

Lake Crabtree Park Improvements Bid Addendum #2

Date: 08/28/2026
Wake County RFB #: 26-078
WR Project #: 22-0024-007

Project Contact:
Michael Alderman
Project Manager II
WithersRavenel
malderman@withersravenel.com

Notice to All Bidders:

Bidders on this Lake Crabtree Park Improvements are hereby notified that this Addendum shall be attached to and made part of the above-named Project Manual dated August 5, 2026.

The following items add to, modify, and clarify the Bidding and Contract Documents and shall have the full force and effect of the original Documents. Bids shall conform to those items and the cost change, if any, of these items shall be included in this Bid Price.

Questions and Clarifications

Wood Floor:

1. Q. WF1 finish: Section 09 64 00, Paragraph 2.1 specifies factory-finished solid-white-oak flooring, while Paragraph 3.4 requires machine sanding, staining, one sealer coat and three field-applied finish coats. Please confirm whether WF1 is factory finished with Paragraph 3.4 not applicable, or site finished.
A. WF1 will be factory finished. Paragraph 3.4 is not applicable.
2. Q. WF1 dimensions: The finish schedule identifies Mirage WF1 as 4-1/4-inch-wide, 3/4-inch-thick planks with random lengths from 10 to 76 inches. Section 09 64 00, Paragraph 2.1 identifies a 3-1/4-inch face width. Please confirm the required width.
A. WF1 shall be 4-1/4-inch-wide, 3/4-inch-thick planks with random lengths from 10 to 76 inches
3. Q. EWF1 dimensions: The finish schedule identifies Nydree EWF1 as 7-1/2 inches wide by 48 inches long and 9/16 inch thick. Section 09 64 00, Paragraph 2.2 identifies a 4-inch face width, manufacturer's standard length and 7/16-inch thickness. Please confirm the required dimensions.
A. WF1 shall be 7-1/2 inches wide by 48 inches long and 9/16 inch thick.
4. Q. EWF1 finish and appearance: The finish schedule identifies smooth Nydree Pedestrian 2.0 in "Sun Bleached," while Section 09 64 00 describes a Pedestrian 4,000-Taber UV curved finish, with color as indicated on the drawings. Please confirm the exact product, grade, appearance and finish required.
**A. Product: Nydree
Plank Width: 7-1/2 inches
Plank Length: 48 inches
Plank Thickness: 9/16 inch**



Finish: Pedestrian 3.0
Species: White Oak
Color: Sun Bleached
Edges: Micro-Beveled and Tongue & Groove

5. Q. Installation pattern: Please confirm whether the 33% offset shown in the finish schedule applies to both WF1 and EWF1.
A. **Yes. A 33% offset installation shall apply to both WF1 and EWF1.**
6. Q. Alternate G-7: Please confirm that EWF1 replaces base-bid WF1 in the same Classroom E10 and Table + Chair Storage E11 areas.
A. **Yes. If Alternate G-7 is selected, EWF1 shall replace WF1 in Classroom E10 and Table + Chair Storage E11.**
7. Q. Section 09 64 00, paragraph 2.1 specifies WF1 as factory-finished solid-white-oak flooring with a Duramatt 5% gloss finish and micro-V bevel. However, Paragraph 3.4 calls for machine sanding, staining, one sealer coat and three site-applied finish coats. Can you please confirm which of these is correct?
A. **WF1 will be factory finished. Paragraph 3.4 is not applicable**
8. Q. The remark on RB1 on the finish legend for the Education Center (I4.60) directs to "provide quarter-round at wood floor". Please confirm that this is the intent in areas where RB1 is above wood floors.
A. **Yes. Provide quarter-round at RB1 above wood flooring.**

Casework:

9. Q. Are you accepting voluntary alternates to Wilsonart spec cabinets?
A. **Yes. Voluntary alternates will be accepted from manufacturers who comply with all project requirements and offer products that meet the requirements and aesthetics of the specified Wilsonart plastic laminate. Wilsonart is the basis of design.**
10. Q. Is casework to be box construction, are you looking for plywood or mdf?
A. **Provide plywood box construction.**
11. Q. The casework spec is asking for self-close or are you looking for soft close?
A. **Provide soft-close hardware.**

Other:

12. Q. I am working on the landscape bid for Lake Crabtree. I noticed going over the plan set that there are many areas that are to be demoed within LOD's. The plan set explicitly calls out seed and sod in certain areas, but not all of the demo areas specifically, are these areas to be seeded, sodded, or mulched? I provided a snippet of the demo plan vs the landscape plan for the Admin-Maint. Area for reference to better assist you with my question.
A. **Seeded and mulched areas have been clearly defined on updated landscape plans and plant schedules. See Sheets L1.11, L1.20, L1.20, L1.21, L1.31, L2.00.**
13. Q. "On sheet 4.31, it shows a 1.5" pressure reducing valve after meter. It also says 1.5" pressure reducing valve and backflow inside of bldg. The plumbing drawing also shows it inside. It is better to only have in bldg but need to verify if they want it outside also.
A. **The pressure reducing valve has been removed from sheet C4.31.**
14. Q. On sheet 4.21, it says 2" backflow with 1.5" pressure reducing valve after backflow. On the plumbing drawing P4.21, it shows the 1.5" pressure reducing valve inside the bldg right



- after it enters. They only need one so should verify which one they want to remove.
- A. The pressure reducing valve is to remain as shown on sheet C4.21.**
15. Q. Multiple sheets refer to details on 9.07 that are not there. They are Sewer cleanout detail, Wye connection to existing detail, and 2" backflow with pressure reducing valve detail."
- A. The details have been added to sheet C9.07.**
16. Q. Please also confirm whether subcontractor proposals should show a standalone. EWF1 total, a net add/deduct over WF1, or both
- A. Show as a net add/deduct**
17. Q. Will there be another subcontractor site visit prior to bid date?
- A. Lake Crabtree is a Public Park, and contractors may visit during operating hours.**

Plan Revisions

1. C4.21 - UTILITY PLAN - EDUCATION CENTER
 - a. Lateral saddle connection detail callout updated.
2. C4.31 - UTILITY PLAN - COMFORT STATION
 - a. The pressure reducing valve has been removed.
3. C9.07 - UTILITY DETAILS
 - a. Details added
4. L1.11, L1.20, L1.20, L1.21, L1.31 - LANDSCAPE PLANS
 - a. Seeded and mulched areas have been clearly defined on updated landscape plans.
5. L2.00 - LANDSCAPE DETAILS
 - a. Seed quantity updated in plant schedule.
6. SC-08 - SECURITY DETAILS
 - a. Notes added: The Electrical Contractor shall provide all yellow conduit, back boxes, enclosures and 120v power as shown for security devices.
7. SC-09 - SECURITY DETAILS
 - a. Notes added: The Electrical Contractor shall provide all yellow conduit, back boxes, enclosures and 120v power as shown for security devices.
 - b. NEW EXTERIOR 360° CAMERA ON NEW POLE detail updated to note that Pole is provided by others. Note that pole mounted cameras will be mounted to Site Lighting Poles. Refer to Site Lighting Sheets.
8. A2.00 - ADMIN BUILDING - DEMOLITION PLANS
 - a. KEYNOTE D17 UPDATED. GENERAL NOTE 3 OMITTED.
9. F4.11.A - EDUCATION CENTER - FIRE ALARM PLAN - ALT F-01
 - a. REMOTE ANUNCIATOR ADDED TO LEVEL 1 WITH ACCOMPANYING DETAILS
10. M2.10 - ADMIN BUILDING - MECHANICAL PLAN
 - a. KEYNOTE 4 UPDATED



11. M3.10 - MAINTENANCE BUILDING - MECHANICAL PLAN - BASE BID
 - a. KEYNOTE 6 UPDATED
12. M4.10 - EDUCATION CENTER - LVL 0 MECHANICAL PLAN
 - a. KEYNOTE 4 UPDATED
13. E2.11 - ADMIN BUILDING - ELECTRICAL POWER PLAN
 - a. ADDED KEYNOTE 13 TO DESCRIBE FAULT CURRENT INSTRUCTIONS
14. E3.11 - MAINT. BUILDING ELECTRICAL POWER PLAN BASE BID
 - a. ADDED KEYNOTE 11 TO DESCRIBE FAULT CURRENT INSTRUCTIONS
15. E3.12 - MAIN. BUILDING - ELECTRICAL LIGHTING PLAN BASE BID
 - a. ADDED AND RELOCATED EMERGENCY LIGHT FIXTURES
 - b. ADDED EXIT SIGN
16. E4.10 - EDUCATION CENTER - LVL 0 ELECTRICAL POWER PLAN
 - a. ADDED KEYNOTE 15 TO DESCRIBE FAULT CURRENT INSTRUCTIONS
17. E4.11 - EDUCATION CENTER - LVL 1 ELECTRICAL POWER PLAN
 - a. ADDED REFERENCE TO FIRE ALARM ANNUNCIATOR PANEL
18. E4.13 - EDUCATION CENTER - LVL 1 ELECTRICAL LIGHTING PLAN
 - a. ADDED AND RELOCATED EMERGENCY LIGHT FIXTURES

Specification Revisions

1. SECTION 096400 – WOOD FLOORING
 - a. Replace in kind
2. SECTION 284600 – FIRE DETECTION AND ALARM
 - a. Replace in kind

Attachments:

1. Updated sheets and specifications

SECTION 096400 - WOOD FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid-wood flooring. (WF1)
2. Engineered-wood flooring. (EWF1 – ALTERNATE G7)

1.2 ACTION SUBMITTALS

A. Product Data: For each type of specified product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for wood flooring.
2. Include manufacturer's written installation instructions for each type of substrate.

B. Shop Drawings: For each type of floor assembly and accessory. Include plans, sections, and attachment details. Include expansion provisions and trim details.

C. Samples: For each exposed product and for each color and texture specified, approximately 12 inches long and of same thickness and material indicated for the Work and showing the full range of normal color and texture variations expected.

D. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors and finishes available for wood flooring.

1. Include Samples of accessories involving color and finish selection.

E. Samples for Verification: For each type of wood flooring and accessory, with stain color and finish required, approximately 12 inches long and of same thickness and material indicated for the Work and showing the full range of normal color and texture variations expected.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance Data: For wood flooring and finish systems.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Extra Stock Material: Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Wood Flooring: Equal to 1 percent of amount installed for each type, color, and finish of wood flooring indicated.

1.5 QUALITY ASSURANCE

- A. Certified Wood: Provide an invoice, including vendor's chain-of-custody number, product cost, and entity being invoiced.
- B. Vendor Qualifications: Provide proof of use of vendors that are certified for chain of custody by an FSC-accredited certification body.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver wood flooring materials in unopened cartons or bundles.
- B. Protect wood flooring from exposure to moisture. Do not deliver wood flooring until after concrete, masonry, plaster, ceramic tile, and similar wet-work is complete and dry.
- C. Store wood flooring materials in a dry, warm, ventilated, weathertight location.

1.7 FIELD CONDITIONS

- A. Conditioning period begins not less than seven days before wood flooring installation, is continuous through installation, and continues not less than seven days after wood flooring installation.
 - 1. Environmental Conditioning: Maintain ambient temperature between 65 and 75 deg F and relative humidity planned for building occupants in spaces to receive wood flooring during the conditioning period.
 - 2. Wood Flooring Conditioning: Move wood flooring into spaces where it will be installed, no later than the beginning of the conditioning period.
 - a. Do not install flooring until it adjusts to relative humidity of, and is at same temperature as, space where it is to be installed.
 - b. Open sealed packages to allow wood flooring to acclimatize immediately on moving flooring into spaces in which it will be installed.
- B. After conditioning period, maintain relative humidity and ambient temperature planned for building occupants.

- C. Install factory-finished wood flooring after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 SOLID-WOOD FLOORING (WF1)

- A. Solid-Wood Flooring, Factory Finished: Kiln dried to 6 to 9 percent maximum moisture content; tongue and groove and end matched; with backs channeled.

- 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. Mirage Floors
- b. AHF Products
- c. Somerset Hardwood Flooring

- 2. Performance Requirements:

- a. Hardwood Flooring: Comply with NWFA A500 for species, grade, and cut.

- 1) Certification: Provide flooring that carries NWFA grade stamp on each bundle or piece.

- b. Softwood Flooring: Comply with WCLIB No. 17 grading rules for species, grade, and cut.

- 3. Species: White oak.
- 4. Grade: Character.
- 5. Thickness: 3/4 inch.
- 6. **Face Width: 4-1/4 inches.**
- 7. Lengths: Random-length from 10" to 76".
- 8. Edge Style: Micro-V Bevel.
- 9. Finish: Duramatt 5% gloss.

- a. Color: As indicated on the drawings.

2.2 ENGINEERED-WOOD FLOORING (EWF1 - ALTERNATE G7)

- A. Engineered-Wood Flooring, Factory Finished: HPVA EF, complying with requirements for composite wood products.

- 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. AHF Products
 - b. Mannington Mills, Inc
 - c. Nydree Flooring
2. Composite Wood Products: Verify products are made using ultra-low-emitting formaldehyde resins, as defined in CARB 93120, "Airborne Toxic Control Measure (ATCM) for Formaldehyde Emissions from Composite Wood Products," or are made with no added formaldehyde.
3. Composite Wood Products: Verify formaldehyde emission rates are not greater than the following when tested in accordance with ASTM D6007 or ASTM E1333:
 - a. Hardwood Plywood: 0.05 ppm.
 - b. Particleboard: 0.09 ppm.
 - c. MDF More Than 5/16 Inch (8 mm) Thick: 0.11 ppm.
 - d. MDF 5/16 Inch (8 mm) or Less in Thickness: 0.13 ppm.
4. Composite Wood Products: Verify products comply with formaldehyde emissions evaluation criteria.
5. Species: White oak.
6. **Thickness: 9/16 inch.**
7. **Face Width: 7-1/2 inches.**
8. **Length: 48 inches.**
9. Edge Style: Micro-Beveled and Tongue & Groove .
10. Finish: Pedestrian 4,000 Taber UV Curved Finish (Benzophenone Free) .
 - a. Color: As indicated on the drawings.

2.3 ACCESSORY MATERIALS

- A. Wood Subfloor: As specified in Section 061000 "Rough Carpentry".
- B. Engineered Wood Flooring Adhesive: Mastic recommended in writing by flooring and adhesive manufacturers for application indicated.
- C. Thresholds and Saddles: To match wood flooring. Tapered on each side.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, installation tolerances, and other conditions affecting performance of wood flooring.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Wooden Subfloor:

- a. Relative Humidity Test: Using in situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 12 percent relative humidity level measurement.
- b. Wooden subfloor moisture reading must not exceed 12% and differential between boards and subfloor must be less than 4%. If moisture reading is too high, postpone installation, find moisture source and correct if needed, raise hear, and increase ventilation until proper conditions are met.

3.2 PREPARATION

- A. Broom or vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION OF WOOD FLOORING

- A. Comply with flooring manufacturer's written installation instructions, but not less than applicable recommendations in NWFA's "Wood Flooring Installation Guidelines."
- B. Wood Subfloor: Install in accordance with requirements in Section 061000 "Rough Carpentry".
- C. Provide expansion space at walls and other obstructions and terminations of flooring of not less than 3/4 inch for solid wood flooring and 1/4 inch for engineered wood flooring.
- D. Engineered-Wood Flooring: Set in adhesive.

3.4 PROTECTION

- A. Protect installed wood flooring during remainder of construction period with covering of heavy kraft paper or other suitable material. Do not use plastic sheet or film that might cause condensation.
 - 1. Do not move heavy and sharp objects directly over kraft-paper-covered wood flooring. Protect flooring with plywood or hardboard panels to prevent damage from storing or moving objects over flooring.

END OF SECTION 096400

SECTION 284600 - FIRE DETECTION AND ALARM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fire-alarm system control units.
2. **Fire-alarm remote annunciators.**
3. Manual fire-alarm boxes.
4. Smoke-sensing fire detectors.
5. Visual notification appliances.
6. Combination audible/visual notification appliances.
7. Fire-alarm digital alarm communicator transmitters.
8. Fire-alarm record documentation cabinets.
9. Fire-alarm cables.

B. Related Requirements:

1. Section 260010 "Supplemental Requirements for Electrical" specifies additional requirements applicable to coordinating, scheduling, and sequencing of the Work specified in this Section.
2. Section 260533.13 "Conduits for Electrical Systems" specifies raceway types installed by this Section.
3. Section 260553 "Identification for Electrical Systems" specifies electrical equipment labels and warning signs installed by this Section.

1.2 REFERENCES

A. Abbreviations and Acronyms for Electrical Terms and Units of Measure:

1. AWG: American wire gauge; see ASTM B258.
2. BMS: Building management system.
3. cd: Candela, the SI fundamental unit of luminous intensity.
4. DACR: Digital alarm communicator receiver.
5. DACT: Digital alarm communicator transmitter.
6. dB(A-weighted) or dB(A): Decibel acoustical sound pressure level with A-weighting applied in accordance with IEC 61672-1.
7. EMP: Electrical maintenance program (operation and maintenance); electromagnetic pulse (transient analysis).
8. EPS: Emergency power supply.
9. EPSS: Emergency power supply system.
10. FACU: Fire-alarm control unit.
11. FAS: Fire-alarm system.

12. IDC: Initiating device circuit.
13. LAN: Local area network.
14. LCD: Liquid-crystal display.
15. LED: Light-emitting diode.
16. NAC: Notification appliance circuit.
17. N.C.: Normally closed.
18. N.O.: Normally open.
19. PLFA: Power-limited fire alarm.
20. SLC: Signaling-line circuit.
21. UL: (standards) UL Standards & Engagement Inc.; (product categories) UL Solutions, Inc.
22. WR: Weather resistant.
23. EMT: Electrical metallic tubing.
24. ERMC-A: Aluminum electrical rigid metal conduit.
25. ERMC-S: Steel electrical rigid metal conduit.
26. ERMC-S-G: Galvanized-steel electrical rigid metal conduit.
27. ERMC-S-PVC: PVC-coated-steel electrical rigid metal conduit.
28. ERMC-SS: Stainless steel electrical rigid metal conduit.
29. FMC: Flexible metal conduit.
30. FMC-A: Aluminum flexible metal conduit.
31. FMC-S: Steel flexible metal conduit.
32. IMC: Steel electrical intermediate metal conduit.
33. LFMC: Liquidtight flexible metal conduit.
34. LFMC-A: Aluminum liquidtight flexible metal conduit.
35. LFMC-S: Steel liquidtight flexible metal conduit.
36. LFMC-SS: Stainless steel liquidtight flexible metal conduit.
37. LFNC: Liquidtight flexible nonmetallic conduit.
38. LFNC-A: Layered (Type A) liquidtight flexible nonmetallic conduit.
39. LFNC-B: Integral (Type B) liquidtight flexible nonmetallic conduit.
40. LFNC-C: Corrugated (Type C) liquidtight flexible nonmetallic conduit.
41. PVC: Rigid PVC conduit.
42. PVC-40: Schedule 40 rigid PVC conduit.
43. PVC-80: Schedule 80 rigid PVC Conduit.

B. Definitions:

1. Cable: In accordance with NIST NBS Circular 37 and IEEE standards, in the United States for the purpose of interstate commerce, the definition of "cable" is (1) a conductor with insulation, or a stranded conductor with or without insulation (single-conductor cable); or (2) a combination of conductors insulated from one another (multiple-conductor cable).
2. Conductor: In accordance with NIST NBS Circular 37 and IEEE standards, in the United States for the purpose of interstate commerce, the definition of "conductor" is (1) a wire or combination of wires not insulated from one another, suitable for carrying an electric current; (2) (National Electrical Safety Code) a material, usually in the form of wire, cable, or bar, suitable for carrying an electric current; or (3) (general) a substance or body that allows a current of electricity to pass continuously along it.
3. Conduit: A structure containing one or more duct raceways.

4. Designated Seismic System: An architectural, electrical, or mechanical system and its components for which the component importance factor is greater than 1.0 when determined in accordance with Section 018123 "Facility Seismic and Wind Criteria."
5. Direct Buried: Installed underground without encasement in concrete or other protective material.
6. Emergency Systems: Those systems legally required and classed as emergency by municipal, state, federal, or other codes, or by any governmental agency having jurisdiction that are designed to ensure continuity of lighting, electrical power, or both, to designated areas and equipment in the event of failure of the normal supply for safety to human life.
7. Voice over Internet Protocol (VoIP): Digital telephone packet technology that uses the internet for its transmission medium.
8. Wire: In accordance with NIST NBS Circular 37 and IEEE standards, in the United States for the purpose of interstate commerce, the definition of "wire" is a slender rod or filament of drawn metal. A group of small wires used as a single wire is properly called a "stranded wire." A wire or stranded wire covered with insulation is properly called an "insulated wire" or a "single-conductor cable." Nevertheless, when the context indicates that the wire is insulated, the term "wire" will be understood to include the insulation.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. In addition to information identified in Section 013300 "Submittal Procedures," submit the following:
 1. Product Listing: Include copy of unexpired approval letter, on letterhead of qualified electrical testing agency, certifying product's compliance with specified listing criteria.
 - a. If listed manufacturer differs from selling manufacturer, indicate relationship between entities on submittal. Clearly indicate which entity warrants product performance and fitness for purpose.
 - b. Listing criteria identified in approval letter must match specified listing criteria. UL label indicating approval of equipment's enclosure is not considered approval of equipment for intended application.
 - c. Product identification in approval letter must match product branding and model numbers in submittal. Approval letters for discontinued or superseded products are not acceptable for submitted product.
 2. Include manufacturer's sample extended warranty language.
- B. Shop Drawings: Prepare and submit the following:
 1. Cover sheet indicating protected premises name and location and Owner information, name of installer, device legend and symbols acceptable to the authorities having jurisdiction, and date of issue and any revision dates.

2. Floor Plans:

- a. Floor or level identification.
- b. Point of compass (indication of north).
- c. Graphic scale.
- d. All walls and doors.
- e. All partitions extending to within 15 percent of the ceiling height.
- f. Room and area descriptions.
- g. Minimum required illumination levels.
- h. System devices/component locations.
- i. Locations of the system's primary power disconnecting means.
- j. Locations of monitor/control interfaces to other systems.
- k. System riser locations.
- l. Type and number of system components/devices on each circuit, on each floor or level.
- m. Type and quantity of conductors and conduit for each circuit.
- n. Identification of any ceiling over 10 ft in height where automatic fire detection is being proposed.
- o. Details of ceiling geometries, including beams and solid joists, where automatic fire detection is being proposed.
- p. Acoustic properties of spaces, where known.
- q. Pathway class designations, including the location of any end-of-line supervisory or power devices that are required by the pathway class.
- r. Pathway survivability level designations.

3. Wiring Diagrams:

- a. System riser diagrams coordinated with the floor plans and indicating the following information:
 - 1) General arrangement of the system in building cross-section.
 - 2) Number of risers
 - 3) Type and number of circuits in each riser.
 - 4) Type and number of system components/devices on each circuit, on each floor or level.
 - 5) Number of conductors for each circuit.
 - 6) Pathway class designation, including the location of any end-of-line supervisory or power devices that are required by the pathway class.
 - 7) Pathway survivability level designations.
- b. Control unit diagrams for all control equipment, power supplies, battery chargers, and annunciators indicating the following information:
 - 1) Identification of control equipment depicted.
 - 2) Location(s) of control equipment.
 - 3) All field wiring terminals and terminal identifications.
 - 4) All circuits connected to field wiring terminals and circuit identifications.
 - 5) All indicators and manual controls.

- 6) Field connections to supervising station signaling equipment, and emergency safety control interfaces.
 - c. Typical fire-alarm component schematic wiring diagrams for all initiating devices, notification appliances, end-of-line and power supervisory devices
 - 4. Fire-Alarm Input/Output Sequence: Include a narrative description or input/output matrix of operation to describe the fire-alarm system sequence of operation.
 - 5. Details:
 - a. Component installation details.
 - 6. Calculations:
 - a. Battery calculations.
 - b. Voltage-drop calculations.
 - c. Spare capacity circuit calculations.
 - C. Field quality-control reports.
- 1.4 INFORMATIONAL SUBMITTALS
- A. Manufacturer's published instructions.
 - B. Field Reports:
 - 1. Manufacturer's field reports for field quality-control support.
 - 2. Manufacturer's field reports for system startup support.
 - 3. Field reports for software and firmware upgrades.
- 1.5 CLOSEOUT SUBMITTALS
- A. Warranty documentation.
 - B. Maintenance service agreement.
 - C. Software and firmware service agreement.
- 1.6 MAINTENANCE MATERIAL SUBMITTALS
- A. Spare parts.
 - B. Special tools.

1.7 REGULATORY AGENCY APPROVALS

- A. Submittals for fire detection and alarm system requiring approval by authorities having jurisdiction must be signed by qualified NICET FAS engineering technician or life-safety professional engineer responsible for their preparation. Submit for action by Architect prior to submitting for approval by authorities having jurisdiction.

1.8 QUALIFICATIONS

- A. Fire-Alarm Systems (FAS) Technician Trainee: Having at least six months of experience and possessing active NICET FAS Level I certification. Able to perform limited tasks under direct supervision.
- B. Fire-Alarm Systems (FAS) Associate Engineering Technician: Having at least two years of experience and possessing active NICET FAS Level II certification. Able to review drawings, specifications, codes, and standards; to conduct basic installation activities; and to perform basic troubleshooting.
- C. Fire-Alarm Systems (FAS) Engineering Technician: Having at least five years of experience and possessing active NICET FAS Level III certification. Able to perform system layout activities, supervise Level I and Level II technicians, provide submittal packages, and interact with authorities having jurisdiction.
- D. Fire-Alarm Systems (FAS) Senior Engineering Technician: Having at least 10 years of experience and possessing active NICET FAS Level IV certification. Able to manage multiple projects at once, interpret codes and standards, conduct training, and serve as liaison between authorities having jurisdiction, owners, engineers, and contractors.
- E. Inspection and Testing of Fire-Alarm Systems (I&TFAS) Technician I: Possessing active NICET I&TFAS Level I certification. Able to perform periodic inspections and tests of basic fire-alarm systems and prepare related records and reports.
- F. Inspection and Testing of Fire-Alarm Systems (I&TFAS) Technician II: Possessing active NICET I&TFAS Level II certification. Able to plan, perform, and coordinate periodic inspections and tests of complex fire-alarm systems (including one or more of suppression interfaces, networked control units, smoke control interfaces, air sampling systems, multi-zone voice evacuation systems, or high-rise applications) and prepare related records and reports.
- G. Life-Safety Professional Engineer: Professional engineer possessing active qualifications specified in Section 014000 "Quality Requirements," with expertise in life-safety systems.
- H. Fire-Alarm Cable Installer: Entity possessing active qualifications specified in Section 014000 "Quality Requirements" with training and manufacturer certification to install, splice, and terminate fire-alarm cabling.
 - 1. On-site fire-alarm cable installation supervisor must possess active NICET FAS

Engineering Technician certification.

- I. Fire-Alarm Testing Agency: Entity possessing active credentials from qualified electrical testing laboratory recognized by authorities having jurisdiction.
 1. On-site fire-alarm testing supervisor must possess active NICET I&TFAS Technician II certification.

1.9 WARRANTY FOR FIRE DETECTION AND ALARM SYSTEMS

- A. Special Installer Extended Warranty: Installer warrants that installed fire detection and alarm system performs in accordance with specified requirements and agrees to repair or replace system components or products that fail to perform as specified within extended-warranty period. Warranty must convey to Owner upon acceptance of the Work.
 1. Extended-Warranty Period: Two year from date of Substantial Completion; full coverage for labor, materials, and equipment.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Products or components listed and labeled in accordance with NFPA 70 or NFPA 72, by qualified electrical testing laboratory recognized by authorities having jurisdiction and marked for intended location and application.
- B. System Description: Noncoded, addressable system with multiplexed signal transmission and horn-and-strobe notification for evacuation.
- C. System Inputs:
 1. Fire-alarm signal initiation must be by one or more of the following devices:
 - a. Manual fire-alarm boxes.
 - b. Smoke detectors.
 2. System trouble signal initiation must be by one or more of the following devices and actions:
 - a. Open circuits, shorts, and grounds in designated circuits.
 - b. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
 - c. Loss of communication with addressable sensor, input module, relay, control module, remote annunciator, or ethernet module.

- d. Loss of primary power at FACU.
- e. Ground or single break in internal circuits of FACU.
- f. Abnormal AC voltage at FACU.
- g. Break in standby battery circuitry.
- h. Failure of battery charging.
- i. Abnormal position of switch at FACU.

D. System Outputs:

- 1. Fire-alarm signal must initiate the following actions:
 - a. Continuously operate alarm notification appliances
 - b. Identify alarm and specific initiating device at FACU.
 - c. Transmit alarm signal to remote alarm receiving station.
 - d. Record events in system memory.
- 2. System supervisory signal must initiate the following actions:
 - a. Initiate supervisory notification appliances.
 - b. Identify specific device initiating event at FACU.
 - c. After time delay of 200 seconds transmit trouble or supervisory signal to remote alarm receiving station.

2.2 FIRE-ALARM SYSTEM CONTROL UNITS

- A. Description: A component of the fire-alarm system, provided with primary and secondary power sources, which receives signals from initiating devices or other fire-alarm control units, and processes these signals to determine part or all the required fire-alarm system output functions.
- B. UL UOJZ - Addressable Fire-Alarm System Control Units:
 - 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. Edwards; Carrier Global Corporation
 - b. Fire-Lite Alarms; Honeywell International, Inc.
 - c. Gamewell-FCI; Honeywell International, Inc.
 - d. Notifier; Honeywell International, Inc.
 - e. Siemens Industry, Inc.; Fire Safety Division
 - f. Simplex; brand of Johnson Controls International plc, Building Solutions North America
 - 2. Source Limitations: Obtain products from single manufacturer.
 - 3. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the

following UL product categories:

- a. Electrical Control Units for Fire-Protective Signaling Systems: UL CCN UOJZ, including UL 864 and NFPA 72.

4. Standard Features:

- a. Product Reference Standards: Ch. 23 of NFPA 72.
- b. Non-voice/alarm communications.
- c. Indication of which communication zones have been silenced.
- d. Provide selective silencing of alarm notification appliances by building communication zone.
- e. Real-time clock for time annotation of events on the event recorder.
- f. Communication between the FACU and remote circuit interface panels, annunciators, and displays.
- g. The FACU must be listed for connection to a central station signaling system service.
- h. Provide non-volatile memory for system database, logic, operating system, and event history.
- i. The system must not require manual input to initialize in the event of a complete power-down condition.
- j. Alphanumeric display and system controls.
- k. Minimum of one Class A or Class B signaling-line circuit.
- l. Minimum of one Class A or Class B notification appliance circuit.
- m. Synchronization of notification appliance circuits.

5. Other Available Features Required by Project:

- a. Smoke-alarm verification.

2.3 FIRE-ALARM REMOTE ANNUNCIATORS

- A. Description: A unit containing one or more indicator lamps, alphanumeric displays, or other equivalent means in which each indication provides status information about a fire-alarm system device, circuit, condition, or location.

B. UL UOXX - Fire-Alarm System Remote Annunciators :

- 1. **Manufacturers: Subject to compliance with requirements, provide fully compatible products by the same manufacturer of the fire alarm control unit.**
- 2. **Source Limitations: Obtain products from single manufacturer.**
- 3. **Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:**

- a. **Control Unit Accessories for Fire-Protective Signaling Systems: UL**

CCN UOXX, including UL 864 and NFPA 72.

4. Standard Features:

- a. **Product Reference Standards: Ch. 23 of NFPA 72.**
- b. **Compatibility with fire-alarm control unit for alphanumeric display and LED indicating lights.**
- c. **Provide controls to acknowledge, silence, reset and test functions for alarm, supervisory, and trouble signals.**
- d. **Annunciator panel shall be white in color.**

2.4 FIRE-ALARM TERMINAL CABINETS

- A. Description: A cabinet with hinged, lockable cover clearly labeled and intended for termination of fire-alarm conductors at junction points. Screw-type terminal blocks are provided within the terminal cabinet for conductor splices.
- B. UL UOXX - Fire-Alarm Terminal Cabinet:
 - 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. Space Age Electronics, Inc.
 - 2. Source Limitations: Obtain products from single manufacturer.
 - 3. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. System Control Unit Accessories: UL CCN UOXX, including UL 864 and NFPA 72.
 - 4. Standard Features:
 - a. Labeled "FIRE ALARM TERMINAL CABINET."
 - b. Interior field identification labels.
 - c. Sized accordingly to contain required number of termination points.
 - d. Accessible by authorized personnel only.

2.5 MANUAL FIRE-ALARM BOXES

- A. Description: A manually operated device used to initiate a fire-alarm signal. Manual fire-alarm boxes come in both conventional or addressable models and may require a single-action (pull down) or double-action (push in and pull down) to initiate a fire-alarm signal. These initiating devices are sometimes referred to as manual fire-alarm stations, pull stations, or call points.

B. UL UNIU - Double-Action Manual Fire-Alarm Boxes:

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. Edwards; Carrier Global Corporation
 - b. Fire-Lite Alarms; Honeywell International, Inc.
 - c. Gamewell-FCI; Honeywell International, Inc.
 - d. Notifier; Honeywell International, Inc.
 - e. Siemens Industry, Inc.; Fire Safety Division
 - f. Simplex; brand of Johnson Controls International plc, Building Solutions North America
2. Source Limitations: Obtain products from single manufacturer.
3. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Non-Coded Fire-Alarm Boxes: UL CEN UNIU, including UL 38 and NFPA 72.
4. Standard Features:
 - a. Product Reference Standards: Ch. 10 and 17 of NFPA 72.
 - b. Colored red with raised letters providing operating instructions.
 - c. Surface mounted.
 - d. Station Reset: Key or Wrench operated switch.
 - e. Material: Polycarbonate or Metal.

2.6 SMOKE-SENSING FIRE DETECTORS

- A. Description: A device that detects visible or invisible particles of combustion and initiates an action. Types of smoke-sensing fire detectors include spot-type detectors, air-sampling detectors, projected beam-type detectors, duct detectors, multi-criteria detectors, and video image smoke detectors.
- B. UL UROX - Spot-Type Smoke Detectors:
 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. Edwards; Carrier Global Corporation
 - b. Fire-Lite Alarms; Honeywell International, Inc.
 - c. Gamewell-FCI; Honeywell International, Inc.

- d. Notifier; Honeywell International, Inc.
 - e. Simplex; brand of Johnson Controls International plc, Building Solutions North America
 - f. Siemens Industry, Inc.; Fire Safety Division
- 2. Source Limitations: Obtain products from single manufacturer.
- 3. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Detectors Designed for Smoke Particles: UL CCN UROX, including UL 268 and NFPA 72.
- 4. Standard Features:
 - a. Product Reference Standards: Ch. 17 of NFPA 72.
 - b. Field programmable.
 - c. Resettable from the control unit.
 - d. Removable from the base assembly without the use of tools and without disturbing the wiring connections.
 - e. Sensing Type: Photoelectric.

2.7 VISUAL NOTIFICATION APPLIANCES

- A. Description: A fire-alarm system component that provides a visible output to alert occupants by the sense of sight, including visual strobes.
- B. UL UVAV - Strobe:
 - 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. Cooper Wheelock; brand of Eaton
 - b. Edwards; Carrier Global Corporation
 - c. Fire-Lite Alarms; Honeywell International, Inc.
 - d. Gamewell-FCI; Honeywell International, Inc.
 - e. Gentex Corporation
 - f. Notifier; Honeywell International, Inc.
 - g. Siemens Industry, Inc.; Fire Safety Division
 - h. Simplex; brand of Johnson Controls International plc, Building Solutions North America
 - 2. Source Limitations: Obtain products from single manufacturer.
 - 3. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the

following UL product categories:

- a. Visual-Signal Appliances for Fire-Protective Signaling Applications: UL CCN UVAV, including UL 1638 and NFPA 72.

4. Standard Features:

- a. Product Reference Standards: Ch. 18 of NFPA 72.
- b. Operating Temperature Range: 32 deg F to 120 deg F.
- c. Compatible with wires up to 12 AWG.
- d. Rated Light Output: 15, 30, 75, or 110 candela as indicated on construction drawings.
- e. Field-selectable candela settings.
- f. Clear or nominal white polycarbonate lens mounted on faceplate.

5. Other Available Features Required by Project:

- a. For units with guards to prevent physical damage, light output ratings must be determined with guards in place.
- b. Weather resistant to provide protection against water, humidity, and corrosion.

2.8 COMBINATION AUDIBLE/VISUAL NOTIFICATION APPLIANCES

- A. Description: A fire-alarm system component such as a horn/strobe or loudspeaker/strobe that provides both an audible and a visible output to alert occupants by the sense of hearing and sight.
- B. UL ULSZ and UVAV - Combination Horn/Strobe Appliances:
 - 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. Cooper Wheelock; brand of Eaton
 - b. Edwards; Carrier Global Corporation
 - c. Fire-Lite Alarms; Honeywell International, Inc.
 - d. Gamewell-FCI; Honeywell International, Inc.
 - e. Gentex Corporation
 - f. Notifier; Honeywell International, Inc.
 - g. Siemens Industry, Inc.; Fire Safety Division
 - Simplex; brand of Johnson Controls International plc, Building Solutions North America
 - 2. Source Limitations: Obtain products from single manufacturer.
 - 3. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the

following UL product categories:

- a. Electrically Operated Signal-Sounding Appliances or Visual-Signal Appliances for Fire-Protective Signaling Applications: UL CCN ULSZ and UVAV, including UL 464, UL 1638, and NFPA 72.
4. Standard Features:
- a. Product Reference Standards: Ch. 18 of NFPA 72.
 - b. Operating Temperature Range: 32 deg F to 120 deg F.
 - c. Compatible with wires up to 12 AWG.
 - d. Rated Light Output: 15, 30, 75, or 110 candelas.
 - e. Clear or nominal white polycarbonate lens mounted on faceplate.
 - f. Strobe flash rate of 1 Hz over its entire operating range.
 - g. Operates on a coded or non-coded power supply.
 - h. Field-selectable candela settings.
 - i. Field-selectable volume settings.
 - j. Universal mounting plate for ceiling units.
5. Other Available Features Required by Project:
- a. For units with guards to prevent physical damage, light output ratings must be determined with guards in place.
 - b. Weather resistant to provide protection against water, humidity, and corrosion.

2.9 FIRE-ALARM DIGITAL ALARM COMMUNICATOR TRANSMITTERS

- A. Description: A fire-alarm system component at the protected premises to which the fire-alarm control unit connects and transmit signals indicating a status change of initiating devices or groups of devices. The DACT seizes the connected telephone line, cellular signal, or ethernet network, dials a preselected number to connect to a DACR, and transmits signals indicating a status change of the initiating devices.
- B. UL UOXX - Fire-Alarm Digital Alarm Communicator Transmitter:
 - 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. Ademco; Honeywell
 - b. Digital Monitoring Products
 - c. Fike Corporation
 - d. Fire-Lite Alarms; Honeywell International, Inc.
 - e. Firecom, Inc.
 - f. Gamewell-FCI; Honeywell International, Inc.
 - g. Keltron Corporation

- h. Kidde; Carrier Global Corporation
 - i. Kingfisher Company, Inc.
 - j. Notifier; Honeywell International, Inc.
 - k. Potter Electric Signal Company, LLC
 - l. Siemens Industry, Inc.; Fire Safety Division
 - m. Silent Knight; Honeywell International, Inc.
 - n. Simplex; brand of Johnson Controls International plc, Building Solutions North America
-
- 2. Source Limitations: Obtain products from single manufacturer.
 - 3. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. Control Unit Accessories for Fire-Protective Signaling Systems: UL CCN UOXX, including UL 864 and NFPA 72.
 - 4. Standard Features:
 - a. Product Reference Standards: Ch. 26 of NFPA 72.
 - b. Compatible with remote alarm receiving station or central station receiver.
 - c. Receive alarm, supervisory, or trouble signals from FACU and automatically transmit to remote alarm receiving station or central station via telephone line(s), cellular network, or internet.
 - d. Indicate trouble signal at FACU upon loss of communication with the remote alarm receiving station or central station.
 - e. Indicate local trouble signal upon loss of communication with the FACU.
 - f. Secondary Power: Integral rechargeable battery and automatic charger.
 - g. Digital data transmission of the following signals:
 - 1) Address of alarm-initiating device.
 - 2) Address of supervisory signal.
 - 3) Address of trouble-initiating device.
 - 4) Loss of AC supply.
 - 5) Loss of power.
 - 6) Low battery.
 - 7) Abnormal test signal.
 - 8) Communication bus failure.
 - h. Self-test automatically performed every 24 hours with report transmitted to remote alarm receiving station or central station.

2.10 FIRE-ALARM RECORD DOCUMENTATION CABINETS

- A. Description: A cabinet clearly labeled and intended for the storage of fire-alarm record documents, including as-built drawings; programming documentation; and inspection, testing, and maintenance documentation.
- B. UL UOXX - Fire-Alarm-System Record-Documents Storage Cabinet:
 - 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. Space Age Electronics, Inc.
 - 2. Source Limitations: Obtain products from single manufacturer.
 - 3. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. System Control Unit Accessories: UL CCN UOXX, including UL 864 and NFPA 72.
 - 4. Standard Features:
 - a. Labeled "SYSTEM RECORD DOCUMENTS."
 - b. Sized accordingly to contain all necessary documentation.
 - c. Accessible by authorized personnel only.

2.11 FIRE-ALARM CABLES

- A. UL HNHT - Non-Power-Limited Fire-Alarm Circuit Cable (NPLF):
 - 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. Prysmian Cables and Systems; Prysmian Group North America
 - b. Southwire Company, LLC
 - c. Superior Essex Inc.; subsidiary of LS Corp.
 - d. West Penn Wire; brand of Belden, Inc.
 - 2. Listing Criteria:
 - a. Non-Power-Limited Fire-Alarm Cable: UL CCN HNHT; including UL 1425 and Article 760 of NFPA 70.
 - b. Vertical-Tray Flame Test: UL 1685.
 - c. Limited Smoke "ST1" Marking: UL 1685 or UL 2556.

3. Standard Features:
 - a. Solid or Stranded copper conductors with 600 V rated, 75 deg C, color-coded insulation.
 - b. Minimum Conductor Size: 18 AWG.
- B. UL HNHT - Non-Power-Limited Fire-Alarm Circuit Plenum Cable (NPLFP):
 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. Prysmian Cables and Systems; Prysmian Group North America
 - b. Southwire Company, LLC
 - c. West Penn Wire; brand of Belden, Inc.
 2. Listing Criteria:
 - a. Non-Power-Limited Fire-Alarm Cable: UL CCN HNHT; including UL 1425 and Article 760 of NFPA 70.
 - b. Vertical-Tray Flame Test: UL 1685.
 - c. Limited Smoke "ST1" Marking: UL 1685 or UL 2556.
 3. Plenum Rating: NFPA 262Standard Features:
 - a. Solid or Stranded copper conductors with 600 V rated, 75 deg C, color-coded insulation.
 - b. Minimum Conductor Size: 18 AWG
- C. UL HNIR - Power-Limited Fire-Alarm Cable (FPL):
 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. Prysmian Cables and Systems; Prysmian Group North America
 - b. Southwire Company, LLC
 - c. West Penn Wire; brand of Belden, Inc.
 2. Listing Criteria:
 - a. Power-Limited Fire-Alarm Cable: UL CCN HNIR; including UL 1424 and Article 760 of NFPA 70.
 - b. Vertical-Tray Flame Test: UL 1685.
 - c. Limited Smoke "ST1" Marking: UL 1685 or UL 2556.
 3. Standard Features:
 - a. Solid or Stranded copper conductors with 300 V rated, 75 deg C, color-coded insulation.

- b. Minimum Conductor Size: 18 AWG,.

D. UL HNIR - Power-Limited Fire-Alarm Plenum Cable (FPLP):

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. Prysmian Cables and Systems; Prysmian Group North America
 - b. Southwire Company, LLC
 - c. Superior Essex Inc.; subsidiary of LS Corp.
 - d. West Penn Wire; brand of Belden, Inc.
2. Listing Criteria:
 - a. Power-Limited Fire-Alarm Cable: UL CCN HNIR; including UL 1424 and Article 760 of NFPA 70.
 - b. Vertical-Tray Flame Test: UL 1685.
 - c. Limited Smoke "ST1" Marking: UL 1685 or UL 2556.
 - d. Plenum Rating: NFPA 262.
3. Standard Features:
 - a. Solid or Stranded copper conductors with 300 V rated, 75 deg C, color-coded insulation.
 - b. Minimum Conductor Size: 18 AWG.

2.12 MAINTENANCE MATERIAL ITEMS

- A. Spare Parts: Furnish to Owner spare parts, for repairing fire detection and alarm system components, that are packaged with protective covering for storage on-site and identified with labels describing contents. Include the following:
 1. Smoke Detectors: 1.
 2. Manual Fire-Alarm Boxes: 1.
 3. Visual Notification Appliances: 1.
 4. Combination Audible/Visual Notification Appliances: 1.
- B. Special Tools: Furnish to Owner proprietary equipment, keys, and software required to operate, maintain, repair, adjust, or implement future changes to fire detection and alarm system, that are packaged with protective covering for storage on-site and identified with labels describing contents. Include the following:
 1. Keys for control equipment cabinets.
 2. Keys for remote test switches.
 3. Wrench for manual fire-alarm boxes.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine field conditions with Installer present for compliance with requirements for fire detection and alarm systems and other conditions affecting performance of the Work.
- B. Examine all materials, products, and equipment received for defects or damage.
- C. Reject all materials, products, and equipment that show signs of defects or damage.
- D. Examine roughing-in for fire detection and alarm system piping to verify actual locations of piping connections before equipment installation.
- E. Examine walls, floors, ceilings, and roofs for suitable conditions where fire detection and alarm system components will be installed.
- F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SELECTION OF CABLING FOR FIRE ALARM

- A. Field Circuits:
 - 1. SLC: 12 to 18 AWG FPLR.
 - 2. NAC: 12 to 18 AWG FPLR.
 - 3. Auxiliary Power Circuits: 12 to 18 AWG FPLR.

3.3 SELECTION OF RACEWAYS FOR FIRE ALARM

- A. Identification: At a minimum, all junction box covers for fire-alarm raceways must be identified using the color red.
- B. Indoor Pathways:
 - 1. Exposed and Subject to Severe Physical Damage: ERMCM or IMC. Locations include the following:
 - a. Covered Storage.
 - b. Receiving Area
 - c. Areas used for traffic of mechanized carts, forklifts, and pallet-handling units.
 - d. Mechanical rooms.
 - e. Workshop areas.
 - 2. Exposed and Subject to Physical Damage: ERMCM, IMC, or EMT. Locations include the following:

- a. Locations less than 2.5 m (8 ft) above finished floor.
- b. Stub-ups to above suspended ceilings.
- 3. Exposed and Not Subject to Physical Damage: EMT.
- 4. Concealed above Suspended Ceilings: EMT.
- 5. Concealed in Ceilings and Interior Walls and Partitions: EMT.
- 6. Exposed to Environmental Air: ERM, IMC, or EMT.
- 7. In Vertical Runs: ERM, IMC, or EMT.

3.4 INSTALLATION OF FIRE DETECTION AND ALARM SYSTEMS

- A. Comply with manufacturer's published instructions.
- B. Reference Standards for Installation: Unless more stringent installation requirements are specified in the Contract Documents or manufacturer's published instructions, comply with the following:
 - 1. Electrical Construction: ICC IBC, ICC IFB, NFPA 70, and NFPA 70B.
 - 2. Fire-Alarm and Premises Security Work: NFPA 72, NFPA 731, NFPA 1225, and NFPA 1226.
 - 3. Fire-Alarm Circuits and Pathways: Ch. 12 of NFPA 72 and Article 760 of NFPA 70.
 - 4. Fire-Alarm Initiating Devices: Ch. 17 of NFPA 72.
 - 5. Fire-Alarm Notification Appliances: Ch. 18 of NFPA 72.
 - 6. Fire-Alarm Control Equipment: Ch. 23 of NFPA 72.
 - 7. Fire-Alarm Transmitting Equipment: Ch. 23 and Ch. 26 of NFPA 72.
 - 8. Consult Architect for resolution of conflicting requirements.
- C. Interfaces with Other Work:
 - 1. Identification: Provide labels for all initiating devices, control equipment cabinets, and associated electrical equipment.
 - a. Identify field-installed conductors, interconnecting wiring, and components.
 - b. Label initiating devices with unique identification.
 - c. Identify source of AC power inside each control equipment cabinet.
 - d. Identify circuit disconnecting means at AC power source with red engraved label. Provide approved locking device for circuit disconnecting means.
 - e. Label enclosures with engraved metal or laminated-plastic nameplate.
 - f. Identify junction box covers using the color red.
 - g. Identify the raceway component using the color red.

3.5 FIELD QUALITY CONTROL OF FIRE DETECTION AND ALARM SYSTEMS

- A. Administrator for Fire-Alarm Tests and Inspections:

1. Engage factory-authorized service representative to administer and perform tests and inspections on components, assemblies, and equipment installations, including connections.
- B. Field tests and inspections must be witnessed by authorities having jurisdiction.
- C. Tests and Inspections:
 1. Perform manufacturer's recommended tests and inspections.
 2. Perform system acceptance testing in accordance with Ch. 14 of NFPA 72.
 3. Contractor is responsible for completing pre-acceptance testing to verify proper operation of the fire detection and alarm systems. Correct system deficiencies prior to scheduling a final acceptance test.
- D. Nonconforming Work:
 1. Initiating devices, notification appliances, control equipment, and system accessories will be considered defective if they do not pass tests and inspections.
 2. Remove and replace defective units and retest.
- E. Field Quality-Control Reports: Collect, assemble, and submit test and inspection reports.
- F. Manufacturer Services: Engage factory-authorized service representative to support field tests and inspections.
 1. Manufacturer's Field Reports for Field Quality-Control Support: Prepare and submit report after each visit by factory-authorized service representative, documenting activities performed at Project site.

3.6 SYSTEM STARTUP

- A. Perform startup service.
 1. Complete installation and startup check in accordance with manufacturer's published instructions.
 2. Provide power to the FACU and configure internal settings.
 3. Test all field wiring prior to connecting field devices and prior to connecting to the FACU. Ensure field wiring is free from ground faults and short circuits.
 4. Connect field devices to field wiring.
 5. Connect field wiring inside FACU cabinet.
 6. Ensure system is normal and free from ground faults, open circuits, or short circuits.
 7. Allow system burn-in for 15 days.
 8. Correct any issues that occur during the system burn-in period.
- B. Manufacturer Services: Engage factory-authorized service representative to support

system startup.

1. Manufacturer's Field Reports for System Startup Support: Prepare and submit report after each visit by factory-authorized service representative, documenting activities performed at Project site.

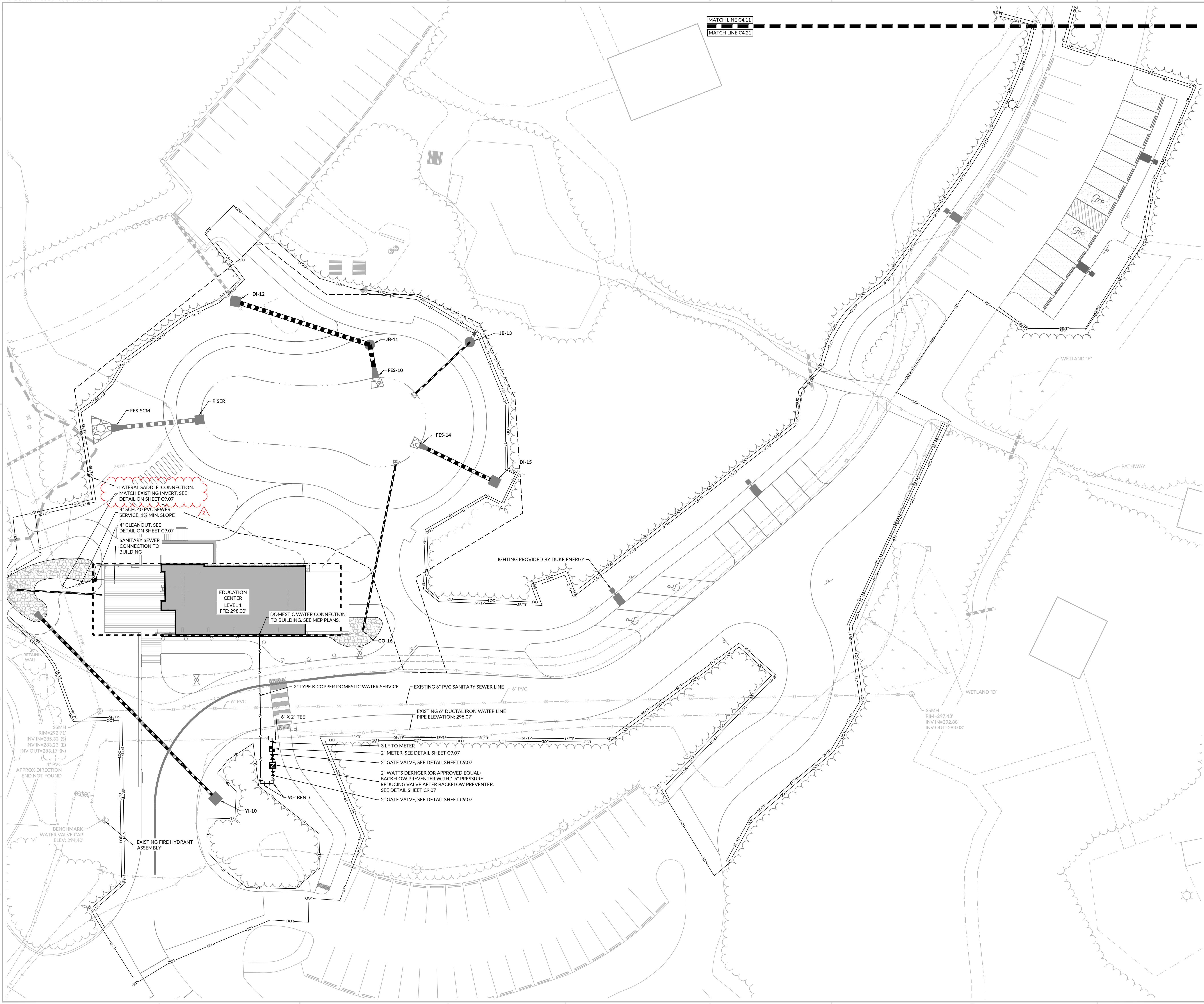
3.7 PROTECTION

- A. After installation, protect fire detection and alarm system equipment from construction activities. Remove and replace items that are contaminated, defaced, damaged, or otherwise caused to be unfit for use prior to acceptance by Owner.

3.8 MAINTENANCE

- A. Maintenance Service Agreement: Beginning at Substantial Completion, verify that maintenance service agreement includes one-year period for full maintenance by skilled employees of fire detection and alarm system Installer or manufacturer's authorized service representative. Include annual preventive maintenance, repair, or replacement of worn or defective components; cleaning; and adjusting as required for proper fire detection and alarm system operation. Verify that parts and supplies are manufacturer's authorized replacement parts and supplies.
- B. Software and Firmware Service Agreement:
 1. Technical Support: Beginning at Substantial Completion, verify that software and firmware service agreement include software and firmware support for two years.
 2. Upgrade Service: At Substantial Completion, update software and firmware to latest version. Install and program software and firmware upgrades that become available within two years from date of Substantial Completion. Verify that upgrading software includes operating system and new or revised licenses for using software. Conduct reacceptance testing of system components directly affected by software and firmware upgrades.
 - a. Upgrade Notice: Not less than 30 days; to allow Owner to schedule and access the system and to upgrade computer equipment if necessary.
 3. Field Reports for Software and Firmware Upgrades: Prepare and submit report after each update, documenting upgrades installed.

END OF SECTION 284600



PROPOSED UTILITIES LEGEND	
SYMBOL	DESCRIPTION
FL	FIRE LINE
FM	FORCE MAIN
SS	SANITARY SEWER PIPE
W	WATER MAIN
R	RECLAIMED WATER LINE
BP	BACKFLOW PREVENTER
BO	BLOW OFF
FDC	FIRE DEPARTMENT CONNECTION (FDC)
FHA	FIRE HYDRANT ASSEMBLY
SC	SEWER CLEANOUT
SM	SEWER MANHOLE
WM	WATER METER
WV	WATER VALVE
PV	POST INDICATOR VALVE

- NOTES:
- IN ACCORDANCE WITH POLICY STATEMENT 49, CONTRACTOR TO COORDINATE WITH TOWN OF CARY PUBLIC WORKS DEPARTMENT TO ENSURE ISOLATION OF WORK AREA PRIOR TO WATER MAIN INSTALLATION.
 - THIS DESIGN MEETS ALL CURRENT TOWN OF CARY STANDARD SPECIFICATIONS AND DETAILS. THERE ARE NO EXCEPTIONS.
 - APPROVAL AND PERMITTING OF THIS UTILITY PLAN COVERS PUBLIC INFRASTRUCTURE ONLY. WHILE PRIVATE UTILITY LINES MAY BE SHOWN HEREON FOR REFERENCE, THEY ARE ALLOWED ONLY AFTER OBTAINING A SEPARATE PERMIT FOR PRIVATE UTILITIES.
 - NEW WATER METERS WILL NEED TO BE COORDINATED WITH TOWN OF CARY STAFF DURING CONSTRUCTION.

WithersRavenel

137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com

CLARK NEXSEN - NC

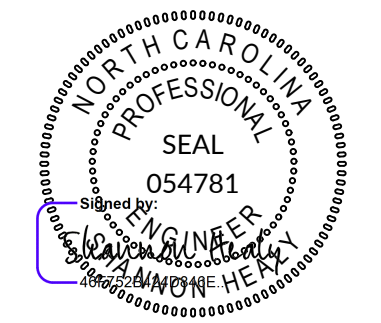
A DIVISION OF JOHNSON, MIRMIRAN & THOMPSON, INC.



BID SET

LAKE CRABTREE COUNTY PARK IMPROVEMENTS

1400 Aviation Plwy | Morrisville, NC 27560 | Wake County



8/28/2026

0 10 20
SCALE: 1 inch = 20 ft.

INITIAL PLAN DATE: 08/05/2026
REVISIONS:
1 - 08/19/2026 -
ADDENDUM 1
2 - 8/28/2026 -
ADDENDUM 2

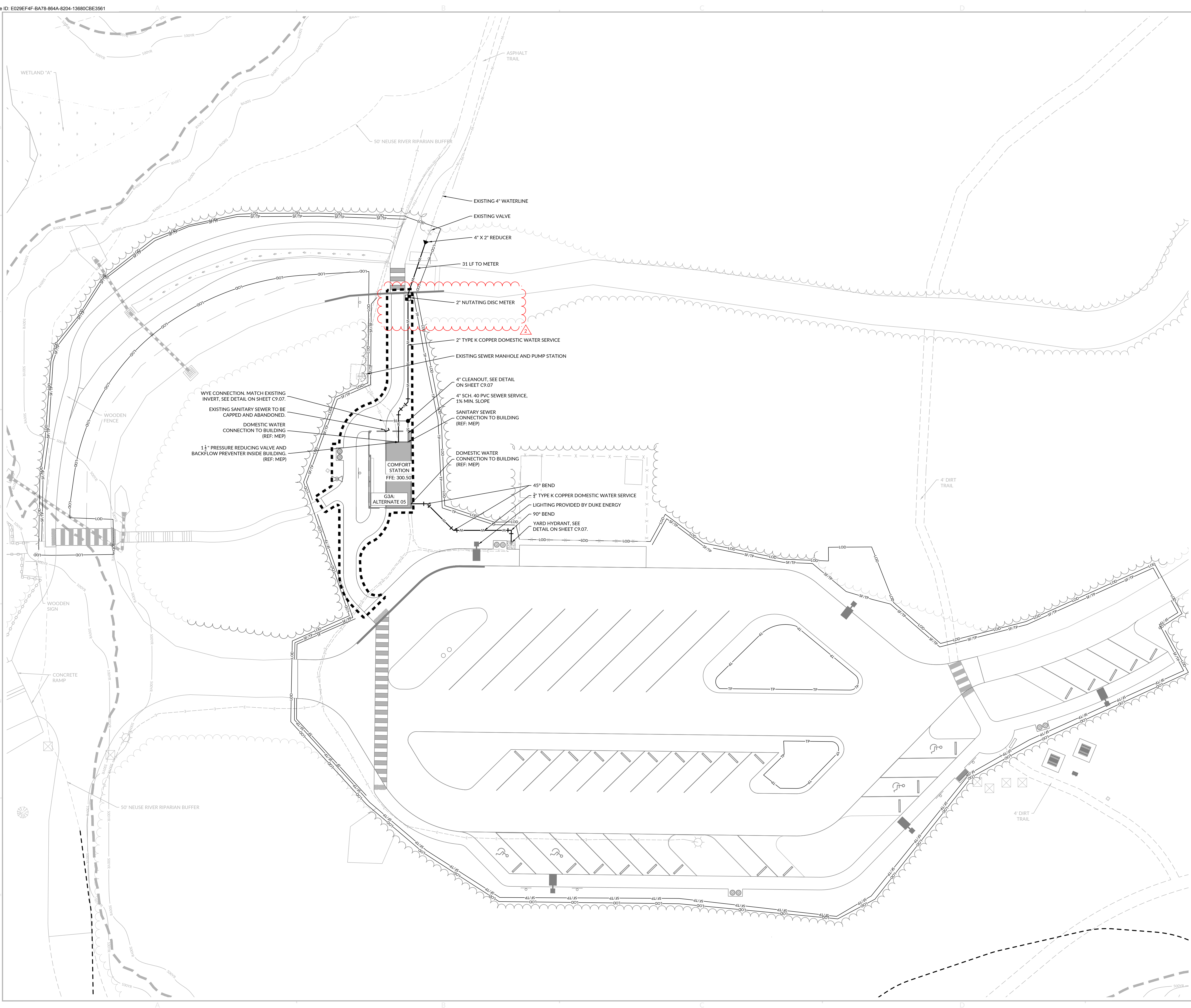
Know what's below.
Call before you dig.

WR JOB NUMBER 22-0024-007
DRN: JMD DGN: JMD CKD: MA

UTILITY PLAN -
EDUCATION CENTER

C4.21

J:\2024\007 Lake Crabtree County Park Drawings Set\Construction\CD\06 - UTILITY PLUMBING Friday, August 28, 2026 13:12 AM - JTB/LAN



PROPOSED UTILITIES LEGEND	
SYMBOL	DESCRIPTION
FL	FIRE LINE
FM	FORCE MAIN
SS	SANITARY SEWER PIPE
W	WATER MAIN
R	RECLAIMED WATER LINE
[Symbol]	BACKFLOW PREVENTER
[Symbol]	BLOW OFF
[Symbol]	FIRE DEPARTMENT CONNECTION (FDC)
[Symbol]	FIRE HYDRANT ASSEMBLY
[Symbol]	SEWER CLEANOUT
[Symbol]	SEWER MANHOLE
[Symbol]	WATER METER
[Symbol]	WATER VALVE
[Symbol]	POST INDICATOR VALVE

- NOTES:
- IN ACCORDANCE WITH POLICY STATEMENT 49, CONTRACTOR TO COORDINATE WITH TOWN OF CARY PUBLIC WORKS DEPARTMENT TO ENSURE ISOLATION OF WORK AREA PRIOR TO WATER MAIN INSTALLATION.
 - THIS DESIGN MEETS ALL CURRENT TOWN OF CARY STANDARD SPECIFICATIONS AND DETAILS. THERE ARE NO EXCEPTIONS.
 - APPROVAL AND PERMITTING OF THIS UTILITY PLAN COVERS PUBLIC INFRASTRUCTURE ONLY. WHILE PRIVATE UTILITY LINES MAY BE SHOWN HEREON FOR REFERENCE, THEY ARE ALLOWED ONLY AFTER OBTAINING A SEPARATE PERMIT FOR PRIVATE UTILITIES.
 - NEW WATER METERS WILL NEED TO BE COORDINATED WITH TOWN OF CARY STAFF DURING CONSTRUCTION.

137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com

A DIVISION OF JOHNSON, MIRMIRAN & THOMPSON, INC.

BID SET

LAKE CRABTREE COUNTY PARK IMPROVEMENTS

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County

8/28/2026

SCALE: 1 inch = 20 ft.

INITIAL PLAN DATE: 08/05/2026

REVISIONS:

1 - 08/19/26 -	22-0024-007
ADDENDUM 1	
2 - 8/28/2026 -	
ADDENDUM 2	

Know what's below.
Call before you dig.

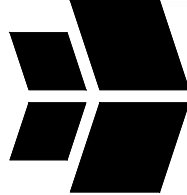
WR JOB NUMBER	22-0024-007	
DRN: JMD	DGN: JMD	CKD: MA

UTILITY PLAN - COMFORT STATION

C4.31

our people • your success

EST. 1983



LAKE CRABTREE COUNTY PARK IMPROVEMENTS

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



8/28/2026

SCALE AS SHOWN

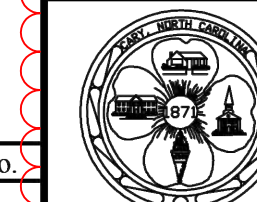
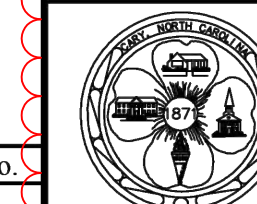
INITIAL PLAN DATE: 08/05/2026
REVISIONS:
1 - 08/19/26 -
ADDENDUM 1
2 - 8/28/2026 -
ADDENDUM 2

Know what's below.
Call before you dig.

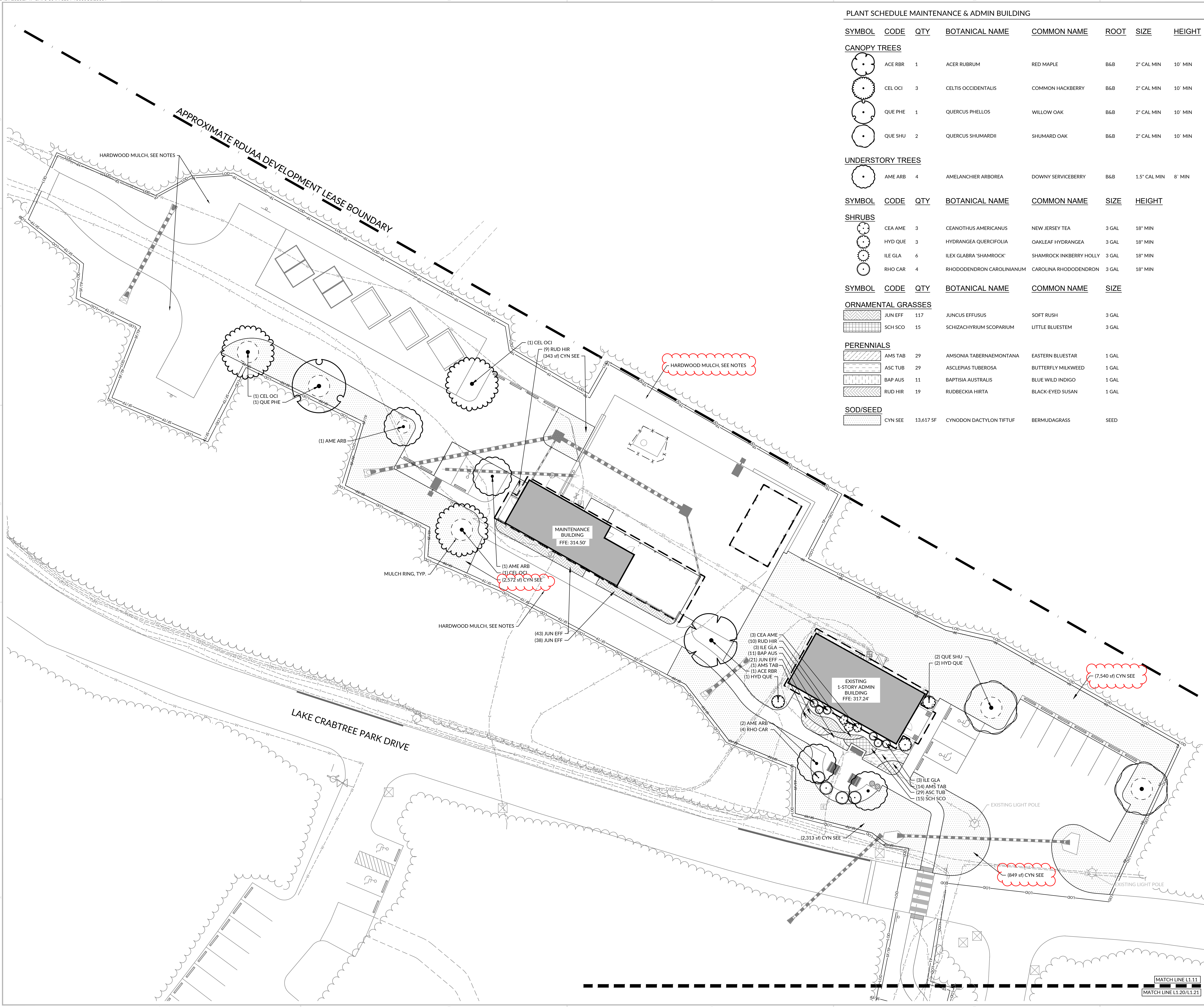
WR JOB NUMBER 22-0024-007
DRN: JMD DGN: JMD CKD: MA

UTILITY DETAILS

C9.07



J:\2024\2024-007 Lake Crabtree Park Drive and Permitting\CAD Drawings\Site Construction\3.00 LANDSCAPE PLANNING\Thompson August 27, 2024 3:51:47 PM - DOLAN



PLANT SCHEDULE MAINTENANCE & ADMIN BUILDING

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	HEIGHT
CANOPY TREES							
	ACE RBR	1	ACER RUBRUM	RED MAPLE	B&B	2" CAL MIN	10' MIN
	CEL OCI	3	CELTIS OCCIDENTALIS	COMMON HACKBERRY	B&B	2" CAL MIN	10' MIN
	QUE PHE	1	QUERCUS PHELLOS	WILLOW OAK	B&B	2" CAL MIN	10' MIN
	QUE SHU	2	QUERCUS SHUMARDII	SHUMARD OAK	B&B	2" CAL MIN	10' MIN

UNDERSTORY TREES							
	AME ARB	4	AMELANCHIER ARBorea	DOWNY SERVICEBERRY	B&B	1.5" CAL MIN	8' MIN

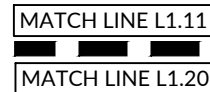
SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT
SHRUBS						
	CEA AME	3	CEANOTHUS AMERICANUS	NEW JERSEY TEA	3 GAL	18" MIN
	HYD QUE	3	HYDRANGEA QUERCIFOLIA	OAKLEAF HYDRANGEA	3 GAL	18" MIN
	ILE GLA	6	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	3 GAL	18" MIN
	RHO CAR	4	RHODODENDRON CAROLINIANUM	CAROLINA RHODODENDRON	3 GAL	18" MIN

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE
ORNAMENTAL GRASSES					
	JUN EFF	117	JUNCUS EFFUSUS	SOFT RUSH	3 GAL
	SCH SCO	15	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	3 GAL

PERENNIALS					
	AMS TAB	29	AMSONIA TABERNAEMONTANA	EASTERN BLUESTAR	1 GAL
	ASC TUB	29	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	1 GAL
	BAP AUS	11	BAPTISIA AUSTRALIS	BLUE WILD INDIGO	1 GAL
	RUD HIR	19	RUDBECKIA HIRTA	BLACK-EYED SUSAN	1 GAL

SOD/SEED					
	CYN SEE	13,617 SF	CYNODON DACTYLON TIFTUF	BERMUDAGRASS	SEED

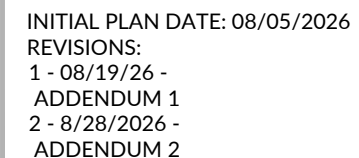
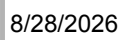
- NOTES
1. REFER TO SHEETS C6.11 THRU C6.61 FOR EROSION CONTROL NOTES
 2. REFER TO SHEET C0.38 FOR GENERAL LANDSCAPE NOTES
 3. WOOD CHIPPINGS FROM TREE GRUBBING MAY BE STORED ON SITE & USED FOR MULCH AREAS.



1. REFER TO SHEETS C6.11 THRU C6.61 FOR EROSION CONTROL NOTES
2. REFER TO SHEET C0.03 FOR GENERAL LANDSCAPE NOTES
3. WOOD CHIPPINGS FROM TREE GRUBBING MAY BE STORED ON SITE & USED FOR MULCH AREAS.



1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County

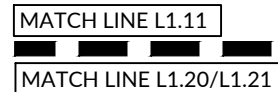


Know what's below.
Call  before you dig

WR JOB NUMBER	22-0024
DRN: IMD	DRN: IMD
CKD	

LANDSCAPE PLAN -
EDUCATION CENTER -
BASE BID

L1.20



- 

L THRU C6.61

1. REFER TO SHEETS C6.11 THRU C6.61 FOR EROSION CONTROL NOTES
2. REFER TO SHEET C0.03 FOR GENERAL LANDSCAPE NOTES
3. WOOD CHIPPINGS FROM TREE GRUBBING MAY BE STORED ON SITE & USED FOR MULCH AREAS.



Professional Engineer Seal for North Carolina, License No. 2311, signed by Michael Alderman, dated 10/7/2014.

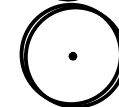
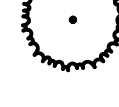
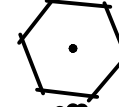
INITIAL PLAN DATE: 08/05/2026
REVISIONS:
1 - 08/19/26 -
ADDENDUM 1
2 - 8/28/2026 -
ADDENDUM 2

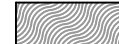
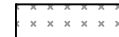
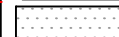
Know what's below.
Call  before you dig.

WR JOB NUMBER	22-0024-007	
DRN: JMD	DGN: JMD	CKD: MA

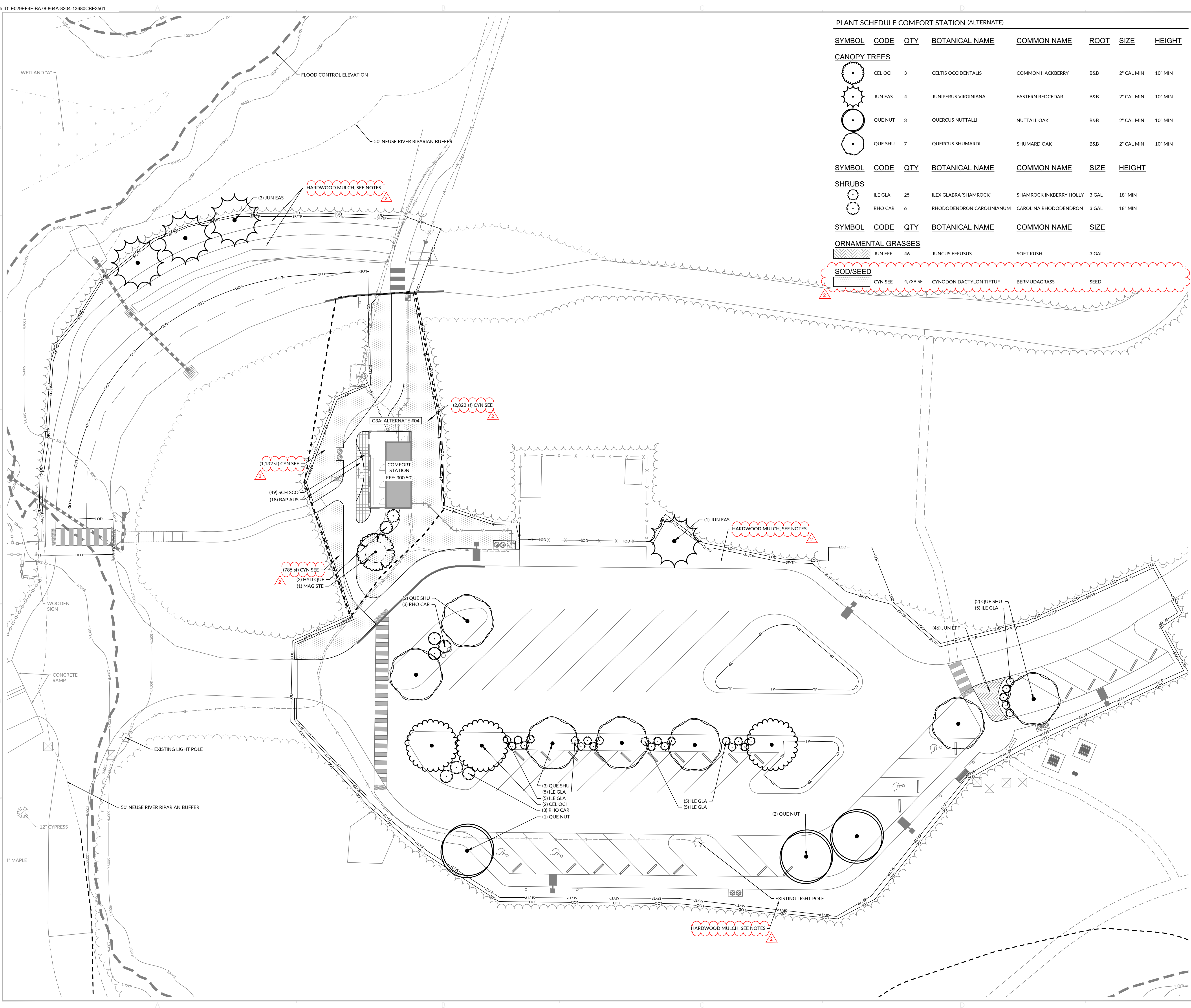
LANDSCAPE PLAN -
EDUCATION CENTER -
ALTERNATE

L1.21

<u>SYMBOL</u>	<u>CODE</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>ROOT</u>	<u>SIZE</u>	<u>HEIGHT</u>
<u>CANOPY TREES</u>							
	ACE RBR	3	ACER RUBRUM	RED MAPLE	B&B	2" CAL MIN	10' MIN
	QUE NUT	2	QUERCUS NUTTALLII	NUTTALL OAK	B&B	2" CAL MIN	10' MIN
	QUE PHE	3	QUERCUS PHELLOS	WILLOW OAK	B&B	2" CAL MIN	10' MIN
	QUE SHU	3	QUERCUS SHUMARDII	SHUMARD OAK	B&B	2" CAL MIN	10' MIN
	TAX DIS	3	TAXODIUM DISTICHUM	BALD CYPRESS	B&B	2" CAL MIN	10' MIN
<u>UNDERSTORY TREES</u>							
	CHI VIR	3	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE	B&B	1.5" CAL MIN	8' MIN
	MAG STE	3	MAGNOLIA STELLATA	STAR MAGNOLIA	B&B	1.5" CAL MIN	8' MIN
<u>SYMBOL</u>	<u>CODE</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>SIZE</u>	<u>HEIGHT</u>	
<u>SHRUBS</u>							
	CEA AME	23	CEANOTHUS AMERICANUS	NEW JERSEY TEA	3 GAL	18" MIN	
	CLE ALN	9	CLETHRA ALNIFOLIA	SUMMERSWEET	3 GAL	18" MIN	
	HYP DEN	6	HYPERICUM DENSIFLORUM	BUSHY ST. JOHN'S WORT	3 GAL	18" MIN	
	ILE GLA	3	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	3 GAL	18" MIN	
	RHO CAR	11	RHODODENDRON CAROLINIANUM	CAROLINA RHODODENDRON	3 GAL	18" MIN	
	VIB DEN	6	VIBURNUM DENTATUM	VIBURNUM	3 GAL	18" MIN	

<u>SYMBOL</u>	<u>CODE</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>SIZE</u>
<u>ORNAMENTAL GRASSES</u>					
	CAR RSE	424	CAREX ROSEA	ROSY SEDGE	3 GAL.
	ERA SPE	351	ERAGROSTIS SPECTABILIS	PURPLE LOVEGRASS	3 GAL.
	MUH CAP	299	MUHLENBERGIA 'CAPILLARIS' 'WHITE CLOUD'	WHITE CLOUD MUHLY GRASS	3 GAL.
	SCH SCO	168	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	3 GAL.
<u>PERENNIALS</u>					
	BAP AUS	33	BAPTISIA AUSTRALIS	BLUE WILD INDIGO	1 GAL.
	ECH PUR	14	ECHINACEA PURPUREA	CONEFLOWER	1 GAL.
	RUD HIR	28	RUDBECKIA HIRTA	BLACK-EYED SUSAN	1 GAL.
<u>SOD/SEED</u>					
	CYN SEE	14,626 SF	CYNODON DACTYLON TIFTUF	BERMUDAGRASS	SEED
	CYN SOD	5,115 SF	CYNODON DACTYLON TIFTUF	BERMUDAGRASS	SOD

J:\22\0024-007_Lake Crabtree- Design and Permitting\CAD Drawings\Site Construction\3.30_LANDSCAPE PLANNING\Thompson August 27, 2020 3:52:56 PM - DOLAN



PLANT SCHEDULE COMFORT STATION (ALTERNATE)

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	HEIGHT
CANOPY TREES							
	CEL OCI	3	CELTIS OCCIDENTALIS	COMMON HACKBERRY	B&B	2" CAL MIN	10' MIN
	JUN EAS	4	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	B&B	2" CAL MIN	10' MIN
	QUE NUT	3	QUERCUS NUTTALLII	NUTTALL OAK	B&B	2" CAL MIN	10' MIN
	QUE SHU	7	QUERCUS SHUMARDII	SHUMARD OAK	B&B	2" CAL MIN	10' MIN

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT
SHRUBS						
	ILE GLA	25	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	3 GAL	18" MIN
	RHO CAR	6	RHODODENDRON CAROLINIANUM	CAROLINA RHODODENDRON	3 GAL	18" MIN

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE
ORNAMENTAL GRASSES					
	JUN EFF	46	JUNCUS EFFUSUS	SOFT RUSH	3 GAL

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE
SOD/SEED					
	CYN SEE	4,739 SF	CYNODON DACTYLON TIFTUF	BERMUDAGRASS	SEED

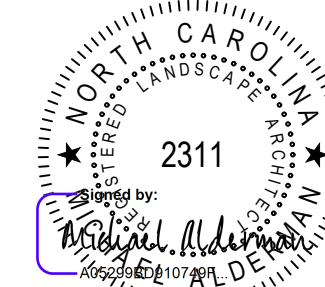
NOTES

1. REFER TO SHEETS C6.11 THRU C6.61 FOR EROSION CONTROL NOTES
2. REFER TO SHEET C0.08 FOR GENERAL LANDSCAPE NOTES
3. WOOD CHIPPINGS FROM TREE GRUBBING MAY BE STORED ON SITE & USED FOR MULCH AREAS.

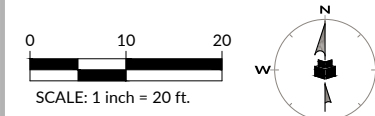


BID SET
LAKE CRABTREE COUNTY PARK
IMPROVEMENTS

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



8/28/2026

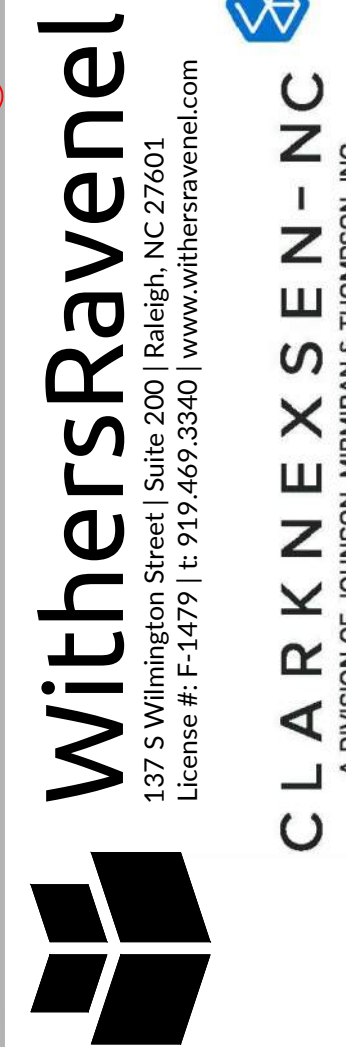


INITIAL PLAN DATE: 08/05/2026
REVISIONS:
1 - 08/19/2026 -
ADDENDUM 1
2 - 8/28/2026 -
ADDENDUM 2

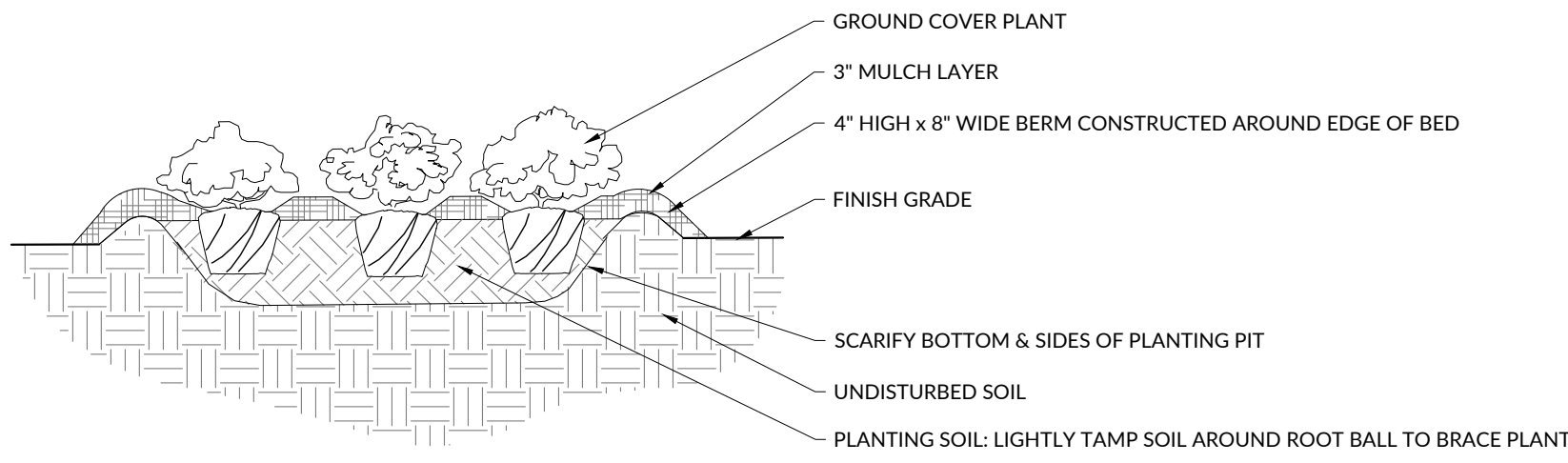
Know what's below.
Call before you dig.
WR JOB NUMBER 22-0024-007
DRN: JMD DGN: JMD CKD: MA

LANDSCAPE PLAN -
COMFORT STATION

L1.31



our people • your success

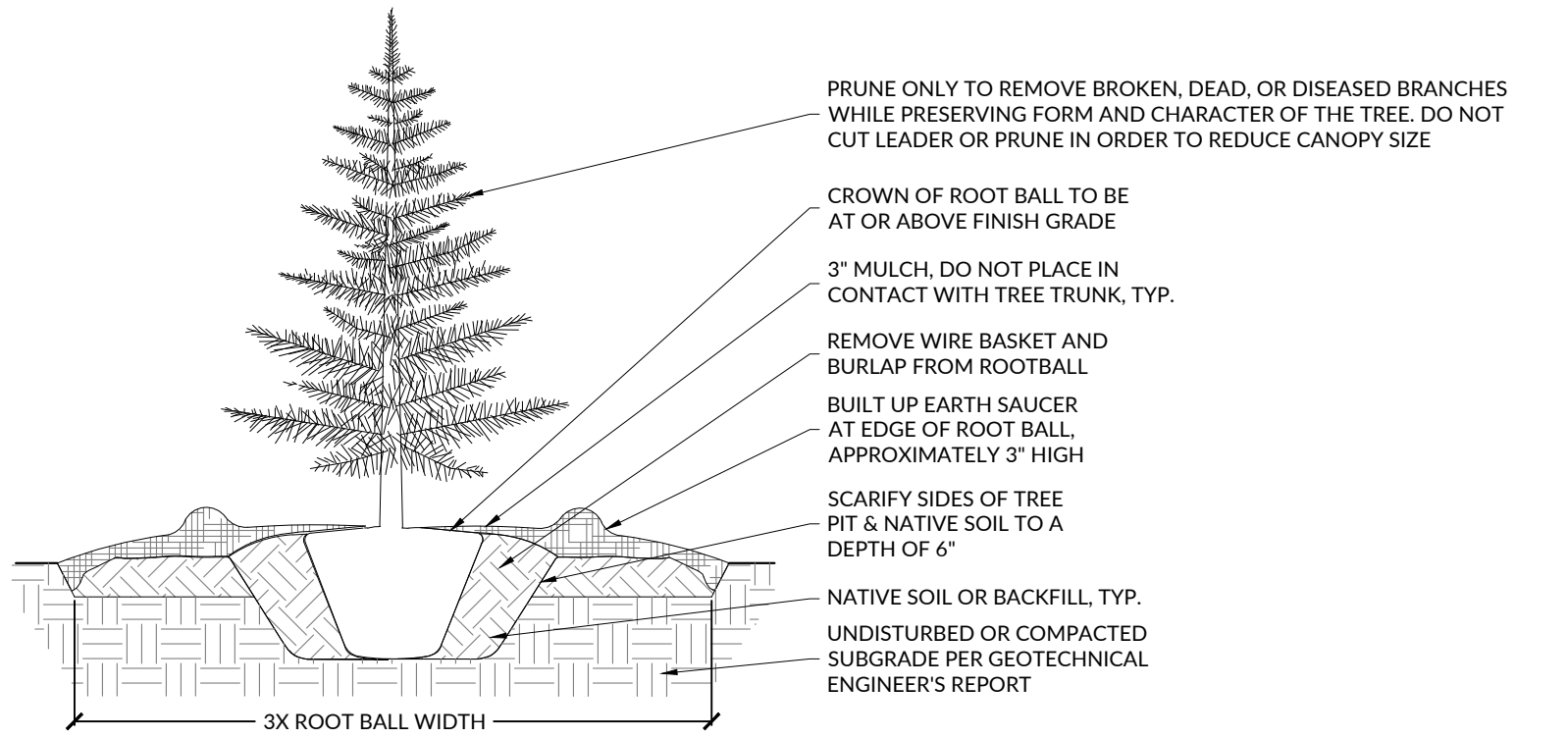


- PLANTING NOTES:
1. SPLIT PLANT ROOTS WITH 2-3 EQUALLY-SPACED VERTICAL CUTS.

01 GROUND COVER PLANTING

SCALE: 3/8" = 1'-0"

SECTION

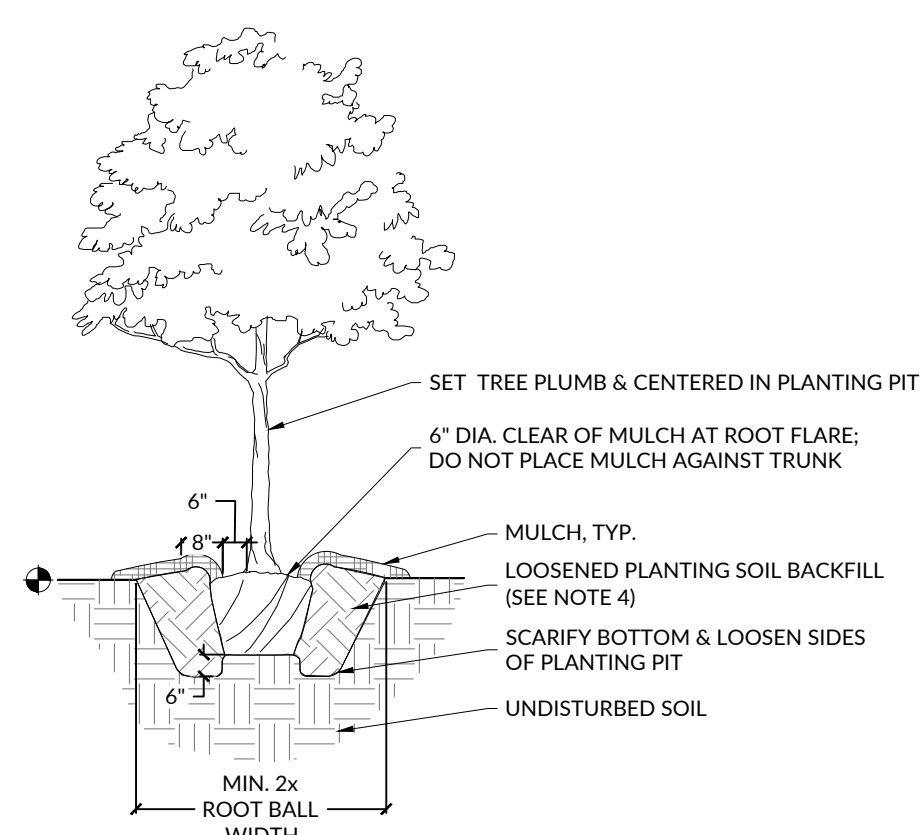


- TREE PLANTING NOTES:
1. IF TREES SETTLE OR ARE BLOWN OUT OF PLUMB POSITION, THEY SHOULD BE STRAIGHTENED BY MAKING ADJUSTMENTS TO THE POSITION OF THE ROOTBALL - NOT BY PUSHING ON THE TRUNK AND/OR TIGHTENING THE GUY WIRE. TREES SHALL BE STRAIGHTENED DURING THE LIFE OF THE PROJECT AS THEY GET OUT OF PLUMB, NOT JUST AT THE END OF THE PROJECT.
 2. BALL DEPTHS ON SOME TREES IN A SINGLE GROUP MAY VARY. IF DEPTHS VARY ALL TREES IN A GROUP SHOULD BE SET SO THAT THE BASE OF THE TRUNKS WILL APPEAR TO BE AT THE SAME RELATIVE ELEVATION ABOVE GRADE.
 3. NO EVERGREEN TREES WILL BE ACCEPTED IF THERE IS MORE THAN ONE LEADER.
 4. CONTRACTOR TO VERIFY THAT ADEQUATE DRAINAGE EXISTS PRIOR TO PLANTING.
 5. STAKING OF EVERGREEN TREES IS TO BE DETERMINED BY THE OWNER. IF STAKING IS DONE, FLEXIBLE STRAPS - NOT HOSE AND WIRE - SHOULD BE USED AND MUST BE REMOVED AT APPROPRIATE TIME. PROPERTY OWNER IS RESPONSIBLE FOR REPLACEMENT OF DESTROYED OR DAMAGED TREES.
 6. ALL TREES SHALL CONFORM TO THE STANDARDS SET FORTH IN THE MOST RECENT EDITION (2004 OR LATER) OF AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY A.N.L.A.
 7. A ROOT COLLAR EXCAVATION FOR ALL TREES SPECIFIED WILL BE DONE BY THE TOWN ARBORIST TO ENSURE THAT TREES WERE PLANTED/GROWN TOO DEEPLY BY THE SOURCE (NURSERY). LANDSCAPE CONTRACTOR SHALL HAVE SUPPLIER MARK GROUND LEVEL LINE ABOVE ROOTBALL. IF TOWN ARBORIST DETERMINES THAT THERE IS EXCESSIVE SOIL OVER ROOT CROWN, THESE TREES WILL BE REJECTED.

02 EVERGREEN TREE PLANTING

SCALE: 3/8" = 1'-0"

SECTION



- NOTES:
1. FOR CONTAINER PLANTS, REMOVE CONTAINER & SCARIFY ROOT MASS PRIOR TO PLANTING.
 2. FOR BAB PLANTS, COMPLETELY REMOVE WIRE BASKET AND BURLAP MATERIAL; REMOVE ALL TWINE, ROPE, BURLAP, AND WIRE FROM ROOT BALL.
 3. SET ROOT BALL ON UNDISTURBED STABLE SUBSOIL SO THAT TOP OF ROOT BALL IS 2-3" ABOVE FINISHED GRADE. TAMP SOIL FIRMLY AROUND BOTTOM OF ROOT BALL TO SET TREE PLUMB.
 4. DIG & TURN PLANTING SOIL TO REDUCE COMPACTION. LIGHTLY TAMP SOIL AROUND ROOT BALL IN 6" LIFTS TO BRACE THE TREE. DO NOT OVER-COMPACT. MIX COMPOST INTO EACH LIFT OF BACKFILL AS RECOMMENDED IN SOIL REPORT. POUR WATER AROUND ROOT BALL TO SETTLE SOIL, AND BACKFILL AS REQUIRED TO MEET REQUIRED FINISHED GRADE.
 5. A 3" HIGH x 8" WIDE BERM SHALL BE MADE AROUND THE ROOT BALL EDGE.
 6. PRUNE TREES ONLY AS NEEDED TO REMOVE DEAD OR BROKEN BRANCHES.
 7. TREES IN WINDY LOCATIONS OR ON STEEP SLOPES ARE TO BE ANCHORED PER DIRECTION FROM LANDSCAPE ARCHITECT.

03 TREE PLANTING

SCALE: 1/4" = 1'-0"

SECTION

PLANT SCHEDULE (OVERALL ALTERNATE)

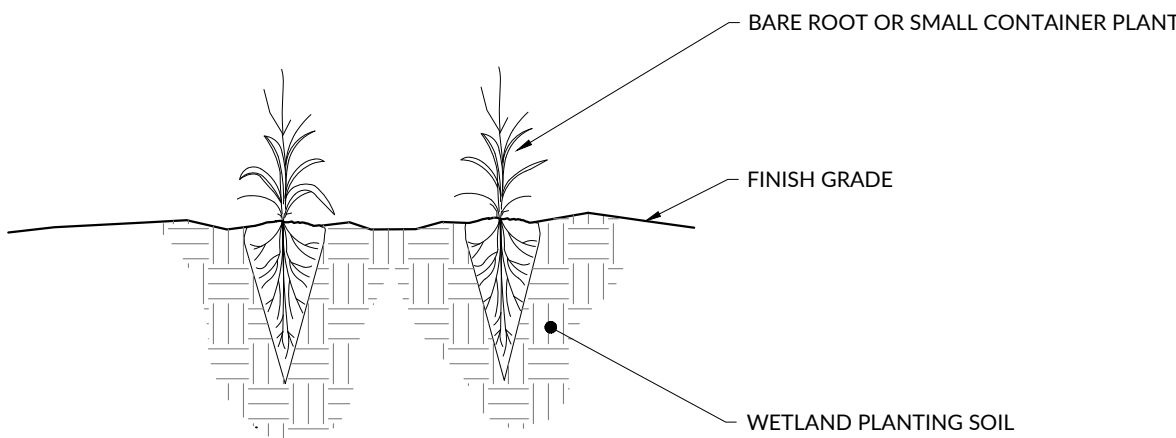
SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	HEIGHT
CANOPY TREES							
	ACE RBR	4	ACER RUBRUM	RED MAPLE	B&B	2" CAL MIN	10' MIN
	CEL OCI	6	CELTIS OCCIDENTALIS	COMMON HACKBERRY	B&B	2" CAL MIN	10' MIN
	JUN EAS	4	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	B&B	2" CAL MIN	10' MIN
	QUE NUT	5	QUERCUS NUTTALLII	NUTTALL OAK	B&B	2" CAL MIN	10' MIN
	QUE PHE	6	QUERCUS PHELLOS	WILLOW OAK	B&B	2" CAL MIN	10' MIN
	QUE SHU	12	QUERCUS SHUMARDII	SHUMARD OAK	B&B	2" CAL MIN	10' MIN
	TAX DIS	3	TAXODIUM DISTICHUM	BALD CYPRESS	B&B	2" CAL MIN	10' MIN
UNDERSTORY TREES							
	AME ARB	4	AMELANCHIER ARBOREA	DOWNY SERVICEBERRY	B&B	1.5" CAL MIN	8' MIN
	CHI VIR	3	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE	B&B	1.5" CAL MIN	8' MIN
	MAG STE	4	MAGNOLIA STELLATA	STAR MAGNOLIA	B&B	1.5" CAL MIN	8' MIN

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT
SHRUBS						
	CEA AME	26	CEANOTHUS AMERICANUS	NEW JERSEY TEA	3 GAL	18" MIN
	CLE ALN	9	CLETHRA ALNIFOLIA	SUMMERSWEET	3 GAL	18" MIN
	HYD QUE	5	HYDRANGAEA QUERCIFOLIA	OAKLEAF HYDRANGAEA	3 GAL	18" MIN
	HYP DEN	7	HYPERICUM DENSIFLORUM	BUSHY ST. JOHN'S WORT	3 GAL	18" MIN
	ILE GLA	34	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	3 GAL	18" MIN
	RHO CAR	21	RHODODENDRON CAROLINIANUM	CAROLINA RHODODENDRON	3 GAL	18" MIN
	VIB DEN	6	VIBURNUM DENTATUM	VIBURNUM	3 GAL	18" MIN

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
ORNAMENTAL GRASSES						
	CAR RSE	424	CAREX ROSEA	ROSY SEDGE	3 GAL	24" o.c.
	ERA SPE	351	ERAGROSTIS SPECTABILIS	PURPLE LOVEGRASS	3 GAL	24" o.c.
	JUN EFF	163	JUNCUS EFFUSUS	SOFT RUSH	3 GAL	24" o.c.
	MUH CAP	299	MUHLENBERGIA CAPILLARIS 'WHITE CLOUD'	WHITE CLOUD MUHLY GRASS	3 GAL	24" o.c.
	SCH SCO	232	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	3 GAL	24" o.c.

PERENNIALS						
	AMS TAB	29	AMSONIA TABERNAEMONTANA	EASTERN BLUESTAR	1 GAL	24" o.c.
	ASC TUB	29	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	1 GAL	24" o.c.
	BAP AUS	62	BAPTISIA AUSTRALIS	BLUE WILD INDIGO	1 GAL	24" o.c.
	ECH PUR	14	ECHINACEA PURPUREA	CONEFLOWER	1 GAL	24" o.c.
	RUD HIR	47	RUDBECKIA HIRTA	BLACK-EYED SUSAN	1 GAL	24" o.c.

SOD/SEED						
	CYN SEE	32,982 SF	CYNODON DACTYLON TIFTUF	BERMUDAGRASS	SEED	
	CYN SOD	5,115 SF	CYNODON DACTYLON TIFTUF	BERMUDAGRASS	SOD	



- NOTES:
1. MAKE SUITABLE HOLE WITH A ROCK BAR OR EQUIVALENT PLANTING TOOL.
 2. INSTALL PLUG DIRECTLY INTO NATIVE SOIL.
 3. WHEN INSTALLED IN LARGE GROUPINGS, INSTALL CUTTINGS USING TRIANGULAR SPACING (SEE DETAIL) UNLESS OTHERWISE SHOWN ON THE PLANS.
 4. CUTTINGS INSTALLED IN SHALLOW WATER SHOULD AVERAGE DEPTHS OF 2 TO 4 INCHES AT NORMAL POOL.

04 EMERGENT PLANTING

SCALE: 3/8" = 1'-0"

SECTION

05 CONSTRUCTED WETLANDS PLANTING

SCALE: 1/2" = 1'-0"

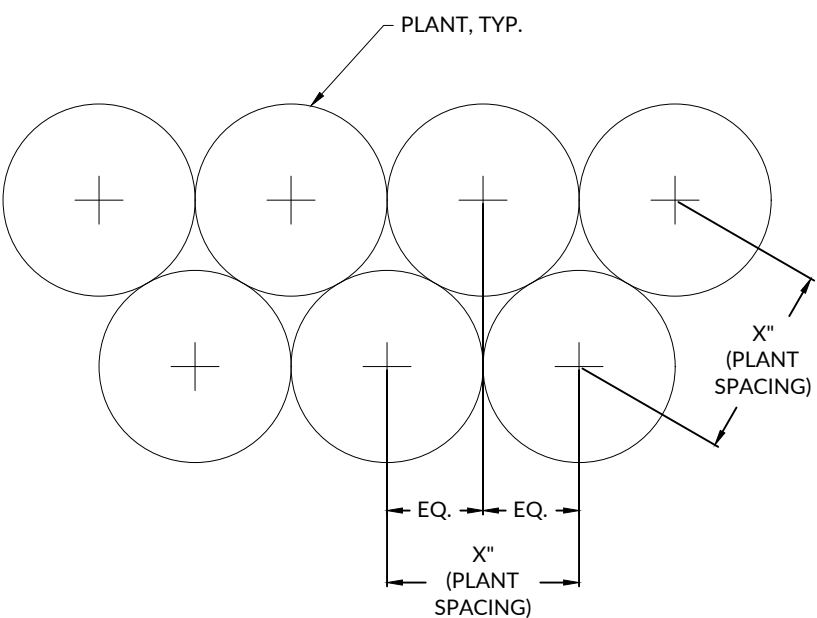
SECTION

CONSTRUCTED WETLAND PLANT SCHEDULE							
SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	ROOT	SPACING	ORIGIN	MIN. HEIGHT
TEMP INDUNDATION =							
	368	1,473	SF W/ 50 HERB. PLANTS/200 SF	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	15" HT. MIN.
	61	Asclepias incarnata	Swamp Milkweed	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	15" HT. MIN.
	61	Carex crinita	Fringed Sedge	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	15" HT. MIN.
	61	Liatris spicata	Dense blazing star	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	15" HT. MIN.
	61	Lobelia cardinalis	Cardinal flower	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	15" HT. MIN.
	61	Eupatorium fistulosum	Hollow Joe Pye Weed	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	15" HT. MIN.
SHALLOW WATER =							
	329	1,317	SF W/ 50 HERB. PLANTS/200 SF	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	9" HT. MIN.
	55	Orontium aquaticum	Golden Club	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	9" HT. MIN.
	55	Iris virginica	Southern Blue Star	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	9" HT. MIN.
	55	Schoenoplectus pungens	Common Three-Square	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	9" HT. MIN.
	55	Saururus cernuus	Lizard's Tail	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	9" HT. MIN.
	55	Juncus effusus	Soft Rush	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	9" HT. MIN.
FOREBAY AND NON-FOREBAY DEEP POOLS =							
	259	1,037	SF W/ 50 FLOATING AQUATIC PLANTS/200 SF	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	4" HT. MIN.
	52	Sagittaria latifolia	Broad-leaved Arrowhead	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	4" HT. MIN.
	52	Vallisneria spiralis	Southern Blue Star	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	4" HT. MIN.
	52	Nymphaea odorata	White Water Lilly	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	4" HT. MIN.
	52	Nuphar lutea ssp. Advena	Common Spatterdock	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	4" HT. MIN.
	52	Potamogeton nodosus	Long-leaf Pondweed	72 CELL TRAY	MIN. 12" - 24" O.C.	NATIVE	4" HT. MIN.

- SOURCES OF WETLAND PLANT MATERIAL:
1. TAYLOR'S NURSERY, INC. 3705 NEW BERN AVE RALEIGH, NC 27610 919-231-6161
www.taylorsnursery.com
 2. HOFFMAN NURSERY 5520 BAHAMA RD ROUEMONT, NC 27572 800-203-8590
www.hoffmannnursery.com
 3. PIEDMONT CAROLINA NURSERY 1867 SANDY RIDGE RD COLFAX, NC 27235
800-337-1025 www.piedmontcarolina.com
 4. OR APPROVED EQUAL. REFER TO WETLAND NATIVE PLANT VENDOR LIST FOR NORTH CAROLINA FOR MORE INFORMATION, AVAILABLE AT NCDEQ WEBSITE.

CONSTRUCTED WETLAND SOIL REQUIREMENTS:
AT SHALLOW WATER ZONE & TEMPORARY INUNDATION ZONE: PLANTING SOIL AMENDED FOR WETLAND PLANTING PER SOIL TEST
AT DEEP POOLS: CLAY LINER

- NOTES:
1. AT A MINIMUM, SPECIES UTILIZED IN STORMWATER WETLANDS SHOULD BE:
A. NATIVE TO THE ECOREGION OF THE WETLAND BEING CONSTRUCTED AND SOURCED FROM A NURSERY NO FURTHER SOUTH THAN USDA HARDINESS ZONE 8B TO ENSURE GREATER SURVIVABILITY OF THE PLANTING;
B. STRAIGHT SPECIES, RATHER THAN CULTIVATED VARIETIES OF NATIVE PLANTS; AND
C. ADAPTED TO THE WATER LEVEL ZONE INTO WHICH THEY WILL BE INSTALLED.
 2. SUPPLEMENTARY PLANTINGS TO REPLENISH LOSSES SHALL BE INSTALLED AT THE END OF THE WARRANTY PERIOD PER EXTERIOR PLANTS SPECIFICATION.
 3. SHALLOW WATER ZONE PLANTING: CONCENTRATE THE PLANT COVERAGE IN THE SHALLOWEST 0-6" AT A HIGHER DENSITY TO ACHIEVE AN AVERAGE DENSITY ACROSS THE SHALLOW WATER ZONE OF ONE PLANT PER 4 SQUARE FEET.
 4. REFER TO EXTERIOR PLANTS SPECIFICATION FOR SEQUENCE AND TIMING FOR PREPARING WETLAND BED (INCLUDING SOIL AMENDMENTS, INITIAL FERTILIZATION, AND WATERING). INSTALLATION PERIOD BEGINS FROM THE AVERAGE LAST SPRING FROST (APRIL 10) UNTIL SEVERAL WEEKS BEFORE THE AVERAGE FIRST FALL FROST (LATE OCT).
 5. THE WETLAND SOILS SHOULD BE WET BEFORE PLANTING.
 6. WETLAND VEGETATION SHOULD BE DELIVERED WITHIN 24 HOURS OF PLANTING. IF THE PLANTS ARE KEPT ON SITE FOR LONGER THAN 1 DAY, THEY WILL NEED TO BE WATERED.
 7. THE ZONES FOR EACH WETLAND PLANT SPECIES SHOULD MARKED WITH FLAGGING OR WITH MARKING PAINT.
 8. ALL PLANTS SHOULD BE PLANTED WITH THEIR LEAVES STICKING OUT OF THE WATER. PLANTS THAT GROW IN SHALLOW WATER (WATER'S EDGE TO 6" BELOW NORMAL WATER LEVEL) MUST HAVE AT LEAST 3" OF ABOVE-WATER FOLIAGE WHEN INSTALLED. WETLAND VEGETATION SHOULD BE PLANTED JUST DEEP ENOUGH TO GIVE THE PLANTS STABILITY.
 9. WATER LEVELS IN THE WETLAND SHOULD BE MAINTAINED AT 4 TO 6 INCHES DURING THE BEGINNING OF THE FIRST AND SECOND GROWING SEASONS.
 10. DURING PERIODS OF BELOW-AVERAGE RAINFALL AND EXCESSIVE HEAT, ALL OF THE VEGETATION NEEDS REGULAR IRRIGATION



- NOTES:
1. REFER TO PLANT SCHEDULE FOR SPACING REQUIREMENTS FOR EACH SPECIES.
 2. PLANTS SHALL BE INSTALLED IN STRAIGHT AND PARALLEL ROWS FOLLOWING THIS PATTERN UNLESS OTHERWISE SHOWN ON DRAWINGS.

06 TYPICAL PLANT SPACING

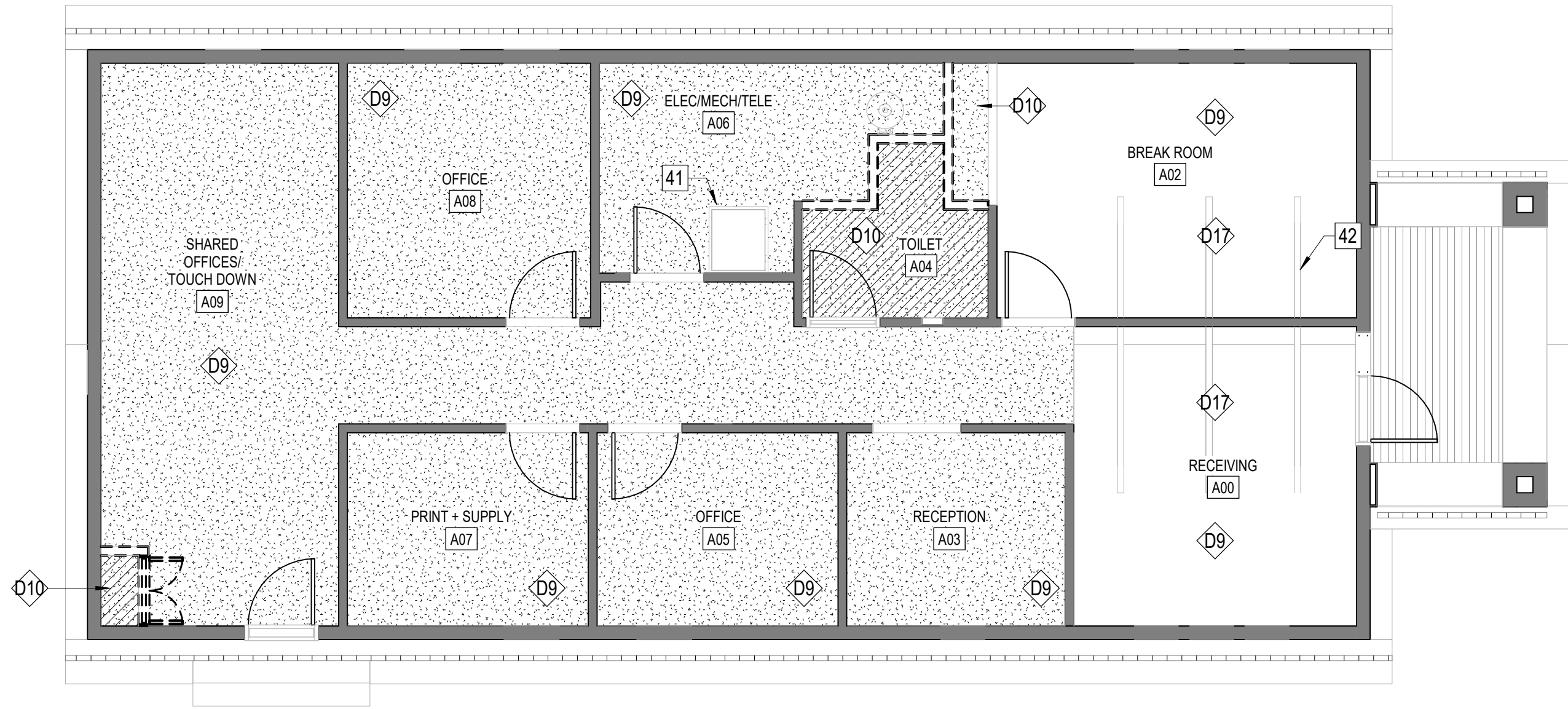
SCALE: 1/2" = 1'-0"

SECTION

SECURITY DETAILS	
DATE	August 27, 2026
SHEET	
SCALE	NTS
DRAWN	EKS
PROJ. NO.	WAKD176

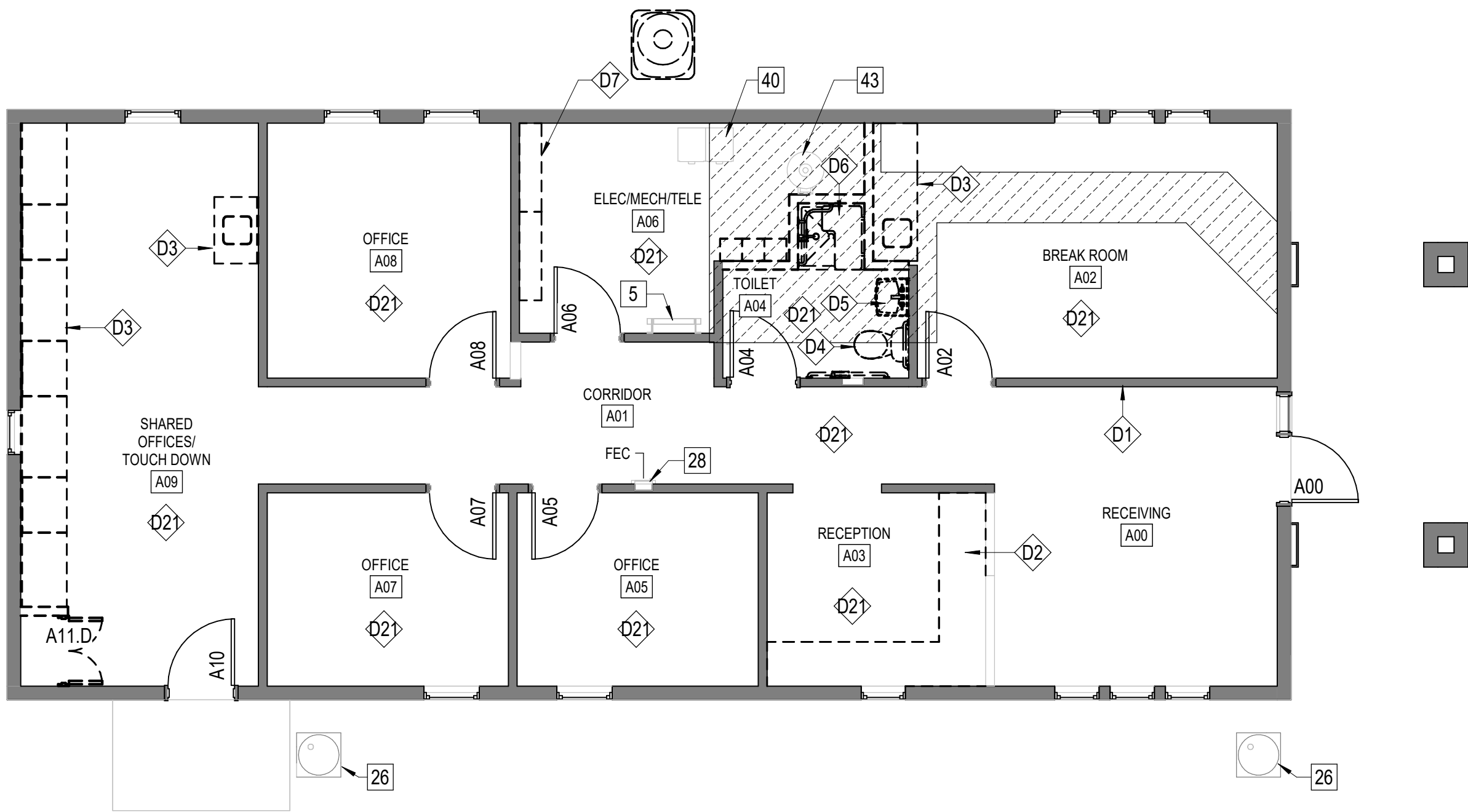
B3 ADMIN BUILDING DEMOLITION REFLECTED
CEILING PLAN

SCALE: 3/16" = 1'-0"



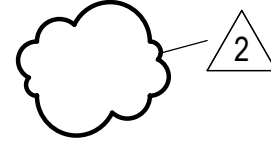
B1 ADMIN BUILDING DEMOLITION PLAN

SCALE: 3/16" = 1'-0"



GENERAL NOTES

1. ALL ITEMS SALVAGED FOR OWNER SHALL BE PRESENTED TO THE OWNER FOR THE FIRST RIGHT OF REFUSAL. IF THE OWNER CHOOSES TO RETAIN ITEMS, THE CONTRACTOR WILL MOVE ITEMS TO THE LOCATION OF THE OWNERS CHOOSING ON SITE. IF THE OWNER CHOOSES TO NOT RETAIN ITEMS, CONTRACTOR IS TO DISPOSE OF ITEMS LEGALLY OFF SITE.
2. ALL ITEMS SALVAGED FOR REINSTALLATION SHALL BE PROTECTED FROM DAMAGE AND STORED ON SITE IN A SECURE LOCATION. ITEMS TO BE REINSTALLED WILL BE CLEANED PRIOR TO INSTALLATION. IF ITEM IS DAMAGED IN ACT OF REMOVAL FROM ITS CURRENT LOCATION, NOTIFY OWNER AND ARCHITECT IMMEDIATELY.



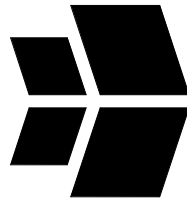
DEMOLITION KEY NOTES

- 5 EXISTING WALL-MOUNTED ACCESS LADDER
- 26 EXISTING RAIN BARREL TO REMAIN, INSTALL NEW METAL DOWNSPOUTS.
- 28 EXISTING FIRE EXTINGUISHER TO REMAIN
- 40 EXISTING SAFE TO REMAIN. OWNER TO REMOVE AND PROTECT DURING CONSTRUCTION.
- 41 EXISTING ATTIC ACCESS DOOR TO REMAIN
- 42 EXISTING EXPOSED RAFTERS TO REMAIN
- 43 EXISTING WATER HEATER TO BE REUSED. REFER TO PLUMBING.
- D1 EXISTING MURAL TO REMAIN, PROTECT DURING CONSTRUCTION
- D2 DEMOLISH EXISTING RECEPTION DESK
- D3 DEMOLISH EXISTING BUILT-IN CASEWORK, FIXTURES AND APPLIANCES
- D4 DEMOLISH EXISTING TOILET AND TOILET ACCESSORIES
- D5 DEMOLISH EXISTING LAVATORY
- D6 DEMOLISH EXISTING SHOWER
- D7 DEMOLISH EXISTING SHELVING
- D9 EXISTING CEILING TO REMAIN
- D10 DEMOLISH EXISTING CEILING
- D17 OWNER TO COORDINATE SAFE REMOVAL AND STORAGE OF EXISTING TAXIDERMY AND FURNITURE DURING CONSTRUCTION.
- D21 DEMOLISH EXISTING FLOORING

DEMOLITION LEGEND

- EXISTING WALL TO REMAIN
- EXISTING WALL TO BE REMOVED IN ITS ENTIRETY
- PORTION OF EXISTING WALL TO BE DEMOLISHED TO RECEIVE NEW WORK (REFER TO NEW FLOOR PLANS)
- EXISTING DOOR TO REMAIN
- EXISTING DOOR AND HARDWARE TO BE REMOVED. FRAME TO REMAIN IN PLACE. REFER TO NEW WORK FLOOR PLANS FOR DOOR TAGS.
- EXISTING WALL, DOOR, FRAME AND HARDWARE TO BE REMOVED IN THEIR ENTIRETY
- EXISTING PLUMBING FIXTURES TO BE REMOVED
- DENOTES NEW OPENING IN EXISTING FLOOR SLAB (REFER TO STRUCTURAL AND PLUMBING)
- DENOTES EXISTING GYPSUM CEILING TO BE REMOVED

GRAPHIC SCALE(S)



BID SET
LAKE CRABTREE COUNTY PARK
IMPROVEMENTS

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



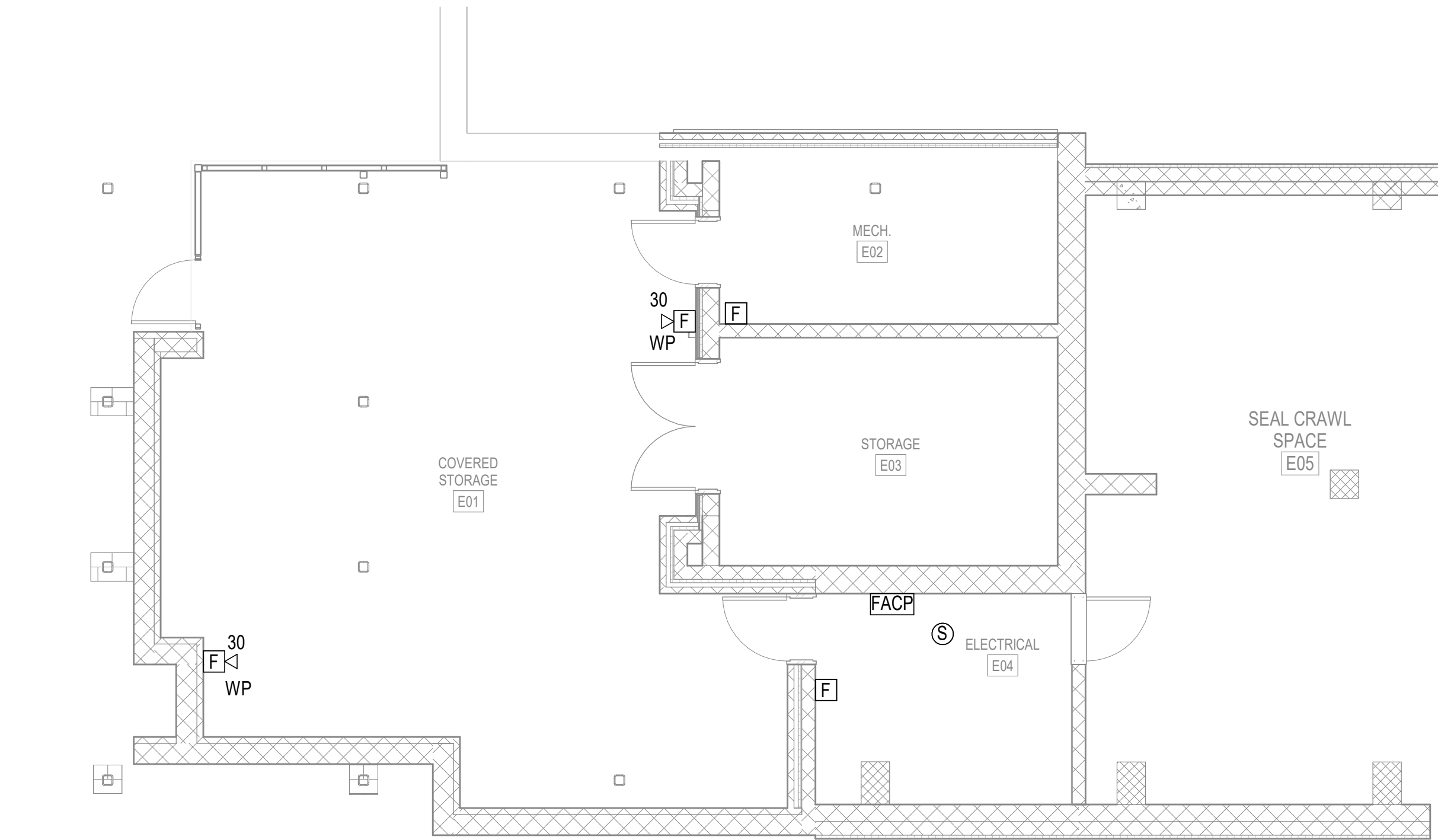
2026.08.28 13:18:12-04'00"

INITIAL PLAN DATE: 08/05/2026
REVISIONS:

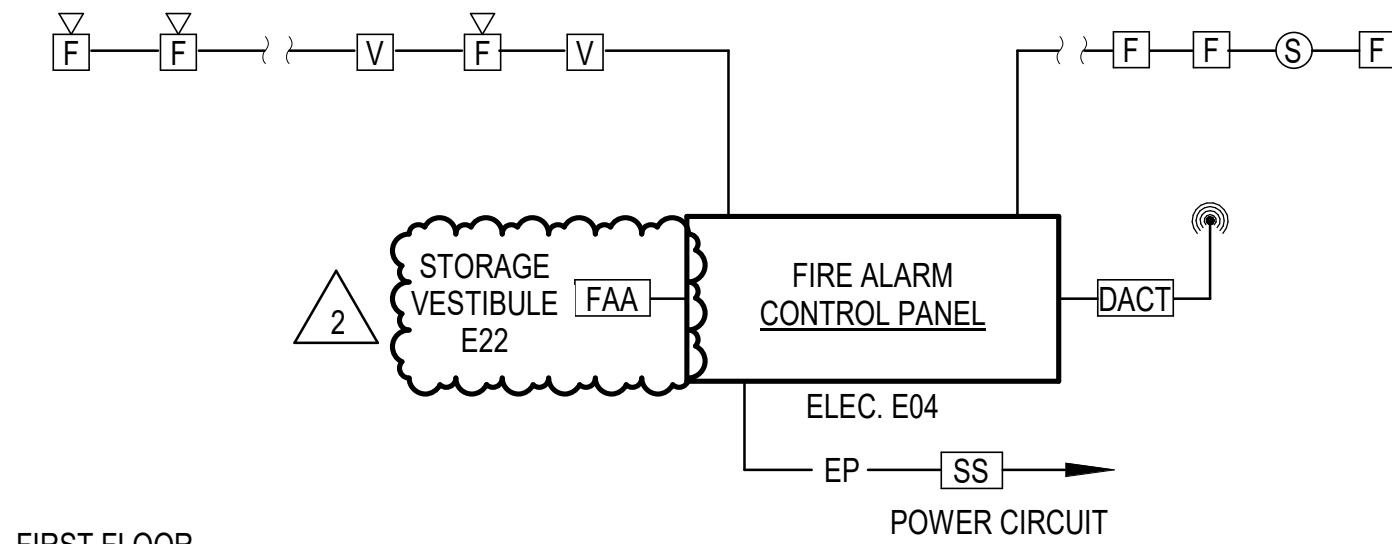
2 08/28/2026 ADDENDUM 2

WR JOB NUMBER 22-0024-007
DRN: TF DGN: BT CKD: JH

ADMIN BUILDING -
DEMOLITION PLANS



EDUCATION CENTER - BASEMENT FIRE ALARM PLAN
SCALE: 3/16" = 1'-0"

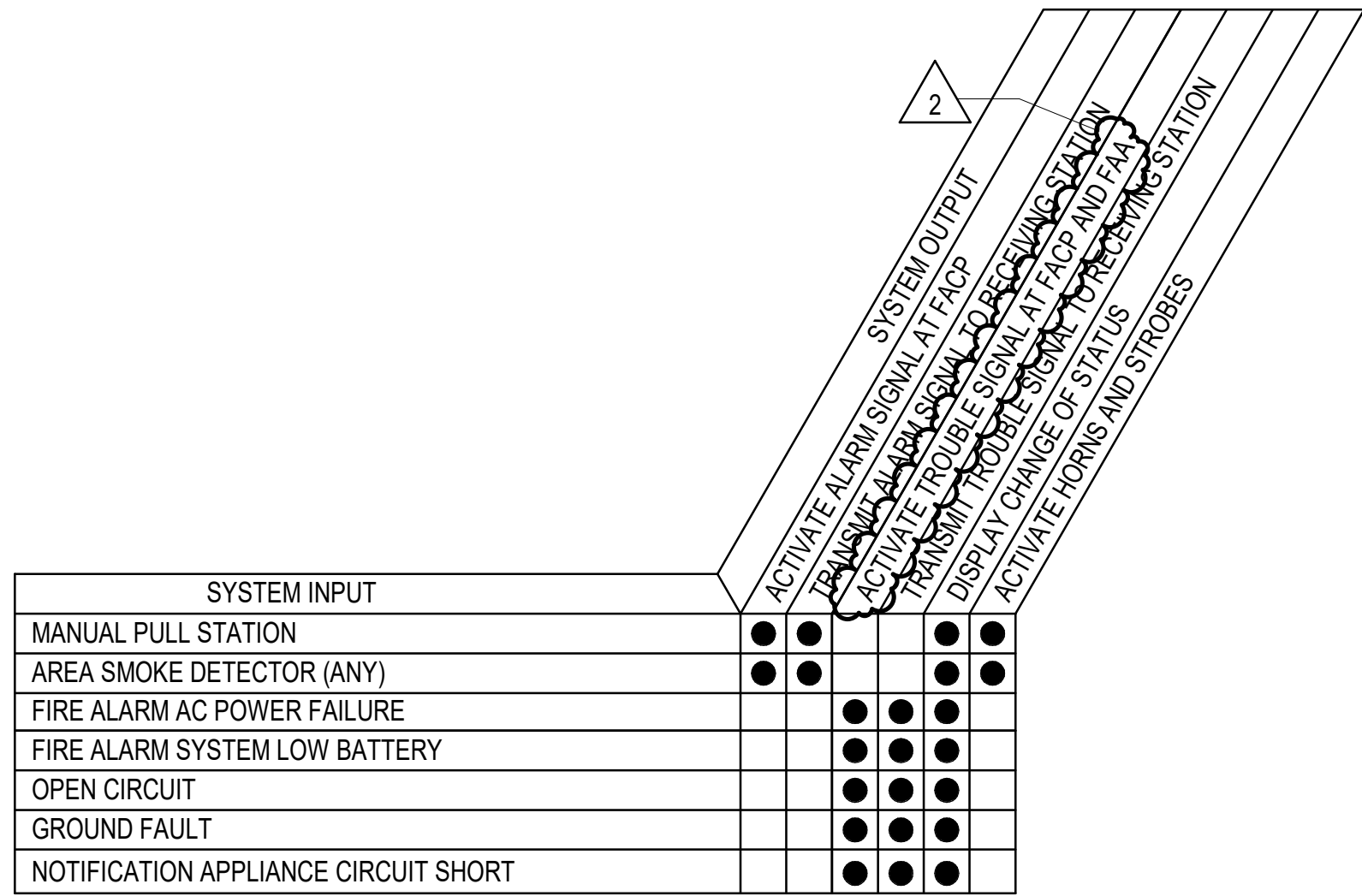


NOTES:

- PROVIDE HORN/STROBE CIRCUITS AS REQUIRED. NO CIRCUIT SHALL BE LOADED MORE THAN 75 PERCENT PRIOR TO FINAL INSPECTION TO ALLOW ADDITIONAL UNITS TO BE ADDED AS MAY BE REQUIRED BY LOCAL AUTHORITY. STROBES SHALL BE SYNCHRONIZED.
- RISER DIAGRAM IS FOR REFERENCE ONLY. DEVICE LOCATIONS AND QUANTITIES SHALL BE AS SHOWN ON THE FLOOR PLANS.

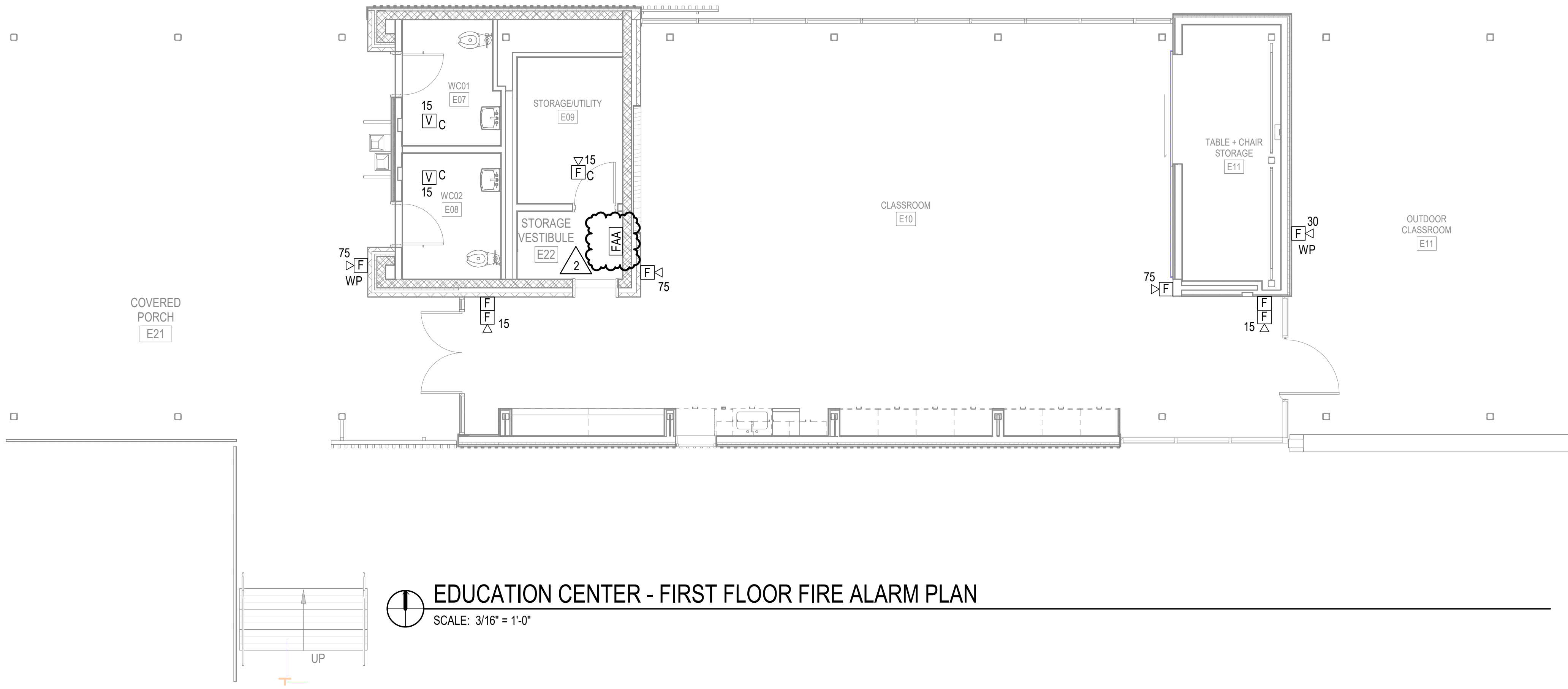
FIRE ALARM RISER DIAGRAM

NOT TO SCALE



FIRE ALARM SEQUENCE OF OPERATION
MATRIX

NOT TO SCALE



EDUCATION CENTER - FIRST FLOOR FIRE ALARM PLAN
SCALE: 3/16" = 1'-0"

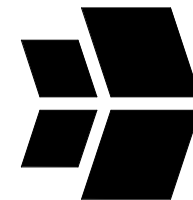
GENERAL NOTES

- FIRE ALARM SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72 - 2013 EDITION. PROVIDE WIRING AS RECOMMENDED BY MANUFACTURER. CONTRACTOR MUST SUBMIT SHOP DRAWINGS FOR REVIEW.
- COORDINATE FIRE ALARM SYSTEM WITH ALL TRADES TO ENSURE PROPER COMPLIANCE WITH CODES AND TO AVOID CONFLICTS.
- IN AREAS WITH LAY-IN CEILING TILES, INSTALL CEILING MOUNTED FIRE ALARM DEVICES CENTER OF TILE.

FIRE PROTECTION LEGEND

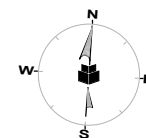
- XXX ROOM NUMBER IDENTIFICATION
- AFF ABOVE FINISHED FLOOR
- EP ELECTRICAL POWER (120V AC)
- C CEILING MOUNTED (SUBSCRIPT)
- FACP FIRE ALARM CONTROL PANEL
- FAA FIRE ALARM ANNUNCIATOR PANEL
- SS SURGE SUPPRESSION
- S SMOKE DETECTOR, CEILING MOUNTED
- F MANUAL PULL STATION, MOUNT 4'-0" AFF
- 15 V C STROBE UNIT W/ CANDELA RATING, CEILING MOUNTED
- 15 V STROBE UNIT W/ CANDELA RATING, WALL MOUNTED
- 15 F C HORN/STROBE UNIT W/ CANDELA RATING, WALL MOUNTED
- 15 F C HORN/STROBE UNIT W/ CANDELA RATING, CEILING MOUNTED

GRAPHIC SCALE(S)



LAKE CRABTREE COUNTY PARK
IMPROVEMENTS

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



INITIAL PLAN DATE: 08/05/2026
REVISIONS:

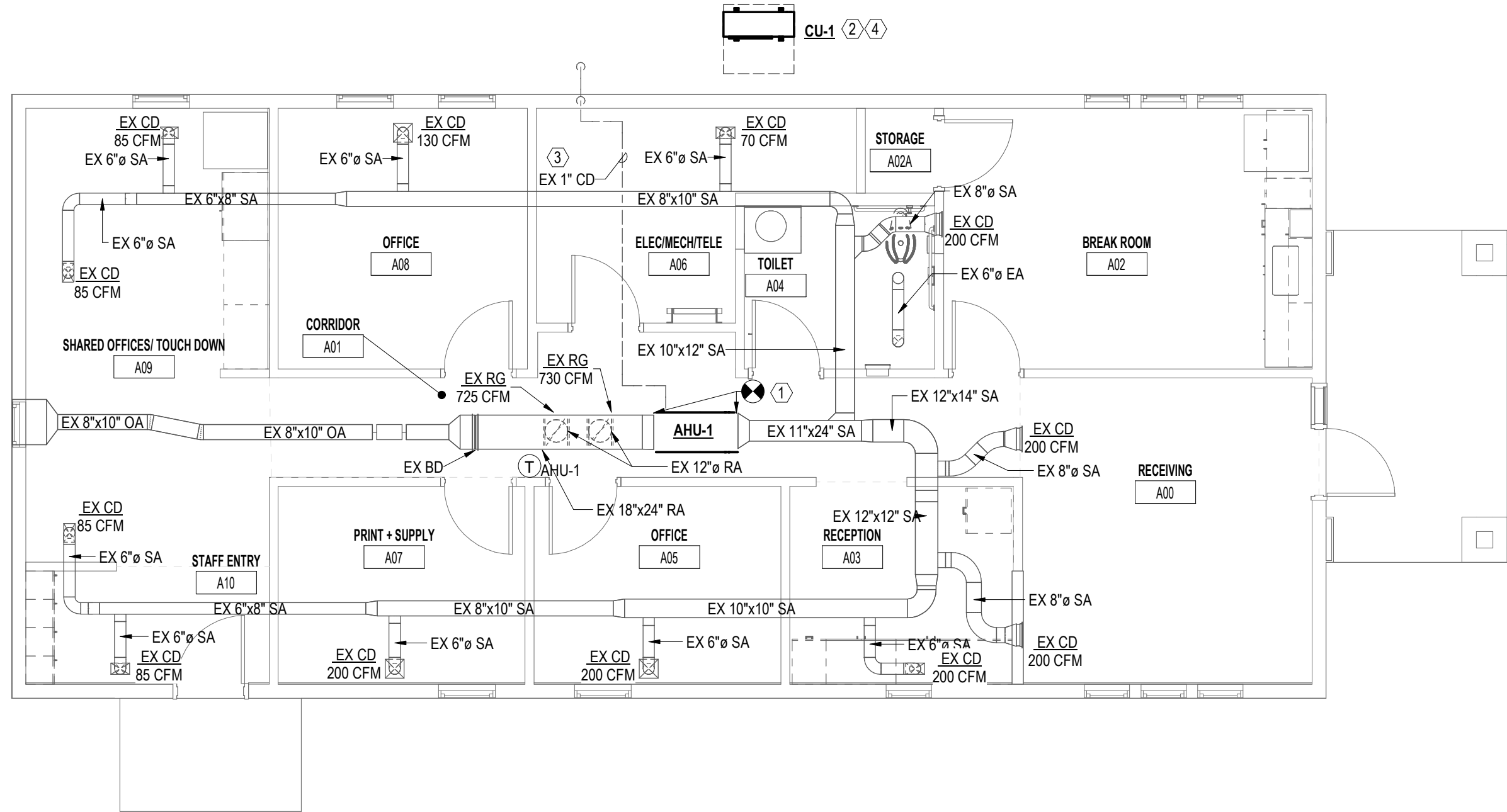
2 08/28/26 ADDENDUM 2

WR JOB NUMBER 22-0024-007
DRN: EVA DGN: EVA CKD: WM

EDUCATION CENTER -
FIRE ALARM PLAN -
ALT F-01

F4.11.A

8/26/2026 3:29:40 PM
Autodesk Docs/Lake Crabtree County Park/10187-B_Maint & Admin Bldg_ME25.rvt



1 ADMIN BUILDING - MECHANICAL PLAN
SCALE: 3/16" = 1'-0"

2' 0' 2' 4' 6'
SCALE: 3/16" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (—) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (—) SHALL BE EXISTING.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET M00-001 FOR MECHANICAL LEGEND AND GENERAL NOTES.

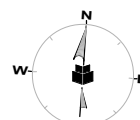
KEYNOTES:

1. INSTALL NEW 4 TON HEAT PUMP UNIT TO MATCH EXISTING AND PERFORM TESTING, ADJUSTING, AND BALANCING (TAB) ON ALL ASSOCIATED DIFFUSERS AND GRILLES TO ENSURE DESIGN AIRFLOW AND PERFORMANCE.
2. INSTALL NEW CONDENSING UNIT AS INDICATED ON DRAWINGS. COORDINATE LOCATION, CLEARANCES, AND SUPPORT REQUIREMENTS WITH ARCHITECTURAL PLANS AND DETAILS PRIOR TO INSTALLATION.
3. CONTRACTOR SHALL VERIFY EXISTING CONDENSATE PIPING IS CLEAR, PROPERLY SLOPED, TRAPPED, AND CODE COMPLIANT. REPLACE ANY PORTIONS FOUND DEFICIENT. ROUTE CONDENSATE TO EXISTING FRENCH DRAIN OR APPROVED DISPOSAL LOCATION.
4. CONTRACTOR SHALL ROUTE AND COORDINATE REFRIGERANT (R/SRL) PIPING FROM AHU TO CONDENSING UNIT. PROVIDE LOW REFRIGERANT CUT OFF SWITCH & ALARM. VERIFY FINAL PATH IN FIELD AND AVOID CONFLICTS WITH ELECTRICAL PANELS, STRUCTURE, AND OTHER SYSTEMS. UTILIZE EXISTING ROUTING PATHS AND BUILDING PENETRATIONS WHERE POSSIBLE. COORDINATE WITH EXISTING CONDITIONS AND MINIMIZE NEW PENETRATIONS.



BID SET
LAKE CRABTREE COUNTY PARK
IMPROVEMENTS

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



INITIAL PLAN DATE: 08/05/2026
REVISIONS:

2 08/28/2026 ADDENDUM 2

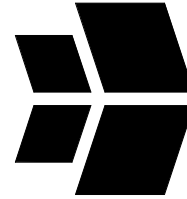
WR JOB NUMBER 22-0024-007
DRN: KM DGN: HCB CKD: BW

ADMIN BUILDING -
MECHANICAL PLAN

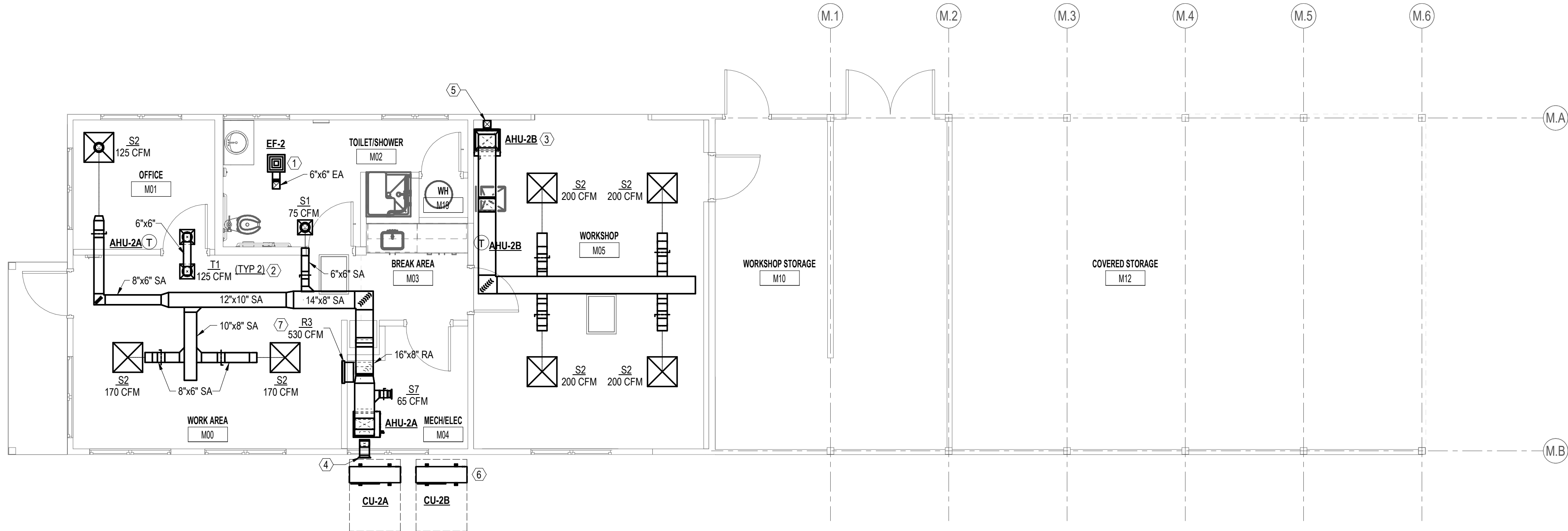
M2.10

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | T: 919.469.3340 | www.withersravenel.com

CLARK NEXSEN - NC
A DIVISION OF JOHNSON, MIRMIRAN & THOMPSON, INC.
License #: F-3097



8/26/2026 3:29:41 PM
Autodesk Docs\\Lake Crabtree County Park\\10187-B_Maint & Admin Bldg_ME25.rvt



1 MAINTENANCE BUILDING - MECHANICAL PLAN - BASE BID
SCALE: 3/16" = 1'-0"

GENERAL SHEET NOTES:

- INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
- UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (—) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (—) SHALL BE EXISTING.
- DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET M00-001 FOR MECHANICAL LEGEND AND GENERAL NOTES.

KEYNOTES:

- EXHAUST AIR TO BE ROUTED THROUGH EXISTING DUCTWORK. CONTRACTOR TO VERIFY CONDITION AND REUSE WHERE SUITABLE. REPLACE DUCTWORK AS REQUIRED IF EXISTING IS DAMAGED OR NONCOMPLIANT.
- PROVIDE TRANSFER AIR FROM OFFICE TO WORK AREA TO MAINTAIN AIR BALANCE. AIR SHALL FLOW FROM OFFICE AND RETURN TO WORK AREA.
- PROVIDE UNIT RETURN FROM WORKSHOP AREA TO AIR HANDLING UNIT MIXING BOX FOR MIXING WITH OUTDOOR AIR.
- PROVIDE LOUVER WITH MINIMUM 0.30 SQUARE FEET FREE AREA FOR 100 CFM OUTSIDE AIR INTAKE.
- PROVIDE ROOF-MOUNTED OUTSIDE AIR INTAKE LOUVER WITH MINIMUM 0.30 SQUARE FEET FREE AREA PER 100 CFM OF OUTSIDE AIR. LOCATE AND ORIENT INTAKE TO MINIMIZE CONTAMINATION FROM VEHICLE EXHAUST AND OTHER GROUND-LEVEL POLLUTANTS.
- CONDENSING UNITS SHALL BE MOUNTED ON EQUIPMENT PAD. COORDINATE PAD SIZE, SUPPORT REQUIREMENTS, AND INSTALLATION WITH STRUCTURAL AND ARCHITECTURAL. CONTRACTOR SHALL ROUTE AND COORDINATE REFRIGERANT (RS/RL) PIPING FROM AHU TO CONDENSING UNIT. PROVIDE LOW REFRIGERANT CUT OFF SWITCH & ALARM. VERIFY FINAL PATH IN FIELD AND AVOID CONFLICTS WITH ELECTRICAL PANELS, STRUCTURE, AND OTHER SYSTEMS.
- RETURN DIFFUSER TO BE MOUNTED APPROXIMATELY 1'-0" ABOVE FINISHED FLOOR AND DUCTED BACK TO AHU-2A.

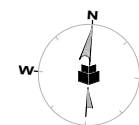
2' 0' 2' 4' 6'
SCALE: 3/16" = 1'-0"



LAKE CRABTREE COUNTY PARK IMPROVEMENTS

BID SET

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



INITIAL PLAN DATE: 08/05/2026
REVISIONS:

2 08/28/2026 ADDENDUM 2

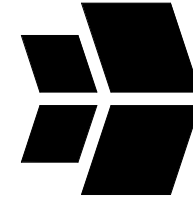
WR JOB NUMBER 22-0024-007
DRN: KM DGN: HCB CKD: BW

MAINTENANCE
BUILDING -
MECHANICAL PLAN -
BASE BID

M3.10

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | T: 919.469.3340 | www.withersravenel.com

CLARK NEXSEN - NC
A DIVISION OF JOHNSON, MIRMIRAN & THOMPSON, INC.
License #: F-3097

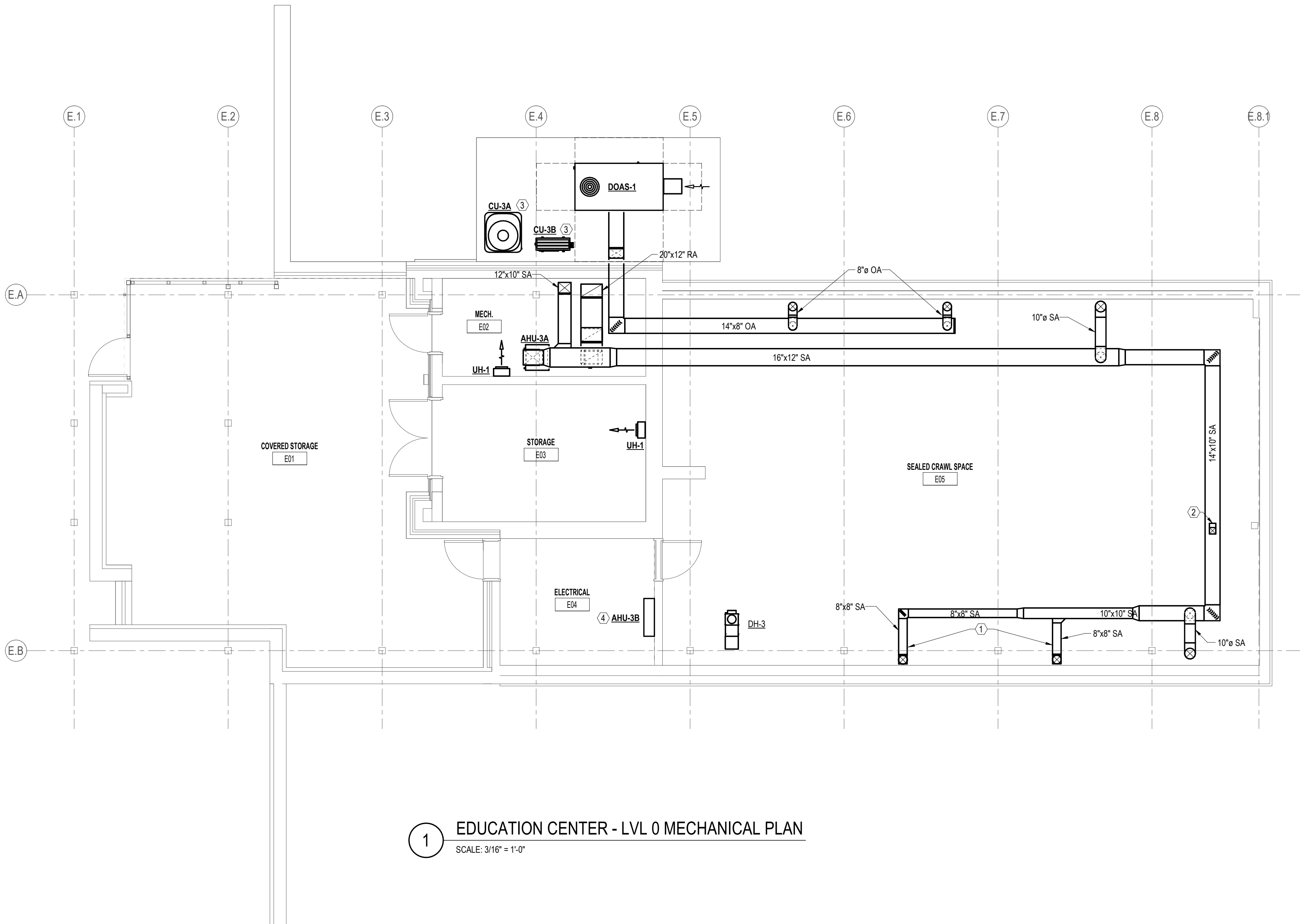


GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, MECHANICAL/PLUMBING ITEMS SHOWN HEAVY SOLID (—) SHALL BE NEW WORK AND MECHANICAL/PLUMBING ITEMS SHOWN LIGHT SOLID (—) SHALL BE EXISTING.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET M00-001 FOR MECHANICAL LEGEND AND GENERAL NOTES.

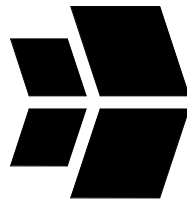
KEYNOTES:

1. SUPPLY AIR THROUGH A TOE KICK DIFFUSER UNDER THE COUNTERSPACES IN THE CLASSROOM.
2. SUPPLY AIR THROUGH CRAWL SPACE TO STORAGE ROOM. THE DIFFUSER SHALL BE PLACED AS HIGH AS POSSIBLE.
3. COORDINATE WITH ARCHITECTURAL AND STRUCTURAL DISCIPLINES FOR FINAL LOCATION OF OUTDOOR HEAT PUMP SPLIT-SYSTEM UNIT.
4. ROUTE CONDENSATE DRAIN TO EXTERIOR. CONTRACTOR SHALL PROVIDE AND COORDINATE PIPING TO NEAREST APPROVED DISCHARGE LOCATION. CONTRACTOR SHALL ROUTE AND COORDINATE REFRIGERANT (RS/RL) PIPING FROM AHU TO CONDENSING UNIT. PROVIDE LOW REFRIGERANT CUT OFF SWITCH & ALARM. VERIFY FINAL PATH IN FIELD AND AVOID CONFLICTS WITH ELECTRICAL PANELS, STRUCTURE, AND OTHER SYSTEMS.



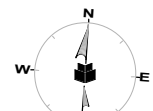
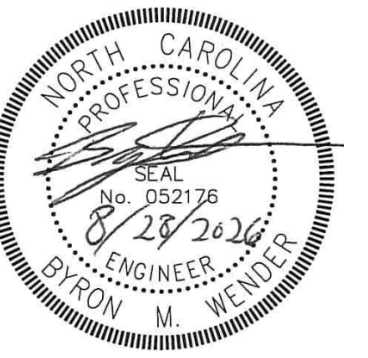
1 EDUCATION CENTER - LVL 0 MECHANICAL PLAN
SCALE: 3/16" = 1'-0"

2' 0' 2' 4' 6'
SCALE: 3/16" = 1'-0"



BID SET
LAKE CRABTREE COUNTY PARK
IMPROVEMENTS

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



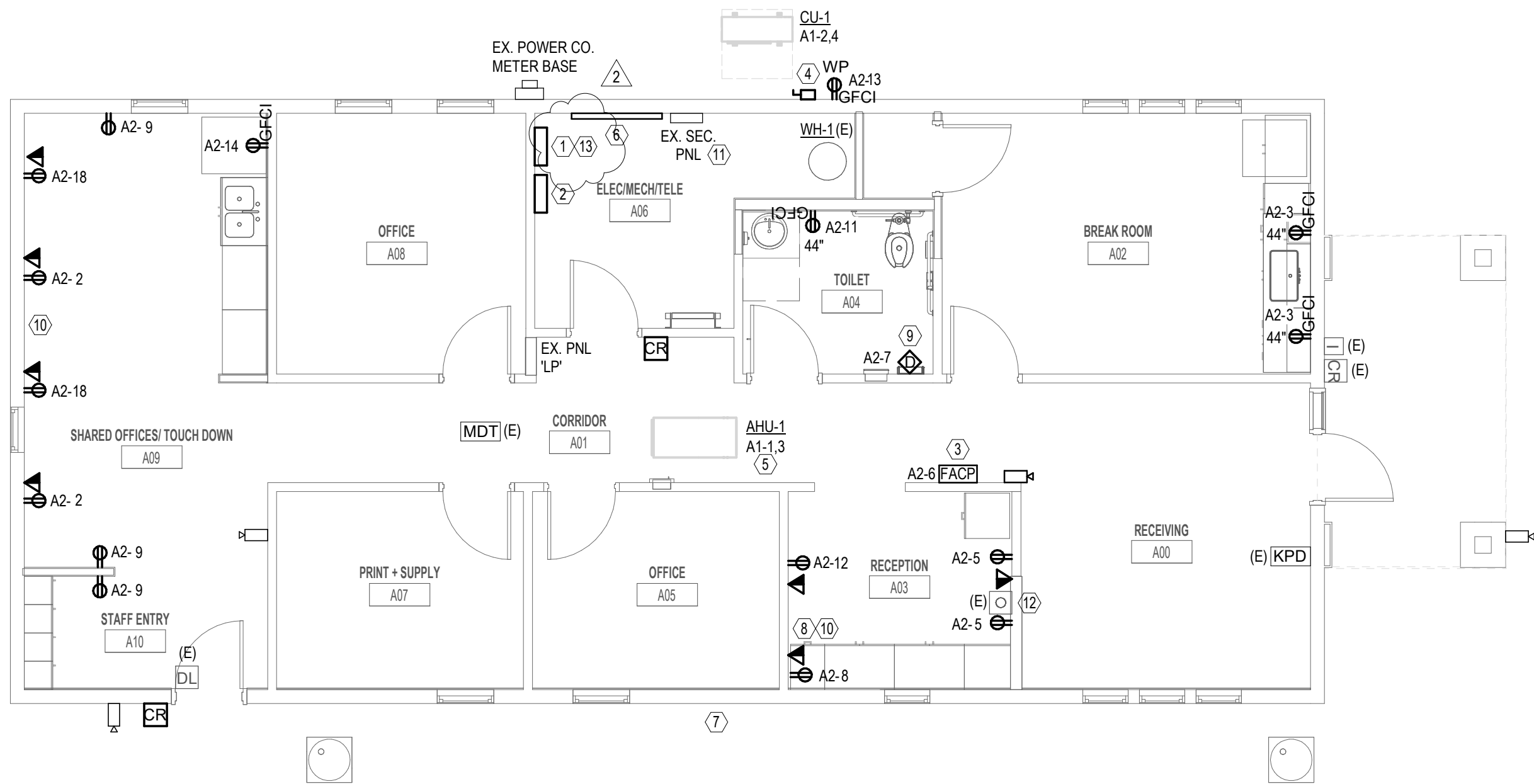
INITIAL PLAN DATE: 08/05/2026
REVISIONS:

2 08/28/2026 ADDENDUM 2

WR JOB NUMBER 22-0024-007
DRN: KM DGN: HCB CKD: BW

EDUCATION CENTER -
LVL 0 MECHANICAL
PLAN

M4.10



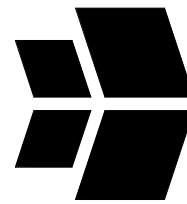
1 ADMIN BUILDING - ELECTRICAL POWER PLAN
SCALE: 3/16" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (—) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (---) SHALL BE EXISTING TO REMAIN.

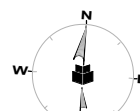
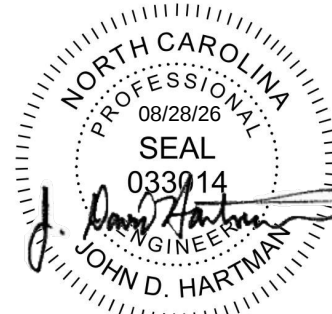
SHEET KEYNOTES:

1. PROVIDE 120/240V-1PH-200A 42 SPACE PANELBOARD 'A1'. EXTEND EXISTING CONDUCTORS AND CONDUIT AS NECESSARY FROM SPLICE BOX TO REFEED BRANCH CIRCUITS. PROVIDE FEEDER CONDUCTORS IN CONDUIT FROM THE EXISTING METER BASE TO SERVE PANELBOARD. PANELBOARD SHALL BE SERVICE ENTRANCE RATED AND LABELED.
2. PROVIDE 120/240V-1PH-100A 42 SPACE PANELBOARD 'A2'. PANEL SHALL BE SUB-FED FROM PANELBOARD 'A1'.
3. PROVIDE POWER CONNECTION TO FIRE ALARM CONTROL PANEL BY FIRE PROTECTION TRADE.
4. PROVIDE NEMA-3R RATED 2P-60A HEAVY-DUTY FUSED DISCONNECT SWITCH FUSED PER MANUFACTURER'S INSTRUCTIONS FOR CONDENSING UNIT BY MECHANICAL TRADE. FINAL CONNECTION TO EQUIPMENT SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
5. PROVIDE 2P-30A HEAVY-DUTY FUSED DISCONNECT SWITCH FUSED PER MANUFACTURER'S INSTRUCTIONS FOR AIR HANDLING UNIT BY MECHANICAL TRADE. MOUNT AT SAME HEIGHT AS EQUIPMENT. FINAL CONNECTION TO EQUIPMENT SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
6. TELECOM PLYWOOD BOARD IS EXISTING TO REMAIN.
7. PROVIDE 120V-20A GFCI RECEPTACLES WITH WEATHERPROOF COVERS IN SAME LOCATIONS AS EXTERIOR RECEPTACLES REMOVED DURING DEMOLITION. UTILIZE EXISTING CONDUCTORS AND CONDUIT RETAINED FROM DEMOLITION. PROVIDE NEW 1P-20A BREAKERS AS NECESSARY IN PANEL 'A2' TO POWER NEW RECEPTACLES.
8. PROVIDE DEDICATED 120V-20A RECEPTACLE FOR COPIER BY OWNER.
9. PROVIDE DEDICATED 120V-20A RECEPTACLE OR DIRECT CONNECTION AS REQUIRED FOR HAND DRYER BY OTHERS.
10. COORDINATE FINAL HEIGHT AND LOCATION OF WORKSTATION RECEPTACLES AND DATA OUTLET BOXES WITH CASEWORK BY OWNER.
11. TERMINATE SECURITY EQUIPMENT CONDUITS WITH CAP AND NYLON PULL STRING AT THIS LOCATION FOR FUTURE SECURITY EQUIPMENT INSTALLATION BY OWNER.
12. DURESS BUTTON AND LATCH RELEASE CONTROL AT RECEPTION DESK IS EXISTING TO REMAIN.
13. COORDINATE WITH POWER CO. TO DETERMINE AVAILABLE FAULT CURRENT AT SERVICE ENTRANCE LOCATION. FIELD MARKINGS ON THE EQUIPMENT SHALL INDICATE THE AVAILABLE FAULT CURRENT AT THE EQUIPMENT AND DATE FAULT CURRENT CALCULATION WAS PERFORMED.



BID SET
**LAKE CRABTREE COUNTY PARK
IMPROVEMENTS**

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



INITIAL PLAN DATE: 08/05/2026
REVISIONS:

2 08/28/2026 ADDENDUM 2

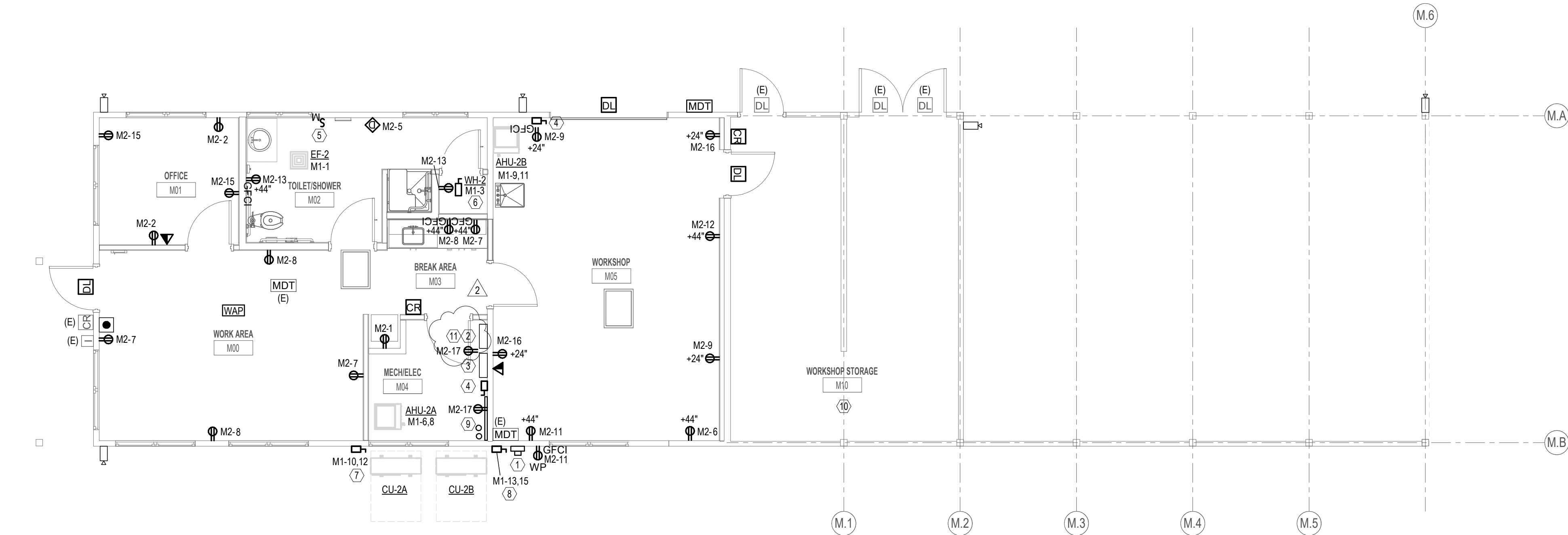
WR JOB NUMBER 22-0024-007
DRN: MJC DGN: MLC CKD: JDH

ADMIN BUILDING -
ELECTRICAL POWER
PLAN

2' 0' 2' 4' 6'
SCALE: 3/16" = 1'-0"

E2.11

8/26/2026 11:17:59 AM
Autodesk Docs/Lake Crabtree County Park/10187-B_Maint & Admin Bldg_ME25.rvt



1 MAINTENANCE BUILDING - ELECTRICAL POWER PLAN - BASE BID
SCALE: 3/16" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (—) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (---) SHALL BE EXISTING TO REMAIN.

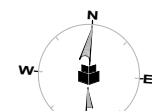
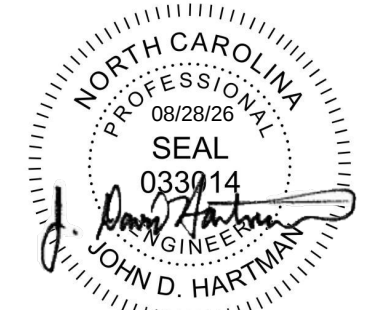
SHEET KEYNOTES:

1. PROVIDE 400A METER BASE, PROVIDE 4" UNDERGROUND CONDUIT TO POWER CO. SOURCE APPROXIMATELY 150 FEET FROM NEW METER BASE FOR SERVICE ENTRANCE CONDUCTORS BY POWER CO.
2. PROVIDE 120/240V-1PH-400A 42 SPACE PANELBOARD 'M1'. PANELBOARD SHALL BE SERVICE ENTRANCE RATED AND LABELED.
3. PROVIDE 120/240V-1PH-200A 42 SPACE PANELBOARD 'M2'. PANELBOARD SHALL BE SUB-FED FROM PANELBOARD 'M1'.
4. PROVIDE 2P-30A HEAVY-DUTY FUSED DISCONNECT SWITCH FUSED PER MANUFACTURER'S INSTRUCTIONS TO SERVE AIR HANDLING UNIT BY MECHANICAL TRADE. FINAL CONNECTION SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
5. PROVIDE 120V-20A RATED MOTOR PROTECTIVE SWITCH FOR DISCONNECTING MEANS TO EXHAUST FAN BY MECHANICAL TRADE. FINAL CONNECTION TO EQUIPMENT SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
6. PROVIDE 2P-60A HEAVY-DUTY FUSED DISCONNECT SWITCH FUSED PER MANUFACTURER'S INSTRUCTIONS IN SAME VERTICAL WALL SPACE AS RECEPTACLE TO SERVE WATER HEATER BY MECHANICAL TRADE. FINAL CONNECTION SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
7. PROVIDE NEMA-3R RATED 2P-30A HEAVY-DUTY FUSED DISCONNECT SWITCH FUSED PER MANUFACTURER'S INSTRUCTIONS TO SERVE CONDENSING UNIT BY MECHANICAL TRADE. FINAL CONNECTION SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
8. PROVIDE NEMA-3R RATED 2P-60A HEAVY-DUTY FUSED DISCONNECT SWITCH FUSED PER MANUFACTURER'S INSTRUCTIONS TO SERVE CONDENSING UNIT BY MECHANICAL TRADE. FINAL CONNECTION SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
9. PROVIDE 3' X 4' PLYWOOD BOARD FOR MOUNTING OF TELECOM EQUIPMENT BY OWNER. REINSTALL SECURITY PANEL IN THIS LOCATION. PROVIDE 2-2" EMPTY PVC CONDUIT WITH NYLON PULL STRING FROM BUILDING EXTERIOR TO TELECOM PANEL FOR ROUTING OF FUTURE TELECOM WIRING BY OWNER. TERMINATE SECURITY EQUIPMENT CONDUITS WITH CAP AND NYLON PULL STRING AT THIS LOCATION FOR FUTURE SECURITY EQUIPMENT INSTALLATION BY OWNER.
10. IF ALTERNATE IS NOT ACCEPTED, CONNECT EXISTING POWER DEVICES RETAINED FROM DEMOLITION TO NEW PANELBOARD 'M2' UTILIZING SPARE 1P-20A BREAKERS WITH CONDUCTORS AND CONDUIT SIZING PER NFPA 70.
11. COORDINATE WITH POWER CO. TO DETERMINE AVAILABLE FAULT CURRENT AT SERVICE ENTRANCE LOCATION. FIELD MARKINGS ON THE EQUIPMENT SHALL INDICATE THE AVAILABLE FAULT CURRENT AT THE EQUIPMENT AND DATE FAULT CURRENT CALCULATION WAS PERFORMED.

2' 0' 2' 4' 6'
SCALE: 3/16" = 1'-0"

WR JOB NUMBER 22-0024-007
DRN: MLC DGN: MLC CKD: JDH
MAINT. BUILDING -
ELECTRICAL POWER
PLAN BASE BID

E3.11

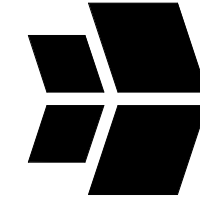


INITIAL PLAN DATE: 08/05/2026
REVISIONS:

2 08/28/2026 ADDENDUM 2

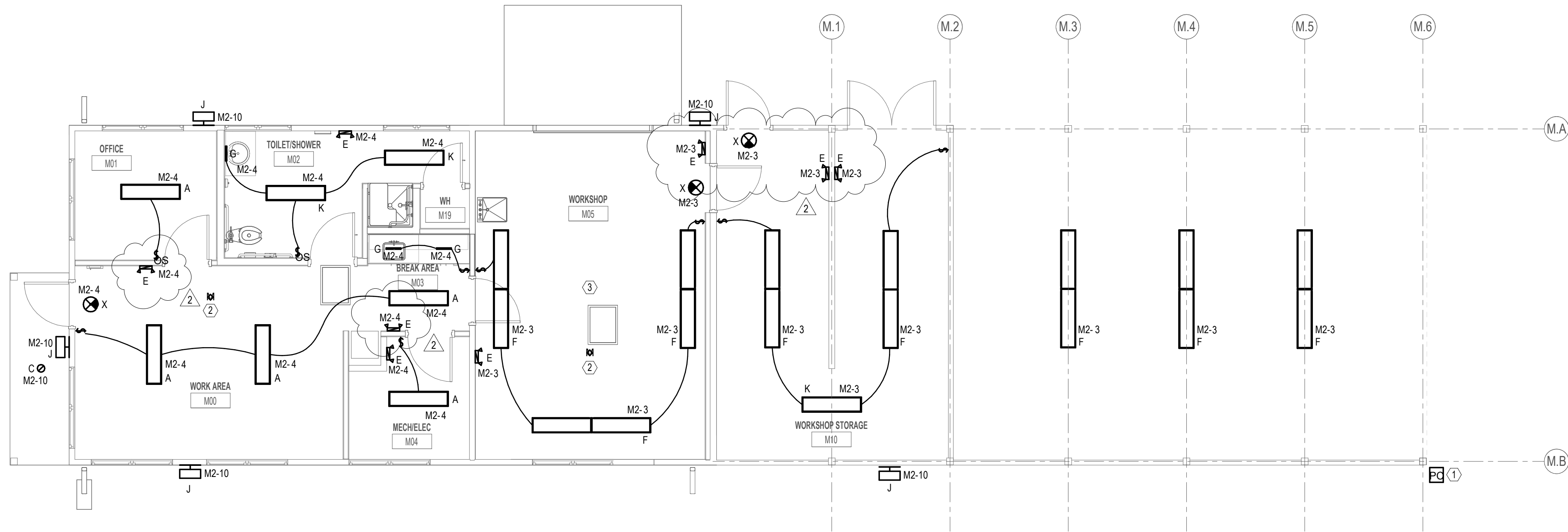
LAKE CRABTREE COUNTY PARK
IMPROVEMENTS

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | T: 919.469.3340 | www.withersravenel.com
CLARK NEXSEN - NC
A DIVISION OF JOHNSON, MIRMIRAN & THOMPSON, INC.
License #: F-3097

8/26/2026 11:15:00 AM
Autodesk Docs/Lake Crabtree County Park/10187-B_Maint & Admin Bldg_ME25.rvt



1 MAINTENANCE BUILDING - ELECTRICAL LIGHTING PLAN - BASE BID
SCALE: 3/16" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (—) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (---) SHALL BE EXISTING TO REMAIN.

SHEET KEYNOTES:

- ① PHOTOCELL SHALL BE MOUNTED FACING NORTH AND AWAY FROM DIRECT LIGHT SOURCES. PHOTOCELL SHALL CONTROL ALL EXTERIOR LIGHT FIXTURES.
- ② OCCUPANCY SENSORS SHALL TURN ON ALL LIGHTS IN THE SPACE UPON DETECTION, AND TURN OFF LIGHT FIXTURES IN THE SPACE AFTER 20 MINUTES OF INACTIVITY. LIGHT SWITCH(ES) IN THE SPACE TO PROVIDE MANUAL OVERRIDE.
- ③ UTILIZE EXISTING CONDUIT RETAINED FROM DEMOLITION IF APPLICABLE OR PROVIDE NEW CONDUIT FOR INSTALLATION OF ALL NEW LIGHT FIXTURE CONDUCTORS IN THIS BUILDING.

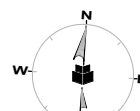
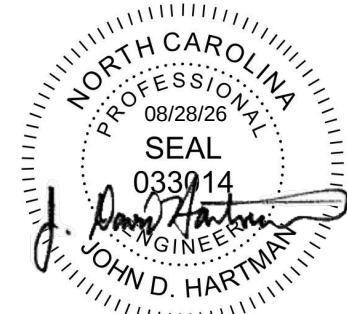
2' 0' 2' 4' 6'
SCALE: 3/16" = 1'-0"



LAKE CRABTREE COUNTY PARK IMPROVEMENTS

BID SET

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



INITIAL PLAN DATE: 08/05/2026
REVISIONS:

2 08/28/2026 ADDENDUM 2

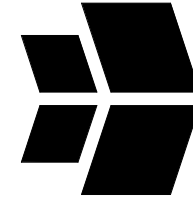
WR JOB NUMBER 22-0024-007
DRN: MLC DGN: MLC CKD: JDH

MAINT. BUILDING -
ELECTRICAL LIGHTING
PLAN BASE BID

E3.12

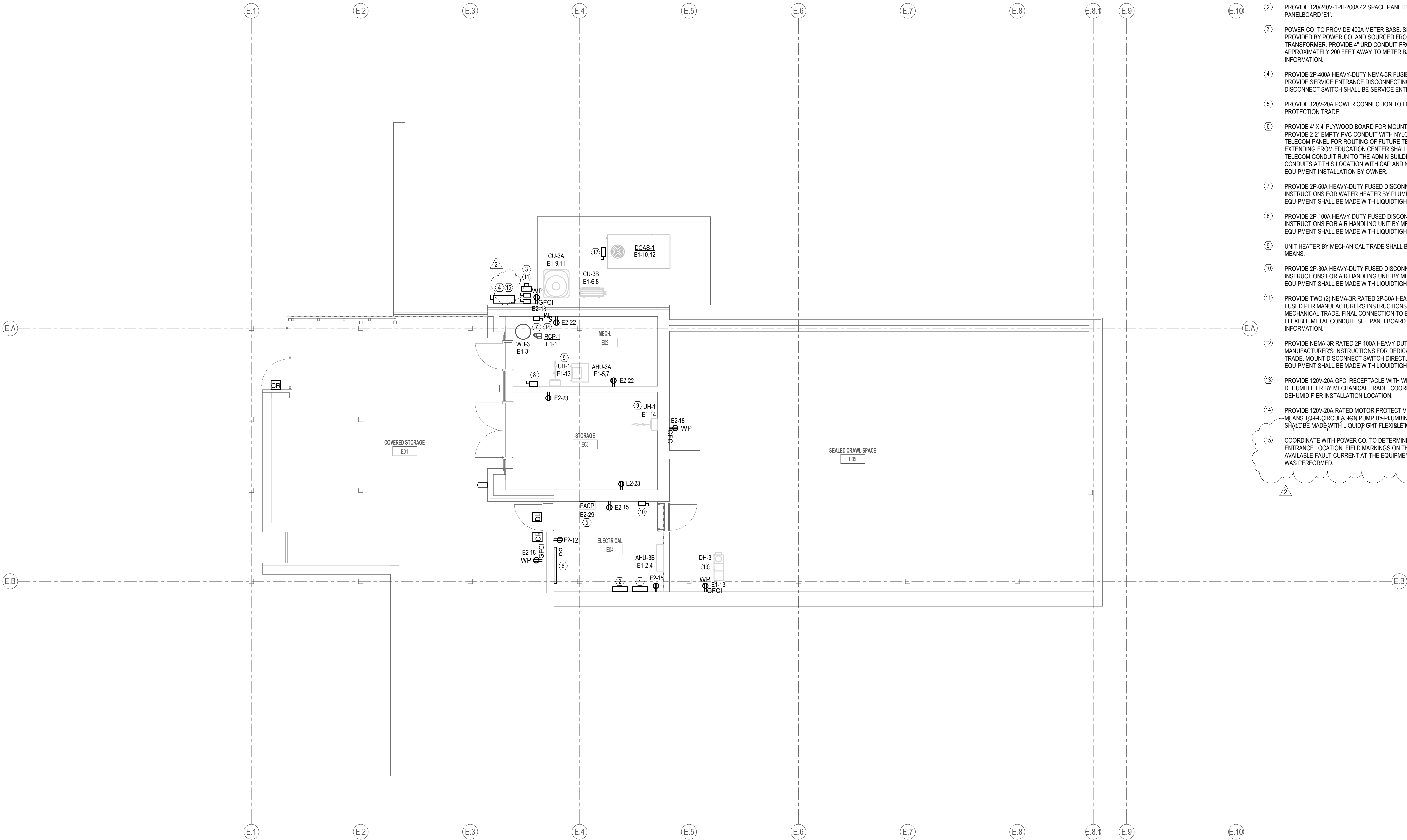
WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | T: 919.469.3340 | www.withersravenel.com

CLARK NEXSEN - NC
A DIVISION OF JOHNSON, MIRMIRAN & THOMPSON, INC.
License #: F-3097

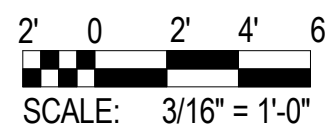


our people • your success

8/26/2026 11:23:45 AM
Autodesk Docs/Lake Crabtree County Park/10187-B_Education Cntr_MEP25.rvt



1 EDUCATION CENTER - LVL 0 ELECTRICAL POWER PLAN
SCALE: 3/16" = 1'-0"

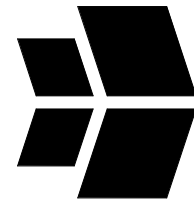


GENERAL SHEET NOTES:

- INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
- UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (—) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (---) SHALL BE EXISTING TO REMAIN.

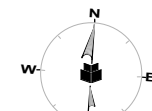
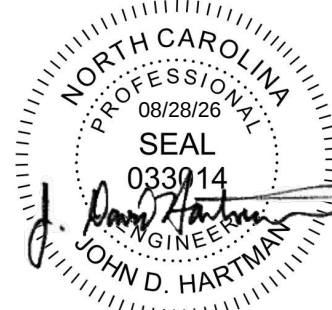
SHEET KEYNOTES:

- PROVIDE 120/240V-1PH-400A 42 SPACE PANELBOARD 'E1'. PANEL SHALL BE SERVICE ENTRANCE RATED AND LABELED.
- PROVIDE 120/240V-1PH-200A 42 SPACE PANELBOARD 'E2'. PANEL SHALL BE SUB-FED FROM PANELBOARD 'E1'.
- POWER CO. TO PROVIDE 400A METER BASE. SERVICE ENTRANCE CONDUCTORS TO BE PROVIDED BY POWER CO. AND SOURCED FROM NEW POWER CO. OWNED PADMOUNT TRANSFORMER. PROVIDE 4" URD CONDUIT FROM POWER CO. TRANSFORMER APPROXIMATELY 200 FEET AWAY TO METER BASE. SEE RISER DIAGRAM FOR MORE INFORMATION.
- PROVIDE 2P-400A HEAVY-DUTY NEMA-3R FUSIBLE DISCONNECT SWITCH, FUSED AT 400A, TO PROVIDE SERVICE ENTRANCE DISCONNECTING MEANS TO THE EDUCATION CENTER. DISCONNECT SWITCH SHALL BE SERVICE ENTRANCE RATED AND LABELED.
- PROVIDE 120V-20A POWER CONNECTION TO FIRE ALARM CONTROL PANEL BY FIRE PROTECTION TRADE.
- PROVIDE 4' X 4' PLYWOOD BOARD FOR MOUNTING OF TELECOM EQUIPMENT BY OWNER. PROVIDE 2-2" EMPTY PVC CONDUIT WITH NYLON PULL STRING FROM BUILDING EXTERIOR TO TELECOM PANEL FOR ROUTING OF FUTURE TELECOM WIRING BY OTHERS. EMPTY CONDUIT EXTENDING FROM EDUCATION CENTER SHALL CONNECT TO EXISTING UNDERGROUND TELECOM CONDUIT RUN TO THE ADMIN BUILDING. TERMINATE SECURITY EQUIPMENT CONDUITS AT THIS LOCATION WITH CAP AND NYLON PULL STRING FOR FUTURE SECURITY EQUIPMENT INSTALLATION BY OWNER.
- PROVIDE 2P-60A HEAVY-DUTY FUSED DISCONNECT SWITCH FUSED PER MANUFACTURER'S INSTRUCTIONS FOR WATER HEATER BY PLUMBING TRADE. FINAL CONNECTION TO EQUIPMENT SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
- PROVIDE 2P-100A HEAVY-DUTY FUSED DISCONNECT SWITCH FUSED PER MANUFACTURER'S INSTRUCTIONS FOR AIR HANDLING UNIT BY MECHANICAL TRADE. FINAL CONNECTION TO EQUIPMENT SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
- UNIT HEATER BY MECHANICAL TRADE SHALL BE PROVIDED WITH INTEGRAL DISCONNECTING MEANS.
- PROVIDE 2P-30A HEAVY-DUTY FUSED DISCONNECT SWITCH FUSED PER MANUFACTURER'S INSTRUCTIONS FOR AIR HANDLING UNIT BY MECHANICAL TRADE. FINAL CONNECTION TO EQUIPMENT SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
- PROVIDE TWO (2) NEMA-3R RATED 2P-30A HEAVY-DUTY FUSED DISCONNECT SWITCHES FUSED PER MANUFACTURER'S INSTRUCTIONS FOR CONDENSING UNITS CU-3A AND CU-3B BY MECHANICAL TRADE. FINAL CONNECTION TO EQUIPMENT SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT. SEE PANELBOARD SCHEDULE AND RISER DIAGRAM FOR MORE INFORMATION.
- PROVIDE NEMA-3R RATED 2P-100A HEAVY-DUTY FUSED DISCONNECT SWITCH FUSED PER MANUFACTURER'S INSTRUCTIONS FOR DEDICATED OUTDOOR AIR SYSTEM BY MECHANICAL TRADE. MOUNT DISCONNECT SWITCH DIRECTLY ON UNIT. FINAL CONNECTION TO EQUIPMENT SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
- PROVIDE 120V-20A GFCI RECEPTACLE WITH WEATHERPROOF COVER FOR CONNECTION TO DEHUMIDIFIER BY MECHANICAL TRADE. COORDINATE FINAL RECEPTACLE LOCATION WITH DEHUMIDIFIER INSTALLATION LOCATION.
- PROVIDE 120V-20A RATED MOTOR PROTECTIVE SWITCH TO PROVIDE DISCONNECTING MEANS TO RECIRCULATION PUMP BY PLUMBING TRADE. FINAL CONNECTION TO EQUIPMENT SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
- COORDINATE WITH POWER CO. TO DETERMINE AVAILABLE FAULT CURRENT AT SERVICE ENTRANCE LOCATION. FIELD MARKINGS ON THE EQUIPMENT SHALL INDICATE THE AVAILABLE FAULT CURRENT AT THE EQUIPMENT AND DATE FAULT CURRENT CALCULATION WAS PERFORMED.



BID SET
LAKE CRABTREE COUNTY PARK
IMPROVEMENTS

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



INITIAL PLAN DATE: 08/05/2026
REVISIONS:

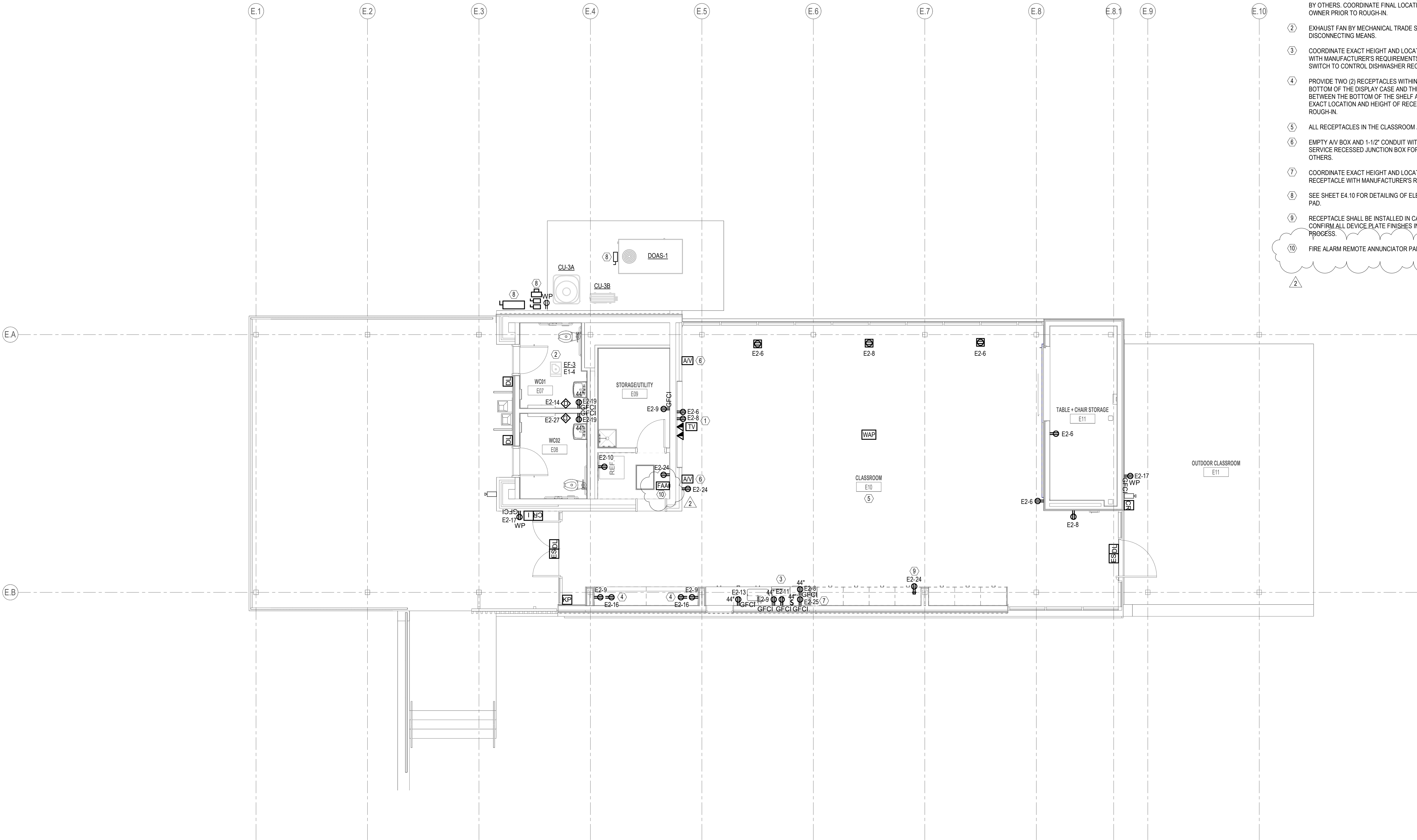
2 08/28/2026 ADDENDUM 2

WR JOB NUMBER 22-0024-007
DRN: MJC DGN: JMH CKD: DJP

EDUCATION CENTER -
LVL 0 ELECTRICAL
POWER PLAN

E4.10

8/26/2026 11:23:46 AM
Autodesk Docs/Lake Crabtree County Park/10187-B_Education Cntr_MEP25.rvt



1 EDUCATION CENTER - LVL 1 ELECTRICAL POWER PLAN
SCALE: 3/16" = 1'-0"

2' 0' 2' 4' 6'
SCALE: 3/16" = 1'-0"

GENERAL SHEET NOTES:

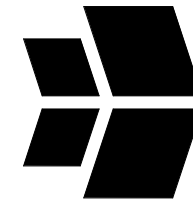
1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (—) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (---) SHALL BE EXISTING TO REMAIN.

SHEET KEYNOTES:

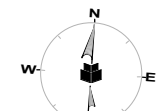
1. PROVIDE MULTI-SERVICE RECESSED JUNCTION BOX WITH MINIMUM QUANTITY OF TWO (2) DUPLEX RECEPTACLES AND MINIMUM QUANTITY OF TWO (2) EMPTY BOXES AND CONDUIT WITH NYLON PULL STRING TERMINATING IN TELECOM ROOM FOR FUTURE DATA OUTLETS BY OTHERS. COORDINATE FINAL LOCATION WITH FLAT PANEL TV MOUNTING BLOCKING AND OWNER PRIOR TO ROUGH-IN.
2. EXHAUST FAN BY MECHANICAL TRADE SHALL BE PROVIDED WITH INTEGRAL DISCONNECTING MEANS.
3. COORDINATE EXACT HEIGHT AND LOCATION OF DEDICATED DISHWASHER RECEPTACLE WITH MANUFACTURER'S REQUIREMENTS. PROVIDE 120V-20A RATED OVER-COUNTER WALL SWITCH TO CONTROL DISHWASHER RECEPTACLE.
4. PROVIDE TWO (2) RECEPTACLES WITHIN THE DISPLAY CASE, ONE CENTERED BETWEEN THE BOTTOM OF THE DISPLAY CASE AND THE TOP OF THE SHELF, AND ONE CENTERED BETWEEN THE BOTTOM OF THE SHELF AND THE TOP OF THE DISPLAY CASE. COORDINATE EXACT LOCATION AND HEIGHT OF RECEPTACLES WITH CASEWORK AND OWNER PRIOR TO ROUGH-IN.
5. ALL RECEPTACLES IN THE CLASSROOM AREA SHALL BE TAMPER-RESISTANT TYPE.
6. EMPTY AV BOX AND 1-1/2" CONDUIT WITH NYLON PULL STRING SHALL TERMINATE AT MULTI-SERVICE RECESSED JUNCTION BOX FOR INSTALLATION OF AV JACKS AND CABLING BY OTHERS.
7. COORDINATE EXACT HEIGHT AND LOCATION OF DEDICATED MINI REFRIGERATOR RECEPTACLE WITH MANUFACTURER'S REQUIREMENTS.
8. SEE SHEET E4.10 FOR DETAILING OF ELECTRICAL EQUIPMENT AT EXTERIOR CONCRETE PAD.
9. RECEPTACLE SHALL BE INSTALLED IN CABINET TOEKICK AND MOUNTED HORIZONTALLY. CONFIRM ALL DEVICE PLATE FINISHES IN ALL BUILDINGS WITH OWNER PRIOR TO SUBMITTAL PROCESS.
10. FIRE ALARM REMOTE ANNUNCIATOR PANEL BY OTHERS.

WithersRavenel
137 S. Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | T: 919.469.3340 | www.withersravenel.com

CLARK NEXSEN - NC
A DIVISION OF JOHNSON, MIRMIRAN & THOMPSON, INC.
License #: F-3097



BID SET
**LAKE CRABTREE COUNTY PARK
IMPROVEMENTS**
1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



INITIAL PLAN DATE: 08/05/2026
REVISIONS:

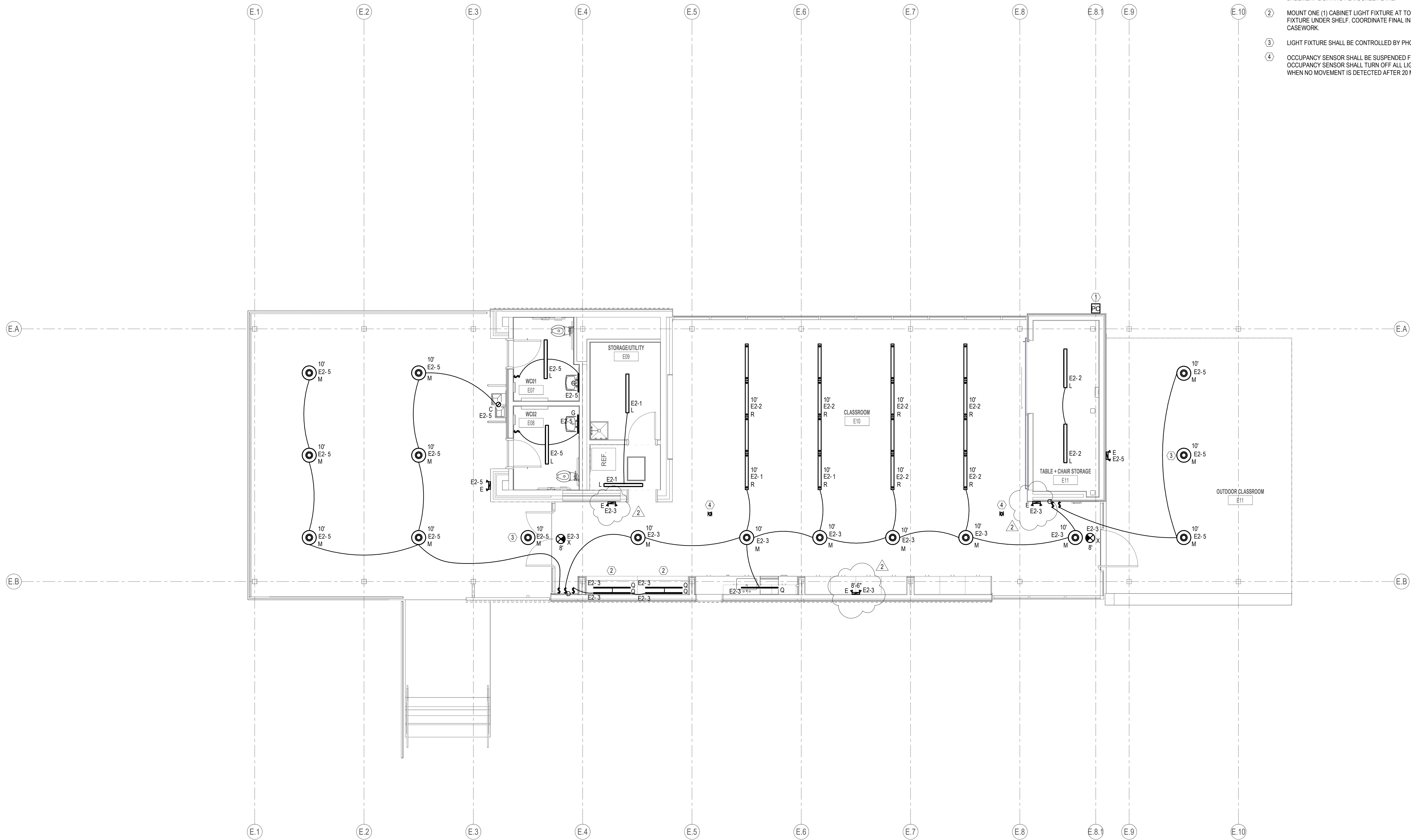
2 08/28/2026 ADDENDUM 2

WR JOB NUMBER 22-0024-007
DRN: MJC DGN: JMH CKD: DJP

EDUCATION CENTER -
LVL 1 ELECTRICAL
POWER PLAN

E4.11

8/26/2026 11:23:47 AM
Autodesk Docs/Lake Crabtree County Park/10187-B_Education Cntr_MEP25.rvt



1 EDUCATION CENTER - LVL 1 ELECTRICAL LIGHTING PLAN
SCALE: 3/16" = 1'-0"

2' 0' 2' 4' 6'
SCALE: 3/16" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (—) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (---) SHALL BE EXISTING TO REMAIN.

SHEET KEYNOTES:

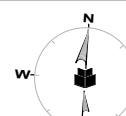
- ① PHOTOCELL SHALL BE MOUNTED FACING NORTH AND AWAY FROM DIRECT LIGHT SOURCES. PHOTOCELL TO CONTROL INDICATED LIGHT FIXTURES SHOWN ON THIS SHEET AND BASEMENT LIGHTING PLAN, SHEET E4.12.
- ② MOUNT ONE (1) CABINET LIGHT FIXTURE AT TOP OF CABINET, AND ONE (1) CABINET LIGHT FIXTURE UNDER SHELF. COORDINATE FINAL INSTALLATION HEIGHT WITH ARCHITECTURAL CASEWORK.
- ③ LIGHT FIXTURE SHALL BE CONTROLLED BY PHOTOCELL ONLY.
- ④ OCCUPANCY SENSOR SHALL BE SUSPENDED FROM CEILING AT 10' ABOVE FINISHED FLOOR. OCCUPANCY SENSOR SHALL TURN OFF ALL LIGHT FIXTURES IN THE CLASSROOM AREA WHEN NO MOVEMENT IS DETECTED AFTER 20 MINUTES.



LAKE CRABTREE COUNTY PARK IMPROVEMENTS

BID SET

1400 Aviation Pkwy | Morrisville, NC 27560 | Wake County



INITIAL PLAN DATE: 08/05/2026
REVISIONS:

2 08/28/2026 ADDENDUM 2

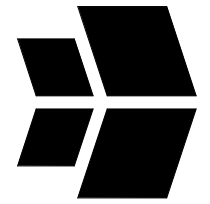
WR JOB NUMBER 22-0024-007
DRN: MJC DGN: JMH CKD: DJP

EDUCATION CENTER -
LVL 1 ELECTRICAL
LIGHTING PLAN

E4.13

WithersRavenel
137 S. Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | T: 919.469.3340 | www.withersravenel.com

CLARK NIXSEN - NC
A DIVISION OF JOHNSON, MIRMIRAN & THOMPSON, INC.
License #: F-3097



our people • your success