Troy Schools District

RFP #2324-22
BP#3B Smith Middle School - ARCH & MEP & Civil - Addendum #2
July 15th, 2024

Content Included in this Addendum:

Cover Page (1 Page)
Barton Malow Write Up (6 Pages)
TMP Addendum Write Up (139 Pages)
BP#3B Pre-Bid Meeting Agenda (3 Pages)
BP#3B Pre-Bid Sign-In Sheet (2 Pages)

TOTAL PAGES: 151 Pages

July 15th, 2024

Troy Schools District – BP#3B Smith Middle School – ARCH & MEP & Civil – Addendum #2

Addendum #2 Bidder Clarifications

A. General Clarifications

- BID DUE DATE CHANGED TO JULY 25TH @ 2PM FOR THE FOLLOW CATEGORIES:
    - Bid Category: Carpentry
    - Bid Category: Roofing
    - Bid Category: Metal Wall Panels
    - Bid Category: Glass and Glazing
    - Bid Category: Paint and Wall Coverings
    - Bid Category: Flooring
    - Bid Category: Hard Tile
    - Bid Category: Gym Flooring
    - Bid Category: General Trades
    - Bid Category: Acoustical Wall Units
    - Bid Category: Signage
    - Bid Category: Casework
    - Bid Category: Food Service Equipment
    - Bid Category: Gym Equipment
    - Bid Category: Elevator
    - Bid Category: Fire Suppression
    - Bid Category: Mechanical
    - Bid Category: Electrical
    - Bid Category: Fire Alarm
  - THE FOLLOWING CATEGORIES' DUE DATES STAY THE SAME @ 2PM:
    - Bid Category: Masonry – July 23rd
    - Bid Category: Plumbing – July 23rd
    - Bid Category: Structured Cabling - July 30th
    - Bid Category: Earthwork – July 30th
    - Bid Category: Landscape – July 30th
    - Bid Category: Asphalt Paving – July 30th
- Geotechnical Report Supplied (provided on Building Connected under files 'Additional Documents')
- Project Manual Updates for work scopes shown below
- Submittals for pre-purchase Electrical Equipment (provided on Building Connected under files 'Additional Documents')

B. Clarifications and Additions to Work Scopes

- **Masonry**
  - Removed erroneous scope notes
- **Carpentry**
  - Removed decorative metal railings section
- **Flooring**
  - Clarified scope notes in Project Manual
- **Hard Tile**

    - Clarified scope notes in Project Manual
- **General Trades**
    - Added theatrical rigging and drapery
    - Clarified scope notes in Project Manual
- **Theatre Equipment**
    - Deleted scope of work
- **Food Service Equipment**
    - Clarified scope notes in Project Manual
- **Casework**
    - Clarified and added scope notes in Project Manual
- **Plumbing**
    - Added electrical heat trace specification section
    - Added heat tracing for plumbing
    - Added scope notes for kitchen hook-up
- **Electrical**
    - Theatrical fixture package
    - Theatrical lighting distribution and control

C. RFI Responses

Q: On page E2.1A corridor A127 shows L13 fixtures but are scaled off at 6' fixtures. Please confirm which one is correct. On the same page, corridor A108 shows L13 fixtures but it is scaled at 2'
A: The fixture lengths are as indicated on the plan. Per the lighting schedule, these fixtures come in multiple lengths.

Q: There is a Note 5 on sheet E5.1 which represents that those items have been pre-purchased.

- Did they go Square D? Square D doesn't have any record of any orders

A: Eaton was ordered for the Gear based on voluntary alternate, Generator is Cummins, and transformer is Eaton.

- The primary switch and generator also have the same hashed border as the other Note 5 items. Are these also part of the pre-purchased items?
  A: That is correct
- If the above are indeed all pre-purchased then we are to propose to Supply and Install all of the Panel Boards, DP-1, DP-Gen, and the smaller Transformers 75KVA thru 150KVA?
  A: That is correct. Only larger equipment was included in the pre-purchased package.

Q: Glass and Glazing Summary of Work note #5, Specific Scope notes #12-m and #13-g conflict with Carpentry Specific Scope note #6-l. Please clarify. Casework Specific Scope notes #8 and #9 conflict with Carpentry Specific Scope note #6-n. Please clarify. Plumbing Specific Scope note #17-j conflicts with Carpentry Specific Scope note #6-l. Please clarify. Mechanical Specific Scope note #11-jjj conflicts with Carpentry Specific Scope note 6-l. Please clarify.
A: All blocking shown on the drawings is the responsibility of the carpenter. Any additional blocking required, but not shown is the responsibility of the contractor installing said scope of work that requires the additional blocking.

Q: There is no mention of the polished concrete in any work scopes. What Bid Division is responsible for the polished concrete?
A: We have already bid out concrete and will be handled by current contractor.

Q: On Page 7 of the Bid Category work scope for the Flooring Division, note 14 states to provide and install a moisture mitigation system at all flooring locations over concrete. Are they wanting us to include a moisture mitigation system in our base bid before we even moisture test the concrete to see if it in fact does need a moisture mitigation system? Some of these systems can run from $100,000-$300,000. Also in the Concrete Specification 033003 on page 1-2 it shows

that vapor lock will be added to the concrete. If this is the case we will not need to moisture test. See attached. Please advise as to if we should include a moisture mitigation system in to our base bid, or if we should provide a unit SF price for this work.
A: We will remove this note from the scope of work, and add a SF unit cost for moisture mitigation.

Q: On page 7 of the Bid Category work scope for the Flooring Division, note 17. H. shows floor patching up to 3/8" as required to prep concrete to receive floor finishes for the carpet and resilient flooring. See attached work scope. Typically we do an 1/8" skim coat for a smooth surface to install. I do not see on the plans where they are requiring us to provide extra heavy prep for a new build. Please advise as to what locations will require us to provide 3/8" floor prep? See attached. Please advise.
A: This note will be removed.

Q: On page 7 of the Bid Category work scope for the Flooring Division, note 17. I. states that the flooring contractor is to "Remediate and fill all cracks in the slab that exceeds 1/32" wide per requirements of the product manufacturers and specifications." See attached work scope. Are they anticipating the new concrete to crack? If so I am not sure what we should include in our base bid for this work since the concrete will be new and has not been installed yet. See attached. Please advise.
A: This note will be removed.

Q: On page 7 of the Bid Category work scope for the Flooring Division, note 17. J. states that the flooring contractor to include cost for priming, Ardex skim coating and floor leveling for all carpet areas and resilient areas. Specifications for the Carpeting and Resilient Flooring does not indicate for us to use Ardex products, but states to use what the manufacturer recommends. That being said are they requiring us to use Ardex products for the Carpeting and Resilient Flooring? Or can we use what the manufacturer recommends. See attached. Please advise.
A: Ardex or approved manufacturer is acceptable.

Q: On page 8 of the Bid Category work scope for the Hard Tile Bid Division Note 17. F. states to provide minor repair, leveling and patching (+3/8") of substrate for walls and floors. We typically apply our standard layer of thinset for the hard tile work. Are they anticipated that the new walls and floors will not be acceptable where they will require a 3/8" pour on the floors and walls? Please advise.
A: This will be corrected in the scope. Intent is that all masonry walls will have at least 3/8" prep to ensure level surface for tile installation.

Q: Please confirm that in-wall blocking is by the Carpentry Bid Package.
A: In wall blocking shown on the drawings is the responsibility of the carpentry contractor. Any additional blocking required is the responsibility of the contractor installing the scope of work that requires said blocking.

Q: It is understood that General Trades is responsible for the 100100 Misc. Specialties items which include the metal table bases and solid surface countertops at the Dining Commons Booths and the metal stools and foot rests at the second-floor bar height counter. Does the solid surface counter at the bar height second floor counter below to the casework/millwork provider?
A: Correct, we are clarifying if the dining commons booths SS comes from the manufacturer of the base or if it is intended to be separate. If it is separate, that SS will be the casework contractors responsibility. All other bases, I.E. Art bench are to be installed by this contractor.

Q: Please verify that the plywood will be furnished and installed by the carpentry bid package and 8" plywood reveal painting will be provided by others in regards to the plastic laminate panels all as shown on Millwork Detail Plan A8.5. The only responsibility of the casework bid package is the plastic laminate panel, mounting hardware and installation.
A: This is correct. The plywood is the responsibility of the carpentry contractor, painting is the responsibility of the painter, and the laminate panels and mounting hardware is the responsibility of the Casework contractor. All contractors responsible for coordinating.

Q: Viewing Detail 15/A8.15, there are laminated panels that are installed on 6" metal stud framing at a slope, one at 8" one at 6" and the last at 2', please verify that the 6" framing is by contractors other than the casework bid package.
A: Framing is by the carpentry scope of work.

Q: The music casework spec lists grille doors to be welded steel construction. In the elevations, there are waterfall grille doors on 2/A7.4 and straight grille doors on 5/A7.5. Can straight grille doors by Case Systems (or equal) be acceptable at both locations?
A: Please submit a voluntary alternate and substitution request for all deviations from bid specifications.

Q: In Section G. Specific Scope, Item #7 Section c. notes that the FSE Contractor is responsible for all Plumbing Fixtures. This work is typically handled by the plumbing contractor. We can install the Garbage Disposal, but Plumbing to and from that unit is to be done by others. Also, the Soap and Rinse Systems are generally handled by the Owners Vendor and is not something usually handled by the FSE Contractor. Hand Sinks will be handed over to the Plumber for their install. Can you please confirm that we will not be responsible for this work?
A: All fixtures indicated as FSE are to be provided and installed by the food service contractor. All plumbing connections and final hook ups are to be the responsibility of the plumbing contractor.

Q: In Section G. Specific Scope, Item #7 Section e. notes that All Mechanical hook ups for Food Service Equipment and Mechanical are to be provided by the Food Service Contractor. We typically don't do final connections for Mechanical, Plumbing, or Electrical. Connecting of Ductwork to our Exhaust Hoods should be handled by the Mechanical Contractor and not by us. Can you please confirm that we will not be responsible for this work?
A: Mechanical contractor will be responsible for all ductwork connections and mechanical tie in.

Q: In Section G. Specific Scope, Item #7 Section g. notes that All low voltage connections are to be provided by the FSE Contractor. This work is typically handled by the Electrical Contractor. Can you please confirm that we will not be responsible for this work. If the wiring is integral to our equipment we will handle.
A: This contractor is responsible for all integral low voltage work (I.E. refrigerator thermostats) any control of mechanical equipment not installed by this contractor is the responsibility of the mechanical contractor. Fire alarm contractor is responsible for connections to hood controllers for appropriate shut down procedure.

Q: The scope of work mentions "temp roofing"; is this project being installed in (2) phases: Phase 1 being substrate and vapor barrier and Phase 2 being the permanent roof over top; or are we to install the entirety of the roof right away and not figuring this as a phased project?
A: This is not intended to be done in two phases.

Q: The scope of work mentioned flood testing; the specifications don't mention this, is flood testing of the entire roof surface required?
A: Yes.

Q: The scope of work mentions installing pavers; there is no specification or area I noted on the drawings that show pavers; please clarify whether pavers are being installed on this project?
A: Removed from scope.

Q: The scope of work mentions installing snow guards, please clarify where snow guards are located.
A: Removed from scope.

Q: Is there any work on the existing building or does this contract only pertain to this "NEW" construction middle school?
A: Only work is on New construction.

Q: Looking over the plans it appears that the whole masonry wall legend is missing. The masonry walls appear to start in the “4”s and the legend ends in the “3”s. Do we know what the different wall types indicate? Is it safe to assume that all walls go to deck?
A: To be updated in Addendum #3.

Q: On page A 7.6 - interior elevation 1 shows suspended wood grill. What specification is this under?
A: See Spec Section 09 5426.

Q: Spec 05-7000 Decorative metal - specific note 10 mentions Beam and Column Covers. Can you please clarify where these occur?
A: Sheet A1.1D will add column covers in Addendum #3.

Q: Page A1.1B in room B104. Wall type 1A is called out which is 7/8 furring. The detail called out is 12 on A5.1, this calls out 2 1/2 “ track. Which is the correct wall type?
A: Type 1A is correct.

Q: I see different wall types called out on the floor plan that aren’t listed on the partition legend. I cannot find them, could you please point me in the right direction.
A: To be updated in Addendum #3.

Q: If insulation isn’t noted in the partition legend, I’m assuming the plan is to leave it out. Correct?
A: To be updated in Addendum #3.

Q: Drawing A 3.7 is missing.
A: There is no sheet A3.7.

Q: There are no corner guards indicated on A9.1A and A9.1C. Please confirm.
A: All walls in these areas are masonry, no corner guards needed.

Q: Where wall protection (WP) is listed on the room tags on the Floor Finish Plans, but not indicated on the drawings. Are we to assume this is for all walls? Example: Passage E101 has WP1A listed on the room tag but is not given a location, where AWP1D is also listed and marked at certain locations.
A: Refer to pattern details on finish plans, dash line indicates WP locations.

Q: The spec lists 120" extra drop at the top of the motorized projection screens. The max drip that Draper can do is 72". Please clarify what is correct.
A: Provide 72” drop and increase screen height by 48”

Q: The power plans and the specs call for a BDA/Area of Refuge System but does not indicate on the plans where the devices are to be installed. Please advise.
A: Area of refuge system in not required, provide 2 ways communication at elevator.

Q: Please verify that there is no wood science casework on this project as Casework Notes 17 & 20 on the Casework & Equipment Plans suggests.
A: No, all casework is P-Lam.

Q: Plan A9.2D, the custom countertop at Level 2 Bar-height Counter in Commons D201 is said to be quartz. Millwork details on Plan A8.3 indicates that top as being SS1 and SS3 solid surface. Please confirm the material type.
A: Refer to A8.3 for solid surface call-out, A9.2D to be revised in Addendum #3.

Q: Casework Plan A9.1B indicates SS2. There is no listing for SS2 in either the 064023 or 123600 specifications. If SS2 is required, please provide color for SS2.
A: SS2 will change to QT21 in Addendum #3.

Q: What specification are the metal pipe supports under for the casework contractor?

A: Means and Method.

Q: Are the countertops in Rooms B135 and B144 where the L-bracket shelving systems occur to be quartz (QTZ1) or solid surface. Both QTZ1 and SS1 surfaces occur at countertops in Room B135.
A: Neither, the L-Bracket shelving system is pre-fab – see spec 06 4023/2.11/C.

Q: In the specifications for roofing it mentions the roofing insulation to be a Minimum of R-30; but then it also mentions that insulation thickness to be 2”. Please clarify whether we can figure the roofing as (2) layers of 2.6” ISO or if we need to figure (3) layers of 2” ISO?
A: Provide 2 layers of 2.6”

Q: A1.1- Corridor 127 has a callout for "Solid Surface seating bench on CMU knee wall"- no detail is available for wall height- assumed height to be 2'? Please advise
A: 1’-4” CMU with 2 layers ¾” F.R.T. plywood and solid surface 1’-6” final height.

Q: A1.1a - A1.1f , A1.2C-1.2F floor plans do not show any wall/partition legend descriptions for wall types 4,5,6 CMU walls. Will this be provided in an addendum?
A: To be updated in Addendum #3.

ARCHITECTURE

Addendum

Date	July 12, 2024
Project Name	Troy School District - New Smith Middle School
TMP Project No(s).	22102
Bid Package No.	Bid Package 03B
Addendum No.	Two (2)

ADDENDUM NO. 1 WAS PREVIOUSLY ISSUED ON JULY 10, 2024.

The Bidding Documents are modified, supplemented, or augmented as follows and the Addendum is hereby made a part of the proposed Contract Documents.

The following Drawing(s) and Attachment(s) are issued with this Addendum:

Drawing No(s).: C-2.0, C-2.1, C-3.0, C-3.1, C-3.2, C-4.1, C-4.2, C-5.0, C-5.1, C-5.2, C-5.3, C-6.0, C-6.1, C-6.2 C-6.4, C-7.1, C-7.2, C-7.3, C-7.4, S1.0B, S1.0D, S1.0E, S1.0F, AD.1, A1.3A, A1.3E, A4.3, A9.1A, M2.0E, M2.1A, M2.1B, M2.1C, M2.1D, M2.1E, M2.1F, M2.2C, M2.2E, M4.1A, M4.1B, M4.1D, M4.1F, M4.2D, M4.2E, M5.1, M6.1, M6.6, M7.1,M7.3, M7.4, M7.5, M7.6, M7.7, E0.2, E0.3, E0.6, E2.1A, E2.1B, E2.1C, E2.1D, E2.1E, E2.1F, E2.2C, E2.2D, E2.2E, E3.1A, E3.1B, E3.1C, E3.1D, E3.1E, E3.1F, E3.2D, E3.2E, E5.1, E5.2, E5.3, E5.4, E5.5, E6.1, E6.2, E7.1, E7.2

Attachment(s): Specification Sections: 08 3323, 20 0533, 22 0533, 22 1119, 22 1319

Item No.	**Specification Changes**
SC-1	Refer to Section No. 00 0110 – TABLE OF CONTENTS (not reissued): A. Marked section 11 4000 FOODSERVICE EQUIPMENT as issued with Addendum No. 1. B. Deleted section 11 6143 STAGE CURTAINS. C. Marked sections reissued in Addendum No. 2. D. Added sections:20 0533 ELECTRIC HEAT TRACE and 22 0533 HEAT TRACING FOR PLUMBING to Table of Contents.
SC-2	Refer to Section No. 08 3323 - OVERHEAD COILING DOORS (reissued): A. Deleted paragraph 2.02.C.9 and 2.02.C.9.a as indicated. Reference Pre-Bid RFI#2. B. Deleted paragraph 2.02.D.7 and 2.02.D.7.a as indicated. Reference Pre-Bid RFI#2.

SC-3 Refer to Section No. 11 6143 – STAGE CURTAINS (deleted):

A. Deleted section, complete.

SC-4 Refer to Section 20 0533 ELECTRIC HEAT TRACE (new):

A. Added specification section.

SC-5 Refer to Section 22 0533 HEAT TRACING FOR PLUMBING (new):

A. Added new heat tracing for plumbing specification.

SC-6 Refer to Section 22 1119 DOMESTIC WATER PIPING SPECIALTIES (reissued):

A. Added specification section 2.12 Domestic Water Cartridge Filters.
B. Added specification section 3.02 Domestic Water Cartridge Filter Installation.

SC-7 Refer to Section 22 1319 DRAINAGE PIPING SPECIALTIES (reissued):

A. Revised specification section 2.10 Grease Interceptors to reflect all stainless steel manufacturers.

Item No. **Civil Drawing Changes**

CD-1 Refer to Drawing No. C-2.0 – Demolition and SESC Plan – Phase 1 (reissued):

A. Revised limits of pavement removal at the entrance to Cotswold Road as indicated.
B. Revised Demolition and Erosion Control Legends as indicated.

CD-2 Refer to Drawing No. C-2.1 – Demolition and SESC Plan – Phase 2 (reissued):

A. Revised limits of utility and pavement removal at the north end of the site as indicated.
B. Revised Demolition and Erosion Control Legends as indicated.

CD-3 Refer to Drawing No. C-3.0 – Overall Dimension & Paving Plan (reissued):

A. Added culverts beneath the entry drives as indicated.
B. Added concrete pads at utility structures as indicated.
C. Revised paving limits at the entrance to Cotswold Road as indicated.
D. Added school sign and message board as indicated.

CD-4 Refer to Drawing No. C-3.1 – Dimension & Paving Plan – West (reissued):

A. Added culverts beneath the entry drives as indicated.
B. Added concrete pads at utility structures as indicated.
C. Added note indicating the curb taper at the ADA parking spaces as indicated.
D. Added note indicating the flush concrete sidewalk at the east side of the parking lot as indicated.
E. Added notes indicating the light poles as indicated.
F. Added school sign and message board as indicated.
G. Added notes indicating the color of the detectable warning surface for all ramps to the Sidewalk Ramp Legend as indicated.

CD-5 Refer to Drawing No. C-3.2 – Dimension & Paving Plan - East (reissued):

A. Added concrete pads at utility structures as indicated.
B. Added notes indicating the light poles as indicated.
C. Added note indicating the required coordination at the point where the new building encroaches on the existing building as indicated.
D. Added notes clarifying the work at the entrance to Cotswold Road as indicated.
E. Added notes indicating the color of the detectable warning surface for all ramps to the Sidewalk Ramp Legend as indicated.

CD-6 Refer to Drawing No. C-4.1 – Grading Plan - West (reissued):

A. Added dashed lines indicating reverse slope curb and gutter as indicated.
B. Added ridge lines as indicated.
C. Added additional spot elevations at the ADA parking area as indicated.
D. Added notes referring to the geotechnical investigation and the ground improvement bid package as indicated.
E. Revised proposed grading at the message board as indicated.

CD-7 Refer to Drawing No. C-4.2 – Grading Plan - East (reissued):

A. Added additional spot elevations at the ADA parking area as indicated.
B. Added/Revised spot elevations at the entrance to Cotswold Road as indicated.
C. Added notes referring to the geotechnical investigation and the ground improvement bid package as indicated.

CD-8 Refer to Drawing No. C-5.0 – Overall Utility Plan (reissued):

A. Revised utilities within the south entry drive corridor as indicated.
B. Revised utilities within the north existing parking lot as indicated.

CD-9 Refer to Drawing No. C-5.1 – Utility Plan - West (reissued):

A. Revised sanitary sewer invert elevations as indicated.
B. Revised water main alignment through the south entry drive as indicated.
C. Added electrical and fiber conduit and hand holes to the school sign and message board as indicated.

CD-10 Refer to Drawing No. C-5.2 – Utility Plan - East (reissued):

A. Revised sanitary sewer invert elevations as indicated.
B. Revised sanitary sewer alignment and connection to existing as indicated.
C. Revised water main alignment and connection to existing as indicated.

CD-11 Refer to Drawing No. C-5.3 – Utility Plan - Livernois (reissued):

A. Revised water main alignment and connection to existing as indicated.

CD-12 Refer to Drawing No. C-6.0 – Sanitary Sewer and Water Main Profiles (reissued):

A. Revised sheet title to include water main.
B. Revised sanitary sewer profile as indicated.
C. Added water main profile as indicated.

CD-13 Refer to Drawing No. C-6.1 – Storm Sewer Profiles, C-6.2 – Storm Sewer Profiles, and C-6.4 – Storm Sewer Profiles (reissued):

A. Revised structure labels to include sump depth where appropriate as indicated.
B. Revised limits of compacted sand backfill as indicated.
C. Revised utility crossings as indicated.

CD-14 Refer to Drawing No. C-7.1 – Paving Details (reissued):

A. Deleted: Aggregate Base Note in the Heavy Duty ROW Asphalt Detail, the Standard Duty Asphalt Detail, and the Heavy Duty Asphalt Detail as indicated.
B. Revised Asphalt Material Note in the Heavy Duty ROW Asphalt Detail, the Standard Duty Asphalt Detail, and the Heavy Duty Asphalt Detail as indicated.
C. Revised leveling course mix type and the Asphalt Mix Design Chart in the Heavy Duty Asphalt Detail and the Heavy Duty ROW Asphalt Detail as indicated.

CD-15	Refer to Drawing No. C-7.2 – Utility Details (reissued): A. Added Bar Grate for Outlet Control Structure detail as indicated.
CD-16	Refer to Drawing No. C-7.3 – Culvert Details (reissued): A. Added Wingwall with Footing detail as indicated. B. Added backfill and finish materials to the culvert sections as indicated. C. Added crossing utilities for the South Entry Drive Culvert Section as indicated.
CD-17	Refer to Drawing No. C-7.4 – Site Details (reissued): A. Revised footing notes as indicated.
Item No.	**Structural Drawing Changes**
SD-1	Refer to Drawing No. S1.0B (reissued): A. Revised MCJ location as indicated.
SD-2	Refer to Drawing No. S1.0D (reissued): A. Added MCJs as indicated.
SD-3	Refer to Drawing No. S1.0E (reissued): A. Added MCJs as indicated.
SD-4	Refer to Drawing No. S1.0F (reissued): A. Added MCJs as indicated.
Item No.	**Architectural Drawing Changes**
AD-1	Refer to Drawing No. TS.1-03B (not reissued): A. At CIVIL List of Drawings: Revised sheet C-6.0 title to: Sanitary Sewer and Water Main Profiles.
AD-2	Refer to Drawing No. AD.1 (reissued): A. At DOOR & FRAME SCHEDULE: Revised door A135B to be STL rather than AL. Refer to PreBid RFI2.

AD-3	Refer to Drawing No. A1.3A (reissued): A. Revised bottom elevation of roof top screen wall for ERU-1 and ERU-7 as indicated. Revision coordinates with steel shop drawing revision.
AD-4	Refer to Drawing No. A1.3E (reissued): A. Revised location of roof drain notations and coordinate locations of roof drains as indicated. B. Deleted erroneous notations of items at second level on roof plan as indicated.
AD-5	Refer to Drawing No. A4.3 (reissued): A. Deleted duplicate steel and erroneous note as indicated.
AD-6	Refer to Drawing No. A9.1A (reissued): A. Added agility workout dot stations as indicated. Note: This revision applies to A1.1A and A10.1A as well, sheets NOT reissued.
Item No.	**Mechanical Drawing Changes**
MD-1	Refer to Drawing No. M2.0E (reissued): A. Removed hub outlet notation and piping as indicated.
MD-2	Refer to Drawing No. M2.1A (reissued): A. Revised heat trace note as indicated.
MD-3	Refer to Drawing No. M2.1B (reissued): A. Revised grease interceptor notation as indicated. B. Removed note for “hand washing only” signs at sinks as indicated.
MD-4	Refer to Drawing No. M2.1C (reissued): A. Added heat tracing at Vestibule C101 as indicated. B. Revised hot water return piping routing as indicated.
MD-5	Refer to Drawing No. M2.1D (reissued): A. Removed note for “hand washing only” signs at sinks as indicated. B. Revised hub outlet note as indicated.

MD-6 Refer to Drawing No. M2.1E (reissued):

A. Removed hub outlet notation and piping as indicated.
B. Added chemical neutralization note for E122 as indicated.

MD-7 Refer to Drawing No. M2.1F (reissued):

A. Added heat tracing to canopy drains as indicated.
B. Added chemical neutralization note for Storage F122 as indicated.
C. Revised fixture tag in F133 as indicated.

MD-8 Refer to Drawing No. M2.2C (reissued):

A. Revised vent through roof location as indicated.

MD-9 Refer to Drawing No. M2.2E (reissued):

A. Removed note for “hand washing only” signs at sinks as indicated.
B. Revised rain conductor and overflow piping location out of Stair E231 and into E233 as indicated.
C. Revised rain conductor and overflow piping location out of Stair E212 and into E214 as indicated.
D. Added chemical neutralization note for Storage E222 as indicated.

MD-10 Refer to Drawing No. M4.1A (reissued):

A. Added manual balance damper as indicated.
B. Added smoke damper as indicated.
C. Added fire dampers as indicated.

MD-11 Refer to Drawing No. M4.1B (reissued):

A. Added manual balance dampers as indicated.
A. Added smoke damper as indicated.

MD-12 Refer to Drawing No. M4.1D (reissued):

A. Added manual balance dampers as indicated.

MD-13 Refer to Drawing No. M4.1F (reissued):

A. Added manual balance dampers as indicated.

MD-14 Refer to Drawing No. M4.2D (reissued):

A. Added manual balance dampers as indicated.

MD-15 Refer to Drawing No.M4.2E (reissued):

A. Added manual balance dampers as indicated.

MD-16 Refer to Drawing No. M5.1 (reissued):

A. Removed floating rain conductor tags by ERU-1 as indicated.
B. Revised heat trace note as indicated.
C. Revised roof drain locations as indicated.
D. Removed roof drains on stair well and added note to provide scuppers as indicated.

MD-17 Refer to Drawing No. M6.1 (reissued):

A. Moved detail for printing clarification as indicated.

MD-18 Refer to Drawing No. M6.6 (reissued):

A. Revised details for printing clarification as indicated.

MD-19 Refer to Drawing No. M7.1 (reissued):

A. Revised duct system insulation application schedule for printing clarification as indicated.

MD-20 Refer to Drawing No. M7.3 (reissued):

A. Revised voltage and phase on sewage pump and sump pump schedule as indicated.
B. Revised SCCR for fuel fired domestic water heater schedule as indicated.
C. Revised SCCR for fuel fired water source heat pump schedule as indicated.
D. Revised SCCR for fuel fired packaged booster pump schedule as indicated.

MD-21 Refer to Drawing No. M7.4 (reissued):

A. Revised SCCR for energy recovery unit with heat pump schedule as indicated.
B. Revised SCCR for electric propeller fan unit heater schedule as indicated.

C. Revised SCCR for electric centrifugal fan cabinet unit heater schedule as indicated.

MD-22 Refer to Drawing No. M7.5 (reissued):

A. Revised SCCR for condensing boiler schedule as indicated.
B. Revised SCCR for pump schedule as indicated.
C. Revised SCCR for direct fired make-up air unit schedule as indicated.
D. Revised SCCR for electric coil schedule as indicated.
E. Revised SCCR for closed circuit cooling tower schedule as indicated.
F. Revised SCCR for fan powered air terminal unit with electric coil schedule as indicated.

MD-23 Refer to Drawing No. M7.6 (reissued):

A. Revised SCCR for electric radiant wall panel schedule as indicated.
B. Revised SCCR for air terminal unit with electric coil schedule as indicated.

MD-24 Refer to Drawing No. M7.7 (reissued):

A. Revised SCCR for power ventilator schedule as indicated.
B. Revised SCCR for fan schedule as indicated.

Item No. **Electrical Drawing Changes**

ED-1 Refer to Drawing No. E0.2 (reissued):

A. Revised “Raceway/Conductor/Cable Application Schedule.”
B. Revised “Floor service fitting schedule.”

ED-2 Refer to Drawing No. E0.3 (reissued):

A. Added branch circuits for site lighting.
B. Revised incoming primary feed routing.
C. Added exterior signs and associated branch circuits.
D. Added construction key notes 1 and 2, and associated tags.

ED-3 Refer to Drawing No. E0.6 (reissued):

A. Revised circuiting to MAU-2.

ED-4 Refer to Drawing No. E2.1A (reissued):

A. Added emergency branch circuits.
B. Added lighting control device.
C. Added light fixture mounting height.

ED-5 Refer to Drawing No. E2.1B (reissued):

A. Added emergency branch circuits.
B. Added light fixture mounting height.

ED-6 Refer to Drawing No. E2.1C (reissued):

A. Added lighting control device.

ED-7 Refer to Drawing No. E2.1D (reissued):

A. Added lighting control devices.
B. Added lighting branch circuit.

ED-8 Refer to Drawing No. E2.1E (reissued):

A. Revised daylight harvesting zones as indicated.
B. Added light fixture mounting height as indicated.
C. Added room control designation tags as indicated.
D. Revised exit sign as indicated.
E. Added construction keynote 7 and associated tags as indicated.

ED-9 Refer to Drawing No. E2.1F (reissued):

A. Revised to show only scope related to zone F.
B. Added room control designation tags.
C. Revised daylight harvesting zones.

ED-10 Refer to Drawing No. E2.2C (reissued):

A. Added lighting branch circuit as indicated.

ED-11 Refer to Drawing No. E2.2D (reissued):

A. Added lighting branch circuit as indicated.
B. Added light fixture mounting height as indicated.

ED-12 Refer to Drawing No. E2.2E (reissued):

A. Revised lighting branch circuit.
B. Added lighting control designation tags.
C. Revised daylight harvesting zones.
D. Added lighting control devices.
E. Added construction key note 7 and associated tags.

ED-13 Refer to Drawing No. E3.1A (reissued):

A. Added branch circuits.
B. Added heat trace and associated branch circuit.
C. Added primary switch heater and associated branch circuit.
D. Revised construction key note 10.
E. Relocated clock.
F. Added telecommunication outlet and power for technology.
G. Revised construction key note 17.

ED-14 Refer to Drawing No. E3.1B (reissued):

A. Added branch circuits.
B. Added clock location.
C. Added monitor and associated branch circuit.
D. Added duct detector and associated branch circuit.

ED-15 Refer to Drawing No. E3.1C (reissued):

A. Added branch circuits as indicated.
B. Revised clock locations as indicated.

ED-16 Refer to Drawing No. E3.1D (reissued):

A. Added branch circuits.
B. Added sump pump and associated branch circuit.
C. Added telecommunications outlet.
D. Relocated receptacle.

ED-17 Refer to Drawing No. E3.1E (reissued):

A. Added branch circuits.
B. Added two-way communication devices.
C. Added sump pump and associated branch circuit.

ED-18 Refer to Drawing No. E3.1F (reissued):

A. Added branch circuits.
B. Added construction key note 15 tag.
C. Added heat trace and associated branch circuit.

ED-19 Refer to Drawing No. E3.2D (reissued):

A. Added branch circuit for powered desk.
B. Added branch circuits for elevator.

ED-20 Refer to Drawing No. E3.2E (reissued):

A. Added branch circuits as indicated.

ED-21 Refer to Drawing No. E5.1 (reissued):

A. Revised breaker positions in MSB.
B. Revised panelboard names.
C. Revised transformer T-5.
D. Added SPD and associated breaker.
E. Revised breaker in DP-1.
F. Revised load summaries.
G. Revised “Diagram General Notes.”

ED-22 Refer to Drawing No. E5.2 (reissued):

A. Revised panelboard schedules as indicated.

ED-23 Refer to Drawing No. E5.3 (reissued):

A. Revised panelboard schedules as indicated.

ED-24 Refer to Drawing No. E5.4 (reissued):

A. Revised panelboard schedules as indicated.

ED-25 Refer to Drawing No. E5.5 (reissued):

A. Revised panelboard schedules as indicated.

ED-26 Refer to Drawing No. E6.1 (reissued):

A. Added branch circuits as indicated.
B. Removed construction key notes as indicated.

ED-27 Refer to Drawing No. E6.2 (reissued):

A. Removed CP-5 as indicated.

ED-28 Refer to Drawing No. E7.1 (reissued):

A. Revised “Concrete Encased Duct Bank Detail” as indicated.
B. Deleted detail as indicated.
C. Added “Generator and ATS Control Wiring Detail” as indicated.

ED-29 Refer to Drawing No. E7.2 (reissued):

A. Revised “Exterior Lighting Control” Contractor Details as indicated.

END OF ADDENDUM NO. 2 - BID PACKAGE NO. 03B

SECTION 08 3323 - OVERHEAD COILING DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exterior coiling doors.
B. Interior non-fire-rated coiling doors.
C. Fire-rated coiling doors.
D. Electric operators and control stations.

1.02 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.
C. ITS (DIR) - Directory of Listed Products; Current Edition.
D. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2020.
E. NEMA ICS 2 - Industrial Control and Systems Controllers, Contactors and Overload Relays Rated 600 Volts; 2008 (Reaffirmed 2020).
F. NEMA MG 1 - Motors and Generators; 2017.
G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
H. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.
I. UL (DIR) - Online Certifications Directory; Current Edition.
J. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide general construction, electrical equipment, and component connections and details.
C. Shop Drawings: Indicate pertinent dimensioning, anchorage methods, hardware locations, and installation details.
    1. Include plans, elevations, sections, and mounting details.
    2. Include diagrams for power, signal, and control wiring.
D. Samples: Submit three slats, 6 inches long in size illustrating shape, color and finish texture.
E. Manufacturer's qualification statement.
F. Installer's qualification statement.
G. Field Quality Control: Submit field inspection reports.
H. Maintenance Data: Indicate lubrication requirements and frequency and periodic adjustments required.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum 5 years of documented experience.
B. Installer Qualifications: Company specializing in performing work of type specified and with at least 5 years documented experience and approved by manufacturer.
C. Products Requiring Electrical Connection: Listed and classified by ITS (DIR), UL (DIR), or testing firm acceptable to authorities having jurisdiction as suitable for purpose specified.

1.05 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Provide two year manufacturer warranty for defects in workmanship and materials from date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Overhead Coiling Doors - Basis of Design: The design for each coiling door specified is based on the product named. Provide either the named product or a comparable product by one of the following:
   1. C.H.I. Overhead Doors; www.chiohd.com.
   2. Clopay Building Products: www.clopaydoor.com.
   3. CornellCookson, Inc.; www.cornelliron.com.
   4. McKeon Door Company; www.mckeondoor.com.
   5. Overhead Door Corp.; www.overheaddoor.com.
   6. Raynor Door: www.raynor.com.
   7. Wayne-Dalton; www.wayne-dalton.com.
   8. Substitutions: See Section 01 6000 - Product Requirements.

2.02 COILING DOORS

A. Exterior Coiling Doors: Galvanized steel slat curtain.
   1. Basis of Design Product: Overhead Door Corp.; Model 625; www.overheaddoor.com.
   2. Capable of withstanding positive and negative wind loads of 20 psf without undue deflection or damage to components.
   3. Operation Cycles: Door components and operators capable of operating for not less than 20,000 cycles.
      a. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.
   4. Sandwich slat construction with insulated core of foamed-in-place polyurethane insulation; minimum R-value of 7.5. Galvanized steel.
   5. Nominal Slat Size: 2-1/2 inches wide x required length.
   6. Finish: Manufacturer's standard powder coat finish; standard color as selected by Architect. Design Intent: Overhead Door Corporation Gray.
      a. Includes slats, hood enclosure, bottom bar, and guides.
   7. Guide, Angles: Galvanized steel.
   8. Bottom Bar or Angles: Galvanized steel.
   9. Hood Enclosure: Manufacturer's standard; galvanized steel.
   10. Electric operation.
   11. Mounting: Surface mounted unless otherwise indicated on Drawings.

B. Non-Fire-Rated Interior Coiling Doors: Stainless steel slat curtain.
   1. Basis of Design Product: Overhead Door Corp.; Model 610; www.overheaddoor.com.
   2. Capable of withstanding positive and negative wind loads of 20 psf, without undue deflection or damage to components.
   3. Operation Cycles: Door components and operators capable of operating for not less than 20,000 cycles.
      a. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.
   4. Single Thickness Slats: Manufacturer's standard.
   5. Nominal Slat Size: 2-1/2 inches wide x required length.
   6. Finish: No. 4 - Brushed.
      a. Includes slats and hood enclosure.
   7. Finish: Manufacturer's standard powder coat finish; color to match Architect's sample.
      a. Includes bottom bar and guides.
   8. Guides, Angles: Primed steel.
   9. Bottom Bar or Angles: Primed steel.
   10. Hood Enclosure: Manufacturer's standard; stainless steel.
   11. Electric operation.

12. Mounting: Surface mounted, unless otherwise indicated on Drawings.

C. Fire-Rated Coiling Doors with Integral Egress Door: Steel slat curtain; conform to NFPA 80.
1. Basis of Design Product: McKeon; Model Safescape T2000-PC; www.mckeondoor.com.
2. Operation Cycles: Door components and operators capable of operating for not less than 20,000 cycles.
   a. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.
3. Fire-Rating: As indicated on Drawings.
4. Provide products listed and labeled by ITS (DIR) or UL (DIR) as suitable for purpose specified and indicated on drawings.
5. Oversized Openings: Provide certificate of compliance from authorities having jurisdiction indicating approval of fire rated units and operating hardware assembly.
6. Single thickness slats.
7. Nominal Slat Size: 3 inches wide by required length.
8. Swinging Egress Door: Incorporated within the curtain shall be a swinging type steel door designed and built as an integral part of the fire door's assembly.
   a. Door Frame: Shall be an all-steel unit type ASTM A366 hot rolled steel, 14 gauge with the same labeled fire resistance rating as specified for door.
   b. Door Assembly: Complete with door, hinge, and locking channel mechanism. 20 gauge stretcher leveled, electro galvanized and bonderized steel faces.
   c. Hardware:
      1) Fire Exit Device: Flush mounted integral type fire exit device on one face and with pull handle on opposite face of the swinging door.
      2) Closer: Shall be surface mounted 90 degree pocketed application.
      3) Electro Magnetic Door Holder: Shall be surface mounted with proper projection to hold swinging door in the fully open position.
9. ~~**Finish: No. 4 - Brushed.**~~ ****ADD2****
   a. ~~**Includes slats and hood enclosure.**~~
10. Finish: Manufacturer's standard powder coat finish; color to match Architect's sample.
    a. Includes bottom bar and guides.
11. Guides, Angles: Primed steel.
    a. Provide internal, fully concealed UL Classified smoke seals located within each guide assembly. Externally mounted smoke seals shall not be acceptable.
12. Bottom Bar or Angles: Primed steel.
13. Hood Enclosure: Manufacturer's standard; stainless steel.
14. Fire Alarm Release Mechanism: Electric-motor operated from fire alarm system and local heat or smoke detectors.
15. Electric operation.
16. Mounting: As indicated.

D. Fire-Rated Coiling Doors: Steel slat curtain; conform to NFPA 80. (Indicated as SMOKE rated on door schedule)
1. Basis of Design Product: Overhead Door Corp.; Model 630; www.overheaddoor.com.
2. Operation Cycles: Door components and operators capable of operating for not less than 20,000 cycles.
   a. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.
3. 1/3 hour fire rating.
4. Single thickness slats.
5. Nominal Slat Size: 3 inches wide by required length.
6. Swinging Egress Door: Incorporated within the curtain shall be a swinging type steel door designed and built as an integral part of the fire door's assembly
7. ~~**Finish: No. 4 - Brushed.**~~ ****ADD2****
   a. ~~**Includes slats and hood enclosure.**~~
8. Finish: Manufacturer's standard powder coat finish; color to match Architect's sample.

a. Includes bottom bar and guides.
9. Guides, Angles: Primed steel.
10. Bottom Bar or Angles: Primed steel.
11. Hood Enclosure: Manufacturer's standard; stainless steel.
12. Fire Alarm Release Mechanism: Electric-motor operated from fire alarm system and local heat or smoke detectors.
13. Electric operation.
14. Mounting: As indicated.

2.03 MATERIALS AND COMPONENTS

A. Metal Curtain Construction: Interlocking slats.
1. Curtain Bottom for Slat Curtains: Fitted with angles to provide reinforcement and positive contact in closed position.
a. Counter Doors: Optionally a tube may be used.
2. Weatherstripping for Exterior Doors: Moisture and rot proof, resilient type, located at jamb edges, bottom of curtain, and where curtain enters hood enclosure of exterior doors.

B. Hood Enclosure and Trim: Internally reinforced to maintain rigidity and shape.
1. Formed Steel Sheet: ASTM A653/A653M galvanized steel sheet.
a. Thickness: As recommended by overhead door manufacturer.
b. Galvanizing: Minimum G90 coating.
2. Formed Stainless Steel: ASTM A 666, Type 304, rollable temper.
a. Thickness: As recommended by overhead door manufacturer.

2.04 ELECTRIC OPERATION

A. Operator, Controls, Actuators, and Safeties: Comply with UL 325; provide products listed by ITS (DIR), UL (DIR), or testing agency acceptable to authorities having jurisdiction.
1. Provide interlock switches on motor operated units.

B. Electric Operators:
1. Mounting: Side mounted.
2. Motor Enclosure:
a. Exterior Coiling Doors: NEMA MG 1, Type 4; open drip proof.
b. Interior Coiling Doors: NEMA MG 1, Type 1; open drip proof.
3. Motor Rating: 1/2 hp; continuous duty, unless otherwise recommended by overhead door manufacturer.
4. Motor Voltage: 120 volts, single phase, 60 Hz.
5. Motor Controller: NEMA ICS 2, full voltage, reversing magnetic motor starter.
6. Controller Enclosure: NEMA 250, Type 4.
7. Opening Speed: 12 inches per second.
8. Brake: Manufacturer's standard type, activated by motor controller.
9. Manual override in case of power failure.
10. Refer to Division 26 for electrical connections.

C. Automatic-Closing Device:
1. Equip each fire-rated door with an automatic-closing device and governor unit complying with NFPA 80, and an easily tested and reset release mechanism.
2. Release mechanism for motor-operated doors shall allow testing without mechanical release of the door.
3. Automatic-closing device shall be designed for activation by the following:
a. Building fire-detection, smoke-detection, and alarm systems.

D. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated; enclose terminal lugs in terminal box sized to comply with NFPA 70.

E. Control Station: Provide standard key-operated (Open-Close-Stop) momentary-contact control device for each operator conforming to UL 325.
1. 24 volt circuit.
2. Recess mounted, at location indicated on Drawings.

3. Entrapment Protection Devices: Provide sensing devices and safety mechanisms complying with UL 325.
   a. Primary Device: Provide electric sensing edge as required with momentary-contact control device.

F. Safety Edge: Located at bottom of coiling door, full width, electro-mechanical sensitized type, wired to stop and reverse door direction upon striking object, hollow neoprene covered.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that opening sizes, tolerances and conditions are acceptable.

3.02 INSTALLATION

A. Install units in accordance with manufacturer's instructions.
B. Install fire-rated doors in accordance with NFPA 80.
C. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
D. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.
E. Fit and align assembly including hardware; level and plumb, to provide smooth operation.
F. Coordinate installation of electrical service with Division 26.
G. Complete wiring from disconnect to unit components.
H. Complete wiring from fire alarm system.
I. Install enclosure and perimeter trim.
J. Test and adjust controls and safety devices.

3.03 TOLERANCES

A. Maintain dimensional tolerances and alignment with adjacent work.
B. Maximum Variation From Plumb: 1/16 inch.
C. Maximum Variation From Level: 1/16 inch.
D. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch per 10 feet straight edge.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field quality control and inspection.
B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
   1. Operate doors to confirm proper operation and door performance.
   2. Test controls and safety devices.
   3. Test door release, closing, and alarm operations when activated by smoke detector or building's fire-alarm system. Test manual operation of closed door. Reset door-closing mechanism after successful test.
   4. Fire-Rated Door Inspections: Inspect each fire-rated door in accordance with NFPA 80.
   5. Prepare field inspection reports.
C. Repair or replace installations where inspections indicate that they do not comply with specified requirements.
D. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.

3.05 ADJUSTING

A. Adjust operating assemblies for smooth and noiseless operation.

3.06 CLEANING

A. Clean installed components.
B. Remove labels and visible markings.

3.07 DEMONSTRATION AND TRAINING

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

END OF SECTION

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SECTION 20 0533 - ELECTRIC HEAT TRACING

****ADD2****

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

B. Related Sections:

1. Division 20 Section “Mechanical General Requirements.”
2. Division 22 Section “Heat Tracing for Plumbing Piping” for domestic hot-water-temperature maintenance, and snow and ice melting on roofs, in gutters and downspouts, and rain conductors.

1.02 SUMMARY

A. Section includes electric heat tracing for piping freeze prevention and flow control.

1.03 PERFORMANCE REQUIREMENTS

A. Pipe Heat Tracing: Select electric heat tracing cable capable of providing freeze protection and flow control with outside temperature at minus 10 deg F.

1.04 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, and furnished specialties and accessories.

1.05 INFORMATIONAL SUBMITTALS

A. Delegated-Design Submittal:

1. Schedule heating capacity, length of cable, spacing, and electrical power requirement for each electric heating cable required.

B. Shop Drawings: For electric heating cable.

1. Include plans, elevations, sections, and attachment details.

2. Accurately record actual locations of heating cable, thermostats, and branch circuit connections.

3. Include diagrams for power, signal, and control wiring.

1.06 **CLOSEOUT SUBMITTALS**

A. Field quality-control reports.

B. Operation and Maintenance Data: For electric heating cables to include in operation and maintenance manuals.

1. Include description of operating controls.

2. Include repair methods and parts list of components.

1.07 **COORDINATION**

A. Coordinate with installation of piping insulation.

PART 2 PRODUCTS

2.01 **SELF-REGULATING, PARALLEL-RESISTANCE HEATING CABLES**

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Thermon Americas Inc.; FLX Self-Regulating Heating Cable.

2. Raychem; nVent Electric plc; XLTrace.

3. Delta-Therm Corporation; IN Series.

4. Chromalox Advanced Thermal Technologies; a business of Spirax-Sarco Engineering PLC.

B. Comply with IEEE 515.1.

C. Heating Element: Pair of No. 16 AWG, parallel, nickel-coated copper bus wires embedded in crosslinked conductive polymer core, which varies heat output in response to temperature along its length. Terminate with waterproof, factory-assembled, non-heating leads with connectors at one end, and seal the opposite end watertight. Cable shall be capable of crossing over itself once without overheating.

D. Electrical Insulating Jacket: Flame-retardant polyolefin.

E. Cable Cover: Tinned-copper braid and polyolefin outer jacket.

F. Maximum Operating Temperature (Power On): 150 deg F.

G. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL acceptable to authorities having jurisdiction, and marked for intended location and application.

H. Capacities and Characteristics:

1. Maximum Heat Output: W/ft as recommended by manufacturer.

2. Piping Diameter: As indicated on the Drawings.

3. Number of Parallel Cables: As recommended by manufacturer.

4. Electrical Characteristics for Single-Circuit Connection: Coordinate electrical system requirements with Division 26.

I. Electrical Power System Characteristics: As scheduled on the Drawings.

2.02 **CONTROLS**

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Thermon Americas Inc.
2. Raychem; nVent Electric plc.
3. Delta-Therm Corporation.
4. Chromalox Advanced Thermal Technologies; a business of Spirax-Sarco Engineering PLC.

B. Pipe-Mounted Thermostats for Freeze Protection:

1. Remote bulb unit with adjustable temperature range from 30 to 50 deg F.
2. Snap action; open-on-rise, single-pole switch with minimum current rating adequate for connected cable.
3. Remote bulb on capillary, resistance temperature device, or thermistor for directly sensing pipe-wall temperature.
4. Corrosion-resistant, waterproof control enclosure.

2.03 ACCESSORIES

A. Cable Installation Accessories: Fiberglass tape, heat-conductive putty, cable ties, end seals and splice kits, and installation clips all furnished by manufacturer, or as recommended in writing by manufacturer.

B. Warning Labels: Self-adhesive labels with legend “ELECTRIC HEAT TRACING.” Refer to Division 20 Section "Mechanical Identification" for additional requirements

C. Warning Tape: Continuously printed "Electrical Tracing"; vinyl, at least 3 mils thick, and with pressure-sensitive, permanent, waterproof, self-adhesive back.

1. Width for Markers on Pipes with OD, Including Insulation, Less Than 6 Inches: 3/4 inch minimum.
2. Width for Markers on Pipes with OD, Including Insulation, 6 Inches or Larger: 1-1/2 inches minimum.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine surfaces and substrates to receive electric heating cables for compliance with requirements for installation tolerances and other conditions affecting performance.

1. Ensure surfaces and pipes in contact with electric heating cables are free of burrs and sharp protrusions.

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

3.02 INSTALLATION

A. Install electric heating cable across expansion, construction, and control joints according to manufacturer's written instructions; use cable-protection conduit and slack cable to allow movement without damage to cable.

B. Electric Heating-Cable Installation for Freeze Protection for Piping:

1. Install electric heating cables after piping has been tested and before insulation is installed.
2. Install electric heating cables according to IEEE 515.1.
3. Install insulation over piping with electric cables according to Division 20 Section "Mechanical Insulation."
4. Install warning labels at 10 foot intervals, or install continuous warning tape on piping insulation where piping is equipped with electric heating cables.

C. Set field-adjustable switches and circuit-breaker trip ranges.

3.03 **CONNECTIONS**

A. Ground equipment according to Division 26 Section "Grounding and Bonding."

B. Connect wiring according to Division 26 Section "Conductors and Cables."

3.04 **FIELD QUALITY CONTROL**

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

1. Perform tests after cable installation but before application of coverings such as insulation, wall or ceiling construction, or concrete.

2. Test cables for electrical continuity and insulation integrity before energizing using 2500 Vdc megohmmeter (megger).

3. Test cables to verify rating and power input. Energize and measure voltage and current simultaneously.

B. Repeat tests for continuity, insulation resistance, and input power after applying thermal insulation on pipe-mounted cables.

C. Cables will be considered defective if they do not pass tests and inspections.

D. Remove and replace damaged heat-tracing cables.

E. Prepare test and inspection reports.

3.05 **PROTECTION**

A. Protect installed heating cables, including non-heating leads, from damage during construction.

END OF SECTION

SECTION 22 0533 - HEAT TRACING FOR PLUMBING

****ADD2****

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

B. Related Sections:

1. Division 20 Section “Mechanical General Requirements.”

1.02 SUMMARY

A. Section includes plumbing piping heat tracing for snow and ice melting in roof drains and rain conductors with the following electric heating cables:

1. Self-regulating, parallel resistance.

1.03 DEFINITIONS

A. BAS: Building Automation System.

1.04 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, and furnished specialties and accessories.

1.05 INFORMATIONAL SUBMITTALS

A. Delegated-Design Submittal:

1. Schedule heating capacity, length of cable, spacing, and electrical power requirement for each electric heating cable required.

B. Shop Drawings: For electric heating cable.

1. Include plans, elevations, sections, and attachment details.

2. Include diagrams for power, signal, and control wiring.

1.06 **CLOSEOUT SUBMITTALS**

A. Field quality-control reports.

B. Operation and Maintenance Data: For electric heating cables to include in operation and maintenance manuals.

1.07 **QUALITY ASSURANCE**

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL acceptable to authorities having jurisdiction, and marked for intended location and application.

1.08 **COORDINATION**

A. Coordinate with installation of piping insulation.

1.09 **SELF-REGULATING, PARALLEL-RESISTANCE HEATING CABLES FOR SNOW AND ICE MELTING**

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Thermon Americas Inc.; SnoTrace RGS.
2. Raychem; nVent Electric plc; IceStop.
3. Delta-Therm Corporation, IN Series CBT Cables.

B. Comply with IEEE 515.1.

C. Performance Requirements: Select electric heat tracing cable capable of maintaining flow in roof drains and rain conductors with outside temperature at minus 10 deg F.

D. Heating Element: Pair of parallel No. 16 AWG, nickel-coated, copper bus wires embedded in crosslinked conductive polymer core, which varies heat output in response to temperature along its length. Terminate with waterproof, factory-assembled, non-heating leads with connectors at one end, and seal the opposite end watertight. Cable shall be capable of crossing over itself once without overheating.

E. Electrical Insulating Jacket: Flame-retardant polyolefin.

F. Cable Cover: Tinned-copper braid and polyolefin outer jacket with ultraviolet inhibitor.

G. Maximum Operating Temperature (Power On): 150 deg F.

H. Maximum Exposure Temperature (Power Off): 185 deg F.

I. Capacities and Characteristics:

1. Voltage: As recommended by manufacturer.
2. Number of Cables: As recommended by manufacturer.
3. Electrical Characteristics for Single-Circuit Connection: Coordinate electrical system requirements with Division 26.

J. Electrical Power System Characteristics: As scheduled on the Drawings.

K. Installation Accessories:

1. Circuit Fabrication Kit: Designed to terminate one circuit for both power connection and end termination.
2. Labels: Self-adhesive labels with legend “ELECTRIC HEAT TRACING.” Refer to Division 20 Section "Mechanical Identification" for additional requirements
3. Cable Mounting Clips: Secures cable to roof.

4. Cable Roof Fasteners: Attaches cable to roof or fascia material.
5. Downspout Cable Hangers: Secures cable at downspouts to remove strain.
6. Aluminum Tape: Attaches cable to bottom of clean gutter to keep cable in place during rain.

1.10 **CONTROLS**

A. Precipitation and Temperature Sensor for Snow Melting on Roofs and in Gutters:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Thermon Americas Inc.
   b. Raychem; nVent Electric plc.
   c. Delta-Therm Corporation.
2. Automatic control with manual on, automatic, and standby/reset switch.
3. Precipitation and temperature sensors shall sense the surface conditions of roof and gutters and shall be programmed to energize the cable as follows:
   a. Temperature Span: 34 to 44 deg F.
   b. Adjustable Delay-Off Span: 30 to 90 minutes.
   c. Energize Cables: Following two-minute delay if ambient temperature is below set point and precipitation is detected.
   d. De-Energize Cables: On detection of a dry surface plus time delay.
4. Corrosion-proof and waterproof enclosure suitable for outdoor mounting, for controls and precipitation and temperature sensors.
5. Minimum 30-A contactor to energize cable or close other contactors.
6. Precipitation sensor shall be freestanding.
7. Provide relay with contacts to indicate operational status, on or off, for interface with central BAS workstation.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 **EXAMINATION**

A. Examine surfaces and substrates to receive electric heating cables for compliance with requirements for installation tolerances and other conditions affecting performance.

1. Ensure surfaces and pipes in contact with electric heating cables are free of burrs and sharp protrusions.

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

3.02 **INSTALLATION**

A. Install electric heating cable across expansion, construction, and control joints according to manufacturer's written instructions; use cable-protection conduit and slack cable to allow movement without damage to cable.

B. Electric Heating-Cable Installation for Snow and Ice Melting: Install on roof and in gutters and downspouts with clips and other hardware furnished by manufacturer that are compatible with roof, gutters, and downspouts.

C. Set field-adjustable switches and circuit-breaker trip ranges.

3.03 **CONNECTIONS**

A. Ground equipment according to Division 26 Section "Grounding and Bonding."

B. Connect wiring according to Division 26 Section "Conductors and Cables."

3.04 **FIELD QUALITY CONTROL**

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

1. Perform tests after cable installation but before application of coverings such as insulation, wall or ceiling construction, or concrete.

2. Test cables for electrical continuity and insulation integrity before energizing using 2500 Vdc megohmmeter (megger).

3. Test cables to verify rating and power input. Energize and measure voltage and current simultaneously.

B. Cables will be considered defective if they do not pass tests and inspections.

C. Remove and replace damaged heat-tracing cables.

D. Prepare test and inspection reports.

3.05 **PROTECTION**

A. Protect installed heating cables, including non-heating leads, from damage during construction.

END OF SECTION

SECTION 22 1119 - DOMESTIC WATER PIPING SPECIALTIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

B. Related Sections include the following:

1. Division 20 Section “Mechanical General Requirements.”
2. Division 20 Section “Basic Mechanical Materials and Methods.”
3. Division 20 Section "Meters and Gages" for thermometers, pressure gages, and flow meters in domestic water piping.
4. Division 22 Section "Domestic Water Piping " for water meters.
5. Division 22 Section "Emergency Plumbing Fixtures" for water tempering equipment.
6. Division 22 Section "Drinking Fountains, Water Coolers and Cuspidors" for water filters for water coolers.

1.02 PERFORMANCE REQUIREMENTS

A. Minimum Working Pressure for Domestic Water Piping Specialties: 125 psig, unless otherwise indicated.

1.03 ACTION SUBMITTALS

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

1.04 **INFORMATIONAL SUBMITTALS**

A. Shop Drawings: Diagram power, signal, and control wiring.

1.05 **CLOSEOUT SUBMITTALS**

A. Field quality-control test reports.

B. Flow Reports and Settings: For calibrated balancing valves.

C. Operation and Maintenance Data: For domestic water piping specialties to include in emergency, operation, and maintenance manuals.

1.06 **QUALITY ASSURANCE**

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by an NRTL acceptable to authorities having jurisdiction, and marked for intended use.

B. Regulatory Requirements: Comply with requirements in Public Law 111-380, "Reduction of Lead in Drinking Water Act," about lead content in materials that will be in contact with potable water for human consumption.

C. NSF Compliance:

1. Comply with NSF 14, "Plastics Piping Components and Related Materials," for plastic domestic water piping components.
2. Comply with NSF 61, "Drinking Water System Components - Health Effects; Sections 1 through 9."
3. Comply with NSF 372, “Drinking Water System Components – Lead Content” for components with wetted surfaces in contact with potable water.

PART 2 PRODUCTS

2.01 **VACUUM BREAKERS**

A. Pipe-Applied, Atmospheric-Type Vacuum Breakers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Apollo Valves; Conbraco Industries, Inc.
   b. FEBCO; a Division of Watts Water Technologies, Inc.
   c. Watts Water Technologies, Inc.; Watts Regulator Co.
   d. Zurn Plumbing Products Group; Wilkins Div.
2. Standard: ASSE 1001.
3. Size: NPS 1/4 to NPS 3, as required to match connected piping.
4. Body: Bronze.
5. Inlet and Outlet Connections: Threaded.
6. Finish: Chrome plated.

B. Hose-Connection Vacuum Breakers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Apollo Valves; Conbraco Industries, Inc.
   b. MIFAB, Inc.
   c. Watts Water Technologies, Inc.; Watts Regulator Co.

d. Woodford Manufacturing Company.

2. Standard: ASSE 1011.
3. Body: Bronze or brass, nonremovable, with manual drain.
4. Outlet Connection: Garden-hose threaded complying with ASME B1.20.7.
5. Finish: Chrome or nickel plated.

C. Pressure Vacuum Breakers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Apollo Valves; Conbraco Industries, Inc.
   b. FEBCO; a Division of Watts Water Technologies, Inc.
   c. Watts Water Technologies, Inc.; Ames Fire & Waterworks.
   d. Watts Water Technologies, Inc.; Watts Regulator Co.
   e. Zurn Plumbing Products Group; Wilkins Div.
2. Standard: ASSE 1020.
3. Operation: Continuous-pressure applications.
4. Pressure Loss: 5 psig maximum, through middle 1/3 of flow range.
5. Size and Capacity: As indicated on the drawings.
6. Accessories:
   a. Valves: Ball type, on inlet and outlet.

2.02 BACKFLOW PREVENTERS

A. Intermediate Atmospheric-Vent Backflow Preventers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Apollo Valves; Conbraco Industries, Inc.
   b. FEBCO; a Division of Watts Water Technologies, Inc.
   c. Watts Water Technologies, Inc.; Watts Regulator Co.
   d. Zurn Plumbing Products Group; Wilkins Div.
2. Standard: ASSE 1012.
3. Operation: Continuous-pressure applications.
4. Size: NPS 1/2 or NPS 3/4.
5. Body: Bronze.
6. End Connections: Union, solder joint.
7. Finish: Chrome plated.

B. Reduced-Pressure-Principle Backflow Preventers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Apollo Valves; Conbraco Industries, Inc.
   b. FEBCO; a Division of Watts Water Technologies, Inc.
   c. Watts Water Technologies, Inc.; Ames Fire & Waterworks.

d. Watts Water Technologies, Inc.; Watts Regulator Co.

e. Zurn Plumbing Products Group; Wilkins Div.

2. Standard: ASSE 1013.

3. Operation: Continuous-pressure applications.

4. Pressure Loss: 12 psig maximum, through middle 1/3 of flow range.

5. Size and Capacities: As scheduled on the drawings.

6. Body: Bronze for NPS 2 and smaller; cast-iron or ductile-iron, with interior lining complying with AWWA C550 or that is FDA approved for NPS 2-1/2 and larger.

7. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.

8. Configuration: Designed for horizontal, straight through flow.

9. Accessories:

a. Valves: Ball type with threaded ends on inlet and outlet of NPS 2 and smaller; gate-type with flanged ends on inlet and outlet of NPS 2-1/2 and larger.

b. Air-Gap Fitting: ASME A112.1.2, matching backflow-preventer connection.

c. Y-Pattern strainer and soft-seated check valve.

C. Double-Check Backflow-Prevention Assemblies:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Apollo Valves; Conbraco Industries, Inc.

b. FEBCO; a Division of Watts Water Technologies, Inc.

c. Watts Water Technologies, Inc.; Ames Fire & Waterworks.

d. Watts Water Technologies, Inc.; Watts Regulator Co.

e. Zurn Plumbing Products Group; Wilkins Div.

2. Standard: ASSE 1015.

3. Operation: Continuous-pressure applications, unless otherwise indicated.

4. Pressure Loss: 5 psig maximum, through middle 1/3 of flow range.

5. Size and Capacities: As scheduled on the drawings.

6. Body: Bronze for NPS 2 and smaller; cast-iron or ductile-iron, with interior lining complying with AWWA C550 or that is FDA approved for NPS 2-1/2 and larger.

7. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.

8. Configuration: Designed for horizontal, straight through flow.

9. Accessories:

a. Valves: Ball type with threaded ends on inlet and outlet of NPS 2 and smaller; gate-type with flanged ends on inlet and outlet of NPS 2-1/2 and larger.

D. Beverage-Dispensing-Equipment Backflow Preventers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Apollo Valves; Conbraco Industries, Inc.

b. Watts Water Technologies, Inc.; Watts Regulator Co.

c. Zurn Plumbing Products Group; Wilkins Div.

2. Standard: ASSE 1022.
3. Operation: Continuous-pressure applications.
4. Size: NPS 1/4 or NPS 3/8.
5. Body: Stainless steel or Acetal plastic.
6. End Connections: Threaded.

E. Hose-Connection Backflow Preventers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Apollo Valves; Conbraco Industries, Inc.
   b. Watts Water Technologies, Inc.; Watts Regulator Co.
   c. Woodford Manufacturing Company.
2. Standard: ASSE 1052.
3. Operation: Up to 10-foot head of water back pressure.
4. Inlet Size: NPS 1/2 or NPS 3/4.
5. Outlet Size: Garden-hose thread complying with ASME B1.20.7.
6. Capacity: At least 3-gpm flow.

2.03 BALANCING VALVES

A. Calibrated Balancing Valves NPS 1/2:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Armstrong International, Inc.
   b. Armstrong Pumps, Inc.
   c. Apollo Valves; by Conbraco Industries, Inc.
   d. Bell & Gossett; Xylem Inc.
   e. Flo Fab Inc.
   f. Flow Design Inc.
   g. Griswold Controls.
   h. NIBCO INC.
   i. IMI Indoor Climate; Tour & Andersson.
   j. Taco, Inc.
   k. Watts Water Technologies, Inc.; Watts Regulator Co.
2. Type: Ball or Y-pattern globe valve with two readout ports and memory setting indicator.
3. Body: Dezincification resistant brass, or bronze.
4. Minimum Flow Rate: 0.3 gpm.
5. Accessories: Meter hoses, fittings, valves, differential pressure meter, and carrying case.

B. Calibrated Balancing Valves NPS 3/4 to NPS 2:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Armstrong International, Inc.

b. Armstrong Pumps, Inc.
c. Apollo Valves; by Conbraco Industries, Inc.
d. Bell & Gossett; Xylem Inc.
e. Flo Fab Inc.
f. Flow Design Inc.
g. Griswold Controls.
h. NIBCO INC.
i. IMI Indoor Climate; Tour & Andersson.
j. Taco, Inc.
k. Watts Water Technologies, Inc.; Watts Regulator Co.

2. Type: Ball or Y-pattern globe valve with two readout ports and memory setting indicator.
3. Body: Dezincification resistant brass, or bronze.
4. Size: Same as connected piping, but not larger than NPS 2.
5. Accessories: Meter hoses, fittings, valves, differential pressure meter, and carrying case.

C. Calibrated Balancing Valves NPS 2-1/2 to NPS 4:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Armstrong International, Inc.
   b. Bell & Gossett; Xylem Inc.
   c. Flo Fab Inc.
   d. Flow Design Inc.
   e. Griswold Controls.
   f. NIBCO INC.
   g. IMI Indoor Climate; Tour & Andersson.
   h. Watts Water Technologies, Inc.; Watts Regulator Co.
2. Type: Adjustable with Y-pattern globe valve, two readout ports, and memory-setting indicator.
3. Size: Same as connected piping, but not smaller than NPS 2-1/2.
4. Accessories: Meter hoses, fittings, valves, differential pressure meter, and carrying case.

2.04 TEMPERATURE-ACTUATED WATER MIXING VALVES

A. Water-Temperature Limiting Devices:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Acorn Controls; Morris Group International; ST70.
   b. Apollo Valves; Conbraco Industries, Inc.; Model MVD (34D Series).
   c. Bradley Corporation.
   d. Lawler Manufacturing Company, Inc.
   e. Leonard Valve Company; Series 170-LF and 270-LF.

f. Watts Water Technologies, Inc.; Powers Division; Hydroguard Series LFe480, LFG480, and LFLM495.

g. Watts Water Technologies, Inc.; Watts Regulator Co.

h. Zurn Plumbing Products Group; Wilkins Div.

2. Standard: ASSE 1070.

3. Pressure Rating: 125 psig.

4. Type: Thermostatically controlled water mixing valve.

5. Material: Bronze body with corrosion-resistant interior components.

6. Connections: 1/2-inch union or 3/8-inch compression; with integral check valves.

7. Accessories: Adjustable temperature-control knob.

8. Outlet Temperature Range: Adjustable from 85 deg F to 120 deg F. Set at 105 deg F.

9. Minimum Flow Rate: 0.5 gpm.

10. Valve Finish: Chrome plated

2.05 PREPIPED TEMPERED WATER MIXING SYSTEM

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Acorn Controls; Morris Group International.

b. Armstrong International, Inc. (RADA).

c. Bradley Corporation.

d. Lawler Manufacturing Company, Inc.; Prepiped 802 Hi-Low Tempered water Mixing System.

e. Leonard Valve Company.

f. Symmons Industries, Inc.

g. Watts Water Technologies, Inc.; Powers Division.

h. Watts Water Technologies, Inc.; Watts Regulator Co.

2. Description: Completely assembled and tested prepiped manifold system including mixing valve(s), recirculation pump, circuit setting balancing valve, aquastat, circulator switch box, thermometers, isolation valves, mounting strut, and test connection.

3. Standard: ASSE 1017.

4. Mixing Valve: Exposed-mounting, thermostatically controlled water mixing valve.

a. Material: Bronze body with corrosion-resistant interior components.

b. Connections: Threaded union inlets and outlet.

c. Accessories: Manual temperature control, check stops and strainers on hot- and cold-water supplies, and adjustable, temperature-control handle.

d. Valve Pressure Rating: 125 psig minimum, unless otherwise indicated.

e. Size, Settings, and Capacities: As scheduled on the drawings.

f. Valve Finish: Rough bronze.

2.06 STRAINERS FOR DOMESTIC WATER PIPING

A. Y-Pattern Strainers:

1. Manufacturers:

a. Apollo Valves; Conbraco Industries, Inc.
b. Keckley Company.
c. Metraflex Company.
d. Mueller Steam Specialty; a Watts Brand.
e. NIBCO, Inc.
f. Titan Flow Control, Inc.
g. Watts.
h. Yarway; Emerson Automation Solutions.

2. CWP: 200 psig minimum, unless otherwise indicated.
3. SWP: 125 psig minimum, unless otherwise indicated.
4. Body: Bronze for NPS 2 and smaller; cast iron with interior lining complying with AWWA C550 or FDA-approved, epoxy coating and for NPS 2-1/2 and larger.
5. End Connections: Threaded or soldered for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.
6. Screen: Stainless steel with round perforations, unless otherwise indicated.
7. Perforation Size:
   a. Strainers NPS 2 and Smaller: 0.033 inch.
   b. Strainers NPS 2-1/2 to NPS 4: 0.045 inch.
   c. Strainers NPS 5 and Larger: 0.045 inch.
8. Drain: Pipe plug.

2.07 OUTLET BOXES

A. Clothes Washer Outlet Boxes:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Sioux Chief Manufacturing Company, Inc.; Ox Box.
   b. Oatey SCS.
   c. Guy Gray Manufacturing Co., Inc.
2. Mounting: Recessed.
3. Material and Finish: Enameled- or epoxy-painted-steel or Stainless-steel box and faceplate.
4. Faucet: Combination, valved fitting or separate hot- and cold-water, valved fittings complying with ASME A112.18.1. Include garden-hose thread complying with ASME B1.20.7 on outlets.
5. Supply Shutoff Fittings: NPS 1/2 gate, globe, or ball valves and NPS 1/2 copper, water tubing.
6. Drain: NPS 2 standpipe and P-trap for direct waste connection to drainage piping.
7. Inlet Hoses: Two 60-inch- long, rubber household clothes washer inlet hoses with female, garden-hose-thread couplings. Include rubber washers.
8. Drain Hose: One 48-inch- long, rubber household clothes washer drain hose with hooked end.

B. Icemaker Outlet Boxes:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Sioux Chief Manufacturing Company, Inc.; Ox Box.
    b. Oatey SCS.
    c. LSP Products Group, Inc.
    d. Acorn Engineering Company.
2. Mounting: Recessed.
3. Material and Finish: Enameled- or epoxy-painted-steel or Stainless-steel box and faceplate.
4. Faucet: Valved fitting complying with ASME A112.18.1. Include NPS 1/2 or smaller copper tube outlet.
5. Supply Shutoff Fitting: NPS 1/2 gate, globe, or ball valve and NPS 1/2 copper, water tubing.

2.08 HOSE BIBBS

A. Hose Bibbs:
1. Standard: ASME A112.18.1 for sediment faucets.
2. Body Material: Bronze.
3. Seat: Bronze, replaceable.
4. Supply Connections: NPS 1/2 or NPS 3/4 threaded or solder-joint inlet.
5. Outlet Connection: Garden-hose thread complying with ASME B1.20.7.
6. Pressure Rating: 125 psig.
7. Vacuum Breaker: Integral nonremovable, drainable, hose-connection vacuum breaker complying with ASSE 1011.
8. Finish for Equipment Rooms: Chrome or nickel plated.
9. Finish for Service Areas: Chrome or nickel plated.
10. Finish for Finished Rooms: Chrome or nickel plated.
11. Operation for Equipment Rooms: Wheel handle or operating key.
12. Operation for Service Areas: Operating key.
13. Operation for Finished Rooms: Operating key.
14. Include operating key with each operating-key hose bibb.
15. Include integral wall flange with each chrome- or nickel-plated hose bibb.

2.09 WALL HYDRANTS

A. Nonfreeze Wall Hydrants:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Josam Company.
    b. MIFAB, Inc.
    c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
    d. Tyler Pipe; Wade Div.
    e. Watts Water Technologies, Inc.; Watts Regulator co.

f. Woodford Manufacturing Company.

g. Zurn Plumbing Products Group; Specification Drainage Operation.

2. Standard: ASME A112.21.3M for self-draining wall hydrants.

3. Pressure Rating: 125 psig.

4. Operation: Loose key.

5. Casing and Operating Rod: Of length required to match wall thickness. Include wall clamp.

6. Inlet: NPS 3/4 or NPS 1.

7. Outlet: Concealed, with integral vacuum breaker and garden-hose thread complying with ASME B1.20.7.

8. Box: Deep, flush mounting with cover.

9. Box and Cover Finish: Polished nickel bronze or chrome plated.

10. Outlet: Exposed, with integral vacuum breaker and garden-hose thread complying with ASME B1.20.7.

11. Nozzle and Wall-Plate Finish: Polished nickel bronze.

12. Operating Keys(s): Two with each wall hydrant.

2.10 WATER HAMMER ARRESTERS

A. Water Hammer Arresters (Copper Tube Type):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. MIFAB, Inc.

b. PPP Inc.

c. Sioux Chief Manufacturing Company, Inc.

d. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.

e. Tyler Pipe; Wade Div.

f. Watts Drainage Products Inc.

g. Watts Water Technologies, Inc.; Watts Regulator Co.

2. Standard: ASSE 1010 or PDI-WH 201.

3. Type: Copper tube with piston.

4. Size: ASSE 1010, Sizes AA and A through F or PDI-WH 201, Sizes A through F.

B. Water Hammer Arresters (Metal Bellows Type):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. AMTROL, Inc.

b. Josam Company.

c. MIFAB, Inc.

d. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.

e. Tyler Pipe; Wade Div.

f. Watts Drainage Products Inc.

g. Zurn Plumbing Products Group; Specification Drainage Operation.

2. Standard: ASSE 1010 or PDI-WH 201.
3. Type: Precharged stainless steel bellows.
4. Size: ASSE 1010, Sizes AA and A through F or PDI-WH 201, Sizes A through F.

2.11 AIR VENTS

A. Bolted-Construction Automatic Air Vents:
1. Body: Bronze.
2. Pressure Rating: 125-psig minimum pressure rating at 140 deg F.
3. Float: Replaceable, corrosion-resistant metal.
4. Mechanism and Seat: Stainless steel.
5. Size: NPS 3/8 minimum inlet.
6. Inlet and Vent Outlet End Connections: Threaded.

B. Welded-Construction Automatic Air Vents:
1. Body: Stainless steel.
2. Pressure Rating: 150-psig minimum pressure rating.
3. Float: Replaceable, corrosion-resistant metal.
4. Mechanism and Seat: Stainless steel.
5. Size: NPS 3/8 minimum inlet.
6. Inlet and Vent Outlet End Connections: Threaded.

2.12 DOMESTIC WATER CARTRIDGE FILTERS

A. Off-Floor Cartridge Filters:

1. Manufacturers:

a. Culligan International Company.
b. Harmsco Filtration Products.
c. Osmonics, Inc.; Hytrex Filters Div.
d. Parker Hannifin Corporation; Process Filtration Div.
e. Water Equipment Technologies (WET); Xylem Inc.
f. Watts Premier.

2. Description: Simplex, in-line housing with replaceable element for removing suspended particles from water.

a. Housing: Corrosion resistant; designed to separate feedwater from filtrate and to direct feedwater through water filter element; with element support.

1) Pipe Connections: Threaded according to ASME B1.20.1.
2) Support: Wall bracket.

b. Element: Replaceable; of shape to fit housing.

3. Capacity and Characteristics:

a. Refer to locations specified on Drawings. **ADD2**

PART 3 EXECUTION

3.01 INSTALLATION

A. Refer to Division 20 Section "Basic Mechanical Materials and Methods" for piping joining materials, joint construction, and basic installation requirements.

B. Install backflow preventers in each water supply to mechanical equipment and systems and to other equipment and water systems that may be sources of contamination. Comply with authorities having jurisdiction.

1. Locate backflow preventers in same room as connected equipment or system.
2. Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe to floor drain. Locate air-gap device attached to or under backflow preventer. Simple air breaks are not acceptable for this application.
3. Do not install bypass piping around backflow preventers.
4. Install strainer and soft-seated check valve upstream of backflow preventer. Exception: Fire protection backflow preventers.

C. Install water control valves with inlet and outlet shutoff valves. Install pressure gages on inlet and outlet.

D. Install balancing valves in locations where they can easily be adjusted.

E. Install temperature-actuated water mixing valves with strainers, and check stops or shutoff valves on inlets and with shutoff valve on outlet.

1. Install thermometers and water regulators if specified.
2. Install cabinet-type units recessed in or surface mounted on wall as specified.

F. Install Y-pattern strainers for water on supply side of pump.

G. Install outlet boxes recessed in wall. Install 2-by-4-inch fire-retardant-treated-wood blocking wall reinforcement between studs. Fire-retardant-treated-wood blocking is specified in Division 06 Section "Rough Carpentry."

H. Install water hammer arresters in water piping according to PDI-WH 201.

I. Install air vents at high points of water piping.

3.02 DOMESTIC WATER CARTRIDGE-FILTER INSTALLATION

A. Install cartridge filters level and plumb, according to layout drawings, original design, and referenced standards. Maintain manufacturer's recommended clearances. Arrange units so controls and devices needing service are accessible.

B. Attach wall brackets for off-floor, wall-mounting, cartridge filter to vertical surface. Attach housing(s), and base if any, to wall bracket.

C. Install housings for off-floor, in-line, cartridge filters in piping.

D. Install isolation valves on inlet and outlet piping of each water filter.

E. Install filter elements in cartridges after completion of flushing and cleaning. **ADD2**

3.03 CONNECTIONS

A. Piping installation requirements are specified in other Division 20 and 22 Sections. Drawings indicate general arrangement of piping and specialties.

B. Ground equipment according to Division 26 Section "Grounding and Bonding."

C. Connect wiring according to Division 26 Section "Conductors and Cables."

3.04 LABELING AND IDENTIFYING

A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:

1. Pressure vacuum breakers.
2. Intermediate atmospheric-vent backflow preventers.
3. Reduced-pressure-principle backflow preventers.
4. Carbonated-beverage-machine backflow preventers.
5. Dual-check-valve backflow preventers.
6. Calibrated balancing valves.
7. Primary, thermostatic, water mixing valves.
8. Outlet boxes.

B. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit. Nameplates and signs are specified in Division 20 Section "Mechanical Identification."

3.05 FIELD QUALITY CONTROL

A. Perform the following tests and prepare test reports:

1. Test each backflow prevention device according to authorities having jurisdiction and the device's reference standard.

B. Remove and replace malfunctioning domestic water piping specialties and retest as specified above.

3.06 ADJUSTING

A. Set field-adjustable pressure set points of water pressure-reducing valves.

B. Set field-adjustable flow set points of balancing valves as follows:

1. Set calibrated balancing valves at calculated presettings.
2. Measure flow each station and adjust where necessary.
3. Record settings and mark balancing devices.

C. Set field-adjustable temperature set points of temperature-actuated water mixing valves.

END OF SECTION

SECTION 22 1319 - DRAINAGE PIPING SPECIALTIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

B. Related Sections include the following:

1. Division 20 Section “Mechanical General Requirements.”
2. Division 20 Section “Basic Mechanical Materials and Methods.”

1.02 DEFINITIONS

A. ABS: Acrylonitrile-butadiene-styrene plastic.

B. FOG: Fats, oils, and greases.

C. FRP: Fiberglass-reinforced plastic.

D. HDPE: High-density polyethylene plastic.

E. PE: Polyethylene plastic.

F. PP: Polypropylene plastic.

G. PUR: Polyurethane plastic.

H. PVC: Polyvinyl chloride plastic.

1.03 **ACTION SUBMITTALS**

A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and accessories.

1.04 **CLOSEOUT SUBMITTALS**

A. Field quality-control test reports.

B. Operation and Maintenance Data: For drainage piping specialties to include in operation and maintenance manuals.

1.05 **QUALITY ASSURANCE**

A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agency.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by an NRTL acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with NSF 14, "Plastics Piping Components and Related Materials," for plastic sanitary and storm piping specialty components.

D. Comply with ASPE/ANSI 45-2013 “Siphonic Roof Drainage” for siphonic roof drainage systems.

1.06 **COORDINATION**

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

B. Coordinate size and location of roof penetrations.

PART 2 PRODUCTS

2.01 **CAST-IRON CLEANOUTS**

A. Size: Cleanouts shall be same nominal size as the pipe they serve up to 4 inches. For pipes larger than 4 inches nominal size, minimum size of cleanout shall be 4 inches.

B. Exposed Cast-Iron Cleanouts:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Josam Company; Josam Div.; Series 58910.
    b. MIFAB, Inc.; C1460.
    c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.; 4510 Series.
    d. Tyler Pipe; Wade Div.
    e. Watts Drainage Products Inc.
    f. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.36.2M for cast iron for cleanout test tee.
3. Body Material: Hub-and-spigot, cast-iron soil pipe T-branch or hubless, cast-iron soil pipe test tee as required to match connected piping.
4. Closure: Countersunk or raised-head, brass or bronze plug with tapered threads.

C. Cast-Iron Floor Cleanouts (On-Grade Interior Floor Areas):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Josam Company; Josam Div.
    b. MIFAB, Inc.; C1220-R.
    c. Sioux Chief Manufacturing Company, Inc.
    d. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.; Model 4023S-F.
    e. Tyler Pipe; Wade Div.
    f. Watts Drainage Products Inc.
    g. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.36.2M.
3. Type: Adjustable housing.
4. Body or Ferrule: Cast iron.
5. Clamping Device: Not required.
6. Outlet Connection: Spigot.
7. Closure: Brass, bronze, or plastic plug with tapered threads.
8. Adjustable Housing Material: Cast iron with threads, set-screws or other device.
9. Frame and Cover Material and Finish: Nickel-bronze, copper alloy with scoriated cover in service areas, and recessed cover to accept floor finish material in finished floor areas.
10. Frame and Cover Shape: Round.
11. Top Loading Classification: Medium Duty.
12. Riser: ASTM A 74, Service class, cast-iron drainage pipe fitting and riser to cleanout.

D. Cast–Iron Floor Cleanouts (Not-On-Grade Interior Floor Areas):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Josam Company; Josam Div.
    b. MIFAB, Inc.; C-1100-C-R-34.
    c. Sioux Chief Manufacturing Company, Inc.
    d. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.; Model 4333C.
    e. Tyler Pipe; Wade Div.
    f. Watts Drainage Products Inc.
    g. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.36.2M.
3. Type: Adjustable housing.
4. Body or Ferrule: Cast iron.
5. Clamping Device: Required.
6. Outlet Connection: Spigot.
7. Closure: Brass, bronze, or plastic plug with tapered threads.
8. Adjustable Housing Material: Cast iron with threads, set-screws or other device.

9. Frame and Cover Material and Finish: Nickel-bronze, copper alloy with scoriated cover in service areas, and recessed cover to accept floor finish material in finished floor areas.
10. Frame and Cover Shape: Round.
11. Top Loading Classification: Medium Duty.
12. Riser: ASTM A 74, Service class, cast-iron drainage pipe fitting and riser to cleanout.

E. Cast-Iron Wall Cleanouts (Finished Wall Areas):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Josam Company; Josam Div.; Model 58790-20.
   b. MIFAB, Inc.; C1460-RD.
   c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
   d. Tyler Pipe; Wade Div.
   e. Watts Drainage Products Inc.
   f. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.36.2M. Include wall access.
3. Body: Hub-and-spigot, cast-iron soil pipe T-branch or hubless, cast-iron soil pipe test tee as required to match connected piping.
4. Closure: Countersunk or raised-head, drilled-and-threaded bronze or brass plug with tapered threads.
5. Wall Access: Round, flat, chrome-plated brass or stainless-steel cover plate with screw.
6. Wall Access: Round, nickel-bronze, copper-alloy, or stainless-steel wall-installation frame and cover.

2.02 FLOOR DRAINS

A. Cast-Iron Floor Drains (Toilet Rooms, Labs, and Janitor's Closet) FD-1:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Josam Company; Josam Div.
   b. MIFAB, Inc.
   c. Sioux Chief Manufacturing Company, Inc.; Finish Line Adjustable Drainage System.
   d. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.; Model 2005Y-B.
   e. Tyler Pipe; Wade Div.
   f. Watts Drainage Products Inc.
   g. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.6.7.
3. Pattern: Floor drain.
4. Body Material: Gray iron.
5. Seepage Flange: Required.
6. Clamping Device: Required.
7. Outlet: Bottom unless otherwise noted.

8. Coating on Interior and Exposed Exterior Surfaces: Enamel.
9. Top or Strainer Material: Nickel bronze.
10. Top of Body and Strainer Finish: Nickel bronze.
11. Top Shape: Square, with vandal proof screws.
12. Dimensions of Top or Strainer: 7 inch square.
13. Top Loading Classification: Light Duty.
14. Inlet Fitting: Gray iron, with spigot outlet.
15. Trap-Seal Primer Valve Fitting:
    a. Description: Cast iron, with spigot inlet and spigot outlet, and trap-seal primer valve connection.
    b. Size: Same as floor drain outlet with NPS 1/2 side inlet.

B. Cast-Iron Floor Drains (Showers) FD-2:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Josam Company; Josam Div.
    b. MIFAB, Inc.
    c. Sioux Chief Manufacturing Company, Inc.; Finish Line Adjustable Drainage System.
    d. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.; Model 2005Y-B.
    e. Tyler Pipe; Wade Div.
    f. Watts Drainage Products Inc.
    g. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.6.7.
3. Pattern: Floor drain.
4. Body Material: Gray iron.
5. Seepage Flange: Required.
6. Clamping Device: Required.
7. Outlet: Bottom unless otherwise noted.
8. Coating on Interior and Exposed Exterior Surfaces: Enamel.
9. Top or Strainer Material: Nickel bronze.
10. Top of Body and Strainer Finish: Nickel bronze.
11. Top Shape: Square, with vandal proof screws.
12. Dimensions of Top or Strainer: 5 inch square.
13. Top Loading Classification: Light Duty.
14. Inlet Fitting: Gray iron, with spigot outlet.
15. Trap-Seal Primer Valve Fitting:
    a. Description: Cast iron, with spigot inlet and spigot outlet, and trap-seal primer valve connection.
    b. Size: Same as floor drain outlet with NPS 1/2 side inlet.

C. Cast-Iron Floor Drains (Mechanical Rooms, Electrical Rooms, and Penthouses) FD-3:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Josam Company; Josam Div.
    b. MIFAB, Inc.
    c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.; Model 2142.
    d. Tyler Pipe; Wade Div.
    e. Watts Drainage Products Inc.
    f. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.6.7.
3. Pattern: Floor drain.
4. Body Material: Gray iron.
5. Seepage Flange: Required.
6. Clamping Device: Required.
7. Outlet: Bottom unless otherwise noted.
8. Coating on Interior and Exposed Exterior Surfaces: Enamel.
9. Sediment Bucket: 3-3/4 inches deep, slotted sediment bucket with lift bar.
10. Top or Strainer Material: Cast-iron.
11. Top Shape: Round.
12. Dimensions of Top or Strainer: 11-1/2 inch diameter tractor grate, 29 square inches of free area. Provide partial grate where required to accept equipment drains.
13. Top Loading Classification: Heavy Duty.
14. Outlet Fitting: Gray iron, with spigot outlet.
15. Trap-Seal Primer Valve Fitting:
    a. Description: Cast iron, with spigot inlet and spigot outlet, and trap-seal primer valve connection.
    b. Size: Same as floor drain outlet with NPS 1/2 side inlet.

2.03 FLOOR SINKS

A. Stainless-Steel Floor Sink Drains FS-1:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Josam Company; Josam Div.
    b. MIFAB, Inc.
    c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.; Model 3006-12.
    d. Tyler Pipe; Wade Div.
    e. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.6.7.
3. Outlet: Bottom unless otherwise noted.
4. Top or Strainer Material: Stainless steel.
5. Top Shape: Square.

6. Dimensions of Top or Strainer: 12 inch by 12 inch, 14 gage, Type 304 stainless steel ribbed, non-tilt loose set half grate with 1/2 inch square holes and perforated stainless steel sediment bucket.
7. Seepage Flange: Required.
8. Clamping Device: Required.
9. Trap-Seal Primer Valve Fitting:
    a. Description: Cast iron, with spigot inlet and spigot outlet, and trap-seal primer valve connection.
    b. Size: Same as floor drain outlet with NPS 1/2 side inlet.

2.04 AIR-ADMITTANCE VALVES

A. Fixture Air-Admittance Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Ayrlett, LLC.
    b. Durgo, Inc.
    c. Oatey.
    d. ProSet Systems Inc.
    e. RectorSeal.
    f. Studor, Inc.
2. Standard: ASSE 1051, Type A for single fixture or Type B for branch piping.
3. Housing: Plastic.
4. Operation: Mechanical sealing diaphragm.
5. Size: Same as connected fixture or branch vent piping.

2.05 ROOF FLASHING ASSEMBLIES

A. Roof Flashing Assemblies:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Acorn Engineering Company; Elmdor/Stoneman Div.
    b. Thaler Metal Industries Ltd.

B. Description: Manufactured assembly consisting of metal flashing collar and skirt extending at least 6 inches from pipe, with boot reinforcement and counterflashing fitting.

1. Open-Top Vent Cap: Without cap.
2. Low-Silhouette Vent Cap: With vandal-proof vent cap.
3. Extended Vent Cap: With field-installed, vandal-proof vent cap.

2.06 TRAP SEAL PROTECTION DEVICES

A. Barrier Type Trap Seal Protection Devices:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Smith, Jay R. Mfg. Co.; Quad Close Trap Seal Device Fig. 2692.

b. Rectorseal; a CSW Industrials Company; SureSeal Plus Inline Floor Drain Trap Sealer.

2. Standard: ASSE 1072-2007.

3. Sealing Element: Neoprene rubber or chemically resistant elastomer.

4. Size: 2 inch, 3 inch, 3-1/2 inch, or 4 inch.

5. Gravity Drain Outlet Connection: Compression fit sealing gasket 80 durometer.

2.07 ROOF DRAINS

A. Metal Roof Drains RD-1:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Josam Company; Josam Div.

b. MIFAB, Inc.

c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.; Model 1015/1074.

d. Tyler Pipe; Wade Div.

e. Watts Drainage Products Inc.

f. Zurn Plumbing Products Group; Specification Drainage Operation.

2. Standard: ASME A112.6.4

3. Pattern: Roof drain.

4. Body Material: Cast iron.

5. Dimensions of Body: Minimum 10 inch diameter body.

6. Combination Flashing Ring and Gravel Stop: Required.

7. Flow-Control Weirs: Not required.

8. Outlet: Bottom unless otherwise noted.

9. Dome Material: Cast iron, or ductile iron.

10. Extension Collars: Required.

11. Underdeck Clamp: Required.

12. Sump Receiver: Required.

B. Metal Secondary Roof Drains ORD-1:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Josam Company; Josam Div.

b. MIFAB, Inc.

c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.; Model 1015/1074.

d. Tyler Pipe; Wade Div.

e. Watts Drainage Products Inc.

f. Zurn Plumbing Products Group; Specification Drainage Operation.

2. Standard: ASME A112.6.4

3. Pattern: Roof drain.

4. Body Material: Cast iron.

5. Dimensions of Body: Minimum 10 inch diameter body.
6. Combination Flashing Ring and Gravel Stop: Required.
7. Flow-Control Weirs: Not required.
8. Outlet: Bottom unless otherwise noted.
9. Dome Material: Cast iron, or ductile iron.
10. Extension Collars: Required.
11. Underdeck Clamp: Required.
12. Sump Receiver: Required.
13. Standpipe: Cast iron. 2 inches high where overflow drains are indicated.

2.08 MISCELLANEOUS DRAINAGE PIPING SPECIALTIES

A. Hub Outlets:

1. Description: Shop or field fabricate from ASTM A 74, Service class, hub-and-spigot, cast-iron, soil-pipe fittings. Include P-trap, hub-and-spigot riser section; and where required, increaser fitting joined with ASTM C 564, rubber gaskets.
2. Size: Same as connected waste piping.

B. Deep-Seal Traps:

1. Description: Cast-iron or bronze casting, with inlet and outlet matching connected piping and cleanout trap-seal primer valve connection.
2. Size: Same as connected waste piping.
   a. NPS 2: 4-inch- minimum water seal.
   b. NPS 2-1/2 and Larger: 5-inch- minimum water seal.

C. Air-Gap Fittings:

1. Standard: ASME A112.1.2, for fitting designed to ensure fixed, positive air gap between installed inlet and outlet piping.
2. Body: Bronze or cast iron.
3. Inlet: Opening in top of body.
4. Outlet: Larger than inlet.
5. Size: Same as connected waste piping and with inlet large enough for associated indirect waste piping.

D. Sleeve Flashing Device:

1. Description: Manufactured, cast-iron fitting, with clamping device, that forms sleeve for pipe floor penetrations of floor membrane. Include galvanized-steel pipe extension in top of fitting that will extend 1 inch above finished floor and galvanized-steel pipe extension in bottom of fitting that will extend through floor slab.
2. Size: As required for close fit to riser or stack piping.

E. Stack Flashing Fittings:

1. Description: Counterflashing-type, cast-iron fitting, with bottom recess for terminating roof membrane, and with threaded or hub top for extending vent pipe.
2. Size: Same as connected stack vent or vent stack.

F. Vent Caps:

1. Description: Cast-iron body with threaded or hub inlet and vandal-proof design. Include vented hood and setscrews to secure to vent pipe.
2. Size: Same as connected stack vent or vent stack.

G. Expansion Joints:

1. Standard: ASME A112.21.2M.
2. Body: Cast iron with bronze sleeve, packing, and gland.
3. End Connections: Matching connected piping.
4. Size: Same as connected soil, waste, or vent piping.

H. Conductor Nozzles DNZ-1:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Josam Company; Josam Div.
   b. MIFAB, Inc.
   c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.; Model 1770-NB-BS.
   d. Tyler Pipe; Wade Div.
   e. Watts Drainage Products Inc.; RD-940-83.
   f. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Description: Bronze body with threaded inlet, bronze wall flange with mounting holes, and bird screen.
3. Size: Same as connected conductor.

2.09 FLASHING MATERIALS

A. Lead Sheet: ASTM B 749, Type L51121, copper bearing, with the following minimum weights and thicknesses, unless otherwise indicated:

1. General Use: 4.0-lb/sq. ft., 0.0625-inch thickness.
2. Vent Pipe Flashing: 3.0-lb/sq. ft., 0.0469-inch thickness.
3. Burning: 6-lb/sq. ft., 0.0938-inch thickness.

B. Copper Sheet: ASTM B 152/B 152M, of the following minimum weights and thicknesses, unless otherwise indicated:

1. General Applications: 12 oz./sq. ft.
2. Vent Pipe Flashing: 8 oz./sq. ft.

C. Zinc-Coated Steel Sheet: ASTM A 653/A 653M, with 0.20 percent copper content and 0.04-inch minimum thickness, unless otherwise indicated. Include G90 hot-dip galvanized, mill-phosphatized finish for painting if indicated.

D. Elastic Membrane Sheet: ASTM D 4068, flexible, chlorinated polyethylene, 40-mil minimum thickness.

E. Fasteners: Metal compatible with material and substrate being fastened.

F. Metal Accessories: Sheet metal strips, clamps, anchoring devices, and similar accessory units required for installation; matching or compatible with material being installed.

G. Solder: ASTM B 32, lead-free alloy.

H. Bituminous Coating: SSPC-Paint 12, solvent-type, bituminous mastic.

2.10 GREASE INTERCEPTORS

A. Grease Interceptors:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

~~a. Josam Company; Josam Div.~~

b. Lowe Engineering; a div. of Highland Tank & Manufacturing Co., Inc.

c. MIFAB, Inc.

~~d. Schier Products Company.~~

e. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.

f. **Tyler Pipe; Wade Div.**

~~g. Watts Drainage Products Inc.~~

~~h. Zurn Plumbing Products Group.~~ ****ADD2****

2. Standard: ASME A112.14.3, for intercepting and retaining fats, oils, and greases from food-preparation or -processing wastewater.

3. Plumbing and Drainage Institute Seal: Required.

4. Body Material: Stainless steel.

5. Interior Lining: Corrosion-resistant enamel for cast iron or steel bodies. Not required for polypropylene bodies.

6. Exterior Coating: Corrosion-resistant enamel for cast iron or steel bodies. Not required for polypropylene bodies.

7. Body Extension: As required.

8. Size and Capacities: As indicated on the drawings.

9. Cleanout: Integralor field installed on outlet.Mounting: Recessed, flush with floor.

11. Flow-Control Fitting: Required.

12. Operation: Manual cleaning.

2.11 SOLIDS INTERCEPTORS

A. Solids Interceptors:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Josam Company; Josam Div.

b. MIFAB, Inc.

c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.

d. Striem.

e. Tyler Pipe; Wade Div.

f. Watts Drainage Products Inc.

g. Zurn Plumbing Products Group; Specification Drainage Operation.

2. Type: Factory-fabricated interceptor made for removing and retaining sediment from wastewater.

3. Body Material: Cast iron, steel, or polypropylene.
4. Interior Separation Device: Screens.
5. Interior Lining: Corrosion-resistant enamel for cast iron or steel bodies. Not required for polypropylene bodies.
6. Exterior Coating: Corrosion-resistant enamel for cast iron or steel bodies. Not required for polypropylene bodies.
7. Size and Capacities: As indicated on the drawings.
8. Mounting: Above floor.

PART 3 EXECUTION

3.01 CONCRETE BASES

A. Anchor interceptors to concrete bases.

1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 19-inch centers around full perimeter of base.
2. For installed equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
3. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be imbedded.
4. Install anchor bolts to elevations required for proper attachment to supported equipment.
5. Concrete base construction requirements are specified in Division 20 Section "Basic Mechanical Materials and Methods."
6. Cast-in-place concrete materials and placement requirements are specified in Division 03.

3.02 INSTALLATION

A. Refer to Division 20 Section "Basic Mechanical Materials and Methods" for piping joining materials, joint construction, and basic installation requirements.

B. Install cleanouts in aboveground piping and building drain piping according to the following, unless otherwise indicated:

1. Size same as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger cleanout is indicated.
2. Locate at each change in direction of piping greater than 45 degrees.
3. Locate at minimum intervals of 50 feet for piping NPS 4 and smaller and 100 feet for larger piping.
4. Locate at base of each vertical soil and waste stack.

C. For floor cleanouts for piping below floors, install cleanout deck plates with top flush with finished floor.

D. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.

E. Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor, unless otherwise indicated.

1. Position floor drains for easy access and maintenance.
2. Set floor drains below elevation of surrounding finished floor to allow floor drainage. Set with grates depressed according to the following drainage area radii:

a. Radius, 30 Inches or Less: Equivalent to 1 percent slope, but not less than 1/4-inch total depression.

b. Radius, 30 to 60 Inches: Equivalent to 1 percent slope.

c. Radius, 60 Inches or Larger: Equivalent to 1 percent slope, but not greater than 1-inch total depression.

3. Install floor-drain flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.

4. Install individual traps for floor drains connected to sanitary building drain, unless otherwise indicated.

F. Install fixture air-admittance valves on fixture drain piping.

G. Install flashing fittings on sanitary stack vents and vent stacks that extend through roof.

H. Install roof drains at low points of roof areas according to roof membrane manufacturer's written installation instructions. Roofing materials are specified in Division 07.

1. Install roof-drain flashing collar or flange so that there will be no leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.

2. Position roof drains for easy access and maintenance.

I. Assemble open drain fittings and install with top of hub 2 inches above floor.

J. Install deep-seal traps on floor drains and other waste outlets, if indicated.

K. Install floor-drain, trap-seal primer fittings on floor drains that require trap-seal primer connection.

L. Install air-gap fittings on draining-type backflow preventers and on indirect-waste piping discharge into sanitary drainage system.

M. Install sleeve flashing device with each riser and stack passing through floors with waterproof membrane.

N. Install vent caps on each vent pipe passing through roof.

O. Install expansion joints on vertical stacks and conductors. Position expansion joints for easy access and maintenance.

P. Install conductor nozzles at exposed bottom of conductors where they spill onto grade.

Q. Install grease interceptors, including trapping, venting, and flow-control fitting, according to authorities having jurisdiction and with clear space for servicing.

1. Recessed Floor Installation: Set unit in receiver housing having bottom or cradle supports, with receiver housing cover flush with finished floor.

2. Install cleanout immediately downstream from interceptors not having integral cleanout on outlet.

R. Install grease removal devices on floor. Install trap, vent, and flow-control fitting according to authorities having jurisdiction. Install control panel adjacent to unit, unless otherwise indicated.

S. Install solids interceptors with cleanout immediately downstream from interceptors that do not have integral cleanout on outlet. Install trap on interceptors that do not have integral trap and are connected to sanitary drainage and vent systems.

T. Install wood-blocking reinforcement for wall-mounting-type specialties.

U. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.

V. Install escutcheons at wall, floor, and ceiling penetrations in exposed finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding pipe fittings.

W. Install through-penetration firestop assemblies for penetrations of fire- and smoke-rated assemblies.

1. Comply with requirements in Division 07 Section "Penetration Firestopping."

3.03 CONNECTIONS

A. Piping installation requirements are specified in other Division 20 and 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment to allow service and maintenance.

C. Grease Interceptors: Connect inlet and outlet to unit, and connect flow-control fitting and vent to unit inlet piping. Install valve on outlet of automatic drawoff-type unit.

3.04 FLASHING INSTALLATION

A. Fabricate flashing from single piece unless large pans, sumps, or other drainage shapes are required. Join flashing according to the following if required:

1. Lead Sheets: Burn joints of lead sheets 6.0-lb/sq. ft., 0.0938-inch thickness or thicker. Solder joints of lead sheets 4.0-lb/sq. ft., 0.0625-inch thickness or thinner.

2. Copper Sheets: Solder joints of copper sheets.

B. Install sheet flashing on pipes, sleeves, and specialties passing through or embedded in floors and roofs with waterproof membrane.

1. Pipe Flashing: Sleeve type, matching pipe size, with minimum length of 10 inches, and skirt or flange extending at least 8 inches around pipe.

2. Sleeve Flashing: Flat sheet, with skirt or flange extending at least 8 inches around sleeve.

3. Embedded Specialty Flashing: Flat sheet, with skirt or flange extending at least 8 inches around specialty.

C. Set flashing on floors and roofs in solid coating of bituminous cement.

D. Secure flashing into sleeve and specialty clamping ring or device.

E. Install flashing for piping passing through roofs with counterflashing or commercially made flashing fittings, according to Division 07 Section "Sheet Metal Flashing and Trim."

F. Extend flashing up vent pipe passing through roofs and turn down into pipe, or secure flashing into cast-iron sleeve having calking recess.

G. Fabricate and install flashing and pans, sumps, and other drainage shapes.

3.05 **LABELING AND IDENTIFYING**

A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:

1. Solids interceptors.
2. Grease interceptors.

B. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit. Nameplates and signs are specified in Division 20 Section "Mechanical Identification."

3.06 **FIELD QUALITY CONTROL**

A. Perform tests and inspections and prepare test reports.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled grease removal devices and their installation, including piping and electrical connections, and to assist in testing.

B. Tests and Inspections:

1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.07 **PROTECTION**

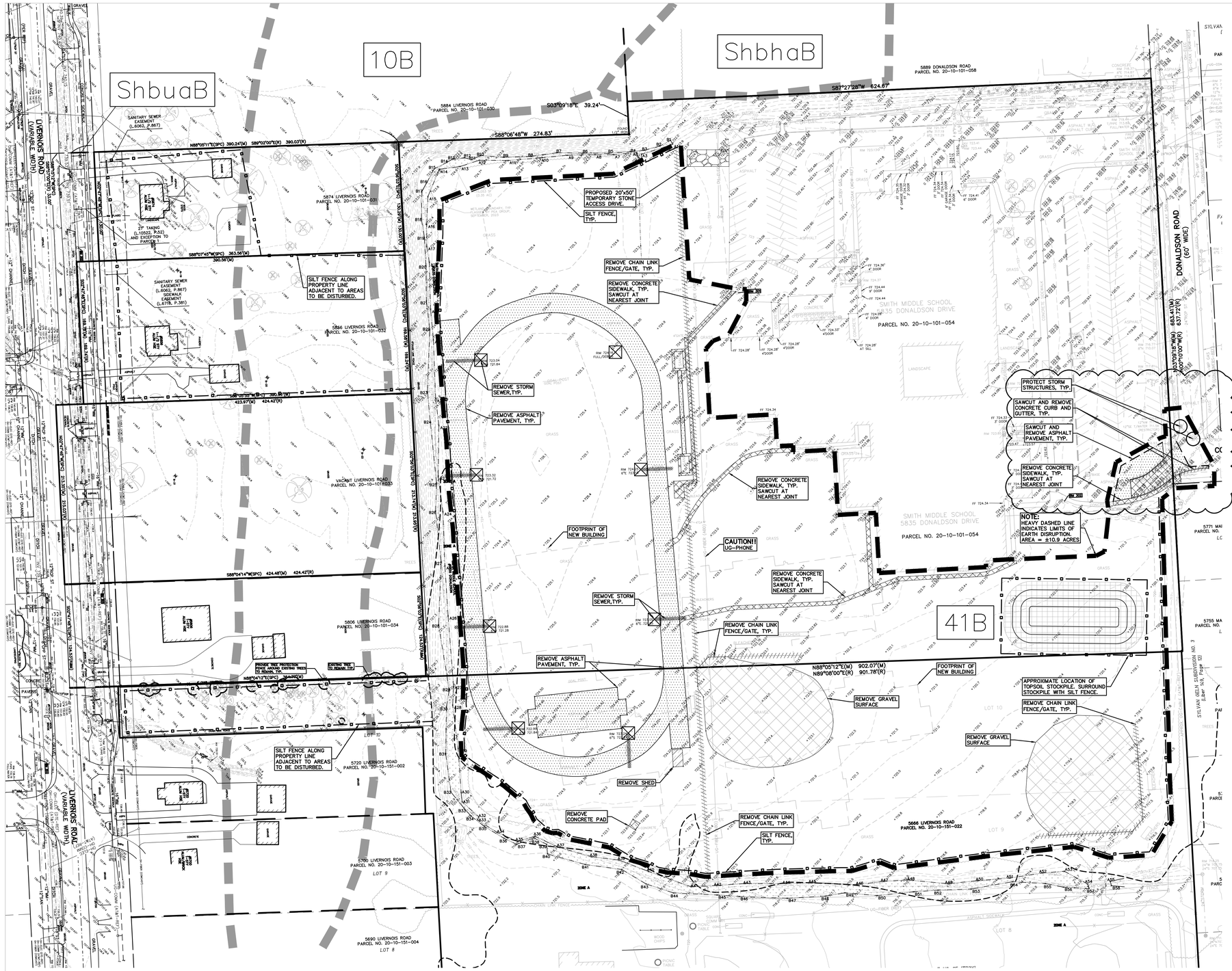
A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.

B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

3.08 **DEMONSTRATION**

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

END OF SECTION



FLOODPLAIN:
PER FLOOD INSURANCE RATE MAP NUMBER 26125C0532F, DATED SEPTEMBER 29, 2006

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
THE 1% ANNUAL CHANCE FLOOD (100 YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. AREAS OF SPECIAL FLOOD HAZARD INCLUDE ZONES A, AE, AH, AO, AR, A99, V AND VE. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

ZONE A - NO BASE FLOOD ELEVATIONS DETERMINED.

OTHER AREAS
ZONE X
AREA TO BE DETERMINED OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

LEGAL DESCRIPTION:

PARCEL ID 20-10-101-054
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DIST S 571.05 FT & S 88-57-00 E 697.50 FT & S 00-10-00 E 169.24 FT FROM NW SEC COR, TH S 89-40-00 E 624.96 FT, TH S 00-10-00 E 683.20 FT, TH N 89-08-00 W 901.78 FT, TH N 00-10-00 W 637.72 FT, TH S 89-02-00 E 275.00 FT, TH N 00-10-00 W 39.24 FT TO BEG 13.79 A

PARCEL ID 20-10-151-022
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 SUPERVISOR'S PLAT NO.25 LOTS 5, 6 & 7, ALSO E 900 FT OF LOTS 8 & 9, ALSO LOT 10 EXC W 357.82 FT OF S 104.29 FT.

BENCHMARKS:
(GPS DERIVED - NAVD88)

BM #300
ARROW ON A HYDRANT LOCATED AT THE SOUTHWEST CORNER OF THE FRONT PARKING LOT.
ELEV. - 724.13

BM #301
ARROW ON A HYDRANT LOCATED ON THE SOUTHWEST CORNER OF THE BACK PARKING LOT.
ELEV. - 726.34

GENERAL DEMOLITION NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT:

1. ALL MATERIAL TO BE REMOVED, WHETHER SPECIFICALLY NOTED IN THE PLANS OR NOT, SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF OFF-SITE IN A LEGAL MANNER. NO ON-SITE BURY OR BURN PITS SHALL BE ALLOWED.
2. ALL DEMOLITION WORK SHALL CONFORM TO ALL LOCAL CODES AND ORDINANCES.
3. STAGING/PHASING OF DEMOLITION AND CONSTRUCTION IS TO BE COORDINATED WITH THE OWNER AND THE CONTRACTOR PRIOR TO CONSTRUCTION.
4. SPECIFIC DEMOLITION ITEMS HAVE BEEN INDICATED ON THE PLANS AS A GUIDE TO THE GENERAL SCOPE OF THE WORK. IT IS THE INTENT THAT THESE ITEMS SHALL BE COMPLETELY REMOVED BY THE CONTRACTOR ABOVE AND BELOW GROUND, UNLESS SPECIFICALLY NOTED OTHERWISE, AND THAT DEMOLITION WILL INCLUDE BUT WILL NOT NECESSARILY BE LIMITED TO THESE ITEMS. CONTRACTOR SHALL VISIT SITE TO VERIFY EXISTING CONDITIONS AND EXTENTS OF THE DEMOLITION THAT WILL BE REQUIRED PRIOR TO SUBMITTING A BID.
5. REMOVE ALL STRUCTURES DESIGNATED FOR REMOVAL ACCORDING TO THE DEMOLITION PLAN. THIS INCLUDES FOUNDATIONS, FOOTINGS, FOUNDATION WALLS, FLOOR SLABS, UNDERGROUND UTILITIES, CONCRETE, ASPHALT, TREES, ETC.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN UP, NOISE, DUST CONTROL, STREET SWEEPING AND HOURS OF OPERATION IN ACCORDANCE WITH THE LOCAL CODES.
7. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADES, SIGNAGE, MARKINGS, LIGHTS AND OTHER TRAFFIC CONTROL DEVICES TO PROTECT THE WORK ZONE AND SAFELY MAINTAIN TRAFFIC PER AGENCY REQUIREMENTS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
8. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY COMPANIES TO CONFIRM THAT UTILITY LEADS HAVE BEEN TAKEN OUT OF SERVICE PRIOR TO DEMOLITION.
9. ALL BUILDING GAS LEADS, METERS AND ASSOCIATED EQUIPMENT SHALL BE REMOVED AS SHOWN ON THE PLANS. COORDINATE ALL ASSOCIATED WORK WITH THE APPROPRIATE UTILITY COMPANY.
10. REMOVE ALL OVERHEAD AND UNDERGROUND ELECTRICAL LINES WITHIN THE AREA OF CONSTRUCTION AS SHOWN ON THE PLANS. COORDINATE SHUTDOWNS AND REMOVALS WITH ELECTRICAL SERVICE PROVIDER OR THE APPROPRIATE UTILITY COMPANY. (NOTE: PHONE AND CABLE T.V. SERVICES MAY ALSO BE LOCATED ON OVERHEAD LINES.)
11. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF SIGNS AND SUPPORTS WITHIN THE WORK AREA, AS NECESSARY TO FACILITATE CONSTRUCTION. SIGNS SHALL BE PROTECTED OR STOCKPILED FOR REUSE AS SPECIFIED IN THE PLANS OR AS REQUIRED BY THE AGENCY OF JURISDICTION. THE CONTRACTOR SHALL REPLACE ANY DAMAGED SIGNS AND SUPPORTS AT NO ADDITIONAL COST TO THE OWNER.
12. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE 811/ONE CALL UTILITY LOCATING CENTER, THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

DEMOLITION LEGEND:

- ITEM TO BE REMOVED
- CURB/FENCE REMOVAL
- CONCRETE PAVEMENT AND SIDEWALK REMOVAL
- GRAVEL REMOVAL
- AREA OR ITEMS TO BE REMOVED
- UTILITY REMOVAL
- ASPHALT REMOVAL
- SAWCUT LINE

SYMBOLS: EROSION CONTROL:

- (SP-2) SILT FENCE
- (SP-9) TEMPORARY STONE ACCESS DRIVE
- (E-9) EROSION CONTROL BLANKET

REFER TO O.C.W.R.C. SOIL EROSION AND SEDIMENTATION CONTROL DETAILS SHEET FOR ALL DEVICE DETAILS.

SEQUENCE OF CONSTRUCTION:

START DAY	END DAY	
1	750	INSTALL CRUSHED CONCRETE ACCESS APPROACH AT SITE ROAD APPROACH.
1	750	INSTALL TEMPORARY SOIL EROSION CONTROL MEASURES, SILT FENCES, INLET PROTECTION, ETC. AS NECESSARY.
1	750	MAINTAIN A 25' BUFFER OF VEGETATION AROUND PERIMETER OF SITE WHERE POSSIBLE.
1	15	REMOVE ALL VEGETATION, TREES AND BRUSH FROM THE PROPOSED CONSTRUCTION AREA UNLESS MARKED TO REMAIN. STRIP AND STOCKPILE TOPSOIL AS REQUIRED. ALL STOCKPILES MUST BE GRADED AND SEEDED.
5	14	REMOVE ALL PAVEMENT, CURB, UTILITIES, ETC. AS REQUIRED TO INSTALL THE PROPOSED WORK AS SHOWN ON THE TOPOGRAPHIC SURVEY AND DEMOLITION PLAN.
5	14	DISPOSE OF ALL EXCESS/UNSUITABLE MATERIALS OFF SITE IN A LEGAL MANNER. NO ON-SITE BURN OR BURY PITS ALLOWED.
14	28	ROUGH GRADE SITE. SEED AND MULCH BLANKETS MUST BE INSTALLED AS SHOWN WITHIN 5 DAYS OF FINAL GRADE. REPAIR AND/OR RE-INSTALL ANY TEMPORARY SOIL EROSION CONTROL MEASURES THAT WERE DAMAGED DURING GRADING OPERATIONS.
28	60	INSTALL SITE UTILITIES (STORM SEWER, SANITARY SEWER, WATER MAIN ETC.). INSTALL INLET PROTECTION AT ALL PROPOSED CATCH BASINS.
28	90	TEMPORARY SEEDING MUST BE PROVIDED IN AREAS NOT TO BE WORKED ON FOR 15 DAYS OR LONGER.
30	80	BEGIN CONSTRUCTION OF BUILDING.
70	80	FINE GRADE SITE AND PREPARE FOR SITE PAVING OPERATIONS.
80	110	INSTALL ALL PAVEMENT, SIDEWALKS, CURBING AS PROPOSED. IF PERMANENT LANDSCAPING IS NOT TO BE INSTALLED SOON AFTER PAVING IS COMPLETE, ALL AREAS WITHIN 20 FEET OF BACK OF CURB MUST BE TEMPORARILY SEEDED. REPAIR INLET PROTECTION, SILT FENCE AND ANY OTHER DAMAGED SOIL EROSION CONTROL MEASURES AS NECESSARY.
90	119	FINAL GRADE, REDISTRIBUTE STOCKPILED TOPSOIL, ESTABLISH VEGETATION AND INSTALL ALL PERMANENT LANDSCAPING IN ALL DISTURBED AREAS NOT BUILT.
118	120	CLEAN PAVEMENT AND REMOVE ALL TEMPORARY SOIL EROSION CONTROL MEASURES. RE-ESTABLISH VEGETATION AS REQUIRED.
750	750	REMOVE SEDIMENTATION CONTROLS ONCE ENTIRE SITE HAS BEEN PERMANENTLY STABILIZED.

SOIL EROSION AND SEDIMENTATION CONTROL SEQUENCE OF CONSTRUCTION

1. SEE OAKLAND COUNTY W.R.C. SOIL EROSION AND SEDIMENTATION CONTROL DETAILS SHEET FOR ALL SOIL EROSION CONTROL RELATED DETAILS.
2. PLACE SILT FENCE ON EXISTING STORM SEWER STRUCTURES, ACCORDING TO PLANS.
3. INSTALL TEMPORARY CRUSHED CONCRETE ACCESS DRIVE AT ALL CONSTRUCTION ENTRANCES. (80'x24'x8" W/MINIMUM OF 1"-3" CRUSHED CONCRETE – NO FINES).
4. REMOVE CURB, PAVEMENT, TREES, ETC. AS DIRECTED ON THE DEMOLITION PLAN.
5. STRIP AND STOCKPILE TOPSOIL FOR RESTORATION REQUIREMENTS.
6. DISPOSE OF ALL EXCESS, UNSUITABLE MATERIALS OFF SITE IN A LEGAL MANNER. NO BURN OR BURY PITS ALLOWED.
7. UNSUITABLE MATERIALS CONSIST OF, BUT ARE NOT NECESSARILY LIMITED TO THE FOLLOWING: CONCRETE, ASPHALT, TREES, BRUSH, STUMPS, ROOTS, OR OTHER MISCELLANEOUS DEBRIS OR TRASH.
8. MASS GRADE THE SITE IN ACCORDANCE WITH THE PLANS.
9. INSTALL SEED, MULCH AND EROSION CONTROL BLANKETS AS SHOWN ON THE PLAN WITHIN 5 DAYS OF COMPLETION OF MASS GRADING OR WHENEVER DISTURBED AREAS WILL REMAIN UNCHANGED FOR 30 DAYS OR GREATER. 3–4" TOPSOIL WILL BE USED WHERE VEGETATION IS REQUIRED.
10. COMPLETE ROUGH GRADING OF SITE AND INSTALL UTILITIES. PLACE INLET FILTERS AT ALL INLETS AND CATCH BASINS, AS SHOWN.
11. FINISH GRADE AND PAVE SITE AS PROPOSED TO DRAIN TO STORM SEWER SYSTEM. REPAIR INLET FILTERS AS REQUIRED.
12. APPLY TOPSOIL, SEED AND MULCH/SOD TO ALL DISTURBED AREAS UPON COMPLETION OF GRADING. THE CONTRACTOR SHALL STAGE CONSTRUCTION ACTIVITIES IN ORDER TO MINIMIZE THE EXPOSURE OF UNSTABILIZED AREAS.
13. CLEAN PAVEMENT AND STORM SEWERS. REMOVE SILT FENCE, AND INLET FILTERS ONCE VEGETATION HAS BEEN ESTABLISHED.
14. ALL DIRT AND MUD TRACKED ONTO PUBLIC ROADS SHALL BE REMOVED DAILY.

SOIL EROSION MAINTENANCE SCHEDULE AND NOTES:

1. THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT BY:

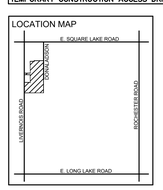
   JOSH EISENMAN
   BARTON MALOW BUILDERS
   26500 AMERICAN DRIVE
   SOUTHFIELD, MI 48034
   586.651.2658

2. IF ANY DAMAGE HAS OCCURRED AS A RESULT OF STORM WATER DISCHARGE FROM THE SITE, THE FOLLOWING STEPS SHALL BE IMPLEMENTED.
3. ANY DEBRIS OR DIRT ON ANY PAVED AREA RESULTING FROM CONSTRUCTION TRAFFIC SHALL BE CLEANED IN A PROMPT MANNER BY THE CONTRACTOR. THE CONSTRUCTION DRIVE SHALL BE CLEANED AT THE END OF EACH DAY.
4. ALL DIRT AND MUD TRACKED ONTO PAVED AREAS SHALL BE REMOVED BY THE CONTRACTOR DAILY BY SCRAPING. STREET SWEEPING IS REQUIRED WEEKLY.
5. SILT FENCE MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY BUILT UP SEDIMENT WHEN THE SEDIMENT HEIGHT ACCUMULATES TO 1/3 TO 1/2 OF THE HEIGHT OF THE FENCE. THE CONTRACTOR IS RESPONSIBLE TO REMOVE, REPLACE, RETRENCH OR REBACKFILL THE SILTATION FENCE SHOULD IT FALL OR BE DAMAGED DURING CONSTRUCTION.
6. CONTRACTOR SHALL PROVIDE WATER TRUCK TO WATER DOWN THE SITE ON A DAILY BASIS AS REQUIRED TO MAINTAIN DUST CONTROL.
7. IF HIGH GROUNDWATER IS ANTICIPATED OR ENCOUNTERED DURING CONSTRUCTION A DEWATERING PLAN MUST BE SUBMITTED TO THE CITY ENGINEERING DIVISION FOR REVIEW.

EROSION CONTROL QUANTITIES:

SILT FENCE	3,875 LF
TEMPORARY CONSTRUCTION ACCESS DRIVE	1 EA.

LOCATION MAP



GENERAL SITE CONDITIONS:

1. ACCORDING TO THE SOIL SURVEY INFORMATION SUPPLIED BY THE USDA NRCS, THE SITE CONSISTS OF THE FOLLOWING SOIL TYPES:
   - 10B MARLETTE SANDY LOAM, 1 TO 6 PERCENT SLOPES
   - 41B AQUENTS, SANDY, LOAMY, UNDULATING
   - ShbhaB SHEBEON SANDY LOAM, 0 TO 4 PERCENT SLOPES
   - ShbuaB SHEBEON-URBAN LAND COMPLEX, 0 TO 4 PERCENT SLOPES
2. TOTAL DISTURBED AREA = ±10.9 ACRES
3. N.P.D.E.S. NOTICE OF COVERAGE IS REQUIRED
4. THE NEAREST LAKE/STREAM/WETLAND IS THE ON-SITE WETLAND THAT STARTS NORTH OF THE PROPOSED CONSTRUCTION, RUNS THROUGH THE MIDDLE OF THE SITE AND THEN ALONG THE SOUTHERN BOUNDARY. CONSEQUENTLY, THE DISTANCE TO THE NEAREST LAKE/STREAM/WETLAND IS 0 FEET.

NORTH

0 25 50 100
SCALE: 1" = 50'

811 Know what's below. Call before you dig.

CAUTION!!
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FOR REFERENCE

TMP ARCHITECTURE

TMP ARCHITECTURE INC
1191 WEST SQUARE LAKE ROAD
BLOOMFIELD HILLS · MICHIGAN · 48302
PH - 248.338.4561 FX - 248.338.0223
EM - INFO@TMP-ARCHITECTURE.COM

REGISTRATION SEAL

STATE OF MICHIGAN · JOSEPH S. WYWROT · ENGINEER · No. 46074 · REGISTERED PROFESSIONAL

CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE

New Smith Middle School Bid Package No. 03A

Troy School District
Troy, Michigan

DRAWING TITLE

DEMOLITION AND SESC PLAN - PHASE 1

ISSUE DATES

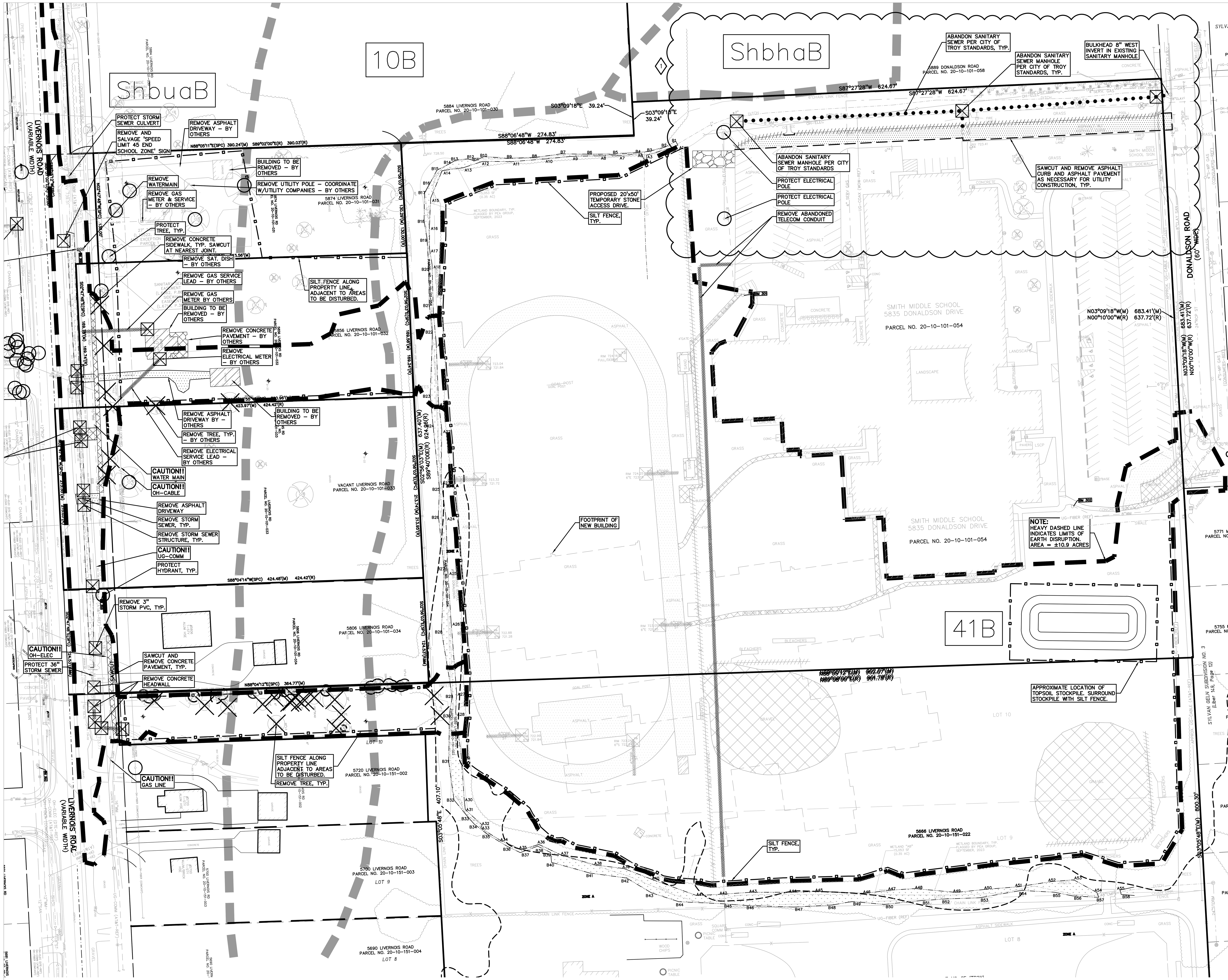
DATE:	ISSUED FOR:
07-12-2024	ADDENDUM NO. 2
06/18/24	CONSTRUCTION DOCUMENTS
03/11/24	CITY REVIEW REVISIONS
02/08/24	ADDENDUM 2
01/23/24	BIDS

DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102

DRAWING NO.
C-2.0

Drawing File: S:\PROJECTS\2023\23-0301 TROY SCHOOLS 2022 BOND\DWG\A_CONSTRUCTION\NEW SMITH MIDDLE\C-2.0 DEMO-SESC-PH 1.dwg
Jul 17, 2024 - 8:57am



FLOODPLAIN:
PER FLOOD INSURANCE RATE MAP NUMBER 26125C0532F, DATED SEPTEMBER 29, 2006

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
THE 1% ANNUAL CHANCE FLOOD (100 YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. AREAS OF SPECIAL FLOOD HAZARD INCLUDE ZONES A, AE, AH, AO, AR, A99, V AND VE. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

ZONE A - NO BASE FLOOD ELEVATIONS DETERMINED.

OTHER AREAS
ZONE X
AREA TO BE DETERMINED OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

LEGAL DESCRIPTION:

PARCEL ID 20-10-101-054
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DIST S 571.05 FT & S 88-57-00 E 697.50 FT & S 00-10-00 E 169.24 FT FROM NW SEC COR, TH S 89-40-00 E 624.96 FT, TH S 00-10-00 E 683.20 FT, TH N 89-08-00 W 901.78 FT, TH N 00-10-00 W 637.72 FT, TH S 89-02-00 E 275.00 FT, TH N 00-10-00 W 39.24 FT TO BEG 13.79 A

PARCEL ID 20-10-151-022
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 SUPERVISOR'S PLAT NO 25 LOTS 5, 6 & 7, ALSO E 900 FT OF LOTS 8 & 9, ALSO LOT 10 EXC W 357.82 FT OF S 104.29 FT

BENCHMARKS:
(GPS DERIVED - NAVD88)

BM #300
ARROW ON A HYDRANT LOCATED AT THE SOUTHWEST CORNER OF THE FRONT PARKING LOT.
ELEV. - 724.13

BM #301
ARROW ON A HYDRANT LOCATED ON THE SOUTHWEST CORNER OF THE BACK PARKING LOT.
ELEV. - 726.34

GENERAL DEMOLITION NOTES:

REFER TO SHEET C-2.0 FOR GENERAL DEMOLITION NOTES.

SEQUENCE OF CONSTRUCTION:

REFER TO SHEET C-2.0 FOR SEQUENCE OF CONSTRUCTION.

SOIL EROSION AND SEDIMENTATION CONTROL SEQUENCE OF CONSTRUCTION:

REFER TO SHEET C-2.0 FOR SOIL EROSION AND SEDIMENTATION CONTROL SEQUENCE OF CONSTRUCTION.

SOIL EROSION MAINTENANCE SCHEDULE AND NOTES:

REFER TO SHEET C-2.0 FOR SOIL EROSION MAINTENANCE SCHEDULE AND NOTES.

DEMOLITION LEGEND:

ITEM TO BE REMOVED
CURB/FENCE REMOVAL
CONCRETE PAVEMENT AND SIDEWALK REMOVAL
GRAVEL REMOVAL
AREA OR ITEMS TO BE REMOVED
UTILITY REMOVAL
ASPHALT REMOVAL
SAWCUT LINE

SYMBOLS: EROSION CONTROL:

(SP-2) SILT FENCE
(SP-9) TEMPORARY STONE ACCESS DRIVE
(E-9) EROSION CONTROL BLANKET

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EROSION CONTROL QUANTITIES:

SILT FENCE	3,875 LF
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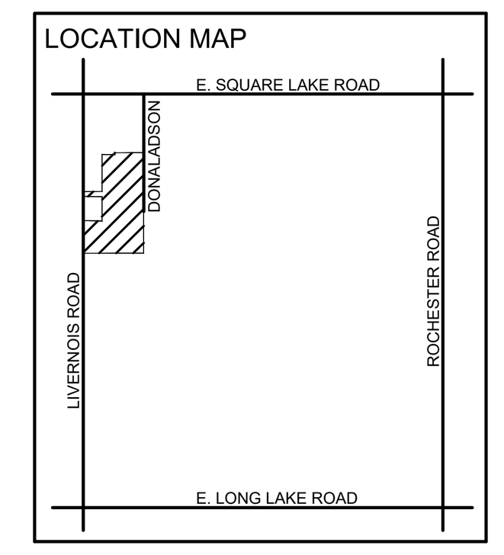
LOCATION MAP



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   - 41B AQUENTS, SANDY, LOAMY, UNDULATING
   - ShbhaB SHEBEON SANDY LOAM, 0 TO 4 PERCENT SLOPES
   - ShbuaB SHEBEON-URBAN LAND COMPLEX, 0 TO 4 PERCENT SLOPES
2. TOTAL DISTURBED AREA = ±10.9 ACRES
3. N.P.D.E.S. NOTICE OF COVERAGE IS REQUIRED
4. THE NEAREST LAKE/STREAM/WETLAND IS THE ON-SITE WETLAND THAT STARTS NORTH OF THE PROPOSED CONSTRUCTION, RUNS THROUGH THE MIDDLE OF THE SITE AND THEN ALONG THE SOUTHERN BOUNDARY. CONSEQUENTLY, THE DISTANCE TO THE NEAREST LAKE/STREAM/WETLAND IS 0 FEET.

NORTH

0 25 50 100
SCALE: 1" = 50'

811 Know what's below. Call before you dig.

CAUTION!!

TMP ARCHITECTURE

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BLOOMFIELD HILLS · MICHIGAN · 48302
PH · 248.338.4561 FX · 248.338.0223
EM · INFO@TMP-ARCHITECTURE.COM

REGISTRATION SEAL

CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE
New Smith Middle School Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE
DEMOLITION AND SESC PLAN - PHASE 2

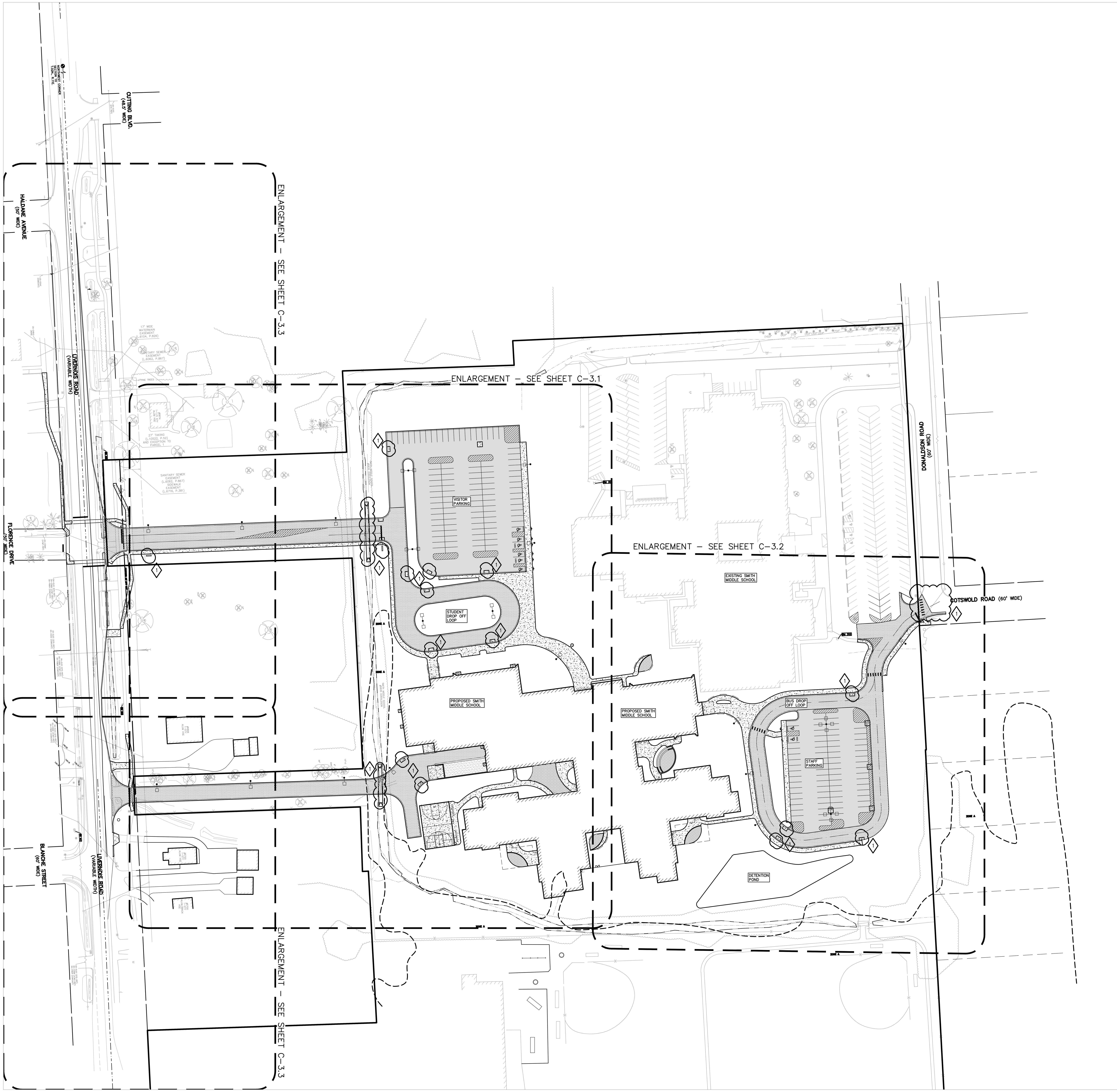
ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102

DRAWING NO.
C-2.1



LEGEND:

- CONCRETE PAVEMENT (STD DUTY / HEAVY DUTY / R.O.W. ONLY)
- ASPHALT PAVEMENT (STD DUTY / HEAVY DUTY / DEEP STRENGTH)
- GRAVEL
- WETLAND
- CONCRETE CURB AND GUTTER
- REVERSE GUTTER PAN
- SETBACK LINE
- SIGN
- LIGHTPOLE
- FENCE
- GUARD RAIL

GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

1. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
2. 'NO PARKING-FIRE LANE' SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT XXX FOOT INTERVALS OR AS DIRECTED BY THE FIRE OFFICIAL.
3. REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.
4. REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS

PARKING:

EXISTING PARKING SPACES: 166 SPACES (INCLUDING 5 ADA SPACES)

PROPOSED PARKING SPACES: 131 SPACES

NORTH

0 25 50 100

SCALE: 1" = 50'

811 Know what's below. Call before you dig.

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TMP ARCHITECTURE

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REGISTRATION SEAL

CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE

New Smith Middle School Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE

OVERALL DIMENSION & PAVING PLAN

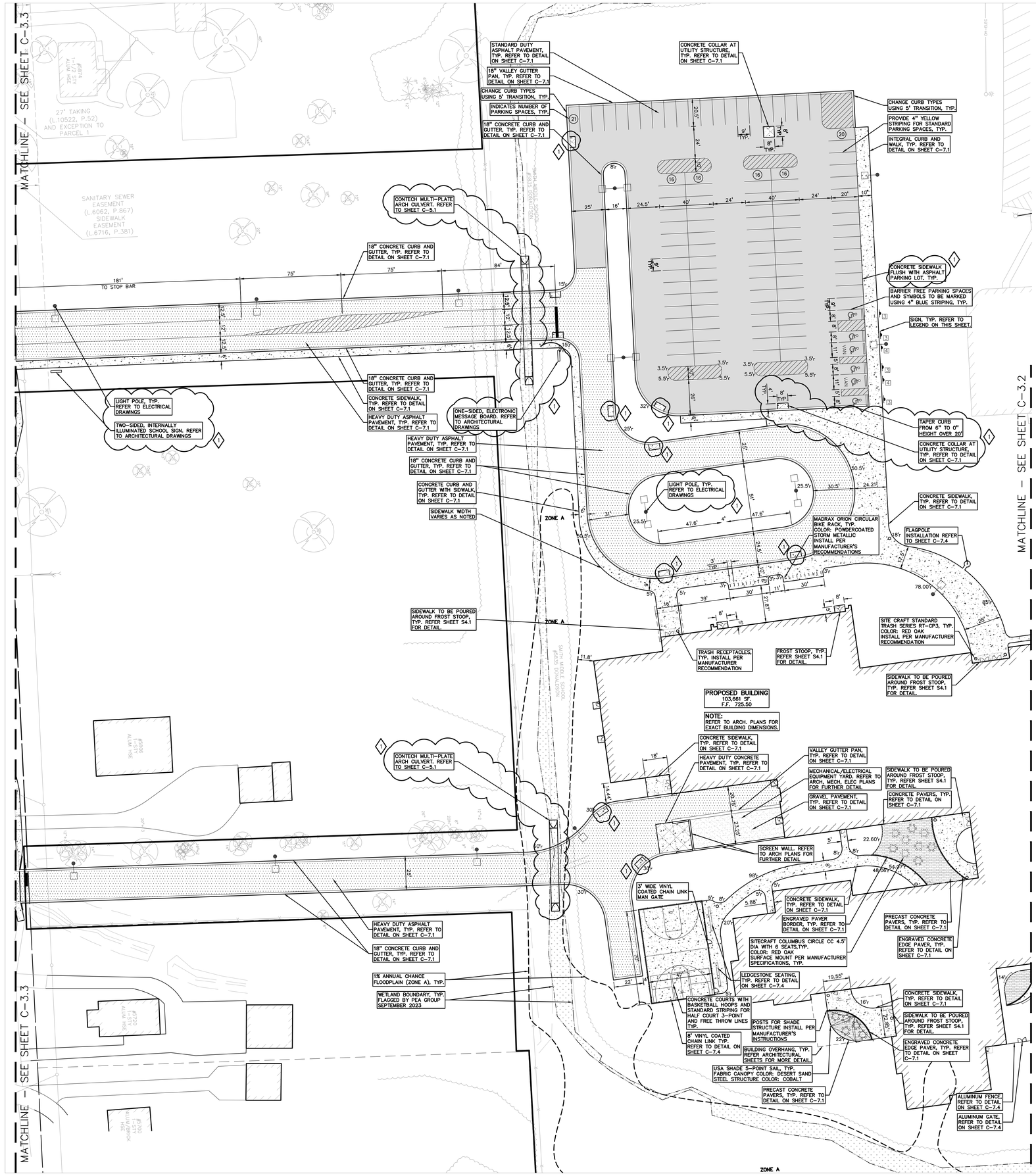
ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102

DRAWING NO.
C-3.0



LEGEND:

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- ASPHALT PAVEMENT (STD DUTY / HEAVY DUTY / DEEP STRENGTH)
- GRAVEL
- WETLAND
- CONCRETE CURB AND GUTTER
- REVERSE GUTTER PAN
- SETBACK LINE
- SIGN / LIGHTPOLE / FENCE / GUARD RAIL

GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

1. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
2. "NO PARKING-FIRE LANE" SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT XXX FOOT INTERVALS OR AS DIRECTED BY THE FIRE OFFICIAL
3. REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.
4. REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS

PARKING:

EXISTING PARKING SPACES: 166 SPACES (INCLUDING 5 ADA SPACES)

PROPOSED PARKING SPACES: 154 SPACES (INCLUDING 8 ADA SPACES)

SIDEWALK RAMP LEGEND:

SIDEWALK RAMP "TYPE R"	(R)
SIDEWALK RAMP "TYPE F"	(F)
SIDEWALK RAMP "TYPE P"	(P)
SIDEWALK RAMP "TYPE C"	(C)
SIDEWALK RAMP "TYPE D"	(D)
CURB DROP ONLY	(X)

REFER TO LATEST MDOT R-28 STANDARD RAMP AND DETECTABLE WARNING DETAILS

NOTE: DETECTABLE WARNING SURFACE TO BE YELLOW FOR ALL RAMPS.

SIGN LEGEND:

"NO PARKING FIRE LANE" SIGN	[1]
"STOP" SIGN	[2]
"BARRIER FREE PARKING" SIGN	[3]
"VAN ACCESSIBLE" SIGN	[4]
"CROSSWALK" SIGN	[5]
"DO NOT ENTER" SIGN	[6]
"SIDEWALK ENDS" SIGN	[7]
"NO PARKING LOADING ZONE" SIGN	[8]

REFER TO DETAIL SHEET FOR SIGN DETAILS

NORTH

0 15 30 60

SCALE: 1" = 30'

811 Know what's below. Call before you dig.

CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE BELIEVED TO BE APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

TMP ARCHITECTURE

TMP ARCHITECTURE INC
1191 WEST SQUARE LAKE ROAD
BLOOMFIELD HILLS - MICHIGAN - 48302
PH - 248.338.4561 FX - 248.338.0223
EM - INFO@TMP-ARCHITECTURE.COM

REGISTRATION SEAL

CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE

New Smith Middle School Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE

DIMENSION & PAVING PLAN - WEST

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	JW
CHECKED	TD
APPROVED	TD

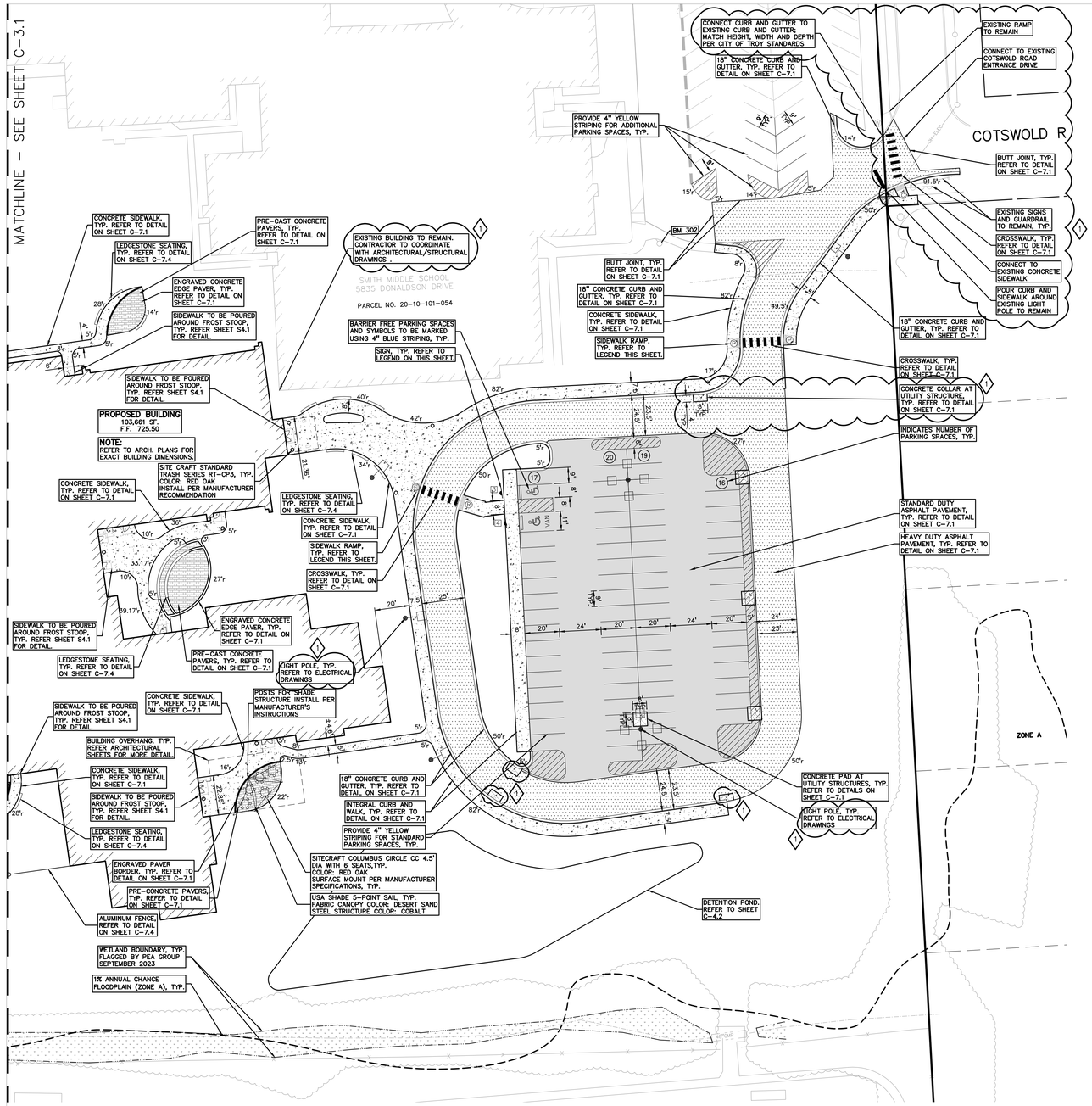
PROJECT NO.

22102

DRAWING NO.

C-3.1

Drawing File: S:\PROJECTS\2023\23-0301 TROY SCHOOLS 2022 BOND\CAD\C3_CONSTRUCTION\VIEW SMITH MIDDLE\C-3.1 (SM-23-0301).dwg
Jul 17, 2024 - 9:01am



LEGEND:

- CONCRETE PAVEMENT (STD DUTY / HEAVY DUTY / R.O.W. ONLY)
- ASPHALT PAVEMENT (STD DUTY / HEAVY DUTY / DEEP STRENGTH)
- GRAVEL
- WETLAND
- CONCRETE CURB AND GUTTER
- REVERSE GUTTER PAN
- SETBACK LINE
- SIGN
- LIGHTPOLE
- FENCE
- GUARD RAIL

GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

1. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
2. "NO PARKING-FIRE LANE" SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT XXX FOOT INTERVALS OR AS DIRECTED BY THE FIRE OFFICIAL
3. REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.
4. REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS

PARKING:

EXISTING PARKING SPACES: 166 SPACES (INCLUDING 5 ADA SPACES)

PROPOSED PARKING SPACES: 131 SPACES

SIDEWALK RAMP LEGEND:

SIDEWALK RAMP "TYPE R"	(R)
SIDEWALK RAMP "TYPE F"	(F)
SIDEWALK RAMP "TYPE P"	(P)
SIDEWALK RAMP "TYPE C"	(C)
SIDEWALK RAMP "TYPE D"	(D)
CURB DROP ONLY	(X)

REFER TO LATEST MDOT R-28 STANDARD RAMP AND DETECTABLE WARNING DETAILS

NOTE: DETECTABLE WARNING SURFACE TO BE YELLOW FOR ALL RAMPS.

SIGN LEGEND:

'NO PARKING FIRE LANE' SIGN	[1]
'STOP' SIGN	[2]
'BARRIER FREE PARKING' SIGN	[3]
'VAN ACCESSIBLE' SIGN	[4]
'CROSSWALK' SIGN	[5]
'DO NOT ENTER' SIGN	[6]
'SIDEWALK ENDS' SIGN	[7]
'NO PARKING LOADING ZONE' SIGN	[8]

REFER TO DETAIL SHEET FOR SIGN DETAILS

NORTH

0 15 30 60

SCALE: 1" = 30'

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CAUTION!!
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REGISTRATION SEAL

CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE

New Smith Middle School Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE

DIMENSION & PAVING PLAN - EAST

ISSUE DATES

07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE:	ISSUED FOR:
DRAWN	JW
CHECKED	TD
APPROVED	TD

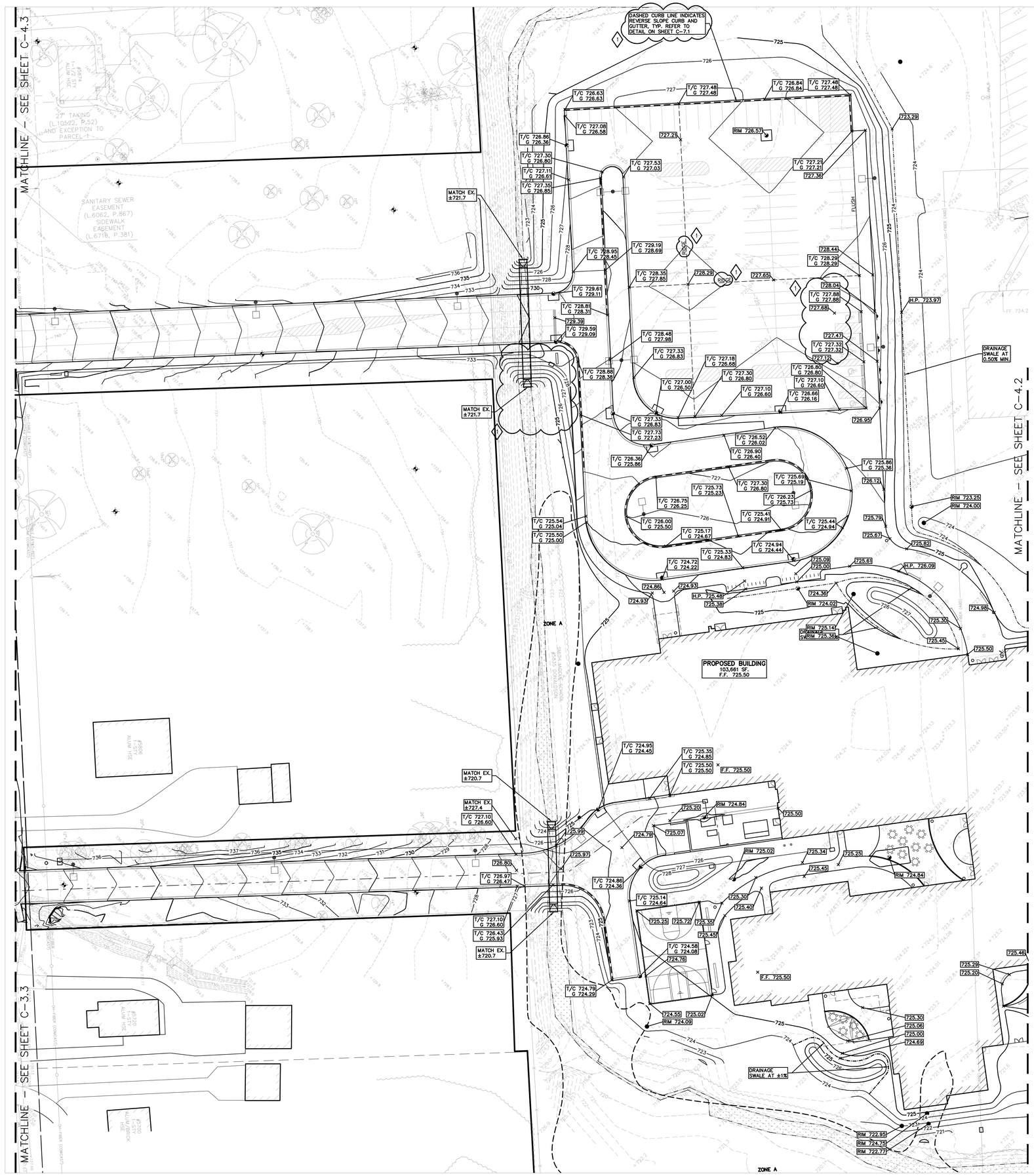
PROJECT NO.

22102

DRAWING NO.

C-3.2

Drawing File: S:\PROJECTS\2023\23-030\ Troy SCHOOLS 2022 BOND\DWG\3_CONSTRUCTION\NEW SMITH MIDDLE\C-3.2 DIM-23-030.dwg
Jul 11, 2024 - 9:01am



FLOODPLAIN:
PER FLOOD INSURANCE RATE MAP NUMBER 26125C0532F, DATED SEPTEMBER 29, 2006

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
THE 1% ANNUAL CHANCE FLOOD (100 YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. AREAS OF SPECIAL FLOOD HAZARD INCLUDE ZONES A, AE, AH, AO, AR, A99, V AND VE. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

ZONE A - NO BASE FLOOD ELEVATIONS DETERMINED.

OTHER AREAS
ZONE X
AREA TO BE DETERMINED OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

LEGAL DESCRIPTION:

PARCEL ID 20-10-101-054
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DIST S 571.05 FT & S 88-57-00 E 697.50 FT & S 00-10-00 E 169.24 FT FROM NW SEC COR, TH S 89-40-00 E 624.96 FT, TH S 00-10-00 E 683.20 FT, TH N 89-08-00 W 901.78 FT, TH N 00-10-00 W 637.72 FT, TH S 89-02-00 E 275.00 FT, TH N 00-10-00 W 39.24 FT TO BEG 13.79 A

PARCEL ID 20-10-151-022
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 SUPERVISOR'S PLAT NO 25 LOTS 5, 6 & 7, ALSO E 900 FT OF LOTS 8 & 9, ALSO LOT 10 EXC W 357.82 FT OF S 104.29 FT.

BENCHMARKS:
(GPS DERIVED - NAVD88)

BM #300
ARROW ON A HYDRANT LOCATED AT THE SOUTHWEST CORNER OF THE FRONT PARKING LOT.
ELEV. - 724.13

BM #301
ARROW ON A HYDRANT LOCATED ON THE SOUTHWEST CORNER OF THE BACK PARKING LOT.
ELEV. - 726.34

GRADING LEGEND:

- 726.91 — EXISTING SPOT ELEVATION
- 622.50 — PROPOSED SPOT ELEVATION: TYPICALLY TOP OF PAVEMENT IN PAVED AREAS, GUTTER GRADE IN CURB LINES.
- 670 — EXISTING CONTOUR
- 922 — PROPOSED CONTOUR
- PROPOSED REVERSE GUTTER PAN
- PROPOSED RIDGE LINE
- PROPOSED SWALE/DITCH

ABBREVIATIONS

T/C = TOP OF CURB	G = GUTTER GRADE
T/P = TOP OF PAVEMENT	FG = FINISH GRADE
T/S = TOP OF SIDEWALK	RIM = RIM ELEVATION
T/W = TOP OF WALL	B/W = BOTTOM OF WALL
F.F = FINISH FLOOR	

REFER TO GRADING NOTES ON SHEET C-7.0

EARTHWORK BALANCING NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

EARTHWORK NOTES:

1. A REPORT ON GEOTECHNICAL INVESTIGATION DATED DECEMBER 29, 2023, WAS PREPARED BY THE GZ CONSULTING GROUP.
2. BID PACKAGE NO. 03E WAS PREVIOUSLY RELEASED TO COVER THE GROUND IMPROVEMENT FOR THE SITE.

NORTH

0 15 30 60
SCALE: 1" = 30'

811 Know what's below. Call before you dig.

CAUTION!!
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TMP ARCHITECTURE

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1191 WEST SQUARE LAKE ROAD
BLOOMFIELD HILLS - MICHIGAN - 48302
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EM - INFO @TMP-ARCHITECTURE.COM

REGISTRATION SEAL

CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE

New Smith Middle School Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE
GRADING PLAN - WEST

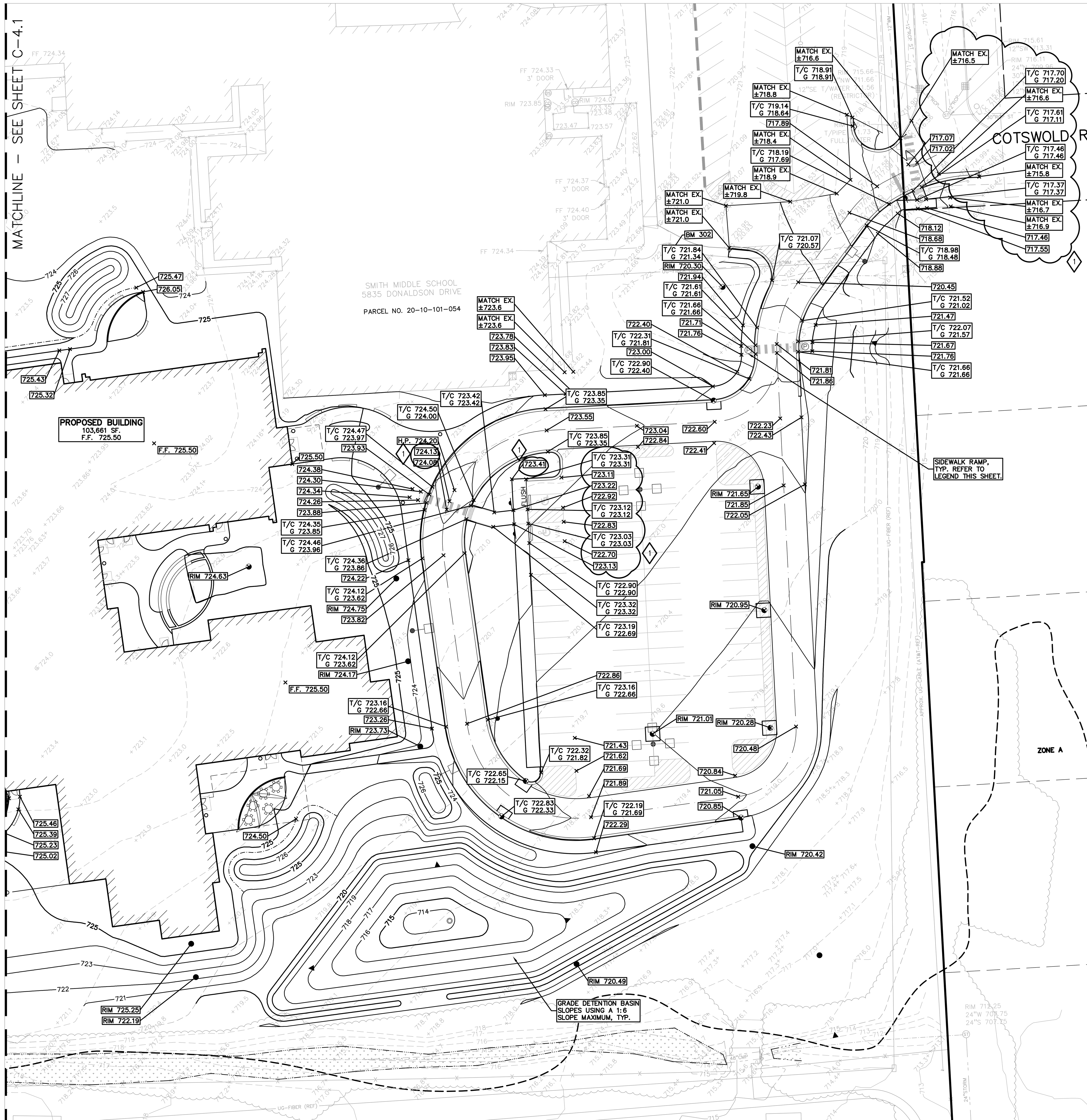
ISSUE DATES

07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS
DATE:	ISSUED FOR:
DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102

DRAWING NO.
C-4.1

Drawing File: S:\PROJECTS\2023\23-3001 TROY SCHOOLS 2022 BOND\DWG\3_CONSTRUCTION\NEW SMITH MIDDLE\(C-4.1) GRAD-23-3001.dwg
Jul 11, 2024 - 9:09am



FLOODPLAIN:
PER FLOOD INSURANCE RATE MAP NUMBER 26125C0532F, DATED SEPTEMBER 29, 2006

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
THE 1% ANNUAL CHANCE FLOOD (100 YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. AREAS OF SPECIAL FLOOD HAZARD INCLUDE ZONES A, AE, AH, AO, AR, A99, V AND VE. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

ZONE A - NO BASE FLOOD ELEVATIONS DETERMINED.

OTHER AREAS
ZONE X
AREA TO BE DETERMINED OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

LEGAL DESCRIPTION:

PARCEL ID 20-10-101-054
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DIST S 571.05 FT & S 88-57-00 E 697.50 FT & S 00-10-00 E 169.24 FT FROM NW SEC COR, TH S 89-40-00 E 624.96 FT, TH S 00-10-00 E 683.20 FT, TH N 89-08-00 W 901.78 FT, TH N 00-10-00 W 637.72 FT, TH S 89-02-00 E 275.00 FT, TH N 00-10-00 W 39.24 FT TO BEG 13.79 A

PARCEL ID 20-10-151-022
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 SUPERVISOR'S PLAT NO 25 LOTS 5, 6 & 7, ALSO E 900 FT OF LOTS 8 & 9, ALSO LOT 10 EXC W 357.82 FT OF S 104.29 FT

BENCHMARKS:
(GPS DERIVED - NAVD88)

BM #300
ARROW ON A HYDRANT LOCATED AT THE SOUTHWEST CORNER OF THE FRONT PARKING LOT.
ELEV. - 724.13

BM #301
ARROW ON A HYDRANT LOCATED ON THE SOUTHWEST CORNER OF THE BACK PARKING LOT.
ELEV. - 726.34

GRADING LEGEND:

+696.91	EXISTING SPOT ELEVATION
622.50	PROPOSED SPOT ELEVATION: TYPICALLY TOP OF PAVEMENT IN PAVED AREAS, GUTTER GRADE IN CURB LINES.
670	EXISTING CONTOUR
922	PROPOSED CONTOUR
	PROPOSED REVERSE GUTTER PAN
	PROPOSED RIDGE LINE
	PROPOSED SWALE/DITCH

ABBREVIATIONS

T/C = TOP OF CURB
T/P = TOP OF PAVEMENT
T/S = TOP OF SIDEWALK
T/W = TOP OF WALL
F.F = FINISH FLOOR
G = GUTTER GRADE
FG = FINISH GRADE
RIM = RIM ELEVATION
B/W = BOTTOM OF WALL

REFER TO GRADING NOTES ON SHEET C-7.0

EARTHWORK BALANCING NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

EARTHWORK NOTES:

1. A REPORT ON GEOTECHNICAL INVESTIGATION DATED DECEMBER 29, 2023, WAS PREPARED BY THE G2 CONSULTING GROUP.
2. BID PACKAGE NO. 03E WAS PREVIOUSLY RELEASED TO COVER THE GROUND IMPROVEMENT FOR THE SITE.

NORTH

0 15 30 60
SCALE: 1" = 30'

Know what's below. Call before you dig.

CAUTION!!
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ARCHITECTURE
TMP ARCHITECTURE INC
1191 WEST SQUARE LAKE ROAD
BLOOMFIELD HILLS · MICHIGAN · 48302
PH · 248.338.4561 FX · 248.338.0223
EM · INFO@TMP-ARCHITECTURE.COM

REGISTRATION SEAL

CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE
New Smith Middle School Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE
GRADING PLAN - EAST

ISSUE DATES

DATE:	ISSUED FOR:
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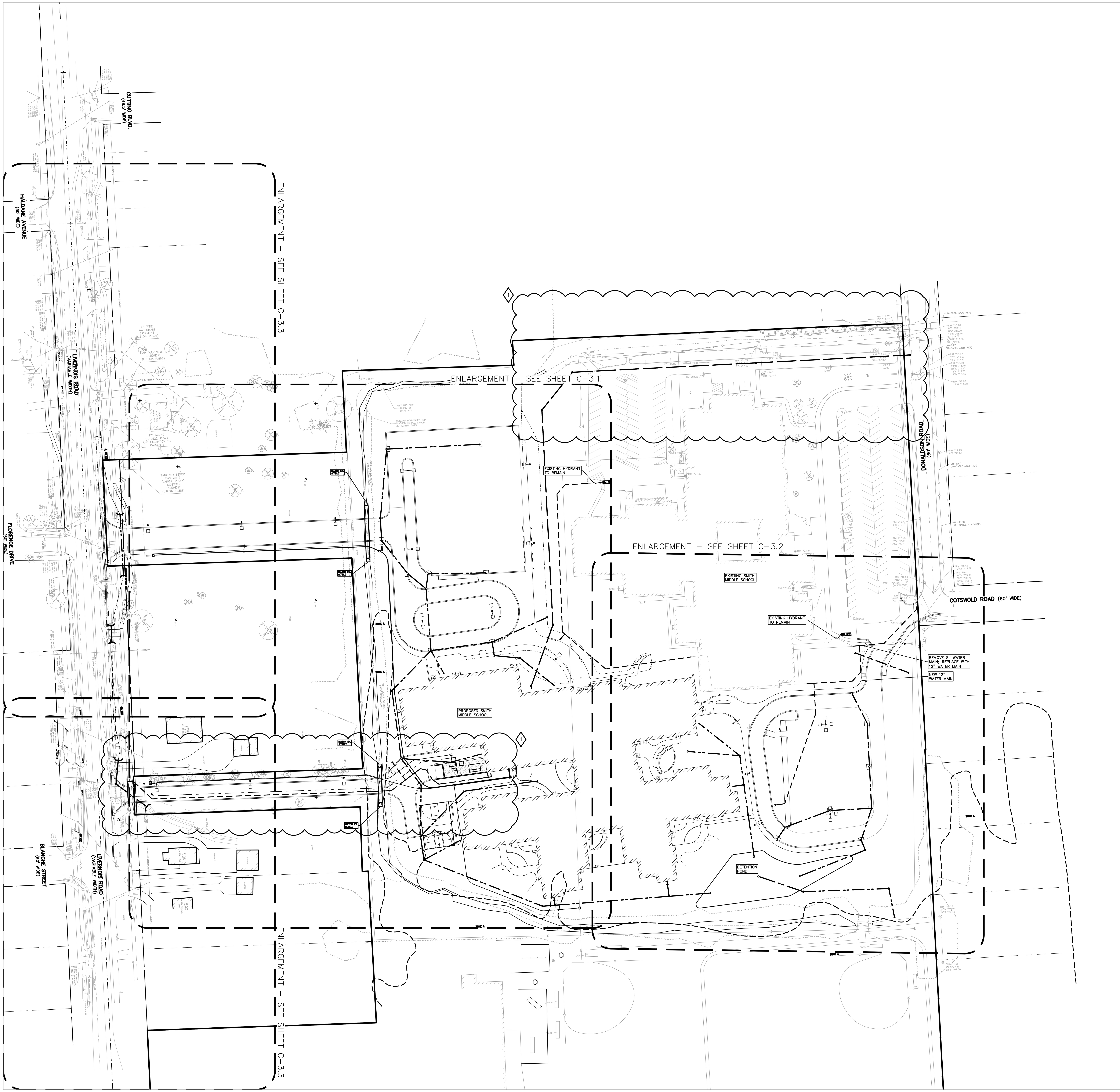
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102

DRAWING NO.
C-4.2



FLOODPLAIN:
PER FLOOD INSURANCE RATE MAP NUMBER 26125C0532F, DATED SEPTEMBER 29, 2006

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
THE 1% ANNUAL CHANCE FLOOD (100 YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. AREAS OF SPECIAL FLOOD HAZARD INCLUDE ZONES A, AE, AH, AO, AR, A99, V AND VE. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

ZONE A - NO BASE FLOOD ELEVATIONS DETERMINED.

OTHER AREAS
ZONE X
AREA TO BE DETERMINED OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

LEGAL DESCRIPTION:

PARCEL ID 20-10-101-054
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DIST S 571.05 FT & S 88-57-00 E 697.50 FT & S 00-10-00 E 169.24 FT FROM NW SEC COR, TH S 89-40-00 E 624.96 FT, TH S 00-10-00 E 683.20 FT, TH N 89-08-00 W 901.78 FT, TH N 00-10-00 W 637.72 FT, TH S 89-02-00 E 275.00 FT, TH N 00-10-00 W 39.24 FT TO BEG 13.79 A

PARCEL ID 20-10-151-022
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 SUPERVISOR'S PLAT NO 25 LOTS 5, 6 & 7, ALSO E 900 FT OF LOTS 8 & 9, ALSO LOT 10 EXC W 357.82 FT OF S 104.29 FT

BENCHMARKS:
(GPS DERIVED - NAVD88)

BM #300
ARROW ON A HYDRANT LOCATED AT THE SOUTHWEST CORNER OF THE FRONT PARKING LOT.
ELEV. - 724.13

BM #301
ARROW ON A HYDRANT LOCATED ON THE SOUTHWEST CORNER OF THE BACK PARKING LOT.
ELEV. - 726.34

UTILITY LEGEND:

- EX. OH. ELEC, POLE & GUY WIRE
- EX. U.G. CABLE TV & PEDESTAL
- EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
- EX. U.G. ELEC,MANHOLE, METER & HANDHOLE
- EX. GAS LINE
- EX. GAS VALVE & GAS LINE MARKER
- EX. TRANSFORMER & IRRIGATION VALVE
- EX. WATER MAIN
- EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
- EX. WATER VALVE BOX & SHUTOFF
- EX. SANITARY SEWER
- EX. SANITARY CLEANOUT & MANHOLE
- EX. COMBINED SEWER MANHOLE
- EX. STORM SEWER
- EX. CLEANOUT & MANHOLE
- EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
- EX. YARD DRAIN & ROOF DRAIN
- EX. UNIDENTIFIED STRUCTURE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT AND GATE VALVE
- PROPOSED TAPPING SLEEVE, VALVE & WELL
- PROPOSED POST INDICATOR VALVE
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY CLEANOUT & MANHOLE
- PROPOSED STORM SEWER
- PROPOSED STORM SEWER CLEANOUT & MANHOLE
- PROPOSED CATCH BASIN, INLET & YARD DRAIN

0 25 50 100
SCALE: 1" = 50'

Know what's **below.** **Call** before you dig.

CAUTION!!
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ARCHITECTURE
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REGISTRATION SEAL

CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE
New Smith Middle School Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE
OVERALL UTILITY PLAN

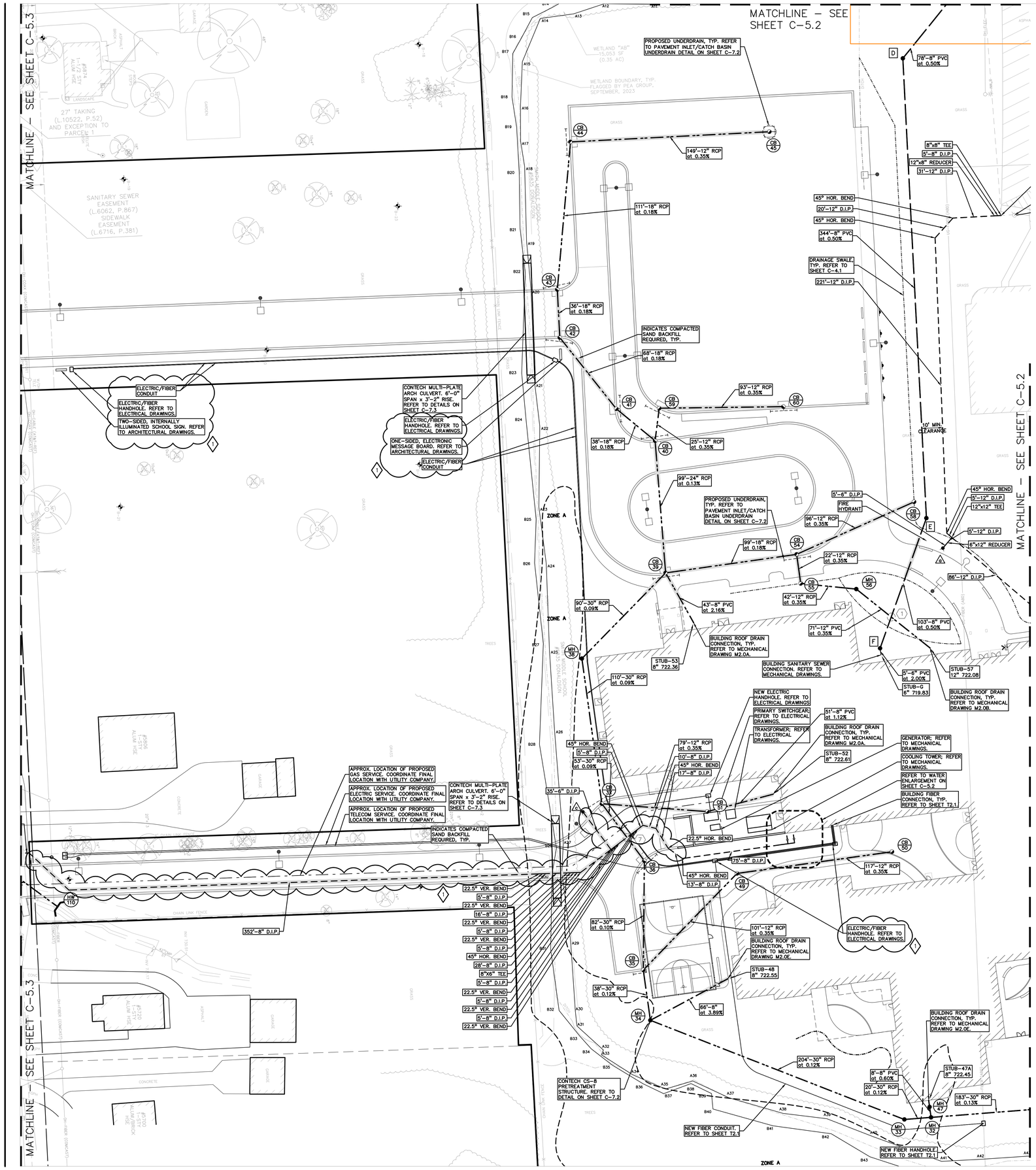
ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102

DRAWING NO.
C-5.0



SANITARY STRUCTURES	
A	MH (4' DIA.) RIM = 718.83 8" W 710.38 8" S 708.38 8" N 708.38
B	MH (4' DIA.) RIM = 723.30 8" W 715.19 8" S 717.29 8" E 714.58
C	MH (4' DIA.) RIM = 723.01 8" SW 716.76 8" E 716.66
D	MH (4' DIA.) RIM = 724.01 8" S 717.25 8" NE 717.15
E	MH (4' DIA.) RIM = 724.00 8" S 719.07 8" N 718.97
F	MH (4' DIA.) RIM = 725.36 6" S 719.73 8" N 719.59

HYDRANTS	
a	HYDRANT ASSEMBLY F.G. = 724.99
b	HYDRANT ASSEMBLY F.G. = 722.97
c	HYDRANT ASSEMBLY F.G. = 724.81

WATER MAIN STRUCTURES	
e	GV IN WELL RIM = 738.32
f	GV IN BOX RIM = 725.35
g	GV IN BOX RIM = 725.33

END SECTIONS	
30	END SECTION 30" 717.00
70	END SECTION 18" 716.20
80	END SECTION 12" 718.00
90	END SECTION 12" 718.00
100	END SECTION 24" 712.00

UTILITY LEGEND:

- EX. OH, ELEC, POLE & GUY WIRE
- EX. U.G. CABLE TV & PEDESTAL
- EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
- EX. U.G. ELEC MANHOLE, METER & HANDHOLE
- EX. GAS LINE
- EX. GAS VALVE & GAS LINE MARKER
- EX. TRANSFORMER & IRRIGATION VALVE
- EX. WATER MAIN
- EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
- EX. WATER VALVE BOX & SHUTOFF
- EX. SANITARY SEWER
- EX. SANITARY CLEANOUT & MANHOLE
- EX. COMBINED SEWER MANHOLE
- EX. STORM SEWER
- EX. CLEANOUT & MANHOLE
- EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
- EX. YARD DRAIN & ROOF DRAIN
- EX. UNIDENTIFIED STRUCTURE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT AND GATE VALVE
- PROPOSED TAPPING SLEEVE, VALVE & WELL
- PROPOSED POST INDICATOR VALVE
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY CLEANOUT & MANHOLE
- PROPOSED STORM SEWER
- PROPOSED STORM SEWER CLEANOUT & MANHOLE
- PROPOSED CATCH BASIN, INLET & YARD DRAIN

STORM STRUCTURES		
MH	31	(5' DIA./0' SUMP) RIM = 722.19 30" W 717.09 8" N 718.55 30" E 717.09
MH	32	(5' DIA./0' SUMP) RIM = 722.77 30" W 717.32 8" N 718.79 30" E 717.32
MH	33	(5' DIA./0' SUMP) RIM = 722.95 30" W 717.35 30" E 717.35
MH	34	(5' DIA./0' SUMP) RIM = 723.80 30" N 717.59 8" NE 719.99 30" E 717.59
CB	35	(5' DIA./0' SUMP) RIM = 724.08 30" N 717.64 12" NE 718.84 30" S 717.64
CB	36	(5' DIA./2' SUMP) RIM = 724.36 30" NW 717.72 30" S 717.72
CB	37	(5' DIA./2' SUMP) RIM = 724.45 30" N 717.77 12" E 718.97 30" SE 717.77
MH	38	(5' DIA./0' SUMP) RIM = 724.28 30" NE 717.87 30" S 717.87
CB	39	(5' DIA./2' SUMP) RIM = 724.24 18" E 718.75 24" N 718.35 8" SE 721.44 30" SW 717.95
CB	40	(5' DIA./2' SUMP) RIM = 725.86 18" NW 718.88 12" N 719.28 24" S 718.48
CB	41	(4' DIA./2' SUMP) RIM = 726.83 18" NW 718.95 18" SE 718.95
CB	42	(4' DIA./2' SUMP) RIM = 729.09 18" N 719.07 18" SE 719.07

STORM STRUCTURES		
MH	111	(6' DIA./0' SUMP) RIM = 738.91 42" N 733.59 42" SE 733.59

STORM STRUCTURES		
CB	43	(4' DIA./2' SUMP) RIM = 729.11 18" N 719.13 18" S 719.13
CB	44	(4' DIA./2' SUMP) RIM = 726.36 12" E 719.73 18" S 719.33
CB	45	(4' DIA./2' SUMP) RIM = 726.57 12" W 720.25
MH	46	(4' DIA./0' SUMP) RIM = 725.25 8" N 722.25 8" S 718.67
MH	47	(4' DIA./0' SUMP) RIM = 724.75 8" N 722.42 8" S 718.84
CB	49	(4' DIA./0' SUMP) RIM = 725.02 12" E 719.19 12" SW 719.19
CB	50	(4' DIA./2' SUMP) RIM = 724.84 12" W 719.60
CB	51	(4' DIA./2' SUMP) RIM = 724.84 8" E 722.04 12" W 719.25
CB	54	(5' DIA./2' SUMP) RIM = 724.47 12" S 719.33 12" NE 719.33 18" W 718.93
CB	55	(4' DIA./2' SUMP) RIM = 724.02 12" E 719.40 12" N 719.40
CB	58	(4' DIA./2' SUMP) RIM = 723.25 12" SW 719.66
CB	59	(4' DIA./2' SUMP) RIM = 726.50 12" E 719.36 12" S 719.36
CB	60	(4' DIA./2' SUMP) RIM = 726.18 12" W 719.69

STORM STRUCTURES		
MH	101	(5' DIA./0' SUMP) RIM = 716.78 24" W 712.27 24" S 712.27
MH	102	(4' DIA./2' SUMP) RIM = 720.49 24" W 713.05 24" E 713.05
OC	103	(6' DIA./2' SUMP) RIM = 718.04 24" E 713.48

STORM STRUCTURES		
MH	71	(4' DIA./0' SUMP) RIM = 720.42 18" N 716.40 18" W 716.40
CB	72	(4' DIA./2' SUMP) RIM = 720.85 18" N 716.44 18" S 716.44
CB	73	(4' DIA./2' SUMP) RIM = 720.28 12" N 716.93 12" W 716.93 18" S 716.53
CB	74	(4' DIA./2' SUMP) RIM = 720.95 12" N 717.16 12" S 717.16
CB	75	(4' DIA./2' SUMP) RIM = 721.85 12" NW 717.41 12" S 717.41
CB	76	(4' DIA./2' SUMP) RIM = 722.40 12" SE 717.60
CB	77	(4' DIA./2' SUMP) RIM = 721.01 12" W 717.16 12" E 717.16
CB	78	(4' DIA./2' SUMP) RIM = 722.15 12" SW 717.43 12" E 717.43
CB	79	(4' DIA./2' SUMP) RIM = 722.33 12" NE 717.52

STORM STRUCTURES		
MH	81	(4' DIA./0' SUMP) RIM = 723.73 12" N 718.34 12" S 718.34
MH	82	(4' DIA./0' SUMP) RIM = 724.17 8" W 721.36 12" N 718.59 12" S 718.59
MH	83	(5' DIA./0' SUMP) RIM = 724.75 12" W 718.82 8" NW 721.66 12" S 718.82
CB	84	(4' DIA./2' SUMP) RIM = 724.63 12" E 719.24

STORM STRUCTURES		
CB	91	(4' DIA./2' SUMP) RIM = 720.30 12" E 718.46

UTILITY CROSSING TABLE

CROSSING	CROSSING PIPE 1			CROSSING PIPE 2			CLEARANCE	NOTES
1	8 "	SAN	T/P= 720.19	12 "	ST	B/P= 721.78	1.59	
2	8 "	SAN	B/P= 716.55	8 "	WM	T/P= 715.05	1.50	DIP WATER MAIN
3	8 "	SAN	T/P= 716.60	4 "	GAS	B/P= 718.64	2.04	
4	8 "	SAN	T/P= 715.16	6 "	ST	B/P= 722.53	7.38	
5	8 "	SAN	T/P= 711.38	12 "	WM	B/P= 712.96	1.58	
6	42 "	ST	B/P= 732.62	12 "	WM	T/P= 731.12	1.50	DIP WATER MAIN
7	30 "	ST	B/P= 717.45	8 "	WM	T/P= 715.95	1.50	DIP WATER MAIN
8	12 "	ST	B/P= 718.25	12 "	WM	T/P= 715.19	3.06	

CITY OF TROY STORM SEWER FRAME AND COVER NOTES

MANHOLE
FRAME: EJ 1000
COVER: TYPE "C" PERFORMATED WITH "CITY OF TROY STORM" TEXT

CATCH BASIN - PAVEMENT (RESIDENTIAL)
FRAME: EJ 5080
COVER: SINUSOIDAL M2

CATCH BASIN - PAVEMENT (NON-RESIDENTIAL)
FRAME: EJ 5105
COVER: SINUSOIDAL M2

CATCH BASIN - NON-PAVEMENT
FRAME: EJ 1000
COVER: TYPE "M","N" OR "01" HEAVY DUTY

CATCH BASIN - LANDSCAPE AREA OR ROADSIDE DITCH
MAY REQUIRE:
- EJ 1040 TYPE "N" OVAL GRATE OR TYPE 02 BEEHIVE GRATE
- EJ 1130 TYPE "N" OVAL GRATE OR TYPE 01 BEEHIVE GRATE
- EJ 2800 TYPE "N" OVAL GRATE OR TYPE 02 BEEHIVE GRTE
- EJ 6508 OR EJ6517

NOTE:
CONTRACTOR SHALL VERIFY ALL QUANTITIES. ANY DEVIATIONS TO THE PLAN QUANTITIES SHALL BE BROUGHT TO THE ATTENTION OF PEA GROUP FOR VERIFICATION, PRIOR TO BIDDING.

PREMIUM TRENCH BACKFILL NOTE:
ALL UTILITIES UNDER PAVEMENT OR WITHIN 3' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE MDOT CLASS II GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).

REFER TO UTILITY NOTES ON SHEET C-7.0.

REFER TO SHEET C-5.2 FOR UTILITY QUANTITIES.

NORTH

0 15 30 60
SCALE: 1" = 30'

811 Know what's below. Call before you dig.

CAUTION!!
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TMP ARCHITECTURE

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REGISTRATION SEAL

CONSULTANT

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PROJECT TITLE
New Smith Middle School Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE
UTILITY PLAN - WEST

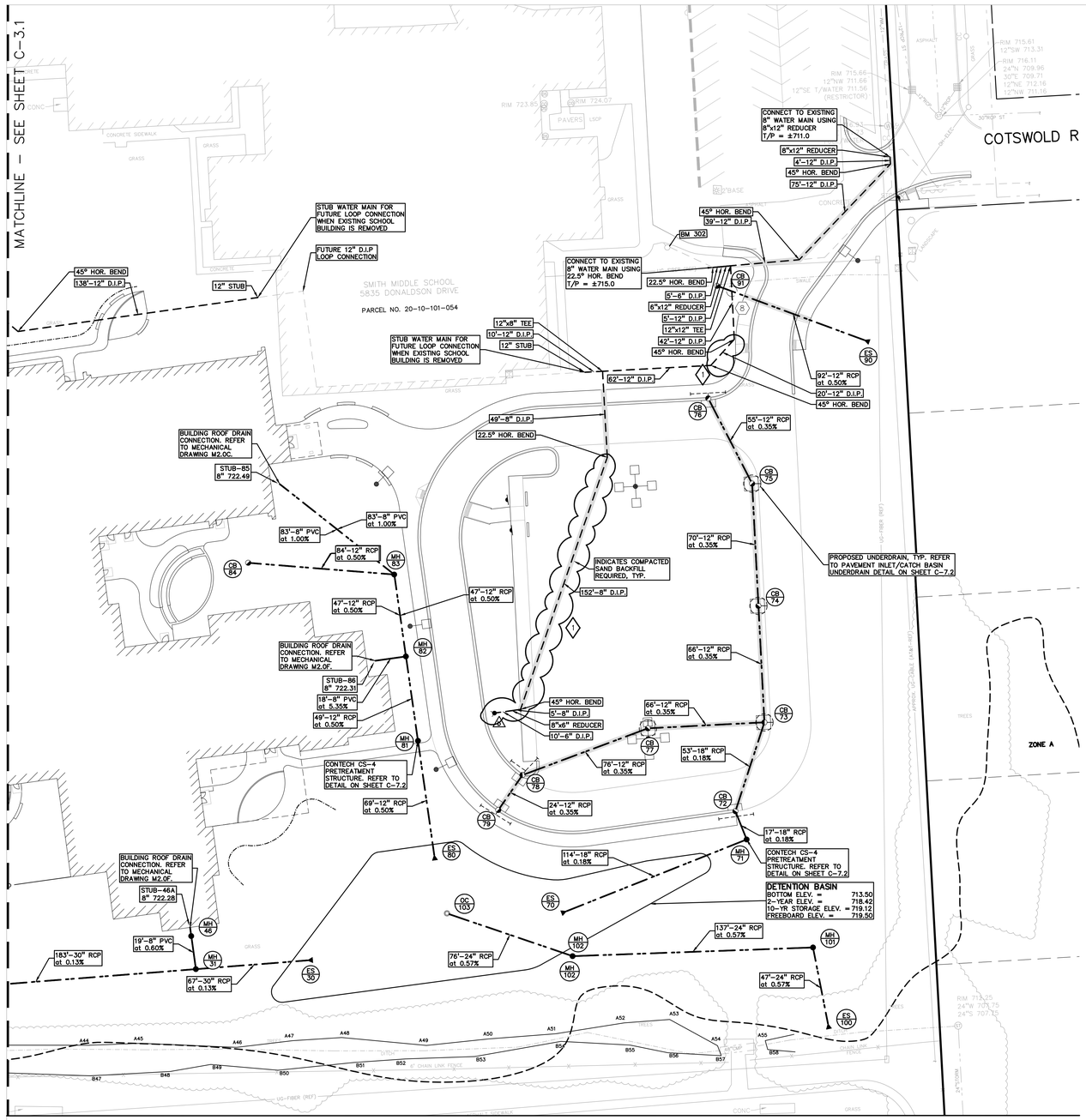
ISSUE DATES

07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE:	ISSUED FOR:
DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102

DRAWING NO.
C-5.1



EAST UTILITY ENLARGEMENT
SCALE: 1" = 30'

CITY OF TROY STORM SEWER FRAME AND COVER NOTES

MANHOLE
FRAME: EJ 1000
COVER: TYPE "C" PERFORMATED WITH "CITY OF TROY STORM" TEXT

CATCH BASIN - PAVEMENT (RESIDENTIAL)
FRAME: EJ 5080
COVER: SINUSOIDAL M2

CATCH BASIN - PAVEMENT (NON-RESIDENTIAL)
FRAME: EJ 5105
COVER: SINUSOIDAL M2

CATCH BASIN - NON-PAVEMENT
FRAME: EJ 1000
COVER: TYPE "M","N" OR "01" HEAVY DUTY

CATCH BASIN - LANDSCAPE AREA OR ROADSIDE DITCH
MAY REQUIRE:

- EJ 1040 TYPE "N" OVAL GRATE OR TYPE 02 BEEHIVE GRATE
- EJ 1130 TYPE "N" OVAL GRATE OR TYPE 01 BEEHIVE GRATE
- EJ 2800 TYPE "N" OVAL GRATE OR TYPE 02 BEEHIVE GRTE
- EJ 6508 OR EJ6517

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REFER TO UTILITY NOTES ON SHEET C-7.0.

1

SANITARY STRUCTURES	
A	MH (4' DIA.) RIM = 718.83 8" W 710.38 8" S 708.38 8" N 708.38
B	MH (4' DIA.) RIM = 723.30 8" W 715.19 8" S 717.29 8" E 714.58
C	MH (4' DIA.) RIM = 723.01 8" SW 716.76 8" E 716.66
D	MH (4' DIA.) RIM = 724.01 8" S 717.25 8" NE 717.15
E	MH (4' DIA.) RIM = 724.00 8" S 719.07 8" N 718.97
F	MH (4' DIA.) RIM = 725.36 6" S 719.73 8" N 719.59

HYDRANTS	
a	HYDRANT ASSEMBLY F.G. = 724.99
b	HYDRANT ASSEMBLY F.G. = 722.97
c	HYDRANT ASSEMBLY F.G. = 724.81

WATER MAIN STRUCTURES	
e	GV IN WELL RIM = 738.32
f	GV IN BOX RIM = 725.35
g	GV IN BOX RIM = 725.33

END SECTIONS	
30	END SECTION 30" 717.00
70	END SECTION 18" 716.20
80	END SECTION 12" 718.00
90	END SECTION 12" 718.00
100	END SECTION 24" 712.00

UTILITY LEGEND:

- —OH—ELEC— EX. OH. ELEC, POLE & GUY WIRE
- —UG—CATV— TV EX. U.G. CABLE TV & PEDESTAL
- —UG—COMM— T EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
- —UG—ELEC— E E E EX. U.G. ELEC,MANHOLE, METER & HANDHOLE
- EX. GAS LINE
- G GAS EX. GAS VALVE & GAS LINE MARKER
- T I EX. TRANSFORMER & IRRIGATION VALVE
- EX. WATER MAIN
- W EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
- V WSO EX. WATER VALVE BOX & SHUTOFF
- EX. SANITARY SEWER
- CO S EX. SANITARY CLEANOUT & MANHOLE
- C EX. COMBINED SEWER MANHOLE
- EX. STORM SEWER
- CO ST EX. CLEANOUT & MANHOLE
- EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
- Y.D. RD EX. YARD DRAIN & ROOF DRAIN
- ? EX. UNIDENTIFIED STRUCTURE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT AND GATE VALVE
- PROPOSED TAPPING SLEEVE, VALVE & WELL
- PROPOSED POST INDICATOR VALVE
- PROPOSED SANITARY SEWER
- C.O. ● PROPOSED SANITARY CLEANOUT & MANHOLE
- PROPOSED STORM SEWER
- C.O. ● PROPOSED STORM SEWER CLEANOUT & MANHOLE
- ■ Y.D. PROPOSED CATCH BASIN, INLET & YARD DRAIN

SANITARY SEWER QUANTITIES:

6" PVC SDR 23.5 PIPE	5 LF
8" PVC TRUSS PIPE	1066 LF
4' DIA. MANHOLE	6 EA.

STORM SEWER QUANTITIES:

4" HDPE UNDERDRAIN WITH SOCK	597 LF
8" PVC SCHEDULE 40 PIPE	298 LF
12" PVC SCHEDULE 40 PIPE	71 LF
12" RCP CL-IV PIPE	1422 LF
18" RCP CL-IV PIPE	536 LF
24" RCP CL-IV PIPE	359 LF
30" RCP CL-IV PIPE	974 LF
42" RCP CL-IV PIPE	100 LF
12" CONC. END SECTION	2 EA.
18" CONC. END SECTION	1 EA.
24" CONC. END SECTION	1 EA.
30" CONC. END SECTION	1 EA
4' DIA. CATCH BASIN	22 EA.
4' DIA. MANHOLE	8 EA.
5' DIA. CATCH BASIN	6 EA.
5' DIA. MANHOLE	6 EA.
6' DIA. MANHOLE	1 EA.
6' DIA. OUTLET CONTROL STRUCTURE	1 EA.
CONTECH CS-4 (WATER TREATMENT UNIT)	2 EA.
CONTECH CS-8 (WATER TREATMENT UNIT)	1 EA.

WATER MAIN QUANTITIES:

4" DIWM CLASS 54	6 LF
6" DIWM CLASS 54	71 LF
8" DIWM CLASS 54	818 LF
12" DIWM CLASS 54	763 LF
16" DIWM CLASS 54	37 LF
4" VALVE AND BOX	1 EA.
6" VALVE AND BOX	1 EA.
8"x16" T.S.V. AND WELL	1 EA.
HYDRANT ASSEMBLY	3 EA.

STORM STRUCTURES		
MH	31	(5' DIA./0' SUMP) RIM = 722.19 30" W 717.09 8" N 718.55 30" E 717.09
MH	32	(5' DIA./0' SUMP) RIM = 722.77 30" W 717.32 8" N 718.79 30" E 717.32
MH	33	(5' DIA./0' SUMP) RIM = 722.95 30" W 717.35 30" E 717.35
MH	34	(5' DIA./0' SUMP) RIM = 723.80 30" N 717.59 8" NE 719.99 30" E 717.59
CB	35	(5' DIA./0' SUMP) RIM = 724.08 30" N 717.64 12" NE 718.84 30" S 717.64
CB	36	(5' DIA./2' SUMP) RIM = 724.36 30" NW 717.72 30" S 717.72
CB	37	(5' DIA./2' SUMP) RIM = 724.45 30" N 717.77 12" E 718.97 30" SE 717.77
MH	38	(5' DIA./0' SUMP) RIM = 724.28 30" NE 717.87 30" S 717.87
CB	39	(5' DIA./2' SUMP) RIM = 724.24 18" E 718.75 24" N 718.35 8" SE 721.44 30" SW 717.95
CB	40	(5' DIA./2' SUMP) RIM = 725.86 18" NW 718.88 12" N 719.28 24" S 718.48
CB	41	(4' DIA./2' SUMP) RIM = 726.83 18" NW 718.95 18" SE 718.95
CB	42	(4' DIA./2' SUMP) RIM = 729.09 18" N 719.07 18" SE 719.07

STORM STRUCTURES		
MH	111	(6' DIA./0' SUMP) RIM = 738.91 42" N 733.59 42" SE 733.59

STORM STRUCTURES		
CB	43	(4' DIA./2' SUMP) RIM = 729.11 18" N 719.13 18" S 719.13
CB	44	(4' DIA./2' SUMP) RIM = 726.36 12" E 719.73 18" S 719.33
CB	45	(4' DIA./2' SUMP) RIM = 726.57 12" W 720.25
MH	46	(4' DIA./0' SUMP) RIM = 725.25 8" N 722.25 8" S 718.67
MH	47	(4' DIA./0' SUMP) RIM = 724.75 8" N 722.42 8" S 718.84
CB	49	(4' DIA./0' SUMP) RIM = 725.02 12" E 719.19 12" SW 719.19
CB	50	(4' DIA./2' SUMP) RIM = 724.84 12" W 719.60
CB	51	(4' DIA./2' SUMP) RIM = 724.84 8" E 722.04 12" W 719.25
CB	54	(5' DIA./2' SUMP) RIM = 724.47 12" S 719.33 12" NE 719.33 18" W 718.93
CB	55	(4' DIA./2' SUMP) RIM = 724.02 12" E 719.40 12" N 719.40
CB	58	(4' DIA./2' SUMP) RIM = 723.25 12" SW 719.66
CB	59	(4' DIA./2' SUMP) RIM = 726.50 12" E 719.36 12" S 719.36
CB	60	(4' DIA./2' SUMP) RIM = 726.18 12" W 719.69

STORM STRUCTURES		
MH	101	(5' DIA./0' SUMP) RIM = 716.78 24" W 712.27 24" S 712.27
MH	102	(4' DIA./2' SUMP) RIM = 720.49 24" W 713.05 24" E 713.05
OC	103	(6' DIA./2' SUMP) RIM = 718.04 24" E 713.48

STORM STRUCTURES		
MH	71	(4' DIA./0' SUMP) RIM = 720.42 18" N 716.40 18" W 716.40
CB	72	(4' DIA./2' SUMP) RIM = 720.85 18" N 716.44 18" S 716.44
CB	73	(4' DIA./2' SUMP) RIM = 720.28 12" N 716.93 12" W 716.93 18" S 716.53
CB	74	(4' DIA./2' SUMP) RIM = 720.95 12" N 717.16 12" S 717.16
CB	75	(4' DIA./2' SUMP) RIM = 721.65 12" NW 717.41 12" S 717.41
CB	76	(4' DIA./2' SUMP) RIM = 722.40 12" SE 717.60
CB	77	(4' DIA./2' SUMP) RIM = 721.01 12" W 717.16 12" E 717.16
CB	78	(4' DIA./2' SUMP) RIM = 722.15 12" SW 717.43 12" E 717.43
CB	79	(4' DIA./2' SUMP) RIM = 722.33 12" NE 717.52

STORM STRUCTURES		
MH	81	(4' DIA./0' SUMP) RIM = 723.73 12" N 718.34 12" S 718.34
MH	82	(4' DIA./0' SUMP) RIM = 724.17 8" W 721.36 12" N 718.59 12" S 718.59
MH	83	(4' DIA./0' SUMP) RIM = 724.75 12" W 718.82 8" NW 721.66 12" S 718.82
CB	84	(4' DIA./2' SUMP) RIM = 724.63 12" E 719.24

STORM STRUCTURES		
CB	91	(4' DIA./2' SUMP) RIM = 720.30 12" E 718.46

UTILITY CROSSING TABLE

CROSSING	CROSSING PIPE 1				CROSSING PIPE 2				CLEARANCE	NOTES
1	8 "	SAN	T/P=	720.19	12 "	ST	B/P=	721.78	1.59	
2	8 "	SAN	B/P=	716.55	8 "	WM	T/P=	715.05	1.50	DIP WATER MAIN
3	8 "	SAN	T/P=	716.60	4 "	GAS	B/P=	718.64	2.04	
4	8 "	SAN	T/P=	715.16	6 "	ST	B/P=	722.53	7.38	
5	8 "	SAN	T/P=	711.38	12 "	WM	B/P=	712.96	1.58	
6	42 "	ST	B/P=	732.62	12 "	WM	T/P=	731.12	1.50	DIP WATER MAIN
7	30 "	ST	B/P=	717.45	8 "	WM	T/P=	715.95	1.50	DIP WATER MAIN
8	12 "	ST	B/P=	718.25	12 "	WM	T/P=	715.19	3.06	

1

NORTH UTILITY ENLARGEMENT
SCALE: 1" = 30'

WATER MAIN ENLARGEMENT
SCALE: 1" = 10'

Know what's below. Call before you dig.

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REGISTRATION SEAL

CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE
New Smith Middle School
Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE
UTILITY PLAN - EAST

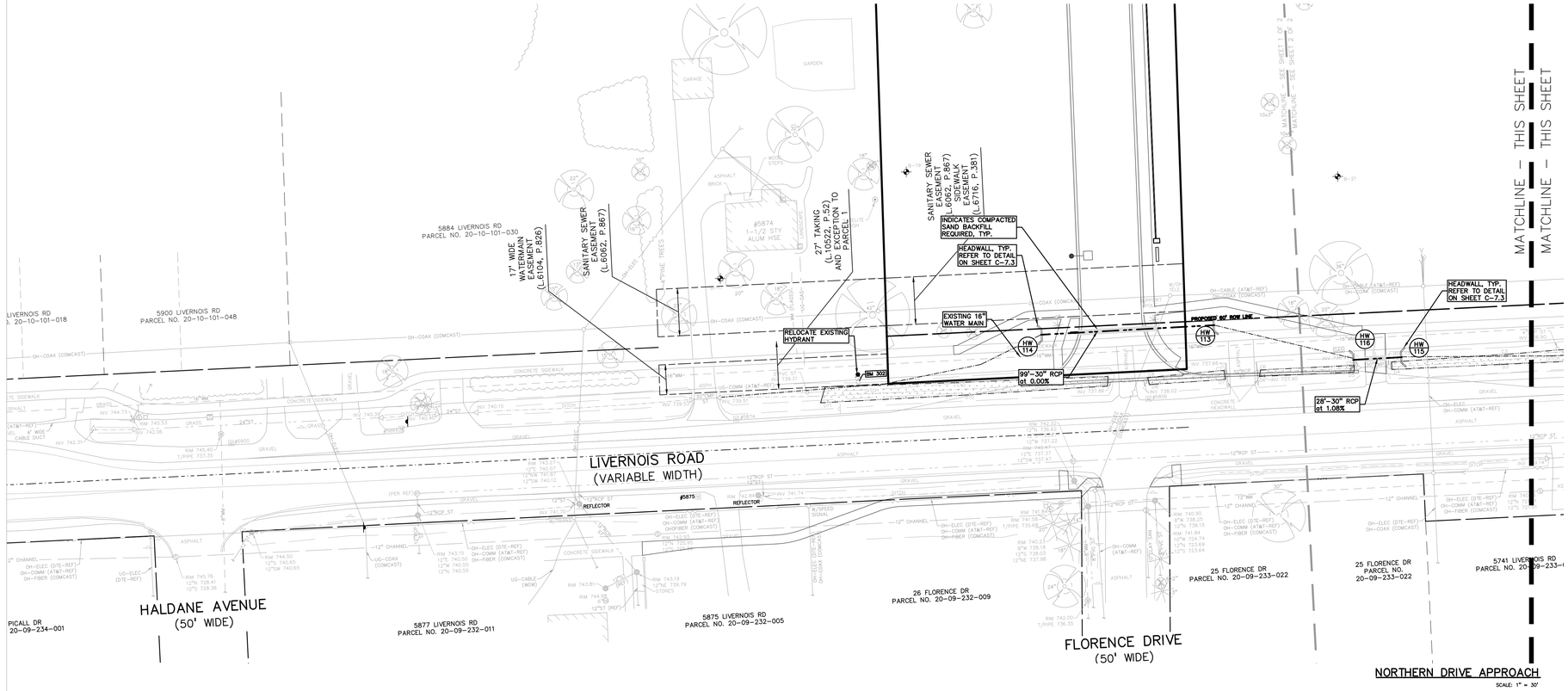
ISSUE DATES

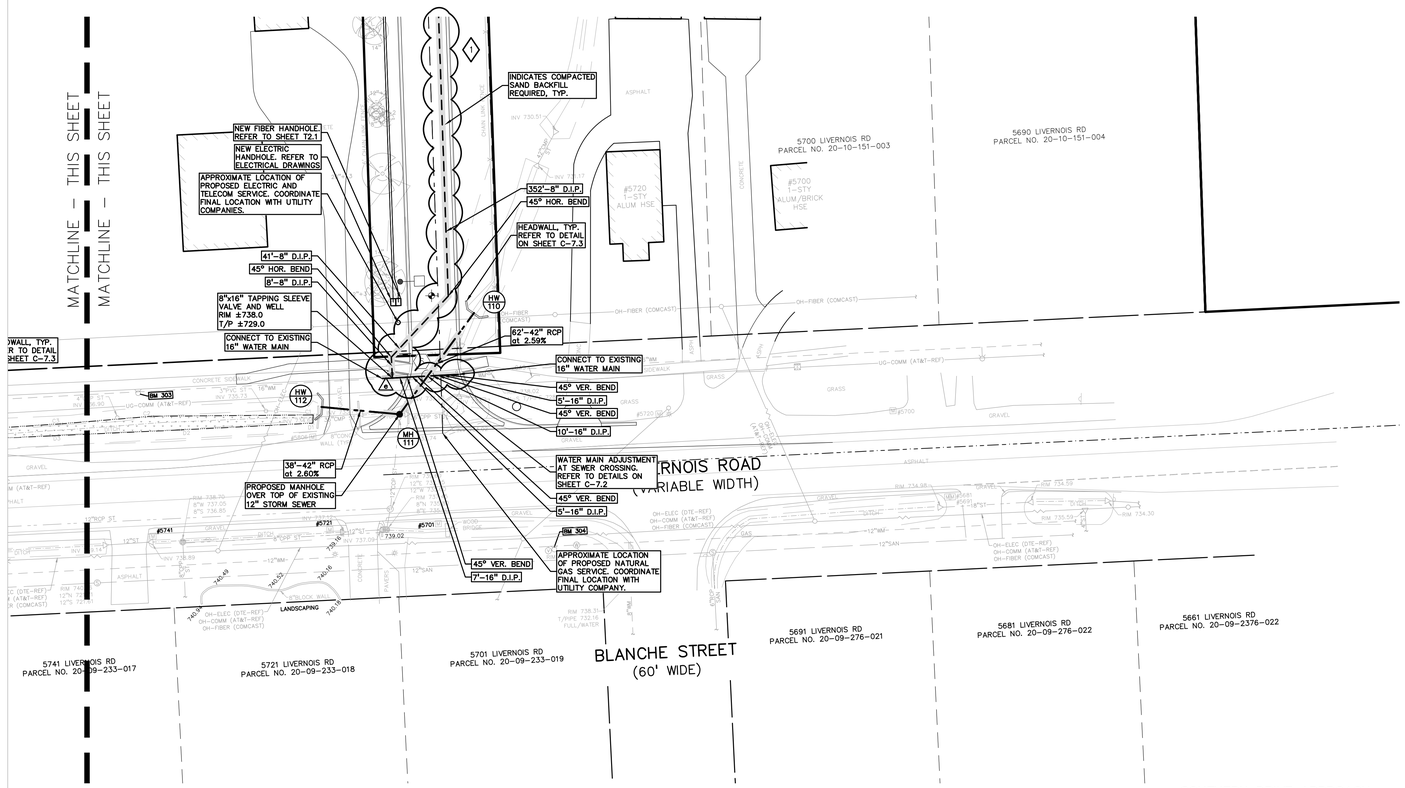
DATE:	ISSUED FOR:
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102

DRAWING NO.
C-5.2





FLOODPLAIN:
PER FLOOD INSURANCE RATE MAP NUMBER 26125C0532F, DATED SEPTEMBER 29, 2006

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
THE 1% ANNUAL CHANCE FLOOD (100 YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. AREAS OF SPECIAL FLOOD HAZARD INCLUDE ZONES A, AE, AH, AO, AR, A99, V AND VE. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

ZONE A - NO BASE FLOOD ELEVATIONS DETERMINED.

OTHER AREAS
ZONE X
AREA TO BE DETERMINED OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

LEGAL DESCRIPTION:

PARCEL ID 20-10-101-054
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DIST S 571.05 FT & S 88-57-00 E 697.50 FT & S 00-10-00 E 169.24 FT FROM NW SEC COR, TH S 89-40-00 E 624.96 FT, TH S 00-10-00 E 683.20 FT, TH N 89-08-00 W 901.78 FT, TH N 00-10-00 W 637.72 FT, TH S 89-02-00 E 275.00 FT, TH N 00-10-00 W 39.24 FT TO BEG 13.79 A

PARCEL ID 20-10-151-022
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 SUPERVISOR'S PLAT NO 25 LOTS 5, 6 & 7, ALSO E 900 FT OF LOTS 8 & 9, ALSO LOT 10 EXC W 357.82 FT OF S 104.29 FT.

BENCHMARKS:
(GPS DERIVED - NAVD88)

BM #300
ARROW ON A HYDRANT LOCATED AT THE SOUTHWEST CORNER OF THE FRONT PARKING LOT.
ELEV. - 724.13

BM #301
ARROW ON A HYDRANT LOCATED ON THE SOUTHWEST CORNER OF THE BACK PARKING LOT.
ELEV. - 726.34

UTILITY LEGEND:

- EX. OH, ELEC, POLE & GUY WIRE
- EX. U.G. CABLE TV & PEDESTAL
- EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
- EX. U.G. ELEC.MANHOLE, METER & HANDHOLE
- EX. GAS LINE
- EX. GAS VALVE & GAS LINE MARKER
- EX. TRANSFORMER & IRRIGATION VALVE
- EX. WATER MAIN
- EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
- EX. WATER VALVE BOX & SHUTOFF
- EX. SANITARY SEWER
- EX. SANITARY CLEANOUT & MANHOLE
- EX. COMBINED SEWER MANHOLE
- EX. STORM SEWER
- EX. CLEANOUT & MANHOLE
- EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
- EX. YARD DRAIN & ROOF DRAIN
- EX. UNIDENTIFIED STRUCTURE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT AND GATE VALVE
- PROPOSED TAPPING SLEEVE, VALVE & WELL
- PROPOSED POST INDICATOR VALVE
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY CLEANOUT & MANHOLE
- PROPOSED STORM SEWER
- PROPOSED STORM SEWER CLEANOUT & MANHOLE
- PROPOSED CATCH BASIN, INLET & YARD DRAIN

UTILITY CROSSING TABLE

CROSSING	CROSSING PIPE 1				CROSSING PIPE 2				CLEARANCE	NOTES
1	8 "	SAN	T/P=	720.19	12 "	ST	B/P=	721.78	1.59	
2	8 "	SAN	B/P=	716.55	8 "	WM	T/P=	715.05	1.50	DIP WATER MAIN
3	8 "	SAN	T/P=	716.60	4 "	GAS	B/P=	718.64	2.04	
4	8 "	SAN	T/P=	715.16	6 "	ST	B/P=	722.53	7.38	
5	8 "	SAN	T/P=	711.38	12 "	WM	B/P=	712.96	1.58	
6	42 "	ST	B/P=	732.62	12 "	WM	T/P=	731.12	1.50	DIP WATER MAIN
7	30 "	ST	B/P=	717.45	8 "	WM	T/P=	715.95	1.50	DIP WATER MAIN
8	12 "	ST	B/P=	718.25	12 "	WM	T/P=	715.19	3.06	

NORTH

0 25 50 100
SCALE: 1" = 50'

811 Know what's below. Call before you dig.

CAUTION!!
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TMP ARCHITECTURE

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EM - INFO @TMP-ARCHITECTURE.COM

REGISTRATION SEAL

CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE
New Smith Middle School Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE
UTILITY PLAN - LIVERNOIS

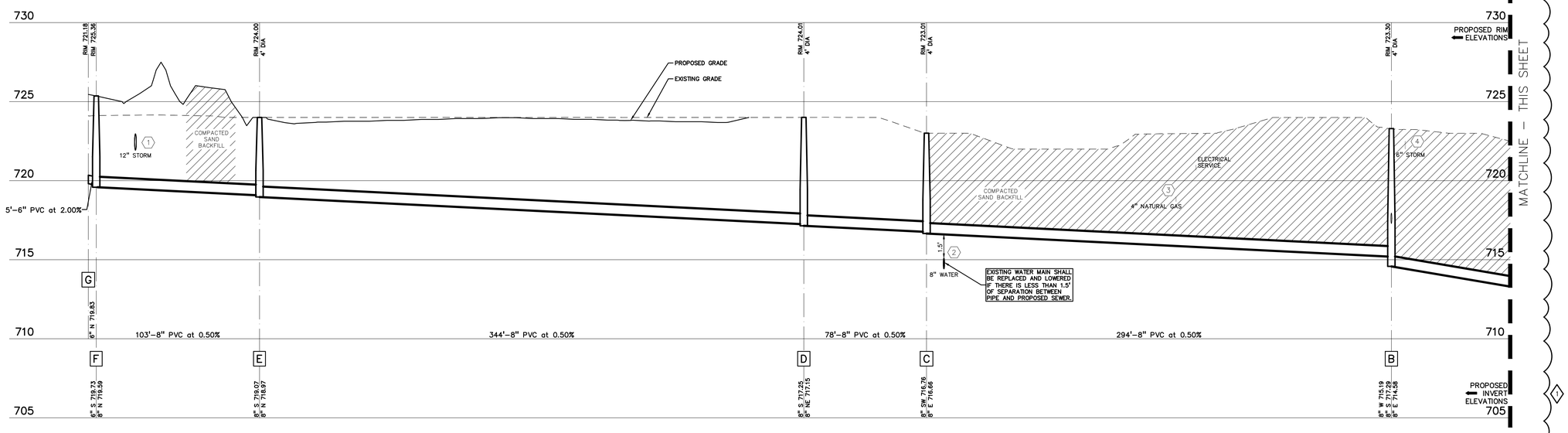
ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	JW
CHECKED	TD
APPROVED	TD

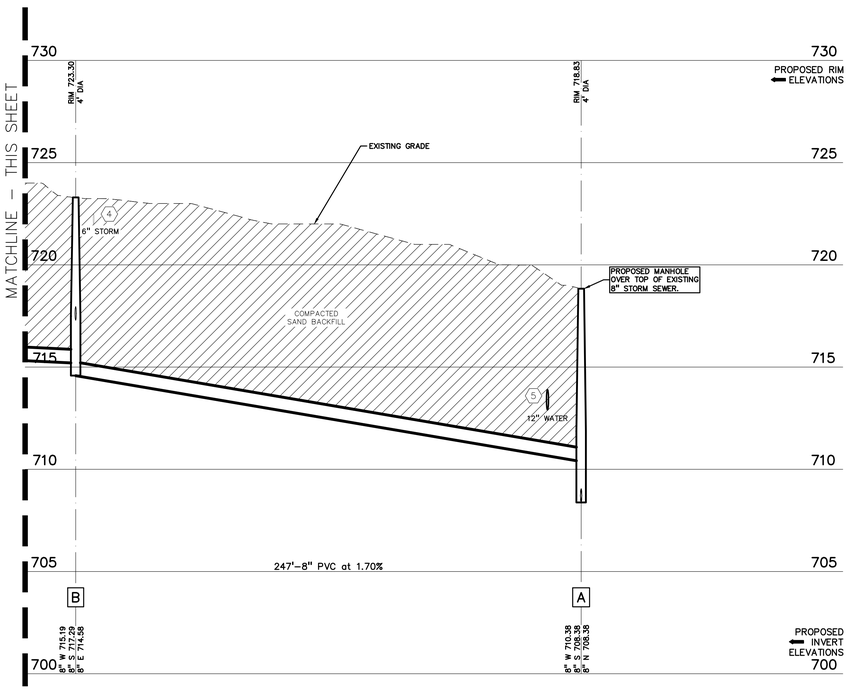
PROJECT NO.
22102

DRAWING NO.
C-5.3

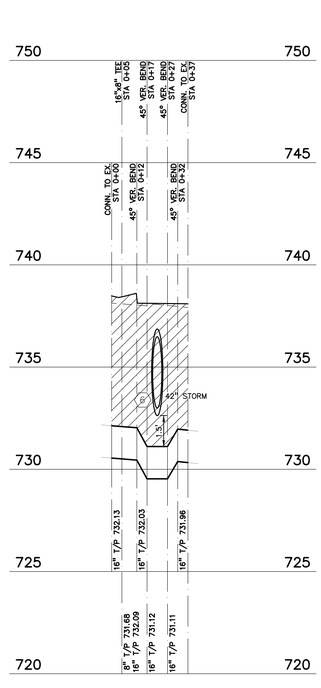


SANITARY G-A PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



SANITARY G-A PROFILE



WATER MAIN PROFILE

811 Know what's below. Call before you dig.

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TMP ARCHITECTURE

ARCHITECTURE

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REGISTRATION SEAL

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PROJECT TITLE

New Smith Middle School
Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE

SANITARY SEWER & WATER MAIN PROFILES

ISSUE DATES

07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

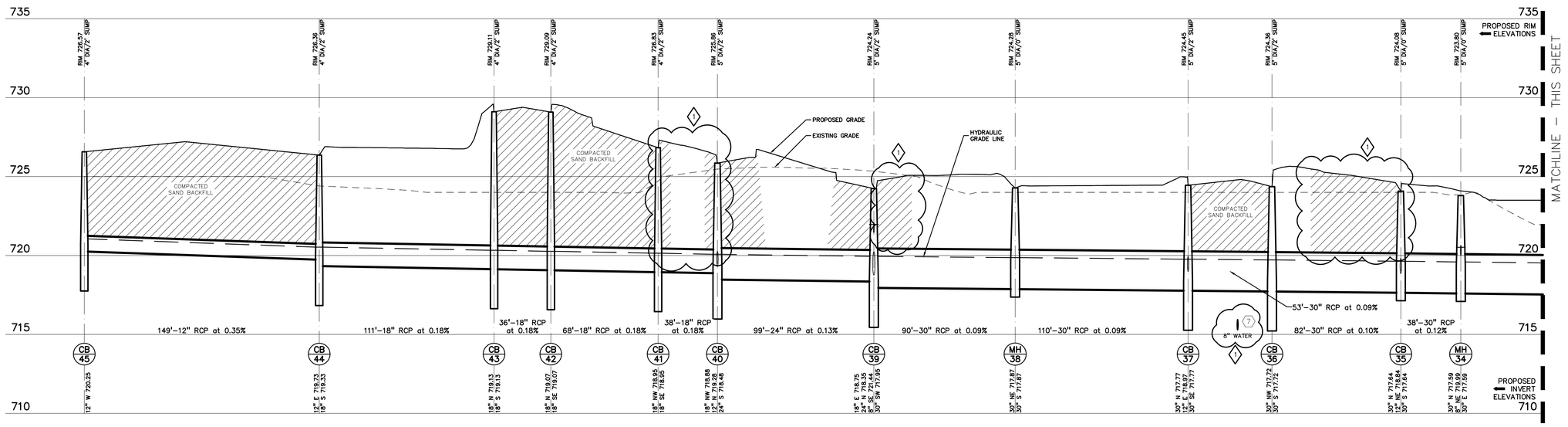
DATE:	ISSUED FOR:
DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.

22102

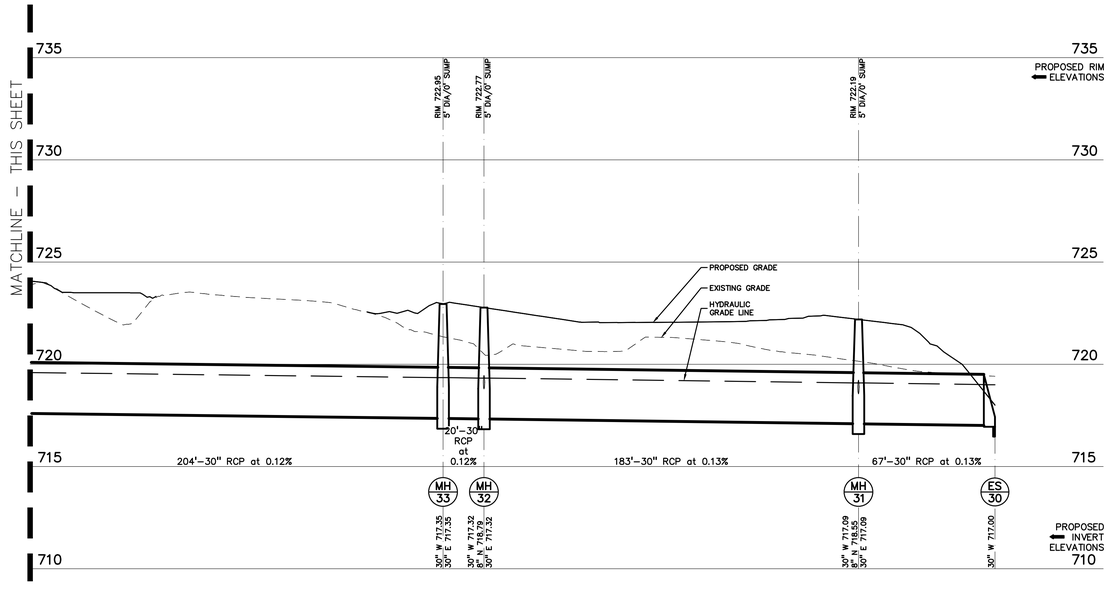
DRAWING NO.

C-6.0



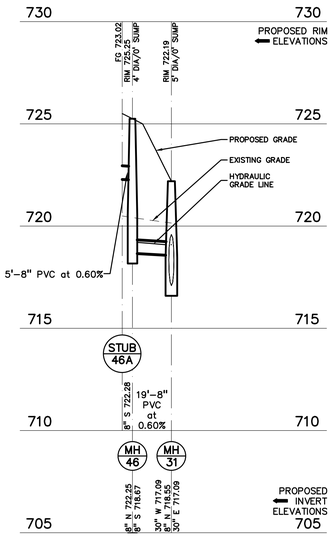
STORM 45-30 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



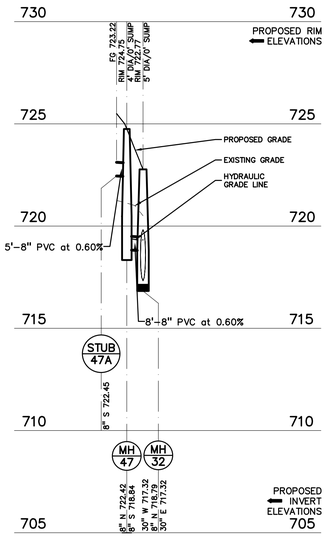
STORM 45-30 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



STORM 46-31 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



STORM 47-32 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'

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REGISTRATION SEAL

CONSULTANT

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PROJECT TITLE

New Smith Middle School
Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE

STORM SEWER PROFILES

ISSUE DATES

07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

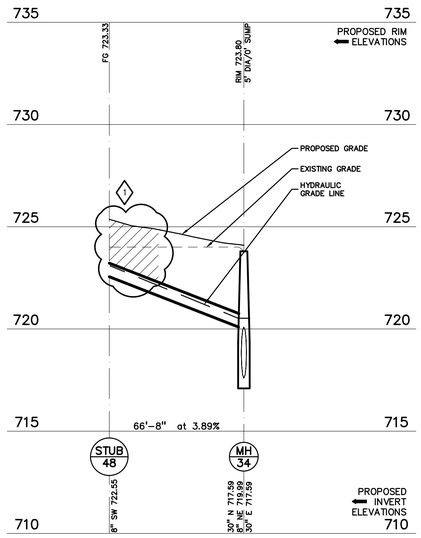
DATE:	ISSUED FOR:
DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.

22102

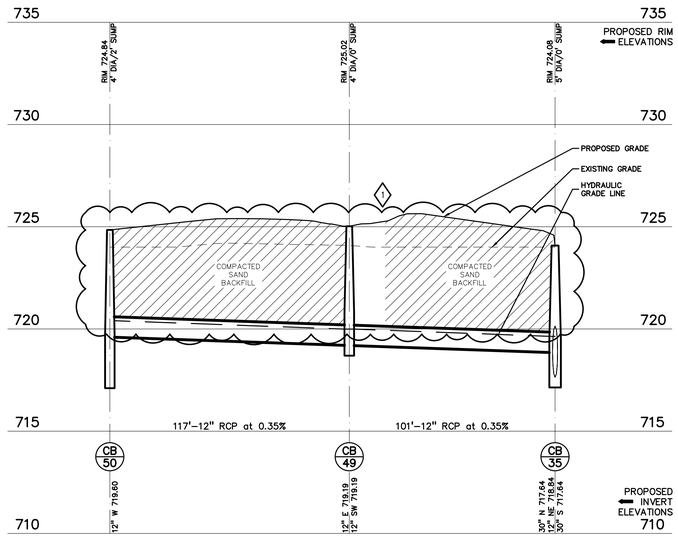
DRAWING NO.

C-6.1



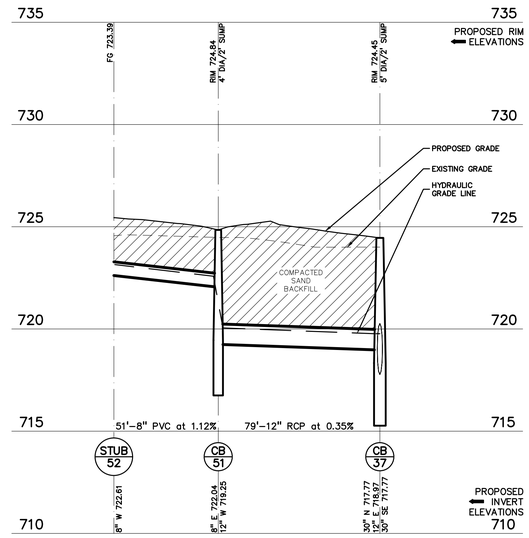
STORM 48–34 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



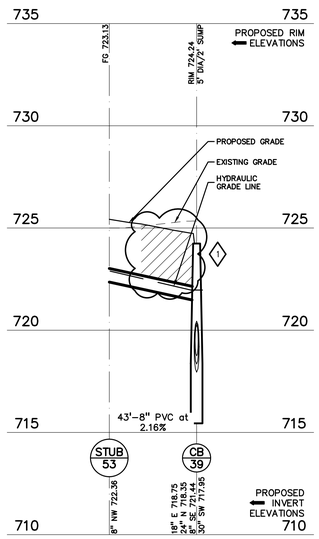
STORM 50–35 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



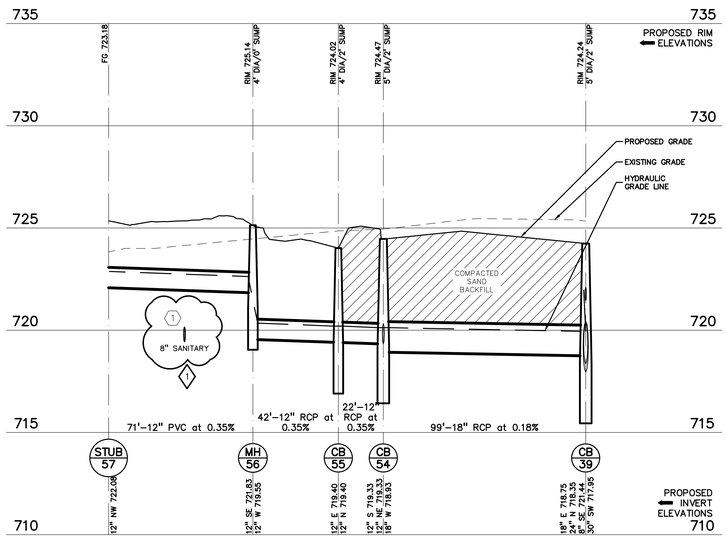
STORM 52–37 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



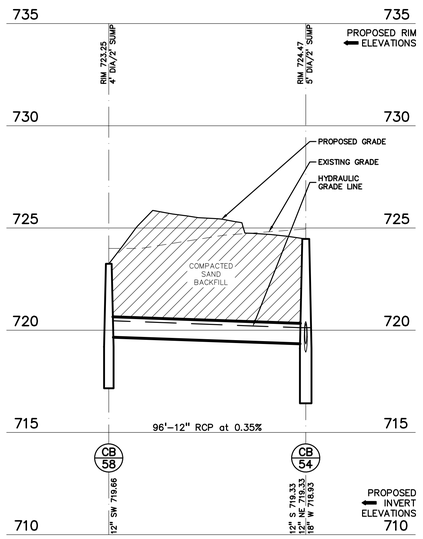
STORM 53–39 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



STORM 57–39 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



STORM 58–54 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'

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PROJECT TITLE

New Smith Middle School
Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE

STORM SEWER PROFILES

ISSUE DATES

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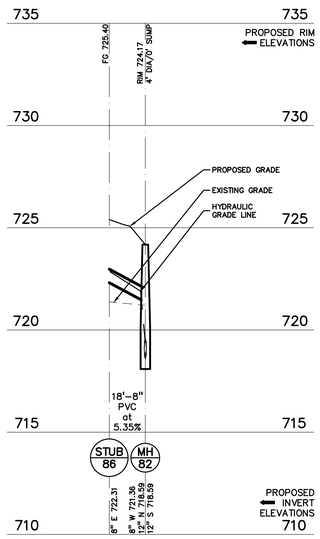
DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102

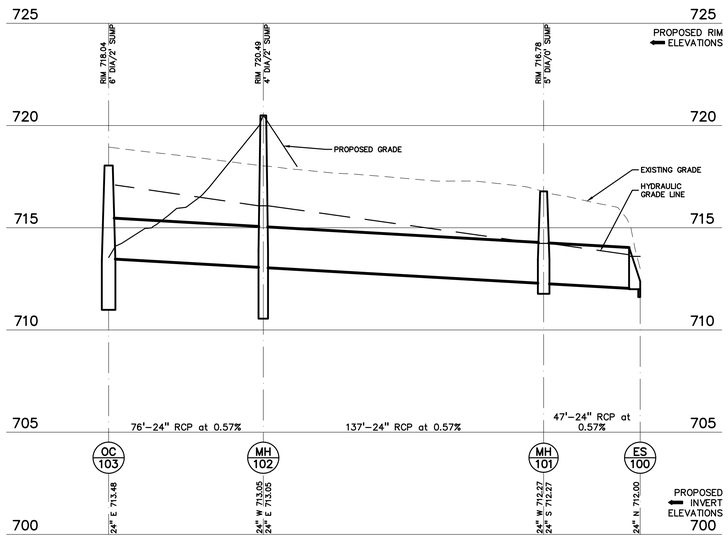
DRAWING NO.
C-6.2

Drawing File: S:\PROJECTS\2023\23-0301 TROY SCHOOLS 2022 ROW\CIVIL_CONSTRUCTION\NEW SMITH MIDDLE\[C-6.0 PROF-23-0301.dwg
Jul 17, 2024 - 9:26pm



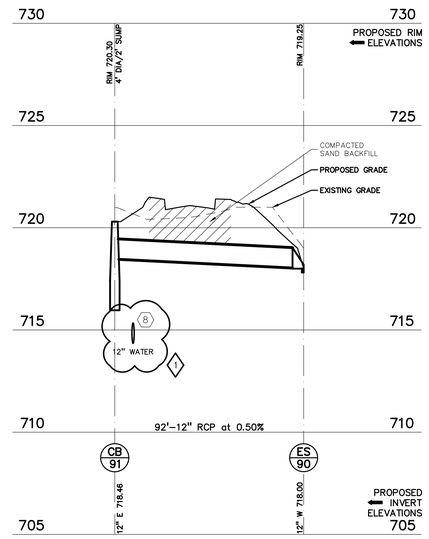
STORM 86–82 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



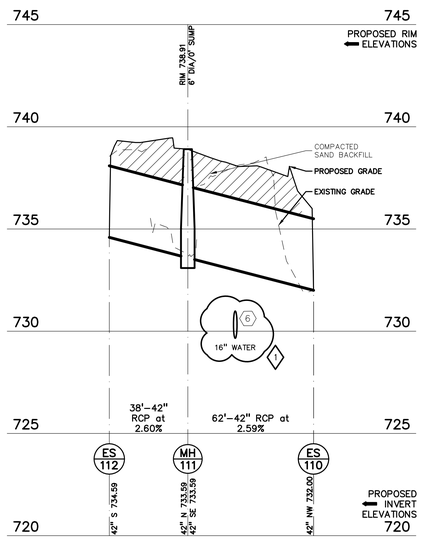
STORM 103–100 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



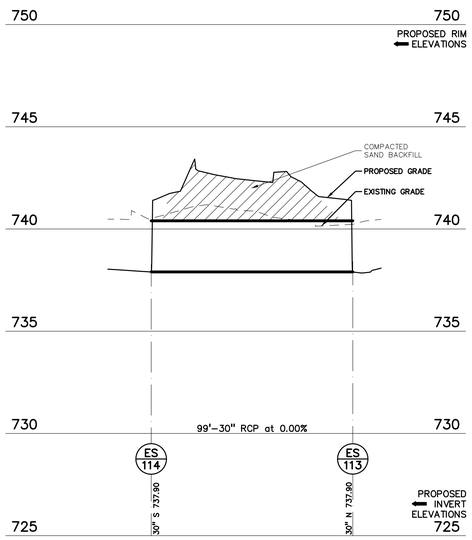
STORM 91–90 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



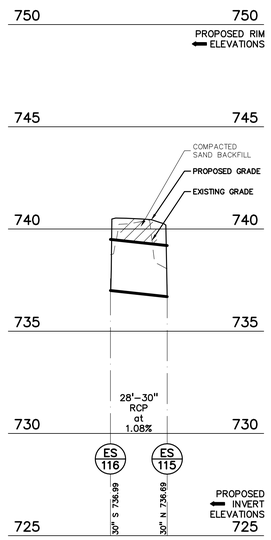
STORM 112–110 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



STORM 114–113 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



STORM 116–115 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'

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REGISTRATION SEAL

CONSULTANT

PEA GROUP
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PROJECT TITLE

New Smith Middle School
Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE

STORM SEWER PROFILES

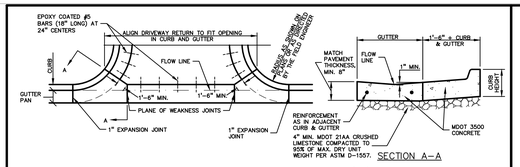
ISSUE DATES

07–12–2024	ADDENDUM NO. 2
06–18–2024	CONSTRUCTION DOCUMENTS

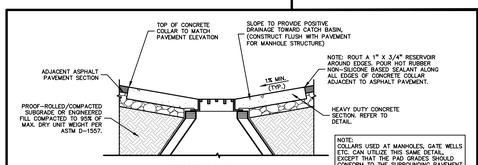
DATE:	ISSUED FOR:
DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102

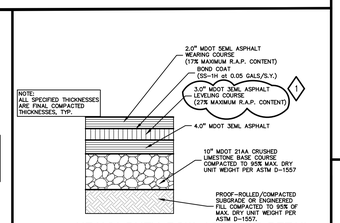
DRAWING NO.
C-6.4



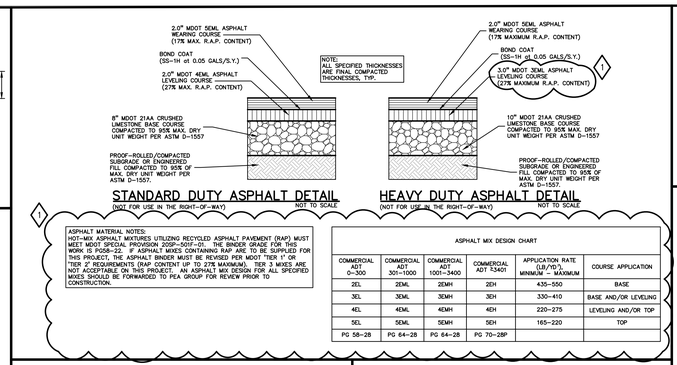
MDOT DRIVEWAY OPENING-DETAIL 'M'
NOT TO SCALE



CONCRETE COLLAR DETAIL
NOT TO SCALE



HEAVY DUTY ROW ASPHALT DETAIL
(NOT FOR USE IN THE RIGHT-OF-WAY) NOT TO SCALE



STANDARD DUTY ASPHALT DETAIL
(NOT FOR USE IN THE RIGHT-OF-WAY) NOT TO SCALE

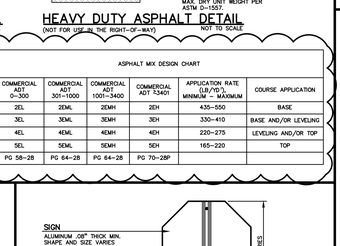
HEAVY DUTY ASPHALT DETAIL
(NOT FOR USE IN THE RIGHT-OF-WAY) NOT TO SCALE

ASPHALT MATERIAL NOTES:
HOT-MIX ASPHALT MIXTURES UTILIZING RECYCLED ASPHALT PAVEMENT (RAP) MUST MEET MDOT SPECIAL PROVISION 20SP-501F-01. THE BINDER GRADE FOR THIS WORK IS PG58-22. IF ASPHALT MIXES CONTAINING RAP ARE TO BE SUPPLIED FOR THIS PROJECT, THE ASPHALT BINDER MUST BE REVISED PER MDOT TIER 1" OR TIER 2" REQUIREMENTS (RAP CONTENT UP TO 27% MAXIMUM). TIER 3 MIXES ARE NOT ACCEPTABLE ON THIS PROJECT. AN ASPHALT MIX DESIGN FOR ALL SPECIFIED MIXES SHOULD BE FORWARDED TO PEA GROUP FOR REVIEW PRIOR TO CONSTRUCTION.

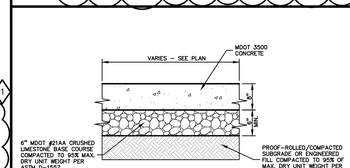
ASPHALT MIX DESIGN CHART

COMMERCIAL ADT 0-300	COMMERCIAL ADT 301-1000	COMMERCIAL ADT 1001-3400	COMMERCIAL ADT 3401	APPLICATION RATE (LB/YD²), MINIMUM - MAXIMUM	COURSE APPLICATION
2EL	2EML	2EMH	2EH	435-550	BASE
3EL	3EML	3EMH	3EH	330-410	BASE AND/OR LEVELING
4EL	4EML	4EMH	4EH	220-275	LEVELING AND/OR TOP
5EL	5EML	5EMH	5EH	165-220	TOP
PG 58-28	PG 64-28	PG 64-28	PG 70-28P		

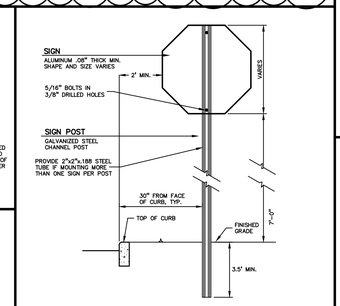
CONCRETE SIDEWALK
NOT TO SCALE



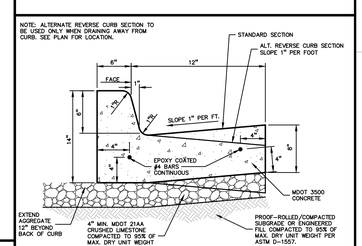
INTEGRAL CURB AND SIDEWALK
NOT TO SCALE



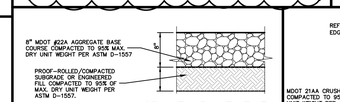
HEAVY DUTY CONCRETE DETAIL
NOT TO SCALE



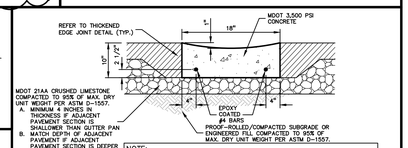
SIGN AND POST INSTALLATION IN LANDSCAPED AREAS
NOT TO SCALE



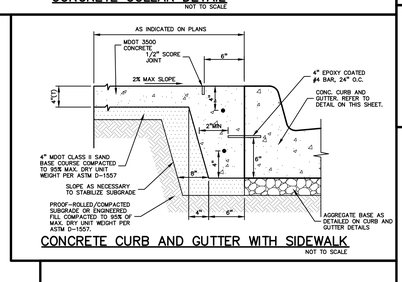
18"x6" STANDARD CONCRETE CURB AND GUTTER
NOT TO SCALE



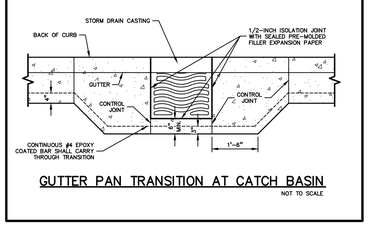
GRAVEL PAVEMENT
NOT TO SCALE



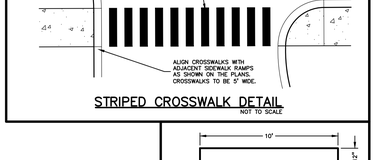
VALLEY GUTTER PAN DETAIL
NOT TO SCALE



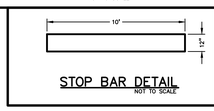
CONCRETE CURB AND GUTTER WITH SIDEWALK
NOT TO SCALE



GUTTER PAN TRANSITION AT CATCH BASIN
NOT TO SCALE

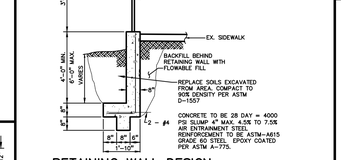


STRIPED CROSSWALK DETAIL
NOT TO SCALE

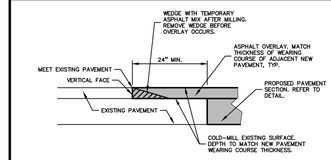


STOP BAR DETAIL
NOT TO SCALE

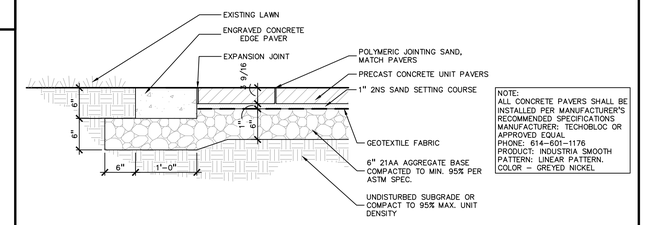
NOTE: RETAINING WALL TO BE CONSTRUCTED PER CURRENT ACI GUIDE LINES AND LOCAL BUILDING CODE REQUIREMENTS.



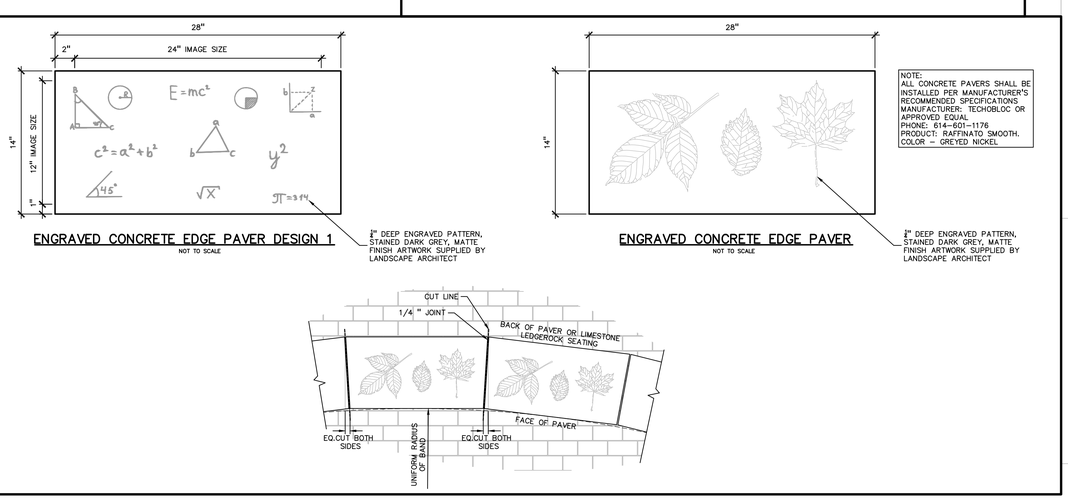
RETAINING WALL DESIGN
NOT TO SCALE



BUTT JOINT DETAIL
NOT TO SCALE

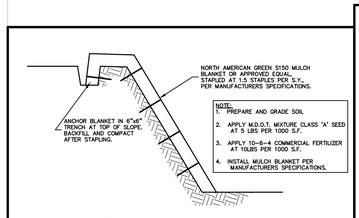


PRE-CAST CONCRETE PAVERS PLANK STYLE PAVER
NOT TO SCALE

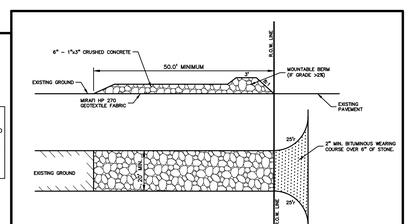


ENGRAVED CONCRETE EDGE PAVER DESIGN 1
NOT TO SCALE

ENGRAVED CONCRETE EDGE PAVER
NOT TO SCALE



TEMPORARY EROSION BLANKET DETAIL
NOT TO SCALE



TEMPORARY CONSTRUCTION ACCESS DETAIL
NOT TO SCALE

TMP ARCHITECTURE

TMP ARCHITECTURE INC
1191 WEST SQUARE LAKE ROAD
BLOOMFIELD HILLS · MICHIGAN · 48302
PH - 248.338.4561 FX - 248.338.0223
EM - INFO@TMP-ARCHITECTURE.COM

REGISTRATION SEAL

CONSULTANT

PEA GROUP

PROJECT TITLE
New Smith Middle School
Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE
PAVING DETAILS

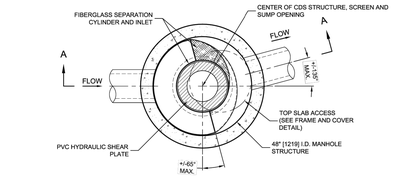
ISSUE DATES

07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

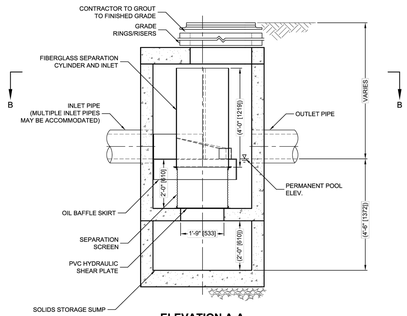
DATE:	ISSUED FOR:
DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102

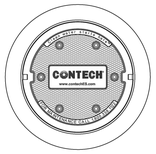
DRAWING NO.
C-7.1



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

CDS2015-4-C DESIGN NOTES

THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS

SITE SPECIFIC DATA REQUIREMENTS

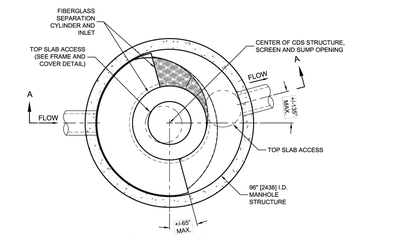
STRUCTURE ID			MH-7/MH-91
WATER QUALITY FLOW RATE (CFS OR L/s)			1.04/1.48
PEAK FLOW RATE (CFS OR L/s)			4.41/2.15
RETURN PERIOD OF PEAK FLOW (YRS)			10/10
SCREEN APERTURE (2400 OR 4700)			2400/2400
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	716.40 / 716.54	RCP / RCP	18" / 12"
INLET PIPE 2	N/A / N/A	N/A / N/A	N/A / N/A
OUTLET PIPE	716.40 / 716.54	RCP / RCP	18" / 12"
RIM ELEVATION			725.40 / 723.03
ANTI-FLOTATION BALLAST	WIDTH		HEIGHT
NOTES/SPECIAL REQUIREMENTS:			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO H20 AND CASTINGS SHALL MEET H20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

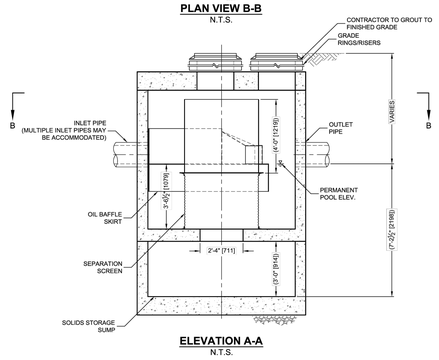
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

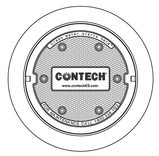
CDS2015-4-C
INLINE CDS
STANDARD DETAIL



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

CDS4030-8-C DESIGN NOTES

THE STANDARD CDS4030-8-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			MH-34
WATER QUALITY FLOW RATE (CFS OR L/s)			4.39
PEAK FLOW RATE (CFS OR L/s)			14.02
RETURN PERIOD OF PEAK FLOW (YRS)			10
SCREEN APERTURE (2400 OR 4700)			2400
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	717.59	RCP	30"
INLET PIPE 2	719.99	HDPE	8"
OUTLET PIPE	717.59	RCP	30"
RIM ELEVATION			723.90
ANTI-FLOTATION BALLAST	WIDTH		HEIGHT
NOTES/SPECIAL REQUIREMENTS:			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO H20 AND CASTINGS SHALL MEET H20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

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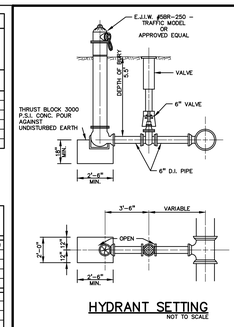
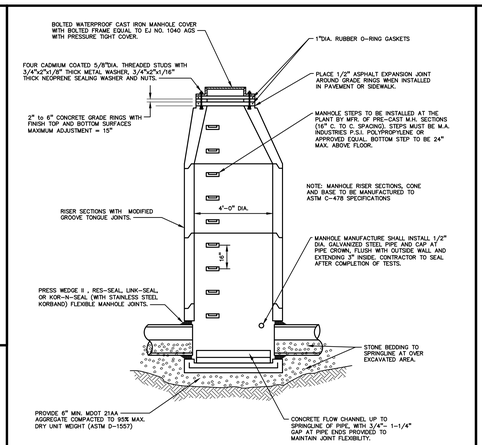
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

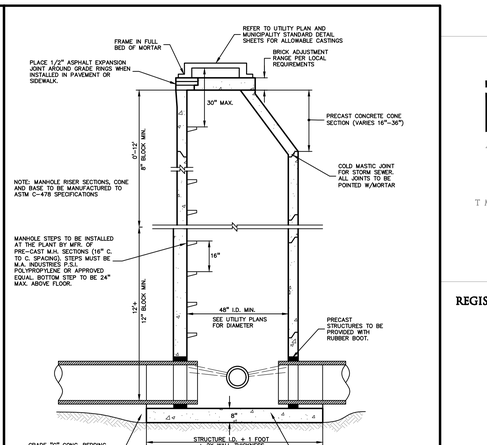
CDS4030-8-C
INLINE CDS
STANDARD DETAIL



HYDRANT SETTING
NOT TO SCALE

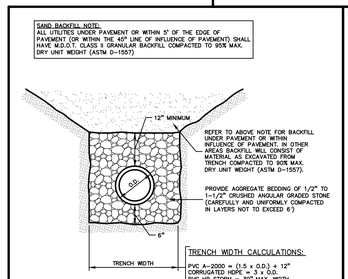


STANDARD SANITARY SEWER MANHOLE DETAIL (ON 8" THROUGH 24" DIAMETER)
NOT TO SCALE



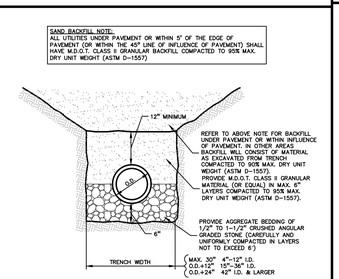
STANDARD STORM MANHOLE DETAIL
NOT TO SCALE

SAND BACKFILL NOTE:
ALL UTILITIES UNDER PAVEMENT OR WITHIN 5' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE M.D.O.T. CLASS II GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY UNIT WEIGHT (ASTM D-1557)

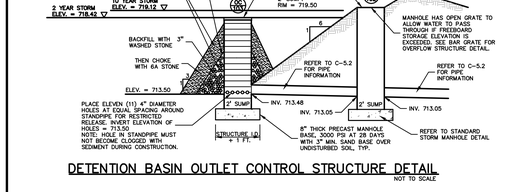


STANDARD PIPE BEDDING FOR FLEXIBLE PIPE
NOT TO SCALE

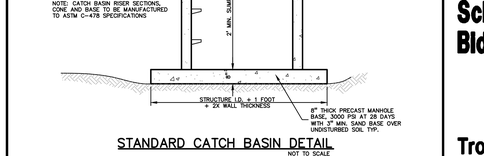
SAND BACKFILL NOTE:
ALL UTILITIES UNDER PAVEMENT OR WITHIN 5' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE M.D.O.T. CLASS II GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY UNIT WEIGHT (ASTM D-1557)



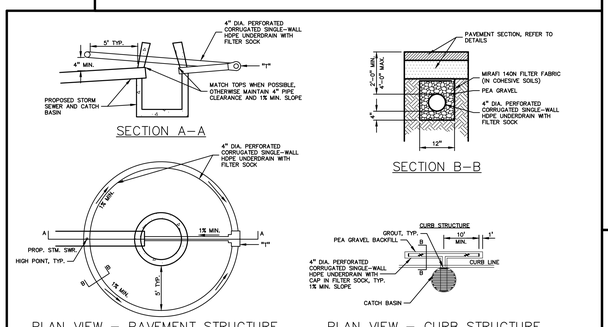
STANDARD PIPE BEDDING FOR RIGID PIPE
NOT TO SCALE



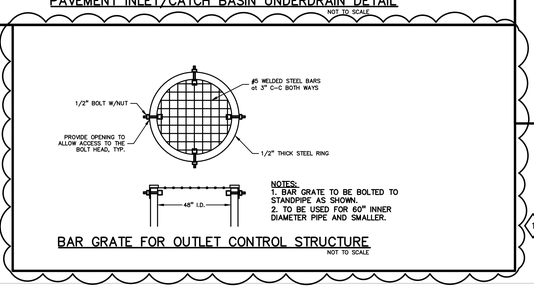
DETENTION BASIN OUTLET CONTROL STRUCTURE DETAIL
NOT TO SCALE



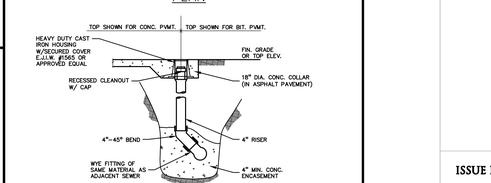
STANDARD CATCH BASIN DETAIL
NOT TO SCALE



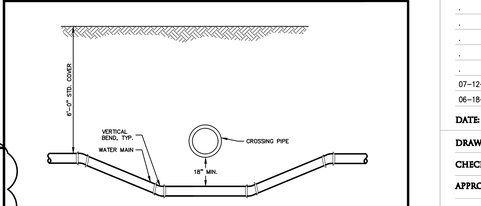
PAVEMENT INLET/CATCH BASIN UNDERDRAIN DETAIL
NOT TO SCALE



BAR GRATE FOR OUTLET CONTROL STRUCTURE
NOT TO SCALE



SEWER CLEANOUT
NOT TO SCALE



SEWER CROSSING
NOT TO SCALE

TMP ARCHITECTURE

TMP ARCHITECTURE INC
1191 WEST SQUARE LAKE ROAD
BLOOMFIELD HILLS - MICHIGAN - 48302
PH - 248.338.4561 FX - 248.338.0223
EM - INFO@TMP-ARCHITECTURE.COM

REGISTRATION SEAL

CONSULTANT

PEA GROUP

PROJECT TITLE
New Smith Middle School
Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE
UTILITY DETAILS

ISSUE DATES

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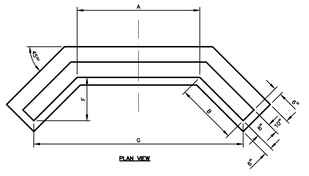
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS
DATE:	ISSUED FOR:
DRAWN	JW
CHECKED	TD
APPROVED	TD

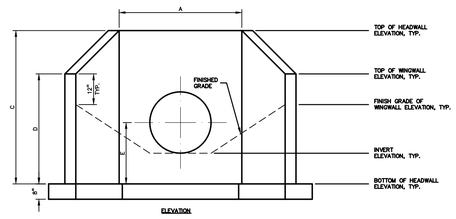
PROJECT NO.
22102

DRAWING NO.
C-7.2

HEADWALL	PIPE DIAMETER	INVERT ELEV.	CENTER OF PIPE ELEV.	BOTTOM OF WALL ELEV.	TOP OF WALL ELEV.	TOP OF WING WALL ELEV.	FINISH GRADE AT WING WALL ELEV.
110	36	732.00	733.50	729.50	736.00	734.50	733.50
112	36	734.59	736.09	732.09	738.59	737.09	736.09
113	30	737.90	739.15	735.40	741.40	739.90	738.90
114	30	737.90	739.15	735.40	741.40	739.90	738.90
115	30	736.69	737.94	734.19	740.19	738.69	737.69
116	30	736.99	738.24	734.49	740.49	738.99	737.99



DIMENSION SCHEDULE							
PIPE DIAM	A	B	C	D	E	F	G
12	36	30	54	40	36	22	78
15	48	30	60	45	37.5	22	92
18	48	30	60	45	39	22	92
24	60	36	64	48	42	26	112
30	72	36	72	54	45	26	124
36	78	48	78	60	48	35	144
48	84	48	90	66	54	35	150



NOTES:
1. ALL EXPOSED EDGES TO HAVE ½" BEVELED CORNERS.
2. APRON BY CONTRACTOR IN FIELD.
3. REINFORCING: #4 BARS AT 12" O.C.E.W.
4. CONCRETE: 4,000 PSI AT 28 DAYS.

WINGWALL WITH FOOTING

NOT TO SCALE

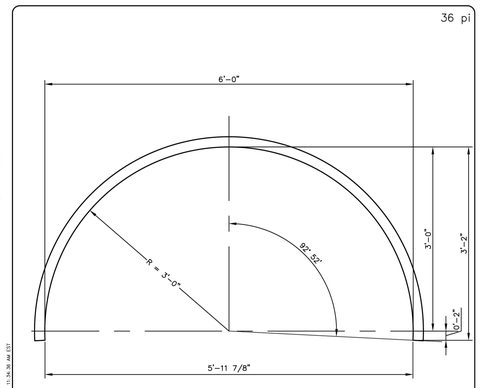


PLATE MAKE-UP: 2 @ 15pi, 1 @ 21pi

AREA= 15.0 SF

ALL DIMENSIONS ARE TO INSIDE CORRUGATION CREST, UNLESS OTHERWISE NOTED.
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.

CONTECH ID# 0000

CONTECH CONSTRUCTION PRODUCTS INC.
9025 CENTRE POINTE DRIVE, SUITE 400
WEST CHESTER, OHIO 45069
PH: 1.800.338.1122 FAX: 513.645.7399
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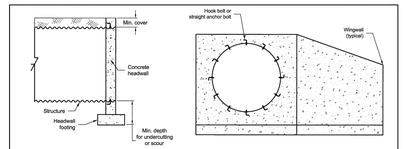
MULTI-PLATE ARCH
6'-0" SPAN X 3'-2" RISE
DWG.# 10093618
R/S RATIO = .53

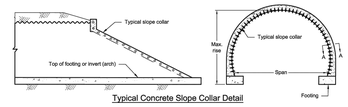
SCALE:	1"=1'
DRAWN BY:	SMC
DATE:	9/26/94
REV. BY:	SL
DATE:	10/7/04
SHEET	1 of 1

Typical Design Steps

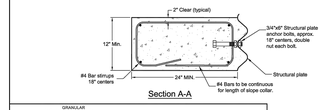
Steel and Aluminum Structural Plate Design Guide



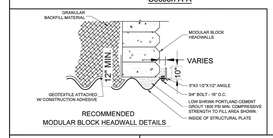
Typical Headwall Detail



Typical Concrete Slope Collar Detail



Section A-A

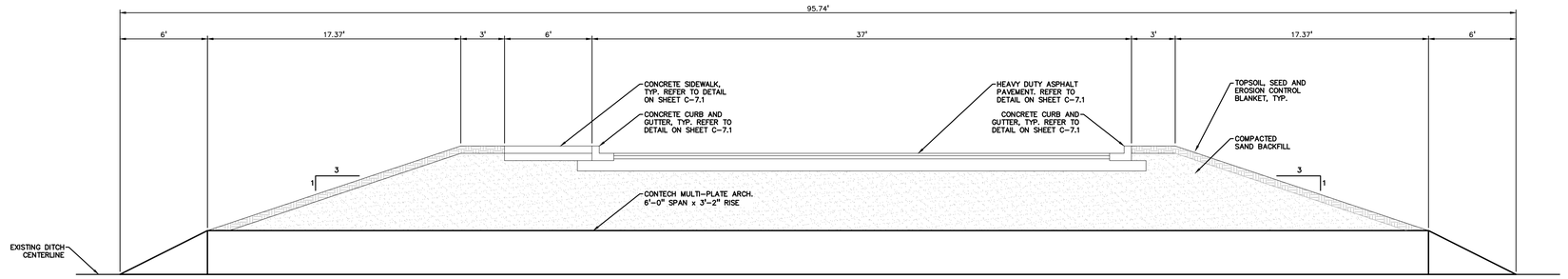


RECOMMENDED MODULAR BLOCK HEADWALL DETAILS

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com

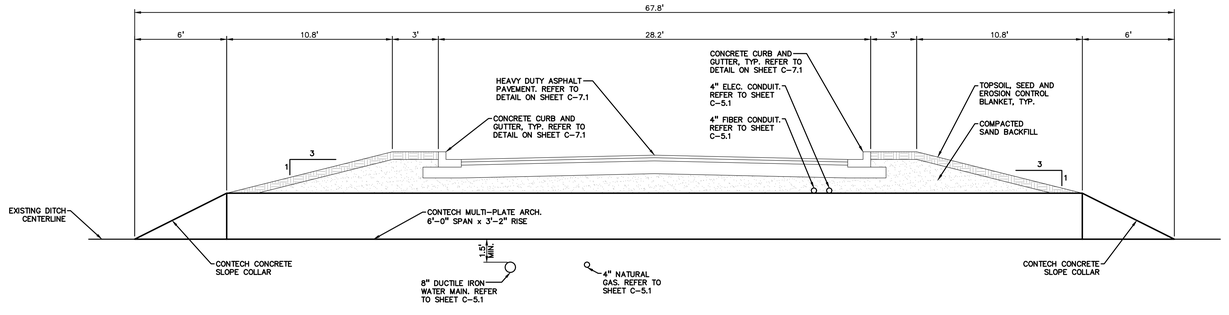
STRUCTURAL PLATE END TREATMENT HEADWALLS AND SLOPE COLLARS

24



NORTH ENTRY DRIVE CULVERT SECTION

SCALE: 1/4" = 1'



SOUTH ENTRY DRIVE CULVERT SECTION

SCALE: 1/4" = 1'

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REGISTRATION SEAL

CONSULTANT

PEA GROUP

PROJECT TITLE

New Smith Middle School
Bid Package No. 03C

Troy School District
Troy, Michigan

DRAWING TITLE

CULVERT DETAILS

ISSUE DATES

07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

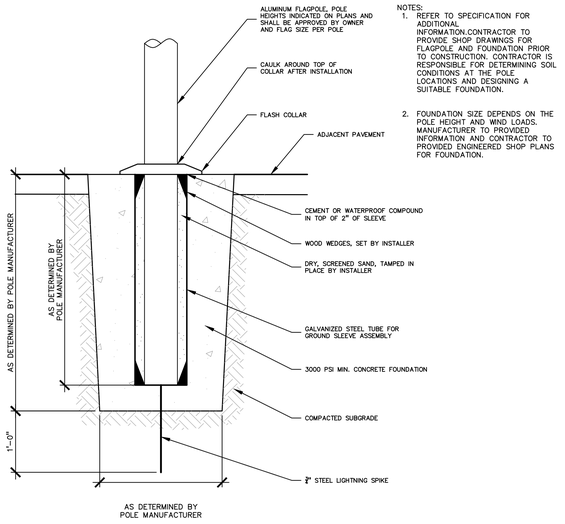
DATE:	ISSUED FOR:
DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.

22102

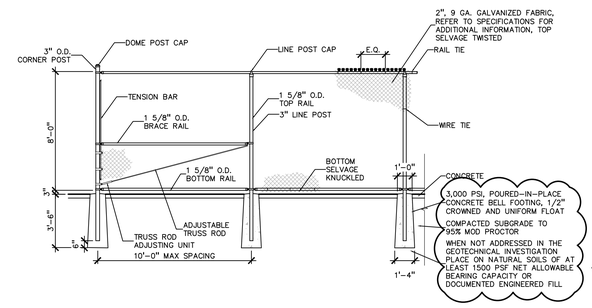
DRAWING NO.

C-7.3

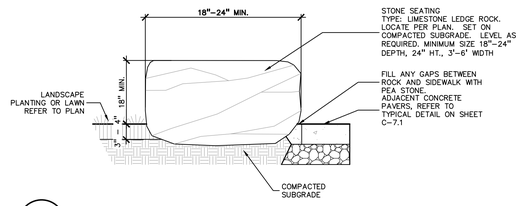


NOTES:
1. REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION.CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR FLAGPOLE AND FOUNDATION PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR DETERMINING SOIL CONDITIONS AT THE POLE LOCATIONS AND DESIGNING A SUITABLE FOUNDATION.
2. FOUNDATION SIZE DEPENDS ON THE POLE HEIGHT AND WIND LOADS. MANUFACTURER TO PROVIDED INFORMATION AND CONTRACTOR TO PROVIDED ENGINEERED SHOP PLANS FOR FOUNDATION.

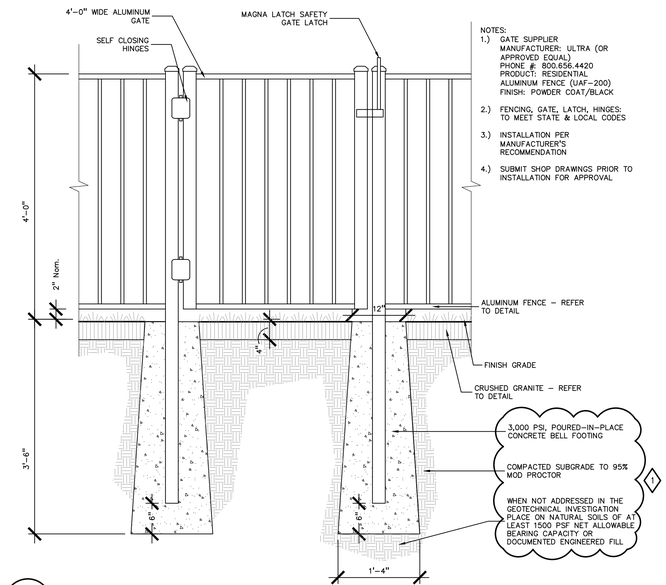
4 FLAGPOLE BASE DETAIL
SCALE: 1 1/2" = 1'-0"



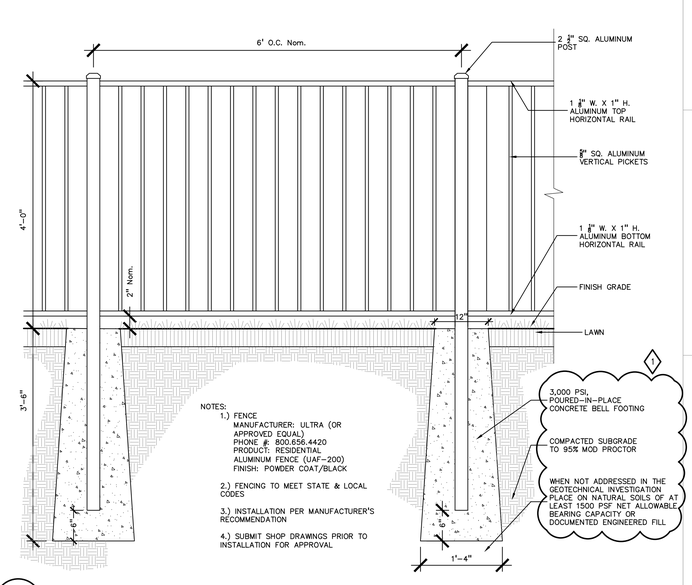
2 8' HT. VINYL COATED CHAIN LINK FENCE DETAIL
SCALE: 1/4" = 1'-0"



5 LEDGE STONE SEATING DETAIL
SCALE: 1" = 1'-0"



3 ALUMINUM GATE DETAIL
SCALE: 1" = 1'-0"



1 ALUMINUM FENCING DETAIL
SCALE: 1" = 1'-0"

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REGISTRATION SEAL

CONSULTANT

PEA GROUP

PROJECT TITLE
New Smith Middle School
Bid Package No. 03C

Troy School District
Troy, Michigan

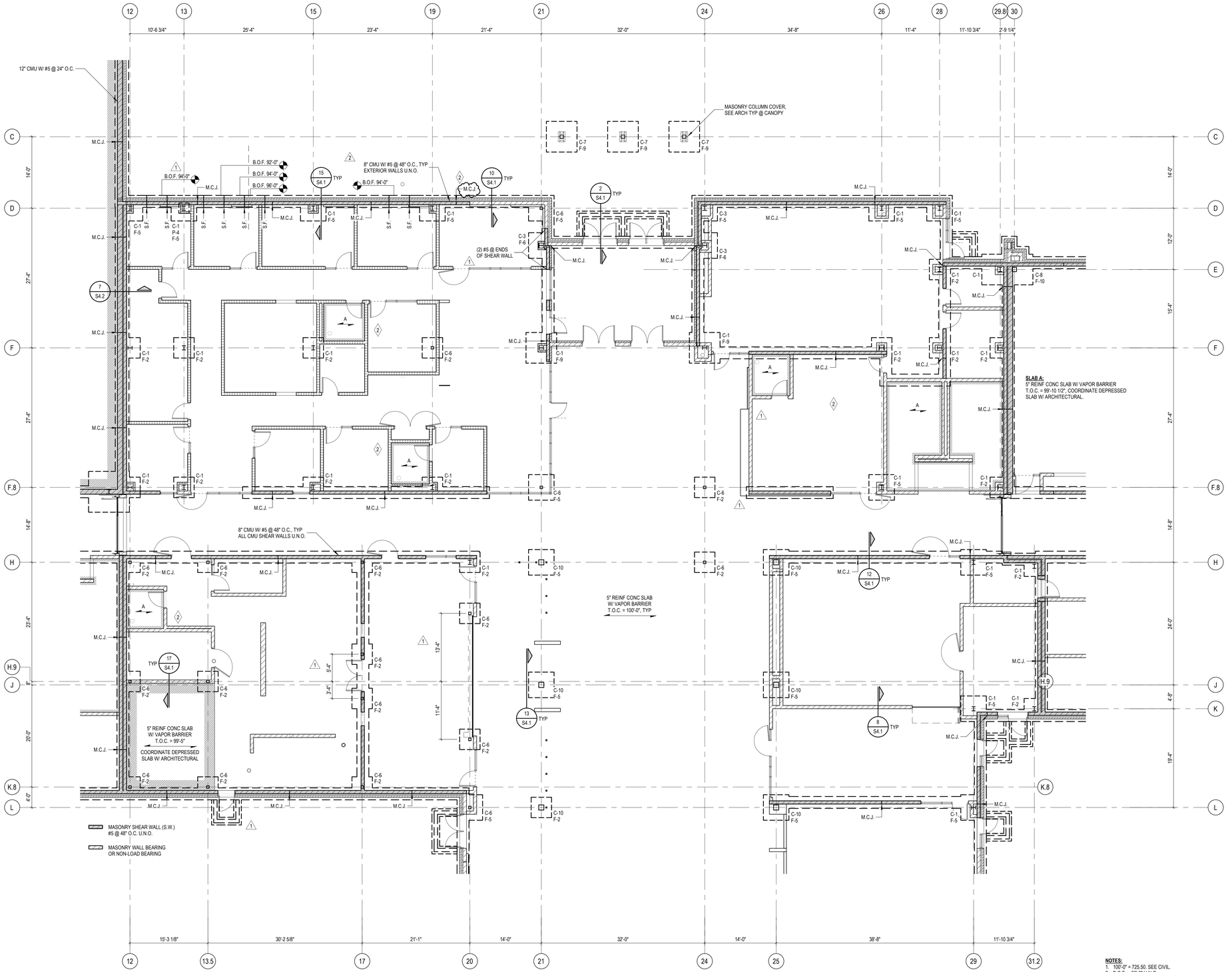
DRAWING TITLE
SITE DETAILS

ISSUE DATES

07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS
DATE:	**ISSUED FOR:**
DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102

DRAWING NO.
C-7.4



FOUNDATION PLAN – ZONE 'B'

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

NOTES:
1. 100'-0" = 725.50. SEE CIVIL.
2. B.O.F. = 96'-8" U.N.O.
3. REFER TO S4.1 FOR FOOTING AND PIER SCHEDULE.
4. REFER TO S6.1 FOR COLUMN SCHEDULE.
5. PROVIDE (2) #5 X 4'-0" LONG AT ALL RE-ENTRANT CORNERS.
6. PROVIDE CONTROL JOINTS AT A MAXIMUM SPACING OF 15 FT O.C. AND A MAXIMUM ASPECT RATION OF 2 TO 1. SUGGESTED CONTROL JOINT LOCATIONS WILL BE PROVIDED WITH THE ARCHITECTURAL BID PACKAGE.

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REGISTRATION SEAL

CONSULTANT

WILLIAM A. KIBBE & ASSOCIATES, INC.
ENGINEERS | ARCHITECTS | SURVEYORS

PROJECT TITLE

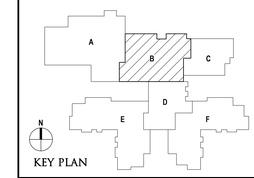
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
Troy, Michigan

DRAWING TITLE

Foundation Plan Zone 'B'



KEY PLAN

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM NO. 2
06-21-2024	BULLETIN NO. 2
06-10-2024	CONSTRUCTION DOCUMENTS
05-30-2024	BULLETIN NO. 1
02-08-2024	ADDENDUM NO. 2
01-23-2024	CONSTRUCTION DOCUMENTS

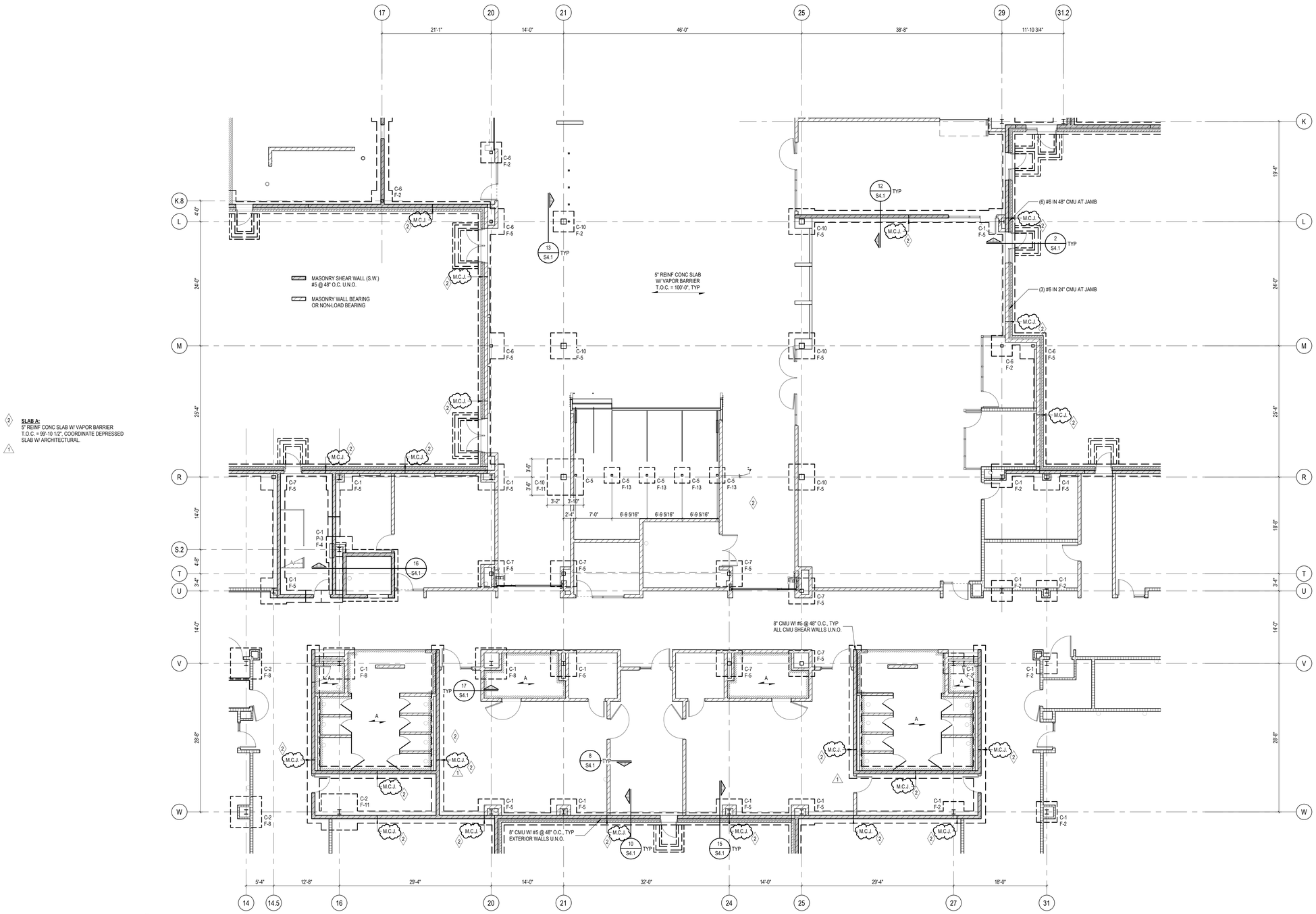
DRAWN	D. BART
CHECKED	B. KANNERS
APPROVED	E. MANNOR

PROJECT NO.

22102

DRAWING NO.

S1.0B



2 **SLAB A:**
5" REINF CONC SLAB W/ VAPOR BARRIER
T.O.C. = 99'-10 1/2", COORDINATE DEPRESSED
SLAB W/ ARCHITECTURAL.

1

FOUNDATION PLAN – ZONE 'D'
SCALE: 1/8" = 1'-0"

NOTES:
1. 100'-0" = 725.50. SEE CIVIL.
2. B.O.F. = 96'-0" U.N.O.
3. REFER TO S4.1 FOR FOOTING AND PIER SCHEDULE.
4. REFER TO S6.1 FOR COLUMN SCHEDULE.
5. PROVIDE (2) #5 X 4'-0" LONG AT ALL RE-ENTRANT CORNERS.
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2

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PROJECT TITLE

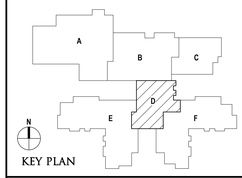
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
Troy, Michigan

DRAWING TITLE

Foundation Plan Zone 'D'



KEY PLAN

ISSUE DATES

07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS
05-30-2024	BULLETIN NO. 1
02-09-2024	ADDENDUM NO. 2
01-23-2024	CONSTRUCTION DOCUMENTS

DATE: ISSUED FOR:

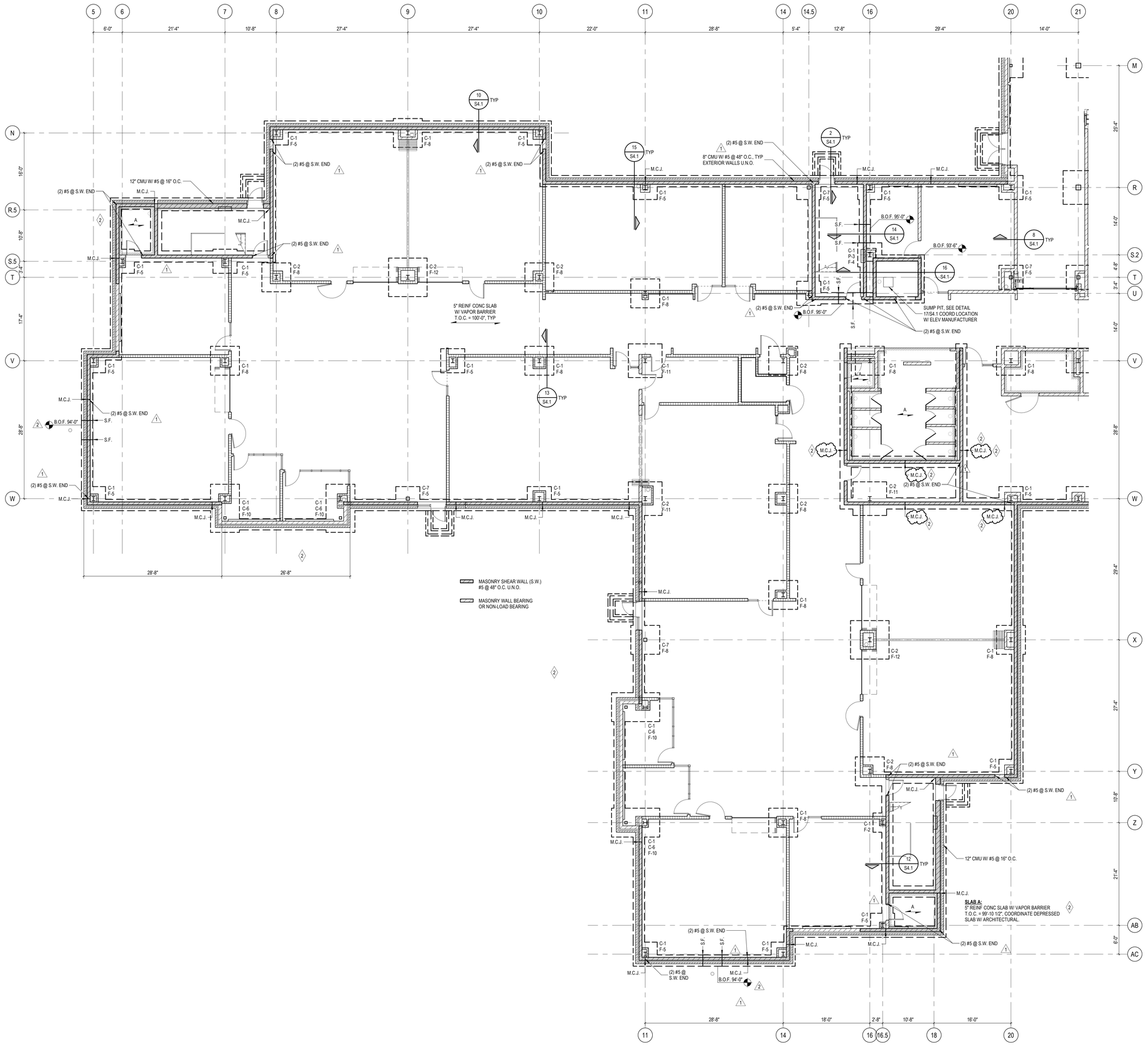
DRAWN	D. BART
CHECKED	B. KANNERS
APPROVED	E. MANNOR

PROJECT NO.

22102

DRAWING NO.

S1.0D



FOUNDATION PLAN – ZONE 'E'

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

NOTES:

1. 100'-0" = 725.50. SEE CIVIL.
2. B.O.F. = 96'-0" U.N.O.
3. REFER TO S4.1 FOR FOOTING AND PIER SCHEDULE.
4. REFER TO S6.1 FOR COLUMN SCHEDULE.
5. PROVIDE (2) #5 X 4'-0" LONG AT ALL RE-ENTRANT CORNERS.
6. PROVIDE CONTROL JOINTS AT A MAXIMUM SPACING OF 15 FT O.C. AND A MAXIMUM ASPECT RATION OF 2 TO 1. SUGGESTED CONTROL JOINT LOCATIONS WILL BE PROVIDED WITH THE ARCHITECTURAL BID PACKAGE.

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PROJECT TITLE

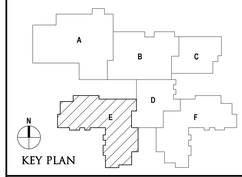
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
Troy, Michigan

DRAWING TITLE

Foundation Plan Zone 'E'



KEY PLAN

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM NO. 2
06-21-2024	BULLETIN NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS
05-30-2024	BULLETIN NO. 1
02-09-2024	ADDENDUM NO. 2
01-23-2024	CONSTRUCTION DOCUMENTS

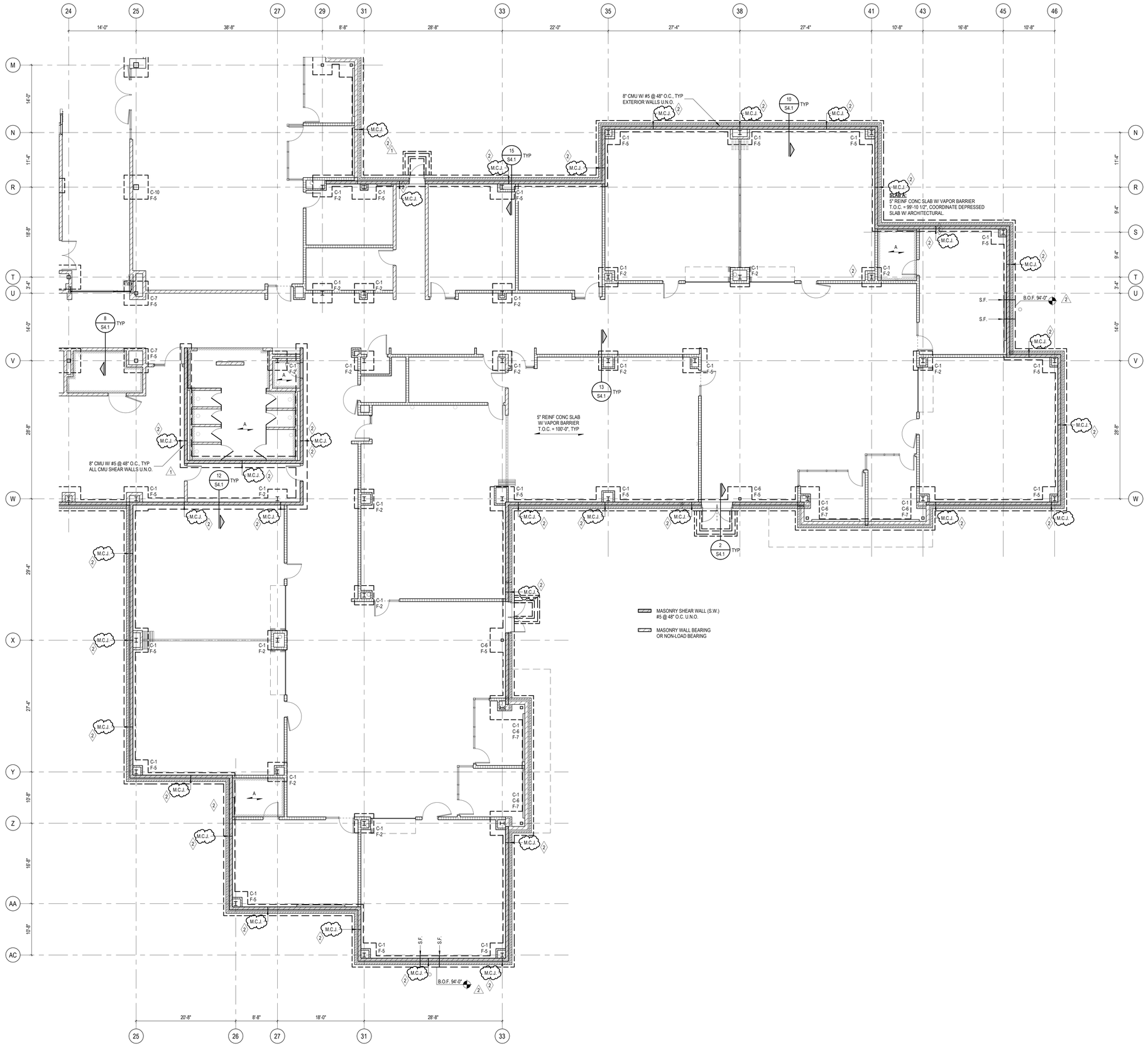
DRAWN	D. BART
CHECKED	B. KANNERS
APPROVED	E. MANNOR

PROJECT NO.

22102

DRAWING NO.

S1.0E



FOUNDATION PLAN – ZONE 'F'
SCALE: 1/8" = 1'-0"

NOTES:
1. 100'-0" = 725.50. SEE CIVIL.
2. B.O.F. = 96'-0" U.N.O.
3. REFER TO S4.1 FOR FOOTING AND PIER SCHEDULE.
4. REFER TO S6.1 FOR COLUMN SCHEDULE.
5. PROVIDE (2) #5 X 4'-0" LONG AT ALL RE-ENTRANT CORNERS.
6. PROVIDE CONTROL JOINTS AT A MAXIMUM SPACING OF 15 FT O.C. AND A MAXIMUM ASPECT RATION OF 2 TO 1. SUGGESTED CONTROL JOINT LOCATIONS WILL BE PROVIDED WITH THE ARCHITECTURAL BID PACKAGE.

2 = M.C.J.

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PROJECT TITLE

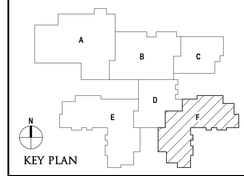
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
Troy, Michigan

DRAWING TITLE

Foundation Plan Zone 'F'



ISSUE DATES

07-12-2024	ADDENDUM NO. 2
06-21-2024	BULLETIN NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS
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02-08-2024	ADDENDUM NO. 2
01-23-2024	CONSTRUCTION DOCUMENTS

DATE: ISSUED FOR:

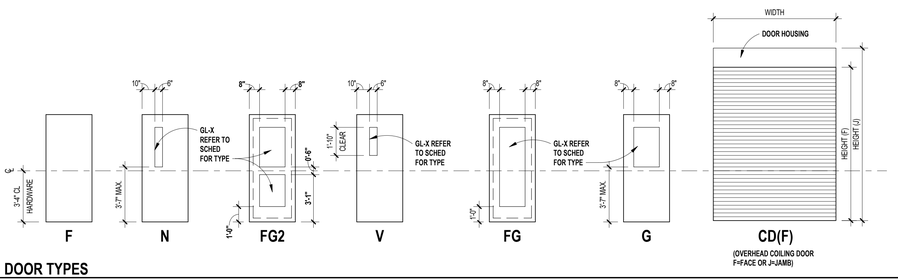
DRAWN	D. BART
CHECKED	B. KANNERS
APPROVED	E. MANNOR

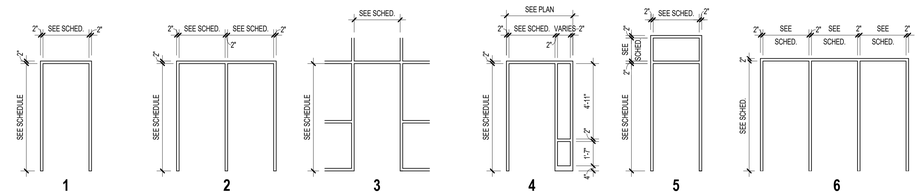
PROJECT NO.

22102

DRAWING NO.

S1.0F





DOOR & FRAME SCHEDULE

Opening		Door				Frame				Details						
No.	Opening Size (Width x Height)	Type	Material	Finish	Glass	Type	Material	Finish	Glass	Head	Jamb	Sill	Threshold	U.L. Label	Hdwe. Set	Remarks
ZONE C																
C101A	3'-1" x 7'-2"	G	FRP	PFN	SSGL1	3	ALGL	PFN	SSGL2	5/AD.6	2&3/AD.6	6/AD.6	MTL		3.03	*SEE EXTERIOR ELEVATION
C101B	3'-1" x 7'-2"	G	FRP	PFN	SSGL1	3	ALGL	PFN	SSGL2	5/AD.6	2&3/AD.6	6/AD.6	MTL		3.04	SAME FRAME AS C101A, ACCESS CONTROL, ADO
C101C	3'-2" x 7'-2"	G	FRP	PFN	SSGL1	C101C	ALGL	PFN	SSGL2	15/AD.5	13/AD.5	11/AD.5			4.01	ADO, SEE AD.3
C101D	3'-2" x 7'-2"	G	FRP	PFN	SSGL1	C101C	ALGL	PFN	SSGL2	15/AD.5	13/AD.5	11/AD.5			4.00	SAME FRAME AS C101C
C103A	3'-6" x 7'-2"	F	WD	PFN	FPGL-2	4	HM	PTD		4&5/AD.5	2&3/AD.5	1/AD.5		45	8.07	
C103B	3'-8" x 7'-3"	G	AL	PFN	GL-2	3	AL	PFN	*	5/AD.6	2&3/AD.6	6/AD.6	MTL		1.00	*SEE EXTERIOR ELEVATION, EXIT ONLY
C104A	3'-6" x 7'-2"	F	WD	PFN	GL-6	3	HM	PTD		4&5/AD.5	2&3/AD.5	1/AD.5			5.05	GASKETED DOOR & FRAME
C104B	3'-7" x 7'-2 3/4"	G	AL	PFN	GL-2	5	AL	PFN	*	5/AD.6	2/AD.6		MTL		1.00	* SEE EXTERIOR ELEVATION, EXIT ONLY
C105A	3'-6" x 7'-2"	F	WD	PFN	-	4	HM	PTD		4&5/AD.5	2&3/AD.5	1/AD.5			5.04	GASKETED DOOR & FRAME
C105B	3'-6" x 7'-2"	F	WD	PFN	-	4	HM	PTD		4&5/AD.5	2&3/AD.5	1/AD.5			5.04	GASKETED DOOR & FRAME
C106	3'-8" x 7'-2"	N	WD	PFN	GL-6	1	HM	PTD		4/AD.5	2/AD.5				11.03	GASKETED DOOR & FRAME
C107	3'-8" x 7'-2"	N	WD	PFN	GL-6	1	HM	PTD		4/AD.5	2/AD.5				11.03	GASKETED DOOR & FRAME
C108	3'-8" x 7'-2"	N	WD	PFN	GL-6	1	HM	PTD		4/AD.5	2/AD.5				11.03	GASKETED DOOR & FRAME
C109A	3'-8" x 7'-2"	N	WD	PFN	GL-6	1	HM	PTD		4/AD.5	2/AD.5				8.08	GASKETED DOOR & FRAME
C109B	3'-8" x 7'-2"	N	WD	PFN	GL-6	1	HM	PTD		4/AD.5	2/AD.5				11.03	GASKETED DOOR & FRAME
C112A	3'-6" x 7'-2"	F	WD	PFN	-	4	HM	PTD		4&5/AD.5	2&3/AD.5	1/AD.5			5.04	GASKETED DOOR & FRAME
C112B	3'-6" x 7'-2"	F	WD	PFN	-	4	HM	PTD		4&5/AD.5	2&3/AD.5	1/AD.5			5.04	GASKETED DOOR & FRAME
C113	3'-0" x 7'-2"	N	WD	PFN	GL-2	1	HM	PTD		4/AD.5	2/AD.5				7.02	
ZONE D																
D101A	3'-1" x 7'-3"	FG2	AL	PFN	GL-2	3*	ALGL	PFN	*	5/AD.6	2&3/AD.6	6/AD.6	MTL		1.01	*SEE EXTERIOR ELEVATION
D101B	3'-1" x 7'-3"	FG2	AL	PFN	GL-2	3	ALGL	PFN	*	5/AD.6	2&3/AD.6	6/AD.6	MTL		1.03	SAME FRAME AS D101A, ACCESS CONTROL
D101C	3'-1" x 7'-3"	FG2	AL	PFN	GL-2	3*	ALGL	PFN	*	5/AD.6	2&3/AD.6	6/AD.6	MTL		1.00	*SEE EXTERIOR ELEVATION
D101D	3'-1" x 7'-3"	FG2	AL	PFN	GL-2	3	ALGL	PFN	*	5/AD.6	2&3/AD.6	6/AD.6	MTL		1.00	SAME FRAME AS D101C, EXIT ONLY
D102A	3'-0" x 7'-4"	FG2	AL	PFN	GL-2	D102A	ALGL	PFN	GL-2	15/AD.5	13/AD.5	11/AD.5			2.02	* SEE FRAME ELEVATION
D102B	3'-0" x 7'-4"	FG2	AL	PFN	GL-2	D102A	ALGL	PFN	GL-2	15/AD.5	13/AD.5	11/AD.5			2.02	SAME FRAME AS D102A
D102C	3'-0" x 7'-3"	G	AL	PFN	GL-2	3*	ALGL	PFN	*	5/AD.6	2&3/AD.6	6/AD.6	MTL		1.03	*SEE EXTERIOR ELEVATION, ACCESS CONTROL, EXIT ONLY
D102D	3'-0" x 7'-2"	F	WD	PFN		4	HM	PTD	*	9&10/AD.5	7&8/AD.5	1/AD.5			5.01	* SEE FRAME ELEVATION
D102E	24'-8 3/4" x 4'-0"	WINDOW	OPENING	-	-	D102E	HM	PTD	GL-2	5&10/AD.5	3&8/AD.5	1/AD.5				* SEE FRAME ELEVATION
D104A	3'-0" x 7'-3"	FG2	AL	PFN	GL-2	D104A	ALGL	PFN	GL-2	20/AD.5	18/AD.5	11/AD.5			11.00	* SEE FRAME ELEVATION
D104B	3'-4" x 12'-0"	WINDOW	OPENING	-	-	D104B	ALGL	PFN	GL-2	20/AD.5	18/AD.5	11/AD.5				* SEE FRAME ELEVATION
D104C	3'-4" x 12'-0"	WINDOW	OPENING			D104C	ALGL	PFN	GL-2	20/AD.5	18/AD.5	11/AD.5				* SEE FRAME ELEVATION
D105A	3'-0" x 7'-3"	FG2	AL	PFN	GL-2	D105A	ALGL	PFN	GL-2	20/AD.5	17&18/AD.5	11/AD.5			11.00	* SEE FRAME ELEVATION
D105B	4'-8" x 12'-0"	WINDOW	OPENING	-	-	D105B	ALGL	PFN	GL-2	15/AD.5	13/AD.5	11/AD.5				* SEE FRAME ELEVATION
D108	3'-0" x 7'-2"	N	WD	PFN	GL-2	1	HM	PTD		9/AD.5	7/AD.5				8.00	
D109	3'-0" x 7'-2"	F	WD	PFN	-	1	HM	PTD		4/AD.5	2/AD.5				7.01	
D110	3'-0" x 7'-3"	G	FRP	PFN	GL-2	5	ALGL	PFN	*	5/AD.6	2/AD.6	1/AD.6	MTL		3.00	*SEE EXTERIOR ELEVATION, EXIT ONLY
D113A	3'-0" x 7'-2"	F	WD	PFN	GL-6	D113A	HM	PTD	GL-6	4&5/AD.5	2&3/AD.5	1/AD.5			8.00	* SEE FRAME ELEVATION
D113B	4'-8" x 5'-4"	WINDOW	OPENING	-	-	D113B	HM	PTD	GL-6	5/AD.5	3/AD.5	1/AD.5				* SEE FRAME ELEVATION
D114	(2) 3'-0" x 7'-2"	F	WD	PFN	-	1	HM	PTD		4/AD.5	2/AD.5				7.51	
D116A	12'-0" x 10'-0"	CDE(J)	STL	PTD	-	-	-	-		11/A5.2				SMOKE	15.00	
D116B	12'-0" x 10'-0"	CDE(J)	STL	PTD	-	-	-	-		11/A5.2				SMOKE	15.00	
D117	3'-6" x 7'-2"	F	WD	PFN	-	4	HM	PTD		4&5/AD.5	2&3/AD.5	1/AD.5			8.00	
D118	3'-6" x 7'-2"	F	WD	PFN	-	1	HM	PTD		4/AD.5	2/AD.5				11.02	180 DEGREE SWING
D119	3'-0" x 7'-2"	V	WD	PFN	GL-2	1	HM	PTD		4/AD.5	2/AD.5				12.00	QUIET ROOM HARDWARE
D121A	3'-6" x 7'-2"	F	WD	PFN	-	4	HM	PTD		4&5/AD.5	2&3/AD.5	1/AD.5			8.00	
D121B	3'-0" x 7'-3"	G	FRP	PFN	GL-2	3*	ALGL	PFN	*	5/AD.6	2&3/AD.6	6/AD.6	MTL		3.02	* SEE EXTERIOR ELEVATION, ACCESS CONTROL
D121C	3'-8" x 7'-2"	V	WD	PFN	GL-2	1	HM	PTD		4/AD.5	2/AD.5				8.00	LIMIT DOOR SWING TO 145 DEGREES MAX
D121D	3'-8" x 7'-2"	V	WD	PFN	GL-2	1	HM	PTD		4/AD.5	2/AD.5				8.00	LIMIT DOOR SWING TO 145 DEGREES MAX
D122	3'-6" x 7'-2"	F	WD	PFN	-	4	HM	PTD		4&5/AD.5	2&3/AD.5	1/AD.5			8.00	
D123	3'-6" x 7'-2"	F	WD	PFN	-	1	HM	PTD		4/AD.5	2/AD.5				11.02	180 DEGREE SWING
D124	3'-0" x 7'-2"	V	WD	PFN	GL-2	1	HM	PTD		4/AD.5	2/AD.5				12.00	QUIET ROOM HARDWARE

FPP

(FOLDING PANEL PARTITION)

CDE(F)

(OVERHEAD COILING DOOR w/ EGRESS DOOR
F=FACE OR J=JAMB)

FD

(ALUMINUM PANEL FRAME FOLDING GLAZED WALL)

DOOR TYPES

FRAME TYPES

NOTE: SEE SHEETS AD.3 AND AD.4
FOR ADDITIONAL FRAME ELEVATIONS

DOOR & FRAME SCHEDULE

Opening		Door				Frame				Details						
No.	Opening Size (Width x Height)	Type	Material	Finish	Glass	Type	Material	Finish	Glass	Head	Jamb	Sill	Threshold	U.L. Label	Hdwe. Set	Remarks
FIRST LEVEL																
ZONE A																
A101	3'-0" x 7'-2"	N	HM	PTD	GL-2	1	HM	PTD		4/AD.5	2/AD.5				8.01	180 DEGREE SWING
A102A	3'-9" x 7'-3"	F	FRP	PFN	-	2	AL	PFN		5/AD.6	2/AD.6	6/AD.6	MTL		3.00	REMOVABLE MULLION, EXIT ONLY
A102B	3'-9" x 7'-3"	F	FRP	PFN	-	2	AL	PFN		5/AD.6	2/AD.6	6/AD.6	MTL		3.00	REMOVABLE MULLION, SAME FRAME AS 102A, EXIT ONLY
A102C	3'-9" x 7'-3"	F	FRP	PFN	-	2	AL	PFN		5/AD.6	2/AD.6	6/AD.6	MTL		3.00	EXIT ONLY
A102D	3'-9" x 7'-3"	F	FRP	PFN	-	2	AL	PFN		5/AD.6	2/AD.6	6/AD.6	MTL		3.00	SAME FRAME AS A102C, EXIT ONLY
A102E	(2) 3'-1" x 7'-2"	N	WD	PFN	GL-2	1	HM	PTD		4/AD.5	2/AD.5		MTL		5.50	180 DEGREE SWING, REMOVABLE MULLION
A102F	3'-0" x 7'-2"	N	WD	PFN	GL-2	6	HM	PTD		4/AD.5	2/AD.5		MTL		5.01	180 DEGREE SWING
A102G	3'-0" x 7'-2"	N	WD	PFN	GL-2	6	HM	PTD		4/AD.5	2/AD.5		MTL		5.02	SAME FRAME AS 102F
A102H	3'-0" x 7'-2"	N	WD	PFN	GL-2	6	HM	PTD		4/AD.5	2/AD.5		MTL		5.01	SAME FRAME AS 102F, 180 DEGREE SWING
A103	(2) 3'-0" x 7'-2"	F	WD	PFN	-	2	HM	PTD		4/AD.5	2/AD.5		MTL		7.80	
A104B	43'-4" x 20'-0"	FPP	STL	VCF	-	-	-	-							16.00	OMNI-DIRECTIONAL FOLDING PANEL PARTITION
A105	3'-0" x 7'-2"	N	HM	PTD	GL-2	1	HM	PTD		4/AD.5	2/AD.5				8.01	
A106	(2) 3'-0" x 7'-2"	N	WD	PFN	GL-2	2	HM	PTD		4/AD.5	2/AD.5		MTL		5.50	
A107A	3'-1" x 7'-2"	G	FRP	PFN	SSGL1	3	ALGL	PFN	SSGL2	5/AD.6	2&3/AD.6	6/AD.6	MTL		3.03	
A107B	3'-1" x 7'-2"	G	FRP	PFN	SSGL1	3	ALGL	PFN	SSGL2	5/AD.6	2&3/AD.6	6/AD.6	MTL		3.04	ACCESS CONTROL, SAME FRAME AS A107A, ADO
A107C	3'-2" x 7'-2"	G	FRP	PFN	SSGL1	A107C	ALGL	PFN	SSGL1	5/AD.5	12&13/AD.5	1/AD.5			4.00	* SEE FRAME ELEVATION
A107D	3'-2" x 7'-2"	G	FRP	PFN	SSGL1	A107C	ALGL	PFN	SSGL1	5/AD.5	12&13/AD.5				4.01	SAME FRAME AS A107C, ADO
A109	3'-0" x 7'-2"	N	WD	PFN	GL-2	1	HM	PTD		4/AD.5	2/AD.5		MTL		5.01	
A110	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				9.00	180 DEGREE SWING
A111	(2) 3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				7.80	180 DEGREE SWING
A112	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				13.01	180 DEGREE SWING
A114A	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				8.01	
A114B	3'-0" x 7'-2"	N	HM	PTD	GL-2	1	HM	PTD		4/AD.5	2/AD.5				8.00	
A115	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5		MTR		10.00	
A117A	3'-0" x 7'-2"	F	FRP	PFN	-	1	AL	PFN		4/AD.6	2/AD.6	6/AD.6	MTL		3.02	ACCESS CONTROL
A117B	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				13.00	
A118A	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				7.01	
A118B	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				7.01	
A119A	3'-0" x 7'-2"	F	FRP	PFN	-	1	AL	PFN		4/AD.6	2/AD.6	6/AD.6	MTL		3.02	ACCESS CONTROL
A119B	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				13.00	
A120A	3'-1" x 7'-3"	G	FRP	PFN	SSGL1	3	ALGL	PFN	SSGL2	5/AD.6	2&3/AD.6	6/AD.6	MTL		3.02	
A120B	3'-1" x 7'-3"	G	FRP	PFN	SSGL1	3	ALGL	PFN	SSGL2	5/AD.6	2&3/AD.6	6/AD.6	MTL		3.03	SAME FRAME AS A120A, ACCESS CONTROL
A120C	3'-2" x 7'-3"	G	FRP	PFN	SSGL1	A120C	ALGL	PFN	SSGL1	20/AD.5	2&3/AD.5				4.00	* SEE FRAME ELEVATION
A120D	3'-3" x 7'-3"	G	FRP	PFN	SSGL1	A120C	ALGL	PFN	SSGL1	20/AD.5	2&3/AD.5				4.00	SAME FRAME AS A120C
A121	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				9.00	180 DEGREE SWING
A122	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				13.01	180 DEGREE SWING
A124A	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				8.00	
A124B	3'-0" x 7'-2"	N	HM	PTD	GL-2	1	HM	PTD		4/AD.5	2/AD.5				8.01	
A125	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5		MTR		10.00	
A127	10'-6" x 10'-0"	CDE(F)	STL	-	-	-	-	-		23/AD.6				90	15	
A128	3'-0" x 7'-2"	N	FRP	PFN	GL-2	1	AL	PFN		4/AD.6	2/AD.6	6/AD.6	MTL		3.00	EXIT ONLY
A132	3'-0" x 7'-2"	F	WD	PFN	-	1	HM	PTD		4/AD.5	2/AD.5				9.02	
A133A	3'-0" x 7'-2"	N	HM	PTD	GL-2	1	HM	PTD		4/AD.5	2/AD.5				8.01	
A133B	3'-0" x 7'-2"	N	HM	PTD	GL-2	1	HM	PTD		4/AD.5	2/AD.5				8.00	
A134	3'-8" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				7.01	
A135A	3'-0" x 7'-2"	N	FRP	PFN	GL-2	1	AL	PFN		4/AD.6	2/AD.6	6/AD.6	MTL		3.02	ACCESS CONTROL
2 A135B	10'-0" x 11'-8"	CD(F)	STL	PFN	-					23/AD.6					15.00	MOTORIZED OVERHEAD INSULATED COILING DOOR
A135C	(2) 3'-0" x 7'-2"	F	WD	PFN	-	2	HM	PTD		4/AD.5	2/AD.5				5.51	180 DEGREE SWING
A136A	3'-8" x 7'-2"	N	FRP	PFN	GL-2	1	AL	PFN		4/AD.6	2/AD.6		MTL		3.01	PANIC HARDWARE
A136B	3'-8" x 7'-2"	N	HM	PTD	GL-2	1	HM	PTD		4/AD.5	2/AD.5				5.00	PANIC HARDWARE
A137	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5			90	7.06	
A138	3'-8" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5			90	7.05	
A139	(2) 3'-0" x 7'-2"	F	HM	PTD	-	2	HM	PTD		4/AD.5	2/AD.5				7.80	
ZONE B																
B101A	3'-1 3/4" x 7'-2 3/4"	FG2	AL	PFN	SSGL1	3	ALGL	PFN	SSGL2	5/AD.6	2&3/AD.6	6/AD.6	MTL		1.02	DOOR + SUBFRAME
B101B	3'-1 3/4" x 7'-2 3/4"	FG2	AL	PFN	SSGL1	3	ALGL	PFN	SSGL2	5/AD.6	2&3/AD.6	6/AD.6	MTL		1.04	SAME FRAME AS B101A, DOOR + SUBFRAME
B101C	3'-1 3/4" x 7'-2 3/4"	FG2	AL	PFN	SSGL1	3	ALGL	PFN	SSGL2	5/AD.6	2&3/AD.6	6/AD.6	MTL		1.04	DOOR + SUBFRAME
B101D	3'-1 3/4" x 7'-2 3/4"	FG2	AL	PFN	SSGL1	3	ALGL	PFN	SSGL2	5/AD.6	2&3/AD.6	6/AD.6	MTL		1.04	SAME FRAME AS B101C, DOOR + SUBFRAME, ADO
B101F	3'-0" x 7'-3"	FG2	AL	PFN	SSGL1	3*	ALGL	PFN	SSGL1	5/AD.6	2&3/AD.6				2.00	*SEE INTERIOR ELEVATION
B101G	3'-0" x 7'-3"	FG2	AL	PFN	SSGL1	3*	ALGL	PFN	SSGL1	5/AD.6	2&3/AD.6				2.01	SAME FRAME AS B101F
B101H	3'-0" x 7'-3"	FG2	AL	PFN	SSGL1	3*	ALGL	PFN	SSGL1	5/AD.6	2&3/AD.6				2.01	*SEE INTERIOR ELEVATION
B101J	3'-0" x 7'-3"	FG2	AL	PFN	SSGL1	3*	ALGL	PFN	SSGL1	5/AD.6	2&3/AD.6				2.01	SAME FRAME AS B101H, ACCESS CONTROL, ADO
B102A	3'-0" x 7'-3"	G	AL	PFN	SSGL1	3	ALGL	PFN	SSGL1	5/AD.6	2&3/AD.6	6/AD.6			2.00	* SEE FRAME ELEVATION, ACCESS CONTROL, ADO
B102B	3'-0" x 7'-2"	G	AL	PFN	SSGL1	B102B	ALGL	PFN	SSGL1	5/AD.6	3/AD.6	6/AD.6			2.04	* SEE FRAME ELEVATION, ACCESS CONTROL, SEE AD.3
B102C	12'-8" x 10'-0"	WINDOW	OPENING	-	-	B102C	ALGL	PFN	SSGL1	15/AD.5	13/AD.5	11/AD.5				* SEE FRAME ELEVATION
B102D	6'-0" x 10'-0"	WINDOW	OPENING	-	-	B102D	ALGL	PFN	SSGL1	15/AD.5	13/AD.5	11/AD.5				* SEE FRAME ELEVATION
B104	3'-0" x 7'-2"	F	WD	PFN	-	B104	HM	PTD	*	9&10/AD.5	7&8/AD.5	1/AD.5			11.01	* SEE FRAME ELEVATION, 180 DEGREE SWING
B105	3'-0" x 7'-2"	F	WD	PFN	-	4	HM	PTD	GL-2	9&10/AD.5	7&8/AD.5	1/AD.5			8.00	
B106	3'-0" x 7'-2"	F	WD	PFN	-	4	HM	PTD	GL-2	9&10/AD.5	7&8/AD.5	1/AD.5			8.00	
B107	3'-0" x 7'-2"	F	WD	PFN	-	4	HM	PTD	GL-2	9&10/AD.5	7&8/AD.5	1/AD.5			8.00	
B108	3'-0" x 7'-2"	F	WD	PFN	-	4	HM	PTD	GL-2	9&10/AD.5	7&8/AD.5	1/AD.5			8.00	
B109A	3'-0" x 7'-2"	F	WD	PFN	-	1	HM	PTD	GL-2	9/AD.5	7/AD.5				7.00	
B109B	3'-0" x 7'-2"	F	WD	PFN	-	1	HM	PTD		9/AD.5	7/AD.5				7.00	
B112A	3'-0" x 7'-2"	F	WD	PFN	-	4	HM	PTD	GL-2	9&10/AD.5	7&8/AD.5	1/AD.5			8.00	* SEE FRAME ELEVATION
B112B	3'-4" x 7'-4"	WINDOW	OPENING	-	-	B114B	HM	PTD	GL-2	5/AD.6	3/AD.5	1/AD.5				* SEE FRAME ELEVATION
B113	3'-0" x 7'-2"	F	WD	PFN	-	B113	HM	PTD	GL-2	4&5/AD.5	2&3/AD.5	1/AD.5			6.00	* SEE FRAME ELEVATION, 180 DEGREE SWING, ACCESS CONTROL
B114A	3'-0" x 7'-2"	F	WD	PFN	-	4	HM	PTD	GL-2	9&10/AD.5	7&8/AD.5	1/AD.5			8.00	
B114B	3'-4" x 7'-4"	WINDOW	OPENING	-	-	B114B	HM	PTD	GL-2	5/AD.5	3/AD.5	1/AD.5				* SEE FRAME ELEVATION
B115A	3'-0" x 7'-2"	F	WD	PFN	-	4	HM	PTD	GL-2	9&10/AD.5	7&8/AD.5	1/AD.5			8.00	
B116	3'-0" x 7'-2"	F	WD	PFN	-	4	HM	PTD	GL-2	9&10/AD.5	7&8/AD.5	1/AD.5			8.00	
B117	3'-0" x 7'-2"	F	WD	PFN	-	1	HM	PTD		9/AD.5	7/AD.5				10.00	
B119	3'-0" x 7'-2"	F	WD	PFN	-	B119	HM	PTD	GL-2	9&10/AD.5	7&8/AD.5	1/AD.5			11.01	* SEE FRAME ELEVATION
B120	(2) 3'-0" x 7'-2"	F	WD	PFN	-	1	HM	PTD		9/AD.5	7/AD.5				7.52	180 DEGREE SWING, SEE AD.3
B121	3'-0" x 7'-2"	F	WD	PFN	-	1	HM	PTD		9/AD.5	7/AD.5				9.01	
B122	3'-0" x 7'-2"	N	WD	PFN	GL-2	1	HM	PTD	GL-2	9/AD.5	7/AD.5				8.00	
B127A	3'-0" x 7'-3"	F	WD	PFN	-	B127A	HM	PTD	GL-2	5/AD.5	2&3/AD.5	1/AD.5			8.03	* SEE FRAME ELEVATION
B127B	23'-4" x 10'-0"	CD(F)	STSTL	PFN						23/AD.6					15.00	MOTORIZED OVERHEAD NON-INSULATED COILING DOOR
B127C	3'-0" x 7'-3"	F	WD	PFN	-	B127C	HM	PTD	GL-2	5/AD.5	2&3/AD.5	1/AD.5			8.03	* SEE FRAME ELEVATION
B127D	3'-0" x 7'-2"	N	WD	PFN	GL-2	1	HM	PTD		4/AD.5	2/AD.5				8.02	180 DEGREE SWING
B127E	6'-0" x 10'-0"	WINDOW	OPENING			B127E	HM	PTD	GL-2	5/AD.5	3/AD.5	1/AD.5				* SEE FRAME ELEVATION
B128A	3'-8" x 7'-2"	N	WD	PFN	GL-2	1	HM	PTD		4/AD.5	2/AD.5				8.05	180 DEGREE SWING
B128B	(2) 3'-0" x 7'-2"	N	HM	PTD	GL-2	2	HM	PTD		4/AD.5	2/AD.5				14.50	BI-SWINGING DOORS
B128C	3'-0" x 7'-2"	N	FRP	PFN	GL-2	1	AL	PFN		4/AD.6	2/AD.6	6/AD.6	MTL		3.02	EXIT ONLY
B129A	3'-0" x 7'-2"	N	HM	PTD	GL-2	4	HM	PTD		4&5/AD.5	2&3/AD.5	1/AD.5			8.00	
B129B	4'-0" x 4'-0"	WINDOW	OPENING			B129B	HM	PTD	GL-2	5/AD.5	3/AD.5	1/AD.5				SEE AD SERIES DWGS
B130	10'-6" x 9'-0"	CDE(F)	STL	PTD	-	-	-	-	-	23/AD.6				90	15.00	
B132	3'-0" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5		SDSF		9.01	
B133	3'-6" x 7'-2"	F	HM	PTD	-	1	HM	PTD		4/AD.5	2/AD.5				7.03	
B135A	3'-8" x 7'-2"	F	WD	PFN	-	4	HM	PTD		4&5/AD.5	2&3/AD.5	1/AD.5			8.00	
B135B	20'-4" x 8'-0"	WINDOW	OPENING			B135B	ALGL	PFN	GL-2	15/AD.5	13/AD.5	11/AD.5				* SEE FRAME ELEVATION
B136A	3'-0" x 7'-3"	FG2	AL	PFN	GL-2	B136A	ALGL	PFN	GL-2	15/AD.5	13/AD.5	11/AD.5			2.03	* SEE FRAME ELEVATION
B136B	9'-4" x 7'-4"	FD	ALGL	PFN	GL-2						27/AD.5 SIM.				16.00	
B136C	3'-0" x 7'-3"	G	AL	PFN	GL-2	3*	ALGL	PFN	*	5/AD.6	2&3/AD.6	6/AD.6	MTL		1.00	*SEE EXTERIOR ELEVATION
B136D	3'-0" x 7'-2"	G	WD	PFN	GL-2	B136D	HM	PTD		5/AD.5	2&3/AD.5	1/AD.5			8.04	* SEE FRAME ELEVATION
B137	3'-4" x 7'-2"	F	WD	PFN	-	1	HM	PTD		4/AD.5	2/AD.5			90	7.08	
B138A	3'-8" x 7'-2"	N	HM	PTD	FPGL-2	1	HM	PTD		4/AD.5	2/AD.5			45	8.06	
B138B	3'-8" x 7'-3"	G	AL	PFN	GL-2	3*	AL	PFN	*	5/AD.6	2&3/AD.6	6/AD.6	MTL		1.00	* SEE EXTERIOR ELEVATION, ACCESS CONTROL
B139A	3'-0" x 7'-2"	F	WD	PFN	-	B139	HM	PTD		4&5/AD.5	2&3/AD.5	1/AD.5			8.00	180 DEGREE SWING, SEE AD.3
B139B	3'-0" x 7'-2"	F	WD	PFN		1	HM	PTD		4/AD.5	2/AD.5				8.00	EXIT ONLY FROM B139
B141	3'-0" x 7'-2"	F	WD	PFN	-	1	HM	PTD		4/AD.5	2/AD.5				9.03	
B144A	3'-0" x 7'-2"	F	AL	PFN	GL-2	B144A	AL	PFN	GL-2	14&15/AD.5	12&13/AD.5	11/AD.5			2.03	* SEE FRAME ELEVATION
B144B	3'-0 3/4" x 7'-11"	G	FRP	PFN	GL-2	3*	ALGL	PFN	*	5/AD.6	2&3/AD.6	6/AD.6	MTL		3.02	*SEE EXTERIOR ELEVATION, ACCESS CONTROL
B145	3'-0" x 7'-2"	F	WD	PFN	-	1	HM	PTD		4/AD.5	2/AD.5			45	7.05	
B146	3'-0" x 7'-2"	N	WD	PFN	FPGL-2	1	HM	PTD		4/AD.5	2/AD.5			45	7.05	

DOOR SCHEDULE ABBREVIATIONS AND NOTES

(REFER TO SPECIFICATIONS FOR ADDTIONAL DOOR INFORMATION)

DOOR SCHEDULE ABBREVIATIONS

AL	ALUMINUM
ALGL	ALUMINUM AND GLASS
EX	EXISTING
FRAF	FIRE RATED ALUMINUM FRAMING
FRP	FIBERGLASS REINFORCED POLYESTER
HM	HOLLOW METAL
LAM	PLASTIC LAMINATE CLAD
MB	MARKERBOARD
MET	METAL THRESHOLD
MTR	METAL TRIM THRESHOLD
NAT	NATURAL FINISHED WOODWORK
PFN	PREFINISHED BY MANUFACTURER
PTD	PAINTED
SDSF	SOLID SURFACE THRESHOLD
STL	STEEL
STSTL	STAINLESS STEEL
VCF	VINYL COATED FABRIC (SEE SPECIFICATIONS)
WD	SOLID CORE HARDWOOD

DOOR SCHEDULE GENERAL NOTES

1. GALVANIZED METAL TO BE PROVIDED FOR HOLLOW METAL DOOR AND/OR FRAME AT EXTERIOR LOCATIONS.
2. DOORS ARE 1-3/4" THICKNESS UNLESS OTHERWISE NOTED
3. DETAIL NUMBERS NOTED SIM. REFER TO DETAILS SHOWING HEAD, JAMB, AND/OR SILL DETAILS THAT REPRESENT CONDITIONS SIMILAR TO THOSE NOTED.
4. HOLLOW METAL FRAMES SET IN MASONRY WALLS ARE 5-3/4" WIDE.
5. HOLLOW METAL FRAMES SET IN GYPSUM BD./METAL STUD PARTITIONS SHALL BE "DOUBLE BACK-BEND" FRAMES WITH A THROAT DIMENSION EQUAL TO THE PARTITION THICKNESS PLUS 9/16" RETURNS ON EACH SIDE OF THE PARTITION. PROVIDE EQUAL RABBETS.
6. AN ASTERICK (*) CALLS ATTENTION TO THE REMARKS COLUMN OF THE SCHEDULE.

U.L. DOOR LABEL DESIGNATIONS

U.L. LABEL**	MIN. OPENING PROTECTION ASSEMBLY
180	3 HR. RATING
90	1-1/2 HR. RATING
60	1 HR. RATING
45	3/4 HR. RATING
20	1/3 HR. RATING

**ALL FIRE RATED DOORS SHALL BE SMOKE AND DRAFT CONTROL LABELED IN ADDITION TO U.L. LABELS INDICATED.

GLAZING TYPES

GL-2	1/4" (6mm) CLEAR TEMPERED MONOLITHIC GLASS
GL-6	1/4" (6mm) CLEAR HEAT-STRENGTHENED LAMINATED GLASS
GL-8	1/4" (6mm) CLEAR HEAT-STRENGTHENED LAMINATED GLASS w/ TINTED INTERLAYER
GL-13	1" (25mm) CLEAR TEMPERED INSULATING GLASS (LOW-E)
GL-18	1" (25mm) CLEAR TEMPERED INSULATING SPANDREL GLASS
GL-19	1" (25mm) CLEAR TEMPERED INSULATION GLASS (LOW-E) w/ APPLIED FRIT
GL-21	1" (25mm) CLEAR HEAT-STRENGTHENED LAMINATED INSULATING GLASS
GL-23	1" (25mm) CLEAR TEMPERED w/ TINTED INTERLAYER LAMINATED INSULATING GLASS (LOW-E)
FPGL-2	3/4" (19mm) FIRE PROTECTIVE GLAZING (45 MIN)
FRGL-4	1 1/8" (29mm) FIRE RESISTIVE GLAZING (60 MIN, ASTM E119)
SSGL1	MONOLITHIC SECURITY GLAZING
SSGL2	INSULATED SECURITY GLAZING

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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
Troy, Michigan

DRAWING TITLE

Door & Frame Schedule

KEY PLAN

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM NO. 2 (N.R.)
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN do
CHECKED jw
APPROVED dl

PROJECT NO.
22102

DRAWING NO.
AD.1

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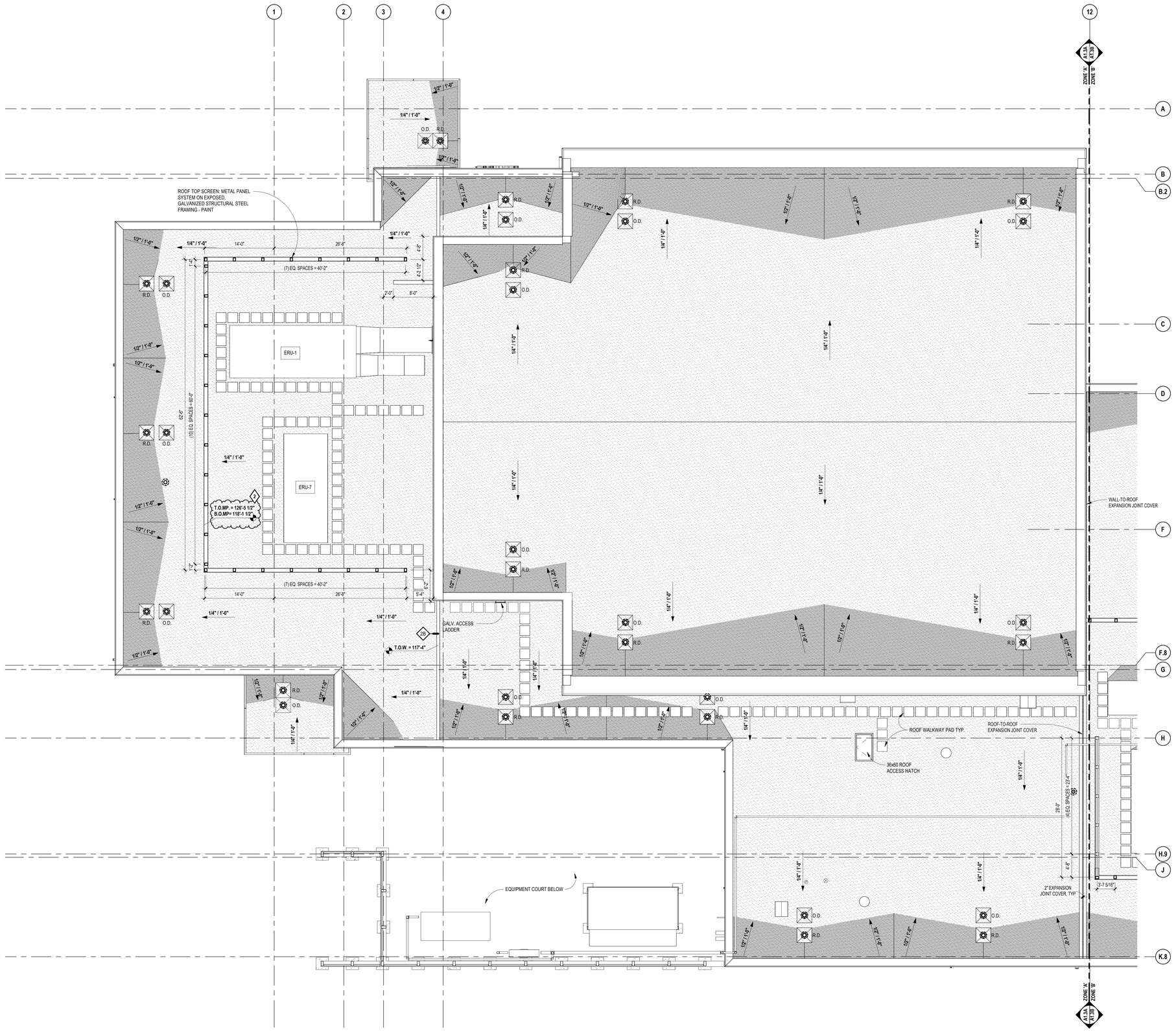

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ROOF LEVEL PLAN - ZONE 'A'

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

ROOF PLAN LEGEND

- RD/OD — COMBINATION PRIMARY / SECONDARY ROOF DRAIN
- RD — ROOF DRAIN (PRIMARY)
- OD — ROOF DRAIN (SECONDARY)
- EF[RV], [IH] — EXHAUST FAN [RELIEF VENT] [INTAKE HOOD]
- RTU — ROOF TOP MECHANICAL UNIT
- CU — CONDENSING UNIT (CU) ON EQUIPMENT RAILS
- ROOFING ON TAPERED INSULATION (1/2" PER FOOT, MIN) ON UNIFORM THICKNESS (NON-TAPERED) INSULATION
- ROOFING ON UNIFORM THICKNESS (NON-TAPERED) INSULATION ON SLOPED METAL DECK
- ROOFING ON CEMENTITIOUS WOOD FIBER DECK WITH BONDED URETHANE INSULATION
- ROOF PATCH / TIE-IN (SEE GENERAL NOTE 3)
- (0.0+/-) — APPROXIMATE THICKNESS OF TAPERED INSULATION (IN ADDITION TO UNIFORM THICKNESS INSULATION)
- INDICATES PITCH OF ROOF SURFACE TOWARDS DRAINS (TAPERED INSULATION OR SADDLES)
- SLOPE — INDICATES SLOPE OF ROOF DECK AND SUPPORTING STEEL (ROOF SURFACE ALSO IF NOT OTHERWISE INDICATED)

ROOF PLAN NOTES

1. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF PLUMBING VENTS (FLASH AS PER S.M.A.C.N.A. AND N.R.C.A. STANDARDS).
2. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL OPENINGS, IF ANY, IN NEW AND/OR EXISTING ROOFS. DETAILS OF SIMILAR OPENINGS REFERENCED ON THIS SHEET ARE APPLICABLE.
3. WHERE NEW OPENINGS OCCUR IN EXISTING ROOF AREAS, INSTALL SUPPLMENTAL FRAMING UNDER SHEATHING PRIOR TO CUTTING HOLE IN SHEATHING. REPAIR ROOFING TO 2'-0" (MIN) AROUND OPENING.
4. INFORMATION FOR EXISTING CONDITIONS TAKEN FROM HISTORICAL DRAWINGS AND VISUAL INSPECTIONS OF EACH BUILDING. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD PRIOR TO INSTALLATION OF NEW WORK AND REPORT ALL DISCREPANCIES TO THE ARCHITECT.
5. LOCATIONS AND QUANTITIES OF ALL EXISTING ROOF PENETRATIONS ARE APPROXIMATE AND MUST BE VERIFIED BY CONTRACTOR PRIOR TO WORK IN THOSE AREAS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER FLASHING OF ALL EXISTING DRAINS, CURBS, VENT STACKS, ETC., AFFECTED WITHIN THE PROJECT SCOPE.
7. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF NEW PENETRATIONS, FLASH AS SPECIFIED.
8. SEE MECHANICAL DRAWINGS FOR ADDITIONAL OPENINGS, IF ANY, IN NEW AND/OR EXISTING ROOFS. DETAILS OF SIMILAR OPENINGS REFERENCED ON THIS SHEET ARE APPLICABLE.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES ON OR NEAR PROJECT ROOFS DURING THE WORK. PROVIDE PROPER SAFETY MEASURES NEAR ELECTRICAL SERVICE LINES.

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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

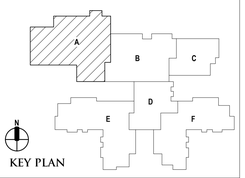
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
Troy, Michigan

DRAWING TITLE

Roof Level Plan - Zone 'A'



KEY PLAN

ISSUE DATES

DATE:	ISSUED FOR:
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06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	do
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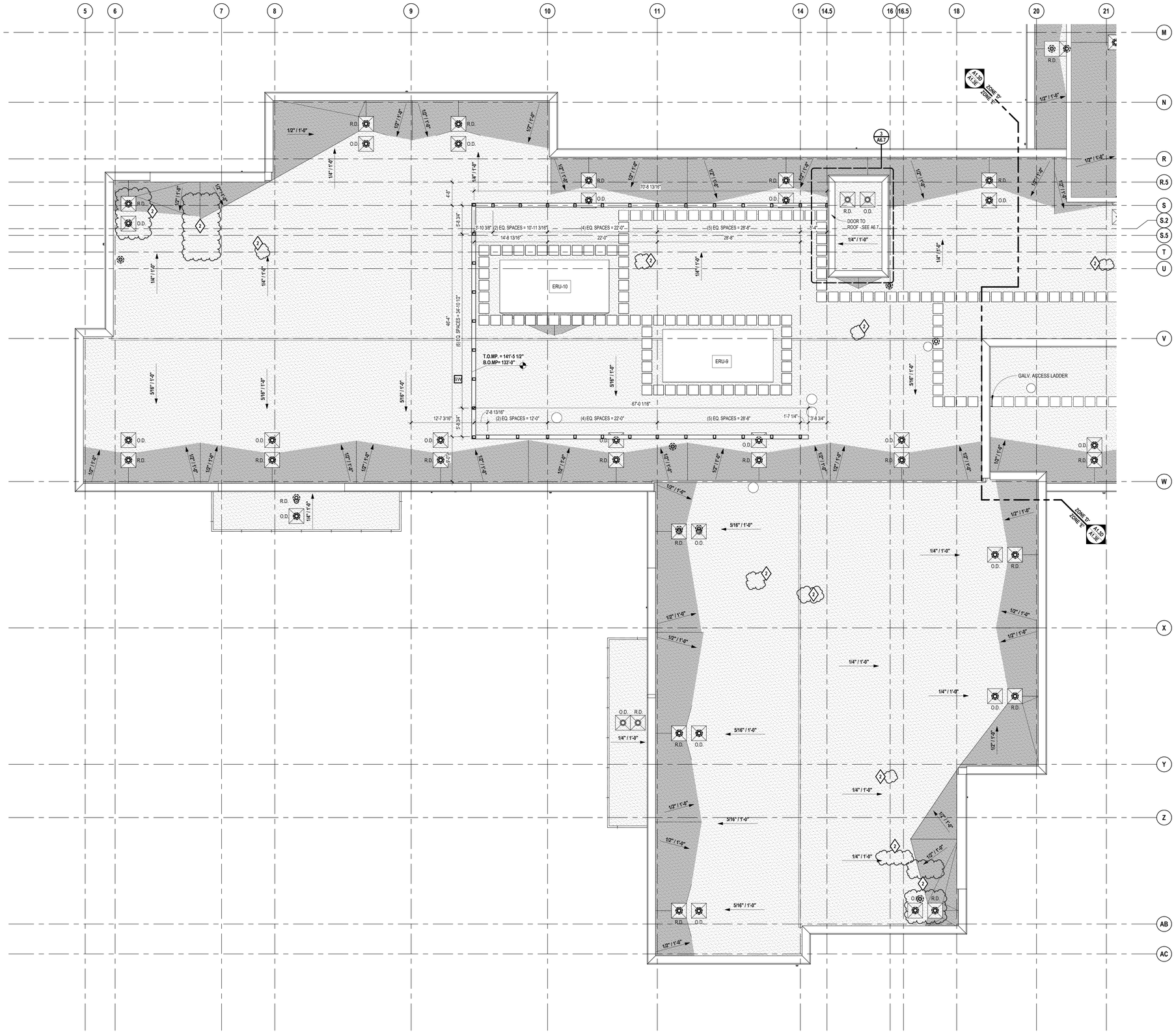
APPROVED	dl

PROJECT NO.

22102

DRAWING NO.

A1.3A



ROOF PLAN LEGEND

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- RD — ROOF DRAIN (PRIMARY)
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ROOF PLAN NOTES

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2. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL OPENINGS, IF ANY, IN NEW AND/OR EXISTING ROOFS. DETAILS OF SIMILAR OPENINGS REFERENCED ON THIS SHEET ARE APPLICABLE.
3. WHERE NEW OPENINGS OCCUR IN EXISTING ROOF AREAS, INSTALL SUPPLMENTAL FRAMING UNDER SHEATHING PRIOR TO CUTTING HOLE IN SHEATHING. REPAIR ROOFING TO 2'-0" (MIN) AROUND OPENING.
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8. SEE MECHANICAL DRAWINGS FOR ADDITIONAL OPENINGS, IF ANY, IN NEW AND/OR EXISTING ROOFS. DETAILS OF SIMILAR OPENINGS REFERENCED ON THIS SHEET ARE APPLICABLE.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES ON OR NEAR PROJECT ROOFS DURING THE WORK. PROVIDE PROPER SAFETY MEASURES NEAR ELECTRICAL SERVICE LINES.

ROOF LEVEL PLAN - ZONE 'E'
SCALE: 1/8" = 1'-0"

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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

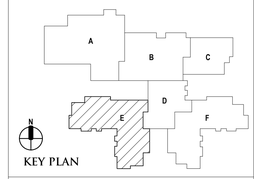
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
Troy, Michigan

DRAWING TITLE

Roof Level Plan - Zone 'E'



KEY PLAN

ISSUE DATES

DATE:	ISSUED FOR:
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06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	do
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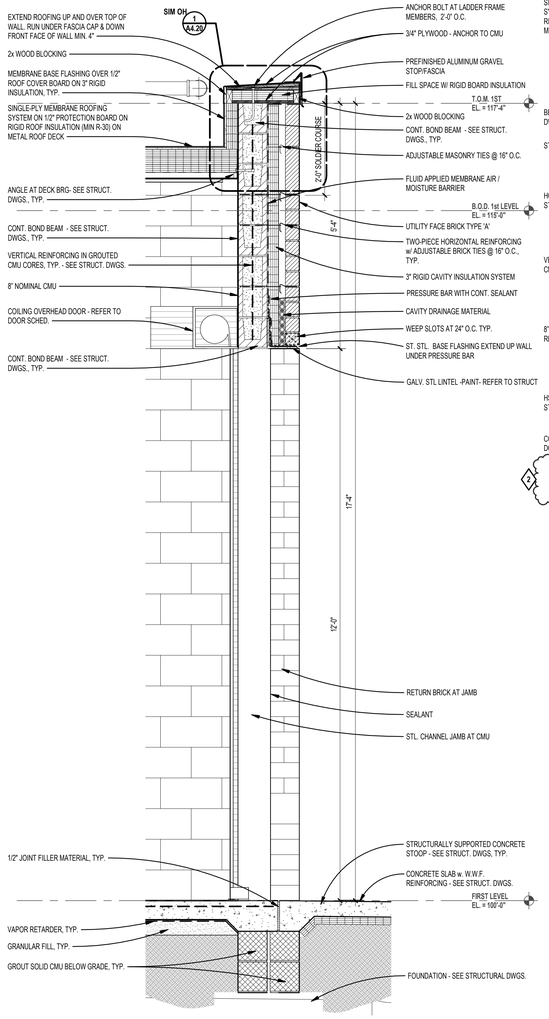
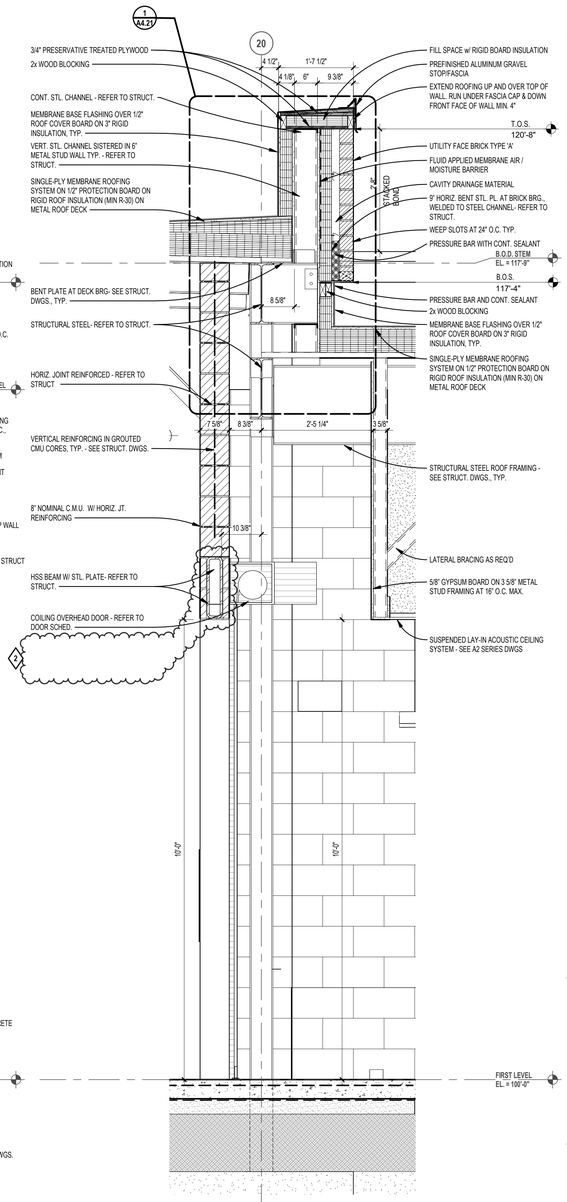
APPROVED	dl

PROJECT NO.
22102

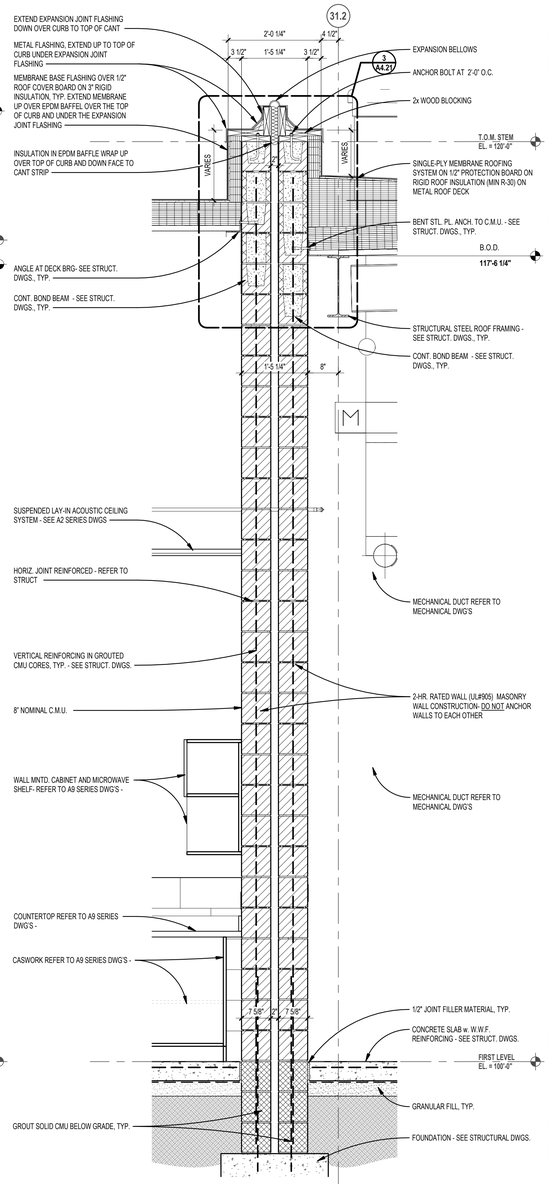
DRAWING NO.
A1.3E



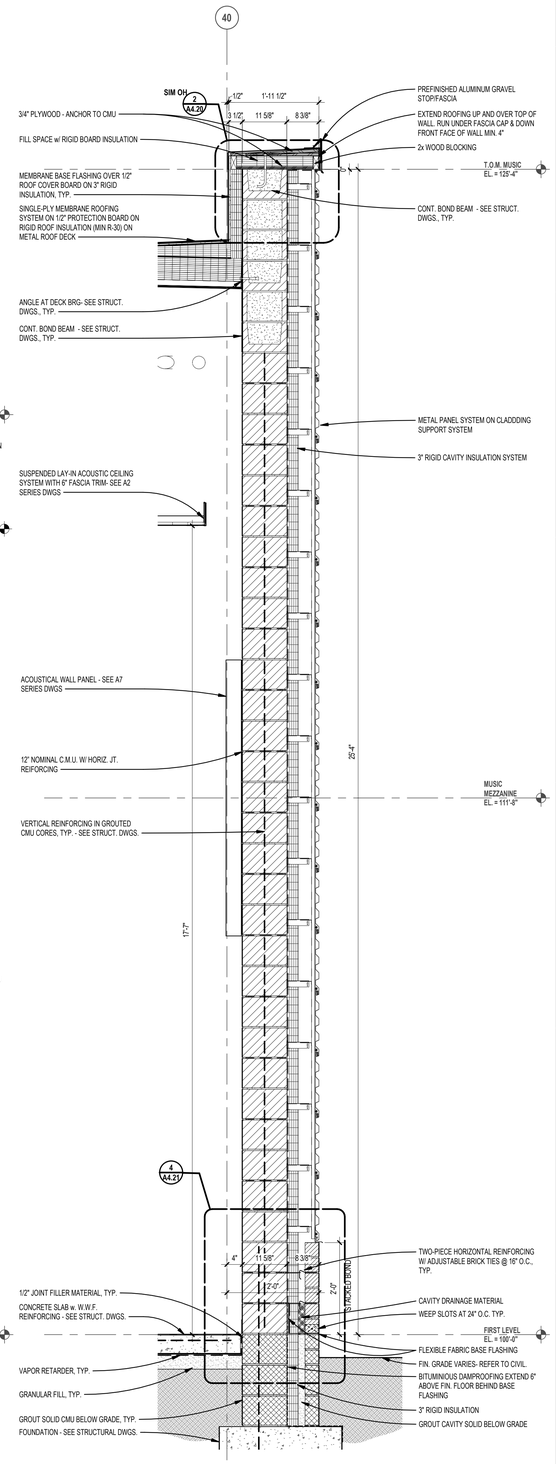
4 A3.8 WALL SECTION
SCALE: 3/4" = 1'-0"



3 A3.8 WALL SECTION
SCALE: 3/4" = 1'-0"



2 A3.8 WALL SECTION
SCALE: 3/4" = 1'-0"



1 A3.8 WALL SECTION
SCALE: 3/4" = 1'-0"

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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
Troy, Michigan

DRAWING TITLE

Wall Sections

ISSUE DATES

07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS
DATE:	ISSUED FOR:

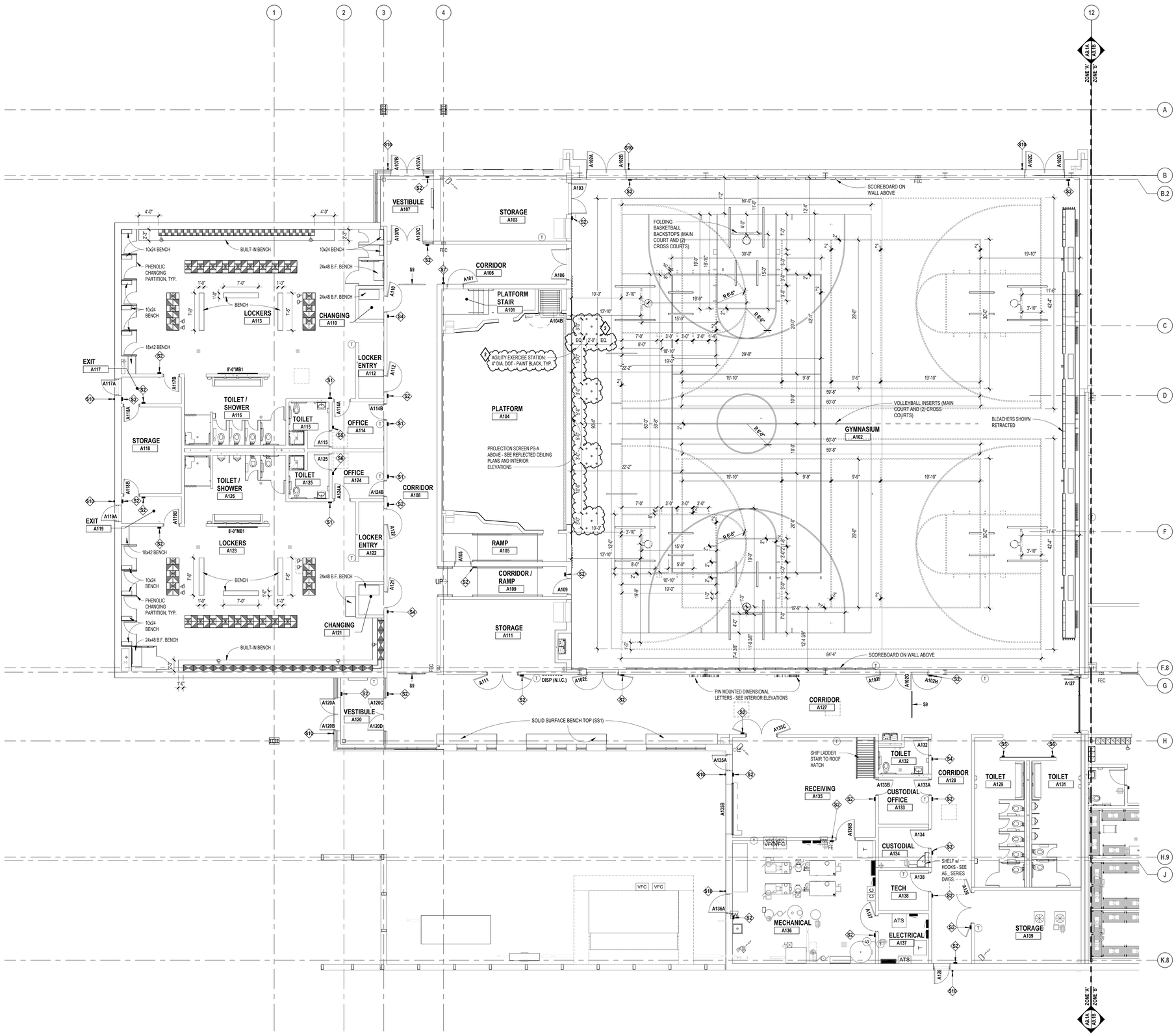
DRAWN	jr
CHECKED	jw
APPROVED	dl

PROJECT NO.

22102

DRAWING NO.

A4.3



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FIRST LEVEL CASEWORK AND EQUIPMENT PLAN - ZONE 'A'

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

LEGEND

- DISPLAY (BY OTHERS) - WALL OR SUSPSENDED MOUNT (BY OTHERS)
- FES / FEC — FIRE EXTINGUISHER IN CABINET (FEC)
- FE — FIRE EXTINGUISHER ON WALL BRACKET (FE)
- CG1 — 7'-0" HIGH (UON) SURFACE MOUNT CORNER GUARD

VISUAL DISPLAY BOARD NOTES

TYPE OF BOARD — 6'-0" MB1 — WIDTH OF BOARD/STRIP

HEIGHT OF ALL BOARDS ARE 4'-0" (UON)

NOTES:

1. MB = MARKERBOARD
   TB = TACKBOARD
   TS = TACK STRIP
   DISP = DISPLAY (BY OTHERS)
2. MOUNTING HEIGHTS (UON):
   MB/TB = 3'-0" AFF TO BOTTOM
3. MAP RAILS SHALL BE CONTINUOUS OVER MARKERBOARDS.
4. ALL MARKERBOARDS SHALL BE PROVIDED WITH TRAYS & MAP RAILS.
5. LEGEND:
   MB1 = PORCELAIN ENAMEL STEEL HORIZONTAL ORIENTATION
   MB2 = PORCELAIN ENAMEL STEEL VERTICAL ORIENTATION
   MB3 = MAGNETIC GLASS

CASEWORK NOTES

1. ALL PREFABRICATED CABINETS INDICATED ARE BASED ON TMI STORAGE SYSTEMS CORPORATION PRODUCTS. REFER TO TMI CATALOG FOR TYPICAL NUMBERING FORMAT.
2. ALL TMI CABINETS ARE DESIGNATED USING THE TYPICAL TMI ELEVEN (11) DIGIT NOTATION SYSTEM. THE FIRST FIVE DIGITS ARE THE MODEL NUMBER FOLLOWED BY THREE SETS OF TWO DIGIT NUMBERS FOR THE WIDTH, HEIGHT AND DEPTH.
3. WIDTH, HEIGHT AND DEPTH OF PREFABRICATED CABINETS IS INDICATED IN INCHES UNLESS NOTED OTHERWISE. MODEL DIMENSIONS ARE NOMINAL UNLESS SPECIFICALLY NOTED. "00000-00-00-00-M" INDICATES MODIFIED CASEWORK.
4. PROVIDE PLASTIC LAMINATE COUNTERTOPS (WITH BACK/END SPLASHES) AT ALL BASE CABINETS. RADIUS ALL OUTSIDE CORNERS (U.O.N.)
5. ALL EXPOSED SURFACES OF CASEWORK TO BE FINISHED, TYPICAL.
6. WALL CABINETS (OVER COUNTERS) ARE TYPICALLY MOUNTED AT 7'-4" AFF TO TOP (UON).
7. PROVIDE FINISHED END PANELS ON ALL EXPOSED CASEWORK ENDS.
8. PROVIDE RESTRAINING CHAINS ON ALL END BASE AND WALL CABINET DOORS WHICH OPEN AGAINST PERPENDICULAR WALLS.
9. WHERE CASEWORK IS HELD AWAY FROM WALLS, TO FLUSH-OUT WITH ADJACENT CABINETS, SCRIBE END/FILLER PANELS TO WALLS.
10. PROVIDE FILLER PANELS WHERE SHOWN AND/OR OTHERWISE REQUIRED FOR A COMPLETE INSTALLATION.
11. PROVIDE LOCKS AT ALL CABINET DOORS AND DRAWERS (U.O.N.)
12. MODIFY SINK BASE CABINETS AS REQUIRED TO ACCOMMODATE OVERSIZED SINKS (SEE MECHANICAL FOR OVERSIZED SINK LOCATIONS.
13. WHERE BF 34" HIGH BASE CABINETS ARE INDICATED, MODIFY CABINET CONSTRUCTION BY REDUCING THE HEIGHT OF ALL COMPARTMENTS EQUALLY (INDICATE ON SHOP DWGS.)
14. PROVIDE INTERMEDIATE PLASTIC LAMINATE CLAD SUPPORT PANELS @ 4'-0" OC MAXIMUM AT ALL UNSUPPORTED COUNTER TOPS (UON).
15. PROVIDE GROMMETS AT ALL COUNTERS WITH KNEESPACES, WHERE POWER/DATA OUTLETS ARE LOCATED BELOW (REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS), UON. PROVIDE (1) ONE GROMMET PER KNEESPACE (UON). FINAL LOCATION(S) WILL BE MARKED-UP ON THE SHOP DRAWING SUBMITTAL.
16. PROVIDE MOISTURE RESISTANT PARTICLE BOARD AT SINK BASE, COUNTERTOP, AND SPLASH WITHIN 18" OF SINK.
17. IN SCIENCE LABS, ACID NEUTRALIZATION TANKS TO BE PROVIDED IN TEACHER DEMONSTRATION TABLES.
18. ALL TYPICAL MUSIC WING CABINETS INDICATED ARE BASED ON WENGER CORPORATION PRODUCTS. REFER TO WENGER CATALOG FOR TYPICAL NUMBERING FORMAT.
19. ALL WENGER CABINETRY IS DESIGNATED USING THE PREFIX "W-" AND THEN THE WENGER NUMBER SYSTEM.
20. ALL SCIENCE CABINETS ARE BASED ON SHELDON PRODUCTS. REFER TO SHELDON CATALOG FOR TYPICAL NUMBER FORMAT.

LOCKER LEGEND

TYPE L-1	SINGLE-TIER STANDARD LOCKERS (12" X 15" X 72" HIGH) VENTILATED, ON METAL 'Z' BASE
	SINGLE-TIER ADA ACCESSIBLE LOCKERS (12" X 15" X 72" HIGH) VENTILATED, ON METAL 'Z' BASE
TYPE L-2	DOUBLE-TIER CORRIDOR LOCKERS (12" X 15" X 60" HIGH) VENTILATED, ON METAL 'Z' BASE
	DOUBLE-TIER ADA ACCESSIBLE CORRIDOR LOCKERS (12" X 15" X 60" HIGH) VENTILATED, ON METAL 'Z' BASE
TYPE L-3	SINGLE-TIER STANDARD LOCKERS (12" X 15" X 30" HIGH) VENTILATED, ON METAL 'Z' BASE
	SINGLE-TIER ADA ACCESSIBLE STANDARD LOCKERS (12" X 15" X 30" HIGH) VENTILATED, ON METAL 'Z' BASE
TYPE L-4	SINGLE-TIER ATHLETIC LOCKERS (15" X 15" X 72" HIGH), VENTILATED, ON 4" TALL CMU BASE
	SINGLE-TIER ADA ACCESSIBLE ATHLETIC LOCKERS (15" X 15" X 72" HIGH) VENTILATED, ON 4" TALL CMU/CONCRETE BASE (-!-)
TYPE L-5	FIVE-TIER ATHLETIC LOCKERS (15" X 15" X 60" HIGH), VENTILATED, ON 4" TALL CMU/CONCRETE BASE
	FIVE-TIER ADA ACCESSIBLE ATHLETIC LOCKERS (15" X 15" X 60" HIGH) VENTILATED, ON 4" TALL CMU BASE
TYPE L-6	DOUBLE-TIER ATHLETIC LOCKERS (15" X 15" X 60" HIGH), VENTILATED, ON 18" TALL CMU BASE
	DOUBLE-TIER ADA ACCESSIBLE ATHLETIC LOCKERS (15" X 15" X 60" HIGH) VENTILATED, ON 18" TALL CMU BASE
TYPE L-7	DOUBLE-TIER ATHLETIC LOCKERS (24" X 15" X 72" HIGH), VENTILATED, ON 18" TALL CMU BASE
	DOUBLE-TIER ADA ACCESSIBLE ATHLETIC LOCKERS (24" X 15" X 72" HIGH) VENTILATED, ON 18" TALL CMU BASE

LOCKER NOTES:

1. PROVIDE CONTINUOUS SLOPED TOPS AT ALL LOCKERS (UON)
2. PROVIDE FILLER PIECES AT ENDS & CORNERS AS REQUIRED
3. SIZES INDICATED ABOVE REFER TO WIDTH x DEPTH x HEIGHT
4. LOCKERS TAGGED WITH "A" ARE ACCENT COLOR LOCKERS. SEE SPECIFICATIONS.

PROJECTION SCREEN SCHEDULE

PS-A	23'-8"w X 14'-9"h	ELECTRICALLY OPERATED, WALL MOUNTED
PS-B	9'-8"w X 6'-0-1/2"h	FIXED, WALL MOUNTED
PC-C	16'-6"w X 10'-4"h	ELECTRICALLY OPERATED, RECESSED MOUNTED

NOTES:

1. REFER TO ELECTRICAL PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

INTERIOR SIGNAGE

S1 — THIS IS AN INTERIOR SIGNAGE IDENTIFICATION, REFER TO SPECIFICATIONS FOR INTERIOR SIGNAGE TYPE AND SCHEDULED INFORMATION

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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

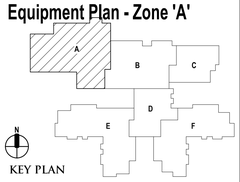
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
Troy, Michigan

DRAWING TITLE

First Level Casework & Equipment Plan - Zone 'A'



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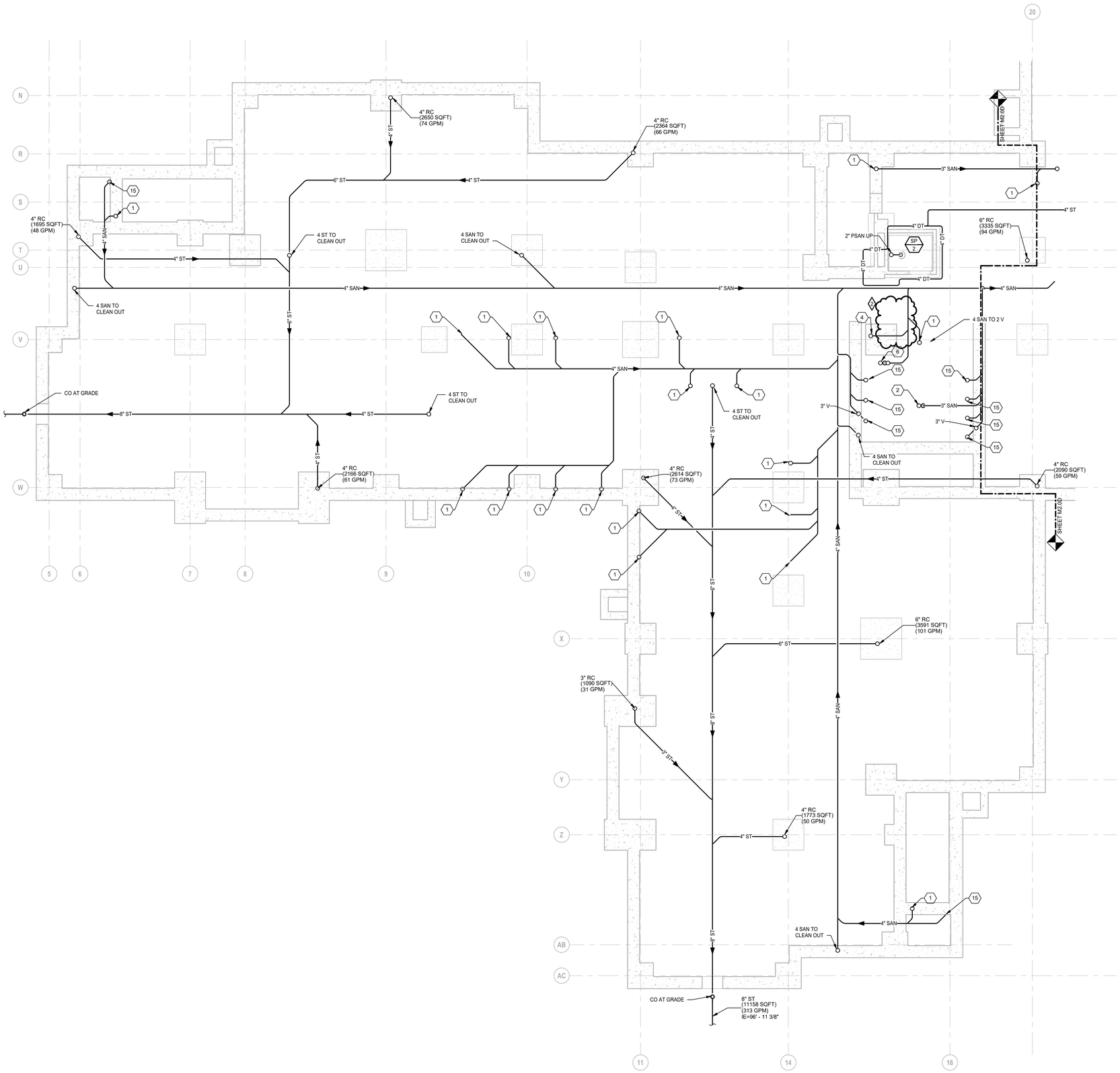
22102

DRAWING NO.

A9.1A

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



UNDERGROUND PLUMBING PLAN - ZONE 'E'
SCALE: 1/8" = 1'-0"

PLUMBING GENERAL NOTES:

1 THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.

4 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.

7 HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.

8 PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.

9 PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.

10 MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".

11 WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST <<*72*>>, OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

CONSTRUCTION KEY NOTES:

1 3 SAN TO SINK/LAV.

2 3 SAN TO FD/FS.

3 ROUTE 3/4 PUMPED CONDENSATE FROM HP-101 AND HP-102 TO CUSTODIAL A134 AND SPILL INTO SERVICE SINK.

4 3 SAN TO EWC.

5 3 SAN TO WASHING MACHINE OX BOX LOCATION.

6 3 SAN TO SS.

7 3 SAN TO SHOWER DRAIN.

8 ROUTE PSAN FROM SP-2 TO HUB OUTLET LOCATED IN CUSTODIAL E130.

9 ROUTE 1 1/2 CW & 1 1/2 HW UP TO SECOND FLOOR SINKS IN COLUMN SPACE PROVIDED.

10 2 SAN TO SINK/LAV.

11 3/4 CW TO ROOF MOUNTED HYDRANT. ROUTE IW TO CODE REQUIRED DISTANCE ABOVE FLOOR DRAIN/SINK.

12 EXTEND CW & HW TO MV-1 LOCATED UNDER SINK TO PROVIDE TEMPERED WATER TO EMERGENCY EYE WASH.

13 ROUTE GREASE SANITARY PIPING FROM THREE COMPARTMENT SINK TO GREASE INTERCEPTOR.

14 REFER TO NATURAL GAS DIAGRAM ON SHEET M6.4 FOR ROUTING AND SIZING SPECIFIC INFORMATION.

15 4 SAN FOR WC.

16 4 SAN FOR SANITARY CHASE.

17 ROUTE 1 1/2 IW FROM FSE PROVIDED FIXTURE AND TERMINATE TO CODE REQUIRED DISTANCE TO FLOOR SINK. COODINATE FINAL PIPING SIZES WITH FSE DRAWINGS PRIOR TO CONSTRUCTION.

18 ROUTE PIPING IN CHASE TO FIXTURES. SEE PLUMBING FIXTURE CONNECTION SCHEDULE FOR SIZES TO FIXTURES.

19 ROUTE ADDITIONAL 3/4" CW LINE FOR CHEMICAL FEED SYSTM.

20 ROUTE 3/4 CW AND 3/4 HW DOWN IN COLUMN. ROUTE 1/2 CW AND 1/2 HW TO EACH SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.

21 ROUTE 1/2 CW AND 1/2 HW DOWN IN COLUMN OR WALL SPACE. ROUTE 1/2 CW AND 1/2 HW TO SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.

22 ROUTE 1 CW AND 1 HW DOWN IN COLUMN. ROUTE 1/2 CW AND 1/2 HW TO EACH SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.

23 3 SAN TO UR.

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PBA Project No.: 2023.0154

PROJECT TITLE

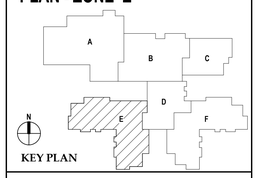
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

UNDERGROUND PLUMBING PLAN - ZONE 'E'



KEY PLAN

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	MEP
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22102

DRAWING NO.
M2.0E

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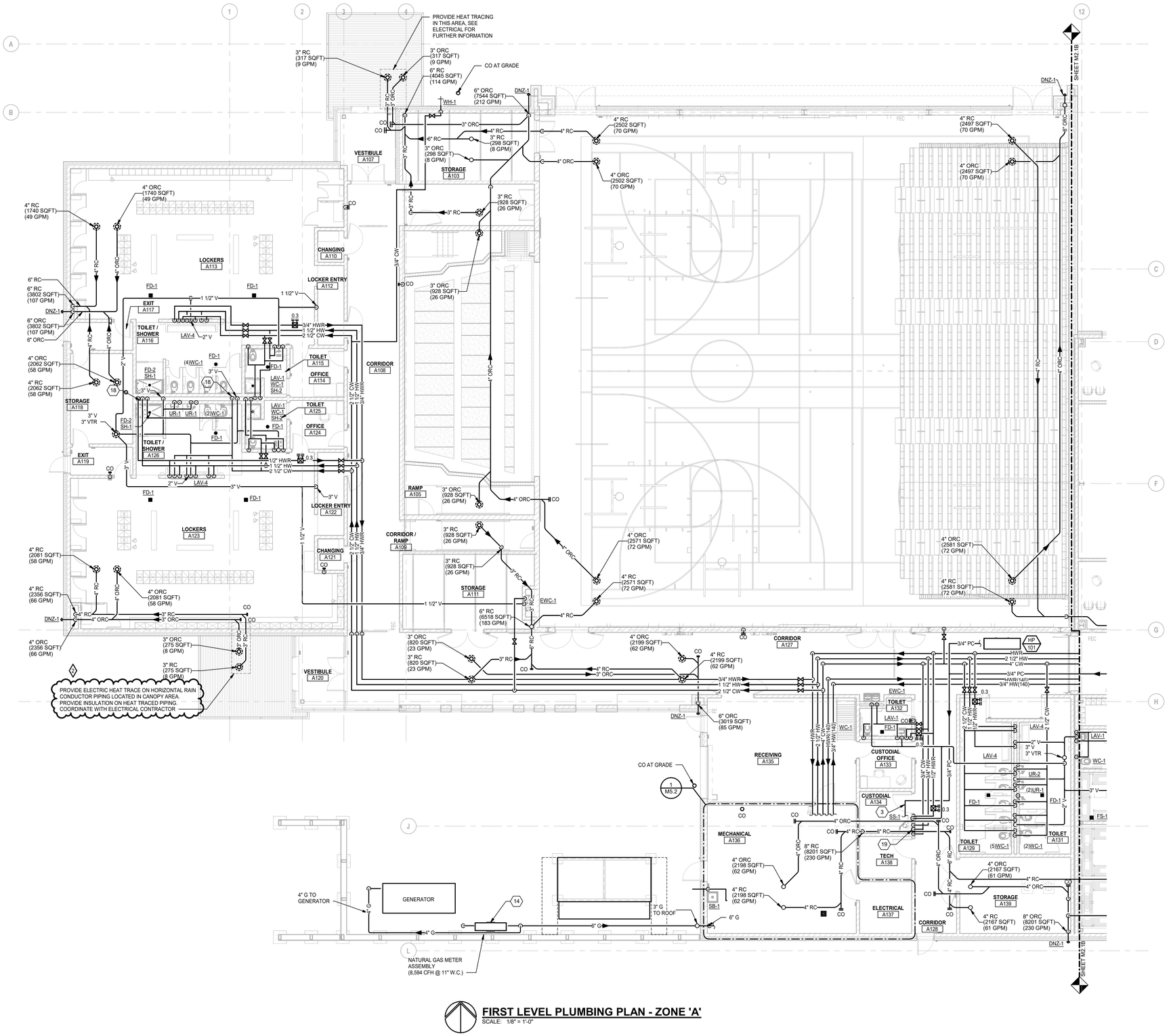
THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIRST LEVEL PLUMBING PLAN - ZONE 'A'

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

PLUMBING GENERAL NOTES:

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9 PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.

10 MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".

11 WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST <<<72">>>, OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

CONSTRUCTION KEY NOTES:

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4 3 SAN TO EWC.

5 3 SAN TO WASHING MACHINE OX BOX LOCATION.

6 3 SAN TO SS.

7 3 SAN TO SHOWER DRAIN.

8 ROUTE PSAN FROM SP-2 TO HUB OUTLET LOCATED IN CUSTODIAL E130.

9 ROUTE 1 1/2 CW & 1 1/2 HW UP TO SECOND FLOOR SINKS IN COLUMN SPACE PROVIDED.

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23 3 SAN TO UR.

TMP ARCHITECTURE

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www.PeterBassoAssociates.com
PBA Project No.: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL PLUMBING PLAN - ZONE 'A'

KEY PLAN

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	MEP
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22102

DRAWING NO.
M2.1A

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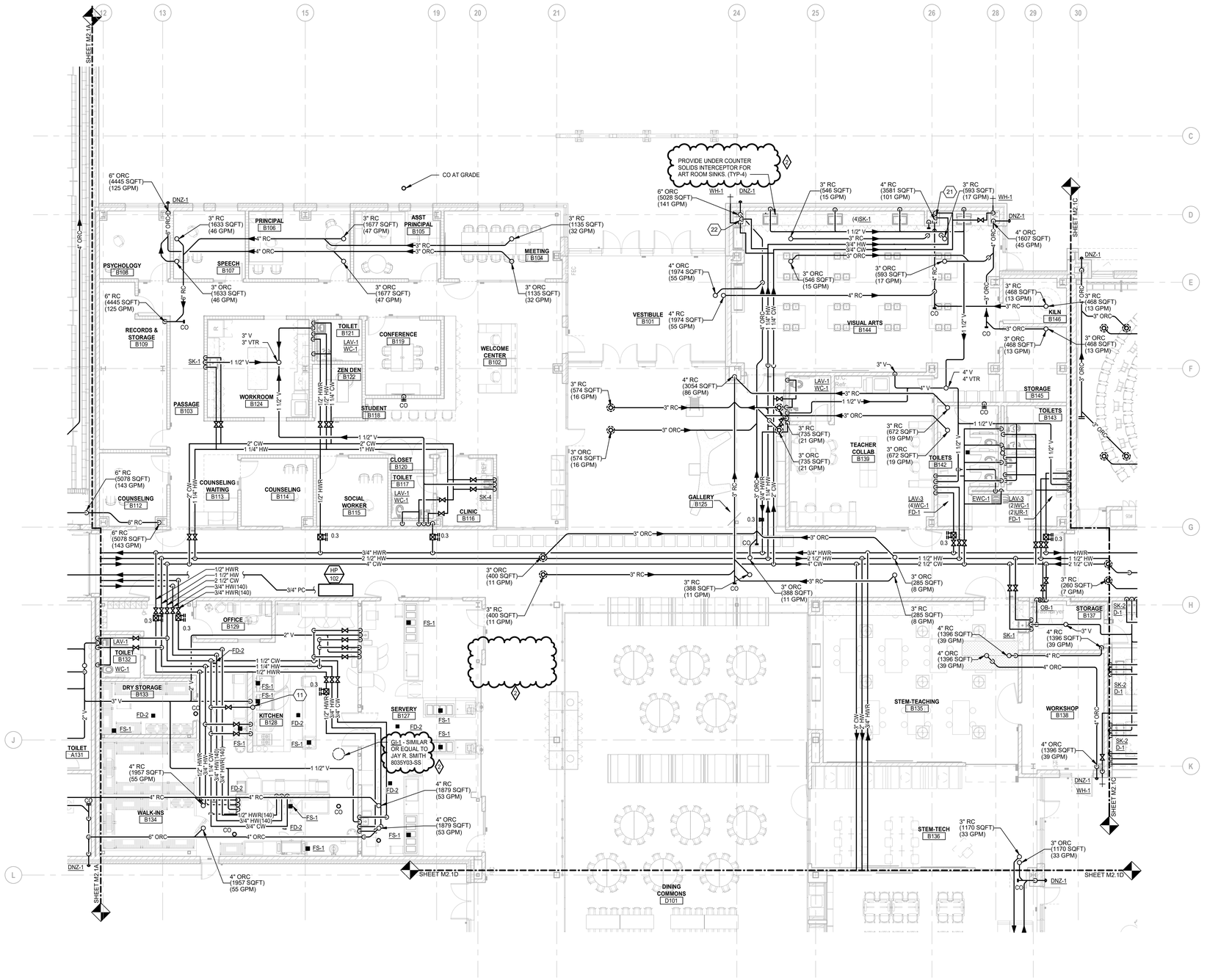
THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIRST LEVEL PLUMBING PLAN - ZONE 'B'

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

PLUMBING GENERAL NOTES:

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CONSTRUCTION KEY NOTES:

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23 3 SAN TO UR.

TMP ARCHITECTURE

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PBA Project No: 2023.0154

PROJECT TITLE

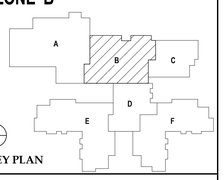
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL PLUMBING PLAN - ZONE 'B'



KEY PLAN

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	MEP
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22102

DRAWING NO.
M2.1B

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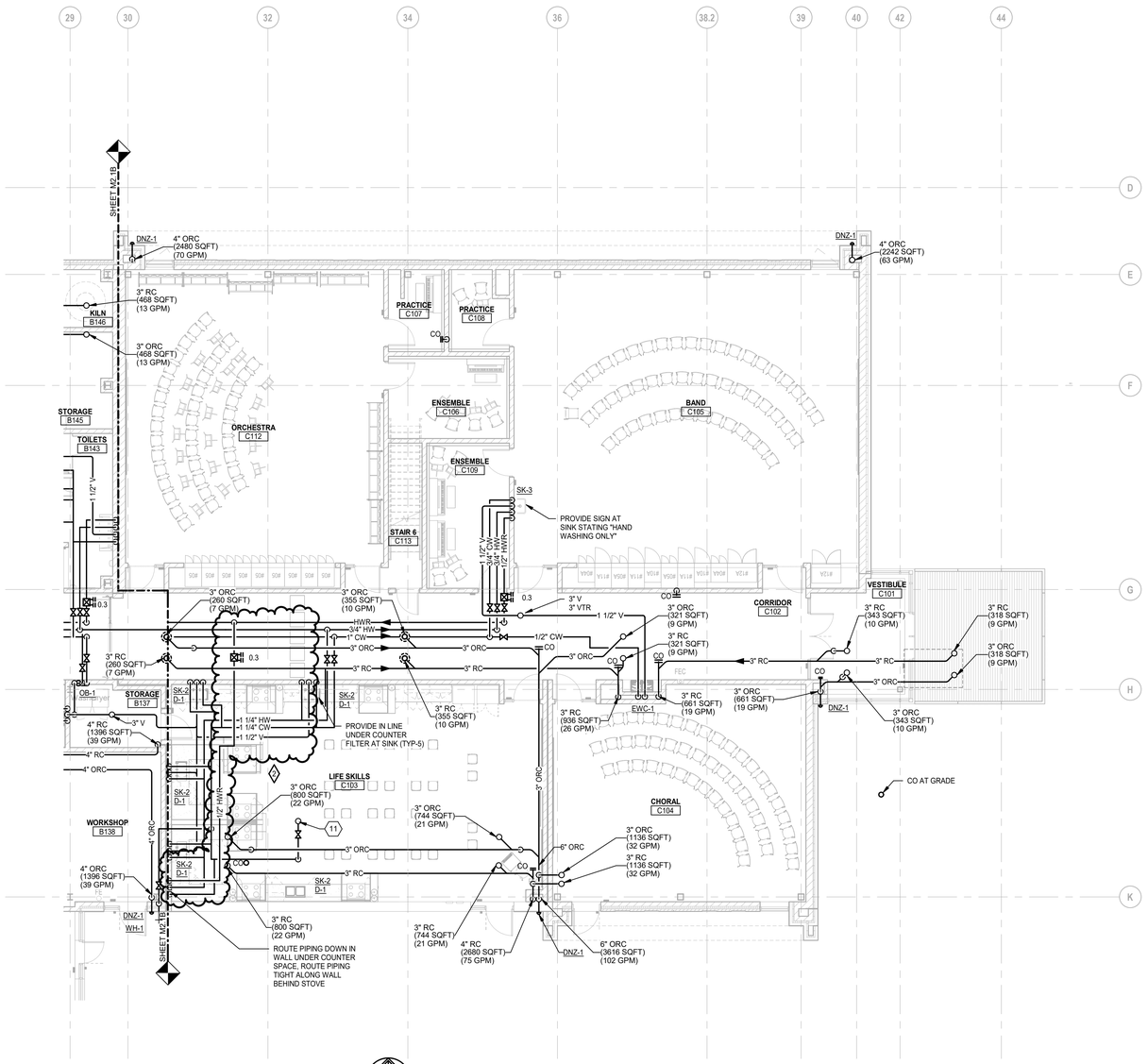
THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIRST LEVEL PLUMBING PLAN - ZONE 'C'

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

PLUMBING GENERAL NOTES:

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CONSTRUCTION KEY NOTES:

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TMP ARCHITECTURE

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PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

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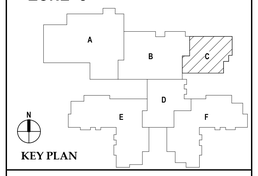
FIRST LEVEL PLUMBING PLAN - ZONE 'C'



KEY PLAN

ISSUE DATES

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DRAWN	MEP
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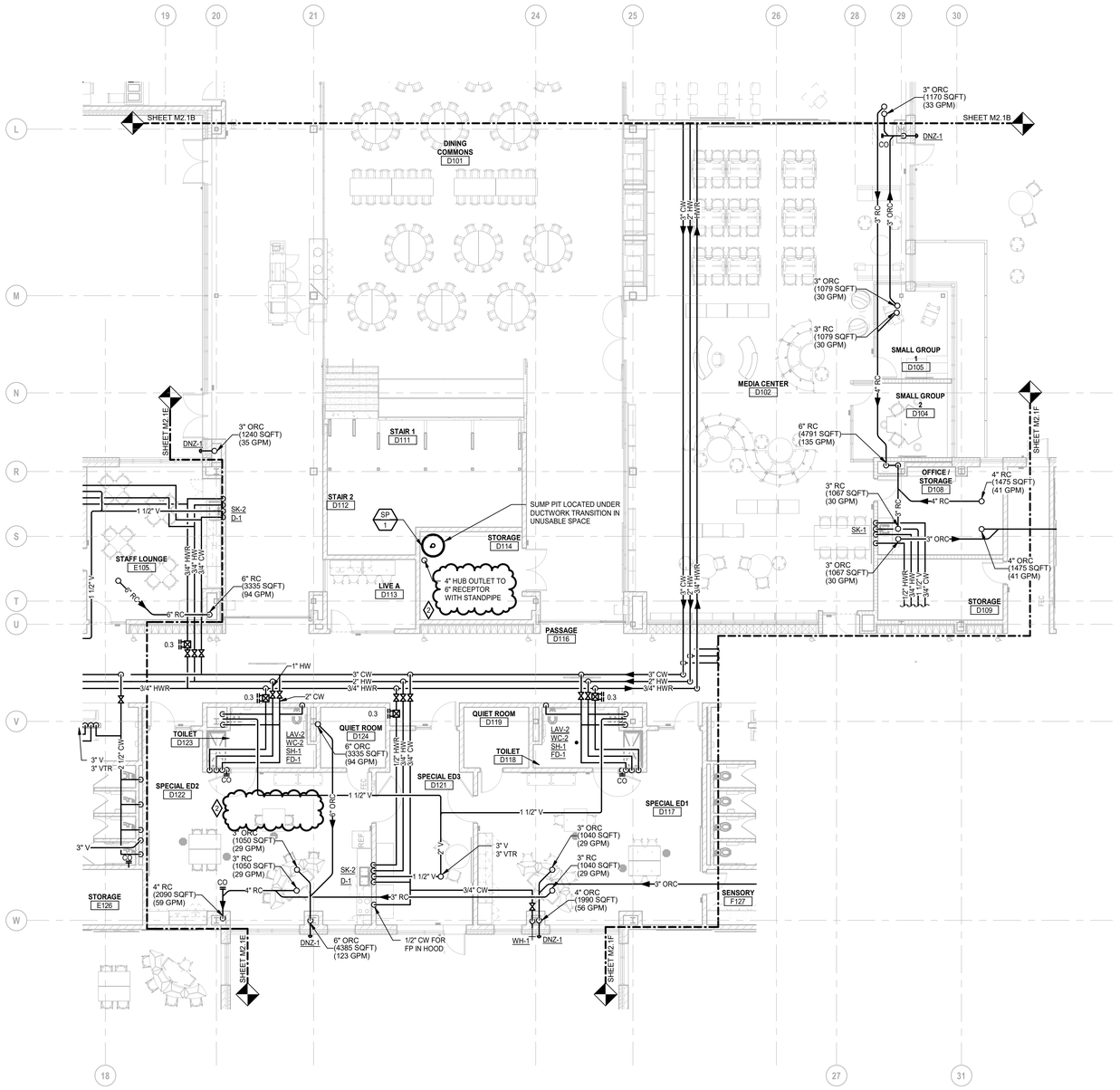
PROJECT NO.

22102

DRAWING NO.

M2.1C



THE FOLLOWING DIMENSION EQUALS 1" ONE INCH WHEN PRINTED TO SCALE.

FIRST LEVEL PLUMBING PLAN - ZONE 'D'

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

PLUMBING GENERAL NOTES:

1 THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.

4 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.

7 HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.

8 PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.

9 PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.

10 MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".

11 WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST <<<72">>>, OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

CONSTRUCTION KEY NOTES:

1 3 SAN TO SINK/LAV.

2 3 SAN TO FD/FS.

3 ROUTE 3/4 PUMPED CONDENSATE FROM HP-101 AND HP-102 TO CUSTODIAL A134 AND SPILL INTO SERVICE SINK.

4 3 SAN TO EWC.

5 3 SAN TO WASHING MACHINE OX BOX LOCATION.

6 3 SAN TO SS.

7 3 SAN TO SHOWER DRAIN.

8 ROUTE PSAN FROM SP-2 TO HUB OUTLET LOCATED IN CUSTODIAL E130.

9 ROUTE 1 1/2 CW & 1 1/2 HW UP TO SECOND FLOOR SINKS IN COLUMN SPACE PROVIDED.

10 2 SAN TO SINK/LAV.

11 3/4 CW TO ROOF MOUNTED HYDRANT. ROUTE IW TO CODE REQUIRED DISTANCE ABOVE FLOOR DRAIN/SINK.

12 EXTEND CW & HW TO MV-1 LOCATED UNDER SINK TO PROVIDE TEMPERED WATER TO EMERGENCY EYE WASH.

13 ROUTE GREASE SANITARY PIPING FROM THREE COMPARTMENT SINK TO GREASE INTERCEPTOR.

14 REFER TO NATURAL GAS DIAGRAM ON SHEET M6.4 FOR ROUTING AND SIZING SPECIFIC INFORMATION.

15 4 SAN FOR WC.

16 4 SAN FOR SANITARY CHASE.

17 ROUTE 1 1/2 IW FROM FSE PROVIDED FIXTURE AND TERMINATE TO CODE REQUIRED DISTANCE TO FLOOR SINK. COODINATE FINAL PIPING SIZES WITH FSE DRAWINGS PRIOR TO CONSTRUCTION.

18 ROUTE PIPING IN CHASE TO FIXTURES. SEE PLUMBING FIXTURE CONNECTION SCHEDULE FOR SIZES TO FIXTURES.

19 ROUTE ADDITIONAL 3/4" CW LINE FOR CHEMICAL FEED SYSTM.

20 ROUTE 3/4 CW AND 3/4 HW DOWN IN COLUMN. ROUTE 1/2 CW AND 1/2 HW TO EACH SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.

21 ROUTE 1/2 CW AND 1/2 HW DOWN IN COLUMN OR WALL SPACE. ROUTE 1/2 CW AND 1/2 HW TO SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.

22 ROUTE 1 CW AND 1 HW DOWN IN COLUMN. ROUTE 1/2 CW AND 1/2 HW TO EACH SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.

23 3 SAN TO UR.

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www.PeterBassoAssociates.com
PBA Project No.: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL PLUMBING PLAN - ZONE 'D'

KEY PLAN

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	MEP
CHECKED	KLH
APPROVED	SVM

PROJECT NO.

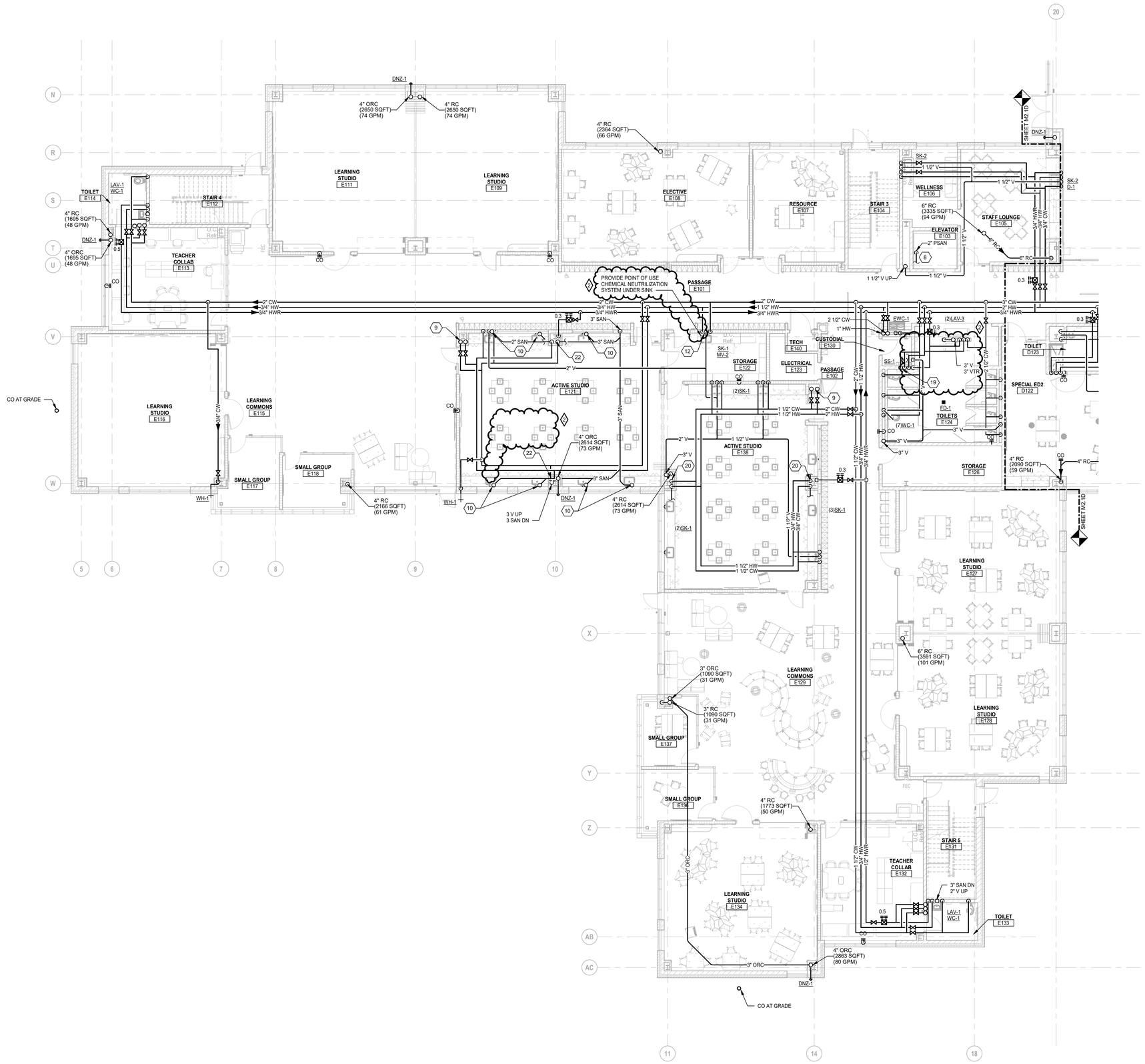
22102

DRAWING NO.

M2.1D

7/11/2024 4:04:12 PM Autodesk Docs://22102_Troy Smith MS/2023-0154_TSD Smith MS_MEP_v22.rvt

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIRST LEVEL PLUMBING PLAN - ZONE 'E'

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

PLUMBING GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.
7. HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.
8. PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.
9. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
10. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".
11. WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST <<72>>, OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

CONSTRUCTION KEY NOTES:

1. 3 SAN TO SINK/LAV.
2. 3 SAN TO FD/FS.
3. ROUTE 3/4 PUMPED CONDENSATE FROM HP-101 AND HP-102 TO CUSTODIAL A134 AND SPILL INTO SERVICE SINK.
4. 3 SAN TO EWC.
5. 3 SAN TO WASHING MACHINE OX BOX LOCATION.
6. 3 SAN TO SS.
7. 3 SAN TO SHOWER DRAIN.
8. ROUTE PSAN FROM SP-2 TO HUB OUTLET LOCATED IN CUSTODIAL E130.
9. ROUTE 1 1/2 CW & 1 1/2 HW UP TO SECOND FLOOR SINKS IN COLUMN SPACE PROVIDED.
10. 2 SAN TO SINK/LAV.
11. 3/4 CW TO ROOF MOUNTED HYDRANT. ROUTE IW TO CODE REQUIRED DISTANCE ABOVE FLOOR DRAIN/SINK.
12. EXTEND CW & HW TO MV-1 LOCATED UNDER SINK TO PROVIDE TEMPERED WATER TO EMERGENCY EYE WASH.
13. ROUTE GREASE SANITARY PIPING FROM THREE COMPARTMENT SINK TO GREASE INTERCEPTOR.
14. REFER TO NATURAL GAS DIAGRAM ON SHEET M6.4 FOR ROUTING AND SIZING SPECIFIC INFORMATION.
15. 4 SAN FOR WC.
16. 4 SAN FOR SANITARY CHASE.
17. ROUTE 1 1/2 IW FROM FSE PROVIDED FIXTURE AND TERMINATE TO CODE REQUIRED DISTANCE TO FLOOR SINK. COODINATE FINAL PIPING SIZES WITH FSE DRAWINGS PRIOR TO CONSTRUCTION.
18. ROUTE PIPING IN CHASE TO FIXTURES. SEE PLUMBING FIXTURE CONNECTION SCHEDULE FOR SIZES TO FIXTURES.
19. ROUTE ADDITIONAL 3/4" CW LINE FOR CHEMICAL FEED SYSTM.
20. ROUTE 3/4 CW AND 3/4 HW DOWN IN COLUMN. ROUTE 1/2 CW AND 1/2 HW TO EACH SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.
21. ROUTE 1/2 CW AND 1/2 HW DOWN IN COLUMN OR WALL SPACE. ROUTE 1/2 CW AND 1/2 HW TO SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.
22. ROUTE 1 CW AND 1 HW DOWN IN COLUMN. ROUTE 1/2 CW AND 1/2 HW TO EACH SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.
23. 3 SAN TO UR.

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PBA Project No.: 2023.0154

PROJECT TITLE

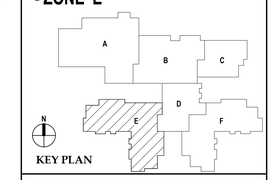
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL PLUMBING PLAN - ZONE 'E'



KEY PLAN

ISSUE DATES

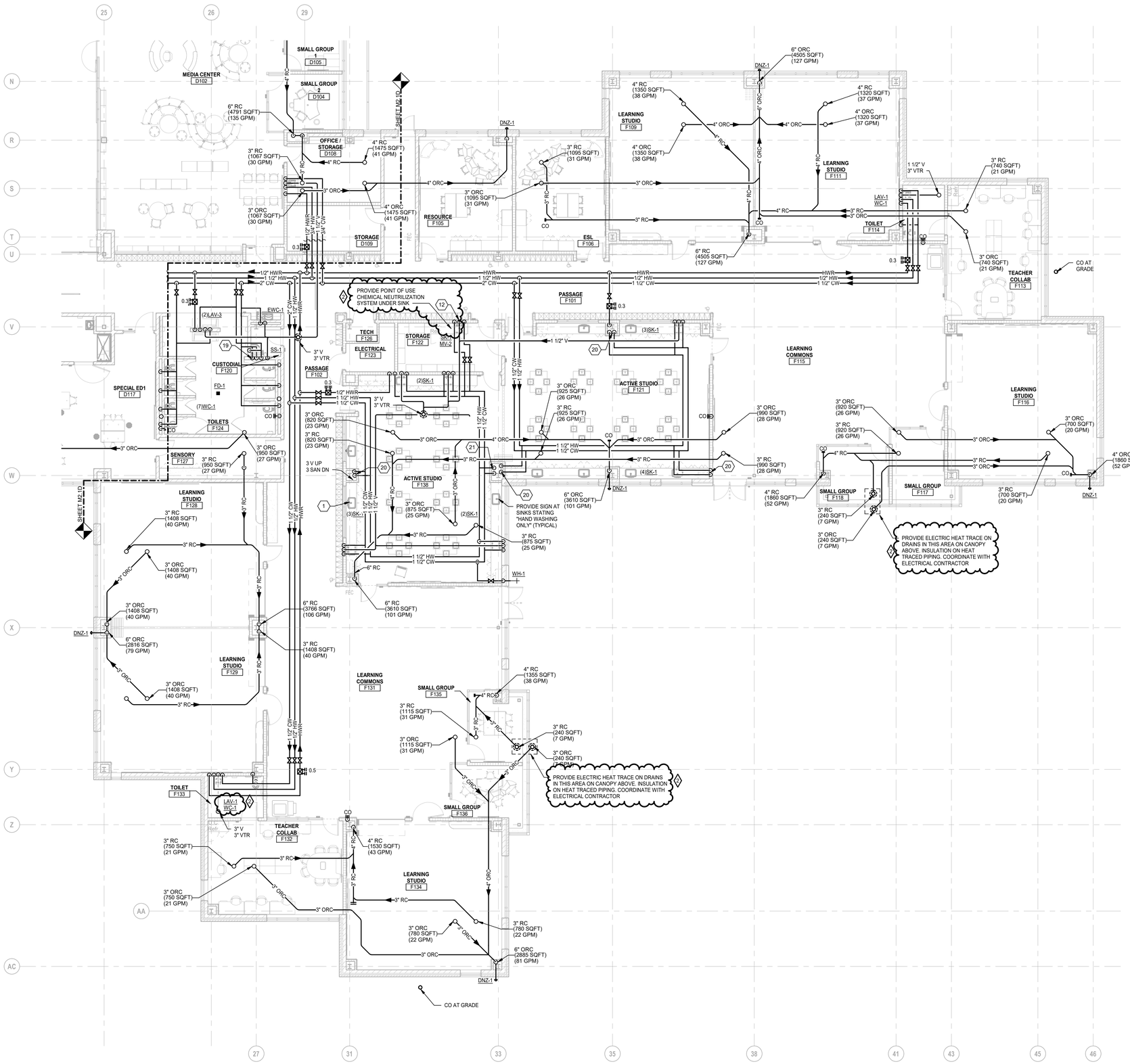
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS
DATE:	ISSUED FOR:

DRAWN	MEP
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22102

DRAWING NO.
M2.1E

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIRST LEVEL PLUMBING PLAN - ZONE 'F'

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

PLUMBING GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
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3. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.
7. HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.
8. PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.
9. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
10. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".
11. WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST <<72">>, OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

CONSTRUCTION KEY NOTES:

1. 3 SAN TO SINK/LAV.
2. 3 SAN TO FD/FS.
3. ROUTE 3/4 PUMPED CONDENSATE FROM HP-101 AND HP-102 TO CUSTODIAL A134 AND SPILL INTO SERVICE SINK.
4. 3 SAN TO EWC.
5. 3 SAN TO WASHING MACHINE OX BOX LOCATION.
6. 3 SAN TO SS.
7. 3 SAN TO SHOWER DRAIN.
8. ROUTE PSAN FROM SP-2 TO HUB OUTLET LOCATED IN CUSTODIAL E130.
9. ROUTE 1 1/2 CW & 1 1/2 HW UP TO SECOND FLOOR SINKS IN COLUMN SPACE PROVIDED.
10. 2 SAN TO SINK/LAV.
11. 3/4 CW TO ROOF MOUNTED HYDRANT. ROUTE IW TO CODE REQUIRED DISTANCE ABOVE FLOOR DRAIN/SINK.
12. EXTEND CW & HW TO MV-1 LOCATED UNDER SINK TO PROVIDE TEMPERED WATER TO EMERGENCY EYE WASH.
13. ROUTE GREASE SANITARY PIPING FROM THREE COMPARTMENT SINK TO GREASE INTERCEPTOR.
14. REFER TO NATURAL GAS DIAGRAM ON SHEET M6.4 FOR ROUTING AND SIZING SPECIFIC INFORMATION.
15. 4 SAN FOR WC.
16. 4 SAN FOR SANITARY CHASE.
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18. ROUTE PIPING IN CHASE TO FIXTURES. SEE PLUMBING FIXTURE CONNECTION SCHEDULE FOR SIZES TO FIXTURES.
19. ROUTE ADDITIONAL 3/4" CW LINE FOR CHEMICAL FEED SYSTM.
20. ROUTE 3/4 CW AND 3/4 HW DOWN IN COLUMN. ROUTE 1/2 CW AND 1/2 HW TO EACH SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.
21. ROUTE 1/2 CW AND 1/2 HW DOWN IN COLUMN OR WALL SPACE. ROUTE 1/2 CW AND 1/2 HW TO SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.
22. ROUTE 1 CW AND 1 HW DOWN IN COLUMN. ROUTE 1/2 CW AND 1/2 HW TO EACH SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.
23. 3 SAN TO UR.

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PBA Project No.: 2023.0154

PROJECT TITLE

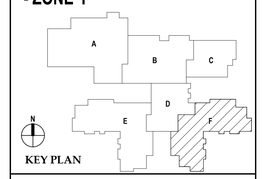
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL PLUMBING PLAN - ZONE 'F'



KEY PLAN

ISSUE DATES

07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS
DATE:	ISSUED FOR:

DRAWN	MEP
CHECKED	KLH
APPROVED	SVM

PROJECT NO.

22102

DRAWING NO.

M2.1F

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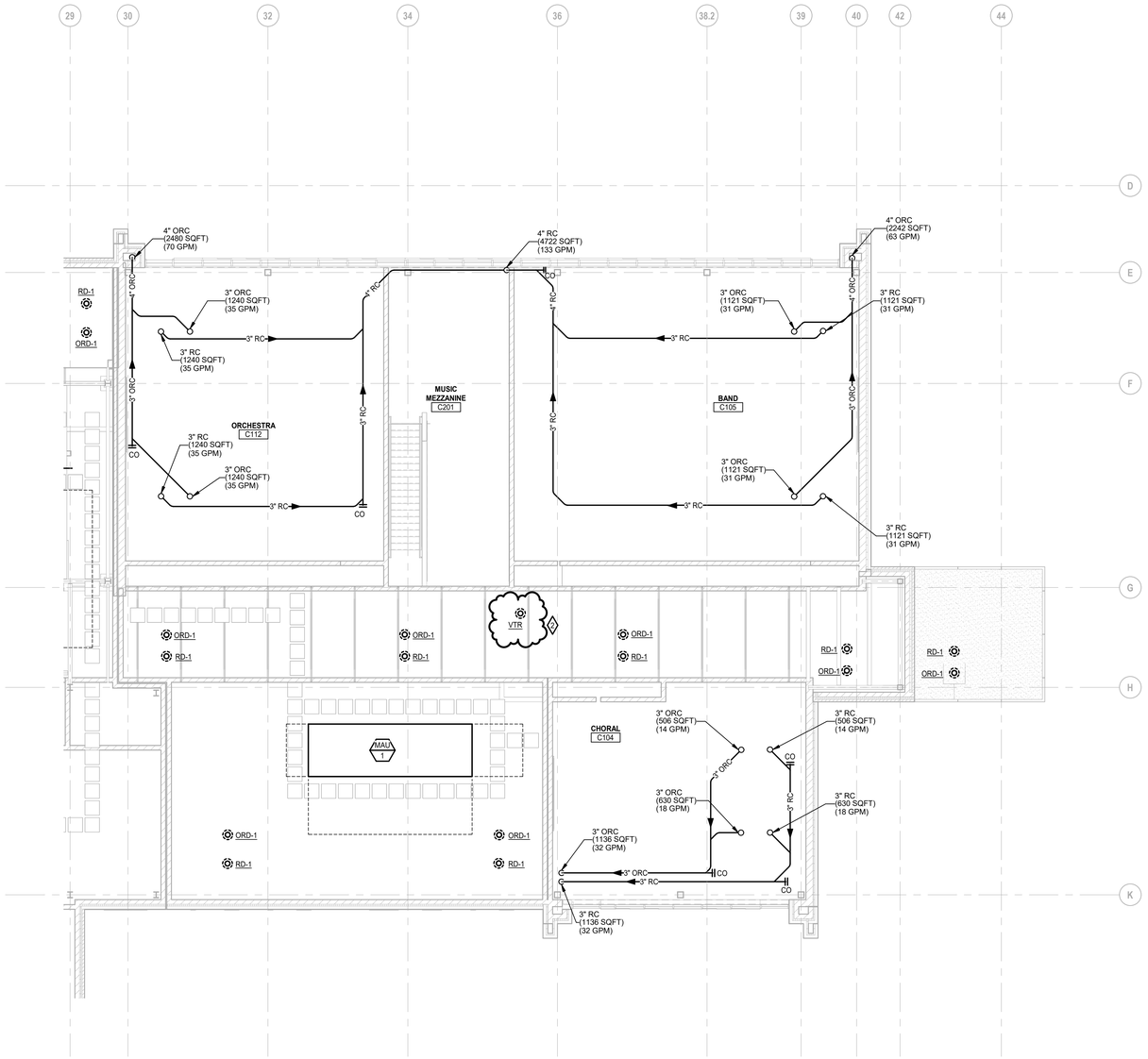
THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



MEZZANINE LEVEL PLUMBING PLAN - ZONE 'C'

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

PLUMBING GENERAL NOTES:

1 THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.

4 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.

7 HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.

8 PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.

9 PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.

10 MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".

11 WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST <<72">>, OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

CONSTRUCTION KEY NOTES:

1 3 SAN TO SINK/LAV.

2 3 SAN TO FD/FS.

3 ROUTE 3/4 PUMPED CONDENSATE FROM HP-101 AND HP-102 TO CUSTODIAL A134 AND SPILL INTO SERVICE SINK.

4 3 SAN TO EWC.

5 3 SAN TO WASHING MACHINE OX BOX LOCATION.

6 3 SAN TO SS.

7 3 SAN TO SHOWER DRAIN.

8 ROUTE PSAN FROM SP-2 TO HUB OUTLET LOCATED IN CUSTODIAL E130.

9 ROUTE 1 1/2 CW & 1 1/2 HW UP TO SECOND FLOOR SINKS IN COLUMN SPACE PROVIDED.

10 2 SAN TO SINK/LAV.

11 3/4 CW TO ROOF MOUNTED HYDRANT. ROUTE IW TO CODE REQUIRED DISTANCE ABOVE FLOOR DRAIN/SINK.

12 EXTEND CW & HW TO MV-1 LOCATED UNDER SINK TO PROVIDE TEMPERED WATER TO EMERGENCY EYE WASH.

13 ROUTE GREASE SANITARY PIPING FROM THREE COMPARTMENT SINK TO GREASE INTERCEPTOR.

14 REFER TO NATURAL GAS DIAGRAM ON SHEET M6.4 FOR ROUTING AND SIZING SPECIFIC INFORMATION.

15 4 SAN FOR WC.

16 4 SAN FOR SANITARY CHASE.

17 ROUTE 1 1/2 IW FROM FSE PROVIDED FIXTURE AND TERMINATE TO CODE REQUIRED DISTANCE TO FLOOR SINK. COODINATE FINAL PIPING SIZES WITH FSE DRAWINGS PRIOR TO CONSTRUCTION.

18 ROUTE PIPING IN CHASE TO FIXTURES. SEE PLUMBING FIXTURE CONNECTION SCHEDULE FOR SIZES TO FIXTURES.

19 ROUTE ADDITIONAL 3/4" CW LINE FOR CHEMICAL FEED SYSTM.

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21 ROUTE 1/2 CW AND 1/2 HW DOWN IN COLUMN OR WALL SPACE. ROUTE 1/2 CW AND 1/2 HW TO SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.

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23 3 SAN TO UR.

TMP ARCHITECTURE

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PBA Project No.: 2023.0154

PROJECT TITLE

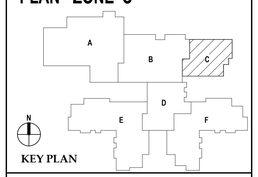
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

MEZZANINE LEVEL PLUMBING PLAN - ZONE 'C'



KEY PLAN

ISSUE DATES

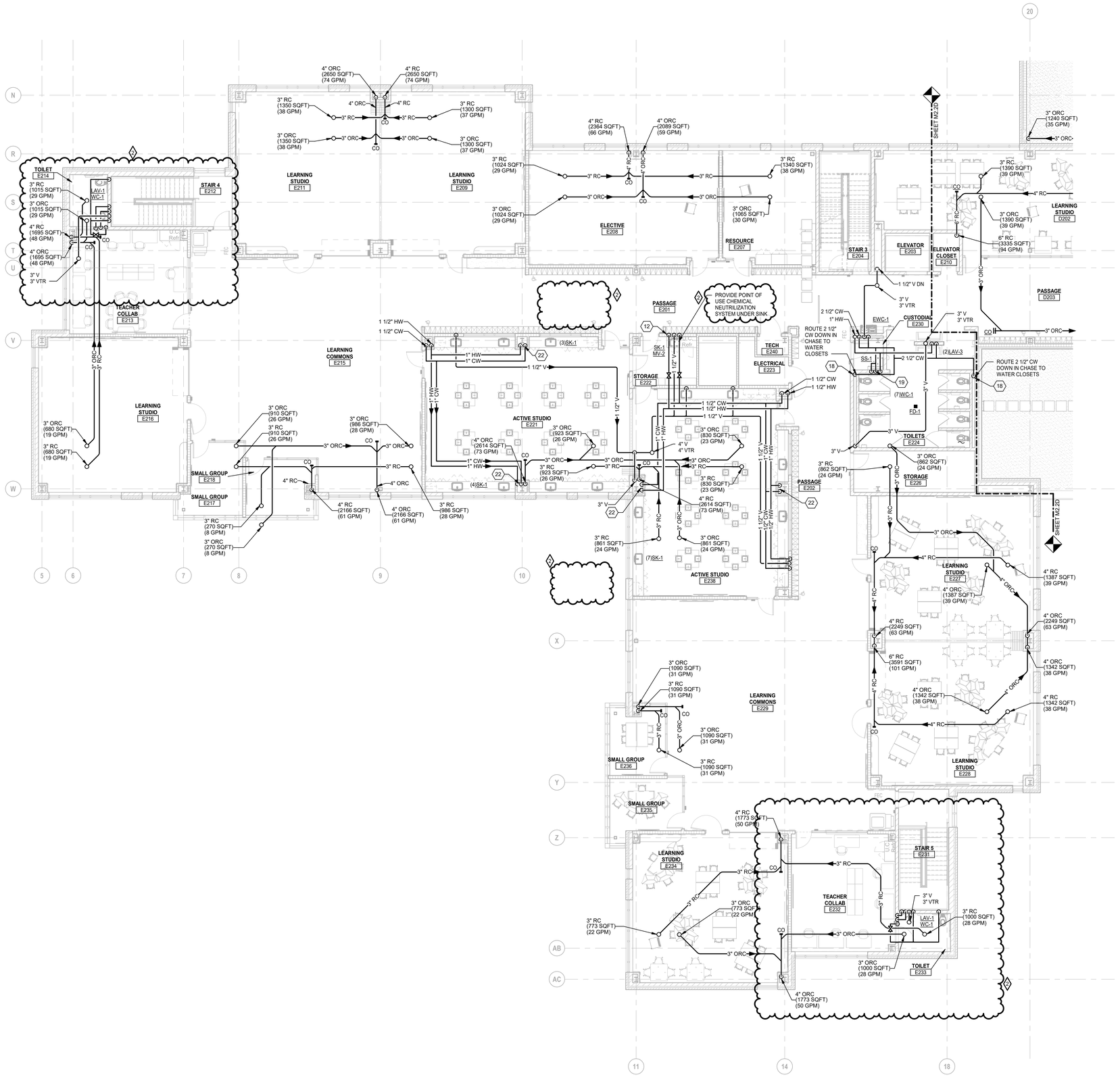
DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	MEP
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22102

DRAWING NO.
M2.2C

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



SECOND LEVEL PLUMBING PLAN - ZONE 'E'

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

PLUMBING GENERAL NOTES:

1 THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.

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3 PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.

4 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.

7 HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.

8 PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.

9 PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.

10 MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".

11 WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST <<x'2">>, OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

CONSTRUCTION KEY NOTES:

1 3 SAN TO SINK/LAV.

2 3 SAN TO FD/FS.

3 ROUTE 3/4 PUMPED CONDENSATE FROM HP-101 AND HP-102 TO CUSTODIAL A134 AND SPILL INTO SERVICE SINK.

4 3 SAN TO EWC.

5 3 SAN TO WASHING MACHINE OX BOX LOCATION.

6 3 SAN TO SS.

7 3 SAN TO SHOWER DRAIN.

8 ROUTE PSAN FROM SP-2 TO HUB OUTLET LOCATED IN CUSTODIAL E130.

9 ROUTE 1 1/2 CW & 1 1/2 HW UP TO SECOND FLOOR SINKS IN COLUMN SPACE PROVIDED.

10 2 SAN TO SINK/LAV.

11 3/4 CW TO ROOF MOUNTED HYDRANT. ROUTE IW TO CODE REQUIRED DISTANCE ABOVE FLOOR DRAIN/SINK.

12 EXTEND CW & HW TO MV-1 LOCATED UNDER SINK TO PROVIDE TEMPERED WATER TO EMERGENCY EYE WASH.

13 ROUTE GREASE SANITARY PIPING FROM THREE COMPARTMENT SINK TO GREASE INTERCEPTOR.

14 REFER TO NATURAL GAS DIAGRAM ON SHEET M6.4 FOR ROUTING AND SIZING SPECIFIC INFORMATION.

15 4 SAN FOR WC.

16 4 SAN FOR SANITARY CHASE.

17 ROUTE 1 1/2 IW FROM FSE PROVIDED FIXTURE AND TERMINATE TO CODE REQUIRED DISTANCE TO FLOOR SINK. COODINATE FINAL PIPING SIZES WITH FSE DRAWINGS PRIOR TO CONSTRUCTION.

18 ROUTE PIPING IN CHASE TO FIXTURES. SEE PLUMBING FIXTURE CONNECTION SCHEDULE FOR SIZES TO FIXTURES.

19 ROUTE ADDITIONAL 3/4" CW LINE FOR CHEMICAL FEED SYSTM.

20 ROUTE 3/4 CW AND 3/4 HW DOWN IN COLUMN. ROUTE 1/2 CW AND 1/2 HW TO EACH SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.

21 ROUTE 1/2 CW AND 1/2 HW DOWN IN COLUMN OR WALL SPACE. ROUTE 1/2 CW AND 1/2 HW TO SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.

22 ROUTE 1 CW AND 1 HW DOWN IN COLUMN. ROUTE 1/2 CW AND 1/2 HW TO EACH SINK. PIPING UNDER COUNTER SPACE TO CABINET MOUNTED SINK.

23 3 SAN TO UR.

TMP ARCHITECTURE

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PBA Project No: 2023.0154

PROJECT TITLE

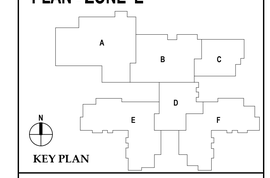
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

SECOND LEVEL PLUMBING PLAN - ZONE 'E'



KEY PLAN

ISSUE DATES

07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE: ISSUED FOR:

DRAWN	MEP
CHECKED	KLH
APPROVED	SVM

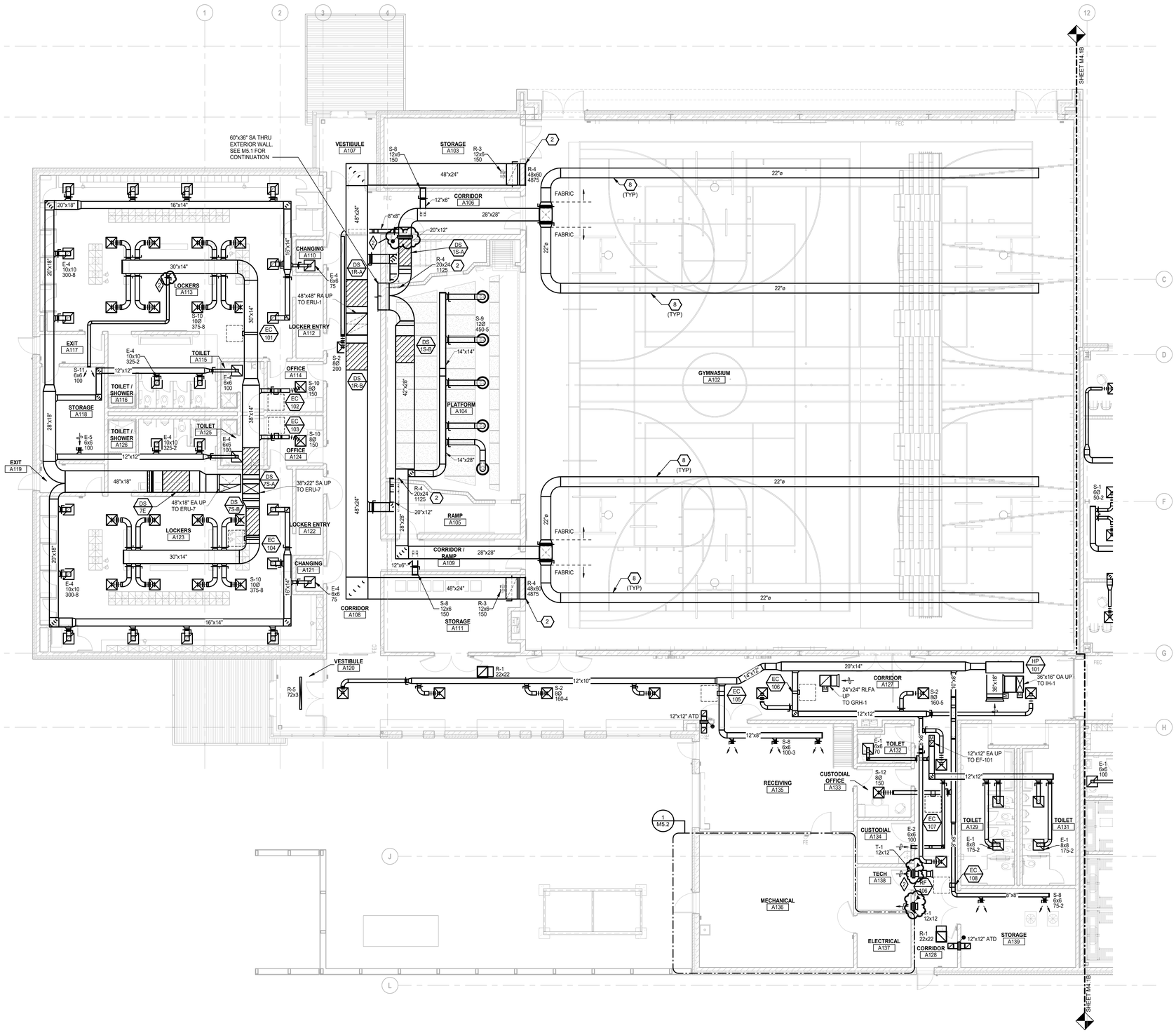
PROJECT NO.

22102

DRAWING NO.

M2.2E

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIRST LEVEL SHEET METAL PLAN - ZONE 'A'

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

SHEET METAL GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING AND DUCTWORK SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONED LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.
7. REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

CONSTRUCTION KEY NOTES:

1. RELOCATED KILN BY OWNER. ROUTE 6ø INCHES EXHAUST CONNECTION FROM KILN UP THROUGH ROOF AND TERMINATE WITH VENT CAP. KILN EXHAUST SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER RECOMMENDATIONS.
2. MOUNT BOTTOM OF GRILLE 8 INCHES A.F.F.
3. ROUTE 6ø DRYER EXHAUST UP THROUGH ROOF AND TERMINATE WITH GOOSENECK.
4. PROVIDE DIGITAL TIMER FOR INDICATED EF.
5. REFER TO LEARNING STUDIO E128 FOR TYPICAL SHEET METAL LAYOUT.
6. REFER TO LEARNING STUDIO E134 FOR TYPICAL SHEET METAL LAYOUT.
7. REFER TO ACTIVE STUDIO F138 FOR TYPICAL SHEET METAL LAYOUT.
8. PROVIDE FABRIC DUCTWORK IN GYMNASIUM. MECHANICAL CONTRACTOR TO COORDINATE LAYOUT WITH STRUCTURAL STEEL AND JOIST CONFIGURATION.
9. ROUTE GREASE DUCT FROM HOOD UP TO EXHAUST FAN.
10. ROUTE 6ø EA UP THROUGH ROOF TO ROOF CAP ACCESSORY.
11. BALANCE TO AIRFLOW INDICATED.
12. ROUTE 6ø EA THROUGH WALL TO BRICK VENT ACCESSORY.
13. PROVIDE DOUBLE WALLED DUCT.
14. DUCT LOCATED BENEATH STAIRS.
15. ROUTE DUCT TIGHT TO CEILING.
16. REFER TO FOOD SERVICE DRAWINGS FOR CONNECTION TO DISHWASHER.
17. 28x10 MAKEUP AIR CONNECTION TO HOOD.
18. PROVIDE 4" CONCRETE CURB AROUND ALL MEZZANINE FLOOR DUCT PENETRATIONS.
19. 24x12 SA STACKED ABOVE 24x12 EA.
20. 16x12 SA STACKED ABOVE 12x12 EA.

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PBA Project No: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

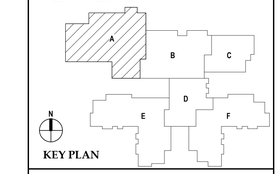
Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL SHEET METAL PLAN - ZONE 'A'

KEY PLAN



ISSUE DATES

DATE:	ISSUED FOR:
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DRAWN	JRB
CHECKED	KLH
APPROVED	SVM

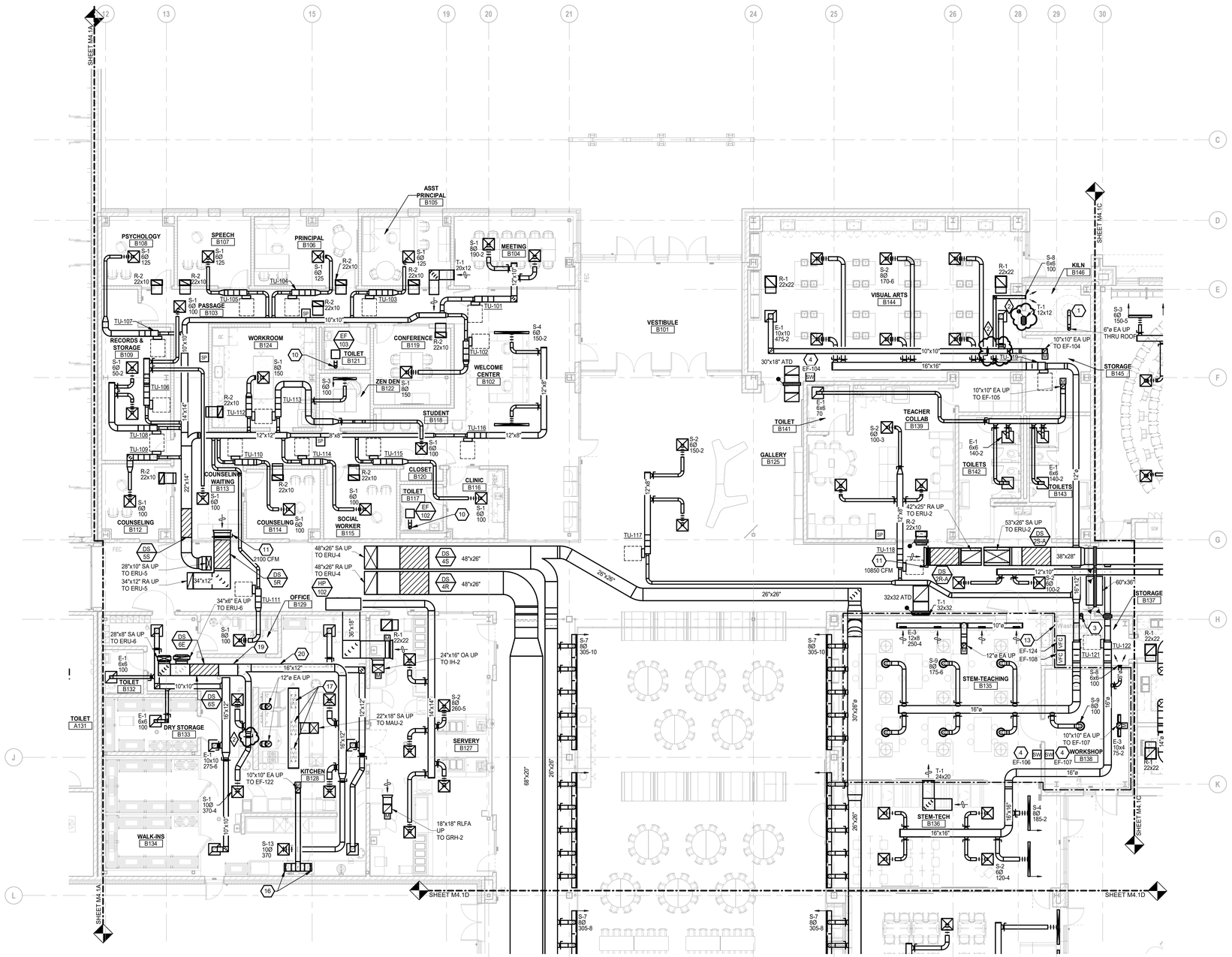
PROJECT NO.

22102

DRAWING NO.

M4.1A

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIRST LEVEL SHEET METAL PLAN - ZONE 'B'

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

SHEET METAL GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING AND DUCTWORK SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONED LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.
7. REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

CONSTRUCTION KEY NOTES:

1. RELOCATED KILN BY OWNER. ROUTE 6ø INCHES EXHAUST CONNECTION FROM KILN UP THROUGH ROOF AND TERMINATE WITH VENT CAP. KILN EXHAUST SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER RECOMMENDATIONS.
2. MOUNT BOTTOM OF GRILLE 8 INCHES A.F.F.
3. ROUTE 6ø DRYER EXHAUST UP THROUGH ROOF AND TERMINATE WITH GOOSENECK.
4. PROVIDE DIGITAL TIMER FOR INDICATED EF.
5. REFER TO LEARNING STUDIO E128 FOR TYPICAL SHEET METAL LAYOUT.
6. REFER TO LEARNING STUDIO E134 FOR TYPICAL SHEET METAL LAYOUT.
7. REFER TO ACTIVE STUDIO F138 FOR TYPICAL SHEET METAL LAYOUT.
8. PROVIDE FABRIC DUCTWORK IN GYMNASIUM. MECHANICAL CONTRACTOR TO COORDINATE LAYOUT WITH STRUCTURAL STEEL AND JOIST CONFIGURATION.
9. ROUTE GREASE DUCT FROM HOOD UP TO EXHAUST FAN.
10. ROUTE 6ø EA UP THROUGH ROOF TO ROOF CAP ACCESSORY.
11. BALANCE TO AIRFLOW INDICATED.
12. ROUTE 6ø EA THROUGH WALL TO BRICK VENT ACCESSORY.
13. PROVIDE DOUBLE WALLED DUCT.
14. DUCT LOCATED BENEATH STAIRS.
15. ROUTE DUCT TIGHT TO CEILING.
16. REFER TO FOOD SERVICE DRAWINGS FOR CONNECTION TO DISHWASHER.
17. 28x10 MAKEUP AIR CONNECTION TO HOOD.
18. PROVIDE 4" CONCRETE CURB AROUND ALL MEZZANINE FLOOR DUCT PENETRATIONS.
19. 24x12 SA STACKED ABOVE 24x12 EA.
20. 16x12 SA STACKED ABOVE 12x12 EA.

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PBA Project No.: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

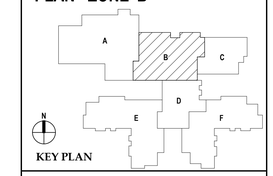
Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL SHEET METAL PLAN - ZONE 'B'

KEY PLAN



ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	JRB
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22102

DRAWING NO.
M4.1B

7/11/2024 4:05:15 PM Autodesk Docs://22102_Troy Smith MS/2023-0154_TSD Smith MS_MEP_v22.rvt

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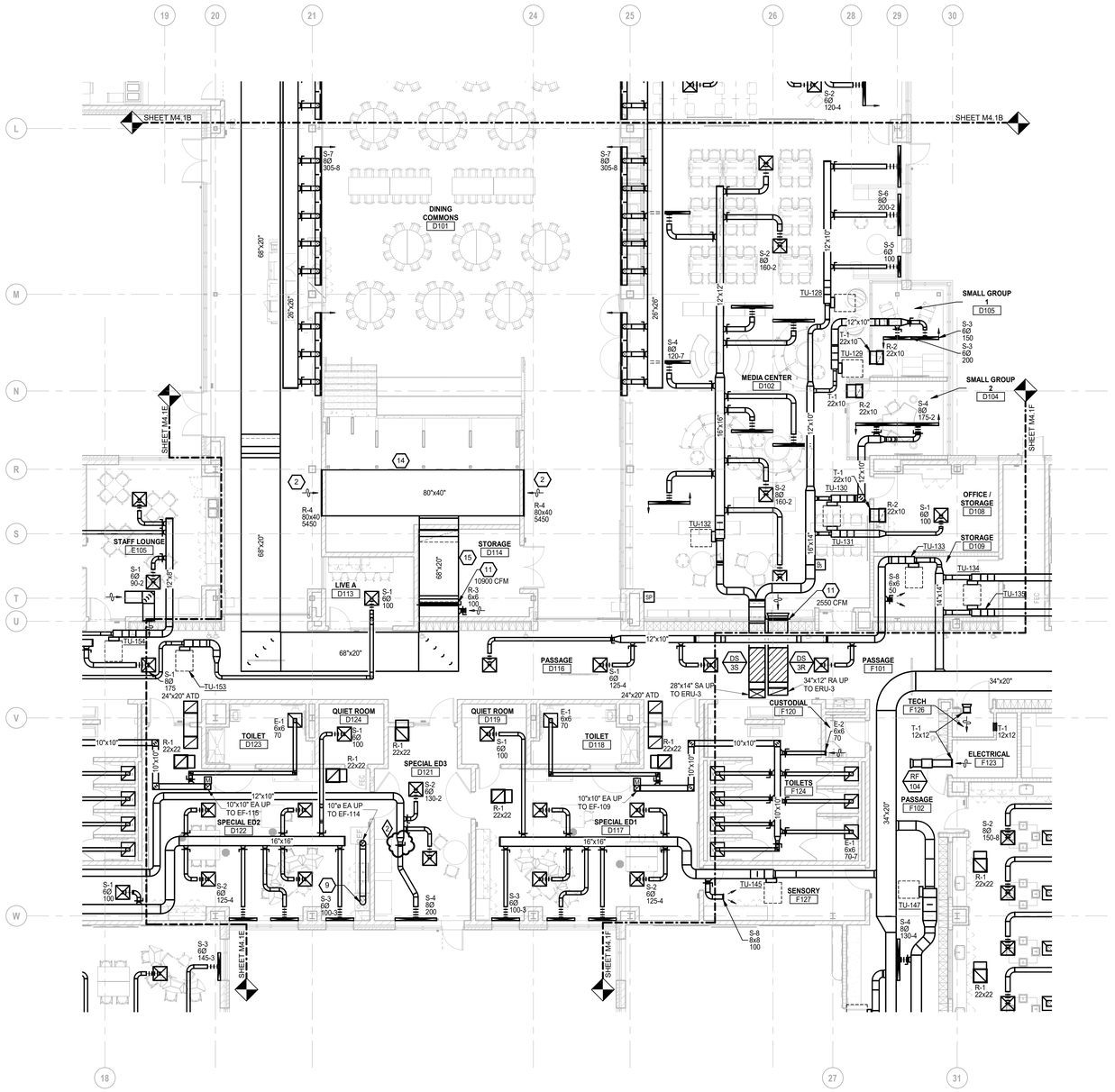

FIRST LEVEL SHEET METAL PLAN - ZONE 'D'

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

SHEET METAL GENERAL NOTES:

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5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONED LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.

7 REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

CONSTRUCTION KEY NOTES:

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2 MOUNT BOTTOM OF GRILLE 8 INCHES A.F.F.

3 ROUTE 6ø DRYER EXHAUST UP THROUGH ROOF AND TERMINATE WITH GOOSENECK.

4 PROVIDE DIGITAL TIMER FOR INDICATED EF.

5 REFER TO LEARNING STUDIO E128 FOR TYPICAL SHEET METAL LAYOUT.

6 REFER TO LEARNING STUDIO E134 FOR TYPICAL SHEET METAL LAYOUT.

7 REFER TO ACTIVE STUDIO F138 FOR TYPICAL SHEET METAL LAYOUT.

8 PROVIDE FABRIC DUCTWORK IN GYMNASIUM. MECHANICAL CONTRACTOR TO COORDINATE LAYOUT WITH STRUCTURAL STEEL AND JOIST CONFIGURATION.

9 ROUTE GREASE DUCT FROM HOOD UP TO EXHAUST FAN.

10 ROUTE 6ø EA UP THROUGH ROOF TO ROOF CAP ACCESSORY.

11 BALANCE TO AIRFLOW INDICATED.

12 ROUTE 6ø EA THROUGH WALL TO BRICK VENT ACCESSORY.

13 PROVIDE DOUBLE WALLED DUCT.

14 DUCT LOCATED BENEATH STAIRS.

15 ROUTE DUCT TIGHT TO CEILING.

16 REFER TO FOOD SERVICE DRAWINGS FOR CONNECTION TO DISHWASHER.

17 28x10 MAKEUP AIR CONNECTION TO HOOD.

18 PROVIDE 4" CONCRETE CURB AROUND ALL MEZZANINE FLOOR DUCT PENETRATIONS.

19 24x12 SA STACKED ABOVE 24x12 EA.

20 16x12 SA STACKED ABOVE 12x12 EA.

TMP ARCHITECTURE

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PROJECT TITLE

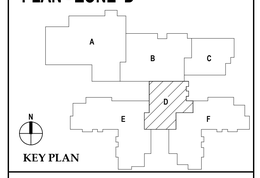
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL SHEET METAL PLAN - ZONE 'D'



KEY PLAN

ISSUE DATES

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DRAWN	JRB
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22102

DRAWING NO.
M4.1D

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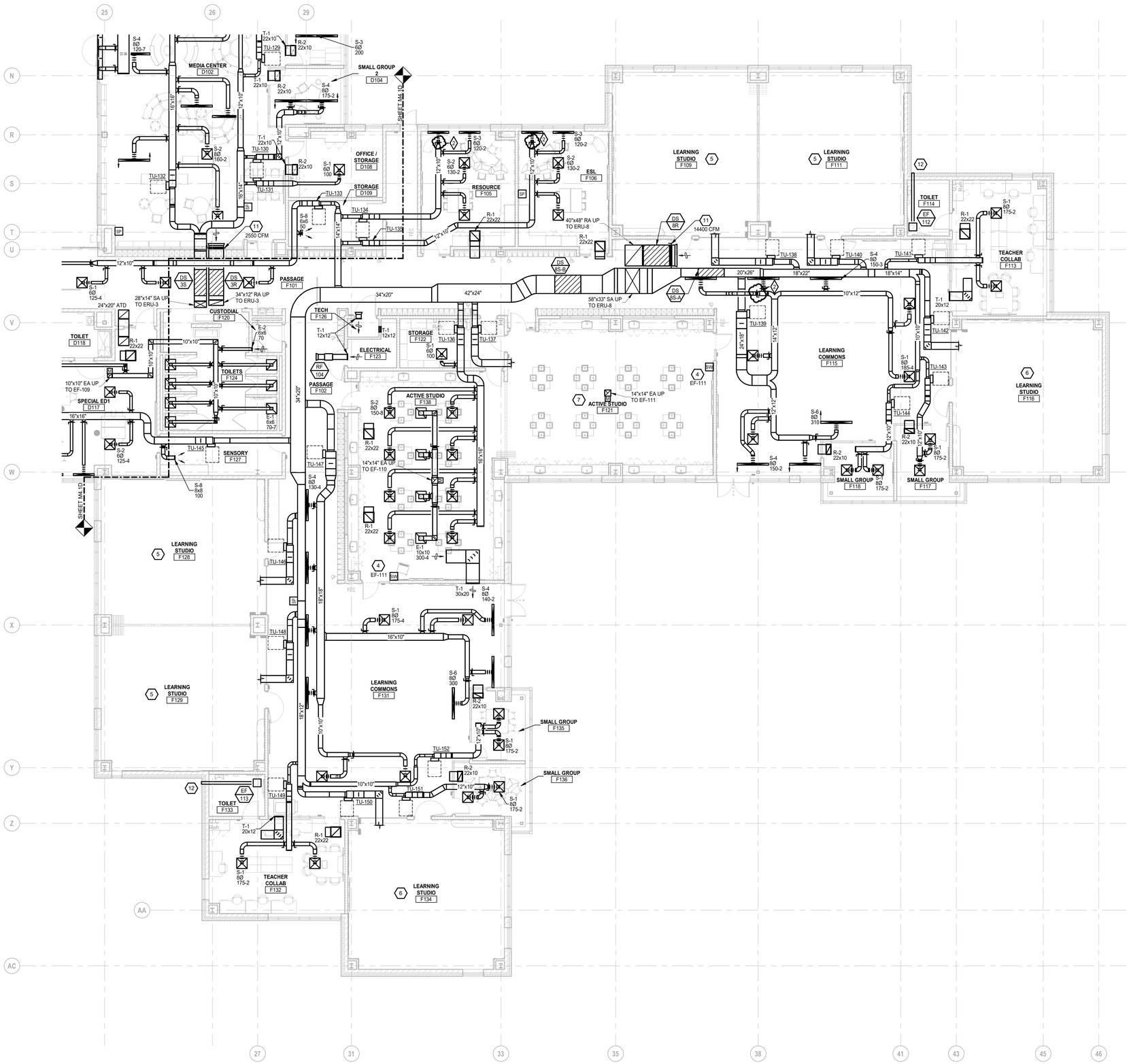

FIRST LEVEL SHEET METAL PLAN - ZONE 'F'

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

SHEET METAL GENERAL NOTES:

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7 REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

CONSTRUCTION KEY NOTES:

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2 MOUNT BOTTOM OF GRILLE 8 INCHES A.F.F.

3 ROUTE 6ø DRYER EXHAUST UP THROUGH ROOF AND TERMINATE WITH GOOSENECK.

4 PROVIDE DIGITAL TIMER FOR INDICATED EF.

5 REFER TO LEARNING STUDIO E126 FOR TYPICAL SHEET METAL LAYOUT.

6 REFER TO LEARNING STUDIO E134 FOR TYPICAL SHEET METAL LAYOUT.

7 REFER TO ACTIVE STUDIO F138 FOR TYPICAL SHEET METAL LAYOUT.

8 PROVIDE FABRIC DUCTWORK IN GYMNASIUM. MECHANICAL CONTRACTOR TO COORDINATE LAYOUT WITH STRUCTURAL STEEL AND JOIST CONFIGURATION.

9 ROUTE GREASE DUCT FROM HOOD UP TO EXHAUST FAN.

10 ROUTE 6ø EA UP THROUGH ROOF TO ROOF CAP ACCESSORY.

11 BALANCE TO AIRFLOW INDICATED.

12 ROUTE 6ø EA THROUGH WALL TO BRICK VENT ACCESSORY.

13 PROVIDE DOUBLE WALLED DUCT.

14 DUCT LOCATED BENEATH STAIRS.

15 ROUTE DUCT TIGHT TO CEILING.

16 REFER TO FOOD SERVICE DRAWINGS FOR CONNECTION TO DISHWASHER.

17 28x10 MAKEUP AIR CONNECTION TO HOOD.

18 PROVIDE 4" CONCRETE CURB AROUND ALL MEZZANINE FLOOR DUCT PENETRATIONS.

19 24x12 SA STACKED ABOVE 24x12 EA.

20 16x12 SA STACKED ABOVE 12x12 EA.

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PROJECT TITLE

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Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

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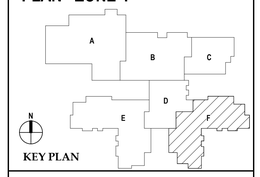

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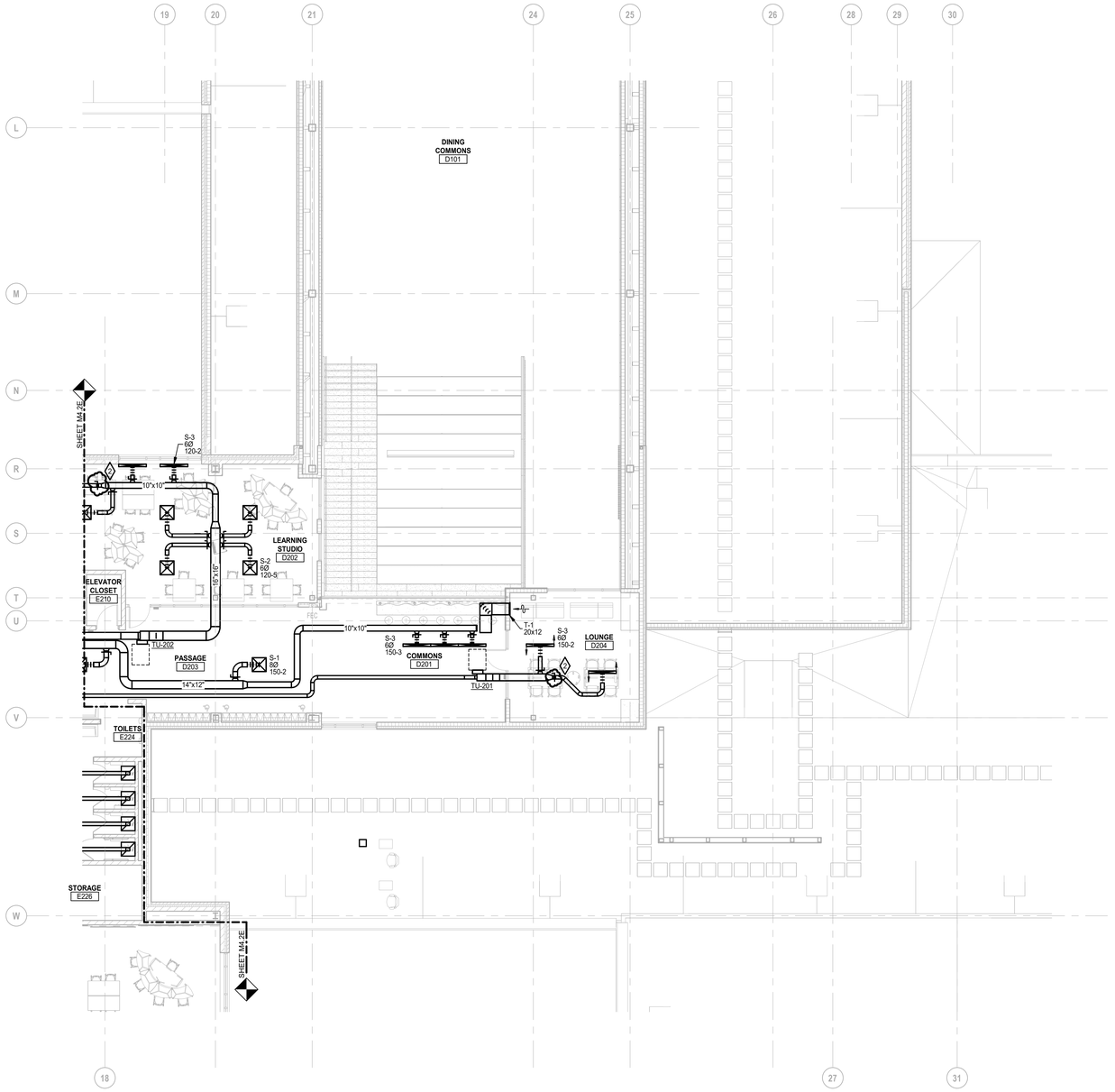
PROJECT NO.

22102

DRAWING NO.

M4.1F

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



SECOND LEVEL SHEET METAL PLAN - ZONE 'D'

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

SHEET METAL GENERAL NOTES:

1 THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 PIPING AND DUCTWORK SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.

4 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONED LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.

7 REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

CONSTRUCTION KEY NOTES:

1 RELOCATED KILN BY OWNER. ROUTE 6ø INCHES EXHAUST CONNECTION FROM KILN UP THROUGH ROOF AND TERMINATE WITH VENT CAP. KILN EXHAUST SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER RECOMMENDATIONS.

2 MOUNT BOTTOM OF GRILLE 8 INCHES A.F.F.

3 ROUTE 6ø DRYER EXHAUST UP THROUGH ROOF AND TERMINATE WITH GOOSENECK.

4 PROVIDE DIGITAL TIMER FOR INDICATED EF.

5 REFER TO LEARNING STUDIO E128 FOR TYPICAL SHEET METAL LAYOUT.

6 REFER TO LEARNING STUDIO E134 FOR TYPICAL SHEET METAL LAYOUT.

7 REFER TO ACTIVE STUDIO F138 FOR TYPICAL SHEET METAL LAYOUT.

8 PROVIDE FABRIC DUCTWORK IN GYMNASIUM. MECHANICAL CONTRACTOR TO COORDINATE LAYOUT WITH STRUCTURAL STEEL AND JOIST CONFIGURATION.

9 ROUTE GREASE DUCT FROM HOOD UP TO EXHAUST FAN.

10 ROUTE 6ø EA UP THROUGH ROOF TO ROOF CAP ACCESSORY.

11 BALANCE TO AIRFLOW INDICATED.

12 ROUTE 6ø EA THROUGH WALL TO BRICK VENT ACCESSORY.

13 PROVIDE DOUBLE WALLED DUCT.

14 DUCT LOCATED BENEATH STAIRS.

15 ROUTE DUCT TIGHT TO CEILING.

16 REFER TO FOOD SERVICE DRAWINGS FOR CONNECTION TO DISHWASHER.

17 28x10 MAKEUP AIR CONNECTION TO HOOD.

18 PROVIDE 4" CONCRETE CURB AROUND ALL MEZZANINE FLOOR DUCT PENETRATIONS.

19 24x12 SA STACKED ABOVE 24x12 EA.

20 16x12 SA STACKED ABOVE 12x12 EA.

TMP ARCHITECTURE

TMP ARCHITECTURE INC

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REGISTRATION SEAL

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www.PeterBassoAssociates.com
PBA Project No: 2023.0154

PROJECT TITLE

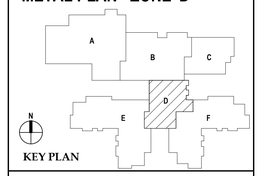
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

SECOND LEVEL SHEET METAL PLAN - ZONE 'D'



KEY PLAN

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	JRB
CHECKED	KLH
APPROVED	SVM

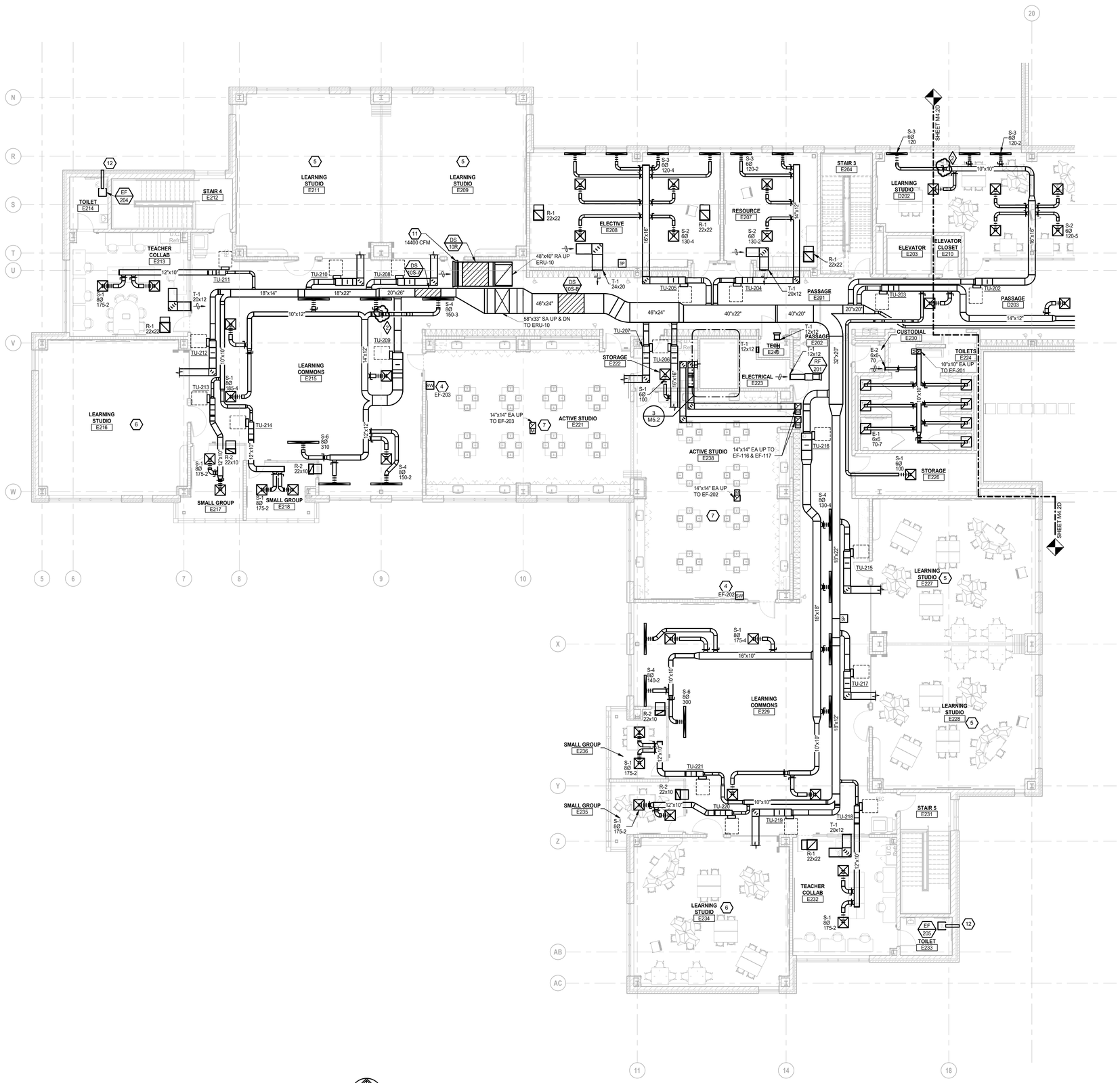
PROJECT NO.

22102

DRAWING NO.

M4.2D

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



SECOND LEVEL SHEET METAL PLAN - ZONE 'E'

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

SHEET METAL GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING AND DUCTWORK SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONED LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.
7. REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

CONSTRUCTION KEY NOTES:

1. RELOCATED KILN BY OWNER. ROUTE 6ø INCHES EXHAUST CONNECTION FROM KILN UP THROUGH ROOF AND TERMINATE WITH VENT CAP. KILN EXHAUST SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER RECOMMENDATIONS.
2. MOUNT BOTTOM OF GRILLE 8 INCHES A.F.F.
3. ROUTE 6ø DRYER EXHAUST UP THROUGH ROOF AND TERMINATE WITH GOOSENECK.
4. PROVIDE DIGITAL TIMER FOR INDICATED EF.
5. REFER TO LEARNING STUDIO E128 FOR TYPICAL SHEET METAL LAYOUT.
6. REFER TO LEARNING STUDIO E134 FOR TYPICAL SHEET METAL LAYOUT.
7. REFER TO ACTIVE STUDIO F138 FOR TYPICAL SHEET METAL LAYOUT.
8. PROVIDE FABRIC DUCTWORK IN GYMNASIUM. MECHANICAL CONTRACTOR TO COORDINATE LAYOUT WITH STRUCTURAL STEEL AND JOIST CONFIGURATION.
9. ROUTE GREASE DUCT FROM HOOD UP TO EXHAUST FAN.
10. ROUTE 6ø EA UP THROUGH ROOF TO ROOF CAP ACCESSORY.
11. BALANCE TO AIRFLOW INDICATED.
12. ROUTE 6ø EA THROUGH WALL TO BRICK VENT ACCESSORY.
13. PROVIDE DOUBLE WALLED DUCT.
14. DUCT LOCATED BENEATH STAIRS.
15. ROUTE DUCT TIGHT TO CEILING.
16. REFER TO FOOD SERVICE DRAWINGS FOR CONNECTION TO DISHWASHER.
17. 28x10 MAKEUP AIR CONNECTION TO HOOD.
18. PROVIDE 4" CONCRETE CURB AROUND ALL MEZZANINE FLOOR DUCT PENETRATIONS.
19. 24x12 SA STACKED ABOVE 24x12 EA.
20. 16x12 SA STACKED ABOVE 12x12 EA.

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PBA Project No.: 2023.0154

PROJECT TITLE

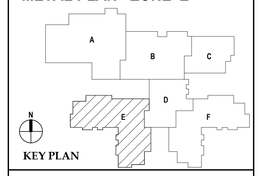
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

SECOND LEVEL SHEET METAL PLAN - ZONE 'E'



KEY PLAN

ISSUE DATES

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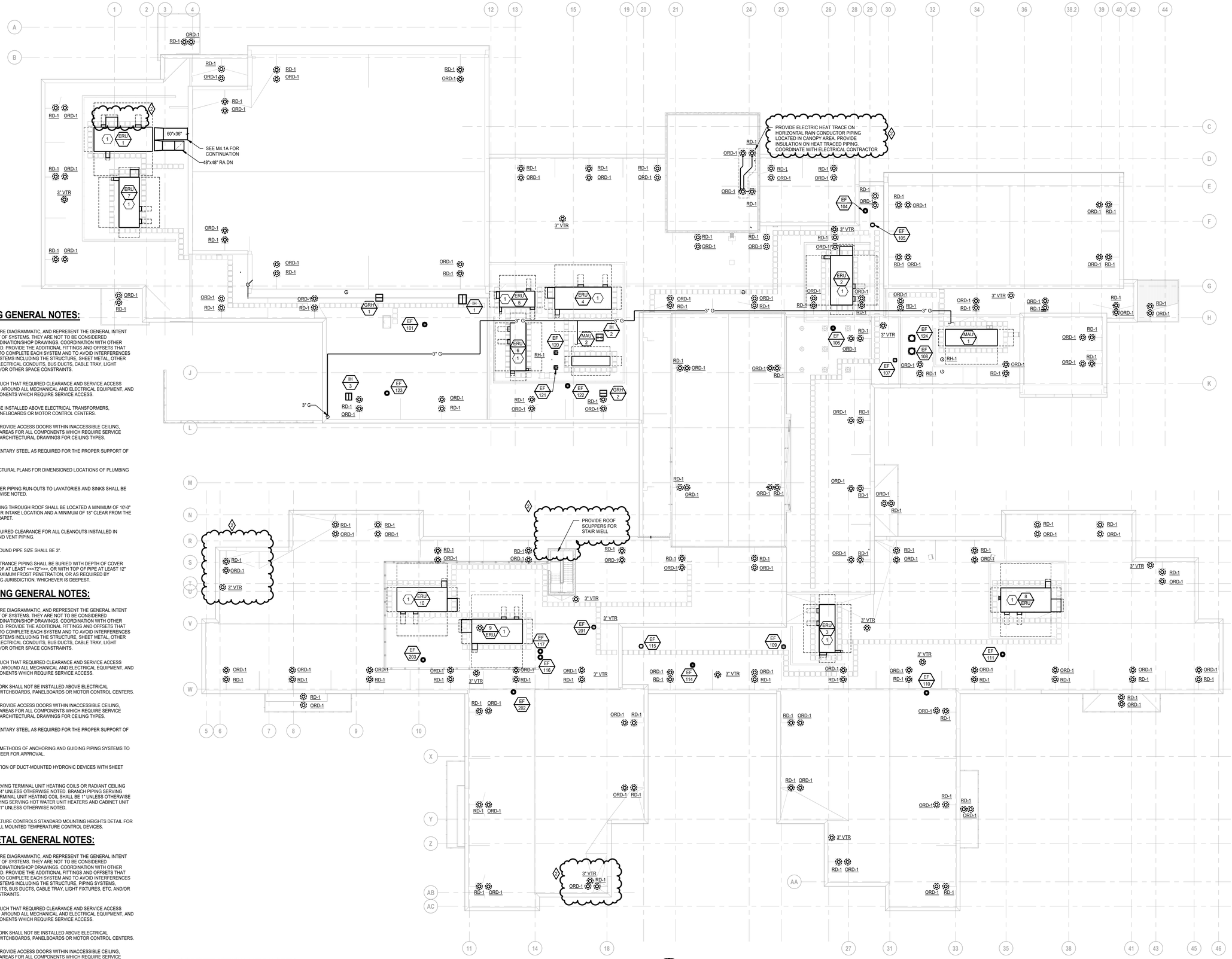
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22102

DRAWING NO.
M4.2E

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



PLUMBING GENERAL NOTES:

1 THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.

4 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.

7 HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.

8 PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.

9 PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.

10 MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".

11 WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST <<72>>>, OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

HVAC PIPING GENERAL NOTES:

1 THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.

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5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 SUBMIT PROPOSED METHODS OF ANCHORING AND GUIDING PIPING SYSTEMS TO STRUCTURAL ENGINEER FOR APPROVAL.

7 COORDINATE LOCATION OF DUCT-MOUNTED HYDRONIC DEVICES WITH SHEET METAL TRADES.

8 BRANCH PIPING SERVING TERMINAL UNIT HEATING COILS OR RADIANT CEILING PANELS SHALL BE 3/4" UNLESS OTHERWISE NOTED. BRANCH PIPING SERVING MORE THAN ONE TERMINAL UNIT HEATING COIL SHALL BE 1" UNLESS OTHERWISE NOTED. BRANCH PIPING SERVING HOT WATER UNIT HEATERS AND CABINET UNIT HEATERS SHALL BE 1" UNLESS OTHERWISE NOTED.

9 REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

SHEET METAL GENERAL NOTES:

1 THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.

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6 REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONED LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.

7 REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

CONSTRUCTION KEY NOTES:

1 PROVIDE HEAT TRACE ON ERU CONDENSATE DRAIN AND INSULATE PIPING.

ROOF MECHANICAL PLAN

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

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PBA Project No.: 2023.0154

PROJECT TITLE

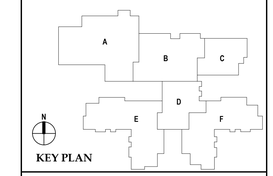
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

ROOF MECHANICAL PLAN



KEY PLAN

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

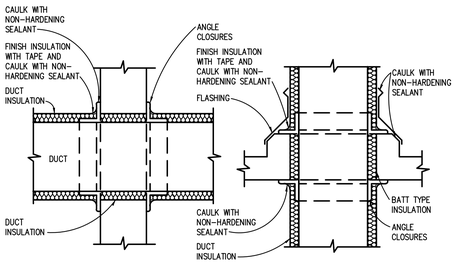
DRAWN	KLH
CHECKED	KLH
APPROVED	SVM

PROJECT NO.

22102

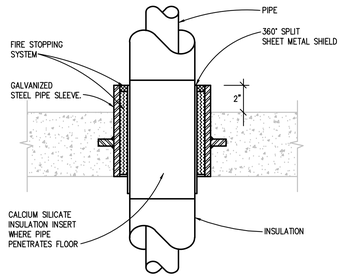
DRAWING NO.

M5.1



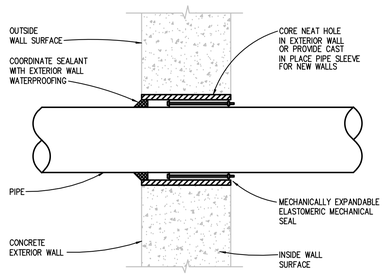
VERTICAL OR HORIZONTAL (NON FIRE RATED ASSEMBLY) DUCT PENETRATION DETAIL

NO SCALE



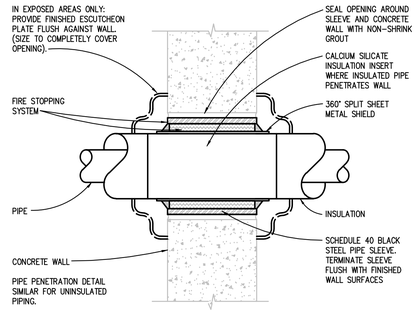
NEW FLOOR PIPE PENETRATION DETAIL

NO SCALE



EXTERIOR BELOW GRADE WALL PIPE PENETRATION DETAIL

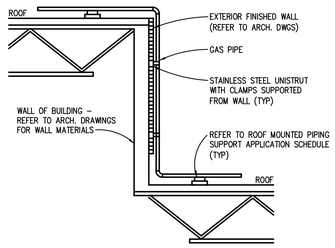
NO SCALE



DETAIL INDICATES THE INSTALLATION REQUIREMENTS FOR A FIRE RATED ASSEMBLY. FOR A NON-FIRE RATED ASSEMBLY PACK SLEEVED OPENING WITH INSULATION MATERIAL AND CAULK WITH NON-HARDENING SEALANT.

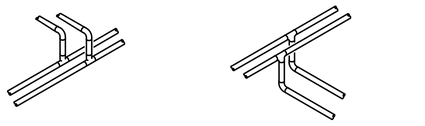
FIRE RATED AND NON-FIRE RATED POURED CONCRETE OR BLOCK WALL PIPE PENETRATION DETAIL

NO SCALE



GAS PIPE MOUNTING DETAIL

NO SCALE



BRANCH CONNECTION OFF TOP

APPLIES TO THE FOLLOWING SYSTEMS:
DOMESTIC WATER
STEAM & CONDENSATE
LABORATORY GASES
LABORATORY VACUUM
COMPRESSED AIR
NATURAL GAS

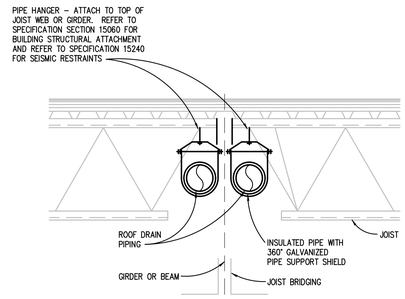
BRANCH CONNECTION OFF BOTTOM

APPLIES TO THE FOLLOWING SYSTEMS:
HOT WATER HEATING
CHILLED WATER
CONDENSER WATER
ENERGY RECOVERY
PROCESS COOLING WATER

NOTE: BOTTOM AS INDICATED OR SIDE CONNECTION IS ACCEPTABLE. CONNECTION ABOVE CENTERLINE OF MAINS IS NOT ACCEPTABLE.

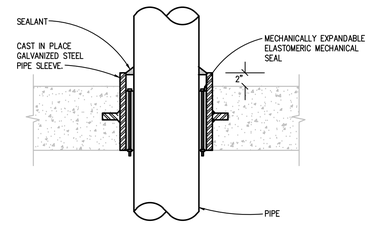
TYPICAL BRANCH TAKE-OFF CONNECTION PIPING DETAIL

NO SCALE



ROOF DRAIN PIPING DETAIL

NO SCALE



NEW SLAB ON GRADE FLOOR PIPE PENETRATION DETAIL

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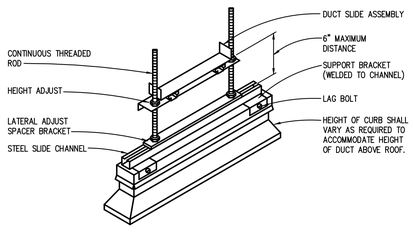
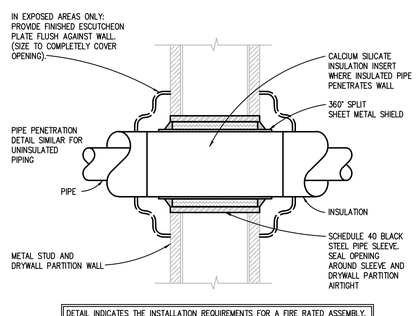


DUCT MOUNTING PEDESTAL DETAIL (ROOF MOUNTED DUCTWORK)

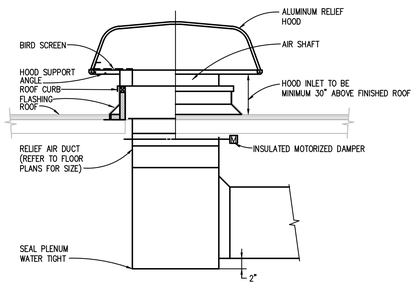
NO SCALE



DETAIL INDICATES THE INSTALLATION REQUIREMENTS FOR A FIRE RATED ASSEMBLY. FOR A NON-FIRE RATED ASSEMBLY PACK SLEEVED OPENING WITH INSULATION MATERIAL AND CAULK WITH NON-HARDENING SEALANT.

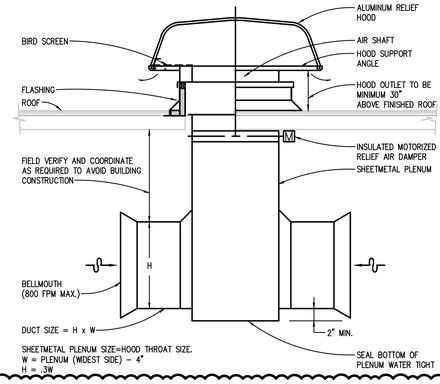
FIRE RATED AND NON-FIRE RATED METAL STUD AND DRYWALL PARTITION WALL PIPE PENETRATION DETAIL

NO SCALE



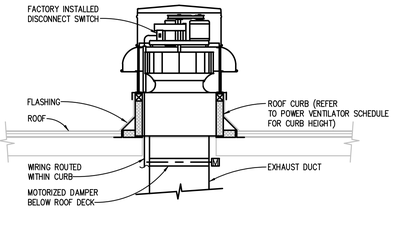
DUCTED INTAKE OR RELIEF HOOD INSTALLATION DETAIL

NO SCALE



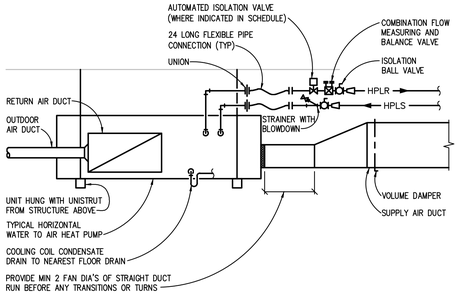
RELIEF AIR DUCTWORK DETAIL

NO SCALE



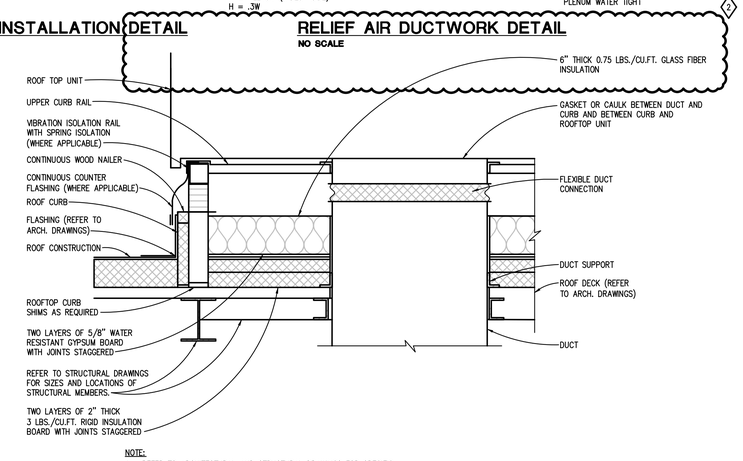
ROOF MOUNTED POWER VENTILATOR EXHAUST FAN DETAIL

NO SCALE



HORIZONTAL HEAT PUMP PIPING DIAGRAM AND INSTALLATION DETAIL

NO SCALE



NOTE:
1. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SPECIFIC FLASHING AND SUPPORT DETAILS.

ROOF TOP UNIT CURB SOUND ATTENUATION DETAIL

NO SCALE

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PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
Troy, Michigan

DRAWING TITLE

MECHANICAL DETAILS

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

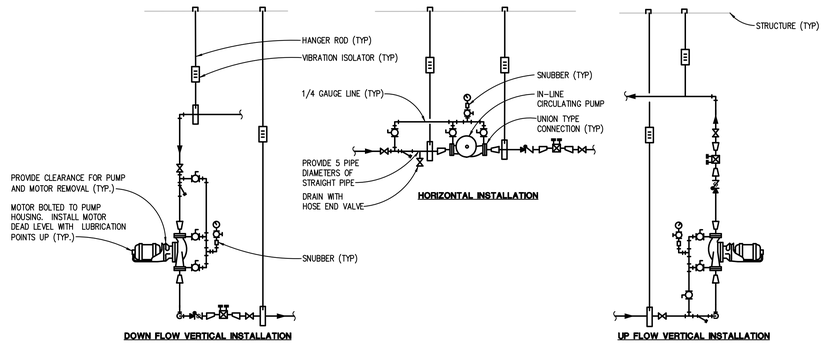
DRAWN	JRB
CHECKED	KLH
APPROVED	SVM

PROJECT NO.

22102

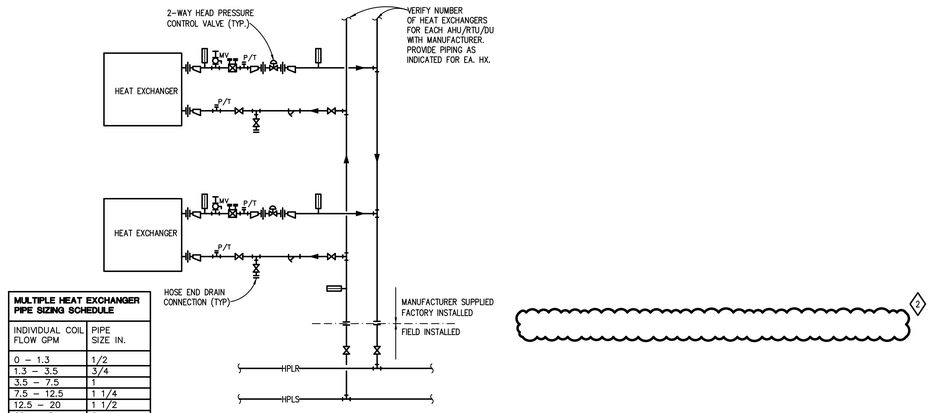
DRAWING NO.

M6.1



IN-LINE FLEXIBLE COUPLING (BELL AND GOSSETT SERIES 60) CIRCULATING PUMP PIPING DIAGRAM

NO SCALE

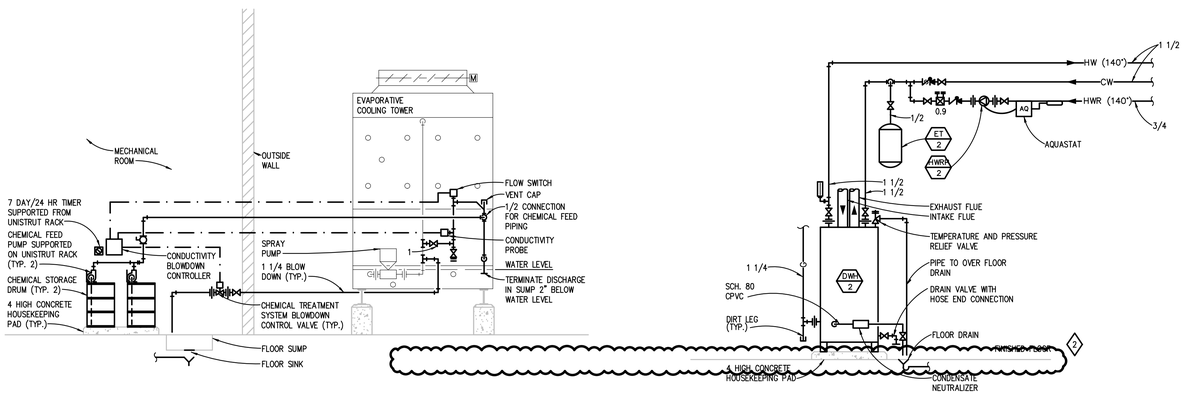


MULTIPLE HEAT EXCHANGER PIPE SIZING SCHEDULE

INDIVIDUAL COIL FLOW GPM	PIPE SIZE IN.
0 – 1.3	1/2
1.3 – 3.5	3/4
3.5 – 7.5	1
7.5 – 12.5	1 1/4
12.5 – 20	1 1/2
20 – 45	2
45 – 75	2 1/2
75 – 130	3
130 – 300	4

ERU HEAT PUMP PIPING DIAGRAM WITH 2-WAY VALVES

(ONLY FOR ERU-X)



CLOSED CIRCUIT EVAPORATIVE COOLER SUMP CHEMICAL TREATMENT SYSTEM

NO SCALE

GAS FIRED CONDENSING WATER HEATER PIPING DIAGRAM

NO SCALE

HOT WATER TEMPERATURE SET-UP

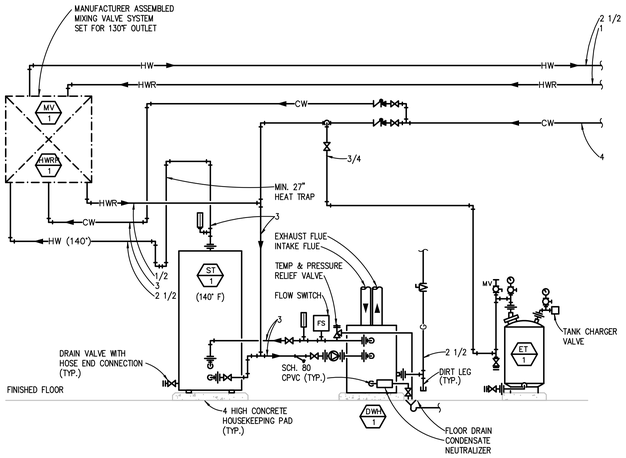
1. CREATE DEMAND GREATER THAN MIXING VALVE'S MINIMUM FLOW RATING USING HOSE CONNECTION ON HW LINE WITHIN ASSEMBLY. IF FLOW CAN NOT BE ACHIEVED THIS WAY, TURN ON FIXTURES WITHIN THE BUILDING.
2. ADJUST TEMPERATURE TO 130°F AND LET STABILIZE. RE-ADJUST AS NECESSARY.
3. SET HIGH LIMIT ON AQUASTAT TO 132°F.

HOT WATER RETURN SET-UP (TO BE DONE AFTER HOT WATER TEMPERATURE SET-UP)

1. ENSURE THERE IS NO FLOW IN THE SYSTEM.
2. SET LOW LIMIT ON AQUASTAT TO 127°F.
3. START RETURN PUMP.
4. OPEN BALANCE VALVE ON RETURN LINE GOING BACK TO WATER HEATER TO 10% OF RETURN FLOW.
5. LET PUMP RUN FOR MINIMUM 30 MINUTES. IF TEMPERATURE INCREASES ON OUTLET OF MIXING VALVE CLOSE THE BALANCE VALVE UNTIL TEMPERATURE IS MAINTAINED. IF TEMPERATURE DECREASES, OPEN THE BALANCE VALVE UNTIL TEMPERATURE IS MAINTAINED.
6. ALLOW PUMP TO CYCLE TO ENSURE IT STARTS AND STOPS AT AQUASTAT SETTINGS.

140° HOT WATER RETURN SET-UP (TO BE DONE AFTER HOT WATER TEMPERATURE SET-UP)

1. ENSURE THERE IS NO FLOW IN THE SYSTEM
2. SET HIGH LIMIT ON AQUASTAT TO 142°F
3. SET LOW LIMIT ON AQUASTAT TO 137°F.
4. START RETURN PUMP.
5. ALLOW PUMP TO CYCLE TO ENSURE IT STARTS AND STOPS AT AQUASTAT SETTINGS.



SINGLE CONDENSING WATER HEATER WITH SINGLE STORAGE TANK AND MIXING VALVE PIPING DIAGRAM

NO SCALE

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APPROVED	SVM

PROJECT NO.

22102

DRAWING NO.

M6.6

ABOVEGROUND HVAC PIPING & VALVE APPLICATION SCHEDULE

PIPE SIZE (INCHES)	MATERIAL: SOFT COPPER TYPE K	SOFT COPPER TYPE L	HARD COPPER TYPE L	HARD COPPER TYPE M	CARBON STEEL (SCHED. 40)	CARBON STEEL (SCHED. 80)	CARBON STEEL (STD.)	COPPER TYPE DWV	CONNECTION: SOLDERED	BRAZED	WELDED	THREADED	FLANGED	GROOVED	PRESSURE SEAL	MECHANICALLY FORMED TEE	ISOLATION VALVES: BALL	GENERAL SERVICE BUTTERFLY	HI-PERF BUTTERFLY	GATE	KEYED NOTES
HEATING HOT WATER SUPPLY & RETURN - MIN. WORKING PRESS. & TEMP.: 125 PSIG AT 200 DEG F																					
UP TO 2				X								X					X				
UP TO 2		X							X	X					X	X	X				
2-1/2 TO 4				X							X		X	X				X			A
2-1/2 TO 4		X								X				X	X	X		X			A
6 TO 8				X							X		X	X				X			A
6 TO 8		X								X				X		X		X			A
10				X							X		X	X				X			A
12							X				X		X	X				X			A
14 AND LARGER							X				X		X					X			A
HEAT PUMP LOOP - MIN. WORKING PRESS. & TEMP.: 125 PSIG AT 200 DEG F																					
UP TO 2				X								X					X				
UP TO 2		X							X	X					X	X	X				
2-1/2 TO 4				X							X		X	X				X			A
2-1/2 TO 4		X								X				X	X	X		X			A
6 TO 8				X							X		X	X				X			A
6 TO 8		X								X				X		X		X			A
10				X							X		X	X				X			A
12							X				X		X	X				X			A
14 AND LARGER							X				X		X					X			A

GENERAL NOTES:
1. "X" INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A PIPING SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. DISSIMILAR METAL PIPING JOINTS: CONSTRUCT JOINTS USING DIELECTRIC FITTINGS COMPATIBLE WITH BOTH PIPING MATERIALS. IF A BRONZE VALVE CONNECTS THE DISSIMILAR METALS NO FURTHER DIELECTRIC ISOLATION IS REQUIRED.
   a. NPS 2 AND SMALLER: USE BRASS COUPLING, NIPPLE, OR UNION.
   b. NPS 2-1/2 AND LARGER: USE DIELECTRIC FLANGE KITS.
3. USE UNIONS OR FLANGES AT VALVE AND EQUIPMENT CONNECTIONS.
4. HVAC EQUIPMENT DRAINS, VENTS, SAFETY VALVE PIPING, BLOWDOWN PIPING AND THE LIKE SHALL BE SAME PIPING MATERIAL AS ASSOCIATED PIPING SYSTEM.
5. GROOVED END VALVES MAY BE USED WITH GROOVED PIPING.

KEYED NOTES:
A. GROOVED AND FLANGED FITTINGS, JOINTS, AND COUPLINGS, IF INDICATED AS AN ACCEPTABLE SELECTION, MAY BE USED IN ACCESSIBLE LOCATIONS FOR THIS PIPING SYSTEM ONLY. ACCESSIBLE LOCATIONS ARE DEFINED AS EXPOSED CONSTRUCTION OR ABOVE LAY-IN CEILINGS.
B. BALL VALVE WITH 250 PSIG STEAM TRIM.
C. BALL VALVE WITH 150 PSIG STEAM TRIM.

ABOVEGROUND HVAC PIPE & ACCESSORY INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES): FLEXIBLE ELASTOMERIC	FIBERGLASS	MINERAL WOOL	POLYISOCYANURATE	PHENOLIC	CELLULAR GLASS	CALCIUM SILICATE	FIELD-APPLIED JACKET MATERIAL: ALUMINUM	STAINLESS STEEL	PVC	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	PVDC (INDOOR)	PVDC (OUTDOOR)	KEYED NOTES
INDOOR PIPE SYSTEM AND SIZE (INCHES):														
HEATING HOT WATER SUPPLY & RETURN 200 DEG F AND LOWER														
• NPS 1-1/4 AND SMALLER		1.5							X	X				A
• NPS 1-1/2 AND LARGER		2							X	X				A
HEAT PUMP LOOP SUPPLY & RETURN BELOW 60 DEG F.														
• NPS 1-1/4 AND SMALLER	1	1							X	X				A
• NPS 1-1/2 AND LARGER	1.5	1.5							X	X				A
OUTDOOR (ABOVEGROUND AND TUNNEL PIPE SYSTEM AND SIZE (INCHES):														
HEAT PUMP LOOP SUPPLY & RETURN	2.5	2.5							X		X			B

UNLESS OTHERWISE INDICATED OR SCHEDULED, THE FOLLOWING DO NOT REQUIRE INSULATION:
DIRECT BURIED COOLING SYSTEM PIPING.
PIPING THAT CONVEYS FLUIDS HAVING DESIGN OPERATING TEMPERATURE RANGE BETWEEN 60 DEG F. AND 105 DEG F., INCLUSIVE.

GENERAL NOTES:
1. "X" OR THICKNESS IN INCHES INDICATED ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED, CONTACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. INSULATE PIPING WITHIN AIR HANDLING EQUIPMENT THE SAME AS INDOOR PIPING. PROVIDE ALUMINUM OR STAINLESS STEEL JACKET.
3. FOR PIPING NPS 1-1/4 AND SMALLER WITHIN PARTITIONS IN CONDITIONED SPACES INSULATION MAY BE REDUCED BY ONE-INCH THICKNESS, BUT NOT TO LESS THAN ONE-INCH THICKNESS.
4. FOR PIPING NPS 1 AND SMALLER, INSULATION IS NOT REQUIRED FOR STRAINERS, CONTROL VALVES, AND BALANCING VALVES.

KEYED NOTES:
A. PROVIDE FIELD APPLIED JACKET FOR PIPING EXPOSED IN EQUIPMENT ROOMS, STORAGE ROOMS, JANITORS CLOSETS, RECEIVING ROOMS, TEST AREAS, CIRCULATION AREAS AND SUCH AREAS SUBJECT TO DAMAGE, WITHIN 10 FEET (3 METERS) OF FINISHED FLOOR.
B. PROVIDE MANUFACTURER'S RECOMMENDED PROTECTIVE COATING FOR FLEXIBLE ELASTOMETRIC THERMAL INSULATION.
C. STEAM AND CONDENSATE PIPING JACKET SHALL BE STUCCO EMBOSSED.
D. PIPING WITHIN ENERGY RECOVERY UNITS SHALL BE TYPE 304 STAINLESS STEEL, SMOOTH; 0.010 INCH THICK. SEAMS AND JOINTS CAULKED WITH CHEMICALLY RESISTANT SEALER.

MECHANICAL EQUIPMENT INSULATION APPLICATION SCHEDULE

	INSULATION MATIERAL & THICKNESS (INCHES): FLEXIBLE ELASTOMERIC	FIBERGLASS, LARGE DIAMETER PIPE & TANK	FIBERGLASS BOARD	POLYISOCYANURATE	PHENOLIC	CELLULAR GLASS	CALCIUM SILICATE	FIELD APPLIED JACKET MATERIAL: ALUMINUM	PVC	KEYED NOTES
DOMESTIC COLD WATER PUMPS	1		1					X	X	A
DUAL-SERVICE HEATING AND COOLING PUMPS			2					X	X	
HEAT RECOVERY PUMPS			2					X	X	
DOMESTIC HOT, COLD, AND CHILLED WATER HYDROPNEUMATIC TANKS	1	1	1							A
HEATING WATER AIR SEPARATORS		2	2					X	X	
DOMESTIC COLD & CHILLED WATER STORAGE TANKS	1	1	1					X	X	A
INDOOR THERMAL STORAGE & CHILLED WATER BUFFER TANKS		3	3					X	X	
PIPING SYSTEM FILTER HOUSINGS		2	2					X	X	

GENERAL NOTES:
1. "X" OR THICKNESS IN INCHES INDICATED ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED.
2. REFER TO SPECIFICATIONS FOR FACTORY INSULATED EQUIPMENT.

KEYED NOTES:
A. FIELD APPLIED JACKETS NOT REQUIRED FOR FLEXIBLE ELASTOMERIC INSULATION.
B. SELECT INSULATION THICKNESS TO PROVIDE MINIMUM R-VALUE OF 12.5.

SCHEDULES GENERAL NOTES:

TYPICAL FOR ALL SCHEDULE SHEETS:

1 REFER TO ELECTRICAL STANDARD SCHEDULES, ONE LINE DIAGRAM AND PANEL SCHEDULES FOR ADDITIONAL ELECTRICAL INFORMATION

2 PROVIDE THE FOLLOWING FACTORY-WIRED ELECTRICAL OPTIONS/ACCESSORIES WHERE INDICATED IN SCHEDULE:
A - NON-FUSED DISCONNECT SWITCH
B - UNIT SHALL BE SINGLE POINT ELECTRICAL CONNECTION WITH FACTORY INSTALLED DISCONNECTING MEANS AND ALL REQUIRED STARTERS AND CONTROLS
C - SERVICE RECEPTACLE
D - FUSED DISCONNECT SWITCH
E - COMBINATION STARTER
F - UNIT SHALL HAVE (2) SINGLE POINT CONNECTIONS WITH FACTORY INSTALLED DISCONNECTING MEANS AND ALL REQUIRED STARTERS AND CONTROLS (1) CONNECTION SHALL BE FOR CONDENSING SECTION AND (1) CONNECTION SHALL BE FOR THE REMAINDER OF THE UNIT.

3 FOR MODULATION/CONTROL TYPE COLUMN, "VFC" INDICATES VARIABLE FREQUENCY CONTROLLERS, "AUTO" INDICATES AUTOMATIC OPERATION (CONTROLLED BY TEMPERATURE CONTROLS OR SELF CONTAINED CONTROLS), "MANUAL" INDICATES HAND OPERATION.

4 IF VARIABLE FREQUENCY CONTROLLERS ARE INDICATED TO BE PROVIDED AND ARE NOT INSTALLED INTEGRAL TO THE UNIT, VARIABLE FREQUENCY CONTROLLERS SHALL BE SUPPLIED BY THE MECHANICAL CONTRACTOR (UNLESS OTHERWISE NOTED) AND INSTALLED BY THE ELECTRICAL CONTRACTOR INCLUDING THE LINE SIDE AND LOAD SIDE WIRING TO THE MOTOR AND INCLUDING MISCELLANEOUS STEEL REQUIRED FOR THE SUPPORT AND MOUNTING OF THE VFC. REFER TO FLOOR PLANS FOR LOCATION.

5 WHERE EQUIPMENT IS INDICATED TO HAVE A SINGLE POINT ELECTRICAL CONNECTION, THAT EQUIPMENT SHALL COME COMPLETE WITH FACTORY INSTALLED STARTERS, MOTOR OVERLOAD PROTECTION, CONTACTORS, FUSING AND ALL NECESSARY INTERNAL WIRING AND CONTROLS. PROVIDE A FACTORY MOUNTED UNIT DISCONNECTING MEANS WHERE THE ELECTRICAL CONTRACTOR SHALL MAKE SINGLE POINT CONNECTION. INSTALL PACKAGED EQUIPMENT SUCH THAT THE ELECTRICAL CONNECTION AND CONTROLS ARE ACCESSIBLE AND HAVE CLEARANCES MEETING THE NATIONAL ELECTRICAL CODE.

6 WHERE PACKAGED EQUIPMENT IS PROVIDED, NAMEPLATE MUST INDICATE MAXIMUM OVERCURRENT PROTECTION BY HACR RATED CIRCUIT BREAKERS OR FUSES. IF FUSE PROTECTION ONLY IS INDICATED, PROVIDE A FUSIBLE DISCONNECT AND FUSES WITH THE UNIT.

7 WHERE EQUIPMENT IS DESIGNATED BY MANUFACTURER AND MODEL NUMBER, THIS IS THE BASIS OF DESIGN. IF THE CONTRACTOR ELECTS TO PROVIDE EQUIPMENT BY OTHER SPECIFIED MANUFACTURERS OR PROPOSED ALTERNATE EQUIPMENT BY THE BASIS OF DESIGN MANUFACTURER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REVISIONS TO ELECTRICAL REQUIREMENTS, STRUCTURAL LOADING, OR ARCHITECTURAL APPURTENANCES AND SHALL INCLUDE THE COST OF SUCH REVISIONS IN HIS BID.

8 WHERE EQUIPMENT IS SCHEDULED TO INCLUDE A SERVICE RECEPTACLE, PROVIDE A FACTORY MOUNTED SERVICE RECEPTACLE WITH APPROPRIATE FUSES AND TRANSFORMERS CONNECTED ON THE LINE SIDE OF THE UNIT DISCONNECT. PROVIDE A NAMEPLATE ON THE DISCONNECT SWITCH INDICATING THE PRESENCE OF LIVE POWER TO THE SERVICE RECEPTACLE WHEN HE UNIT DISCONNECT IS IN THE OFF POSITION.

9 <Designer Note: Standard mechanical specifications indicate that service receptacles are factory wired. If this note needs to change so that service receptacles are powered by individual 120v circuits, please coordinate this change with the mechanical specifications' sections.> SIZE ALL EQUIPMENT FEEDERS BASED ON THE LISTED MOP (MAXIMUM OVERCURRENT PROTECTION). REFER TO THE FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE ON THE ELECTRICAL STANDARD SCHEDULES SHEET.

DUCT SYSTEM APPLICATION SCHEDULE

AIR SYSTEMS	G90 GALV. SHEET METAL	DOUBLE-WALL LINED G90 GALV. SHEET METAL (SOLID INNER WALL)	DOUBLE-WALL LINED G90 GALV. SHEET METAL (PERF. INNER WALL)	G90 GALV. SHEET METAL WITH 1-INCH LINING	GALVANNEALED SHEET METAL	ALUMINUM	TYPE 304 STAINLESS STEEL	TYPE 316 STAINLESS STEEL	PVC COATED GALV. SHEET METAL (4X1)	PVC COATED GALV. SHEET METAL (1X4)	PVC COATED GALV. SHEET METAL (4X4)	16 GA. CARBON STEEL	ZERO-CLEARANCE PREFABRICATED RANGE HOOD EXHAUST DUCT	FABRIC	DESIGN PRESSURE CLASS (INCHES WG)	SEAL CLASS	MAX. ALLOWABLE LEAKAGE RATE (PERCENT)	KEYED NOTES
SUPPLY AIR WITHOUT TERMINAL UNITS	X														+2	A	5	
SUPPLY AIR UPSTREAM OF TERMINAL UNITS	X														+6	A	5	
SUPPLY AIR DOWNSTREAM OF TERMINAL UNITS	X														+2	A	5	
RETURN AIR WITHOUT TERMINAL UNITS	X														-2	A	5	
EXHAUST AIR WITHOUT TERMINAL UNITS	X														-2	A	5	
KITCHEN EXHAUST (TYPE I HOOD)													X		N/A	N/A	N/A	C
KITCHEN EXHAUST (TYPE II HOOD)							X								-2	N/A	N/A	C
STERILIZER/WASHER EXHAUST							X								-2	N/A	N/A	C
LAUNDRY EXHAUST (DRYER VENT)	X														+/-2	A	5	A
LOCKER ROOM AND WET AREA EXHAUST						X	X								-2	A	5	
AIR TRANSFER DUCT				X											+2	A	5	
RELIEF AIR DOWNSTREAM OF FANS	X														+6	A	5	
OUTSIDE AIR AND MIXED AIR DUCT	X														-6	A	5	
OUTSIDE AIR, RELIEF AIR AND EXHAUST AIR PLENUMS ADJACENT TO EXTERIOR LOUVERS		X													+/-6	A	5	

GENERAL NOTES:
1. "X" INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A PIPING SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. 4 X 1 PVC-COATED GALVANIZED STEEL: FACTORY-APPLIED PVC COATINGS SHALL BE 4 MILS (0.10 MM) THICK ON EXTERIOR SHEET METAL SURFACES OF DUCTS AND FITTINGS EXPOSED TO CORROSIVE CONDITIONS AND MINIMUM 1 MIL (0.025 MM) THICK ON INTERIOR SURFACES.
3. 1 X 4 (4 X 1 REVERSE COATED) PVC-COATED GALVANIZED STEEL: FACTORY-APPLIED PVC COATINGS SHALL BE 4 MILS (0.10 MM) THICK ON INTERIOR SHEET METAL SURFACES OF DUCTS AND FITTINGS EXPOSED TO CORROSIVE CONDITIONS AND MINIMUM 1 MIL (0.025 MM) THICK ON EXTERIOR SURFACES.
4. 4 X 4 PVC-COATED GALVANIZED STEEL: FACTORY-APPLIED PVC COATINGS SHALL BE 4 MILS (0.10 MM) THICK ON SHEET METAL SURFACES OF DUCTS AND FITTINGS EXPOSED TO CORROSIVE CONDITIONS AND 4 MILS (0.10 MM) THICK ON OPPOSITE SURFACES.

KEYED NOTES:
A. SCREWS, DAMPERS, OR PROJECTIONS OF ANY TYPE ON INTERIOR OF DUCT SURFACE ARE PROHIBITED
B. DUCT SHALL BE LINED WITHIN 25 FEET UPSTREAM OF FANS.
C. ALL WELDED CONSTRUCTION.

DUCT SYSTEM INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES): FIBERGLASS BLANKET 0.75 LB/CU FT	FIBERGLASS BLANKET 1.0 LB/CU FT	FIBERGLASS BOARD 2.25 LB/CU FT	FIBERGLASS BOARD 6.0 LB/CU FT	FLEXIBLE ELASTOMERIC	ASTM E2336 2-HOUR FIRE RATED BLANKET	2-HOUR FIRE RATED BLANKET	FIELD APPLIED JACKET MATERIAL: ALUMINUM	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	KEYED NOTES
DUCT SYSTEMS LOCATED INDOORS										
SUPPLY AIR, EXCEPT AS NOTED BELOW		1.5								A,E
RECTANGULAR SUPPLY AIR IN MECHANICAL ROOMS			1.5							
RECTANGULAR RETURN AIR IN MECHANICAL EQUIPMENT ROOM			1.5							
ROUND RETURN AIR IN MECHANICAL ROOMS		1.5								
OUTSIDE AIR AND MIXED AIR, EXCEPT AS NOTED BELOW		1.5								
RECTANGULAR OUTSIDE AIR AND MIXED AIR IN MECHANICAL ROOMS			1.5							
ROUND OUTSIDE AIR AND MIXED AIR IN MECHANICAL ROOMS		1.5								
EXHAUST AND RELIEF AIR BETWEEN ISOLATION DAMPER AND PENETRATION OF BUILDING EXTERIOR, EXCEPT AS NOTED BELOW		1.5								
RECTANGULAR EXHAUST AND RELIEF AIR BETWEEN ISOLATION DAMPER AND PENETRATION OF BUILDING EXTERIOR, IN MECHANICAL ROOMS			1.5							
ROUND & FLAT OVAL EXHAUST AND RELIEF AIR BETWEEN ISOLATION DAMPER AND PENETRATION OF BUILDING EXTERIOR, IN MECHANICAL ROOMS		1.5								
LOCKER ROOM AND WET AREA EXHAUST BETWEEN EXHAUST GRILLE & CONNECTION TO GENERAL EXHAUST OR BETWEEN EXHAUST GRILLE AND PENETRATION OF BUILDING EXTERIOR		1.5								
KITCHEN EXHAUST (TYPE I HOOD)						X				B, C
KITCHEN EXHAUST AIR (TYPE II HOODS)		1.5								
STERILIZER/WASHER EXHAUST AIR		1.5								
DUCT SYSTEMS LOCATED OUTDOORS										
RECTANGULAR DUCTS AND AIR PLENUMS, ALL TYPES				2					X	
DUCT SYSTEMS LOCATED IN ATTICS, CRAWL SPACES, OR PARKING GARAGES HAVING NATURAL OR MECHANICAL VENTILATION										
RECTANGULAR DUCTS AND AIR PLENUMS, ALL TYPES	3			2						
ROUND & FLAT OVAL SUPPLY AIR	3									
ROUND & FLAT OVAL RETURN & EXHAUST AIR	3									

PLENUMS, DUCTS, AND DUCT ACCESSORIES NOT REQUIRING INSULATION:
FIBROUS-GLASS DUCTS
DOUBLE-WALL METAL DUCTS WITH INSULATION OF SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE / IESNA 90.1 - 2013
METAL DUCTS WITH DUCT LINER OF SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE / IESNA 90.1 - 2013
FABRIC SUPPLY DUCTS
FACTORY-INSULATED FLEXIBLE DUCTS
FACTORY-INSULATED PLENUMS AND CASINGS
FLEXIBLE CONNECTORS
VIBRATION-CONTROL DEVICES
FACTORY-INSULATED ACCESS PANELS AND DOORS

GENERAL NOTES:
1. "X" OR THICKNESS IN INCHES INDICATE ACCEPTABLE SELECTION. IF MORE THAN ONCE SELECTION IS INDICATED FOR A SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. REFER TO METAL DUCT SECTION OF SPECIFICATIONS FOR DUCT LINING AND DOUBLE-WALL INSULATED DUCT.
3. REFER TO HVAC CASINGS SECTION OF SPECIFICATIONS FOR DOUBLE-WALL INSULATED PLENUMS.

KEYED NOTES:
A. INCLUDE INSULATION AROUND DUCT MOUNTED COILS AND AIR TERMINAL UNITS COILS.
B. NUMBER OF LAYERS AND TOTAL INSULATION THICKNESS AS RECOMMENDED BY SELECTED MANUFACTURER.
C. DOES NOT APPLY TO PREFABRICATED, ZERO-CLEARANCE GREASE DUCT.
D. PROVIDE MANUFACTURER;S RECOMMENDED PROTECTIVE COATING FOR FLEXIBLE ELASTOMERIC THERMAL DUCT INSULATION.
E. EXPOSED SUPPLY DUCTWORK LOCATED IN A CONDITIONED SPACE SERVED BY THE SAME AIR HANDLING SYSTEM IS NOT REQUIRED TO BE INSULATED.

ROOF MOUNTED PIPING SUPPORT APPLICATION SCHEDULE

PIPE TYPE AND SIZE	SUPPORT TYPE: LOW FIXED-HEIGHT SINGLE-BASE STAND	LOW ADJUSTABLE-HEIGHT SINGLE-BASE STAND	HIGH ADJUSTABLE-HEIGHT SINGLE-BASE STAND	LOW FIXED HEIGHT SINGLE-BASE ROLLER STAND	LOW ADJUSTABLE-HEIGHT SINGLE-BASE ROLLER STAND	HIGH MULTIPLE-BASE PIPE STAND	CUSTOM MULTIPLE BASE PIPE STAND	CURB-MOUNTING PIPE STAND	SHIELD TYPE: MSS TYPE 39 PROTECTION SADDLE	MSS TYPE 40 INSULATION PROTECTION SHIELD	THERMAL-HANGER SHIELD	KEYED NOTES
SINGLE PIPES												
NATURAL GAS NPS 5 AND SMALLER				X	X		X					
NATURAL GAS NPS 6 AND NPS 8					X		X					
CONDENSATE DRAIN PIPE ALL SIZES	X	X					X					
ALL PIPING NPS 18 AND LARGER						X	X				X	B, C, D
MULTIPLE PARALLEL PIPES												
NATURAL GAS NPS 5 AND SMALLER	X	X					X					
NATURAL GAS NPS 6 AND NPS 8	X	X					X					
CONDENSATE DRAIN PIPE ALL SIZES	X	X					X					
ALL PIPING NPS 18 AND LARGER							X				X	B, C, D

GENERAL NOTES:
1. "X" INDICATES APPROVED HANGER OR SUPPORT ELEMENTS. IF MORE THAN ONE HANGER OR SUPPORT ELEMENT IS INDICATED, SELECTION FROM APPROVED ELEMENTS IS CONTRACTOR'S OPTION.
2. REFER TO HANGER AND SUPPORT SECTION FOR APPROVED MANUFACTURERS. CONTRACTOR'S OPINION.
3. SUPPORT ELEMENTS IN CONTRACT WITH BARE COPPER PIPE SHALL BE COPPER PLATED, PLASTIC OR PLASTIC COATED, FELT LINED, OR USE MANUFACTURED COPPER TUBE ISOLATORS.

KEYED NOTES:
A. TYPE 40 SHIELD MAY BE USED ON INSULATED PIPE SIZED NPS 2 AND SMALLER.
B. CONSULT WITH SUPPORT MANUFACTURER FOR CUSTOM SUPPORT REQUIREMENTS.
C. USE THERMAL HANGER SHIELD FOR INSULATED RING.
D. TYPE 39 PROTECTION SADDLE MAY BE USED IF INSULATION WITHOUT VAPOR BARRIER IS INDICATED. FILL INTERIOR VOIDS WITH INSULATION MATCHING ADJOINGING INSULATION.

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PBA Project No.: 2023.0154

PROJECT TITLE
NEW SMITH MIDDLE SCHOOL
Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE
MECHANICAL SCHEDULES

ISSUE DATES

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06-18-2024	CONSTRUCTION DOCUMENTS

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DRAWN KLH
CHECKED KLH
APPROVED SVM

PROJECT NO.
22102

DRAWING NO.
M7.1

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

UNIT IDENTIFICATION									MODEL NUMBER	KEYED NOTES
DES.	NO.	TYPE	FACE SIZE	NECKSIZE	FRAME TYPE	ACCESSORY	CONSTRUCTION	FINISH		
S	1	DIFFUSER	24x24	SEE PLANS	NOTE 2	-	STEEL	WHITE	SCDA	1
S	2	DIFFUSER	24x24	SEE PLANS	NOTE 2	-	STEEL	WHITE	SCDA	2
S	3	DIFFUSER	48x4.5	SEE PLANS	NOTE 2	-	STEEL	WHITE	SDS75	3
S	4	DIFFUSER	72x4.5	SEE PLANS	NOTE 2	-	STEEL	WHITE	SDS75	3
S	5	DIFFUSER	48x5	SEE PLANS	NOTE 2	-	STEEL	WHITE	SDS100	3
S	6	DIFFUSER	72x5	SEE PLANS	NOTE 2	-	STEEL	WHITE	SDS100	3
S	7	DIFFUSER	48x5	SEE PLANS	NOTE 2	-	STEEL	METALIC GREY	SDS100	3, 4
S	8	GRILLE	NECK SIZE + 1-1/4"	SEE PLANS	NOTE 2	-	STEEL	WHITE	510	
S	9	DIFFUSER	-	SEE PLANS	DUCT MOUNTED	-	STEEL	WHITE	RCD	
S	10	DIFFUSER	24x24	SEE PLANS	NOTE 2	-	ALUMINIUM	WHITE	ASCDA	1
S	11	GRILLE	NECK SIZE + 1-1/4"	SEE PLANS	NOTE 2	-	ALUMINIUM	WHITE	610	
S	12	DIFFUSER	24x24	SEE PLANS	NOTE 2	-	STEEL	WHITE	VPD	
S	13	DIFFUSER	24x24	SEE PLANS	NOTE 2	-	STEEL	WHITE	RAVD	
R	1	GRILLE	24x24	SEE PLANS	NOTE 2	-	STEEL	WHITE	PDDR	
R	2	GRILLE	24x12	SEE PLANS	NOTE 2	-	STEEL	WHITE	PDDR	
R	3	GRILLE	NECK SIZE + 1-1/4"	SEE PLANS	NOTE 2	-	STEEL	WHITE	530	
R	4	GRILLE	NECK SIZE + 1-1/4"	SEE PLANS	NOTE 2	-	STEEL	NOTE 3	90	4
R	5	GRILLE	72x4	SEE PLANS	NOTE 2	SIGHT BAFFLE	STEEL	NOTE 3	SDR50	2, 4
T	1	GRILLE	NECK SIZE + 1-1/4"	SEE PLANS	NOTE 2	-	STEEL	WHITE	530	
E	1	GRILLE	24x24	SEE PLANS	NOTE 2	-	STEEL	WHITE	PDDR	
E	2	GRILLE	NECK SIZE + 1-1/4"	SEE PLANS	NOTE 2	-	STEEL	WHITE	530	
E	3	GRILLE	NECK SIZE + 1"	SEE PLANS	DUCT MOUNTED	-	ALUMINIUM	WHITE	SDGER	
E	4	GRILLE	24x24	SEE PLANS	NOTE 2	-	ALUMINIUM	WHITE	PDDR	
E	5	GRILLE	NECK SIZE + 1-1/4"	SEE PLANS	NOTE 2	-	ALUMINIUM	WHITE	630	

GENERAL NOTES:
1. MODEL NUMBERS ARE PRICE UNLESS OTHERWISE NOTED.
2. COORDINATE EXACT FRAME TYPE WITH ARCHITECTURAL TRADES.
3. COLOR SELECTION BY ARCHITECT.

KEYED NOTES:
1. HORIZONTAL THROW PATTERN
2. VERTICAL THROW PATTERN
3. 2 SLOT
4. PROVIDE COLOR SAMPLE TO ARCHITECT PRIOR TO ORDERING.

SEWAGE PUMP AND SUMP PUMP SCHEDULE

UNIT IDENTIFICATION				PUMP					BASIN					ELECTRICAL					
DES.	NO.	SYSTEM SERVED	SIMPLEX OR DUPLEX	QUANTITY	FLOW EACH GPM	W.P.D. FT. HEAD	HP EACH	RPM	CONSTRUCTION	DIAMETER INCHES	DEPTH INCHES	COVER TYPE	MODULATION / CONTROL TYPE	VOLTS	PHASE	SCCR KA	OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
SP	1	DRAIN TILE	DUPLEX	2	13.0	20.0	0.75	1750	FIBERGLASS	36	72	GRATE	AUTO	208	3	5		1607	
SP	2	ELEVATOR	SIMPLEX	1	50.0	20.0	0.75	1750	FIBERGLASS	36	36	GRATE	AUTO	120	1	5		1601	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE WEIL UNLESS OTHERWISE NOTED.

FUEL FIRED DOMESTIC WATER HEATER SCHEDULE

UNIT IDENTIFICATION			FUEL							ELECTRICAL							
DES.	NO.	STORAGE CAPACITY GALLONS	TYPE	MANUFACTURER REQUIRED INLET PRESSURE AT GAS TRAIN MIN	MANUFACTURER REQUIRED INLET PRESSURE AT GAS TRAIN MAX	INPUT MBH	RECOVERY GPH	E.W.T. °F	L.W.T. °F	MODULATION / CONTROL TYPE	VOLTS	PHASE	FLA	MOP	SCCR KA	OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
DWH	1	650.0	NATURAL GAS	8	14	650	772	40	140	AUTO	120	1	0	0	5		AWH0650NPM	1
DWH	2	65.0	NATURAL GAS	8	14	125	145	40	140	AUTO	120	1	0	0	5		SWR125N	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE LOCHINVAR UNLESS OTHERWISE NOTED.

KEYED NOTES:
1. PROVIDE 650 GALLON HOT WATER STORAGE TANK.

DOMESTIC HOT WATER SYSTEM EXPANSION TANK SCHEDULE

UNIT IDENTIFICATION		SYSTEM SERVED	ESTIMATED TOTAL SYSTEM VOLUME GALLONS	TYPE	OPERATING PRESSURES AT EXPANSION TANK			SYSTEM OPERATING TEMPERATURES		EXPANSION VOLUME GALLONS	MINIMUM TANK VOLUME GALLONS	DIMENSIONS		MODEL NUMBER	KEYED NOTES
DES.	NO.				INITIAL PSIG	PRE-CHARGE PSIG	MAX (OPERATING) PSIG	MINIMUM °F	MAXIMUM °F			DIAMETER INCHES	HEIGHT INCHES		
ET	1	DOMESTIC	80	BLADDER	40	40	125	40	240	80	60	24	55	WTA-448	
ET	2	KITCHEN	4	DIAPHRAGM	40	40	150	40	240	3.5	2.5	10	14	PTA-5	

GENERAL NOTES:
1. MODEL NUMBERS ARE BELL & GOSSETT UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL PRE-CHARGE THE TANK TO THE VALUE INDICATED IN THE SCHEDULE. FOR TANKS THAT ARE SUPPLIED PRE-CHARGED BY THE MANUFACTURER, THE CONTRACTOR SHALL CONFIRM THE PRESSURE AND MAKE ADJUSTMENTS AS REQUIRED.

THERMOSTATIC MIXING VALVE SCHEDULE

UNIT IDENTIFICATION		MINIMUM FLOW GPM	MAXIMUM FLOW GPM	PRESSURE DROP AT MAXIMUM FLOW PSIG	MODEL	KEYED NOTES
DES.	NO.					
MV	1	1	226	50.00	6NB-LF	

GENERAL NOTES:
1. MODEL NUMBERS ARE LEONARD UNLESS OTHERWISE NOTED.

DUCT SILENCER SCHEDULE

UNIT IDENTIFICATION		SYSTEM TYPE	SYSTEM SERVED	AIRFLOW CFM	A.P.D. IN. W.G.	MAX P.D. IN. W.G.	VELOCITY AT DIL RATING FPM	DYNAMIC INSERTION LOSS (DIL) dB								TARGET NOISE CRITERIA	DIMENSIONS			CONSTRUCTION					MODEL NUMBER	KEYED NOTES
DES.	NO.							63	125	250	500	1K	2K	4K	8K		W INCHES	H INCHES	L INCHES	TYPE	OUTER CASING TYPE	FILL MATERIAL	LINER	CASING MATERIAL		
DS	1R-A	RA	ERU-1	6150	0.16	0.25	769	7	14	25	40	42	35	24	16	25	48	24	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RL60/2D	
DS	1R-B	RA	ERU-1	6150	0.16	0.25	769	7	14	25	40	42	35	24	16	25	48	24	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RL60/2D	
DS	1S-A	SA	ERU-1	5125	0.19	0.25	941	6	12	21	38	43	38	25	18	25	28	28	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/2E	
DS	1S-B	SA	ERU-1	7175	0.21	0.25	879	7	12	22	38	40	35	24	17	25	42	28	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RL60/2D	
DS	2R-A	RA	ERU-2	11300	0.17	0.25	1529	5	7	15	33	36	29	20	16	30	36	42	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/1B	
DS	2R-B	RA	RF-101	1560	0.14	0.25	802	7	14	25	40	42	32	20	14	25	20	16	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/4E	
DS	2R-C	RA	RF-102	2390	0.15	0.25	1024	7	11	21	41	50	41	23	18	25	24	16	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/1D	
DS	2S-A	SA	ERU-2	11300	0.16	0.25	1529	5	8	15	31	40	30	23	17	30	38	28	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RH60/1D	
DS	2S-B	SA	FPB-101	1560	0.11	0.25	878	5	10	19	34	40	32	21	16	25	16	16	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/2D	
DS	2S-C	SA	FPB-102	2060	0.21	0.25	742	8	14	25	40	40	35	23	16	25	20	20	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RL60/4E	
DS	2S-D	SA	FPB-103	1800	0.21	0.25	720	8	15	25	43	44	39	25	17	25	20	18	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/4F	
DS	3R	RA	ERU-3	2550	0.17	0.25	900	7	14	25	39	44	34	22	15	30	34	12	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/3E	
DS	3S	SA	ERU-3	2550	0.16	0.25	937	6	10	20	37	41	33	25	17	30	28	14	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RH60/2F	
DS	4R	RA	ERU-4	11000	0.24	0.25	1269	7	12	21	41	51	41	23	18	40	48	26	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/1D	
DS	4S	SA	ERU-4	11000	0.24	0.25	1269	6	10	28	38	46	41	24	19	40	48	26	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/1D	
DS	5R	RA	ERU-5	2100	0.22	0.25	741	9	17	29	45	49	41	26	17	30	34	12	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/3F	
DS	5S	SA	ERU-5	2100	0.21	0.25	982	6	12	22	38	37	29	19	14	30	22	14	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/5E	
DS	6E	EA	ERU-6	1850	0.05	0.25	925	5	8	14	27	22	15	11	9	40	24	12	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/6B	
DS	6S	SA	ERU-6	1850	0.05	0.25	925	5	8	16	28	24	15	11	9	40	24	12	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/6B	
DS	7E	EA	ERU-7	6400	0.23	0.25	1067	7	13	25	36	35	25	18	13	40	48	18	60	RS	STANDARD	GLASS FIBER	NO	ALUMINUM	RH60/6F	
DS	7S-A	SA	ERU-7	3400	0.19	0.25	920	7	11	20	40	48	45	29	21	30	38	14	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/1E	
DS	7S-B	SA	ERU-7	3000	0.19	0.25	1029	6	10	20	27	23	15	11	10	40	30	14	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RH60/9F	
DS	8R	RA	ERU-8	15000	0.18	0.25	1125	9	12	18	23	18	13	10	8	30	48	40	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RL60/XC	
DS	8S-A	SA	ERU-8	5760	0.19	0.25	1595	5	8	15	30	28	20	15	11	30	20	26	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RH60/4D	
DS	8S-B	SA	ERU-8	11470	0.19	0.25	1639	5	8	15	29	26	18	14	11	30	42	24	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RH60/5D	
DS	9R	RA	ERU-9	15000	0.14	0.25	1071	5	10	18	32	31	22	16	12	30	72	28	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RL60/3B	
DS	9S	SA	ERU-9	15000	0.21	0.25	1385	5	9	17	34	37	29	21	15	30	60	26	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RH60/2E	
DS	10R	RA	ERU-10	15000	0.18	0.25	1125	6	12	22	37	44	32	20	15	30	56	30	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RM60/2D	
DS	10S-A	SA	ERU-10	5760	0.19	0.25	1595	5	8	15	30	28	20	15	11	30	20	26	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RH60/4D	
DS	10S-B	SA	ERU-10	11470	0.16	0.25	1496	5	8	15	31	34	25	19	14	30	46	24	60	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RH60/2D	

GENERAL NOTES:
1. DUCT SILENCER MODEL NUMBERS ARE BASED ON VIBRO-ACOUSTICS UNLESS OTHERWISE NOTED.
2. LENGTH SHOWN FOR ELBOW SILENCERS IS CENTERLINE LENGTH.
3. VELOCITY SHOWN IS +(FORWARD FLOW) OR -(REVERSE FLOW) AS DEFINED BY ASTM E477-99.
4. PRESSURE DROP, DYNAMIC INSERTION LOSS AND SELF GENERATED NOISE PER ASTM E477-99.
5. MAXIMUM PRESSURE DROP WITH SYSTEM EFFECTS = SILENCER PRESSURE DROP PER ASTM E477-99 + SYSTEM EFFECTS FOR NEARBY DUCT ELEMENTS.
6. TYPE: RS = RECTANGULAR STRAIGHT; RE = RECTANGULAR ELBOW; REE = RECTANGULAR EXTENDED ELBOW; CS = CIRCULAR STRAIGHT; CE = CIRCULAR ELBOW.
7. FABRICATE SILENCER CASINGS OF STAINLESS STEEL. WHERE SILENCERS ARE CONNECTED TO A PVC COATED OR STAINLESS STEEL DUCT SYSTEM.

WATER SOURCE HEAT PUMP SCHEDULE

UNIT IDENTIFICATION		NOMINAL SIZE (TONS)	FAN			LOOP WATER			COOLING MODE (90 °F ENT. WATER TEMP.)						HEATING MODE (70 °F ENT. WATER TEMP.)					COMPRESSORS			ARRANGEMENT	ELECTRICAL						MODEL NUMBER	KEYED NOTES
									AIR		TOTAL CAPACITY MBH	SENS. CAPACITY MBH	THR MBH	MINIMUM E.E.R.	AIR		TOTAL CAPACITY MBH	THA MBH	MINIMUM C.O.P.	NO. OF COMP.	R.L.A. EA.	L.R.A. EA.		VOLTS	PHASE	FLA	MOP	SCCR KA	OPTIONS / ACCESSORIES		
DES.	NO.		AIRFLOW CFM	ESP IN. W.G.	HP	FLOW GPM	FLUID TYPE	MAX W.P.D. FT. HEAD	E.A.T. °F	L.A.T. °F					E.A.T. °F	L.A.T. °F															
HP	101	6	2000	0.5	1	18	PG30	16.55	80	57	67.3	48	83.7	14	55	85	61.8	47.7	4.4	1	8.5	66.1	HORIZONTAL	480	3	15.4	25	5	B	WGTH0721	1
HP	102	4	1400	0.5	1	12	PG30	7.25	80	59	46.1	31.9	56.9	14.5	55	81	40	31.3	4.6	1	6.4	41	HORIZONTAL	480	3	11.9	15	5	B	WGTH0491	1

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE DAIKIN UNLESS OTHERWISE NOTED.
3. FLUID TYPE: W = WATER, PGXX = PROPYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL, EGXX = ETHYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL,
4. INTERNAL STATIC PRESSURE VALUE SHALL INCLUDE WET COIL PRESSURE DROP. EXTERNAL PRESSURE INCLUDES DIRTY FILTER PRESSURE DROP AS SCHEDULED.

KEYED NOTES:
1. PROVIDE WITH 120V/1PH CONDENSATE PUMP.

PACKAGED BOOSTER PUMP SCHEDULE

UNIT IDENTIFICATION											MOTOR				ELECTRICAL					
DES.	NO.	SYSTEM SERVED	LOCATION	TYPE	NUMBER OF PUMPS	DISCHARGE WATERFLOW GPM	PUMP INLET PRESSURE HEAD PSIG	PUMP DISCHARGE PRESSURE HEAD PSIG	PUMP MODEL NUMBER	OVERLOAD GPM	RPM EACH	HP EACH	CAPACITY CONTROL	MODULATION / CONTROL TYPE	VOLTS	PHASE	SCCR KA	OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
BP	1	DOMESTIC WATER	MECHANICAL A136	SUCTION	2	180	33.00	60.00	HVL2D3		3500	5.00		AUTO	460	3	5		HVL2D3	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE BELL & GOSSETT UNLESS OTHERWISE NOTED.

PLUMBING CONNECTION SCHEDULE

UNIT IDENTIFICATION		CW INCHES	HW INCHES	SAN INCHES	VENT INCHES	KEYED NOTES
DES.	NO.					
EEW	1	-	-	-	-	2
EWC	1	1/2	-	1 1/2	1 1/2	
FD	1	-	-	3	-	
FD	2	-	-	4	-	
FS	2	-	-	3	-	
LAV	1	1/2	1/2	1 1/2	1 1/2	
SH	1	3/4	3/4	-	-	1
SK	1	3/4	3/4	1 1/2	1 1/2	
SS	1	3/4	3/4	3	-	
UR	1	3/4	-	2	1 1/2	
WC	1	1 1/2	-	4	2	

GENERAL NOTES:
1. INDIVIDUAL WATER LINE BRANCHES, WASTE LINES, VENTS, AND TRAPS FOR CONNECTION TO INDIVIDUAL FIXTURES, FIXTURE FITTINGS, AND SPECIALTIES SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE OR AS INDICATED ON DRAWINGS, WHICHEVER IS GREATER.

KEYED NOTES:
1. PROVIDE MIXING VALVE.
2. PROVIDE 1/2" TEMPERED WATER.

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PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

MECHANICAL SCHEDULES

ISSUE DATES

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06-18-2024	CONSTRUCTION DOCUMENTS

DATE: ISSUED FOR:

DRAWN KLH
CHECKED KLH
APPROVED SVM

PROJECT NO.
22102

DRAWING NO.
M7.3

ENERGY RECOVERY UNIT WITH INTEGRAL HEAT PUMP SCHEDULE (A)

UNIT IDENTIFICATION			SUPPLY FAN					MOTOR			EXHAUST FAN			MOTOR			HEAT EXCHANGER (SUMMER)										HEAT EXCHANGER (WINTER)									
																	SUPPLY SIDE					EXHAUST SIDE						SUPPLY SIDE					EXHAUST SIDE				
DES.	NO.	AREA/SYSTEM SERVED	CFM	MIN. OA CFM	ESP"	TSP"	CONROL TYPE	QUANTITY	BHP	HP	CFM	ESP"	TSP"	QUANTITY	BHP	HP	E.A.T. D.B. °F	E.A.T. W.B. °F	L.A.T. D.B. °F	L.A.T. W.B. °F	A.P.D. IN. WG.	E.A.T. D.B. °F	E.A.T. W.B. °F	L.A.T. D.B. °F	L.A.T. W.B. °F	A.P.D. IN. WG.	EFFIC. (%)	E.A.T. D.B. °F	E.A.T. W.B. °F	L.A.T. D.B. °F	L.A.T. W.B. °F	A.P.D. IN. WG.	E.A.T. D.B. °F	E.A.T. W.B. °F	L.A.T. D.B. °F	L.A.T. W.B. °F	A.P.D. IN. WG.	EFFIC. (%)
ERU	1	GYMNASIUM	12300	7600	2.75	4.29	SZVAV	2	11.80	15.00	12300	1.25	2.78	2	8.40	10.00	91.0	74.0	76.4	63.7	0.53	72.0	86.6	71.0	0.53	77	-10.0	-10.9	52.9	43.8	0.53	72.0	9.1	8.9	0.53	77
ERU	2	CLASSROOMS	11300	6400	3.25	5.03	DAT-DSP VAV	2	13.00	15.00	11300	1.25	2.66	2	6.80	10.00	91.0	74.0	82.6	69.0	0.41	72.0	86.3	70.0	0.41	65	-10.0	-10.9	26.1	23.9	0.41	72.0	10.4	10.3	0.41	71
ERU	3	MEDIA CENTER	2550	1450	2.25	3.78	DAT-DSP VAV	1	2.20	3.00	2550	1.25	2.60	1	1.50	2.00	91.0	74.0	78.3	65.6	0.35	72.0	84.7	69.3	0.35	64	-10.0	-10.9	44.8	38.4	0.35	72.0	17.2	16.7	0.35	67
ERU	4	DINING COMMONS	11000	3900	3.25	4.99	SZVAV	2	12.60	15.00	11000	1.25	2.67	2	7.40	10.00	91.0	74.0	78.8	66.0	0.42	72.0	84.2	69.0	0.42	61	-10.0	-10.9	42.7	37.0	0.42	72.0	19.3	18.6	0.42	64
ERU	5	OFFICES	2100	800	2.25	3.76	DAT-DSP VAV	1	1.90	3.00	2100	1.25	2.53	1	1.20	1.50	91.0	74.0	78.6	65.7	0.28	72.0	86.0	70.0	0.28	71	-10.0	-10.9	43.3	37.3	0.28	72.0	11.7	11.6	0.28	73
ERU	6	KITCHEN	1850	1250	2.25	4.18	SZVAV	1	2.00	3.00	1850	1.25	2.69	1	1.10	2.00	91.0	74.0	79.6	67.0	0.44	72.0	84.3	68.8	0.44	58	-10.0	-10.9	39.0	33.8	0.44	72.0	18.8	18.7	0.44	64
ERU	7	LOCKER ROOMS	6400	6400	1.00	3.32	CAV-DAT	1	4.60	7.50	7040	1.25	2.88	1	4.60	7.50	91.0	74.0	76.9	64.3	0.63	72.0	86.1	63.6	0.63	73	-10.0	-10.9	51.0	42.4	0.63	72.0	11.0	10.9	0.63	74
ERU	8	CLASSROOMS	15000	8900	3.25	5.03	DAT-DSP VAV	2	16.80	20.00	15000	1.25	2.83	2	9.80	15.00	91.0	74.0	80.2	67.1	0.58	72.0	88.4	71.7	0.58	80	-10.0	-10.9	36.4	31.9	0.58	72.0	1.3	1.1	0.58	84
ERU	9	CLASSROOMS	15000	8900	3.25	5.03	DAT-DSP VAV	2	16.80	20.00	15000	1.25	2.58	2	9.80	15.00	91.0	74.0	79.3	66.1	0.33	72.0	89.4	72.9	0.33	80	-10.0	-10.9	40.5	35.4	0.33	72.0	-3.2	-4.0	0.33	84
ERU	10	CLASSROOMS	15000	8900	3.25	5.03	DAT-DSP VAV	2	16.80	20.00	15000	1.25	2.83	2	8.30	15.00	91.0	74.0	80.2	67.1	0.58	72.0	88.4	71.7	0.58	92	-10.0	-10.9	36.4	31.9	0.58	72.0	1.3	1.3	0.58	93

ENERGY RECOVERY UNIT WITH INTEGRAL HEAT PUMP SCHEDULE (B)

UNIT IDENTIFICATION		COOLING MODE														HEATING MODE								
		AIR				TOTAL CAPACITY	SENS. CAPACITY		E.W.T.	L.W.T.		HOT GAS REHEAT		MINIMUM	MAX W.P.D.	CONTROL VALVE W.P.D.	AIR		TOTAL CAPACITY					MINIMUM	MAX W.P.D.	CONTROL VALVE W.P.D.
DES.	NO.	E.A.T. D.B. °F	E.A.T. W.B. °F	L.A.T. D.B.°F	L.A.T. W.B.°F	MBH	MBH	THR MBH	°F	°F	FLOW GPM	Y/N	MBH	E.E.R.	FT. HEAD	FT. HEAD	E.A.T. °F	L.A.T. °F	MBH	THA MBH	E.W.T. °F	L.W.T. °F	FLOW GPM	C.O.P.	FT. HEAD	FT HEAD
ERU	1	74.7	62.4	54.8	53.5	318	268.3	418.6	90	100	87.4	Y	176.9	14.8	4.2	11.5	63.8	96.4	434.2	372.6	70	61	87.4	5.9	4.2	11.5
ERU	2	78.0	65.4	55.3	54.4	377.2	280.9	457	90	100	95.4	N	-	15.7	7.1	11.5	52.5	89.6	454.2	411.3	70	61	95.4	6.5	7.1	11.5
ERU	3	75.6	63.3	52.8	51.6	86.4	63.7	92.9	90	100	19.4	N	-	15.3	2.1	11.5	58.7	92.7	94	83.6	70	61	19.4	6.1	2.1	11.5
ERU	4	74.4	62.3	55.1	54.0	263.8	232.8	330	90	100	68.9	Y	166.7	17.5	4.1	11.5	60.6	89.3	320.3	293.7	70	61	68.9	7.6	4.1	11.5
ERU	5	74.8	62.6	55.0	54.1	51.9	45.5	66.6	90	100	13.9	N	-	17.8	2.8	11.5	55.5	85.1	67.3	61.3	70	61	13.9	8.2	2.8	11.5
ERU	6	77.6	65.2	55.2	54.3	61.2	45.4	84.8	90	100	17.7	Y	29	16.1	6.5	11.5	47.1	88.9	83.7	73.8	70	61	17.7	6.8	6.5	11.5
ERU	7	76.9	64.3	54.9	53.8	199.9	154	277.3	90	100	57.9	N	-	15.6	4.7	11.5	40.8	81.9	285	252.4	70	61	57.9	7.2	4.7	11.5
ERU	8	76.9	64.4	55.4	54.5	446	353.9	555.2	90	100	115.9	N	-	15.6	6.8	11.5	23.5	58.7	572.5	538.5	70	60	115.9	8.2	6.8	11.5
ERU	9	76.3	63.7	55.1	54.2	446	348.9	555.2	90	100	115.9	N	-	15.6	6.8	11.5	23.5	58.7	572.5	538.5	70	60	115.9	8.2	6.8	11.5
ERU	10	76.9	64.4	55.4	54.5	423.8	343.9	555.2	90	100	115.9	N	-	15.6	6.8	11.5	23.5	58.7	572.5	538.5	70	60	115.9	8.2	6.8	11.5

ENERGY RECOVERY UNIT WITH INTEGRAL HEAT PUMP SCHEDULE (C)

UNIT IDENTIFICATION		PRE-FILTERS		RETURN FILTERS		ELECTRICAL						UNIT WEIGHT (LBS.)	MAXIMUM UNIT DIMENSIONS			MODEL NUMBER	KEYED NOTES
DES.	NO.	EFF. (%)	SP " TOTAL	EFF. (%)	SP " TOTAL	VOLTS	PHASE	MCA	MOP	SCCR KA	OPTIONS / ACCESSORIES		LENGTH INCHES	WIDTH INCHES	HEIGHT INCHES		
ERU	1	85	0.7	85	0.70	480	3	84	90	10	B	20750	282.0	127.0	98.0	ERU-SS-WH-12300-HP-460	
ERU	2	85	0.7	85	0.70	480	3	89	110	10	B	16700	259.0	117.0	98.0	ERU-SS-WH-11300-HP-460	
ERU	3	85	0.7	85	0.70	480	3	22	30	5	B	10800	251.0	83.0	72.0	ERU-SS-WH-2600-HP-460	
ERU	4	85	0.7	85	0.70	480	3	74	90	10	B	18000	256.0	116.0	92.0	ERU-SS-WH-11000-HP-460	
ERU	5	85	0.7	85	0.70	480	3	19	25	5	B	8700	186.0	83.0	72.0	ERU-SS-WH-2100-HP-460	
ERU	6	85	0.7	85	0.70	480	3	20	25	5	B	10000	251.0	83.0	54.0	ERU-SS-WH-1800-HP-460	
ERU	7	85	0.7	85	0.70	480	3	51	60	5	B	14900	263.0	106.0	86.0	ERU-SS-WH-6400-HP-460	
ERU	8	85	0.7	85	0.70	480	3	108	125	10	B	19300	263.0	127.0	110.0	ERU-SS-WH-15000-HP-460	
ERU	9	85	0.7	85	0.70	480	3	108	125	22	B	19750	266.0	127.0	110.0	ERU-SS-WH-15000-HP-460	
ERU	10	85	0.7	85	0.70	480	3	108	125	22	B	19300	263.0	127.0	110.0	ERU-SS-WH-15000-HP-460	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE INNOVENT UNLESS OTHERWISE NOTED
3. DESIGN MINIMUM OUTSIDE AIRFLOW CFM (VENTILATION) LISTED IS BASED ON THE ESTIMATED MAXIMUM OCCUPANT LOAD. REFER TO TEMPERATURE CONTROL DRAWINGS FOR OUTSIDE AIR CONTROL SEQUENCE.
4. MERV DESIGNATES THE "MINIMUM EFFICIENCY REPORTING VALUE" AS EVALUATED UNDER ASHRAE STANDARD 52.2 1999.
5. AIR HANDLING UNIT TOTAL STATIC PRESSURE FOR CONSTANT AIR VOLUME SYSTEMS IS BASED ON THE AVERAGE/MIDLIFE FILTER AIR PRESSURE DROP UNLESS NOTED OTHERWISE.

KEYED NOTES:
1. PROVIDE SINGLE POINT ELECTRICAL CONNECTION WITH MAIN DISCONNECT.

ELECTRIC PROPELLER FAN UNIT HEATER SCHEDULE

UNIT IDENTIFICATION			FAN				ELECTRICAL							
DES.	NO.	CAPACITY MBH	CFM	HEATING ELEMENT KW	FINAL AIR TEMPERATURE °F	MODULATION / CONTROL TYPE	VOLTS	PHASE	FLA	MOP	SCCR KA	OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
EUH	101	11.2	400	3.3	26	AUTO	480	3	4.0	15	5	A	P3PUH03CA1	
EUH	102	17	400	5	40	AUTO	480	3	6.1	15	5	A	P3PUH05CA1	
EUH	103	11.2	400	3.3	26	AUTO	480	3	4.0	15	5	A	P3PUH03CA1	
EUH	104	11.2	400	3.3	26	AUTO	480	3	4.0	15	5	A	P3PUH03CA1	
EUH	201	17	400	5	40	AUTO	480	3	6.1	15	5	A	P3PUH05CA1	
EUH	202	11.2	400	3.3	26	AUTO	480	3	4.0	15	5	A	P3PUH03CA1	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE MARKEL UNLESS OTHERWISE NOTED.

ELECTRIC CENTRIFUGAL FAN CABINET UNIT HEATER SCHEDULE

UNIT IDENTIFICATION			AIR			FAN		HEATING ELEMENT	DIMENSIONS			RECESS DEPTH INCHES	FILTER		MODULATION / CONTROL TYPE	ELECTRICAL						MODEL NUMBER	KEYED NOTES
DES.	NO.	CAPACITY MBH	AIRFLOW CFM	E.D.B. °F	L.D.B. °F	HP	RPM	TOTAL KW	LENGTH INCHES	HEIGHT INCHES	DEPTH INCHES		TYPE	AREA SQ. FT.		VOLTS	PHASE	FLA	MOP	SCCR KA	OPTIONS / ACCESSORIES		
ECUH	101	27.3	500	60	111	0	0	8	46	26	10	4	THROWAWAY	-	AUTO	480	3	11.7	20	5	A	6346D084833	
ECUH	102	20.5	500	60	98	0	0	6	46	26	10	4	THROWAWAY	-	AUTO	480	3	8.1	15	5	A	6346D064833	
ECUH	103	34.1	500	60	123	0	0	10	46	26	10	4	THROWAWAY	-	AUTO	480	3	15.4	20	5	A	6346D104833	
ECUH	104	34.1	500	60	123	0	0	10	46	26	10	4	THROWAWAY	-	AUTO	480	3	15.4	20	5	A	6346D104833	
ECUH	105	27.3	500	60	111	0	0	8	46	26	10	4	THROWAWAY	-	AUTO	480	3	11.7	20	5	A	6346D084833	
ECUH	106	13.6	250	60	110	0	0	4	33	26	10	4	THROWAWAY	-	AUTO	480	3	6.0	15	5	A	6333D044833	
ECUH	107	13.6	250	60	110	0	0	4	33	26	10	4	THROWAWAY	-	AUTO	480	3	6.0	15	5	A	6333D044833	
ECUH	108	13.6	250	60	110	0	0	4	33	26	10	4	THROWAWAY	-	AUTO	480	3	6.0	15	5	A	6333D044833	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE MARKEL UNLESS OTHERWISE NOTED.

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PROJECT TITLE
NEW SMITH MIDDLE SCHOOL
Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE
MECHANICAL SCHEDULES

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	KLH
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22102

DRAWING NO.
M7.4

CONDENSING BOILER SCHEDULE

UNIT IDENTIFICATION			FUEL				NET OUTPUT MBH (160/80 °F RWT)	BOILER PRESSURE RATING PSIG	RELIEF VALVE PRESSURE PSIG	NUMBER OF CONTROL STAGES	FLUID					MODULATION / CONTROL TYPE	DIMENSIONS			ELECTRICAL						MODEL NUMBER	KEYED NOTES
DES.	NO.	SYSTEM SERVED	TYPE	MANUFACTURER REQUIRED INLET PRESSURE AT GAS TRAIN MIN	MANUFACTURER REQUIRED INLET PRESSURE AT GAS TRAIN MAX	INPUT MBH					E.W.T. °F	L.W.T. °F	FLOW GPM	FLUID TYPE	W.P.D. FT		WIDTH INCHES	LENGTH INCHES	HEIGHT INCHES	VOLTS	PHASE	FLA	MOP	SCCR KA	OPTIONS / ACCESSORIES		
B	1	HPL SYSTEM	NATURAL GAS	3.5	14	2000	1920	160	60.00	10:1	60	100	100	PG30	1.5	AUTO	35	77	80	208	1	10	20	5	A	SL-2000	
B	2	HPL SYSTEM	NATURAL GAS	3.5	14	2000	1920	160	60.00	10:1	60	100	100	PG30	1.5	AUTO	35	77	80	208	1	10	20	5	A	SL-2000	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE PATTERSON KELLEY UNLESS OTHERWISE NOTED.
3. FLUID TYPE: W = WATER, PGXX = PROPYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL, EGXX = ETHYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL.

KEYED NOTES:
1. BOILERS ARE SIZED AT 1/3 OF THE ANTICIPATED BUILDING LOAD.
2. BOILERS ARE SIZED AT 2/3 OF THE ANTICIPATED BUILDING LOAD.

PUMP SCHEDULE

UNIT IDENTIFICATION												MOTOR			MODULATION / CONTROL TYPE	ELECTRICAL					KEYED NOTES
DES.	NO.	SYSTEM SERVED	LOCATION	TYPE	COUPLING TYPE	WATERFLOW GPM	FLUID TYPE	COLDEST SYSTEM OPERATING TEMP. °F. FOR PUMP SELECTION	PUMP HEAD FT.	OVERLOAD GPM	MINIMUM EFFICIENCY %	BHP	HP	RPM		VOLTS	PHASE	SCCR KA (NOTE 4)	OPTIONS / ACCESSORIES	MODEL NUMBER	
CP	1	B-1	MECHANICAL A136	INLINE	CLOSE	100	PG30	40	20	NON-OVERLOADING	67	0.79	1	1725	AUTO	480	3	22	---	e-90 2AAB	
CP	2	B-2	MECHANICAL A136	INLINE	CLOSE	100	PG30	40	20	NON-OVERLOADING	67	0.79	1	1725	AUTO	480	3	22	---	e-90 2AAB	
CP	3	HPL SYSTEM	MECHANICAL A136	BASE MOUNTED	FLEXIBLE	740	PG30	40	80	NON-OVERLOADING	80	19.2	25	1732	VFC	480	3	22	---	VSX-VSC 4x6x105.A	
CP	4	HPL SYSTEM	MECHANICAL A136	BASE MOUNTED	FLEXIBLE	740	PG30	40	80	NON-OVERLOADING	80	19.2	25	1732	VFC	480	3	22	---	VSX-VSC 4x6x105.A	
HWRP	1	DOMESTIC	MECHANICAL A136	INLINE	CLOSE	10	WATER	40	14	NON-OVERLOADING	0	0	0.17	33000	AQUASTAT	120	1	5		PL-36B	
HWRP	2	DOMESTIC	MECHANICAL A136	INLINE	CLOSE	1	WATER	40	8	NON-OVERLOADING	0	0	0.17	3300	AQUASTAT	120	1	5		PL-36B	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBER ARE BELL & GOSSETT UNLESS OTHERWISE NOTED.
3. FLUID TYPE: W = WATER, PGXX = PROPYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL, EGXX = ETHYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL.
4. CONTROLLER (E.G. VARIABLE FREQUENCY CONTROLLER, MOTOR STARTER) FOR SPECIFIED EQUIPMENT SHALL BE MANUFACTURED AND MARKED PER NEC WITH A MINIMUM SHORT CIRCUIT CURRENT RATING AS INDICATED.

DIRECT FIRED MAKE-UP AIR UNIT SCHEDULE

UNIT IDENTIFICATION			SUPPLY FAN							COOLING SECTION-DX							HEATING SECTION - GAS FIRED (NATURAL GAS)						MAXIMUM UNIT DIMENSIONS			MAXIMUM UNIT OPERATING WEIGHT LBS.	ELECTRICAL											
										COIL ENTERING AIR		COIL LEAVING AIR		NET UIT CAPACITY			AIR TEMP.		CAPACITY (MBH)		MANUFACTURER REQUIRED INLET PRESSURE AT GAS TRAIN								UNIT		FAN		CONDENSER					
DES.	NO.	AREA SERVED	AIRFLOW CFM	MINIMUM OUTSIDE AIR FLOW CFM	E.S.P. IN. W.G.	T.S.P. IN. W.G.	FAN SPEED RPM	BHP	HP	E.D.B. °F	E.W.B. °F	L.D.B. °F	L.W.B. °F	TOTAL MBH	SENSIBLE MBH	MINIMUM NUMBER OF CIRCUITS	E.A.T. °F	L.A.T. °F	INPUT	OUTPUT	MIN	MAX	LENGTH INCHES	HEIGHT INCHES	WIDTH INCHES		VOLTS	PHASE	MCA	MOP	MCA	MOP	MCA	MOP	SCCR KA	OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
MAU	1	C103 LIFE SKILLS	5150	5150	0.50	1.65	1981	2.51	3	91.0	74.0	74.0	66.9	140.2	96.3	1	-10	77	600	486	7	14	272	45	87	6700	480	3	26.9	35	-	-	-	-	5	B	IGX-P116-H22-MF-10-O	
MAU	2	B128 KITCHEN	2250	2250	0.50	1.23	1101	0.69	1	88.0	72.0	74.8	66.5	43.7	13.2	1	-10	70	197.9	182	7	14	202	75	50	2500	208	3	-	-	4.8	15	21.4	30	5	A	A2-D.250-20D-MPU	BASED ON CAPTIVEAIRE

GENERAL NOTES:
1. REFER TO SCHEDULE GENERAL NOTES.
2. MODEL NUMBERS ARE GREENHECK UNLESS OTHERWISE NOTED
3. DESIGN MINIMUM OUTSIDE AIRFLOW CFM (VENTILATION) LISTED IS BASED ON THE ESTIMATED MAXIMUM OCCUPANT LOAD. REFER TO TEMPERATURE CONTROL DRAWINGS FOR OUTSIDE AIR CONTROL SEQUENCE.

ELECTRIC COIL SCHEDULE

UNIT IDENTIFICATION				DUCT SIZE (IN.)					ELECTRICAL						KEYED NOTES
DES.	NO.	CAPACITY MBH	AIRFLOW CFM	WIDTH	HEIGHT	HEATING ELEMENT KW	FINAL AIR TEMPERATURE °F	MODULATION / CONTROL TYPE	VOLTS	PHASE	FLA	SCCR KA	OPTIONS / ACCESSORIES	MODEL NUMBER	
EC	101	64.8	3100	30	14	20.5	90	SCR	480	3	24.7	5	B	DF C100H	
EC	102	3.4	150	8	8	1.0	91	SCR	480	3	1.2	5	B	DF C100H	
EC	103	3.4	150	8	8	1.0	91	SCR	480	3	1.2	5	B	DF C100H	
EC	104	61.4	3000	30	14	19.0	90	SCR	480	3	22.9	5	B	DF C100H	
EC	105	5.1	300	12	8	2.0	91	SCR	480	3	2.4	5	B	DF C100H	
EC	106	20.5	150	12	12	7.0	91	SCR	480	3	8.4	5	B	DF C100H	
EC	107	3.4	150	8	8	1.0	91	SCR	480	3	1.2	5	B	DF C100H	
EC	108	3.4	150	8	8	1.0	91	SCR	480	3	1.2	5	B	DF C100H	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE NEPTRONIC UNLESS OTHERWISE NOTED.

HVAC SYSTEM EXPANSION TANK SCHEDULE

UNIT IDENTIFICATION		SYSTEM SERVED	ESTIMATED TOTAL SYSTEM VOLUME GALLON	TYPE	FLUID TYPE	SYSTEM FILL VALVE OR GLYCOL PUMP PRESSURE SETTING PSIG	OPERATING PRESSURES AT EXPANSION TANK		SYSTEM OPERATING TEMPERATURES		EXPANSION VOLUME GALLONS	ACCPETANCE FACTOR	MINIMUM TANK VOLUME GALLONS	DIMENSIONS		MODEL NUMBER	KEYED NOTES
DES.	NO.						PRE-CHARGE PSIG	MAX (OPERATING) PSIG	MINIMUM °F	MAXIMUM °F				DIAMETER INCHES	HEIGHT INCHES		
ET	3	HPL SYSTEM	6000	BLADDER	PG30	20	24	50	40	100	120	0.4	295	36	88	B1200	

GENERAL NOTES:
1. MODEL NUMBERS ARE BELL & GOSSETT UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL PRE-CHARGE THE TANK TO THE VALUE INDICATED IN THE SCHEDULE. FOR TANKS THAT ARE SUPPLIED PRE-CHARGED BY THE MANUFACTURER, THE CONTRACTOR SHALL CONFIRM THE PRESSURE AND MAKE ADJUSTMENTS AS REQUIRED.
3. FLUID TYPE: W = WATER, PGXX = PROPYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL, EGXX = ETHYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL.

CLOSED CIRCUIT COOLING TOWER SCHEDULE

UNIT IDENTIFICATION			AIR		FANS		CONDENSER WATER					SPRAY PUMPS		DIMENSIONS				ELECTRICAL - FAN			SPRAY PUMP MODULATION / CONTROL TYPE	ELECTRICAL - SPRAY PUMP					KEYED NOTES
DES.	NO.	TYPE	AIRFLOW CFM	E.W.B. °F	QUANTITY	HP EACH	FLUID	FLOW GPM	E.W.T. °F	L.W.T. °F	MAX W.P.D. FT. HD.	QUANTITY	HP EACH	WIDTH INCHES	HEIGHT	DEPTH INCHES	FAN MODULATION / CONTROL TYPE	VOLTS	PHASE	OPTIONS / ACCESSORIES		VOLTS	PHASE	SCCR KA	OPTIONS / ACCESSORIES	MODEL NUMBER	
CT	1	COUNTERFLOW	93600	78	2	15.00	PG30	740	100	90	20.1	1	5	102	180	216	VFC	480	3	---	AUTO	480	3	22	---	ATWB-903J18	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE EVAPCO UNLESS OTHERWISE NOTED.
3. UNIT PROVIDED (2) 6 KW IMMERSION HEATERS, 480V, 3 PHASE.
4. UNIT PROVIDED WITH (2) 120V FAN MOTOR SPACE HEATERS.
5. SHIPPING WEIGHT=17,440 LBS, OPERATING WEIGHT=25,610 LBS, HEAVIEST SECTION=12,690 LBS.

GRAVITY RELIEF HOOD SCHEDULE

UNIT IDENTIFICATION		SYSTEM SERVED	CFM	THROAT SIZE INCHES	THROAT VELOCITY FPM	STATIC PRESSURE DROP IN. W.G.	HOOD SIZE			CURB HEIGHT INCHES	HOOD CONSTRUCTION	MODEL NUMBER	KEYED NOTES
DES.	NO.						WIDTH INCHES	LENGTH INCHES	HEIGHT INCHES				
GRH	1	HP-101	2000	24x24	500	0.08	38	39	19	18	ALUMINIUM	FGR-24X24	
GRH	2	HP-102	1400	18x18	660	0.10	32	39	19	18	ALUMINIUM	FGR-18X18	

GENERAL NOTES:
1. MODEL NUMBERS ARE GREENHECK UNLESS OTHERWISE NOTED.
2. PROVIDE WITH BIRD SCREEN.

INTAKE HOOD SCHEDULE

UNIT IDENTIFICATION		SYSTEM SERVED	CFM	THROAT SIZE INCHES	HOOD INTAKE VELOCITY FPM	THROAT VELOCITY FPM	STATIC PRESSURE DROP IN. W.G.	HOOD SIZE			CURB HEIGHT INCHES	HOOD CONSTRUCTION	MODEL NUMBER	KEYED NOTES
DES.	NO.							WIDTH INCHES	LENGTH INCHES	HEIGHT INCHES				
IH	1	HP-101	2000	16x36	250	500	0.06	40	51	16	18	ALUMINIUM	FGI-16X36	
IH	2	HP-102	1400	16x24	260	525	0.09	36	39	16	18	ALUMINIUM	FGI-16X24	
IH	3	EF-123	1300	18x18	290	600	0.05	32	39	16	18	ALUMINIUM	FGI-18X18	

GENERAL NOTES:
1. MODEL NUMBERS ARE GREENHECK UNLESS OTHERWISE NOTED.
2. PROVIDE WITH BIRD SCREEN.

FAN POWERED AIR TERMINAL UNIT WITH ELECTRIC COIL SCHEDULE

UNIT IDENTIFICATION		PRIMARY INLET AIRFLOW		FAN			DUCT CONNECTIONS			ELECTRIC TEMPERING COIL					DISCHARGE SOUND POWER/RADIATED SOUND POWER - dB							ELECTRICAL								KEYED NOTES
								OUTLET (INCHES)			AIR																				
DES.	NO.	MINIMUM CFM	MAXIMUM CFM	AIRFLOW CFM	MOTOR HP	E.S.P. IN. W.G.	PRIMARY INLET DIAMETER (INCHES)	W	H	CAPACITY MBH	AIRFLOW CFM	E.D.B. °F	L.D.B. °F	HEATING ELEMENT KW	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	MODULATION / CONTROL TYPE	VOLTS	PHASE	MCA	MOP	SCCR KA	OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
FPB	101	725	1560	825	1/2	0.25	12	15	16	44.3	1560	64	91	13.0	73/62	64/54	58/49	53/41	48/36	42/30	B	480	3	23.9	25	5	B	FDV4012	
FPB	102	1050	2000	950	1	0.25	16	17.5	20	60	2000	63	90	17.0	67/60	59/54	55/52	53/45	50/40	44/34	B	480	3	32.9	35	5	B	FDV5016	
FPB	103	575	1800	1225	1	0.25	16	17.5	20	46	1800	67	90	13.5	66/59	57/52	54/51	52/44	49/38	43/32	B	480	3	27.7	30	5	B	FDV5016	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE PRICE UNLESS OTHERWISE NOTED.
3. MAXIMUM NC LEVEL BASED ON 0.3 IN. W.G. DOWNSTREAM STATIC PRESSURE AND 3 IN. W.G. PRIMARY AIR PRESSURE DROP.
4. MAXIMUM RADIATED NC LEVEL SHALL NOT EXCEED 35.

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PBA Project No: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

MECHANICAL SCHEDULES

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	KLH
CHECKED	KLH
APPROVED	SVM

PROJECT NO.

22102

DRAWING NO.

M7.5

AIR TERMINAL TYPE

DUCT CONNECTIONS		DISCHARGE SOUND POWER/RADIATED SOUND POWER - dB						MODEL NUMBER	KEYED NOTES
INLET SIZE INCHES	OUTLET SIZE INCHES	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz		
6Ø	12x8	73/66	69/63	62/52	56/42	53/40	49/36	SDV	A
8Ø	12x10	72/68	70/59	66/53	63/47	57/46	53/46	SDV	B
10Ø	14x12-1/2	78/71	70/61	65/56	61/50	58/47	53/45	SDV	C
12Ø	16x15	76/72	73/63	69/59	65/53	61/48	57/46	SDV	D
16Ø	24x18	78/70	73/63	70/58	68/53	64/52	59/50	SDV	E
24x16	38x18	83/74	81/69	76/63	74/54	73/48	68/41	SDV	F

GENERAL NOTES:
1. MODEL NUMBERS ARE PRICE UNLESS OTHERWISE NOTED.
2. MAXIMUM SOUND POWER LEVEL BASED ON 2" PRESSURE DROP ACROSS UNIT WITH NO ALLOWANCE FOR EXTERNAL ATTENUATION.

KEYED NOTES:
A. BASED ON 350 CFM
B. BASED ON 650 CFM
C. BASED ON 900 CFM
D. BASED ON 1500 CFM
E. BASED ON 2500 CFM
F. BASED ON 5300 CFM

ELECTRIC RADIANT WALL PANEL SCHEDULE

UNIT IDENTIFICATION		CAPACITY WATTS	DIMENSIONS		ELECTRICAL				MODEL NUMBER	KEYED NOTES
DES.	NO.		LENGTH INCHES	WIDTH INCHES	VOLTS	PHASE	MOP	SCCR KA		
ERWP	101	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	102	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	103	879	72	4.5	208	1	15	5	EB3-208D	
ERWP	104	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	105	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	106	879	72	4.5	208	1	15	5	EB3-208D	
ERWP	107	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	108	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	109	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	110	1319	108	4.5	208	1	15	5	EB3-208D	
ERWP	111	1319	108	4.5	208	1	15	5	EB3-208D	
ERWP	112	1319	108	4.5	208	1	15	5	EB3-208D	
ERWP	113	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	114	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	115	440	36	4.5	208	1	15	5	EB3-208D	
ERWP	116	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	117	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	118	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	119	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	120	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	121	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	122	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	123	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	124	1172	96	4.5	208	1	15	5	EB3-208D	
ERWP	125	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	126	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	127	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	128	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	129	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	130	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	131	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	132	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	133	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	201	1172	96	4.5	208	1	15	5	EB3-208D	
ERWP	202	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	203	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	204	586	48	4.5	208	1	15	5	EB3-208D	
ERWP	205	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	206	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	207	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	208	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	209	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	210	1466	120	4.5	208	1	15	5	EB3-208D	
ERWP	211	586	48	4.5	208	1	15	5	EB3-208D	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE RUNTAL UNLESS OTHERWISE NOTED.

AIR TERMINAL UNIT WITH ELECTRIC COIL SCHEDULE

UNIT IDENTIFICATION		INLET SIZE INCHES	AREA SERVED	UNIT SERVED FROM	AIR FLOW				AIR		ELECTRICAL								OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES	PBA Schedule ID
DES.	NO.				COOLING MAXIMUM CFM	MINIMUM CFM	HEATING MAXIMUM CFM	MAXIMUM A.P.D. IN. W.G.	E.D.B. °F	L.D.B. °F	CAPACITY KW	CAPACITY MBH	NUMBER OF STAGES	VOLTS	PHASE	MCA	MOP	SCCR KA				
TU	101	8Ø	B104 MEETING	ERU-5	380	145	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	102	6Ø	B119 CONFERENCE	ERU-5	150	80	150	0.75	55	76	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	103	6Ø	B105 ASST PRINCIPAL	ERU-5	125	80	125	0.75	55	80	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	104	6Ø	B106 PRINCIPAL	ERU-5	125	80	125	0.75	55	80	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	105	6Ø	B107 SPEECH	ERU-5	125	80	125	0.75	55	80	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	106	6Ø	B113 COUNSELING WAITING	ERU-5	200	80	150	0.75	55	76	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	107	6Ø	B108 PSYCHOLOGY	ERU-5	125	80	125	0.75	55	80	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	108	6Ø	B109 RECORDS & STORAGE	ERU-5	100	80	100	0.75	55	87	1.0	5.1	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	109	6Ø	B112 COUNSELING	ERU-5	100	80	100	0.75	55	87	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	110	6Ø	B114 COUNSELING	ERU-5	100	80	100	0.75	55	87	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	111	6Ø	B129 OFFICE	ERU-5	100	80	100	0.75	55	87	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	112	6Ø	B124 WORKROOM	ERU-5	150	80	150	0.75	55	76	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	113	6Ø	B122 ZEN DEN	ERU-5	200	80	150	0.75	55	76	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	114	6Ø	B115 SOCIAL WORKER	ERU-5	100	80	100	0.75	55	87	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	115	6Ø	B116 CLINIC	ERU-5	100	80	100	0.75	55	87	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	116	6Ø	B102 WELCOME CENTER	ERU-5	300	90	200	0.75	55	87	2.0	6.8	SCR	480	3	3.3	15.0	5	B	SDV		015
TU	117	6Ø	B125 GALLERY	ERU-2	300	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	118	6Ø	B139 TEACHER COLLAB	ERU-2	300	80	200	0.75	55	87	2.0	6.8	SCR	480	3	3.3	15.0	5	B	SDV		015
TU	119	12Ø	B144 VISUAL ARTS	ERU-2	1120	785	1120	0.75	55	83	10.0	34.1	SCR	480	3	16.4	20.0	5	B	SDV		015
TU	120	8Ø	B126 PASSAGE	ERU-2	400	400	400	0.75	55	91	4.5	15.4	SCR	480	3	7.4	15.0	5	B	SDV		015
TU	121	12Ø	B135 STEM-TEACHING	ERU-2	1150	720	1150	0.75	55	78	8.5	29.0	SCR	480	3	13.9	15.0	5	B	SDV		015
TU	122	12Ø	B136 STEM TECH	ERU-2	950	480	700	0.75	55	80	5.5	18.8	SCR	480	3	9.0	15.0	5	B	SDV		015
TU	123	16Ø	C103 LIFE SKILLS	ERU-2	1780	1080	1080	0.75	55	84	10.0	34.1	SCR	480	3	16.4	20.0	5	B	SDV		015
TU	124	6Ø	C107 PRACTICE	ERU-2	160	80	160	0.75	55	75	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	125	6Ø	C108 PRACTICE	ERU-2	160	80	160	0.75	55	75	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	126	6Ø	C106 ENSEMBLE	ERU-2	230	135	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	127	6Ø	C109 ENSEMBLE	ERU-2	230	135	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	128	8Ø	D102 MEDIA CENTER	ERU-3	500	350	350	0.75	55	87	3.5	11.9	SCR	480	3	5.7	15.0	5	B	SDV		015
TU	129	6Ø	D105 SMALL GROUP	ERU-3	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	130	6Ø	D104 SMALL GROUP	ERU-3	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	131	6Ø	D108 OFFICE/STORAGE	ERU-3	100	80	100	0.75	55	87	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	132	12Ø	D102 MEDIA CENTER	ERU-3	1480	920	920	0.75	55	83	8.0	27.3	SCR	480	3	13.1	15.0	5	B	SDV		015
TU	133	8Ø	F101 PASSAGE	ERU-8	550	400	550	0.75	55	84	5.0	17.1	SCR	480	3	8.2	15.0	5	B	SDV		015
TU	134	8Ø	F105 RESOURCE	ERU-8	500	300	370	0.75	55	89	4.0	13.6	SCR	480	3	6.6	15.0	5	B	SDV		015
TU	135	8Ø	F106 ESL	ERU-8	500	300	370	0.75	55	89	4.0	13.6	SCR	480	3	6.6	15.0	5	B	SDV		015
TU	136	12Ø	F138 ACTIVE LAB	ERU-8	1300	700	1300	0.75	55	79	10.0	32.4	SCR	480	3	16.4	20.0	5	B	SDV		015
TU	137	12Ø	F121 ACTIVE LAB	ERU-8	1200	700	1200	0.75	55	80	9.5	32.4	SCR	480	3	15.6	20.0	5	B	SDV		015
TU	138	12Ø	F109 LEARNING STUDIO	ERU-8	955	570	650	0.75	55	87	6.5	22.2	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	139	16Ø	F115 LEARNING COMMONS	ERU-8	1800	1450	1450	0.75	55	79	11.0	37.5	SCR	480	3	18.0	20.0	5	B	SDV		015
TU	140	12Ø	F111 LEARNING STUDIO	ERU-8	955	570	650	0.75	55	87	6.5	22.2	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	141	6Ø	F113 TEACHER COLLAB	ERU-8	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	142	12Ø	F116 LEARNING STUDIO	ERU-8	1000	570	670	0.75	55	88	7.0	23.9	SCR	480	3	11.5	15.0	5	B	SDV		015
TU	143	6Ø	F117 SMALL GROUP	ERU-8	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	144	6Ø	F118 SMALL GROUP	ERU-8	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	145	12Ø	D117 SPECIAL ED	ERU-8	1000	550	550	0.75	55	87	5.5	18.8	SCR	480	3	9.0	15.0	5	B	SDV		015
TU	146	12Ø	F128 LEARNING STUDIO	ERU-8	955	570	650	0.75	55	87	6.5	22.2	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	147	16Ø	F131 LEARNING COMMONS	ERU-8	1800	1450	1450	0.75	55	79	11.0	37.5	SCR	480	3	18.0	20.0	5	B	SDV		015
TU	148	12Ø	F147 LEARNING STUDIO	ERU-8	955	570	650	0.75	55	87	6.5	22.2	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	149	6Ø	F132 TEACHER COLLAB	ERU-8	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	150	12Ø	F134 LEARNING STUDIO	ERU-8	1000	570	670	0.75	55	88	7.0	23.9	SCR	480	3	11.5	15.0	5	B	SDV		015
TU	151	6Ø	F136 SMALL GROUP	ERU-8	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	152	6Ø	F135 SMALL GROUP	ERU-8	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	153	6Ø	D113 LIVE A	ERU-9	100	80	100	0.75	55	87	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	154	6Ø	E105 STAFF LOUNGE	ERU-9	270	110	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	155	8Ø	E101 PASSAGE	ERU-9	525	400	525	0.75	55	85	5.0	17.1	SCR	480	3	8.2	15.0	5	B	SDV		015
TU	156	10Ø	E107 RESOURCE	ERU-9	500	300	370	0.75	55	89	4.0	13.6	SCR	480	3	6.6	15.0	5	B	SDV		015
TU	157	12Ø	E108 ELECTIVE	ERU-9	1000	570	670	0.75	55	88	7.0	23.9	SCR	480	3	11.5	15.0	5	B	SDV		015
TU	158	12Ø	E138 ACTIVE LAB	ERU-9	1300	700	1300	0.75	55	79	10.0	32.4	SCR	480	3	16.4	20.0	5	B	SDV		015
TU	159	12Ø	E121 ACTIVE LAB	ERU-9	1200	700	1200	0.75	55	80	9.5	32.4	SCR	480	3	15.6	20.0	5	B	SDV		015
TU	160	12Ø	E109 LEARNING STUDIO	ERU-9	955	570	650	0.75	55	87	6.5	22.2	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	161	16Ø	E115 LEARNING COMMONS	ERU-9	1800	1450	1450	0.75	55	79	11.0	37.5	SCR	480	3	18.0	20.0	5	B	SDV		015
TU	162	12Ø	E111 LEARNING STUDIO	ERU-9	955	570	650	0.75	55	87	6.5	22.2	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	163	6Ø	E113 TEACHER COLLAB	ERU-9	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	164	12Ø	E116 LEARNING STUDIO	ERU-9	1000	570	670	0.75	55	88	7.0	23.9	SCR	480	3	11.5	15.0	5	B	SDV		015
TU	165	6Ø	E117 SMALL GROUP	ERU-9	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	166	6Ø	E118 SMALL GROUP	ERU-9	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	167	12Ø	D122 SPECIAL ED	ERU-9	1000	550	670	0.75	55	83	6.0	20.5	SCR	480	3	9.8	15.0	5	B	SDV		015
TU	168	8Ø	D121 SPECIAL ED	ERU-9	460	270	270	0.75	55	90	3.0	10.2	SCR	480	3	4.9	15.0	5	B	SDV		015
TU	169	16Ø	E129 LEARNING COMMONS	ERU-9	1800	1450	1450	0.75	55	79	11.0	37.5	SCR	480	3	18.0	20.0	5	B	SDV		015
TU	170	12Ø	E127 LEARNING STUDIO	ERU-9	955	570	650	0.75	55	87	6.5	22.2	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	171	12Ø	E128 LEARNING STUDIO	ERU-9	955	570	650	0.75	55	87	6.5	22.2	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	172	6Ø	E132 TEACHER COLLAB	ERU-9	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	173	12Ø	E134 LEARNING STUDIO	ERU-9	1000	570	670	0.75	55	88	7.0	23.9	SCR	120	3	11.5	15.0	5	B	SDV		015
TU	174	6Ø	E136 SMALL GROUP	ERU-9	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	175	6Ø	E137 SMALL GROUP	ERU-9	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	201	6Ø	D204 LOUNGE	ERU-10	300	220	220	0.75	55	91	2.5	8.5	SCR	480	3	4.1	15.0	5	B	SDV		015
TU	202	12Ø	D201 COMMONS	ERU-10	960	570	650	0.75	55	87	6.5	17.1	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	203	10Ø	D202 COMMONS	ERU-10	850	430	430	0.75	55	77	3.0	8.5	SCR	480	3	4.9	15.0	5	B	SDV		015
TU	204	10Ø	E207 RESOURCE	ERU-10	500	300	370	0.75	55	89	4.0	13.6	SCR	480	3	6.6	15.0	5	B	SDV		015
TU	205	12Ø	E208 ELECTIVE	ERU-10	1000	570	670	0.75	55	88	7.0	23.9	SCR	480	3	11.5	15.0	5	B	SDV		015
TU	206	12Ø	E238 ACTIVE LAB	ERU-10	1300	700	1300	0.75	55	79	10.0	32.4	SCR	480	3	16.4	20.0	5	B	SDV		015
TU	207	12Ø	E221 ACTIVE LAB	ERU-10	1200	700	1200	0.75	55	80	9.5	32.4	SCR	480	3	15.6	20.0	5	B	SDV		015
TU	208	12Ø	E209 LEARNING STUDIO	ERU-10	955	570	650	0.75	55	87	6.5	22.2	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	209	16Ø	E215 LEARNING COMMONS	ERU-10	1800	1450	1450	0.75	55	79	11.0	37.5	SCR	480	3	18.0	20.0	5	B	SDV		015
TU	210	12Ø	E211 LEARNING STUDIO	ERU-10	955	570	650	0.75	55	87	6.5	22.2	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	211	6Ø	E213 TEACHER COLLAB	ERU-10	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	212	12Ø	E216 LEARNING STUDIO	ERU-10	1000	570	670	0.75	55	88	7.0	23.9	SCR	480	3	11.5	15.0	5	B	SDV		015
TU	213	6Ø	E217 SMALL GROUP	ERU-10	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	214	6Ø	E218 SMALL GROUP	ERU-10	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	215	12Ø	E227 LEARNING STUDIO	ERU-10	955	570	650	0.75	55	87	6.5	22.2	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	216	16Ø	E229 LEARNING COMMONS	ERU-10	1800	1450	1450	0.75	55	79	11.0	37.5	SCR	480	3	18.0	20.0	5	B	SDV		015
TU	217	12Ø	E228 LEARNING STUDIO	ERU-10	955	570	650	0.75	55	87	6.5	22.2	SCR	480	3	10.7	15.0	5	B	SDV		015
TU	218	6Ø	E232 TEACHER COLLAB	ERU-10	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	219	12Ø	E234 LEARNING STUDIO	ERU-10	1000	570	670	0.75	55	88	7.0	23.9	SCR	480	3	11.5	15.0	5	B	SDV		015
TU	220	6Ø	E235 SMALL GROUP	ERU-10	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015
TU	221	6Ø	E236 SMALL GROUP	ERU-10	350	80	180	0.75	55	73	1.0	3.4	SCR	480	1	2.8	15.0	5	B	SDV		015

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE PRICE UNLESS OTHERWISE NOTED.
3. COIL HEATING CAPACITY IS BASED ON HEATING CFM.
4. MAXIMUM AIR PRESSURE DROP IS BASED ON MAXIMUM CFM AND INCLUDES THE PRESSURE DROP OF THE ENTIRE ASSEMBLY INCLUDING HEATING COIL.
5. PROVIDE 480V 3 PHASE 3 WIRE.

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PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

MECHANICAL SCHEDULES

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	KLH
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22102

DRAWING NO.
M7.6

POWER VENTILATOR SCHEDULE

UNIT IDENTIFICATION								MOTOR						ELECTRICAL					UNIT INLET Lw BY OCTAVE BAND									
DES.	NO.	SYSTEM SERVED	TYPE	AIRFLOW CFM	T.S.P. IN. W.G.	TIP SPEED FPM	FAN RPM	BHP	HP	RPM	MOTOR DRIVE TYPE	CURB HEIGHT INCHES	MODULATION / CONTROL TYPE	VOLTS	PHASE	FLA	SCCR KA (NOTE 3)	OPTIONS / ACCESSORIES	63 Hz (DB)	125 Hz (DB)	250 Hz (DB)	500 Hz (DB)	1000 Hz (DB)	2000 Hz (DB)	4000 Hz (DB)	8000 Hz (DB)	MODEL NUMBER	KEYED NOTES
EF	101	TOILET ROOMS	CENTRIFUGAL	870	0.50	4429	1512	0.17	1/4	1725	DIRECT	14	AUTO	120	1	2.9	5	B	73	76	76	68	63	62	57	51	G-99-VG	
EF	102	TOILET ROOMS	CENTRIFUGAL	70	0.30	1207	838	-	6 WATTS	-	DIRECT	-	AUTO	120	1	0.3	5	B	-	-	-	-	-	-	-	-	SP-A50-90-VG	1
EF	103	TOILET ROOMS	CENTRIFUGAL	70	0.30	1207	838	-	6 WATTS	-	DIRECT	-	AUTO	120	1	0.3	5	B	-	-	-	-	-	-	-	-	SP-A50-90-VG	1
EF	104	ART ROOM	CENTRIFUGAL	1000	0.50	4832	1650	0.21	1/4	1725	DIRECT	14	MANUAL	120	1	2.9	5	B	74	78	78	70	66	65	60	54	G-99-VG	
EF	105	TOILET ROOMS	CENTRIFUGAL	630	0.50	4466	1569	0.12	1/6	1725	DIRECT	14	AUTO	120	1	2.2	5	B	81	79	71	64	62	57	47	45	G-95-VG	
EF	106	STEM TEACHING	CENTRIFUGAL	1000	0.50	4832	1650	0.21	1/4	1725	DIRECT	14	MANUAL	120	1	2.9	5	B	74	78	78	70	66	65	60	54	G-99-VG	
EF	107	WORKSHOP	CENTRIFUGAL	150	0.30	2921	1373	0.03	1/15	1725	DIRECT	14	MANUAL	120	1	1.3	5	B	65	64	59	46	40	39	34	30	G-70-VG	
EF	108	LIFE SKILLS	CENTRIFUGAL	2800	2.13	6268	1451	2.06	3	-	DIRECT	14	VFC	208	3	9.5	5	B	-	-	-	-	-	-	-	-	DU180HFA	2, 3
EF	109	TOILET ROOMS	CENTRIFUGAL	630	0.50	4466	1569	0.12	1/6	1725	DIRECT	14	AUTO	120	1	2.2	5	B	81	79	71	64	62	57	47	45	G-95-VG	
EF	110	ACTIVE LAB	CENTRIFUGAL	1200	0.50	4339	1269	0.19	1/2	1725	DIRECT	14	MANUAL	208	1	3.8	5	B	69	74	75	69	61	60	55	53	G-120-VG	
EF	111	ACTIVE LAB	CENTRIFUGAL	1200	0.50	4339	1269	0.19	1/2	1725	DIRECT	14	MANUAL	208	1	3.8	5	B	69	74	75	69	61	60	55	53	G-120-VG	
EF	112	TOILET ROOMS	CENTRIFUGAL	70	0.30	1207	838	-	6 WATTS	-	DIRECT	-	AUTO	120	1	0.3	5	B	-	-	-	-	-	-	-	-	SP-A50-90-VG	1
EF	113	TOILET ROOMS	CENTRIFUGAL	70	0.30	1207	838	-	6 WATTS	-	DIRECT	-	AUTO	120	1	0.3	5	B	-	-	-	-	-	-	-	-	SP-A50-90-VG	1
EF	114	SPECIAL ED-3	CENTRIFUGAL	300	0.25	3246	1181	0.04	1/4	1800	DIRECT	14	AUTO	120	1	2.9	5	B	-	-	-	-	-	-	-	-	DU12HFA	2, 3
EF	115	TOILET ROOMS	CENTRIFUGAL	630	0.50	4466	1569	0.12	1/6	1725	DIRECT	14	AUTO	120	1	2.2	5	B	81	79	71	64	62	57	47	45	G-95-VG	
EF	116	ACTIVE LAB	CENTRIFUGAL	1200	0.75	4775	1396	0.26	1/2	1725	DIRECT	14	MANUAL	208	1	3.8	5	B	71	76	78	72	64	63	58	56	G-120-VG	
EF	117	ACTIVE LAB	CENTRIFUGAL	1200	0.75	4775	1396	0.26	1/2	1725	DIRECT	14	MANUAL	208	1	3.8	5	B	71	76	78	72	64	63	58	56	G-120-VG	
EF	118	TOILET ROOMS	CENTRIFUGAL	70	0.30	1207	838	-	6 WATTS	-	DIRECT	-	AUTO	120	1	0.3	5	B	-	-	-	-	-	-	-	-	SP-A50-90-VG	1
EF	119	TOILET ROOMS	CENTRIFUGAL	70	0.30	1207	838	-	6 WATTS	-	DIRECT	-	AUTO	120	1	0.3	5	B	-	-	-	-	-	-	-	-	SP-A50-90-VG	1
EF	120	KITCHEN HOOD	CENTRIFUGAL	1262	0.80	4296	1094	0.25	3/4	1800	DIRECT	14	AUTO	208	1	5.2	5	B	-	-	-	-	-	-	-	-	DU85HFA	2, 3
EF	121	KITCHEN HOOD	CENTRIFUGAL	1262	0.80	4296	1094	0.25	3/4	1800	DIRECT	14	AUTO	208	1	5.2	5	B	-	-	-	-	-	-	-	-	DU85HFA	2, 3
EF	122	DISHWASHER	CENTRIFUGAL	600	0.50	3750	1280	0.12	1/4	1725	DIRECT	14	AUTO	115	1	5.8	5	B	71	70	67	61	58	57	52	43	CUE-099-VG	
EF	123	MECHANICAL ROOM	CENTRIFUGAL	1300	0.50	4557	1333	0.22	1/2	1725	DIRECT	14	AUTO	208	1	3.8	5	B	71	75	77	71	63	62	57	55	G-120-VG	
EF	124	LIFE SKILLS	CENTRIFUGAL	2745	1.25	5188	1201	1.21	3	-	DIRECT	14	VFC	208	3	7.2	5	B	-	-	-	-	-	-	-	-	DU180HFA	2, 3
EF	201	TOILET ROOMS	CENTRIFUGAL	560	0.50	4288	1506	0.11	1/6	1725	DIRECT	14	AUTO	120	1	2.2	5	B	81	78	69	63	61	56	45	48	G-95-VG	
EF	202	ACTIVE LAB	CENTRIFUGAL	1200	0.50	4339	1269	0.19	1/2	1725	DIRECT	14	MANUAL	208	1	3.8	5	B	69	74	75	69	61	60	55	53	G-120-VG	
EF	203	ACTIVE LAB	CENTRIFUGAL	1200	0.50	4339	1269	0.19	1/2	1725	DIRECT	14	MANUAL	208	1	3.8	5	B	69	74	75	69	61	60	55	53	G-120-VG	
EF	204	TOILET ROOMS	CENTRIFUGAL	70	0.30	1207	838	-	6 WATTS	-	DIRECT	-	AUTO	120	1	0.3	5	B	-	-	-	-	-	-	-	-	SP-A50-90-VG	1
EF	205	TOILET ROOMS	CENTRIFUGAL	70	0.30	1207	838	-	6 WATTS	-	DIRECT	-	AUTO	120	1	0.3	5	B	-	-	-	-	-	-	-	-	SP-A50-90-VG	1

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE GREENHECK UNLESS OTHERWISE NOTED.
3. CONTROLLER (E.G. VARIABLE FREQUENCY CONTROLLER, MOTOR STARTER) FOR SPECIFIED EQUIPMENT SHALL BE MANUFACTURED AND MARKED PER NEC WITH A MINIMUM SHORT CIRCUIT CURRENT RATING AS INDICATED.

KEYED NOTES:
1. PROVIDE WITH INTEGRAL MOTION SENSOR.
2. BASED ON CAPTIVEAIRE.
3. UL-762 LISTED.

FAN SCHEDULE

UNIT IDENTIFICATION								MOTOR					ELECTRICAL					UNIT INLET Lw BY OCTAVE BAND									
DES.	NO.	SYSTEM SERVED	TYPE	AIR FLOW CFM	T.S.P. IN. W.G.	RPM	OUTLET VELOCITY FPM	BHP	HP	RPM	DRIVE TYPE	MODULATION / CONTROL TYPE	VOLTS	PHASE	FLA	SCCR KA (NOTE 3)	OPTIONS / ACCESSORIES	63 Hz (DB)	125 Hz (DB)	250 Hz (DB)	500 Hz (DB)	1000 Hz (DB)	2000 Hz (DB)	4000 Hz (DB)	8000 Hz (DB)	MODEL NUMBER	KEYED NOTES
RF	101	FPB-101	CENTRIFUGAL	1940	0.25	1520	886	0.39	0.75	1725	DIRECT	AUTO	208	1	5.4	5	B	72	76	81	75	65	65	61	55	SQ-130-VG	
RF	102	FPB-102	CENTRIFUGAL	2390	0.25	1356	882	0.47	0.75	1725	DIRECT	AUTO	208	1	5.4	5	B	72	73	80	75	67	65	62	59	SQ-140-VG	
RF	103	C201	CENTRIFUGAL	650	0.25	1074	496	0.06	0.25	1725	DIRECT	AUTO	208	1	1.7	5	B	62	65	61	60	56	51	43	42	SQ-100-VG	
RF	104	-	CENTRIFUGAL	450	0.25	1454	450	0.05	0.1	1725	DIRECT	AUTO	208	1	0.8	5	B	70	70	67	59	56	54	52	44	SQ-90-VG	
RF	105	-	CENTRIFUGAL	450	0.25	1454	450	0.05	0.1	1725	DIRECT	AUTO	208	1	0.8	5	B	70	70	67	59	56	54	52	44	SQ-90-VG	
RF	106	-	CENTRIFUGAL	450	0.25	1454	450	0.05	0.1	1725	DIRECT	AUTO	208	1	0.8	5	B	70	70	67	59	56	54	52	44	SQ-90-VG	
RF	201	-	CENTRIFUGAL	450	0.25	1454	450	0.05	0.1	1725	DIRECT	AUTO	208	1	0.8	5	B	70	70	67	59	56	54	52	44	SQ-90-VG	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE GREENHECK UNLESS OTHERWISE NOTED.
3. CONTROLLER (E.G. VARIABLE FREQUENCY CONTROLLER, MOTOR STARTER) FOR SPECIFIED EQUIPMENT SHALL BE MANUFACTURED AND MARKED PER NEC WITH A MINIMUM SHORT CIRCUIT CURRENT RATING AS INDICATED.

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PBA Project No: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

MECHANICAL SCHEDULES

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	WTF
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22102

DRAWING NO.
M7.7

FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE - GENERAL PURPOSE

OVERCURRENT DEVICE RATING (AMPERES)	COPPER CONDUCTORS						KEYED NOTES	ALUMINUM CONDUCTORS					
	WIRE SIZE (AWG OR KCMIL)		CONDUIT SIZE					WIRE SIZE (AWG OR KCMIL)		CONDUIT SIZE			
	PHASE & NEUTRAL	GROUND	SINGLE PHASE 2 WIRE+G (1PH, 1N, 1G)	SINGLE PHASE 3 WIRE+G (2PH, 1N, 1G)	THREE PHASE 3 WIRE+G (3PH, 1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH, 1N, 1G)		PHASE & NEUTRAL	GROUND	SINGLE PHASE 3 WIRE+G (2PH, 1N, 1G)	THREE PHASE 3 WIRE+G (3PH, 1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH, 1N, 1G)	
15-20	12	12	3/4"	3/4"	3/4"	3/4"		N/A	N/A	N/A	N/A	N/A	
25-30	10	10	3/4"	3/4"	3/4"	3/4"		N/A	N/A	N/A	N/A	N/A	
35-40	8	10	3/4"	3/4"	3/4"	3/4"		N/A	N/A	N/A	N/A	N/A	
45-50	8 (6)	10	3/4"	3/4"	3/4"	3/4"	1	N/A	N/A	N/A	N/A	N/A	
60	6 (4)	10	3/4" (1")	3/4" (1")	3/4" (1")	1" (1 1/4")	1	N/A	N/A	N/A	N/A	N/A	
70	4	8	1"	1 1/4"	1 1/4"	1 1/4"		N/A	N/A	N/A	N/A	N/A	
80	4 (3)	8	1"	1 1/4"	1 1/4"	1 1/4"	1	N/A	N/A	N/A	N/A	N/A	
90-100	3 (2)	8	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1	1	6	1 1/2"	1 1/4"	1 1/2"	
110	2 (1)	6	-	1 1/4"	1 1/4"	1 1/4" (1 1/2")	1	1/0	4	1 1/2"	1 1/2"	2"	
125	1 (1/0)	6	-	1 1/4" (1 1/2")	1 1/4" (1 1/2")	1 1/2"	1	2/0	4	1 1/2"	1 1/2"	2"	
150	1/0	6	-	1 1/2"	1 1/2"	1 1/2"		3/0	4	2"	2"	2 1/2"	
175	2/0	6	-	2"	2"	2"		4/0	4	2"	2"	2 1/2"	
200	3/0	6	-	2"	2"	2 1/2"		250	4	2"	2"	3"	
225	4/0	4	-	2"	2"	2 1/2"		300	2	2 1/2"	2 1/2"	3"	
250	250	4	-	2 1/2"	2 1/2"	2 1/2"		350	2	2 1/2"	2 1/2"	3"	
300	350	4	-	2 1/2"	2 1/2"	3"		500	2	3"	3"	3 1/2"	
350	500	3	-	3"	3"	3"		2-4/0	2-1/0	2-2"	2-2"	2-2"	
400	500	3	-	3"	3"	3"		2-250	2-1/0	2-2 1/2"	2-2 1/2"	2-2 1/2"	
450	2-4/0	2-2	-	2-2"	2-2"	2-2 1/2"		2-300	2-1/0	2-2 1/2"	2-2 1/2"	2-3"	
500	2-250	2-2	-	2-2 1/2"	2-2 1/2"	2-2 1/2"		2-350	2-1/0	2-2 1/2"	2-2 1/2"	2-3"	
600	2-350	2-1	-	2-2 1/2"	2-2 1/2"	2-3"		2-500	2-2/0	2-3"	2-3"	2-3 1/2"	
700	2-500	2-1/0	-	2-3"	2-3"	2-3"		2-600	2-3/0	2-3"	2-3"	2-3 1/2"	
800	2-500	2-1/0	-	2-3"	2-3"	2-3 1/2"		3-400	3-3/0	3-3"	3-3"	3-3 1/2"	
1000	3-400	3-2/0	-	3-3"	3-3"	3-3"		3-600	3-4/0	-	3-3 1/2"	3-3 1/2"	
1200	3-600	3-3/0	-	3-3 1/2"	3-3 1/2"	3-3 1/2"		4-500	4-250	-	4-3"	4-3 1/2"	
1600	4-600	4-4/0	-	4-3 1/2"	4-3 1/2"	4-3 1/2"		5-600	5-350	-	5-3 1/2"	5-4"	
2000	5-600	5-250	-	5-3 1/2"	5-3 1/2"	5-3 1/2"		6-600	6-400	-	6-3 1/2"	6-4"	

GENERAL NOTES:
1. CONTRACTOR TO SIZE FEEDERS AND BRANCH CIRCUITS BASED ON THIS SCHEDULE AND OVER CURRENT DEVICE SIZE, UNLESS NOTED OTHERWISE.
2. CONTRACTOR MAY COMBINE 20A CIRCUITS AS NOTED IN SPECIFICATION.
3. CONDUCTORS ARE BASED ON THHN/THWN UP TO AND INCLUDING #4/0. LARGER THAN #4/0 ARE BASED ON TYPE XHHW.
4. CONDUIT SIZES ARE VALID FOR EMT OR RGS. CONDUIT SIZES SHALL BE ADJUSTED AS REQUIRED FOR OTHER TYPES OF CONDUIT.
5. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR AND PROVIDE REQUIRED WIRE SIZES TO ACCOMMODATE MECHANICAL EQUIPMENT LUG SIZES.
6. SIZE OF DISCONNECT SWITCH LOCATED AT EQUIPMENT SHALL BE SIZED BASED UPON OVERCURRENT PROTECTION OF THAT DEVICE.
7. OBTAIN APPROVAL FROM ENGINEER PRIOR TO INSTALLING DIFFERENT SIZE/QUANTITY OF CONDUCTORS TO OBTAIN AN EQUIVALENT AMPACITY.
8. SPLICE FROM ALUMINUM TO COPPER PRIOR TO ENTERING EQUIPMENT LISTED FOR USE WITH COPPER CONDUCTORS ONLY OR USE COPPER CONDUCTORS FOR THE ENTIRE LENGTH OF FEEDER.
9. N/A = NOT ACCEPTABLE

KEYED NOTES:
1. CONDUCTORS ARE BASED ON 90°C, 600V. INSULATED WIRE APPLIED AT 75°C FOR TERMINATION RATED 60/75°C OR 75°C. FOR TERMINATION RATED AT 60°C, USE CONDUCTORS AND CONDUIT SIZES INDICATED IN PARENTHESES.

DRY TYPE DISTRIBUTION TRANSFORMER CIRCUIT SIZING SCHEDULE

TRANSFORMER KVA	PRIMARY (480V)	SECONDARY (208Y/120 VOLT)								KEYED NOTES
			CONDUCTOR SIZE (AWG OR KCMIL)						GROUNDING ELECTRODE CONDUCTOR		
	OVERCURRENT PROTECTION	OVERCURRENT PROTECTION	PHASE & NEUTRAL		SUPPLY SIDE BONDING JUMPER		CONDUIT (4W + SSBJ)				
			COPPER	ALUMINUM	COPPER	ALUMINUM	COPPER	ALUMINUM	COPPER	ALUMINUM	
9	20A	30A	10	NA	8	NA	3/4"	NA	8	NA	
15	25A	60A	6	NA	8	NA	1"	NA	8	NA	1
30	45A	100A	3	1	8	6	1 1/4"	1 1/2"	8	6	1
45	70A	175A	2/0	4/0	4	2	2"	2 1/2"	4	2	
75	125A	300A/225A	350 / 4/0	500 / 300	2	1/0	3"	3 1/2"	2	1/0	2
112 1/2	175A	400A	600	2-250	1/0	2	3 1/2"	2-2 1/2"	1/0	1/0	
150	225A	600A	2-350	2-500	2-2	2-1/0	2-3"	2-3 1/2"	2/0	4/0	
225	350A	800A	2-600	3-400	2-1/0	3-1/0	2-3 1/2"	3-3"	3/0	4/0	
300	500A	1200A	3-600	4-500	3-1/0	4-1/0	3-3 1/2"	4-3 1/2"	3/0	250	
500	800A	1600A	4-600	5-600	4-1/0	5-3/0	4-3 1/2"	5-3 1/2"	3/0	250	

GENERAL NOTES:
1. TRANSFORMERS AND FEEDERS ARE BASED ON 480 VOLT, 3 PHASE, 3 WIRE PRIMARY AND 208Y/120 VOLT, 3 PHASE, 4 WIRE, SECONDARY.
2. ALUMINUM CONDUCTORS ARE PERMITTED ONLY IF INCLUDED IN FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE.
3. PRIMARY OVERCURRENT PROTECTION IS SIZED AT 125% OF TRANSFORMER FULL LOAD CURRENT. PROVIDE PRIMARY OVERCURRENT DEVICE SELECTION TO ALLOW TRANSFORMER IN-RUSH CURRENT AND PROTECT BASED ON THE ANSI DAMAGE CURVE. IF MANUFACTURER REQUIRES PRIMARY OVERCURRENT GREATER THAN 125% (NOT TO EXCEED 250%) THEN PRIMARY FEEDER SHALL BE INCREASED ACCORDINGLY.
4. SECONDARY CONDUCTOR BASED ON TEN FOOT MAXIMUM LENGTH (NEC 240.21(C)(2)). IF CONDUCTORS ARE LONGER THAN TEN FOOT, REQUIREMENTS IN NEC 240.21(C)(6) MUST BE MET. IN NO CASE SHALL CONDUCTORS BE LONGER THAN TWENTY-FIVE FEET.

KEYED NOTES:
1. CONDUCTORS ARE BASED ON 90°C, 600V. INSULATED WIRE APPLIED AT 75°C FOR TERMINATION RATED 60/75°C OR 75°C.
2. THE SMALLER SIZE IS TO BE USED TO FEED 225A PANELBOARDS.

MOTOR CIRCUIT SIZING SCHEDULE (480V, 3 PHASE)

MOTOR HP	SWITCH/FUSE	CIRCUIT BREAKER	STARTER SIZE/TYPE	MOTOR DISCONNECT (NOTE 3)
1/2	30/3A	15A	1	30A
3/4	30/3A	15A	1	30A
1	30/6A	15A	1	30A
1 1/2	30/6A	15A	1	30A
2	30/6A	15A	1	30A
3	30/10A	15A	1	30A
5	30/15A	15A	1	30A
7 1/2	30/20A	20A	1	30A
10	30/20A	25A	1	30A
15	30/30A	40A	2	30A
20	60/40A	60A	2	60A
25	60/50A	70A	2	60A
30	60/60A	80A	3	60A
40	100/80A	90A	3	100A
50	100/100A	100A	3	100A
60	200/125A	125A	4	200A
75	200/150A	150A	4	200A
100	200/200A	200A	4	200A
125	200/200A	225A	5	200A
150	400/250A	250A	5	400A
200	400/350A	350A	5	400A

GENERAL NOTES:
1. BASED ON MOTOR FULL LOAD AMPERES AS PROVIDED BY THE NEC
2. BASED ON MOTOR RUNNING OVERLOAD PROTECTIONS PROVIDED BY THERMAL OVERLOAD RELAYS.
3. WHERE THE STARTER IS LOCATED REMOTE FROM THE MOTOR, PROVIDE DISCONNECT LOCATED AT THE MOTOR, SIZE AS INDICATED.

MOTOR CIRCUIT SIZING SCHEDULE (120V, SINGLE PHASE)

MOTOR HP	CIRCUIT BREAKER	MANUAL MOTOR STARTER SIZE	COMBINATION STARTER SIZE	MOTOR DISCONNECT (NOTE 3)
1/6	15A	1 HP	0	20A
1/4	15A	1 HP	0	20A
1/3	15A	1 HP	0	20A
1/2	20A	1 HP	0	20A

GENERAL NOTES:
1. BASED ON MOTOR FULL LOAD AMPERES AS PROVIDED BY THE NEC
2. BASED ON MOTOR RUNNING OVERLOAD PROTECTIONS PROVIDED BY THERMAL OVERLOAD RELAYS.
3. WHERE THE STARTER IS LOCATED REMOTE FROM THE MOTOR, PROVIDE DISCONNECT LOCATED AT THE MOTOR, SIZE AS INDICATED.

SPECIAL RECEPTACLES

TYPE	DESCRIPTION
Type 0	
Type 7	125/250V 30A SINGLE PHASE RECEPTACLE, 3 POLE, 4 WIRE (NEMA 14-30R)
Type 8	125/250V 50A SINGLE PHASE RECEPTACLE, 3 POLE, 4 WIRE (NEMA 14-50R)
Type 9	125 20A SINGLE PHASE LOCKING RECEPTACLE, 2 POLE, 3 WIRE (NEMA L5-20R)
Type 9	125V, 30A, SINGLE PHASE, LOCKING RECEPTACLE, 2 POLE, 3 WIRE (NEMA L5-30R)

RACEWAY / CONDUCTOR / CABLE APPLICATION SCHEDULE

	WIRE		RACEWAY								CABLE/CORD						
	COPPER, TYPE THHN/THWN-2	COPPER, TYPE XHHW-2	ALUMINUM, TYPE XHHW-2 (100A AND ABOVE ONLY)	ELECTRICAL METALLIC TUBING (EMT)	INTERMEDIATE METAL CONDUIT (IMC)	RIGID STEEL CONDUIT (RSC)	PVC-COATED RIGID STEEL CONDUIT	RIGID NON-METALLIC CONDUIT (RNC) TYPE EPC-40	RIGID NON-METALLIC CONDUIT (RNC) TYPE EPC-80	HIGH DENSITY POLYETHYLENE (HDPE) SCHEDULE 40	HIGH DENSITY POLYETHYLENE (HDPE) SCHEDULE 80	LIQUID TIGHT FLEXIBLE METAL CONDUIT (LFMC)	METAL CLAD TYPE CABLE WITH INSULATED GROUND WIRE (TYPE MC)	TWO HOUR FIRE RATED MINERAL INSULATED CABLE (TYPE MI) (KEYED NOTE 2)	TWO HOUR FIRE RATED CABLE (RHW-2) (KEYED NOTE 3)	TWO HOUR RATED MC POWER CABLE (KEYED NOTE 3)	VFC CABLE	POWER LIMITED CABLE
FEEDERS - EXTERIOR																	
EXPOSED, WITH FREESTANDING SUPPORT		X	X		X	X											
CONCEALED IN RETAINING WALL OR SIMILAR ELEMENT		X	X			X	X	X	X								
BELOW PARKING LOTS AND ROADWAYS		X	X				X		X		X						
BELOW GREEN SPACE		X	X				X	X		X							
WITHIN 5' OF FOUNDATION WALL		X	X			X	X										
ROOFTOPS (WHEN APPROVED BY ENGINEER)		X	X		X	X	X										
FEEDERS - INTERIOR																	
CONCEALED, ACCESSIBLE CEILINGS	X		X	X	X												
CONCEALED, INACCESSIBLE CEILINGS	X		X	X													
CONCEALED IN GYPSUM BOARD PARTITION WALLS	X		X	X													
CONCEALED IN CMU WALLS	X		X	X													
EXPOSED, BELOW 10' AFF AND SUBJECT TO DAMAGE	X		X		X	X								X			
EXPOSED, BELOW 10' AFF AND NOT SUBJECT TO DAMAGE	X		X	X	X									X			
EXPOSED, ABOVE 10' AFF UNFINISHED SPACES	X		X	X										X			
BELOW SLAB ON GRADE	X		X			X	X	X	X					X			
DAMP AND WET LOCATIONS	X		X		X	X	X	X									
BRANCH CIRCUITS - EXTERIOR																	
EXPOSED, SURFACE MOUNTED TO STRUCTURE		X			X	X	X		X								
EXPOSED, WITH FREESTANDING SUPPORT		X			X	X	X										
CONCEALED IN RETAINING WALL OR SIMILAR ELEMENT		X				X	X	X									
BELOW PARKING LOTS AND ROADWAYS		X				X	X	X		X							
BELOW GREEN SPACE		X					X	X									
WITHIN 5' OF FOUNDATION WALL		X				X	X										
ROOFTOPS (WHEN APPROVED BY ENGINEER)		X			X	X	X										
BRANCH CIRCUITS - INTERIOR																	
CONCEALED, ACCESSIBLE CEILINGS	X			X	X								X				
CONCEALED, INACCESSIBLE CEILINGS	X			X	X												
CONCEALED IN GYPSUM BOARD PARTITION WALLS	X			X	X								X				
CONCEALED IN CMU WALLS	X			X	X												
EXPOSED, BELOW 10' AFF AND SUBJECT TO DAMAGE	X				X	X	X										
EXPOSED, BELOW 10' AFF AND NOT SUBJECT TO DAMAGE	X			X	X								X				
EXPOSED, ABOVE 10' AFF UNFINISHED SPACES	X			X	X												
EXPOSED, FINISHED SPACES	X																
BELOW SLAB ON GRADE	X							X									
EMBEDDED IN ELEVATED CONCRETE SLAB	X							X									
DAMP AND WET LOCATIONS	X			X	X	X	X					X					
SPECIAL APPLICATIONS																	
SERVICE ENTRANCE - UNDERGROUND		X	X				X	X	X	X	X						
CONNECTION BETWEEN VFC AND MOTORS (KEYED NOTE 1)																	X
CLASS 1 CONTROL CIRCUITS	X			X	X	X											
CLASS 2 CONTROL CIRCUITS	X			X	X	X											X
CLASS 3 CONTROL CIRCUITS	X			X	X	X											X
EMERGENCY FEEDERS UNDER NEC 700.10(D) (KEYED NOTE 2)		X	X	X	X	X	X	X	X	X	X			X	X	X	
CONNECTIONS TO TRANSFORMERS, MOTORS AND VIBRATING EQUIPMENT		X										X					

GENERAL NOTES:
1. TRANSITION FROM PVC/HDPE AND PROVIDE RIGID STEEL OR RTRC SWEEPS WHERE CONDUITS PENETRATE WALLS, CONCRETE SLABS, CONCRETE BASES, AND ASPHALT.
2. REFER TO SPECIFICATIONS FOR RESTRICTIONS ON MC/AC CABLE INSTALLATION.
3. EMT SHALL NOT BE USED ON THE EXTERIOR OF A BUILDING OR IN AREAS SUBJECT TO DAMAGE BELOW 10' AFF.
4. INSTALL SURFACE RACEWAYS ONLY WHERE SHOWN ON DRAWINGS.

KEYED NOTES:
1. NON-ARMORED CABLE SHALL BE INSTALLED IN RACEWAY. ARMORED CABLE SHALL BE INSTALLED IN TRAY OR FREE-AIR AS APPLICABLE.
2. EMERGENCY FEEDERS IN OCCUPANCIES THAT ARE UNDER 700.10(D) SHALL HAVE A TWO HOUR RATING. RATING SHALL BE OBTAINED BY ROUTING CONDUIT AND BUILDING WIRE IN SPRINKLERED SPACE, IN A TWO HOUR SHAFT, OUTSIDE OF THE BUILDING, IN A LISTED TWO HOUR RATED RACEWAY, OR UNDER A MINIMUM OF 2" OF CONCRETE; OR BY USING A LISTED TWO-HOUR RATED CABLE ASSEMBLY.
3. SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS BASED ON UL TESTING AND RATING.

BRANCH CIRCUIT VOLTAGE DROP WIRING SCHEDULE FOR SINGLE PHASE CIRCUITS

BRANCH CIRCUIT RATING (A)	WIRE SIZE (AWG)	MAXIMUM BRANCH CIRCUIT LENGTH (IN FEET)				
		120V	208V	240V	277V	480V
20A	12	83	143	165	191	331
20A	10	128	222	256	295	511
20A	8	201	348	402	464	804
20A	6	313	542	625	721	1250
30A	10	85	148	170	197	341
30A	8	134	232	268	309	536
30A	6	208	361	417	481	833
30A	4	313	542	625	721	1250

GENERAL NOTES:
1. THE ABOVE TABLE VALUES ARE BASED ON COPPER CONDUCTORS, IN STEEL CONDUIT, WITH A LOAD POWER FACTOR OF 0.85 PER NEC CHAPTER 9, TABLE 9.
2. PROVIDE BRANCH CIRCUIT CONDUCTORS AS INDICATED IN THE TABLE ABOVE FOR ALL LIGHTING AND RECEPTACLE BRANCH CIRCUITS. WHERE BRANCH CIRCUITS SERVE DEDICATED EQUIPMENT, THE CONTRACTOR MAY PERFORM VOLTAGE DROP CALCULATIONS BASED ON ACTUAL EQUIPMENT CONNECTED LOAD AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO A MAXIMUM OF 3%.
3. CONDUCTOR SIZES ARE BASED ON MAXIMUM OF 3 CURRENT CARRYING CONDUCTORS IN A SINGLE CONDUIT.
4. LIMITS FOR CONDUCTOR LENGTHS SHOWN ARE BASED ON A MAXIMUM BRANCH CIRCUIT LOADING OF 64% OF THE BRANCH BREAKER RATING AND A MAXIMUM OF 3 PERCENT VOLTAGE DROP TO COMPLY WITH ASHRAE 90.1 AND THE NEC. FOR CIRCUITS LOADED GREATER THAN 64% OF BRANCH BREAKER RATING, THE CONTRACTOR SHALL PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO 3%.

FLOOR SERVICE FITTING SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER (SEE NOTE #2)	MODEL	DEVICE CONFIGURATION	FLANGE/COVER MATERIAL & COLOR	SERVICE PLATE TYPE	MINIMUM DEPTH	MAXIMUM CONDUIT
FB1	MULTI FUNCTION: SIX GANG, STAMPED STEEL WITH SPECIAL FINISH FOR SLAB ON GRADE APPLICATION, RECESSED FLOOR BOX.	WIREMOLD	RFBM6X-OG	3D / 3T	FINISH BY ARCHITECT	RF	4"	1 1/4"
FB1C	ABOVE: FLOOR SERVICE FITTING FOR POWER. MOUNTED TO CAST IRON FLOOR BOX FOR SLAB ON GRADE APPLICATIONS	WIREMOLD	525 MTD NO 800-CI FLOOR BOX	COORDINATE WITH FSEC FOR NEMA CONFIGURATIONS	AL	N/A	3"	3/4"
FB2C	ABOVE: FLOOR SERVICE FITTING FOR POWER. MOUNTED TO CAST IRON FLOOR BOX FOR SLAB ON GRADE APPLICATIONS	WIREMOLD	525 MTD NO 800-CI FLOOR BOX	COORDINATE WITH FSEC FOR NEMA CONFIGURATIONS	AL	N/A	3"	3/4"

GENERAL NOTES:
1. PROVIDE 1 1/4"C. FROM EACH TELECOM FLOOR BOX (GANG) TO ACCESSIBLE LOCATION IN CEILING.
2. OTHER ACCEPTABLE MANUFACTURERS ARE STEEL CITY, OR HUBBELL-RACO.
3. ALL PRODUCTS IN THIS SCHEDULE SHALL MEET AND EXCEED THE UL514A or UL514C SCRUB WATER EXCLUSION REQUIREMENT.
4. COORDINATE ALL TELECOM AND A/V OUTLETS WITH COMMUNICATIONS AND A/V CONTRACTORS.

PF = PARTITION FEED
D = DUPLEX RECEPTACLE
T = 2 TELECOM OPENINGS

BS = BRASS
AL = ALUMINUM
BK = BLACK
GY = GRAY (CONCRETE)
BZ = BRONZE
NK = NICKEL

FR = FLIP LID/RECTANGULAR
SL = SLIDES
FC = FLIP COVER

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT

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PBA Project No: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

ELECTRICAL STANDARD SCHEDULES

ISSUE DATES

07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

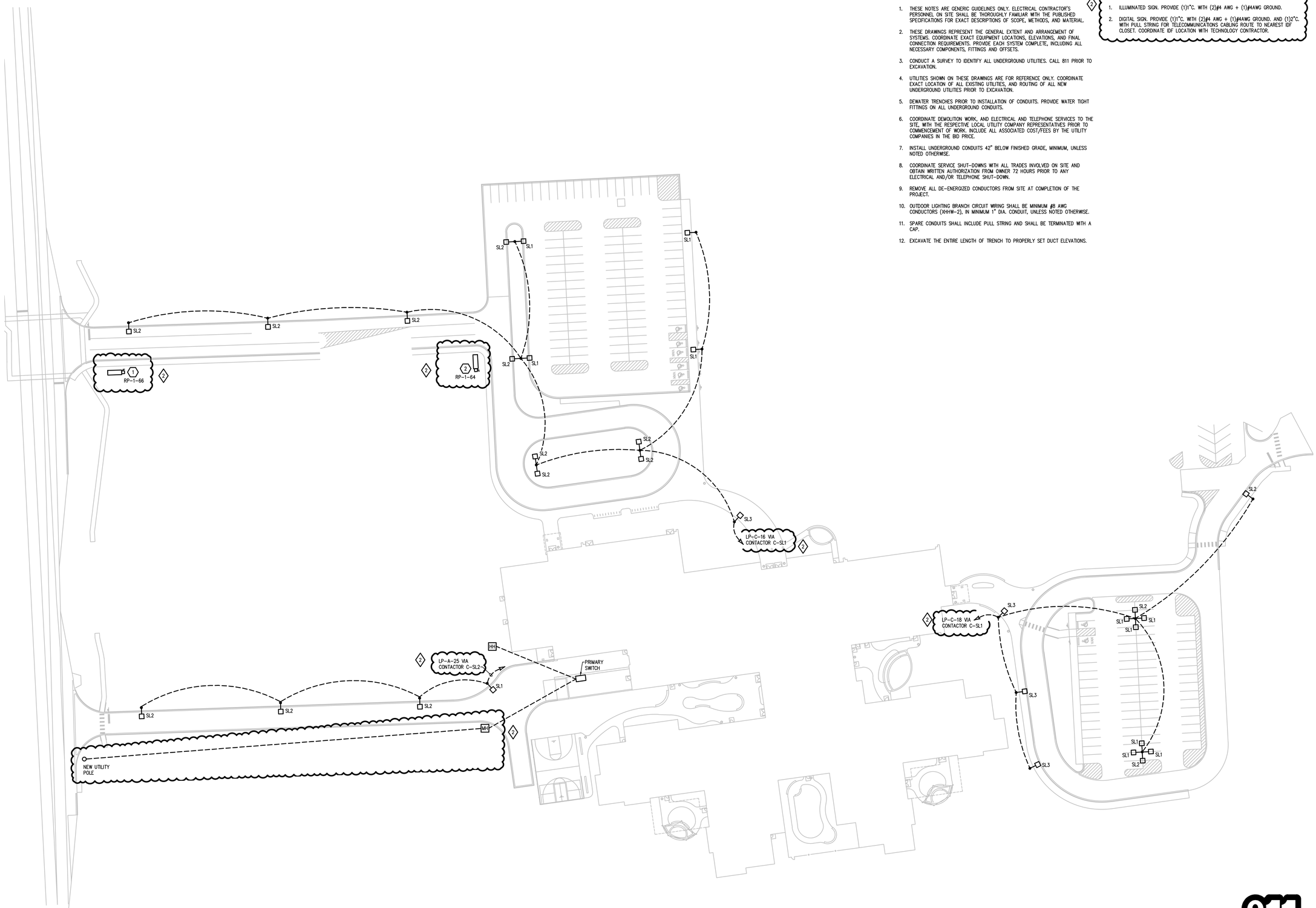
DATE: ISSUED FOR:

DRAWN DDS
CHECKED ZDB
APPROVED STP

PROJECT NO.
22102

DRAWING NO.
E0.2

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



ELECTRICAL SITE NEW WORK PLAN
SCALE: 1" = 40'

SITE PLAN GENERAL NOTES:

1. THESE NOTES ARE GENERIC GUIDELINES ONLY. ELECTRICAL CONTRACTOR'S PERSONNEL ON SITE SHALL BE THOROUGHLY FAMILIAR WITH THE PUBLISHED SPECIFICATIONS FOR EXACT DESCRIPTIONS OF SCOPE, METHODS, AND MATERIAL.
2. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
3. CONDUCT A SURVEY TO IDENTIFY ALL UNDERGROUND UTILITIES. CALL 811 PRIOR TO EXCAVATION.
4. UTILITIES SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY. COORDINATE EXACT LOCATION OF ALL EXISTING UTILITIES, AND ROUTING OF ALL NEW UNDERGROUND UTILITIES PRIOR TO EXCAVATION.
5. DEWATER TRENCHES PRIOR TO INSTALLATION OF CONDUITS. PROVIDE WATER TIGHT FITTINGS ON ALL UNDERGROUND CONDUITS.
6. COORDINATE DEMOLITION WORK, AND ELECTRICAL AND TELEPHONE SERVICES TO THE SITE, WITH THE RESPECTIVE LOCAL UTILITY COMPANY REPRESENTATIVES PRIOR TO COMMENCEMENT OF WORK. INCLUDE ALL ASSOCIATED COST/FEES BY THE UTILITY COMPANIES IN THE BID PRICE.
7. INSTALL UNDERGROUND CONDUITS 42" BELOW FINISHED GRADE, MINIMUM, UNLESS NOTED OTHERWISE.
8. COORDINATE SERVICE SHUT-DOWNS WITH ALL TRADES INVOLVED ON SITE AND OBTAIN WRITTEN AUTHORIZATION FROM OWNER 72 HOURS PRIOR TO ANY ELECTRICAL AND/OR TELEPHONE SHUT-DOWN.
9. REMOVE ALL DE-ENERGIZED CONDUCTORS FROM SITE AT COMPLETION OF THE PROJECT.
10. OUTDOOR LIGHTING BRANCH CIRCUIT WIRING SHALL BE MINIMUM #8 AWG CONDUCTORS (XHHW-2), IN MINIMUM 1" DIA. CONDUIT, UNLESS NOTED OTHERWISE.
11. SPARE CONDUITS SHALL INCLUDE PULL STRING AND SHALL BE TERMINATED WITH A CAP.
12. EXCAVATE THE ENTIRE LENGTH OF TRENCH TO PROPERLY SET DUCT ELEVATIONS.

CONSTRUCTION KEY NOTES:

1. ILLUMINATED SIGN. PROVIDE (1)1"C. WITH (2)#4 AWG + (1)#4AWG GROUND.
2. DIGITAL SIGN. PROVIDE (1)1"C. WITH (2)#4 AWG + (1)#4AWG GROUND. AND (1)2"C. WITH PULL STRING FOR TELECOMMUNICATIONS CABLING ROUTE TO NEAREST IDF CLOSET. COORDINATE IDF LOCATION WITH TECHNOLOGY CONTRACTOR.

Know what's below. Call before you dig.

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PROJECT TITLE

NEW SMITH MIDDLE SCHOOL
Bid Package No. 03B

Troy School District
Troy, Michigan

DRAWING TITLE

ELECTRICAL SITE NEW WORK PLAN

ISSUE DATES

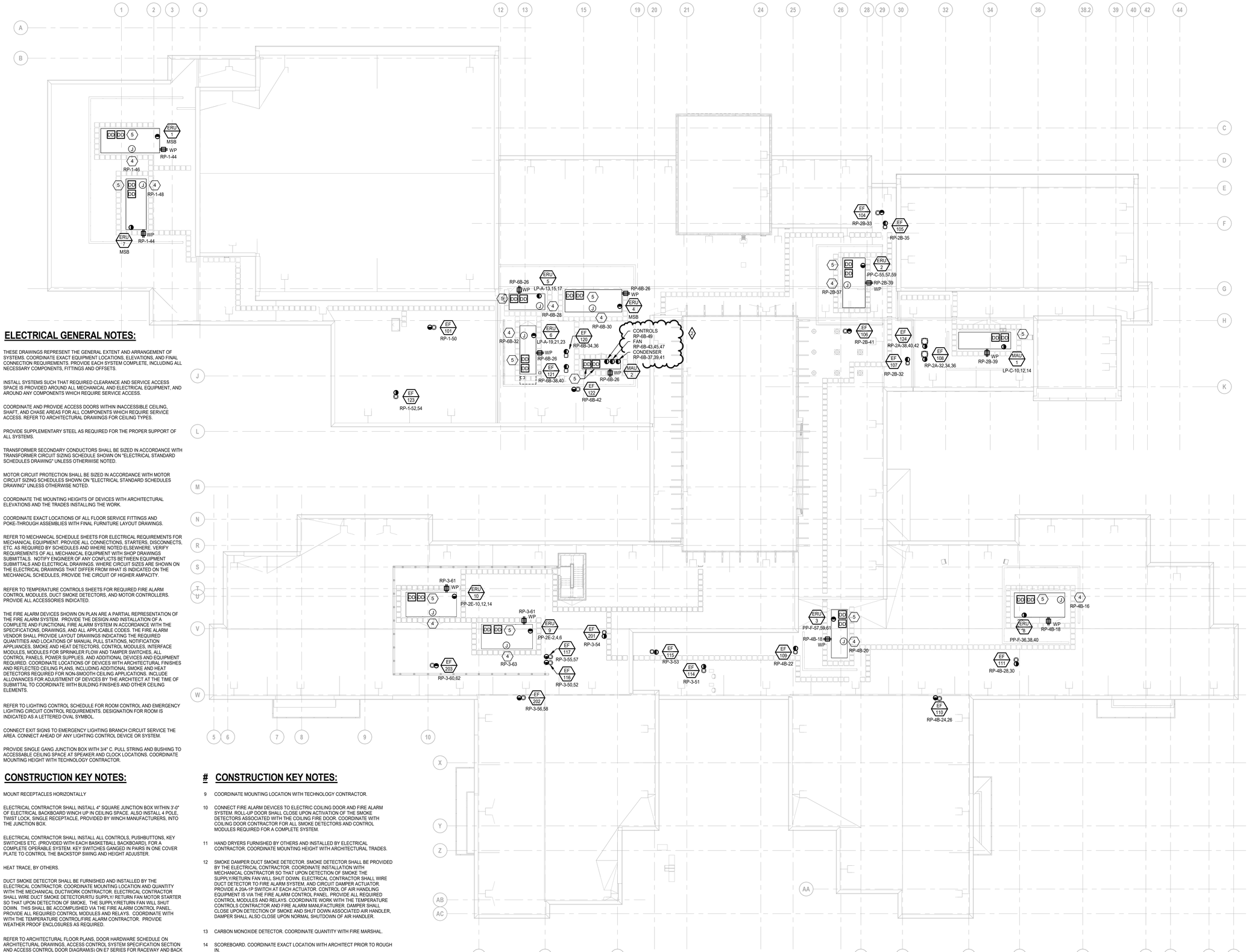
DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	DDS
CHECKED	ZDB
APPROVED	STP

PROJECT NO.
22102

DRAWING NO.
E0.3

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



ELECTRICAL GENERAL NOTES:

1 THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

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7 COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.

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10 REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED FIRE ALARM CONTROL MODULES, DUCT SMOKE DETECTORS, AND MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.

11 THE FIRE ALARM DEVICES SHOWN ON PLAN ARE A PARTIAL REPRESENTATION OF THE FIRE ALARM SYSTEM. PROVIDE THE DESIGN AND INSTALLATION OF A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES, SMOKE AND HEAT DETECTORS, CONTROL MODULES, INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, AND ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.

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13 CONNECT EXIT SIGNS TO EMERGENCY LIGHTING BRANCH CIRCUIT SERVICE THE AREA. CONNECT AHEAD OF ANY LIGHTING CONTROL DEVICE OR SYSTEM.

14 PROVIDE SINGLE GANG JUNCTION BOX WITH 3/4" C. PULL STRING AND BUSHING TO ACCESSABLE CEILING SPACE AT SPEAKER AND CLOCK LOCATIONS. COORDINATE MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.

CONSTRUCTION KEY NOTES:

1 MOUNT RECEPTACLES HORIZONTALLY

2 ELECTRICAL CONTRACTOR SHALL INSTALL 4" SQUARE JUNCTION BOX WITHIN 3'-0" OF ELECTRICAL BACKBOARD WINCH UP IN CEILING SPACE. ALSO INSTALL 4 POLE, TWIST LOCK, SINGLE RECEPTACLE, PROVIDED BY WINCH MANUFACTURERS, INTO THE JUNCTION BOX.

3 ELECTRICAL CONTRACTOR SHALL INSTALL ALL CONTROLS, PUSHBUTTONS, KEY SWITCHES ETC. (PROVIDED WITH EACH BASKETBALL BACKBOARD), FOR A COMPLETE OPERABLE SYSTEM. KEY SWITCHES GANGED IN PAIRS IN ONE COVER PLATE TO CONTROL THE BACKSTOP SWING AND HEIGHT ADJUSTER.

4 HEAT TRACE, BY OTHERS.

5 DUCT SMOKE DETECTOR SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE MOUNTING LOCATION AND QUANTITY WITH THE MECHANICAL DUCTWORK CONTRACTOR. ELECTRICAL CONTRACTOR SHALL WIRE DUCT SMOKE DETECTOR/RTU SUPPLY/ RETURN FAN MOTOR STARTER SO THAT UPON DETECTION OF SMOKE, THE SUPPLY/RETURN FAN WILL SHUT DOWN. THIS SHALL BE ACCOMPLISHED VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WITH WITH THE TEMPERATURE CONTROLS/FIRE ALARM CONTRACTOR. PROVIDE WEATHER PROOF ENCLOSURES AS REQUIRED.

6 REFER TO ARCHITECTURAL FLOOR PLANS, DOOR HARDWARE SCHEDULE ON ARCHITECTURAL DRAWINGS, ACCESS CONTROL SYSTEM SPECIFICATION SECTION AND ACCESS CONTROL DOOR DIAGRAM(S) ON E7 SERIES FOR RACEWAY AND BACK BOX REQUIREMENTS FOR DOOR OR BANK OF DOORS INDICATED. PROVIDE ALL RACEWAYS AND BACK BOXES REQUIRED. COORDINATE WITH DOOR HARDWARE AND SECURITY CONTRACTORS.

7 PROVIDE 3-2" AND 1-1" U.O.N. CONDUITS FOR TECHNOLOGY AND AUXILIARY SYSTEM WIRE AS INDICATED. STUB CONDUITS FROM CEILING SPACE. PROVIDE PLASTIC BUSHINGS AT EACH END. PROVIDE REMOVABLE/RESEALABLE FIRE STOP PUTTY IN EACH CONDUIT AND FIRE STOP AROUND EACH CONDUIT. COORDINATE WITH TECHNOLOGY CONTRACTOR FOR EXACT LOCATION OF CONDUIT. PROVIDE MINIMUM OF 1" CONDUIT FOR ALL OTHER AREAS REQUIRING SLEEVES.

8 PROVIDE (1)2" CONDUIT WITH PULL STRING AND BUSHINGS FOR TECHNOLOGY. ROUTE UNDER BUILDING AND TERMINATE AT EXTERIOR OF BUILDING.

CONSTRUCTION KEY NOTES:

9 COORDINATE MOUNTING LOCATION WITH TECHNOLOGY CONTRACTOR.

10 CONNECT FIRE ALARM DEVICES TO ELECTRIC COILING DOOR AND FIRE ALARM SYSTEM. ROLL-UP DOOR SHALL CLOSE UPON ACTIVATION OF THE SMOKE DETECTORS ASSOCIATED WITH THE COILING FIRE DOOR. COORDINATE WITH COILING DOOR CONTRACTOR FOR ALL SMOKE DETECTORS AND CONTROL MODULES REQUIRED FOR A COMPLETE SYSTEM.

11 HAND DRYERS FURNISHED BY OTHERS AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL TRADES.

12 SMOKE DAMPER DUCT SMOKE DETECTOR. SMOKE DETECTOR SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR SO THAT UPON DETECTION OF SMOKE THE SUPPLY/RETURN FAN WILL SHUT DOWN. ELECTRICAL CONTRACTOR SHALL WIRE DUCT DETECTOR TO FIRE ALARM SYSTEM, AND CIRCUIT DAMPER ACTUATOR. PROVIDE A 20A-1P SWITCH AT EACH ACTUATOR. CONTROL OF AIR HANDLING EQUIPMENT IS VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WORK WITH THE TEMPERATURE CONTROLS CONTRACTOR AND FIRE ALARM MANUFACTURER. DAMPER SHALL CLOSE UPON DETECTION OF SMOKE AND SHUT DOWN ASSOCIATED AIR HANDLER, DAMPER SHALL ALSO CLOSE UPON NORMAL SHUTDOWN OF AIR HANDLER.

13 CARBON MONOXIDE DETECTOR. COORDINATE QUANTITY WITH FIRE MARSHAL.

14 SCOREBOARD. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH IN.

15 WALL MOUNT TRANSFORMER.

16 ELECTRIC RANGE. PROVIDE WALL MOUNTED GFCI MODULE ABOVE COUNTER.

17 LIGHTING RELAY PANEL FOR THEATRICAL LIGHTING SYSTEM. REFER TO THEATRICAL LIGHTING EQUIPMENT DRAWINGS.

ROOF ELECTRICAL COMPOSITE PLAN

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

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PBA Project No: 2023.0154

PROJECT TITLE

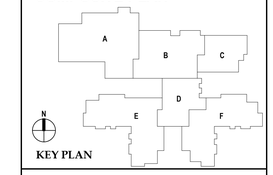
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

ROOF LEVEL ELECTRICAL COMPOSITE PLAN



KEY PLAN

ISSUE DATES

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06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	DDS
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PROJECT NO.
22102

DRAWING NO.
E0.6

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

FIRST LEVEL LIGHTING PLAN - ZONE 'A'
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5 PROVIDE EMERGENCY BATTERY INSIDE LIGHT FIXTURE. BATTERY SHALL OUTPUT 1,400 LUMENS FOR A MINIMUM OF 90 MINUTES.

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PROJECT TITLE

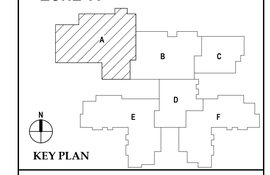
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL LIGHTING PLAN - ZONE 'A'



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DATE:	ISSUED FOR:

DRAWN	DDS
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PROJECT NO.
22102

DRAWING NO.
E2.1A

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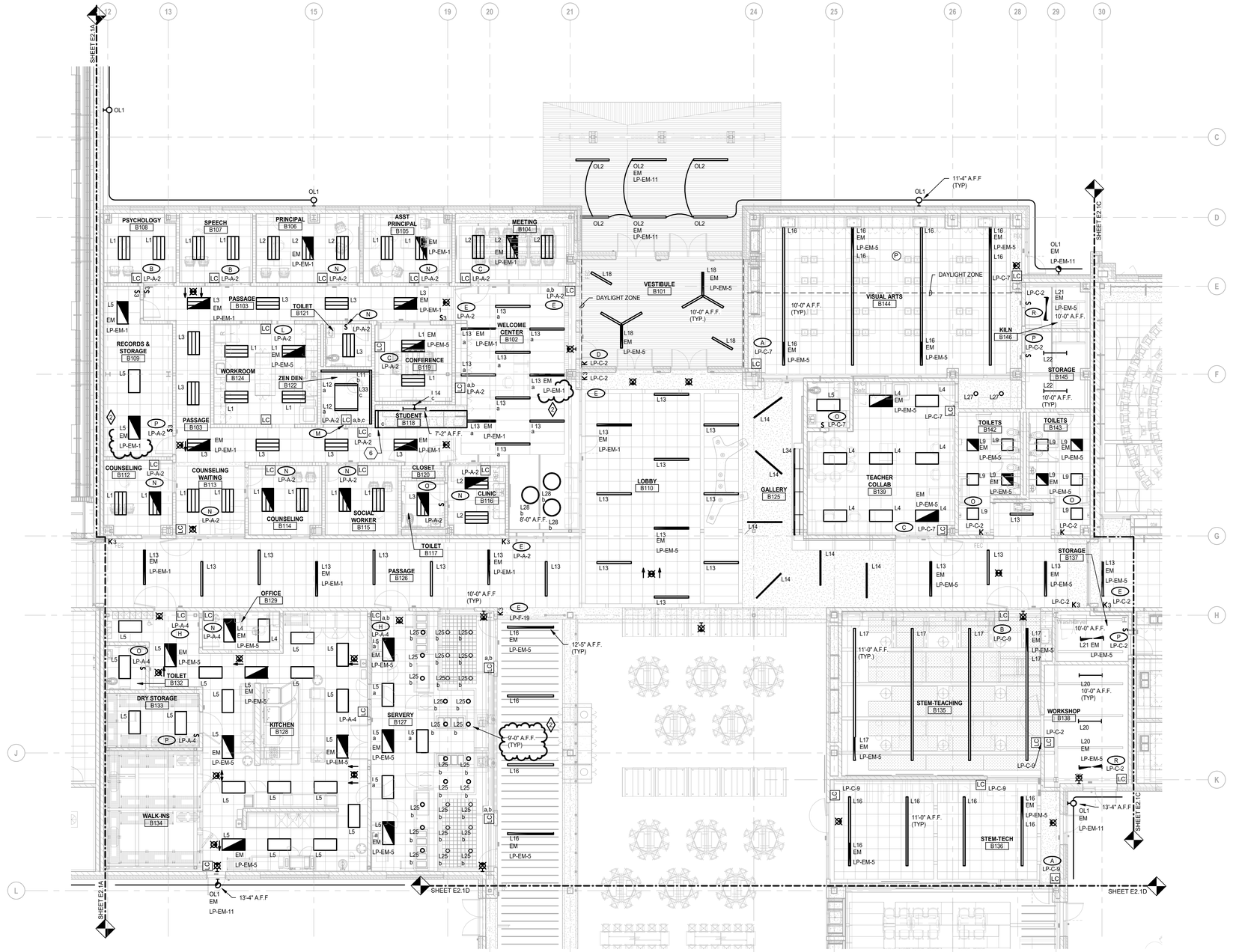

FIRST LEVEL LIGHTING PLAN - ZONE 'B'

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PROJECT TITLE

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Bid Package No. 03B

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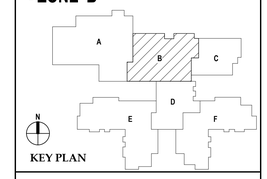
DRAWING TITLE

FIRST LEVEL LIGHTING PLAN - ZONE 'B'



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PROJECT NO.
22102

DRAWING NO.
E2.1B

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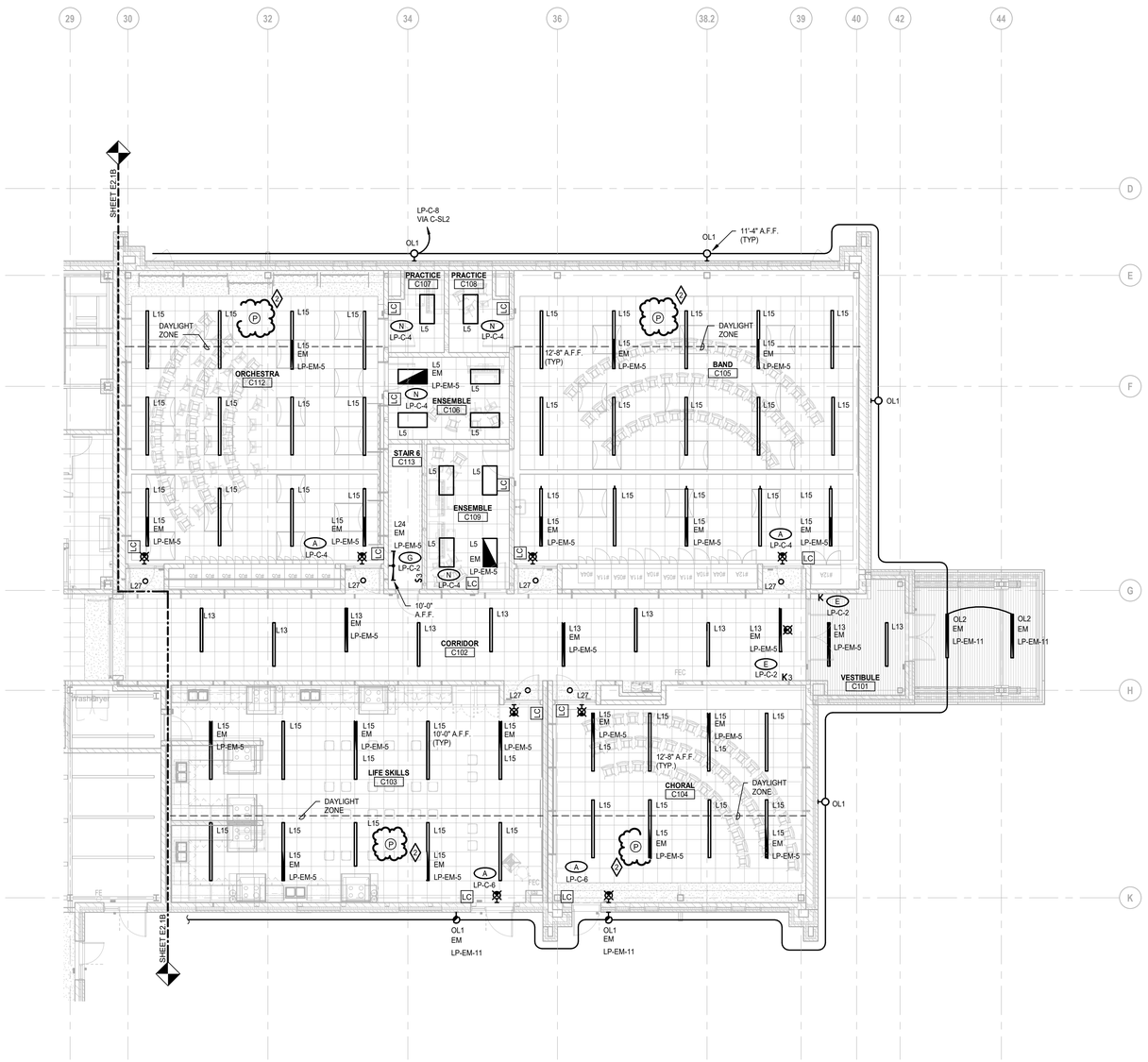

FIRST LEVEL LIGHTING PLAN - ZONE 'C'

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13. CONNECT EXIT SIGNS TO EMERGENCY LIGHTING BRANCH CIRCUIT SERVICE THE AREA. CONNECT AHEAD OF ANY LIGHTING CONTROL DEVICE OR SYSTEM.
14. PROVIDE SINGLE GANG JUNCTION BOX WITH 3/4" C. PULL STRING AND BUSHING TO ACCESSABLE CEILING SPACE AT SPEAKER AND CLOCK LOCATIONS. COORDINATE MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.

CONSTRUCTION KEY NOTES:

1. PROVIDE WIRE GUARD FOR LIGHTING CONTROL DEVICES AND EXIT SIGNS IN SPACE.
2. STAGE LIGHTING CONTROL STATION COORDINATE FINAL LOCATION WITH THEATRICAL CONSULTANT.
3. PROVIDE SINGLE GANG BOX WITH 3/4"C. AND PULL STRING TO ACCESSIBLE CEILING FOR DMX CONTROLS. COORDINATE FINAL LOCATION WITH THEATER CONSULTANT.
4. STAGE LIGHTING ELECTRIC. COORDINATE FINAL LOCATIONS WITH THEATRICAL CONSULTANT. PROVIDE 3/4" C. TO ERP-24.
5. PROVIDE EMERGENCY BATTERY INSIDE LIGHT FIXTURE. BATTERY SHALL OUTPUT 1,400 LUMENS FOR A MINIMUM OF 90 MINUTES.
6. ARCHITECTURAL PANEL LIGHT BY OTHERS.
7. ELEVATOR HOISTWAY/PIT LIGHTING. REFER TO DETAIL.

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PBA Project No: 2023.0154

PROJECT TITLE

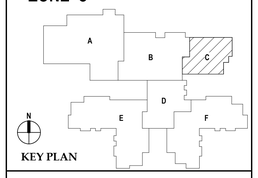
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL LIGHTING PLAN - ZONE 'C'



KEY PLAN

ISSUE DATES

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DRAWN	DDS
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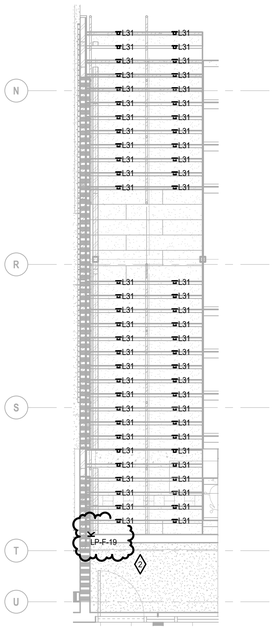
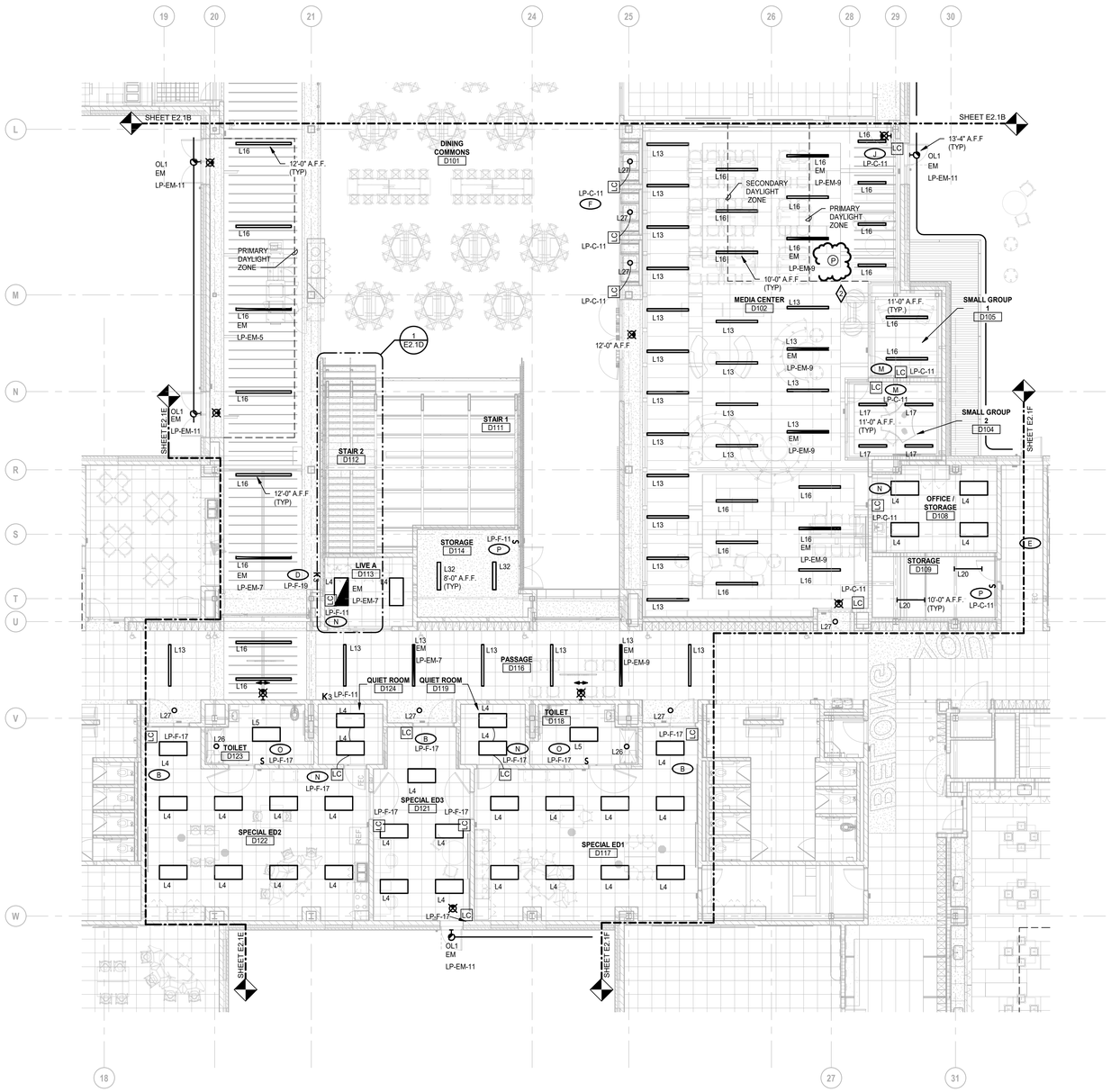
PROJECT NO.
22102

DRAWING NO.
E2.1C

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



1 / E2.1D **ENLARGED STAIR 2 LIGHTING PLAN**
SCALE: 1/4" = 1'-0"



1 / E2.1D **FIRST LEVEL LIGHTING PLAN - ZONE 'D'**
SCALE: 1/8" = 1'-0"

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2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

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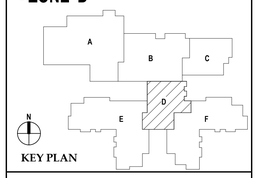
PROJECT TITLE
NEW SMITH MIDDLE SCHOOL
Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE
FIRST LEVEL LIGHTING PLAN - ZONE 'D'



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22102

DRAWING NO.
E2.1D

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

FIRST LEVEL LIGHTING PLAN - ZONE 'E'

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www.PeterBassoAssociates.com
PBA Project No: 2023.0154

PROJECT TITLE

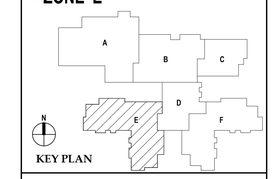
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL LIGHTING PLAN - ZONE 'E'



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PROJECT NO.
22102

DRAWING NO.
E2.1E

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

FIRST LEVEL LIGHTING PLAN - ZONE 'F'

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

ELECTRICAL GENERAL NOTES:

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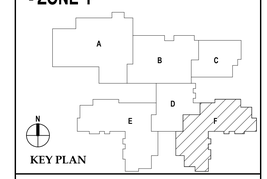
FIRST LEVEL LIGHTING PLAN - ZONE 'F'



KEY PLAN

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22102

DRAWING NO.

E2.1F

7/11/2024 2:08:17 PM Autodesk Docs://22102_Troy Smith MS/2023-0154_TSD Smith MS_MEP_v22.rvt

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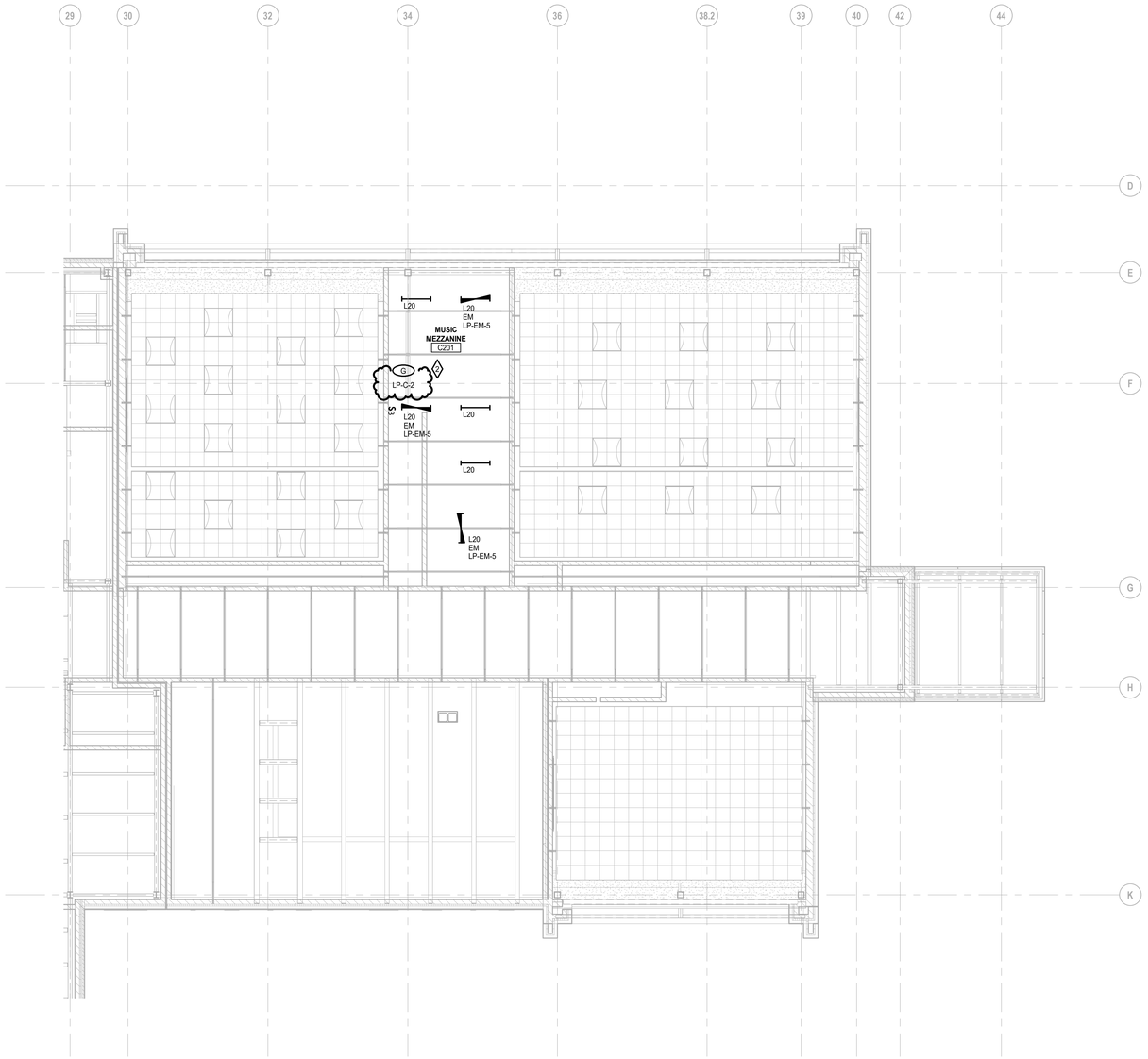

STAIR 3 LIGHTING PLAN - ZONE 'E'
SCALE: 1/8" = 1'-0"

MEZZANINE LEVEL LIGHTING PLAN - ZONE 'C'
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10 REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED FIRE ALARM CONTROL MODULES, DUCT SMOKE DETECTORS, AND MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.

11 THE FIRE ALARM DEVICES SHOWN ON PLAN ARE A PARTIAL REPRESENTATION OF THE FIRE ALARM SYSTEM. PROVIDE THE DESIGN AND INSTALLATION OF A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES, SMOKE AND HEAT DETECTORS, CONTROL MODULES, INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, AND ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.

12 REFER TO LIGHTING CONTROL SCHEDULE FOR ROOM CONTROL AND EMERGENCY LIGHTING CIRCUIT CONTROL REQUIREMENTS. DESIGNATION FOR ROOM IS INDICATED AS A LETTERED OVAL SYMBOL.

13 CONNECT EXIT SIGNS TO EMERGENCY LIGHTING BRANCH CIRCUIT SERVICE THE AREA. CONNECT AHEAD OF ANY LIGHTING CONTROL DEVICE OR SYSTEM.

14 PROVIDE SINGLE GANG JUNCTION BOX WITH 3/4" C. PULL STRING AND BUSHING TO ACCESSABLE CEILING SPACE AT SPEAKER AND CLOCK LOCATIONS. COORDINATE MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.

CONSTRUCTION KEY NOTES:

1 PROVIDE WIRE GUARD FOR LIGHTING CONTROL DEVICES AND EXIT SIGNS IN SPACE.

2 STAGE LIGHTING CONTROL STATION COORDINATE FINAL LOCATION WITH THEATRICAL CONSULTANT.

3 PROVIDE SINGLE GANG BOX WITH 3/4"C. AND PULL STRING TO ACCESSIBLE CEILING FOR DMX CONTROLS. COORDINATE FINAL LOCATION WITH THEATER CONSULTANT.

4 STAGE LIGHTING ELECTRIC. COORDINATE FINAL LOCATIONS WITH THEATRICAL CONSULTANT. PROVIDE 3/4" C. TO ERP-24.

5 PROVIDE EMERGENCY BATTERY INSIDE LIGHT FIXTURE. BATTERY SHALL OUTPUT 1,400 LUMENS FOR A MINIMUM OF 90 MINUTES.

6 ARCHITECTURAL PANEL LIGHT BY OTHERS.

7 ELEVATOR HOISTWAY/PIT LIGHTING. REFER TO DETAIL.

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PBA Project No.: 2023.0154

PROJECT TITLE

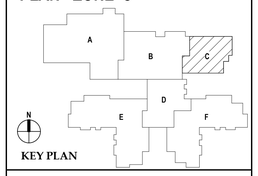
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

MEZZANINE LEVEL LIGHTING PLAN - ZONE 'C'



KEY PLAN

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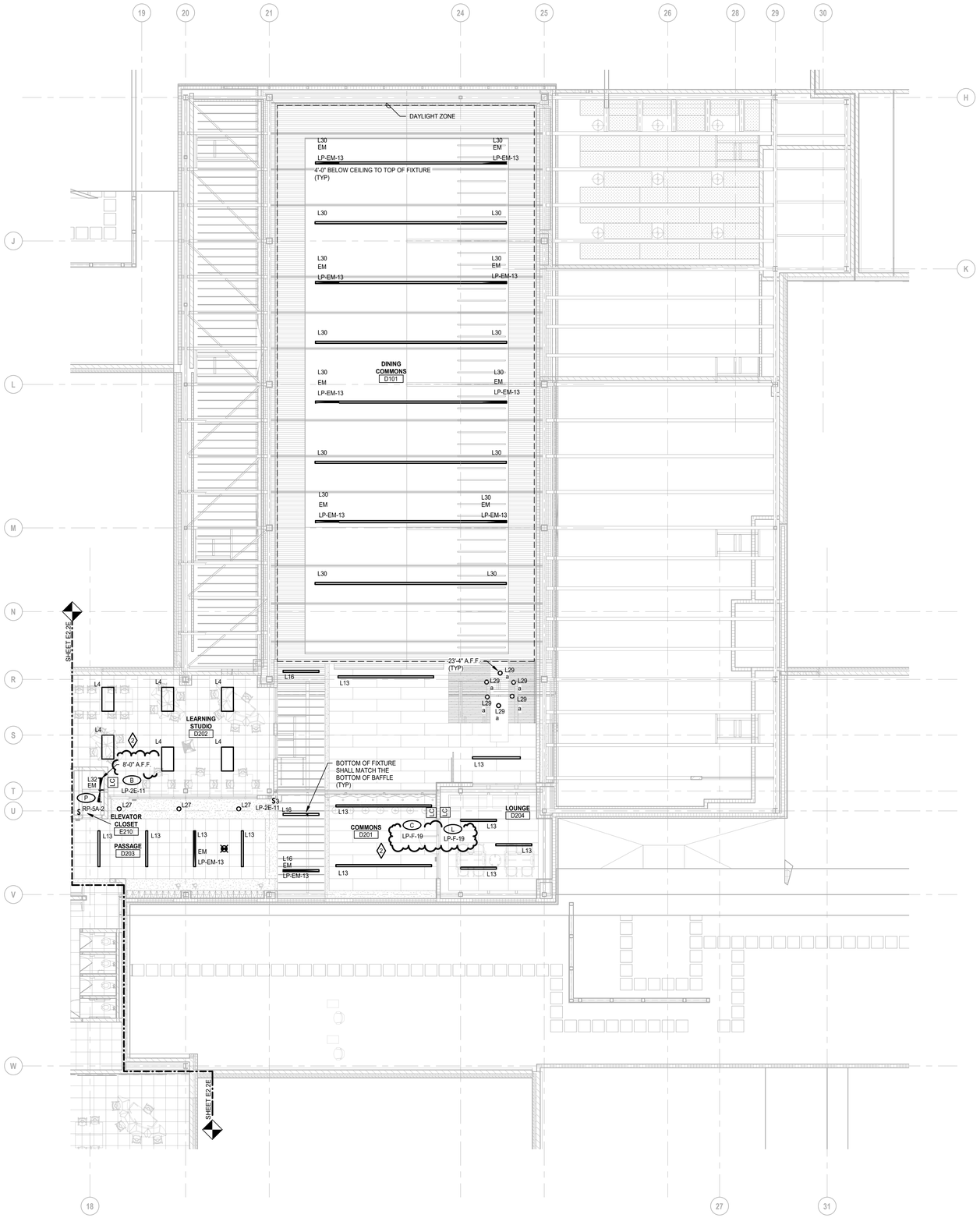
DRAWN	DDS
CHECKED	ZDB
APPROVED	STP

PROJECT NO.
22102

DRAWING NO.
E2.2C

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



SECOND LEVEL LIGHTING PLAN - ZONE 'D'

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

ELECTRICAL GENERAL NOTES:

1 THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

4 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

5 TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH TRANSFORMER CIRCUIT SIZING SCHEDULE SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.

6 MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.

7 COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.

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CONSTRUCTION KEY NOTES:

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PBA Project No.: 2023.0154

PROJECT TITLE

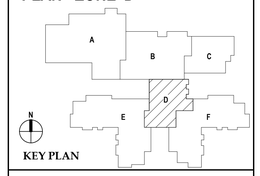
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

SECOND LEVEL LIGHTING PLAN - ZONE 'D'



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PROJECT NO.
22102

DRAWING NO.
E2.2D

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

SECOND LEVEL LIGHTING PLAN - ZONE 'E'

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

ELECTRICAL GENERAL NOTES:

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
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CONSTRUCTION KEY NOTES:

1. PROVIDE WIRE GUARD FOR LIGHTING CONTROL DEVICES AND EXIT SIGNS IN SPACE.
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PROJECT TITLE

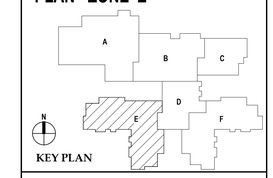
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

SECOND LEVEL LIGHTING PLAN - ZONE 'E'



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PROJECT NO.

22102

DRAWING NO.

E2.2E

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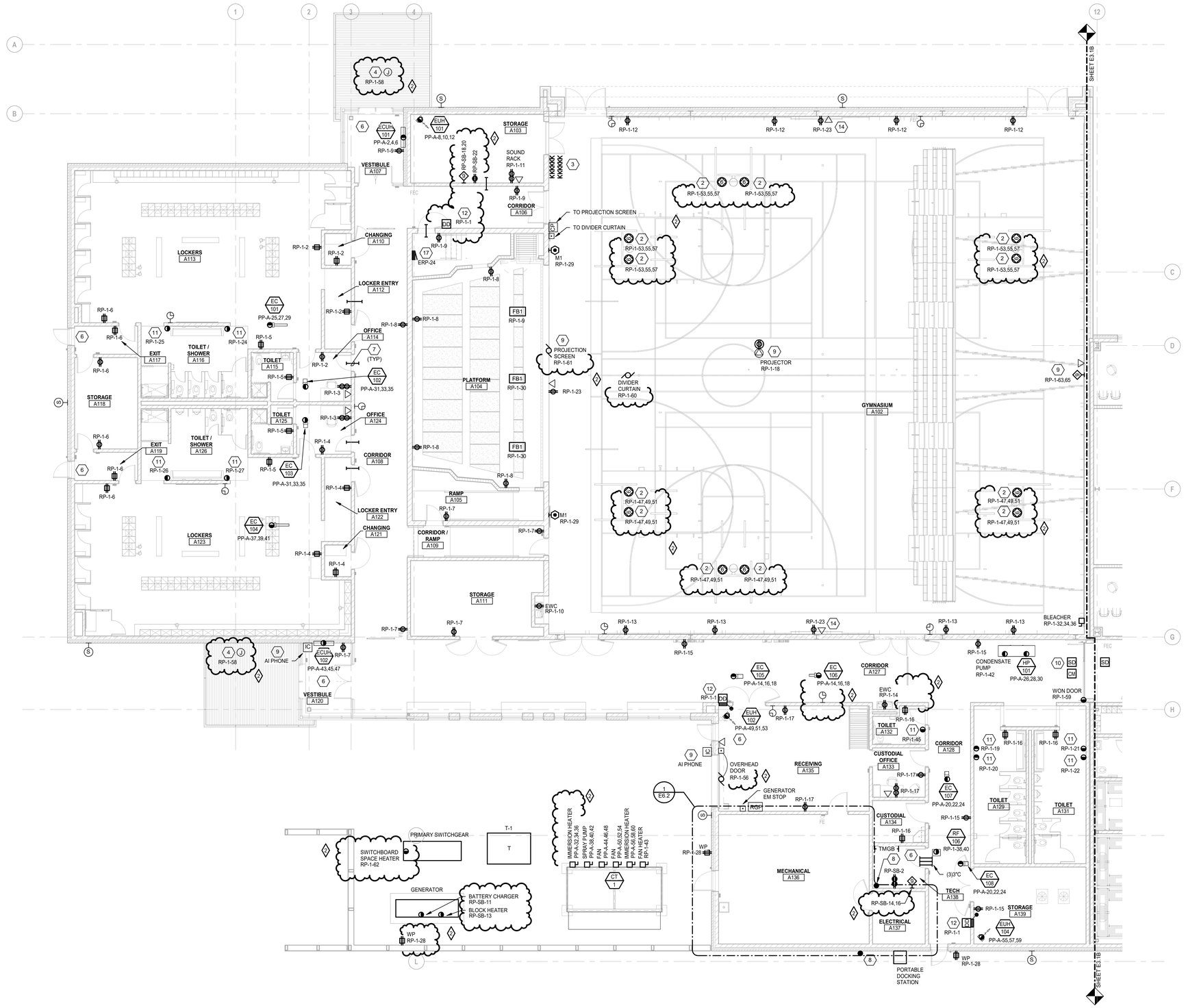

FIRST LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'A'

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

ELECTRICAL GENERAL NOTES:

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
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3. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
5. TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH TRANSFORMER CIRCUIT SIZING SCHEDULE SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
6. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
7. COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.
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13. CONNECT EXIT SIGNS TO EMERGENCY LIGHTING BRANCH CIRCUIT SERVICE THE AREA. CONNECT AHEAD OF ANY LIGHTING CONTROL DEVICE OR SYSTEM.
14. PROVIDE SINGLE GANG JUNCTION BOX WITH 3/4" C. PULL STRING AND BUSHING TO ACCESSABLE CEILING SPACE AT SPEAKER AND CLOCK LOCATIONS. COORDINATE MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.

CONSTRUCTION KEY NOTES:

1. MOUNT RECEPTACLES HORIZONTALLY
2. ELECTRICAL CONTRACTOR SHALL INSTALL 4" SQUARE JUNCTION BOX WITHIN 3'-0" OF ELECTRICAL BACKBOARD WINCH UP IN CEILING SPACE. ALSO INSTALL 4 POLE, TWIST LOCK, SINGLE RECEPTACLE, PROVIDED BY WINCH MANUFACTURERS, INTO THE JUNCTION BOX.
3. ELECTRICAL CONTRACTOR SHALL INSTALL ALL CONTROLS, PUSHBUTTONS, KEY SWITCHES ETC. (PROVIDED WITH EACH BASKETBALL BACKBOARD), FOR A COMPLETE OPERABLE SYSTEM. KEY SWITCHES GANGED IN PAIRS IN ONE COVER PLATE TO CONTROL THE BACKSTOP SWING AND HEIGHT ADJUSTER.
4. HEAT TRACE, BY OTHERS.
5. DUCT SMOKE DETECTOR SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE MOUNTING LOCATION AND QUANTITY WITH THE MECHANICAL DUCTWORK CONTRACTOR. ELECTRICAL CONTRACTOR SHALL WIRE DUCT SMOKE DETECTOR/RTU SUPPLY/ RETURN FAN MOTOR STARTER SO THAT UPON DETECTION OF SMOKE, THE SUPPLY/RETURN FAN WILL SHUT DOWN. THIS SHALL BE ACCOMPLISHED VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WITH WITH THE TEMPERATURE CONTROL/FIRE ALARM CONTRACTOR. PROVIDE WEATHER PROOF ENCLOSURES AS REQUIRED.
6. REFER TO ARCHITECTURAL FLOOR PLANS, DOOR HARDWARE SCHEDULE ON ARCHITECTURAL DRAWINGS, ACCESS CONTROL SYSTEM SPECIFICATION SECTION AND ACCESS CONTROL DOOR DIAGRAM(S) ON E7 SERIES FOR RACEWAY AND BACK BOX REQUIREMENTS FOR DOOR OR BANK OF DOORS INDICATED. PROVIDE ALL RACEWAYS AND BACK BOXES REQUIRED. COORDINATE WITH DOOR HARDWARE AND SECURITY CONTRACTORS.
7. PROVIDE 2-2" AND 1-1" U.O.N. CONDUITS FOR TECHNOLOGY AND AUXILIARY SYSTEM WIRE AS INDICATED. STUB CONDUITS FROM CEILING SPACE. PROVIDE PLASTIC BUSHINGS AT EACH END. PROVIDE REMOVABLE/RESEALABLE FIRE STOP PUTTY IN EACH CONDUIT AND FIRE STOP AROUND EACH CONDUIT. COORDINATE WITH TECHNOLOGY CONTRACTOR FOR EXACT LOCATION OF CONDUIT. PROVIDE MINIMUM OF 1" CONDUIT FOR ALL OTHER AREAS REQUIRING SLEEVES.
8. PROVIDE (12)" CONDUIT WITH PULL STRING AND BUSHINGS FOR TECHNOLOGY. ROUTE UNDER BUILDING AND TERMINATE AT EXTERIOR OF BUILDING.
9. COORDINATE MOUNTING LOCATION WITH TECHNOLOGY CONTRACTOR.
10. CONNECT FIRE ALARM DEVICES TO ELECTRIC COILING DOOR AND FIRE ALARM SYSTEM. ROLL-UP DOOR SHALL CLOSE UPON ACTIVATION OF THE SMOKE DETECTORS ASSOCIATED WITH THE COILING FIRE DOOR. COORDINATE WITH COILING DOOR CONTRACTOR FOR ALL SMOKE DETECTORS AND CONTROL MODULES REQUIRED FOR A COMPLETE SYSTEM.
11. HAND DRYERS FURNISHED BY OTHERS AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL TRADES.
12. SMOKE DAMPER DUCT SMOKE DETECTOR. SMOKE DETECTOR SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR SO THAT UPON DETECTION OF SMOKE THE SUPPLY/RETURN FAN WILL SHUT DOWN. ELECTRICAL CONTRACTOR SHALL WIRE DUCT DETECTOR TO FIRE ALARM SYSTEM, AND CIRCUIT DAMPER ACTUATOR. PROVIDE A 20A-1P SWITCH AT EACH ACTUATOR. CONTROL OF AIR HANDLING EQUIPMENT IS VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WORK WITH THE TEMPERATURE CONTROLS CONTRACTOR AND FIRE ALARM MANUFACTURER. DAMPER SHALL CLOSE UPON DETECTION OF SMOKE AND SHUT DOWN ASSOCIATED AIR HANDLER, DAMPER SHALL ALSO CLOSE UPON NORMAL SHUTDOWN OF AIR HANDLER.
13. CARBON MONOXIDE DETECTOR. COORDINATE QUANTITY WITH FIRE MARSHAL.
14. SCOREBOARD. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH IN.
15. WALL MOUNT TRANSFORMER.
16. ELECTRIC RANGE. PROVIDE WALL MOUNTED GFCI MODULE ABOVE COUNTER.
17. LIGHTING RELAY PANEL FOR THEATRICAL LIGHTING SYSTEM. REFER TO THEATRICAL LIGHTING EQUIPMENT DRAWINGS.

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REGISTRATION SEAL

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PBA Project No: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'A'

KEY PLAN

ISSUE DATES

07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE:	ISSUED FOR:
DRAWN	DDS
CHECKED	ZDB
APPROVED	STP

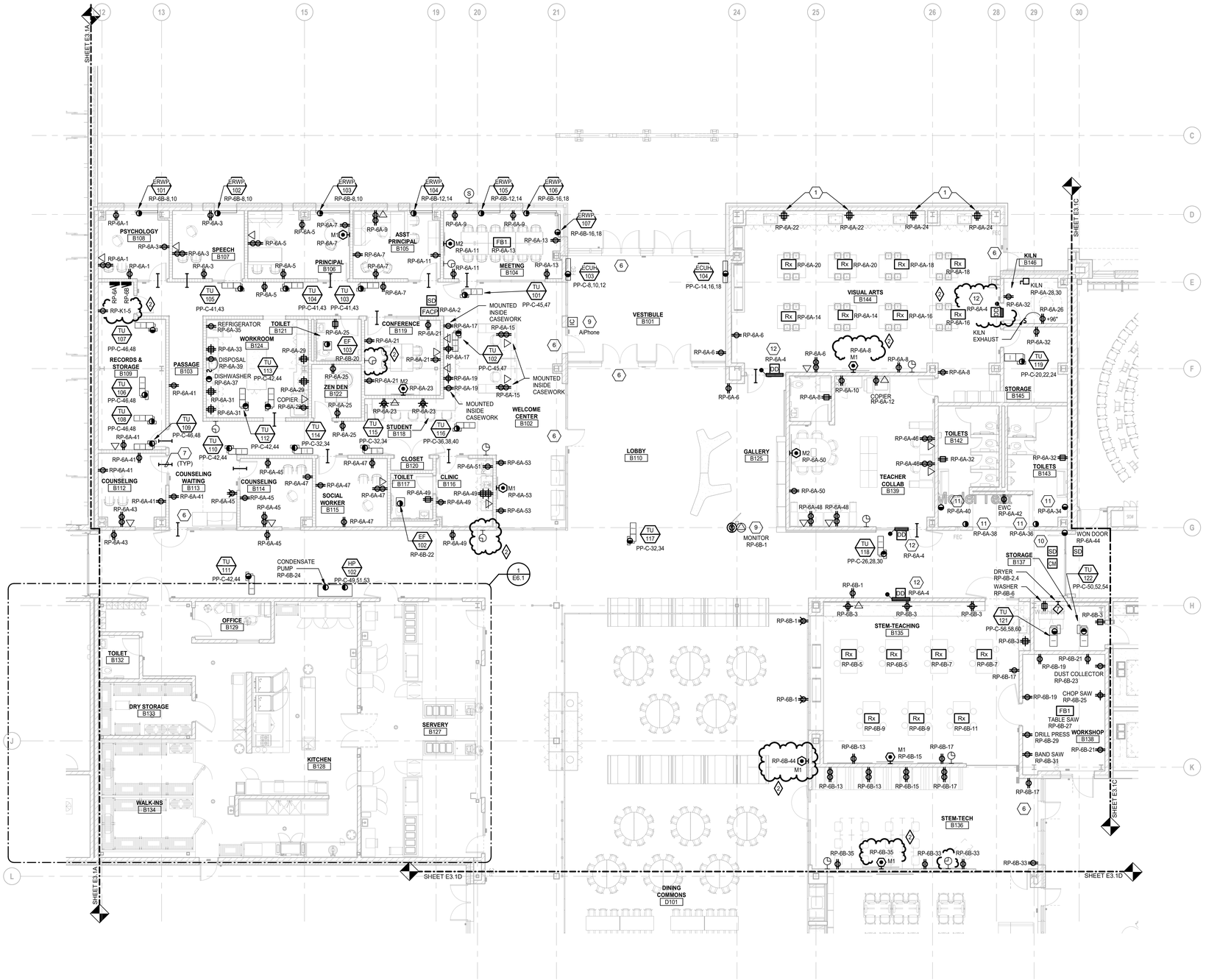
PROJECT NO.

22102

DRAWING NO.

E3.1A

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIRST LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'B'

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

ELECTRICAL GENERAL NOTES:

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
5. TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH TRANSFORMER CIRCUIT SIZING SCHEDULE SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
6. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
7. COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.
8. COORDINATE EXACT LOCATIONS OF ALL FLOOR SERVICE FITTINGS AND POKE-THROUGH ASSEMBLIES WITH FINAL FURNITURE LAYOUT DRAWINGS.
9. REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.
10. REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED FIRE ALARM CONTROL MODULES, DUCT SMOKE DETECTORS, AND MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.
11. THE FIRE ALARM DEVICES SHOWN ON PLAN ARE A PARTIAL REPRESENTATION OF THE FIRE ALARM SYSTEM. PROVIDE THE DESIGN AND INSTALLATION OF A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES, SMOKE AND HEAT DETECTORS, CONTROL MODULES, INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, AND ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.
12. REFER TO LIGHTING CONTROL SCHEDULE FOR ROOM CONTROL AND EMERGENCY LIGHTING CIRCUIT CONTROL REQUIREMENTS. DESIGNATION FOR ROOM IS INDICATED AS A LETTERED OVAL SYMBOL.
13. CONNECT EXIT SIGNS TO EMERGENCY LIGHTING BRANCH CIRCUIT SERVICE THE AREA. CONNECT AHEAD OF ANY LIGHTING CONTROL DEVICE OR SYSTEM.
14. PROVIDE SINGLE GANG JUNCTION BOX WITH 3/4" C. PULL STRING AND BUSHING TO ACCESSABLE CEILING SPACE AT SPEAKER AND CLOCK LOCATIONS. COORDINATE MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.

CONSTRUCTION KEY NOTES:

1. MOUNT RECEPTACLES HORIZONTALLY
2. ELECTRICAL CONTRACTOR SHALL INSTALL 4" SQUARE JUNCTION BOX WITHIN 3'-0" OF ELECTRICAL BACKBOARD WINCH UP IN CEILING SPACE. ALSO INSTALL 4 POLE, TWIST LOCK, SINGLE RECEPTACLE, PROVIDED BY WINCH MANUFACTURERS, INTO THE JUNCTION BOX.
3. ELECTRICAL CONTRACTOR SHALL INSTALL ALL CONTROLS, PUSHBUTTONS, KEY SWITCHES ETC. (PROVIDED WITH EACH BASKETBALL BACKBOARD), FOR A COMPLETE OPERABLE SYSTEM. KEY SWITCHES GANGED IN PAIRS IN ONE COVER PLATE TO CONTROL THE BACKSTOP SWING AND HEIGHT ADJUSTER.
4. HEAT TRACE, BY OTHERS.
5. DUCT SMOKE DETECTOR SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE MOUNTING LOCATION AND QUANTITY WITH THE MECHANICAL DUCTWORK CONTRACTOR. ELECTRICAL CONTRACTOR SHALL WIRE DUCT SMOKE DETECTOR/RTU SUPPLY/ RETURN FAN MOTOR STARTER SO THAT UPON DETECTION OF SMOKE. THE SUPPLY/RETURN FAN WILL SHUT DOWN. THIS SHALL BE ACCOMPLISHED VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WITH WITH THE TEMPERATURE CONTROL/FIRE ALARM CONTRACTOR. PROVIDE WEATHER PROOF ENCLOSURES AS REQUIRED.
6. REFER TO ARCHITECTURAL FLOOR PLANS, DOOR HARDWARE SCHEDULE ON ARCHITECTURAL DRAWINGS, ACCESS CONTROL SYSTEM SPECIFICATION SECTION AND ACCESS CONTROL DOOR DIAGRAM(S) ON E7 SERIES FOR RACEWAY AND BACK BOX REQUIREMENTS FOR DOOR OR BANK OF DOORS INDICATED. PROVIDE ALL RACEWAYS AND BACK BOXES REQUIRED. COORDINATE WITH DOOR HARDWARE AND SECURITY CONTRACTORS.
7. PROVIDE 2-2" AND 1-1" U.O.N. CONDUITS FOR TECHNOLOGY AND AUXILIARY SYSTEM WIRE AS INDICATED. STUB CONDUITS FROM CEILING SPACE. PROVIDE PLASTIC BUSHINGS AT EACH END. PROVIDE REMOVABLE/RESEALABLE FIRE STOP PUTTY IN EACH CONDUIT AND FIRE STOP AROUND EACH CONDUIT. COORDINATE WITH TECHNOLOGY CONTRACTOR FOR EXACT LOCATION OF CONDUIT. PROVIDE MINIMUM OF 1" CONDUIT FOR ALL OTHER AREAS REQUIRING SLEEVES.
8. PROVIDE (1/2" CONDUIT WITH PULL STRING AND BUSHINGS FOR TECHNOLOGY. ROUTE UNDER BUILDING AND TERMINATE AT EXTERIOR OF BUILDING.
9. COORDINATE MOUNTING LOCATION WITH TECHNOLOGY CONTRACTOR.
10. CONNECT FIRE ALARM DEVICES TO ELECTRIC COILING DOOR AND FIRE ALARM SYSTEM. ROLL-UP DOOR SHALL CLOSE UPON ACTIVATION OF THE SMOKE DETECTORS ASSOCIATED WITH THE COILING FIRE DOOR. COORDINATE WITH COILING DOOR CONTRACTOR FOR ALL SMOKE DETECTORS AND CONTROL MODULES REQUIRED FOR A COMPLETE SYSTEM.
11. HAND DRYERS FURNISHED BY OTHERS AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL TRADES.
12. SMOKE DAMPER DUCT SMOKE DETECTOR. SMOKE DETECTOR SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR SO THAT UPON DETECTION OF SMOKE THE SUPPLY/RETURN FAN WILL SHUT DOWN. ELECTRICAL CONTRACTOR SHALL WIRE DUCT DETECTOR TO FIRE ALARM SYSTEM, AND CIRCUIT DAMPER ACTUATOR. PROVIDE A 20A-1P SWITCH AT EACH ACTUATOR. CONTROL OF AIR HANDLING EQUIPMENT IS VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WORK WITH THE TEMPERATURE CONTROLS CONTRACTOR AND FIRE ALARM MANUFACTURER. DAMPER SHALL CLOSE UPON DETECTION OF SMOKE AND SHUT DOWN ASSOCIATED AIR HANDLER, DAMPER SHALL ALSO CLOSE UPON NORMAL SHUTDOWN OF AIR HANDLER.
13. CARBON MONOXIDE DETECTOR. COORDINATE QUANTITY WITH FIRE MARSHAL.
14. SCOREBOARD. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH IN.
15. WALL MOUNT TRANSFORMER.
16. ELECTRIC RANGE. PROVIDE WALL MOUNTED GFCI MODULE ABOVE COUNTER.
17. LIGHTING RELAY PANEL FOR THEATRICAL LIGHTING SYSTEM. REFER TO THEATRICAL LIGHTING EQUIPMENT DRAWINGS.

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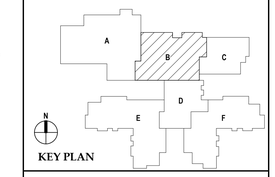

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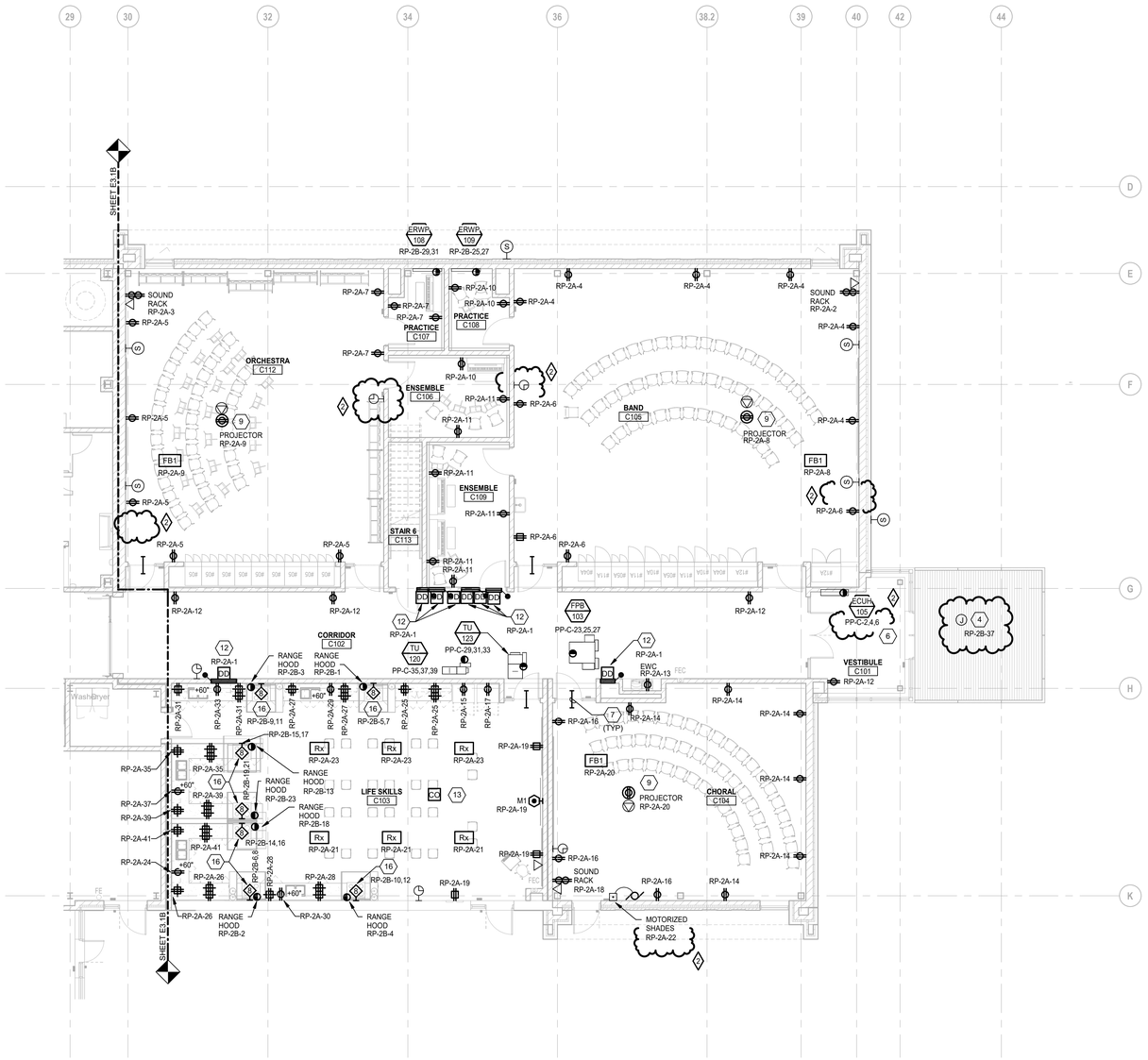

FIRST LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'C'

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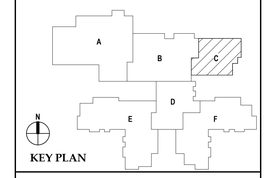

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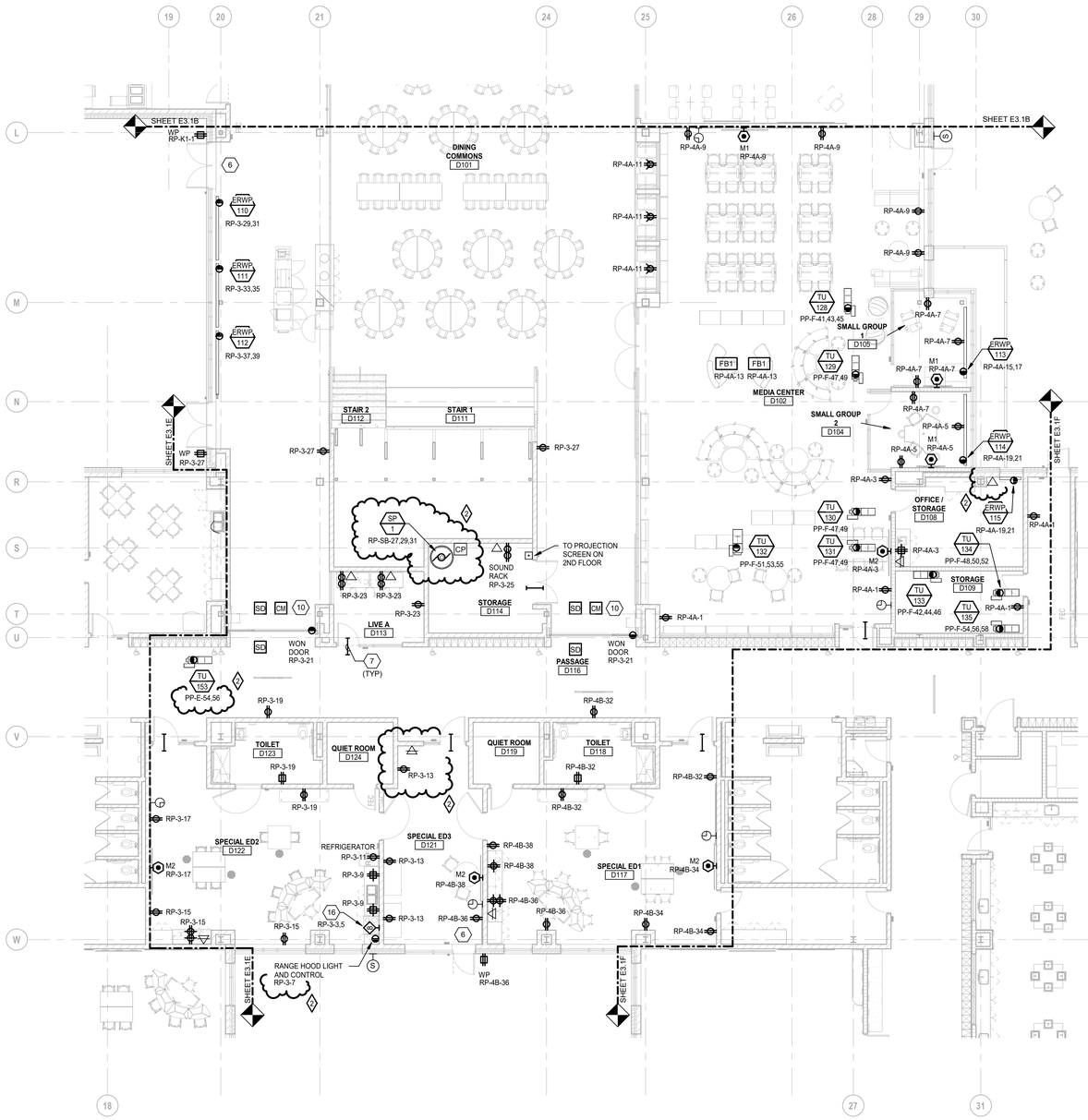

FIRST LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'D'

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3. ELECTRICAL CONTRACTOR SHALL INSTALL ALL CONTROLS, PUSHBUTTONS, KEY SWITCHES ETC. (PROVIDED WITH EACH BASKETBALL BACKBOARD), FOR A COMPLETE OPERABLE SYSTEM. KEY SWITCHES GANGED IN PAIRS IN ONE COVER PLATE TO CONTROL THE BACKSTOP SWING AND HEIGHT ADJUSTER.
4. HEAT TRACE, BY OTHERS.
5. DUCT SMOKE DETECTOR SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE MOUNTING LOCATION AND QUANTITY WITH THE MECHANICAL DUCTWORK CONTRACTOR. ELECTRICAL CONTRACTOR SHALL WIRE DUCT SMOKE DETECTOR/RTU SUPPLY/ RETURN FAN MOTOR STARTER SO THAT UPON DETECTION OF SMOKE, THE SUPPLY/RETURN FAN WILL SHUT DOWN. THIS SHALL BE ACCOMPLISHED VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WITH WITH THE TEMPERATURE CONTROL/FIRE ALARM CONTRACTOR. PROVIDE WEATHER PROOF ENCLOSURES AS REQUIRED.
6. REFER TO ARCHITECTURAL FLOOR PLANS, DOOR HARDWARE SCHEDULE ON ARCHITECTURAL DRAWINGS, ACCESS CONTROL SYSTEM SPECIFICATION SECTION AND ACCESS CONTROL DOOR DIAGRAM(S) ON E7 SERIES FOR RACEWAY AND BACK BOX REQUIREMENTS FOR DOOR OR BANK OF DOORS INDICATED. PROVIDE ALL RACEWAYS AND BACK BOXES REQUIRED. COORDINATE WITH DOOR HARDWARE AND SECURITY CONTRACTORS.
7. PROVIDE 2-2" AND 1-1" U.O.N. CONDUITS FOR TECHNOLOGY AND AUXILIARY SYSTEM WIRE AS INDICATED. STUB CONDUITS FROM CEILING SPACE. PROVIDE PLASTIC BUSHINGS AT EACH END. PROVIDE REMOVABLE/RESEALABLE FIRE STOP PUTTY IN EACH CONDUIT AND FIRE STOP AROUND EACH CONDUIT. COORDINATE WITH TECHNOLOGY CONTRACTOR FOR EXACT LOCATION OF CONDUIT. PROVIDE MINIMUM OF 1" CONDUIT FOR ALL OTHER AREAS REQUIRING SLEEVES.
8. PROVIDE (1)2" CONDUIT WITH PULL STRING AND BUSHINGS FOR TECHNOLOGY. ROUTE UNDER BUILDING AND TERMINATE AT EXTERIOR OF BUILDING.
9. COORDINATE MOUNTING LOCATION WITH TECHNOLOGY CONTRACTOR.
10. CONNECT FIRE ALARM DEVICES TO ELECTRIC COILING DOOR AND FIRE ALARM SYSTEM. ROLL-UP DOOR SHALL CLOSE UPON ACTIVATION OF THE SMOKE DETECTORS ASSOCIATED WITH THE COILING FIRE DOOR. COORDINATE WITH COILING DOOR CONTRACTOR FOR ALL SMOKE DETECTORS AND CONTROL MODULES REQUIRED FOR A COMPLETE SYSTEM.
11. HAND DRYERS FURNISHED BY OTHERS AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL TRADES.
12. SMOKE DAMPER DUCT SMOKE DETECTOR. SMOKE DETECTOR SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR SO THAT UPON DETECTION OF SMOKE THE SUPPLY/RETURN FAN WILL SHUT DOWN. ELECTRICAL CONTRACTOR SHALL WIRE DUCT DETECTOR TO FIRE ALARM SYSTEM, AND CIRCUIT DAMPER ACTUATOR. PROVIDE A 20A-1P SWITCH AT EACH ACTUATOR. CONTROL OF AIR HANDLING EQUIPMENT IS VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WORK WITH THE TEMPERATURE CONTROLS CONTRACTOR AND FIRE ALARM MANUFACTURER. DAMPER SHALL CLOSE UPON DETECTION OF SMOKE AND SHUT DOWN ASSOCIATED AIR HANDLER, DAMPER SHALL ALSO CLOSE UPON NORMAL SHUTDOWN OF AIR HANDLER.
13. CARBON MONOXIDE DETECTOR. COORDINATE QUANTITY WITH FIRE MARSHAL.
14. SCOREBOARD. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH IN.
15. WALL MOUNT TRANSFORMER.
16. ELECTRIC RANGE. PROVIDE WALL MOUNTED GFCI MODULE ABOVE COUNTER.
17. LIGHTING RELAY PANEL FOR THEATRICAL LIGHTING SYSTEM. REFER TO THEATRICAL LIGHTING EQUIPMENT DRAWINGS.

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PBA Project No.: 2023.0154

PROJECT TITLE

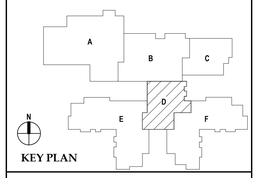
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'D'



KEY PLAN

ISSUE DATES

07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE: ISSUED FOR:

DRAWN	DDS
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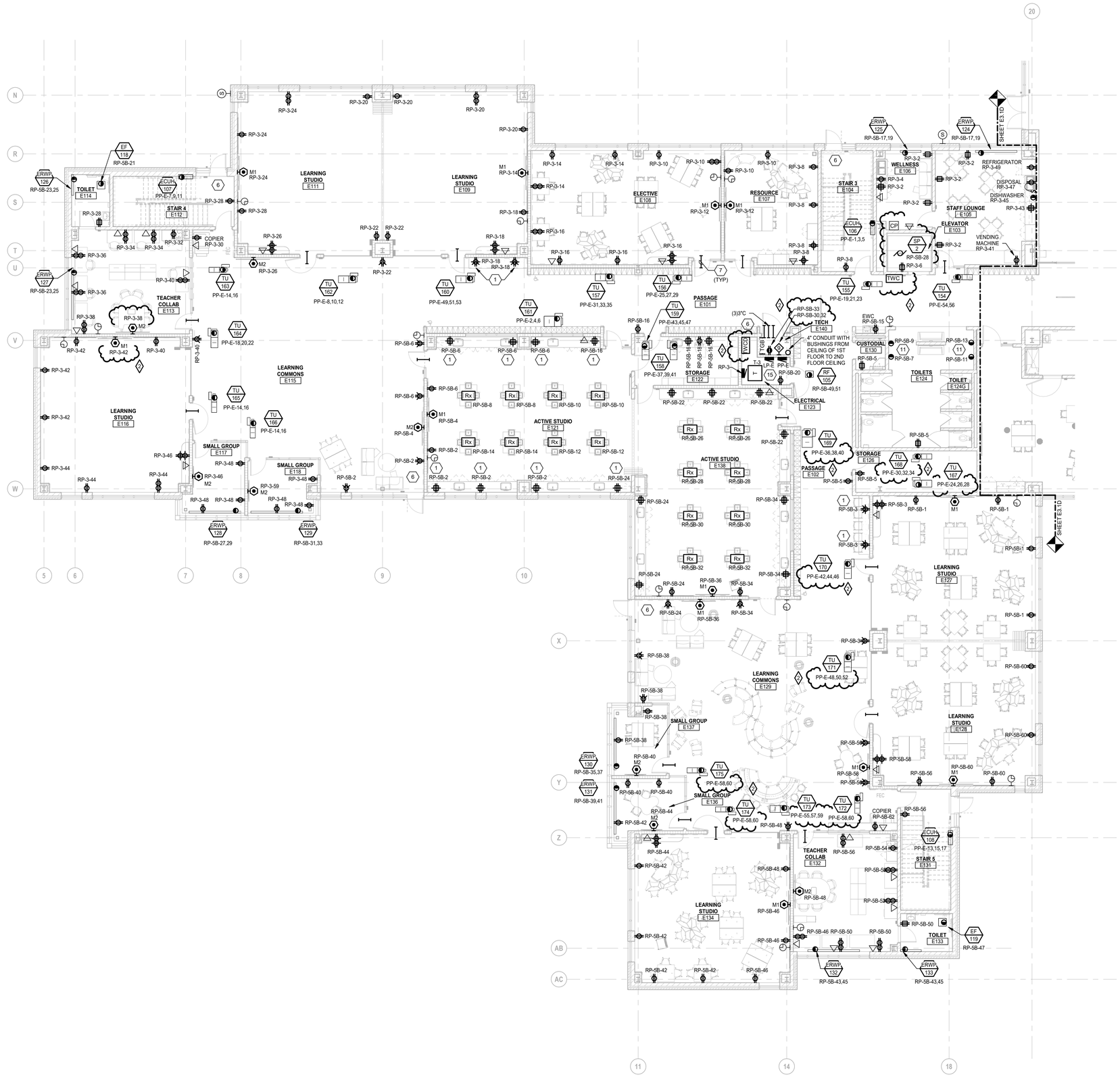
PROJECT NO.

22102

DRAWING NO.

E3.1D

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIRST LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'E'

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

ELECTRICAL GENERAL NOTES:

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
5. TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH TRANSFORMER CIRCUIT SIZING SCHEDULE SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
6. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
7. COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.
8. COORDINATE EXACT LOCATIONS OF ALL FLOOR SERVICE FITTINGS AND POKE-THROUGH ASSEMBLIES WITH FINAL FURNITURE LAYOUT DRAWINGS.
9. REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.
10. REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED FIRE ALARM CONTROL MODULES, DUCT SMOKE DETECTORS, AND MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.
11. THE FIRE ALARM DEVICES SHOWN ON PLAN ARE A PARTIAL REPRESENTATION OF THE FIRE ALARM SYSTEM. PROVIDE THE DESIGN AND INSTALLATION OF A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES, SMOKE AND HEAT DETECTORS, CONTROL MODULES, INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, AND ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.
12. REFER TO LIGHTING CONTROL SCHEDULE FOR ROOM CONTROL AND EMERGENCY LIGHTING CIRCUIT CONTROL REQUIREMENTS. DESIGNATION FOR ROOM IS INDICATED AS A LETTERED OVAL SYMBOL.
13. CONNECT EXIT SIGNS TO EMERGENCY LIGHTING BRANCH CIRCUIT SERVICE THE AREA. CONNECT AHEAD OF ANY LIGHTING CONTROL DEVICE OR SYSTEM.
14. PROVIDE SINGLE GANG JUNCTION BOX WITH 3/4" C. PULL STRING AND BUSHING TO ACCESSABLE CEILING SPACE AT SPEAKER AND CLOCK LOCATIONS. COORDINATE MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.

CONSTRUCTION KEY NOTES:

1. MOUNT RECEPTACLES HORIZONTALLY
2. ELECTRICAL CONTRACTOR SHALL INSTALL 4" SQUARE JUNCTION BOX WITHIN 3'-0" OF ELECTRICAL BACKBOARD WINCH UP IN CEILING SPACE. ALSO INSTALL 4 POLE, TWIST LOCK, SINGLE RECEPTACLE, PROVIDED BY WINCH MANUFACTURERS, INTO THE JUNCTION BOX.
3. ELECTRICAL CONTRACTOR SHALL INSTALL ALL CONTROLS, PUSHBUTTONS, KEY SWITCHES ETC. (PROVIDED WITH EACH BASKETBALL BACKBOARD), FOR A COMPLETE OPERABLE SYSTEM. KEY SWITCHES GANGED IN PAIRS IN ONE COVER PLATE TO CONTROL THE BACKSTOP SWING AND HEIGHT ADJUSTER.
4. HEAT TRACE, BY OTHERS.
5. DUCT SMOKE DETECTOR SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE MOUNTING LOCATION AND QUANTITY WITH THE MECHANICAL DUCTWORK CONTRACTOR. ELECTRICAL CONTRACTOR SHALL WIRE DUCT SMOKE DETECTOR/RTU SUPPLY/ RETURN FAN MOTOR STARTER SO THAT UPON DETECTION OF SMOKE. THE SUPPLY/RETURN FAN WILL SHUT DOWN. THIS SHALL BE ACCOMPLISHED VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WITH WITH THE TEMPERATURE CONTROL/FIRE ALARM CONTRACTOR. PROVIDE WEATHER PROOF ENCLOSURES AS REQUIRED.
6. REFER TO ARCHITECTURAL FLOOR PLANS, DOOR HARDWARE SCHEDULE ON ARCHITECTURAL DRAWINGS, ACCESS CONTROL SYSTEM SPECIFICATION SECTION AND ACCESS CONTROL DOOR DIAGRAM(S) ON E7 SERIES FOR RACEWAY AND BACK BOX REQUIREMENTS FOR DOOR OR BANK OF DOORS INDICATED. PROVIDE ALL RACEWAYS AND BACK BOXES REQUIRED. COORDINATE WITH DOOR HARDWARE AND SECURITY CONTRACTORS.
7. PROVIDE 2-2" AND 1-1" U.O.N. CONDUITS FOR TECHNOLOGY AND AUXILIARY SYSTEM WIRE AS INDICATED. STUB CONDUITS FROM CEILING SPACE. PROVIDE PLASTIC BUSHINGS AT EACH END. PROVIDE REMOVABLE/RESEALABLE FIRE STOP PUTTY IN EACH CONDUIT AND FIRE STOP AROUND EACH CONDUIT. COORDINATE WITH TECHNOLOGY CONTRACTOR FOR EXACT LOCATION OF CONDUIT. PROVIDE MINIMUM OF 1" CONDUIT FOR ALL OTHER AREAS REQUIRING SLEEVES.
8. PROVIDE (1)2" CONDUIT WITH PULL STRING AND BUSHINGS FOR TECHNOLOGY. ROUTE UNDER BUILDING AND TERMINATE AT EXTERIOR OF BUILDING.
9. COORDINATE MOUNTING LOCATION WITH TECHNOLOGY CONTRACTOR.
10. CONNECT FIRE ALARM DEVICES TO ELECTRIC COILING DOOR AND FIRE ALARM SYSTEM. ROLL-UP DOOR SHALL CLOSE UPON ACTIVATION OF THE SMOKE DETECTORS ASSOCIATED WITH THE COILING FIRE DOOR. COORDINATE WITH COILING DOOR CONTRACTOR FOR ALL SMOKE DETECTORS AND CONTROL MODULES REQUIRED FOR A COMPLETE SYSTEM.
11. HAND DRYERS FURNISHED BY OTHERS AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL TRADES.
12. SMOKE DAMPER DUCT SMOKE DETECTOR. SMOKE DETECTOR SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR SO THAT UPON DETECTION OF SMOKE THE SUPPLY/RETURN FAN WILL SHUT DOWN. ELECTRICAL CONTRACTOR SHALL WIRE DUCT DETECTOR TO FIRE ALARM SYSTEM, AND CIRCUIT DAMPER ACTUATOR. PROVIDE A 20A-1P SWITCH AT EACH ACTUATOR, CONTROL OF AIR HANDLING EQUIPMENT IS VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WORK WITH THE TEMPERATURE CONTROLS CONTRACTOR AND FIRE ALARM MANUFACTURER. DAMPER SHALL CLOSE UPON DETECTION OF SMOKE AND SHUT DOWN ASSOCIATED AIR HANDLER, DAMPER SHALL ALSO CLOSE UPON NORMAL SHUTDOWN OF AIR HANDLER.
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PROJECT TITLE

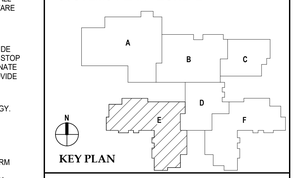
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

FIRST LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'E'



KEY PLAN

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06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	DDS
CHECKED	ZDB
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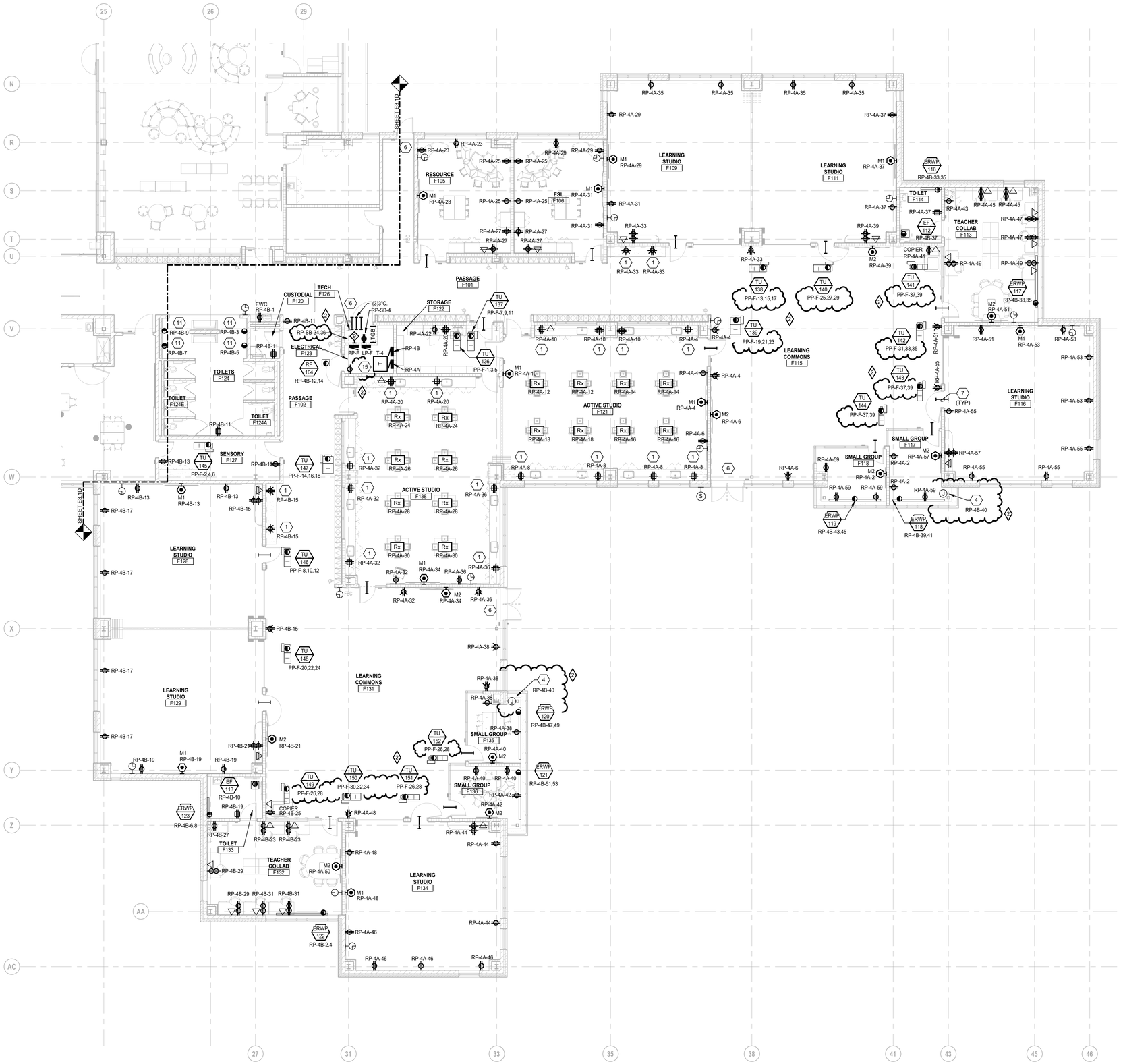
PROJECT NO.

22102

DRAWING NO.

E3.1E

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



FIRST LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'F'

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

ELECTRICAL GENERAL NOTES:

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
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3. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
5. TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH TRANSFORMER CIRCUIT SIZING SCHEDULE SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
6. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
7. COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.
8. COORDINATE EXACT LOCATIONS OF ALL FLOOR SERVICE FITTINGS AND POKE-THROUGH ASSEMBLIES WITH FINAL FURNITURE LAYOUT DRAWINGS.
9. REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.
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12. REFER TO LIGHTING CONTROL SCHEDULE FOR ROOM CONTROL AND EMERGENCY LIGHTING CIRCUIT CONTROL REQUIREMENTS. DESIGNATION FOR ROOM IS INDICATED AS A LETTERED OVAL SYMBOL.
13. CONNECT EXIT SIGNS TO EMERGENCY LIGHTING BRANCH CIRCUIT SERVICE THE AREA. CONNECT AHEAD OF ANY LIGHTING CONTROL DEVICE OR SYSTEM.
14. PROVIDE SINGLE GANG JUNCTION BOX WITH 3/4" C. PULL STRING AND BUSHING TO ACCESSABLE CEILING SPACE AT SPEAKER AND CLOCK LOCATIONS. COORDINATE MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.

CONSTRUCTION KEY NOTES:

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2. ELECTRICAL CONTRACTOR SHALL INSTALL 4" SQUARE JUNCTION BOX WITHIN 3'-0" OF ELECTRICAL BACKBOARD WINCH UP IN CEILING SPACE. ALSO INSTALL 4 POLE, TWIST LOCK, SINGLE RECEPTACLE, PROVIDED BY WINCH MANUFACTURERS, INTO THE JUNCTION BOX.
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6. REFER TO ARCHITECTURAL FLOOR PLANS, DOOR HARDWARE SCHEDULE ON ARCHITECTURAL DRAWINGS, ACCESS CONTROL SYSTEM SPECIFICATION SECTION AND ACCESS CONTROL DOOR DIAGRAM(S) ON E7 SERIES FOR RACEWAY AND BACK BOX REQUIREMENTS FOR DOOR OR BANK OF DOORS INDICATED. PROVIDE ALL RACEWAYS AND BACK BOXES REQUIRED. COORDINATE WITH DOOR HARDWARE AND SECURITY CONTRACTORS.
7. PROVIDE 2-2" AND 1-1" U.O.N. CONDUITS FOR TECHNOLOGY AND AUXILIARY SYSTEM WIRE AS INDICATED. STUB CONDUITS FROM CEILING SPACE. PROVIDE PLASTIC BUSHINGS AT EACH END. PROVIDE REMOVABLE/RESEALABLE FIRE STOP PUTTY IN EACH CONDUIT AND FIRE STOP AROUND EACH CONDUIT. COORDINATE WITH TECHNOLOGY CONTRACTOR FOR EXACT LOCATION OF CONDUIT. PROVIDE MINIMUM OF 1" CONDUIT FOR ALL OTHER AREAS REQUIRING SLEEVES.
8. PROVIDE (1)2" CONDUIT WITH PULL STRING AND BUSHINGS FOR TECHNOLOGY. ROUTE UNDER BUILDING AND TERMINATE AT EXTERIOR OF BUILDING.
9. COORDINATE MOUNTING LOCATION WITH TECHNOLOGY CONTRACTOR.
10. CONNECT FIRE ALARM DEVICES TO ELECTRIC COILING DOOR AND FIRE ALARM SYSTEM. ROLL-UP DOOR SHALL CLOSE UPON ACTIVATION OF THE SMOKE DETECTORS ASSOCIATED WITH THE COILING FIRE DOOR. COORDINATE WITH COILING DOOR CONTRACTOR FOR ALL SMOKE DETECTORS AND CONTROL MODULES REQUIRED FOR A COMPLETE SYSTEM.
11. HAND DRYERS FURNISHED BY OTHERS AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL TRADES.
12. SMOKE DAMPER DUCT SMOKE DETECTOR. SMOKE DETECTOR SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR SO THAT UPON DETECTION OF SMOKE THE SUPPLY/RETURN FAN WILL SHUT DOWN. ELECTRICAL CONTRACTOR SHALL WIRE DUCT DETECTOR TO FIRE ALARM SYSTEM, AND CIRCUIT DAMPER ACTUATOR. PROVIDE A 20A-1P SWITCH AT EACH ACTUATOR. CONTROL OF AIR HANDLING EQUIPMENT IS VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WORK WITH THE TEMPERATURE CONTROLS CONTRACTOR AND FIRE ALARM MANUFACTURER. DAMPER SHALL CLOSE UPON DETECTION OF SMOKE AND SHUT DOWN ASSOCIATED AIR HANDLER, DAMPER SHALL ALSO CLOSE UPON NORMAL SHUTDOWN OF AIR HANDLER.
13. CARBON MONOXIDE DETECTOR. COORDINATE QUANTITY WITH FIRE MARSHAL.
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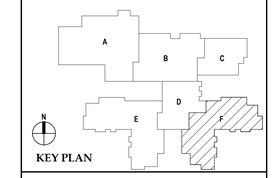

KEY PLAN

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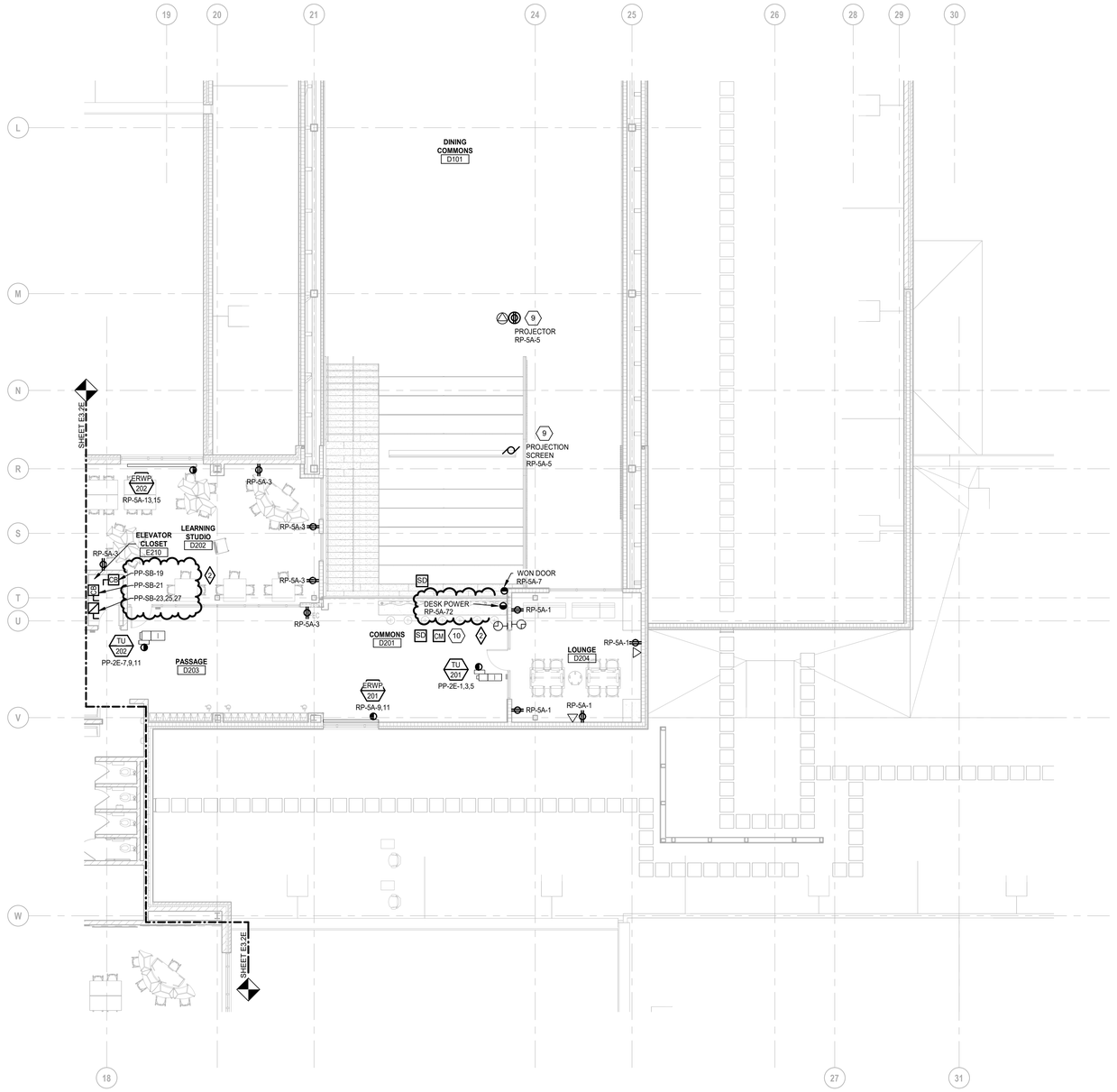

SECOND LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'D'

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

ELECTRICAL GENERAL NOTES:

1 THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

4 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

5 TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH TRANSFORMER CIRCUIT SIZING SCHEDULE SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.

6 MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.

7 COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.

8 COORDINATE EXACT LOCATIONS OF ALL FLOOR SERVICE FITTINGS AND POKE-THROUGH ASSEMBLIES WITH FINAL FURNITURE LAYOUT DRAWINGS.

9 REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.

10 REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED FIRE ALARM CONTROL MODULES, DUCT SMOKE DETECTORS, AND MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.

11 THE FIRE ALARM DEVICES SHOWN ON PLAN ARE A PARTIAL REPRESENTATION OF THE FIRE ALARM SYSTEM. PROVIDE THE DESIGN AND INSTALLATION OF A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES, SMOKE AND HEAT DETECTORS, CONTROL MODULES, INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, AND ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.

12 REFER TO LIGHTING CONTROL SCHEDULE FOR ROOM CONTROL AND EMERGENCY LIGHTING CIRCUIT CONTROL REQUIREMENTS. DESIGNATION FOR ROOM IS INDICATED AS A LETTERED OVAL SYMBOL.

13 CONNECT EXIT SIGNS TO EMERGENCY LIGHTING BRANCH CIRCUIT SERVICE THE AREA. CONNECT AHEAD OF ANY LIGHTING CONTROL DEVICE OR SYSTEM.

14 PROVIDE SINGLE GANG JUNCTION BOX WITH 3/4" C. PULL STRING AND BUSHING TO ACCESSABLE CEILING SPACE AT SPEAKER AND CLOCK LOCATIONS. COORDINATE MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.

CONSTRUCTION KEY NOTES:

1 MOUNT RECEPTACLES HORIZONTALLY

2 ELECTRICAL CONTRACTOR SHALL INSTALL 4" SQUARE JUNCTION BOX WITHIN 3'-0" OF ELECTRICAL BACKBOARD WINCH UP IN CEILING SPACE. ALSO INSTALL 4 POLE, TWIST LOCK, SINGLE RECEPTACLE, PROVIDED BY WINCH MANUFACTURERS, INTO THE JUNCTION BOX.

3 ELECTRICAL CONTRACTOR SHALL INSTALL ALL CONTROLS, PUSHBUTTONS, KEY SWITCHES ETC. (PROVIDED WITH EACH BASKETBALL BACKBOARD), FOR A COMPLETE OPERABLE SYSTEM. KEY SWITCHES GANGED IN PAIRS IN ONE COVER PLATE TO CONTROL THE BACKSTOP SWING AND HEIGHT ADJUSTER.

4 HEAT TRACE, BY OTHERS.

5 DUCT SMOKE DETECTOR SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE MOUNTING LOCATION AND QUANTITY WITH THE MECHANICAL DUCTWORK CONTRACTOR. ELECTRICAL CONTRACTOR SHALL WIRE DUCT SMOKE DETECTOR/RTU SUPPLY/ RETURN FAN MOTOR STARTER SO THAT UPON DETECTION OF SMOKE. THE SUPPLY/RETURN FAN WILL SHUT DOWN. THIS SHALL BE ACCOMPLISHED VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WITH WITH THE TEMPERATURE CONTROL/FIRE ALARM CONTRACTOR. PROVIDE WEATHER PROOF ENCLOSURES AS REQUIRED.

6 REFER TO ARCHITECTURAL FLOOR PLANS, DOOR HARDWARE SCHEDULE ON ARCHITECTURAL DRAWINGS, ACCESS CONTROL SYSTEM SPECIFICATION SECTION AND ACCESS CONTROL DOOR DIAGRAM(S) ON E7 SERIES FOR RACEWAY AND BACK BOX REQUIREMENTS FOR DOOR OR BANK OF DOORS INDICATED. PROVIDE ALL RACEWAYS AND BACK BOXES REQUIRED. COORDINATE WITH DOOR HARDWARE AND SECURITY CONTRACTORS.

7 PROVIDE 2-2" AND 1-1" U.O.N. CONDUITS FOR TECHNOLOGY AND AUXILIARY SYSTEM WIRE AS INDICATED. STUB CONDUITS FROM CEILING SPACE. PROVIDE PLASTIC BUSHINGS AT EACH END. PROVIDE REMOVABLE/RESEALABLE FIRE STOP PUTTY IN EACH CONDUIT AND FIRE STOP AROUND EACH CONDUIT. COORDINATE WITH TECHNOLOGY CONTRACTOR FOR EXACT LOCATION OF CONDUIT. PROVIDE MINIMUM OF 1" CONDUIT FOR ALL OTHER AREAS REQUIRING SLEEVES.

8 PROVIDE (1)2" CONDUIT WITH PULL STRING AND BUSHINGS FOR TECHNOLOGY. ROUTE UNDER BUILDING AND TERMINATE AT EXTERIOR OF BUILDING.

9 COORDINATE MOUNTING LOCATION WITH TECHNOLOGY CONTRACTOR.

10 CONNECT FIRE ALARM DEVICES TO ELECTRIC COILING DOOR AND FIRE ALARM SYSTEM. ROLL-UP DOOR SHALL CLOSE UPON ACTIVATION OF THE SMOKE DETECTORS ASSOCIATED WITH THE COILING FIRE DOOR. COORDINATE WITH COILING DOOR CONTRACTOR FOR ALL SMOKE DETECTORS AND CONTROL MODULES REQUIRED FOR A COMPLETE SYSTEM.

11 HAND DRYERS FURNISHED BY OTHERS AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL TRADES.

12 SMOKE DAMPER DUCT SMOKE DETECTOR. SMOKE DETECTOR SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR SO THAT UPON DETECTION OF SMOKE THE SUPPLY/RETURN FAN WILL SHUT DOWN. ELECTRICAL CONTRACTOR SHALL WIRE DUCT DETECTOR TO FIRE ALARM SYSTEM, AND CIRCUIT DAMPER ACTUATOR. PROVIDE A 20A-1P SWITCH AT EACH ACTUATOR. CONTROL OF AIR HANDLING EQUIPMENT IS VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WORK WITH THE TEMPERATURE CONTROLS CONTRACTOR AND FIRE ALARM MANUFACTURER. DAMPER SHALL CLOSE UPON DETECTION OF SMOKE AND SHUT DOWN ASSOCIATED AIR HANDLER, DAMPER SHALL ALSO CLOSE UPON NORMAL SHUTDOWN OF AIR HANDLER.

13 CARBON MONOXIDE DETECTOR. COORDINATE QUANTITY WITH FIRE MARSHAL.

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15 WALL MOUNT TRANSFORMER.

16 ELECTRIC RANGE. PROVIDE WALL MOUNTED GFCI MODULE ABOVE COUNTER.

17 LIGHTING RELAY PANEL FOR THEATRICAL LIGHTING SYSTEM. REFER TO THEATRICAL LIGHTING EQUIPMENT DRAWINGS.

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PBA Project No: 2023.0154

PROJECT TITLE

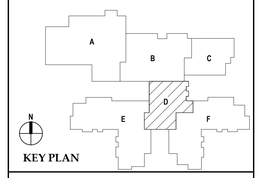
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

SECOND LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'D'



KEY PLAN

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	DDS
CHECKED	ZDB
APPROVED	STP

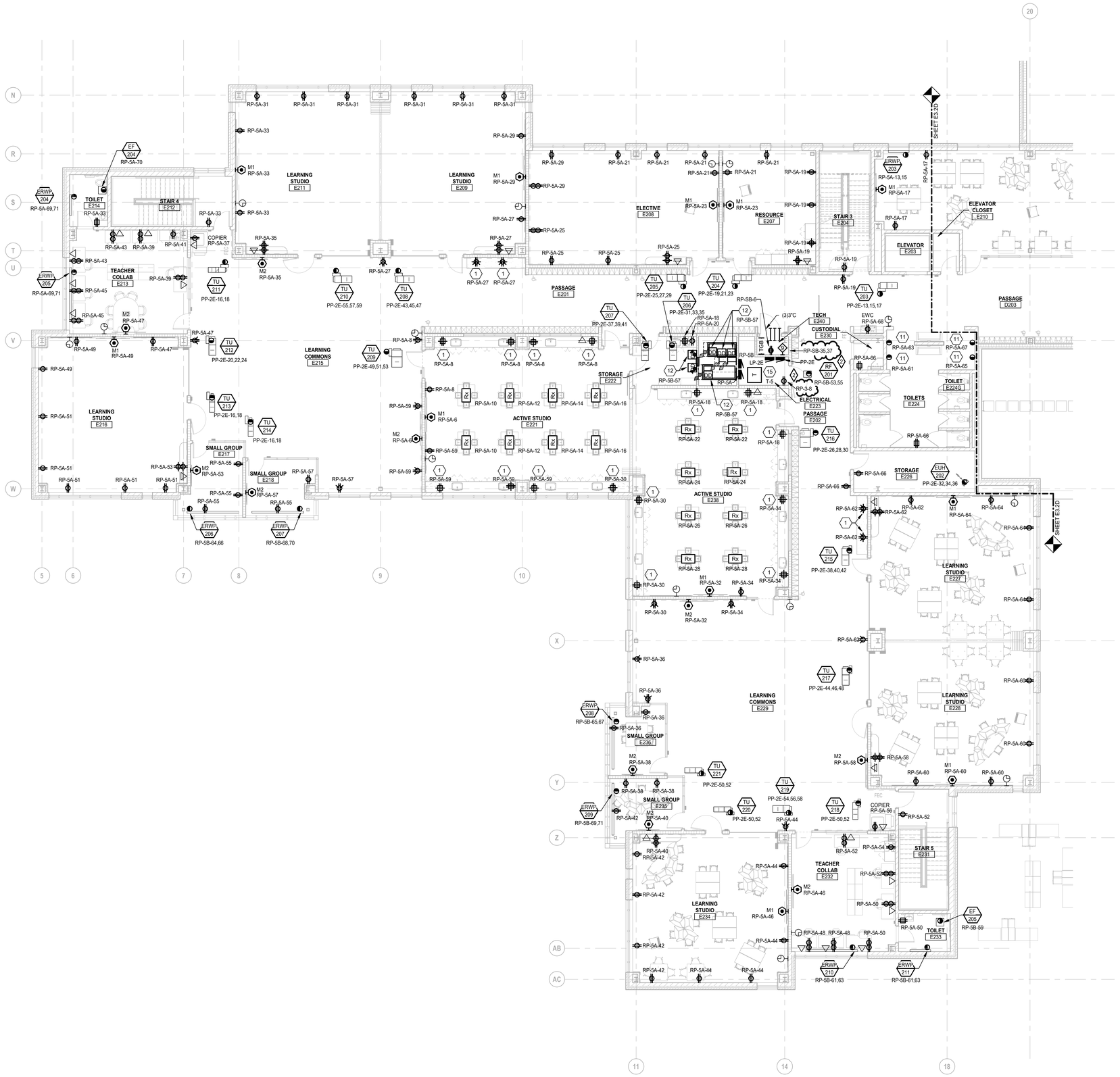
PROJECT NO.

22102

DRAWING NO.

E3.2D

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



SECOND LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'E'

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

ELECTRICAL GENERAL NOTES:

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
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3. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
5. TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH TRANSFORMER CIRCUIT SIZING SCHEDULE SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
6. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
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17. LIGHTING RELAY PANEL FOR THEATRICAL LIGHTING SYSTEM. REFER TO THEATRICAL LIGHTING EQUIPMENT DRAWINGS.

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PBA Project No: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

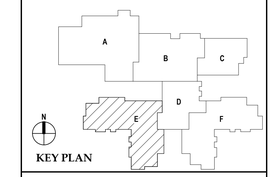
Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

SECOND LEVEL POWER AND AUXILIARY SYSTEMS PLAN - ZONE 'E'

KEY PLAN



ISSUE DATES

07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS
DATE:	ISSUED FOR:

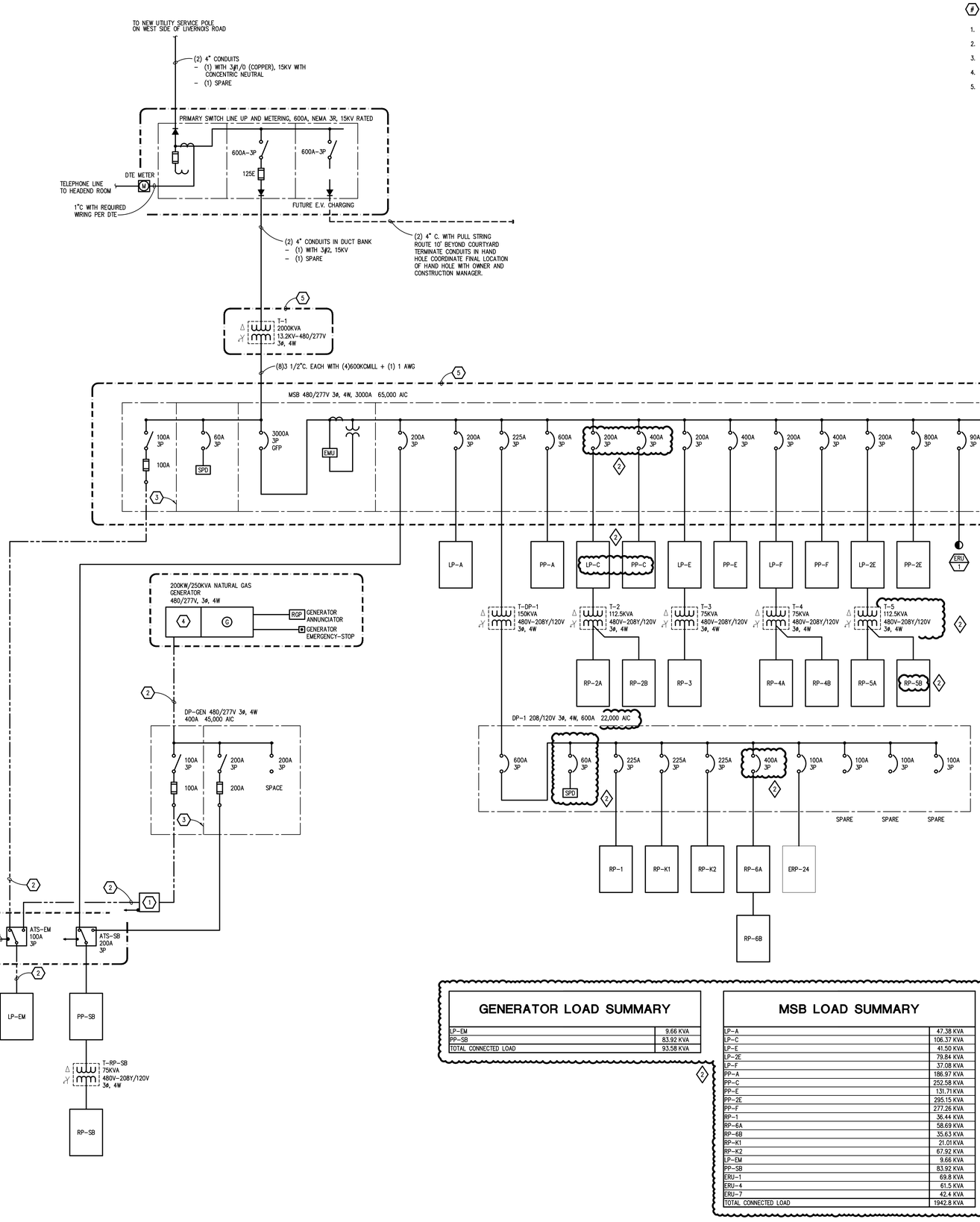
DRAWN	DDS
CHECKED	ZDB
APPROVED	STP

PROJECT NO.

22102

DRAWING NO.

E3.2E



CONSTRUCTION KEY NOTES:

1. PORTABLE GENERATOR DOCKING STATION.
2. LISTED 2 HOUR FIRE-RATED CONDUIT AND CABLING ASSEMBLY PER 700.10(D).
3. SEPARATE VERTICAL SECTIONS PER 700.10(B)(6).
4. PROVIDE GENERATOR PROTECTION RELAYS.
5. PRE-PURCHASED EQUIPMENT COORDINATE WITH OWNER AND CONSTRUCTION MANAGER.

DIAGRAM GENERAL NOTES:

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
2. FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE "FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE–GENERAL PURPOSE" ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
3. TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE "TRANSFORMER CIRCUIT SIZING SCHEDULE–GENERAL PURPOSE" ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
4. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH THE MOTOR CIRCUIT SIZING SCHEDULES ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.

(2)

5. BASIS OF DESIGN IS EATON DISTRIBUTION EQUIPMENT AND ASCO TRANSFER SWITCHES. IF THE CONTRACTOR ELECTS TO PROVIDE EQUIPMENT FROM OTHER APPROVED MANUFACTURERS, THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE LAYOUT AND CLEARANCE REQUIREMENTS IN ALL SPACES CONTAINING ELECTRICAL EQUIPMENT AND PROVIDE EQUIPMENT MEETING THE SPECIFICATIONS AND ACHIEVING CODE REQUIRED CLEARANCES WITHIN THE SPACE PROVIDED.
6. VARIABLE FREQUENCY CONTROLLERS (VFC) FURNISHED BY MECHANICAL TRADES. ELECTRICAL CONTRACTOR SHALL INSTALL VFC, PROVIDE POWER FEEDER FROM DISTRIBUTION EQUIPMENT TO VFC AND PROVIDE POWER FEEDER FROM VFC TO MOTOR. REFER TO SPECIFICATIONS FOR APPLICATION OF VFC POWER CABLE FROM VFC TO MOTOR.

GENERATOR LOAD SUMMARY

LP–EM	9.66 KVA
PP–SB	83.92 KVA
TOTAL CONNECTED LOAD	93.58 KVA

MSB LOAD SUMMARY

LP–A	47.38 KVA
LP–C	106.37 KVA
LP–E	41.50 KVA
LP–2E	79.84 KVA
LP–F	37.08 KVA
PP–A	186.97 KVA
PP–C	252.58 KVA
PP–E	131.71KVA
PP–2E	295.15 KVA
PP–F	277.26 KVA
RP–1	36.44 KVA
RP–6A	58.69 KVA
RP–6B	35.63 KVA
RP–K1	21.01 KVA
RP–K2	67.92 KVA
LP–EM	9.66 KVA
PP–SB	83.92 KVA
ERU–1	69.8 KVA
ERU–4	61.5 KVA
ERU–7	42.4 KVA
TOTAL CONNECTED LOAD	1942.8 KVA

SHORT-CIRCUIT CALCULATIONS

FAULT POINT	PANEL/ TRANSFORMER	SOURCE FAULT POINT	SOURCE Isc	CONDUIT TYPE	CONDUCTOR MATERIAL	CONDUCTOR OR BUS SIZE	'C' VALUE	E (V)	L (FT)	XFMR kVA	XFMR %Z	f	M	Isc
1	XFMR T–1							480		2000	5.75			41,838
2	MSB	1	41,838	NM	CU	8 SETS OF 600 KCML	28033	480	50.0			0.034	0.97	40,476
3	LP–EM	2	40,476	M	CU	1 SET OF 3	4774	480	50.0			1.530	0.40	16,001
4	PP–SB	2	40,476	M	CU	1 SET OF 3/0	12844	480	50.0			0.569	0.64	25,805
5	T–RP–SB(PRIMARY)	4	25,805	M	CU	1 SET OF 1	7293	480	10.0			0.128	0.89	22,883
6	T–RP–SB(SECONDARY)	5	22,883					208		75	3.61	9.146	0.10	5,205
7	RP–SB	6	5,205	M	CU	1 SET OF 4/0	15082	208	10.0			0.029	0.97	5,059
8	LP–A	2	40,476	M	CU	1 SET OF 3/0	12844	480	10.0			0.114	0.90	36,343
9	T–DP–1(PRIMARY)	2	40,476	M	CU	1 SET OF 4/0	15082	480	35.0			0.339	0.75	30,230
10	T–DP–1(SECONDARY)	9	30,230					208		150	3.46	5.790	0.15	10,274
11	DP–1	10	10,274	M	CU	2 SETS OF 350 KCML	19704	208	15.0			0.033	0.97	9,950
12	RP–1	11	9,950	M	CU	1 SET OF 4/0	15082	208	10.0			0.055	0.95	9,431
13	RP–K1	11	9,950	M	CU	1 SET OF 4/0	15082	208	70.0			0.385	0.72	7,186
14	RP–K2	11	9,950	M	CU	1 SET OF 4/0	15082	208	70.0			0.385	0.72	7,186
15	PP–A	2	40,476	M	CU	2 SETS OF 350 KCML	19704	480	20.0			0.074	0.93	37,683
16	PP–C	2	40,476	M	CU	1 SET OF 600 KCML	22965	480	320.0			2.035	0.33	13,336
17	T–2(PRIMARY)	16	13,336	M	CU	1 SET OF 2/0	10755	480	10.0			0.045	0.96	12,765
18	T–2(SECONDARY)	17	12,765					208		112.5	4.37	4.117	0.20	5,756
19	RP–2A	18	5,756	M	CU	1 SET OF 600 KCML	22965	208	10.0			0.021	0.98	5,639
20	RP–2B	19	5,639	M	CU	1 SET OF 600 KCML	22965	208	10.0			0.020	0.98	5,526
21	LP–C	2	40,476	M	CU	1 SET OF 3/0	12844	480	320.0			3.639	0.22	8,726
22	LP–E	2	40,476	M	CU	1 SET OF 3/0	12844	480	150.0			1.706	0.37	14,960
23	T–3(PRIMARY)	22	14,960	M	CU	1 SET OF 1	7293	480	10.0			0.074	0.93	13,929
24	T–3(SECONDARY)	23	13,929					208		75	3.61	5.567	0.15	4,894
25	RP–3	24	4,894	M	CU	1 SET OF 4/0	15082	208	10.0			0.027	0.97	4,766
26	PP–E	2	40,476	M	CU	1 SET OF 600 KCML	22965	480	150.0			0.954	0.51	20,715
27	LP–F	2	40,476	M	CU	1 SET OF 3/0	12844	480	280.0			3.184	0.24	9,674
28	T–4(PRIMARY)	27	9,674	M	CU	1 SET OF 1	7293	480	10.0			0.048	0.95	9,232
29	T–4(SECONDARY)	28	9,232					208		75	3.61	3.690	0.21	4,543
30	RP–4	29	4,543	M	CU	1 SET OF 4/0	15082	208	10.0			0.025	0.98	4,431
31	PP–F	2	40,476	M	CU	1 SET OF 600 KCML	22965	480	280.0			1.781	0.36	14,556
32	LP–2E	2	40,476	M	CU	1 SET OF 3/0	12844	480	170.0			1.933	0.34	13,800
33	T–5(PRIMARY)	32	13,800	M	CU	1 SET OF 1	7293	480	10.0			0.068	0.94	12,918
34	T–5(SECONDARY)	33	12,918					208		112.5	4.37	4.167	0.19	5,770
35	RP–5	34	5,770	M	CU	1 SET OF 4/0	15082	208	10.0			0.032	0.97	5,591
36	RP–6	11	9,950	M	CU	1 SET OF 4/0	15082	208	145.0			0.797	0.56	5,538
37	PP–2E	2	40,476	M	CU	2 SETS OF 600 KCML	22965	480	170.0			0.541	0.65	26,273
38	ERU–1	2	40,476	M	CU	1 SET OF 3	4774	480	150.0			4.589	0.18	7,242
39	ERU–4	2	40,476	M	CU	1 SET OF 3	4774	480	160.0			4.895	0.17	6,866
40	ERU–7	2	40,476	M	CU	1 SET OF 6	2425	480	140.0			8.432	0.11	4,291

THE FOLLOWING THREE PHASE CALCULATIONS ARE BASED ON THE "POINT-BY POINT" METHOD WHERE:

$Isc = Isc \times M$, $M = 1/(1+f)$

CONDUCTOR OR BUS: $f = \frac{1.732 \times L \times Isc}{C \times n \times E}$

UTILITY XFMR: $Isc = \frac{kVA \times 100{,}000}{E \times 1.732 \times \%Z}$

XFMR: $f = \frac{Ip(sc) \times Ep \times 1.73 \times \%Z}{100{,}000 \times KVA}$ $Is(sc) = \frac{Ep \times M \times Ip(sc)}{Es}$

L = LENGTH (ft) OF CONDUCTOR, C = CONSTANT FROM TABLE, n = NUMBER OF CONDUCTORS PER PHASE
Isc = AVAILABLE SHORT CIRCUIT (A), E = VOLTAGE OF CIRCUIT

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PBA Project No.: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
Troy, Michigan

DRAWING TITLE

ONE LINE DIAGRAM

ISSUE DATES

07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE: ISSUED FOR:

DRAWN	DDS
CHECKED	ZDB
APPROVED	STP

PROJECT NO.

22102

DRAWING NO.

E5.1

7/11/2024 2:10:16 PM
Autodesk Docs://22102_Troy Smith MS/2023-0154_TSD Smith MS_MEP_v22.rvt

PANELBOARD LP-F

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	Spare; R; NC	T-4		125	14140	0					20	--	SPARE	--	2
3							15250	0			20	--	SPARE	--	4
5									11730	0	20	--	SPARE	--	6
7	L	LIGHTING		20	1199	0					20	--	SPARE	--	8
9	L	LIGHTING		20			1834	0			20	--	SPARE	--	10
11	L	LIGHTING		20					1111	0	20	--	SPARE	--	12
13	L	LIGHTING		20	1494	0					20	--	SPARE	--	14
15	L	LIGHTING		20			1236	0			20	--	SPARE	--	16
17	L	LIGHTING		20					1067	0	20	--	SPARE	--	18
19	L	LIGHTING		20	1832	0					20	--	SPARE	--	20
21	--	SPACE	--	--			--	--			--	--	SPACE	--	22
23	--	SPACE	--	--					--	--	--	--	SPACE	--	24
25	--	SPACE	--	--	--	--					--	--	SPACE	--	26
27	--	SPACE	--	--			--	--			--	--	SPACE	--	28
29	--	SPACE	--	--					--	--	--	--	SPACE	--	30
					18664		18319		13907						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	480Y/277V	CONTINUOUS LOAD (C):	0	100%	0	125%	0	
BUS AMPACITY:	200A	ELECTRIC HEAT (E)	0	100%	0	100%	0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	3500	100%	3500	100%	3500	
MINIMUM A.I.C.:	22,000	KITCHEN LOAD (K):	0		0	100%	0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	10000	100%	10000	100%	10000	
		RECEPT DEMAND LOAD (R):	27620	50%	13810	100%	13810	
		LIGHTING LOAD (L):	9770.76	100%	9770.76	125%	12213.45	
		ADDITIONAL TRACK LIGHTING...				100%	0	
		MOTORS, HIGHEST LOAD (M):	0	125 %	0	100%	0	
PANELBOARD LOCATION		MOTORS, REMAINING	0	100 %	0	100 %	0	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		**TOTAL (kVA):**	**37.08**			
				TOTAL...	**44.60**	**TOTAL...**	**47.54**	

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PANELBOARD LP-A

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	L	LIGHTING		20	1548	1952					20		LIGHTING	L	2
3	L	LIGHTING		20			1681	944			20		LIGHTING	L	4
5	L	LIGHTING		20					1191	1027	20		EXTERIOR LIGHTING	L	6
7	L	LIGHTING		20	2400	0					20	--	SPARE	--	8
9	L	LIGHTING		20			2400	0			20	--	SPARE	--	10
11	L	LIGHTING		20					1151	0	20	--	SPARE	--	12
13	NC	ERU-5		25	5265	0					20	--	SPARE	--	14
15							5265	0			20	--	SPARE	--	16
17									5265	0	20	--	SPARE	--	18
19	NC	ERU-6		25	5543	0					20	--	SPARE	--	20
21							5543	0			20	--	SPARE	--	22
23									5543	0	20	--	SPARE	--	24
25	L	SITE LIGHTING		20	660	0					20	--	SPARE	--	26
27	--	SPARE	--	20			0	0			20	--	SPARE	--	28
29	--	SPARE	--	20					0	0	20	--	SPARE	--	30
					17368		15833		14177						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	480Y/277V	CONTINUOUS LOAD (C):	0	100%	0	125%	0	
BUS AMPACITY:	200A	ELECTRIC HEAT (E)	0	100%	0	100%	0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	32423.99	100%	32423.99	100%	32423.99	
MINIMUM A.I.C.:	42,000	KITCHEN LOAD (K):	0		0	100%	0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	0	100%	0	100%	0	
		RECEPT DEMAND LOAD (R):	0	50%	0	100%	0	
		LIGHTING LOAD (L):	14953.85	100%	14953.85	125%	18692.31	
		ADDITIONAL TRACK LIGHTING...				100%	0	
		MOTORS, HIGHEST LOAD (M):	0	125 %	0	100%	0	
PANELBOARD LOCATION		MOTORS, REMAINING	0	100 %	0	100 %	0	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		**TOTAL (kVA):**	**47.38**			
				TOTAL...	**56.99**	**TOTAL...**	**61.48**	

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PANELBOARD LP-EM

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	L	LIGHTING		20	2238	--					--	--	SPACE	--	2
3	L	LIGHTING		20			2400	--			--	--	SPACE	--	4
5	L	LIGHTING		20					1075	--	--	--	SPACE	--	6
7	L	LIGHTING		20	891	--					--	--	SPACE	--	8
9	L	LIGHTING		20			925	--			--	--	SPACE	--	10
11	L	LIGHTING		20					1106	--	--	--	SPACE	--	12
13	L	LIGHTING		20	1021	--					--	--	SPACE	--	14
15	--	SPACE	--	--			--	--			--	--	SPACE	--	16
17	--	SPACE	--	--					--	--	--	--	SPACE	--	18
19	--	SPACE	--	--	--	--					--	--	SPACE	--	20
21	--	SPACE	--	--			--	--			--	--	SPACE	--	22
23	--	SPACE	--	--					--	--	--	--	SPACE	--	24
25	--	SPACE	--	--	--	--					--	--	SPACE	--	26
27	--	SPACE	--	--			--	--			--	--	SPACE	--	28
29	--	SPACE	--	--					--	--	--	--	SPACE	--	30
					4150		3325		2181						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	480Y/277V	CONTINUOUS LOAD (C):	0	100%	0	125%	0	PROVIDE AS FUSED PANELBOARD.
BUS AMPACITY:	100A	ELECTRIC HEAT (E)	0	100%	0	100%	0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	0	100%	0	100%	0	
MINIMUM A.I.C.:	22,000	KITCHEN LOAD (K):	0		0	100%	0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	0	100%	0	100%	0	
		RECEPT DEMAND LOAD (R):	0	50%	0	100%	0	
		LIGHTING LOAD (L):	9656.15	100%	9656.15	125%	12070.19	
		ADDITIONAL TRACK LIGHTING...				100%	0	
+ PROVIDE INTEGRAL SPD		MOTORS, HIGHEST LOAD (M):	0	125 %	0	100%	0	
PANELBOARD LOCATION		MOTORS, REMAINING	0	100 %	0	100 %	0	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		**TOTAL (kVA):**	**9.66**			
				TOTAL...	**11.61**	**TOTAL...**	**14.52**	

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PANELBOARD LP-2E

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	Spare; L; R; M; NC	T-5		175	34451	0					20	--	SPARE	--	2
3							33435	0			20	--	SPARE	--	4
5									32865	0	20	--	SPARE	--	6
7	L	LIGHTING		20	1101	0					20	--	SPARE	--	8
9	L	LIGHTING		20			1531	0			20	--	SPARE	--	10
11	L	LIGHTING		20					2512	0	20	--	SPARE	--	12
13	L	LIGHTING		20	678	0					20	--	SPARE	--	14
15	L	LIGHTING		20			1373	0			20	--	SPARE	--	16
17	--	SPACE	--	--					--	--	--	--	SPACE	--	18
19	--	SPACE	--	--	--	--					--	--	SPACE	--	20
21	--	SPACE	--	--			--	--			--	--	SPACE	--	22
23	--	SPACE	--	--					--	--	--	--	SPACE	--	24
25	--	SPACE	--	--	--	--					--	--	SPACE	--	26
27	--	SPACE	--	--			--	--			--	--	SPACE	--	28
29	--	SPACE	--	--					--	--	--	--	SPACE	--	30
					36230		36339		35377						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	480Y/277V	CONTINUOUS LOAD (C):	0	100%	0	125%	0	
BUS AMPACITY:	200A	ELECTRIC HEAT (E)	0	100%	0	100%	0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	29750	100%	29750	100%	29750	
MINIMUM A.I.C.:	22,000	KITCHEN LOAD (K):	0		0	100%	0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	10000	100%	10000	100%	10000	
		RECEPT DEMAND LOAD (R):	56960	50%	28480	100%	28480	
		LIGHTING LOAD (L):	7329.46	100%	7329.46	125%	9161.83	
		ADDITIONAL TRACK LIGHTING...				100%	0	
		MOTORS, HIGHEST LOAD (M):	1500	125 %	1875	100%	1875	
PANELBOARD LOCATION		MOTORS, REMAINING	2406.4	100 %	2406.4	100 %	2406.4	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		**TOTAL (kVA):**	**79.84**			
				TOTAL...	**96.03**	**TOTAL...**	**98.24**	

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PANELBOARD LP-C

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	Spare; K; R; M; NC	T-2		175	29742	1490					20		LIGHTING	L	2
3							32289	2557			20		LIGHTING	L	4
5									34068	1519	20		LIGHTING	L	6
7	L	LIGHTING		20	1118	804					20		EXTERIOR LIGHTING	L	8
9	L	LIGHTING		20			1065	5960			35		MAU-1	NC	10
11	L	LIGHTING		20					1633	5960					12
13	--	SPARE	--	20	0	5960									14
15	--	SPARE	--	20			0	2196			20		SITE LIGHTING	L	16
17	--	SPARE	--	20					0	1638	20		SITE LIGHTING	L	18
19	--	SPARE	--	20	0	0					20	--	SPARE	--	20
21	--	SPARE	--	20			0	0			20	--	SPARE	--	22
23	--	SPARE	--	20					0	0	20	--	SPARE	--	24
25	--	SPARE	--	20	0	0					20	--	SPARE	--	26
27	--	SPARE	--	20			0	0			20	--	SPARE	--	28
29	--	SPARE	--	20					0	0	20	--	SPARE	--	30
					39113		44067		44819						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	480Y/277V	CONTINUOUS LOAD (C):	0	100%	0	125%	0	
BUS AMPACITY:	225A	ELECTRIC HEAT (E)	0	100%	0	100%	0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	26670	100%	26670	100%	26670	
MINIMUM A.I.C.:	22,000	KITCHEN LOAD (K):	58790	65.00%	38213.5	100%	38213.5	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	10000	100%	10000	100%	10000	
		RECEPT DEMAND LOAD (R):	5120	50%	2560	100%	2560	
		LIGHTING LOAD (L):	14019.9	100%	14019.9	125%	17524.88	
		ADDITIONAL TRACK LIGHTING...				100%	0	
		MOTORS, HIGHEST LOAD (M):	6016.45	125 %	7520.5625	100%	7520.5625	
PANELBOARD LOCATION		MOTORS, REMAINING	7382.45	100 %	7382.45	100 %	7382.45	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		**TOTAL (kVA):**	**106.37**			
				TOTAL...	**127.94**	**TOTAL...**	**132.15**	

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PANELBOARD PP-SB

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	Spare; R; M; NC	T-RP-SB		20	10897	0					20	--	SPARE	--	2
3							11567	0			20	--	SPARE	--	4
5									10537	0	20	--	SPARE	--	6
7	M	CP-3		70	9422	0					20	--	SPARE	--	8
9							9422	0			20	--	SPARE	--	10
11									9422	0	20	--	SPARE	--	12
13	M	CP-1		15	582	--					--	--	SPACE	--	14
15							582	--			--	--	SPACE	--	16
17									582	--	--	--	SPACE	--	18
19	NC	ELEVATOR LIGHTS		20	250	--					--	--	SPACE	--	20
21	NC	ELEVATOR AUXILIARY		20			500	--			--	--	SPACE	--	22
23	NC	ELEVATOR		25					4987	--	--	--	SPACE	--	24
25					4987	--					--	--	SPACE	--	26
27							4987	--			--	--	SPACE	--	28
29	--	SPACE	--	--					--	--	--	--	SPACE	--	30
					26138		27058		25528						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	480Y/277V	CONTINUOUS LOAD (C):	0	100%	0	125%	0	
BUS AMPACITY:	200A	ELECTRIC HEAT (E)	0	100%	0	100%	0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	29110	100%	29110	100%	29110	
MINIMUM A.I.C.:	42,000	KITCHEN LOAD (K):	0		0	100%	0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	10000	100%	10000	100%	10000	
		RECEPT DEMAND LOAD (R):	3740	50%	1870	100%	1870	
		LIGHTING LOAD (L):	0	100%	0	125%	0	
		ADDITIONAL TRACK LIGHTING...				100%	0	
+ PROVIDE INTEGRAL SPD		MOTORS, HIGHEST LOAD (M):	28267.07	125 %	35333.8375	100%	35333.8375	
PANELBOARD LOCATION		MOTORS, REMAINING	7605.91	100 %	7605.91	100 %	7605.91	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		**TOTAL (kVA):**	**83.92**			
				TOTAL...	**100.94**	**TOTAL...**	**100.94**	

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PANELBOARD PP-A

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	M	CP-2		15	582	3242					20		ECUH-101	NC	2
3							582	3242							4
5									582	3242					6
7	M	CP-4		70	9422	1109					15		EUH-101	NC	8
9							9422	1109							10
11									9422	1109					12
13	NC	EUH-103		15	1108	2993					15		EC-105, EC-106	NC	14
15							1108	2993							16
17									1108	2993					18
19	M	BP-1		20	4210	665					15		EC-107, EC7-108	NC	20
21							4210	665							22
23									4210	665					24
25	NC	EC-101		35	6845	0					25		HP-101	NC	26
27							6845	0							28
29									6845	0					30
31	NC	EC-102, EC-103		15	665	2000					15		IMMERSION HEATER	NC	32
33							665	2000							34
35									665	2000					36
37	NC	EC-104		30	6346	2105					15		SPRAY PUMP	NC	38
39							6346	2105							40
41									6346	2105					42
43	NC	ECUH-102		15	2245	5817					40		COOLING TOWER FAN	NC	44
45							2245	5817							46
47									2245	5817					48
49	NC	EUH-102		15	1690	5817					40		COOLING TOWER FAN	NC	50
51							1690	5817							52
53									1690	5817					54
55	M	EUH-104		15	1109	2000					15		IMMERSION HEATER	NC	56
57							1109	2000							58
59									1109	2000					60
61	--	SPARE	--	20	0	0					20	--	SPARE	--	62
63	--	SPARE	--	20			0	0			20	--	SPARE	--	64
65	--	SPARE	--	20					0	0	20	--	SPARE	--	66
67	--	SPARE	--	20	0	0					20	--	SPARE	--	68
69	--	SPARE	--	20			0	0			20	--	SPARE	--	70
71	--	SPARE	--	20					0	0	20	--	SPARE	--	72
					59969		59969		59969						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	480Y/277V	CONTINUOUS LOAD (C):	0	100%	0	125%	0	
BUS AMPACITY:	600A	ELECTRIC HEAT (E)	0	100%	0	100%	0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	133940.43	100%	133940.43	100%	133940.43	
MINIMUM A.I.C.:	42,000	KITCHEN LOAD (K):	0		0	100%	0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	0	100%	0	100%	0	
		RECEPT DEMAND LOAD (R):	0	50%	0	100%	0	
		LIGHTING LOAD (L):	0	100%	0	125%	0	
		ADDITIONAL TRACK LIGHTING...				100%	0	
		MOTORS, HIGHEST LOAD (M):	28267.07	125 %	35333.8375	100%	35333.8375	
PANELBOARD LOCATION		MOTORS, REMAINING	17700.54	100 %	17700.54	100 %	17700.54	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		**TOTAL (kVA):**	**186.97**			
				TOTAL...	**224.90**	**TOTAL...**	**224.90**	

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PANELBOARD LP-E

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	Spare; L; K; R; M; NC	T-3		20	12501	0					20	--	SPARE	--	2
3							15152	0			20	--	SPARE	--	4
5									15313	0	20	--	SPARE	--	6
7	L	LIGHTING		20	1321	0					20	--	SPARE	--	8
9	L	LIGHTING		20			1652	0			20	--	SPARE	--	10
11	L	LIGHTING		20					2046	0	20	--	SPARE	--	12
13	L	LIGHTING		20	1000	0					20	--	SPARE	--	14
15	L	LIGHTING		20			1292	0			20	--	SPARE	--	16
17	--	SPARE	--	20					0	0	20	--	SPARE	--	18
19	--	SPARE	--	20	0	0					20	--	SPARE	--	20
21	--	SPARE	--	20			0	0			20	--	SPARE	--	22
23	--	SPARE	--	20					0	0	20	--	SPARE	--	24
25	--	SPARE	--	20	0	0					20	--	SPARE	--	26
27	--	SPARE	--	20			0	0			20	--	SPARE	--	28
29	--	SPARE	--	20					0	0	20	--	SPARE	--	30
					14822		18095		17360						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	480Y/277V	CONTINUOUS LOAD (C):	0	100%	0	125%	0	
BUS AMPACITY:	200A	ELECTRIC HEAT (E)	0	100%	0	100%	0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	5840	100%	5840	100%	5840	
MINIMUM A.I.C.:	22,000	KITCHEN LOAD (K):	7820	80.00%	6256	100%	6256	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	10000	100%	10000	100%	10000	
		RECEPT DEMAND LOAD (R):	14830	50%	7415	100%	7415	
		LIGHTING LOAD (L):	7401.26	100%	7401.26	125%	9251.58	
		ADDITIONAL TRACK LIGHTING...				100%	0	
		MOTORS, HIGHEST LOAD (M):	790.4	125 %	988	100%	988	
PANELBOARD LOCATION		MOTORS, REMAINING	3595.2	100 %	3595.2	100 %	3595.2	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		**TOTAL (kVA):**	**41.5**			
				TOTAL...	**49.91**	**TOTAL...**	**52.14**	

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PANELBOARD RP-SB

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	NC	FREEZER CONDENSER		20	1700	360					20		IT RACK RECEPTACLE	R	2
3							1700	180			20		IT RACK RECEPTACLE	R	4
5									1700	180	20		IT RACK RECEPTACLE	R	6
7	NC	B-1		20	1040	180					20		IT RACK RECEPTACLE	R	8
9							1040	1040			20		IT RACK RECEPTACLE	R	10
11	NC	BATTERY CHARGER		20					250	1040					12
13	NC	GENERATOR BLOCK HEATER		20	250	1040					20		IT RACK RECEPTACLE	R	14
15	NC	REFRIGERATOR CONDENSER		20			1080	1040							16
17									1080	1040	20		IT RACK RECEPTACLE	R	18
19					1080	1040									20
21	M	HEAT TAPE (FREEZER)	GFE	20			2000	180			20		IT RACK RECEPTACLE	R	22
23	NC	FREEZER BLOWER COIL		20					1140	100	20		REFRIGERATOR BLOWER COIL	NC	24
25					1140	100									26
27	M	SP-1		15			887	1200			20		SP-2	M	28
29									887	1040	20		IT RACK RECEPTACLE	R	30
31					887	1040									32
33	R	IT RACK RECEPTACLE		20			180	1040			20		IT RACK RECEPTACLE	R	34
35	R	IT RACK RECEPTACLE		20					1040	1040					36
37					1040	0					20	--	SPARE	--	38
39	--	SPARE	--	20			0	0			20	--	SPARE	--	40
41	--	SPARE	--	20					0	0	20	--	SPARE	--	42
43	--	SPACE	--	--	--	--					--	--	SPACE	--	44
45	--	SPACE	--	--			--	--			--	--	SPACE	--	46
47	--	SPACE	--	--					--	--	--	--	SPACE	--	48
49	--	SPACE	--	--	--	--					--	--	SPACE	--	50
51	--	SPACE	--	--			--	--			--	--	SPACE	--	52
53	--	SPACE	--	--					--	--	--	--	SPACE	--	54
55	--	SPACE	--	--	--	--					--	--	SPACE	--	56
57	--	SPACE	--	--			--	--			--	--	SPACE	--	58
59	--	SPACE	--	--					--	--	--	--	SPACE	--	60
					10897		11567		10537						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	208Y/120V	CONTINUOUS LOAD (C):	0	100%	0	125%	0	
BUS AMPACITY:	200A	ELECTRIC HEAT (E)	0	100%	0	100%	0	
MAIN TYPE:	200A MCB	NON-CONTINUOUS LOAD (NC):	13400	100%	13400	100%	13400	
MINIMUM A.I.C.:	10,000	KITCHEN LOAD (K):	0		0	100%	0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	10000	100%	10000	100%	10000	
		RECEPT DEMAND LOAD (R):	3740	50%	1870	100%	1870	
		LIGHTING LOAD (L):	0	100%	0	125%	0	
		ADDITIONAL TRACK LIGHTING...				100%	0	
+ PROVIDE INTEGRAL SPD		MOTORS, HIGHEST LOAD (M):	2660	125 %	3325	100%	3325	
PANELBOARD LOCATION		MOTORS, REMAINING	3200	100 %	3200	100 %	3200	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		**TOTAL (kVA):**	**31.8**			
				TOTAL...	**88.25**	**TOTAL...**	**88.25**	

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PBA Project No.: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

PANEL SCHEDULES

ISSUE DATES

DATE:	ISSUED FOR:
07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DRAWN	DDS
CHECKED	ZDB
APPROVED	STP

PROJECT NO.

22102

DRAWING NO.

E5.2

PANELBOARD RP-2B

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A	B	C	CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	NC	RANGE HOOD		20	600	600		20		RANGE HOOD	NC	2
3	NC	RANGE HOOD		20		600	600	20		RANGE HOOD	NC	4
5	K	ELECTRIC RANGE	GFCI	50			3625	3625	50	GFCI	ELECTRIC RANGE	K	6
7					3625	3625							8
9	K	ELECTRIC RANGE	GFCI	50		3625	3625						10
11							3625	3625	50	GFCI	ELECTRIC RANGE	K	12
13	NC	RANGE HOOD		20	600	3625							14
15	K	ELECTRIC RANGE	GFCI	50		3625	3625						16
17							3625	600	20		RANGE HOOD	NC	18
19	K	ELECTRIC RANGE	GFCI	50	3625	175							20
21						3625	175		15		RF-103	NC	22
23	NC	RANGE HOOD		20			600	560	15		RF-102	NC	24
25	NC	ERWP-109		15	300	560							26
27						300	560		15		RF-101	NC	28
29	NC	ERWP-108		15			300	560					30
31					300	156			15		EF-107	M	32
33	M	EF-104		15		348	0	20	--	SPARE	--	34
35	M	EF-105		15			264	0	20	--	SPARE	--	36
37	NC	HEAT TRACE		20	750	0			20	--	SPARE	--	38
39	R	SERVICE RECEPTACLE		20		360	0		20	--	SPARE	--	40
41	M	EF-106		15			348	0	20	--	SPARE	--	42
43	--	SPACE	--	--	--	--			--	--	SPACE	--	44
45	--	SPACE	--	--		--	--		--	--	SPACE	--	46
47	--	SPACE	--	--			--	--	--	--	SPACE	--	48
49	--	SPACE	--	--	--	--			--	--	SPACE	--	50
51	--	SPACE	--	--		--	--		--	--	SPACE	--	52
53	--	SPACE	--	--			--	--	--	--	SPACE	--	54
55	--	SPACE	--	--	--	--			--	--	SPACE	--	56
57	--	SPACE	--	--		--	--		--	--	SPACE	--	58
59	--	SPACE	--	--			--	--	--	--	SPACE	--	60
					18541	21068	21357						
					ØA	ØB	ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	208Y/120V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:	200A	ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:	200A MCB	NON-CONTINUOUS LOAD (NC):	8740	100%	8740	100% 8740	
MINIMUM A.I.C.:	22,000	KITCHEN LOAD (K):	50750	65.00%	32987.5	100% 32987.5	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	360	100%	360	100% 360	
		RECEPT DEMAND LOAD (R):	0	50%	0	100% 0	
		LIGHTING LOAD (L):	0	100%	0	125% 0	
• PROVIDE INTEGRAL SPD		ADDITIONAL TRACK LIGHTING...				100% 0	
PANELBOARD LOCATION		MOTORS, HIGHEST LOAD (M):	348	125 %	435	100% 435	
		MOTORS, REMAINING	768	100 %	768	100 % 768	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	43.29		
				TOTAL...	120.16	TOTAL... 120.16	

PANELBOARD RP-3

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A	B	C	CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	L	ELEVATOR PIT LIGHTS		20	90	1080		20		RECEPTACLES	R	2
3	K	ELECTRIC RANGE	GFCI	50		3640	180	20	GFCI	REFRIGERATOR	R	4
5							3640	180	20		RECEPTACLES	R	6
7	NC	RANGE HOOD		20	250	1080		20		RECEPTACLES	R	8
9	K	RECEPTACLES		20		360	900	20		RECEPTACLES	R	10
11	K	REFRIGERATOR	GFCI	20			180	720	20		RECEPTACLES	R	12
13	R	RECEPTACLES		20	540	1080		20		RECEPTACLES	R	14
15	R	RECEPTACLES		20		720	1080	20		RECEPTACLES	R	16
17	R	RECEPTACLES		20			900	900	20		RECEPTACLES	R	18
19	R	RECEPTACLES		20	540	900			20		RECEPTACLES	R	20
21	NC	WON DOOR		20		100	540		20		RECEPTACLES	R	22
23	R	RECEPTACLES		20			900	900	20		RECEPTACLES	R	24
25	NC	SOUND RACK		20	360	1080			20		RECEPTACLES	R	26
27	R	RECEPTACLES		20		540	540		20		RECEPTACLES	R	28
29							700	750	20		COPIER	R	30
31	NC	ERWP-110		15	700	180			20		REFRIGERATOR	R	32
33						700	720		20		RECEPTACLES	R	34
35	NC	ERWP-111		15			700	720	20		RECEPTACLES	R	36
37					700	900			20		RECEPTACLES	R	38
39	NC	ERWP-112		15		700	720		20		RECEPTACLES	R	40
41	R	VENDING MACHINE		20			500	900	20		RECEPTACLES	R	42
43	R	RECEPTACLES		20	180	720			20		RECEPTACLES	R	44
45	NC	DISHWASHER	GFCI	20		250	1080		20		RECEPTACLES	R	46
47	NC	DISPOSAL	GFCI	20			180	1080	20		RECEPTACLES	R	48
49	R	REFRIGERATOR	GFCI	20	180	395			15		EF-116	M	50
51	M	EF-114		15		696	395						52
53	M	EF-115		15			264	264	15		EF-201	M	54
55					395	395							56
57	M	EF-117		15					15		EF-202	M	58
59	R	RECEPTACLES		20			540	395	15		EF-203	M	60
61	R	SERVICE RECEPTACLES		20	360	395							62
63	NC	HEAT TRACE		20		250	250	20		HEAT TRACE	NC	64
65	--	SPARE	--	20			0	0	20	--	SPARE	--	66
67	--	SPARE	--	20	0	0			20	--	SPARE	--	68
69	--	SPARE	--	20		0	0	20	--	SPARE	--	70	
71	--	SPARE	--	20			0	0	20	--	SPARE	--	72
					12501	15152	15313						
					ØA	ØB	ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	208Y/120V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:	200A	ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:	200A MCB	NON-CONTINUOUS LOAD (NC):	5840	100%	5840	100% 5840	
MINIMUM A.I.C.:	10,000	KITCHEN LOAD (K):	7820	80.00%	6256	100% 6256	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	10000	100%	10000	100% 10000	
		RECEPT DEMAND LOAD (R):	14830	50%	7415	100% 7415	
		LIGHTING LOAD (L):	90	100%	90	125% 112.5	
• PROVIDE INTEGRAL SPD		ADDITIONAL TRACK LIGHTING...				100% 0	
PANELBOARD LOCATION		MOTORS, HIGHEST LOAD (M):	790.4	125 %	988	100% 988	
		MOTORS, REMAINING	3595.2	100 %	3595.2	100 % 3595.2	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	34.18		
				TOTAL...	94.89	TOTAL... 94.95	

PANELBOARD PP-2E

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A	B	C	CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1												2
3	NC	TU-201		15		833	29930	125	STB	ERU-9	NC	4
5							833	29930				6
7					2167	--		--	--	SPACE	--	8
9	NC	TU-202		15		2167	29930					10
11							2167	29930	125		ERU-8	NC	12
13					833	29930						14
15	NC	TU-203		15		833	1500			TU-211,213,214	NC	16
17							833	1500	15				18
19					1333	2333						20
21	NC	TU-204		15		1333	2333	15		TU-212	NC	22
23							1333	2333				24
25					2333	3667						26
27	NC	TU-205		15		2333	3667	20		TU-216	M	28
29							2333	3667				30
31					3167	1109						32
33	NC	TU-206		20		3167	1109	15		EUH-202	M	34
35							3167	1109				36
37					3167	2167						38
39	NC	TU-207		20		3167	2167	15		TU-215	M	40
41							3167	2167				42
43					2167	2167						44
45	NC	TU-208		15		2167	2167	15		TU-217	M	46
47							2167	2167				48
49					3667	1500						50
51	NC	TU-209		20		3667	1500	15		TU-218,220,221	M	52
53							3667	2333				54
55					2167	2333						56
57	NC	TU-210		15		2167	2333	15		TU-219	M	58
59							2167	0	20	--	SPARE	--	60
61	--	SPARE	--	20	0	0			20	--	SPARE	--	62
63	--	SPARE	--	20			0	0	20	--	SPARE	--	64
65	--	SPARE	--	20				0	0	20	--	SPARE	--	66
67	--	SPARE	--	20	0	0							68
69	--	SPARE	--	20			0	0	20	--	SPARE	--	70
71	--	SPARE	--	20				0	0	20	--	SPARE	--	72
					16968	18468	16968						
					ØA	ØB	ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	480Y/277V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:	800A	ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	255079.02	100%	255079.02	100% 255079.02	
MINIMUM A.I.C.:	42,000	KITCHEN LOAD (K):	0		0	100% 0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	0	100%	0	100% 0	
		RECEPT DEMAND LOAD (R):	0	50%	0	100% 0	
		LIGHTING LOAD (L):	0	100%	0	125% 0	
		ADDITIONAL TRACK LIGHTING...				100% 0	
PANELBOARD LOCATION		MOTORS, HIGHEST LOAD (M):	11000	125 %	13750	100% 13750	
		MOTORS, REMAINING	26325.54	100 %	26325.54	100 % 26325.54	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	295.15		
				TOTAL...	355.02	TOTAL... 355.02	

PANELBOARD RP-1

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A	B	C	CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	NC	SMOKE DAMPER		20	50	720		20		RECEPTACLES	R	2
3	R	RECEPTACLES		20		720	720	20		RECEPTACLES	R	4
5	R	RECEPTACLES		20			720	1080	20		RECEPTACLES	R	6
7	R	RECEPTACLES		20	900	900			20		RECEPTACLES	R	8
9	R	RECEPTACLES		20		1080	180	20	GFCI	RECEPTACLES	R	10
11	R	SOUND RACK		20			360	720	20		RECEPTACLES	R	12
13	R	RECEPTACLES		20	720	180		20	GFCI	RECEPTACLES	R	14
15	R	RECEPTACLES		20		720	720	20		RECEPTACLES	R	16
17	R	RECEPTACLES		20			900	180	20		RECEPTACLES	R	18
19	NC	HAND DRYER		20	750	750			20		HAND DRYER	NC	20
21	NC	HAND DRYER		20		750	750		20		HAND DRYER	NC	22
23	R	RECEPTACLES		20			540	750	20		HAND DRYER	NC	24
25	NC	HAND DRYER		20	750	750			20		HAND DRYER	NC	26
27	NC	HAND DRYER		20		750	1080		20		RECEPTACLES	R	28
29	R	RECEPTACLES		20			720	1080	20		RECEPTACLES	R	30
31	NC	DWH-1		20	500	1053							32
33	M	HWRP-1		15		530	1053	20		MOTORIZED BLEACHERS	M	34
35	NC	DWH-2		20			500	1053					36
37	M	HWRP-2		15	530	83							38
39	NC	B-2		20		1040	83	20		RF-106	M	40
41							1040	150	20		CONDENSATE PUMP	M	42
43	NC	FAN HEATER		20	750	360			20		SERVICE RECEPTACLE	R	44
45	NC	HAND DRYER		20		1200	250		20		HEAT TRACE	NC	46
47							250	250	20		HEAT TRACE	NC	48
49	R	BACKBOARD		20	250	348			15		EF-101	M	50
51						250	395		15		EF-123	M	52
53							250	395					54
55	R	BACKBOARD		20	250	250			20		OVERHEAD DOOR	M	56
57						250	500	20		HEAT TRACE	NC	58
59	NC	WON DOOR		20			250	500	20		GYM DIVIDING CURTAIN	M	60
61	M	PROJECTION SCREEN		20	500	250			20		SWITCHBOARD SPACE HEATER	NC	62
63	R	GYM TECH RECEPTACLE		20		1250	1250		20		DIGITAL SIGN	C	64
65							1250	250	20		ILLUMINATED SIGN	C	66
67	--	SPARE	--	20	0	0			20	--	SPARE	--	68
69	--	SPARE	--	20		0	0	20	--	SPARE	--	70	
71	--	SPARE	--	20			0	0	20	--	SPARE	--	72
					11595	15522	13189						
					ØA	ØB	ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	208Y/120V	CONTINUOUS LOAD (C):	1500	100%	1500	125% 1875	
BUS AMPACITY:	225A	ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	12580	100%	12580	100% 12580	
MINIMUM A.I.C.:	22,000	KITCHEN LOAD (K):	0		0	100% 0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	10000	100%	10000	100% 10000	
		RECEPT DEMAND LOAD (R):	9300	50%	4650	100% 4650	
		LIGHTING LOAD (L):	0	100%	0	125% 0	
		ADDITIONAL TRACK LIGHTING...				100% 0	
PANELBOARD LOCATION		MOTORS, HIGHEST LOAD (M):	3160	125 %	3950	100% 3950	
		MOTORS, REMAINING	3764.8	100 %	3764.8	100 % 3764.8	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	36.44		
				TOTAL...	101.16	TOTAL... 102.20	

PANELBOARD PP-C

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A	B	C	CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1					333	3242						2
3	NC	EUH-201		15		333	3242	20		EUH-105	NC	4
5							333	3242				6
7	NC	TU-124,125,126,127		15	2680	4268						8
9						2680	4268	20		ECUH-103	NC	10
11								1663	2167			12
13	NC	FPB-101		25	5293	4268						14
15						5293	4268	20		ECUH-104	NC	16
17							7290	4268				18
19	NC	FPB-102		35	7290	4540						20
21						7290	4540	20		TU-119	NC	22
23							6137	4540				24
25	NC	FPB-103		30	6137	667						26
27						6137	667	15		TU-118	NC	28
29							3333	667				30
31	NC	TU-123		20	3333	2010						32
33						3333	2010	15		TU-114,115,117	NC	34
35							1500	667				36
37	NC	TU-120		15	1500	667		15		TU-116	NC	38
39						1500	667					40
41	NC	TU-103,104,105		15			1500	2680				42
43					1500	2680		15		TU-110,111,112,113	NC	44
45	NC	TU-101,102		15		1000	2680					46
47							1000	2680	15		TU-106,107,108,109	NC	48
49					3293	2493						50
51	NC	HP-102		15		3293	2493	15		TU-122	NC	52
53							3293	2493				54
55					24653	3850						56
57	NC	ERU-2		110		24653	3850	15		TU-121	NC	58
59							24653	3850				60
61	--	SPARE	--	20	0	0			20	--	SPARE	--	62
63	--	SPARE	--	20			0	0	20	--	SPARE	--	64
65	--	SPARE	--	20				0	0	20	--	SPARE	--	66
67	--	SPARE	--	20	0	0							68
69	--	SPARE	--	20			0	0	20	--	SPARE	--	70
71	--	SPARE	--	20				0	0	20	--	SPARE	--	72
					84698	84198	83688						
					ØA	ØB	ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	480Y/277V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:	400A	ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	252583.84	100%	252583.84	100% 252583.84	
MINIMUM A.I.C.:	22,000	KITCHEN LOAD (K):	0		0	100% 0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	0	100%	0	100% 0	
		RECEPT DEMAND LOAD (R):	0	50%	0	100% 0	
		LIGHTING LOAD (L):	0	100%	0	125% 0	
		ADDITIONAL TRACK LIGHTING...				100% 0	
PANELBOARD LOCATION		MOTORS, HIGHEST LOAD (M):	0	125 %	0	100% 0	
		MOTORS, REMAINING	0	100 %	0	100 % 0	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	252.58		
				TOTAL...	303.81	TOTAL... 303.81	

PANELBOARD PP-E

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A	B	C	CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1					1663	3667						2
3	NC	ECUH-106		15		1663	3667	20		TU-161	M	4
5							1663	3667				6
7					1663	2167						8
9	NC	ECUH-107		15		1663	2167	15		TU-162	M	10
11							1663	2167				12
13					1663	1500						14
15	NC	ECUH-108		15		1663	1500	15		TU-163,165,166	M	16
17							1663	2333				18
19					1667	2333						20
21	M	TU-155		15		1667	2333	15		TU164	M	20
23							1667	2000				24
25					1333	2000						26
27	M	TU-156		15		1333	2000	15		TU-167	M	26
29							1333	1000				30
31					2333	1000						32
33	M	TU-157		15		2333	1000	15		TU-168	M	32
35							2333	3667				36
37					3167	3667						38
39	M	TU-158		20		3167	3667	20		TU-169	M	38
41							3167	2167				42
43					3167	2167						44
45	M	TU-159		20		3167	2167	15		TU-170	M	44
47							3167	2167				48
49					2167	2167						50
51	M	TU-160		15		2167	2167	15		TU-171	M	50
53							2167	1000				54
55					2333	1000						56
57	M	TU-173		15		2333	1500	15		TU-154,153	M	56
59							2333	1500				60
61	--	SPARE	--	20	0	0			20	--	SPARE	--	62
63	--	SPARE	--	20			0	0	20	--	SPARE	--	64
65	--	SPARE	--	20				0	0	20	--	SPARE	--	66
67	--	SPARE	--	20	0	0			20	--	SPARE	--	68
69	--	SPARE	--	20			0	0	20	--	SPARE	--	70
71	--	SPARE	--	20				0	0	20	--	SPARE	--	72
					42822	43322	42822						
					ØA	ØB	ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	480Y/277V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:	400A	ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	14964.93	100%	14964.93	100% 14964.93	
MINIMUM A.I.C.:	22,000	KITCHEN LOAD (K):	0		0	100% 0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	0	100%	0	100% 0	
		RECEPT DEMAND LOAD (R):	0	50%	0	100% 0	
		LIGHTING LOAD (L):	0	100%	0	125% 0	
		ADDITIONAL TRACK LIGHTING...				100% 0	
PANELBOARD LOCATION		MOTORS, HIGHEST LOAD (M):	11000	125 %	13750	100% 13750	
		MOTORS, REMAINING	103000	100 %	103000	100 % 103000	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	131.71		
				TOTAL...	158.43	TOTAL... 158.43	

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PBA Project No.: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

PANEL SCHEDULES

ISSUE DATES

07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS
DATE:	ISSUED FOR:

DRAWN	DDS
CHECKED	ZDB
APPROVED	STP

PROJECT NO.
22102

DRAWING NO.
E5.3

PANELBOARD RP-K1

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	R	RECEPTACLE		20	180	1050					20	GFCI	E39 MICROWAVE	R	2
3	M	E33 FIRE SUPPRESSION SYSTEM		20			1800	1050							4
5	R	SERVICE RECEPTACLE		20					360	863	20	GFCI	E37 HEATED CABINET	R	6
7	R	RECEPTACLE		20	900	863									8
9	R	CO1 CONVENIENCE OUTLET	GFCI	20			180	180			20		C02 CONVENIENCE OUTLET	K	10
11	K	E44 REACH-IN FREEZER	GFCI	20					1340	180	20		E69 HAND SINK	R	12
13	K	E43 REACH-IN REFRIGERATOR	GFCI	20	880	880					20	GFCI	E68 REACH-IN REFRIGERATOR	K	14
15	R	E42 HAND SINK		20			180	1800			20		EXHAUST HOOD CONTROLS	NC	16
17	K	E48 HEATED CABINET	GFCI	20					863	1800	20		ELECTRONIC GAS VALVE	NC	18
19					863	360					20		COOKS TABLE	K	20
21	K	E34 GAS OVEN-STEAMER	GFCI	20			1920	393							22
23	K	E35 GAS OVEN-STEAMER	GFCI	20					1920	393	20		E10 DISPOSER	K	24
25	K	E36 GAS CONVECTION OVEN	GFCI	20	1840	393									26
27	R	CO1 CONVENIENCE OUTLET	GFCI	20			180	0			20	--	SPARE	--	28
29	K	C02 CONVENIENCE OUTLET		20					180	0	20	--	SPARE	--	30
31	R	CO1 CONVENIENCE OUTLET		20	180	0					20	--	SPARE	--	32
33	K	E9 HAND SINK		20			180	0			20	--	SPARE	--	34
35	K	CO1 CONVENIENCE OUTLET		20					180	0	20	--	SPARE	--	36
37	R	E25 REACH-IN REFRIGERATOR	GFCI	20	580	0					20	--	SPARE	--	38
39	K	C02 CONVENIENCE OUTLET		20			180	0			20	--	SPARE	--	40
41	--	SPARE	--	20					0	0	20	--	SPARE	--	42
					8969		8043		8079						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	208Y/120V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:	225A	ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	3600	100%	3600	100% 3600	
MINIMUM A.I.C.:	10,000	KITCHEN LOAD (K):	12946	65.00%	8414.9	100% 8414.9	
MOUNTING:	FLUSH	RECEPT BASE LOAD (R):	6746	100%	6746	100% 6746	
		RECEPT DEMAND LOAD (R):	0	50%	0	100% 0	
		LIGHTING LOAD (L):	0	100%	0	125% 0	
		ADDITIONAL TRACK LIGHTING...				100% 0	
PANELBOARD LOCATION		MOTORS, HIGHEST LOAD (M):	1800	125 %	2250	100% 2250	
		MOTORS, REMAINING	0	100 %	0	100 % 0	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	21.01		
				TOTAL...	58.32	TOTAL... 58.32	

PANELBOARD RP-K2

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1															2
3	R	E64 DISPLAY CASE	GFCI	20	1290	1789					20	GFCI	E66.1 BUFFET	K	4
5	K	E67 REFRIGERATED CASE	GFCI	20			1290	1789							6
7	K	E62 SNEEZE GUARD	GFCI	20	720	1040			1920	1040	20	GFCI	E66.2 ADJ SNEEZE GUARD	K	8
9	R	E59 CASHIERS STAND	GFCI	20			180	2400			20	GFCI	C03 CONVENIENCE OUTLET	R	10
11	K	E56 BUFFET	GFCI	20					720	2400	20		C02 CONVENIENCE OUTLET	K	12
13	R	E57 CASHIERS STAND	GFCI	20	180	180					20		E46 HAND SINK	R	14
15	K	E52.1 BUFFET	GFCI	20			1785	880			20	GFCI	E45 REACH-IN REFRIGERATOR	K	16
17									1785	10593					18
19	K	E52.2 ADJ SNEEZE GUARD	GFCI	20	1040	10593					100	GFCI	BOOSTER HEATER	K	20
21							1040	10593							22
23	R	CONVEINENCE OUTLET	GFCI	20					2400	6600					24
25	K	E54 HEATED DISPLAY CASE	GFCI	20	1290	6600					100	GFCI	E14 WARE WASHER	M	26
27							1290	6600							28
29	K	E49 REFRIGERATED CASE	GFCI	20					1920	0	20	--	SPARE	--	30
31	--	SPARE	--	20	0	0					20	--	SPARE	--	32
33	--	SPARE	--	20			0	0			20	--	SPARE	--	34
35	--	SPARE	--	20					0	0	20	--	SPARE	--	36
37	--	SPARE	--	20	0	0					20	--	SPARE	--	38
39	--	SPARE	--	20			0	0			20	--	SPARE	--	40
41	--	SPARE	--	20					0	0	20	--	SPARE	--	42
					24721		27846		29378						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	208Y/120V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:		ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:		NON-CONTINUOUS LOAD (NC):	0	100%	0	100% 0	
MINIMUM A.I.C.:		KITCHEN LOAD (K):	54227	65.00%	35247.55	100% 35247.55	
MOUNTING:	FLUSH	RECEPT BASE LOAD (R):	7919	100%	7919	100% 7919	
		RECEPT DEMAND LOAD (R):	0	50%	0	100% 0	
		LIGHTING LOAD (L):	0	100%	0	125% 0	
		ADDITIONAL TRACK LIGHTING...				100% 0	
PANELBOARD LOCATION		MOTORS, HIGHEST LOAD (M):	19800	125 %	24750	100% 24750	
		MOTORS, REMAINING	0	100 %	0	100 % 0	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	67.92		
				TOTAL...	188.52	TOTAL... 188.52	

PANELBOARD RP-5A

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	R	RECEPTACLES		20	720	45					20		LIGHTING	L	2
3	R	RECEPTACLES		20			900	90			20		LIGHTING	L	4
5	M	PROJECTION SCREEN		20					430	900	20		RECEPTACLES	R	6
7	NC	WON DOOR		20	250	1080					20		RECEPTACLES	R	8
9	NC	ERWP-201		15			600	360			20		CORD REELS	R	10
11									600	360	20		CORD REELS	R	12
13	NC	ERWP-202,203		15	1050	360					20		CORD REELS	R	14
15							1050	360			20		CORD REELS	R	16
17	R	RECEPTACLES		20					360	720	20		RECEPTACLES	R	18
19	R	RECEPTACLES		20	1080	180					20	GFCI	REFRIGERATOR	R	20
21	R	RECEPTACLES		20			1080	360			20		CORD REELS	R	22
23	R	RECEPTACLES		20					720	360	20		CORD REELS	R	24
25	R	RECEPTACLES		20	1080	360					20		CORD REELS	R	26
27	R	RECEPTACLES		20			1080	360			20		CORD REELS	R	28
29	R	RECEPTACLES		20					1080	720	20		RECEPTACLES	R	30
31	R	RECEPTACLES		20	1080	900					20		RECEPTACLES	R	32
33	R	RECEPTACLES		20			1080	720			20		RECEPTACLES	R	34
35	R	RECEPTACLES		20					900	720	20		RECEPTACLES	R	36
37	R	COPIER		20	180	900					20		RECEPTACLES	R	38
39	R	RECEPTACLES		20			720	900			20		RECEPTACLES	R	40
41	R	REFRIGERATOR		20					180	900	20		RECEPTACLES	R	42
43	R	RECEPTACLES		20	720	900					20		RECEPTACLES	R	44
45	R	RECEPTACLES		20			720	900			20		RECEPTACLES	R	46
47	R	RECEPTACLES		20					900	720	20		RECEPTACLES	R	48
49	R	RECEPTACLES		20	720	900					20		RECEPTACLES	R	50
51	R	RECEPTACLES		20			900	900			20		RECEPTACLES	R	52
53	R	RECEPTACLES		20					900	180	20		RECEPTACLES	R	54
55	R	RECEPTACLES		20	720	180					20		COPIER	R	56
57	R	RECEPTACLES		20			900	360			20		RECEPTACLES	R	58
59	R	RECEPTACLES		20					1080	1080	20		RECEPTACLES	R	60
61	NC	HAND DRYER		20	750	1080					20		RECEPTACLES	R	62
63	NC	HAND DRYER		20			750	900			20		RECEPTACLES	R	64
65	NC	HAND DRYER		20					750	720	20		RECEPTACLES	R	66
67	NC	HAND DRYER		20	750	180					20	GFCI	EWC	R	68
69	NC	ERWP-204,205		15			1050	36			15		EF-204	M	70
71									1050	1080	20		RECEPTACLES	R	72
73	--	SPARE	--	20	0	0					20	--	SPARE	--	74
75	--	SPARE	--	20			0	0			20	--	SPARE	--	76
77	--	SPARE	--	20					0	0	20	--	SPARE	--	78
79	--	SPARE	--	20	0	0					20	--	SPARE	--	80
81	--	SPARE	--	20			0	0			20	--	SPARE	--	82
83	--	SPARE	--	20					0	0	20	--	SPARE	--	84
					16165		17076		17410						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	208Y/120V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:		ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:		NON-CONTINUOUS LOAD (NC):	8650	100%	8650	100% 8650	
MINIMUM A.I.C.:		KITCHEN LOAD (K):	0		0	100% 0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	10000	100%	10000	100% 10000	
		RECEPT DEMAND LOAD (R):	31400	50%	15700	100% 15700	
		LIGHTING LOAD (L):	135	100%	135	125% 168.75	
		ADDITIONAL TRACK LIGHTING...				100% 0	
* PROVIDE INTEGRAL SPD		MOTORS, HIGHEST LOAD (M):	250	125 %	312.5	100% 312.5	
PANELBOARD LOCATION		MOTORS, REMAINING	216	100 %	216	100 % 216	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	35.01		
				TOTAL...	97.19	TOTAL... 97.28	

PANELBOARD RP-4A

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	R	RECEPTACLES		20	720	1080					20		RECEPTACLES	R	2
3	R	RECEPTACLES		20			1080	1080			20		RECEPTACLES	R	4
5	R	RECEPTACLES		20					720	1080	20		RECEPTACLES	R	6
7	R	RECEPTACLES		20	1080	720					20		RECEPTACLES	R	8
9	R	RECEPTACLES		20			1080	1260			20		RECEPTACLES	R	10
11	R	RECEPTACLES		20					540	360	20		CORD REELS	R	12
13	R	RECEPTACLES		20	1080	360					20		CORD REELS	R	14
15	NC	ERWP-113		15			750	360			20		CORD REELS	R	16
17									750	360	20		CORD REELS	R	18
19	NC	ERWP-114,115		15	1000	540					20		RECEPTACLES	R	20
21	R	RECEPTACLES		20			1000	180			20	GFCI	REFRIGERATOR	R	22
23	R	RECEPTACLES		20					720	360	20		CORD REELS	R	24
25	R	RECEPTACLES		20	720	360					20		CORD REELS	R	26
27	R	RECEPTACLES		20			720	360			20		CORD REELS	R	28
29	R	RECEPTACLES		20					900	360	20		CORD REELS	R	30
31	R	RECEPTACLES		20	720	900					20		RECEPTACLES	R	32
33	R	RECEPTACLES		20			900	720			20		RECEPTACLES	R	34
35	R	RECEPTACLES		20					720	720	20		RECEPTACLES	R	36
37	R	RECEPTACLES		20	900	720					20		RECEPTACLES	R	38
39	R	RECEPTACLES		20			1080	1080			20		RECEPTACLES	R	40
41	R	COPIER		20					180	900	20		RECEPTACLES	R	42
43	R	REFRIGERATOR		20	180	720					20		RECEPTACLES	R	44
45	R	RECEPTACLES		20			720	720			20		RECEPTACLES	R	46
47	R	RECEPTACLES		20					720	720	20		RECEPTACLES	R	48
49	R	RECEPTACLES		20	720	720					20		RECEPTACLES	R	50
51	R	RECEPTACLES		20			1080	0			20	--	SPARE	--	52
53	R	RECEPTACLES		20					900	0	20	--	SPARE	--	54
55	R	RECEPTACLES		20	900	0					20	--	SPARE	--	56
57	R	RECEPTACLES		20			1080	0			20	--	SPARE	--	58
59	R	RECEPTACLES		20					720	0	20	--	SPARE	--	60
					14140		15250		11730						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	208Y/120V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:	200A	ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:	200A MCB	NON-CONTINUOUS LOAD (NC):	3500	100%	3500	100% 3500	
MINIMUM A.I.C.:	10,000	KITCHEN LOAD (K):	0		0	100% 0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	10000	100%	10000	100% 10000	
		RECEPT DEMAND LOAD (R):	27620	50%	13810	100% 13810	
		LIGHTING LOAD (L):	0	100%	0	125% 0	
		ADDITIONAL TRACK LIGHTING...				100% 0	
* PROVIDE INTEGRAL SPD		MOTORS, HIGHEST LOAD (M):	0	125 %	0	100% 0	
PANELBOARD LOCATION		MOTORS, REMAINING	0	100 %	0	100 % 0	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	27.31		
				TOTAL...	75.80	TOTAL... 75.80	

PANELBOARD RP-2A

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	NC	SMOKE DAMPER		20	50	360					20		SOUND RACK	R	2
3	R	SOUND RACK		20			360	1080			20		RECEPTACLES	R	4
5	R	RECEPTACLES		20					900	720	20		RECEPTACLES	R	6
7	R	RECEPTACLES		20	720	720					20		PROJECTOR	R	8
9	R	PROJECTOR		20			720	540			20		RECEPTACLES	R	10
11	R	RECEPTACLES		20					1080	720	20		RECEPTACLES	R	12
13	R	EWC	GFCI	20	180	1080					20		RECEPTACLES	R	14
15	K	REFRIGERATOR	GFCI	20			180	540			20		RECEPTACLES	R	16
17	K	REFRIGERATOR	GFCI	20					180	360	20		RECEPTACLES	R	18
19	R	RECEPTACLES		20	900	720					20		RECEPTACLES	R	20
21	R	CORD REELS		20			1080	250			20		MOTORIZED SHADES	M	22
23	R	CORD REELS		20					1080	1200	20	GFCI	MICROWAVE	K	24
25	K	RECEPTACLES		20	360	540					20		RECEPTACLES	K; R	26
27	K	RECEPTACLES		20			360	360			20		RECEPTACLES	K; R	28
29	K	MICROWAVE	GFCI	20					1200	180	20	GFCI	MICROWAVE	R	30
31	K	RECEPTACLES		20	360	2005									32
33	K	MICROWAVE	GFCI	20			1200	2005			20		EF-108	M	34
35	K	RECEPTACLES		20					540	2005					36
37	K	MICROWAVE	GFCI	20	1200	2005									38
39	K	RECEPTACLES		20			540	2005			20		EF-124	M	40
41	K	RECEPTACLES		20					540	2005					42
43	--	SPARE	--	20	0	0					20	--	SPARE	--	44
45	--	SPARE	--	20			0	0			20	--	SPARE	--	46
47	--	SPARE	--	20					0	0	20	--	SPARE	--	48
49	--	SPARE	--	20	0	0					20	--	SPARE	--	50
51	--	SPARE	--	20			0	0			20	--	SPARE	--	52
53	--	SPARE	--	20					0	0	20	--	SPARE	--	54
55	--	SPARE	--	20	0	0					20	--	SPARE	--	56
57	--	SPARE	--	20			0	0			20	--	SPARE	--	58
59	--	SPARE	--	20					0	0	20	--	SPARE	--	60
					11201		11221		12711						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	208Y/120V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:	200A	ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:	200A MCB	NON-CONTINUOUS LOAD (NC):	50	100%	50	100% 50	
MINIMUM A.I.C.:	10,000	KITCHEN LOAD (K):	8040	65.00%	5226	100% 5226	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	10000	100%	10000	100% 10000	
		RECEPT DEMAND LOAD (R):	4760	50%	2380	100% 2380	
		LIGHTING LOAD (L):	0	100%	0	125% 0	
		ADDITIONAL TRACK LIGHTING...				100% 0	
* PROVIDE INTEGRAL SPD		MOTORS, HIGHEST LOAD (M):	6016.45	125 %	7520.5625	100% 7520.5625	
PANELBOARD LOCATION		MOTORS, REMAINING	6266.45	100 %	6266.45	100 % 6266.45	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	31.44		
				TOTAL...	87.28	TOTAL... 87.28	

PANELBOARD PP-F

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1					4543	2493									2
3	NC	TU-136		20			4543	2493			15		TU-145	NC	4
5									4543	2493					6
7					4320	2963									8
9	NC	TU-137		20			4320	2963			15		TU-146	NC	10
11									4320	2963					12
13					2963	4983									14
15	NC	TU-138		15			2963	4983			20		TU-147	NC	16
17									2963	4983					18
19					4983	2963									20
21	NC	TU-139		20			4983	2963			15		TU-148	NC	22
23									4983	2963					24
25					2963	2010					15		TU-149,151,152	NC	26
27	NC	TU-140		15			2963	2010							28
29									2963	3183					30
31					3183	3183					15		TU-150	NC	32
33	NC	TU-142		15			3183	3183							34
35									3183	29916					36
37	NC	TU-141,143,144		15	2010	29916					125		ERU-8	NC	38
39							2010	29916							40
41									3297	2267					42
43	NC	TU--128		15	3297	2267					15		TU-133	NC	44
45							3297	2267							46
47									2010	1827					48
49	NC	TU-129,130,131		15	2010	1827					15		TU-134	NC	50
51							3627	1827							52
53	NC	TU-132		15					3627	1827					54
55					3627	1827					15		TU-135	NC	56
57							6097	1827							58
59	NC	ERU-3		30					6097	0	20	--	SPARE	--	60
61					6097	0					20	--	SPARE	--	62
63	--	SPARE	--	20			0	0			20	--	SPARE	--	64
65	--	SPARE	--	20					0	0	20	--	SPARE	--	66
67	--	SPARE	--	20	0	0					20	--	SPARE	--	68
69	--	SPARE	--	20			0	0			20	--	SPARE	--	70
71	--	SPARE	--	20					0	0	20	--	SPARE	--	72
					94429		92419		90409						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...	NOTES
VOLTAGE:	480Y/277V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:	400A	ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	277258.46	100%	277258.46	100% 277258.46	
MINIMUM A.I.C.:	22,000	KITCHEN LOAD (K):	0		0	100% 0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	0	100%	0	100% 0	
		RECEPT DEMAND LOAD (R):	0	50%	0	100% 0	
		LIGHTING LOAD (L):	0	100%	0	125% 0	
		ADDITIONAL TRACK LIGHTING...				100% 0	
		MOTORS, HIGHEST LOAD (M):	0	125 %	0	100% 0	
PANELBOARD LOCATION		MOTORS, REMAINING	0	100 %	0	100 % 0	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	277.26		
				TOTAL...	333.49	TOTAL... 333.49	

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PBA Project No: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE
PANEL SCHEDULES

ISSUE DATES

07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE:	ISSUED FOR:

DRAWN	DDS
CHECKED	ZDB
APPROVED	STP

PROJECT NO.
22102

DRAWING NO.
E5.4

PANELBOARD RP-6B

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	R	RECEPTACLES		20	720	1500					30		DRYER	R	2
3	R	RECEPTACLES		20			900	1500							4
5	R	CORD REELS		20					720	1200	20		WASHER	R	6
7	R	CORD REELS		20	720	1050					15		ERWP-101,102,103	NC	8
9	R	CORD REELS		20			720	1050							10
11	R	CORD REELS		20					360	600	15		ERWP-104,105	NC	12
13	R	RECEPTACLES		20	900	600									14
15	R	RECEPTACLES		20			720	750			15		ERWP-106,107	NC	16
17	R	RECEPTACLES		20					900	750					18
19	R	RECEPTACLES		20	1380	36					15		EF-103	M	20
21	R	RECEPTACLES		20			360	36			15		EF-102	M	22
23	R	DUST COLLECTOR		20					1200	250	20		CONDENSATE PUMP	NC	24
25	R	CHOP SAW		20	1200	720					20		SERVICE RECEPTACLE	R	26
27	R	TABLE SAW		20			1200	250			20		HEAT TRACE	NC	28
29	R	DRILL PRESS		20					1200	250	20		HEAT TRACE	NC	30
31	R	BAND SAW		20	1200	250					20		HEAT TRACE	NC	32
33	R	RECEPTACLES		20			540	520			15		EF-120	M	34
35	R	RECEPTACLES		20					540	520					36
37					2567	520					15		EF-121	M	38
39	NC	MAU-2 CONDENSER		20			2567	520							40
41									2567	700	15		EF-122	M	42
43					577	360					20		RECEPTACLES	R	44
45	NC	MAU-2 FAN		15			577	0			20	--	SPARE	--	46
47									577	0	20	--	SPARE	--	48
49	NC	MAU-2 CONTROLS		15	240	0					20	--	SPARE	--	50
51	--	SPARE	--	20			0	0			20	--	SPARE	--	52
53	--	SPARE	--	20					0	0	20	--	SPARE	--	54
55	--	SPARE	--	20	0	0					20	--	SPARE	--	56
57	--	SPARE	--	20			0	0			20	--	SPARE	--	58
59	--	SPARE	--	20					0	0	20	--	SPARE	--	60
					14539		12209		12333						
					ØA		ØB		ØC						

PANELBOARD INFORMATION

VOLTAGE: 208Y/120V
BUS AMPACITY: 225A
MAIN TYPE: MLO
MINIMUM A.I.C.:
MOUNTING: SURFACE

PANELBOARD LOCATION

BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...
CONTINUOUS LOAD (C):	0	100%	0	125%	0
ELECTRIC HEAT (E)	0	100%	0	100%	0
NON-CONTINUOUS LOAD (NC):	15470	100%	15470	100%	15470
KITCHEN LOAD (K):	0		0	100%	0
RECEPT BASE LOAD (R):	10000	100%	10000	100%	10000
RECEPT DEMAND LOAD (R):	10760	50%	5380	100%	5380
LIGHTING LOAD (L):	0	100%	0	125%	0
ADDITIONAL TRACK LIGHTING...				100%	0
MOTORS, HIGHEST LOAD (M):	1040	125 %	1300	100%	1300
MOTORS, REMAINING	1812	100 %	1812	100 %	1812
NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	33.96		
		TOTAL...	94.27	TOTAL...	94.27

NOTES

PANELBOARD RP-4B

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	R	EWC	GFCI	20	180	750					15		ERWP-122	NC	2
3	NC	HAND DRYER		20			750	750							4
5	NC	HAND DRYER		20					750	300	15		ERWP-123	NC	6
7	NC	HAND DRYER		20	750	300									8
9	NC	HAND DRYER		20			750	36			15		EF-113	M	10
11	R	RECEPTACLES		20					540	83	15		RF-104	M	12
13	R	RECEPTACLES		20	1080	83									14
15	R	RECEPTACLES		20			900	250			20		HEAT TRACE	NC	16
17	R	RECEPTACLES		20					720	360	20		SERVICE RECEPTACLE	R	18
19	R	RECEPTACLES		20	900	250					20		HEAT TRACE	NC	20
21	R	RECEPTACLES		20			720	264			15		EF-109	M	22
23	R	RECEPTACLES		20					720	395	15		EF-110	M	24
25	R	COPIER		20	180	395									26
27	R	REFRIGERATOR		20			180	395			15		EF-111	M	28
29	R	RECEPTACLES		20					720	395					30
31	R	RECEPTACLES		20	720	720					20		RECEPTACLE	R	32
33	NC	ERWP-116,117		15			1050	1080			20		RECEPTACLE	R	34
35									1050	900	20		RECPETACLE	R	36
37	M	EF-112		15	36	1080					20		RECEPTACLE	R	38
39	NC	ERWP-118		15			750	1000			20		HEAT TRACE	NC	40
41									750	0	20	--	SPARE	--	42
43	NC	ERWP-119		15	750	0					20	--	SPARE	--	44
45							750	0			20	--	SPARE	--	46
47	NC	ERWP-120		15					750	0	20	--	SPARE	--	48
49					750	0					20	--	SPARE	--	50
51	NC	ERWP-=121		15			750	0			20	--	SPARE	--	52
53									750	0	20	--	SPARE	--	54
55	--	SPARE	--	20	0	0					20	--	SPARE	--	56
57	--	SPARE	--	20			0	0			20	--	SPARE	--	58
59	--	SPARE	--	20					0	0	20	--	SPARE	--	60
					8924		10375		9184						
					ØA		ØB		ØC						

PANELBOARD INFORMATION

VOLTAGE: 208Y/120V
BUS AMPACITY: 200A
MAIN TYPE: 200A MCB
MINIMUM A.I.C.: 10,000
MOUNTING: SURFACE

+ PROVIDE INTEGRAL SPD

PANELBOARD LOCATION

BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...
CONTINUOUS LOAD (C):	0	100%	0	125%	0
ELECTRIC HEAT (E)	0	100%	0	100%	0
NON-CONTINUOUS LOAD (NC):	14700	100%	14700	100%	14700
KITCHEN LOAD (K):	0		0	100%	0
RECEPT BASE LOAD (R):	10000	100%	10000	100%	10000
RECEPT DEMAND LOAD (R):	1700	50%	850	100%	850
LIGHTING LOAD (L):	0	100%	0	125%	0
ADDITIONAL TRACK LIGHTING...				100%	0
MOTORS, HIGHEST LOAD (M):	790.4	125 %	988	100%	988
MOTORS, REMAINING	1292.8	100 %	1292.8	100 %	1292.8
NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	27.83		
		TOTAL...	77.25	TOTAL...	77.25

NOTES

PANELBOARD RP-5B

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	R	RECEPTACLES		20	1080	1080					20		RECEPTACLES	R	2
3	R	RECEPTACLES		20			900	540			20		RECEPTACLES	R	4
5	R	RECEPTACLES		20					720	1080	20		RECEPTACLES	R	6
7	NC	HAND DRYER		20	750	720					20		CORD REELS	R	8
9	NC	HAND DRYER		20			750	720			20		CORD REELS	R	10
11	NC	HAND DRYER		20					750	720	20		CORD REELS	R	12
13	NC	HAND DRYER		20	750	720					20		CORD REELS	R	14
15	R	RECEPTACLES		20			180	720			20		RECEPTACLES	R	16
17	NC	ERWP-124,125		15					900	180	20	GFCI	REFRIGERATOR	R	18
19					900	180					20		SERVICE RECEPTACLE	R	20
21	M	EF-118		15			36	720			20		RECEPTACLES	R	22
23	NC	ERWP-126.127		15					1050	900	20		RECEPTACLES	R	24
25					1050	720					20		CORD REELS	R	26
27	NC	ERWP-128		15			750	720			20		CORD REELS	R	28
29									750	720	20		RECEPTACLES	R	30
31	NC	ERWP-129		15	750	720					20		RECEPTACLES	R	32
33							750	720			20		RECEPTACLES	R	34
35	NC	ERWP-130		15					750	900	20		RECEPTACLES	R	36
37					750	720					20		RECEPTACLES	R	38
39	NC	ERWP-131		15			750	900			20		RECEPTACLES	R	40
41									750	900	20		RECEPTACLES	R	42
43	NC	ERWP-132,133		15	1050	900					20		RECEPTACLES	R	44
45							1050	1080			20		RECEPTACLE	R	46
47	M	EF-119		15					36	900	20		RECEPTACLES	R	48
49	M	RF-105		20	83	900					20		RECEPTACLES	R	50
51							83	720			20		RECEPTACLES	R	52
53	M	RF-201		15					83	180	20		REFRIGERATOR	R	54
55					83	1080					20		RECEPTACLES	R	56
57	NC	SMOKE DAMPER		20			250	720			20		RECEPTACLES	R	58
59	M	EF-205		20					36	900	20		RECEPTACLES	R	60
61	NC	ERWP-210,211		20	1050	750					20		COPIER	NC	62
63							1050	750							64
65	NC	ERWP-208		20					750	750	20		ERWP-206	M	66
67					750	750									68
69	NC	ERWP-209		20			750	750			20		ERWP-207	M	70
71									750	0	20	--	SPARE	--	72
73	--	SPARE	--	20	0	0					20	--	SPARE	--	74
75	--	SPARE	--	20			0	0			20	--	SPARE	--	76
77	--	SPARE	--	20					0	0	20	--	SPARE	--	78
79	--	SPARE	--	20	0	0					20	--	SPARE	--	80
81	--	SPARE	--	20			0	0			20	--	SPARE	--	82
83	--	SPARE	--	20					0	0	20	--	SPARE	--	84
					18286		16359		15455						
					ØA		ØB		ØC						

PANELBOARD INFORMATION

VOLTAGE: 208Y/120V
BUS AMPACITY: 225A
MAIN TYPE: 225A MCB
MINIMUM A.I.C.:
MOUNTING: SURFACE

+ PROVIDE INTEGRAL SPD

PANELBOARD LOCATION

BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...
CONTINUOUS LOAD (C):	0	100%	0	125%	0
ELECTRIC HEAT (E)	0	100%	0	100%	0
NON-CONTINUOUS LOAD (NC):	21100	100%	21100	100%	21100
KITCHEN LOAD (K):	0		0	100%	0
RECEPT BASE LOAD (R):	10000	100%	10000	100%	10000
RECEPT DEMAND LOAD (R):	15560	50%	7780	100%	7780
LIGHTING LOAD (L):	0	100%	0	125%	0
ADDITIONAL TRACK LIGHTING...				100%	0
MOTORS, HIGHEST LOAD (M):	1500	125 %	1875	100%	1875
MOTORS, REMAINING	1940.4	100 %	1940.4	100 %	1940.4
NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	42.7		
		TOTAL...	118.51	TOTAL...	118.51

NOTES

PANELBOARD RP-6A

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	R	RECEPTACLES		20	720	500					20	LOD	FIRE ALARM CONTROL PANEL	NC	2
3	R	RECEPTACLES		20			900	500			20		FIRE ALARM SMOKE DAMPERS	NC	4
5	R	RECEPTACLES		20					900	900	20		RECPTACLES	R	6
7	R	RECEPTACLES		20	1080	900					20		RECEPTACLES	R	8
9	R	RECEPTACLES		20			720	180			20		REFRIGERATOR	R	10
11	R	RECEPTACLES		20					1080	180	20		COPIER	R	12
13	R	RECEPTACLES		20	900	720					20		CORD REELS	R	14
15	R	RECEPTACLES		20			720	720			20		CORD REELS	R	16
17	R	RECEPTACLES		20					360	720	20		CORD REELS	R	18
19	R	RECEPTACLES		20	360	720					20		CORD REELS	R	20
21	R	RECEPTACLES		20			720	360			20		RECEPTACLES	R	22
23	R	RECEPTACLES		20					360	360	20		RECEPTACLES	R	24
25	R	RECEPTACLES		20	720	180					20		KILN EXHAUST	R	26
27	R	COPIER		20			180	2080			30		KILN	C	28
29	R	RECEPTACLES		20					360	2080					30
31	R	RECEPTACLES		20	360	720					20		RECEPTACLES	R	32
33	R	RECEPTACLES		20			180	1200			20		HAND DRYER	NC	34
35	R	REFRIGERATOR	GFCI	20					180	1200	20		HAND DRYER	NC	36
37	NC	DISHWASHER	GFCI	20	250	1200					20		HAND DRYER	NC	38
39	NC	DISPOSAL	GFCI	20			180	1200			20		HAND DRYER	NC	40
41	R	RECEPTACLES		20					1080	180	20	GFCI	EWC	R	42
43	R	RECEPTACLES		20	540	250					20		WON DOOR	NC	44
45	R	RECEPTACLES		20			1080	720			20		RECEPTACLES	R	46
47	R	RECEPTACLES		20					1080	720	20		RECEPTACLES	R	48
49	R	RECEPTACLES		20	900	180					20		RECEPTACLES	R	50
51	R	REFRIGERATOR	GFCI	20			180	0			20	--	SPARE	--	52
53	R	RECEPTACLES		20					720	0	20	--	SPARE	--	54
55	--	SPACE	--	--	--	0					20	--	SPARE	--	56
57	--	SPACE	--	--			--	0			20	--	SPARE	--	58
59	--	SPACE	--	--					--	0	20	--	SPARE	--	60
					25739		24029		24793						
					ØA		ØB		ØC						

PANELBOARD INFORMATION

VOLTAGE: 208Y/120V
BUS AMPACITY: 400A
MAIN TYPE: MLO
MINIMUM A.I.C.:
MOUNTING: SURFACE

+ PROVIDE FEED-THROUGH LUGS

PANELBOARD LOCATION

BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD		FEEDER AND OVERCURRENT...
CONTINUOUS LOAD (C):	4160	100%	4160	125%	5200
ELECTRIC HEAT (E)	0	100%	0	100%	0
NON-CONTINUOUS LOAD (NC):	21950	100%	21950	100%	21950
KITCHEN LOAD (K):	0		0	100%	0
RECEPT BASE LOAD (R):	10000	100%	10000	100%	10000
RECEPT DEMAND LOAD (R):	35600	50%	17800	100%	17800
LIGHTING LOAD (L):	0	100%	0	125%	0
ADDITIONAL TRACK LIGHTING...				100%	0
MOTORS, HIGHEST LOAD (M):	1040	125 %	1300	100%	1300
MOTORS, REMAINING	1812	100 %	1812	100 %	1812
NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	57.02		
		TOTAL...	158.28	TOTAL...	161.16

NOTES

TMP ARCHITECTURE

TMP ARCHITECTURE INC
1191 WEST SQUARE LAKE ROAD - BOX 289
BLOOMFIELD HILLS - MICHIGAN - 48302
PH - 248.338.4561 FX - 248.338.0223
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REGISTRATION SEAL

CONSULTANT

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5145 Livernois, Suite 100
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www.PeterBassoAssociates.com
PBA Project No: 2023.0154

PROJECT TITLE

NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

PANEL SCHEDULES

ISSUE DATES

07-12-2024	ADDENDUM #2
06-18-2024	CONSTRUCTION DOCUMENTS
DATE:	ISSUED FOR:

DRAWN	DDS
CHECKED	ZDB
APPROVED	STP

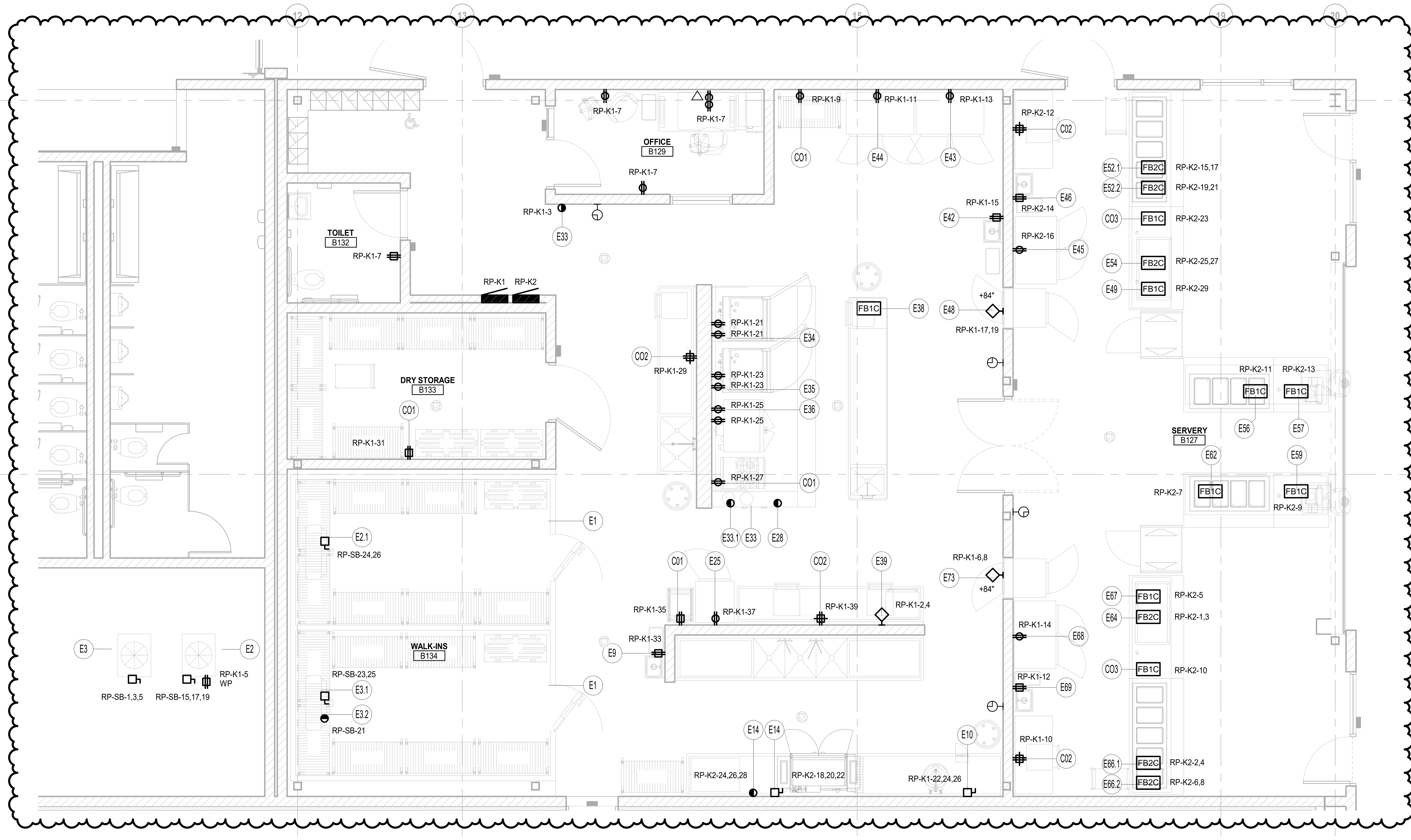
PROJECT NO.

22102

DRAWING NO.

E5.5

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



1 / E3.1B

ENLARGED KITCHEN AND SERVERY ELECTRICAL PLAN

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

FOOD SERVICE EQUIPMENT SCHEDULE

ITEM NO	QTY	EQUIPMENT CATEGORY	MANUFACTURER	MODEL NUMBER	EQUIPMENT REMARKS	AMPS	KW	HP	VOLTS	PHASE	DIRECT	PLUG	NEMA	ELECTRICAL AFF (IN)	ELEC REMARKS
1	1LOT	WALK IN REFRIGERATOR/FREEZER	AMERICAN PANEL	CUSTOM		20.0			120	1	X			DFA	
2	1SYS	REMOTE REFRIGERATOR CONDENSER	AMERICAN PANEL	-	ROOF MOUNTED	9.1			208	3	X			SU	
2.1	1	REFRIGERATOR BLOWER COIL	AMERICAN PANEL	-		1.1			208	1	X			DFA	
3	1SYS	REMOTE FREEZER CONDENSER	AMERICAN PANEL	-	ROOF MOUNTED	14.2			208	3	X			SU	
3.1	1	FREEZER BLOWER COIL	AMERICAN PANEL	-		11.0			208	1	X			DFA	
3.2	1	HEAT TAPE	-	-		20.0			120	1	X			DFA	
4	4	DUNNAGE RACK	CAMBRO	DRS480-480											
5	1LOT	PORTABLE WALK IN FZR, SHELVING	METRO	METROSEAL											
6	1LOT	PORTABLE WALK IN REF, SHELVING	METRO	METROSEAL											
7	1LOT	STATIONARY STORE ROOM SHELVING	METRO	-											
8	1	CART, UTILITY	LAKESIDE	511											
9	1	HAND SINK, WALL MOUNT	ADVANCE TABCO	7-PS-40	ELECTRONIC FAUCET	1.0			120	1		X	5-15P	18	
10	1	DISPOSER, GARBAGE	IN-SINK-ERATOR	SS-200-18		3.3		2.0	208	3	X			18	
11	1LOT	ST. ST. SOILED/CLEAN DISHTABLES	ST. ST. FABRICATOR	CUSTOM											
12	1	PORTABLE STORAGE SHELVING	METRO	-											
13	-	SPARE - NOT USED													
14	1	WAREWASHER, RACK CONVEYOR	HOBART US FOODSERVICE	CL44EN-ADV ELECTRIC (R-L)	SINGLE POINT	55.0			208	3	X			18	
					BOOSTER HEAT	83.9	30		208	3	X			18	
15	1SYS	SOAP AND RINSE SYSTEM	BY OWNER	NIC											
16	2	ST. ST. EXHAUST DUCTS	ST. ST. FABRICATOR	CUSTOM	4 x 16										
17	1LOT	WIRE WALL SHELVING	METRO												
18	1	PORTABLE STORAGE SHELVING	METRO	-											
19	1LOT	ST. ST. WALL PANELING	ST. ST. FABRICATOR	CUSTOM											
20	1	ST. ST. PREP SINK AND TABLE	ST. ST. FABRICATOR	CUSTOM											
21	1	ST. ST. WALL PANELING	ST. ST. FABRICATOR	CUSTOM											
22	1	ST. ST. THREE COMP SINK	ST. ST. FABRICATOR	CUSTOM											
23	1	ST. ST. WALL PANELING	ST. ST. FABRICATOR	CUSTOM	REAR AND SIDE WALL										
24	1	RACK, PAN	ADVANCE TABCO	PR20-3K											
25	1	REFRIGERATOR, REACH-IN	TRAULSEN	G10010		4.9			120		X		5-15P	84	
26	1	ST. ST. PREP TABLE	ST. ST. FABRICATOR	CUSTOM											
27	1	ST. ST. WALL PANEL & CAP	ST. ST. FABRICATOR	CUSTOM											
28	1LOT	ST. ST. EXHAUST HOOD	CAPTIVEAIRE	-		15.0			120	1	X			DFA	
28.1	1	EXHAUST HOOD CONTROL	CAPTIVEAIRE	-											CAT 6 FROM CABINET TO TOUCH PAD
29	1LOT	ST. ST. WALL PANELING	ST. ST. FABRICATOR	CUSTOM											
30	-	SPARE - NOT USED													
31	-	SPARE - NOT USED													
32	1	FIRE EXTINGUISHER	CAPTIVEAIRE	K TYPE											
33	1SYS	FIRE SUPPRESSION SYSTEM	CAPTIVEAIRE	-		15.0			120	1	X			DFA	
33.1	1	ELECTRONIC GAS VALVE	CAPTIVEAIRE	-	VERIFY SIZE AND LOCATION	15.0			120	1	X			DFA	
34	1	OVEN-STEAMER, COMBINATION, GAS	UNOX, INC. (NORTH AMERICA)	(2)XAVC-06FS-GPLM	HINGED PER PLAN	(2)8.0			120	1			5-20P	18/36	
35	1	OVEN-STEAMER, COMBINATION, GAS	UNOX, INC. (NORTH AMERICA)	(2)XAVC-06FS-GPLM	HINGED PER PLAN	(2)8.0			120	1			5-20P	18/36	
36	1	OVEN, CONVECTION, GAS	VULCAN	VC44GD		(2)7.7			120	1		X	5-15P	18/36	
37	1	RANGE, RESTAURANT, GAS	VULCAN	24S-4B-N											
38	1	ST. ST. COOKS TABLE W/ SINK	ST. ST. FABRICATOR	CUSTOM	SHELF OVER	20.0			120	1		X		SU	COUNTER MTD RECEPTACLE
39	1	OVEN, MICROWAVE	PANASONIC	NE-2180		20.0	2.1		208	1		X	6-30P	48	
40	-	SPARE - NOT USED													
41	-	SPARE - NOT USED													
42	1	HAND SINK, WALL MOUNT	ADVANCE TABCO	7-PS-40	ELECTRONIC FAUCET	1.0			120	1		X		18	
43	1	REFRIGERATOR, REACH-IN	TRAULSEN	G20010		7.4		1/3	115	1		X	5-15P	84	
44	1	FREEZER, REACH-IN	TRAULSEN	G22010		11.2		3/4	115	1		X	5-15P	84	
45	1	REFRIGERATOR, REACH-IN	TRAULSEN	G20012		7.4		1/3	115	1		X	5-15P	84	
46	1	HAND SINK, WALL MOUNT	ADVANCE TABCO	7-PS-40	ELECTRONIC FAUCET	1.0			120	1		X	5-15P	18	
47	1	TABLE, WORK, 14 GAUGE, BACK SPLASH	ADVANCE TABCO	KSS-305											
48	1	CABINET, HEATED, PASS-THRU	TRAULSEN	G14312P	SEE PLAN DOOR SWING	8.3	1.5		120/208	1		X	L14-20P	84	
49	1	REFRIGERATED SELF-SERVICE CASE	STRUCTURAL CONCEPTS	B3632		16.0			120	1		X	5-20P	SU	FLOOR RECEPTACLE
50	-	SPARE - NOT USED													
51	-	SPARE - NOT USED													
52	1	FLAT TOP UTILITY COUNTER	DUKE	TST-88SS	MODIFIED LENGTH										
52.1	1	BUFFET/CAFETERIA, HOT/COLD CONVERTIBLE	DUKE	HCF-5		17.2			120/208	1		X	L14-30P	SU	FLOOR RECEPTACLE
52.2	1	ADJ SNEEZE GUARD W/ LED & HEAT	PMG	TM2N-A	SERVED/SELF SERVE	10.0			208	1		X	L6-20P	SU	FLOOR RECEPTACLE
53	1	BUFFET/CAFETERIA, FLAT TOP	DUKE	TST-88SS											
54	1	DISPLAY CASE, HEATED	HATCO	GR2SDS-42D		12.4	3.0		120/208	1		X	L14-20P	SU	FLOOR RECEPTACLE
55	-	SPARE - NOT USED													
56	1	BUFFET/CAFETERIA, FLAT TOP	DUKE	TST-74SS		6.0	0.6		120	1		X	5-15P	SU	FLOOR RECEPTACLE
56.1	1	DROP-IN, COLD PAN	DUKE	FCP4-SB											POWERD FROM 56
56.2	1	SELF SERVE SNEEZE GUARD W/ LED LIGHTS	PMG	TM2R-F	SELF SERVE W/ LED										POWERD FROM 56
57	1	CASHIERS STAND	DUKE	TCS-30SS	MODIFIED LENGTH	20.0			120	1		X	5-15P	SU	FLOOR RECEPTACLE
58	1LOT	POS/CASH REGISTER SYSTEM	BY OWNER	NIC											POWERD FROM 57 & 59
59	1	CASHIERS STAND	DUKE	TSC-30SS	MODIFIED LENGTH	20.0			120	1		X	5-15P	SU	FLOOR RECEPTACLE
60	-	SPARE - NOT USED													
61	-	SPARE - NOT USED													
62	1	SELF SERVE FIXED SNEEZE GUARD	DUKE	TST-74SS	MODIFIED LENGTH	6.0	0.6		120	1		X	5-15P	SU	FLOOR RECEPTACLE
62.1	1	DROP-IN, COLD PAN	DUKE	FCP4-SB											POWERD FROM 62
62.2	1	SELF SERVE SNEEZE GUARD W/ LED LIGHTS	PMG	TM2R-F	SELF SERVE W/ LED										POWERD FROM 62
63	-	SPARE - NOT USED													
64	1	DISPLAY CASE, HEATED	HATCO	GR2SDS-42D		12.4	3.0		120/208	1		X	L14-20P	SU	FLOOR RECEPTACLE
65	1	BUFFET/CAFETERIA, FLAT TOP	DUKE	TST-88SS	MODIFIED LENGTH									SU	FLOOR RECEPTACLE
66	1	FLAT TOP UTILITY COUNTER	DUKE	TST-88SS	MODIFIED LENGTH									SU	FLOOR RECEPTACLE
66.1	1	BUFFET/CAFETERIA, HOT/COLD CONVERTIBLE	DUKE	HCF-5		17.2			120/208	1		X	L14-30P	SU	FLOOR RECEPTACLE
66.2	1	ADJ SNEEZE GUARD W/ LED & HEAT	DUKE	TM2N-A	SERVED/SELF SERVE	10.0			208	1		X	L6-20P	SU	FLOOR RECEPTACLE
67	1	REFRIGERATED SELF-SERVICE CASE	STRUCTURAL CONCEPTS	B3632		16.0			120	1		X	5-20P	SU	FLOOR RECEPTACLE
68	1	REFRIGERATOR, REACH-IN	TRAULSEN	G20013		7.4		1/3	115					84	
69	1	HAND SINK, WALL MOUNT	ADVANCE TABCO	7-PS-40	ELECTRONIC FAUCET	1.0			120	1		X	5-15P	18	
70	2	PORTABLE UTILITY CART	LAKESIDE	511	BASKET STORAGE										
71	-	SPARE - NOT USED													
72	1	TABLE, WORK, 14 GAUGE, BACK SPLASH	ADVANCE TABCO	KSS-305											
73	1	CABINET, HEATED, PASS-THRU	TRAULSEN	G14312P	SEE PLAN DOOR SWING	8.3	1.5		120/208	1		X	L14-20P	84	
74	1	HOLDING CABINET, HUMIDIFIED HEATED	F.W.E.	MTU-10		13.8			120	1		X	5-15P	18	
75	1	BUFFET/CAFETERIA, RETAIL X-TENSION	MULTITERIA	RXT 72		50			120	1		X	5-50P	18	DATA FOR REGISTER
76	1	REFRIGERATOR, COUNTER TOP	TRUE MFG.	GDM-06-34-HC~TSL01		1.6	0.2	1/10	115	1					POWERED FROM #75
77	1	DISPLAY CASE, HEATED	HATCO	GRSDS-24D		11.3	1.4		120	1					POWERED FROM #75
78	1	BUFFET/CAFETERIA, HOT FOOD-SOUP STATION	HATCO	GRBW-30		10.3	1.2		120	1					POWERED FROM #75
79	1LOT	POS/CASH REGISTER SYSTEM	BY OWNER	NIC		15.0			120	1					POWERED FROM #75
80	-	SPARE - NOT USED													
81	1LOT	FIELD ERECTION LABOR													
CO1		CONVENIENCE OUTLET			DEDICATED	20.0			120	1				18	
CO2		CONVENIENCE OUTLET			DEDICATED	20.0			120	1				48	
CO3		CONVENIENCE OUTLET			DEDICATED	20.0			120	1				SU	DUPLEX FLR RECEPTACLE
CO4		CONVENIENCE OUTLET			DEDICATED	20.0			120	1				SU	COUNTER MTD OUTLET

ITEM NO	COLD WATER SIZE (IN)	COLD WATER AFF (IN)	HOT WATER SIZE (IN)	HOT WATER GPH	HOT WATER AFF (IN)	DIRECT DRAIN SIZE (IN)	DIRECT DRAIN AFF (IN)	INDIR DRAIN SIZE (IN)	GAS SIZE (IN)	MBTUH	GAS AFF (IN)	PLUMBING REMARKS	ITEM NO	
1													1	
2													2	
2.1								.75				RUN TO INDIRECT WASTE	2.1	
3													3	
3.1								.75				RUN TO INDIRECT WASTE	3.1	
3.2													3.2	
4													4	
5													5	
6													6	
7													7	
8													8	
9	0.5	18	0.5		18	1.5	21						9	
10	0.5	18	0.5		18	2	12						10	
11								1				RUN TO INDIRECT WASTE	11	
12													12	
13													13	
14	0.5	12	0.5		12			1.5				RUN TO INDIRECT WASTE	14	
15													15	
16													16	
17													17	
18													18	
19													19	
20	0.5	18	0.5		18			2				RUN TO INDIRECT WASTE	20	
21													21	
22	.75	18	.75		18	2	SU	2				SOILED TO GT | WASH,RINSE TO IW	22	
23													23	
24													24	
25													25	
26													26	
27													27	
28													28	
28.1													28.1	
29													29	
30													30	
31													31	
32													32	
33													33	
33.1														
34	0.75							1	0.75	(2)82	30	RUN TO INDIRECT WASTE	34	* * *
35	0.75							1	0.75	(2)82	30	RUN TO INDIRECT WASTE	35	* * *
36									0.75	100	30		36	* * *
37									0.75	143	30		37	* * *
38	0.5	SU	0.5		SU			2				RUN TO INDIRECT WASTE	38	
39													39	
40													40	
41													41	
42	0.5	18	0.5		18	1.5	21						42	
43													43	
44													44	
45													45	
46	0.5	18	0.5		18	1.5	21						46	
47													47	
48													48	
49													49	
50													50	
51													51	
52													52	
52.1													52.1	
52.2													52.2	
53													53	
54													54	
55													55	
56													56	
56.1								0.75				RUN TO INDIRECT WASTE	56.1	
56.2													56.2	
57													57	
58													58	
59													59	
60													60	
61													61	
62													62	
62.1								0.75				RUN TO INDIRECT WASTE	62.1	
62.2													62.2	
63													63	
64													64	
65													65	
66													66	
66.1													66.1	
66.2													66.2	
67													67	
68													68	
69	0.5	18	0.5		18	1.5	21						69	
70													70	
71													71	
72													72	
73													73	
74													74	
75													75	
76													76	
77													77	
78													78	
79													79	
80													80	
81													81	
CO1													CO1	
CO2													CO2	
CO3													CO3	
CO4													CO4	

* * * GAS AND WATER TO STUB OUT OF WALL, DO NOT SURFACE MOUNT

ELECTRICAL GENERAL NOTES:

1 THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

4 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

5 TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH TRANSFORMER CIRCUIT SIZING SCHEDULE SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.

6 MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.

7 COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.

8 COORDINATE EXACT LOCATIONS OF ALL FLOOR SERVICE FITTINGS AND POKE-THROUGH ASSEMBLIES WITH FINAL FURNITURE LAYOUT DRAWINGS.

9 REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.

10 REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED FIRE ALARM CONTROL MODULES, DUCT SMOKE DETECTORS, AND MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.

11 THE FIRE ALARM DEVICES SHOWN ON PLAN ARE A PARTIAL REPRESENTATION OF THE FIRE ALARM SYSTEM. PROVIDE THE DESIGN AND INSTALLATION OF A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES, SMOKE AND HEAT DETECTORS, CONTROL MODULES, INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, AND ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.

12 REFER TO LIGHTING CONTROL SCHEDULE FOR ROOM CONTROL AND EMERGENCY LIGHTING CIRCUIT CONTROL REQUIREMENTS. DESIGNATION FOR ROOM IS INDICATED AS A LETTERED OVAL SYMBOL.

13 CONNECT EXIT SIGNS TO EMERGENCY LIGHTING BRANCH CIRCUIT SERVICE THE AREA. CONNECT AHEAD OF ANY LIGHTING CONTROL DEVICE OR SYSTEM.

14 PROVIDE SINGLE GANG JUNCTION BOX WITH 3/4" C. PULL STRING AND BUSHING TO ACCESSABLE CEILING SPACE AT SPEAKER AND CLOCK LOCATIONS. COORDINATE MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.

FOOD SERVICE GENERAL NOTES:

1 LOCATIONS, DIMENSIONS, UTILITY REQUIREMENTS, INTERCONNECTIONS, AND NEMA CONFIGURATIONS OF CORD AND PLUG ASSEMBLIES, ETC. ARE BASED ON BASIS OF DESIGN MANUFACTURER IN THE SPECIFICATIONS. COORDINATE FINAL LOCATIONS AND DEVIATIONS FROM BASIS OF DESIGN WITH FOOD SERVICE EQUIPMENT CONTRACTOR (FSEC).

2 PROVIDE GROUND-FAULT-CIRCUIT-INTERRUPTER (GFCI) FOR PERSONNEL PROTECTION, PER NEC, FOR ALL SINGLE-PHASE RECEPTACLES 150V TO GROUND OR LESS AND 50A OR LESS, AND FOR ALL THREE-PHASE RECEPTACLES 150V TO GROUND OR LESS AND 100A OR LESS. PROVIDE GFCI CIRCUIT BREAKER(S) OR REMOTE DEAD FRONT GFCI DEVICE(S), IN READILY ACCESSIBLE LOCATIONS, FOR ANY RECEPTACLE THAT CANNOT BE ACCESSED WITHOUT MOVING EQUIPMENT.

3 SEAL ALL CONDUIT PENETRATIONS TO WALK-IN COOLERS AND FREEZERS WITH FOAM AND NON-HEAT CONDUCTIVE SEALANT, IN AND AROUND CONDUIT TO ENSURE NO AIR LEAKS. CONDUIT PENETRATIONS INTO REFRIGERATOR AND/OR FREEZER SHALL BE ENT AND TRANSITIONED TO EMT OUTSIDE OF THE UNIT(S).

4 PROVIDE ALL INTERCONNECTING WIRING FOR WALK-IN REFRIGERATOR AND/OR FREEZER LIGHTS, DOOR HEATERS, COMPRESSORS, EVAPORATORS, ALARM SYSTEMS, HEATED PRESSURE RELIEF VENTS, WINDOW HEATERS, TIME CLOCKS, INTERLOCKS, ETC. WHERE UNITS ARE NOT PRE-WIRED. WIRE PER MANUFACTURER'S DRAWINGS/DIAGRAMS. INTERIOR CONDUIT RUNS ARE NOT ACCEPTABLE.

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PROJECT TITLE

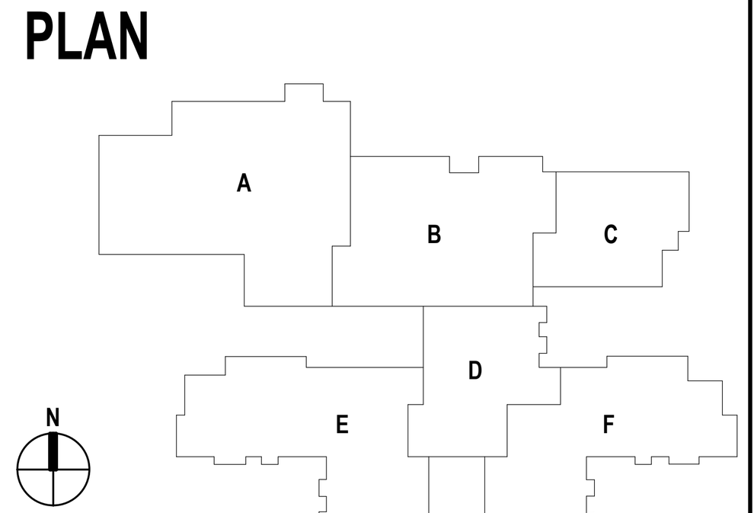
NEW SMITH MIDDLE SCHOOL

Bid Package No. 03B

Troy School District
TROY, MI

DRAWING TITLE

ENLARGED ELECTRICAL PLAN



KEY PLAN

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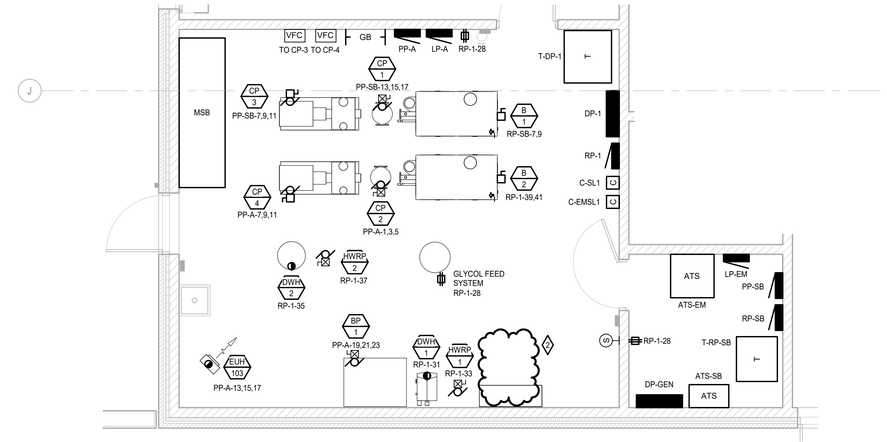
THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



1
E3.1A

ENLARGED MECHANICAL ROOM ELECTRICAL PLAN

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

ELECTRICAL GENERAL NOTES:

1 THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

4 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

5 TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH TRANSFORMER CIRCUIT SIZING SCHEDULE SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.

6 MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.

7 COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.

8 COORDINATE EXACT LOCATIONS OF ALL FLOOR SERVICE FITTINGS AND POKE-THROUGH ASSEMBLIES WITH FINAL FURNITURE LAYOUT DRAWINGS.

9 REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.

10 REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED FIRE ALARM CONTROL MODULES, DUCT SMOKE DETECTORS, AND MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.

11 THE FIRE ALARM DEVICES SHOWN ON PLAN ARE A PARTIAL REPRESENTATION OF THE FIRE ALARM SYSTEM. PROVIDE THE DESIGN AND INSTALLATION OF A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES, SMOKE AND HEAT DETECTORS, CONTROL MODULES, INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, AND ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.

12 REFER TO LIGHTING CONTROL SCHEDULE FOR ROOM CONTROL AND EMERGENCY LIGHTING CIRCUIT CONTROL REQUIREMENTS. DESIGNATION FOR ROOM IS INDICATED AS A LETTERED OVAL SYMBOL.

13 CONNECT EXIT SIGNS TO EMERGENCY LIGHTING BRANCH CIRCUIT SERVICE THE AREA. CONNECT AHEAD OF ANY LIGHTING CONTROL DEVICE OR SYSTEM.

14 PROVIDE SINGLE GANG JUNCTION BOX WITH 3/4" C. PULL STRING AND BUSHING TO ACCESSABLE CEILING SPACE AT SPEAKER AND CLOCK LOCATIONS. COORDINATE MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.

CONSTRUCTION KEY NOTES:

1 MOUNT RECEPTACLES HORIZONTALLY

2 ELECTRICAL CONTRACTOR SHALL INSTALL 4" SQUARE JUNCTION BOX WITHIN 3'-0" OF ELECTRICAL BACKBOARD WINCH UP IN CEILING SPACE. ALSO INSTALL 4 POLE, TWIST LOCK, SINGLE RECEPTACLE, PROVIDED BY WINCH MANUFACTURERS, INTO THE JUNCTION BOX.

3 ELECTRICAL CONTRACTOR SHALL INSTALL ALL CONTROLS, PUSHBUTTONS, KEY SWITCHES ETC. (PROVIDED WITH EACH BASKETBALL BACKBOARD), FOR A COMPLETE OPERABLE SYSTEM. KEY SWITCHES GANGED IN PAIRS IN ONE COVER PLATE TO CONTROL THE BACKSTOP SWING AND HEIGHT ADJUSTER.

4 HEAT TRACE, BY OTHERS.

5 DUCT SMOKE DETECTOR SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE MOUNTING LOCATION AND QUANTITY WITH THE MECHANICAL DUCTWORK CONTRACTOR. ELECTRICAL CONTRACTOR SHALL WIRE DUCT SMOKE DETECTOR/RTU SUPPLY/ RETURN FAN MOTOR STARTER SO THAT UPON DETECTION OF SMOKE, THE SUPPLY/RETURN FAN WILL SHUT DOWN. THIS SHALL BE ACCOMPLISHED VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WITH WITH THE TEMPERATURE CONTROL/FIRE ALARM CONTRACTOR. PROVIDE WEATHER PROOF ENCLOSURES AS REQUIRED.

6 REFER TO ARCHITECTURAL FLOOR PLANS, DOOR HARDWARE SCHEDULE ON ARCHITECTURAL DRAWINGS, ACCESS CONTROL SYSTEM SPECIFICATION SECTION AND ACCESS CONTROL DOOR DIAGRAM(S) ON E7 SERIES FOR RACEWAY AND BACK BOX REQUIREMENTS FOR DOOR OR BANK OF DOORS INDICATED. PROVIDE ALL RACEWAYS AND BACK BOXES REQUIRED. COORDINATE WITH DOOR HARDWARE AND SECURITY CONTRACTORS.

7 PROVIDE 2-2" AND 1-1" U.O.N. CONDUITS FOR TECHNOLOGY AND AUXILIARY SYSTEM WIRE AS INDICATED. STUB CONDUITS FROM CEILING SPACE. PROVIDE PLASTIC BUSHINGS AT EACH END. PROVIDE REMOVABLE/RESEALABLE FIRE STOP PUTTY IN EACH CONDUIT AND FIRE STOP AROUND EACH CONDUIT. COORDINATE WITH TECHNOLOGY CONTRACTOR FOR EXACT LOCATION OF CONDUIT. PROVIDE MINIMUM OF 1" CONDUIT FOR ALL OTHER AREAS REQUIRING SLEEVES.

8 PROVIDE (1)2" CONDUIT WITH PULL STRING AND BUSHINGS FOR TECHNOLOGY. ROUTE UNDER BUILDING AND TERMINATE AT EXTERIOR OF BUILDING.

9 COORDINATE MOUNTING LOCATION WITH TECHNOLOGY CONTRACTOR.

10 CONNECT FIRE ALARM DEVICES TO ELECTRIC COILING DOOR AND FIRE ALARM SYSTEM. ROLL-UP DOOR SHALL CLOSE UPON ACTIVATION OF THE SMOKE DETECTORS ASSOCIATED WITH THE COILING FIRE DOOR. COORDINATE WITH COILING DOOR CONTRACTOR FOR ALL SMOKE DETECTORS AND CONTROL MODULES REQUIRED FOR A COMPLETE SYSTEM.

11 HAND DRYERS FURNISHED BY OTHERS AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL TRADES.

12 SMOKE DAMPER DUCT SMOKE DETECTOR. SMOKE DETECTOR SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR SO THAT UPON DETECTION OF SMOKE THE SUPPLY/RETURN FAN WILL SHUT DOWN. ELECTRICAL CONTRACTOR SHALL WIRE DUCT DETECTOR TO FIRE ALARM SYSTEM, AND CIRCUIT DAMPER ACTUATOR. PROVIDE A 20A-1P SWITCH AT EACH ACTUATOR. CONTROL OF AIR HANDLING EQUIPMENT IS VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WORK WITH THE TEMPERATURE CONTROLS CONTRACTOR AND FIRE ALARM MANUFACTURER. DAMPER SHALL CLOSE UPON DETECTION OF SMOKE AND SHUT DOWN ASSOCIATED AIR HANDLER, DAMPER SHALL ALSO CLOSE UPON NORMAL SHUTDOWN OF AIR HANDLER.

13 CARBON MONOXIDE DETECTOR. COORDINATE QUANTITY WITH FIRE MARSHAL.

14 SCOREBOARD. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH IN.

15 WALL MOUNT TRANSFORMER.

16 ELECTRIC RANGE. PROVIDE WALL MOUNTED GFCI MODULE ABOVE COUNTER.

17 LIGHTING RELAY PANEL FOR THEATRICAL LIGHTING SYSTEM. REFER TO THEATRICAL LIGHTING EQUIPMENT DRAWINGS.

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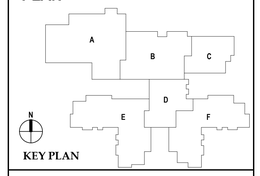

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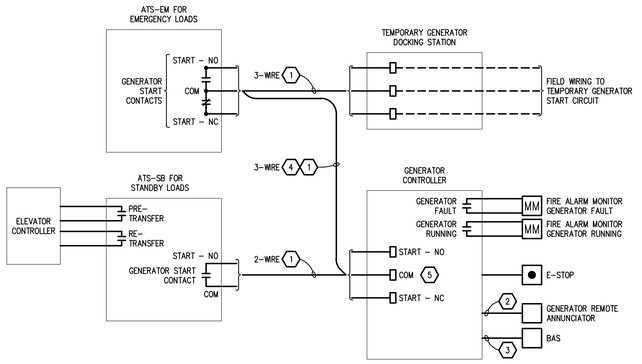


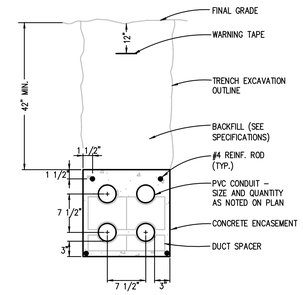
GENERATOR AND ATS CONTROL WIRING DETAIL EMERGENCY AND STANDBY

NO SCALE

NOTES:
1. VERIFY ALL WIRE AND CABLE SPECIFICATIONS WITH GENERATOR SUBMITTAL DRAWINGS, WIRING DIAGRAMS, AND MANUFACTURERS REQUIREMENTS.
2. PROVIDE CONDUIT FOR ALL CONTROL WIRING. PROVIDE 14 AWG THHN/THWN FOR CONTROL WIRING UNLESS OTHERWISE NOTED.

(#) KEYED NOTES:

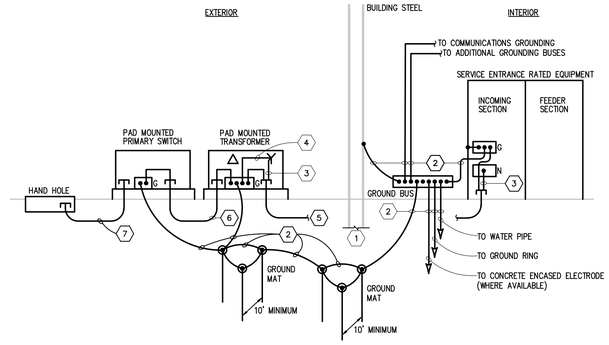
1. SEPARATE SIGNAL WIRING FROM OTHER SYSTEMS. PROVIDE DEDICATED CONDUIT FROM GENERATOR TO ATS.
2. PROVIDE SHIELDED TWISTED PAIR (PER MANUFACTURERS RECOMMENDATIONS) AND 2#14 FOR ANNUNCIATOR DC POWER.
3. PROVIDE SHIELDED TWISTED PAIR FOR COMMUNICATION LINK. COORDINATE WITH BAS INTEGRATOR.
4. PROVIDE 2 HOUR CABLE ASSEMBLY OR EQUIVALENT MEANS OF PROTECTION FOR START SIGNAL WIRING.
5. PROVIDE CIRCUIT INTEGRITY MONITORING AT GENERATOR.
6. PROVIDE RETRANSFER INHIBIT WHERE THE EMERGENCY TRANSFER SWITCH NORMAL SUPPLY IS FED FROM STANDBY DISTRIBUTION.



CONCRETE ENCASED DUCT BANK DETAIL

NO SCALE

NOTES:
1. QUANTITY AND CONFIGURATION OF DUCTS SHALL BE AS SHOWN ON PLAN DRAWINGS. PROVIDE CONDUIT TYPES AS SPECIFIED.

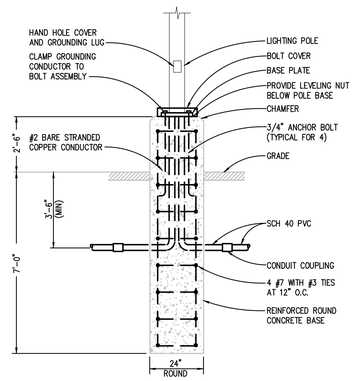


GROUNDING SYSTEM DIAGRAM PRIMARY SERVICE EXTERIOR SERVICE ENTRANCE EQUIPMENT

NO SCALE

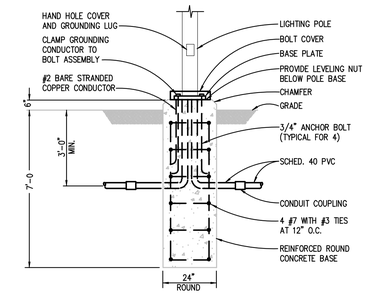
(#) KEYED NOTES:

1. METAL IN-GROUND SUPPORT STRUCTURE IN DIRECT CONTACT WITH EARTH VERTICALLY FOR A MINIMUM OF 10FT, WHERE AVAILABLE.
2. GROUNDING ELECTRODE CONDUCTOR, #4/0 COPPER.
3. GROUNDED CONDUCTOR (NEUTRAL), SEE ONE LINE DIAGRAM.
4. SYSTEM BONDING JUMPER, PROVIDED BY MANUFACTURER AS PART OF LISTED EQUIPMENT PER NEC 250.30A AND 250.30C, SIZED PER NEC 250.28 AND 250.102.
5. PHASE CONDUCTORS, GROUNDED CONDUCTOR, AND SUPPLY SIDE BONDING JUMPER IN CONDUIT (3P,N,SSBJ). SEE ONE LINE DIAGRAM.
6. PRIMARY PHASE CONDUCTORS AND GROUND IN CONDUIT. SEE ONE LINE DIAGRAM.
7. FUTURE E.V. CHARGING STATION. SEE ONE LINE DIAGRAM.



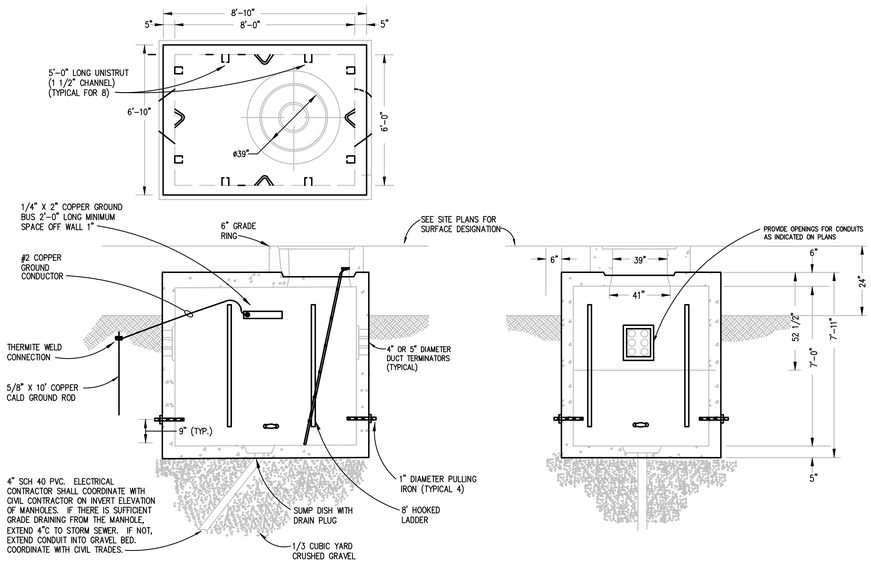
PARKING LOT LIGHTING POLE BASE DETAIL

NO SCALE



LIGHTING POLE BASE DETAIL IN LANDSCAPE

NO SCALE



DETAIL OF CONCRETE MANHOLE

NO SCALE

NOTES:
1. COORDINATE EXACT MANHOLE LOCATIONS WITH CIVIL DRAWINGS.

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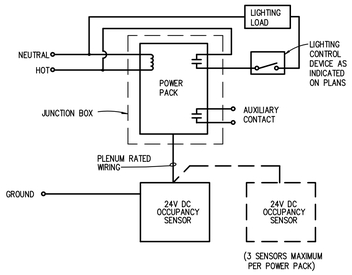
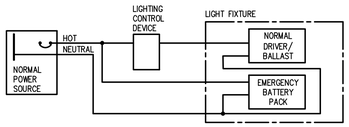


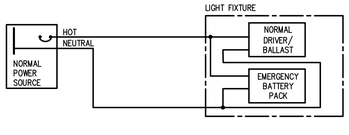
NOTES:

1. REFER TO SPECIFICATIONS FOR ACCEPTED MANUFACTURERS.
2. PROVIDE POWER PACKS AND SLAVE PACKS AS REQUIRED FOR SWITCHING AS INDICATED ON PLAN. REVISE DETAIL AS REQUIRED BY MANUFACTURER.
3. MOUNTING LOCATION PER MANUFACTURER'S RECOMMENDATION.
4. ADJUST SENSITIVITY LEVELS PER THE OWNER REQUIREMENTS.
5. PROVIDE FACTORY SUPPORT FOR AIMING/ADJUSTING OF SENSORS.
6. PLACE CEILING MOUNTED OCCUPANCY SENSORS IN CENTER OF A FULL CEILING TILE, WHERE APPLICABLE.
7. SENSOR ADJUSTMENT: BEFORE MAKING ADJUSTMENTS, MAKE SURE ROOM FURNITURE IS INSTALLED, LIGHTING CIRCUITS ARE TURNED ON, AND THE HVAC SYSTEMS ARE IN THE ON POSITION. VAV SYSTEMS SHOULD BE SET TO THEIR HIGHEST AIRFLOW. SET THE LOGIC CONFIGURATION DIP SWITCHES TO "EITHER". EITHER REQUIRES MOTION DETECTION BY ONLY ONE TECHNOLOGY. SET THE TIME DELAY PER OWNERS DIRECTION.

OCCUPANCY SENSOR WIRING DIAGRAM
NO SCALE

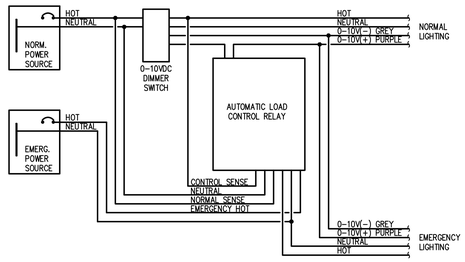


SWITCHED (NON-NIGHT LIGHT EMERGENCY FIXTURE)



UNSWITCHED (NIGHT LIGHT EMERGENCY FIXTURE)

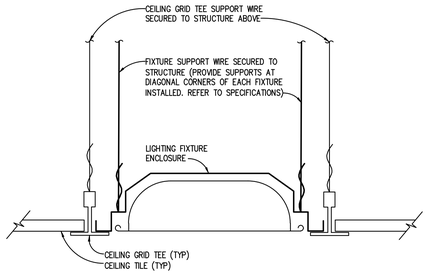
EMERGENCY BATTERY BACKUP WIRING DIAGRAM - INTERNAL TO LIGHT FIXTURE
NO SCALE



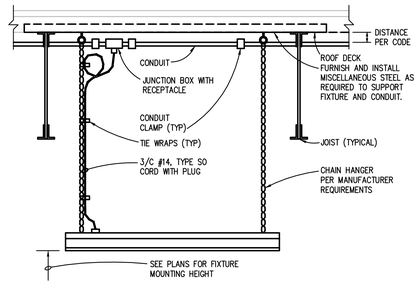
AUTOMATIC LOAD CONTROL RELAY FOR 0-10V DIMMING
NO SCALE

NOTES:

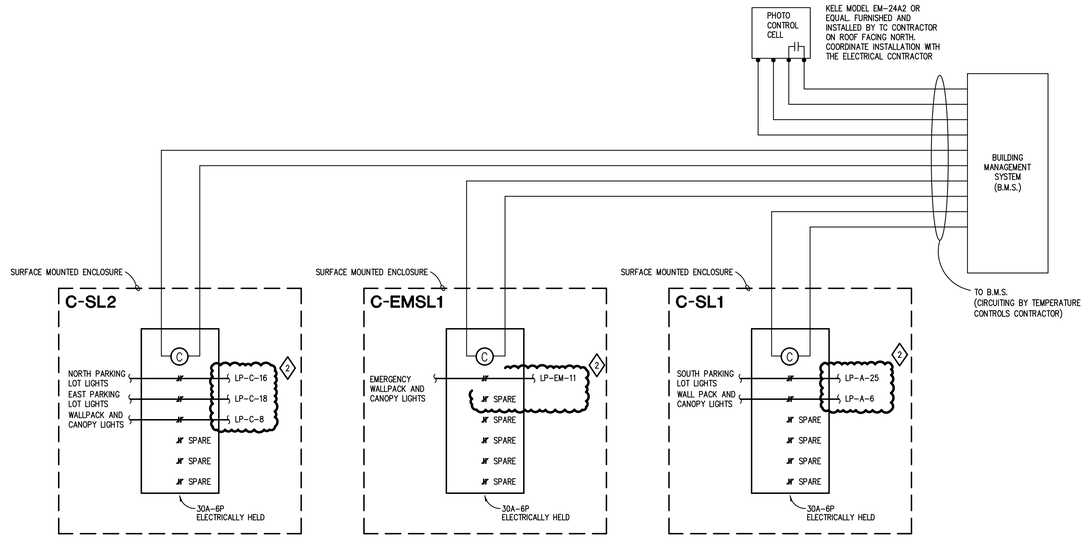
1. BASIS OF DESIGN IS LVS CONTROLS EPC-2-0. REFER TO SPECIFICATIONS FOR APPROVED MANUFACTURERS. ADJUST WIRING AS NECESSARY FOR OTHER APPROVED MANUFACTURERS.
2. PROVIDE ONE AUTOMATIC LOAD CONTROL RELAY PER SWITCHING CIRCUIT.



RECESSED LIGHTING FIXTURE INSTALLATION DETAIL
NO SCALE



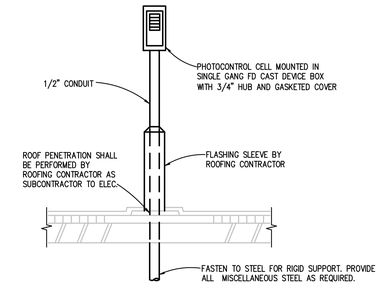
TYPICAL MOUNTING DETAIL FOR CHAIN HUNG LIGHTING FIXTURES
NO SCALE



EXTERIOR LIGHTING CONTROL CONTACTOR DETAILS
NO SCALE

NOTES:

1. REFER TO PLANS FOR CONTACTOR LOCATIONS
2. CONTACTOR ENCLOSURE SHALL BE 20"X20" WITH HINGED DOOR AND LATCH.
3. PROGRAM B.M.S. SYSTEM TIME SCHEDULE PER OWNER DIRECTION.
4. LIGHTING SHALL BE PHOTO-CELL ON AND B.M.S. CONTROL OFF OR AS DIRECTED BY OWNER.



PHOTOCONTROL CELL MOUNTING DETAIL
NO SCALE

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E7.2

July 11th, 2024

Troy School District 2022 Bond
Bid Package 3B: New Smith Middle School

Pre-Bid Meeting Agenda

I. Introductions

A) Barton Malow Builders:
- Shawn Mow – Senior Superintendent
- Josh Eisenman – Project Manager
- Adam Lewis – Project Engineer

B) Troy Schools District:
- Michelle Kerns – Owners Representative
- Rob Carson – Director of Operations

C) TMP Architecture, Inc
- John Waldrop – Project Manager
- Franco Antonnicola - Field Architect

II. Project Overview

A) Summary of Bid Package Work Scope:
- New 125,000 Sqft Middle School.
- Accompanying sitework and new access drives off Livernois Rd

B) The Contracts for this project are held between Troy School District and the Contractor. Barton Malow Builders is the Construction Manager acting as an agent to The Troy School District

C) Construction Milestone Schedule is as follows as well as located in section 00230 of the Project Manual. The intent is to perform all work as expeditiously as possible. School is intended to open Fall of 2026. Owner turnover planed for early Summer of 2026

D) The project will utilize Autodesk Build as the document processing software. Please review the project work scopes for the cost information and details.

E) This project will use Oracle Textura Payment Manager. Cost and other information can be found in section 01 2000 Price and Payment Procedures of the Project Manual.

F) Site Walk
- Contractors are encouraged to walk the sites before submitting a bid. Barton Malow Builders must be notified of your site visit at least 4 hours before arriving. Sign in the office before visiting an area.

Preliminary Schedule

MILESTONE ACTIVITY	SCHEDULED START	SCHEDULED COMPLETION
Early LOI		August 1st, 2024
Early Submittals	August 1st, 2024	August 15th, 2024
Contracts Awarded		August 20th, 2024
Submittals	August 21st, 2024	September 12th, 2024
Construction	September 1st, 2024	June 15th, 2026
Project Substantial Completion		June 15th, 2026
Punch List	June 15th, 2026	July 15th, 2026

Bidder Requirements

A) Bid Due Date and Requirements
- Bids are due on **July 23rd, 2024 (07/23/2024) by 2:00 pm EST** by online submission through Building Connected. Bid opening will be held virtually at 2:30 pm on July 23rd, 2024. A link to the livestream can be found in the information section in Building Connected. Earthwork, Landscaping, Paving, and Structured Cabling will be Due on July 30th, 2024.
- **Any bid that does not include a completed, signed, and notarized Familial Relationship Disclosure Form or Iran Economic Sanction Form (located in the Project Manual) will not be accepted.**

B) Bonding Requirements
- The contractor is required to provide a 5% bid security with their bid. **Any bid that does not include a bid security will not be accepted.**
- After award of contract, the contractor will be required to provide Performance & Payment Bonds.
- The bonding company supplying the bond must be based in the United States and licensed to do business in the State of Michigan with a rating of A-7 or higher.

C) Addendum Status
- Addendum No. 1 was sent out on Tuesday July 9th, 2023.
- Addendum No. 2 coming early next week.
  - Includes RFI Responses, small updates to the drawings, and some scope reassignments.

- **Safety:**

A) Each contractor is required to provide a personal fall arrest system for workers above 6 feet (above 24 feet on ladder). This includes all work on the roof. Provide harness, lanyard, and tie-off points per MIOSHA standards. The 6-foot tie-off rule is a Barton Malow standard and will be enforced. All workers on fully planked, and guard rail scaffolding will not be required to wear a harness.

B) Ear/Eye protection will be required as it applies to the work being performed.
C) Each contractor working within an aerial lift must be certified to drive the piece of equipment onsite. Lift cards will be required.
D) Each contactor is required to have one worker certified in CPR/first aid onsite at all times.
E) Contractors, as well as employees must be Certified Lead Renovators as required by the EPA effective April 22, 2010.
F) Barton Malow has a zero-tolerance policy regarding safety. Any workers found conducting work in an unsafe manner will be sent home.
G) Each awarded contractor will be responsible for providing Barton Malow (3) safety binders with specific safety documents enclosed.
H) Each contractor that builds a scaffold must have a certified competent scaffold builder reviewing the scaffold erection. In addition, a competent person is required to check the scaffold daily for any changes in the scaffold condition. Scaffold certification cards will be required. Include all costs in base bid.

III. Questions & Comments

- All contractors are to include all costs to provide 100% fall protection per Barton Malow's 6-foot fall rule. The 6-foot fall rule states: all contractors working at or above 6 feet must provide and use a fall arrest system with tie off points. However, using a guard rail system with complete top, mid, and toe rails/boards is acceptable in compliance with the MIOSHA standards.
- All contractors shall include all costs to install all new work within occupied spaces during non-instructional times related to the work occurring during the school year.
- The end of the day for all contractors shall be 11:00 pm Mon-Fri.
- Submit RFIs to Barton Malow Builders through BuildingConnected for a response.
- Pay close attention to plans and specifications.
- It is encouraged for all contractors to qualify their bid if there are any items that are unclear.
- This project does not fall under the Davis Bacon Prevailing Wage Law or Michigan prevailing wage.
- The bidder's list is available upon request to any subcontractors. Please contact Barton Malow for details.
- Please note: MIOSHA inspections have recently been full complete 3-to-4-day inspections. All contractors are to always follow all MIOSHA and BMC standards. Failure to abide by the standards will not be tolerated.

Respectfully Submitted,
BARTON MALOW BUILDERS
Nolan Gerds – Project Engineer

Barton Malow

MEETING SIGN-IN SHEET

DATE: 07/11/2024
TIME: 2:00PM
LOCATION: SMITH MIDDLE SCHOOL – 5835 DONALDSON DR, TROY, MI, 48085

PROJECT: BP#3B TROY SCHOOL DISTRICT
NEW SMITH MIDDLE SCHOOL
SUBJECT: PRE-BID MEETING

ATTENDEES (Please print legibly)	COMPANY	CATEGORY BIDDING	TELEPHONE	E-MAIL ADDRESS
Josh Eisenman	Barton Malow Builders		586-651-2658	josh.eisenman@bartonmalow.cor
Shawn Mow	Barton Malow Builders		810-560-7159	shawn.mow@bartonmalow.com
Adam Lewis	Barton Malow Builders		248-953-5682	adam.lewis@bartonmalow.com
Scott Albaugh	Albaugh Masonry	Masonry	248-762-1711	sjralbaugh@albaughmasonry.com
Jim Burnard	Albaugh Masonry	Masonry	248 762-5924	jburnard@albaughmasonry.com
Paul Bassett	BB Glass	Glass/Glazing	248-852-2323	Pbassett@bbconstruct.com
MATT HEAROLD	BB GLASS	GLASS/GLAZING	248-852-2323	mhearold@bbconstruct.com
Alex Brewer	Metro Electric	electrical	586-752-2622	abrewer@metroelect.com
DAVE DELLER	CHRISTMAN CONSTRUCTORS	EARTHWORK	517.599.5571	ddeller@christmanconstructors.com
JD Hocking	Bumler Mechanical	Mechanical	810-343-2499	jd.hocking@bumlermech.com
Jim Budzeak	Western Mechanical	PIB/mech	586-790-6900	JBudzeak@westernmech.com
Brendon Budzeak	western	PIB/mech	586-612-9007	bbudzeak
Matt Alexander	F&P Painting	Paint	810-602-0167	M66ALEX@yahoo.com

Barton Malow

7-11-24

MEETING SIGN-IN SHEET SMITH 2PM

ATTENDEES (Please print legibly)	COMPANY	CATEGORY BIDDING	TELEPHONE	E-MAIL ADDRESS
Pete Kalas	F&P Remodeling	Tile/Carpentry/Demo	810-602-0162	[illegible]@yahoo
ROB WASHINGTON	3LK	Carpentry	313.971-3960	rwashington@3lkconstruction.com
Tyler Gozdor	Interior Image	Flooring	248-840-7662	Tyler@Interior-Image.com
TODD UNDERHILL	INNOVATED ENERGY CONTROLS	ELECTRICAL	(810) 429-2010	TUNDERHILL@IECCOMPANY.com
Subhash Pappagari	Danboise Mechanical	Plumbing	248-699-7860	spappagari@danboisemechanical.com
Colin McLean	Clarks	Carpentry	248-312-9472	cmclean@clarksllc.com
David Talbert	CCS	Carpentry	586-899-8547	Dtalbert@ccs[illegible].com
JEFF GARRISON	ELITE MECH. SERV.	FIRE SUPPR.	248-216-8524	jeffg@elitefire.com