition
B. Standard for Control Centers for Changing Message Type Signs, UL-1433, 4th Edition
C. Standard for CAN/CSA C22.2 No. 207-M89
D. Federal Communications Commission Regulation Part 15
E. National Electric Code

1.03 SUBMITTALS
A. Product data: Submit manufacturer's product illustrations, data and literature that fully describe the displays and accessories proposed for installation.
B. Shop drawings: Submit mechanical and electrical drawings.
C. Maintenance data: Submit manufacturer's installation, operation, and maintenance manuals.

1.04 DELIVERY, STORAGE, AND HANDLING
A. Product delivered on site
B. Display and equipment to be housed in a clean, dry environment.

1.05 PROJECT CONDITIONS
A. Environmental Limitations: Do not install equipment until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for project when occupied for its intended use.
B. Field Measurements: Coordinate display location and height with the customer. Verify dimensions by field measurements.
C. Supply weight and mounting method for owner to verify that building structure can support the display's weight in addition to the auxiliary equipment.

1.06 QUALITY ASSURANCE
A. For indoor use only
B. Source Limitations: Obtain each type of electronic display through one source from a single manufacturer.
C. ETL listed to UL Standards 48 and 1433
D. ETLC listed to CAN/CSA 22.2
E. CE compliant
F. FCC compliant
G. EU EMC Directives 55022/55024/61000 compliant
H. Installed per NEC

1.07 WARRANTY
A. Provide 5 year of no cost parts exchange including ground shipping on electronics parts due to manufacturing defects. Depending on the circumstances and at our discretion, Nevco will exchange or repair and return failed parts.
B. Provide toll-free service coordination.
C. Provide technical online and phone support during Nevco business hours.

PART 2 - PRODUCTS

2.01 MANUFACTURER
A. Nevco, 301 East Harris Avenue, Greenville, IL 62246

2.02 COMMUNICATION TYPE
A. Wireless

2.03 PRODUCT
A. Nevco Model 2772 single-sided multisport scoreboard
B. Shall display period time to 99:59, HOME and GUEST scores to 199, PERIOD to nine, team FOULS to 19, PLAYER number to 99, player FOUL to nine, T.O.L. (time outs left) to nine and indicates possession, bonus, and double bonus. During the last minute of the period, scoreboard displays time to 1/10 of a second. Scoreboard can also score volleyball, wrestling and any sport requiring a clock, score and period function.

2.04 SCOREBOARD: QTY OF 8
A. General information
1. Dimensions: 6'-0" (1.83 m) high, 10'-0" (3.05 m) wide, 0'-8" (200mm) deep
2. Base weight: 125 lb (57 kg) – options may increase weight
3. Base power requirement: 120 VAC 0.8A or 240 VAC 0.4A – options may increase amperage
4. Color: Provide custom color. Verify exact color with Architect.
B. Construction
1. All-aluminum construction
2. Cabinet withstands high-velocity impact from air-filled sports balls without the need for protective screens
C. Digits & Indicators
1. LED color : WHITE. Verify final selection with Architect.
2. Clock and score digits: 13" high
3. PERIOD, FOULS, PLAYER/FOUL and T.O.L. digits: 9" high
4. Bonus indicators: 4" high
5. Possession arrows: 3" high
6. Seven bar segments per digit
7. PanaView® (PV) digit technology **–** discrete LEDs protrude through the scoreboard face
D. Captions
1. Vinyl applied directly to scoreboard face
2. HOME and GUEST captions: 6" (152 mm) high
a. Provide unit pricing for custom text vinyl to replace HOME
b. Provide add alternate pricing for Electronic Team Names
3. PERIOD, FOULS/SCORE, PLAYER/FOUL/MATCH and T.O.L. captions: 3" (76 mm) high
4. Color: standard white. Verify final color with Architect.
E. Border Striping
1. Vinyl striping applied around the clock and scoreboard face
2. Color: standard white. Verify final color with Architect.
F. Horn
1. Vibrating horn mounted inside the scoreboard cabinet behind the face
2. Sounds automatically when period clock counts down to zero
3. Sounds manually as directed by operator
G. Power Cord
1. Cord is 6’-7” long
2. Cord plugs into a standard grounded outlet

2.05 SCORING CONSOLE QTY OF 4
A. Console shall be the Nevco Wireless Model MPCW-7
B. Scores multiple sports using changeable keyboard inserts
C. Controls both scoreboards at a single court
D. Recalls clock, score, and period information if power is lost
E. Runs Time of Day and Segment Timer modes
F. Console includes:
1. High impact plastic to house electronics
2. Sealed water-resistant keyboard

3. 16-character backlit LED to verify entries and recall information currently displayed
4. Power cord that plugs into a standard grounded outlet; 18 watts max
5. Hand-held switch for main clock start/stop and horn
6. Soft-sided carrying case

G. Accessory Equipment
1. 2.4 GHz spread spectrum radio system with frequency hopping technology and 64 non-interfering channels; system includes a transmitter installed inside the console and a receiver installed inside the scoreboard(s)

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that mounting surface is ready to receive the display. Verify that placement of conduit and junction boxes are as specified and indicated in plans and shop drawings.

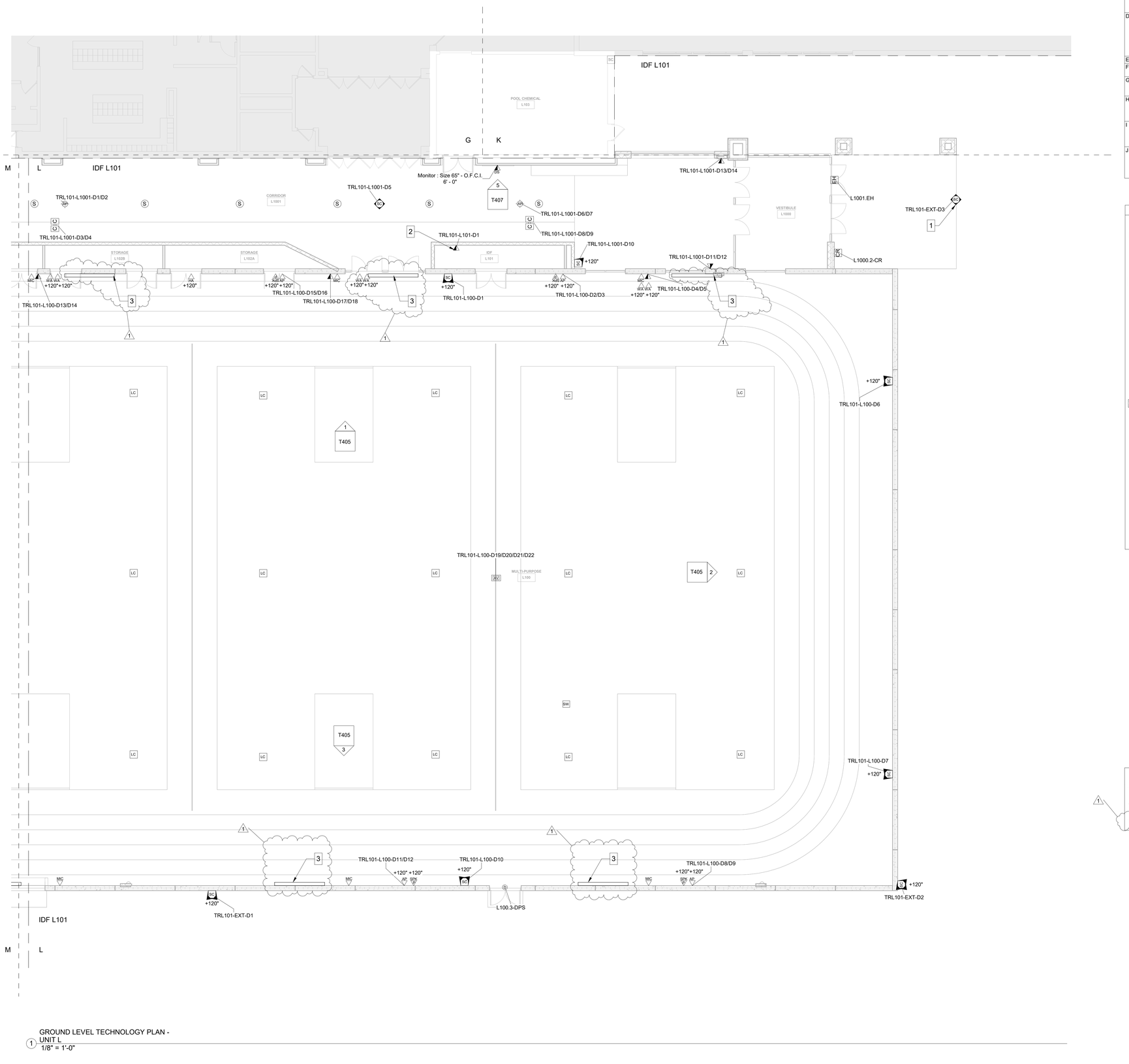
3.02 INSTALLATION

A. Power conduit, cables and outlet boxes to be provided and installed by the electrical contractor. Signal raceways, conduit and boxes to be provided by the electrical contractor. Electrical contractor is responsible for pulling signal wire and terminators between each display and control location. Display vendor to terminate signal wire of controller and conduit to display.
B. Mount interior displays to wall in location detailed and in accordance with manufacturer's instructions. Unit to be plumb and level.

3.03 INSTALLATION—CONTROL CENTER

A. Provide boxes, cover plates and jacks as required to meet control specification requirements. Control cables to control panels must be concealed.
B. Test the operation of the display, controller and all control jacks; leave control unit and other loose items with owner's designated representative.
C. Conduct operator training on the display/controller operation.

END OF SECTION



1 GROUND LEVEL TECHNOLOGY PLAN - UNIT L
1/8" = 1'-0"

GENERAL HORIZONTAL CABLING NOTES

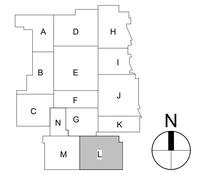
A	MINIMUM CATEGORY 6 COMPLIANT 4-PAIR UNSHIELDED TWISTED PAIR (UTP). ALL HORIZONTAL CABLING MUST BE PLENUM RATED.
C	CONTRACTOR SHALL PROVIDE A DOCUMENTED MANUFACTURER CERTIFIED SOLUTION INCLUDING THE MINIMUM PERFORMANCE AND APPLICATIONS WARRANTY.
B	PAINTING OF THE STRUCTURED CABLING WILL VOID THE WARRANTY. ENSURE PROPER COORDINATION WITH PAINTING CONTRACTOR SO THAT ALL STRUCTURED CABLING IS PROTECTED PRIOR TO ANY PAINTING.
D	PROVIDE A MINIMUM 10 FOOT MAINTENANCE LOOP ON EACH HORIZONTAL CABLING RUN. MAINTENANCE LOOPS SHALL BE STORED ABOVE ACCESIBLE CEILINGS, IN CABLE TRAY, AND IN TELECOMMUNICATION ROOM CABLE TRAY. CABLING ABOVE CEILING SHALL BE SUSPENDED FROM APPROPRIATE SUPPORTS AND SHALL NOT TOUCH THE CEILING.
E	ALL PIN/PAIR ASSIGNMENTS SHALL BE T568B.
F	REFER TO SPECIFICATION SECTION 27 15 13 FOR CABLE JACKET COLOR REQUIREMENTS
G	LABELING SHALL BE COMPLETED AS DEFINED IN THE CONTRACT DOCUMENTS AND SHALL BE COORDINATED WITH THE OWNER.
H	PROVIDE ALL TELECOMMUNICATION OUTLETS AS SHOWN ON THE DRAWINGS AND AS REQUIRED TO PROVIDE CONNECTIONS FOR EACH DEVICE SHOWN ON THE DRAWINGS.
I	ALL TESTING OF HORIZONTAL CABLING SHALL BE COMPLETED AS DIRECTED BY THE PROJECT SPECIFICATIONS. ALL CABLING MUST BE TESTED AND CERTIFIED TO THE APPLICABLE STANDARDS.
J	CONTRACTOR SHALL REFER TO SPECIFICATION SECTION 27 05 28 FOR SPECIFIC ROUTING INFORMATION OF STATION CONDUITS WITHIN WRESTLING ROOM, WEIGHT ROOM, SAC, AND SUPPLEMENTAL SPACES.

TECHNOLOGY LEGEND

- DATA LOCATION - FLUSH MOUNTED
- AV — AV FLOORBOX LOCATION
- WP — WALL PHONE LOCATION
- AP — WIRELESS ACCESS POINT CEILING MOUNTED
- AP — WIRELESS ACCESS POINT - WALL MOUNTED
- AV RACK — AV EQUIPMENT RACK LOCATION
- AUD — AUDIO INPUT LOCATION
- AV — AV INPUT TYPE 1
- DS — DIGITAL SIGNAGE LOCATION
- HA — ASSISTED LISTENING ANTENNA LOCATION
- VB — INTERACTIVE FLAT PANEL DISPLAY LOCATION
- MIC — MICROPHONE INPUT LOCATION - FLUSH MOUNTED
- TP — TOUCHPANEL LOCATION - WALL MOUNTED
- WA — WIRELESS MIC ANTENNA - WALL MOUNTED
- MON — MONITOR LOCATION - FLUSH MOUNTED
- C C — DUAL SIDED CLOCK LOCATION - CEILING MOUNTED
- GC — GAME CLOCK/TIMER LOCATION - WALL MOUNTED
- LC — LOUDSPEAKER LOCATION
- SW — SUBWOOFER LOCATION
- S — PENDANT LOUDSPEAKER LOCATION
- S — PAGING SPEAKER LOCATION - CEILING MOUNTED
- PAGE — PAGING SPEAKER LOCATION - WALL MOUNTED
- SC — SECURITY CAMERA - CEILING MOUNTED
- SC — SECURITY CAMERA - WALL MOUNTED
- D — DOOR POSITION SENSOR LOCATION
- EH — ELECTRIFIED HARDWARE LOCATION
- CR — CARD READER LOCATION

SHEET NOTES

1 SECURITY CAMERA MOUNTED TO UNDERSIDE OF CANOPY.
2 DATA LOCATION SERVING FIRE ALARM PANEL. COORDINATE EXACT LOCATION WITH FIRE ALARM CONTRACTOR.
3 SCOREBOARD LOCATION - REFER TO A-SERIES FOR EXACT LOCATIONS.



LANCER ASSOCIATES ARCHITECTURE
145 N EAST ST.
INDIANAPOLIS, IN 46204

DESIGN 27 TECHNOLOGY + ACOUSTICS

PERRY TOWNSHIP SCHOOLS
PERRY MERIDIAN HS ADDTION & RENOVATIONS
401 W MERIDIAN SCHOOL RD,
INDIANAPOLIS, IN 46217

BICSI REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
Jared Klingler
BICSI ID # 407182
EXPIRES 12-31-27
RCDD

REVISIONS:			
#	Date	Desc.	
1	04.10.26	Addendum 3	

100% CONSTRUCTION DOCUMENTS

PROJECT:	#24173P
DATE:	02/16/2026
DRAWN BY:	HB/HB/JKK

GROUND FLOOR TECHNOLOGY PLAN - UNIT L

T201L

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GENERAL HORIZONTAL CABLING NOTES

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- PAGING SPEAKER LOCATION - WALL MOUNTED
- SECURITY CAMERA - CEILING MOUNTED
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- DOOR POSITION SENSOR LOCATION
- ELECTRIFIED HARDWARE LOCATION
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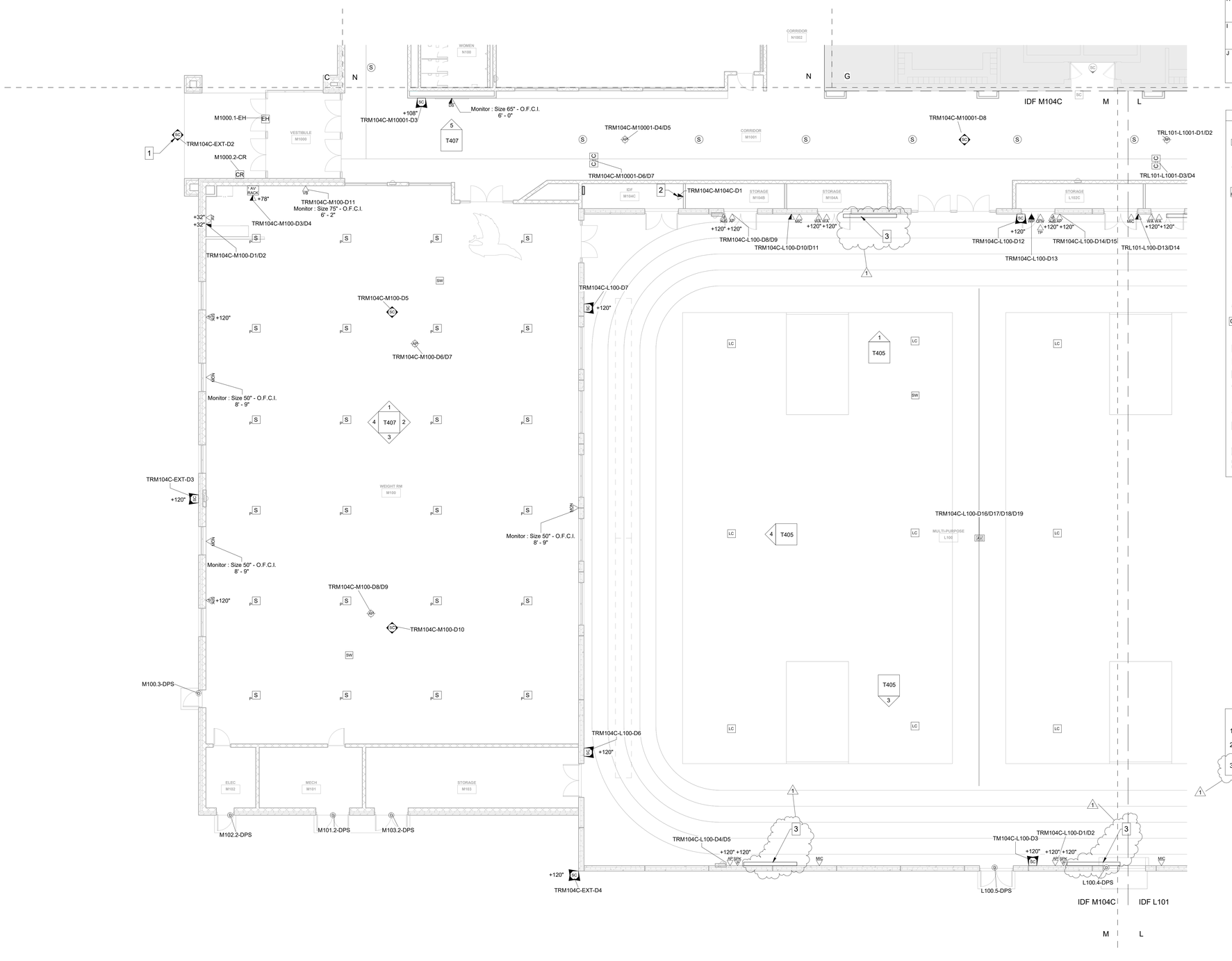

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2. DATA LOCATION SERVING TEMPERATURE CONTROL PANEL. COORDINATE EXACT LOCATION WITH CONTRACTOR.
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1/8" = 1'-0"

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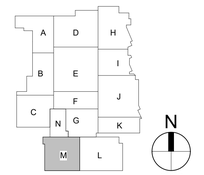
GROUND FLOOR TECHNOLOGY PLAN - UNIT M

T201M



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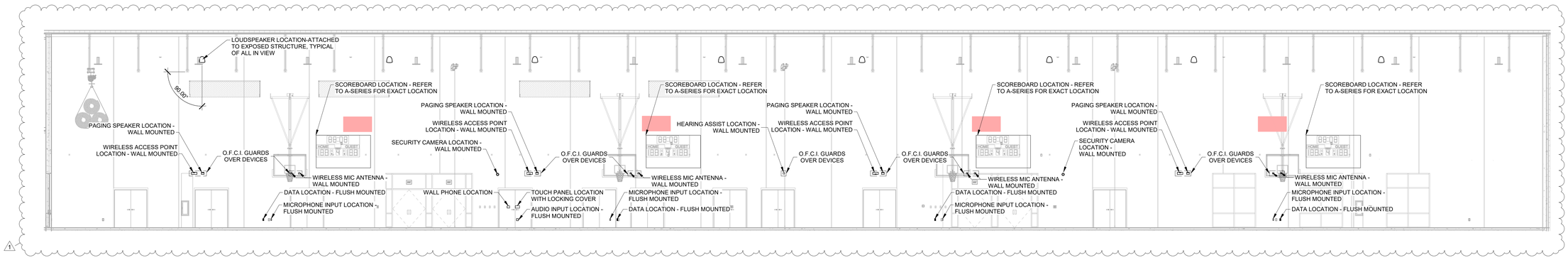
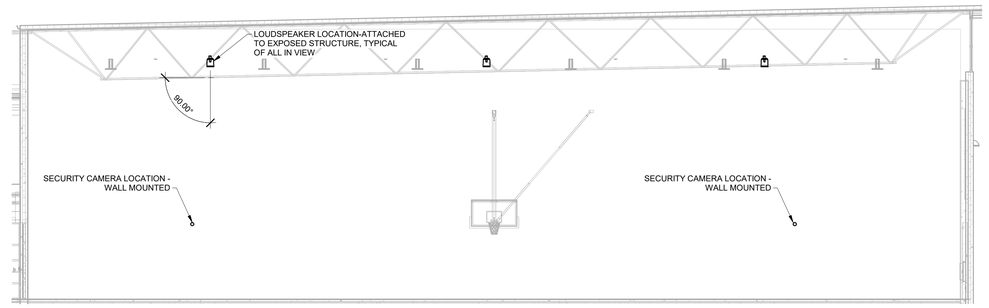
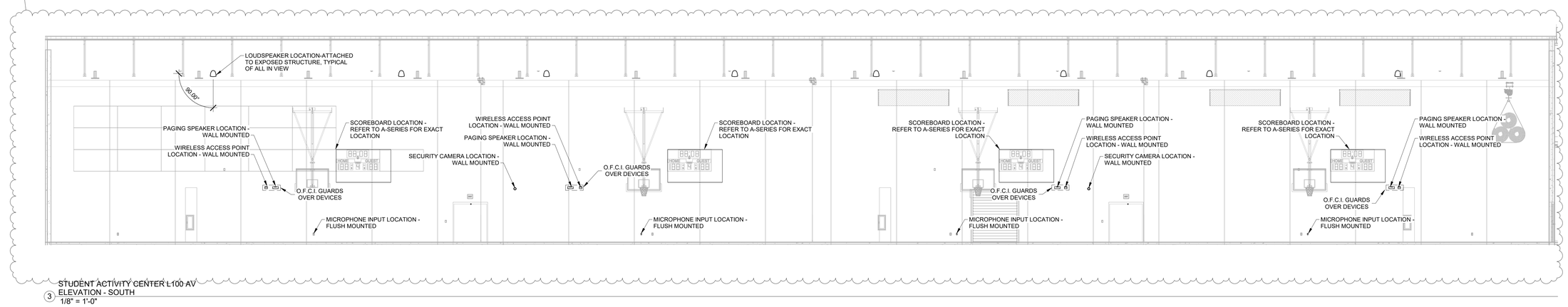


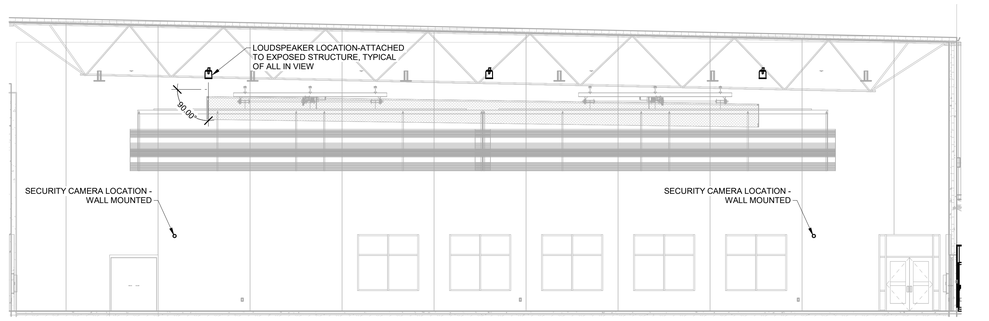
1 STUDENT ACTIVITY CENTER L100 AV
ELEVATION - NORTH
1/8" = 1'-0"



2 STUDENT ACTIVITY CENTER L100 AV
ELEVATION - EAST
1/8" = 1'-0"



3 STUDENT ACTIVITY CENTER L100 AV
ELEVATION - SOUTH
1/8" = 1'-0"



4 STUDENT ACTIVITY CENTER L100 AV
ELEVATION - WEST
1/8" = 1'-0"

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AV ELEVATIONS

T405